CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: 1-22-2025 FILE REF: Briess Industries, Inc. Chilton

TO: Nicole Krueger, Limit Calculator; Trevor Moen, Compliance Engineer

FROM: Dave Bolha, Stream Biologist; Kristi Minahan, Water Quality Standards; Diane Figiel, Limit Calculator Coordinator

SUBJECT: Briess Industries-Irish Road, Unnamed Tributary (No WBIC) to South Branch Manitowoc River, (WBIC 77900), Chilton, Calumet County

Overview of issue

In preparation for reissuance of the Briess Industries-Irish Road permit, staff were requested to do a site visit to determine the appropriate stream classifications for the receiving waters. Briess is a noncontinuous discharger. Their discharge was previously permitted under the Non-Contact Cooling Water general permit but will be changed to an individual permit because their new phosphorus limits require an individual permit. As part of the general permit requirements, the facility reads the meter once per month and divides by the number of days and reports flow every day as a daily average. The flows ranged from 1,429 gpd to 12,750 gpd. The maximum annual average flow rate proposed in the permit application is 0.018 MGD (0.028 cfs).

The effluent goes into a series of two detention ponds which then outlet into a stormwater ditch (Segment 1, no WBIC), which likely historically was an agricultural ditch (Photo 1, Map 1-2). The ditch generally runs north-west along the railroad tracks and connects with the city stormwater system around manhole 7110 (see Map 1-2, Photo 2). From manhole 7110, Briess's effluent flows through buried concrete storm sewer pipe north toward its outlet into the South Branch Manitowoc (Photo 3). During high stormwater runoff events, the capacity of manhole 7110 appears to be overwhelmed and water can surface-flow through a ditch that runs over the top of the concrete storm sewer (Photo 4). The storm sewer manhole 7110 receives a relatively large storm sewer-shed from the south and west (see attached Chilton sewer map). The surface ditch appears to often be dry as it approaches the South Branch Manitowoc River (Segment 2, WBIC 77900) but may flow during wet weather. The Chilton Public Works Department believes most of Briess's effluent seeps into the ground/storm sewer system before making it to the South Branch Manitowoc River.

The main objective of this site visit was to determine the appropriate stream classifications for the flow path to the South Branch Manitowoc River.

Summary of recommendations

- **Segment 1: Unnamed Tributary (no WBIC) to South Branch Manitowoc River**
  - *Codified designated use:* not in ch. NR 104 as Limited Aquatic Life (LAL) or Limited Forage Fish (LFF) and not classified as trout water
  - *Classification used for previous permit issuance:* NA (currently covered by non-contact cooling water general permit)
  - *Previous stream class recommendations:* NA
  - *Modeled Natural Community:* NA (not modeled)
  - *New recommended Natural Community and Designated Use:* Macroinvertebrate Natural Community (NC); LAL Designated Use (DU)

- **Segment 2: South Branch Manitowoc River (WBIC 77900)**
  - *Codified designated use:* not in ch. NR 104 as LAL or LFF and not classified as trout water
  - *Classification used for previous permit issuance:* NA
  - *Previous stream class recommendations:* NA
  - *Modeled Natural Community:* Cool-Warm Mainstem
  - *New recommended NC & DU:* No survey conducted at this time, but DU is Warmwater. 2006 Survey at Irish Road downstream of where Briess effluent enters indicates a Cool-Warm Mainstem NC, which is in the Warm Water Designated Use category.

Site overview map

Map 1. Flow path from the detention pond receiving effluent from Briess Industries to the South Branch Manitowoc River.

Map 2: Briess Industries effluent flow path with photo locations.

Site observations and habitat survey results

- Segment 1 (most upstream): Unnamed Tributary (no WBIC) to South Branch Manitowoc River
  - On July 11th, 2024, David Bolha (myself), Trevor Moen, and Mack Chier met with Chris Marx with the City of Chilton Public Works Department at Irish Road and the Unnamed Tributary to the South Branch Manitowoc River. Chris arranged for access to the tributary downstream until flowing into the South Branch Manitowoc River. We observed the outflow from the two detention ponds on the east side of Irish Road. There was minimal water running through a culvert under Irish Road flowing north-west 225 meters along the south side of the railroad tracks (Photo 1). Then, the ditch goes north through a concrete culvert under the railroad tracks, before turning north-west again toward Chilton storm sewer manhole 7110 (Map 1-2). The water flow from the Unnamed Tributary flows into a low spot at manhole 7110 where it went sub-surface (presumably seeping into the manhole/storm sewer system) (Photo 2). No water was observed flowing over the soil surface north toward the South Branch Manitowoc River. There was some indication of surface flow through a ditch north toward the South Branch Manitowoc River during past high precipitation events, but it was not currently flowing (Photo 3). The Chilton storm sewer flows north from manhole 7110 through a buried concrete culvert 517 feet until it discharges into the South Branch Manitowoc River (Photo 4-5, attached storm sewer map). There is no fish passage during low, summer-time flows from the South Branch Manitowoc River into the Unnamed Tributary upstream of manhole 7110. Because this segment does not have the potential to support fish, Macroinvertebrate community/LAL is appropriate for the Unnamed Tributary from the ponds downstream to the South Branch Manitowoc River.
  - Fish and habitat surveys were conducted in the Unnamed Tributary beginning 100 meters downstream (north-west) of Irish Road (starting at Photo 1 location). No fish were captured during the survey. The average stream width was 0.3 meters. The Dissolved Oxygen concentration in the tributary was 2.61 mg/L, with 31.3%

Saturation. Flow was measured at 0.00 cubic meters per second at the Irish Road culvert. The Qualitative Habitat survey scored 35 or Fair. Scanned data sheets are attached below.

- Segment 2: South Branch Manitowoc River (WBIC 77900) (Photo 5)
  - No fish or habitat surveys were conducted on the South Branch Manitowoc River during this evaluation.
  - On August 8th, 2006, a fish and quantitative habitat survey was conducted at the Irish Road bridge on the South Branch. The recommended NC is Warm Transition Mainstem. The fish community fit well into the Warm Transition thermal guild for Natural Community. Although the fish were more reflective of a headwater stream size guild, for its size, both in flow and cross-section, the South Branch Manitowoc River is more appropriately a Mainstem. Because the Warm Transition Mainstem NC fits within the Warm Water DU category, the Designated Use for South Branch should be Warmwater. The Natural Community Verification report is attached below. The quantitative habitat survey indicated good habitat with a score of 58.

Fish survey results (if available)

- No fish were captured during the survey of the Unnamed Tributary to the South Branch Manitowoc River on July 11th, 2024. No Natural Community verification can be conducted. Data sheet has been attached below (Attachment 2). No prior surveys had been conducted on this Unnamed Tributary.
- The Natural Community verification report for a survey on the South Branch Manitowoc River at Irish Road in 2006 has been attached below (Attachment 5). The Natural Community of the South Branch was verified as Warm Transition Mainstem. The fish survey scored in the Good condition category for Cool Warm IBI. An updated wadable fish survey could be useful in the future.

Discussion and Designated Use Recommendations

Note: Recommendations from this site visit are shown at the top of this memo.

- **Segment 1**: The Unnamed Tributary that flows out of the two detention ponds had little to no measurable flow, no fish present, fair qualitative habitat, and was disconnected from the South Branch Manitowoc River via the Chilton storm sewer system. The appropriate Natural Community is a Macroinvertebrate stream with a Limited Aquatic Life Designated Use.
  - It does not fit the definition of a "wastewater effluent channel" under ch. NR 104.02(1)(d) because there was a pre-existing agricultural ditch prior to construction of the facility (see 1938 aerial map in attachments).
  - Also, although it has low and intermittent flows, it is not expected to meet the definition of "diffused surface water" as being "usually dry except in times of runoff," under ch. NR 104.02(1)(b).
- **Segment 2**: South Branch Manitowoc River: No fish survey was conducted on the South Branch Manitowoc River; however, previous surveys indicate a diverse, Warm Transition Mainstem Natural Community with a Warmwater Designated Use.

Are code changes and/or a Use Attainability Analysis needed?

Limited aquatic life is recommended for Segment 1 because the ditch's poor habitat and low intermittent flow would not support a fish community. We recommend adding this segment to ch. NR 104 as an LAL. This would require a use attainability analysis (UAA) and a code revision. However, if effluent flows increased or became continuous, the designated use would need to be reevaluated.

Photos

Photo 1: Unnamed Tributary to South Branch Manitowoc River facing East toward Irish Road. Photo taken by David Bolha on July 11th, 2024.

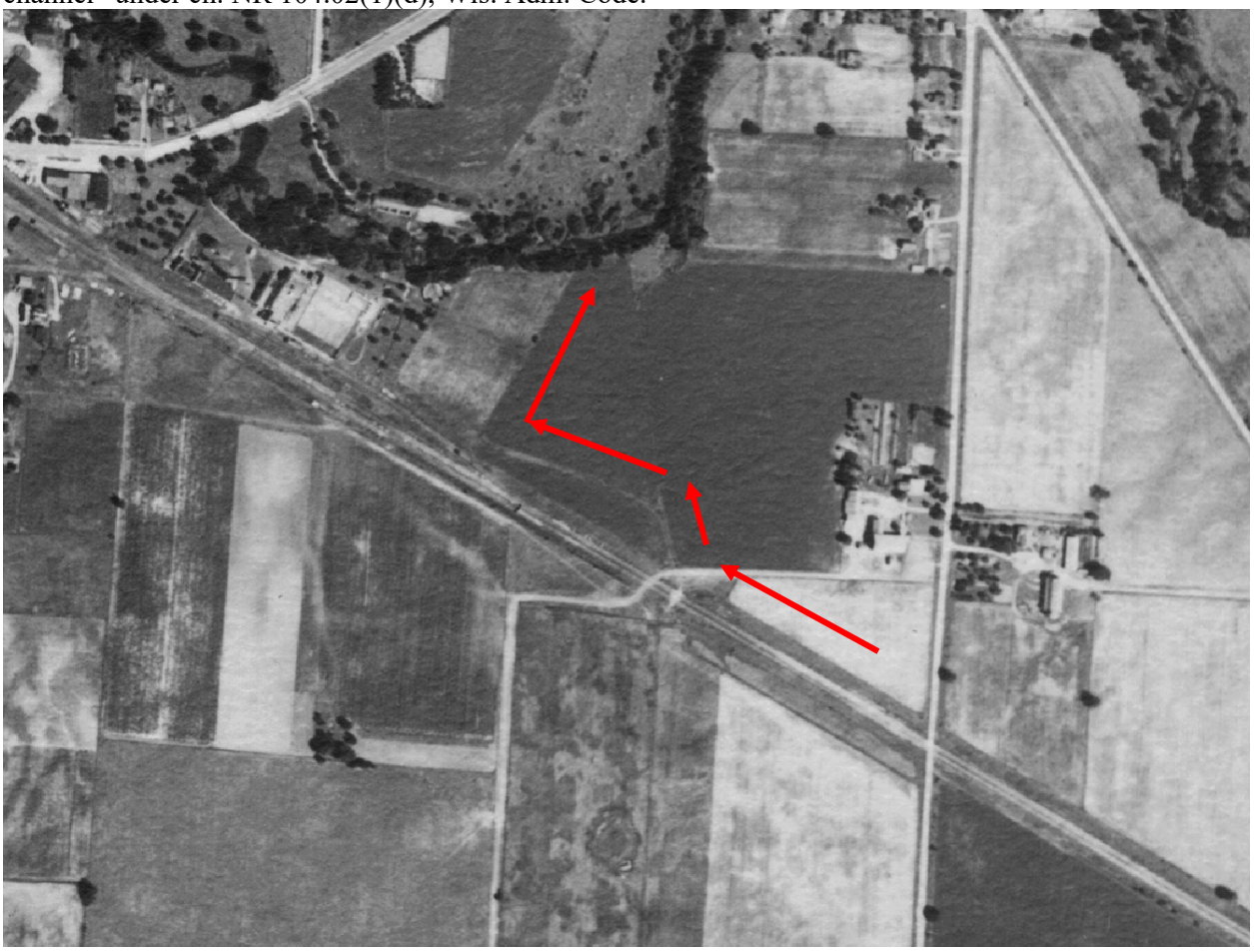
Photo 2: Manhole 7110. Photo taken by David Bolha on July 11th, 2024.

Photo 3: Chilton Storm Sewer/Unnamed Tributary outlet to the South Branch of the Manitowoc River. Photo taken by David Bolha on July 11th, 2024.

Photo 4: Surface ditch above storm sewer with indications of overflow, sediment deposits. Photo taken by David Bolha on July 11th, 2024.

Photo 5: South Branch Manitowoc River at Confluence with Unnamed Tributary. Photo taken by David Bolha on July 11th, 2024.

1938 aerial photo. (https://maps.sco.wisc.edu/WHAIFinder/#16/44.0334/-88.1674) This 1938 aerial image shows that the ditch was present in 1938, before the facility existed and the area was in agricultural fields. (Red arrows are just above & to the right of the ditch lines on the photo.) This indicates that the ditch does not fit the definition of "Wastewater effluent channel" under ch. NR 104.02(1)(d), Wis. Adm. Code.



Attachment 1: Chilton Storm Sewer Map near Briess Industries.

Attachment 2: Fish survey data sheet from the Unnamed Tributary to the South Branch Manitowoc River.

Wadable Stream Fish Assessment Page 1 of 3
Form 3600-230 (R 7/15)

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Instructions: Bold fields must be completed.

Station Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	FH Database ID
Un. Trib to SBr. Manitowoc River		10059456	

Date (MMDDYYY)	Station Name	Datum Used
07112024	DS Irish Rd	WGS84

Latitude - Longitude Determination Method Used: GPS

Start Latitude	Start Longitude	End Latitude	End Longitude	County
N44.02954	W-088.14423			Calumet

Water Characteristics

Time (24-hr clock)	Air Temperature (C)	Water Temperature (C)	Conductivity (µs/cm)	Transparency (cm)
09:39		23.14	197	120

Dissolved Oxygen (mg/l)	Dissolved Oxygen % Saturation	pH
2.61	31.3	7.04

Flow (m³/sec): 0.00

Water Level (check one - measure distance if Above or Below Normal): (X) Normal ( ) Below: _____ (m) ( ) Above: _____ (m)

Water Clarity: (X) Clear ( ) Turbid ( ) Stained

Channel and Basin Characteristics

Channel Condition (check one): ( ) Natural (X) > 20-year-old Channelization ( ) 10- to 20-year-old Channelization ( ) < 10-year-old Channelization ( ) Concrete Channel

Mean Stream Width (m)	Percent Channelization	Sinuosity	Gradient (m/km)	Stream Order	Basin Area (km²)
0.3	100				

Sampling Description

Sampling Type (check one): (X) CPE ( ) Depletion ( ) Mark-Recapture ( ) Other - Specify: _____

Station Length (m)	Start Time (24-hr clock)	Finish Time (24-hr clock)
100	1145	1157

Type of Pass (check one): (X) Upstream Only ( ) Upstream, then Downstream ( ) Other - Specify:

Gear Description

Gear (indicate number of each type used): Number of Anodes per Unit

1 Backpack Shockers _____ Stream Shockers _____ Mini-Boom Shockers

Current Type:	Volts	Amps	Rate	Duty
( ) AC ( ) DC (X) DCP	165	1.8	60	12

# of Dippers	Dip Net Mesh Size (inches) and Type (bar, Ace, Delta, etc.)
1	0.125

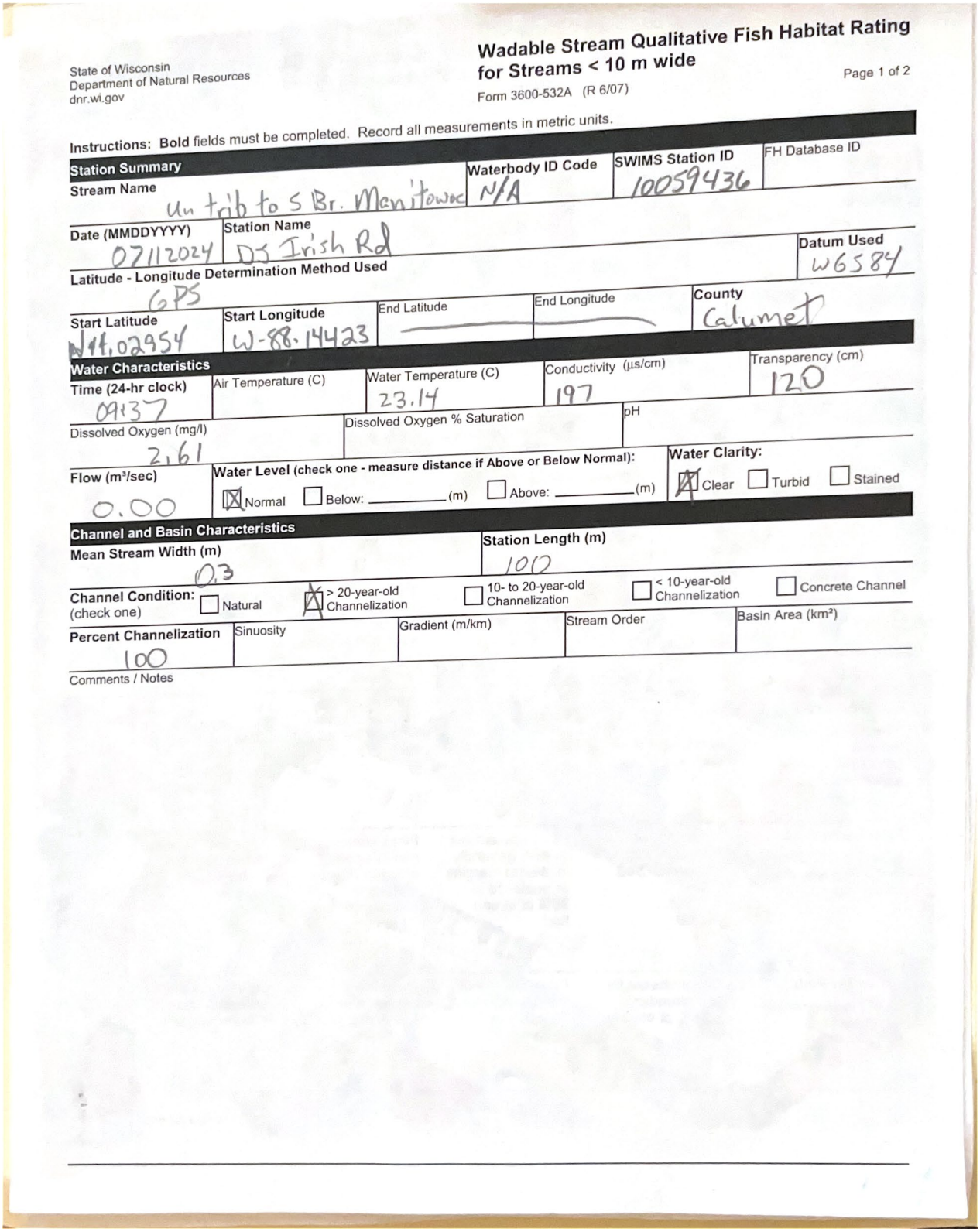
Person(s) Who Collected Data (Full Names): David Bolha, Mack Chier, Trevor Moen

Comments / Notes (continue on the back of this sheet if necessary)

- End @ Road culvert
- Start 10m US cattails

No Fish Captured/Observed

Attachment 3: Qualitative habitat data sheet for the Unnamed Tributary to South Branch Manitowoc River (Page 1).



State of Wisconsin
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Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Page 1 of 2

Instructions: **Bold** fields must be completed. Record all measurements in metric units.

Station Summary

Stream Name	Waterbody ID Code	SWIMS Station ID	FH Database ID
Un trib to S Br. Manitowoc	N/A	10059436	

Date (MMDDYYYY)	Station Name	Datum Used
07112024	DJ Irish Rd	WGS84

Latitude - Longitude Determination Method Used: GPS

Start Latitude	Start Longitude	End Latitude	End Longitude	County
N44.02954	W-88.14423			Calumet

Water Characteristics

Time (24-hr clock)	Air Temperature (C)	Water Temperature (C)	Conductivity (µs/cm)	Transparency (cm)
0913		23.14	197	120

Dissolved Oxygen (mg/l)	Dissolved Oxygen % Saturation	pH
2.61		

Flow (m³/sec): 0.00

Water Level (check one - measure distance if Above or Below Normal): [X] Normal [ ] Below: _____ (m) [ ] Above: _____ (m)

Water Clarity: [X] Clear [ ] Turbid [ ] Stained

Channel and Basin Characteristics

Mean Stream Width (m)	Station Length (m)
0.3	100

Channel Condition (check one): [ ] Natural [X] > 20-year-old Channelization [ ] 10- to 20-year-old Channelization [ ] < 10-year-old Channelization [ ] Concrete Channel

Percent Channelization	Sinuosity	Gradient (m/km)	Stream Order	Basin Area (km²)
100				

Comments / Notes

Attachment 4: Qualitative habitat data sheet for the Unnamed Tributary to South Branch Manitowoc River (Page 2).

Wadable Stream Qualitative Fish Habitat Rating for Streams < 10 m wide

Form 3600-532A (R 6/07)

Rating Item	Excellent	Good	Fair	Poor	Score
Riparian Buffer Width (m) Width of contiguous undisturbed land uses; meadow, shrubs, woodland, wetland, exposed rock	Riparian zone well protected; buffer wide (> 10.0 m) 15	Riparian zone protected, but buffer width moderate (5.0 - 10.0 m) 10	Riparian zone moderately disturbed, buffer narrow (1.0 - 4.9 m) 5	Most of the riparian zone disturbed, buffer very narrow or absent (< 1.0 m) 0	5
Bank Erosion Width of bare soil on bank, along transects	No significant bank erosion; < 0.20 m of bank is bare soil 15	Limited erosion; 0.20 - 0.50 m of bank is bare soil 10	Moderate erosion; 0.51 - 1.0 m of bank is bare soil 5	Extensive erosion; > 1.0 m of bank is bare soil 0	15
Pool Area % of stream length in pools	Pools common; wide, deep, slow velocity habitat, balanced by other habitats; 40 to 60% of station 10	Pools present; not frequent or over-abundant; 30 to 39% or 61 to 70% of station 7	Pools present, but either rare or overly dominant, few other habitats present; 10 to 29% or 71 to 90% of station 3	Pools either absent or dominant, not balanced by other habitats; < 10% or > 90% of station 0	0
Width:Depth Ratio Average stream width divided by average thalweg depth in runs and pools	Streams very deep and narrow; width/depth ≤ 7 15	Stream relatively deep and narrow; width/depth 8-15 10	Stream moderately deep and narrow; width/depth 16-25 5	Stream relatively wide and shallow; width/depth > 25 0	15
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 15	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 10	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 5	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	0
Fine Sediments % of the substrate that is < 2 mm (sand, silt, or clay)	Fines rare or absent, < 10% of the stream bed 15	Fines present but limited, generally in stream margins or pools; 10 to 20% of stream bed 10	Fines common in mid-channel areas, present in riffles and extensive in pools; 21 to 60% 5	Fines extensive in all habitats; > 60% of stream bed covered 0	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; > 15% of stream 15	Cover common, but not extensive; 10 - 15% of stream 10	Occasional cover, limited to one or two areas; 5 - 9% of stream 5	Cover rare or absent; limited to < 5% of stream 0	0
				Total Score	35

Attachment 5: Natural Community Verification Report for fish survey on August 8th, 2006, for the South Branch Manitowoc River at Irish Road.

Natural Community Verification Report

Waterbody Name (WBIC): SOUTH BRANCH MANITOWOC RIVER (77900)

Swims Station ID: 10015665

Survey Sequence Number: 93870

This NC Verification Report was run on S. BRANCH MANITOWOC RIVER - IRISH RD CROSSING, (10015665), located in CALUMET County with fish Survey Sequence Number 93870 sampled on August 8, 2006. The Natural Community for this station was verified by David Bolha on December 2, 2024.

The Natural Community was modeled *Warm Transition Mainstem* and is now Verified as *Warm Transition Mainstem* .

Fish captured

Species	Count
BLACKSIDE DARTER	4
BLUNTNOSE MINNOW	31
BROWN BULLHEAD	1
COMMON SHINER	41
CREEK CHUB	133
GREATER REDHORSE	2
GREEN SUNFISH	8
JOHNNY DARTER	5
PUMPKINSEED	2
ROCK BASS	17
WESTERN BLACKNOSE DACE	165
WHITE SUCKER	11

Survey location

Guild percentages

Thermal	Percent.Indiv.	Size	Percent.Indiv.	Tolerance	Percent.Indiv.
Coldwater	0	Small	73	Intolerant	5
Transitional	75	Medium	21	Intermediate	13
Warmwater	25	Large	6	Tolerant	83