

Village of Millersport, Wastewater Department

Building Sewer Connection Guidelines

APPENDIX B

Customers wishing to connect to the village sewer system must submit to the village a drawing of the proposed connection of the building sewer. Copy of the form to be used for this drawing can be obtained from the village office.

Upon approval of this connection by the village, the customer will be required to make application for a sewer tap permit from the village office. A capacity fee, permit fee and inspection fee must be paid to the village prior to installation of the building sewer. Capacity charges are required for every new connection to the water or sewer system including those in a new development and are based on the water meter size. The amounts of these fees are set by village ordinance and can be obtained from the village office. All cost associated with the installation and connection of the building sewer shall be paid by the owner.

The connection of the building sewer into the public sewer shall be made at an existing tap if available. If no existing tap is available, the owner shall at his expense install a tap according to guidelines available from the Wastewater Department.

Six (6)" diameter sewer pipe shall be used for unobstructed flow and blockage and for ease of cleaning at a minimum of (1/8) inch per foot slope. The type of pipe permitted shall be PVC - SDR 35 Sewer Pipe and D-3034 joints.

No storm water connections will be permitted in the sanitary sewer system or connected to the building sewer, (i.e., footer drains, roof drains, or sump pumps)

All sewer applicants shall contact wastewater personnel prior to excavation to make sure they are properly informed on the location of sewer lines and understand all guidelines associated with the connection of the building sewer. The installation of the building sewer cannot begin until all fees are paid and permit has been issued with approval by the village.

The applicant shall notify the Village of Millersport (48) hours in advance when the excavation for the buildings sewer is to begin. The connection shall be made under the supervision of an authorized representative of the Village Wastewater Department. The installation of the building sewer shall be open trench work; no backfill shall be placed until the work has been inspected by the Village representative. Final inspection and approval will be completed by the Village. All excavations for the sewer installation shall be adequately guarded with barricades so as to protect the public from hazard. Streets, sidewalks and other public property disturbed in the course of the building sewer installation shall be restored in a manner satisfactory to the Village.

Use the following addressees and phone numbers to contact the Village Hall or Wastewater Department:

Millersport Village Hall	Office Hours - Monday - Friday (9 am to 5 pm)
P.O. Box 536	Phone Number - (740) 467-2333
2245 Refugee Street	Fax Number - (740) 467-2548
Millersport, OH 43046	e-mail – office@millersportohio.com

Millersport Wastewater Plant	Office Hours - Monday – Friday (hours may vary, call for appointment)
12400 Lancaster Street, NE	Phone Number - (740) 467-2324
Millersport, OH 43046	e-mail address - wastewater@millersportohio.com

RESIDENTIAL BUILDING SEWERS

A residential building sewer is a continuation of the municipal sanitary sewerage system. Its installation demands the same special care and experience as municipal sewerage construction if the line is to be permanent and trouble free. Installation should be entrusted to experienced and competent workmen only.

Pipe trenches should be dug with the same care demanded by competent engineers for main lines and lateral. Trenches should be straight and to the required slope, with width held to a minimum. Care should be taken to excavate no deeper than necessary.

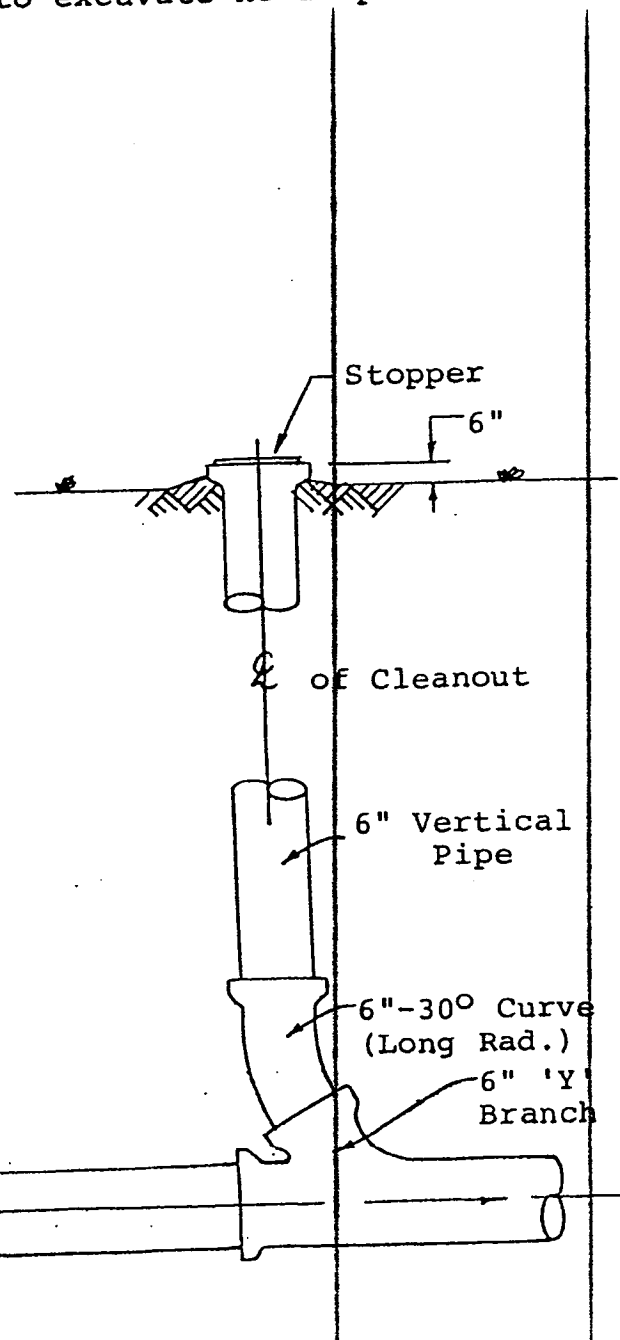
RIGHT PLAN — Straight alignment and proper fitting give maximum strength and tight joints.

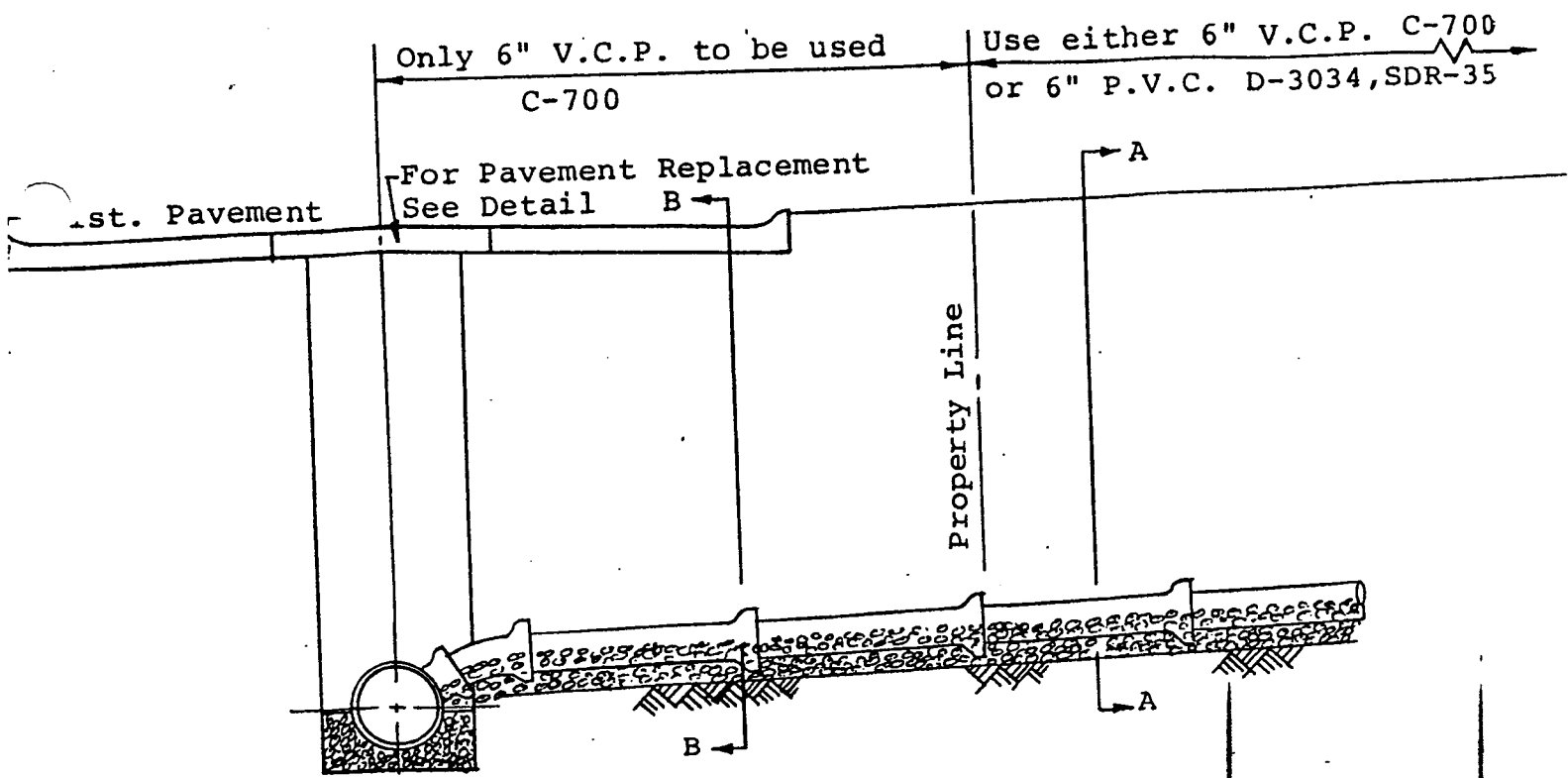
WRONG PLAN — Unnecessary curves and improper fittings impede flow and reduce carrying capacity.

GOOD GRADE — Uniform grade with not less than $\frac{1}{8}$ -inch drop per foot. Barrel of pipe is uniformly supported.

BAD GRADE — Uneven bed, lack of bell holes and rocks in trench may cause shifting of pipe line during backfilling or inadequate support for the line.

NOTE: A sewer cleanout shall be installed wherever the sewer changes direction.



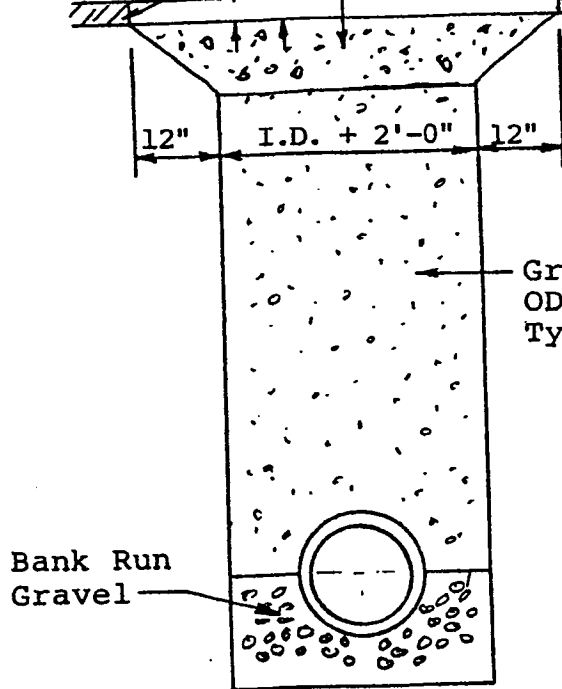


1½" of ODOT 405 on Local Streets

2" of ODOT 405 on Main St.

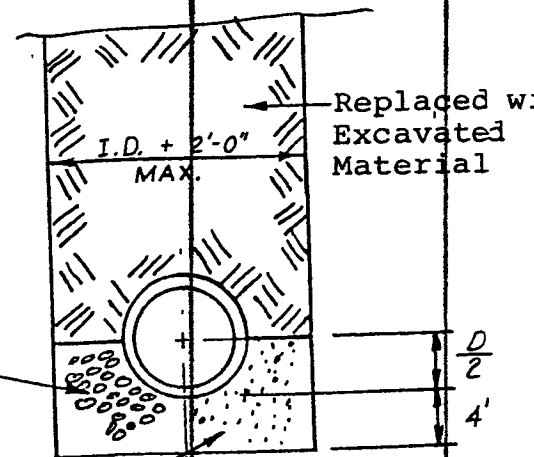
Exist. Pavement

12" of ODOT B-19



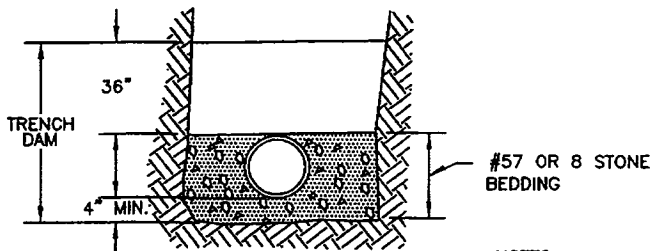
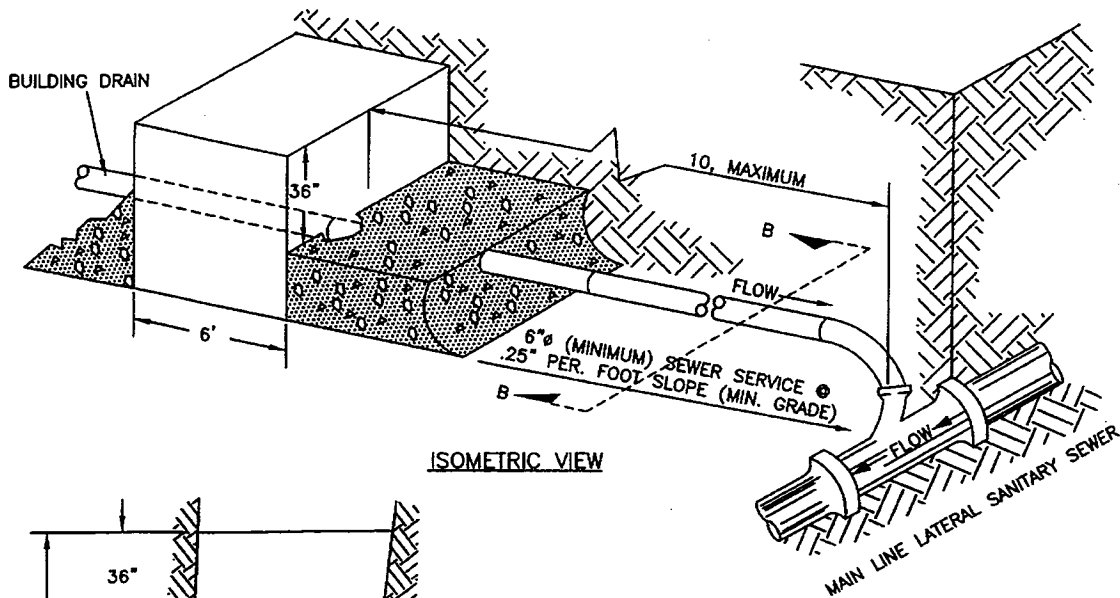
SECTION B-B

Building Connection
in R/W



SECTION A-A

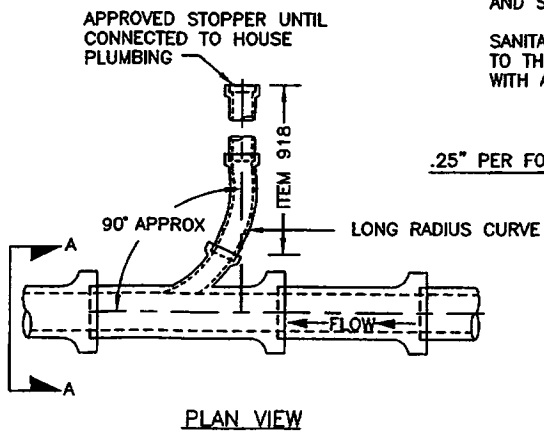
Building Connection
on User's Lot



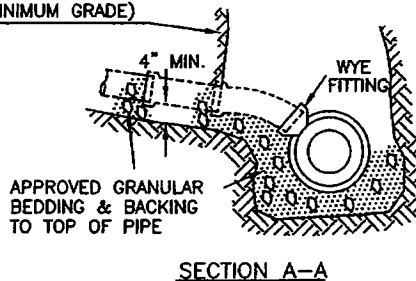
NOTES:

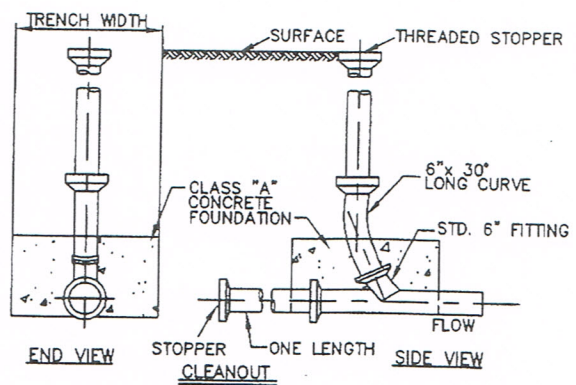
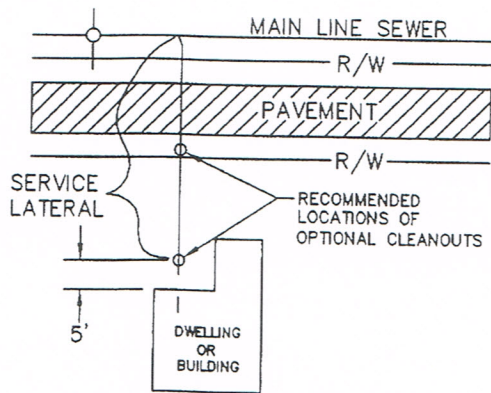
TRENCH DAMS ARE REQUIRED AS SPECIFIED UNDER 918.04 AND SHALL BE CONSTRUCTED TO 36" OVER THE PIPE.

SANITARY HOUSES CONNECTION SERVICES SHALL BE CONNECTED TO THE EXISTING SEWER WITH THE SAME MATERIAL FITTING OR WITH A COMPATIBLE ADAPTOR.

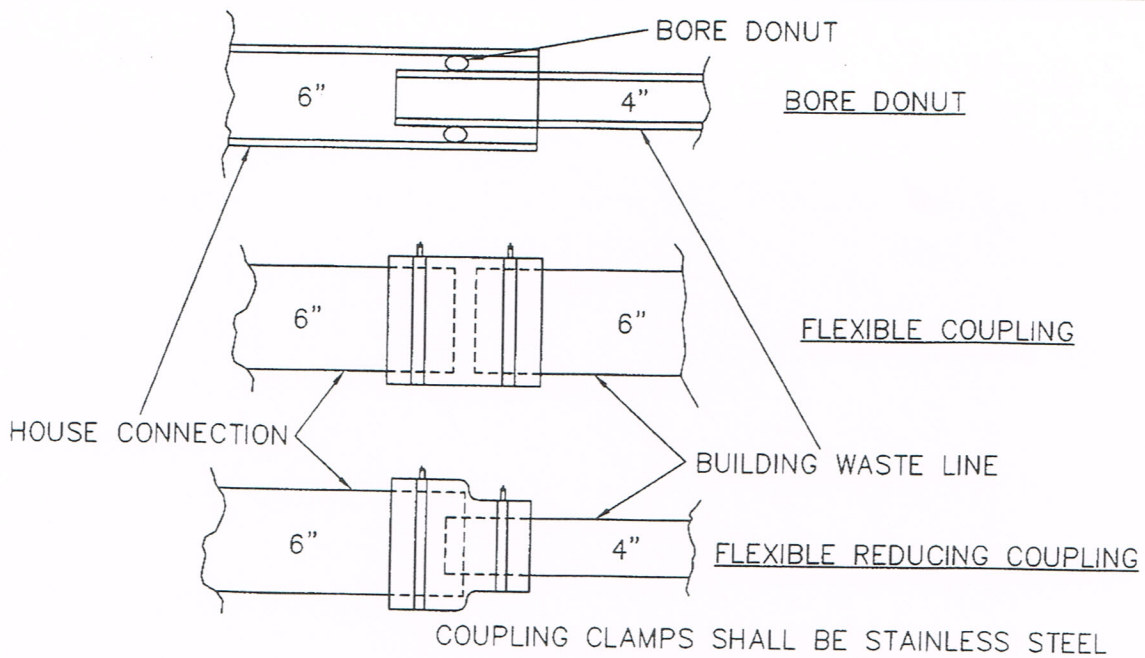


.25" PER FOOT (MINIMUM GRADE)





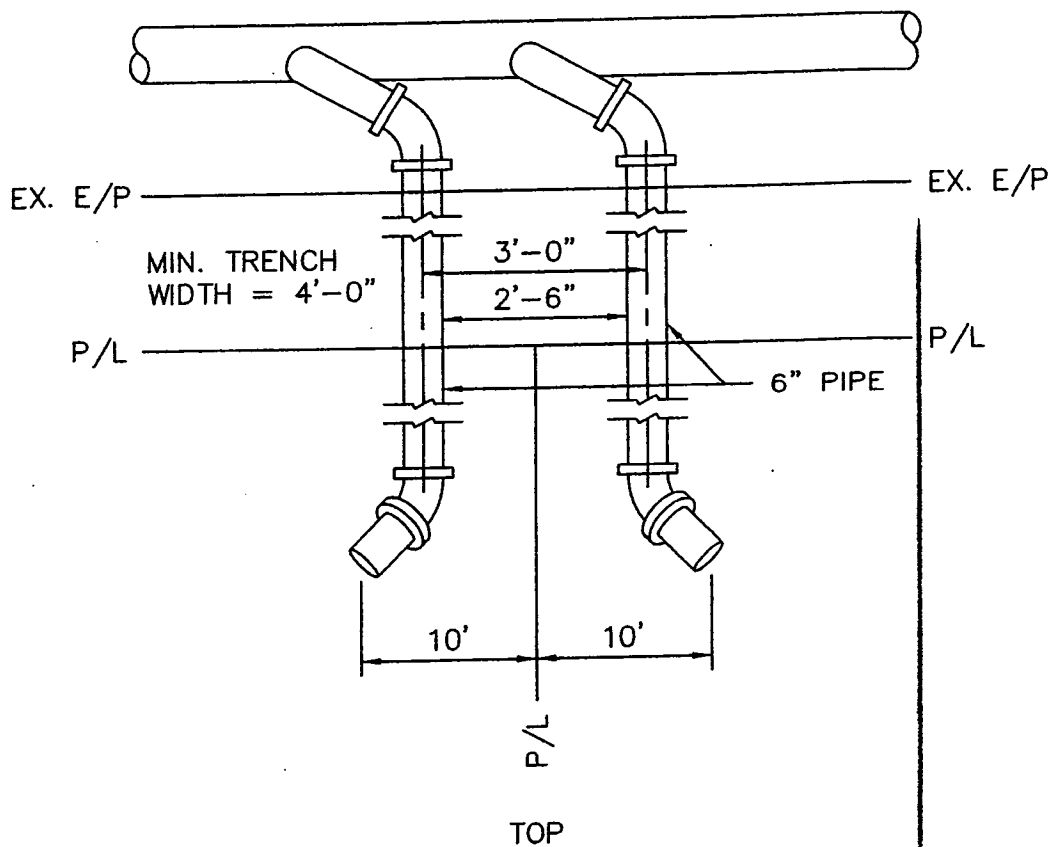
ALLOWABLE CONNECTIONS – SANITARY HOUSE CONNECTION TO BUILDING WASTE LINE



MILLERSPORT OPERATION AND MAINTENANCE MANUAL



TYPICAL SANITARY HOUSE
CONNECTION SERVICE
ON COLLECTION DETAILS



NOTE: SPECIFICATION SECTION NUMBERS REFER TO CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, LATEST EDITION. CONTRACTOR MAY PURCHASE A COPY OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS BOOK AS WELL AS THE CITY OF COLUMBUS STANDARD DRAWINGS AT THE CITY OF COLUMBUS UTILITES COMPLEX, 910 DUBLIN ROAD, COLUMBUS.

VILLAGE OF MILLERSPORT
REQUIREMENTS AND SPECIFICATIONS
FOR THE INSTALLATION OF NEW SANITARY SEWERS AND SERVICES

**VILLAGE OF MILLERSPORT
REQUIREMENTS AND SPECIFICATIONS
FOR THE INSTALLATION OF NEW SANITARY SEWERS AND SERVICE**

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LIST OF APPLICATION FORMS

- 1. Application Form for Sanitary Sewer Hook-Up / Repair
- 2. Application for Contractor Certification
- 3. Sanitary Sewer Hook-Up / Repair Inspection Form

SECTION 8- NEW SANITARY SEWER REQUIREMENTS

8.1 Plans and Support Documents

Submissions to the reviewing authorities shall include sealed plans, design criteria, the appropriate construction permit applications, review forms, and permit fee if required.

8.2 General Requirements

Plan Title

All plans for wastewater facilities shall bear a suitable title showing the name of the municipality, sewer district, or institution. They shall show the scale in feet or metric measure, a graphical scale, the north point, date, and the name and signature of the engineer, with the certificate number and imprint of the professional engineering seal. A space should be provided for signature and/or approval stamp of the appropriate reviewing authorities.

Plan Format

The plans shall be clear and legible. They shall be drawn to scale, which will permit all necessary information to be plainly shown. Generally, the size of the plans should not be larger than 30 inches x 42 inches. Datum used should be indicated. Locations and logs of test borings, when required, shall be shown on the plans.

Plan Contents

Detail plans shall consist of: plan views, elevations, sections, and supplementary views which, together with the specifications and general layouts, provide the working information for the contract and construction of the facilities. They shall also include: dimensions and relative elevations of structures, the location and outline form of equipment, location and size of piping, water levels, and ground elevations.

Design Criteria

Design criteria shall be included with all plans and specifications and a hydraulic profile shall be included for all facilities. For sewer projects, information shall be submitted to verify adequate downstream sewer, pump station and treatment plant capacity.

8.3 Sewer Plan Requirements

A plan of proposed and existing sewers shall be submitted for projects involving new sewer systems and substantial additions to existing systems. This plan shall show the following:

Geographical Features

- a. Topography and elevations- Existing or proposed streets and all streams or water surfaces shall be clearly shown. Contour lines at suitable intervals should be included.
- b. Streams- The direction of flow in all streams, and high and low water elevations of all water surfaces at sewer outlets and overflows shall be shown.
- c. Boundaries- The boundary lines of the municipality of the sewer district, and the area to be sewerred, shall be shown.

Sewers

The plan shall show the location, size and direction of flow of relevant existing and proposed sanitary and combined sewers draining to the treatment facility concerned.

Detail Plans

Detail plans shall be submitted. Profiles should have a horizontal scale of not more than 100 feet to the inch (100:1) and a vertical scale of not more than 10 feet to the inch (10:1). Plan views should be drawn to a corresponding horizontal scale and must be shown on the same sheet. Plans and profiles shall show:

- a. Location of streets and sewers;
- b. Line of ground surface; size, material, and type of pipe; length between manholes; invert and surface elevation at each manhole; and grade of sewer between each two adjacent manholes (all manholes shall be numbered on the profile);
Where there is any question of the sewer being sufficiently deep to serve any residence, the elevation and location of the basement floor shall be plotted on the profile of the sewer which is to serve the house in question. The engineer shall state that all sewers are sufficiently deep to serve adjacent basements except where otherwise noted on the plans;
- c. Locations of all special features such as inverted siphons, concrete encasements, elevated sewers, etc.;
- d. All known existing structures and utilities, both above and below ground, which might interfere with the proposed construction or require isolation setback, particularly water mains and water supply structures (i.e. wells,

clear wells, basins), gas mains, storm drains, and telephone and power conduits; and

- e. Special detail drawings, made to a scale to clearly show the nature of the design, shall be furnished to show the following particulars:

All stream crossings and sewer outlets, with elevations of the stream bed and normal and extreme high and low water levels;

Details of all special sewer joints and cross-sections; and details of all sewer appurtenances such as manholes, lampholes, inspections chambers, inverted siphons, regulators, tide gates, and elevated sewers.

8.4 Specifications

Complete signed and sealed technical specifications shall be submitted for the construction of sewer and shall accompany the plans.

The specifications accompanying construction drawings shall include, but not be limited to, specifications for the approved procedures for operation during construction, all construction information not shown on the drawings which is necessary to inform the builder in detail of the design requirements for the quality of material, workmanship, and fabrication of the project.

The specifications shall also include: the type, size, strength, operating characteristics, and rating of equipment; allowable infiltration; the complete requirements for all mechanical and electrical equipment, including machinery, valves, piping, and jointing of pipe; electrical apparatus, wiring, instrumentation, and meters; construction materials; special filter materials, such as stone, sand, gravel, or slag; miscellaneous appurtenances; chemicals when used; instructions for testing materials and equipment as necessary to meet design standards; and performance tests for the completed facilities and component units. Performance tests shall be conducted at design load conditions wherever practical.

8.5 Revisions to approved plans

Any deviations from approved plans or specifications affecting capacity, flow, operation of units, or point of discharge shall be approved, in writing, before such changes are made. Plans or specifications so revised should, therefore, be submitted well in advance of any construction work, which will be affected by such changes to permit sufficient time for review and approval. Structural revisions or other minor changes not affecting capacities, flows, or operation will be permitted during construction without approval. "As built" plans clearly showing such alterations shall be submitted to the reviewing authority at the completion of the work.

8.6 Design

Approval of Sewers

In general, the appropriate reviewing authority will approve plans for new systems, extensions to new areas, or replacement sanitary sewers only when designed upon the separate basis, in which rain water from roofs, streets, and other areas, and groundwater from foundation drains, are excluded.

Design Capacity and Design Flow

In general, sewer capacities should be designed for the estimated ultimate tributary population, except in considering parts of the systems that can be readily increased in capacity. Similarly, consideration should be given to the maximum anticipated capacity of institutions, industrial parks, etc. Where future relief sewers are planned, economic analysis of alternatives should accompany initial permit applications.

A. Details of Design and Construction

Minimum Size

No public gravity sewer conveying raw wastewater shall be less than 8 inches in diameter. No sanitary service shall be less than 6 inches in diameter.

Depth

In general, sewers should be sufficiently deep to receive wastewater from basements and to prevent freezing. Insulation shall be provided for sewers that cannot be placed at a depth sufficient to prevent freezing.

Buoyancy

Buoyancy of sewers shall be considered and flotation of the pipe shall be prevented with appropriate construction where high groundwater conditions are anticipated.

B. Slope

Recommended Minimum Slopes

All sewers shall be designed and constructed to give mean velocities, when flowing full, of not less than 2.0 feet per second based on Manning's formula using an "n" value of 0.013. The following are the recommended minimum slopes, which should be provided; however, slopes greater than these are desirable.

Nominal Sewer Size	Minimum Slope in Feet Per 100 Feet
6 inch	1.04
8 inch	0.40
10 inch	0.28
12 inch	0.22
14 inch	0.17
15 inch	0.15
16 inch	0.14
18 inch	0.12

Minimize Solids Deposition

The pipe diameter and slope shall be selected to obtain the greatest practical velocities to minimize settling problems. Oversize sewers will not be approved to justify using flatter slopes. If the proposed slope is less than the minimum slope of the smallest pipe which can accommodate the design peak hourly flow, the actual depths and velocities at minimum, average, and design maximum day and peak hourly flow for each design section of the sewer shall be calculated by the design engineer and be included with the plans.

Slope Between Manholes

Sewers shall be laid with uniform slope between manholes.

High Velocity Protection

Where velocities greater than 15 feet per second are attained, special provision shall be made to protect against displacement by erosion and impact.

Alignment

In general, sewers 24 inches or less shall be laid with straight alignment between manholes. Straight alignment shall be checked by either using a laser beam or lamping.

Changes in Pipe Size

When a smaller sewer joins a large one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 0.8 depth point of both sewers at the same elevation.

C. Materials

The type of pipe permitted for trunk sewers (8 inches or larger) and service laterals (6 inches) shall be Polyvinyl Chloride (PVC), non-pressure sewer pipe SDR-35 complying with ASTM D-3034 with bell-and-spigot joints complying with ASTM D-2321.

Suitable couplings complying with ASTM specifications shall be used for joining dissimilar materials. The leakage limitations on these joints shall be in accordance with the paragraphs in this section pertaining to the hydrostatic test and air test.

All sewers shall be designed to prevent damage from superimposed live, dead, and frost induced loads. Proper allowance for loads on the sewer shall be made because of soil and potential groundwater conditions, as well as the width and depth of trench. Where necessary, special bedding, haunching and initial backfill, concrete cradle, or other special construction shall be used to withstand anticipated potential superimposed loading or loss of trench wall stability. See ASTM D 2321 or ASTM C 12 when appropriate.

For new pipe materials for which ASTM standards have not been established, the design engineer shall provide complete pipe specifications and installation specifications developed on the basis of criteria adequately documented and certified in writing by the pipe manufacturer to be satisfactory for the specific detailed plans.

D. Installation

Standards

Installation specifications shall contain appropriate requirements based on the criteria, standards, and requirements established by industry in its technical publications. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfilling thereof so as not to damage the pipe or its joints, impede cleaning operations and future tapping, nor create excessive side fill pressures and ovalation of the pipe, nor seriously impair flow capacity.

Trenching

- a. The width of the trench shall be ample to allow the pipe to be laid and jointed properly and to allow the bedding and haunching to be placed and compacted to adequately support the pipe. The trench sides shall be kept as nearly vertical as possible. When wider trenches are specified, appropriate bedding class and pipe strength shall be used.

In unsupported, unstable soil the size and stiffness of the pipe, stiffness of the embedment and insitu soil and depth of cover shall be considered in determining the minimum trench width necessary to adequately support the pipe.

- b. Ledge rock, boulders, and large stones shall be removed to provide a minimum clearance of 4 inches below and on each side of all pipe(s).

Bedding, Haunching, and Initial Backfill

- a. Bedding Classes A, B, C, or crushed stone as described in ASTM C 12 shall be used and carefully compacted for all rigid pipe provided the proper strength pipe is used with the specified bedding to support the anticipated load, based on the type soil encountered and potential ground water conditions.
- b. Embedment materials for bedding, haunching and initial backfill, Classes I, II, or III, as described in ASTM D 2321, shall be used and carefully compacted for all flexible pipe provided the proper strength pipe is used with the specified bedding to support the anticipated load, based on the type soil encountered and potential groundwater conditions.
- c. All water entering the excavations or other parts of the work shall be removed until all the work has been completed. No sanitary sewer shall be used for the disposal of trench water, unless specifically approved by the engineer, and then only if the trench water does not ultimately arrive at existing pumping or wastewater treatment facilities.

Final Backfill

- a. Final backfill shall be of a suitable material removed from excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter, or other unstable materials shall not be used for final backfill within 2 feet of the top of the pipe.
- b. Final backfill shall be placed in such a manner as not to disturb the alignment of the pipe.

Deflection Test

- a. Deflection tests shall be performed on all flexible pipe. The test shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system.
- b. No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent, replacement or correction shall be accomplished in accordance with requirements in the approved specifications.
- c. The rigid ball or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM

Specification, including the appendix, to which the pipe is manufactured. The test shall be performed without mechanical pulling devices.

E. Joints and Infiltration

Joints

The installation of joints and the materials used shall be included in the specifications. Sewer joints shall be designed to minimize infiltration and to prevent the entrance of roots throughout the life of the system.

Service Connections

Service connections to the sewer main shall be watertight and not protrude into the sewer. If a saddle type connection is used, it shall be a device designed to join with the types of pipe, which are to be connected. All materials used to make service connections shall be compatible with each other and with the pipe materials to be joined and shall be corrosion proof.

Leakage Tests

Leakage tests shall be specified. This may include appropriate water or low pressure air testing. The testing methods selected should take into consideration the range in groundwater elevations during the test and anticipated during the design life of the sewer.

Water (Hydrostatic) Test

The leakage exfiltration or infiltration shall not exceed 200 gallons per inch of pipe diameter per mile per day for any section for the system. An exfiltration or infiltration test shall be performed with a minimum positive head of 2 feet. When curved flow channels are specified in manholes, including branch inlets, minimum slopes indicated in Part B of this Section should be increased to maintain acceptable velocities.

Air test

The air test shall, as a minimum, conform to the test procedure described in ASTM C 924 for concrete pipe, ASTM F-1417 for plastic pipe, and for other materials test procedures approved by the Village.

F. Manholes

Location

Manholes shall be installed: at the end of each line; at all changes in grade, size, or alignment; at all intersections; and at distances not greater than 400 feet for sewers 15 inches or less, and 500 feet for sewers 18 inches to 30 inches, except that distances up to 600 feet may be approved in cases where adequate modern cleaning equipment for such spacing is provided. Greater spacing may be permitted in larger sewers. Cleanouts may be used only for special conditions and shall not be substituted for manholes nor installed at the end of laterals greater than 150 feet in length.

Drop Type

A drop pipe shall be provided for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert shall be filleted to prevent solids deposition.

Drop manholes should be constructed with an outside drop connection. Inside drop connections (when necessary) shall be secured to the interior wall of the manhole and provide access for cleaning.

Due to the unequal earth pressures that would result from the backfilling operation in the vicinity of the manhole, the entire outside drop connection shall be encased in concrete.

Diameter

The minimum diameter of manholes shall be 48 inches; larger diameters are preferable for large diameter sewers. A minimum access diameter of 22 inches shall be provided.

Flow Channel

The flow channel straight through a manhole should be made to conform as closely as possible in shape, and slope to that of the connecting sewers. The channel walls should be formed or shaped to the full height of the crown of the outlet sewer in such a manner to not obstruct maintenance, inspection or flow in the sewers.

Bench

A bench shall be provided on each side of any manhole channel when the pipe diameter (s) are less than the manhole diameter. The bench should be sloped no less than ½ inch per foot (4 percent). No lateral sewer, service connection, or drop manhole pipe shall discharge onto the surface of the bench.

Watertightness

Manholes shall be of the pre-cast concrete or poured-in-place concrete type. Manhole lift holes and grade adjustment rings shall be sealed with non-shrinking mortar or other material approved by the regulatory agency.

Inlet and outlet pipes shall be joined to the manhole with a gasketed flexible watertight connection or any watertight connection arrangement that allows differential settlement of the pipe and manhole wall to take place.

Watertight manhole covers are to be used wherever the manhole tops may be flooded by street runoff or high water. Locked manhole covers may be desirable in isolated easement locations or where vandalism may be a problem.

Inspection and Testing

The specifications shall include a requirement for inspection and testing for watertightness or damage prior to placing into service. Air testing, if specified for concrete sewer manhole, shall conform to the test procedures described in ASTM C-1244.

Corrosion Protection for Manholes

Where corrosive conditions due to septicity or other causes is anticipated, consideration shall be given to providing corrosion protection on the interior of the manholes.

**VILLAGE OF MILLERSPORT
APPLICATION FORM FOR SANITARY SEWER HOOK-UP / REPAIR**

Name: _____

Address: _____

Phone Number: _____

Proposed Contractor: _____

Address: _____

Phone Number: _____

Sketch of Property: Please sketch all sanitary lines, old service lines, new service lines, existing septic tanks, the direction of flow, and locations of the house, driveway, and garage.

I understand that no work is to be performed without first receiving written permission from the Village of Millersport. I also understand that the Village of Millersport reserves the right to reject any contractor submitted for approval. After receiving written permission and contractor approval, I shall notify the Village of Millersport at least one (1) day prior to beginning any work. I understand that under no conditions shall the installation be backfilled without being inspected by a representative from the Village of Millersport. I also understand that I am responsible for contacting the Fairfield County Health Department at 740-653-4489 before abandoning my septic tank.

Property Owner's Signature: _____

Date: _____

**VILLAGE OF MILLERSPORT
CONTRACTOR'S CERTIFICATION**

Property Owner: _____

Address: _____

The property at the address listed above has been thoroughly inspected to verify that no sources of clean water inflow are entering the sanitary sewer from the property. The clean water sources inspected for include, but are not limited to: sump pumps, downspout drains, cisterns, or any other drains or possible sources located on the property.

Contractor Name: _____

Contractor Representative: _____

Representative's Signature: _____

Date: _____

Property Owner's Signature: _____

Date: _____

**VILLAGE OF MILLERSPORT
SANITARY SEWER HOOK-UP / REPAIR INSPECTION FORM**

Property Owner: _____

Address: _____

Inspector Sketch: Please sketch all sanitary lines, old service lines, new service lines, existing septic tanks, the direction of flow, and locations of the house, driveway, and garage.

Inspector Recommendations:

- APPROVED
- CORRECT EXISTING PROBLEMS AS DESCRIBED BELOW
- REJECTED

Comments:

Inspector's Signature: _____

Date: _____