Engineers • Consultants • Inspectors

STORM WATER MANAGEMENT REVIEW PLAN

For

Drainage Issues

Town of Holland
La Crosse County, Wisconsin

November 2019

Prepared by:
GENERAL ENGINEERING COMPANY
916 Silver Lake Drive
Portage, WI 53901
Phone: (608) 742-2169
GEC No. 2-0619-279

Owner:
Town of Holland
W7937 County Road MH
Holmen, WI 54636

STORM WATER MANAGEMENT REVIEW PLAN
TABLE OF CONTENTS

TOWN OF HOLLAND
STORM WATER MANAGEMENT REVIEW PLAN

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TABLE OF CONTENTS

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APPENDICES:

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Town of Holland
La Crosse County, Wisconsin

1.0 BACKGROUND AND GENERAL INFORMATION

1.1 Description of Project Activity

The purpose of this report is to provide the framework for the storm water management review plan for three areas of the Town. The areas of interest include Bittersweet Road, Van Dunk Place, and Erann Court in the Town of Holland, WI.

The subject areas have been experiencing various storm water drainage issues around the property. Improvements throughout each site are necessary to alleviate the ongoing storm water flooding that occurs during spring snow melts. The proposed report will evaluate each site, and present potential solutions to improve drainage and overall conditions at the site.

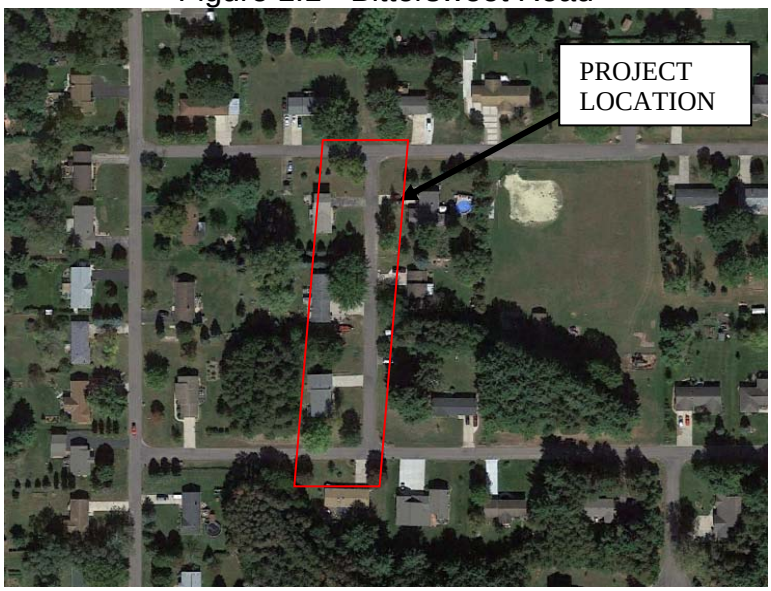
1.2 Project Location

1.2.1 Bittersweet Road

The project site is located on Bittersweet Road, a part of the Country Estates Subdivision in Section 2, T17N, R8W, in the Town of Holland, La Crosse County, Wisconsin.

Figure 1.1 shows the surrounding area with the project location outlined.

Figure 1.1 - Bittersweet Road



1.2.2 Bice Avenue and Van Dunk Place

The project site is located on Bice Avenue and Van Dunk Place, a part of the Brentwood Addition and Fieldstone Terrace Subdivision in Section 1 and Section 2, T17N, R8W, in the Town of Holland, La Crosse County, Wisconsin.

Figure 1.2 shows the surrounding area with the project location outlined.

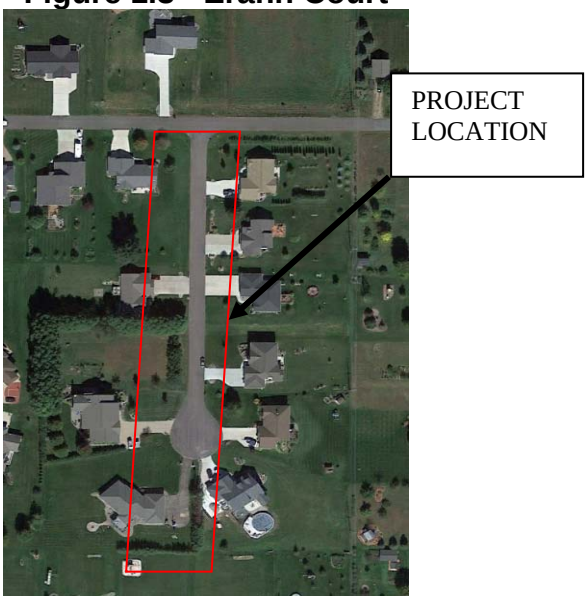
Figure 1.2 - Van Dunk Place

1.2.3 Erann Court

The project site is located on Erann Court, a part of the Brentwood Addition in Section 2, T17N, R8W, in the Town of Holland, La Crosse County, Wisconsin.

Figure 1.3 shows the surrounding area with the project location outlined.

Figure 1.3 - Erann Court



2.0 SITE EVALUATION OF PROJECT AREAS

An inspection of subject areas was performed on September 6th, 2019. During the inspection, project locations were evaluated for drainage, erosion issues, and potential solutions.

The Town of Holland provided background information regarding site history and drainage issues. Storm water in the project areas drain via overland and roadside ditch flow to the lowest point in the area. The majority of storm water runoff in the project areas collect in storm water detention ponds.

2.1.1 Bittersweet Road

Bittersweet Road area is a fully developed-residential section of the Town, and the terrain in this area is relatively flat land with a minimal natural drainage. The road is approximately 20 ft wide and the right of way in the area is 66 feet wide.

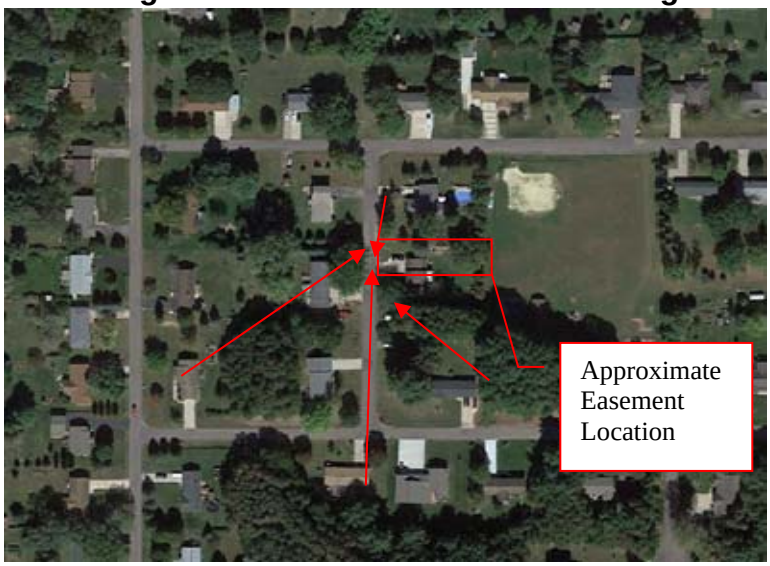
The road side ditches are minimal and sporadic. Sandy soils allow rain and snow melt water to infiltrate in most typical situations.

A 20’ wide drainage easement exists on Bittersweet Road between N6970 Bittersweet Road and N6982 Bittersweet Road. The existing drainage easement is occupied with trees, utility pedestals, fencing, and private belongings, and it doesn’t appear that the drainage is performing as intended. The apparent low spot of Bittersweet Road is right at that location. Unfortunately, the ground across the easement area slopes uphill which is preventing the site from draining.

During rain events (when the ground is fully saturated), and spring snow melts (when the ground is frozen), the runoff ponds across Bittersweet Road.

A diagram of surface water drainage can be seen below in Figure 1.4.

Figure 2.4 - Bittersweet Road Drainage



Picture 1.1 – Bittersweet Road (Looking South)

Picture 1.1 – Bittersweet Road (Looking North)

Picture 1.3 – Bittersweet Road Drainage Easement
(Looking East from Bittersweet Road)

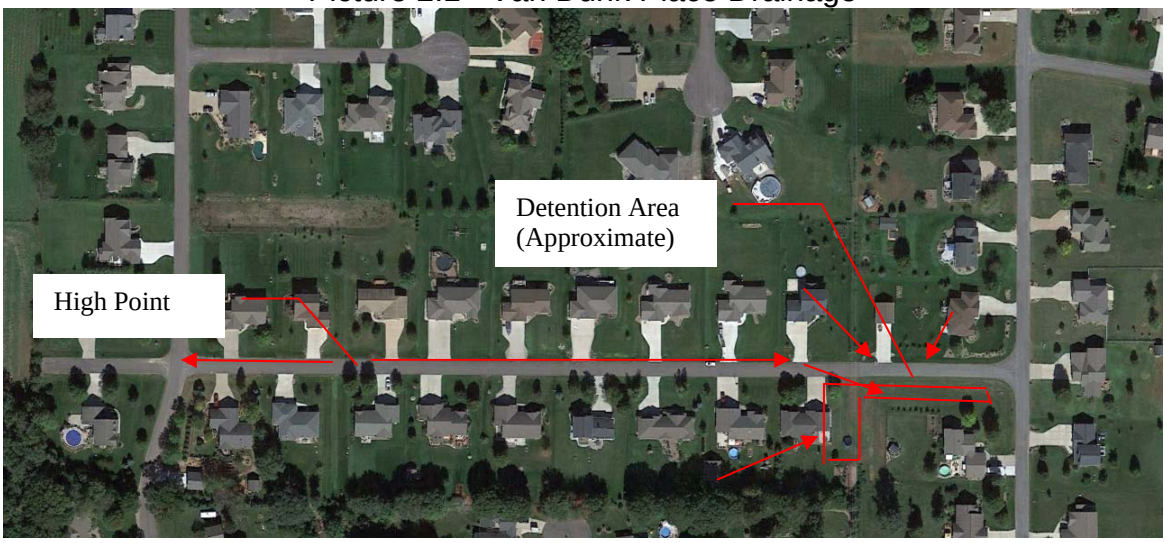
2.1.2 Bice Avenue and Van Dunk Place

The area is located in center part of Town, running west off of STH 53. The road is approximately 20 feet wide and the right of way in the area is 66 feet wide.

The existing dry pond is located at the intersection of the Bice Avenue and Van Dunk Place. During rain events, stormwater drains from the site high point near W7755 Van Dunk Place, where storm water flows via overland flow and roadside ditch to the east into the reviewed dry pond.

Photos of the existing detention pond can be seen below in Picture 2.1 through Picture 2.4.

Picture 2.1 - Van Dunk Place Drainage



Picture 2.1 –Van Dunk Place Detention Pond
(Looking East)

Picture 2.2 –Van Dunk Place Detention Pond

(Looking South East)

Picture 2.3 –Van Dunk Place Detention Pond
(Looking South)

Picture 2.4 –Van Dunk Place Detention Pond

(Looking Southwest)

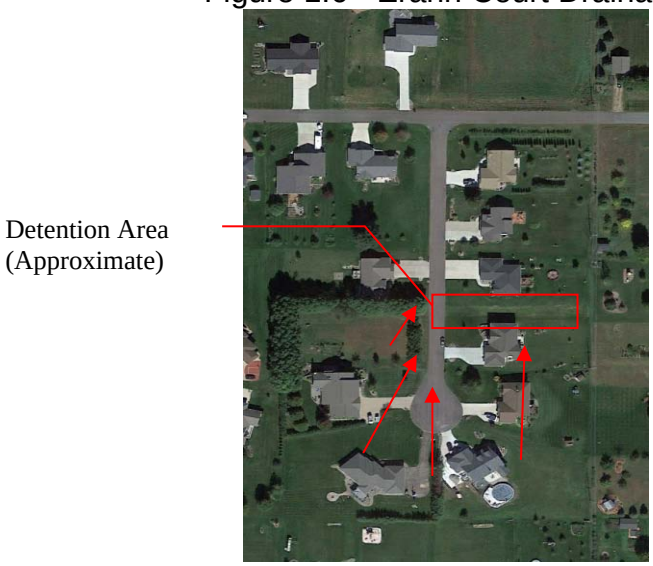
2.1.3 Erann Court

Erann Court is located north of Van Dunk Place and is part of the Bentonwood Addition. The road is approximately 20 feet wide and the right-of-way 66 feet wide. The roadway is a dead end road with a cul-de-sac bulb.

Storm water drains on Erann Court from the end of the cul-de-sec north towards Volendam Street. A portion of the storm water collects in a detention pond located between N7154 Erran Court and N7162 Erran Court.

The pond is shown below in Picture 1.6. During spring snow melts or rain events with frozen ground conditions, runoff collects in the existing detention pond mentioned above. Frozen ground conditions in such events prevents infiltration within the pond. A diagram of surface water drainage can be seen below in Figure 3.1.

Figure 1.6 - Erann Court Drainage



Picture 3.1 –Erann Court (Looking North)

Picture 3.2 –Erann Court (Looking South)

Picture 3.3 –Erann Court Detention Pond
(Looking East)

Picture 3.4 –Erann Court Detention Pond
(Looking West)

3.0 PROPOSED SOLUTIONS

Project areas should be improved to address ongoing storm water drainage issues. Solutions for each project area are described below.

3.1 Bittersweet Road

Based on my inspection, it is clear that Bittersweet Road and the surrounding area suffer from lack of proper roadside drainage. The area has minimal and insufficient drainage features such as roadside ditches and improper grading of the drainage easement.
During heavy rain events, when the ground is fully saturated and spring snow melt (when the ground is still frozen), the runoff drains onto the roadway as the road is the lowest area in this section of the Bittersweet Road.

Presented below are three different options for the Town to consider; do nothing, swale construction, and storm sewer construction.

3.1.1 Alternative 1 – Do Nothing

This alternative leaves the site drainage as-is with no modifications.

3.1.2 Alternative 2 – Swale Construction

The Alternative 2 involves, a construction of a grassed swale on the east side of Bittersweet Road beginning about 175 feet south of Meadow Way all the way to Town's park along Meadow Way. The proposed swale will convey runoff from the low portion of the Bittersweet Road to Skogen Field.

The proposed swale will have minimal to no slope and will be approximately 2-2.5 feet deep. This option will require an installation of the 15" culvert under the driveway at N6982 Bittersweet Rd as a part of this project.

The potential issue with this alternative is that the ditch may hold water for few days after significant rain event.

See Appendix B for appropriate drawings.

The cost for Alternate 2 work is approximately $30,000.

3.1.3 Alternative 3 – Storm Sewer Construction

Alternative 3 involves the installation of a storm water inlet structure with a grate at the Bittersweet Road low spot. Runoff would be conveyed to the east via 12" High Density Polyethylene (HDPE) or 12" Corrugated Metal Pipe (CMP), and discharge to Skogen Field.
There are several issues that have been identified with this Alternative and will need to be resolved before construction including existing fencing, potential utility conflicts, and personal property located within the easement.

See Appendix B for drawings.

The cost for Alternate 3 work is approximately $35,000.

3.2 Bice Avenue and Van Dunk Place

Based on my inspection, and review of the subdivision documentation, it is my belief that the existing pond appears to be undersized for the area that serves. The pond area is the lowest point of the two subdivisions without natural outfall.

The existing pond was created in 1997 as a part of the Fieldstone Terrace subdivision. At that time the pond was constructed to serve few residential properties along with un-platted farmland, and wooded area. The pond size was 15,300 sf ft.

In 2003, the un-platted land was subdivided, where the existing pond was enlarged by addition of the 5,600 sq ft of land for drainage. At same time, the pond was increased by addition of 12 residential lots and a paved road.

During heavy rain events, when the ground is fully saturated and spring snow melt (when the ground is still frozen), the runoff drains into the pond, where is stored until it is infiltrated. In some cases may not be possible or simply takes a long time.

Due to the fact that the pond is the lowest point of two subdivisions and infiltration is the only way the runoff is remove from the pond, the proposed solutions are fairly limited.

Presented below are three different options for the Town to consider; do nothing, stone trench installation, and lift station construction.

3.2.1 Alternative 1 – Do Nothing

This alternative leaves the site drainage as-is with no modifications.

3.2.2 Alternative 2 – Install Stone Infiltration Trench

Alternative 2 involves excavating existing soil located within the detention pond and installing a stone infiltration trench to provide additional storage and infiltration for runoff especially during spring snowmelts when the ground is still frozen.

The proposed stone trench will be approximately 30’ x 100’ with the average depth of 2 feet. The base of the trench should be located beneath the frost line allowing for runoff infiltration. The stone infiltration trench will be lined with a geomembrane and backfilled with approximately 12-18” of topsoil. Storm water runoff will drain to the infiltration trench via type 2 rip-rap.

See Appendix C for drawing.

The cost of this project is approximately $85,000.

3.2.3 Alternative 3 – Construct Lift Station

Alternative 3 involves installing a prefab duplex lift station near the detention pond on Van Dunk Place. The proposed station will provide additional outfall other than infiltration for the pond.

Alternative 2 is the most costly drainage solution and will require some long-term operational cost and maintenance of the lift station.

At the same time, the lift station discharge locations are very limited. Surface water doesn't exist near the project area to use as a discharge point. At this point there are two potential discharge locations US Highway 53 or Country Estate drainage way.

The Wisconsin Department of Transportation (DOT) right-of-way is heavily permitted and DOT approval to discharge to US Highway 53 right-of-way east of the project area is no guarantee.

The Country Estate drainage way may not be sufficient in size to accommodate additional flows during spring snow melts.

See Appendix C for drawings.

The cost of this solution is approximately $265,000. See Cost Estimate in Appendix C for details.

3.3 Erann Court

Based on my inspection, and review of the subdivision documentation, it is my belief that the existing pond appears to be undersized for the area that serves. The area lacks a proper roadside drainage that would reduce the amount of runoff that is flowing into the pond.

During rain events and spring snow melts the runoff drains flows across the road into pond (see picture 3.4), where is stored till infiltrated.

Presented below are three different options for the Town to consider; do nothing, stone trench installation, and lift station construction.

3.3.1 Alternative 1 – Do Nothing

This alternative leaves the site drainage as-is with no modifications.

3.3.2 Alternative 2 – Swale Construction

Alternative 2 involves the construction of a grassed swale on the west side of Erann Court beginning at the start of the Cul-de-Sec all the way to the next driveway.

The proposed swale will convey runoff collected from N7143 Erann Court and 7137 Erann Court north towards Volendam Street diverting runoff from the detention pond on the east

side of Erann Court. The proposed swale will be around 2 feet deep.

This alternative reduces runoff in the detention pond. However, runoff will collect in the detention pond from properties east of the centerline of Erann Court.

See Appendix D for drawings.

The cost of this project is approximately $20,000.

3.3.3 Alternative 3 – Install Stone Infiltration Trench

Alternative 3 involves excavating existing soil located within the detention pond and installing a stone infiltration trench to provide additional storage and infiltration for runoff especially during spring snowmelts when the ground is still frozen.

The proposed stone trench will be approximately 24'x170' with the average depth of 2 feet. The base of the trench should be located beneath the frost line allowing for runoff infiltration. The stone infiltration trench will be lined with a geomembrane and backfilled with approximately 12-18" of topsoil. Storm water runoff will drain to the infiltration trench via type 2 rip-rap.

See Appendix D for drawings.

The cost of this project is approximately $85,000.

4.0 Summary

The intent of this project is to demonstrate potential options for the Town of Holland to improve existing stormwater features at three different locations.

The research and preliminary calculations were preformed in order to assess the success of the proposed solutions in resolving drainage issues. The presented options will improve and reduce drainage issues, but it will not eliminate them. The amount of money spent on each feature improvement correlates to the amount of assurance that the Town will receive with that feature, and its capabilities of handling greater storm events.

At same time the cost of the upgrade may be too high for the Town to consider and justify.

Ultimately, it's the Town's decision how drainage will be resolved. The Town may select or choose to alter the proposed solutions.

If you have any questions regarding this, please contact me.

Yours truly,

GENERAL ENGINEERING COMPANY

Lukasz Lyzwa

Engineers • Consultants • Inspectors

APPENDIX A

Additional Information

Storm Water Management Review

Town of Holland

La Crosse County, Wisconsin

Map Scale: 1:969 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:12,000.

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: La Crosse County, Wisconsin
Survey Area Data: Version 18, Sep 14, 2019

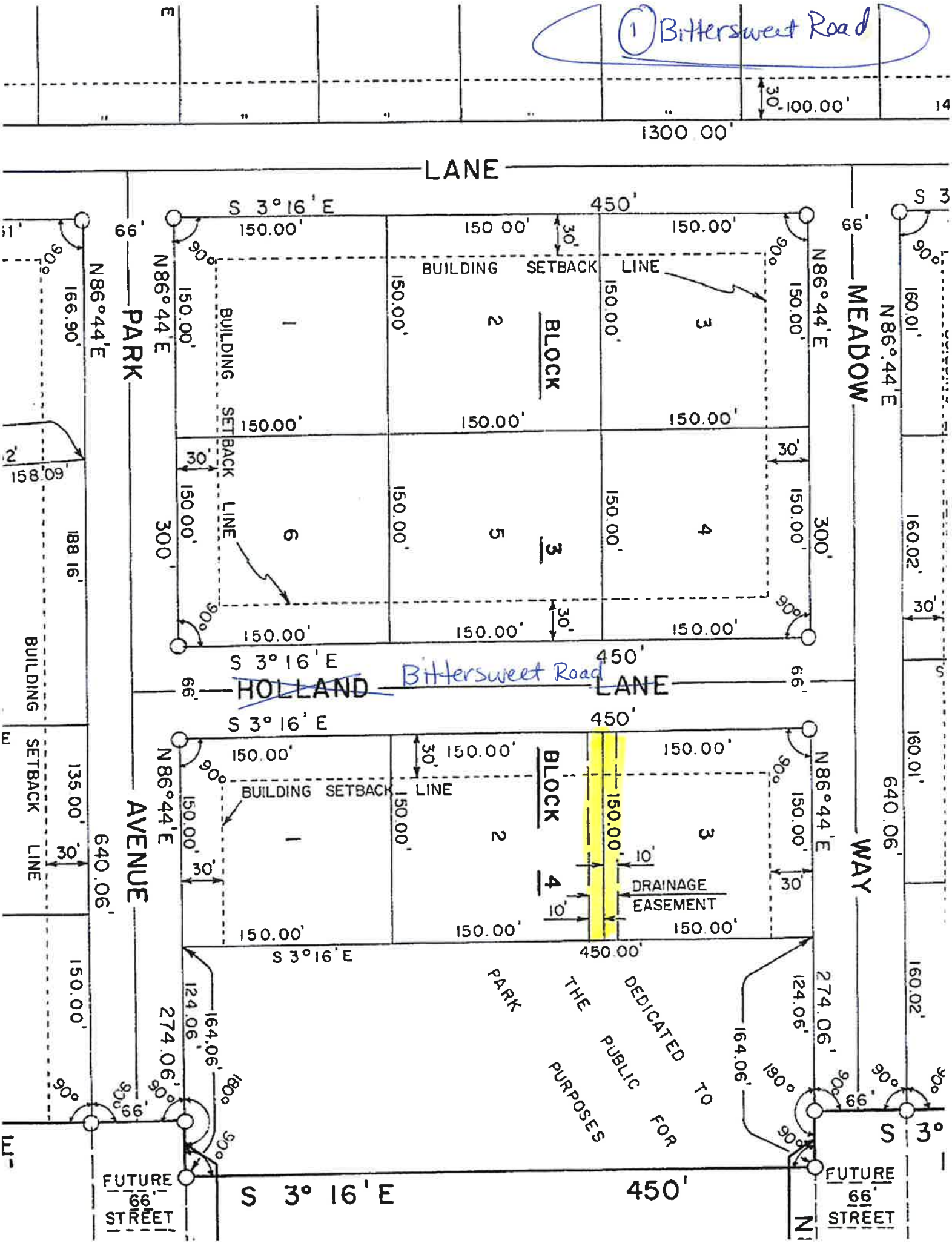
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 15, 2012—Nov 28, 2016

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
502B2	Chelsea fine sand, 2 to 6 percent slopes, moderately eroded	3.6	97.2%
502C2	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded	0.1	2.8%
Totals for Area of Interest		**3.7**	**100.0%**


(1) Bittersweet Road
LANE
S 3° 16' E
450'
150.00'
150 00'
30'
BUILDING SETBACK LINE
N86° 44' E
166.90'
PARK
66'
MEADOW
WAY
160.01'
160.02'
640.06'
158.09'
188 16'
300'
BLOCK 3
1
2
3
4
5
6
BUILDING SETBACK LINE
HOLLAND
Bittersweet Road
LANE
AVENUE
135.00'
150.00'
BLOCK 4
10'
DRAINAGE EASEMENT
274.06'
124.06'
164.06'
180°
90°
66'
FUTURE 66' STREET
PARK THE PUBLIC PURPOSES DEDICATED TO

Soil Map—La Crosse County, Wisconsin

Map Scale: 1:681 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 30 60 120 180

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

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502C2	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded	0.6	29.8%
Totals for Area of Interest		**2.1**	**100.0%**

7500

50 x 160 + (40 x 195)

Combining drainage area

FIELDSTONE TERRACE

LOCATED IN THE NW1/4 - NW1/4, SW1/4 - NW1/4, NW1/4 - SW1/4, SECTION 1, T17N, R8W, TOWN OF HOLLAND, LA CROSSE COUNTY, WISCONSIN

0 100 200 300 400 500

1" = 100'

BEARING REFERENCE - W/L NW1/4 SEC 1 ASSUMED N1°26'03"E

THIRD ADDITION — COUNTRY ESTATES — WHITETAIL STREET — VAN-DUNK PLACE — BICE AVENUE — ELIZABETH DRIVE — FIELDSTONE COURT — MATCH LINE — OLD C T H "NA" — FUTURE 66' STREET — 30' UTILITY EASEMENT — DRAINAGE EASEMENT — BUILDING SETBACK LINE — PLANTING STRIP — U S H "53" — UNPLATTED LAND

14" ALUMINUM CAP | WEST 1/4 CORNER SEC 1, T17N, R8W

BLOCK ONE — BLOCK TWO — BLOCK THREE — BLOCK FOUR — BLOCK FIVE — OUTLOT 1

● — IRON PIPE IN PLACE, SIZE AS SHOWN UNLESS OTHERWISE NOTED

○ — SET 2" X 30" IRON PIPE, 3.65 LBS/FT AT EXTERIOR & BLOCK CORNERS
SET 1" X 24" IRON PIPE, 1.13 LBS/FT AT ALL OTHER LOT CORNERS

ALL DISTANCES ARE MEASURED TO THE NEAREST HUNDREDTH OF A FOOT

UTILITY EASEMENTS

10' ALL STREET R/W

10' LOT LINES (WHERE SHOWN)

NOTE OUTLOT 1, BLOCK ONE, AND OUTLOT 1, BLOCK FIVE, ARE DEDICATED TO THE TOWN OF HOLLAND FOR DRAINAGE PURPOSES

THE 30 FOOT PLANTING STRIP IS RESERVED FOR THE PLANTING OF TREES AND SHRUBS. THE BUILDING OF ALL STRUCTURES, EXCEPTING PUBLIC OR PRIVATE UTILITY STRUCTURES HEREON IS PROHIBITED

LOCATION SKETCH
SEC 1 T17N R8W
1" = 2000

CURVE	LOT	RADIUS	CHORD BEARING	CHORD LENGTH	ARC LENGTH	CENTRAL ANGLE	TANGENT	BEARING
1-2	16	200	S70°09'29"E	126.31	128.51	36°48.56"	N88°33.57"W	N51°45.01"W
2-3	16	50	S18°15.38.5"E	38.06	61.94	70°58.43"	N81°45.01"W	S15°13.44"W
3-4	—	36'	N87°58.27"E	104.39	217.46	222°28.34"	N23°14.51"W	S15°13.44"W
	16		N1°00.34"W	40.57	41.51	42°28.34"		
	17	"	S70°02.38.5"E	81.83	91.49	93°36.10"		
	DLI	"	N27°50.23"E	65.53	70'	71°57.12"		
	18	"	N15°51.32"W	14.40	18.44	14°46.38"		
4-5	—	266'	S55°54.24"E	287.09	303.24	65°19.06"	N23°14.51"W	N88°33.57"W
	18	"	S32°33.26"E	85.06	85.44	18°37.10"		
	19	"	S32°38.12"E	99.41	100'	21°32.22"		
	20	"	S75°59.10"E	115.87	116.80	23°09.34"		
6-7	22	67	N18°41.10.5"E	16.59	16.62	12°30.15"	N1°26.03"E	N13°56.18"E
8-9	23	133	"	28.97	29.03	12°30.15"	N13°56.18"E	N1°26.03"E
10-11	—	133'	N18°41.03"W	91.49	93.40	40°16.12"	N1°26.03"E	N38°48.09"W
	25	"	N9°39.13.5"W	32.87	33.02	22°30.33"		
	26	"	S30°08.19.5"E	40.22	40.38	17°33.39"		
12-13	29	67	N18°41.03"W	46.09	47.05	40°16.12"	N38°48.09"W	N1°26.03"E
14-15	OLI	133	"	91.49	93.40	40°16.12"	N38°48.09"W	N1°26.03"E
16-17	5	67	"	46.09	47.05	40°16.12"	N38°48.09"W	N1°26.03"E
18-19	3	67	N7°41.10.5"E	14.59	14.62	12°30.15"	N1°26.03"E	N13°56.18"E
20-21	1	133	"	28.97	29.03	12°30.15"	N1°26.03"E	N13°56.18"E

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21 (1) and (2), Wis. Statts., ch. Trans 233 and ch. Comm 85 Wis. Admin. Code as provided by Sec. 236.12 (6), Wis. Statts.

Certified September 22nd, 1997

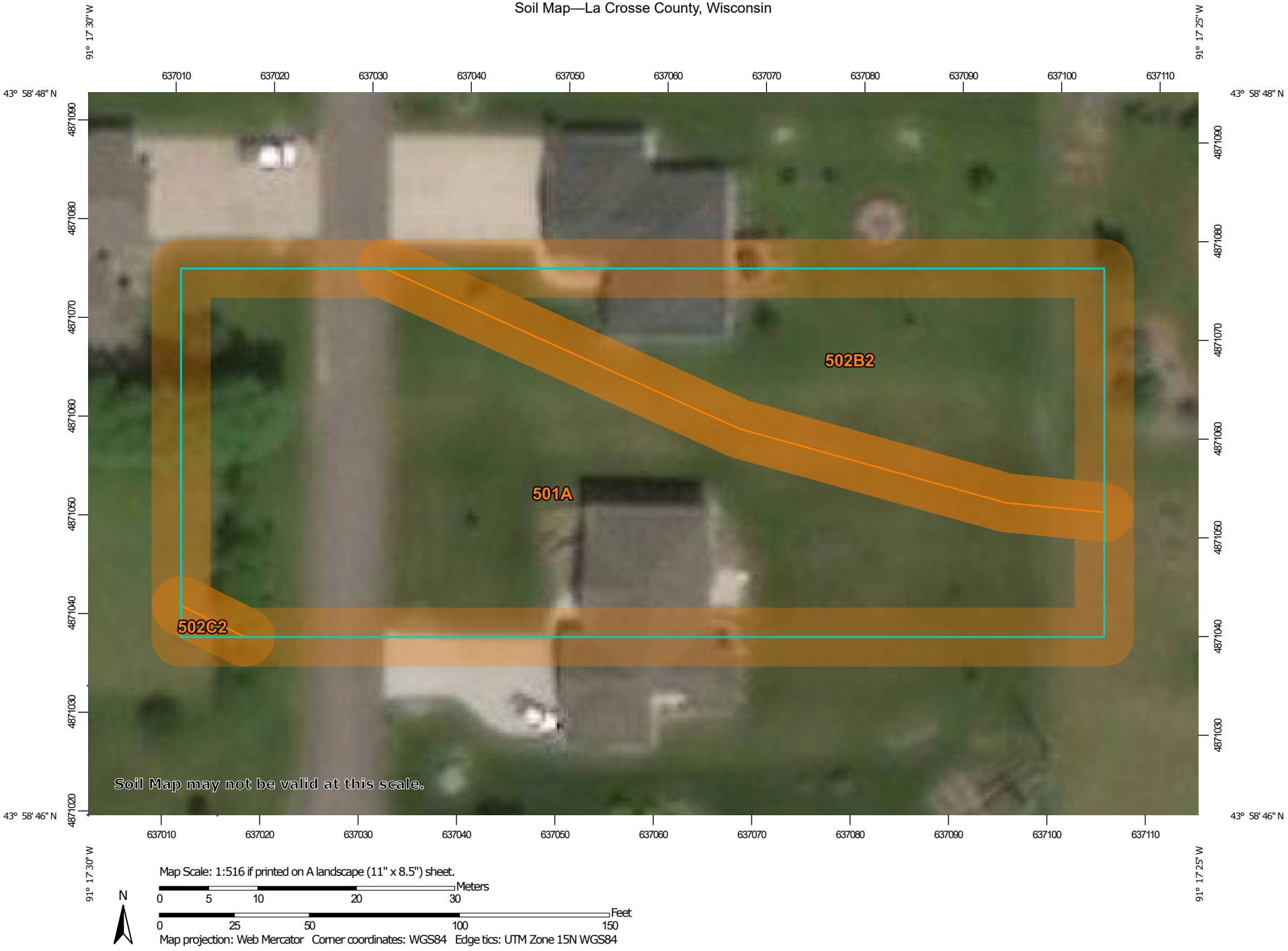
Department of Commerce

WISCONSIN — RAYMOND O. HENGEL — S-935 — LA CROSSE WIS. — LAND SURVEYOR

65 Lots

(2) Bice Avenue Area

Soil Map—La Crosse County, Wisconsin



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- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:12,000.

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: La Crosse County, Wisconsin
Survey Area Data: Version 18, Sep 14, 2019

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

Date(s) aerial images were photographed: Sep 15, 2012—Nov 28, 2016

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
501A	Finchford loamy sand, 0 to 3 percent slopes	0.6	69.0%
502B2	Chelsea fine sand, 2 to 6 percent slopes, moderately eroded	0.3	30.7%
502C2	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded	0.0	0.3%
Totals for Area of Interest		**0.9**	**100.0%**

BRENTWOOD ADDITION

(3) Brentwood

PART OF THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 2, T17N, R8W, TOWN OF HOLLAND, LA CROSSE COUNTY, WISCONSIN

SURVEYORS CERTIFICATE

I, K. DON PEDERSON, REGISTERED LAND SURVEYOR, HEREBY CERTIFY: THAT IN COMPLIANCE WITH THE PROVISIONS OF CHAPTER 236 OF THE WISCONSIN STATUTES AND SUBDIVISION REGULATIONS OF THE TOWN OF HOLLAND, AND UNDER DIRECTIONS OF THE OWNERS LISTED BELOW, I HAVE SURVEYED, DIVIDED, AND MAPPED BRENTWOOD ADDITION; THAT SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES AND THE SUBDIVISION OF THE LAND SURVEYED; THAT THIS LAND IS LOCATED IN PART OF THE SOUTHEAST ¼ OF THE NORTHEAST ¼ OF SECTION 2, T17N, R8W, TOWN OF HOLLAND, LA CROSSE COUNTY, WISCONSIN, TO-WIT:

AT THE EAST 1/4 CORNER OF SAID SECTION 2; THENCE N88°27'11"W ALONG THE QUARTER SECTION LINE, ALSO BEING THE NORTH LINE OF THIRD ADDITION TO COUNTRY ESTATES, 1313.69 FEET; THENCE N1°32'03"E 804.44 FEET; THENCE N17°25'E 850.47 FEET; THENCE S88°27'11"E 1314.26 FEET TO THE EAST LINE OF SAID SECTION 2; THENCE S1°26'03"W ALONG SAID EAST LINE, ALSO BEING THE WEST LINE OF FIELDSTONE TERRACE, 1254.90 FEET TO THE POINT OF BEGINNING.

DATED THIS 5TH DAY OF MAY, 2003.

K. DON PEDERSON RLS 884
LA CROSSE ENGINEERING & SURVEYING CO., INC.

WISCONSIN * K. DON PEDERSON S-884 LA CROSSE, WI * LAND SURVEYOR

UNPLATTED LANDS BY OTHERS

NORTHEAST CORNER SEC. 2, T17N, R8W LA CROSSE COUNTY PK NAIL

S1°26'03"W 1271.23'

S88°27'11"E 1314.26'

VOLENDAM DRIVE

SUNRISE LANE

TRACE CT.

ERANN CT.

FIELDSTONE TERRACE

VAN DUNK PLACE

BLOCK 1

BLOCK 2

BLOCK 4

1	24244 S.F.	20	24039 S.F.	21	23849 S.F.	22	23870 S.F.	23	25120 S.F.
2	22415 S.F.	19	23827 S.F.	18	23870 S.F.	17	23871 S.F.	16	22849 S.F.
3	22387 S.F.	10	24810 S.F.	11	24749 S.F.	12	24749 S.F.	13	25457 S.F.
4	22360 S.F.	9	24830 S.F.	8	24569 S.F.	7	24569 S.F.	6	24569 S.F.
5	22333 S.F.	8	21417 S.F.	7	22547 S.F.	6	22547 S.F.	5	22547 S.F.
6	22333 S.F.								
7	22362 S.F.								
8	23516 S.F.								

24	23869 S.F.	25	23871 S.F.	26	26086 S.F.	27	21398 S.F.	28	21399 S.F.
14	35287 S.F.	15							
5	24569 S.F.	4	24569 S.F.	3	24359 S.F.	2	24569 S.F.	1	24403 S.F.
5	22547 S.F.	4	22547 S.F.	3	22547 S.F.	2	22551 S.F.	1	22206 S.F.

36	23000 S.F.	35	22000 S.F.	34	22000 S.F.	33	22000 S.F.	32	23868 S.F.
29	23034 S.F.	30	39228 S.F.	31	35594 S.F.				

S88°27'11"E 786.80'
S88°27'11"E 339.53'
S88°27'11"E 339.37'
S88°27'11"E 1052.49'
S88°27'11"E 1052.40'
S88°27'11"E 1056.86'
S88°27'11"E 1313.69'
S88°27'11"E 1099.49'
N1°24'33"E 935.01'
S1°26'03"W 935.00'
S1°26'03"W 466.44'
S1°26'03"W 466.30'
S1°26'03"W 1254.90'
S1°32'49"W 217.00'
N1°32'49"E 210.00'
S1°32'49"W 187.90'
N1°32'03"E 804.44'
N17°25'E 850.47'
S88°27'11"E 1314.26'
S1°26'03"W 1271.23'

EX. 60' UTILITY EASEMENT BY OTHER INSTRUMENT

30' UTILITY EASEMENT BY OTHER INSTRUMENT

IRON BAR

E 1/4 COR. SEC. 2, T17N, R8W COUNTY MONUMENT

THIRD ADDITION TO COUNTRY ESTATES

SUNRISE LANE

MOONLIGHT AVE.

0 100
1" = 10

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21 (1) and (2), Wis. Stats.

Certified June 13th, 2003

Department of Administration

● FOUND 2.375" O.D. IRON PIPE (UNLESS OTHERWISE NOTED)
○ SET 2.375" O.D. x 24" IRON PIPE, 3.65 LBS./FT.
R.A. RECORDED AS

BRENTWOOD

Engineers • Consultants • Inspectors

APPENDIX B

Bittersweet Road

Storm Water Management Review

Town of Holland

La Crosse County, Wisconsin

ENGINEER'S PRELIMINARY COST ESTIMATE

PROJECT: Town of Holland
Storm Water Management Plan

Project Area: **Bittersweet Road**

Item	No. of Units	Units	Unit Cost	Total Amount
Alternative 2 - Swale Construction				
Grade Swale	400	Lin. Ft.	$ 45.00	$18,000
Driveway Replacement & Culvert Installation	1	LS	$ 4,000.00	$4,000
Topsoil, Fertilize, Seed, and Mulch	1	LS	$ 500.00	$500
Mobalization/Demobilization	1	LS	$ 2,000.00	$2,000
	Subtotal			$24,500
	Contingencies (20%)			$4,900
	Estimated Total			**$29,000**

Item	No. of Units	Units	Unit Cost	Total Amount
Alternative 3 - Storm Sewer Construction				
Storm Inlet and Structure Installation	1	Each	$ 8,000.00	$8,000
12" HDPE Storm Sewer Installation	200	LF	$ 50.00	$10,000
Clearing and Grubbing	1	LS	$ 5,000.00	$5,000
Topsoil, Fertilize, Seed, and Mulch	1	LS	$ 1,000.00	$500
Mobalization/Demobilization	1	LS	$ 5,000.00	$5,000
	Subtotal			$28,500
	Contingencies (20%)			$5,700
	Estimated Total			**$34,000**

Notes:
1. The contingency is intended to cover poor soils, rock excavation, etc.
2. No budget is included for interference with utilities such as telephone, natural gas, electric, cable TV, fiber optic or light poles.
3. Engineering, inspection, legal surveying and staking are not included in cost estimates.
4. Landscaping is not included.

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Portage, WI 53901
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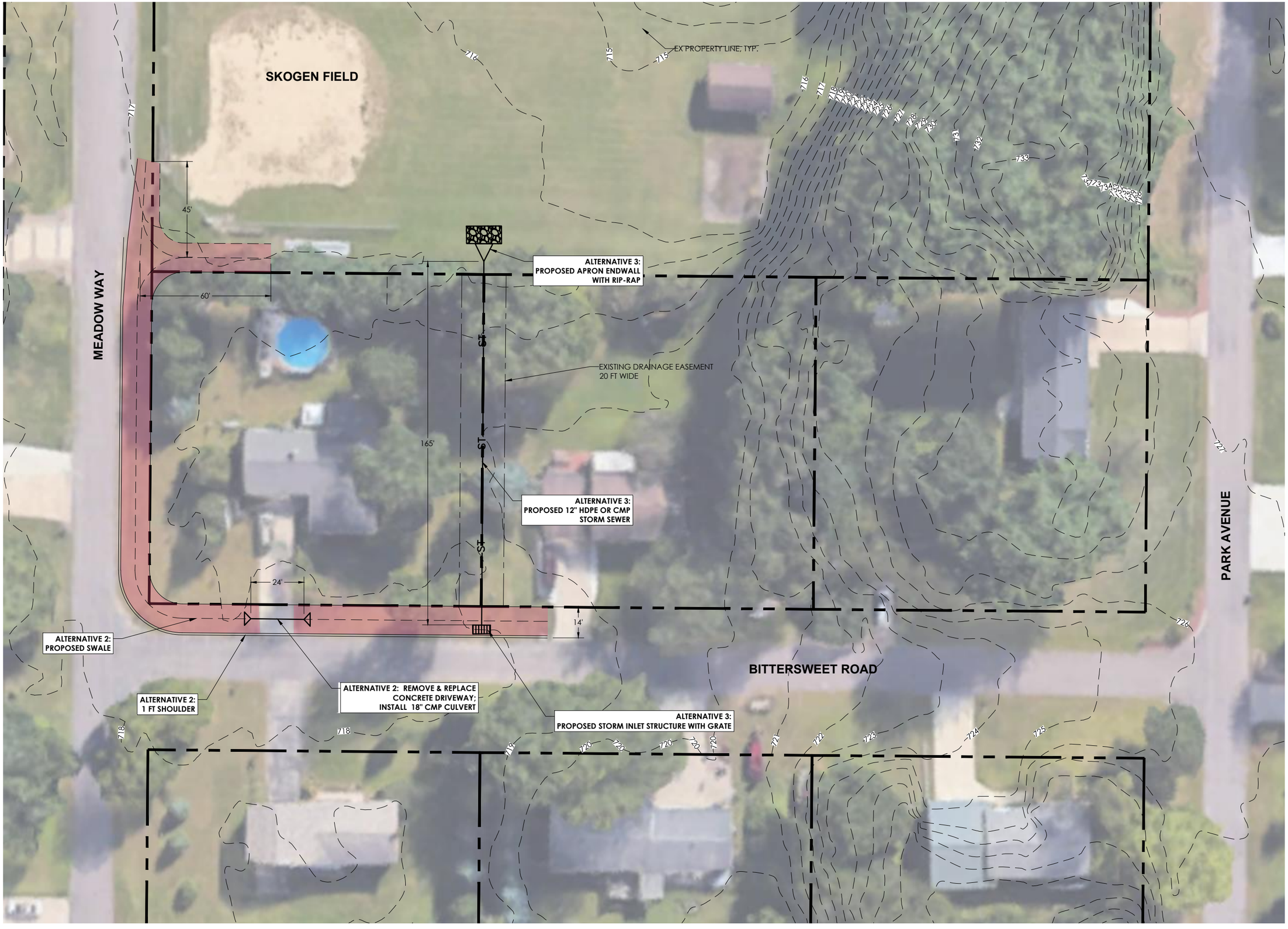

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SITE PLAN
BITTERSWEET ROAD
TOWN OF HOLLAND

TOWN OF HOLLAND
LA CROSSE COUNTY, WI

DATE	BY	NO.	REVISIONS

N E S W

0 40
SCALE

DRAWN BY	AMB
REVIEWED BY	LAL
ISSUE DATE	OCT 2019
GEC FILE NO.	2-1019-457
SHEET NO.	C1.1

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APPENDIX C

Bice Avenue and Van Dunk Place

Storm Water Management Review

Town of Holland

La Crosse County, Wisconsin

ENGINEER'S PRELIMINARY COST ESTIMATE

PROJECT: Town of Holland
Storm Water Management Plan

Project Area: **Van Dunk Place**

	Item	No. of Units	Units	Unit Cost	Total Amount
	Alternative 2 - Install Stone Infiltration Trench				
	Remove Existing Detention Pond Material	650	CY	$ 8.00	$5,200
	Haul Existing Detention Pond Material	600	CY	$ 10.00	$6,000
	Haul No. 2 Stone & Type 2 Rip-Rap	600	CY	$ 18.00	$10,800
	Install No. 2 Stone	1200	Ton	$ 25.00	$30,000
	Install Type 2 Rip-Rap	250	Ton	$ 50.00	$12,500
	Install Geotextile Fabric	900	SY	$ 2.00	$1,800
	Install 12" Stockpiled Topsoil	50	CY	$ 50.00	$2,500
	Seed, Fertilize, and Mulch	1	LS	$ 1,000.00	$1,000
	Mobilization/Demobilization	1	LS	$ 5,000.00	$5,000
		Subtotal			$74,800
		Contingencies (15%)			$11,200
		Estimated Total			**$86,000**

	Item	No. of Units	Units	Unit Cost	Total Amount
	Alternative 3 - Construct Lift Station				
	Lift Station	1	LS	$ 120,000.00	$120,000
	Force Main	1200	LF	$ 50.00	$60,000
	Driveways/Pavement Restoration	1	LS	$ 30,000.00	$30,000
	Topsoil, Fertilize, Seed, and Mulch	1	LS	$ 15,000.00	$15,000
	Mobilization/Demobilization	1	LS	$ 5,000.00	$5,000
		Subtotal			$230,000
		Contingencies (15%)			$34,500
		Estimated Total			**$265,000**

Notes:
1. The contingency is intended to cover poor soils, rock excavation, etc.
2. No budget is included for interference with utilities such as telephone, natural gas, electric, cable TV, fiber optic or light poles.
3. Engineering, inspection, legal surveying and staking are not included in cost estimates.
4. Landscaping is not included.

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EX PROPERTY LINE, TYP.

VAN DUNK PLACE

EX DRY POND

30'

100'

EXISTING DRAINAGE EASEMENT

ALTERNATIVE 2:
PROPOSED STONE
INFILTRATION TRENCH

BICE AVENUE

714 715 713 714 715 716 717 717 714 713 712 711 716 711 712 713 714 715 715 716 717 718 719 720 721 722 723 724 725 726 727 728 715 716 730 729

GEC

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SITE PLAN

VAN DUNK PLACE - ALTERNATIVE 2
TOWN OF HOLLAND

TOWN OF HOLLAND
LA CROSSE COUNTY, WI

REVISIONS	NO.	BY	DATE

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SCALE

DRAWN BY	AMB
REVIEWED BY	LAL
ISSUE DATE	OCT 2019
GEC FILE NO.	2-1019-457
SHEET NO.	C2.1

PRELIMINARY NOT FOR CONSTRUCTION

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SITE PLAN
VAN DUNK PLACE - ALTERNATIVE 3
TOWN OF HOLLAND

TOWN OF HOLLAND
LA CROSSE COUNTY, WI

REVISIONS	NO.	BY	DATE

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SCALE

DRAWN BY	AMB
REVIEWED BY	LAL
ISSUE DATE	OCT 2019
GEC FILE NO.	2-1019-457
SHEET NO.	C2.2

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APPENDIX D

Erann Court

Storm Water Management Review

Town of Holland

La Crosse County, Wisconsin

ENGINEER'S PRELIMINARY COST ESTIMATE

PROJECT: Town of Holland
Storm Water Management Plan

Project Area: **Erran Court**

Item	No. of Units	Units	Unit Cost	Total Amount
Alternative 2 - Swale Construction				
Grade Swale	200	Lin. Ft.	$ 45.00	$9,000
Driveway Replacement & Culvert Installation	1	LS	$ 4,000.00	$4,000
Topsoil, Fertilize, Seed, and Mulch	1	LS	$ 500.00	$500
Mobalization/Demobilization	1	LS	$ 2,000.00	$2,000
	Subtotal			$15,500
	Contingencies (20%)			$3,100
	Estimated Total			**$19,000**

Item	No. of Units	Units	Unit Cost	Total Amount
Alternative 3 - Install Stone Infiltration Trench				
Remove Existing Detention Pond Material	650	CY	$ 8.00	$5,200
Haul Existing Detention Pond Material	600	CY	$ 10.00	$6,000
Haul No. 2 Stone & Type 2 Rip-Rap	600	CY	$ 18.00	$10,800
Install No. 2 Stone	1200	Ton	$ 25.00	$30,000
Install Type 2 Rip-Rap	250	Ton	$ 50.00	$12,500
Install Geotextile Fabric	900	SY	$ 2.00	$1,800
Install 6" Stockpiled Topsoil	50	CY	$ 10.00	$500
Seed, Fertilize, and Mulch	1	LS	$ 1,000.00	$1,000
Mobalization/Demobilization	1	LS	$ 5,000.00	$5,000
	Subtotal			$72,800
	Contingencies (15%)			$10,900
	Estimated Total			**$84,000**

Notes:
1. The contingency is intended to cover poor soils, rock excavation, etc.
2. No budget is included for interference with utilities such as telephone, natural gas, electric, cable TV, fiber optic or light poles.
3. Engineering, inspection, legal surveying and staking are not included in cost estimates.
4. Landscaping is not included.

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SITE PLAN
ERANN COURT
TOWN OF HOLLAND

TOWN OF HOLLAND
LA CROSSE COUNTY, WI

REVISIONS	NO.	BY	DATE

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SCALE

DRAWN BY	TCF
REVIEWED BY	LAL
ISSUE DATE	OCT 2019
GEC FILE NO.	2-1019-457
SHEET NO.	C3.0