CITY OF DEARBORN

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
PLAN REVIEW COMMENTS

Engineering Division Requirements for Commercial/Residential Plan Review

Site plans submitted to the City Engineering office for review shall include:

1. Topographic survey that includes: properties' lines with legal descriptions, Right-of-Way lines with R.O.W. width, easements, grades, pipes' invert elevations and utilities (water, sanitary & storm sewers and all other utilities). Surveys shall be signed & stamped by Michigan professional land surveyor.
2. Utility plan that includes all proposed and abandoned utilities with invert elevations.
3. Grading plan (property line shall be grading high point to ensure that no stormwater surface drainage drains to the R.O.W. and/or adjacent property).
4. Soil Erosion and Sedimentation Control plan.
5. City of Dearborn standard plans for the public water, sanitary/storm sewer and/or pavement construction. All construction on City of Dearborn's Rights of Way and public utilities shall abide by the City of Dearborn standard plans.
6. Commercial Site plans shall be drawn to scale with minimum drawing size of 18"x24". Plans shall be signed & stamped by Michigan professional engineer.
7. Residential Survey Maps/Site Plans shall show all proposed and existing: grades, utilities, structures and setbacks. Plans shall be drawn to scale with minimum drawing size of 8-1/2"x14" and shall be signed & stamped by Michigan professional engineer.

The following notes shall be included with the site plan (where applicable):

1. All new developments must construct a sidewalk (if none exists) along the property's parameter within the public Right of Way.
2. Contact the Wayne County Department of Public Services (WCDPS) and obtain their permit for all work within the Wayne County Rights of Way.
3. Contact Michigan Department of Transportation (MDOT) and obtain their permit for all work within the MDOT Rights of Way.
4. Contact the Engineering Division 48 hours prior to construction for any work on the City of Dearborn's Rights of Way and public utilities to schedule inspections.
5. Contact the Water Division for water connections and permit fees.
6. All material used in construction on City of Dearborn's Rights of Way and public utilities shall abide by the attached City of Dearborn materials specification.
7. All sewer taps require sewer tap permits that shall include pavement restoration.
8. All permanent structures including sheds & garages shall not encroach on easements.

Requirements for Storm Sewers:

1. Refer to attached specifications' document titled "Storm water detention requirements for projects of less than one-acre of earth disturbance & not belonging to a larger common plan of development".
2. Refer to attached specifications' document titled "The requirements for Projects beyond one-acre of disturbance or belonging to a larger common plan of development".
3. All drainage structures shall have at least 2 ft. sump.

4. Run off calculations shall be provided based on 10 years storm based on Latest Wayne County Storm Design Manual.
5. Show the profiles for existing and proposed sewers including pipe length, size, diameter, slope and material type. Provide cross-sectional details when applicable.
6. Roof Drains shall not tap into the City's sewer; however, drains shall splash onto the property's grass areas or be tapped into the internal storm water system within the private property.
7. Residential properties below 1 acre in area shall not propose to tap into City storm sewer.
8. Proposed storm sewer lead shall tap into an existing or proposed City storm sewer manhole. Tapping storm leads into City catch basins shall not be permitted.

Requirements for Sanitary Sewers:

1. Drop connection is required for all taped into manhole(s) where the difference in elevation between inlet and outlet pipes exceeds 18".
2. Properties shall have separate storm and sanitary leads. Sanitary sewer connections shall not be permitted into separate storm sewers.
3. For new or reconstructed buildings, propose new sanitary leads up to the City's main.
4. All sewer pipe bedding, backfilling materials and the compaction shall confirm to the City of Dearborn standards.
5. Verify elevations of the exiting City sewer in the design of the proposed basement to ensure proper drainage. The sewer lead shall enter the dwelling below the footing. A profile drawing may be required.
6. Sewer leads shall maintain at least a ten (10) feet horizontal separation from all structures and water pipes. Sewer leads shall maintain at least a five (5) feet horizontal separation from other underground utilities. Maintain 18" vertical separation between all utilities.

Requirements for Pavement (sidewalks, aprons, streets and alleys) Construction:

1. The contractor shall saw cut concrete pavement, concrete base course and asphalt surfaces before their removal.
2. The contractor shall provide, place and maintain temporary pavement until the permanent pavement is constructed. The temporary pavement shall match existing pavement grades by placing 3" thick cold patch across disturbed pavement.
3. Pavement restoration on the City's streets shall consist of 8"-thick non-reinforced concrete pavement with ¾" diameter hook bolts at 30" c-c over 6"-thick 21AA aggregate base course compacted in place. The minimum width of pavement replacement shall be 5 feet. If the existing pavement joint is within 5 feet of the pavement removed, the replacement shall be up to the existing pavement joint.
4. Contact Wayne County and M-DOT for pavement standards on their Rights of Way.
5. Sidewalks and driveway aprons in residential properties shall conform to attached detail titled "Typical Residential Driveway Replacement Plan".
6. Commercial driveway aprons shall conform to the attached document titled "Commercial Driveways Standards".
7. Curb cuts and aprons shall conform to Engineering Division standards and City ordinances (for new aprons, provide a cross section showing proposed elevations).

Refer to additional residential plan review comments in the next page.

City of Dearborn, Engineering Division, Residential Plan Review - Construction Notes:

- Contact Dearborn's Water Division at (313) 943-2307 for connection & meter fees, for the new service.
- Curb cuts & Apron shall conform to Engineering Division standards. Aprons must be constructed of poured concrete.
- Downspouts shall not be connected to the sewer system.
- Cross connection between sanitary lead, and storm lead is not permitted in separated sewer area.
- Contractor shall verify elevations of the existing City sewer and the proposed basement to insure proper drainage to city sewer. The house lead shall enter the dwelling below the footing. A profile drawing may be required.
- Engineering Division recommends that sewer leads maintain at least a five (5) foot separation from all proposed garages/sheds.
- All garages/sheds shall not encroach on to easements.
- Storm water runoff must not flow onto adjacent lots.
- The Engineering Division requires that all new construction shall have new sewer service lead from the building to the city sewer. The existing wye connection shall be replaced with a new sewer tap. Refer to engineering plan review for approved sewer tap location. Contact the Engineering Division at (313) 943-2145, 48 hours prior to the sewer lead construction.
- Flatwork in city R.O.W. requires Engineering Division inspection. Contact the Engineering Division at (313) 943-2145, at least 48 hours prior to work in R.O.W. for Engineering Division inspection.
- Driveway apron cross slope shall not exceed 8% and sidewalk cross slope shall not exceed 2%.

124. MATERIALS:

The Contractor shall furnish all pipe and appurtenant materials required for the Contract. When referenced specifications are used, they shall be considered as referring to the current edition or latest issue.

124.1 **Water Main Pipe**: The ductile iron pipe shall be manufactured in accordance with AWWA Specification C151 (ANSI A21.51), thickness Class 54 of the sizes shown on the plans and shall meet standard NSF 61. All pipes shall be lined with a standard thickness cement mortar lining sealed with a bituminous seal coat in accordance with AWWA Specification C104 (ANSI A21.4), unless otherwise specified. The outside of the pipe shall be coated with the standard bituminous seal. The metal thickness class, net weight of the pipe without lining, the nominal size and the manufacturer's identifying symbol shall be clearly marked on each length of pipe.

124.11 **C-900 and C-905**: Fusible C-900 and C-905® pipe meet all applicable industry standards: AWWA C900 and C905 NSF-61 Certification for Drinking Water Components, ASTM cell classification 12454, and formulation requirements of Plastics Pipe Institute TR-2. Pressure pipe is tested in accordance with AWWA C900 and C905 requirements, meets the same ASTM cell classification and PPI formulation requirements, and is NSF-61 certified when used for potable water. PVC pipe shall meet NSF-14 and bear the NSF-pw mark on the exterior pipe.

124.12 **Corrugated Steel Pipe Galvanized with Asphalt Coating** The corrugated steel pipe shall be galvanized materials coils meeting the requirement of AASHTO M218 or ASTM A928. It shall be manufactured in accordance with current AASHTO M-36 or ASTM A760 standard. The pipe sizes, gauges and corrugations shall be in accordance to the project plans. Backfill material shall be selected material and must be in accordance with City of Dearborn Standard S-1 "Storm Sewer Standard." Installation shall be in accordance with ASTM A798 standard.

124.2 **Water Main Fittings**: Fittings shall have the mechanical joint restraint system. Fittings for ductile iron pipe shall be of ductile iron and shall have a working pressure of three hundred fifty (350) pounds per square inch (psi) that meets the requirements of AWWA C110 (ANSI A21.10), or AWWA C153 (ANSI A21.53) for compact fittings with cement mortar lining. Cement mortar lining shall meet AWWA C104 (ANSI A21.4) specification for a double thickness lining with a bituminous seal coat.

124.3 **Water Main Joints**: Joints for ductile iron pipe shall be push-on type conforming to AWWA C111 (ANSI A21.11). Mechanical or flanged joints will be allowed for special applications subject to approval of the Engineer. Sealing gaskets, retainer glands and lubricants for joints shall meet the pipe manufacturer's specifications.

124.4 **Bolts and nuts** used on gate valves and mechanical joint fittings shall be of "Corten" or "Stainless" Steel.

124.5 **Gate Valves**: Valves shall be manufactured and tested to meet the requirements of ANSI/AWWA C515. Valves shall meet or exceed the requirements of Underwriters Laboratories Standard UL262.The rated working pressure of the valve shall be 250 psi.

The body, bonnet and seal plate shall be made of ductile iron in accordance with ASTM A536. The wedge shall be ductile iron in accordance with ASTM A536 and shall be totally encapsulated in rubber. The rubber coating shall be permanently bonded to the ductile iron wedge

casting and shall meet ASTM D429 tests for rubber to metal bonding. No paint shall be allowed in the wedge and the wedge must not be hollow. Containment of the stem nut must only be on two sides to facilitate easy removal.

The stem and stem nuts shall be made of high strength manganese bronze. The stem must have an integral thrust collar. Stainless steel stems are not acceptable. There shall be three stem seal o-rings; two in the seal plate which shall be replaceable with the valve in the full open position at rated working pressure, and one under the stem thrust collar. All gaskets shall be o-ring seals. O-rings set in a cartridge shall not be allowed. A stem seal must be present above the seal plate to prevent dirt intrusion.

Valves must have two thrust washers, one above and one below the thrust collar.

All fasteners are to be stainless steel. Socket head bolts shall not be allowed. If only two bolts are used to secure the seal plate, the bolts must be fastened to the bonnet with a drilled and tapped hole in the bonnet.

The body, bonnet and seal plate shall be epoxy coated in accordance with ANSI/AWWA C550. This coating shall be on the interior and the exterior of the valve. The manufacturer's name, valve size, year of manufacture, pressure rating ("250W"), C515, and "DI" shall be cast on the valve.

The bottom of the wedge guides must be a minimum of 25 degrees in order to promote flushing.

Each valve shall be tested in accordance with ANSI/AWWA C515, UL262 and FM 1130. This shall include hydrostatic pressure testing at 500psi. A certification of manufacture and testing shall be provided at the purchaser's request.

Valves shall be East Jordan Iron Works Flowmaster, or approved equal.

Any valve to be considered must be manufactured, assembled and tested in the contiguous United States of America. Letters of certification must accompany any and all products.

Apply "Trenton #1 Wax Tape" to the proposed gate valves and fire hydrant valves in accordance with the manufacturer specification. Encase the proposed gate valves and fire hydrant valves with polyethylene encasement.

Contact the City of Dearborn Assistant Superintendent of Water and Sewerage Division for proper submittal procedures.

124.6 **Oversize water main fittings and sleeves** where required for connections to the existing water main system shall be considered incidental to construction. The connections to existing water mains with lead joints shall be replaced with mechanical fittings.

124.7 **Fire Hydrants**: The fire hydrants shall be the City of Dearborn, Fire Department Standard East Jordan Model 5-BR250, Product #54978D. Hydrants shall open counterclockwise. Hydrants shall be controlled by 6 inch gate valves in boxes, which shall open clockwise. Hydrants shall meet AWWA standard C502. Weep / drain holes plugged .

124.8 **Tapping Sleeve Valves**: Tapping sleeve valves, if required, shall include a gate valve,

meeting the requirements of AWWA C500, with seat rings of a larger diameter to permit entry of the tapping machine cutters, and a tapping sleeve, which will allow a wet tap. The tapping sleeve shall be suited to the existing pipe material. The tapping valve shall be furnished with the types of ends required by the conditions of installations.

124.9 **Valve Boxes**: The valve box shall be made of cast iron conforming to the requirements for Class No. 20 of the specifications ASTM Designation 48. Each box shall be screw type and consist of five sections: base, center, extension, top, and cover (marked "Water"). Valve boxes shall be used for valves larger than 3 inches and less than or equal to 6 inches in size.

124.10 **Water Service Pipe, Connections and Fittings**: The water service lines 3 inches in diameter or smaller that are to be transferred from the old to the new water main shall be ASTM B-88-Type K Copper Pipe and those fittings necessary for this work shall be as manufactured by Mueller Company, Decatur, Illinois or an equal approved by the City of Dearborn Water Division. Identification numbers listed below are from Mueller Catalog W103 and A.Y. McDonald OS-11.

a. Corporations shall be H-15000. Stops shall be of all brass construction with the types of ends as required by the conditions of installation. Stops shall open counterclockwise. 1 inch diameter Mueller threads shall be placed on each side of each line gate valve, on the inlet side of each blow-off gate valve and on the inlet side of each outlet gate valve.
b. Flare couplings shall be H-15400 (3/4" and 1") copper to copper
c. Compression couplings shall be H-15403E (1-1/2", 2") and 3" copper to copper
d. Curb stop shall be Mueller H-15204 for copper to copper
e. Curb stop shall be Mueller H-10051 and H-15174 for copper to lead
f. Curb stop boxes shall be Tyler E 100
g. Road box shall be Tyler size D
h. Ball style curb stop shall be -6104 (A.Y. McDonald) (Flat head Minneapolis pattern)
i. A.Y. McDonald Minneapolis curb box shall be 5622
j. Mueller Minneapolis box
k. A.Y. McDonald copper compression to lead compression shall be 4758-22-67
l. A.Y. McDonald copper flare lead to compression shall be 47586-67

Services larger than 3 inches in diameter are considered Water Mains and shall be constructed in accordance with water main pipe and appurtenant requirements prescribed elsewhere in this special provision.

124 .10A **Lead Water Service Replacement Specifications**

The existing lead water services shall be replaced from the City watermain to at least 18 inch inside the basement.

Intended as a guide of minimum requirements for replacement of lead water services from the curb stop to the water meter.

The contractor's plumber is to apply for an individual plumbing permit for each residence requiring internal plumbing modifications on an address by address basis. Any cost for these plumbing permits will be borne by the City, any violations written upon the city inspecting and subsequent modifications and permit costs will be borne by the contractor.

Water service is to be ran in “K” copper tubing, no smaller diameter than the size of the water distribution piping immediately downstream of the existing water meter, ran in one piece with no connections or joints prior to the inlet shut off valve within the residence (Except you may connect the new service below grade, with an approved coupling or fitting, to an existing copper line provided from the existing curb stop). In no case shall the water service supply line be smaller than ¾” diameter, with no kinks or restrictions at any bends. Water service line and curb stop to be minimum of 60’’below ground at all locations (54” if specific obstruction present and upon concurrence of the Engineering Inspector). Inlet water shut off valve to be placed within 18” of entrance into structure with a horizontal meter setting within 12” after water inlet valve unless otherwise approved by Water Department. Meter setting location to be spaced sufficiently away from walls or obstructions to allow proper installation of the appropriately sized a water meter. No meters or plumbing are to be placed into or thru an unheated space subject to freezing. (Specific plans and methods of running a water service thru an unheated space (under a porch or through a cellar or a crawl space) are to be reviewed and decided on a case-by-case basis with the City).

Water service shall be placed (a) by drilling a three and half inch , (3 ½ inch) hole through an existing cinder block and /or concrete basement wall and the hole shall be grouted into the wall with non-shrinking cement grout and non-shrinking polyurethane system (Mountain Grout) or equal , or (b) by directional drilling 24 inch under the basement footing by saw cutting, removing 12 inches by 12-inch concrete basement floor and pulling the new copper service through the floor , place 12 inch by 12 - inch concrete 4 inch thick.

Inlet valve shall be a full opening ¼ turn ball valve of stainless steel and or lead-free brass construction with female threads and rated for 150 psi potable water, sized the same as the water service size.

All threaded connections are to be treated with a Teflon pipe thread sealant. All other connections are to be with lead free solder. All below ground copper to copper connections are to be made with approved lead free brass flared or compression couplings of an approved manufacturer and style acceptable to the City.

After the new service is installed and connected externally with a new interior valve installed, the water shall be turned on at the curb stop, and the service line and valve checked for leaks, the water service is to be flushed and cleared before continuing.

Meter setting shall be installed with lead free brass couplings on each side of the water meter setting. Meter setting size including couplings shall be plumbed for the same size meter as the outlet piping, but in no case, no smaller than a ¾” water meter. If the existing outlet coupling is less than the proposed new meter size, or the outlet shutoff valve is not a full opening gate valve or full opening ball valve, or is broken, a new outlet valves the same size and style as the inlet valve along with a new outlet coupling is required to be plumbed in. Plumbing shall be reconnected to existing distribution inlet plumbing or extended to other suitable connection point, and if so, former distribution inlet connection point is to be terminated properly to prevent stagnant dead headed piping.

All meter settings are to have a properly attached bare ground "jumper" wire of #4 braided copper attached with proper grounding clamps, attached each side of the meter outside of the couplings. Grounding clamps are to be attached to locations where the piping has been sanded bare for positive contact.

If any existing grounding jumper wires are in place extending back away from the meter and have to be removed, they are to be re-attached to the plumbing system and re-attached to a continuous #4 jumper wire extended to the inlet side of the meter within 18" of the meter service entrance into the building.

The old water meter is to be drained and left on the floor with the radio or radio wires still attached for retrieval by Water Department Meter Service personal when they remove the rigid meter sized template and install a new water meter.

The old water service is to be turned "off" at the curb stop and the contractor will leave the water off at the existing interior inlet valve, and the opening side of the outlet of the valve or pipe will be appropriately plugged with a threaded plug, until the main is "killed" at which time the old service is to be cut flush with the floor or wall and filled with non-shrinking polyurethane caulking.

The plumber is required to turn on the plumbing and check thoroughly for leaks and verify good water pressure at plumbing fixtures within the residence before leaving and is to notify the Water Department of the need to install a water meter and to collect the old water meter.

All interior and exterior work sites are to be left in a clean and safe manner. Holes in or through walls are to be core drilled, holes in floors are to be neatly and carefully broken out to minimize damage or disruption and are to be repaired with approved concrete after backfilling and tamping.

124.11 **Storm sewer and precast manhole tee for "Tee Manholes"** shall conform to reinforced concrete pipe meeting the current A.S.T.M. C76 Specifications and shall meet the design requirements for Class IV or Class III reinforced concrete pipe.

Joints for circular concrete sewer pipe using rubber gaskets as called for in the Bid shall meet the current A.S.T.M. C443 specifications.

124.12 **Sanitary sewer** shall conform to the following requirements:

- Polyvinyl Chloride (P.V.C.) Schedule 40 for Sewer Leads
- Polyvinyl Chloride (PVC) SDR 26 for sizes 8" through 15" dia. per A.S.T.M. Specification D-3034, Material Cell Class 12454B per A.S.T.M. D-1784 or

- Polyvinyl Chloride (P.V.C) Composite Pipe (Truss) per A.S.T.M. Specification D-2680-90 (or latest revision) or for sizes 8" through 15" diameter.
- SDR 11 High Density Polyethylene (HDPE) Pipe only for horizontal directional drilling method of sewer construction and shall meet the requirements of AWWA C-900, AWWA C-905, NSF-61 and ASTM all specifications 12454. No pipe other than P.V.C. shall be used for sanitary construction.
- Polyvinyl Chloride (P.V.C.) Gravity sewer per ASTM F679, for sizes 18" diameter to 24" diameter.
- Fusible C-900 PVC pipe only for directional drilling and shall meet the requirements of AWWA C900 and AWWA C-905.
- No pipe other than P.V.C. shall be used for sanitary sewer construction.

124.13 **Precast storm sewer manhole** shall conform to current A.S.T.M. C478 specifications, provided with modified groove tongue with super seal gasket and steel reinforced plastic manhole step meeting the requirements of A.S.T.M. 21460-68 under Type II, Grade 49108. All manholes shall have eccentric cone section. Precast manhole tees shall conform to MDOT standard plan No R-3-B and as attached if required for this contract.

124.14 **Precast sanitary sewer manholes** shall conform to current A.S.T.M. C478 specifications, provided with modified groove tongue with super seal gasket, and Kor-N-Seal flexible joint connections. All manholes shall have eccentric cone section.

124.15 **Adapters for joining dissimilar pipe** shall be BAND-SEAL couplings with transitional bushings and stainless steel shear rings, as manufactured by Clow Corporation, Fernco Flexible Couplings with stainless steel clamps, or approved equal.

124.16 **Fittings for connecting P.V.C. pipe** to existing manholes shall be P.V.C. manhole adapters with silica-impregnated surface as manufactured by GPK Products, Inc.

124.17 **All new structures shall have new castings**. All castings shall meet the requirements of the current specifications A.S.T.M. Designation: A-48 and shall have the same minimum strength as provided for #30 gray iron castings.

124.18 **Portland Cement Concrete Pavement Concrete for full width pavement curb to curb and intersection to intersection, concrete curb and gutter construction (6' wide and 2' wide)** from intersection to intersection and concrete for all sidewalks and aprons shall contain 6 sacks of cement per cubic yard and test 3,500 psi at 28 days (5%-8% air). Coarse aggregate shall be 6AA. Concrete for pavement spot repairs and curb and gutter spot repairs shall contain 7 sacks of cement per cubic yard and test 4000 PSI at 28 days (5%-8% air).

124.181 **Materials.** All concrete used shall meet the requirements of the MDOT 2020 Standard Specifications for Construction, Grade P1 unless otherwise noted. In addition, all concrete furnished shall be resistant to excessive expansion caused by ASR (Alkali Silica Reactivity). For the roadways within MDOT rights of way, the Contractor shall use Grade P-NC concrete mix (seven (7) sacks of cement per cubic yard of concrete) with non-chloride accelerator. Only aggregates from an MDOT certified pit or quarry that has been tested within the last two (2) years by MDOT and have been determined to be non-reactive shall be used.

124.182 Supply Portland cement concrete from certified stationary concrete batch plant facilities meeting the requirements of the National Ready Mixed Concrete Association (NRMCA) Certification program for automatic Control and Authentic System. The NRMCA stationary concrete batch plant shall meet the requirements of the 2020 MDOT Standard Specifications for Construction.

124.183 Ground granulated blast-furnace slag (GGBFS) may be used as an optional portion of the cementing material with Type 1A or Type 1 Portland Cement meeting the requirements of Section 121.41.

124.184 The concrete for all full width pavement, curb to curb and street intersection to street intersection and for full length curb and gutter construction (2', 4' and 6' wide) shall be air-entrained and contain 6 sacks of cement per cubic yard and testing 3,500 psi at 28 days. Concrete shall meet the requirements of Grade P1 Concrete of the 2020 MDOT Standard Specifications for Construction. Air entrainment in the mix shall be between 5% - 8% air. Coarse aggregate for concrete shall be 6AA meeting the requirement of the MDOT 2020 Standard Specifications for Construction. The term "sack" refers to a 94 pound sack of cement. Do not exceed a slump of 3.0 inches or the slump indicated in the Contractor's approved mix design. MDOT 2020 Grade P-NC concrete with non-chloride accelerator is required for the roadways within MDOT rights of way.

124.185 The concrete for pavement spot repairs and curb and gutter spot repairs shall contain 7 sacks of cement per cubic yard and test 4,000 psi at 28 days (5%-8% air). Seven sack cement of per cubic yard of concrete is applicable on city wide street pavement spot repair contracts.

124.19 **Concrete** in concrete encasements and/or thrust blocks shall be Class 4 concrete or better.

124.20 **Asphaltic Concrete Paving:** The Contractor's attention is directed to Sections 302 and 903 of these specifications regarding materials for asphalt paving. Contractor's attention is called to the application of bond coat to the surface of concrete or bituminous pavements. The surfaces of curbs, gutters, vertical faces of existing paving and all structures which shall be in actual contact with the resurfacing materials shall be coated with a thin uniform coating of SS-1h asphalt emulsion at a rate of 0.10 gal/s.y. at an application temperature between 85°-135° F. Application of SS-1h asphalt emulsion shall be incidental to bituminous surfacing.

124.21 **Precast reinforced concrete gate well sections** shall conform to the A.S.T.M. Designation C-478 with concentric opening, provided with modified groove tongue with super seal gasket and Kor-N-Seal flexible joint connections or an approved equal. Precast base shall be grooved base.

124.22 **Reinforcing steel** shall be Deformed Billet Steel Grade 60 and conform to A.S.T.M. A-615 Specifications.

124.23 **Vitrified Clay Pipe** shall conform to the current A.S.T.M. Designation C-700 standard specification and shall have the compression joint meeting the A.S.T.M. Designation C 425.

124.24 **Pipe Underdrain** shall be perforated polyvinyl chloride (PVC) pipe wrapped with geotextile fabric meeting the requirements of A.A.S.H.T.O. M278 or perforated bituminized fiber drainage pipe, wrapped with geotextile fabric, meeting the requirements of A.A.S.H.T.O. M172 or A.S.T.M. D2311.

124.25 **Topsoil** must be visually inspected for organic contamination and cleanliness at the source by the Engineer prior to transport to the project site. Topsoil must not be contaminated and may not be a mixture of natural underlying soils, subbase materials or other materials. It must consist of natural loam, sandy loam, silty loam or clay loam humus-bearing soils adapted to the sustenance of plant life. Topsoil must be neither excessively acidic nor excessively alkaline. It must be of mineral origin, exclusive of any peat or muck.

124.26 **Seed** mixture shall be Kentucky Blue Grass with the following specifications:

Purity, minimum	98%
Germination	85%
Seeding Rate	220 lb/acre

Furnish seed in durable bags, each marked by the supplier of the blended mix with a tag giving name, lot number, net weight of contents, purity and germination.

124.27 **Sod** shall be turf grass sod grown from a state certified nursery or plant dealer and free of objectionable grasses and broadleaf weeds.

124.28 **Portland Cement** shall meet the requirements of Section 901 of the 2020 MDOT Standard Specifications for Construction.

124.29 **Aggregate** shall meet the requirements of Section 902 of the 2020 MDOT Standard Specifications for Construction.

124.30 **Masonary Unit** shall meet the requirements of Section 913 of the 2020 MDOT Standard Specifications for Construction.

124.31 **Temporary Traffic Control Materials** shall meet the requirements of Section 922 of the 2020 MDOT Standard Specifications for Construction.

124.32 **Admixtures and Curing Materials** shall meet the requirements of Section 903 of the 2020 MDOT Standard Specifications for Construction.

124.33 **Steel Reinforcement** shall meet the requirements of Section 905 of the 2020 MDOT Standard Specifications for Construction.

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ENGINEERING DIVISION
PLAN REVIEW COMMENTS

Storm water detention requirements for projects of less than one-acre of earth disturbance & not belonging to a larger common plan of development

Detain 1 inch of rainfall on the property's whole area for 24 hours. So the detention volume is:
V in cft = 1 inch (1 ft / 12 in) (43560 sft / 1 ac) (A in ac * C adjustment)
V in cft = 3630 * A * C
This shall accommodate for the storm water built-up in the pipes (as long as the pipes are properly maintained) due to restricting the allowable peak discharge into the City's sewer system to 0.5 cfs/acre; note that the flow restriction shall be fulfilled by designing a flow restrictor (orifice).
Note that: The proposed storm water drainage pipes could be utilized to fulfill this detention requirement; as long as, these pipes are designed to have adequate flow capacity (size and slope) based on 10-year storm intensity equations found in the 2021 Wayne County Manual and to store the required detention volume. However, a separate detention system with a water quality measure at the inlet is recommended to be utilized for easier maintenance of the proposed storm water management system.
Note that: The proposed storm water management system must be shown on the site plan along with calculations, profile, details & proposed/ existing tap into the City's sewer system.

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The requirements for Projects; beyond one-acre of disturbance or belonging to a larger common plan of development, to comply with Michigan EGLE MS4 requirements and/or with the City of Dearborn 2022 Storm Water Management Ordinance:

1-Designing the proposed storm water drainage system (size and slope) based on 10-year storm intensity equations and detention system (flood control volume) based on 100-year storm intensity equations; found in the 2021 Wayne County Manual.

2-Providing a pretreatment system at the inlet to the detention system which limits the peak TSS concentration to 80 mg/L or reduces the TSS concentration by 80%; to abide by First Flush Treatment Requirements for the first one-inch of rainfall. (Examples of pretreatment systems: forebays and mechanical separators).

3-Providing Channel Protection Rate Control (CPRC) to store and release the volume generated by a 1.9-inch storm event for a discharge duration of 48 hours and sizing the orifice in the flow control structure to be CPRC compliant.

4-Providing Channel Protection Volume Control (CPVC) by using infiltration BMPs to infiltrate at least the first one-inch of rainfall throughout the development.

- A credit maybe be given against the flood control volume by using CPRC volume instead to size the detention system; that is if the CPRC volume is greater than the flood control volume minus the CPVC volume.
- On the other hand; if applicable, applying for a waiver based on Poor soil conditions of the existing soils' infiltration rate (less than 0.24 inches/hour) or Prevailing groundwater levels within 2 vertical feet of the bottom of the infiltration BMP or Presence of contaminated soils in the vicinity of the proposed BMP; determined by geotechnical test and report sealed by a Michigan P.E.

Infiltration BMPs include: permeable pavers and bioretention.

5-Soil testing used to determine the site's soil group(s) and the soils' runoff coefficient.

6-Providing the long-term maintenance plan of the different entities of the property's storm water management system.

7-The property owner upon completion of construction must certify the storm water management system construction through a Michigan P.E., submit as-builts, and enter into a binding long-term maintenance agreement with the City, at their own expense, to document, routinely monitor and maintain the storm water management system, so it continues to operate as designed. This long-term maintenance agreement shall be recorded with the Wayne County Register of Deeds and subject to transfer to the new owner upon sale of the property (check attached template agreement).
Note that the applicant shall also provide all the information listed in the succeeding page.

Permit Reporting Requirement	*Reporting Guidance*
(1) Change in impervious area, pervious area by cover type, and total area by site.	This information is collected in the Land Use Summary Table.
(2) CPVC volume provided at the site.	This information is collected in the Land Use Summary Table.
(3) Difference between required and provided CPVC volume by site.	This is the difference between the ***CPVC Volume Calculated*** and ***CPVC Volume Provided*** in the Land Use Summary Table.
(4) Percent of site in each Hydrologic Soil Group (Type A, B, C. D)	This information is partially collected in the Land Use Summary Table; however, the percent in EACH hydrologic soil group is required, not just the predominant soil group.
(5) Site location in GIS polygon format. *(6) Site outfalls and points of discharge in GIS point format.* *(7) Site MS4 outfall drainage area in GIS polygon format, including any offsite drainage that passes through the outfall or points of discharge.*	The GIS layers representing reporting requirements #5-7 must be converted to a KML file to upload in MiWaters. **NOTE: MiWaters will not accept KMZ files.** Each KML file is limited to 50 features in MiWaters. Multiple KML files may be needed based on the number of features and size of the file. For each development or redevelopment project, reporting requirements #5-7 should be included in the same KML file. Other formatting options may be available to meet the reporting requirements. Contact MS4 Program District Staff to discuss options.
(8) CPRC volume provided at the site.	This information is collected in the Land Use Summary Table.
(9) Difference between required and provided CPRC volume by site.	This is the difference between the CPRC volume calculated, which is not collected in the Land Use Summary Table and the ***CPRC Volume Provided***, which is collected in the Land Use Summary Table.

Example *Land Use Summary* Table

Land Use Summary

must be included on the O&M Plan Sheet for all site plans

	Characteristic	Existing Conditions	Proposed Conditions
Land Use Data	**Total Development Area (ac)**		
	Impervious Area (ac) #1		
	Total Pervious Area (ac)		
Pervious Area	**Pervious Area Breakdown by Cover Type** #1		
	Meadow/fallow/natural areas (non-cultivated)	x.xx acres	x.xx acres
	#4 ***Predominant NRCS Soil Type (A, B, C, or D)***		
	Improved areas (turf grass, landscape, row crops)	x.xx acres	x.xx acres
	Predominant NRCS Soil Type (A, B, C, or D)		
	Wooded Areas	x.xx acres	x.xx acres
	Predominant NRCS Soil Type (A, B, C, or D)		
	CPVC Volume ***Calculated*** (cubic feet)		
	#2 CPVC Volume ***Provided*** (cubic feet)		
	#8 CPRC Volume Provided (cubic feet)		

POST-CONSTRUCTION STORMWATER MAINTENANCE AGREEMENT

THIS AGREEMENT is made and entered into on this _____ day of _____, 20___, by and between the City of Dearborn, a Michigan municipal corporation, with its principal offices located at 16901 Michigan Ave., Dearborn, Michigan 48126 (hereinafter referred to as "City"), and _____, the owner(s) of the property located at _____, with principal offices located at _____, (hereinafter referred to as "Owner").

[Property Owner's Name], as "Owner(s)" of the property described above and in more detail in Exhibit A, and in accordance with Dearborn Code of Ordinances Chapter 19, Article V, Secs. 19-208 – 19-224 (hereinafter referred to as "Ordinance"), and any subsequent amendments, agrees to monitor and maintain the stormwater control systems on the subject property in accordance with approved plans and conditions, and pursuant to the terms and conditions of the Ordinance. The Owner further agrees to the terms stated in this document to ensure that the stormwater control system continues serving the intended function in perpetuity.

This Agreement includes the following exhibits:

- Exhibit A: Legal description of the real estate for which this Agreement applies ("Property")

- Exhibit B: Location map(s) showing the location of the Property and an accurate location of the stormwater control system.

- Exhibit C: Long-term Maintenance Plan that prescribes those activities that must be carried out to maintain compliance with this Agreement.

Through this Agreement, the Owner(s) agree to the following terms and conditions:

1. Easements and rights-of-way: The Owner(s), at its expense, shall secure from any affected owners of land all easements and releases of rights-of-way necessary for utilization of the stormwater control system identified in Exhibit B and shall record them with the Wayne County Register of Deeds. These easements and releases of rights-of-way shall not be altered, amended, vacated, released or abandoned without prior written approval of the City.

2. Responsibility for installation, maintenance, and repair: The Owner(s) shall be solely responsible for the installation, maintenance, and repair of the stormwater control system, drainage easements, and associated landscaping identified in Exhibit B in accordance with the Maintenance Plan in Exhibit C.

3. Alterations to stormwater control system: No alterations or changes to the stormwater control system identified in Exhibit B shall be permitted unless they are deemed to comply with the Ordinance and this Agreement, and are approved in writing by the City Engineer.

4. Right of entry for inspections; required maintenance or repairs: The City Engineer or their designee is authorized to access the property as necessary to conduct inspections of the stormwater control system or drainage easements to ascertain compliance with the Ordinance, this Agreement, and the activities prescribed in Exhibit C. Upon written notification by the City or their designee of required maintenance or repairs, the Owner(s) shall complete the specified maintenance or repairs within a reasonable time frame determined by the City. The Owner(s) shall be responsible for any costs related to any maintenance or repairs deemed necessary by the City. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs so that the public health, safety and welfare shall not be endangered nor the road improvement damaged.

5. Liability for City repairs; cost recovery: If the Owner(s) does not keep the stormwater control system in reasonable order and condition, or complete maintenance activities in accordance with the Plan contained in Exhibit C, or the reporting required in paragraph 3 above, or the required maintenance and repairs under paragraph 4 above within the specified time frames, the City is authorized, but not required, to perform the specified inspections, maintenance or repairs in order to preserve the intended functions of the stormwater control system and prevent the system or any failures of the system from becoming a threat to public health, safety, general welfare or the environment. In the case of an emergency, as determined by the City, no notice shall be required prior to the City performing emergency maintenance or repairs. The Owner(s) shall be responsible for any costs incurred for inspections, maintenance or repairs pursuant to this paragraph. The City may levy the costs and expenses of such inspections, maintenance or repairs plus a ten percent (10%) administrative fee against the Owner(s). The City at the time of entering upon said stormwater control system for the purpose of maintenance or repair may file a notice of lien in the office of the Wayne County Register of Deeds upon the property affected by the lien. If said costs and expenses are not paid by the Owner(s), the City may pursue the collection of same through appropriate court actions.

6. Conveyance of easement: The Owner(s) hereby conveys to the City an easement over, on and in the property described in Exhibit A for the purpose of access to the stormwater control system for the inspection, maintenance and repair thereof, should the Owner(s) fail to properly inspect, maintain and repair the system.

7. Recording: The Owner(s) agrees that this Agreement shall be recorded and that the land described in Exhibit A shall be subject to the covenants and obligations contained herein, and this agreement shall bind all current and future owners of the property.

8. Sale, transfer, or lease of Property: The Owner(s) agrees in the event that the Property is sold, transferred, or leased to provide information to the new owner, operator, or lessee regarding proper inspection, maintenance and repair of the stormwater control system. The information shall accompany the first deed transfer and include Exhibits A, B and C and this Agreement. The transfer of this information shall also be required with any subsequent sale, transfer or lease of the Property.

9. Effective date of Agreement: The Owner(s) agree that the rights, obligations and responsibilities hereunder shall commence upon execution of this Agreement.

10. Authority: The parties whose signatures appear below hereby represent and warrant that they have the authority and capacity to sign this agreement and bind the respective parties hereto.

11. Indemnity and hold harmless: The Owner(s), its agents, representatives, successors and assigns shall defend, indemnify and hold the City harmless from and against any claims, demands, actions, damages, injuries, costs or expenses of any nature whatsoever, hereinafter "Claims," fixed or contingent, known or unknown, arising out of or in any way connected with the design, construction, use, maintenance, repair or operation (or omissions in such regard) of the stormwater control system, including any appurtenances, connections and attachments thereto which are the subject of this Agreement. This indemnity and hold harmless shall include any costs, expenses and attorney fees incurred by the City in connection with such Claims or the enforcement of this Agreement.

12. Choice of law and severability: This Agreement will be governed and controlled in all respects by the laws of the State of Michigan, including interpretation, enforceability, validity and construction. The parties submit to the jurisdiction and venue of the Circuit Court for Wayne County, State of Michigan, or, if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Southern Division, with respect to any action arising, directly or indirectly, out of this Agreement or the performance or breach of this Agreement. The parties stipulate that the venues referenced in this Agreement are convenient and waive any claim of non-convenience.

    Whenever possible, each provision of this Agreement will be interpreted in a manner as to be effective and valid under applicable law. However, if any provision of this Agreement or the application of any provision to any party or circumstance shall be prohibited by or invalid under applicable law, that provision shall be ineffective to the extent of the prohibition or invalidity without invalidating the remainder of the provisions of this Agreement or the application of the provision to other parties and circumstances.

13. Owner(s) emergency contact: In the event of an emergency, as determined by the City, the Owner(s) can be reached at the following: [Emergency contact info; phone and email]

14. Notice. Any action required to be given or which may be given to a party to this Agreement shall be sent in writing, by personal delivery, by certified mail (return receipt requested), or overnight mail at the following addresses:

    If to the Owner:

    [OWNER(s) NAME AND ADDRESS]

    If to the City:

    Dearborn Public Works

    Attn: City Engineer

    2951 Greenfield Rd.

    Dearborn, MI 48126

    With a copy to:

    Corporation Counsel

    16901 Michigan Avenue, Suite 14

    Dearborn, MI 48126

IN WITNESS THEREOF, the Owner(s) and City have executed this Agreement on this _____ day of _____, 20___.

FOR THE OWNER(S):

By (print)_____

Signature _____

Title _____

_____

Notary Public

_____ County of Michigan

My Commission Expires On: _____

FOR THE CITY OF DEARBORN:

By (print)_____

Signature _____

Title _____

_____

Notary Public

_____ County of Michigan

My Commission Expires On: _____

WHEN RECORDED RETURN TO:

Corporation Counsel

16901 Michigan Avenue, Suite 14

Dearborn, MI 48126

Exhibit A - Legal Description (Sample)

The following description and reduced copy map identifies the land parcel(s) affected by this Agreement.

[Note: *An example legal description is shown below. This exhibit must be customized for each site, including the minimum elements shown. It must include a reference to a Subdivision Plat, Certified Survey number; or Condo- minimum Plat, and a map to illustrate the affected parcel(s).]*

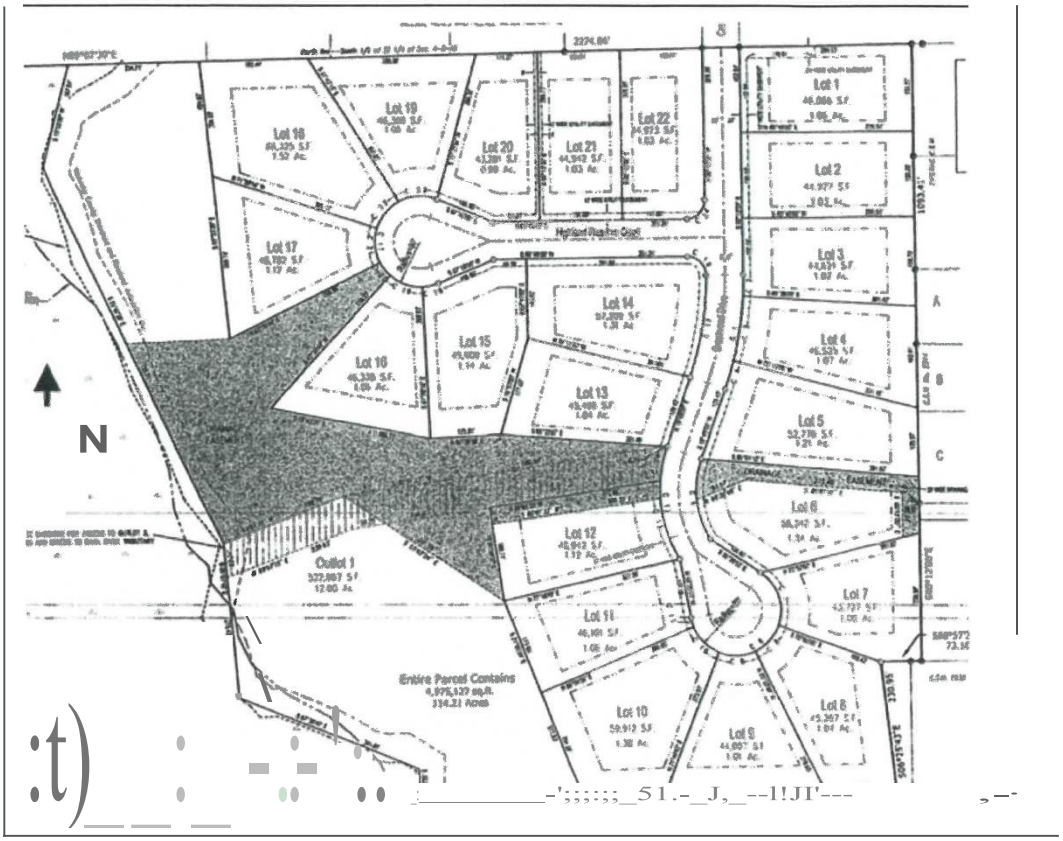
Project Identifier: Huron Preserve

Subdivision Acres: 40

Date of Recording: October 22, 2006

Map Produced by: ABC Engineering, P.O. Box 20, Green Oak Twp., MI

Legal Description: Lots 1 through 22 of Huron Preserve Subdivision, located in the Southwest Quarter (SW l/4) of Section 4, Township 8N, Range 19E (Green oak Township) Livingston County, Michigan. [If no land division is involved, enter legal description as described on the property title here.]



Huron Preserve Subdivision

Drainage Easement Restrictions: Shaded area on map indicates a drainage easement for stormwater collection, conveyance, and treatment. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt stormwater flows in any way. See Exhibit C for specific maintenance requirements for stormwater management practices within this area. See subdivision plat for details on location.

Exhibit B - Location Map (Sample)

Stormwater Management Practices Covered by this Agreement

[An example location map and the minimum elements that must accompany the map are shown below. This exhibit must be customized for each site. Map scale must be sufficiently large enough to show necessary details.]

The stormwater management practices covered by this agreement are depicted in the reduced copy of a portion of the construction plans, as shown below. The practices include on wet detention basin, two forebays, two grass swales (conveying stormwater to the forebays) and all associated pipes, earthen berms, rock chutes, and other components of these practices. All of the noted stormwater management practices are located within a drainage easement in Outlot 1 of the subdivision plat as noted in Exhibit A.

Subdivision Name: Huron Preserve Subdivision

Stormwater Practices: Wet Detention Basin #1, forebays (2), grass swales (2)

Location of Practices: All that part of Outlot 1, bounded and described in Figure G.l: [If no land division is involved, enter a metes and bounds description of the easement area.]

Titleholders of Outlot 1: Each Owner of Lots 1 through 22 shall have equal (1/22) undividable interest in Outlot 1 [For privately owned stormwater management practices, the titleholder(s) must include all new parcels that drain to the stormwater management practice.]

Figure G.l
Plan View of Stormwater Practices

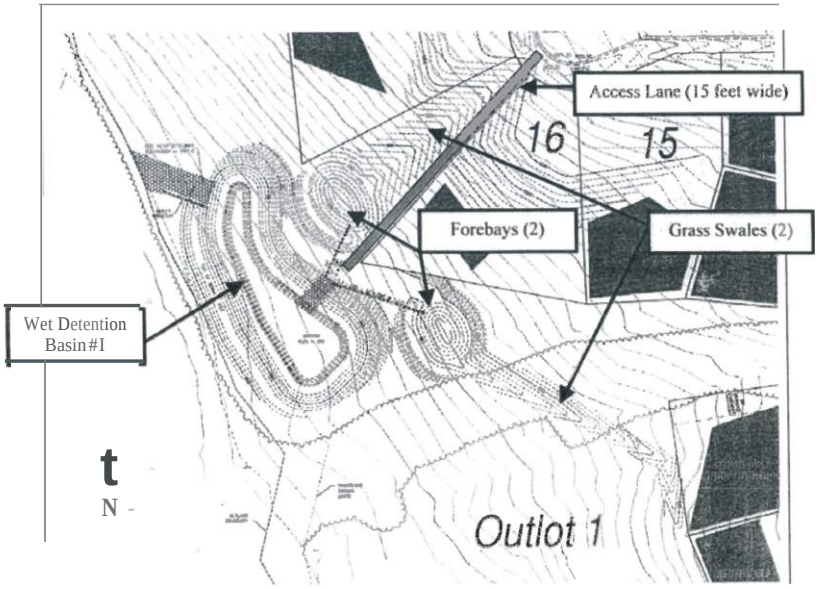


Exhibit C • Stormwater Practice Maintenance Plan (Sample)

This exhibit explains the basic function of each of the stormwater practices listed in Exhibit B and provides the minimum specific maintenance activities and frequencies for each practice. The maintenance identified by the Owner should follow the maintenance activities listed in this manual, if applicable. Vehicle access to the stormwater practices is shown in Exhibit B. Any failure of a stormwater practice that is caused by lack of maintenance will subject the Owner(s) to enforcement of the provisions listed in the Agreement by the [Community] .

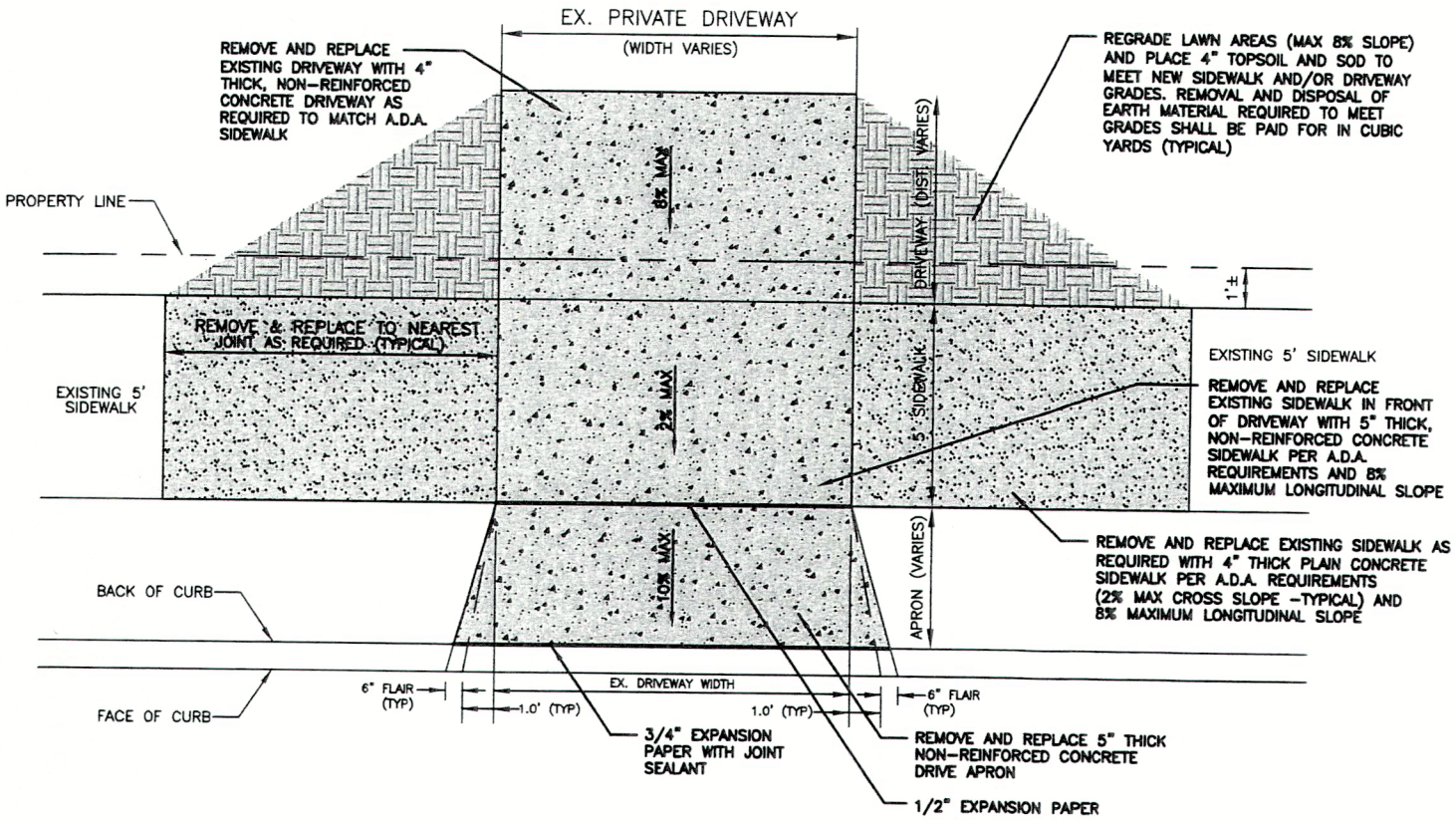
The exhibit must be customized for each site. The minimum elements of this exhibit include: a description of the drainage area and the installed stormwater management practices, a description of the specific maintenance activities for each practice which should include in addition to specific actions:

- Employee training and duties,
- Routine service requirements,
- Operating, inspection and maintenance schedules, and
- Detailed construction drawings showing all critical components and their elevations.

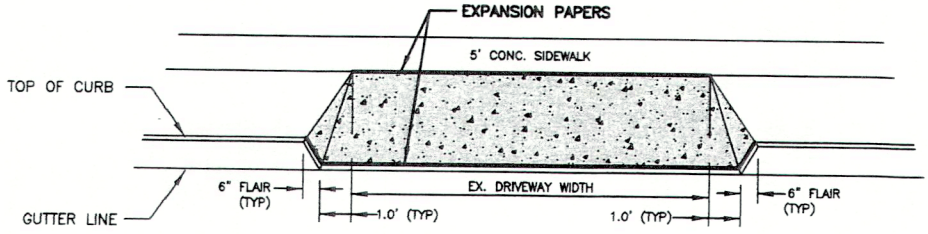
References

Charter Township of Canton, Stormwater FACILITIES MAINTENANCE AGREEMENT.

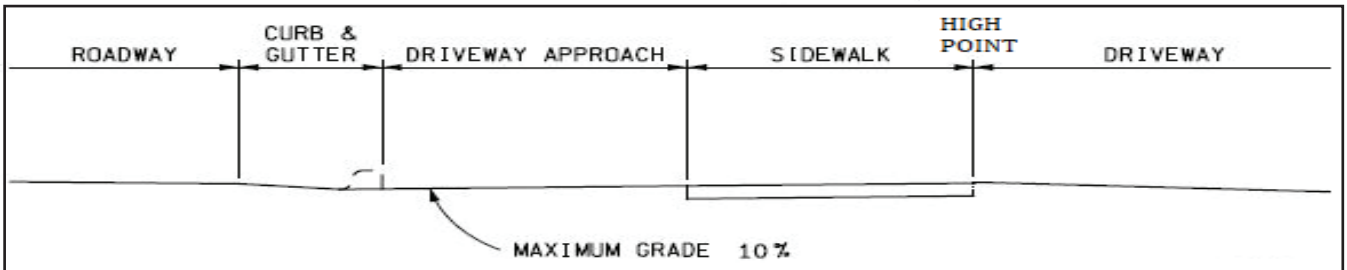
Charter Township of Green Oak, AGREEMENT FOR MAINTENANCE OF STORMWATER MANAGEMENT PRACTICES



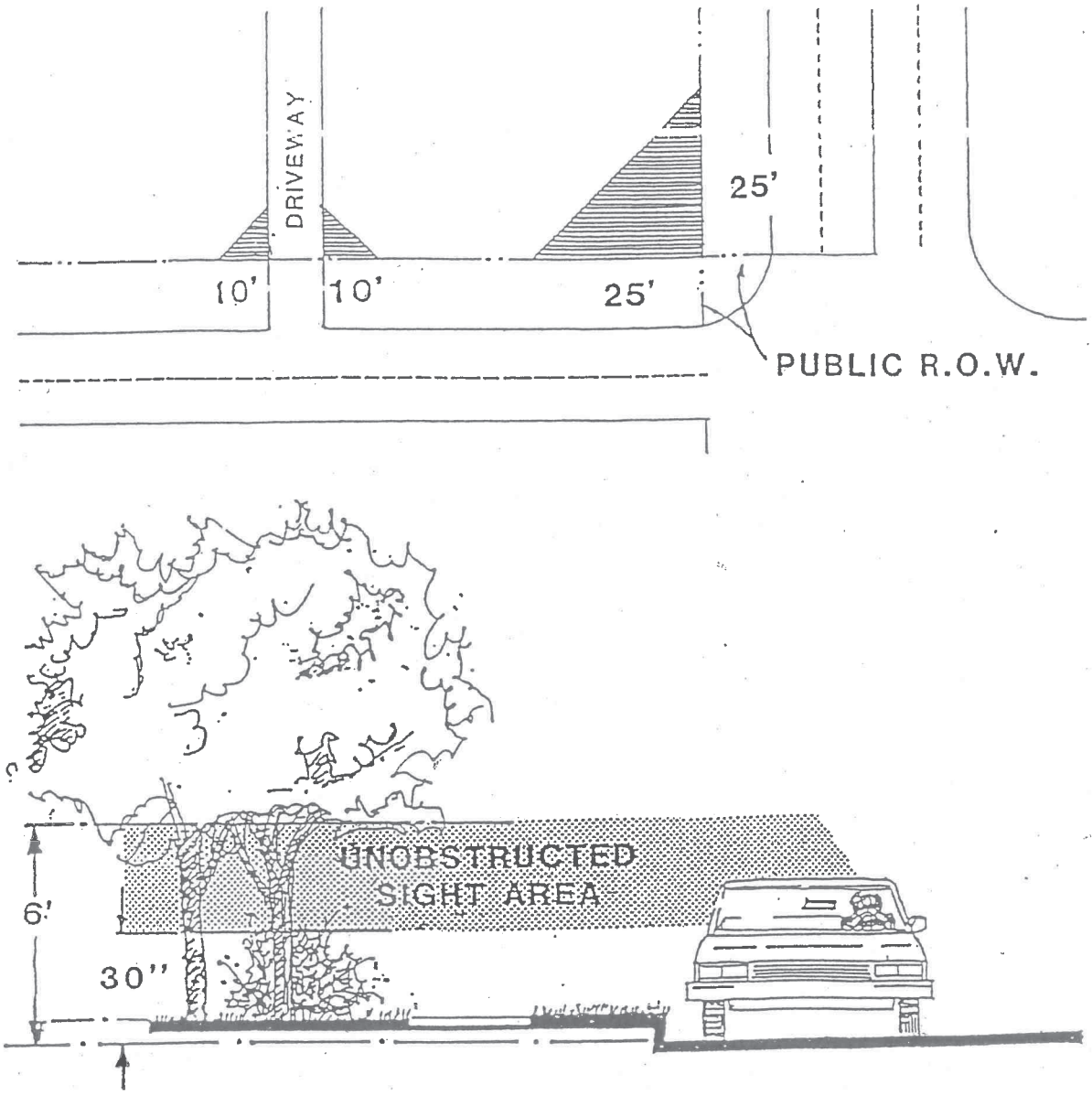
TYPICAL RESIDENTIAL DRIVEWAY REPLACEMENT PLAN



TYPICAL APPROACH FLAIR DETAIL

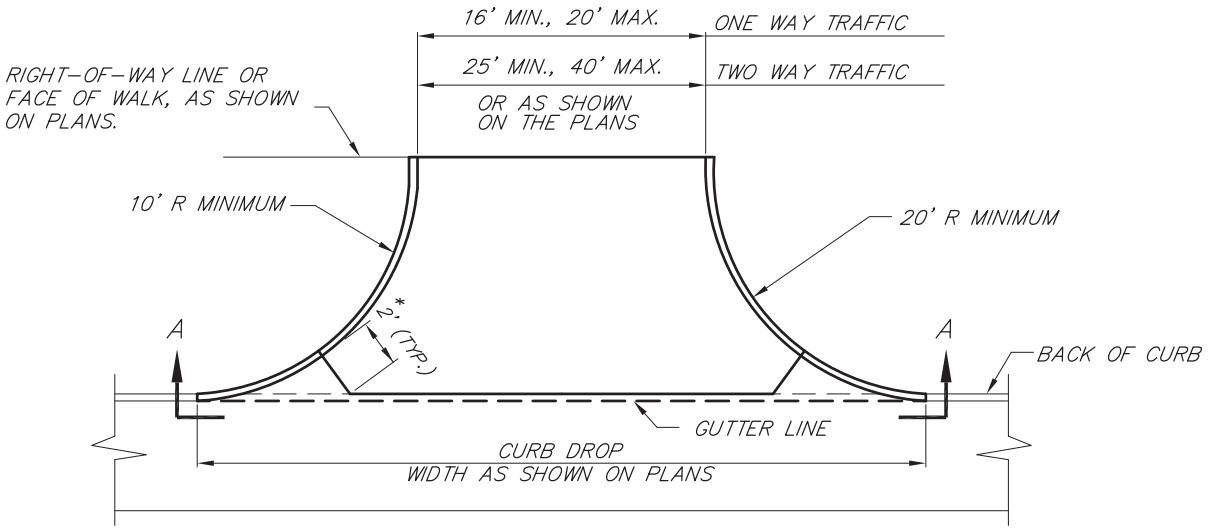


COMMERCIAL DRIVEWAY PROFILE

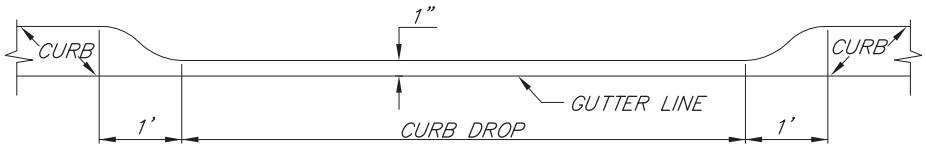


UNOBSTRUCTED SIGHT DISTANCE

Section 2.09, sub-section A.4



~~* 4' FOR ASPHALT DRIVE PAVEMENT~~



SECTION A-A

NOT TO SCALE

NOTES:

CONSTRUCT THE DRIVE APPROACH WITH 8" NON-REINFORCED CONCRETE ON 6" OF 21AA AGGREGATE BASE COURSE COMPACTED IN PLACE (CIP) ~~OR 6" HMA LEVELING ON 9" OF 21AA AGGREGATE BASE COURSE (CIP).~~

CURBS SHALL BE CONSTRUCTED WITH HEIGHT VARYING FROM 6" AT BACK OF CURB TO 0" HEIGHT AT FACE OF SIDEWALK OR RIGHT-OF-WAY LINE.

AT ALL CONCRETE DRIVES, PLACE A 1" EXPANSION JOINT AT BACK OF CURB AND ½" EXPANSION JOINT AT FACE OF SIDEWALK OR RIGHT-OF-WAY LINE. MAINTAIN NORMAL SIDEWALK GRADE ACROSS DRIVE, 2% SLOPE UP FROM FACE OF SIDEWALK.

INBOUND OR OUTBOUND RADIUS SHALL BE REDUCED TO 5' FOR ONE-WAY TRAFFIC DRIVE APPROACH.

DRIVE APPROACH SHALL NOT ENCROACH ACROSS PROPERTY LINE EXTENDED WITHOUT WRITTEN APPROVAL FROM THE ADJOINING PROPERTY OWNER.

WORK THIS SHEET WITH ~~THE GENERAL NOTES ON RS-1 AND~~ D-6 SHEET 2-2.

REVISION DATE: 08/01/07

DIRECTOR OF ENGINEERING

DIVISION PERMIT ENGINEER

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION/PERMIT OFFICE
PERMIT STANDARDS

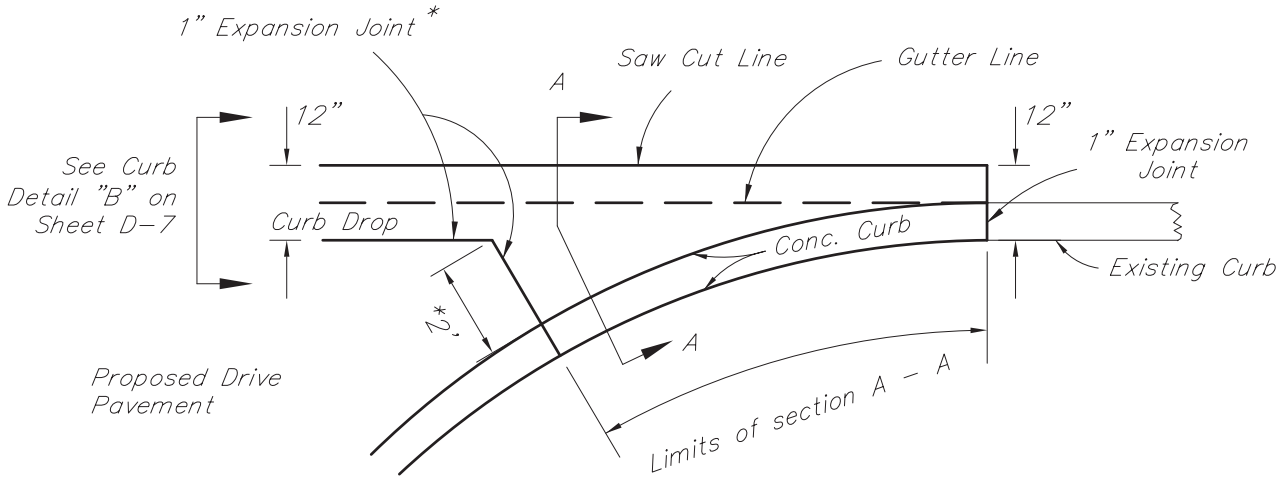
COMMERCIAL DRIVE APPROACH

SCALE
NOT TO SCALE

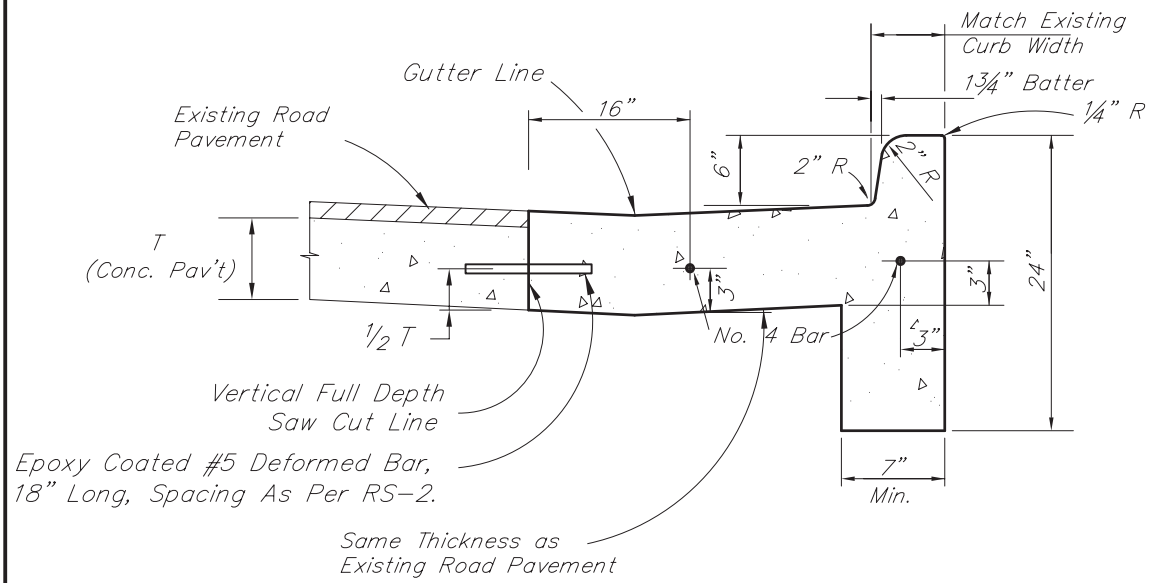
D-6

SHEET
1 OF 2

CURB RETURN JOINING EXISTING PAVEMENT



~~* 4" for HMA Drive Pavement. No Expansion Joint Required.~~



Section "A - A"

~~WORK THIS SHEET WITH THE GENERAL NOTES ON RS-1.~~

REVISION DATE: 08/01/07

DIRECTOR OF ENGINEERING

DIVISION PERMIT ENGINEER

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES
ENGINEERING DIVISION/PERMIT OFFICE
PERMIT STANDARDS

COMMERCIAL DRIVE APPROACH

SCALE
NOT TO SCALE

D-6

SHEET
2 OF 2