

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 16	D.O. (ppm): —	pH: —	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 22	D.O. (%): —	TDS (ppm): —	
Time Taken: 11:25	Conductivity (µs/cm): —		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent land use, roads & road names, bridges, culverts, north arrow, etc...

- fast flow - lots of water coming out of tile drains 1m/s
- murky
- d/s lined w cattails no defined channel
- bankfull width ~2m
- depth @ culvert 25cm
- intermittent

PHOTOS TAKEN

Photo #	Description	Photo #	Description
864	u/s (facing south) - field + tile drains		
865+866	- tile draining		
867	- d/s (facing north) view		
868	- water d/s		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

no fish observed



PROJECT (Number & Name): 1231 Bornish wf

Field Staff: G. MacVeigh

Station: WC # 32

Waterbody: unknown trib

Drainage System: Ausable R

Location in System: @ coldstream rd crossing

Appr. Reach Length (m):

Survey Date: 20 Sept 11

Time Started: 11:05

Time Finished: 11:20

Site Location:

GPS Datum: NAD83 **Easting:** 0442556

Zone: 17T **Northing:** 4774646

Municipality: Strathroy-Caradoc

Lot & Concession:

Weather Conditions:

Wind: 0

Precipitation: 0

Cloud Cover (%): 40

ADJACENT LANDS

Valley	Slope: Gentle (< 5°)	Moderate (5 - 15°)	Steep (> 15°)
	Extent of Natural Vegetation (m): 0-10	10 to 20	20 to 30 30+
	Vegetation Type: grasses, shrubs		
Riparian Zone	Flood Plain - extent of frequent flood (m): 0-10	10 to 20	20 to 30 30+
	Vegetation Type: grasses, herbs, shrubs		
	Vegetation Density (HML): H		
Canopy	Type: grasses	Quality and % shade: good 65%	
Land Use	agriculture		
Other	(groundwater, soils, pools, vegetation, etc.)		
Notes	good flow (rain), pool d/s of culvert (just north of coldstream rd)		

CHANNEL MORPHOLOGY

Channel Width (range (m)): 0.5 - 1.0	Gradient (H/M/L): L
Bank Height (range (m)): 1 - 60	Meander/Straight: Straight
Bank Slope (degrees from surface of water): 15 - 45	Bank Stability: Good
Bank Vegetation Type: grasses	Bank Veg. Density (H/M/L):

CHANNEL SUBSTRATE %

Clay: 10	Gravel: 25	Boulder: 5	Muck: 5
Silt: 10	Pebble: 10	Bedrock:	Detritus:
Sand: 25	Cobble: 20	Marl:	Other:

INSTREAM HABITAT AND COVER

Pools: ✓	Undercut Banks: ✓ if water level high enough	Boulder/Rock: ✓
Riffles: ✓	Woody Debris: —	Cobble: ✓
Backwater: —	Vegetation: ✓	Other: — culvert

INSTREAM VEGETATION

Type (submerg./emerg./floating)	Family/Genus/species	Description/Abundance
	terrestrial grasses	
	cuttail	
	algae	

CODES:	SWI Surface Water Input	SCS Stream Cross Section
AHP Aquatic Habitat Point	GWl Groundwater Input	DOX Dissolved Oxygen Stn
AHY Aquatic Habitat Area	CKC Creek Crossing	VSS Visual Survey Stn
TMP Temp Monitor Stn	WEL Well	WQS Water Quality Stn
FLW Flow Monitor Stn	CUL Culvert	

FLOW CONDITIONS

Cross-Section	Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
1			
2			
3			
4			
5			

WATER QUALITY

Water Temp. (°C): 15	D.O. (ppm): _____	pH: _____	Visible Characteristics/Other Parameters: murky
Air Temp. (°C): 20	D.O. (%): _____	TDS (ppm): --	
Time Taken: 1115	Conductivity (µs/cm): _____		
Location Taken: @ culvert			

SITE DRAWING

Include: watercourse and name, flow direction, riffle/pool/run habitat, side tributaries, station location, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, etc...

- good flow - 71m/10sec
- good fish habitat
- pool d/s of culvert 3.5m wide 5m long 0.25m deep
- straight & channelized

PHOTOS TAKEN

Photo #	Description	Photo #	Description
857	- u/s (south facing) view	863	- d/s view
858	- south side of c&g stream parallel		
859+860	- channel @ u/s of c&g stream rd.		
861	- culvert south side of rd		
862	- d/s view (facing north)		

GENERAL COMMENTS

Fish observed, unusual conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:

no fish observed

1231 Barnish w/f
-aquatics

p. 1 of 13
20 Sept. 11
B. MacVeigh

air: 18

Precip: 0

wind: 0

CC: 30%

WC# 58

17T 0447315
4773576

- soya bean field
- no wc/grassed waterway present
- photos 822 - facing west (springbank rd)
823 - facing east

WC# 54

17T 0445539
4775067

- drainage ditch - patches of water
- agricultural pond on east side of Centre Rd.
- cattails, goldenrod, grasses 14°C
- murky water - flow through 3m wide box culvert under road - due to rain
- channel not really defined - overgrown w plants
- photo 824 west (d/s) side
825 - " " "
826 - east (u/s) side
827 - online pond u/s side

WC# 55

17T 0445383

4774393

- full assessment
- murky, w flow, runs along fields (straight)
- photos 828 - 833

WC# 56

17T 0445293

4773980

- east side grassed waterway
- west side roadside ditch - w water due to rain

photos: 834 - ditch/culvert east (u/s side)

835 - grassed waterway (u/s)

836-837 - ditch (d/s) west side

WC# 51

17T 0444721

4771425

- grassed waterway
- cattails present @ culvert
- water present @ road/culvert

photos: 838 + 839 d/s (west) view

840 + 841 u/s (east) view

WC# 43

17T 0442935

4772847

- no water/wc
 - grassed waterway
- photo 842 - upstream (east side) view
- 843 - west (d/s) view
- 844 - culvert + grate d/s side (west)

NO. 392

1231 Bornish WF
G. MacVeigh

p. 3 of 13.
20 Sept 11

WC#41 17T 0443210

- mainly underground 4773638
- south through soya field
- north swath through corn

photos: 845 - view d/s (north) through
 846 - south (u/s) mainly under soya field
 847 - portion w channel exposed (u/s)

JAF-LINC CORP TACOMA WA 98421-1017
www.RiteintheRain.com

WC#36 17T 0443270
4774286

- full assessment
- slow flow, murky
- pot. fish habitat
- photos 848 - 852

WC#34 17T 0443037
4774535

- d/s of #36 @ coldstream rd.
- d/s side is lined w rocks
- photos: 853 - u/s (south) view
- 854 - " "
- 855 - along north side of road (facing west)
- 856 - d/s (facing north) view

WC#32 17T 0442556
4774646

- full assessment
- photos 857 - 863

WC# 31

17T 0441916
4774790

• full assessment

photos 864 - 868

WC# 29

17T 0441492
4774898

• full assessment

• bits of water - flow present

• deeper pools - open 4m wide box culvert.

photos 869 - 873

WC# 30a (*59)

17T 0441375
4775169

• d/s of #29

• photos 874 + 875 - u/s view (facing east)
876 + 877 - d/s view (west).

WC# 28

17T 0440710
4775081

• full assessment

• photos 878 - 881

• fish observed ☺

WC# 27

17T 0440085
4775233

• full assessment

• fish observed

• flow - box culvert 3m wide only flowing through 1m
photos 882 - 888

1231 Bornish WF
Sept 21, 2011p. 5 of 13
G. MacKenzie

air: 22°C @ 1235

CC: 30

Wind: Ø

Precip: Ø

WC # 2

17T

0439351

• full assessment

4775592

• cows in stream

• erosion on banks

photos 889-893

WC # 3

17T

0439310

4775347

• u/s of #2, south of coldstream on Roddick

• disappears into soya field

• photo 894 - soya field (facing SE)
895 - road (facing N)WC # 8

17T 0439141

4774488

• through field - nothing there

photos: 898 - facing north (parallel to Roddick)

899 - facing south

photo 896 + 897 - ditch along roddick
(east side of road)

- d/s of WC # 9

WC # 15

17T 0438980

4773800

• u/s of #9

• photos 900 + 901 - d/s view (f. north)

902 - facing south - field

1231 Barnish UF

p. 6 of 13

WC # 22

17T 0438653

• no WC observed 4772504

• photo 903 - facing east
904 - west view

WC # 21

17T 0438571

• grassed waterway (south) 4771989

photo: 905 - facing south from elm tree rd
906 - facing north from " "

WC # 20

17T 0438342

photo 907 facing north 4772048
908 facing south

WC # 19

17T 0437257

• grassed / soya field 4772301

photo 909 - facing north (from elm tree rd)
910 - facing south " "

WC # 37

17T 0444039
4774291

• full assessment
• photos 911 - 917

1231 Bornish WF
- Aquatic work

p. 7 of 13
21 Sept 11

G. MacVeigh

Air: 17
Wind: 3

Precip: 0
CC: 100%

WC#49

17T 0444054
4771789

- non existent - soya field
- photo - 918 north view
- 920 south view

WC#50

17T 0444408
4771514

- non existent - corn field
- photos - 920-921

WC#53

17T 0446073
4774869

- full assessment
- photos 922-926

WC#38

17 044411
4774689

- full assessment
- nice through forest
- loses definition through field
- photos 927-932

WC # 3517T 0442629
4776067

- soya field - non existent
- photos: 933 - facing east
- 934 - facing west

WC # 3317T 0442490
4778608

- full assessment
- photos 935-940

WC # 4717T 0443163
4771953

- corn/soya fields
- non existent
- photo 942 - facing north
- 943 - facing south

WC # 4817T 0443264
4771760

- agricultural field
- non existent
- photos 944 facing east
- 945 facing south

WC # 4617T 0442673
4772016

- vernal pond
- full assessment
- photos 946-947

1031 Bornish WF

p. 9 of 13
21 Sept 11
G. MacVeigh

WC # 45

17T 0442587

• full assessment

4772110

• vernal pool

• frogs/duckweed

• photos 948-949

WC # 44

17T 0442452

- no water

4772104

- wet soils

- no assessment

- photos 950 - north

951 - south

WC # 24

17T 0439350

• pond in fields

4772932

• photos 952-953

WC # 25

17T 0439620

• ~~full assessment~~

4772974

• fields no WC present

• photo 954 - facing east

955 - " north

956 - " west

957 - " south

1031 Barnish WK

21 Sept p 10 of 13

WC# 26

FT 0439682

• pond

477 2769

• Canada goose, frogs

• photo 958 - facing east } middle of pond
959 - facing west }

WC# 17

FT 0438656

• through sava field

477 3419

• waterway

• photo 960 - south
961 - north

WC# 18

FT 0438569

• full assessment

477 3576

• pockets of water - mainly dry
photos 962 - 966

1230 Bornish WF

22 Sept 11

G. MacVern

Aquatics

air: 17

CC: 70

wind: 1

Precip: Ø

WC# 30

17T

0440718

- photo 967 - facing south (u/s) 4774663
- no water 968 - d/s (north)
- grass lined 969 - channel

WC# 10x

17T

0439444
4774516

- photo 970 - facing north
- 971 - south
- fields = nonexistent

WC# 11

17T

0439574
4774470

- nonexistent - field
- photo 972 - ~~north~~ south
- 973 - ~~south~~ north

WC# 12

17T 0439647

4774484

- full assessment
- no water
- photos 974 - 977

1231 Bornish wf
22 Sept 11

p. 12 of 13
G. MacKiegh

WC #13

17T 0439885

• full assessment

4774436

• water coming in from tile drain

• photos 978-982

WC #14

17T 0440242

• full assessment

4774340

• water present - no flow

• photos 983-986

WC #4

FFT 0438816

• fields - wc nonexistent

4774677

• photo 987 - facing north

988 - " " south

WC #5

17T 0438515

• full assessment

4774763

• all of #7

• tile drain flowing

photos 989-991

WC #6

17T 0438393

• full assessment

4774741

• photos 992-995

1231 Bornish WF
aquatics

P. 13 of 13
G. MacVeigh
Sept 22, 2011

WC#7

17T 0438499

- full assessment
- photos 996 - 999

4774713

WC#9

17T 0439156

• supposed to be full assessment
but just a grassed waterway.

4774202

- photo 1000 - south view (e/s)
- 1001 - d/s (north)
- 1002 - west view @ where 'g' joins
- 1003 - east view "

WC#23

17T 0438953

- grassed waterway
- photos 104 - d/s (north)
- 105 - u/s (south)
- 106 - channel

4773319

Appendix II
Site Investigation Photographs

1231 Bornish Wind Energy Centre Water Body Photographs

Ptsebe Creek



Figure 1 WB16/TribC facing upstream to the southwest.



Figure 2 WB4/TribD facing downstream and north.



Figure 3 WB17/TribD facing downstream and north.



Figure 4 WB3/TribE facing north.