

(not curr in code ?17)

Reviewed by

UBub

Date

2/2004

Region NEK County Shawano Report Date 5/1977 Classification LAL/LFF
10/80
Water Body: Railroad Creek
Discharger: Birnamwood WWTP

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
- ☐ 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:

5/31/1977 - Jim McDonald
10/27/80 Birnamwood WLA - (Dave Hildreth)

Additional Comments/How to improve report:

-need updated information & a confirmation on this class'n.
effluent channel - not by default

BIRNAMWOOD WLA

Birnamwood STP discharges into an open ditch that flows into a swamp. We lost the dye on both surveys in this swamp - as there is no clean cut channel once it enters the swamp.

The ditch is covered with tag alder and has large amounts of aquatic vegetation growing in it. The predominate surrounding land use is woodland. The stream is well buffered from runoff although everything drains into the swamp.

During the primary survey we encountered a problem. The Village was bypassing above the outfall (Station BP), but below Station BA. Samples were taken of the bypass and just above the STP outfall (Station BP). Results are below.

Station PB (Bypass)

Temp. 19° C
D.O. 4.7 mg/l
BOD₆ 140 mg/l
pH 7.3 su
Org N - N 10 mg/l
NH₃ - N 15 mg/l
NO₂ + NO₃ - N 0.1 mg/l

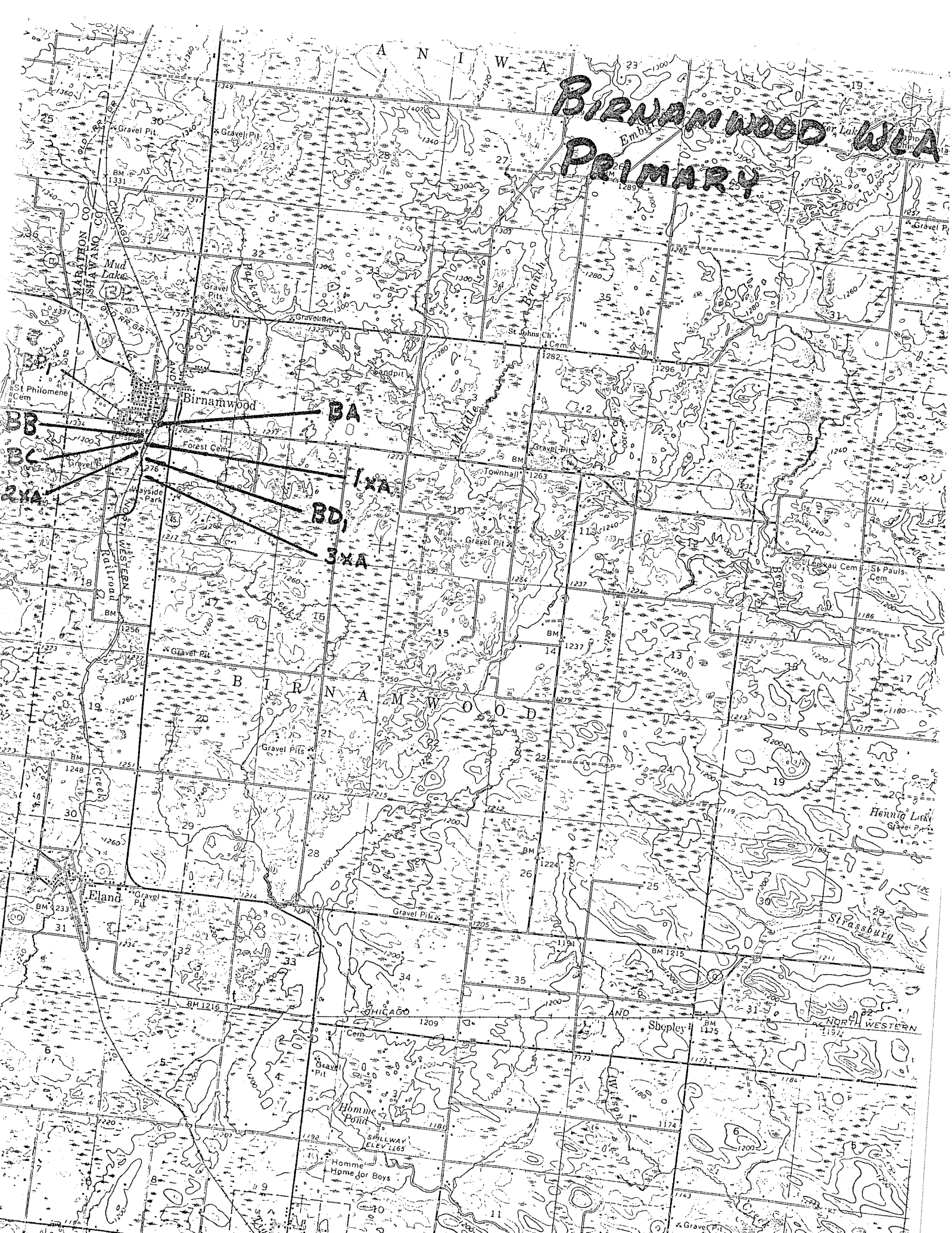
Station PB1 (300 Feet Below PB)

Temp. 19° C
D.O. 4.7 mg/l
BOD₆ 49 mg/l
pH 7.3 su
Org N - N 5.4 mg/l
NH₃ - N 10 mg/l
NO₂ + NO₃ - N 0.1 mg/l

Perceived water quality of the ditch is poor. Deep muck and sludge areas are very common along waterway. Large growths of aquatic vegetation along with choking amounts of duckweed show that nutrient levels are very high. The whole ditch segment seems to be a sag zone with no real recovery zone. The water appearance was that of a gray septic color with bubbles rising to the surface due to the anerobic condition of the ditch bottom. In essence a very poor quality stream.

DH:cs

10/27/80



SURVEY LOCATION BIRNAMWOODSAMPLE NUMBER BADATE 9 8 80 BASIN NUMBER 112TYPE OF SURVEY WLA PRIMARYCREW MEMBERS DRH, DCW, TJD, MPRCOUNTY SHAWANOSAMPLE LOCATION Above STP - 400 ft.

PRIMARY ST. NO. _____

DYE TIME

DYE DUMPED _____

TIME	DYE TIME	(DYE)	D.O.	TEMP.

COMMENTS

Bypass was discharging
when arrived, the operator
turned off just as survey
started.

DIURNALS		
TIME	D.O.	TEMP.
10:30	13	17
16:45	12.8	18
20:30	11.4	16
00:20	10.8	16
04:25	10.6	16
08:10	12.1	17

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT SHALLOW & WEEDSOBSERVER/RECORDER DH 1 MRINSTRUMENT USED Pigmy TIME 10 : 30

Rev. Sec.

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
.5	.1	.1	36 43	

TOTAL WIDTH / feet TOTAL DISCHARGE ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 13 mg/lpH (lab) 8.0 suTemperature 17 °CBOD₂₀ mg/lpH (field) suBOD₅ mg/lT-org N 1.1 mg/lNH₃-N < 0.02 mg/lNO₂-N 7 1.54 mg/lNO₃-N mg/l

SURVEY LOCATION BIRNAMWOOD SAMPLE NUMBER BB

DATE 9 8 80 BASIN NUMBER 112 TYPE OF SURVEY WLA-Primary

CREW MEMBERS DRH, DCW, MPR, TJD COUNTY SHAWANO

SAMPLE LOCATION Effluent pipe PRIMARY ST. NO. 593021

D Y E T I M E

DYE DUMPED 10:55

[illegible]

COMMENTS

Effluent water appears to be clean and clear.

[illegible]

BB

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT culvertOBSERVER/RECORDER DH / MRINSTRUMENT USED Pigging Meter TIME 10 : 50

Rev. Sec.

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
.5	.2	.2	55 45	

TOTAL WIDTH / feet TOTAL DISCHARGE ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 2.1 mg/lpH (lab) 7.3 suTemperature 19 °CBOD₂₀ mg/lpH (field) suBOD₅ mg/lT-org N 1.0 mg/lNH₃-N 7.4 mg/lNO₂-N < 0.1 mg/lNO₃-N mg/l

SURVEY LOCATION BIRNAMWOOD

SAMPLE NUMBER BC

DATE 9880 BASIN NUMBER 112

TYPE OF SURVEY WLA PRIMARY

CREW MEMBERS DRH, TJD, MPR, TJD

COUNTY SHAWANO

SAMPLE LOCATION Mix Zone

PRIMARY ST. NO. _____

DYE TIME

DYE DUMPED 10:55

TIME	DYE TIME	(DYE)	D.O.	TEMP.

COMMENTS

DIURNALS		
TIME	D.O.	TEMP.
11:00	0.5	22
16:30	0.5	21
20:45	0.4	21
00:35	0.4	21
04:35	0.5	21
08:25	0.4	21

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT Muck, Weeds

OBSERVER/RECORDER _____

INSTRUMENT USED _____

TIME 11 : 00

Could not take
flow at this
station due
to low flow
and muck up
above boot length.
Also many grasses
in stream.

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)

Flow appears stagnant
very, very little velocity. In
fact the pigmy only turned
1/2 turn in 70 seconds in the
middle of stream.

TOTAL WIDTH 6 feet TOTAL DISCHARGE _____ ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 1.5 mg/l

pH (lab) _____ su

Temperature 22 °CBOD₂₀ _____ mg/l

pH (field) _____ su

BOD₅ _____ mg/l

T-org N _____ mg/l

NH₃-N _____ mg/lNO₂-N _____ mg/lNO₃-N _____ mg/l

SEGMENT DATA SHEET

Treatment Plant: BIRNAMWOOD

Date: 9-8-80

Recorders Int.: PCW

Segment # 1

Observation # 4

Stake &/or Sample # A

Distance Downstream 68 paces or feet

Time 10:45 pH

DO (Unit #)

Temp °C

Measurement Conditions

Sun - Shade
Riffle - Run - Pool
Before - With - After/Dye

% Overcast 0

% Shade 20

Est. Stream Width 6' Ave. Est. Stream Depth 20"

Bottom Type Mud - Sludge

% Stream Found

SLUDGE

50 %

Depth 1'

MUD

50 %

Depth 1'

MACROPHYTES

0 %

Comments

Septic gray
Drainage Ditch

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisneria	s	c	a
- Duckweed	s	c	a
-	s	c	a

FILAMENTOUS ALGAE 0 % Stream

SLIMES 0 % Stream

LITTER & DETRITUS 0 % Depth

Fish Observed 0

Land marks (major) Second Telephone Post

Land Use Wooded / Fallow

Other

LOW FLOW STREAM CROSS SECTION & DISCHARGE DATA

STP:

Date:

Location

or Stake #

Tapedown
(cont.)

Flow Meter ::

Recorders Initials

Time

Stream Width

Measurements

[illegible]

SEGMENT DATA SHEET

Treatment Plant: BIRNHAM Wood

Date: 9-8-80

Recorders Int.: Paul

Segment # 2

Observation # 1

Stake &/or Sample # A

Distance Downstream 168 paces or feet

Time 11:15 pH

DO (Unit #)

Temp °C

2 more telephone poles down stream
Measurement Conditions

Sun - Shade
Riffle - Run - Pool
Before - With - After/Dye

% Overcast 10

% Shade 10

Est. Stream Width 7' Est. Ave. Stream Depth 18"

Bottom Type Mud - Sludge

% Stream Found

SLUDGE

50 %

Depth 1'

MUD

50 %

Depth 1'

MACROPHYTES

0 %

Comments

Straight
Drainage ditch
Depth's gray
water
Heavily grassed

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisneria	s	c	a
- Duckweed	s	c	a
-	s	c	a

FILAMENTOUS ALGAE 0 % Stream

SLIMES 0 % Stream

LITTER & DETRITUS 0 % Depth

Fish Observed 0

Land marks (major) 4 Poly Post

Land Use Fallow Wooded

Other NR

LOW FLOW STREAM CROSS SECTION & DISCHARGE DATA

STP: _____ Date: _____

Location

Tapedown _____ Flow Meter # _____ Recorder's initials _____
(opt.)

Time _____ Stream Width _____ # Measurements _____

Distance from Bank (ft)	Depth (ft)	Velocity	Area (ft ²)	Discharge	Comments: (Vegetation-Sludge)
1	6"				
2	9"				
3	16"				
4	19"				
5	12"				
6	3"				
7	1"				
T.					

SURVEY LOCATION BIRNAMWOOD SAMPLE NUMBER BD1

DATE 9 8 80 BASIN NUMBER 112 TYPE OF SURVEY WLA PRIMARY

CREW MEMBERS DCW, TJD, MPR, DRH COUNTY SHAWANO

SAMPLE LOCATION 1st Crossing of R.R. bridge PRIMARY ST. NO.

DYE TIME

DYE DUMPED 10:55

TIME	DYE TIME	(DYE)	D.O.	TEMP.
13:50	2:55	0	.6	21
14:30	3:35	.10	.6	21
14:45	3:50	.12	.6	21
15:00	4:05	.21	.5	20
15:15	4:20	.27	.4	20
15:30	4:35	.37	.3	19
15:45	4:50	.55	.3	19
16:00	5:05	.51	.3	20
16:15	5:20	.47	.3	20

COMMENTS

At this site the water is hardly moving - water looks almost septic gray. there is much grass in water causing problems for piggy meter.

DIURNALS

TIME	D.O.	TEMP.
13:50	0.6	21
16:15	6.3	20
20:55	0.3	20
00:50	0.4	20
04:50	0.4	20
08:40	0.5	20

BD₁

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT Conduit + WeedsOBSERVER/RECORDER D.H. 1 MR.INSTRUMENT USED Pigmy Meter TIME 13 : 50

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
.5	1.5	1.5	1 70	.02
1.5	1.6	1.6	1 90	.017
2.5	1.7	1.7	1 70	.02

TOTAL WIDTH 3 feet TOTAL DISCHARGE .057 ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen _____ mg/l

pH (lab) _____ su

Temperature _____ °C

BOD₂₀ _____ mg/l

pH (field) _____ su

BOD₅ _____ mg/l

T-org N _____ mg/l

NH₃-N _____ mg/lNO₂-N _____ mg/lNO₃-N _____ mg/l

SEGMENT DATA SHEET

Treatment Plant: Birnamwood

Date: 7-8-50

Recorders Int.: Daw

Segment # 3

Observation # 1

Stake &/or Sample # A

Distance Downstream 90 paces or feet

Time 12:30 pH

DO (Unit #)

Temp °C

Measurement Conditions

Sun - Shade

Riffle - Run Pool

Before - With - After/Dye

% Overcast 00

% Shade 70

Est. Stream Width 3' Est. Stream Depth 3"

Bottom Type Mud Sludge

% Stream Found

SLUDGE

50 %

Depth 6"

MUD

50 %

Depth 1"

MACROPHYTES

0 %

Comments

The entire stream at this point is a run.

The stream appears to be in excellent condition.

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisneria	s	c	a
-	s	c	a
-	s	c	a

FILAMENTOUS ALGAE 0 % Stream

SLIMES 30 % Stream

LITTER & DETRITUS 0 % Depth

Fish Observed 0

Land marks (major) None - middle of Swamp

Land Use Wooded

Other

STP:

Date:

Location

or Stake #

Tapedown
(cont.)

Flow Meter :

Recorders Initials

Time

Stream Width

Measurements

[illegible]

I.

BIRNAMWOOD
WLA Preliminary
6-23-80

B-A
B-B
B-C
B-D
B-E
B-F
B-G
B-H
B-I

Sent to
T. Bennwita
9-26-80

TEMP.

B-A

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT Concrete RunwayOBSERVER/RECORDER DH / MRINSTRUMENT USED MMB-201 TIME 9 : 25

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
<u>.5</u>	<u>.1</u>	<u>.1</u>	<u>1.3</u>	<u>.13</u>

TOTAL WIDTH 1 feet TOTAL DISCHARGE .13 ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 16 mg/lTemperature 15 °CpH (field) 8.5 supH (lab) 8.9 suBOD₂₀ _____ mg/lBOD₅ _____ mg/lT-org N 1.0 mg/lNH₃-N <.02 mg/lNO₂-N > 1.04 mg/lNO₃-N _____ mg/l

DATE 6-23-80 BASIN NUMBER 112 TYPE OF SURVEY WLA Preliminary

CREW MEMBERS _____ COUNTY SHAWANO

SAMPLE LOCATION STP outfall PRIMARY ST. NO. _____

D Y E T I M E

DYE DUMPED 9:45

[illegible]

COMMENTS

[illegible]

BB

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT

Pipe

OBSERVER/RECORDER

DH

/

DH

INSTRUMENT USED

MMB-201

TIME

9:44

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
<u>.375</u>	<u>.2</u>	<u>.15</u>	<u>3.2</u>	<u>.48</u>

TOTAL WIDTH .75 feet TOTAL DISCHARGE .48 ft.³/sec.

WATER CHEMISTRY

Sample taken 9:43Dissolved Oxygen 8.0 mg/lpH (lab) 7.7 suTemperature 18 °CBOD₂₀ _____ mg/lpH (field) 7.5 suBOD₅ 16 5.5 mg/lT-org N 2.2 mg/lNH₃-N 5.4 mg/lNO₂-N > 1.0 mg/lNO₃-N _____ mg/l

SURVEY LOCATION BIRNAMWOOD SAMPLE NUMBER B-C

DATE 6 2380 BASIN NUMBER 112 TYPE OF SURVEY WLA - Preliminary

CREW MEMBERS _____ COUNTY SHAWANO

SAMPLE LOCATION 50' below STP outfall PRIMARY ST. NO. _____

D Y E T I M E

DYE DUMPED 9:45

[illegible]

COMMENTS

[illegible]

B-C

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT Muck

OBSERVER/RECORDER DH / MR

INSTRUMENT USED MMB-201 TIME 9:40

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
.5	.8	.8	.2	.16
1.5	1.0	1.0	.3	.3
2.5	1.0	1.0	.2	.2
3.5	.9	.9	.15	.14

TOTAL WIDTH 4 feet TOTAL DISCHARGE .80 ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 6.5 mg/l

pH (lab) _____ su

Temperature 18 °C

BOD₂₀ _____ mg/l

pH (field) _____ su

BOD₅ _____ mg/l

T-org N _____ mg/l

NH₃-N _____ mg/l

NO₂-N _____ mg/l

NO₃-N _____ mg/l

SEGMENT DATA SHEET

Treatment Plant: BIRNAMWOOD

Segment # BH

Date: 6-23-80

Observation # _____

Recorders Int.: PCW

Stake &/or Sample # _____

Distance Downstream 900 paces or feet

Time 11:15 pH _____

Measurement Conditions

DO 3.5 (Unit # _____)

Sun - Shade
Rifle - Run - Pool
Before - With - After/Dye

Temp 18 °C

% Overcast 2

% Shade 0

Est. Stream Width 5' Est. Stream Depth 1.5'

Bottom Type Mud

% Stream Found

Note - could determine Sludge from Mud!

SLUDGE

_____ % Depth _____

MUD

100 % Depth 6'

MACROPHYTES

_____ % 50% cattail

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	<u>s</u>	c	a
- Myriophyllum	s	c	a
- Vallisneria	s	c	a
-	s	c	a
-	s	c	a

FILAMENTOUS ALGAE 25 % Stream

SLIMES N % Stream

LITTER & DETRITUS N % Depth _____

Fish Observed N

Land marks (major) 2nd telephone post before crossing

Land Use wood, rail tracks

Other _____

LOW FLOW STREAM CROSS SECTION & DISCHARGE DATA

STP:

Birmamwood

Date:

6-23-80

Location

2nd Tely Post before

crossing bridge

or Stake #

B. H.

Tapedown
(opt.)

Flow Meter #

Recorders Initials

Time

1115

Stream Width

5

Measurements

Distance from Bank (ft)	Depth (ft)	Velocity	Area (ft ²)	Discharge	Comments: (Vegetation-Sludge)
.5	.25				
1.0	.9				
1.5	1.2				
2.0	1.5				
2.5	1.6				
3.0	1.4				
3.5	1.8				
4.0	.75				
4.5	.3				
5.0	.01				
T.					

SURVEY LOCATION BIRNAMWOOD SAMPLE NUMBER BH1

DATE 6 23 80 BASIN NUMBER 112 TYPE OF SURVEY WLA Preliminary

CREW MEMBERS _____ COUNTY SHAWANO

SAMPLE LOCATION 1500' downstream of outfall PRIMARY ST. NO. _____

D Y E T I M E

DYE DUMPED 9:45

[illegible]

COMMENTS

DYE STARTED showing up
visually at 12:30 pm.

[illegible]

BHI

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT MuckOBSERVER/RECORDER DH / MRINSTRUMENT USED MMB-201 TIME 10:15

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
.5	1.5	1.5	.15	.225
1.5	1.6	1.6	.15	.24

TOTAL WIDTH 2 feet TOTAL DISCHARGE .465 ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 3.5 mg/l

pH (lab) _____ su

Temperature 18 °CBOD₂₀ _____ mg/l

pH (field) _____ su

BOD₅ _____ mg/l

T-org N _____ mg/l

NH₃-N _____ mg/lNO₂-N _____ mg/lNO₃-N _____ mg/l

SEGMENT DATA SHEET

Treatment Plant: Barnamwood

Segment # BH₁

Date: 6-23-80

Observation # _____

Recorders Int.: Daw

Stake &/or Sample # _____

Distance Downstream 1,500 paces or feet

Time 12:00 pH _____

Measurement Conditions

DO 3.4 (Unit # _____)

Sun - Shade

Riffle - Run - Pool

Before With - After/Dye

Temp 18 °C

% Overcast N

% Shade 100

Est. Stream Width 6' Est. ^{Ave} Stream Depth 1'

Bottom Type Mud

% Stream Found

Comments

SLUDGE

unkn %

Depth _____

MUD

100 %

Depth 4' +

MACROPHYTES

N %

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisineria	s	c	a
-	s	c	a
-	s	c	a

FILAMENTOUS ALGAE 20 % Stream

SLIMES N % Stream

LITTER & DETRITUS N % Depth _____

Fish Observed N

Land marks (major) N

Land Use Wooded

Other N

LOW FLOW STREAM CROSS SECTION & DISCHARGE DATA

STP: Brian Date: 6-23-80

Location 1500' below S.T.P. or Stake # BH₁

Tapedown (opt.) _____

Flow Meter 4

Recorders Initials DeW

Time 12:00

Stream Width 6'

Measurements

Distance from Bank (ft)	Depth (ft)	Velocity	Area (ft^2)	Discharge	Comments: (Vegetation-Sludge)
1.	.4				
2.	.25				
3	1.0				
4	1.1				
5	.60				
6	.1				
T.					

SURVEY LOCATION BIRNAMWOOD

SAMPLE NUMBER BI

DATE 6 23 80 BASIN NUMBER 112

TYPE OF SURVEY WLA Preliminary

CREW MEMBERS

COUNTY SHAWANO

SAMPLE LOCATION 4000' below STP outfall

PRIMARY ST. NO.

D Y E T I M E

DYE DUMPED

[illegible]

COMMENTS

We waited until 17:30
and no dye was in sight.
We think that the dye disperses
in the swamp between B4, and B1

[illegible]

BI

FLOW MEASUREMENT

CONDITIONS AFFECTING FLOW MEASUREMENT MuckOBSERVER/RECORDER DH / MRINSTRUMENT USED MMB-201 TIME 15:50

DISTANCE (ft.)	DEPTH (ft.)	AREA (ft. ²)	VELOCITY (fps)	DISCHARGE (ft. ³ /sec.)
.5	.25	.25	.05	.01
1.5	1	1	.15	.15
2.5	1.2	1.2	.2	.24
3.5	1.2	1.2	.25	.3
4.5	.6	.6	.15	.09
5.5	.1	.1	.1	.01

TOTAL WIDTH 6 feet TOTAL DISCHARGE .8 ft.³/sec.

WATER CHEMISTRY

Dissolved Oxygen 3.4 mg/lpH (lab) 7.5 suTemperature 20 °CBOD₂₀ _____ mg/l

pH (field) _____ su

BOD₅ _____ mg/lT-org N 1.2 mg/lNH₃-N .49 mg/lNO₂-N .32 mg/lNO₃-N _____ mg/l

SEGMENT DATA SHEET

Treatment Plant: BIRNAMWOOD

Segment # BI

Date: 6-23-80

Observation # _____

Recorders Int.: DOW

Stake &/or Sample # _____

Distance Downstream 4000 : _____ paces or feet

Time 10:45 pH _____

Measurement Conditions

DO 3.5 (Unit # _____)

Sun - Shade

Riffle - Run - Pool

Before With - After/Dye

Temp 19 °C

% Overcast 0

% Shade 100

Est. Stream Width 6' Est. ^{Ave} Stream Depth 1'

Bottom Type Muck

% Stream Found

Comments

SLUDGE

0 %

Depth _____

MUD

100 %

Depth 6+ feet

MACROPHYTES

Cattail % 50%

	Scarce	Common	Abundant
- Elodea	s	c	a
- Potomageton	s	c	a
- Sagittaria	s	c	a
- Myriophyllum	s	c	a
- Vallisneria	s	c	a
-	s	c	a
-	s	c	a

Duckweed

FILAMENTOUS ALGAE 30 % Stream

SLIMES 2 % Stream

LITTER & DETRITUS 2 % Depth _____

Fish Observed None

Land marks (major) Deer Trail

Land Use Wooded

Other _____

INTRA-DEPARTMENT

MEMORANDUM

Green Bay

Station

May 31, 1977

3200

Date

IN REPLY REFER TO:

TO: → Central Offices - Madison

FROM: James J. McDonald

SUBJECT: Waste Water Receiving Stream Classification -
Birnawood, Shawano County

The Village of Birnamwood sewage treatment plant presently consists of a contact stabilization package plant. The chlorinated effluent from the package plant is discharged to a polishing pond having a detention time of approximately 20 days at a design flow rate of 70,000 gallons per day.

Effluent from the treatment plant lagoon empties into an effluent ditch which runs approximately one half ($\frac{1}{2}$) mile to confluence with Railroad Creek, (a tributary of the Middle Branch of the Embarrass River). Railroad Creek has been classified by DNR fisheries people as a Class I trout stream throughout its length.

According to a 1975 memo by Dean Freeberg, District Engineer, in referring to a low flow study at Birnamwood conducted in 1973: "Railroad Creek had a muck bottom over most of its reach, which would not support walking in most places. Typical cross section was 6-10 feet in width while being 8-12 inches in depth." Flow, at the time of the survey was estimated at 1.46 cfs from measurements taken at the culvert on the East-West town road south of Birnamwood. Flow from the STP was estimated at 60,000 GPD, (.04 cfs).

A U.S.G.S. Publication, "Water-Resources Investigation 45-74" of December, 1974, yields the following information for Railroad Creek.

Site Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 18, T. 28 N., R. 11 E., Shawano County, at culvert on country road, and 1.7 miles south of Birnamwood, Wisconsin.

Drainage Area: 3.17 square miles.

Discharge: (as measured on August 2, 1972): 1.44 cfs
" : (as measured on July 11, 1973): 1.57 cfs
" : (as measured on August 15, 1973): 1.07 cfs

Calculated (c) Low-Flow Characteristics: Q_{7,2} = .40 cfs
and Q_{7,10} = .20 cfs

The ½ mile length of effluent ditch is heavily vegetated and for the most part located in swampy terrain. It is difficult to get close to. The ditch is reportedly a naturally occurring dry run that has been manually enhanced to facilitate storm water drainage.

Recommendations:

The ½ mile "effluent ditch" from the outfall of the Birnamwood STP lagoon to its confluence with Railroad Creek shall be classified as a non-continuous stream with ^{marginal} ~~open~~ use, for storm water drainage. Railroad Creek from its confluence with the above mentioned "effluent ditch" and down stream shall be classified as a continuous stream, fish and aquatic life.

Further studies should be made to ascertain the assimilative capacities of the "effluent ditch".

JJM:sh

DCW:sh

James J. McRae
Dennis C. Wersene

NOTED:

_____ Date _____

BIRNAMWOOD
N.S.

DNR

OFFICE MEMORANDUM

3420

3/18/75

RE: Low Flow Survey -- Railroad Creek
Birnamwood, Shawano County

Attached are the results of a low flow survey conducted on the above mentioned stream on September 25 and 26, 1973. In conjunction, a 24-hour survey was done on the Birnamwood STP.

The STP emptied into an effluent ditch which ran approximately one half ($\frac{1}{2}$) mile to join Railroad Creek. The effluent ditch being heavily vegetated and swampy was hard to get near. Railroad Creek had a muck bottom over most of its reach, which would not support walking in most places. Typical cross section was 6-10 feet in width while being 8"-12" in depth. A drastic D.O. sag effect was not found. At a point $\frac{3}{8}$ of a mile below the confluence of the effluent ditch and Railroad Creek, oxygen levels did dip.

Flow was estimated at 1.46 cfs by way of measurements taken at the culvert on the East-West town road south of Birnamwood. Flow at the STP was estimated at 60,000 GPD (.04 cfs).

DAF

Dean A. Freeberg
District Engineer - LMD

DAF:ct

cc: Bureau of Standards and Surveys - Madison

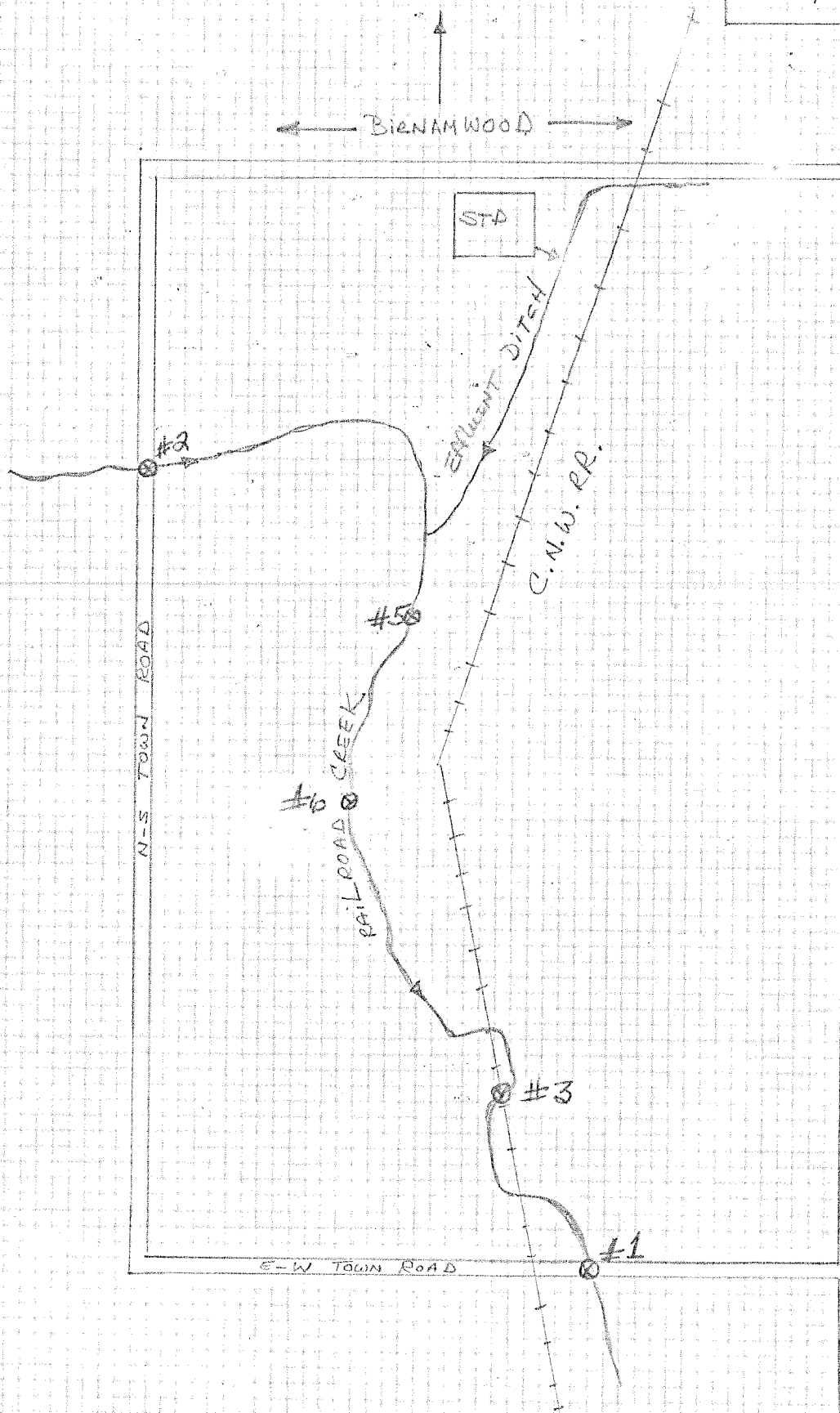
Railroad Creek - Low Flow Survey - BIRNAMWOOD

Sept 25 + 26, 1973

No.	Waste Source	Sample Location	Miles	Date	Temp °C	D.O. mg/l	pH	BOD5 mg/l	BOD20 mg/l	MFFCC per 100 ml	Sus. Solids mg/l	Total Org-N mg/l	NO3-N mg/l	NO2-N mg/l	NH3-N mg/l	Tot. P mg/l	Chloride mg/l	R'mrks
1	BIRNAMWOOD STP	E-W TOWN Rd 1 3/4 Mi South	—	9/26	13.8	7.9	7.9	1.8	—	440	—	—	—	—	—	.24	—	
2	NONE	N-S TN Rd ABOVE STP EFF DITCH	—	9/26	13.0	7.2	7.7	.9	—	60	—	—	—	—	—	.008	—	
3	BIRNAMWOOD STP	RR CROSSING 1/4 ABOVE E-W Rd	—	9/26	14.0	7.6	7.9	1.8	—	20	—	—	—	—	—	.26	—	
5	BIRNAMWOOD STP	100' below conf. w/ EFF DITCH	—	9/26	16.5	8.6	7.9	1.8	Net. Recessed	40	10	.44	.11	.019	.06	.33	12	Mixing Zone
6	BIRNAMWOOD STP	3/8 mi below conf w/ EFF Ditch.	—	9/26	16.0	7.5	7.4	2.2	—	30	—	—	—	—	—	.30	—	SAG Question
1	BIRNAMWOOD STP	PAW (24 HR Comp)	—	9/25-26	16.2- 17.0	1.8- 2.5	7.2- 7.4	110	—	—	85	8.0	.13	.015	3.6	5.3	50	
										Tot Solids	530					Sol P	3.8	
2	BIRNAMWOOD STP	FINAL (24 HR Comp-Lago)	—	9/25-26	19.0	12- 15	9.0	31	—	—	70	7.1	.60	.36	2.9	5.1	65	
										Tot. Solids	530					Sol P	2.5	

(-) Not Taken

Railroad Creek
Low Flow Survey
BIRNAMWOOD
9-26-73



U.S. H. 45

NOT SHOWN TO SCALE

DAF