



Hydraulic Analysis – Regional Flood Impacts Yahara River Improvements Project Stoughton, Wisconsin

PREPARED FOR: City of Stoughton
381 E. Main Street
Stoughton, WI 53589

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DATE: December 20, 2021

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List of Attachments:

1. No-rise Certification
2. FIRM Panel# 0636H Map Number: 55025C0636H
3. FIRM Panel# 0637H Map Number: 55025C0637H
4. FIS Floodway Data Table
5. HEC-RAS Output Tables

Introduction

The existing weir in the Yahara River in Stoughton was originally built to divert water for the generation of hydroelectric power. There is no longer power generated at the site, and the City of Stoughton is interested in replacing the dam with a river park and creating a public amenity. Recreation Engineering and Planning Inc. (REP) was contracted to develop a design that would eliminate the current public safety hazard at the dam, improve river access, improve fish passage and habitat, and create a recreational amenity close to downtown Stoughton.

The weir and the proposed project are located within the delineated FEMA floodway of the Yahara River, requiring a floodplain analysis to demonstrate no adverse impact to the floodplain as a result of the project. The purpose of this report is to describe the analysis of the regional flood that would result upon completion of the project. This report summarizes the procedure and results of the hydraulic analysis performed. The proposed conditions modeled are consistent with the most recent design plans.



Figure 1. Project vicinity map.



Figure 2. Existing Stoughton Dam (Image date: Oct 22, 2019, flow ~930cfs)



Figure 3. Existing box culverts under 4th St (Image date: Oct 22, 2019, flow ~930cfs)

Hydrology

USGS gage 05429700 is located just upstream of the project site at the Forton Street bridge. The period of record for this gage is November 2003 to present.

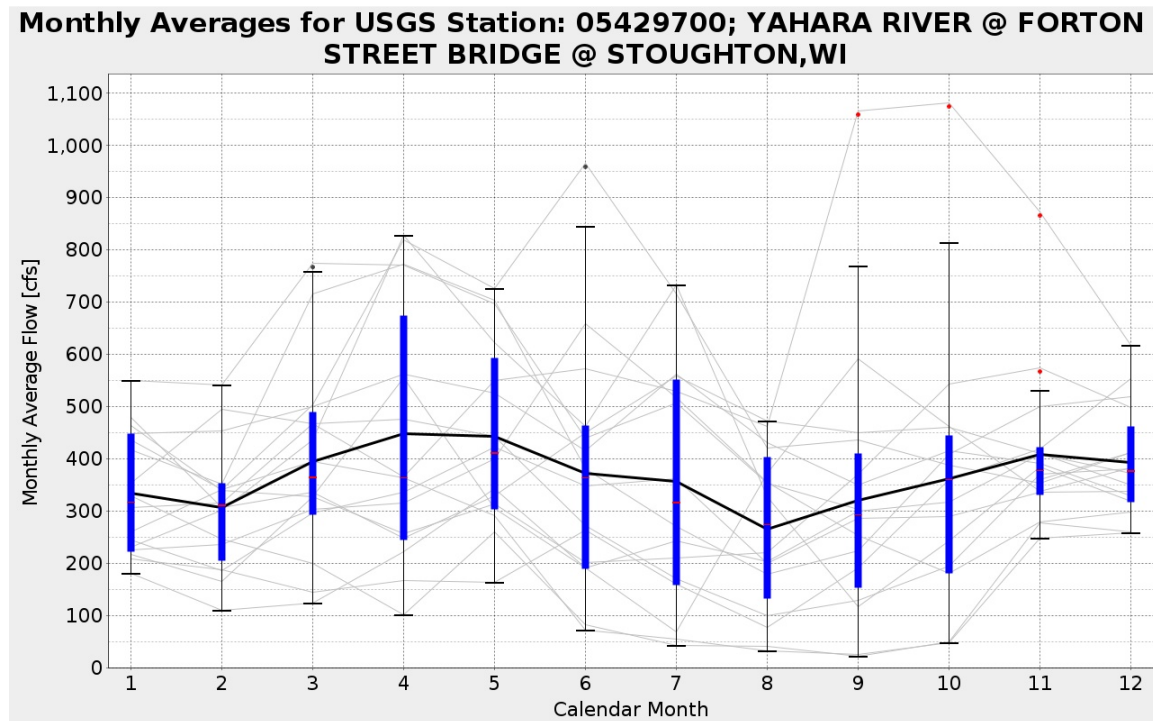


Figure 4. Monthly average flows connected by the bold black line. A box plot is shown for each month, with the blue bar representing the interquartile range. The monthly averages for each individual month of record are shown in light grey.

The mean annual flow is 380cfs, with relatively little fluctuation throughout the year. Spring has the highest average flows (almost 450cfs for April and May), while September has the lowest average flow at under 300cfs.

The project area is located within a floodplain study area mapped by the Federal Emergency Management Agency (FEMA). The current Flood Insurance Study (FIS) for Dane County, WI has an effective date of June 16, 2016. The 1% annual-chance discharge (base flood) according to the current FIS for this reach of the Yahara River is 1,232 cubic feet per second (cfs) upstream of 4th street, and 1,304cfs downstream of 4th Street. The base flood is referred to as the regional flood by the Wisconsin Department of Natural Resources (DNR).

Current and Duplicate Effective Model

The current effective models for the Yahara River through the project area were downloaded from the Wisconsin DNR Surface Water Data Viewer. Both the Yahara – Lake Waubesa to Stoughton and the Yahara – Stoughton to Rock River models were downloaded, since the division of the two models is located immediately adjacent to the downstream project boundary. The hydraulic models are one-dimensional HEC-RAS models. Based on correspondence with City of Stoughton, REP understands these are the most current hydraulic models of the reach. According to the DNR model descriptions, the final runs were performed in HEC-RAS v3.1.1. The modeling described in this report utilized HEC-RAS v5.0.7.

HEC-RAS geometry data from the Yahara – Stoughton to Rock River model was imported into the Yahara – Lake Waubesa to Stoughton model to create an extended Yahara River floodplain model. Geometry from the upstream end of the model to cross-section 58928 H were imported, including the Dunkirk Dam which influences water levels near Stoughton. The steady flow data was updated to match the flows in both models, and the downstream boundary condition known water surface elevations were updated to match the water levels at cross-section 58928 H. Wisconsin DNR HEC-HMS discharges (10-yr, 25-yr, 50-yr, 100-yr, and 500-yr) were run through the model, and water surface elevations in the combined effective model were reproduced at all cross-sections. Base flood (regional flood) elevations from the effective FIS were reproduced at all published FEMA cross sections. This model is referred to as the Duplicate Effective Model.

Existing Conditions Model

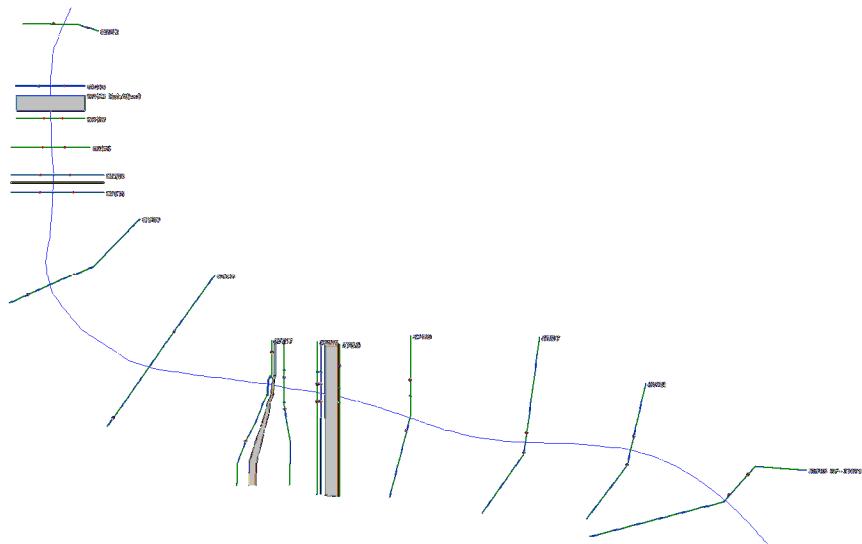
Bathymetric Survey

On June 24, 2019 a team with Great Lakes Ecological Monitoring LLC collected bathymetric data from the Yahara River in the vicinity of the 4th St culverts. In the mill pond upstream of the weir, bathymetry data was collected by Interfluve during their sediment sampling work in 2019. Strand Associates, Inc (Strand) performed topographic surveys, including bathymetric data, in 2020 and 2021. All survey data collected at the site was merged into a single base file by Strand surveyors, which was used by REP to update existing conditions cross-section geometry with the more accurate topographic information.

Model Update

REP modified the Duplicate Effective Model to create the Existing Conditions Model by incorporating the more detailed topographic information obtained from the surveys. Cross-sections were added and existing cross-sections were updated from RS 89196 to RS 86607. Cross-sections were added to provide sufficient detail to compare existing to proposed geometry and resulting water surface elevations. 28 cross-sections were added in the area upstream of the Stoughton Dam between RS 89196 and RS 87727, two cross-

All roughness values from the effective model were maintained. For new cross-sections, Manning's n values were selected consistent with the values in the cross-sections in the effective model. The inline structure representing the Stoughton Dam remained unchanged from the effective model, as well as the bridge culvert data representing 4th St. The inline structure representing the concrete wall weir immediately upstream of the 4th St culverts was removed from the model. The weir was removed during the 2010 embankment and spillway reconstruction. Ineffective flow areas in the existing headrace, tailrace, surrounding the dam embankment, and downstream of 4th St embankment were left consistent with the effective model.



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Proposed Conditions Model

The Existing Conditions Model was then modified to represent proposed conditions. Proposed dam removal, grading, boulder structures, and trail underpass were inserted to represent the proposed design. This model is referred to as the Proposed Conditions Model. The proposed geometry is consistent with the most recent design plans.

No change was made to the cross-sections in the mill pond above RS 87727 where no grading is proposed. The inline structure representing the Stoughton Dam was removed to represent the removal of the dam gates and superstructure. The proposed dam embankment crest geometry is represented in the cross-section at RS 87727. A new cross-section was added at RS 87692.5 in place of the old inline structure. Upstream and downstream of 4th St, cross-section geometry was updated to reflect the proposed project, including filling of the headrace and tailrace, novice channel grading, boulder structures, and other proposed improvements. All roughness values remained unchanged, and the ineffective flow areas from the existing conditions model were left unchanged.

A bridge was added at RS 86785 to represent the proposed pedestrian bridge at that location. The proposed project includes a trail underpass under 4th St. The trail will run through the north culvert under 4th St. A wall is proposed along the trail immediately upstream and downstream of the underpass, separating the trail from the Yahara River during normal flows. At periods of high flow, the wall will be overtopped and the culvert can be used to convey flood flows. To represent the proposed underpass in the model, the proposed wall and trail geometry was inserted, and a levee and permanent ineffective flow area was added to all cross-sections with the proposed separator wall. The “levee” in the model is the top of the separator wall, not allowing flow over the trail until the wall is overtopped. The area below the top of the wall is modeled as a permanent ineffective flow area to account for the hydraulic effects of the separator wall when it is overtopped and the culvert is conveying flow.

Results

The resulting water surface elevations from the current effective base flood discharge (1,232cfs upstream of 4th St, and 1,304cfs downstream of 4th St) were evaluated for all model runs, and pre- and post- project conditions were compared to the published current effective FIS flood elevations. This is referred to as the regional flood by DNR. The project meets the requirements for no-rise conditions within the regulatory floodplains of the Yahara River.

The table on the following page contains the modeled water surface elevations (WSE) for the regional flood for the Duplicate Effective model, Existing Conditions model, and Proposed Conditions model. Based on the hydraulic analysis described and the modeled results, the proposed conditions modeled meet no-rise requirements.

Yahara River Regional Flood WSE Comparison Table

Data from effective FEMA FIS (2016)			Data from DNR model		Data from existing model		Data from proposed model	Calculated Difference
1	2	3	4	5	6	7	7 - 6	
River	FIS XS	1% WSE (Regulatory)	Cross-section RS	Effective WSE (100-yr)	Existing Conditions WSE (100-yr)	Proposed Conditions WSE (100-yr)	Proposed - Existing	
Yahara River	BE	844.5	92006	844.50	844.51	843.50	-1.01	
Yahara River			91989	Bridge (Footbridge)	Bridge (Footbridge)	Bridge	-	
Yahara River			91967	844.49	844.51	843.49	-1.02	
Yahara River			91922	844.39	844.40	843.31	-1.09	
Yahara River			91902	Bridge (Railroad)	Bridge (Railroad)	Bridge	-	
Yahara River	BD	844.3	91857	844.31	844.32	843.17	-1.15	
Yahara River	BC	844.3	91590	844.28	844.29	843.08	-1.21	
Yahara River	BB	844.2	91147	844.18	844.20	842.89	-1.31	
Yahara River	BA	844.2	90843	844.16	844.17	842.82	-1.35	
Yahara River			90778	Bridge (Forton Street)	Bridge (Forton Street)	Bridge	-	
Yahara River	AZ	844.1	90714	844.11	844.12	842.74	-1.38	
Yahara River	AY	844.1	90470	844.09	844.11	842.69	-1.42	
Yahara River	AX	844.1	90208	844.08	844.10	842.66	-1.44	
Yahara River	AW	844.1	89912	844.05	844.07	842.60	-1.47	
Yahara River	AV	844.0	89646	844.02	844.03	842.53	-1.5	
Yahara River			89573	Bridge (Main Street)	Bridge (Main Street)	Bridge	-	
Yahara River	AU	844.0	89509	843.98	843.99	842.47	-1.52	
Yahara River			89385	843.97	843.98	842.44	-1.54	
Yahara River			89269	843.97	843.98	842.44	-1.54	
Yahara River			89237	Bridge (Footbridge)	Bridge (Footbridge)	Bridge	-	
Yahara River	AT	844.0	89196	843.96	843.98	842.42	-1.56	
			89146.3	-	843.98	842.42	-1.56	
			89096.7	-	843.98	842.42	-1.56	
			89047.1	-	843.98	842.41	-1.57	
			88997.5	-	843.98	842.41	-1.57	
			88947.8	-	843.98	842.41	-1.57	
			88898.2	-	843.98	842.41	-1.57	
			88848.6	-	843.97	842.40	-1.57	
Yahara River	AS	844.0	88799	843.96	843.97	842.40	-1.57	
			88752	-	843.97	842.40	-1.57	
			88705.1	-	843.97	842.40	-1.57	
			88658.2	-	843.97	842.39	-1.58	
			88611.3	-	843.97	842.39	-1.58	
			88564.4	-	843.97	842.39	-1.58	
			88517.5	-	843.97	842.38	-1.59	
			88470.5	-	843.97	842.38	-1.59	
			88423.6	-	843.97	842.38	-1.59	
			88376.7	-	843.97	842.38	-1.59	
			88329.8	-	843.97	842.38	-1.59	
			88282.9	-	843.97	842.37	-1.6	
Yahara River	AR	844.0	88236	843.97	843.97	842.37	-1.6	
			88189.7	-	843.96	842.37	-1.59	
			88143.4	-	843.96	842.37	-1.59	
			88097.1	-	843.96	842.37	-1.59	
			88050.9	-	843.96	842.36	-1.6	
			88004.6	-	843.96	842.36	-1.6	
			87958.3	-	843.96	842.36	-1.6	
			87912	-	843.96	842.36	-1.6	
			87865.8	-	843.96	842.36	-1.6	
			87819.5	-	843.96	842.36	-1.6	
			87773.2	-	843.96	842.36	-1.6	
Yahara River	AQ	843.9	87727	843.93	843.92	841.09	-2.83	
Yahara River			87707	Inline Structure (Stoughton Dam)	Inline Structure (Stoughton Dam)	837.66	-	
Yahara River	AP	838.7	87658	838.68	838.10	838.07	-0.03	
			87610.3	-	838.11	838.10	-0.01	
			87562.6	-	838.09	838.03	-0.06	
Yahara River	AO	838.5	87515	838.47	837.99	837.97	-0.02	
Yahara River			87502	Inline Structure	-	-	-	
Yahara River			87500	837.78	837.41	837.29	-0.12	
Yahara River			87472	Culvert (4th St)	Culvert (4th St)	Culvert (4th St)	-	
Yahara River	AN	835.5	87420	835.45	836.89	836.22	-0.67	
			87400.5	-	836.09	835.98	-0.11	
			87381.1	-	836.06	835.81	-0.25	
			87361.6	-	835.87	835.85	-0.02	
			87342.2	-	835.85	835.84	-0.01	
			87322.8	-	835.86	835.85	-0.01	
			87303.3	-	835.83	835.83	0.00	
			87283.9	-	835.79	835.79	0.00	
			87264.5	-	835.71	835.71	0.00	
			87245	-	835.59	835.59	0.00	
			87225.6	-	835.53	835.53	0.00	
			87206.1	-	835.50	835.5	0.00	
			87186.7	-	835.50	835.5	0.00	
			87167.3	-	835.50	835.5	0.00	
			87147.8	-	835.50	835.5	0.00	
			87128.4	-	835.50	835.5	0.00	
Yahara River	AM	835.5	87109	835.47	835.49	835.49	0.00	
			87089.7	-	835.36	835.36	0.00	
			87070.3	-	835.35	835.35	0.00	
			87051	-	835.35	835.35	0.00	
			87031.7	-	835.34	835.34	0.00	
			87012.4	-	835.33	835.33	0.00	
			86993.1	-	835.31	835.31	0.00	
			86973.8	-	835.28	835.28	0.00	
			86954.5	-	835.26	835.26	0.00	
			86935.2	-	835.24	835.24	0.00	
			86915.9	-	835.22	835.22	0.00	
			86896.6	-	835.19	835.19	0.00	
			86877.3	-	835.17	835.17	0.00	
			86858	-	835.15	835.15	0.00	
			86838.7	-	835.14	835.14	0.00	
			86819.3	-	835.13	835.13	0.00	
			86803.5	-	835.12	835.12	0.00	
			86785	-	-	New Pedestrian Bridge	-	
			86780	-	835.11	835.11	0.00	
			86742.1	-	835.08	835.08	0.00	
Yahara River	AL	834.9	86607	834.94	834.89	834.89	0.00	
Yahara River	AK	834.5	86162	834.47	834.47	834.47	0.00	
Yahara River	AJ	834.3	85705	834.28	834.28	834.28	0.00	

FLOODWAY "NO-RISE / NO-IMPACT" CERTIFICATION

This document is to certify that I am duly qualified engineer licensed to practice in the State of

Wisconsin

(State)

. It is to further certify that the attached technical data supports

the fact that proposed Yahara River Improvements Project will not impact the base flood

(Name of Development)

elevations, floodway elevations, and floodway widths on Yahara River at published

(Name of Stream)

cross sections in the Flood Insurance Study for, City of Stoughton, dated 6/16/2016

(Name of community)

(Date)

and will not impact the base flood elevations, floodway elevations, and floodway widths at the

unpublished cross-sections in the area of the proposed development.



SEAL, SIGNATURE AND DATE

Mason Lacy

Name

Project Engineer

Title

485 Arapahoe, Boulder, CO, 80302

Address

FOR COMMUNITY USE ONLY:

Community Approval

☐

Approved

☐

Disapproved

Community Official's Name

Community Official's Signature

Title

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	48,141	157	659	3.2	808.4	808.4	808.4	0.0
B	49,293	179	690	3.1	809.1	809.1	809.1	0.0
C	51,749	232	941	2.3	811.0	811.0	811.0	0.0
D	53,808	221	941	2.3	811.7	811.7	811.7	0.0
E	55,474	212	741	2.3	812.3	812.3	812.3	0.0
F	56,597	267	1,024	1.7	812.8	812.8	812.8	0.0
G	57,671	243	611	2.8	813.2	813.2	813.2	0.0
H	58,928	256	915	1.9	814.6	814.6	814.6	0.0
I	60,237	139	438	4.0	815.6	815.6	815.6	0.0
J	61,306	163	550	3.2	817.0	817.0	817.0	0.0
K	62,200	264	869	2.0	817.7	817.7	817.7	0.0
L	63,198	172	603	2.9	818.3	818.3	818.3	0.0
M	64,086	138	596	2.9	818.9	818.9	818.9	0.0
N	65,138	231	883	2.0	819.4	819.4	819.4	0.0
O	66,051	198	765	2.3	819.8	819.8	819.8	0.0
P	67,089	172	431	4.0	820.8	820.8	820.8	0.0
Q	68,300	184	799	2.2	822.1	822.1	822.1	0.0
R	69,515	186	832	2.1	822.5	822.5	822.5	0.0
S	70,271	182	755	2.3	822.8	822.8	822.8	0.0
T	71,089	202	813	2.2	823.4	823.4	823.4	0.0
U	71,544	212	945	2.0	823.7	823.7	823.7	0.0
V	71,927	288	2,910	0.8	832.3	832.3	832.3	0.0
W	73,054	460	2,329	0.8	832.3	832.3	832.3	0.0
X	75,331	283	1,258	1.0	832.4	832.4	832.4	0.0
Y	76,681	225	761	1.7	832.5	832.5	832.5	0.0
Z	78,365	207	804	1.6	832.9	832.9	832.9	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AA	78,832	237	851	1.5	833.0	833.0	833.0	0.0
AB	79,399	255	879	1.5	833.1	833.1	833.1	0.0
AC	79,956	194	713	1.8	833.3	833.3	833.3	0.0
AD	80,487	247	922	1.4	833.4	833.4	833.4	0.0
AE	81,124	241	1,020	1.3	833.5	833.5	833.5	0.0
AF	81,953	257	994	1.3	833.6	833.6	833.6	0.0
AG	83,221	672	944	1.4	833.8	833.8	833.8	0.0
AH	84,208	592	1,364	1.0	833.9	833.9	833.9	0.0
AI	84,944	177	668	2.0	834.0	834.0	834.0	0.0
AJ	85,705	170	654	2.0	834.3	834.3	834.3	0.0
AK	86,162	126	447	2.9	834.5	834.5	834.5	0.0
AL	86,607	88	325	4.0	834.9	834.9	834.9	0.0
AM	87,109	158	908	2.0	835.5	835.5	835.5	0.0
AN	87,420	55	392	6.1	835.5	835.5	835.5	0.0
AO	87,515	76	363	3.4	838.5	838.5	838.5	0.0
AP	87,658	101	950	1.5	838.7	838.7	838.7	0.0
AQ	87,727	80	2,988	1.3	843.9	843.9	843.9	0.0
AR	88,236	450	3,789	0.3	844.0	844.0	844.0	0.0
AS	88,799	233	1,713	0.7	844.0	844.0	844.0	0.0
AT	89,196	150	903	1.4	844.0	844.0	844.0	0.0
AU	89,509	94	650	1.9	844.0	844.0	844.0	0.0
AV	89,646	107	768	1.6	844.0	844.0	844.0	0.0
AW	89,912	151	952	1.3	844.1	844.1	844.1	0.0
AX	90,208	186	1,117	1.1	844.1	844.1	844.1	0.0
AY	90,470	162	913	1.4	844.1	844.1	844.1	0.0
AZ	90,714	113	743	1.7	844.1	844.1	844.1	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BA	90,843	156	873	1.4	844.2	844.2	844.2	0.0
BB	91,147	128	693	1.8	844.2	844.2	844.2	0.0
BC	91,590	147	799	1.5	844.3	844.3	844.3	0.0
BD	91,857	90	467	2.6	844.3	844.3	844.3	0.0
BE	92,006	168	1,342	1.1	844.5	844.5	844.5	0.0
BF	92,650	1,450	5,544	0.2	844.5	844.5	844.5	0.0
BG	93,817	1,617	9,819	0.1	844.5	844.5	844.5	0.0
BH	95,224	948	3,000	0.4	844.5	844.5	844.5	0.0
BI	96,644	1,397	4,921	0.3	844.5	844.5	844.5	0.0
BJ	97,948	547	2,148	0.7	844.6	844.6	844.6	0.0
BK	99,897	339	1,782	0.7	844.6	844.6	844.6	0.0
BL	100,404	185	1,159	1.2	844.6	844.6	844.6	0.0
BM	100,491	180	999	1.3	844.6	844.6	844.6	0.0
BN	100,902	201	1,129	1.1	844.7	844.7	844.7	0.0
BO	101,466	204	1,025	1.2	844.7	844.7	844.7	0.0
BP	102,110	417	2,074	0.6	844.8	844.8	844.8	0.0
BQ	103,439	1,941	8,294	0.2	844.8	844.8	844.8	0.0
BR	104,992	2,095	5,227	0.2	844.8	844.8	844.8	0.0
BS	106,466	3,269	8,371	0.2	844.8	844.8	844.8	0.0
BT	109,028	1,563	3,831	0.4	844.8	844.8	844.8	0.0
BU	110,441	404	2,317	0.7	844.8	844.8	844.8	0.0
BV	111,053	348	1,496	0.8	844.9	844.9	844.9	0.0
BW	111,782	263	1,327	0.9	844.9	844.9	844.9	0.0
BX	112,610	551	1,360	0.9	845.0	845.0	845.0	0.0
BY	113,347	1,255	3,827	0.3	845.0	845.0	845.0	0.0
BZ	114,279	1,657	3,998	0.3	845.1	845.1	845.1	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CA	115,623	1,704	5,612	0.3	845.1	845.1	845.1	0.0
CB	116,637	1,158	5,300	0.3	845.2	845.2	845.2	0.0
CC	117,303	237	4,236	0.9	845.2	845.2	845.2	0.0
CD	117,497	85	2,056	3.2	845.2	845.2	845.2	0.0
CE	117,585	121	2,237	2.6	845.4	845.4	845.4	0.0
CF	131,728	750	2,637	0.5	845.6	845.6	845.6	0.0
CG	132,432	460	2,327	0.6	845.6	845.6	845.6	0.0
CH	132,772	159	838	1.3	845.6	845.6	845.6	0.0
CI	132,874	147	1,000	1.2	845.6	845.6	845.6	0.0
CJ	133,179	258	1,656	0.8	845.7	845.7	845.7	0.0
CK	133,803	412	2,074	0.5	845.7	845.7	845.7	0.0
CL	134,832	573	2,072	0.5	845.7	845.7	845.7	0.0
CM	135,814	550	2,111	0.6	845.7	845.7	845.7	0.0
CN	137,014	208	1,190	1.0	845.8	845.8	845.8	0.0
CO	137,784	344	1,313	0.9	845.9	845.9	845.9	0.0
CP	138,492	397	1,535	0.7	845.9	845.9	845.9	0.0
CQ	139,083	431	1,605	0.7	845.9	845.9	845.9	0.0
CR	139,362	162	1,378	1.4	845.9	845.9	845.9	0.0
CS	139,502	204	1,043	1.1	846.0	846.0	846.0	0.0
CT	139,762	245	1,081	1.0	846.0	846.0	846.0	0.0
CU	140,272	222	1,152	0.9	846.1	846.1	846.1	0.0
CV	140,843	460	1,586	0.7	846.1	846.1	846.1	0.0
CW	141,269	1,328	4,518	0.3	846.1	846.1	846.1	0.0
CX	141,571	1,873	5,130	0.3	846.1	846.1	846.1	0.0
CY	141,993	1,878	3,936	0.3	846.1	846.1	846.1	0.0
CZ	142,406	1,838	4,103	0.3	846.2	846.2	846.2	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
DA	148,173	1,045	3,859	0.4	846.2	846.2	846.2	0.0
DB	149,082	614	1,840	0.6	846.2	846.2	846.2	0.0
DC	149,626	365	957	1.1	846.2	846.2	846.2	0.0
DD	150,154	226	872	1.2	846.3	846.3	846.3	0.0
DE	150,741	192	764	1.4	846.4	846.4	846.4	0.0
DF	151,244	273	965	1.1	846.5	846.5	846.5	0.0
DG	151,408	222	871	1.2	846.5	846.5	846.5	0.0
DH	151,578	154	627	1.7	846.5	846.5	846.5	0.0
DI	151,677	158	635	1.7	846.6	846.6	846.6	0.0
DJ	151,852	363	1,322	0.8	846.6	846.6	846.6	0.0
DK	152,087	513	1,857	0.6	846.6	846.6	846.6	0.0
DL	152,338	603	2,095	0.5	846.7	846.7	846.7	0.0
DM	152,613	691	2,570	0.5	846.7	846.7	846.7	0.0
DN	152,999	576	2,642	0.5	846.7	846.7	846.7	0.0
DO	153,380	255	1,176	1.0	846.7	846.7	846.7	0.0
DP	153,619	120	875	2.1	846.7	846.7	846.7	0.0
DQ	153,746	76	411	2.6	846.8	846.8	846.8	0.0
DR	226,807	1,420	5,755	0.4	852.6	851.0 ²	851.0 ²	0.0
DS	227,836	733	3,650	0.6	852.6	851.1 ²	851.1 ²	0.0
DT	228,835	396	2,381	0.9	852.6	851.3 ²	851.3 ²	0.0
DU	229,730	611	3,776	0.6	852.6	851.5 ²	851.5 ²	0.0
DV	230,341	352	2,130	1.0	852.6	851.6 ²	851.6 ²	0.0
DW	230,897	236	1,553	1.5	852.6	852.3 ²	852.3 ²	0.0
DX	231,265	152	2,252	1.6	852.6	852.6	852.6	0.0
DY	231,722	774	7,423	0.5	853.5	853.5	853.5	0.0
DZ	233,533	1,814	12,229	0.2	853.5	853.5	853.5	0.0

¹Distances are measured in feet above confluence with Rock River

²Elevation computed without consideration of backwater effects from Lake Mendota

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
EA	235,872	1,070	5,393	0.4	853.5	853.5	853.5	0.0
EB	238,612	2,700	25,013	0.1	853.5	853.5	853.5	0.0
EC	241,397	2,854	11,059	0.3	853.5	853.5	853.5	0.0
ED	244,243	2,081	10,876	0.3	853.6	853.6	853.6	0.0
EE	246,154	1,709	4,633	0.6	853.6	853.6	853.6	0.0
EF	248,218	2,680	9,050	0.3	853.6	853.6	853.6	0.0
EG	252,202	1,837	4,692	0.6	854.0	854.0	854.0	0.0
EH	253,324	1,378	3,220	1.0	854.5	854.5	854.5	0.0
EI	255,025	1,866	4,652	0.7	855.1	855.1	855.1	0.0
EJ	259,000	2,060	6,114	0.7	856.0	856.0	856.0	0.0
EK	261,099	1,190	2,887	1.5	857.8	857.8	857.8	0.0
EL	263,344	589	3,137	1.3	859.4	859.4	859.4	0.0
EM	263,993	562	1,621	1.5	859.8	859.8	859.8	0.0
EN	265,223	289	1,106	2.2	862.6	862.6	862.6	0.0
EO	265,361	258	1,131	2.1	862.7	862.7	862.7	0.0
EP	265,699	457	2,019	1.2	862.9	862.9	862.9	0.0
EQ	267,217	1,055	3,426	0.7	863.1	863.1	863.1	0.0
ER	268,169	659	2,413	1.3	863.3	863.3	863.3	0.0
ES	268,680	311	654	3.6	863.5	863.5	863.5	0.0
ET	269,352	507	1,832	1.5	864.5	864.5	864.5	0.0
EU	270,131	645	2,265	1.5	864.9	864.9	864.9	0.0
EV	270,976	664	2,478	1.3	865.4	865.4	865.4	0.0
EW	272,284	404	3,054	1.6	867.7	867.7	867.7	0.0
EX	272,814	911	5,381	0.6	867.9	867.9	867.9	0.0
EY	273,449	605	4,049	0.9	867.9	867.9	867.9	0.0
EZ	274,213	716	3,446	1.1	868.0	868.0	868.0	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
FA	275,053	700	2,750	0.9	868.1	868.1	868.1	0.0
FB	275,709	850	3,085	0.9	868.1	868.1	868.1	0.0
FC	276,252	748	2,678	1.2	868.2	868.2	868.2	0.0
FD	276,669	499	1,941	0.9	870.2	870.2	870.2	0.0
FE	277,366	417	2,168	1.3	870.3	870.3	870.3	0.0
FF	278,071	243	758	2.3	870.5	870.5	870.5	0.0
FG	278,469	218	638	2.8	870.8	870.8	870.8	0.0
FH	278,865	528	1,611	1.1	871.2	871.2	871.2	0.0
FI	279,511	500	1,090	1.6	871.4	871.4	871.4	0.0
FJ	279,777	120	408	4.3	871.9	871.9	871.9	0.0
FK	280,288	508	1,608	1.1	875.1	875.1	875.1	0.0
FL	280,753	279	1,002	1.8	875.3	875.3	875.3	0.0
FM	281,404	349	1,069	1.7	875.8	875.8	875.8	0.0
FN	281,927	342	734	2.5	876.7	876.7	876.7	0.0
FO	282,418	395	1,030	1.9	877.9	877.9	877.9	0.0
FP	282,878	306	770	2.3	878.8	878.8	878.8	0.0
FQ	283,500	293	877	2.0	880.5	880.5	880.5	0.0
FR	284,027	318	967	2.3	881.3	881.3	881.3	0.0
FS	284,586	327	962	1.8	882.2	882.2	882.2	0.0
FT	285,149	295	992	1.8	883.0	883.0	883.0	0.0
FU	285,475	479	1,192	1.5	883.3	883.3	883.3	0.0
FV	286,101	767	1,741	1.0	883.8	883.8	883.8	0.0
FW	286,658	852	1,598	1.1	884.3	884.3	884.3	0.0
FX	287,262	314	483	2.6	885.2	885.2	885.2	0.0
FY	287,662	311	576	2.2	886.4	886.4	886.4	0.0
FZ	288,176	167	266	4.8	888.7	888.7	888.7	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
GA	288,650	261	554	2.6	890.9	890.9	890.9	0.0
GB	289,388	243	335	3.8	892.8	892.8	892.8	0.0
GC	290,052	286	476	2.7	895.5	895.5	895.5	0.0
GD	290,427	288	665	1.9	896.6	896.6	896.6	0.0
GE	290,820	181	439	2.9	897.4	897.4	897.4	0.0
GF	291,293	303	724	1.8	898.7	898.7	898.7	0.0
GG	291,955	517	1,115	1.1	899.8	899.8	899.8	0.0
GH	292,427	459	962	1.3	900.2	900.2	900.2	0.0
GI	292,961	485	1,172	1.1	900.6	900.6	900.6	0.0
GJ	293,468	502	1,027	1.2	901.0	901.0	901.0	0.0
GK	294,123	547	1,261	1.0	901.6	901.6	901.6	0.0
GL	294,850	352	664	1.9	902.8	902.8	902.8	0.0
GM	295,206	394	671	1.9	903.9	903.9	903.9	0.0
GN	296,342	293	1,172	1.2	908.1	908.1	908.1	0.0
GO	297,190	219	485	2.6	910.0	910.0	910.0	0.0
GP	297,508	299	646	2.0	911.5	911.5	911.5	0.0
GQ	298,084	364	721	1.8	913.0	913.0	913.0	0.0
GR	298,554	242	658	1.9	913.7	913.7	913.7	0.0
GS	299,208	244	631	2.0	914.8	914.8	914.8	0.0
GT	299,788	245	1,088	1.3	916.9	916.9	916.9	0.0
GU	300,237	266	698	2.0	917.3	917.3	917.3	0.0
GV	300,848	453	792	1.6	918.3	918.3	918.3	0.0
GW	301,164	446	775	1.6	918.9	918.9	918.9	0.0
GX	301,809	290	589	2.2	920.0	920.0	920.0	0.0
GY	302,282	344	572	2.2	921.4	921.4	921.4	0.0
GZ	302,801	392	885	1.6	922.3	922.3	922.3	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
HA	303,254	250	612	2.1	922.5	922.5	922.5	0.0
HB	303,771	216	402	3.2	923.1	923.1	923.1	0.0
HC	304,614	299	1,063	1.2	926.8	926.8	926.8	0.0
HD	305,081	536	2,072	0.6	927.0	927.0	927.0	0.0
HE	306,045	447	1,471	0.8	927.1	927.1	927.1	0.0
HF	306,607	565	2,068	0.6	927.2	927.2	927.2	0.0
HG	307,263	604	1,914	0.6	927.2	927.2	927.2	0.0
HH	307,672	510	1,399	0.8	927.3	927.3	927.3	0.0
HI	308,118	188	520	2.3	927.3	927.3	927.3	0.0
HJ	308,771	320	1,163	1.0	928.5	928.5	928.5	0.0
HK	309,184	140	791	2.1	928.7	928.7	928.7	0.0
HL	309,902	124	701	2.3	929.9	929.9	929.9	0.0
HM	310,536	234	1,196	1.4	931.0	931.0	931.0	0.0
HN	310,804	378	929	1.3	931.1	931.1	931.1	0.0
HO	311,247	169	691	1.9	931.3	931.3	931.3	0.0
HP	311,969	335	836	1.4	932.7	932.7	932.7	0.0
HQ	312,421	716	4,522	0.4	932.9	932.9	932.9	0.0
HR	313,957	888	5,215	0.5	933.0	933.0	933.0	0.0
HS	315,343	1,154	3,980	0.4	933.2	933.2	933.2	0.0
HT	316,301	559	2,235	0.7	933.3	933.3	933.3	0.0
HU	317,413	189	2,350	2.0	933.4	933.4	933.4	0.0
HV	318,542	695	2,343	0.7	934.0	934.0	934.0	0.0
HW	319,878	907	2,042	0.2	934.1	934.1	934.1	0.0
HX	321,186	559	1,326	0.3	934.2	934.2	934.2	0.0
HY	322,378	1,205	2,448	0.1	934.2	934.2	934.2	0.0
HZ	323,999	46	195	2.3	934.2	934.2	934.2	0.0
IA	324,510	63	163	1.9	934.4	934.4	934.4	0.0

¹Distances are measured in feet above confluence with Rock River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

DANE COUNTY, WISCONSIN

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YAHARA RIVER

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Wdth Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	153746	100-Year	Existing	1073.00	846.85	76.48	412.76	2.60
1	153746	100-Year	Proposed	1073.00	846.70	76.30	401.07	2.68
1	153698			Bridge				
1	153619	100-Year	Existing	1073.00	846.72	120.04	507.60	2.11
1	153619	100-Year	Proposed	1073.00	846.55	115.58	487.92	2.20
1	153380	100-Year	Existing	1073.00	846.71	254.83	1105.86	0.97
1	153380	100-Year	Proposed	1073.00	846.54	254.48	1062.81	1.01
1	152999	100-Year	Existing	1073.00	846.69	576.14	2115.38	0.51
1	152999	100-Year	Proposed	1073.00	846.52	573.87	2016.90	0.53
1	152613	100-Year	Existing	1073.00	846.68	691.06	2244.76	0.48
1	152613	100-Year	Proposed	1073.00	846.50	691.04	2124.68	0.51
1	152338	100-Year	Existing	1073.00	846.67	602.86	2036.45	0.53
1	152338	100-Year	Proposed	1073.00	846.49	597.24	1931.29	0.56
1	152087	100-Year	Existing	1073.00	846.66	513.51	1855.78	0.58
1	152087	100-Year	Proposed	1073.00	846.48	510.53	1765.56	0.61
1	151852	100-Year	Existing	1073.00	846.64	362.69	1327.09	0.81
1	151852	100-Year	Proposed	1073.00	846.46	360.04	1262.66	0.85
1	151677	100-Year	Existing	1073.00	846.57	157.79	636.65	1.69
1	151677	100-Year	Proposed	1073.00	846.38	156.18	607.48	1.77
1	151620 Exchange Street			Bridge				
1	151578	100-Year	Existing	1073.00	846.52	153.83	628.43	1.71
1	151578	100-Year	Proposed	1073.00	846.33	152.51	599.00	1.79
1	151408	100-Year	Existing	1073.00	846.50	222.69	873.24	1.23
1	151408	100-Year	Proposed	1073.00	846.30	217.14	829.93	1.29
1	151244	100-Year	Existing	1073.00	846.48	273.38	968.16	1.11
1	151244	100-Year	Proposed	1073.00	846.27	264.29	914.15	1.17
1	150741	100-Year	Existing	1073.00	846.38	192.20	766.68	1.40
1	150741	100-Year	Proposed	1073.00	846.16	190.09	725.17	1.48
1	150154	100-Year	Existing	1073.00	846.28	226.80	874.82	1.23
1	150154	100-Year	Proposed	1073.00	846.04	213.19	823.08	1.30
1	149626	100-Year	Existing	1073.00	846.19	365.68	962.29	1.12
1	149626	100-Year	Proposed	1073.00	845.94	342.56	872.13	1.23
1	149082	100-Year	Existing	1073.00	846.16	614.57	1823.17	0.59
1	149082	100-Year	Proposed	1073.00	845.90	606.97	1663.05	0.65
1	148173	100-Year	Existing	1073.00	846.17	1045.42	3104.35	0.35
1	148173	100-Year	Proposed	1073.00	845.91	1037.59	2831.96	0.38
1	142406	100-Year	Existing	1073.00	846.17	1838.30	4100.96	0.26
1	142406	100-Year	Proposed	1073.00	845.90	1834.14	3619.60	0.30

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total	W.S. Elev	Top Wdth Act	Flow Area	Vel Total
				(cfs)	(ft)	(ft)	(sq ft)	(ft/s)
1	141993	100-Year	Existing	1073.00	846.15	1879.97	3966.47	0.27
1	141993	100-Year	Proposed	1073.00	845.89	1851.24	3471.14	0.31
1	141571	100-Year	Existing	1073.00	846.14	1873.18	4238.13	0.25
1	141571	100-Year	Proposed	1073.00	845.88	1866.70	3737.16	0.29
1	141269	100-Year	Existing	1073.00	846.14	1328.05	3552.59	0.30
1	141269	100-Year	Proposed	1073.00	845.87	1322.08	3195.93	0.34
1	140843	100-Year	Existing	1073.00	846.12	460.44	1593.94	0.67
1	140843	100-Year	Proposed	1073.00	845.85	449.36	1469.93	0.73
1	140272	100-Year	Existing	1073.00	846.08	222.40	1155.49	0.93
1	140272	100-Year	Proposed	1073.00	845.80	220.23	1093.64	0.98
1	139762	100-Year	Existing	1073.00	846.04	245.49	1085.14	0.99
1	139762	100-Year	Proposed	1073.00	845.75	238.03	1015.63	1.06
1	139502	100-Year	Existing	1073.00	846.01	204.00	961.71	1.12
1	139502	100-Year	Proposed	1073.00	845.72	204.00	901.76	1.19
1	139407 E Dyreson Rd			Bridge				
1	139362	100-Year	Existing	1073.00	845.96	162.00	755.79	1.42
1	139362	100-Year	Proposed	1073.00	845.65	162.00	706.73	1.52
1	139083	100-Year	Existing	1073.00	845.95	431.13	1530.78	0.70
1	139083	100-Year	Proposed	1073.00	845.64	419.77	1400.15	0.77
1	138492	100-Year	Existing	1073.00	845.92	397.42	1541.52	0.70
1	138492	100-Year	Proposed	1073.00	845.60	383.70	1419.06	0.76
1	137784	100-Year	Existing	1073.00	845.86	344.47	1212.51	0.88
1	137784	100-Year	Proposed	1073.00	845.54	341.89	1100.33	0.98
1	137014	100-Year	Existing	1073.00	845.80	207.64	1037.84	1.03
1	137014	100-Year	Proposed	1073.00	845.46	206.80	966.78	1.11
1	135814	100-Year	Existing	1073.00	845.75	550.47	1893.06	0.57
1	135814	100-Year	Proposed	1073.00	845.39	522.07	1700.48	0.63
1	134832	100-Year	Existing	1073.00	845.72	573.58	1999.44	0.54
1	134832	100-Year	Proposed	1073.00	845.35	568.78	1789.51	0.60
1	133803	100-Year	Existing	1073.00	845.69	412.14	2041.09	0.53
1	133803	100-Year	Proposed	1073.00	845.32	411.08	1887.16	0.57
1	133179	100-Year	Existing	1073.00	845.67	258.45	1412.89	0.76
1	133179	100-Year	Proposed	1073.00	845.30	252.63	1316.18	0.82
1	132874	100-Year	Existing	1073.00	845.64	147.05	898.57	1.19
1	132874	100-Year	Proposed	1073.00	845.26	145.89	842.31	1.27
1	132826 CTH AB			Bridge				
1	132772	100-Year	Existing	1073.00	845.62	159.36	840.80	1.28
1	132772	100-Year	Proposed	1073.00	845.23	152.54	780.62	1.37

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Wdth Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	132432	100-Year	Existing	1073.00	845.61	460.00	1957.07	0.55
1	132432	100-Year	Proposed	1073.00	845.22	460.00	1776.77	0.60
1	131728	100-Year	Existing	1073.00	845.61	751.29	2391.62	0.45
1	131728	100-Year	Proposed	1073.00	845.22	726.46	2102.06	0.51
1	117585 Railroad	100-Year	Existing	1232.00	845.43	121.00	471.87	2.61
1	117585 Railroad	100-Year	Proposed	1232.00	844.99	121.00	418.49	2.94
1	117550 Railroad		Bridge					
1	117523 Railroad	100-Year	Existing	1232.00	845.21	95.00	365.12	3.37
1	117523 Railroad	100-Year	Proposed	1232.00	844.67	95.00	314.69	3.92
1	117497 Williams Drive	100-Year	Existing	1232.00	845.24	85.00	386.49	3.19
1	117497 Williams Drive	100-Year	Proposed	1232.00	844.71	85.00	342.22	3.60
1	117462 Williams Drive		Bridge					
1	117431	100-Year	Existing	1232.00	845.25	73.80	516.66	2.38
1	117431	100-Year	Proposed	1232.00	844.74	73.00	478.88	2.57
1	117423		Inl Struct					
1	117303	100-Year	Existing	1232.00	845.19	237.00	1321.76	0.93
1	117303	100-Year	Proposed	1232.00	844.67	237.00	1199.18	1.03
1	116637	100-Year	Existing	1232.00	845.16	1158.00	3627.23	0.34
1	116637	100-Year	Proposed	1232.00	844.63	1158.00	3009.99	0.41
1	115623	100-Year	Existing	1232.00	845.12	1704.51	3947.35	0.31
1	115623	100-Year	Proposed	1232.00	844.55	1579.70	3022.27	0.41
1	114279	100-Year	Existing	1232.00	845.07	1657.19	3973.47	0.31
1	114279	100-Year	Proposed	1232.00	844.46	1651.90	2963.21	0.42
1	113347	100-Year	Existing	1232.00	845.04	1255.39	3632.58	0.34
1	113347	100-Year	Proposed	1232.00	844.41	1252.84	2839.92	0.43
1	112610	100-Year	Existing	1232.00	844.96	551.36	1366.08	0.90
1	112610	100-Year	Proposed	1232.00	844.27	546.16	986.66	1.25
1	111782	100-Year	Existing	1232.00	844.90	263.03	1329.85	0.93
1	111782	100-Year	Proposed	1232.00	844.18	243.14	1147.49	1.07
1	111053	100-Year	Existing	1232.00	844.87	348.72	1482.99	0.83
1	111053	100-Year	Proposed	1232.00	844.13	271.51	1247.04	0.99
1	110441	100-Year	Existing	1232.00	844.85	405.86	1678.25	0.73
1	110441	100-Year	Proposed	1232.00	844.09	298.89	1419.06	0.87
1	109028	100-Year	Existing	1232.00	844.81	1563.00	3188.23	0.39
1	109028	100-Year	Proposed	1232.00	844.01	1460.18	1967.03	0.63
1	106466	100-Year	Existing	1232.00	844.79	3272.08	8390.48	0.15
1	106466	100-Year	Proposed	1232.00	843.97	3040.38	5800.81	0.21
1	104992	100-Year	Existing	1232.00	844.78	2095.54	5252.97	0.23

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Wdth Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	104992	100-Year	Proposed	1232.00	843.95	1988.98	3548.36	0.35
1	103439	100-Year	Existing	1232.00	844.78	1941.19	8317.87	0.15
1	103439	100-Year	Proposed	1232.00	843.95	1919.39	6711.54	0.18
1	102110	100-Year	Existing	1232.00	844.77	418.21	2078.83	0.59
1	102110	100-Year	Proposed	1232.00	843.93	373.11	1753.34	0.70
1	101466	100-Year	Existing	1232.00	844.72	204.30	1027.92	1.20
1	101466	100-Year	Proposed	1232.00	843.86	181.71	860.82	1.43
1	100902	100-Year	Existing	1232.00	844.68	201.40	1131.97	1.09
1	100902	100-Year	Proposed	1232.00	843.79	195.67	954.66	1.29
1	100491	100-Year	Existing	1232.00	844.64	180.42	963.98	1.28
1	100491	100-Year	Proposed	1232.00	843.71	168.99	801.61	1.54
1	100451 CTH B			Bridge				
1	100404	100-Year	Existing	1232.00	844.62	185.00	1050.90	1.17
1	100404	100-Year	Proposed	1232.00	843.69	185.00	878.64	1.40
1	99897	100-Year	Existing	1232.00	844.61	342.63	1786.57	0.69
1	99897	100-Year	Proposed	1232.00	843.67	270.99	1521.06	0.81
1	97948	100-Year	Existing	1232.00	844.56	546.93	1916.87	0.64
1	97948	100-Year	Proposed	1232.00	843.57	436.72	1409.65	0.87
1	96644	100-Year	Existing	1232.00	844.55	1397.29	4530.49	0.27
1	96644	100-Year	Proposed	1232.00	843.56	704.37	3375.56	0.36
1	95224	100-Year	Existing	1232.00	844.54	948.28	2911.72	0.42
1	95224	100-Year	Proposed	1232.00	843.54	828.47	2000.13	0.62
1	93817	100-Year	Existing	1232.00	844.54	1619.06	9841.95	0.13
1	93817	100-Year	Proposed	1232.00	843.54	1419.48	8309.68	0.15
1	92650	100-Year	Existing	1232.00	844.54	1450.00	5325.61	0.23
1	92650	100-Year	Proposed	1232.00	843.53	1097.38	3988.21	0.31
1	92340	100-Year	Existing	1232.00	844.54	876.42	4778.57	0.26
1	92340	100-Year	Proposed	1232.00	843.53	729.10	3958.17	0.31
1	92006	100-Year	Existing	1232.00	844.51	167.71	1128.18	1.09
1	92006	100-Year	Proposed	1232.00	843.50	161.79	960.97	1.28
1	91989 Footbridge			Bridge				
1	91967	100-Year	Existing	1232.00	844.51	158.19	1102.52	1.12
1	91967	100-Year	Proposed	1232.00	843.49	155.22	943.13	1.31
1	91922	100-Year	Existing	1232.00	844.40	90.35	489.75	2.52
1	91922	100-Year	Proposed	1232.00	843.31	89.98	392.12	3.14
1	91902 RR			Bridge				
1	91857	100-Year	Existing	1232.00	844.32	89.94	468.62	2.63
1	91857	100-Year	Proposed	1232.00	843.17	86.80	367.31	3.35

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Wdth Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	91590	100-Year	Existing	1232.00	844.29	146.81	801.48	1.54
1	91590	100-Year	Proposed	1232.00	843.08	142.05	627.35	1.96
1	91147	100-Year	Existing	1232.00	844.20	128.23	695.36	1.77
1	91147	100-Year	Proposed	1232.00	842.89	116.71	536.92	2.29
1	90843	100-Year	Existing	1232.00	844.17	156.42	873.86	1.41
1	90843	100-Year	Proposed	1232.00	842.82	148.57	666.86	1.85
1	90778 Forton Street			Bridge				
1	90714	100-Year	Existing	1232.00	844.12	112.56	725.72	1.70
1	90714	100-Year	Proposed	1232.00	842.74	109.03	572.52	2.15
1	90470	100-Year	Existing	1232.00	844.11	162.02	914.92	1.35
1	90470	100-Year	Proposed	1232.00	842.69	150.08	697.76	1.77
1	90208	100-Year	Existing	1232.00	844.10	186.02	1119.95	1.10
1	90208	100-Year	Proposed	1232.00	842.66	177.20	859.66	1.43
1	89912	100-Year	Existing	1232.00	844.07	150.73	950.25	1.30
1	89912	100-Year	Proposed	1232.00	842.60	143.65	734.60	1.68
1	89646	100-Year	Existing	1232.00	844.03	106.64	768.16	1.60
1	89646	100-Year	Proposed	1232.00	842.53	103.55	610.38	2.02
1	89573 Main Street			Bridge				
1	89509	100-Year	Existing	1232.00	843.99	94.39	651.13	1.89
1	89509	100-Year	Proposed	1232.00	842.47	80.92	518.08	2.38
1	89385	100-Year	Existing	1232.00	843.98	105.91	688.95	1.79
1	89385	100-Year	Proposed	1232.00	842.44	94.60	534.56	2.30
1	89269	100-Year	Existing	1232.00	843.98	129.63	838.99	1.47
1	89269	100-Year	Proposed	1232.00	842.44	124.56	642.49	1.92
1	89237 Footbridge			Bridge				
1	89196	100-Year	Existing	1232.00	843.98	150.24	905.42	1.36
1	89196	100-Year	Proposed	1232.00	842.42	141.82	677.92	1.82
1	89146.3	100-Year	Existing	1232.00	843.98	179.99	1033.40	1.19
1	89146.3	100-Year	Proposed	1232.00	842.42	170.34	760.15	1.62
1	89096.7	100-Year	Existing	1232.00	843.98	211.70	1196.43	1.03
1	89096.7	100-Year	Proposed	1232.00	842.42	199.44	875.51	1.41
1	89047.1	100-Year	Existing	1232.00	843.98	285.54	1303.73	0.94
1	89047.1	100-Year	Proposed	1232.00	842.41	221.24	928.53	1.33
1	88997.5	100-Year	Existing	1232.00	843.98	254.99	1383.92	0.89
1	88997.5	100-Year	Proposed	1232.00	842.41	244.03	994.16	1.24
1	88947.8	100-Year	Existing	1232.00	843.98	259.17	1409.12	0.87
1	88947.8	100-Year	Proposed	1232.00	842.41	245.67	1013.17	1.22

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Wdth Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	88898.2	100-Year	Existing	1232.00	843.98	270.26	1489.50	0.83
1	88898.2	100-Year	Proposed	1232.00	842.41	237.75	1090.54	1.13
1	88848.6	100-Year	Existing	1232.00	843.97	250.33	1428.08	0.86
1	88848.6	100-Year	Proposed	1232.00	842.40	232.34	1048.91	1.17
1	88799	100-Year	Existing	1232.00	843.97	238.90	1573.87	0.78
1	88799	100-Year	Proposed	1232.00	842.40	226.37	1208.66	1.02
1	88752.0	100-Year	Existing	1232.00	843.97	245.94	1707.46	0.72
1	88752.0	100-Year	Proposed	1232.00	842.40	236.47	1328.70	0.93
1	88705.1	100-Year	Existing	1232.00	843.97	266.08	1676.97	0.73
1	88705.1	100-Year	Proposed	1232.00	842.40	258.24	1264.35	0.97
1	88658.2	100-Year	Existing	1232.00	843.97	279.50	1717.80	0.72
1	88658.2	100-Year	Proposed	1232.00	842.39	273.05	1282.04	0.96
1	88611.3	100-Year	Existing	1232.00	843.97	297.63	1780.68	0.69
1	88611.3	100-Year	Proposed	1232.00	842.39	289.25	1317.71	0.93
1	88564.4	100-Year	Existing	1232.00	843.97	316.32	1809.66	0.68
1	88564.4	100-Year	Proposed	1232.00	842.39	307.65	1316.48	0.94
1	88517.5	100-Year	Existing	1232.00	843.97	340.23	1831.41	0.67
1	88517.5	100-Year	Proposed	1232.00	842.38	327.47	1301.45	0.95
1	88470.5	100-Year	Existing	1232.00	843.97	348.98	1865.40	0.66
1	88470.5	100-Year	Proposed	1232.00	842.38	341.83	1317.73	0.93
1	88423.6	100-Year	Existing	1232.00	843.97	380.08	2008.79	0.61
1	88423.6	100-Year	Proposed	1232.00	842.38	367.20	1415.56	0.87
1	88376.7	100-Year	Existing	1232.00	843.97	396.45	2169.96	0.57
1	88376.7	100-Year	Proposed	1232.00	842.38	388.60	1546.50	0.80
1	88329.8	100-Year	Existing	1232.00	843.97	426.80	2348.54	0.52
1	88329.8	100-Year	Proposed	1232.00	842.38	412.02	1679.85	0.73
1	88282.9	100-Year	Existing	1232.00	843.97	431.82	2411.45	0.51
1	88282.9	100-Year	Proposed	1232.00	842.37	422.22	1732.12	0.71
1	88236	100-Year	Existing	1232.00	843.97	455.07	2503.89	0.49
1	88236	100-Year	Proposed	1232.00	842.37	442.25	1788.23	0.69
1	88189.7	100-Year	Existing	1232.00	843.96	477.50	2569.97	0.48
1	88189.7	100-Year	Proposed	1232.00	842.37	466.76	1817.63	0.68
1	88143.4	100-Year	Existing	1232.00	843.96	490.13	2684.47	0.46
1	88143.4	100-Year	Proposed	1232.00	842.37	479.54	1911.34	0.64
1	88097.1	100-Year	Existing	1232.00	843.96	473.52	2571.70	0.48
1	88097.1	100-Year	Proposed	1232.00	842.37	465.02	1822.12	0.68
1	88050.9	100-Year	Existing	1232.00	843.96	460.78	2416.40	0.51
1	88050.9	100-Year	Proposed	1232.00	842.36	450.31	1687.93	0.73
1	88004.6	100-Year	Existing	1232.00	843.96	440.73	2638.45	0.47

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Wdth Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	88004.6	100-Year	Proposed	1232.00	842.36	431.21	1941.07	0.63
1	87958.3	100-Year	Existing	1232.00	843.96	439.58	2827.38	0.44
1	87958.3	100-Year	Proposed	1232.00	842.36	431.56	2130.31	0.58
1	87912.0	100-Year	Existing	1232.00	843.96	445.20	2942.31	0.42
1	87912.0	100-Year	Proposed	1232.00	842.36	428.02	2244.89	0.55
1	87865.8	100-Year	Existing	1232.00	843.96	454.97	2871.34	0.43
1	87865.8	100-Year	Proposed	1232.00	842.36	436.33	2158.61	0.57
1	87819.5	100-Year	Existing	1232.00	843.96	464.21	3120.79	0.39
1	87819.5	100-Year	Proposed	1232.00	842.36	445.19	2393.50	0.51
1	87773.2	100-Year	Existing	1232.00	843.96	367.46	2816.15	0.44
1	87773.2	100-Year	Proposed	1232.00	842.36	341.32	2250.83	0.55
1	87727	100-Year	Existing	1232.00	843.92	80.00	892.49	1.38
1	87727	100-Year	Proposed	1232.00	841.09	80.00	155.63	7.92
1	87707 Stoughton Dam			Inl Struct				
1	87692.5	100-Year	Proposed	1232.00	837.66	58.42	155.57	7.92
1	87658	100-Year	Existing	1232.00	838.10	76.71	558.21	2.21
1	87658	100-Year	Proposed	1232.00	838.07	75.74	524.66	2.35
1	87610.3	100-Year	Existing	1232.00	838.11	131.00	852.42	1.45
1	87610.3	100-Year	Proposed	1232.00	838.10	181.68	946.28	1.30
1	87562.6	100-Year	Existing	1232.00	838.09	122.06	772.78	1.59
1	87562.6	100-Year	Proposed	1232.00	838.03	121.80	579.24	2.13
1	87515	100-Year	Existing	1232.00	837.99	85.02	470.60	2.62
1	87515	100-Year	Proposed	1232.00	837.97	115.93	473.65	2.60
1	87500	100-Year	Existing	1232.00	837.41	47.02	206.59	5.96
1	87500	100-Year	Proposed	1232.00	837.29	61.58	197.73	6.23
1	87472 S 4th Street			Culvert				
1	87420	100-Year	Existing	1304.00	836.89	62.42	298.30	4.37
1	87420	100-Year	Proposed	1304.00	836.22	39.15	155.54	8.38
1	87400.5	100-Year	Existing	1304.00	836.09	69.66	245.92	5.30
1	87400.5	100-Year	Proposed	1304.00	835.98	49.47	151.64	8.60
1	87381.1	100-Year	Existing	1304.00	836.06	78.95	263.90	4.94
1	87381.1	100-Year	Proposed	1304.00	835.81	77.71	160.39	8.13
1	87361.6	100-Year	Existing	1304.00	835.87	85.58	236.16	5.52
1	87361.6	100-Year	Proposed	1304.00	835.85	85.49	222.29	5.87
1	87342.2	100-Year	Existing	1304.00	835.85	92.14	264.14	4.94
1	87342.2	100-Year	Proposed	1304.00	835.84	92.13	263.68	4.95
1	87322.8	100-Year	Existing	1304.00	835.86	98.44	319.71	4.08
1	87322.8	100-Year	Proposed	1304.00	835.85	98.40	314.87	4.14

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	W.S. Elev (ft)	Top Width Act (ft)	Flow Area (sq ft)	Vel Total (ft/s)
1	87303.3	100-Year	Existing	1304.00	835.83	103.72	335.37	3.89
1	87303.3	100-Year	Proposed	1304.00	835.83	98.32	333.35	3.91
1	87283.9	100-Year	Existing	1304.00	835.79	110.49	331.45	3.93
1	87283.9	100-Year	Proposed	1304.00	835.79	104.71	330.56	3.94
1	87264.5	100-Year	Existing	1304.00	835.71	116.64	312.69	4.17
1	87264.5	100-Year	Proposed	1304.00	835.71	115.98	312.63	4.17
1	87245.0	100-Year	Existing	1304.00	835.59	103.98	288.62	4.52
1	87245.0	100-Year	Proposed	1304.00	835.59	103.97	288.57	4.52
1	87225.6	100-Year	Existing	1304.00	835.53	107.50	291.66	4.47
1	87225.6	100-Year	Proposed	1304.00	835.53	107.45	291.68	4.47
1	87206.1	100-Year	Existing	1304.00	835.50	121.19	316.74	4.12
1	87206.1	100-Year	Proposed	1304.00	835.50	120.96	316.71	4.12
1	87186.7	100-Year	Existing	1304.00	835.50	137.27	390.82	3.34
1	87186.7	100-Year	Proposed	1304.00	835.50	137.28	390.81	3.34
1	87167.3	100-Year	Existing	1304.00	835.50	142.78	451.01	2.89
1	87167.3	100-Year	Proposed	1304.00	835.50	142.78	451.03	2.89
1	87147.8	100-Year	Existing	1304.00	835.50	148.03	522.66	2.49
1	87147.8	100-Year	Proposed	1304.00	835.50	148.03	522.67	2.49
1	87128.4	100-Year	Existing	1304.00	835.50	153.47	599.33	2.18
1	87128.4	100-Year	Proposed	1304.00	835.50	153.47	599.35	2.18
1	87109	100-Year	Existing	1304.00	835.49	157.88	621.82	2.10
1	87109	100-Year	Proposed	1304.00	835.49	157.89	621.84	2.10
1	87089.7	100-Year	Existing	1304.00	835.36	227.33	847.07	1.54
1	87089.7	100-Year	Proposed	1304.00	835.36	227.33	847.09	1.54
1	87070.3	100-Year	Existing	1304.00	835.35	222.03	831.51	1.57
1	87070.3	100-Year	Proposed	1304.00	835.35	222.03	831.54	1.57
1	87051.0	100-Year	Existing	1304.00	835.35	214.23	812.27	1.61
1	87051.0	100-Year	Proposed	1304.00	835.35	214.23	812.30	1.61
1	87031.7	100-Year	Existing	1304.00	835.34	205.16	783.26	1.66
1	87031.7	100-Year	Proposed	1304.00	835.34	205.16	783.29	1.66
1	87012.4	100-Year	Existing	1304.00	835.33	191.17	730.46	1.79
1	87012.4	100-Year	Proposed	1304.00	835.33	191.17	730.50	1.79
1	86993.1	100-Year	Existing	1304.00	835.31	190.15	658.81	1.98
1	86993.1	100-Year	Proposed	1304.00	835.31	190.15	658.85	1.98
1	86973.8	100-Year	Existing	1304.00	835.28	167.61	604.22	2.16
1	86973.8	100-Year	Proposed	1304.00	835.28	167.60	603.26	2.16
1	86954.5	100-Year	Existing	1304.00	835.26	153.75	556.13	2.34
1	86954.5	100-Year	Proposed	1304.00	835.26	153.75	556.15	2.34

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total	W.S. Elev	Top Wdth Act	Flow Area	Vel Total
				(cfs)	(ft)	(ft)	(sq ft)	(ft/s)
1	86935.2	100-Year	Existing	1304.00	835.24	146.93	532.45	2.45
1	86935.2	100-Year	Proposed	1304.00	835.24	146.93	532.47	2.45
1	86915.9	100-Year	Existing	1304.00	835.22	140.30	505.86	2.58
1	86915.9	100-Year	Proposed	1304.00	835.22	140.30	505.88	2.58
1	86896.6	100-Year	Existing	1304.00	835.19	135.40	481.98	2.71
1	86896.6	100-Year	Proposed	1304.00	835.19	135.40	482.00	2.71
1	86877.3	100-Year	Existing	1304.00	835.17	127.47	464.22	2.81
1	86877.3	100-Year	Proposed	1304.00	835.17	127.47	464.25	2.81
1	86858.0	100-Year	Existing	1304.00	835.15	121.55	465.98	2.80
1	86858.0	100-Year	Proposed	1304.00	835.15	121.55	466.01	2.80
1	86838.7	100-Year	Existing	1304.00	835.14	117.86	466.72	2.79
1	86838.7	100-Year	Proposed	1304.00	835.14	117.86	466.75	2.79
1	86819.3	100-Year	Existing	1304.00	835.13	114.10	473.27	2.76
1	86819.3	100-Year	Proposed	1304.00	835.13	114.10	473.29	2.76
1	86803.5	100-Year	Existing	1304.00	835.12	119.43	494.63	2.64
1	86803.5	100-Year	Proposed	1304.00	835.12	119.43	494.65	2.64
1	86780	100-Year	Existing	1304.00	835.11	120.58	498.87	2.61
1	86780	100-Year	Proposed	1304.00	835.11	120.58	498.87	2.61
1	86742.1	100-Year	Existing	1304.00	835.08	115.32	484.21	2.69
1	86742.1	100-Year	Proposed	1304.00	835.08	115.32	484.21	2.69
1	86607	100-Year	Existing	1304.00	834.89	103.74	378.52	3.44
1	86607	100-Year	Proposed	1304.00	834.89	103.74	378.52	3.44
1	86162	100-Year	Existing	1304.00	834.47	125.53	447.07	2.92
1	86162	100-Year	Proposed	1304.00	834.47	125.53	447.07	2.92
1	85705 AJ	100-Year	Existing	1304.00	834.28	170.29	654.16	1.99
1	85705 AJ	100-Year	Proposed	1304.00	834.28	170.29	654.16	1.99
1	84944 AI	100-Year	Existing	1304.00	834.01	177.29	668.20	1.95
1	84944 AI	100-Year	Proposed	1304.00	834.01	177.29	668.20	1.95
1	84208 AH	100-Year	Existing	1304.00	833.92	592.45	1364.19	0.96
1	84208 AH	100-Year	Proposed	1304.00	833.92	592.45	1364.19	0.96
1	83621	100-Year	Existing	1304.00	833.86	663.86	1499.11	0.87
1	83621	100-Year	Proposed	1304.00	833.86	663.86	1499.11	0.87
1	83221 AG	100-Year	Existing	1304.00	833.78	672.00	943.92	1.38
1	83221 AG	100-Year	Proposed	1304.00	833.78	672.00	943.92	1.38
1	82387	100-Year	Existing	1304.00	833.67	350.39	1136.43	1.15
1	82387	100-Year	Proposed	1304.00	833.67	350.39	1136.43	1.15
1	81953 AF	100-Year	Existing	1304.00	833.61	257.49	993.86	1.31
1	81953 AF	100-Year	Proposed	1304.00	833.61	257.49	993.86	1.31
1	81124 AE	100-Year	Existing	1304.00	833.50	240.96	1020.26	1.28

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total	W.S. Elev	Top Wdth Act	Flow Area	Vel Total
				(cfs)	(ft)	(ft)	(sq ft)	(ft/s)
1	81124 AE	100-Year	Proposed	1304.00	833.50	240.96	1020.26	1.28
1	80487 AD	100-Year	Existing	1304.00	833.39	247.10	921.76	1.41
1	80487 AD	100-Year	Proposed	1304.00	833.39	247.10	921.76	1.41
1	79956 AC	100-Year	Existing	1304.00	833.25	193.87	713.17	1.83
1	79956 AC	100-Year	Proposed	1304.00	833.25	193.87	713.17	1.83
1	79399 AB	100-Year	Existing	1304.00	833.09	254.66	878.93	1.48
1	79399 AB	100-Year	Proposed	1304.00	833.09	254.66	878.93	1.48
1	78832 AA	100-Year	Existing	1304.00	832.96	236.59	850.66	1.53
1	78832 AA	100-Year	Proposed	1304.00	832.96	236.59	850.66	1.53
1	78365 Z	100-Year	Existing	1304.00	832.85	206.98	803.57	1.62
1	78365 Z	100-Year	Proposed	1304.00	832.85	206.98	803.57	1.62
1	76681 Y	100-Year	Existing	1304.00	832.48	225.24	760.59	1.71
1	76681 Y	100-Year	Proposed	1304.00	832.48	225.24	760.59	1.71
1	75331 X	100-Year	Existing	1304.00	832.38	283.41	1257.70	1.04
1	75331 X	100-Year	Proposed	1304.00	832.38	283.41	1257.70	1.04
1	74120	100-Year	Existing	1304.00	832.34	272.15	1401.10	0.93
1	74120	100-Year	Proposed	1304.00	832.34	272.15	1401.10	0.93
1	73054 W	100-Year	Existing	1737.00	832.31	460.34	2329.17	0.75
1	73054 W	100-Year	Proposed	1737.00	832.31	460.34	2329.17	0.75
1	71927 V	100-Year	Existing	1737.00	832.29	288.00	2115.05	0.82
1	71927 V	100-Year	Proposed	1737.00	832.29	288.00	2115.05	0.82
1	71694			Inl Struct				
1	71544 U	100-Year	Existing	1737.00	823.73	212.00	863.39	2.01
1	71544 U	100-Year	Proposed	1737.00	823.73	212.00	863.39	2.01
1	71478.9*	100-Year	Existing	1737.00	823.65	247.30	790.24	2.20
1	71478.9*	100-Year	Proposed	1737.00	823.65	247.30	790.24	2.20
1	71089 T	100-Year	Existing	1737.00	823.38	201.97	787.24	2.21
1	71089 T	100-Year	Proposed	1737.00	823.38	201.97	787.24	2.21
1	70758.9*	100-Year	Existing	1737.00	823.21	221.75	771.10	2.25
1	70758.9*	100-Year	Proposed	1737.00	823.21	221.75	771.10	2.25
1	70715	100-Year	Existing	1737.00	823.19	197.69	773.77	2.24
1	70715	100-Year	Proposed	1737.00	823.19	197.69	773.77	2.24
1	70611 County Highway N			Bridge				
1	70540	100-Year	Existing	1737.00	822.88	153.52	552.35	3.14
1	70540	100-Year	Proposed	1737.00	822.88	153.52	552.35	3.14
1	70271 S	100-Year	Existing	1737.00	822.77	182.38	754.74	2.30
1	70271 S	100-Year	Proposed	1737.00	822.77	182.38	754.74	2.30
1	69515 R	100-Year	Existing	1737.00	822.51	186.08	831.81	2.09

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total	W.S. Elev	Top Wdth Act	Flow Area	Vel Total
				(cfs)	(ft)	(ft)	(sq ft)	(ft/s)
1	69515 R	100-Year	Proposed	1737.00	822.51	186.08	831.81	2.09
1	68300 Q	100-Year	Existing	1737.00	822.08	183.94	798.77	2.17
1	68300 Q	100-Year	Proposed	1737.00	822.08	183.94	798.77	2.17
1	67896.3*	100-Year	Existing	1737.00	821.87	161.82	660.62	2.63
1	67896.3*	100-Year	Proposed	1737.00	821.87	161.82	660.62	2.63
1	67492.6*	100-Year	Existing	1737.00	821.53	144.81	543.80	3.19
1	67492.6*	100-Year	Proposed	1737.00	821.53	144.81	543.80	3.19
1	67089 P	100-Year	Existing	1737.00	820.84	171.59	431.36	4.03
1	67089 P	100-Year	Proposed	1737.00	820.84	171.59	431.36	4.03
1	66916.*	100-Year	Existing	1737.00	820.54	180.85	459.85	3.78
1	66916.*	100-Year	Proposed	1737.00	820.54	180.85	459.85	3.78
1	66743.*	100-Year	Existing	1737.00	820.29	173.11	498.94	3.48
1	66743.*	100-Year	Proposed	1737.00	820.29	173.11	498.94	3.48
1	66570.*	100-Year	Existing	1737.00	820.11	185.28	550.31	3.16
1	66570.*	100-Year	Proposed	1737.00	820.11	185.28	550.31	3.16
1	66397.*	100-Year	Existing	1737.00	819.97	199.87	611.30	2.84
1	66397.*	100-Year	Proposed	1737.00	819.97	199.87	611.30	2.84
1	66224.*	100-Year	Existing	1737.00	819.86	217.21	682.71	2.54
1	66224.*	100-Year	Proposed	1737.00	819.86	217.21	682.71	2.54
1	66051 O	100-Year	Existing	1737.00	819.78	197.57	751.81	2.31
1	66051 O	100-Year	Proposed	1737.00	819.78	197.57	751.81	2.31
1	65594.5*	100-Year	Existing	1737.00	819.60	217.45	813.00	2.14
1	65594.5*	100-Year	Proposed	1737.00	819.60	217.45	813.00	2.14
1	65138 N	100-Year	Existing	1737.00	819.44	231.38	882.54	1.97
1	65138 N	100-Year	Proposed	1737.00	819.44	231.38	882.54	1.97
1	64787.3*	100-Year	Existing	1737.00	819.30	201.56	784.28	2.21
1	64787.3*	100-Year	Proposed	1737.00	819.30	201.56	784.28	2.21
1	64436.6*	100-Year	Existing	1737.00	819.13	162.91	690.92	2.51
1	64436.6*	100-Year	Proposed	1737.00	819.13	162.91	690.92	2.51
1	64086 M	100-Year	Existing	1737.00	818.90	138.07	596.07	2.91
1	64086 M	100-Year	Proposed	1737.00	818.90	138.07	596.07	2.91
1	63642.*	100-Year	Existing	1737.00	818.62	155.13	612.71	2.83
1	63642.*	100-Year	Proposed	1737.00	818.62	155.13	612.71	2.83
1	63198 L	100-Year	Existing	1737.00	818.28	172.34	603.16	2.88
1	63198 L	100-Year	Proposed	1737.00	818.28	172.34	603.16	2.88
1	62699.*	100-Year	Existing	1737.00	817.94	186.67	669.98	2.59
1	62699.*	100-Year	Proposed	1737.00	817.94	186.67	669.98	2.59
1	62200 K	100-Year	Existing	1737.00	817.69	263.81	868.93	2.00
1	62200 K	100-Year	Proposed	1737.00	817.69	263.81	868.93	2.00

HEC-RAS River: Yahara River Reach: 1 Profile: 100-Year (Continued)

Reach	River Sta	Profile	Plan	Q Total	W.S. Elev	Top Wdth Act	Flow Area	Vel Total
				(cfs)	(ft)	(ft)	(sq ft)	(ft/s)
1	61753.*	100-Year	Existing	1737.00	817.42	195.73	678.32	2.56
1	61753.*	100-Year	Proposed	1737.00	817.42	195.73	678.32	2.56
1	61306 J	100-Year	Existing	1737.00	817.03	162.81	550.51	3.16
1	61306 J	100-Year	Proposed	1737.00	817.03	162.81	550.51	3.16
1	60949.6*	100-Year	Existing	1737.00	816.64	159.49	527.15	3.30
1	60949.6*	100-Year	Proposed	1737.00	816.64	159.49	527.15	3.30
1	60593.3*	100-Year	Existing	1737.00	816.19	150.95	492.48	3.53
1	60593.3*	100-Year	Proposed	1737.00	816.19	150.95	492.48	3.53
1	60237 I	100-Year	Existing	1737.00	815.58	138.98	438.10	3.96
1	60237 I	100-Year	Proposed	1737.00	815.58	138.98	438.10	3.96
1	59800.6*	100-Year	Existing	1737.00	815.05	178.18	562.48	3.09
1	59800.6*	100-Year	Proposed	1737.00	815.05	178.18	562.48	3.09
1	59364.3*	100-Year	Existing	1737.00	814.75	218.36	721.53	2.41
1	59364.3*	100-Year	Proposed	1737.00	814.75	218.36	721.53	2.41
1	58928 H	100-Year	Existing	1737.00	814.57	255.68	915.72	1.90
1	58928 H	100-Year	Proposed	1737.00	814.57	255.68	915.72	1.90