Reviewed by UBub Date 2/2004

Region NER **County** Manitowoc **Report Date** 12/1982 **Classification** 2

Water Body: Mud Creek

Discharger: Reedsville STP, Kasson Cheese Co.

If stream is classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that are identified in the classification report:

_____ Naturally occurring pollutant concentrations prevent the attainment of use

_____ Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met

_____ Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place

_____ Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use

→ _____ Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses habitat

_____ Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

Supporting Evidence in the report (include comments on how complete/thorough data is)

_____ Biological Data (fish/invert)

_____ Chemical Data (temp, D.O., etc.)

✓ Physical Data (flow, depth, etc.)

_____ Habitat Description

_____ Site Description/Map

_____ Other:

Historical Reports in file:

12/16/82 - Tim Doelger

Additional Comments/How to improve report:

* need to check w/ region on appropriate classification. DB says LAL, Reports say LFF/FAL, note on report say FAL per J. Hlavacik
- need map

STREAM CLASSIFICATION
MUD CREEK
KASSON CHEESE COMPANY
REEDSVILLE STP
DECEMBER 16, 1982
Tim Doelger

Introduction:

In order to determine effluent limits for a proposed discharge from Kasson Cheese and to provide current information for possible revisions to NR 104, seven locations along Mud Creek were evaluated. They are at Townline Road, Hickory Hills Road, Gill Road, CTH K, CTH GGG, Reif's Mills Road, and W. Goodwin Road (see attached map). The site at Townline Road was specifically requested by Kasson Cheese Company. Other sites were selected due to convenient access. Field work was done on 5-11-82, 6-2-82 and 9-23-82.

Methods:

The Stream System Rating form along with experience and professional judgement were the methods used to determine the classifications. One form was completed at each of the seven sites. They are attached and should be referred to for more detail. In addition fisheries information at the Townline Road site was provided by Paul Peeters (Two Rivers). His memo is attached.

Discussion:

Mud Creek originates in a marsh area in the southeast corner of the Town of Holland in southern Brown County and flows southward for 15 miles through Manitowoc County before joining the main stem of the Manitowoc River. Mud Creek has a rather low gradient and sluggish flow with a $Q_7 10$ of .12 cfs one mile south of Reedsville. Above town the $Q_7 10$ is .04cfs. The stream flows through Reedsville and drains Maple Grove Swamp on the north and Collins Marsh on the south. The stream has a high supportive value for wildlife, with over 2,000 acres of adjoining wetlands. Nesting and migratory waterfowl utilize the area extensively, and public hunting and fishing grounds in Collins Marsh provide over one mile of access to the stream. Access is also provided by numerous road crossings.

There are two discharges to Mud Creek at this time. The Reedsville STP discharges =.2 MGD of secondary treated effluent and is apparently meeting limits. The Town of Rockland Sanitary District #1 also has an intermittent discharge through an effluent channel which is flooded in spring and dry in summer.

Land use in the area is primarily agricultural and soils are generally loams or silt loams in the farm areas with mucks predominating in the wetlands. Site number one at Townline Road is characterized by a narrow winding channel upstream. The land is fallow and tall grasses form a

canopy over the stream. The downstream stretch is approximately 10-15 feet wide and two feet deep. It is algae and weed choked exhibiting fertile characteristics. It flows through a pasture with a 20 foot buffer on the north and low swampy land on the south. Dip netting by Paul Peeters produced numerous forage minnows, but no game fish, although it is speculated that some small game species might be present seasonally. Due to channelization in the past, there is very little flow through the downstream portion. A discharge at this point would very likely result in at least seasonal flooding of private property. From Townline Road down to site number two at Hickory Hills Road the stream meanders through woody swamp land. There is little available habitat in this area. The same is true for the stretch at Hickory Hills Road although here the channel becomes more defined and contained.

At Gill Road the creek opens to a pool approximately 100 yards long and 100 feet wide. Depths are 2-4 feet. The banks are still poorly defined and vegetation is typical of low lying areas with cattails, canary grass and alders predominating. The bottom is soft with heavy growths of submergents and algae. The aquatic vegetation would provide some habitat for minnows and possibly bullheads but again this area would probably only be used seasonally as a spawning area and nursery for true game fish. Downstream the channel narrows to about five feet in width and flows through fallow, wet grassland for 1/4 mile before entering the Maple Grove Swamp. In dry years pasturing might take place here.

From this point downstream to where it emerges at CTH GGG (= 4 miles) little is known about Mud Creek, although I would expect conditions to be consistent with other streams flowing through areas of the nature. Accessibility is limited by the density and poor travel conditions encountered in the swamp so this portion of Mud Creek will probably always remain wild and remote. At CTH GGG the character of the creek changes dramatically. The gradient appears to steepen, water volume has increased, and the swamp gives way to higher more well drained land.

Stream habitat from this point down to the last site evaluated becomes more varied; rocks and some gravel replace muck, bends, runs and small riffles replace the continuous run/pool situation and the banks become more stable and defined.

This area is still low and subject to seasonal flooding so land use is primarily pasturing and not cropping.

The stream enters the north end of Collins Wildlife Management Unit, one mile south of the final site at Goodwin Road. This is a popular DNR property used extensively in the fall. At the south end of the property a small flowage is created by a dam at CTH JJ. Within the last year a viable perch fishery has developed in the flowage. Northerns have traditionally been present. From the dam to where it enters the Manitowoc River the creek travels approximately 200 yards through very wet marshland. During much of the year there is standing water the hummocks, and this water is the result of flow from both Mud Creek and the Manitowoc River.

Conclusions:

Mud Creek was classified as non-continuous marginal from its origin to its mouth in 1977. Based on the fact that the $Q_{7}10$ is .18 cfs rather than 0, along with greater expertise in the classification field, philosophical changes, fisheries input, and personal observations, I feel that classification was in error.

Recommendations:

It is my recommendation that Mud Creek be classified as Continuous Intermediate Aquatic Life from its origin downstream to CTH GGG. This is based on available aquatic habitat rather than aesthetics, wildlife habitat and water quality.

I also recommend that from CTH GGG downstream to its confluence with the Manitowoc River the classification should be Continuous Fish and Aquatic Life. It should be noted that this is also a change from the 1977 classification and could affect future limits for the Town of Rockland Sanitary District #1. This is based on the increased availability of aquatic habitat and an established sport fishery that should not be degraded.

TD:mw

Attach.

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TD:mw

Attach.

CORRESPONDENCE/MEMORANDUM

STATE OF WISCONSIN

Date: October 13, 1982

File Ref: 3600

To: Dennis Weisensel

From: Paul Peeters PP

REC'D DNR
OCT 14 1982
GREEN BAY

Subject: Mud Creek, Brown and Manitowoc Counties

There is no fishery survey information on Mud Creek near the Brown - Manitowoc County line in the Area files. Mud Creek is a tributary to the Manitowoc River. A dam on Mud Creek near the village of Collins creates the flowage commonly known as Collins Marsh, an active Wildlife Management property.

Near the county line, specifically at the Townline Road crossing, the creek is permanent , but small. On October 7, 1982, there was about .1CFS.

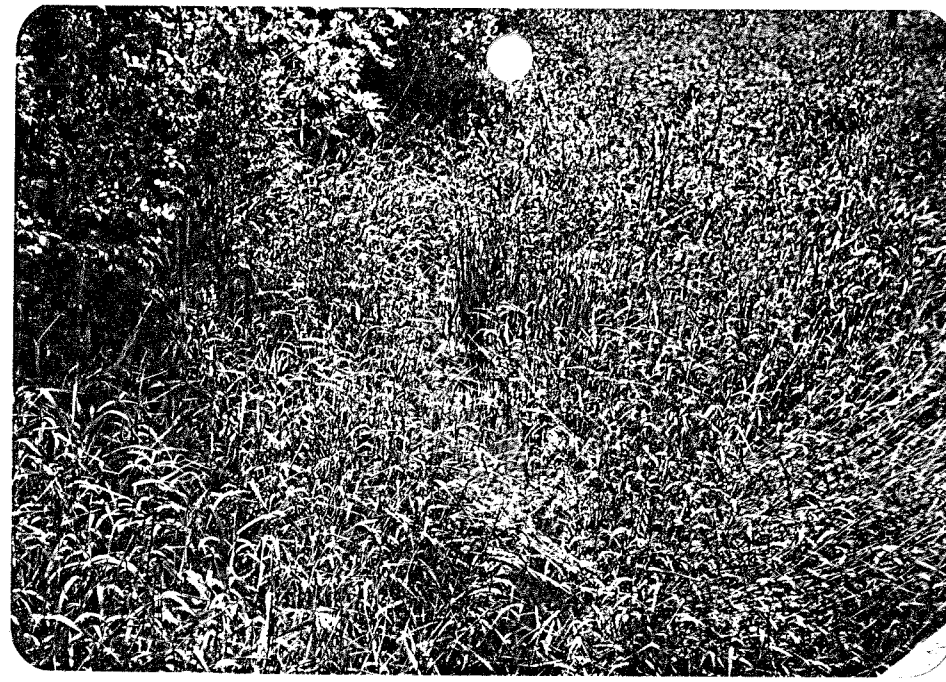
An attempt was made to electroshock this stretch of creek but the backpack shocker was inoperable. Dipnetting captured several central mudminnows.

The water is stained a dark brown. Upstream from Townline Road the channel is winding, shallow, and choked with canary grass, burreed, and cattail. Downstream the stream channel is 10' - 15' wide and 2' - 3' deep, and straight. It was likely dredged at some time in the past. As a result of the large volume and low flow, there was no perceptible flow below Townline Road. Downstream from Townline Road the stream channel contained rooted submergent vegetation, and much duckweed and star duckweed.

Watershed use in the immediate vicinity was agricultural cropland pasturing.

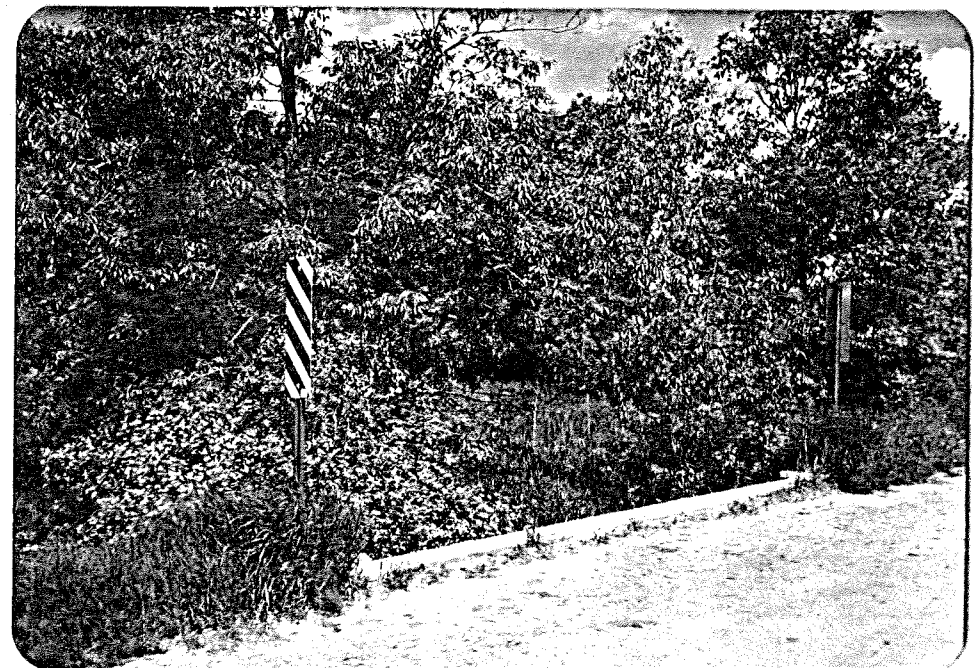
Mud Creek in this stretch does not support a viable year round sport fishery. This area could possibly serve as spawning and/or nursery area for some fish species.

TOWN LINE RD.
UPSTREAM

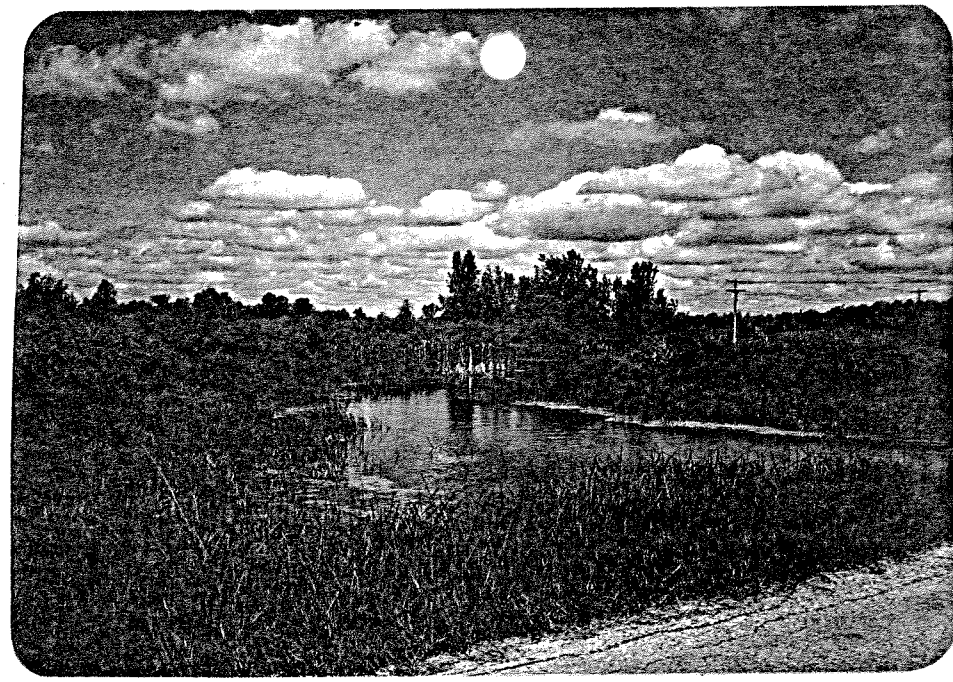


TOWN LINE RD.
DOWNSTREAM

HICKORY HILLS RD.
UPSTREAM



GILL RD.
UPSTREAM



GILL RD.
DOWNSTREAM

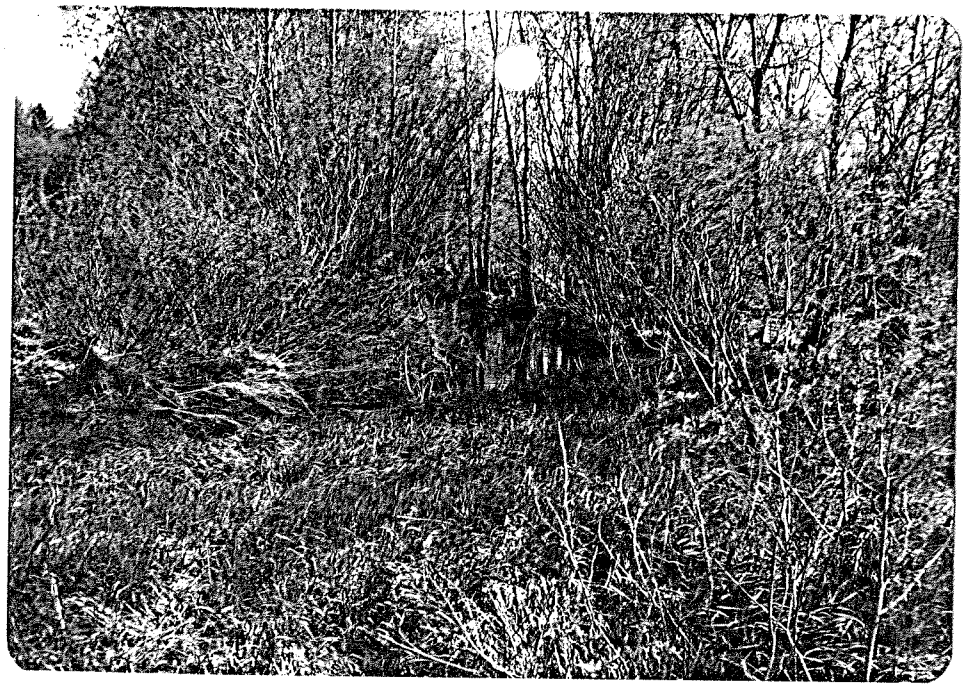
CTH K
UPSTREAM

CTH K
DOWNSTREAM

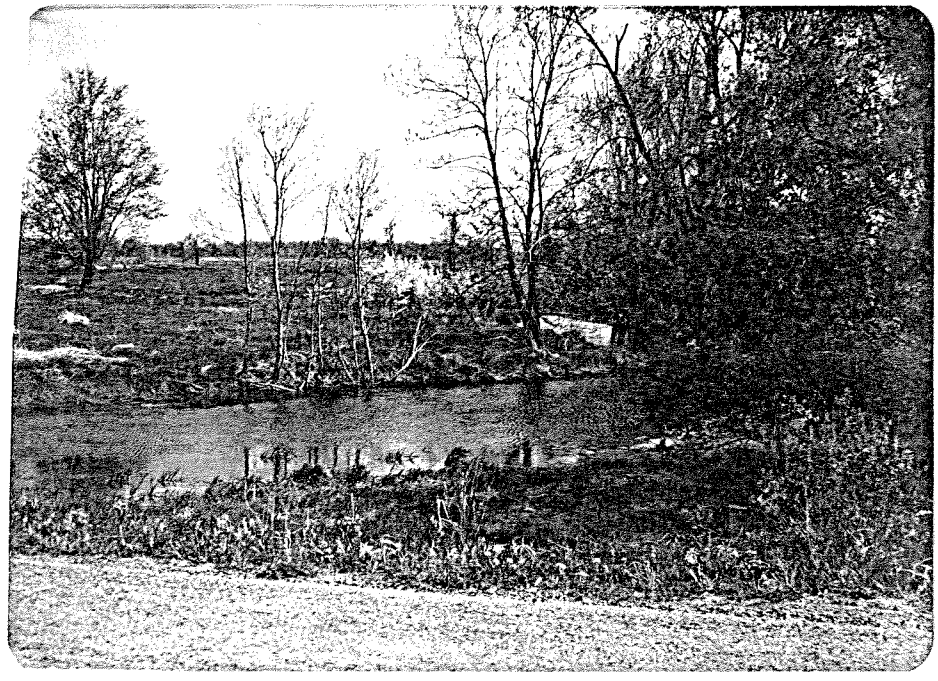
CTH GGG
UPSTREAM

CTH GGG
DOWNSTREAM

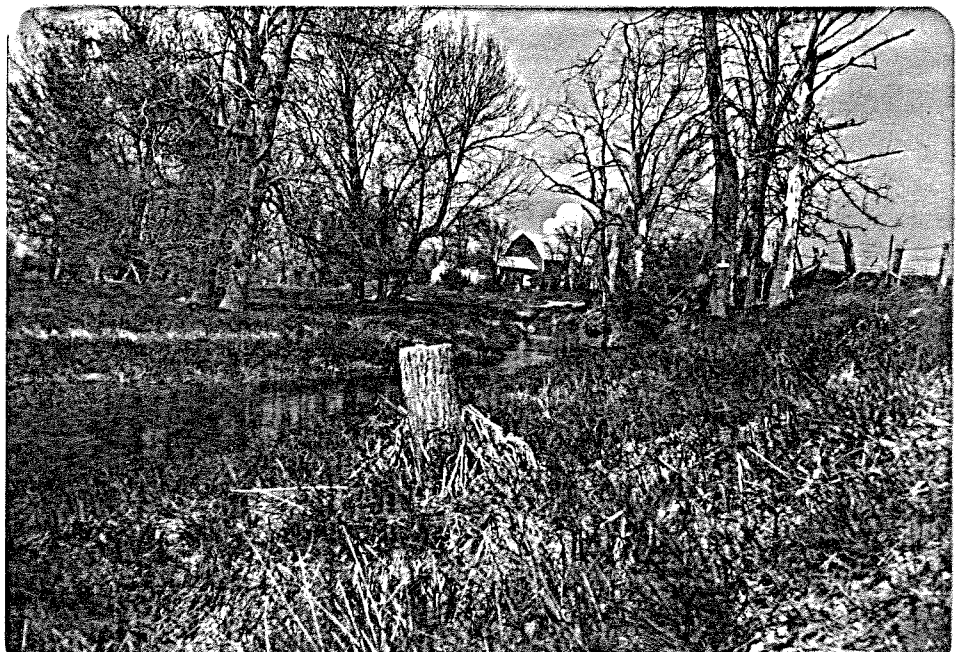
REIF'S MILLS RD.
FACING UPSTREAM



REIF'S MILLS RD.
FACING DOWNSTREAM



W. GOODWIN RD.
UPSTREAM



W. GOODWIN RD.
FACING DOWNSTREAM

STREAM SYSTEM HABITAT RATING FORM

Stream MUD Reach Location TOWNLINE RD Reach Score/Rating 154/FAIR

County BROWN Date 9-23-82 Evaluator DOELGER Classification CONTIN/INTER

	Rating Item	Excellent		Good		Fair		Poor	
Watershed	1. Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion.	(8)	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion.	10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion.	14	Heavy erosion evident. Probable erosion from any runoff.	16
Watershed	2. Nonpoint Source	No evidence of significant source. Little potential for future problem.	4	Some potential sources. (roads, urban area, farm fields).	(8)	Moderate sources. (Small wetlands, tile fields, urban area, intense agriculture).	16	Obvious sources. (Major wetland drainage, high use urban or industrial area, feed lots, impoundment).	20
Upper Bank	3. Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem.	(6)	Infrequent, small areas, mostly healed over. Some potential in extreme floods.	9	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow.	15	Many eroded areas. "Raw" areas frequent along straight sections and bends.	18
Upper Bank	4. Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system.	6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy.	9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding.	(15)	<50% density. Many raw areas. Thin grass, few if any trees and shrubs.	18
Lower Bank	5. Channel Capacity	Ample for present plus some increase. Peak flows contained. W/D ratio ≤7.	8	Adequate. Overbank flows rare. W/D ratio 8-15.	10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15 to 25.	(14)	Inadequate, overbank flow common. W/D ratio >25.	16
Lower Bank	6. Deposition	Little or no enlargement of channel or point bars.	(6)	Some new increase in bar formation, mostly from course gravel.	9	Moderate deposition of new gravel and course sand on old and some new bars.	15	Heavy deposits of fine material, increased bar development.	18
Bottom	7. Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition.	4	5 to 30% affected. Scour at constrictions and where grades steepen. Some deposition in pools.	(8)	30 to 50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools.	16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition.	20

	Rating Item	Category							
		Excellent		Good		Fair		Poor	
Bottom	8. Substrate	Greater than 50% rubble, gravel or other stable habitat.	2	30 to 50% rubble, gravel or other stable habitat. Adequate habitat.	7	10 to 30% rubble, gravel or other stable habitat. Habitat availability less than desirable.	(17)	Less than 10% rubble, gravel or other stable habitat. Lack of habitat is obvious.	22
	9. Average Depth Q7,2	Greater than 24".	0	12" to 24".	6	6" to 12".	(18)	Less than 6".	24
	10. Flow Q7,2	Warm water, >5 cfs. Cold water, greater than 2 cfs.	0	Warm water, 2 to 5 cfs. Cold water, 1 to 2 cfs.	6	Warm water, .5 to 2 cfs. Cold water, .5 to 1 cfs. Continuous flow.	18	Less than .5 cfs. Stream may cease to flow in very dry years.	(24)
Stream	11. Pool/Riffle, Pool/Bend Ratio	5 to 7. Variety of habitat. Deep riffles and pools.	4	7 to 15. Adequate depth in pools and riffles. Bends provide habitat.	8	15 to 25. Occassional riffle or bend. Bottom contours provide some habitat.	16	Greater than 25. Essentially a straight stream. Generally all "flat water" or shallow riffle. Poor habitat.	(20)
	12. Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or unpastured corridor.	8	High natural beauty. Trees, historic site. Some development may be visible.	(10)	Common setting, not offensive. Developed but uncluttered area.	14	Stream does not inhance aesthetics. Condition of stream is offensive.	16

Column Total --

Add column scores E 20 + G 26 + F 69 + P 84 Total Reach Score

≤ 70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 Poor

Possible spawning for Northern Pike

STREAM SYSTEM HABITAT RATING FORM

Stream MUDD CR Reach Location REIFS MILLS RD Reach Score/Rating 99 GOOD

County MANITOWOC Date 5-11-82 Evaluator DOELGER Classification CONTIN. F&A

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