RULES AND REGULATIONS

OF THE

MEDINA COUNTY

DEPARTMENT OF

SANITARY ENGINEERING

By The Board of County Commissioners
Medina County, Ohio

Adam Friedrick
Patricia Geissman
Stephen Hambley

Originally Adopted by Resolution No. 79-201
Revised by Resolution No. 07-874
Revised by Resolution No. 10-1579
Revised by Resolution No. 10-1650
Revised by Resolution No. 12-0865
Revised by Resolution No. 13-

Copy No. _____
Date of Issue_____

TABLE OF CONTENTS

CHAPTER AND SECTION **PAGE**

CHAPTER AND SECTION **PAGE**

CHAPTER ONE
INTRODUCTION AND DEFINITIONS

Section 1.1: Introduction

The official title of this publication is **Rules and Regulations of the Medina County Sanitary Engineering Department**, however, **MCSE Rules and Regulations**, **Rules and Regulations,** or simply **Regulations** may be used as short titles.

Each copy of the **Rules and Regulations** shall be numbered and recorded to insure that revisions or supplemental data may be distributed to purchasers of record.

Rules and Regulations

These Rules and Regulations shall apply to the construction, re-construction, repair, removal, maintenance, and the administration of sewerage and water systems for which the Medina County Sanitary Engineer is responsible.

Section 1.2: Definitions

Unless the context specifically states otherwise. The meaning of terms used in these Regulations shall be as follows:

ABS - Acrylonitrile Butadiene Styrene

ANSI - American National Standards Institute

APHA - American Public Health Association

ASTM - American Society for Testing and Materials

Average Daily Flow (ADF) - The total quantity of liquid tributary to a point divided by the number of days of flow measured.

AWWA - American Water Works Association

Backfill - The earth or other material used to fill a trench or excavation from the top of the 'bedding' to sub-grade elevation.

Backfill Material - The earth or other specified material used for backfill.

Backflow Prevention - A device for a water supply pipe to prevent the backflow of water from a residential, commercial or industrial building into the Public Water Distribution System. (Refer to Section 3.14 for other definitions specific to Backflow Prevention.)

Basement - That portion of a building which is below the first floor and is partly or wholly underground.

Bedding - The earth or other specified material on which a pipe or conduit is supported.

BOD (Biochemical Oxygen Demand) - Shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20 degrees c., expressed in milligrams per liter.

Building - a structure designed, built or occupied as a shelter or roofed enclosure for persons, animals or property, and when separated by a firewall, each such separated portion of such structure shall be deemed a separate building.

Building Unit - a space within a building having common or adjoining walls and designed so that every dwelling unit has a private outside entrance at ground level.

Building Sewer - The pipe carrying wastewater from a building to a common sewer beginning thirty inches (30") outside the exterior face of the building wall.

Building Storm Drain - The pipe carrying 'clean water' (footer drains and down spouts) from a building to a common storm sewer or building storm drainage system, beginning thirty inches (30") outside the exterior face of the building wall.

Building Storm Drainage System - The system of pipes and appurtenances specifically designed and constructed to receive the building storm drains.

Collector Sewer - A sewer which receives flow from two (2) or more building sewers and conveys the wastewater to other collector sewers or an interceptor sewer.

Combined Sewer - Shall mean a sewer intended to receive and convey both storm water and wastewater.

Constituents - The combination of particles or conditions which exist in the industrial wastes.

Cooling Water - Shall mean the water discharged from a condensation, air conditioning, cooling, refrigeration or other system, but free from odor or oil and containing no polluting substances with would produce BOD or non-filterable residue each in excess of six (6) milligrams per liter over the concentration of nonfilterable residue in water supplied by the potable water system.

Compatible Pollutants - This term shall include biochemical oxygen demand (BOD), total suspended solids (TSS), pH, and fecal coliform bacteria.

Cross Connection - (1) A physical connection through which a supply of potable water could be contaminated or polluted; (2) A connection between a supervised potable water supply and one of unknown quality.

Curb box valve - A valve with an enclosure, normally located in the public right-of-way, for turning water service on and off.

Drop Manhole - A manhole installed in a sewer where the elevation of the incoming sewer considerably exceeds that of the outgoing sewer; a vertical waterway inside the manhole is provided to divert the wastewater from the upper to the lower level so that it does not fall freely into the manhole except at peak rate of flow.

Dwelling - any building including house trailers or mobile homes which is wholly or partly used or intended to be used for living or sleeping by one or more human occupants.

Dwelling Unit - a space within a building, comprised of living, dining, sleeping room or rooms, storage closets, as well as space and equipment for cooking, bathing, and toilet facilities all used by only one family.

Energy Gradient - The elevation of the hydraulic grade line plus the velocity head of the flowing wastewater.

Equivalent Residential Unit (ERU) - The volume of wastewater considered to be representative of discharge from a single family home.

Exfiltration - The quantity of wastewater which leaks to the surrounding ground through unintentional openings in a sewer. Also, the process whereby this leaking occurs.

Family - one or more persons occupying a dwelling unit and living as a single housekeeping unit, whether or not related to each by birth or marriage, as distinguished from a group occupying a boarding house, lodging house, hotel, tourist dwelling, sorority or fraternity. A family may also include domestic servants and gratuitous guests.

Fats, Oils & Grease (FOG) - Typical Wastewater Constituents of animal fats, vegetable oils or petroleum products, that in excessive concentrations, solidify and create blockages in sanitary sewers.

Flammable - Materials defined by existing fire regulations.

Garbage - Shall mean solid wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage, and sale of produce.

House Water Connection - The individual service line from the public water main to thirty inches (30") outside the outer face of the building wall. This line is terminated at or near the property line with a curb box. Note that the MCWS operation and maintenance responsibility ends at the curb stop.

Hydraulic Grade Line - The surface elevation of the flowing wastewater.

Incompatible pollutants - Any pollutant that is not included as a compatible pollutant.

Industrial Wastes - Shall mean the liquid wastes from industrial manufacturing processes, trade or business as distinct from sanitary sewerage. (See Chapter 6, Section 6.13: Definitions.)

Infiltration - Ground water that enters into the Sanitary Sewer System through cracks in pipes, loose joints, manhole deficiencies or under manhole lids. 'Sewer design infiltration allowances' include additional flows which the designer anticipates in sizing the sewer system and treatment facilities.

Infiltration / inflow (I & I) - The combination of infiltration and inflow water in sewer lines.

Inflow - The discharge of any kinds of clean water into sewer lines from such sources as roof drains, basement, and yard-area drains, foundation drains, drains from springs, swampy areas, etc. It does not include 'infiltration' and is distinguished from such wastewater discharges, as previously defined.

Interceptor Sewer - A sewer which receives the flow from the collector sewers and conveys the wastewater to treatment facilities.

Joints - The means of connecting sectional lengths of sewer pipe into a continuous sewer line, using various types of jointing material.

MCSE (Medina County Sanitary Engineer) - Medina County Sanitary Engineer shall mean the office of county government and employees thereof, charged with the operation, maintenance and administration of the Medina County potable water systems and the Medina County Sanitary Sewerage System.

MCSS - Medina County Sanitary Sewer System

MCSWCD - Medina County Soil and Water Conservation District

MCWS - Medina County Water System

Main Sewer - In larger systems, the principal sewer to which collector sewers and submains are tributary, also called trunk sewer. In small systems, a sewer to which one (1) or more collector sewers are tributary.

Manhole - An opening in a sewer provided for the purpose of permitting a man access to the sewerage system for maintenance and\or inspection.

Manning Roughness Coefficient - The roughness coefficient in the manning formula for determination of the discharge coefficient in the chezy formula.

Multi - Family - Consisting of two or more families as defined within these Rules and Regulations.

Natural Outlet - Shall mean an outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.

Normal Sewage - Shall mean domestic sewage with the following characteristics: BOD at 220 (ppm) and total suspended solids (TSS) at 220 (ppm).

Non-Filterable Residue or Suspended Solids - Solids that either float on the surface, or are in suspension in water, sewerage, or other liquids which are removable by laboratory filtering.

NPDES Permit - The National Pollutant Discharge Elimination System Permit means a permit issued by the State of Ohio under the direction of the United States Environmental Protection Agency for a discharge to waters of the State which includes authorized pollutant discharge levels that are in compliance with applicable water quality standards.

Ohio Environmental Protection Agency (Ohio EPA or OEPA) - An agency with administrative, regulatory and quasi-judicial powers created by the Ohio Environmental Protection Act, passed by the Ohio General Assembly in 1972.

ODOT - Ohio Department of Transportation

Overflow - A pipe line or conduit device, together with an outlet pipe, which provides for the discharge of portions of sewer flows into receiving waters or other points of disposal, after flow volumes exceed the carrying capacity of sewer lines, pumping stations and/or treatment facilities.

Peak - The maximum flow volume that occurs over a relatively short period of time, typically measured per hour or per day. Also called peak demand, peak load.

pH - Shall mean the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

POTW - Publicly Owned Treatment Works

PPM (Parts Per Million) - Milligrams per liter, measurement of constituents per unit volume.

Properly Shredded Garbage - Shall mean the wastes from the preparation, cooking, and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one- half inch (½") (1.27 centimeters) in any dimension.

Pretreatment - The treatment of industrial wastewater at its source before discharge to the public sanitary sewer system. (See chapter 6.)

Private Development - Any subdivision development not directly accessing public right-of-way.

Public Sewer - Shall mean a sewer serving two (2) or more buildings constructed in or on public lands, public roadways or in easements controlled by a public authority.

PVC - Polyvinyl Chloride

Sanitary Sewage - See Sanitary Wastewater

Sanitary Wastewater -

A) Domestic wastewater with storm and surface water excluded.
B) Wastewater discharging from the sanitary conveniences of dwellings (including apartment houses and hotels), office building, industrial plants, or institutions.

Service Connection - Are the individual utility (water and sewer) lines from thirty inches (30") outside the exterior wall of the building to the main lines in the public right- of-way or easements. The terms sewer connection, building sewer, service lateral and water connections, are at times used instead of service connection.

Sewage - Shall mean a combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface and storm waters as may be present.

Sewer Tap - The installation of a wye on an existing sanitary sewer.

Significant Industrial User (SIU) - (Also see Chapter 6, Section 6:13: Definitions) A Significant User is one that:

A Has a flow of 25,000 gallons or more per average work day;
B Has a flow greater than or equal to five percent (5%) of the design flow or organic load of the municipal system receiving the waste;
C Is subject to Federal Categorical Pretreatment Standards
D Is found by the permit issuance authority to have the potential to cause a significant impact on the treatment works that would cause a pass through or interference at the Waste Water Treatment Plant or that would have detrimental effect upon the quality of effluent from that treatment works;
E The industry's discharge to the Waste Water Treatment Plant has caused or has the potential to cause any violations of the terms and conditions of any permit the Waste Water Treatment Plany may be operating under, including plan approvals; or
F The Ohio EPA or County has determined it would be consistent under Chapter 6111 of the Ohio Revised Code to require an indirect discharge permit for the industry.

Single Family - Consisting of only one family as defined within these Rules and Regulations.

Slug - Shall mean any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds, for any period of duration more than five (5) times the average twenty-four (24) hour constituent concentration or flow volume experienced during normal operation or that otherwise causes an overloading or operational problem in the sanitary sewer system or wastewater treatment plant.

Storm Drain or Storm Sewer - Shall mean a pipe or conduit which carries storm and surface waters and drainage but excludes sewage and industrial wastes.

Tap In Fee (Capacity Fee) - Local sewer or water main capacity fee made payable to the Medina County Sanitary Engineer at such time individual sewer and water connections are approved through the MCSE permit process and constructed per these Rules and Regulations. Tap in fees are set by resolution of the Medina County Board of Commissioners and calculated based on the Sanitary Engineers User Charge System.

Total Suspended Solids (TSS) - Shall mean solids that either float on the surface of, or are in suspension in water, sewerage, or other liquids, and which are removable by laboratory filtering, expressed in milligrams per liter.

User Charge System - A written document approved by the Ohio EPA, which outlines a system of collecting fees, equitable to all system customers, that will adequately finance system capital improvements, operation and maintenance costs.

Unit - Separately owned or occupied residential, commercial or industrial space as residence or place of business whether under common roof or separate structures on a property for evaluation of separate sewer and water service connections.

Watercourse - Shall mean a channel in which a flow of water occurs, either continuously or intermittently.

Water Main - Water mains shall be any conduit by which potable water is distributed to hydrants or consumer services.

Water Pollution Control Plant - shall mean any arrangement of devices and structures used for treating domestic sewage and/or industrial waste.

Waters of the State - Shall mean all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, sewage and underground, natural or artificial waters, which are situated wholly or partly within, or border upon, this state, or are within its jurisdiction. (Ohio Revised Code 6111.01-H)

Note: Additional definitions related to pretreatment standards contained in Chapter 6 are located in Section 6.13.

Note: Additional definitions related to Backflow Prevention contained in Chapter 3 are located in Section 3.14.

CHAPTER TWO
USE OF PUBLIC SEWERS

Section 2.1: Prohibition of Storm Water

No person, firm, or corporation shall discharge, or cause to be discharged, any storm water, ground water, roof run-off, sub-surface drainage (including footer drains), cooling water, or unpolluted industrial process water, to any Sanitary Sewer.

Section 2.2: Protection of Facilities During Construction

No person, firm, or corporation shall discharge into the building sanitary sewer any rain or ground water which collects in basement or foundation excavations prior to the completion of the building.

If the building sanitary sewer is complete before the plumbing can be connected thereto, the Builder or sewer Contractor shall keep the end of the building sanitary sewer tightly closed with a plumber's plug or other gasketed, watertight plug. Violation of this section shall be deemed sufficient cause for revocation of the sewer contractor's registration, in addition to any fines or penalties imposed.

Section 2.3: Prohibition of Various Substances

No person, firm, or corporation shall discharge or permit the discharge of any waters or wastes specifically prohibited under Section 6.2 General Discharge Prohibitions of these Rules and Regulations.

Section 2.4: Maintenance of Sewers

The County will perform all maintenance of the sewer main. The County expressly disclaims any responsibility for damages caused by or arising from any stoppage of the main sewer unless reasonable notification of such stoppage has been given by the affected property owners and the County fails to make an effort to remove the cause of such stoppage.

The home owner will be held responsible for the maintenance of the service connection between the building plumbing and the sewer main. For slow drains and/or sanitary sewer backups found to be isolated to the home's service connection, it is the homeowner's responsibility to have the full length of the sanitary lateral snaked and/or root cut from the house plumbing to the MCSE sanitary sewer main so that any solids, grease, and/or roots affecting the connection are purged to the sewer main.

Should the County become aware that repairs to a service connection, on the property owners portion of the connection, be necessary, the Sanitary Engineer will notify the homeowner of the needed repairs by certified letter. The property owner will be given sixty (60) days to repair the connection. Additional time may be granted to the property owner if so approved by the Sanitary

Engineer. Should the property owner fail to make the repairs within the specified time frame, the County may choose to physically disconnect the offending connection from the main sewer. In such an event the property owner, as well as the County Health Department shall be given notification thirty (30) days in advance of the termination of service. If in the opinion of the Sanitary Engineer, the offending connection poses an imminent danger to public health and/or safety, the connection shall be terminated immediately per Section 6.9 of these Rules and Regulations.

The property owner may enter into an agreement with the Sanitary Engineer's Office for the Sanitary Engineer's crews to repair the connection. Such repair would be billed to the property owner on a time and materials basis. The property owner must provide the Sanitary Engineer with a written statement granting access to the County onto the owner's private property.

For homeowners that internally televise the service connection to investigate structural integrity, a copy of the videotape or DVD shall be provided to MCSE before consideration is to be given for potential dig repairs within the public right-of-way to be completed by MCSE personnel.

Section 2.5: Sewer Maintenance Charge

Any person, firm, or corporation whose premises are served by a connection of the sewerage system shall pay a sewer maintenance charge as part of the Sanitary Engineers User Charge System and as fixed by the County Commissioners. When such charges are not paid, they shall be certified, along with appropriate penalties, to the County Auditor and placed on the real estate property duplicate against the property served by such connection. Such charges shall be a lien on said property and collected in the same manner as other taxes.

Before a connection is made to the sanitary sewerage system from a new source, a study shall be made by the Sanitary Engineer to determine if capacity is available in all downstream sewers. This evaluation shall include capacity of any and all lift stations, and force mains downstream from the new connection. If the Sanitary Engineer determines that available sewer facilities are not capable of servicing the new connection, the Sanitary Engineer shall prohibit the new connection by not issuing a sewer permit.

Section 2.6: Tampering

No person shall tamper with, modify, obstruct, or damage any sewer line or treatment facilities or any apparatus or accessory connected thereto, or make any connection into such sewer or treatment facility without the permission of the Sanitary Engineer.

Section 2.7: Repair or Replacement of Service Connections

Before performing repairs or replacement of the sanitary service connection, homeowners are responsible to contact MCSE for a list of contractors registered with MCSE to perform that type of work, secure the appropriate permit(s) from MCSE and other jurisdictional agencies, and schedule MCSE inspection of the work in accordance with these Rules and Regulations.

CHAPTER THREE
CONSTRUCTION OF SEWERAGE
AND
WATER SUPPLY IMPROVEMENTS

Section 3.1: Approved Construction Plans

Construction of any sanitary sewerage or water supply improvements/additions/modifications shall not commence until the plans have been approved by the Sanitary Engineer as outlined in Chapter 7 of these Rules and Regulations. The construction shall take place in strict accordance with such approved detailed plans, specifications, shop drawing, etc., which shall be kept on the job site at all times.

For Developments that are delayed, broken into additional phases, modified and/or sold to a different owner, MCSE will require updates to plans and submittals for reapproval to be sure the development remains consistent with MCSE Rules and Regulations that may have been modified in the interim. All developments, regardless of stage of build out, must comply with current MCSE Rules and Regulations.

Existing record information provided by MCSE is not guaranteed by MCSE. Developers and Engineers are required to do their own surveying and engineering design.

Section 3.2: Cut-Sheet Approval

Prior to initiating construction, the Owner's engineer shall stake the improvements according to the approved plans and shall submit to the Sanitary Engineer cut-sheets on approved forms.

Cut-sheets must be submitted to the Sanitary Engineer a minimum of twenty-four (24) hours before their intended use by the Contractor. The Sanitary Engineer will stamp cut sheets approved when acceptable, and make them available to the Design Engineer, Inspector and Contractor.

Failure to have approved cut-sheets at the construction site is sufficient cause for the Sanitary Engineer to stop construction.

Section 3.3: Plan Revisions

If any change or modification is deemed necessary or desirable by the public officials or person, firm or corporation having charge of the work, previous to or during the construction, the Sanitary Engineer shall be immediately informed of the proposed change or modification. If required by the Sanitary Engineer, the change shall be incorporated in revised plans, which shall be submitted for approval in the same manner as required for original plans.

Section 3.4: Road Opening Permit

Before commencing work requiring excavation in any street, highway, or road right-of-way, the firm or person desiring to make such excavation shall provide to the Sanitary Engineer evidence that the required permit for such work has been obtained from the proper authority, and must agree to comply with all requirements of the authority issuing such 'Road Opening Permit'. If no 'Road Opening Permit' is required by the authority having jurisdiction over a particular street or highway, a written statement to that effect must be obtained from the authority and presented to the Sanitary Engineer. Refer to Sections 4.11 and 5.8 for more specific requirements for sanitary and water service, respectively. If conflicts exist between MCSE details, the road authority's requirements will govern.

Section 3.5: Construction Standards and Specifications Conformity

The material and workmanship must conform in all respects to the requirements of the Standard Specifications and Construction Standards of the County Sanitary Engineering Department, latest edition (See Chapter 8).

Section 3.6: Preconstruction Conference

Before commencing work, the Owner/Developer shall request a preconstruction conference with the Sanitary Engineer. The meeting will be held at the Sanitary Engineers Office with the Owner/Developer, Contractor, Design Engineer and any other utilities to discuss the project requirements.

Section 3.7: Construction Inspection

Sewer and water improvement, shall be constructed under the direct supervision/inspection of the Sanitary Engineer or his duly authorized representative. All reasonable expenses incurred in connection with such supervision/inspection shall be paid to the Sanitary Engineer by the Owner.

Section 3.8: Scheduling Inspection

Construction work in connection with sewer and water improvements shall not be executed except in the presence of an inspector authorized by the Sanitary Engineer. Construction may begin five (5) working days after written notice of intention to begin work is given to the Sanitary Engineer who shall make arrangements for placement of inspectors on the job. Notification to the Sanitary Engineer at the preconstruction conference will be accepted in lieu of written notice.

Section 3.9: Stop Work Order

If the Sanitary Engineer has proof or evidence that any such construction work is being carried out improperly, he may order all work stopped and the Owner and/or his Contractor shall thereupon stop and shall not resume until authorized in writing by the Sanitary Engineer.

Section 3.10: Sewer Line Minimum Requirements

Any sanitary sewer installed in a public right-of-way or easement for the purpose of receiving wastewater from two (2) or more parcels, shall be considered a public sewer. All sanitary sewers shall be constructed in strict accordance with the approved construction plans and these Rules and Regulations by a competent Contractor registered by the Sanitary Engineers as required under Section 4.1 of the Rules and Regulations.

Sanitary sewer installed on private property for collecting wastewater from an individual customer shall be classified as a private sewer governed by Chapter 3 if 8" diameter or larger; or as a sewer service connection governed by Chapter 4 of these Rules and Regulations if less than 8" diameter.
As a matter of convenience, the following general minimum requirements pertaining to sanitary sewer construction are provided:

A. Materials

The following pipe materials, as specified in Chapter 8 of these Regulations, are acceptable for sanitary sewers and building storm drainage systems.

1. Pipe fifteen inches (15") in diameter or smaller; may be constructed of polyvinyl chloride (PVC).

2. Eighteen inches (18") in diameter and larger; reinforced/lined concrete pipe, solid wall PVC ASTM F679 (18" thru 27") and profile wall PVC pipe as approved by MCSE.

Other materials may be considered on a case-by-case basis upon submittal of data substantiating the strength, durability, and stability of the proposed product.

All jointing material shall be of a premium type as specified in Chapter 8 of these Regulations.

B. Minimum Pipe Size

The minimum size of pipe used for sanitary sewer mains shall be eight inches (8") in diameter. Sewer mains shall be sized to accommodate the peak flow generated by the service district.

C. System Design

1. All sanitary sewers shall be installed in public right-of-ways or public easements. The width of public easements shall be a minimum of twenty feet (20') in width or twice the depth of the sewer. For sewers constructed within private developments, for the homes constructed on the same side of the private street as the sanitary sewer main, there shall be a minimum setback of fifteen feet (15') to the homes foundation from the sewer main.

2. Manholes are required at each end, at changes in pipe direction, at changes in pipe diameter, and at points in between as per MCSE spacing requirements. Inside drop connections are required if elevation difference between inlet and outlet pipes is ≥24". Outside drop connections are prohibited.

3. Where water courses are crossed, installation shall meet the Standard Specification for Sanitary Sewerage. (See Section 8.2.)

4. Sanitary sewers shall not normally be installed under pavements. No structure, buildings, ponds or other utilities of any kind shall be constructed on or placed within sewer utility easements. Access must be provided for continued operation and maintenance of the sanitary sewer.

5. A permit for construction within a State Highway right-of-way must be obtained from the Ohio Department of Transportation. A permit for construction within a County or Township right-of-way must be obtained by the County Engineer or appropriate road authority.

6. Crossing of County Roads and Township Roads will be bored or open cut as required by the appropriate Authority.

7. Steel casing pipe shall be used wherever required by the authority having pavement responsibility or as shown on the approved construction plans. Installation shall meet Standard Specifications and Construction Standards.

8. Manhole frames and covers shall be as shown on the MCSE Standard Details. Unless directed otherwise by the Sanitary Engineer, manholes located within public easements shall have bolt down lids. Manholes located within areas prone to flooding shall have gasketed, water-tight, bolt-down lids. Manholes on private sewers shall be identified by a lid stamped "Sanitary Sewer", without the Medina County Sanitary Engineer's stamp.

9. Rim elevations for manholes shall be set flush with grade in pavement, sidewalks, and highly visible lawn and easement areas. Rim elevations for manholes located in rural easements, or heavily wooded areas shall be six inches (6") to twenty-four inches (24") above grade (typ.)

10. Sanitary service laterals are not permitted to connect directly to the sanitary manholes unless approved so by the Sanitary Engineer. In general, a maximum of four (4) service laterals may connect to the sewer system's upper dead end manhole, only if the sewer cannot be extended in the future, and only if approved by the Sanitary Engineer.

11. Drop connections to manholes shall be inside drop style, within a minimum sixty inch (60") diameter manhole, unless approved otherwise.

"Knock-outs" or stubs are not typically permitted in manholes for future sewer extension. At the time the sewer extension occurs, the manhole shall be core drilled.

12. Storm and sanitary sewers shall be spaced a minimum of eight feet (8') apart unless the storm sewer has a premium jointing material meeting the same specifications as the sanitary sewer which reduces the minimum separation to four feet (4').

13. The Contractor shall be required to maintain and by-pass, if necessary, the flow in all existing live sanitary and storm sewers during construction. The proposed method shall be submitted and be approved by the Sanitary Engineer prior to the initiation of construction.

14. All sewers shall be laid and maintained to the required line and grade with wye branches, tee branches and slants installed and with all joints centered and all spigots driven 'home'. Line and grade shall be given to the Contractor by the Owner's engineer. All stakes, once set by the consulting engineer, shall be protected by the Contractor.

    If a laser beam method of setting line and grade is used, grade bars will not be necessary. The Contractor shall furnish all labor and material to establish line and grade of the generated laser beam from the line and grade furnished by the Owner's engineer.

15. Sewer service connections, see Chapter 4.

16. All sanitary sewers are to have a minimum of four feet (4'0") cover above the crown of the pipe.

17. On manholes built over existing sanitary sewers, hydraulic cement shall be placed around the inside sanitary sewer to prevent infiltration and to guide sewage flows into the pipe flow line. Manhole inverts shall be modified to suit new flow conditions.

D. Extension of Sewer Mains

1. When a sanitary sewer is to be extended from an existing Medina County sewer, assuming all fees and charges have been paid and all approvals and permits have been obtained, the Contractor shall furnish all materials as may be required for the core-drilled manhole connection and extension. Refer to Standard Specifications (Chapter 8, Section 8.2) for additional information.

2. When extending the sanitary sewer from an existing manhole, the Contractor shall core drill and utilize a link seal, or KOR-N-TEE boot for the new sewer penetration through the manhole wall. Any existing manhole steps which interfere with the proposed sewer extension shall be removed and relocated, or replaced within the manhole. The invert, or flow channel of the manhole, shall be reconfigured, or replaced with new concrete to properly direct all influent sewers to the effluent pipe. Influent sewers are not permitted to discharge on the invert shelf, but shall be formed to join the main flow with as little turbulence as possible.

Section 3.11: Water Line Minimum Requirements

Any water line installed in a public right-of-way or easement for the purpose of distributing water to two (2) or more customers, shall be considered a public water main. Water mains shall be constructed in strict accordance with approved plans and these Rules and Regulations by a competent Contractor registered with the Sanitary Engineers as required under Section 5.1 of the Rules and Regulations.

Water lines installed on private property for delivering water to individual customers or for private fire protection shall be classified as water service connections and shall be governed by Chapter 5 of these Regulations.

The following general minimum requirements pertain to water line design and construction for any water line connecting to a water main owned and/or operated by the County of Medina:

A. Materials

The following materials as specified in Chapter 8 of these Regulations, are acceptable for water mains per the latest AWWA standards:

1. Ductile Iron, cement lined - AWWA C151
2. PVC - AWWA C900
3. PVC - AWWA C909
4. HDPE - AWWA C906

The type of joint and joint materials shall be as specified in the Standard Specifications for the pipe being used.

B Minimum Pipe Size

The minimum size of pipe used for water mains shall be eight inches (8") in diameter. No hydrant shall be connected to any main less than eight inches (8") in diameter. In addition, supply mains not intended to carry fire flows shall not be connected to fire hydrants. Dead ends shall be minimized by looping of mains. However, water mains must be looped when the number of single family units in a subdivision exceeds 13.

C. System Design

1. All water mains shall be installed in public right-of-ways or public easements. The width of public easement shall be twenty foot (20') minimum.

2. Valve layouts are required whenever possible and should be shown on design details.

3. Where water courses are crossed, installation shall meet the Standard Specification and Construction Standards (See Section 8.3).

4. Water mains shall not normally be installed under pavements. No structure, buildings, ponds or other utilities of any kind shall be constructed or placed within water utility easements. Future access must always be a major consideration in locating a water main.

5. A permit for construction within a State Highway right-of-way must be obtained from the Ohio Department of Transportation. A permit for construction within a County or Township right-of-way must be obtained from the County Engineer or appropriate road authority.

6. Crossing of County Roads and Township Roads will be bored or open-cut as required by the appropriate authority.

7. Steel casing pipe shall be used wherever required by the authority having pavement responsibility or as shown on the approved construction plans. Installation shall meet Standard Specifications and Construction Standards.

8. Line valves must be installed on all branches of an intersection to maximize isolation and to minimize the service outage due to repair or maintenance work.

9. Where dead ends occur, they shall be provided with a fire hydrant, flushing hydrant, or blow-off for flushing purposes, as directed by the Sanitary Engineer.

10. Direct connections of a flushing device to a sewer are strictly prohibited.

11. Hydrant branches shall be installed perpendicular to and away from the pavement. (See Section 8.3)

D. Extension of Mains

1. When a water main is to be extended from an existing Medina County water main, assuming all fees and charges have been paid and all approvals and permits have been obtained, the Contractor shall furnish all materials as may be required for the tap and extension. Refer to Standard Specifications (Section 8.3) for additional information regarding main extensions and installation.

2. The Contractor shall excavate to expose the existing main. The MCSE shall install tapping sleeve and valve and make the tap. The Contractor shall be responsible for all excavation, backfill, main extension from the valve and all restoration of the site.

3. The Contractor shall install the main extension under inspection by the Medina County Sanitary Engineer. All mains shall be installed with five feet (5') of cover and in accordance with the pipe manufacturers recommended installation procedures.

4. PVC and HDPE mains shall be installed with metallic tracer tape to facilitate its location by metal detectors.

5. Bellholes are required on all bell and spigot style pipe.

6. No damaged pipe shall be installed.

7. All changes in direction or size shall be thrust blocked in accordance with the appropriate detail. In lieu of thrust blocking, pipes may utilize restrained joints on both sides of the bend to a distance designed to match project soil conditions (minimum twenty feet (20') in each direction). Joint restraints shall be designed for a minimum of 150 PSI water pressure. Restrained joints relying on a mechanical connection or fitting to pipe (as opposed to fitting to fitting) will not be allowed on PVC pipe.

8. All excavation and backfill shall be completed in accordance with the proper Standard Specifications.

9. All bored crossings shall be installed in casing pipe in accordance with the appropriate standard drawings and specifications.

10. Special care shall be taken to keep dirt and other foreign material out of the line.

11. Flushing will be completed by the MCSE, with the cost of labor and materials being borne by the Owner.

12. Pressure testing shall also be completed by the County. The Contractor shall pay for all labor, testing water and material used. Mains shall be tested at 150 PSI for a minimum of one (1) hour.

13. If required, initial testing shall be followed by a leakage test of two (2) hours at 100 PSI, the allowable leakage being ten (10) gallons per inch diameter per mile per twenty four (24) hours.

14. Only employees of the MCSE Department are authorized to operate valves or hydrants on Medina County Water Systems. Contractors are not permitted to operate waterline or hydrant valves without explicit permission of MCSE.

15. Disinfection, bacterial sampling and testing shall be completed by the MCSE.

16. Charges for work performed by the MCSE include, but are not limited to, service connection installations, tapping sleeve and valve installations, flushing, pressure testing, disinfection and bacterial sampling and testing. Charges shall be as set by resolution by the Medina County Commissioners. All fixed charges and fees shall be paid prior to the execution of any work. All hourly charges will be billed on a periodic basis.

E. Separation of Water Mains and Sewers

1. Parallel installation (under normal conditions) -- water mains shall be laid at least ten feet (10') horizontally from any sanitary sewer, storm sewer, or sewer manhole. The distance shall be measured edge-to-edge of the conduits.

2. Parallel installation (unusual condition) -- when local conditions prevent a horizontal separation of ten feet (10'), a water main may be laid closer to a storm or sanitary sewer provided that sewer is constructed of waterline materials with joints that are equivalent to water main joint standards. Such sewers shall be pressure tested to assure water tightness prior to and after backfilling.

F. Crossing of Water Mains and Sewers

1. Normal conditions -- water mains crossing house sewers, storm sewer, or sanitary sewers shall be laid to provide a separation of at least eighteen inches (18") between the bottom of the water main and the top of the sewer.

2. Unusual conditions -- when local conditions prevent a vertical separation as described, the following construction shall be used:

   a. Sewers passing over or under water mains shall be constructed of materials and joints that are equivalent to water main standards of construction for a distance of ten feet (10') to each side of the waterline. Such sewers shall be pressure tested to assure water tightness prior to and after backfilling.

3. Water mains passing under sewers shall, in addition, be protected by providing:

   a. A vertical separation of at least eighteen inches (18") between the bottom of the sewer and the top of the water main.

   b. Adequate structural support for the sewers to prevent excessive deflection of joints.

   c. The length of water pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the sewer.

4. No water pipe shall pass through or come into contact with any part of a sewer or sewer manhole.

G. Valve, Air Relief, Meter and Blow-off Chambers and Vaults

1. Air and sediment accumulations may be removed through standard fire hydrant flushing or utilizing compressed air at hydrants. Pumping also may be used to dewater mains through hydrants.

2. Chambers or pits containing valves, blow-offs, air relief valves, meters or other such appurtenances shall have a twelve inch (12") diameter sump poured integral with the vault bottom. An open core to the gravel subbase is not permitted.

3. A sump pump is required to keep the vault dry. The sump pump shall discharge by gravity drain to a storm sewer or open ditch as approved by the Medina County Highway Engineer, ODOT, or other governing authority.

4. Precast concrete vaults shall be located in non-traffic areas, and meet the requirements of the current MCSE vault notes and details.

5. The open end of an air-relief pipe should be extended from a manhole or enclosing chamber to a point at least seven feet (7') above ground and provided with a screened, downward-facing elbow.

H. Hydrants

1. Hydrants in residential subdivisions and commercial areas shall be spaced to meet the minimum requirements for Ohio Insurance Services for Class 6 protection. Closer hydrant spacing is required in certain areas of Brunswick Hills Township and other areas as may be designated in the future. Hydrant spacing in other areas shall be every 900 feet or as determined by the Sanitary Engineer. Hydrants shall be of the size and type specified in the Standard Specifications (Section 8.3).

2. Hydrant drains shall drain to the ground surface or to dry wells or absorption pits provided exclusively for that purpose. The stone shall be #34 washed gravel.

3. Hydrant drains shall not be connected to or located within ten feet (10') of sanitary sewers or storm drains.

I. Surface Water Crossings

1. Surface water crossings, both over and under water, present special problems. Specific designs will be reviewed on a case-by-case basis using Ten State Standards, EPA, and AWWA recommendations as a guide.

J. Cross Connections

1. There shall be no physical connection between the water distribution system piping and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system.

2. The approval of the Sanitary Engineer shall be obtained for interconnections between potable water supplies.

3. Neither steam condensate nor cooling water from engine jackets or other heat exchange devices shall be returned to the potable water supply.

K. Water Pressure in System

1. The system shall be designed to maintain a minimum pressure of twenty pounds per square inch (20 PSI) at all points in the distribution system under all conditions of flow.

L. Disinfection of Water Mains

1. Flushing, disinfection, and bacteriological testing of all water mains shall be accomplished as specified in the Standard Specifications.

M. Cover

1. Minimum depth of cover for all distribution mains shall be five feet (5') from proposed finished grade with the maximum depth of cover to be determined on the construction plans.

Section 3.12: General Construction Minimum Requirements

A. Miscellaneous Construction Items

The miscellaneous sections of the Standard Specifications are used as minimum requirements for such things as dust control, removal of structures, tree removal, etc., as long as they do not conflict with regulations of other agencies having maintenance responsibilities for the facilities involved.

B. Existing Roadways

Construction of facilities approved by the Sanitary Engineer along or crossing an existing public roadway must be installed in accordance with the permit issued by the authority having maintenance responsibility for the roadway. If specific requirements are not imposed by the roadway authority, then the "General Provisions Applicable to All Permits" as stated on Form MR-509 Rev. 3-73* (or any form or revision date that supercede this document) of the Ohio Department of Transportation shall apply.

C. Work in Existing Roadways

All work requiring men or vehicles on the pavement or shoulders of existing roadways, shall comply with all of the requirements of The Ohio Manual of Uniform Traffic Control Devices and, where applicable, to Item 614 (maintaining traffic) of the Ohio DOT Construction and Material Specifications, latest edition.

D. Agricultural Drain Line Crossings

When installation of sewer or water lines cross an existing agricultural or other drain line, the drain line shall be reconnected on original grade using PVC pipe with fernco connectors of the same diameter as that of the existing drain line and of a length to adequately support the pipe across the excavation, but no less than five feet (5') on each side of the new trench. Fernco connectors shall be supported underneath the repair with concrete to the depth of the excavation.

E. Erosion Control

Erosion control shall be provided per Standard MCSE Construction Specifications for Water or Wastewater. In general, the following requirements apply:

1. Topsoil shall be stockpiled where possible and used to finish grading of trenches.

2. Temporary seedings and/or mulches shall be used where land will be devoid of natural or permanently seeded vegetation for more than fifteen (15) days.

3. Permanent seeding shall be made as soon as practical after any earth disturbance.

4. Standards and Specifications for erosion control items are found in the Medina County Engineers Storm Water Management and Sediment Control Rules & Regulations.

5. Sedimentation traps will be required at locations determined by the Medina County Engineer. These sedimentation traps shall conform to the Medina County Engineers Storm Water Management and Sediment Control Rules & Regulations.

Section 3.13: Connection Requirements

Connections with sewers or water mains constructed under this chapter shall be subject to all the specified requirements of Chapter 4 and 5 and other applicable sections of these Rules and Regulations.

Section 3.14: Backflow Prevention

A. General Policy

1. To protect public potable water supply from contamination or pollution by isolating within the consumer's water system contaminants or pollutants which could backflow through the service connection into the public potable water system.

2. To promote the elimination or control of existing cross-connections, actual or potential, between the public or consumer's potable water system and non-potable water systems, plumbing fixtures and sources or systems containing process fluids.

3. To provide for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of the public and consumer's potable water systems.

B. Application

This policy shall apply to all premises served by the public potable water system of the County of Medina, Ohio as managed and operated by the Medina County Sanitary Engineers Office (MCSE).

C. Policy

The MCSE shall be responsible for the protection of the public potable water system from contamination due to backflow of contaminants through the water service connection. If, in the judgement of the MCSE, an approved backflow prevention device is necessary at the water service connection(s) to any consumer's premises for the safety of the water system, the MCSE or it's authorized representative shall give notice to the consumer to install an approved backflow prevention device or devices. The consumer shall immediately install the backflow prevention at his own expense. Failure, refusal or inability on the part of the consumer to install such device or devices immediately shall constitute grounds for discontinuing water service to the premises until such devices or devices have been installed.

D. Definitions

The following definitions shall apply to the interpretation and enforcement of these Rules and Regulations for backflow prevention:

1. Air Gap Separation - The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the receptacle.

2. Approved - A backflow prevention device or method has been accepted by the MCSE and the OEPA as suitable for the proposed use.

3. Auxiliary Water Supply - Any water system on or available to the premises, other than the public water system, and includes water supplied by the system. Auxiliary water sources may include wells, lakes, streams; or process fluids; or used/recycled water. They may be polluted, contaminated, objectionable, or constitute a water source over which the supplier of water does not have control.

4. Backflow - The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable water supply from any source other than the intended source of the potable water supply.

5. Backflow Prevention Device - Any approved device, method, or type of construction intended to prevent backflow into a potable water system.

6. Consumer - The owner or person in control of any premises supplied by or in any manner connected to a public water system.

7. Consumer's Water System - Any water system, located on the consumer's premises, supplied by or in any manner connected to a public water system. A household plumbing system is considered to be a consumer's water system.

8. Contamination - An impairment of the quality of the water by pollutants, sewage, process fluid, or waste to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.

9. Cross-connection - Any arrangement whereby backflow can occur.

10. Degree of Hazard - The potential risk to health and the adverse effect upon the potable water system derived from an evaluation of that potential.

11. Director - The director of the Environmental Protection Agency or his duly authorized representative.

12. Double Check Valve Assembly - An assembly composed of two (2) independently acting check valves, including tight closing shutoff valves located at each end of the assembly, and suitable connection for testing the water-tightness of each check valve.

13. Health Hazard - Any condition, device, or practice in a water system or its operation that creates, or may create a danger to the health and well-being of users. The word "severe" as used to qualify "health hazard" represents a reasonable expectation of significant morbidity or death.

14. Interchangeable Connection - An arrangement or device that will allow alternate but not simultaneous use of two (2) sources of water.

15. Non-potable Water - Water not safe for drinking, personal, or culinary use.

16. Person - A public or private corporation, individual, partnership, or other legal entity.

17. Pollution - The presence in water of any foreign substance that tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health, but which does adversely and unreasonably affect such waters for domestic use.

18. Potable Water - Water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the Environmental Protection Agency.

19. Process Fluids - Any fluids or solution that would constitute a health, pollution or system hazard if introduced into the public or a potable water system. These include, but are not limited to:

    a. Polluted or contaminated waters;
    b. Process waters;
    c. Used waters originating from the public water system which may have deteriorated in sanitary quality;
    d. Cooling waters;
    e. Contaminated natural waters taken from wells, lakes, streams, or irrigation systems;
    f. Chemicals in solution or suspension;
    g. Oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other process, or for fire-fighting purposes.

20. Public Water System - A system which provides water for human consumption as defined in Rule 3745-81-01 of the Ohio Administrative Code.

21. Reduced Pressure Principle Backflow Prevention Device - A device containing a minimum of two (2) independently acting check valves with an automatic pressure differential relief valve located between the two (2) check valves. During normal flow and at the cessation of normal flow, the pressure between the two (2) check valves shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit must include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.

22. Service Connection - The terminal end of a service line from the public water system. If a meter is installed at the end of the service, then the service connection begins at the downstream side of the meter.

23. Supplier of Water - The owner or operator of a public water system.

24. System Hazard - A condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer's water system.

25. Pollutional Hazard - A condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water system or a potable consumer's water system.

26. Used Water - Any water supplied by a public water system to a consumer's water system after it has passed through the service connection and is no longer under the control of the public water system.

E. Water System

1. The water system shall be considered as made up of two (2) parts: the public potable water system and the consumer's water system.

2. The public potable water system shall consist of the source facilities and the distribution system, and shall include all those facilities of potable water system under the control of the MCSE up to the point where the consumer's water system begins.

3. The source shall include all components of the facilities utilized in the production, treatment, storage and delivery of water to the public distribution system.

4. The public distribution system shall include the network of conduits used for delivery of water from the source to the consumer's water system.

5. The consumer's water system shall include those parts of the facilities beyond the service connection which are utilized in conveying water from the public distribution system to points of use.

F. Cross-Connections Prohibited

1. No water service connection shall be installed or maintained to any premises where actual or potential cross-connections to the public potable or consumer's water system may exist, unless such actual or potential cross-connections are abated or controlled to the satisfaction of the MCSE.

2. No connection shall be installed or maintained whereby water from an auxiliary water system may enter a public potable or consumer's water system unless such auxiliary water system, the method of connection, and use of such system has been approved by the MCSE and by the Director of the Ohio Environmental Protection Agency (OEPA) as required by Section 6109.13 of the Ohio Revised Code.

G. Inspections

1. The MCSE may inspect the water use practices within the consumer's premises to determine compliance with the requirements of these Rules and Regulations. The consumer shall allow MCSE or it's representative to enter upon the premises of the consumer at all reasonable hours, for the purposes of determining whether there are actual or potential cross-connections to the public water system.

2. Upon request of the MCSE, or it's authorized representative, the consumer shall furnish information on water use practices within his premises. The MCSE shall have the right to copy the consumer's records relevant to determining compliance with the requirements of these Rules and Regulations.

3. The water consumer is responsible to conduct periodic surveys of water use practices on his premises to determine whether there are actual or potential cross-connections in his water system through which contaminants or pollutants could backflow into his or the public potable water system.

H. Application

1. An approved backflow prevention device shall be installed on each service line to a consumer's water system, where in the judgement of the MCSE or the OEPA, actual or potential hazards to the public potable water system exist, including, but not limited to the following applications:

    a. Premises having sources or systems containing process fluids or waters originating from the public potable water system which are no longer under the sanitary control of the MCSE;
    b. Premises having geothermal or boiler heating systems;
    c. Where service is extended to an auxiliary building with potential to contaminate the water system or create health hazard;
    d. Premises having internal cross-connections that in the judgement of the MCSE are not correctable, or have intricate plumbing arrangements which make it impractical to determine whether or not cross-connections exist;

e. Premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical for MCSE to make a complete cross-connection inspection;
f. Premises having a repeated history of cross-connections being established or re-established; and
g. Others as specified by the MCSE or the OEPA.

2. An approved backflow prevention device shall be installed on each of the following service lines to a consumer's water system unless the MCSE or the OEPA determines that no actual or potential hazard to the public potable water supply exists:

a. Hospitals, mortuaries, clinics, nursing homes;
b. Laboratories;
c. Piers, docks, waterfront facilities;
d. Sewage treatment plants, sewage pumping stations or storm water pumping stations;
e. Food or beverage processing plants;
f. Chemical plants;
g. Metal plating industries;
h. Petroleum processing or storage plants;
i. Radioactive material processing plants or nuclear reactors;
j. Car washes;
k. Others as specified by the MCSE or the OEPA.

4. An approved backflow prevention device shall be installed at any point of connection between the public potable or consumer's water system and an auxiliary water system, unless such auxiliary system is accepted as an additional source by the MCSE and the source is approved by the OEPA.

I. Type of Protection Required

1. The type of protection required under Sections H-1 and H-2 of these regulations shall depend on the degree of hazard which exists as follows:

a. An air gap separation shall be installed where the public water system may be contaminated with substances that could cause a health hazard.
b. An air gap separation, or a reduced pressure principle backflow prevention device, shall be installed where the public water system may be contaminated with any substance that could cause a system or health hazard.
c. An air gap separation, a reduced pressure principle backflow prevention device, or a double check valve assembly shall be installed where the public water system may be polluted with substances that could cause a pollutional hazard not dangerous to health.

2. The type of protection required under Section H-3 of these regulations shall be an air gap separation or an interchangeable connection.

3. Where an auxiliary water system is used as a secondary source for water or for a fire protection system, the provisions of Section I-2 for an air gap separation or an interchangeable connection may be waived, provided:

    a. At premises where the auxiliary water system may be contaminated by substances that could cause a system or health hazard, the public or consumer's potable water system shall be protected against backflow by installation of a reduced pressure principle backflow prevention device;
    b. At all other premises, the public or consumer's potable water system shall be protected against backflow by installation of either a reduced pressure principle backflow prevention device, or a double check valve assembly;
    c. The public or consumer's potable water system shall be the primary source of water for the fire protection system;
    d. The fire protection system shall be normally filled with water from the public or consumer's potable water system;
    e. The water in the fire protection system shall be used for fire protection only, with no regular use of water from the fire protection system downstream of the backflow prevention device;
    f. The water in the fire protection system shall contain no additives.

4. The waiver permitted pursuant to the provisions of paragraph 3 of this Section shall be obtained from the MCSE in written form before the consumer's auxiliary water system is implemented as a secondary water source for fire protection.

J. Backflow Prevention Devices

1. Any backflow prevention device required by these Rules and Regulations shall be of a model or construction approved by the MCSE and the OEPA, and shall comply with the following:

    a. An air gap separation shall be at least twice the diameter of the supply pipe, measured vertically above the top rim of the vessel, but in no case less than one inch.
    b. A double check valve assembly or a reduced pressure principle backflow prevention device shall be approved by the MCSE, and shall appear in the current list of approved backflow prevention devices of the OEPA.

K. Installation

1. Backflow prevention devices required by these Rules and Regulations shall be installed at a location and in a manner approved by the MCSE and at the expense of the water consumer. In addition, any backflow prevention device required by Section I-3 and I-4 of these regulations shall be installed at a location and in a manner approved by the OEPA as required in Section 6109.13 of the Ohio Revised Code.

2. Backflow prevention devices installed on the service line to a consumer's water system shall be located on the consumer's side of the water meter, as close to the meter as is reasonably practical, and prior to any other connections.

3. Pits or vaults shall be of water-tight construction, be so located and constructed as to prevent flooding and shall be maintained free from standing water by means of either a sump pump or a suitable drain connected to a suitable storm water outlet. Such sump pump or drain shall not connect to a sanitary sewer nor permit flooding of the pit or vault by reverse flow from its point of discharge. An access ladder and adequate natural or artificial lighting shall be provided to permit maintenance, inspection and testing of the backflow prevention device.

4. Reduced pressure principle backflow prevention devices must be installed above ground level or floor level, whichever is higher.

L. Inspection and Maintenance

1. It shall be the duty of the consumer at any premises on which backflow prevention devices required by these regulations are installed to have inspections, tests, and overhauls made in accordance with the following schedule, or more often where inspections indicate a need:

   a. Air gap separations shall be inspected at the time of installation and at least every twelve (12) months thereafter;

   b. Double check valve assemblies shall be inspected and tested for tightness at the time of installation and at least every twelve (12) months thereafter;

      Double check valve assemblies shall be dismantled, inspected internally, cleaned and repaired whenever needed and at least every thirty (30) months.

   c. Reduced pressure principle backflow prevention devices shall be inspected and tested for tightness at the time of installation and at least every twelve (12) months thereafter;

      Reduced pressure principle backflow prevention devices shall be dismantled, inspected internally, cleaned and repaired whenever needed and at least every five (5) years.

   d. Interchangeable connections shall be inspected at the time of installation and at least every twelve (12) months thereafter.

2. Inspections, tests, and overhauls of backflow prevention devices shall be made at the expense of the water consumer and shall be performed by the MCSE or a person approved by the MCSE as qualified to inspect, test and overhaul backflow prevention devices.

3. Whenever backflow prevention devices required by these Regulations are found to be defective, they shall be repaired, overhauled or replaced at the expense of the consumer without delay.

4. The water consumer must maintain a complete record of each backflow prevention device from purchase to retirement. This shall include a comprehensive listing of all tests, inspections, repairs and overhauls. Records of inspections, tests, repairs and overhauls shall be submitted to the MCSE.

5. Backflow prevention devices shall not be bypassed, made inoperable, removed or otherwise made ineffective without specific authorization by the MCSE.

M. Booster Pumps

1. Where a booster pump has been installed on the service line to or within any premises, such pump shall be equipped with a low suction cut-off controller designed to shut off the booster pump when the pressure in the service line on the suction side of the pump drops to ten (10) pounds per square inch gauge or less.

2. It shall be the duty of the water consumer to maintain the low suction pressure cut-off controller in proper working order and to certify to the MCSE, at least every twelve (12) months, that the device is working properly.

N. Violations

1. The MCSE shall deny or discontinue, after reasonable notice to the occupants thereof, water service to any premises wherein any backflow prevention device required by these Rules and Regulations is not installed, tested and maintained in a manner acceptable to the MCSE, or if it is found that the backflow prevention device has been removed or bypassed, or if an unprotected cross-connection exists on the premises, or if a low suction pressure cut-off controller required by these Regulations is not installed and maintained in working order.

2. Water service to such premises shall not be restored until the consumer has corrected or eliminated such conditions or defects in conformance with these regulations and to the satisfaction of the MCSE.

O. Approved Backflow Prevention Devices

In accordance with Rule 3745-95-06(A) of the Ohio Administrative Code, any backflow prevention device required by Rules 3745-95-04 and 3745-95-05 shall be a model or construction approved by the MCSE and the OEPA.

Section 3.15: Treatment Plants and Pump Station Requirements

General minimum requirements pertaining to treatment plants and pump stations submitted for review and approval are as follows:

1. The basis of design of all types and sizes of treatment plants and pumping stations shall be in accordance with standard engineering practices and conform to the current accepted design standards of the State of Ohio Environmental Protection Agency, Ten State Standards, and the requirements of the Sanitary Engineer.

2. The Sanitary Engineer and the State of Ohio EPA must review and approve of the proposed plant/station, it's location and it's discharge location.

3. If the Sanitary Engineer agrees to allow the construction of the plant/station, the Owner shall enter into a contractual agreement with the Board of County Commissioners pertaining to the design, construction, and operation of the proposed treatment plant.

4. Plants/Stations will not be authorized by the Sanitary Engineer if they are not specifically called for in a County master plan.

5. Private grinder pump stations designed to pump wastewater from a single-family residence to a public sanitary sewer are an exception, and are approved on a case-by-case basis by the Sanitary Engineer. The Sanitary Engineers approval for the use of grinder pumps will be based on specific site information including but not limited to topography, general sewer pumping for the area, suitability for septic systems, etc. Refer to Section 4.9 for additional requirements for grinder pump stations.

Section 3.16: Acceptance Requirements - Sanitary Sewerage

Prior to accepting the installation of any sanitary sewers constructed under these Regulations, the following minimum requirements shall be completed:

1. TV or photographic inspection of all sanitary sewers with a diameter of eight inches (8") or larger must be performed no sooner than thirty (30) days after installation.

2. Deflection tests on all PVC pipe is to be completed no sooner than thirty (30) days after installation. Maximum deflection shall not exceed five percent (5%) as determined with a "go/no-go" mandrel.

3. A final inspection is performed by the Sanitary Engineer and deficiencies corrected.
4. As built mylars and electronic drawings are to be submitted to the Sanitary Engineer in the format as specified by the Sanitary Engineer.

5. An approved two (2) year maintenance bond in the amount of ten percent (10%) of the cost of the sanitary sewers, or $2,000.00, whichever is greater, posted with the appropriate public authority and specifying Medina County as a protected party in the above stated amounts.

6. Infiltration tests, both air and vacuum, are to be performed, in a manner prescribed by the Sanitary Engineer and the Ohio EPA. Infiltration tests are to be performed after the Contractor has completed the installation of all improvements and final inspection has been performed and approved by the Sanitary Engineer.

7. Any deferred assessments, restricted main tap-in costs, or other costs relative to the portion of the project along any existing public right-of-ways or streets are to be paid prior to any permits being issued for connections.

8. A certified statement from each Grantor of an easement for sanitary sewers indicating that all the conditions of the easement (written or verbal) have been satisfied is to be submitted to MCSE. This condition applies only when the Grantor and the Developer are different entities.

The Owner/Developer shall be responsible for all costs including any costs incurred by the Sanitary Engineer in the performance of these minimum tests and inspections.

Section 3.17: Acceptance Requirements - Water Improvements

Prior to accepting the installation of any water improvements constructed under these Regulations, the following minimum requirements shall be completed:

1. A final inspection performed by the Sanitary Engineer and deficiencies corrected.

2. A hydrostatic pressure test (to determine leakage) performed per the Standard Specifications after the Contractor has completed the installation of all improvements in accordance with the approved plans and has had a final inspection performed and approved by the Sanitary Engineer.

3. A disinfection test (chlorination) per the Standard Specifications.

4. As-built mylars and electronic drawings are to be submitted to the Sanitary Engineer in the format as specified by the Sanitary Engineer. Water curb boxes shall be field located and shown on the as-builts.

5. An approved two (2) year maintenance bond in the amount of ten percent (10%) of the cost of the water main and appurtenances or $2,000.00, whichever is greater posted with the appropriate public authority and specifying Medina County as a protected party for the above stated amounts.
6. Any deferred assessments, restricted main tap-in costs or other costs relative to the portion of the project along any existing public right-of-way or street are paid prior to permits being issued for connections.

7. A certified statement from each Grantor of an easement for water mains and appurtenances, that all the conditions of said easements (written or verbal) have been satisfied is to be submitted to MCSE. This condition applies only when the Grantor and the Developer are different entities.

The Owner/Developer shall be responsible for all costs including any costs incurred by the Sanitary Engineer in the performance of these minimum tests and inspections.

Section 3.18: Certificate of Completion

A Certificate of Completion shall be issued by the Sanitary Engineer for all sewer and water projects when:

1. All work has been completed in accordance with these Rules and Regulations.

2. An affidavit certifying all expenses (materials, service, etc.) have been paid is submitted to MCSE.

3. The Developer has paid all current fees and charges due to the Medina County Sanitary Engineering Department relative to this or past projects.

Individual sewer and water permits associated with the project will be issued once the Certificate of Completion is issued.

Section 3.19: Duplication of Requirements

Most developments and/or subdivision constructed in Medina County fall under the jurisdiction of two (2) or more public agencies. The Medina County Sanitary Engineer is authorized and directed to cooperate with all other public officials having jurisdiction in a development for the purpose of minimizing duplication of requirements pertaining to those developments provided that the intent of these Rules and Regulations is not violated in the process.

Section 3.20: Petition for Water or Sanitary Sewer Service

Medina County property owners may petition the Board of County Commissioners for the construction, maintenance and operation of local water or sanitary sewer lines and appurtenances along the public highways adjacent to their property as part of the Medina County water or sewer system. All petitioning homeowners must agree to be assessed for their proportionate cost of the project. A $100.00 deposit is required to be submitted with the petition form and subsequently deducted from the assessment, if the construction of the water or sanitary sewer line project proceeds. If after six (6) months of review the Sanitary Engineering Department finds that the project is not economically feasible, the project will not proceed and the deposit will be refunded upon submission of a written request by the property owner.

Note: The petition process may be modified for specific projects as approved by the County Board of Commissioners.

Section 3.21: Residential Fire Suppression

A. With the approval of the local fire authority, residential fire sprinkler systems may be considered for single family residential construction providing the following conditions are met:

   1. The fire suppression system is connected to a single service connection after the water

meter. Separate service connections for fire suppression systems shall not be permitted unless approved by the Sanitary Engineer.

2. The fire sprinkler system must be designed by a licensed fire suppression designer, including the hydraulics, available water pressure, water service size, backflow, etc., and all calculations are to be submitted to MCSE with the permit application. The designer shall specify the flows through the MCSE issued water meter to be within the meter's operational range for low flow domestic usage up to and including the anticipated fire demand. For interior meters, the licensed sprinkler designer shall confirm the resistance of MCSE's issued water meter to maintain functionality during a fire event. MCSE will provide meter specifications to the designer.

3. Backflow prevention devices must be tested, and reports submitted to MCSE annually, in accordance with MCSE's Backflow Prevention Program.

4. If proposed as part of a residential development, fire hydrants must still be installed to satisfy the local fire authority, and as required by MCSE for water main maintenance and flushing operations.

5. MCSE will consider requests for deduct meters on the fire sprinkler system when using water records as the basis for sanitary sewer billings for MCSE sewer customers. Approval of deduct meters is at the discretion of the Sanitary Engineer.

Section 3.22: Private Developments

Prior to accepting the design of water and sanitary sewer utilities in private developments under the authority of the Sanitary Engineer, the owner/developer shall clearly define the ownership, repair and restoration responsibilities of all parties to the satisfaction of the Sanitary Engineer via recorded easement language, record plats and/or homeowner association agreements. The intent is to establish the responsibilities of the Sanitary Engineer to construct, maintain, operate, repair, replace and/or remove sanitary sewers and manholes, water mains and valves, hydrants, flushing assemblies and curb boxes. The documentation shall further qualify that the Sanitary Engineer shall retain ownership of the water curb box on the water lateral, and operation/repair/replacements shall be by MCSE personnel only. The recorded easement language, record plats and/or homeowner association agreements shall clearly establish the developer/owner/grantor and any transferee or assignees responsibilities for the sanitary and water lateral construction and maintenance from the sewer and water mains to the building served by the sewer and water mains, including any excavating expense to the sanitary and water laterals for repair/replacements of damaged and/or failing pipes within the roadway/utility easements and private property. The developer/owner/grantor, transferee or assignee shall be responsible for restoring pavement, sidewalk, and landscaping affected by MCSE repair/replacement efforts on said sanitary sewer, manholes, water mains, hydrants, valves, flushing assemblies and curb boxes.

CHAPTER FOUR
SANITARY SERVICE CONNECTIONS AND BUILDING STORM DRAINS

Section 4.1: Contractor Registration

No person or persons, firm, or corporation, or any employee of such person, firm, or corporation, shall install or repair any house connection pipe, unless such person or persons shall have first registered with the Sanitary Engineer's office; with the exception of the individual homeowner, who is required to sign a waiver to MCSE accepting full responsibility and liability for work performed and for any damages resulting from this work. Unless a waiver is signed, the house connection work shall be performed under the supervision of the registered contractor at all times.

Any competent person, firm, or corporation shall, on application to the Sanitary Engineer, be granted a registered status. The application must be accompanied by satisfactory evidence of insurance qualifications and responsibility. Such registration shall remain in effect until the 31st day of December of the year from which it is issued, unless previously revoked. Both sewer and water work is authorized under this registration. Registration will be revoked if the holder violates any of these Rules and Regulations or instructions of the Sanitary Engineer.

A Contractor Indemnification Bond and proof of public liability and property damage insurance, both in the amounts determined by resolution of the Commissioners are required, prior to registration.

Any work performed by the individual homeowner, or their unregistered contractor, that does not comply with MCSE's Rules and Regulations will be the responsibility of the individual homeowner to repair to the satisfaction of MCSE.

Section 4.2: Sanitary Sewer Connection Permit

No connection with any sewer, repair, replacement or removal thereof, shall be made without a permit from the Sanitary Engineer. A fee will be charged for the permit to cover the costs of issuance and inspection. The Contractor or the Owner shall make written application for each permit and present evidence that a road opening permit has been secured. See additional submittal requirements in Section 4.9, Individual Service Connections.

Existing record and location information is not guaranteed by MCSE. Contractor is cautioned to conduct field investigation to locate before digging.

Section 4.3: Permit Revocation

Application for permits shall be made on the prescribed form and shall include legible plans and specifications of the work, showing location and character. Any misrepresentation in such application shall constitute sufficient grounds for revocation of the applicant's license and any permits issued.

Permits shall be kept on the job at all times while work is in progress. The permit shall become void if the covered work is not completed and approved within one hundred eighty (180) days of issuance. The Sanitary Engineer may extend the expiration date of the permit an additional one hundred eighty (180) day period if conditions warrant and upon payment of a six (6) month portion of the frontage tap-in fee. In no instance is the permit fee refundable.

Section 4.4: Sewer Connection Regulations

All sanitary connections shall be constructed in strict accordance with the approved plans and\or these Rules and Regulations. As a matter of convenience, the following general minimum requirements are provided:

A. Separate service connections shall be provided to all properties in areas served by sewers. In the case of multiple family homes, multi-tenant buildings, condominium style buildings, and properties with more than one structure to serve, separate service connections shall be provided to each defined unit.

B. Service connections shall be ASTM D3034 SDR35 PVC gasketed sewer pipe at one percent (1%) minimum grade. Rubber o-ring gaskets shall comply with ASTM F477. Solvent or glue type joints are not permitted.

C. When service connections are required to be free bored under existing street pavement, cement lined restrained joint ductile iron pipe shall be utilized. Steel casing pipes, minimum 3/8" wall thickness may be used with ASTM D3034 SDR35 PVC carrier pipes with the approval of the Sanitary Engineer.

D. Service connection sewer pipe shall be a minimum of four inches (4") in diameter. Commercial and Industrial service connections shall be a minimum of six inches (6") in diameter. Service connection pipe shall be of no larger diameter than wye branches or riser connections. Pipe shall be bedded per Chapter 8 requirements.

E. When required by the Sanitary Engineer, manholes must be provided for commercial or industrial service connections to a street sewer to provide for inspections and\or sampling.

F. Individual residential service connections to street or easement sewers shall not be made into manholes, without approval of the Sanitary Engineer.

G. When necessary to tap on an existing sanitary sewer less than twenty-four inches (24") diameter, the wye shall be installed only by the Sanitary Engineer upon payment of the sewer tap fee. Refer to Section 4.16 for sewers greater than or equal to twenty-four inch (24") diameter.

H. Where sewer service wye branches were not initially provided in street sewers and proposed service connection sewers are eight inches (8") or larger in diameter, standard manholes shall be installed in lieu of wye saddles.

I. Service connection sewers from wash racks, grease racks, loading docks, commercial or industrial installments, restaurants or any other facility where grease, oil and/or petroleum waste products could be discharged must install appropriately sized oil or grease interceptors and/or traps preceding the connection to the sanitary sewers (See Chapter 6).

J. All sanitary service connections shall have a minimum of three feet (3') of cover over their entire length. If cover is less than three feet (3'), the pipe shall be insulated on three (3) sides and capped with a minimum twelve inches (12") of concrete (with MCSE approval only).

K. Storm and sanitary service connections installed in the same trench shall be spaced a minimum of two feet (2') apart, both horizontally and vertically (benched), with the storm pipe two feet (2') higher than the sanitary pipe and both pipes having premium joints.

L. Yards or parking areas shall not be drained through building sanitary sewers but shall be independently sewered with building storm drains to a separate storm drain system. Refer to Section 2.1.

M. Service connections from swimming pools shall be connected to the sanitary sewer. Sanitary sewer connections shall be appropriately sized by the owner to accommodate flows from the pool. The Sanitary Engineer may require engineers calculations to verify appropriate sizing.

N. Clean-outs with wye bases shall be provided, at a change in alignment, at locations which will insure a maximum distance between clean-outs of ninety-five feet (95'), or as directed by the Sanitary Engineer. Clean-out caps shall be set at finish grade and shall be threaded, gasketed water-tight. Clean-outs in pavement shall be enclosed in an appropriate traffic-bearing casting and lid, per MCSE commercial detail clean-out tees are not permitted.

O. Water and sanitary service connections installed in the same trench shall be spaced a minimum of two feet (2') apart both horizontally and vertically (benched) with the water service two feet (2') higher than the sanitary pipe. Minimum waterline bench width shall be twelve inches (12").

P. Schedule 40 PVC from internal building plumbing shall change to ASTM D3034 SDR-35 PVC with gasketed joints within thirty inches (30") of the outside face of the building with a gasketed SDR-35 to Schedule 40 adapter. Solvent or glued type joints are not permitted beyond thirty inches (30") unless part of a oil or grease interceptor installed per Chapter 6.0.

Section 4.5: Inspection of Connections

All work shall be inspected by an authorized inspector representing the Sanitary Engineer. The contractor will be responsible for scheduling inspections with the Sanitary Engineers Permit Office. Inspections will be scheduled on date and time availability. The permit office will not schedule same day inspections, unless approved by the Sanitary Engineer.

No connection shall be covered with stone until inspected and approved by the Sanitary Engineers Inspector. The actual tapping of a connection into the main sewer shall be completed only by a representative of the Sanitary Engineer. All materials and workmanship in making of a sewer service connection shall be in strict accordance with the Standard Specifications. All service connection piping shall be connected using premium gasketed joints. Glued joints are not permitted.

The Sanitary Engineer shall be the final judge to decide if materials and workmanship conform to MCSE design criteria and standard specifications and shall have the right to inspect the same at all times.

Contractors installing sanitary connections shall guarantee that they are functional and free flowing from the house to the main sewer. If after the installation of a house connection, it is found that the house connection is not functioning, the Contractor will be responsible to replace or repair the connection. If the Contractor cannot respond in a timely manner, the MCSE will make the necessary repairs and bill the Contractor for those repairs.

The Sanitary Engineer shall have free access to all buildings and fixtures connected to the sanitary sewers, to inspect said fixtures and take samples of any wastes entering the sewer. If access to a building is not voluntarily granted, the Sanitary Engineer's Office will gain access by obtaining a search warrant as required by law. The sanitary Engineer, in any duty prescribed by these Rules and Regulations, may act through properly authorized representatives.

Section 4.6: Use of Sanitary Sewer Connection

The sanitary sewers shall be used for all water borne wastes from water closets, urinals, slop sinks, lavatories, bath tubs, refrigerator drips, soda fountains, drinking fountains, sinks, cellar floor drains, etc.; whether from residences, factories, or business buildings, schools or public buildings, and for no other purpose except by written permission of the Sanitary Engineer. Wastes from said fixtures shall not be permitted to enter the storm sewers. Garage drains shall discharge to the sanitary sewer after flowing through sediment basins and appropriate trapping as approved by the local plumbing inspector.

Wastes which are likely to cause damage to or stoppage of sewers or which may interfere with the treatment of the sewage shall not be permitted to enter the sanitary sewers. Should such wastes be discovered by the MCSE, the sewer discharging said waste shall be disconnected and the offending waste shall be treated or otherwise disposed of by the owner. Refer to Section 6.2.

Section 4.7: Storm Water Connection Prohibition

Roof drains, ground water runoff, catch basin drainage, yard drains, down spout water from roofs, cistern overflows, subsoil drains, water from foundations, loading dock floor drains, and any other clean water connection shall not be connected to the sanitary sewer system.

Section 4.8: Septic Tank Connections

No septic tank or cesspool shall be connected to any sanitary sewer. When an existing home being served by a septic system is to be connected to the sanitary sewer system, the septic tank must be pumped clean, crushed and backfilled with dirt, sand or stone. The backfilling of the septic tank or cesspool must be completed to the satisfaction of the Medina County Health Department.

Section 4.9: Individual Sewer Connections

Each single family dwelling unit and each separate industrial or commercial building or building unit must have a separate and individual sewer connection to the County maintained sanitary sewerage system. Multi-family homes, multi-tenant buildings, condominium style buildings, and properties with more than one structure to serve, shall have separate service connections provided to each defined unit. Each connection shall be maintained by the property owner per Section 2.4 of these Rules and Regulations. It is the intent of this Regulation to provide each dwelling unit and each industrial or commercial building or building unit with a separate and distinct connection to the County maintained sewerage system and maintenance responsibility for its own sanitary connection whether or not the unit is located in the same structure with other units to maintain individual service connection functionality. The Sanitary Engineer may, on a case-by-case basis, authorize exceptions to this Regulation, provided that maintenance responsibilities have been clearly assigned to an individual or other responsible party. In the event the Sanitary Engineer does grant an exception to this Rule, the property owner will be required to record a deed restriction indicating that they will establish a separate connection for any building separated onto a new parcel prior to any lot split or transfer of title.

Dwellings, dwelling units, buildings, and/or building units that share a common service connection while located on one parcel, will be required to install separate and distinct service to each dwelling or building unit if the parcel is split and the dwelling or building units are then found to be located on separate parcels.

The Medina County Sanitary Engineer shall require the following relative to specific individual sewer connections:

A. Single Family Residential - A plot plan showing topography, the location of the house and driveway relative to the road right-of-way line; or in the case of private streets, the street easement and utility easement line(s), first floor elevation and basement elevation if plumbing is proposed for basement service, the inverts and tops of castings of upstream and downstream manholes, calculated invert elevation of connection at main, and length of sanitary sewer lateral from main to house.

B. Condominiums, apartments, and any other type of multi-family residential construction shall submit plans including number of units, number of suites, type of building (two-story, three-story, two-story garden, etc.), set backs from existing or proposed sanitary sewers and any other information the Medina County Sanitary may require to verify the service size and location. The MCSE may require more than one (1) connection, a

private collector sewer and manholes depending on the size and configuration of the building to be served. Apartment owners are responsible for all aspects of sewer service on the apartment premises. This includes payment of sewer bills, maintenance of the sewer system, etc.

Condominiums shall be treated as single-family units, receiving standard single-family connections for every unit. Facilities owned by the condominium association will get a separate connection and be billed to the condominium association. (i.e. Recreation rooms, swimming pools, etc.)

C. Commercial and industrial buildings shall submit site plans with topographic information, utility plans, floor plans, building plans and plumbing plans along with any other information the Medina County Sanitary Engineer may require to verify the service connection size, volume and nature of wastewater to be discharged.

D. Where a connection is proposed to service more than one (1) customer, the Sanitary Engineer may consider the connection as a "sanitary sewer extension". The sanitary sewer would then be sized for the service area and be required to be installed in an easement provided to Medina County for the purpose of maintenance of the "sanitary sewer extension".

E. Where a customer cannot be connected to the sanitary sewer system by gravity, the Sanitary Engineer will consider private, grinder pump stations with a private force main connection to the sanitary sewer. The Owner/Builder shall submit site plans with topographic information and identify the proposed grinder pump station and force main location, along with shop drawings for the proposed system.

As a minimum, a residential grinder pump station shall be Simplex arrangement with audible and visual alarm to indicate pump or other system failures. A ball valve with hand operation and check valve shall be placed on the discharge line of the pump. The check valve shall be located between the shutoff valve and the pump. Force mains shall be minimum 1-¼" ASTM D2441, SDR26 PVC material or HDPE if approved by the Sanitary Engineer, designed along with the pump system, to maintain scouring velocity greater than two (2) feet per second in the force main.

A commercial/industrial grinder pump station shall be duplex arrangement and meet all other requirements as described herein. The Sanitary Engineer has the authority to require owners of non-residential grinder pump stations to make application to the Ohio EPA for a permit-to-install. A fiberglass manhole may be required for the force main to discharge into to transition to the MCSE gravity sanitary sewer system. Refer to Chapter 8.0.

Where the sewage grinder pump serves more than one building in an apartment complex under single ownership, such property owners shall submit to the Sanitary Engineer a declaration of easements, covenants and restrictions in recordable form setting forth the obligations of the property owners with respect to the installation, use, operation,

maintenance, service, repair and replacement of the sewage grinder pump, which declaration shall be legally binding on the property owners, their successors and assigns. The Sanitary Engineer will not issue a permit for the installation, use or maintenance of such sewage grinder pump until evidence satisfactory to the Sanitary Engineer that the declaration of easements, covenants and restrictions has been recorded in the Medina County Recorders Office with a copy provided to the Sanitary Engineer.

The owner shall be responsible for the construction, operation and maintenance of any such grinder pump station and pressure sewer (force main) needed to serve the owner's property.

F. Although backwater valves are not endorsed by the Sanitary Engineer, they may be installed on the homeowner's side of the sewer connection at the homeowner's discretion upon approval by the Sanitary Engineer on their private property in the lawn area. Only those extendable backwater valves with removable flap valves from the clean out cap at grade with access for cleaning may be installed,

G. At the time of building construction, any existing sanitary lateral that is not in compliance with current MCSE Rules and Regulations must be modified/replaced in order to comply with the Rules and Regulations at the property owner's/builder's expense to the satisfaction of the Sanitary Engineer.

H. The Sanitary Engineer may waive the plot plan requirement for existing single family residential homes only, upon request. The plot plan requirement cannot be waived if the sewer lateral crosses private property owned by others to make connection to the main.

Section 4.10: Local Sewer Construction Charge

Any building, located on any property which was not assessed when the sewer was constructed by the County, or a private individual under contract with the County, shall pay a special local sewer construction charge per Equivalent Residential Unit (ERU) prior to the issuance of a sewer permit. The amount of said charge to be fixed by the County Commissioners. Said charge shall be based on the cost of constructing the sewer to which the tap is made and the volume of wastewater to be discharged by the permit application. Said local sewer construction charge shall be in addition to any permit or tap-in fees established for treatment, sanitary sewers, pump stations, and/or work performed by the county.

Section 4.11: Road Opening Permit

If tap is on a State maintained road, MCSE will make application to the state (ODOT). If tap is on a County/Township road, Owner/Contractor shall obtain road work permit from the Medina County Engineers at (330) 723-9561, 791 W. Smith Road, Medina, Ohio, or the Township.

Work within the road right-of-way cannot begin without receipt of the appropriate road opening permit.

Section 4.12: Bedding and Backfilling

The bedding and backfilling requirements of the Standard Specifications for sanitary sewer shall apply for sanitary sewer connections. Bedding of sanitary sewer connections shall consist of #57 crushed limestone as outlined in Section 8.2 of these Regulations.

Section 4.13: Sewer Connection Grade and Alignment

Sanitary connections shall be laid to a uniform grade with as straight alignment as possible. All joints shall be water tight utilizing flexible gaskets. The Sanitary Engineer may require a demonstration of tightness by whatever tests are necessary.

The minimum allowable grade shall be one percent (1%) (approximately 1/8 inch per foot), unless special permission on the Sanitary Engineer is obtained. No traps shall be placed in the connection. Change in direction shall be made with bends with an angle equal to or less than forty-five degrees (45°). The distance between bends shall be no less than two feet (2').

Section 4.14: Connection with Plumbing

If a sanitary connection is made into a structure for which the rough interior plumbing has not been completed, the end of the connection shall be sealed with a gasketed cap or in a manner approved by the Sanitary Engineer until final plumbing construction is complete. The connection between the interior plumbing and the building connection shall be made at a point approximately thirty inches (30") outside the outer face of the foundation wall.

Section 4.15: Sewer Connection Locations

All sanitary sewer building connections shall be located a minimum of:

A. Ten feet (10') from gas lines and electric lines.

B. Five feet (5') from lot lines.

C. Ten feet (10') from water and water service lines, unless water line can be benched on undisturbed earth two feet (2') above sewer in the same trench and a two foot (2') minimum horizontal separation is maintained.

D. Eight feet (8') from storm lines, unless the storm sewer has a premium jointing material meeting the same specification as the sanitary; which permits a reduction in separation to no less than four feet (4').

E. Fifty feet (50') from private well.

F. One hundred feet (100') from public or semi-public well.

Section 4.16: Sewer-Tap Installations

Where it is necessary to tap an existing PVC or VCP sanitary sewer, or RCP less than twenty-four inch (24") diameter, the installation shall be completed by the Sanitary Engineer, upon payment of all applicable fees. Applications for sewer-taps must be made at least five (5) working days in advance of the actual tapping operation. The sewer-tap will be made by the Sanitary Engineer's office in the excavation prepared by the Contractor for the property owner.

The Contractor must be present at the work site when the tap is made, and the excavation shall be prepared by the Contractor in such a manner that;

1. The main sewer is exposed around its total circumference so the tapping machine can be attached to the pipe.

2. Sufficient working room is provided to make the tap. The size of the excavation necessary will vary depending on the depth of the main sewer and the soil conditions. The trench shall be dewatered by appropriate sized pump.

3. It's the Medina County Sanitary Engineer's policy that all excavations performed in connection with water and sewer taps MUST comply with the Standards and Specifications set forth in the CFR 1926.650 to 652. Simply stated, all excavations five foot (5') or deeper SHALL be properly boxed, shored, or laid back to the satisfaction of the Sanitary Engineer's representative at the work site.

4. Excavation of County owned sewer shall not take place until the day the sewer tap is scheduled.

5. Traffic control, including, but not limited to signs, lights and flagman, shall be provided for all work at the road site. All sites SHALL be protected using the specifications and standards as set forth in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) and the ODOT Manual of Traffic Control for Construction and Maintenance Operations.

6. If the trench and/or traffic control is considered by the Sanitary Engineers representative to be unsafe and/or out of compliance with OSHA, OMUTCD and ODOT standards, all work will cease and will not be permitted to proceed until the standards are met. This is an action the Sanitary Engineers would prefer not to take. Therefore, we are asking for your assistance in eliminating, or minimizing, unnecessary delays by fully complying with all appropriate health and safety standards, guidelines, and policies.
7. The Contractor shall be responsible for researching the depth and any special conditions involving the sanitary sewer at the point of the proposed connection prior to initiating excavation.

8. When an owner has an interest in reusing an existing sanitary sewer lateral, riser and/or sewer connection as part of new construction or redevelopment of a property that was previously served by an MCSE sanitary sewer connection, the following requirements are to be met:

a. Contractor to obtain appropriate MCSE permits to do the work.

b. Excavate and locate the end of the existing sewer lateral, wye, riser, etc. to assess suitability for reuse.

c. Internally televise the lateral and provide MCSE with an audio/visual DVD color recording with footage counter from the access point up to and including the connection to the MCSE sanitary sewer main.

d. Thoroughly clean the connection by snaking, jetting, rootcutting, etc. if necessary to provide the clear, unobstructed internal sewer televising DVD.

e. Complete any necessary repairs and/or replacement as required by MCSE.

f. In the event that the lateral is not approved for reuse by MCSE, then said lateral shall be properly abandoned and a new tap made in accordance with these Rules and Regulations.

Where it is necessary to install a wye on an existing RCP sanitary sewer greater than or equal to twenty-four inch (24") diameter, the installation shall be completed by the Contractor at the Owner's expense, upon payment of all applicable fees. Said tap shall be inspected and approved by MCSE prior to backfilling the trench.

Section 4.17: Pavement Replacement and Maintenance, Protection and/or Replacement of Structures and Other Work Incidental to the Installation of Sewer Connections

All pavement replacement, protection of structures and all other work incidental to the installation of the sanitary sewer connection shall be accomplished by the Contractor in the manner specified in the Standard Specifications (reference Section 8.2).

It is the Contractor's responsibility to replace, reconstruct, repair and/or perform any other work necessary to complete the proposed project and restore the site to its original condition. The presence of, or inspection by, the Sanitary Engineer or his authorized inspector, does not relieve the Contractor of this responsibility nor does MCSE inspection verify the grade at which the connection is installed.

In the event that Standard Specifications do not exist to cover a specific construction or restoration situation, the Contractor shall inform the Sanitary Engineer, who will then specify how the work is to be accomplished.

Should the project be of such magnitude or complexity that the Sanitary Engineer feels it is warranted, he may require that the proposed construction route be video-taped prior to construction to assure the adequacy of restoration. The Owner shall bear the cost of all video taping.

Section 4.18: Acceptance of Clean-Up/Repair Responsibility for Surrounding Property

In many instances the sanitary sewer is on the opposite side of the right-of-way from the property for which a permit is sought. Damages generally occur to surrounding private property during the excavation and installation of such "long" connections by the permit applicant's private Contractor.

The permit applicant agrees to be responsible for the timely clean-up and repair of all damages caused to all surrounding property by the installation of this service connection.

Section 4.19: Contractor Safety/Liability

Contractors shall fill, cover or otherwise protect any excavations which he may make in the public streets, roads, or alleys, with sufficient barriers and shall maintain warning lights at night as required under the road authority's specifications. He shall take all necessary precautions to guard the public effectually against all accidents from the beginning and continuing until the completion of the work. The Contractor may only install sewer service connections on the condition that he is held responsible for all damages that may result from his neglect from taking any or all reasonable precautions against any accident to persons, animals, vehicles, or property of any kind.

Section 4.20: Operations

A. Billing Period

Bills will be sent out every other month for residential customers and monthly for large commercial and industrial users.

Building owners shall notify the Sanitary Engineer in writing when a business is closing if they so request consideration for a billing adjustment based on a reduced volume of waste water discharged to the sanitary sewer system. The Sanitary Engineer's Office will then determine the appropriate billing adjustment, if applicable. MCSE will not be responsible to refund any payment received for excess billings made to closed businesses that do not follow the written notification procedure.

B. Billing

Billing will be based on the Medina County Sanitary Engineer's User Charge System as approved by the Medina County Commissioners and the Ohio EPA.

C. Delinquent Account

Any account remaining unpaid by the fifteenth (15^{th}) day of the month following invoicing becomes a delinquent account and will be charged an additional ten percent (10%) on the past due amount. Sanitary sewer accounts that remain past due through May 1^{st} or June 1^{st} of each year (depending on the account billing cycle) will be certified to the property taxes along with an additional ten percent (10%) certification fee.

D. Re-Connection Charge

Any account which has been discontinued, will pay a re-connection charge for re-establishing service.

Section 4.21: Procedure for Plugging Sanitary Service Line

Cut out a small section of the sanitary lateral as close to the sanitary main as possible, outside of the right-of-way. Plug as follows:

1. Vitrified Clay, Cast Iron or Ductile Iron - Install clay/cast iron/ ductile iron to plastic fernco with a short piece of PVC pipe, then install a gasketed cap on the PVC. The fernco shall be concrete encased prior to backfilling.

2. PVC - Install gasketed cap.

3. ABS - Install schedule 40 to 3034 gasketed coupling with inside PVC cap.

4. Contact the MCSE Permits Department to schedule an inspection prior to backfilling.

CHAPTER FIVE
WATER SERVICE CONNECTION

Section 5.1: Contractor Registration

The conditions of Section 4.1, Contractor Registration, shall apply to those intending to install or repair water service connections.

Section 5.2: Water Connection Permit

Connection to any water main or repair or removal thereof, shall not be performed without a permit from the Sanitary Engineer. The Contractor or the Owner shall make written application for each permit and fees will be charged for any such permit to cover the costs of issuance and inspection. The Contractor or the Owner shall also secure and provide a copy of a road opening permit from ODOT, the Medina County Highway Engineer, or Township, whichever has roadway jurisdiction prior to MCSE scheduling a water tap.

Existing record and location information is not guaranteed by MCSE. Contractor is cautioned to conduct field investigation to locate before digging.

Section 5.3: Permit Revocation

Application for a permit shall be made on the prescribed form and shall include legible plans and specifications for the work, showing location and character of the construction. Any misrepresentation in such application shall constitute sufficient grounds for revocation of the Contractor's registration and any permits issued.

Permits shall be kept on the job at all times while work is in progress. The permit shall become void if the work is not completed and the meter set and approved within one hundred eighty (180) days of date of issuance. The permit fee shall not be refunded.

For work that is incomplete after 180 days, MCSE will turn off the curb box and remove the top curb box section. If in the future, the Owner pursues water service to the property, the Owner will be responsible to obtain a new permit and pay any adjustment in tap in fees.

Section 5.4: Inspection

All work performed shall be inspected by an authorized inspector representing the Sanitary Engineer. The Contractor shall notify the Sanitary Engineer of the need for an inspector, and for a meter set, at least three (3) working days prior to the initiation of construction, between the hours of 9:00 am and 4:00 pm weekdays, excluding holidays. The water connection shall not be covered with earth until inspected and approved. The actual tapping of a connection into the water main shall be completed by a representative of the MCSE.

All materials and workmanship in the making of a water service connection shall comply with the Standard Specifications of the MCSE. The Sanitary Engineer shall be the final judge in determining that the quality of all materials and workmanship used in water service connections conform to the design criteria and specifications and shall have the right to inspect the same at all times.

The Sanitary Engineer or his representative shall have free access to all buildings and fixtures therein connected with the water main and to inspect said fixtures. MCSE shall investigate the water piping system of the building to verify that no other water supply such as a well, cistern, etc. is connected to the water supply of the County. The water contractor or property owner shall assist the representative in this investigation. The presence of a cross connection shall be reason for rejection of the entire building connection.

Section 5.5: Contractor Responsibility

Contractors shall at all times abide by all parts of these Rules and Regulations. Failure, within a reasonable time after being notified by the Sanitary Engineer, to correct violations shall result in the Contractor being charged for all costs, such as may be incurred by the Sanitary Engineer, for correcting said violations. Contractor registration shall be revoked if said charges are not paid.

Section 5.6: Individual Water Connections

Each single family dwelling and each separate industrial or commercial building or building unit shall have a separate and individual water connection to the county maintained water supply system. Multi-family homes, multi-tenant buildings, condominium style buildings and properties with more than one structure to serve, shall have separate service connections provided to each defined unit. It is the intent of this Regulation to provide each dwelling, unit and each industrial or commercial building or building unit with a separate and distinct connection to the County maintained water system and maintenance responsibility for its own water connection whether or not the unit is located in the same structure with other units to maintain individual service connection functionality. The Sanitary Engineer may, on a case-by-case basis, authorize exceptions to this Regulation, provided that maintenance responsibilities have been clearly assigned to an individual or company. In the event the Sanitary Engineer does grant an exception to this Rule, the property owner will be required to record a deed restriction indicating that the property owner will establish a separate connection for any building separated onto a new parcel prior to any lot split or transfer of title.

Dwellings, dwelling units, buildings, and/or building units that share a common service connection while located on one permanent parcel, will be required to install separate and distinct service to each dwelling or building unit if the permanent parcel is split and the dwelling or building units are then found to be located on separate parcels.

The Medina County Sanitary Engineer shall require the following relative to specific individual water connections:

A. Single Family Residential - a plot plan showing topography, the location of the new house and driveway relative to the road right-of-way line; or in the case of private streets, the street easement and utility easement line(s), the water curb box location, first floor elevation and the difference in elevation between the highest occupied floor level and the street pavement elevation, the water connection length from the water main to the curb box and the length from the curb box to the house. Show the location of the water meter vault if applicable (i.e. slab home).

B. Condominiums, apartments, and any other type of multi-family residential construction shall submit plans including number of units, number of suites, type of building (two-story, three-story, two-story garden, etc.), set backs from existing or proposed water mains and any other information the Medina County Sanitary Engineer may require to verify the service connection size and to determine the proper meter placement. Apartments shall have no less than one (1) meter per structure. The MCSE may require more than one (1) connection and one (1) meter per structure depending on the size and configuration. The apartment owner is responsible for all aspects of water service to the premises. This includes payment of water bills, maintenance of the plumbing system, etc. Condominiums shall be treated as single-family units, receiving standard single-family connections for every unit. Facilities owned by the condominium association will get a separate connection and be billed to the condominium association (I.E. recreation rooms, swimming pools, etc.).

C. Commercial and industrial buildings shall submit site plans with topographic information, building plans and plumbing plans along with any other information the Medina County Sanitary Engineer may require to verify the water demand, service connection size, determine meter placement or backflow device type.

D. Where a connection is proposed to service more than one (1) customer, the Sanitary Engineer may consider the connection as a "Water Main Extension". The waterline would then be sized for the service area and be required to be installed in an easement provided to Medina County for the purpose of maintenance of the "water main extension".

E. Backflow prevention in accordance with Section 3.14 Backflow Prevention.

F. At the time of building construction, any existing water service that is not in compliance with the current MCSE Rules and Regulations must be modified/replaced in order to comply with the Rules and Regulations at the property owner's/builder's expense to the satisfaction of the Sanitary Engineer.

G. The Sanitary Engineer may waive the plot plan requirements for existing single family residential homes, upon request.The plot plan requirement cannot be waived if the water service crosses private property owned by others to make connection to the main.

Section 5.7: Local Water Construction Charge

Any building, located on any property which was not assessed when the water main was constructed by the County, or a private individual under contract with the County, shall pay a special local water main construction charge prior to the issuance of a water permit. The amount of the charge shall be fixed by the County Commissioners, and is to be based on the cost of constructing the water main to which the tap is made and the volume of water to be utilized. This local water main construction charge shall be in addition to any permit fees or any other fees or tap-in charges established for treatment, transmission facilities, storage, or other work performed by the county.

Section 5.8: Road Opening Permit

If tap is on a State maintained road, MCSE will make application to the State (ODOT). If tap is on a County/Township road, Owner/Contractor shall obtain road work permit from the Medina County Engineers at (330) 723-9561, 791 W. Smith Road, Medina, Ohio, or the Township.

Work within the road right-of-way cannot begin without receipt of the appropriate road opening permit.

Section 5.9: Pavement Replacement and Other Work Incidental to the Installation of Water Connections

All pavement replacement, maintenance, protection of structures, removal of structures, and all other work incidental to the installation of the water connection shall be accomplished by the Contractor in the manner specified in the Standard Specifications (Section 8.3). It is the Contractors responsibility to replace, reconstruct, repair and/or perform any other work necessary to complete the proposed project and restore the site to its original condition. The presence of or inspection by the Sanitary Engineer of his authorized inspector does not relieve the Contractor of this responsibility.

In the event that Standard Specifications do not exist to cover a specific construction or restoration situation, the Contractor shall inform the Sanitary Engineer who will then specify how the work is to be accomplished.

Should the project be of such magnitude or complexity that the Sanitary Engineer feels it is warranted, he may require that the proposed construction route be video-taped prior to construction to assure the adequacy of restoration. The Owner shall bear the cost of all video taping.

Section 5.10: Acceptance of Clean-Up/Repair Responsibility for Surrounding Property

In many instances the water main is on the opposite side of the right-of-way from the property for which a permit is sought. Damages generally occur to surrounding private property during the excavation and installation of such “long” connections by the permit applicant’s private contractor.

The permit applicant agrees to be responsible for the timely clean-up and repair of all damages caused to all surrounding property by the installation of this service connection.

Section 5.11: Contractor Safety/Liability

Contractors shall fill, cover or otherwise protect any excavations which he may make in the public streets, roads, or alleys, with sufficient barriers and shall maintain warning lights at night as required under the road authority's specifications. He shall take all necessary precautions to guard the public effectually against all accidents from the beginning and continuing until the completion of the work. The Contractor shall be held responsible and shall hold the County harmless for all damages that may result from his neglect from taking any or all reasonable precautions against any accident to persons, animals, vehicles, or property of any kind.

Section 5.12: Water Connection Materials

The service connection two inches (2") or less in nominal diameter prior to the meter yoke or meter vault must be type "K" copper and joints must be flared or compression type ***(no solder joints)***. Connections larger than two inches (2") shall be of a heavy brass, type "K" copper or ductile iron, all as specified in Section 8.3 of these Rules and Regulations. After the meter vault the service line must be type "K" copper, or, 160 PSI (min.) ultra-high molecular weight polyethylene number PE 3406. When tapped into ductile iron pipe. The tap., corporation stop and the first three feet (3') of copper pipe shall be spray coated with a tar coating.

The service line ***must*** enter through the basement wall. No service is permitted under concrete basement floor. If slab home, a vault shall be issued. Piping under slab shall be sleeved with appropriately sized plastic gas pipe or other non-metallic smooth wall pipe.

Unions are not permitted on the homeowner's side of the curb box unless the length of the connection exceeds the factory copper coil length and is approved by the Sanitary Engineer.

On inside meter sets, the owner or builder must supply a minimum half inch (½") conduit installed within one foot (1') of the meter bar to the outside for a remote reader or the meter will not be set. A mounting block six inch (6") wide by eight inches (8") tall, minimum, shall be provided on all new homes to mount the touch pad and radio transceiver. Existing homes must provide similar mounting pad or some other means to mount the touch pad and transceiver.

The Sanitary Engineer shall have the authority to make changes in materials for use in systems under their jurisdiction.

If sleeves are permitted under pavement for the installation of water services, the ends must be capped to keep the sleeve free of limestone. At the time the water service is installed, MCSE reserves the right to require the Contractor to flush the sleeve free of rocks, debris, etc. to ensure a clear sleeve, free of limestone, to protect the copper service from corroding.

Section 5.13: Water Connection Locations and Depth

All water service connections shall be buried a minimum of forty-eight inches (48") below proposed finished grade and located a minimum of:

A Ten feet (10') from gas lines and electric lines.

B. Five feet (5') from lot lines.

C. Ten feet (10') from sewer lines and sewer service connections, unless the water line can be benched on undisturbed earth two feet (2') above sewer in same trench and a two feet (2') horizontal separation from sewer is maintained.

D. Taps on the main shall be made a minimum of three feet (3') from pipe bells and three feet (3') from other taps on the main.

E. Curb boxes shall have forty-eight inches (48") cover to finish grade and be in good operating condition at the time the meter is set.

F. Water curb boxes for new construction shall be installed three feet (3') beyond the backside of sidewalk on a public street (R/W) development, or five feet (5') typical from edge of pavement in private street development.

G. For new home construction, the existing water curb box location must be shown on the lot map per section 5.6. For curb boxes located less then fifteen feet (15') from the building, the builder shall move the curb box as directed by MCSE. If the existing curb box is not properly located on the lot improvement map and falls within fifteen feet (15') of the building, the MCSE will require that the curb box be relocated at the builders/owners expense.

H. For curb boxes that are within proposed driveway limits, the builder shall excavate back sufficient distance on the water service to move the curb box to a location outside the driveway limits (2' minimum). If space limitations do not allow for the relocation, i.e.: if on a cul-de-sac too close to a neighboring property line, then the curb box can remain in the concrete with the installation of an 18" square boxout in the concrete pavement.

Section 5.14: Directionally Drilled Water Service Connections

For inside meters, water service to be Type K-Copper from the water main the full length to the meter. No couplings permitted, 150' max. In the event the owner/contractor requests a change in material from copper to HDPE, or PE, then the meter must be placed outside in a vault with material transition from copper to alternative material at the meter vault.

For outside meters, the water service material from the tap at the main to the meter vault is to be determined by MCSE. On the home side of the meter vault, material may be copper, HDPE, PE, or any other material approved by MCSE.

Water services installed by directional drill method shall meet the minimum depth, utility offset, etc., and all other applicable requirements of the MCSE Rules and Regulations. The directional drill equipment used shall allow the contractor to accurately place flags or stakes at ten foot (10') intervals in a straight line horizontal direction, with more closely placed flags/stakes for curves and sweeps. The field measured depth at each flag/stake location must be clearly written in permanent ink on the flag/stake as work progresses to allow for follow up inspection and record sketch by MCSE Inspectors.

HDPE, PE water services installed by directional drill method shall include a integral tracer wire for the benefit of the homeowner to locate the water service in the future.

Section 5.15 Abandoning Wells and Cisterns

When a water service connection is extended to an existing home or building from the Medina County Water System, the existing water supply shall be completely separated from the County's water system. After the water service connection has been completed and inspected, the previous water supply system shall not be re-connected directly or indirectly to the County's water system. Wells or cisterns may be maintained for purposes such as, lawn sprinkling or other non-potable use provided complete segregation is maintained from the County's water system. No valve separating the two (2) systems will be allowed. Refer to Section 3.14 Backflow Prevention, for additional backflow prevention requirements.

Section 5.16 Curb Connection Installations

When it is necessary to install a tap on an existing water main, the tap shall be installed by the Sanitary Engineer, or his authorized representative, only upon payment of the applicable charges and fees.

Section 5.17 Single Residence Connections

The standard water service connection for a single family residence shall be constructed of one inch (1") copper pipe (unless larger diameter is required), type K, of one (1) continuous length. If a residence is set back from the main over 150 feet, or water pressure at the street is marginal, the MCSE may require a larger size connection to overcome frictional losses and/or the installation of a meter vault to be installed at the street. The Sanitary Engineer may permit the use of a closure piece with a flared fitting or brass compression fitting when the connection is longer than the normal manufactured length of copper pipe.

The service line must enter through the basement wall. No service is permitted under concrete basement floor. If slab home, service must go under footer and enter through the slab within required floor and wall offsets for meter yokes: six inch (6") minimum, three foot (3') maximum.

Section 5.18 Commercial, Industrial, or Multi-Family Connections

Building connection(s) for commercial, industrial, or multi-family buildings shall be constructed of a size and type of material as approved by the Sanitary Engineer after an application for the same has been made and reviewed.

Section 5.19 Pressure Regulating

All connections shall be equipped with a pressure regulating valve conforming to MCSE Standard Specifications and Regulations. A pressure regulator is suggested when the main line pressure is between sixty (60) and eighty (80) psi, and particularly if the house is more than twenty (20) years old. When pressures are eighty (80) psi or over, a regulator is required. Confirm requirements at time of permit application. Regulator must be in place before meter is set.

Section 5.20 Testing Connections

After the water service has been connected to the curb box and extended into the building, the water shall be turned on to enable the Sanitary Engineer to inspect the pipe and any fittings, under pressure, to determine if the connection is leaking. Any leaks which appear shall be cause for rejection of the work.

The water supply shall only be turned on by a representative of the Sanitary Engineer.

Section 5.21 City of Cleveland Regulations

In some areas of the County, the County of Medina obtains its water supply under contract with the City of Cleveland. The Rules and Regulations of the City of Cleveland Water Department shall govern the installing of water service connections to mains in the Cleveland Service Area. In Cleveland Service Areas, the Contractor or Owner must secure a permit from Medina County prior to scheduling with the City of Cleveland for the extension of the service connection from the curb box and the setting of a meter. Permits shall be obtained prior to the time that construction is started on the building connection.

Section 5.22 Water-Tap Installations

On County installed waterlines or where water services have otherwise not been installed by a Developer, Medina County shall install all water service connections two inches (2") in diameter or smaller from the main to a point just to the private property side of the right-of-way line or to the private property side of a utility easement. Such installations shall include the bore, valves and boxes for the same. All installations shall be in excavations prepared by the Owners Contractor at the expense of the Owner.

The Contractor must be present at the work site when the tap is made, and the excavation shall be prepared by the Contractor in such a manner that;

1. The water main is exposed around its total circumference so the tapping machine can be attached to the pipe, at least two feet (2') away from any bell.

2. Sufficient working room is provided to make the tap. The size of the excavation necessary will vary depending on the depth of the water main and the soil conditions. The trench shall be dewatered by appropriate sized pump. For long service connections, the push hole can be dug approximately four feet (4') from edge of pavement, and after push is completed can excavation continue over the main for the tap.

3. It's the Medina County Sanitary Engineer's policy that all excavations performed in connection with water and sewer taps MUST comply with the Standards and Specifications set forth in the CFR 1926.650 to 652. Simply stated, all excavations five foot (5') or deeper SHALL be properly boxed, shored, or laid back to the satisfaction of the Sanitary Engineer's representative at the work site.

4. Excavation of County owned water main shall not take place until the day the water tap is scheduled.

5. Traffic control, including, but not limited to signs, lights and flagman, shall be provided for all work at the road site. All sites SHALL be protected using the specifications and standards as set forth in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) and the ODOT Manual of Traffic Control for Construction and Maintenance Operations.

6. If the trench and/or traffic control is considered by the Sanitary Engineers representative to be unsafe and/or out of compliance with OSHA, OMUTCD and ODOT standards, all work will cease and will not be permitted to proceed until the standards are met. This is an action the Sanitary Engineers would prefer not to take. Therefore, we are asking for your assistance in eliminating, or minimizing, unnecessary delays by fully complying with all appropriate health and safety standards, guidelines, and policies.

7. The Contractor shall be responsible for researching the depth and any special conditions involving the water main at the point of the proposed connection prior to initiating excavation.

The location of the curb box along the right-of-way or easement line, will be determined by the Sanitary Engineer at the time of construction. Any excavation, backfill or restoration necessary to complete the installation of this water service connection shall be performed by the party ordering the connection or his Contractor.

The foregoing applies to service connections greater than two inches (2") with the following exceptions:

1. The Owner or his Contractor shall supply all materials. Materials must meet the Standard Specifications or be approved in writing by the Sanitary Engineer.

2. The Sanitary Engineer will install the saddle and make the tap on the main. All other work including boring under the street will be performed by the Contractor at the Owner's expense.

Section 5.23 Payment for Service Connections

The expense of installing the water connection, exclusive of the necessary excavation and restoration, shall be as determined by Commissioners Resolution and shall be collected by the Sanitary Engineer as a tap fee before making the installation.

Section 5.24 Meters Required

Meters and remote registers shall be maintained on all water service connections in use. At the time the permit is issued, it will be determined by MCSE if the meter will be set in the house or outside near the street. Meters shall be installed before delivery of water through such connections.

Meters shall be located in basements or mechanical rooms when less than one hundred fifty feet (150') from the main or in vaults at or near the utility or right-of-way lines as determined by the Sanitary Engineer when more than 150 feet from the main. Meter vaults must be separated by a minimum of five feet (5') from each other. Meters up to one inch (1") shall be installed by the Sanitary Engineer. Meters greater than one inch (1") shall be supplied by the Sanitary Engineer and installed by the Owner at the discretion of the Sanitary Engineer. The expense of all meters and water vaults constructed shall be borne by the Owner at the cost established by County Commissioners Resolution. Existing meters and registers that do not meet the specifications of the Sanitary Engineer, shall be repaired or replaced by the Sanitary Engineer at the expense of the Owner and title thereto be assigned to the Sanitary Engineer. Thereafter, such meter shall be maintained, repaired or replaced by the Sanitary Engineer without further charge.

A meter vault is also required for slab homes, if service length is greater than one hundred fifty feet (150'), or if a pond, lake or creek is located within fifty feet (50') of the water service. A meter vault may be required if the Sanitary Engineer determines it to be necessary based on site specific conditions.

On inside meter sets, the Owner or Contractor must supply a minimum one half inch (½") conduit installed within one foot (1') of the meter bar to the outside for a remote reader or the meter will not be set. A mounting block six inches (6") wide by eight inches (8") tall, minimum, shall be provided on all new construction to mount the touch pad and transceiver. Existing homes must provide similar mounting pad or some other approved means to mount the touch pad and transceiver. Meters and remote registers shall be installed by the Sanitary Engineer, at the expense of the Owner, and title thereto be assigned to the Sanitary Engineer. Thereafter, such meters and remote registers shall be maintained, repaired or replaced by the Sanitary Engineer without further charge, except as provided herein.

Connections maintained solely for fire protection may not require full-flow meters. This determination shall be made by the Sanitary Engineer's Office on a case-by-case basis.

Section 5.25 Damaged Meters and Remote Registers

All costs of replacement or repair for meters and remote registers which have been stolen, vandalized, damaged by freezing or heat while in use, tampered with, disconnected by any unauthorized personnel, or otherwise damaged by property Owner negligence shall be paid for by the property Owner. If any meter in use shall fail to register correctly within the limitations established by the Sanitary Engineer, the Owner shall be charged for water at the average daily rate of consumption estimated by the Sanitary Engineer based on past metered use.

Section 5.26 Fire Protection Connections

The Sanitary Engineer will not size building connections for fire protection. However he shall review, approve and/or disapprove fire connections and backflow prevention relative to compatibility with the Public Water System. Connections for fire protection shall be at least one size smaller than the street main but shall not exceed twelve inches (12") in diameter.

If a fire connection is unmetered, a vault shall be installed in accordance with appropriate engineered drawings provided by the Owner and approved by MCSE. All hydrants, valves, and outlets may be sealed by the MCSE.

A fire flow system layout must be submitted to MCSE and checked for cross connections. If a fire system is to be tested, MCSE requires forty-eight (48) hours advance notice, in writing, prior to testing. If a fire has occurred or the system accidentally activates, notice, in writing, must be sent to the MCSE within forty-eight (48) hours. If unauthorized use of a fire system is discovered, the MCSE may levy fines and/or require the installation of a compound meter in a vault at the street right-of-way at the Owner's expense. Non-compliance with MCSE requirements will result in termination of fire service to the building.

Section 5.27 Operations

A. Duties and Responsibilities

The MCWS shall provide an adequate supply of potable water for domestic, commercial, and industrial use at pressures in conformance with minimum standards required by federal drinking water requirements. The MCWS makes no guarantees of any fixed pressure nor does MCWS guarantee a continuous supply of water, these being subject to varying conditions of operation and maintenance of the water supply systems. If any consumers require fixed pressure or uninterrupted supply, then the consumer should provide tanks or other auxiliary supplies to provide water during a period of interruption.

The MCSE shall maintain a competent staff and maintain the MCWS in good serviceable condition so as to ensure, to the best of their ability, a continuous and quality level of service for the system consumers.

MCWS recognizes that the primary function of the water system is to provide potable water for domestic, commercial, and industrial customers for consumptive use. The MCWS does provide fire protection as a secondary function. The MCWS will not jeopardize its normal domestic function in the interest of fire protection.

The MCWS is established, operates and derives its legal authority under Chapter 6103 of the Ohio Revised Code.

B. Access to Premises

The MCSE reserves the right to enter, at any reasonable hour, the premises to which service has been extended, to install, inspect, maintain and replace meters or other devices relative to the supply of water. If access is denied for reasons deemed unacceptable by the Sanitary Engineer, service may be terminated and not be reinstated until the requests of the MCSE have been granted. The MCSE may choose to obtain a search warrant to enter the premises if determined by MCSE to be necessary. The MCSE may charge the Owner for reinstatement of service.

The water curb box shall be kept available and operational at all times. If found to be inoperable, MCSE personnel shall reserve the right to make repairs and/or replace the curb stop, box and/or rod to restore successful operation.

C. Contract

By obtaining water service from the MCWS, a contract between the Medina County Commissioners and the legal owner of record of the property being served, is created. Said property thereafter being subject to the Rules and Regulations of the MCSE.

D. Owner Request

All requests relating to turning on, turning off, removing, or installing a meter, etc., must be made in writing by the Owner or his authorized agent and submitted to MCSE. The MCSE will respond to an emergency request without a written request.

E. Maintenance, Repair and Emergency Shut-Down

When service is to be interrupted for normal maintenance, repair, or alterations, all consumers will be notified. Notice will be considered to be given if the resident is contacted in person or in writing by letter or leaflet. Notice may not be given in the event of an emergency or line break. MCWS will not be responsible for any claims of damages arising from service being turned off after notice has been given or in an emergency.

F. Sprinkling Ban

The Medina County Commissioners or the Medina County Sanitary Engineer may declare an emergency situation to exist and issue a sprinkling ban should water use reach a level at which continued unrestricted utilization will result in the potential draining of water towers and depressurization of the water system.

Notice of such ban shall be given to residents by letter, leaflet, through newspaper notices, radio or television announcements. Failure of any person, enterprise, establishment or owner to comply with said ban shall subject said person, enterprise, establishment, or owner to a fine of $500.00 for each violation of the no sprinkling ban.

G. Discontinued Service

The MCWS may discontinue water service and may with the authorization of the Medina County Board of Commissioners refuse to provide any future service to any premises without prior notice for any of the following reasons:

1. For unauthorized or unmetered water use resulting from tapping the service line before the meter, tapping an unmetered fire line, etc.

2. For interfering or tampering with the water meter or seals in an attempt to prevent proper meter registration.

3. For molesting curb stop and box service pipe, meter setter, and associated valves or any other item or fixture owned by the MCWS.

4. For cross connection or interconnection with any other source of water supply or by the installation of piping, plumbing, or fixtures which present the possibility of backflow or back siphonage into the potable water system.

5. For non-compliance in having a required backflow device tested within the required time frame.

6. When using water for the purpose of resale without first obtaining the proper permits and paying the appropriate fees and charges.

7. For unsafe or objectionable installations.

8. For failure to grant access to the premises as provided for herein.

9. For failure to pay for water service or other applicable charges.

10. If the owner or resident fails to comply with any of the Medina County Sanitary Engineers Rules and Regulations including maintenance responsibilities. Re-connection shall be at the discretion of the Sanitary Engineer.

H. Billing Period

The "remote read" device will be read by MCSE on a regular basis. Bills will be sent out every other month for residential customers and monthly for large commercial and industrial users. Bills will be based on actual water consumption between readings.

I. Fees and Charges

The following is a list of items for which fees and charges, or fines, may be levied. The amount of these fees, charges and fines are set forth by resolution by the Medina County Commissioners, and are available upon request. In all instances material costs shall be charged at cost plus twenty percent (20%) as established by Commissioners Resolution.

1. Minimum Monthly Bill - For every service where a meter is installed, a minimum monthly charge will be levied. That minimum monthly charge will be for 1,000 gallons of water billed at the current rate as set by the Medina County Commissioners. Water used beyond the gallons covered by the minimum monthly bill, will be purchased at the current rate per 1,000 gallons as established by the Medina County Commissioners.

2. Capacity Charge: Oversize Connections - For connections larger than required for consumptive and process use, especially unmetered connections for fire protection, will be charged a system capacity charge, in addition to any charges for water used.

3. Hydrant Repair Charge - Hydrants damaged by traffic accident, vandalism or other circumstances, will be repaired or replaced by the offending party at the material and labor costs necessary to restore the hydrant to operational condition. Materials shall be charged at cost plus twenty percent (20%) as established by Commissioners Resolution.

4. Meter Repair Charge - The MCWS will repair or replace meters whose operation condition has deteriorated due to normal service at no cost to the Owner. Meters damaged by freezing, heat, misuse, vandalism or tampering, will be repaired or replaced at the Owner's expense. The meter repair charges will not exceed the labor and material charges for installing a new meter.

5. Meter Test Charge - The Owner may request to have his meter tested for accuracy. For positive displacement meters, if the meter tests to within two percent (2%) accuracy, the Owner will be charged for the test and billing adjustments will not be made. If the meter tests beyond plus or minus two percent (2%) of actual flow, the owner does not pay for the test and adjustments to his account(s) will be made for two (2) previous billing periods only. For compound, fire service, or turbine meters, special arrangements must be made for testing and adjustments of accounts. Charges will be based on a time and material basis.

6. Water Main Repair - Anyone damaging a Medina County Water Main shall be charged all equipment, labor and material costs for executing the repair and making the line serviceable. In addition, those responsible for the damage, are accountable for any personal or property damage or liability resulting from the break.

7. Delinquent Account - Any account ten (10) days past due becomes a delinquent account and will be charged an additional ten percent (10%) on the past due amount. Any water account that remains past due for more that two (2) billing periods, may have service discontinued.

8. Re-connection Charge - Any account which has been discontinued, will pay a re-connection charge for re-establishing service. The charge shall be based on time and materials expended by the MCSE.

9. Charges For Water Loss - Any leak or water loss on a service connection located between the curb box and the meter, will be paid for by the Owner at the current water rate based on an estimated amount of water lost.

10. Unauthorized Use of Water - Anyone diverting or attempting to divert water, tampering in any way with the water system, or trying to obtain water without paying the MCWS for all applicable fees and charges may be fined or charged fees as appropriate. The MCWS may levy fees, as established by County Commissioners rate schedule, or fines, as permitted by law, charged for the estimated unmetered water used, required to install a meter on an unmetered fire line, and/or charged for all expenses incurred by the MCSE in investigating the fraud or theft. Under this section, the MCWS may terminate service to a property in violation. The foregoing Rules are not, in any way, intended to effect, waive, or modify any possible legal action or prosecution under the laws and criminal statutes of the State of Ohio pertaining to this crime.

11. Hydrant Permit - Anyone may purchase a hydrant permit for using a fire hydrant for water use on a temporary basis. A deposit may be required for the use of the meter. Hydrant permits may be issued for filling swimming pools or other reasonable large volume uses. Charges for water will be at the prevailing water rate based on an estimated or metered amount. Only employees of the MCSE shall operate the hydrant. A portion of the permit fee will be in the form of a non-refundable deposit.

12. Temporary Construction Water - Contractors or homeowners may purchase water from the County during the time their building is being constructed by paying the current flat fee to obtain a temporary water permit. The temporary permit will be issued for a four (4) month period. A double check backflow preventer and a hand valve will be required to be installed on the water service line for the duration of the permit. The Sanitary Engineer reserves the right to revoke such permit should he feel that any abuse of the permit or water supply is taking place.

13. Flushing and Disinfection - The flushing and disinfection charges are based on a time and materials basis. Hourly rates are set by Commissioners Resolution. Only employees of the MCSE are authorized to operate line and hydrant valves for the purpose of flushing and disinfection.

14. Other Charges - Anyone who requires an employee of the MCSE to travel to a premises or site for a purpose not covered elsewhere herein, shall be charged for time and materials at the prevailing rate established by Commissioners Resolution. Trips and work required on holiday or non business hours, shall be charged a higher rate than regular business hours per Commissioners Resolution.

Section 5.28 Plumbing Code

Ohio Plumbing Code requires that interior plumbing be inspected for new or modified water service. The code also requires that an expansion tank be installed on interior plumbing to protect the hot water tank flue from being damaged. It is important to protect the flue to prevent spent gasses from accumulating in the house. Residents may contact the County Plumbing Inspector between 8:00 and 9:00 am OR 3:30 to 4:30 pm at (330) 723-9523, Medina County Health Department, 4800 Ledgewood Drive, Medina, Ohio.

Section 5.29 Procedure To Abandon Water Service

When abandoning a water service Contractors must:

1. Obtain proper road work permit.
2. Schedule disconnection with MCSE permit department.
3. Excavate over water main at connection.
4. MCSE maintenance department will disconnect service from corp and install plug.
5. Contractor to cut line and pull out curb box.

There is a 24 hour minimum notice required to schedule an inspection.

CHAPTER SIX
PRETREATMENT STANDARDS

Section 6.1: General Provisions - Purpose and Policy

A. These Rules and Regulations set forth uniform requirements for Dischargers into the County's Publicly Owned Treatment Works (POTW) wastewater collection and treatment systems, and enable the County to protect public health in conformity with all applicable state and federal laws relating thereto.

The objective of these Rules and Regulations are:

1. To prevent the introduction of pollutants into the County wastewater system which will interfere with the normal operation of the system or contaminate the resulting sludge.

2. To prevent the introduction of pollutants into the County wastewater system which do not receive adequate treatment in the POTW, and which will pass through the system into receiving waters or the atmosphere or otherwise be incompatible with the system.

3. To improve the opportunity to recycle and reclaim wastewater and sludge from the system.

B. These Rules and Regulations provide for the management of discharges into the County wastewater system through the enforcement of administrative controls. These Rules and Regulations do not provide for the recovery of operations, maintenance, or replacement costs of the POTW or the costs associated with the construction of collection and treatment systems used by Industrial Dischargers, in proportion to their use of the POTW, which are the subject of separate enactments.

C. Medina County has established the legal authority to undertake all aspects of a Pretreatment Program. The Pretreatment Program has been endorsed by the Medina County Board of Commissioners, the body responsible for the operation of the program.

D. Application

An industry must, upon application for sewer service, present to the Sanitary Engineer a satisfactory tabulation of the waste to be discharged into the sanitary sewerage system and the volume of such waste; or, if this is not available, the expected waste analysis based on similar processes now in operation.

Permission to discharge to the Medina County sewerage system will be granted to Industrial Users by permits issued after each has demonstrated that it will conform to and abide by the regulations of the program, and after it's Accidental Discharge Protection Procedures have been approved by the County.

E. Pre-Treatment

The Sanitary Engineer may require pre-treatment of a waste prior to its discharge into a public sanitary sewer system. Acceptance of any waste by the Sanitary Engineer does not relieve the industry from providing additional pre-treatment if deemed necessary by the Sanitary Engineer at a later date, in the event that the Industrial Users waste adversely effects the operation of the treatment plant.

Proposed pre-treatment equipment shall be designed in detail and plans submitted to the Sanitary Engineer, and where applicable, the Ohio EPA, for approval prior to installation. Details shall include performance criteria and pollutant reduction calculations. Pre-treatment facilities shall be designed by a licensed, professional engineer with expertise in the area of the proposed treatment.

The industry is responsible for all costs associated with the design and construction of pre-treatment facilities. Pre-treatment facilities shall be maintained continuously in satisfactory and effective operation by the Owner, at his own expense.

Should pre-treatment equipment fail to meet the projected pollutant reductions to comply with the facility's Industrial Discharge Permit, the Sanitary Engineer may suspend sewer service until corrections can be made, or additional pre-treatment facilities are constructed.

F. Disconnection

Upon violation of any of the terms of these Rules and Regulations, the Sanitary Engineer shall have authority to disconnect any user's service connection from the County's sewer system. Such disconnections shall be reserved for incidents that may endanger the operation of the wastewater treatment plant, plant operators, maintenance line workers, public health, or incidents of gross negligence that may, if in the opinion of the Sanitary Engineer, are allowed to continue, result in such effects.

G. Special Agreements

No statements contained in these Rules & Regulations shall be construed as preventing any special agreement between the County and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the County for treatment, subject to an additional payment therefore by the industrial concern, for the increased cost incurred by the County.

H. Variability of Allowable Units

Any approval by the Sanitary Engineer of a type or capacity of an installation shall not relieve the Owner of the responsibility of revamping, enlarging or otherwise modifying such an installation, as may be necessary or required for compliance with any State or Federal agency. Any written or verbal agreement as to the limits of constituents, volumes of water, or volume of wastes shall not be considered as final approval for a continuing operation as these limits are subject to constant study and change as considered necessary to serve their intended propose and for County compliance with Revised Rule making from Regulating Authorities.

I. The Sanitary Engineer shall have authority to enter any property for the purpose of making inspections and/or obtaining samples of waste discharged into the sanitary sewer. If access to the property is denied, the MCSE will obtain a search warrant to gain access as necessary.

Section 6.2: General Discharge Prohibitions

No Discharger shall contribute or cause to be discharged, directly or indirectly, any of the following described substances into the wastewater disposal system or otherwise to the facilities of the County:

A. Any liquids, solids, or gases which by reason of their nature or quantity, create a fire or explosion hazard in the POTW including, but not limited to, gasoline, benzene, naphtha, fuel oil, motor oil, mineral spirits, commercial solvent, or waste streams with a closed cup flash point of less than 140°F or 60°C using the test method specified in 40 CFR 261.21.

B. Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, plastics, wood, paunch manure, hair and fleshings, entrails, lime residues, beer or distillery slops, chemical residues, paint or ink residues, cannery waste bulk solids, or any other solid or viscous substances which will or may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater system, including garbage that has not been properly shredded.

C. Any wastewater having a pH less than 6.0, or in special applications where approved by the Sanitary Engineer a pH less than 5.0, or pH higher than 12.0**,** or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel of the sewer system or POTW.

D. Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction to injure or interfere with any wastewater treatment process, to constitute a hazard to humans or animals, or to exceed the limits established by the County in compliance with applicable state or federal regulations. A toxic pollutant shall include, but not be limited to, any pollutant identified in the Toxic Pollutant List in Section 6.14, and as amended in the Federal Register subsequent to passage of these Rules and Regulations.

E. Any noxious or malodorous liquids, gases, or solids which either singly or by interaction are capable of creating a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for their maintenance and repair.

F. Any substance which may change the quality of the POTW's effluent or treatment residues, sludges, or scums so as to interfere with the County's goals for reclamation and reuse. In no case shall a substance discharged to the POTW cause the POTW to be in noncompliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Act; any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Clean Air Act, the Toxic Substances Control Act, or state standards applicable to the sludge management method being used.

G. Any substance which will cause the POTW to violate it's NPDES and other disposal system permits, or both.

H. Any substance with objectionable color not removed in the treatment process, such as, but not limited to, dye washes and vegetable tanning solutions, which would place the County in violation of its NPDES permit.

I. Any wastewater having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference; but in no case, wastewater with a temperature at the introduction into the POTW which exceeds 40° C (104°F) or exceeding 65°C (150°F) at the point of discharge.

J. Any slug load.

K. Any unpolluted water including, but not limited to, non-contact cooling water.

L. Any wastewater containing any radioisotopes of such half-life or concentration as exceed limits established by the County in compliance with applicable state or federal regulations.

M. Any hauled septic or industrial wastes without the written permission of the County Sanitary Engineer or authorized representative. Any removal of manhole lids, or other access to the sewer system for the purpose of discharging wastes without the permission of the Sanitary Engineer or his representative shall be considered a violation and shall be subject to enforcement action including fines and penalties as described in Section 6.8.

N. Any liquid or vapor having a concentration of fats, oils & grease in excess of 50 milligrams per liter; or any other wastes containing oils, greases, or substances that will solidify or become viscous at temperatures between 32°F and 150°F. (See Section 6.5 Fats, Oils & Greases for additional requirements.)

O. Any water or wastes that contain more than ten (10) milligrams per liter of hydrogen sulphide, sulphur dioxide, or nitrous oxide.

P. Any waters containing suspended solids of such character and quantity that unusual provision, attention, or expense is required to handle such materials at the POTW.

Q. Any concentrated dye wastes, spent tanning solutions, wastes which are highly colored, wastes which are of unusual volume, wastes with high concentrations of solids, biological oxygen demand, or chemical oxygen demand, or other composition that may create obstruction to the flow in sewers, or that may cause interference with the proper operation of the POTW.

R. The limits of concentrations for the following constituents will be furnished by the Sanitary Engineer upon request. The limits are to be used as a guide for industry and pre-treatment design, but may be altered by the Sanitary Engineer in the event of a cumulative overload on a particular pollutant at the POTW, or to meet revised limitations placed on the County by the Ohio EPA. The pollutants for which discharge limitations may be imposed include, but may not be limited to, ammonia, arsenic, barium, cadmium, chlorides, chromium, hexavalent chromium, copper, cyanide, fluorides, foaming agents, iron, lead, manganese, mercury, molybdenum, nickel, nitrates, phenols, phosphorus, selenium, silver and zinc.

S. Pollutant discharge limitations shall be subject to all NPDES requirements, including but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, pre-treatment standards and all local, state and federal standards.

T. Any industrial waste unless in conformance with Chapter 6 of these Rules and Regulations.

Section 6.3: Limitation on Wastewater Strength

A. National Categorical Pretreatment Standards

National categorical pretreatment standards as promulgated by the U.S. Environmental Protection Agency (EPA) pursuant to the Act shall be met by all Dischargers. An application for modification of the national categorical pretreatment standards may be considered for submittal to the Regional Administrator by the County, when the County's wastewater treatment system achieves consistent removal of the pollutants as defined by 40 CFR 403.7.

B. State Requirements

State requirements and limitations on discharges to the POTW shall be met by all Dischargers which are subject to such standards in any instance in which they are more stringent than federal requirements and limitations or those in these or any other applicable Rules and Regulations.

C. Local Pretreatment Program

The requirements and limitations of the Medina County Pretreatment Program shall be met by dischargers subject to such standards. Local limits are established by the County's Sanitary Engineers Office and approved by the Ohio EPA. The local limits are listed in all industrial discharge permits issued by the Sanitary Engineer and each parameter shall be regulated as a monthly average, except where noted. In the event that any state, federal or local limits conflict, the more stringent standard will apply.

D. Right of Revision

The County reserves the right to amend these Rules and Regulations, County issued discharge permits and the County pretreatment program as deemed necessary to comply with the objectives set forth in these Rules and Regulations, NPDES discharge permits or EPA Pretreatment Regulations. Individual industrial user significance classifications may be changed by the County, without prior Ohio EPA approval, as deemed necessary to meet these objectives. All changes in the Rules and Regulations, Discharge Permits, the Pretreatment Program and User Classifications shall be reported to the Ohio EPA with the Sanitary Engineer's Annual Pretreatment Program Report.

E. Dilution

No Discharger shall increase the use of potable or process water in any way for the purpose of diluting a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the standards set forth in these Rules and Regulations. This shall not prohibit the use of equalization tanks utilized to regulate flows.

F. Oil & Grease

Sewage containing more than 50 milligrams per liter (mg/l) of grease and oil as determined by standard methods or any oil discharge that would pass through or cause interference at the wastewater treatment facility is prohibited.

1. Oil and Grease interceptors shall be provided for both new and existing buildings when, in the opinion of the Plumbing Inspector and/or Sanitary Engineer, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts or any inflammable wastes, and other harmful ingredients, except that such interceptors shall not be required for private dwellings. All interceptors shall be of a type and capacity approved by the MCSE, per Section 6.5 of these Rules and Regulations, and shall be located to be readily and easily accessible for cleaning and inspection.

2. An industry may establish a Best Management Practice (BMP) to assist with the control and management of oil and grease in their wastewater discharge only with written approval by MCSE.

G. Maximum Allowable BOD

The admission into the public sewers of any water or wastes having a 5-day biochemical oxygen demand (BOD) in excess of 220 milligrams per liter (mg/l) on a 24-hour composite basis shall be prohibited unless specifically authorized by the County Sanitary Engineer under a surcharge condition.

An Industry may arrange to pay a surcharge to MCSE for an approved BOD discharge concentration in excess of the 220 mg/l limit with the approval of the Sanitary Engineer. The charge per pound for the excess loading shall be per the current billing rate are established by the Medina County Commissioners.

H. Maximum Allowable Total Suspended Solids

The admission into the public sewers of any waters or wastes having a total suspended solids (TSS) content in excess of 220 milligrams per liter (mg/l) on a 24-hour composite basis shall be prohibited unless specifically authorized by the County Sanitary Engineer under a surcharge condition.

An Industry may arrange to pay a surcharge to MCSE for an approved TSS discharge concentration in excess of the 220 mg/l limit with the approval of the Sanitary Engineer. The charge per pound for the excess loading shall be per the current billing rate established by the Medina County Commissioners.

I. Maximum Allowable Volume

The admission into the public sewers of any waters or wastes in volumes, or so constituted that existing dilution conditions in the sewers or at the water pollution control plant would be affected to the detriment of the facilities, shall be subject to the review and approval of the Sanitary Engineer. Where necessary, in the opinion of the Sanitary Engineer, pretreatment or equalizing units may be required to bring constituents of volume of flow within the limits

previously prescribed or to an otherwise acceptable level, and to hold or equalize flows so that no peak flow conditions may hamper the operation of any unit of the water pollution control facilities to provide flexibility in operation and accommodate changing conditions in the waste flow.

J. Metals

All system users shall discharge less than the established local limits of total cyanide, total arsenic, hexavalent chromium, molybdenum, selenium, chromium, copper, zinc, cadmium, nickel, lead, mercury, and silver into the County System unless permitted to do so by the Medina County Sanitary Engineer. Special metals discharge limits shall be issued to Industrial Users based on federal categorical pretreatment standards, Ohio EPA requirements and applicable loadings at the POTW. All local limits shall be regulated based on monthly averages, except where noted.

K. Mercury

MCSE must identify and reduce or manage mercury sources to the collection system in order to meet NPDES permit discharge limits and to comply with sludge disposal regulations. Industries may be required to provide a mercury inventory list, eliminate mercury sources or to prepare and comply with Mercury Best Management Practices (BMPs).

Where necessary, in the opinion of the Sanitary Engineer, the Owner shall provide and operate, at his own expense, such pretreatment as may be required to reduce the wastewater characteristics to meet the above requirements.

Section 6.4: Accidental Discharges

A. Notification

Dischargers shall notify the County immediately upon the occurrence of a "slug load" or accidental discharge of substances prohibited by these Rules and Regulations. The notification shall include the location of the discharge, date and time thereof, type of waste, concentration, volume and the nature of corrective action taken. Any discharger who discharges slugs or accidental discharge of prohibited materials shall be liable for any expense, loss, or damage to the POTW, in addition to the amount of any fines imposed upon the County on account thereof under state or federal law.

B. **Slug Discharges**

A slug discharge is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the POTW's regulations, local limits or permit conditions. Each Significant Industrial User will be evaluated to determine if they need to develop a plan or install a device or structure to control a potential slug discharge. Each Significant User currently permitted and discharging to the MCSE sewer system shall provide information regarding their operations and any sources of potential for slug discharges within six (6) months of the effective date of this revision. Any new

Significant Industrial Users will be required to provide this information before a industrial discharge permit is issued.

All Significant Industrial Users shall evaluate the need for a plan, device or structure to control a potential slug discharge a minimum of once per industrial discharge permit cycle, or once every five (5) years.

Significant Industrial Users are required to notify MCSE immediately of any changes at it's facility affecting potential for a slug discharge. Also, each Significant Industrial User must notify MCSE in writing of any significant changes to their operations or system which might alter the nature, quality, or volume of it's wastewater a minimum of thirty (30) days before the change.

1. Slug Discharge Control Plan

If MCSE decides that a slug control plan is needed, the plan shall contain, at a minimum, the following elements:

a. Description of discharge practices, including non-routine batch discharges;
b. Description of stored chemicals;
c. Procedures for immediately notifying the POTW of slug discharges, including any discharge that would violate a prohibition under 40CFR403.5(b) with procedures for follow-up written notification within five (5) days;
d. If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response.

C. Spill Prevention

Each discharger shall provide protection from accidental discharge of prohibited or regulated materials or substances established by these Rules and Regulations. Where necessary, facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the dischargers cost and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the County by new industrial and commercial dischargers, who have such a spill potential, prior to their connection to the sewer system. Existing dischargers with such spill potential shall have such a plan on file with or shall produce such a plan upon the request of the County Sanitary Engineers office.

Spill Prevention & Control (SPC) Plans shall include but not be limited to the following:

- A complete list of materials and their representative volumes, stored on site, that have the potential to be discharged to the sewer system.
- The location, in the building, of such materials.
- The proximity of floor drains to the materials.

- What measures have been taken to prevent such discharges.
- What measures are to be taken should such a discharge occur.
- Employee Spill Prevention & Remediation Education Programs
- Emergency telephone numbers including the County Sanitary Engineers Office.
- Location of emergency instructions postings throughout the building.

All plans must include immediate County notification of spills as required in Section 6.4(A) of these Rules and Regulations.

D. Laboratories

I.U.'s with on-site laboratories shall comply with the general discharge prohibitions of Section 6.3. Laboratories shall have an Environment Management System **(EMS)** in place to ensure compliance with all applicable regulations. Existing dischargers with laboratory facilities shall have such a plan on file with or shall produce such a plan upon the request of the County Sanitary Engineers Office

1. Environmental Management Systems (EMS)

   Shall include, but not be limited to the following:

   - A description of lab activities.
   - A complete list of materials, stored in the lab, that have the potential to be discharged to the sewer system.
   - A complete listing of operating permits for the lab (e.g. air emissions, hazard waste, non-hazardous solid waste).
   - Name and contact phone number for manager of lab operations.
   - A schematic drawing of laboratory sinks, piping and floor drains.
   - What measures have been taken to prevent accidental discharges.
   - What measures are to be taken should such a discharge occur.
   - Emergency telephone numbers including the County Sanitary Engineers Office.
   - Location of emergency instructions postings in the lab.

   All plans must include immediate County notification of spills as required in Section 6.4(A) of these Rules and Regulations.
2. Mercury Assessment

   Upon request of the County, laboratories shall complete a mercury assessment checklist to account for various forms of mercury on-site as part of our regional inventory and reduction program.

Section 6.5: Fats, Oils & Grease

A. Separator Requirement and Approval

Service connections with non-residential wastewater containing grease, sand, oil, or any other deleterious materials shall have separators installed on the service lateral. The design of any required separator shall be submitted for review and approval by MCSE prior to installation.

- Grease traps or grease interceptors shall be required to receive the drainage from fixtures and equipment with grease-laden waste located in food preparation areas, such as in restaurants, hotel kitchens, school kitchens, bars, factory cafeterias, or restaurants and clubs.

- Oil interceptors are required at repair garages, oil change and lubrication facilities, car washing facilities with engine or undercarriage cleaning capability, and at factories where oily and grease bearing liquid wastes are produced.

- A grease trap or a grease interceptor shall not typically be required for individual dwelling units or any private living quarters.

B. Installation

When grease separation is required by applicable plumbing codes, the Medina County Health Department, or MCSE, a grease interceptor shall be installed immediately outside the building where there is easy access for cleaning, unless the applicant demonstrates that such an interceptor is impractical. If the applicant can demonstrate that the outside interceptor is impractical to the satisfaction of the MCSE, MCSE may authorize installation of an interior grease trap with a minimum 40 pound size, conforming to Standard PDI-G101 (Plumbing and Drainage Institute). At a minimum, traps or interceptors shall conform to the requirements of Section 1003 of the Ohio Building Code. The interior PDI shall be located as near as possible to the source and allow for easy maintenance.

C. Grease Trap Sizing and Rating Standards

As a result of PDI's testing and rating procedure, four (4) different sized grease interceptors that are acceptable to MCSE are specified below. The sizes are based on certification standard flow rates and grease retention capacity ratings for grease interceptors. The following table lists the PDI size symbol for each of the standard rated grease traps.

Plumbing and Drainage Institute Grease Trap Sizing and Rating Table

PDI Size Symbol	20	25	35	50	75	100
Flow Rate (GPM)	20	25	35	50	75	100
Flow Rate (L/min)	77	95	132	191	230	378
Grease Capacity (Lbs.)	40	50	70	100	150	200
Grease Capacity (Kg)	18.2	22.7	31.8	45.4	68	90.8

Reference: Table 1, Standard PDI-G101 (2010)

D. Grease Interceptor Sizing

___1. Based on Pipe Diameter Size and Slope

When the final configuration of fixtures in a facility is not known or to allow for additional fixtures in the future, this method shall be used or to size the interceptor for the maximum flow that the drain line from the facility can carry.

Pipe Size (Inches)	Full Pipe Flow @ ¼ slope	Interceptor Size 1 minute drain
2"	19.44 gpm	20 gpm
3"	58.67 gpm	75 gpm
4"	125.77 gpm	-

2. Based on Fixtures

The procedure to size grease interceptors to suit requirements of specific fixtures is provided in the following table. An example of the sizing formula application is included to illustrate the steps.

Based on Fixtures

Steps	Formula	Example
1	Determine cubic content of fixture by multiplying length x width x depth	A sink 48" long by 24" wide by 12" deep. Cubic content 48 x 24 x 12 = 13,824 cubic inches.
2	Determine capacity in gallons. 1 gal. = 231 cubic inches	Contents in gallons: 13,824 / 231 = 59.8 gallons
3	Determine actual drainage load. The fixture is normally filled to about 75% of capacity with water. The items being washed displace about 25% of the fixture content, thus actual drainage load = 75% of fixture capacity.	Actual drainage load: 0.75 x 59.8 = 44.9 gallons
4	Determine flow rate using a one (1) minute drainage period. Drainage period is the actual time required to completely drain the fixture. Flow rate = Actual Drainage Load / Drainage Period	Calculate the flow rate for one-minute period: 44.9 / 1 = 44.9 GPM flow rate
5	Select Interceptor. From the "Sizing and Rating Table" select interceptor which corresponds to the flow rate calculated. Note: Select next larger size when flow rate falls between two sizes listed.	For a one-minute period- 44.9 GPM requires PDI size "50"

Reference: Table 8.3.2, Standard PDI-G101 (2010)

3. Based on known compartment sizing

The following is a selection chart for standard PDI Certified grease interceptors applicable to various fixtures commonly used in domestic, commercial and institutional installations.

Selection Chart

Fixture Compartment Size	Number of Compartments	Drainage Load (Gallons)	Recommended PDI Size Grease Interceptor
			1-minute Drainage period
18 x 12 x 6	1	4.2	7
16 x 14 x 8	1	5.8	7
20 x 18 x 8	1	9.4	10
18 x 16 x 8	2	15.0	15
20 x 18 x 8	2	18.7	20
30 x 20 x 8	1	15.6	20
24 x 20 x 12	1	18.7	20
22 x 20 x 8	2	22.9	25
22 x 20 x 12	2	34.3	35
24 x 24 x 12	2	44.9	50
22 x 20 x 12	4	68.6	75
24 x 24 x 12	4	89.8	100

E. Dishwashers

A separate grease interceptor is recommended for each commercial dishwasher. The size of the interceptor is determined by the GPM discharge rate of the dishwasher as specified by the manufacturer. Select proper interceptor of equivalent or next higher rate from Table 6.5C.

F. Multiple Fixtures

Where multiple fixtures are served by a single interceptor, calculate the total capacity of all fixtures, establish the maximum number of fixtures that may be drained simultaneously and apply this factor to the total capacity to determine the maximum simultaneous capacity. Then proceed with sizing and selection of interceptor using sizing formulas in Part 6.5D.

G. Grease Interceptor Sizing Procedure Based on Facility Operation

Where applicable, or where directed by MCSE, grease interceptor sizing shall be based upon the actual facility loading and operations. The procedure to size Food Service Establishment (FSE) grease interceptors to suit facility operations is provided in the following table. An example of the sizing formula application is included to illustrate the steps.

Procedure for Sizing Grease Interceptor Based on FSE Operation

Steps	Formula	Example
1	Calculate the number of meals per peak hour by multiplying seating capacity x meal factor based on establishment type. **Establishment Type** — **Meal Factor** Fast Food (45 min) — 1.33 Restaurant (60 min) — 1.00 Leisure Dining (90 min) — 0.67 Dinner Club (120 min) — 0.50	A fast food establishment has a seating capacity of 40 people: 40 seats x 1.33 meal factor = 53.2 meals per hour
2	Determine the Waste Flow Rate: **Condition** — **Flow Rate** With a Dishwasher — 6 Gallons Without a Dishwasher — 5 Gallons Single Service Kitchen — 2 Gallons Food Waste Disposer Only — 1 Gallon	Facility has a dishwasher: Select a flow rate of 6 gallons
3	Determine the Retention Time: **Retention Time** Commercial Kitchen Waste Dishwasher — 2.5 Hours Single Service Kitchen Single Serving — 1.5 Hours	Facility is commercial kitchen with dishwasher: Select a retention time of 2.5 hours
4	Determine the Storage Factor (S.F.) **Condition** — **S.F.** Fully Equipped Commercial Hours of Operation 8 hours — 1.00 12 hours — 1.50 16 hours — 2.00 24 hours — 3.00 Single Service Kitchen — 1.50	Facility kitchen in operation 16 hours per day: Select a storage factor of 2.00
5	Calculate liquid capacity by multiplying No. of peak meals per hour (Step 1) x waste flow rate (Step 2) x retention time (Step 3) x storage factor.	53.2 x 6 x 2.5 x 2.00 = 1,596 gallons
6	Select appropriate Grease Interceptor size using the required liquid capacity determined in Step 5 as recommended by the manufacturer.	Select 2,000 gallon capacity grease interceptor

Reference: The Uniform Plumbing Code Formula (Modified)

H. Exterior Interceptor Performance Criteria

Exterior interceptors for removal of fats, oils, greases (FOG) shall meet the following minimum criteria in order to qualify for an exemption from the requirements of Chapter 6111 of the Ohio Revised Code for permit-to-install or plan approval by the Ohio EPA. The FOG exterior interceptor shall:

- Discharge to the Medina County Sanitary Sewer System;
- Be designed by a registered/licensed professional;

- Be designed to have a minimum contact time within the interceptor of twenty (20) minutes;
- Be designed to remove at least ninety-five percent (95%) of the incoming FOG or to meet the County's 50 mg/l maximum effluent concentration, whichever is more stringent;
- Incorporate an observation/monitoring well at its discharge point, prior to entering the disposal system;
- Serve only establishments that generate no more than peak flows of five hundred gallons per minute (500 gpm) of FOG laden sewage;
- Be designed to retain intercepted FOG material without permitting discharge of said material to the sanitary sewer system.

Any exterior interceptor design that does not satisfy the minimum criteria as outlined above shall not be exempt, and shall require permit-to-install or plan approval by the Ohio EPA.

FOG interceptors used for industrial or other wastewater as defined by Chapter 6111 of the Ohio Revised Code are not exempted from the requirements of obtaining a permit-to-install or plan approval by the Ohio EPA.

I. Interceptor Maintenance

Grease interceptors shall be maintained by the facility owners, at their expense, and in continuously efficient operation at all times. The Owners shall have the interceptors inspected monthly and cleaned when the inspection shows that it is necessary. The cleaning schedule may be determined by measuring how much grease has been trapped over a period of time. Cleaning the interceptor shall include removal of grease from the top of the separation chamber as well as any solids which have accumulated along the bottom. The use of chemicals, such as enzymes or emulsifiers, or "bacteria" (organisms) designed to digest waste are prohibited for use with conventional grease traps or interceptors. Persons other than the Owner who are engaged by the Owner to clean and/or inspect the interceptor shall be properly registered with the Medina County Health Department.

J. Oil Interceptor Design Requirements

Oil separators shall have a depth of not less than 2 feet below the invert of the discharge drain. The outlet opening of the separator shall not have less than an 18-inch water seal. Where automobiles are serviced, greased, repaired or washed or where gasoline is dispensed, oil separators shall have a minimum capacity of 6 cubic feet for the first 100 square feet of area to be drained, plus 1 cubic foot for each additional 100 square feet of area to be drained into the separator, or a minimum of 500 gallons, whichever is more stringent.

K. Fats, Oils & Grease Best Management Practices

All food service operations or retail food establishments (FSE) that produce, or may produce wastewater containing Fats, Oils and Grease (FOG) that are discharged, directly or indirectly, to the Medina County sewer system shall be required to develop a Best Management Practice (BMP). Generally, any commercial or industrial facility that meets both the following criteria is a FOG FSE: 1) the facility is licensed by Ohio Revised Code 3717 to maintain a Food

Service Operation License or a Retail Food Establishment License (or equivalent); and 2) the facility is required by the applicable plumbing code to have a three (3) compartment sink and/or grease trap/interceptor.

The BMP shall meet the following minimum criteria:

- All FSEs shall prepare a written FOG BMP designed to minimize the amount of FOG waste discharged to the sanitary sewers. The FOG BMP shall list grease sources, and identify handling/cleaning practices that will minimize oil and grease discharges. The FOG BMP shall also list standard operating procedures to minimize oil and grease discharges or buildups in sanitary sewers.

- The FOG BMP shall specify the necessary inspection, cleaning frequency, and record keeping for maintaining any grease traps or interceptors located on site. The FOG BMP shall include the manufacturer's recommendations or instructions for operation and maintenance of the grease traps or interceptors or both. If recommendations or instructions from the manufacturer are not available, the FOG FSE shall develop operation and maintenance procedures based on best professional judgement.

- The FOG BMP shall be signed and dated by a responsible company official.

- The FOG FSE shall follow it's FOG BMP.

- If requested, the FOG FSE shall make it's FOG BMP and all relevant supporting documents available to an inspector from MCSE or the Medina County Health Department. If requested, the FOG FSE shall provide copies of the BMP to the inspector. If the Sanitary Engineer or the Medina County Health Department request changes or modifications to the FOG BMP, the changes shall be made by the FOG FSE within the specified time period. If the changes or modifications are not performed within the specified time period, the Sanitary Engineer may pursue further administrative action.

L. Record Keeping

The Owner shall maintain current inspection records on the premises showing the dates inspected, inspector's name and results of the inspection; and cleaning logs indicating dates when cleaned, hauler's name and phone number, and the final disposal location of the accumulated material from within the interceptor. All materials removed shall be disposed of in a manner that will not permit them to enter the storm sewer or sanitary sewer collection system. Inspection records and cleaning logs shall be maintained for a period of three (3) years.

M. MCSE Right to Inspect

The Owners of interceptors shall allow the Sanitary Engineer to view the cleaning logs and/or to inspect the interceptor at any reasonable time. If it is found that the interceptor needs to be cleaned, the Sanitary Engineer shall so order in writing. If the interceptor is not cleaned in an approved manner within fourteen (14) calendar days, the Sanitary Engineer may pursue further administrative action against the Owner.

N. Fats, Oil & Grease Disposal

Oil and grease shall be stored in proper containers away from any sanitary or storm drains. Waste fats, oils and grease may be valuable to a rendering company. If a rendering company is not utilized, a grease collection service or a grease trap cleaning service shall haul away grease waste.

Persons engaged by the Owner to collect and haul away fats, oils and greases shall be properly registered with the Medina County Health Department (MCHD).

O. Liability for Damages

If blockages occur in the sewer collection system downstream from properties that discharge grease laden wastewater, the Sanitary Engineer shall investigate all potential sources. If upon inspection of the interceptor(s) it is found that the interceptor needs to be cleaned, then the Owner or Owners of such interceptors will be instructed to have the interceptor cleaned immediately. If the Sanitary Engineer can determine, based on sanitary sewer inspection, grease interceptor condition and/or cleaning records that a specific business or businesses have caused or contributed to the blockage , the owner(s) shall be held liable for any damages resulting from such blockages.

P. Inspection Policy for Oil/Grease Interceptors

- The inspection responsibility for the MCHD ends 30" beyond the grease/oil interceptor. MCSE responsibility will begin at the 30" point and continue to the connection with the sanitary sewer main.

- Schedule 40 piping with glued joints is acceptable from the building plumbing, to the interceptor, and out the interceptor to the 30" line. On the outlet end of the grease/oil interceptor, the SCH 40 pipe shall transition to ASTM D3034 SDR 35 gasketed joint pipe.

- Oil/grease interceptors shall be located no more than 75' from an appliance. If the separation distance exceeds 75', then the MCHD requires an inside PDI sized for the fixture instead of an outside unit.

- The MCHD will continue to work with the permit applicant to determine their trap and vent requirements, flammable vs. non-flammable system requirements, etc. MCHD will still permit and inspect, and require the system test - up to the end of the stub on the effluent side of the tank.

- If the design of the building routes plumbing outside, through an oil/grease interceptor and then routs back through the building, MCSE shall approve oil/grease interceptor sizing, but all inspection is the responsibility of MCHD.

Section 6.6: Fees - Purpose

A. It is the purpose of this Chapter to provide for the payment of fees from Dischargers to the County's wastewater disposal system, to compensate the County for the cost of administration of the pretreatment program established herein.

It is the conviction of the Medina County Administration that the Pretreatment Program is a joint effort of the citizens of Medina County and of its industries to ensure proper POTW operation and to protect this region's waterways. However, fairness dictates that the cost of the program should be borne by the industrial community. Thus, those direct costs associated with demand sample collection and laboratory analysis shall be billed promptly to the Industrial User (IU) under investigation. Other direct costs associated with record keeping, program update, IU contact, and direct Program supervision (Pretreatment Coordinator) shall be billed monthly, or bi-monthly to the individual IU's as a surcharge based on the average water usage of each IU.

B. The Board of County Commissioners shall adopt charges and fees which may include:

1. Fees for filing appeals.

2. Fees for reviewing accidental discharge procedures and construction.

3. Fees for monitoring, laboratory analysis, inspections, and surveillance procedures.

C. Charges for the repair of County owned sanitary sewers or treatment facilities, damaged by discharges in violation of these Rules and Regulations or federal or local pretreatment requirements, will be directed toward the industrial user responsible for the illegal discharge. Such charges will include labor, materials and machine operating costs.

Section 6.7: Wastewater Dischargers

It shall be unlawful to discharge sewage, industrial wastes, or other wastes to any sewer outlet within the jurisdiction of the County without having first complied with the terms of these Rules and Regulations.

A. Wastewater Discharge

1. General Disclosure

All dischargers proposing to connect to or to discharge sewage, industrial wastes, and other wastes to the POTW shall comply with all terms of these Rules and Regulations.

2. Disclosure Forms

Industrial Dischargers shall complete and file with the County a disclosure declaration in the form prescribed by the County. Existing Industrial Dischargers shall file disclosure

forms within 30 days after the effective date of these Rules and Regulations, and proposed new Dischargers shall file disclosure forms at least 90 days prior to connecting to the POTW. The disclosure to be made by the Discharger shall be made on written forms provided by the County.

Disclosure forms are to be updated immediately upon the change in quantity or quality of a discharge or upon the promulgation of new categorical pretreatment standards applicable to a particular discharger.

3. Additional Pretreatment

Where additional pretreatment and/or O & M activities will be required to comply with Federal, State or Local pretreatment regulations, the Discharger shall provide a declaration of the shortest schedule by which the Discharger will provide such additional pretreatment and/or implementation of additional operational and maintenance activities.

A. The schedule shall contain milestone dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the Discharger to comply with the requirements of these Rules and Regulations including, but not limited to dates relating to hiring an engineer, completing preliminary plans, completing final plans, executing contract for major components, commencing construction, completing construction, and all other acts to achieve compliance with these Rules and Regulations.

B. Under no circumstances shall the County permit a time increment for any single step directed toward compliance which exceeds nine months.

C. Not more than 14 days following each milestone date in the schedule and the final date for compliance, the Discharger shall submit a progress report to the County, including no less than a statement whether it complied with the increment of progress represented by that milestone date and, if not, the date on which it expects to comply with this increment of progress, the reasons for delay, and the steps being taken by the Discharger to return the construction to the approved schedule. In no event shall more than nine months elapse between such progress reports to the County.

4. Inspection and Sampling

The County may inspect the monitoring facilities of any Discharger to determine compliance with the requirements of these Rules and Regulations. The Discharger shall allow the County or its representatives to enter upon the premises of the Discharger at all reasonable hours, for the purposes of inspection, sampling, or records examination. The County shall have the right to set up on the Discharger's property necessary devices to conduct sampling, inspection, compliance monitoring, metering operations, or all of these. The County shall have the right to copy the Discharger's records relevant to determining compliance with the requirements of these Rules and Regulations. Results of sampling, inspection, monitoring, and metering done by the County will be available to the Discharger.

The County will evaluate the complete disclosure form and data furnished by the Discharger and may require additional information. Within 30 days after full evaluation and acceptance of the data furnished, the County shall notify the Discharger of the County's acceptance or non-acceptance thereof.

B. Permit To Discharge

All industrial entities who discharge or have the potential to discharge pollutants in excess of those typically found in domestic sewage, must obtain a discharge permit from the County Sanitary Engineer prior to discharging to the sewer system.

1. After receipt of a wastewater disclosure form and acceptance of the entities waste stream, the County will issue a discharge permit. Permits will include maximum discharge limits for specified pollutants, Best Management Practices, guidelines, self-monitoring requirements, reporting requirements, requirements to control slug discharges if determined by the County to be necessary, and other information pertinent to the entities compliance with federal, state and county pretreatment requirements. Local limits provided in the discharge permit shall be regulated as monthly averages, except where noted.

2. New Source Dischargers must place into operation all facilities, structures and programs necessary to meet the requirements of the County discharge permit and state and federal pretreatment standards prior to discharging to the sanitary sewer system. Compliance with all local limits and categorical standards will be obtained as soon as possible but not later than 90 days after the commencement of the discharge. Local limits provided in the discharge permit shall be regulated as a monthly average, except where noted.

C. Standard Modifications

The County reserves the right to amend these Rules and Regulations and the terms and conditions hereof in order to ensure compliance by the County with applicable laws and regulations. Where a Discharger, subject to a National Categorical Pretreatment Standard, has not previously submitted a disclosure form as required by Section 6.6 (A)(2), the Discharger shall file a disclosure form with the County within 180 days after the promulgation of the applicable National Pretreatment Standard by the U.S. EPA. In addition, any Discharger operating on the basis of a previous filing of a disclosure statement shall submit to the County within 180 days after the promulgation of an applicable National Categorical Pretreatment Standard, any additional information required by the County's disclosure statement.

D. Reporting Requirements for Dischargers

1. Categorical 90 Day Compliance Report

New Categorical Dischargers are required to meet all Categorical Pretreatment limits within 90 days following their initial discharge to the sanitary sewer. Within 90 days following commencement of the introduction of wastewater into the POTW by a New

Categorical Discharger, the Discharger subject to these Rules and Regulations shall submit to the County a report indicating the nature and concentration of all prohibited or regulated substances contained in its discharge, production rates, the average and maximum daily flow in gallons**,** and documentation indicating compliance with a BMP when determined to be necessary**.** The report shall state whether the applicable Pretreatment Standards or Requirements are being met on a consistent basis, and if not, what additional O & M or pretreatment or both is necessary to bring the Discharger into compliance with the applicable Pretreatment Standards or Requirements. This statement shall be signed by an authorized representative of the Discharger, as required in Section 6.6 (D)(3)(C).

2. Periodic Compliance Reports

   A. Categorical Industries

      Any Discharger subject to Federal Categorical Pretreatment Standards shall submit to the County quarterly, unless required more frequently by the County, a report indicating the nature and concentration of prohibited or regulated substances in the effluent which are limited by applicable Categorical Pretreatment Standards. This report shall include a record of all measure or estimated average and maximum daily flows during the reporting period. Flows shall be reported on the basis of actual measurement, provided however, where cost or feasibility considerations justify, the County may accept reports of average and maximum flows estimated by verifiable techniques. Discharger is required to submit documentation indicating compliance with a BMP at the frequency specified in their permit, and/or when determined by the County to be necessary**.** The County, for good cause shown, considering such factors as local high or low flow rates, holidays, budget cycles, or other extenuating factors, may authorize the submission of said reports on months other than those specified above.

   B. Non-Categorical Dischargers

      Reports indicating pollutant concentrations, flow rates and production rates may be required of Industrial Users not subject to Categorical Pretreatment Standards as deemed necessary by the County Sanitary Engineer. Reporting frequencies, sampling frequencies and report content will be clearly detailed in the entities discharge permit.

3. Report Preparation

   A. Report Content

      Reports shall contain all results of sampling and analysis of the discharge, including the flow and the nature and concentration of pollutants, and loading where required by the County. The frequency of monitoring by the Discharger shall be as prescribed in the Dischargers' County issued discharge permit. If pollutant concentration in the discharge is variable, the County may require the installation of flow monitoring facilities, instruments, and recording devices to enable accurate measurement of flows

as determined to be necessary**.** These may include a continuous sampling pump coupled to a flow meter in such a way that the size of the sample is proportional to the total flow. The Discharger shall be responsible for the collection and testing of aforementioned samples. All tests shall be performed in laboratories approved by the County. Samples shall be collected in such a manner as to be representative of the composition of the wastes. Every care shall be exercised in the collection of the sample to ensure their preservation in a state comparable to that at the time the sample was taken.

B. Methods of Analysis

All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in this section shall be determined in accordance with 40 CFR Part 136 or equivalent methods approved by the EPA.

Any analysis shall be taken at the control manhole provided for in this section. In the event that a special control manhole is not required, the location for industry and County sampling will be indicated in the industry's discharge permit. The costs of performing the measurements, tests, and analysis by the Sanitary Engineer shall be borne by the Industry as outlined in Section 6.6.

C. Signatory Requirements

All reports submitted to Medina County must be signed by:

1. A responsible Corporate Officer if the Industrial User is a Corporation. A responsible Corporate Officer means a President, Secretary, Treasurer or Vice President of the Corporation in charge of a principle business function, or any other person who performs similar policy making decisions for the Corporation.

2. A Manager of one (1) or more manufacturing, production, or operation facilities for a Corporation employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million.

   Manager must be authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and if initiating and directing other comprehensive measures, to assure long-term environmental compliance with environmental laws and regulations.

   Manager must also be responsible for ensuring that the necessary systems are established or that the necessary actions are taken to gather complete and accurate information for industrial permit requirements.

   Additionally, they must be assigned or delegated the authority to sign documents in accordance with corporate procedures.

3. A General Partner or Proprietor if the Industrial User submitting the reports is a partnership or sole proprietorship respectively.

4. A duly authorized representative of the individual designated in paragraph**s** 1, 2, or 3 above if:

   A. The authorization is made in writing by the individual described in paragraphs 1, 2, or 3.
   B. The authorization specifies either an individual or a position having responsibility for the operation of the facility.
   C. The written authorization is submitted to the County.

5. If an authorization under paragraph 4 is no longer accurate because of a change of personnel or position, a new authorization satisfying the requirements of paragraph 4 must be submitted to the County.

   As required by 40 CFR 403.6a2ii, all reports shall include a certification statement which states the following:

   "I certify under penalty of law that this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the people managing the system, or those responsible for gathering the information, the information is to the best of my knowledge, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

D. Monitoring Facilities

Each Discharger shall provide and operate at the Discharger's own expense a monitoring facility to allow inspection, sampling, and flow measurement of each sewer discharge to the County. Each monitoring facility shall be situated on the Discharger's premises. Except where such a location would be impractical or cause undue hardship on the Discharger, the County may concur with the facility being constructed in the public street or sidewalk area providing that the facility is located so that it will not be obstructed by landscaping or parked vehicles. There shall be ample room in or near such sampling facility to allow accurate sampling and preparation of samples for analysis. The facility, sampling, and measuring equipment shall be maintained at all times in a safe and proper operating condition at the expense of the Discharger.

All monitoring facilities shall be constructed and maintained in accordance with all applicable local construction standards and specifications. Construction shall be completed within 120 days of receipt of written notice from the County directing the Discharger to construct the facilities.

The County Sanitary Engineer may require an inspection and sampling manhole or structure with an opening of no less than 24 inches diameter and internal diameter of no less than 48 inches containing flow measuring, recording, and sampling equipment as required by the County to ensure compliance with these Rules and Regulations. Such structure may be utilized by the Discharger for his monitoring program if approved by the County.

E. Confidential Information

Information and data furnished to the County with respect to the nature and frequency of discharge shall be available to the public or other governmental agency without restriction unless the Discharger specifically requests and is able to demonstrate to the satisfaction of the County that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets or proprietary information of the Discharger. When requested by a Discharger furnishing a report, the portions of a report which may disclose trade secrets or secret processes shall not be made available for inspection by the public but shall be made available upon written request to government agencies for uses related to these Rules and Regulations, the National Pollutant Discharge Elimination System (NPDES) Permit, State Disposal System Permit, the Pretreatment Programs or all of these, provided by the state or any state agency in judicial review or enforcement involving the Discharger furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information. Information accepted by the County as confidential trade secrets shall not be transmitted to any party except as provided herein unless otherwise required by law.

F. Reporting Violations

Violations of permit limits must be reported to the County Sanitary Engineer within 24 hours of becoming aware of the violation. The IU must then resample their waste stream and report the analysis to the County within 30 days of becoming aware of the violation.

Section 6.8: Monitoring

A. POTW Compliance Monitoring

The POTW has the responsibility to receive, review and act on self-monitoring reports submitted by IU's, and to perform it's own compliance monitoring to ensure user conformance to the regulations. Compliance monitoring will be of three types: scheduled, unscheduled and demand.

B. Self-Monitoring

Industrial users shall self-monitor in accordance with the conditions of their MCSE issued industrial discharge permit.

Sampling for pH, hexavalent chromium, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds (VOC's) shall be obtained by grab samples. Except for those pollutants that are required to be measured by grab samples, all other pollutants will be measured by flow-proportional sampling unless justification for an alternate sampling type, representative of the discharge, is documented in the industrial user file.

Multiple grab samples collected during a twenty-four-hour (24) period may now be composited prior to the analysis as follows: for hexavalent chromium, cyanide, total phenols, and sulfides the samples may now be composited in the laboratory OR in the field; for volatile organics and oil and grease the samples may now be composited in the laboratory. Protocols (including appropriate preservation) specified in 40CFR136 and appropriate U.S. EPA guidance must be followed.

Analysis of samples shall be performed by an independent accredited laboratory unless approved otherwise by MCSE. Reports shall be submitted timely to the Sanitary Engineer for review and record**.**

C. Monitoring Schedule

1. Self-monitoring, compliance monitoring, compliance inspections and IU reporting will be performed at frequencies outlined in Table I.

2. Unscheduled sampling will be performed when program violations are suspected, and may be accompanied by inspections of the industrial site.

3. Demand sampling will be performed whenever plant operational problems occur, or it is suspected that an IU has violated the conditions of it's permit.

4. Periodic sampling inspections may be performed without notifying the IU in order to ensure integrity in the compliance program.

D. Sample Collection and Analysis

1. All samples collected during compliance monitoring work will be analyzed in the Medina County's chemistry laboratory located at the Liverpool plant, except the TTO, VOC's and Priority Pollutant Scans which will be performed by local accredited laboratories. The Liverpool laboratory is fully equipped to perform a wide range of chemical analyses, is supervised by a qualified chemist, and has been included in numerous quality control programs conducted by US EPA and Ohio EPA. All analyses are performed in accordance with US EPA protocol, and chain-of-custody and quality control procedures are employed to make sure the data are admissible as evidence in the event of legal action.

2. Samples for categorical industries are collected immediately downstream of the end-of-process or end-or-pretreatment site. Should such a location be unavailable, the sampling location shall be at a point on the service connection prior to the connection with the public sewer. In such an instance the combined waste stream formula will be utilized to calculate compliance with categorical standards. Industries not subject to categorical

standards shall be sampled at a location prior to connection to the public sewer where all of the industry's wastewater flows are accounted for. In any case, compliance and self-monitoring will be conducted at the same sampling point.

3. Typically, scheduled compliance sampling is completed by taking a series of grab samples throughout the working day. The grab samples are proportionate in volume to the quantity of wastewater discharged at the time of sampling. Grab samples are refrigerated and transported to the County chemistry laboratory where they are composited and analyzed.

4. Periodically, scheduled or unscheduled compliance sampling may be completed by setting an automatic sampler at the sampling point for an extended period of time. Unscheduled compliance sampling is completed on demand basis.

5. The County may require an industrial user to install flow monitoring facilities, instruments, and recording devices to enable accurate measurement of flows as determined to be necessary.

E. Inspections

County personnel shall inspect IU's in accordance with the Monitoring Schedule outlined in Table I.

TABLE I

MEDINA COUNTY PRETREATMENT PROGRAM MONITORING SCHEDULE

CATEGORY	COMPLIANCE SAMPLING				SELF MONITORING			
	Parameters Present	**Parameters Absent**	**TTO**	**Inspections**	**Parameters Present**	**Parameters Absent**	**TTO**	**Reporting**
SIGNIFICANT (S)	Once per Quarter	Semi Annually	Once Per Year*	Once/Year	Once per Quarter	Semi Annually	Once Per Six Months**	Once/Quarter
MINOR SIGNIFICANT (MS)	To be determined for individual IU			Once/2 Years	To be determined for individual IU			At self monitoring frequency
NON SIGNIFICANT (NS)	Not Required			Once/3 Years	Not Required			Not Required

* For parameters reasonably suspected to be present.

** Alternatives to TTO sampling, such as TOMP submission and certification statements may be chosen by the IU.

Section 6.9: Enforcement

A. Emergency Suspension of Service

The County may for good cause shown suspend the wastewater treatment service to a Discharger when it appears to the County that an actual or threatened discharge presents or may present an imminent or substantial danger to the health or welfare of persons or substantial danger to the environment, interfere with the operation of the POTW, or violate any pretreatment limits imposed by these Rules and Regulations. Any Discharger notified of the suspension of the County's wastewater treatment service shall, within a reasonable period of time, as determined by the County cease all discharges. In the event of failure of the Discharger to comply voluntarily with the suspension order within the specified time, the County shall have the right to disconnect the dischargers sewer connection and shall commence judicial proceedings immediately thereafter to compel the Discharger's compliance with such order. The County shall reinstate the wastewater treatment service and terminate judicial proceedings pending proof by the Discharger of the elimination of the non-complying discharge or conditions creating the threat of imminent or substantial danger as set forth above.

B. Revocation of Treatment Services

The County may seek to terminate the wastewater treatment services of any Discharger which fails to (a) factually report the wastewater constituents and characteristics of its discharge; (b) report significant changes in wastewater constituents or characteristics; (c) allow reasonable access to the Discharger's premises by representative of the County for purposes of inspection or monitoring; or (d) comply with the conditions of these Rules and Regulations, the terms and conditions of their discharge permit, or any final judicial order entered with respect thereto.

C. Notice of Violation

If a violation is detected through sampling and analysis conducted by the County in lieu of the Industrial User, the control authority shall perform the repeat sampling and analysis within thirty (30) days of becoming aware of the violation unless it notifies the User of the violation and requires the User to perform the repeat sampling and analysis**.** Whenever the County finds that any Discharger has engaged in conduct which justifies termination of wastewater treatment services, the County shall serve or cause to be served upon such Discharger a written notice either personally or by certified or registered mail, return receipt requested, stating the nature of the alleged violation. Within 10 working days of the date of receipt of the notice, the Discharger shall respond personally or in writing to the County, advising of its position with respect to the allegations. Thereafter, the parties shall meet to ascertain the veracity of the allegations and where necessary, establish a plan for the satisfactory correction thereof.

D. Administrative Orders

The County may at any time issue orders to an Industrial User (I.U.) Requiring the installation of pretreatment facilities or other measures determined to be necessary for the IU to come into compliance with its discharge permit or other County regulations. Such a schedule will include milestone dates for the completion of tasks by the IU which will culminate in the IU's compliance with such regulations.

E. Penalties

Injunctive relief may be sought for any non-compliance since non-compliance may result in failure to meet the objectives of the Pretreatment Program.

1. Administrative Penalties

Continuous Dischargers - The County Sanitary Engineer may assess penalties ranging in the amount of $100.00 but not to exceed $500.00 per day upon sewer users who normally have a continuous discharge and who fail to comply with numerical values or the terms and conditions of the discharge permit issued by the County. Such administrative penalties shall be determined by the County Sanitary Engineer based on the severity and duration of the violation and the enforcement guidelines established in the County Pretreatment Program. If the violation is an "average" violation, the penalty may be applied times the number of days average (i.e. For a 30 day average $100.00 x 30 days = $3,000.00). If a discharger has both monthly average and maximum daily violations of the same parameter, the monthly violation takes precedent. If the monthly average and maximum daily violations are for different parameters, they will be assessed penalties as separate violations.

Batch Dischargers, Slug Loadings or Spills - The County may assess administrative penalties ranging in the amount of $3,000.00 to $8,000.00 per violation upon sewer users who discharge wastes in batches, slugs or accidental spills who fail to comply with the numerical values of local or categorical limits, reporting requirements, or any other limitation contained in their permit or the County Sanitary Engineers Rules and Regulations. Such administrative penalties shall be determined by the County Sanitary Engineer based on the quantity of discharge, severity of the violation and on the enforcement guidelines established in the County Pretreatment Program.

2. Civil Penalties

Any Discharger which is found to have violated an Order or Permit Limitation of the County or which has failed to comply with any provisions of these Rules and Regulations, and the regulations or rules of the County or orders of any court of competent jurisdiction, may be subjected to the imposition of a civil penalty of not more than $1,000.00 per day for each violation.

3. Recovery of Costs Incurred by the County

Any Discharger violating any of the provisions of these Rules and Regulations, or who discharges or causes a discharge producing a deposit or obstruction, or causes damage to or impairs the County's wastewater disposal system shall be liable to the County for any expense, loss, or damage caused by such violation or discharger. The County shall bill the Discharger for the costs incurred by the County for any cleaning, repair, or replacement work caused by the violation or discharge. Failure to pay the assessed costs within 90 days shall constitute a violation of these Rules and Regulations enforceable under the provision of Section 6.9 of these Rules and Regulations. Said costs shall be in addition to any Administrative or Civil Penalties assessed by the Sanitary Engineer.

4. Falsifying Information

Any person, industry or establishment who knowingly makes any false statement, representation, or certification in any application, records, report, plan, and other document filed or required to be maintained pursuant to these Rules and Regulations, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required or authorized under these Rules and Regulations shall, upon conviction be punished by a fine of not more than $1,000.00 per violation per day or imprisonment for not more than one year or both.

F. Show Cause Hearing

Where the violation of this section is not corrected by timely compliance by means of Administrative Adjustment, the County may order any Discharger which causes or allows conduct prohibited by this Section to show cause before the County or its duly authorized representative to determine why a proposed enforcement action should not be taken. A written notice shall be served on the Discharger either personally or by certified or registered mail, return receipt requested, specifying the time and place of a hearing to be held by the County or its designee why the proposed enforcement action should not be taken. This notice of the hearing shall be served no less than ten days before the hearing. Service may be made on any agent, officer, or authorized representative of a discharger. The proceedings at the hearings shall be considered by the County which shall then enter appropriate orders with respect to the alleged improper activities of the Discharger. Appeal of such orders may be taken by the Discharger in accordance with the applicable local or state law.

G. Judicial Proceedings

Following the entry of any order by the County with respect to the conduct of a Discharger contrary to the provisions of this Section, the Medina County Prosecutor may, following the authorization of such action by the Board of Commissioners, commence an action for appropriate legal and/or equitable relief in the appropriate local court.

H. Public Notification

A list of all industrial users in significant noncompliance with applicable pretreatment standards during the previous 12 months shall be annually published by the County in a newspaper published and of general circulation in the County.

I. Right of Appeal

Any Discharger or any interested party shall have the right to request in writing an interpretation or ruling by the County on any matter covered by these Rules and Regulations and shall be entitled to a prompt written reply. In the event that such inquiry is by a Discharger and deals with matters of performance or compliance with these Rules and Regulations for which enforcement activity relating to an alleged violation is the subject, receipt of a Discharger's request shall stay all enforcement

proceedings, pending receipt of the aforesaid written reply. Appeal of any final order entered pursuant to these Rules and Regulations may be taken in accordance with local and state law.

J. Notification of Noncompliance

Any Discharger which experiences an upset in operations which places the Discharger in a temporary state of noncompliance with these Rules and Regulations shall inform the County thereof within 24 hours of first awareness of the commencement of the upset. Where such information is given orally, a written follow-up report thereof shall be filed by the Discharger with the County within five days. The report shall specify:

1. Description of the upset, the cause thereof, and the upset's impact on a Discharger's compliance status.

2. Duration of noncompliance, including exact dates and times of noncompliance, and if the noncompliance continues, the time by which the compliance is reasonably expected to occur.

3. All steps taken or to be taken to reduce, eliminate, and prevent recurrence of such an upset or other conditions of noncompliance.

When it can be demonstrated that circumstances exist which would create an unreasonable burden on a Discharger to comply with the time schedule imposed by these Rules and Regulations, a request for extension of time may be presented for consideration by the County.

The Medina County Sanitary Engineer will take prompt, appropriate enforcement action to alleviate any threat of danger to the health and welfare of people, County facilities or the environment. The Enforcement Response Guide provided in Table II shall be used as a basis to determine the level of enforcement action appropriate to a particular violation. Circumstances surrounding the violation will be considered when using the Enforcement Response Guide to determine the severity of enforcement action to be taken.

All enforcement responses shall be initiated by the County Pretreatment Coordinator. Ultimate responsibility for the enforcement of the program lies with the County Sanitary Engineer and the County Commissioners.

Section 6.10: Record Retention

All Dischargers subject to these Rules and Regulations shall retain and preserve for no less than three (3) years any records, books, documents, memoranda, reports, correspondence, and any and all summaries thereof, relating to monitoring, sampling, and chemical analyses made by or on behalf of a Discharger in connection with its discharge. All records which pertain to matters which are the subject of Administrative Adjustment or any other enforcement or litigation activities brought by the County pursuant hereto or shall be retained and preserved by the Discharger until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

Section 6.11: Severability

If any provision, paragraph, word, section, or chapter of these Rules and Regulations is invalidated by any court of competent jurisdiction, the remaining provisions, paragraphs, words, and chapters shall not be affected and shall continue in full force and effect.

Section 6.12: Conflict

All other resolutions and parts of other resolutions inconsistent or conflicting with any part of this resolution are hereby repealed to the extent of such inconsistency or conflict.

ENFORCEMENT RESPONSE GUIDE
TABLE II

ILLEGAL DISCHARGE			
NONCOMPLIANCE		**NATURE OF VIOLATION**	**RESPONSE**
1.	Discharge by industry not under permit	Discharger unaware of permit requirement; no environmental or POTW damage	Phone call followed by letter stating County requirements (a)**
2.	Discharge by industry not under permit	Results in violation of POTW NPDES permit, or dangerous situation–Significant Non-Compliance (SNC)*	Administrative Orders requiring immediate disconnect followed by show cause hearing and judicial action (d)
NONCOMPLIANCE		**NATURE OF VIOLATION**	**RESPONSE**
1.	Exceedance of discharge limits (local or categorical)	Isolated, nonsignificant	Phone call to I.U. (a)
2.	Exceedance of discharge limits	Frequent, nonsignificant (repeated offense)	Notice of Violation requiring response within 10 days followed by Administrative Orders with schedule of Compliance, and Public Notice (b)
3.	Exceedance of discharge limits	SNC	Notice of Violation requiring response within 10 days followed by Administrative Penalties (b)
4.	Exceedance of discharge limits	Violation of instantaneous limits or narrative standards that cause pass-through or interference (SNC)	Notice of Violation requiring response within 10 days followed by Administrative Penalties, Administrative Orders with schedule of Compliance, and Public Notice (b)
5.	Failure to comply with approved BMP's	Violations of BMP's that adversely affect the operation or implementation of the pretreatment program (SNC)	Notice of Violation requiring response within 10 days followed by Administrative Penalties, Administrative Orders with schedule of Compliance, and Public Notice (b)
6.	Exceedance of discharge limits	Results in known environmental or POTW damage (endangerment to life)	Administrative Orders requiring immediate disconnect followed by show cause hearing and judicial action (d)
7.	Slug load discharge	Isolated without known damage	Notice of Violation followed by check of I.U. spill control plan (b)
8.	Slug load discharge	Isolated with known interference, pass-through, or damage results – (SNC)	Phone call followed by Notice of Violation followed by check of spill control plan followed by show cause hearing and Administrative penalties (a)(b)
9.	Slug load discharge	Recurring – (SNC)	Administrative Orders requiring disconnect followed by judicial action with fines. Public Notice

*A definition of significant non-compliance appears on the last page of this guide.
**Letters are explained on page 5 of this guide.

SAMPLING, MONITORING AND REPORTING VIOLATIONS			
	NONCOMPLIANCE	**NATURE OF VIOLATION**	**RESPONSE**
1.	Sampling, monitoring, or reporting deficiencies	Isolated or infrequent (1st or 2nd offence)	Phone call (a)
2.	Sampling, monitoring, or reporting deficiencies	Frequent (repeated offense) or continuous	Notice of Violation requiring corrections on next report. Public Notice (b)
3.	Sampling, monitoring, or reporting deficiencies	Frequent (repeated offense) or continuous to become SNC	Meeting with I.U. followed by Administrative penalties and show cause hearing. Public Notice
4.	Complete failure to sample, monitor, or report	SNC	Notice of Violation requiring reports on the next scheduled report date (b)
5.	Continued failure to sample, monitor, or report	Violation of NOV condition	Administrative Orders followed by Administrative Penalties. Judicial action and fines if violation persists (c)
6.	Failure to submit schedule of compliance (SNC)	Violation of Consent Order or Administrative Order	Administrative penalties followed by a show cause hearing judicial action. Possible termination of service (c)
7.	Failure to notify of effluent limit violation or slug discharge	Isolated or infrequent. No known effects	Notice of Violation and check emergency spill control plan (b)
8.	Failure to notify of effluent limit violation or slug discharge	Frequent or continued violation – (SNC)	Administrative penalties followed by a show cause hearing followed by judicial action (fines); Public Notice (c)
9.	Failure to notify of effluent limit violation or slug discharge	Known environmental or POTW damage results – (SNC)	Administrative Orders requiring disconnect followed by judicial action with fines, show cause hearing. Public Notice
10.	Reporting false information	Any instance – (SNC)	Judicial action requiring fines (d)
COMPLIANCE SCHEDULE			
	NONCOMPLIANCE	**NATURE OF VIOLATION**	**RESPONSE**
1.	Missed milestone date	Will not affect other milestone dates or final date	Phone call (a)
2.	Missed milestone date	Will affect other milestone or final date. Violation for good or valid cause	Notice of Violation; request revised schedule information (b)
3.	Missed milestone date	Will affect other milestone or final date. Violation not for a good or valid cause – (SNC)	Administrative penalties followed by show cause hearing followed by judicial action (c)
4.	Failure to meet compliance schedule reporting requirements	Did not submit report but did complete milestone	Notice of Violation requiring report in 10 days (b)
5.	Missed final date	Good or valid cause	Phone call followed by Notice of Violation requiring revised compliance information (a) (b)

6.	Missed final date	30 days or more outstanding failure of refusal to comply without good or valid cause (SNC)	Judicial action with fines. Administrative orders requiring disconnection. (c)
7.	Reporting false information	Any instance – (SNC)	Judicial action requiring fines (c)
SPILL INCIDENTS			
NONCOMPLIANCE		**NATURE OF VIOLATION**	**RESPONSE**
1.	Spill incident	Reported and investigated	Notice of Violation recording the event. Check I.U.'s spill control plan (b)
2.	Repeated spill incidents	Failure to upgrade or develop spill prevention program	Administrative Orders with schedule to submit spill control plan. Public Notice (c)
3.	Repeated spill incidents	Failure to act on Administrative Orders and results in known environmental damage or WWTP damage	Administrative Orders requiring disconnect, judicial action with fines, show cause hearing. Public Notice (d)
4.	Spill incident, isolated/infrequent	Results in known environmental damage or WWTP damage	Administrative Orders requiring disconnect, judicial action with fines, show cause hearing. Public Notice (d)
VIOLATION DETECTED DURING FIELD INSPECTIONS/INVESTIGATIONS			
NONCOMPLIANCE		**NATURE OF VIOLATION**	**RESPONSE**
1.	Violation of analytical procedures	Any instance	Violations listed in inspection report copy sent to I.U
2.	Violation of analytical procedures	No evidence of intent	Notice of Violation with 10 days to correct (b)
3.	Violation of analytical procedures	Evidence of negligence or intent – (SNC)	Administrative penalties followed by a show cause hearing followed by judicial action if necessary (c)
4.	Violation of permit condition	No evidence or negligence or intent	Phone call followed by Notice of Violation (a) (b)
5.	Violation of permit condition	Evidence of negligence or intent -- (SNC)	Administrative penalties followed by a show cause hearing followed by judicial action if necessary (c)

a) Phone calls to I.U.'s are to be made within fifteen (15) days of the County's becoming aware of the violation.
b) NOV's shall be issued within fifteen (15) days of the County's becoming aware of the violation.
c) Escalation of Enforcement Action shall commence within thirty (30) days of the County's determination of SNC.
d) Administrative Orders shall be issued within ten (10) days of the County's determination of SNC.

Section 6.13: Definitions

Background Concentration - The concentration typically found in domestic and/or commercial sewage.

Batch Discharge - Any quantity of wastewater or pretreated wastewater discharged periodically to the POTW.

Best Management Practices (BMPs) - "Best Management Practices" or "BMPs" are defined as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the prohibitions listed in OAC 3745-3-04. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage. Also, BMPs shall site specific remedies implemented either voluntarily or as required in order to address water quality problems and in order to achieve compliance with state or local water quality standards.

Bypass - The intentional diversion of waste streams from any portion of an Industrial User's treatment facility.

Categorical Pretreatment Standards - National technology-based standards developed by the U.S. EPA, setting industry-specific effluent limits.

CFR - Code of Federal Regulations

Control Mechanism - Discharge Permits issued by Medina County.

County - Medina County.

Discharge or Indirect Discharge - The introduction of pollutants to the POTW from any non-domestic or noncommercial source.

End-of-Pipe - Sampling point on service line prior to connection to public sewer that includes manufacturing and domestic wastewaters.

End-of-Pretreatment - Sampling point for manufacturing waste stream just after pretreatment (not including domestic waste flows).

End-of-Process - Sampling point for manufacturing waste stream not including domestic waste flows.

Industrial User (IU) - An industrial user is a publicly or privately owned entity discharging waste to the Medina County sewerage system, and which engages in (1) any form of manufacturing (Standard Industrial Classification 2000 - 3999), or (2) the storage or use of compounds at a level that have the potential to affect the WWTP by (a) inhibition of process or endangerment of its personnel, or (b) passing through treatment to contaminate the sludge or the receiving waterway, or (3) management of an industrial park or building that may include industries of group 1 or 2 among its tenants. Examples of (2) include, but are not limited to, hospitals (SIC 8060), photo

finishing laboratories (SIC 7395), warehouses (SIC 4220), and repackagers of chemicals and allied products (SIC 5120, 5160, 5170).

Interference - Any discharge that, alone or in conjunction with another discharge(s), a) inhibits or disrupts the POTW treatment process, operation or sludge processing/disposal options; or b) is therefore a cause of violation of any of the POTW's NPDES permit requirements (including an increase in the magnitude or duration of a violation or of the prevention of sewage sludge use or duration of a violation, or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder: Section 405 of the Clean Water Act, the Solid Waste Disposal Act, including Title II of the Resource Conservation and Recovery Act, and state regulations contained in state sludge management plans prepared pursuant to subtitle D of the SWDA, the Clean Air Act and the Toxic Substances Control Act.

Local Limits - Enforceable local requirements developed by Medina County to address Federal Standards as well as State and County Regulations.

Minor Significant Industry or Discharger - Any Industrial User that does not meet the definition of a significant discharger but discharges or has the potential to discharge pollutants above County adopted local limits for priority pollutants and background concentrations for non-priority pollutants.

New Source - Any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307(c) of the Act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section, provided that:

(i) The building, structure, facility or installation is constructed at a site at which no other source is located; or

(ii) The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) The production or wastewater generating process of the building, structure, facility or installation are substantially independent of an existing source at the same site.

Non-Significant Industry or Discharger - Industrial Users that do not conform to the definition for Significant or Minor Significant Industries.

NPDES Permit - National Pollutant Discharge Elimination System Permit issued to the POTW by the Ohio EPA.

Pass Through - Discharge that exits the POTW into the receiving stream in quantities or concentrations which causes a violation of the POTW's NPDES permit.

Penalties - Injunctive relief may be sought for any noncompliance since noncompliance may result in failure to meet the objectives of the Pretreatment Program. The Rules and Regulations (Section 6.9 E) specifically provide for administrative, civil and criminal penalties for violations of permit limits, the Rules and Regulations or the order of any court of jurisdiction.

Permit - Document issued to Industrial Users by the County Sanitary Engineer listing applicable Categorical and local effluent limits and reporting requirements.

POTW - Publicly Owned Treatment Works. Wastewater treatment plant owned by the Medina County Commissioners and administered by the Medina County Sanitary Engineer.

Public Notification - The process by which a list of all industrial users in significant noncompliance with applicable pretreatment standards during the previous 12 months shall be annually published by the County in a newspaper published and of general circulation in the County.

Pretreatment - The reduction of, elimination of, or alteration of pollutants in a waste stream prior to discharge to the POTW.

Priority Pollutants - A list of 126 pollutants established by the EPA and considered hazardous to humans and the environment.

Severe Property Damage - Substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

Significant Industry or Discharger - Any a) Categorical Industry; b) Industry that discharges in excess of 25,000 gpd of process water (excludes sanitary, non-contact cooling and boiler blowdown water); c) Industry that discharges a process waste stream which makes up 5% or more of the average dry weather hydraulic or organic capacity of the POTW; d) the Industry has a reasonable potential, in the judgement of the County, to cause pass through and/or interference at the POTW; e) the industry's discharge to the POTW has caused or has the potential to cause any violations of the terms and conditions of any permit the POTW may be operating under, including plan approvals; or f) the Ohio EPA or County has determined it would be consistent under Chapter 6111 of the Ohio Revised Code to require an indirect discharge permit for the industry.

Significant Noncompliance (SNC) - Instances of SNC are industrial user violations which meet one or more of the following criteria (applicable to all industrial users, except where noted).

1) Violations of Wastewater Discharge Limits and Instantaneous Limits

   a) Chronic violations (applicable to SIU's only) - Sixty-six percent (66%) or more of the measurements exceed the same daily maximum limit or the same average limit in a six-month period (any magnitude of exceedance and is applicable to any and all of the permitted monitoring points of an SIU).

b) Technical Review Criteria (TRC) violations (applicable to SIU's only) - Thirty-three percent (33%) or more of the measurements exceed the same daily maximum limit or the same average limit by more than the TRC in a six-month period. There are two groups of TRC's, applicable to any and all permitted monitoring points of an SIU.

(1) Group I for conventional pollutants (BOD, TSS, fats, oil and grease) TRC = 1.4

(2) Group II for all other pollutants TRC = 1.2

c) Any other violation(s) of an effluent limit (average or daily maximum) that the Control Authority believes has caused, along or in combination with other discharges, interference (e.g. slug loads) or pass through; or endangered the health of the sewage treatment personnel or the public.

d) Any discharge of a pollutant that has caused imminent endangerment to human health/welfare or to the environment and has resulted in the POTW's exercise of its emergency authority to halt or prevent such a discharge.

2) Violations of Compliance Schedule Milestones contained in a local control mechanism or enforcement order, for starting construction, completing construction, and attaining final compliance by 90 days or more after the schedule date.

3) Failure to Provide Reports for compliance schedules, self-monitoring data, or categorical standards (baseline monitoring reports, 90-day compliance reports and periodic reports) within 45 days from the due date.

4) Failure to Accurately Report Noncompliance.

5) Violations of BMPs that adversely affect the operation or implementation of the pretreatment program.

6) Violations of Instantaneous Limits or Narrative Standards that cause pass-through or interference.

Slug Discharge Control Plan - A plan prepared by an industrial user to minimize the likelihood of a slug discharge, or any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge. MCSE will determine if an industrial user will be required to provide such plan and this requirement will be stated in the Industrial User's industrial discharge permit.

Slug Load - Any pollutant discharged at a rate or concentration which will cause a violation of a POTW NPDES permit limits or cause POTW operating problems.

SPC Plan - Spill Prevention and Control Plan. A plan prepared by an industrial user to minimize the likelihood of a spill and to expedite control and clean up in the event of a spill.

Standard Industrial Classification (SIC) Code - Classification scheme developed by the U.S. Department of Commerce based on the type of manufacturing or commercial activity at a facility.

Suspension of Service - Termination of sewer service from any IU when appropriate under the County's Pretreatment Program Enforcement Response Guide and when it appears that the objectives of the Pretreatment Program are threatened or the IU violates the pretreatment limits imposed by the County whether or not the violation presents a threat to such goals. In the event of failure to voluntarily comply with the suspension order within time specified by the County, immediate judicial proceedings are to be commenced. In addition, the County may elect to physically disconnect the IU's connection to the sanitary sewer providing any one of the conditions of Section 6.9 B "Revocation of Treatment Services" is present.

TOMP - Toxic Organic Management Plan

TTO - Total Toxic Organics

Upset - An exceptional incident in which there is unintentional and temporary noncompliance with Categorical Pretreatment Standards because of factors beyond the reasonable control of the Industrial User. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

WWTP - Wastewater Treatment Plant

Section 6.14 Toxic Pollutants Listing

Metals and Inorganics	Halogenated Aliphatic Hydrocarbons (continued)	Phthalate Esters
Antimony	1,2-trans-Dichloroethene	Phthalate Esters
Arsenic	Trichloroethene	Dimethyl
Asbestos	Tetrachloroethene (Perchloroethylene)	Diethyl
Beryllium	1,2-Dichloropropene	Di-n-butyl
Cadmium	1,3-Dichloropropene	Di-n-octyl
Chromium	Hexachlorobutadiene	Bis (2-ethylhexyl)
Copper	Hexachlorocyclopentadiene	Butyl benzyl
Cyanide	Bromomethane (Methyl Bromide)	
Lead	Bromodichloromethane	Polycyclic Aromatic Hydrocarbons
Mercury	Dibromochloromethane	Acenaphthene
Nickel	Tribromethane (Bromoform)	Acenaphthylene
Selenium	Dichlorodifluoromethane	Fluorene
Silver	Trichlorofluoromethane	Naphthalene
Thallium		Anthracene
Zinc	Halogenated Ethers	Fluoranthene
	Bis (chloromethyl) ether	Phenanthrene
Pesticides	Bis (2-chloroethyl) ether	Benzo[a]anthracene
Acrolein	Bis (2-chloroisopropyl) ether	Benzo[b]frulranthene
Aldrin	2-Chloroethyl vinyl ether	Benzo[k]fluoranthene
Chlordane	4-Chlorophenyl phenyl ether	Chrysene
DDD	4-Bromophenyl phenyl ether	Pyrene
DDE	Bis (2-chloroethoxy) methane	Benzo[ghi]perylene
DDT		Benzo[a]pyrene
Dieldrin	Monocyclic Aromatics	Bibenzo[a]anthracene
Endosulfan and Endosulfan Sulfate	Benzene	Indeno[1,2,3-cd]pyrene
Endrin and Endrin Aldehyde	Chlorobenzene	
Heptachlor	1,3-Dichlorbenzene (o-Dichlorobenzene)	Nitrosamines and Miscellaneous Compounds
Heptachlor Epoxide	1,3-Dichlorobenzene (m-Dichlorobenzene)	Dimethyl nitrosamine
Hexachlorocyclohexane	1,4-Dichlorobenzene (p-Dichlorobenzene)	Diphenyl nitrosamine
T-Hexachlorocyclohexane (Lindane)	1,2,4-Trichlorobenzene	Di-n-propyl nitrosamine
Isophorone	Hexachlorobenzene	Benzidine
TCDD	Ethylbenzene	3,3-Dichlorobenzidine
Toxaphene	Nitrobenzene	1,2-Diphenylhydrazine (Hydrazobenzene)
	Toluene	Acrylonitrile
PCBs and Related Compounds	2,4-Dinitrotoluene	
Polychlorinated Biphenyls	2,6-Dinitrotolulene	
2-Chloronophthalene	Phenol	
	2-Chlorophenol	
Halogenated Aliphatic Hydrocarbons	2,4-Dichlorophenol	
Chloromethane (Methyl Chloride)	2,4,6-Trichlorophenol	
Dichloromethane (Methylene Chloride)	Pentachlorophenyl	
Trichloromethane (Chloroform)	2-Nitrophenol	
Tetrachloromethane (Carbon Tetrachloride)	4-Nitrophenol	
Chloroethane (Ethyl Chloride)	2,4-Dinitrophenol	
1,1-Dichloroethane (Ethylidine Chloride)	2,4-Dimethyl phenol	
1,2-Dichloroethene (Ethylene Dichloride)	p-Chloro-m-cresol	
1,1,1-Trichloroethane (Methyl Chloroform)	4,6-Dinitro-o-cresol	
1,1,2-Trichloroethane		
1,1,2,2,-Tetrachloroethane		
Hexachloroethane		
Chloroethene (Vinyl Chloride)		
1,1-Dichloroethene (Vinylidine Chloride)		

CHAPTER SEVEN
APPROVAL OF CONSTRUCTION PLANS

Section 7.1: Applicability

Plans for proposed sanitary sewerage and water supply improvements, which are proposed for construction and connect directly to any County maintained Sanitary Sewerage or Water Distribution System shall be prepared by a professional engineer licensed to practice in the State of Ohio, and shall be submitted to the Medina County Sanitary Engineer, or his duly authorized representatives (hereinafter called the Sanitary Engineer), for approval prior to the installation of same.

Storm sewer plans will be reviewed by the appropriate Municipal or County Engineer in an effort to insure that the proposed system has sufficient capacity and provides a free outlet for a gravity building storm drain from each proposed structure. The Sanitary Engineer will not approve or disapprove storm drainage systems for the collection of surface water. Said plans shall be concurrently submitted to the County Engineer, City Engineer, or to any other agency having jurisdiction over the improvements, for their approval.

Section 7.2: Design Criteria

The Medina County Sanitary Engineers Department Rules and Regulations, Sanitary Engineers "Design Criteria" Manual, and the Great Lakes Upper Mississippi River Board Recommended Standards for wastewater facilities or water facilities (Ten States Standards), shall be used to determine the design standards for all sanitary sewer and waterline improvements unless specifically stated otherwise in this publication. The Medina County Sanitary Engineer shall "size" all waterlines and sanitary sewer lines connecting into the Medina County Sewer and Water Systems based on general planning for the area, hydraulic modeling and/or other planning studies relative to the area under consideration.

Section 7.3: Plan Submission

The Design Engineer shall initially submit two (2) sets of plans to the Sanitary Engineer for review and comment. The Sanitary Engineer shall notify the Design Engineer of any corrections, additions, or revisions found to be necessary. After revisions have been completed by the design engineer, four (4) copies of satisfactory detailed plans with profiles, specifications, total estimated costs and three (3) copies of all equipment manufacturers' catalog data, pump performance curves, etc., for all proposed improvements, shall be submitted to the Sanitary Engineer for his final approval.

Section 7.4: Rejection and Non-approval

Plans for projects that do not conform to MCSE Facility or General Planning shall not be approved. Plans and specifications which are improperly prepared, contain inaccurate information or do not meet design standards may be rejected by the Sanitary Engineer. MCSE shall notify the Design Engineer of the reasons for rejection of the plans in writing. Revised plans and specifications may then be submitted to MCSE, by the Design Engineer, for approval.

Final approval of plans will not be issued until satisfactory plans and data sheets are submitted. Construction shall not commence until final permits from the Ohio EPA and/or other necessary approvals are obtained.

Section 7.5: Submission of Plat and Easement

The Sanitary Engineer shall not authorize initiation of construction of any improvements provided for under this chapter without having received copies of recorded easements necessary for the installation of all public improvements. For new subdivisions, record plats shall be approved by MCSE upon completion of construction of sewer and/or waterlines or after adequate financial guarantees have been provided. Use of the newly constructed sewer or waterlines shall not be permitted until the plat has been recorded.

Section 7.6: Approval and Authorization to Construct

After issuance of the Permit-to-Install by the Ohio EPA and upon approval of the detailed construction plans by MCSE, the Sanitary Engineer shall inform the Owner of this approval by letter or by stamping MCSE approval on the construction plans. At a minimum, the Owner, or his engineer, shall submit extra sets of construction plans for MCSE to stamp such that MCSE can retain four (4) stamped sets, and return the remaining sets to the Owner, or his engineer, to use as field construction and file copies. All field construction plans must be stamped approved by MCSE. After approval of the plans, the Owner shall arrange with the Sanitary Engineer a time and place for a pre-construction conference. Authorization to proceed shall be given to the owner by the Sanitary Engineer at the time of the pre-construction conference. Construction shall only begin after the Owner has obtained approval from all other relevant State and Local Governmental Agencies, Road Maintenance Authorities, etc. **If construction has not commenced within a period of one (1) year from the stamped date of MCSE approval, or has been broken into different phases, the improvement plans must be resubmitted to MCSE for re-approval.**

Section 7.7: Approval of Other Agencies

The approval of plans and specifications for sanitary sewerage improvements and water supply improvements by the Ohio Environmental Protection Agency must be obtained by the project Developer/Owner prior to the Sanitary Engineer permitting construction to commence. Other approvals that may be necessary include local zoning, planning, storm water, erosion control, wetlands, stream crossings, river crossings, railroad, roadway and utilities.

Section 7.8: Cost of Plan Review

The hours expended by the Sanitary Engineer or his duly authorized representative and all reasonable expenses incurred in connection with the review/approval of a project shall be paid to the Sanitary Engineer by the project Owner.

CHAPTER EIGHT
STANDARD SPECIFICATIONS FOR SANITARY SEWERAGE

Section 8.2: Standard Specifications for Sanitary Sewerage

PRECONSTRUCTION

A. Video Taping

The purpose pre-construction video taping is to establish the condition of the areas along the sanitary sewer routes prior to the commencement of any work. Video taping shall be conducted on all projects bid by MCSE. Pre-construction video taping may be required by MCSE on other sewer and water projects as conditions warrant.

All tapes, summaries and reports produced by or under the direction of the Sanitary Engineer, will be retained by MCSE.

CONFLICTS

A. General

Where actual conflicts are unavoidable, work shall be performed so as to cause as little interference as possible with the service rendered by the facility disturbed. Facilities or structures damaged in the prosecution of the work shall be repaired immediately in conformance with the best standard practice or according to the direction of the Owner of such facility at no extra cost to the County.

B. Protection

The Contractor shall furnish, at no extra cost to the County, temporary supports, adequate protection and maintenance of all underground and surface structures, drains, sewers, and other obstructions encountered in the progress of the work.

C. Interruption to Utilities

Contractors shall adhere to all State of Ohio laws relating to the notification of utilities and the Ohio Utility Protection Service (OUPS) prior to initiating construction. The Contractor shall take all reasonable precautions against damage to existing public and/or private utilities. However, in the event of a break in an existing facility, the Contractor shall immediately notify a responsible official of the organization owning and/or operating the facility interrupted. The Contractor shall assume full liability for such damage, and lend all possible assistance in restoring service and making necessary repairs.

D. Deviations Occasioned by Other Structures or Utilities

The location of the new pipelines, as shown on the plans, has been selected to provide the least possible interference with existing utilities. The Sanitary Engineer reserves the right to make minor variations in the location of these items during the construction to meet any changed conditions discovered during the construction.

E. Interference with Traffic

During the entire life of this project, traffic will be maintained at all times. Under no circumstances will a road be completely closed to through traffic without permission of the Medina County Board of Commissioners per Resolution as prepared by the Medina County Highway Engineer. A minimal driving surface of no less than ten feet (10') must be maintained at all times to accommodate fire and emergency vehicles and equipment.

All traffic control devices utilized must meet, or exceed, the minimum Standards and Specifications as set forth in the following:

A. Ohio Manual of Uniform Traffic Control Devices. (OMUTCD)
B. Ohio Department of Transportation's Manual of Traffic Control for Construction and Maintenance Operations, Revision 13.

The Contractor shall furnish, erect and maintain lights, signs, barricades, temporary guard rails and other traffic control devices, watchmen and flagmen as may be necessary to maintain safe traffic conditions according to the manuals referenced above.

When it becomes necessary to leave in place barricades, drums, and/or other devices overnight, the individual devices must be equipped with flashing amber lights. It is the Contractor's responsibility to insure that missing and/or non-functioning flashing amber lights are immediately repaired and/or replaced.

Whenever it becomes necessary to close one (1) lane of traffic, or any portion thereof, the Contractor must use no less than two (2) flaggers to insure a minimal disruption to the flow of traffic. The flaggers must wear reflectorized vests and utilize the "Stop/Slow" paddles. If the flaggers are not visible to each other, then the Contractor must also provide portable radios for the flaggers to use while performing their required duties. Flagman duties shall comply with the OMUTCD.

The specific placement and numbers of traffic control devices will be dependent upon the specific locations, the desires of County/State officials and the minimum standards and specifications as set forth in the previously described manuals, and the Traffic Control Plan as detailed in the approved and accepted engineering drawing.

Whenever it is necessary to divert traffic from its normal channel into another channel, such diversion shall be clearly marked by cones, drums, barricades or temporary guard rails. If the markers are left in place at night, suitable lights shall be maintained.

Where the work is performed in the sidewalk or cross-walk area, the Contractor shall provide lights, barricades, etc., that may be needed for the protection of pedestrian traffic.

If in the opinion of the Sanitary Engineer, proper maintenance of traffic facilities and proper provision for traffic control are not being provided, and the safety of the public is thus endangered, the Sanitary Engineer will install any safety devices to correct the immediate safety deficiency. The Contractor will be billed at an actual cost of material and manpower per current Resolution fee.

The conditions of the permit obtained from the Ohio Department of Transportation and the County Highway Engineer shall be strictly adhered to in any and all traffic maintenance.

Medina County reserves the right to require additional traffic control devices; above the minimum required, if in the officials judgment such additional devices are necessary to maintain a safe work zone area and/or to provide adequate safe passage to the general motoring public. In the event that additional devices are requested, it will be the Contractor's responsibility to procure and install such devices.

CLEARING

No tree shall be removed within the public right-of-way, or public easement, until specifically marked by the Sanitary Engineer. Care shall be taken to protect trees and shrubs, which are to remain in place, from damage by construction operations.

The cost of removing and disposing of trees, stumps and shrubs shall be include in the Unit Price Bid for sewer pipe and no additional payment shall be made.

SAFETY

For the security or safety of persons in and adjacent to trenches or construction operations, the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America and the safety regulations of the Department of Industrial Relations of the State of Ohio shall be followed when specifically applicable, or by similarity of operation or as necessary for adequate protection.

MATERIALS

A. Inspection

The Contractor shall submit to the Sanitary Engineer a certificate of inspection from the pipe manufacturer that the pipe supplied has been inspected at the plant and meets the requirements of these specifications.

All pipe, fittings and appurtenances shall be subject to visual inspection for faults or defects and any deviations or omissions from the contract drawings and/or specifications shall be corrected at once.

B. General

All material shall be free from defects impairing strength and durability and be of the best commercial quality for the purposes specified. It shall have structural properties sufficient to safely sustain or withstand strains and stresses to which it is subjected under the trench conditions and depths as shown on the plans. The pipe supplier shall provide sufficient engineering data to substantiate said structural properties.

C. Vitrified Clay Pipe (VCP)

All vitrified clay pipe, wyes, curves, elbows, saddles, slants, and fittings shall be circular and of the bell and spigot pattern. All VCP shall conform to the standards set for by ASTM Designations C-700, "Extra Strength and Standard Strength Clay Pipe and Perforated Clay Pipe". Pipe joints shall be of premium type ASTM Designation C-425, "Compression Joints for Vitrified Clay Bell and Spigot Pipe."

D. Polyvinyl Chloride Pipe (PVC)

Polyvinyl chloride pipe (PVC) and fittings shall meet minimum requirements set forth in ASTM Designation D-3034 for pipe sizes 4" – 15" and ASTM F-679 for pipe sizes 18" – 27" , and shall have a SDR (Standard Diameter Ratio) of not more than 35. The bell shall consist of an integral wall section with a solid cross section, rubber rings, and shall securely lock in place to prevent displacement. All fittings and accessories shall have bell and/or spigot configurations identical to that of the pipe. The joint shall be compression type ASTM D-3212.

E. Truss Pipe Polyvinyl Chloride (PVC)

PVC truss sewer pipe and fittings shall conform to the latest ASTM Designation D-2680. Pipe stiffness shall be a minimum of 200 psi. All pipe spigots shall have a "home" mark to facilitate joint closure. All premium joints shall be compression type ASTM D-3212 and all fittings and accessories shall have bell and/or spigot configurations identical to that of the pipe.

F. Reinforced Concrete Pipe (RCP) Class IV & Class V with Type II Portland Cement

All reinforced concrete pipe (RCP) shall be circular and of the bell and spigot pattern. All RCP shall conform to the standards set forth for ASTM designation C-76 reinforced concrete sewer pipe. Pipe joints shall be premium type joints for circular concrete sewer, with rubber gaskets. As set forth in ASTM designation C-361 including the design of joints and the requirements for rubber gaskets to be used therewith for pipe conforming in all other respects to ASTM C-14, C-76, or C-655.

Pipe design shall be done based according to the D-load concept and follow requirements set forth for RCP (sanitary sewer pipe) under designation ASTM C-655 and C-497 reinforced concrete D-load for sanitary sewer pipe. If either "B" or "C" wall RCP pipe is used, the manufacturer must show proof to the Sanitary Engineer that the infiltration specifications are met ***prior*** to acceptance of the material.

G. Profile Wall PVC Gravity (Sewer) Pipe

Profile wall plastic sanitary pipe to be furnished and installed shall be manufactured of rigid unplasticized poly (vinyl chloride) compounds conforming to the "Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds", ASTM Designation: D1784-90. The resin portion of copolymer compounds shall contain at least 80% vinyl chloride. The pipe and fittings shall be made of PVC with a minimum cell classification of 12454 A, 12454 B, 12454 C, 12364 A or 12364 C. Gaskets shall comply with ASTM specification F477-76 (re-approved 1985) and lubricants used for assembly shall have no detrimental effect on the gasket or the pipe.

The pipe shall be made of unplasticized polyvinyl chloride (PVC) (size 18 inch to 48 inch) as manufactured by J-M Pipe, Carlon or approved equal. The pipe stiffness shall be 46 psi when tested in accordance with ASTM D-2412-87. The pipe shall meet all of the requirements of ASTM F794-93, ASTM F949-93a, or ASTM F1803, and all ASTM standards referenced in ASTM F794-93, ASTM F949-93a, or ASTM F1803, except as herein modified.

The pipe shall be of the integral bell wall section with gasketed joint type with spigot in accordance with ASTM D3212-89. The pipe shall be premarked at the factory showing the "STOP MARK" position of the pipe for proper installation. The joint shall be designed to provide contraction and expansion of the pipe while maintaining a watertight fit.

Where the pipe enters the manhole and other locations that require waterproof grout only an expanding while curing type grout shall be used.

Field tapping for service connections shall be by using a saddle such as Inserta-tee or approved equal. The all rubber sleeve with additional rib shall be as per ASTM C-443-85a, the PVC hub shall be as per ASTM-D-3034-89a (SDR35) and the clamp shall be type 302 stainless steel. Holes drilled in the pipe for service connections shall be by a method approved by the pipe manufacturer.

All PVC sewer pipe shall be conspicuously labeled with the manufacturer's name, nominal pipe size, applicable material code or PVC cell classifications, standard dimension ratio (SDR) number, product type, standard specification designation and production record code.

The plastic pipe shall be stored in a manner which prevents bowing.

H. Polyvinyl Chloride Pressure Pipe

PVC pressure pipe shall be of solid wall design conforming to ASTM "Type PSM Poly Sewer Pipe and Fittings" D-3034, and conforming to ASTM D-2241 "Standard Dimension Ratios"; SDR-21 for 200 P.S.I. pipe.

PVC pressure pipe joints shall be of the bell and spigot type, with the bells being formed integrally with the pipe. The bell shall contain an elastometric gasket meeting the requirements of ASTM F-477 or D-3139, which is firmly retained, and assembled in accordance with the manufacturer's recommendations. "Pipe fittings shall meet the requirements of ASTM D-3139, D-1599, D-1784, F-477 and D-2241." And shall be blocked per MCSE water main standard concrete blocking detail.

I. Pipe Bedding and Backfilling

The bedding and backfilling shall be done in accordance with other sections of these specifications, the latest specifications of the ASTM that pertain to the type of pipe material used, and the pipe manufacturer's recommendations.

J. Precast Concrete Manholes with Type II Portland Cement

All precast concrete manholes shall be constructed of precast concrete pipe conforming to ASTM Designation C-478 (latest edition) , and shall be constructed in accordance with the details shown for precast concrete manholes on the plans. Joints between precast manhole sections shall be "O" ring rubber gasket type in conformance with ASTM Designation C-443 (latest edition) or Mack Ind. single offset joint designation ASTM C-433-85a. Larger diameter manholes (60", 72" and 84" ID) can be transitioned to 48" ID manhole sections at a height above the highest inlet pipe equal to the pipe diameter (minimum) if detailed on shop drawings and approved by the Sanitary Engineer.

Joints between precast manholes and the sewer pipe shall be made with Nor-A-Seal or other approved flexible, watertight joint conforming to ASTM C-443.

K. Manhole Steps

Manhole steps shall be polypropylene (ASTM D-4101) and No. 3 deformed steel rod (ASTM A-615, Grade 60).

L. Manhole Frames and Covers

Manhole frames and covers shall be cast iron, Neenah Foundry R-1782 with –1780-0007 cover or East Jordan Iron Works frame #1710 with type "A" cover, or approved equal. Water-tight manhole frame and cover shall be Neenah R-1916-D or East Jordan Iron Works #1120PT, with four stainless steel bolts. The castings shall be coated with one coat of asphalt or coal tar paint, and shall be set in 1:2 mortar.

M. Fiberglass Manholes

Fiberglass manholes for receiving effluent from grinder pump stations shall comply with ASTM D3753. For cored penetrations into the fiberglass manhole, utilize a very sharp core drill and core slowly per manufacturer's recommendations.. Utilize an inserta tee to make connection between the force main and the fiberglass manhole.

N. Manhole and Sewer Line Abandonment

All abandoned pipes shall be bulkheaded with Class "C" concrete at each abandoned manhole. All abandoned manholes shall have their casting removed and returned to the M.C.S.E., and the top manhole cone section removed and disposed of off-site. All manholes outside paved areas shall be filled with dirt and the area around manholes brought to final grade. All abandoned manholes in paved areas shall be filled with #57 limestone and the pavement replaced to the satisfaction of the authority having pavement responsibility. All abandoned manholes outside paved areas shall be backfilled with compacted on-site soils (top two feet (2') minimum) and brought to final grade.

If so directed by the Sanitary Engineer, abandoned pipes and manholes shall be filled with ODOT Item 613 low strength mortar grout fill (no slag), or approved equal. Grout fill shall fill the sanitary sewer and manholes to a minimum depth of two feet (2') above the crown of the pipe observed in the manholes.

EXCAVATION

A. General

Excavation shall include the clearing of the site of work, the loosening, loading, removing, transporting and disposing of all materials, wet and dry, necessary to be removed to construct all sewers and appurtenances to the lines, grades and locations shown on the plans.

Concrete and asphalt surfaced pavements shall be saw cut before removal.

Pavements must in no case be blocked or obstructed by excavated materials, except on the authorization of the Sanitary Engineer, and then only when adequate provisions have been made for a satisfactory temporary passage of pedestrians and vehicles. Adequate bridging and planked crossings must be provided and maintained across all open trenches for pedestrians and vehicles. Barriers, warning lights, flares, watchmen and warning signs shall be provided as necessary to prevent against damage to persons or property. Refer to Section 8.2, Part E, Interference with Traffic.

B. Excavation for Structures

Excavation shall be performed in accordance with all applicable state, county and local Regulations. Blasting will not be permitted except by written approval of the Sanitary Engineer for each specified location where it is to be performed. Excavation shall conform to the dimensions indicated for the structure and topography and subgrade conditions encountered. Soft unsuitable material occurring within or below the limits of the structure shall be completely removed and replaced with suitable material as directed by the Sanitary Engineer. Excavations carried below the depths indicated, without the Sanitary Engineer's approval, shall be refilled to the proper grade with thoroughly compacted suitable fill. All additional work, resulting from unauthorized excavation, shall be performed at no additional cost to MCSE.

C. Excavation for Pipelines

Excavation for pipelines shall be by open cut unless otherwise called for on the plans. Pipe trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench. The trench widths below the top of the pipe when laid to the required grade shall be such as to provide a free working space on each side of the pipes as laid, but shall in no event exceed the outside diameter of the pipe barrel plus twenty-four inches (24"). Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting and shoring as placed.

If the Contractor is required to excavate the trench to a width greater than that specified above, because of slides, caves, obstructions, or by reason of the condition and character of the trench material, he shall completely refill, at his own expense, all cavities so caused below the top of the pipe with suitable and satisfactory material, including mass concrete or other masonry, as directed by the Sanitary Engineer.

Holes for pipe bells shall be excavated to insure that the pipe rests upon the bottom of the trench for its entire length and allow sufficient space for joint sealing. The bottom of the trench excavation shall be removed to a depth at least six inches (6") below established bottom grade of the pipe and refilled with #57 crushed limestone. Any excavations carried below the depths indicated without specific directions shall be refilled in the same manner. Any soft material encountered at the bottom of the excavation shall be removed and replaced with well compacted granular fill.

D. Excavated Material

All excavated material shall be piled in a manner that will not endanger the work nor obstruct sidewalks and driveways. Fire hydrants, valve pits and manhole covers, catch basins, valve boxes, curb stop boxes or other utility controls shall be left unobstructed and easily accessible at all times. Street gutters and natural watercourses shall be kept free of excavated materials. Excavated material to be used as backfill can be neatly deposited within the public right-of-way or easement limits, at the sides of trenches where space is

available. Soil cuttings should not be stockpiled within ten feet (10') from the excavated trench or a distance equal to the depth of trench, whichever is greater. Where stockpiling of excavated material is required, the Contractor shall be responsible for obtaining the sites to be used and shall so maintain his operations as to provide for natural drainage and as not to present an unsightly appearance. No excavated material shall be placed on private property without the consent of the Owner. Any areas used for stockpiles shall be restored to pre-construction conditions.

E. Removal of Excess Material

All surplus material and such other material as the Sanitary Engineer may deem unfit for use as backfill shall be disposed of by the Contractor so as to give a minimum of inconvenience to the public. In case of settlement after backfill, the Contractor shall supply sufficient material satisfactory to the Sanitary Engineer to make up for the deficiency. When so directed by the Sanitary Engineer, the Contractor shall immediately remove all excavated materials from the site and dispose of the same.

F. Rock Excavation

The word "rock" wherever used as the name of an excavated material, shall mean boulders and solid masonry larger than one-half cubic yard in volume, or solid ledge rock and masonry.

G. Trimming

All material excavated in trenching and all materials used in construction of the work shall be deposited so as not to endanger the work or create unnecessary annoyance to the public. During the progress of the work, all material piles shall be kept trimmed up and maintained in a neat workmanlike manner.

H. Sheeting and Shoring

1. Requirements

The Contractor shall furnish and install temporary sheeting, shoring, timbering, and bracing required to support sides of excavations and to prevent any movement which could in any way injure the work, diminish the necessary width of the trench or other excavation, or otherwise delay the work or endanger adjacent structures. Sheeting shall be driven and excavation work conducted in such a manner as to prevent the material in back of the sheeting from running under the sheeting and into the trench. Care shall be taken to prevent voids outside of the sheeting but if voids are formed, they shall be immediately filled and well rammed.

Special precautions including the use of sheeting, shoring, and bracing shall be taken to guard against any damage to or settlement of buildings, walls or other structures which are adjacent to the work.

If the Sanitary Engineer is of the opinion that at any point sufficient or proper supports, sheeting, or bracing have not been provided, he may order additional supports, sheeting, or bracing, at the expense of the Contractor, and the compliance with such orders by the Contractor shall not relieve or release him from his responsibility for sufficiency of such supports. The MCSE may also require the Contractor to provide drawings prepared by a licensed professional engineer for the Contractor that reflect the site specific side slopes and/or sheeting design at no cost to MCSE

All sheeting, shoring, and bracing shall be of ample size securely fastened in place so that it cannot loosen up and fall from position.

Lumber used for sheeting may consist of any species which will satisfactorily stand driving. It shall be sawn, or hewn, with square corners, and shall be free from worm holes, loose knots, wind shakes, decay or unsound portions, or other defects which might impair its strength or tightness. Minimum thickness shall be two inches (2") minimal. Lumber for bracing shall be No. 2 common yard lumber or timber in less than six inch (6") sizes, and common structural grade on timers six inches (6") and over in thickness.

The sheeting and bracing shall be removed as the work progresses in such a manner as to prevent the caving in of the sides of the excavations.

While being drawn, all vacancies left by the sheeting and bracing shall be carefully filled with fine sand and rammed by special tools, or puddles and directed by the Sanitary Engineer.

Sheeting, shoring, timbering, and bracing for open trenches and Excavations may be ordered left in place by the Sanitary Engineer when such is necessary for the protection of the work, the public, or the adjacent property. Lumber and sheeting may be reused if not ordered left in place and if in good condition.

Timber sheeting ordered left in place shall be cut off below the finished grade at a distance to be determined by the engineer.

I. Erosion Control

1. General

All work shall conform to the requirements of the Medina County Engineer Stormwater Management and Sediment Control Rules and Regulations and any other requirements of the Ohio EPA and/or the U.S. Army Corps. Of Engineers.

Topsoil shall be stockpiled where possible and used for finish grading of trenches.

Temporary seedings and/or mulches shall be used where land will be devoid of natural or permanently seeded vegetation. Straw mulch shall be applied at the rate of two (2) tons per acre or 90 pounds per 1000 square feet.

Permanent seedings shall be made as soon as practical after any earth disturbance.

Sedimentation traps will be required at locations determined by the Medina County Engineer.

Maintain a copy of the project stormwater Pollution Prevention Control Plan (SWP3) on site. Maintain compliance with the SWP3 requirements, and those of the site stormwater NPDES permit.

The following table outlines the required erosion control materials for each erosion control area:

Description	***Application***	***Acceptable Material***
Perimeter filter fabric fence (silt fence)	To contain sediment in sheet flow runoff in construction zone adjacent to streams and to box out yard drains and catch basins	ODOT item 712.09 Type C
Filter fabric ditch checks	For drainage areas $\leq$ 2 acres	Silt fence installed perpendicular to the flow
Rock ditch checks	For drainage areas between 2 – 5 acres	As directed by the Medina County Engineer installed perpendicular to the flow
Slope protection	Slope $\geq$ 3:1	Jute Mat or Excelsior Mat, per ODOT Item 712.11 (Type F or G) (Refer to the Medina County Engineers Stormwater Management and Sedimentation Control Rules and Regulations for jute mat and wood excelsior mat material requirements.)
Ditch erosion protection	Bottom and/or side slope $\geq$ 3:1, or flow velocity exceeds 3.5 fps	Excelsior Mat, per ODOT Item 712.11 (Type G)
Vegetated swale erosion protection	Bottom and/or side slope < 3:1	Straw & polypropylene netting mat, per ODOT Item 712.11, Type B
Crushed aggregate slope protection	At stream embankments	No. 1 or No. 2 stone, or a combination thereof.
Dumped rock channel protection	At stream crossings. Place stone at top of trench to match existing stream bottom.	Type D per ODOT Item 703.19B (With at least 85% of the total material by weight larger than 3-inch but less than 12-inch square opening, and at least 50 percent of the total material by weight larger than a 6-inch square opening. Furnish material smaller than 3-inch square opening that consist predominantly of rock spalls and rock fines, and that is free of soil.)
Sediment traps	To settle out sediment before the surface water leaves the construction zone	Locations and requirements per the Medina County Engineer

Standards and Specifications for erosion control items are found in the "Medina County Engineers Stormwater Management & Sediment Control Rules and Regulation".

At the direction of the Engineer, the Contractor shall install additional erosion control items, and make adjustments to meet field conditions and anticipated future work. Contractor shall also make corrections as directed based on the Engineer's weekly storm water inspections.

Trapped sediment shall be removed from silt fence, ditch checks, rock checks, etc. when it reaches half the height of the lowest section. Make appropriate corrections when the erosion control items become nonfunctional.

Erosion Control Mat Types B and F shall be constructed as follows:

(1) Within 48 hours after seeding, and before placing the mat, evenly place straw mulch over the area at the following reduced rate: (A) If seeding between March 15 to October 30 - 0.6 tons per acre; or, (B) If seeding between October 31 to March 14 - 0.9 tons per acre. Asphalt emulsion tack or tackifier is not required.

(2) Immediately after mulching, lay the mat strips flat, loose, parallel to the flow of water, and with the mat contacting the ground at all points. For mats placed in ditches, start the construction at the down stream end.

(3) Where more than one strip is required to cover the area, overlap the strips at least four inches (4"). Overlap the ends at least 6 inches with the upgrade strip on top.

(4) Place upgrade slots at the upgrade end of each strip of mat by placing a tight fold of the mat at least six inches (6") vertically into the soil. Firmly tamp the soil against the end and staple the mat.

(5) Place end slots between the end of strips by placing a tight fold of the mat at least six inches (6") vertically into the soil. Firmly tamp the soil and staple the mat.

(6) Place check slots by placing a tight fold of the mat at least six inches (6") vertically into the soil. Firmly tamp the soil and staple the mat. Space check slots so that one check slot or an end slot occurs within each fifty feet (50') of slope for slopes 3:1 or steeper.

(7) Bury the edges of the mat where the mat abuts catch basins and other structures.

(8) Secure the mat in place with staples driven vertically into the soil. Do not stretch or draw the mat taut during the stapling operation. Install three rows of staples for each strip of mat, with one row along each edge and one row alternately spaced in the middle. Space staples not more than three feet (3') apart in each row. Staple all upgrade slots, end slots and check slots across the width, with staples spaced not more than six inches (6") apart.

(9) After completing the mat installation, seed over top of the mat in areas that the Engineer identifies as disturbed. Use an appropriate seed mixture per the specifications at a rate of one (1) pound per 1,000 square feet.

Erosion Control Mat Type G shall be constructed similarly with the following exceptions:

A) Do not use mulch under the mat.

B) Overlap edges and ends by 1-1/2 inches.

C) Do not bury the upgrade end or top edge of each strip unless required by the Engineer due to special conditions in the field.

D) The Contractor may elect not to provide check slots. However, if check slots are not provided, upgrade slots and end slots are required.

E) Place the mat in contact with the soil.

Maintain all erosion control items until the up-slope permanent grass coverage is seventy percent (70%) or better. At that time, the erosion control items shall be removed.

J. Blasting

Blasting shall not be permitted under or near buildings, bridges, railroad tracks, underground structures or utilities. Blasting will be permitted elsewhere, but only upon the written approval of the Sanitary Engineer and municipality in which the work is being conducted. The Contractor shall use all possible precautions against accidents or damage due to explosions or in the use or storage of explosives. The Contractor shall obtain adequate insurance and shall assume all risks and responsibilities and promptly settle all claims occasioned thereby, thus saving the County free and harmless from any claims resulting from such actions. A man experienced in the use of explosives shall be employed to supervise the drilling and blasting operations. Explosives shall be used, handled and stored as prescribed by the regulations of the Ohio Revised Code and any applicable Federal Laws. Blasting shall be conducted so that as not to endanger persons or property.

INSTALLATION

A. Sewer Pipe

All sewer pipe shall be installed in dry trench excavations. The Contractor shall provide suitable dewatering equipment until the pipe is laid and inspected and sufficient backfill is placed. The method of dewatering shall be at the Contractor's option, but shall receive prior approval of the Sanitary Engineer. In addition, where the sewer line crosses creeks or drainage ditches, the Contractor shall be responsible for maintaining the natural

drainage capacity of the creek or ditch during the construction period. The method by which the natural drainage capacity will be maintained shall be the Contractor's option, but shall receive prior approval of the Sanitary Engineer.

For replacement sewer projects, suitable bypass pumping equipment shall be utilized to divert sanitary flows around the construction area. Temporary gravity connections may be re-established during non-construction hours if approved by the Engineer.

All necessary precautions shall be taken to prevent the entrance of mud, sand, or other obstructing matter into the pipelines. The pipe shall be laid on an unyielding foundation with uniform bearing under the full length of the barrel of the pipe. Suitable excavations shall be made to receive the bell of each pipe, which shall be carefully laid true to line and grade. All adjustments to line and grade must be made by scraping away or filling in under the barrel of the pipe and not by wedging or blocking up the bell. Immediately after the pipe has been jointed, inspected and tested, sufficient backfilling shall be performed to protect the pipe adequately form injury and movement. At the close of each day's work, and at other times when pipe in not being laid, the end of the pipe shall be protected with a close fitting stopper approved by the Sanitary Engineer. Upon discovery at any time, any defective pipe which may have been laid shall be removed and replaced with sound pipe at the Contractor's expense. Any pipe that has its grade of joint disturbed after laying shall be taken up and relaid.

B. Trench Excavation

The trenches in which the sanitary sewer lines are to be constructed shall be excavated in all cases in such a manner and to such widths as will accommodate the building of the structures they are to contain. Excavation shall be stopped at the depths outlined under "Bottom Preparation" for the type of pipe being installed. Unauthorized excavation below grade shall be filled with granular material, at the expense of the Contractor.

C. Foundation

The sanitary sewer line is to be built on good foundation. Such measures as necessary and as directed by the Sanitary Engineer shall be used to prevent settlement. If, in his opinion, the material forming the bottom at the grade of the sanitary sewer is not suitable for foundation, a further depth shall be excavated and the same filled with suitable material.

D. Pipe Laying and Bedding

Pipe and special fitting shall be protected during handling against impact shocks and free fall. Pipe shall be kept clean at all times and no pipe shall be used in the work that does not conform to the appropriate AWWA or ASTM specifications.

Grade and line stakes at regular intervals, will be placed at any convenient offset from the centerline of the pipe. A continuous check on trench depth must be maintained.

The bottom man or pipe layer shall carefully prepare the bed for the pipe both from a grade and line standpoint. All rock or stones protruding above the prepared bed shall be removed so that in no case will rock touch the pipe.

Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed or of the factory made jointing material shall be clean and dry. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturers specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined, and adjusted in such a workmanlike manner as to obtain the degree of water tightness required. In the event that pipe previously laid is disturbed due to any cause, the same shall be taken up, the joints cleaned and the pipe relaid.

E. Laying Pipe in Freezing Weather

No pipe shall be laid upon a foundation in which frost exists; nor at any time when the engineer shall deem that there is danger of the formation of ice or the penetration of frost at the bottom of the excavation.

F. Line and Grade

Line and grade stakes shall be accurately set at either twenty-five (25') or fifty foot (50') centers and at all structures, and offset from the trench centerline so as not to be disturbed during construction. Grade bars shall be set accurately level from the line and grade stakes and notches or nails set for line. Not less that three (3) adjacent grade bars shall be used when laying pipe, and the grade sting shall be accurate and taut. The grade rod shall be substantially and accurately constructed and shall be frequently checked. The grade rod shall carry both vertical and horizontal levels.

In lieu of the use of line and grade stakes for sewer construction the Contractor may use a proven "Laser Beam Instrument System" for trenching and for maintaining line and grade; provided, it is of a make approved by the Sanitary Engineer, and that it is set up, checked and operated by personnel experienced and qualified in its use.

G. Jointing

Field-cut pipe shall be jointed as per the pipe manufacturer's instructions.

Connections to manholes and other structures shall be made with approved rubber waterstops and elastomeric sealing rings or couplings installed as per the manufacturer's instructions. The connection shall be watertight and provide for differential settlement and expansion between the manhole and pipe.

For profiled wall PVC sanitary sewer pipe manhole entry pieces shall consist of a smooth wall surface area at one end and a standard bell or spigot at the other end. This shall be Perma Lok manhole entry piece (MHE) or approved equal. The pipe and manhole manufacturers shall coordinate the manhole entry locations using the A-Lok entry system or approved boot entry system.

When pipe is ready for laying, the joint surfaces shall be cleaned of all dirt and foreign material. When the joint is completed, the sewer shall have a smooth, unobstructed invert; and the pipe shall be true to grade and alignment. Any misshapen or improperly jointed pipe shall be removed and replaced.

H. Protection of Sewer

After the sewer is completed and trench backfilled, the Contractor shall maintain barricades and keep traffic off freshly backfilled trenches until the backfill has consolidated, but in no event shall traffic be permitted on backfill in less than seventy-two (72) hours after the trench has been properly backfilled and compacted unless otherwise permitted by the Sanitary Engineer.

I. Sewer Pipe Bored and Encased in Steel Casing

1. Scope of Work

The Contractor shall furnish and install sewer pipe in steel casing at the locations shown on the plans, material, equipment and construction procedure shall comply with the plans and specifications, insofar as it is applicable.

2. Materials

The casing pipe shall be welded steel pipe conforming to the requirements of the ASTM specifications A-139, and shall have a minimum yield strength of 35,000 psi. The steel pipe shall have welded joints and be in at least eighteen foot (18') lengths. The casing may be new or used pipe and shall be protected against corrosion by a combination protective coating consisting of a coal tar primer coat followed by a single application of hot coal tar enamel or, the coating shall be an approved substitute equal to this combination.

Sewer	Casing Wall Pipe	Pipe Thickness
4"	8" O.D.	3/8"
6"	14" O.D.	3/8"
8"	16" O.D.	3/8"
12"	20" O.D.	3/8"
36"	54" O.D.	½"

*Note: All railroad bores should use minimum 5/8" thick casing pipe.

3. Boring and Jacking Procedure

The Contractor shall furnish steel pipe casings and auger and jack same in place to the line and grade indicated in the plans. The augering and jacking operations shall be done simultaneously to insure true alignment. In order to prevent poor alignment and grade, the auger shall not be permitted to extend more than one foot beyond the end of the casing.

4. Installation of the Pipe

After the casing pipe is installed to the proper line and grade, the sewer pipe shall be pushed through the casing pipe and set to line and grade on manufactured runners and spacers. Hard wood skids and shims with stainless steel straps may be permitted on a case by case basis by the Sanitary Engineer if required to maintain the gravity sewer design slope. The space between the casing pipe and sewer pipe shall be completely filled with a 1:6 cement grout. Bulkheads shall be installed at both ends of the casing in order to insure complete filling of this space. Any voids formed outside the casing pipe shall be fully grouted.

J. Trench Dewatering

The sewer trench must in all cases be kept relatively free from storm, surface and ground water during the construction process. Trench drainage must be discharged in a manner that will cause the water to pass through grass or fabric filters prior to discharging to storm sewers or creeks. Trench water must also be discharged in a manner that would not cause surface erosion at the point of and downstream of the discharge. In no case shall any trench water be permitted to enter the sewer or waterline under construction.

1. Temporary Drainage

Where required by the method of construction, the Contractor shall furnish all equipment to promptly remove any water that accumulates in the excavation and to maintain the excavation in a relatively dry condition while construction therein is in progress. Excavation shall be limited to the extend that the available equipment can properly dewater the excavation.

2. Ground Water

Where ground water is encountered above the bottom of the trench at elevations which otherwise affect the stability of the trench, the Contractor shall maintain the ground water level at all times at a sufficiently low point to permit proper installation of the sewer pipe. The method of trench dewatering of ground water is the Contractor's option, but shall receive prior approval of the Sanitary Engineer.

K. Laying of Profile Wall Gravity (Sewer) Pipe

Plastic sewer pipe shall be installed as per ASTM D-2321-89a and UNI-B-5 except as herein modified. Pipe shall also be installed in accordance with the trench details on the contract drawings and the pipe manufacturer's instructions and recommendations.

Trench widths shown on the contract drawings are minimum trench widths. The pipe manufacturer shall be contacted to verify the recommended trench width to be used for their pipe under all field conditions but in no case shall the trench width be less than the widths shown on the contract drawings. If a larger trench than shown is recommended it shall be used.

The Contractors attention is called to the necessity of allowing pipe to reach ambient ground temperature before joints are made, particularly where pipe has been stored in a warm temperature or in the sun under cover. This will allow the pipe to reach a stable length before jointing.

In all cases trenches for pipe sewers shall be excavated no less than four inches (4") below the outside bottom of the bell of the conduit and replaced with thoroughly compacted granular material to provide a bedding for the pipe. The foundation material upon which the granular bedding material will be placed shall be firm and stable for the full width and length of the trench.

All loosened dirt and rock shall be removed from the bottom of the trench (the trench bottom shall be smooth and have no sharp or jagged edges) before the initial four inches (4") of special backfill is placed.

If over-excavation occurs, all loosened earth, rock shall be removed and the trench bottom brought back to grade at the Contractor's expense with granular material which may be fortified with cement, if so directed by the Sanitary Engineer.

The layer of bedding material shall be shaped to receive the bell of bell and spigot pipe to prevent concentration of loads on the bell. Special backfill (#57 crushed limestone) shall be tamped in maximum four inch (4") layers to the springline of the pipe. The trench shall then be filled with #57 crushed limestone in six inch (6") layers to a depth of six inches (6") above the pipe unless the trench is twenty five feet (25') deep or greater, then the limestone backfill must be twelve inches (12") above the top of the pipe. Backfill shall be per Standard Detail. Backfilling should also be carried out in accordance with the manufacturer's recommendations if they are more stringent. Mechanical tamping shall not be used on PVC pipe until the compacted backfill is three feet (3') above the pipe or higher.

Special care should be exercised in consolidating bedding material (hand tamping with approved hand tamping bars shall be used) to the springline to provide adequate side support for the pipe. The bedding must give a full, firm, but slightly yielding support to the lower section of the sewer so that the pipe is firmly supported in the excavation throughout its entire length in such a manner as to prevent any subsequent settlement of the sewer. Boulders, loose rocks, or frozen clumps of stone which might bear against the pipe will not be permitted in the trench bottom or sides below on one foot (1') above the sewer.

The service connections shall be as per the contract drawing details.

Granular material for bedding shall be of durable compacted crushed limestone of approved coarse aggregate size number fifty-seven (57) (½ inch to 1-½ inches). The material shall be of such a nature that it can be placed, shaped, and compacted to a minimum of 95% compaction and to the satisfaction of the engineer. The grading and shaping of the bedding materials to fit the lower circumference of the pipe shall be done manually only a few feet in advance of the pipe laying.

Where foundation conditions are such that proper bedding cannot be provided, special provisions shall be made by providing additional bedding material as ordered by the engineer. No pipe shall be laid in water or when trench conditions are unsuitable. If ordered by the Sanitary Engineer, the bedding material shall be underlaid with a concrete cradle, as approved by the Sanitary Engineer.

Pipe shall be thoroughly cleaned before they are laid and kept clean until completed, with particular care that jointing ends are free of all mud, clay, grease, oil or other foreign substances, and are dry when joints are made. Before lowering into the trench, each pipe and special shall be checked for defects such as cracks, gouges, cuts and stress damage. Pipe shall be handled as per the manufacturer's recommendations.

All trenches shall be kept free of water when pipe laying is in progress, and no water shall be allowed to rise to the bottom of the pipe until all joints have been made.

All pipes and fittings shall be laid accurately to the required lines and grades and shall be uniformly supported along their entire barrel length. Spigots shall be pushed along home into sockets. Care shall be taken to insure that each length shall abut against the next in such manner that there shall be no shoulder or unevenness along the inside bottom half of the pipe. No pipe shall be brought into position until the preceding length has been thoroughly embedded and secured in place. Pipe shall be laid with the bell or socket end up grade.

Any pipe that is damaged or exhibits defects shall be rejected and immediately removed from the job site.

The upper end of all uncompleted pipelines shall be provided with a temporary stopper carefully fitted so as to keep dirt and other substances from entering. This stopper shall be kept in the end of the pipeline at all times when laying is not in actual progress.

Pipes which enter or pass through concrete walls, manholes, or other sections shall be properly trimmed and finished-off, flush with walls, etc., and sealed to form a watertight joint unless otherwise shown or called for on the contract drawings. If permitted by the Sanitary Engineer, pipe may be laid through manholes, and the top of the pipe may be cutout after the bench and invert have been made. Provisions for expansion shall be made as necessary.

When using movable trench support, the Contractor shall not disturb the pipe location, jointing, or its embedment. The bottom trench box shall always be above the springline of the pipe. Any voids left in the bedding or backfill material by support removal shall be carefully filled with granular material which is adequately compacted. Removal of bracing between sheeting shall only be done where backfilling proceeds and bracing is removed in a manner that does not relax trench support. Sheeting shall be removed separately in random stages. When advancing trench boxes or shields, the Contractor shall not permit lateral or longitudinal pipe movement or disjointing. See UNI-B-5 for details on trench width when trench boxes and sheeting is used.

If, as the result of any inspection before final acceptance of the work, it is found that any section of any sewer has unduly settled; that joints have opened up or when joint material has come loose and projects into the sewer; that pipes are found cracked, broken, misshapen, or exhibit excessive deflection; or that any other defects are found in the sewers or in any of their appurtenances which might permit excessive infiltration or impair the satisfactory performance of the sewer or which show nonconformance with the drawings or specifications; the Contractor shall cause such defective or inferior work to be removed and replaced or satisfactorily repaired by proper material and workmanship without MCSE compensation for labor, equipment and materials required.

L. House and Property Sanitary Service Connections

For connecting new or existing connections to sewers, vertical riser pipe shall only be used when the distance from the top of the sewer to the connection is over three feet (3'), unless otherwise directed by the engineer. Vertical riser pipe shall be constructed along an excavated area beyond the edge of the sewer trench large enough to accommodate the connection pipe and granular backfill. The method of constructing vertical riser pipe shall be done according to plan detail. Sanitary sewer risers shall be installed at the locations and to elevations shown on the plans or where otherwise directed by the engineer.

The sanitary sewer riser shall be constructed in accordance with the Medina County Sanitary Engineering Department's construction and material specifications as outlined in the Construction Notes and Standard Details as shown on the plans. Sanitary house connections shall be ASTM D3034 SDR 35 PVC with gasketed joints per ASTM D3212. Solvent or glue type joints are not permitted beyond 30" from the outside face of the building. The connection at the foundation between internal plumbing and the sanitary lateral shall be a gasketed SDR 35 to schedule 40 adapter.

Field connections for replacement projects shall be made as per the pipe manufacturer's recommendations. Fernco type connectors are not permitted except for dissimilar pipe material. Fernco couplings shall be completely encased with concrete on solid ground and flow lines matched. Solid gasketed PVC couplings are acceptable.

The joint between any new plastic pipe and existing connection shall be made with an approved gasketed coupling repair as per the pipe manufacturer's recommendations and as directed.

The location of house connections is shown in a general way on the contract drawings, but the exact location will be determined at the time of construction of the sewer. The Sanitary Engineer may increase the number of connections or delete some connections as the sewer is being built or increase the size of connections when he deems such advisable.

Any stub or riser for a future sanitary house connection shall be plugged with a plastic plug or cap cemented in place or other approved plug as indicated on the construction drawings. Each stub or riser for a future sanitary house connection shall be marked as to location by a piece of three-quarter inch (¾") reinforcing bar not less than eighteen inches (18") long and placed vertically with its top twelve inches (12") below finished road or ground surface.

Where possible, the sanitary sewer service pipes in residential districts shall have a minimum cover at the curb line of eight feet (8') below the established grade of the curb, and in the business districts at such depth as may be ordered by the Sanitary Engineer. When the depth of the main sewer will not permit a minimum depth of eight feet (8') below the established grade of the curb, then the service pipes shall be laid from the main to the curb line with an inclination of one-fourth inch (¼") to each lineal foot of service.

The sanitary sewer connections shall be constructed in accordance with the Medina County Sanitary Engineering Department's construction and material specifications as outlined in the Construction Notes and Standard Details as shown on the plans.

At locations shown on the plans, sewer pipe shall be jacked into a bored hole as herein specified. A sufficiently large boring pit shall be excavated to allow for proper alignment of the drilling equipment and to allow the pipe to be pushed through the drilled hole. The alignment of pipe will not be allowed to vary more than two feet (2') at the upstream end of the house connection from a line drawn at right angles from the sanitary sewer at the wye or riser.

The house connection shall be laid on a grade of not less than one percent (1%) but not more than three percent (3%). The invert of the upstream end of the pipe shall not be less than nine feet (9') exactly below the elevation of the center line of the street for residential areas and seven feet (7') exactly for commercial and industrial areas, providing the depth of the sewer main is sufficient. In cases where local ordinances or governmental agencies prohibit the cutting of pavements, and the sub-surface consists of rock or other hard material that does not lend itself to boring, the sewer shall, upon the order of the Sanitary Engineer, be installed by tunneling under the pavement.

M. Trench Bedding and Backfill

Backfilling shall be shown on the plans as specified herein.

Backfilling over pipe and around structures shall progress as rapidly as the construction and testing of the work will permit. Laying of pipe shall proceed such that no more than one hundred feet (100') of trench shall remain open behind the completed, installed sewer.

Bedding material shall be Class IB bedding, #57 crushed limestone, conforming to ASTM-D-2321.

All trenches and excavations shall be backfilled immediately after pipe is laid and/or tested. No material shall be used for backfilling that contains stones, having a dimension greater than three inches (3"), frozen earth, debris, or earth with an exceptionally high void content.

For backfill above the springline and to a level of six inches (6") over the top of the pipe unless the trench is twenty five feet (25') deep or greater, then the limestone backfill must be twelve inches (12") above the top of the pipe. Selected materials shall be used, and placed in uniform layers not exceeding six inches (6") in depth (loose depth) up each side. Each layer shall be placed, then carefully and uniformly tamped, so as to eliminate the possibility of pipe settlement, misalignment and damage to joints.

The Contractor shall place bulkheads of native clay soil across the trench of 100 feet intervals to resist the movement of groundwater through the granular material. Such bulkheads shall be carefully compacted and parallel to the pipe and shall extend as a minimum from the bottom of the trench to a height of six inches (6") above the top of the pipe, when under twenty five feet (25') deep and twelve inches (12") above the top of the pipe when over twenty five feet (25') deep, but may be larger to match the dimensions of the granular backfill on each side of the bulkhead and to seal the trench.

Above the tamped backfill the Contractor ***may*** complete the backfilling with mechanical equipment. This shall be done in such a manner that the material does not free fall into the hand-placed cover. Rather the backfill shall be so placed that it will "flow" onto the hand-placed cover from the section partially filled. The Contractor shall consolidate the backfill in such a manner as will insure the minimum possible settlement and the least interference with traffic. Where sanitary sewers are located in or adjacent to pavement, all backfilling and materials handling equipment shall have rubber tires. Through rights-of-way "cat" type backfill equipment will be permitted. Approved granular material shall be used for backfill of trenches in pavements and driveways as shown in the construction Standards portion of the plans and at other places as directed by the engineer. The granular backfill shall be as specified by the authority having highway maintenance responsibility. Periodical dressing of fill over the trench to improve drainage and safety conditions shall be made during the course of the contract.

For sanitary sewers installed under public pavement or within the zone of influence from edge of pavement, the installation must comply with the road authority's backfill requirements for stone and/or low strength mortar backfill (LSM).

N. Concrete and Masonry Work

1. Scope of Work

   The concrete and masonry work shall consist of furnishing all materials, forms and equipment, and performing all necessary labor to do all concrete and masonry work shown on the plans, or incidental to the proper execution of the work.

2. Concrete and Masonry Work for Manholes, Pipe Bedding, Collars, Bulkheads, Encasement and Thrust Blocking

   All Concrete and masonry work for manhole and pipe installation shall conform to the State of Ohio Department of Transportation Construction and Materials Specifications, Items 499, 603 and 604.

   All Masonry work shall be carried on under dry conditions and be properly protected from cold weather and dampness. All recently poured concrete or formed masonry shall be adequately covered during periods of precipitation.

O. Concrete Cradle and Encasement

Concrete cradle or encasement shall be furnished and placed at the locations and in accordance with the details shown on the contract drawings. Additional concrete cradle or encasement shall be furnished and placed by the Contractor when so directed by the Sanitary Engineer.

P. Manholes

All manholes shall be constructed to the lines and grades shown on the plans. Drop manholes shall be constructed where shown on the plans. Manhole sections and pipe connections shall be made in strict accordance with the manufacturer's recommendations.

Q. Inspection

Each section of sewer between each pair of manholes shall be inspected as soon after completion as possible, before backfill has been placed, and again before final acceptance by the Sanitary Engineer. Such specifications shall be visual or by looking through the sewer from manhole to manhole with the aid of reflected sunlight or electric light. The pipe shall be true to both line and grade; shall show no leaks; hydraulics of the sewer shall be in no way impaired; there shall be no projections of connecting pipe into the sewer; sewers shall be free from cracks and protruding joints materials; and shall contain no deposits of sand, dirt, or other materials which will in any way reduce the full cross sectional area. All wall joints in manholes, junction chambers, and elsewhere shall be tight. All finished works shall be neat in appearance and of first class workmanship and all details shall conform to contract, detail, shop, or working drawings from which no deviation will be permitted without written authority from the engineer. Proper stoppers and bulkheads must be in place where required.

R. Noise, Dust and Odor Control

The Contractor's performance of this contract shall be conducted so as to eliminate all unnecessary noise, dust and odors.

The Contractor shall, when so ordered by the Sanitary Engineer, apply a dust palliative for the reduction of dust nuisance originating within or outside the project work zone . Dust control operations shall be performed by the Contractor at the time, location and in the amount specified by the Sanitary Engineer. Dust palliative shall consist of calcium chloride or a thirty-four percent (34%) solution of calcium chloride. The calcium chloride shall be spread uniformly over the surface of the area contributing to the formation of airborne particulate.

TESTING OF CONSTRUCTED SEWER LINES

A. Television Inspection of Sewers

The County of Medina shall require that a Contractor be responsible for television inspection of the newly installed sanitary sewer system. Where practical, all television inspections shall be conducted from upstream to downstream. The sewers shall be televised immediately after the orders of the Engineer. The TV inspection shall be on DVD video for compatible use to play/recorder monitor units. Character generator shall be used to superimpose on the tapes distance between manholes and location of wyes. A detailed report shall accompany the tape giving distance between manholes (MH numbers and connections must be listed).

B. Leakage Test

The sanitary sewers must pass a leakage test which shall be a low pressure air test in accordance with the "Ten States Standards" Section 33.95 with a leakage limit of 100 gal./in./mi./day.

All sanitary manholes shall be air tested per ASTM Specification C 1244-93 to verify water tightness and proper construction per plan details.

C. Deflection Test

All flexible sanitary sewers must pass a deflection test (5% max.).

Deflection tests shall be performed no sooner than thirty (30) days following completion of backfill. Maximum ring deflection of the pipe under load shall be limited to five percent (5%) of the average inside diameter listed in ASTM D-2751 for ABS solid wall pipe and ASTM D-2680 for ABS composite wall pipe. ASTM D-3034 for polyvinyl chloride (PVC) pipe lists outisde dimensions and minimum wall thicknesses which may be used to calculate applicable base diameters. The proper sized mandrels shall be pulled through the pipe.

All pipe failing to maintain the minimum deflection diameter or larger for the applicable type of pipe shall be considered to have been improperly installed and shall be relayed or replaced by the Contractor.

D. Pressure Testing – Sanitary Forcemains

Sanitary forcemains shall be subjected to pressure leakage tests. Pressure leakage tests shall be 150% of normal operating pressure as determined by the Sanitary Engineer.

Pressure tests shall be performed between each valve section or new forcemain and shall be maintained for a minimum of two (2) hours. The maximum allowable leakage allowance shall be ten (10) gallons per 24 hours, per inch diameter, per mile of pipe.

If the leakage allowance is exceeded, the Contractor shall locate and repair the sources of leakage and repeat the testing procedure until the test results are acceptable.

RESTORATION

A. General

In all cases, the Contractor shall bear the sole responsibility for putting the site of work back in a condition fully as good as or better than existed prior to the commencement of work.

B. Cleaning up

Immediately after a section of the sanitary sewer line is tested and accepted for payment, the ground surface shall be cleaned of all surplus material including stone, broken pipe, construction material, and all other debris by the Contractor, to the satisfaction of the Sanitary Engineer.

The Contractor shall be responsible for the condition of the trenches for a period of two (2) years from the date of the final inspection approval.

C. Pavement, Drive and Walk Replacement

The Contractor shall provide all labor, tools, material and equipment to replace the pavement, drives and walks that have been damaged or disturbed during the course of the work, all as specified herein or as directed by the Sanitary Engineer.

During the entire period of construction of the project all streets, drives and walks shall be kept in usable and safe condition for public use. Before final acceptance, and after trench settlement has been provided to the satisfaction of the Sanitary Engineer, pavement drives, and walks designated by the Sanitary Engineer shall be repaved with the type of pavement replacement specified herein.

Where necessary to disturb the existing pavement, the pavement will be line cut and the edges of face of the old pavement or base shall be left vertical. Ragged edges shall be trimmed so as to provide a substantially straight line juncture between old and new surfaces. Consideration must be given to utilizing existing construction or expansion joints as the limits for replacement in order to have a neat and homogeneous final project.

The pavement replacement shall be so placed as to conform in grade with the existing pavement, drives, or sidewalks.

The type of pavement, drives and walks used for replacement shall match existing pre-construction conditions (in kind), or as shown on the pavement replacement details in accordance with the latest Construction and Material Specifications, State of Ohio, Department of Transportation.

D. Sidewalks

Existing sidewalks shall be replaced to the original lines, grades, and dimension with four inch (4") thick B concrete sidewalks, except where located in driveways where the walkway shall be six inches (6") thick. The finish, joint pattern and expansion material shall conform to the existing walkways.

E. 12", 15", 18", 21", 24", 30", 36", 48" Corrugated Drive Pipe and Culvert Pipe

The Contractor shall furnish and install additional corrugated metal or corrugated plastic culvert where directed by the Sanitary Engineer. All metal pipe furnished or used under this item shall be 16 gage plain galvanized, corrugated steel pipe conforming to the latest Station of Ohio, Department of Transportation Specification 707.01. All plastic pipe furnished or used under this item shall be ADS N-12 with ST (silt tight) joints, or approved equal, conforming to the latest State of Ohio, Department of Transportation Specification 707.32.

F. Existing Utilities and Structures

Where existing utilities and structures are indicated as being in the line of the proposed sanitary sewer line, the Contractor shall expose them, as directed by the engineer. This work is to be done sufficiently in advance if the construction operations to permit adjustments in line or grade, if required, to eliminate interferences. Existing pipes or conduits crossing the sanitary sewer trench, or otherwise exposed shall be adequately braced and supported to prevent trench settlement from disrupting the line or grade of the pipe or conduit, all in accordance with the directions of the engineer. Utility service broken or damaged shall be repaired at once to avoid inconvenience to customers. Storm sewers shall not be interrupted overnight. Temporary arrangements, as approved by the engineer, may be used until any damaged items can be permanently repaired. All items damaged or destroyed by the sanitary sewer line construction and subsequently repaired must be properly maintained by the Contractor.

Where it is necessary to relocate an existing utility or structure the work shall be done in such a manner as is necessary to restore it to a condition equal to that of the original facility. No such relocation shall be done until approval is received from the authority responsible for the utility or structure being changed.

If an interference is encountered at grade with utilities or structure not shown on the plans or otherwise indicated, the compensation for the elimination of the interference shall be determined by the applicable sections of the general clauses.

The following is a guideline for utility repairs based on the utility that was damaged:

1. If gasketed or drain tile, utilize ferncos. Concrete encase if instructed by the Sanitary Engineer.

2. If field tile is not jointed, use repair clamp suitable for reconnecting pipes.

3. If ribbed pipe, use ribbed and banded repair clamp.

4. Or by materials/method as directed by the Sanitary Engineer.

G. GRADING AND SEEDING

Prior to initiating final grading and seeding, the Contractor's Foreman shall meet with the Project Engineer and Inspector to review materials specifications and restoration requirements. Data sheets for all materials to be used during restoration shall be provided to the Engineer one week prior to the meeting.

Rough grading shall immediately follow the main line construction effort. Waterways, drainage ways and ditch lines shall be maintained at all times to allow for positive drainage. Final grading and seeding shall be completed as thoroughly and as soon as possible weather permitting. Perform seeding and mulching after completing all work in the area. If it is anticipated that future work may disturb an area, place temporary seed and provide mulch per ODOT Item 207.

Perform permanent seeding and mulching after all work is completed. If the Contractor disturbs a final area, then the Contractor shall restore this area.

The following are minimum soil conditions required for the establishment and maintenance of a long-lived vegetative cover:

A. Enough fine-grained materials (over 30 percent silt plus clay) to provide the capacity to hold at least a moderate amount of available moisture.

B. Sufficient pore space to permit adequate root penetration.

C. The soil shall be free from any material harmful to plant growth.

D. If these minimum conditions cannot be met, then topsoil is required.

If topsoil is available as part of the material excavated, it shall be from the upper most layers of the excavation areas after removing all heavy grass, weeds, and other vegetation from the excavation area.

If no topsoil is available as part of the material excavated, the Contractor shall supply approved topsoil for use. Before delivery of topsoil, the Contractor shall provide the Engineer with a written statement providing location and properties from which topsoil is to be obtained, names and addresses of owners, depth to be stripped, and crops grown during past two (2) years. Topsoil shall be stockpiled for testing.

Contractor shall have a Soil Analysis Test of the topsoil per ODOT Item 659 to determine soil amendments for topsoil and provide a copy to the Engineer with shop drawings, prior to the start of fine grading. Topsoil shall contain between four percent (4%) and twenty percent (20%) organic matter and consist of fertile, loose, friable, and loamy material that contains humus material. Contractor to incorporate lime as required to adjust topsoil acidity or alkalinity to accomplish a target pH of 6.5. In lieu of the Soil Analysis Test, the Contractor may apply agricultural ground limestone at a rate of 138 pounds per 1,000 square feet.

The Contractor shall furnish grass seed from a dealer or grower whose brand grades are registered or licensed by the State of Ohio, Department of Agriculture. Test dates shall be marked on the seed bags. Seeds shall be sown within 9 months of the test date.

With the shop drawing submittal, the Contractor shall provide a written description for the classes of seed mixtures showing the percentage by weight (mass) of each kind of seed for the Engineer's approval. The following shall be included: (A) Name and location of the seed supplier, (B) Origin and date of harvest of each kind of seed, (C) A statement of the purity and germination of each seed, and (D) Testing date for each seed.

After the backfill has been given a reasonable time to settle, it shall be graded off to the finish grade then harrowed to a depth of three inches (3"). All grass, weeds, roots, sticks, stones, etc., are to be removed and the soil carefully brought to the finished grade by raking. In front of residences, commercial properties, between curb and sidewalks, or other groomed areas, all stones one inch (1") or greater shall be removed. In all other areas, rocks or other foreign material three inches (3") or greater shall be removed.

Furnish a smooth surface for the seed or topsoil by tracking with a dozer or other methods. If the site is inaccessible to a dozer, and other methods do not provide results equivalent to hand raking, hand rake these areas. Ensure that the surface is uniform, free of gullies, rivulets, crusting, and caking. Finely grade the surface for slopes 4:1 or flatter, and grade all other slopes. Rake or open the surface with dozer cleats or otherwise loosen the surface of these areas to a depth of one inch (1") immediately before covering with topsoil. Remove raked up material from the area.

If topsoil is required, it shall be placed in two (2) loose lifts that construct a two inch (2") minimum compacted depth for slopes $\geq$ 3:1, or for a total of four inches (4") for slopes < 3:1. Again the area shall be tracked with a dozer to compact and provide good contact between the topsoil and the surface.

Commercial fertilizer shall be obtained from a dealer or manufacturer whose brand grades are registered or licensed by the State of Ohio, Department of Agriculture. Commercial fertilizer 12-12-12 shall be applied evenly over the surface at a rate of 18.4 pounds per 1,000 square feet. Incorporate commercial fertilizer, granular lime, or other soil amendments, including compost, either separately or together, into the soil or topsoil to a depth of two (2) to four (4) inches. Do not mix liquid lime into the soil or topsoil. For liquid lime, apply only to the top of the soil or topsoil.

Immediately after the preparation and fertilization of the seed bed, the seed shall be thoroughly mixed and then evenly sown over the prepared areas. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, hydroseeder or other satisfactory method. Preferably, seeding should be applied on a moist seedbed. Maximum seeding depth should be ¼ inch on clayey soils and ½ inch on sandy soils, when using other than hydroseeder method of application.

Do not sow seed during high winds. For slopes subject to windy conditions, seed using hydraulic methods only. Operate equipment in a manner to ensure complete coverage of the entire area to be seeded.

Seeding classes and application rates are as follows:

	Class – Type	Seeds	lb/1000 ft^2	% by weight
1	Lawn Mixture	Kentucky Bluegrass (Poa pratensis)	3	30
	(Use residential areas, commercial properties, etc. between curb and sidewalks)	Creeping Red Fescue (Festuca rubra)	3	30
		Annual Ryegrass (Lolium multiflorum)	2	20
		Perennial Ryegrass, turf type (Lolium perenne)	2	20
2	Roadside Mixture	Kentucky Bluegrass (Poa pratensis)	1.5	30
	(Use for flatter than or equal to 3:1 slopes)	Kentucky 31 Fescue (Festuca arundinacea var. KY 31)	2	40
		Perennial Ryegrass (Lolium perenne)	1.5	30
3B	Low Growing Slope Mixture	Hard Fescue (Festuca longifolia)	1.3	56
	(Use for steeper than 3:1 slopes)	Creeping Red Fescue (Festuca rubra)	0.8	34
		Annual Ryegrass (Lolium multiflorum)	0.23	10
7	Temporary Erosion Control Measure	Annual Ryegrass (Lolium multiflorum)	2.02	100

Class 1 Lawn Mixture will be acceptable as a general seed for lineal projects such as sewer and water line construction.

If broadcast seeding, seed Classes 1, 2, and 3B between August 15 to October 30. If necessary to seed Classes 1, 2, or 3B before August 15, but after March 1, increase the seeding rates by 5 percent. For broadcast seeding, perform the following, immediately after sowing, to provide good seed-soil contact: (A) For flat surfaces, lightly rake the area then roll, and (B) For slopes, track the area with dozer.

Between March 1 and October 30, the Contractor may use hydroseeding to apply the mulch, seed, water and commercial fertilizer in the same operation.

Mulch materials shall consist of straw for 3:1 or flatter slopes. Use mulch that is reasonably free of weed seed, foreign materials, or other materials that would prohibit seed germination. Do not mulch during high winds. For slopes subject to windy conditions, mulch using hydraulic methods only.

Mulch shall be evenly placed within twenty four hours (24) after seeding and any mulch that becomes displaced shall be replaced immediately. Mulch shall be placed at the following rates: (A) If seeding from March 15 to October 30 – 2 tons per acre; or, (B) If

seeding from October 31 to March 14 – 3 tons per acre. Spread mulch uniformly by hand or mechanical equipment. For uniform distribution of hand spread mulch, divide the area into approximately 1,000 square feet sections and place 70-90 lbs. Of mulch in each section.

Anchor, or keep straw mulching materials in place by applying an asphalt emulsion at a minimum rate of sixty (60) gallons per ton of straw mulch, or by applying tackifiers according to the manufacturer's recommendations. Apply an additional application at a rate of thirty (30) gallons per ton of straw mulch to shoulder areas, starting at the berm edge and extending out for a distance of ten feet (10'). Use an emulsion that is nontoxic to plants and prepared in a manner that will not change during transportation or storage.

If soil moisture is deficient, the contractor may water permanent seeded areas until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry and hot seasons, or on adverse sites. Apply water using a hydroseeder or a water tank under pressure with a nozzle that produces a spray that will not dislodge the mulch material.

When installing temporary erosion control seeding Class 7, all elements of this specification apply except, straw mulch shall be applied at a rate of 2 tons per acre. Fertilization shall by applied at 5 pounds per 1,000 square feet. If project conditions prevent fertilizing the soil and preparing the seed bed, the fertilizing and preparation requirements may be waived by the Engineer. Do not place construction seed on frozen ground.

All seeded and mulched areas shall be maintained until final inspection. All damaged areas shall be repaired to the original condition and grade. Rework or reshape slopes, and bring in additional material, as necessary, using whatever equipment is necessary to restore slopes to grade. Seed and mulch repaired areas according to this specification.

The Contractor shall request an inspection by the Engineer no earlier than six (6) months and no later than twelve (12) months after final seeding. The Contractor shall make all necessary repairs, replacements, reseedings and mulching to seeded areas within the planting season, if possible. If stand is inadequate, the Contractor shall over seed and fertilize, using half of rates originally applied, and mulch. If stand is over 60% damaged, seeding shall be reestablished following original lime, fertilizer, seedbed preparation, seeding and mulching according to this specification.

Areas along the project route that are disturbed by private residential tapping efforts prior to the Contractor's completing final grading shall be restored by the Contractor. Areas disturbed by taps after final grading shall be restored by the property owner.

H. **Tree Protection & Treatment if Damaged by Construction**

1. Tree roots typically spread out from two or three times the width of the branches with essential roots usually considered to be within the tree’s drip line, which is the area underneath the tree’s branches.

2. Avoid stockpiling topsoil or excavated earthen materials within the tree’s drip line.

3. Prune branches that interfere with construction equipment by making clean cuts with a sharp pruning saw just outside the swollen branch collar.

4. Treat damaged bark and trunk wounds by removing loose bark. Jagged edges are to be cut away with a sharp knife. Take care not to cut into living tissues.

5. If roots are ripped or torn during excavation efforts, make clean cuts to the roots to seal and to promote a flush of new roots.

6. With permission from the Engineer, utilities may be tunneled under trees to avoid damage to the root system. Tunnel a minimum of 24 inches away from the tree's center to avoid a taproot. For trees less than 6 inches in diameter at breast height, trenching should come no closer than the drip line of the tree. Follow the following table for minimum distance from the tree to begin tunneling as determined by diameter of the tree at breast height.

Tree Diameter at Breast Height	Minimum Distance from Tree to Start Tunneling
Less than 6 inches	Drip line of the tree
6 to 9 inches	5 feet
10 to 14 inches	10 feet
15 to 19 inches	12 feet
More than 19 inches	15 feet

CHAPTER EIGHT
STANDARD SPECIFICATIONS FOR WATERLINES

Section 8.3 Standard Specifications for Waterlines

PRECONSTRUCTION

A. VIDEO TAPING

The purpose of pre-construction video taping is to establish the condition of the areas along proposed water line routes prior to the commencement of any work. Video taping shall be conducted on all projects bid by MCSE. Pre-Construction video taping may be required by MCSE on other sewer and water projects as conditions warrant.

All tapes, summaries, and reports produced by, or under the direction of the Sanitary Engineer will be retained by MCSE.

MATERIALS

A. MATERIAL INSPECTION

The Contractor shall submit to the Sanitary Engineer a certificate of inspection from the pipe manufacturer that the pipe supplied has been inspected at the plant and meets the requirements of these specifications.

All pipe, fittings and appurtenances shall be subject to visual inspection for faults or defects and any deviations or omissions from the contract drawings and/or specifications shall be corrected at once.

B. POLYVINYL CHLORIDE PRESSURE PIPE AND FITTINGS

All class rated PVC pipe and fittings shall conform to AWWA C-900 and C-909 for 8" thru 12" and AWWA C-905 for 14" thru 20" "Standard for Polyvinyl Chloride (PVC) Pressure Pipe for Water." All class rated pressure pipe shall be Class 150 minimum, unless specified otherwise by the MCSE, DR-18 for 8" thru 12" and PR-235, DR-18 for 14" thru 20".

In accordance with Section 1.4 of AWWA C-900, AWWA C-909 or AWWA C-905, one copy of an Affidavit of Compliance shall be issued to the Sanitary Engineer. Joints shall be made utilizing a stab type, rubber-gasket bell and spigot. Solvent-cement type joints will not be accepted.

Markings shall be as set forth in Section 2.5.2 and 2.5.3 with the seal of the National Sanitation Foundation (NSF) on all lengths of pipe.

Testing and inspection of pipe supplied under this specification shall be as set forth in AWWA C-900, AWWA C-909, or AWWA C-905, Section 4.

The Sanitary Engineer, at his option, may send his inspector to observe the manufacture and testing of materials supplied for this specification and, as such, the manufacturer shall give ample notice of a production run. Fittings and specials used in conjunction with class rated PVC pipe shall meet or exceed the requirements set forth in AWWA C-900, AWWA C-909, or AWWA C-905.

Fittings and specials will be Ductile Iron meeting the appropriate specification using a push-on or standard compression type rubber gasketed mechanical joint as may be allowed by the specification or as further defined in other sections of these specifications.

Installation of pipe and fittings shall be in accordance with the sections on trench excavation and backfill and in all respects equal to a Class B bedding condition. Pipe surfaces shall be free from nicks, scratches, or other blemishes. Standard plastic tracer tape is to be buried approximately 4'-0" deep, directly above water line to facilitate its location at a later date. All installation procedures shall be in conformance with the pipe manufacturer's recommended installation procedure.

When using CL-52 Ductile Iron water line with Ductile Iron valves or fittings, restrained glands must be used.

When using PVC C-900, PVC-909, or PVC C-905 water line with Ductile Iron valves or fittings, uni-flange 1300 restrainer glands or approved equal must be used.

C. DISTRIBUTION VALVE SPECIFICATIONS GATE VALVES 4" THRU 16" AND BUTTERFLY VALVES 18" THRU 24"

Distribution valves in sizes through 16" shall be of the ductile iron body, non-rising bronze stem, RESILIENT SEATED wedge type manufactured to equal or exceed all applicable AWWA standards and the specific requirements outlined in these specifications.

1. Valves shall have a working water pressure rating of 250 psi.

2. They shall open left and be provided with two inch (2") square wrench nuts.

3. End connections shall be furnished with all necessary joint materials.

4. Valves shall have a full opening flow way of equal diameter of the nominal size of connecting pipe.

5. Valve body, bonnet, stuffing box and disc castings shall be manufactured of ASTM A-126 Class B Gray Iron or Ductile Iron.

6. The wedge shall have a cast ASTM B-62 bronze stem nut to prevent twisting or angling of the stem. The wedge casting shall be open on one side so as to form no cavities or receptacles for accumulation of solids and possible stem binding.

7. All internal ferrous metal surfaces shall be fully coated, holiday free, to a minimum thickness of four (4) mils with a two-part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water and protect all seating and adjacent surfaces from corrosion and prevent build-up of scale or tuberculation.

8. The sealing mechanism shall provide ZERO leakage at working water pressures up through 200 psi with flow in either direction, and shall consist of a replaceable, specially contoured rubber disc seat that is internally reinforced by a concentric steel ring and molded separately from the disc. The seat ring shall be secured to the disc with self-locking stainless steel screws and shall seal against an accurately formed surface in the valve body. The shape of the seat ring shall be such that it cannot be installed improperly.

9. Valves shall be provided with at least two (2) O-Ring stem seals with one (1) O-Ring below the stem thrust collar and bearing surfaces, and one (1) O-Ring above. The area between the O-Rings shall be filled with a lubricant to provide lubrication of the thrust collar, bearing surfaces and O-Rings each time the valve is operated. An anti-friction washer shall be located above the thrust collar to further minimize operating torque.

   When using CL-52 Ductile Iron water line with Ductile Iron valves or fittings, restrained glands must be used.

   When using PVC C-900, PVC C-909, or PVC C-905 water line with Ductile Iron valves or fittings, uni-flange 1300 restrainer glands or approved equal must be used.

10. The structural design of the valve shall be such that if excessive torque is applied to the stem in the closing direction with the disc seated, failure of the pressure retaining parts shall not occur. Stem failure under such conditions shall occur externally at such a point as to enable the stem to be safely turned in the opening direction by use of a pipe wrench or other such readily available tool after exposure of the valve through excavation.

11. The manufacturer shall subject each valve to two hydrostatic pressure tests:

    a. Seat Test -- there shall be no leakage past the seat from either side of the disc or at the bonnet flange or stem packing at 200 psi.

    b. Shell (Bulkhead) Test -- there shall be no leakage through the metal, bonnet flange or stem packing at 400 psi.

12. Contractors or suppliers shall furnish a detailed drawing that lists applicable ASTM numbers of all components.

    All gate valves have the size, manufacturer's initials or trademark and operating pressure cast into the valve body in a sufficient size for each identification.

Buried valves four inches (4") and larger shall be furnished with mechanical joint ends with the valve manufacturer being responsible for all the mechanical joint accessories (glands, gaskets, and bolts). Exposed valves, such as those in pump stations, shall have flanged ends.

Gate valves up to and including twelve inches (12") shall be installed in the vertical position. Valves larger than twelve inches (12") shall be butterfly valves designed for installation horizontally, incorporating rollers, and scrapers fully enclosed bevel gear case suitable for buried installations and shall be resilient seated.

To limit the inventory of spare parts, Medina County has restricted the acceptable valves to the following:

a. Gate valves shall be per Medina County Sanitary Engineer Specs and be a resilient wedge gate valve as manufactured by Mueller Series A-2360-20, AVK Series 25, or Kennedy Ken Seal II and rated at a minimum of 250 P.S.I. operating pressure. When installing a Kennedy, Mueller or AVK valve, fire hydrant must be the same manufacturer as the hydrant valve and line valve.

b. Butterfly valves shall be as manufactured by Mueller Series B-5228-20 with inside epoxy coating and resilient seat.

   All valves shall open by turning to the left (counter clockwise). All buried valves shall be equipped with a standard two inch (2") operating nut and installed with valve boxes or vaults as required.

c. All bolts exposed to the ground shall be 316 stainless steel including valve and packing nuts/bolts mechanical joint "T" bolts an bolts used on mega-lug anchors. Field painting of stainless steel items will be required and shall include coating nuts and bolts with bitumastic coating (3 coats). All pipe, fittings and valve bodies shall be polywrapped

13. Valve Boxes

Boxes shall be tough, close grained, gray cast iron free from defects. They shall have suitable basis to fit around valve bodies without bearing on them. Barrels shall be screw type for adjustment and shall have minimum inside diameter of five inches (5"). They shall be designed for the depth of trench indicated. Top section shall have a flange for holding it in position. Covers shall be recessed flush with top and shall be marked "water" in raised letters.

PVC valve box extensions are approved only for retrofit applications where grade is changing over existing water mains via roadway improvement projects. PVC extensions shall be 6" diameter SCH 40 AWWA or C900 PVC with a manufactured valve box lid and adaptor to fit the PVC. Extension shall include a nut extension with the top of operating nut $\leq$ 4 feet from top of box at grade. Cast iron ring and cover shall be Highline Products part #111026 or approved equal.

D. DUCTILE IRON FITTINGS

As indicated in the pipe material sections, standard fittings for all pipe shall be ductile iron subject to the following specifications:

All Ductile Iron fittings shall conform to the latest edition ANSI-AWWA-C110-1.10 standard for gray-iron and Ductile Iron fittings three inch (3") through forty-eight inch (48") for water and other liquids.

Ductile Iron fittings shall utilize a mechanical joint as described in the latest edition ANSI/AWWA-C111/A21.11 or a flanged joint system A21.15, as shown on the plans, stated in these specifications or approved by the Sanitary Engineer.

The minimum rated working pressure for Ductile Iron fittings through twelve inch (12") shall be 350 psi and above twelve inch (12"), the minimum rated working pressure shall be 250 psi.

The manufacturer shall furnish an affidavit of compliance stating that the inspection and all of the tests have been performed and the results thereof comply with the requirements of the latest edition ANSI/AWWA-C151/A21.51. The Sanitary Engineer, at his option, may send his inspector to observe the manufacturer and testing of materials supplied under this specification and, as such, the inspector shall receive free access and assistance to insure the compliance of materials furnished with this specification.

The exterior of the pipe shall be coated with the manufacturer's standard approved bituminous coating, a minimum of one mil thick.

The interior of the pipe shall be cement-mortar lined and seal coated in conformance to the latest edition ANSI/AWWA- C104/A21.4 standard for cement-mortar lining for cast iron and Ductile Iron pipe and fittings for water utilizing the standard thickness lining.

In addition to specified Ductile Iron fittings "Trim Tyte" Ductile Iron mechanical joint fittings may also be used. The specification is as follows:

Fittings shall be cast from Ductile Iron grade 70-50-05 with minimum tensile strength of 25,000 psi in accordance with ANSI/AWWA-C110/A21.10. Fittings and accessories shall be mechanical joint in accordance with ANSI/AWWA-C110/A21.10 and ANSI/AWWA-C111/A21.11 with exception of the manufacturer's proprietary design dimensions and weights. The wall thickness of Ductile Iron fittings shall be equivalent of Ductile Iron Class 54. The working pressure rating shall be 350 psi for Ductile Iron fittings. Fittings shall have a bituminous outside coating in accordance with ANSI/AWWA-C110/A21.10. Fittings shall be cement lined and seal coated with bituminous material in accordance with ANSI/AWWA-C104/A21.4.

When using CL-52 Ductile Iron water line with Ductile Iron valves or fittings, restrained glands must be used.

When using PVC C-900, PVC C-909 or PVC C-905 water line with Ductile Iron valves fittings, restrained glands must be used and all mechanical bolts and nuts shall be 316 stainless steel including mechanical "T" bolts used on mega-lug anchors. Field painting of stainless steel items will be required and shall include coating nuts and bolts with a bitumastic coating (3 coats).

The use of short body of compact fittings meeting specifications AWWA C-153/A21.23 will be permitted.

E. DUCTILE IRON PIPE

Pipe shall conform to the latest edition of American Standards Association and American Water Works Association Standards ANSI/AWWA-C151/A21.51 for Ductile Iron pipe, thickness class 52, centrifugally cast in metal molds or sand lined molds for water or other liquids. All pipe shall be cement lined in accordance with the latest edition ANSI/AWWA-C104/A21.4 specifications for cement-mortar lining for gray-iron and Ductile Iron pipe and fittings for water. Joints shall be furnished with push-on type joints in accordance with the latest edition ANSI/AWWA, C111/A21-111 rubber gasket joints for grey iron and ductile iron pressure pipe and fittings.

F. HIGH DENSITY POLYETHYLENE

Materials used for the manufacturing of polyethylene pipe and fittings shall be PE 3408 High Density Polyethylene (HDPE) meeting the ASTM D3350 cell classification of 345444C.

The material shall have a minimum Hydrostatic Design Basin (HDB) of 1600 psi at 73° F when tested in accordance with PPI TR-3 and shall be listed in the name of the pipe and fitting manufacturer in PPI TR-4.

The material used in the production of potable water pipe shall be approved by the National Sanitation Foundation (NSF).

Polyethylene pipe shall be manufactured in accordance with AWWA C906 for sizes 4" through 54". The pipe shall have an outside diameter equal to that of Ductile Iron pipe of the same size and shall be compatible with standard ductile iron fittings for the specified outer diameter. The pipe shall have a working pressure of at least 160 psi. SDR 11 High Density Polyethylene (HDPE) pipe.

G. POLYETHYLENE ENCASEMENT

All mechanical joints, all retained mechanical joints, all valves and all pipe and fittings where shown on the drawing or where required shall be polyethylene encased. Polyethylene encasement for mechanical joints, retained mechanical joints or any joint requiring bolts shall be generally in accordance with American National Standard ANSI/AWWA-C105/ A21.5-82 for polyethylene encasement for Ductile Iron piping for water and other liquids. Mechanical joints, retained mechanical joints and all bolted joints

shall have double polyethylene encasement of Class "C" (black) film, Method "C" doubling sheet and providing one foot (1') minimum overlap on pipe or fitting on both sides of joint. All pipe and fittings where shown on the drawings or where otherwise required to be polyethylene encased shall be encased using Class "C" film, Method "B". Polyethylene encasement shall be securely taped snug around pipe and fittings.

H. PAINTING

Before polyethylene encasement, all exposed or damaged coating and all bolts for mechanical joints, retained mechanical joints, flanges and victaulic or compression type bolted sleeved couplings shall be cleaned and painted with three (3) field coats of Inertol 50 or Bitumastic 50 or equivalent.

I. FIRE HYDRANTS

1. To limit the inventory of spare parts, Medina County has restricted the acceptable fire hydrants to the following:

   a. Mueller Centurion Model No. A-423, AVK Model No. 2780, or Kennedy K-81D. These hydrants shall have a 5 1/4" main valve opening, operate at a minimum of 200 P.S.I. and be per Medina County Sanitary Engineer Specs. When installing a hydrant, the line valve and hydrant valve must be constructed by the same manufacturer as the hydrant.

   b. All hydrants shall have mechanical joint connections and be traffic models. They shall be set up with 2 - 2½" hose nozzles and 1 - 4½" steamer nozzle. All nozzles shall have national standard threads. Operating nuts shall be 1½" pentagons opening left. Depth of bury is as shown on the drawings. Hydrants shall be painted red. Hydrants shall have main valve opening of 5¼".

   c. All shoe bolts and nuts and mechanical joint bolts shall be 316 stainless steel including valve bonnet and packing nuts/bolts mechanical joint "T" bolts used on mega-lug anchors. Field painting of stainless steel items will not be required. All pipe, fittings and valve bodies shall be polywrapped.

2. General Location: Hydrant shall be located in a manner to provide complete accessibility, and in such manner that the possibility of damages from vehicles or injury to pedestrians will be minimized. Unless otherwise directed, the setting of any hydrant shall conform to the following:

   a. Location Regarding Curb Lines

      When placed behind curb the hydrant barrel shall be set so that center of barrel will be no less than three feet (3') from the gutter face of the curb, no deviation from location indicated on contract drawings, except by consent of the Sanitary Engineer.

b. Location Regarding Sidewalk

When set in the lawn space between the curb and the sidewalk, or between the sidewalk and the property line, no portion of the hydrant or nozzle cap shall be within six inches of the sidewalk.

c. Position of Nozzles

The hydrant shall stand plumb, with pumper nozzle pointing toward curb. Where hydrant branch piping is parallel with or not at right angles to curb, the Contractor shall release swivel head bolts and adjust hydrant nozzles to face curb at proper angle. The hydrant shall conform to the established grade with ground line mark at established grade.

d. Connection to Main

The hydrant shall be connected to the main pipe with branch controlled by the independent gate valve of the same size as hydrant, except as otherwise directed. Regardless of the type pipe used the shoe connection shall be of the radial compression type.

e. Drainage at Hydrant

Drainage shall be provided at base of the hydrant by filling around elbow with coarse gravel or crushed stone to at least six inches above the waste opening. Wherever hydrant is set in rock, clay or other impervious soil, the trench shall be widened and deepened on each side of hydrant base, which space shall be filled compactly with coarse gravel of sufficient quantity to absorb all water to be drained from hydrant when valve is closed.

f. Anchorage of Hydrant

The hydrant shall be set on a stone slab or similar foundation and base of hydrant well braced against unexcavated earth at the end of the trench with solid concrete backing and it shall be tied to the pipe with anchor couplings and swivel or anchoring tees as shown on plans.

g. Cleaning

Hydrant shall be thoroughly cleaned of dirt or foreign matter before setting.

h. Set to Grade

All hydrants must be set to match existing grade. No extra payment will be made for hydrant extensions.

IV. TRAFFIC CONTROL

During the entire life of this project, traffic will be maintained at all times. Under no circumstances will a road be completely closed to through traffic without permission of the Medina County Board of Commissioners per Resolution as prepared by the Medina County Highway Engineer. A minimal driving surface of no less than ten feet (10') must be maintained at all times to accommodate fire and emergency vehicles and equipment.

All traffic control devices utilized must meet, or exceed, the minimum standards and specifications as set forth in the following:

A. Ohio Manual of Uniform Traffic Control Devices. (OMUTCD)
B. Ohio Department of Transportation's Manual of Traffic Control for Construction and Maintenance Operations, Revision 13.

The Contractor shall furnish, erect and maintain lights, signs, barricades, temporary guard rails and other traffic control devices, watchmen and flagmen as may be necessary to maintain safe traffic conditions according to the manuals referenced above.

When it becomes necessary to leave in place barricades, drums, and/or other devices overnight, the individual devices must be equipped with flashing amber lights. It is the Contractor's responsibility to insure that missing and/or non-functioning flashing amber lights are immediately repaired and/or replaced.

Whenever it becomes necessary to close one (1) lane of traffic, or any portion thereof, the Contractor must use no less than two (2) flaggers to insure a minimal disruption to the flow of traffic. The flaggers must wear reflectorized vests and utilize the "Stop/Slow" paddles. If the flaggers are not visible to each other, then the Contractor must also provide portable radios for the flaggers to use while performing their required duties. Flagman duties shall comply with the OMUTCD.

The specific placement and numbers of traffic control devices will be dependent upon the specific locations, the desires of County/State officials and the minimum standards and specifications as set forth in the previously described manuals, and the Traffic Control Plan as detailed in the approved and accepted engineering drawing.

Whenever it is necessary to divert traffic from its normal channel into another channel, such diversion shall be clearly marked by cones, drums, barricades or temporary guard rails. If the markers are left in place at night, pot flares or other suitable lights shall be maintained.

Where the work is performed in the sidewalk or cross-walk area, the Contractor shall provide lights, barricades, etc., that may be needed for the protection of pedestrian traffic.

If in the opinion of the Sanitary Engineer, proper maintenance of traffic facilities and proper provision for traffic control are not being provided, and the safety of the public is

thus endangered, the Sanitary Engineer will install any safety devices to correct the immediate safety deficiency. The Contractor will be billed at an actual cost of material and manpower per current Resolution fee.

The conditions of the permit obtained from the Ohio Department of Transportation and the County Highway Engineer shall be strictly adhered to in any and all traffic maintenance.

Medina County reserves the right to require additional traffic control devices; above the minimum required, if in the officials judgment such additional devices are necessary to maintain a safe work zone area and/or to provide adequate safe passage to the general motoring public. In the event that additional devices are requested, it will be the Contractor's responsibility to procure and install such devices.

CONFLICTS

A. GENERAL

Where actual conflicts are unavoidable, work shall be performed so as to cause as little interference as possible with the service rendered by the facility disturbed. Facilities or structures damaged in the prosecution of the work shall be repaired immediately in conformance with the best standard practice or according to the direction of the Owner of such facility at no extra cost to the County.

B. PROTECTION

The Contractor shall furnish, at no extra cost to the County, temporary supports, adequate protection and maintenance of all underground and surface structures, drains, sewers, and other obstructions encountered in the progress of the work.

C. INTERRUPTION TO UTILITIES

Contractors shall adhere to all State of Ohio laws relating to the notification of utilities and the Ohio Utility Protection Service (OUPS) prior to initiating construction. The Contractor shall take all reasonable precautions against damage to existing public and/or private utilities. However, in the event of a break in an existing facility, the Contractor shall immediately notify a responsible official of the organization owning and/or operating the facility interrupted. The Contractor shall assume full liability for such damage, and lend all possible assistance in restoring service and making necessary repairs.

D. DEVIATIONS OCCASIONED BY OTHER STRUCTURES OR UTILITIES

The location of the new pipe lines, as shown on the plans, has been selected to provide the least possible interference with existing utilities. The Sanitary Engineer reserves the right to make minor variations in the location of these items during the construction to meet any changed conditions discovered during the construction.

E. EXISTING UTILITIES & STRUCTURES

Where existing utilities and structures are indicated as being in the line of the proposed water line, the Contractor shall expose them, as directed by the Sanitary Engineer. This work is to be done sufficiently in advance of the construction operations to permit adjustments in line or grade, if required, to eliminate interferences. Existing pipes or conduits crossing the water line trench, or otherwise exposed shall be adequately braced and supported to prevent trench settlement from disrupting the line or grade of the pipe or conduit, all in accordance with the directions of the Sanitary Engineer. Utility services broken or damaged shall be repaired at once to avoid inconvenience to customers.

Storm sewers shall not be interrupted overnight. Temporary arrangements, as approved by the Sanitary Engineer, may be used until any damaged items can be permanently repaired. All items damaged or destroyed by the water line construction and subsequently repaired must be properly maintained by the Contractor.

Where it is necessary to relocate an existing utility or structure the work shall be done in such a manner as is necessary to restore it to a condition equal to that of the original facility. No such relocation shall be done until approval is received from the authority responsible for the utility or structure being changed.

If an interference is encountered at grade with utilities or structures not shown on the plans or otherwise indicated, the compensation for the elimination of the interference shall be determined by the applicable sections of the General Clauses.

INSTALLATION

A. EARTHWORK

1. General

Excavation shall include the clearing of the site of work: The loosening, loading, removing, transporting, and disposing of all materials, wet and dry, necessary to be removed to construct all water lines and appurtenances to the lines, grades, and locations shown on the plans.

Concrete and asphalt surfaced pavements shall be sawed before removal.

Pavements must in no case be blocked or obstructed by excavated materials, except on the authorization of the Sanitary Engineer, and then only when adequate provisions have been made for a satisfactory temporary passage of pedestrians and vehicles. Adequate bridging and planked crossings must be provided and maintained across all open trenches for pedestrians and vehicles. Barriers, warning lights, flares, watchmen and warning signs shall be provided as necessary to prevent against damage to persons or property. The adequacy of such protection shall be the responsibility of the Contractor and shall be accomplished at no additional cost to MCSE.

2. Excavation for Structures

Excavation shall be performed in accordance with all applicable state, county, and local regulations. Blasting will not be permitted except by written approval of the Sanitary Engineer for each specified location where it is to be performed. Excavation shall conform to the dimensions indicated for the structure and topography and sub-grade conditions encountered. Soft unsuitable material occurring within or below the limits of the structure shall be completely removed and replaced with suitable material as directed by the Sanitary Engineer. Excavations carried below the depths indicated, without the Sanitary Engineer's approval, shall be refilled to the proper grade with thoroughly compacted suitable fill. All additional work, resulting from unauthorized excavation, shall be performed at no additional cost to MCSE.

3. Excavation for Pipelines

Excavation for pipelines shall be by open cut unless otherwise called for on the plans. Pipe trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench. ` The trench widths below the top of the pipe when laid to the required grade shall be such as to provide a free working space on each side of the pipes as laid, but shall in no event exceed the outside diameter of the pipe barrel plus twenty-four inches (24"). Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting and shoring as placed.

If the Contractor is required to excavate the trench to a width greater than that specified above, because of slides, caves, obstructions, or by reason of the condition and character of the trench material, he shall completely refill, at his own expense, all cavities so caused below the top of the pipe with suitable and satisfactory material, including mass concrete or other masonry, as directed by the Sanitary Engineer.

Holes for pipe bells shall be excavated to insure that the pipe rests upon the tom of the trench for its entire length and to allow sufficient space for joint sealing. The bottom of the trench excavation shall be per detail on MCSE Standard Detail Sheet. Any excavations carried below the depths indicated without specific directions shall be refilled in the same manner. Any soft material encountered at the bottom of the excavation shall be removed and replaced with well compacted granular fill.

4. Excavated Material

All excavated material shall be piled in a manner that will not endanger the work nor obstruct sidewalks and driveways. Fire hydrants, valve pits and manhole covers, catch basins, valve boxes, curb stop boxes or other utility controls shall be left unobstructed and easily accessible at all times. Street gutters and natural watercourses shall be kept free of excavated materials. Excavated material to be used for backfill shall be neatly deposited at the sides of trenches where space is available.

Where stockpiling of excavated material is required, the Contractor shall be responsible for obtaining the sites to be used and shall so maintain his operations as to provide for natural drainage and as not to present an unsightly appearance. No excavated material shall be placed on private property without the consent of the owner.

7. Removal of Excess Material

All surplus material and such other material as the Sanitary Engineer may deem unfit for use as backfill shall be disposed of by the Contractor so as to give a minimum of inconvenience to the public. In case of settlement after backfill, the Contractor shall supply sufficient material satisfactory to the Sanitary Engineer to make up for the deficiency. When so directed by the Sanitary Engineer, the Contractor shall immediately remove all excavated materials from the site and dispose of the same.

B. EROSION CONTROL

1. General

All work shall conform to the requirements of the Medina County Engineer Stormwater Management and Sediment Control Rules and Regulations and any other requirements of the Ohio EPA and/or the U.S. Army Corps. of Engineers.

Topsoil shall be stockpiled where possible and used to finish grading of trenches.

Temporary seedings and/or mulches shall be used where land will be devoid of natural or permanently seeded vegetation. Straw mulch shall be applied at the rate of 2 tons per acre or 90 pounds per 1000 square feet.

Permanent seedings shall be made as soon as practical after any earth disturbance.

Sedimentation traps will be required at locations determined by the Medina County Engineer.

A copy of the project Stormwater Pollution Prevention Control Plan (SWP3) shall be maintained on site. Compliance with the SWP3 requirements, and those of the site stormwater NPDES Permit shall be maintained at all times.

The following table outlines the required erosion control materials for each erosion control area:

Description	***Application***	***Acceptable Material***
Perimeter filter fabric fence (silt fence)	To contain sediment in sheet flow runoff in construction zone adjacent to streams and to box out yard drains and catch basins	ODOT item 712.09 Type C
Filter fabric ditch checks	For drainage areas $\leq$ 2 acres	Silt fence installed perpendicular to the flow
Rock ditch checks	For drainage areas between 2 – 5 acres	As directed by the Medina County Engineer installed perpendicular to the flow
Slope protection	Slope $\geq$ 3:1	Jute Mat or Excelsior Mat, per ODOT Item 712.11 (Type F or G) (Refer to the Medina County Engineers Stormwater Management and Sedimentation Control Rules and Regulations for jute mat and wood excelsior mat material requirements.)
Ditch erosion protection	Bottom and/or side slope $\geq$ 3:1, or flow velocity exceeds 3.5 fps	Excelsior Mat, per ODOT Item 712.11 (Type G)
Vegetated swale erosion protection	Bottom and/or side slope < 3:1	Straw & polypropylene netting mat, per ODOT Item 712.11, Type B
Crushed aggregate slope protection	At stream embankments	No. 1 or No. 2 stone, or a combination thereof.
Dumped rock channel protection	At stream crossings. Place stone at top of trench to match existing stream bottom.	Type D per ODOT Item 703.19B (With at least 85% of the total material by weight larger than 3-inch but less than 12-inch square opening, and at least 50 percent of the total material by weight larger than a 6-inch square opening. Furnish material smaller than 3-inch square opening that consist predominantly of rock spalls and rock fines, and that is free of soil.)
Sediment traps	To settle out sediment before the surface water leaves the construction zone	Locations and requirements per the Medina County Engineer

Standards and specifications for erosion control items are found in the "Medina County Engineers Stormwater Management & Sediment Control Rules and Regulation".

At the direction of the Engineer, the Contractor shall install additional erosion control items, and make adjustments to meet field conditions and anticipated future work. Contractor shall also make corrections as directed based on the Engineer's weekly storm water inspections.

Trapped sediment shall be removed from silt fence, ditch checks, rock checks, etc. when it reaches half the height of the lowest section. Make appropriate corrections when the erosion control items become nonfunctional.

Erosion Control Mat Types B and F shall be constructed as follows:

A) Within 48 hours after seeding, and before placing the mat, evenly place straw mulch over the area at the following reduced rate: (A) If seeding between March 15 to October 30 - 0.6 tons per acre; or, (B) If seeding between October 31 to March 14 - 0.9 tons per acre. Asphalt emulsion tack or tackifier is not required.

B) Immediately after mulching, lay the mat strips flat, loose, parallel to the flow of water, and with the mat contacting the ground at all points. For mats placed in ditches, start the construction at the down stream end.

C) Where more than one strip is required to cover the area, overlap the strips at least four inches (4"). Overlap the ends at least six inches (6") with the upgrade strip on top.

D) Place upgrade slots at the upgrade end of each strip of mat by placing a tight fold of the mat at least six inches (6") vertically into the soil. Firmly tamp the soil against the end and staple the mat.

E) Place end slots between the end of strips by placing a tight fold of the mat at least six inches (6") vertically into the soil. Firmly tamp the soil and staple the mat.

F) Place check slots by placing a tight fold of the mat at least six inches (6") vertically into the soil. Firmly tamp the soil and staple the mat. Space check slots so that one check slot or an end slot occurs within each fifty feet (50') of slope for slopes 3:1 or steeper.

G) Bury the edges of the mat where the mat abuts catch basins and other structures.

H) Secure the mat in place with staples driven vertically into the soil. Do not stretch or draw the mat taut during the stapling operation. Install three (3) rows of staples for each strip of mat, with one row along each edge and one row alternately spaced in the middle. Space staples not more than three feet (3') apart in each row. Staple all upgrade slots, end slots and check slots across the width, with staples spaced not more than six inches (6") apart.

I) After completing the mat installation, seed over top of the mat in areas that the Engineer identifies as disturbed. Use an appropriate seed mixture per the specifications at a rate of 1 pound per 1,000 square feet.

Erosion Control Mat Type G shall be constructed similarly with the following exceptions:

A) Do not use mulch under the mat.

B) Overlap edges and ends by 1-1/2 inches.

C) Do not bury the upgrade end or top edge of each strip unless required by the Engineer due to special conditions in the field.

D) The Contractor may elect not to provide check slots. However, if check slots are not provided, upgrade slots and end slots are required.

E) Place the mat in contact with the soil.

Maintain all erosion control items until the up-slope permanent grass coverage is seventy percent (70%) or better. At that time, the erosion control items shall be removed.

2. Ditch Erosion Control

The Contractor shall place all stone used for erosion protection in all areas shown on the plans (said material being AASHTO —43, size 1 and 2 limestone). The placement of the erosion protection will not be accomplished until final grading and reshaping of roadside ditches disturbed by the water line construction has been completed and approved by the authority having pavement maintenance responsibility.

3. Sediment Control Silt Screening

The Contractor shall place silt screening in all areas shown on the construction plans or as directed by the County Engineer.

The sediment control (silt screening) must be maintained and replaced if necessary during construction as determined by the County Engineer.

C. TREES, STUMPS AND SHRUBS

No tree shall be removed within the public right-of-way, or public easement, until specifically marked by the Sanitary Engineer in the field. Care shall be taken to protect trees and shrubs, which are to remain in place, from damage by construction operations.

D. CONCRETE AND MASONRY WORK

1. Scope of Work

The concrete and masonry work shall consist of furnishing all materials, forms and equipment, and performing all necessary labor to do all concrete and masonry work shown on the plans, or incidental to the proper execution of the work.

2. Concrete and Masonry Work for Encasement and Thrust Blocking

All concrete thrust blocking and concrete encasement installation shall conform to the State of Ohio Department of Transportation Construction and Materials Specifications, Items 499 and 638.

All Masonry work shall be carried on under dry conditions and be properly protected from cold weather and dampness. All recently poured concrete or formed masonry shall be adequately covered during periods of precipitation.

E. SHEETING AND SHORING

1. Requirements

The Contractor shall furnish and install temporary sheeting, shoring, timbering and bracing required to support sides of excavations and to prevent any movement which could in any way injure the work, diminish the necessary width of the trench or other excavation, or otherwise delay the work or endanger adjacent structures. Sheeting shall be driven and excavation work conducted in such a manner as to prevent the material in back of the sheeting from running under the sheeting and into the trench. Care shall be taken to prevent voids outside of the sheeting but if voids are formed, they shall be immediately filled and well rammed.

Special precautions including the use of sheeting, shoring and bracing shall be taken to guard against any damage to or settlement of buildings, walls or other structures which are adjacent to the work.

If the Sanitary Engineer is of the opinion that at any point sufficient or proper supports, sheetings or bracing have not been provided, he may order additional supports, sheeting or bracing, at the expense of the Contractor, and the compliance with such orders by the Contractor shall not relieve or release him from his responsibility for sufficiency of such supports. The MCSE may also require the Contractor to provide drawings prepared by a licensed professional engineer for the Contractor that reflect the site specific side slopes and/or sheeting design at no cost to MCSE.

All sheeting, shoring and bracing shall be of ample size securely fastened in place so that it cannot loosen up and fall from position.

Lumber used for sheeting may consist of any species which will satisfactorily stand driving. It shall be sawn, or hewn, with square corners, and shall be free from worm holes, loose knots, wind shakes, decayed or unsound portions, or other defects which might impair its strength or tightness. Minimum thickness shall be inch nominal. Lumber for bracing shall be No. 2 common yard lumber or timber in less than six inch (6") sizes, and common structural grade on timbers six inches (6") and over in thickness.

The sheeting and bracing shall be removed as the work progresses in such a manner as to prevent the caving in of the sides of the excavations.

While being drawn, all vacancies left by the sheeting and bracing shall be carefully filled with fine sand and rammed by special tools, or puddled as directed by the Sanitary Engineer.

Sheeting, shoring, timbering and bracing for open trenches and excavations may be ordered left in place by the Sanitary Engineer when such is necessary for the protection of the work, the public or the adjacent property. Lumber and sheeting may be reused if not ordered left in place and if in good condition.

Timber sheeting ordered left in place shall be cut off below the finished grade at a distance to be determined by the Sanitary Engineer.

F. TRENCH DE-WATERING

The waterline trench must in all cases be kept relatively free from storm, surface and ground water during the construction process. Trench drainage must be discharged in a manner that will cause the water to pass through grass or fabric filters prior to discharging to storm sewers or creeks. Trench water must also be discharged in a manner that will not cause surface erosion at the point of and downstream of the discharge. In no case shall any trench water be permitted to enter the sewer or waterline under construction.

1. Temporary Drainage

Where required by the method of construction, the Contractor shall furnish all equipment to promptly remove any water that accumulates in the excavation and to maintain the excavation in a relatively dry condition while construction therein is in progress. Excavation shall be limited to the extent that the available equipment can properly de-water the excavation.

2. Ground Water

Where ground water is encountered above the bottom of the trench at elevations which otherwise affect the stability of the trench, the Contractor shall maintain the ground water level at all times at a sufficiently low point to permit proper installation of the water pipe. The method of trench de-watering of ground water is the Contractor's option, but shall receive prior approval of the Sanitary Engineer.

G. MATERIALS INSTALLATION

A) Safety

For the security or safety of persons in and adjacent to trenches or construction operations, the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America and the Safety Regulations of the Department of Industrial Relations of the State of Ohio shall be followed when specifically applicable, or by similarity of operation or as necessary for adequate protection.

2. Trench Excavation

The trenches in which the water line is to be constructed shall be excavated in all cases in such a manner and to such widths as will accommodate the building of the structures they are to contain. Excavation shall be stopped at the depths outlined under "Bottom Preparation" for the type of pipe being installed. Unauthorized excavation below grade shall be filled with granular material, at the expense of the Contractor.

3. Rock Excavation

The word "rock" wherever used as the name of an excavated material, shall mean boulders and solid masonry larger than one-half cubic yard in volume, or solid ledge rock and masonry.

4. Trench Width

Widths of trenches shall be held to a minimum to accommodate the pipe, timbering, granular bedding, etc., and in no event will the trench width at the top of the pipe barrel exceed thirty inches (30") or the outside diameter of the pipe barrel plus twenty-four inches (24"), whichever is greater unless prior approval has been received from the Sanitary Engineer. The width of trenches excavated in rock shall not be greater than the outside diameter of the pipe barrel plus twenty-four inches (24"), measured at the top of the pipe barrel. If, for any reason, excessive trench width occurs at depths which would impose critical loads on the pipe, the Contractor shall provide gravel or stone backup, extra strength pipe or concrete encasement as may be directed by the Sanitary Engineer, at no cost to MCSE.

The width of excavation for manholes or air release vaults shall be as excavated, but not to exceed twelve inches (12") outside the footer and the depth shall not exceed six inches (6") below the footer.

Where the water line is located adjacent to the pavement, the Contractor shall be required to maintain vertical sides on all trenches using full sheeting and bracing if necessary. Maximum top width of trench permitted under such conditions shall be four feet (4'), plus the inside diameter of the pipe.

5. Foundation

The water line is to be built on good foundation. Such measures as necessary and as directed by the Sanitary Engineer shall be used to prevent settlement. If, in his opinion, the material forming the bottom at the grade of the water line is not suitable for foundation, a further depth shall be excavated and the same filled with suitable material.

6. Drainage

Should water be encountered, the Contractor shall furnish and operate suitable pumping plant equipment of capacity adequate to de-water the trench, dispose of such water, and to maintain drainage conditions, satisfactory to the Sanitary Engineer. During laying and joint making operations, the water level in the working area shall be maintained at an elevation at least two inches (2") below the bottom of the bell of the pipe until, in the opinion of the Sanitary Engineer, water damage to completed joints will not occur.

7. Pipe Laying and Bedding

Pipe and special fittings shall be protected during handling against impact shocks and free fall. Pipe shall be kept clean at all times and no pipe shall be used in the work that does not conform to the appropriate AWWA or ASTM specifications.

Grade and line stakes at regular intervals, will be placed at any convenient offset from the centerline of the pipe. A continuous check on trench depth must be maintained.

The bottom man or pipe layer shall carefully prepare the bed for the pipe both from a grade and line standpoint. All rock or stones protruding above the prepared bed shall be removed so that in no case will rock touch the pipe.

Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed or of the factory made jointing material shall be clean and dry. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturers specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined and adjusted in such a workmanlike manner as to obtain the degree of water tightness required. In the event that pipe previously laid is disturbed due to any cause, the same shall be taken up, the joints cleaned and the pipe relaid.

8. Timbering

Unsupported open cut for the water line will not be permitted where soil conditions necessitate unusually wide trenches causing damage to street pavement, trees, structures, poles, or other private or public property. During the progress of the work, whenever and wherever it is necessary either to provide safe working conditions or to

avoid the danger of damage to existing structures or structures being built, the Contractor shall, at his expense, support the sides of the excavation by adequate and suitable sheeting, shoring and bracing. Such trench support material and equipment shall remain in place until backfilling operations have progressed to the point where the supports may be withdrawn without endangering structures. Sheeting may be cut off above the top of the pipe and pulled. When sheeting is pulled, it should be pulled in increments of 3 or 4 feet to avoid the possibility of breaking the pipe.

9. Trimming

All material excavated in trenching and all materials used in construction of the work shall be deposited so as not to endanger the work or create unnecessary annoyance to the public. During the progress of the work, all material piles shall be kept trimmed up and maintained in a neat, workmanlike manner.

10. Trench Backfilling

All trenches and excavations shall be backfilled immediately after pipe is laid and/or tested. No materials shall be used for backfilling that contains stones, having a dimension greater than three inches (3"), frozen earth, debris or earth with an exceptionally high void content.

For backfill above the spring line and to a level of six inches (6") over the top of the pipe, selected materials shall be used, and placed in uniform layers not exceeding six inches (6") in depth (loose depth) up each side. Each layer shall be placed, then carefully and uniformly tamped, so as to eliminate the possibility of pipe settlement, misalignment and damage to joints. In lieu of the above described material to backfill over the pipe. The Contractor shall place bulkheads of native clay soil across the trench at 100 ft. intervals to resist the movement of groundwater through the granular material. Such bulkheads shall be carefully compacted and shall extend approximately three feet (3') in a direction parallel to the pipe and shall extend from the bottom of the trench to a height of six inches (6") above the top of the pipe.

Above the tamped backfill the Contractor may complete the backfilling with mechanical equipment. This shall be done in such a manner that the material does not free-fall onto the hand-placed cover. Rather the backfill shall be so placed that it will "flow" onto the hand-placed cover from the section partially filled. The Contractor shall consolidate the backfill in such a manner as will insure the minimum possible settlement and the least interference with traffic. Where water mains are located in or adjacent to pavements, all backfilling and materials handling equipment shall have rubber tires. Through rights-of-way "cat" type backfill equipment will be permitted. Approved granular material shall be used for backfill of trenches in pavements and driveways and at other places as directed by the Sanitary Engineer. The granular backfill shall be as specified under "Granular Backfill". Periodical dressing of fill over the trench to improve drainage and safety conditions shall be made during the course of the contract.

For water mains installed under public pavements or within the zone of influence from edge of pavement, the installation must comply with the road authority's backfill requirements for stone and/or low strength mortar backfill (LSM).

11. Noise, Dust and Odor Control

The Contractor's performance of this contract shall be conducted so as to eliminate all unnecessary noise, dust and odors.

The Contractor shall, where so ordered by the Sanitary Engineer, apply a dust palliative for the reduction of dust nuisance originating within or outside the project work zone. Dust control operations shall be performed by the Contractor at the time, location, and in the amount specified by the Sanitary Engineer. Dust palliative shall consist of calcium chloride or a thirty-four percent (34%) solution of calcium chloride. The calcium chloride shall be spread uniformly over the surface of the area contributing to the formation of airborne particulate.

12. Cleaning Up

Immediately after a section of the water line is tested and accepted for payment, the ground surface shall be cleaned of all surplus material including stones, broken pipe, construction material, and all other debris by the Contractor, to the satisfaction of the Sanitary Engineer.

The Contractor shall be responsible for the condition of the trenches for a period of two (2) years from the date of the final inspection approval.

H. WATER PIPE BORED AND JACKED

1. Description

Furnish and install all water pipe by boring at the location on the drawings or ordered by the Sanitary Engineer.

2. Installation

All boring shall be done by men experienced in such work and the boring equipment and method of installation shall be approved by the Sanitary Engineer.

A substantial backstop shall be provided to take the thrust of the jack and timber or steelguard rails shall be used to properly align the boring machine and pipe.

All pipe installed by boring shall conform accurately to the line and grades shown on the drawings or set by the Sanitary Engineer. Any boring which is rejected must be re-bored by the Contractor at his own expense.

I. STEEL CASING PIPE

1. Work To Be Done

Install and furnish, complete ready to use, steel casing pipe where indicated on the plans.

2. Specifications

Minimum wall thickness allowed is 0.375", and minimum diameter as shown on the plans; larger or thicker pipe may be installed at the option of the Contractor. The casing pipe shall be installed using boring and jacking or tunneling methods as acceptable to the State of Ohio Department of Highways and the Bureau of Public Roads. The line shall be installed to line and grade as indicated on the plans. The minimum cover at each end of the casing shall be critical, however, if a satisfactory bore is made and the depth is greater than can be handled with specified valve boxes, the valve box and valve stem extensions shall be furnished at no extra cost. The water line inside the casing pipe shall be Class 52 Ductile Iron mechanical joint with Clow F1058 retainer glands or U.S. Pipe Field Lok gasket system or approved equal.

Voids formed outside the casing shall be grouted at no extra cost and as of part of the casing pipe. The installation of the conduit inside the casing shall be included. The ends of the casing pipe shall be sealed with brick and mortar.

J. GRANULAR BACKFILL

The material shall be placed in layers of approximately six inches (6") in thickness and compacted to the satisfaction of the Sanitary Engineer. Required excavation of disposal or surplus waste material shall be included herein.

Trench conditions for Ductile Iron and polyvinyl chloride (PVC) water line:

Trenches in paved areas and proposed paved areas shall be backfilled with limestone screenings to pavement base, unless otherwise specified by the authority having pavement maintenance responsibility.

Trenches in unpaved areas may be backfilled with material excavated on site, if said material is approved by the Sanitary Engineer.

Trench conditions for type “K” copper water line:

Trenches in paved areas and proposed paved areas shall be backfilled with #301 bank run gravel to pavement base, unless otherwise specified by the authority having pavement maintenance responsibility.

Trenches in unpaved areas may be backfilled with material excavated on site, if said material is approved by the Sanitary Engineer.

K. PRESSURE TESTING & DISINFECTION OF WATER LINES

All water lines shall be subjected to pressure leakage tests. Pressure leakage tests shall be 150% of normal operating pressure as determined by the Sanitary Engineer.

Pressure tests shall be performed between each valve section and shall be maintained for a minimum of two (2) hours. The maximum allowable leakage allowance shall be ten (10) gallons per 24 hours, per inch diameter, per mile of pipe.

If the leakage allowance is exceeded, the Contractor shall located and repair the sources of leakage and repeat the testing procedure until the results are acceptable.

All water lines will be disinfected according to the latest edition AWWA Standard for disinfecting water mains, AWWA C651.

1. Areas of Responsibility

a. Pressure testing of the water mains shall be performed by the MCSE Water Department personnel (any test performed without MCSE Water Department personnel present will not be accepted).

b. Disinfection of all water lines will be performed by the Contractor. Chlorine powder left in PVC water lines during construction shall not remain in the line for any more than 45 days without filling the lines with water. Chlorine tablets are not acceptable for chlorination.

c. Water used by the Contractor for disinfection shall be paid for by the County.

d. Water used for the first pressure test shall be paid for by the County unless an excessive amount of water is used due to repeated failure of pressure tests. Any other water necessary for testing or flushing shall be paid by the Contractor.

L. SERVICE CONNECTIONS

The Medina County Sanitary Engineering Department will make the tap and install the corporation stop, supply the one inch (1") type “K” copper, the curb stop and box. The Contractor will do all necessary excavation to install the one inch (1") type “K” copper for both long and short connections, including the curb box to within one foot (1') of the

property line, (the curb box to be Mueller, or an approved equal). The Contractor shall also push the long connections across the road in a manner approved by the Sanitary Engineer.

M. BLASTING

Blasting shall not be permitted under or near buildings, bridges, railroad tracks, underground structures or utilities. Blasting will be permitted elsewhere, but only upon the written approval of the Sanitary Engineer and municipality in which the work is being conducted. The Contractor shall use all possible precautions against accidents or damage due to explosions or in the use or storage of explosives. The Contractor shall obtain adequate insurance and shall assume all risks and responsibilities and promptly settle all claims occasioned thereby, thus saving the County free and harmless from any claims resulting from such actions. A man experienced in the use of explosives shall be employed to supervise the drilling and blasting operations. Explosives shall be used, handled and stored as prescribed by the regulations of the Ohio Revised Code and any applicable Federal Laws. Blasting shall be conducted so that as not to endanger persons or property.

RESTORATION

A. GENERAL

In all cases, the Contractor shall bear the sole responsibility for restoring the work site back to a condition as good or better than existed prior to the commencement of any work.

B. EXISTING UTILITIES AND STRUCTURES

Where existing utilities and structures are indicated as being in the line of the proposed sanitary sewer line, the Contractor shall expose them, as directed by the engineer. This work is to be done sufficiently in advance if the construction operations to permit adjustments in line or grade, if required, to eliminate interferences. Existing pipes or conduits crossing the sanitary sewer trench, or otherwise exposed shall be adequately braced and supported to prevent trench settlement from disrupting the line or grade of the pipe or conduit, all in accordance with the directions of the engineer. Utility service broken or damaged shall be repaired at once to avoid inconvenience to customers. Storm sewers shall not be interrupted overnight. Temporary arrangements, as approved by the engineer, may be used until any damaged items can be permanently repaired. All items damaged or destroyed by the sanitary sewer line construction and subsequently repaired must be properly maintained by the Contractor.

Where it is necessary to relocate an existing utility or structure the work shall be done in such a manner as is necessary to restore it to a condition equal to that of the original facility. No such relocation shall be done until approval is received from the authority responsible for the utility or structure being changed.

If an interference is encountered at grade with utilities or structure not shown on the plans or otherwise indicated, the compensation for the elimination of the interference shall be determined by the applicable sections of the general clauses.

The following is a guideline for utility repairs based on the utility that was damaged:

1. If gasketed or drain tile, utilize ferncos. Concrete encase if instructed by the Sanitary Engineer.

2. If field tile is not jointed, use repair clamp suitable for reconnecting pipes.

3. If ribbed pipe, use ribbed and banded repair clamp.

4. Or by materials/method as directed by the Sanitary Engineer.

C. GRADING AND SEEDING

Prior to initiating final grading and seeding, the Contractor's Foreman shall meet with the Project Engineer and Inspector to review materials specifications and restoration requirements. Data sheets for all materials to be used during restoration shall be provided to the Engineer one week prior to the meeting.

Rough grading shall immediately follow the main line construction effort. Waterways, drainage ways and ditch lines shall be maintained at all times to allow for positive drainage. Final grading and seeding shall be completed as thoroughly and as soon as possible weather permitting. Perform seeding and mulching after completing all work in the area. If it is anticipated that future work may disturb an area, place temporary seed and provide mulch per ODOT Item 207.

Perform permanent seeding and mulching after all work is completed. If the Contractor disturbs a final area, then the Contractor shall restore this area.

The following are minimum soil conditions required for the establishment and maintenance of a long-lived vegetative cover:

A. Enough fine-grained materials (over 30 percent silt plus clay) to provide the capacity to hold at least a moderate amount of available moisture.

B. Sufficient pore space to permit adequate root penetration.

C. The soil shall be free from any material harmful to plant growth.

D. If these minimum conditions cannot be met, then topsoil is required.

If topsoil is available as part of the material excavated, it shall be from the upper most layers of the excavation areas after removing all heavy grass, weeds, and other vegetation from the excavation area.

If no topsoil is available as part of the material excavated, the Contractor shall supply approved topsoil for use. Before delivery of topsoil, the Contractor shall provide the Engineer with a written statement providing location and properties from which topsoil is to be obtained, names and addresses of owners, depth to be stripped, and crops grown during past two (2) years. Topsoil shall be stockpiled for testing.

Contractor shall have a Soil Analysis Test of the topsoil per ODOT Item 659 to determine soil amendments for topsoil and provide a copy to the Engineer with shop drawings, prior to the start of fine grading. Topsoil shall contain between 4 percent and 20 percent organic matter and consist of fertile, loose, friable, and loamy material that contains humus material. Contractor to incorporate lime as required to adjust topsoil acidity or alkalinity to accomplish a target pH of 6.5. In lieu of the Soil Analysis Test, the Contractor may apply agricultural ground limestone at a rate of 138 pounds per 1,000 square feet.

The Contractor shall furnish grass seed from a dealer or grower whose brand grades are registered or licensed by the State of Ohio, Department of Agriculture. Test dates shall be marked on the seed bags. Seeds shall be sown within nine (9) months of the test date.

With the shop drawing submittal, the Contractor shall provide a written description for the classes of seed mixtures showing the percentage by weight (mass) of each kind of seed for the Engineer's approval. The following shall be included: (A) Name and location of the seed supplier, (B) Origin and date of harvest of each kind of seed, (C) A statement of the purity and germination of each seed, and (D) Testing date for each seed.

After the backfill has been given a reasonable time to settle, it shall be graded off to the finish grade then harrowed to a depth of three inches (3"). All grass, weeds, roots, sticks, stones, etc., are to be removed and the soil carefully brought to the finished grade by raking. In front of residences, commercial properties, between curb and sidewalks, or other groomed areas, all stones one inch (1") or greater shall be removed. In all other areas, rocks or other foreign material three inches (3") or greater shall be removed.

Furnish a smooth surface for the seed or topsoil by tracking with a dozer or other methods. If the site is inaccessible to a dozer, and other methods do not provide results equivalent to hand raking, hand rake these areas. Ensure that the surface is uniform, free of gullies, rivulets, crusting, and caking. Finely grade the surface for slopes 4:1 or flatter, and grade all other slopes. Rake or open the surface with dozer cleats or otherwise loosen the surface of these areas to a depth of one inch (1") immediately before covering with topsoil. Remove raked up material from the area.

If topsoil is required, it shall be placed in two (2) loose lifts that construct a two inch (2") minimum compacted depth for slopes $\geq$ 3:1, or for a total of four inches (4") for slopes < 3:1. Again the area shall be tracked with a dozer to compact and provide good contact between the topsoil and the surface.

Commercial fertilizer shall be obtained from a dealer or manufacturer whose brand grades are registered or licensed by the State of Ohio, Department of Agriculture. Commercial fertilizer 12-12-12 shall be applied evenly over the surface at a rate of 18.4 pounds per 1,000 square feet. Incorporate commercial fertilizer, granular lime, or other soil amendments, including compost, either separately or together, into the soil or topsoil to a depth of two (2) to four (4) inches. Do not mix liquid lime into the soil or topsoil. For liquid lime, apply only to the top of the soil or topsoil.

Immediately after the preparation and fertilization of the seed bed, the seed shall be thoroughly mixed and then evenly sown over the prepared areas. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, hydroseeder or other satisfactory method. Preferrably, seeding should be applied on a moist seedbed. Maximum seeding depth should be ¼ inch on clayey soils and ½ inch on sandy soils, when using other than hydroseeder method of application.

Do not sow seed during high winds. For slopes subject to windy conditions, seed using hydraulic methods only. Operate equipment in a manner to ensure complete coverage of the entire area to be seeded.

Seeding classes and application rates are as follows:

	Class – Type	Seeds	lb/1000 ft^2	% by weight
1	Lawn Mixture	Kentucky Bluegrass (Poa pratensis)	3	30
	(Use residential areas, commercial properties, etc. between curb and sidewalks)	Creeping Red Fescue (Festuca rubra)	3	30
		Annual Ryegrass (Lolium multiflorum)	2	20
		Perennial Ryegrass, turf type (Lolium perenne)	2	20
2	Roadside Mixture	Kentucky Bluegrass (Poa pratensis)	1.5	30
	(Use for flatter than or equal to 3:1 slopes)	Kentucky 31 Fescue (Festuca arundinacea var. KY 31)	2	40
		Perennial Ryegrass (Lolium perenne)	1.5	30
3B	Low Growing Slope Mixture	Hard Fescue (Festuca longifolia)	1.3	56
	(Use for steeper than 3:1 slopes)	Creeping Red Fescue (Festuca rubra)	0.8	34
		Annual Ryegrass (Lolium multiflorum)	0.23	10
7	Temporary Erosion Control Measure	Annual Ryegrass (Lolium multiflorum)	2.02	100

Class 1 Lawn Mixture will be acceptable as a general seed for lineal projects such as sewer and water line construction.

If broadcast seeding, seed Classes 1, 2, and 3B between August 15 to October 30. If necessary to seed Classes 1, 2, or 3B before August 15, but after March 1, increase the seeding rates by five percent (5%). For broadcast seeding, perform the following, immediately after sowing, to provide good seed-soil contact: (A) For flat surfaces, lightly rake the area then roll, and (B) For slopes, track the area with dozer.

Between March 1 and October 30, the Contractor may use hydroseeding to apply the mulch, seed, water and commercial fertilizer in the same operation.

Mulch materials shall consist of straw for 3:1 or flatter slopes. Use mulch that is reasonably free of weed seed, foreign materials, or other materials that would prohibit seed germination. Do not mulch during high winds. For slopes subject to windy conditions, mulch using hydraulic methods only.

Mulch shall be evenly placed within 24 hours after seeding and any mulch that becomes displaced shall be replaced immediately. Mulch shall be placed at the following rates: (A) If seeding from March 15 to October 30 – 2 tons per acre; or, (B) If seeding from October 31 to March 14 – 3 tons per acre. Spread mulch uniformly by hand or mechanical equipment. For uniform distribution of hand spread mulch, divide the area into approximately 1,000 square feet sections and place 70-90 lbs. Of mulch in each section.

Anchor, or keep straw mulching materials in place by applying an asphalt emulsion at a minimum rate of 60 gallons per ton of straw mulch, or by applying tackifiers according to the manufacturer's recommendations. Apply an additional application at a rate of 30 gallons per ton of straw mulch to shoulder areas, starting at the berm edge and extending out for a distance of ten feet (10'). Use an emulsion that is nontoxic to plants and prepared in a manner that will not change during transportation or storage.

If soil moisture is deficient, the contractor may water permanent seeded areas until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry and hot seasons, or on adverse sites. Apply water using a hydroseeder or a water tank under pressure with a nozzle that produces a spray that will not dislodge the mulch material.

When installing temporary erosion control seeding Class 7, all elements of this specification apply except, straw mulch shall be applied at a rate of 2 tons per acre. Fertilization shall by applied at five (5) pounds per 1,000 square feet. If project conditions prevent fertilizing the soil and preparing the seed bed, the fertilizing and preparation requirements may be waived by the Engineer. Do not place construction seed on frozen ground.

All seeded and mulched areas shall be maintained until final inspection. All damaged areas shall be repaired to the original condition and grade. Rework or reshape slopes, and bring in additional material, as necessary, using whatever equipment is necessary to restore slopes to grade. Seed and mulch repaired areas according to this specification.

The Contractor shall request an inspection by the Engineer no earlier than six (6) months and no later than twelve (12) months after final seeding. The Contractor shall make all necessary repairs, replacements, reseedings and mulching to seeded areas within the planting season, if possible. If stand is inadequate, the Contractor shall overseed and fertilize, using half of rates originally applied, and mulch. If stand is over 60% damaged, seeding shall be reestablished following original lime, fertilizer, seedbed preparation, seeding and mulching according to this specification.

Areas along the project route that are disturbed by private residential tapping efforts prior to the Contractor's completing final grading shall be restored by the Contractor. Areas disturbed by taps after final grading shall be restored by the property owner.

D. PAVEMENT, DRIVE AND WALK REPLACEMENT

The Contractor shall provide all labor, tools, material and equipment to replace the pavement, drives and walks that have been damaged or disturbed during the course of the work, all as specified herein or as directed by the Sanitary Engineer.

During the entire period of construction of the project all streets, drives and walks shall be kept in usable and safe condition for public use. Before final acceptance, and after trench settlement has been provided to the satisfaction of the Sanitary Engineer, pavement drives and walks designated by the Sanitary Engineer shall be repaved with the type of pavement replacement specified herein.

Where necessary to disturb the existing pavement, the pavement will be line cut and the edges of face of the old pavement or base shall be left vertical. Ragged edges shall be trimmed so as to provide a substantially straight line juncture between old and new surfaces. Consideration must be given to utilizing existing construction or expansion joints as the limits for replacement in order to have a neat and homogeneous final project.

If the drive apron is cut to install the watermain between the existing drive culvert and the existing pavement and this work was not shown on the plans or was not directed by the Sanitary Engineer, the drive apron shall be replaced per the current Medina County Highway Engineers standards at the Contractor's expense. If the drive culvert is damaged or does not meet current Medina County Highway Engineers standards when the drive apron is replaced, the culvert shall be replaced and meet current Medina County Highway Engineers standards at the Contractor's expense.

If the Contractor damages the drive pipe and the plans do not call for the drive pipe to be disturbed or removed, the pipe will be replaced by the Contractor at his expense.

A County Highway Engineers permit and fee will be required and shall be the responsibility of the Contractor.

The pavement replacement shall be so placed as to conform in grade with the existing pavement, drives or sidewalks.

The type of pavement, drives and walks used for replacement shall match existing pre-construction conditions (in kind), or as shown on the pavement replacement details in accordance with the latest Construction and Material Specifications, State of Ohio, Department of Transportation.

E. SIDEWALKS

Existing sidewalks shall be replaced to the original lines, grades and dimension with four inch (4") thick B concrete sidewalks, except where located in driveways where the walkway shall be six inches (6") thick. The finish, joint pattern and expansion material shall conform to the existing walkways.

F. CORRUGATED DRIVE PIPE & CULVERT PIPE

The Contractor shall furnish and install additional corrugated metal or corrugated plastic culvert where directed by the Sanitary Engineer. All metal pipe furnished or used under this item shall be 16 gage plain galvanized, corrugated steel pipe conforming to the latest State of Ohio, Department of Transportation Specification 707.01. All plastic pipe furnished or used under this item shall be ADS N-12 with ST (silt tight) joints, or approved equal, conforming to the latest State of Ohio, Department of Transportation specification 707.32.

G. TREE PROTECTION & TREATMENT IF DAMAGED DURING CONSTRUCTION

1. Tree roots typically spread out from two or three times the width of the branches with essential roots usually considered to be within the tree's drip line, which is the area underneath the tree's branches.

2. Avoid stockpiling topsoil or excavated earthen materials within the tree's drip line.

3. Prunes branches that interfere with construction equipment by making clean cutswith a sharp pruning saw just outside the swollen branch collar.

4. Treat damaged bark and trunk wounds by removing loose bark. Jagged edges are to be cut away with a sharp knife. Take care not to cut into living tissues.

5. If roots are ripped or torn during excavation efforts, make clean cuts to the roots to seal and to promote a flush of new roots.

6. With permission from the Engineer, utilities may be tunneled under trees to avoid damage to the root system. Tunnel a minimum of 24 inches away from the tree's center to avoid a taproot. For trees less than 6 inches in diameter at breast height, trenching should come no closer than the drip line of the tree. Follow the following table for minimum distance from the tree to begin tunneling as determined by diameter of the tree at breast height.

Tree Diameter at Breast Height	Minimum Distance from Tree to Start Tunneling
Less than 6 inches	Drip line of the tree
6 to 9 inches	5 feet
10 to 14 inches	10 feet
15 to 19 inches	12 feet
More than 19 inches	15 feet

Appendix "A"
Medina County Sanitary Engineer's Sewage Flow Guide

Place	Notes	EPA Design Flow Gallons Per Day	MCSE Calculated ERU
Airport	b, i, j, p, r, t	15 per employee plus 4 per parking space	0.0375 per employee plus 0.01 per parking space
Apartments	b, l	120 per bedroom	0.30 per bedroom
Assembly Hall	a, i, j	15 per employee plus 3 per seat without kitchen facilities or 7 per seat with kitchen facilities	0.0375 per employee plus 0.0075 per seat without kitchen facilities or 0.0175 per seat with kitchen facilities
Auto Body / Auto Mechanic Shop		-	1.00 per wash bay plus 0.0875 employee
Auto Dealership		-	2.50 for the first wash bay plus 1.00 for each additional wash bay plus 0.0875 per employee
Banquet Hall	b, i, j	15 per employee plus 3 per seat without kitchen facilities or 7 per seat with kitchen facilities	0.0375 per employee plus 0.0075 per seat without kitchen facilities or 0.0175 per seat with kitchen facilities
Barber Shop	i, j	80 per basin	0.20 per basin
Beauty Shop / Styling Salon	i, j	200 per basin	0.50 per basin
Bowling Alley	a, i, j, p	75 per lane	0.1875 per lane
Campground or Recreational Park	a, i, j ,m, n, p	30 per tent camp site without showers; 60 per tent camp site with showers; 60 per RV camp site without water hook-up; 90 per RV camp site with water hook-up	0.075 per tent camp site without showers; 0.15 per tent camp site with showers; 0.15 per RV camp site without water hook-up; 0.225 per RV camp site with water hook-up
Car Wash	i, q	Sewer connection required; contact district office	2.50 for the first bay plus 1.00 for each additional bay
Church			
(Less than 200 sanctuary seats)	a, h, j, k,o, p	3 per sanctuary seat without kitchen; 5 per sanctuary seat with kitchen	0.0075 per sanctuary seat without kitchen; 0.0125 per sanctuary seat with kitchen
(Greater than 200 sanctuary seats)	b, h, j, k,o, p	5 per sanctuary seat without kitchen; 7 per sanctuary seat with kitchen	0.0125 per sanctuary seat without kitchen; 0.0175 per sanctuary seat with kitchen
Coffee Shop	a, i, j	15 per employee plus 5 per seat	0.0375 per employee plus 0.0125 per seat
Convenience store, service station or gas station (add all flows that apply)	a, d, i, j, p, q	500 per pump island; 500 per service bay; 250 per shower; 15 per employee	1.25 per pump island; 1.25 per service bay; 0.625 per shower; 0.0375 per employee
Country club, sportsman club or gun club	b, i, j, m, n, o, p	50 per member	0.125 per member
Dance Hall	a, i, j, p	15 per employee plus 3 per patron without kitchen facilities or 7 per patron with kitchen facilities	0.0375 per employee plus 0.0075 per patron without kitchen facilities or 0.0175 per patron with kitchen facilities
Daycare Facility	a, i, j, p	35 per employee plus 10 per student	0.0875 per employee plus 0.025 per student
Dentist Office	i	35 per employee plus 10 per patient plus 75 per dentist	0.0875 per employee plus 0.025 per patient plus 0.1875 per dentist
Doctor Office	i	35 per employee plus 10 per patient plus 75 per doctor	0.0875 per employee plus 0.025 per patient plus 0.1875 per doctor
Dry Cleaner	i	Contact District 1 office	
Factory	i, q	25 per employee without showers; 35 per employee with showers	0.0625 per employee without showers; 0.0875 per employee with showers
Fire Stations		-	2.50 for apparatus room plus 1.00 for each fireman on duty (up to 12) plus 0.0875 per fireman on duty that exceeds 12
Food Service Operation / Restaurant Categories			
- Ordinary Restaurant (not 24 hours)	c, i, j, p	35 per seat	0.0875 per seat
- 24 Hour Restaurant	c, i, j, p	60 per seat	0.015 per seat
- Restaurant Along Freeway	c, i, j, p	100 per seat	0.25 per seat
- Tavern (very little food service) or Bar (full food service)	c, i, j, p	35 per seat	0.0875 per seat
- Curb Service (drive-in)	c, i, j, p	40 per seat	0.10 per seat
- Vending Machine	c, i, j, p	100 per machine	0.25 per machine
- Fast Food Restaurant		-	0.0875 per seat
Food Market		-	0.05 per full time employee; 0.025 per part time employee; 0.0875 per restaurant seat; if no information is available use 0.05 per Ft^2
Homes in Subdivision	b, l	120 per bedroom	1.00 per each unit
Hospital	b, i, j, p	300 per bed plus 35 per employee	0.75 per bed plus 0.0875 per employee
Hotel or Motel	a, i, j, p	100 per room	0.25 per room
Institutions (such as psychiatric hospitals or prisons)	b, i, j, p	100 per bed plus 35 per employee	0.25 per bed plus 0.0875 per employee
Laundromat	i, q	15 per employee plus 400 per machine	0.0375 per employee plus 1.00 per machine
Marina (restrooms and showers only)	a, i	20 per boat mooring or slip	0.05 per boat mooring or slip

Place	Notes	EPA Design Flow Gallons Per Day	MCSE Calculated ERU
Migrant Labor Camp	e, i, j, p	50 per employee	0.125 per employee
Mobile Home Park	b, i, j, p	300 per mobile home space	0.75 per mobile home space
Nursing and Rest Homes	b, i, j, p	200 per bed plus 100 per resident employee plus 50 per non-resident employee	0.50 per bed plus 0.25 per resident employee plus 0.125 per non-resident employee
Office Building	a, i, j, k	20 per employee	0.05 per employee
Playground or Day Park	a, i, k, p	15 per employee plus 12 per parking space	0.0375 per employee plus 0.03 per parking space
Retail Store	a, i, j, p	15 per employee plus 12 per parking space	0.0375 per employee plus 0.03 per parking space
RV Dumping Station		-	Minimum 1.00 per station
School	b, i, j, k, p, t	15 per employee plus 15 per pupil for elementary schools; 20 per pupil for junior and high schools; 85 per pupil for boarding schools	0.0375 per employee plus 0.0375 per pupil for elementary schools; 0.05 per pupil for junior and high schools; 0.2125 per pupil for boarding schools
Service station or convenience store or gas station (add all flows that apply)	a, d, i, j, p, q, u, v	500 per pump island; 500 per service bay; 250 per shower; 15 per employee	1.25 per pump island; 1.25 per service bay; 0.625 per shower; 0.0375 per employee
Shopping Center	a, f, l, p, q	15 per employee plus 2 per parking space without food service or 5 per parking space with food service	0.0375 per employee plus 0.005 per parking space without food service or 0.0125 per parking space with food service
Swimming Pool	a, i, m, n	5 per swimmer without hot showers or 10 per swimmer with hot showers	0.0125 per swimmer without hot showers or 0.025 per swimmer with hot showers
Theater	a, i, j, p	5 per seat for indoor auditorium or 10 per car for drive-in	0.0125 per seat for indoor auditorium or 0.025 per car for drive-in
Vacation Cottage	b, i, j, p	50 per person without kitchen or 75 per person with kitchen	0.125 per person without kitchen or 0.1875 per person with kitchen
Veterinarian Office and Animal Hospital	f, i, j	15 per employee plus 100 per doctor plus 20 per run and cage	0.0375 per employee plus 0.25 per doctor plus 0.05 per run and cage
Youth and Recreation Camp	b, i, j, p	15 per employee for day camp plus 15 per camper for day camp with food service or 10 per camper for day camp without food service; 50 per employee for overnight camp plus 50 per camper for overnight camp 200 to 280 r,s,t	0.0375 per employee for day camp plus 0.0375 per camper for day camp with food service or 0.025 per camper for day camp without food service; 0.125 per employee for overnight camp plus 0.125 per camper for overnight camp 0.50 to 0.70 r,s,t

Medina County Sanitary Engineer's Sewage Flow Guide (Note Sheet)

Note	Description
a	Food service waste not included.
b	Food service waste included, but without garbage grinders.
c	Aeration tanks for these systems require forty-eight hour detention periods. Garbage grinders not permitted.
d	Truck parking areas will require consideration for treatment of runoff at large truck stops.
e	Twenty gallons per day of a vault latrine is used for toilet wastes.
f	Assume manual hosing of dog runs and solids (food droppings, etc.) removal prior to hosing.
g	Year round disinfection of all wastewater may be required before discharge to waters of the state or to any other surface or subsurface disposal systems.
h	Lower per seat estimate assumes a maximum of one church service per day, higher per seat estimate assumes a maximum of three church services per day. Weddings and funerals shall be counted as services.
i	Non-domestic or industrial wastes are prohibited from being discharged to soil based treatment systems.
j	Total capacity for number of persons should be confirmed by occupancy license or total occupancy capacity.
k	Higher flows shall be estimated when showers are available.
l	Deviating from this estimated design flow will require the director’s approval, prior to applicant submitting the permit to install.
m	Pools cannot discharge pool filter backwash into soil based treatment systems.
n	Pool de-watering is prohibited from discharging to soil based treatment systems.
o	Flow estimates do not consider daycare facilities. If a daycare is present, the flow requirements for a daycare facility must be included.
p	An external grease trap is required for facilities with food service for soil based treatment systems.
q	Assume one working shift of not more than eight hours. Assume higher flows for two or three shift operations.
r	Assume no garbage grinder and normal domestic waste. If garbage grinders are present, the waste strength should be increased from twenty to sixty-five per cent.
s	Data for regular strength waste range of 200 to 280 milligrams per liter was obtained from U.S. EPA’s manual “Onsite Wastewater Treatment Systems Manual, February 2002 (EPA/625/R-00/008).” This manual is available on the internet at www.epa.gov/ncepihom/ and can be ordered by telephone by calling (800) 490-9198.
t	Waste strength should be twenty to sixty-five per cent higher for facilities that include food service operations, such as cafeterias, service stations and for facilities that may handle pet wastes.
u	Sewer connection is required for a car wash. Please contact your district office.

CHAPTER NINE
STANDARD FORMS AND REFERENCES

Section 9.1: General

The standard forms contained in these Regulations are those which should be helpful to persons submitting proposed projects and requesting specific action by the County.

Not all standard forms used by the Sanitary Engineer are included in these Regulations since they are, in many cases, limited to more specific areas and not of general interest. Copies of all forms may be obtained from the Sanitary Engineer upon request.

Section 9.2: Forms

Current forms are available upon request.

CHAPTER TEN
CONSTRUCTION STANDARDS

Section 10.1: Forms

Current Standards are available upon request.

CHAPTER ELEVEN
INVALIDATIES, OTHER AGREEMENTS AND INTERPRETATION

Section 11.1: Effect of Partial Invalidaties

The foregoing Rules and Regulations are hereby declared separate and in the event any provision or part hereof shall be declared void and ineffective for any cause, such declaration shall not affect nor render invalid any other provision or part hereof.

Section 11.2: Special Agreements

Nothing in these Rules and Regulations shall prohibit the Board of County Commissioners from entering into any agreement with any person, firm, corporation or governmental agency for the furnishing of a service or performance of any act not specifically mentioned in these Rules and Regulations, provided however that the same is authorized by the General Laws of Ohio.

Section 11.3: Interpretation of Rules and Regulations

In the event that a conflict arises in the interpretation of the foregoing Rules and Regulations, the decision of the Sanitary Engineer shall be considered final and binding; subject to the right of appeals as provided by law.

Chapter Twelve
Sanitary Sewer User Charge System

12.0 Purpose

The Medina county Sanitary Engineers office has been entrusted with the responsibility of collecting fees for the operation of County owned wastewater treatment facilities from the users of these facilities since 1959. Since that time the Sanitary Engineers office has developed an equitable system of billing the systems users, so as to fully fund the cost of operating, maintaining and replacing such facilities. This report is written in order to identify the procedures used in implementing the user charge system and to fulfill the requirements of federal regulations 40 CFR 35.2140.

12.1 Summary

The County Sanitary Engineers office operates three major and two minor wastewater treatment facilities throughout Medina County. The approximately 36,000 accounts billed for wastewater disposal receive potable water from Medina County's rural water supply system, the City of Cleveland, the City of Medina, the City of Wadsworth or from private water wells.

Because the County is unable to collect monthly water use records from each water supplier, the County is unable to unilaterally bill sewer customers based on water usage. For this reason, the County has elected to bill its customers based on a flat rate system based on Equivalent Residential Units (ERU's). An ERU is considered to be the volume of wastewater discharged from a typical residence on a daily basis. This volume has been determined to be 400 gpd when using Ohio EPA flow estimating criteria or 230 gpd when reviewing actual water use records.

12.2 Sewer Debt

a. Debt Projections

Annual sewer debt revenue and liability projections are provided ibn Table 12-1. The table lists annual debt payment for past and proposed projects.

b. Sewer Debt Fund Balance

In keeping with generally accepted accounting practices, the Sanitary Engineers office strives to maintain one years debt payment in the debt fund at all times. The balance serves as a buffer from unforseen reductions in debt revenue.

c. Sewer Debt Revenue

Sewer debt revenue is generated through collection of tap-in fees, through a portion of the monthly sewer use charge and through assessment fees. Tap-in fees and assessment fees are estimated for budgeted for future years based on past years collection records. The portion of the sewer use charge dedicated to debt retirement is broken down separately on customers billing statements.

12.3 Wastewater Operating Budget

a. Operation and Maintenance Costs

Table 12-2 provides actual and estimated expenses for the operation and maintenance of Medina County wastewater treatment facilities for various years. Expenses include all costs of collection and treatment of wastewater and disposal of residues.

1. Wages and Salaries

The cost of employing salaried personnel and hourly laborers, including any part-time help, is included in the first two lines. Overtime costs for hourly personnel vacation and sick time are included under these two headings.

2. Indirect Employee Benefits

Indirect costs such as employee retirement, workers' compensation, hospitalization, medicare and unemployment are included in Table 12-2.

3. Supplies and Materials

The supplies category includes all expendable items such as office supplies, postage, software licenses, etc. Materials include all items necessary for the maintenance and operation of wastewater collection and disposal facilities such as chemicals, repair parts and other maintenance supplies.

4. Equipment

This section includes the cost of purchasing new equipment such as vehicles, desks, office equipment, computers, maintenance and plant tools, etc.

5. Repairs

Repairs to vehicles, buildings, equipment and grounds by outside contractors are included under this heading.

6. Services

Services include all contractual services. This includes insurances, sludge hauling, lawn care, snow plowing, legal representation, refuse hauling, janitorial, office equipment, service contracts, etc.

7. Utilities

Utilities include electric, gas, wastewater treatment, water and telephone.

8. Projects

Special projects for upgrading or modifying treatment or collection facilities are included in this section. These projects are smaller in nature and do not require outside funding for completion.

9. Advertising

Advertising includes publishing of notices for the competitive bidding of new projects and legal notices as required.

10. Travel

Expenses incurred by authorized employees traveling in the performance of official duties are included in the category.

11. Maintenance and Plant Equipment Replacement

Separate line items are called out in the budget for the replacement of equipment for the Line Maintenance Department and for the replacement of equipment at the plants. Maintenance equipment includes items necessary to clean and repair sewer lines, such as back hoes, sewer jets, etc., while plant equipment includes items needed to treat wastewater in preparation for discharge to the river.

12. Sewer Rehabilitation

Sewer rehabilitation includes funds for the replacement or repair of failed or deteriorated sections of sanitary sewer and manholes.

b. Operation and Maintenance Revenue Fund Balances

Two months operating revenue is maintained in the operating fund balance at all times. The balance provides funds necessary for operation between the two month billing cycles.

c. Wastewater Treatment Revenues

Operation and maintenance revenues are collected through bi-monthly sewer billings, sewer permit fees and delinquent sewer billings. Sewer permit fees, and delinquent payments are estimated for the following years budget based on past years revenue collection.

12.4 Equipment Replacement Fund

a. General

40 CFR 35.2140 specifically requires that the cost of replacing treatment and collection equipment be included in the user charge system. As all sewer districts were combined into one County sewer district by County Commissioners Resolution Number 97-526A, just one fund for equipment replacement has been established. The current balance in the equipment replacement fund is approximately $1,400,000.00.

b. Equipment Costs

Tables 12-3, 4, 5 and 6 represent equipment replacement costs for the S.D. #500, #300 and #700 WWTP's and County owned pump stations respectively. The tables provide the year the equipment was placed into operation, its estimated useful life and the proposed annual contribution to the replacement fund for each piece of equipment.

c. Fund Balance

The summation of equipment replacement costs (Tables 12-3 through 12-6) total approximately $6,000,000. It is reasonable to assume that all equipment will not be in need of replacement in the same year. Therefore, it is not necessary to carry the full value of replacing all equipment in the equipment replacement fund. The Sanitary Engineers Office has established a fund balance goal of 50% of the equipment replacement cost or $3,000,000. Annual contributions to the fund will be budgeted to increase the fund balance to meet the goal within 12 years. Equipment costs in Tables 12-3 through 12-6 will be revised every five years and the fund balance goal adjusted accordingly.

12.5 Billing

a. Wastewater Flow Estimation

Where potable water use records are not available, water use for various business enterprises are estimated based on Ohio EPA recommended flow guidelines. Estimated daily flows are then broken down into equivalent residential units (ERU's) based on Ohio EPA's estimated household water use of 400 gallons per day. Customers are then

billed a flat rate per ERU. Residential sewer invoices are mailed every other month and cover a two month period. The invoices separate the cost of operation/maintenance and the cost of debt retirement as required in 40 CFR 35.2140.

b. Equivalent Residential Unit

The County's standard unit for billing purposes is the ERU. The ERU is defined as the estimated peak daily wastewater flow from a typical single family home and has been established at 400 gallons per day based on Ohio EPA's recommended flow criteria for small treatment plants. All customers are billed a minimum of one ERU per month. Ohio EPA's 400 gpd figure includes a component to account for infiltration and inflow in the sewer system. Medina County Sanitary Engineers flow studies have shown that actual potable water use for the average home in Medina County is 230 gpd. Therefore, when evaluating billing units for commercial/industrial customers with potable water use records, billing ERU's are determined by dividing historic daily water use records by the 230 gpd figure.

c. User Classification

Users are classified into residential, commercial and industrial users. Each user is billed according to the number of ERU's discharged. The classifications are maintained for the industrial pretreatment program, for future engineering analysis and for monthly billing and surcharge review.

d. New Customers: New Connection

When a potential customer applies for a permit to tap into the County's sanitary sewers, the customers proposed building use (industrial, commercial or residential) and operations are reviewed and compared to Ohio EPA suggested flow guidelines (see Appendix A) in order to estimate the quantity of wastewater to be discharged per day. The estimated daily flow is then divided by 400 gpd per ERU to calculate the number of units to be billed. A minimum of one unit is to be billed to each customer per month.

e. New Customer: Existing Connection

When the new customer occupies an existing commercial or industrial building, the customer will be contacted for information regarding the new use of the building. The operations data will then be compared to the Ohio EPA's suggested flow guidelines (see Appendix A) to determine the estimated daily flow and the number of ERU's to be billed.

f. New Customers: Where Water Records Are Available

When a new customer has had a similar operation in a location where potable water supply records were maintained, one year's past water use records are to be averaged to determine the annual average daily flow generated from the operation. The number of

days used to average the flow will correspond to the number of actual days the past facility was in operation for that year. 100% of the annual average daily water consumption shall be taken as the average daily wastewater flow unless the new customer has verifiable data indicating water loss through evaporation, water loss in product, etc. The average daily wastewater flow shall be divided by 230 gpd per ERU to determine the number of units to be billed. The 230 gpd per ERU figure to be used in such cases reflects the Ohio EPA 400 gpd per ERU flow figure less an allowance for infiltration and inflow. This figure was determined by a Medina County Sanitary Engineer's office survey of water use in single family homes in 1985.

g. Existing Customers: Where Water Use Records Are Available

Where water use records for commercial and industrial customers are obtainable, such records shall be reviewed every three years and the customers sewer billing adjusted accordingly. The procedures for calculating average daily sewer flows and billable units shall be the same as those for new customers with available water use records. This procedure will encourage water conservation while insuring non-residential customers pay their fair share of operating costs.

12.6 Sewer Use Rates

a. General

Sewer user rates are generally revised during a review of budgeting for the upcoming fiscal year. Debt and operating costs are then divided between the total number of ERU's to be billed to determine the monthly sewer user rate charge. Current user rates are as stated in the County Commissioners Resolution 13-0046 provided in Appendix 12.B.

b. Debt Retirement Billing Rate Schedule

Table 12-1 provides a listing of existing and anticipated debt liabilities from past and planned projects. Anticipated levels of debt revenue to be received are also provided. This table provides information on how the debt retirement portion of the monthly sewer user rate is calculated by subtracting anticipated tap-in and connection fees from the annual debt payment and dividing the result by the total number of billable units over the course of twelve months.

c. Equipment Replacement

Section 12.4A of this user charge system provides information on how the annual contribution to the equipment replacement fund have been established. The annual contribution to the Equipment Replacement Fund shall be included in the operation budget.

d. Operation, Maintenance and Replacement Billing Rate Schedule

Table 12-2 provides current and projected OM&R revenue vs. expenditures through 2016. The table provides anticipated year end balances that are used to determine when adjustments to the OM&R rate are necessary.

Annual delinquencies are estimated to be four percent of debt revenue. Delinquencies collected through property tax assessment are estimated based on the last years delinquencies plus a two and one-half percent monthly late payment fee and a ten percent tax assessment fee. As seen in Table 12-2, the current years delinquencies and the past years collected delinquencies generally offset each other and are considered of minor importance when calculating the monthly OM&R rate.

12.7 Surcharges

The Medina County Sanitary Engineer's Rules and Regulations, Chapter 6.03, Items G and H, indicate that the maximum allowable wastewater discharge concentration is not to exceed 220 milligrams per liter for biochemical oxygen demand (BOD) and suspended solids (SS). Waste waters with BOD and/or SS concentrations in excess of the maximum limit are to be charged a surcharge of $0.16/pound BOD and $0.16/pound of suspended solids as stated in the County Commissioners Resolution number 10-1083 (Appendix C). The unit cost per pound was determined based on actual operating costs expended for BOD and SS removal in 2010 and reviewed in 2011. Unit surcharge costs should be reviewed every two years and adjusted as necessary.

12.8 Pretreatment

In 1985 Medina County adopted an industrial pretreatment program for the sewer district No. 500 service area. Funding for the pretreatment program is provided by charging customers regulated by the program a flat rate charge of $3.75 per ERU by Resolution. Billing for the pretreatment surcharge is conducted separately from the standard monthly sewer billing. The pretreatment unit surcharge cost should be reviewed every two years and adjusted as necessary.

MEDINA COUNTY SEWER DEBT SUMMARY
REVENUE & EXPENSES

TABLE 12-1

SEWER DEBT REVENUE	2012	2013	2014	2015	2016	2017	2018	2019
BACKLAND TAP-INS	$800,000.00	$800,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00	$1,000,000.00
CONECTION FEES	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00
FRONTAGE TAPS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
DEBT REVENUE	$2,939,037.67	$2,964,037.67	$2,989,037.67	$3,014,037.67	$3,039,037.67	$3,064,037.67	$3,089,037.67	$3,114,037.67
NEW DEBT REVENUE	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
ASSESSMENTS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
INTEREST	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$191,115.30
WADSWORTH	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
TRANSFERS	$1,300,000.00	$1,000,000.00	$500,000.00	$500,000.00	$500,000.00	$500,000.00	$500,000.00	$500,000.00
TOTAL REVENUE	$5,089,037.67	$4,814,037.67	$4,539,037.67	$4,564,037.67	$4,589,037.67	$4,614,037.67	$4,639,037.67	$4,855,152.97

SEWER DEBT	2012	2013	2014	2015	2016	2017	2018	2019
SD#300 PLANT & SEWERS	$84,986.35	$79,629.54	$76,058.32	$72,487.11	$34,904.70	$0.00	$0.00	$0.00
CHIPPEWA SEWERS	$207,197.26	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
HAMILTON SEWER	$91,635.02	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
BRUNSWICK GARDENS	$47,645.10	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
RT 18 SEWERS	$155,329.86	$155,329.86	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
HAMILTON SEWER II	$53,719.20	$53,719.20	$53,719.20	$53,719.20	$26,859.60	$0.00	$0.00	$0.00
BRUNSWICK REHAB	$77,021.30	$77,021.30	$77,021.30	$77,021.30	$38,510.65	$0.00	$0.00	$0.00
HINCKLEY	$641,588.02	$641,588.02	$641,588.02	$641,588.02	$320,794.01	$0.00	$0.00	$0.00
MARKS ROAD	$105,585.50	$105,585.50	$105,585.50	$105,585.50	$52,792.75	$0.00	$0.00	$0.00
LIVERPOOL EXPANSION	$2,600,151.34	$2,600,151.34	$2,600,151.34	$2,600,151.34	$2,600,151.34	$2,600,151.34	$2,600,151.34	$2,600,151.34
MEDINA REHAB	$117,024.48	$117,024.48	$117,024.48	$117,024.48	$117,024.48	$117,024.48	$117,024.48	$117,024.48
PLUM CREEK	$130,635.10	$130,635.10	$130,635.10	$130,635.10	$130,635.10	$130,635.10	$130,635.10	$130,635.10
COLUMBIA ROAD	$42,776.84	$42,776.84	$42,776.84	$42,776.84	$42,776.84	$42,776.84	$42,776.84	$42,776.84
MEDINA RESERVOIR	$87,364.00	$87,364.00	$87,364.00	$87,364.00	$87,364.00	$87,364.00	$87,364.00	$87,364.00
VALLEY PUMP STATION	$103,830.96	$103,830.96	$103,830.96	$103,830.96	$103,830.96	$103,830.96	$103,830.96	$103,830.96
BROOKDALE PUMP STATION	$45,935.12	$45,935.12	$45,935.12	$45,935.12	$22,967.56	$0.00	$0.00	$0.00
BRUNSWICK SEWER REHABILITATION	$86,022.32	$86,022.32	$86,022.32	$86,022.32	$86,022.32	$86,022.32	$86,022.32	$86,022.32
MEDINA CITY SEWER REPLACEMENT	$118,161.34	$118,161.34	$118,161.34	$118,161.34	$118,161.34	$118,161.34	$118,161.34	$118,161.34
SEWER REHABILITATION 2008	$20,829.84	$33,254.08	$33,254.08	$33,254.08	$33,254.08	$33,254.08	$33,254.08	$16,627.04
SEWER REHABILITATION 2010	$21,000.00	$43,000.00	$43,000.00	$44,000.00	$45,000.00	$81,715.64	$81,715.64	$81,715.64
RUSTIC HILLS	$0.00	$70,620.00	$70,620.00	$70,620.00	$70,620.00	$70,620.00	$70,620.00	$70,620.00
SEWER REHABILITATION 2013 - 2018	$0.00	$0.00	$100,000.00	$100,000.00	$200,000.00	$200,000.00	$200,000.00	$200,000.00
CHIPPEWA WWTP	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1,458,400.00
CONSTRUCTION TRANSFERS	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00	$50,000.00
OTHER	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00
TOTAL DEBT	$4,928,438.95	$4,681,649.00	$4,622,747.92	$4,620,176.71	$4,221,669.73	$3,761,556.10	$3,761,556.10	$5,203,329.06
NET INCOME	$160,598.72	$132,388.67	($83,710.25)	($56,139.04)	$367,367.94	$852,481.57	$877,481.57	($348,176.09)
BEGINNING BALANCE	$7,305,295.99	$7,465,894.71	$7,598,283.38	$7,514,573.13	$7,458,434.09	$7,825,802.03	$8,678,283.60	$9,555,765.17
FUND BALANCE	$7,465,894.71	$7,598,283.38	$7,514,573.13	$7,458,434.09	$7,825,802.03	$8,678,283.60	$9,555,765.17	$9,207,589.08

MEDINA COUNTY SEWER OPERATING SUMMARY
REVENUE & EXPENDITURES

TABLE 12-2

REVENUES	2012	2013	2014	2015	2016
SD#300	$2,122,947.33	$2,141,000.00	$2,159,000.00	$2,177,000.00	$2,195,000.00
SD#500	$9,881,160.85	$9,981,000.00	$10,081,000.00	$10,181,000.00	$10,281,000.00
CHIPPEWA	$344,591.76	$345,500.00	$346,000.00	$346,500.00	$347,000.00
SHARON	$284,746.49	$287,000.00	$306,500.00	$308,000.00	$309,500.00
PERMITS	$12,600.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00
DELIQUENT	$566,814.07	$520,000.00	$525,000.00	$530,000.00	$535,000.00
INTEREST	$0.00	$0.00	$0.00	$0.00	$0.00
OTHER	$349,349.45	$350,000.00	$355,000.00	$360,000.00	$365,000.00
CONSTRUCTION	$0.00	$0.00	$0.00	$0.00	$0.00
TRANSFERS	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL REVENUE	$13,562,209.95	$13,644,500.00	$13,792,500.00	$13,922,500.00	$14,052,500.00

EXPENSES	2012	2013	2014	2015	2016
SALARIES	$2,298,652.94	$2,260,000.00	$2,316,500.00	$2,374,412.50	$2,433,772.81
LABOR	$2,861,297.86	$2,906,000.00	$2,978,650.00	$3,053,116.25	$3,129,444.16
WORK COMP	$51,540.74	$55,000.00	$56,375.00	$57,784.38	$59,228.98
UNEMPLOYMENT	$0.00	$0.00	$0.00	$0.00	$0.00
PERS	$710,192.96	$721,000.00	$739,025.00	$757,500.63	$776,438.14
MEDICARE	$59,071.42	$65,000.00	$66,625.00	$68,290.63	$69,997.89
HOSPITALIZATION	$1,110,626.64	$1,229,000.00	$1,315,030.00	$1,407,082.10	$1,505,577.85
SUPPLIES	$168,480.16	$172,692.16	$177,009.47	$181,434.70	$185,970.57
MATERIAL	$1,145,952.89	$1,174,601.71	$1,203,966.76	$1,234,065.92	$1,264,917.57
REPAIRS	$177,107.29	$181,534.97	$186,073.35	$190,725.18	$195,493.31
ADVERTISING	$697.00	$1,500.00	$1,500.00	$1,500.00	$1,500.00
TRAVEL	$3,305.16	$4,000.00	$4,000.00	$4,000.00	$4,000.00
SERVICES	$418,842.73	$429,313.80	$440,046.64	$451,047.81	$462,324.00
PROJECTS	$10,000.00	$20,000.00	$20,000.00	$20,000.00	$20,000.00
OTHER	$88,398.82	$90,608.79	$92,874.01	$95,195.86	$97,575.76
GASOLINE	$74,724.44	$76,592.55	$78,507.36	$80,470.05	$82,481.80
UTILITIES	$2,525,908.77	$2,589,056.49	$2,653,782.90	$2,720,127.47	$2,788,130.66
EQUIPMENT	$43,996.09	$50,000.00	$50,000.00	$50,000.00	$50,000.00
INDIRECT COST	$154,569.00	$160,000.00	$165,000.00	$165,000.00	$165,000.00
DEBT	$1,300,000.00	$1,000,000.00	$500,000.00	$500,000.00	$500,000.00
MAINT EQUIP REPLACEMENT	$100,000.00	$100,000.00	$100,000.00	$100,000.00	$100,000.00
PLANT EQUIP REPLACEMENT	$150,000.00	$150,000.00	$150,000.00	$150,000.00	$150,000.00
SEWER REHAB	$100,000.00	$100,000.00	$100,000.00	$100,000.00	$100,000.00
TOTAL EXPENSES	$13,553,364.91	$13,535,900.48	$13,394,965.49	$13,761,753.48	$14,141,853.51
NET INCOME	$8,845.04	$108,599.52	$397,534.51	$160,746.52	($89,353.51)
BEGINING BALANCE	$1,502,523.20	$1,511,368.24	$1,619,967.76	$2,017,502.27	$2,178,248.80
ENDING BALANCE	$1,511,368.24	$1,619,967.76	$2,017,502.27	$2,178,248.80	$2,088,895.29

Medina County Sewer District
Liverpool WWTP (S.D. 500) Major Equipment
Equipment Replacement Analysis

Table 12-3

Equipment	Placed in Service	Design Life	Estimated Useful Life	Cost to be Replaced as of 2012	Salvage Value percent	Contribution Per Year to Replace Fund	
						Design	Est. Use
Bolted storage tanks liverpool - 7 tanks	2002	25 years	20 years	$679,518	$33,975	$25,800	$32,200
12.47 Power Distribution transformers	2002	25 years	25 years	$569,122	$28,456	$21,630	$21,630
Aeration headers / diffusers	2002	25 years	20 years	$44,000	$2,200	$1,672	$2,090
Centrifugal blower (complete package) +valves	2002	25 years	20 years	$232,000	$11,600	$8,816	$11,020
Chlorinators	2002	25 years	20 years	$8,250	$412	$300	$400
Clarifier drive mechanism	2002	25 years	20 years	$110,000	$5,500	$4,180	$5,225
Hydraulic operated slide gate	2002	25 years	15 years	$12,570	$628	$500	$800
Mechanical screen old headworks	2002	25 years	20 years	$6,000	$300	$230	$285
Mechanical screens New headworks	2002	25 years	20 years	$14,000	$700	$530	$670
Odor blowers	2002	25 years	8 years	$45,000	$2,250	$1,710	$5,340
Primary 500 gpm centrifugal pumps	2002	25 years	15 years	$120,000	$6,000	$4,560	$7,600
Pump - waste sludge	2002	25 years	15 years	$7,000	$350	$266	$440
Pump - New final return sludge	2002	25 years	15 years	$162,000	$8,100	$6,156	$10,260
Pump 500 gpm centrifugal old sludge building	2002	25 years	15 years	$51,000	$2,550	$1,940	$3,230
Old headworks pump 5000 gpm centrifugal	2002	25 years	15 years	$108,000	$5,400	$4,104	$6,840
Pump new final scum	2002	25 years	15 years	$36,000	$1,800	$1,368	$2,280

Table 12-3 (continued)

Equipment	Placed in Service	Design Life	Estimated Useful Life	Cost to be Replaced as of 2012	Salvage Value percent	Contribution Per Year to Replace Fund Design	Est. Use
Pump New Headworks Raw pump 9400 gpm centrifugal pumps	2002	25 years	15 years	$260,000	$13,000	$9,880	$12,350
Sand filter equipment	2002	25 years	20 years	$170,000	$8,500	$6,460	$8,075
Screw pump drives and screw	2002	25 years	15 years	$150,000	$7,500	$5,700	$7,125
Primary sludge collectors	2002	25 years	12 years	$30,000	$1,500	$1,140	$1,425
Sludge trailers	2002	25 years	20 years	$44,780	$2,239	$1,700	$2,100
Bolted storage tanks for sd 100	2002	25 years	20 years	$431,541	$21,577	$16,400	$20,500
Storm tank aeration equipment	2002	25 years	20 years	$20,000	$1,000	$760	$950
Thickener drive unit	2002	25 years	20 years	$32,000	$1,600	$1,200	$1,520
Tractor / trailer	2002	25 years	20 years	$130,000	$6,500	$4,900	$6,200
Truck weighing scale	2002	25 years	20 years	$29,000	$1,450	$1,100	$1,400
Plant water turbine pump	2002	25 years	20 years	$44,000	$2,200	$1,700	$2,100
Wheel loader	2002	25 years	20 years	$86,600	$4,330	$3,300	$4,100
Filter press	2011	25 years	20 years	$600,000	$30,000	$22,800	$28,500
Totals		25 (AVG)	18 (AVG)	$4,232,381	$206,667	$160,802	$206,685

Medina County Sewer District
Hinckley WWTP Major Equipment
Equipment Replacement Analysis

Table 12-4

Number of Items	Equipment	Placed in Service	Design Life	Est. Use Life	Cost to Replace as of 2012	Salvage Value	Contribution per year to Replacement Fund	
							Design	Est. Use
1	Effluent flow meter and transmitter	1995	20	20	$2,200	$0	$110	$110
1	Effluent automatic sampler	2007	10	10	$4,600	$0	$460	$460
2	Non-potable pumps and motors	1995	20	20	$8,100	$405	$385	$385
2	Water filter vessels	2012	20	20	$17,000	$850	$810	$810
1	Chlorinator	2012	20	20	$2,800	$0	$140	$140
2	Chemical pumps and motors	1995	20	10	$11,800	$590	$560	$1,120
4	Clarifier equipment	1995	20	20	$137,000	$6,850	$6,510	$6,510
1	Scum pump and motor	1976	20	10	$48,800	$2,440	$2,320	$4,640
2	Sludge pumps and motors	1995	20	20	$16,000	$800	$760	$760
3	Raw pump motor	1995	20	10	$14,700	$735	$700	$1,400
1	Switch gear	1995	20	10	$175,000	$0	$8,750	$17,500
5	Blowers and motors	1976	20	20	$28,500	$1,425	$1,350	$1,350
2	Comminutors	1976	20	10	$203,000	$10,150	$9,650	$19,290
	Totals		19 (AVG)	15 (AVG)	$669,500	$24,245	$32,505	$54,475

Medina County Sewer District
Chippewa WWTP Major Equipment
Equipment Replacement Analysis

Table 12-5

Number of Items	Equipment	Placed in Service	Design Life	Est. Use Life	Cost to replace as of 2012	Salvage Value	Contribution Per Year to Replacement Fund	
							Design	Est. Use
3	Raw Pumps	1989	25	20	$32,000	$1,600	$1,210	$1,520
2	Sludge Pumps & Controls	1989	20	20	$120,400	$6,020	$5,720	$5,720
1	Grit Pump*	1989	20	20				
1	Hydro Gritter*	1989	20	20	$66,000	$3,300	$3,135	$3,135
2	Clarifier Equipment	1989	25	20	$113,400	$5,700	$4,310	$5,385
3	Blowers & Motors	1989	25	20	$25,500	$1,275	$970	$1,210
1	Macerator & Controls	1989	15	10	$27,500	$1,375	$1,740	$2,610
1	Aeration Diffusers	1989	20	15	$4,500	-----	$225	$300
1	Emergency Power Generator	1989	20	20	$34,700	$1,700	$1,650	$1,650
	Totals		21.1 (AVG.)	18.3 (AVG)	$358,000	$20,970	$18,960	$21,530

*Costs for Grit Pump and Hydro Gritter combined.

Medina County Sewer District
Pump Station
Major Equipment

Table 12-6

Number of items	Location of Pump Station	Placed in Service	Design Life	Est. Use Life	Cost to Replace as of 2012	Salvage Value	Contribution per year to Replacement Fund	
							Design	Est. Use
2	Wadsworth/Sharon	1978	20	20	$195,000	$9,750	$9,260	$9,260
1	Boston Rd.	1976	20	20	$35,000	$1,750	$1,660	$1,660
1	Plum Creek	1976	20	20	$35,000	$1,750	$1,660	$1,660
1	Brookdale/Lafayette Rd.	2004	20	20	$66,000	$3,300	$3,135	$3,135
1	Marks Rd.	1992	20	20	$33,000	$1,650	$1,560	$1,560
1	Valley City	2004	20	20	$25,000	$1,250	$1,180	$1,180
1	Chippewa	1992	20	20	$65,500	$3,300	$3,110	$3,110
1	Medina Line	1992	20	20	$86,800	$4,400	$4,120	$4,120
1	Medina Middle	1992	20	20	$86,800	$4,400	$4,120	$4,120
1	Airport	1992	20	20	$86,800	$4,400	$4,120	$4,120
1	Boston Carpenter	2004	20	20	$106,000	$5,300	$5,035	$5,035
			20 (AVG)	20 (AVG)	$820,900	$41,250	$38,960	$38,960

APPENDIX A
SUGGESTED SEWAGE FLOW GUIDE

These estimated flows are empirical and are intended only for design of sewerage works. (See "Forward")

Place		Estimated Sewage Flow, Gallons Per Day
Apartments		250 one bedroom
		300 two bedroom
		350 three bedroom
Assembly Halls	Note (a)	2 per seat
Auto Body Shop		400 per wash bay
		35 per employee
Auto Dealership		1000 per first bay
		400 each additional wash bay
Barber Shop/Beauty Salon		35 per chair
		.05 per employee
		35 per employee
Bowling Alleys (no food service)	Note (a)	75 per lane
Car Washes		1000 first wash bay
		400 each additional bay
Churches (Small, 200 or less membership)	Note (a)	3 per sanctuary seat
Churches (large, with kitchen)	Note (b)	5 per sanctuary seat
Churches (large, without kitchen)		4 per sanctuary seat
Country Clubs		25 per member
Dance Halls	Note (a)	2 per person
Dentists		400 each dentist
Doctors		400 per doctor suite
Drive-in Theaters		5 per car space
Factories (no showers)		25 per employee
Factories (with showers)		35 per employee
Fire Stations		400 unmanned
		1000 apparatus room plus
		400 up to 12 fireman on duty plus
	Note (b)	35 per fireman on duty exceeding 12
Food Service Operations		
Ordinary Restaurant (not 24 hour)	Note (c)	35 per seat at 400 ppm. BOD 5
24-hour Restaurant	Note (c)	50 per seat at 400 ppm. BOD 5
Banquet Rooms	Note (c)	5 per seat at 400 ppm. BOD 5
Restaurant along Freeway	Note (c)	100 per seat at 400 ppm. BOD 5
Tavern (very little food)	Note (c)	35 per seat at 400 ppm. BOD 5
Curb Service (drive-in)	Note (c)	50 per car space at 400 ppm. BOD 5
Vending Machine Restaurants		100 per seat at 220 ppm. BOD 5
Pizza Places		20 per seat
Fast Food Restaurant		35 per seat (first 50 seats)
		5 per seat (51st seat & over)
Food Market		35 per restaurant seat
		20 per full time employee
		10 per part time employee
Homes in Subdivisions/Condos/Duplex/Townhouse		400 per dwelling
Hospitals (no resident personnel)	Note (b)	300 per bed
Institutions (residents)	Note (b)	100 per person

APPENDIX A
SUGGESTED SEWAGE FLOW GUIDE

Place		Estimated Sewage Flow, Gallons Per Day
Kennel		20 per run* 10 per cage* 20 per employee *assumes manual hosing
Laundries (coin-operated)	Note (e)	300 per small size machine 400 per standard size machine 600 per large size machine
Laundry wastes require special consideration		Consult District Office
Mobile Home Parks		200 per mobile home space
Motels		100 per unit
Movie Theater		5 per seat
Nursing and Rest Homes	Note (b)	150 per patient 100 per resident employee 50 per non-resident employee
Office Buildings		20 per employee or 100 sq. ft. floor Space per employee, whichever is Largest
Recreational Vehicle Dumping Stations		400 min. per station Consult District Office
Recreational Vehicle Parks and Camps		125 per trailer or tent space with Individual service 75-100 per trailer with regional comfort station
Retail Store		20 per full-time employee 10 per part-time employee
Racquet Ball Court & Tennis Court		10 per player & food service
Roller Rink		5 per person
Schools - Elementary	Note (b)	11 per pupil
- High and Junior High	Note (b)	20 per pupil
- Preschool/Day Care		15 per pupil
Service Stations	Note (d)	400 non work bays 250 each work bay
Shopping Centers (No food service or laundries)	Note (f)	0.2 per sq. ft. of floor space
Swimming Pool (average)		4 per swimmer (design load)
with hot water shower		6 per swimmer (design load)
Vacation Cottages		50 per person
Veterinarian		400 each veterinarian
Youth and Recreation Camps	Note (b)	50 per person

Note (a) - Food Service waste not included.
Note (b) - Food Service waste included but without garbage grinders.
Note (c) - Aeration tanks for these require 48 hour detention period. Garbage grinders not permitted.
Note (d) - Truck parking areas will require consideration for treatment of runoff at large truck stops.
Note (e) - Laundry (coin operated); Temperature may be critical of not diluted with other sewage.
Note (f) - Add laundries or other high flow or high strength uses.

REGULAR MEETING – MONDAY, JANUARY 28, 2013

The Board of County Commissioners of Medina County, Ohio met in regular session on this date with the following members present:
ADAM FRIEDRICK PATRICIA G. GEISSMAN STEPHEN D. HAMBLEY
Mrs. Geissman offered the following resolution and moved the adoption of same, which was duly seconded by Mr. Hambley.

RESOLUTION NO. 13-0046
RESOLUTION AMENDING THE SEWER USE CHARGES FOR THE MEDINA COUNTY SEWER DISTRICT AND THE SHARON TOWNSHIP AREA SEWER DISTRICT

WHEREAS, this Board under the authority and in compliance with Chapter 6117 and Chapter 6103 of the Ohio Revised Code, has established the Medina County Sewer District and has constructed certain wastewater collection and treatment systems; and

WHEREAS, in order to provide sufficient revenue to continue the proper management, maintenance, operation, repair and replacement of said systems, to comply with the requirements of the Ohio Environmental Protection Agency, and to insure sufficient funds are necessary for retirement of debt, it has become necessary to increase a portion of the sewer use charges for the products and services of the Medina County Sanitary Engineering Department; and

WHEREAS, Resolution No. 11-1076 previously set the current sewer use charge for the Medina County Sewer District at $24.25 per month per residential unit for operation and maintenance and $5.50 per month per residential unit for the sanitary sewer debt retirement charge; and

WHEREAS, the Board of County Commissioners of Medina County has previously created the Sharon Township Sanitary Sewer District; and

WHEREAS in order to provide for the treatment of the sewage generated in the Sharon District in a cost effective manner, the Board entered into an agreement with the City of Wadsworth which enabled the County to transport this waste to the City of Wadsworth sewerage system for ultimate treatment; and

WHEREAS, Resolution No. 11-1076 also set the current sewer use charge for Sharon Township at $29.50 per month per residential unit for operation and maintenance and $5.50 per month per residential unit for the sanitary sewer debt retirement charge.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Medina County, Ohio that:

1. Under the authority and in compliance with Chapters 6117 and 6103 of he Ohio Revised Code the sewer usage charges for the products and services of the Medina County Sanitary Engineering Department are hereby proposed to be amended in accordance with this resolution.

2. Commencing with the complete billing cycle starting March 1, 2013, each residential and commercial user of the sanitary sewer system in the Medina County Sewer District shall be charged the sanitary sewer use charge of $24.75 per month per residential unit or equivalent residential unit for operation and maintenance, and the sanitary sewer debt retirement charge in the Sewer District shall be $5.50 per month per residential unit or equivalent.

3. Commencing with the billing cycle starting March 1, 2013, each residential and commercial user of the sanitary sewer system in the Sharon Township Sanitary Sewer District shall be charged the sanitary sewer use charge of $30.00 per month per residential unit or equivalent residential unit for operation and maintenance, and the sanitary sewer debt retirement charge in the Sewer District shall be $5.50 per month per residential unit or equivalent residential unit.

4. The aforesaid Resolution is hereby proposed to be amended to the extent of the charges for usage set forth herein. All other aspects of any Resolution including but not limited to tap-in-fees, re-connection charges, benefit charges and regulations are hereby incorporated by reference herein and shall not be modified or amended by this resolution.

5. At the Budget Hearing held on January 7, 2013 at 11:30 a.m. at the Board's Office at 144 N. Broadway, Medina, Ohio the rate being proposed in this resolution was presented and discussed.

6. The Clerk of this Board is hereby directed to file a certified copy of this Resolution with the Auditor of Medina County for recording purposes, pursuant to the Ohio Revised Code.

7. It is found and determined that all formal action of this Board concerning and relating to the adoption of this Resolution were adopted in an open meeting of this Board, and that all deliberations of this Board and any of it's committees that resulted in such formal action, were in meetings open to the public in compliance with the law.

Voting AYE thereon: Mr. Friedrick, Mrs. Geissman, and Mr. Hambley

Adopted: January 28, 2013

Prepared by: Sanitary Engineering Department

REGULAR MEETING – MONDAY, MARCH 8, 2010

The Board of County Commissioners of Medina County, Ohio, met in regular session on this date with the following members present:

Sharon A. Ray Patricia G. Geissman Stephen D. Hambley

Mrs. Geissman offered the following resolution and moved the adoption of same, which was duly seconded by Mr. Hambley.

RESOLUTION NO. 10-1083

RESOLUTION AMENDING THE SEWER SURCHARGE FEES FOR HIGH STRENGTH WASTEWATER TO THE MEDINA COUNTY SEWER DISTRICT

WHEREAS, the Board of County Commissioners have previously established the Medina County Sewer District; and

WHEREAS, any establishment in the Medina County Sewer District that generates sanitary sewage with a strength greater than normal domestic strength loading of 220 mg/l BOD and 220 mg/l SS are currently "Surcharged" at a rate of $0.07 per pound of BOD and $0.07 per pound of SS as established under Resolution No. 79-521; and

WHEREAS, haulers permitted through the Medina County Septage Disposal Program to discharge septage to the Medina County Liverpool Wastewater Treatment Plant are similarly subject to surcharge fees per Resolution No. 02-895 for septage waste with a strength greater than the specified average septage loading of 6,480 mg/l BOD and 12,862 mg/l SS; and

WHEREAS, the Sanitary Engineer has determined on the basis of operational and maintenance cost, that a surcharge for high strength sanitary sewage and septage, based on the Sanitary Engineer's Rules and Regulations and Residential Septage Program, warrants an increase in surcharge rates to $0.16 per pound of BOD and $0.16 per pound of SS; and

WHEREAS, the Sanitary Engineer has proposed that the surcharge rate be increased to $0.16 per pound of BOD and $0.16 per pound of SS effective March 15, 2010.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of the County of Medina, State of Ohio, that:

1 "Surcharge" will be levied against any Medina County Sewer District user whose waste has been determined to be excessive in strength, the rate for which is hereby established $0.16 per pound BOD and $0.16 per pound SS effective March 15, 2010.

2 These Surcharges will be reviewed annually and adjusted if necessary in accordance with good accounting practices.

3 This Resolution supersedes any previous resolutions establishing a surcharge rate for high strength wastewater relative to BOD and suspended solids.

Voting AYE thereon: Ms. Ray, Mrs. Geissman, and Mr. Hambley

Adopted: March 8, 2010

Prepared by: Medina County Sanitary Engineer

The Board of County Commissioners of Medina County, Ohio met in regular session on this date with the following members present:

ADAM FRIEDRICK PATRICIA G. GEISSMAN STEPHEN D. HAMBLEY

Mrs. Geissman offered the following resolution and moved the adoption of same, which was duly seconded by Mr. Hambley.

RESOLUTION NO. 13-0046
RESOLUTION AMENDING THE SEWER USE CHARGES FOR THE MEDINA COUNTY SEWER DISTRICT AND THE SHARON TOWNSHIP AREA SEWER DISTRICT

WHEREAS, this Board under the authority and in compliance with Chapter 6117 and Chapter 6103 of the Ohio Revised Code, has established the Medina County Sewer District and has constructed certain wastewater collection and treatment systems; and

WHEREAS, in order to provide sufficient revenue to continue the proper management, maintenance, operation, repair and replacement of said systems, to comply with the requirements of the Ohio Environmental Protection Agency, and to insure sufficient funds are necessary for retirement of debt, it has become necessary to increase a portion of the sewer use charges for the products and services of the Medina County Sanitary Engineering Department; and

WHEREAS, Resolution No. 11-1076 previously set the current sewer use charge for the Medina County Sewer District at $24.25 per month per residential unit for operation and maintenance and $5.50 per month per residential unit for the sanitary sewer debt retirement charge; and

WHEREAS, the Board of County Commissioners of Medina County has previously created the Sharon Township Sanitary Sewer District; and

WHEREAS in order to provide for the treatment of the sewage generated in the Sharon District in a cost effective manner, the Board entered into an agreement with the City of Wadsworth which enabled the County to transport this waste to the City of Wadsworth sewerage system for ultimate treatment; and

WHEREAS, Resolution No. 11-1076 also set the current sewer use charge for Sharon Township at $29.50 per month per residential unit for operation and maintenance and $5.50 per month per residential unit for the sanitary sewer debt retirement charge.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Medina County, Ohio that:

1. Under the authority and in compliance with Chapters 6117 and 6103 of he Ohio Revised Code the sewer usage charges for the products and services of the Medina County Sanitary Engineering Department are hereby proposed to be amended in accordance with this resolution.

2. Commencing with the complete billing cycle starting March 1, 2013, each residential and commercial user of the sanitary sewer system in the Medina County Sewer District shall be charged the sanitary sewer use charge of $24.75 per month per residential unit or equivalent residential unit for operation and maintenance, and the sanitary sewer debt retirement charge in the Sewer District shall be $5.50 per month per residential unit or equivalent.

3. Commencing with the billing cycle starting March 1, 2013, each residential and commercial user of the sanitary sewer system in the Sharon Township Sanitary Sewer District shall be charged the sanitary sewer use charge of $30.00 per month per residential unit or equivalent residential unit for operation and maintenance, and the sanitary sewer debt retirement charge in the Sewer District shall be $5.50 per month per residential unit or equivalent residential unit.

4. The aforesaid Resolution is hereby proposed to be amended to the extent of the charges for usage set forth herein. All other aspects of any Resolution including but not limited to tap-in-fees, re-connection charges, benefit charges and regulations are hereby incorporated by reference herein and shall not be modified or amended by this resolution.

5. At the Budget Hearing held on January 7, 2013 at 11:30 a.m. at the Board's Office at 144 N. Broadway, Medina, Ohio the rate being proposed in this resolution was presented and discussed.

6. The Clerk of this Board is hereby directed to file a certified copy of this Resolution with the Auditor of Medina County for recording purposes, pursuant to the Ohio Revised Code.

7. It is found and determined that all formal action of this Board concerning and relating to the adoption of this Resolution were adopted in an open meeting of this Board, and that all deliberations of this Board and any of it's committees that resulted in such formal action, were in meetings open to the public in compliance with the law.

Voting AYE thereon: Mr. Friedrick, Mrs. Geissman, and Mr. Hambley

Adopted: January 28, 2013

Prepared by: Sanitary Engineering Department

The Board of County Commissioners of Medina County, Ohio, met in regular session on this date with the following members present:

Sharon A. Ray Patricia G. Geissman Stephen D. Hambley

Mrs. Geissman offered the following resolution and moved the adoption of same, which was duly seconded by Mr. Hambley.

RESOLUTION NO. 10-1083

RESOLUTION AMENDING THE SEWER SURCHARGE FEES FOR HIGH STRENGTH WASTEWATER TO THE MEDINA COUNTY SEWER DISTRICT

WHEREAS, the Board of County Commissioners have previously established the Medina County Sewer District; and

WHEREAS, any establishment in the Medina County Sewer District that generates sanitary sewage with a strength greater than normal domestic strength loading of 220 mg/l BOD and 220 mg/l SS are currently "Surcharged" at a rate of $0.07 per pound of BOD and $0.07 per pound of SS as established under Resolution No. 79-521; and

WHEREAS, haulers permitted through the Medina County Septage Disposal Program to discharge septage to the Medina County Liverpool Wastewater Treatment Plant are similarly subject to surcharge fees per Resolution No. 02-895 for septage waste with a strength greater than the specified average septage loading of 6,480 mg/l BOD and 12,862 mg/l SS; and

WHEREAS, the Sanitary Engineer has determined on the basis of operational and maintenance cost, that a surcharge for high strength sanitary sewage and septage, based on the Sanitary Engineer's Rules and Regulations and Residential Septage Program, warrants an increase in surcharge rates to $0.16 per pound of BOD and $0.16 per pound of SS; and

WHEREAS, the Sanitary Engineer has proposed that the surcharge rate be increased to $0.16 per pound of BOD and $0.16 per pound of SS effective March 15, 2010.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of the County of Medina, State of Ohio, that:

1 "Surcharge" will be levied against any Medina County Sewer District user whose waste has been determined to be excessive in strength, the rate for which is hereby established $0.16 per pound BOD and $0.16 per pound SS effective March 15, 2010.

2 These Surcharges will be reviewed annually and adjusted if necessary in accordance with good accounting practices.

3 This Resolution supersedes any previous resolutions establishing a surcharge rate for high strength wastewater relative to BOD and suspended solids.

Voting AYE thereon: Ms. Ray, Mrs. Geissman, and Mr. Hambley

Adopted: March 8, 2010

Prepared by: Medina County Sanitary Engineer