

**AGENDA**  
**BOYNE CITY PLANNING COMMISSION**  
**Monday, August 20, 2012, 5:00 p.m.**  
Boyne City Hall

1. Call to Order
2. Roll Call - Excused Absences
3. Consent Agenda

*The purpose of the consent agenda is to expedite business by grouping non-controversial items together to be acted upon by one Commission motion without discussion. Any member of the Commission, staff, or the public may ask that any item(s) on the consent agenda be removed to be addressed immediately following action on the remaining consent agenda items. Such requests will be respected.*

  - A. Approval of minutes from the July 30, 2012 Boyne City Planning Commission meeting.
4. Hearing Citizens Present (Non-Agenda Items)
5. Reports of Officers, Boards, Standing Committees
6. Unfinished Business
7. New Business
  - A. Review Draft Storm Water Management Ordinance
  - B. Planners Moments
8. Staff Report
9. Good of the Order
10. Adjournment – Next Meeting, September 17, 2012



**Meeting of  
July 30, 2012**

Record of the proceedings of the Boyne City Planning Commission meeting held at Boyne City Hall, 319 North Lake Street, on Monday, July 30, 2012 at 5:00 P.M.

**Call to Order**

Chair MacKenzie called the meeting to order at 5:00 p.m.

**Roll Call**

Present: Chris Frasz, Jim Kozlowski, Jane MacKenzie, Lori Meeder, Tom Neidhamer and Joe St, Dennis  
Absent: Gretchen Crum, George Ellwanger, and John McCahan

**2012-07-30-2**

**Excused Absence(s)  
MOTION**

**Meeder moved, Kozlowski seconded, PASSED UNANIMOUSLY** a motion to excuse the absence of Ellwanger and McCahan.

**Meeting Attendance**

City Officials/Staff: Planning Director Scott McPherson, Main Street Manager Hugh Conklin and Recording Secretary Pat Flaver  
Public Present: Six

**2012-07-30-3**

**Consent Agenda  
MOTION**

**Neidhamer moved, Kozlowski seconded, PASSED UNANIMOUSLY** a motion to approve the consent agenda. Approval of the June 18, 2012 Planning Commission minutes as presented.

**Comments on  
Non-Agenda Items**

Main Street Manager Hugh Conklin extended an invitation to attend a meeting with William Rutter who will be presenting an application of the downtown to be placed on the National Register of Historic Places. The meeting will be held tonight in the library at 7:00 pm.

**Reports of Officers, Boards  
and Standing Committees**

None

**Unfinished Business**

None

**New Business**

**One Water Street  
submitted review of Final  
Development Plan**

Planning Director Scott McPherson stated this is the final site plan approval for the One Water Street development. The second reading for the conditional rezoning was before the City Commission on July 24<sup>th</sup>, it was approved, however, needs to be published and will be effective 15 days after. As a part of the approval by the City Commission, the final plan was recommended to come back before this board for final approval. Staff has been looking at the previous development agreement, and because of some changes, need to clarify the timing of some of the items. One is the installation/construction of the fishing pier during Phase II in the previous plan. How does it translate into this development's three phases?

**Glen Catt - Developer** - Would like to see it done all at one time, putting in the sidewalks and fishing pier. Phase I is the extension down Water Street and the wrap around on the lake side of the first building, Phase II will be the last 4 buildings, and pool on the lake side, Phase III is the interior buildings. However, we can see that Phase I & II could run together with a construction completion time frame of 2 to 3 years. Hope to start foundation work this fall.

**McPherson** - What about the interior road? Done during phases or all at once?

**Catt** - If done during phases, you have additional construction traffic using and abusing them. We see that there is more interest in Phase II of the project at the onset, so Phase I & II could be built at the same time, so the road would then be done all at once.

**McPherson** - Tonight is final development plan approval, the check list was distributed for review. You should go through it and make sure everything has been met. During my review, it was. If during construction there is possible lack of activity for an extended period of time with the site being secured by fencing, can you speak to that and what activity you would do to make the site presentable?

**Catt** - It is a Brownfield, so must be secured. Fencing will move around as building starts. As parts are completed and surface areas are encapsulated, the fence will come down, and as construction areas begin, fencing will be extended.

**McPherson** - With the area being torn up, if there are long periods of time that there is inactivity, we would like to see it stabilized.

**Catt** - The area is looking tired from the past couple years. It is important to us to plant grass and stabilize if we don't begin construction right away. Our commercial tenants do not need to have dust blowing around, and the neighbors to the south, we would like to continue the good relationship we have with them.

**St. Dennis** - What is your definition of long open space exposure for phases; what do you consider long term?

**McPherson** - Construction season without anything going on is long term to me.

**St. Dennis** - Domestic season?

**McPherson** - Yes, if no activity or plans for the following season, stabilization is to be done.

**Meeder** - Fishing pier is due to be built when?

**McPherson** - We need to clarify that, but what I'm hearing is at the completion of Phase I, which is the four buildings on Water St, and the wrap around building.

**Catt** - Yes.

**McPherson** - The sidewalk and improvements on city property will be installed at that time also.

**Doug Mansfield** - Soil Erosion permits/ordinance must be followed. Once construction starts, we will be bound by DEQ & Soil Erosion, so after 60 days, if we don't do anything, we must stabilize.

**Frasz** - Is there a construction bond? How is that established?

**McPherson** - There was a previous bond for this site for lighting, landscaping, and paving improvements. Some of it has changed a bit. Previous development agreement will be reviewed tonight and updated, so that will be included.

**Neidhamer** - If you do Phase I & II, will you drive all the pilings at once?

**Ed Hunt** - We would do them in groups of four or five, depending on sales. We won't come in and do just one building.

Board reviewed and went through the Findings of Fact, Section 19.40 Development Plan Approval Criteria, attached as Appendix A.

**\*\*MOTION**

After review and board discussion, **motion by St. Dennis, seconded by Meeder** to approve the final development plan submitted by Catt Land Development, LLC for One Water Street based on the submitted Construction Plan sheets 1 through 9 dated 6-8-2012, in addition to the site lighting plan, site lighting fixtures plan, construction phasing plan, Resort Cottage pattern book, and Findings of Fact as determined on 7-30-12.

**2012-07-30-7A**

**Roll Call:**

Aye: Frasz, Koziowski, MacKenzie, Meeder, Neidhamer and St. Dennis

Nay: None

Absent: Crum, Ellwanger, and McCahan

**Motion Carries**

Development Agreement will be updated to reflect the findings of this meeting and motion made.

**Planning Commission reappointments**

This item was completed at the April 16, 2012 meeting.

**Planners Moments review**

DVD presentation of Planners Moments - Shoreline Setback & Buffer requirements. A meeting has been scheduled on this topic for Tuesday, July 31<sup>st</sup> from 7:00 to 9:00 pm at the library. All are welcome to attend.

**Staff Report**

- Kirtland - Review of the noise assessment was done last week by the citizen committee. The City Manager and Kirtland will be identifying the targeted equipment areas of concern and mitigation suggestions. Areas identified were: 1) back pressure on the equipment, which is making the low pitch humming sounds, 2) enclosing a number of pieces of equipment, and 3) identifying "best practices" or low cost immediate solutions, which some have already being implemented by Kirtland.
- Staff attended a Downtown City conference held in Muskegon. A session on alcohol served in public venues was well attended. The liquor commission was at this seminar to answer questions. On July 1, 2012 the municipalities no longer have to approve the transfer of licenses at the same location from one business to another. For outdoor service the areas must be clearly defined and marked. This item may come back to the city commission for consideration, as we have had interest expressed from restaurants in Boyne City to allow alcohol service outside.

**Good of the Order**

**Meeder** - Leadership Charlevoix applications are being accepted for the second 9 month program which will begin in September. If you know of any young professionals who you think could be the future leaders of the county let her or Jim Baumann at the chamber know.

The next meeting of the Boyne City Planning Commission is scheduled for August 20, 2012 at 5:00 pm in the Commission chambers.

**Adjournment**

**2012-07-30-10**

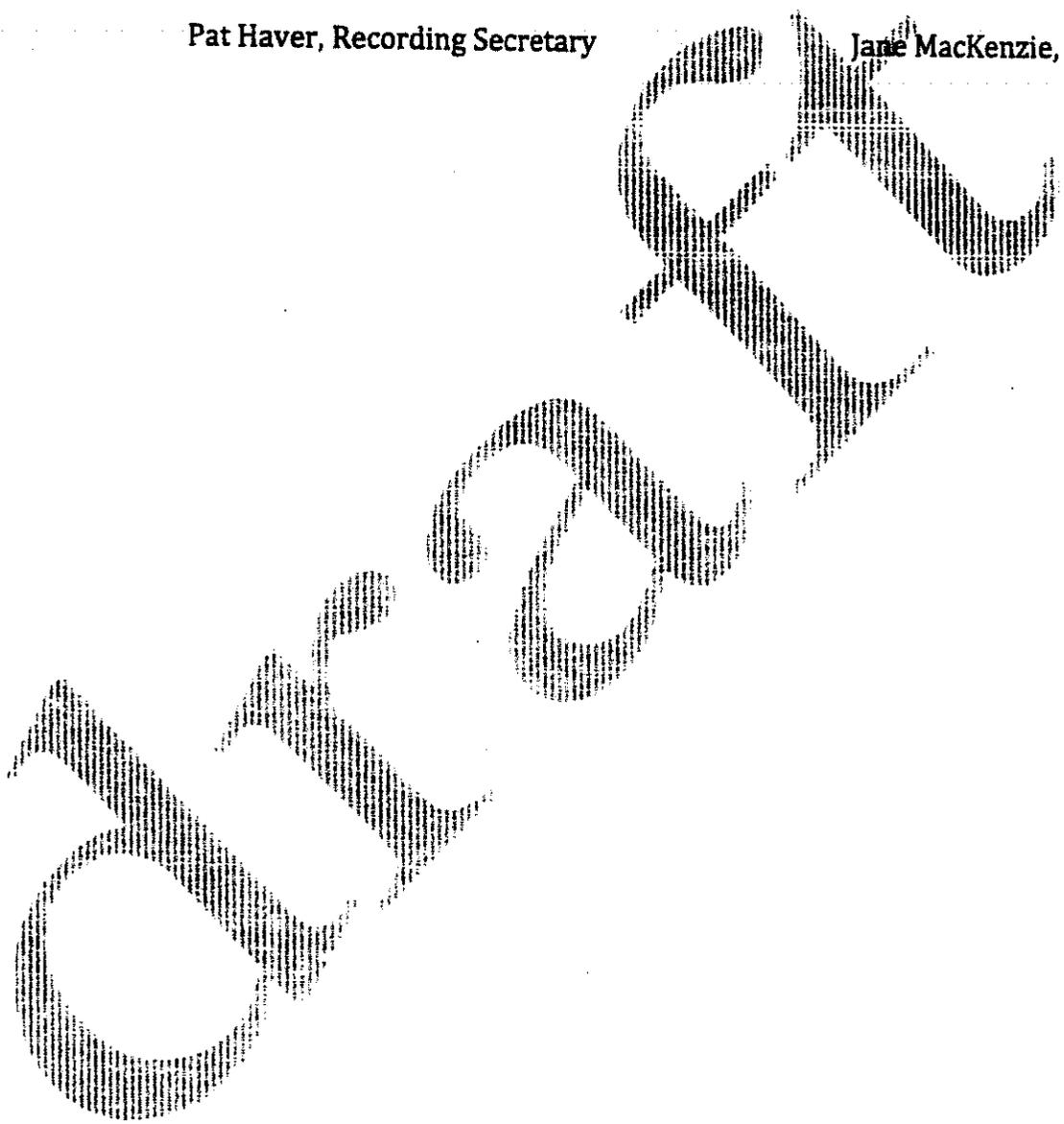
**MOTION**

**St. Dennis moved, Kozlowski seconded, PASSED UNANIMOUSLY** a motion to adjourn the meeting at 6:28 p.m.

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Pat Haver, Recording Secretary

Jane MacKenzie, Chair



**DEVELOPMENT PLAN FINDINGS OF FACT  
ONE WATER STREET**

<b>Section 19.40 Development Plan Approval Criteria.</b>		
In order that buildings, open space and landscaping will be in harmony with other structures and improvements in the area, and to ensure that no undesirable health, safety, noise and traffic conditions will result from the development, the Planning Commission shall determine whether or not the development plan meets the following criteria, unless the Planning Commission determines that one or more of such criteria are inapplicable:		
<b>ORDINANCE REQUIREMENT</b>	<b>PLANNING COMMISSION DETERMINATION</b>	<b>RELEVANT FACTS</b>
<p><b>A. General.</b> All elements of the development plan shall be designed to take into account the site's topography, the size and type of plot, the character of adjoining property, and the traffic operations of adjacent streets. The site shall be developed so as not to impede the normal and orderly development or improvement of surrounding property for uses permitted in this Ordinance. The development plan shall conform with all requirements of this Ordinance zoning district(s).</p>	<p><b>Complies</b></p>	<p>In 2009 approval was obtained for a mixed use development that included commercial, restaurant, office, a 37 unit hotel that would be comprised of 20 single bedroom units and 17 units with kitchen and dining facilities. Since the approval the commercial, restaurant and office portion of the building has been constructed. The applicant is requesting a conditional rezoning for the parcel from WMD to CBD. The proposed uses for the parcel is a motel and mixed use development. The proposed plan would replace the 37 room hotel with 13 resort cottage structures that would contain short term and extended stay units, commercial uses and a bathroom/shower facility dedicated for the marina users. All the proposed uses are principal permitted uses in the CBD as per BCZO sections 10.20(J) and (M). The proposed 3 story buildings would have heights of 33' and 35' and do not exceed the maximum building height allowed for the CBD district of 3.5 stories or 45 feet. The proposed buildings would meet the setback and lot coverage requirements for the CBD.</p> <p>The parcel is in the Waterfront Marina District and is adjacent to the Multifamily Residential District on the south, Central Business District to the east and Community Service District on the north. Existing Land Uses around the property include residential, retail, marina and commercial.</p>
<p><b>B. Building Design.</b> The building design shall relate to the surrounding environment in regard to texture, scale, mass, proportion, and color. High standards of construction and quality materials will be incorporated into the new development. In addition to following design guidelines adopted in specific district or sub-area plans, the building design shall meet the architectural and building material requirements of this Ordinance.</p>	<p><b>Complies</b></p>	<p>The proposed buildings located are similar in style and mass, to existing surrounding development at the Water Street Inn and Harborside condominiums. The provided pattern book for the proposed structures are in compliance with design criteria provided in Article 22 and the proposed designs have been reviewed by the main street design committee.</p>
<p><b>C. Preservation of Significant Natural Features.</b> Judicious effort shall be used to preserve the integrity of the land, existing topography, and natural, historical, and architectural features as defined in this Ordinance. In particular wetlands designated /regulated by the Michigan Department of Environmental Quality, and, to a lesser extent, wetlands which are not regulated by the Department. Parcels along the City's lakefront shall be developed as to minimize disruption of visual access to the lakefront from adjacent roadways and to maintain view sheds of the lakefront</p>	<p><b>Complies</b></p> <p><i>Improve and cleanup shoreline, keeping as natural as possible, removing scrub trees and bushes</i></p>	<p>The location of the buildings on the property line is permitted and is encouraged by the BCZO. A side yard setback of 33.3 feet from the south property line is proposed which would equal 16% of the corresponding lot width and will provide unobstructed views from Front Street for 102 feet. The buildings on the proposed plan will have 8ft spacing between the walls of structures which will provide two other lake views from Front Street. One view would have a total of 35ft of view from Front Street, of which 15ft would be somewhat obstructed by the dumpster enclosure. The other view would have 35 feet of view from Front Street with 7 feet obstructed. Because the applicant is proposing a conditional rezoning to CBD, the 30% side yard requirement of BCZO 20.20 note(o) does not apply.</p>
<p><b>D. Streets.</b> All streets shall be developed in accordance with the City of Boyne City Subdivision Control Ordinance and City Municipal Standards, unless developed as a private road in accordance with the requirements of the City.</p>	<p><b>Complies</b></p>	<p>Existing streets will be used to access the parcel and no new streets are being developed with this proposal.</p>

**DEVELOPMENT PLAN FINDINGS OF FACT  
ONE WATER STREET**

<p><u>E. Access, Driveways and Circulation.</u> Safe, convenient, uncongested, and well defined vehicular and pedestrian circulation within and to the site shall be provided. Drives, streets, parking and other elements shall be designed to discourage through traffic, while promoting safe and efficient traffic operations within the site and at its access points. All driveways shall meet the design and construction standards of the City. Access to the site shall be designed to minimize conflicts with traffic on adjacent streets, particularly left turns into and from the site. For uses having frontage and/or access on a major traffic route, as defined in the City of Boyne City Comprehensive Plan, the number, design, and location of access driveways and other provisions for vehicular circulation shall comply with the access management provisions of this Ordinance.</p>	<p><i>Complies</i></p>	<p>Existing curb cuts on Front street will be used to access the site. Curb cuts were installed in conjunction with the City during the reconstruction of Front street in 2007. The two vehicle ingress/egress access points to the parking lot are the only vehicle access points onto the parcel. The design and configuration of the parking lot is for destination traffic and it does not promote through or drive by traffic. The site will also be accessed by pedestrians from on street parking spaces located on Water Street and Front street. Due to its location, short length, orientation and 90 degree on street parking, Front street functions at low volumes and speeds. Marked pedestrian crossings are at located at midblock and the corner of Front and Water Street. While it is a street, the dead end portion of Water Street, west of Front Street functions like a parking lot and operates at low volumes and speeds. A 10' sidewalk will be around the perimeter of Water Street and a marked cross walk is located at the Water Street and Front Street intersection.</p>
<p><u>F. Emergency Vehicle Access.</u> All buildings or groups of buildings shall be arranged so as to permit necessary emergency vehicle access as required by the Fire Department, Ambulance Department and Police Department.</p>	<p><i>Complies</i></p>	<p>Building can be accessed from Front street and Water Street. Relocation of fire hydrant on Water Street is required as it is too close to building. Fire hydrant should be relocated farther north and an additional fire hydrant added on the east side of Front street. Boyne City fire chief and police chief have reviewed the proposed plan and stated no concerns in regards to emergency vehicle access.</p>
<p><u>G. Sidewalks, Pedestrian and Bicycle Circulation.</u> The arrangement of public or common ways for vehicular and pedestrian circulation shall be connected to existing or planned streets and sidewalks/pedestrian or bicycle pathways in the area. There shall be provided a pedestrian circulation system which is separated from the vehicular circulation system. In order to ensure public safety, special pedestrian measures, such as crosswalks, crossing signals and other such facilities may be required in the vicinity of primary and secondary schools, playgrounds, local shopping areas, fast food/service restaurants and other uses which generate a considerable amount of pedestrian or bicycle traffic.</p>	<p><i>Complies</i></p>	<p>As part of the previous approval there has been an extension of sidewalk to the west down to the marina dock. The main dock of the marina is open to the public. A proposed fishing dock that would be located in the public ROW. All improvements on public property must be approved by City Commission. A 7' sidewalk has been installed along Front Street and a 10' sidewalk has been installed along Water Street.</p>
<p><u>H. Barrier-Free Access.</u> The site has been designed to provide barrier-free parking and pedestrian circulation.</p>	<p><i>Complies</i></p>	<p>The applicant has provided 4 barrier free parking spaces on the property. 1 barrier free space has been installed at the end of Water St.</p>
<p><u>I. Parking.</u> The number and dimensions of off-street parking [spaces] shall be sufficient to meet the minimum required by this Ordinance. However, where warranted by overlapping or shared parking arrangements, the Planning Commission may reduce the required number of parking spaces, as provided in this Ordinance.</p>	<p><i>Complies</i></p>	<p>A total of 132 total parking spaces is calculated for all the proposed uses. A 20% reduction has been approved by the planning commission for collective uses as per 24.20(F). With the 20% reduction the applicant is required to provide 106 parking spaces. The submitted site plan shows 82 spaces located on site and The onsite spaces will be consist 16 paved spaces located on Front Street, 30 paved spaces in a parking lot, 7 spaces that will be reinforced turf parking and 39 paved spaces that will be located in the access drive, driveways and garages of the resort cottages. In accordance with the provisions of section 10.50 and based on a finding that patrons will either walk to the site from nearby neighborhoods or will park at other sites and visit several uses, and the availability of on-street parking spaces, off-site parking lots and municipal parking lots the remaining required 14 spaces have been waived by the planning commission.</p>

**DEVELOPMENT PLAN FINDINGS OF FACT  
ONE WATER STREET**

<p><u>J. Loading.</u> All loading and unloading areas and outside storage areas, including refuse storage stations, shall be screened in accordance with this Ordinance.</p>	<p align="center"><i>Complies</i></p>	<p>Loading area provided meets the ordinance criteria.</p>
<p><u>K. Landscaping, Screening and Open Space.</u> The landscape shall be preserved in its natural state, insofar as practical, by removing only those areas of vegetation or making those alterations to the topography which are reasonably necessary to develop the site in accordance with the requirements of this Ordinance. Landscaping shall be preserved and/or provided to ensure that proposed uses will be adequately buffered from one another and from surrounding public and private property. Landscaping, landscape buffers, greenbelts, fencing, walls and other protective barriers shall be provided and designed in accordance with the landscaping provisions of this Ordinance. Recreation and open space areas shall be provided in all multiple-family residential and educational developments.</p>	<p align="center"><i>Complies</i></p>	<p>Site is flat and has no existing natural vegetation. Existing landscaping elements on the property will be removed. Proposed landscaping plan does meet minimum ordinance requirements.</p>
<p><u>L. Soil Erosion Control.</u> The site shall have adequate lateral support so as to ensure that there will be no erosion of soil or other material. The final determination as to adequacy of, or need for, lateral support shall be made by the Planning Director or City Engineer, and have a valid Charlevoix County Soil Erosion permit</p>	<p align="center"><i>Compliance will be obtained by getting required permits</i></p>	<p>Soil Erosion permit is required and must be obtained prior to construction.</p>
<p><u>M. Stormwater Management.</u> Appropriate measures shall be taken to ensure that removal of surface waters will not adversely affect neighboring properties or the public storm drainage system. Provisions shall be made to accommodate stormwater which complements the natural drainage patterns and wetlands, prevent erosion and the formation of dust. Sharing of stormwater facilities with adjacent properties shall be encouraged. The use of detention/retention ponds may be required. Surface water on all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic or create standing water.</p>	<p align="center"><i>Complies</i></p>	<p>Storm water will be collected and routed into City storm water filtration system located in Sunset park. Applicant must pay hook up fee prior to construction.</p>
<p><u>N. Utilities.</u> Public water and sewer facilities shall be available or shall be provided for by the developer as part of the site development, where such systems are available.</p>	<p align="center"><i>Complies</i></p>	<p>Utility plan has been reviewed by the Street Department and Water Departments. Will work with the departments to make sure the construction meets our requirements.</p>
<p><u>O. Lighting.</u> Exterior lighting shall be arranged so that it is directed preferably downward onto the subject site and deflected away from adjacent properties. Lighting shall not impede the vision of traffic along adjacent streets. Flashing or intermittent lights shall not be permitted.</p>	<p align="center"><i>Complies with Dark Sky standards</i></p>	<p>Detailed lighting plan for the entire site has been submitted for final plan review. Residential fixtures to be used for interior site lighting, street lights match existing City street lights.</p>
<p><u>P. Noise.</u> The site has been designed, buildings so arranged, and activities/equipment programmed to minimize the emission of noise, particularly for sites adjacent to residential districts.</p>	<p align="center"><i>N/A</i></p>	<p>Uses and activities on site will be similar to those of the surrounding area and noise levels are not anticipated to exceed existing uses.</p>

**DEVELOPMENT PLAN FINDINGS OF FACT  
ONE WATER STREET**

<p><u>Q. Mechanical Equipment.</u> Mechanical equipment, both roof and ground mounted, shall be screened in accordance with the requirements of this Ordinance.</p>	<p align="center"><i>Complies</i>  <i>Small residential units will be next to the buildings</i></p>	<p>Mechanical equipment will be screened. Roof top mechanical equipment will be screened by roof parapet and roof structures. Ground mechanical equipment will be screened with fencing and landscaping.</p>
<p><u>R. Signs.</u> The standards of the City of Boyne City's Sign Ordinance are met.</p>	<p align="center"><i>Compliance will be obtained by getting required permits</i></p>	<p>The location of a proposed sign is shown on the provided plans with a sign meeting ordinance standards to be permitted at a later date.</p>
<p><u>S. Hazardous Materials or Waste.</u> For businesses utilizing, storing or handling hazardous material such as automobile service and automobile repair stations, dry cleaning plants, metal plating industries, and other industrial uses, documentation of compliance with state and federal requirements shall be provided.</p>	<p align="center"><i>N/A</i></p>	<p>Proposed uses do not use or store hazardous materials.</p>
<p><u>T. Other Agency Reviews.</u> The applicant has provided documentation of compliance with other appropriate agency review standards, including, but not limited to, the Michigan Department of Natural Resources, Michigan Department of Environmental Quality, Michigan Department of Transportation, Charlevoix County Drain Commissioner, Northwest Michigan Community Health Agency, Charlevoix County Building Department, and other federal and state agencies, as applicable.</p>	<p align="center"><i>Compliance will be obtained by getting required permits</i></p>	<p>All required permits must be obtained prior to construction.</p>
<p><u>U. Approval Process.</u> The development plan shall be reviewed by the Planning Commission. If disapproval is recommended, the Planning Commission shall cite reasons for such disapproval. If the Planning Commission finds a development plan not in conformity with this section, it may, at its discretion, return the development plan to the applicant with a written statement of the modifications necessary to obtain approval. Upon resubmission of the modified development plan, the Planning Commission shall review the plan. The Commission may approve, disapprove or approve subject to compliance with such modifications and conditions as may be deemed necessary to carry out the purpose of this Ordinance and other ordinances and resolutions of the City. If disapproved, the Planning Commission shall cite reasons for such disapproval.</p>		<p>Plan is approved with the following conditions:</p> <ol style="list-style-type: none"> <li>1. Following Construction Plans dated 6-8-2012; sheets 1 - 9</li> <li>2. Site lighting plan – submitted 6-8-2012</li> <li>3. Site lighting fixtures plan – submitted 6-8-2012</li> <li>4. Construction Phasing Plan – submitted 6-8-2012</li> <li>5. Resort Cottages Pattern Book of Architectural Guidelines</li> </ol>

**DEVELOPMENT PLAN FINDINGS OF FACT  
ONE WATER STREET**

**Appendix A**

After review and board discussion, **motion by St. Dennis, seconded by Meeder** to approve the final development plan submitted by Catt Land Development, LLC for 1 Water Street based on the submitted Construction Plan sheets 1 through 9 dated 6-8-2012, in addition to the site lighting plan, site lighting fixtures plan, construction phasing plan, Resort Cottage pattern book, and Findings of Fact as determined on 7-30-12.

**Roll Call:**

**Aye:** Frasz, Kozlowski, MacKenzie, Meeder, Neidhamer and St. Dennis

**Nay:** None

**Abstain:** None

**Absent:** Crum, Ellwanger, and McCahan

***Motion Carries***

**Date:** July 30, 2012

Signature: \_\_\_\_\_  
Planning Commission Chairperson



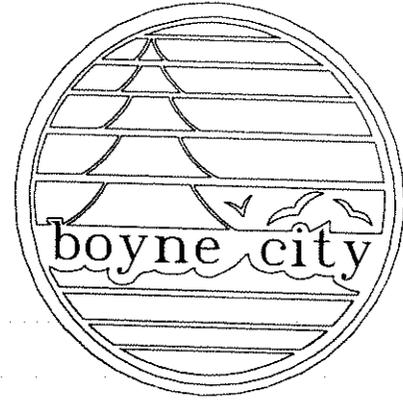
## CITY OF BOYNE CITY

**To:** Chair Tom Neidhamer and fellow Planning Commissioners

**From:** Scott McPherson, Planning Director

**Date:** August 20, 2012

**Subject:** Storm Water Management Ordinance



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A draft of a proposed storm water management ordinance has been provided for your review. The ordinance is similar to the previous county storm water ordinance but was rescinded due to a determination by the Courts that Michigan Counties do not have the authority to regulate storm water in this manner. A new storm water management ordinance has been drafted by the County and has been distributed to all the municipalities in Charlevoix County. The ordinance would be a municipal ordinance that would be adopted by each local government. The municipality then can enter into intergovernmental agreement with the County to administer and enforce the ordinance. Marc Seelye, Drain Commissioner for Charlevoix County will be at the meeting to talk about the ordinance and answer any questions.



# DRAFT 03-14-12

## Charlevoix County Storm Water Management Ordinance

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### Preamble

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THE CITY OF \_\_\_\_\_ ORDAINS:

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(or)

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THE TOWNSHIP OF \_\_\_\_\_ ORDAINS:

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(or)

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THE VILLAGE OF BOYNE FALLS ORDAINS:

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### ARTICLE I PURPOSE, OBJECTIVES, & ADMINISTRATION

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#### Section 1.1 Purpose

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#### Section 1.2 Objectives

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The objective of this Ordinance is to accomplish, among other things, the following:

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1. To manage storm water runoff resulting from earth changes occurring within Charlevoix County, both during and after development.
2. To ensure that future development provides measures to manage the quantity and quality of storm water runoff originating from the property so that surface water and groundwater quality is protected and flooding potential is reduced.

# DRAFT 03-14-12

3. To preserve and use the natural drainage system for receiving and conveying storm water runoff and to minimize the need to construct enclosed, below grade storm drain systems.
4. To preserve natural infiltration and the recharge of groundwater and to maintain subsurface flows which replenish lakes, streams and wetlands.
5. To ensure that storm water runoff management systems are incorporated into site planning at an early stage of the planning and design process.
6. To minimize the need for costly maintenance and repairs to roads, embankments, ditches, streams, lakes, wetlands and storm water management facilities which are the result of inadequate storm water control.
7. To reduce long-term expenses and remedial projects which are caused by uncontrolled storm water runoff.
8. To encourage the design and construction of storm water management systems which serve multiple purposes, including but not limited to flood prevention, water quality protection, wildlife habitat preservation, education, recreation and wetlands protection.
9. To minimize the impact of development on downstream properties and to preserve the biological and structural integrity of existing watercourses.
10. To allow for off-site storm water management facilities and measures if such proposals meet the requirements of these regulations.
11. To assure that all storm water facilities will be properly designed, constructed and maintained in accordance with a uniform set of standards.
12. To provide for enforcement of this Ordinance and penalties for violations.

## **Section 1.3 Ordinance Administration**

The local unit of government is authorized to enter into an inter-local agreement with Charlevoix County which will permit the Charlevoix County Soil Erosion and Sedimentation Control Officer to be the Enforcing Agent ("Agent") for this Ordinance. The Agent shall administer and enforce this Ordinance.

## **Section 1.4 Exclusive Storm Water Regulation Provision**

To the extent that this storm water ordinance is in conflict with any previously adopted ordinance within the local unit of government, the intent is to have this storm water ordinance supersede any other storm water regulations that may have been previously adopted or included as a portion of other local ordinances or zoning provisions. If any conflicts arise, the local unit of government shall either repeal or amend such other ordinances to make this Ordinance the exclusive regulation within the local unit of government.

# DRAFT 03-14-12

## Section 1.5 Repeal

Any non-zoning regulation inconsistent with the storm water regulations contained in this Ordinance is hereby repealed to the extent of such inconsistency.

**NOTE TO LOCAL UNITS OF GOVERNMENT:** Legal counsel advises that each municipality should review its zoning ordinance to determine whether there are inconsistent storm water regulations in the zoning ordinance. If so, a zoning ordinance amendment, following required zoning ordinance procedures, should be enacted repealing those inconsistent zoning provisions.

## Section 1.6 Rules Applying to Text in this Ordinance

When not inconsistent with the context, the present tense includes the future; words used in the singular include the plural. The word "shall" is understood to be mandatory, and the word "may" is merely suggestive.

## ARTICLE II DEFINITIONS

### Section 2.1 General

This Article sets forth the definitions of certain terms used within the Ordinance which have a meaning specific to the interpretation of the text of the Ordinance.

### Section 2.2 Undefined Words

Any word not defined herein shall first be interpreted as defined within Part 91, Public Act 451 of 1994, as amended, and where not defined there, shall be interpreted within its common and approved usage.

### Section 2.3 Definitions

The following terms and phrases shall have the meaning given herein, unless the context otherwise requires:

**AGENT:** The Charlevoix County Soil Erosion and Sedimentation Control Officer.

**APPEALS BOARD:** The public body which is charged with the responsibility to consider and decide appeals from decisions made by the Agent in administering and enforcing this Ordinance within any local unit of government that has enacted this Ordinance.

**APPEALS BOARD CLERK:** The individual specified in an intergovernmental agreement among the local units of government within Charlevoix County that have enacted this Ordinance who is charged with the responsibility to process appeals to the Appeals Board pursuant to Article VIII of this Ordinance.

**PLEASE NOTE:** It needs to be determined who will be the Appeals Board Clerk.

**APPLICANT:** The landowner, or his duly authorized agent, for the property upon which a regulated earth change is proposed, and who has submitted an application for a Storm Water Management Permit.

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1  
2 CHANNEL: The portion of a stream which conveys normal flows of water, or a ditch or other  
3 conveyance structure excavated for the flow of water.  
4

5 COMMERCIAL DEVELOPMENT: An activity, action or alteration of property that is proposed for  
6 the purpose of a commercial activity, such as retail sales, professional offices, multi-family residential  
7 structures for sale or rental, or any other purpose which includes access by the public for conducting  
8 business.  
9

10 CONVEYANCE FACILITY (STRUCTURE): A surface or subsurface structure, pipe or channel  
11 which transports storm water from one location to another.  
12

13 COUNTY DRAIN: Drains established and/or constructed pursuant to the Michigan Drain Code (Act  
14 40 of 1956, as amended).  
15

16 DESIGN STANDARD (OR ENGINEERING DESIGN STANDARD): A specification or set of  
17 specifications that prescribes the methodology for developing storm water management facilities  
18 based upon a uniform set of standards, calculations, and procedures.  
19

20 DESIGN STORM: A hypothetical rainfall event that is developed as a statistical relationship  
21 between actual rainfall intensity-duration-frequency data for the purpose of modeling the  
22 effectiveness of a given drainage system.  
23

24 DETENTION BASIN (POND): A structure or facility, natural or artificial, which stores storm water  
25 on a temporary basis and releases it at a controlled rate. A detention basin may drain completely after  
26 a storm event (dry detention basin) or it may be a body of water with a fixed minimum and maximum  
27 water elevation between runoff events (wet detention basin).  
28

29 DISCHARGE: The rate of flow of water through an outlet structure at a given point and time,  
30 typically measured in cubic feet per second (cfs) or gallons per minute (gpm).  
31

32 DISTURBED AREA: An area of land subjected to erosion due to the removal of vegetative cover  
33 and/or earthmoving activities, including filling.  
34

35 DRAINAGE: The interception and removal of water (groundwater or surface water) by natural or  
36 artificial means.  
37

38 DOWNSTREAM PROPERTIES: Down gradient lands and waters which receive storm water runoff  
39 and other surface water flows from the applicant's property and are often subjected to the cumulative  
40 impact of upstream development.  
41

42 DRAINAGE SYSTEM: All facilities, channels and areas which serve to convey, filter, store and/or  
43 receive storm water, either on a temporary or permanent basis.  
44

45 EARTH CHANGE: A human-made change in the natural cover or topography of land, including cut  
46 and fill activities, which may result in or contribute to soil erosion or sedimentation of the waters of  
47 the state. The term "earth change" as used in this Ordinance shall not apply to the practice of plowing  
48 and tilling soil for the purpose of crop production.  
49

50 FLOOD: An overflow of surface water onto lands not normally covered by water. Floods have these  
51 essential characteristics: the inundation of land is temporary and results from unusually heavy

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1 precipitation and the land is inundated by overflow from a lake, pond, stream and/or wetland, or is  
2 flooded by natural runoff.

3  
4 **FLOODPLAIN:** The area of land adjoining a lake or stream which is inundated when the flow  
5 exceeds the capacity of the normal watercourse. For mapping purposes, floodplains are designated  
6 according to the frequency of the flood event, such as the 100-year floodplain or 500-year floodplain.  
7

8 **GRADING:** Any stripping, clearing, stumping, excavating, filling, stockpiling or any combination  
9 thereof, including the land in its excavated or filled condition.

10  
11 **GRUBBING:** To clear (ground) of roots and/or stumps.

12  
13 **IMPERVIOUS AREA:** Surfaces that do not readily allow rainfall to infiltrate into the soil; examples  
14 include but are not limited to: roof area, paved or gravel driveways, parking areas, roads (both  
15 asphalt and gravel), or areas of heavy clay soils.

16  
17 **INDUSTRIAL USE:** Any manufacturing, processing, fabrication, maintenance assembly, printing or  
18 improvement of articles or merchandise, warehousing, wholesaling, storage, or activities related to  
19 mineral extraction and processing; and other business enterprises not classified as commercial.  
20

21 **INFILTRATION:** The downward movement or seepage of water from the surface into the subsoil  
22 and/or groundwater. The infiltration rate is expressed in terms of inches per hour.

23  
24 **LOCAL UNIT OF GOVERNMENT:** The City, Township, or Village that enacts this Ordinance.

25  
26 **MAINTENANCE AGREEMENT:** A binding agreement between the landowner and the local unit of  
27 government, which sets forth the location and design of best management practices as well as terms  
28 and requirements for storm water and erosion management facility maintenance, recorded with the  
29 Charlevoix County Register of Deeds.

30  
31 **OFF-SITE FACILITY:** Storm water management facility which is located partially or completely off  
32 the applicant's subject property.

33  
34 **ORDINARY HIGH WATER MARK:** The line between upland and bottomland which persists  
35 through successive changes in water levels, below which the presence and action of the water is so  
36 common or recurrent that the character of the land is marked distinctly from the upland and is  
37 apparent in the soil itself, the configuration of the surface of the soil and the vegetation. On an inland  
38 lake which has a level established by law, it means the ordinary high established level. Where water  
39 returns to its natural level as the result of the permanent removal or abandonment of a dam, it means  
40 the natural ordinary high water mark.

41  
42 **OUTFALL:** The point where water flows out from a conduit, drain or stream.

43  
44 **PEAK DISCHARGE RATE (PEAK FLOW):** The maximum calculated rate of storm water flow at a  
45 given point in a channel, watercourse, or conduit resulting from a predetermined frequency storm or  
46 flood, measured in cubic feet per second (cfs).

47  
48 **PERSON:** Any individual, firm, partnership, association, public or private corporation, company,  
49 organization or legal entity of any kind, including governmental agencies.  
50

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1 RETENTION BASIN: A wet or dry storm water holding area, either natural or manmade, which  
2 does not have any outlet to adjoining watercourses or wetlands other than an emergency spillway.  
3

4 SITE: Any tract, lot, or parcel of land or combination of tracts, lots or parcels of land proposed for  
5 development.  
6

7 STOP WORK ORDER: A notice for cessation of activity issued by the Agent to any person engaged  
8 in an activity in violation of this Ordinance including, but not limited to, grading and development  
9 activities.  
10

11 STORM WATER MANAGEMENT FACILITIES: Any structure, facility, barrier, berm, vegetative  
12 cover, basin or other measure which serves to manage storm water.  
13

14 Temporary Measures: Installations designed to manage storm water runoff during  
15 development or until soils in the contributing drainage area are stabilized.  
16

17 Permanent Measures: Installations designed to manage storm water runoff after development  
18 is completed.  
19

20 STORM WATER MANAGEMENT PERMIT: Written statement along with supporting  
21 documentation and storm water management plan that is executed by the Agent and issued under the  
22 provisions of this Ordinance authorizing the applicant to engage in specified earth changes.  
23

24 STORM WATER MANAGEMENT PLAN: Maps and written information prepared in accordance  
25 with specific standards identified within the Ordinance for a proposed land use or earth change. The  
26 storm water management plan describes the way in which storm water runoff will be managed during  
27 and after completion of the proposed development.  
28

29 STORM WATER RUNOFF: Excess water that does not infiltrate the soil, but instead flows over the  
30 surface of the ground or is collected in channels, watercourses or conduits and transported over a  
31 given drainage area.  
32

33 STREAM: A moving body of water that has definite banks, a bed and visible evidence of a continued  
34 flow or continued occurrence of water. See Public Act 451 of 1994, as amended, Part 301, Inland  
35 Lakes and Streams Section 324.30101, Subparagraph E, as amended.  
36

37 SWALE: Low lying grassed area with gradual slopes which transports storm water, either on site or  
38 off site.  
39

40 WATERSHED: A land area, also known as a drainage area, which collects precipitation and  
41 contributes runoff to a receiving body of water or point along a watercourse.  
42  
43

## 44 ARTICLE III REGULATED ACTIVITIES & PERMIT REQUIREMENTS 45

### 46 Section 3.1 Regulated Activities 47

48 Except as otherwise provided in this Ordinance, all earth changes described below shall be regulated  
49 activities and shall require a Storm Water Management Permit from the Agent, pursuant to Section 3.2 of  
50 this Ordinance:

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1. Industrial and commercial development regardless of the size or location, with the following exception:

A proposal for redevelopment or alteration of an existing commercial or industrial site with a maximum total increase of ten percent (10%) of the impervious surface in existence on May 1, 2010 or 4,356 square feet, whichever is less, shall not be required to meet the design standards of this Ordinance. Greater than a ten percent (10%) increase in the impervious surface in existence on May 1, 2010 or more than 4,356 square feet of additional impervious surface shall require storm water management measures in accordance with the design standards of this Ordinance for the entire increase.

2. All subdivision developments as defined by Section 102 of Public Act 288 of 1967, as amended, regardless of size, location or environmental sensitivity.
3. All site condominium developments or condominium developments as defined by Public Act 59 of 1978, as amended, Section 559.101 et seq. of the Michigan Compiled Laws regardless of size, location or environmental sensitivity.
4. A mobile home park, manufactured housing development, or campground.
5. Public and private roads which either provide access to five (5) or more parcels, are more than five hundred (500) feet in length, and/or have a grade of ten percent (10%) or greater.
6. A private driveway that is at a ten percent (10%) grade or greater, sloping down toward the intersecting road.

## Section 3.2 Permit Requirements

For purposes of this Ordinance, a Storm Water Management (SWM) Permit for regulated activities as identified in Section 3.1 is required before any earth changes commence. The SWM Permit requirements are independent of any other regulations governing the proposed earth change, such as soil erosion regulations or zoning requirements, which may require additional permitting through other enforcing agencies. The granting of a SWM Permit shall authorize only such earth changes for which the permit has been issued, and shall not be deemed to approve any development as a whole, or any other land use activities.

## Section 3.3 Permit Application Submittal

1. An application for a SWM Permit shall be submitted on the form provided by the Agent, signed by the landowner or his/her duly authorized agent, and shall include a storm water management plan, prepared in accordance with Article IV, along with the appropriate permit and review fees, prior to being considered by the Agent as an administratively complete application. The Agent may request additional storm water management plans or supporting documentation at his/her discretion during the permit review process.
2. The application for a SWM Permit shall be made, reviewed and approved prior to the start of any earth change including construction of access roads, driveways, grubbing or grading. Permit approval shall be given prior to the initiation of any work activity. Any unauthorized work shall be considered a violation of this Ordinance subject to enforcement actions under Article VII

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1 regardless of any later actions taken toward compliance. Soil test borings including those  
2 utilizing reasonable backhoe test excavation, vegetative cutting for land surveys, percolation tests  
3 and normal maintenance shall not be considered a start of work under these regulations.  
4

## 5 **Section 3.4 Plan Preparation by a Registered Professional**

6  
7 Following the calculation of pre- and post-development (or increase in development) stormwater runoff,  
8 if 100% of this increased storm water will not be retained on-site in a stormwater retention basin, the  
9 storm water management plan shall be prepared by a registered professional, in accordance with  
10 Section 6.2.  
11

## 12 **Section 3.5 Sequential Applications**

- 13  
14 1. On development proposals which are so large or complex that a storm water management plan  
15 encompassing all phases of the project cannot reasonably be prepared prior to initial ground  
16 breaking, an application for a sequential SWM Permit, based on successive major incremental  
17 earth change activities may be allowed. Requests for sequential applications shall be approved by  
18 the Agent prior to submittal of the initial SWM Permit application.  
19
- 20 2. Approval of sequential applications shall take place in two phases. First, the overall conceptual  
21 plan for the entire development shall be submitted for review and approval. Second, detailed  
22 plans for each phase of the total project shall be submitted for review and approval.  
23
- 24 3. All permits processed and issued for phases of a project shall be clearly defined as to the nature  
25 and extent of work covered for that phase. Each phase of the project must be reviewed and  
26 permitted individually prior to construction.  
27

## 28 **Section 3.6 Permit Application Review**

29  
30 The application review period begins upon receipt of an administratively complete application submittal.  
31 The Agent shall act upon an application for a residential earth change permit involving five (5) acres or  
32 less of disturbed area within fifteen (15) calendar days. An application for all other regulated projects  
33 shall be acted upon within thirty (30) calendar days.  
34

## 35 **Section 3.7 Permit Approval or Disapproval**

- 36  
37 1. If the Agent determines that the proposed storm water management plan complies with the  
38 standards in this Ordinance, a permit shall be issued specifying the work approved, along with  
39 any supplemental conditions. If the proposed storm water management plan does not comply  
40 with these standards, the permit request shall be modified by the applicant or denied. When  
41 necessary, the Agent may request additional information from the applicant upon which to base  
42 the permit decision.  
43
- 44 2. The Agent shall notify the applicant in writing if the application is denied, citing the reasons for  
45 the denial.  
46
- 47 3. The Agent shall notify the appropriate local unit of government, within whose jurisdiction the  
48 project is located, after a permit decision has been made.  
49

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4. Upon written request, the Agent shall furnish any interested party with a statement in writing, detailing the reasons for permit denial or approval.

## Section 3.8 Permit Expiration or Revocation

1. SWM Permits shall terminate automatically upon completion of the project or one (1) year from the date of issuance, whichever occurs first. The applicant may request a one-year extension, which shall be reviewed and shall be granted by the Agent if he/she finds good cause for the extension and that the SWM regulations governing the proposed development have not changed since the date the SWM Permit was first approved.
2. A SWM Permit issued by the Agent under this Ordinance may be revoked or suspended, subject to the provisions of Article VII, for any of the following causes:
  - a. A violation of a condition of the permit.
  - b. Obtaining a permit by misrepresentation or failure to fully disclose relevant facts in the application or storm water management plan.
  - c. A change in a condition that requires a temporary or permanent change in the activity.

## Section 3.9 Permit Revisions

Revisions to an approved SWM Permit, permit condition, or approved storm water management plan must first be approved by the Agent. The applicant shall make a written request for the proposed revision(s) to the Agent, including any supporting documentation that the Agent may require as a basis for making a decision regarding the proposed revision. Proposed revisions do not take effect until approved by the Agent, and construction of unapproved plan revisions may be subject to enforcement action.

## Section 3.10 Administrative Fee Schedule

1. All fees applicable under this Ordinance shall be specified in a fee schedule determined from time to time by resolution of the legislative body of the local unit of government and maintained in the Agent's office.
2. Permit fees shall be directly related to the actual costs of administering the SWM Permit program, including design review, site inspection, enforcement and permit administration.
3. A printed fee schedule shall be made available by the Agent.
4. If the Agent determines that the basic fees will not cover the actual costs of the application review, or if the Agent determines that review of the application and/or participation in the review process by qualified professional planners, engineers, attorneys, or other professionals is necessary or advisable, then the applicant shall deposit with the Agent such additional fees in an amount determined by the Agent equal to the estimated additional costs. The additional fees shall be held in escrow in the applicant's name and shall be used solely to pay these additional costs. If the amount held in escrow becomes less than ten percent (10%) of the initial escrow deposit or less than ten percent (10%) of the latest additional escrow deposit and review of the application is not completed, then the Agent may require the applicant to

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1 deposit additional fees into escrow in an amount determined by the Agent to be equal to the  
2 estimated costs to complete the review. Failure of the applicant to make any escrow deposit  
3 required under this Ordinance shall be deemed to make the application incomplete thereby  
4 justifying the denial of the application. Any unexpended funds held in escrow shall be  
5 returned to the applicant following final action on the application. Any actual costs incurred  
6 by the Agent in excess of the amount held in escrow shall be billed to the applicant and shall  
7 be paid by the applicant prior to the release of a final decision on the application.  
8

## 9 **Section 3.11 Penalties for Initiating Earth Change Activities without a Permit**

10  
11 Any earth change activity, subject to regulation under this Ordinance, which has commenced without a  
12 valid permit, is not proceeding in accordance with an issued SWM Permit, or is in violation of a permit  
13 condition shall be considered a violation of this Ordinance and subject to the provisions of Article VII of  
14 this Ordinance.  
15

## 16 17 **ARTICLE IV STORM WATER MANAGEMENT PLAN REQUIREMENTS**

### 18 19 **Section 4.1 Storm Water Management Plan Requirements**

20  
21 A storm water management plan shall be prepared for any regulated earth change subject to SWM Permit  
22 requirements. The plan shall be designed to effectively manage the runoff from the site to not more than  
23 the rate and volume prior to development. Pretreatment of runoff shall be required if deemed necessary  
24 by the Agent. Administratively complete plans shall include the following:  
25

- 26 1. A map or maps at a scale of not more than two hundred (200) feet to the inch or as otherwise  
27 determined by the Agent, including the following:
    - 28 a. A legal description
    - 29 b. Site location sketch which includes the proximity of any proposed earth change to  
30 lakes, streams, and wetlands
    - 31 c. Predominant land features
    - 32 d. Contours at not more than 2-foot intervals, or slope description.
  - 33 2. A written description of the soil types of the exposed land area contemplated for the earth  
34 change.
  - 35 3. A description and the location of the physical limits of each proposed earth change.
  - 36 4. Location of all lakes, streams, and wetlands partially or completely contained within the  
37 boundaries of the site or within fifty (50) feet of the site boundary to the extent that the  
38 property owner has the ability of depicting the same.
  - 39 5. A description and the location of all existing and proposed on-site storm water management  
40 facilities and measures.
  - 41 6. The timing and sequence of each proposed regulated earth change.
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7. A description and the location of all proposed temporary storm water facilities and measures.
8. A description and the location of all proposed permanent storm water facilities and measures.
9. Storm water calculations.
10. A program for the continued maintenance of all permanent storm water facilities and measures.
11. Other information which the Agent requires to review the impact of the proposed earth change in relationship to the standards and requirements of this Ordinance.

## **Section 4.2 Site Condominium & Subdivision Requirements**

Applicants for site condominium or subdivision plat approval shall submit the same information as in Section 4.1 of this Ordinance and may need to submit additional relevant information including but not limited to the following: off-site watershed boundaries, existing and proposed easements, and proposed drainage system including water movement onto and out of the proposed development.

## **Section 4.3 General Standards for Approval of Storm Water Management Plans**

Approval of a storm water management plan shall be based upon the following general provisions:

1. The Agent shall approve or disapprove storm water management permit applications and plans in accordance with the provisions of this Ordinance and the design standards included and/or referenced in Appendix A.
2. All regulated earth changes subject to review under the requirements of this Ordinance shall be designed, constructed and maintained to provide for the retention/detention of storm water runoff and to protect water quality.
3. Measures required for storm water shall take into consideration natural features, proximity of the site to lakes, streams and wetlands, extent of impervious surfaces, potential for flooding, and the size of the site.
4. Alteration to natural drainage patterns shall not create downstream or off-site flooding.
5. Storm water management plans shall be designed in accordance with the specific design criteria included as "Design Standards", attached and made a part of this Ordinance as Appendix A.
6. All storm water management plans and maintenance agreements shall be recorded with the Charlevoix County Register of Deeds by the Agent, at the expense of the applicant.
7. Storm water management facilities shall be constructed, operated and maintained on the applicant's property, without impact or degradation to downstream conveyance structures or properties. However, the applicant may request a waiver from the requirements for on-site storm water management by written petition to the Agent with the SWM Permit application.

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1 Where a request is made for off-site storm water management, the request shall comply with  
2 the following general criteria:  
3

- 4 a. Off-site storm water management areas may be shared between two or more property  
5 owners or developments, provided that maintenance agreements have been approved  
6 by the Agent and storm water management easements have been obtained and  
7 recorded with the Charlevoix County Register of Deeds by the Agent, at the expense  
8 of the applicant.  
9
- 10 b. The storm water management easement shall contain language stating that the  
11 easement shall exist as long as said development exists and shall not be modified or  
12 terminated without the prior written authorization of the Agent. The Agent may only  
13 approve a modification or termination of this easement upon a determination that  
14 alternative means are available and will be used to improve the handling and  
15 disposition of storm water generated from the development or redevelopment of the  
16 site.  
17
- 18 c. Easements within drainage districts shall require prior approval of the Drain  
19 Commissioner.  
20
- 21 d. Storm water management plan requirements specified in Section 4.3 and the Design  
22 Standards included as Appendix A of this Ordinance shall be used as the basis for  
23 reviewing off-site storm water management proposals.  
24  
25

## 26 **ARTICLE V MAINTENANCE, INSPECTION & ACCESS**

27

### 28 **Section 5.1 Applicability**

29

30 All temporary storm water management facilities shall be maintained and inspected during the life of the  
31 facility to provide adequate protection against adverse impacts from storm water runoff. Permanently  
32 installed storm water management facilities shall be routinely inspected and maintained by the property  
33 owner or designated qualified party to ensure the continued and proper operation of the facility for the  
34 protection of downstream properties.  
35

### 36 **Section 5.2 Maintenance Requirements**

37

38 Where maintenance is required, it shall be performed in accordance with the following general provisions,  
39 as well as any specific conditions that may be included with the SWM Permit.  
40

- 41 1. All storm water management facilities and measures shall be maintained in accordance with  
42 permit conditions.  
43
- 44 2. The person(s) or organization(s) responsible for maintenance shall be designated in the storm  
45 water management plan or the permit application submitted to the Agent. Options may include:  
46
- 47 a. The owner(s) of the property.  
48

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1           b. Property owners association or other designated qualified party as determined by the  
2           Agent, provided that provisions for financing necessary maintenance are included in deed  
3           restrictions or other contractual agreements.  
4

5           3. Maintenance agreements may be required by the Agent when the average annual cost of  
6           maintenance is reasonably expected to exceed \$500 per year and shall be required for all site  
7           condominium and subdivision plat proposals. When required, maintenance agreements shall  
8           specify responsibilities for financing maintenance and emergency repairs, including but not  
9           limited to the procedures specified in Sections 5.3 and 5.4 and Article VI of this Ordinance.  
10

11           4. The Agent is not required to accept the applicant's desired responsible party for maintenance  
12           purposes in a given situation. Natural features, proximity of site to lakes, streams and regulated  
13           wetlands, extent of impervious surfaces, size of the site and potential need for ongoing  
14           maintenance activities will be considered when making this decision, as well as the overall  
15           complexity of the storm water management facilities. Where deemed necessary by the Agent,  
16           third party maintenance may be required for the adequate protection of sensitive sites, or complex  
17           storm water management facilities.  
18

## 19   **Section 5.3   Inspections**

20  
21           1. The Agent, or his/her authorized agent, shall have the right to conduct on-site inspections of the  
22           storm water management facilities to verify compliance with the requirements of this Ordinance,  
23           including that maintenance is being performed as required by this Ordinance. Any such  
24           inspections may take place before, during, and after any earth change activity has occurred for  
25           which a permit has been issued. The Agent or his/her authorized agent shall exercise this right to  
26           inspection by written consent of the person having the right to possession of the property, or by  
27           administrative search warrant issued by a court of competent jurisdiction. Submission of an  
28           application for a permit under this Ordinance shall be deemed as providing written consent for the  
29           Agent to conduct on-site inspections of the storm water management facilities.  
30

31           2. If upon inspection, existing site conditions are found not to be as stated in the permit or approved  
32           storm water management plan, the permit may be revoked. No earth disrupting work shall be  
33           undertaken or continued, except preventative storm water measures as authorized by the Agent,  
34           until revised plans have been submitted and a valid permit issued.  
35

36           3. Requests for revisions must be submitted to and approved by the Agent in writing before being  
37           effective unless approved by the Agent on site. If a change is approved on site, the following  
38           shall occur:  
39

40           a. The Agent shall provide written verification of a change and/or revision.

41  
42           b. The permit holder shall provide updated drawings, calculations, etc. to reflect the changes  
43           and/or revisions.  
44

## 45   **Section 5.4   Storm Water Management Easements**

46  
47           1. If any portion of the storm water management facilities will be located on property other than the  
48           property on which the storm water will originate, then the owner of the property on which the  
49           storm water will originate shall obtain a storm water management easement from the owner of the  
50           property on which all or a portion of the storm water management facilities will be located. The

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1 storm water management easement shall define the scope of the easement to include at a  
2 minimum the legal right of the owner of the property on which the storm water will originate to  
3 access the property on which the storm water management facilities will be located for the  
4 purpose of installing, inspecting, and maintaining the storm water management facilities; shall  
5 run in perpetuity with the land benefitted by the easement, or until the storm water management  
6 facilities are removed, whichever is sooner; and shall be recorded in the office of the Charlevoix  
7 County Register of Deeds.  
8

- 9 2. A recorded copy of the storm water management easement shall be filed with the Agent prior to  
10 the issuance of a SWM Permit.  
11  
12 3. The recorded storm water management easement shall not be revoked, terminated, reconveyed, or  
13 amended without the prior written authorization of the Agent. Any such extinguished or revised  
14 storm water management easement shall be recorded in the office of the Charlevoix County  
15 Register of Deeds, and a recorded copy shall be filed with the Agent.  
16  
17

## 18 **ARTICLE VI COMPLIANCE ASSURANCE**

### 19 **Section 6.1 Performance Guarantees**

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21  
22 1. Applicants proposing subdivision plats, site condominiums, road construction projects, or other  
23 developments identified by the Agent with a high potential for storm water management  
24 problems may be required to post a cash escrow, letter of credit, or other acceptable form of  
25 performance security in an amount sufficient to assure the installation and completion of the  
26 storm water management plan.  
27  
28 2. Letters of credit shall extend for a minimum of one (1) year with the option of renewal. Money  
29 held in escrow, cash deposits, and/or certified checks will be returned to the applicant when the  
30 site is completely stabilized to meet requirements set forth by the Agent, and as-built plans of the  
31 site, sealed by a State of Michigan Licensed Professional Engineer, are submitted to the Agent.  
32

### 33 **Section 6.2 Construction Certification by a Registered Professional**

- 34  
35 1. For any sites that require a professionally prepared site plan in accordance with Section 3.4, a  
36 certification letter shall be submitted after any storm water management facilities have been  
37 installed to affirm that construction has been completed in accordance with the approved storm  
38 water management plan. Unless this Ordinance requires certification by a State of Michigan  
39 Licensed Civil Engineer as provided later in this section, the certification letter can be prepared  
40 by one of the following registered professionals: State of Michigan Licensed Civil Engineer,  
41 Land Surveyor, Architect, and/or Landscape Architect.  
42  
43 2. If there are changes during the course of construction, the Agent may require final "as-built"  
44 drawings for final approval of the site work.  
45  
46 3. "Changes during construction", as used in this Section, includes, but is not limited to:  
47 unanticipated soil conditions, elevation, acts of God, or other changes in circumstances not  
48 anticipated during the initial application process.  
49  
50 4. Sites Where Certification by a State of Michigan Licensed Civil Engineer is Mandatory

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- a. Certain activities listed under the Michigan Natural Resources and Environmental Protection Act (Public Act 451 of 1994, as amended).
  - i. Part 23, Pretreatment
  - ii. Part 31, Floodplain
  - iii. Part 41, Sewage Systems
  - iv. Part 111, Solid Waste
  - v. Part 115, Hazardous Waste
  - vi. Part 307, Inland Lake Levels
  - vii. Part 309, Inland Lake Improvements
  - viii. Part 315, Dams
- b. Certain activities listed under the U.S. Environmental Protection Agency, Title 40 of the Code of Federal Regulations.
  - i. Part 112, Spill Prevention, Control and Counter Measures
  - ii. Part 122, Storm Water Pollution Prevention Plan (SWPS)

## **Section 6.3 Letter of Compliance**

Upon receipt and approval of the certification letter, the Agent shall issue a letter of compliance to the property owner.

## **ARTICLE VII STOP WORK ORDERS & ENFORCEMENT ACTION**

### **Section 7.1 Stop Work Orders**

1. If necessary to assure compliance with the permit requirements, standards, and other provisions of this Ordinance or to protect public health, safety and/or welfare, the Agent may issue a stop work order for the purpose of preventing uncontrolled storm water, or other conditions posing imminent and substantial danger to public health, safety, welfare or natural resources.
2. The stop work order, when issued, shall require all specified storm water activities to be stopped. A copy of the stop work order shall immediately be submitted to other state and local agencies with regulatory jurisdiction. Said order shall describe the specific alleged violation and the steps deemed necessary to bring the project back into compliance.
3. If the Agent determines that storm water violations have or will reasonably occur from a parcel of land in violation of this Ordinance, it may seek to enforce the Ordinance by notifying the person who owns the land by mail, with return receipt requested, of its determination. The notice shall contain a description of specific storm water measures which, if implemented by the property owner, would bring the property owner into compliance.

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## Section 7.2 Enforcement

1. Any person who violates any provision of this Ordinance shall be responsible for a municipal civil infraction as defined in Public Act 12 of 1994, amending Public Act 236 of 1961, being Sections 600.101-600.9939 of Michigan Compiled Laws and shall be subject to a fine of not more than Five Hundred and 00/100 Dollars (\$500.00). In addition, any person found responsible for a municipal civil infraction may be subject to an enforcement order issued by the District Court Judge requiring remedial action to bring the property into compliance with this Ordinance. Each day this Ordinance is violated shall be considered as a separate violation.
2. The Agent and any other person designated by the legislative body of the local unit of government are hereby designated as the authorized officials to issue municipal civil infraction citations directing alleged violators of this Ordinance to appear in court.
3. A violation of this Ordinance is hereby declared to be a public nuisance or a nuisance per se and is declared to be offensive to the public health, safety and welfare.
4. In addition to enforcing this Ordinance through the use of a municipal civil infraction proceeding, the Agent may initiate proceedings in the Circuit Court on behalf of the local unit of government, to abate or eliminate the nuisance per se or any other violation of this Ordinance.

## Section 7.3 Emergency Action

1. Where necessary to protect public safety or water resources, including lakes, streams, regulated wetlands, and other receiving bodies of water, the Agent, through a Circuit Court abatement proceeding, may seek a temporary restraining order or preliminary injunction from the court authorizing entry onto private property for the purpose of initiating emergency action to abate imminent and substantial danger and risk.
2. Except as otherwise provided through maintenance agreements, the property owner shall reimburse the local unit of government and/or Charlevoix County for all expenses incurred as a result of the emergency action, including but not limited to reasonable attorneys fees, administrative costs, and the costs of any remedial action taken to abate the emergency condition.

## ARTICLE VIII APPEALS

### Section 8.1 Creation of Appeals Board

An Appeals Board is hereby created which shall consist of 5  members. The membership and organizational structure of the Appeals Board shall be determined pursuant to an intergovernmental agreement among the local units of government within Charlevoix County that have enacted this Ordinance. When discharging its duties under this Ordinance, the Appeals Board shall comply with all requirements of the Open Meetings Act, being Act 267 of the Public Acts of 1976, as amended. The Appeals Board Clerk shall be responsible for providing all required notices for Appeals Board hearings and for taking the minutes of the Appeals Board hearings.

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## Section 8.2 Right of Appeal

Any person aggrieved by the action or inaction of the Agent related to this Ordinance may appeal to the Appeals Board. Such appeal shall be made in writing and shall be filed with the Appeals Board Clerk within thirty (30) calendar days of the decision that is being appealed. Any appeal that is not filed in a timely manner shall be dismissed by the Appeals Board. The written appeal shall state the order, requirement, decision, or determination that is being appealed, the sections of this Ordinance that relate to the appeal, and those facts relevant to the appeal, which support the basis for the appellant's claim.

## Section 8.3 Appeals Process

Upon receipt of an appeal, the Appeals Board Clerk shall direct the Agent to transmit to the Appeals Board a summary report of all previous action taken on the subject of the appeal, a copy of any permits issued, and the appellant's written statement. The Appeals Board will then adhere to the following general process:

1. Within fifteen (15) calendar days of receiving a completed application, the Appeals Board Clerk shall schedule a hearing date before the Appeals Board. The Appeals Board Clerk shall send a written notice specifying the time, date, and place of the Appeals Board hearing to the appellant and to all land owners within three hundred (300) feet of the subject parcel and shall publish a copy of the hearing notice in a newspaper of general circulation within the local unit of government where the subject property is located. The notice shall be mailed and published no less than fifteen (15) days before the scheduled hearing. The Appeals Board shall hold the hearing within sixty (60) calendar days from receipt of a completed application.
2. The appellant shall deposit with the Appeals Board Clerk when the appeal is filed the required fee, as specified in the fee schedule adopted under Section 3.10.1 of this Ordinance. The fee shall be used to cover the cost of handling said appeal including compensation for Appeals Board members and associated administrative costs.
3. If the Appeals Board Clerk determines that the basic fee will not cover the actual costs of the appeal, then the appellant shall deposit with the Appeals Board Clerk such additional fees in an amount determined to be equal to the estimated additional costs, including costs which may be incurred by the Agent. The additional fees shall be held in escrow in the appellant's name and shall be used solely to pay these additional costs. If the amount held in escrow becomes less than ten percent (10%) of the initial escrow deposit or less than ten percent (10%) of the latest additional escrow deposit and the appeal is not completed, the Appeals Board Clerk may require the appellant to deposit additional fees into escrow in an amount determined to be equal to the estimated costs to complete the appeal. Failure of the appellant to make any required deposits shall be deemed to make the appeal incomplete thereby justifying denial of the appeal. Any unexpended funds held in escrow shall be returned to the appellant following final action on the appeal. Any actual costs incurred in excess of the amount held in escrow shall be billed to the appellant and shall be paid by the applicant prior to the release of a final decision on the appeal.
4. The Appeals Board may affirm or reverse, wholly or in part, a decision of the Agent. In deciding an appeal, the Appeals Board shall determine:
  - a. Whether the Agent properly interpreted and applied this Ordinance in making the decision.

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1 b. Whether the specific situation has circumstances that warrant a variance from the  
2 standards of this Ordinance. Where the Appeals Board has determined that a variance  
3 from the standards of this Ordinance may be warranted, the Board may grant the  
4 appellant a variance from any design standard, setback, or other provision contained  
5 within this Ordinance, provided that such variance complies with the following general  
6 standards:

- 7
- 8 i. The variance will not adversely impact adjacent property owners or downstream  
9 properties in any material way.
- 10
- 11 ii. The variance is necessary to grant the appellant substantial relief from a hardship  
12 that would otherwise be imposed by strict enforcement of this Ordinance.
- 13
- 14 iii. The variance granted is the minimum deviation from the requirements of this  
15 Ordinance necessary to do substantial justice to the appellant. The Appeals  
16 Board may include such conditions or limitations on any variance issued to  
17 ensure that granting the relief requested will not substantially prevent, nor result  
18 in less, effective management of storm water runoff.
- 19
- 20 iv. Granting of the variance would not knowingly be in conflict with other  
21 regulatory requirements.
- 22
- 23 v. The need for the variance is due to circumstances that are unique to the property  
24 in question and not due to any act or omission of the property owner, a prior  
25 property owner, or a past or present occupant of the property.
- 26

27 5. The decisions of the Appeals Board shall in all instances be final administrative decisions, shall  
28 be in writing, and shall include specific findings of fact by the Board, and further, shall be subject  
29 to such judicial review as by law may be provided.

30

31

## 32 ARTICLE IX SEVERABILITY

33

34 If any section, clause, provision, or portion of this Ordinance is adjudged unconstitutional or invalid by a  
35 court of competent jurisdiction, the remainder of the Ordinance shall not be affected.

36

37

## 38 ARTICLE X EFFECTIVE DATE

39

40 *For the Townships:*

41

42 This Ordinance shall become effective thirty (30) days after being published in a newspaper of general  
43 circulation within the Township.

44

45 *For the Village of Boyne Falls:*

46

47 This Ordinance shall be effective twenty (20) days after its enactment.

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1 *For the Cities:*

2

3 This Ordinance shall become effective thirty (30) days after its enactment.

4

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6

## ARTICLE XI REVISIONS

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8 The Agent shall review this Ordinance at least biannually, and make recommendations for amendments if  
9 needed. The recommendations of the Agent shall be transmitted to the legislative body of each local unit  
10 of government within the County and the Charlevoix County Board of Commissioners.

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## APPENDIX A

### Charlevoix County Storm Water Ordinance Design Standards

#### Temporary Storm Water Management Standards

1. Temporary storm water management facilities shall be installed by the applicant and inspected by the Agent before grading, filling or grubbing is initiated.
2. Where permanent storm water management facilities, such as detention or retention basins are proposed for use during construction as a temporary storm water management measure, the construction sequence and grading plan shall be designed for the proper and effective implementation of these facilities.
3. Temporary storm water management measures shall be maintained throughout the duration of the earth change, including the later stages of development. Maintenance activities may include, but are not limited to removal of accumulated sediment, structural repairs, and reseeding or replacement of temporary vegetative covers.
4. Temporary storm water management facilities shall be designed in accordance with the Michigan Department of Environmental Quality (MDEQ) Best Management Practices (BMP) Guide Book for Michigan Watersheds.
5. At a minimum, during construction all regulated earth changes shall be required to provide temporary storm water management that either contains the volume of runoff generated from a 10-year, 24-hour design storm on-site for all disturbed area, or to provide silt fencing or other permeable barriers that will manage the flow of storm water discharging off-site, diffusing it and releasing it at reduced velocities, where such discharge will not adversely impact downstream properties.

#### Permanent Storm Water Management Standards – General

1. Storm Water Management Plan Preparation
  - a. Various proposed types of land uses will require plans to be prepared by one or more of the following licensed professionals: State of Michigan Licensed Civil Engineer, Land Surveyor, Architect and/or Landscape Architect or other County certified individuals.
  - b. If the site plan is of a large and complex nature, the Agent may require that it is prepared by one or more of the above listed professionals.
  - c. If the site plan is of a large or complex nature, the Agent may request that the submitted site plan be reviewed by one or more of the above listed professionals contracted by the Agent. The costs incurred for such review(s) shall be the responsibility of the applicant. The applicant shall deposit with the Agent such fees in an amount determined by the Agent equal to the estimated costs. The fees shall be held in escrow in the applicant's name and shall be used solely to pay these costs. If the amount held in escrow becomes

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1 less than ten percent (10%) of the initial escrow deposit or less than ten percent (10%) of  
2 the latest additional escrow deposit and review of the application is not completed, then  
3 the Agent may require the applicant to deposit additional fees into escrow in an amount  
4 determined by the Agent to be equal to the estimated costs to complete the review.  
5 Failure of the applicant to make any escrow deposit required under this Ordinance shall  
6 be deemed to make the application incomplete, thereby justifying denial of the  
7 application. Any unexpended funds held in escrow shall be returned to the applicant  
8 following final action on the application. Any actual costs incurred in excess of the  
9 amount held in escrow shall be billed to the applicant and shall be paid by the applicant  
10 prior to the release of a final decision on the application.  
11

- 12 d. If the applicant disputes the Agent's need for outside professional assistance in the  
13 review of the submitted plans, or the professional(s) selected, the applicant has the right  
14 to appeal the Agent's decision to the Appeals Board, who shall be responsible for making  
15 the final decision.  
16
- 17 2. On-site storm water management facilities which minimize adverse impact to downstream  
18 properties shall be required for all sites unless a proposal for off-site storm water management has  
19 been approved. Storm water management facilities may include, but are not limited to: retention  
20 basins/ponds, detention basins/ponds, wet basins, storm water treatment units, controlled outfall  
21 structures, and rain gardens or other bio-filtration systems.  
22
- 23 3. The Michigan Department of Environmental Quality "Urban Stormwater Best Management  
24 Practices Manual" will be used as a reference as well as the following manuals: "Controlling  
25 Urban Runoff" by the Metropolitan Washington Council of Governments; "Designing  
26 Stormwater Quality Management Practices" by the University of Wisconsin, Madison; and the  
27 "Design of Stormwater Filtering Systems" by the Center for Watershed Protection.  
28
- 29 4. Retention and detention basins shall have an emergency overflow system. The overflow system  
30 shall be designed to accommodate flow from a 100-year storm event, or as otherwise required by  
31 the appropriate State of Michigan agency.  
32
- 33 5. If the storm water facilities for a 50-year storm cannot discharge to a stream, lake or wetland  
34 without causing scouring, flooding or pollution on site or downstream, then the basin shall be  
35 designed to hold or infiltrate storm water from a 100-year, 24-hour frequency storm event.  
36
- 37 6. Sites less than one (1) acre located in areas serviced with a municipal storm system and that have  
38 the approval of the municipal system owner may discharge storm water to that system after it has  
39 been treated with an approved separator system that removes sixty percent (60%) of sediments.  
40
- 41 7. The rainfall amounts for Charlevoix County shall be the numbers given by the Natural Resources  
42 Conservation Service for a 24-hour duration and are as follows: 1-year storm equals 1.8 inches;  
43 2-year storm equals 2.2 inches; 5-year storm equals 2.7 inches; 10-year storm equals 3.0 inches;  
44 25-year storm equals 3.5 inches; 50-year storm equals 3.9 inches; 100-year storm equals 4.2  
45 inches.  
46
- 47 8. The maximum grade for the side slopes of any storm water retention or detention basin shall be  
48 no greater than 3:1 (horizontal to vertical) for vegetated basins. Where, due to site limitations,  
49 this maximum side slope grade cannot be met, the Agent may grant an increase in the slope,  
50 provided additional stabilization (beyond seed and mulch) is proposed.  
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- 1 9. Storm water basins with permanent pools of water of three (3) foot depth or greater with side  
2 slopes steeper than one (1) on six (6) shall have one or more of the following safety features:  
3
  - 4 a. Safety ledges at the basin perimeter which are at least ten (10) feet wide  
5
  - 6 b. Aquatic vegetation surrounding the basin which discourages wading  
7
  - 8 c. Fencing to prevent unauthorized access to the basin.  
9
- 10 10. Storm water detention basins shall not be constructed in regulated wetlands unless approved by  
11 the appropriate State of Michigan agency and/or the Army Corps of Engineers.  
12
- 13 11. Storm water detention basins which impound five (5) acres or more and have a head of six (6)  
14 feet or more shall meet dam construction permit requirements in Part 315 of Act 451 of 1994, as  
15 amended, administered by the Michigan Department of Environmental Quality.  
16
- 17 12. Whenever possible, a created wetland or other bio-filtration area shall be incorporated into storm  
18 water management facilities to assist removal of soluble pollutants that cannot be removed by  
19 conventional settling. Sediment carried off by runoff shall be required to settle out prior to  
20 discharge into the created wetland or other bio-filtration area.  
21
- 22 13. Storm water management basins designed for retention, detention or infiltration shall be isolated  
23 from septic systems and water wells by fifty (50) feet or more. Variations in the required setback  
24 may be granted by the Health Department of Northwest Michigan prior to the issuance of a  
25 Charlevoix County Storm Water Management Permit.  
26
- 27 14. New fueling stations will be required to install an approved separator system for sites that  
28 discharge storm water off-site. Existing fueling stations that are modifying more than twenty five  
29 percent (25%) of their existing impervious surfaces will be required to install an approved  
30 separator system if they discharge storm water off-site.  
31

## 32 Retention Basin Design

- 33 1. Small projects in areas that have less than one-half (0.5) acre of impervious surface shall be  
34 allowed to have runoff retention stored at two inches (2") of runoff from all impervious surface  
35 areas in lieu of detailed hydrologic calculations.  
36
- 37 2. At a minimum, retention basins created in soils with permeability greater than 1.3 inch per hour  
38 shall have the storage capacity to hold the increase in runoff volume generated by the earth  
39 change.  
40
  - 41 a. The required volume shall be calculated by comparing the undeveloped conditions for a  
42 2-year, 24-hour frequency storm event to the developed condition for a 25-year, 24-hour  
43 frequency storm event. Soil permeability rates are listed in the following table:  
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Soil Texture & Structure	Permeability (Inches/Hour)
Coarse Sand and Medium Sand	6 or more
Fine Sand and Loamy Sand	3 – 6
Sandy Loam	2 – 3
Loam, Sandy Clay Loam	1.3 – 2
Clay Loam, Silt Loam, Clays, Silts, Muck, Peat, Marl	Less than 1.3

- b. The retention basin shall be designed to drain within seventy two (72) hours.
- 3. At a minimum, retention basins, which are created in soils with permeability less than 1.3 inch per hour, shall be designed to store runoff from back-to-back 50-year, 24-hour rainfall events.

### Detention Basin Design Standards

- 1. When using the Natural Resource Conservation Service Method, the volume of a detention pond is to be calculated based upon a 50-year, 24-hour storm with the developed site conditions and with an allowable outflow of a 10-year, 24-hour storm based upon the pre-existing site conditions or 10% of the flow rate calculated by the 50-year developed site conditions analysis. [The TR-55 program does not accept lower values than ten percent (10%) of the developed rate.]
- 2. The allowable peak discharge rate from a permanent storm water management measure may be a staged rate. The maximum allowable peak discharge rate shall not exceed the peak discharge rate from the project site prior to the proposed development for all of the following 24-hour storm events: 2-year, 5-year, 10-year, 25-year, and 50-year. In no event shall the discharge exceed the ability of the downstream condition to convey the flow without damage to abutting properties.
- 3. All sites with greater than one (1) acre of impervious surface will require the detention outflow to be directed to approved storm systems or have the approval of adjacent property owners, with documented easements, or one can release at a 2-year before construction rate if it can be determined that there is not a flooding hazard on the adjacent property. Low porosity in the soils in the area of discharge and depressions in the land would be examples of reasons to deny detention out-flowing at a 2-year rate. Sites that have three (3) acres or more of parking area must in addition have an approved separator system to remove impurities before discharging to the detention/retention pond or install an approved treatment forebay.

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## Storm Water Separator Design Standards

1. Approved separators are to remove a minimum of sixty percent (60%) of sediments.
2. Treatment forebay criteria – The treatment forebay is designed to store the “first flush” of pollutants typically found in urban storm water runoff, and to capture initial flush pollutant loads.

- a. The treatment forebay shall be a wet basin or approved structure with an impermeable bottom and sides to the design high water level.

- b. Sizing – The treatment forebay shall be sized to store the water quality volume ( $V^{wq}$ ) defined as one-half (0.5) inch of runoff from the directly connected impervious area. This volume can be included in the overall flood control volume.

- c. The minimum required water quality volume is given by the equation:

$$V^{wq} = 1815 A l$$

Where:  $V^{wq}$  = Water quality volume (cft)

1815 = 0.5 inch of runoff x 3,630 to convert ac-in to cft

A = Contributing drainage area (ac)

l = Percent impervious expressed as a ration

- d. Capacity for the water quality volume shall be provided above the normal water level.
- e. The overflow structure from the treatment forebay shall be sized for the peak inflow from the design rainfall event.
- f. The top-of-berm elevation between the treatment forebay and the infiltration basin shall be a minimum of one (1) foot below the outer berm elevation.
- g. The treatment forebay shall have a minimum 1-foot-deep sump below the inlet pipe for sediment accumulation.
- h. The outlet structure from the treatment forebay shall be designed to draw water from the central portion of the water column with the forebay to trap floatables and contain sediments. The top of the inlet structure shall be located a minimum of one (1) foot below the normal water level, and the invert shall be a minimum of one and one-half (1.5) feet above the bottom of the treatment forebay.
- i. Material – Treatment forebays shall be lined with impermeable materials extending up to the design high water elevation. A minimum 18-inch-thick clay layer, or an impermeable liner protected with a minimum of twelve (12) inches of soil cover are acceptable alternatives. Maximum allowable permeability shall be 0.0001417 inch/hour as determined by a geotechnical engineer for clay placement, or manufacturer’s certificate for line products.

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## Underground Storm Water Management Facilities

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3 1. If the use of storm water retention or detention basins, either on-site or off-site is not feasible and  
4 the permeability of the soils is greater than 1.3 inch per hour, the installation of underground  
5 drainage systems (catch basins / manholes with open bottoms with stone and/or run(s) of  
6 perforated piping) may be allowed if they provide for detention or retention volumes as stated in  
7 these Charlevoix County Storm Water Ordinance guidelines. The perforated piping and dry basin  
8 structure(s) cannot be considered to provide for any outflow when calculating volumes for the  
9 detention system design. All underground drainage systems must provide the following:  
10
  - 11 a. Catch basins or separator systems, sediment basins, silt traps for storm water flowing to  
12 the underground drainage system
  - 13 b. An approved overflow system
  - 14 c. Adequate provisions for maintenance
- 15  
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17  
18 2. The required detention volume may be reduced by the Agent by an amount not to exceed fifty  
19 percent (50%) if rain gardens are implemented and demonstrate the ability to accommodate an  
20 equivalent amount of storm water.  
21

