

**SHORELAND EROSION CONTROL AND
SHORELAND MITIGATION REPORT**

**2013 SKYLINE DRIVE
TOWN OF PLEASANT SPRINGS, DANE COUNTY**

May 19, 2022



5/19/2022

PREPARED FOR:
John Kundert
2013 Skyline Drive
Stoughton, WI 53589

PREPARED BY:
Quam Engineering, LLC
4604 Siggelkow Road, Suite A
McFarland, WI 53558

JK-19-22

TABLE OF CONTENTS

Introduction..... 1
Standards..... 2
Sedimentation And Erosion Control Measures..... 3
Stormwater Management Measures..... 4
Cost Estimate 5
Conclusions..... 6
Dane County Erosion Control Application Checklist..... 7
Dane County Erosion Control Application Checklist Comments..... 8
Dane County Shoreland Mitigation Application Checklist 10
Dane County Shoreland Mitigation Application Checklist Comments 11

EXHIBITS

- 1. Location Map
- 2. Existing Site Plan (Sheet C-1)
- 3. Grading and Erosion Control Plan (Sheet C-2)
- 4. Universal Soil Loss Equation (USLE) Worksheet
- 5. Rational Method Worksheet

APPENDICES

- A. Infiltration Calculations
- B. Soil Information
- C. Draft Maintenance Agreement

INTRODUCTION

The proposed development is located at 2013 Skyline Drive, Town of Pleasant Springs, Dane County, Wisconsin. The property is located in the SW ¼ of the NW ¼ of Section 29, T06N, R11E, as shown on the Location Map included as Exhibit #1. The existing site consists of house, parking area, concrete walk, shed, and boathouse, as shown on Exhibit #2. The proposed development includes removing the existing shed and replacing it with a garage as well as adjusting the walk and parking area to connect, as shown on Exhibit #3. An underground rock trench is proposed to reduce the effective impervious area so that the proposed impervious area will be less than or equal to the existing impervious area.

The proposed project includes land disturbing activity and the construction of impervious surfaces within 300 feet of Lake Kegonsa on a property with an impervious area percentage greater than 15%. Therefore, according to Chapter 11 of the Dane County Ordinance, the site requires shoreland erosion control and shoreland mitigation permits.

The intent of this report is to provide details on how the stormwater will be collected and managed so that it leaves the proposed project site in accordance with applicable erosion control and stormwater mitigation standards.

STANDARDS

The stormwater management system for the proposed site will meet the following development performance standards as defined in Chapter 11 of the Dane County Ordinance:

Erosion Control

The proposed construction shall include erosion control measures to prevent gully and bank erosion and limit total off-site erosion to less than 5.0 tons per acre per year.

Sediment Control

The proposed construction shall include design practices to retain soil particles greater than twenty microns (40% reduction) on the entire site resulting from the one-year 24-hour storm event.

Outlets

Discharges from the development must have a stable outlet capable of carrying designed flow at a non-erosive velocity.

Infiltration

Design practices to infiltrate sufficient runoff volume so that post-development infiltration volume shall be at least 75 percent of the pre-development infiltration volume, based upon average annual rainfall. If, when designing appropriate infiltration systems, more than 1 percent of the site is required to be used as the effective infiltration area, the applicant may alternatively design infiltration systems and pervious surfaces to meet or exceed the pre-development annual recharge rate (7.6 inches per year). If this alternative design approach is taken, at least 1 percent of the site must be used for infiltration.

Vegetative Buffer Plan

A vegetative buffer plan is required to preserve, restore, or establish and permanently maintain a buffer of vegetation for the site. The vegetative buffer shall be designed to meet Section 11.04, include only native species, and meet or exceed stem density, planting schedule, and other standards described in NRCS Conservation Practice 643a "Shoreland Restoration" and Wisconsin Biology Technical Note 1.

SEDIMENTATION AND EROSION CONTROL MEASURES

Exhibit #3 contains the Grading and Erosion Control Plan. During construction, all sedimentation and erosion control items will be maintained for maximum effectiveness. Sediment trapped by the silt fence or sock will be removed when it reaches a depth of approximately one-half foot.

All pervious disturbed areas will be restored with a minimum of four inches of topsoil, seed, and mulch. Restoration will occur as soon after the disturbance as practical. Seed Mixture 40 will be used on all pervious disturbed areas. All seed mixtures will be in accordance with Section 630 of D.O.T. Specifications. An equal amount of annual ryegrass will be added to the mix.

All pervious disturbed areas will receive fertilizer. Fertilizer will meet the following minimum requirements: Nitrogen, not less than 16%; Phosphoric Acid, not less than 8%; Potash, not less than 8%. Fertilizer will be applied at the rate of four (4) pounds per 1,000 square feet. The total seed mixtures will be applied at the rate of four (4) pounds per 1,000 square feet. Mulch will consist of straw or hay, applied at a rate of two (2) tons per acre.

All runoff during construction will be directed to flow through erosion control measures as shown on the Grading and Erosion Control Plan. Exhibit #4 contains the Universal Soil Loss Equation calculation worksheet.

STORMWATER MANAGEMENT MEASURES

Exhibit #3 is the Grading and Erosion Control Plan. The plan shows the stormwater management measures required to meet the standards listed on Page 2 of this report. The standards will be met as follows:

Sediment Control

Sediment Control is not required because the post-development impervious area will be less than the pre-development impervious area and there are no structures proposed within the lake side setback.

Outlets

The restored lawn area will provide a stable outlet for the site.

Infiltration

An underground rock trench will provide 100 percent infiltration of the proposed garage roof (576 sqft), so this area may be subtracted from the proposed impervious area for the site. The Infiltration Calculations are included in Appendix A.

The reduction in the impervious area means that the post-development area will be less than or equal to the pre-development area. Therefore, 75% site infiltration is not required.

Vegetative Buffer Plan

A vegetative buffer is not required for this project because the post-development impervious area will be less than the pre-development impervious area and there are no structures proposed within the lakeside setback.

COST ESTIMATE

The following table summarizes the estimated cost of completion and installation of all elements of erosion control and shoreland mitigation for the proposed construction.

Item No.	Description	Estimated Quantity	Unit	Unit Price	Amount
1.	Silt Fence or Sock	80	LF	\$2.00	\$160.00
2.	Underground Rock Trench with perforated underdrain	7	CY	\$75.00	\$525.00
3.	4" PVC Storm Sewer	29	LF	\$10.00	\$290.00
4.	6" PVC Storm Sewer	3	LF	\$12.00	\$36.00
5.	Restoration (seed and mulch)	100	SY	\$3.00	\$300.00
Total					\$1,311.00

CONCLUSIONS

Exhibit #4 contains the Universal Soil Loss Equation calculation worksheet. The worksheet indicates soil loss during development of the site will be controlled such that it does not exceed 5.0 tons per acre per year. Therefore, the erosion control measures for the proposed development meet Dane County standards.

Erosion Control Application Checklist

Project Name: 2013 Skyline Drive

Applications must include the following materials. The erosion control plan must be designed to meet all standards and requirements presented on the following page.

Plan Materials	Specific Location of Information
1. Narrative describing proposed development	Page 1
2. Site plan with scale that includes: property lines, limits of disturbance, land cover limits (existing and proposed), natural and artificial water features, 100-yr flood plain, delineated wetland boundaries, location of all erosion control practices	Sheet C-2
3. Construction details of erosion control practices	Sheets C-1 & C-2
4. Contours (existing and proposed) Note: Grading within 5' of the property line requires department approval	Sheet C-2
5. Site watershed map (including runoff draining to site)	Sheet C-2
6. Culvert sizes (existing and proposed)	Page 8
7. Cross sections and profiles of conveyance features (existing and proposed)	Page 8
8. Direction of runoff flow from impervious surfaces	Sheet C-2
9. Design calculations of conveyance features (velocity and capacity calculations)	Exhibit #5
10. Universal soil loss (USLE) calculations (corresponding to construction schedule)	Exhibit #4
11. Site stabilization materials and methods	Sheet C-2
Permit Application Materials	—
12. Detailed construction schedule	Sheet C-2
13. Copies of completed applications or approved permits from other regulatory bodies	Page 9
14. Itemized cost estimate of erosion control plan implementation (Financial security instrument required if over \$5,000)	Page 9

DANE COUNTY EROSION CONTROL APPLICATION CHECKLIST COMMENTS

The following comments supplement the Dane County Erosion Control Application Checklist on page 7. Each comment heading relates to an item on the Checklist.

1. Narrative Describing Proposed Development
See the report introduction on page 1 and the construction schedule on the Grading and Erosion Control Plan, Exhibit #3.
2. Site Plan with scale
The Grading and Erosion Control Plan, Exhibit #3 shows land cover type, impervious area limits, disturbed area limits, and the location of all proposed erosion control practices for the site.
3. Construction Details of Erosion Control Practices
The details for erosion control practices are shown on the Grading and Erosion Control Plan, Exhibit #3.
4. Contours (existing and proposed)
The existing contours are shown on the Existing Site Plan, Exhibit #2. The proposed contours are shown on the Grading and Erosion Control Plan, Exhibit #3.
5. Watershed Size for Each Drainage Area
The drainage area for the underground rock trench is shown on the Grading and Erosion Control Plan, Exhibit #3.
6. Culvert Sizes
There are no existing or proposed culverts.
7. Cross Sections and Profiles of Conveyance Features
No channels or road ditches are proposed.
8. Direction of Flow from Impervious Surfaces
The direction of flow is shown on the Grading and Erosion Control Plan, Exhibit #3.
9. Design Calculations for Conveyances Features
Design calculations for structural measures are shown on the Rational Method Worksheet, Exhibit #5.
10. Universal Soil Loss Equation (USLE) worksheet(s)
A Universal Soil Loss Equation worksheet has been prepared and is included as Exhibit #4. The worksheet shows that the expected soil loss is less than 5.0 tons/acre/year for each element of the Erosion Control Plan.

11. Site Stabilization Materials and Methods

All pervious disturbed areas will be restored with a minimum of four inches of topsoil, seed, and mulch. Restoration will occur as soon after the disturbance as practical. Seed Mixture 40 will be used on all pervious disturbed areas. All seed mixtures will be in accordance with Section 630 of D.O.T. Specifications. An equal amount of annual ryegrass will be added to the mix.

All pervious disturbed areas will receive fertilizer. Fertilizer will meet the following minimum requirements: Nitrogen, not less than 16%; Phosphoric Acid, not less than 8%; Potash, not less than 8%. Fertilizer will be applied at the rate of four (4) pounds per 1,000 square feet. The total seed mixtures will be applied at the rate of four (4) pounds per 1,000 square feet. Mulch will consist of straw or hay, applied at a rate of two (2) tons per acre.

All disturbed areas will be temporarily stabilized within 14 days of last activity. All disturbed areas will be stabilized within 7 days of final grading. Perimeter control will be installed around stockpiles, and stockpiles will be stabilized that will remain inactive for 7 days or longer.

12. Timetable and Construction Schedule

The construction schedule is included on the Grading and Erosion Control Plan, Exhibit #3. All erosion control measures will be installed prior to land disturbance.

13. Copy of Permits or Approvals by Other Agencies

A shoreland zoning permit will be submitted to County Zoning.

14. Itemized Estimated Cost for All Elements of the Erosion Control Plan

The itemized estimated cost, including labor, for installation of all elements of the erosion control plan is included on Page 5 of this report. If the estimated cost of the stormwater and erosion control measures is over \$5,000, financial surety will be provided upon approval of this report.

Shoreland Mitigation Application Checklist

For Office Use Only

Permit Number: _____

Associated Permits: _____

Project Name: 2013 Skyline Drive

Shoreland Mitigation- Application Materials	X	Location of Information: Page Number or Attachment
1. Narrative describing the proposed project	✓	See Page 1
2. Complete site plan and specifications *	✓	Sheet C-2
3. Map of drainage areas for each watershed (show assumed time of concentration flow path)	✓	Sheet C-2
4. Stormwater management plan meeting performance standards set forth in s. 11.12(1)(b) (include methodology and calculations for meeting performance standards below)	✓	Sheet C-2
5. Vegetative buffer plan meeting performance standards set forth in s. 11.12(2)(b) *		See Page 11
6. Engineered designs for all structural management practices (reference relevant technical standard if appropriate)	✓	Exhibit #5
7. Identification of the entity responsible for long-term maintenance of all stormwater management and/or vegetative buffer practices	✓	Appendix C
8. Draft maintenance agreement, maintenance plan and schedule for all permanent stormwater management and/or vegetative buffer practices	✓	Appendix C
9. Timetable and construction schedule	✓	Sheet C-2
10. Itemized cost estimate for stormwater and vegetative buffer plan implementation	✓	See Page 5
11. Financial responsibility (financial security instrument required if cost estimate exceeds \$5000)		See Page 12
12. Copies of permits or approval from other agencies (WDNR, US Army Corps of Engineers, County Zoning, Town, etc.)		See Page 12
Shoreland Mitigation - Performance Standards	X	Location of Information: Page Number or Attachment
13. Trap the 20-micron particle (40% reduction in TSS) for the 1-year 24-hour storm event		See Page 12
14. Infiltrate 75% of the predevelopment infiltration volume on an average annual basis		See Page 12
15. Preserve or establish a vegetated buffer in accordance with technical standards and specifications described in NRCS Conservation Practice 643a "Shoreland Restoration" and Wisconsin Biology Technical Note 1		See Page 12

* See detailed requirements on next page

DANE COUNTY SHORELAND MITIGATION APPLICATION CHECKLIST COMMENTS

The following comments supplement the Dane County Shoreland Mitigation Application Checklist on page 10. Each comment heading relates to an item on the Checklist.

1. Description of How the Site Is To Be Developed
See the report introduction on page 1 and the construction schedule on the Grading and Erosion Control Plan, Exhibit #3.
2. Site Plan
The plans and specifications are shown on Exhibit #3.
3. Map of Drainage Areas for Each Watershed
The proposed drainage area of the underground rock trench is shown on the Grading and Erosion Control Plan, Exhibit #3.
4. Stormwater Management Plan
The underground rock trench is shown on Exhibit #3.
5. Vegetative Buffer Plan
A vegetative buffer is not required for this project because the post-development impervious area will be less than the pre-development impervious area and there are no structures proposed within the lakeside setback.
6. Engineered Designs for Structural Management Practices
Design calculations are shown on the Rational Method Worksheet, Exhibit #5.
7. Entity Responsible for Long-Term Maintenance
The property owner is responsible for long-term maintenance of the stormwater facilities and practices. The Draft Maintenance Agreement is included as Appendix C.
8. Maintenance Plan and Schedule for Stormwater & Vegetative Buffer Practices
The Draft Maintenance Agreement is included as Appendix C.
9. Timetable and Construction Schedule
The construction schedule is included on the Grading and Erosion Control Plan, Exhibit #3. All erosion control measures will be installed prior to land disturbance.
10. Itemized Cost Estimate for the Stormwater and Vegetative Buffer Plan
The itemized estimated cost for installation of all elements of the stormwater plan can be viewed on Page 5 of this report.
11. Financial Responsibility
The itemized estimated cost, including labor, for installation of all elements of the erosion control plan is included on Page 5 of this report. If the estimated cost of the stormwater and erosion control measures is over \$5,000, financial surety will be provided upon approval of this report.

12. Copy of Permits or Approvals by Other Agencies

A shoreland zoning permit will be submitted to County Zoning.

13. Trap the 20-micron particle (40% reduction in TSS) for the 1-Year, 24-Hour Storm Event

Sediment Control is not required because the post-development impervious area will be less than the pre-development impervious area and there are no structures proposed within the lake side setback.

14. Infiltrate 75% of Predevelopment Infiltration Volume

An underground rock trench will provide 100 percent infiltration of the proposed garage roof (576 sqft), so this area may be subtracted from the proposed impervious area for the site. The Infiltration Calculations are included in Appendix A.

The reduction in the impervious area means that the post-development area will be less than or equal to the pre-development area. Therefore, 75% site infiltration is not required.

15. Preserve or Establish Vegetative Buffer

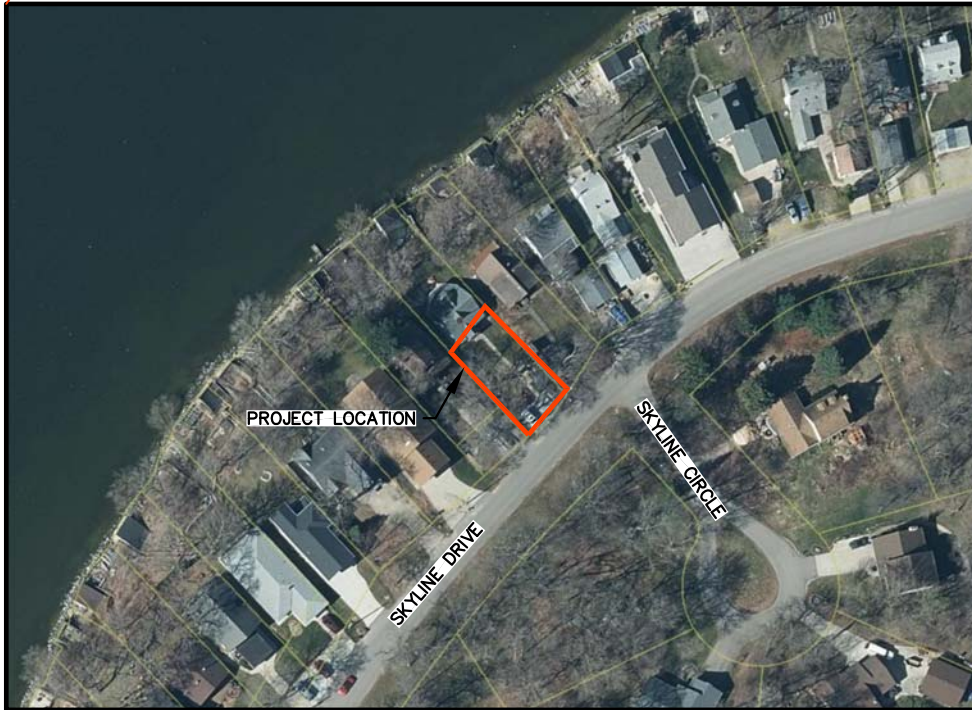
A vegetative buffer is not required for this project because the post-development impervious area will be less than the pre-development impervious area and there are no structures proposed within the lakeside setback.

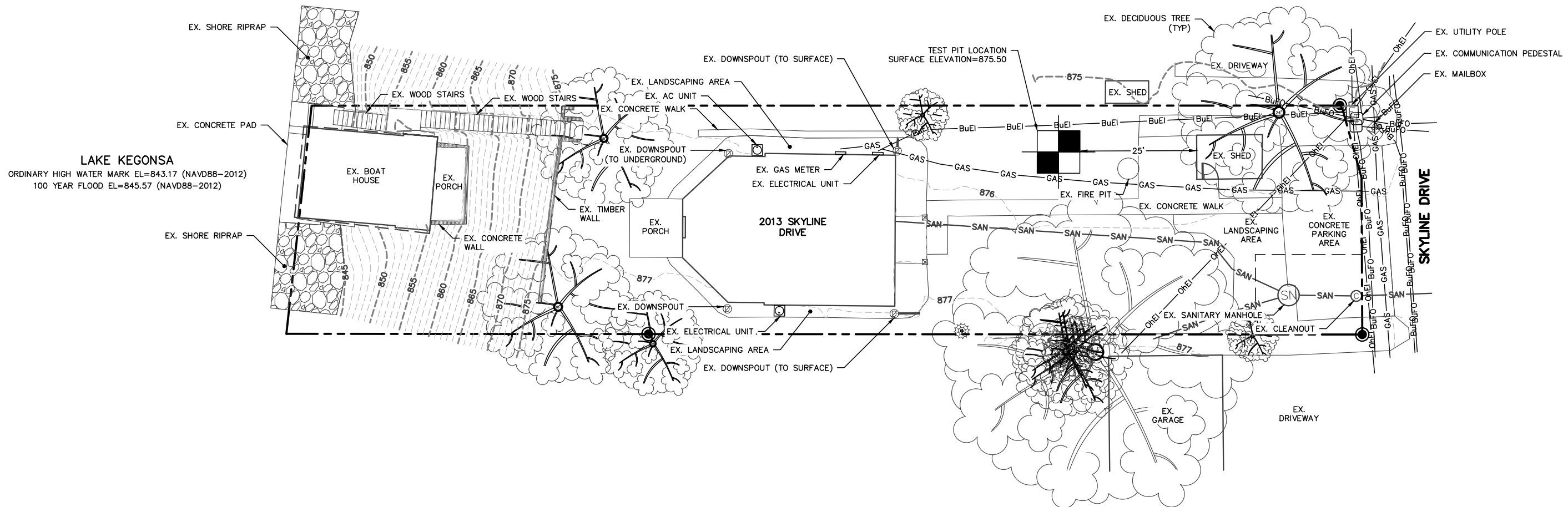
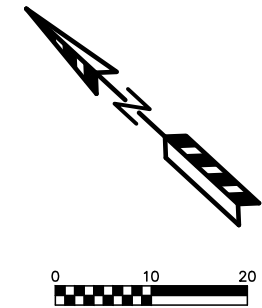
EXHIBITS

LOCATION MAP

EXHIBIT #1

QUAM ENGINEERING, LLC 4604 Siggelkow Road, Suite A, McFarland, WI 53558 (608) 838-7750





LAKE KEGONSA
 ORDINARY HIGH WATER MARK EL=843.17 (NAVD88-2012)
 100 YEAR FLOOD EL=845.57 (NAVD88-2012)

EXISTING UTILITY NOTES:
 EXISTING UTILITIES SHOWN HEREON WERE REQUESTED THROUGH DIGGERS HOTLINE WITH TICKET #20220802350 AND WERE MARKED BY OTHERS. UNDERGROUND UTILITY MARKINGS WERE COLLECTED DURING THE TOPOGRAPHIC COLLECTION PERFORMED FEBRUARY 21, 2022.

PROPERTY BOUNDARY DISCLAIMER
 PROPERTY LINES SHOWN ARE BASED ON ALTA/ACSM LAND TITLE SURVEY OF THE PROPERTY BY HASSE SURVEYING DATED SEPTEMBER 3, 2012 WHICH HAVE BEEN ROTATED TO FIT MONUMENTS FOUND DURING THE FIELD SURVEY.

PROPERTY BOUNDARY INFORMATION SHOWN DOES NOT REPRESENT A PROFESSIONAL PROPERTY BOUNDARY SURVEY MEETING CHAPTER A-E 7 OF WISCONSIN ADMINISTRATIVE CODE.

NO LIABILITY (EITHER EXPRESSED OR IMPLIED) FOR THE ACCURACY OF THE PROPERTY BOUNDARY DELINEATED HEREIN IS ASSUMED BY QUAM ENGINEERING, LLC.

EXISTING SITE INFORMATION

EX. BOATHOUSE	418 SQFT
EX. BOATHOUSE PORCH	97 SQFT
EX. BOATHOUSE STAIRS/STOOP	168 SQFT
EX. REAR WALLS	28 SQFT
EX. REAR PORCH	110 SQFT
EX. HOUSE	1,047 SQFT
EX. NORTH WALK WAY	51 SQFT
EX. FRONT STOOP	74 SQFT
EX. FRONT WALK	345 SQFT
EX. PARKING AREA	459 SQFT
EX. SHED	102 SQFT
TOTAL EX. IMPERVIOUS	2,899 SQFT
TOTAL LOT AREA TO OHWM	8,565 SQFT
PERCENT EX. IMPERVIOUS	33.8 %

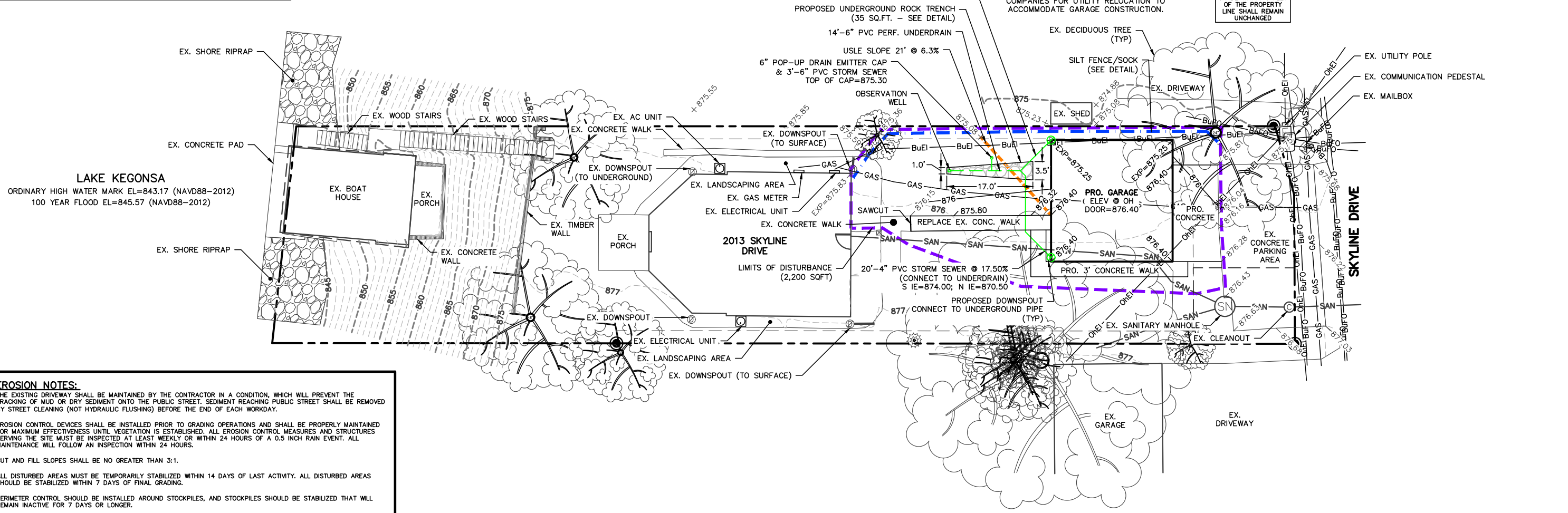
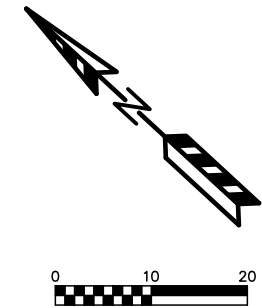
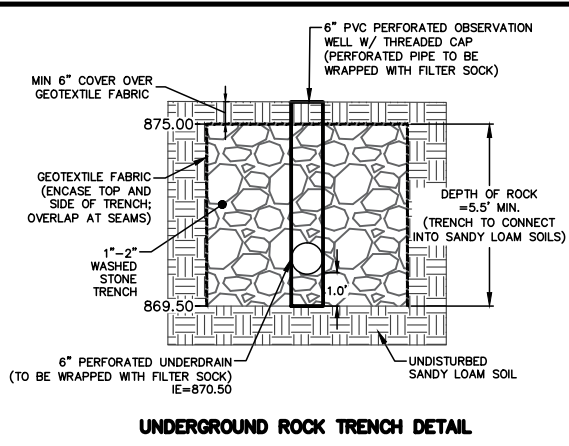
LEGEND FOR COMMON LINES:

--- 876 ---	EXISTING MINOR CONTOUR
--- 875 ---	EXISTING MAJOR CONTOUR
---	PROPERTY LINE
- - - - -	EASEMENT LINE
--- SAN ---	EXISTING BURIED SANITARY SEWER/LATERAL
--- GAS ---	EXISTING BURIED GAS LINE
--- BuFO ---	EXISTING BURIED FIBER OPTIC LINE
--- BuEI ---	EXISTING BURIED ELECTRIC LINE
--- OhEI ---	EXISTING OVERHEAD ELECTRIC LINE

2013 SKYLINE DRIVE - PLEASANT SPRINGS
 EXISTING SITE PLAN AND TEST PIT MAP

SHEET C-1
 DATED: APRIL 22, 2022

QUAM ENGINEERING, LLC
 Residential and Commercial Site Design Consultants
 www.quamengineering.com
 4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558
 Phone (608) 838-7750; Fax (608) 838-7752



EROSION NOTES:
THE EXISTING DRIVEWAY SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO THE PUBLIC STREET. SEDIMENT REACHING PUBLIC STREET SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.

ALL DISTURBED AREAS MUST BE TEMPORARILY STABILIZED WITHIN 14 DAYS OF LAST ACTIVITY. ALL DISTURBED AREAS SHOULD BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.

PERIMETER CONTROL SHOULD BE INSTALLED AROUND STOCKPILES, AND STOCKPILES SHOULD BE STABILIZED THAT WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER.

EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

TIME SCHEDULE:

JUNE 1, 2022	INSTALL INITIAL EROSION CONTROL DEVICES.
JUNE 1 - DECEMBER 1, 2022	CONSTRUCT DRIVEWAY CONNECTION, GARAGE, AND ROCK TRENCH.
AUGUST 1, 2022	APPLY MULCH, EROSION MAT, TARP, OR OTHER COVER TO PEROUS, DISTURBED AREAS THAT HAVE NOT BEEN RESTORED. (PER DNR TECH STANDARD 1058)
DECEMBER 1, 2022	RESTORE ALL PEROUS DISTURBED AREA.

RESTORATION NOTES:
RESTORATION SHALL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL.

ALL PEROUS DISTURBED AREAS SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, SEED, AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. SEED MIXTURE 40 SHALL BE USED ON ALL DISTURBED AREAS. ALL SEED MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 630 OF D.O.T. SPECIFICATIONS. AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX.

ALL PEROUS DISTURBED AREAS SHALL RECEIVE FERTILIZER. FERTILIZER SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 8%; POTASH, NOT LESS THAN 8%. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. SEED MIXTURES SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. MULCH SHALL CONSIST OF HAY OR STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ACRE.

SEEDING FROM SEPTEMBER 16 THROUGH NOVEMBER 1 SHOULD BE AVOIDED TO PREVENT FREEZING OF NEW GROWTH. DORMANT SEEDING SHOULD BE COMPLETED AFTER NOVEMBER 1. DISTURBED AREA SHALL HAVE EROSION MATTING APPLIED BEFORE DORMANT SEEDING. DORMANT SEEDING SHALL NOT BE APPLIED ON TOP OF SNOW. IF DORMANT SEEDING DOES NOT RESULT IN AT LEAST 70% COVER BY MAY 15, ADDITIONAL SEEDING SHALL BE REQUIRED.

OWNER:
JOHN & LAURA KUNDERT
2013 SKYLINE DR
STOUGHTON WI 53589

ENGINEER:
QUAM ENGINEERING, LLC
ATTN: AARON FALKOSKY
4604 SIGGELKOW ROAD, SUITE A
MCFARLAND, WI 53558

EXISTING UTILITY NOTES:
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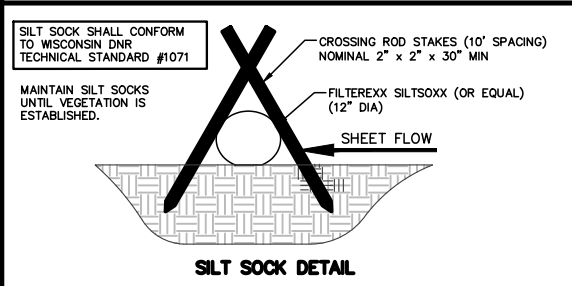
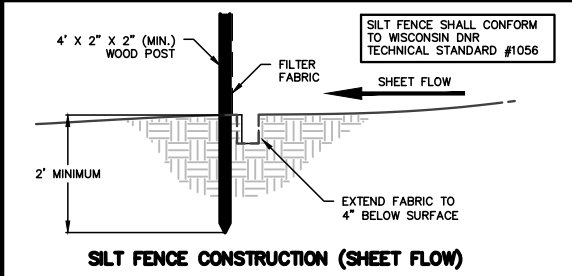
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TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

TDD(FOR THE HEARING IMPAIRED)(800)542-2289

WS. STATUTE 182.0175 (1974)
REQUIRES MIN. OF 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE



PROPOSED SITE INFORMATION

EX. BOATHOUSE	418 SQFT
EX. BOATHOUSE PORCH	97 SQFT
EX. BOATHOUSE STAIRS/STOOP	168 SQFT
EX. REAR WALLS	28 SQFT
EX. REAR PORCH	110 SQFT
EX. HOUSE	1,047 SQFT
EX. NORTH WALK WAY	51 SQFT
EX. FRONT STOOP	74 SQFT
EX. FRONT WALK REMAINING/REPLACED	105 SQFT
EX. PARKING AREA	459 SQFT
PRO. GARAGE*	576 SQFT
PRO. CONCRETE DRIVE CONNECTION	174 SQFT
PRO. CONCRETE WALK	112 SQFT
TOTAL PRO. IMPERVIOUS WITHOUT MIT	3,419 SQFT
*AREA WITH 100% INFILTRATION	576 SQFT
TOTAL PRO. IMPERVIOUS WITH MIT	2,843 SQFT
TOTAL LOT AREA TO OHWM	8,565 SQFT
PERCENT PRO. IMPERVIOUS WITH MIT	33.2 %

LEGEND FOR COMMON LINES:

---	876	EXISTING MINOR CONTOUR
---	875	EXISTING MAJOR CONTOUR
---	876	PROPOSED MINOR CONTOUR
---		PROPERTY LINE
---		EASEMENT LINE
---	SAN	EXISTING BURIED SANITARY SEWER/LATERAL
---	GAS	EXISTING BURIED GAS LINE
---	BuFO	EXISTING BURIED FIBER OPTIC LINE
---	BuEI	EXISTING BURIED ELECTRIC LINE
---	OhEI	EXISTING OVERHEAD ELECTRIC LINE
---		PROPOSED SILT FENCE/SOCK (SEE DETAIL)
---		PROPOSED LIMITS OF DISTURBANCE
---		UNIVERSAL SOIL LOSS SLOPE LINE

2013 SKYLINE DRIVE - PLEASANT SPRINGS
GRADING & EROSION CONTROL PLAN

SHEET C-2
DATED: MAY 19, 2022

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

www.quamengineering.com

4604 Siggelkow Road, Suite A - McFarland, Wisconsin 53558
Phone (608) 838-7750; Fax (608) 838-7752



Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)



YEAR 1

Developer: John and Laura Kundert

Project: 2013 Skyline Drive - Town of Pleasant Springs

Date: 04/22/22

County: Dane

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	06/01/22	08/01/22	43.0%	150	Silt Loam	0.43	6.3%	21	0.33	1.00	9.1	0.754	Silt Fence	4.1
Mulch or Erosion Mat	08/01/22	12/01/22	36.0%	150	Silt Loam	0.43	6.3%	21	0.33	0.20	1.5	0.754	Silt Fence	0.7
Seed with Mulch or Er	12/01/22	05/15/23	15.0%	150	Silt Loam	0.43	6.3%	21	0.33	0.10	0.3	0.754	Silt Fence	0.1
End	05/15/23	----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
		----	----	----	-----	----	----	----	----	-----	----	0.000		0.0
TOTAL											11.0		TOTAL	5.0
													% Reduction Required	NONE

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.
 The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
 For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/1-5/15 and 8/7-8/29 Turf, introduced grasses and legumes
 Thaw-6/30 Native Grasses, forbs, and legumes

Designed By:	MAF
Date	4/22/2022

Rational Method Worksheet - Storm Sewer Sizing

PROJECT: 2013 Skyline Drive

DATE: 4/22/2022

Computed by: MAF

Checked by: AFF

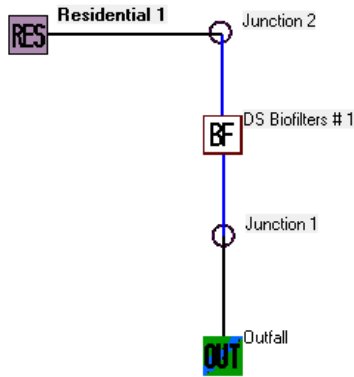
LOCATION		BASIN		RAINFALL - RUNOFF					SEWER			
Upstream Structure	Downstream Structure	Runoff Coefficient <small>C (C)</small>	Area (acres) <small>A</small>	Design Storm (Yr)	Rain Intensity <small>(in/hr)</small> <small>I</small>	Direct Runoff (cfs) <small>Q=C*I*A</small>	Other Runoff (cfs)	Design Runoff (cfs)	Sewer Size (in)	Min Slope of Sewer <small>(%)</small>	Manning's Number <small>n</small>	Capacity Flowing Full (cfs)
N Downspout	Rock Trench	0.95	0.01	100	10.92	0.10	0.00	0.10	4	0.30%	0.010	0.14
W Downspout	Rock Trench	0.95	0.01	100	10.92	0.10	0.00	0.10	4	0.30%	0.010	0.14
$C_{100}=0.95$; Impervious from FDM Procedure 13-10-5, Figure 2 I_{100} = rainfall intensity in Dane County for a time of concentration of 5 minutes from FDM Procedure 13-10, Attachment 5.4 Capacity Flowing Full was determined using Manning's Equation												

APPENDIX A

INFILTRATION CALCULATIONS

INFILTRATION CALCULATIONS

The following data calculated using WinSLAMM indicates that the proposed bio-retention device will infiltrate at least 100% of the runoff volume from the garage, so the added impervious area may be subtracted from the proposed impervious area for the site. The drainage area contributing to the underground rock trench are shown on Exhibit #3. See the WINSLAMM calculations below for impervious area runoff infiltration.



Land Use:					
Residential 1					
Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
	Roofs	0.013			
1	Net new impervious	0.013	Entered	--	--
	Parking	0.000			
	Driveways/Sidewalks	0.000			
	Streets	0.000			
	Landscaped Areas	0.000			
	Other Areas	0.000			

Runoff Volume:

Residential: Residential 1 Areas - Runoff Volume (cu. ft)					
Summary for All Events					
	Rain Total (in.)	Land Use Totals	Net new impervious	Rv	Total Losses (in.)
Minimum:	0.00	0	0	0.00	0.00
Maximum:	2.59	121	121	0.99	0.03
Average:	0.26	11	11	0.94	0.03
Total:	28.81	1246	1245		2.37

Site Description:											
Col. #:	2	11	12	13	14	15	18	19	27	28	29
Control Practice No.	Control Practice Type	Flow Weighted Effluent Conc (mg/L)	Percent Conc. Reduction	Influent Median Part. Size (microns)	Effluent Median Part. Size (microns)	Notes	Maximum Stage (ft)	Hydraulic Volume Out (cf)	Maximum Surface Ponding Time (hrs)	Maximum Subsurface Ponding Time (hrs)	Volume Infiltrated (cf)
1	Biofilter	37.00	0.000	7.80	7.80	No Biofilter Overflows	5.53	1111	1.2	45.09	1592.08

INFILTRATION CALCULATIONS

Underground Rock Trench:

Biofiltration Control Device

Drainage System Control Practice

Device Properties	Biofilter Number 1
Top Area (sf)	35
Bottom Area (sf)	35
Total Depth (ft)	5.55
Typical Width (ft) (Cost est. only)	10.00
Native Soil Infiltration Rate (in/hr)	0.500
Native Soil Infiltration Rate COV	N/A
Infil. Rate Fraction-Bottom (0.001-1)	1.000
Infil. Rate Fraction-Sides (0.001-1)	0.010
Rock Filled Depth (ft)	5.50
Rock Fill Porosity (0-1)	0.33
Engineered Media Type	Media Data
Engineered Media Infiltration Rate	0.00
Engineered Media Infiltration Rate COV	N/A
Engineered Media Depth (ft)	0.00
Engineered Media Porosity (0-1)	0.00
Percent solids reduction due to Engineered Media (0-100)	N/A
Inflow Hydrograph Peak to Average Flow Ratio	3.80
Number of Devices in Source Area or Upstream Drainage System	1

Activate Pipe or Box Storage Pipe Box

Diameter (ft) _____
 Length (ft) _____
 Within Biofilter (check if Yes)
 Perforated (check if Yes)
 Bottom Elevation (ft above datum) _____
 Discharge Orifice Diameter (ft) _____

Select Native Soil Infiltration Rate

<input type="radio"/> Sand - 8 in/hr	<input type="radio"/> Clay loam - 0.1 in/hr
<input type="radio"/> Loamy sand - 2.5 in/hr	<input type="radio"/> Silty clay loam - 0.05 in/hr
<input type="radio"/> Sandy loam - 1.0 in/hr	<input type="radio"/> Sandy clay - 0.05 in/hr
<input type="radio"/> Loam - 0.5 in/hr	<input type="radio"/> Silty clay - 0.04 in/hr
<input type="radio"/> Silt loam - 0.3 in/hr	<input type="radio"/> Clay - 0.02 in/hr
<input type="radio"/> Sandy silt loam - 0.2 in/hr	<input type="radio"/> Rain Barrel/Cistern - 0.00 in/hr

Use Random Number Generation to Account for Infiltration Rate Uncertainty

Other Outlet

Stage Number	Stage (ft)	Other Outflow Rate (cfs)
1		
2		
3		
4		
5		

Evaporation

Month	Evapotranspiration (in/day)	Evaporation (in/day)
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		

Plant Types

Plant type	1	2	3	4
Fraction of biofilter that is vegetated				
Root depth (ft)				
ET Crop Adjustment Factor				

Biofilter Geometry Schematic

Press 'F1' for Help

Control Practice #: 1 CP Index #: 1

Rock Trench Detail Datum: 869.50

WinSLAMM Input Data:

Data file name: Q:\Projects\JK-19-22_AF\Shoreland Mitigation\Infiltration.mdb

WinSLAMM Version 10.4.0

Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN

Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx

Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx

Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std

Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std

Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std

Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False

Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx

Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv

Cost Data file name:

If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations

Seed for random number generator: -42

Study period starting date: 01/01/81 Study period ending date: 12/31/81

Start of Winter Season: 12/02 End of Winter Season: 03/12

Date: 04-21-2022 Time: 12:05:59

Site information:

Shoreland Mitigation Report

JK-19-22

4/22/2022

INFILTRATION CALCULATIONS

LU# 1 - Residential: Residential 1 Total area (ac): 0.013

1 - Net new impervious: 0.013 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1

1. Top area (square feet) = 35
2. Bottom area (square feet) = 35
3. Depth (ft): 5.55
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.01
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 5.5
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 0
12. Engineered soil depth (ft) = 0
13. Engineered soil porosity = 0
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 5.5
2. Weir crest width (ft): 1
3. Height of datum to bottom of weir opening: 5.5

APPENDIX B

SOIL INFORMATION

Hydrologic Soil Group—Dane County, Wisconsin



Map Scale: 1:399 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dane County, Wisconsin
 Survey Area Data: Version 20, Sep 7, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2020—Aug 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DnB	Dodge silt loam, 2 to 6 percent slopes	C	0.2	100.0%
Totals for Area of Interest			0.2	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX C

DRAFT MAINTENANCE AGREEMENT

AGREEMENT FOR MAINTENANCE OF STORMWATER MANAGEMENT MEASURES

RECITALS:

- A. John and Laura Kundert is the owner of property in the Town of Pleasant Springs, County of Dane, State of Wisconsin, more particularly described on Exhibit A attached hereto (“Property”).
- B. The County requires Owner to record this Agreement regarding maintenance of stormwater management measures to be located on the Property. Owner agrees to maintain the stormwater management measures and to grant to the County the rights set forth below.

NOW, THEREFORE, in consideration of the agreement herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the owner agrees as follows:

- 1. Maintenance. Owner and its successors and assigns shall be responsible to repair and maintain the stormwater management measures located on the Property in good condition and in working order and such that the measures comply with approved plans on file with Dane County. Said maintenance shall be at the Owner’s sole cost and expense. Owner will conduct such maintenance or repair work in accordance with all applicable laws, codes, regulations, and similar requirements. Specific maintenance tasks are more particularly described on Exhibit A.
- 2. Easement to County. If Owner fails to maintain the stormwater management measures as required in Section 1, then County shall have the right, after providing Owner with written notice of the maintenance issue (“Maintenance Notice”) and thirty (30) days to comply with the County’s maintenance request, to enter the Property in order to conduct the maintenance specified in the Maintenance Notice. County will conduct such maintenance work in accordance with all applicable laws, codes, regulations, and similar requirements and will not unreasonably interfere with Owner’s use of the Property. All costs and expenses incurred by the County in conducting such maintenance may be charged to the owner of the Property by placing the amount on the tax roll for the Property as a special assessment in accordance with Section 66.0703, Wis. Stats. and applicable portions of the Dane County Ordinances.
- 3. Term/Termination. The term of this Agreement shall commence on the date that this Agreement is recorded with the Register of Deeds Office for Dane County, Wisconsin, and except as otherwise herein specifically provided, shall continue in perpetuity. Notwithstanding the foregoing, this Agreement may be terminated by recording with the Register of Deeds Office for Dane County, Wisconsin, a written instrument of termination signed by the County and all of the then-owners of the Property.
- 4. Miscellaneous.
 - (a) Notices. Any notice, request or demand required or permitted under this Agreement shall be in writing and shall be deemed given when personally served or three (3) days after the same has been deposited with the United States Post Office, registered or certified mail, return receipt requested, postage prepaid and addressed as follows:

If to Owner: John and Laura Kundert
2013 Skyline Drive
Stoughton, WI 53589

If to County: Dane County Land & Water Resources Department
Water Resource Engineering Division
5201 Fen Oak Drive, Room 208
Madison, WI 53718

Any party may change its address for the receipt of notice by written notice to the other.

- (b) Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Wisconsin.

This space is reserved for recording data

Return to:

Dane County Land & Water Resources
5201 Fen Oak Dr., Rm. 208
Madison, Wisconsin 53718

Parcel Number(s):

046/0611-292-4033-6

- (c) Amendments or Further Agreements to be in Writing. This Agreement may not be modified in whole or in part unless such agreement is in writing and signed by all parties bound hereby.
- (d) Covenants Running with the Land. All of the easements, restrictions, covenants and agreements set forth in this Agreement are intended to be and shall be construed as covenants running with the land, binding upon, inuring to the benefit of, and enforceable by the parties hereto and their respective successors and assigns.
- (e) Partial Invalidity. If any provisions, or portions thereof, of this Agreement or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such provision, or portion thereof, to any other persons or circumstances shall not be affected thereby and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

X _____
 Water Resource Engineering Division Staff Signature

 Print or type name

State of WI, County of _____; Subscribed and sworn before me on _____ by the above named person(s).

 Notary Public

Print or type name: _____

My Commission Expires: _____

X _____
 Owner Signature

 Print or type name

State of WI, County of _____; Subscribed and sworn before me on _____ by the above named person(s).

 Notary Public

Print or type name: _____

My Commission Expires: _____

DRAFTED BY: Quam Engineering, LLC
 Mark Fendry, EIT

EXHIBIT A

Legal Description of Property:

Kegonsa Grove Prt Lot 3, Town of Pleasant Springs, Dane County, Wisconsin

PN #: 046/0611-292-4033-6

Maintenance Provisions:

General:

- Repairs must restore the components to the specifications of the approved plan.

Storm Sewer:

- Visual inspection of components shall be performed annually and debris removed.
- Repair inlet/outlet areas that are damaged or show signs of erosion.

Underground Rock Trench

- The Owner shall install and maintain a rock filled trench using 1 to 2 inch diameter washed stone as shown on the approved detail.
- Geo-textile fabric shall be placed around sides and top of the trench to prevent sediment filling the voids of the trench.
- The pop-up drain emitter cap shall be cleaned of accumulated material or debris immediately when discovered, or at least twice each year.
- Water depth in the observation pipe shall be measured and recorded twice per year at 72 to 80 hours after a rainfall event of 0.5 inches or more during a 24-hour period. Water depth in the observation pipe existing 72 hours after any storm event indicates additional monitoring may be needed to determine if maintenance or corrective action is necessary. The infiltration trench will be considered to be failing if observation of water depth shows that less than 90% of the trench's storage volume is available 72 hours after the last storm event.