(AD-75)

CORRESPONDENCE/MEMORANDUM

FEB 2 1 1986

STATE OF WISCONSIN

Date: January 27, 1986 File Ref: 3200

To: Duane Schuettpelz - WR/2

From: Frank J. Koshere

Subject: SURFACE WATER CLASSIFICATION FOR CATAWBA, PRICE COUNTY

Classification Recommendation

Two separate streams are classified:

I. Unnamed tributary to the North Fork of the Jump River at the SW¼, NE¼, Section 8, T35N, R1W (Town of Catawba, Price County), and upstream to its origin be classed as noncontinuous and in the marginal variance category (NR 104.02), and be in the corresponding Use Class E of the Wisconsin Stream Classification Guidelines. From the above described point downstream to the south edge of Section 9, T35N, R1W, the stream should be classed as continuous and in the intermediate variance category (NR 104.02), and be in the corresponding Use Class D.

II. Unnamed tributary to Web Creek downstream from the NE¼, Section 12, T35N, R2W, (Town of Kennan, Price County) be classed as continuous (NR 104.04) and fish and aquatic life, and recreational use (NR 102.02), corresponding to Use Class C.

Discussion

Two potential discharge locations were classified for the Village of Catawba on 10/30/85. The two sites are a tributary to the North Fork of the Jump River in the N½, Section 8, T35N-R1W (Town of Catawba), and a tributary to Web Creek in the NE¼, Section 12, T35N-R2W (Town of Kennan), both in Price County.

Each discharge stream will be discussed separately.

The stream nearest the Village of Catawba is an unnamed tributary to the North Fork of the Jump River. This stream originates in the NE¼, Section 7, T35N-R1W, and flows generally east as an intermittant stream for approximately one mile into the middle of Section 8, and then flows generally south for approximately two miles where it joins the North Fork of the Jump River.

This stream has a $Q_{7,10}$ of zero where it crosses CTH "I", according to USGS (July 12, 1985 memo from L. Wible to D. Jacobson). The USGS Kennan Quadrangle, 7.5', topographic map shows this stream as perennial beginning in the NE¼, Section 8. The stream was physically evaluated at two locations; location 1 at the CTH I crossing and location 2 at the north edge of SE¼ of NE¼, Section 8 shortly downstream of its perennial

status. A photocopy of a portion of the Kennan quadrangle map is attached with the site locations indicated. Photographs of the streams are attached.

At site 1 a water chemistry sample was taken, a stream habitat rating completed, and a Hilsenhoff biotic index was attempted. There were insufficient organisms present for a B.I. sample. Only a few scuds, 1 midge, and 1 caddis larvae were collected. The poor macroinvertebrate community is most likely due to intermittent flow conditions. Flow was estimated as less than 0.1 cfs. Minnows were observed in the pool on the downstream side of the road, but were not sampled for species identification. The habitat rating score was 211, placing it in the Poor rating (Attachment 1). The water chemistry results (Table 1) did not indicate anything unusual from the agricultural watershed. This sample was taken above a wastewater discharge described below. Based on these indicators, this site best fits the use Class E of the stream classification guideline for Wisconsin (Attachment 2).

Also at site 1, an unpermitted wastewater discharge was found from the nearby Catawba Cheese Factory. The discharge was a very slight flow from a small pipe of approximately 4" diameter. The discharge was sampled for water chemistry and fecal coliform. The results in Table 1 indicate high fecal contaminants (70,000 est.), and high phosphorus and nitrogen levels. The cheese factory is no longer active in cheese production, but the building is still in use. The Park Falls Area engineer has been notified of the outfall. The habitat rating forms, biotic index results, macroinvertebrate field sampling data, water chemistry data, and field data are attached at the back of the report.

At site 2 the stream appears to have a more perennial biotic community. The biotic index results (Table 2) produce a value of 2.69, indicating "good water quality with some organic pollution." The substrate is largely boulder (Attachment 3 - Macroinvertebrate Field Sampling Data) with grasses and mosses growing across the entire channel. Stream flows are restricted to the narrow spaces between the rocks and virtually no pools or runs exist. Fish habitat is very limited. The habitat rating score at this site is 154, Fair. The water chemistry results indicate good water quality.

A third site (3) was observed without field measurements approximately 1/2 mile downstream of site 2. Here the stream appears to be perennial with a well defined wetted stream bed and fair quality aquatic habitat.

Based on these observations, the stream at site 2 and continuing downstream to site 4 best fits use Class D. The stream differs enough in character at sites 1 and 2 to warrant separate classification. Based on the location of the proposed discharge near CTH "I", the stream was not evaluated below site 4. Therefore, it should be assumed that below site 4 the stream meets fish and aquatic life standards. If the discharge site is relocated downstream, a detailed evaluation can be made. However, it is very probable that the stream will meet fish and aquatic life standards in it's lower reach. Therefore, it's recommended that the unnamed tributary to the North Fork of the Jump River located at the SE¼ of the NW¼, Section 8 be classified use Class E

(noncontinuous, marginal, NR 104.02) downstream to the NE¼ of the SE¼ of Section 8. Downstream from that point to the south edge of Section 9 the stream should be classified as use Class D (continuous, intermediate, NR 104.02).

The second potential discharge site is to an unnamed tributary to Web Creek, approximately 1.75 miles west of Catawba, midway to the Village of Kennan. This stream originates in a wetland about one mile above the proposed discharge site. On the USGS quadrangle, The stream is shown as intermittant to where it crosses the railroad tracks (location 5), SW¼ of NE¼ of Section 12, and continuous flow downstream from that point. The area above the railroad tracks had been recently drained from a large and fairly deep (approximately 6-8') beaver impoundment. It appears that the stream picks up some base flow in the wetland area providing fairly continuous flow downstream. This wetland area has historically received wastewater from a now defunct cheese factory.

The sampling site (location 6) is less than 0.25 mile downstream from the railroad tracks at the crossing on Midway Road. The stream at this point has an estimated $Q_{7,10}$ of zero according to USGS. However, the stream channel was well defined and appeared that it would have near continuous seasonal flow. The flow was estimated at 2. cfs. The habitat rating score was 172 or Fair. The biotic index value was 2.0, indicating "very good water quality with possible slight organic pollution." Minnows were observed but not sampled. The water chemistry indicated good water quality (Table 2). The habitat rating form and macroinvertebrate field sampling data sheet are in Attachments 1 and 3.

The stream at this site appears large enough and with sufficient base flow to support a healthy macroinvertebrate community and most likely a good population of warmwater forage fish. The stream best fits use Class C.

One additional site was viewed approximately one mile downstream at the crossing of Riley Road (location 7). At this site the stream was larger and appeared to offer suitable habitat and flow to remain in use Class C, although no field measurements were made.

It is recommended that this unnamed tributary to Web Creek, located at the NE¼ of Section 12, T35N, R2W, be classified as Use Class C (continuous, fish and aquatic life, NR 104.02).

Field observations were conducted by Frank Koshere and Larry Prenn of the NWD WRM unit, accompanied by Jane Malischke of the WW unit. Park Falls Area fish manager Jim Lealos and wastewater engineer Bill Lantz were consulted in determining the classifications.

FJK:st
Attachments

cc: Park Falls Area
Roger Scovil - WW/2

Attachment 4

Hilsenhoff Biotic Index Results

Location: Site 2, Unnamed tributary to North Fork Jump River at the north edge of NE¼, SE¼, Section 8, T35N, R1W.

Name	No. of Organisms	B.I. Value	No. X B.I.
Tricoptera:			
Phryganeidae, Ptilostomis sp.	8	2	16
Limnephilidae, Limnephilus sp.	3	2	6
Ephemeroptera:			
Leptophlebiidae, Leptphlebia sp.	27	2	54
Odonata:			
Cordulidae, Epitheca sp.	1	2	2
Coleoptera:			
Haliplidae, Haliplus sp. (larvae)	(1)	Not used in B.I.	
Amphipoda:			
Talitridae, Hyallela azteca	4	4	16
Diptera:			
Chironomidae, Microtendipes sp.	2	3	6
Cricotopus sp.	18	4	72
Zavrelimyia sp.	4	4	16
Diamesa sp.	7	2	14
Hydrobaenus sp.	6	2	12
Micropsectra sp.	1	3	3
Tanytarsus sp.	4	3	12
Heterotrissocladius sp.	2	2	4
Dicrotendipes sp.	1	4	4
	88		237

Site 2 B.I. = $\frac{237}{88}$ = 2.69

Attachment 4

Hilsenhoff Biotic Index Results

Location: Site 6, Unnamed tributary to Web Creek at Midway Road, near center of Section 12, T35N, R2W.

Name	No. of Organisms	B.I. Value	No. X B.I.
Plecoptera:			
Capniidae, *Paracapnia sp.*	2	1	2
Ephemeroptera:			
Heptageniidae, *Stenonema vicarium*	27	1	27
Ephemereillidae, *Ephemerella subvaria*	2	1	2
Tricoptera:			
Hydropsychidae, *Cheumatopsyche sp.*	34	3	102
Symphitopsyche sparna	1	1	1
Diptera:			
Tipulidae, *Tipula sp.*	1	2	2
Dicanota sp.	1	2	2
Simulidae, *Prosimulium sp.*	3	1	3
Coleptera:			
Elmidae, *Optioservus sp.* (larvae)	24	2	58
, *Optioservus fastiditus*	5	2	10
, *Stenelmis crenata*	1		3
	101		202

Site 6 $\quad B.I. = \frac{202}{101} = 2.0$

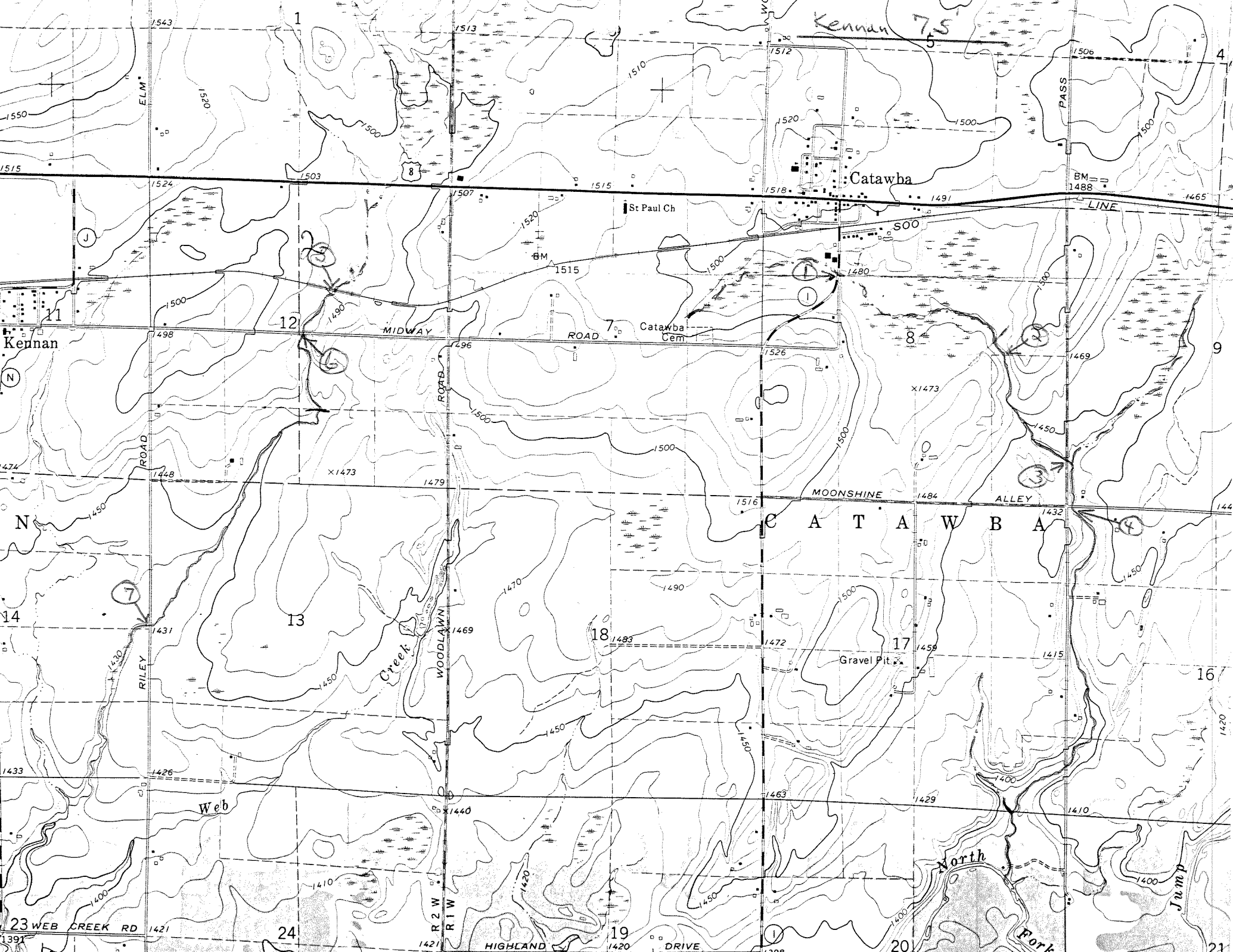
Kennan 7.5
Catawba
St Paul Ch
BM 1515
BM 1488
SOO LINE
MIDWAY ROAD
Catawba Cem
Kennan
ELM
PASS
ROAD
MOONSHINE ALLEY
CATAWBA
Gravel Pit
Creek
WOODLAWN
RILEY
Web
North Fork
Jump
WEB CREEK RD
HIGHLAND DRIVE
R 2 W
R 1 W
1543
1513
1512
1506
1550
1520
1500
1515
1503
1524
1507
1518
1491
1465
1480
1498
1496
1526
1469
1473
1474
1468
1479
1516
1484
1432
1490
1470
1431
1430
1483
1472
1459
1415
1433
1426
1440
1463
1429
1410
1400
1421
1420
1450
1391
1208

Table 1

LOCATION	DATE	TIME	DEPTH	ACCOUNT-#	LAB-SLIP-#	END-DATE	END-TIME
51MISC	851030	1045	F000	030010	037439		

TEST-#	STORET-#	TEST--NAME--AND--UNITS		TEST-VALUE
		EXTRA INFORMATION ABOUT SAMPLE: FK+LP		
		EXTRA INFORMATION ABOUT SAMPLE: F#1		
131	00010	WATER TEMP	CENT	6.3
091	00300	DO	MG/L	10.2
096	00400	PH	SU	6.7
026	00310	BOD 5 DAY	MG/L	1.2
100	00665	PHOS-TOT	MG/L	0.32
136	00671	PHOS-DIS ORTHO	MG/L P	0.20
087	00625	TOT KJEL DL N	MG/L	1.4
086	00608	NH3-N DISS	MG/L	0.39
085	00631	NO2&NO3 N-DISS	MG/L	0.14

***** COMMENT: UNNAMED TRIB AT HWY I
(Catawba Trib)

LOCATION	DATE	TIME	DEPTH	ACCOUNT-#	LAB-SLIP-#	END-DATE	END-TIME
51MISC	851030	1031	F000	030030	037804		

TEST-#	STORET-#	TEST--NAME--AND--UNITS		TEST-VALUE
		EXTRA INFORMATION ABOUT SAMPLE: FKLP		
		EXTRA INFORMATION ABOUT SAMPLE: 1		
134	31613	FEC COLI M-FCAGAR /100ML		10

***** COMMENT: UNNAMED TRIB. AT HWY. I
(Catawba Trib)

LOCATION	DATE	TIME	DEPTH	ACCOUNT-#	LAB-SLIP-#	END-DATE	END-TIME
51MISC	851030	1030	F000	030010	037440		

TEST-#	STORET-#	TEST--NAME--AND--UNITS		TEST-VALUE
		EXTRA INFORMATION ABOUT SAMPLE: FK+LP		
		EXTRA INFORMATION ABOUT SAMPLE: F#2		
131	00010	WATER TEMP	CENT	9.2
091	00300	DO	MG/L	4.2
096	00400	PH	SU	7.1
026	00310	BOD 5 DAY	MG/L	7.8
100	00665	PHOS-TOT	MG/L	2.5
136	00671	PHOS-DIS ORTHO	MG/L P	0.052
087	00625	TOT KJEL DL N	MG/L	19
086	00608	NH3-N DISS	MG/L	15
085	00631	NO2&NO3 N-DISS	MG/L	0.4

***** COMMENT: CATAWBA CHEESE OUTFALL

LOCATION	DATE	TIME	DEPTH	ACCOUNT-#	LAB-SLIP-#	END-DATE	END-TIME
51MISC	851030		F000	040040	037806		

TEST-#	STORET-#	TEST--NAME--AND--UNITS		TEST-VALUE
		EXTRA INFORMATION ABOUT SAMPLE: FKLP		
		EXTRA INFORMATION ABOUT SAMPLE: 2		
134	31613	FEC COLI M-FCAGAR /100ML		70000

***** COMMENT: CATAWBA CHEESE OUTFALL 134-FST

LOCATION	DATE	TIME	DEPTH	ACCOUNT-#	LAB-SLIP-#	END-DATE	END-TIME
51MISC	851030	1115	F000	030010	037441		

TEST-#	STORET-#	TEST--NAME--AND--UNITS		TEST-VALUE
		EXTRA INFORMATION ABOUT SAMPLE: FK+LP		
		EXTRA INFORMATION ABOUT SAMPLE: F#3		
131	00010	WATER TEMP	CENT	6.5
091	00300	DO	MG/L	7.4
096	00400	PH	SU	7.4
100	00665	PHOS-TOT	MG/L	0.20
136	00671	PHOS-DIS ORTHO	MG/L P	0.144
087	00625	TOT KJEL DL N	MG/L	1.0
086	00608	NH3-N DISS	MG/L	<0.02
085	00631	NO2&NO3 N-DISS	MG/L	0.03

Table 2

LOCATION	DATE	TIME	DEPTH	ACCOUNT-#	LAB-SLIP-#	END-DATE	END-TIME
51MISC	851030	1300		030010	037442		

TEST-#	STORET-#	TEST--NAME--AND--UNITS		TEST-VALUE
		EXTRA INFORMATION ABOUT SAMPLE: FK+LP		
		EXTRA INFORMATION ABOUT SAMPLE: F#5		
131	00010	WATER TEMP	CENT	7.2
091	00300	DO	MG/L	11.6
096	00400	PH	SU	8.0
100	00665	PHOS-TOT	MG/L	0.07
136	00671	PHOS-DIS ORTHO	MG/L P	0.048
087	00625	TOT KJEL DL N	MG/L	0.5
086	00608	NH3-N DISS	MG/L	<0.02
085	00631	NO2&NO3 N-DISS	MG/L	<0.02

***** COMMENT: WEBB CREEK AT MIDWAY ROAD

Attachment 1 - Habitat Rating Scores

Department of Natural Resources

STREAM SYSTEM HABITAT RATING FORM
Form 3200-68 1-85

Stream Unnamed Trib @ Catawba Reach Location Co. Hy I Reach Score/Rating 211/Poor

unty Price Date 10/20/85 Evaluator JK + LP Classification

Rating Item	Category			
	Excellect	Good	Fair	Poor
Watershed 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 run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank 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 Channel Capacity	Ample for present peak flow plus some increase. Peak flow 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 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
ottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% 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
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% 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
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. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
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 Totals:				

Column Scores E ____ +G ____ +F ____ +P ____ = 211 = Score

It is apparent that low-flow - intermittent stream - exists @ site
Downstream is wetland pasture with alders + some sedge

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

Department of Natural Resources

STREAM SYSTEM HABITAT RATING FORM

Form 3200-68 1-85

Stream unnamed trib @ Catawba. Reach Location behind TN landfill Reach Score/Rating 154

County Price Date 10/30/85 Evaluator JK & LP Classification

Rating Item	Category			
	Excellect	Good	Fair	Poor
Watershed 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 run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). (10)	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. (4)	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank 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 Channel Capacity	Ample for present peak flow plus some increase. Peak flow 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 15-25. (14)	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. (6)	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. (4)	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% 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
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. (2)	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% 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
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. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. (16)	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
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 Totals:				

Stream bed is continuous boulders & grass, all boulders are moss covered. Evidence of higher flows exceeding bank. Wooded site

Column Scores E ____ +G ____ +F ____ +P ____ = 154 = Score

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

Attachment 1

Department of Natural Resources

STREAM SYSTEM HABITAT RATING FORM
Form 3200-68 1-85

Stream Trib to Webb Creek Reach Location @ Middle of Sec 12, milway Rd. Reach Score/Rating 172

County Price Date 10/22/85 Evaluator JK + CP Classification

Rating Item	Category			
	Excellect	Good	Fair	Poor
Watershed 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 run off. 16
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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. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. (16)	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
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 Totals:	____	____	____	____

Column Scores E ____ +G ____ +F ____ +P ____ = 172 = Score

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

Department of Natural Resources

STREAM SYSTEM HABITAT RATING FORM
Form 3200-68 1-85

Stream Webb creek Reach Location SW¼, NE¼ Sec 12, @ RR tracks Reach Score/Rating Form not applicable

unty Price Date 10/31/95 Evaluator JK+LP Classification

Rating Item	Excellect	Good	Fair	Poor
Watershed 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 run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank 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 Channel Capacity	Ample for present peak flow plus some increase. Peak flow 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 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
ottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% 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
Bottom Substrate/ Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% 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
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. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
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 Totals: ____ ____ ____ ____

Area above RR tracks is previously beaver ponded, Below is start of perennial stream channel. Channel appears similar to site just downstream.

Column Scores E ____ +G ____ +F ____ +P ____ = ____ = Score

Sites between riffles are slow runs in log alder cover.

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

Attachment 2

Stream Use Class Descriptions

Class A, Cold Water Sport Fish: Streams in Class A are capable of supporting a cold water sport fishery, or serving as a spawning or nursery area for cold water sport species. Streams capable of supporting a "put and take" cold water sport fishery should be included in Class A. The presence of an occasional cold water sport species in a stream does not justify a class A designation. For example, trout are occasionally taken from the Wisconsin and Mississippi Rivers, but that fact alone does not justify a cold water sport fish designation.

Class B, Warm Water Sport Fish: Streams in Class B are capable of supporting a warm water sport fishery, or serving as a spawning or nursery area for warm water sport species. Warm water sport species are occasionally found in many small streams. However, for a stream to rate a Class B designation, the presence of warm water sport species should be "common."

Class C, Intolerant Forage, Intolerant Macroinvertebrates, or a valuable population of Tolerant Forage Fish: Streams in Class C are capable of supporting an abundant, and usually diverse population of forage fish or intolerant macroinvertebrates. Streams in Class C are generally too small to support sport fish, but have natural water quality and habitat sufficient to suppport forage species or macroinvertebrates. Streams with valuable populations of tolerant forage fish should also be included in Class C. This type of stream may provide beneficial uses, such as a food source for a downstream fishery, or a sucker fishery itself.

Class D, Tolerant or Very Tolerant Fish, or Tolerant Macroinvertebrates: Streams in Class D are usually limited due to uncontrollable water quality or habitat deficiencies. Class D streams are capable of supporting only a small population of tolerant forage fish, or a population composed of only very tolerant fish. A stream not capable of supporting fish, but supporting tolerant macroinvertebrates, should be capable of supporting an abundant population of tolerant macroinvertebrates to qualify for a Class D designation.

Class E, Very Tolerant Macroinvertebrates or No Aquatic Life: Streams in Class E are usually small and severely limited by water quality or habitat. At best, Class E streams are only capable of supporting very tolerant macroinvertebrates, or an occasional very tolerant fish. Marshy ditches and intermittent streams are examples of Class E streams.

From: Stream Classification for Wisconsin, 1981

Attachment 3

MACROINVERTEBRATE FIELD SAMPLING DATA

BASIN: ___ STREAM: Unnamed Trib @ Hill Catawba COUNTY Rowan SAMPLE NO. ___

PRIMARY STATION NO. _____ LOCATION: ___ 1/4, ___ 1/4, S ___, T___N, R___ WATERSHED _____

DATE: 10/30/85 (mo day yr.) BIOTIC INDEX: ____

Chemical Sample? (yes) no

10:30 TIME (24 hr)

10.2 DO (mg/l)

6.3 TEMP(°C)

6.7 pH (s.u.)

___ CONDUCTIVITY (umhos)

AT SAMPLE SITE:

3.5 AVG. WIDTH (ft)

.2 AVG. DEPTH (ft)

___ AVG. VELOCITY (measured fps)

or

1 EST. VELOCITY (fps) (1. very slow (.2); 2. slow (.2-.5); 3. moderate (.5-1.5); 4. fast (1.5)

SAMPLED HABITAT: (1. Riffle) 2. Run 3. Pool

SAMPLER: 1. (D Frame Net) 2. Artificial Substrate _____ 3. Other _____

SUBSTRATE AT SITE LOCATION (%):

___ Bedrock	60 Rubble (2 1/2 - 10" dia.)	√ Sand	___ Clay	5 Muck
1 Boulders (10" dia.)	10 Gravel (1/10 - 2 1/2" dia.)	___ Silt	___ Detrius	20 Debris & Vegetation

SUBSTRATE SAMPLED (%): X SAME AS ABOVE OR/

___ Bedrock	___ Rubble (2/12 - 10" dia.)	___ Sand	___ Clay	___ Muck
___ Boulders (10" dia.)	___ Gravel (1/10 - 2 1/2" dia.)	___ Silt	___ Detrius	___ Debris & Vegetation

AQUATIC VEGETATION: 30 % of Total Stream Channel at Sample Site - filamentous algae

OBSERVED INSTREAM CONDITIONS AT SAMPLING SITE LIMITING W.Q.

	not present	slight	moderate	significant	Comments
Sludge Deposits	n	(sl)	m	s	
Silt & Sediment Deposits	n	sl	(m)	s	
Turbidity	n	sl	(m)	s	
Chlorine or Toxic Scour	n	sl	m	s	? just below o.f. from
Macrophytes	(n)	sl	m	s	
Filamentous Algae	n	sl	m	(s)	Catawba cheese plant.
Planktonic Algae	(n)	sl	m	s	
Slimes	n	sl	(m)	s	
Iron Bacteria	n	sl	(m)	s	

FACTORS WHICH MAY BE AFFECTING SAMPLING SITE

degree of influence:	General Watershed: not present	possible	important	At Site: direct impact	Comments
Livestock Pasturing	np	pos	(imp)	di	Low flow appears to
Barnyard Runoff	np	(pos)	imp	di	be very significant factor
Cropland Runoff	np	(pos)	imp	di	@ this site
Tile Drains	np	(pos)	imp	di	
Septic Systems	np	(pos)	imp	(di)	
Streambank Erosion	np	(pos)	imp	di	
Channel Ditching & Straightening	(np)	pos	imp	di	
Downstream Impoundment	(np)	pos	imp	di	
Upstream Impoundment	(np)	pos	imp	di	
Low Flow	np	pos	(imp)	(di)	
Wetlands	np	(pos)	imp	di	
Urban Runoff	(np)	pos	imp	di	
Construction Runoff	(np)	pos	imp	di	
Point Source (specify type)_____	np	pos	imp	(di)	Catawba cheese
Other (specify)_____	np	pos	imp	di	

PERCEIVED WATER QUALITY: 1. Excellent 2. Good (3. Fair / 4. Poor) 5. Very Good

SAMPLE TRACKING INFORMATION

Dates Artificial Sampler In _____

Time Spent Collecting Sample (minutes) 10 Replicate #'s None. Out _____

Sampler Collecter LP Sorter LP Identifier LP

Date 10/31 Date _____ Date _____

Not enough for B.I. - 1 caddis, a few snails, 1 midge.

Attachment 3

MACROINVERTEBRATE FIELD SAMPLING DATA

BASIN: ____ STREAM: Unnamed Trib. to Cottonwood COUNTY Price SAMPLE NO. __

PRIMARY STATION NO. _____ LOCATION: NE 1/4, SE 1/4, S 8, T 35 N, R 1 W WATERSHED _____

DATE: 10/30/85 (mo day yr.) behind Imhoff BIOTIC INDEX: ____

Chemical Sample? (yes) no

11:15 TIME (24 hr)

7.4 DO (mg/l)

6.5 TEMP(°C)

7.4 pH (s.u.)

____ CONDUCTIVITY (umhos)

AT SAMPLE SITE:

10 AVG. WIDTH (ft)

.5 AVG. DEPTH (ft)

____ AVG. VELOCITY (measured fps)

or

3 EST. VELOCITY (fps) 1. very slow (.2); 2. slow (.2-.5); (3. moderate) (.5-1.5); 4. fast (1.5)

SAMPLED HABITAT: 1. Riffle 2. Run 3. Pool Boulder stream

SAMPLER: 1. (D Frame Net) 2. Artificial Substrate Hand scraping 3. Other _____

SUBSTRATE AT SITE LOCATION (%):

____ Bedrock	____ Rubble (2 1/2 - 10" dia.)	____ Sand	____ Clay	____ Muck
95 Boulders (10" dia.)	____ Gravel (1/10 - 2 1/2" dia.)	____ Silt	____ Detrius	5 Debris & Vegetation

SUBSTRATE SAMPLED (%): X SAME AS ABOVE OR/

____ Bedrock	____ Rubble (2/12 - 10" dia.)	____ Sand	____ Clay	____ Muck
____ Boulders (10" dia.)	____ Gravel (1/10 - 2 1/2" dia.)	____ Silt	____ Detrius	____ Debris & Vegetation

AQUATIC VEGETATION: 50 % of Total Stream Channel at Sample Site grasses, boulders are moss covered.

OBSERVED INSTREAM CONDITIONS AT SAMPLING SITE LIMITING W.O.

	not present	slight	moderate	significant	Comments
Sludge Deposits	(n)	sl	m	s	
Silt & Sediment Deposits	(n)	sl	m	s	
Turbidity	(n)	sl	m	s	
Chlorine or Toxic Scour	(n)	sl	m	s	
Macrophytes	n	sl	(m)	s	grasses, mosses (all terrestrial)
Filamentous Algae	n	(sl)	m	s	
Planktonic Algae	(n)	sl	m	s	
Slimes	(n)	sl	m	s	
Iron Bacteria	(n)	sl	m	s	

FACTORS WHICH MAY BE AFFECTING SAMPLING SITE

	General Watershed			At Site	Comments
degree of influence:	not present	possible	important	direct impact	
Livestock Pasturing	np	(pos)	imp	di	
Barnyard Runoff	np	(pos)	imp	di	
Cropland Runoff	np	(pos)	imp	di	
Tile Drains	np	(pos)	imp	di	
Septic Systems	np	(pos)	imp	di	
Streambank Erosion	(np)	pos	imp	di	
Channel Ditching & Straightening	(np)	pos	imp	di	
Downstream Impoundment	(np)	pos	imp	di	
Upstream Impoundment	(np)	pos	imp	di	
Low Flow	np	pos	(imp)	(di)	
Wetlands	np	(pos)	imp	di	
Urban Runoff	(np)	pos	imp	di	
Construction Runoff	(np)	pos	imp	di	
Point Source (specify type)____	(np)	pos	imp	di	
Other (specify)_____	(np)	pos	imp	di	

PERCEIVED WATER QUALITY: 1. Excellent 2. Good (3. Fair) 4. Poor 5. Very Good

SAMPLE TRACKING INFORMATION

Dates Artificial Sampler In _____

Time Spent Collecting Sample (minutes) 15 Replicate #'s None - too slow to collect Out _____

Sampler Collecter LP Sorter L.P Identifier L.P

Date 10/20/85 Date _____ Date _____

MACROINVERTEBRATE FIELD SAMPLING DATA

BASIN: ___ STREAM: Webb Creek COUNTY Price SAMPLE NO. __

PRIMARY STATION NO. _____ LOCATION: __ 1/4, __ 1/4, S 12, T 15 N, R 9 W WATERSHED _____

DATE: 10 / 30 / 85 (mo / day / yr.) Middle of Sect 12 @ Milway Rd BIOTIC INDEX: ___

Chemical Sample? (yes) no

13:00 TIME (24 hr)

11.6 DO (mg/l)

7.2 TEMP(°C)

8.0 pH (s.u.)

___ CONDUCTIVITY (umhos)

AT SAMPLE SITE:

6 AVG. WIDTH (ft)

.3 AVG. DEPTH (ft)

___ AVG. VELOCITY (measured fps)

or

3 EST. VELOCITY (fps) 1. very slow (.2); 2. slow (.2-.5); 3. moderate (.5-1.5); 4. fast (1.5)

SAMPLED HABITAT: (1. Riffle) 2. Run 3. Pool

SAMPLER: (1. D Frame Net) 2. Artificial Substrate _____ 3. Other _____

SUBSTRATE AT SITE LOCATION (%):

___ Bedrock	80 Rubble (2 1/2 - 10" dia.)	5 Sand	___ Clay	___ Muck
5 Boulders (10" dia.)	10 Gravel (1/10 - 2 1/2" dia.)	___ Silt	___ Detrius	___ Debris & Vegetation

SUBSTRATE SAMPLED (%): X SAME AS ABOVE OR/

___ Bedrock	___ Rubble (2/12 - 10" dia.)	___ Sand	___ Clay	___ Muck
___ Boulders (10" dia.)	___ Gravel (1/10 - 2 1/2" dia.)	___ Silt	___ Detrius	___ Debris & Vegetation

AQUATIC VEGETATION: 0 % of Total Stream Channel at Sample Site

OBSERVED INSTREAM CONDITIONS AT SAMPLING SITE LIMITING W.Q.

	not present	slight	moderate	significant	Comments
Sludge Deposits	(n)	sl	m	s	
Silt & Sediment Deposits	(n)	sl	m	s	
Turbidity	(n)	sl	m	s	
Chlorine or Toxic Scour	(n)	sl	m	s	
Macrophytes	n	sl	m	s	some grasses & trees in channel
Filamentous Algae	n	sl	(m)	s	
Planktonic Algae	(n)	sl	m	s	
Slimes	(n)	sl	m	s	
Iron Bacteria	(n)	sl	m	s	

FACTORS WHICH MAY BE AFFECTING SAMPLING SITE

degree of influence:	General Watershed: not present	possible	important	At Site: direct impact	Comments
Livestock Pasturing	np	(pos)	imp	di	
Barnyard Runoff	np	(pos)	imp	di	
Cropland Runoff	np	(pos)	imp	di	
Tile Drains	np	(pos)	imp	di	
Septic Systems	np	(pos)	imp	di	
Streambank Erosion	np	pos	(imp)	di	
Channel Ditching & Straightening	(np)	pos	imp	di	
Downstream Impoundment	(np)	pos	imp	di	
Upstream Impoundment	(np)	pos	imp	di	
Low Flow	np	(pos)	imp	di	
Wetlands	np	(pos)	imp	di	
Urban Runoff	(np)	pos	imp	di	
Construction Runoff	(np)	pos	imp	di	
Point Source (specify type)___	(np)	pos	imp	di	
Other (specify)___	np	pos	imp	di	

PERCEIVED WATER QUALITY: 1. Excellent (2. Good) 3. Fair 4. Poor 5. Very Good

SAMPLE TRACKING INFORMATION

Dates Artificial Sampler In _____

Time Spent Collecting Sample (minutes) 5 min Replicate #'s _____ Out _____

Sampler Collecter LP Sorter LP Identifier LP

Date 12/30/85 Date _____ Date _____

Attachment 4 - Field Sheet

SURVEY Columbia Kennon

DATE 10/30/85

STA. NO.	LOCATION	TIME	DEPTH	TEMP °C	D.O.	pH	SAMPLES COLLECTED — REMARKS
1	Unnamed trib @	10:45	0	6.3	10.2	6.7	B.I. photo 4 - B.I. site photo 1 - downstream to
	Hwy I						East, photo 2 - upstream to W
	Few scuds, 1 caddis in sample, not enough for (midge)						photo 3 - minnows on
							downstream side in pool next to
							pasture, Flow ≈ < .1 cfs
2	Outfall pipe on upstream	10:30	0	9.2	4.2	7.1	BOD, Bact, Nutrients [illegible] Flow ≈ < .05 cfs
	side of CT II I						photo #5
4	Trib @ [illegible] Rd East of I	11:00					No sample, stream flow ≈ < .5 cfs, lots of rock substrate on
							downstream side.
3.	Trib @ [illegible]	11:15		6.5	7.4	7.4	photo #6 - downstream #7 - upstream
	[illegible]						
5.	Webb Creek @ [illegible] Rd	13:00		7.2	11.6	8.0	B.I. + Chem photo #8 view to N - upstream
							photo #9 view S - downstream
[illegible]	Webb Ck @ Riley Rd	13:40					No sample

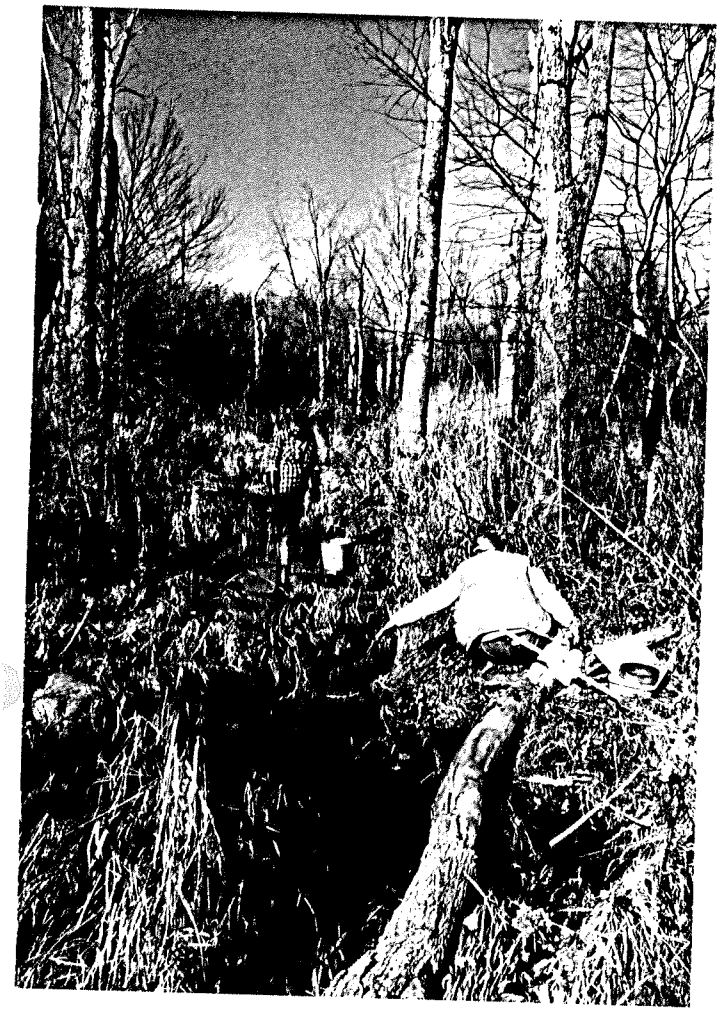
Stream flows through [illegible]. Channel appears to be fairly well established with steep edges. Bottom still has substantial amounts of cobble + gravel. Some filamentous algae present but not a lot

Site 1 - Unnamed trib From Catawba

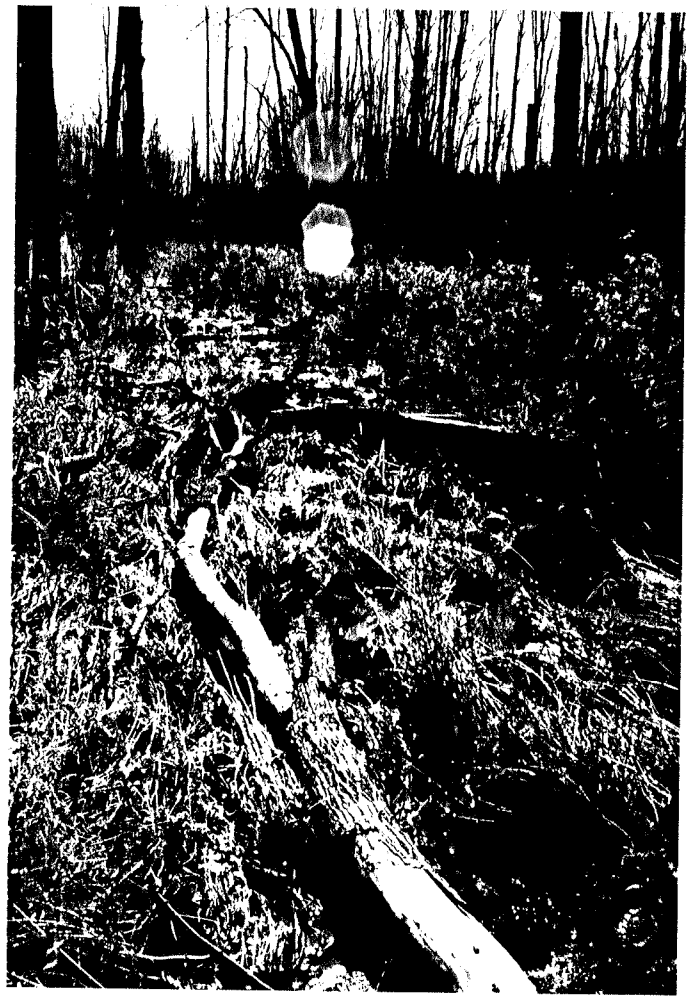
Upstream view (to West)
taken from CTH I

Downstream view (to South-SE)
taken from CTH I

Site 2 - Unnamed trib from Catawba



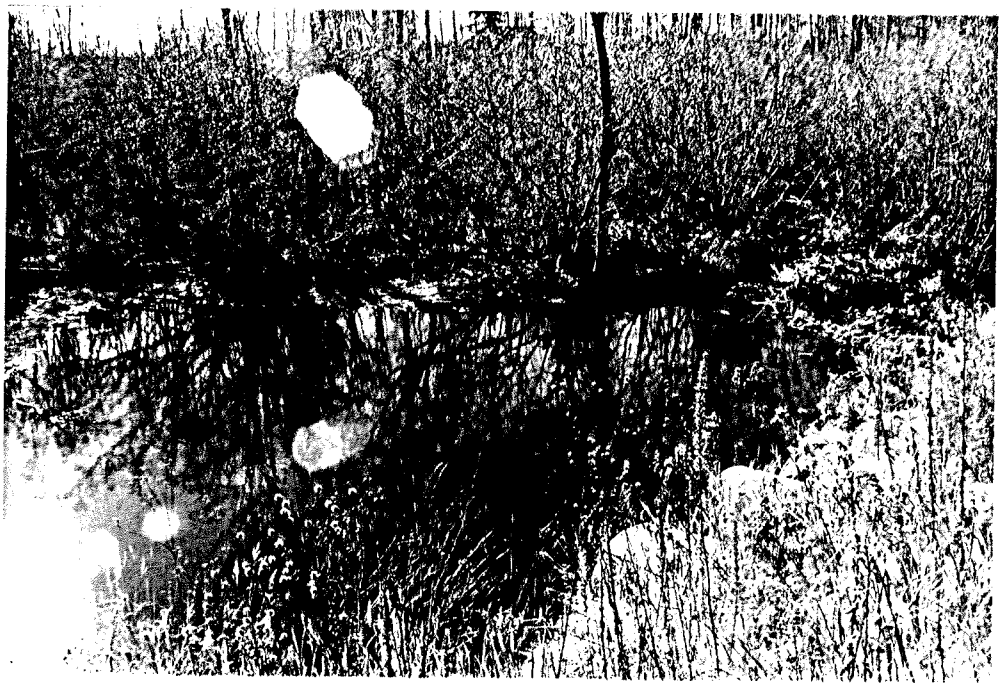
Upstream view (to North)



Downstream view (to South)

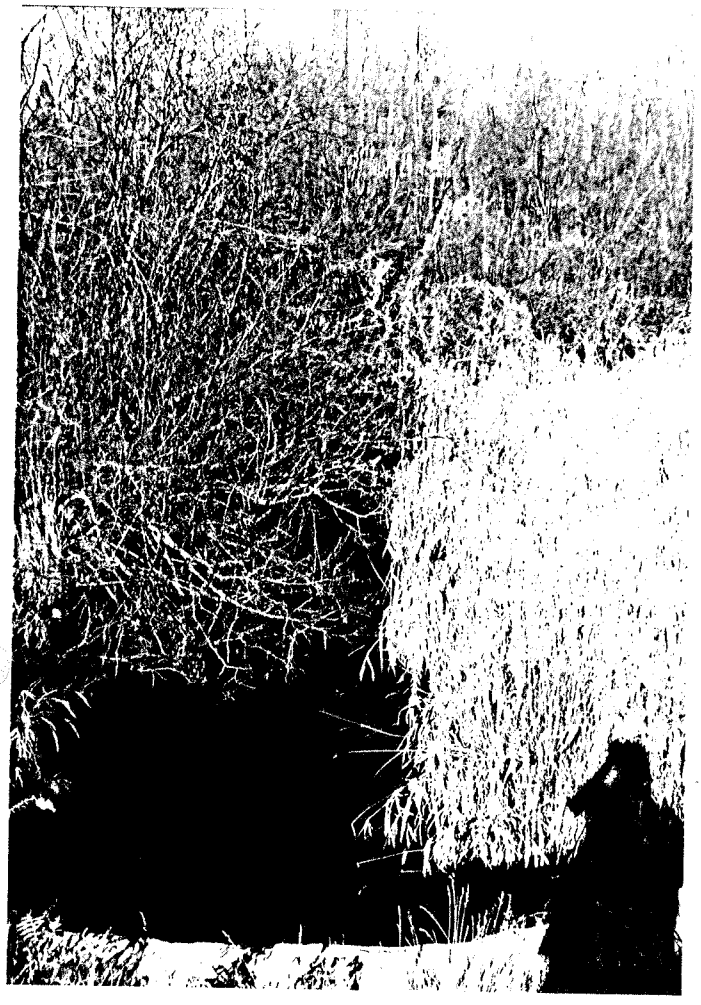
Site 5 - Unnamed trib to Web Creek near Kennan

Upstream view to North, taken from railroad tracks

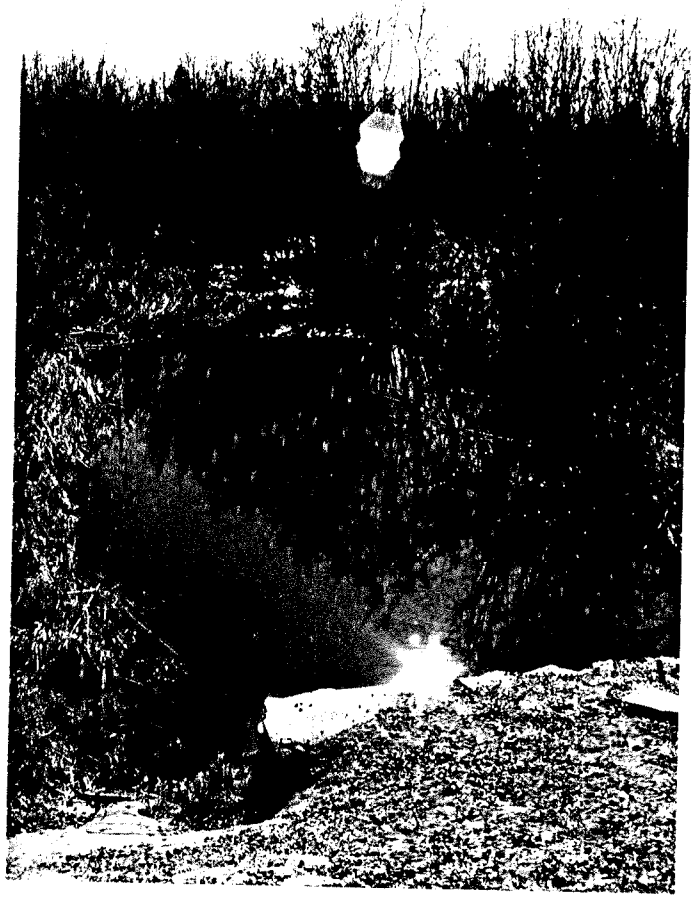


Downstream view to Southwest, taken from railroad tracks

Site 6 - Unnamed trib to Web Creek near Kennan



Upstream View (North) taken from Midway Road



Downstream View (South) taken from Midway Road