GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	27	07	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No Ø Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
A.D. OB	Cloudy, Drizzle	1000	1630

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
20°C	17.4°C	761

PHOTO NUMBERS AND DESCRIPTIONS: 167 - 179

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Unnamed	—	—	401-6-30 u/s

LOCATION OF CROSSING: South of Concession Rd 7, at lot 4507

GPS COORDINATES:	MTO CHAINAGE:
17T 0566627 4812728	—

TOWNSHIP:	MNR DISTRICT:
Guelph	Aurora

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Residential, Wetland.	Road runoff

EXISTING STRUCTURE TYPE

Bridge O	Box CulvertO	Open Foot Culvert O	CSP Ø	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	Ø	O	O	—

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
50	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	Ø	O	Standing water
Percentage of area	—	—	—	80	—	20
Mean depth wetted (m)	—	—	—	0.1	—	0.15
Mean width wetted (m)	—	—	—	0.7	—	0.40
Mean bankfull width (m)	—	—	—	undefined	—	undefined
Mean bankfull depth(m)	—	—	—	undefined	—	undefined
Substrate	—	—	—	Mu 50% Si 20% D30%	—	Mu 50% Si 20% D30%

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris: Instream / Overhanging	Organic debris	Vascular Macrophytes: Instream / Overhanging	None
	✓	✓	✓		30%	Instream 90% / Overhanging 40%	✓

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species	✓	✓	Cattails	✓

MIGRATORY OBSTRUCTIONS:	None	Seasonal ✓	Permanent ✓
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning ✓	Evidence of Groundwater Iron Staining	Other ✓

POTENTIAL ENHANCEMENT OPPORTUNITIES:

None

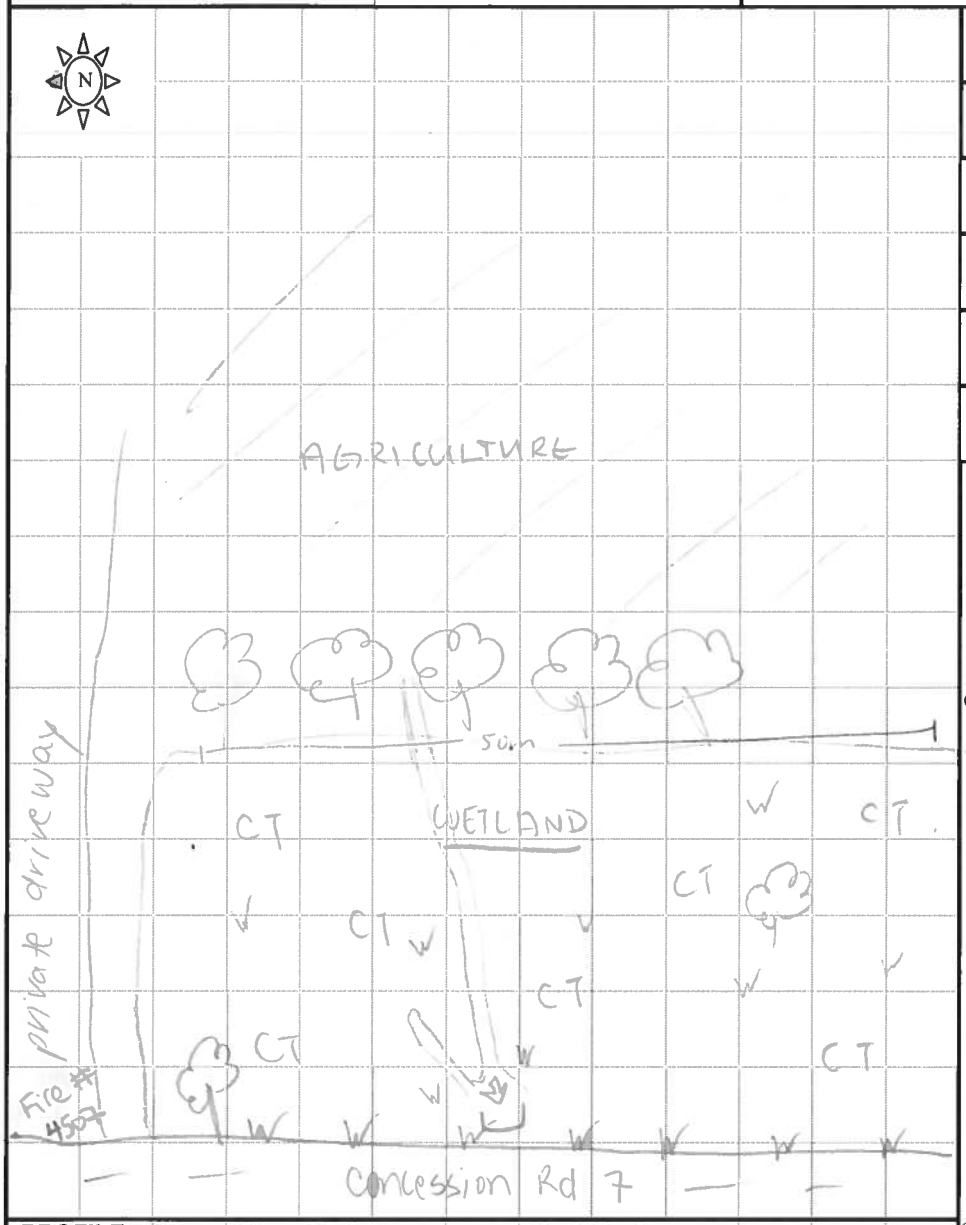
COMMENTS:

Permanent wetland feature South on C.R. 7. Small flow through wetland, though no defined channel. Cattails and overhanging vegetation present. Potential fish habitat. Bird breeding habitat.

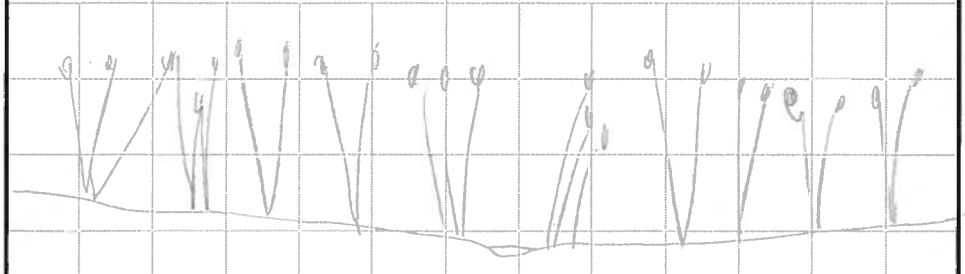
Notes: Provincially Evaluated Wetland.

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
—	—	50	—



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: O. Bilhan

NAME OF WATERBODY: unnamed

CROSSING #: —

STATION #: 401-6-30US

DATE: DD-MMM-YY 27-Jul-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	27	Jul	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
AO, DB	light rain	10:30	10:45

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
17	17.4	761

PHOTO NUMBERS AND DESCRIPTIONS: 180 - 186

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
unnamed wetland	—		401-6-30ds

LOCATION OF CROSSING: Concession Rd 7 @ File number 4507

GPS COORDINATES:	MTO CHAINAGE:
0566619 4812720	—
TOWNSHIP: Guelph	**MNR DISTRICT:** —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Forest, wetland, road	overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2 —

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	X	O	O	site is wetland.

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
200	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area				100		
Mean depth wetted (m)				0.25		
Mean width wetted (m)				0.3		
Mean bankfull width (m)						
Mean bankfull depth(m)				UNDEFINED		
Substrate				100 Mu		

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	—	Instream — Overhanging —	—	Instream 40 Overhanging 50	10

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	
Predominant Species	—	—	Cat tails	—

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
		—	—

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

None

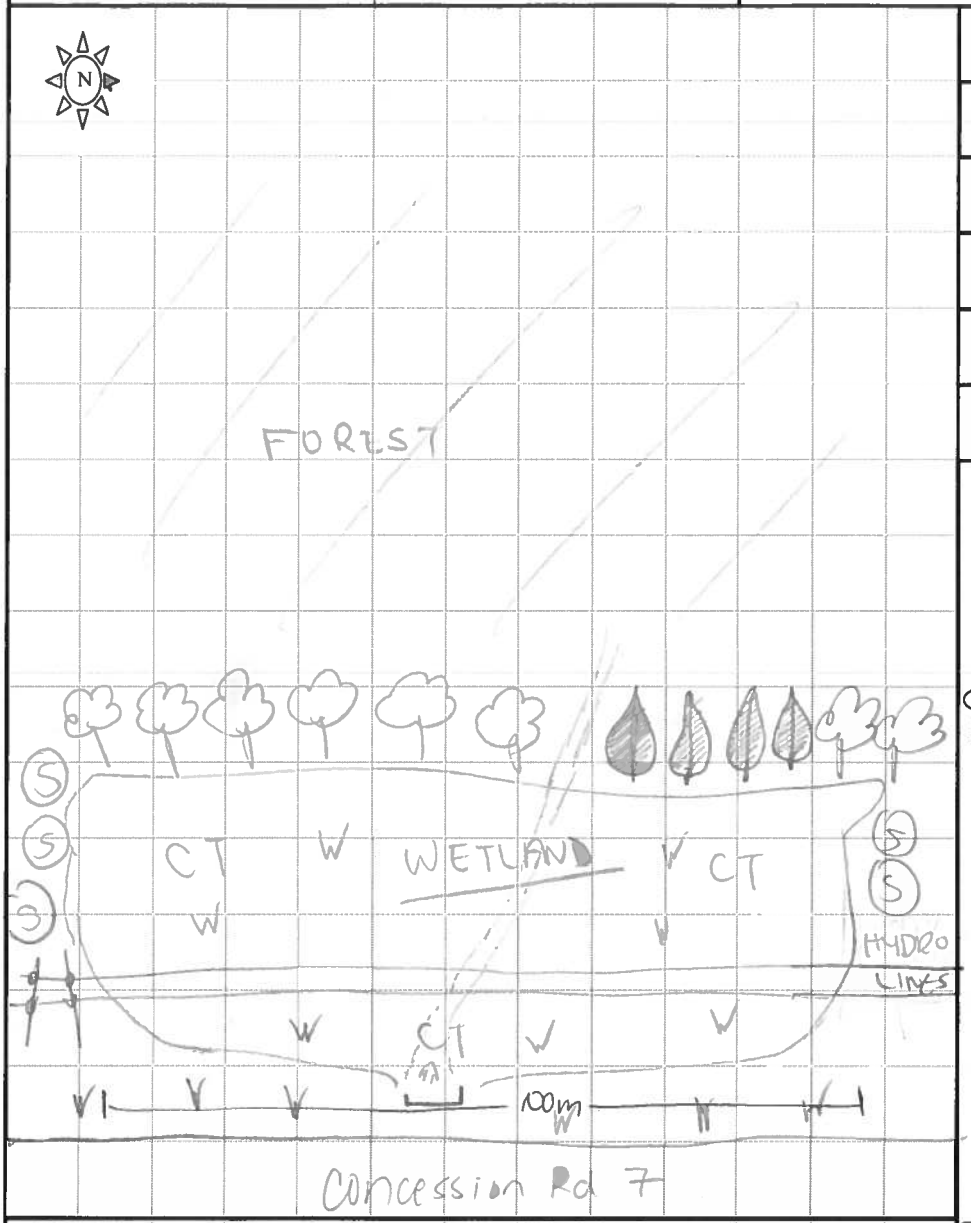
COMMENTS:

- permanent wetland feature crossing concession Rd 7 with flowing water through mixed forest
- potential fish habitat
- breeding bird + amphibian habitat
- soft substrate, narrow channel, abundant aquatic + terrestrial vegetation

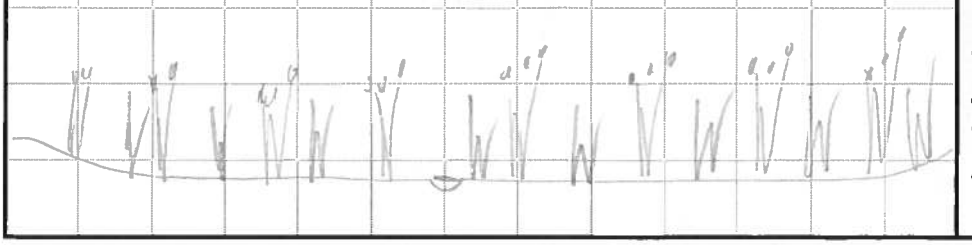
Note: Provincially Evaluated Wetland

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
—	—	200	—



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: CB

NAME OF WATERBODY: unnamed

CROSSING #: —

STATION #: 401-6-30ds

DATE: DD-MMM-YY 27 Jul-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	26	07	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ⊗ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
AO. OB.	Cloudy	1300	1330

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
21°C	14.1	881

PHOTO NUMBERS AND DESCRIPTIONS: 74 - 95

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
	/	/	401-6-31715

LOCATION OF CROSSING: Hwy 6 South, South of C.R. 34

GPS COORDINATES:	MTO CHAINAGE:
17T 0566345 4811690	/
TOWNSHIP: Guelph	**MNR DISTRICT:** Aurora

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Mixed forest, private property, hwy	Hwy runoff

EXISTING STRUCTURE TYPE

Bridge O	Box CulvertO	Open Foot Culvert O	CSP ⊗	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
/	/

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	⊗	O	⊗	O	O	/

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
	/

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area	50	—	10	40	—	—
Mean depth wetted (m)	0.30	—	0.12	0.15	—	—
Mean width wetted (m)	1.3	—	1.0	1.4	—	—
Mean bankfull width (m)	1.5	—	1.2	1.5	—	—
Mean bankfull depth(m)	0.70	—	0.24	0.95	—	—
Substrate	80% Sa, 20% Cl	—	90% Cl 10%	90% Sa 10% D	—	—

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	Ø	O	O
Right Upstream Bank	O	Ø	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	40%	/	/	Instream 20% / Overhanging /	80%	Instream 50% / Overhanging	/

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	20%	/	80%	/
Predominant Species	Watercress	/	Watercress	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
		/	/

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	/	Watercress	/

POTENTIAL ENHANCEMENT OPPORTUNITIES:

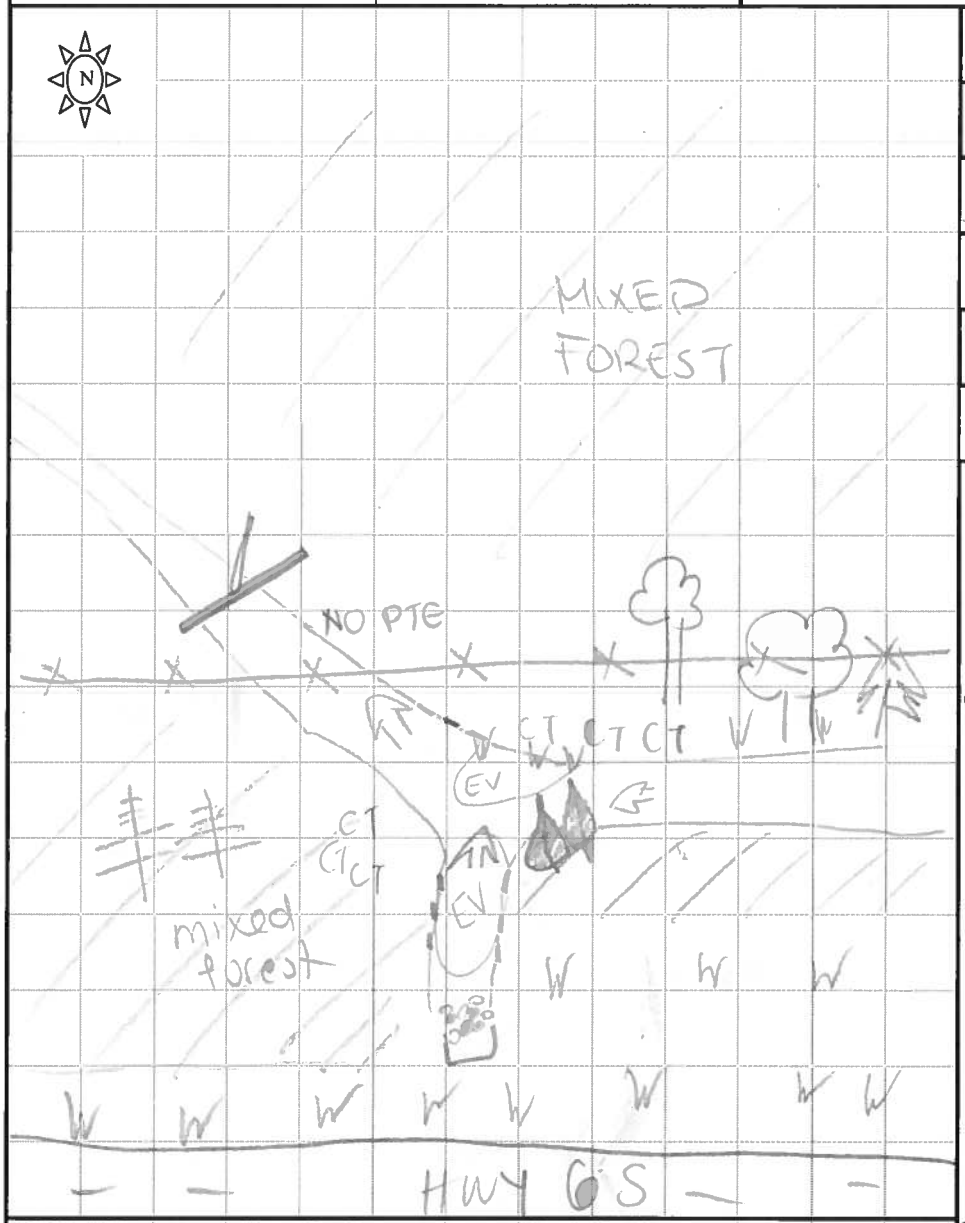
None.

COMMENTS:

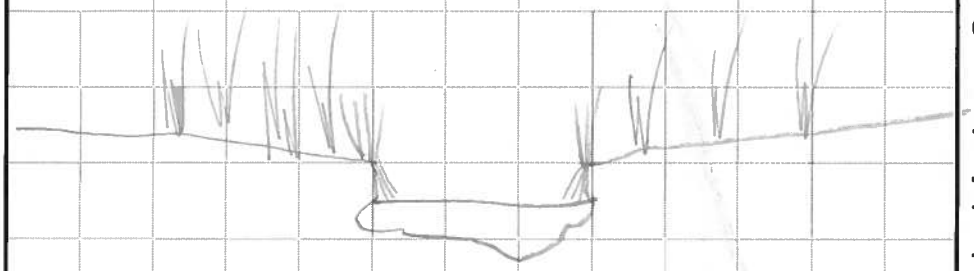
Permanent stream that has a confluence w 401-6-25015. Could only access 10m of watercourse without PTE. Fish observed in watercourse. Noted abundance of caddisflies. Large patches of watercress. Cobble, a few boulders, sand and gravel at wing-walled CSP. Majority of substrate was sand.

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: FB

NAME OF WATERBODY: trib of McCrimmons Ck

CROSSING #: —

STATION #: 401-6-3 ds

DATE: DD-MMM-YY 26-07-2017

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⊔ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	26	07	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ☒ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
A.O. DB	Cloudy	1340	1400

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
21°C	17.5	968

PHOTO NUMBERS AND DESCRIPTIONS: 96-108

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Unnamed Stream	—	—	401-6-32dS

LOCATION OF CROSSING: Hwy 6 S just north of 401W on-ramp

GPS COORDINATES:	MTO CHAINAGE:
17T 0566478 4811214	—

TOWNSHIP:	MNR DISTRICT:
Guelph	Aurora

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
private property	Hwy runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ☒	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	☒	O	☒	O	O	—

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
10m	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	☒	O	O	O	O	Standing
Percentage of area	20%	—	—	—	—	80%
Mean depth wetted (m)	0.40	—	—	—	—	0.35
Mean width wetted (m)	1.4	—	—	—	—	1.4
Mean bankfull width (m)	undefined	—	—	—	—	Undefined
Mean bankfull depth(m)	undefined	—	—	—	—	Undefined
Substrate	50% Mu 50% Si	—	—	—	—	Mu 50% Si 50%

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	Ø	O	O	O
Right Upstream Bank	Ø	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream 70 Overhanging 20	None
	/	/	/		80%		/

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	80%	—	20%	/
Predominant Species	grasses filamentous algae	—	Grass Sp.	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	(None)	/	/

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	/	/	/

POTENTIAL ENHANCEMENT OPPORTUNITIES:

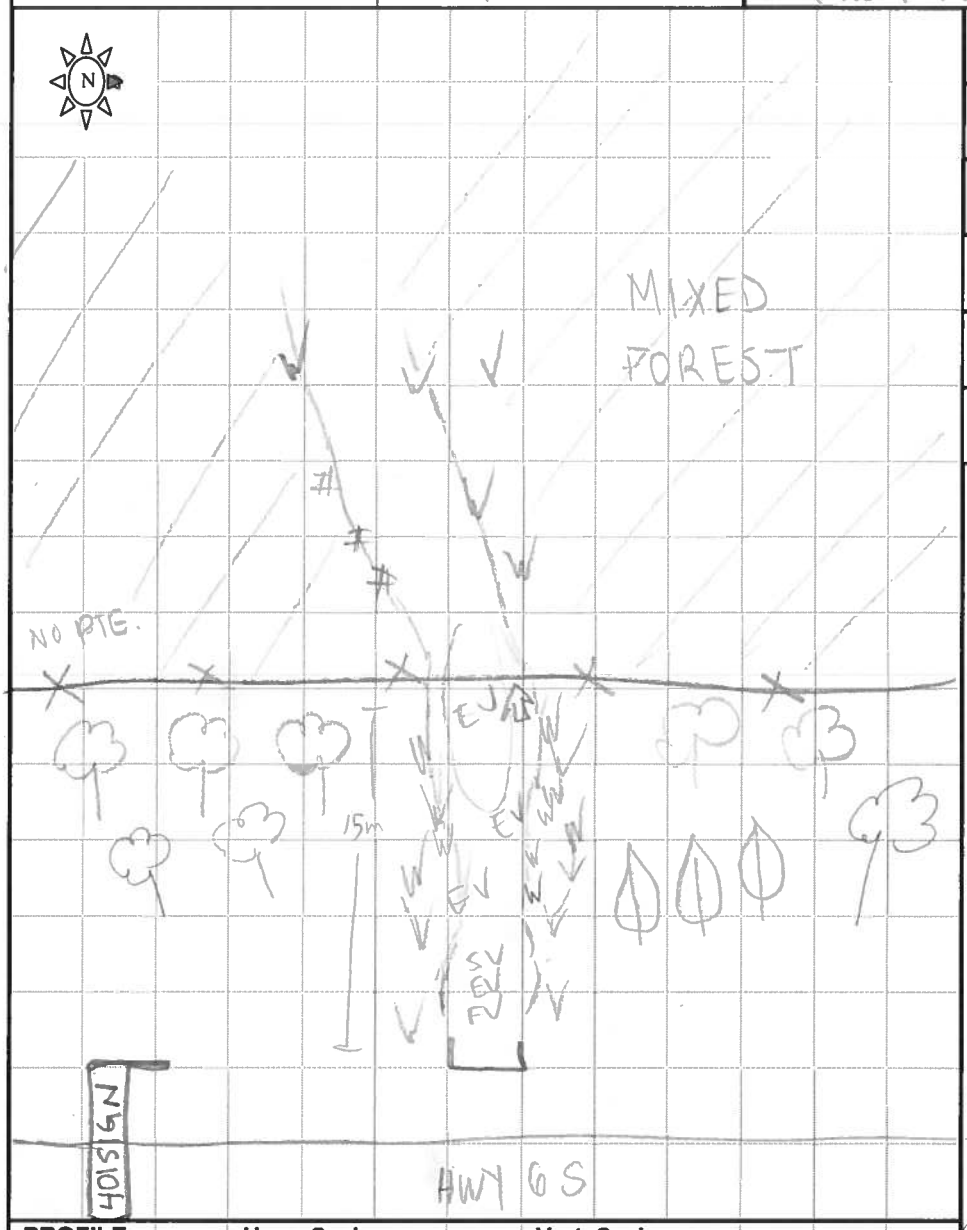
None

COMMENTS:

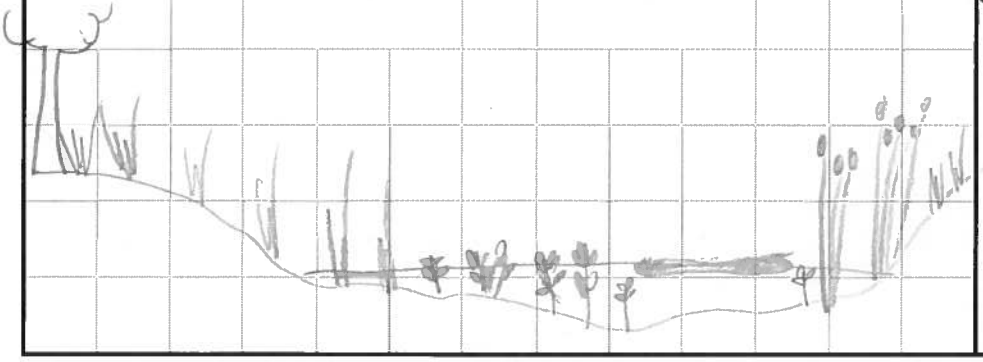
Well defined channel with abundance of aquatic vegetation causing standing water in study area. Section is overgrown in vegetation with defined banks. Fish habitat, Bird breeding habitat present.

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
—	Hwy 6	15m (no PTE)	~



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: OButty

NAME OF WATERBODY: no official name

CROSSING #: —

STATION #: 401-6-32 ds

DATE: DD-MMM-YY 26-Jul-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	clear, humid.	11:40	11:55

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
25	—	—

PHOTO NUMBERS AND DESCRIPTIONS: 99 - 117

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
unnamed	—	—	401-6-33 DS

LOCATION OF CROSSING: Hwy 6 N of Bore Rd

GPS COORDINATES:	MTO CHAINAGE: —
TOWNSHIP: Hamilton	MNR DISTRICT: —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
meadow, road, forest	runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ⊗	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	⊗	O	—

TOTAL SECTION LENGTH (m): 150	CURRENT VELOCITY (m/s): —

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area		NO WATER				
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	Ø	O	O	O
Right Upstream Bank	Ø	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent (no connectivity)
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

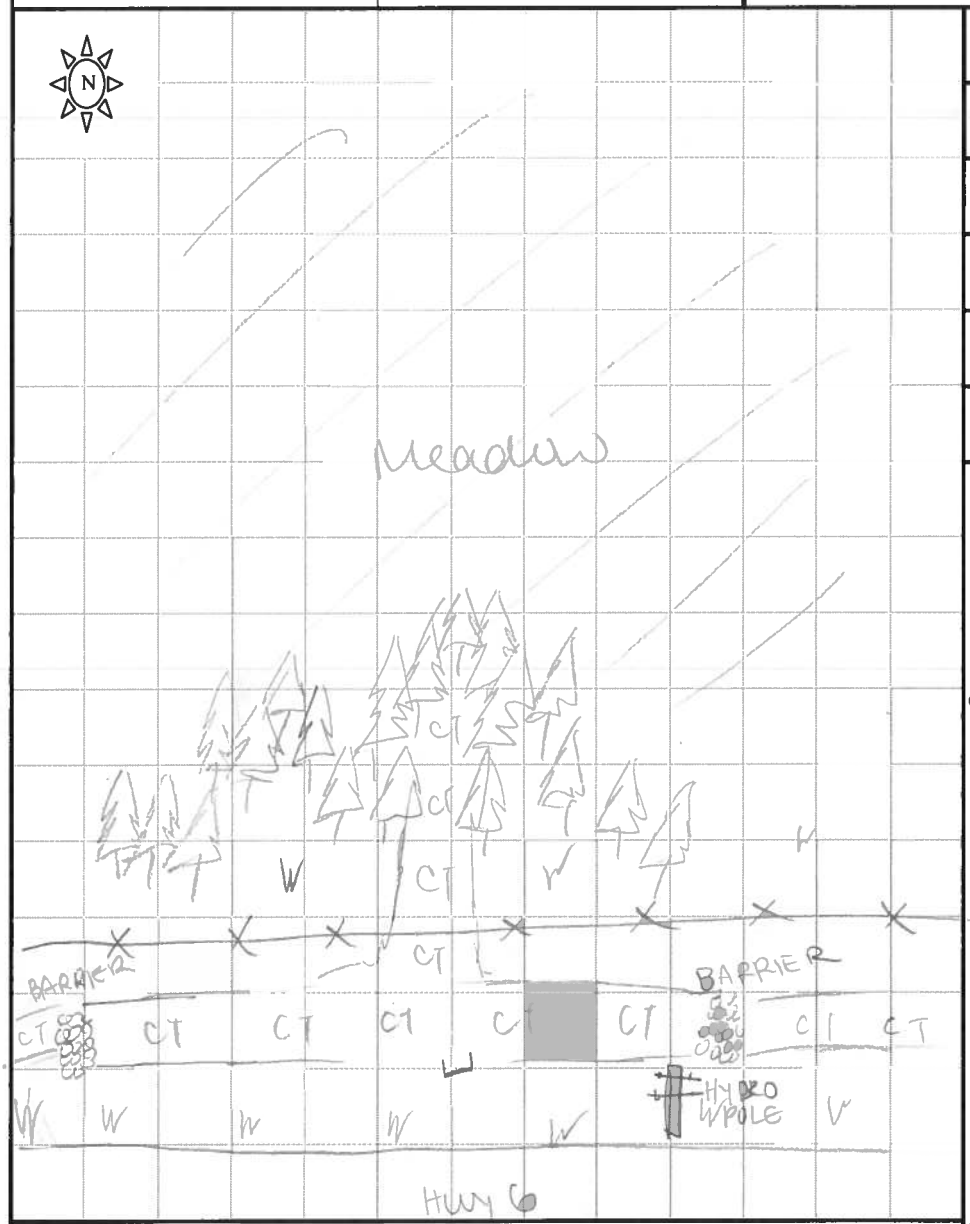
- None – drainage conveyance

COMMENTS:

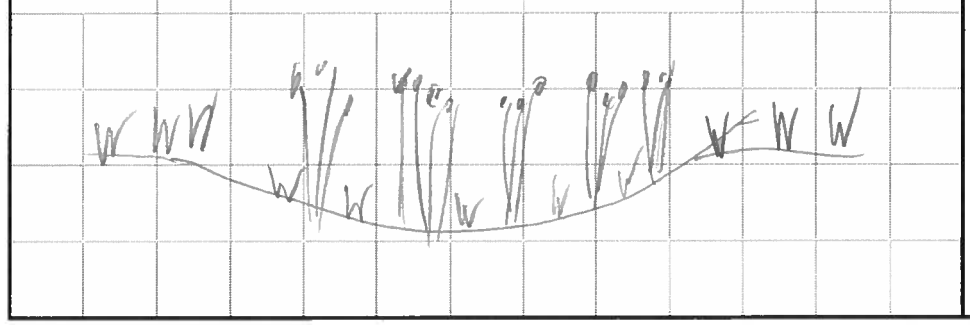
- drainage swale adjacent to Hwy 6, rock check dams lined with filter fabric ~~at~~ in swale north & south of culvert.
- no water at time of investigation, not fish habitat
- drainage conveyance function only.
- choked with cat-tails; phrag N of culvert.

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 6054107(

MAPPER: OB

NAME OF WATERBODY: unnamed

CROSSING #: —

STATION #: 401-b-33ds

DATE: DD-MMM-YY 02-OB-2017

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢▶ Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	Aug	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ☒ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
AO, OB	clear, humid	11:15	11:35

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
25	—	—

PHOTO NUMBERS AND DESCRIPTIONS: 87 – 98 (site 39 on pic)

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
unnamed	—	—	401-6-33 US

LOCATION OF CROSSING: Hwy 6 N of Gore Rd

GPS COORDINATES:	MTO CHAINAGE:
0575154 4808132	—
TOWNSHIP: Hamilton	**MNR DISTRICT:** —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
wetland, road	runoff, overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ☒	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	☒	O	—

TOTAL SECTION LENGTH (m): 50	CURRENT VELOCITY (m/s): —

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area			NO WATER PRESENT			
Mean depth wetted (m)			UNDEFINED			
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	X	O	O	O
Right Upstream Bank	X	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	—	Instream 20 Overhanging —	—	Instream Overhanging	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	
Predominant Species	—	—	phrag	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	intermittent	—

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

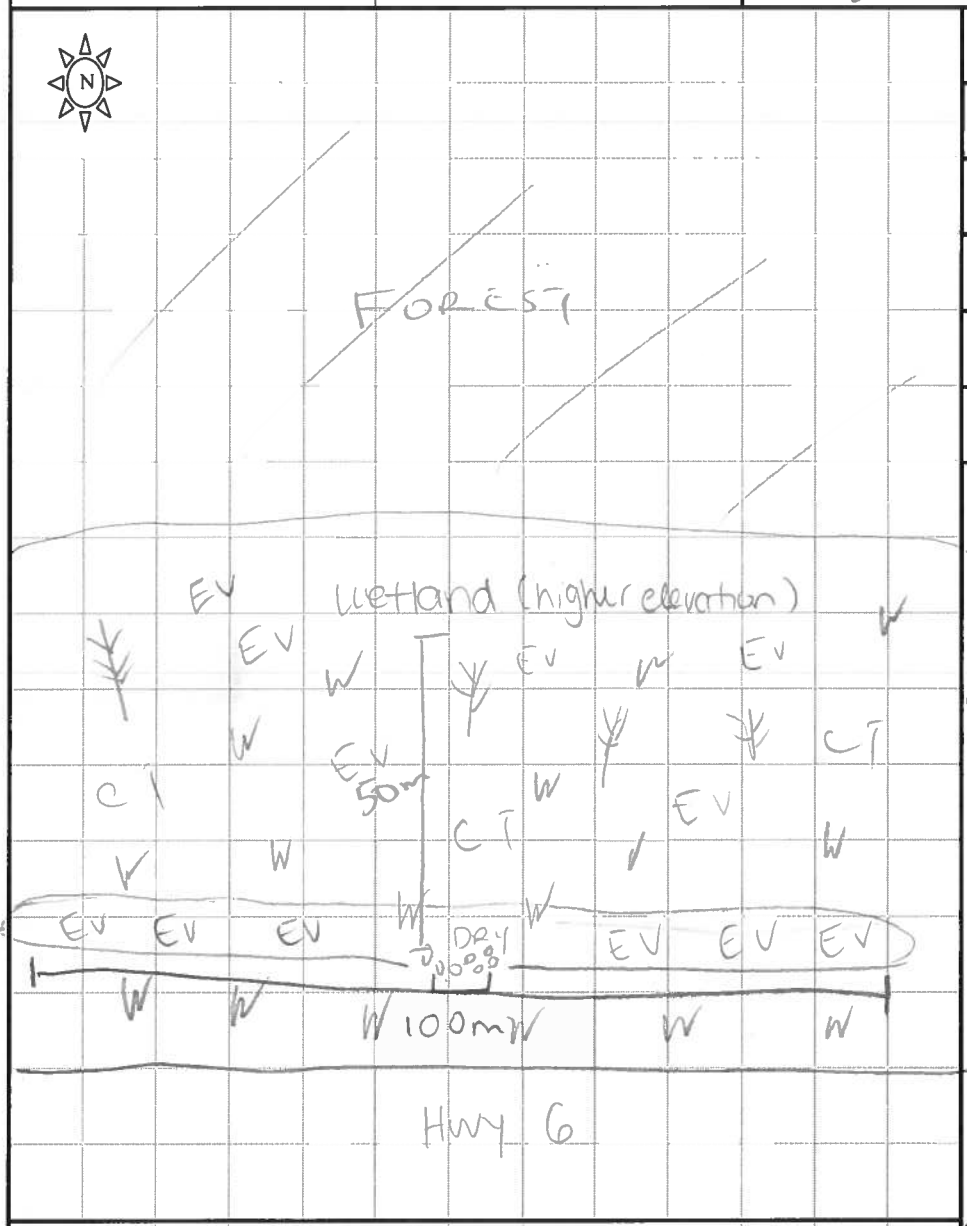
- Remove phragmites

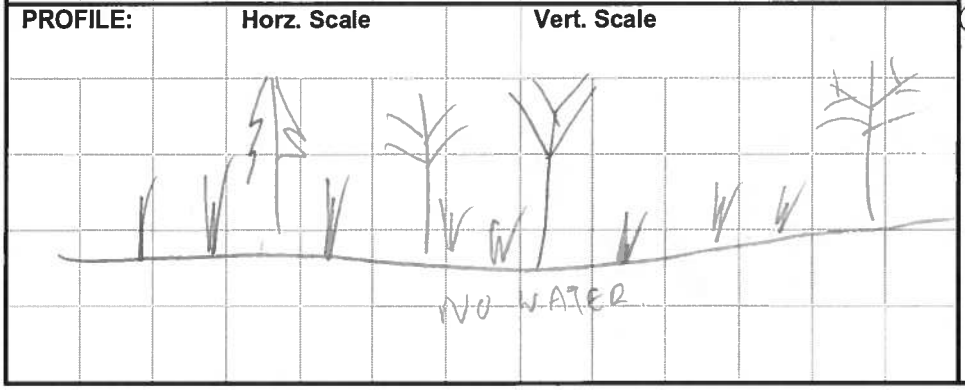
COMMENTS:

- CSP conveying water under hwy 6 from drainage ditches + intermittently connected wetland habitat; no defined channel; phrag/cattail swale
- wetland higher than ditches, likely overflows into ditches through grasses + phragmites; ditches conveying roadside runoff.
- site dry at time of investigation.
- breeding bird habitat.
- abundant phrag + cattails, dead hardwood trees
- not fish habitat.

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
		50	





PROJECT #: 60541071

MAPPER: OB

NAME OF WATERBODY: unnamed

CROSSING #: —

STATION #: 401-6-33US

DATE: DD-MMM-YY 02-Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	01	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ⊗ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	HUMID, CLEAR	11:10	11:29

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
26	16.4	725

PHOTO NUMBERS AND DESCRIPTIONS:
26 – 37

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
unnamed.			401-6-34 ds

LOCATION OF CROSSING:
Maddaugn Rd

GPS COORDINATES:	MTO CHAINAGE:
057 4316 4808934	
TOWNSHIP: Puslinch	**MNR DISTRICT:**

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Residential, Forest.	Runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ⊗	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	⊗	O	—

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
7m (channel ends)	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	Standing water
Percentage of area				2		98
Mean depth wetted (m)				0.01		0.01
Mean width wetted (m)				0.10		0.10
Mean bankfull width (m)				0.30		0.30
Mean bankfull depth(m)				0.20		0.20
Substrate				100 Mu		100 Mu

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	X	O	O	O
Right Upstream Bank	X	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	—	Instream 5 Overhanging —	—	Instream 80 Overhanging —	15

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	X	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	
Predominant Species	—	—	grasses	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	—	perched culvert

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

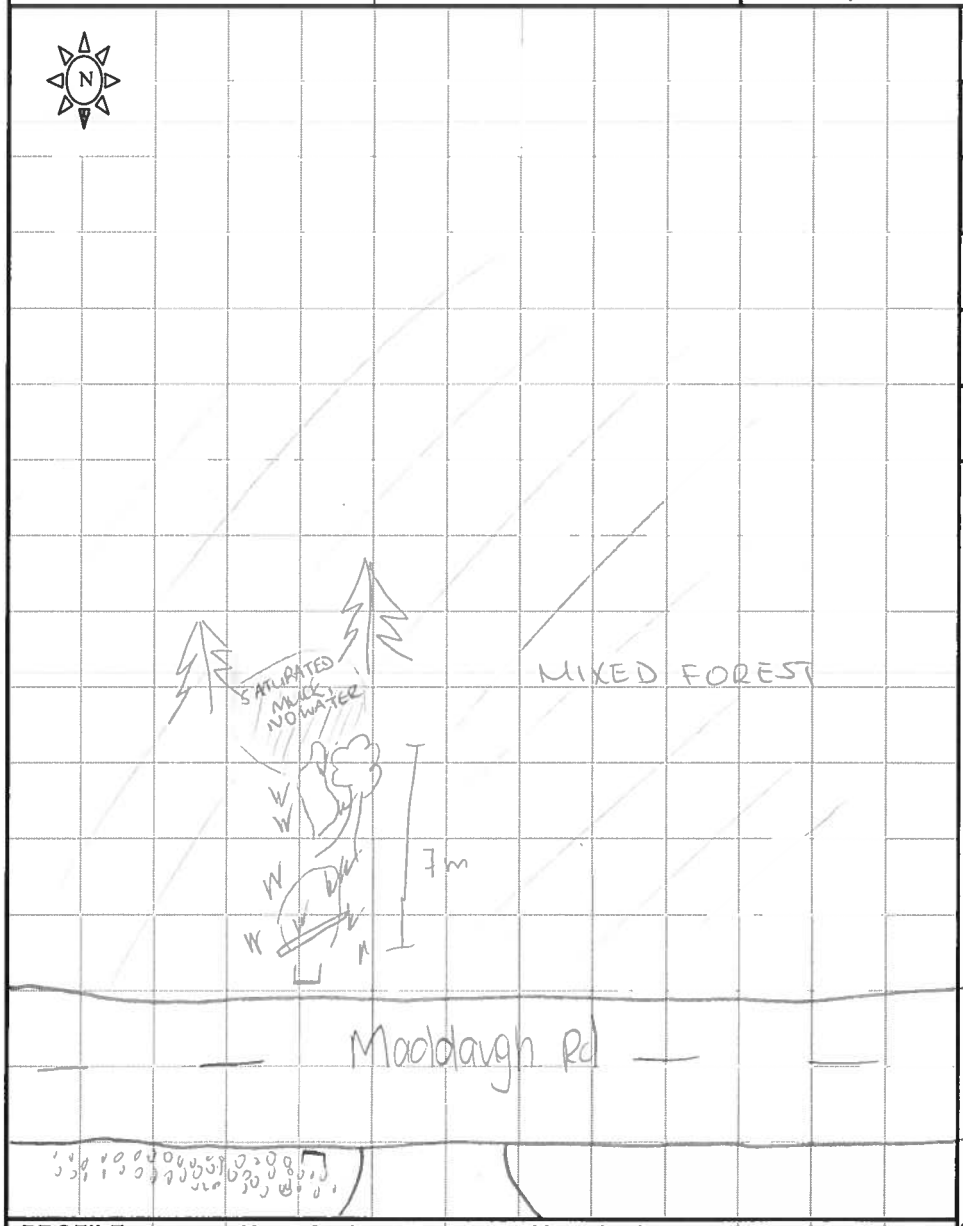
None

COMMENTS:

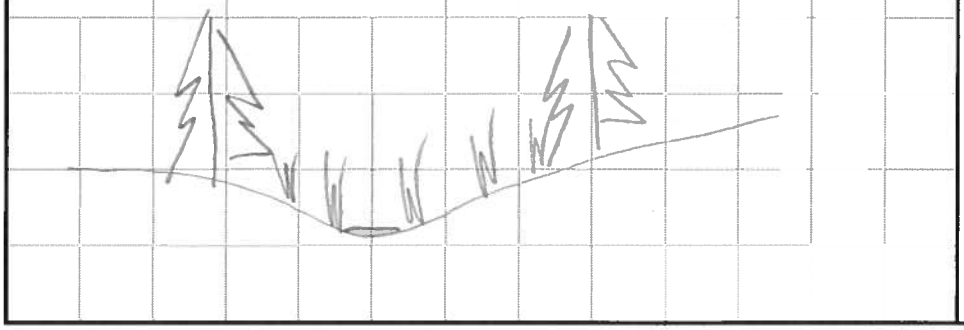
- cross drainage on Maddaugh Rd conveying water from residential ditch line into mixed forest where it saturates the ground.
- not fish habitat, no connectivity.
- perched culvert causes some flow (2%) where otherwise there would be none.
- no evidence that it flows deeper into forest at times of higher flow, no flow pattern

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
		7m	



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: OB

NAME OF WATERBODY: unnamed

CROSSING #:

STATION #: 401-6-34d5

DATE: DD-MMM-YY Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

GENERAL INFORMATION				
PROJECT #: 60541071	**PROJECT DESCRIPTION:** 401-6	**DAY:** 01	**MONTH:** Aug	**YEAR:** 2017
Is STREAM REALIGNMENT required for this section: O Yes O No O Unknown				
COLLECTORS: AB #0	**WEATHER CONDITIONS:** Humid	**TIME STARTED:** 11:30	**TIME FINISHED:**	
AIR TEMP: 26	**WATER TEMP:** 16.1	**CONDUCTIVITY (µS/cm):** 725		
PHOTO NUMBERS AND DESCRIPTIONS: 38-45				

LOCATION			
NAME OF WATERBODY: unnamed	**DRAINAGE SYSTEM:**	**CROSSING #:**	**STATION #:** 401-6-34 US
LOCATION OF CROSSING: Modaugh Road			
GPS COORDINATES: 0574304 4808830	**MTO CHAINAGE:** —		
TOWNSHIP: Ruslinch	**MNR DISTRICT:** —		

LAND USE AND POLLUTION	
SURROUNDING LAND USE: Residential	**SOURCES OF POLLUTION:** Runoff

EXISTING STRUCTURE TYPE				
Bridge O	Box Culvert O	Open Foot Culvert O	CSP Ø	N/A O
Other O Describe:			Size (w x h) m^2	

SECTION TYPE AND MORPHOLOGY	
SECTION IDENTIFIER: —	**SECTION LOCATION:** (include on habitat map) —

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	Ø	O	—

TOTAL SECTION LENGTH (m): 50	CURRENT VELOCITY (m/s): —

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	Standing water
Percentage of area						100
Mean depth wetted (m)						0.02
Mean width wetted (m)						0.10
Mean bankfull width (m)						0.50
Mean bankfull depth(m)						0.8
Substrate						100 Co

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	100	Instream — Overhanging —	—	Instream — Overhanging —	—

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	100	—	—
Predominant Species	—	algae	—	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	—	no connectivity

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

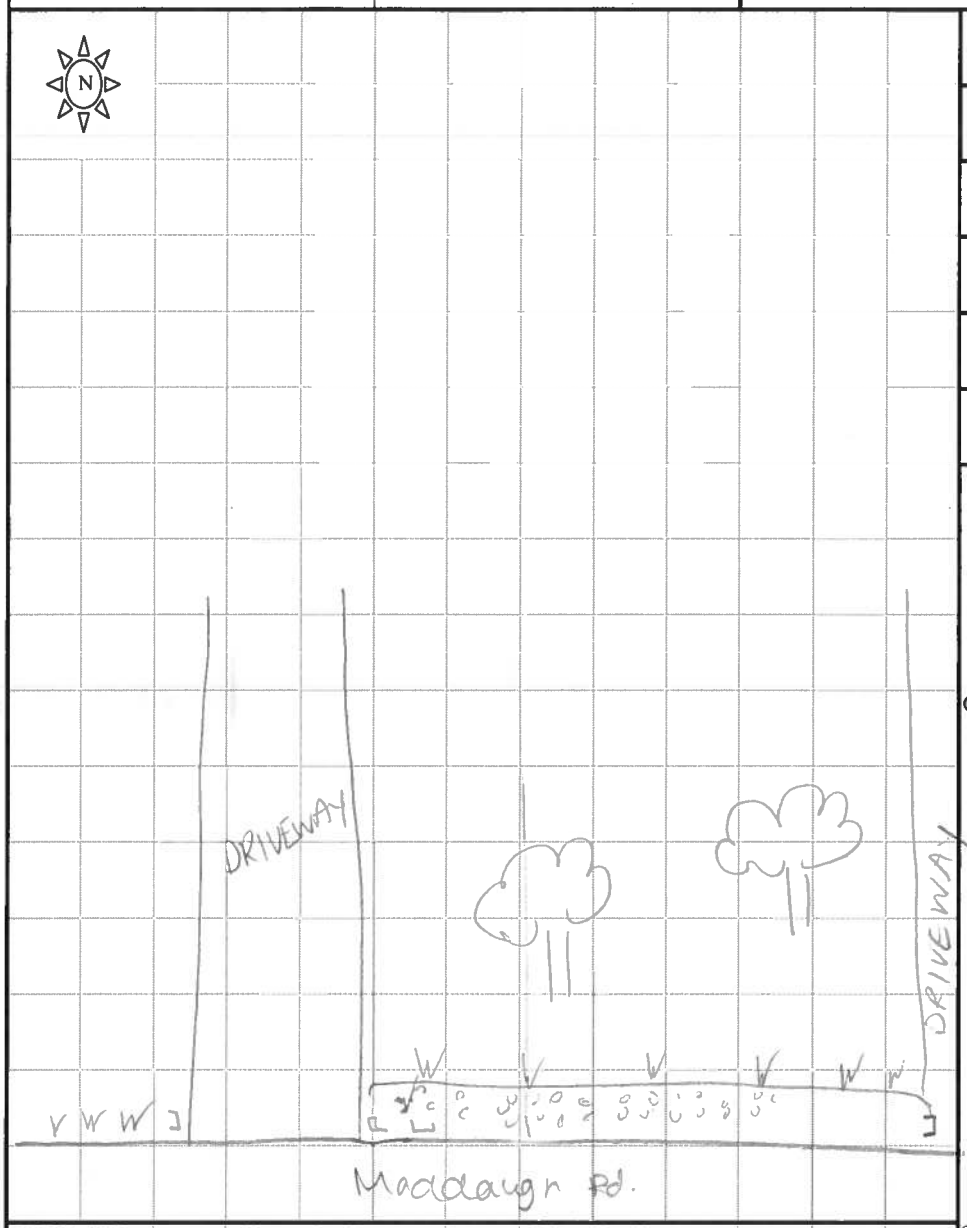
None

COMMENTS:

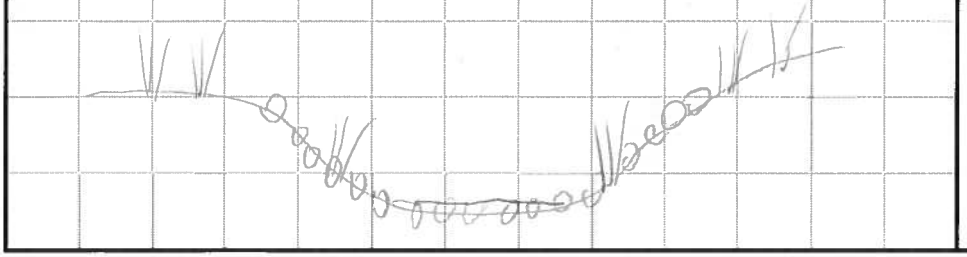
- Small pool of standing water in residential ditch line
- Not fish habitat, no connectivity
- water drains from E to W under private driveways.
- placed cobble riprap

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: JB

NAME OF WATERBODY: Unnamed

CROSSING #:

STATION #: 401-6-34US

DATE: DD-MMM-YY 01-Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	01	Aug	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	humid, clear	9:45	10:00

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
25	—	—

PHOTO NUMBERS AND DESCRIPTIONS: 12-18

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
—	—	—	401-6-35 US

LOCATION OF CROSSING: Maddaugh Rd @ Hwy 6

GPS COORDINATES:	MTO CHAINAGE:
	—

TOWNSHIP:	MNR DISTRICT:
Puslinch	—

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Forest, residential	runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ~~O~~	N/A O

Other O Describe:	Size (w x h) m^2
—	—

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	~~O~~ X	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
50	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area		NO WATER PRESENT				
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT								
IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

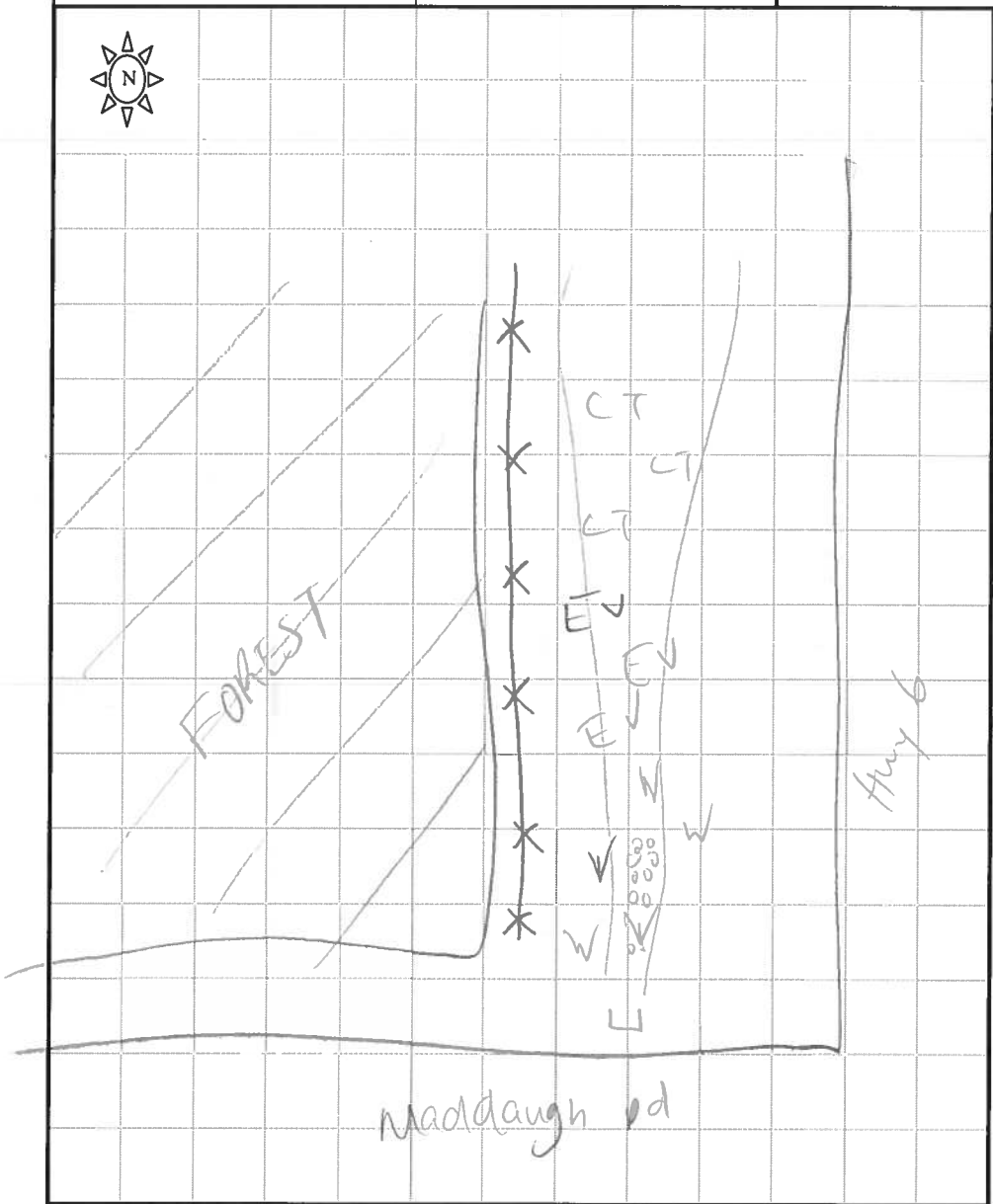
None- drainage conveyance only

COMMENTS:

- Drainage conveyance at Maddaugh Rd & Hwy 6, not presently holding water; ditch
- not fish habitat
- terrestrial grasses + herb, phragmites, cat tails
- cobble, rip rap placed at culvert

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROJECT #: 60541071

MAPPER: OB

NAME OF WATERBODY: Unnamed

CROSSING #:

STATION #: 401-6-3.5 US

DATE: DD-MMM-YY 01-08-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

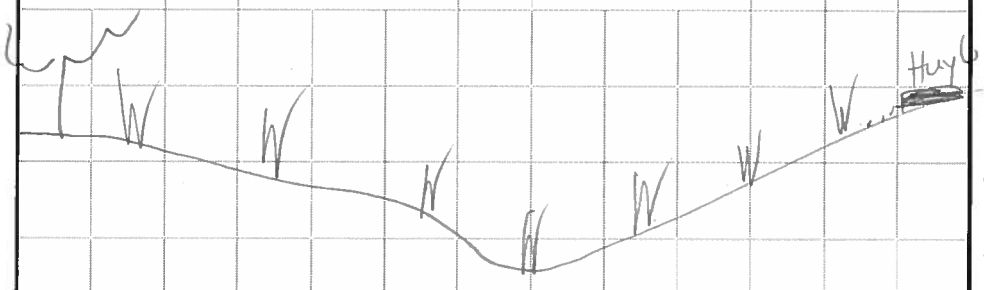
® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

PROFILE: **Horz. Scale** **Vert. Scale**



GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60548071	401-6	01	August	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No Ø Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
A.O, OB	Clear	945	1015

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
23°C	22.9°C	1416

PHOTO NUMBERS AND DESCRIPTIONS: 1-11

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Unnamed	/	/	401-6-35 D/S

LOCATION OF CROSSING: West of Hwy 6 South, @ Maddaugh Rd.

GPS COORDINATES:	MTO CHAINAGE:
17T 0574402 4808546	/
TOWNSHIP:	**MNR DISTRICT:** Aurora

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Hwy 6S, Mixed forest	Hwy runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP Ø	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
/	/

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	Ø	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
200	/

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	Standing Water
Percentage of area						100%
Mean depth wetted (m)						0.04
Mean width wetted (m)						1.4
Mean bankfull width (m)						1.7
Mean bankfull depth(m)						0.65
Substrate						Si 55% Gr 45%

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	/	/	/	Instream Overhanging	/	Instream 70% Overhanging 10%	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species	algae 30%	/	cattails 65% phragmites	/

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	/	/	cattails phragmites

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	/	/	/

POTENTIAL ENHANCEMENT OPPORTUNITIES:

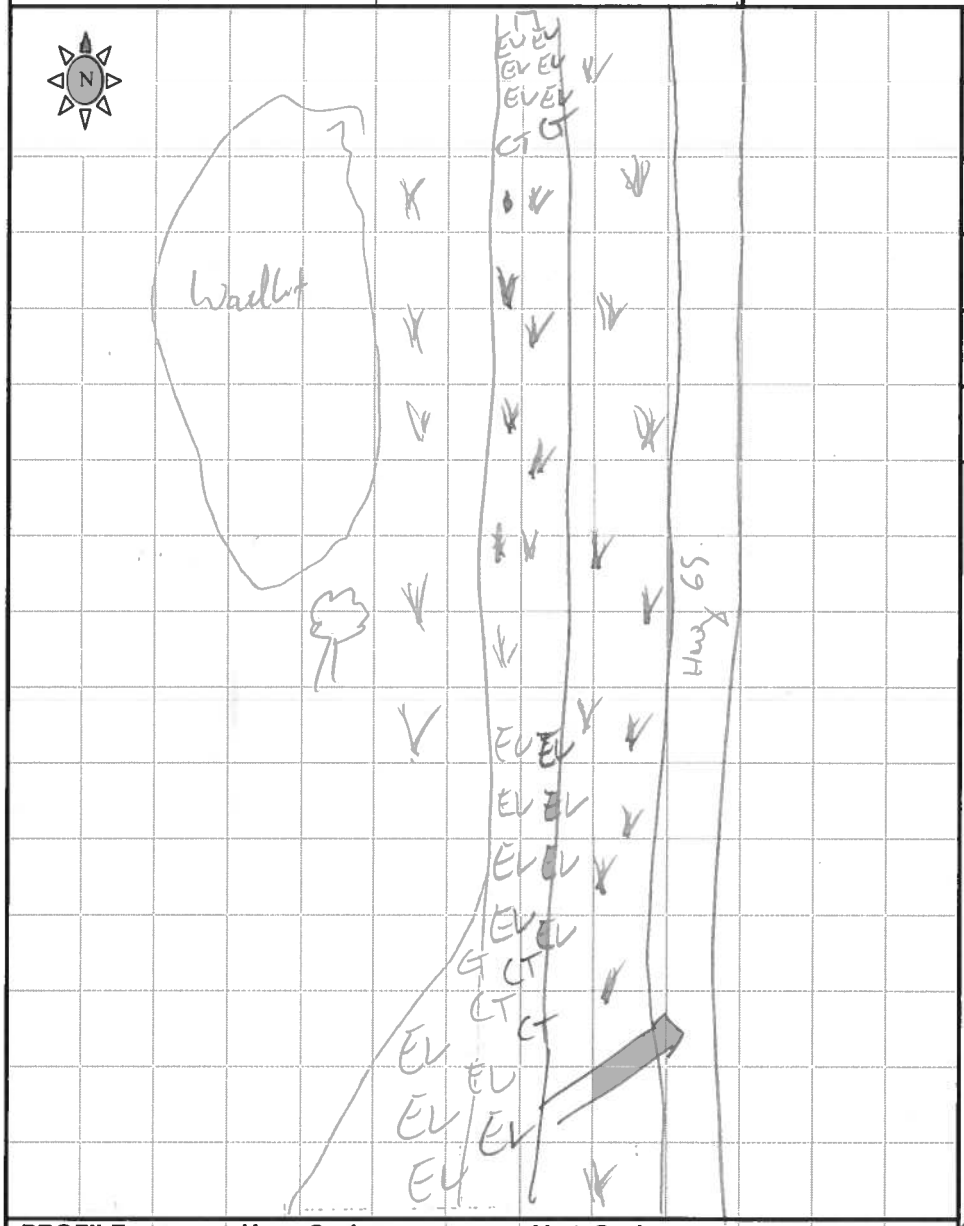
Remove garbage
Remove phragmites

COMMENTS:

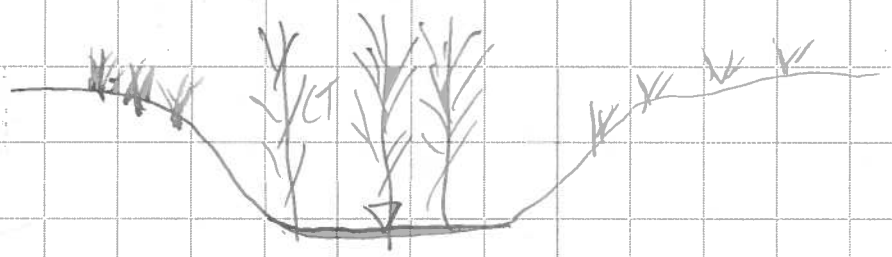
Intermittent drainage swale west of Hwy 6 and South of Maddaugh Rd. Standing water observed in the well defined swale. Sections of the swale are choked by phragmites and cattails making the section unsuitable fish habitat.

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
/		200	/



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: A.C

NAME OF WATERBODY: Unnamed

CROSSING #: /

STATION #: 401-6-35 DIS

DATE: DD-MMM-YY 01-08-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ☒ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	clear, humid	13:00	15:30

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
28	18.2	1355

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Bronte Creek trib	Bronte	—	401-6-3606

LOCATION OF CROSSING: Hwy 6 S of Maddaugh rd

GPS COORDINATES:	MTO CHAINAGE:
0574145E 4808554	—
TOWNSHIP: Hamilton	**MNR DISTRICT:** —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
roadway, residential, wetland	runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ☒	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	☒	O	—

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
150	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	standing
Percentage of area				~~100~~ 0		100
Mean depth wetted (m)				~~0.14~~ 0		0.14
Mean width wetted (m)						0.40
Mean bankfull width (m)						UNDEFINED
Mean bankfull depth(m)						
Substrate						100 MU

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	X	O	O	O
Right Upstream Bank	X	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	—	Instream — Overhanging —	—	Instream 50 Overhanging 50	—

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	
Predominant Species	—	—	phrag	—

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
		intermittent	phrag choked

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

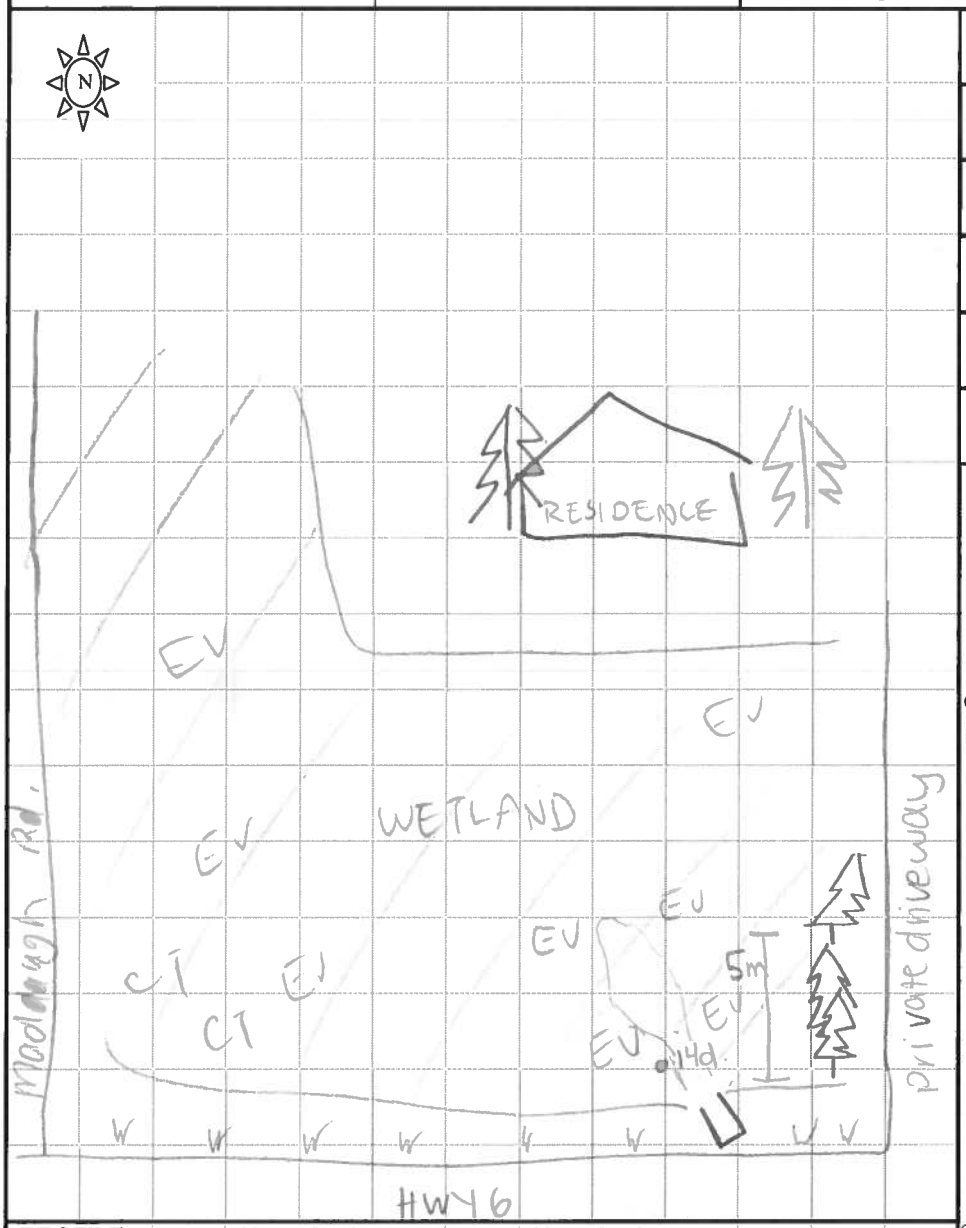
—

COMMENTS:

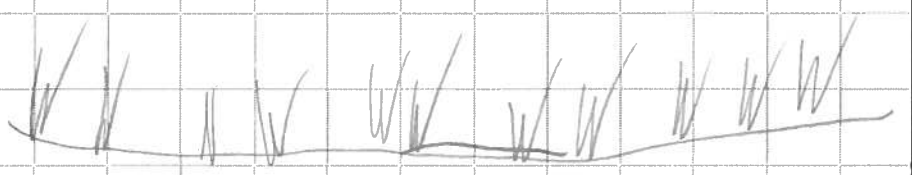
- Bronte Creek trib S of Maddaugh Rd intermittently flowing through wetland – marginal water @ time of investigation, no flow, buried by phragmites/organic debris @ ~5m ds.
- phragmites choked, indirect fish hab contributing water + nutrients to Bronte Ck @ times of higher flow.

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
—	—	150	—



PROFILE:	Horz. Scale	Vert. Scale



PROJECT #:	60541071
MAPPER:	OB
NAME OF WATERBODY:	Bronte Ck Trib
CROSSING #:	—
STATION #:	401-6-360ds
DATE: DD-MMM-YY	02-Aug-17.

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	Humid, clear	10 35	11:00

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
23	21.5	1338

PHOTO NUMBERS AND DESCRIPTIONS:
19 – 25, (pics under 36 ds)

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Bronte Creek Tributary	Bronte Creek		401-6-36 us

LOCATION OF CROSSING:
Hwy 6 South of Maddaugh Road.

GPS COORDINATES: 0574460 4808516	MTO CHAINAGE: —
TOWNSHIP: Puslinch	MNR DISTRICT: —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Forest, wetland, roadway	Runoff, overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP X	N/A O

Other O Describe: Size (w x h) m^2 —

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER: —	SECTION LOCATION: (include on habitat map) —

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	X	O	

TOTAL SECTION LENGTH (m): 50	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other standing
Percentage of area				5		95
Mean depth wetted (m)				0.03		0.03
Mean width wetted (m)				0.10		0.40
Mean bankfull width (m)				0.6		1.0
Mean bankfull depth(m)				0.7		0.7
Substrate				100 Mu		

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	X	O	O	O
Right Upstream Bank	X	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	—	Instream — Overhanging —	—	Instream 50 Overhanging 50	—

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	X	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	
Predominant Species	—	—	cat-tails phrag	—

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	intermittent	—

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

- remove phragmites.

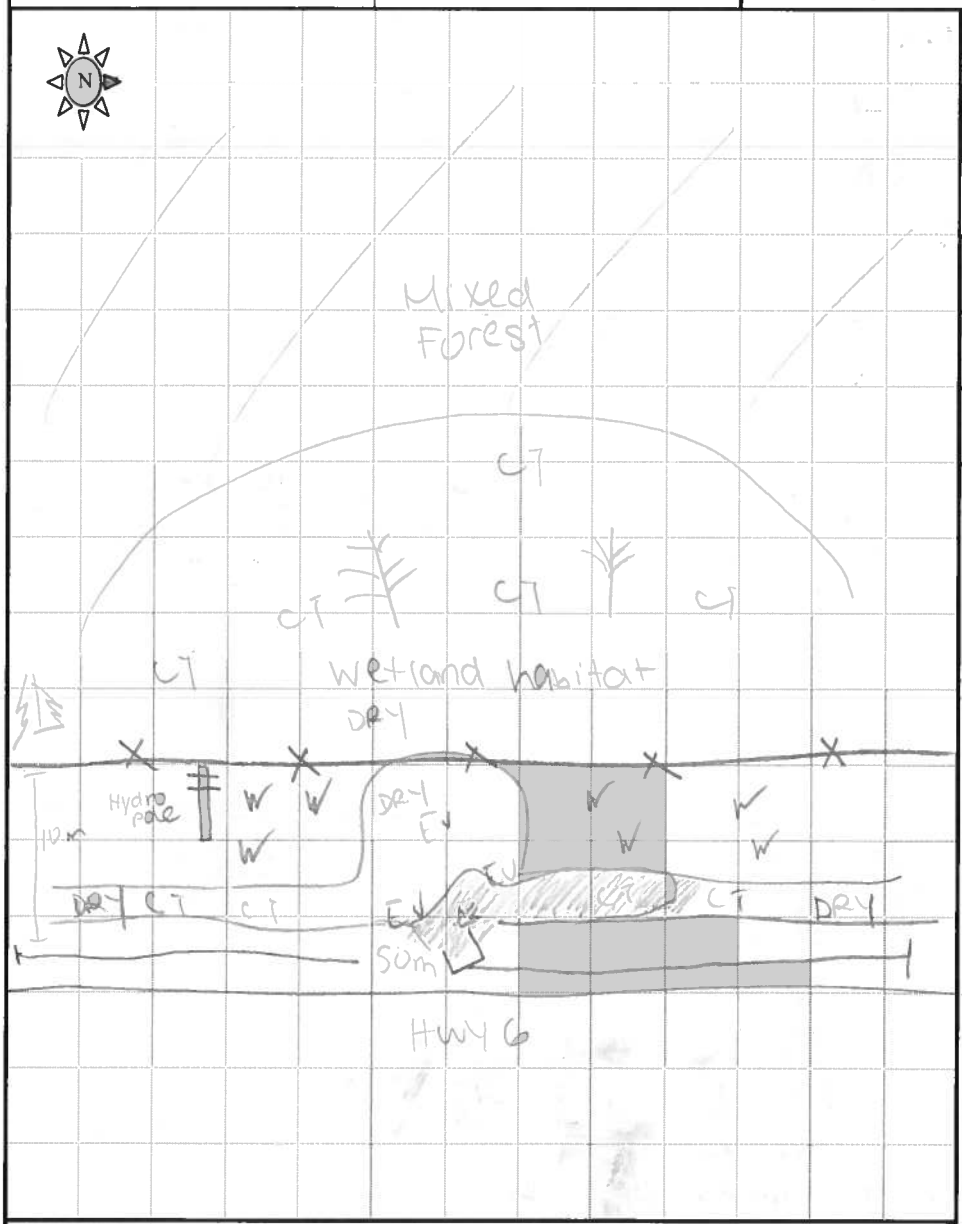
COMMENTS:

- tributary to Bronte Creek
- contributing drainage ditches running N/S adjacent to Hwy 6
- contributing wetland, no connection at time of investigation
- very little flow at mouth of culvert due to elevation change, ditches standing water
- dense aquatic vegetation (phrag, cat tails)
- ~~potential seasonal fish habitat w/ connectivity to fish bearing watercourse (Bronte Ck)~~ No (after d/s investigation)
- frogs, snails observed.

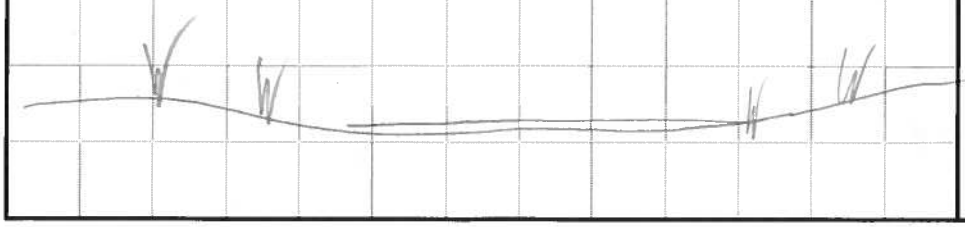
indirect fish habitat contributing flow/nutrients to Bronte Ck @ times of high flow

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
		50	



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: OB

NAME OF WATERBODY: Bronte Ck trib

CROSSING #:

STATION #: 401-6-36US

DATE: DD-MMM-YY 02-Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ☒ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
DB, AO	Humid, clear	13:40	14:05

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
27	18.7	1765

PHOTO NUMBERS AND DESCRIPTIONS: 147-167

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Bronte Ck trib	Bronte	—	401-6-37 ds

LOCATION OF CROSSING: Hwy 6 / Morriston

GPS COORDINATES:	MTO CHAINAGE:
0571625 4810823	—
TOWNSHIP: Morriston	**MNR DISTRICT:** —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Road, Meadow	Runoff / overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert ☒	Open Foot Culvert O	CSP O	N/A O

Other O Describe: — Size (w x h) m^2 —

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	☒	O	O	☒	O	—

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
50	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area				100		
Mean depth wetted (m)				0.15		
Mean width wetted (m)				0.32		
Mean bankfull width (m)				0.5		
Mean bankfull depth(m)				0.50		
Substrate				90 Si 10 Sa		

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	X O	O	O	O
Right Upstream Bank	X O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	—	Instream — Overhanging —	—	Instream TD Overhanging 100	—

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	X O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	—
Predominant Species	—	—	grasses	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	intermittent	—

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
		—	—

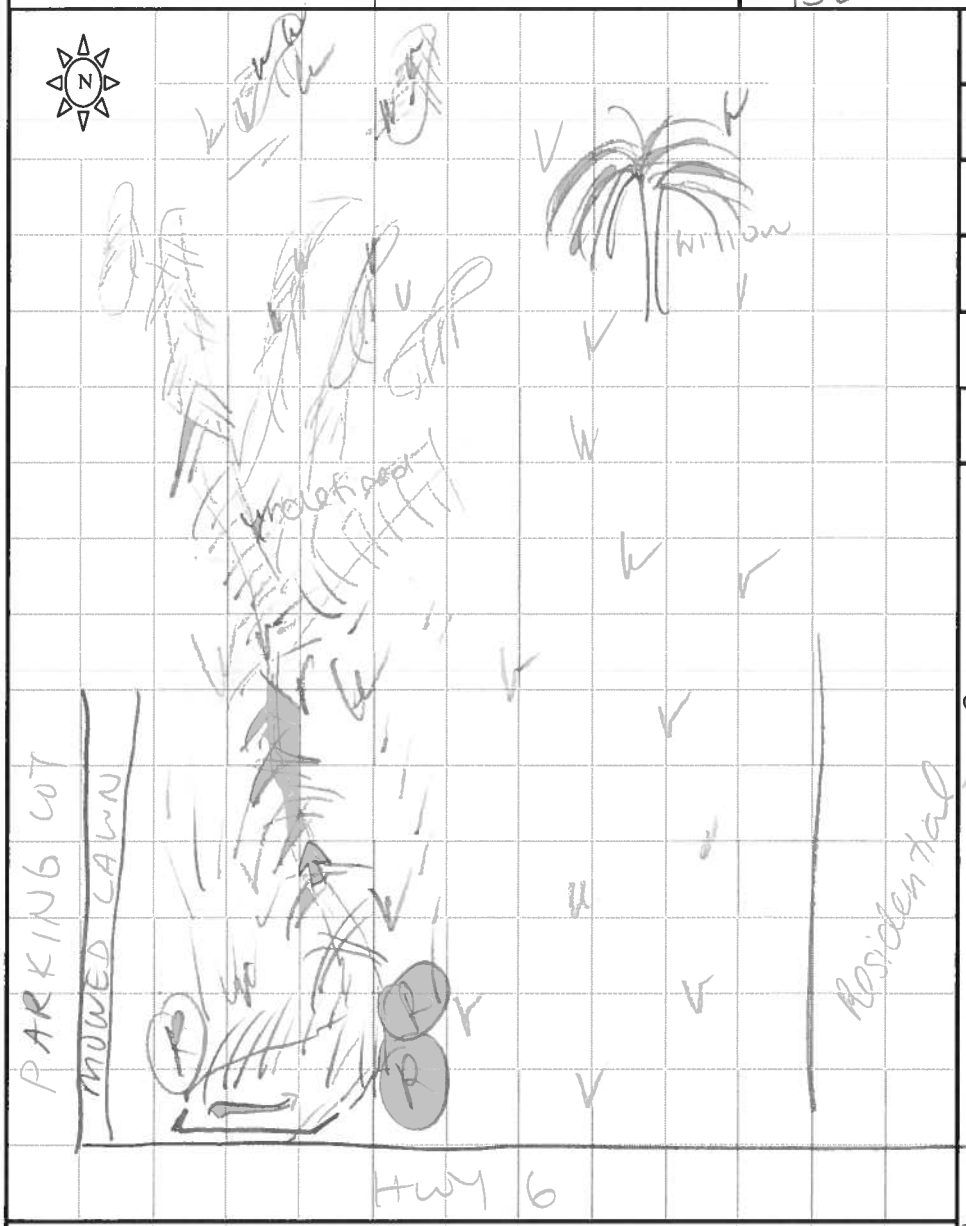
POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

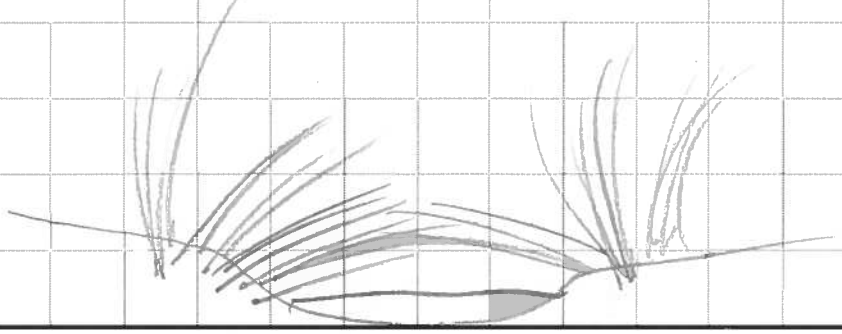
intermittent stream almost entirely covered in grasses, slow to moderate flow, flows through meadow, channel becomes undefined in meadow & flows through grasses
- water dries at ~ 70 m d/s, becoming isolated pools of standing water / wet substrate; dissipates into grass
- potentially seasonal fish habitat when high flow, contributing to Bronte
- breeding bird habitat (nest observed)

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
—	—	150	—



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 6054 071

MAPPER: DB

NAME OF WATERBODY: Bronte Ck trib

CROSSING #: —

STATION #: U01-6-37ds

DATE: DD-MMM-YY 02-Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	Aug	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ☒ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
AD, OB	clear, humid	9 30	10:00

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
24	15.9	1754

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Bronte Creek trib	Bronte	—	401-6-37US

LOCATION OF CROSSING:

Hwy 6 in Mornston

GPS COORDINATES:	MTO CHAINAGE: —
TOWNSHIP: Mornston	MNR DISTRICT: —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
road, residential	Runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert ☒	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	☒	O	☒	O	—

TOTAL SECTION LENGTH (m): 20	CURRENT VELOCITY (m/s): slow

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area				100		
Mean depth wetted (m)				0.20		
Mean width wetted (m)				1.7		
Mean bankfull width (m)				3.0		
Mean bankfull depth(m)				0.5		
Substrate				50 Mu 15 Gr 20 Sa 15 Co		

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	Ø	O	O	O
Right Upstream Bank	Ø	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	—	—	10	Instream 5 (fence) Overhanging —	—	Instream 25 Overhanging 50	—

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	Ø	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	algae	algae	cat tails	—
Predominant Species	30	20	50	

MIGRATORY OBSTRUCTIONS:	None	Seasonal intermittent flow	Permanent
	—		—

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	—	—	—

POTENTIAL ENHANCEMENT OPPORTUNITIES:

- naturalize channel, expose where piped underground for long distances.

observed other end of CSP ~400m away in residential backyard

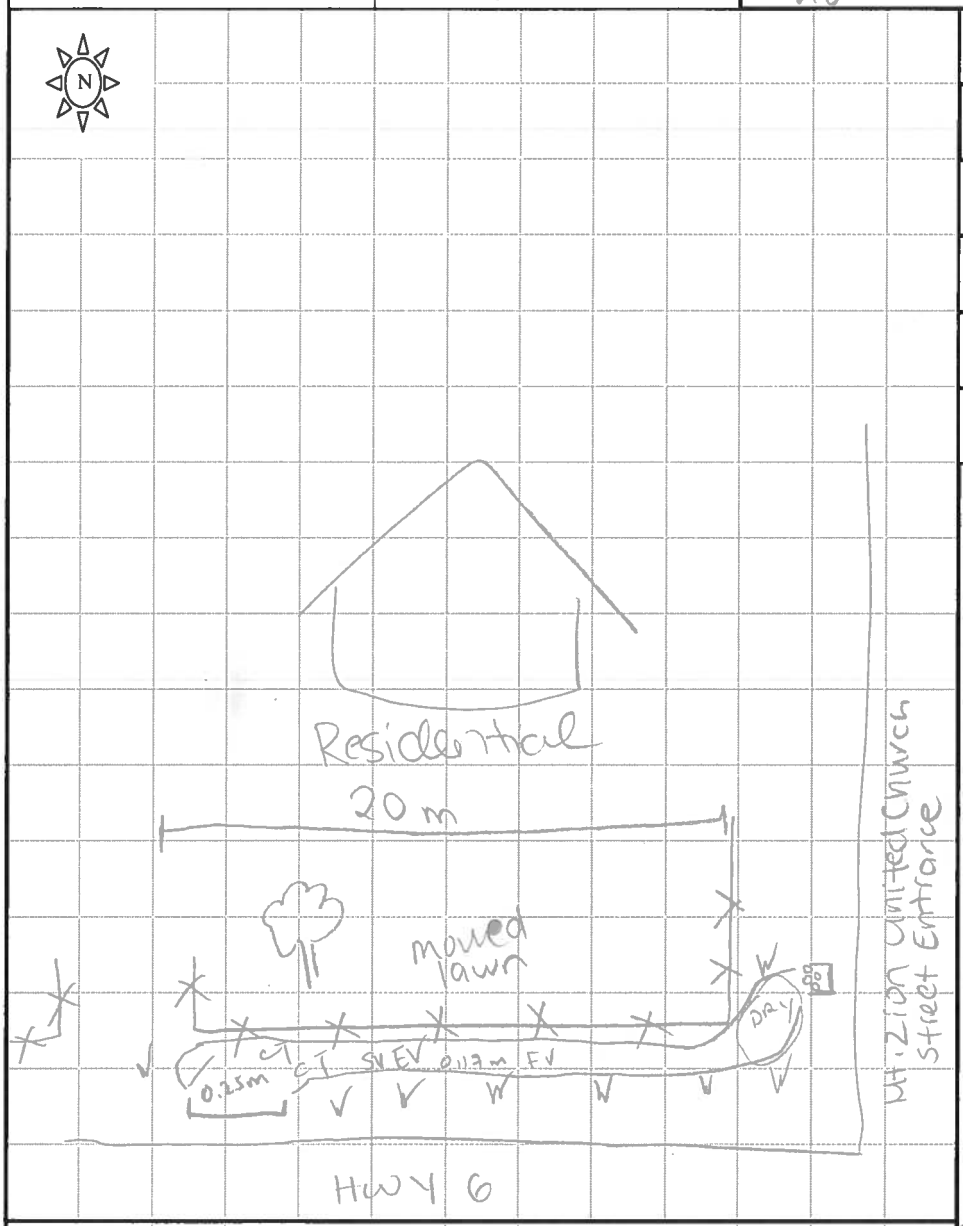
COMMENTS:

- Bronte Creek at Hwy 6, piped underground in CSP and surfaces at edge of residential property where it runs for approx 20m through channelized cat tail swale before crossing Hwy 6.
- no water at CSP through box culvert at time of investigation, water flowing very slowly end of channel
- residential property — channelized to follow property line, mowed to edges with very little riparian buffer
- frogs observed, fish habitat contributing
- abundant non-filamentous algae

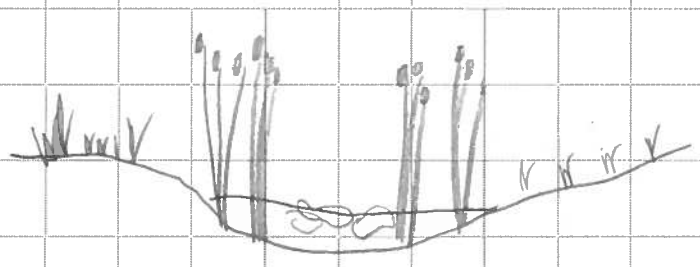
Additional Notes Appended? O No O Yes **number of pages** _____

→ piped under community park & multiple residential backyards

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
		20	



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 60541071

MAPPER: OB

NAME OF WATERBODY: Bronte Ck Trib

CROSSING #: —?

STATION #: 401-6-37 US

DATE: DD-MMM-YY 02-Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢► Seep/Spring
------ Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⊔ Culvert

NO CULVERT, ROADSIDE SWALE

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	clear	12:40	12:45

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
26	—	—

PHOTO NUMBERS AND DESCRIPTIONS: —

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
—	—		401-6-40

LOCATION OF CROSSING: Hwy 6 N of Leslie Rd W

GPS COORDINATES:	MTO CHAINAGE:
0572781 4809576	—
TOWNSHIP: HAMILTON	**MNR DISTRICT:** —

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
road, agriculture	runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: NONE — Size (w x h) m^2 —

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	X	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
—	—

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area		NO WATER				
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT							
IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

- phrag swale adjacent to HWY6
- no culvert, no connectivity, no watercourse, DRY
- collects drainage from roadway / field only
- not fish habitat

Additional Notes Appended? O No O Yes number of pages _____

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	02	08	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ☒ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
OB, AO	humid, clear	14:00	1420

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
28	—	—

PHOTO NUMBERS AND DESCRIPTIONS: 168-170

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Unnamed	—	—	401 6-41 US

LOCATION OF CROSSING: East of Hwy 6 S, south of Nicholas Beaver Rd.

GPS COORDINATES:	MTO CHAINAGE:
17T 0570364 4811983	—
TOWNSHIP: Guelph.	**MNR DISTRICT:** Aurora

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Commercial, road.	Rd. runoff

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other ☒ Describe: Concrete ~~pipe~~ culvert — Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
—	—

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	☒	—

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
50	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area						
Mean depth wetted (m)		NO WATER				
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species		NO WATER		

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent Choked
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

Remove phragmites + garbage

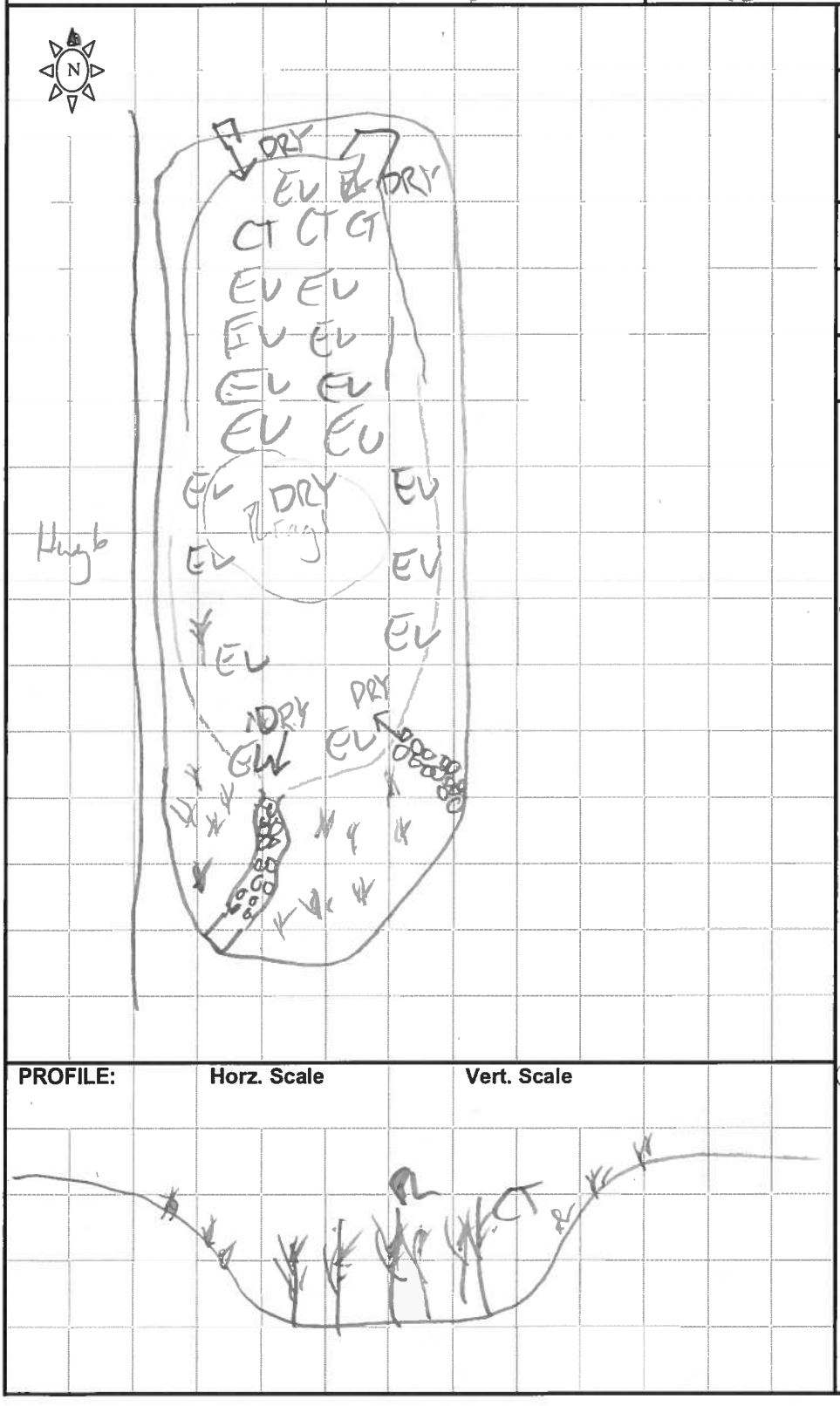
COMMENTS:

Drainage feature covering water from adjacent lot & undefined watercourse feature did not have water present. Choked w phragmites, and cattails. the centre of the feature had settled sediment and no aquatic vegetation. The downstream section had a defined cobble substrate to convey flow into D/S culvert. Not suitable fish habitat.

draingt

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
		50	



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #: 60541071

MAPPER: A O.

NAME OF WATERBODY: Unnamed

CROSSING #:

STATION #: 401-6-41 US

DATE: DD-MMM-YY 02-08-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY: 26	MONTH: 07	YEAR: 2017

Is STREAM REALIGNMENT required for this section:

O Yes O No ⊘ Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MB + MB	overcast 26°	13.20	

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):

PHOTO NUMBERS AND DESCRIPTIONS: 7-11

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Morista Pond			401-6-DS

LOCATION OF CROSSING:

GPS COORDINATES:	MTO CHAINAGE:
TOWNSHIP:	MNR DISTRICT: Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ⊘	N/A O

Other O Describe:

Size (w x h) m^2 30 cm

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	⊘	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	⊘	O	
Percentage of area						
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	Ø	O	O	O
Right Upstream Bank	Ø	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	Ø	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
		50	50	
Predominant Species		Lily Pad	Milfoil	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	/		

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

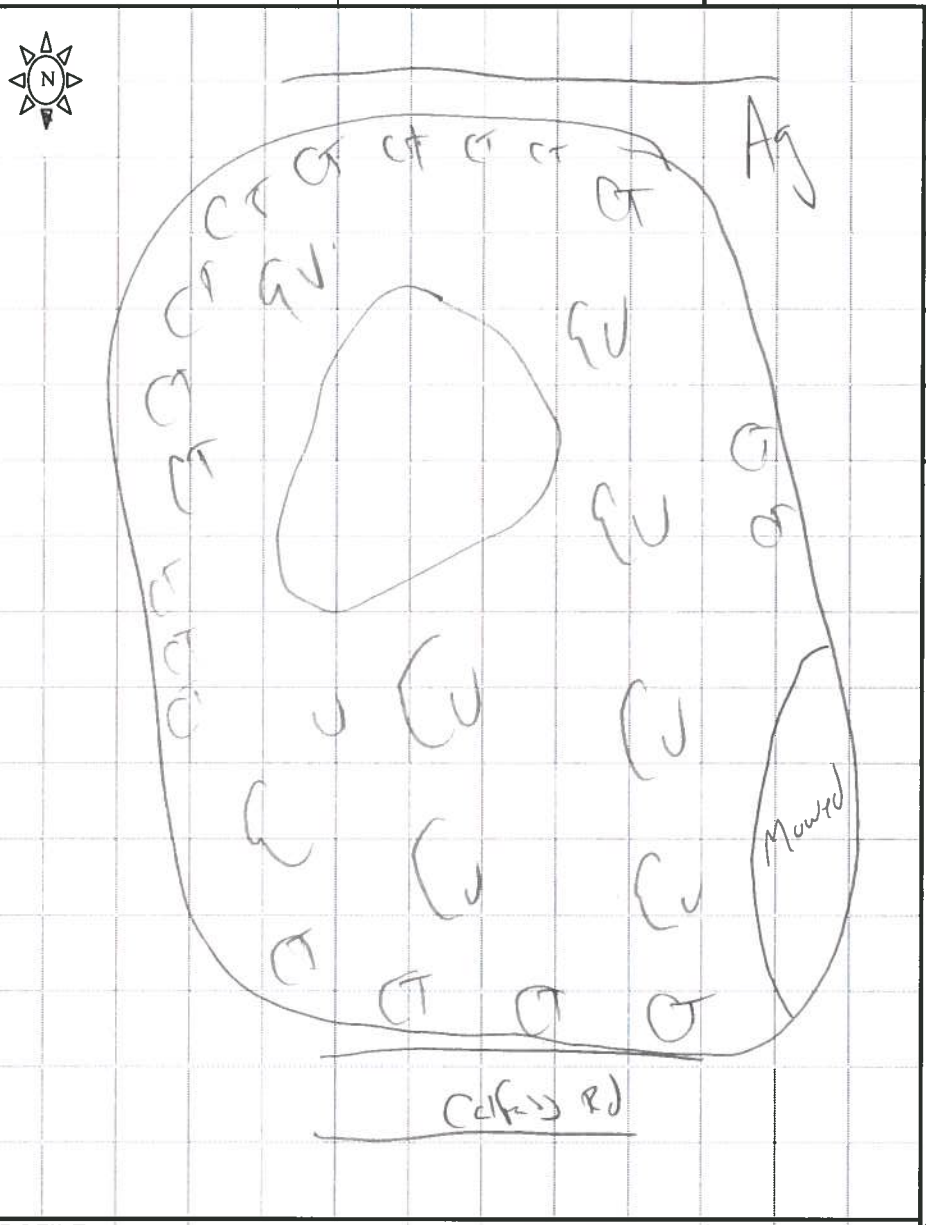
Culvert Connectivity!

COMMENTS:

- Water Snake (big)
- blue heron
- green frog

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #:

MAPPER: NL

NAME OF WATERBODY:

CROSSING #:

STATION #: 401-6-50-DS

DATE: DD-MMM-YY 26-07-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
		26	07	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No Ø Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MG + MB	Overcast 26°	13:00	

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):

PHOTO NUMBERS AND DESCRIPTIONS: 5-6

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Moriston Pond			401-6-50-US

LOCATION OF CROSSING: Gilfoss Road 571129 4810771

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:
Moriston	Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Residential	

EXISTING STRUCTURE TYPE

Bridge O	Box CulvertO	Open Foot Culvert O	CSP O	N/A O

Other Ø Describe: grate to CSP Size (w x h) m^2 30 cm

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m): 50	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	Ø	O	
Percentage of area						
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	Ø	O	O	O
Right Upstream Bank	Ø	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream 100 Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	Ø	Ø	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
		~~100~~ 50	50	
Predominant Species		Lily pad	Milfoil	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent X grade
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

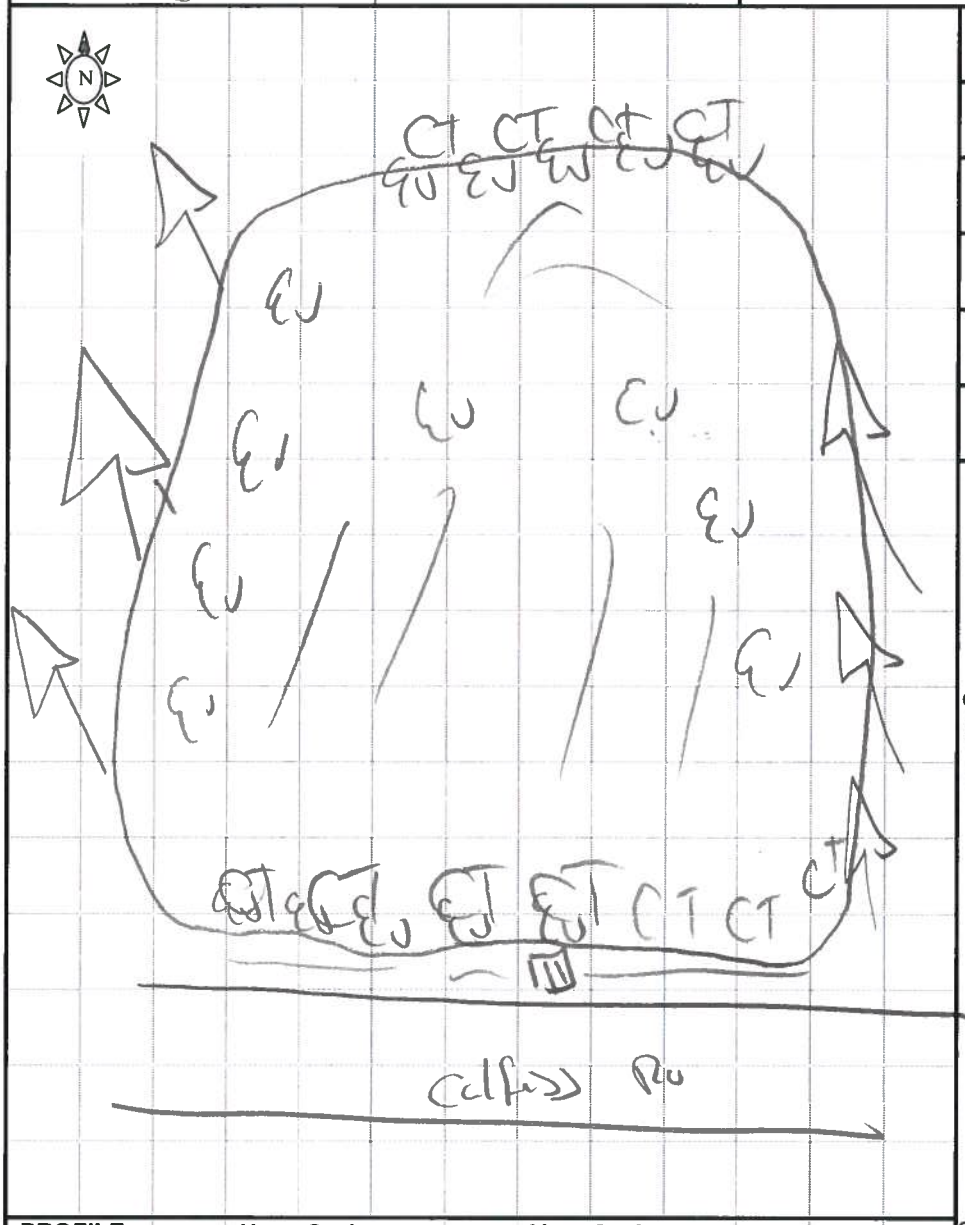
- enhance connectivity between ponds.

COMMENTS:

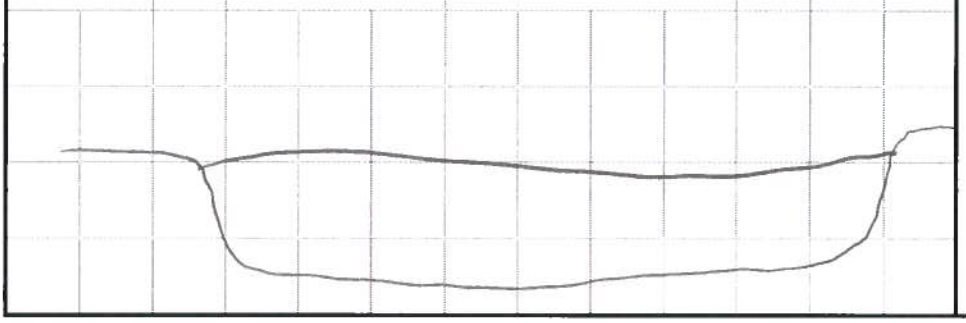
- large wetland
-

Additional Notes Appended? O No Ø Yes number of pages 1

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
401-6-50	US	50	



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #:

MAPPER: MG

NAME OF WATERBODY: Murphy Pond

CROSSING #:

STATION #: 401-6+50-US

DATE: DD-MMM-YY 26-07-2017

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
	401-6	26	07	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No Ø Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MK + GMB	overcast 26		

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):

PHOTO NUMBERS AND DESCRIPTIONS: 12-19

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
			401-6-51 / US/DS

LOCATION OF CROSSING: 570750 / 4810261

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:
	Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
	overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box CulvertO	Open Foot Culvert O	CSP Ø	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	??

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	Ø	O	
Percentage of area						
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream 70 Overhanging	Organic debris	Vascular Macrophytes Instream 30 Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	Ø	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

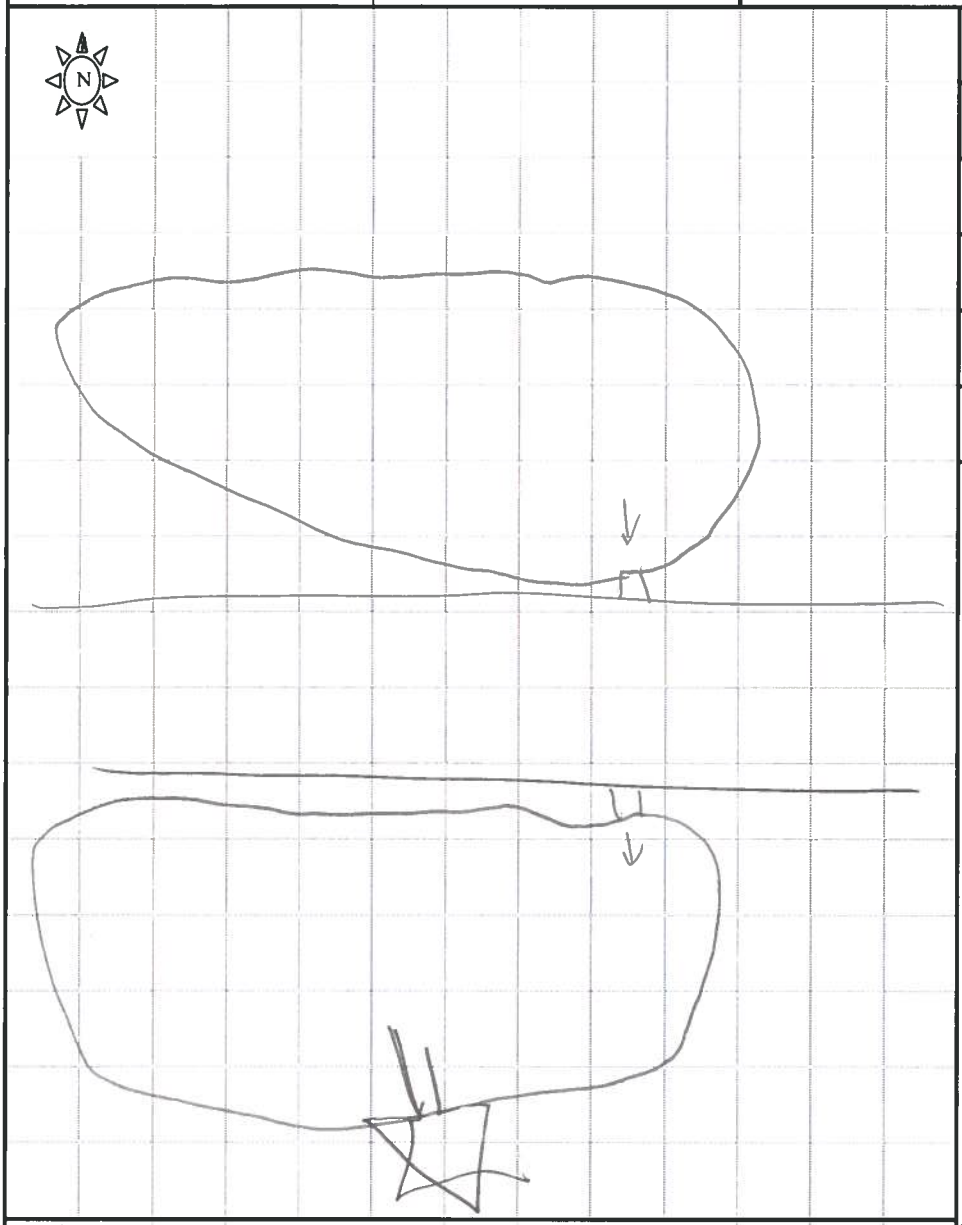
POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

- 2 - Riparian wetlands / Ponds
- Value of Connectivity
- Potential fish habitat
- Green frogs

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #:

MAPPER:

NAME OF WATERBODY:
401-6-S1 uVOS

CROSSING #:

STATION #:

DATE: DD-MMM-YY

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⊔ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
		26	07	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No Ø Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MG + MD	Overcast 26		

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):

PHOTO NUMBERS AND DESCRIPTIONS: 20-26

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
			401-6-52-US/DS

LOCATION OF CROSSING: 570559 4810063

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:
	Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
agriculture / road	Overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box CulvertO	Open Foot Culvert O	CSP Ø	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	Ø	O	
Percentage of area						
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

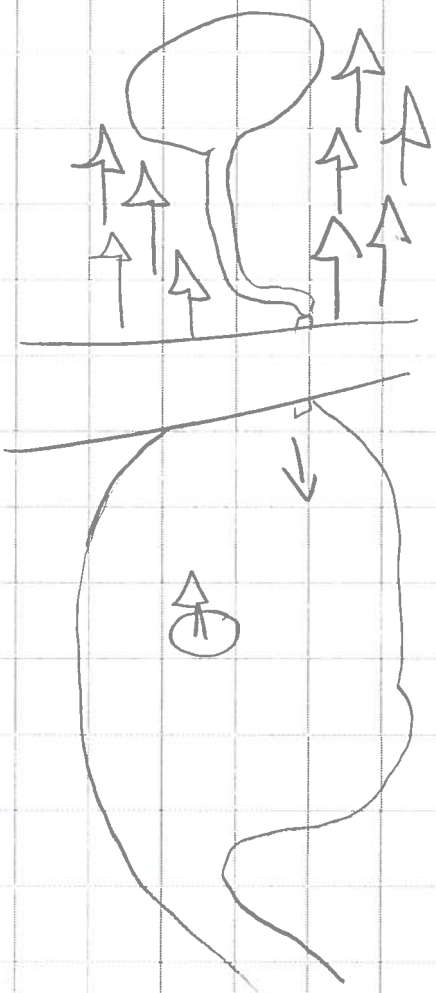
replace culvert

COMMENTS:

- agricultural drain leading to large pond
- small CSP
- pond weed in upstream side
- unsure of connectivity
- green frogs in pond

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #:

MAPPER:

NAME OF WATERBODY:

CROSSING #: Hull-6-52-W10S

STATION #:

DATE: DD-MMM-YY 26-7-2017

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
* * * Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	17	May	2018

Is STREAM REALIGNMENT required for this section:

O Yes ☒ No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MB, OB, AA, ER	20 sunny no wind	09:50	

AIR TEMP:	WATER TEMP:	CONDUCTIVITY ~~(µS/cm)~~:
20°	13°C	0.84 ms/cm

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
unnamed	Mill Creek		

LOCATION OF CROSSING: 401-6-26 US

County Rd 34, unnamed watercourse

GPS COORDINATES:	MTO CHAINAGE:
17T 0561633 4815062	

TOWNSHIP:	MNR DISTRICT:
Guelph	Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
wetland, surrounding mixed coniferous forest.	Road runoff. Agricultural runoff u/s

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ☒	N/A O

Other O Describe: Size (w x h) m^2 .50 x .50

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
50m u/s	N. of County Road 34

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	☒	☒	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
50	—

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	wetland
Percentage of area	10	30	10			50
Mean depth wetted (m)	0.13	0.05	0.04, 0.11, avg =			—
Mean width wetted (m)	0.3	44	0.25, 0.32, avg.			—
Mean bankfull width (m)	within	greater	wetland			—
Mean bankfull depth(m)	—					—
Substrate	66 33 D>Mu	D>Mu	D>Mu			507 507 Mu ≥ D

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

undefined (wetland)

BANK STABILITY	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT								
IN-STREAM COVER (% surface area): 80	Undercut banks	Boulders	Cobble	Woody Debris: Instream / Overhanging	Organic debris: 10	Vascular Macrophytes: 90 Instream / 90 Overhanging / 10	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	—	—	100	
Predominant Species	—	—	Typha sp.	

MIGRATORY OBSTRUCTIONS:	None —	Seasonal ✓ Ephemeral u/s (dry)	Permanent —
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning ✓ gravid Central mudminnow observed	Evidence of Groundwater ✓ upwelling, oil, Fe	Other —

POTENTIAL ENHANCEMENT OPPORTUNITIES:

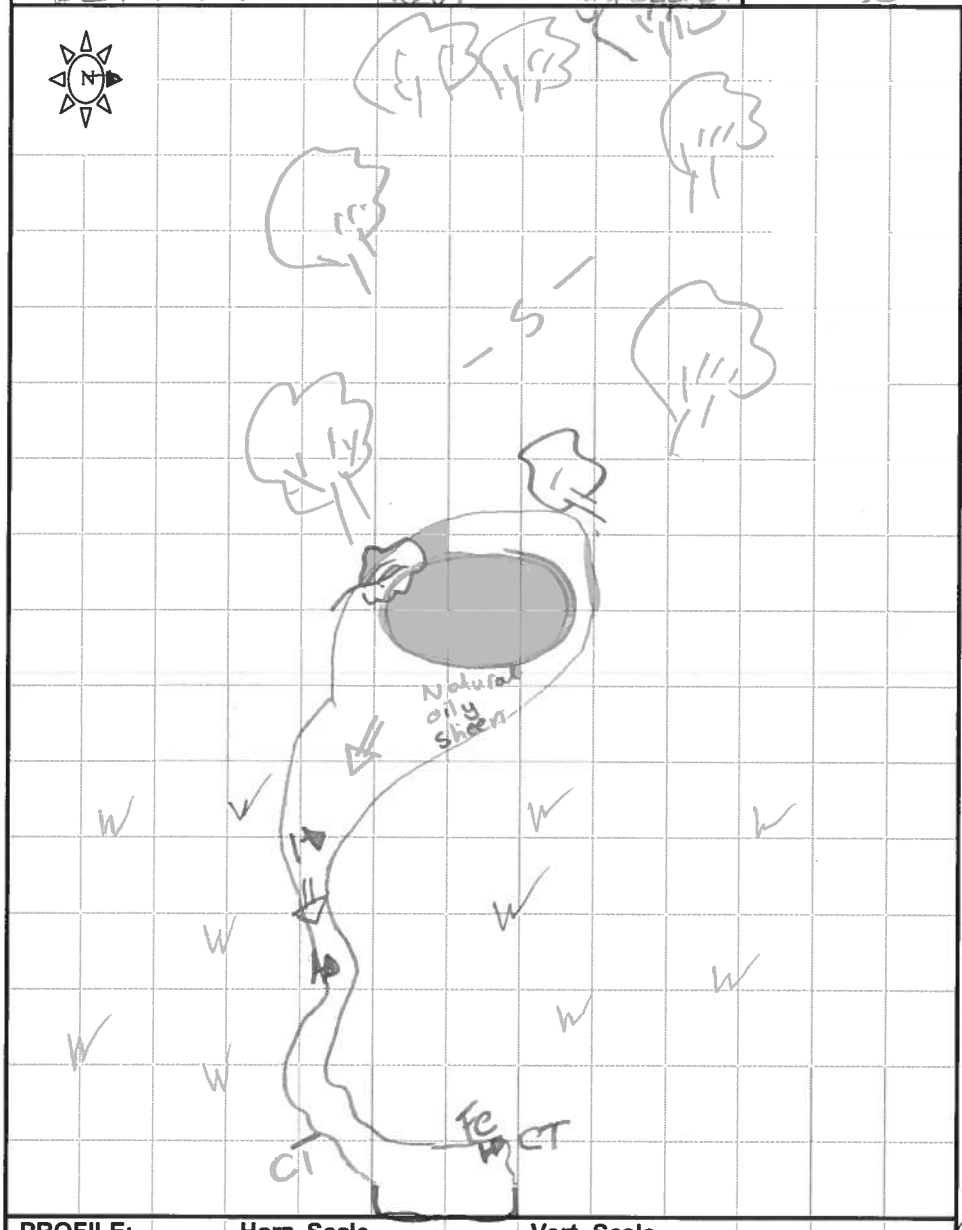
- groundwater upwelling immediatly u/s of culvert; open bottom box culvert to maintain gw flow.
-

COMMENTS:

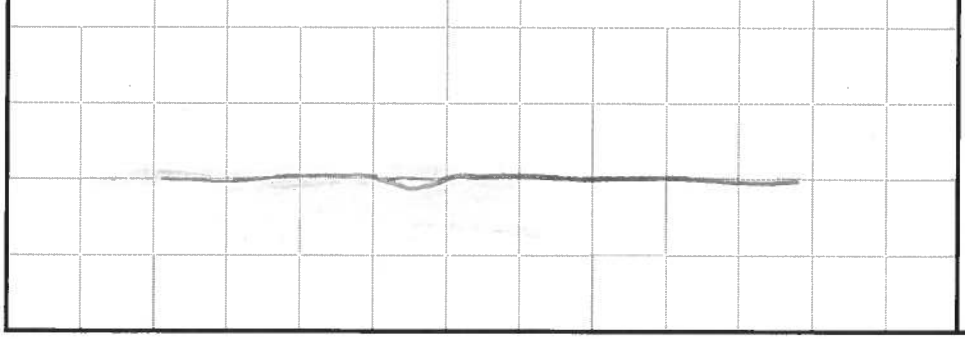
- Central Mudminnow, female gravid
- Green Frog
- Groundwater upwelling, evidence oil sheen (natural), iron staining ↳ headwater area.
- Channel unconfined, wetland extends ~30 m @ roadway; undefined dry channel ~25 m u/s of culvert (ephemeral flow - evidence at veg bent by surface flow) intermittently draining from u/s wetland.

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
50m U/S	N of County Road 34	50	



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 605 41071

MAPPER: E. Patainude

NAME OF WATERBODY: 401-26US

CROSSING #:

STATION #:

DATE: DD-MMM-YY 17-May-18

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401-6	17	May	2018

COLLECTORS:	TIME STARTED:	TIME FINISHED:
MG, OB, ER, AA.	10:05	13:15

WEATHER CONDITIONS:	AIR TEMP (°C):	SURFACE CONDITIONS:			
		Calm	Rippled	Wavy	Rough
Clear, CC 0%, Wind 1	25°C	X	O	O	O

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY: 401-6 14 U/S

LOCATION OF STATION: N of 401 W between Hwy 6 N + S.

GPS COORDINATES:	MTO CHAINAGE:
pt: 001 0569877 4811178	—

TOWNSHIP:	MNR DISTRICT:
Wellington County.	Guelph

LAND USE / TERRAIN AND POLLUTION

SURROUNDING LAND USE / TERRAIN:	SOURCES OF POLLUTION:
Agricultural	Agriculture runoff 401 runoffs.

SECTION TYPE AND MORPHOLOGY

TYPE:	Large Lake	Small Lake	Pond	Reservoir	Dug-out
	O	O	X	O	O

Intermittent	Run-off	Spring-fed	Not Connected	By-pass	In-stream
O	X	O	X	O	O

LAKE / POND DIMENSIONS:	Length (m)	Mean Width (m)
	30.0 m	25.0m

WATER CHEMISTRY

WATER COLOUR:	Colourless	Yellow/brown	Blue/green	Other
	O	X	O	O

SECCHI DEPTH (m):	pH (as required):
—	8.59

CONDUCTIVITY (µS/cm):	Surface:	Bottom:
	1452 µS/cm	—

DISSOLVED OXYGEN / TEMPERATURE PROFILE

Depth:	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Water Temperature (°C):	23.7										
Dissolved Oxygen (mg/L):	—										

Depth:	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	
Water Temperature (°C):											
Dissolved Oxygen (mg/L):											

Max Depth (m):	not assessed	BOTTOM SUBSTRATE:	Mu (70%) > D (30%)

Substrate:	Bedrock (Br)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Marl (Ma)	Detritus (D)

Project # 60541071 401-6 17-May-18
401-6 14 UIS

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	Ø	O	O	O
Right Upstream Bank	Ø	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
50%		1	20%	10% Instream 90% Overhanging 10%	10%	60% Instream 90% Overhanging 10%	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	Ø	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	1	—	39	60
Predominant Species	algae sp	—	Phragmites sp.	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	—	off-line

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	none observed.		

POTENTIAL ENHANCEMENT OPPORTUNITIES:

- garbage removal
- Phragmites sp. removal
- Buckthorn removal
- agricultural cobble/boulder dump
- enhance riparian buffer for shading

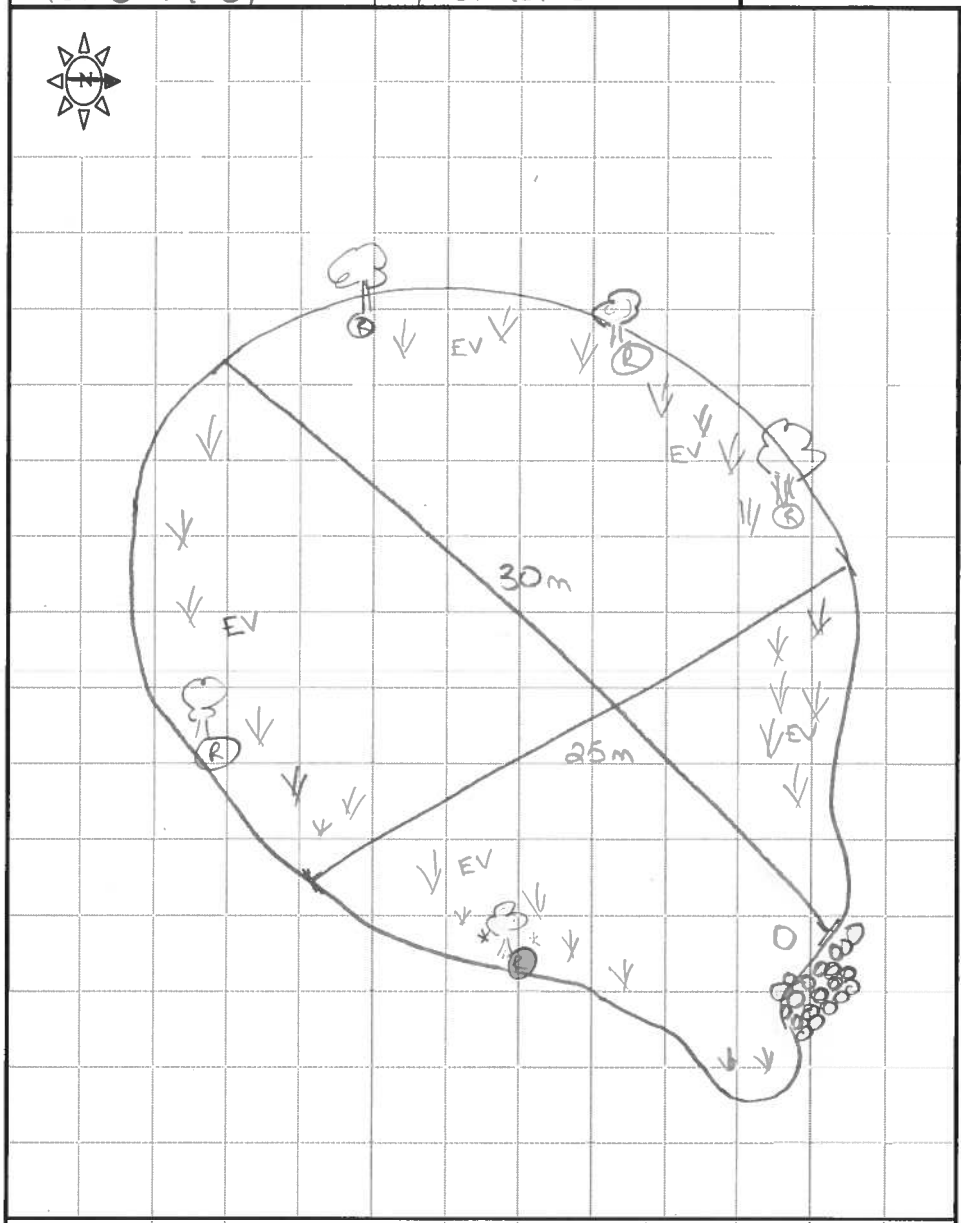
COMMENTS:

- Species observations:
  - Green frog
  - * – Midland Painted Turtle (hatchling)
  - Mayflies, water striders, dragonflies, damselflies.
  - Redwing Blackbird.
- Agricultural dump of cobble/boulder on Eastern bank.
- plants:
  - Willow sp.
  - Buckthorn
  - Phragmites
- Pond dimensions at time of assessment 25m x 30m. bankfull dimensions additional 1-4m.
- Pond offline, no evidence of gw upwelling or inflowing water course, agricultural drainage origin

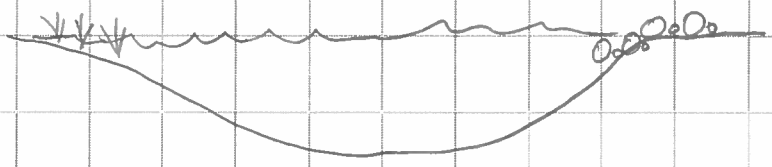
Additional Notes Appended? O No O Yes number of pages _____

- permanent off-line pond, limiting habitat, warmwater with limited riparian cover

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
401-6 14 U/S	N of 401 w bltw 6 N/S	—	1 cm / 4 m



PROFILE: Horz. Scale 1cm = 3m Vert. Scale 1cm = 1cm



PROJECT #: 60541071

MAPPER: AA.

NAME OF WATERBODY:

CROSSING #:

STATION #:

DATE: DD-MMM-YY 17-MAY-18

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
//////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

Ⓡ Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

pH 8.2

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
6054107	Hanlons Creek	17	May	2018

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MG OB, AA, ER	Sunny + Scattered Clouds	14:28	15:34

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
27°C	16.2	1150

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Hanlons Creek	Speed River	/	HC-1-upstream

LOCATION OF CROSSING:
rd John Gamble Dr. us / Hwy 6

GPS COORDINATES:	MTO CHAINAGE:
0562186 4817037 (622)	

TOWNSHIP:	MNR DISTRICT:
Wellington County	Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
dog park, Hwy 6, deciduous forest Pedestrian bridge	runoff Hwy, overland flow drainage ditch overflow

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2 4.93 x 3.1

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)
50 m US	U/S 50m Hanlon Park

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	X	O	X	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):
50	

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert (weir) O	Other W
Percentage of area	40	/	50	/	10	/
Mean depth wetted (m)	0.51	/	3.2	/	0.38	/
Mean width wetted (m)	8.9	/	0.19	/	2.15	/
Mean bankfull width (m)		/		/		/
Mean bankfull depth(m)	0.34 341	/	34	/	34	/
Substrate	Si>D>Co	/	Gr>Co>Bo	/	Co	/

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

Si - 60%
D - 30%
Co - 10%

Gravel - 50%
Co → 30%
Bo → 20%

Culvert - 1.18 x 2.15
Co - 100%

depth widths
2m 2m
.51 2.05
.15 5.27
.19 4.2
.14
.15

run
.51

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	✓ O	O	O
Right Upstream Bank	O	✓ O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris / Instream / Overhanging	Organic debris	Vascular Macrophytes / Instream / Overhanging	None
75	10	20	50	20 / 90 / 10	✓	✓	✓

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	✓ O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				100

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	✓	✓	→ small body fish → (weir)

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	✓ (white sucker)	natural oil sheen	✓

POTENTIAL ENHANCEMENT OPPORTUNITIES:

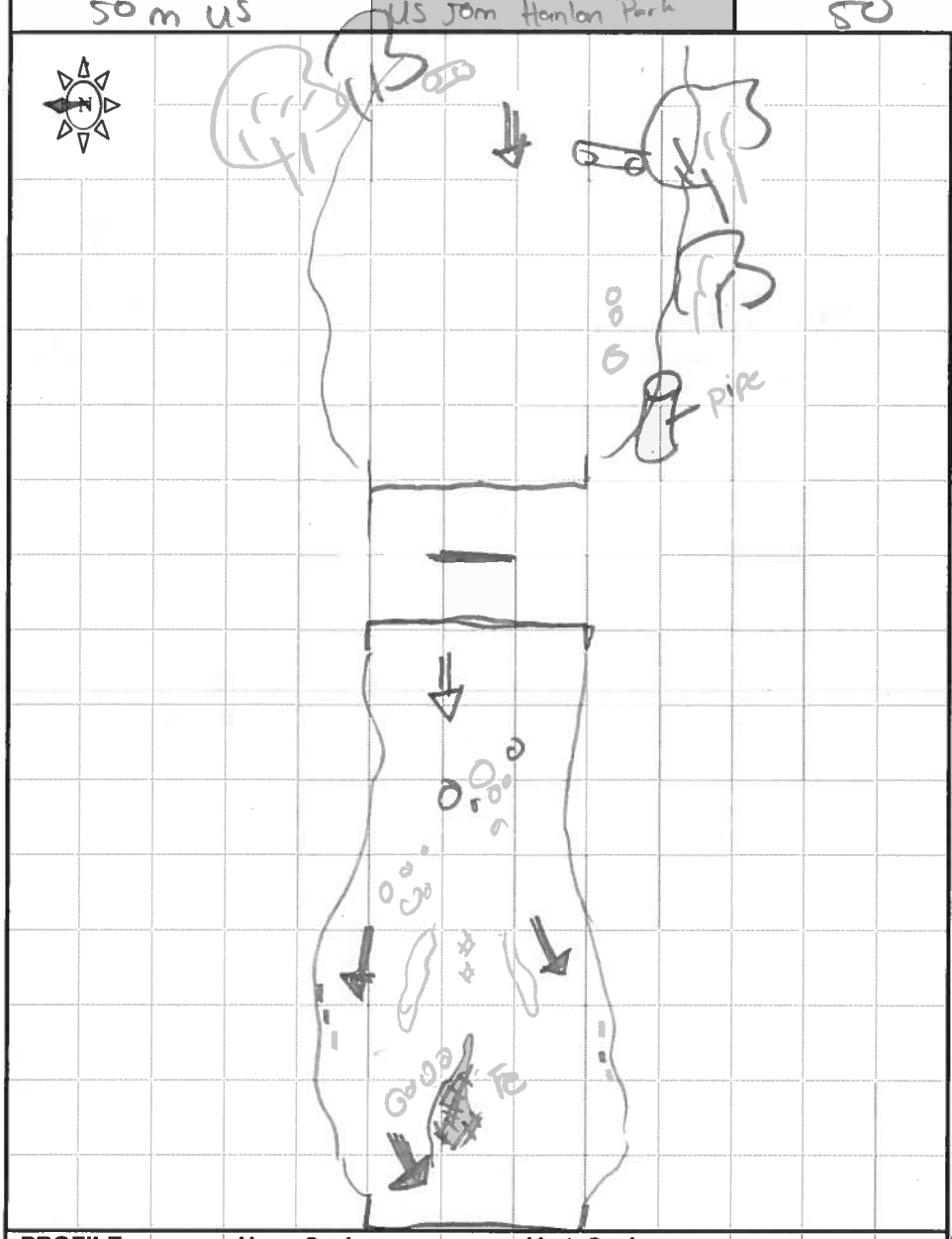
→ remove weir,
→ resize culvert (pedestrian bridge (CSP) - undersized
→ resize open foot culvert under Hwy 6 - undersized

COMMENTS:

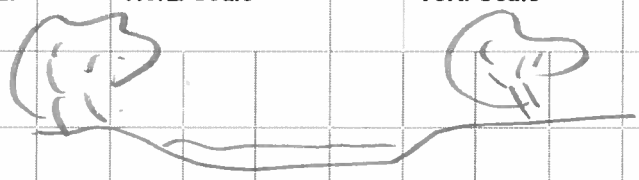
- lower 20 m of section → 2 m braided channel w/ center overflow channel
- natural oil sheen
- pedestrian culvert - undersized → CSP
- ~~Reds~~ present both u/s + d/s of pedestrian bridge — white sucker spawning observed male spawning colours
- large mouth bass, white sucker observed
- substrate u/s of CSP culvert is Si and D, substrate D/s of CSP is predom Co, Bo, C
- permanent coldwater watercourse NE of Hanlon Pkwy.

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
50 m US	US 30m Hanlon Park	50	



PROFILE: **Horz. Scale** **Vert. Scale**



PROJECT #: 605 4107

MAPPER: E. Ratajczyk

NAME OF WATERBODY:

CROSSING #:

STATION #:

DATE: DD-MMM-YY 17-May-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60054107	401-6	17	05	2018

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
MGt OB	Sny	15:29	

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
27°	17.5	1158

PHOTO NUMBERS AND DESCRIPTIONS: 8.18 pH

LOCATION

NAME OF WATERBODY	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Hanlon Creek	Speed River		176-1-DS

LOCATION OF CROSSING: DS of Hwy 6 at Kortright

GPS COORDINATES:	MTO CHAINAGE:
562134 4817009	
TOWNSHIP: Guelph	**MNR DISTRICT:**

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Deciduous forest	hwy 6, dog park

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)
50m DS	

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m): 50	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area	15		15	70		
Mean depth wetted (m)	0.3		0.5	0.3		
Mean width wetted (m)	3.0		3.0	4.0		
Mean bankfull width (m)	3.0		3.0	4.0		
Mean bankfull depth(m)	0.6		0.6	0.6		
Substrate	70 Co 20 Si 10 Br		70 Co 10 Br 20 Si	70 Si 30 Co		

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	5	5	40	Instream 20 Overhanging		Instream Overhanging	20

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	70	—	—	30
Predominant Species	algae on rocks, water speedwell.	—	—	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	✓		

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	✓ WS observed spawning, reads		

POTENTIAL ENHANCEMENT OPPORTUNITIES:

culvert undersized
remove woody debris jam.

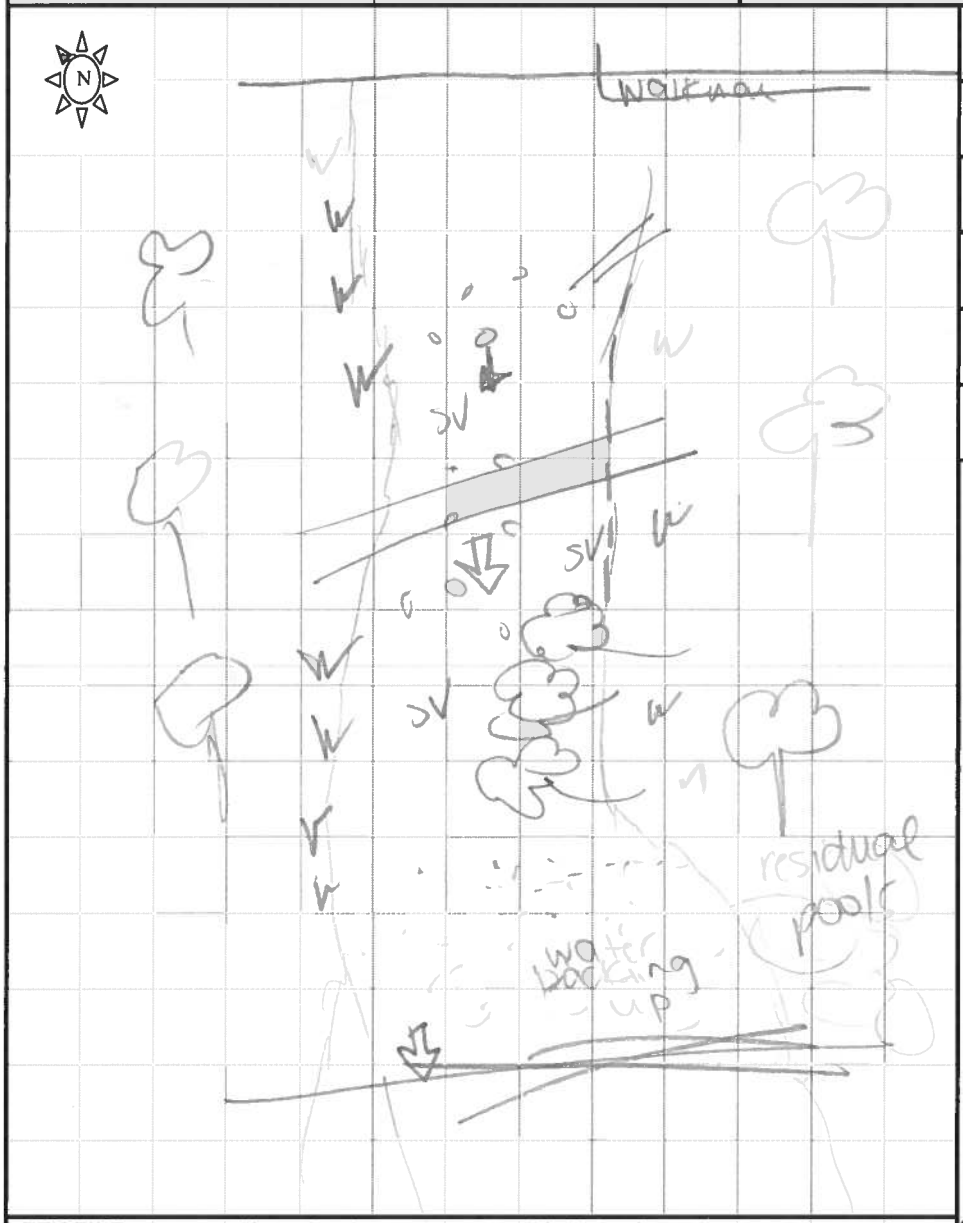
COMMENTS:

•Permanent coolwater watercourse flowing SW under Hanlon PKWY
•riffle run sequence 35m d/s of culvert, transitions to flat u/s of woody debris jam where water is backed up, and sediment deposition has occurred + spilling into adjacent forest
SPAWNING observed - white sucker in spawning colours on reads

Additional Notes Appended? O No O Yes **number of pages** _____

•fluted shell relic mussel shell.

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m): 50	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #: 60541071

MAPPER:

NAME OF WATERBODY: Hanlon's Creek

CROSSING #:

STATION #: 401-6-

DATE: DD-MMM-YY Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
605 4107	401 - 6	17	May	2017

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
M. G, O. B, A. A, E. R	Sunny	16:00	16:27

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
27	14.6	(8.19 ph)

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Hanlon's Creek	Speed River		HG - 2 - DS

LOCATION OF CROSSING:

DS of Hwy 6

GPS COORDINATES:	MTO CHAINAGE:
200m d/s from bridge	
TOWNSHIP: Guelph	**MNR DISTRICT:**

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
wetland, trail from dogpark	dog park

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)
150m DS	

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	X O	O	X O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area	60	/	40	/	/	/
Mean depth wetted (m)	0.25	/	0.25	/	/	/
Mean width wetted (m)	1.5	/	1.5	/	/	/
Mean bankfull width (m)		/		/	/	/
Mean bankfull depth(m)	0.20	/	0.50	/	/	/
Substrate	Co>Gr>Si>Sa	/	Co>Gr	/	/	/

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris / Instream / Overhanging	Organic debris	Vascular Macrophytes / Instream / Overhanging	None
60	60	/	10	30 / 30 / 70	/	/ / /	/

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	70	/	/	30
Predominant Species	algae on rocks	water speedweed	/	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	✓	/	/

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
	/	Shoredwell	/

POTENTIAL ENHANCEMENT OPPORTUNITIES:

- Garbage clean up
- culvert undersized
- remove woody debris

COMMENTS:

- cedar wetland → cedar wetland → wetland
- run → riffle
- → side tnb input @ ~ 153 m from SW
- → braiding channel through cedar ds of bridge at 155
- → substrate change to sand at ~ 155m
- & undercut presence increases presence further dls
- permanent coldwater
- → Temp difference after confluence of side channel (+2°C)

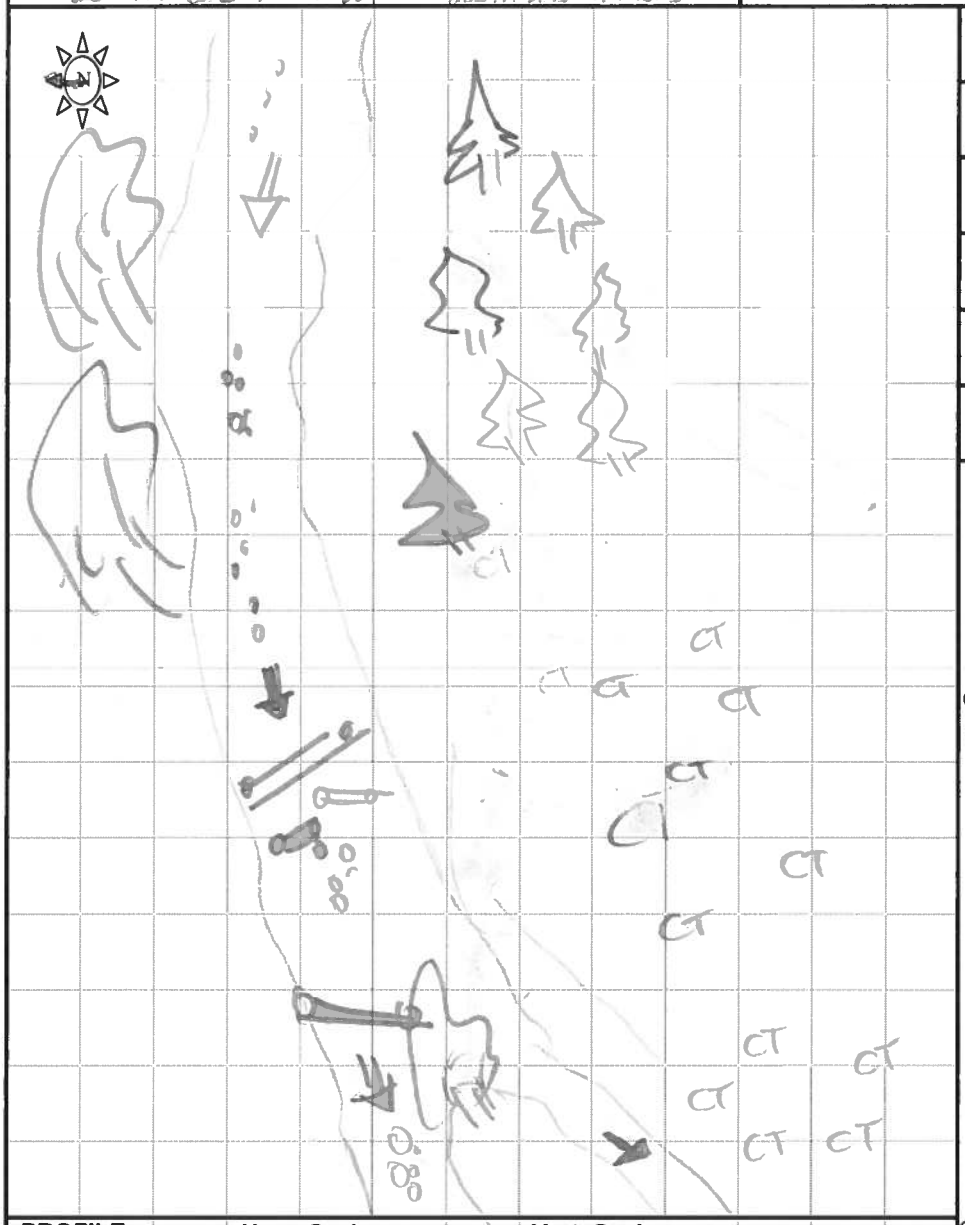
- encountered private property at end of 200m dls transect

Additional Notes Appended? O No O Yes number of pages _____

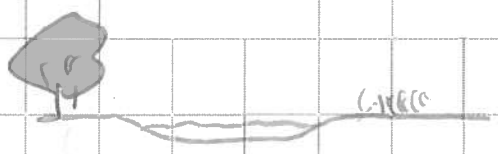
- undercut

covered section
17.2 °C
Cond - 1.15 mS
pH - 8.23

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
200m ds H6-2-DS	200m ds Hanbal's	150m	



PROFILE: Horz. Scale: Vert. Scale:



PROJECT #: 6054167

MAPPER: E. Ratajczyk

NAME OF WATERBODY:

CROSSING #:

STATION #:

DATE: DD-MMM-YY 17-May-18

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
//////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	401 & Hanlon	25	May	2018

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
AB, ER, AA	clear, light wind	09:50	

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
23		

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
unnamed			Hanlon #2 DS

LOCATION OF CROSSING: Hanlon Pkwy @ College

GPS COORDINATES:	MTO CHAINAGE:
17T 0560664 4810736	
TOWNSHIP: Guelph	**MNR DISTRICT:** Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Residential	overland flow

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ☒	N/A O

Other O Describe: | Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	☒	O	O	☒	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						
Mean depth wetted (m)			DRY			
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	**Undercut banks**	**Boulders**	**Cobble**	**Woody Debris** **Instream** **Overhanging**	**Organic debris**	**Vascular Macrophytes** **Instream** **Overhanging**	**None**

SHORE COVER (% stream shaded):	**100 – 90 %**	**90 – 60%**	**60- 30%**	**30 – 1%**	**None**
	O	O	O	O	O

VEGETATION TYPE (%):	**Submergent**	**Floating**	**Emergent**	**None**
Predominant Species				

MIGRATORY OBSTRUCTIONS:	**None**	**Seasonal**	**Permanent**
POTENTIAL CRITICAL HABITAT LIMITING:	**Spawning**	**Evidence of Groundwater**	**Other**

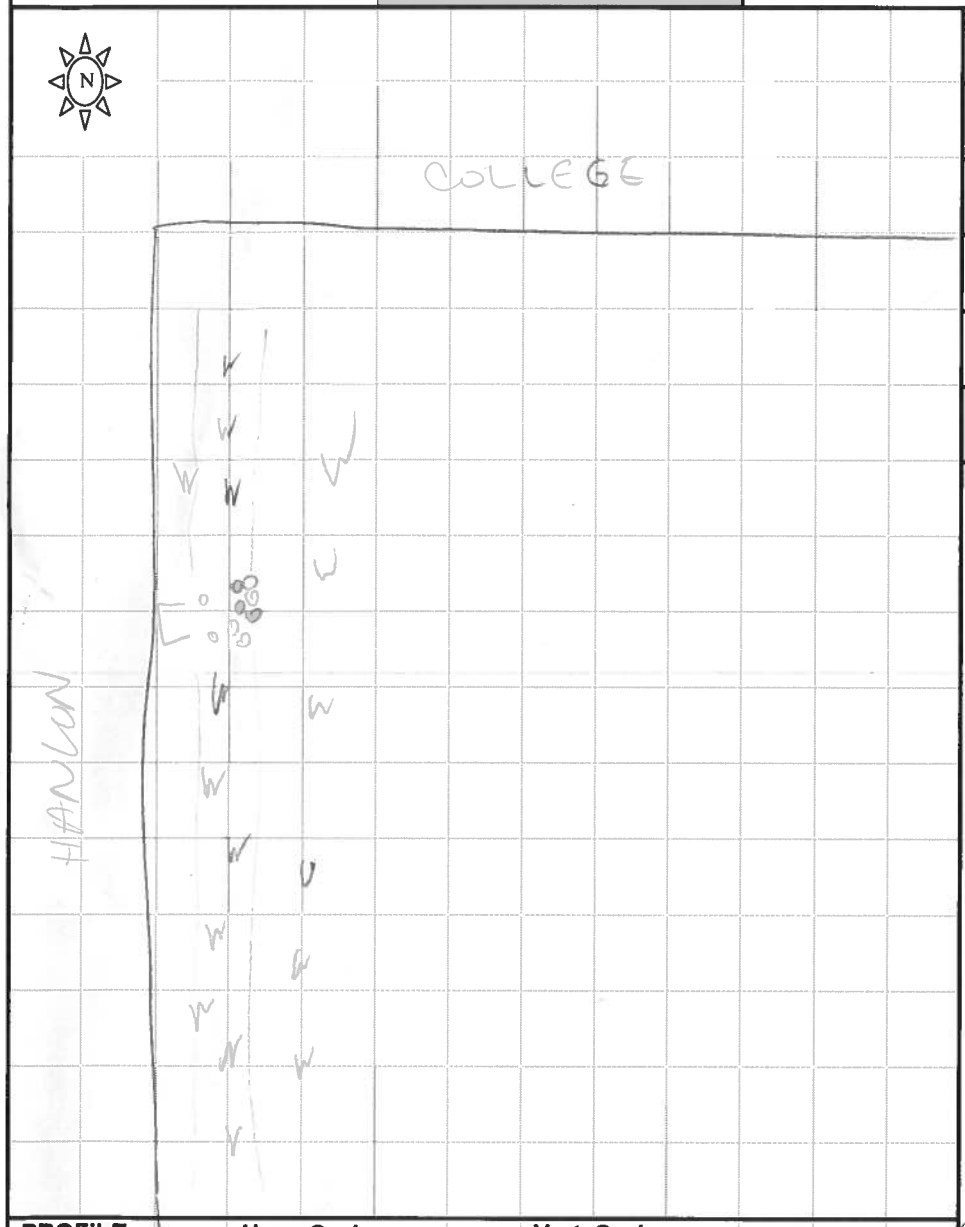
POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

- drainage conveyance channel adjacent to Hanlon Pkwy; CSP under Hanlon
- DRY at time of assessment; does not appear to hold water (terrestrial vegetation growing in channel)
- no u/s CSP on other side of Hanlon → draining from grate in median

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #: 60541071

MAPPER:

NAME OF WATERBODY: unnamed

CROSSING #:

STATION #: 401-6-Hanlan #2

DATE: DD-MMM-YY 25 May 2018

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60591071	401/6	25	MAY	2018

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
DB, AA, ER	Clear	1030	

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
25.		

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:
Hanlons Creek			

LOCATION OF CROSSING: Hanlon #3 DS

GPS COORDINATES:	MTO CHAINAGE:
17T 0561610 4817199	
TOWNSHIP: Guelph	**MNR DISTRICT:** Guelph

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Residential urban meadow mixed forest.	-Overland flow -drainage channels into culvert

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert ☒	CSP O	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area		30		70		
Mean depth wetted (m)		0.4		0.3		
Mean width wetted (m)		10		5		
Mean bankfull width (m)		10		5		
Mean bankfull depth(m)		0.7		0.7		
Substrate		Si Sa		gr Sa Co Si		

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	0	0	20	Instream 30 Overhanging 40	—	Instream 10 Overhanging	—

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	~~O~~	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	algae			
Predominant Species	100			

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	—	—	—

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other
		✓ upwellings	

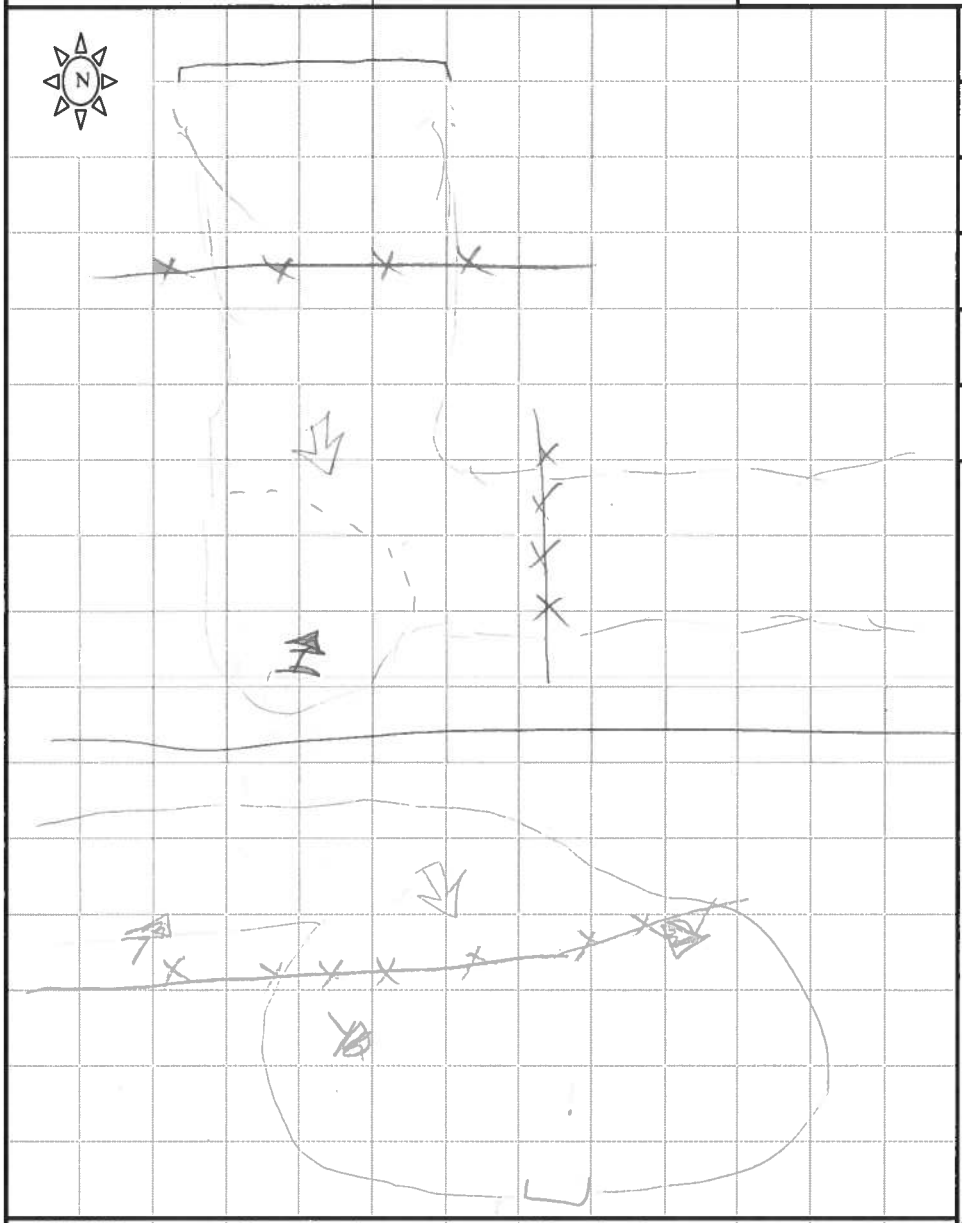
POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

cyprinid school observed.
permanent WC with significant groundwater input (visible upwellings); undersized private culvert under driveway at ~70 m d/s causing WC to back up and deposit sediment

Additional Notes Appended? O No O Yes **number of pages** _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #:

MAPPER:

NAME OF WATERBODY:

CROSSING #:

STATION #: Hanlon #3 DS

DATE: DD-MMM-YY

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⌴ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:

AIR TEMP: 28	WATER TEMP: 17.2	CONDUCTIVITY (µS/cm): 1.17mS pH 8.4

PHOTO NUMBERS AND DESCRIPTIONS:

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: Hanlon #3 US

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
	overland

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe:

Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area		90	10			
Mean depth wetted (m)		—	0.3			
Mean width wetted (m)		30.0	5			
Mean bankfull width (m)		30	15			
Mean bankfull depth(m)		—	0.5			
Substrate		Si Gr	Si Gr Co			

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

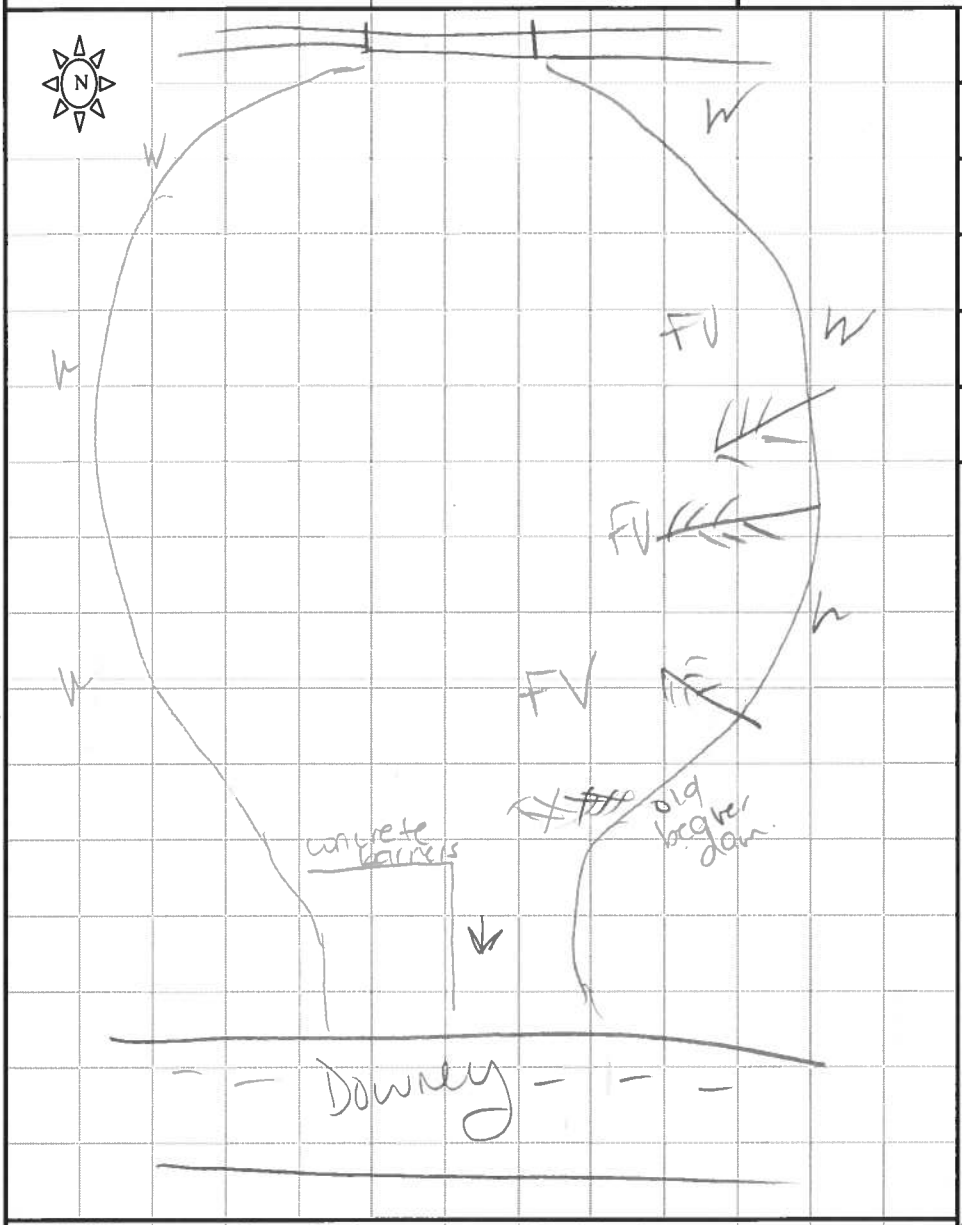
POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

groundwater pond draining under Downey Rd
significant upwellings
cyprinids observed.
~100m u/s there is small pedestrian bridge limiting flow from WC u/s

Additional Notes Appended? O No O Yes number of pages_____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE: **Horz. Scale** **Vert. Scale**

PROJECT #: 60541071

MAPPER:

NAME OF WATERBODY:

CROSSING #: Hanlon #3 US

STATION #: 401-6-

DATE: DD-MMM-YY -Aug-17

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▮ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
⊔ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
60541071	Fish habitat Assessment - Pond	18	October	2018

COLLECTORS:	TIME STARTED:	TIME FINISHED:
B. McGill E. Ratajczyk	09:40	

WEATHER CONDITIONS:	AIR TEMP (°C):	SURFACE CONDITIONS: N/A, no H2O			
		Calm	Rippled	Wavy	Rough
Overcast,	-1	O	O	O	O

PHOTO NUMBERS AND DESCRIPTIONS:
B. McGill Camera - See photo log.

LOCATION

NAME OF WATERBODY: 401/6 - S3

LOCATION OF STATION: —

GPS COORDINATES: POC: 570936 4811109 (UP: 70)	MTO CHAINAGE: —
TOWNSHIP: Morrison	MNR DISTRICT: —

LAND USE / TERRAIN AND POLLUTION

SURROUNDING LAND USE / TERRAIN:	SOURCES OF POLLUTION:
North → highway 401 South → Residential East → highway 6	Runoff from highway.

SECTION TYPE AND MORPHOLOGY

TYPE:	Large Lake	Small Lake	Pond	Reservoir	Dug-out
	O	O	O	O	O

Intermittent	Run-off	Spring-fed	Not Connected	By-pass	In-stream
Current dry. X	O	O	X	O	O

LAKE / POND DIMENSIONS:	Length (m)	Mean Width (m)
	~200m (E-W)	~120m (N-S).

WATER CHEMISTRY

WATER COLOUR:	Colourless	Yellow/brown	Blue/green	Other
	O	O	O	X

SECCHI DEPTH (m):	pH (as required):
N/A	N/A

CONDUCTIVITY (µS/cm):	Surface:	Bottom:
	N/A	N/A

DISSOLVED OXYGEN / TEMPERATURE PROFILE

Depth:	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Water Temperature (°C):	—	—	No	water	present				—	—	—
Dissolved Oxygen (mg/L):	(	—	—	—	—	—	—	—	—	—	)

Depth:	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	
Water Temperature (°C):	—	—	No	water	present				—	—	—
Dissolved Oxygen (mg/L):	(	—	—	—	—	—	—	—	—	—	)

Max Depth (m):	N/A	BOTTOM SUBSTRATE:	Mu(100%) heavily vegetated

Substrate:	Bedrock (Br)	Sand (Sa)	Silt (Si)	Clay (Cl)	Muck (Mu)	Marl (Ma)	Detritus (D)

BANK HABITAT

BANK COVER (% Surface area):	Undercut Banks	Boulders	Cobble	Woody Debris	Organic Debris	Vascular Macrophytes	None
	/	/	/	/	/	100%	/

NEAR SHORE SLOPE (%): 20-25% near Road - 30-35% along hwy 6 bank

SHORELINE SUBSTRATE (%):

Bedrock	Boulder	Cobble	Gravel	Sand	Silt	Clay	Muck	Marl	Detritus
							50%		50%

SHORE COVER (% Shaded):	100 – 90 %	89 – 60 %	59 – 30 %	29 – 1%	None
	0	0	0	X	0

IN-WATER HABITAT

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominate Species:	/	/	/	100%

UNDERWATER COVER (% Surface area):	Undercut Banks	Boulders	Cobble	Woody Debris	Organic Debris	Macrophytes	None
	/	/	/	/	/	/	100% No Hogweed

MIGRATORY OBSTRUCTIONS

None	Seasonal	Permanent
—	—	isolated pond, not connected

POTENTIAL ENHANCEMENT OPPORTUNITIES:

—

COMMENTS:

Transect WP: 71 → 76

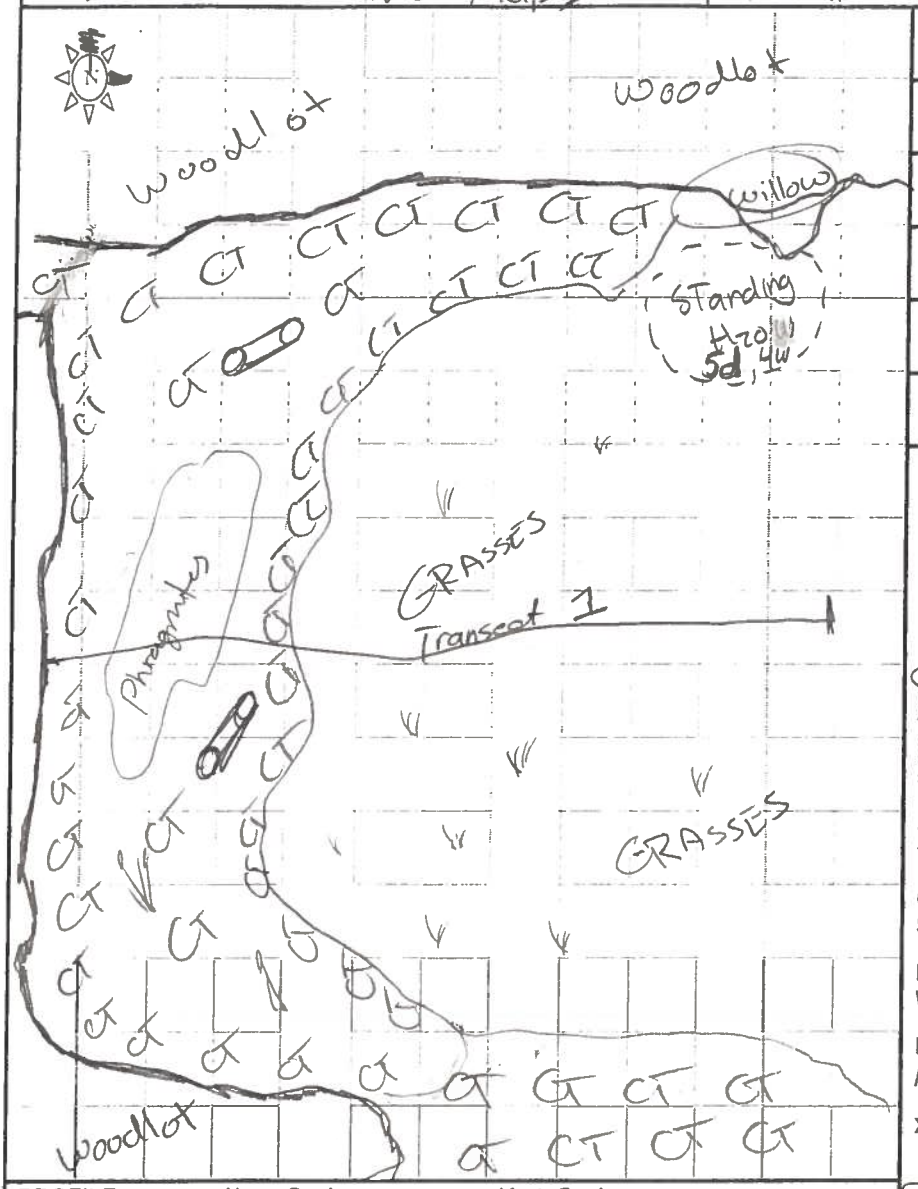
→ choked by cattails in center

- no water present at point of assessment → mapped habitat separated into 3 transects. far SW corner, N → SE corner and NW → NE transect
→ standing water @ NE and NW corners of assessed area. → 8°C [570914, 4811220 - UTM]
→ minnow traps set at NW standing water [ ]

Additional Notes Appended? o No X Yes number of pages 1 of 4

→ minnow traps fished 1.5hr after set
fish captured: NONE

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
West Section.	NW - Map 1	~ 137 m	



PROFILE: Horz. Scale Vert. Scale

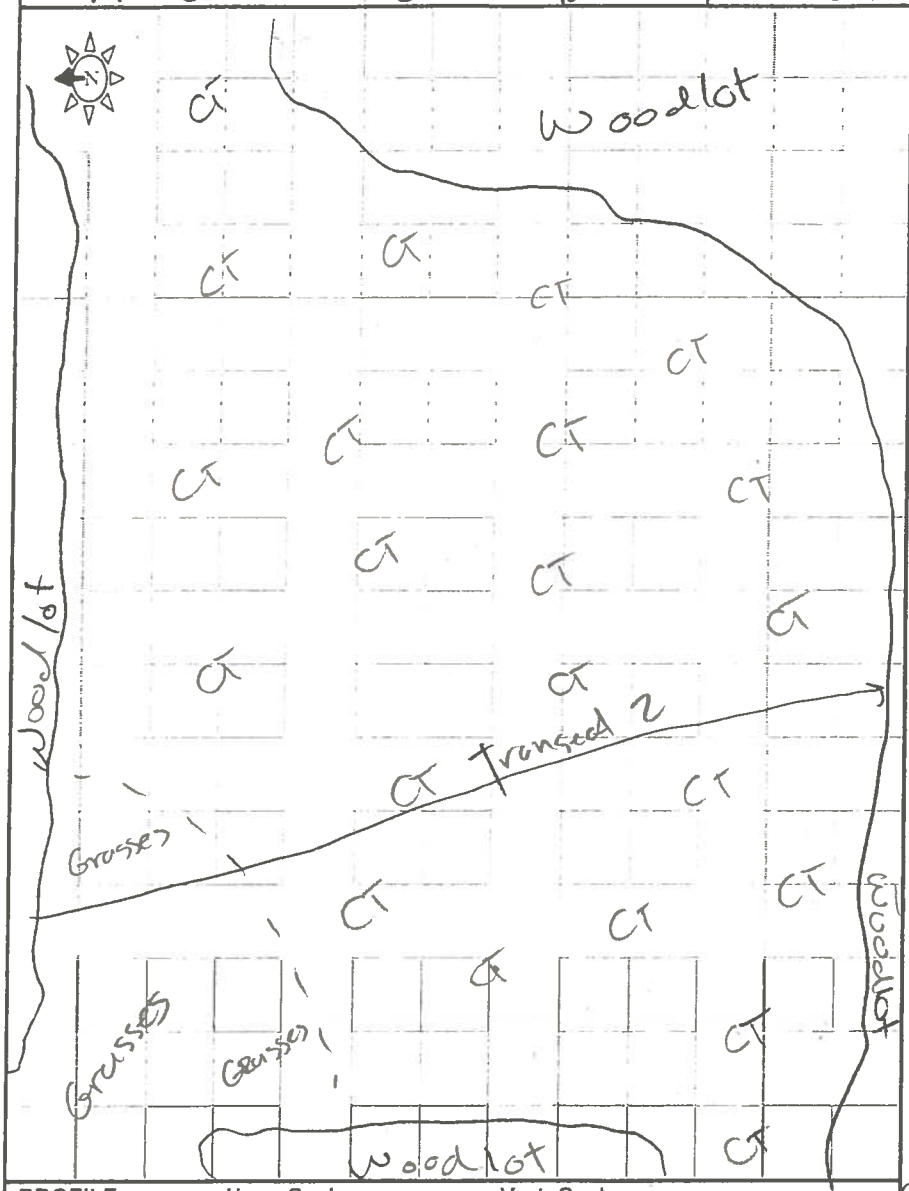
PROJECT #:	60541071
MAPPER:	E. Ratajczyk
NAME OF WATERBODY:	401 / 6-53
CROSSING #:	———
STATION #:	———
DATE: DD-MMM-YY	18-Oct-2018

LEGEND

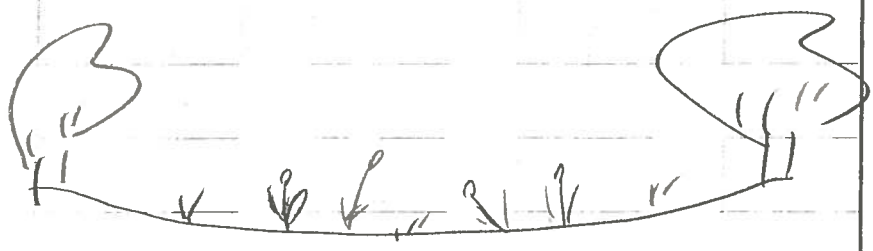
- V = Grasses
- 10d depth (cm)
- 6w width (m)
- ➡ Riffle
- ⇨ Run/Glide
- ⬭ Pool
- ▮ Island/Bar
- ⋰⋰ Fine Substrate
- ### Gravel Substrate
- oOooO Cobble /Boulder
- * * * Debris
- CT Cattail (V)
- SV/FV Submerg/Float Veg
- EV Emergent Vegetation
- W Watercress
- Fe Iron Staining
- /////// Eroded Bank
- XXX Riprap / Other Stabilization
- ⬭ Instream Log/Tree
- ^^^ Dam/Weir/Obstruction
- ® Riparian Tree
- ├► Seep/Spring
- -------- Undercut Bank
- — Barrier to Fish Movement
- -S- Seasonal Barrier
- -x--x- Fence line
- ⌴ Culvert

(WP71) Transect 1 Pt 1 570956 4811116
(WP 72) Transect 1 - Pt 2 570935 4811215

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
Mid Section	SE - Map 2	~120m.	



PROFILE: Horz. Scale Vert. Scale



PROJECT #: 60541071

MAPPER: E. Ratajczyk

NAME OF WATERBODY: 401 / 6 - 53

CROSSING #:

STATION #:

DATE: DD-MMM-YY: 18-Oct-18

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▓ Island/Bar

⁘ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

├► Seep/Spring
-------- Undercut Bank

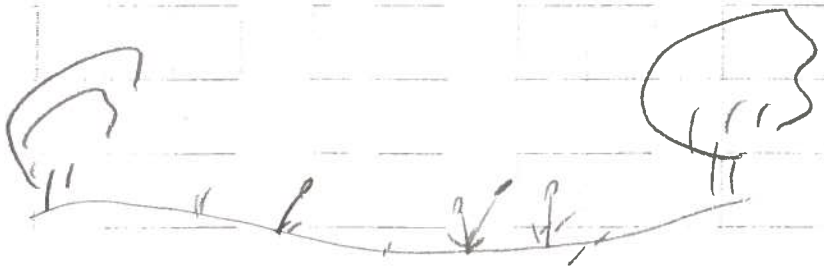
— Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

WP(73) Transect 2 POC: 570958 4811260
WP (74) POT: 571020 4811175

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
East Section	NE → map 3	~70m.	

PROFILE: Horz. Scale Vert. Scale



PROJECT #: 60541071

MAPPER: E. Ratajczyk

NAME OF WATERBODY: 401 16 -53

CROSSING #:

STATION #:

DATE: DD-MMM-YY: 18-Oct-18

LEGEND

- **10d** depth (cm)
- **6w** width
- ➡ Riffle
- ⇨ Run/Glide
- ⬭ Pool
- Island/Bar
- Fine Substrate
- **###** Gravel Substrate
- **oOooO** Cobble /Boulder
- *** * *** Debris
- **CT** Cattail
- **SV/FV** Submerg/Float Veg
- **EV** Emergent Vegetation
- **W** Watercress
- **Fe** Iron Staining
- **///////** Eroded Bank
- **XXX** Riprap / Other Stabilization
- Instream Log/Tree
- **^^^** Dam/Weir/Obstruction
- ® Riparian Tree
- ⊢► Seep/Spring
- **--------** Undercut Bank
- **—** Barrier to Fish Movement
- **-S-** Seasonal Barrier
- **-x--x-** Fence line
- Culvert

WP 75 Transect 3: POC: 570997 4811244

WP 76 POT: 571040 4811295

401/6 Pond Survey. — Date: Oct 18/18 ①
crew: BM/F.R.
weather: Overcast/cold. ~ 0°c
Frost overnight.

Tran 1 :

981 - Tran 1 Start.
82 - NW
83 - N
84 - E
85 - S.
86 - Ground.
} Start (POL).

87 - W
88 - N
89 - E
90 - S
91 - Ground
} Mid.

92 - W
93 - N
94 - E
95 - S
96 - Ground
} PST

// Small pool of Standing water in NE corner of pond
~ 4m x 4m. dimension, wetted
0.05 m wetted depth
photos 997 - 1000. - mush/detritus Subs.
1001 - 1006 - area Surrounding Standing water
- no veg.
1007 - inund N of Standing pool.
- berm.

②

Tran 2:

Photos 1008 - ~~E~~ Sheet
09 - ~~S~~ E
10 - ~~W~~ S
11 - ~~N~~ W
12 - N
13 - Ground
14 - E
15 - S
16 - W
17 - N
18 - Ground
19 - E
20 - S
21 - W
22 - N
23 - Ground

POC

Mid.

POT.

//

Tran 3:

Photos 1024 - N
25 - E
26 - S
27 - W
28 - Ground
29 - N
30 - E
31 - S
32 - W
33 - Ground
34 - N
35 - E
36 - S
37 - W
38 - Ground

Poc.
Mid.
POT.

1039 - 43 - veg free area in extreme NE + ground - dry.

11:55 BM. Photos 1044 - 45 13:29
11:57 ER 13:31
570914 ±3m
4811220

AECOM Imagine it. Delivered.

Appendix C

Photolog

Site 401-6-01: Highway 401 East, west of Highway 6 North at P044

Photograph 1. ↑
Overview of Site 401-6-01 downstream of 401 East.

Photograph 2. ↑
Overview of Site 401-6-01 upstream of 401 East.

Site 401-6-02: Highway 401 East, west of Highway 6 North at P045

Photograph 3. ↑
Overview of Site 401-6-02 downstream of 401 East.

Photograph 4. ↑
Overview of Site 401-6-02 upstream of 401 East.

Site 401-6-03: Highway 401 East, west of highway 6 North at P046, Hanlon #3.

Photograph 5. ↑
Overview of Site 401-6-03 downstream.

Photograph 6. ↑
Dense woody debris and standing water at 50 m downstream in Site 401-6-03.

Photograph 7. ↑
Overview of Site 401-6-03 upstream.

Photograph 8. ↑
Ground water spring feeding western channel of Site 401-6-03 upstream.

Site 401-6-04: Highway 401 East, west of highway 6 North at P036.

Photograph 9. ↑
Overview of Site 401-6-04 downstream of 401 East.

Photograph 10. ↑
Watercress in Site 401-6-04 downstream of 401 East. .

Photograph 11. ↑
Site 401-6-04 crossing upstream of 401 East; watercress and spawning substrates present.

Photograph 12. ↑
Overview of Site 401-6-04 upstream of 401 East.

Site 401-6-05: Highway 401 East at Highway 6 North off ramp at P048.

Photograph 13. ↑
Overview Site 401-6-05 crossing downstream of 401 East.

Photograph 14. ↑
Young of the year (YOY) fish in Site 401-6-05 downstream of 401 East; spawning substrates present.

Photograph 15. ↑
Overview of Site 401-6-05 upstream of 401 East.

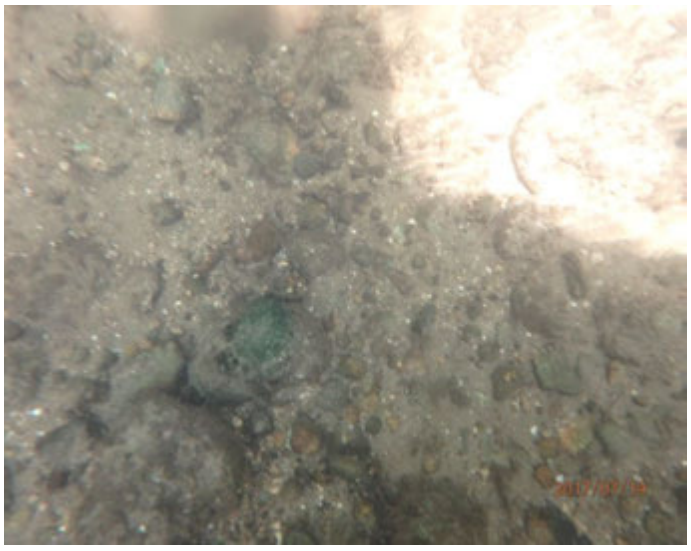
Photograph 16. ↑
Eroding banks in Site 401-6-05 upstream of 401 East.

Site 401-6-07: Aberfoyle/Mill Creek at Highway 401 West and Highway 6 North off ramp, P048

Photograph 17. ↑
Overview of Site 401-6-07 downstream 0-50 m.

Photograph 18. ↑
Watercress in Site 401-6-07 downstream.

Photograph 19. ↑
Overview of Site 401-6-07 upstream 0-50 m.



Photograph 20. ↑
Spawning substrate in Site 401-6-07 upstream.

Site 401-6-08:

Photograph 21. ↑
Overview Site 401-6-08 downstream of 401 West.

Photograph 22. ↑
Standing water in channel downstream of Site 401-6-08.

Photograph 23. ↑
Standing water in Site 401-6-08 upstream of 401 West; small-bodied fish observed.

Photograph 24. ↑
Dense cattails in Site 401-6-08 upstream of 401 West.

Site 401-6-09:

Photograph 25. ↑
Overview of Site 401-6-09 downstream of 401 East.

Photograph 26. ↑
Dense Phragmites in Site 401-6-09 downstream of 401 East.

Site 401-6-10:

Photograph 27. ↑
Overview of Site 401-6-10 downstream.

Photograph 28. ↑
Overview of Site 401-6-10 upstream.

Site 401-6-12:

Photograph 29. ↑
Overview of Site 401-6-12 downstream.

Photograph 30. ↑
Overview of Site 401-6-12 upstream.

Site 401-6-13:

Photograph 31. ↑
Overview of Site 401-6-13 downstream.

Photograph 32. ↑
Overview of Site 401-6-13 upstream.

Site 401-6-14:

	
Photograph 33. ↑ Overview of Site 401-6-14 downstream.	**Photograph 34.** ↑ Overview Site 401-6-14 upstream.

Site 401-6-15:

	
Photograph 35. ↑ Overview of Site 401-6-15 downstream.	**Photograph 36.** ↑ Overview of Site 401-6-15 upstream.

Site 401-6-16:

	
Photograph 37. ↑ Overview of Site 401-6-16.	**Photograph 38.** ↑ Substrate in assessed pond.

Site 401-6-17:

	
Photograph 39. ↑ Overview of Site 401-6-17 downstream.	**Photograph 40.** ↑ Overview of Site 401-6-17 upstream.

Site 401-6-18:

	
Photograph 41. ↑ Overview Site 401-6-18 downstream.	**Photograph 42.** ↑ Overview of Site 401-6-18 upstream.

Site 401-6-19:

	
Photograph 43. ↑ Overview Site 401-6-19 downstream.	**Photograph 44.** ↑ Overview of Site 401-6-19 upstream.