

CITY OF TOLEDO

DEPARTMENT OF PUBLIC UTILITIES

DIVISION OF ENGINEERING SERVICES

OCTOBER 2008

INFRASTRUCTURE DESIGN AND CONSTRUCTION REQUIREMENTS

ONE LAKE ERIE CENTER
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TOLEDO, OHIO 43604

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I. PURPOSE

This document presents design and construction requirements for roadway, storm drainage, sanitary sewers, and water distribution systems installed in the City of Toledo or connecting to City of Toledo storm drainage, sanitary sewer, or water distribution systems. The plan submittal requirements, plan review, and approval procedures are outlined. Building plans are officially logged in and submitted through the City's One Stop Shop at One Government Center, Suite 1600 (Phone: 419-245-1210). The site plan portion of these plans may be submitted directly to the Division of Engineering Services to expedite plan review. Subdivision plans or other plans not requiring a building permit are submitted directly to the Division of Engineering Services.

These requirements apply to all new residential land partitions and subdivisions, planned unit developments, multi-family developments (3 or more units), commercial developments, roads and streets, industrial developments, flood hazard zone development, and to the reconstruction or expansion of such developments.

Substantive changes from previous edition of this document are indicated in bold lettering.

II. GENERAL REQUIREMENTS

A. Definitions/Abbreviations

“Consulting Engineer” – Agent engaged by the developer/customer to undertake certain duties relating to plan and specification preparation of public improvements for subdivisions and private developments.

“Contractor” – Agent engaged by the developer/customer to undertake construction of subdivisions and private developments. The D/ES requires that the work be done by a contractor, licensed to work in the City, who, in the opinion of the Commissioner of the D/ES, has sufficient experience, competency, and capability to properly construct the public improvements. If requested by the Commissioner of the D/ES, the developer or consulting engineer shall furnish documentation that the contractor engaged to construct the public improvements is qualified to perform the work.

“Developer/Customer” – The person(s) who develop and/or construct the public improvements at their own expense under these standards.

“D/ES” – Division of Engineering Services

“D/W” – Division of Water Distribution

“Public Improvements” – Roadway, sidewalk, sanitary sewer, storm drainage facilities, water distribution facilities and their appurtenances owned by the City or whose ownership will be turned over to the City for maintenance purposes.

B. City of Toledo Address & Contacts

City of Toledo
Department of Public Utilities
Division of Engineering Services
One Lake Erie Center
600 Jefferson Ave., Suite 300
Toledo, Ohio 43604
419-245-1315 general office phone
419-936-2850 fax

General
Scott Sibley, Administrator, 419-936-2851, scott.sibley@toledo.oh.gov

Roadway
Steve Burnett, Engineering Associate, 419-245-1336, steven.burnett@toledo.oh.gov

Stormwater
Frank Mortali, Senior Professional Engineer, 419-936-2546, frank.mortali@toledo.oh.gov
Earl Boxell, Staff Professional Engineer, 419-936-2848, earl.boxell@toledo.oh.gov

Sanitary Sewer
Mike Elling, Senior Professional Engineer, 419-936-2276, michael.elling@toledo.oh.gov

Water Distribution

Andrea Kroma, Senior Professional Engineer, 419-936-2163, andrea.kroma@toledo.oh.gov

Construction Inspection
Tracy Martin, Senior Professional Engineer, 419-936-2847, tracy.martin@toledo.oh.gov

Records and Plans

Rich Sorgenfrei, Engineering Technician, 419-936-2846,
richard.sorgenfrei@toledo.oh.gov

- C. Plan Submittal and Approval. A minimum of two (2) weeks must be allowed for plan review. The review of the plans will be made in the order in which they are received. One set of review prints shall be submitted for each of the following areas:

- Pavement
- Storm Drainage
- Sanitary Sewer
- Water Distribution

These plan sets need only consist of the relevant sheets for each respective discipline (i.e. site/utility plans only).

Whenever a subdivision is divided into two (2) or more plats, a separate and complete set of plans for each plat shall be submitted.

Submittals shall be accompanied with a transmittal letter, which indicates the name and address of the developer and consulting engineer. All necessary design computations shall be submitted for checking. Plans or prints will be returned to the Consulting Engineer after review. Marked prints shall be returned with future submittals and with final tracings for approval signatures.

Final approvable prints shall be submitted incorporating review comments as follows:

- Pavement (4 sets)
- Storm Drainage (**6 sets**)
- Sanitary (4 sets)
- Water Subdivisions/Public Mains (4 sets)
- Water Large Services/Private Mains (6 sets)

Following final plan approval the drawings will be stamped, signed and dispersed as follows:

- One set to Engineering Services file
- Two sets to Inspection Section in Engineering Services or Sewers and Drainage.
- One set to Developer/Customer to be kept on the project site.
- Consultant to submit additional sets as required for their record files.

Additional Storm Drainage sets of plans are distributed as follows:

- One set to Environmental Services.
- One additional set to Applicant to be kept on project site.**

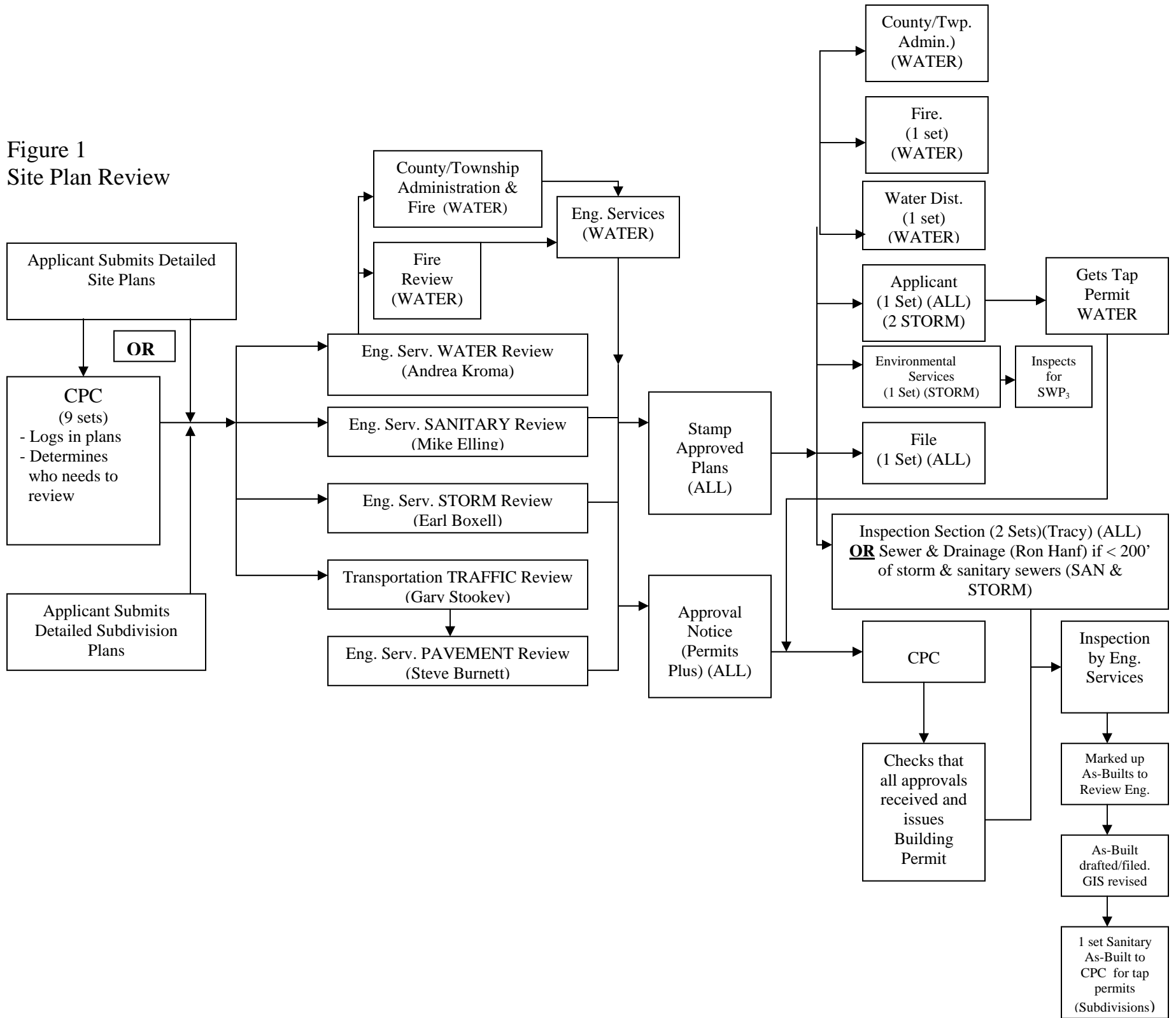
Additional Water Distribution sets of plans are distributed as follows:

- One set to Governing Fire Authority (fire lines only).**
- One set to D/W.
- One set to Governing Water Authority (outside City only, private mains only).**

Figure 1 shows the plan submittal and approval routing.

The City of Toledo reviews and approves water plans in all areas that receive City of Toledo water that are not master-metered. This includes portions of Lucas County, portions of the Northwestern Water & Sewer District in Wood County, Northwood, Rossford, and portions of Monroe County. It is the responsibility of the consultant/applicant to determine whether the project is located in an area that requires review and approval by the City of Toledo for water services.

Figure 1
Site Plan Review



- D. A signed mylar title sheet shall be submitted after final approval (subdivisions only).
- E. **AutoCAD files (Release 2004 or later) shall be provided to the City digitally (CD or DVD or e-mail) after plan approval is received. Projects shall be plotted in Cartesian coordinates and tied to at least two governmental survey monuments, with separate layers for each existing utility, and each proposed utility, at a minimum.**
- F. **Record Drawings. After construction, record "as-builts" shall be provided to the City, incorporating as-built conditions including City inspector notes. For improvements within the right of way, record drawings shall be provided on mylar and AutoCAD file as described in II.E above. Drawings shall be plotted directly onto mylar. Photographic copies of drawings onto mylar will not be accepted. Mylars shall be double mat 4 mil thick. Computer discs shall be virus free. Provide plot style settings and layering standards. The mylars and computer files shall become the property of the City of Toledo. For improvements on private property, paper copies of record drawings are acceptable.**
- G. Other controlling documents:
1. Subdivision Rules and Regulations, Toledo-Lucas County Plan Commission, 1983.
 2. Part A Standards, City of Toledo, Division of Engineering Services, Latest Edition.
 3. Construction Standards, City of Toledo, Division of Engineering Services, Latest Edition.
 4. Stormwater Management Standards Manual (SWMSM), TMACOG Stormwater Coalition, Latest Edition.
 5. Rules and Regulations, Department of Public Utilities, latest version (found in Toledo Municipal Code, Part Nine, Title Three, Appendix C).
 6. Great Lakes Upper Mississippi River Board – Recommended Standards for Water Works, Latest Edition (Ten States Standards).
 7. Great Lakes Upper Mississippi River Board – Recommended Standards for Sewer Works, Latest Edition (Ten States Standards).
 8. State of Ohio Department of Transportation Construction and Material Specifications, January 1, 2008.
- H. All requests for variations to the established policies and related requirements imposed by this Division shall be submitted in writing for consideration.

- I. PE Seal. Plans are required by Ohio Revised Code and City of Toledo Municipal Code to be sealed by a Professional Civil Engineer licensed by the State of Ohio. A Surveyor licensed by the State of Ohio must perform survey work. Any changes in the plans, made necessary by unforeseen field conditions, must be approved by the Commissioner of the D/ES, or his authorized representative.
- J. License Agreement. Required for plats, **for construction of public utilities in the right of way**, or special circumstances as determined by the review engineer. Robin Homer in Engineering Services handles plat License Agreements at 419-245-1348. No plat plans will be approved without all required plat information, agreements, and escrows being completed.
- K. Construction Inspection. Sites under 200 feet, combined, for both sanitary and storm are inspected by the Division of Sewer and Drainage Services under a Sewer Tap Permit obtained from the Division of Building Inspection, 16th Floor, One Government Center. All other work is inspected by D/ES. Additionally, all sites are inspected by Division of Environmental Services for pollution prevention.
- L. Sewer Plan Review and Inspection Permit. A Sewer Plan Review and Inspection permit is required if either the Sanitary or Storm piping is > 200-feet in length (not sewer tap permits) or as required by the review engineer. If so, both storm and sanitary piping lengths are combined to determine the fee. The developer or his agent is required to sign the permit application. Fees for inspection are to be paid before final approval of the plans will be granted (see Chapter V). Permit application and fees will be processed through the D/ES.
- M. Stormwater Credit. A Stormwater Credit application may be submitted with plans or after construction. However, credit will not be applied until construction has been completed.
- N. Approvals Valid. Approved plans are valid as follows, after which time newer standards may apply and resubmission of plans may be required:
 - Subdivisions 18 months
 - All other sites 60 days
- O. Work Schedule. A work schedule shall be provided to the City of Toledo inspection for projects expected to last longer than 5 months. Changes and updates shall be provided as needed.
- P. Approval to Commence. Construction of improvements, including any work which disturbs the site, shall not commence until all plans (paving, storm, sanitary, water) have been approved, building permit approval has been received from Building Inspection (where applicable), the necessary Permit fees have been paid or License Agreement signed, **large tap and inspection fees have been paid**, and Ohio Environmental Protection Agency (OEPA) approval of the plans (if required) has been obtained.
- Q. Traffic Maintenance. In the event construction of the project has an impact on traffic, a note shall appear regarding traffic maintenance. This note, and other traffic control

related provisions of the plans, shall be reviewed and approved by the Division of Transportation. If the Division of Transportation concurs, the following standard traffic maintenance note shall appear on the plan:

Traffic shall be maintained at all times during construction of this project. All barricades and signs shall be furnished and used by the Contractor in accordance with the "Ohio Manual of the Uniform Traffic Control Devices" and as supplemented by the "City of Toledo Manual for Uniform Traffic Control for Construction and Maintenance."

R. Pavement Replacement and Traffic Control

1. A detailed typical pavement replacement section shall be included on the plans when construction will necessitate removal and replacement of pavement within the public right-of-way.
2. For installation of any facility within an asphalt pavement area that results in the creation of a trench or pavement opening, the resulting pavement repair shall require as a minimum, the strip of pavement between the trench and closest curb to be removed by milling the pavement surface to a depth of 1 ½-inch - 2-inch and replacing same with asphaltic materials meeting City of Toledo standards.
3. All pavement replacement involving two or more lanes shall be by construction of a common and continuous transverse pavement butt joint. The creation of a checkerboard pavement repair pattern shall not be allowed.
4. For rigid concrete pavements, including drive approaches and sidewalks, similar pavement repair standards shall apply, with the exception that pavement removal and replacement shall be extended to the closest construction joint from the edge of trench. The salvaging of integral pavement curbs by sawing shall not be allowed.
5. Permission for open-cut construction on all streets shall be at the discretion of the D/ES in consultation with the Division of Transportation.
6. In cases where open-cut construction is permitted on streets, the Contractor shall be responsible for insuring that a traffic control plan suitable to the Division of Transportation is prepared and implemented.
7. On a day declared by the City of Toledo as an "Ozone Action Day", contractors are requested to suspend paving operations voluntarily

S. Easements

1. As a general rule, public sanitary sewers, storm sewers and water mains should be constructed in the public right-of-way and be located a minimum of ten feet from the right-of-way line.

2. In the event an easement is necessary, a minimum width of twenty (20) feet shall be required, centered on the pipeline for utilities or pipe less than 8 feet deep. For depths between 8 feet and 15 feet the required easement width shall be 25 feet. For depths beyond 15 feet, the easement shall be 2 times the depth of the utility up to 50 feet. Alignment other than centering may be permitted or required by D/ES. Easement(s) shall be recorded by the City of Toledo, Division of Real Estate. Developer shall contact Real Estate prior to approval of plans at 419-245-1409 (Jamie Miller). Recording costs shall be the developers.
3. The easement shall be dedicated to the City of Toledo, for City utility use only, to allow for future maintenance and shall not be combined with easements for other utilities. The following language, **and/or other such terms and conditions as determined to be appropriate or necessary by the Director of Law**, shall appear on the plat:

"The City of Toledo shall have a permanent easement, with rights of ingress and egress, over the utility easement areas for the purpose of operating, maintaining, and constructing any public utilities located within the easement. The property owner shall not construct fences, walls or other barriers, which would impede the City of Toledo's access onto the easement. No temporary or permanent structure including building foundations, roof overhangs or other barriers denying access, may be constructed on the easement. Driveways and parking lots are acceptable. The property owner releases the City of Toledo from any liability, responsibility or costs resulting from the City's removal of any barriers which deny ingress to or egress from the easement or which obstruct access to the public utilities located on said property, and the City of Toledo shall have no obligation or duty to restore or compensate the property owner for the removed facilities.

T. Best Management Practices (BMP)

1. All designs shall comply with the latest City of Toledo and Ohio EPA regulations and standards covering pollution prevention. Designs shall be as described in the SWMSM and shall have detailed plans and a specification covering all construction and post construction BMP measures.
2. Designs on private property that require extensive maintenance may require proof of a service contract with an established service company. Duration of service agreement shall be for a minimum of five years.
3. A Notice of Intent (NOI) shall be filed with the Ohio EPA for all projects of 1 acre size or greater of disturbed land. OEPA contact is Lynette Hablitzel at 419-373-3009, in Bowling Green. A copy of the NOI may be required for stormwater plan review approval.
4. No construction of facilities may start or land may be disturbed without an approved Stormwater Pollution Prevention Plan (SWP3). Additionally, City inspection shall also be notified prior to the start of any work as specified in the

following Plan Requirements section. These provisions shall also apply to any cut or fill on a property, which may impact the velocity, volume, or quality of surface water on adjacent property, or may impact any permanent natural body of water. The SWP3 shall contain the following information:

- a. Elevations. Proposed finished lot corner and finished street elevations.
 - b. Proposed contours of finished grade in 1-foot intervals or less if required.
 - c. A description of all Best Management Practices (BMPs) to be used. Drawings, instructions, and details covering when the BMPs will be implemented and the frequency of inspection and maintenance shall be included.
 - d. Facilities. Plans for the construction of storm sewers, open drainage channels and other facilities which depict line sizes, profiles, construction specifications and other such information as is necessary for the City to review the adequacy of the storm drainage plans and impact on the SWP3.
 - e. All engineering calculations in sizing BMPs and facilities.
 - f. Provide the name of the person who is the responsible for all construction. Include a 24-hour phone number.
5. Soil erosion and best management practice (BMP) measures shall be installed prior to start of any construction and shall be maintained at all times until construction has been completed, including all grass being well established and/or permanent erosion and sedimentation BMP measures are in place. All BMP measures shall be installed to the satisfaction of the City of Toledo. The City of Toledo may require work to be stopped and the storm drainage outlet to be plugged, if conditions become unsatisfactory.

U. Plan Requirements

The following general requirements apply to all plans:

1. The minimum plan and profile scale shall be: Plan 1" = 50' horizontal and profile 1" = 5' vertical. (1" = 20' is preferred.)
2. Location Map – Provide and locate in upper right of title sheet with North arrow, minimum scale 1" = 200'.
3. Street Address or Plat Name of Project – Provide and locate in lower right title block on all drawings.
4. Developer's Name, Address, Phone and Fax Nos., and e-mail address - should be located on the title page. Subdivision drawings shall be signed by the developer.

5. Consultant's Name, Address, Phone and Fax Nos., and e-mail address - should be located on the lower right of plan pages. The drawings shall be stamped and signed by a civil engineer licensed to practice in the State of Ohio.
6. Legal Description of Property – Provide near location map. Subdivision Name and Lot number or Plat and Parcel number is adequate.
7. On subdivision projects, the following note shall be placed next to the signatures: “Approval of these plans is contingent upon the project being completed within 18 months from the date of approval.”
8. Plan Sheet - The standard plan sheet size shall be **24”x 36”** (out to out) with a **1.5 inch margin on the right, top, and bottom, and 2.5-inch margin on the left.** This will allow scaled half size **11”x17” plots, when ½-inch is trimmed off of each side.**
9. Lettering - All lettering presented within a set of improvement plans shall be no less than standard lettering guide, Size No. 5, and be presented in a neat and legible manner.
10. Notes – Minimum construction notes as follows shall be on the drawings.
 - a. For protection of underground utilities, call the Ohio Utilities Protection Service at 1-800-362-2764 a minimum of 48 hours prior to excavating.
 - b. All material and construction shall be in accordance with the Construction Standards and Specifications of the State of Ohio Department of Transportation (ODOT) dated January 1, 2008 as amended by current City of Toledo, Division of Engineering Services, Part A Standards. All standards referred to in these plans shall be in accordance with the current City of Toledo Construction Standards, unless otherwise noted. A copy of City of Toledo, Part A Standards and Construction Standards are available from the D/ES. In addition, all work shall be in compliance with all applicable federal and state standards and regulations.
 - c. Contractor shall notify City of Toledo, Division of Environmental Services at 419-936-3015 three (3) days prior to starting **earth-disturbing activities** for the purpose of monitoring erosion and BMP measures.
 - d. Contractor shall notify City of Toledo, D/ES for inspection at 419-936-2847 three (3) days prior to starting construction (> 200’ of sewer).

OR

Contractor to notify City of Toledo, Division of Sewer and Drainage Services for inspection at 419-936-2927 three (3) days prior to starting construction for Sewer Tap Permit sites (<200’ of sewer).

- e. Contractor is to designate a site dump/wash area prior to starting construction for such purposes as washing out concrete trucks and dumping non-hazardous waste

materials, subject to the supervision of the City of Toledo, Division of Environmental Services and the City of Toledo Municipal Code. Dumping or discharge of any waste materials to any City of Toledo sewers is prohibited. Hazardous Wastes are to be removed off site and properly disposed of consistent with all Federal, State and Local regulations.

11. Graphic Scale - locate in the lower middle of plan page.
12. Plan and Profile Drawings - shall be provided for the entire length of all piping parallel with and within the public right-of-way or as directed by the engineer. Where possible, plan and profile should be shown on the same sheet.
13. Existing Utilities - check for existing sewers/utilities in proposed construction areas. Show all utilities in plan and profile.
14. Show stationing of centerline of roadways and intersecting pavements, width of pavement and rights-of-way, size and distance from centerline to existing and proposed water mains, sanitary sewers, storm sewers, curbs and other utility facilities, lot lines, numbers and frontage, all existing permanent property monuments and references, all mensuration information, including radii, PTs, PCs, and other curve data
15. A sufficient number of prints shall be submitted to OEPA to allow for the return of one (1) set of OEPA approved prints to the D/ES.

III. ROADWAY

- A. No vertical curve shall be established unless the algebraic differential of grades is greater than 2.0%.
- B. On any vertical curve, the grade shall be at least 0.4% between adjacent points. (10 feet intervals for 75 feet vertical curve and under, and 25-foot intervals for over 75-foot vertical curve).
- C. No top of curb or gutter shall be less than 0.40%. Minimum top of curb or gutter grade for mountable curb shall be 0.5%.
- D. The maximum pavement grade shall not exceed 4.00% except in case of extreme necessity.
- E. The preferred pavement cross slope shall be ¼-inch per foot, but in no case less than 3/16-inch per foot. Maximum cross slope shall be 3/8-inch per foot.
- F. Inlets shall be placed at all low points in streets, at intersections, at points where changes in the street configuration will direct flow across the street and at intervals on continuous grades that will limit the width of flow in the gutter to six feet (6') for arterial streets and eight feet (8') for local streets, for a two year storm.

- G. Minimum lateral diameter for connection to an inlet or catch basin shall be 12-inches. Minimum inlet lead slopes shall be 2% or as needed to obtain a velocity of 3 feet per second for a 5-year storm.
- H. Water from all low areas shall be collected and conveyed to the storm drainage system. Quantity of gutter flow is determined using the Rational Method. Inlet design flows shall exceed gutter design flows.
- I. Water quality provisions shall be installed in all catch basins or manholes as directed by the City of Toledo.
- J. Intersections
 - 1. Maximum grade differentials should not exceed 2% and shall not exceed 3% on pavements.
 - 2. Top of pavement grades shall be established on intersection details at the following locations:
 - a. At all ends of radii in gutter and on pavement centerline.
 - b. At gutter in center of radii.
 - c. At radii P.I.'s.
 - d. Intersection of pavement centerline with lines connecting radius P.I.'s.
 - e. Intersection of pavement centerlines.
 - f. Any other point necessary to clarify drainage and reduce bump.
 - 3. Minimum curb radius should be at least 25 feet.
 - 4. A 30-foot minimum radius should be used on uncurbed pavements at intersections.
 - 5. Inlets and catch basins shall be located at, or beyond end of radius. (If radius is 30 feet or greater, inlets and catch basins may be located in radius).
 - 6. Through gutters will not be allowed.

IV. STORMWATER DRAINAGE

Purpose

A properly designed stormwater system shall provide for the drainage of surface water from all residential, commercial and industrial development; minimize erosion; reduce degradation of water quality due to sediments and pollutants in stormwater runoff, and reduce downstream flooding.

All stormwater runoff shall be conveyed to the municipal stormwater system, unless a retention design is utilized. Receiving waters, including underground storm drainage systems, shall have adequate capacity to carry necessary flow without overflowing or causing damage to public property or welfare. The cost for the approved system shall be wholly borne by the owner or developer, including any off site system that is required.

The City of Toledo has in place a Stormwater Utility which charges a monthly fee to all property owners. For non-residential properties, the fee is based on the square footage of impervious surfaces (pavement, roofs, etc.) on the property. Non-residential development generally results in changes in the impervious area. The City will make the appropriate adjustment to the Stormwater Utility bill. The City also has a Stormwater Credits program that provides credits against the Stormwater Utility bill for certain stormwater best management practices. These practices could be incorporated into the project to qualify the property for credits. Contact the stormwater engineer indicated in Chapter II for details on how to apply.

Plan Requirements

In addition to General Plan Requirements, the following requirements apply to storm drainage plans:

- A. Legend – All yard drains, catch basins, manholes and structures should be labeled and in a schedule if possible with all elevations, sizes, direction of flow, remarks, etc. as necessary. Include a legend abbreviation key on a plan page.
- B. Notes - All material and construction shall be in accordance with the current TMACOG Stormwater Coalition’s Stormwater Management Standards Manual.
- C. Show flow lines of surface water - onto and off the site.
- D. Show existing contours - at one-foot intervals.
- E. Show existing and proposed drainage - channels, including drainage swales, ditches, berms, and proposed storm drains. Connections to existing system shall be identified.
- F. Detention facilities – location, with detailed drawings as needed.
- G. Stormwater Pollution Prevention Plan (SWP 3) - Furnish a SWP 3 for all projects, covering both during and post construction phases of the project.
- H. Flood Zone – Location of the FEMA floodplain shall be shown on plans if any part of the development property is within the flood zone. The lowest floor, including basement, of any structure built within a flood hazard area shall be a minimum of one (1) foot above the base flood elevation for the site.
- I. Grading and Drainage Plan - show the location of perimeter drainage facilities and private drainage easements that will control runoff to and from project sites. This shall include adjoining area within 100 feet of the development (less with D/ES approval).

Grading and Drainage Plans shall identify control for Finished Floor Elevations, and shall be enforced in conjunction with the Division of Building Inspection.

- J. Wetlands – The location of any wetlands, which could be affected by the development, shall be shown on the plans, as delineated by a qualified professional.**
- K. Riparian Setbacks – The location of riparian setbacks as defined in Toledo Municipal Code 1110 shall be shown on the plans and recorded on any new plats.**

Design Requirements

- A. General. The latest edition of the Stormwater Management Standards Manual (SWMSM) by the TMACOG Stormwater Coalition is to be used for design along with the standards described herein.

Manuals can be obtained at TMACOG, 300 Central Union Plaza, PO Box 9508, Toledo, Ohio 43697-9508, phone: 419-241-9155 or are available free on line at <http://tmacog.org/storc.htm> Other City of Toledo or State or Federal codes, rules, or regulations, which exceed the SWMSM standards shall govern and shall be followed. All development shall be planned, designed, constructed and maintained to:

1. Protect and preserve existing natural drainage channels to the maximum practicable extent.
2. Protect development from flood hazards.
4. Assure that waters drained from the development are substantially free of pollutants, through such construction and drainage techniques as sedimentation ponds, reseeding, phasing of grading.
5. Assure that waters are drained from the development in such a manner that will not cause erosion to any greater extent than would occur in the absence of development.
7. Avoid placement of surface detention or retention facilities in public road rights-of-way.

- B. Design Calculations. Design calculations shall be included with all plan submittals. See SWMSM for details for runoff calculations. Complete drainage calculations shall be submitted for pipe size determinations. As needed: 5-year, 10-year, 25-year, and 100-year hydraulic gradient checks, culvert or ditch size, and catch basin type and catch basin spacing designs shall be provided. Drainage calculations shall be

submitted on standard engineering drainage forms or spread sheets, including charts acceptable to this Division.

- C. Drainage Layout and Design. An overall drainage area layout plan showing the limits of the contributing runoff area, broken down into areas contributing to each drainage pick-up point shall be submitted with the paving and drainage plans. Drainage design within the development shall be adequate to handle the entire contributing watershed area and its existing, proposed and probable future development, and not the area under submission only. Drainage design, which makes use of an existing system, shall follow practical engineering judgment.

Calculation of existing runoff patterns from subject property onto adjacent properties, and estimates of existing runoff from adjacent properties onto subject property shall be provided as needed.

If future plat extensions will utilize the same drainage system, the overall drainage plan shall be submitted with the first plat paving plan.

Drainage maps, when submitted, shall contain the basic information as shown on the site grading plan and be drawn to such a scale that it will fit on a standard 24" x 36" plan sheet. Smaller presentations may be acceptable.

- D. Drainage Internal. Adjacent property owners are not permitted to shed stormwater runoff onto neighboring properties.

Adjacent property owners may share a common storm sewer but must submit a legal document describing the perpetual arrangement worked out for maintenance, repairs and future connections.

- E. Stormwater Detention. Whenever a storm drainage system for a proposed subdivision or commercial development is designed to outlet into an existing storm sewer system, and the said existing storm sewer cannot be shown to be adequate, as outlined above, a restricted flow into the existing system will be required. **For the purposes of this requirement, all existing storm sewer systems within the City of Toledo shall be considered inadequate, except direct discharges to the Maumee River, Swan Creek, Ottawa River, or other large ditch system as approved by the Stormwater Engineer.** This restricted flow shall be equivalent to the five (5) year frequency storm runoff occurring from a strip of land measuring 100 feet in depth from the right-of-way line by the length of property fronting on the roadway being served by the existing storm sewer and in the undeveloped state (Rational Formula $C=0.15$). Areas greater in width will be acceptable if proper documentation can be found to support the fact that the wider width was used in the original calculations.

All excess stormwater runoff shall be retained within the boundaries of the development and shall be stored in a detention facility of sufficient capacity to contain the excess runoff resulting from a 25-year frequency storm, having a duration

up to 24 hours. If an open pond is used as a detention facility, it shall be designed with a minimum safety factor of 1.1 for privately maintained ponds and 1.3 for City of Toledo maintained ponds. All open ponds in which future maintenance will be the responsibility of the City of Toledo shall be as specified below.

Unless the City of Toledo specifically accepts responsibility for maintenance of a detention facility, all such facilities shall be private, including their connecting pipes to the public system.

Approved methods for detention of stormwater runoff may include, but not necessarily be limited to underground tanks, roof areas (not preferred), parking lots, recreational or playground areas, over sizing of storm sewer system, detention basins, detention with a permanent wet pond, or extended detention basin facilities. **Post Construction BMPs may be incorporated into the stormwater detention facility.** Selection of the method used shall be the responsibility of the developer. Complete design calculations **and a Post Construction BMP Data Sheet (Appendix 4)** shall be provided and construction details shall be included in the paving and storm drainage plans.

The following minimum design criteria are strongly encouraged for privately owned open pond detention facilities and required for any open pond facility that will be maintained by the City of Toledo:

1. The side slopes shall have a maximum slope of 2.5:1, 3:1 or flatter for residential areas. Steeper slopes may be approved, but may require fencing or other safety measures. The pond bottom if graded for complete drainage (drain dry bottom) shall be of sufficient strength to support a tractor mower, or other equipment required for maintenance. Where ground conditions are favorable, the use of permeable pavement surfaces as a lining material should be considered to encourage percolation of stored runoff water into the ground. All slopes shall have erosion control with an approved turf reinforcement mat and/or mulch system.
2. Metering devices shall be designed using pipe. Plates and gate valves are not allowed unless there is a significant reason pipe will not work.
3. If required for the access and egress of maintenance equipment, a paved drive shall be provided to the facility. Grass pavers with approval. Curb cuts must be approved.
4. Interior side slopes and the exterior area shall be sodded or seeded with an approved seeding mixture and mulched.
5. Where possible, storm sewers shall extend to locations where future improvements or improved outlet facilities are contemplated.

F. Best Management Practices – All designs shall comply with the Best Management Practices outlined in Section II.

- G. **Post Construction BMPs.** All projects shall incorporate post construction BMPs to provide treatment of runoff prior to discharging into the City system. Refer to the SWMSM for design guidance on applicable BMPs. Special emphasis shall be required for sites disturbing greater than one acre. Strong consideration shall be given to designs incorporating low impact development solutions such as grassy swales and bioretention, thereby reducing the number of catch basins, storm sewers, and curbed islands. A Post Construction BMP Data Sheet (Appendix 4) shall be included with plan submittal.
- H. Storm Sewer Sizing. Storm sewers shall be designed to flow just full for the 5-year intensity-duration-frequency curve. The minimum pavement gutter elevations shall be at or above the hydraulic grade line for a 10-year frequency storm. (See Page 24, "Subdivision Rules and Regulations", Toledo/Lucas County Plan Commission, 1983). Use the 10-year intensity-duration-frequency curve for determining this hydraulic grade line.

For the 10-year hydraulic gradient checks, the minimum starting point elevation, when a proposed storm drainage system outlets into a nearby stream or ditch, shall be based on the 25-year high water elevation, as per "Comprehensive Ditch Plan" or the current "Flood Insurance Study for Toledo, Ohio". If information is unavailable for these two sources, the 25-year high water elevation shall be determined by sound engineering principals, subject to approval by this Division.

The minimum design velocity for storm drainage conduits shall be 3.0 feet per second. Pipe slopes of 15-percent or greater will require anchor walls at approved intervals. Manning's "n" value of 0.013 or 0.011 for PVC shall be used for flow and velocity calculations. Manning's equation shall be used for design of piped systems where practicable.

Minimum pipe size, except for footer tile outlets and approved metering lines, shall be twelve (12) inches.

- I. Storm Sewer Pipe Design. Storm sewers and culverts shall be designed to conform to the requirements of Item 603 of the State of Ohio, Department of Transportation, Construction & Materials Specifications, current issue, subject to the current City of Toledo addenda. The use of metal pipe will not be permitted in industrial or industrial zoned areas. Depth of cover shall be the determining factor in selecting the proper strength of pipe. Minimum cover for Type "C" or "D" Conduit shall be 18 inches. Types "A" and "B" Conduit shall have a minimum cover of 9 inches, measured from the top outside crown of the pipe to the finished subgrade.

Storm drainage pipe laid on a curve shall have a minimum radius of curvature according to the formula:

$$\text{Minimum Radius} = (\text{Outside diameter of pipe in inches} \times \text{Length of Pipe in Feet} \times 5.333).$$

When pipe depths exceed 10-feet, calculations for pipe loading and strength shall be submitted.

- J. Manhole and Catch Basin Spacing. Manhole and/or catch basin spacing between straight runs of pipe shall be limited to a maximum spacing of 300 feet for sewers 36-inch or less in diameter and a maximum of 400 feet for sewers over 36-inch in diameter. Manhole access shall be at least 30-inches (ID) in diameter. Structures are required for all changes in horizontal or vertical alignment greater than ten (10) degrees and at all connections and changes in pipe size. Location of manholes should avoid driveways and sidewalks.
- K. Catch Basins. Catch basin type and spacing shall be designed using the 2-year intensity-duration-frequency curve. The maximum allowable width of the sheet gutter flow from the face of the curb shall be limited to six feet (6') for arterial streets and eight feet (8') for local streets.

All catch basins are to be constructed without traps unless they outlet into a combination sewer.

- L. Drainage Structures. Precast concrete structures are always preferred and provide the ability to have cored holes installed at the factory with boots. Concrete block structures will be allowed at the City's discretion especially if there is a condition where a precast structure may not be able to be used due to field conditions or time being a factor in getting the work completed.

Inside drop connections shall not be permitted on public stormwater systems.

- M. Open Drainage Ditches. Open drainage ditches shall be designed to the following minimum standards:
1. A maximum side slope of 2:1 to insure slope stability; 3:1 or flatter preferable for maintenance.
 2. Maximum of 6-8 feet per second velocity at 25-year storm; 3 feet per second min. at 10-year storm. Velocities exceeding 10 feet per second may require special erosion control.
 3. 10-foot clear maintenance way on one side. No fences or obstructions.
 4. Easement to encompass top of bank and maintenance way.
 5. Low maintenance buffalo or Burma grass, 10-inch maximum growth on side slope.

6. Trash grates at openings. Surface area 8-10 times opening for conduit area less than 20 square feet; 6-8 times for 20 to 44 square feet; 4-5 times for greater than 44 square feet. Trash grate may not be required for large opening on culverts with D/ES approval.
 7. Minimum 15-feet from top of bank to nearest structure.
- N. **Culverts.** Where culverts cannot provide sufficient capacity without significant environmental degradation, the City may require the watercourse to be bridged or spanned. Culvert design shall be performed using the Federal Highway Administration (FHWA) publication Hydraulic Design of Highway Culverts (Reference No. 10). Other methods may be used with approval of the D/ES. Any roadway structure with a span 10 feet or greater is considered a bridge and must be approved by Division of Streets, Bridges and Harbors.
- O. **Riparian Setbacks.** Development shall be set back from riparian zones in accordance with Toledo Municipal Code 1110.
- P. **Pump Stations.** If the proposed development includes construction of a pump station, information on peak and average flows, pump ratings, and other pertinent information shall be submitted along with the plans for review to the D/ES. Discharge calculations may require a study of and determination of outlet system capacity. Any required system capacity studies shall be performed and paid for by the developer.
- If the pump station is to be taken over as a City facility for operation and maintenance purposes, then the following is required:
1. A separate signature block shall be provided on the plan sheet detailing the pump station for the approval (and approval date) of the Commissioner of Water Reclamation.
 2. All equipment to be installed shall be compatible with the Division of Water Reclamation requirements.
 3. The developer shall make the necessary arrangements to provide the Division of Water Reclamation with operation manuals, parts lists, manufacturer's literature, and other pertinent information needed for future maintenance of the facility.
- Q. **Regulatory Floodplain.** Development involving fill in a regulatory floodplain shall comply with Toledo Municipal Code 1110. Application shall be made for a Floodplain Development Permit through City Building Inspection One Stop Shop.
- R. **Wetlands.** Dredging, filling, clearing, or otherwise altering wetlands is prohibited without first providing proof of compliance with the following permits: **Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the Clean Water Act.** If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not

applicable. All certifications and delineations shall include written concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers.

- S. Easements. In the event any City-maintained watercourse, channel, stream or creek, gulch or other natural drainage channel traverses any part of a development, adequate easements for storm drainage purposes shall be provided to the City. The full width of the 100-year storm flow design channel plus a minimum of 10 feet adjacent to the channel shall be required as the easement. Access by the City of Toledo shall not be obstructed. No permanent structures are permitted on an easement. Approved fencing will require adequate gate openings. Any required easement shall not imply any special maintenance by the City.
- T. Rear Lot Drainage. In areas where the site grading calls for the conveyance of surface stormwater along and across rear property lines, a Type "D" catch basin shall be placed not more than every 400 feet. In areas where rear yard grading is designed to equal or exceed a grade of one percent (1%), the above spacing requirement may be waived upon the condition that suitable drainage inlets are provided in accordance with sound engineering judgment.

Please note that the Division of Sewer & Drainage Services does not prefer rear yard drainage due to difficulty in maintenance. If this system of drainage is used, the design shall ~~should~~ provide for private maintenance. Specific and detailed language covering this condition shall be made part of the plat, deed, homeowners or association rules, and other pertinent documents, **such as: "All rear yard drainage, swales, catch basins, manholes, and their connecting pipes are to be privately owned and maintained, either by adjacent property owners or a subdivision association."**

- U. Footer Tile Outlets. Outlets for footer tile drainage shall be provided for all lots in new subdivisions unless basements and crawl spaces are prohibited by a plat recitation. Design of these outlets shall conform to the requirements that follow:
1. Footer tile taps, which are to be provided for each lot(s), shall be located within the public street rights-of-way. Footer drain sewers and taps will not be permitted along the rear or side lot lines.
 2. Existing drainage facilities on existing unimproved streets shall not be used as outlets for footer tile drains or the catch basin described previously, unless deemed to have sufficient capacity by the D/ES. Where sufficient capacity is unavailable, this drainage shall be connected to the storm drainage system of the proposed subdivision.
 3. In areas where street drainage would normally be provided by gutter flow only, the storm sewer shall be extended beyond its normal upper terminus so as to serve those lots that would not normally front on a storm sewer. Tees, wyes, or crossovers shall be provided for each lot.

4. The "extended storm sewer" shall be designed for a capacity of flow equal to 1.25 gallons per minute from each house served, but shall have a minimum diameter of 6-inch and a minimum grade of 0.3%.
 5. All crossovers shall have a minimum grade of 0.3%.
 6. Location and elevation of all taps shall be indicated on the subdivision paving plan.
 7. All storm sewer services shall be extended to the front property line. For a single lot, the service shall be 4-inch minimum diameter. When two lots are serviced off one crossover, the crossover size shall be 6-inch minimum diameter.
 8. In combined sewer area, the storm and sanitary sewers shall be separate lines to the right-of-way. With approval, they may be combined after that point.
- V. **Unimproved Streets.** Where proposed plats incorporate an unimproved street, or have frontage on an unimproved street, catch basins shall be required to intercept the street and front yard storm drainage. There shall be one catch basin **between every driveway** having such frontage and the basin shall be located within the public right-of-way.

For driveway approaches on unimproved streets there is no formal approval required from the Stormwater Utility. The only concern is that in the case of a swale or ditch the drainage is not interrupted, impeded or prevented in any way.

- W. **Floodway Obstructions** – **Obstructions in the floodway are not permitted.**

Plan Approval

- A. **See the General Requirements section for plan approval requirements.**
- B. **A plan approval checklist used by the City Stormwater Engineer is contained in Appendix 4.**

V. SANITARY SEWER

Sanitary sewer design requirements are divided into three parts:

- Part 1 Sanitary sewers constructed in the public right-of-way.
- Part 2 Private sanitary sewers with a length of 200 feet or more or serving more than one building.
- Part 3 Private sanitary sewers with a length of less than 200 feet.

PART 1 - SANITARY SEWERS CONSTRUCTED IN THE PUBLIC RIGHT-OF-WAY

Introduction

- A. The following criteria and procedures govern the construction of sanitary sewers within the public right-of-way, which, upon completion and acceptance by the City of Toledo, will become part of the publicly maintained sanitary sewer system.
- B. Criteria and procedures for construction of privately maintained sanitary sewers are contained in Part 2 and Part 3 of this document.
- C. **The applicant is responsible for obtaining a Permit to Install from the Ohio EPA.**

Design Criteria

- A. The following publications and standards shall be utilized for the preparation of sanitary sewer plans, except as modified herein.
 - Sanitary Sewer Design and Installation Guidelines, Part I, Gravity Sewers, Ohio Environmental Protection Agency.
 - Gravity Sanitary Sewer Design and Construction, Water Environment Federation - Manual of Practice, Facilities, and Development No. 5.
 - Design of Wastewater and Stormwater Pumping Stations, Water Environment Federation - Manual of Practice, Facilities, and Development No. 4.
 - Construction and Material Specifications, State of Ohio Department of Transportation.
 - Addenda to the State of Ohio Department of Transportation, Construction and Material Specifications, (current issue), City of Toledo, Division of Engineering Services.
 - City of Toledo Construction Standards, City of Toledo, Division of Engineering Services.
 - Recommended Standards for Wastewater Facilities, current Edition, (10 States Standards), Great Lakes - Upper Mississippi River Board of State Public Health and Environmental Managers.

Plan Requirements

In addition to general plan requirements, the following requirements apply to sanitary sewer plans:

- A. Each sheet of the plans (including the title sheet) shall contain the sanitary sewer number and a name (subdivision name, street name, etc.) in the lower right hand corner margin. In addition, the sheet number (e.g. 1 of 3) shall be placed in the lower right hand corner of the sheet.
- B. The sewer number and name shall be prominently displayed in the title lettering.
- C. The location map shall depict the proposed sewer as a solid line and existing sewers as dashed lines. Sheet numbers shall be shown on the location map. The existing sewer (and sewer number) that is being connected into shall also be shown.
- D. The existing sewer number and the existing manhole number(s) shall be indicated on the site plan.
- E. A space for the approval signature (and date of approval) shall be provided on the title sheet for the Owner and D/ES representative.
- F. The following note shall be placed next to the signatures:

“Approval of these plans is contingent upon the project being completed within 18 months from the date of approval. Extensions of time shall be granted only by written approval of the Division of Engineering Services.”
- G. A general summary containing estimated quantities, ODOT item numbers, units, and a description of the item shall be included on the title sheet except where space limitations require placement of this information on a separate sheet.
- H. The General Notes in Appendix 1 for “Sewers in Public Right-of-Way” shall be included on the plans.
- I. **The site plans shall include sewer plan and profiles drawings.**
- J. Stationing for each sanitary sewer tap shall commence with each downstream manhole at 0+00, and the taps shall be stationed accordingly as the sewer rises to the next manhole.
- K. The stationing for taps shall begin again at 0+00 at the next manhole.
- L. All tap data shall be located in the plan view on the same side of the street and immediately adjacent to the tap location.
- M. Tap data shall include:
 - 1. Station on main line from nearest downstream manhole.
 - 2. Length and slope of tap.
 - 3. Size and type of fittings (Tees, Wyes, etc.).
 - 4. Invert elevation of tap at right-of-way (property) line.

5. Depth of tap at right-of-way line.
 6. If riser required, show in profile.
- N. Manholes shall be numbered in both the plan and profile views.
- O. All existing and proposed storm sewers and water mains shall be shown as lightly dashed lines in both the plan and profile.
- P. A property description(s) shall be shown on the plans for all property affected by the proposed sewer.

Design Requirements

- A. The maximum manhole spacing for all sanitary sewers 36-inch diameter or less shall be three hundred (300) feet.
- B. Risers shall be required whenever the depth of the sanitary sewer exceeds twelve (12) feet.
- C. Two connections to a single riser will be permitted if the riser diameter is eight (8) inches or greater.
- D. Double tees shall not be permitted for sanitary sewer construction.
- E. For vacant parcels, a single crossover or tap eight (8) inches in diameter with a six (6) inch "vee" and five (5) feet minimum length of six (6) inch conduit can be used to service two properties.
- F. The crossover tap shall be as shown in Appendix 6 to protect the corner lot stakes and lawn areas.

Taps shall be perpendicular to the right-of-way line.

- G. Manhole lids shall be as follows:
1. Manhole lids located in paved areas, areas which are to be paved in the future, or flood-prone areas (flood plains, swales, etc.) shall be specified with a solid lid with closed pick holes.
 2. All manholes on private property shall have solid lids with closed pick holes.
 3. Manhole lids located in areas not included in Item 1 or 2 above shall be specified with a standard City of Toledo, **1 hole, vented lid, with rubber plug.**
 4. Tops of manholes in unpaved areas shall be raised adequately so normal rainfall runoff will not run into the lid.

- H. Outside drop connections shall be provided for all intersecting sewers with differences in elevations of twenty four (24) inches or greater.
- I. Inside drop connections shall not be permitted.
- J. Separate taps shall be provided to all developed properties to be served by the sanitary sewer.
- K. Sanitary sewer taps on the main line shall be made with a tee fitting.
- L. In a combined sewer area, sanitary and storm (clean) water sources shall have separate taps into the sewer system to facilitate future sewer separation projects.
- M. Only one tap will be allowed for a building with two or more tenants.
- N. Existing sanitary sewer taps shall be used whenever feasible.
- O. Property owner/developer of lands to be served by public sewers shall be responsible to meet all requirements of the Ohio EPA anti-degradation policy.

Approved Conduits

- A. All sanitary sewer conduits shall contain a premium joint per ASTM D-3212.
- B. The following Conduits listed under ODOT 603.02 shall be used for sanitary sewers:
 - 1. Polyvinyl Chloride (PVC) Conduit (6" - 15") conforming to ASTM D-3034, SDR 35, with cell classification 12454-B, solid wall pipe.
 - 2. Reinforced Concrete Pipe (RCP) conforming to ASTM C-76, Wall B (minimum) and ASTM C-443 joints.
 - 3. Vitrified Clay Pipe (VCP) conforming to ASTM C-700 ES, with full inside diameter and ASTM C-425 joints.
 - 4. Polyvinyl Chloride (PVC) Conduit (>15") conforming to ASTM F-679, T-1 wall thickness, solid wall pipe.
- C. Sewers 15-inch and smaller shall be PVC.
- D. Sewers 18-inch and larger shall be RCP, VCP or PVC as approved by the City of Toledo.
- E. Force mains shall be as follows:
 - 1. 4 inch and larger: AWWA C-900, D.R. 18, Class 150

2. 3 inch and smaller: ASTM D-2241, PR160 (SDR26)

Pump Stations

- A. If the proposed development includes construction of a pump station, information on peak and average flows, pump ratings, and other pertinent information shall be submitted along with the plans for review to the D/ES.
- B. If the pump station is to be taken over as a City facility for operation and maintenance purposes, then the following is required:
 1. A separate signature block shall be provided on the plan sheet detailing the pump station for the approval (and approval date) of the Commissioner of Water Reclamation.
 2. All equipment to be installed shall be compatible with the Division of Water Reclamation requirements.
 3. The developer shall make the necessary arrangements to provide the Division of Water Reclamation with operation manuals, parts lists, manufacturer's literature, and other pertinent information needed for future maintenance of the facility.

Plan Approval

- A. Mylars will be loaned out to allow the preparation of prints for the Ohio Environmental Protection Agency (OEPA).
- B. The consulting engineer shall be responsible for submitting the required prints, data sheets, and applicable fees to OEPA.
- C. **Antidegradation – The consulting engineer shall be responsible for complying with Ohio EPA Antidegradation Requirements. Projects that have been approved for Infrastructure Development Funds may request to use City Antidegradation Credits.**
- D. **A License Agreement or permit authorizing construction, payment of fees, maintenance bonds, and other items will be prepared by the City of Toledo for signature by the property owner/developer.**
- E. **Construction of improvements cannot commence until the necessary License Agreement has been signed or Permit fees paid and Ohio EPA approval of the plans has been obtained.**

PART 2 - PRIVATE SANITARY SEWERS WITH A LENGTH OF 200 FEET OR MORE OR SERVING MORE THAN ONE BUILDING

Introduction

- A. The following criteria shall govern the construction of privately maintained sanitary sewers with a total length of two hundred (200) feet or more, or serving more than one building.
- B. Ohio EPA Permit to Install is required if more than one building is served by the sewer.
- C. Criteria and procedures for the construction of sanitary sewers in the public right-of-way, which will be maintained by the City of Toledo, are contained in Part 1 of this Chapter.

Design Criteria

- A. Refer to Part 1 for publications and standards to be utilized.

Plan Requirements

- A. The format of sanitary sewer plans to be submitted for review and approval will depend on the type of project. Formats shall be as follows:
 - 1. Projects Requiring Platting
 - a) Plans shall be prepared in accordance with the requirements of Part 1 of this chapter with the additional requirement that the words “Private Sanitary Sewer” shall be prominently displayed in the title and margin lettering of the plans.
 - 2. Community Unit Plans (CUP)
 - a) Sanitary sewer plans shall not be combined with other improvements (storm drains, water, paving, etc.).
 - b) The plan format shall be in accordance with the requirements of the D/ES with minimum requirements as noted above under “Projects Requiring Platting”.
 - 3. Site Plan
 - a) All improvement plans for developments that are not platted or are not community unit plans are considered as site plans for the purposes of this document.
 - b) Plans shall be prepared in accordance with the requirements of Part 1 of this chapter with the additional requirement that the words “Private Sanitary Sewer” shall be prominently displayed in the title and margin lettering of the plans.

- c) A plan and profile view shall be included on the site plans.
- d) A signature block shall not be required for site plans, however, a blank space (minimum size three and one half inch square shall be provided for the City' Sanitary Sewer approval
- e) The site plan shall show the proposed sanitary sewer as a solid line and with the following information:
 - 1. Sewer Size (6-inch minimum)
 - 2. Sewer Slope (1% minimum)
 - 3. Sewer Length
 - 4. Sewer Material

- B. The general notes in Appendix 2, "Private Sewers > 200 ft" shall be included on the plans.

Design Requirements

- A. The criteria stated in Part 1 shall be adhered to for private sewers when applicable.
- B. Inside drop connections will not be permitted for any private sewer connection within the public right-of-way.
- C. In a combined sewer area, sanitary and storm (clean) water sources shall have separate taps into the sewer system.
- D. Only one tap will be allowed for a building with two or more tenants.
- E. Existing sanitary sewer taps shall be used whenever feasible.

Plan Approval

- A. Mylars and computer files shall be provided, if requested by the City.
- B. If an existing sanitary sewer tap is to be reused a "Request For Use Of Existing Sewer Line" shall be completed.

PART 3 - PRIVATE SANITARY SEWERS WITH A LENGTH OF LESS THAN 200 FEET

Introduction

- A. The following criteria shall govern the construction of privately maintained sanitary sewers with a total length of less than two hundred (200) feet.

- B. Criteria and procedures for the construction of sanitary sewers in the public right-of-way, which will be maintained by the City of Toledo, are contained in Part 1 of this Chapter.

Design Criteria

- A. Refer to Part 1 for publications and standards to be utilized.

Plan Requirements

- A. The format of sanitary sewer plans to be submitted for review and approval will depend on the type of project.
- B. Formats shall be as follows:
 - 1. Plans shall be prepared in accordance with the requirements of Part 1 of this chapter with the additional requirement that the words “Private Sanitary Sewer” shall be prominently displayed in the title and margin lettering of the plans.
 - 2. A signature block shall not be required for site plans, however, a blank space (minimum size three and one half inch square shall be provided for the approval stamp of the Sanitary Sewer Section.
 - 3. Profile drawings are not required.
- C. The general notes in Appendix 3, “Private Sewer < 200 ft” shall be included on the plans.
- D. The site plan shall show the proposed sanitary sewer as a solid line and with the following information:
 - 1. Sewer Size (6-inch minimum)
 - 2. Sewer Slope (1% minimum)
 - 3. Sewer Length
 - 4. Sewer Material
 - 5. Elevations at changes of direction and at terminal points.

Design Requirements

- A. The criteria stated in Part 1 shall be adhered to for private sewers when applicable.
- B. Inside drop connections will not be permitted for any private sewer connection within the public right-of-way.
- C. In a combined sewer area, sanitary and storm (clean) water sources shall have

separate taps into the sewer system.

Plan Approval

- A. One (1) set of prints shall be submitted to the Sanitary Engineer for review and comment. This set of prints shall be returned to the Sanitary Engineer along with three (3) revised drawings (four (4) if the storm drain is 200 feet or more).
- B. Projects less than 200 feet Length – After the review process, projects of this size and smaller, will be inspected and fees charged by Sewer & Drainage Services. Call 419-936-2927 three days before starting construction for inspection.
- C. If an existing sanitary sewer tap is to be reused a “Request For Use Of Existing Sewer Line” shall be completed.

VI. WATER DISTRIBUTION

Water distribution design requirements are divided into two parts:

Part 1 Subdivisions/Public Water Mains

Part 2 Large Services-Private water services 4-inch diameter and larger

PART 1 – SUBDIVISIONS/PUBLIC WATER MAINS

Introduction

- A. The information contained herein is designed to serve as a guide to procedures, plan preparation requirements, material specifications, and installation of new water service mains for subdivisions.
- B. The City of Toledo, through the D/W and D/ES, requires plans to be prepared in accordance with its standards and specifications; materials and equipment to be incorporated into the work to meet the standards and specifications; and the water mains to be installed, tested, and disinfected under the immediate and direct supervision of authorized D/ES personnel.
- C. Developers of new subdivisions shall pay 100 percent of the cost of the water mains therein, including the cost of engineering necessary for the D/ES to supervise the entire project, and other pertinent D/W and D/ES costs and charges.
- D. The developer shall have the right to engage consulting engineers to prepare plans and specifications, to engage a contractor, and to purchase the materials required for the installation in both new subdivisions and on existing dedicated streets and highways, in both of which cases the developer shall pay for the entire cost of the water service main construction.

- E. **A deposit for large tap and inspection fee is required prior to beginning construction (see Appendix 13).**

Plan Requirements

In addition to the general plan requirements, the following requirements apply to subdivision water main plans:

- A. The plans shall be drawn specifically for the installation of the water service mains only. Plans shall become the property of the D/ES upon approval of the Commissioner of the D/ES.
- B. Plan Notes – Notes as shown on Appendix 7, Exhibit A-1 – “NOTES AND SPECIFICATIONS FOR MATERIALS FOR CITY OF TOLEDO SUBDIVISIONS”, or **Appendix 8, Exhibit A-1 “NOTES AND SPECIFICATIONS FOR MATERIALS FOR NORTHWOOD AND ROSSFORD SUBDIVISIONS.”** **Notes and standards for subdivisions located in Lucas County or Northwestern Water and Sewer District shall be per the requirements of the respective entity.** Appendix 9 “PRE-TAP CONDITIONS - SUBDIVISIONS” shall be included on subdivision plans. These notes shall be included on the plans exactly as shown herein.
- C. Plan and Profile Drawings –The profile shall be shown for the entire length of the water mains and shall include all other utilities at their appropriate grades; the station and elevation of all changes in water main direction or depth; the percent grade and length of water line between changes in grade; and existing ground elevations and proposed final grades over the water main. The provision for a minimum cover of five feet (5’) and a maximum cover of seven feet (7’) shall be shown, unless specifically waived by the D/ES. Wherever a water main is to be laid over a filled area, the profile of the undisturbed earth there under shall be shown.
- D. Existing and proposed water lines – Connections to the existing system shall be identified. **Water line numbers of existing water lines shall be shown.** (This information may be obtained from the D/ES).
- E. **Details – Use City of Toledo standard details for water line trench, valve manhole, hydrants, and boring. Details can be shown on plans or refer to City of Toledo Construction Standards, latest edition.**
- F. Special provisions such as thrust blocks, harnessing, specifications for jacking encasement pipe under railroads, pavement, etc., and special structures shall be shown on the plans, together with specification reference if not totally reproduced on the plans.
- G.. Size, type, station, and distance from centerline of all tees, bends, hydrants, valves, check valves, offsets, pretaps, etc., shall be shown on the plan view.
- H. **Oak Openings Wetlands - The City is required by Ohio EPA to verify that developments connecting to water main extensions in the Oak Openings Region comply with Federal and State wetlands regulations. For developments and waterline**

extensions in the Oak Openings Region (see Lucas County Highway Map Atlas for delineation), the following note is required on plans and the conditions set forth in the note shall be complied with prior to plan approval:

“This project is located within the Oak Openings Region, a significant, high quality, environmental resource. Dredging, filling, clearing, or otherwise altering Category 3 wetlands (see OAC 3745-1-54 for wetland category definitions) within the Oak Openings Region is prohibited. Dredging, filling, clearing, or otherwise altering Category 1 or 2 wetlands within the Oak Openings Region is strongly discouraged, and is prohibited without first providing proof of compliance with the following permits: Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the Clean Water Act. If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not applicable. All certifications and delineations shall include notification and concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers. Any mitigated wetlands provided in accordance with said permits shall be located within the Oak Openings Region.”

Design Requirements

A. Fire Hydrants

1. Hydrant spacing shall not exceed 350 feet unless the D/ES deems it necessary to permit hydrant spacing greater than 350 feet.
2. Hydrants in new subdivisions shall be located within the center ten feet (10') of lot. For corner lots hydrants shall be located ten feet (10') in either direction from the corner of lot. In case of zero lot line subdivisions and roadways with large radius curves, driveway locations shall be shown to ensure conflicts with hydrants are avoided.
3. Unless otherwise specifically approved by the D/ES, a hydrant shall be placed at each intersection of streets, or at a substantial bend in a street.
4. Hydrants shall be located no closer than three feet from the centerline of the hydrant to the back of the curb. Hydrants shall be installed so that all hydrants are of equal distance from the curb.
5. On cul-de-sacs with island, sufficient space shall be provided so that all taps are located in the island. On cul-de-sacs with no island, the water main shall be constructed around the outside of the cul-de-sac, with a hydrant placed in the middle ten feet (10') of the first lot into the cul-de-sac on the opposite side of the water main.
6. The plans shall have a schedule indicating the hydrant stationing and method of installation (type of hydrant assembly – **standard, Alternate #1, or Alternate #2**) unless all hydrants are installed in the same manner.

7. Hydrant branches – if hydrant branch is limited to one length of pipe, a 6-inch branch may be permitted. If hydrant branch is greater than one length of pipe, branch shall be 8-inch and reduce to 6-inch just prior to the hydrant branch valve.
8. For industrial subdivisions, the City of Toledo may require an 8-inch inlet connection and a 6-inch main valve opening.
- 9. Hydrant drain holes shall be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket shall be placed around the base of the hydrant as shown on the standard hydrant drawing.**

B. Water Mains

1. Water mains shall be eight-inch (8") in size unless a larger size is required to provide the customer's need. If that need is for process or fire protection, the cost of mains larger than eight-inch (8") shall be paid by the developer or petitioners involved. If the D/ES requests that a main larger than eight-inch (8") be installed to improve the supply to adjacent, already-developed areas, then the D/ES will consider paying the difference in material costs over the eight-inch (8") main.
2. Water mains shall be located 21 feet off centerline. Location 18 feet off centerline (same as Lucas County) also will be acceptable.
3. Water mains that are to be extended in the future shall be provided with a valve (**in manhole**), one length of pipe, and a blow-off on the end of the pipe. 12-inch and 10-inch diameter pipe shall have a 2-inch blow-off; 8-inch and 6-inch pipe shall have a 1-1/2-inch blow-off.
4. Water mains crossing railroads shall be encased in steel pipe conforming to railroad specifications.
5. Water mains under all thoroughfares shall be installed by open cut or boring jacking a steel casing in accordance with the City of Toledo Construction Standards. Open cuts shall be approved by the Divisions of Engineering Services and Transportation.
6. Pre-tap locations shall be shown on the plans, either in plan view or on a schedule. Pre-taps shall not be located under pavements.

C. Valves

1. Main line valves shall be enclosed in standard manholes. Location of main line valves shall be as determined by the D/ES for each project.
- 2. Tapping sleeves and valves will be supplied and installed by the D/W at the Developer's cost. When a pipe greater than 12-inch is to be tapped, the tapping sleeve and valve shall be supplied by the Contractor. Excavation and manhole for**

large taps shall be by the Contractor. Provide on plan the dimension from tap to centerline of nearest cross street.

Plan Approval

In addition to the general plan approval requirements, the following requirements apply to subdivision water main plans:

- A. The Developer shall submit at least four (4) sets of approved plans showing the water main, an estimate of costs, required fees, and other appropriate submittals to the State of Ohio Environmental Protection Agency, Northwest District Office, 347 Dunbridge Road, Bowling, Green, Ohio 43402, for their approval. No construction shall begin on the water mains until the D/ES has in its possession one (1) set of plans with the Ohio EPA stamp of approval.
- B. After the plans are approved, the Developer shall submit a cost estimate for waterline construction, including the waterline and appurtenances, inspection, testing, and tapping.
- C. The Developer shall enter into a license agreement with the City of Toledo. Construction shall not begin until all license agreements, escrows, and deposits for large taps are completed.
- D. In the event that the property proposed to be developed fronts on public rights-of-way which have existing water mains which were installed and paid for by private persons, the Developer shall pay the amount of any assessment charges due on said mains as authorized by City Council for these assessment charges shall be made via check and deposited with the Division of Administrative Services.
- E. After the required escrows and deposits are made and the license agreement signed, the Developer is authorized to proceed with the installation of the water mains, and providing for their acceptance by the D/ES upon completion of the installation in accordance with these standards and requirements.
- F. The Developer shall notify the D/ES as to the contractor he desires to employ for the installation of the water mains, prior to the award of a contract for the work. The Commissioner of D/ES reserves the right to reject anyone proposed who, in his or her opinion, does not have the capabilities of installing the water main or mains as defined under "Contractor" above.
- G. The Developer, or his agents, shall submit shop drawings to the D/ES. This is to enable the D/ES to determine that the materials proposed for use meet the standards specified herein. The approval of the D/ES shall be obtained in writing for each item of material proposed to be incorporated into the project.

PART 2 – LARGE WATER SERVICES

Introduction

- A. The information contained herein is designed to serve as a guide to procedures, plan preparation requirements, material specifications, and installation of new or modification of existing large water services. “Large service” is defined as a water service 4-inch diameter and larger.
- B. The City of Toledo, through the D/W and D/ES, requires plans to be prepared in accordance with its standards and specifications; materials and equipment to be incorporated into the work to meet the standards and specifications; and the large services to be installed, tested, and disinfected under the immediate and direct supervision of authorized D/ES personnel.
- C. **A deposit for large tap and inspection fee is required prior to beginning construction (see Appendix 13).**

Plan Requirements

In addition to the general plan requirements, the following requirements apply to large water service plans:

- A. Plan Notes – Notes as shown on Appendix 10, Exhibit A-1 – “NOTES AND SPECIFICATIONS FOR MATERIALS FOR LARGE CITY OF TOLEDO SERVICES”, or Appendix 11, Exhibit A-1 – “NOTES AND SPECIFICATIONS FOR MATERIALS FOR LARGE SERVICES OUTSIDE CITY OF TOLEDO.” Appendix 12 “TAP AND PRE-TAP CONDITIONS - PRIVATE” shall be included on plans exactly as shown herein.
- B. Plan and Profile Drawings – shall be provided for all piping within the public right-of-way, where water service is to be installed over a filled area, or as directed by the Engineer. Any profile shown of the water service shall include all other utilities at their appropriate grades; station and elevation of all changes in water main direction or depth; and the percent grade and length of water line between changes in grade; and existing ground elevations and proposed final grades over the water line. The provision for a minimum cover of five feet (5’) and a maximum cover of seven feet (7’) shall be shown, unless specifically waived by the D/ES. **Wherever a water main is to be laid over a filled area, the profile of the undisturbed earth there under shall be shown.**
- C. Existing and proposed water lines – Connections to the existing system shall be identified. **Water line numbers of existing water lines shall be shown.** (This information may be obtained from the D/ES).
- D. **Details – Applicable details shall be shown on plans: trench, valve manhole, and hydrants. Use City standard bore detail when crossing public streets.**
- E. Special provisions such as thrust blocks, harnessing, specifications for jacking encasement pipe under railroads, pavement, meter chambers, etc., and special structures shall be shown on the plans.
- F. Size, type, station, and distance from centerline of all tees, bends, hydrants, valves, check valves, offsets, etc., and the station of all changes in water main direction shall be shown on the plan view.

G. Oak Openings Wetlands - The City is required by Ohio EPA to verify that developments connecting to water main extensions in the Oak Openings Region comply with Federal and State wetlands regulations. For developments and waterline extensions in the Oak Openings Region (see Lucas County Highway Map Atlas for delineation), the following note is required on plans and the conditions set forth in the note shall be complied with prior to plan approval:

“This project is located within the Oak Openings Region, a significant, high quality, environmental resource. Dredging, filling, clearing, or otherwise altering Category 3 wetlands (see OAC 3745-1-54 for wetland category definitions) within the Oak Openings Region is prohibited. Dredging, filling, clearing, or otherwise altering Category 1 or 2 wetlands within the Oak Openings Region is strongly discouraged, and is prohibited without first providing proof of compliance with the following permits: Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the Clean Water Act. If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not applicable. All certifications and delineations shall include notification and concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers. Any mitigated wetlands provided in accordance with said permits shall be located within the Oak Openings Region.”

Design Requirements

A. Water Availability

1. It is the customer’s responsibility to determine the water needed to adequately provide for fire and domestic service.
2. The following items shall be considered in determining water availability:
 - a. Source (Water Main Sizes)
 - 1) Existing water service mains, contact the D/ES.
 - 2) Existing water service trunk mains – Water mains sixteen inches (16”) and larger in size are considered trunk mains and are not to be tapped for water service, except when approved by the Commissioner of the D/ES, after an engineering study of the affected part of the distribution system.
 - b. Demand – Customer’s anticipated consumption.
 - c. Pressure

- 1) Pressure varies throughout the City system, minimum of 32 psi and maximum of 80 psi.
- 2) The City of Toledo will not be responsible for the furnishing and maintaining of any set amount of water at a given pressure or for the lack of service on a limited fire service (Rules and Regulations Section 202.06).
- 3) Information on typical pressure at a specific location may be available based on the results of flow tests, which are kept on file at the D/ES. If recent flow tests are unavailable, the customer can request a flow test be performed using the procedure listed under “Flow Tests”)
- 4) Flow Tests
 - a) Flow Tests can be requested by submitting a letter to the D/ES, including the test location and a check for the current rate, payable to the City of Toledo.
 - b) All flow test results are kept on file at the D/ES.
 - c) For flow tests on private fire systems see Section 202.18 of the Rules and Regulations.
 - d) For flow tests on the public water system by insurance companies see Section 202.19 of the Rules and Regulations.
 - e) **The City of Toledo does not conduct flow tests outside the City limits.**

B. Hydrants

1. Hydrant spacing shall be in accordance with the requirements of the appropriate Fire Prevention Agency.
2. Hydrant branches – if hydrant branch is limited to one length of pipe, a 6-inch branch may be permitted. If hydrant branch is greater than one length of pipe, branch shall be 8-inch and reduce to 6-inch just prior to the hydrant branch valve.
3. Design shall ensure that fire trucks have access to fire hydrants.
4. For industrial applications, the City of Toledo may require an 8-inch inlet connection and a 6-inch main valve opening.
5. **Hydrant drain holes shall be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket shall be placed around the base of the hydrant as shown on the standard hydrant drawing.**

C. Water Lines

1. Water services with hydrants shall be eight-inch (8") minimum size unless a larger size is required to provide the customer's needs.
2. Water lines that are to be extended in the future shall be provided with a valve **in manhole**, one length of pipe, and a blow-off on the end of the pipe. 12-inch and 10-inch diameter pipe shall have a 2-inch blow-off; 8-inch and 6-inch diameter pipe shall have a 1-1/2-inch blow-off.
3. Water lines crossing railroads shall be encased in steel pipe conforming to railroad specifications.
4. Water lines under all thoroughfares shall be installed by open cut or boring jacking a steel casing in accordance with the City of Toledo Construction Standards. Open cuts shall be approved by the Divisions of Transportation and Engineering Services.
5. **Installation of water service to the first joint above final floor elevation shall be by the site contractor.**
6. **If a domestic service is split off the fire service, the split must occur outside the building.**

D. Valves

1. Main line valves and check valves shall be enclosed in standard manholes or valve boxes. Location of main line valves may be determined by the D/ES.
2. Looped systems with two or more connection points on the City of Toledo water system shall include **double check valve assemblies in chambers or heated enclosures ("hot box")** at each connection point. Location of double check valve assemblies shall be a minimum of five feet from the right-of-way line, on the customer's property. On major thoroughfares assume a future right-of-way of 100 feet.
3. **Tapping sleeves and valves will be supplied and installed by the D/W at the Developer's cost. When a pipe greater than 12-inch is to be tapped, the tapping sleeve and valve shall be supplied by the Contractor. Excavation and manhole for large taps shall be by the Contractor. Provide on plan the dimension from tap to centerline of nearest cross street.**

Plan Approval

In addition to the general plan approval requirements, the following requirements apply to large water service plans:

- A. In instances of looped systems or large services that supply more than one customer or structure, the Ohio EPA must approve plans. **No construction shall begin on the water**

mains until the D/ES has in its possession one (1) set of plans with the Ohio EPA stamp of approval.

- B. Submit one copy of plan showing Fire Riser Detail (if applicable), Meter Setting Detail (if applicable) and Cross Connection Survey (Appendix 14) to Backflow Prevention Coordinator, Division of Water Distribution, 401 S. Erie, Toledo, OH 43602.**
- C. In the event that the property proposed to be developed fronts on public rights-of-way which have existing water mains which were installed and paid for by private persons, the Developer shall pay the amount of any assessment charges due on said mains as authorized by City Council for these assessment charges shall be made via check and deposited with the Division of Administrative Services.
- D. Construction shall not begin until deposit for large taps and construction inspection are provided.

APPENDICES

Appendix 1

SANITARY SEWER NOTES (IN PUBLIC RIGHT-OF-WAY)

The following general notes shall be included on the plans:

1. All construction and materials shall conform to the standards of the City of Toledo and to the Specifications of the Ohio Department of Transportation dated January 1, 2008, subject to the City of Toledo, Division of Engineering Services Part A Standards. A copy of said Standards is available upon request to the D/ES.
2. All PVC sanitary sewer conduits shall be ASTM D-3034, SDR-35, with cell classification 12454-B or approved equal.
3. All sanitary sewer conduits shall contain premium joints per ASTM D-3212.
4. Roof drains, foundation drains, and other clean water connections to the sanitary sewer are prohibited.
5. Granular material shall conform to the requirements of City of Toledo Part A Standards, Item 603.
6. Sewer Testing
 - A. All runs of the sanitary sewer shall be tested for exfiltration or infiltration by an Independent testing laboratory. The maximum rate of leakage or infiltration shall not exceed 100 gallons per inch of diameter, per mile of conduit, per 24 hours. A low-pressure air test may be used. All visible leakage in sewers or manholes shall be repaired even though the leakage is at a lower rate than the maximum allowed.
 - B. PVC pipe sections between manholes shall be tested for ring deflection, which shall not exceed five percent (5%). Testing shall be done at least 30 days after pipe is installed.
 - C. All new manholes shall be vacuum tested per ASTM C-1244.
 - D. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make all necessary corrections. The cost of all materials, equipment, labor, and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be the Contractor's responsibility.
7. The location of all existing utilities as shown on these plans is approximate. Determination of the exact location of existing utilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damage to existing utilities caused by his operations.
8. Underground Utilities: Two (2) working days before you dig, call Ohio Utilities

Protection Service (OUPS) at 1-800-362-2764. Nonmembers must be called directly.

9. A License Agreement or permit authorizing construction, payment of fees, maintenance bonds, and other items will be prepared by the City of Toledo for signature by the property owner/developer.
10. Construction of improvements cannot commence until the necessary License Agreement has been signed or Permit fees paid and Ohio EPA approval of the plans has been obtained.
11. Inspection - The contractor shall call the utilities construction engineer at (419) 936-2847 a minimum of three (3) working days prior to the start of construction for the inspection of sanitary sewers, water lines, and storm drains.
12. The Developer shall be responsible for meeting the requirements of the OEPA anti-degradation requirements.

Appendix 2

SANITARY SEWER NOTES (PRIVATE SEWER GREATER THAN 200 FEET)

The following general notes shall be included on the plans:

1. All construction and materials shall conform to the standards of the City of Toledo and to the Specifications of the Ohio Department of Transportation dated January 1, 2008, subject to the City of Toledo, Division of Engineering Services Part A Standards. A copy of said Standards is available upon request to the D/ES.
2. All PVC sanitary sewer conduit shall be ASTM D-3034, SDR-35, with cell classification 12454-B or approved equal.
3. All sanitary sewer conduit shall contain premium joints per ASTM D-3212.
4. Roof drains, foundation drains, and other clean water connections to the sanitary sewer are prohibited.
5. Granular material shall conform to the requirements of City of Toledo Part A Standards, Item 603.
6. Sewer Testing
 - A. All runs of the sanitary sewer shall be tested for exfiltration or infiltration by an Independent testing laboratory. The maximum rate of leakage or infiltration shall not exceed 100 gallons per inch of diameter, per mile of conduit, per 24 hours. A low-pressure air test may be used. All visible leakage in sewers or manholes shall be repaired even though the leakage is at a lower rate than the maximum allowed.
 - B. All new manholes shall be vacuum tested per ASTM C-1244.
 - C. PVC pipe sections between manholes shall be tested for ring deflection, which shall not exceed five percent (5%). Testing shall be done at least 30 days after pipe is installed.
 - D. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make all necessary corrections. The cost of all materials, equipment, labor, and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be the Contractor's responsibility.
7. The location of all existing utilities as shown on these plans is approximate. Determination of the exact location of existing utilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damage to existing utilities caused by his operations.
8. Underground Utilities: Two (2) working days before you dig, call Ohio Utilities

Protection Service (OUPS) at 1-800-362-2764. Nonmembers must be called directly.

9. Inspection - The contractor shall call the utilities construction engineer at (419) 936-2847 a minimum of three (3) working days prior to the start of construction for the inspection of sanitary sewers, water lines, and storm drains.
10. The Developer/Customer shall be responsible for meeting the requirements of the OEPA antidegradation requirements, if applicable.

Appendix 3

SANITARY SEWER NOTES (PRIVATE SEWER LESS THAN 200 FEET)

The following general notes shall be included on the plans:

1. All construction and materials shall conform to the standards of the City of Toledo and to the Specifications of the Ohio Department of Transportation dated January 1, 2008, subject to the City of Toledo, Division of Engineering Services Part A Standards. A copy of said Standards is available upon request to the D/ES.
2. All PVC sanitary sewer conduit shall be ASTM D-3034, SDR-35, with cell classification 12454-B or approved equal.
3. All sanitary sewer conduit shall contain premium joints per ASTM D-3212.
4. Roof drains, foundation drains, and other clean water connections to the sanitary sewer are prohibited.
5. Granular material shall conform to the requirements of City of Toledo Part A Standards, Item 603.
6. Sewer Testing
 - A. All runs of the sanitary sewer shall be tested for infiltration by an Independent testing laboratory. The maximum rate of leakage or infiltration shall not exceed 100 gallons per inch of diameter, per mile of conduit, per 24 hours. A low-pressure air test may be used. All visible leakage in sewers or manholes shall be repaired even though the leakage is at a lower rate than the maximum allowed.
 - B. All new manholes shall be vacuum tested per ASTM C-1244.
 - C. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make all necessary corrections. The cost of all materials, equipment, labor, and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be the Contractor's responsibility.
7. The location of all existing utilities as shown on these plans is approximate. Determination of the exact location of existing utilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damage to existing utilities caused by his operations.
8. Underground Utilities: Two (2) working days before you dig, call Ohio Utilities Protection Service (OUPS) at 1-800-362-2764. Nonmembers must be called directly.
9. Inspections

- A. If both the proposed sanitary sewer and the proposed storm drain are individually less than 200 ft in length, the contractor shall call the supervisor-utilities at (419) 936-2927 a minimum of three (3) working days prior to the start of construction for inspection.
 - B. If either the proposed sanitary sewer or the proposed storm drain is greater than 200 ft in length, the contractor shall call the utilities construction engineer at (419) 936-2847 a minimum of three (3) working days prior to the start of construction for inspection.
10. Permit Application for Inspection Services – Required if either Sanitary or Storm piping is > 200 feet in length. If so, both storm and sanitary piping lengths are combined to determine the fee. Developer or his agent is required to sign the permit application. Fees for inspection are to be paid before plan approval will be granted. Permit and fees will be handled by the Division of Engineering Services.
11. Projects less than 200 feet Length – After the review process, projects of this size and smaller, will be inspected and fees charged by Sewer & Drainage Services.

Appendix 4

STORMWATER UTILITY PLAN REVIEW CHECKLIST

City of Toledo

Storm Water Utility Plan Review

Information Requirements for Drawings – Private Developments – 2008

1. **Location Map** – Locate on title sheet indicating the project location. Include a North arrow.
2. **Street Address of Project** – Place on the title sheet.
3. **Legal Description of Property** – Provide near location map on the title sheet. Plat and Parcel no. is adequate.
4. **Graphic Scale** – 1 inch = 20 feet is preferred for site plans.
5. **Standard Drawing Sheet Size** – 24" x 36"
6. **Number of Drawing Sets to Submit** – Submit one set for the initial review. Six final sets are required when all revisions are made. Two approved sets are returned to the consultant, one to go to the contractor.
7. **Where to Submit Drawings for Review** – Do at the City of Toledo Building Inspection Department (419-245-1210), aka One Stop Shop or Central Permit Center (525 N. Huron St at Jackson). A prior or simultaneous submittal may be made directly to Engineering Services at 600 Jefferson Ave. but does not replace the required submittal to the Building Inspection Dept.
8. **Developer's Name, Address, Phone and Fax Nos.** – Furnish on title page.
9. **Consultant's Name, Address, Phone and Fax Nos.** – Furnish on all drawing sheets.
10. **Engineer's Stamp and Signature** – Provide on the title sheet and/or site plan submitted for final approval. Engineer must be a Civil PE licensed in the State of Ohio.
11. **Construction Standard Notes** – Minimum construction notes as follows must be on the drawings.
 - a. For protection of underground utilities, call the Ohio Utilities Protection Service at 1-800-362-2764 a minimum of 48 hours prior to excavating.
 - b. All material and construction will be in accordance with the Construction Standards and Specifications of the State of Ohio Department of Transportation (ODOT) dated January 1, 2008. ODOT Specifications are subject to an addenda by the City of Toledo, Division of Engineering Services. A copy of said addenda is available from the Division of Engineering Services. All standards referred to in these plans will be in accordance with the current City of Toledo Construction Standards, unless otherwise noted. In addition, all work will be in compliance with all applicable federal and state standards and regulations. If there should arise any conflict between any notes and/or details on the approved drawings or specifications for the project, this note will supercede and govern unless there is a written signed document from the City of Toledo Storm Water Utility stating otherwise.
12. **Structures** – All yard drains, catch basins, manholes, etc. should be labeled and in a schedule with all elevations, sizes, direction of flow, remarks, etc. Include a legend abbreviation key on a plan sheet. Sumps (min. 2' deep) are required for all catch basins but not for manholes. Pre-cast concrete structures are required. Refer to the most current City of Toledo Construction Standards for details.
13. **Plan and Profile Drawings** - Provide for all proposed piping parallel with and within the public

right-of-way or as directed by the storm water utility engineer.

14. **Site, Topographic and Grading Information** – A detailed site grading plan must be submitted for the proposed project. It should show all topographic features of the site including but not limited to ditches, swales, existing and proposed elevations, fences, ponds, detention areas, roads, buildings, existing utilities and drainage systems and all existing and proposed physical features pertinent to the project and review process. The site plan should also show adjacent land abutting the proposed development for a distance of approximately 100. ft. from the property lines with grades and topography.
15. **Existing Utilities** – Check for existing public and private utilities in proposed construction areas and show on site plan and utility drawings.
16. **Pipe Specifications** – Pipe is to be per ODOT section 603 subject to the current addenda in the annual City of Toledo Part “A” standards book. In general solid wall PVC and reinforced concrete pipe are the acceptable materials. Other materials may be used when certain conditions are met. See the addenda. Pipe should be identified on the drawings as to type A, B, C, D, E or F.
17. **Bedding and Backfill**
 - a. Bedding – All types are to be per ODOT spec. 603.06 and in accordance with the City of Toledo, Part “A” Standards 2007, addenda to the ODOT specs.
 - b. Backfill – All types are to be per ODOT spec. 603.10 and in accordance with the City of Toledo, Part “A” Standards 2007, addenda to the ODOT specs.
 - c. Granular Fill – Granular material or CDF shall be used for backfilling all trenches under pavement and/or any portion of the trench that is within 3 ft. of the pavement edge or curb. Pavement shall include but is not limited to; roadways, sidewalks, service walks, driveway approaches, parking lots or any proposed paved surface.
18. **Storm Water Pollution Prevention Plan (SWP3)** – Develop an SWP3 for the site. No site is exempt. If the project disturbs 1 or more acres you must obtain permit coverage from the Ohio EPA to discharge storm water from the site before breaking ground. Most sites obtain this coverage under the “**general permit for discharge of storm water associated with construction activity**”. To get coverage follow item 17 under the Miscellaneous Notes that follow.

A copy of the NOI or the Director’s letter must be submitted to the Storm Water Utility before the storm water plan review can be approved.

19. **SWP3 Standard Notes** - Minimum SWP3 notes as follows must be on the drawings
 - a. Soil erosion and sedimentation best management practice (BMP) measures will be installed prior to start of any construction and will be maintained at all times until construction has been completed, including all grass being well established and/or permanent erosion and sedimentation BMP measures are in place. All BMP measures will be installed to the satisfaction of the City of Toledo. The City of Toledo may require work to be stopped and the storm drainage outlet to be plugged, if conditions become unsatisfactory.
 - b. Contractor is to notify City of Toledo, Division of Environmental Services at 419-936-3015 three days prior to starting construction for purpose of monitoring erosion and BMP measures.
 - c. Contractor is to designate a site dump/wash area prior to starting construction for such purposes as washing out concrete trucks and dumping non-hazardous waste materials, subject to the supervision of the City of Toledo, Division of Environmental Services and the City of Toledo Municipal Code. Dumping or discharge of any waste materials to any City of Toledo sewers is prohibited. Hazardous Wastes are to be removed off site and properly disposed of consistent with

- all Federal, State and Local regulations.
- d. Any party (typically the General Contractor) who has day-to-day operational control of activities at this project, which are necessary to ensure compliance with the SWP3 for the site or other conditions as set forth in the permit, must file a Co-Permittee NOI with the Ohio EPA. This is the sole responsibility of the Co-Permittee and shall be done 21 days before ground is broken.
20. **Flood Zone** – Check for possible location within a FEMA flood plain. The lowest finished floor of any structure (including a basement) must be a minimum of one (1) foot above the 100 year base flood plain elevation for the site if construction is in a flood zone in the City of Toledo. For reference information go to: www.fema.gov or www.ci.toledo.oh.us code 1110 or call the Ohio Natural Resources at 614-265-6750.
 21. **Storm Water Calculations** – Submit calculations with the plans for review. Storm Water facilities must be designed to capture and treat the following storm events.
 - a. Allowable Q to the Municipal System – Use the Rational Method ($Q=CiA$) to estimate the peak runoff for the 5 year 20 minute storm where $C = 0.15$, $i = 3.2$ in/hr and $A =$ portion of the property determined by the length of the street frontage by a maximum depth of 100. ft.
 - b. Detention Volume - Minimum 25-year frequency, 24 hour storm event.
 - c. Water Quality Volume - The first flush, or first .75" of runoff, from the entire contributing watershed with a draw down time of 24 hours or greater.
 - d. Meter line size – Minimum size is 6". Sheet drainage to adjacent properties is not permitted but is allowed to an adjacent ditch or waterway. See the Storm Water Management Standards Manual (SWMSM) by the Maumee River Regional Storm Water Coalition for additional information. A manual can be obtained at TMACOG, phone: 419-241-9155 or on-line at www.epa.state.oh.us/dsw/rap/maupub.
 22. **Best Management Practices** – When water quality equipment is specified to trap and contain pollutants a letter must be furnished by the owner to the City of Toledo stating the following.
 - a. The owner will maintain the system for the life of the ownership.
 - b. Future property owners will be required, as part of the purchase agreement, to maintain the system.
 - c. The first cleaning will take place approximately one year from completion of construction/occupancy.
 - d. Results of the cleaning will be documented and furnished to the City of Toledo, Storm Water Utility.
 - e. Future cleanings will be determined by the City of Toledo, Storm Water Utility based on the results of the initial cleaning.
 23. **Fees for Field Inspection Services and Permit Application** – If either Sanitary or Storm piping is > 200 ft. in length, both storm and sanitary piping lengths are combined to determine the fee. The Developer/Owner or agent must pay the fee for inspection to the Division of Engineering Services before approval is granted. Inspection is performed by the Division of Engineering Services. Fees for plats are collected under the terms of a License Agreement. See item 16 in the miscellaneous notes that follow. The sewer permit application is completed in the field by the inspector and contractor.
 24. **Downspouts/Roof Drainage** – All sites must be drained internally and not shed storm water runoff to adjacent properties. Make sure provisions are made to direct the roof runoff to internal drainage.

25. **Detention Basin Information Sheet** – The consultant/engineer is required to complete a one page form regarding site specific details of the detention basin and other water quality items and BMPs. The form is separate from this document and will be furnished by the Storm Water Utility.

Miscellaneous Notes For Explanation Purposes

1. **Projects under 200' Length** – Projects of this size will be inspected and fees charged by the Division of Sewer & Drainage Services. Approved plans are sent to Ron Hanf. The Contractor is to contact him at 419-936-2927 three days before starting construction.

2. **Division of Engineering Services - Address and Contact Information**

City of Toledo
Department of Public Utilities
Division of Engineering Services
600 Jefferson Ave., Suite 300 phone: 419-245-1315
Toledo, Ohio 43604 fax: 419-936-2850

Frank Mortali, Senior Professional Engineer – Storm Water Utility, 419-936-2546,
frank.mortali@toledo.oh.gov

Earl Boxell, Staff Professional Engineer – Storm Water Utility, 419-936-2848, earl.boxell@toledo.oh.gov

3. **Distribution of Approved Plans** – Following the plan review, the six sets of drawings will be stamped and signed by the Storm Water Utility Engineer and dispersed as follows.
- One set to the Division of Engineering Services Storm Water Utility file.
 - Two sets to the Division of Engineering Services Inspection Department (if > 200' or in public ROW).
 - One set to the Division of Sewers and Drainage Services Inspection department (if < 200').
 - One set to the project Contractor routed through the Engineer/Consultant; pickup at Engineering Services
 - One set to the Division of Environmental Services.
 - One set to the Engineer/Consultant; pickup at Engineering Services

IMPORTANT: The Engineer/Consultant is responsible to disperse a copy of the approved drawings and SWP3 documents to the contractor to be kept at the construction site for the duration of the project by the contractor. Ohio EPA regulation.

4. **Adjacent Properties** – Adjacent property owners may share a common sewer providing a legal document is submitted describing the arrangement for maintenance, repairs and future connections. Adjacent property owners are not permitted to shed storm water runoff onto neighboring properties.
5. **Driveway Approaches** – On unimproved streets there is no formal approval required from the Storm Water Utility. The only concern is that in the case of a swale or ditch the drainage is not interrupted, impeded or prevented in any way.
6. **Detention on Parking Lots** – Allowed to a depth of 10". This volume is not part of the inspection fees.
7. **Project Reviews** – Regardless of the type of facility, its' ownership or location, a project, if in or draining into the City of Toledo, must meet the City of Toledo Storm Water Utility rules and regulations. Drawings must be submitted to the same for approval prior to any construction activity. No exceptions.
8. **Precast Concrete Structures** – Precast concrete structures are required within the public ROW and are always preferred on private property. They provide the ability to have cored holes installed at the

factory with boots. Concrete block structures will be allowed at the “Project Engineer’s” discretion, especially if there is a condition where a precast structure may not be able to be used due to field conditions or time may be a factor in getting the work completed. In the case of a corrugated pipe the boot will not apply. The joint should be sealed with non-shrink grout.

9. **City of Toledo Projects** – When reviewing a project for another City of Toledo unit (Parks, Water Dist., S B & H, etc.) and a determination is made that inspection from the Engineering Services Division is required, a letter will be requested from the submitting unit. This letter should contain a request from the unit to the Commissioner of Engineering Services for an inspector to Bruce Gyde and Michelle Shanteau. The letter should contain the project name with option and task codes. Questions should be directed to Michelle Shanteau at 245-1322.
10. **Approval Duration** – The plan review process can take up to 2-4 weeks or more depending on the workload and revisions required. Please be aware that once storm water approval is made it is valid for a period of 60 days from the date of approval. Should construction/installation work not be started within the 60 day period it is the responsibility of either the consultant or owner to obtain an extension of the approval from the Storm Water Utility.
11. **Design Changes** – If revisions/changes are to be made to the original approved design it is the responsibility of either the consultant or owner to contact the Storm Water Utility and submit details of the design changes for approval before changes are made in the field.
12. **Sheet Drainage** – Sheet drainage to adjacent properties or from pavement areas across sidewalks is not permitted but is allowed to an adjacent public ditch or waterway.
13. **Public Sewers on Private Property** – A minimum 20 ft. wide easement centered on the conduit is required for maintenance and accessibility. Relocation of a public sewer can be done but at the owner’s expense.
14. **Credits** – Storm Water Billing Credits are available from 5% to 50% for non-residential properties when certain management practices are performed. The practices include items like: Brownfield Reuse, Detention/Retention, Direct Discharge, Open-Channel Maintenance, Sediment Pond, etc. Contact the Storm Water Utility for information.
15. **License Agreement** – This agreement is required for plats or special circumstances as determined by the Storm Water Utility Engineer. The Developer is required to furnish construction quantities and other information to Robin Homer (419-245-1348) who will process the License Agreement.
16. **Information for Developing an SWP3 and obtaining coverage under the “general Permit”.**
 - a. Develop an SWP3 (Storm Water Pollution Prevention Plan) for the construction site before the NOI (Notice of Intent) is submitted. The SWP3 is required regardless of the size of the site.
 - b. Use the Ohio EPA “Construction Site Inspection Checklist” to develop the SWP3. It can be found at: www.epa.state.oh.us, division of surface water, surface water programs, storm water, construction activities, construction site inspection checklist.
 - c. Submit an NOI to the Ohio EPA requesting coverage for the discharge under the “**general permit**”. To be done at least 21 days prior to the start of construction activity.
 - d. An NOI is not required for a discharge to a combined sewer since the discharge goes to a municipal treatment plant.
 - e. Wait for the Ohio EPA approval letter covering the construction site under the “**general permit**”.
 - f. Ensure that all contractors and staff understand their roles in carrying out the SWP3.

g. Implement the SWP3, proceed with construction, inspection and maintenance.

17. EPA Notice of Intent (NOI)

An operator is any party associated with a construction project that meets either of the two following criteria.

- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications.
- The party has day-to-day operational control of those activities at a project, which are necessary to ensure compliance with an SWP3 for the site or other permit conditions.

There can be more than one operator at a site and under those circumstances the operators shall be co-permittees. Typically the owner/developer meets the first criteria and the General Contractor will meet the second. Both must obtain permit coverage. The owner/developer would submit the NOI application and the General Contractor would submit the Co-Permittee NOI. A copy of the NOI and Ohio EPA Director's acceptance letter must be posted on the work site. Contact Lynette Hablitzel of the Ohio EPA at 419-373-3009 in Bowling Green for information or assistance or go to website: www.epa.state.oh.us and click on "surface water programs".

Appendix 4 (continued) POST CONSTRUCTION BMP DATA SHEET

Form Completed By		Date:		Drawing Number*	
Property Owner Name:				Page ___ of ___ *	
Property Address Number:					
Street Name:					
Date Approved					
Date of Construction					
Design Engineer Name					
Design Engineer Phone Number					
Public	Yes	No			
Private	Yes	No			
Basin Type Please Check One			<i>Description</i>		
			Detention Basin (Dry) - Concrete or Lined tank/Basin with Open Space		
			Detention Basin (Dry) - Surface Grass-Lined Basin that empties out after a storm		
			Extended Detention (drain dry)		
			No Extended Detention (permanent wet pond)		
			Extended Detention (permanent wet area)		
			Biofilter		
			Parking Lot Detention (above ground)		
			Rain Garden		
			Vegetated Swale		
		Swale (other)			
		Underground			
		Wetland			
Water Quality Volume (cf)			Please fill in items that apply. Mark N/A if item does not apply.		
Water Quality Meter Rates (cfs)					
Sediment Capacity (cuyd)					
Drain Time (hrs)					
Volume 25yr (cu.ft.)					
Volume Total (cu.ft.)					
Volume Other (cfs)					
Volume Other Description					
Meter Pipe Design (length-dia-material)					
Meter 5yr (cfs)					
Meter Qallow (cfs)					
Meter Other (cfs)					
Meter Other Description					
Pervious Surface Size (acres)					
Impervious Surface Size (acres)					
Bottom Elevation of Basin			Datum		
Receiving Stream(Name)/Outfall(UnitID)			(If Known)		
Storm Water Utility Credit (Percentage)*			Storm Water Utility Credit Type*		

* To Be Completed by COT

Appendix 5
EXHIBIT A

CITY OF TOLEDO PERMIT APPLICATION FEE
FOR
SEWER PLAN REVIEW AND INSPECTION

The below listed permit application fees apply whenever either the sanitary or the storm sewer exceeds 200 feet in length, except single or double occupancy family residential properties.

The total length of storm and sanitary sewer will be added together to determine the sewer fee for plan review and inspection of the sewers as indicated below. The detention volume fee will be added to the sewer fee to determine the total permit fee. Detention volume on parking lots is not part of inspection fees.

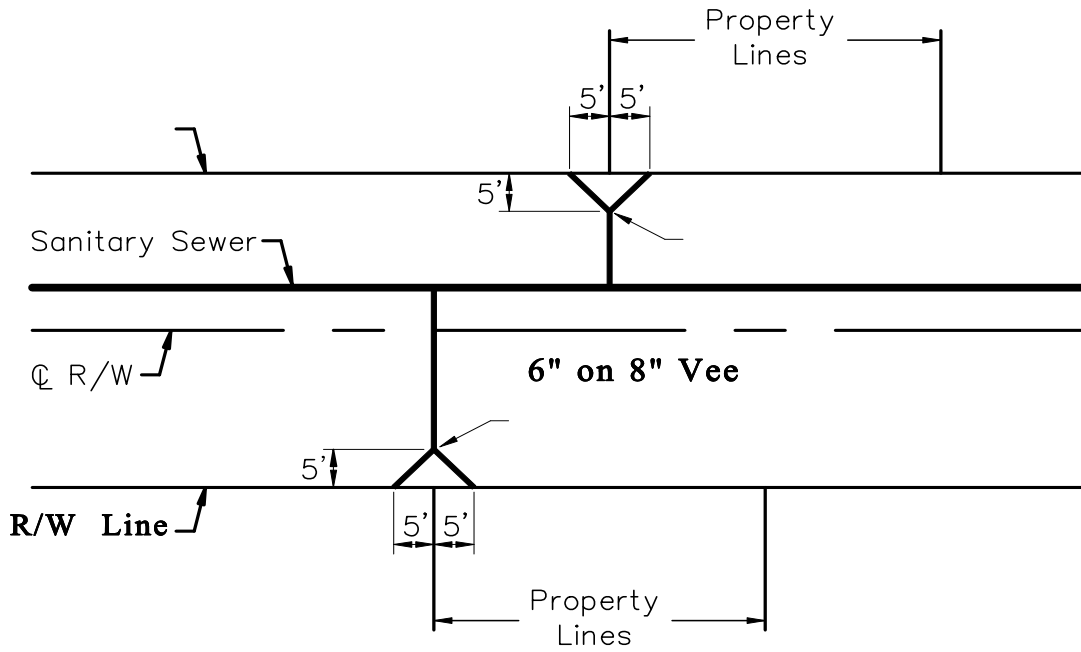
TOTAL LENGTH OF SEWERS	SEWER FEE	DETENTION VOLUME	DETENTION FEE
201 to 300 feet	\$700.00	500 to 8,000 cu. ft.	\$100.00
301 to 400 feet	\$900.00	8,001 to 16,000 cu. ft.	\$200.00
401 to 500 feet	\$1,100.00	16,001 to 30,000 cu. ft.	\$300.00
501 to 600 feet	\$1,300.00	30,001 to 50,000 cu. ft.	\$500.00
601 to 700 feet	\$1,500.00	50,001 to 75,000 cu. ft.	\$600.00
701 to 800 feet	\$1,700.00		
801 to 900 feet	\$2,000.00		
901 to 1,000 ft.	\$2,200.00		
1,001 to 1,100 ft.	\$2,400.00		
1,101 to 1,200 ft.	\$2,600.00		
1,201 to 1,300 ft.	\$2,800.00		
1,301 to 1,400 ft.	\$3,000.00		
1,401 to 1,500 ft.	\$3,200.00*		

* Add \$200.00 to the sewer fee for each 100 feet beyond 1,500 ft.

Checks should be made payable to: City of Toledo Department of Public Utilities (DPU).

Appendix 6
Crossover Tap Serving Two Undeveloped Lots

In cases where the crossover or tap serves two (2) undeveloped lots, the location of the individual taps shall be as shown below to protect the corner lot stakes and lawn areas.



APPENDIX 7

EXHIBIT A-1

NOTES AND SPECIFICATIONS FOR WATER MAIN MATERIALS FOR CITY OF TOLEDO SUBDIVISIONS

The following shall appear on all plans:

NOTES

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications and Construction Standards, and the Department of Public Utilities Rules and Regulations.

Water mains shall be installed, tested, and disinfected under the direct supervision of the Division of Engineering Services.

Tapping sleeves and valves and ¾ inch chlorination taps shall be furnished and installed by the Division of Water Distribution at the customer's expense. All excavation and backfill shall be performed by the contractor.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Engineering Services shall be notified (936-2847) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

The following specifications for materials shall appear on all plans:

SPECIFICATIONS FOR MATERIALS

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

All material shall be manufactured in the United States of America.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum class 52 meeting the requirements of AWWA C151 Table 4 or Pressure Class 350 meeting the requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inches and smaller and four per joint on pipe larger than 12-inch).

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends as specified in ANSI-A21.11 (AWWA C111).

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. All T-bolts and nuts shall be Cor-Blue, XYLAN, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21. (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or approved equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall be three (3) piece adjustable screw type with a 5¼-inch shaft with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal with cast iron body. Valve boxes outside the pavement shall be Ametek Roadway 5-245, or equal with poly-iron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJIW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJIW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423) or Kennedy Guardian K-81A meeting AWWA C502 as purchased by the Division of Water Distribution. Pumper nozzle shall be 5 inches internal diameter with Storz connector from Harrington, Inc. Storz connector shall be an integral part of the hydrant assembly. Nuts and bolts exposed to soil shall be 304 stainless steel. Hydrant exterior shall be shop coated using Pittsburgh Paint Brilliant Red (Safety Red) 7-801 Industrial Enamel with white bonnet. After the hydrant is installed, the contractor shall paint the hydrant with one coat of paint. Storz connector and cap are not to be painted.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

All hydrants shall have a tamper-resistant collar around and extending above the operating nut to prevent unauthorized operation of the hydrant.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

Provide Letter of Certification from material suppliers stating that all materials meet current City of Toledo standards.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

The following information shall be put on the plans in accordance with Ohio Environmental Protection guidelines:

NOTE: The Ohio Environmental Protection Agency requires a conformance to the 2003 edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 6" dia. Fire protection

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

**8-11-08
City Subdivisions**

APPENDIX 8

EXHIBIT A-1

NOTES AND SPECIFICATIONS FOR WATER MAIN MATERIALS FOR NORTHWOOD AND ROSSFORD SUBDIVISIONS

The following shall appear on all plans:

NOTES

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications and Construction Standards, where applicable, and the Department of Public Utilities Rules and Regulations.

Water mains shall be installed, tested, and disinfected under the direct supervision of the Division of Engineering Services.

Tapping sleeves and valves and $\frac{3}{4}$ inch chlorination taps shall be furnished and installed by the Division of Water Distribution at the customer's expense. All excavation and backfill shall be performed by the contractor.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Engineering Services shall be notified (936-2847) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

The following specifications for materials shall appear on all plans:

SPECIFICATIONS FOR MATERIALS

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

All material shall be manufactured in the United States of America.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum class 52 meeting the requirements of AWWA C151 Table 4 or Pressure Class 350 meeting the requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inches and smaller and four per joint on pipe larger than 12-inch).

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends as specified in ANSI-A21.11 (AWWA C111).

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. All T-bolts and nuts shall be Cor-Blue, XYLAN, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21. (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or approved equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall be three (3) piece adjustable screw type with a 5¼-inch shaft with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal with cast iron body. Valve boxes outside the pavement shall be Ametek Roadway 5-245, or equal with poly-iron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJIW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJIW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423) or Kennedy Guardian K-81A meeting AWWA C502 as purchased by the Division of Water Distribution. Nuts and bolts exposed to soil shall be 304 stainless steel.

All hydrants shall have a tamper proof collar around and extending above the operating nut to prevent unauthorized operation of the hydrant. The Contractor shall contact the local Fire Authority to determine the size and type of connections and threads for the outlet nozzles. Hydrant exterior shall be shop coated using paint and colors approved by the local authority. After the hydrant is installed, the contractor shall paint the hydrant with one coat of paint.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

The following information shall be put on the plans in accordance with Ohio Environmental Protection guidelines:

NOTE: The Ohio Environmental Protection Agency requires a conformance to the 2003 edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 6" dia. Fire protection

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

**8-11-08
Northwood/Rossford**

APPENDIX 9

WATER SERVICE PRE-TAP CONDITIONS

I hereby agree to the following conditions pertaining to the pre-tapping of the water services for this sub-division.

- 1) The water main shall be totally completed before tapping, including pressure testing and bacteria samples. The water main will not be tapped until the City of Toledo receives written confirmation of the negative results of the bacteria tests.
- 2) The Developer shall pay the total cost of all the taps prior to the City of Toledo making the taps.
- 3) The proposed tap location and curb stop location and grade shall be marked by the Developer as shown on the plans. The grade of the curb stop shall be 48" below final finished grade and 1 foot inside the right of way. The Developer shall provide to the County and City a list of the lot numbers showing the corresponding addresses for each lot.
- 4) The Developer shall guarantee access to the site. Any conflicts with contractors, equipment, or ground conditions will be reflected in the cost of the taps.
- 5) The City of Toledo will supply the copper (type "K" soft) for the service from the tap to the property line. The City will furnish the corporation for the tap, curb stop, and curb box. All materials provided by the Developer are the sole responsibility of the Developer and are to be stored according to AWWA standards. Any bacteriological contamination problems in the development stage of the subdivision will be the responsibility of the Developer.
- 6) Excavation, backfill, and compaction will be the responsibility of the Developer, unless piercing tools are used. The City will make the tap, install the copper, curb stop, and curb box. The curb box shall be set beside the curb stop for later adjustment by the homebuilder's plumber. Tap installation will be Monday through Friday (excluding City observed holidays). The curb stop shall be marked with a 4"X 4" wood timber by the Developer before pavement is placed and the service location with blue marking paint on the curb after the pavement is placed.
- 7) Services shall not be placed closer than ten (10) feet horizontally to a sewer drop or four (4) feet horizontally from all other utilities.
- 8) The house portion of the service shall meet the City portion of the service in as straight a line as possible (90 degrees to the street). No bends will be permitted within ten (10) feet of the curb box.
- 9) No tap shall be placed under the proposed pavement. No driveways shall be placed over any portion of the service.
- 10) Any relocations, adjustments, or repairs to damaged services shall be paid for by the Developer.
- 11) The City will inspect all hook-ups between the house portion and the City portion of the service. It shall be the responsibility of the homebuilder's plumber to set the curb box on the curb stop with the top of the box set at the final finished grade.
- 12) The taps and curb stops and stationing of all taps and curb stops shall be shown on the "As Built" plans. The recorded street names shall also be shown on the "As Built" plans.

- 13) The Developer shall be responsible for any unauthorized use of the water from any of the taps. This responsibility shall be transferred in some manner to the builder of the homes in the sub-division when the lots are sold.

08-27-08

APPENDIX 10

EXHIBIT A-1

NOTES AND SPECIFICATIONS FOR MATERIALS FOR CITY OF TOLEDO LARGE WATER SERVICES

The following shall appear on all plans:

NOTES

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications, and Construction Standards where applicable and the Department of Public Utilities Rules and Regulations.

Water mains shall be installed, tested, and disinfected under the direct supervision of the Division of Engineering Services.

Tapping sleeves and valves and $\frac{3}{4}$ inch chlorination taps will be furnished and installed by the Division of Water Distribution at the customer's expense. All excavation and backfill shall be performed by the contractor.

All domestic service connections will be made by the City of Toledo at the owner's cost. Excavation shall be performed by the contractor.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Engineering Services shall be notified (936-2847) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

The following specifications for materials shall appear on all plans:

SPECIFICATIONS FOR MATERIALS

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

All material shall be manufactured in the United States of America.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum Class 52 meeting the requirements of AWWA C151 Table 4, or Pressure Class 350 meeting the

requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inch and smaller and four per joint on pipe larger than 12-inch.)

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends as specified in ANSI-A21.11 (AWWA C111). All pipe, valves, and fittings for fire services shall also be UL/FM approved.

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. All T-bolts and nuts shall be Cor-Blue, XLAN, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21. (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or approved equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall three (3) piece adjustable screw type, with a 5-1/4 inch shaft, with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal, with cast iron body. Valve boxes outside of pavement shall be Ametek Roadway 5-245, or equal, with polyiron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJIW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts exposed to soil shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJIW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts exposed to soil shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423) or Kennedy Guardian K-81A meeting AWWA C502 as purchased by the Division of Water Distribution. Nuts and bolts exposed to soil shall be 304 stainless steel. Pumper nozzle shall be 5 inches internal diameter with Storz connector from Harrington, Inc. Storz connector shall be an integral part of the hydrant assembly.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

The following information shall be put on the plans in accordance with Ohio Environmental Protection guidelines:

NOTE: The Ohio Environmental Protection Agency requires a conformance to the 2003 edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 6" dia. Fire protection

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

8-11-08

City Large Services

APPENDIX 11

EXHIBIT A-1

NOTES AND SPECIFICATIONS FOR MATERIALS FOR LARGE WATER SERVICES OUTSIDE CITY OF TOLEDO

The following shall appear on all plans:

NOTES

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications, and Construction Standards where applicable and the Department of Public Utilities Rules and Regulations.

Water mains shall be installed, tested, and disinfected under the direct supervision of the Division of Engineering Services.

Tapping sleeves and valves and $\frac{3}{4}$ inch chlorination taps will be furnished and installed by the Division of Water Distribution at the customer's expense. All excavation and backfill shall be performed by the contractor.

All Domestic service connections will be made by the City of Toledo at the owner's cost. Excavation shall be performed by the contractor.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Engineering Services shall be notified (936-2847) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

The following specifications for materials shall appear on all plans:

SPECIFICATIONS FOR MATERIALS

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

All material shall be manufactured in the United States of America.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum Class 52 meeting the requirements of AWWA C151 Table 4 or Pressure Class 350 meeting the

requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inch and smaller and four per joint on pipe larger than 12-inch.)

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends as specified in ANSI-A21.11 (AWWA C111). All pipe, valves, and fittings for fire services shall also be UL/FM approved.

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. All T-bolts and nuts shall be Cor-Blue, XLAN, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21. (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or approved equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall three (3) piece adjustable screw type, with a 5-1/4 inch shaft, with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal, with cast iron body. Valve boxes outside of pavement shall be Ametek Roadway 5-245, or equal, with polyiron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJIW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts exposed to soil shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJIW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts exposed to soil shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423) or Kennedy Guardian K-81A meeting AWWA C502 as purchased by the Division of Water Distribution. Nuts and bolts exposed to soil shall be 304 stainless steel.

The Contractor shall contact the local Fire Authority for the size and type of connections and threads for the outlet nozzles.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

The following information shall be put on the plans in accordance with Ohio Environmental Protection guidelines:

NOTE: The Ohio Environmental Protection Agency requires a conformance to the 2003 edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 6" dia. Fire protection

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

8-11-08
Outside City

APPENDIX 12

WATER SERVICE TAP AND PRE-TAP CONDITIONS

PRIVATE

I hereby agree to the following conditions pertaining to the pre-tapping or tapping of the water services for this private subdivision or development.

- 1) The water main shall be totally completed before tapping, including pressure testing and bacteria samples.
- 2) The Developer/Builder shall pay the total cost of all the taps.
- 3) The proposed tap location and curb stop location and grade shall be marked by the Developer/Builder as shown on the plans. All service lines shall be installed 48" minimum below final finished grade. The Developer/Builder shall provide to the County and City, if outside the City, and just the City if inside the City, a list of the lot numbers showing the corresponding addresses for each lot or building to be tapped.
- 4) The Developer/Builder shall guarantee access to the site. Any conflicts with contractors, equipment, or ground conditions shall be reflected in the cost of the taps.
- 5) The Developer/Builder shall supply the copper (type "K" soft) for the service. The City will furnish the corporation for the tap, 5' of Type "K" copper, curb stop, and curb box. All materials provided by the Developer/Builder are the sole responsibility of the Developer/Builder and are to be stored according to AWWA standards. Any bacteriological contamination problems in the development stage of the subdivision shall be the responsibility of the Developer/Builder.
- 6) All excavation, backfill, and compaction shall be the responsibility of the Developer/Builder. The Developer/Builder shall install the copper to within 5 feet of the water main. The City will make the tap, install 5 feet of copper and connect to the Developer/Builder's copper with the curb stop, and install the curb box. The curb box shall be set beside the curb stop and buried for later adjustment by the Developer/Builder's plumber. When the service crosses under a private street, drive, parking lot, etc. to serve a building, the City may have to install the curb stop on the same side of the pavement as the building. The Developer/Builder shall dig the hole for the City to install the curb stop. Tap installation will be Monday through Friday (excluding City observed holidays). The curb stop shall be marked with a 4"X 4" wood timber by the Developer/Builder after installation.
- 7) Services shall not be placed closer than ten (10) feet horizontally to a sewer drop or four (4) feet horizontally to all other utilities.
- 8) The service must meet the City installed portion of the service in as straight a line as possible (90 degrees to the water main).
- 9) For taps and services with multiple branch services there shall be a curb stop with a curb box for each branch off of the main service. A curb stop and curb box shall be installed on each branch, by the Builder's plumber, in a location by which it can be determined which curb stop shuts off water service to the unit the branch serves. All branch box locations must be approved by the Department of Public Utilities prior to installation.
- 10) Any relocations, adjustments, or repairs to damaged services shall be the responsibility of the Developer/Builder. The City will not maintain any portion of the service during construction or in the future.
- 11) The City will inspect all hook-ups of the copper to the building. It shall be the responsibility of the Developer/ Builder's plumber to set the curb box on the curb stop with the top of the box set at the final finished grade.
- 12) The Developer/Builder shall be responsible for any unauthorized use of the water from any of the taps. This responsibility shall be transferred in some manner to the Builder if the Builder is not the same as the Developer.

APPENDIX 13

CITY OF TOLEDO LARGE WATER TAP AND INSPECTION FEE DEPOSITS (4-inch and larger)

Checks should be made payable to the City of Toledo Department of Public Utilities.

Size (inches)	Tap Fee (Tapping sleeve & valve supplied by City)	Quantity	Total	Length of Service (ft)	Inspection Fee	Item
				Enter length of service:		
4x4	\$950.00			0 - 100	\$1,100.00	
6x4	\$1,000.00			101-200	\$1,250.00	
6x6	\$1,100.00			201-300	\$1,400.00	
8x4	\$1,050.00			301-400	\$1,700.00	
8x6	\$1,150.00			401-500	\$1,850.00	
8x8	\$1,200.00			501-600	\$2,000.00	
10x4	\$1,100.00			601-700	\$2,150.00	
10x6	\$1,200.00			701-800	\$2,300.00	
10x8	\$1,250.00			801-900	\$2,450.00	
10x10	\$1,800.00			901-1000	\$2,600.00	
12x4	\$1,150.00			1001-1100	\$2,950.00	
12x6	\$1,250.00			1101-1200	\$3,100.00	
12x8	\$1,300.00			1201-1300	\$3,250.00	
12x10	\$1,850.00			1301-1400	\$3,400.00	
12x12	\$2,400.00			1401-1500	\$3,550.00	
			\$0.00	1501-1600	\$3,700.00	
				1601-1700	\$3,850.00	
				1701-1800	\$4,000.00	
				1801-1900	\$4,150.00	
				1901-2000	\$4,300.00	
				2001-2100	\$4,450.00	
				2101-2200	\$4,600.00	
				2201-2300	\$4,750.00	
				2301-2400	\$4,900.00	
				2401-2500	\$5,050.00	
				2501-2600	\$5,200.00	
				2601-2700	\$5,350.00	
				2701-2800	\$5,500.00	
				2801-2900	\$5,650.00	
				2901-3000	\$5,800.00	
				Subtotal		\$0.00
				Grand Total		\$0.00
			\$0.00			
3/4-in chlorination tap:			\$0.00			
Total this column			\$0.00			

Add \$150.00 to the inspection fee for each 100 feet beyond 3,000 feet.

Revised 08-13-08

APPENDIX 14

CROSS CONNECTION SURVEY

City of Toledo
Department of Public Utilities
Water Distribution

**Non-Residential Cross-Connection Survey
(New Service)**

Facility Name: _____

Facility Address: _____

Mailing Address: _____

Contact Person: _____ Phone Number: _____

Type of facility to occupy property (e.g. restaurant): _____

Type of service (check one): Industrial Commercial Government Other

Will the facility have backflow prevention incorporated immediately following the water meter? Yes No

Will the property be 100% occupied by the facility? Yes No

Will the facility require non-interrupted water service? Yes No

Will a second water source be available to the facility (e.g. well)? Yes No

Will any process water be in use at this facility? Yes No

If yes, will backflow protection be incorporated? Yes No

Will the facility use potable water in a fire protection system? Yes No

If yes, will backflow protection be incorporated? Yes No

Will the facility have hot water boilers or steam boilers? Yes No

If yes, will backflow protection be incorporated? Yes No

Will the facility have air conditioning cooling towers? Yes No

If yes, will backflow protection be incorporated? Yes No

Will a water saver be utilized on condensing lines or cooling tower? Yes No

If yes, will backflow prevention be incorporated on make-up supply line? Yes No

To be Signed by Person Making Application for Water Service:

I hereby certify that I am acting as agent for the owner of the property listed, with full knowledge and consent, and that all information furnished is complete and correct. As owner's agent, I further acknowledge that incomplete or incorrect information may result in denial of water service.

Signature of Applicant: _____ Date: _____

Name of Applicant: _____ Phone Number: _____

Company Name of Applicant: _____

Company Address of Applicant: _____

Return survey to: Backflow Prevention Coordinator, Water Distribution, 401 S. Erie St., Toledo, OH 43602

