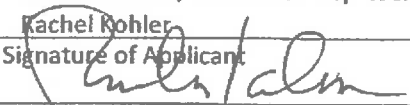
	<p align="center"><b>CITY OF SHEBOYGAN</b></p> <p align="center"><b>VARIANCE APPLICATION</b></p>	Fee: _____
		Review Date: _____

Read all instructions before completing. If additional space is needed, attach additional pages.

<b>SECTION 1: Applicant/ Permittee Information</b>			
Name (Ind., Org. or Entity) Rachel Kohler			
Mailing Address 120 Vollrath Blvd	City Sheboygan	State WI	ZIP Code 53081
Email Address rachel.kohler@thekohopfamily.com		Phone Number (incl. area code) (312) 485-3974	
Applicants interest in property: Owner			
<b>SECTION 2: Property Information</b>			
Property Address 120 Vollrath Blvd	City Sheboygan	State WI	Zip 53081
Type of Building: <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential			
Request for: <input checked="" type="checkbox"/> New Construction <input checked="" type="checkbox"/> Repairs <input type="checkbox"/> Alterations <input type="checkbox"/> Addition <input type="checkbox"/> Nonconforming Use <input type="checkbox"/> Other			
<b>SECTION 3: If the Request is for a Nonconforming Use</b>			
Your intended use: To create safe access to and use of the shoreline, repair and mitigate shoreline erosion, and construct a small boathouse for kayak storage.			
Date last occupied as a nonconforming use: There have been no nonconforming uses.			
By Whom: NA		Previous Use: NA	
<b>SECTION 4: Requested Variance</b>			
On a separate letter to the Board, describe the requested variance and include what unnecessary hardship or difficulty is caused by following the regulations or requirements of the ordinance. See the attached "The Three Tests for a Variance" and be prepared to argue how you pass the THREE TESTS FOR A VARIANCE.			
<b>SECTION 5: Certification and Permission</b>			
<b>Certification:</b> I hereby certify that I am the owner or authorized representative of the owner of the property which is the subject of this Variance Application. I certify that the information contained in this form and attachments are true and accurate. I certify that the project will be in compliance with all conditions. I understand that failure to comply with any or all of the provisions of the permit may result in permit revocation and a fine and/or forfeiture under the provisions of applicable laws.			
<b>Permission:</b> I hereby give the City permission to enter and inspect the property at reasonable times, to evaluate this notice and application, and to determine compliance with any resulting permit coverage.			
Name of Owner/Authorized Representative (please print) Rachel Kohler		Title Owner	Phone Number (312) 485-3974
Signature of Applicant 		Date Signed Sept 1 2023	

Complete application is to be filed with the Building Inspection Department, 828 Center Avenue, Suite 208. Variances to zoning ordinances are considered by the City of Sheboygan Zoning Board of Appeals monthly on the third Wednesday at 3 p.m. at a public hearing. To be placed on the agenda of Zoning Board of Appeals, application must be received no later than 4:30 p.m. on the third Wednesday of the month prior to the scheduled public hearing. Applications will not be processed if all required attachments and filing fee of \$250 (payable to the City of Sheboygan) are not submitted along with a complete and legible application. Application filing fee is non-refundable.

September 1, 2023

20674-001

City of Sheboygan Board of Appeals  
c/o Ms. Linnae Wierus – Building Inspection Specialist  
Building Inspection Department  
828 Center Avenue, Suite 208  
Sheboygan, WI 53081

Subject: **Variance Application – Shoreline Improvements**  
**120 Vollrath Boulevard** (a lakeshore bluff residential parcel zoned SR5)

Ladies and Gentlemen:

This letter transmits an application for appeal for variance on behalf of Rachel Kohler who holds ownership interest in the subject property that is now (with her father's death) titled to the Kohler JR Revocable Trust.

Although the desired improvements and shore protection are accommodated under state statutes, **City of Sheboygan Zoning Ordinances lack any provisions to allow any improvements for common uses and protection of the lakeshore because, in contrast to many other cities and townships, there happens to be very little private lakeshore ownership within Sheboygan.** The bluffs and shoreline beginning a short distance north of the subject property are owned by the city, as is most of the shoreline to the south throughout the city. Assistant City Attorney Liz Majerus's August 22 email (copy attached) provides more specific identification of the issues pertinent to Board of Appeals in consideration of this appeal for variance from literal application of City Zoning Ordinance for **the desired improvements consisting of:**

- a) Not more than 260 lineal feet of **quarry stone revetment of relatively small-scale cross section** to prevent storm wave erosion at the toe of the bluff during future high-water periods, combined with some "beach nourishment". This is the sustainable solution to mitigate erosion in a manner that avoids interfering with the natural dynamics of open reaches of Lake Michigan shoreline. It will connect to the southern end of the existing revetment on the adjacent property to the north. A letter of consent from that owner representative (Carla Ross) is included in the attachments. The specific design (included in this application) that we have developed for this property is a miniature version of what we designed for the city's redevelopment of the former C. Reiss peninsula as the Harbor Centre South Pier District.
- b) A series of **short segments of stone stairs and traversing pathway** to allow safe walking access from the existing small house down the bluff to the shoreline.
- c) A **small (10' x 16') boathouse** tucked into the toe of the bluff to store kayaks and paddle boards. This structure will be substantially "earth sheltered" and obscured from view with natural landscaping.
- d) Shallow (limited to several feet depth) excavation of a short (about 25') portion of the toe of the bluff and construction of a very low retaining wall to provide a **land-sculpted area for use** just above the revetment and beach.

**All of the above-described features are shown on the accompanying Site Plan.** They are of similar nature to improvements and shore protection the city has made, much of which we have designed, on a much larger scale for common use. This project will not de-stabilize the bluff and won't create any impervious surfaces because even the stone stairways will be under-drained.

### Applicable State Law

Similar to City Zoning Ordinance, state law *NR 115 - Wisconsin Shoreland Protective Program* (copy attached) in general doesn't allow "structures" within 75 feet of the Ordinary High Water Mark (OHWM). However, **NR 115 makes specific allowance as Permitted Uses of the following** within Shoreland Zoning, provided they're constructed above the OHWM which is what the accompanying plans provide:

**"Walkways and stairways** that are necessary to provide pedestrian access to the shoreline and are a maximum of 60-inches in width"- (NR 115.05(1)(b)(1m)(f). The proposed stone stairways will be 48" width.

**"Public and private recreation areas"** – (NR 115.05(3)(i).

**"Boathouses** located entirely above the OHWM that do not contain plumbing and are not used for human habitation" - (NR 115.05(1)(b)(1m)(a). Boathouses are defined as "permanent structures used for storage of watercraft and associated materials", which is what the proposed structure will provide.

**Erosion protection of shoreline** falls under the jurisdiction of Section 404 of the United States Clean Water Act (33 USC 1344(a) as administered by Wisconsin Statute 30.19 as implemented in applicable NR regulations. The attached *Resources for Great Lakes Shoreline Erosion Control Projects* provides a general overview of this topic. Although construction of a revetment of not more than 300 lineal feet can be permitted by WDNR under a "General" permit, beach nourishment constitutes fill below the OHWM thus requiring an "Individual" permit. Upon granting of variance at the municipal level, an Individual permit application will be made to WDNR to allow the revetment to be constructed and beach nourishment to be placed in spring 2024.

### Reason for Application and Justification for Variance

Although construction of a revetment would constitute "filling" at the toe of a steep slope, which is allowable under a Conditional Use Permit for which an application was submitted in late July, the city (Assistant City Attorney Liz Majerus in consultation with Steve Sokolowski) has indicated that the combination of elements comprising this project would be most appropriately considered under appeal for variance instead of Conditional Use Permit. Therefore, **we address the requisite "Three Tests" in support of this Variance Application:**

1. **"Unnecessary Hardship"** Hardship not created by the owner is pre-requisite for consideration of variance under state law. In this case, the physical hardships of the subject property that are not common to parcels throughout much of the city are the very characteristics justifying the city's *Natural Resource Protection Regulations* that include the *Lakeshore* and *Steep Slopes*. Although the lakeshore and steep slope characteristics of the subject property are not rare or unique conditions along the shore of Lake Michigan, most of the land having these qualities within the City of Sheboygan is publicly owned. Therefore, **the City Zoning Ordinance doesn't specifically cite the elements of construction to allow the proposed site improvements** which are common elsewhere throughout the state, as well as publicly owned property within the city, and are accommodated in the ordinances of counties, townships, and other municipalities.
2. **"Unique Property Limitations"** The city's Lakeshore Overlay Zoning identifies "such areas are highly susceptible to continuous, and in some cases, rapid erosion." Substantial erosion occurred along the shoreline of the subject property (as was common along the shores of all of the Great lakes) during the recent period of high water levels, and more erosion can be expected during future (cyclical) periods of high water levels. **Although Section 105-848(d) mandates that**

**"Lakeshore shall remain in an undisturbed state", future erosion will destabilize the toe of the property's steep slope. Therefore, literal enforcement of this by not allowing the requested variance for construction of shore erosion protection would conflict with the intent of the Overlay Zoning Protection of Section 105.851 – Steep Slopes** even though the site-specific design provided will have no adverse impact on the public welfare.

Additionally, city ordinances define "structures" very broadly: "Structure: Anything constructed or erected, the use of which requires a more or less permanent location on the ground, or attached to something having a permanent location on the ground, excepting public utility fixtures and appurtenances." **All elements of the project that could be interpreted as structures are not specifically cited in City Zoning Ordinance as either Permitted, Conditional, or Special Uses allowable within the Lakeshore and Steep Slope areas.**

The purpose of ***Steep Slope Protection (Section 105.851)*** is because they are "particularly susceptible to damage resulting from site disruption" and "shall remain in an undisturbed state". Literal enforcement of this would preclude constructing anything on them, such as stairways or footpaths to gain access to the shoreline. **Provided stability is preserved, precluding access would be a hardship with respect to common use of the land without any benefit and is thus unnecessary.** All features of the proposed site work have been designed with particular attention to maintaining slope stability by minimizing the extent of temporary disturbance, effectively managing vegetation and drainage, and designing structures to preserve slope stability (refer to attached *Slope Stability Analysis* dated August 10, 2023).

3. **"No Harm to Public Interest"** The proposed improvements to this property do not harm public interest. The designs create necessary protection for the shoreline that minimizes impact to adjacent properties, access to the lakeshore that does not increase impervious area due to the use of an underdrain system, and a small structure for kayak storage that will be minimized in footprint and visibility to the extent practical, none of which create a method or means for harm to public interest.

## Closure

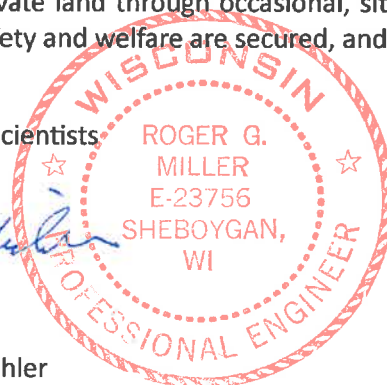
Although the Lakeshore and Steep Slope areas within the city are common enough to warrant treatment in the Zoning Ordinance, which many other local jurisdictions do either as specifically Permitted uses or under Conditional Use Permits, there are few privately owned parcels within the city with these characteristics. Therefore, amendment to the ordinance is likely not worthwhile, provided reasonable use can be made of private land through occasional, site-specific variance so that the spirit of ordinance is observed, public safety and welfare are secured, and substantial justice is done.

Sincerely,

Miller Engineers & Scientists



Roger G. Miller, P.E.  
President



9/1/2023

Copies to: Rachel Kohler  
Michael Beeck – Otter Creek Landscaping  
Tim Klieber – Klieber Construction

Wagner Excavating  
Dave Biebel, Director of Public Works  
Ryan Sazama, City Engineer

\\\\Fs01\\sys\\DATA\\20600\\20674 - Kohler Shoreline Access\\Variance Application transmittal formatted.docx

**Attachments:**

Application for Variance

August 22 Email from Assistant City Attorney Liz Majerus

Sheboygan County Land Records Property Summary

Zoning Map excerpt

GIS Parcel Map excerpt

Shoreline Oblique Aerial Photo

Letter from Carla Ross

NR 115 – Wisconsin's Shoreland Protection Program

Resources for Great Lakes Shoreline Erosion Control Projects

Slope Stability Analysis

Project Plans (five 24" x 36" sheets and 8 ½" x 11" pdf):

Title, Project Location, and Sheet Index

Existing Conditions Map

Site Plan

Erosion Control Plan

Boathouse Structural Plan

Kohler Heritage Blend structural veneer specification and image

## Roger Miller

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**From:** Majerus, Liz <Liz.Majerus@sheboyganwi.gov>  
**Sent:** Tuesday, August 22, 2023 4:04 PM  
**To:** Roger Miller  
**Cc:** Rose, Ellise; Wierus, Linnae  
**Subject:** 120 Vollrath Project  
**Attachments:** Variance Application 2022 fillable.pdf

Hi Roger,

I've heard back from Steve after sharing with him your application packet and supplemental materials. He believes this project would best be treated as a variance request through the Board of Appeals due to the following zoning regulations at play:

1. 105-848 Lakeshore Overlay Zoning District
  - (a) *Lakeshores* are the land margins of navigable waters which are identified as lakes and other water bodies as shown on USGS 7.5-minute topographic maps for the city and its environs. Lakeshores are all areas within 75 feet of the ordinary high-water mark of Lake Michigan and inland lakes, but not watercourses. Decorative water features shall not be considered navigable waters for the purposes of this section. The meaning of the term "lakeshores," as used herein, shall remain distinct from the meaning of the term as employed by the state law and the DNR.
  - (d) *Mandatory lakeshore protection requirements*. Lakeshores shall remain in an undisturbed state, except for the land uses permitted in section 105-684 per the requirements of section 105-724.
2. 105-851 Steep Slope Overlay Zoning District.
  - (a) *Steep slopes* are areas which contain a gradient of 12 percent or greater, (equivalent to a ten-foot elevation change in a distance of 83 feet or less), as shown on USGS 7.5-minute topographic maps for the city and its environs, as updated by official city topographic maps at a larger scale.
  - (d) *Mandatory steep slope protection requirements*. Steep slopes shall remain in an undisturbed state except for the land uses permitted in section 105-684 per the requirements of section 105-724.

[https://sheboygan.municipalcodeonline.com/book?type=ordinances#name=Sec\\_105-1002\\_Variances](https://sheboygan.municipalcodeonline.com/book?type=ordinances#name=Sec_105-1002_Variances)

The next Zoning Board of Appeals meeting is scheduled for **September 20**. Our local rules for variance application submissions would've required submission by 8/16 but I confirmed with Planning staff that they will accept materials up to next **Friday, September 1**. This will still give staff enough time to work through the application and publish the notice. The fee paid for the CUP application will be applied to the variance application so no additional fee will be needed with the application. The variance application is attached. You may also want to consider updating your letter from CP to BOA explaining the hardship your client would face if the variance request is not approved. Staff also suggests providing additional elevation drawings and a sample picture of the limestone veneer coverings and any other exterior products the team plans to use on site. Questions about that should be directed to Ellise and Linnae who are copied on this email.

Upon your confirmation, we will remove this project from the CP agenda and await the variance submission.

Thanks,  
Liz

Elizabeth Majerus (she/her)

Assistant City Attorney

City of Sheboygan  
828 Center Ave.  
(920) 459-3917  
[liz.majerus@sheboyganwi.gov](mailto:liz.majerus@sheboyganwi.gov)

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## Sheboygan County Land Records Web Portal - Property Summary

Property: 59281014410

Search powered by



Report-Print engine  
List & Label © Version 19:  
Copyright combit GmbH  
1991-2013

Tax Year	Prop Type	Parcel Number	Municipality	Property Address	Billing Address
2023 ▼	Real Estate	59281014410	281 - CITY OF SHEBOYGAN	120 VOLLRATH BLVD	KOHLER JR REVOCABLE TRUST 11-7-00 441 GREEN TREE RD KOHLER WI 53044-1406
Tax Year Legend:             = owes prior year taxes             = not assessed             = not taxed            Delinquent      Current					

### Summary

#### Property Summary

Parcel #:	59281014410
Alt. Parcel #:	
Parcel Status:	Current Description
Creation Date:	
Historical Date:	
Acres:	4.540

#### Property Addresses

Primary ▲	Address
<input checked="" type="checkbox"/>	120 VOLLRATH BLVD

#### Owners

Name	Status	Ownership Type	Interest
KOHLER JR REVOCABLE TRUST 11-7-00	CURRENT OWNER		
KOHLER JR, HERBERT V	FORMER OWNER		

#### Parent Parcels

No Parent Parcels were found
------------------------------

#### Child Parcels

No Child Parcels were found
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#### Abbreviated Legal Description

(See recorded documents for a complete legal description)

LOTS 1 AND 3 CSM V 9 P 205-06 #1212196 ROD - PRT SE NE AND NE SE, SEC 14.

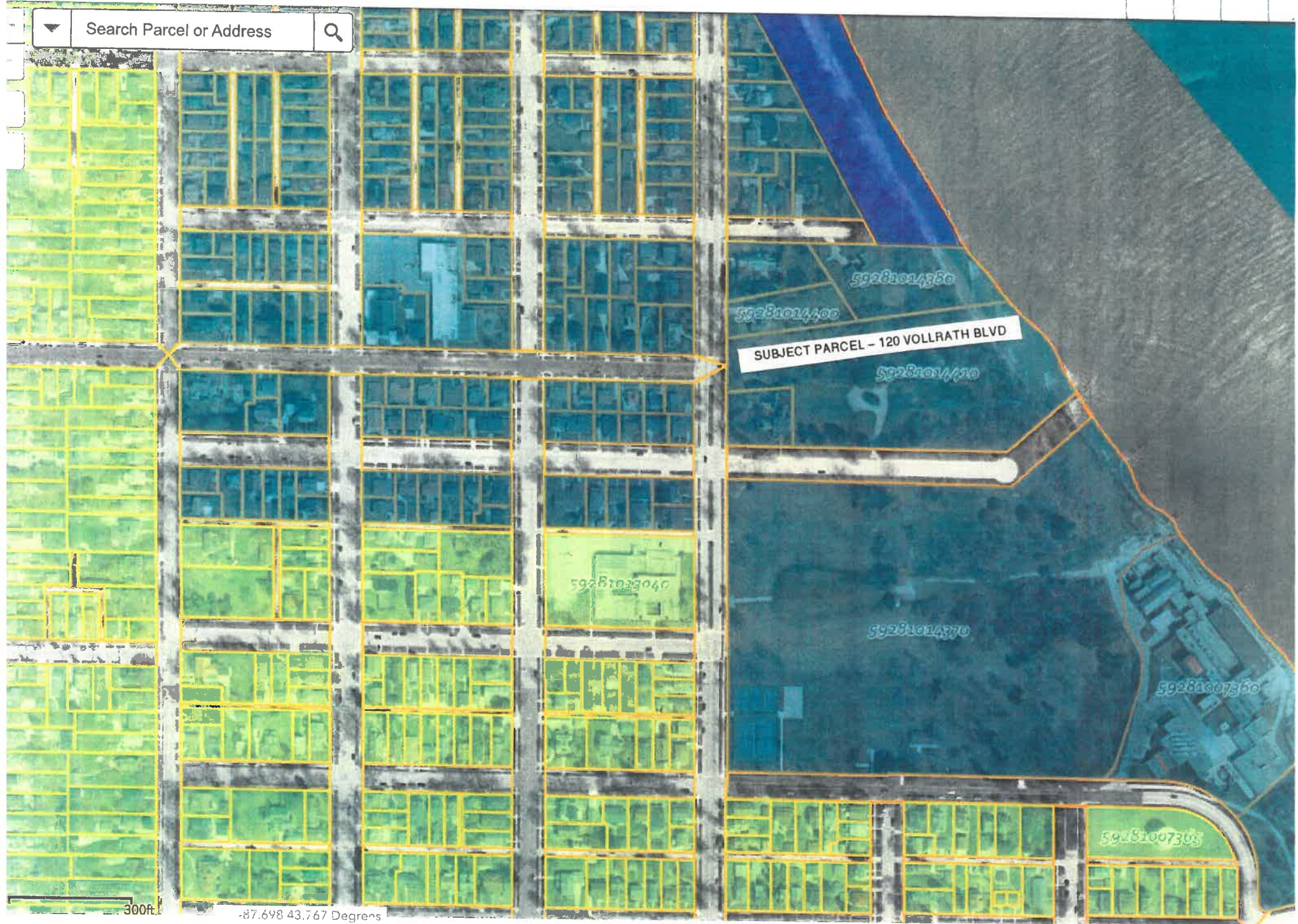
#### Public Land Survey - Property Descriptions

Primary	Section ▲	Town	Range	Qtr 40	Qtr 160	Gov Lot	Block/Condo Bldg	Type #	Plat
<input checked="" type="checkbox"/>	14	15 N	23 E						NOT AVAILABLE

#### District

Code ▲	Description	Category
	LOCAL	OTHER DISTRICT









### Legend

- Neighborhood Office District
- Neighborhood Residential-6 District
- Pre-Planned Unit Development District
- Railroad
- Road Right-of-Way
- Rural Agriculture
- Suburban Commercial District
- Suburban Industrial District
- Suburban Office District
- Suburban Residential-3 District
- Suburban Residential-5 District
- Unit Development
- Urban Commercial District
- Urban Industrial District
- Urban Residential

-87.700 43.769 Degrees

40m

200ft

BLUFF AVE

300

N 4TH ST

N 3RD ST

2109

N 3RD ST

2093

vollrath blvd



### Esri World Geocoder

Vollrath Blvd, Sheboygan, WI,  
53081, USA

Search result

Vollrath Blvd, Sheboygan, WI

[Zoom to](#)

VOLLRATH BLVD

101





Search Address, Owner, or Par



59281008810

59281014450

59281008850

Eurclid Ave

59281004890

59281014390

59281014380

59281005010

59281014400

59281014410

Urbia Ave

59281014420

SUBJECT PARCEL - 120 VOLLRATH BLVD

Vollrath Blvd

59281014370

59281007360

-87.701 43.769 Degrees

200ft

Chesapeake County





August 29, 2023

Dear Janet and Carla,

Thank you for your previous letter of support for our revetment project including additional revetment work on the north side of the 120 Vollrath property line to connect to your revetment. In addition to this activity, I am writing to make you aware of additional work on our property (exclusively) that entails adding a stairway down to the lake, a retaining wall, and a modest boathouse to accommodate kayaks and paddle boards. All elements are designed to be unobtrusive with natural hardscaping and landscaping and blend with other elements already on the property. This allows us to safely access and enjoy the lakefront area of our property. The full revetment work will take place in Spring 2024. The above referenced work may start in Fall 2023 or Spring 2024.

Please don't hesitate to reach out if you have any questions and concerns. Again, my email is [rachel.kohler@kohopventures.com](mailto:rachel.kohler@kohopventures.com).

If you are comfortable with the above, please add your signature below to allow the City to recognize our communication and alignment on this project.

Sincerely,



Rachel Kohler

Date:

8/29/23

With alignment,



Carla Ross on behalf of Janet Ross

Date:

8/29/23

cc: Liz Majerus / City of Sheboygan

Roger Miller / Miller Engineers & Scientists

Menu » Administrative Rules Related » Administrative Code » Department of Natural Resources (NR)  
 » Chs. NR 100-199; Environmental Protection – General » Chapter NR 115

Register January 2017 No. 733

## Chapter NR 115

### WISCONSIN'S SHORELAND PROTECTION PROGRAM

NR 115.01	Purpose.
NR 115.02	Applicability.
NR 115.03	Definitions.
NR 115.04	Shoreland-wetlands.
NR 115.05	Minimum zoning standards for shorelands.
NR 115.06	Department duties.

**Note:** Chapter NR 115 as it existed on July 31, 1980, was repealed and a new chapter NR 115 was created effective August 1, 1980.

**NR 115.01 Purpose.** Section 281.31, Stats., provides that shoreland subdivision and zoning regulations shall: "further the maintenance of safe and healthful conditions; prevent and control water pollution; protect spawning grounds, fish and aquatic life; control building sites, placement of structure and land uses and reserve shore cover and natural beauty." Section 59.692, Stats., requires counties to effect the purposes of s. 281.31, Stats., and to promote the public health, safety and general welfare by adopting zoning regulations for the protection of all shorelands in unincorporated areas that meet shoreland zoning standards promulgated by the department. The purpose of this chapter is to establish minimum shoreland zoning standards for ordinances enacted under s. 59.692, Stats., for the purposes specified in s. 281.31 (1), Stats., and to limit the direct and cumulative impacts of shoreland development on water quality; near-shore aquatic, wetland and upland wildlife habitat; and natural scenic beauty. Nothing in this rule shall be construed to limit the authority of a county to enact more restrictive shoreland zoning standards under s. 59.69 or 59.692, Stats., to effect the purposes of s. 281.31, Stats.

**Note:** Effective April 17, 2012, 2011 Wisconsin Act 170 created s. 59.692 (2m), Stats., which prohibits a county from enacting, and a county, city, or village from enforcing, any provision in a county shoreland or subdivision ordinance that regulates the location, maintenance, expansion, replacement, repair, or relocation of a nonconforming building if the provision is more restrictive than the standards for nonconforming buildings under ch. NR 115; or the construction of a structure or building on a substandard lot if the provision is more restrictive than the standards for substandard lots under ch. NR 115.

2011 Wisconsin Act 170 also created other provisions that affect how a county regulates nonconforming uses and buildings, premises, structures, or fixtures under its general zoning ordinance.

**History:** Cr. Register, July, 1980, No. 295, eff. 8-1-80; reprinted to correct error, Register, December, 1980; corrections made under s. 13.93 (2m) (b) 7., Stats., Register, April, 2000, No. 532; CR 05-058: r. and recr. Register January 2010 No. 649, eff. 2-1-10.

**NR 115.02 Applicability.** The provisions of this chapter apply to county regulation of the use and development of unincorporated shoreland areas, and to annexed or incorporated areas except as provided in s. 59.692 (7), Stats. Unless specifically exempted by law, all cities, villages, towns, counties and, when s. 13.48 (13), Stats., applies, state agencies are required to comply with, and obtain all necessary permits under, local shoreland ordinances. The construction, reconstruction, maintenance or repair of state

- (7) "Regional flood" means a flood determined to be representative of large floods known to have generally occurred in Wisconsin and which may be expected to occur on a particular stream because of like physical characteristics once in every 100 years.

**Note:** The regional flood is based upon a statistical analysis of streamflow records available for watershed and/or an analysis of rainfall and runoff characteristics in the general watershed region. The flood frequency of the regional flood is once in every 100 years. In any given year, there is a 1% chance that the regional flood may occur. During a typical 30-year mortgage period, the regional flood has a 26% chance of occurring.

- (7m) "Routine maintenance of vegetation" means normally accepted horticultural practices that do not result in the loss of any layer of existing vegetation and do not require earth disturbance.
- (8) "Shorelands" means lands within the following distances from the ordinary high-water mark of navigable waters: 1,000 feet from a lake, pond or flowage; and 300 feet from a river or stream or to the landward side of the flood plain, whichever distance is greater.
- (9) "Shoreland-wetland zoning district" means a zoning district, created as a part of a county shoreland zoning ordinance, comprised of shorelands that are designated as wetlands on the Wisconsin wetland inventory maps prepared by the department.
- (10) "Special exception (conditional use)" means a use which is permitted by a shoreland zoning ordinance provided that certain conditions specified in the ordinance are met and that a permit is granted by the board of adjustment or, where appropriate, the planning and zoning committee or county board.
- (11) "Unnecessary hardship" means that circumstance where special conditions affecting a particular property, which were not self-created, have made strict conformity with restrictions governing area, setbacks, frontage, height or density unnecessarily burdensome or unreasonable in light of the purposes of the zoning ordinance.
- (13) "Wetlands" means those areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation, and which have soils indicative of wet conditions.

**History:** Cr. Register, July, 1980, No. 295, eff. 8-1-80; renum. (2) to (12) to be (3) to (13), cr. (2), r. and recr. (7), am. (11) and (13), Register, October, 1980, No. 298, eff. 11-1-80; corrections in (2) (a) 1. and (b) 2. made under s. 13.93 (2m) (b) 7., Stats., Register, April, 2000, No. 532; CR 05-058: am. (intro.), renum. (1) to be (1h), cr. (1d), (1p), (3m), (4g), (4r) and (7m), r. (12) Register January 2010 No. 649, eff. 2-1-10.

#### **NR 115.04 Shoreland-wetlands.**

- (1) **ESTABLISHMENT OF SHORELAND-WETLAND ZONING DISTRICTS.** Counties shall adopt shoreland ordinances that include zoning regulations for shoreland-wetland zoning districts.
- (2) **AMENDMENT OF SHORELAND-WETLAND MAPS AND ZONING DISTRICTS.**
- (a) *County review of wetland inventory map amendments.* After the department amends final Wisconsin wetland inventory maps:
1. The department shall transmit to the county zoning agency designated under s. 59.69 (2) (a), Stats., digital files or paper copies of amended wetland inventory maps for that county.
  2. If the county believes that the amended maps are inaccurate, within 30 days of receiving the amended maps the county shall note discrepancies on the maps with an accompanying narrative explaining the amended problem areas and return a copy of the notated map and narrative to the department.
  3. The department shall, at department expense, consult available soil survey maps and conduct on-site inspections, if appropriate, in order to evaluate the county recommendations, and shall then prepare final amended Wisconsin wetland inventory maps for that county.
- Note:** As of 1985 all counties adopted official wetland zoning maps and amendments occur as accuracy increases.
- (b) *County amendment of shoreland-wetland maps and zoning districts.*
1. Within 6 months after receipt of final amended Wisconsin wetland inventory maps for that county from the department, a county shall zone all shorelands designated as wetlands on the amended Wisconsin wetland inventory maps in a shoreland-wetland zoning district. If a county fails to zone all shoreland-wetlands within this 6 month period, s. NR 115.06 (3) (b) shall apply.
  2. Ordinance text and map amendments creating or amending shoreland-wetland zoning districts shall be referred to the county zoning agency for public hearing as required by s. 59.69 (5) (e) 2., Stats.

**Note:** Where an apparent discrepancy exists between a shoreland-wetland district shown on an amended map and actual field conditions, the county shall contact the department to determine if the amended map is in error. If the



subd. 7. If within the 30-day period the department notifies the county board that the department intends to adopt a superseding shoreland zoning ordinance for the county under s. 59.692 (6), Stats., the proposed amendment shall not become effective while the ordinance adoption procedure is proceeding, but shall have its effect stayed until the s. 59.692 (6), Stats., procedure is completed or otherwise terminated.

**(3) PERMITTED USES IN SHORELAND-WETLAND ZONING DISTRICTS.** Within shoreland-wetland zoning districts, counties shall permit the following uses subject to the general requirements of s. NR 115.05, the provisions of chs. 30 and 31, Stats., and other state and federal laws, if applicable:

- (a) Hiking, fishing, trapping, hunting, swimming and boating.
- (b) The harvesting of wild crops, such as marsh hay, ferns, moss, wild rice, berries, tree fruits and tree seeds, in a manner that is not injurious to the natural reproduction of such crops and that does not involve filling, flooding, draining, dredging, ditching, tiling or excavating.
- (c) The practice of silviculture, including the planting, thinning and harvesting of timber, provided that no filling, flooding, draining, dredging, ditching, tiling or excavating is done except as required to construct and maintain roads which are necessary to conduct silviculture activities, which cannot as a practical matter be located outside the wetland, and which are designed and constructed to minimize the adverse impact upon the natural functions of the wetland, or except as required for temporary water level stabilization measures to alleviate abnormally wet or dry conditions which would have an adverse impact on the conduct of silvicultural activities if not corrected.

**Note:** Local units of government, in the development and application of ordinances which apply to shoreland areas, must consider other programs of statewide interest and other state regulations affecting the lands to be regulated, i.e. regulations and management practices applicable to state and county forests and lands entered under the forest cropland and managed forest land programs.

- (d) The pasturing of livestock and the construction and maintenance of fences, provided that no filling, flooding, draining, dredging, ditching, tiling or excavating is done.
- (e) The cultivation of agricultural crops if cultivation can be accomplished without filling, flooding or artificial drainage of the wetland through ditching, tiling, dredging or excavating except that flooding, dike and dam construction, and ditching shall be allowed for the purpose of growing and harvesting cranberries. The maintenance and repair of existing drainage systems (such as ditching and tiling) shall be permitted. The construction and maintenance of roads shall be permitted if the roads are necessary for agricultural cultivation, cannot as a practical matter be located outside the wetland, and are designed and constructed to minimize the adverse impact upon the natural functions of the wetland.
- (f) The construction and maintenance of duck blinds provided that no filling, flooding, draining, dredging, ditching, tiling or excavating is done.
- (g) The construction and maintenance of nonresidential structures, not to exceed 500 square feet, used solely in conjunction with the raising of waterfowl, minnows, or other wetland or aquatic animals, or used solely for some other purpose which is compatible with wetland preservation if the structure cannot as a practical matter be located outside the wetland, provided that no filling, flooding, draining, dredging, ditching, tiling or excavating is done.
- (h) The construction and maintenance of piers, docks and walkways, including those built on pilings, provided that no filling, flooding, dredging, draining, ditching, tiling or excavating is done.
- (i) The establishment and development of public and private parks and recreation areas, boat access sites, natural and outdoor education areas, historic and scientific areas, wildlife refuges, game preserves and private wildlife habitat areas, provided that no filling is done and that any private wildlife habitat area is used exclusively for that purpose. The owner or operator of a new private recreation or wildlife area to be located in a shoreland-wetland zoning district shall be required to notify the county zoning agency of the proposed project before beginning construction. Ditching, excavating, dredging, dike and dam construction shall be allowed in wildlife refuges, game preserves, and private wildlife habitat areas for the purpose of improving wildlife habitat or to otherwise enhance wetland values.
- (j) The construction and maintenance of electric, gas, telephone water and sewer transmission and distribution lines, and related facilities, by public utilities and cooperative associations organized for the purpose of producing or furnishing heat, light, power or water to their members, which cannot as a practical matter be located outside the wetland, provided that any filling, excavating, ditching or



**1m. 'Exempt structures.'** All of the following structures are exempt from the shoreland setback standards in subd. 1.:

- a. Boathouses located entirely above the ordinary high-water mark and entirely within the access and viewing corridor that do not contain plumbing and are not used for human habitation.

**Note:** This chapter does not prohibit repair and maintenance of boathouses located above the ordinary high-water mark.

- b. Open sided and screened structures such as gazebos, decks, patios and screen houses in the shoreland setback area that satisfy the requirements in s. 59.692 (1v), Stats.
- c. Fishing rafts that are authorized on the Wolf river and Mississippi river under s. 30.126, Stats.
- d. Broadcast signal receivers, including satellite dishes or antennas that are one meter or less in diameter and satellite earth station antennas that are 2 meters or less in diameter.
- e. Utility transmission and distribution lines, poles, towers, water towers, pumping stations, well pumphouse covers, private on-site wastewater treatment systems that comply with ch. SPS 383, and other utility structures that have no feasible alternative location outside of the minimum setback and that employ best management practices to infiltrate or otherwise control storm water runoff from the structure.
- f. Walkways, stairways or rail systems that are necessary to provide pedestrian access to the shoreline and are a maximum of 60-inches in width.

**2. 'Floodplain structures.'** Buildings and structures to be constructed or placed in a flood plain shall be required to comply with any applicable flood plain zoning ordinance.

**3. 'Boathouses.'** The use of boathouses for human habitation and the construction or placing of boathouses beyond the ordinary high-water mark of any navigable waters shall be prohibited.

**(c) Vegetation.** To protect natural scenic beauty, fish and wildlife habitat, and water quality, a county shall regulate removal of vegetation in shoreland areas, consistent with the following:

Menu » Administrative Rules Related » Administrative Code » Department of Natural Resources (NR)

» Chs. NR 100-199; Environmental Protection – General » Chapter NR 115



# RESOURCES FOR GREAT LAKES SHORELINE EROSION CONTROL PROJECTS

---

The Lake Michigan and Lake Superior shorelines are critically important spaces for fish and wildlife habitat and recreational use. Great Lakes shorelines have many coastal influences that make them more like oceans than our thousands of inland lakes. The DNR understands landowner and municipality concerns about structures that may be at risk from bluff and dune erosion on the Great Lakes and recognizes the large investments residents have in their homes. Projects must be done in a way that minimizes lakebed fill and impacts to nearshore areas and adjacent properties.

Designing and implementing a shoreline protection project involves a complex engineering analysis of water level changes, wave heights, storm surges, lakebed analysis, sediment sampling, and potential impacts to adjacent properties. State law requires DNR authorization for any material placed in Lake Michigan and Lake Superior. Additional DNR permits may be needed for grading and dredging associated with a shoreline erosion control project.

**\*THE DNR HIGHLY RECOMMENDS THAT PROPERTY OWNERS SEEK EXPERIENCED COASTAL ENGINEERING PROFESSIONALS WHEN CONSIDERING A GREAT LAKES SHORELINE PROTECTION PROJECT.**

To review permitting options, see [Shoreline Erosion Control Permitting](#).

To start a permit application, use [DNR Water ePermitting System](#).



## GREAT LAKES WATER LEVELS

Each of the Great Lakes has an annual water level cycle driven by snowmelt, precipitation, and evaporation. In general, the lakes are at their lowest levels in the winter and highest levels in summer. The annual change in water levels is from 11 to 20 inches. In addition to annual changes, long-term lake levels fluctuate on a 10-year to 30-year cycle. On Lake Michigan, the difference between the record low and high water levels is greater than 6 feet.

See the [USACE Weekly Great Lakes Water Level Update](#) [exit DNR] for current water levels on Lake Michigan and Lake Superior.

## EROSION AND BEACHES

Erosion occurs when wave energy moves material away from shore to greater water depths. Erosion on the Great Lakes occurs even during low water levels. As wind blows across the surface, energy is transferred to the water and builds waves. As the wind blows across many miles of open water, it drags some water towards the downwind side of the lakes, causing a rise in water level along the downwind shore and a lowering of water on the upwind shore. Storm surges typically raise the water level one to two feet on the open coast and two to five feet in bays. Rising lake levels and lakebed erosion (reflected wave energy causing lakebed downcutting) create deeper water near shore and allow more wave power to hit shore. Falling lake levels have the opposite effect.

Changes in a beach shoreline are caused by sand starvation. Waves usually approach a beach at a slight angle, creating a “push” against the beach in the alongshore direction and moving sand laterally, known as littoral drift. When waves strike the shoreline straight on, sand is carried onshore with a wave and offshore with the undertow. This sand can be trapped by intrusions along the shoreline but will continue to move with high waves. If the nearshore area is deep enough or the undertow is strong enough, the sand can be moved into deeper water where it settles on the lakebed beyond wave movement and the sand may be lost to littoral drift.

The most effective shoreline protection structure is the simple beach. Its shallow sloping surface causes waves to break gradually. Structures and naturally steeper slopes can create wave run-ups that are twice the height of offshore waves. For beaches to be self-sustaining, there must be a source of sand from the updrift area that is not obstructed from wave action

Beach nourishment is a human-made addition of the sand in the littoral drift system. Rather than let calm water build up the beach, sand is intentionally placed on the beach. Beach nourishment is typically ongoing in order to be effective in the long-term. Planted vegetation such as dune grass,



## EROSION AND BLUFFS

A coastal bluff on Lake Michigan or Lake Superior is susceptible to erosion and failure due to structures constructed on the bluff top, annual freezing and thawing, groundwater action in the bluff, and the slope of the bluff face. The glacial till soils of coastal bluffs are also susceptible to erosion from waves. Erosion at the base of the bluff, known as bluff toe erosion, can over time cause slumping. High water levels and continued slumping exposes more of the bluff to wave energy and can lead to bluff failures. Many property owners on the Great Lakes look to protect the toe of the bluff from erosion by constructing riprap (revetments), using large rocks, granite blocks or other material laid over filter fabric and stone. The most effective revetments are designed with the first layer of rocks trenched into the lakebed, stone high enough to prevent overtopping during storm events, and at least two layers of outer layer stone.

For more information on coastal processes and hazards, see [Resources for Property Owners | Wisconsin Sea Grant](#)<sup>[exit DNR]</sup>.

## GREAT LAKES SHORELINE PROTECTION PROJECTS

### MATERIAL TYPE AND SHAPE

The types of material used determines the longevity of a shoreline protection structure. Demolition debris like cinder blocks, concrete rubble and dirt are not acceptable materials since when they exposed to wave action and thaw and freeze cycles can crack and break apart easily. Any armor layer must be sufficiently sized to be stable and made of materials that will not crack and fragment.

The shape of the materials is also an important design consideration. Multi-faceted boulders with round surfaces work better than flat stone. Flat surfaces reflect wave energy resulting in scouring at the base of the structure, may increase wave run-up, and generally cause more erosion.

### CONTRACTING WITH A COASTAL PROFESSIONAL

The cost of planning, designing, and installing shore protection structures is likely to be expensive. To help ensure a lasting investment, the DNR encourages landowners to seek experienced coastal engineering professionals to assist with your project. Coastal engineering professionals have the expertise necessary to influence the success of a shoreline project, including:



- Minimizing construction and maintenance costs
- Managing the performance and longevity of the project

Coastal professionals can also monitor the project after it is implemented and manage any modifications or repairs needed after storm damage. An investment in the services of experienced professionals is the best way to ensure the long-term success of a shoreline protection project and minimize costs during the period of ownership.

## ADDITIONAL TECHNICAL RESOURCES

- [Finding a coastal engineering consultant](#) [exit DNR]
- [Working with Contractors](#) [exit DNR]
- [Stabilizing Coastal Slopes](#) [exit DNR]
- [Shore Protection Structures](#) [exit DNR]
- [Ohio Coastal Design Manual](#) [PDF exit DNR]

# MILLER

## ENGINEERS SCIENTISTS

An Employee-Owned Company

August 10, 2023

20674-001

City of Sheboygan  
Department of Planning & Development  
828 Center Avenue  
Sheboygan, WI 53081

Subject: **Slope Stability Analysis - Conditional Use Permit (CUP) Application  
Shoreline Improvements - 120 Vollrath Boulevard**

Ladies and Gentlemen:

This letter documents our slope stability analysis related to construction of the 10' by 16' (in plan view) onshore boathouse that is planned as a buried structure at the toe of the natural lakeshore bluff on the subject parcel. This will require excavation producing about a 12 feet tall temporary cut slope. **Our analysis, as described below, indicates that this will not jeopardize stability of the natural slope.**

Stability of earth slopes is most commonly quantified by computation of a "Factor of Safety" (FOS). The FOS is the numerical ratio of the soil shear strength available along a most critical potential slip surface within the cross section of the slope, divided by the gravitational forces acting on the soil mass circumscribed by that potential slip surface. The analysis is based on the slope height, cotangent of the slope angle (as measured above horizontal), the unit weight of the soil, and the soil shear strength.

At this location the total height of the bluff is about 33 feet and the natural surface of this slope averages about 2 parts horizontal to 1 part vertical (2H:1V), the cotangent of that slope being 2.0. Shallow manual soil borings that we had performed on the natural face of the slope indicate the subsoils consist of stiff to very stiff, lean clay that has been pre-consolidated by past glaciation. Based on that, the available shear strength can be conservatively estimated to be at least 1,000 psf. For the natural slope and the temporary cut slope, the characteristics are:

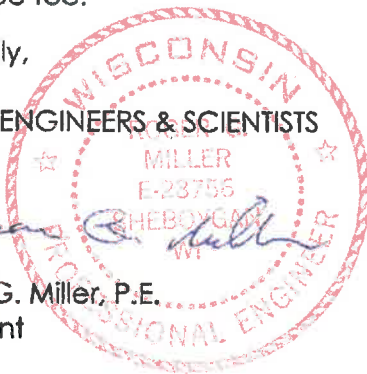
	<u>Natural Existing Slope</u>	<u>Temporary Cut Slope for Construction</u>
Height (feet):	33	12
Slope Cotangent:	2.0	0.5
Soil Unit Weight (pcf):	136	136
Soil Shear Strength (psf):	1,000	1,000

These values are noted in red on the attached Slope Stability Chart, which shows the computation results of an **FOS of 1.8 for the existing natural slope** and **3.1 for the temporary cut slope** for construction of the buried boathouse. Because an FOS of 1.0 implies incipient failure, and FOS of least 1.5 is desirable to provide a reasonable margin of safety. The computed FOS of 1.8 is therefore consistent with our inspection of this natural slope face showing no evidence of instability. This is expected to persist with the vegetation management being done. **The computed FOS of 3.1 of the temporary cut slope for construction of the buried boathouse indicates that it's not a destabilizing factor.** And construction of the boathouse, as it is designed, will maintain stabilizing resistance to the slope toe.

Sincerely,

MILLER ENGINEERS & SCIENTISTS

  
Roger G. Miller, P.E.  
President



8/10/23

Attachments: Slope Stability Chart



a) EXISTING SLOPE:

$$H = 628' - 595' = 33'$$

$$\gamma_m = 136 \text{ pcf}$$

$$\text{cot } \beta = 2.0$$

$$c = 94 \leq 1000 \text{ MF}$$

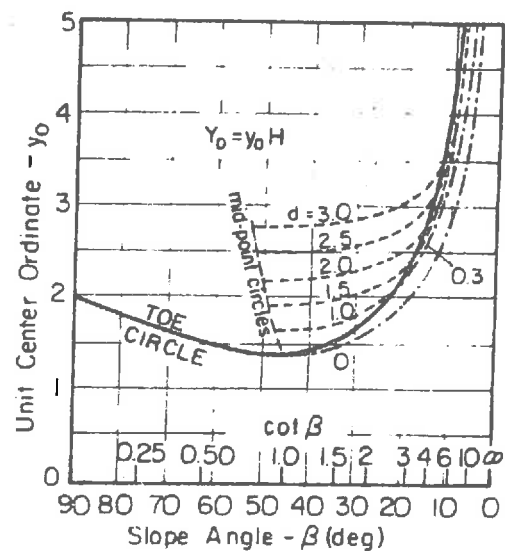
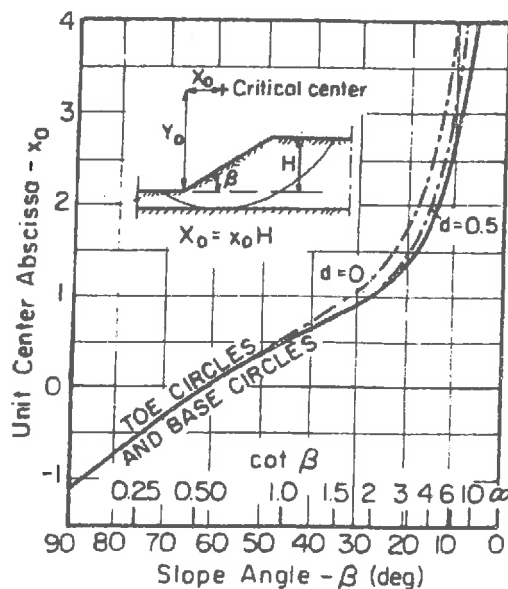
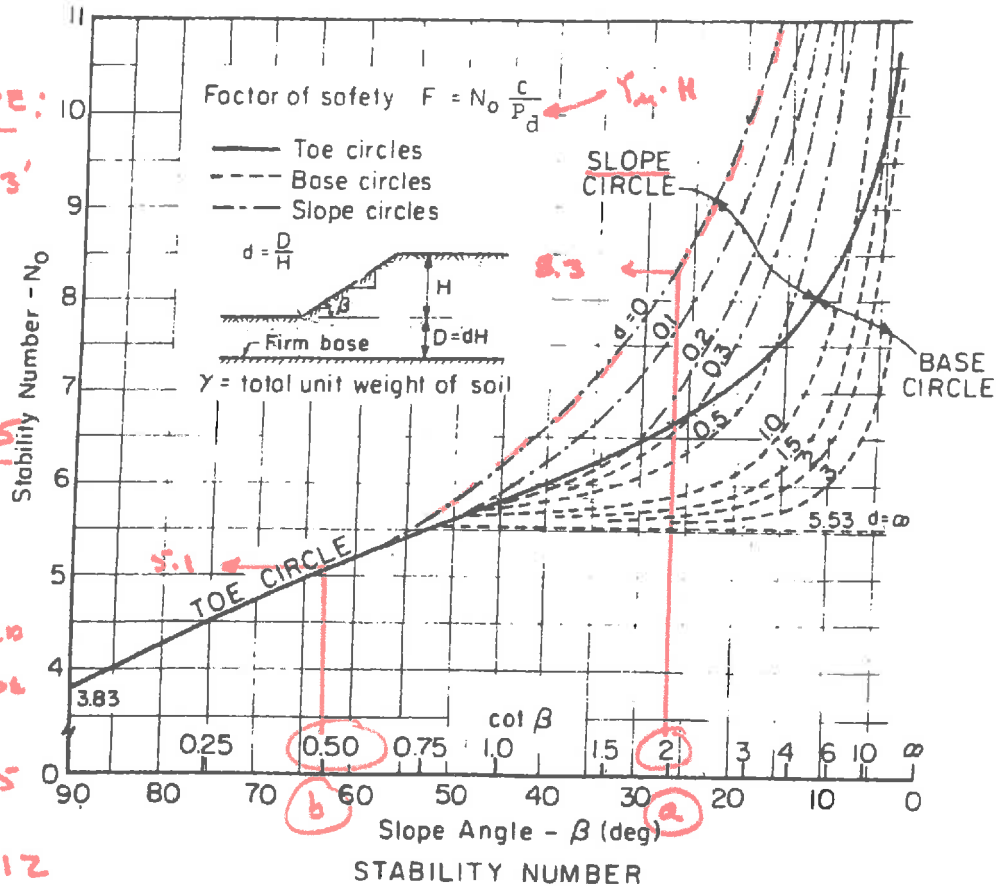
$$F = \frac{8.3(1000)}{33(136)} = 1.85$$

b) TEMP. CUT TO  
CONSTRUCT BUNKER  
BATHHOUSE @ TOE  
OF SLOPE:

$$H = 12' \text{ cot } \beta = 0.5$$

$$F = \frac{5.1(1000)}{136(12)} \leq 3.12$$

RGH  
8/9/23



CENTER COORDINATES FOR CRITICAL CIRCLE

Fig. 6 SLOPE STABILITY CHARTS FOR  $\phi = 0$  SOILS (after Janbu, 1968)



120 VOLLRATH BLVD., CITY OF SHEBOYGAN, WI

SALE
OR. NA
R. NA
DATE
09/01/2023
B
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The drawing consists of two parts: a cross-section at the top and a plan view at the bottom.

**CROSS-SECTION I**

The cross-section shows a vertical wall with a doorway opening. The total height of the wall section is 16'. The opening height is 10'-0". The wall thickness is 8" on both sides of the opening. The top of the footing is at an elevation of 593.33' NAVD88. The top of the footing is also at an elevation of 591.33' NAVD88. The footing is 2' thick XPS insulation over the top of the footing extending 2' northward.

**Plan View**

The plan view shows the doorway rough opening. The opening width is 10'-0". The wall thickness is 8" on both sides. The footing is 2' thick XPS insulation over the top of the footing extending 2' northward. The footing is 2' thick XPS insulation over the top of the footing extending 2' northward.

**Dimensions and Annotations:**

- 16' (Total height of wall section)
- 10'-0" (Opening height)
- 8" (Wall thickness)
- 2' (Footing thickness)
- 2' (Footing extension northward)
- 1' (Footing extension southward)
- TOP OF FOOTING ELEV.=593.33' NAVD88
- TOP OF FOOTING ELEV.=591.33' NAVD88
- DOORWAY ROUGH OPENING WIDTH TO BE ESTABLISHED BY KLEBER CONSTRUCTION
- 2" THICK XPS INSULATION OVER TOP OF FOOTING EXTENDING 2' NORTHWARD

**CROSS SECTION M**  
**REINFORCEMENT DETAIL**

EAST WEST

10'

8'

8"

2" COVER

16"

4" FLOOR SLAB

WWF 4X4-W20XW2.0  
(MID-HEIGHT IN FLOOR SLAB)

4" DIA. BELL PLATE ANCHOR BOLTS @ 24" O.C.

#4 HORIZONTAL BARS @ 12" O.C. CONTINUOUS AND AROUND CORNERS

#4 VERTICAL BARS @ 12" O.C. CONTINUOUS (SOUTH AND NORTH WALL RETAINING IS THE SAME EXCEPT FOR NORTH WALL DOOR OPENINGS)

#4 DOWELS @ 16" O.C. (12" X 4')

#4 BAR CONTINUOUS

TOP OF FOOTING ELEV. = 593.33' NAVD88

**NORTH ELEVATION VIEW  
OF NORTH WALL**

EAST WEST

7" DIA. SILL PLATE ANCHOR BOLTS @ 24" O.C.

#5 BARS @ 3 INCHES FROM TOP AND BOTTOM

10'

220"

564" WIDE RO

8"

84.5"

2" COVER

12'-0"

#4 BARS @ 12" O.C. CONTINUOUS AND AROUND CORNERS

WWF 4X4-W2 DXW2.0 MID-HEIGHT IN FLOOR SLAB

4" FLOOR SLAB

24"

BARS IN WALL FACE NOT SHOWN BUT SAME AS IN SIDE WALLS

#4 DOWELS @ 16" O.C. (12" X 4")

#4 BARS CONTINUOUS

16"

TOP OF FOOTING ELEV. = 591.33' NAVD85

[illegible]

1. CAST IN PLACE CONCRETE SHALL USE TYPE I PORTLAND CEMENT TO PROVIDE 28 DAY COMPRESSIVE STRENGTH OF AT LEAST 3,500 PSI USE 3/4" MAXIMUM AGGREGATE SIZE AND AIR ENTRAINMENT FROM 5% TO 7%. AGGREGATES SHALL CONFORM TO REQUIREMENTS OF ASTM C-33.
2. CONCRETE PLACEMENT AND CURING SHALL BE IN ACCORDANCE WITH ACI-304.
3. A SET OF FOUR TEST CYLINDERS SHALL BE CAST FOR EVERY 50 CY OF MIX PLACED, WITH NOT LESS THAN ONE SET FOR EACH DATE OF PLACEMENT.

[illegible][illegible]

SCALE	
DR. VARIES	
DR. VARIES	
DATE	09/01/2023
FB	20674-A
EBB	
RGM	



## FIELDLEDGE

### KOHLER HERITAGE

### BLEND

**GEOLOGY:** dolomitic limestone- quarried in USA

#### COLOR RANGE

grays, dark grays, charcoals, whites, tans, golds and buffs

**COLOR CONSISTENCY PER PALLET**  
somewhat consistent

#### PALLET

FULL VENEER: 4,000 pounds  
THIN VENEER: 10-15 lbs/ft<sup>2</sup>; Qty Bx or Sm Bx  
Qty Bx-100 sq ft flats and 50 lineal ft corners  
Sm Bx- (24) 8 sq ft flats (192 sq ft) and  
(20) 8 lineal ft corners (160 lineal ft)

#### ASTM TESTING DATA

MILL CREEK C97 water absorption—0.51%  
MILL CREEK C97 density—172.6 pcf  
MILL CREEK C99  
modulus of rupture perpendicular —2,280 psi  
modulus of rupture parallel —860 psi  
MILL CREEK C170  
compressive strength—28,100 psi  
MILL CREEK C880 flexural strength—1,580 psi  
FOND DU LAC C97 water absorption—0.11%  
FOND DU LAC C97 density—176.5 pcf  
FOND DU LAC C99  
modulus of rupture—2,480 psi  
FOND DU LAC C170  
compressive strength w/rift—31,810 psi  
compressive strength across rift—26,550 psi  
FOND DU LAC C880  
flexural strength—1,740 psi

#### PART NUMBERS

##### FULL VENEER:

1BSTBUE02040TN- Sold per Ton

##### THIN VENEER:

Qty Bx flat: 1BTVBUE02040QB- Sold per pallet

Sm Bx flat: 1BTVBUE02040BX- Sold per box

Qty Bx corner: 1BTVBUE02540QB- Sold per pallet

Sm Bx corner: 1BTVBUE02540BX - Sold per box

#### FULL VENEER

##### COMMON COVERAGE

Standard Joint	Drystack	Overgrout
40 square feet / ton	30 ft <sup>2</sup> /ton	50 ft <sup>2</sup> /ton

##### DIMENSIONS

l: 6" to 24"

h: 2" to 12"

w: 3" to 5" (4")

note: lengths and heights can vary with rough irregular shapes mixed in.

##### TYPICAL PIECE

Ends random, completely random mix of Fond du Lac and Mill Creek material; rough cut stone is a mixture of splitface, natural splitface, and bedface; stone is mixture of square, rectangular, triangular, trapezoidal, and parallelogram shapes.

#### THIN VENEER

##### COMMON COVERAGE PER BOX

Standard Joint	Drystack	Overgrout
8 & 100 square feet	6 & 75 ft <sup>2</sup>	10 & 110 ft <sup>2</sup>

##### DIMENSIONS

l: 6" to 24"

h: 2" to 12"

w: 3/4" to 1-1/4" (1")

corner return 3" to 6"  
note: lengths and heights can vary with rough irregular shapes mixed in.

##### TYPICAL PIECE

Ends random, completely random mix of Fond du Lac and Mill Creek material; rough cut stone is a mixture of splitface, natural splitface, and bedface; stone is mixture of square, rectangular, triangular, trapezoidal, and parallelogram shapes, back is sawn.

#### ARCHITECT/DESIGNER INFO

##### MATERIAL BANK

SKU: SM04013



#### INSTALLATION SHOWN

Mortar: Western Type- S

Joint Type: Overgrout

#### BIM DETAILS

Revit, Hatrii Patterns,  
Seamless Textures, 3-Part  
Specs, DWGS, 50%,  
Warranty



www.buechelstone.com