

File

NESHKORO TRIBUTARY TO WHITE RIVER

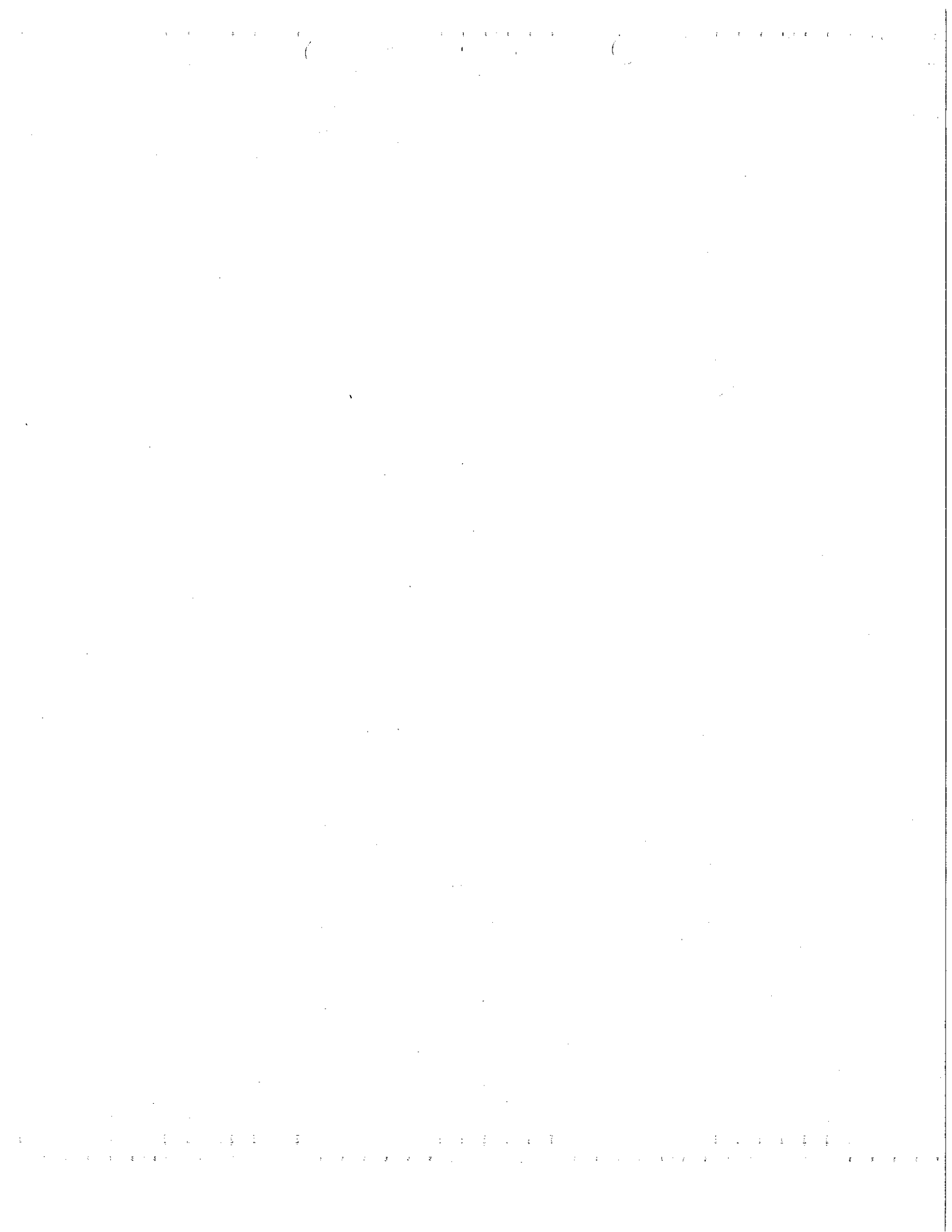
STREAM CLASSIFICATION

NOVEMBER 1990

MARK SESING - SOUTHERN DISTRICT

BUREAU OF WATER RESOURCES MANAGEMENT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES





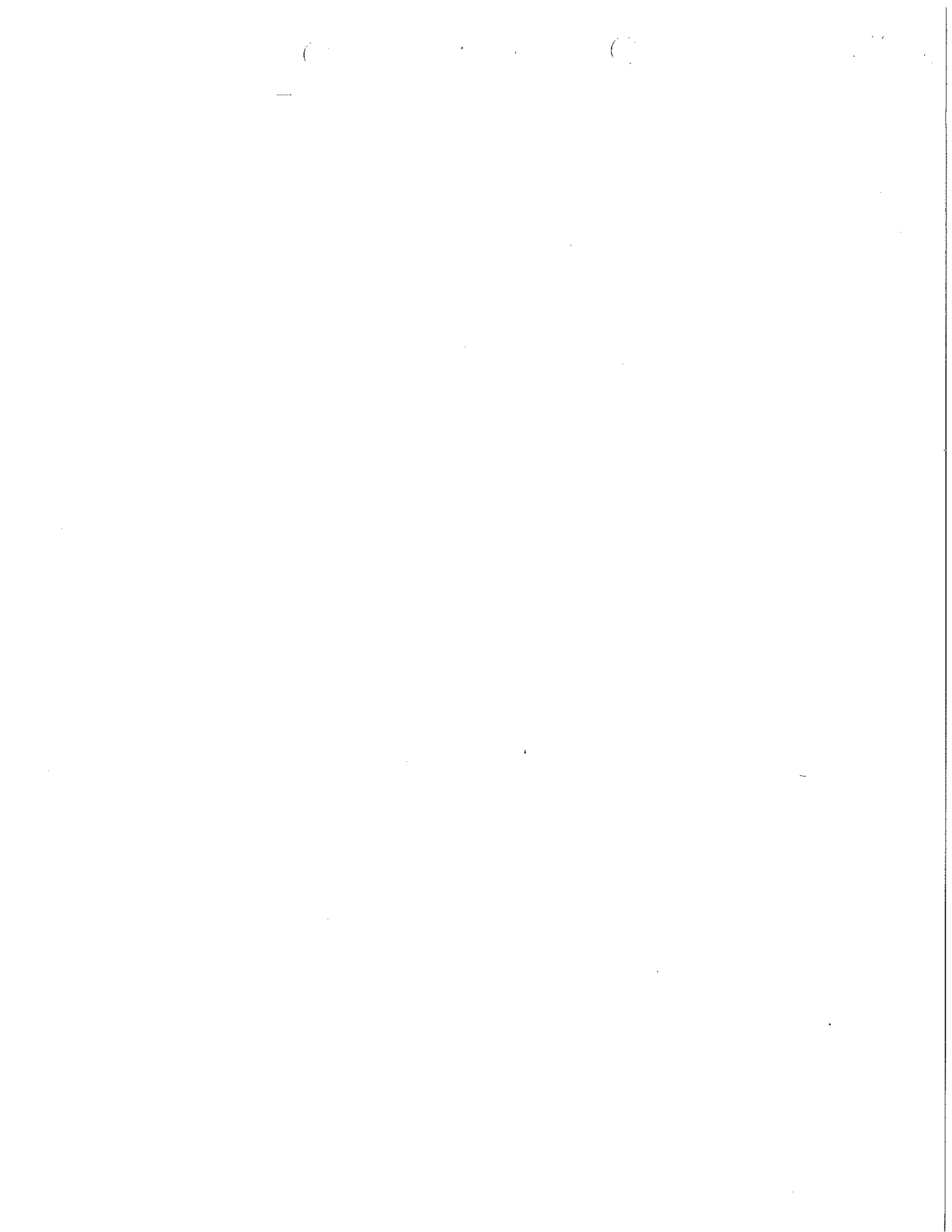


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## SUMMARY

Existing biological uses, stream characteristics, and water quality of this small tributary to the White River support a fish and aquatic life designation of WWFF (d) Warm Water Forage Fish. Recreational uses are for <sup>r</sup>partial body contact only due to limited depth. The hydrological classification may be continuous although USGS maps indicate an intermittent flow. A Q7<sub>10</sub> is not available at this time; however, it is estimated to be <0.1 cfs.

## INTRODUCTION

The Village of Neshkoro presently is discharging to this small tributary of the White River without WPDES permit authorization. Municipal wastewater staff have requested a use classification for the stream which receives the overflow from a seepage cell and stabilization pond system (see appendix). Permit limits may then be developed, based on the biological use classification of the receiving tributary.

## GENERAL DESCRIPTION

This small stream originates in wetlands south of the Village of Neshkoro and courses northeasterly to the White River which supports a warm water sport fish community. It joins the White River in Marquette County, Neshkoro Township at T17N, R11E, Section 17, NE<sup>1</sup>/<sub>4</sub>. Adjacent land use is primarily recreational wetland and woods. The stream presently has only moderate

cultural impacts due to the existing intermittent wastewater discharge and road ditch drainage. There are no flows available for this tributary stream, and full-body recreational uses are non-existent due to limited depth and width.

#### STREAM HABITAT, WATER QUALITY, BIOLOGY

The segment surveyed started near the seepage cell and ended about 200 feet downstream of 22nd Lane.

The fishery is primarily forage fish. Electroshocking documented 7 species of forage fish including Northern redbelly dace and central stonerollers which are considered intolerant of organic pollution (see appendix). A few sunfish (species unknown) were also collected.

Wildlife uses appear significant. Sandhill cranes, ducks, and a close encounter with a snapping turtle indicate varied wildlife uses of the stream and adjacent wetlands.

The stream system habitat rating (Ball, J.) was fair. However, in-stream habitat for forage fish and other aquatic life was perceived as good for a stream of such size. Overhanging vegetation and bank provide most of the cover. The stream averages 1 meter in width and depths range from 0.1 m in riffle areas to 0.6 m in pool reaches. Canopy cover is generally low.

Bank erosion is rare as grasses and shrubs stabilize the riparian areas.

Sedimentation is not perceived as significant with the exception of some pool

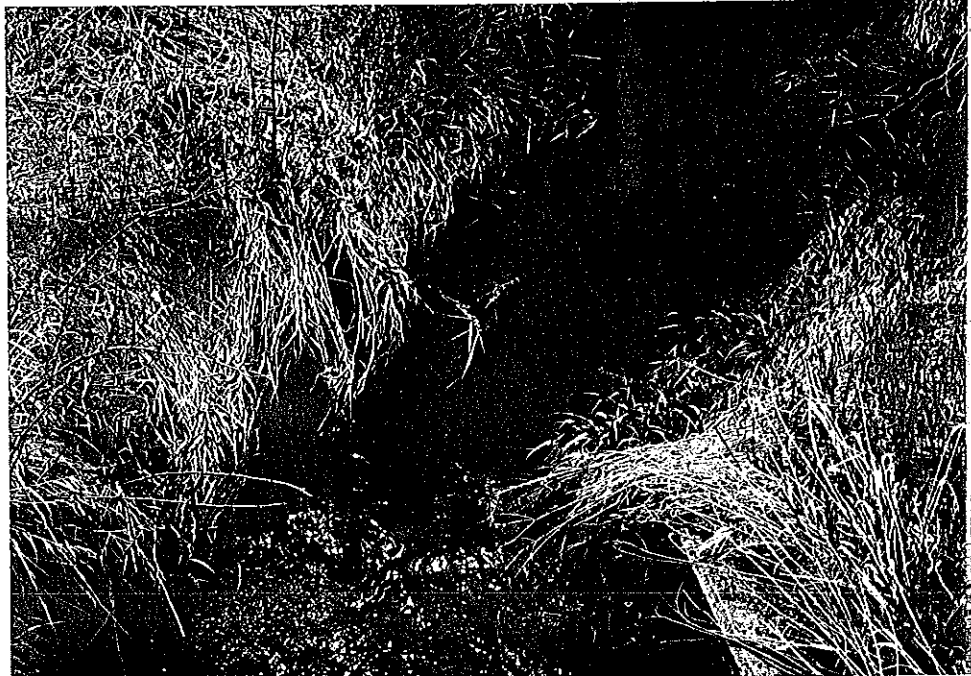




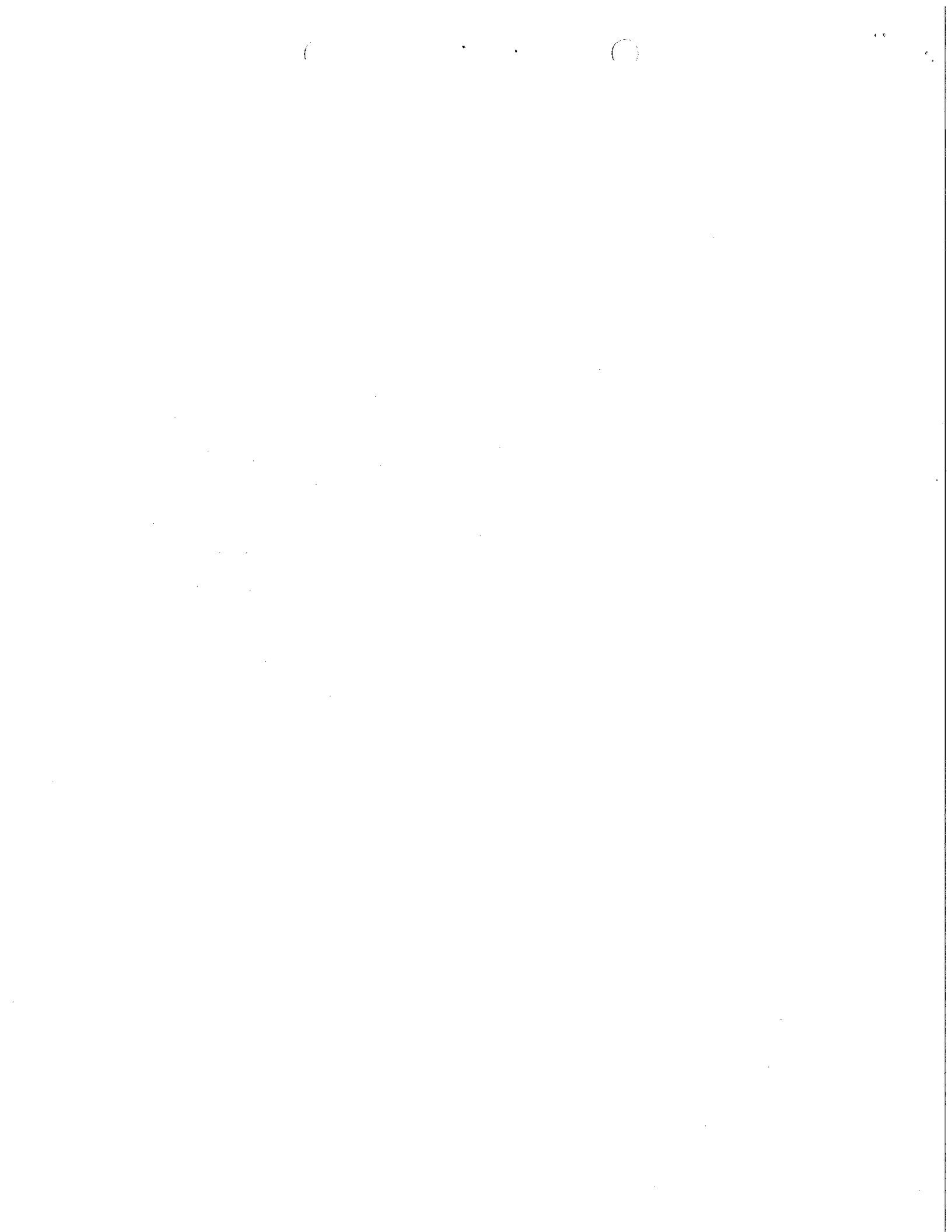


SOUTHERN REDBELLY DACE

NESHKORO TRIB/HBI SITE  
IS IN FOREGROUND.  
LOCATION IS AT SIH 73



RECENTLY EXCAVATED LATERAL  
DITCH CONNECTING TO TRIB.



FISH OBSERVED WITHIN THE UNNAMED NESHKORO TRIBUTARY TO THE WHITE RIVER

T7N, R11E, SECTION 17, NE¼

NUMBER OF INDIVIDUALS

<u>FISH</u>	<u>IN SAMPLE</u>	<u>TOLERANCE RATING</u>
Central Stoneroller	5	intolerant
Northern Redbelly Dace	5	intolerant
Common Shiner	3	tolerant
Central Mudminnow	3	tolerant
Brook Stickleback	2	tolerant
Sunfish sp	2	tolerant
Bluntnose Minnow	1	tolerant
Fathead Minnow	1	tolerant

Stream NESKAWUM TRIB Reach Location From TP to bridge Reach Score/Rating \_\_\_\_\_  
 County MARSH Date 5-19-89 Evaluator M. Scrogg Classification FAL C

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. <b>8</b>	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. <b>10</b>	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. <b>14</b>	Heavy erosion evident. Probable erosion from any run off. <b>16</b>
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. <b>8</b>	Some potential sources (roads, urban area, farm fields). <b>10</b>	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). <b>14</b>	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). <b>16</b>
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. <b>4</b>	Infrequent, small areas, mostly healed over. Some potential in extreme floods. <b>8</b>	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. <b>16</b>	Many eroded areas. "Raw" areas frequent along straight sections and bends. <b>20</b>
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. <b>6</b>	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. <b>9</b>	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. <b>15</b>	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. <b>18</b>
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. <b>8</b>	Adequate. Overbank flows rare. W/D ratio 8-15. <b>10</b>	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. <b>14</b>	Inadequate, overbank flow common. W/D ratio >25. <b>16</b>
Lower Bank Deposition	Little or no enlargement of channel or point bars. <b>6</b>	Some new increase in bar formation, mostly from coarse gravel. <b>9</b>	Moderate deposition of new gravel and coarse sand on old and some new bars. <b>15</b>	Heavy deposits of fine material, increased bar development. <b>18</b>
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. <b>4</b>	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. <b>8</b>	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. <b>14</b>	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. <b>20</b>
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. <b>2</b>	30-50% rubble, gravel or other stable habitat. Adequate habitat. <b>7</b>	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. <b>14</b>	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. <b>22</b>
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. <b>4</b>	7-15. Adequate depth in pools and riffles. Bends provide habitat. <b>8</b>	15-25. Occasional riffle or bend. Bottom contours provide some habitat. <b>16</b>	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. <b>20</b>
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. <b>8</b>	High natural beauty. Trees, historic site. Some development may be visible. <b>10</b>	Common setting, not offensive. Developed but uncluttered area. <b>14</b>	Stream does not enhance aesthetics. Condition of stream is offensive. <b>16</b>

Column Totals: 12 39 59 42

Column Scores E 12 +G 39 +F 59 +P 42 = 152 = Score  
 Fish: C. Shiner III, C. Stoner III, Mud minnow III, M. Redd. Dace III, Sunfish II, Bluegill I, Fathead 10, Need, Cont. Habitat

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

Neshkov's Hill to White River

PHYSICAL CHARACTERIZATION/WATER QUALITY  
FIELD DATA SHEET

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest Field/Pasture Agricultural Residential Commercial Industrial Other Wetlands & Wooded

Local Watershed Erosion: None Moderate Heavy

Local Watershed MPS Pollution: No evidence Some Potential Sources Obvious Sources

Estimated stream width 1 m Estimated stream depth: Riffle 0.1 m Run 0.5 m Pool 0.6 m

High Water Mark \_\_\_\_\_ m Velocity \_\_\_\_\_ Dam Present: Yes \_\_\_\_\_ No X Channelized: Yes \_\_\_\_\_ No X

Canopy cover: Open to Partly Open Partly Shaded Shaded

SEDIMENT/SUBSTRATE:

Sediment Odors: Normal Sewage Petroleum Chemical Anaerobic None Other \_\_\_\_\_

Sediment color: Absent Slight Moderate Profuse

Sediment Deposits: Sludge Sawdust Paper Fiber Sand Relict shells other peat, muck, sand

Are the undersides of stones which are not deeply embedded black? Yes No

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock	>256-mm (10 in.)	5%
Boulder	64-256-mm (2.5-10 in.)	5%
Cobble	2-64-mm (0.1-2.5 in.)	30%
Gravel	0.06-2.00-mm (grit/ty)	30%
Sand	.004-.06-mm	30%
Silt	<.004-mm (silt)	
Clay		

Organic Substrate Components

Substrate Type	Characteristic	Percent Composition in Sampling Area
Detritus	Sticks, Wood, Coarse Plant Materials (CPOM)	10%
Muck-Mud	Black, Very Fine Organic (FPOM)	71.5%
Marl	Grey, Shell Fragments	

WATER QUALITY

Temperature \_\_\_\_\_ C Dissolved oxygen \_\_\_\_\_ pH \_\_\_\_\_ Conductivity \_\_\_\_\_ Other \_\_\_\_\_

Instrument(s) Used

Stream Type: Coldwater Warmwater

Water Odors: Normal Sewage Petroleum Chemical None Other \_\_\_\_\_

Water Surface Oils: Slick Sheen Globes Flacks

Turbidity: Clear slightly turbid turbid opaque Water color bag stained

WEATHER CONDITIONS

Rain

PHOTOGRAPH NUMBER

Photos at WHP, STA. 73 and down rd wing

SOUTHERN DISTRICT District Biotic Index Report

HBI 5.217 Rep1 .181 Rep2 0.000 Rep3

Sample ID # 890519-39-03 Waterbody Name NESHKORO TRIB/WHITE RIVER  
 Water Temp (Celsius) Dissolved Oxygen (mg/l)  
 Sample Location: NW NE S17 T17N R11E Master Waterbody # 0149600  
 Project Name STREAM CLASSIFICATION Storet Station #  
 Ave. Stream Width (Ft.) at Site 3.0 Ave. Stream Depth (Ft.) at Site 1.0  
 Collector SESING, M. Field # 03 Rep 2

Sorter SEIDENSTICKER, J. Measured Velocity (fps)  
 Est. Velocity (fps)  
 Est % of sample sorted 7,7 Moderate (0.5-1.5)  
 Taxonomist DIMICK, J. Sampled Habitat  
 Location Description 10' DWNSTRM OF STH 73 BRIDGE.

NR IS REP 2

Est. Time Spent Sampling (Min.) 1

Sampling Device 1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	0.0 Rubble	50.0 Sand	0.0 Clay	20.0 Muck
0.0 Boulders	20.0 Gravel	10.0 Silt	0.0 Detritus	0.0 Debris/Veg

Substrate Sampled (%) (Same as above No\_)

0.0 Bedrock	40.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
50.0 Boulders	10.0 Gravel	0.0 Silt	0.0 Detritus	0.0 Debris/Veg

Aquatic Vegetation 10 % of Total Stream Channel at Sampling Site

Observed Instream Water Quality Indicators (Perceived WQ Good )

	Not Present	Insig- nificant	Sig- nificant	Comments
Turbidity	1			HIGH WILDLIFE VALUE STREAM & RIPARIAN AREA
Chlorine or Toxic Scour	1			
Macrophytes		2		
Filamentous Algae			3	SANDHILL CRANES, DUCKS, SNAPPING TURTLE
Planktonic Algae		2		
Slimes	1			
Iron Bacteria	1			

Factors Which May Be Affecting Habitat Quality

Sludge Deposits	1			
Silt and Sediment			3	SOME LATERAL DITCHING ON TOWN RD IS CAUSING SEDIMENT TO ENTER STREAM
Channel Ditching	1			
Down/Up Stream Impoundment	1			
Low Flows			3	INTERMITTANT FLOW IS QUESTIONABLE (SHOWN ON USGS AS INTERMITTANT)
Wetlands			3	

Pollutant Sources

Livestock Pasturing	1			
Barnyard Runoff	1			
Cropland Runoff	1			
Tile Drains	1			
Septic Systems	1			
Stream Bank Erosion	1			
Urban Runoff	1			
Construction Runoff	1			
Point Source (Specify Type)			3	NESHKORO WWTP HAS OCCASIONAL DISCHARGE
Other (Specify)				

This sheet is for NT + NR (replicate)

MACROINVERTEBRATE FIELD AND ( NCH SHEET ) Department of Natural Resources  
Form 3200-81 9-86

Sample ID # 890519-39-03 Waterbody Name Neshkoro trib to White River  
Y Y M M D D Cnty Field #

Water Temp (Celsius) NA Dissolved Oxygen (mg/l) NA

Sample Location: NW NE 17 17N 11E Master Waterbody # 0149600  
1/16 1/4 Sec. Tn., Rng.

Project Name STREAM CLASSIFICATION Storet Station # \_\_\_\_\_

Ave. Stream Width (Ft.) at Site 3.0 Ave. Stream Depth (Ft.) at Site 1.0

Collector SESING, M. Field # 03 (Rep 1) (Rep 2) Rep 3  
(Last Name, First Initial) Measured Velocity (fps)

Sorter SEIDENSTICKER J Est. Velocity (fps) V. Slow (<0.2)

Est. % of sample sorted 7% Slow (0.2-0.5)  
Moderate (0.5-1.5)  
Fast (1.5- >)

Taxonomist Dimick, J. Sampled Habitat: 1. Riffle 2. Run  
3. Pool 4. Lake

Location Description 10' downstream of STM 73 bridge  
NR is Rep 2

Sampling Device: 1. D Frame 2. Artificial Substrate, 3. Surber, 4. Other \_\_\_\_\_ Est. Time Spent Sampling (Min.) 0.5

Substrate at Site Location (%)  
Bedrock \_\_\_\_\_ Rubble (2.5 -10.0" dia.) 50 Sand \_\_\_\_\_ Clay \_\_\_\_\_  
Boulders (10.0" dia.) 20 Gravel (0.1 - 2.5" dia.) 10 Silt \_\_\_\_\_ Detritus \_\_\_\_\_ Muck \_\_\_\_\_  
Debris/Veg \_\_\_\_\_

Substrate Sampled (%) (Same as above) NO  
Bedrock \_\_\_\_\_ Rubble (2.5 - 10.0" dia.) \_\_\_\_\_ Sand \_\_\_\_\_ Clay \_\_\_\_\_ Muck \_\_\_\_\_  
50 Boulders (10.0 dia.) 10 Gravel (0.1 - 2.5" dia.) \_\_\_\_\_ Silt \_\_\_\_\_ Detritus \_\_\_\_\_ Debris/Veg \_\_\_\_\_

Aquatic Vegetation 10 % of Total Stream Channel at Sample Site

Observed Instream Water Quality Indicators (Perceived WQ: Excellent, Good, Fair, Poor)

	Not Present	Insignificant	Significant	Comments
Turbidity	1	2	3	
Chlorine or Toxic Scour	1	2	3	
Macrophytes	1	2	3	- High wildlife value stream + riparian area
Filamentous Algae	1	2	3	
Planktonic Algae	1	2	3	
Slimes	1	2	3	
Iron Bacteria	1	2	3	- SANDHILL CRANES

Factors Which May Be Affecting Habitat Quality

	Not Present	Insignificant	Significant	Comments
Sludge Deposits	1	2	3	
Silt and Sediment	1	2	3	
Channel Ditching	1	2	3	- Some lateral ditching on town rd is causing sediment to enter stream
Down/Up Stream Impoundment	1	2	3	
Low Flows	1	2	3	
Wetlands	1	2	3	

Pollutant Sources

	Not Present	Insignificant	Significant	Comments
Livestock Pasturing	1	2	3	
Barnyard Runoff	1	2	3	
Cropland Runoff	1	2	3	
Tile Drains	1	2	3	
Septic Systems	1	2	3	
Streambank Erosion	1	2	3	
Urban Runoff	1	2	3	
Construction Runoff	1	2	3	
Point Source (Specify Type)	1	2	3	- Intermittent flow is questionable (shown on USGS as intermt)
Other (Specify)	1	2	3	

NESHKORO WWTP has occasional discharge

Taxa	Taxonomic Key Used	Organism ID #	Organism Count		
			Rep 1	Rep 2	Rep 3
<i>Ophroservus</i> sp.	Hils. 1981	07020506	2	3	
<i>Bezzia/Palpomysia</i> sp.	"	08030215	1	0	
<i>Cnephia ornithophila</i>	Hils. 1985	08110102	1	0	
<i>Simulium</i> sp. - poor specimen	"	08110210	90	55	
<i>S. venustum</i>	"	08110215	97	83	
<i>S. verecundum</i>	"	08110216	45	43	
<i>S. vittatum</i>	"	08110217	2	0	
<i>Prosimulium mystroon</i>	"	08110301	2	1	
<i>P. mixtum</i>	"	08110304	0	2	
<i>P. decimantrolatum</i>	"	08110306	2	1	
<i>Stegopterna mutata</i>	"	08110501	2	4	
Simuliidae - pupae	M&C 1984	08110700	7	6	
Simuliidae - larvae - poor specimen	Hils. 1981	08110800	3	0	
Simuliidae - adult	M&C 1984	08111200	1	0	
<i>Chaetocladius</i> sp. A	Hils. 1981, 85	08050503	2	2	
<i>Cristotopus</i> sp. A	"	08051304	1	0	
C-sp-C	"	08051306	1	0	
<i>Orthocladius</i> sp. B	"	08054002	5	4	
O-sp-D	"	08054004	1	1	
<i>Rheocricotopus</i> sp.	Hils. 1981	08055806	0	1	
Isopoda - terrestrial			1	0	



## CORRESPONDENCE/MEMORANDUM

Date: June 26, 1989  
To: Duane Schuettpelz, WR/2  
From: David J. Brodzinski, Horicon *DJB*  
Subject: Village of Neshkoro - WPDES Permit Limits

File Ref: 3400

The Village of Neshkoro has a stabilization pond and single seepage cell wastewater treatment plant, which was constructed in 1973. The seepage cell periodically overflows through a control structure which was part of the originally approved design.

The Neshkoro WPDES Permit never authorized a surface water discharge and DNR first became aware of such occurrences in 1986.

The Village cannot meet the requirements of no surface water discharge so I am requesting a receiving water stream survey and classification so we can reissue the WPDES Permit with appropriate discharge limits.

I do not know if NR 207 applies in this case. If you need more information for an anti-degradation determination or any other reason, please call me at (414) 485-3014.

DJB:lr

cc: Bob Weber, SD  
→ Tom Bainbridge, SD  
Mary Ryan, SD

RECEIVED

JUN 28 1989

SO. EAST. DIVISION

\*\*\* SOUTHERN DISTRICT DISTRICT BIOTIC INDEX REPORT \*\*\*

SAMPLE ID# 890519-39-03

PAGE 2

*** TAXA ***	*** SPECIES ***	TAXONOMIC KEY USED	TOL VAL	ORGANISM ID	ORGANISM COUNT	REP1	REP2	REP3
COLEOPTERA								
ELMIDAE								
	OPTIOSERVUS		*1 4.00	07020500	2	3	0	
DIPTERA								
CERATOPOGONIDAE								
	BEZZIA/PALPOMYIA		*1 6.00	08030215	1	0	0	
CHIRONOMIDAE								
	CHAETOCLADIUS	SP.A	*2 5.00	08050503	2	2	0	
	CRICOTOPUS	SP.A	*2 6.00	08051304	1	0	0	
		SP.C	*2 7.00	08051306	1	0	0	
	ORTHOCLADIUS	SP.B	*2 3.00	08054002	5	4	0	
		SP.D	*2 5.00	08054004	1	1	0	
	RHEDCRICOTOPUS		*1 6.00	08055800	0	1	0	
SIMULIIDAE								
	CNEPHIA	ORNITHOPHILA	*3	08110102	1	0	0	
	SIMULIUM	**POOR SPECIMEN**	*3	08110210	90	55	0	
		VENUSTUM	*3 5.00	08110215	97	83	0	
		VERECUNDUM	*3 6.00	08110216	45	43	0	
		VITTATUM	*3 7.00	08110217	2	0	0	
	PROSIMULIUM	MYSTICUM	*3 2.00	08110301	2	1	0	
		MIXTUM	*3 3.00	08110304	0	2	0	
		DECEMARTICULATUM	*3	08110306	2	1	0	
	STEGOPTERNA	MUTATA	*3 5.00	08110501	2	4	0	
	**PUPAE**		*4	08110700	7	6	0	
	**POOR SPECIMEN**		*1	08110800	3	0	0	
	**ADULT**		*4	08111200	1	0	0	
*** TOTALS: ***					265			
						206		
							0	
*** BIOTIC INDEX: ***					5.217			
						5.181		

Taxonomic Key Code References

- \*1 Hilsenhoff 1981
- \*2 Hilsenhoff 1981,85
- \*3 Hilsenhoff 1985
- \*4 Merritt,Cummins 84