Village Of Germantown

Design Criteria

Price $25.00

Adopted April 1, 1999, REVISED JANUARY 2005

MUNICIPALITY OF GERMANTOWN
DESIGN CRITERIA
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SECTION 1101.00 GENERAL PROVISIONS

1101.01 Title

The provisions of this chapter shall be known as the Subdivision Regulations of the Municipality of Germantown and shall be referred to hereinafter as these Regulations.

1101.02 Intent

These Regulations are adopted to secure and provide for the following:

A. Proper arrangement of streets or highways in relation to existing or planned streets or highways or to the Joint Economic Development Plan.

B. Adequate and convenient open spaces for vehicular and pedestrian traffic, utilities, access of fire-fighting apparatus and recreation.

C. Establishment of standards for the construction of any and all improvements as herein required.

D. Conformance with the existing Zoning Code.

E. Orderly and efficient layout and the appropriate use of the land.

F. Accurate surveying of land, preparing and recording of plats and the equitable handling of all subdivision plats by providing uniform procedures and standards for observance by both the approving authority and subdividers.

G. Protection against floodplain encroachment and possible future flood damage.

H. Protection of the public health, safety and general welfare of the citizens.

I. Guidance for public and private policy and action in order to provide adequate and efficient transportation, water, sewerage and other public requirements and facilities.

1101.03 Planning Commission

Rules and Procedures – Article VII of the Charter of the Municipality of Germantown provides for the establishment, powers, and membership of the Planning Commission. Specific authorities and procedures are set forth by Council, recorded in Municipal ordinances, resolutions, and rules. The Planning Commission has adopted rules and procedures prescribing the order to use in conducting its business. The authority for this document is derived from adopted ordinances. It is directed upon the officers and members of the Planning Commission, all officers and employees of the Municipality of Germantown, and all persons appearing before the Planning Commission.

1101.04 Administration

The Planning Commission shall be responsible for the uniform administration of these Regulations, and shall make recommendations to Council when amendments to these Regulations would further the intent and objective of these Regulations.

1101.05 Relation to Other Laws

The provisions of these Regulations shall supplement any and all laws of the State of Ohio, ordinances of the Municipality of Germantown, Municipality of Germantown Design Criteria and Construction Standards and Drawings, or any and all rules and Regulations promulgated by authority of such law or ordinance relating to the intent and scope of these Regulations. Whenever the requirements of these Regulations are at variance with the requirements of any law, ordinance, regulations of the Board of Health or Ohio Environmental Protection Agency (OEPA), the most restrictive or that imposing the higher standards shall govern.

1101.06 Interpretation and Separability

A. Interpretation - In their interpretation and application, provisions of these Regulations shall be held to be the minimum requirements for the promotion of the public health, safety and general welfare.

B. Separability - If any part or provision of these Regulations or the application thereof to any person or circumstance is judged invalid by any court of competent jurisdiction, such judgment shall be confined in its operation to the part, provision or application directly involved in all controversy in which such judgment shall have been rendered and shall not affect or impair the validity of the remainder of these Regulations or the application thereof to other persons or circumstances. The Council hereby declares that it would have enacted the remainder of these Regulations even without any such part; provision or application.

1101.07 Amendment

Before the amendment of these Regulations, a public hearing shall be held by the legislative authority of Germantown. There shall be a notice in a newspaper or general circulation in Germantown, Ohio, 30 days before such hearing. The amendments shall be on file in the office of the Planning Commission for public examination during said 30 days.

1102.00
Definitions

Alley
Block
Building Line
Community Facilities
Construction Drawings
Corner Lot
Cul-de-sac
Dead-end Street
Dedication
Developer
Development
Easement
Engineer
Final Plat
Improvements
Inspect, Inspection
Joint Economic Development Plan
Lot
Lot Area
Maintenance Surety
Minor Subdivision
Monuments
Municipal Manager
Original Parcel
Parcel
Pedestrian Walkway
Performance Surety
Planning Commission
Plat
Protective Covenant
Public Reservation
Public Utility
Replats/Vacation Plats
Right-of-Way
Setback Line
Sketch Plan
Street
Subdivider
Subdivision
Surveyor
Thoroughfare, Street, or Road
Variance
Vicinity Map
Zoning Code

SECTION 1102.00 DEFINITIONS

For the intent of these Regulations, certain terms or words used herein shall be interpreted as follows:

A. The word "person" includes a firm, association, organization, partnership, trust, company, or corporation as well as an individual.

B. The present tense includes the future tense, the singular number includes the plural, and the plural number includes the singular.

C. The word "shall" is a mandatory requirement, the word "may" is a permissive requirement, and the word "should" is a preferred requirement.

D. The words "used" or "occupied" include the words "intended, designed, or arranged to be used or occupied".

E. The word "lot" includes the words "plot" or "parcel".

F. Regardless of capitalization, definitions are standard.

ALLEY (See Thoroughfare)

BLOCK
A unit of property entirely surrounded by public highways and streets, railroad rights-of-way, waterways, or other barriers, or combination thereof.

BUILDING LINE (See Setback Line)

COMMUNITY FACILITIES
Existing, planned and proposed parks, playgrounds, public schools, other public lands and buildings of the Municipality for which the Regulations are in effect.

CONSTRUCTION DRAWINGS
A complete set of engineering drawings drawn to scale containing, but not limited to, grading plans, street plans and profiles, cross sections, sanitary sewer plans and profiles, water main plans and profiles, storm sewer plans and profiles, a complete topographical layout of all existing appurtenances and structures located within the right-of-way, and any other requirement as outlined in the Municipality of Germantown Design Criteria and Construction Standards and Drawings.

CORNER LOT (See Lot)

CUL-DE-SAC (See Thoroughfare)

DEAD-END STREET (See Thoroughfare)

DEDICATION
The acceptance of land to the Municipality of Germantown by its owner for any public use.

DEVELOPER
Any person, subdivider, partnership, or corporation or duly authorized agent who constructs or contracts to construct improvements on subdivided land.

DEVELOPMENT (See Subdivision)

EASEMENT
Authorization by a property owner for the use by another, and for a specified purpose, of any designated part of his/her property.

ENGINEER
Any person registered to practice professional engineering by the State Board of Registration as specified in the Ohio Revised Code.

FINAL PLAT (See Plat)

IMPROVEMENTS
Street pavement or resurfacing, curbs, gutters, sidewalks, pedestrian walkway, water lines, sanitary and storm sewers, landscaping and other related matters normally associated with the development of land into building sites.

INSPECT, INSPECTION
The visual observation of construction to permit the Municipality or their representative to render his or her professional opinion as to whether the contractor is performing the services in a manner indicating that, when completed, the services will be in accordance with the Municipality of Germantown Subdivision Regulations, Construction Standards and Drawings, and Design Criteria. Such observations shall not be relied upon in any part as acceptance of the services, nor shall they relieve any party from fulfillment of customary and contractual responsibilities and obligations.

JOINT ECONOMIC DEVELOPMENT PLAN
A plan, which may consist of several maps, data, policies, and other descriptive matter, for the physical development of the Municipality which has been adopted by the Municipality to indicate the general location for proposed physical facilities including housing, industrial and business uses, major streets, parks, schools, public sites, and other similar information.

LOT
A piece or parcel of land occupied or intended to be occupied by a principal building or a group of such buildings and its accessory buildings and uses, and having frontage on an improved public or private street.

A. Corner – A lot located at the intersection of two (2) or more streets.

B. Through Frontage – A lot other than a corner lot with frontage on more than one (1) street. Through lots abutting two (2) streets may be referred to as double frontage lots.

C. Interior – A lot with only one (1) frontage on a street.

LOT AREA
The computed area contained within the lot lines.

MAINTENANCE SURETY
A surety by a subdivider or developer with the Municipality for the amount of ten percent (10%) of the performance surety guaranteeing the maintenance of the physical improvements according to the plans and specifications within the time prescribed.

MINOR SUBDIVISION (See Subdivision)

MONUMENTS
Permanent concrete or iron markers used to establish definitely all lines of the plat of a subdivision, including all lot corners, boundary line corners, and points of change in street alignment shall comply with the State of Ohio Minimum Standards for Boundary Surveys.

MUNICIPAL MANAGER
A person appointed by Council pursuant to Charter Chapter 132, to handle the administration of the Municipality. The Municipal Manager may appoint an authorized representative to administer these Regulations.

ORIGINAL PARCEL
The parcel of land shown as a unit or as contiguous units on the last preceding tax roll.

PARCEL
A piece of land that cannot be designated by lot number.

PEDESTRIAN WALKWAY
A right-of-way dedicated for the purpose of a pedestrian access through residential, commercial, and industrial areas, and located so as to connect to two or more streets, or a street and a public land parcel.

PERFORMANCE SURETY
An agreement by a subdivider or developer with the Municipality of Germantown for the amount of the estimated construction cost guaranteeing the completion of physical improvements according to the plans and specifications within the time prescribed.

PLANNING COMMISSION
The Municipality of Germantown Planning Commission.

PLAT
A map of a tract or parcel of land, made from a survey by a registered surveyor in the State of Ohio.

A. Preliminary Plat - A plat showing all requisite details of a proposed subdivision submitted to the Planning Commission for purpose of preliminary consideration, prepared in conformance with these Regulations.

B. Final Plat – A plat of all or part of a subdivision providing substantial conformance to the Preliminary Plat of the subdivision prepared in conformance with these Regulations and suitable for recording by the County Recorder.

PROTECTIVE COVENANT
A restriction on the use of all private property within a subdivision, to be set forth on the plat and/or incorporated in each deed, for the benefit of the property owners, and to provide mutual protection against undesirable aspects of development which would tend to impair stability of values.

PUBLIC RESERVATION
A portion of a subdivision which is set aside for public use and made available for public use or acquisition.

PUBLIC UTILITY
A firm, association, syndicate, corporation, co-partnership, municipal authority or public agency, board or commission, duly authorized to furnish, and furnishing under governmental regulations, to the public: facilities, products or services such as gas, electricity, sewage disposal, communication, telephone, transportation, water, etc.

REPLATS/VACATION PLATS
Alteration, modification or adjustment of existing lots, lot lines, property lines or right-of-way lines and/or vacation thereof within the Municipality of Germantown shall be submitted to the Planning Commission for a recommendation thereon. Council, after review of such recommendation, shall approve or disapprove such request.

RIGHT-OF-WAY
Land reserved, used, or to be used for a street, alley, walkway, or other public purpose.

SETBACK LINE
A line established by the Zoning Code, generally parallel with and measured from the lot line, defining the limits of a yard in which no portion of any principal structure other than an accessory building may be located, except as may be provided in said Zoning Code.

SKETCH PLAN
An informal plan or sketch showing the existing features of a site and its surroundings and the general layout of a proposed subdivision which can be presented to the Planning Commission for informal discussions.

STREET (See Thoroughfare)

SUBDIVIDER (See Developer)

SUBDIVISION
The division of any parcel of land shown as a unit or as contiguous units on the last preceding tax roll, into two or more parcels, sites, or lots, any one of which is less than 5 acres, for the purpose, whether immediate or future, of transfer of ownership, provided however, that (1) the division or partition of land into parcels of more than 5 acres not involving any new streets or easements of access shall be exempted, and (2) the sale or exchange of parcels between adjoining lot owners where such sale or exchange does not create additional building sites, shall be exempted, or the improvement of one or more parcels of land for residential, commercial, or industrial structures or groups of structures involving the division or allocation of land for the opening, widening, or extension of any street or streets, except private streets serving industrial structures; the division or allocation of land as open spaces for common use by owners, occupants or lease holders, or as easements for the extension and maintenance of public sewer, water, storm drainage, or other public facilities.

A. Major Subdivision – Division of a lot or parcel of land into more than 5 lots or parcels, and/or the creation or establishment of new streets or roadways by the division of a lot or parcel of land.

B. Minor Subdivision – Division of a lot or parcel of land along an existing public thoroughfare into not more than 5 lots or parcels not establishing a new street or roadway.

SURVEYOR
Any person registered to practice surveying by the State Board of Registration as specified in the Ohio Revised Code.

THOROUGHFARE, STREET, OR ROAD
The full width between property lines bounding every public way of whatever nature, with a part thereof to be used for vehicular traffic and designated as follows:

A. Alley – A right-of-way used primarily for vehicular service access to the back or side of properties abutting on another street.

B. Arterial Street – A general term denoting a highway primarily for through traffic, carrying heavy loads and large volume of traffic.

C. Collector Street – A thoroughfare, whether within a residential, industrial, commercial, or other type of development, which primarily carries traffic from local streets to arterial streets or to other collector streets, including the principal entrance and circulation routes within residential subdivisions.

D. Cul-de-sac – A local street with one end open to traffic and the other end terminating in a vehicular turnaround.

E. Dead-end Street – A street temporarily having only one outlet for vehicular traffic and intended to be extended or continued in the future.

F. Local Street – A street primarily for providing access to residential, commercial, or other abutting property.

G. Loop Street – A type of local street, each end of which terminates at an intersection with same arterial or collector street, and whose principal radius points of the 180° system of turns are not more than 1000 feet from said arterial or collector street, nor normally more than 600 feet from each other.

VARIANCE
A variance is a modification of the strict terms of the relevant Regulations where such modification will not be contrary to the public interest and where owing to conditions peculiar to the property, and not the result of the action of the applicant, a literal enforcement of the Regulations would result in unnecessary and undue hardship.

VICINITY MAP
A drawing located on the plat which sets forth by dimensions or other means, the relationship of the proposed subdivision or use to other nearby development or landmarks and community facilities and services within Municipality of Germantown in order to better locate and orient the area in question.

ZONING CODE
The Zoning Ordinance for the Municipality of Germantown which regulates the use of land by districts or zones and as the same may be amended or supplemented.

1103.00
Minor Subdivision

SECTION 1103.00 MINOR SUBDIVISION

1103.01 Minor Subdivision Conditions

Subdivision proposals may, at the discretion of the Municipal Manager, be processed as a "minor subdivision" when all the following conditions exist:

A. The proposed subdivision is located along an existing improved public road to the current Municipal standards and involves no opening, widening, or extension of any street or road.

B. No more than 5 lots are involved after the original parcel has been subdivided.

C. The proposed subdivision is not contrary to applicable Subdivision Regulations, Design Criteria, Construction Standards and Drawings or Zoning Code.

D. Plat and description of the property is based on a survey completed by a professional surveyor.

E. The physical characteristics of the property are suitable for building sites.

1103.02 Submission for Approval of a Minor Subdivision

The subdivider shall prepare and submit three copies of the minor subdivision plat to the Municipal Manager. The minor subdivision plat shall be considered officially filed on the day it is received and properly noted and shall be so dated. However, the minor subdivision plat shall not be considered properly submitted until all applicable fees are paid (see Section 1114.04 Schedule of Fees) and all plats are provided to the Municipal Manager.

Prior to receiving consideration for a Minor Subdivision, a Minor Subdivision Plat shall consist of a survey plat drawn by a registered professional surveyor and it shall be in compliance with Montgomery County platting regulations.

1103.03 Minor Subdivision Plat Contents

The minor subdivision plat shall contain the following information:

A. Registration number, seal, and signature of the land surveyor responsible for the plat.

B. Name of the subdivider.

C. Location by section, range, township, or by subdivision name and lot number.

D. Date, north arrow, scale, and acreage to thousandths of acre.

E. Abutting streets.

F. Existing buildings, septic facilities, and wells, if applicable.

G. The Minor Subdivision Plat shall be clearly and legibly drawn. A plat shall indicate the size of the parcel, existing and proposed rights-of-way within 100 feet, existing and proposed ownership, any existing parcel within 100 feet and its owner and size, a north arrow, and the professional surveyor's signature and seal.

H. 100-year floodplain elevations and delineations.

I. Approval signature and date line for Municipal Manager and County Engineer.

J. Location of monuments and their descriptions.

K. The survey shall conform to the minimum standards for boundary surveys in the State of Ohio (ORC 4733-37).

1103.04 Supplementary Information

Any of the following information may be required by the Municipal Manager on the basis of the characteristics of the subject property.

A. Lot grading and drainage plan, illustrating a plan for the handling of surface and subsurface drainage, showing proposed finished grade elevations, the type, size, location and outlet of all existing and proposed drainage systems, swales, easements, water and sanitary sewer services, and the proposed ground cover.

B. Spot elevations.

C. Other information as deemed necessary by the Municipal Manager in order to create building sites and promote the public health, safety and welfare.

1103.05 Approval of a Minor Subdivision

The Municipal Manager shall approve or disapprove the minor subdivision within 15 days after it has been officially and properly submitted. If approval is granted under these conditions it shall be signed and dated as approved.

If the proposed minor subdivision is disapproved, the subdivider shall be notified in writing stating the grounds for disapproval.

1105.00
Preliminary Plat (Major Subdivision)

SECTION 1105.00 PRELIMINARY PLAT (Major Subdivision)

1105.01 Intent

The purpose of the preliminary plat is to show on a map for a major subdivision all the facts which may enable the Planning Commission to determine whether the proposed layout of land including street layout, utilities, and storm water controls is satisfactory from the standpoint of the public interest. The plat shall be prepared by a registered surveyor of the State. Approval of the preliminary plat, in effect, provides a "concept approval" of the subdivision proposal.

1105.02 Submission for Preliminary Plat Approval

The subdivider shall prepare and submit seven (7) copies of the preliminary plat of the proposed subdivision and the construction plans along with a completed preliminary plat checklist with remarks to the Planning Commission.

A. The preliminary plat shall be considered officially filed on the day it is received and properly noted and shall be so dated.

B. The preliminary plat shall not be considered properly submitted until all applicable fees are paid by the developer (see Section 1114.04 Schedule of Fees).

C. All plats and plans are provided to the Municipal Manager.

D. The subdivider shall provide a copy of the preliminary plat to the local utility companies.

1105.03 Preliminary Plat Form

The preliminary plat shall be clearly and legibly drawn. The size of the plat shall not be less than 24" x 36". If the preliminary plat is to be drawn in sections, each section shall be accompanied by a key map, showing the location of the sections. The plat of a subdivision containing 5 acres or less shall be drawn to a scale of 1" = 50'. All other subdivisions shall be drawn to a scale of 1" = 100'.

1105.04 Preliminary Plat Contents

The preliminary plat shall clearly show the following features and information:

A. Items of title

1. Proposed name of subdivision. The name of the subdivision and proposed streets shall not duplicate, or too closely approximate, the name of any other subdivision or street, subject to Planning Commission approval.
2. Location by numerically labeled inlot or outlot.

3. Name and address of property owner/developer.
4. Scale of the plat.
5. North arrow.
6. Name and address of the professional surveyor who prepared the plat, as well as the stamp and signature of the surveyor certifying the accuracy of the plat.
7. Date of preparation.
8. Location by section, town, range, or by other legal description.
9. Signature and date line for the Planning Commission Chairman.
10. Stamp and signature of the Professional Surveyor.

B. Existing site conditions/characteristics

1. Perimeter boundaries of the proposed subdivision indicated by a heavy solid line, and the approximate acreage comprised therein.
2. Location, widths and names of all existing or platted streets, indicated as to: dedicated, undedicated, constructed or unimproved, official thoroughfares or other public ways, railroad and utility rights-of-way, easements, parks and other open spaces, permanent buildings, section and corporation lines within or adjacent to the subject tract.
3. Location and size of all existing utilities: sewers, water mains, telephone, electric, gas, culverts or other underground items located within or adjacent to the subject tract.
4. Names of adjacent subdivisions and owners of adjoining parcels.
5. Topographic map of such proposed subdivision shall be submitted with the preliminary plat, showing 1-foot contour intervals for all land within and 50 feet adjacent to the subject site.
6. Current zoning classification of the tract and adjoining properties.
7. The vicinity map shown on the preliminary plat.

C. Proposed site conditions/characteristics

1. Street layout, including street names and widths, alleys, cross-walkways and easements and their dimensions.
2. Layout, numbers and approximate dimensions of lots, including lot area (as measured in acres or square feet).
3. Parcels of land intended to be dedicated or temporarily reserved for public use, and the conditions of such dedication or reservation.
4. Setback lines, along all streets, with dimensions.
5. Indication of the proposed zoning designation to identify the potential development so as to reveal the nature of the impact the proposal will have on traffic flow, fire hazard, congestion, public utility capacities and required services.
6. A typewritten copy of the protective covenants or deed restrictions, if any.
7. Indication of any developmental phasing or staged development timing.

D. Construction Plans

The proposed preliminary subdivision plat shall be accompanied by preliminary construction plans consisting of:

1. A centerline profile for each street shown thereon, drawn to a scale of at least 1" = 100'.
2. A preliminary layout, drawn to a scale of at least 1" = 100', including proposed placement of water lines, sanitary sewers and storm sewers. These may be incorporated in the above preliminary plat.
3. A preliminary drainage plan including proposed storm detention location. This may be incorporated in the above preliminary plat.
4. All plans must be certified by a registered professional engineer.

1105.05 Approval of Preliminary Plat

The Municipal Manager shall determine when the submittal of the preliminary plat is complete as required by these Regulations. When completed, the Municipal Manager shall schedule a Planning Commission meeting.

The Planning Commission shall review all details of the proposed subdivision within the framework of the applicable Zoning Code, the various elements of these Regulations, the Design Criteria, the Construction Standards and Drawings, and the various elements of the Joint Economic Development Plan.

The Planning Commission shall give careful study to the preliminary plat, taking into consideration the requirements of the community and the best possible use of the land to be subdivided, together with its prospective character, whether residential, commercial or industrial. Attention shall be given to street widths, arrangement and circulation; surface drainage; lot sizes and arrangements; and to such neighborhood and community requirements as park, school, and playground sites and main thoroughfare widths and locations.

The Municipal Manager shall forward copies of the preliminary plat to such officials and agencies as may be necessary for the purpose of study and recommendation. This shall include at least the Municipal Engineer.

After receipt of such reports from such officials and agencies, the Planning Commission shall determine whether the preliminary plat shall be approved, approved with modifications, or disapproved. If a plat is disapproved, the reasons for disapproval shall be stated in writing and recorded in the minutes of the Planning Commission meeting.

The Planning Commission shall act on the preliminary plat within 30 days after filing unless such time is extended by agreement with the subdivider. When a preliminary plat has been approved by the Planning Commission, the chairman shall sign and date all copies and return one to the subdivider.

1105.06 Preliminary Plat Approval Period

The approval of the preliminary plat shall be effective for a maximum period of 12 months unless the first section has been filed for final approval. If no subsequent sections are filed within three (3) years from the recording of the previous sections, the approval of the remainder of the preliminary plat is no longer effective. The terms under which the approval is granted will not be affected by changes to these Regulations during the maximum period of 12 months.

SECTION 1105.07 PRELIMINARY PLAT CHECKLIST

SUBDIVISION _____

DATE _____

This list is not all inclusive, but is to be used as a guideline for submittals and reviews.

√		DESCRIPTION	REMARKS
	1	Fees paid.	
	2	Seven copies of plat (at a scale of not more than 1" = 100').	
	3	Name of Subdivision.	
	4	Location of property with respect to surrounding property and streets.	
	5	Location by township, section, town, and range.	
	6	Names of all adjoining property owners, or names of adjoining developers.	
	7	Name of adjoining subdivisions.	
	8	Location and names of adjoining streets.	
	9	Location of corporation line, if applicable.	
	10	Location and dimensions of all boundary lines of the property in feet and decimals of a foot.	
	11	Vicinity map.	
	12	Indication of zoning.	
	13	Location of existing easements.	
	14	Location of existing water bodies, streams, and other pertinent features such as railroads, buildings, parks, cemeteries, drainage ditches, bridges, etc.	
	15	Locations, dimensions, and areas of all proposed or existing lots.	
	16	Location and dimensions of all property proposed to be set aside for park or playground use, or other public or private reservation, with designation of the purpose thereof, and conditions, if any, of the dedication or reservation.	
	17	Date of plat.	
	18	Scale of plat.	
	19	North arrow.	

√		DESCRIPTION	REMARKS
	20	Data from which the location, bearing, and length of all lines can be determined and reproduced on the ground.	
	21	Names of new streets as approved by the Planning Commission.	
	22	Indication of the use of any lot and all uses other than residential.	
	23	Lots consecutively numbered.	
	24	Approximate dimensions of lots, including lot area.	
	25	Front setback lines.	
	26	Profiles showing existing and proposed elevations along centerline of all streets.	
	27	Approximate stationing on all streets.	
	28	Location, size, and invert elevations of all existing and proposed sanitary sewers and stormwater sewers and structures.	
	29	Preliminary drainage plan including proposed storm water detention location.	
	30	Location and size of all water lines.	
	31	Topography at the same scale with contour interval of 1'.	
	32	Other specifications and references required by the local government. Construction standards and specifications, including a site grading plan for the entire subdivision.	
	33	Title of property, name and address of owner, and signature of surveyor.	
	34	Date, including revision dates.	
	35	Notation of approval, signature line for Planning Commission Chairman.	
	36	Name and address of subdivider and/or developer.	
	37	Copy of protective covenants, if applicable.	
	38	Indication of any developmental phasing or staged development timing.	
	39	Meets zoning requirements (i.e. minimum frontage, setbacks, area, etc.)	

√		DESCRIPTION	REMARKS
	40	Conformance with major street plan.	
	41	No flood hazards.	
	42	Right-of-way widths, meets minimum criteria.	
	43	Avoidance of multiple intersections.	
	44	Lengths of blocks, meets minimum criteria.	
	45	Submit plans to the utility companies.	
	46	Location and size of all existing utilities: water main, telephone, electric, gas, etc. within or adjacent to the subject tract.	

1106.00
Final Plat (Major Subdivision)

SECTION 1106.00 FINAL PLAT (Major Subdivision)

1106.01 Final Plat Required

The Subdivider, having received approval of the preliminary plat of the proposed subdivision, shall submit a final plat of the subdivision and drawings and specifications of the improvements required therein. The final plat shall have incorporated all changes in the preliminary plat required by the Planning Commission. Otherwise, it shall conform to the preliminary plat, and it may constitute only that portion of the approved preliminary plat which the subdivider proposes to record and develop at that time. The final plat and the supplementary information shall be certified by a professional surveyor. Construction plans, drawings, and specifications shall be certified by a professional engineer.

1106.02 Submission for Approval of Final Plat

The Subdivider shall prepare and submit the following:

A. Fifteen (15) copies of the final plat of the proposed subdivision.

B Three (3) copies of construction drawings related to the improvements to be constructed in the proposed subdivision.

C. Three (3) copies of an itemized engineer's estimate with quantities for all proposed improvements including the estimate of cost for each item.

D. Three (3) copies of the storm sewer and storm detention calculations and other applicable calculations for design.

E. Completed final plat checklist with remarks.

F. Completed final construction plan checklist with remarks (see Design Criteria for list.)

All final plats, construction drawings and supporting documents shall meet all Design Criteria and Construction Standards and Drawings established by the Municipality of Germantown, the Zoning Code of the Municipality of Germantown, or requirements established by other governmental organizations having jurisdiction over the improvements. The most restrictive requirements shall apply.

The final plat shall be considered officially filed on the day it is received and properly noted and shall be so dated. However, the final plat shall not be considered properly submitted until all applicable fees are paid by the developer (see Schedule of Fees - Section 1114.04) and until all plans, supporting documents, and materials are provided to the Municipal Manager.

1106.03 Final Plat Form

The final plat shall be clearly legibly drawn on reproducible mylar. The size of the plat shall be 24" x 36". The plat of a subdivision containing 5 acres or less, shall be drawn to a scale of 1" = 50'. All other subdivisions shall be drawn to a scale of 1" = 100'. The minimum lettering height shall be 3/32" and all lot dimensions shall be 1/8" or larger. Lot number lettering shall be 1/4" or larger and underlined or circled.

If the final plat is drawn in two or more sections, each section shall be accompanied by a key map showing the location of the sections. All final plat sections shall either totally include or totally exclude intersections and all lots fronting such intersections.

Construction Drawings shall be submitted in the form stated in the Municipality of Germantown Design Criteria. The plans shall consist of the required improvements stated in these Regulations.

1106.04 Final Plat Contents

The final plat shall contain the following information:

A. Name of the subdivision (which shall not duplicate or closely resemble the name of any other subdivision in the County), location by section, town, range and township, or by other survey number, date, north arrow and basis of bearing, acreage to thousandths of an acre (total lot acreage and total street acreage) and deed book and page reference.

B. Name and address of the subdividers, the professional engineer, and registered surveyor who prepared the plat and appropriate registration numbers and seals.

C. The total area being platted shall include all perimeter courses and be outlined by a heavy-line border. Courses are to be listed in a clockwise direction. All dimensions, both lineal and angular, shall be determined by an accurate control survey in the field. The error of closure shall conform to the Ohio Administrative Code.

D. Bearings and distances to the nearest centerline of intersecting roads or the intersection of right-of-way lines; lot corners of recorded plat with plat reference; or Section Corner or Quarter Section Corner.

E. Names, exact location, dimensions and right-of-way width of all streets and railroads within and adjoining the plat and building set back lines. Street names shall be approved by the Planning Commission.

F. Radii, internal angles, points of curvature, tangent bearings, lengths of arcs, chord length bearing of all applicable streets within the plat area shall be illustrated on the plat.

G. The exact locations, dimensions and uses of all private and public utility easements shall be illustrated on the plat.

H. All lots accurately dimensioned in feet and hundredths with lot numbers and acreage. The lot numbers shall be consecutive for each platted section and shall be placed in the center of the lot with acreage under the lot number. Replatted lots shall illustrate existing lot numbers, lot lines dashed, and utility easements on the plat.

I. Accurate location and a description of all monuments as to type, size, and whether the monument was found or set. If a monument has been omitted or offset, a notation shall appear on the plat indicating the reason for the omission; or if it has been offset, its true location in relation to the property corner or lot corner shall be noted.

J. Accurate outlines of areas to be dedicated or reserved for public use, or any area to be reserved for the common use of all property owners. The use and accurate boundary locations shall be shown for each parcel of land to be dedicated.

K. Any restrictions and covenants shall be shown or referenced on the final plat.

L. Certification shall contain the following:

1. The total acres being subdivided;
2. Current ownership;
3. Deed reference; and
4. Zoning

M. Acknowledgment dedication statement of the owner or owners to the plat and restrictions, including dedications to public use of all public streets, alleys, parks or other open spaces shown thereon and the granting of the required easements, as shall be indicated by the following statement on the plat tracing: "Easements shown on this plat are for the construction, operation, maintenance, repair, replacement or removal of water, gas, sewer, electric, telephone, or other utilities or services, and for the express privilege of removing any and all trees or other obstructions to the free use of said utilities and for providing of ingress and egress to the property for said purposes, and are to be maintained as such indefinitely."

A statement of intention and request for the vacation of lot lines and easements on previously platted properties, and the signature of authorized representatives of local utility companies (electric, telephone, cable television, etc.) acknowledging the abandonment of easements.

N. The names of record of all abutting parcels with deed reference, acreage and survey record reference, if applicable. Platted land shall show the name of the subdivision, lot numbers, plat book and page reference.

O. Any section lines, corporation limits, township and county lines shall be accurately documented and located on the plat and their names lettered thereon.

P. Location of permanent facilities and easements for same used for drainage control such as detention ponds, retention ponds, infiltration beds, etc., and statement of the provisions for the maintenance of these facilities.

Q. Approval signature and date lines shall be provided for Municipal Manager, Mayor, Clerk of Council, Planning Commission Chairman and County Engineer.

1106.05 Supplementary Information

The following information shall be supplied in addition to the above requirements:

A. If a zoning change is involved, certification from the Municipal Manager shall be required indicating that the change has been approved and is in effect.

B. Prior to the approval of the final plat, a Surety shall be furnished assuring installation and initial maintenance of the required improvements.

C. In flood prone areas the subdivider shall provide information detailing how the structures will be protected from flood hazard.

D. The Planning Commission may require the applicant to submit additional topographic information, detailed plans for proposed uses, and other information to determine possible flood or erosion hazards, the effect of the subdivision uses upon flood flows, and the adequacy of proposed flood protection measures. The Planning Commission may consult with expert persons or agencies for technical assistance and advice.

E. These construction plans shall be submitted to the OEPA for approvals as required. Certification of OEPA approval shall be provided on the plans where applicable. Construction shall not commence until such approvals are granted.

F. The Municipal Engineer's signature shall be provided on approved construction plans to verify compliance with the applicable specifications and the requirements of the Regulations.

1106.06 Approval of Final Plat

The Planning Commission shall approve or disapprove the final plat within 30 days after it has been officially and properly filed with the Planning Commission and so noted in the minutes. Failure of the Planning Commission to act upon the final plat within such time shall be deemed as approval of the plat. If the plat is disapproved, the grounds for disapproval shall be stated in the records of the Planning Commission and a copy of said record shall be forwarded to the subdivider. If disapproved, the subdivider shall make the necessary corrections and resubmit

the final plat within 30 days to the Planning Commission for final approval. When the final plat has been approved by the Planning Commission, the original shall be forwarded to the Council for their approval and endorsement. The original shall be returned to the subdivider.

1106.07 Recording of the Final Plat

After the final plat has been approved by the Planning Commission, dedications accepted by the Council and the necessary approval endorsed in writing thereon, the subdivider shall record the plat in the office of the County Recorder. The final plat shall be recorded in the office of the County Recorder as required by law within 60 days after the date of final approval. The subdivider shall furnish the Municipality with a copy of the recorded plat.

1106.08 FINAL PLAT CHECKLIST

SUBDIVISION _____

DATE _____

This list is not all inclusive, but is to be used as a guideline for submittals and reviews.

√		DESCRIPTION	REMARKS
	1	Fees paid.	
	2	Fifteen copies of the final plat.	
	3	Three copies of construction drawings.	
	4	Three copies of engineer's estimate.	
	5	Three copies of storm sewer calculations, storm detention calculations, and other necessary design calculations.	
	6	Performance surety.	
	7	Name of subdivision.	
	8	Location by section, town, range and township.	
	9	Date of plat.	
	10	North arrow and basis of bearing.	
	11	Acreage to thousandths of an acre.	
	12	Deed book and reference page. (Plat book, if available.)	
	13	Name and address of the subdividers.	
	14	Name and address of professional engineer who prepared plans, including registration number and seal.	
	15	Name and address of professional surveyor who prepared plat, including registration number and seal.	
	16	Perimeter of subdivision to be outlined by a heavy border.	
	17	All dimensions.	
	18	Bearings and distances to the nearest centerline of intersecting roads.	
	19	Names, exact location, dimensions and right-of-way width of all streets.	
	20	Radii, internal angles, points of curvature, tangent bearings, chord length and bearings, lengths of arcs of all applicable streets within the plat area.	

√		DESCRIPTION	REMARKS
	21	The exact locations, dimensions and uses of easements shall be illustrated on the plat.	
	22	All lots accurately dimensioned in feet and hundredths with lot numbers and acreage.	
	23	Replatted lots shall illustrate old lot numbers and lot lines dotted on the plat.	
	24	Accurate location and a description of all monuments as to type, size, and whether the monument was found or set.	
	25	Any restrictions and covenants shall be shown on the final plat.	
	26	Acknowledgment dedication statement of the owner or owners to the plat.	
	27	A statement of intention and request for the vacation of lot lines and easements.	
	28	The signature of authorized representatives of local utility companies acknowledging the abandonment of easements.	
	29	Names of record of all abutting parcels with deed reference, acreage and survey record reference.	
	30	Any section lines, corporation limits, township and county lines.	
	31	Location of permanent facilities and easements for same used for drainage control such as detention basin, retention ponds, infiltration beds, etc. and statement of the provisions for the maintenance of these facilities.	
	32	Construction plans submitted to the Ohio Environmental Protection Agency (OEPA) for approvals as required.	
	33	Submitted within 12 months of preliminary approval.	
	34	Conforms to preliminary plat and incorporates suggested changes.	

√		DESCRIPTION	REMARKS
	35	Street names.	
	36	Size of lots meet minimum requirement.	
	37	Setback lines meet minimum requirement.	
	38	Corner lot size appropriate.	
	39	Sufficient easements for utilities or open drainage.	
	40	Approval signature and date lines.	

1107.00
Assurance for Completion and Maintenance of Improvements

SECTION 1107.00 ASSURANCE FOR COMPLETION AND MAINTENANCE OF IMPROVEMENTS

1107.01 Improvements and Performance Surety

In order that the Municipality has the assurance that the construction and installation of such improvements such as street surfacing, curbs, gutters, storm sewers and appurtenances, sanitary sewer, waterlines, sidewalks, street lighting, street signs and other required improvements will be constructed, the subdivider shall provide performance surety.

A. Performance Surety - The subdivider shall furnish either a bond, executed by a surety company, cash deposit (certified or cashier's check) or Irrevocable Letter of Credit (form must be approved by the Municipal Law Director) equal to the cost of construction of such improvements as shown on the plans, and based on a detailed, itemized estimate approved by the Municipal Engineer. The estimate shall reflect consideration of prevailing wage requirements.

   The performance bond, cash deposit (certified or cashier's check) or Irrevocable Letter of Credit to the Municipality of Germantown shall run for a period of one (1) year and be extendable for two (2) years from the date of execution, and shall provide that the subdivider, their heirs, successors and assigns, their agent or servants, will comply with all applicable terms, conditions, provisions and requirements of these Regulations, and will faithfully perform and complete the work of constructing and installing such facilities or improvements in accordance with such laws and Regulations. Before said bond is accepted it shall be approved by the Municipal Law Director. Whenever a cash deposit (certified or cashier's check) is made, the same shall be made payable to the Municipality of Germantown.

B. Extension of Time - If the construction or installation of any improvement or facility, for which guarantee has been made by the developer in the form of bond or cash deposit, is not completed within 2 years from the date of final approval of the record plat, the developer may request the Municipal Manager to grant an extension, provided reasonable cause can be shown for inability to complete said improvements within the required 2 years.

C. Acceptance of Dedication Offers - Acceptance of formal offers of dedication of streets, public areas, easements, and parks shall be by ordinance of the Council. The approval by the Planning Commission of a subdivision plat shall not be deemed to constitute or imply the acceptance by the local government of any street, easement, or park shown on said plat.

1107.02 Inspection of Improvements

Periodic inspections during the installation of improvements shall be made by the Municipality of Germantown to insure conformity with the approved plans and specifications as required by these Regulations.

The subdivider shall notify proper Municipal officials at least 24 hours before each phase of the improvements is ready for inspection. The presence and/or absence of an inspector during construction shall not relieve the subdivider from full responsibility of required improvements to the Municipality of Germantown Construction Standards and Drawings and to the satisfaction of the Municipality of Germantown. See the Municipality of Germantown Design Criteria for inspection requirements. The Municipality will require improvement inspection fees (see Section 1114.04 Schedule of Fees).

1107.03 Maintenance of Improvements

The applicant shall be required to maintain all improvements, if required, until approval of said improvements. Once the required public improvements have been constructed and approved in the subdivision by the Municipal Manager, and prior to the release of the performance surety, the subdivider shall post with the Municipality a maintenance surety in the amount of ten percent (10%) of the performance surety and in a form as approved by the Municipal Law Director.

No public improvements shall be approved until the subdivider has posted an approved maintenance surety, and this maintenance surety will extend for 1 year from the actual date that the final punch list has been completed and approved by the Municipality.

Acceptance by the Municipality of the public improvements will not take place until the Municipality releases the maintenance surety and receives record drawings as outlined in the Municipality of Germantown Design Criteria of construction plans, including all utilities (i.e. sanitary sewers, storm sewers, gas, and water. Record drawings shall be stamped by a registered professional engineer or surveyor verifying the accuracy of the drawings.

Prior to release of the maintenance surety by the Municipality, the developer shall have paid all public improvement fees required by these Regulations and have completed all maintenance punch list items.

1107.04 Deferral or Waiver of Required Improvements

The Planning Commission may defer or waive at the time of final approval, subject to appropriate conditions, the provision of any or all such improvements as, in its judgment, are not requisite in the interests of the public health, safety, and general welfare, or which are inappropriate because of inadequacy or lack of connecting facilities.

Whenever it is deemed necessary by the Planning Commission to defer the construction of any improvement required herein because of incompatible grades, future planning, inadequate or lack of connecting facilities, or for other reasons, the applicant shall pay his share of the costs of the future improvements as approved by Municipal Engineer and Council to the Municipality of Germantown prior to signing of the final subdivision plat.

1107.05 Procedure in Case of Failure to Complete Improvement

The subdivider shall be in default of the performance surety when one of the following conditions exists:

A. The installation of all required public improvements as called for in these Regulations has not been completed within the two (2) year time period agreed upon in the subdivider's contract with the Municipality, and the subdivider has failed to establish reasonable cause for such delay to the satisfaction of the Municipal Manager and thereby to receive a time extension.

B. The subdivider has not constructed the required public improvements in accordance with the minimum standards specified in these Regulations, and the subdivider is unwilling to modify and/or upgrade said public improvements within a six (6) month time period after receiving notice from the Municipal Manager so as to be in compliance with the provisions of these Regulations.

1107.06 Procedure in Case of Default

The subdivider shall be in default of the maintenance surety when the required public improvements have not been properly maintained over the one (1) year period as established in Section 1107.01 Improvements and Performance Surety or when the required public improvements are not in accordance with the "as-built" plans submitted by the subdivider to the Municipality. The same shall apply whenever construction of improvements is not performed in accordance with applicable standards and specifications. In such cases of default, the Municipality shall proceed to utilize the performance surety and/or maintenance surety to construct the required public improvements to the minimum design standards as required in these Regulations.

1107.07 Issuance of Zoning Certificates

As determined by the Municipal Manager, Zoning Certificates will be issued when the extent of the street improvements are completed with curb and first layer of asphalt installed. However, the subdivider is responsible for any damage to improvements.

1113.00
Requirements for Construction Improvements and Design

SECTION 1113.00 REQUIREMENTS FOR CONSTRUCTION OF IMPROVEMENTS AND DESIGN

1113.01 General Statement

The Regulations contained in this section and the Municipality of Germantown Design Criteria and Construction Standards and Drawings shall control the manner in which streets, lots, and other elements of a subdivision are arranged on the land. These design controls shall help ensure convenient and safe streets, creation of usable lots, provision of space for public utilities, and reservation of land for recreational uses. The planning of attractive and functional neighborhoods shall be promoted, minimizing the undesirable features of unplanned, haphazard growth.

The Planning Commission has the responsibility of reviewing the design of each future subdivision early in its design development. The Planning Commission shall ensure that all the requirements of this section and the Municipality of Germantown Design Criteria and Construction Standards and Drawings are met.

1113.02 Conformity to Development Plans and Zoning

The arrangements, character, width, and location of all arterial and collector thoroughfares or extensions thereof shall conform with the adopted Municipality of Germantown Joint Economic Development Plan. Lack of a Joint Economic Development Plan or thoroughfares not contained in the aforementioned plan shall conform to the recommendation of the Planning Commission, based upon the design standards set forth in this section and the Municipality of Germantown Design Criteria and Construction Standards and Drawings. In addition, no final plat shall be approved if in conflict with an existing Zoning Code.

1113.03 Suitability of Land

If the Planning Commission finds that land proposed to be subdivided is unsuitable for subdivision development due to flooding, bad drainage, topography, inadequate water supply and other such conditions which may endanger health, life, or property, and if from investigations conducted by the public agencies concerned it is determined that in the best interest of the public the land should not be developed for the desired purpose, the Planning Commission shall not approve the land for subdivision unless adequate methods are advanced by the subdivider for solving the problems that will be created by the development of the land.

1113.04 Street Improvements

The arrangements, character, extent, width, grade, construction, and location of all streets shall conform to the Joint Economic Development Plan of the Municipality, and shall conform to the Municipality of Germantown Design Criteria and Construction Standards and Drawings. Street design shall take into consideration their relationship to existing and planned streets, topographical conditions, and public convenience and safety; and in their appropriate

relation to the proposed uses of land to be served by such streets. The street pattern shall discourage through traffic in the interior of a subdivision. The subdivider shall provide within the boundaries of the plat, the necessary right-of-way for the widening, continuance, or alignment of such streets in conformity with the Joint Economic Development Plan.

The subdivider shall improve all streets which are part of the subdivision, including that portion of the subdivision located on existing streets. The required improvements shall be such that all items of work are in accordance with the Municipality of Germantown Design Criteria and Construction Standards and Drawings. Existing streets shall be improved so that they meet the above standards including storm drainage. The subdivider shall pay the full construction cost for required improvements.

Curbs and gutters shall be required for all streets including existing streets.

Appropriate access to and from any subdivision in the form of a standard Municipal street with required improvements must be provided by a developer in instances where development is not located contiguously along an improved public street right-of-way. No subdivision shall be approved where a parcel, tract or lot has frontage only on the "stub end" of a discontinued or dead-end street. Such street must first be extended or reconstructed as a cul-de-sac in accordance with these Regulations. No subdivision showing reserved strips controlling the access to public ways will be approved.

All street widths shall conform to the Municipality of Germantown Design Criteria and Construction Standards and Drawings. In cases where the designation of the street is in question, the Planning Commission shall determine the type of street designation.

1113.05 Street Signs and Street Names

A. Standard street name signs and other traffic control signs shall be erected by the Municipality.

B. For purposes of street naming, the following is recommended:

1. Circle, Place, or Court should be used only for cul-de-sac type streets.
2. The words north, south, east, or west should be avoided as part of a street name whenever possible.

C. Whenever a new street is constructed along the approximate alignment or extension of an existing street, its name shall be the same as that of the existing one.

D. To avoid duplication and confusion, the proposed names of all streets shall be approved by the Planning Commission prior to such names being assigned or used.

E. House numbers shall be assigned in accordance with the current house numbering system in effect in the Municipality of Germantown.

1113.06 Special Street Types

The following requirements shall apply to special street types:

A. Permanent dead-end streets shall not be permitted. Temporary dead-end streets shall be permitted only as part of a continuing street plan and only if a temporary turnaround satisfactory to the Planning Commission in design is provided.

B. Dedication of new half-streets shall not be permitted. Where a dedicated or platted half-street exists adjacent to the tract being subdivided, the other half shall be platted.

C. Alleys shall not be approved.

1113.07 Streets for Commercial Subdivisions

Streets serving business developments and accessory parking areas shall be planned to connect with arterial streets or marginal access drives so as not to generate traffic problems. The intersections of driveways from parking areas with arterial or collector streets shall be located so as to cause the least possible interference with traffic movement on the streets. The location of streets and driveways for business developments shall conform to the Municipality of Germantown Design Criteria and Construction Standards and Drawings.

1113.08 Streets for Industrial Subdivisions

Collector streets for industrial subdivisions shall be planned to serve industrial areas exclusively and shall connect with arterial streets so that no industrial traffic will be directed into any residential street. Streets shall be planned to be extended to the boundaries or any adjoining land planned for industry, except when severe physical conditions exist or if the Planning Commission finds such extension is not in accordance with the approved plan of the area. The location of streets and driveways for industrial developments shall conform to the Municipality of Germantown Design Criteria and Construction Standards and Drawings.

1113.09 Easements

A. Utility Easements: Public utility easements at least 10 feet in total width may be required along the rear, front, and sides of lots where needed for the accommodation of a public utility, drainage, sanitary structures, or any combination of the foregoing, and at least 20 feet total width where sanitary sewer or waterlines will be placed. Where deemed necessary by the Planning Commission, an additional easement width shall be provided.

B. Watercourses: The subdivider shall dedicate rights-of-way or provide easements for storm drainage purposes which conform substantially with the lines of any natural watercourses, channels, streams, or creeks which traverse the subdivision or for any new channel which is established to substitute for a natural watercourse, channel, stream, or

creek. Such rights-of-way or easements shall be of a width which will provide for the maintenance needs of the channel and incidental structures as determined by the Planning Commission. Easements shall be provided for entire area of detention basins/retention ponds with a 20-foot access easement.

1113.10 Sidewalks

Sidewalks shall be required on both sides of all streets. The minimum width shall be five (5) feet.

All sidewalks shall be constructed in accordance with the Municipality of Germantown Design Criteria and Construction Standards and Drawings. The developer will have two (2) years from the time the preliminary plat is approved, or when the building permit is issued, whichever comes first, to construct the sidewalk. The developer shall be responsible to construct the ADA curb-ramps at intersections at the time the curbs are being installed and any sidewalk located on a public access that may be dedicated to the Municipality at a later time. Homeowners will be required to install sidewalks on individual properties within 6 months of finalized building construction (occupation of the building).

1113.11 Blocks

The following Regulations shall govern the design and layout of blocks:

A. The arrangement of blocks shall be such as to conform to the street planning criteria set forth in the section and to the street design criteria established in the Municipality of Germantown Design Criteria and Construction Standards and Drawings, and shall be arranged to accommodate lots and building sites of the size and character required for the zoning district as set forth in the Zoning Code and to provide for the required community facilities.

B. The Planning Commission may require that the characteristics of blocks bear close relation to the use of the land.

C. Irregularly shaped blocks, those intended for cul-de-sacs or loop streets, and those containing interior parks or playgrounds, may be approved by the Planning Commission if properly designed and located and if the maintenance of interior public spaces is covered by an agreement.

D. No block shall be longer than 1400 feet nor less than 300 feet and the block width shall accommodate 2 tiers of lots, except where unusual topography or other exceptional physical circumstances exists.

E. Where blocks are over 900 feet in length, a pedestrian walkway easement not less than 10 feet in width at or near the halfway point may be required, if necessary, to provide proper access to schools, recreational areas, and other facilities. The Planning Commission has

the authority to require an easement of 10 feet, 5 feet from each lot through the tier of 2 lots for pedestrian access to school, playgrounds, or other facilities. A sidewalk shall be constructed. The width for a sidewalk shall conform to the Municipality of Germantown Design Criteria and Construction Standards and Drawings.

F. All block corners shall be rounded with a radius of not less than 25 feet measured at the back of the curb.

1113.12 Lots

The following Regulations shall govern the design and layout of lots:

A. The lot arrangement and design shall be such that all lots will provide satisfactory building sites, properly related topography and the character of surrounding development.

B. All lots shall conform to or exceed the requirements for the zoning district in which they are located and the use for which they are intended.

C. All lots shall abut by their full frontage on a publicly dedicated street or a street that has received the legal status of such. The minimum lot size, widths, and setbacks, shall be as specified in the Zoning Code.

D. All side lot lines shall be as close to right angles as possible to the street line and radial to curved street lines, except where the Planning Commission determines that a variation to this rule would provide a better layout.

E. Lots with double frontage shall be avoided except where the Planning Commission determines it is essential to provide separation of residential development from arterial streets.

F. All corner lots shall have front yard setbacks on both streets and lots shall be of an area sufficient to permit adequate building sites.

G. No lot shall have an average depth which is more than 3 times its average width, nor shall it have a depth of less than 110 feet except that, whenever a lot fronts upon an exterior curved portion of a street, lot depth may be reduced to not less than 100 feet.

H. In the case of vacation of lots, or parts of lots, in the Municipality previously recorded in the office of the Recorder of Montgomery County, Ohio, the same procedure, rules and regulations shall apply as for a new plat, except that a preliminary plat may not be required. The title of the vacation plat shall indicate what is being vacated, and the final plat shall include enough of the surrounding plat or plats to show its relations to adjoining areas.

I. Whenever a subdivider or developer proposes a re-subdivision of a plat previously recorded in the Office of the Recorder of Montgomery County, Ohio they shall follow the same procedures as for a new plat, except that a preliminary plat may not be required if changes in street alignment or similar changes are not included in the proposal. The lots in the re-subdivision shall conform as to size and arrangement with the requirements of these Regulations and the appropriate requirements of the Zoning Code of the Municipality of Germantown.

J. When a preliminary plat is submitted, all lots shall have the front setback lines clearly marked on them.

1113.13 Survey Monuments

A survey shall be made by a registered surveyor and shall conform to the "Minimum Standards for Boundary Surveys in the State of Ohio".

Permanent markers shall be set at all exterior subdivision boundary corners and intersections of change, at the point of curvature and point of tangent of all curves and where the radius of direction changes. The intent is to identify and establish all lines of the plat. All monuments or permanent markers shall be placed prior to acceptance of improvements by the Municipality.

Monument boxes with permanent markers shall be set at all street intersections and center point of cul-de-sac. Railroad spikes shall be set at all other point of intersections. If the point of intersections are not in the paved area of the street, the railroad spikes shall be placed at the point of curvature and point of tangent of all curves. In the instances of concrete pavement, monument boxes shall be used where all railroad spikes are specified above.

All monuments and permanent markers shall be set as shown on the final plat. The size, location and type of material used shall also be shown. A professional surveyor's affidavit shall be filed in the plat volume and cross-referenced with the original plat when, for any reason, a monument or permanent marker must be offset from the original location or the type of permanent marker is changed.

Boundary lines shall be monumented at all points where there is a change of direction and at all lot corners by suitable monuments as specified in the "Minimum Standards for Boundary Surveys in the State of Ohio."

1113.14 Street and Walkway Lighting

The Municipality is responsible for all equipment, labor, and materials for all standard street lights to be installed. If the subdivider wants to upgrade the street lighting, the subdivider will be responsible for all additional costs.

1113.15 Water Supply Improvements

The subdivider shall install a public water system, if applicable, to adequately serve all lots, including lateral connections to the public system. Public water system extensions shall meet the requirements and be approved by the Ohio Environmental Protection Agency and conform to the standards and specifications established in the Municipality of Germantown Design Criteria, Construction Standards and Drawings, Ordinances, and other rules and regulations of the Municipality.

1113.16 Sanitary Sewer Improvements

The subdivider shall install public sanitary sewers to adequately serve all lots, including lateral connections to the public system. Public sewer system extensions shall meet the requirements of the Ohio Environmental Protection Agency and conform with the standards and specifications of the Municipality of Germantown Design Criteria and Construction Standards and Drawings.

No individual septic systems or combined sanitary and storm sewers shall be allowed.

1113.17 Drainage Improvements

The subdivider shall construct all necessary facilities including underground pipe, inlets, catch basins, open drainage ditches, and detention basins as approved by the Municipal Engineer, to provide for adequate disposal of subsurface and surface water and maintenance of natural drainage course. The developer shall also provide all necessary soil sediment pollution control. Design and construction shall be in accordance with the Municipality of Germantown Design Criteria and the Municipality of Germantown Construction Standards and Drawings. Adequate provisions shall be included in design and construction to accommodate all upstream drainage and, where necessary, extend all drainage improvements to plat limits.

It shall state on the final plat that all-natural watercourses, detention basins, retention ponds, and appurtenances shall be maintained by the property owner. An easement shall be provided to ensure that there will not be any building within the drainage area and to provide for major maintenance and inspection. See the Municipality of Germantown Design Criteria for inspection and ownership of detention basins.

All lots shall be laid out and graded to provide positive drainage away from buildings and shall be designed to assure adequate protection from the concentration of storm water run-off on adjacent property. No storm drainage, including drain tile around basements, shall be permitted to discharge into any sanitary facility.

1113.18 Culverts and Bridges

Where natural drainage channels intersect any street right-of-way, it shall be the responsibility of the subdivider to have satisfactory bridges and/or culverts constructed. Where culverts are required, minimum requirements shall be observed as follows:

A. All culverts and bridges shall extend, at a minimum, across the entire right-of-way width of the proposed street. The cover over the culvert and its capacity shall be approved by the Municipal Engineer. Headwalls are required.

B. Driveway culverts shall be as approved in accordance with the Municipality of Germantown Design Criteria and Construction Standards and Drawings. The driveway culverts shall be laid so as to maintain the flow lines of the ditch or gutter. Headwalls are required.

C. All culverts and bridges shall conform to the Municipality of Germantown Design Criteria and Construction Standards and Drawings.

1113.19 Electric, Gas, Cable Television, and Telephone Improvements

A. Electric, cable television, gas, and telephone service shall be provided within each subdivision. Telephone, electric, street lighting wires, conduits, and cables shall be constructed underground except in cases where the Municipality determines that topographic, bedrock, or underground water conditions would result in excessive cost to the subdivider.

B. Overhead utility lines, where permitted, shall be located at the rear of all lots. The width of the easement per lot shall be not less than 10 feet and the total easement shall be not less than 20 feet.

C. Whenever a sanitary sewer, water main or storm sewer, and electric and/or telephone line are each placed underground in the same utility easement, the following provision shall be applicable:

1. The total easement width shall not be less than 20 feet.
2. The sanitary sewer, water main, or storm sewer shall be installed on one side of the easement.
3. Electric, gas, cable television, and telephone shall not be installed within 5 feet of either sanitary sewer, water main or storm sewer.

1113.20 Over-Sized, Over-Depth, and Off-Site Improvements

The utilities, pavements, and other land improvements required for the proposed subdivision shall be designed to incorporate any required over-sizing and any extensions needed to provide service to nearby adjoining lands as determined by the Municipality.

1113.21 Cost of Over-Sized and Over-Depth Improvements

The subdivider shall be required to pay for all of the construction costs for the installation of utilities which are serving the proposed subdivision as determined by the Municipality and the Subdivider's Estimates. The Municipality may elect to have the utilities over-sized to service the surrounding areas, providing the improvement is beneficial to the Municipality. The Municipality shall pay the difference between the cost of the requirements of the subdivision and required over-sizing improvements as follows:

A. Water Mains: A subdivider shall install water mains according to the Municipality's specifications. The material's cost difference between the minimum required size of pipe and appurtenances, and over-sized pipe required by the Municipality, will be paid by the Municipality. Water mains up to 12-inches in diameter are consistent with and a necessary part of the Water System Master Plan and Municipal requirements to provide mains up to this size are not subject to oversizing reimbursement. Water mains must provide for adequate loops to ensure maintenance of required pressures and flows, no dead end mains will be permitted.

B. Sanitary Sewers: A subdivider shall install sanitary sewers according to the Municipality's specifications. The material's cost difference between the minimum required size of pipe and appurtenances, and over-sized pipe required by the Municipality, will be paid by the Municipality. Sewer mains installed as part of the Sewer System Master Plan must be designed to serve the urban service area as identified in said plan. Mains and trunk sewers must extend across the property to be developed and provide for a connection upstream of the property to be developed consistent with the Sanitary Sewer Master Plan.

C. Storm Sewers: A subdivider shall install storm sewers according to the Municipality's specifications. It is the subdivider's responsibility to ensure that proper drainage is maintained and that upstream and downstream flows are not adversely affected by the subdivision in accordance with the design criteria. As such, the Municipality will not reimburse the subdivider for any costs associated with meeting this requirement.

D. Streets: The type and composition of street paving and surfacing shall be installed as per current Municipality Design Criteria, or County Engineering specifications where applicable, and shall be commensurate with the volume, street classification, character and general circulation requirements, as determined by the Municipality. The subdivider is responsible for development of all street improvements required by the Municipality as part of its or the Montgomery County Thoroughfare plan. The costs for the minimum street width, as required by these Regulations, including curb, gutter, and sidewalks, shall be the developer's responsibility and at his or her expense.

1113.22 Extension to Boundaries

The subdivider shall be required to extend the necessary improvements to the boundary of the proposed subdivision to serve adjoining un-subdivided land.

1113.23 Off-Site Extensions

If streets or utilities are not available at the boundary of a proposed subdivision, the subdivider will be responsible for extending those streets or utilities, obtaining necessary easements or rights-of-way, and to construct and pay for such extensions to serve the proposed subdivision. Such improvements shall be available for connection by subdividers of adjoining land and become the property of the Municipality of Germantown.

1113.24 Non-Annexed Subdivisions

Any subdivision that lies outside the corporation limits of the Municipality of Germantown but is connected to any of the Municipality's utilities, must comply with these Regulations, the Municipality of Germantown Design Criteria, and Construction Standards and Drawings.

If a subdivision is connected to any one of the Municipality of Germantown utilities, the residents of that subdivision, at the time annexation is determined to be possible by the Municipality, must not oppose annexation. A statement to this effect must be included with each property deed and recorded in the Office of the Montgomery County Recorder.

1113.25 Record Drawings

Record drawings shall be furnished to the Municipality before a final maintenance inspection. The submittal of record drawings is outlined in the Municipality of Germantown Design Criteria.

1114.00
Miscellaneous Provisions

1114.00 MISCELLANEOUS PROVISIONS

1114.01 Recording of Plat

No plat of any subdivision shall be recorded or have any validity until said plat has received final approval in the matter prescribed in these Regulations.

1114.02 Revision of Plat After Approval

No changes, erasures, modifications, or revisions shall be made in any plat of a subdivision after approval has been given by the Planning Commission, and endorsed in writing on the plat, unless said plat is first resubmitted to the Planning Commission.

1114.03 Sale of Land Within Subdivisions

No owner or agent of the owner of any land located within a subdivision shall transfer or sell any land by reference to, exhibition of or by the use of a plat of the subdivision before such plat has been approved and recorded in the manner prescribed in these Regulations. The description of such lot or parcel by metes and bounds in the instrument of transfer or other documents used in the process of selling or transferring shall not exempt the transaction from the provisions of these Regulations.

1114.04 Schedule of Fees

The Municipality of Germantown Council establishes the following schedule of fees:

Minor Subdivision Plats	$100.00
Vacation/Dedication Plats	$100.00
Replats	$100.00 plus $5.00 per lot
Preliminary Plats	$150.00 plus $5.00 per lot
Preliminary Plat re-approval	$150.00 plus $5.00 per lot
Final Plats	$150.00 plus $3.00 per lot

Subdivision review inspection fees: $5,000.00 initial deposit. When the balance draws close to $1,000.00, an additional $5,000.00 shall be deposited and maintained until the improvements are completed and a performance surety provided to the Municipality. The Municipality reserves the right to require and additional deposit if the project approvals and/or construction are extended to more than one construction season. The Municipality will refund unused portions of deposits to the subdivider upon release of all sureties.

The schedule of fees shall be posted in the office of the Municipal Clerk and may be altered or amended only by the Council. Until all applicable fees, charges, and expenses have been paid in full, no action shall be taken on any application, appeal or inspection.

1114.05 Penalties

The following penalties shall apply to the violations of these Regulations:

A. Whoever violates any rule or regulation adopted by the Council for the purpose of setting standards and requiring and securing the construction of improvements within a subdivision or fails to comply with any order pursuant thereto is creating a public nuisance and the creation thereof may be enjoined and maintenance thereof may be abated by action at suit of the County or any citizen thereof. Whoever violates these Regulations shall forfeit and pay not less than $100.00 nor more than $1,000.00 for each offense. Each day such violation continues shall be considered a separate offense. Such sum may be recovered with costs in a civil action suit brought in the Court of Common Pleas of Montgomery County.

B. Whoever, being the owner or agent of owner of any land within or outside a municipal corporation, transfers any lot, parcel or tract of such land from or in accordance with a plat of a subdivision before such plat has been recorded in the office of the County Recorder, shall forfeit and pay the sum of not less than $100.00 nor more than $500.00 for each lot parcel, or tract of land so sold. The description of such lot, parcel, or tract by metes and bounds in the deed or transfer shall not serve to exempt the seller from the forfeiture provided in this section.

1114.06 Variances

The following Regulations shall govern the granting or variances:

A. Where the Planning Commission finds that extraordinary and unnecessary hardship may result from strict compliance with these Regulations, due to exceptional topographic or other physical conditions, it may vary the Regulations so as to relieve such hardships, provided such relief may be granted without detriment to the public and without impairing the intent and purpose of these Regulations or the desirable development of the neighborhood or community. Such variations shall not have the effect of nullifying the intent and purpose of these Regulations, the Joint Economic Development Plan, or the Zoning Code.

B. In granting variances or modifications, the Planning Commission may require such conditions as will, in its judgment, secure substantially the objective of the standards or requirements so varied or modified.

1114.07 Appeal

Any person who believes he/she has been aggrieved by the Regulations or the action of the Planning Commission has all the rights of appeal as set forth in the Ohio Revised Code.

MUNICIPALITY OF GERMANTOWN
DESIGN CRITERIA REGISTRATION

Name:

Title:

Firm/Organization:

Address:

Telephone:

CHANGE OF ADDRESS CARD for receiving updates of the Municipality of Germantown Design Criteria.

(OLD INFORMATION)

Name: _____

Title: _____

Firm/Organization: _____

_____

Telephone: _____

(NEW INFORMATION)

Name: _____

Title: _____

Firm/Organization: _____

_____

Telephone: _____

FORWARD

This manual has been prepared to aid engineers and developers in the preparation of development plans and engineering design and to inform interested persons of the procedures and standards for the Municipality of Germantown, Ohio. It is also intended to be used during reconstruction or replacement of existing facilities or utility construction within the Municipal right-of-way. The rules, standards, specifications, criteria, etc. are to supplement the Zoning Regulations and Subdivision Regulations of the Municipality of Germantown.

It is not the intent of this manual to take away from the designing engineer, any responsibility for the technical adequacy of this design or freedom to use his engineering judgement and discretion. It is recognized that matters of engineering design cannot be set out in writing to cover all situations, however, the design standards as set out herein represent good engineering practice. Any design methods or criteria different than that listed will receive consideration for approval, provided the proposed variances and the reasons for their use are submitted to the Municipality of Germantown.

The Municipality of Germantown, at any time during design or construction, shall have the authority to modify any engineering or construction detail, whenever required for the protection of the public interest.

Though the Municipality of Germantown has no jurisdiction in areas outside of the corporation limits, the Municipality strongly recommends that any development constructed within close proximity of the Municipality be designed and constructed to these standards. This will help ensure that, if the development is incorporated into the Municipality, the development will be accepted by the Municipality without additional upgrades. If a development or residence is annexed, all streets and utilities must be brought up to Municipal Standards at the Developer/Owner's or homeowner's expense. Furthermore, if a development or residence outside of the corporation limits of the Municipality will be connected to Municipal utilities, the utilities will be constructed to Municipal Standards and Specifications.

The Municipality of Germantown, at their discretion, may request that infrastructure and utility facilities in any particular development be installed to accommodate future expansion within the Municipality. If this is requested, the Municipality will evaluate the Developer's eligibility to be compensated for the cost difference to oversize particular infrastructure items per the Subdivision Regulations of the Municipality.

REFERENCES

The Municipality of Germantown Design Criteria and Construction Standards and Drawings are to be used to supplement the following references. Whenever there are differences in these references and the Design Criteria and Construction Standards and Drawing, the more restrictive or higher standard shall apply as determined by the Municipality of Germantown.

- Ohio Department of Transportation (ODOT), lasted versions
  - ⇒ Construction and Material Specifications
  - ⇒ Location and Design Manuals
    - Volume 1 – Roadway Design
    - Volume 2 – Drainage Design
  - ⇒ Standard Construction Drawings
  - ⇒ Standard Design Drawings
  - ⇒ Supplemental Specifications
  - ⇒ Traffic Control for Uniform Control Devices

- American Association of State Highway and Transportation Officials (AASHTO), latest version
  - ⇒ A Policy on Geometric Design of Highways and Streets

- Great Lakes Upper Mississippi River Board (GLUMRB) (Ten State Standards), latest version
  - ⇒ Recommended Standards for Wastewater Facilities
  - ⇒ Recommended Standards for Water Works

100.00
General Provisions

100.00 GENERAL PROVISIONS

100.01 General

A. The Design Criteria and Construction Standards and Drawings along with 100% surety and 10% maintenance surety shall apply to all public improvement construction projects that will eventually be taken over by the Municipality of Germantown. The 100% performance surety and 10% maintenance surety shall follow the regulations in the Municipality of Germantown Subdivision Regulations even if a major subdivision is not applicable.

B. The Developer/Owner shall design and construct improvements not less than the standards outlined in the Municipality of Germantown's Subdivision Regulations and this document. The work shall be done under Municipal supervision and shall be completed within the time fixed or agreed upon by the Municipality of Germantown.

C. It is the responsibility of the Developer/Owner and his engineer to investigate local conditions that may require additional improvements.

D. In the event any conflicting standards are encountered, the more restrictive shall always apply as determined by the Municipality of Germantown.

E. Upon request of the Developer or his representative, the Municipality will evaluate requests to provide open excavation of existing utilities to allow accurate elevation information.

100.02 Construction Procedures and Materials

A. PRE-CONSTRUCTION MEETING

A pre-construction meeting with the Municipality is required. The Developer/Owner, his contractor, his engineer, and representatives from utility companies involved shall be present at the meeting. It shall be the Developer/Owner's responsibility to arrange the preconstruction meeting and to notify all affected parties. The pre-construction meeting shall not be conducted unless applicable approvals (OEPA, ODNR, USA COE, etc.) have been obtained and all fees have been paid in accordance with the developer's agreement. It is the developer's responsibility to ensure that any easements required be recorded and assigned to the Municipality, that permits are obtained, and that all improvements are coordinated with impacted utilities prior to the pre-construction meeting. The Municipality reserves the right to

refuse issuance of a Zoning Certificate without completion of a pre-construction meeting.

B. MATERIALS

All work and materials shall conform to the Ohio Department of Transportation (ODOT) Construction and Material Specifications, and the Construction Standards and Drawings of the Municipality of Germantown, Ohio.

C. INSPECTIONS

1. Periodic inspection during the installation of improvements shall be made by the Municipality to ensure conformity with the approved plans and specifications as required by these and other regulations. The Developer/ Owner shall notify proper administrative officials at least twenty-four (24) hours before each phase of the improvements is ready for inspection. Should work cease or be interrupted for more than 72-hours for any reason, the developer is responsible to notify the Municipality of said interruption in writing and to notify at least 24-hours in advance of the time that work is scheduled to resume. Failure to submit required notifications will subject the developer to pay supplemental inspection and/or administration cost in accordance with the Developer's Agreement. The primary contact for all inspections shall be the Municipal Engineer.

   Inspections shall be at a minimum as follows.

   a) Sanitary Sewer
      1) Sanitary pipe and manhole installation
      2) Lateral location and inspection of all sewers
      3) Proper backfill installation
      4) Air test sanitary lines
      5) Vacuum test manholes
      6) Deflection test on PVC sewers

   b) Water Main
      1) Pipe installation
      2) Hydrant installation
      3) Value installation
      4) Service installation
      5) Proper backfill installation
      6) Restraining glands and/or blocking installation
      7) Pressure test
      8) Disinfection

c) Storm Sewer
   1) Manhole and Catch Basin installation
   2) Storm sewer pipe installation
   3) Field tile connections
   4) Proper backfill installation
   5) Headwall installation

d) Roadway
   1) Street excavation operations
   2) Subgrade preparation
   3) Subgrade undercutting
   4) Subbase installation
   5) Curbing installation
   6) Sidewalk and approach installation
   7) Asphalt installation

2. The absence of presence of an inspector during construction shall no relieve the Developer/Owner or contractor from full responsibility of compliance with plans, specifications, and Municipal requirements. Should it be discovered that work had not been completed in accordance with the approved drawings and specifications and/or the Municipal standards, the Developer is responsible for all cost to bring the work into compliance.

D. RESPONSIBILITY

All work shall be under the control and supervision of the Developer/Owner until written final approval is given by the Municipality.

E. FINAL INSPECTION

Upon completion of all the improvements, the Developer/Owner shall request, in writing, a final inspection by the Municipality. The final inspection shall be performed by officials for the Municipality with the Developer/Owner. The Developer/Owner's Engineer and the Developer/Owner's Contractor will be present.

F. UTILTIY COORDINATION

Coordination of utility locations such as electric, gas, telephone, and cable television shall be the responsibility of the Contractor, Developer, or Owner. Upon completion of these utilities, the developer is responsible to ensure that installed systems are included in the as-built drawings.

CONSTRUCTION INSPECTION CHECKLIST

PROJECT _____

DATE _____ INSPECTOR _____

This list could vary depending upon the types of construction included in the project. A typical list would require a 48-hour notice for inspections at the following points:

√	DESCRIPTION	REMARKS
A.	PRIOR TO INSPECTION	
	Review plans, special provisions, construction & materials manual & specifications that apply to your assigned duties.	
	Discuss your responsibility & authority with the project engineer.	
	Discuss notification, changes, connections, delays, rejections, and tolerances.	
B.	PRE-CONSTRUCTION CONFERENCE	
	Attendees: Owner/Administrator, Developer/Owner, his Contractor, his Engineer, and representatives from Utility Companies	
	Discuss phasing & schedules	
	Discuss materials	
	Discuss Coordination	
	Discuss safety (public & job)	
	Discuss responsibilities	
C.	SANITARY SEWER & LATERALS TO R/W	
	Check pipe type & quality	
	Trench condition	
	Bedding	
	Proper initial backfill	
	Proper backfill	
	Prohibit ground water from entering sanitary	
	Straight alignment & joints	
	Wye installation & location	
	Air test, mainline & laterals	
	Mandrel test on PVC	
D.	SANITARY MANHOLE	
	Check type & condition	
	Steps condition & alignment	
	Cone type & condition	
	Raisers recast/mastic	
	Casting – rim & lid	

	Proper pipe connection	
	Installation with O-rings	
	Installation on good base	
	Proper backfill, compacted granular under or near roadway	
	Exfiltration test	
	Rim & risers to properly finish grade	
	Chimney Seal	
E.	WATER MAIN	
	Type & condition	
	Valve, type & condition	
	Hydrant, type & condition	
	Trench condition	
	Pipe alignment & joints	
	Air release valves	
	Isolation Valve installation & location	
	Hydrant assembly installation & location	
	Restrained as needed	
	Bedding	
	Initial backfill compacted granular	
	Proper backfill – compacted granular under or near roadway	
	Pressure test	
	Purification test	
	Valve & hydrant operation	
	Laterals: Corp Stop K-Copper Curb Stop Meter Set Compacted Granular Backfill Proper Backflow Prevention Backflow Prevention Devises	
F.	STORM SEWER	
	Check pipe size & quality	
	Check catch basin & grate type size & quality	
	Check manhole type size & quality	
	Trench condition	
	Bedding	
	Proper initial backfill	
	Proper backfill, compacted granular under or near roadway	
	Straight alignment & joint sealing	
	Proper connection to catch basin & manholes with grout	
	C.B. set in good horizontal & vertical alignment with curbs	
	Slope & grade: Review control stakes & adjacent terrain for drainage	

	Field tile & other pipes reconnected & noted on plans	
G.	ROADWAY	
	Subgrade:	
	All topsoil removed in roadway	
	Compacted granular or clay fill only	
	Proper cross slope	
	Proper elevation	
	Free of roots, large stones, & excess dust	
	Proper compaction	
	Proofroll or density test, if soft undercut and/or underdrains	
	Measure elevation and cross slope	
	Subbase:	
	Proper material	
	Compacted in appropriate layers	
	Proofroll or density test, if soft undercut and/or tensar	
	Protect subgrade form being rutted or damaged	
	Proofroll subbase before prime coat	
	Measure elevation and cross slope	
	Surface:	
	Appropriate moisture & temperature conditions	
	Visual inspection of material (be aware of acceptable temperature range of mix & compensation)	
	Proper distribution & roller	
	Proper prime coat	
	Lay in proper layer	
	Watch joints, lapps, and ground manholes, valves, etc.	
	Seal against concrete curbs, etc.	
	Measure elevation & cross slope	
	Keep traffic off for 24 hours, if possible	
H.	FIXED STRUCTURES, CURBS, SIDEWALK, HEADWALL, ETC.	
	Determine proper concrete mix	
	Appropriate moisture & temperature conditions	
	Check all underground portions	
	Check backfill, operation & material	
	Check subgrade	
	Check subbase under curbs	
	Review requirements for reinforcing steel	
	Check all reinforcement	
	Check all dowels	
	Check for expansion joints	
	Be aware of time concrete was batched & allowable time for placement	
	Observe mix & placement	
	Observe finishing procedure	

	Needs curing material ASAP	
	If required, check cold weather protection	
	Needs saw joints ASAP	
	Note when forms are removed	
I.	**MISCELLANEOUS**	
	Keep daily logs	
	Pre-mark all existing utilities	
	Reconnect all existing utilities	
	Mark ends of all laterals in field-Contractor's responsibility	
	Mark ends of all laterals on plans	
	Restoration	
	Grade to drain	
	Check trench settlement	
	Seeding & Mulching	
	Erosion Control	
	Inlets	
	Outlets	
	Curb lines	
	Ditches	
	Basins	
	Final check for debris & flow	
	Sanitary sewer	
	Storm sewer manhole & catch basin	
	Curb lines	

100.03 Submission of Plans

A. CONSTRUCTION DRAWINGS

1. Review and/or check sets of construction drawings may be submitted as "half-scale" drawings, (11"X17" or 12'X18") providing these drawings are scalable, and legible. Final approved construction drawings shall be submitted on 24" x 36" vellum or plain bond, 4 mil thickness, double matte or other approved reproducible media signed and approved by a registered engineer shall be made for all new streets, utilities and other improvements to be constructed in any development in the Municipality. Said drawings are to be approved by the Municipality before any construction may begin and before the plat of said development may be recorded. The Municipality reserves the right to require submission of construction drawings in digital form that is compatible with its Geographic Information System.

2. Submission of plans shall comply with Planning Commission regulations and the Municipality of Germantown's Subdivision Regulations and Zoning Code.

B. STANDARD TITLE BLOCK

All plan sheets shall display a standard title block containing the following:

1. Developer's Name, address, telephone number, and fax number (logo optional)
2. Engineer's Name, address, telephone number, and fax number (logo optional)
3. Plan sheet number
4. Development name
5. Sheet title
6. Date
7. Revision block
8. Drawn by
9. Checked by

C. REQUIRED PLAN LAYOUT ORDER

1. Title sheet
2. Final plat
3. Schematic Plan
4. Typical Sections
5. General Notes
6. Site Clearing, Demolition & Grading Plan (Scale to 1" =100' to fit and legible on single sheet)
7. Storm Water Pollution Prevention Plan & Erosion Control Details
8. Miscellaneous Details (example: Pump Station, Intersection Plan)
9. Plan and Profile (1" = 20' horizontal 1" = 5' vertical)
10. Cross-sections (1" = 5' horizontal, 1" = 5' vertical)
11. Detention Basin Plan and Details
12. Off-site Utilities Plan and Profile (1" = 20' horizontal, 1" = 5' vertical)
13. Standard Drawings and Details.

1. TITLE SHEET

a) Title of Project, Municipality, County, Township, and State
b) Index of sheets and sheet numbering
c) Vicinity map with north arrow and project site call-out
d) Municipal standard drawings reference
e) Underground utilities note (O.U.P.S.)
f) Engineer's Signature and stamp
g) Date of finished plans
h) Project description
i) Approval plan signature (All Approving Agencies including Municipality)
j) Name, address, telephone number, and fax number of engineering firm that plans are prepared by

2. FINAL PLAT

a) Copy of approved final plat with signatures
b) See Subdivision Regulations

3. SCHEMATIC PLAN – LARGE SCALE LAYOUT OF SITE

a) At a measurable engineering scale to show the whole site on one sheet (max. scale 1" = 100"). If two sheets are needed than appropriate match lines shall be shown.
b) Show existing and proposed right-of-way, property lines and roadway, lot numbers, street names, existing adjoining property lines, and owners.
c) Show proposed utilities and numbering of sanitary and storm manholes and catch basins.
d) Stationing of intersections and streets.
e) Multi-baseline legend, (street number, stationing, description, etc.)
f) North arrow and scale.
g) Benchmarks and locations
h) Centerline stationing
i) Overall plan view of the development depicting the layout of the proposed sanitary sewer and drainage network. Plans should include all manholes, pipes, other structures, and plan and profile sheet on which they are located.

4. TYPICAL SECTIONS

a) Detailed labeling.
b) Legend of pavement composition.
c) Limiting stations for each section.
d) Dimensioning, pavement, curb and gutter, curb lawn, sidewalk, right-of-way, and pavement slopes.

5. GENERAL NOTES

All notes necessary for construction which are not defined clearly elsewhere within the plans. General shall notes shall include all notes as established on Page no. 500-2 of the standard construction drawings as a minimum.

6. SITE CLEARING, DEMOLITION & GRADING

a) A final site grading plan must be included with the construction drawings and approved by the Municipality.
b) Indicate clearing limits.
c) Indicate any required demolitions and removals.
d) Proposed 1' contours showing all lots having proper drainage.
e) Proposed building pad elevations.
f) Engineer shall indicate overflow flood routing to ensure that structures are not subject to flooding due to inundated drainage systems.

7. Storm Water Pollution Prevention Plan

A storm water pollution prevention plan will be required to be included with the construction drawings and approved by the Municipality. This plan shall follow OEPA and NPDES permit requirements and shall b submitted to and approved by OEPA prior to construction.

a) Show and label existing and proposed 1' contours.
b) Proposed storm manholes, catch basins, pipes, etc. labeled and numbered.
c) Concentrated flows.
d) Property lines and right-of-way, lot numbers and property owners.
e) Proposed/existing roadways.
f) Proposed diversions and erosion control (Example: diversion ditches, fabric fence, straw bales, sediment basin).
g) Erosion control construction sequence list.
h) Limits of grading.
i) Proposed storm sewer pipe flows and capacities.
j) Sediment basin location.
k) North arrow and scale.
l) At a measurable scale to show the whole site on one sheet (maximum scale 1" = 100').

EROSION CONTROL DETAILS

Any details necessary for construction which are not represented by Municipality of Germantown Standard Drawings.

8. MISCELLANEOUS DETAILS (Example: Pump Station, Intersection plan, etc.)

Plans shall include a detailed drawing with all proper labeling and dimensioning.

9. PLAN AND PROFILE

a) The plan and profile shall be at a scale of 1" = 20' horizontal, 1" = 5' vertical.
b) Plan and profile sheets shall show all necessary data in sufficient detail for the complete construction of all work and improvements to be made in the plat.
c) All grade elevations shall be based on U.S.G.S. and Municipality of Germantown datum.
d) All Plan and profile sheets shall clearly indicate site benchmark(s) used for the design.
e) Plan and profile sheets will be required for all on and off-site utility extensions.
f) More specifically, all plans and profile sheets must show and include the following items:

10A General – Plan

a) Show all proposed lots, streets and curbs, etc.
b) Show all existing pavements, headwalls, piers, utilities, mailboxes, trees, etc. (existing infrastructure may be shown in lighter text and no less than 80% shading.)
c) Typical street and curb sections.
d) Construction notes.
e) Structural details.
f) North arrow (up or to the right) and scale (horizontal and vertical).
g) Street names.
h) Centerline stations and ticks every 100' (south to north and west to east).
i) Easements for utilities and storm drainage.
j) Lot numbers, dimensions, and frontage
k) Curb radius at intersections with b/c elevations at quarter points (if not covered in separate intersection detail).
l) Curve data; radius, delta, chord length, chord bearing, arc length, station of PC, PT, PCC, PI, PRC.
m) Sheet reference.
n) Plat section lines (boundary lines) show stations.
o) Dimension and station utility locations.
p) Centerline bearings and/or intersecting centerline angles.
q) Final monument box call outs set at PC, PT, PCC, PI, PRC (in pavement) intersections.
r) Drive apron stationing and width callout.
s) Show all existing features within 50' of right-of-way.
t) Proposed electric, telephone, gas, cable locations and easements.
u) Proposed light pole layout and electric feed.
v) Match lines with stationing.
w) Intersection elevation for proper storm water drainage.
x) Benchmarks.

10B General – Profile

a) Existing centerline and proposed centerline profile.
b) Label proposed centerline grades (minimum grade 0.50%).
c) Show all mainline existing utilities.
d) Existing and proposed grade elevations every 25' (existing elevation on bottom of sheet and proposed elevation on top of sheet. Note as to centerline or top of curb.)
e) Show and label all vertical curves (Stations, elevations, length).

10C Storm Sewer – Plan

a) Show and station, with offsets, the proposed storm sewers: manholes, laterals, catch basins, headwalls, etc.
b) Label each pipe size and type.
c) Number of proposed storm manholes and catch basins.
d) Show all proposed easements.

10D Storm Sewer – Profile

a) Show length of span, size, grade, and class and/or type of proposed pipe.
b) Label existing pipe size and type.
c) Existing and proposed storm.

1) Label existing and proposed mainline storm water manholes, junction boxes, catch basin, etc., and show centerline of streets and stations of each.
2) Show invert elevations of all pipe at manholes, headwalls, junction boxes, catch basins, etc.
3) Show elevation on top of manhole or catch basin.
4) Number proposed storm manholes and catch basins.

10E Water – Plan

a) Show and station with offsets the proposed waterline, laterals, deflection points, hydrants, valves, etc.
b) Label pipe size, tees, crosses, etc.
c) Station and offset above items.
d) Proposed meter pit location.
e) Indicate the testing requirements for fire protection and water services.
f) Show all proposed easements.

10F Water – Profile

a) Show length, size, depth, and class and/or type of pipe.
b) Show deflection points.
c) Show stations and any critical elevations for above items.
d) Label minimum coverage of water main.

10G Sanitary Sewer – Plan

a) Show sanitary sewers, manholes, laterals, cleanouts, etc. with station and offset labeled.
b) Label each pipe size.
c) Number of proposed sanitary manholes and cleanouts.
d) Show all proposed easements.

10H Sanitary Sewer – Profile

a) Show length of span, size, grade, and class and/or type of proposed pipe.
b) Show existing and proposed sanitary.
c) Show invert elevations of all pipe at manholes.
d) Show top elevations of manholes.
e) Number of proposed sanitary manholes and cleanouts.

10. CROSS-SECTIONS

a) Cross sections will be required at all tie-in locations to existing roadways and may be required at other locations if required by the Municipal Engineer.
b) The cross-sections shall be at a scale of 1" = 5' horizontal, 1" = 5' vertical.
c) Cross-sections shall be every 50' and at other critical areas.
d) Show all existing utilities with labels.
e) Show all proposed utilities with labels.
f) Show all proposed and existing roadway sections with existing and proposed centerline elevations.

11. DETENTION BASIN PLAN AND DETAILS

a) Detailed site plan including inlet and outlet elevations, top of bank elevations and emergency overflow elevations.
b) 100-Year Overflow location and routing shall be clearly indicated on the plans.
c) Show all proposed easements.

12. OFF-SITE UTILITIES PLAN AND PROFILE

Refer to Plan and Profile.

CONSTRUCTION PLANS
CHECKLIST

PROJECT _____ DATE _____

√	DESCRIPTION	REMARKS
1.	**REQUIRED PLAN LAYOUT ORDER**	
	Title Sheet	
	Final Plan	
	Schematic Plan	
	Typical Sections	
	General Notes	
	Site Grading	
	Storm water pollution prevention & Plan	
	Misc. Details (e.g. pump station, intersection plan)	
	Plan and Profile (1"=20' horizontal, 1"=5' vertical)	
	Cross-sections (1"=5' horizontal, 1"=5' vertical)	
	Detention Basin Plan and Details	
	Off-site Utilities Plan and Profile (1"=20' horizontal, 1"=5' vertical)	
	Standard drawings and details	
2.	**TITLE SHEET**	
	Title of Project, Municipality, County, Township, and State	
	Index of sheets and sheet numbering	
	Vicinity map with north arrow and project site callout	
	Municipal standard drawing reference	
	Underground utilities note (O.U.P.S.)	
	Signature and stamp	
	Date of finished plans	
	Project description	
	Developer's name and contact information	
	Approval plan signatures	
	Name, address, telephone number, and fax number of firm that plans are prepared by	
3.	**FINAL PLAT**	
	Copy of approved final plat	
	See Subdivision Regulations	
4.	**SCHEMATIC PLAN – LARGE SCALE LAYOUT OF THE SITE**	
	At a measurable scale to show the whole site on one sheet (max. scale 1" = 100').	
	Show existing and proposed right-of-way, property lines and roadway; lot numbers, street names, existing adjoining property lines and owners.	
	Show proposed utilities and numbering of sanitary and storm manholes and catch basins.	

	Stationing of intersections and streets.	
	Multi-baseline legend, (street number, stationing, description, etc.).	
	North arrow and scale.	
	Benchmarks and locations.	
	Centerline stationing.	
	Overall plan view of the development depicting the layout of the proposed sanitary sewer and drainage network. Plans should include all manholes, pipes, other structures, and the plan and profile sheet on which they are located.	
5.	TYPICAL SECTIONS	
	Detailed labeling.	
	Legend of pavement composition.	
	Limiting stations for each section.	
	Dimensioning, pavement, curb and gutter, curb lawn, sidewalk, right-of-way and pavement slopes.	
6.	GENERAL NOTES	
	All notes necessary for construction which are not defined clearly elsewhere within the plans.	
7.	SITE CLEARING, DEMOLITION & GRADING PLAN	
	A final site grading plan must be included with the construction drawings and approved by the Municipality.	
	Proposed 1' contours showing all lots having proper drainage along with building pad elevations.	
	Show and label existing and proposed 1' contours	
	Proposed storm manholes, catch basins, pipes, etc., labeled and numbered.	
	Concentrated flows.	
	Property lines and right-of-way, lot numbers, and property owners.	
	Proposed/existing roadways.	
	Proposed diversions and erosion control (e.g. diversion ditches, fabric fence, straw bales, sediment basins.)	
	Site demolition and removals	
	Limits of clearing & grading.	
	Proposed storm sewer	
	Sediment basin location.	
	North arrow and scale.	
	At a measurable scale to show the whole site on one sheet. (Maximum scale 1" = 100')	
8.	STORM WATER POLLUTION PREVENTION PLAN & EROSION CONTROL DETAILS	
	A Storm Water Pollution Prevention Plan will be required to be included with the construction drawings and approved by the Municipality. This plan shall follow the OEPA and NPDES permit requirements and shall be submitted to and approved by OEPA prior to construction.	

	Any details necessary for construction which are not represented by Municipality of Germantown Standard Drawings.	
9.	**MISC. DETAILS (e.g. pump station, intersection plan etc.)**	
	Plans shall include a detailed drawing with all proper labeling and dimensioning.	
10.	**PLAN AND PROFILE**	
	Use a scale of 1" = 20' horizontal, 1" = 5' vertical.	
	Show all necessary data in sufficient detail for the complete construction of all work and improvements to be made in the plat.	
	All grade elevations shall be based on U.S.G.S. and Municipality of Germantown datum.	
	Plan and profile sheets are required for all off-site utility extensions.	
10A	**GENERAL – PLAN**	
	Show all proposed lots, streets, and curbs, etc.	
	Show all existing pavements, headwalls, piers, utilities, mailboxes, trees, etc. (existing infrastructure may be shown in lighter text and no less than 80% shading).	
	Typical street and curb sections.	
	Construction notes.	
	Structural details.	
	North arrow (preferably up or to the right) and Scale: horizontal and vertical.	
	Street names.	
	Centerline stations and ticks every 100' (south to north and west to east where possible).	
	Easements for utilities and storm drainage.	
	Lot numbers, dimensions, and frontage.	
	Curb radius at intersections with b/c elevations at quarter points (if not covered in separate intersection detail)/	
	Curve data: radius, delta, chord length, cord bearing, arc length, station of PC, PT, PCC, PI, PRC.	
	Sheet reference.	
	Plat section lines (boundary lines) show stations.	
	Dimension and station utility locations.	
	Centerline bearings and/or intersection centerline angles.	
	Final monument box call outs set at PC, PT, PCC, PI, PRC (in pavement) intersections.	
	Drive apron stationing and widths call out.	
	Show all existing features within 50' of right-of-way.	
	Proposed electric, telephone, gas, cable locations, and easements.	
	Proposed light pole layout and electric feed	
	Match lines with stationing.	
	Intersection elevation for proper storm water drainage.	
	Site Benchmarks.	

10B	GENERAL – PROFILE	
	Existing centerline and proposed centerline profile.	
	Label proposed centerline grades (minimum grade 0.50%).	
	Show all mainline existing utilities.	
	Existing and proposed grade elevations every 25' (existing elevations on bottom of sheet and proposed elevation on top of sheet. Note as to centerline or top of curb).	
	Show and label all vertical curves (stations, elevations, length)/	
10C	STORM SEWER – PLAN	
	Show and station, with offsets, the proposed storm sewers: manholes, laterals, catch basins, headwalls, etc.	
	Label each pipe size and type.	
	Number of proposed storm manholes and catch basins.	
10D	STORM SEWER – PROFILE	
	Show length of span, size, grade, and class and/or type of proposed pipe.	
	Label existing pipe size and type.	
	Label existing and proposed mainline storm water manholes, junction boxes, catch basins, etc., and show centerline of streets and stations of each.	
	Show invert elevations of all pipe at manholes, headwalls, junction boxes, catch basins, etc.	
	Show elevation on top of manhole or catch basin	
	Number proposed storm manholes and catch basins.	
10E	WATER – PLAN	
	Show and station, with offsets, the proposed waterline, laterals, deflection points, hydrants, valves, etc.	
	Label pipe size, tees, crosses, etc.	
	Station and offset above items.	
	Proposed meter pit location.	
	Indicated the testing requirements for fire protection and water services.	
10F	WATER – PROFILE	
	Show length, size, depth, and class and/or type of pipe.	
	Show deflection points and station fittings (elbows, tees, valves, etc.)	
	Show stations and any critical elevations, for above items.	
	Label minimum coverage of water main.	
10G	SANITARY SEWER – PLAN	
	Show sanitary sewers, manholes, laterals, cleanouts, etc. with station and offset labeled.	
	Label each pipe size.	
	Number of proposed sanitary manholes and cleanouts.	

10H	SANITARY SEWER – PROFILE	
	Show length of span, size, grade, and class and/or type of proposed pipe.	
	Show existing and proposed sanitary.	
	Show invert elevations of all pipe at manholes.	
	Show top elevations of manholes.	
	Number of proposed sanitary manholes and cleanouts.	
11.	CROSS-SECTIONS (as required)	
	Cross-sections shall be at a scale of 1"=5' horizontal, 1"=5' vertical.	
	Cross-sections shall be every 50' and at other critical areas.	
	Show all existing utilities with labels.	
	Show all proposed utilities with labels.	
	Show all proposed and existing roadway sections with existing and proposed centerline elevations.	
	Cross-section at each drive and intersection roadway.	
12.	DETENTION BASIN	
	Indicate 100-year overflow routing	
	Detailed site plan including inlet and outlet elevations, top of bank elevations and emergency overflow elevations.	
13.	OFF-SITE	
	Refer to sheet Number 10 Plan and Profile.	

100.04 Record Drawings Requirements

A. RECORD DRAWINGS REQUIREMENTS

1. At the completion of construction, the original tracing shall be revised as necessary to provide "Record Drawings". This work shall be done by the Developer/Owner's Engineer, who was responsible for setting grades and staking for improvements. The "Record Drawings" shall include the following information:

    a) Location of all water and sanitary services as well as storm outlets if provided.

    b) Final elevations and locations of the following:

        1) Storm sewer inlets, outlets and manholes with all inverts
        2) Drainage swales, detention basins including structures with all elevations and capacity recalculated
        3) Sanitary sewer manholes and inverts and lateral locations
        4) Curb, gutter and centerline elevations at locations where they are ended for future roadway extensions.

    c) The location of any additional improvements, construction as additions, or changes to the approved plans, such as tapping sleeves, blind taps, joint clamps, or any other field change item.

    d) The original tracing and digital files shall become the property of the Municipality.

100.05 Penalties

Failure to comply with the Municipality's Design Criteria and Construction Standards and Drawings shall result in penalties assessed according to the severity and frequency of individual offenses and per the requirements defined in the Municipality's Subdivision Regulations and Zoning Code.

Developer shall be responsible for costs incurred by the Municipality to ensure that engineering plans and specifications, and construction complies with the Municipality's Subdivision Regulations and Zoning Code.

200.00

Definitions

AASHTO
ANSI
ASCE
ASTM
Average Daily Flow
AWWA
Bedding
Catch Basin
Collector Sewer
Combined Sewer
Cross-Connection
Culvert
Curb Inlet
Design Storm
Detention/Retention
Discharge
Drainage Area
Drop Manhole
Earth-Disturbing
Energy Gradient
Energy Gradient Line
Energy Head
Energy Line
Erosion
Exfiltration
Fire Hydrant
Grassed Waterway
Headwall
Headwater
House Connection
House Sewer
Infiltration
Infiltration/Inflow
Inflow
Inlet Control
Interceptor Sewer
Joints
Jurisdiction
Main
Manhole
Manning Roughness Coefficient
Meter
Normal Depth
OEPA
Outlet Control
Overflow
Peak
Rainfall Intensity
Rational Formula
Runoff Wastewater
Sanitary Wastewater
Sediment
Sediment Basin
Sediment Control Plan
Sediment Pollution
Service
Tailwater
Time of Concentration
Water Resource

200.00 DEFINITIONS

Interpretation of Terms or Words

Regardless of capitalization, definitions are standard for the intent of these Design Criteria.

AASHTO
American Association of State Highway and Transportation Officials

ANSI
American National Standards Institute

ASCE
American Society of Civil Engineers

ASTM
American Society for Testing and Materials

AVERAGE DAILY FLOW
The total quantity of liquid tributary to a point divided by the number of days of low measurement.

AWWA
American Water Works Association

BEDDING
The earth or other materials on which a pipe or conduit is supported

CATCH BASIN
A structure intended to collect surface runoff and direct it into the storm sewer system.

COLLECTOR SEWER
A sewer normally less than 15 inches in diameter that receives wastewater from the sanitary laterals and transports it to the interceptor sewer.

COMBINED SEWER
A sewer intended to receive both wastewater and storm or surface water.

CROSS-CONNECTION

A. A physical connection through which a supply of potable water could be contaminated or polluted.
B. A connection between a supervised potable water supply and an unsupervised supply of unknown portability.

CULVERT
A structure which allows surface runoff to flow through a roadway fill or similar obstruction of open flow. Culvert may be corrugated metal pipe, reinforced concrete, etc.

CURB INLET
A specialized catch basin (see catch basin) designed to collect runoff from pavement with curbing.

DESIGN STORM

The expected frequency of the storm for which the capacity of a structure will be equaled or exceeded. The capacity of a storm sewer designed for a 10-year design storm has a 1 in 10 chance of being equaled or exceeded in any given year.

DETENTION/RETENTION

The term detention/retention basin refers to the use of a storm water storage facility which will store storm water and release it at a given rate. The objective of a detention/retention facility is to regulate the rate of runoff and control the peak discharges to reduce the impact on the downstream drainage system.

Type of Storm Water Storage Facilities:

A. Detention Basin or Dry Basin – Dry Basins are surface storage areas created by constructing a typical excavated or embankment basin.

B. Retention Basins or Ponds – Retention basins are permanent ponds where additional storage capacity is provided above the normal water level.

C. Parking Lot Storage – Parking lot storage is a surface storage facility where an inlet is undersized causing shallow ponding to occur in specific graded areas of the parking lot.

D. Subsurface Storage – Subsurface storage is a structure constructed below grade for the specific purpose of detaining storm water runoff.

DISCHARGE

The amount of flow carried by a culvert or storm sewer, normally measured in cubic feet per second.

DRAINAGE AREA

The area, in acres, which drains to a particular catch basin, culvert, or similar structure.

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 outside the manhole is provided to divert the wastewater for the upper to the lower level so that it does not fall freely into the manhole except at peak rate of flow.

EARTH-DISTURBING ACTIVITY

Any grading, excavating, filling or other alteration of the earth's surface where natural or manmade ground cover is destroyed and which may result in or contribute to erosion and sediment pollution.

ENERGY GRADIENT

The slope of the energy line of a body of flowing water with reference to a datum plane.

ENERGY GRADIENT LINE

The line representing the gradient which joins the elevation of the energy head.

ENERGY HEAD

The height of the hydraulic grade line above the centerline of a conduit plus the velocity of the head of a mean velocity of the water in that section.

ENERGY LINE

A line joining the elevation of the energy heads; a line drawn above the hydraulic grade line by a distance equivalent to the velocity head of the flowing water at each section along a stream, channel or conduit.

EROSION

A. The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

B. Detachment and movement of soil or rock fragments by wind, water, ice, or gravity.

C. Erosion includes:

1. Accelerated erosion: Erosion much more rapid than normal, natural or geologic erosion, primarily as a result of the influence of the activities of man.
2. Floodplain erosion: Abrading and wearing away of the nearly level land situated on either side of a channel due to overflow flooding.
3. Gully erosion: The erosion process whereby water accumulates in narrow channels during and immediately after rainfall or snow or ice melt and actively removes the soil from this narrow area to considerable depths such that the channel would not be obliterated by normal smoothing or tillage operations.
4. Natural erosion (geological erosion): Wearing away of earth's surface by water, ice or other natural environmental conditions of climate, vegetation, etc., undisturbed by man.
5. Normal erosion: The gradual erosion of land used by man which does not graatly exceed natural erosion.
6. Rill erosion: An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently disturbed soils.
7. Sheet erosion: The removal of a fairly uniform layer of soil from the land surface by wind or runoff water.

EXFILTRATION

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

FIRE HYDRANT

A fixture installed throughout urban water distribution systems to provide water for fire fighting needs.

GRASSED WATERWAY

A broad or shallow natural course or constructed channel covered with erosion-resistant grasses or similar vegetative cover and used to conduct surface water.

HEADWALL

A structure placed at the ends of a culvert to prevent movement of the culvert and reduce erosion.

HEADWATER

The vertical distance from a culvert invert at the entrance to the water surface upstream for the culvert.

HOUSE CONNECTION

The pipe carrying the wastewater from the building to a common sewer. Also called building sewer, house sewer or sanitary lateral. The house connection begins at the outer face of the building wall.

HOUSE SEWER

A pipe conveying wastewater for a single building to a common sewer or point of immediate disposal. See house connection.

INFILTRATION

The discharge of ground waters into sewers, through defects in pipe lines, joints, manholes or other sewer structures.

INFILTRATION/INFLOW

A combination of inflow wastewater volumes in sewer lines with no way to distinguish either of the two basic sources, and with the same effect as surcharging capacities of sewer systems and other sewer system facilities.

INFLOW

The discharge of any kind of water into sewer lines from such sources as roof leaders, cellars, sump pumps and yard-area drains, foundation drains, commercial and industrial so-called "clean water" discharges, drains from springs and swampy areas, etc. It does not "infiltrate" into the system and is distinguished from such wastewater discharge, as previously defined.

INLET CONTROL

A situation where the discharge capacity of a culvert is controlled at the culvert entrance by the depth of headwater and the entrance geometry, including the area, shape, and type of inlet edge.

INTERCEPTOR SEWER

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

JOINTS

The means of connecting sectional lengths of storm sewer pipe into a continuous sewer line using various types of jointing materials with various types of pipe information.

JURISDICTION

Any government entity, such as town, Municipality, county, sewer district, sanitary district or authority, or other multi-community agency which is responsible for and operates sewer systems, pumping facilities, regulator-overflow structures, and wastewater treatment works.

MAIN

The large water-carrying pipe to which individual user services are connected. Mains are normally connected to each other in a grid type system.

MANHOLE

An opening in a sewer provided for a purpose of permitting a man to enter or have access to the sewer.

MANNING ROUGHNESS COEFFICIENT

The roughness coefficient in the Manning Formula for determination of the discharge coefficient in the Chezy Formula.

METER

The flow measuring device installed at each service on a distribution system to measure the amount of water consumed by users at that service.

NORMAL DEPTH
The depth at which water flow in a pipe or channel by virtue of its slope and roughness, based on the Manning Formula.

OEPA
Ohio Environmental Protection Agency

OUTLET CONTROL
A situation where the discharge capacity of a culvert is controlled by the barrel of the culvert, rather than the inlet.

OVERFLOW
A pipe line or conduit device, together with an outlet pipe, which provides for the discharge of a portion of sewer flow into receiving water or other points of disposal.

PEAK
The maximum quantity that occurs over a relatively short period of time. Rainfall intensity is usually measured in inches per hour.

RAINFALL INTENSITY
The amount of rain falling over a specified period of time. Rainfall intensity is usually measured in inches per hour.

RATIONAL FORMULA
The method used to determine the amount of runoff from a specified area of known surface characteristics.

RUNOFF COEFFICIENT
A coefficient used in the Rational Formula to express the ratio of runoff to rainfall.

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 buildings, industrial plants, or institutions.
C. The water supply of a community after it has been used and discharged into a sewer.

SEDIMENT
Solid material both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by wind, water, gravity, or ice, and has come to rest on the earth's surface above or below sea level.

SEDIMENT BASIN
Barrier, dam, or other suitable detention facility built across an area of waterflow to settle and retain sediment carried by the runoff waters.

SEDIMENT CONTROL PLAN
A written description, acceptable to the approving agency, of methods for controlling sediment pollution form accelerated erosion on a development area of 5 or more contiguous acres or from erosion caused by accelerated runoff from a development area of 5 or more contiguous acres.

SERVICE
The pipe carrying water to individual houses or other users on a distribution system.

TAILWATER

The vertical distance from a culvert invert at the outlet to the water surface downstream from the culvert.

TIME OF CONCENTRATION

The time required for water to flow from the hydrologically remote point of a basin to the outlet or collection point being analyzed. The time of concentration is the maximum time for water to travel through the watershed, which is not always the maximum distance form the outlet to any point in the watershed. The time of concentration for all drainage design of areas larger than 20 acres should be computed using the TR-55 method

WATER RESOURCE

Any natural or unnatural body of water, swale, ditch, conduit, pond, lake, etc. that receives or transports storm water runoff.

300.00 ROADWAYS

300.01 General

All street design and layout shall follow the Municipality of Germantown Construction Standards and Drawings, the Ohio Department of Transportation (ODOT) Location and Design Manual, Volume One, Roadway Design, latest version, and AASHTO. The most restrictive shall apply as determined by the Municipal Engineer. These criteria cover design factors and provide guidelines for evaluations of plans and specifications by the Municipality. The design shall be consistent with the requirements of AASHTO and ODOT.

600.00
Subdivision Drainage Regulations

600.00 STORM DRAINAGE

600.01 Introduction

Nature has carved an effective and functional drainage system from the unique topographic features of the Municipality of Germantown. The Miami River, its tributary rivers, and creeks and streams which flow into these are the more apparent parts of the drainage system. Less obvious are the shallow gullies and sloping, rolling land features which collect, concentrate, and direct storm runoff to the larger watercourses.

To accommodate construction of houses and streets, subdivisions must change the surface of the land. The rolling land is graded to eliminate the high and low areas.

Buildings, streets and parking areas replace meadows and forest land. Changes like these cause the storm runoff to behave differently. Where formerly water would soak into the earth or runoff slowly, the impenetrable surface of the roof or pavement area causes more water to runoff and to flow at a faster rate.

The increased water and rate of flow places a stress on the existing natural drainage system. Because the system does not have the necessary capacity for the demand placed on it, the system will flood its banks. Backups occur and water remains standing in the street or finds alternate paths into the basement of homes.

NOTE: The enclosed Subdivision Drainage Regulations are not intended to establish a rigid set of rules to be adhered to at all costs. They are intended as a tool to be used by the creative and innovative engineer in the design of the storm water system. These regulations are based on the assumption that the user has an understanding of hydrology and hydraulic engineering.

600.02 General Drainage

Of primary importance is the protection of existing and proposed developments from damage and/or inundation resulting from an overflowing watercourse. Provisions must be made to convey storm waters, both those originating from outside as well as inside the tract, through the development with facilities of sufficient capacity to permit the ultimate development of the upstream tributary area.

Of equal importance is the responsibility of the developer to discharge storm waters, originating within the subdivision or conveyed through the subdivision, on the downstream adjacent lands or properties and to return the flow to as near predevelopment conditions as possible. For example, a prior sheet flow condition should be returned to sheet flow condition prior to leaving the development area, or provisions made for channelization downstream to an adequate channel or watercourse. This does not imply that the developer be required to make extensive or unreasonable downstream improvements to existing inadequate drainage facilities. It does, however, require the developer to investigate the effect of his proposal on the downstream drainage system. If the work required downstream proves to be prohibitive, the developer may choose to reduce the outflow from his development by including detention and/or retention basin designs in his proposed drainage system.

The design storm with an average recurrence interval of 10 years should be contained within gutter and parking lane area of the adopted street cross section.
Lot grading, in-tract drainage, and street improvements for all subdivisions should be designed so that floods having an average recurrence interval of 50 years or less will not cause inundation or damage to any dwellings. A grading plan for each subdivision will be required to define the lot grading and in-tract drainage.

All drainage channels, conduits, and other structures located outside the road right-of-way should be contained in suitable public easements. Easements for open channels should include sufficient area along the channel banks to permit access for maintenance equipment. Open channels may be fenced along both sides through urban areas and where necessary to protect the public as well as preventing encroachment upon needed access area.

600.03 Planning and Urban Drainage

The development of an urban drainage plan requires the consideration of three drainage elements. These are initial drainage, major drainage and storm water storage.

Planning and designing must consider the regular, frequently occurring storm; that is, the initial storm, and the less frequent but more extensive major storm occurrence. Planning for storage is essential to ensure water will go where it will not create a problem. Erosion controls must be considered before the earth is disturbed and significant losses and damage occur.

1. The Initial Drainage System

The initial drainage system collects and transports storm runoff from frequently occurring storms.

The initial system includes street curbs and gutters, underground storm sewer pipes, manholes, culverts, and open channels or drainage ways. Its purpose is to prevent heath hazards associated with low areas where water might ordinarily stand.

It should be noted that the preliminary layout of the drainage system will have more effect on the cost of the storm drainage system that the combined effect of the final hydraulic design, preparation of the specifications, and choice of materials. The deal time to undertake the layout of the storm sewer system is prior to finalization of the street layout in a new development. Once the street layout is set, the options open to the drainage engineer are greatly reduced.

Streets serve an important and necessary drainage service, even though their primary function is for the movement of traffic. Traffic and drainage uses are compatible up to the point at which drainage must be subservient to traffic needs.

2. The Major Drainage System

It is not economically feasible to size a storm sewer system to collect and convey more than the frequent storm runoff. However, runoff which exceeds the capacity of the storm sewer system must have a route to follow. Essentially, the complete drainage system of an urban area contains two separate drainage elements. While the storm sewers belong to the initial system, surface drainage ways must be provided for the major flows resulting from more intense storms.

The intent of planning for the major drainage element is to ensure storm water runoff, which exceeds the capacity of the initial drainage system, has a route to follow which will not cause a major loss of property of any loss of life. Street right-of-way is a common choice for conveying major drainage flows as well as side and rear lot lines.

3. Storage

The intention of these guidelines is to control the increases of runoff resulting from development with various storage mechanisms. While considerable storage can be achieved within channels and storm sewers, special storage facilities, either single or multipurpose, may have to be established for new developments. Like the rest of the drainage system, both the location and type of storage facilities should be determined as part of the overall site layout.

Parkland presents an excellent opportunity for the temporary detention of runoff from adjacent areas. In many cases, the use of parkland for this purpose allows storm drainage, which is often considered both a nuisance and a hazard, to be used productively in permanent ponds. Such detention storage areas may be established as an integral part of the open space areas of a development.

600.04 General Requirements

Subdivisions shall be protected from flood damage and inundation by storm water, springs and other surface waters. The design and construction of drainage facilities shall be such that watercourses passing through the subdivision and storm water originating from within the subdivision will be carried through and away from the subdivision without causing inundation or damage to any dwelling. Drainage water entering the subdivision shall be received and discharged from the subdivision at the locations and , as nearly as possible, in the same manner that existed prior to the construction of the subdivision drainage facilities. Design of the drainage facilities within the subdivision shall be such that they will not divert drainage area from one watershed to another.

600.05 Design of Drainage Facilities

A. Hydrologic Design

All drainage ways shall be designed in accordance with the following criteria:

1. Major Waterways: Major waterways are defined as those with a tributary area in excess of 4 square miles. Such major waterways shall be designed for an average recurrence interval of 100 years.
2. Secondary Waterways: Secondary waterways are defined as those with a tributary area of between 1 and 4 square miles. Such secondary waterways shall be designed for an average recurrence interval of 50 years.
3. Minor Waterways: Minor waterways are defined as those with 1 square mile or less of tributary area. Such minor waterways shall be designed for an average recurrence interval of 25 years for open channels. See storm sewer design criteria for closed conduits.

Design flows for major and secondary drainage facilities shall be computed by the subdivider's engineer by using U.S. Geological Survey (U.S.G.S.) Report 89-4126, "Techniques for Estimating Flood-Peak Discharges of Rural, Unregulated Streams in Ohio", or U.S.G.S. Report 86-4197, "Estimating Peak Discharges, Flood Volumes, and Hydrograph Shapes of Small Ungaged Urban Streams in Ohio", as defined by the limits of those reports. Basic data for determining parameter values may be found within the reports.

The peak rate of runoff for major drainage facilities may be computed using the Rational Method for areas up to 200 acres. Basic data for the determination of rainfall intensity and runoff coefficients will be found in Exhibits A and D, respectively. U. S.G.S. Reports 89-4126 and 86-4197 are alternate methods for determining the runoff for stream flows with over approximately 20 tributary acres. When it is necessary to know the volume of water discharged, in addition to the peak rate of discharge, the Rational Method is not adequate. The Unit Hydrograph Method, as outlined in "Urban hydrology for Small Watersheds", Technical Release TR No. 55, published by the Soil Conservation Service, will provide both the peak discharge and the volume of discharge for a given drainage area. The design engineer will want to select the appropriate method depending on the information needed and the size of the area under study.

B. Hydraulic Design

The hydraulic design of the subdivision shall be such that after accumulating all energy losses, such as pipe friction, manhole losses, losses at bends, etc., along the various drainage transmission lines within the subdivision, the depth of flow in the streets shall not exceed the curb heights for a storm with a 10 year average recurrence interval.

The depth of flow or ponding for a 50 year average recurrence interval storm shall not exceed a level which would cause inundation or damage to any dwelling constructed within the subdivision.

The design hydraulic grade line for any closed or open waterway, bridges, or culverts (excepting curb and gutter or road side ditch sections) shall be two (2) feet or more below ground level. In addition, a storm sewer shall be designed so that the hydraulic grade line when plotted after accumulating all energy losses, shall be no higher that the inlet grates for a design discharge (Q) of 110 percent of the 10 year design discharge (Q).

Within the subdivision, catch basins shall be so placed along the streets that the width of flow in the gutter will not exceed 8 feet for a 2 year recurrence interval, and will not exceed the top of curb for a 10 year average recurrence interval.

Site grading within the subdivision shall be such that all lots will readily drain.

Bridges spanning open waterways shall have minimum freeboard above water surface of 2 feet.

C. Structural Design

Insofar as practicable, catch basins, manholes, inlet structures, etc., placed within the subdivision shall conform to standard plans on file with the Municipality of Germantown. Structural design of all drainage facilities shall be subject to the approval of the Municipality of Germantown's Engineer.

1. **Channels:** Minimum centerline radius of constructed channels shall be 5 times the top width of the channel. Minimum bottom width of constructed channels shall be 2 feet.

   Each channel constructed within the subdivision shall have side slopes of 2:1 or flatter. Bank stabilization and stream bed stabilization, along constructed or natural channels, will be required if the channel velocities are sufficient to cause bank or invert erosion.

   The top of bank shall be so graded that side drainage will enter channels only at points where structures are provided to prevent bank erosion.

Side drainage flow shall enter the channel as nearly parallel with stream flow as possible. Earth channels constructed within the subdivision shall be seeded or sodded depending on the velocity of flow within the channel.

2. **Closed Conduits:** All storm drainage within the subdivision which is cabable of being transmitted in a concrete pipe 72" or less in diameter, shall be carried in a closed conduit. The minimal conduit size shall be 12" pipe.

   Minimum clearance between top of pipe and top of surface should be 2 feet. The alignment of closed conduits shall be as nearly straight as practicable without undue bends and angle points; manholes shall be provided at all angle points and at intervals not to exceed 300 feet along the conduit unless submitted for approval with proper documentation. Inverted siphons shall not be permitted except for temporary structures.

   Non-reinforced concrete or alternative material pipe may be used outside of road right-of-way provided the strength of such pipe is sufficient to withstand the loads imposed upon it. The pipe shall be designed in accordance with the Ohio Department of Transportation design manual.

Ditch protection shall be required if the velocities of flow in a channel of waterway exceed four (4) feet per second for soil ditches or six (6) feet per second in sodded ditches. If the exit velocity from a storm sewer exceeds the allowable velocities, an energy dissipating device, i.e., stilling basing, dumped rock, may be necessary.

D. Storm water Runoff Control Criteria for Retention/ Detention Basins

The basic premise is that land uses and developments which increases the runoff rate and volume shall be required to control the discharge rate of runoff prior to its release to its off-site outlet.

Any increase in the volume of site surface drainage water resulting from accelerated runoff caused by site development shall be controlled so that the post development peak rate of runoff does not exceed that of the pre-development stage, for all 24 hour storms between a one year frequency and the critical storm frequency as determined below. The method by which an applicant shall determine changes in rates and volumes of runoff is presented in the U.S. Department of Agriculture, Engineering Division of the Soil Conservation Service, *Urban Hydrology for Small Watersheds*, Technical Release No. 55, June 1986 or most current edition.

To find the critical storm frequency for which additional control will be needed, the applicant shall:

a. Determine the percent increase in runoff volume for a one year frequency, 24 hour storm occurring on the development area.
b. Determine the critical storm frequency for which additional control is needed by using the percent increase in runoff volume, derived in (a), in Table 1.
c. Control the post development storms of a frequency between one year and the critical storm determined in (b), so as to be equal to or less than the pre-development peak runoff rate for a 24 hour one year frequency storm.

Other procedures may be used to accelerated runoff rates provided they are acceptable to the Municipality of Germantown's Engineer.

600.06 Drainage plan

The subdivision map shall included sufficient data for the Municipality of Germantown to check the feasibility of the drainage system as proposed by the subdivider. The following data shall be provided:

A. Hydrologic Calculation
(At all critical points within the subdivision):

1. Tributary drainage areas delineated on the map.
2. Times of concentration.
3. Intensity.
4. Runoff Coefficients
5. Design flow.

B. Hydraulic Calculation

1. Sufficient documentation to indicate the results of the investigation into the adequacy of the downstream drainage system to handle the runoff from the proposed development. This will determine the maximum allowable release rate for the proposed development and, in turn, the amount of storm water storage that will be required.
2. The plan and profile of all drainage ways shall be provided, imposed upon which shall be the design energy and hydraulic grade lines.
3. Sizes and types of drainage improvements, including special structures, typical sections, right-of-way width and fencing.
4. Supporting calculations for upstream and downstream channel capacities as they affect overflow, erosion or backwater within the subdivision. Such calculations shall be substantiated by such additional information as is required to determine profile and cross section of the upstream and downstream channel reaches under consideration.

600.07 Construction Plans

The final construction plans for drainage within the subdivision shall conform to the above provisions and to any special conditions as required by the Municipality of Germantown's Engineer in approving the tentative map. Such construction plans for drainage shall be approved by the Municipality of Germantown's Engineer prior to construction of any drainage facilities within the subdivision. A grading plan shall be submitted along with the construction plans to identify the lot grading and in-tract drainage planned for the subdivision.

Runoff coefficients shall be 0.4 for residential use, 0.6 for apartment and multi-family use, and 0.9 for commercial and industrial use. The assigning of runoff coefficients to areas tributary to the drainage area shall be based on the present use of the land, or, the present zoning of the land, whichever is the high figure.

The designer should investigate the capacity of the downstream drainage facilities to determine if they will be adequate to handle the design flow from this particular subdivision. If the downstream facilities are inadequate, it may be necessary to provide on-site retention or ponding basins to limit the flow to an amount which the downstream system can accept.

600.08 Storm Water Runoff Policy

This design criteria is premised on the policy that land uses and developments which increase the runoff rate or volume shall be required to control the discharge rate of runoff prior to its release of off-site land. The purposed of this policy are to :

1. Permit development without increasing the flooding of other lands.
2. Reduce damage to receiving streams and impairment of their capacity which may be caused by increases in the quantity and rate of water discharged.
3. Establish a basis for design of a storm drainage system on lands below underdeveloped areas which will preserve the rights of property owners and assure the long-term adequacy of storm drainage systems.

This runoff control policy applies to all land developments not specifically exempted below.

600.09 Proposed Guidelines for Detention Basins

Statement of Purpose

As urban development continues to transform previous watersheds into highly impervious urban areas, the problem of handling the ever increasing storm water runoff on these watersheds is becoming more pronounced. In recent years, much attention has been focused on detention basins as a means of controlling the storm water runoff by detaining the water in the basin and releasing it at a rate compatible with downstream conditions. Some basins have a multi-purpose function, containing sport facilities, lakes and a park-like atmosphere during dry periods.

The recommendations presented in this report are intended to serve this function. By following the recommendations, the detention basin can be designed so as to obtain the maximum recreational aesthetic benefits for the surrounding community while serving as an effective flood control mechanism.

A. Planning Guidelines

1. Detention basins serve to capture and temporarily store the surface water runoffs which result for urban developments. This temporary storage allows for the release of the storm runoff at discharge rates which are acceptable to the receiving waterway.
2. Basins shall be located so that access is permanently established via easement.
3. Maintenance of all basins shall be the responsibility of the subdivider and the plat shall include covenants stating that should the Municipality have to maintain and/or repair the basin than the cost for this maintenance and/or repair shall be assessable to the person and/or entities responsible for the maintenance and/or repair of the basin.
4. On-site provision for detention storage would follow these approaches:
   a. The release rate and volume of detention storage would be based on the Municipality of Germantown Subdivision Regulations.
   b. Recreational uses should be maximized where possible and feasible.

B. Recommendations for Dry Detention Basins

1. Where water quality during dry weather periods in a small basin would be a potential problem due to lack of adequate dry weather flow, direct pollution from surface water runoff, or high nutrients in the flow; the basin should be designed to remain dry except when in flood use.
2. Dry detention basins should be designed to minimize the wetness of the bottom so that water does not remain standing in the bottom; thereby harboring insects and limiting the potential use of the basin. This shall be accomplished by means of a concrete low flow channel between inlet and outlet structures. Minimum slope shall be no less than 0.5 percent. An acceptable alternative to a concrete low flow channel will be an underdrain. In this case, a minimum 1 percent slope shall exist between inlet and outlet structures and the surface above the underdrain shall be grass reinforced by a fabric mesh.
3. The detention basin should be designed to have a multi-purpose function. Recreational facilities, aesthetic qualities, etc., as well as flood water storage should be considered in planning the basin.
4. Side slope shall be 3 to 1 or flatter.
5. There shall be a minimum of a 3-foot berm at 2 percent between right-of-way and top of basin slopes.

C. Recommendations for Basins Containing Permanent Water

1. In order to provide better management for water quality, retention basins containing permanent lakes should have a water area of at least one-half acre. The lake area should be an average depth of at least approximately 4 feet to inhibit weed and insect growth, and should have no extension shallow areas. A system to augment storm flows into the lake with water from other sources should be provided to enhance the water quality, if necessary. These systems would include the use of public water supplies or wells on site.
2. In excavated lakes, the underwater side slopes in the lakes should be stable.
3. A safety ledge 4 to 6 feet in width is recommended and should be installed in all lakes approximately 30 to 36 inches below the permanent water level to provide a footing if people fall into the water. In addition, there shall be a minimum of a 5-foot berm at 2 percent slope beginning at least 1 foot above normal pond elevation. The slope between two ledges should be stable and of a material which will prevent erosion due to wave action (see sketch attached). Walkways consisting of a non-erosive material should be provided in areas where extensive population use tramples growth. One area in particular would be along the shoreline of a heavily fished lake.
   a. Side slopes above the berm shall be 3 to 1 or flatter.
4. Side slopes of the pool shall be 2 to 1 or flatter.
5. To obtain maximum recreational benefits from developed water areas and provide for insect control, ponds should be stocked with fish. For best results, stocking should follow recommendations for warm water sport fishing by the Ohio Department of Conservation, Division of Fisheries, or similar organizations.
6. Periodic maintenance will be required in lakes to control weed and larval growth. The basin should also be designed to provide for the easy removal of sediment which will accumulate in the lake during periods of

basin operation. A means of maintaining the designed water level of the lake during prolonged periods of dry weather is also recommended. One suggested method is to have a water hydrant near the pond site.

D. Recommendations Common to Either Dry Detention Basins or Retention Basins with Permanent Water

1. All basins shall have an emergency overflow with an overflow routing path identified to ensure that homes and property are protected.
2. All excavated spoils should be spread so as to provide for aesthetic and recreational features such as sledding hills, sports fields, etc. Slopes of 6 horizontal to 1 vertical are recommended except where recreation uses call for steeper slopes. Even these features should have a slope no greater that 3 horizontal to 1 vertical for safety, minimal erosion, stability, an ease of maintenance.
3. When conduits are used for the outlet of the reservoir, they shall be protected by bar screens or other suitable provisions so that debris or similar trash will not interfere with the operation of the basin.
4. Safety screens should also be provided for any pipe or opening to prevent children or large animals from crawling into the structures. For safety, a suggested maximum opening is 6 inches.
5. Danger signs should be mounted at appropriate locations to warn of deep water, possible flood conditions during storm periods, and other dangers that exist. Life preservers should also be placed at appropriate locations. Fencing as a security device may be used, but experience has shown that its ease in being scaled or underpassed tends to invalidate its purpose. Also, it may block operations when immediate access to the basin is necessary.
6. Grass or other suitable vegetative cover should be maintained throughout the entire reservoir area. Grass should be cut regularly no less that five times a year.
7. Debris and trash removal and other necessary maintenance should be performed after each storm to assure continued operation in conformance to the design.

E. Inspection of Basins

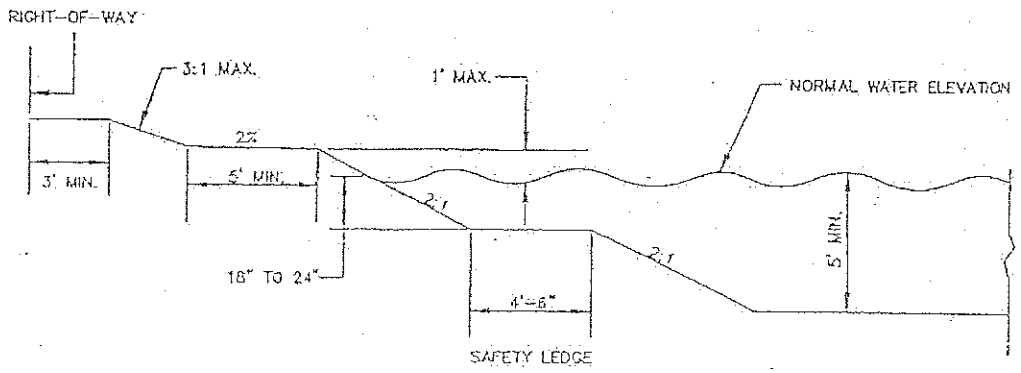
1. "As-built" drawings will be required for all basins to assure compliance with all applicable requirements.

F. Intensity-Duration-Frequency Table

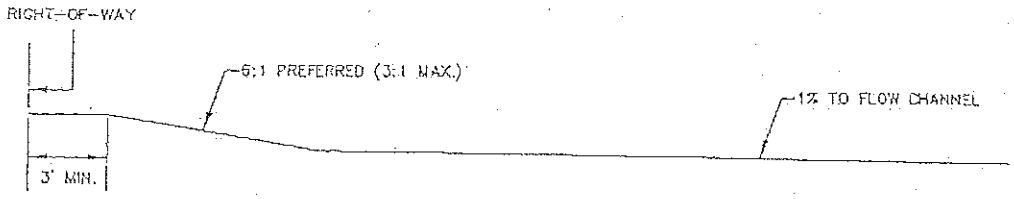
HOURS	MINUTES	2-YR (IN/HR)	5-YR (IN/HR)	10-YR (IN/HR)	25-YR (IN/HR)	50-YR (IN/HR)	100-YR (IN/HR)
.08	5	4.15	5.54	6.25	7.12	7.82	8.54
.17	10	3.35	4.51	5.08	5.87	6.20	6.97
.25	15	2.90	3.81	4.37	5.08	5.57	6.08
.33	20	2.50	3.29	3.81	4.46	4.80	5.36
.50	30	1.86	2.54	2.97	3.50	3.86	4.28
.75	45	1.40	1.88	2.20	2.60	2.88	3.22
1.00	60	1.12	1.52	1.78	2.10	2.34	2.61
2.00	120	0.68	0.91	1.08	1.27	1.42	1.55
3.00	45	0.50	0.68	0.80	0.94	1.05	1.16
6.00	50	0.30	0.40	0.48	0.56	0.62	0.68
12.00	55	0.16	0.23	0.27	0.37	0.36	0.39
24.00	60	0.09	0.13	0.15	0.18	0.20	0.22

SLOPE DESIGN FOR STORM WATER STORAGE

RETENTION POND



DETENTION BASIN OR DRY BASIN



LOW FLOW CHANNEL–PAVED .5% GRADE

ALTERNATE–UNDERDRAINS WITH SOD IN LOW FLOW CHANNEL 1% GRADE

AS–BUILTS ARE REQUIRED.

800.00
Water Distribution

800.00 WATER DISTRIBUTION

800.01 General

The following Design Criteria are summarized herein to establish practical, uniform design of water distribution systems for the Municipality. These criteria cover design factors and provide guidelines for evaluation of plans and specifications by the Municipal departments having jurisdiction over the review of plans and specifications. These design criteria are also intended to conform to the standard drawings for water systems. All improvements to the water distribution system shall be coordinated with the Municipal Engineer and the Superintendent of the Water Treatment Plant.

800.02 Basis of Design

The basis of design for water distribution system shall be the Hazen-Williams Equation, an empirical formula for estimating pipe flow:

$$V = 1.318CR^{0.63}S^{0.54}$$

V = Velocity in feet per second
C = Roughness Coefficient
R = Hydraulic Radius (pipe diameter in feet for pipes flowing full) in feet
S = Head loss per unit length of pipe

Distribution systems shall be designed for the estimated maximum day rate of flow, or the fire flow plus the estimated average day rate of flow, whichever is more demanding. Selection of a roughness coefficient shall be coordinated through the Municipal Engineer.

800.03 Minimum Pressure

The minimum desirable pressure in the water distribution system, at times of no fires, shall be 50 pounds per square inch in all mains, and 8 pounds per square inch at the most remote house fixture in the system. The minimum fire flow for design purposes shall be 600 gallons per minute at a residual pressure of 20 pounds per square inch.

800.04 Maximum Velocity

The maximum velocity of the water in the system shall be 10 feet per second.

800.05 Water Mains

The value of C to be used in the Hazen-Williams Equation shall be C=130. The minimum size of water mains shall be 6-inch diameter. Dead-ending mains shall be minimized by looping of all mains. In the event the Municipality permits a dead-end, they should be provided with a fire hydrant for flushing purposes.

The minimum depth of water mains shall be 4 feet 6 inches from the top of the pipe to the finished grade elevation. The maximum depth of water mains shall be 6 feet from the top of the main to the finished grade elevation, except where utilities must be underpassed or as directed by the Municipality.

800.06 Water Service Lines

The value of C to be used in the Hazen-Williams Equation shall be C=130. Then minimum diameter of service lines shall be ¾ inch, unless the distance from the main to

the meter exceeds 120 feet, where the minimum service line diameter shall be 1 inch. Table 8.1 lists required minimum service sizes as determined by residential population. Fire hydrant services shall have a minimum diameter of 6 inches, but shall be no larger than the water main. For all ¾ through 2 inch services, a corporation stop shall be installed on the main at a 45 degree angle above horizontal. For services larger than 2 inches, a tapping sleeve and valve must be installed.

Table 8.1

MINIMUM SIZE--WATER SERVICES AND METERS
RESIDENTIAL AREAS

No. of Families	Service Size (inches)	Meter Size (inches)
1	3/4	5/8 x 3/4
2-5	1	1
6-8	1-1/2	1 1/2
9-12	2	1 1/2
13-20	2	2
21-50	4	3
51-115	4	4

800.07 Meter Installation

When not completed by the Municipal Water Department, meter installation for individual services shall be consistent with the standard drawings. Table 8.2 lists required meter sizes as determined by Maximum Flow Demand for Commercial –Industrial applications. Meters must be installed prior to connecting the service to the main and before service starts. No common meters will be approved. All plans shall indicate meter and service stop location with a note stating "Location shall be coordinated with Municipal Water or Engineering Staff".

TABLE 8.2

METER SIZE FOR COMMERCIAL-INDUSTRIAL APPLICATIONS

Maximum Flow Demand (GPM)	Meter Size (inches)
20	5/8 x 3/4
30	3/4
50	1
100	1 1/2
160	2
320	3
500	4
1000	6

800.08 Backflow Prevention

All commercial, industrial and other OEPA required users shall provide adequate backflow prevention between the public water system and the customer's system. These devices shall be approved by OEPA and the Municipality of Germantown prior to construction and installation. These devices shall be tested and inspected annually

under the supervision of the Water Superintendent or his designee and paid for by the owner of the property. These devices shall be repaired or replaced if they do not meet the testing requirements. An annual report shall be submitted by a licensed plumber in the State of Ohio to the Municipality of Germantown detailing the testing procedures and results.

900.00
Sanitary Sewers

900.00 SANITARY SEWERS

900.01 General

The following Design Criteria are summarized herein to establish practical, uniform design of sanitary sewers within the Municipality of Germantown, Ohio. These criteria cover design factors and approved guidelines for evaluation of plans and specifications by the Municipal departments having jurisdiction over the review of plans and specifications. These design factors are consistent with the requirements of OEPA. If these design criteria should conflict in the future with the requirements of the OEPA, these criteria shall be modified to conform to their requirements. These design criteria are also intended to conform to the standard drawings for sanitary sewers.

900.02 Basis of Design

The basis of design shall be the Manning Formula. This is used to calculate the capacity of a pipe flowing full:

$$Q=\frac{1.486}{n} R^{2/3}S^{1/2}A$$

Q = Flow in cfs
A = Area of Cross-section - square feet
n = Coefficient of roughness (n = 0.013)
R = Hydraulic Radius - feet
S = Slope in ft/ft

900.03 Maximum Depth of Flow

Recommended design practices limit the depth of flow in a sanitary sewer. The maximum depth of flow should be equal to or less than 0.8 of the diameter of the pipe.

900.04 Average Daily Flow

The average daily flow shall be 100 gallons per capita per day. This includes normal infiltration.

900.05 Population Density

The average household consists of four (4) persons. Therefore, for design purposes, there would be four (4) capita per equivalent single family dwelling.

900.06 Peak Design Flow

Sanitary sewers shall be designed on a peak design flow basis using one of the following methods:

1. The ratio of peak average flow (ADF).
2. Values established from the infiltration/inflow study approved by the OEPA.
3. Values obtained from the flow records of a similar facility over a period of time sufficient to establish with a reasonable degree of reliability the relationship between average dry weather flow and peak design flow.

4. Peak flows as determined by the Great Lakes Upper Mississippi River Board (GLUMRB) (Ten States Standards), latest version.

Use of other values for peak design flow will be considered if justified on the basis of extensive documentation.

SUGGESTED SEWAGE FLOW GUIDE

ESTIMATED SEWAGE FLOW (ADF)

WASTEWATER SOURCE	GALLONS PER DAY	LITERS PER DAY
Airports		
Per Employee	20	76
Per Passenger	5	19
Apartment		
One Bedroom	250	947
Two Bedroom	300	1,137
Three Bedroom	350	1,326
Assembly Halls		
Per Seat	2	8
Bowling Alleys (no food service)		
Per Lane	75	284
Camps		
Individual bath units – per unit	50	189
Central Bathhous – per person	35	133
Car Wash (per car, no recycling)	80	304
Churches		
Small – per sanctuary seat	3-5	11-19
Large with kitchen – per sanctuary seat	5-7	19-27
Country Clubs (including food service)		
Per member	50	189
Dance Halls		
Per person	2	9
Factories		
No showers – per employee	25	95
With showers – per employee	35	133

Family Dwellings		
Per person	100	379
*Food Service Operations		
Ordinary Restaurant		
(not 24 hours) per seat	35	133
24-hour Restaurant	50	189

*The listed estimated sewage flows are to be used for the design of sewers and should not be used for the design of treatment units.

Banquet Rooms – per seat	5	19
Restaurant along freeway – per seat	100	379
Tavern (very little food service) per seat	35	133
Curb Service (drive in) – per car space	50	189
Vending Machine Restaurants-per seat	35	133
Highway Rest Areas		
Per Car	1-9	4-34
Hospitals		
No resident personnel – per bed	300	1,137
Institutions		
Residents – per bed	100	379
Laundries		
Coin operated – per machine		
(Standard size machine)	400	1,137
Motels		
Per Unit	100	379
Nursing and Rest Homes		
Per patient	150	568
Per resident employee	100	379
Office Buildings		
(exclusive of cafeteria or kitchen)		
Per employee per shift	20	76
Parks		
With toilet facility – per person	5	19
With showers, bathhouse toilets		
-per person	10	38

Schools		
Elementary (not incl. showers or cafeteria) -per pupil	10	38
High and Junior High (not incl. Showers or cafeteria) -per pupil	15	57
Add for cafeteria – per pupil	5	19
Add for showers – per pupil	5	19
Service Stations		
First Bay	1,000	3,789
Each additional bay	500	1,895
Shopping Centers (without food service or laundries) -per area of floor space	0.2 per sq. ft.	8 per sq. meter
Stores		
Per toilet per shift	400	1,516
Swimming Pool (average with hot water shower) -per swimmer (design load)	3-5	11-19
Theaters		
Drive-In Movies – per car space	5	19
Movie – per seat	5	19
Trailer Parks		
Per trailer space	300	1,137
Travel Trailer Dumping Stations		
At Service Station	Consult District Office of OEPA	
Travel Trailer Parks and Camps		
-Per trailer or tent space	125	474
Vacation Cottage	50	189
Youth and Recreation Camps		
-per person	50	189

900.07 Minimum Velocity

All sanitary sewers shall be designed to give a mean velocity of at least 2.0 feet per second, when flowing full, based on Manning's Formula using an "n" value of 0.011. Use of other "n" values will be considered, if deemed justifiable, on the basis of extensive field data.

900.08 Maximum Velocity

The maximum velocity shall be 15 feet per second. If the velocity is greater than 15 feet per second, provisions should be made to protect against displacement.

900.09 Minimum Grades

All sanitary sewers shall be designed to give a mean velocity of at least 2.0 feet per second when flowing full based on Manning's Formula. Values of "n" to be used with the Manning Formula vary from 0.010 to 0.015 with 0.013 recommended. Use of "n" values other than 0.013 may be considered if justified. Use of formulas other than Manning's Formula may be accepted. If plans are recommended for approval with a slope less than the minimum, the consulting Engineer must show justification for the recommendation and obtain approval for OEPA. See Table 9.1.

Table 9.1

REQUIRED MINIMUM SLOPE

Based on "n" Value of 0.013
Sewer Sizes – 8 through 36 inches

Sewer Size	Minimum Slope in Feet Per 100 feet
8	0.40
10	0.28
12	0.22
15	0.15
18	0.12
21	0.10
24	0.08
27	0.067
30	0.058
36	0.046

900.10 Sanitary Sewers

In general, the minimum size of sanitary sewers shall be 8 inches. However, 6-inch sanitary sewers may be used as private lateral sewers for apartments, camps, schools, restaurants, and other semi-public operations, provided their hydraulic capacity is not exceeded because of short run-off periods (high peak flows).

The lateral connections shall be premium joint construction and should be made of the same material as the street sewer whenever possible to minimize infiltration from the connection between the street main and house lateral. When joint material and/or dimensions are not compatible, a commercial adapter shall be provided.

900.11 House Laterals

Four-inch sewer pipe may be used for house connections. The cover over the lateral coming out of the house shall be a minimum 3-foot depth. The house connections shall be of premium joint construction and made of PVC schedule 40 pipe or SDR 35. Cleanouts are required outside all structures or units. In multi-tenant buildings, individual services shall be provided to a common pipe, then to the main. Individual meters shall be used for separate sanitary sewers. When joint material and /or dimensions are not compatible, a commercial adapter shall be provided. A copy of an ordinance or regulation requiring this type of construction must be on file with OEPA district office or submitted with all sewer plans to receive approval.

900.12 Invert Drop in Manhole

When a smaller sewer discharges into a larger one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing this result is to place the 0.8 depth point of both sewers at the same elevation or matching the top elevation of the pipes. When a larger sewer discharges into a smaller, the invert of the smaller should not be raised to maintain the same energy gradient.

900.13 Illegal Connections

Roof drains, foundation drains, sump pumps, yard drains and all other clear water connections to the sanitary sewer are prohibited.

There shall be no physical connection between a public or private potable water supply system and a sewer or appurtenances thereto which would permit the passage of any sewage or polluted water into the potable supply

900.14 Horizontal Separation

If possible, sanitary sewers and sewage force mains should be laid with at least a 10-foot horizontal separation from any water main. This distance is measured from outside of pipe to outside of pipe.

900.15 Vertical Separation

Sewers (or sewage force main) may be laid closer than 10 feet to a water main if it is laid in a separate trench and elevation of the crown of the sewer (or sewage force main) is at least 18 inches below the bottom of the water main. If it is impossible to maintain the 18-inch vertical separation when the sewer is laid closer than 10 feet to the water main, the

sanitary sewer should be constructed of (or encased in) water main type materials which will withstand a 50 psi water pressure test.

If a sewage force main is laid closer than 10 feet to a water main, in no case should the sewage force main be laid such that the crown of the sewage force main is less than 18 inches below the water main.

900.16 Crossing Utilities

Whenever a sanitary sewer and water main must cross, the sewer shall be laid at such an elevation that the crown of the sewer is at least 18 inches below the bottom of the water main. If it is absolutely impossible to maintain the 18 inch vertical separation, the sanitary sewer should be constructed of (or encased in) water main type material which will withstand a 50 psi water pressure test for a distance of 10 feet on both sides of the water main.

Whenever a sewage force main and water main must cross, the sewage force main is at least 18 inches below the bottom of the water main.

900.17 Parallel Installation

Sanitary sewers and manholes should be laid with at least 10 feet, measured from, outside of pipe to outside of pipe, horizontal separation from any water main. If separation can not be maintained, the sanitary sewer shall be constructed to water main standards.

900.18 Manholes

Manholes shall be installed at the end of each line, at all changes in grade, size, alignment, and at all pipe intersections. Manholes shall be installed at a distance not greater than 400 feet. Greater spacing may be allowed in larger sewers and in those carrying a settled effluent.

Manholes may be either poured in place or pre-cast concrete. Concrete construction shall conform to ASTM C-478 with joints between sections conforming to ASTM C-443.

The flow channel through manholes should be made to conform in shape, slope, and smoothness to that of the sewers.

All manhole covers shall be adjusted to grade by the use of no more than 12 inches of pre-cast concrete adjusting collars. In areas outside the pavement, the manhole casting should be adjusted so that the top is slightly above grade to prevent the entrance of the surface water.

900.19 Manhole Minimum Diameter

Manholes shall be constructed large enough to allow access to the sewer. The minimum diameter of manholes shall be 48 inches. Where manhole diameters of greater than 48 inches are used to accommodate the sewer pipes, the manhole shall be returned to 48-inch diameter as soon as practical above the sewer crown. Manhole openings 24 inches or larger are recommended for easier access with safety equipment to facilitate maintenance.

900.20 Manhole Water Tightness

Manholes shall be constructed to permit casting adjustments by use of cast-in-place or pre-cast concrete adjusting collars not to exceed 12 inches in height. Solid manhole covers shall be used in all pavement locations. In other areas, the manhole casting shall be adjusted so the top of the manhole cover is slightly above grade to prevent the entrance of the surface water. In areas subject to flooding, secured watertight and solid manhole covers should be used. All manhole covers, seating frames, and adapter rings shall be machined to a firm and even bearing to provide a true fit into the frames. Manholes shall be installed with chimney seals and water tight dishes.

Inlet and outlet pipes should be joined to the manhole with a gasketed and/or flexible watertight connection meeting ASTM Specification C-443. Where three or more manholes in sequence are to be constructed with solid, watertight covers, adequate ventilation shall be provided.

900.21 Flow Channel

The invert of the lowest pipe entering manhole shall be at least 3 inches (75mm) above the top of the base slab so that the sewer flow channel maybe installed and shaped. The flow channel through manholes should be made to conform in shape, slope, and smoothness to that of the sewers.

Cut pipe shall not extend beyond the inside face of the manhole wall. Concrete placed inside the manhole to form the channel through the manhole shall not be placed between the pipe and the opening so as to interfere in any way with the flexibility of the joint.

900.22 Drop Manholes

Drop manholes shall be used when the invert of the inflow sewer is 2.0 feet or higher than the manhole invert. When this difference of elevation is less than 2.0 feet, the manhole invert shall be filled and channeled to prevent solids deposition.

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

Drop manholes shall be constructed with outside drop connections, except where such connection is not practical. Inside drop connection to be used only with the approval of the Municipality. Minimum diameter for inside drop shall be 5 feet inside the diameter. Manholes located in isolated areas should be provided with bolted covers for safety and to discourage vandalism.

900.23 Test Inspection

The leakage and deflection tests are to be carried out by the contractor and witnessed and certified by the Municipal officials and/or their representative.

All pipe which does not meet the testing requirements must be repaired and retested until it meets the requirements.

900.24 Railroad and Highway Crossings

When boring is required, the casing pipe shall be designed to meet the requirements of the local authority having jurisdiction and in compliance with the Municipality of Germantown Construction Standards and Drawings. The size of the casing pipe shall be

at least four (4) inches greater than the largest outside diameter of the sewer pipe, joints or couplings.

900.25 Stream Crossings

A. LOCATION OF SEWERS IN STREAMS

1. Cover depth

   The top of all sewers entering or crossing streams shall be at a sufficient depth below the natural bottom of the stream bed to protect the sewer line. In general, the following cover requirements must be met:

   a) One foot of cover where the sewer is located in rock
   b) Three feet of cover in other material. In major streams, more than 3 feet of cover may be required
   c) In paved stream channels, the top of the sewer line should be placed below the bottom of the channel pavement.

   Less cover will be approved only if the proposed sewer crossing will not interfere with the future improvements to the stream channel. Reasons for requesting less cover shall be provided in the project proposal.

2. Horizontal Location

   Sewers located along streams shall be located outside of the stream bed and sufficiently removed therefrom to provide for future possible stream widening and to prevent pollution by siltation during construction.

3. Structures

   The sewer outfall, headwalls, manholes, gate boxes, or other structures shall be located so they do not interfere with the free discharge of flow through the stream.

4. Alignment

   Sewer crossing streams should be designed to cross the stream as nearly perpendicular to the stream flow as possible and shall be free from change in grade. Sewer systems shall be designed to minimize the number of stream crossings.

B. CONSTRUCTION

1. Materials

   Sewers entering or crossing streams shall be constructed of ductile iron pipe with mechanical joints; otherwise they shall be constructed so they will remain watertight and free from changes in alignment or grades. Material used to backfill the trench shall be stone, course aggregate, washed gravel or other materials which will not readily erode, cause siltation, damage pipe during placement or corrode the pipe.

2. Siltation and Erosion

Construction methods that will minimize siltation and erosion shall be employed. The design engineer shall include in the project specifications the method(s) to be employed in the construction of sewers in or near streams. Such methods shall provide adequate control of siltation and erosion by limiting unnecessary excavation, disturbing or uprooting trees and vegetation, dumping of soil or debris, or pumping silt-laden water into the stream. Specifications shall require that cleanup, grading, seeding, and planting or restoration of all work areas shall begin immediately. Exposed areas shall not remain unprotected for more than seven (7) days.

900.26 Sewage Pumping Stations

A. GENERAL

1. When sewage pump stations are required, they shall be designed and installed per the following standards:

   a) Great Lakes Upper Mississippi River Board (GLUMRB) (Ten States Standards) "Recommended Standards for Wastewater Facilities", latest version.
   b) Ohio Environmental Protection Agency's latest requirements.
   c) Municipality of Germantown Design Criteria and Standard Construction Drawings.
   d) All other applicable codes and regulations.

2. Flooding

   The wastewater pumping station structures and electrical and mechanical equipment shall be protected from physical damage by the 100-year flood. Wastewater pumping stations should remain fully operational and accessible during the 25-year flood. Regulations of state and federal agencies regarding flood plain obstructions shall be followed.

3. Grit

   No individual residence or common residence grinder pumps will be permitted. Gravity sewers outletting into a common pump station will be required.

B. PUMP STATION TYPE AND STANDARD REQUIREMENTS

Listed below are the standard requirements for pump stations in the Municipality. Sanitary pump stations are considered temporary and the responsibility of the Developer unless said pump stations are constructed in consort with the Municipalities sanitary sewer master plan. However, it is realized that certain situations may require other types of pump stations. It is highly recommended that early preliminary pumping station plans be submitted to the Municipality for their approval prior to beginning final engineering.

1. Type

   Non-clog, Suction lift type systems with a separate wetwell and drywell chamber are preferred by the Municipality. Submersible Pump Stations with separate wet

well and valve chamber may be used if approved by the Municipality. At no time will a package type lift station be used as a permanent installation.

2. Pump Type

Pumps capable of pumping raw, unscreened sewage, 3-inch spherical solids and stringy materials typical of domestic sewage will be required. Multiple pumps shall be provided.

3. Electrical Installation

a) All electrical installations and components shall be designed and installed per the National Electric Code (NEC) and all other electrical codes.
b) All equipment and components shall be housed in NEMA 4X stainless steel enclosures.
c) Controls and other equipment shall be Cutler-Hammer, or equivalent, as approved by the Engineer.
d) The cabinet shall be provided with a removable backplate on which all the components shall be mounted, with the exception of the H-O-A switches. The pump run lights shall be located on the outside door of the enclosure.
e) The pump control panel shall contain a circuit breaker, magnetic starter, hand-and-off-auto-selector-switch, run light, and seal leak indicating light for each pump.
f) There shall be furnished atop the control panel enclosure, a high water alarm flashing red light.
g) All sanitary pump stations shall be equipped with suitable dedicated backup power to fully run the station and controls.

4. Liquid Level Control

The pumps are to be controlled by either a pressure transducer or four mercury float switches, with brackets fastened inside the wet well.

5. Alarm Appurtenances

a) Alarm signal shall be initiated by liquid level control system which shall be connected to a telemetering system as specified by the Municipality.
b) Power failure relay: Provide relay with N.O. contacts for hook up to a telephone line to be de-energized and contacts closed when power to station is interrupted.
c) High wet well level alarm: Provide high water alarm for hook up to the telemetering system.

6. Guide System (Submersible design)

a) System Design

1) Permit removal of pumping units for inspection or service without dewatering wet well or interrupting operation of other pump equipment.
2) Pumps, when lowered into place, to be automatically connected to discharge piping with positive seal.
3) Incorporate fabricated aluminum access frame with provisions for mounting guide rails and hooks to retain pump cables.

b) Guide Rails

Two lengths of stainless steel pipe with pilots; 2-inch Schedule 40, stainless steel (304) size per pump manufacturer's recommendation. Top and bottom pilots shall be Class 30 cast iron with flake glass/polyester coating.

c) Pump Guides

1) Fabricated from bronze for spark proof operation.
2) Attached to pump volute with 316 stainless steel hex head cap screws.

d) Lift Chain

Lift chain shall be 304 stainless steel, size to support pump with 4 to 1 safety factor.

7. Valve Pit

a) Valve pit structure shall be constructed of precast concrete sections conforming to ASTM C-478.

b) Valve Pit Access

1) An aluminum access door and frame assembly shall be installed in the top slap.
2) The door shall have a handle, latch in the open position, and have a hasp for a padlock. Surface shall be non-skid, diamond tread.

c) Valve Pit Drain

The valve pit floor shall be sloped to drain with a 3-inch drain pipe and check valve at the wet well as shown on the plans.

8. Wet Well Structure

a) The wet well shall be constructed of precast concrete sections conforming to ASTM C-478. If pre-cast units are not available than the structure shall be made of cast in place reinforced concrete.

b) Wet Well Access

The door shall be of aluminum construction and have a handle, latch in the open position, and have a hasp for padlock. Surface shall be non-skid, diamond tread.

c) Vent

A vent with screen shall be installed in the top slab.

d) Hoist Stand

A hoist stand to fit existing pump hoist shall be mounted to the top slab to assure easy pump removal.

9. Piping and Valves

a) Materials
All piping and fittings beginning after the hydraulic sealing flange unit shall be 4-inch diameter ductile iron pipe with flanged joints. Pipe joints shall be flanged and conform with ANSI Specification A21.10 (AWWAC110) for cast iron pipe flanges and flanged fittings, Class 125. Link seals or equivalent shall be used around all piping passing through structures.

b) Valves

1) Check valves to be 4 inch with outside lever and weight. Valves to be rated for 175 psi water pressure and 350 psi hydrostatic test pressure.
2) Eccentric plug valve to be 4 inch, specifically designed for sewage applications with 100% port opening. Valve to have cast iron with Buna-N rubber coating to minimize wear and corrosion. Seat ring to seal at 175 psi. Valves to have flanged ends (ANSI B16.1) and nut operator.

900.27 Force Mains

A. VELOCITY AND DIAMETER

At design pumping rates, a cleansing velocity of at least 2 feet per second should be maintained. The minimum force main diameter for raw wastewater shall be 4 inches.

B. AIR AND VACUUM RELIEF VALVE

An air relief valve shall be placed at high points in the force main to prevent air locking. Vacuum relief valves may be necessary to relieve negative pressures on force mains. The force main configuration and head conditions should be evaluated as to the need for and replacement of vacuum relief valves. Force mains shall be installed to keep high points and low points to a minimum.

C. TERMINATION

Force mains should enter the gravity sewer system at a point not more than 2 feet above the flow line of the receiving manhole.

D. PIPE AND DESIGN PRESSURE

Pipe and joints shall be equal to water main strength material suitable for design conditions. The force main, reaction blocking and station piping shall be designed to withstand water hammer pressures and associated cyclic reversal of stresses that are expected with the cycling of wastewater pump stations.

E. DESIGN FRICTION LOSSES

Friction losses through force mains shall be based on Hazen and Williams formula or other acceptable methods. When the Hazen and Williams formula is used, the value of "C" shall be 100 for unlined iron or steel pipe for design. For other smooth pipe materials such as PVC, lined ductile iron, etc., a higher "C" value not to exceed 120 may be allowed for design.

MUNICIPALITY OF GERMANTOWN

CONSTRUCTION STANDARDS & DRAWINGS

Prepared and Presented By:

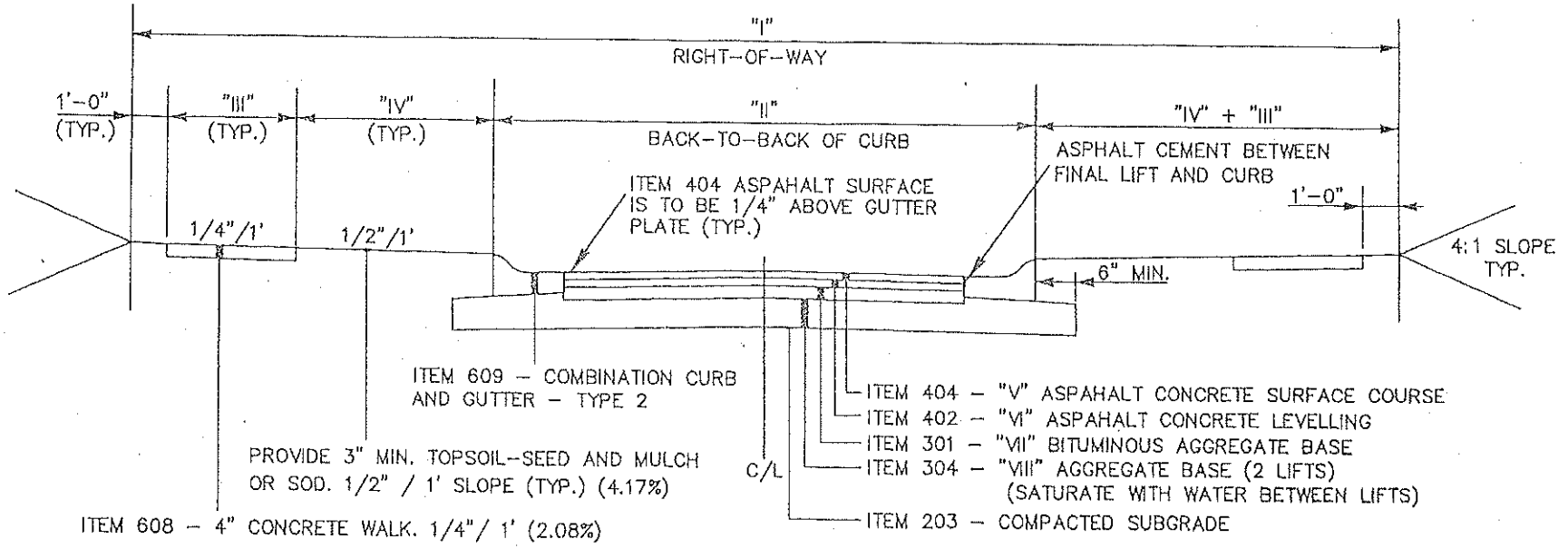
HLS Surveyors & Engineers, LLC
3939 Vanco Lane
Vandalia, Ohio 45377
(937) 669-2400
(937) 669-4200 Fax

F. IDENTIFICATION

Where force mains are constructed of material which might cause the force main to be confused with potable water mains, the force main shall be appropriately identified.

G. LEAKAGE TESTING

Leakage tests shall be required per the water main testing requirements as shown in the Municipality of Germantown Standard Construction Drawings.



MINIMUM STANDARDS					
ITEM	DESCRIPTION	ARTERIAL	COMM.& IND.	COLLECTOR RESIDENTIAL	LOCAL
I	RIGHT-OF-WAY	80'	66'	66'	66'
II	B/B CURB	*	41'	36'	32'
III	SIDEWALK WIDTH	5'	5'	5'	5'
IV	CURB LAWN WIDTH	6.5'±	4.5'	7'	5'
V	ITEM 404	1-1/4"	1-1/4"	1-1/4"	1-1/4"
VI	ITEM 402	1-3/4"	1-3/4"	2-3/4"	2-3/4"
VII	ITEM 301	7"	7"	-	-
VIII	ITEM 304	2-3" LIFTS	2-3" LIFTS	2-4" LIFTS	2-4" LIFTS

NOTES

A. ALL WORK TO CONFORM TO ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS LATEST REVISION UNLESS OTHERWISE SPECIFIED.

B. ITEM 407 TACK COAT SHALL BE REQUIRED WHEN 10 DAYS HAVE ELAPSED BETWEEN BITUMINOUS PAVEMENT LIFTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER. APPLICATION RATE IS 0.10 GALLON PER SQUARE YARD.

C. ALL BUTT JOINTS SHALL BE SEALED WITH PG64-22 WITHIN 24 HOURS AFTER PLACEMENT OF ITEM 404.

D. CONCRETE ONLY IN COMMERCIAL AND INDUSTRIAL DESIGN REQUIRED.

MUNICIPALITY OF GERMANTOWN	TYPICAL SECTIONS AND ASPHALT PAVEMENT COMPOSITION	6-6-05
		300-2

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STREET FUNCTIONAL CLASSIFICATIONS

THE MUNICIPAL ENGINEER WILL PROVIDE THE CLASSIFICATION OF ALL STREETS PRIOR TO DESIGN AND CONSTRUCTION. THE CLASSIFICATIONS ARE AS FOLLOWS:

A. ARTERIAL

A STREET PRIMARILY FOR THROUGH TRAFFIC, CARRYING HEAVY LOADS AND LARGE VOLUMES OF TRAFFIC, USUALLY ON A CONTINUOUS ROUTE.

B. COLLECTOR/RESIDENTIAL

A STREET DESIGNED TO CONDUCT TRAFFIC FROM LOCAL RESIDENTIAL STREETS TO ARTERIALS OR OTHER COLLECTOR STREETS.

C. INDUSTRIAL/COMMERCIAL

A STREET DESIGNED TO CONDUCT TRAFFIC FOR INDUSTRIAL AND COMMERCIAL USES.

D. LOCAL

A STREET DESIGNED TO PROVIDE ACCESS TO ABUTTING RESIDENTIAL PROPERTY AND DISCOURAGE THROUGH TRAFFIC.

DESIRED MINIMUM STANDARDS		
STREET FUNCTIONAL CLASSIFICATION	RIGHT-OF-WAY WIDTH	BACK-TO-BACK CURB
	(L.F.)	(L.F.)
ARTERIAL	80	*
COLLECTOR - RES.	60	36
IND. AND COMM.	60	41
LOCAL	50	30

* SEE DESIGN CRITERIA

MUNICIPALITY OF GERMANTOWN

STREET CLASSIFICATIONS AND RECOMMENDED STANDARD STREET DIMENSIONS

REVISIONS:

DATE APPROVED: FEB. 1999

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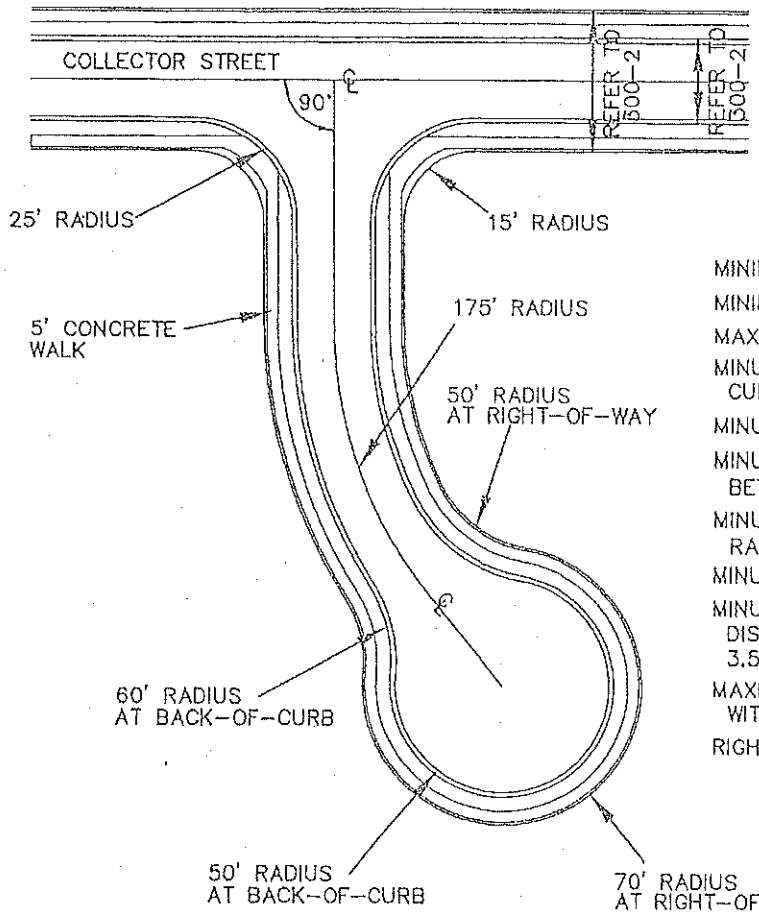

STREET DESIGN STANDARDS

	LOCAL (THRU STREETS)	COLLECTOR	ARTERIAL
MINIMUM DESIGN SPEED	25 MPH	35 MPH	45 MPH
MINIMUM CENTERLINE GRADES	0.40%	0.40%	0.40%
MAXIMUM CENTERLINE GRADES	10%	7%	4%
MINUMUM LENGTH OF VERTICAL CURVE (SEE NOTE C)	10%	7%	4%
MINUMUM CENTERLINE RADIUS	250 FT.	400 FT.	600 FT.
MINUMUM LENGTH TANGENT BETWEEN CURVES	50 FT.	50 FT.	100 FT.
MINUMUM BACK-OF-CURB RADIUS	25 FT.	25 FT.	50 FT.
MINUMUM HORIZONTAL VISIBILITY	150 FT.	250 FT.	400 FT.
MINUMUM STOPPING SIGHT DISTANCE (MEASURED FROM 3.5' EYE TO 6" OBJECT HEIGHT	150 FT.	250 FT.	400 FT.
MAXIMUM CENTERLINE GRADE WITHIN 100' OF AN INTERSECTION	3% FT.	3% FT.	3% FT.
RIGHT-OF-WAY WIDTH	66 FT.	66 FT.	80 FT.

MUNICIPALITY OF GERMANTOWN	STREET DESIGN STANDARDS	6-6-05
		300-3

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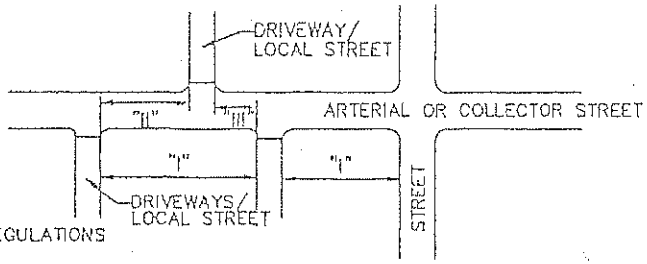
ACCESS CONTROL STANDARDS

INDUSTRIAL AND COMMERCIAL DRIVEWAY AND LOCAL STREETS

A. ACCESS CONTROL AS SHOWN ON THE TABLE BELOW SHALL APPLY TO INDUSTRIAL AND COMMERCIAL DRIVEWAYS OR NEW LOCAL STREETS ON ARTERIAL OR COLLECTOR STREETS WITHIN THE MUNICIPALITY.

MINIMUM SPACING OF ACCESS POINTS.

ITEM	DISTANCE IN FEET
I.	200*
II.	120
III.	50



* LOCAL STREETS, SEE SUDIVISION REGULATIONS FOR MINIMUM BLOCK LENGTH.

B. THE DISTANCE BETWEEN ACCESS POINTS IS MEASURED TO THE NEAREST CURB OR EDGE LINE.

C. NO MORE THAN ONE (1) ACCESS POINT (UNLESS THERE IS A SEPARATE ENTRANCE AND EXIT ACCESS) PER COMMERCIAL PROPERTY IS PERMITTED WITH THE EXCEPTION THAT AN ACCESS POINT ON EACH ROADWAY OF A CORNER PROPERTY IS PERMITTED AND PROPERTIES WITH FRONTAGES EXCEEDING 300' MAY BE PERMITTED IF THE NEED IS CLEARLY SHOWN FOR MORE THAN ONE DRIVEWAY WITH A MAXIMUM OF TWO.

D. THE DISTANCE BETWEEN INDUSTRIAL AND COMMERCIAL DRIVEWAYS ON LOCAL STREETS MUST BE 100' OR GREATER.

E. THE MINIMUM SPACING BETWEEN A COMMERCIAL DRIVEWAY AND/OR STREET WHICH INTERSECTS AN ARTERIAL OR COLLECTOR STREET SHALL BE 200'. THIS DISTANCE SHALL BE MEASURED FROM THE POINT FORMED BY THE INTERSECTION OF THE EXTENDED CURB LINES OF EACH DRIVEWAY OR STREET.

F. DRIVEWAYS OR LOCAL STREETS SHALL BE DIRECTLY OPPOSITE OR SHALL BE OFFSET BY THE DIMENSIONS SHOWN ON THE TABLE ABOVE UNDER ITEM A.

G. DRIVEWAY OPENING WIDTHS SHALL ADHERE TO THE MUNICIPALITY CONSTRUCTION STANDARDS AND DRAWINGS.

H. IN SPECIAL OR UNIQUE SITUATIONS WHERE STRICT APPLICATION OF THESE STANDARDS WOULD CAUSE UNDUE HARDSHIP UPON THE PROPERTY OWNER, THE MUNICIPALITY BOARD OF CONTROL MAY GRANT A VARIANCE TO SAID STANDARDS.

I. DRIVEWAY OPENINGS SHALL BE AT LEAST 40' FROM INTERSECTION OF LOCAL STREETS.

J. AN ACCESS POINT MUST BE A MINIMUM OF 20' FROM THE ADJACENT PROPERTY LINE, UNLESS A SHARED DRIVEWAY IS UTILIZED.

K. ALL DEFINITIONS SHALL BE AS PER THE OHIO MANUAL OF UNIFORM TRAFFIC DEVICES LATEST REVISIONS.

L. ALL DRIVEWAYS AND LOCAL STREET ACCESS POINTS TO COLLECTOR AND ARTERIAL STREETS MUST BE APPROVED BY THE MUNICIPALITY.

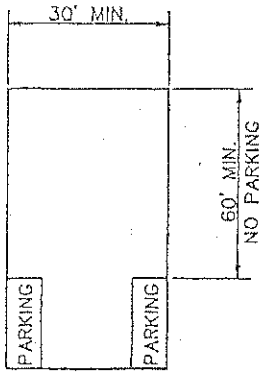
ACCESS CONTROL STANDARDS

RESIDENTIAL DRIVEWAYS

A. THE MINIMUM DISTANCE BETWEEN A RESIDENTIAL DRIVEWAY AND STREET SHALL BE 50'. THIS DISTANCE SHALL BE MEASURED FROM THE POINT FORMED BY THE INTERSECTION OF THE EXTENDED CURB LINE OR EDGE OF PAVEMENT LINE OF THE DRIVEWAY AND STREET.

B. ON STREETS WITHOUT CURB, PROPER SIZE CULVERT AND DRAINAGE MUST BE ADDRESSED

C. ALL DRIVEWAY CONSTRUCTION MUST FOLLOW THE CONSTRUCTION STANDARDS AND DRAWINGS WITHIN.



TEMPORARY DEAD-END STREETS

MUNICIPALITY OF GERMANTOWN

ACCESS CONTROL STANDARDS TEMPORARY DEAD END STREETS

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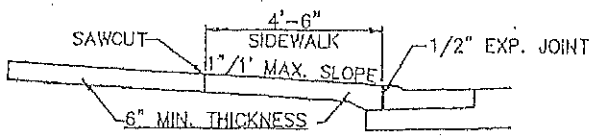
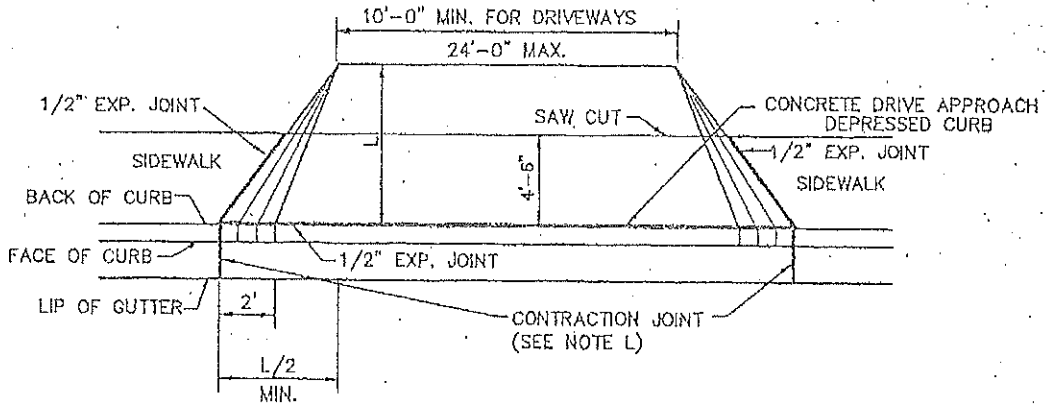
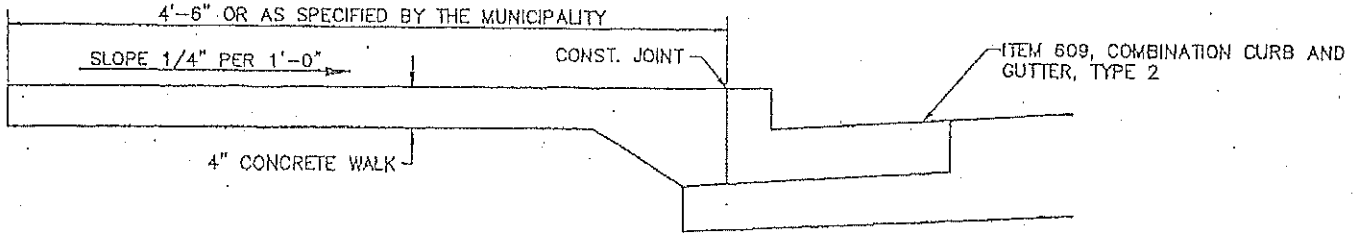




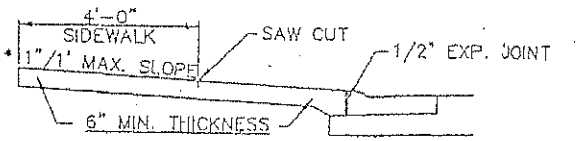
DRIVE APRON WITH
NO CURB LAWN

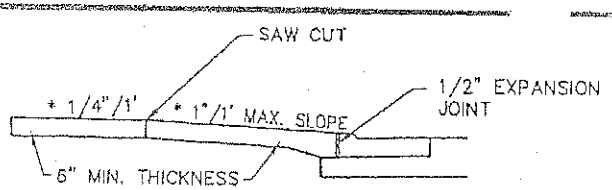
FOR DRIVEWAY NOTES SEE PAGE 300-6



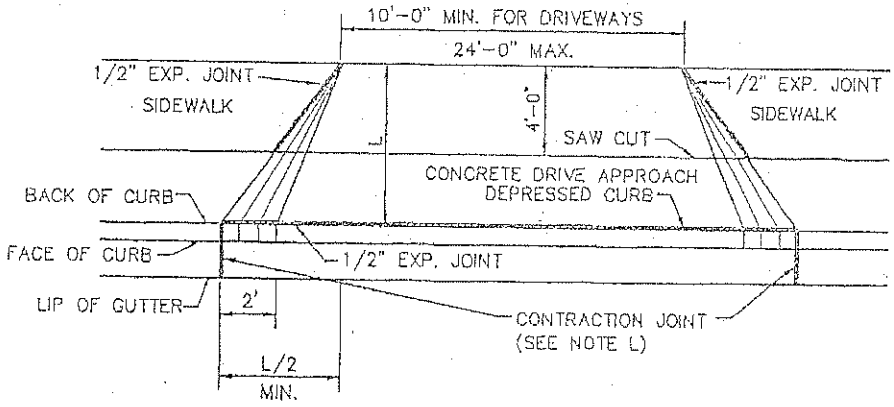
CONCRETE SIDEWALK ABUTTING TYPE 2 CURB DETAIL

MUNICIPALITY OF GERMANTOWN	RESIDENTIAL DRIVE APPROACH AND CONCRETE SIDEWALK DETAIL WITH NO CURB LAWN	REVISIONS:	DATE APPROVED: JAN. 1999
			PAGE 300-8

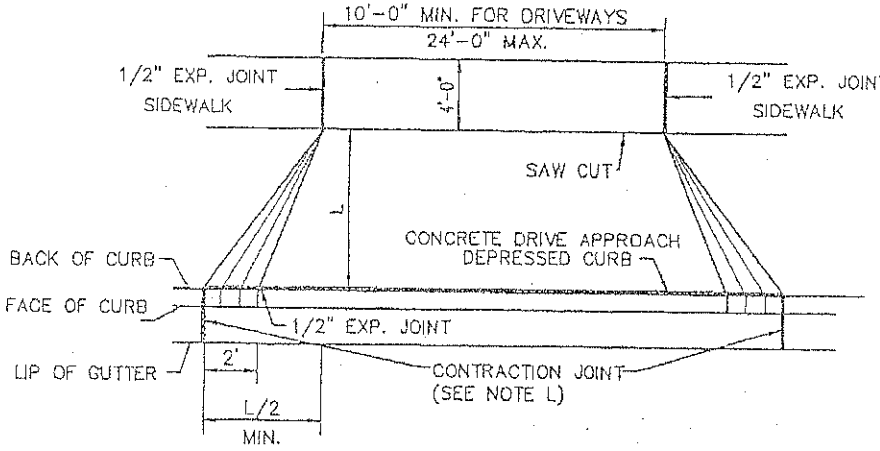




* TYPE 2 AND 6 CURB ONLY



FOR CURB LAWNS OF
LESS THAN 6'-0"



FOR CURB LAWNS OF
6'-0" OR MORE

NOTES

A. DRIVE APPROACHES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 452 AND 499 CAST-IN-PLACE CONCRETE.

B. DRIVE APPROACHES SHALL NOT BE POURED MONOLITHICLY WITH CURB.

C. MAXIMUM JOINT SPACING SHALL BE 10' LONGITUDINALLY, TRANSVERSELY AND AT TAPERS.

D. EXPANSION MATERIAL SHALL BE 1/2" PREMOLDED.

E. 3" OF GRAVEL SHALL BE PLACED UNDER DRIVE APPROACHES IF DETERMINED NECESSARY BY THE MUNICIPALITY.

F. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.

G. WHERE CURB AND GUTTER HAS NOT BEEN PROPERLY DROPPED AT DRIVE APPROACHES, THE CURB SHALL BE ENTIRELY REMOVED AND REPLACED BY THE CONTRACTOR OR OWNER AS DIRECTED BY THE MUNICIPALITY.

H. JOINTS SHALL BE CLEANED AND EDGED BY A 1/4" RADIUS EDGER. LONGITUDINAL JOINTS SHALL BE AS DIRECTED BY THE MUNICIPALITY. EXPANSION JOINTS SHALL BE OF SUCH DIMENSIONS AS SHOWN ON STANDARD DRAWINGS FOR CONSTRUCTION JOINTS.

I. WHERE ASPHALTIC CONCRETE PAVEMENT IS DISTURBED, THE ASPHALT SHALL BE REPLACED AS DIRECTED BY THE MUNICIPALITY.

J. CONCRETE SHALL BE ODOT CLASS C (4000 PSI, 600 LB/CY) CEMENT. PROPORTIONING OPTIONS 1 AND 2 NOT ALLOWED.

K. CONCRETE SHALL CONTAIN 6% ± 1% OF TOTAL AIR.

L. IF CURB IS REMOVED AND REPLACED DURING DRIVEWAY CONSTRUCTION, JOINTS BETWEEN EXISTING AND NEW CURB ARE TO BE 1/2" EXPANSION JOINTS.

MUNICIPALITY OF GERMANTOWN

RESIDENTIAL DRIVE APPROACH

REVISIONS:

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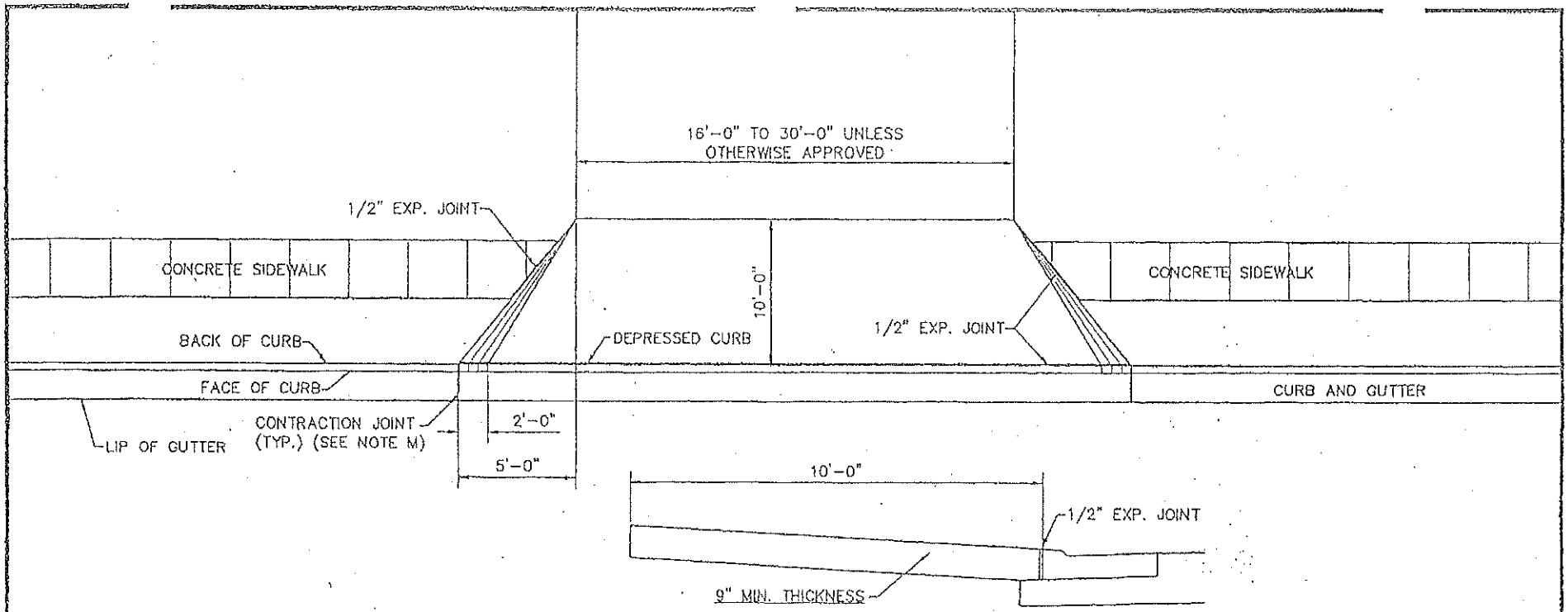


NOTES

A. DRIVE APPROACHES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 452 AND 499 CAST IN PLACE CONCRETE.

B. DRIVE APPROACHES SHALL NOT BE POURED MONOLITHICLY WITH CURB.

C. MAXIMUM JOINT SPACING SHALL BE 10' LONGITUDINALLY AND TRANSVERSELY WITH JOINTS AT TAPERS.

D. EXPANSION MATERIAL SHALL BE 1/2" PREMOLDED.

E. 3" OF GRAVEL SHALL BE PLACED UNDER DRIVE APPROACHES IF DETERMINED NECESSARY BY THE MUNICIPALITY.

F. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.

G. WHERE CURB AND GUTTER HAS NOT BEEN PROPERLY DROPPED AT DRIVE APPROACHES, THE CURB SHALL BE ENTIRELY REMOVED AND REPLACED BY THE CONTRACTOR OR OWNER AS DIRECTED BY THE MUNICIPALITY.

H. JOINTS SHALL BE CLEANED AND EDGED BY A 1/4" RADIUS EDGER. LONGITUDINAL JOINTS SHALL BE AS DIRECTED BY THE MUNICIPALITY. EXPANSION JOINTS SHALL BE OF SUCH DIMENSIONS AS SHOWN ON STANDARD DRAWINGS FOR CONSTRUCTION JOINTS.

I. MINIMUM WIDTH FOR ONE-WAY TRAFFIC IS 16'-0", MINIMUM WIDTH FOR TWO-WAY TRAFFIC IS 25'-0", MAXIMUM WIDTH IS 30'-0" UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY.

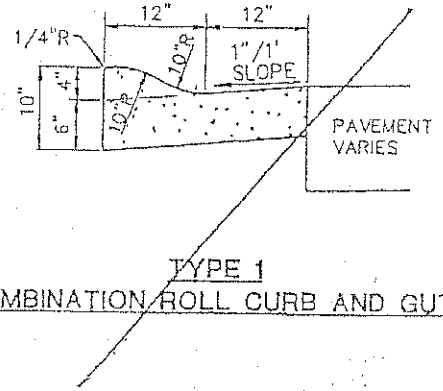
J. THIS STANDARD DRAWING IS FOR GUIDELINE PURPOSES. EACH INDIVIDUAL DRIVE WILL NEED TO BE DESIGNED AND SUBMITTED TO THE MUNICIPALITY FOR REVIEW AND APPROVAL.

K. CONCRETE SHALL BE ODOT CLASS C. (4000 PSI, 600 LB/CY CEMENT, PROPORTIONING OPTIONS 1 AND 2 NOT ALLOWED.

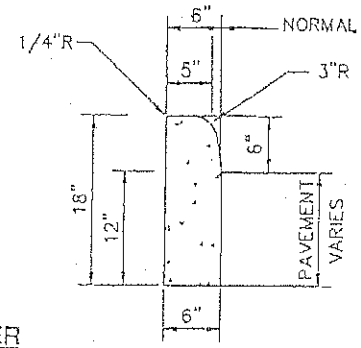
L. CONCRETE SHALL CONTAIN 6% ± 1% OF THE TOTAL AIR.

M. IF CURB IS REMOVED AND REPLACED DURING DRIVEWAY CONSTRUCTION, JOINTS BETWEEN EXISTING AND NEW CURB ARE TO BE 1/2" EXPANSION JOINTS.

MUNICIPALITY OF GERMANTOWN	COMMERCIAL AND INDUSTRIAL DRIVE APPROACH	REVISIONS:	DATE APPROVED: FEB. 1999
			PAGE No. 3-6

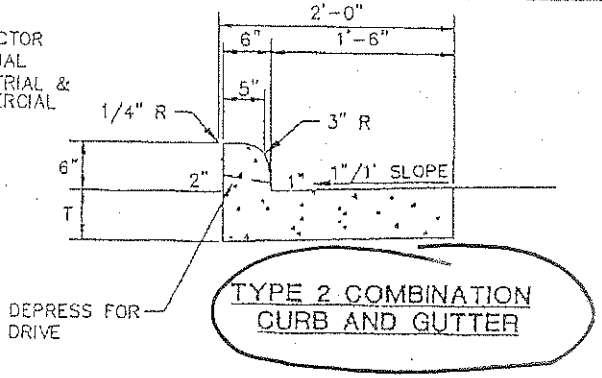


TYPE 1
COMBINATION ROLL CURB AND GUTTER

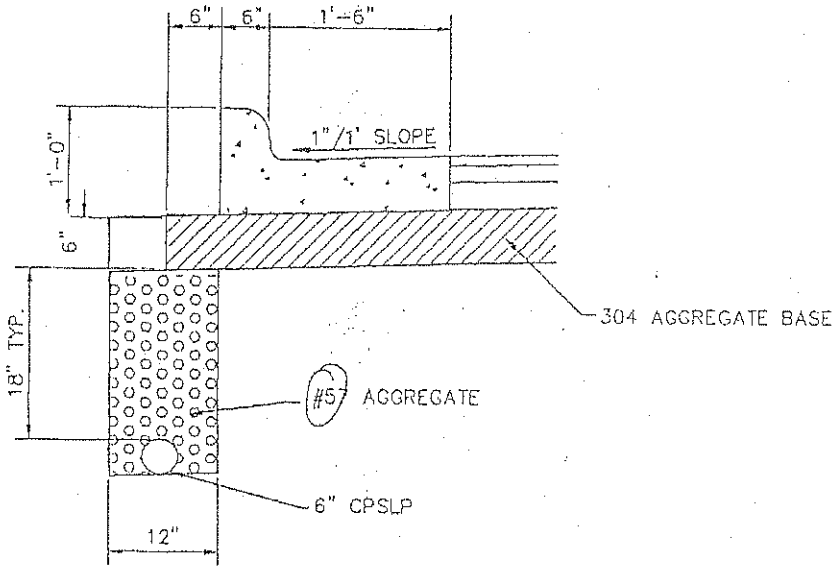


TYPE 6
BARRIER CURB

T=6" LOCAL
T=7" COLLECTOR
T=8" ARTERIAL
T=8" INDUSTRIAL & COMMERCIAL



TYPE 2 COMBINATION
CURB AND GUTTER



6" SHALLOW PIPE UNDERDRAIN DETAIL
(ONLY AS REQUIRED BY THE MUNICIPALITY)

NOTES

A. CONCRETE AND WORK SHALL MEET THE REQUIREMENT SET FORTH IN ODOT ITEM 609 CURBING.

B. CURBING SHALL HAVE CONTRACTION JOINTS EVERY 10'.

C. MINIMUM OF 6" OF ODOT 304 SHALL BE PLACED UNDER CURBING.

D. CURBING SHALL BE BACKFILLED IMMEDIATELY AFTER FORMS ARE REMOVED OR AS SOON AS PRACTICAL WHEN SLIP FORMING PRIOR TO OTHER CONSTRUCTION OPERATIONS.

E. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.

F. APPLY WHITE PIGMENTED CURING COMPOUND ON ALL SURFACES INCLUDING BACK IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER METHOD OR TYPE OF CURING COMPOUND MUST BE PREAPPROVED.

G. CONCRETE SHALL BE ODOT CLASS C (4000 PSI, 600LB/CY CEMENT). PROPORTIONING OPTIONS 1 AND 2 NOT ALLOWED.

H. CONCRETE SHALL CONTAIN 6% ± 1% OF TOTAL AIR.

I. TYPE 6 CURBS ARE FOR USE AROUND MEDIAN SECTION.

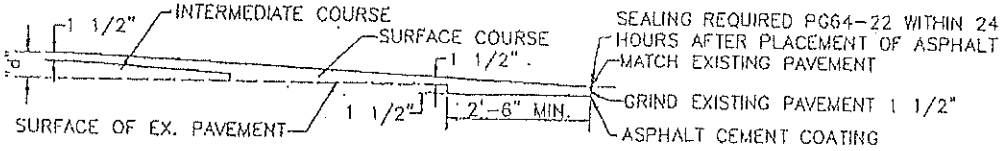
J. MINIMUM FLOW LINE SLOPE OF PERFORATED PIPE IS 0.003 FT/FT TO OUTLET.

K. CURB SHALL BE BLOCKED OUT A MINIMUM OF 5' ON EACH SIDE OF A NEW CATCH BASIN INSTALLATION.

L. UNDERDRAIN MUST BE INSTALLED PRIOR TO CURB INSTALLATION, IF USED.

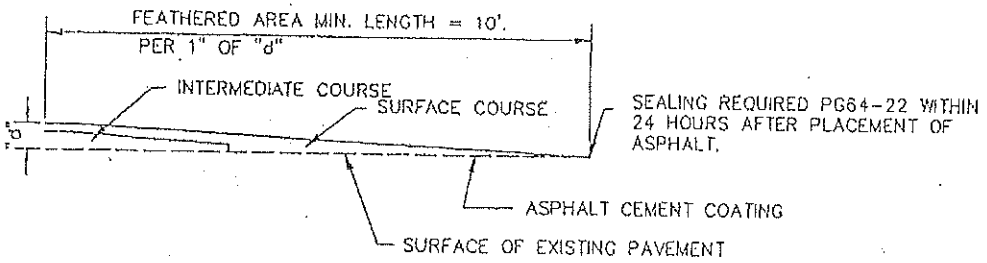
M. UNDERDRAIN MAYBE USED FOR SUMP PUMP DRAINS WITH A MANUFACTURED TEE, WHEN NO OTHER STORM OUTLET IS AVAILABLE AS DETERMINED BY THE MUNICIPALITY. IN NO CASE SHALL DOWNSPOUTS BE TIED INTO THE UNDERDRAIN.

MUNICIPALITY OF GERMANTOWN	CONCRETE CURB DETAILS	REVISIONS:	DATE APPROVED: FEB. 1999
			PAGE No. 300-5

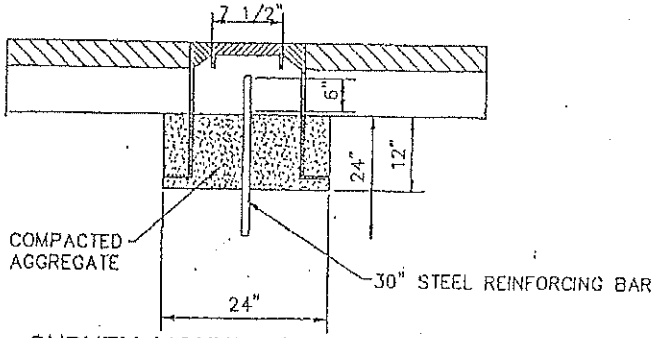


NOTE: MINIMUM LENGTH = 10' PER INCH OF "d".

BUTT JOINT DETAIL

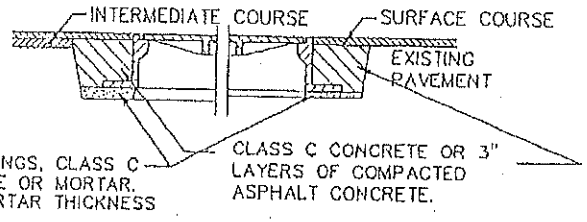


FEATHERING DETAIL



SURVEY MONUMENT DETAIL

MANHOLES ADJUSTED TO GRADE FOR OVERLAYS



USING CONCRETE OR MORTAR

NOTES

A. MONUMENT BOXES SHALL BE SET AT ALL STREET INTERSECTIONS AND P.I.'S OF TANGENT LINES OF ALL CURVES. IF A MONUMENT BOX CANNOT BE SET FOR A P.I. IN THE PAVEMENT AREA, BOXES MUST THEN BE SET ON THE P.C. AND P.T. OF A CURVE.

B. MONUMENT BOXES SHALL BE SET PRIOR TO THE LAYING OF ODOT ITEM 404 ASPHALT UNLESS OTHERWISE PREAPPROVED.

C. MONUMENT ASSEMBLIES SHALL BE NEENAH R-1978-A2 OR EAST JORDAN 8375.

D. MONUMENT BOXES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 604 UNLESS OTHERWISE SPECIFIED WITHIN.

MUNICIPALITY OF GERMANTOWN

ASPHALT OVERLAY AND MONUMENT

REVISIONS:

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GENERAL

A. FAILURE TO COMPLY WITH THE CONSTRUCTION STANDARDS AND DRAWINGS AND DESIGN CRITERIA MAY BE CONSIDERED A VIOLATION OF THE MUNICIPALITY'S SUBDIVISION REGULATIONS. PENALTIES MAY BE ASSESSED ACCORDING TO THE SEVERITY OF THE VIOLATION.

B. ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH ODOT SPECIFICATIONS, LATEST REVISION.

C. NON-PUBLIC CONSTRUCTION IMPROVEMENTS AFFECTING THE EXISTING CONDITION, PERFORMANCE AND LIFECYCLE OF MUNICIPALITY STREETS, ALLEYS, OR RIGHTS-OF-WAY SHALL BE RESTORED TO THE REQUIREMENTS AND SATISFACTION OF THE MUNICIPALITY OF GERMANTOWN. ALL MUNICIPAL INFRASTRUCTURE SHALL BE ADEQUATELY RESTORED ACCORDING TO APPLICABLE STANDARDS AND DETAILS.

D. ALL NEW SUBDIVISIONS AND DEVELOPMENTS SHALL BE PROVIDED WITH PUBLIC SIDEWALKS ON BOTH SIDES OF STREETS IN ACCORDANCE WITH MUNICIPAL STANDARDS.

E. CURB CUTS FOR ALL NEW AND RECONSTRUCTED DRIVEWAYS SHALL CONFORM TO MUNICIPAL STANDARDS. ALL NEW DRIVEWAY APPROACHES SHALL BE CONSTRUCTED OF OR CONCRETE AND SUBJECT TO ALL MUNICIPAL REQUIREMENTS.

F. NO MUNICIPAL STREET OR ALLEY SHALL BE CLOSED UNLESS THE MUNICIPALITY'S NOTIFIED A MINIMUM OF 48 HOURS IN ADVANCE OF A NON-EMERGENCY SITUATION. ADVANCED PUBLIC NOTIFICATION AND PUBLISHING SHALL BE A MINIMUM OF 24 HOURS.

PAVEMENT REPLACEMENT

A. IMMEDIATELY AFTER PLACEMENT OF BACKFILL IN EXISTING STREETS, A TEMPORARY PAVEMENT SHALL BE INSTALLED AND THE STREET OPENED. TEMPORARY PAVEMENT SHALL CONSIST OF 8" OF COMPACTED ODOT SPECIFICATION 411 OR 307. THE SURFACE SHALL BE MAINTAINED FLUSH WITH THE EXISTING STREET.

B. PERMANENT PAVEMENT REPLACEMENT SHALL EQUAL OR EXCEED THE EXISTING PAVEMENT. (MINIMUM PAVEMENT COMPOSITION, SEE PAGE 300-2 OR 300-3).

C. ANY SETTLEMENT OF A TRENCH CAUSING A DEPRESSION SHALL BE REFILLED AS REQUIRED BY THE MUNICIPALITY AT THE CONTRACTOR'S EXPENSE. THIS PROVISION APPLIES FOR A ONE-YEAR PERIOD AFTER WORK IS ACCEPTED BY THE MUNICIPALITY.

D. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE MUNICIPALITY.

TRAFFIC CONTROL

A. THE CONTRACTOR SHALL MAINTAIN TRAFFIC CONTROL AT ALL TIMES WITH THE PROPER BARRICADES AS PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVISES. THESE CONTROL DEVICES SHALL BE IN PLACE PRIOR TO ANY WORK COMMENCING. CONTRACTOR WILL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL ITEMS.

B. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY.

CURB STAKING AND ROADWAY

A. LINE AND GRADE EVERY 25' ON A CONVENIENT OFFSET WITH TACKED HUBS.

PAVEMENT (ASPHALT)

A. THE CONTRACTOR SHALL PROVIDE THE MUNICIPALITY WITH A COPY OF THE NORMAL (MEDIUM TRAFFIC) ODOT 404 JOB MIX FORMULA FOR EACH PLANT THAT PROVIDES HOT MIXED ASPHALT TO THIS PROJECT. ALL MIXES SHALL FOLLOW ODOT JOB MIX FORMULA WITH THE EXCEPTION THAT THE BITUMEN CONTENT SHALL BE 0.2% HIGHER. SECTION 401.02 COMPOSITION OF THE CURRENT ODOT SPECIFICATIONS SHALL BE USED FOR ACCEPTANCE BASED ON THE INCREASED BITUMEN. A 448 OR 446 JOB MIX FORMULA WILL NOT BE ACCEPTABLE. RECYCLED ASPHALT SHALL NOT EXCEED 15% OF ANY 402 MIX PRODUCED. NO RECYCLED ASPHALT MAY BE USED IN THE ITEM 404 SURFACE COURSE.

B. THREE-WHEEL STEEL ROLLER SHALL BE USED FOR INITIAL BREAKDOWN ON ALL PROJECTS.

C. ALL WORK SHALL ADHERE TO ODOT'S LATEST REVISIONS AND TO THE MUNICIPALITY'S SPECIFICATIONS WHICHEVER IS MORE STRINGENT SHALL PREVAIL UNLESS OTHERWISE APPROVED.

D. PATCHED AREAS SHALL BE SEALED ON ALL PERIMETER OF THE PATCH WITH ASPHALT CEMENT.

E. ALL UTILITY ADJUSTMENTS -- MANHOLE, WATER VALVES, ETC., -- SHALL BE RAISED TO FINISHED GRADE BEFORE THE FINAL ASPHALT COURSE IS LAID.

F. ASPHALT CEMENT SHALL BE USED NEXT TO THE LIP OF GUTTER PRIOR TO THE FINAL ASPHALT LIFT BEING PLACED. (SS-1 TACK OR PG64-22 SEAL.)

G. TACK COAT SHALL BE APPLIED PRIOR TO THE PLACEMENT OF THE FINAL LIFT OF ASPHALT IF THE EXISTING ASPHALT LIFT IS DIRTY OR AFTER TEN DAYS UNLESS OTHERWISE APPROVED. TEMPERATURE MUST BE 50°F OR HIGHER.

H. NO ASPHALT SHALL BE PLACED OVER EXCAVATED TRENCHES UNLESS TRENCHES HAVE BEEN COMPACTED AS PER MUNICIPALITY CONSTRUCTION STANDARDS & DRAWINGS PAGE 500-6.

I. NO ASPHALT SHALL BE LAID UNLESS THE MUNICIPALITY IS GIVEN PRIOR NOTICE AND THE AMBIENT TEMPERATURE IS 50°F OR GREATER UNLESS OTHERWISE APPROVED.

K. FINAL LIFT OF ASPHALT SHALL BE FINISHED TO 1/4" ABOVE THE LIP OF GUTTER.

L. TEMPERATURES FOR BREAKDOWN ROLLING SHALL BE 260°F PLUS 15°F AND FOR FINAL ROLLING 175°F PLUS 15°F.

M. ASPHALT CEMENT SHALL BE USED ON ALL JOINTS AND FEATHERED SURFACES PRIOR TO PLACEMENT OF THE NEXT COURSE OF ASPHALT TO THE ABUTTING JOINT, UNLESS OTHERWISE APPROVED.

N. 325°F IS THE MAXIMUM TEMPERATURE ASPHALT MATERIAL IS TO BE MIXED.

O. ALL EDGES TO BE TRIMMED BACK AND SAWCUT TO SOLID MATERIAL AND BE STRAIGHT AND NEAT AS PER THE MUNICIPALITY'S INSTRUCTIONS.

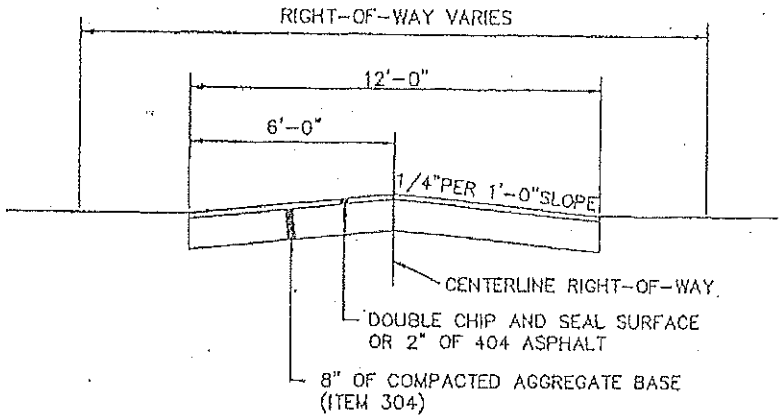
MUNICIPALITY OF GERMANTOWN

MISCELLANEOUS ROADWAY NOTES

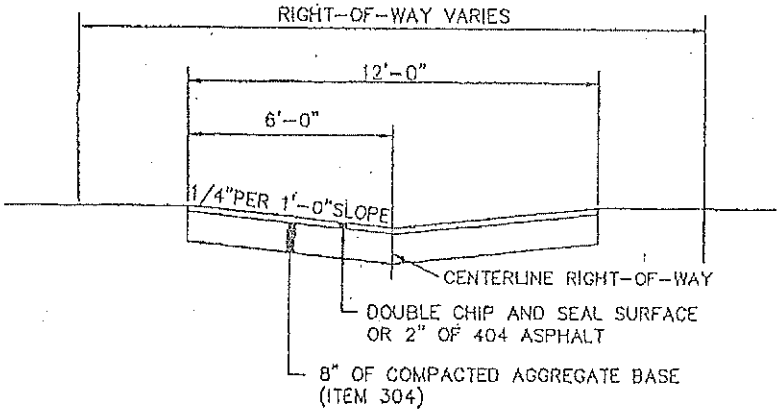
REVISIONS:

DATE APPROVED: FEB. 1999

PAGE 300-12



TYPICAL CROWN



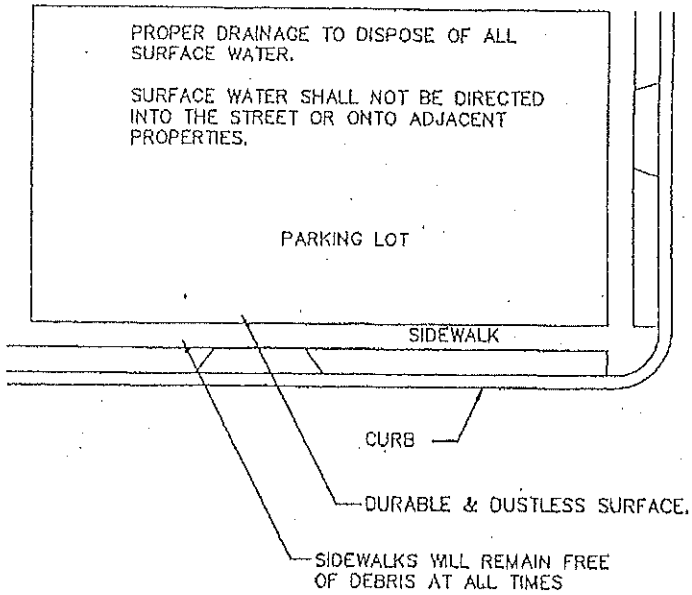
INVERTED CROWN

TYPICAL ALLEY CONSTRUCTION

A. MINIMUM STANDARD (UNLESS OTHERWISE APPROVED.)

B. FOR RENOVATION OF EXISTING ALLEYS ONLY. NO NEW ALLEY'S WILL BE APPROVED WITHIN THE MUNICIPALITY.

ADJACENT PARKING AREAS SHALL BE CONNECTED TO LIMIT THE NUMBER OF ACCESS DRIVES TO THE STREET.



PARKING LOT DETAIL

THE FOLLOWING ARE ACCEPTED LOT SURFACES (UNLESS OTHERWISE APPROVED).

A. DOUBLE CHIP AND SEAL, WITH APPROVAL.

B. ASPHALT CONCRETE ITEM 404.

C. CONCRETE

MUNICIPALITY OF GERMANTOWN	ALLEY AND PARKING LOT DETAIL	REVISIONS:	DATE APPROVED: FEB. 1999
			PAGE No. 300-13

NOTES

A. THE MUNICIPALITY MUST BE NOTIFIED BEFORE ANYONE CAN PERFORM ANY WORK ON OR WITHIN A PUBLIC RIGHT-OF-WAY. (STREET, ALLEY, ETC.). NOTIFICATION IS REQUIRED FOR ANY TUNNEL, SIDEWALK, OPENING OR EXCAVATION UNDER OR IN THE RIGHT-OF-WAY PUBLIC GROUNDS.

B. THE NOTIFICATION WILL BE COMPLETED BY THE PERSON OR FIRM PLANNING THE WORK WITHIN THE RIGHT-OF-WAY. ALL APPROVALS MUST BE OBTAINED BEFORE ANY WORK IS STARTED. 72 WORKING HOUR LEAD TIME IS RECOMMENDED.

C. THE APPLICANT SHALL HAVE SUFFICIENT BARRICADES, WARNING SIGNS, AND LIGHTS DURING THE ENTIRE PERIOD THAT THE WORK IS BEING PERFORMED AND SHALL ADHERE TO APPLICABLE SECTION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

D. ALL UTILITIES ARE REQUIRED TO OBTAIN APPROVAL.

E. THE EXISTING PAVEMENT SHALL BE NEATLY CUT PRIOR TO EXCAVATION. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE JOB SITE. THE APPLICANT IS RESPONSIBLE FOR ALL PAVEMENT DAMAGED OUTSIDE THE TRENCH AREA.

F. BACKFILLING SHALL BE IN ACCORDANCE WITH MUNICIPAL SPECIFICATIONS.

G. ALL EXCAVATIONS OR TRENCH EDGES UNDER OR WITHIN 5' OF PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS SHALL EITHER BE BACKFILLED WITH LOW STRENGTH MORTAR BACKFILL ODOT ITEM 613, TYPE 1 ONLY OR BACKFILLED WITH ODOT 603 TYPE 1 OR TYPE 2 GRANULAR MATERIAL, COMPACTED IN 6" LAYERS. A DENSITY TEST OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAYBE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE MUNICIPALITY.

H. ALL EXCAVATION OR TRENCH EDGES NOT UNDER OR WITHIN 5' OF PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS CAN BE COMPACTED EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE MUNICIPALITY.

I. ALL DISTURBED AREAS MUST BE RETURNED TO AS GOOD OR BETTER CONDITION. ALL REPAIRS MUST MEET VILLAGE SPECIFICATIONS. THE VILLAGE MUST INSPECT AND APPROVE ALL REPAIRS.

J. COLD PATCH SHALL BE PLACED TO 1 1/2"+ THICKNESS OVER BACKFILLED TRENCH WITHIN ONE WORKING DAY AFTER THE BACKFILL HAS BEEN COMPACTED, IF THE ASPHALT PAVEMENT ISN'T PLACED IMMEDIATELY.

K. EFFORTS SHALL BE MADE TO MINIMIZE ANY DISTURBANCE TO TREES OR THIN ROOTS. EXTENSIVE EXCAVATION CAUSING DAMAGE TO TREES WILL RESULT IN THE REMOVAL AND REPLACEMENT OF, BY THE CONTRACTOR. THE REPLACEMENT SHALL BE AS PER THE MUNICIPALITY.

L. FOR CLOSURE OF ARTERIALS OR BUSY COLLECTORS THE MUNICIPALITY RESERVES THE OPPORTUNITY TO DIRECT CONTRACTOR TO TO CLOSE STREET DURING OFF-PEAK TRAFFIC HOURS. CLOSURE MAY OCCUR AT NIGHT OR ON WEEKENDS. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL ASSOCIATED WITH ROAD CLOSURE.

M. AN ASPHALT EMULSION, OR CRACK SEALANT, WITH ASPHALT GRADE SS-1 OR CSS-1 SHALL BE APPLIED TO THE PERIMETER OF ALL PAVEMENT CUTS AFTER RESTORATION IS COMPLETED.

N. PAVEMENT THICKNESS TO BE RESTORED SHALL BE ACCORDING TO MUNICIPAL STANDARDS OR EQUAL TO THE EXISTING THICKNESS, WHICHEVER IS GREATER.

O. IN THE EVENT THAT AFTER NOTIFICATION FROM THE MUNICIPALITY, THE CONTRACTOR FAILS TO CORRECT PROBLEMS ASSOCIATED WITH POOR TRENCH MAINTENANCE, THE MUNICIPALITY RESERVES EXCLUSIVE RIGHT TO CORRECT TRENCH PROBLEMS AND BILL THE ASSOCIATED COSTS.

MUNICIPALITY OF GERMANTOWN

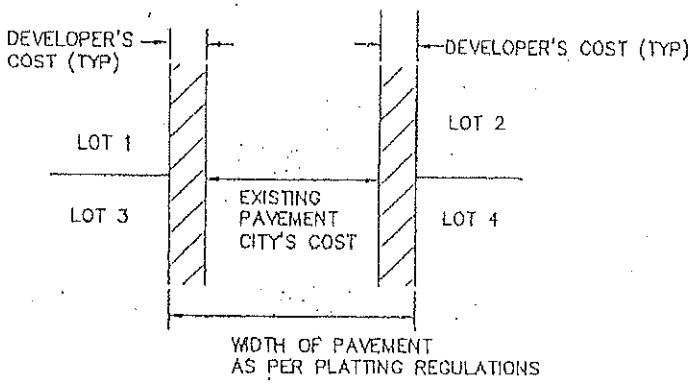
PUBLIC RIGHT-OF-WAY OPENING AND EXCA[illegible]TION

REVISIONS:

DATE APPROVED: FEB. 1999

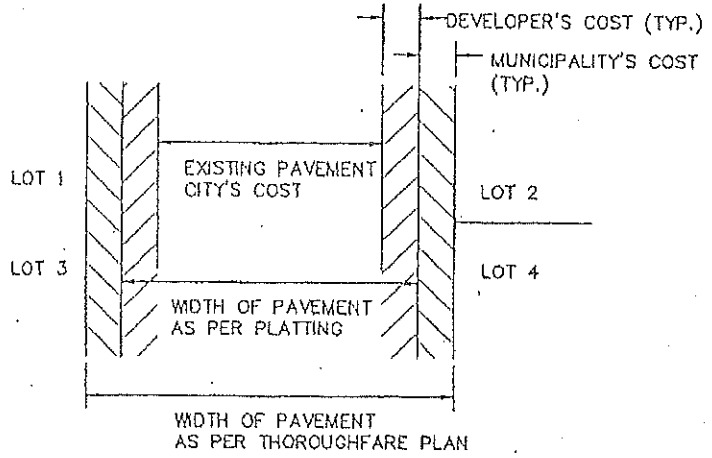
PAC 30[illegible]14

EXAMPLE "A"



STREET IMPROVEMENTS FROM EXISTING STREET WIDTH TO PLATTING REGULATION WIDTH

EXAMPLE "B"



STREET IMPROVEMENTS FROM EXISTING STREET WIDTH TO THOROUGHFARE PLAN WIDTH

NOTES

A. IF BOTH SIDES OF A STREET ARE INCLUDED IN THE SUBDIVISION, THE DEVELOPER PAYS THE TOTAL COST FOR ADDITIONAL WIDTH OF EXCAVATION, PAVEMENT, CURB AND SIDEWALK INCLUDING COST TO BRING THE STORM SEWER SYSTEM UP TO STANDARDS.

B. IF ONE SIDE OF THE SUBDIVISION ABUTS AN EXISTING STREET, THE DEVELOPER SHALL PAY FOR THE TOTAL COST OF ONE SIDE FOR ADDITIONAL WIDTH OF EXCAVATION, PAVEMENT, CURB AND SIDEWALK INCLUDING COST TO BRING THE STORM SEWER SYSTEM UP TO STANDARDS.

C. THE MUNICIPALITY PAYS CONSTRUCTION COST ON EXISTING STREET WIDTH AND ANY OVERSIZING TO MEET THOROUGHFARE PLAN.

MUNICIPALITY OF GERMANTOWN	STREET IMPROVEMENT CONDITIONS	REVISIONS:	DATE APPROVED: FEB. 1999
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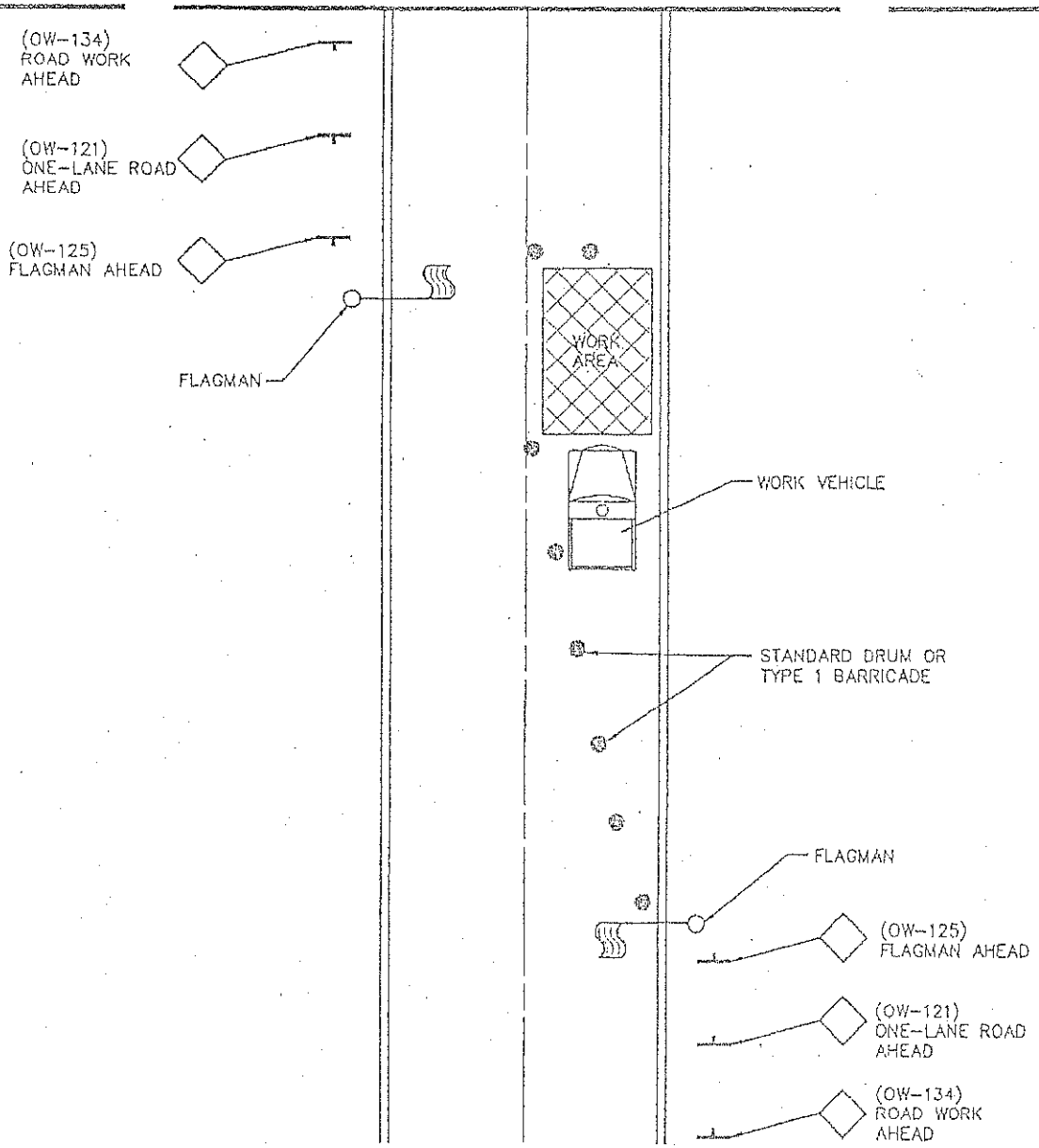

NOTES

A. THE POLICE AND FIRE DEPARTMENTS SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY CONSTRUCTION. NO STREET SHALL BE CLOSED WITHOUT THE APPROVAL OF THE MUNICIPALITY.

B. IF THE WORK IS TO COVER THE ENTIRE WIDTH OF THE STREET, ONE HALF OF THE STREET SHALL BE MAINTAINED FOR TRAFFIC WHILE ONE HALF OF THE STREET IS REPAIRED.

C. BARRICADE DISTANCE AND SEPARATION OF WARNING TO BE SPACED AS PER JOB SITE ACCORDING TO THE MUNICIPALITY.

D. IF BARRICADES ARE TO BE LEFT UP OVERNIGHT, WARNING LIGHTS (FLASHERS) ARE TO BE USED.

E. ALL STREET CONTROL DEVICES APPLICABLE TO DIFFERENT WIDTH STREETS, TYPE OF CONSTRUCTION, ETC., SHALL CONFORM TO THE LATEST REVISION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY AND SHALL BE IN PLACE AND PROPERLY DISPLAYED PRIOR TO THE COMMENCEMENT OF ANY WORK.

MUNICIPALITY OF GERMANTOWN

TRAFFIC CONTROL DEVICES
STATIONARY OPERATIONS IN ONE LANE

REVISIONS:

DATE APPROVED: FEB. 1999

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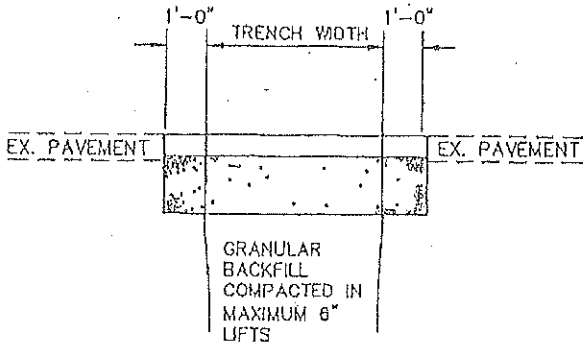


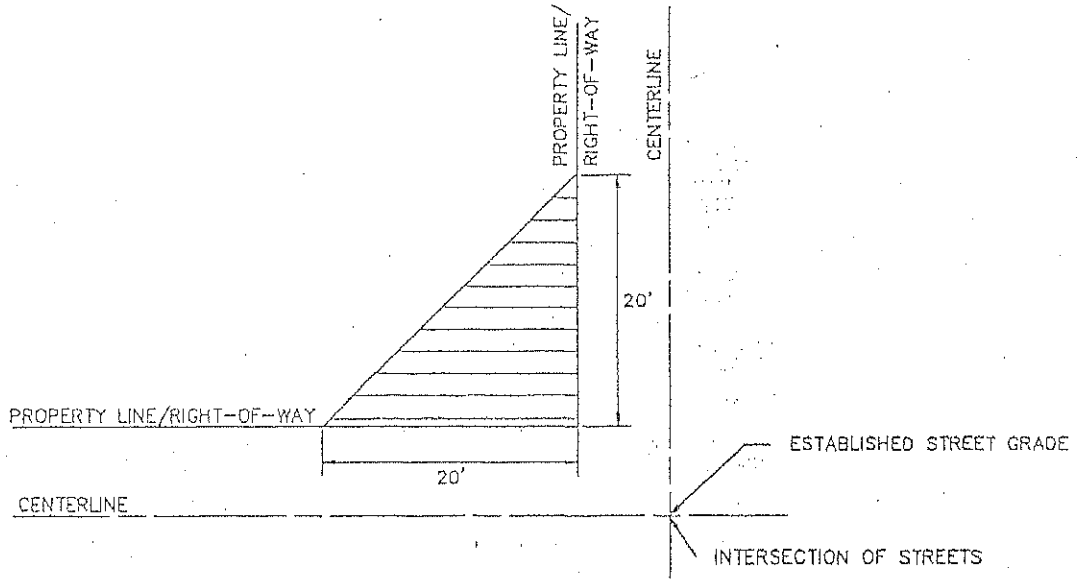
TYPICAL PAVEMENT RESTORATION DETAIL

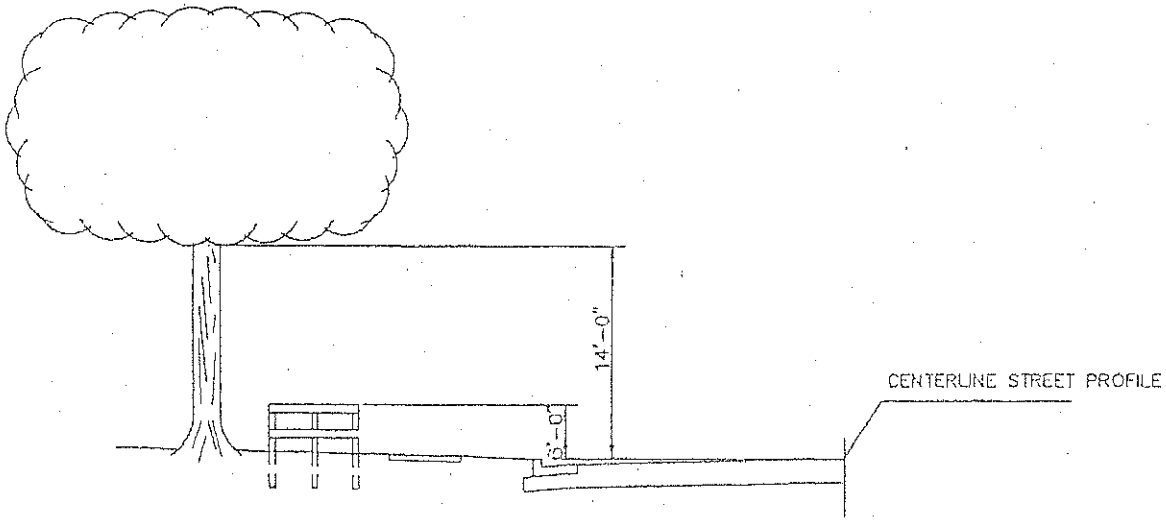
TYPICAL PAVEMENT RESTORATION NOTES

MINIMUM GRAVEL PAVEMENT REPLACEMENT
2" OF ODOT #67 ON
12" OF ODOT ITEM 304, IN LIFTS OF 3" MAXIMUM

MINIMUM ASPHALT PAVEMENT REPLACEMENT
PERMANENT PAVEMENT REPLACEMENT SHALL EQUAL OR EXCEED THE EXISTING PAVEMENT COMPOSITION. (MINIMUM PAVEMENT COMPOSITION SEE PAGE 300-2 UTILIZING APPROPRIATE STREET CLASSIFICATION).

SOIL BORINGS SHALL BE CAPPED WITH A MINIMUM OF 9" OF ODOT CLASS C CONCRETE.





VISION CLEARANCE EXHIBIT

NOTES

THERE SHALL NOT BE ANYTHING ABOVE 3' OR BELOW 12' OF THE ESTABLISHED STREET GRADE IN THE TRIANGULAR SHADED AREA.

MUNICIPALITY OF GERMANTOWN

VISION CLEARANCE ON CORNER LOTS

REVISIONS:

DATE APPROVED: FEB. 1999

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TRAFFIC CONTROL DEVICE NOTES

A. ALL TRAFFIC CONTROL DEVICES SHALL BE PER THE LATEST REVISION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND APPROVED BY THE MUNICIPALITY BEFORE INSTALLATION.

B. ALL SIGN POST SHALL BE STANDARD U-CHANNEL STEEL POST UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY.

C. ALL STREET NAME SIGNS SHALL BE GREEN IN COLOR WITH WHITE LETTERING UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY.

D. ALL STREET NAMES, SIGNS, TRAFFIC CONTROL SIGNS, POST, AND HARDWARE ALONG WITH THEIR PROPOSED LOCATION, MUST BE APPROVED BY THE MUNICIPALITY PRIOR TO INSTILLATION.

UTILITIES ..GENTS

MUNICIPALITY OF GERMANTOWN-
WATER AND SANITARY SEWERS
DEPARTMENT OF WATER AND SANITARY SEWERS
150 EAST GUNCKEL ST.
GERMANTOWN, OH 45327
(937) 855-4243

MUNICIPALITY OF GERMANTOWN-
STREETS AND SANITARY SEWERS
DEPARTMENT OF STREETS AND SANITARY SEWERS
WATER AND JEFFERSON ST.
GERMANTOWN, OH 45327
(937) 855-6050

DAYTON POWER AND LIGHT- ELECTRIC AND GAS SERVICE
1 SOUTH GEBHART CHURCH RD.
MIAMISBURG, OH 45342
(937) 331-3520

WARNER CABLE - CABLE TV SERVICE
419 SOUTH BARRON AVE.
EATON, OH 45320
1-800-762-2963

GERMANTOWN INDEPENDANT TELEPHONE COMPANY -
PHONE SERVICES
36 NORTH PLUM ST.
GERMANTOWN, OH 45327
(937) 855-6511

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SEEDING

A. ALL AREAS DESIGNATED FOR SEEDING SHALL HAVE A MINIMUM OF 6" OF TOPSOIL OVER THE ENTIRE AREAS. THE AREA SHALL BE RAKED, AND DRESSED READY FOR SEEDING. NO STONE OVER 1" IN SIZE PERMITTED.

DRAINS

A. ALL FIELD OR STORM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE REPAIRED AND PROVIDED WITH UNOBSTRUCTED OUTLETS AS APPROVED AND DIRECTED BY THE MUNICIPALITY AND MARKED ON THE RECORD DRAWINGS.

CONNECTIONS TO EXISTING PIPE

A. WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

UTILITY SEPARATION

A. ANY UNDERGROUND UTILITIES SUCH AS GAS, ELECTRIC, CABLE TV, TELEPHONE, ETC., SHALL HAVE 10' SEPARATION FROM ANY MUNICIPALITY UTILITY UNLESS OTHERWISE APPROVED.

UTILITIES

A. THE MAXIMUM LENGTH OF ANY UTILITY TRENCH TO BE OPEN AT ANY TIME SHALL BE 250' UNLESS OTHERWISE APPROVED.

COMPACTION METHODS

A. FLOODING SHALL NOT BE PERMITTED.

B. MECHANICAL DEVICES, HAND DEVICES, VIBRATING PLATES OR OTHER EQUIPMENT APPROVED BY THE MUNICIPALITY IS ACCEPTABLE 1' ABOVE PIPE IN UNIFORM LIFTS OF 12" (LOOSE DEPTH) OF EXISTING NATIVE MATERIAL AND 6" OF GRANULAR BACKFILL. THE HEIGHT OF LIFTS WILL DEPEND UPON THE TYPE OF MECHANICAL EQUIPMENT BEING USED. THE HEIGHT WILL BE 6" FOR HAND OPERATED TOOLS AND UP TO 12" ON EQUIPMENT MOUNTED TOOLS. THE COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE MATERIAL UNDER THE HAUNCH OF THE PIPE.

C. JETTING IS APPROVED FOR ODOT 603, TYPE 2 GRANULAR MATERIAL ONLY AND IF A STORM DRAIN IS AVAILABLE AS A DRAINAGE OUTLET FOR THE REMOVAL OF EXCESS WATER. A 4' MAXIMUM LIFT SHALL BE ADHERED TO. SATISFACTORY DRAINAGE SHALL BE PROVIDED BY THE USE OF DRAINAGE DITCHES, PUMPS OR OTHER EQUIPMENT. ALL WATER MUST BE METERED FOR COMPACTION METHOD.

D. DENSITY FOR THE ABOVE METHODS SHALL BE NO LESS THAN THAT OF THE SURROUNDING GROUND UNLESS OTHERWISE SPECIFIED.

DISPOSAL OF SURPLUS MATERIAL

A. THE MUNICIPALITY MAY AT THEIR DISCRETION REQUIRE THAT SURPLUS MATERIAL BE DEPOSITED AT A LOCATION DESIGNATED WITHIN A THREE--MILE RADIUS OF THE WORK SITE.

TYPICAL NOTES - ALL SUBDIVISION CONSTRUCTION DRAWINGS

A. ALL CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH THE MUNICIPALITY ENGINEERING STANDARDS OR ODOT WHICHEVER IS MORE RESTRICTIVE.

B. ALL COMPACTION SHALL MEET THE MUNICIPALITY REQUIREMENTS. IF TESTING OF COMPACTED AREAS IS REQUESTED BY THE MUNICIPALITY, SAID TESTING SHALL BE PERFORMED AT THE EXPENSE OF THE DEVELOPER.

C. THE MUNICIPALITY WILL LOCATE AREAS IN NEED OF UNDERCUTTING UNLESS THE DEVELOPER CHOOSES TO HAVE AT HIS EXPENSE AN INDEPENDENT APPROVED TESTING COMPANY TO DETERMINE UNSUITABLE MATERIAL AREAS THAT NEED UNDERCUTTING.

D. ALL EMBANKMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF ASTM D698 STANDARD PROCTOR CURVE AND TESTED TO REPRESENT A DEPTH OF 12" UNLESS OTHERWISE SPECIFIED BY THE MUNICIPALITY.

E. ALL UNPAVED AREAS WITHIN THE STREET RIGHT-OF-WAY SHALL BE SEEDED WITHIN 48 HOURS AFTER THE CURB IS BACKFILLED. STAKED STRAW BALES MAY BE REQUIRED IN ADDITION TO SEEDING TO CONTROL EROSION IF REQUESTED BY THE MUNICIPALITY.

F. STORM WATER POLLUTION PREVENTION SHOULD BE A HIGH PRIORITY ON ALL CONSTRUCTION PROJECTS. ON ALL PROJECTS WHICH DISTURB AT LEAST 5 ACRES OF SOIL, A NPDES PERMIT IS REQUIRED FROM OEPA AND A COPY OF THE PERMIT MUST BE ON FILE AT THE MUNICIPALITY OFFICE BEFORE CONSTRUCTION BEGINS.

LOW STRENGTH MORTAR BACKFILL

A. IN SITUATIONS WHERE UTILITIES CROSS HEAVILY TRAVELED STREETS OR IT MAY BE DIFFICULT TO GET ADEQUATE COMPACTION ON GRANULAR MATERIAL, LOW STRENGTH MORTAR BACKFILL WILL BE REQUIRED PER ODOT ITEM 613 TYPE 1 ONLY. THE MUNICIPALITY MAY REQUIRE THIS TYPE OF BACKFILL AT THEIR DISCRETION WITH THE COST BEING BORE BY THE CONTRACTOR. MUNICIPALITY WILL REQUIRE MATERIAL CERTIFICATION.

BORING/JACKING

A. MATERIALS.

CASING PIPE SHALL BE WELDED STEEL PIPE CONFORMING TO AWWA C-202.

B. INSTALLATION (CASING PIPE).

1. FURNISH PROCEDURE METHODS TO THE MUNICIPALITY FOR APPROVAL.

2. ALL METHODS AND PROCEDURES SHALL BE APPROVED BY THE MUNICIPALITY PRIOR TO CONSTRUCTION.

3. ADEQUATELY SUPPORT ALL TRENCHES AND BORING/JACKING PITS.

4. INSTALL TO LINE AND GRADE SHOWN.

C. INSTALLATION (CARRIER PIPE).

1. PLACE CONDUITS IN CASING PIPE TO SAME RELATIVE POSITIONS AS ADJACENT DUCT BY USE OF SPACERS.

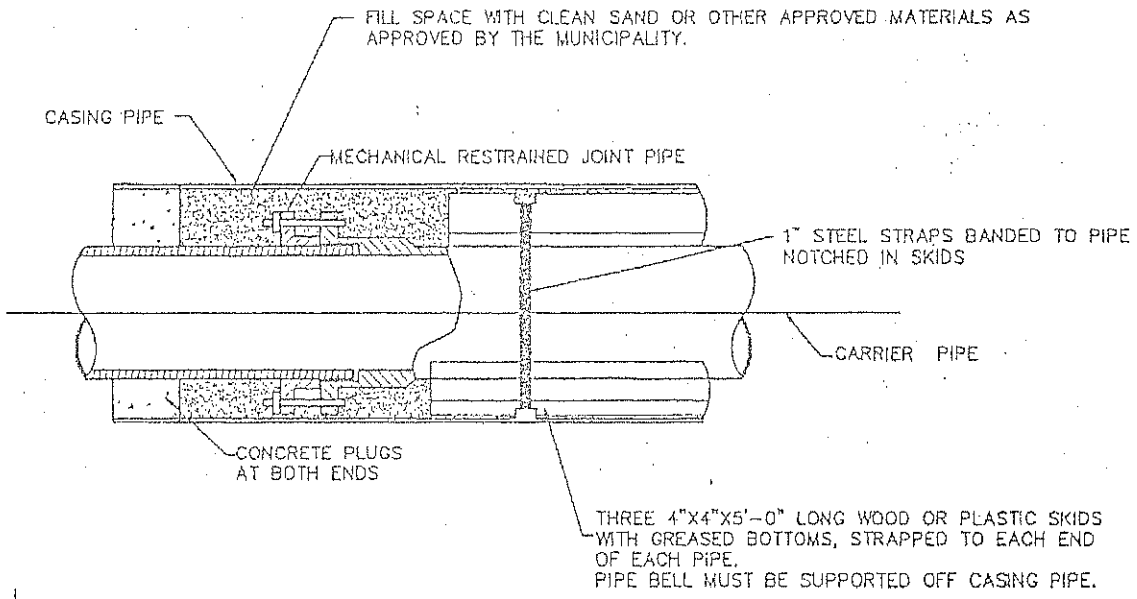
2. FILL THE SPACE BETWEEN CONDUITS INSIDE THE CASING PIPE WITH CLEAN SAND OR OTHER APPROVED MATERIALS AS APPROVED BY THE MUNICIPALITY.

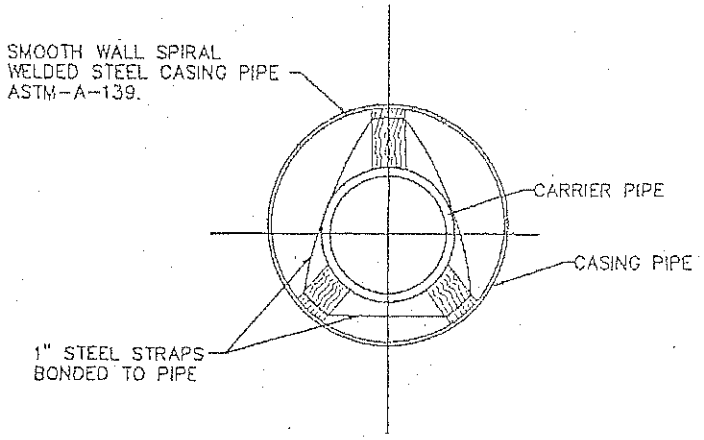
STEEL CASING PIPE

A. STEEL PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI.

B. JOINTS BETWEEN THE SECTIONS OF PIPE SHALL BE FULLY WELDED AROUND THE COMPLTE CIRCUMFERENCE OF THE PIPE.

DIAMETER NOMINAL (INCHES)	NOMINAL THICKNESS (INCHES)
10 AND UNDER	0.188
12 & 14	0.250
16	0.281
18	0.312
20 & 22	0.344
24	0.375
26	0.406
28	0.438
30	0.469
32	0.500
34 & 36	0.532
38	0.562
40	0.594
42	0.625
44 & 46	0.657
48	0.688
50	0.719
52	0.750
54	0.781
56 & 58	0.812
60	0.844
62	0.875
64	0.906
66 & 68	0.938
70	0.969
72	1.000





MUNICIPALITY OF GERMANTOWN

CASING PIPE DETAIL

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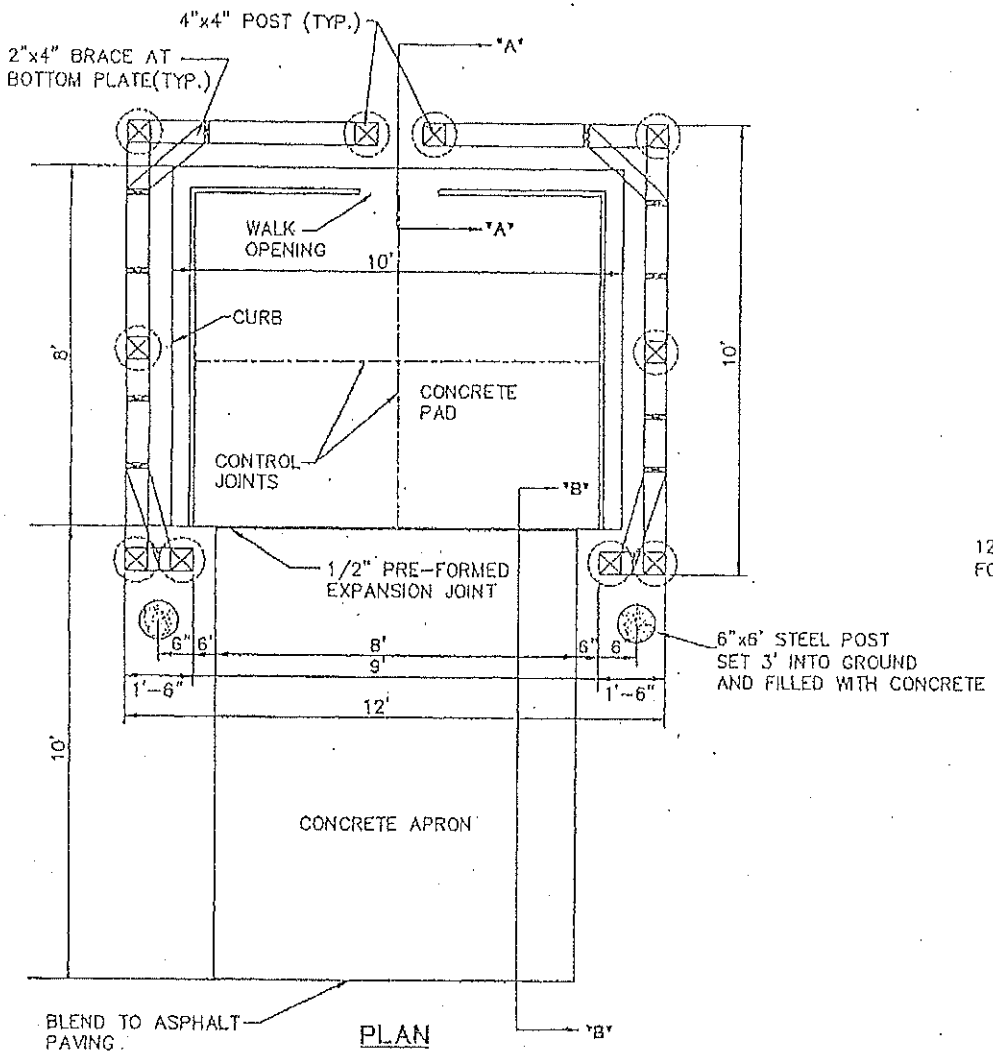
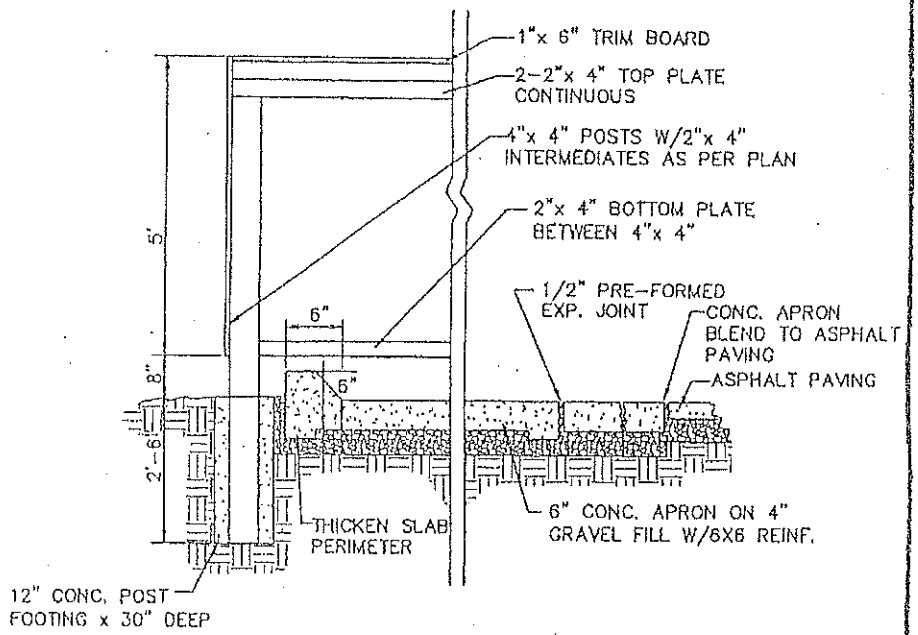


PLAN



"A-A" "B-B"

SECTION

TRASH ENCLOSURE

NOTES:

(1) TRASH CONTAINER TO BE A MAX. OF 2 C.Y. CAPA MUNICIPALITY

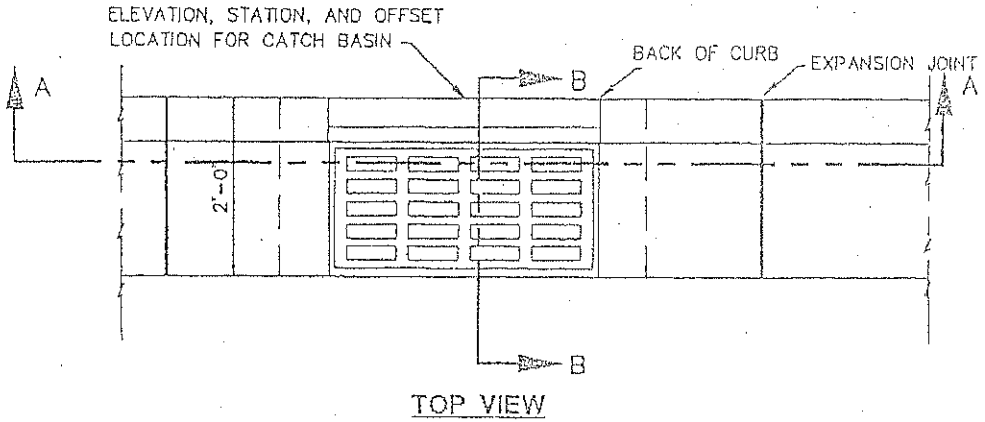
(2) CONTAINER SHALL BE SECURED

(3) PLANS TO BE COMPLIED WITH UNLESS OTHERWISE APPROVED.

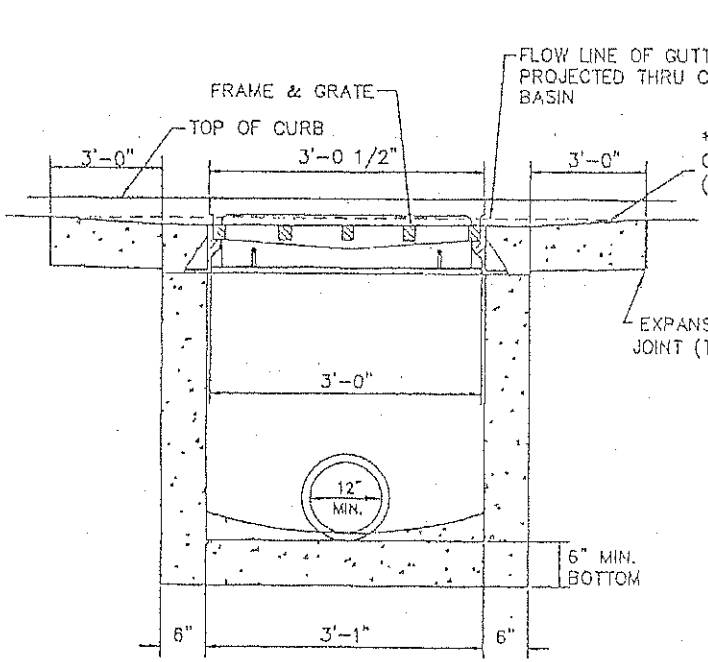
(4) ALL DUMPSTERS SHALL BE PROVIDED WITH A DUMPSTER PAD AND A MINIMUM THREE-SIDED 6 FOOT HIGH ENCLOSURE IN WHICH RESTRICTS THE VIEW OF THE DUMPSTER OR DUMPSTERS CONTAINER ON-SITE.

(5) SEE ZONING CODE FOR PROPER SET BACKS FROM PROPERTY LINE.

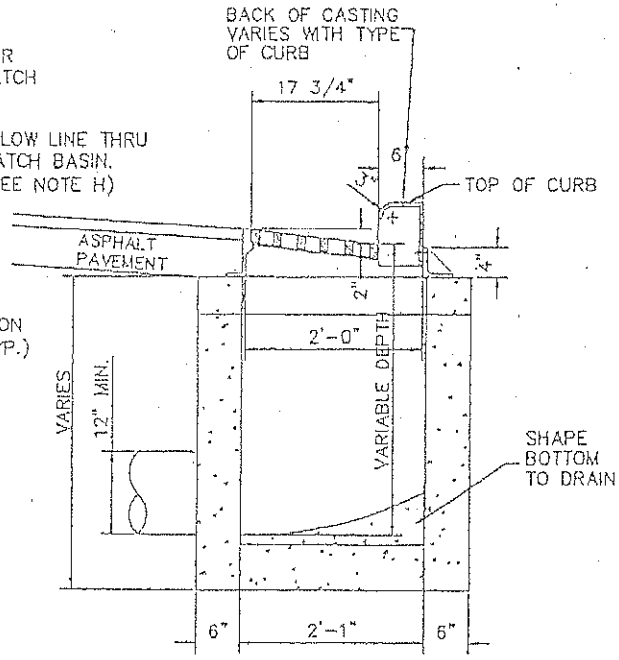
MUNICIPALITY OF GERMANTOWN	SANITATION ENCLOSURE DETAIL	REVISIONS:	DATE APPROVED: FEB. 1999
			PAGE No. 500-5



TOP VIEW



SECTION A-A



SECTION B-B

NOTES

A. CASTING SHALL BE EAST JORDAN 7030 OR NEENAH R-3246 OR EQUIVALENT.

B. FOR TYPE 2 COMBINATION CURB AND GUTTER. THE BACK SHALL BE EAST JORDAN TYPE T4 OR NEENAH (3" RADIUS) (R-3246-I).

C. FOR TYPE 1 COMBINATION ROLL CURB AND GUTTER THE BACK SHALL BE EAST JORDAN TYPE T2 OR NEENAH (MOUNTABLE CURB) (R-3246-E).

D. CATCH BASIN IN DRIVE APPROACHES (TO BE AVOIDED, IF POSSIBLE) THE BACKS SHALL BE EAST JORDAN TYPE T3 OR NEENAH (R-3246-A) WITH CURB PLATE).

E. STANDARD GRATE SHALL BE EAST JORDAN TYPE M2, NEENAH TYPE C, OR EQUIVALENT. ALL BAR EDGES TO BE ROUNDED 1/8" RADIUS.

F. CONCRETE, CAST-IN-PLACE, TO BE CLASS C. PRECAST CONSTRUCTION PERMITTED AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13 WITH 6±+2% AIR VOID CONTENT IN THE HARDENED CONCRETE. KNOCKOUTS MAY BE PROVIDED IN PRECAST CONSTRUCTION. PRECAST WALLS SHALL HAVE A SUFFICIENT AMOUNT OF REINFORCEMENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

G. CARE SHALL BE TAKEN WHEN CONNECTING TO AN EXISTING CATCH BASIN TO KEEP OPENING AS MINIMAL AS POSSIBLE. IF POSSIBLE, SAW CUT OR USE ROTARY HAMMER FOR OPENING TO MINIMIZE DAMAGE TO CATCH BASIN. PIPE TO INTRUDE INTO CATCH BASIN 1" ONLY AND PIPE MUST BE CUT PARALLEL TO CATCH BASIN. USE NONSHRINK GROUT AROUND PIPE TO SEAL BETWEEN PIPE AND CATCH BASIN.

H. DROP FLOW LINE 1/2" WITHIN BLOCK OUT OF COMBINED CURB AND GUTTER WHILE KEEPING LIP OF GUTTER CONSISTENT WITH TOP OF CURB.

MUNICIPALITY OF GERMANTOWN

TYPE 1 CATCH BASIN

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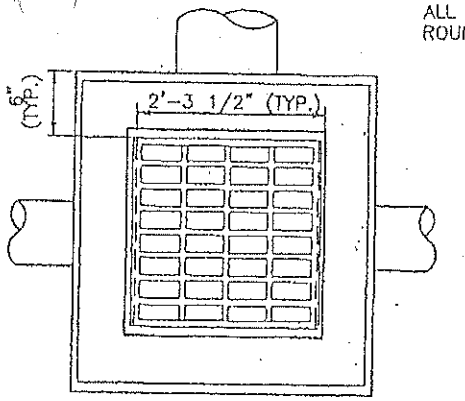
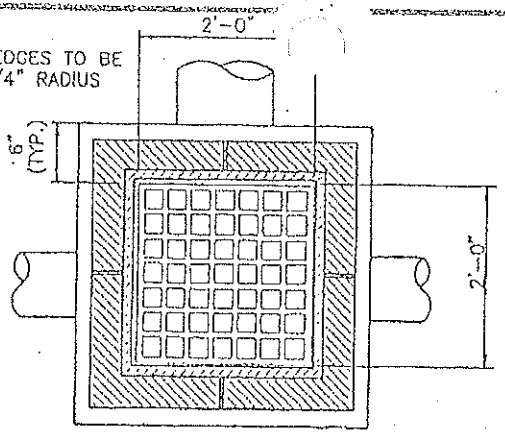
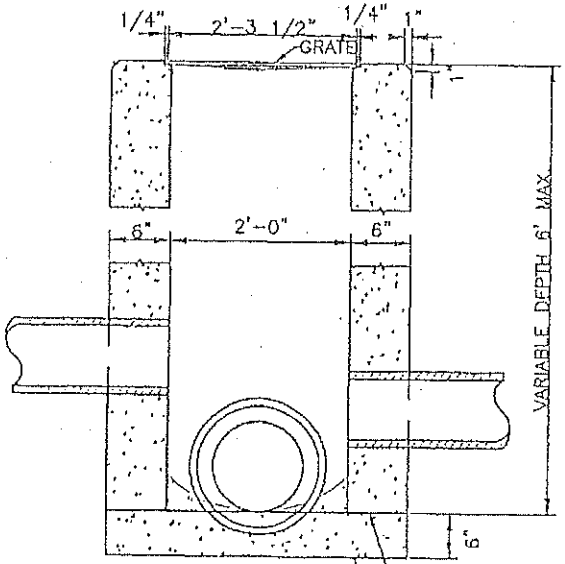


PLAN

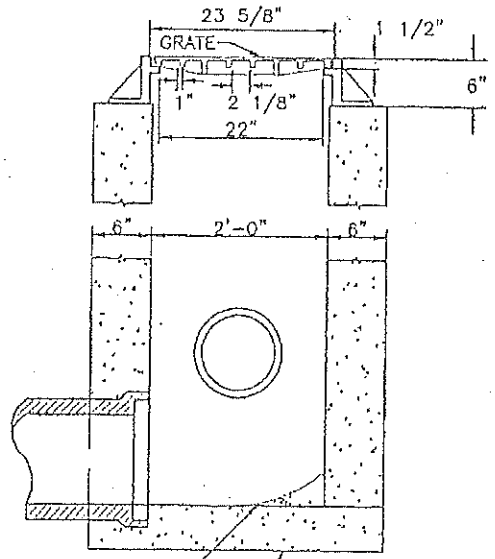
ALL GRATE EDGES TO BE ROUNDED 1/4" RADIUS



PLAN



NONPAVED AREAS



PERMISSIBLE CONSTRUCTION JOINT

BOTTOM SLAB MAY BE CAST SEPARATELY AND THE OUTLET PIPE PLACED ON TOP OF IT WITH THE BOTTOM SHAPED TO DRAIN.

PAVED AREAS

NOTES

A. LOCATION AND ELEVATIONS WHEN GIVEN ON THE PLANS IS TOP CENTER OF THE GRATE. WHEN SIDE OPENINGS ARE PROVIDED, ELEVATION SHALL BE THE FLOW LINE OF THE SIDE INLET.

B. GRATE FOR NONPAVED AREAS SHALL BE EAST JORDAN IRON WORKS 5110 TYPE M3 OR NEENAH CATALOG NO. R-4859-C OR EQUIVALENT.

C. GRATE ELEVATION TO BE PLACED 4" TO 6" BELOW NORMAL DITCH RETURNING TO NORMAL 10' EACH SIDE OF BASIN.

D. CONCRETE, CAST-IN-PLACE, TO BE CLASS C. PRECAST CONSTRUCTION PERMITTED AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13 WITH 6±+2% AIR VOID CONTENT IN THE HARDENED CONCRETE. KNOCKOUTS MAY BE PROVIDED IN PRECAST CONSTRUCTION. . PRECAST WALLS SHALL HAVE A SUFFICIENT AMOUNT OF REINFORCEMENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

E. CATCH BASINS NOT PERMITTED IN PAVEMENT AREAS UNLESS USING A FRAME AND GRATE EQUIVALENT OF NEENAH CATALOG NO. R-3405 OR EAST JORDAN IRON WORKS NO. 5250.

F. FOR PIPES OVER 18" REFER TO ODOT CATCH BASIN 2-3 AND 2-4. FOR SIDE INLETS REFER TO ODOT CATCH BASIN 2-2-A.

G. CARE SHALL BE TAKEN WHEN CONNECTING TO AN EXISTING CATCH BASIN TO KEEP OPENING AS MINIMAL AS POSSIBLE. IF POSSIBLE, SAW CUT OR USE ROTARY HAMMER FOR OPENING TO MINIMIZE DAMAGE TO CATCH BASIN. PIPE TO INTRUDE INTO CATCH BASIN 1" ONLY AND PIPE MUST BE CUT PARALLEL TO CATCH BASIN. USE NONSHRINK GROUT AROUND PIPE TO SEAL BETWEEN PIPE AND CATCH BASIN.

MUNICIPALITY OF GERMANTOWN

TYPE 2-2-B CATCH BASIN

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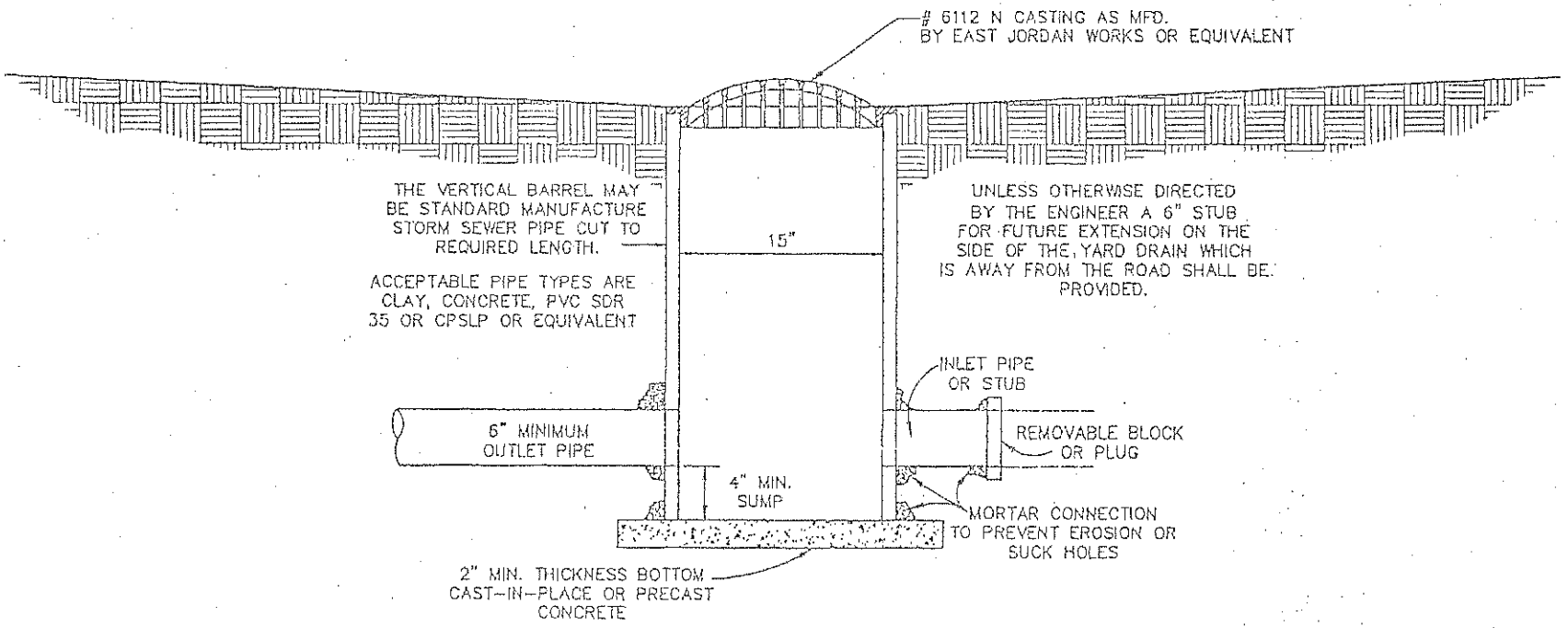

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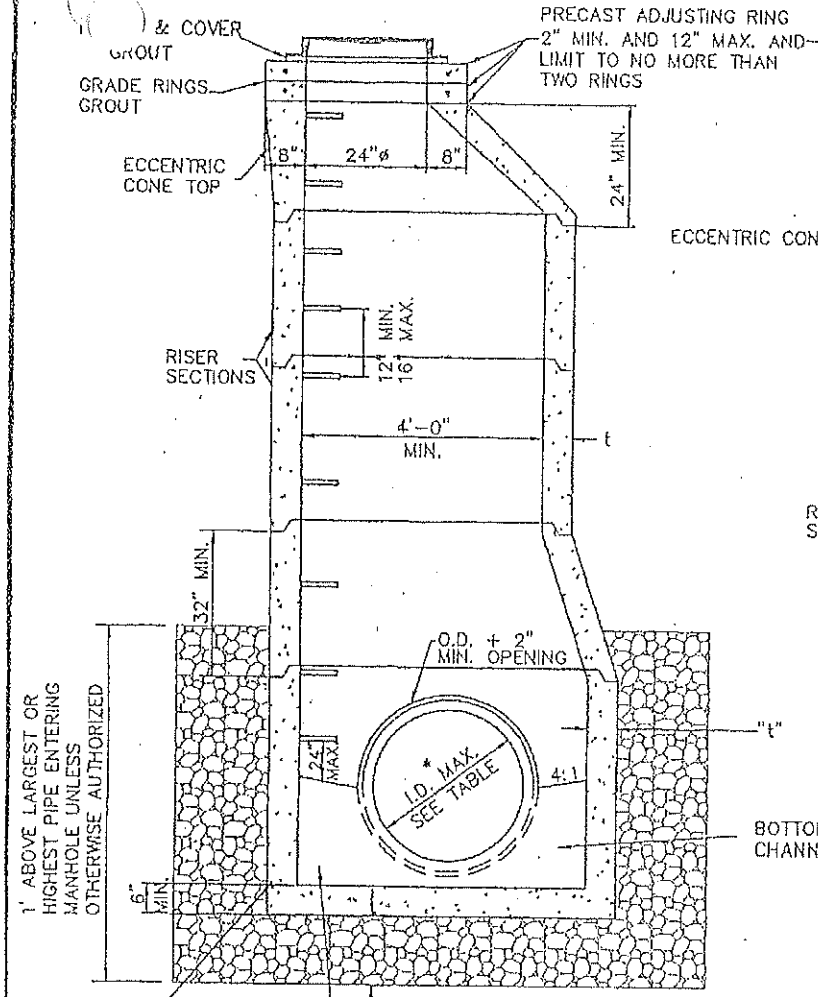
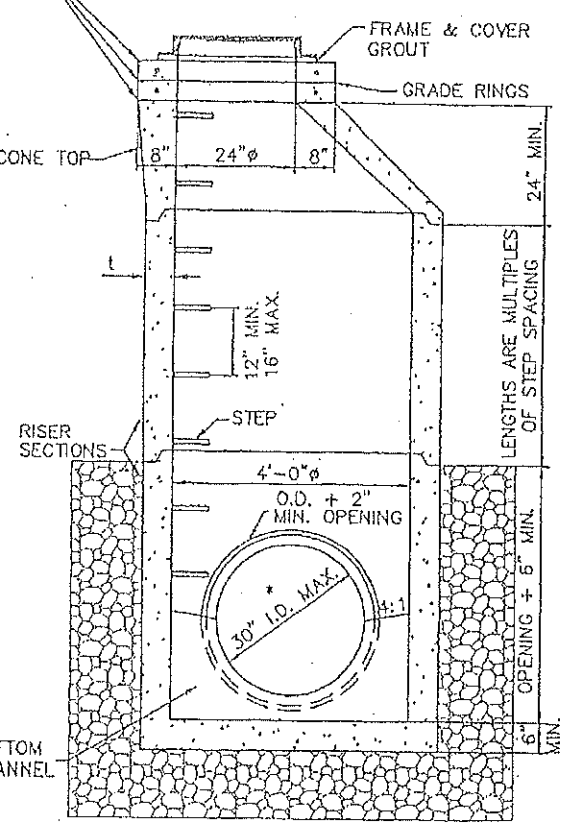


60" TO 96" PRECAST BASE

SEE TABLE FOR MAXIMUM PIPE SIZES

PRECAST OR POURED IN PLACE BASE SECTION WITH 6" GRANULAR BEDDING. USE OF BARREL BLOCKS IS CONTINGENT UPON MUNICIPALITY APPROVAL AND THEN ONLY IN SPECIAL CASES.



48" PRECAST BASE

FOR 30" & SMALLER PIPE

* BASE I.D.	MIN "t"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2	60"
96"	8"	60"

*DUE TO PIPE ORIENTATION, LARGER DIAMETER BASE THAN WHAT IS SPECIFIED TO ACCEPT PIPE MAY BE REQUIRED.

NOTES

A. STORM MANHOLE FRAME AND APPROVED VENTED LID SHALL BE EQUAL OF NEENAH NO. R-1767 OR EAST JORDON IRON WORKS NO. 1600M SEWER.

B. SECTIONS OF THE PRECAST MANHOLE SHALL BE CAST AND ASSEMBLED WITH EITHER ALL TONGUE OR ALL GROOVE ENDS UP. LIFT HOLES MAY BE PROVIDED IN EACH SECTION FOR HANDLING.

C. TOP AND TRANSITION (OR REDUCER) SECTIONS MAY BE EITHER ECCENTRIC CONE OR FLAT SLAB.

D. OPENINGS IN RISER SECTIONS FOR 18" AND SMALLER INLET PIPES MAY BE PREFABRICATED OR CUT IN THE FIELD PROVIDED THE SIDES OF THE PIPE AT THE SPRING LINE DO NOT PROJECT INTO THE MANHOLE.

E. MATERIALS FOR BASES AND OTHER PRECAST SECTIONS, INCLUDING REINFORCEMENT, SHALL COMPLY WITH ODOT REQUIREMENT OF 706.13 (ASTM C-478).

F. LOCATE THE CENTERLINE OF MANHOLE CONES OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

G. FOR PIPE SIZES LARGER THAN 60", REFER TO ODOT TYPE 4 TO 5 MANHOLE.

H. NO LATERALS MAY PROTRUDE INTO THE INTERNAL MANHOLE.

I. MAXIMUM SPACING SHALL BE 400'.

J. WHEN CONNECTING TO AN EXISTING STORM MANHOLE CARE SHALL BE TAKEN TO KEEP OPENING AS MINIMAL AS POSSIBLE. IF POSSIBLE, SAW CUT OR USE ROTARY HAMMER FOR OPENING TO MINIMIZE DAMAGE TO STORM MANHOLE AND PIPE MUST BE CUT PARALLEL TO STORM MANHOLE. USE NONSHRINK GROUT AROUND PIPE TO SEAL BETWEEN PIPE AND STORM MANHOLE.

K. JOINTS BETWEEN SECTIONS TO BE EITHER MORTAR OR BITUMINOUS PIPE JOINT FILLER (ODOT 706.10)

MUNICIPALITY OF GERMANTOWN

TYPE 3 STORM MANHOLE

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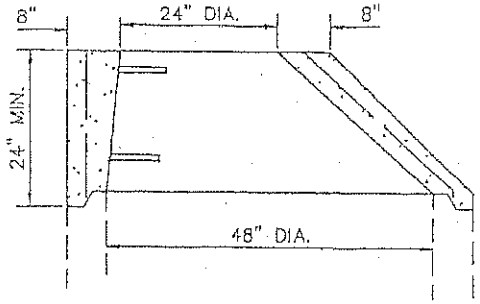
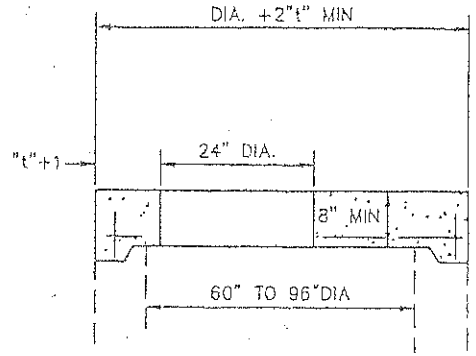
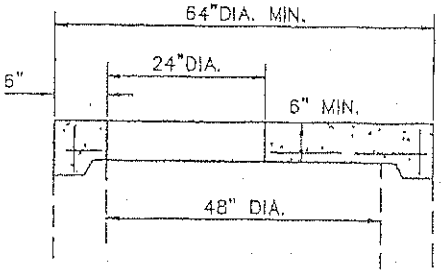


ECCENTRIC CONE TOP

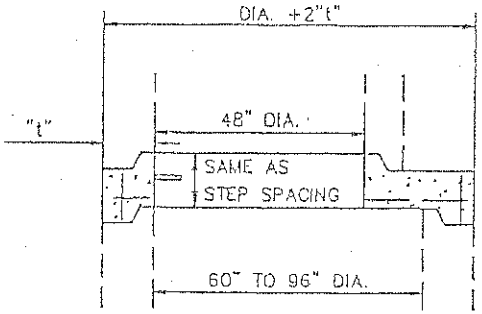


FLAT SLAB TOP

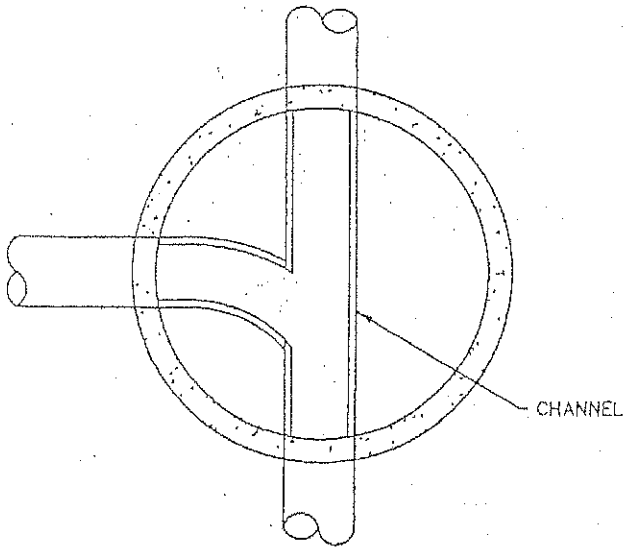
BASE I.D.	MIN "t"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2	60"
96"	8"	60"



FLAT SLAB TOP



FLAT SLAB TRANSITION



SECTIONAL PLAN

NOTE

ALL INVERTS TO BE CHANNELED FOR OPTIMUM FLOW.

MUNICIPALITY OF GERMANTOWN

TYPE 3 STORM M/ HOLE DETAILS

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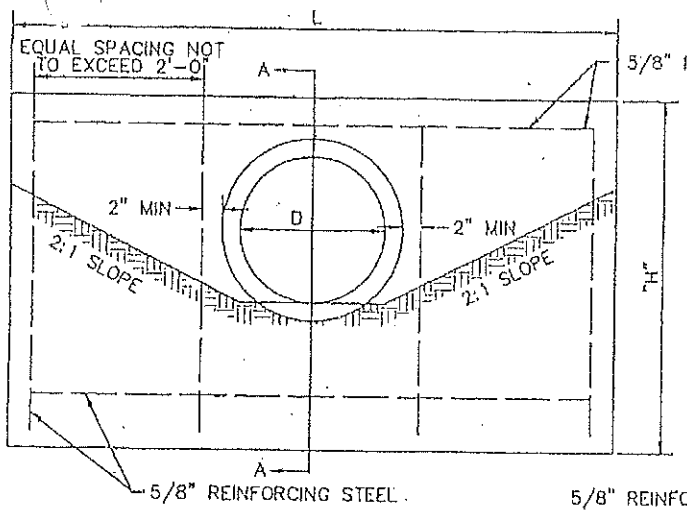
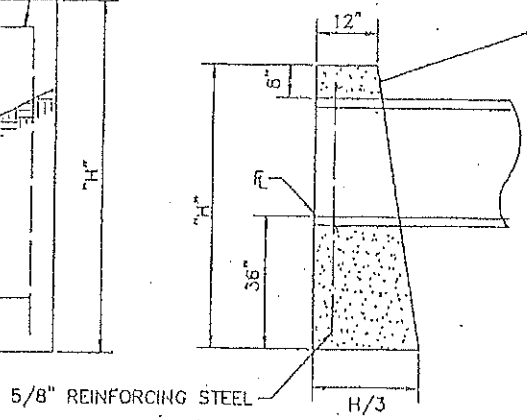


ELEVATION



SECTION A-A

NOTES

A. THESE FULL HEIGHT HEADWALLS ARE FOR NONSKEWED CULVERTS HAVING A DIAMETER OR RISE OF 36" OR LESS.

B. CONCRETE SHALL BE ODOT CLASS C. REINFORCED STEEL BARS SHALL BE 5/8" ROUND.

C. DIMENSIONS AND QUANTITIES ARE SHOWN FOR CIRCULAR SECTIONS ONLY. IT WILL BE NECESSARY TO DETERMINE DIMENSIONS FOR THE HW-1 HEADWALL REQUIRED FOR REINFORCED ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL PIPE ARCHES IN ACCORDANCE WITH THE EQUATIONS LISTED ON THIS DRAWING.

D. CHAMFER ALL EXPOSED CORNERS 3/4".

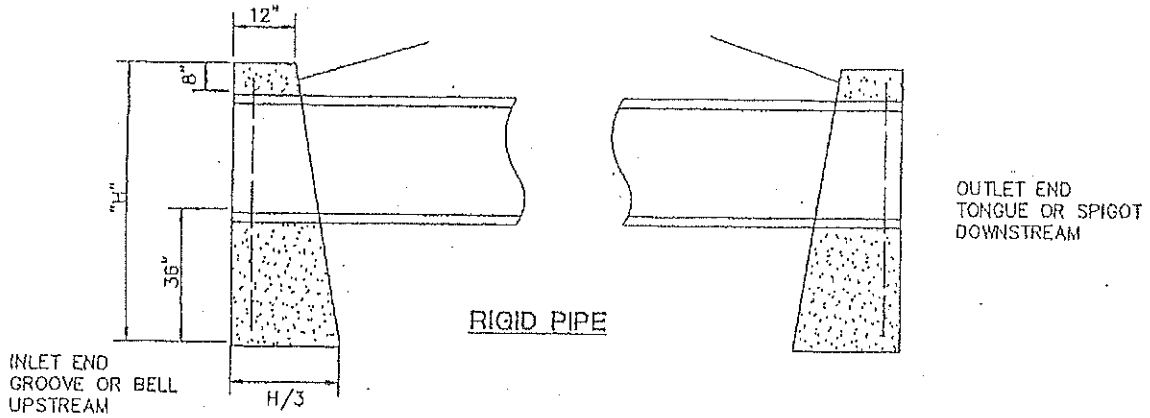
E. WHERE THE SOIL BORINGS INDICATE A BEARING CAPAMUNICIPALITY OF LESS THAN 2600 LBS. PER SQUARE FOOT, IT WILL BE NECESSARY TO INCREASE THE WIDTH OF THE BASE.

F. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 2".

G. FOR PIPES HAVING A DIAMETER OR RISE OVER 36", REFERENCE ODOT HW-3 HEADWALLS FOR FULL HEIGHT HEADWALL.

H. FOR SKEWED CULVERTS HAVING A DIAMETER OR RISE OF 36" OR LESS, REFERENCE ODOT HW-2 HEADWALLS.

I. HEADWALLS MAY BE PRECAST CONCRETE CONSTRUCTED TO THE ABOVE REQUIREMENTS. GROUT AROUND PIPE AFTER INSTALLATION.



RIGID PIPE

DIMENSIONS			QUANTITIES ONE HEADWALL	
DIAMETER	HEIGHT	LENGTH	CONCRETE C.Y.	REINFORCING STEEL LBS.
15"	5'-2"	7'-0"	1.7	41
18"	5'-5"	8'-4"	2.2	57
21"	5'-8"	9'-8"	2.8	62
24"	5'-11"	11'-0"	3.3	69
30"	6'-5"	13'-8"	4.7	92
36"	7'-0"	16'-4"	6.5	105

L CIRCULAR SECTIONS = 5D + 4T
L ELLIPTICAL OR PIPE-ARCH = 4R + 4T + S
H CIRCULAR SECTIONS = D + T + 44"
H ELLIPTICAL OR PIPE-ARCH = R + T + 44"

D = DIAMETER OF PIPE
R = RISE OF PIPE
S = SPAN OF PIPE
T = THICKNESS OF BARREL
L = LENGTH OF HEADWALL
H = HEIGHT OF HEADWALL

MUNICIPALITY OF GERMANTOWN

FULL-HEIGHT HEADWALLS

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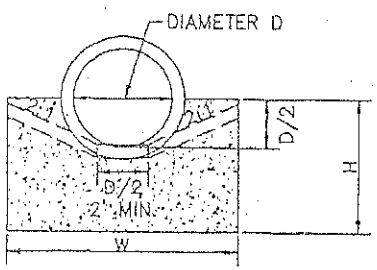
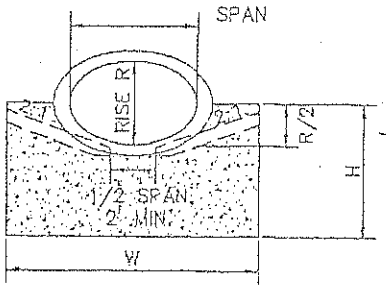
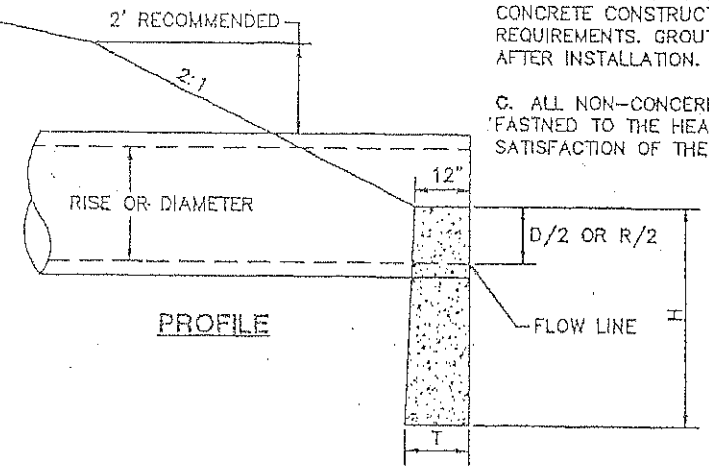


CIRCULAR



ELLIPTICAL



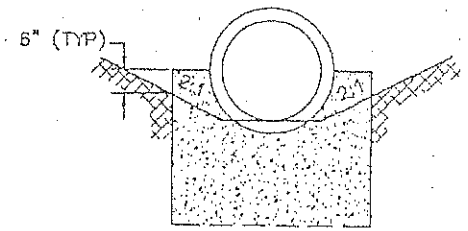
PROFILE

NOTES

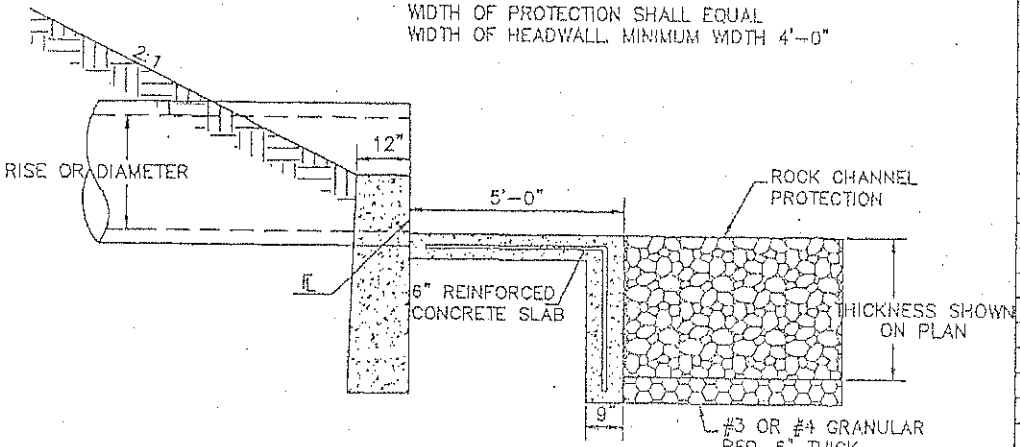
A. CONCRETE FOR HEADWALLS SHALL BE ODOT CLASS C. CONCRETE QUANTITIES ARE BASED ON HEADWALLS ONLY.

B. HEADWALLS MAY BE PRECAST CONCRETE CONSTRUCTED TO THE ABOVE REQUIREMENTS. GROUT AROUND PIPE AFTER INSTALLATION.

C. ALL NON-CONCRETE PIPES MUST BE FASTNED TO THE HEADWALL TO THE SATISFACTION OF THE MUNICIPALITY.



WIDTH OF PROTECTION SHALL EQUAL WIDTH OF HEADWALL, MINIMUM WIDTH 4'-0"



OUTLET CHANNEL PROTECTION DETAIL

(CUTOFF WALL DEPTH 2'-6" MINIMUM IS VARIABLE TO MATCH REQUIRED THICKNESS OF ROCK.)

HEADWALL FOR CONCRETE PIPE

CIRCULAR				CONC.	ELLIPTICAL					CONC.
D	W	H	T	C.Y.	SPAN	RISE	W	H	T	C.Y.
12"	2'-0"	3'-0"	12"	.20	23"	14"	3'-0"	3'-2"	12"	.29
15"	2'-6"	3'-2"	12"	.25	30"	19"	3'-7"	3'-4"	12"	.35
18"	3'-0"	3'-3"	12"	.31	34"	22"	3'-11"	3'-6"	12"	.38
21"	3'-6"	3'-4"	12"	.37	38"	24"	4'-6"	3'-6"	12"	.44
24"	4'-0"	3'-6"	12"	.43	42"	27"	4'-8"	3'-7"	12"	.45
27"	4'-6"	3'-8"	12"	.49	45"	29"	5'-2"	3'-8"	12"	.49
30"	5'-0"	3'-9"	12"	.56	49"	32"	5'-5"	3'-10"	12"	.52
33"	5'-6"	3'-10"	12"	.62	53"	34"	5'-11"	4'-0"	14"	.66
36"	6'-0"	4'-0"	12"	.69	60"	38"	6'-10"	4'-2"	14"	.82
39"	6'-6"	4'-2"	12"	.77	68"	43"	8'-0"	4'-4"	16"	1.01
42"	7'-0"	4'-3"	12"	.84	76"	48"	9'-2"	5'-0"	16"	1.34
48"	8'-0"	4'-6"	14"	1.09	83"	53"	10'-4"	5'-2"	18"	1.65
54"	9'-3"	4'-9"	14"	1.32	91"	58"	11'-6"	5'-5"	18"	1.97
60"	10'-6"	5'-6"	16"	1.93	98"	63"	12'-7"	5'-7"	20"	2.38
66"	11'-9"	5'-9"	18"	2.42	106"	68"	13'-9"	5'-10"	20"	2.69
72"	13'-0"	6'-0"	18"	2.77	113"	72"	14'-9"	6'-0"	22"	3.14
78"	14'-3"	6'-3"	20"	3.37	121"	77"	15'-11"	6'-3"	22"	3.49
84"	15'-6"	6'-6"	22"	4.05	128"	82"	17'-0"	6'-5"	24"	4.04

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HALF-HEIGHT HEADWALL

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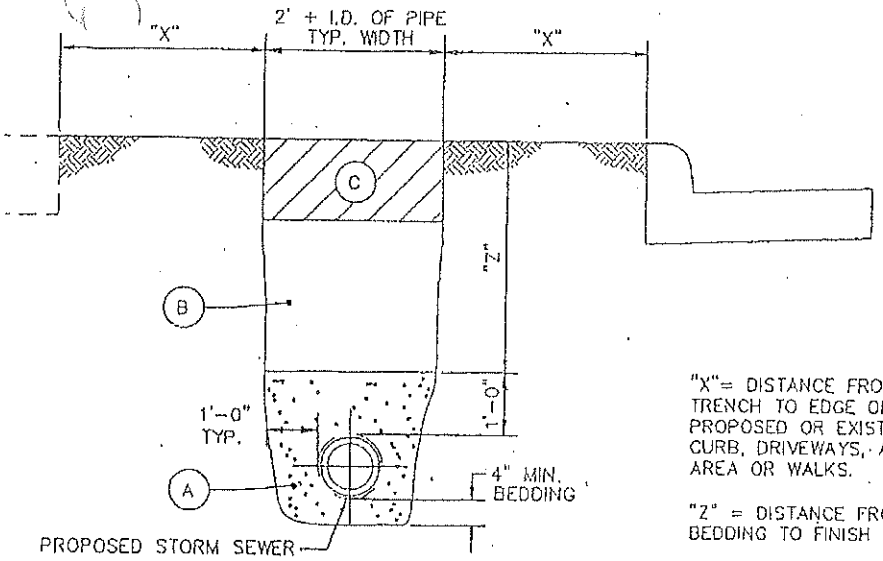
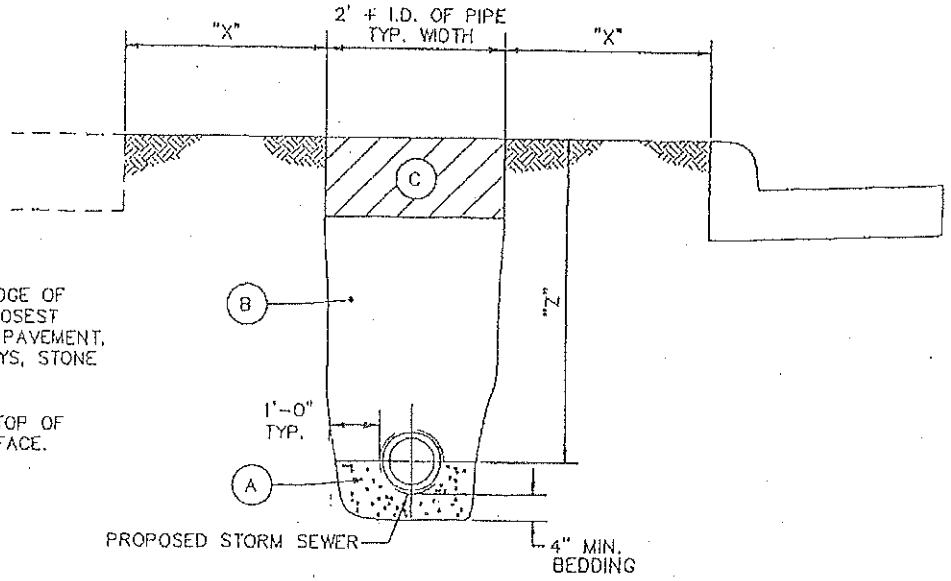


STORM SEWER TRENCH DETAIL

(NON-RIGID PIPE)

"X"= DISTANCE FROM EDGE OF TRENCH TO EDGE OF CLOSEST PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS.

"Z" = DISTANCE FROM TOP OF BEDDING TO FINISH SURFACE.



STORM SEWER TRENCH DETAIL

(RIGID PIPE)

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, ODOT 603 TYPE 3 (#57 OR #67), OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES WHERE "X" IS GREATER THAN "Z" FOR PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS CAN BE COMPACTED EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE VILLAGE. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4" DIAMETER.

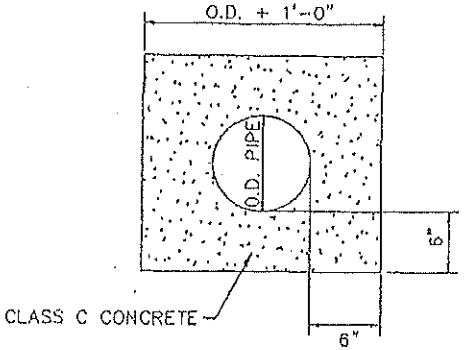
ALL TRENCHES WHERE "Z" IS GREATER THAN "X" FOR PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6" MAXIMUM LIFTS OR LOW STRENGTH MORTAR BACKFILL ODOT ITEM 613 TYPE 1 UNTIL THE TOP OF THE COMPACTED GRANULAR BACKFILL OR LOW STRENGTH MORTAR BACKFILL IS HIGH ENOUGH WHERE "X" IS GREATER THAN "Z".

A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAYBE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE MUNICIPALITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6" OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN-PAVEMENT AREAS SHALL FOLLOW TYPICAL PAVEMENT RESTORATION DETAILS SHOWN ON PAGE 300-17.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE MUNICIPALITY BEFORE LEAVING THE WORK FOR THE NIGHT.



CONCRETE ENCASEMENT DETAIL

MUNICIPALITY OF GERMANTOWN

STORM SEWER TRENCH DETAILS

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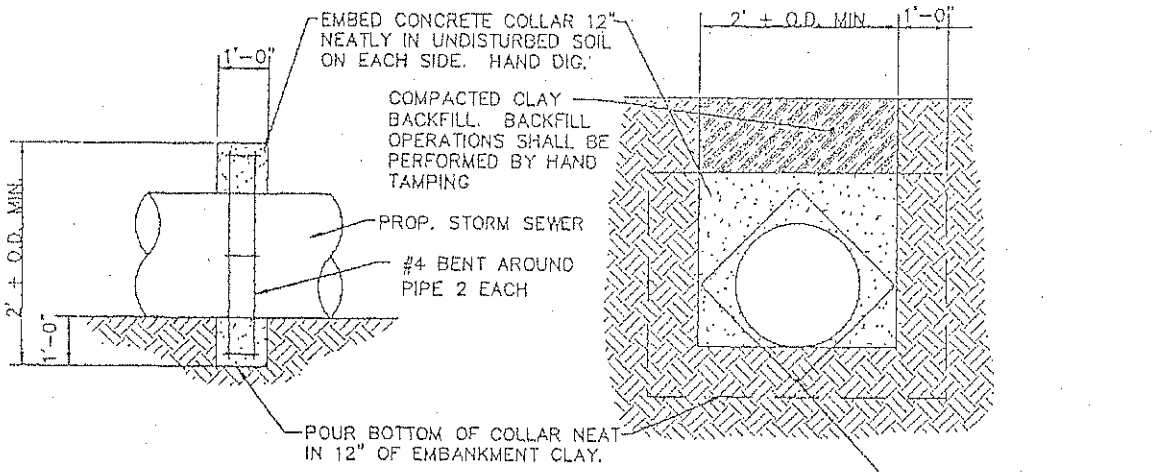
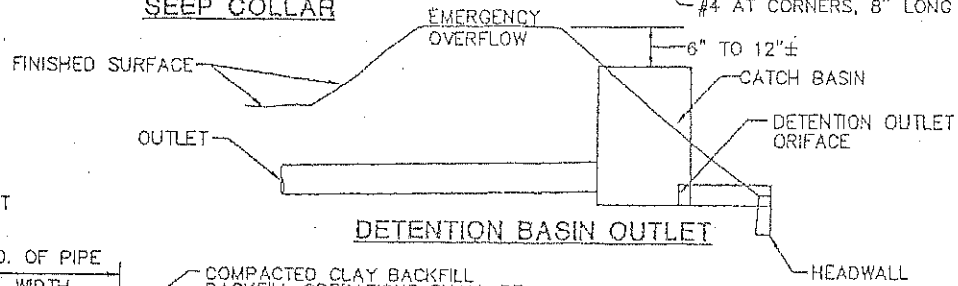
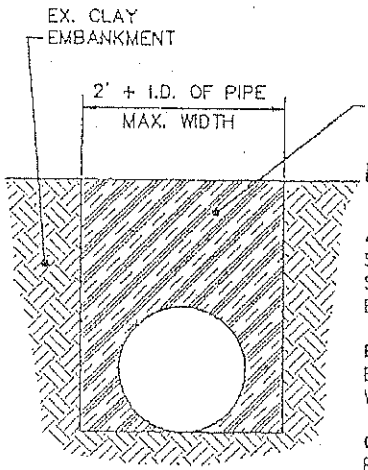


SEEP COLLAR



DETENTION BASIN OUTLET



NOTES

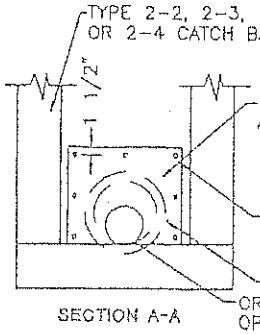
A. EXTRA COMPACTION AND CARE SHALL BE TAKEN TO ENSURE WATER SEALING OF DIKE AND PROPER CLAY BEDDING OF PIPE.

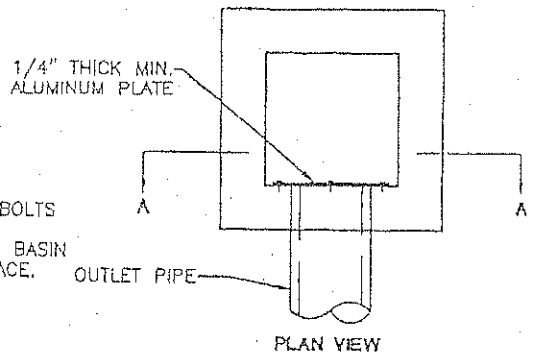
B. COMPACTION REQUIREMENTS SHALL BE 95% STANDARD MAXIMUM DRY WEIGHT DENSITY.

C. THIS SHALL BE REQUIRED AT ALL PIPES ENTERING OR EXITING THE DETENTION BASIN.

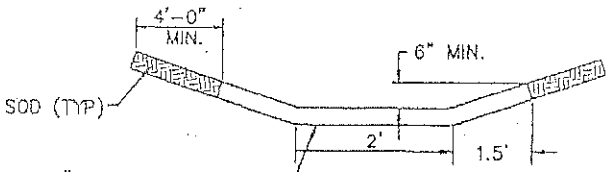
D. PAYMENT FOR THESE ITEMS SHALL BE INCIDENTAL TO ITEM 603.

CLAY TRENCH DETAIL THROUGH DETENTION BASIN





DETENTION OUTLET ORIFICE



PAVED CONCRETE CHANNEL DETAIL

NOTES

A. ANY DETENTION BASINS WITH SLOPES LESS THAN 1% REQUIRE CONCRETE CHANNEL.

B. DIFFERENT SHAPE OR SIZE OF CONCRETE CHANNEL MAY BE REQUIRED DEPENDING ON DESIGN.

C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH MUNICIPALITY SPECIFICATIONS.

D. BOTTOM OF DRAINAGE DITCH SHALL BE FORMED BEFORE PLACING CONCRETE. ALL FORMS SHALL BE SET TO GRADE AND ALIGNMENT.

E. TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED AT 6 FOOT INTERVALS. THE GROOVES SHALL BE SAW CUT TO A MINIMUM DEPTH OF 1 INCH.

MUNICIPALITY OF GERMANTOWN

DETENTION BA[illegible] DETAILS

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NOTES

A. ALL STORM SEWER CONSTRUCTION SHALL ADHERE TO ODOT SPECIFICATIONS LATEST REVISION OR WITH THE MUNICIPALITY STORM SEWER SPECIFICATIONS, WHICHEVER IS APPLICABLE AND MORE RESTRICTIVE.

B. HUCKY PUCK IS REQUIRED ON ALL NON O-RING STORM SEWER AND MANHOLES, UNLESS OTHERWISE APPROVED.

C. WHEN A CASTING IS ABANDONED IT REMAINS MUNICIPALITY PROPERTY.

D. ANY DETAILS OR NOTES NOT DIRECTLY ADDRESSED IN THESE ENGINEERING STANDARDS WILL BE REFERRED TO ODOT STANDARD DRAWINGS AND SPECIFICATIONS.

E. ALL STORM SEWER SHALL BE INSTALLED USING A LASER FOR GRADE AND ALIGNMENT.

UTILITY STAKING

A. OFFSET AND GRADE AT EACH MANHOLE, CATCH BASIN, AND OTHER STRUCTURES. OFFSET AND GRADE 50' AND 100' OUT FROM EACH MANHOLE UNLESS OTHERWISE APPROVED.

PIPE

A. ALL STORM SEWER PIPE SHALL HAVE A MINIMUM DIAMETER OF 12", UNLESS OTHERWISE APPROVED.

B. TYPES OF PIPE PERMITTED

UP TO 30" DIAMETER	ODOT MATERIALS NUMBER
REINFORCED CONCRETE PIPE	706.02
REINFORCED CONCRETE ELLIPTICAL PIPE	706.04
CORRUGATED POLYETHYLENE SMOOTH-LINED PIPE	707.33
POLYVINYL CHLORIDE PLASTIC PIPE (NON-PERFORATED)	707.41
POLYVINYL CHLORIDE CORRUGATED SMOOTH-INTERIOR PIPE	707.42
POLYVINYL CHLORIDE PROFILE WALL PIPE	707.43
POLYVINYL CHLORIDE SOLID WALL PIPE	707.45

OVER TO 30" DIAMETER	ODOT MATERIALS NUMBER
REINFORCED CONCRETE PIPE	706.02
REINFORCED CONCRETE ELLIPTICAL PIPE	706.04

EXISTING TILE HOOKUPS

A. THE DRAINAGE TILE CURRENTLY CONNECTED TO THE EXISTING STORM SEWER SHALL BE CONNECTED TO THE PROPOSED STORM SEWER. ANY DRAINAGE TILE DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. ALL THE REMOVED, REPLACED, AND/OR CONNECTED TO THE STORM SEWER SHALL BE NOTED ON THE AS-BUILT DRAWINGS AND SHALL BE INSPECTED BY THE INSPECTOR BEFORE THEY ARE COVERED.

B. ALL FIELD OR STORM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS OR PLUGGED AS APPROVED AND DIRECTED BY THE MUNICIPALITY.

NOTES

A. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROVIDED FOR ALL CONSTRUCTION PROJECTS HAVING SIGNIFICANT GRADING. THE CONTROLS ARE PROVIDED DURING CONSTRUCTION TO PREVENT SOIL ERODED FROM THE CONSTRUCTION AREA FROM ENTERING ADJACENT WATER COURSES.

B. CONSTRUCTION ITEMS INCLUDE SEDIMENT BASINS, SEDIMENT DAMS, DIVERSION DIKES AND/OR DITCHES AND STRAW BALES OR OTHER FILTER DIKES SHOWN ON ODOT STANDARD DRAWING MC-11. OTHER MISCELLANEOUS EROSION CONTROL MEASURES INCLUDE REPAIR SEEDING AND MULCHING, COMMERCIAL FERTILIZER, WATER AND MOWING AND ROCK CHANNEL PROTECTION, COVERED IN ODOT SPECIFICATION ITEMS 659 AND 601.

C. THE SIZE OF THE ENTIRE DRAINAGE AREA CONTRIBUTING FLOW IS USED TO DETERMINE THE MOST EFFECTIVE EROSION CONTROL METHOD. IN MANY CASES, THE MAJOR PORTION OF THE CONTRIBUTING AREA WILL BE BEYOND THE PROJECT LIMITS, AND FOR THOSE CASES IT WILL BE NECESSARY TO CONTROL THE FLOW FROM OUTSIDE BEFORE IT REACHES THE AREA DISTURBED BY PROJECT CONSTRUCTION. FLOW FROM THE AREA DISTURBED BY CONSTRUCTION SHALL BE TREATED PRIOR TO COMBINING IT WITH OFF-PAVEMENT DRAINAGE.

D. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROVIDED FOR ALL SUBDIVISIONS AND INDIVIDUAL SITES UNLESS OTHERWISE APPROVED. THE CONTROL MEASURES ARE TO BE PROVIDED DURING CONSTRUCTION TO PREVENT EROSION FROM ENTERING ADJACENT WATERWAYS AND PROPERTIES.

PLAN SUBMITTAL

A. ALL APPLICABLE SITE PLANS SHALL INCLUDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES AND SHALL BE SUBMITTED TO THE MUNICIPALITY FOR APPROVAL PRIOR TO COMMENCEMENT OF ANY WORK UNLESS OTHERWISE APPROVED. ALL PROJECTS WHICH DISTURB 5 ACRES OR MORE MUST HAVE OEPA EROSION CONTROL APPROVALS.

CONSTRUCTION

A. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSPECTED AND APPROVED BY THE MUNICIPALITY UNLESS OTHERWISE APPROVED.

STORM WATER PERMITS

A. ON ALL PROJECTS WHICH DISTURB AT LEAST 5 ACRES OF SOIL, A NPDES PERMIT IS REQUIRED FROM OEPA AND A COPY OF THE PERMIT MUST BE ON FILE AT THE MUNICIPALITY BEFORE CONSTRUCTION BEGINS.

CONTROL MEASURES

A. DISTURB ONLY THE AREAS NEEDED FOR CONSTRUCTION.

B. REMOVE ONLY THOSE TREES, SHRUBS, AND GRASSES THAT MUST BE REMOVED FOR CONSTRUCTION; PROTECT THE REST TO PRESERVE THEIR ESTHETIC AND EROSION-CONTROL VALUES. TREES SHALL BE REPLACED AFTER CONSTRUCTION IS COMPLETE AT THE DEVELOPER'S COST.

C. INSTALL SEDIMENT BASINS AND DIVERSION DIKES BEFORE DISTURBING THE LAND THAT DRAINS INTO THEM.

D. INSTALL EROSION AND SEDIMENT CONTROL PRACTICES AS INDICATED IN THE PLAN. THE PRACTICES ARE TO BE MAINTAINED IN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND UNTIL THE DRAINAGE AREAS HAVE BEEN PERMANENTLY STABILIZED.

E. TEMPORARILY STABILIZE EACH SEGMENT, GRADED OR OTHERWISE DISTURBED LAND, INCLUDING THE SEDIMENT-CONTROL DEVISES NOT OTHERWISE STABILIZED, BY SEEDING AND MULCHING OR BY MULCHING ALONE. AS CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE EACH SEGMENT WITH PERENNIAL VEGETATION AND STRUCTURAL MEASURES.

F. LEVEL DIVERSION DIKES, SEDIMENT BASINS, AND SILT TRAPS AFTER AREAS THAT DRAIN INTO THEM ARE STABILIZED. ESTABLISH PERMANENT VEGETATION ON THESE AREAS. SEDIMENT BASINS THAT ARE TO BE RETAINED FOR STORM WATER DETENTION MAYBE SEEDED TO PERMANENT VEGETATION AFTER THEY ARE BUILT.

G. DISCHARGE WATER FROM OUTLET STRUCTURES AT NON-EROSIVE VELOCITIES.

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EROSION CONTROL NOTES

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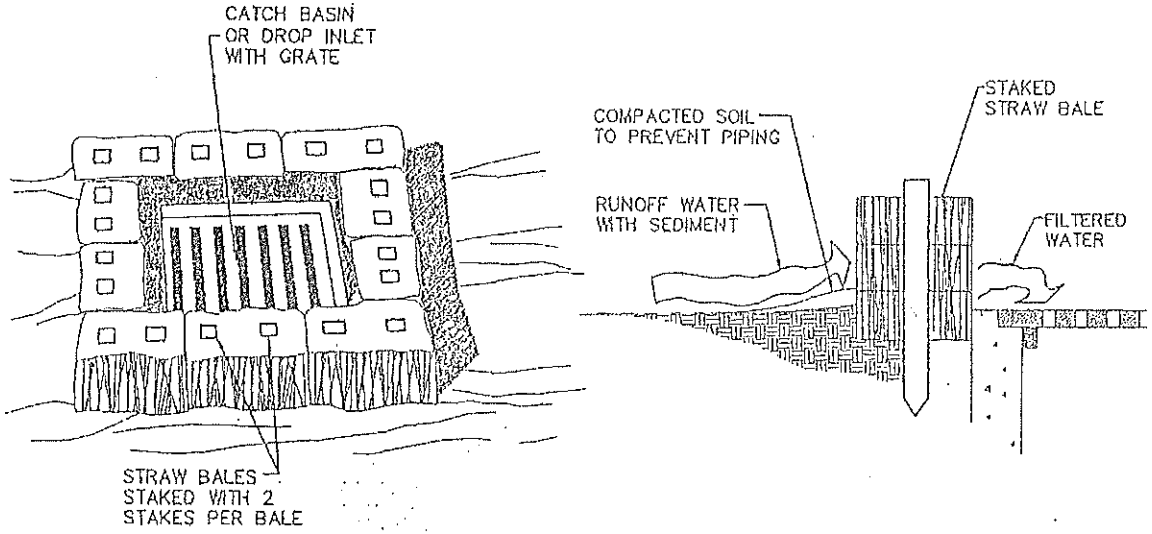
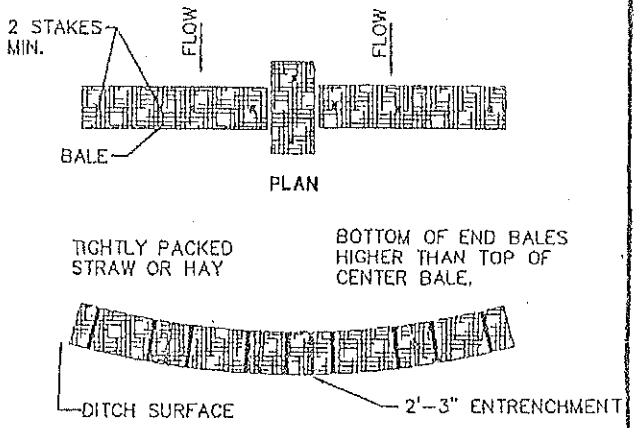


BALE INLET FILTER

NOTES

A. THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THEN 5%) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 CFS) ARE TYPICAL.



BALE DITCH CHECK

NOTES

A. PLACEMENT OF BALES SHALL BE TIGHTLY PLACED, ADJACENTLY, AND ENTRENCHED 2" AND 3" BEFORE STAKING AND A SMALL AMOUNT OF LOOSE SOIL SHALL BE LIGHTLY COMPACTED ALONG THE UPSTREAM EDGE OF THE BALES.

B. EACH BALE SHALL BE FIRMLY STAKED WITH A MINIMUM OF 2 STAKES AT LEAST 3' IN LENGTH. STAKE SHALL BE WOODEN 2" X 2", REINFORCING BARS OR FENCE POST, AS APPROVED BY THE MUNICIPALITY.

C. LOOSE STRAW OR HAY SHALL BE SCATTERED FOR A DISTANCE OF 10' ON THE UPSTREAM SIDE OF EACH DITCH CHECK, AND SHALL BE WEDGED BETWEEN AND UNDER STAKED BALES.

MUNICIPALITY OF GERMANTOWN	STRAW OR HAY BALES TEMPORARY EROSION CONTROL	REVISIONS:	DATE APPROVED: FEB. 1999
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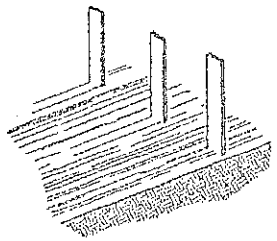
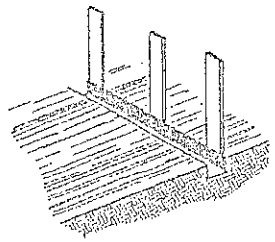
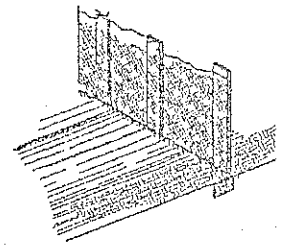
A. SET STAKES NO MORE THAN 3' APART AND DRIVE THEM INTO THE GROUND AT LEAST 8".



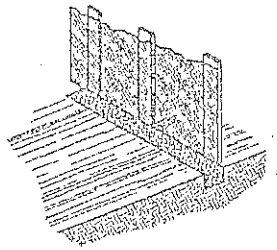
B. EXCAVATE A 4" x 4" TRENCH UP SLOPE ALONG THE LINE OF STAKES.

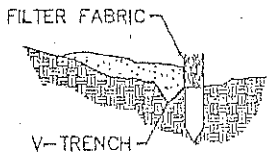


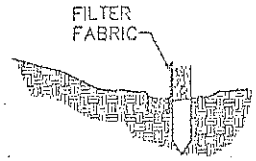
C. STAPLE FILTER MATERIAL ON UP SLOPE SIDE OF STAKES AND EXTEND IT INTO THE TRENCH. WHEN JOINTS ARE NECESSARY, OVERLAP MATERIAL BETWEEN 2 STAKES AND FASTEN SECURELY.



D. BACKFILL AND COMPACT THE EXCAVATED SOIL.







MUNICIPALITY OF GERMANTOWN

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TEMPORARY EROSION CONTROL

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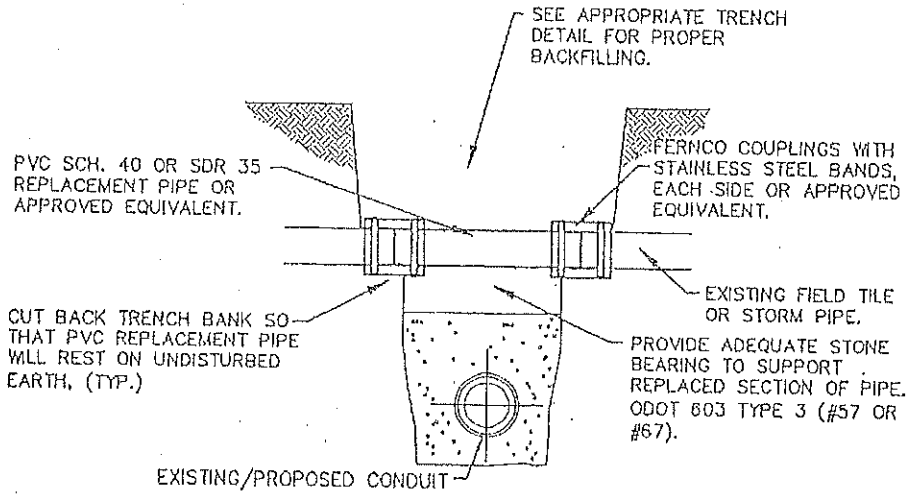

REPAIR OF EXISTING FIELD TILE OR STORM PIPE DETAIL

NOTES

CONCRETE REPAIRS OR PATCHES ARE UNACCEPTABLE.

MUNICIPALITY OF GERMANTOWN	REPAIR OF EXISTING FIELD TILE OR STORM PIPE DETAIL	REVISIONS:	DATE APPROVED: FEB. 1999
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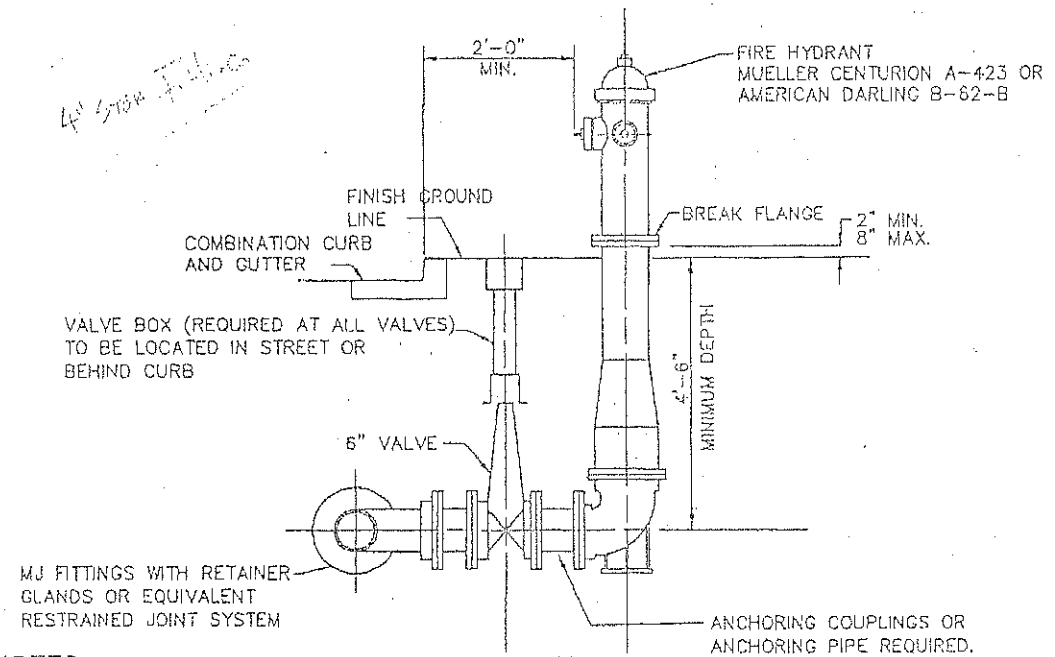
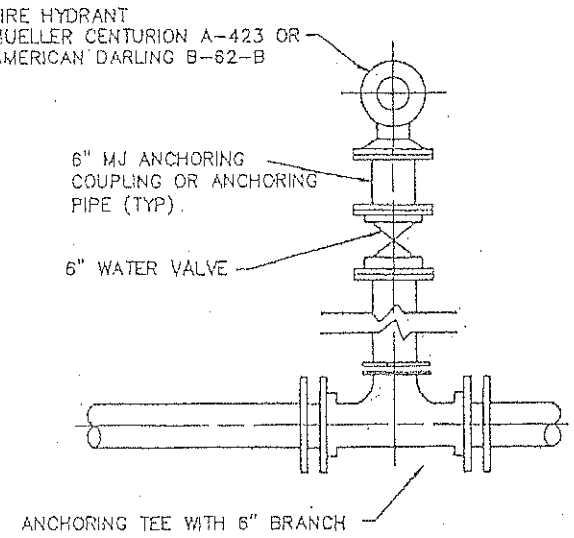
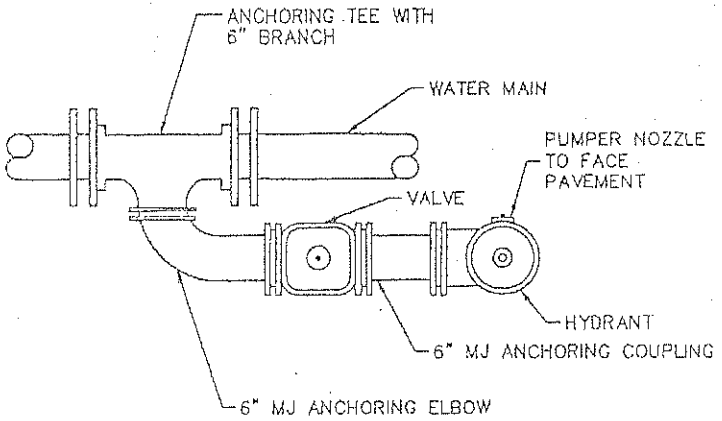


SECTION VIEW



BASIC TEE DETAIL PLAN



SPECIAL MECHANICAL JOINT HYDRANT TEE DETAIL PLAN

NOTES

A. FIRE HYDRANTS SHALL BE AMERICAN DARLING B-62-B OR MUELLER CENTURION, A-423, MECHANICAL JOINT, WITH (2) 2 1/2" HOSE NOZZLES WITH NST, (1) 4 1/2" PUMPER NOZZLE, NATIONAL STANDARD THREADS CONFORMING TO AWWA CCW TO OPEN, 6" SUPPLY PIPING WITH 6" MECHANICAL JOINT INLET, MEETING AWWA C-502.

B. GATE VALVES SHALL BE AWWA C-509, RESILIENT WEDGE, NONRISING STEM, MECHANICAL JOINT, 150 PSI WORKING PRESSURE, CCW TO OPEN WITH ARROW INDICATING OPEN DIRECTION, MUELLER OR EQUIVALENT.

C. VALVE BOXES SHALL BE 3-PIECE CAST IRON 6" DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.

D. ALL FITTINGS TO BE RESTRAINED.

E. ALL FITTINGS TO BE AWWA C-153 DUCTILE IRON, COMPACT.

F. ALL VALVES AND HYDRANTS SHALL OPEN LEFT BY TURNING IN A COUNTERCLOCKWISE DIRECTION.

G. PUMPER NOZZLE SHALL FACE THE ROADWAY OR AS DETERMINED BY THE FIRE DEPARTMENT.

H. WATER MATERIAL SHALL BE DUCTILE IRON PIPE CLASS 52, AWWA C-151, SLIP-ON JOINTS WITH RUBBER GASKETS, OR PVC-150, DR-18, AWWA C-900 WITH MEGALUG RESTRAINS OR EQUIVALENT.

I. THE LAYING OF PIPE ON EXISTING DIRT WITH THE BELLS CUT OUT, SHALL NOT BE PERMITTED.

J. THE OPEN ENDS OF ALL PIPES AND SPECIAL CASTINGS SHALL BE PLUGGED OR OTHERWISE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE MUNICIPALITY BEFORE LEAVING THE WORK FOR THE NIGHT.

K. A DRAINAGE PIT OF GRADED AGGREGATE SHALL BE PROVIDED AT THE BASE THE HYDRANT SUFFICIENT TO ALLOW COMPLETE DRAINAGE OF HYDRANT WITHIN 20 MINUTES.

L. THERE SHALL BE A 15" CLEAR RADIUS AROUND EACH NOZZLE TO ALLOW FOR UNOBSTRUCTED TURNING OF A STANDARD HYDRANT WRENCH.

M. HYDRANT BASE SHALL BE BLOCKED WITH NON-DEGRADEABLE MATERIAL TO UNDISTURBED GROUND. HYDRANT SHALL DRAIN.

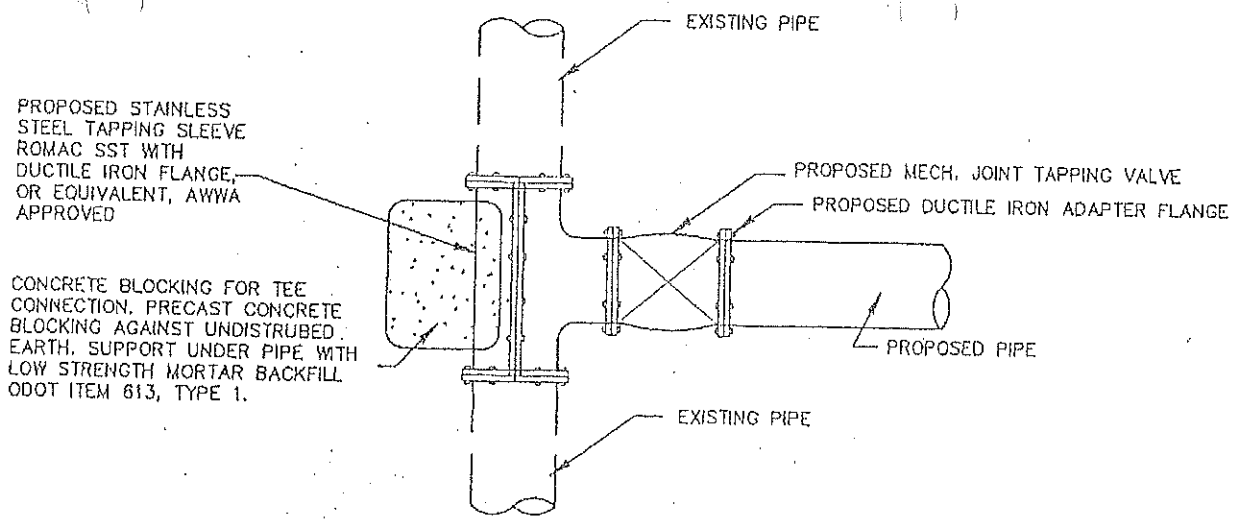
MUNICIPALITY OF GERMANTOWN

FIRE HYDRANT

REVISIONS:

DATE APPROVED: FEB 9

P.W. NO. Rev'd-1



TAPPING SLEEVE AND VALVE DETAIL

Required
@ MEGALUG

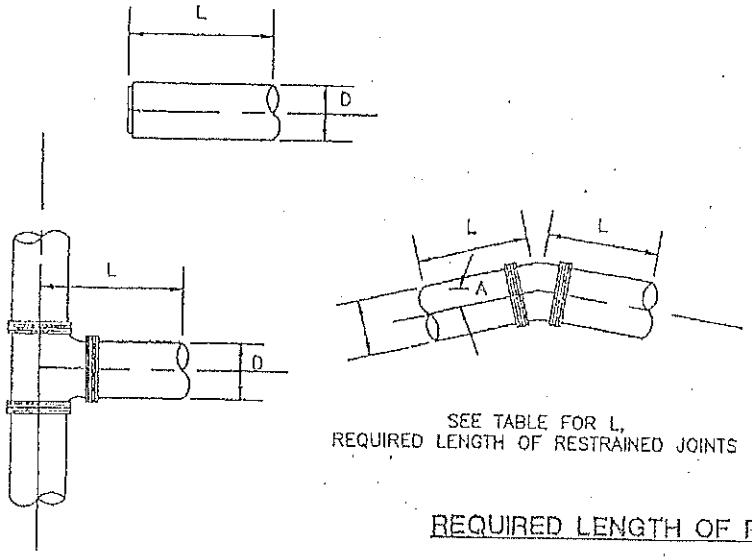
NOTES

A. BELL JOINT RESTRAINTS – FOR PVC, USE EBAA IRON SERIES 1500 OR EQUIVALENT. FOR DIP, USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.

B. MECHANICAL JOINT RESTRAINTS – EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.

C. CONTRACTOR TO USE RESTRAINED JOINTS UNLESS THRUST BLOCKING IS PREAPPROVED FOR SPECIAL CONDITIONS BY THE CITY PRIOR TO THE BEGINNING OF CONSTRUCTION.

D. ALL MECHANICAL BENDS, TEES, ETC., SHALL BE RESTRAINED USING MECHANICAL RESTRAINING JOINTS.



A = DEGREE OF DEFLECTION	D–DIAMETER OF PIPE 4"	6"	8"	10"	12"	16"	20"	24"
11 1/4°	*	*	*	*	*	5	5	6
22 1/2°	*	2	3	5	6	8	10	12
45°	4	8	12	14	20	30	36	45
90°	12	26	38	48	66	98	125	145
TEE	12	26	38	48	66	98	125	145
END	12	26	38	48	66	98	125	145

*REQUIRED RESTRAINED JOINT AT FITTING AND ONE BELL JOINT FROM FITTING MINIMUM.

DESIGN PARAMETERS

LAYING CONDITIONS – TYPE 5
SOIL DESIGNATION – SILT
DEPTH OF COVER – 4'
DESIGN PRESSURE – 80 PSI
SAFETY FACTOR – 1.50
POLYWRAPPED PIPE
IF WORST CONDITIONS EXIST, ADDITIONAL RESTRAINTS WILL BE NECESSARY.

REQUIRED LENGTH OF RESTRAINED JOINTS FOR WATER MAINS

MUNICIPALITY OF GERMANTOWN

RESTRAINING JOINTS AND TAPPING SLEEVE FOR WATER MAINS

REVISIONS:

DATE APPROVED: FEB. 1999

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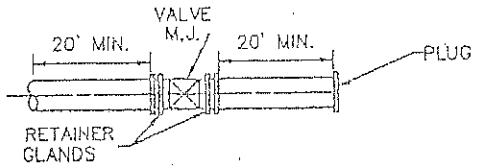
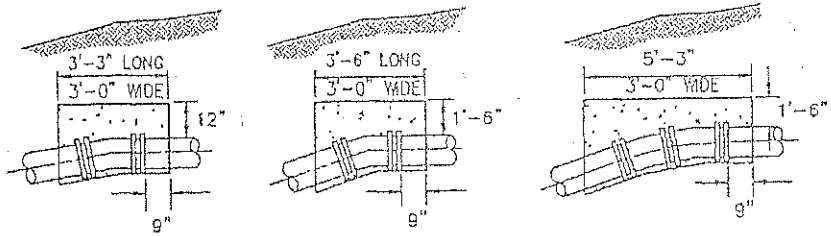
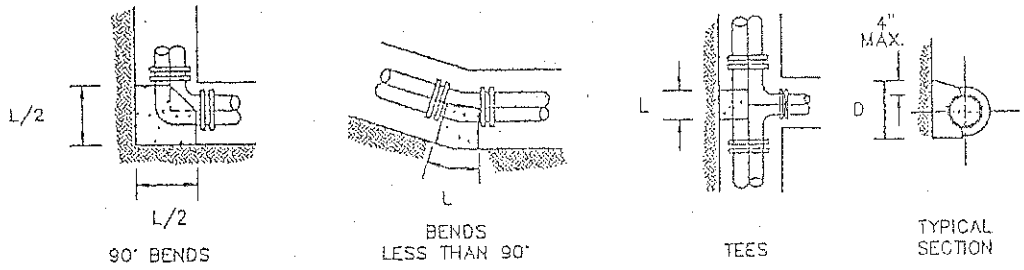


DETAIL - END OF WATER LINE



CONCRETE BLOCKING FOR VERTICAL BENDS



CONCRETE BLOCKING FOR HORIZONTAL BENDS

THRUST BLOCKING AREA (LxD) REQUIRED					
SIZE OF PIPE	11 1/4°	22 1/2°	45°	90°	TEE OR PLUG
4"	1	1	1	1.3	1
6"	1	1	1.6	3	2.1
8"	1	1.5	2.9	5	4
10"	1.2	2.3	5	8	6
12"	1.7	3	7	12	9
16"	3	6	12	21	15

BENDS								
SIZE OF OPENING	DEGREE OF BEND							
	11 1/4°		22 1/2°		45°		90°	
	L	D	L	D	L	D	L	D
3", 4", 6"	8"	6"	10"	6"	20"	6"	36"	6"
8"	9"	8"	14"	8"	24"	9"	50"	8"
12"	14"	12"	22"	12"	30"	16"	60"	15"
16"	18"	16"	24"	18"	33"	36"	70"	22"

TEES								
RUN	BRANCH							
	3",4",6"		22 1/2°		45°		90°	
	L	D	L	D	L	D	L	D
3", 4", 6"	16"	6"						
8"	14"	8"	18"	12"				
12"	9"	12"	18"	12"	24"	18"		
16"	8"	16"	14"	16"	28"	16"	30"	26"

NOTES

A. ALL WATERMAIN BENDS OF MORE THAN 5° SHALL BE SECURELY BLOCKED AGAINST MOVEMENT BY USING CONCRETE BLOCKING OR PREFERABLY CAST-IN-PLACE CONCRETE PLACED AGAINST UNDISTURBED EARTH.

B. CARE SHALL BE TAKEN TO KEEP CONCRETE AWAY FROM MECHANICAL JOINTS BY PLACING VISQUEEN OR OTHER APPROVED MATERIAL OVER PIPE BEFORE PLACING OF CONCRETE.

C. CONCRETE FOR BLOCKING VALVES AND FITTINGS SHALL CONFORM TO SECTION ODOT 499 CLASS C.

D. CONTRACTOR SHALL USE THE THRUST BLOCKS AS SHOWN ONLY IF PREAPPROVED FOR SPECIAL CONDITION BY THE MUNICIPALITY PRIOR TO BEGINNING CONSTRUCTION.

MUNICIPALITY OF GERMAN VN

CONCRETE BLOCKING FOR WATER MAINS

REVISIONS:

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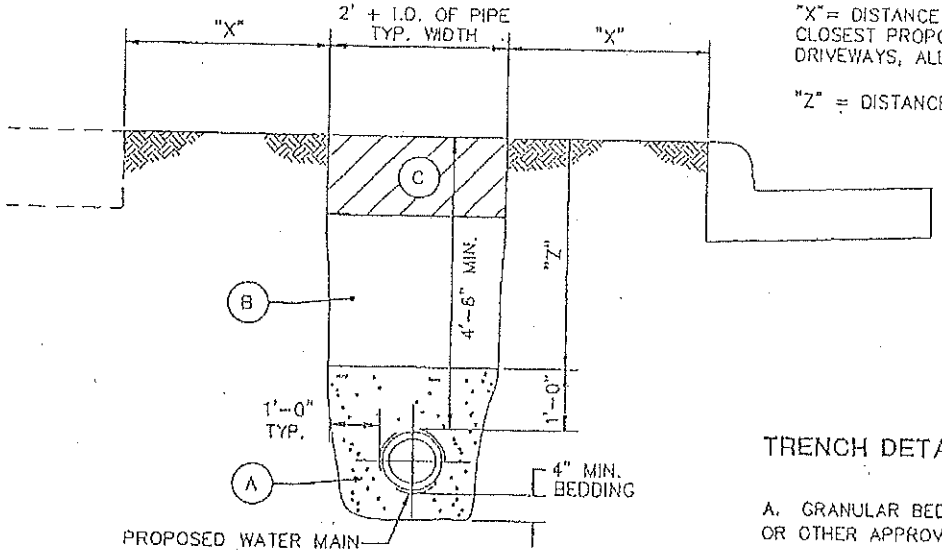

WATER MAIN TRENCH DETAIL

"X"= DISTANCE FROM EDGE OF TRENCH TO EDGE OF CLOSEST PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS.

"Z" = DISTANCE FROM TOP OF BEDDING TO FINISH SURFACE.

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, ODOT 603 TYPE 3 (#57 OR #67), OR OTHER APPROVED EQUIVALENT.

B.. ALL TRENCHES WHERE "X" IS GREATER THAN "Z" FOR PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS CAN BE COMPACTED EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE VILLAGE. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4" DIAMETER.

ALL TRENCHES WHERE "Z" IS GREATER THAN "X" FOR PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6" MAXIMUM LIFTS OR LOW STRENGTH MORTAR BACKFILL ODOT ITEM 613 TYPE 1 UNTIL THE TOP OF THE COMPACTED GRANULAR BACKFILL OR LOW STRENGTH MORTAR BACKFILL IS HIGH ENOUGH WHERE "X" IS GREATER THAN "Z".

A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAYBE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE MUNICIPALITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6" OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN-PAVEMENT AREAS SHALL FOLLOW TYPICAL PAVEMENT RESTORATION DETAILS SHOWN ON PAGE 300-17.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE MUNICIPALITY BEFORE LEAVING THE WORK FOR THE NIGHT.

MATERIAL SPECIFICATIONS

A. WATER MAIN SHALL BE AWWA C-151 DUCTILE IRON PIPE CLASS 52, SLIP-ON JOINTS WITH RUBBER GASKETS OR DR-18 CLASS 150, AWWA C-900 FOR 6" THROUGH 12" ONLY.

B. BELL JOINT RESTRAINTS - FOR PVC, USE EBAA IRON SERIES 1500 OR EQUIVALENT, FOR DIP, USE FIELD LOCK BY US PIPE OR APPROVED EQUIVALENT.

C. MECHANICAL JOINT RESTRAINTS - EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.

D. FIRE HYDRANTS - MUELLER CENTURION A-423 OR AMERICAN DARLING B-62-B, MECHANICAL JOINT, WITH (2) 2 1/2" HOSE NOZZLES WITH NST, (1) 4 1/2" PUMPER NOZZLE, NATIONAL STANDARD THREADS CONFORMING TO AWWA, CCW TO OPEN, 6" SUPPLY PIPING WITH 6" MECHANICAL JOINT INLET.

E. GATE VALVES - AWWA C-509, RESILIENT WEDGE, NON-RISING STEM, MECHANICAL JOINT, 150 PSI WORKING PRESSURE, CCW TO OPEN, WITH ARROW INDICATING OPEN DIRECTION.

F. VALVE BOXES - 3-PIECE CAST IRON 6" DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.

G. DISINFECTION OR STERILIZATION OF NEW MAINS AND SERVICES, AS REQUIRED BY THE OEPA, SHALL BE COORDINATED THROUGH AND SUPERVISED BY THE SUPERINTENDENT OF THE WATER TREATMENT PLANT OR HIS DESIGNEE. THE SUPERINTENDENT RESERVES THE RIGHT TO REQUIRE STRICTER CHLORINE RESIDUAL REQUIREMENTS ON A CASE-BY-CASE BASIS.

HYDROSTATIC TEST

A. AFTER THE PIPE HAS BEEN LAID AND BACKFILLED, ALL NEWLY LAID PIPE OR VALVED SECTION, SHALL BE SUBJECTED TO HYDROSTATIC PRESSURE AND LEAKAGE TEST. ALL WATER MAINS MUST BE HYDROSTATICALLY TESTED (AWWA C-600). THE TESTS MUST BE PERFORMED IN THE PRESENCE OF A REPRESENTATIVE OF THE MUNICIPALITY OF GERMANTOWN. THE LEAKAGE TEST PRESSURE SHALL BE NOT LESS THAN 150 PSI. THE DURATION OF THE LEAKAGE TEST SHALL NOT BE LESS THAN 2 HOURS. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP TAKING WATER FROM AN AUXILIARY SUPPLY. ALL PIPING MUST BE PROPERLY FILLED AND FLUSHED TO DISPEL ALL AIR BEFORE THE TEST IS MADE USING POTABLE WATER. TESTING REQUIREMENTS FOR FIRE SUPPRESSION SYSTEMS SHALL BE IN ACCORDANCE TO THE REQUIREMENT OF THE MUNICIPALITY'S DIVISION OF FIRE.

B. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVED SECTION THEREOF, NECESSARY TO MAINTAIN THE SPECIFIED LEAKAGE TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR EXPELLED.

C. NO PIPE INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE EXCEEDS THE LEAKAGE DETERMINED BY THE FOLLOWING FORMULA: $L = \frac{n\ D\ \sqrt{P}}{7400}$

WHERE: n = NUMBER OF PIPE JOINTS
D = PIPE DIAMETER
P = TEST PRESSURE
L = ALLOWABLE LEAKAGE PER HOUR

THE FOLLOWING TABLE REPRESENTS THE ALLOWABLE LEAKAGE IN GALLONS PER HOUR.

D. DURING THE HYDROSTATIC TEST, A THOROUGH EXAMINATION OF ALL PIPING, FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE PERFORMED. LEAKING JOINTS SHALL BE TIGHTENED AND CRACKED OR OTHERWISE DEFECTIVE MATERIAL SHALL BE REMOVED AND REPLACED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

DISINFECTION

A. AFTER SATISFACTORY HYDROSTATIC TESTING, THE COMPLETED WATER WORK SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-651.

B. DISINFECTION OR STERILIZATION OF NEW MAINS AND SERVICES, AS REQUIRED BY THE OEPA, SHALL BE COORDINATED THROUGH AND SUPERVISED BY THE SUPERINTENDENT OF THE WATER TREATMENT PLANT OR HIS DESIGNEE. THE SUPERINTENDENT RESERVES THE RIGHT TO REQUIRE STRICTER CHLORINE RESIDUAL REQUIREMENTS ON A CASE-BY-CASE BASIS.

C. MAINTAIN PIPES FREE OF DIRT AND FOREIGN MATTER DURING CONSTRUCTION BY DEWATERING TRENCH AND SEALING OPEN PIPE BARRELS. SWAB EACH LENGTH OF PIPE AS IT IS INSTALLED. UPON COMPLETION OF MAIN, ISOLATE MAIN SEGMENTS AND FLUSH PIPE AT 2 FPS VELOCITY.

D. STERILIZE MAIN IN ACCORDANCE WITH AWWA C-651. INJECT 3% TO 5% HYPOCHLORITE SOLUTION TO PROVIDE 50 TO 60 MG PER LITER CONCENTRATION IN MAIN. CHLORINE MAY BE PLACED IN EACH SECTION OF PIPE AT THE TIME OF INSTALLATION. SAMPLE WATER AT EACH HYDRANT OR IF NO HYDRANT IS AVAILABLE, AT A TAP IN THE PROPOSED LINE. ANALYZE SAMPLE USING DPD REAGENT TO VERIFY FREE CHLORINE CONCENTRATION. MAINTAIN CONCENTRATION IN MAIN FOR 24 HOURS. SAMPLE HYDRANTS AT COMPLETION OF STERILIZATION VERIFYING MINIMUM CHLORINE RESIDUAL OF 20 MG PER LITER.

E. FLUSH CHLORINE SOLUTION TO WASTE INTO SANITARY SEWER AT A CONTROLLED RATE, NOT TO EXCEED 25 GPM. IF CHLORINE RESIDUAL DROPS IN 10 MG PER LITER, FLUSH MAIN AT 2 FPS AND REPEAT STERILIZATION PROCEDURE.

F. WATER SAMPLES - PERFORM BACTERIOLOGICAL TEST PER AWWA C-651 WILL BE DRAWN AND PROCESSED BY THE MUNICIPALITY. IN THE EVENT OF DETECTION OF COLIFORM ORGANISM, REPEAT FLUSHINGS, STERILIZATION, AND SAMPLING OF MAINS UNTIL ACCEPTABLE TEST RESULTS ARE ACHIEVED. THIS IS TO BE PERFORMED PRIOR TO TRANSFER OF SERVICE.

ALLOWABLE LEAKAGE PER 1000 FT. (305M) OF PIPELINE (GPH+)

AVG. TEST PRESSURE (PSI) BAR	NOMINAL PIPE DIAMETER- INCHES											
	3	4	6	8	10	12	14	16	18	20	24	30
450(31)	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78
400(28)	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50
350(24)	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21
300(21)	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90
275(19)	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73
250(17)	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56
225(16)	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38
200(14)	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19
175(12)	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98
150(10)	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76

MUNICIPALITY OF GERMANTOWN

WATER MAIN MATERIAL AND TESTING

REVISIONS:

DATE APPROVED: FEB 9

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A. NO WORK SHALL BE APPROVED OR ACCEPTED BY THE MUNICIPALITY UNLESS 2 WORKING DAYS NOTICE OF COMMENCING WORK IS GIVEN TO THE MUNICIPALITY.

B. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR THE DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE MUNICIPALITY.

C. THE MINIMUM LENGTH OF PIPE NIPPLES SHALL BE 18".

D. ALL CUSTOMERS SHALL MEET BACKFLOW PREVENTION REQUIREMENTS AS PER STATE OF OHIO AND EPA REGULATIONS AND MUNICIPAL ORDINANCE.

E. ALL WATERLINE CONSTRUCTION SHALL FOLLOW THE MUNICIPAL STANDARDS, OHIO DEPARTMENT OF TRANSPORTATION ITEM 638, AND AWWA STANDARDS WHICHEVER IS MORE RESTRICTIVE AS DETERMINE BY THE MUNICIPALITY.

F. OPERATION OF MUNICIPALITY FIRE HYDRANTS, VALVES, METERS, SERVICES, STOPS, AND ALL OTHER MECHANICAL INFRASTRUCTURE ITEMS IS STRICTLY PROHIBITED.

G. ALL WATERMAINS SHALL HAVE A MINIMUM DEPTH OF 4'-6" AND A MAXIMUM DEPTH OF 6'-0" FROM TOP OF PIPE TO SURFACE UNLESS APPROVED BY MUNICIPALITY.

PIPE

A. ALL PIPE FITTINGS SHALL BE DUCTILE IRON.

B.

WATER MAIN MINIMUM SIZE UNLESS OTHERWISE APPROVED	
RESIDENTIAL	8"
COMMERCIAL	10"
INDUSTRIAL	12"
BASED ON A WATERMAIN DESIGN THE MUNICIPAL MAY APPROVE A 6" MINIMUM FOR RESIDENTIAL.	

C. ALL PIPE 6" THROUGH 12" SHALL BE PVC CLASS 150, DR-18, AWWA C-900 OR DIP, CLASS 52, AWWA C-151. ALL PIPES OVER 12" TO BE DIP, CLASS 52, AWWA C-151.

D. DEADENDS NOT PERMITTED UNLESS THEY ARE DEEMED NECESSARY BY THE MUNICIPAL ENGINEER AFTER A REVIEW OF A WATERMAIN DESIGN, WHEN APPROVED THEY SHALL BE TERMINATED WITH A FIRE HYDRANT AT THE END.

EXCAVATION AND PIPE LAYING

A. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED OR OTHERWISE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE VILLAGE BEFORE LEAVING THE WORK FOR THE NIGHT AND AT OTHER TIMES OF INTERRUPTION OF THE WORK.

FITTINGS, VALVES AND HYDRANTS

A. FITTINGS OR SPECIALS IN SIZES 2" THROUGH 48" SHALL CONFORM TO ALL REQUIREMENTS OF ANSI A-21.10 (AWWA C-153). FITTINGS AND SPECIALS 12" AND SMALLER SHALL BE CLASS 250. LARGER FITTINGS AND SPECIALS SHALL BE CLASS 150. FITTINGS AND SPECIALS SHALL HAVE MECHANICAL JOINTS AND SHALL BE DUCTILE IRON.

B.

MAXIMUM SPACING UNLESS OTHERWISE APPROVED		
	HYDRANTS	VALVES
SINGLE & TWO FAMILY RESIDENTIAL	500'	800'
INDUSTRIAL, COMMERCIAL & MULTI-FAMILY	300'	500'

C. ALL TEE'S AND CROSSES SHALL BE VALVED IN EACH DIRECTION UNLESS OTHERWISE APPROVED.

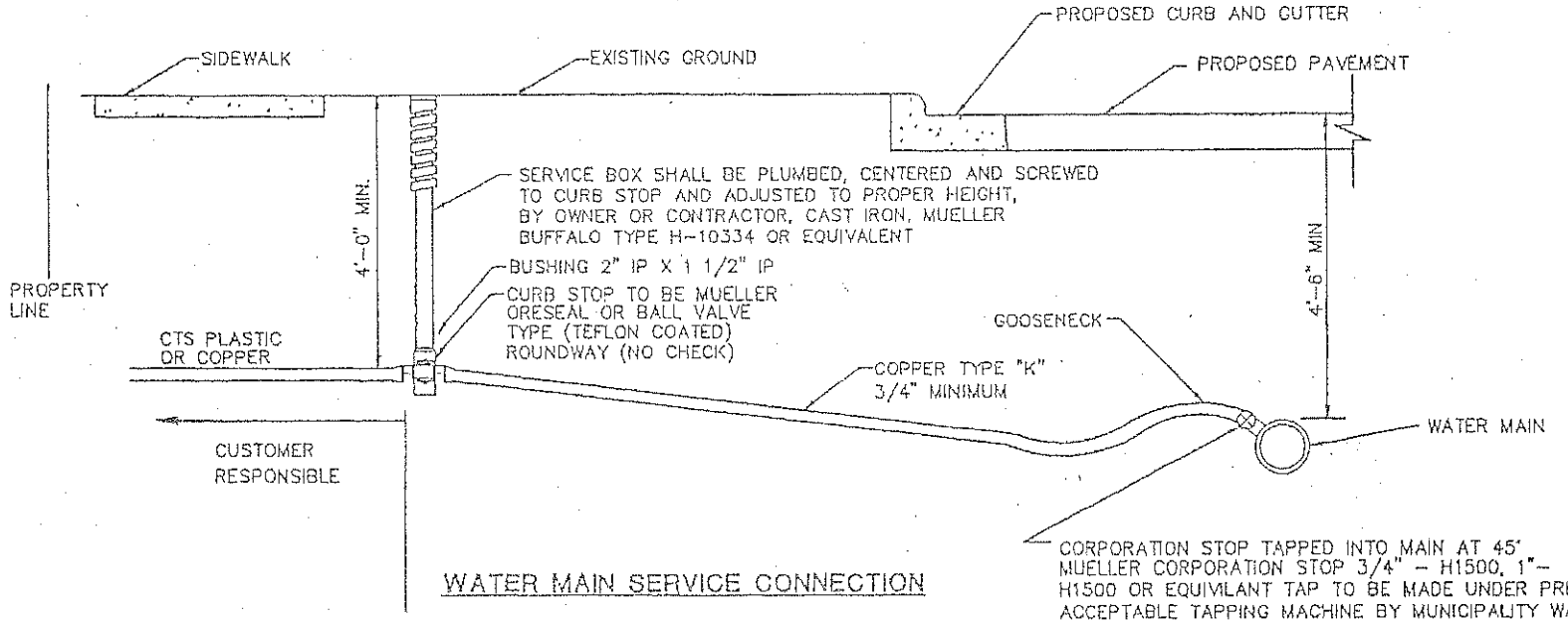
D. NO VALVE SHALL BE OPERATED BY PERSONNEL OTHER THAN A REPRESENTATIVE EMPLOYED BY THE MUNICIPALITY.

UTILITY STAKING

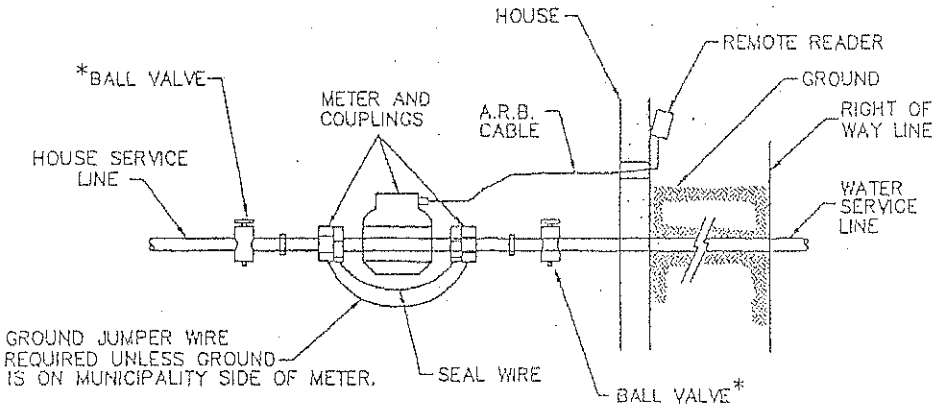
A. OFFSETS EVERY 25' ON CURVES. OFFSETS EVERY 100' ON STRAIGHT SECTIONS. FLOW LINE OF WATER MAIN (CUT) MARKED EVERY 100' AND OFFSETS SHALL BE CLEARLY MARKED.

TESTING

A. TESTING OF FIRE SUPPRESSION LINES AND SYSTEMS SHALL ADHERE TO TH REQUIREMENTS OF THE MUNICIPALITY'S DIVISION OF FIRE AND ALL APPLICABLE STATE CODE.



WATER MAIN SERVICE CONNECTION



INSIDE WATER METER

*A GATE VALVE IS REQUIRED ON EACHSIDE OF 1 1/2" AND LARGER SERVICE LINES

NOTES

A. WATER SERVICE SHALL BE SEAMLESS COPPER, TYPE K.

B. 1" SERVICE SHALL BE INSTALLED WHERE BUILDINGS ARE MORE THAN 120' FROM WATERMAIN OR WHERE REQUIRED BY PLANS.

C. WATER SERVICE SHALL BE A MINIMUM OF 10' MEASURED HORIZONTALLY FROM THE SEWER SERVICE AND SHALL BE A MINIMUM OF 18" ABOVE THE CROWN OF THE SANITARY SEWER MAIN WHERE THE WATER SERVICE CROSSES THE SEWER MAIN. WATER SERVICE MAY BE LAID ON BENCH IN THE SEWER LATERAL TRENCH IF CROWN IS A LEAST 18" BELOW INVERT OF WATER SERVICE, AND THE MINIMUM DISTANCE BETWEEN THE WATER SERVICE AND THE SEWER LATERAL IS 5'-0".

D. METER UNIT FURNISHED BY MUNICIPALITY UNDER TAP FEE.

E. CORPORATION STOP AND CURB STOP ARE TO BE MUELLER OR EQUIVALENT.

F. ALL OTHER FITTINGS ARE TO BE BRASS, PLASTIC OR BY MUNICIPALITY ORDERS.

G. WATER METERS SHALL BE INSTALLED INSIDE WITH REMOTE READERS UNLESS PREVIOUSLY APPROVED BY THE MUNICIPALITY.

MUNICIPALITY OF GERMANT 'N

WATER MAIN SERVI CONNECTIONS

REVISIONS:

DATE APPR FEB.

PA

NO.

NOTES

A. 20" I.D. TILE FOR FORD NO. W3 LID OR EQUIVALENT (5/8" TO 3/4" METERS).

B. 24" I.D. TILE FOR FORD NO. W3 LIDAND No. 2 EXTENSION RING OR EQUIVALENT (1" METER).

C. PLASTIC METER TILE, OTHERS MUST BE APPROVED PRIOR TO INSTALLATION.

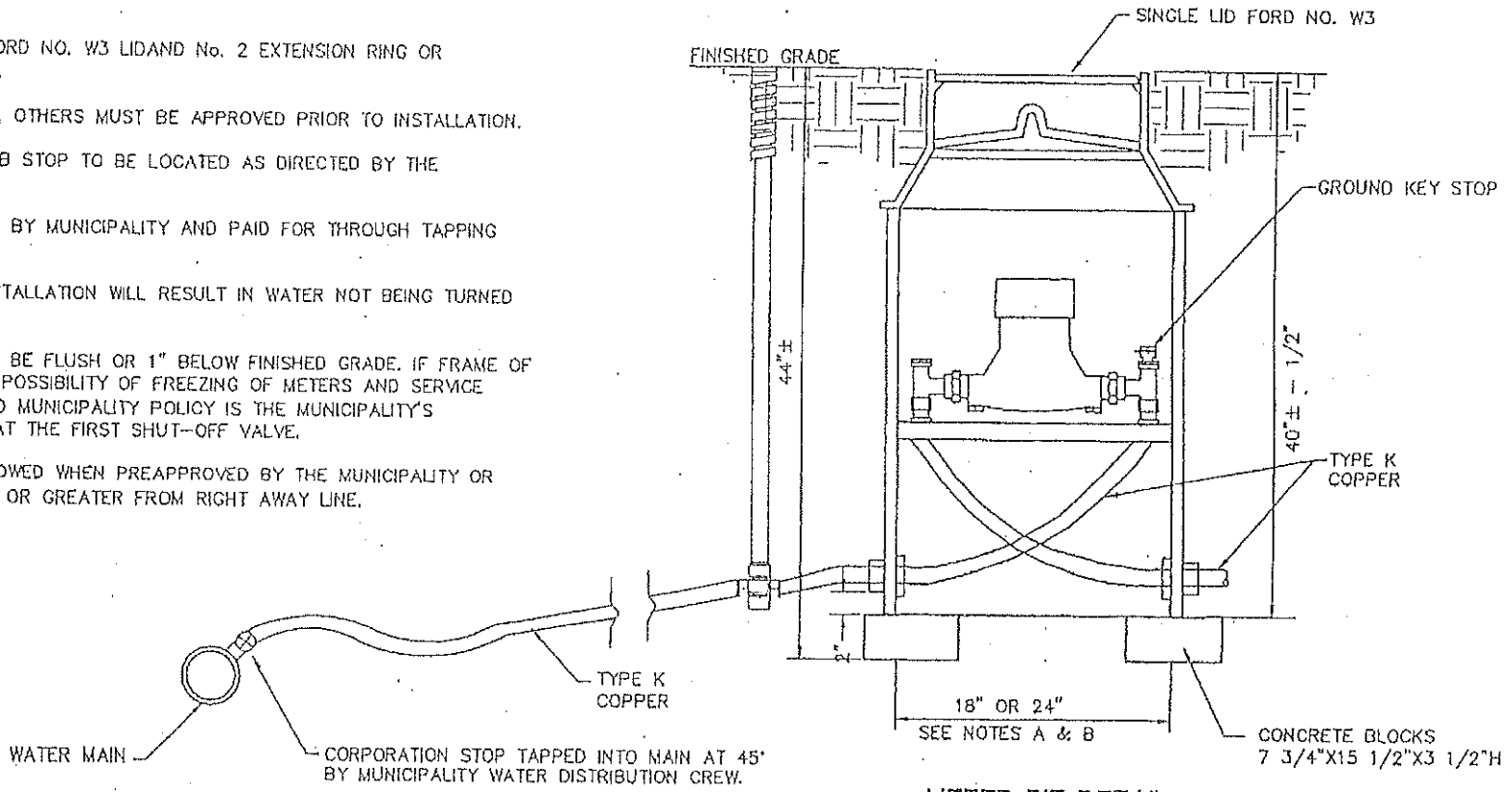
D. METER PIT AND CURB STOP TO BE LOCATED AS DIRECTED BY THE MUNICIPALITY.

E. METER PIT PROVIDED BY MUNICIPALITY AND PAID FOR THROUGH TAPPING FEE.

F. UNSATISFACTORY INSTALLATION WILL RESULT IN WATER NOT BEING TURNED ON.

G. METER PIT LID MUST BE FLUSH OR 1" BELOW FINISHED GRADE. IF FRAME OF METER LID IS SHOWING, POSSIBILITY OF FREEZING OF METERS AND SERVICE LINES IS INCREASED AND MUNICIPALITY POLICY IS THE MUNICIPALITY'S RESPONSIBILITY STOPS AT THE FIRST SHUT-OFF VALVE.

H. MITER PIT ONLY ALLOWED WHEN PREAPPROVED BY THE MUNICIPALITY OR WHEN RESIDENCE IS 75' OR GREATER FROM RIGHT AWAY LINE.



METER PIT DETAIL

FORD CATALOG CORRERSETTER NO.	SERVICE PIPE SIZE	METER	SPREAD	TILE SIZE
V 71 - H*	3/4"	5/8"	7 7/8"	20" DIA.
V 72 - H*	3/4"	5/8" X 3/4"	7 7/8"	20" DIA.
V 73 - H*	3/4"	3/4"	9 3/8"	20" DIA.
V 74 - H*	1"	1"	11 1/8"	24" DIA.

*SUBSTITUTE DESIRED HEIGHT IN INCHES FOR "H"

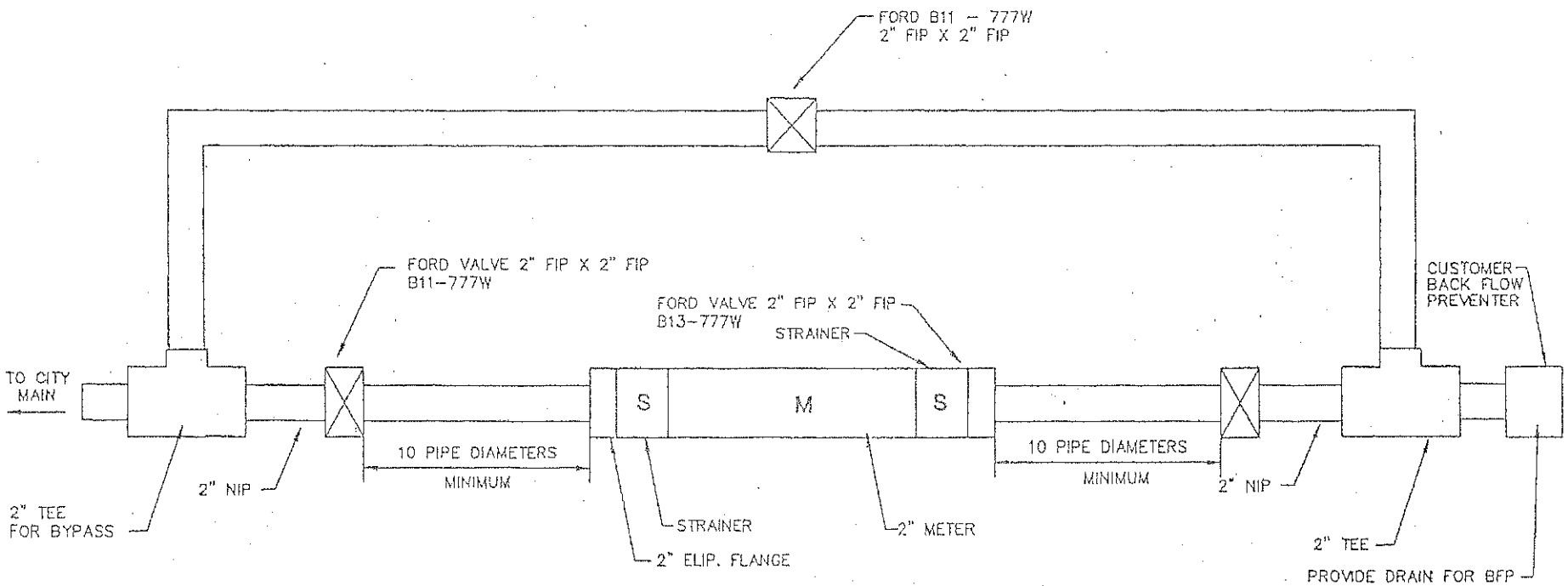
MUNICIPALITY OF GERMANTOWN

METER PIT INSTALLATION

REVISIONS:

DATE APPROVED: FEB. 1999

PAGE No. 800-8



NOTES

A. METER MUST BE MOUNTED HORIZONTALLY.

B. APPLY NEVER SEIZE TO NUTS AND BOLTS.

C. METER BYPASS ASSEMBLY AND METER SETTING TO BE CONSTRUCTED OF PVC SCH. 80, BRASS OR COPPER. NO FEMALE PVC THREADS PERMITTED.

D. ALL PIPING TO BE THOROUGHLY SUPPORTED.

E. THE MUNICIPALITY IS NOT RESPONSIBLE FOR MAINTENANCE OF INSIDE PLUMBING.

F. CONCRETE VAULT TO BE SIZED BY MUNICIPALITY AND SUPPLIED BY OWNER

MUNICIPALITY OF
GERMANT 'N

2" COMPOUND METE WITH BYPASS

REVISIONS:

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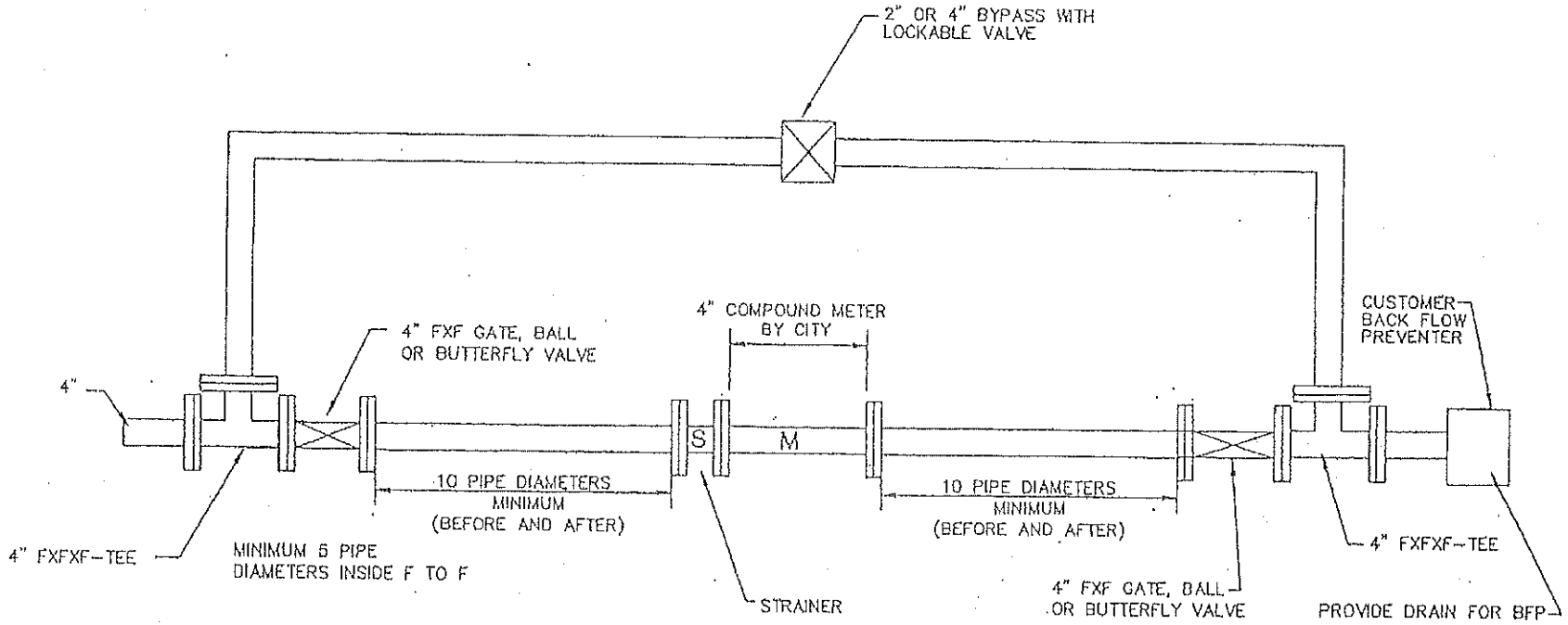

NOTES

A. METER MUST BE MOUNTED HORIZONTALLY.

B. FULL FACE FLANGE GASKETS TO BE USED AND NEVER SEIZE APPLIED TO ALL NUTS AND BOLTS.

C. METER BYPASS ASSEMBLY AND METER SETTING TO BE CONSTRUCTED OF PVC SCH. 80, BRASS OR COPPER. NO FEMALE PVC THREADS PERMITTED.

D. ALL PIPING TO BE THOROUGHLY SUPPORTED.

E. THE CITY IS NOT RESPONSIBLE FOR MAINTENANCE OF INSIDE PLUMBING.

F. CONCRETE VAULT TO BE SIZED BY MUNICIPALITY AND SUPPLIED BY OWNER.

MUNICIPALITY OF GERMANTOWN

4" COMPOUND METER WITH BYPASS

REVISIONS:

DATE APPROVED: FEB. 1999

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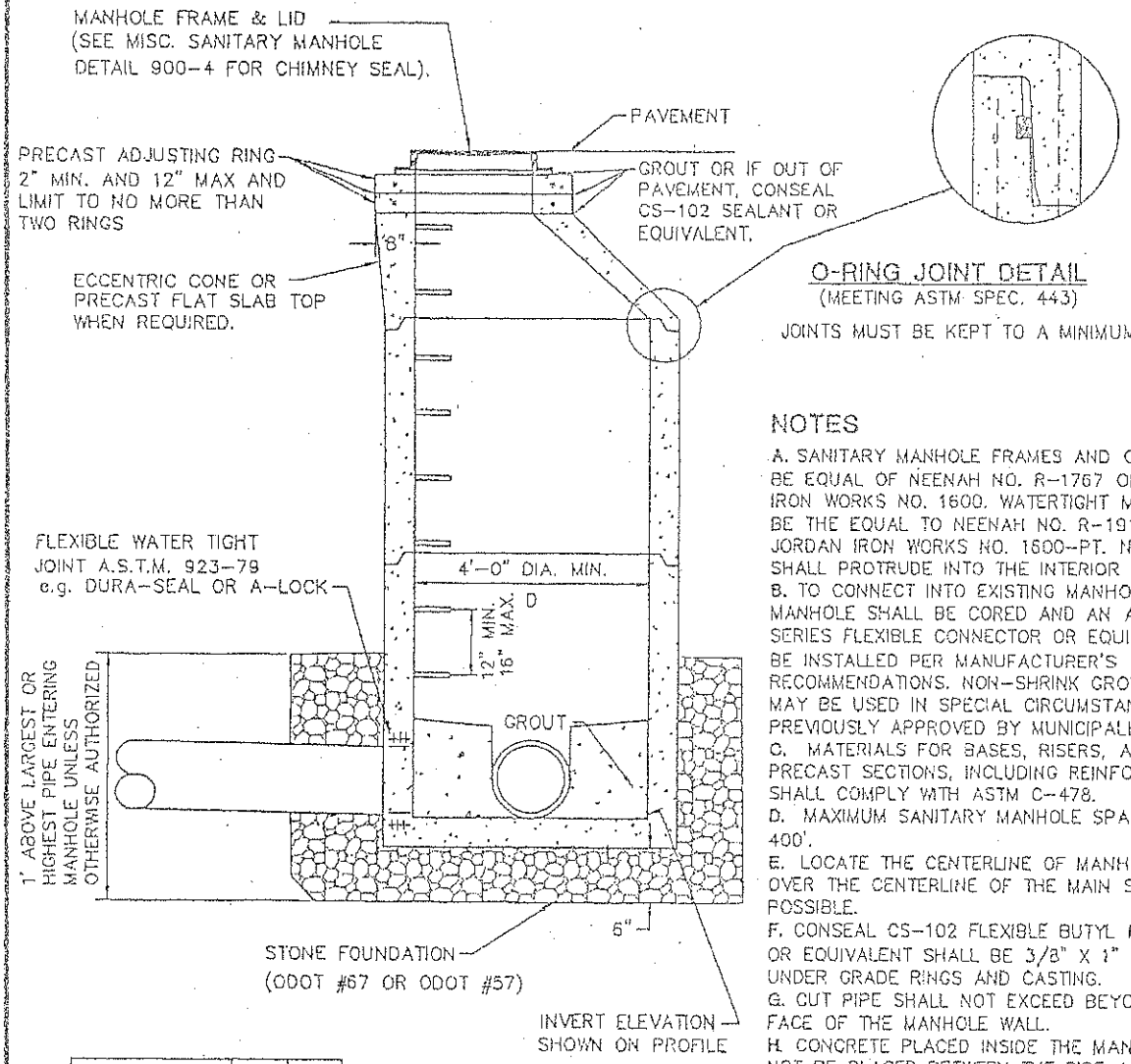
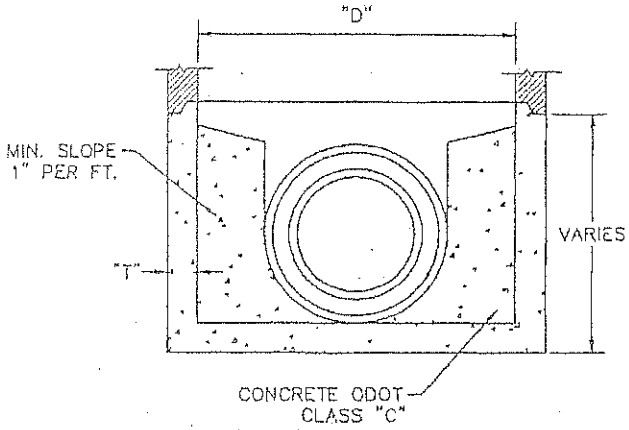


PIPE SIZE	T	D
24" & UNDER	5"	48"
27" & ABOVE	6"	60"

O-RING JOINT DETAIL
(MEETING ASTM SPEC. 443)

JOINTS MUST BE KEPT TO A MINIMUM



PRECAST BASE SECTION

NOTES

A. SANITARY MANHOLE FRAMES AND COVERS SHALL BE EQUAL OF NEENAH NO. R-1767 OR EAST JORDAN IRON WORKS NO. 1600. WATERTIGHT MANHOLES SHALL BE THE EQUAL TO NEENAH NO. R-1916-D OR EAST JORDAN IRON WORKS NO. 1600-PT. NO LATERALS SHALL PROTRUDE INTO THE INTERIOR MANHOLE.

B. TO CONNECT INTO EXISTING MANHOLE, THE MANHOLE SHALL BE CORED AND AN A-LOK XP SERIES FLEXIBLE CONNECTOR OR EQUIVALENT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. NON-SHRINK GROUT ALTERNATIVE MAY BE USED IN SPECIAL CIRCUMSTANCES WHEN PREVIOUSLY APPROVED BY MUNICIPALITY.

C. MATERIALS FOR BASES, RISERS, AND OTHER PRECAST SECTIONS, INCLUDING REINFORCEMENTS SHALL COMPLY WITH ASTM C-478.

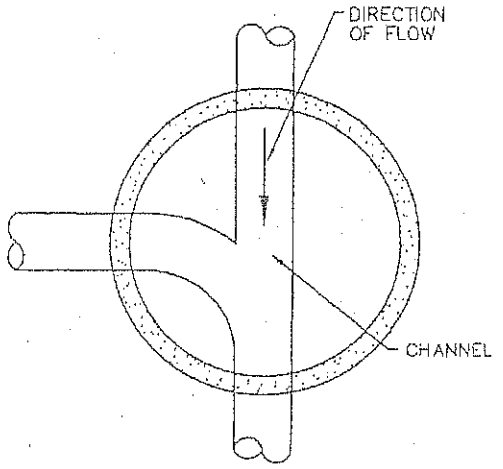
D. MAXIMUM SANITARY MANHOLE SPACING SHALL BE 400'.

E. LOCATE THE CENTERLINE OF MANHOLE COVERS OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

F. CONSEAL CS-102 FLEXIBLE BUTYL RESIN SEALANT OR EQUIVALENT SHALL BE 3/8" X 1" MINIMUM STRIPS UNDER GRADE RINGS AND CASTING.

G. CUT PIPE SHALL NOT EXCEED BEYOND THE INSIDE FACE OF THE MANHOLE WALL.

H. CONCRETE PLACED INSIDE THE MANHOLE SHALL NOT BE PLACED BETWEEN THE PIPE AND THE OPENING SO AS TO INTERFERE IN ANY WAY WITH THE FLEXIBILITY OF THE JOINT.



STANDARD INVERT CHANNEL

ALL INVERTS TO BE CHANNELED FOR OPTIMUM FLOW.

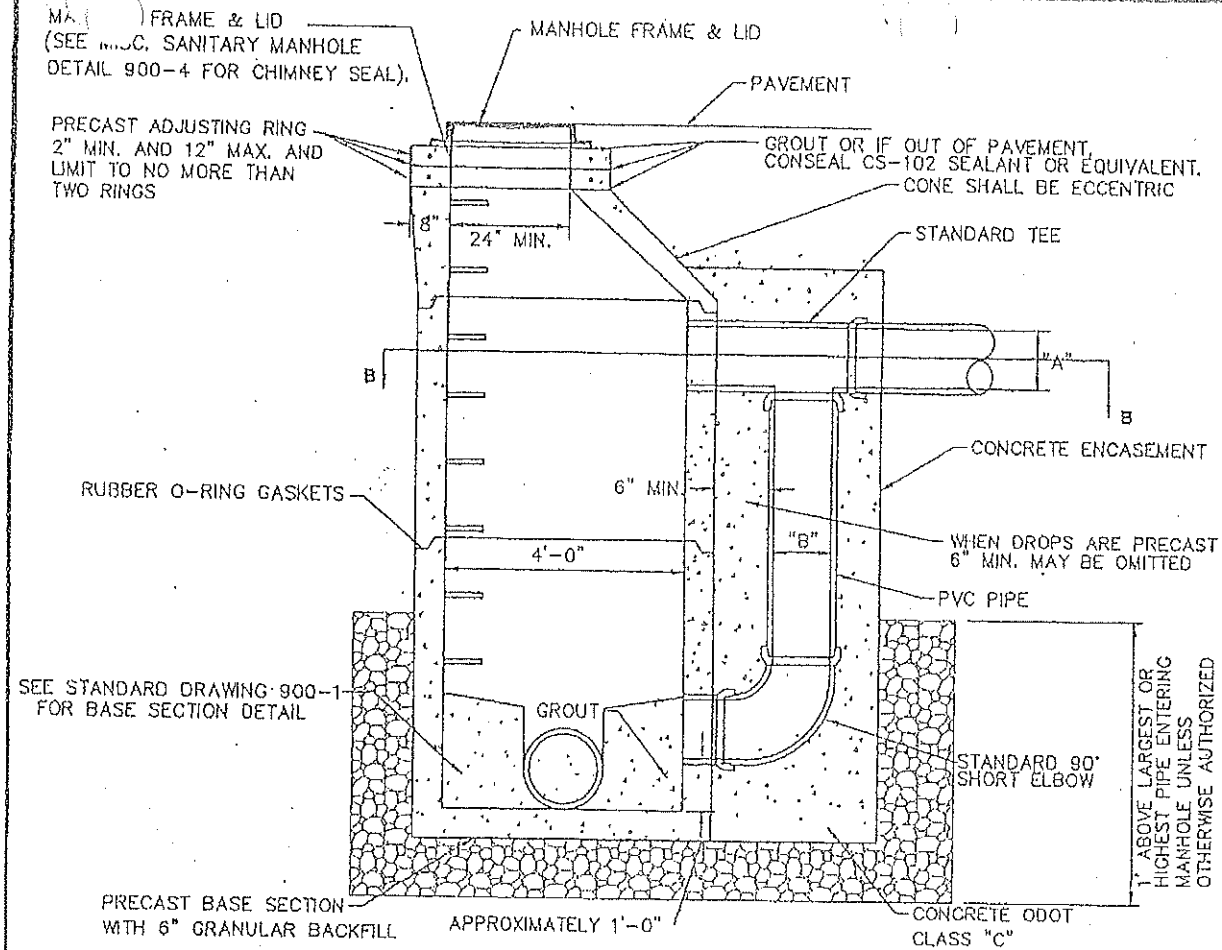
MUNICIPALITY OF GERMANTOWN

TYPE 3 SANITARY MANHOLE

REVISIONS:

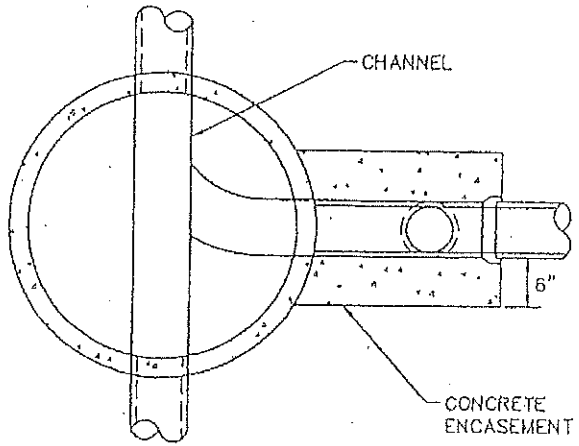
DATE APPROVED: FEB 9

PLATE NO. 9-1



DROP CONNECTION MANHOLE

"A"	"B"
8", 10", & 12"	8"
15" & 18"	10"
21" & 24"	12"



SECTIONAL PLAN B-B

NOTES

A. LOCATE THE CENTERLINE OF MANHOLE CONES OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

B. TYPE D MANHOLE SHALL BE USED WHERE THE DIFFERENCE IN INVERT ELEVATIONS IS GREATER THAN 2'0".

C. ALL NOTES AND ASTM REFERENCES ON THE TYPE 3 SANITARY MANHOLE APPLY ON THE TYPE D SANITARY DROP MANHOLE.

MUNICIPALITY OF GERMANTOWN

TYPE D SANITARY DROP MANHOLE

REVISIONS:

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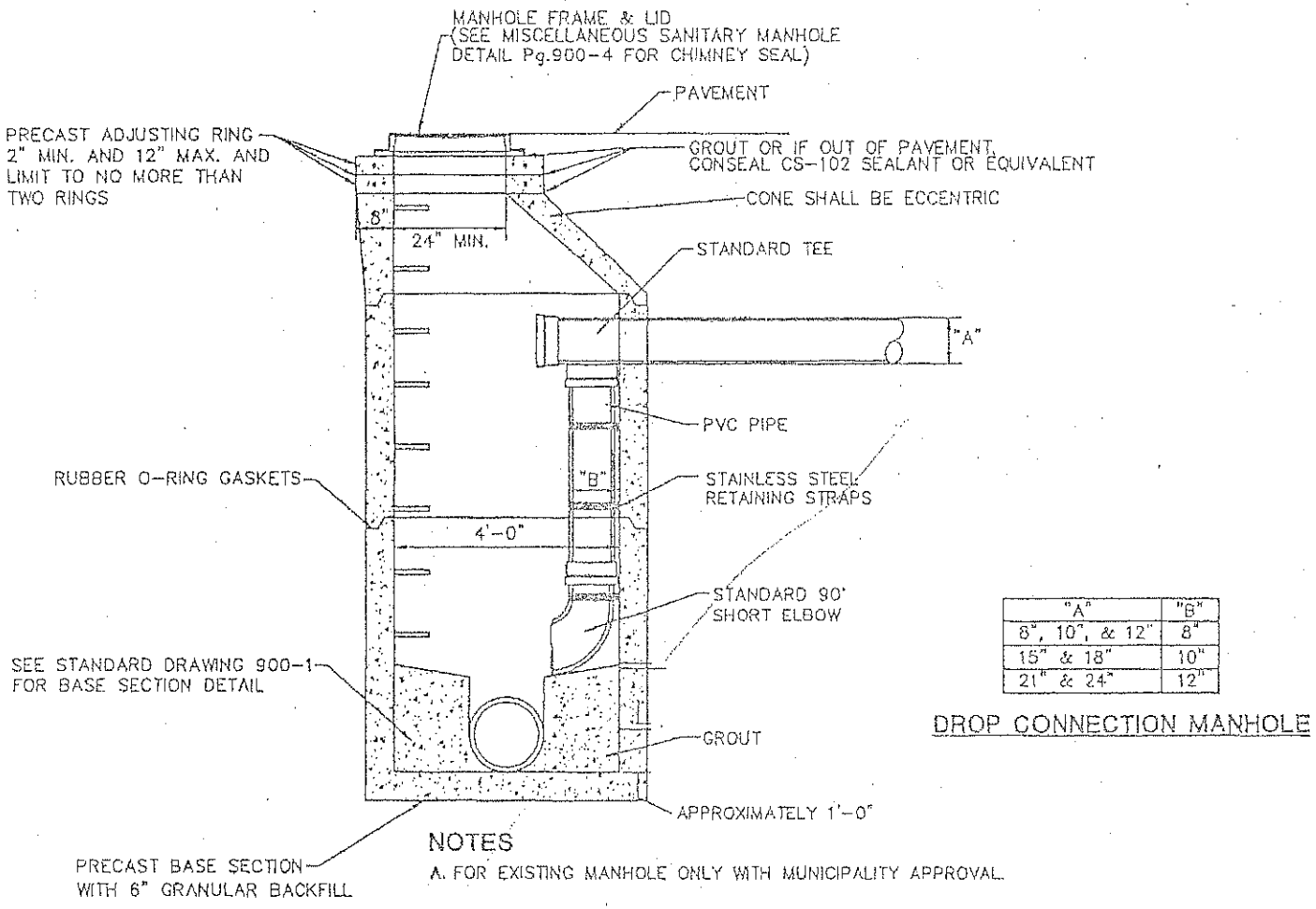


"A"	"B"
8", 10", & 12"	8"
15" & 18"	10"
21" & 24"	12"

DROP CONNECTION MANHOLE

NOTES

A. FOR EXISTING MANHOLE ONLY WITH MUNICIPALITY APPROVAL.

B. LOCATE THE CENTERLINE OF MANHOLE CONES OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

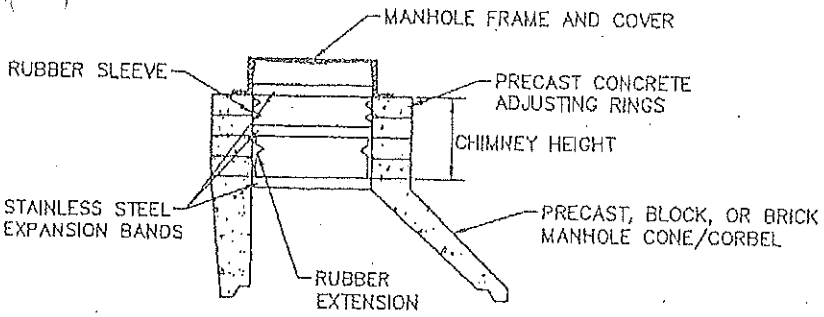
C. INSIDE DROP MANHOLE SHALL BE USED WHERE THE DIFFERENCE IN INVERT ELEVATIONS IS GREATER THAN 2'0" AND ONLY IN SPECIAL CIRCUMSTANCES WHEN PRE-APPROVED BY THE MUNICIPALITY OF KENTON.

D. ALL NOTES AND ASTM REFERENCES ON THE TYPE 3 SANITARY MANHOLE APPLY ON THE INSIDE DROP SANITARY MANHOLE.

MUNICIPALITY OF GERMANTOWN

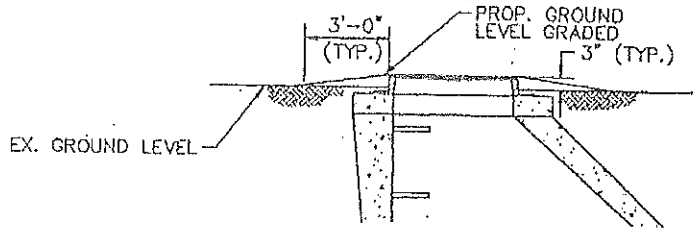
INSIDE SANITARY DROP MANHOLE

REVISIONS: | DATE APPRC FEB. | PAC 90

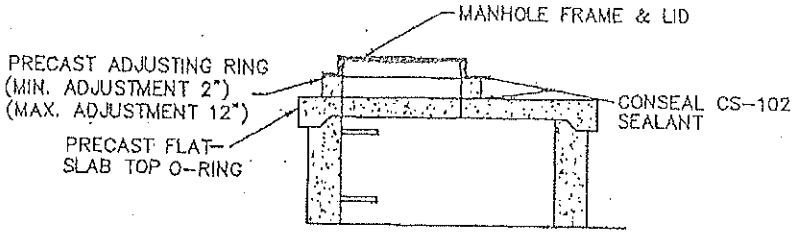


INTERNAL MANHOLE CHIMNEY SEAL

(ONLY WHEN REQUIRED BY MUNICIPALITY)



TYPICAL MANHOLE GRADING



FLAT TOP SLAB

NOTES

A. MANHOLE STEPS SHALL BE SECURLY INSTALLED INTO EACH MANHOLE SECTION, BY THE MANUFACTURER, PRIOR TO DELEVERY TO THE JOB SITE
B. MANHOLE STEPS SHALL BE PF-1 STEP BY M.A. INDUSTRIES OR EQUVILENT

MUNICIPALITY OF GERMANTOWN	MISCELLANEOUS SANITARY MANHOLE DETAILS	REVISIONS:	DATE APPROVED: FEB. 1999
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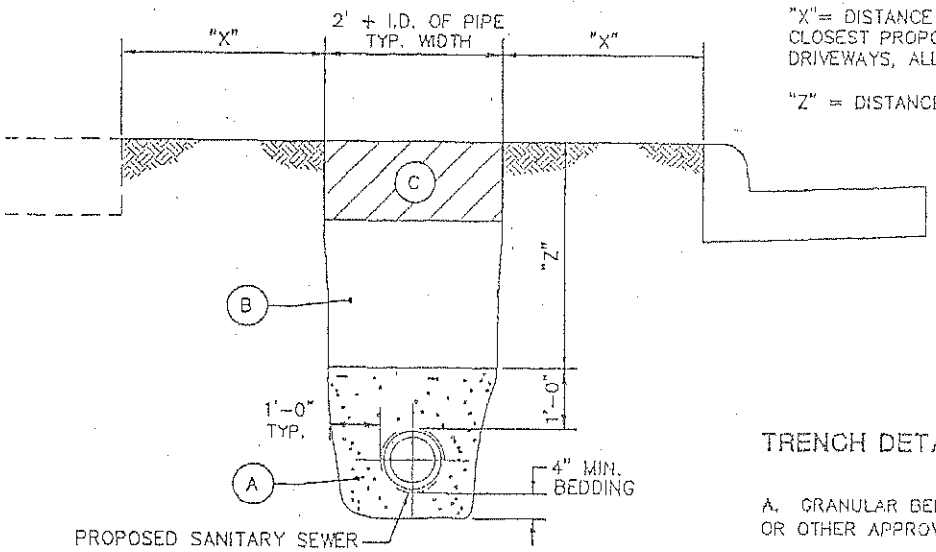

SANITARY SEWER TRENCH DETAIL

"X"= DISTANCE FROM EDGE OF TRENCH TO EDGE OF CLOSEST PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS.

"Z" = DISTANCE FROM TOP OF BEDDING TO FINISH SURFACE.

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, ODOT 603 TYPE 3 (#57 OR #67), OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES WHERE "X" IS GREATER THAN "Z" FOR PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS CAN BE COMPACTED EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE VILLAGE. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4" DIAMETER.

ALL TRENCHES WHERE "Z" IS GREATER THAN "X" FOR PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6" MAXIMUM LIFTS OR LOW STRENGTH MORTAR BACKFILL ODOT ITEM 613 TYPE 1 UNTIL THE TOP OF THE COMPACTED GRANULAR BACKFILL OR LOW STRENGTH MORTAR BACKFILL IS HIGH ENOUGH WHERE "X" IS GREATER THAN "Z".

A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAYBE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE MUNICIPALITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6" OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN-PAVEMENT AREAS SHALL FOLLOW TYPICAL PAVEMENT RESTORATION DETAILS SHOWN ON PAGE 300-17.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE MUNICIPALITY BEFORE LEAVING THE WORK FOR THE NIGHT.

MUNICIPALITY OF GERMANTOWN

SANITARY SEWER TRENCH DETAIL

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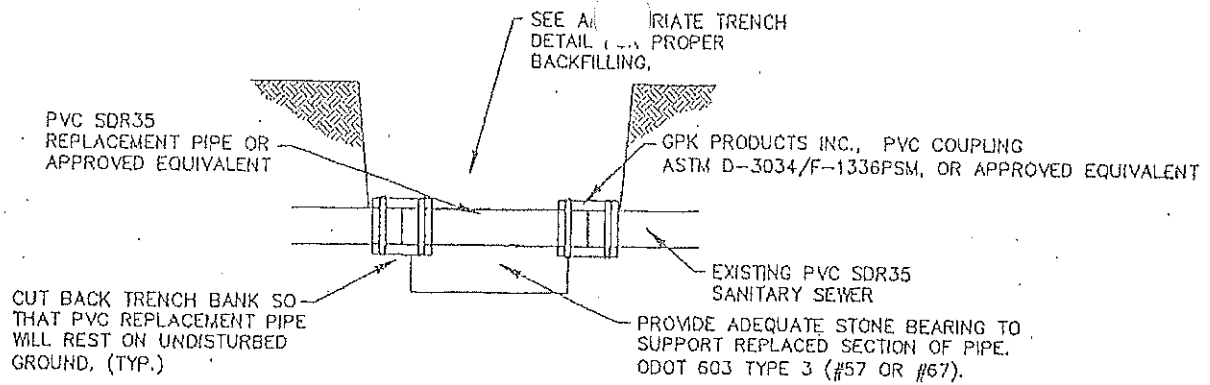
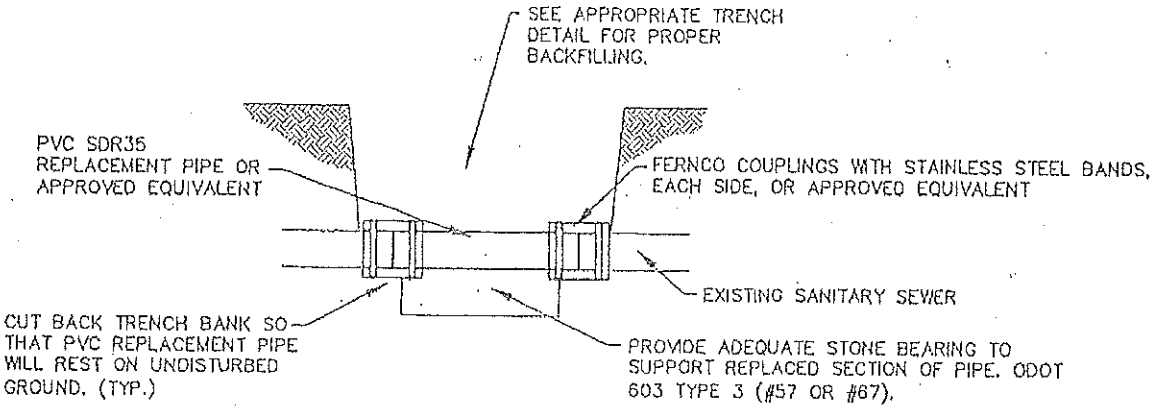


REPAIR OF EXISTING PVC SDR35 SANITARY SEWER



REPAIR OF EXISTING SANITARY SEWER OTHER THAN PVC

MUNICIPALITY OF GERMANTOWN	REPAIR OF EXISTING SANITARY SEWER PIPE DETAIL	REVISIONS:	DATE APPROVED: FEB. 1999
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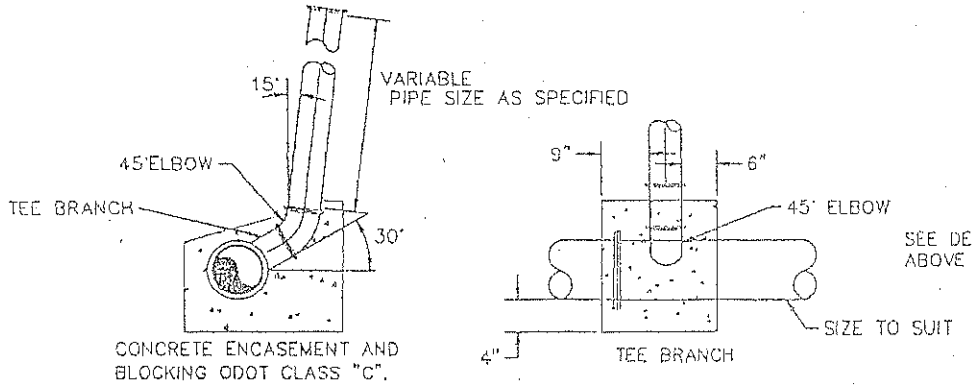
NOTES

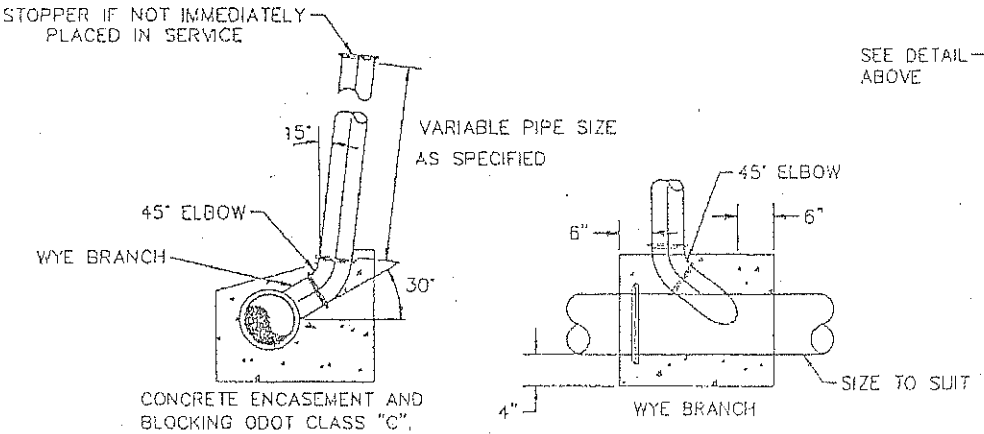
A. RISER PIPE TO BE BEDDED SOLIDLY AGAINST UNDISTURBED GROUND. ALSO, TEE MAY BE SUBSTITUTED FOR WYE BRANCH IF SPECIFIED.

B. RISER PIPE TO BE INSTALLED SO THAT CONNECTING SERVICE SHALL HAVE A MINIMUM DEPTH OF 7' AT THE PROPERTY LINE UNLESS A GREATER DEPTH IS DIRECTED.

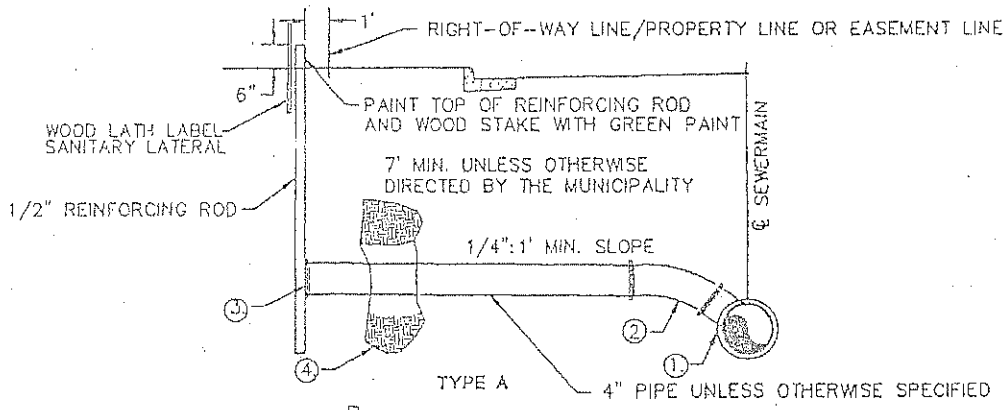
C. CONCRETE ENCASEMENT AND BLOCKING REQUIRED IF DEPTH OF CONNECTION IS 12' OR GREATER.

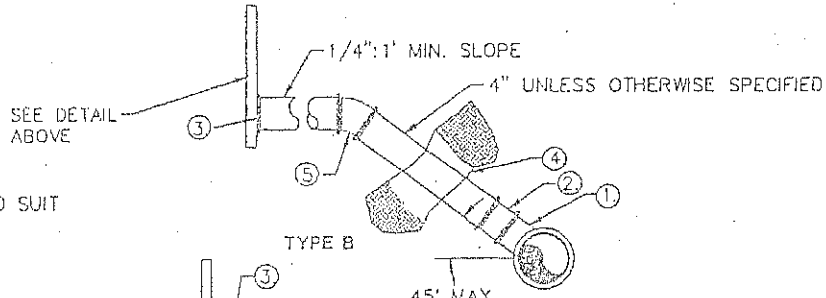
D. EACH SANITARY LATERAL MUST BE IN SEPARATE TRENCHES.

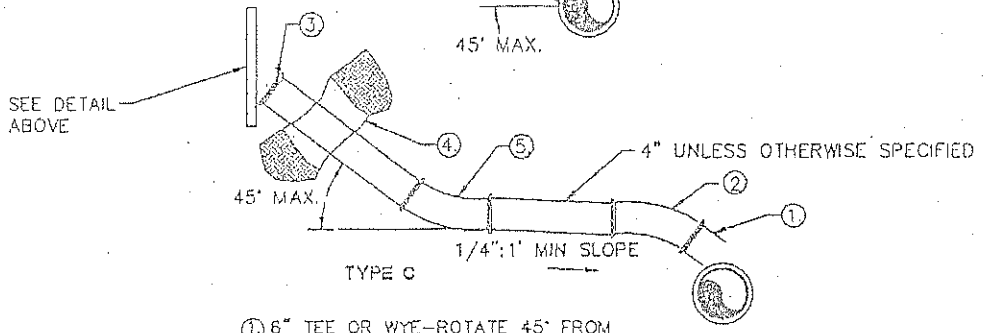




SERVICE RISER







1. 6" TEE OR WYE–ROTATE 45' FROM HORIZONTAL UNLESS OTHERWISE SPECIFIED.
2. 6" 1/8 BEND OR 1/16 BEND AS NEEDED.
3. CAP UNLESS JOINING EXISTING SERVICE LATERAL.
4. BED PIPE WITH 8" GRANULAR MATERIAL AND BACKFILL WITH GRANULAR MATERIAL TO 8" ABOVE PIPE. ODOT 603 TYPE 3 #57 OR #67
5. EXACT RECORD OF BEND LOCATIONS MUST BE MADE, AS TO DEPTH FROM SURFACE AND DISTANCE FROM CENTERLINE OF SEWER, BEFORE BACKFILL IS PLACED.

SERVICE LATERAL

MUNICIPALITY OF
GERMANT[illegible]N

SERVICE RISER AND SERVICE LATERAL

REVISIONS:

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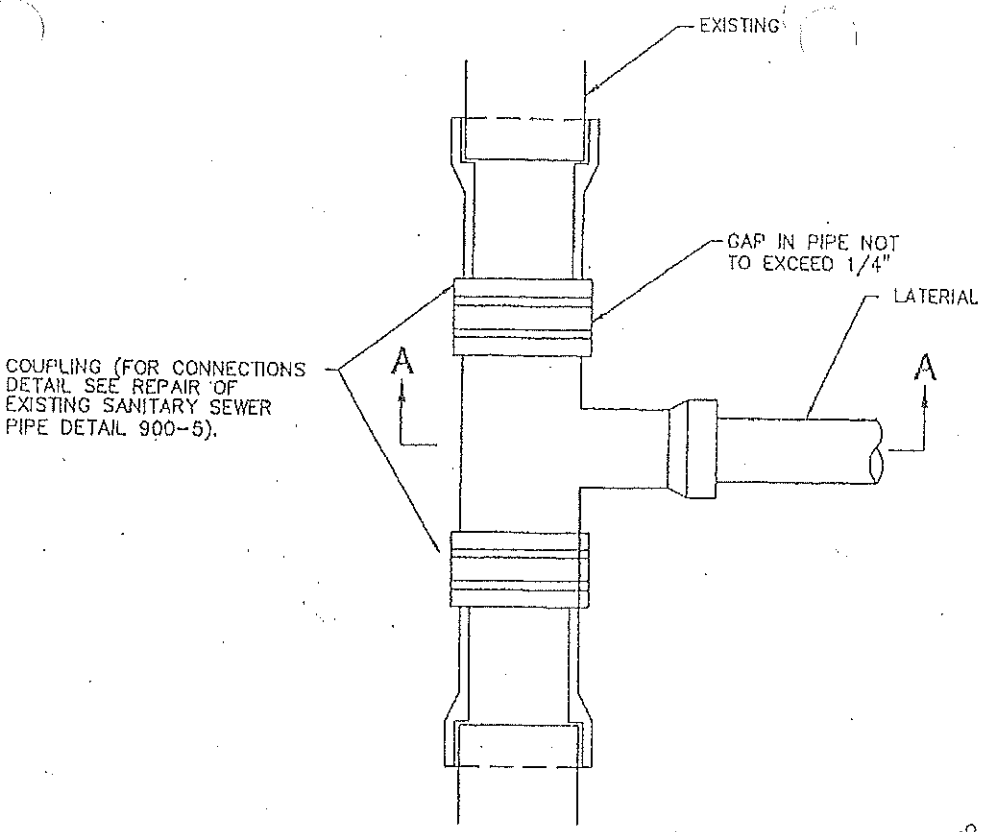
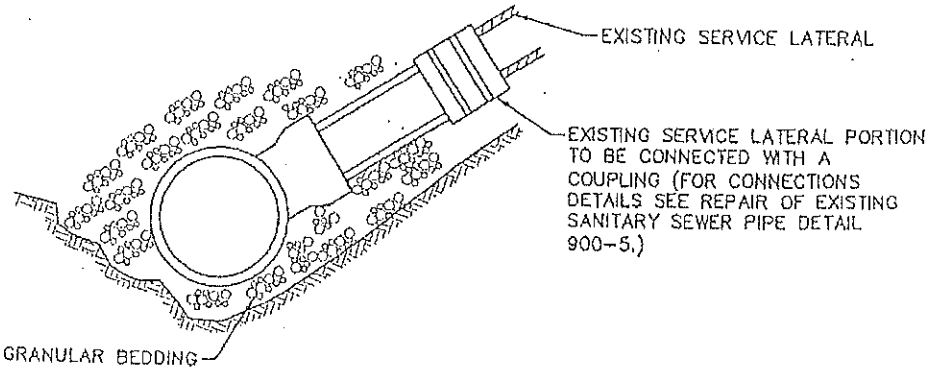


SERVICE LATERAL



SECTION A-A

CONNECTION DETAIL

NOTES

A TEE MAY BE CUT IN ONLY IF AN EXISTING LATERAL IS NOT PROVIDED. THIS METHOD IS PREFERRED OVER A SADDLE TYPE CONNECTION.

MUNICIPALITY OF GERMANTOWN	SANITARY SEWER CONNECTION DETAILS	REVISIONS:	DATE APPROVED: FEB. 1999
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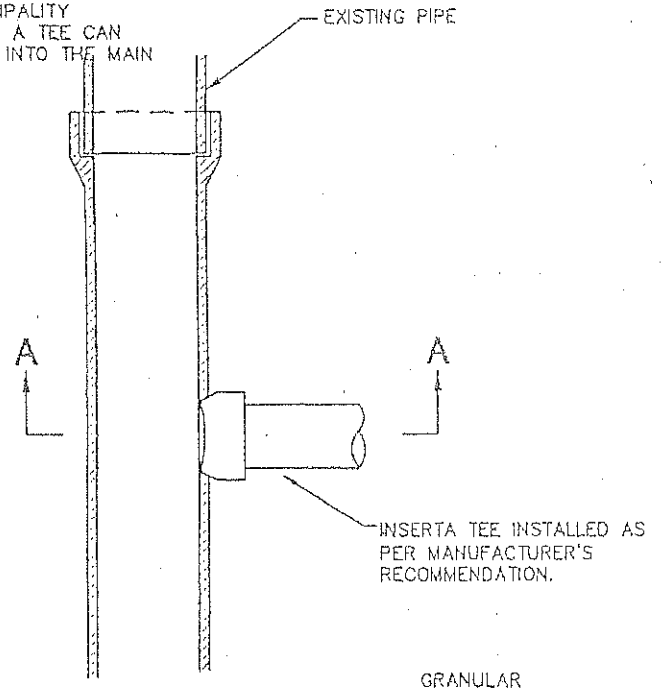
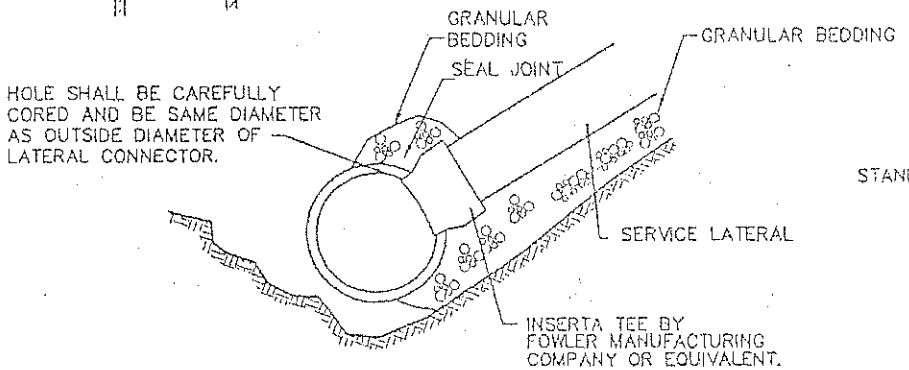
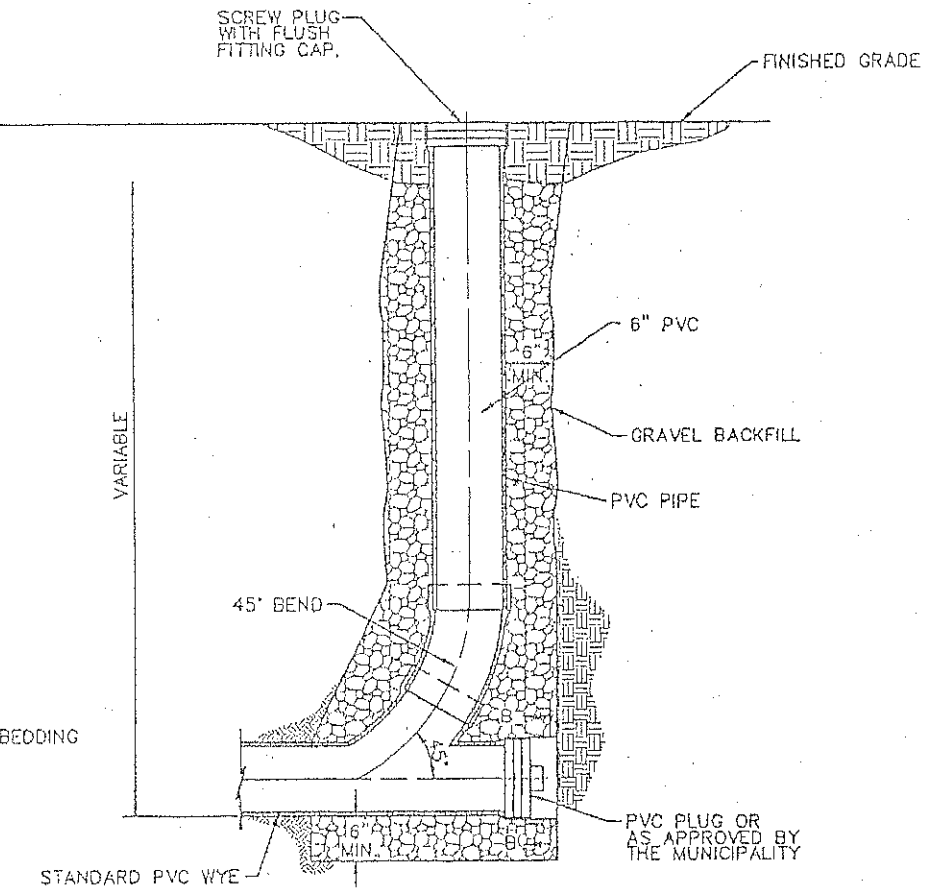
SADDLE TYPE CONNECTION MAY BE USED ONLY WITH PRIOR MUNICIPALITY APPROVAL IF A TEE CAN NOT BE CUT INTO THE MAIN LINE.





SECTION A-A

OTHER SADDLE TYPES THAT MAY BE APPROVED ON CASE-BY-CASE BASIS DEPENDING ON SITUATIONS ARE ROMAC STYLE "CB" SEWER SADDLE AND DFW/HPI FLEXIBLE SADDLE.



CLEANOUT DETAIL

MUNICIPALITY OF GERMANTOWN

SANITARY SEWER CLEANOUT AND SADDLE DETAILS

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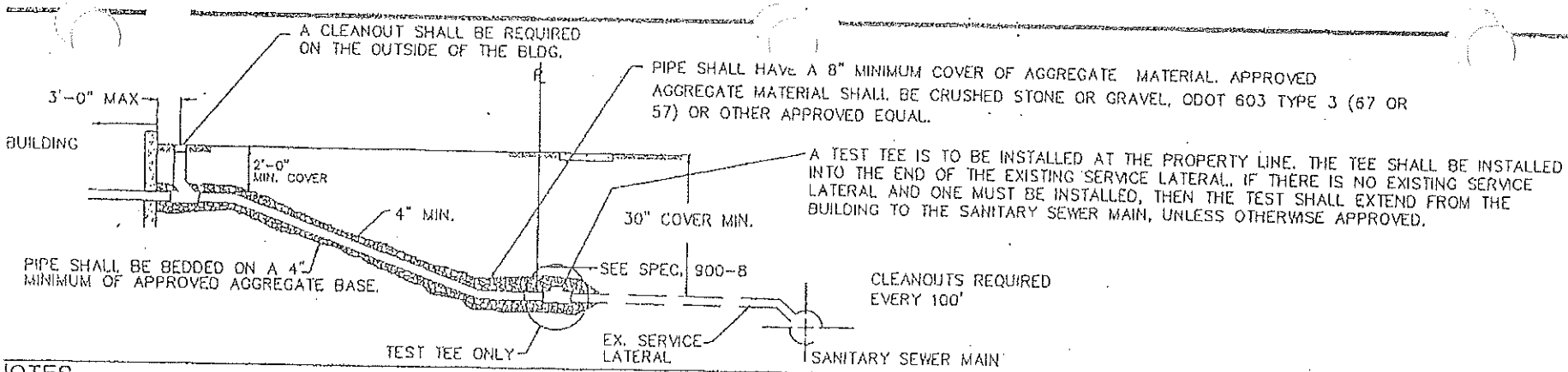

NOTES

. SEPTIC TANKS, WHEN ABANDONED, SHALL BE EWATERED AND PROPERLY FILLED WITH GRANULAR IATERIAL WITH ALL TILES BEING PLUGGED WITH ONCRETE.

. ROOF DOWNSPOUTS, EXTERIOR FOUNDATION DRAINS, REAWAY DRAINS OR OTHER SURFACE RUNOFF OR ROUNDWATER SHALL NOT BE CONNECTED TO THE ANITARY SEWER MAIN. ALSO SEE MISC. NOTE B.

. ANY INDIVIDUAL OR FIRM INSTALLING SEWER ONNECTIONS SHALL BE LICENSED BY THE MUNICIPALITY.

. BEFORE BEGINNING WORK, A SEWER TAP PERMIT UST BE OBTAINED.

. WHEN THE BUILDING CONNECTION MUST ENTER INTO PAVED PORTION OF THE STREET OR ALLEY, OTIFICATION MUST BE GIVEN TO THE MUNICIPALITY EFORE BEGINNING WORK.

. WATER SERVICES SHALL BE A MINIMUM OF 10' EASURED HORIZONTALLY FROM THE SEWER SERVICE AND HALL BE A MINIMUM OF 18" VERTICAL SEPARATION HERE THE WATER SERVICE CROSSES THE SEWER MAIN.

IPE

. THE PIPE MATERIAL SHALL BE PVC SDR 35, CHEDULE 40, UTILIZING PURPLE PRIMER, OR AN PPROVED EQUIVALENT.

. PIPE SIZES FOR BUILDING CONNECTIONS SHALL BE 4" INIMUM FOR SINGLE RESIDENCE AND 6" MINIMUM FOR LL OTHER USES. THE LATERALS SHALL BE RAN TO ITHIN 3' OF THE OUTSIDE OF THE BUILDING.

INSPECTION

A. A TAP INSPECTION SHALL BE REQUIRED ON ALL NEW BUILDING CONNECTIONS AND ALSO ON THE REPLACEMENT OF EXISTING BUILDING CONNECTIONS.
B. WHEN THE BUILDING SEWER IS READY FOR INSPECTION, THE MUNICIPALITY SHALL BE GIVEN 24 HOURS ADVANCE NOTICE. THE PIPE SHALL BE LEFT UNCOVERED UNTIL AN INSPECTION HAS BEEN MADE AND APPROVED.
C. ANY NEW BUILDING CONNECTION INSTALLED WITHOUT AN INSPECTION SHALL RESULT IN NO ISSUANCE OF A WATER METER FOR THE BUILDING. IF THIS OCCURS, THE ENTIRE LATERAL SHALL BE UNCOVERED SO THAT A PROPER INSPECTION CAN BE MADE.
D. NO TAP FEE IS REQUIRED IF AN OLD BUILDING SEWER IS TO BE REUSED. AN INSPECTION WILL BE REQUIRED. THE PUBLIC UTILITY DEPT. SHALL INSPECT THE ENTIRE BUILDING CONNECTION FROM THE CLEANOUT TO THE PROPERTY LINE CONNECTION OR TO THE MAIN SEWER, WHICHEVER IS APPLICABLE.
E. WHEN A SADDLE IS TO BE INSTALLED, THE INSPECTOR SHALL BE PRESENT WHILE THE SANITARY SEWER MAIN IS BEING CUT INTO. A SADDLE MAY BE USED WHERE A TEE OR WYE IS NOT PRESENT FOR LATERAL CONNECTION AND WHERE FLOW IS TO GREAT TO ALLOW THE MAIN TO BE CUT. ALWAYS COMPLETELY ENCASE CONNECTIONS AT ANY DEPTH 12' AND OVER AS APPROVED BY THE MUNICIPALITY.

TESTING

A. THE OUTSIDE PLUMBER SHALL BE RESPONSIBLE FOR THE TESTING FROM THE CONNECTION TO THE EXISTING SERVICE LATERAL TO THE CLEANOUT.
B. ALL NEW BUILDING CONNECTIONS SHALL BE BY AIR WITH 4 PSI PRESSURE.
C. THE SEWER TEST SHALL BE FROM THE CLEANOUT TO THE PROPERTY LINE CONNECTION OR TO THE MAIN SEWER, WHICHEVER IS APPLICABLE.
D. WHEN A SUBSTANTIAL AMOUNT OF AN EXISTING LATERAL IS REPLACED, THE NEW PORTION OF THE LATERAL SHALL REQUIRE A TEST UNLESS OTHERWISE APPROVED.

MISC.

A. STREET EXCAVATION REQUIRES A STREET OPENING PERMIT.
B. BASEMENTS MUST HAVE A FLOOR DRAIN AND BE CONNECTED TO THE STORM SEWER (SUMP PUMP).

PIPE LAYING

A. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED OR OTHERWISE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE MUNICIPALITY BEFORE LEAVING THE WORK SITE FOR THE NIGHT.
B. THE JOINING OF PIPE WITH CONCRETE SHALL NOT BE ACCEPTED.
C. BEFORE MAKING A CONNECTION TO AN EXISTING SEWER OR SERVICE LATERAL, THE CONTRACTOR SHALL CHECK THE EXISTING PIPE BY UTILIZING A SEWER EEL, STRAP, OR SEWER ROD TO SEE THAT THE EXISTING PIPE IS CONNECTED TO THE SANITARY SEWER MAIN.
D. IN THE CASE WHERE A 90° CORNER IS REQUIRED IN THE BUILDING CONNECTION LINE, 2 45° BENDS SHALL BE USED IN LIEU OF A 90° BEND.
E. THE BUILDING CONNECTION LINE SHALL BE LAID IN AS STRAIGHT A LINE, FROM THE BUILDING TO THE EXISTING LATERAL, AS POSSIBLE.
F. ANY TWO-FAMILY RESIDENCE THAT HAS AN EXISTING 4" LATERAL AVAILABLE TO THE LOT SHALL BE REQUIRED TO SEPARATE THE 4" COMMON LATERAL INTO INDIVIDUAL LATERALS, WITH CLEANOUTS, ON THE OUTSIDE OF THE BUILDING UNLESS OTHERWISE APPROVED.
G. ALL NEW CONSTRUCTION SHALL HAVE SANITARY LATERALS INSTALLED.

MUNICIPALITY OF GERMANTOWN

BUILDING CONNECTION DETAIL

REVISIONS:

DATE APPROVED: FEB. 1999

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LOW PRESSURE AIR TEST

A. AFTER BACKFILLING, THE AIR TEST SHALL BE CONDUCTED BETWEEN TWO CONSECUTIVE MANHOLES. ALL PIPE OUTLETS MUST BE PLUGGED IN THE SECTION BEING TESTED WITH SUITABLE TEST PLUGS. ONE OF THE PLUGS USED AT A MANHOLE MUST BE TAPPED AND EQUIPPED FOR AN AIR INLET CONNECTION FOR FILLING THE LINE FROM THE AIR COMPRESSOR. AIR SHALL BE SUPPLIED SLOWLY TO THE TEST SECTION UNTIL THE INTERNAL PRESSURE REACHES APPROXIMATELY 4 PSI. IF THE PIPE IS BELOW EXISTING GROUNDWATER LEVEL, THE INTERNAL PRESSURE SHALL BE INCREASED BY THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE, BUT IN NO CASE SHOULD THE INTERNAL PRESSURE EVER EXCEED 5 PSI.

B. AT LEAST 2 MINUTES SHALL BE ALLOWED FOR THE AIR PRESSURE TO STABILIZE. WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE 3.5 PSI, THE AIR SUPPLY SHALL BE DISCONNECTED AND TIMING SHALL BEGIN WITH A STOP WATCH. THE STOP WATCH SHALL BE ALLOWED TO RUN UNTIL THE PRESSURE HAS DROPPED 1.0 PSI. IF THE TIME SHOWN ON THE STOP WATCH IS GREATER THAN THE SPECIFIED MINIMUM TIME, THE SECTION SHALL BE CONSIDERED TO HAVE PASSED THE TEST. TIME MAY BE INTERPOLATED FROM THE FIGURES LISTED BELOW.

PIPE DIA. (IN.)	100 FT.	150 FT.	200 FT.	250 FT.	300 FT.
4	1:53	1:53	1:53	1:53	1:53
6	2:50	2:50	2:50	2:50	2:50
8	3:47	3:47	3:47	3:47	3:48
10	4:43	4:43	4:43	4:57	5:56
12	5:40	5:40	5:42	7:08	8:33
15	7:05	7:05	8:54	11:08	13:21
18	8:30	9:37	12:49	16:01	19:41
21	9:55	13:05	17:27	21:49	26:11
24	11:24	17:57	22:48	28:30	34:11

SPECIFICATION TIME FOR LENGTH (L) SHOWN (MIN:SEC)

DEFLECTION TEST

A. DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE OTHER THAN SERVICE LATERALS. 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%. IF DEFLECTION EXCEEDS 5%, REPLACEMENT OR CORRECTION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE REQUIREMENTS OF APPROVING AGENCY.

C. THE RIGID BALL OR MANDREL USED FOR THE DEFLECTION TEST SHALL HAVE A DIAMETER NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE DEPENDING ON WHICH IS MANUFACTURED. THE PIPE SHALL BE MEASURED IN COMPLIANCE WITH ASTM D-2122 STANDARD TEST METHOD OF DETERMINING DIMENSIONS OF THERMOPLASTIC PIPE AND FITTINGS. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.

ALL SANITARY SEWER TESTING IS THE RESPONSIBILITY OF THE CONTRACTOR.

MANHOLE VACUUM TEST

ALL SANITARY SEWER MANHOLES SHALL BE VACUUM TESTED USING THE FOLLOWING PROCEDURES FROM ASTM C-1244.

A. PREPARATION OF THE MANHOLE

1. ALL LIFT HOLES SHALL BE PLUGGED.
2. ALL PIPES ENTERING THE MANHOLE SHALL BE TEMPORARILY PLUGGED TAKING CARE TO SECURELY BRACE THE PIPES AND PLUGS TO PREVENT THEM FROM BEING DRAWN INTO THE MANHOLE.

B. PROCEDURE

1. THE FIRST HEAD SHALL BE PLACED AT THE TOP OF THE MANHOLE IN THE CASTING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. A VACUUM OF 10" OF MERCURY (4.9 PSI) SHALL BE DRAWN ON THE MANHOLE, THE VALVE ON THE VACUUM LINE OF THE TEST HEAD CLOSED, AND THE VACUUM PUMP SHUT OFF. THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9" OF MERCURY (4.4 PSI).

3. THE MANHOLE SHALL PASS IF THE TIME FOR THE VACUUM READING TO DROP FROM 10" OF MERCURY (4.9 PSI) TO 9" OF MERCURY (4.4 PSI) MEETS OR EXCEEDS THE VALUES INDICATED ON THE TABLE.

4. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE BY AN APPROVED METHOD. THE MANHOLE SHALL THEN BE RETESTED UNTIL A SATISFACTORY TEST IS OBTAINED.

	DIAMETER, INCHES		
DEPTH (FT.)	48	60	72
	TIME, SECONDS		
8 OR LESS	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

MINIMUM TEST TIMES FOR VARIOUS MANHOLE DIAMETERS

MUNICIPALITY OF GERMANTOWN

SANITARY SEWER TESTING NOTES

REVISIONS: DATE

APPR FEB.

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NOTES

A. NO WORK SHALL BE APPROVED OR ACCEPTED BY THE MUNICIPALITY UNLESS 2 WORKING DAY'S NOTICE OF COMMENCING WORK IS GIVEN TO THE MUNICIPALITY.

B. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE MUNICIPALITY.

C. ROOF DRAINS, FOUNDATION DRAINS, SUMP PUMPS, AND OTHER CLEAR WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

D. WHEN SEWER CONSTRUCTION BEGINS, THE SEWER AT THE EXISTING MANHOLE, IF SMALLER OR EQUAL TO 12", SHALL BE PLUGGED BY HAVING A POLYETHYLENE BAG PLACED INTO THE SEWER PIPE APPROXIMATELY 6" AND THEN POUR CONCRETE INTO AND AROUND THE SEWER PIPE AS DIRECTED BY THE MUNICIPALITY. SIZES LARGER THAN 12" WILL BE PLUGGED BY OTHER APPROVED METHODS. NO PLUGS SHALL BE REMOVED UNTIL CONSTRUCTION IS COMPLETED AND THEN ONLY AS DIRECTED BY THE MUNICIPALITY.

E. RECONSTRUCTION OF SANITARY SEWERS SHALL INCLUDE THE MUNICIPALITY DYE TESTING AS DETERMINED BY THE MUNICIPALITY OF ALL PIPES TO BE CONNECTED TO THE NEW SEWER PRIOR TO BACKFILLING. TO DETERMINED IF ALL EXISTING SERVICES ARE CONNECTED AND ALL STORM WATER CONNECTIONS ARE ELIMINATED.

F. WHEN A CASTING OR OTHER PUBLIC PROPERTY IS ABANDONED IT REMAINS MUNICIPALITY PROPERTY.

G. NEW SEWERS MUST HAVE EPA PLAN APPROVAL.

EXCAVATION AND PIPE LAYING

A. THE LAYING OF THE PIPE SHALL COMMENCE AT THE LOWEST POINT, WITH THE BELL END LAID UPGRADE. THE PIPE SHALL BE CENTERED IN THE TRENCH AND ALL PIPE SHALL BE LAID WITH ENDS ABUTTING AND TRUE TO LINE AND GRADE.

B. LASER SHALL BE USED UNLESS OTHERWISE APPROVED.

UTILITY STAKING

A. LASER METHOD – OFFSET AND GRADE AT EACH MANHOLE, OFFSET AND GRADE 50' AND 100' OUT FROM EACH MANHOLE UNLESS OTHERWISE APPROVED.

TESTING

A. BEFORE ANY SEWER LINE IS PLACED INTO SERVICE OR ACCEPTED BY THE MUNICIPALITY, IT SHALL BE SUBJECTED TO AND PASS LOW PRESSURE AIR TEST. EACH RUN BETWEEN MANHOLES, WITH ALL SERVICE LATERALS STUBBED INTO PROPERTY LINES, SHALL BE TESTED BEFORE BEING ACCEPTED. THE CONTRACTOR OR DEVELOPER SHALL FURNISH ALL EQUIPMENT AND MATERIAL NECESSARY TO CONDUCT ALL SANITARY SEWER TESTING. THE TRENCH SHALL BE COMPLETELY BACKFILLED BEFORE TESTING.

B. SEE SANITARY TESTING NOTES.

C. BEFORE FINAL ACCEPTANCE BY THE MUNICIPALITY AND BEFORE ANY SERVICE LINE IS PUT INTO USE, ALL SANITARY SEWERS AND MANHOLES SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATTER BY USE OF A SEWER-JET, OR EQUAL, TYPE OF EQUIPMENT.

HOUSE CONNECTIONS

A. NO SERVICE LINE SHALL BE ALLOWED TO CONNECT DIRECTLY INTO A MANHOLE, SUBJECT TO APPROVAL BY THE MUNICIPALITY IN SPECIFIC CASES.

B. THE ENDS OF ALL SERVICE LINES OR TEES SHALL BE ACCURATELY STAKED, LOCATED, MAPPED, AND GIVEN TO THE MUNICIPALITY WITHIN 15 DAYS AFTER INSTALLATION.

C. BEFORE MAKING A CONNECTION TO AN EXISTING SEWER TAP OR SEWER LATERAL, THE CONTRACTOR SHALL CHECK THE EXISTING PIPE BY UTILIZING A SEWER EEL, STRAP, OR SEWER ROD TO SEE THAT THE EXISTING PIPE IS CONNECTED TO THE MAIN SEWER. IF NECESSARY, THE MUNICIPALITY WILL PROVIDE, AT THE CONTRACTOR'S EXPENSE, A HYDRAULIC SEWER CLEANER WHICH WILL PRODUCE LARGE VOLUMES OF WATER TO CHECK THE LATERAL.

D. LATERALS FROM THE MAIN TO THE PROPERTY LINE SHALL BE 4" MINIMUM WITH CLEANOUT AT THE PROPERTY LINE.

E. A PERMIT TO OPEN INTO, ALTER, OR DISTURB ANY PUBLIC SEWER MUST BE OBTAINED.

F. ALL ABANDONED SEWER LATERALS SHALL BE CAPPED AT THE OWNER'S EXPENSE. AN INSPECTION SHALL BE MADE AND THE CAPS STAKED.

PIPE

A. ALL PIPE AND SPECIALS SHALL BE PVC SDR-35 UNLESS OTHERWISE APPROVED BY THE MUNICIPALITY. MINIMUM DIAMETER OF PIPE SHALL BE 8".

B. DUCTILE IRON PIPE WILL BE USED IN STREAM CROSSINGS AND WHERE MINIMUM SEPARATION CAN NOT BE MAINTAINED.

C. ALL JOINTS SHALL BE OF THE BELL AND SPIGOT TYPE, THE BELLS BEING FORMED INTEGRALLY WITH THE PIPE. THE BELL SHALL CONTAIN A FACTORY INSTALLED ELASTOMETRIC GASKET WHICH IS POSITIVELY RETAINED. NO SOLVENT CEMENT JOINTS WILL BE PERMITTED IN FIELD CONSTRUCTION EXCEPT AS SPECIFICALLY AUTHORIZED BY THE MUNICIPALITY.

FLEXIBLE PIPES	MATERIAL SPECIFICATIONS	JOINT SPECIFICATIONS
POLYVINYL CHLORIDE	ASTM D-3034 (SDR-35) PIPE STIFFNESS = 46PSI	ELASTOMERIC GASKET ASTM D-3212
DUCTILE IRON	ANSI A-21.51 & AWWA C-151	ANSI A-21.11 & AWWA C-111

1. SDR = OUTSIDE DIAMETER DIVIDED BY WALL THICKNESS.

2. THE SPECIFICATIONS ABOVE SHALL BE THOSE MOST RECENTLY ADOPTED BY THE APPROPRIATE STANDARDS SETTING ORGANIZATIONS.

MUNICIPALITY OF GERMANTOWN

MISCELLANEOUS SANITARY SEWER NOTES

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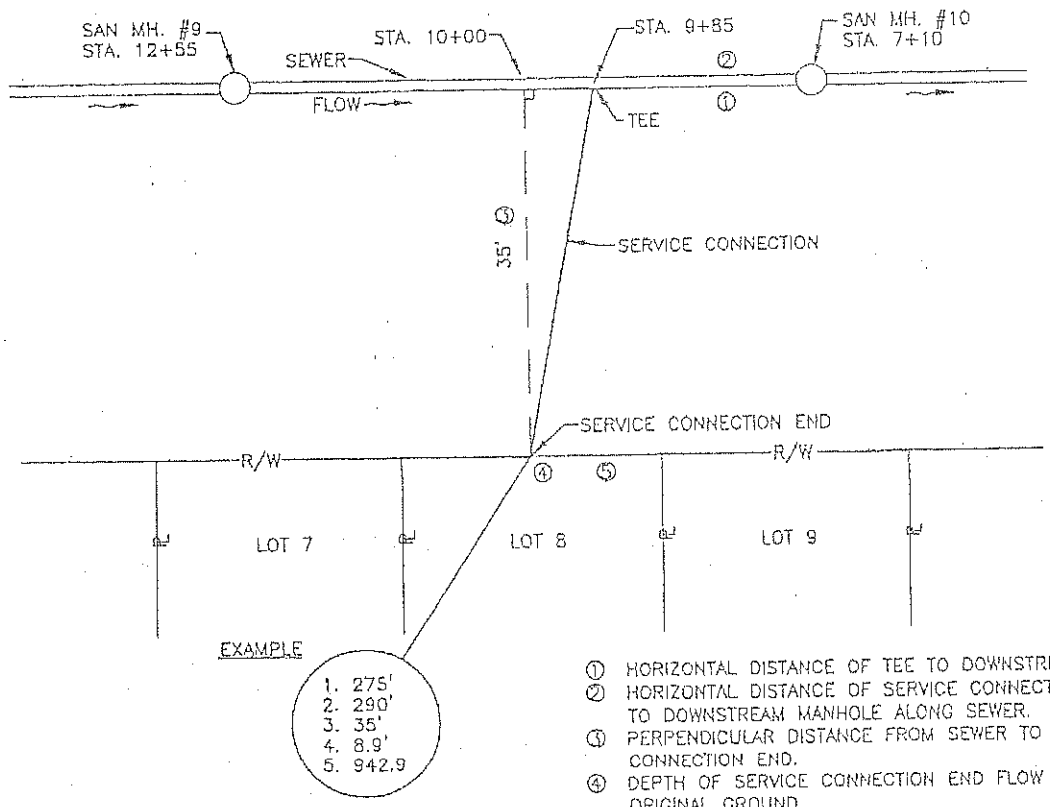

① HORIZONTAL DISTANCE OF TEE TO DOWNSTREAM MANHOLE.
② HORIZONTAL DISTANCE OF SERVICE CONNECTION END TO DOWNSTREAM MANHOLE ALONG SEWER.
③ PERPENDICULAR DISTANCE FROM SEWER TO SERVICE CONNECTION END.
④ DEPTH OF SERVICE CONNECTION END FLOW LINE TO ORIGINAL GROUND.
⑤ ELEVATION OF SERVICE CONNECTION END FLOW LINE.

MUNICIPALITY OF GERMANTOWN

SERVICE CONNECTION LOCATION REFERENCE

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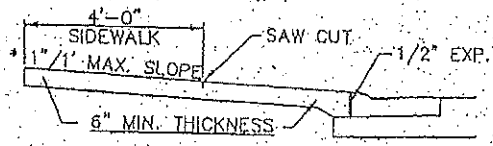
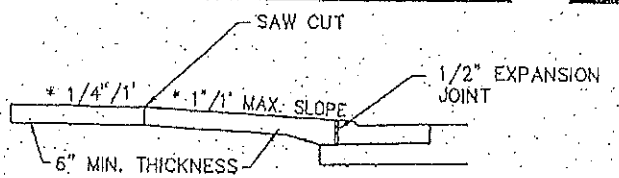
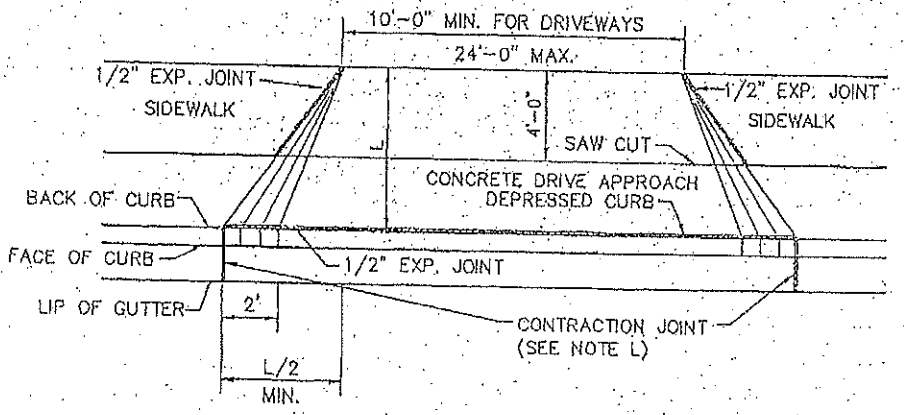
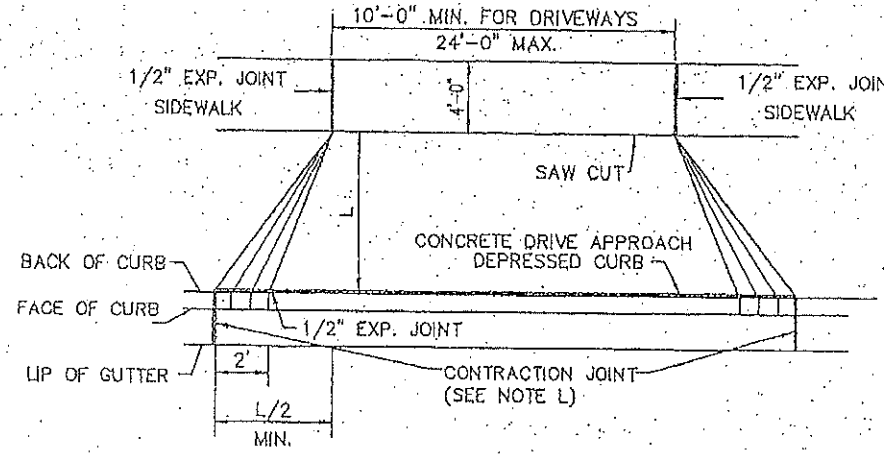


* TYPE 2 AND 6 CURB ONLY





FOR CURB LAWNS OF LESS THAN 6'-0"



FOR CURB LAWNS OF 6'-0" OR MORE

NOTES

A. DRIVE APPROACHES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 452 AND 499 CAST-IN-PLACE CONCRETE.

B. DRIVE APPROACHES SHALL NOT BE POURED MONOLITHICLY WITH CURB.

C. MAXIMUM JOINT SPACING SHALL BE 10' LONGITUDINALLY, TRANSVERSELY AND AT TAPERS.

D. EXPANSION MATERIAL SHALL BE 1/2" PREMOLDED.

E. 3" OF GRAVEL SHALL BE PLACED UNDER DRIVE APPROACHES IF DETERMINED NECESSARY BY THE MUNICIPALITY.

F. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.

G. WHERE CURB AND GUTTER HAS NOT BEEN PROPERLY DROPPED AT DRIVE APPROACHES, THE CURB SHALL BE ENTIRELY REMOVED AND REPLACED BY THE CONTRACTOR OR OWNER AS DIRECTED BY THE MUNICIPALITY.

H. JOINTS SHALL BE CLEANED AND EDGED BY A 1/4" RADIUS EDGER. LONGITUDINAL JOINTS SHALL BE AS DIRECTED BY THE MUNICIPALITY. EXPANSION JOINTS SHALL BE OF SUCH DIMENSIONS AS SHOWN ON STANDARD DRAWINGS FOR CONSTRUCTION JOINTS.

I. WHERE ASPHALTIC CONCRETE PAVEMENT IS DISTURBED, THE ASPHALT SHALL BE REPLACED AS DIRECTED BY THE MUNICIPALITY.

J. CONCRETE SHALL BE ODOT CLASS C (4000 PSI, 600 LB/CY) CEMENT. PROPORTIONING OPTIONS 1 AND 2 NOT ALLOWED.

K. CONCRETE SHALL CONTAIN 6% ± 1% OF TOTAL AIR.

L. IF CURB IS REMOVED AND REPLACED DURING DRIVEWAY CONSTRUCTION, JOINTS BETWEEN EXISTING AND NEW CURB ARE TO BE 1/2" EXPANSION JOINTS.

MUNICIPALITY OF GERMANTOWN

RESIDENTIAL DRIVE APPROACH

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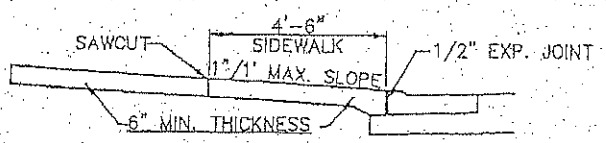
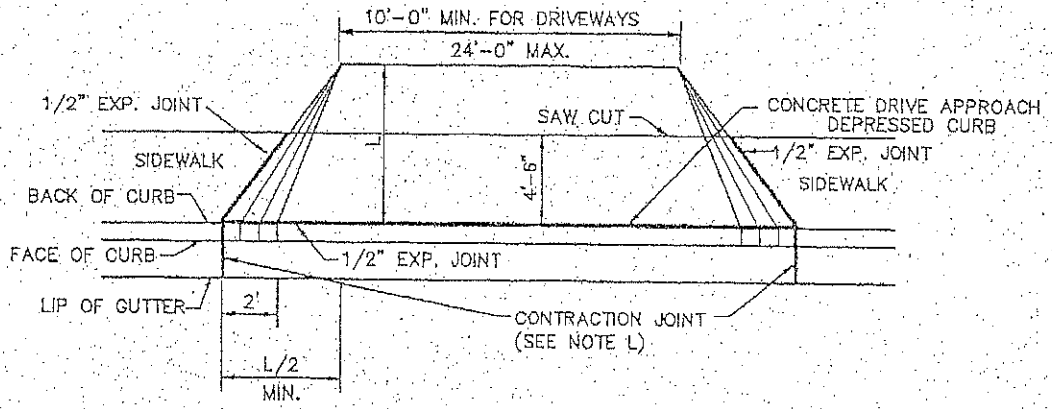
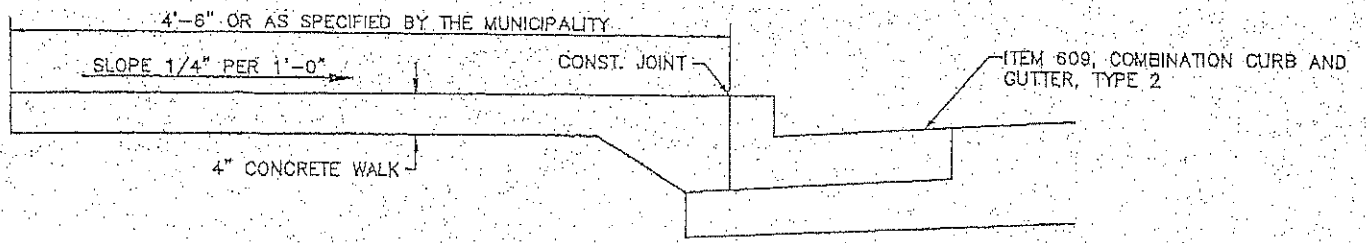




DRIVE APRON WITH NO CURB LAWN

FOR DRIVEWAY NOTES SEE PAGE 300-6



CONCRETE SIDEWALK ABUTTING TYPE 2 CURB DETAIL

MUNICIPALITY OF GERMANTOWN

RESIDENTIAL DRIVE APPROACH AND CONCRETE SIDEWALK DETAIL WI NO CURB LAWN

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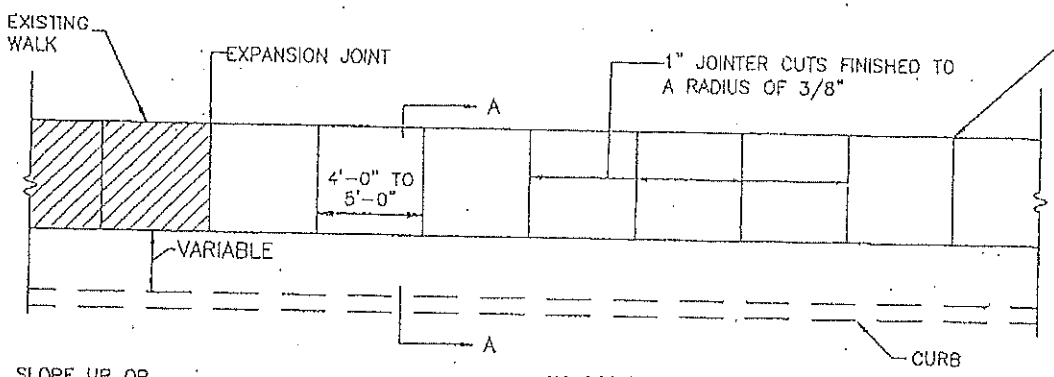
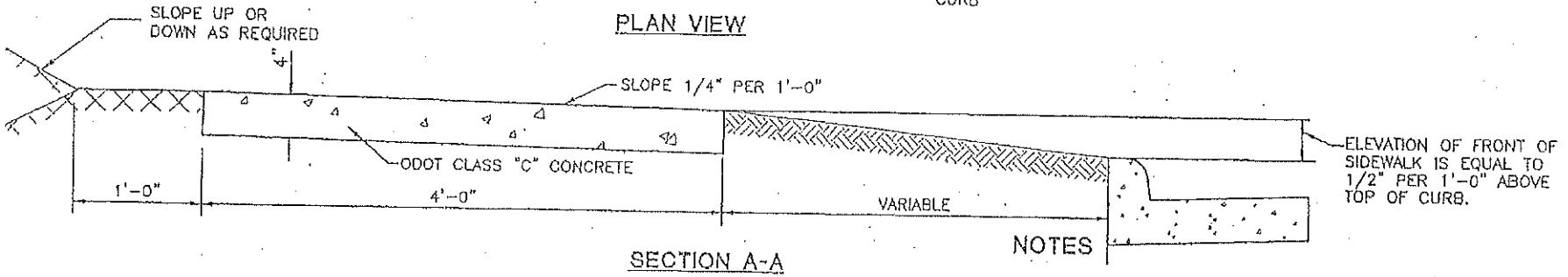
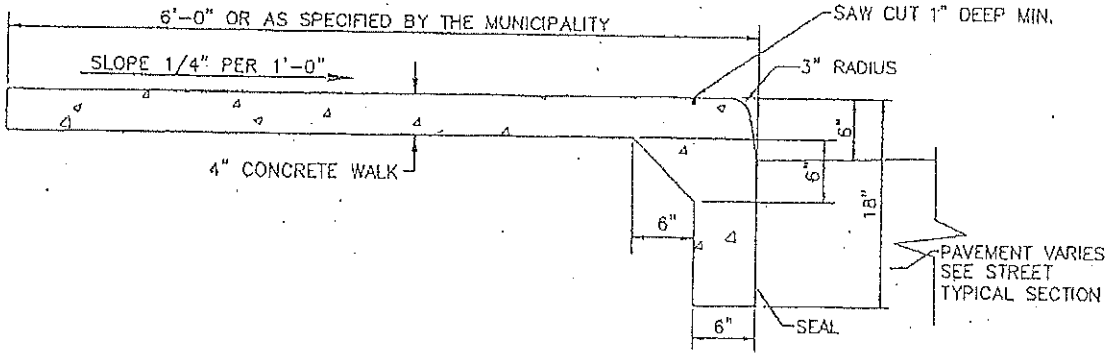


PLAN VIEW



SECTION A-A



COMBINED CURB AND SIDEWALK DETAIL

NOTES

A. WALK TO BE POURED ON UNDISTURBED EARTH OR COMPACTED GRANULAR BEDDING.

B. PROVIDE BROOM FINISH TO ALL EXPOSED SURFACES.

C. CONCRETE SHALL CONFORM TO ODOT ITEM 499 CONCRETE. CONCRETE WORK SHALL CONFORM TO ODOT ITEM 608, UNLESS OTHERWISE SPECIFIED WITHIN.

D. PROVIDE EDGING AROUND ALL EXPOSED SURFACES.

E. USE WHITE PIGMENTED CURING COMPOUND IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER METHOD OR TYPE OF CURING COMPOUND MUST BE PREAPPROVED.

F. WHEN RENOVATING EXISTING STREETS, THE SIDEWALKS SHALL BE REPLACED TO CONFORM WITH THE MUNICIPALITY CONSTRUCTION STANDARDS AND DRAWINGS.

G. CONCRETE SHALL BE ODOT CLASS C (4000 PSI, 600LB/CY CEMENT) PROPORTIONING OPTIONS 1 AND 2 NOT ALLOWED.

H. CONCRETE SHALL CONTAIN 6% ± 1% OF TOTAL AIR.

MUNICIPALITY OF GERMANTOWN

CONCRETE SIDEWALK DETAIL

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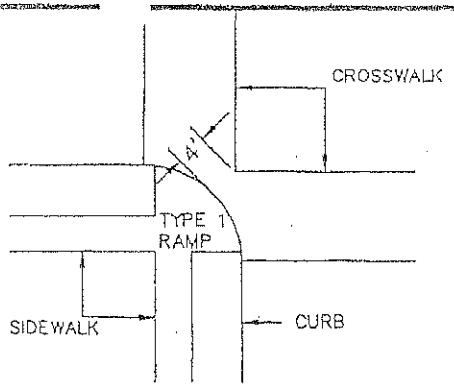
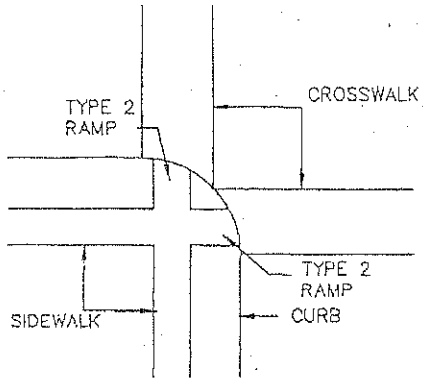


RAMP CONFIGURATION A



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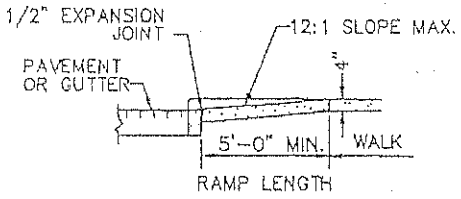

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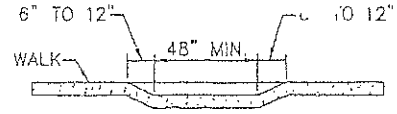

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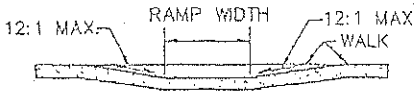
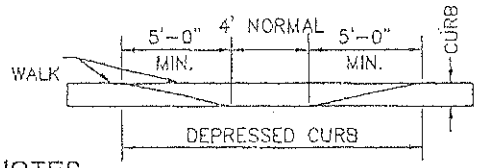


SECTION C-C



VIEW B-B

NOTES

A. ~~MUNICIPALITY TO SPECIFY TYPE 1 OR~~ TYPE 2 CURB RAMP.

B. ANY COMBINATION OF SIDE SLOPES ON OPPOSITE SIDES OF A RAMP MAY BE USED TO BEST FIT THE SITE CONDITIONS.

C. THE MINIMUM RAMP LENGTH IS 5' FROM BACK OF A 6" CURB AND MAY BE INCREASED WHERE FEASIBLE TO OBTAIN A FLATTER RAMP SLOPE OR TO BETTER BLEND WITH THE WALK CONFIGURATION.

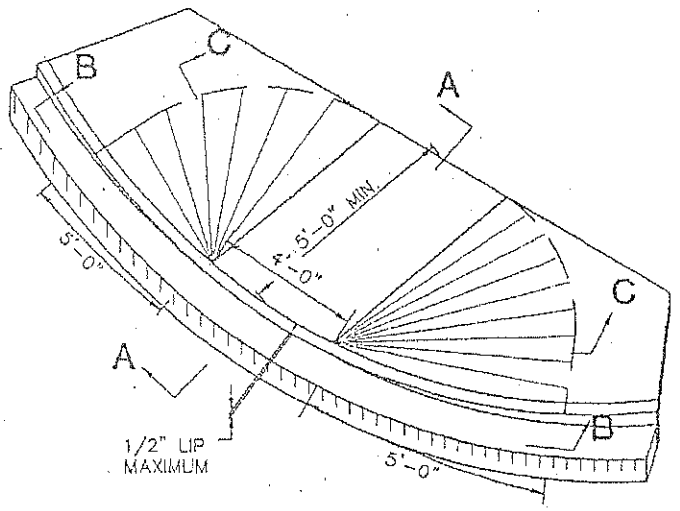
D. WALK THICKNESS IN THE RAMP SLOPES SHALL BE 4" MINIMUM OR THICKER AS NECESSARY TO MATCH ADJACENT WALK THICKNESS.

E. CURB RAMPS SHALL MEET AND BE FINISHED TO A.D.A. STANDARDS.

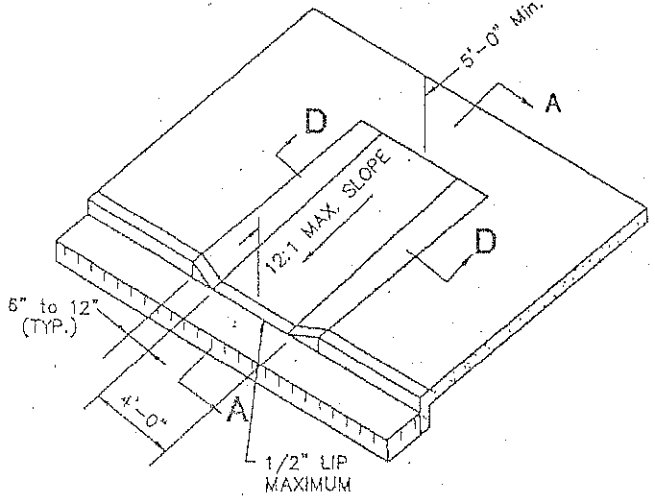
F. CURB RAMPS SHALL MEET THE REQUIREMENTS OF ODOT ITEM 608 UNLESS OTHERWISE SPECIFIED WITHIN.

G. CONCRETE SHALL BE ODOT CLASS C (4000 PSI, 600 LB/CY CEMENT). PROPORTIONING OPTIONS 1 AND 2 NOT ALLOWED.

H. CONCRETE SHALL CONTAIN 6% ± 1% OF TOTAL AIR.



TYPE 1 RAMP DETAIL



TYPE 2 RAMP DETAIL

MUNICIPALITY OF GERMANTOWN

CURB RAMPS

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