

STANDARD REQUIREMENTS FOR ESTABLISHING A PRIVATE DRAIN AS A COUNTY DRAIN IN OAKLAND COUNTY COMMUNITIES

PURPOSE:

The purpose of this standard is to guide the Owner/Developers of new developments within the Oakland County communities which require drainage systems to be established as County drains in accordance with the provisions of Section 433, Chapter 18 of the Public Acts of 1956, as amended, the Michigan Drain Code.

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STANDARD REQUIREMENTS FOR THE ESTABLISHMENT OF A PRIVATE DRAIN AS A COUNTY DRAIN IN OAKLAND COUNTY COMMUNITIES

1. REQUEST TO ESTABLISH A COUNTY DRAIN

The Developer must first submit to this office three sets of construction plans, sealed by a Registered Professional Engineer or Professional Surveyor, for the proposed development along with a letter requesting that the development's drainage facilities be established as a County Drain (See Appendix A, Page A-1.) The Procedures and Design Criteria for Storm Water Drainage in Oakland County and Standard Details for (County) Drains must be followed when designing the drain.

2. REVIEW AND CERTIFICATION

This office will review the construction plans and a determination will be made as to the adequacy of the design with respect to the Oakland County Water Resources Commissioner's requirements and to applicable laws and standards. Revisions to the plans or additional information may be requested at this time.

Prior to approval of the construction plans, the Developer's Engineer must certify that the outlet for the proposed drain is adequate and will not cause detriment or diminution of the drainage services it now provides. An Engineer's Certificate must be provided at this time (See Appendix A, Page A-2.)

3. AGREEMENT TO ESTABLISH A COUNTY DRAIN

Upon approval of the construction plans by this office, the Developer and/or Land Owner of Record must enter into an agreement to establish the new County Drain or Branch Drain of an existing legally established County Drain. A district enlargement may also be necessary for the Branch Drain. The Developer and/or Land Owner must provide this office with a copy of the Title Policy or other proof of land ownership. A meets and bounds property description, with closure AND sidwell numbers, an estimate of the proposed construction cost of the drainage facilities and the names, titles, addresses and companies of the people who will execute the Agreement.

Once this office has received all of the above information, we will prepare an Agreement for signature by the involved parties.

4. CONSTRUCTION APPROVAL/FINAL PLAT APPROVAL

Upon the receipt of the signed Agreement along with the required fees and deposits, this office will issue a letter of construction approval with conditions. If the conditions as set forth in our construction plan approval letter are met, this office will then provide construction inspection of the drainage facilities. At this time we will process the final subdivision plat as set forth in Section 433 of the Subdivision Control Act of 1967, as amended.

NOTE: Drainage facilities constructed without appropriate inspection by this office or its designated representative may not be accepted by this office as a County Drain.

5. EASEMENT REQUIREMENTS

The Developer and/or Land Owner shall provide to this office permanent County Drain easements for the proposed drainage facilities. Easement requirements vary with the type of site being developed. (i.e., Subdivision, Condominium, Commercial) (See Appendix B-1. through B-3.)

Applicable developments (i.e., Condominiums and Subdivisions) shall have the Oakland County Water Resources Commissioner's Standard Easement Language within their Master Deed or Deed Restrictions Documents, a recorded copy of which must be on file in this office prior to the final inspection.

6. AS-BUILT DRAWINGS REQUIREMENTS

Immediately following the completion of construction, the Developer and/or Land Owner shall furnish this office with a set of As-Built Drawings corrected to indicate as-built conditions. Upon approval of these drawings, the Developer and/or Land Owner shall submit one (1) set of reproducible "Mylar" as-built construction drawings.

The drawings shall include but are not limited to the requirements described in Appendix C.

7. FIRST INSPECTION

This office or its designated representative will perform daily inspection of the construction of the storm drainage facilities. This office will submit a series of construction inspection reports, which will indicate that the contractors have completed various phases of the construction. The construction inspection reports requirements are spelled out in the Procedures and Requirements For Construction and Acceptance of Chapter 18 Storm Drains. (See Appendix A-13.)

8. SECOND INSPECTION

This office will conduct a second construction inspection after the completion of the road paving to insure that the drainage system has not been damaged by the paving process. This inspection will relieve the paving contractor from future liability for the drainage system.

9. THIRD INSPECTION

Upon the acceptance of recorded easements, submittal of as-built drawings, and the completion of all drainage facilities and all related facilities as specified in our "Procedures" referenced in Section 7, and fulfillment of other requirements, this office will conduct a third inspection. Upon its approval we will conditionally accept the new County Drain for operation and maintenance.

10. FINAL ACCEPTANCE

One year after conditional acceptance of the Drain for operation and maintenance, the Developer is allowed to request, in writing, that a final accounting be made by this office. Our Inspection Unit will perform a final walk through inspection of the Drain and the project will be reviewed by this office. If all requirements listed in Section A-13 are met, then a final accounting will be made and a letter of final acceptance will be issued along with the remaining refundable amounts of the deposits.

APPENDIX A

- 1. REQUEST TO ESTABLISH A COUNTY DRAIN LETTER**
- 2. ENGINEER'S CERTIFICATION**
- 3. TRANSMITTAL OF AGREEMENT INFORMATION**
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- 5. INSPECTION DEPOSIT CALCULATION**
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- 15. SECOND INSPECTION REPORT TRANSMITTAL LETTER**
- 16. THIRD INSPECTION REPORT TRANSMITTAL LETTER**
- 17. FINAL ACCOUNTING LETTER**

REQUEST TO ESTABLISH A COUNTY DRAIN LETTER

Date:

Oakland County Water Resources Commissioner
Building 95 West – One Public Works Drive
Waterford, Michigan 48328-1907

Attention: _____

Reference: Proposed _____
 Location _____

Gentlemen:

We/I, as the owner/developer of the proposed _____
_____, which will be located in the _____
_____, request that the drainage facilities be
established as a County Drain under the provisions of Chapter 18 of the Michigan Drain Code of
1956.

If you have any questions, please contact _____
at (____) _____.

Very truly yours,

ENGINEER'S CERTIFICATION

Date:

Oakland County Water Resources Commissioner
Building 95 West – One Public Works Drive
Waterford, Michigan 48328-1907

Attention: _____

Reference: Proposed _____
 Location _____

Gentlemen:

ENGINEER'S CERTIFICATION

This is to certify that the outlet for the County Drain from the proposed _____, which will be located in the _____ is the only reasonable available outlet for the County Drain and that there is sufficient capacity in the outlet for it to serve as an adequate outlet for the County Drain without detriment or diminution of the drainage services which the outlet presently provides.

Registration No.: _____

Date:

_____, Michigan 48____

Attention: _____

Reference: Proposed _____

Dear _____:

Our office is currently reviewing the preliminary plat for the proposed _____, which will be located in the _____. We wish to advise you at this time that all residential and certain commercial drainage facilities in _____ are required by Township Ordinance to be designated as County Drains under the jurisdiction of this office.

Prior to commencement of construction, we will require the following submittal:

1. Request to establish the _____ County Drain.
2. Engineer's certification of the adequacy of the drainage outlet.
3. Title work for the property being served by the Drain.
4. Names, titles, addresses or parties to execute the Drain Agreement.
5. Unified/Single property description with acreage, sidwell number(s) and a survey closure document.
6. Construction cost estimate for all drainage facilities.
7. All applicable fees and deposits.
8. Signed Deed Restrictions with County Drain language.
9. Maps and legal description of any right of ways or off site easement that may be necessary for drainage facilities.

If you have any questions, please contact this office.

Very truly yours,

OAKLAND COUNTY WATER RESOURCES COMMISSIONER

By: _____

cc: _____ Township

Project: _____

Drain Name: _____

Date: _____

FEE SCHEDULE

Administrative Costs	1% but not less than \$1,050.00	\$ _____
Maintenance Fund	5% but not to exceed \$2,500.00	\$ _____
Inspection Deposit	To be calculated (See 3B)	\$ _____
Contingency Deposit	10% of Drain estimate	\$ _____

NOTE: All fees are in cash. Make checks payable to the Oakland County Water Resources Commissioner. Indicate the name of the project or Drain on the check

Project: _____

Drain Name: _____

Date: _____

INSPECTION DEPOSIT CALCULATION

Length of pipe 8 inches and above _____ L.F.

Number of Manholes, Inlets, Catch Basins, etc. _____

Number of Basins _____

_____ L.F. of Pipe X $\frac{1 \text{ Day}}{200 \text{ L.F. of Pipe}}$ = _____ Days

_____ Structures X $\frac{1 \text{ Day}}{5 \text{ Structures}}$ = _____ Days

Time to complete earthwork for Drainage
(Basins, swale ditches, etc.) = _____ Days

Total Number of Days = _____ Days

INSPECTION DEPOSIT

_____ Days X (\$/day) Daily Inspection Cost = \$ _____

_____ Days X $\frac{\text{X Miles}}{\text{Days}}$ X $\frac{\$}{\text{Mile}}$ = \$ _____

Inspection Deposit = \$ _____

**A-5.
TYPICAL
AGREEMENT**

for the

(Ch. 18) COUNTY DRAIN

THIS AGREEMENT, made and entered into this____ day of____, ____, 2015, by and between the _____ **DRAIN DRAINAGE DISTRICT** by and through the Oakland County Water Resources Commissioner (hereinafter referred to as the "**DISTRICT**") and _____, whose address is _____, (hereinafter referred to as the "**OWNER**") and _____, whose address is _____, (hereinafter referred to as the "**DEVELOPER**"). (edit Developer/Owner as appropriate)

WITNESSETH:

WHEREAS, Section 433 of Act 40 of the Public Acts of 1956, Michigan, as amended, the Drain Code authorizes the Water Resources Commissioner to enter into an agreement with a landowner and developer, if any, to establish an existing private drain, which was constructed by the landowner or developer, to service an area on the owner or developer's land as a county drain; and

WHEREAS, the Oakland County Water Resources Commissioner, acting _____ on _____ behalf _____ of _____ the **DRAIN DRAINAGE DISTRICT** will have under his jurisdiction the _____ **DRAIN**; and

WHEREAS, the Oakland County Water Resources Commissioner, by and through the **DISTRICT**, is in charge of the operation and maintenance of the _____ **DRAIN** to service lands in the _____ **DRAIN DRAINAGE DISTRICT**; and

WHEREAS, the _____ **DRAIN** will be a legally established county drain under the jurisdiction of the Oakland County Water Resources Commissioner located in Sections____and____ of _____; and

WHEREAS, it is the desire of _____ Township that all new storm drainage facilities constructed in residential and certain commercial developments are to be established as county drains; and

WHEREAS, the **OWNER** and **DEVELOPER** have provide storm drainage for _____ more particularly described as:

(insert legal description)

Sidwell No. _____

WHEREAS, the **OWNER** and **DEVELOPER** further understand that the lands included in this Agreement, in which said _____ **DRAIN** and the lands to be drained thereby are located, are these above described lands known as _____, and will be subject to assessments for the cost of construction, inspection and maintenance of the _____ **DRAIN**; and

WHEREAS, these lands being drained, thereby, and to be assessed, therefore, are in the _____ **DRAIN DRAINAGE DISTRICT**; and

WHEREAS, the **OWNER** and **DEVELOPER**, pursuant to Section 433 of the Drain Code, as amended, desires to establish this _____ **DRAIN**; and

WHEREAS, the **OWNER** and **DEVELOPER** have agreed to assume the total cost of said improvements; and

WHEREAS, it is the opinion of the registered professional engineer retained by the **OWNER** and **DEVELOPER** that the outlet for the _____ **DRAIN** is the only reasonably available outlet for the drain and that there is sufficient capacity in the existing outlet to serve the proposed drain without detriment to or diminution of the drainage service presently provided by the outlet.

NOW, THEREFORE, in consideration of the premises and covenants set forth above, the parties hereto agree to as follows:

1. The **DISTRICT** agrees to permit the construction of the _____ **DRAIN** upon the execution of this Agreement by the **DISTRICT**, the **OWNER**, and the **DEVELOPER**.
2. The storm drainage facilities of the _____ **DRAIN** shall be constructed under the supervision, direction and control of the **DISTRICT**, according to the plans, specifications and project designs approved by the **DISTRICT** and on file at the office of the Oakland County Water Resources Commissioner.
3. The **OWNER** and **DEVELOPER**, jointly and severally, agree to assume the cost of the project set forth in the above-mentioned plans, specifications and project designs. Said cost shall include:
 - a. Administrative fees for the establishment of the _____, computed as a minimum of **ONE THOUSAND FIFTY (\$1,050.00)**

DOLLARS but not to exceed one percent (1%) of the estimated construction costs of the _____ **DRAIN**.

- b. Actual expenses incurred by the **DISTRICT** for the inspection of the construction of the _____ **DRAIN**.
- c. The construction contingency item computed as a percent of the construction cost as determined by the **DISTRICT** but not to exceed ten percent (10%); provided however, should any balance remain in the contingency fund, such balance shall be refunded to the **OWNER** and/or **DEVELOPER** upon the following terms and conditions:
 - (1) After the respective requirements have been met, the **DISTRICT** shall proceed with the final inspection of the project and following such inspection the **OWNER** and/or **DEVELOPER** shall make the necessary corrections of any defects on the project. At such time as the corrections have been completed by the **OWNER** and/or **DEVELOPER**, the **OWNER** and/or **DEVELOPER** shall file with the **DISTRICT** a sworn statement that all claims for amounts due for labor, materials and equipment furnished for this work have been paid in full, or he shall so file in lieu thereof, a sworn statement showing in detail the nature and amount of all unpaid claims for said labor, materials and equipment. The contractor shall also submit a Contractor's Declaration and Affidavit.
 - (2) Final acceptance of the project for operation and maintenance by the **DISTRICT** will occur after a period of one year has expired after the final inspection approval, at which time the **OWNER** and/or **DEVELOPER** shall request that the **DISTRICT** make a final accounting of the project. Upon said request, the **DISTRICT** shall make a cursory inspection of the project to ensure a clean, intact and functioning drainage system. Once all concerns have been addressed, if

any, the remaining contingency balance may then be refunded to the **OWNER** and/or **DEVELOPER**.

- d. The establishment of a maintenance fund. The **OWNER** and/or **DEVELOPER'S** cost to the **DISTRICT** to establish the _____ **DRAIN**, incidental of actual construction expenses, is hereby determined as follows:

(1)	Administrative Fees	\$ _____
(2)	Estimated Inspection	\$ _____
(3)	10% Contingency (cash)	\$ _____
(4)	Maintenance Fund	\$ _____
	Total Cost	\$ _____

4. The **OWNER** and **DEVELOPER** shall forthwith deposit said total cost for _____ work with the **DISTRICT**, to be used only for the purposes herein set forth and agreed upon.
5. The **OWNER** and **DEVELOPER** further agree that _____ should be developed in additional phases, or if additional residential developments are constructed, the appropriate additional administrative, inspection, contingency and maintenance fees shall be paid to the **DISTRICT** and that the terms of this Agreement shall be binding for those additional phases or projects.
6. It is agreed that the **OWNER** and **DEVELOPER** shall provide the **DISTRICT** a map (Attachment "A") and description of the Drainage District and such easements and rights-of-way as may be necessary to accomplish the purposes herein set forth and to do so without charge. To further depict the content of this Agreement, the following are also included as attachments:

Attachment ____:

Attachment ____:

7. The **OWNER** and **DEVELOPER** further agree to provide, without charge, to the **DISTRICT**, one (1) set of reproducible Mylar "Record Drawings" which shall include design calculation showing flow rates, runoff coefficients, drainage district and sub-districts and any other data needed by the **DISTRICT** for proper drain operation.
8. The foregoing payment of the cost of this project is agreed and understood as being for the sole benefit of the _____ **DRAIN** and use thereof may be made by the **DISTRICT** at large or part thereof, and that such payment shall not relieve the subject property from any future assessments levied pursuant to the Drain Code of 1956, as amended, for construction, improvements and/or maintenance of the _____ **DRAIN**, arising by virtue of proper and legal petitions and hearings and procedures thereon.
9. It is agreed that the Water Resources Commissioner's maintenance of these drainage facilities shall be consistent with the Water Resources Commissioner's normal standards and requirements. This maintenance does not include such general facility maintenance items as lawn cutting, litter pick-up, etc.
10. This Agreement shall become effective upon its execution by the **OWNER**, **DEVELOPER**, and the **DISTRICT** and shall become binding upon the successors and assigns of each party.
11. This Agreement may be executed in counterparts.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized officers as of the day and year first above written.

**DRAIN
DRAINAGE DISTRICT**
County of Oakland, State of
Michigan,
Acting as its governing body

JIM NASH, Oakland County Water
Resources Commissioner

(developer/owners name(s))

By:

Its: _____

By:

Its: _____

ACKNOWLEDGEMENTS

STATE OF MICHIGAN)
) SS:
COUNTY OF OAKLAND)

On this _____ day of _____, **20**__, before me a Notary Public in and for said County, appeared **JIM NASH, Oakland County Water Resources Commissioner**, to me personally known to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed:

Notary Public

_____ County, Michigan

My Commission Expires: _____

Acting in County of _____

This instrument drafted by:

_____, Office of the
Oakland County Water Resources Commissioner
Building 95 West, One Public Works Drive
Waterford, Michigan 48328-1907

A-11.

ACKNOWLEDGEMENT

STATE OF MICHIGAN)
) ss:
COUNTY OF OAKLAND)

On this _____ day of _____, 20____, before me, a Notary Public in and for said County, appeared _____, to me personally known, who being duly sworn did say that he is a _____ of _____ a Michigan _____ company, and who executed the foregoing instrument in behalf of said company by authority of _____ and acknowledged the same to be the free act and deed of the said company.

Notary Public
_____, County, _____

My Commission Expires: _____

STATE OF MICHIGAN)
) ss:
COUNTY OF OAKLAND)

On this _____ day of _____, 20____, before me, a Notary Public in and for said County, appeared _____, to me personally known, who being duly sworn did say that he is a _____ of _____, a Michigan _____ company, and who executed the foregoing instrument in behalf of said company by authority of _____ and acknowledged the same to be the free act and deed of the said company.

Notary Public
_____, County, _____

My Commission Expires: _____

This instrument drafted by:

_____, Office of the
Oakland County Water Resources Commissioner
Building 95 West, One Public Works Drive
Waterford, Michigan 48328-1907

STANDARD REQUIREMENTS FOR CONSTRUCTION AND ACCEPTANCE OF CHAPTER 18 STORM DRAINS

INITIAL CONSTRUCTION:

The Developer and/or Land Owner are responsible for the liabilities and maintenance of the storm drainage system until it is accepted for service by this office.

The Inspection Department must be notified **2 WORKING DAYS** prior to commencing construction and for all acceptance inspections.

Full time inspection is required for all aspects of storm drain construction.

The system must be constructed in accordance to the Oakland County Water Resources Commissioner's specifications.

All field changes must be **PRE-APPROVED** by the Oakland County Water Resources Commissioner prior to installation.

FIRST INSPECTION:

The purpose of the Construction Inspection approval is to release the underground contractor from responsibility of damage to the underground drainage system by others during future construction on this project site:

Requirements of the first inspection:

- A. All pipes and structures are to be free of dirt and debris.
- B. Structures must be complete, plastered or pointed, channels, benches and castings in place.
- C. All inlets and outlets completed, rip rap in place.
- D. All erosion control measures in place as well as a stated policy to maintain the soil erosion controls.
- E. Storm drainage system to be complete and completely functional.

SECOND INSPECTION:

The Second Inspection will be performed after the pavement has been completed. The purpose of the Second Inspection is to relieve the Pavement Contractor from responsibility for future damage to the storm drainage system.

THIRD INSPECTION:

The purpose of the Third Inspection is to accept the drainage system for conditional maintenance and operation by the Oakland County Water Resources Commissioner and to relieve the Developer and/or Land Owner from the responsibility for maintenance of the storm drainage system.

The Developer and/or Land Owner are still responsible for the systems integrity until the completion of the final accounting and acceptance by the Oakland County Water Resources Commissioner.

This third inspection will consist of a complete inspection of the entire system in which a punch list of outstanding construction items will be generated. Once these items have been addressed and/or corrected, then a third inspection report will be issued.

The third inspection can be scheduled after the following requirements have been met:

- A. That all disturbed areas have been re-vegetated and that the right of ways and all easements, detention ponds and swales are sodded or vegetated with an approved plant material. All easement area vegetation must be established.
- B. As-built drawings have been submitted to the Oakland County Water Resources Commissioner.
- C. That the local governing body has no objections to the finalization of the project.
- D. That there are no outstanding soil erosion issues and no history of poor soil erosion practices by the Developer and/or Land Owner.
- E. That all outstanding paperwork has been submitted and approved including recorded Deed Restrictions or a Master Deed with our appropriate drain easement language and offsite easements.

FINAL ACCEPTANCE

One year after conditional acceptance of the Drain for operation and maintenance, the Developer is allowed to request, in writing, that a final accounting be made by this office. The project will be reviewed by this office and our Inspection Unit will perform a final walk through inspection of the Drain if the following requirements have been met:

- A. All conditions of the agreement are met,
- B. The drain is functional and serviceable,
- C. There are no outstanding liens or judgements against the storm drainage system,
- D. A Developer's Declaration and Developer's affidavit are on file in this office.

Then, a final accounting will be made and a letter of final acceptance will be issued along with the remaining refundable amounts of the deposits.

FIRST INSPECTION REPORT TRANSMITTAL LETTER

Date _____

_____, P.E.
Township Engineer
_____ Township

_____, Michigan 48_____

Reference: _____ **Drain**

Dear Mr. _____:

Enclosed please find a copy of our First Inspection Report for the "_____
_____" storm drainage system.

The storm drainage system has been constructed according to the plans and specifications approved by this office. Inspection of the storm drainage system has been performed as specified by _____, as agents of the Oakland County Water Resources Commissioner.

Requests for maintenance should be forwarded to the Developer or the Developer's representative(s) for resolution.

If there are any questions, please contact this office.

Very truly yours,

OAKLAND COUNTY WATER RESOURCES COMMISSIONER

By: _____

_____/_____

Enclosure

SECOND INSPECTION REPORT TRANSMITTAL LETTER

Date

_____, P.E.
Township Engineer
_____ Township

_____, Michigan 48_____

Reference: _____ **Drain**

Dear Mr. _____:

Enclosed please find a copy of our Second Inspection Report for the "_____
_____" storm drainage system.

The storm drainage system has been constructed according to the plans and specifications approved by this office. Inspection of the storm drainage system has been performed as specified by _____, as agents of the Oakland County Water Resources Commissioner.

Requests for maintenance should be forwarded to the Developer or the Developer's representative(s) for resolution.

If there are any questions, please contact this office.

Very truly yours,

OAKLAND COUNTY WATER RESOURCES COMMISSIONER

By: _____

_____/_____

Enclosure

THIRD INSPECTION REPORT TRANSMITTAL LETTER

Date _____

_____, P.E.
Township Engineer
_____ Township

_____, Michigan 48_____

Reference: _____ **Drain**

Dear Mr. _____:

This office has completed a third inspection for the referenced storm drainage system. Enclosed is a copy of the third inspection approval form.

The storm drainage system has met all of our criteria for conditional acceptance as a County Drain. This office will assume the responsibility of operation and maintenance of the drain. Please note, however, the drain has not yet been fully accepted as a County Drain.

Requests for maintenance should be forwarded to our Maintenance Department for resolution. All other complains may be addressed to our Engineering Department.

If there are any questions concerning this matter, kindly contact _____, P.E. (248-_____) of this office.

Very truly yours,

OAKLAND COUNTY WATER RESOURCES COMMISSIONER

By: _____

_____/_____

Enclosure

cc: Developer and/or Land Owner

FINAL ACCOUNTING LETTER

Date

_____, P.E.
Township Engineer
_____ Township

_____, Michigan 48_____

Reference: _____ **Drain**

Dear Mr. _____:

This office has completed a final accounting for the “_____” storm drainage system.

The storm drainage system has met all of our criteria for final acceptance of a storm drainage system as a County Drain under the jurisdiction of this office. Therefore, as of this date, in accordance with the agreement to establish the _____ County Drain, we are assuming full responsibility of the _____ Drain for maintenance and operation.

Requests for maintenance should be forwarded to our Maintenance Division for resolution. All other complaints can be addressed to me. If there are any questions, please contact the undersigned at this office at (_____) _____.

Very truly yours,

OAKLAND COUNTY WATER RESOURCES COMMISSIONER

By: _____

_____/_____

APPENDIX B

- 1. EASEMENT REQUIREMENTS**
- 2. TYPICAL EASEMENT FOR SUBDIVISION**
- 3. TYPICAL EASEMENT FOR CONDOMINIUM**

EASEMENT REQUIREMENTS

The minimum acceptable easement for a storm drain shall be 20 foot wide. Depth and size of pipe may require an additional easement.

The minimum acceptable easement for 8" diameter sump lines shall be 12 foot wide.

The minimum acceptable easement for a detention/retention basin shall be 12 feet from the high water elevation or at the one (1) foot freeboard elevation, but may not be less than 12 feet.

The Oakland County Water Resources Commissioner's office reserves the right to modify the easement requirements at its discretion.

TYPICAL EASEMENT FOR SUBDIVISION

The following language shall be included in the deed restrictions for the subdivision:

. . . subject to a perpetual and permanent easement in favor of the Oakland County Water Resources Commissioner, the _____ Drainage District, a Michigan statutory public corporation as represented by the Oakland County Water Resources Commissioner (referred to as "grantee") and grantee's successors, assigns and transferees, in, over, under and through the property described on Exhibit A (or plat, liber, page) hereto, which easement may not be amended or revoked except with the written approval of grantee, and which contains the following terms and conditions and grants the following rights:

1. The easement shall be for the purposes of developing, establishing, constructing, repairing, maintaining, deepening, cleaning, widening and performing any associated construction activities and grading in connection with any type of drainage facilities or storm drain in any size form, shape or capacity;
2. The grantee shall have the right to sell, assign, transfer or convey this easement to any other governmental unit;
3. No owner in the subdivision shall build or convey to others any permission to build any permanent structures on the said easement;
4. No owner in the subdivision shall build or place on the area covered by the easement any type of structure, fixture or object, or engage in any activity or take any action, or convey any property interest or right, that would in any way either actually or threaten to impair, obstruct, or adversely affect the rights of grantee under the said easement;
5. The grantee and its agents, contractors and designated representative shall have right of entry on, and to gain access to, the easement property;
6. It is understood that under Michigan law, the Drainage District is comprised of all of the owners of the subdivision and that any and all expenses, claims or damages in any way arising from or incident to the construction, operation and maintenance of the drain and easement will be assessed against the Drainage District.

The rights granted to the Oakland County Water Resources Commissioner, the _____ Drainage District, and their successors and assigns, under Section _____ of _____ these restrictions may not, however, be amended without the express written consent of the grantee hereunder. Any purported amendment or modification of the rights granted thereunder shall be void and without legal effect unless agreed to in writing by the grantee, its successors or assigns.

TYPICAL EASEMENT FOR CONDOMINIUM

The following language shall be included in the deed restrictions for the condominium complex:

. . . subject to a perpetual and permanent easement in favor of the Oakland County Water Resources Commissioner, the _____ Drainage District, a Michigan statutory public corporation, as represented by the Oakland County Water Resources Commissioner (referred to as "grantee"), and grantee's successors, assigns and transferees, in, over, under and through the property described on Exhibit A hereto, which easement may not be amended or revoked except with the written approval of grantee, and which contains the following terms and conditions and grants the following rights:

1. The easement shall be for the purposes of developing, establishing, constructing, repairing, maintaining, deepening, cleaning, widening and performing any associated construction activities and grading in connection with any type of drainage facilities, storm drains or related appurtenances, in any size form, shape or capacity;
2. The grantee shall have the right to sell, assign, transfer or convey this easement to any other governmental unit;
3. No owner in the condominium complex shall build or convey to others any permission to build any permanent structures on the said easement;
4. No owner in the condominium complex shall build or place on the area covered by the easement any type of structure, fixture or object, or engage in any activity or take any action, or convey any property interest or right, that would in any way either actually or threaten to impair, obstruct, or adversely affect the rights of grantee under the said easement;
5. The grantee and its agents, contractors and designated representatives shall have right of entry on, and to gain access to, the easement property;
6. It is understood that under Michigan law, the Drainage District is comprised of all of the owners of the condominium complex and that any and all expenses, claims or damages in any way arising from or incident to the construction, operation and maintenance of the drain and easement will be assessed against the Drainage District.

The rights granted to the Oakland County Water Resources Commissioner, the _____ Drainage District, and their successors and assigns, under Section _____ of this master deed may not, however, be amended without the express written consent of the grantee hereunder. Any purported amendment or modification of the rights granted thereunder shall be void and without legal effect unless agreed to in writing by the grantee, its successors or assigns.

APPENDIX C

- 1. DESIGN REQUIREMENTS**
- 2. AS-BUILT DRAWING REQUIREMENTS**
- 3. STANDARD DETAIL SHEET**

DESIGN REQUIREMENTS

The following requirements for the design of drainage facilities shall be followed:

PIPE:

- 12" Minimum Pipe Size
- 10-Year Storm Design
- $I = 175/t + 25$ - Manning Equation
- Hydraulic Grade Line in Pipe
- Velocity Less than 10 f.p.s..
- Refer to Standard Details and Subdivision Rules
- Concrete Pipe with Premium Joints

SUMP PUMP:

- Serving More than One (1) Dwelling Unit 8" Minimum Size
- Minimum Size for House Leads is 4"
- All Connections to Storm Drains are Pre-manufactured
- Refer to Standard Details

STORMWATER BASINS:

Drained Basin (Detention Basin)

- 100-Year Storm Design
- 1 on 6 side slopes
- Primary and Secondary Outlets
- 1 Foot of Freeboard

Undrained Basin (Retention Basin)

- 2 - 100-Year Storm Water Storage
- $V \text{ Storage} = 2 \times 16,500 \times C \times A$ in Cubic Feet
- 1 on 6 Side Slopes
- 1 Foot Freeboard
- Overflow Route

Outflow from Basin

- Outflow will be restricted to 0.1 to 0.2 c.f.s./Acre in most cases. Downstream effects of storm water discharge will be the major consideration in sizing the outlet.
- Refer to Standard Details

Stormwater Treatment

Sediment fore bays or mechanical treatment devices with by-pass. See WRC website for additional information.

NOTE: All drainage systems will be evaluated on a case-by-case basis. Local conditions/requirements/situations may cause exceptions to the above requirements, the published Design Criteria for Subdivisions, Standard Details or other rules which may apply.

AS-BUILT DRAWING REQUIREMENTS

The following information shall be required on the as-built "Mylar" construction plan of the drain:

- A. A Cover Sheet, which includes:
 - Drain Name
 - Location map with north arrow
 - Drainage District (Property) legal description
 - Storm sewer pipe manufacturer (type, class & joint)
 - Manhole manufacturer
 - Casting type and manufacturer
 - Fitting type, class and manufacturer
- B. A General Site/Utility Plan with boundary designation
- C. A Grading Plan, which includes:
 - Storm sewer as-built rim elevations
 - As-built contours of all detention or retention basins
 - The location and permanent easement of all basin access drives
- D. Plan and Profile views of all storm sewer 12" diameter and larger, which includes:
 - As-built pipe length and slope
 - As-built rim and invert elevations
 - Show the sump pump lead locations on the plan view
 - Road culverts with as-built information
 - Top of pipe or invert elevation of the utility for all utility crossings. There should be a minimum of 18" clearance between the storm sewer and the utility.
 - Note any special bedding, undercutting or piling extent and depth
 - The term AB should follow all verifications.
- E. A Drainage Area Map Sheet
- F. Hydraulic calculations for storm sewer pipe and design calculations for all detention or retention basins, basin overflow structures and drainage swales. The as-built volume of all basins must be calculated.

STANDARD DETAIL SHEET
PERMANENT PRIVATE EASEMENT
FOR THE
NAME (COUNTY) DRAIN

IN PLAT LEGEND: (Must be on Mylars)

Use of the word “private” does not limit in any way the scope of the easement granted to the Name (County) Drainage District.

APPENDIX D

1. REVISIONS

REVISIONS

Periodic reviews and revisions will occur in accordance to changes in standards and/or laws. The amended standard requirements shall supersede the existing standard requirements upon approval of the Oakland County Water Resources Commissioner's Engineering Staff.

Change Record

Revision	Date	Responsible Person	Description of Change
Release	09/18/01	Assistant Chief Engineer – Engineering Unit	Re-typed and re-formatted for ISO 9000 purposes.
Revision #1	12/17/01		Changed Final Inspection to Third Inspection throughout Requirements.
		Assistant Chief Engineer – Engineering Unit	
			Revised Final Acceptance verbiage.
			Changed A-13 – <u>2</u> working days instead of 3 working days
			Revised A-16 to <u>Third</u> Inspection Report Transmittal Letter.
			Changed A-17 second paragraph to read, “assuming <u>full</u> responsibility...”
			Added Appendix D – Revisions Section to Standard Requirements
Revision #2	07/08/02		Final Acceptance verbiage, Inspection Deposit, Third Inspection and As-Built Drawing Requirements
		Assistant Chief Engineer – Engineering Unit	
	05/23/03	Document Control Person	Changed references to Regulatory
			Unit to Engineering Unit
Revision #3	10/01/03		Changed wording for B-3
		Assistant Chief Engineer - Engineering Unit	
Revision #4	11/17/03		Changed wording for B-2 and B-3
		Assistant Chief Engineer - Engineering Unit	
Revision #5	9/25/15	Chief Engineer-Engineering Unit	Updated agreement and design requirements

D-1.