Appendix C

Field Notes

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA
↳ No access
↳ No pics
↳ No GPS

Station # 1-1
Watercourse Name unknown
Photos
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time :

Weather conditions in previous 24 hrs hot & humid ~32°C +
GPS Coordinates (Zone) 17T E N Datum Nad83
Descriptive Location N of Railline and Greenlane, west of Andrews Court

Water Quality

no access

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.3 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100 % , early
Adjacent Land Use
orchard

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
?
Migratory Obstructions (seasonal, permanent)
?
Note any fish observations no access

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. no access, seen from a distance

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Stantec

RFA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Station # 2-1
Watercourse Name unknown
Photos ✓
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Veene, K. Clayton
Time 10:35

Weather conditions in previous 24 hrs hot & humid ~32°C+
GPS Coordinates (Zone) 17T E 621730 N 4781286 Datum Nad83
Descriptive Location off of Kings Street, East of Thirty Rd

Water Quality
Dissolved Oxygen (mg/L) ______ pH ______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 25°C
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology
Mean Watercourse Width ______ (m) Maximum Pool Depth ______ (cm)
Mean Bankfull Width 3.5 (m) Mean Water Depth ______ (cm)
______ % Riffle ______ % Pool ______ % Run ______ % Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)
______ Bedrock 40 Cobble ______ Sand 40 Silt ______ Muck
20 Boulder ______ Gravel ______ Clay ______ Marl ______ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
(Overhanging Vegetation) (Woody Debris) Boulder Other ______

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
75%, trees, mature
Adjacent Land Use
residential, bushlot, roads.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
dry - perched culvert
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ______ Grassed Swale ______ Buried Tile ______
Surficial Drainage (i.e. furrows) ______ Dugout Pond ______ Dominated by Aquatic Veg ______ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Channel is defined - has boulders & cobble. overhanging veg is sumac, walnut, sugar maple, manitoba maple, grape.

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Outside Project Loc'n Aug 26 mp. REA X

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 2-2 | Project Name Niagara Wind
Watercourse Name unknown | Project # 160958269
Photos | Field Staff J. Keene, K. Claytor
Date June 22/12 | Time 10:46
Weather conditions in previous 24 hrs hot & humid, ~32°C+
GPS Coordinates (Zone) 17T E 622067 N 4781132 Datum Nad83
Descriptive Location

Water Quality
Dissolved Oxygen (mg/L) 8.00 pH 8.70 Conductivity (µS/cm) 835
Water Temperature (°C) 20.10 Air Temperature (°C) 25°C
Time *in situ* measurements taken 10:46

Watercourse Dimensions & Morphology
Mean Watercourse Width 1 (m) Maximum Pool Depth 0.20 (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth 0.15 (cm)
50 % Riffle 30 % Pool 20 % Run % Flat
Evidence of eroding banks, Comments on bank stability

Substrate (% cover)

Bedrock 50	Cobble	Sand 20	Silt	Muck	
20 Boulder 10	Gravel	Clay	Marl	Detritus	

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha)
Overhanging Vegetation Woody Debris Boulder Other algal

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
75%, trees, mature
Adjacent Land Use
bush/lot, Road

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
fairly dry
Note any fish observations

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg Dry

Other Habitat Notes, Incidental Wildlife Observations, etc. a little trickle of water in channel. defined channel w lots of gravel & cobble. Shaded by jewelweed, walnuts & sugar maple. East side of Road is more open w rockpiles along bank w soil falling in & shaded by willow. green frog.

Field Notes Authored by K. Claytor Field Notes QA/QCed by ME

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA 27

Stantec

Station # 2-3
Watercourse Name unknown
Photos
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Veene, K. Clayton.
Time 10:55

Weather conditions in previous 24 hrs hot & humid ~32°C
GPS Coordinates (Zone) 17T E 622300 N 4781050 Datum Nad83
Descriptive Location off of King Street, east of 2-2

Water Quality - dry

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology - dry

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock	50 Cobble	_____ Sand	40 Silt	_____ Muck	
10 Boulder	_____ Gravel	_____ Clay	_____ Marl	_____ Detritus	

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
75%, trees, mature
Adjacent Land Use
residential, Road

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging.
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. channel well defined w cobble & boulders, shaded by sumac, grape, Virginia Creeper, maples

Field Notes Authored by K. Clayton Field Notes QA/QCed by MF

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 3-1
Watercourse Name unknown
Photos
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 11:19

Weather conditions in previous 24 hrs hot & humid ~32°C
GPS Coordinates (Zone) 17T E 622156 N 4780325 Datum Nad83
Descriptive Location Off of Mountainview Road, North of McLeod Rd

Water Quality - Dry

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 4 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover) - all vegetated

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Typha Phragmites)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
85%, Typha, early
Adjacent Land Use
grape vine orchard, woodlot, Road

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent) dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. REA has deep defined channel along Road, dominated by Typha & Phragmites, on West side of Mountainview, channel flows into forest. Shaded by Willow, maple, grape etc.

Field Notes Authored by K Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 3-2
Watercourse Name unknown
Photos see photo log
Date June 22/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Veene, K. Clayton
Time 11:33

Weather conditions in previous 24 hrs hot & humid ~32°C+
GPS Coordinates (Zone) 17T E 622170 N 4779879 Datum Nad83
Descriptive Location off of Mountain View Rd, NW of McLeod Street.

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) Dry Air Temperature (°C) 25°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 3 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble 20 Sand 50 Silt _____ Muck
_____ Boulder _____ Gravel 10 Clay _____ Marl 20 Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

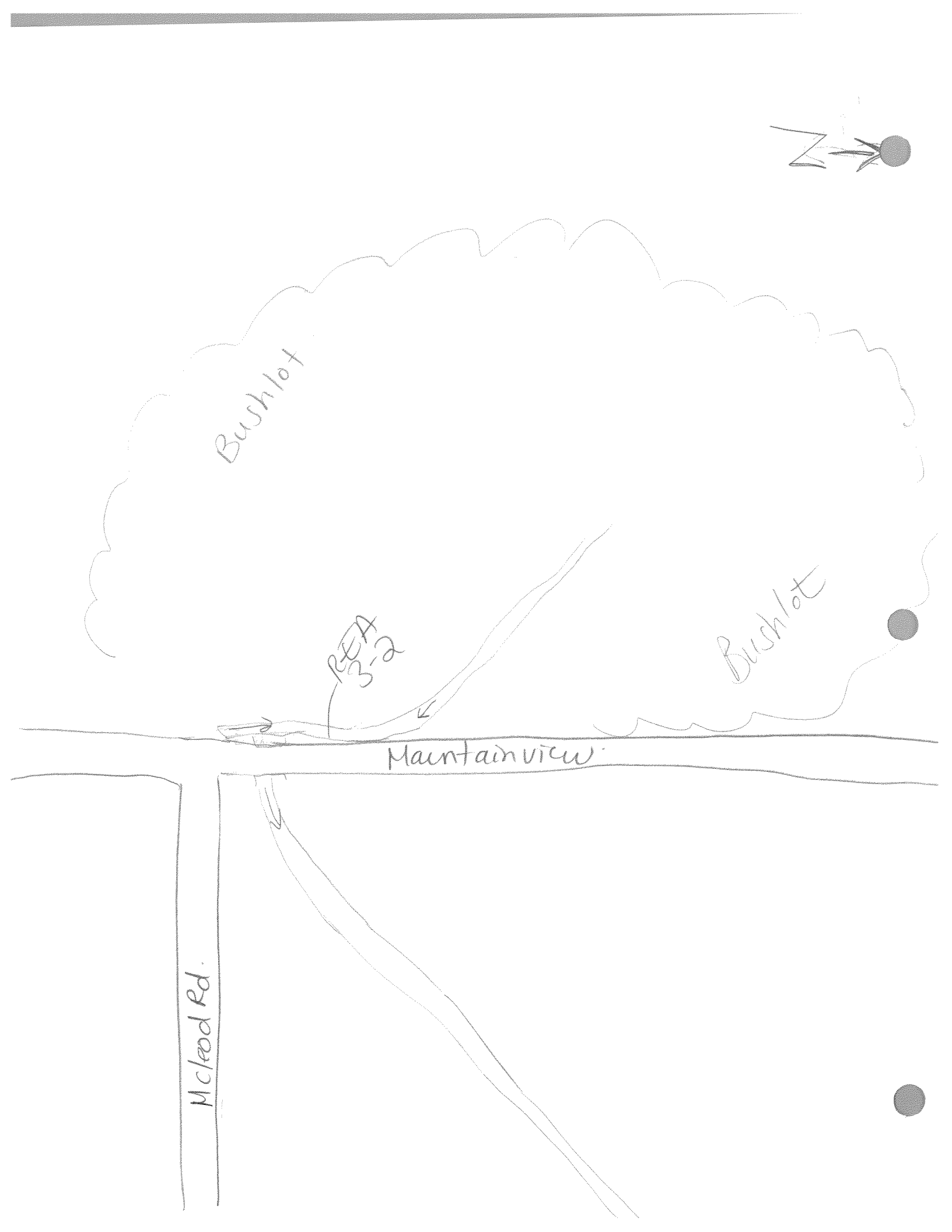
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, trees, mature
Adjacent Land Use
bushlot, Road

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry - perched culvert - extreme slope
Note any fish observations _____

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. channel is shallow, W grape, maple; Sumac surrounding it.

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME


Bushlot
REA
3-2
Bushlot
Maintain view
McLeod Rd.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 3-3
Watercourse Name unknown
Photos see photo log
Date June 22/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 12:00
Weather conditions in previous 24 hrs Hot & humid, >32°C +
GPS Coordinates (Zone) 17T E 622189 N 4779381 Datum Nad83
Descriptive Location off of Mountain View Rd, South of 2-2

Water Quality No water
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

	Bedrock		Cobble	10	Sand	50	Silt		Muck
	Boulder	10	Gravel	30	Clay		Marl		Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Typha, horsetail)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
95%, Typha, early
Adjacent Land Use
Residential, Road, garden nursery

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent) dry
Note any fish observations _____

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Channel is defined however, possibly due to garden center next door creating a berm next to it. Dominated by Typha. On East side it's a potentia REA, on West side its hot.

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

REA on west side
non-REA 3/gravel road on East side

Station # 4-1
Watercourse Name unknown
Photos see photo log
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J.Keene, K Clayton
Time 12:12.

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 622208 N 4778942 Datum Nad83
Descriptive Location Off of Mountainview Rd. South of 3-3.

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25°C.
Time *in situ* measurements taken _____

Dry
west side

Watercourse Dimensions & Morphology
Mean Watercourse Width 2 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock	_____ Cobble	_____ Sand	80 Silt	_____ Muck
_____ Boulder	_____ Gravel	_____ Clay	Marl 20	_____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
15% typha, easly
Adjacent Land Use
grape vines

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes
Natural Watercourse ✓ west side Trapezoidal Channel ✓ Grassed Swale ✓ on East side Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ East side Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Small, shallow channel w aquatic veg (Typha). - Water flowing on west side, wet dry on east. West side is in a bushlot w Virginia Creeper, Sumac, Walnut & grape.

Field Notes Authored by K. Clayton. Field Notes QA/QCed by ME

No longer in Project Loc'n MP.

REA X

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 5-1
Watercourse Name unknown
Photos
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K clayton
Time 10 : 15

Weather conditions in previous 24 hrs Hot & humid, >32°C+
GPS Coordinates (Zone) 17T E 620602 N 4797419 Datum Nad83
Descriptive Location off of Ridge Road East, west of Thirty Rd

Water Quality

Dissolved Oxygen (mg/L) - Dry pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 25°C
Time *in situ* measurements taken

Watercourse Dimensions & Morphology

Mean Watercourse Width (m) Maximum Pool Depth (cm)
Mean Bankfull Width 10 (m) Mean Water Depth (cm)
% Riffle % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability

Substrate (% cover)

100 Bedrock Cobble Sand Silt Muck
Boulder Gravel Clay Marl Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (RCG)
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
45%, RCG, early
Adjacent Land Use
Residential, Road

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. • deep, defined channel.
Bedrock on South side of Rd, cobble/boulder on North side of Road & completely forested (100% shaded). South side open.
↳ North side has sumac, Virginia Creeper, Walnuts, riverbank grape

Field Notes Authored by K clayton Field Notes QA/QCed by ME

No longer in Project Loc in MP

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 5-2
Watercourse Name unknown
Photos
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J Keene, K Clay
Time 10:21

Weather conditions in previous 24 hrs hot & humid ~32°C+
GPS Coordinates (Zone) 17T E 620937 N 4780534 Datum Nad83
Descriptive Location off of Thirty Rd, N of Elmtree Rd & Valentino Rd

Water Quality

Dry

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock	50 Cobble	_____ Sand	40 Silt	_____ Muck
10 Boulder	_____ Gravel	_____ Clay	_____ Marl	_____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Typha)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50%, trees, mature
Adjacent Land Use
bushlot, orchard, Road

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
dry - perched culvert & steep slope
Note any fish observations _____

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. deep, defined channel in Typha - has cobble & boulders as substrate w underlying silt
Channel goes through grape vine orchard & flows in bushlot
portion of channel first goes through bushlot - surrounded by Basswood, walnut, Sumac, riverbank grape etc - very steep - on bedrock

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

•SD on west side of Thirty Rd. •Not REA or east side m.p.

Station # 6-1
Watercourse Name unknown
Photos —
Date June 22/12.
Weather conditions in previous 24 hrs Hot & humid, ~32°C
GPS Coordinates (Zone) 17T E 620348 N 4779250 Datum Nad83
Descriptive Location off of Thirty Rd, North of Kemp Rd East

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 9:48

Water Quality

Dry

Dissolved Oxygen (mg/L) ______ pH ______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 25°C
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology

Mean Watercourse Width ______ (m) Maximum Pool Depth ______ (cm)
Mean Bankfull Width 10 (m) Mean Water Depth ______ (cm)
______ % Riffle ______ % Pool ______ % Run ______ % Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)

______ Bedrock ______ Cobble ______ Sand ______ Silt ______ Muck
______ Boulder ______ Gravel ______ Clay ______ Marl ______ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress **(Aquatic Veg)** – RCG
(Overhanging Vegetation) Woody Debris Boulder Other ______

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Adjacent Land Use
Soy, pasture, grape vines

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Migratory Obstructions (seasonal, permanent)

Note any fish observations ______

Waterbody Notes

Natural Watercourse ______ Trapezoidal Channel ______ Grassed Swale ✓ (m.p.) Buried Tile ______
Surficial Drainage (i.e. furrows) ✓ (west) Dugout Pond ______ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Reed canary grass corridor
• no real connection w/ culvert – lawn cut
• East side doesn't have much channel definition but RCG has a distinct corridor. ↳ other than @ culvert m.p.

Field Notes Authored by K. Clayton Field Notes QA/QCed by MF

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 8-1
Watercourse Name unknown
Photos ✓
Date June 22/12
Project Name Niagara Wind
Project # 160950269
Field Staff J. Keene, K. Clayton
Time 9:14
Weather conditions in previous 24 hrs hot & humid ~32°C
GPS Coordinates (Zone) 17T E 622015 N 4769769 Datum Nad83
Descriptive Location Off of Thirty Rd, ~800m N of Young & south of Mud Street

Water Quality — no water

Dissolved Oxygen (mg/L) ______ pH ______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 25°C
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology

Mean Watercourse Width 3 (m) Maximum Pool Depth ______ (cm)
Mean Bankfull Width 1.5 (m) Mean Water Depth ______ (cm)
______ % Riffle ______ % Pool ______ % Run ______ % Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)

______ Bedrock ______ Cobble ______ Sand 40 Silt ______ Muck
______ Boulder 10 Gravel 50 Clay ______ Marl ______ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks (circled) Deep Pool Watercress Aquatic Veg (circled; Typha, RCG)
Overhanging Vegetation (circled) Woody Debris Boulder Other ______

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100% → trees, mature

Adjacent Land Use
soy, woodlot

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging

Migratory Obstructions (seasonal, permanent)
dry

Note any fish observations —

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ______ Grassed Swale ______ Buried Tile ______
Surficial Drainage (i.e. furrows) ______ Dugout Pond ______ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. REA waterbody that follows the bushlot w/ a defined channel, undercut banks & dominated by aquatic vegetation

Field Notes Authored by K. Clayton Field Notes QA/QCed by WE


Bushlot
REA
8-1
Thirty Rd
N

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

REA
- Mac naturalized on west side of Rd
- channelized - dam by culvert

Station # 9-1
Watercourse Name unknown
Photos
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 13:20

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 619250 N 4775456 Datum Nad83
Descriptive Location off of Rd 14 - north of Smithville, north of Youngstreet (1st crossing north of Young)

Water Quality Dry
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30+°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m)
Mean Bankfull Width 5-7 (m)
Maximum Pool Depth _____ (cm)
Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (+typha - RCG)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, typha, early
Adjacent Land Use
farmland, soy

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
potential spawning in spring
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes
Natural Watercourse ✓ (on west side) Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Non-REA

MP

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 11-1
Watercourse Name unknown
Photos
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff J Keene, K Clayton
Time 13:50

Weather conditions in previous 24 hrs hot+humid
GPS Coordinates (Zone) 17T E 617710 N 4773937 Datum Nad83
Descriptive Location off South Grimsby 4 Rd, North of Rail Line

Water Quality

-dry

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, typha, early
Adjacent Land Use
Ag

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings) _____
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____
does not qualify as intermittent stream

Field Notes Authored by K Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 11-2 (trib of Bonnie Creek)
Watercourse Name unknown
Photos
Date June 20/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Veen, K. Clayton
Time 13:55
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 617614 N 4773444 Datum Nad83
Descriptive Location off of S. Grimsby Rd 5, S of Rail Rd tracks - no access

Water Quality
Dissolved Oxygen (mg/L) 7.21 pH 8.58 Conductivity (µS/cm) 1253
Water Temperature (°C) 28.30 Air Temperature (°C) 30 °C
Time *in situ* measurements taken 14:07

Watercourse Dimensions & Morphology
Mean Watercourse Width 10 (m) Maximum Pool Depth 150 (cm)
Mean Bankfull Width ~15 (m) Mean Water Depth 80-100 (cm)
____% Riffle ____% Pool 100 % Run ____% Flat
Evidence of eroding banks, Comments on bank stability a few undercuts, looks mostly stable - vegetated banks

Substrate (% cover)
____ Bedrock ____ Cobble ____ Sand 50 Silt ____ Muck
____ Boulder ____ Gravel 50 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (vellow water lily, duckweed)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
40% trees, mature
Adjacent Land Use
forest

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
~~permanent~~ n/l.
Note any fish observations

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.
• turbid, clay marl
• Giant floater mussle
• leopard frog • Killdeer

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Non REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 12-1
Watercourse Name unknown
Photos
Date June 20/12.
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. clayton
Time 14:20
Weather conditions in previous 24 hrs hot & humid.
GPS Coordinates (Zone) 17T E 616608 N 4773130 Datum Nad83
Descriptive Location off of S. Grimsby Rd 6, 5th of 20 mile Creek.

Water Quality - dry
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
say, wheat.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 13-1
Watercourse Name unknown
Photos
Date June 20/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 14:30
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 616302 N 4772029 Datum Nad83
Descriptive Location off of S. Grimsby Rd 6, N of Smithville Rd

Water Quality - dry
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C +
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width ~5 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg RCG Marsh marigold
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, grasses, early
Adjacent Land Use
Cropland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
in spring - potential spawning
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. clayton Field Notes QA/QCed by ME

NONREA
• shallow depression full of Aquatic veg • no defined banks

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 13-2 | Project Name Niagara Wind
Watercourse Name unknown | Project # 160958269
Photos ✓ | Field Staff J. Keene, K. Clayton
Date June 20/12 | Time 14:48
Weather conditions in previous 24 hrs hot + humid
GPS Coordinates (Zone) 17T E 617082 N 4777895 Datum Nad83
Descriptive Location off of Tober Road, south of Smithville Rd

Water Quality

– no water

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width ~3m (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

willow sedges RCG typha

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, typha, early
Adjacent Land Use
Residential, say, woodlot to N

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse MP. Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 13-3 Project Name Niagara Wind
Watercourse Name unknown Project # 160958269
Photos / Field Staff J. Keene, K. Clayton
Date June 20/12 Time 14:50
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 617095 N 4771275 Datum Nad83
Descriptive Location off of Tober Rd, sat hof Smithville Road, South of 13-2

Water Quality
Dissolved Oxygen (mg/L) 13.04 pH 8.45 Conductivity (µS/cm) 2884
Water Temperature (°C) 23.06 Air Temperature (°C) 30°C+
Time *in situ* measurements taken 15:00

Watercourse Dimensions & Morphology
Mean Watercourse Width 3 (m) Maximum Pool Depth 0.50 (cm)
Mean Bankfull Width 12 (m) Mean Water Depth 0.30 (cm)
____% Riffle ____% Pool 100 % Run ____% Flat
Evidence of eroding banks, Comments on bank stability ____

Substrate (% cover)
____Bedrock ____Cobble 10 Sand 40 Silt ____Muck
____Boulder ____Gravel 50 Clay ____ Marl ____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha cattails duckweed REG.)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
5%, typha, early
Adjacent Land Use
soy

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
~~permanent~~
Note any fish observations unknown 'pin-head' YOYs.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. Redwing BB.
- frogs - green.

Field Notes Authored by K. clayton Field Notes QA/QCed by ME

NON REA ↳SD

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 14-1
Watercourse Name unknown
Photos /
Date June 21/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene & K. Clayton
Time 9:04

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 617914 N 4771498 Datum Nad83
Descriptive Location off of Port Davidson Rd, south of Smithville Rd

Water Quality – no water

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
Ag
_____

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
dry
_____
Note any fish observations _____
_____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —
_____
_____
_____

Field Notes Authored by K. Clayton. Field Notes QA/QCed by ME

Non-REA
- driven through

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 15-1
Watercourse Name unknown
Photos
Date June 20/12.
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 15:19
Weather conditions in previous 24 hrs hot & humid.
GPS Coordinates (Zone) 17T E 617109 N 4770819 Datum Nad83
Descriptive Location South of 13-3 on Tober Road, South of Smithville Road.

Water Quality – no water
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°c+
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
no shading - crops
Adjacent Land Use
hay field, crops.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Nan REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 15-2
Watercourse Name unknown
Photos /
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff J Keene, K Clayton
Time 15:27

Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 617130 N 4769921 Datum Nad83
Descriptive Location off of Tober Rd, N. of Sixteen Road

Water Quality - no water

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C+
Time *in situ* measurements taken

Watercourse Dimensions & Morphology

Mean Watercourse Width _____(m) Maximum Pool Depth _____(cm)
Mean Bankfull Width _____(m) Mean Water Depth _____(cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability

Substrate (% cover)

_____Bedrock _____Cobble _____Sand _____Silt _____Muck
_____Boulder _____Gravel _____Clay _____Marl _____Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
- Crops

Adjacent Land Use
Crops

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Migratory Obstructions (seasonal, permanent)
any

Note any fish observations —

Waterbody Notes

M.P.
Natural Watercourse_____ Trapezoidal Channel ___ Grassed Swale_____ Buried Tile_____
Surficial Drainage (i.e. furrows)_____ Dugout Pond_____ Dominated by Aquatic Veg_____ Dry_____

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. clayton Field Notes QA/QCed by ME

No longer in Proj. Locn m.p.

REA X

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 16-1
Watercourse Name unknown
Photos ✓
Date June 21/12.

Project Name Niagara Wind
Project # 160950269
Field Staff J. Keene, K. Clayton
Time 9:34

Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 617924 N 4770895 Datum Nad83
Descriptive Location facing West looking @ REA, off of Pat Davidson Rd

Water Quality
Dissolved Oxygen (mg/L) 5.89 pH 7.95 Conductivity (µS/cm) 3236
Water Temperature (°C) 23.3) Air Temperature (°C) 30°C
Time *in situ* measurements taken 9:39

Watercourse Dimensions & Morphology
Mean Watercourse Width 6 (m) Maximum Pool Depth <1m (cm)
Mean Bankfull Width 10 (m) Mean Water Depth 0.50 (cm)
____% Riffle ____% Pool 100 % Run ____% Flat
Evidence of eroding banks, Comments on bank stability all vegetated - fairly stable

Substrate (% cover)
____Bedrock ____Cobble 10 Sand 40 Silt ____Muck
____Boulder ____Gravel 50 Clay ____ Marl ____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha, RCG, hornwart)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
5% - RCG, early
Adjacent Land Use Corn

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
permanent
Note any fish observations lots of carp! - 6 big individuals

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. Heron

Field Notes Authored by K Clayton Field Notes QA/QCed by NE

& No Longer in Proj. Loc'n up X REA East side Non RE west side

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 16-2
Watercourse Name unknown
Photos —
Date June 21/12.
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 9:47
Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 617935 N 4770529 Datum Nad 83
Descriptive Location off of Port Davidson Rd, south of Smithville Rd, South of 16-1

Water Quality

– dry

Dissolved Oxygen (mg/L) ______ pH______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 30°C
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology

Mean Watercourse Width ______(m) Maximum Pool Depth ______(cm)
Mean Bankfull Width 1.5 (m) Mean Water Depth ______(cm)
______% Riffle ______% Pool ______% Run ______% Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)

______Bedrock ______Cobble 10 Sand 40 Silt ______Muck
______Boulder ______Gravel 50 Clay ______Marl ______Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress **(Aquatic Veg)** – RCG, Typha
(Overhanging Vegetation) – on east side of Road Woody Debris Boulder Other______

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0% on west side 20% on east side, RCG, early

Adjacent Land Use
farmland, soy.

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings) —

Migratory Obstructions (seasonal, permanent)
dry

Note any fish observations —

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ______ Grassed Swale______ Buried Tile______
Surficial Drainage (i.e. furrows) ✓ – on west side Dugout Pond______ Dominated by Aquatic Veg______ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. · SD on west side of PD. Road w no arr - could be plowed through. On east side it's a questionable REA (couldn't drive through, has aquatic veg, defined channel).

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

W:\resource\Internal Info and Teams\Aquatic Resources\Field Sheets\Stantec\Form 02 Wind Farm Waterbody Rapid Assessment Form.doc

No longer in Proj. Location

REA

X

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 16-3
Watercourse Name unknown
Photos
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, Kelly Clayton
Time 9:54

Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 617946 N 4769975 Datum Nad83
Descriptive Location off of Port Davidson Road, South of 16-2, North of Sixteen Rd

Water Quality

- no water

Dissolved Oxygen (mg/L) ____ pH ____ Conductivity (µS/cm) ____
Water Temperature (°C) ____ Air Temperature (°C) 30°C
Time *in situ* measurements taken ____

Watercourse Dimensions & Morphology

Mean Watercourse Width ____ (m) Maximum Pool Depth ____ (cm)
Mean Bankfull Width 3 (m) Mean Water Depth ____ (cm)
____ % Riffle ____ % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability ____

Substrate (% cover)

____	Bedrock	____	Cobble	20	Sand	40	Silt ____ Muck
____	Boulder	____	Gravel	40	Clay	____	Marl ____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg RCG
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, RCG, early
Adjacent Land Use
residential, farmland

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. narrow channel full of Reed Canary grass & a little typha - no water

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

West side of PDR → SD
east side → REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 18-1
Watercourse Name unknown
Photos
Date June 21/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 10:00
Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 617954 N 4769752 Datum Nad83
Descriptive Location off of Port Dawidson Rd, South of Sixteen Rd

Water Quality – no water
Dissolved Oxygen (mg/L) ____ pH ____ Conductivity (µS/cm) ____
Water Temperature (°C) ____ Air Temperature (°C) 30
Time *in situ* measurements taken ____

Watercourse Dimensions & Morphology
Mean Watercourse Width ____ (m) Maximum Pool Depth ____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth ____ (cm)
____ % Riffle ____ % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability ____

Substrate (% cover)
____ Bedrock ____ Cobble 10 Sand 40 Silt ____ Muck
____ Boulder ____ Gravel 40 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50% (east), typha, 10% (west), terrestrial scrub, early
Adjacent Land Use
Ag

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ (on east side.) Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ✓ (on west side.) Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. east side is dominated by aquatic veg, defined channel – not plowed through. on the west side of PDR, its more of a ISD ~~and drier through~~ & more terrestrial plants than aquatic. ME
* small section along Port Dawidson Rd by culvert on west side could be REA

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Non REA M.P.

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Station # 19-1
Project Name Niagara Wind
Watercourse Name unknown
Project # 160958269
Photos ✓
Field Staff J. Keane, K. Clayton
Date June 20/12.
Time 15:46
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 616727 N 4768421 Datum Nad83
Descriptive Location off of McCollum Rd, South of Sixteen Rd, N of Conc. 4.

Water Quality - dry
Dissolved Oxygen (mg/L) ______ pH ______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 30°C+
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology
Mean Watercourse Width ______ (m) Maximum Pool Depth ______ (cm)
Mean Bankfull Width ______ (m) Mean Water Depth ______ (cm)
______ % Riffle ______ % Pool ______ % Run ______ % Flat
Evidence of eroding banks, Comments on bank stability —

Substrate (% cover)
______ Bedrock ______ Cobble 40 Sand 10 Silt ______ Muck
______ Boulder ______ Gravel 50 Clay ______ Marl ______ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other ______

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
—

Adjacent Land Use
hay field.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—

Migratory Obstructions (seasonal, permanent)
dry

Note any fish observations —

Waterbody Notes
Natural Watercourse ______ Trapezoidal Channel ~~✓~~ M.P. Grassed Swale ______ Buried Tile ______
Surficial Drainage (i.e. furrows) ______ Dugout Pond ______ Dominated by Aquatic Veg ______ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. - see photos.
~~defined channel~~ M.P. · large areas of surficial drainage
· no aquatic veg.
~~· could be driven through~~

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

NOR REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 19-2
Watercourse Name unknown
Photos /
Date June 20/12
Project Name Niagara Wind
Project # 160958269
Field Staff J Keene, K Clayton
Time 15:59
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 617179 N 4767651 Datum Nad83
Descriptive Location off of Conc 4, east of McCollum Road

Water Quality - no water
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C+
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____(m) Maximum Pool Depth _____(cm)
Mean Bankfull Width _____(m) Mean Water Depth _____(cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____Bedrock _____Cobble _____Sand _____Silt _____Muck
_____Boulder _____Gravel _____Clay _____Marl _____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, forest (treed), mature (on southside), early on northside of road
Adjacent Land Use
forest, farmland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) —
Migratory Obstructions (seasonal, permanent) dry
Note any fish observations —

Waterbody Notes M.P.
Natural Watercourse N/A Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry —

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 19-3
Watercourse Name unknown
Photos
Date June 20/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keane, K. Clayton
Time 4:22 pm
Weather conditions in previous 24 hrs hot & humid.
GPS Coordinates (Zone) 17T E 616640 N 4767627 Datum Nad83
Descriptive Location off of conc 4, west of Port Davidson

Water Quality - no water
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2.5-3 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble 10 ✓ Sand 40 ✓ Silt _____ Muck
_____ Boulder _____ Gravel 50 ✓ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha, PCG)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
85% typha, grasses, early
Adjacent Land Use
farm land

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —
on south side of conc 4 channel is deeply incised - eroded banks. on north side of road it is heavily vegetated

Field Notes Authored by K. Clayton Field Notes QA/QCed by MF

REA.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 19-4
Watercourse Name unknown
Photos
Date June 20/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keane, K. Clayton
Time 4:31 pm

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 616320 N 4767608 Datum Nad83
Descriptive Location off of conc 4, west of McCollum Road

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha, reed)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, typha, early
Adjacent Land Use
residential, farmland.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____
deeply incised channel

Field Notes Authored by K. Clayton. Field Notes QA/QCed by NE

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 19-S
Watercourse Name unknown
Photos
Date June 20/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 4:46
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 617476 N 4767658 Datum Nad83
Descriptive Location off of conc 4

Water Quality – a little water pooled @ culvert - no YSI

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble 10 Sand 40 Silt _____ Muck
_____ Boulder _____ Gravel 50 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (typha - RCG) Overhanging Vegetation Woody Debris Boulder Other algae

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
45%, trees, mature
Adjacent Land Use
farmland (south side of conc 4)
forest (North side of conc 4)

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
possibly spawning, foraging, nursery
Migratory Obstructions (seasonal, permanent)
Seasonal
Note any fish observations —

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓ except @ culvert

Other Habitat Notes, Incidental Wildlife Observations, etc.

- leopard frogs
- green frogs
- on North side of road there is an online pond, on South side it is pooled @ culvert & then becomes dry
- breaks off into side channel.

Field Notes Authored by K. Clayton Field Notes QA/QCed by MF

reachosare REA's ~~East Side~~ ~~- Nor or west~~ MK.
~~• spot on west side near cult could be REA~~

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Station # 20-1
Watercourse Name unknown
Photos —
Date June 21/12

Project Name Niagara Wind
Project # 160950269
Field Staff J. Keene, K. Clayton
Time :

Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 618005 N 4768086 Datum Nad83
Descriptive Location off of Port Davidson Rd, South of 16 Road, South of 18-1

Water Quality – no water
Dissolved Oxygen (mg/L) ______ pH ______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 30
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology
Mean Watercourse Width ______ (m) Maximum Pool Depth ______ (cm)
Mean Bankfull Width ______ (m) Mean Water Depth ______ (cm)
______ % Riffle ______ % Pool ______ % Run ______ % Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)
______ Bedrock ______ Cobble 10 Sand 40 Silt ______ Muck
______ Boulder ______ Gravel 50 Clay ______ Marl ______ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress **(Aquatic Veg)** typha
(Overhanging Vegetation) Woody Debris Boulder Other ______

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, typha, early
Adjacent Land Use
hayfield

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes → on east side
Natural Watercourse ✓ Trapezoidal Channel ______ Grassed Swale ______ Buried Tile ______
Surficial Drainage (i.e. furrows) ✓ Dugout Pond ______ Dominated by Aquatic Veg ______ Dry ✓
→ on west side of Rd

Other Habitat Notes, Incidental Wildlife Observations, etc. • East side has a defined channel c̄ aquatic veg, can't drive through it. On the west side their is a portion near the culvert that is channalized however the channel disappears & the farmer has been driving through it – lots of typha throughout.

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

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REA.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 20-2
Watercourse Name unknown
Photos
Date June 21/12.

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. clayton
Time 10:47

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 618771 N 4767712 Datum Nad83
Descriptive Location off of Conc 4, east of Port Davidson Rd, east of old Railbed

Water Quality - no water.

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, RCG, Early
Adjacent Land Use
Oats, hay

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. — on south side of Conc 4 it is channelized & RCG in channel called a REA, on opposite side of Rd channel is not there even though mapped by MNR.

Field Notes Authored by K. clayton Field Notes QA/QCed by MF

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 22-1
Watercourse Name unknown
Photos
Date June 21/12
Weather conditions in previous 24 hrs Hot & humid
GPS Coordinates (Zone) 17T E 617747 N 4765865 Datum Nad83
Descriptive Location off of Port Davidson Road, just south of Silver Rd

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 13:27

Water Quality

Dissolved Oxygen (mg/L) 1.50 pH 8.19 Conductivity (µS/cm) 547
Water Temperature (°C) 24.25 Air Temperature (°C) 32°C
Time *in situ* measurements taken 13:30

Watercourse Dimensions & Morphology

Mean Watercourse Width 4 (m) Maximum Pool Depth 0.20 (cm)
Mean Bankfull Width 8 (m) Mean Water Depth 0.10 (cm)
____% Riffle ____% Pool 100 % Run ____% Flat
Evidence of eroding banks, Comments on bank stability stable - vegetated

Substrate (% cover)

____ Bedrock ____ Cobble 10 Sand 50 Silt ____ Muck
____ Boulder ____ Gravel 40 Clay ____ Marl ____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (duckweed, Water Plantain, typha)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
West side = <5%, RCG, early East = 35%, RCG, early
Adjacent Land Use farmland - wheat

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery & foraging
Migratory Obstructions (seasonal, permanent)
permanent
Note any fish observations fish coming to surface for air

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. heron
water very murky! lots of duckweed on East side of Pond

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

Non-REAZM

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 24-1
Watercourse Name unknown
Photos
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. clayton
Time 13:42

Weather conditions in previous 24 hrs Hot & humid, 32°C+
GPS Coordinates (Zone) 17T E 617763 N 4764866 Datum Nad83
Descriptive Location off of Vaughn Rd & Port Davidson intersecti
south of 22-1.

Water Quality

no water

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 1m (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

RCG

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100% RCG, Tree
Adjacent Land Use
Ag, road, residential

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. dominated by RCG.
* - shallow channel, but defined only for short reach M.P.
* - Channel @ Port Davidson Road is indistinct - RCG & typha corridor
↳ channel that 24-1 flows into

Field Notes Authored by K. Clayton Field Notes QA/QCed by MVE

REA 2M.1

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 23-1
Watercourse Name unknown
Photos
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff J.Keene, K.clayton
Time 14:05

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 616013 N 4764798 Datum Nad83
Descriptive Location off of Vaughn Road, west of 24-1

Water Quality

no water

Dissolved Oxygen (mg/L) ____ pH ____ Conductivity (µS/cm) ____
Water Temperature (°C) ____ Air Temperature (°C) 32°C
Time *in situ* measurements taken ____

Watercourse Dimensions & Morphology

- no real channel

Mean Watercourse Width ____ (m) Maximum Pool Depth ____ (cm)
Mean Bankfull Width ____ (m) Mean Water Depth ____ (cm)
____ % Riffle ____ % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability ____

Substrate (% cover)

____ Bedrock	____ Cobble	____ Sand	____ Silt	____ Muck
____ Boulder	____ Gravel	____ Clay	____ Marl	____ Detritus

In-water Cover

RCG

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, RCG, Early
Adjacent Land Use
Forest

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.

Reed canary grass right by road w a little channel definition, further on no channel (~10m)

Field Notes Authored by K.Clayton Field Notes QA/QCed by MC

- REA on south side
- Non REA on N side of conc

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 23-2
Watercourse Name unknown
Photos
Date June 21/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 14:19
Weather conditions in previous 24 hrs Hot & humid
GPS Coordinates (Zone) 17T E 614945 N 4765288 Datum Nad83
Descriptive Location off of Concession #3

Water Quality
Dissolved Oxygen (mg/L) 4.10 pH 8.18 Conductivity (µS/cm) 674
Water Temperature (°C) 23.82 Air Temperature (°C) 30°C+
Time *in situ* measurements taken 14:22

Watercourse Dimensions & Morphology
Mean Watercourse Width 0.5 (m) Maximum Pool Depth 0.15 (cm)
Mean Bankfull Width 1.5 (m) culvert Mean Water Depth 0.10 (cm)
% Riffle 5 % Pool 95 % Run % Flat
Evidence of eroding banks, Comments on bank stability Stable

Substrate (% cover)
Bedrock Cobble 10 Sand 40 Silt Muck
Boulder Gravel 50 Clay Marl Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (RCG) Overhanging Vegetation Woody Debris Boulder Other algae

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
95-100%, RCG, early
Adjacent Land Use
Ag

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
potential spawning
Migratory Obstructions (seasonal, permanent)
probably dries up in midsummer
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry

Other Habitat Notes, Incidental Wildlife Observations, etc. —
on N side of conc 3 it's a Non REA - SD
on S side it's a REA w/ defined channel, aquatic veg, & turbid water.

Field Notes Authored by K. Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 26-1
Watercourse Name unknown
Photos See photo Log
Date 2012 06 18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:07

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0617964 N 4763459 Datum NAD83
Descriptive Location On Elcho Rd ~ 70 m east of Port Davidson Rd.

Water Quality
Dissolved Oxygen (mg/L) 6.74 pH 8.03 Conductivity (µS/cm) 436
Water Temperature (°C) 22.93 Air Temperature (°C) 30°c
Time *in situ* measurements taken 14:11

Watercourse Dimensions & Morphology
Mean Watercourse Width 1.5 (m) Maximum Pool Depth ~65 (cm)
Mean Bankfull Width ~25 (m) flood pl. Mean Water Depth ~30 (cm)
____ % Riffle 100 % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

Bedrock	Cobble	Sand 40	Silt 40	Muck
Boulder	Gravel 20	Clay	Marl	Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

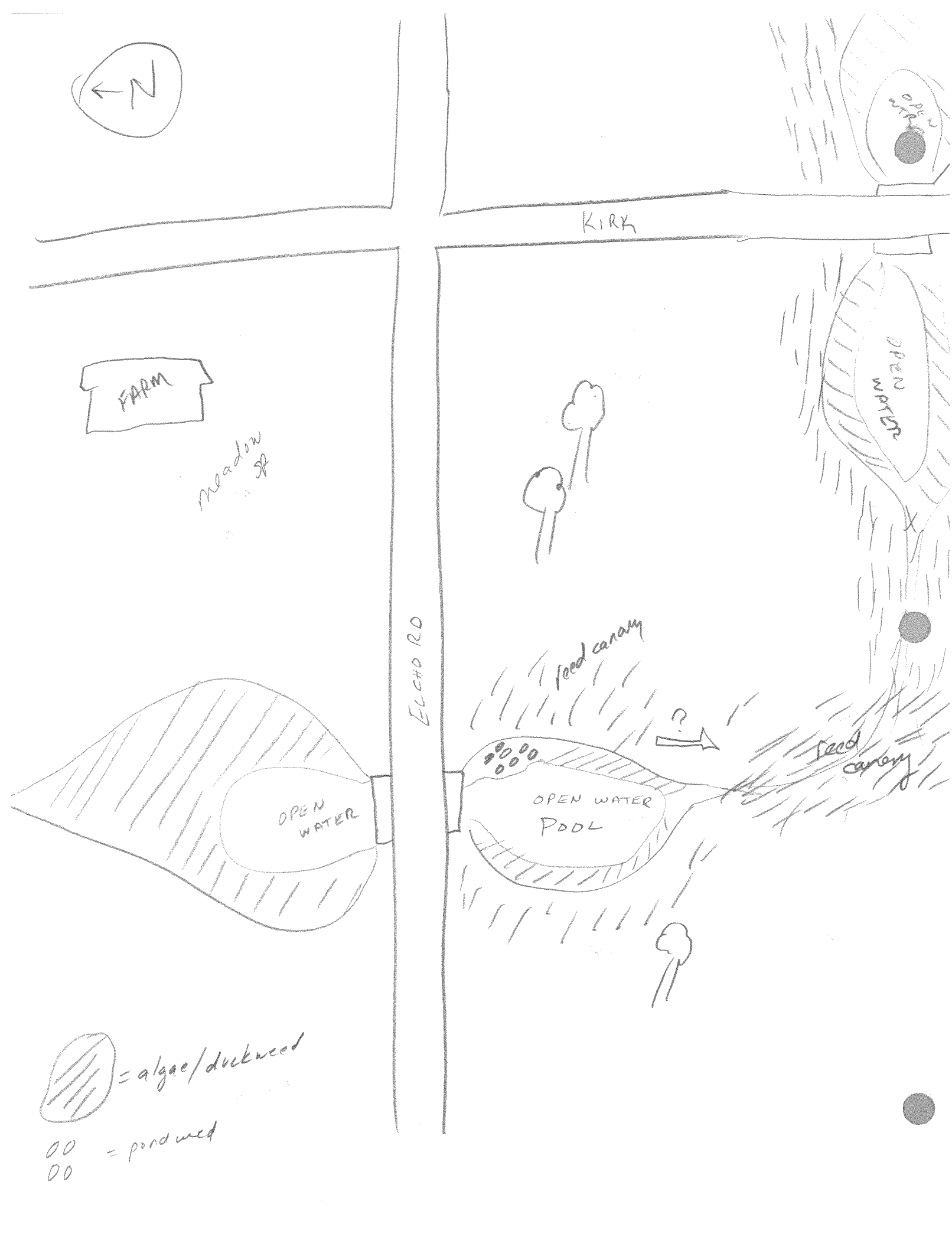
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
5% grasses
Adjacent Land Use
Farm buildings, meadow fields.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Spawn, foraging
Migratory Obstructions (seasonal, permanent)
dry @ times
Note any fish observations none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. Jumping fish sp

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
KIRK
OPEN WATER
FARM
meadow
ELCHO RD
reed canary
?
reed canary
OPEN WATER
POOL
OPEN WATER
= algae/duckweed
= pondweed

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 27-1
Watercourse Name unknown
Photos see photo log
Date 2012 06 18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:00

Weather conditions in previous 24 hrs Minor Precip
GPS Coordinates (Zone) 17T E 0618419 N 4763474 Datum NAD83
Descriptive Location On Elcho Rd ~ 430m west of Kirk rd on south side. No access, rd side Survey

No access

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
25% ash sp, shrub sp
Adjacent Land Use
houses, rd

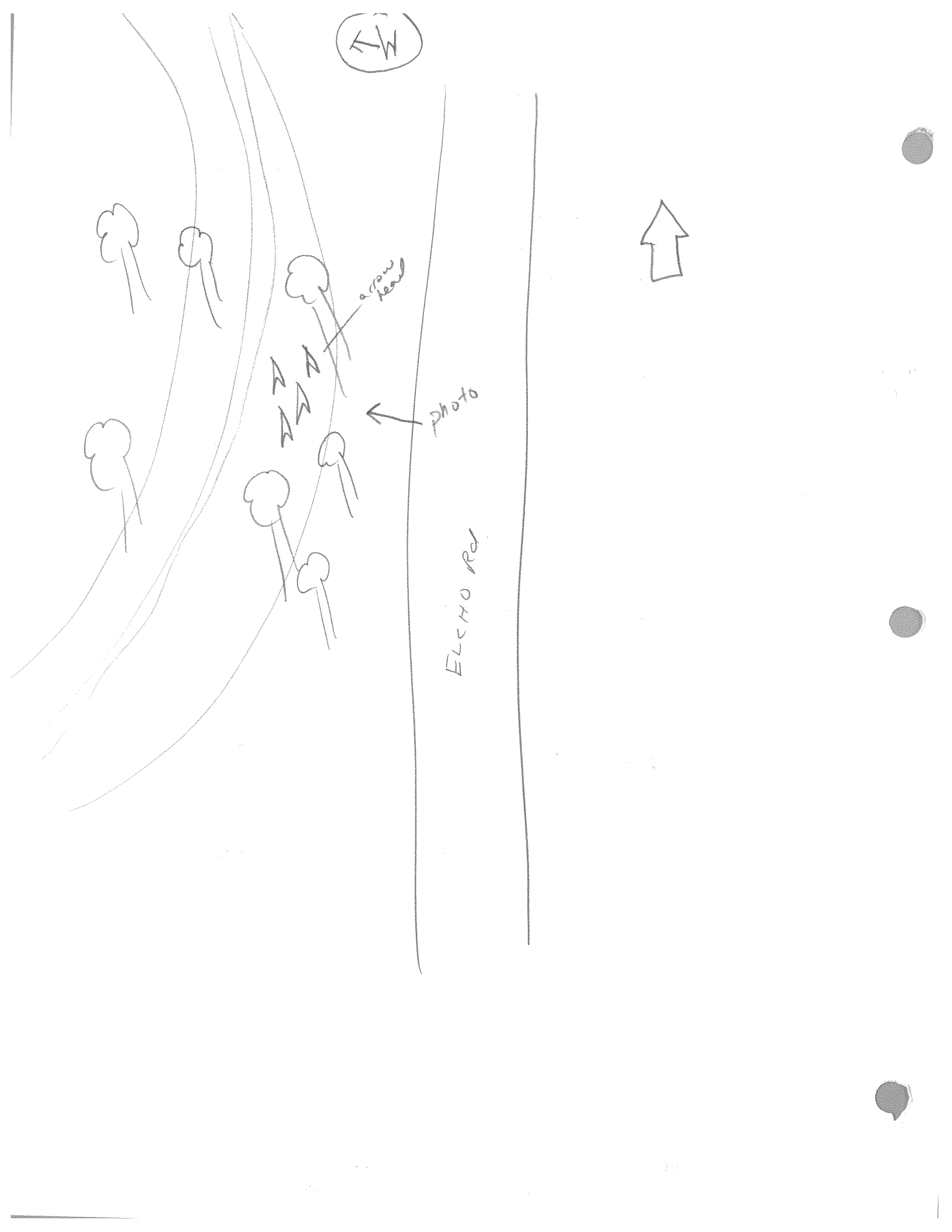
Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
N/A
Migratory Obstructions (seasonal, permanent)
N/A
Note any fish observations
N/A

No access

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓? Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. songbird sp.

Field Notes Authored by MF Field Notes QA/QCed by MEE


W
a row head
photo
ELCHO Rd

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

REA d/s but partial REA u/s near culvert only.

Station # Z8-1
Watercourse Name unknown
Photos See photo log.
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 09:34
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0617877 N 4762295 Datum NAD83
Descriptive Location On Post Davidson Rd ~ 400m north of Zumstein Rd.

Water Quality
Dissolved Oxygen (mg/L) 2.47 pH 7.78 Conductivity (µS/cm) 1005
Water Temperature (°C) 23.82 Air Temperature (°C)
Time *in situ* measurements taken

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.0 (m) Maximum Pool Depth 15.0 (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth 7.0 (cm)
% Riffle 100 % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability none observed.

Substrate (% cover)
Bedrock Cobble 20 Sand 40 Silt 30 Muck
Boulder Gravel 10 Clay Marl Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other

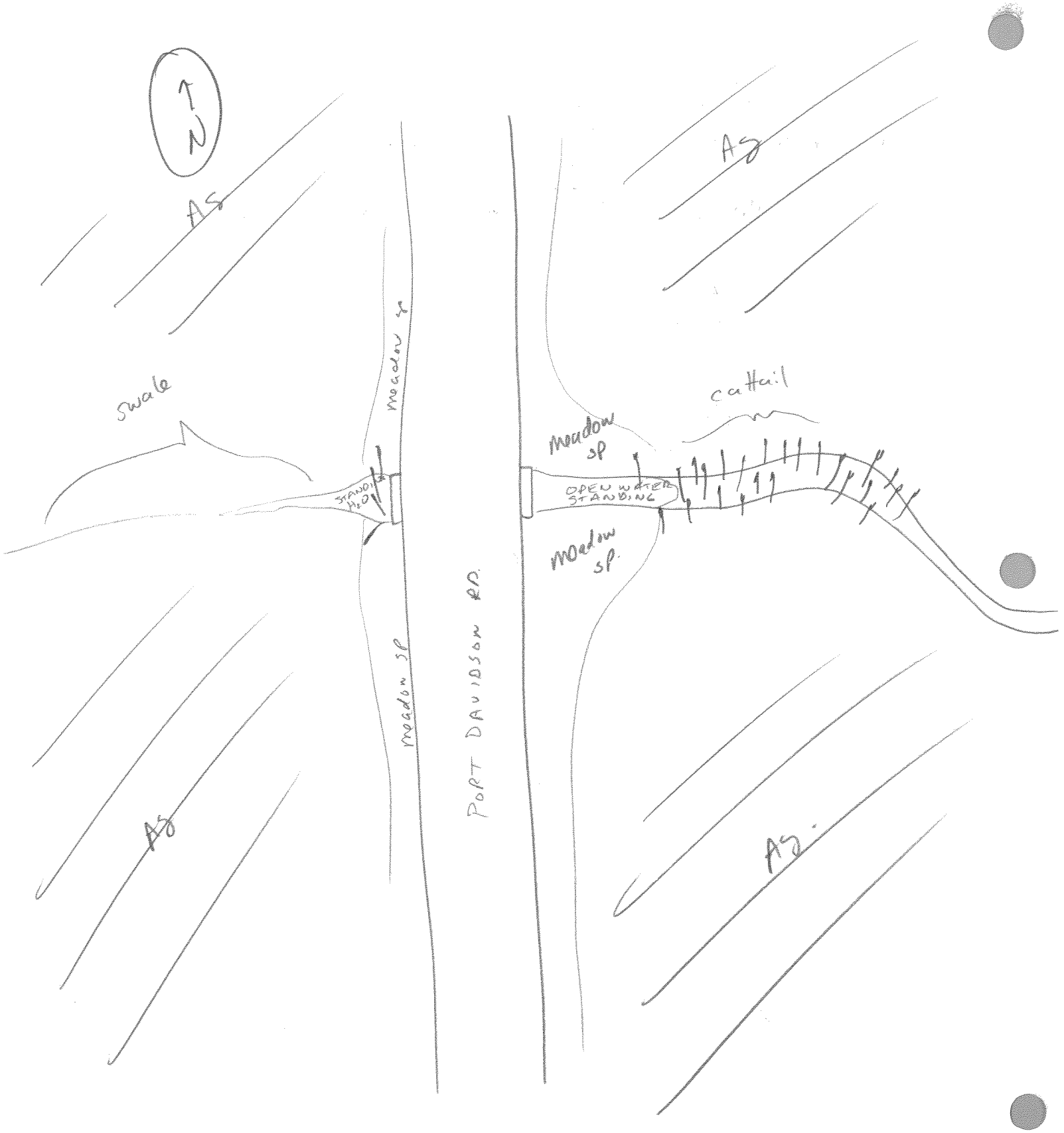
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
3% cattail.
Adjacent Land Use
ag., rd.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
dry @ times
Note any fish observations none -

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel Grassed Swale ✓ Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. green frogs, bobolinks

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
AS
AS
AS
AS
swale
meadow sp
meadow sp
STANDING H2O
PORT DAVIDSON RD.
cattail
meadow sp
OPEN WATER STANDING
meadow sp

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Road side access only.

Station # 29-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 19

Project Name Niagara Wind
Project # 160950269
Field Staff MF, MF
Time 09:23

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0617859 N 4761426 Datum NAD83
Descriptive Location On Port Davidson Rd ~700m north of Canborough Rd.

DRY

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 0.40 (m) Maximum Pool Depth DRY (cm)
Mean Bankfull Width 1.5 (m) Mean Water Depth DRY (cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability minor undercuts.

Substrate (% cover)

Bedrock	Cobble	Sand 30	Silt 40	Muck
Boulder	Gravel 30	Clay	Marl	Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% reed canary grass.
Adjacent Land Use
ag., rds.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
DFW?
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEE

N
= choked w reed canary grass
AS
AS
AS
AS
PORT DAVIDSON RD

No access, Rd side view

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 30-1
Watercourse Name Trib of Welland Rv.
Photos See photo log
Date 2012 06 19

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 08:45

Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0620075 N 4761299 Datum NAD83
Descriptive Location On Canborough Rd ~1Km east of Brick Rd.

Water Quality

Standing water ~10% flow.

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 3.05 (m) Maximum Pool Depth 0.20 (cm)
Mean Bankfull Width 6.0 (m) Mean Water Depth 0.10 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability minor undercut banks near bridge.

Substrate (% cover)

Bedrock 20	Cobble	Sand 30	Silt 30	Muck
Boulder	Gravel 20	Clay	Marl	Detritus

In-water Cover

Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% mature/immature tree sp., seed canary grass
Adjacent Land Use
ag., rds.

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn.
Migratory Obstructions (seasonal, permanent)
lack of water.
Note any fish observations none

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc.
Song birds

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
* = bullhead/arrowhead
# = emerg. vg sp (thick)
// = sedge/ meadow sp.
Shrubs
standing watr
standing watr
boulder rip/rap
Canborough Rd.
open H2O
Ag
reed canary grass
Wellandd Rd.
manicured grass

Could not properly assess as area is off row.
ROW = Non REA

NON REA OFF ROW MP

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 31-1
Watercourse Name unknown
Photos See photo log
Date June 21/12.

Project Name Niagara Wind
Project # 160958269
Field Staff MF, MF
Time 10 : 31

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 0622345 N 4761279 Datum Nad83
Descriptive Location On Creek Rd ~ 2km east of Krick Rd

DRY OFF ROW

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
_____

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
_____
Note any fish observations _____
_____

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. Dry - none
_____
_____
_____

Field Notes Authored by MF Field Notes QA/QCed by MEE


Welland Rd.
N
~100m
meadow
ROW
CREEK Rd
(meadow
no duff
DRY
Ag Field

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

REA
DRY
- defined channel u/s + d/s

Station # 31-2
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 10:44

Weather conditions in previous 24 hrs no precipitation
GPS Coordinates (Zone) 17T E 0622462 N 4761306 Datum Nad83
Descriptive Location On Creek Rd ~ 2.4 km east of Krik Rd on Hardy property

DRY

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.25 (m)
Mean Bankfull Width 2.0 (m)
Maximum Pool Depth _____ (cm)
Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability some undercut banks + scour

Substrate (% cover)

_____ Bedrock _____ Cobble 10 Sand 30 Silt 30 Muck
_____ Boulder _____ Gravel 30 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% d/s + 2% u/s mature trees + shrubs d/s, reed canary u/s.
Adjacent Land Use
ag fields, house, rd

Fish Habitat Potential

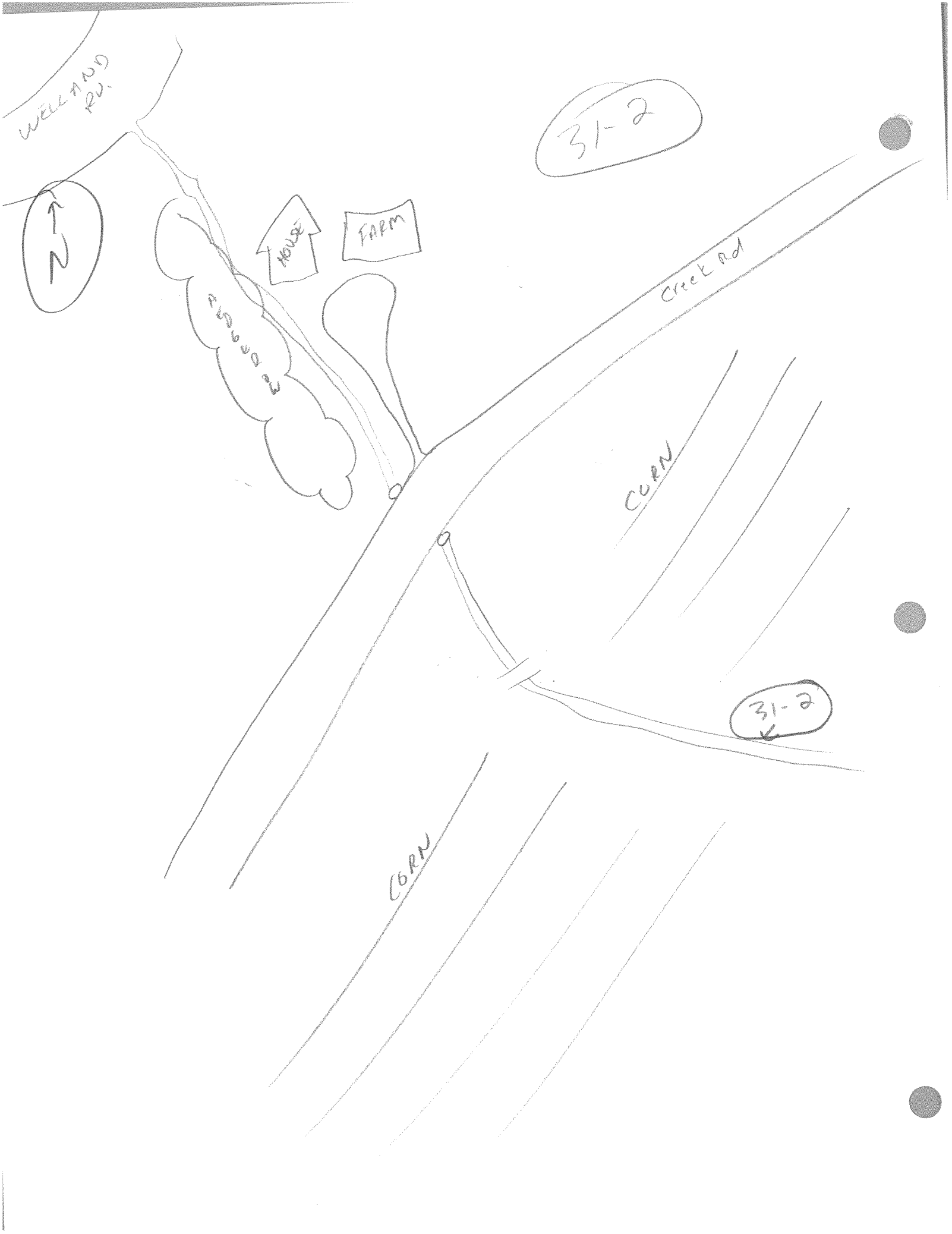
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn at high water times
Migratory Obstructions (seasonal, permanent)
dry now.
Note any fish observations none

Waterbody Notes

Natural Watercourse ✓ d/s Trapezoidal Channel ✓ u/s. Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. bobolink

Field Notes Authored by MF Field Notes QA/QCed by MEF


WELLAND RV.
N
31-2
HOUSE
FARM
Creek Rd
CORN
31-2
CORN

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

STANDING WATER ONLY / STAGA

Stantec

Station # 32-1
Watercourse Name unknown
Photos See photo log.
Date 2012 06 19
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623589 N 4761722 Datum NAD83
Descriptive Location On Creek Rd ~250 m west of Welland Port Rd

Project Name Niagara Wind
Project # 160950269
Field Staff MEWF
Time 10:15

Too shallow. Standing water.

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 12 (m) Maximum Pool Depth 5 (cm)
Mean Bankfull Width 25 (m) Mean Water Depth 2 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)
_____Bedrock _____Cobble 10 Sand 30 Silt 40 Muck
_____Boulder _____Gravel 20 Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

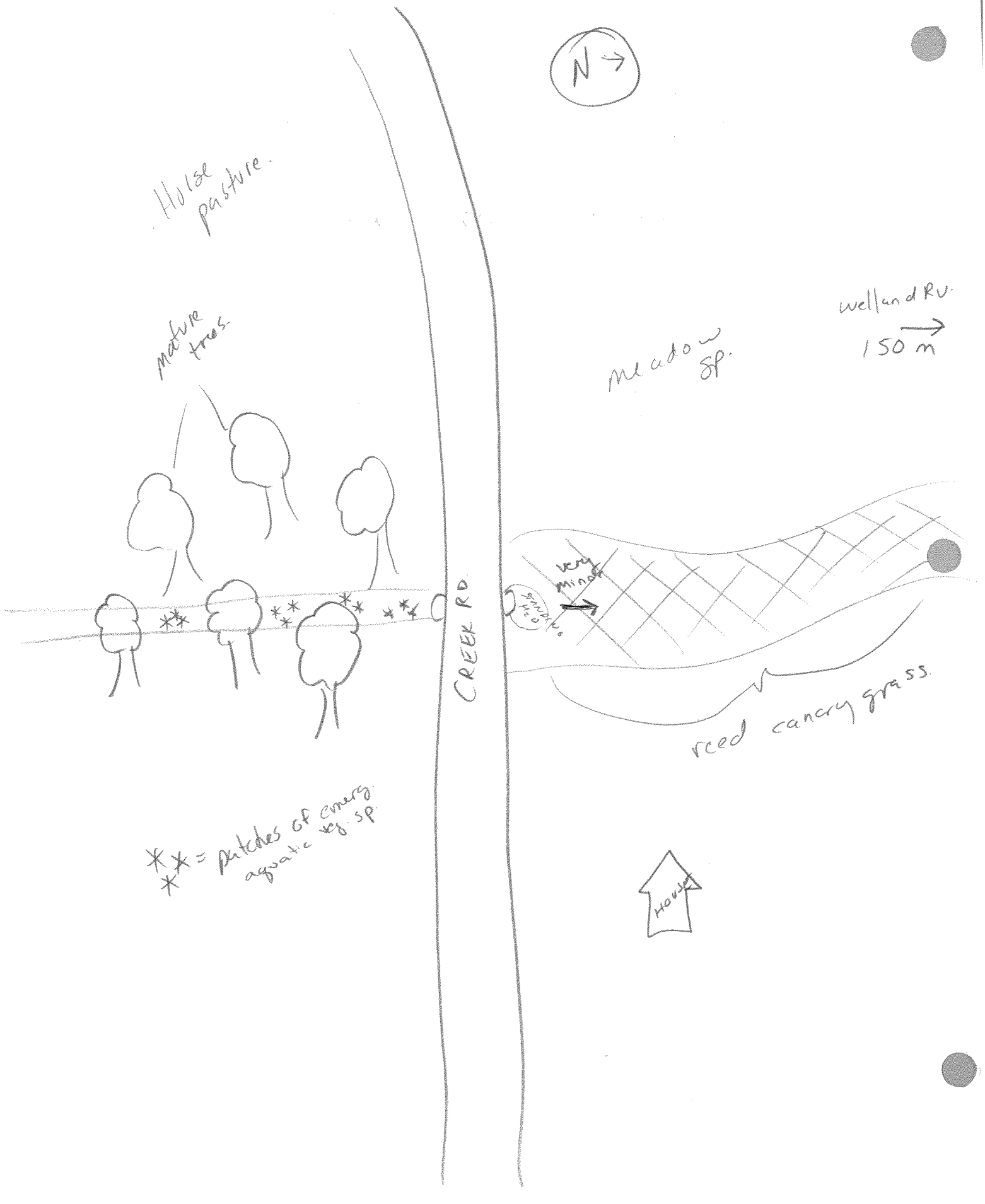
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50% mainly @ u/s location - trees + shrubs.
Adjacent Land Use
farm, pasture, rds.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawning
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale ~~✓~~ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Horse pasture.
mature trees.
meadow sp.
wetland RV.
150 m
very minor
CREEK RD.
reed canary grass
= patches of emerg. aquatic veg. sp.
Hous

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 34-1
Watercourse Name unknown
Photos See photo log.
Date June 20/12.

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 09:10

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 0621197 N 4762726 Datum Nad83
Descriptive Location On unmaintained rd of Baldwin ~ 800m

Water Quality

Dissolved Oxygen (mg/L) 2.40 → 0.35 pH 7.70 Conductivity (µS/cm) 401
Water Temperature (°C) 23.14 Air Temperature (°C) 29°C
Time *in situ* measurements taken 09:15

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.0 (m) Maximum Pool Depth ~150.0 (cm)
Mean Bankfull Width 3.5 (m) Mean Water Depth ~150.0 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability Minor scour along edges

Substrate (% cover)

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

In-water Cover

Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg) (Overhanging Vegetation) Woody Debris Boulder Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% mature trees/shrubs. Snags.
Adjacent Land Use
meadow, woodlot

Fish Habitat Potential

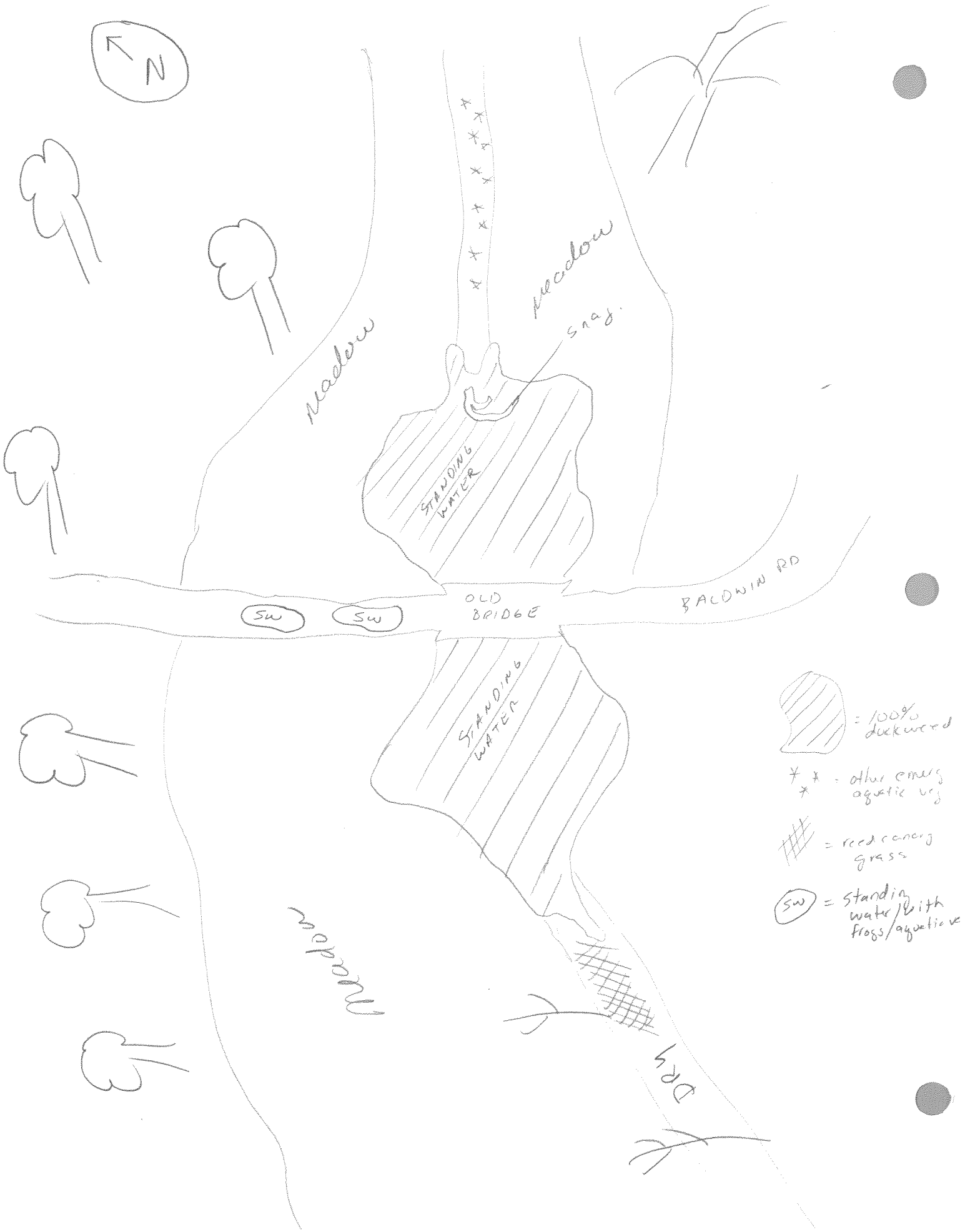
Critical Habitat (spawning or nursery areas, groundwater upwellings)
forage, spawn, nursery
Migratory Obstructions (seasonal, permanent)
lack of flows/water
Note any fish observations Many fish caught in pool near old cement bridge. No water in stream u/s or d/s. 4 carp carcasses

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Water @ bridge only.
Fish appear to be breaking surface and gulping air.
Many green frogs, leopard frogs.

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
meadow
meadow
snag
STANDING WATER
STANDING WATER
OLD BRIDGE
BALDWIN RD
SW
SW
meadow
DRA
= 100% duckweed
= other emerg aquatic veg
= reed canary grass
SW = standing water with frogs/aquatic

Landowner has possibly removed culvert which has caused old stream to pool east of potential collector rabe. Pool is being used by cows and has altered the banks and inlet. Inlet is a non-REA.
No culvert found under Baldwin

NON REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 34-2
Watercourse Name unknown
Photos See photo log
Date June 20/12.

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 09:32

Weather conditions in previous 24 hrs no precip
GPS Coordinates (Zone) 17T E 0621159 N 4762268 Datum Nad83
Descriptive Location On unmaintained Rd of Baldwin ~400 m north of Canborough Rd.

OFF ACCESS

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____(m) Maximum Pool Depth _____(cm)
Mean Bankfull Width _____(m) Mean Water Depth _____(cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____Bedrock _____Cobble _____Sand _____Silt _____Muck
_____Boulder _____Gravel _____Clay _____Marl _____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

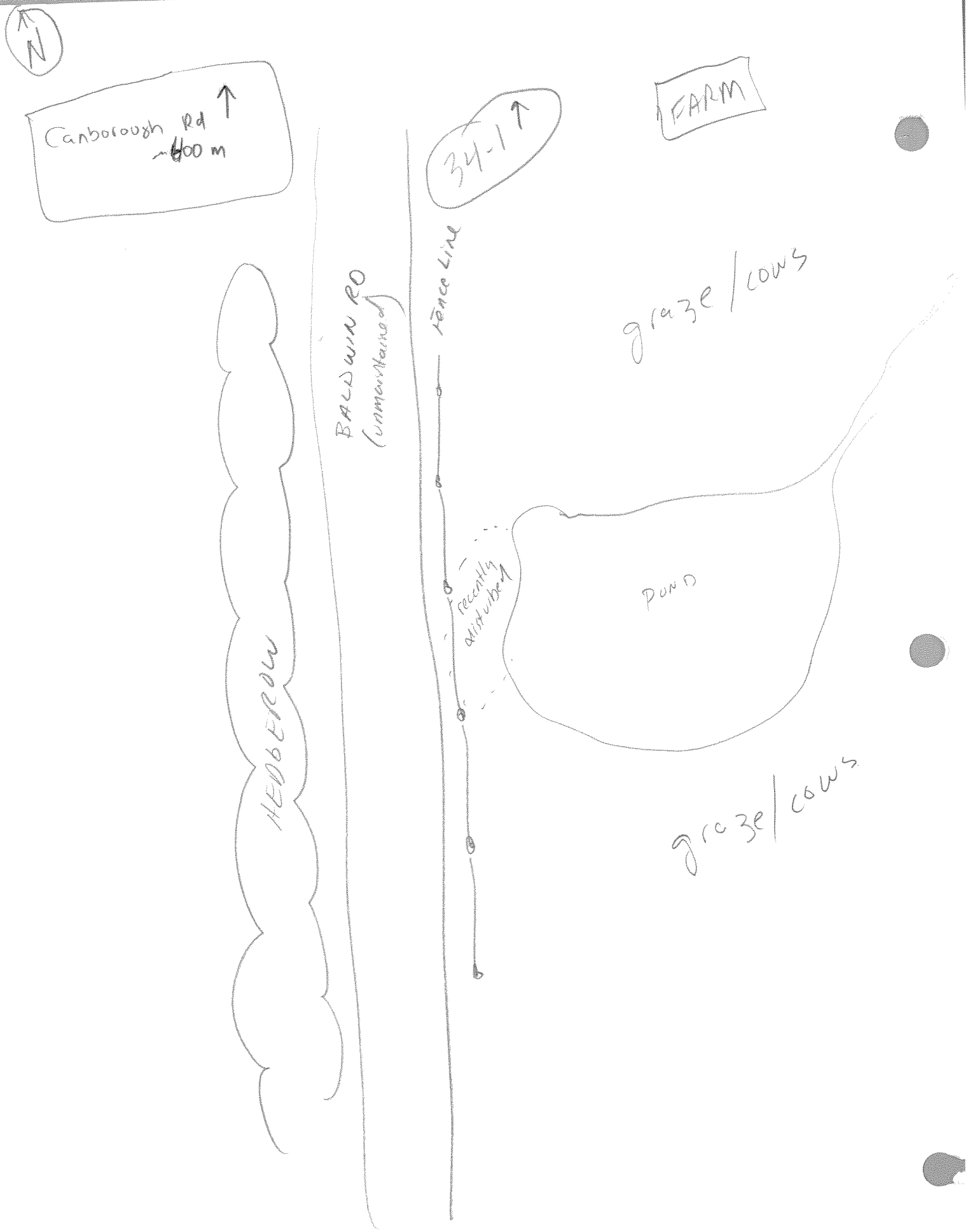
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Adjacent Land Use

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
Note any fish observations

Waterbody Notes
Natural Watercourse_____ Trapezoidal Channel _____ Grassed Swale_____ Buried Tile_____
Surficial Drainage (i.e. furrows)_____ Dugout Pond_____ Dominated by Aquatic Veg_____ Dry____

Other Habitat Notes, Incidental Wildlife Observations, etc. Meadow lark, eastern kingbird.

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Canborough Rd
~600 m
34-1
FARM
BALDWIN RD
(unmaintained)
fence line
graze / cows
HEDGEROW
recently disturbed
POND
graze / cows

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA on east side only

Stantec

Station # 35-1
Watercourse Name unknown
Photos See photo log
Date 2018 06 18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 16:06

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623624 N 4763083 Datum NAD83
Descriptive Location On Collver Rd ~30m south of Frevic Rd

Dry @ ROW No access to the

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 3.0 (m)
Mean Bankfull Width 4.0 (m)
Maximum Pool Depth 30 (cm)
Mean Water Depth 15 (cm)
_____ % Riffle 100 % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

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

In-water Cover

Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg) (Overhanging Vegetation) Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% willow sp
Adjacent Land Use
houses, ag fields.

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery.
Migratory Obstructions (seasonal, permanent)
lack of water.
Note any fish observations none.

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF

N
manicured grass
pool
Freure Rd
Pool
Collier Rd

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 35-2
Watercourse Name Trib of Welland R.
Photos See photo log
Date 2012 06 18
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 16:30
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0623682 N 4762560 Datum NAD83
Descriptive Location On RR 27 ~ 40m north of Canboro Rd.

No access. Could not locate from bridge

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 3.0 (m) Maximum Pool Depth ~100 (cm)
Mean Bankfull Width 4.0 (m) Mean Water Depth ~50 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability none observed.

Substrate (% cover)
_____ Bedrock 20 Cobble _____ Sand 40 Silt 20 Muck
_____ Boulder _____ Gravel 20 Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other _____

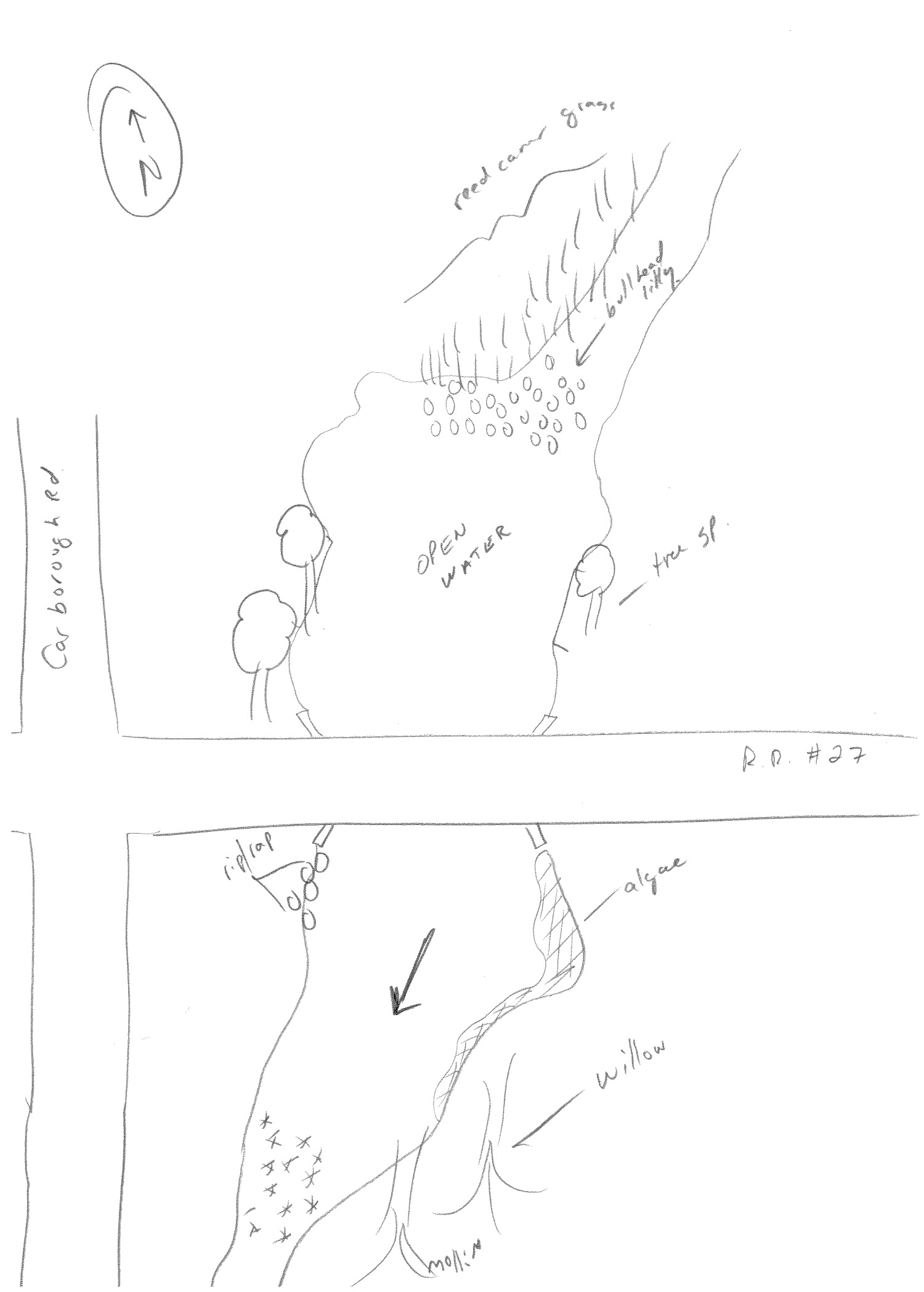
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% ash sp, willow sp.
Adjacent Land Use
business, house, rds.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, nursery, forage.
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____
rose breasted grosbeak, frog sp.

Field Notes Authored by MF Field Notes QA/QCed by MF


reed canary grass
bullhead lily
OPEN WATER
tree sp
Carborough Rd
R.D. #27
lotus
algae
willow
willow

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Welland Rv

Stantec

Station # 35-3
Watercourse Name Welland Rv.
Photos See photo log
Date 2012 06 18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 16:46

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623724 N 4762460 Datum NAD83
Descriptive Location On Riverside Dr. ~ 40m South of Canborough Rd.

No access to shore from bridge

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 30 (m)
Mean Bankfull Width 40 (m) flood pl.
Maximum Pool Depth >100 (cm)
Mean Water Depth ~~250~~ (cm) >100
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

_____Bedrock _____Cobble _____Sand 30? Silt 50? Muck
_____Boulder _____Gravel 20? Clay _____Marl _____Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
20% tree sp., reed canary grass, willow sp.
Adjacent Land Use
Houses, rds

Fish Habitat Potential

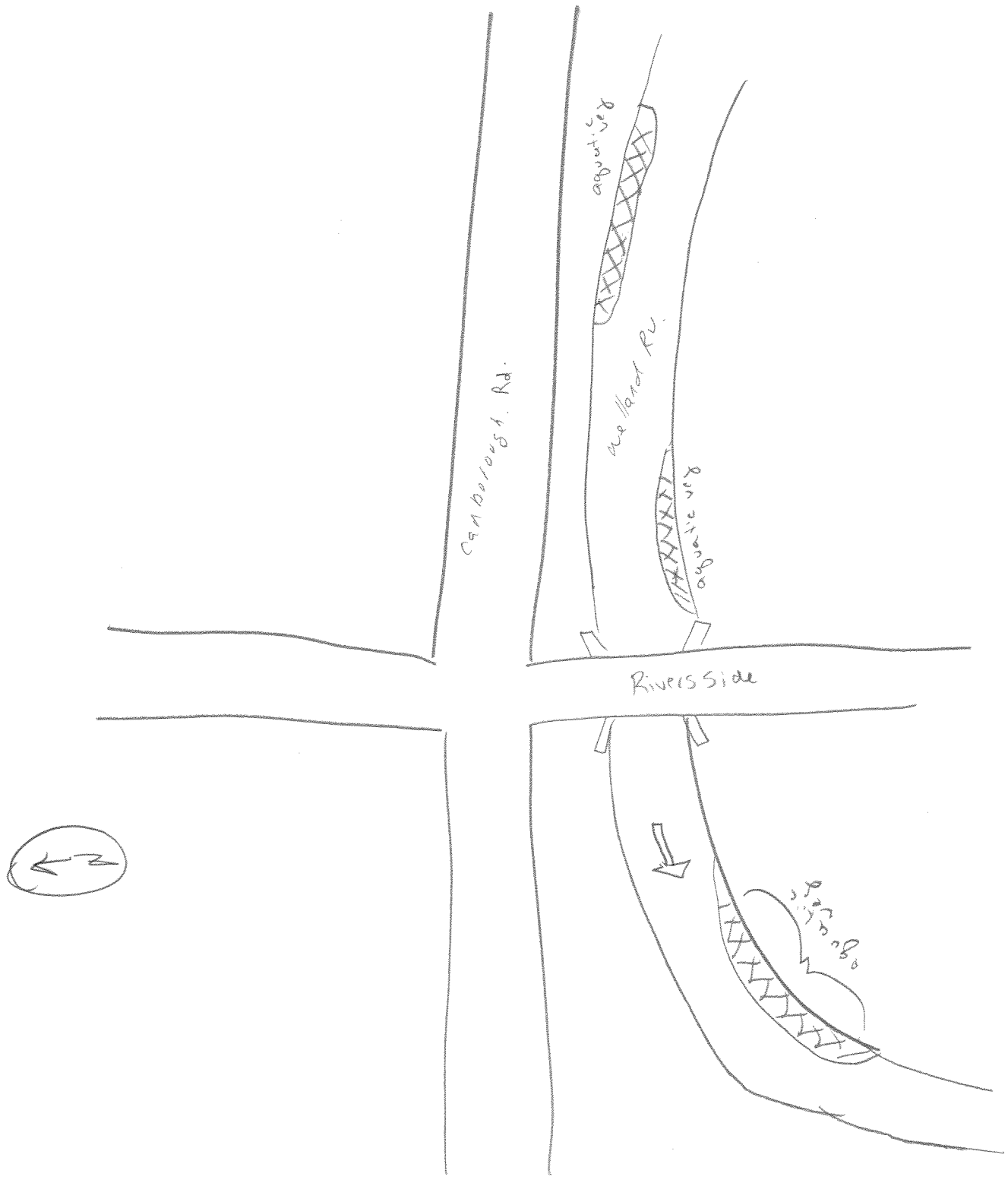
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, nursery, forage
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations none.

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEE


Canborough Rd.
Riverside

RE A

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 36-1
Watercourse Name unknown
Photos See photo log
Date 2022 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME MF
Time 12:51
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0621414 N 4763625 Datum NAD83
Descriptive Location On Elcho Rd ~ 2km west of Reg Rd 27.

Water Quality
Dissolved Oxygen (mg/L) 7.13 pH 7.98 Conductivity (µS/cm) 481
Water Temperature (°C) 23.14 Air Temperature (°C) 28°c
Time *in situ* measurements taken 13:00

Watercourse Dimensions & Morphology
Mean Watercourse Width 4.0 (m) Maximum Pool Depth ~80 (cm)
Mean Bankfull Width 5.5 (m) Mean Water Depth ~50 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none.

Substrate (% cover)
____Bedrock ____Cobble ____Sand 40 Silt 30 Muck
____Boulder ____Gravel 30 Clay ____Marl ____Detritus

In-water Cover
Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

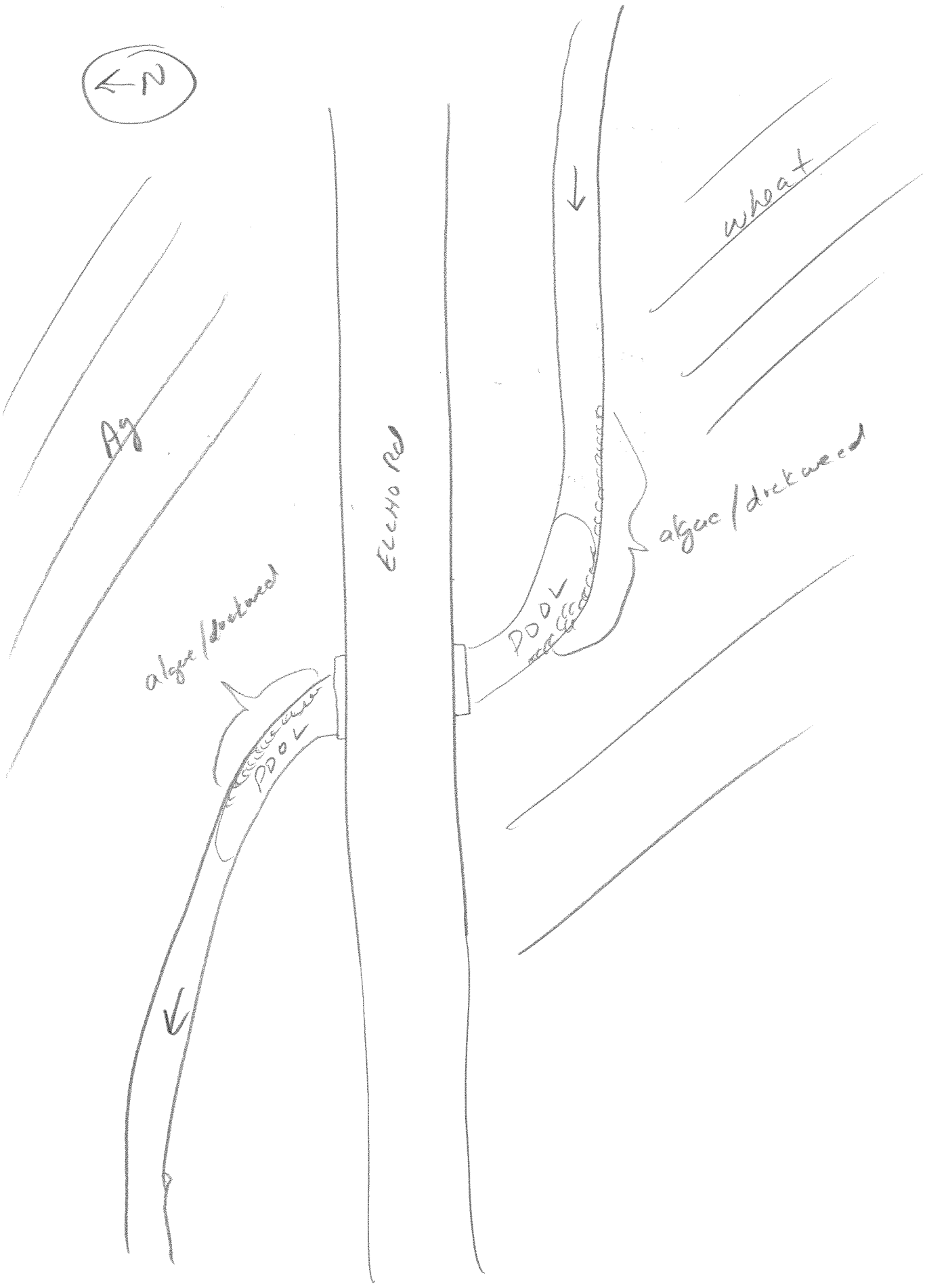
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% reed canary grass
Adjacent Land Use
Ag

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. Barn Swallow

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
Ag
ECHO RD
wheat
algae / duckweed
POOL
algae / duckweed
POOL

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 36-2 | Project Name Niagara Wind
Watercourse Name unknown | Project # 160950269
Photos See photo log | Field Staff ME, MF
Date 2012 06 18 | Time 13:30
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 0621201 N 4764279 Datum NAD83
Descriptive Location ~600m north in Field from Elcho Rd

Water Quality Damp
Dissolved Oxygen (mg/L) ____ pH ____ Conductivity (µS/cm) ____
Water Temperature (°C) ____ Air Temperature (°C) ____
Time *in situ* measurements taken ____

DRY **Watercourse Dimensions & Morphology**
Mean Watercourse Width 2.0 (m) | Maximum Pool Depth N/A (cm) DRY
Mean Bankfull Width 3.0 (m) | Mean Water Depth N/A (cm)
____% Riffle ____% Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability ____

Substrate (% cover)
____Bedrock ____Cobble ____Sand 30 Silt 70 Muck
____Boulder ____Gravel ____Clay ____Marl ____Detritus

DRY **In-water Cover**
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other ____

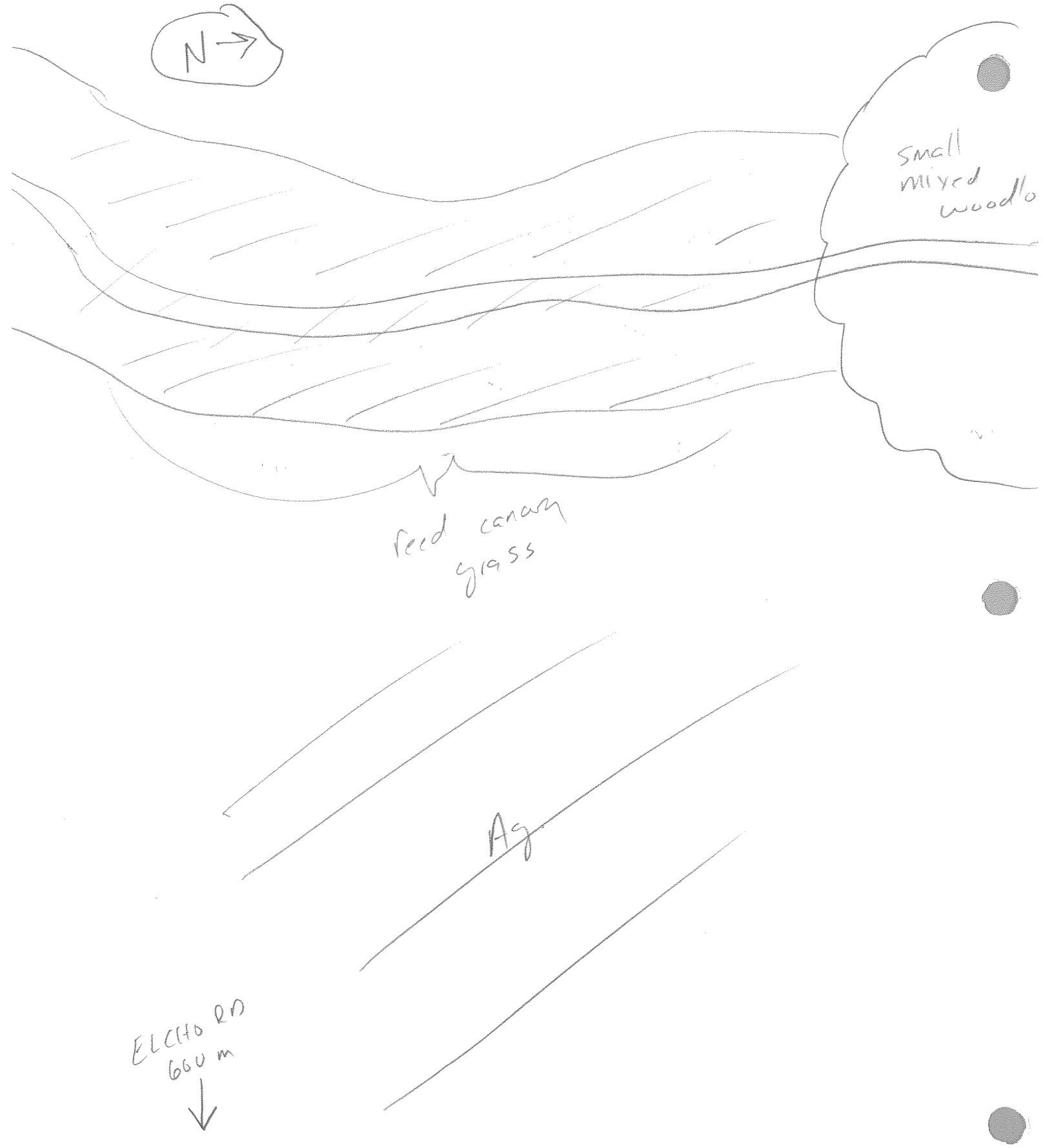
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% seed canary grass.
Adjacent Land Use
ag, small woodlot..

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
Dry
Note any fish observations None - Dry

Waterbody Notes
Natural Watercourse ✓ | Trapezoidal Channel ____ | Grassed Swale ____ | Buried Tile ____
Surficial Drainage (i.e. furrows) ____ | Dugout Pond ____ | Dominated by Aquatic Veg ____ | Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. None

Field Notes Authored by MF | Field Notes QA/QCed by MEE


N
small
mixed
woodlo
reed canary
grass
Ag
ELCHO RD
600 m

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 36-3
Watercourse Name unknown
Photos See photo log
Date 2012 ~~09~~ 06-18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 13:46

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0102039 N 4763566 Datum NAD83
Descriptive Location On Elcho Rd ~ 3km west of R.R. 27

Water Quality

Dissolved Oxygen (mg/L) 7.68 pH 8.09 Conductivity (µS/cm) 675
Water Temperature (°C) 22.65 Air Temperature (°C) 30°C
Time *in situ* measurements taken 13:49

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth ~70 (cm)
Mean Bankfull Width ~10 (m) Flood plain Mean Water Depth (cm)
% Riffle 100 % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

Bedrock Cobble Sand 40 Silt 40 Muck
Boulder Gravel 20 Clay Marl Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
5% reed canary grass
Adjacent Land Use
ag. farm. rd

Fish Habitat Potential

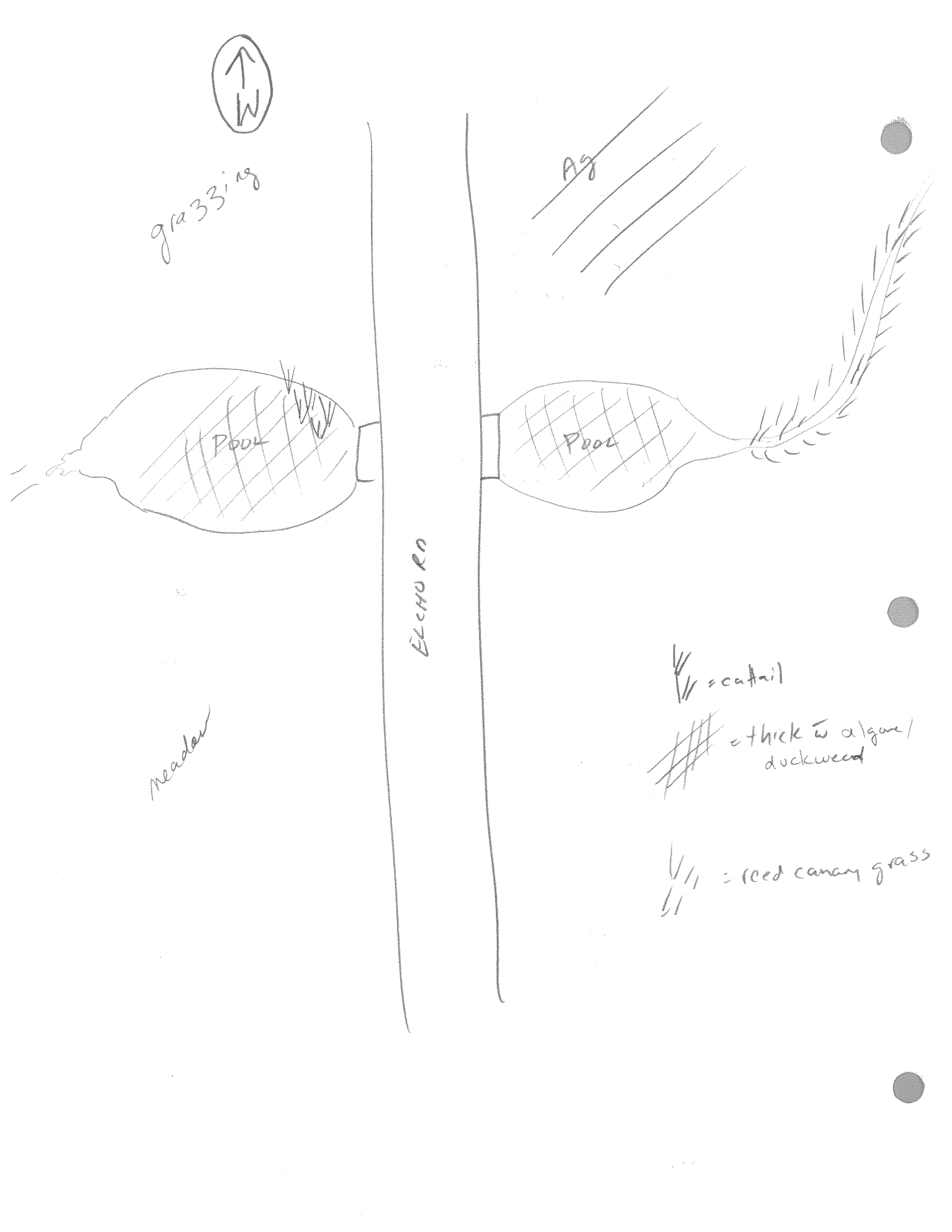
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by MF Field Notes QA/QCed by MFE


W
grazing
Ag
Pool
Pool
ECHO RD
meadow
= cattail
= thick w algae/ duckweed
= reed canary grass

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 37-1
Watercourse Name Unknown
Photos See photo log
Date 2017 06 18
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 12:40
Weather conditions in previous 24 hrs Minor precipitation
GPS Coordinates (Zone) 17T E 0622571 N 4763682 Datum NAD83
Descriptive Location ~60m west of Regional Rd 27 on Elcho Rd. Crosses under Elcho Rd.

Water Quality
Dissolved Oxygen (mg/L) 3.73 pH 7.57 Conductivity (µS/cm) 1534
Water Temperature (°C) 21.80 Air Temperature (°C) 28°C
Time *in situ* measurements taken 12:45

Watercourse Dimensions & Morphology
Mean Watercourse Width 1.0 (m) Maximum Pool Depth ~70 (cm)
Mean Bankfull Width ~30 (m) Mean Water Depth ~30 (cm)
____% Riffle 30 % Pool ____% Run 70 % Flat
Evidence of eroding banks, Comments on bank stability none. well veg'd

Substrate (% cover)
____ Bedrock ____ Cobble ____ Sand 40 Silt ~~40~~ Muck
____ Boulder ____ Gravel 20 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

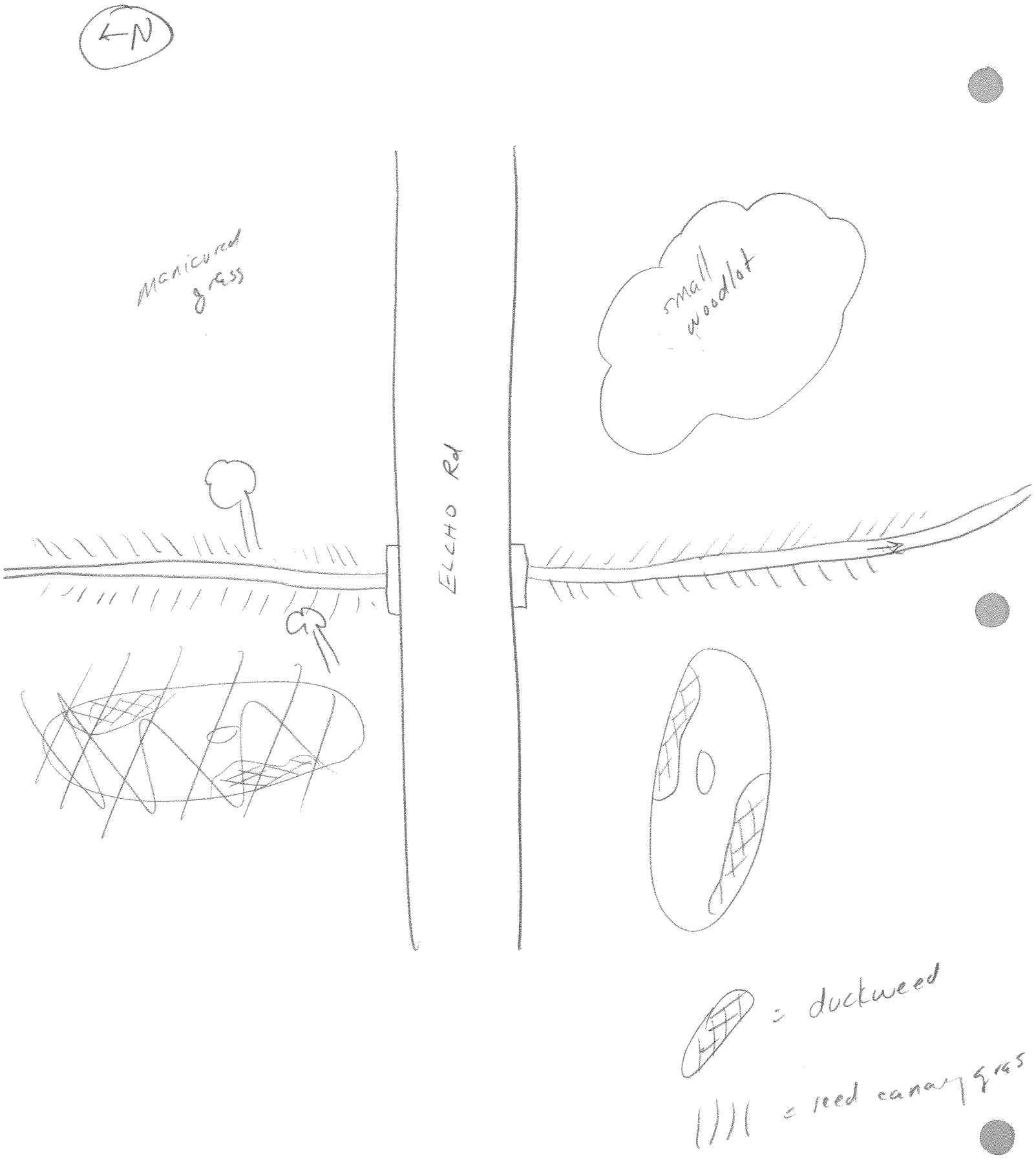
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
5% reed canary grass
Adjacent Land Use
houses, Rds

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Spawn, foraging, inv (sen
Migratory Obstructions (seasonal, permanent)
None observed.
Note any fish observations Fish sp.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.
Frog sp.

Field Notes Authored by MF Field Notes QA/QCed by MEE


←N
manicured grass
small woodlot
Elcho Rd
= duckweed
= reed canary grass

farmer drives through swale, plants, harvests

M.F. Non-REA @ east ~~side of Rou only (4m long)~~, Non ~~REA~~ on west side

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 37-2
Watercourse Name unknown
Photos See photo log
Date June 21/12.
Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 11:23
Weather conditions in previous 24 hrs no precipitation
GPS Coordinates (Zone) 17T E 0622266 N 4764173 Datum Nad83
Descriptive Location On R.R. 27 ~ 600 m north of Elcho Rd.

Water Quality

STANDING WATER ONLY

Dissolved Oxygen (mg/L) ____ pH ____ Conductivity (µS/cm) ____
Water Temperature (°C) ____ Air Temperature (°C) 30°C
Time *in situ* measurements taken ____

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.40 (m)
Mean Bankfull Width 1.0 (m)
Maximum Pool Depth 20 (cm)
Mean Water Depth 20 (cm)
pool @ u/s culvert end only
____ % Riffle ____ % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability minor undercut.

Substrate (% cover)

____ Bedrock ____ Cobble ____ Sand 40 Silt 30 Muck
____ Boulder ____ Gravel 30 Clay ____ Marl ____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks, **(Deep Pool)** @ culvert only, Watercress, Aquatic Veg, Overhanging Vegetation, Woody Debris, Boulder, Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0% reed canary grass
Adjacent Land Use
ag fields

Fish Habitat Potential

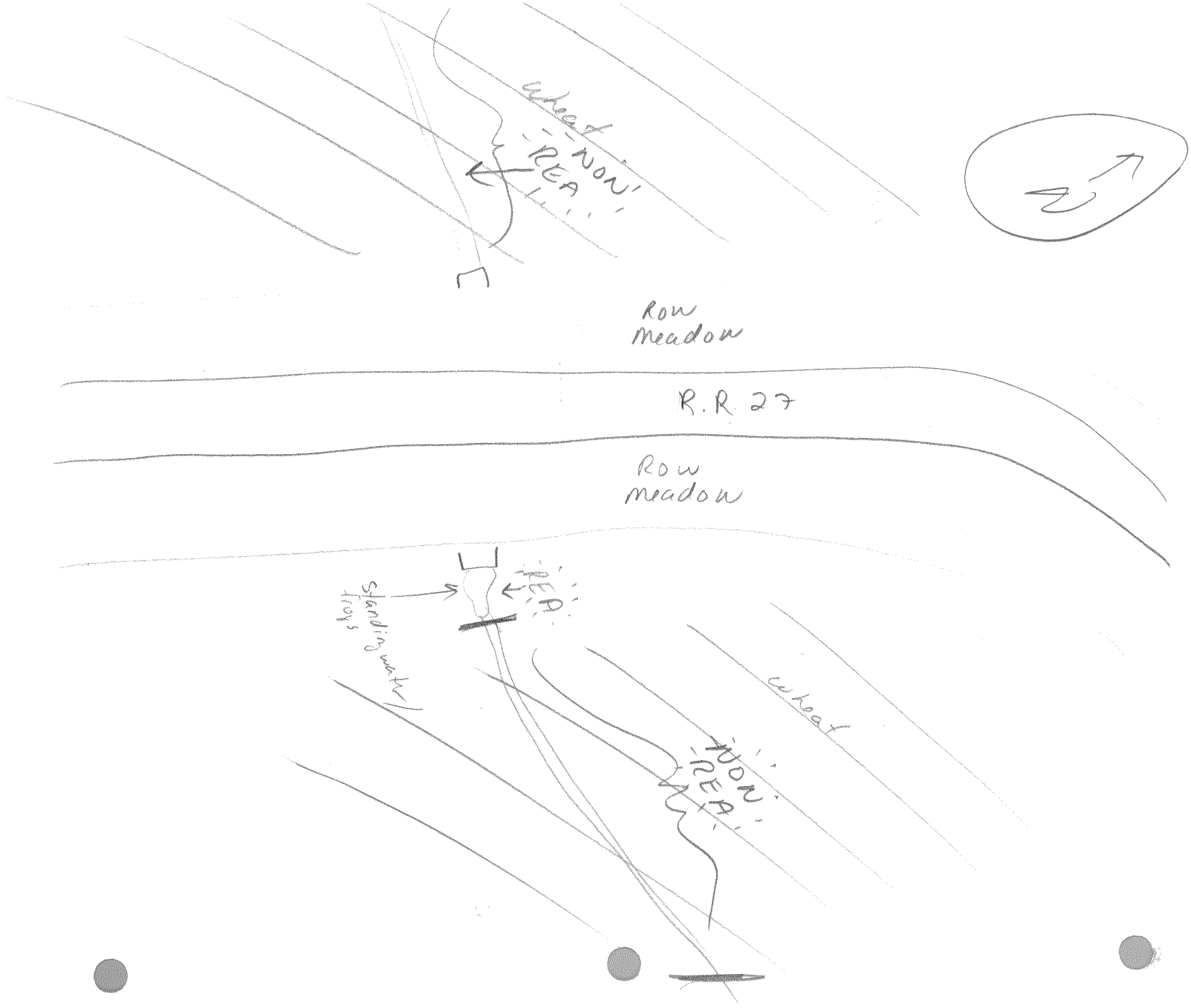
Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
dry through plowed fields on both sides.
Note any fish observations ____

Waterbody Notes

Natural Watercourse ____ Trapezoidal Channel ____ Grassed Swale ✓ Buried Tile ✓
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. leopard frog & green frogs

Field Notes Authored by MF
Field Notes QA/QCed by MEE


wheat
NON-REA
Row
Meadow
R.R 27
Row
meadow
RED
Standing water from
wheat
NON-REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 38-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:32

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623841 N 4763744 Datum NAD83
Descriptive Location On Elcho Rd ~400m east of RR #27

Water Quality
Dissolved Oxygen (mg/L) 11.83 pH 8.16 Conductivity (µS/cm) 2926
Water Temperature (°C) 22.43 Air Temperature (°C) 30°c
Time *in situ* measurements taken 14:45

Watercourse Dimensions & Morphology
Mean Watercourse Width 1.0 (m) Maximum Pool Depth 15 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 10 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability minor undercut

Substrate (% cover)
____ Bedrock ____ Cobble ____ Sand 40 Silt 40 Muck
____ Boulder ____ Gravel 20 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

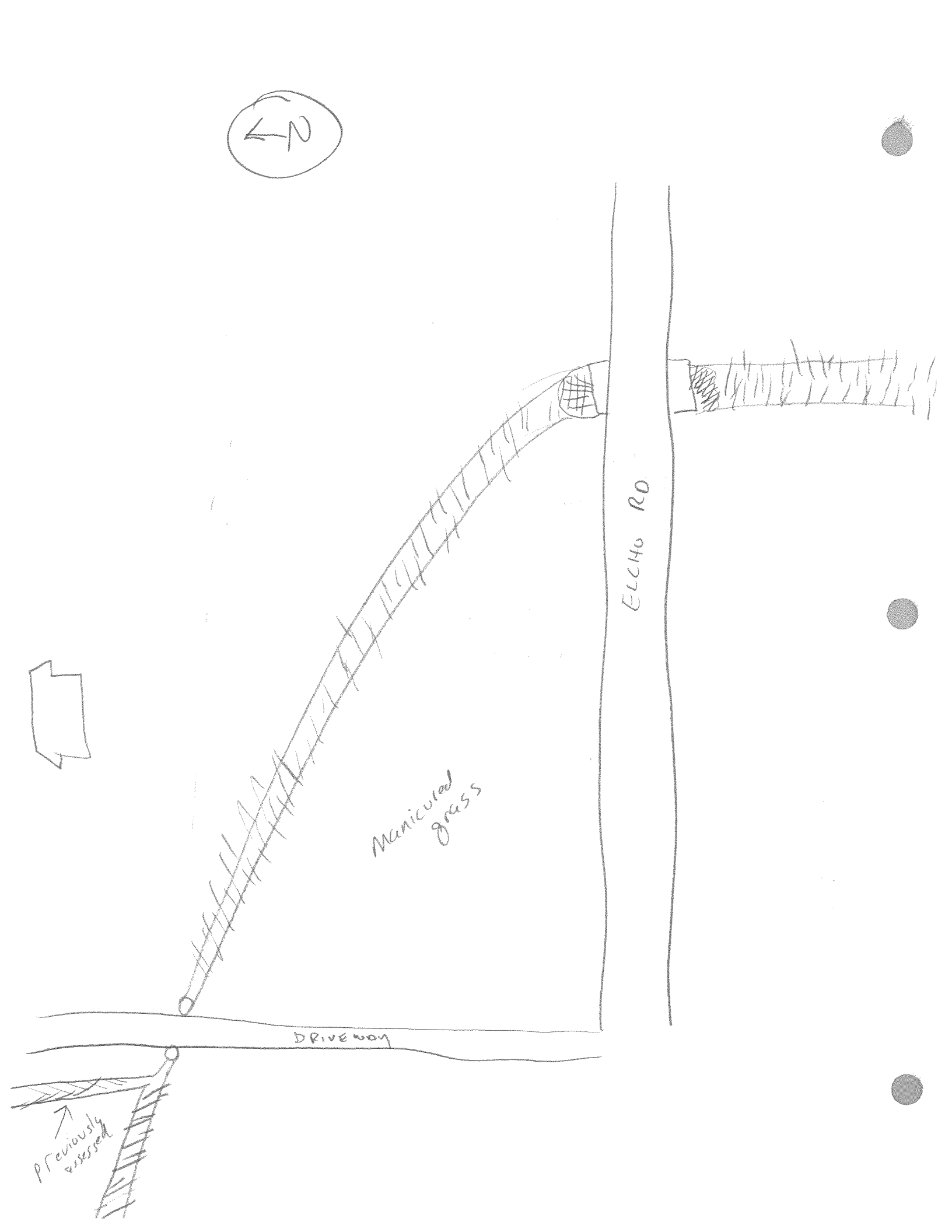
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
5% reed canary grass
Adjacent Land Use
ag, houses, rds

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
foraging
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations Fish sp

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.
frog sp

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
ELCHO RD
Manicured grass
DRIVEWAY
previously assessed

Standing H2O

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 38-2
Watercourse Name unknown
Photos See photo log
Date 2012 06 18

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:49

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0624426 N 4763786 Datum NAD83
Descriptive Location On Elcho Rd ~ 650m east of Collver Rd

Water Quality

Dissolved Oxygen (mg/L) 5.18 pH 8.13 Conductivity (µS/cm) 1798
Water Temperature (°C) 19.59 Air Temperature (°C) 30°c
Time *in situ* measurements taken 14:55

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.0 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 2.0 (m) Mean Water Depth 15 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

Bedrock	Cobble 10	Sand 30	Silt 30	Muck
Boulder	Gravel 30	Clay	Marl	Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% mature + immature oak sp, manitoba maple.
Adjacent Land Use
ag land

Fish Habitat Potential

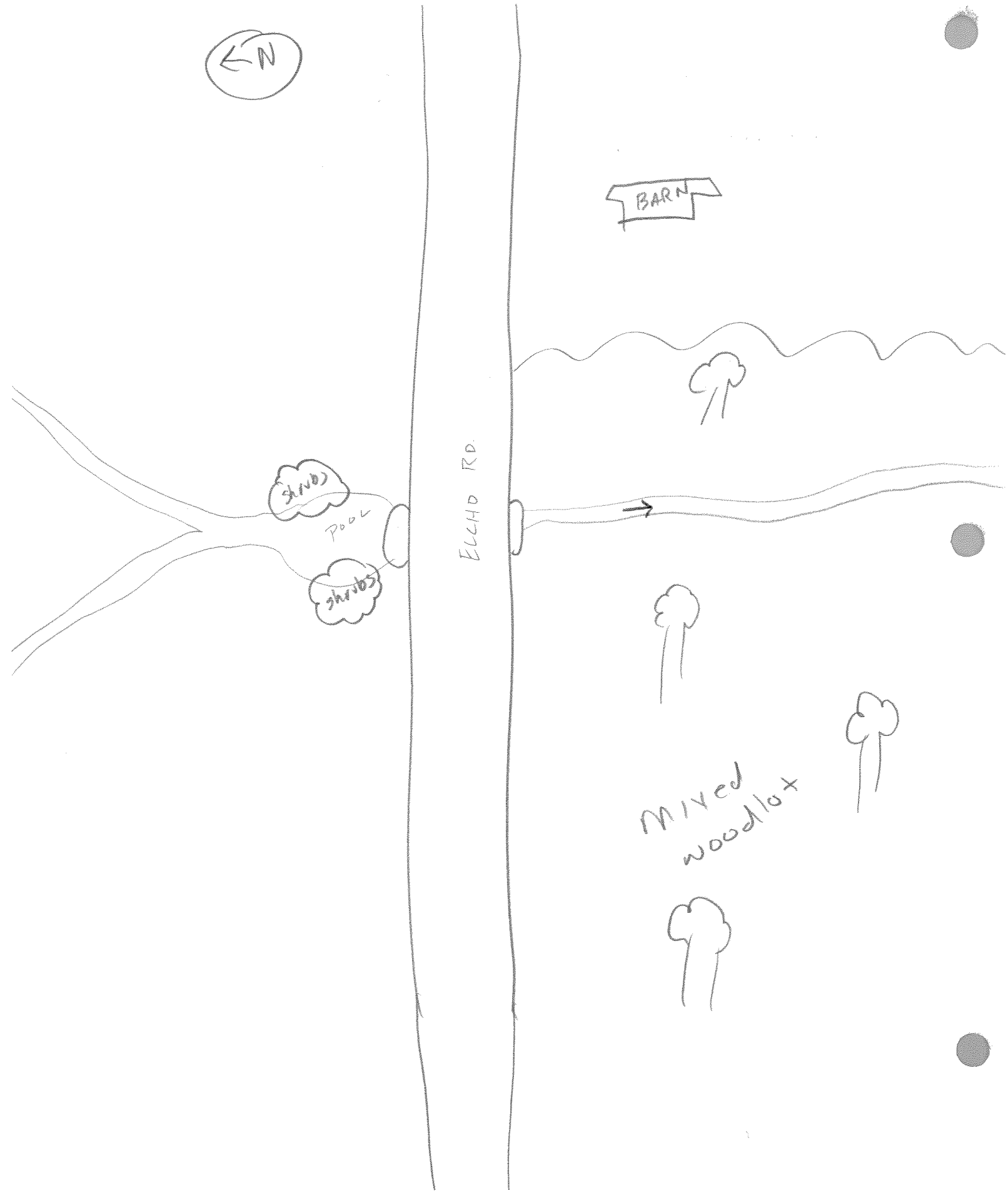
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, nursery, forage
Migratory Obstructions (seasonal, permanent)
mayday up
Note any fish observations Species observed

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
BARN
shrubs
POOL
shrubs
EUCLID RD.
Mixed woodlot

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 39-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 18
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:08
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0626002 N 4763874 Datum NAD 83
Descriptive Location On Elcho Rd ~ 100m east of Heaslip Rd.

Water Quality
Dissolved Oxygen (mg/L) 14.64 pH 8.73 Conductivity (µS/cm) 1401
Water Temperature (°C) 27.75 Air Temperature (°C) 30°
Time *in situ* measurements taken 15:15

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.5 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 10 (cm)
% Riffle 20 % Pool % Run 80 % Flat
Evidence of eroding banks, Comments on bank stability minor scour.

Substrate (% cover)
Bedrock Cobble Sand 30 Silt 40 Muck
Boulder Gravel 30 Clay Marl Detritus

In-water Cover
Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress Aquatic Veg
(Overhanging Vegetation) Woody Debris Boulder Other

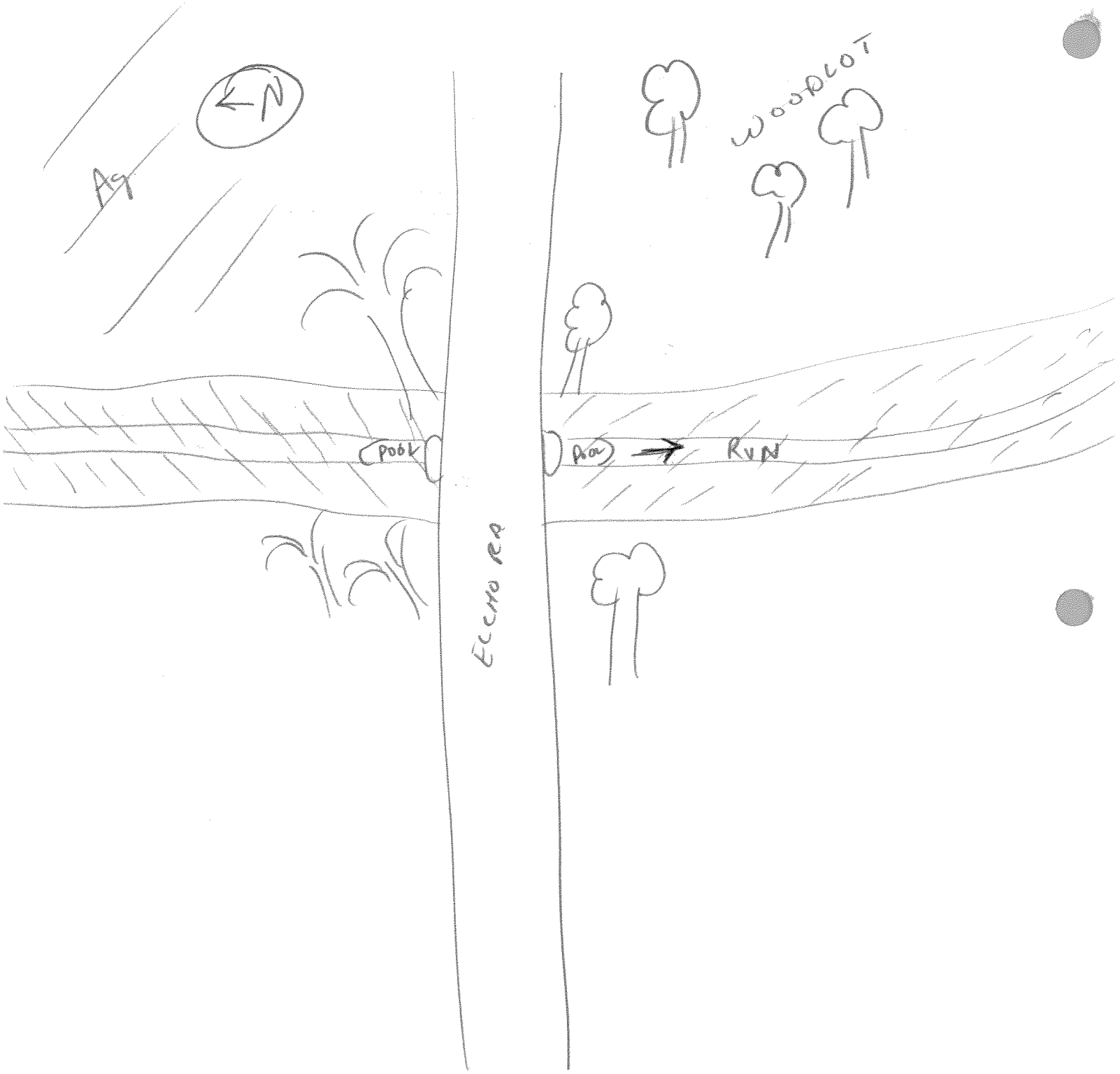
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50% reed canary grass
Adjacent Land Use
ag fields

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn
Migratory Obstructions (seasonal, permanent)
may dry up.
Note any fish observations none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg Dry

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Ag
WOODLOT
POOL
RUN
ECHO RD

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Station # 40-1
Watercourse Name unknown
Photos see photo log
Date 2012 nov 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:22
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0626874 N 4763925 Datum NAD83
Descriptive Location On Elcho Rd ~ 100m west of Gee Rd.

Water Quality
Dissolved Oxygen (mg/L) ____ pH ____ Conductivity (µS/cm) ____
Water Temperature (°C) ____ Air Temperature (°C) 30°c
Time *in situ* measurements taken ____

Watercourse Dimensions & Morphology
Mean Watercourse Width 1.0 (m) Maximum Pool Depth 15 (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth 8 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed.

Substrate (% cover)
____Bedrock ____Cobble ____Sand 30 Silt 40 Muck
____Boulder ____Gravel 30 Clay ____ Marl ____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
25% reed canary grass, immature/mature mixed woodlot.
Adjacent Land Use
woodlot, rd, ag.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn?
Migratory Obstructions (seasonal, permanent)
~~none~~ may dry up completely.
Note any fish observations none!

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. frog sp.

Field Notes Authored by MF Field Notes QA/QCed by MEE

N
Algae
algae
Euro Rd
= reed canary grass

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 42-1
Watercourse Name unknown
Photos see photo log
Date 2012 06 0,9
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:34
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 629310 N 4764069 Datum NAD83
Descriptive Location On Boyle Rd ~20m south of Canborough Rd. Channel on west side.

Water Quality
Dissolved Oxygen (mg/L) 6.83 pH 8.37 Conductivity (µS/cm) 819
Water Temperature (°C) 24.04 Air Temperature (°C) 30°c
Time *in situ* measurements taken 15.40

Watercourse Dimensions & Morphology
Mean Watercourse Width 1.2 (m) Maximum Pool Depth 10 (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth 5 (cm)
____ % Riffle 30 % Pool 70 % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability minor scour

Substrate (% cover)
____ Bedrock ____ Cobble 20 Sand 30 Silt 20 Muck
____ Boulder ____ Gravel 30 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
3% reed canary grass.
Adjacent Land Use
pasture, houses, rds

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn?
Migratory Obstructions (seasonal, permanent)
maybe
Note any fish observations None.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by MF Field Notes QA/QCed by MEF

Concession 1
Boyle Rd
Camborough Rd
reed canary grass.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 43-1
Watercourse Name unknown
Photos ✓
Date June 21/12
Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 8:51
Weather conditions in previous 24 hrs Hot & humid 32°C
GPS Coordinates (Zone) 17T E 620492 N 4764984 Datum Nad83
Descriptive Location off of Vaughn Rd, East of Regional Rd 27

Water Quality
Dissolved Oxygen (mg/L) 1.60 pH _____ Conductivity (µS/cm) 443
Water Temperature (°C) 22.85 Air Temperature (°C) 30°C
Time *in situ* measurements taken 8:56

Watercourse Dimensions & Morphology
Mean Watercourse Width 1-3 (m) Maximum Pool Depth 0.30 (cm)
Mean Bankfull Width 5 (m) Mean Water Depth 0.15 (cm)
_____% Riffle _____% Pool 100% Run _____% Flat
Evidence of eroding banks, Comments on bank stability vegetated - stable

Substrate (% cover)
_____Bedrock _____Cobble 10 Sand 40 Silt _____Muck
_____Boulder _____Gravel 50 Clay _____Marl _____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg RCG duckweed
Overhanging Vegetation Woody Debris Boulder Other algae

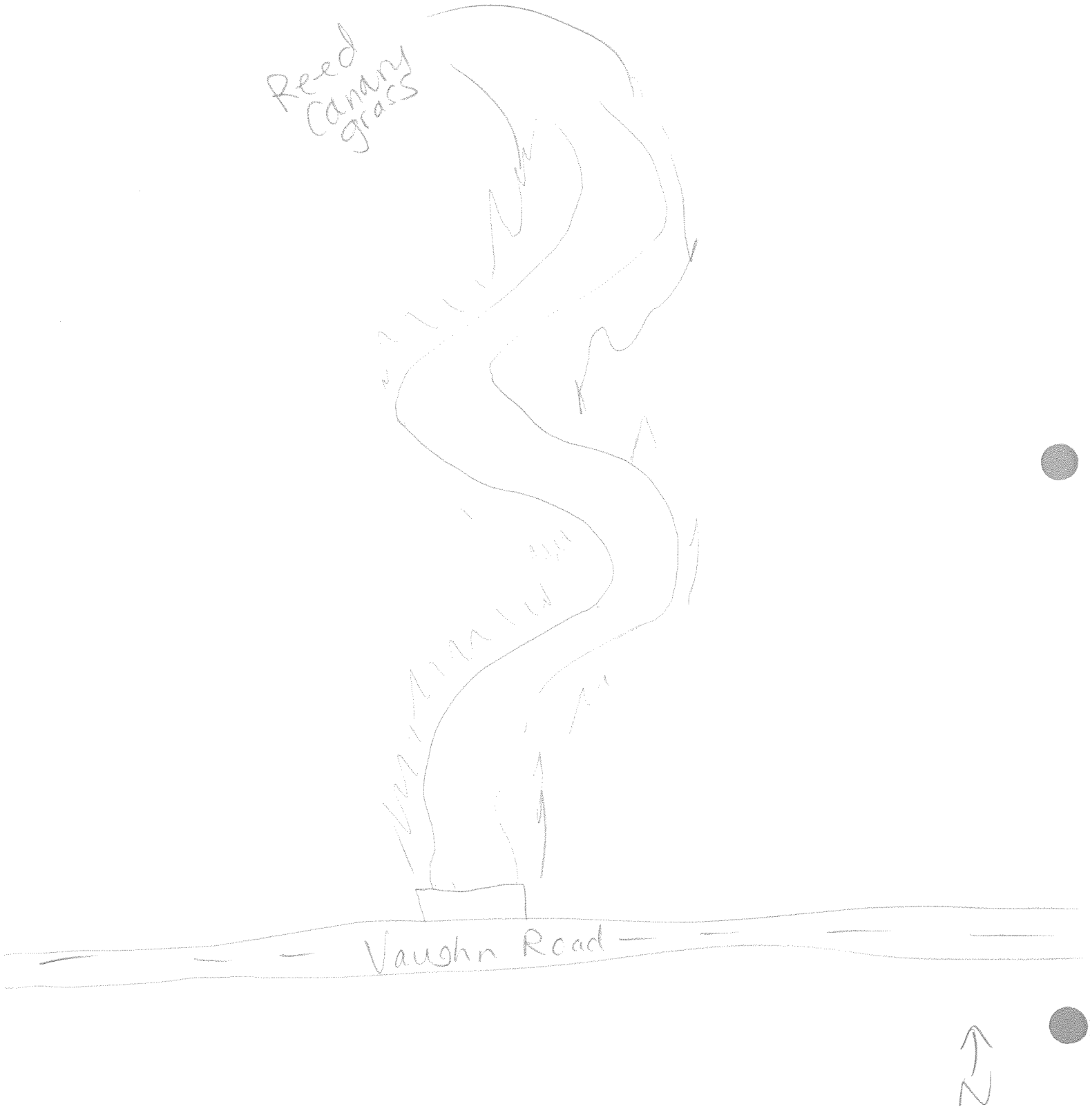
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
15%, Reed Canary grass, early
Adjacent Land Use
Cropland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Pot spawning, nursery, foraging in Spring
Migratory Obstructions (seasonal, permanent)
permanent
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. —
• Leopard frogs • Very turbid water w lots of algae. North side of REA flows through cropland & earthside
• green frogs

Field Notes Authored by K Clayton Field Notes QA/QCed by ME


Reed
Canary
grass
Vaughn Road
N

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 44-1
Watercourse Name unknown
Photos
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Veene, K. Clayton
Time 10:21

Weather conditions in previous 24 hrs hot + humid
GPS Coordinates (Zone) 17T E 622021 N 4765373 Datum Nad83
Descriptive Location West side of Regional Rd 27, North of Vaughn Rd

Water Quality - no water

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble 40 Sand 10 Silt _____ Muck
_____ Boulder _____ Gravel 50 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Reed Canary, Typha)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
85% grasses, early
Adjacent Land Use
Ag

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by K Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 44-2
Watercourse Name unknown
Photos
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keehe, K. Clayton
Time 10:30

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 622021 N 4765373 Datum Nad83
Descriptive Location off of Regional Rd 27 (East side), North of Vaughn Rd.

Water Quality

dry

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 1-2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

	Bedrock		Cobble	40	Sand	10	Silt		Muck
	Boulder		Gravel	50	Clay		Marl		Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
85%, grasses, early
Adjacent Land Use
crops - Alfafa, soy

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
potential spawning in spring
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K Clayton Field Notes QA/QCed by MF

Central Welland River
↳ unnamed Creek

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

NON REA

Station # 45-1
Watercourse Name unknown
Photos 9123 - 9125
Date June 20/12

Project Name Niagara Wind
Project # 160950269
Field Staff K. clayton, J. keene
Time 10:45

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 624027 E 4765154 N Datum Nad 83 17T
Descriptive Location East of Turbine 76, off of Vaughn Rd

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50% grasses, early
Adjacent Land Use
farmland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K clayton Field Notes QA/QCed by JK

Unnamed creek to CWR.

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Non REA

Station # 45-2
Watercourse Name Unknown
Photos 9126-9128
Date June 20/12
Project Name Niagara Wind
Project # 160950269
Field Staff K Clayton, J Keene
Time 10:45
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 624331 E 4765169 N Datum 17T Nad.
Descriptive Location East of 45-1, off of Vaughn Rd.

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg - Typha RCG)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Bg, Typha, early
Adjacent Land Use
Agricultural land

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
—
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. Clayton Field Notes QA/QCed by JK

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Station # 46-1
Watercourse Name unknown
Photos
Date June 20/12
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 626828 N 4765319 Datum Nad83
Descriptive Location N of Vaughn Rd, West of Gee Road

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 17:14

Water Quality
Dissolved Oxygen (mg/L) - Dry pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 30°C
Time *in situ* measurements taken

Watercourse Dimensions & Morphology
Mean Watercourse Width (m)
Mean Bankfull Width 3m (m)
Maximum Pool Depth (cm)
Mean Water Depth (cm)
% Riffle % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability

Substrate (% cover)
Bedrock Cobble 10 Sand 40 Silt Muck
Boulder Gravel 50 Clay Marl Detritus

In-water Cover
Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Deep Pool Watercress Aquatic Veg (cattail)
Woody Debris Boulder Other

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
75% grasses, early
Adjacent Land Use
Corn & Soy

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
potential spawning habitat
Migratory Obstructions (seasonal, permanent)
dry - seasonal
Note any fish observations

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by K clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 47-1
Watercourse Name unknown
Photos
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff J. Veen, K. clayton
Time 15:14

Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 621983 N 4766607 Datum Nad83
Descriptive Location off of corner of Regional Rd 20 & 27

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____ - no water
Water Temperature (°C) _____ Air Temperature (°C) 32°C +
Time *in situ* measurements taken

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability stable banks.

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Typha Phragmites)
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, typha, early
Adjacent Land Use
field, residential, road

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
-
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations -

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. along side Road dominated by typha & Phragmites, & through field.

Field Notes Authored by K. Clayton Field Notes QA/QCed by MF

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

REA

Station # 47-2
Watercourse Name unknown
Photos
Date June 21/12
Weather conditions in previous 24 hrs Hot & humid
GPS Coordinates (Zone) 17T E 622651 N 4766473 Datum Nad83
Descriptive Location off of Regional Rd 20, E of 47-1

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 15:25

Water Quality - dry
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Typha, RCG, Phrag) Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, RCG, early
Adjacent Land Use
Residential, Road, Ag

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by K Clayton Field Notes QA/QCed by ME

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 47-3
Watercourse Name unknown
Photos
Date June 21/12
Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 623014 N 4766498 Datum Nad83
Descriptive Location off of Regional Road 20, East of 47-2

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 15:30

Water Quality
Dissolved Oxygen (mg/L) ______ pH ______ – Dry Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 32°C
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology
Mean Watercourse Width ______ (m) Maximum Pool Depth ______ (cm)
Mean Bankfull Width 1.5 (m) Mean Water Depth ______ (cm)
______ % Riffle ______ % Pool ______ % Run ______ % Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)
______ Bedrock ______ Cobble ______ Sand ______ Silt ______ Muck
______ Boulder ______ Gravel ______ Clay ______ Marl ______ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Reed, Typ, Sed)
Overhanging Vegetation Woody Debris Boulder Other ______

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
90%, Typha, early
Adjacent Land Use
farmland, Road,

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations ______

Waterbody Notes on southside
Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale ______ Buried Tile ______
Surficial Drainage (i.e. furrows) ______ Dugout Pond ______ Dominated by Aquatic Veg ______ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. –

Field Notes Authored by K. Clayton Field Notes QA/QCed by MEE

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Defined on south side ~~lack~~ of def'n on north less ? DRL

Station # 48-1
Watercourse Name unknown
Photos See photo log
Date June 22/12
Weather conditions in previous 24 hrs Minor precip
GPS Coordinates (Zone) 17T E 0623407 N 4766520 Datum Nad83
Descriptive Location On R.R.20 ~ 1km east of R.R.27

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 10:31

Water Quality

DRY

Dissolved Oxygen (mg/L) ______ pH ______ Conductivity (µS/cm) ______
Water Temperature (°C) ______ Air Temperature (°C) 28°C
Time *in situ* measurements taken ______

Watercourse Dimensions & Morphology

DRY

Mean Watercourse Width 1.0 (m) Maximum Pool Depth — (cm)
Mean Bankfull Width 2.0 (m) Mean Water Depth — (cm)
— % Riffle — % Pool — % Run — % Flat
Evidence of eroding banks, Comments on bank stability ______

Substrate (% cover)

	Bedrock		Cobble	10	Sand	20	Silt	20	Muck
	Boulder	10	Gravel	40	Clay		Marl		Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg — circled)
Overhanging Vegetation Woody Debris Boulder Other ______

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% mature tree, reed canary grass
Adjacent Land Use
house, roads, ag fields.

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations
none.

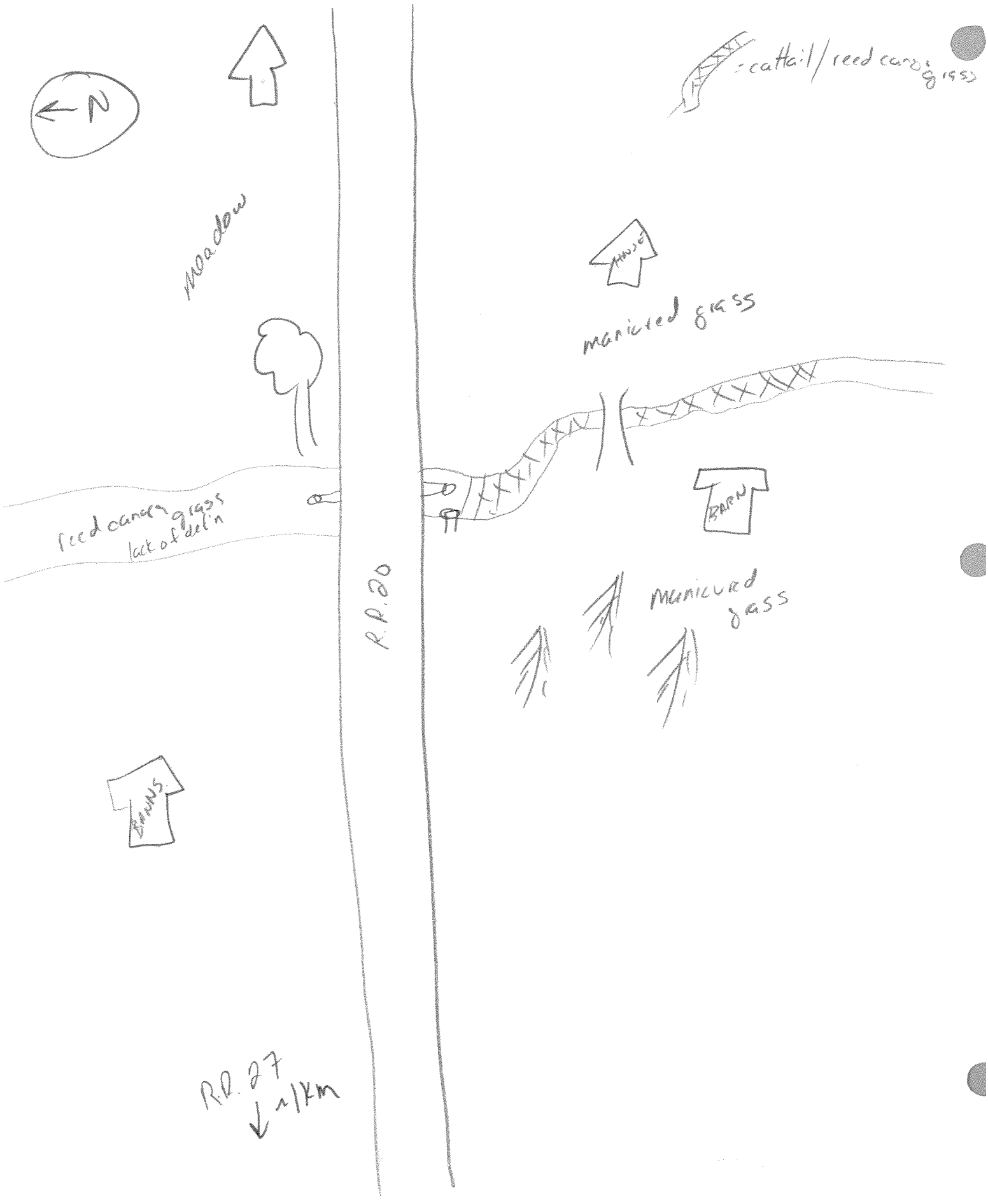
Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale ✓ Buried Tile ___
Surficial Drainage (i.e. furrows) ___ Dugout Pond ___ Dominated by Aquatic Veg ✓ Dry ___

Other Habitat Notes, Incidental Wildlife Observations, etc. ______

Field Notes Authored by MF Field Notes QA/QCed by MEE

W:\resource\Internal Info and Teams\Aquatic Resources\Field Sheets\Stantec\Form 02 Wind Farm Waterbody Rapid Assessment Form.doc


N
meadow
cattail / reed canary grass
manicured grass
HOUSE
BARNS
reed canary grass
lack of del'n
R.R.20
BARN
manicured grass
R.R. 27
~1Km

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA
Intermit
well defined

Stantec

Station # 49-1
Watercourse Name unknown
Photos See photo log
Date June 22/12
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 09:52
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0626247 N 4766926 Datum Nad83
Descriptive Location On Silverdale Rd ~ 200m north of R.R.20

too shallow. Standing water.

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 25°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.0 (m) Maximum Pool Depth 10 (cm) @ west of culv opening
Mean Bankfull Width / (m) Mean Water Depth / (cm)
/ % Riffle 100 % Pool / % Run / % Flat
Evidence of eroding banks, Comments on bank stability none. well veg'd.

Substrate (% cover)

/ Bedrock / Cobble / Sand 40 Silt 30 Muck
/ Boulder / Gravel 30 Clay / Marl / Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% mature trees near by
Adjacent Land Use
ag fields, house, rds.

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
Dry - water @ west end culvert only. - East end dry
Note any fish observations none.

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale / Buried Tile /
Surficial Drainage (i.e. furrows) / Dugout Pond / Dominated by Aquatic Veg / Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Barn swallows, green frogs, tadpoles

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
R.R.20
grass
DRY
SW
corn
manicured grass
SILVERDALE RD.
soy
manicured grass
DRY

Unnamed Creek to CWR

Nar REA

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Station # 50-1
Watercourse Name unknown
Photos
Date June 20/12
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 621891 E 4767594 N Datum NAD 83
Descriptive Location Runs north & south along Regional Rd 20 of concession 4, west of 50-2

Project Name Niagara Wind
Project # 1609.50269
Field Staff K. Clayton J. Keene
Time 16:05

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use Road, farmland

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent) dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by K clayton Field Notes QA/QCed by JK

Unnamed Creek to CWR

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Station # 50-2
Watercourse Name Unknown
Photos
Date June 20/12

Project Name Niagara Wind
Project # 160960269
Field Staff K. Clayton, J. Kemp
Time 16:05

Weather conditions in previous 24 hrs Hot & humid
GPS Coordinates (Zone) 620065 E 4767850 N Datum NAD83
Descriptive Location E of Regional Rd 20, @ 50-1, off of Concession 4

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
farmland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
dry channel
Note any fish observations _____

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by K. Clayton Field Notes QA/QCed by TK

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 51-S1 mid.
Watercourse Name unknown
Photos
Date June 21/12
Weather conditions in previous 24 hrs
GPS Coordinates (Zone) 17T E 621997 N 4768690 Datum Nad83
Descriptive Location off of Regional Road

Project Name Niagara Wind
Project # 160958269
Field Staff J. Keene, K. Clayton
Time 15:52

Water Quality
Dissolved Oxygen (mg/L) no water pH Conductivity (µS/cm)
Water Temperature (°C) Air Temperature (°C) 33°C
Time *in situ* measurements taken

Watercourse Dimensions & Morphology
Mean Watercourse Width (m)
Mean Bankfull Width 2 (m)
Maximum Pool Depth (cm)
Mean Water Depth (cm)
% Riffle % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability

Substrate (% cover)
Bedrock Cobble Sand Silt Muck
Boulder Gravel Clay Marl Detritus

In-water Cover
Cover Types Present (circle):
Overhanging Vegetation Undercut Banks Woody Debris Deep Pool Boulder Watercress Aquatic Veg (Typha R) Other

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
100%, Typha, early
Adjacent Land Use
SOY, Road, forest

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent) dry
Note any fish observations

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. MP moderately defined channel
butt Typha corridor - a little water, not enough to get YS

Field Notes Authored by K. Clayton Field Notes QA/QCed by MEE

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REF

Stantec

Station # 52-1
Watercourse Name unknown
Photos
Date June 21/12
Weather conditions in previous 24 hrs Hot + humid.
GPS Coordinates (Zone) 17T E 602011 N 4769771 Datum Nad83
Descriptive Location off of Regional Rd 569, near intersection of RR20

Project Name Niagara Wind
Project # 160958269
Field Staff J. Veene, K. Clayton
Time 16:03

Water Quality
Dissolved Oxygen (mg/L) 2.10 pH 8.23 Conductivity (µS/cm) 1165
Water Temperature (°C) 25.54 Air Temperature (°C) 32°C+
Time *in situ* measurements taken 16:05

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.5 (m) Maximum Pool Depth 0.15 (cm)
Mean Bankfull Width 5 (m) Mean Water Depth 0.10 (cm)
____ % Riffle ____ % Pool 100 % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability Stable - vegetated

Substrate (% cover)
____ Bedrock ____ Cobble 10 Sand 40 Silt ____ Muck
____ Boulder ____ Gravel 50 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg (Iris, Typ, Plain duckweed)
Overhanging Vegetation Woody Debris Boulder Other algae

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Sedge, Typha, early
Adjacent Land Use farmland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawning, nursery, foraging
Migratory Obstructions (seasonal, permanent)
permanent - could be almost dry by end of summe
Note any fish observations —

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. Turbid water

Field Notes Authored by K. Clayton Field Notes QA/QCed by MEE

non REA - South

WIND FARM WATERBODY RAPID ASSESSMENT FORM

~~north~~ South REA

Stantec

Wet @ culvert only

Station # 54-1
Watercourse Name unknown
Photos See photo log
Date June 22/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 09:34

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0626245 N 4769264 Datum Nad83
Descriptive Location On Fifteen Rd ~ 300m east of Silverdale Rd

Water Quality

STAND WATER ONLY

Dissolved Oxygen (mg/L) ✓ pH ✓ Conductivity (µS/cm) ✓
Water Temperature (°C) ✓ Air Temperature (°C) 24°c
Time *in situ* measurements taken ✓

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.6 (m) Maximum Pool Depth 0.20 (cm)
Mean Bankfull Width 1.0 (m) Mean Water Depth 0.10 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability mod defn, minor scour

Substrate (% cover)

____Bedrock ____Cobble ____Sand 40 Silt 30 Muck
____Boulder ____Gravel 30 Clay ____Marl ____Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% reed canary grass
Adjacent Land Use
ag fields, rd, farms.

Fish Habitat Potential

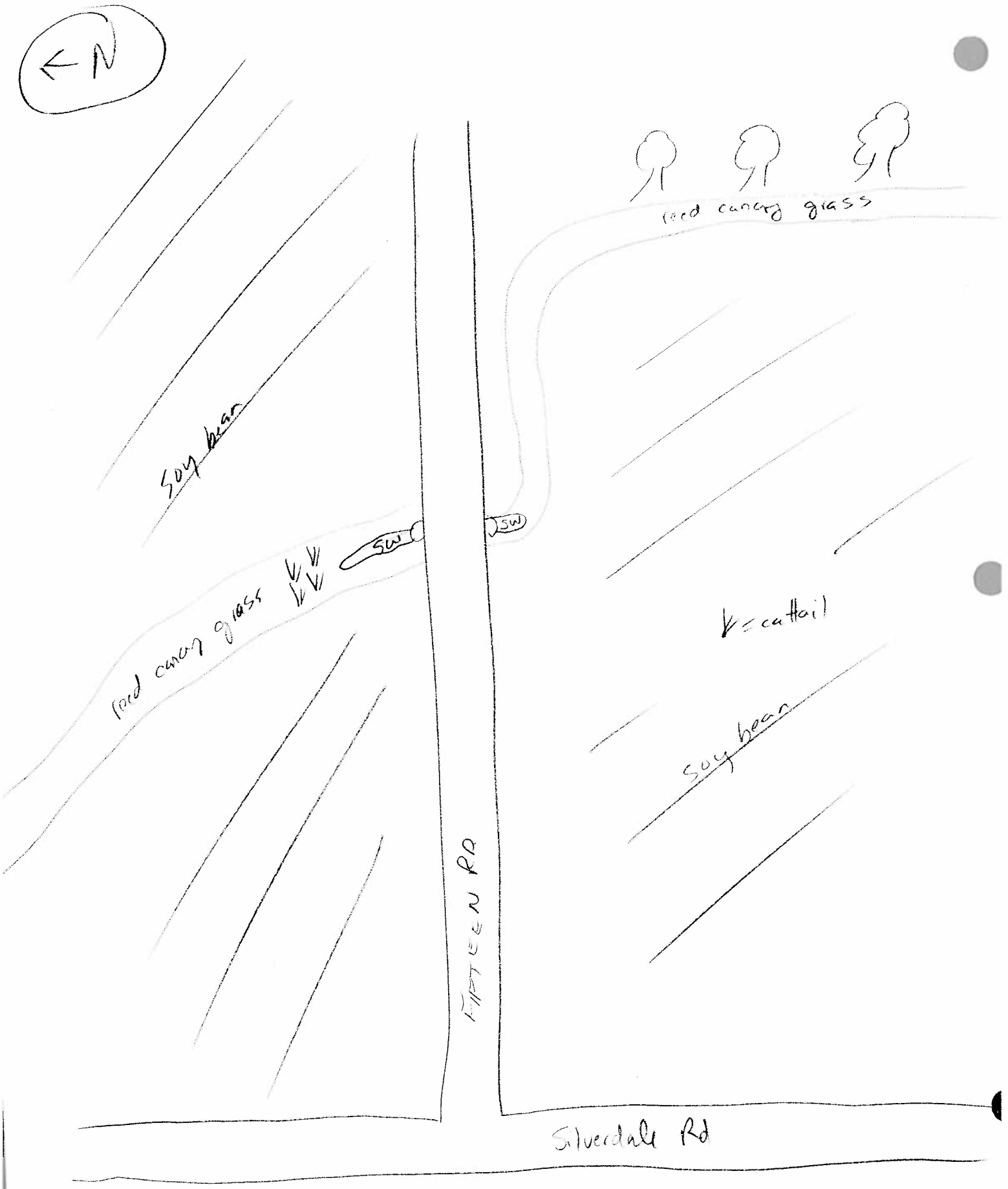
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
dry @ times
Note any fish observations yes

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. frog sp, tadpoles, song sparrow

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
soybean
SW
SW
reed canary grass
reed canary grass
V = cattail
soybean
MATTEEN RD
Silverdale Rd

Pond is ~~off.~~ flows providing

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA
DRY

Stantec

Station # SS-1
Watercourse Name unknown
Photos See photo log
Date June 22/12.

Project Name Niagara Wind
Project # 160958269
Field Staff MF, ME
Time 08:51

Weather conditions in previous 24 hrs Minor amounts of rain
GPS Coordinates (Zone) 17T E 0627007 N 4768151 Datum Nad83
Descriptive Location On Concession 4 ~ 800m east of Beamer Rd.

Water Quality

DRY
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 23°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.2 (m) Maximum Pool Depth — (cm)
DRY
Mean Bankfull Width 3.0 (m) Mean Water Depth — (cm)
— % Riffle — % Pool — % Run — % Flat
Evidence of eroding banks, Comments on bank stability
minor scour near road

Soil = 10.

Substrate (% cover)

Bedrock Cobble Sand 40 Silt 10 Muck
Boulder Gravel 40 Clay Marl Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
70% mature + immature tree + shrub species on both banks.
Adjacent Land Use
House, ag fields, rd.

Fish Habitat Potential

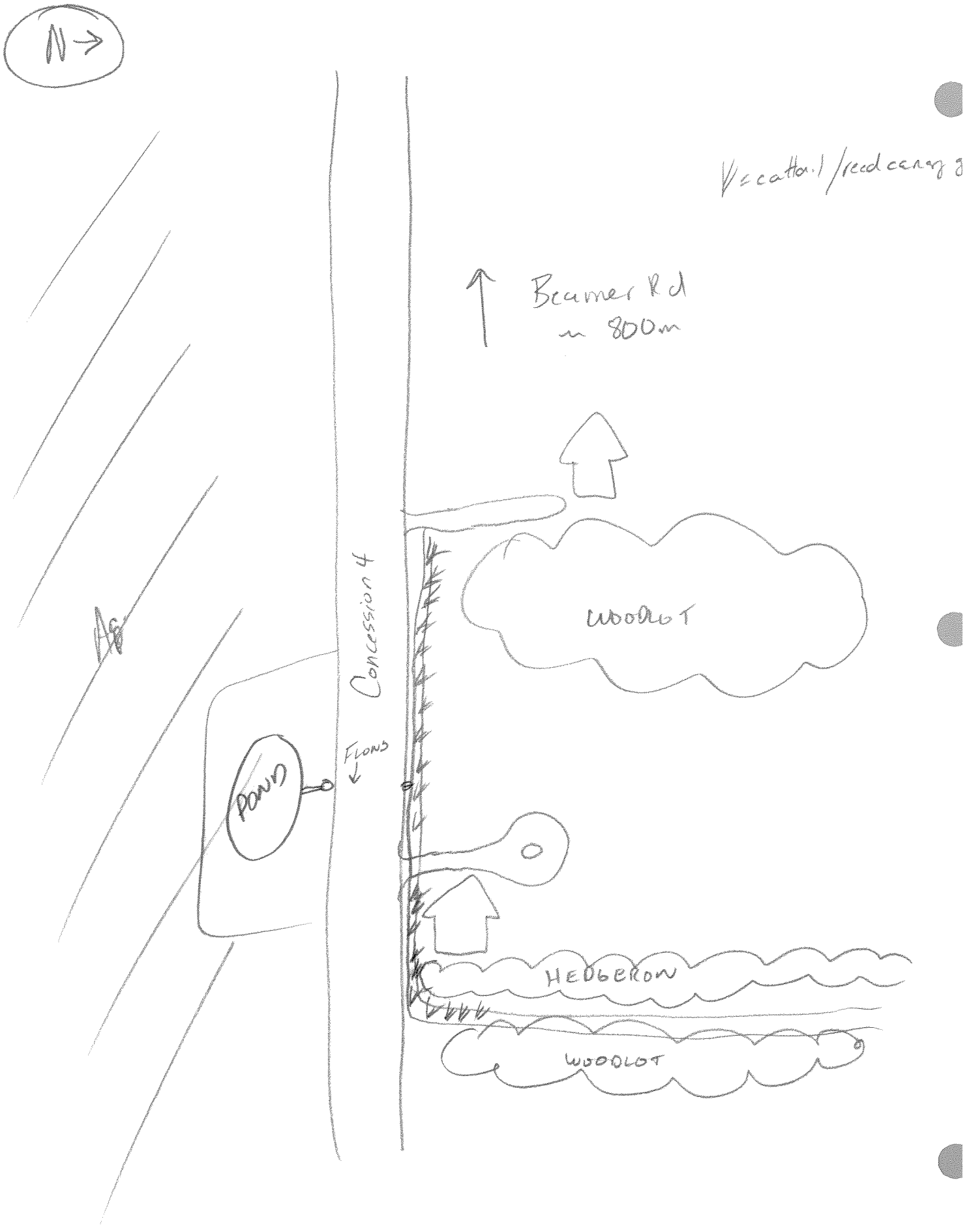
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn.
Migratory Obstructions (seasonal, permanent)
Dries up.
Note any fish observations none.

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. Green Heron, green frogs. Songbirds.

Field Notes Authored by MF Field Notes QA/QCed by MLEE


N →
Beamer Rd
~ 800m
Concession 4
WOODLOT
POND
FLOWS
HEDGEROW
WOODLOT

REA
DRY
little definition

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 55-2
Watercourse Name unknown
Photos See photo log
Date June 22/12
Project Name Niagara Wind
Project # 160958269
Field Staff ME/MF
Time 09:18
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0625497 N 4768055 Datum Nad83
Descriptive Location On Con 4 ~600m west of Beamer Road

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 23°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 1.0 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 1.2 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability minor scour.
~~50% = north side 0% = south side N = mature trees.~~

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand 50 Silt 10 Muck
_____ Boulder _____ Gravel 40 Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

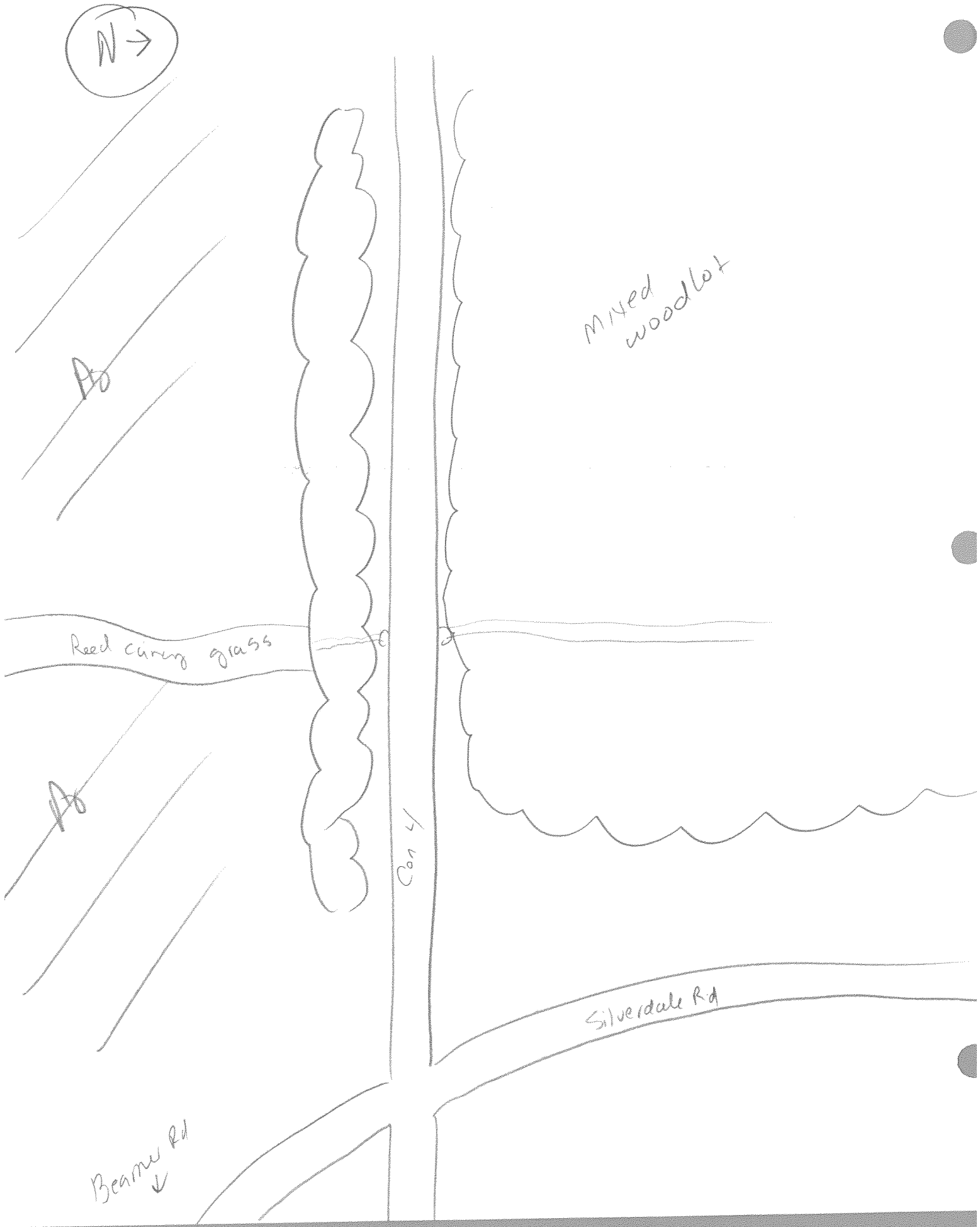
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50% north side (mature trees) 0% south side through field
Adjacent Land Use
ag field, woodlot, rd

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations none

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
Mixed woodlot
Reed canary grass
Con 4
Silverdale Rd
Beamer Rd

WIND FARM WATERBODY RAPID ASSESSMENT FORM

NON REA

Stantec

Terrestrial swale — No def'n @ either culvert end.

Station # 56-1 | Project Name Niagara Wind
Watercourse Name unknown | Project # 160958269
Photos See photo log | Field Staff ME, MF
Date June 21/12 | Time 15:14
Weather conditions in previous 24 hrs No rain - hot + humid
GPS Coordinates (Zone) 17T E 0628139 N 4768199 Datum Nad83
Descriptive Location On Concession 4 n 500 m east of Hodgkins Rd.

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

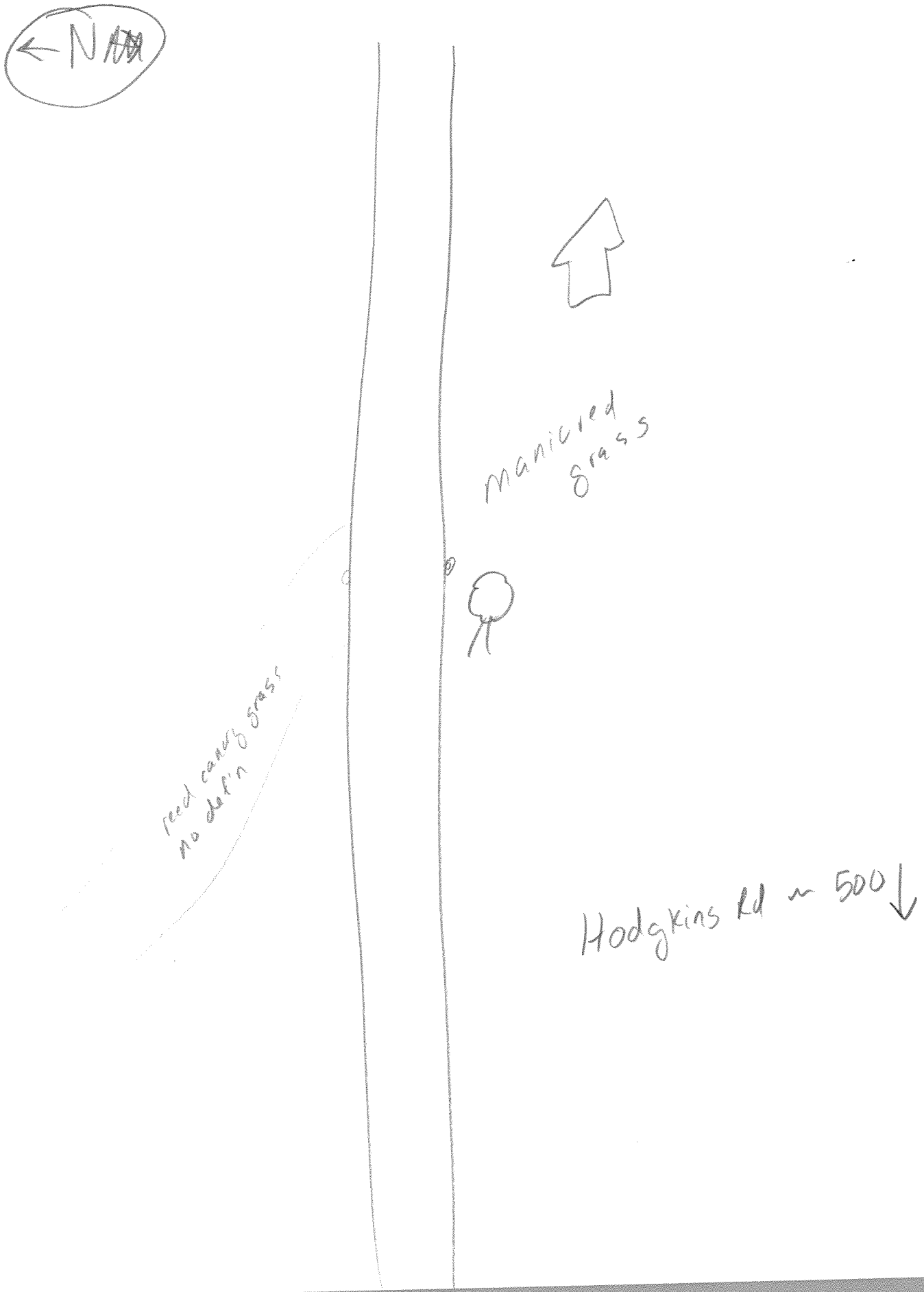
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
ag field, rd, house

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
Note any fish observations _____

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. bobolink

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
manicured grass
reed canary grass
no dam'n
Hodgkins Rd ~ 500

* Check w Katie + Joes notes

NON REA

Grass/Ag Swal DRY

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 56-2
Watercourse Name unknown
Photos See photo log
Date June 21/12.

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 15:23

Weather conditions in previous 24 hrs no rain
GPS Coordinates (Zone) 17T E 0627591 N 4768237 Datum Nad83
Descriptive Location On Hodgkin Rd ~30 m north of Concession 4.

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
Ag, fields, rds

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
_____
Note any fish observations _____

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
WOODLOT
Corn
Ditch
Hodgkin Rd
Corn
Concession 4
Corn

* Check w Katie + Joe notes

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

NON-REG DRY

Station # 56-WB3
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 13 : 40

Weather conditions in previous 24 hrs No rain
GPS Coordinates (Zone) 17T E 0627688 N 4768178 Datum Nad83
Descriptive Location On Concession 4 ~70m east of Hodgkins Rd.

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, ~~mature~~ or early successional)
_____
Adjacent Land Use
ag Fields

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____
none

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Bobolink

Field Notes Authored by MF Field Notes QA/QCed by MEE


Con 4
Hudgin Rd
56-2 NON-REA
REA - Previously assessed
2x3m wide patch of cattail
Tree veg.
56-2 Non REA
minimal depth full of tree veg.

CROWN: well mix of Aquatic veg + Terr veg. Defined through dredging.
HOLMES: Ag field, planted + harvested, drains through it

REA
DRY

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 56-4
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 16:10

Weather conditions in previous 24 hrs No rain
GPS Coordinates (Zone) 17T E 0627568 N 4768098 Datum Nad83
Descriptive Location Immediatly south of Concession 4 + west of Hodgkin Rd. on the Crown property

Water Quality

DRY

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

DRY

Mean Watercourse Width 2.0 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 2.5 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability minor undercutting

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand 40 Silt 30 Muck
_____ Boulder _____ Gravel 30 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0%
Adjacent Land Use
ag field, house

Fish Habitat Potential

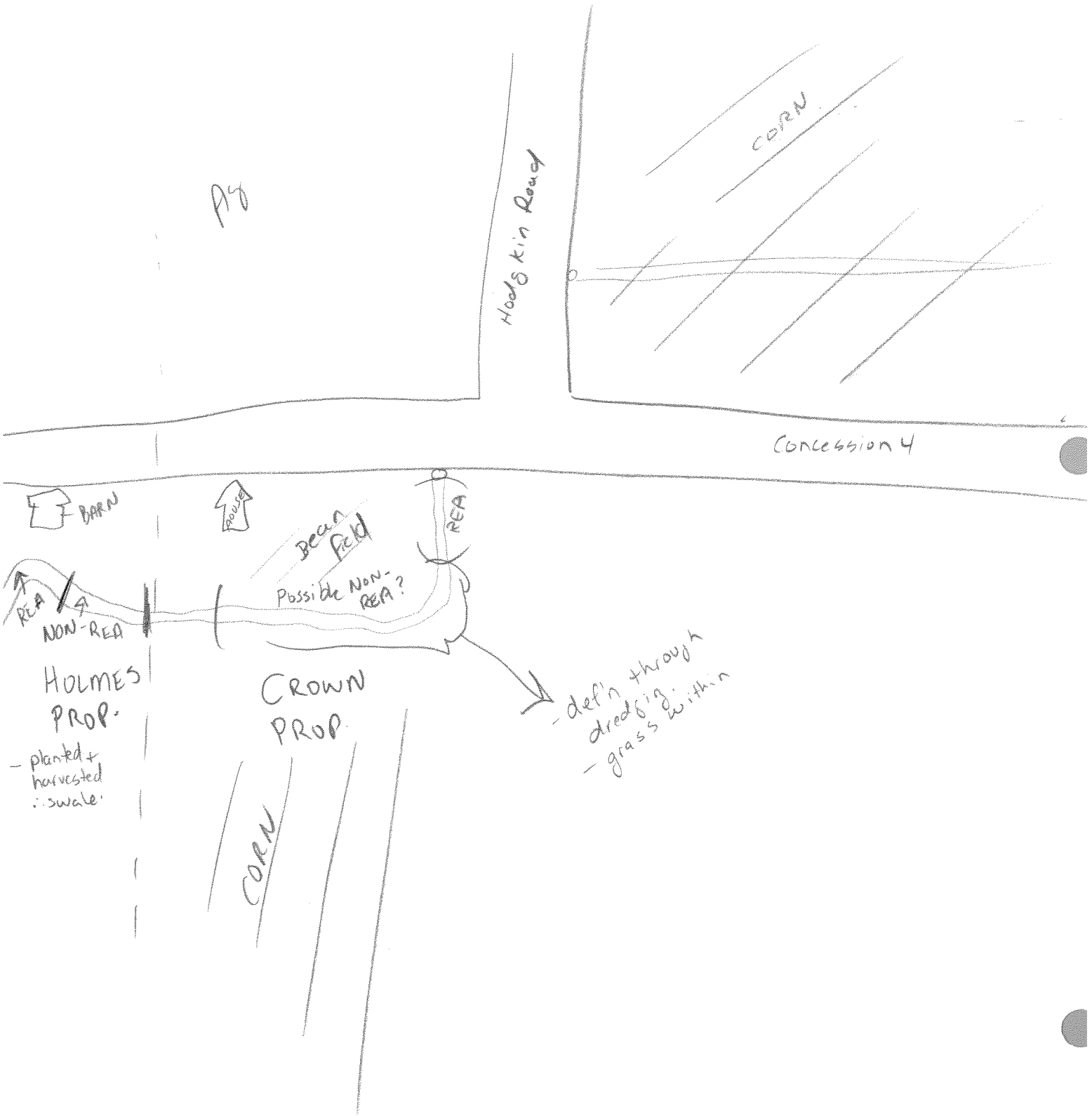
Critical Habitat (spawning or nursery areas, groundwater upwellings)
none.
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations
none

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. Snake sp.

Field Notes Authored by ME Field Notes QA/QCed by MEE


Pig
Hoadgkin Road
CORN
Concession 4
BARN
POWER
REA
Bean Field
Possible Non-REA?
REA
NON-REA
HOLMES PROP.
- planted + harvested : swale.
CROWN PROP.
CORN
- def'n through dredging within grass

NON REA
57-1

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 57-1
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:02

Weather conditions in previous 24 hrs no rain
GPS Coordinates (Zone) 17T E 0630072 N 4768285 Datum Nad83
Descriptive Location On Concession 4 ~ 600m east of Rosedene Rd

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31 °C
Time *in situ* measurements taken _____

DO 4

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m)
Mean Bankfull Width _____ (m)
Maximum Pool Depth _____ (cm)
Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
ag field, rd

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
_____
Note any fish observations _____
_____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale ✓ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____
None.

Field Notes Authored by MF Field Notes QA/QCed by MEE


N→
Rosedene Rd
~600m
Soy bean
Concession 4
NON REA
meadow.
57-1
CUT FIELD

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 57-2
Watercourse Name unknown
Photos See photo log
Date June 21/12
Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 14:10
Weather conditions in previous 24 hrs No rain - hot & humid
GPS Coordinates (Zone) 17T E 0629477 N 4768259 Datum Nad83
Descriptive Location On Concession 4 ~ 200m east of Rosedene Rd

Water Quality

Dissolved Oxygen (mg/L) 7.77 pH 7.75 Conductivity (µS/cm) 1517
Water Temperature (°C) 24.30 Air Temperature (°C) 31°C
Time *in situ* measurements taken 14:20

Watercourse Dimensions & Morphology

Mean Watercourse Width 3.5 (m) Maximum Pool Depth 20 (cm)
Mean Bankfull Width 6.0 (m) Mean Water Depth 10 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability None observed

Substrate (% cover)

Bedrock	Cobble	Sand 50	Silt 30	Muck
Boulder	Gravel 20	Clay	Marl	Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% reed canary grass, mature tree
Adjacent Land Use
house, ag, rds

Fish Habitat Potential

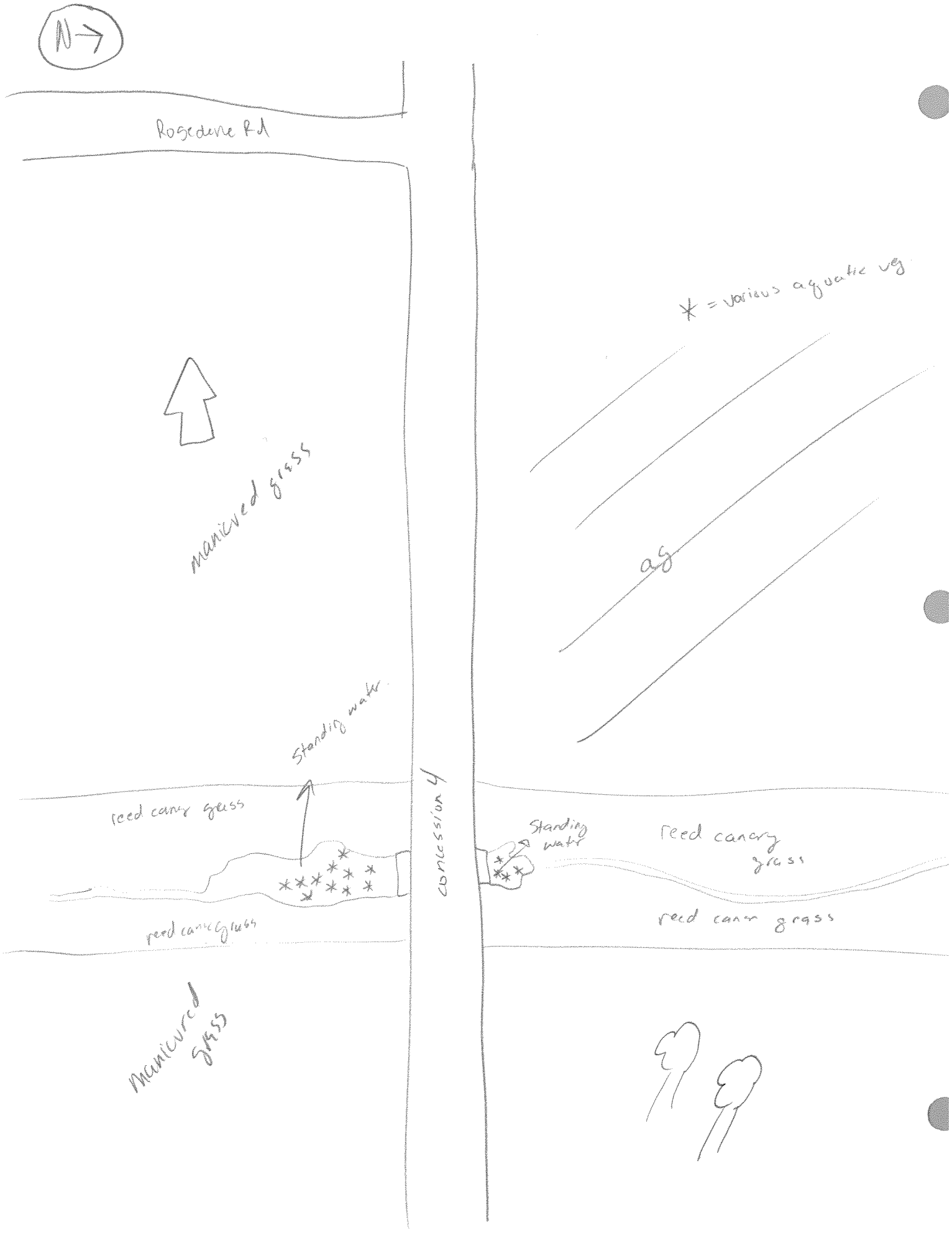
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
dry @ times.
Note any fish observations none

Waterbody Notes

Natural Watercourse____ Trapezoidal Channel ✓ Grassed Swale____ Buried Tile____
Surficial Drainage (i.e. furrows)____ Dugout Pond____ Dominated by Aquatic Veg ✓ Dry____

Other Habitat Notes, Incidental Wildlife Observations, etc. many frog sp.

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Rosedene Rd
manicured grass
* = various aquatic veg
ag
standing water
reed canary grass
concession 4
standing water
reed canary grass
reed canary grass
reed canary grass
manicured grass

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Standing water @ culvert openings only. well defined

Stantec

Station # 57.3
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 14:24

Weather conditions in previous 24 hrs no rain
GPS Coordinates (Zone) 17T E 0629268 N 4767882 Datum Nad83
Descriptive Location On Rosedene Rd ~ 300m south of Concession 4

Water Quality
Dissolved Oxygen (mg/L) 8.46 pH 8.02 Conductivity (µS/cm) 1674
Water Temperature (°C) 23.18 Air Temperature (°C) 32°C
Time *in situ* measurements taken 14:35

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.0 (m) Maximum Pool Depth 10 (cm)
Mean Bankfull Width 4.0 (m) Mean Water Depth 4 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability minor scour

Substrate (% cover)
____Bedrock ____Cobble ____Sand 40 Silt 30 Muck
____Boulder ____Gravel 30 Clay ____Marl ____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks (culvert) Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other ____

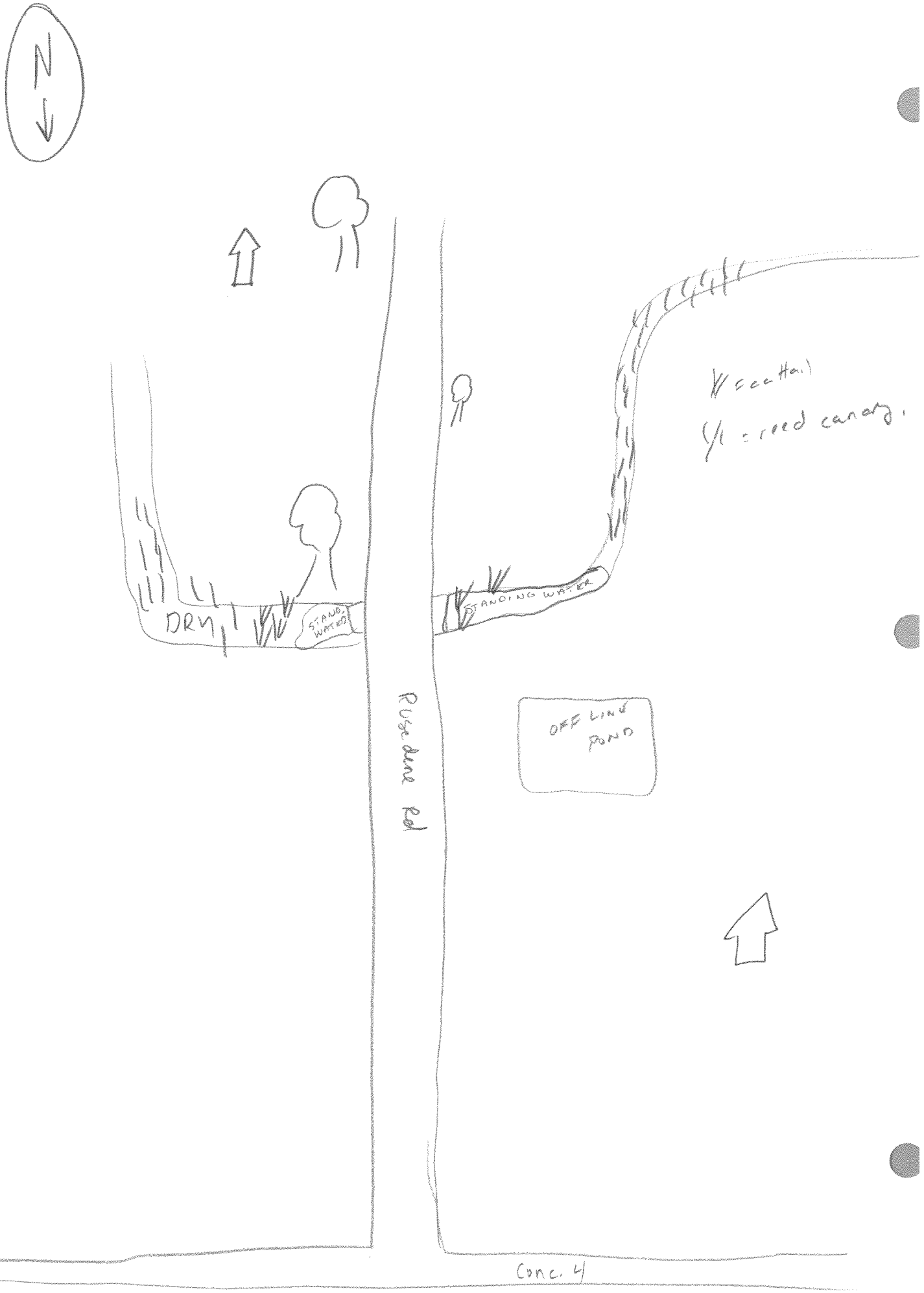
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% reedcanary grass
Adjacent Land Use
house, off-line pond, ag.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations ~~NAD~~ none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. ~~Route~~ green frogs

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
DRY
STAND. WATER
STANDING WATER
Ruse dune Rd
OFF LINE POND
= cattail
= reed canary.
Conc. 4

REA on ea side only.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

defined banks on east side only

Dry

Station # SB-1
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 13 : 30

Weather conditions in previous 24 hrs no precipitation
GPS Coordinates (Zone) 17T E 0631261 N 4768314 Datum Nad83
Descriptive Location On Victoria Rd ~ 10m South of Concession 4

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.5 (m) Maximum Pool Depth ____ (cm)
Mean Bankfull Width 1.0 (m) Mean Water Depth ____ (cm)
____% Riffle ____% Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability minor undercut banks - defined

Substrate (% cover)

____	Bedrock	____	Cobble	10	Sand	20	Silt	20	Muck
____	Boulder	20	Gravel	20	Clay	____	Marl	10	Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

- reed canary grass

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0% reed canary grass
Adjacent Land Use
ag fields, rd, house.

Fish Habitat Potential

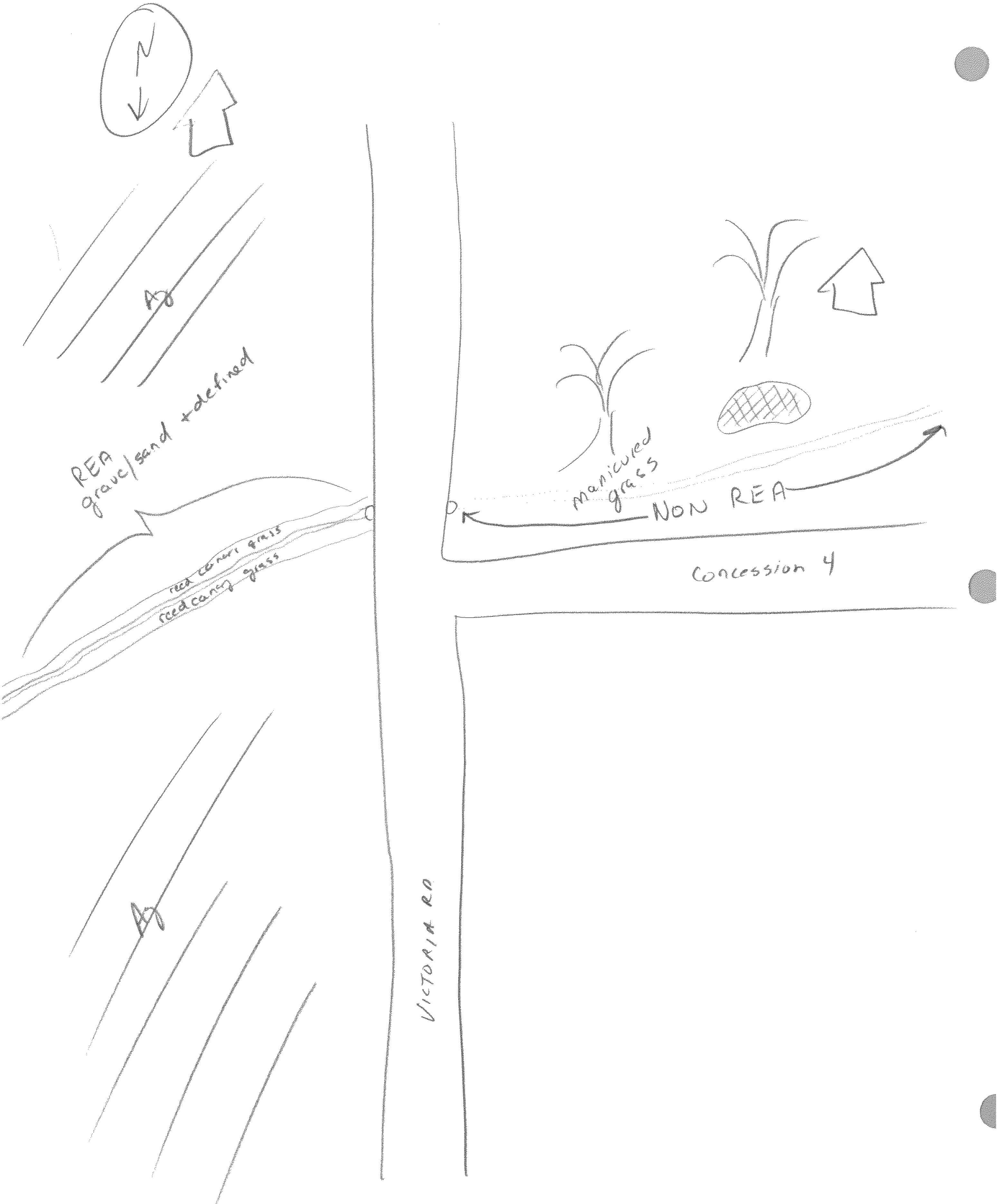
Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations none

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ✓
↓ reed canary

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF



N
Ag
REA
gravel/sand +defined
reed canari grass
reed canary grass
manicured grass
NON REA
Concession 4
Ag
VICTORIA RD

FSEM - 15 Mile Creek

Non REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 59-1
Watercourse Name Unknown
Photos
Date June 20/12
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 631169 E 4770090 N Datum NAD 83
Descriptive Location off of Victoria Avenue, N of Kilman Road

Project Name Niagara Wind
Project # 160960269
Field Staff Marc Faiella, Mitch Ellah
Time 16:30

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg) RCG
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
75% grasses, early
Adjacent Land Use
Transmission line, farmland

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by M. Faiella Field Notes QA/QCed by JK

G:\01609\resource\Internal Info and Teams\Aquatic Resources\Field Sheets\Stantec\Form 02 Wind Farm Waterbody Rapid Assessment Form.doc

FSEM 15 Mile Creek

Nar
RE

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 59-2
Watercourse Name unknown
Photos —
Date June 2012
Weather conditions in previous 24 hrs hot & humid.
GPS Coordinates (Zone) 631185 E 4769867 N Datum NAD 83
Descriptive Location off of Victoria Avenue, West of Kilman Road, south of 59-1

Project Name Niagara Wind
Project # 160950269
Field Staff K. Clayton, J. Keene
Time 16:39

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
75%, grasses, early
Adjacent Land Use
farmland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) —
Migratory Obstructions (seasonal, permanent) —
Note any fish observations dry

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by M. Fajella Field Notes QA/QCed by JK

REA on South side Grassed swale North side DRY

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 58-2
Watercourse Name unknown
Photos See photo log
Date June 21/12

Project Name Niagara Wind
Project # 160958269
Field Staff MF, ME
Time 13:36

Weather conditions in previous 24 hrs no rain
GPS Coordinates (Zone) 17T E 0630566 N 4769308 Datum Nad83
Descriptive Location On Concession 4 ~ 500 m west of Victoria Rd

Water Quality

DRY
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

DRY
Mean Watercourse Width 0.30 (m) Maximum Pool Depth ✓ (cm)
Mean Bankfull Width 1.0 (m) Mean Water Depth ✓ (cm)
✓ % Riffle ✓ % Pool ✓ % Run ✓ % Flat
Evidence of eroding banks, Comments on bank stability minor undercut on south side + scour

Substrate (% cover)

Bedrock Cobble 20 Sand 25 Silt 25 Muck
Boulder 10 Gravel 20 Clay Marl Detritus

In-water Cover

Cover Types Present (circle): (Undercut Banks) Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0% reed canary grass
Adjacent Land Use
houses, barn, rds

Fish Habitat Potential

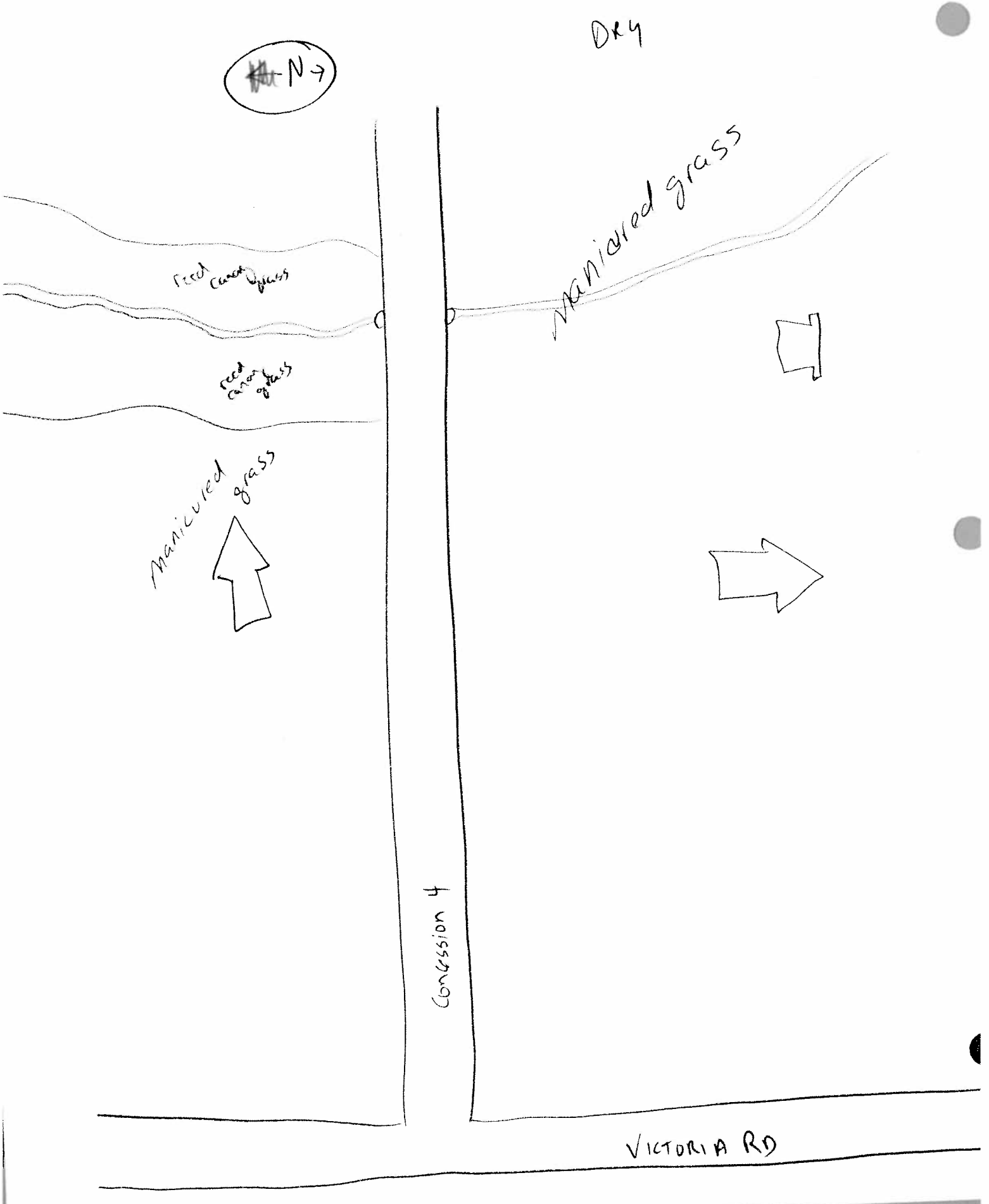
Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations none

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel _____ Grassed Swale ✓ (north) Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ (south) Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF


Dry
N
manicured grass
reed canary grass
reed canary grass
manicured grass
Concession 4
VICTORIA RD

WIND FARM WATERBODY RAPID ASSESSMENT FORM

NON REA

Stantec

See back

Station # 58-3 | Project Name Niagara Wind
Watercourse Name unknown | Project # 160958269
Photos See photo log | Field Staff ME, MF
Date June 21/12 | Time 13:51
Weather conditions in previous 24 hrs no precipitation
GPS Coordinates (Zone) 17T E 0630494 N 4768306 Datum Nad83
Descriptive Location On Concession 4 ~700m west of Victoria Rd

Water Quality

Dry

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 31°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Adjacent Land Use

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)

Migratory Obstructions (seasonal, permanent)

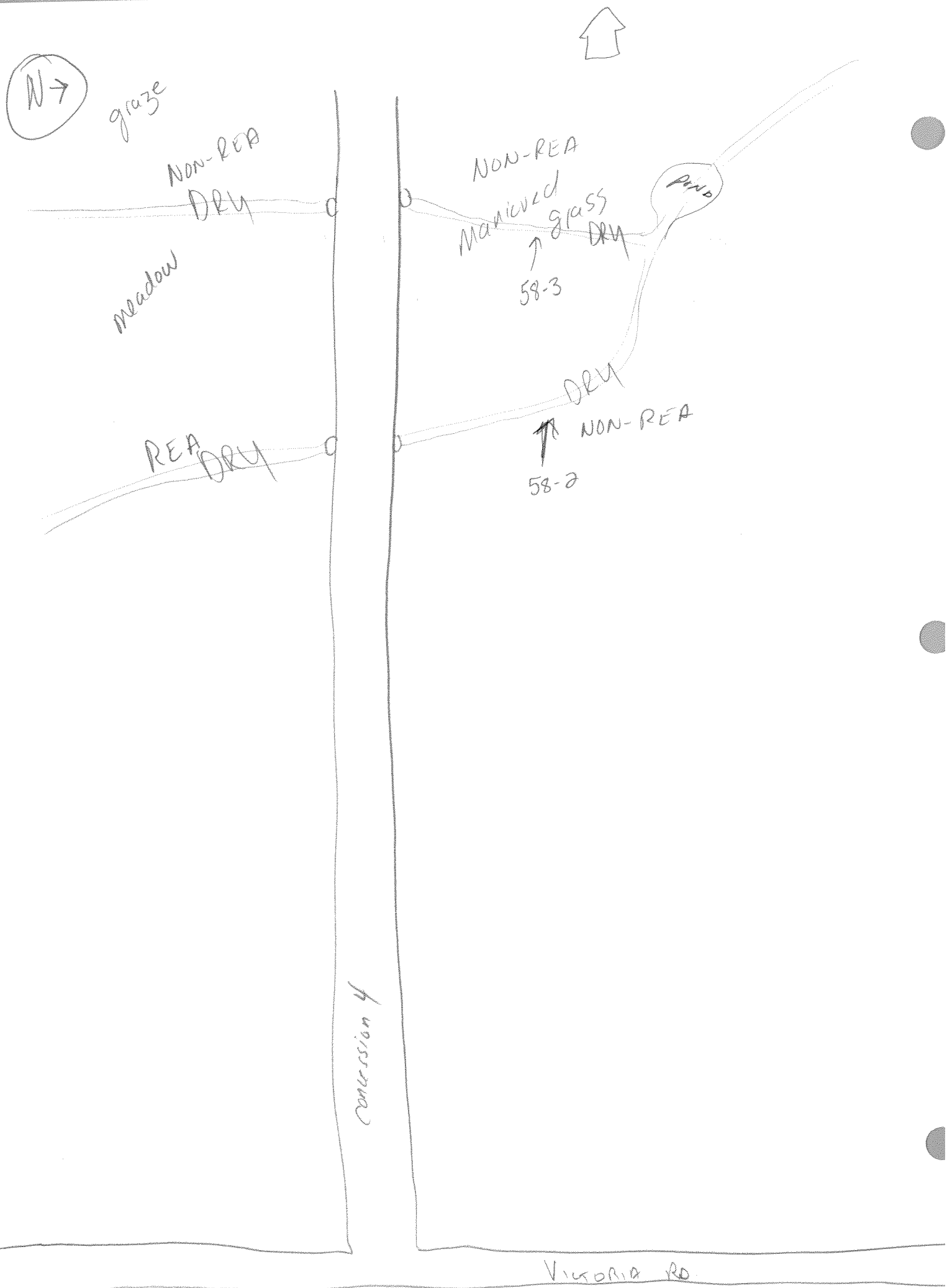
Note any fish observations

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____
None

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
graze
NON-REA
DRY
meadow
REA
DRY
NON-REA
Manicured
grass
DRY
58-3
POND
DRY
NON-REA
58-2
Concession 4
VICTORIA RD

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Major watercourse
Permanent

Station # 60-1
Watercourse Name unknown
Photos See photo log
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 16:49

Weather conditions in previous 24 hrs no precip
GPS Coordinates (Zone) 17T E 0623123 N 4771392 Datum Nad83
Descriptive Location On Victoria Road ~ 500m north of Sixteen Rd

Water Quality

Dissolved Oxygen (mg/L) 3.44 pH 7.83 Conductivity (µS/cm) 610
Water Temperature (°C) 27.80 Air Temperature (°C) 32°c
Time *in situ* measurements taken

Watercourse Dimensions & Morphology

Mean Watercourse Width 8.0 (m) Maximum Pool Depth ~>100 (cm)
Mean Bankfull Width 9.0 (m) Mean Water Depth ~>100 (cm)
% Riffle 10 % Pool % Run 90 % Flat
Evidence of eroding banks, Comments on bank stability minor undercut.

Too deep

Substrate (% cover)

Bedrock Cobble Sand Silt Muck
Boulder Gravel Clay Marl Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
12% sparse shrubs on east + west side, some trees on west side
Adjacent Land Use

Fish Habitat Potential

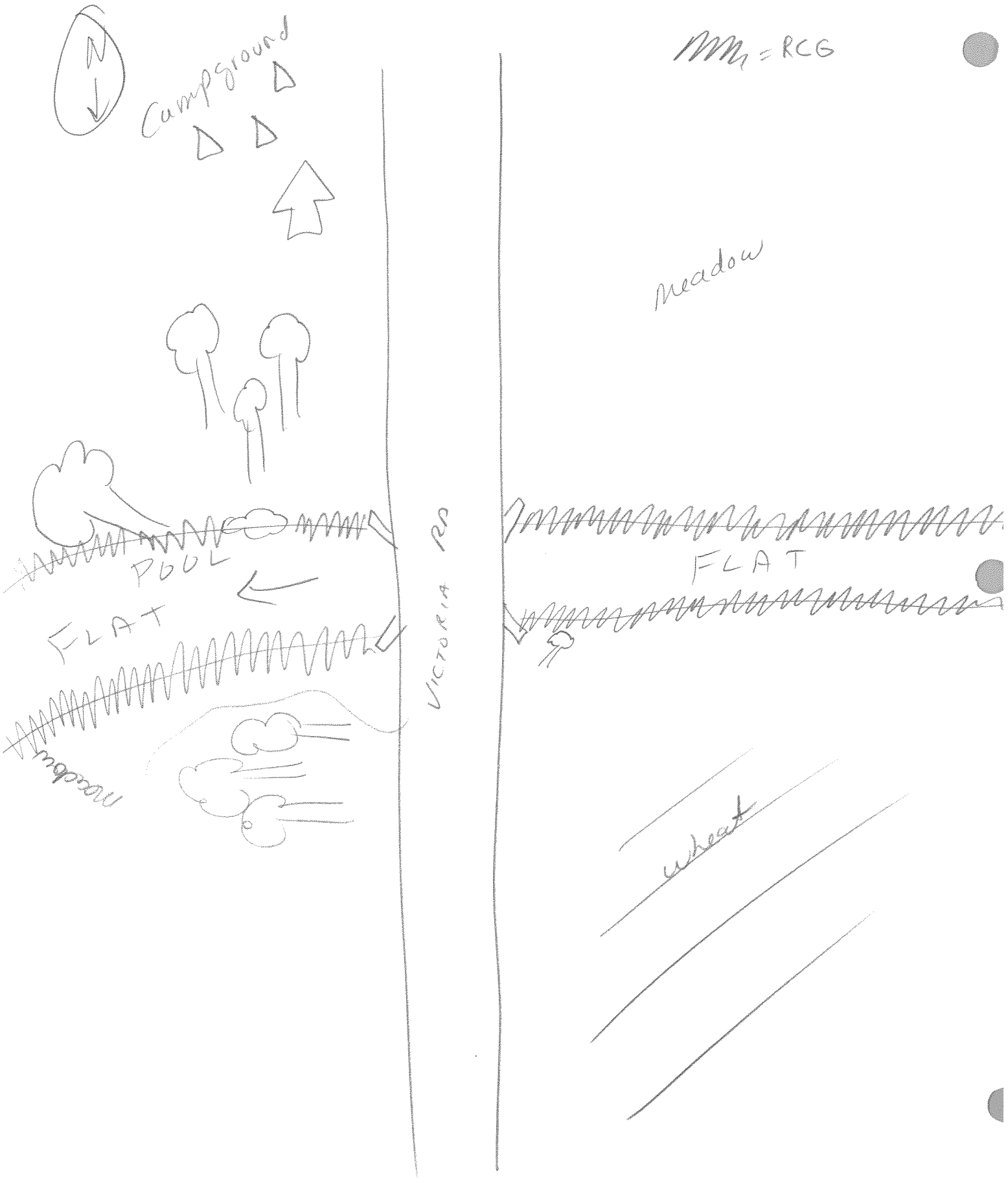
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery.
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations Carp.

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry

Other Habitat Notes, Incidental Wildlife Observations, etc. Carp (many), barn swallows

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Campground
= RCG
meadow
POOL
FLAT
VICTORIA RD
FLAT
meadow
wheat

RC6 = Reed canary grass

RE A

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

- farmer does not plow it - Very little defn within ROW - dry channel but standing water within culvert - Full of RCG

Station # 6b-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 20

Project Name Niagara Wind
Project # 160950269
Field Staff MF, MF
Time 16:35

Weather conditions in previous 24 hrs No precip
GPS Coordinates (Zone) 17T E 0631091 N 4771901 Datum NAD 83
Descriptive Location On Victoria ~ 800m South of Twenty Mile Rd

Water Quality

DRY

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

DRY

Mean Watercourse Width 2.5 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width > 20.0 (m) Flood Pl Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability none observe

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand 40 Silt 30 Muck
_____ Boulder _____ Gravel 30 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg) reed c
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0%
Adjacent Land Use
ag fields, rd

Fish Habitat Potential

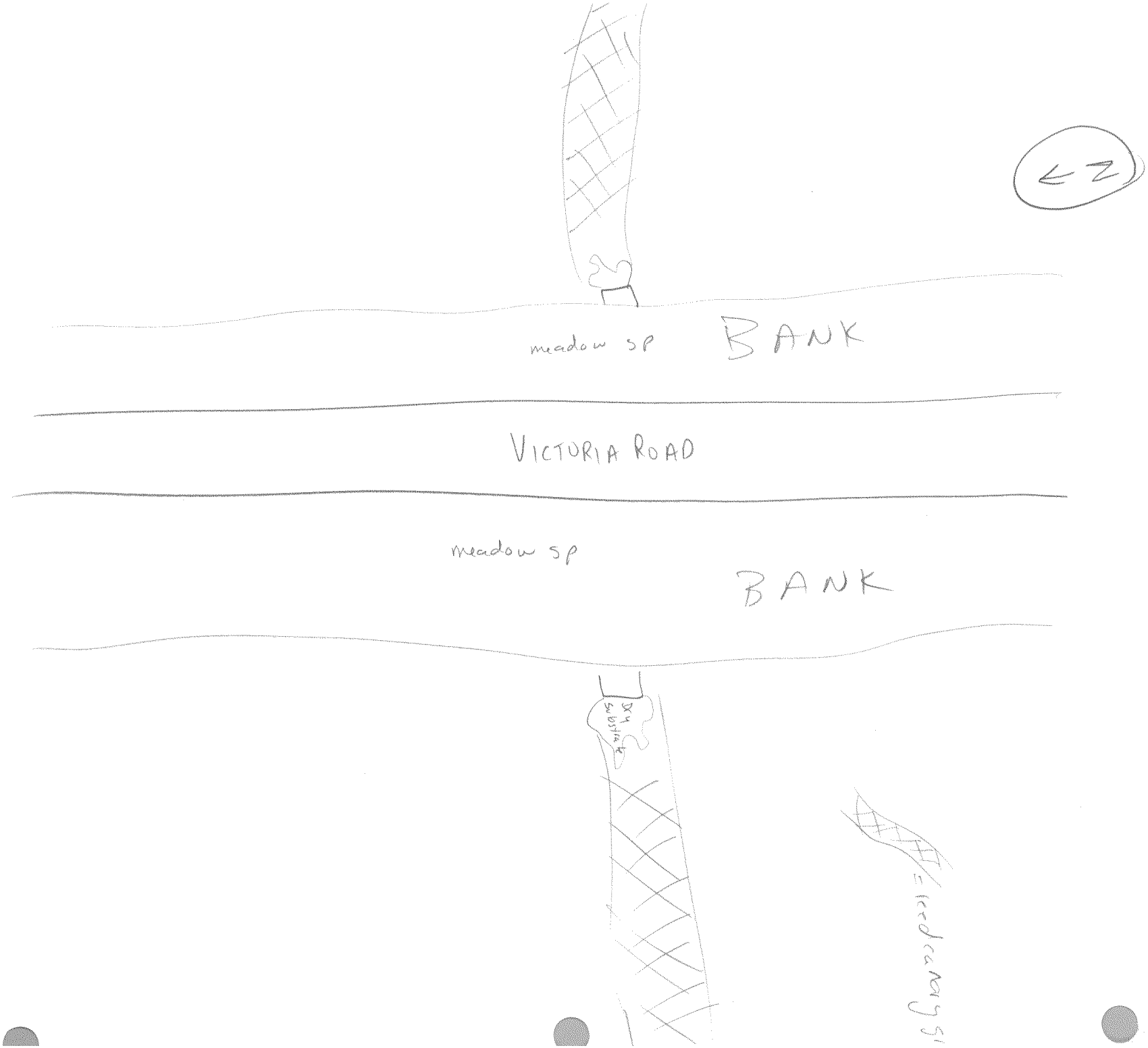
Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations
none

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓
reed canary

Other Habitat Notes, Incidental Wildlife Observations, etc. song birds

Field Notes Authored by MF Field Notes QA/QCed by MEE


meadow sp
BANK
VICTORIA ROAD
meadow sp
BANK

FSEM
Smile Creek

Nor
REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 62-1
Watercourse Name Smile Creek
Photos
Date June 2017
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 629389 E 4766813 N Datum NAD 83
Descriptive Location off of Regional Rd 30, east of Peerdene Rd/Smile Road

Project Name Niagara Wind
Project # 160950269
Field Staff M. Faiella, M. Filah
Time 14:38

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Adjacent Land Use farmland

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent) dry
Note any fish observations —

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by M. Faiella Field Notes QA/QCed by TL

MP
NOT REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 63-1
Watercourse Name UNKNOWN
Photos See photo log
Date 2012 06 19

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 10:27

Weather conditions in previous 24 hrs Minor precipitation.
GPS Coordinates (Zone) 17T E 0623118 N 4760378 Datum NAD83
Descriptive Location In Sideroad 42 ~ 300m north of Concession 6. on West side of road

DRY

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

DRY

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

Adjacent Land Use
Rd side ditch full of reed canary grass w spots of cattail.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)

Migratory Obstructions (seasonal, permanent)

Note any fish observations

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ✓ MP. Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 63-2
Watercourse Name unknown
Photos See photo log
Date 2012 Oct 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 10:40
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623147 N 4759987 Datum NAD 83
Descriptive Location On Sideroad 42 ~ 500 m north of Concession 6

Water Quality
Dissolved Oxygen (mg/L) 10.20 pH 9.37 Conductivity (µS/cm) 676
Water Temperature (°C) 28.27 Air Temperature (°C) 30°C
Time *in situ* measurements taken 10:50

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.5 (m) Maximum Pool Depth 8.0 (cm)
Mean Bankfull Width 5.0 (m) Mean Water Depth 2.0 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed, well veg'd

Substrate (% cover)
____ Bedrock ____ Cobble 10 Sand 40 Silt 40 Muck
____ Boulder ____ Gravel 10 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

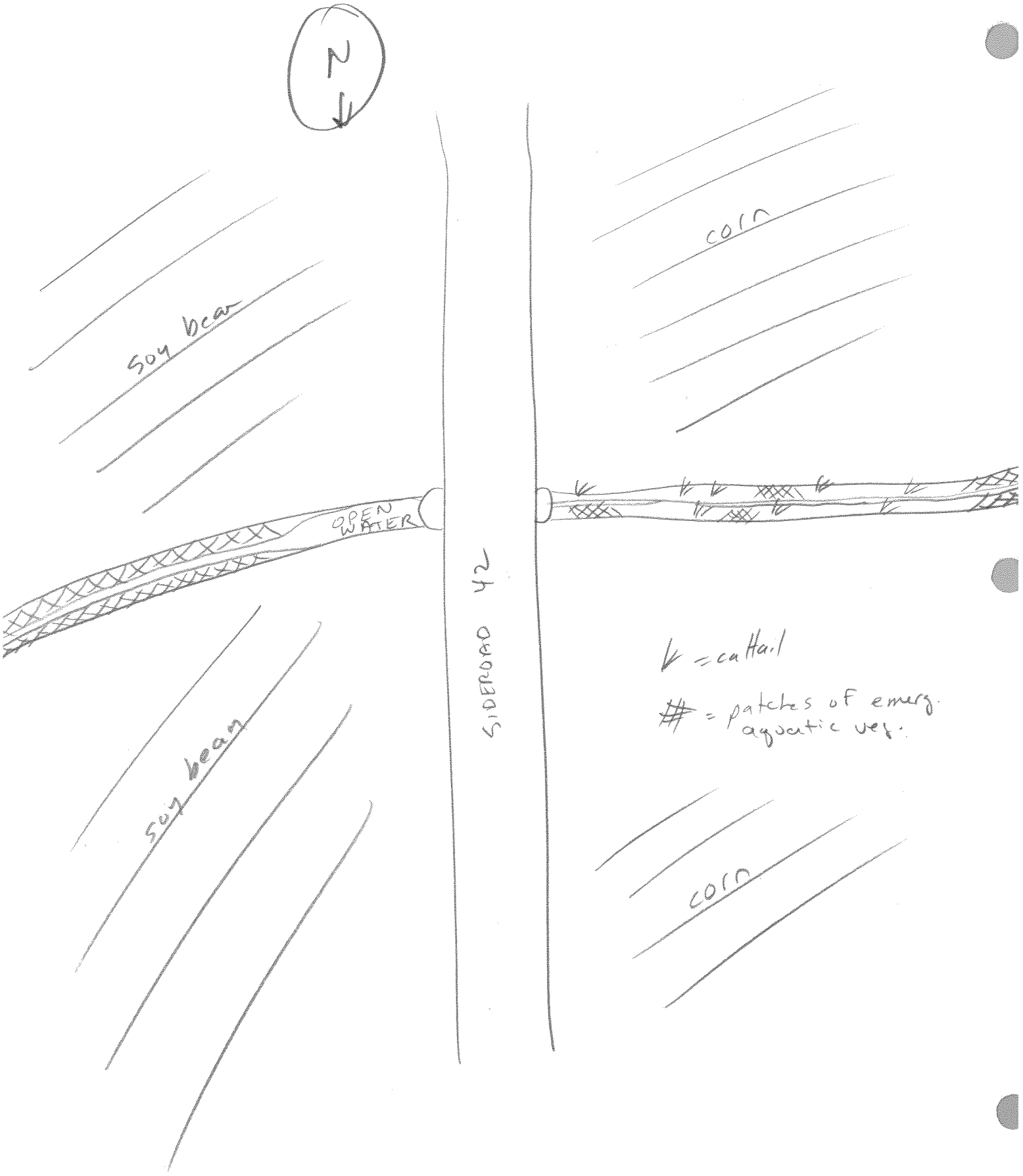
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0%
Adjacent Land Use
ag, rd, house

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
forage, spawn, nursery
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. goldfinch

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
soy bean
corn
OPEN WATER
SIDEROAD 42
soy bean
corn
= cattail
= patches of emerg. aquatic veg.

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 65-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 19
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623837 N 4758126 Datum NAD83
Descriptive Location Along Wellandport Rd ~ 400 m South of Conc 5

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 13:11

Water Quality

Dissolved Oxygen (mg/L) 4.36 pH 7.08 Conductivity (µS/cm) 3592
Water Temperature (°C) 22.56 Air Temperature (°C) 30°c
Time *in situ* measurements taken

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m) Maximum Pool Depth 25 (cm)
Mean Bankfull Width 4.0 (m) Mean Water Depth 10 (cm)
% Riffle 100 % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

Bedrock Cobble 10 Sand 40 Silt 30 Muck
Boulder Gravel 20 Clay Marl Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% mature/immature tree + shrub sp.
Adjacent Land Use
ag, rds, houses.

Fish Habitat Potential

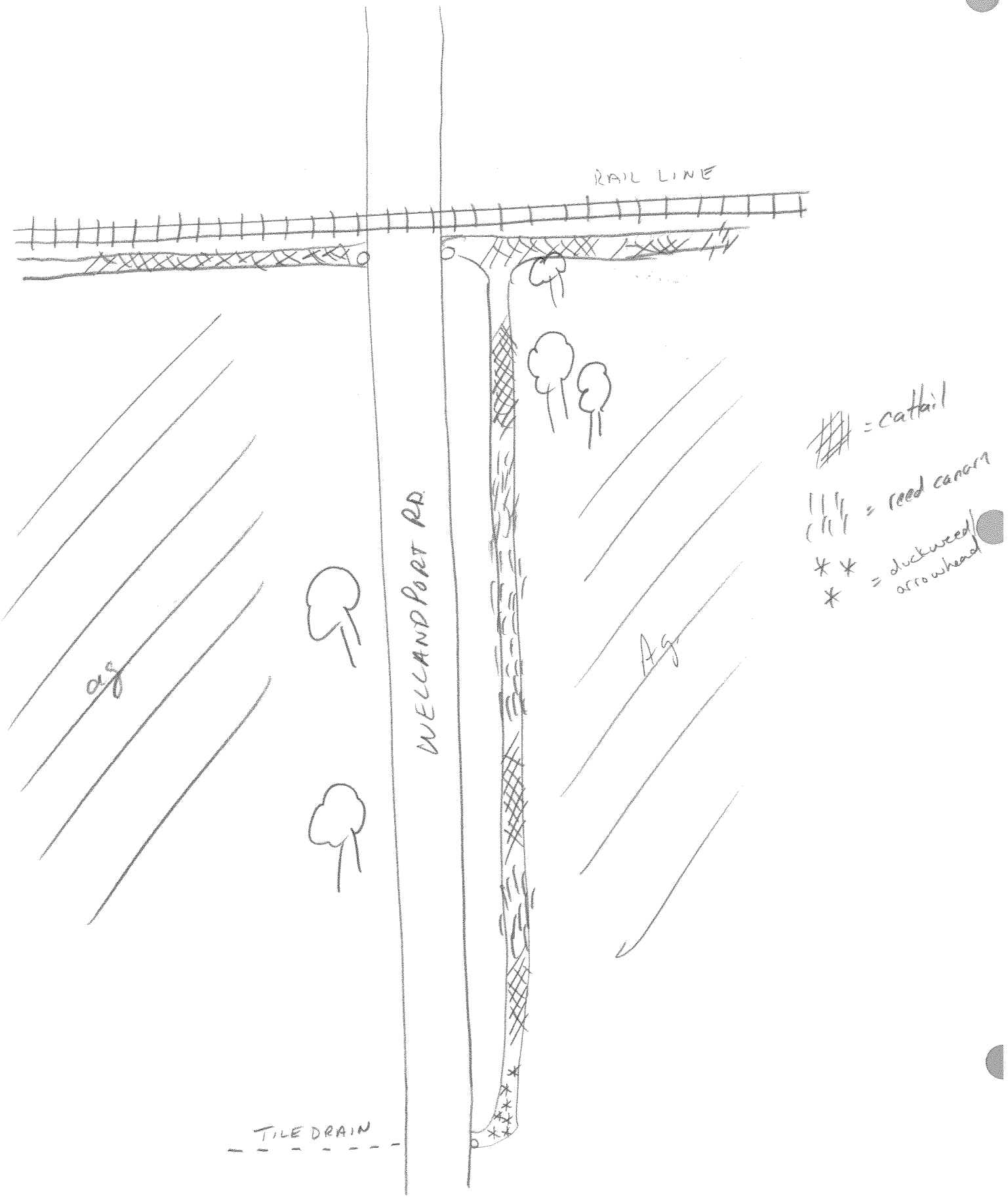
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn?
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes

Natural Watercourse Trapezoidal Channel ✓ Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry

Other Habitat Notes, Incidental Wildlife Observations, etc.

Field Notes Authored by MF Field Notes QA/QCed by MEE


RAIL LINE
WELLAND PORT RD.
ag
Ag
TILE DRAIN
= cattail
= reed canary
= duckweed/
arrowhead

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 65-2
Watercourse Name unknown
Photos See photo log.
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 13:38
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0623858 N 4757235 Datum NAD83
Descriptive Location On Wellandport Rd ~ 500 m south of Conc 5

Water Quality
Dissolved Oxygen (mg/L) 4.24 pH 7.99 Conductivity (µS/cm) 913
Water Temperature (°C) 22.96 Air Temperature (°C) 30 °C
Time *in situ* measurements taken 13:50

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.0 (m) Maximum Pool Depth 25 (cm)
Mean Bankfull Width 10.0 (m) flood p Mean Water Depth 10 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)
____ Bedrock ____ Cobble 10 Sand 30 Silt 30 Muck
____ Boulder 10 Gravel 20 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg) (Overhanging Vegetation) Woody Debris Boulder Other ____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% immature/mature tree + shrub sp.
Adjacent Land Use
Ag fields, new house

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
lack of water, thick w/ aquatic veg.
Note any fish observations none.

Waterbody Notes
Natural Watercourse ✓ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc.
green frogs

Field Notes Authored by MF Field Notes QA/QCed by MEE

N
OLD RAIL BED
new house under construction
corn
reed canary
reed canary
OPEN H2O
WALLAND PORT RD
OPEN WATER
REED CANARY
corn
AS
= cattail
= duckweed / pondweed.
= sedge sp.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 65-3 | Project Name Niagara Wind
Watercourse Name unknown | Project # 160950269
Photos See photo log. | Field Staff ME, MF
Date 2012 06 19 | Time 14:09
Weather conditions in previous 24 hrs minor precip.
GPS Coordinates (Zone) 17T E 0623013 N 4757840 Datum NAD83
Descriptive Location On un-maintained rd of Shafly Rd ~ 250 m north of Con. 5

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.5 (m) | Maximum Pool Depth 30 (cm)
Mean Bankfull Width 6.0 (m) | Mean Water Depth 15 (cm)
_____ % Riffle 100 % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability none

Substrate (% cover)

Bedrock	Cobble 10	Sand 30	Silt 40	Muck	
Boulder	Gravel 20	Clay	Marl	Detritus	

In-water Cover
Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% mature trees/shrubs, reed canary grass
Adjacent Land Use
ag.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possibly spawning
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes
Natural Watercourse ✓ | Trapezoidal Channel _____ | Grassed Swale _____ | Buried Tile _____
Surficial Drainage (i.e. furrows) _____ | Dugout Pond _____ | Dominated by Aquatic Veg ✓ | Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF | Field Notes QA/QCed by MEE

N
corn
corn
Not sure of
flow direction
?
Shrubs
corn
corn
SHADELEY RD
= sedge sp
= algae mats.
= cattail
= reed canary grass
= duckweed

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

No Flow

Stantec

Station # 65-4
Watercourse Name unknown
Photos See photo log
Date 2012 06 19

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:24

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623036 N 4757316 Datum NAD83
Descriptive Location On Shafley Rd ~ 200m South of Con 5
Within ROW

Water Quality

Dissolved Oxygen (mg/L) 3.10 pH 7.89 Conductivity (µS/cm) 733
Water Temperature (°C) 23.41 Air Temperature (°C) 30°C
Time *in situ* measurements taken 14:35

Watercourse Dimensions & Morphology

Mean Watercourse Width 3.0 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 7.0 (m) Mean Water Depth 20 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

Bedrock	Cobble	Sand 30	Silt 40	Muck
Boulder	Gravel 20	Clay	Marl 10	Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg) (Overhanging Vegetation) Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
40% ash sp, elm sp., shrubs
Adjacent Land Use
house, ATV trails, rds, ag fields

Fish Habitat Potential

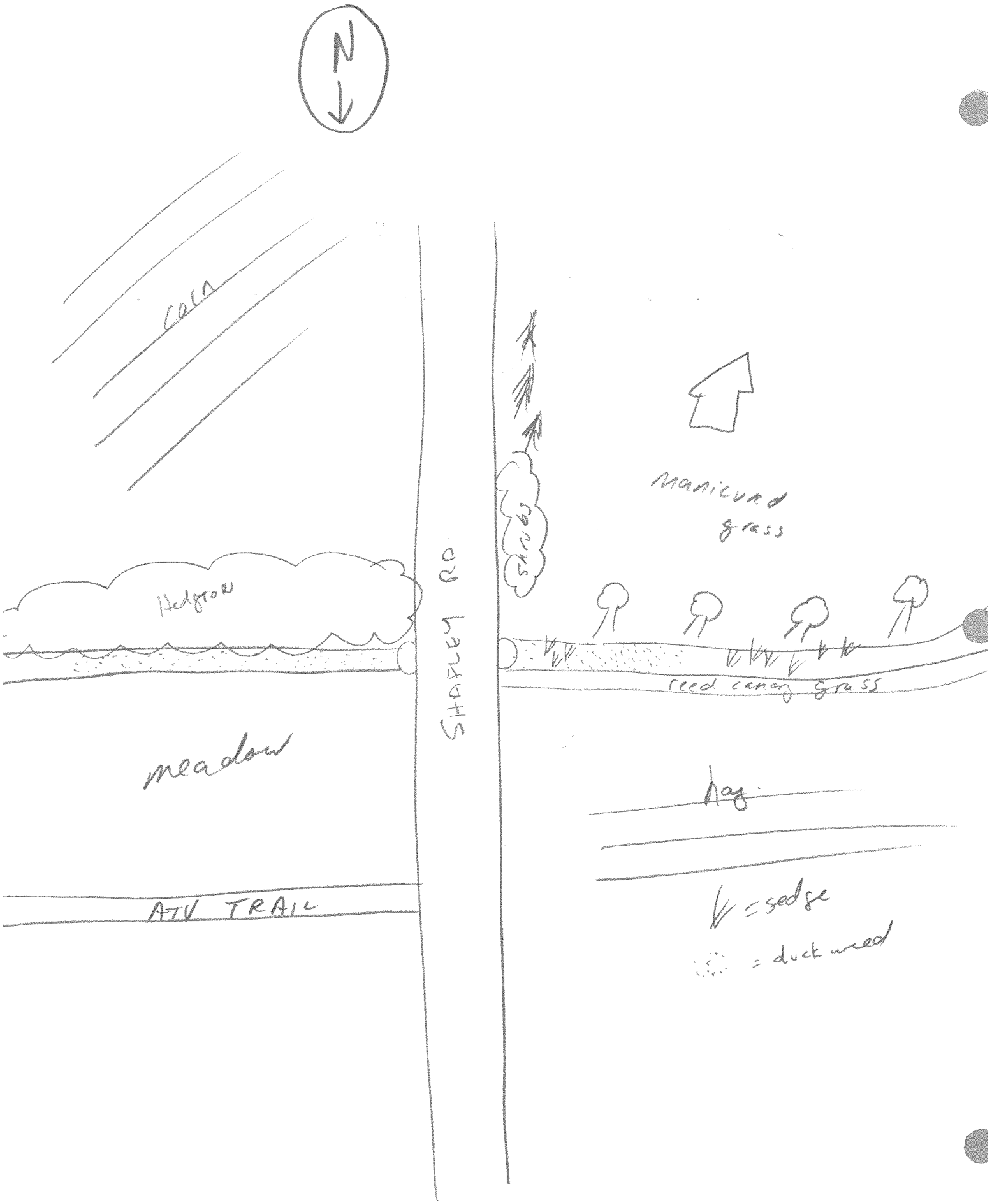
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Spawn, nursery, forage
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations none

Waterbody Notes

Natural Watercourse____ Trapezoidal Channel ✓ Grassed Swale____ Buried Tile____
Surficial Drainage (i.e. furrows)____ Dugout Pond____ Dominated by Aquatic Veg ✓ Dry____

Other Habitat Notes, Incidental Wildlife Observations, etc. cardinals, Green frogs

Field Notes Authored by MF
Field Notes QA/QCed by MEF


N
corn
Hedgrow
meadow
ATV TRAIL
STANLEY RD
grass
manicured grass
reed canary grass
bay
= sedge
= duckweed

REA on E side only Swale on side

WIND FARM WATERBODY RAPID ASSESSMENT FORM

STANDING WATER

Stantec

Station # 66-1
Watercourse Name unknown
Photos See photo log.
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 12:18
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0623903 N 4756462 Datum NAD83
Descriptive Location On Wellandport Rd (#4) ~ 800m north of Hwy 3.

STANDING WATER OFF ROW

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 29°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 3.5 (m) Mean Water Depth 10 (cm)
_____% Riffle 40 % Pool 60 % Run _____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand 40 Silt 30 Muck
_____ Boulder _____ Gravel 30 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0%
Adjacent Land Use
ag, house

Fish Habitat Potential

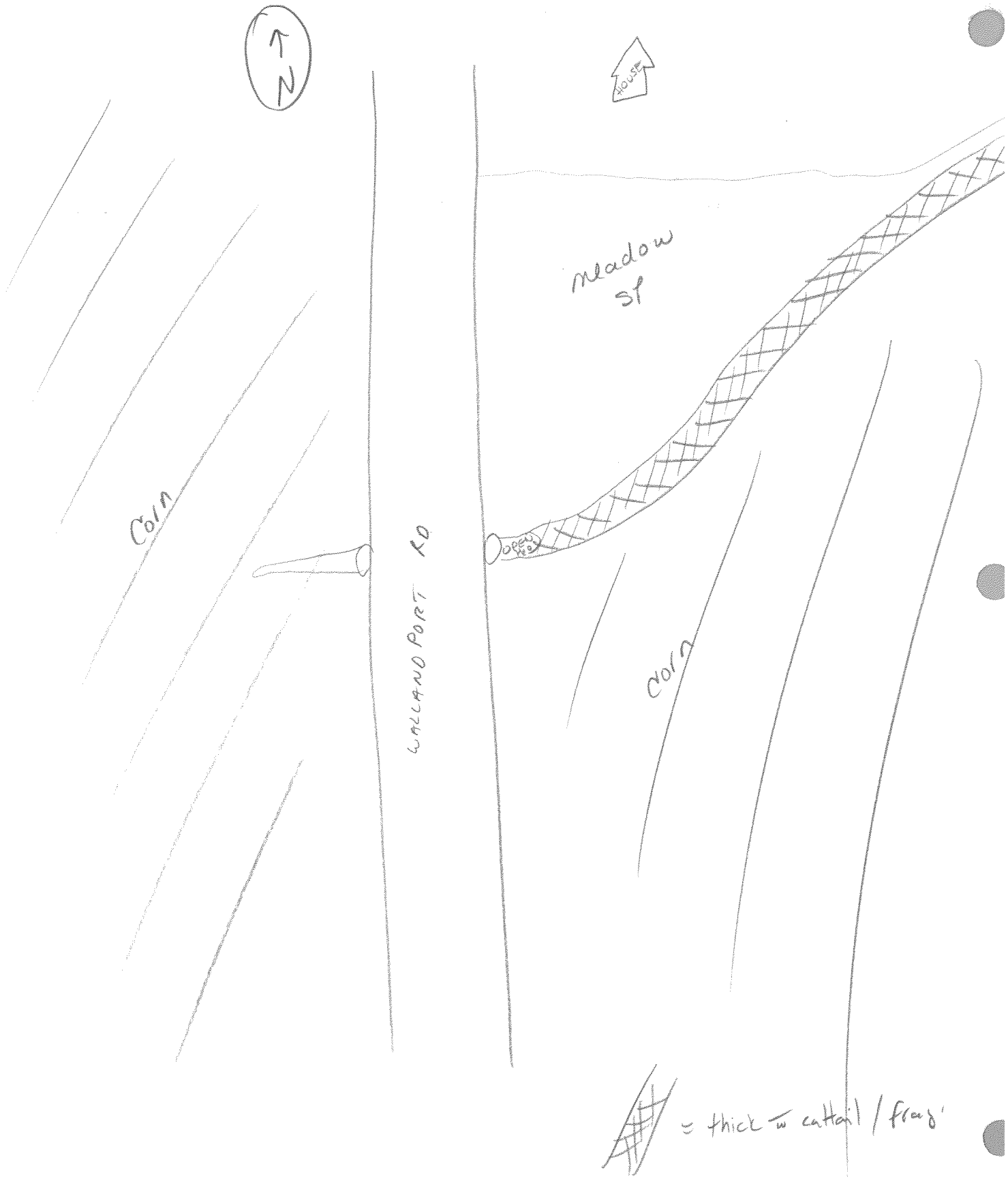
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes

Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MF


N
HOUSE
meadow
sf
corn
corn
HALLAND PORT RD
= thick w cattail / frog'

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 66-2
Watercourse Name unknown
Photos See photo log
Date 2012 09 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 12:45
Weather conditions in previous 24 hrs none
GPS Coordinates (Zone) 17T E 0623924 N 4755835 Datum NAD83
Descriptive Location On west side of Wellandport Rd (parallel) to Highway 3.

Water Quality
Dissolved Oxygen (mg/L) 3.24 pH 7.95 Conductivity (µS/cm) 717
Water Temperature (°C) 22.19 Air Temperature (°C) 30°c
Time *in situ* measurements taken 12:57

Watercourse Dimensions & Morphology
Mean Watercourse Width 3.0 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 5.0 (m) Mean Water Depth 15 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none. Well veg'd

Substrate (% cover)

Bedrock	Cobble	Sand 40	Silt 40	Muck
Boulder	Gravel 20	Clay	Marl	Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)

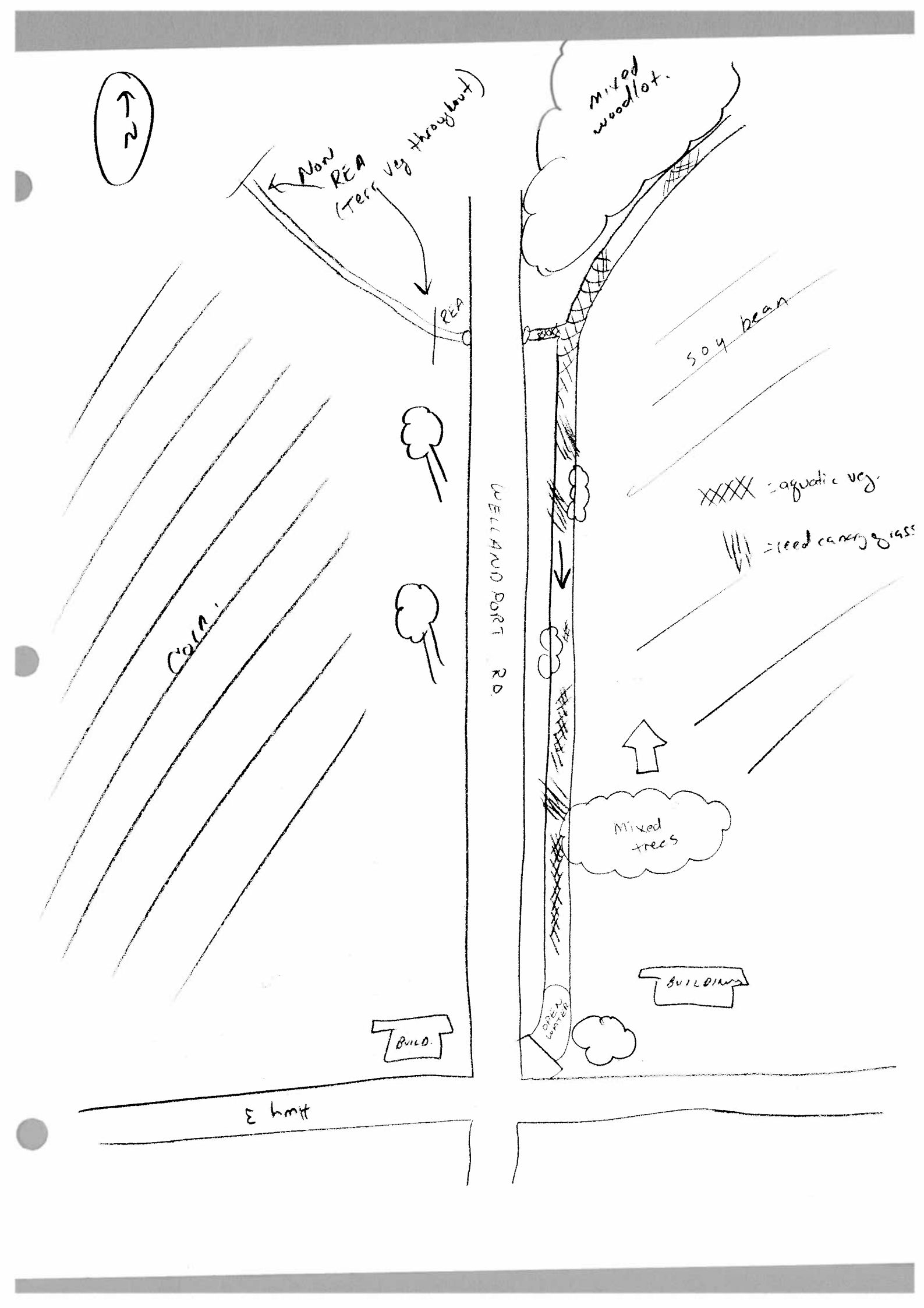
Adjacent Land Use
Rds, industrial buildings

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, nursery, forage.
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. frog sp

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Mixed woodlot.
New REA (Terr. veg throughout)
REA
REA
soy bean
WELLAND PORT RD.
Corn
XXXX = aquatic veg.
= reed canary grass
Mixed trees
BUILDING
BUILD.
OPEN WATER
E limit

BFC - North Fork Drain Nan REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 67-1
Watercourse Name Unknown
Photos —
Date June 2012
Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 617552 E 4753776 N Datum 17T N
Descriptive Location off of Hwy 43 (north of hwy 3), west of 67-2

Project Name Niagara Wind
Project # 160950869
Field Staff M. Faiella, N. Slack
Time 14:42

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional) _____
Adjacent Land Use farmland

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) _____
Migratory Obstructions (seasonal, permanent) _____
Note any fish observations dry

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by M. Faiella Field Notes QA/QCed by TK

BFC - North Forks Drain

Non REA

Stantec

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Station # 67-2
Watercourse Name unknown
Photos —
Date June 20/12

Project Name Niagara Wind
Project # 160902269
Field Staff M. Faiella, M. Ellah
Time 14:49

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 617802 E 4753890 N Datum 17T
Descriptive Location NE of Hwy 3, east of 67-1

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use farmland

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations —

Waterbody Notes

Natural Watercourse ____ Trapezoidal Channel ____ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by M. Faiella Field Notes QA/QCed by JK

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 68-1 REA
Watercourse Name unknown
Photos See photo log
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:55
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0620309 N 4755171 Datum NAD83
Descriptive Location On Hutchison Rd ~ 300m north of Hwy 3

Water Quality
Dissolved Oxygen (mg/L) 8.69 pH 9.07 Conductivity (µS/cm) 860
Water Temperature (°C) 23.11 Air Temperature (°C) 30°c
Time *in situ* measurements taken 15:01

Watercourse Dimensions & Morphology
Mean Watercourse Width 3.0 (m) Maximum Pool Depth 20 (cm)
Mean Bankfull Width 7.0 (m) c. pool pl Mean Water Depth 15 (cm)
____% Riffle 100 % Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed. Well veg'd

Substrate (% cover)
____ Bedrock ____ Cobble 10 Sand 40 Silt 40 Muck
____ Boulder ____ Gravel 10 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other ____

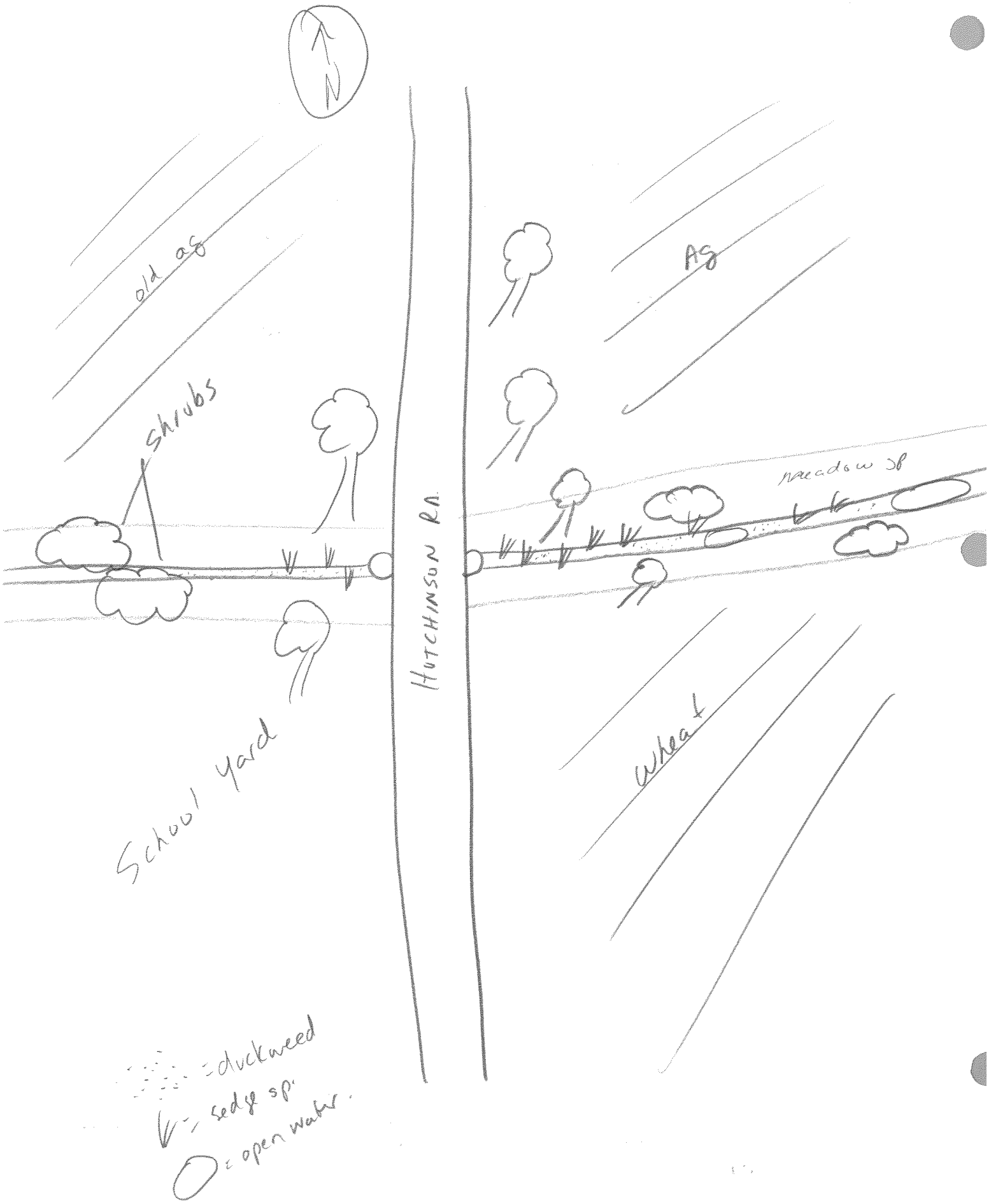
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
15% shrubs, red canary grass, mature tree sp., sedge
Adjacent Land Use
school, rd, ag fields.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery.
Migratory Obstructions (seasonal, permanent)
lack of water, thick in veg.
Note any fish observations None.

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. ____

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
old ag
shrubs
Hutchinson Rd.
Ag
meadow sp
School Yard
wheat
= duckweed
= sedge sp.
= open water.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 69-1
Watercourse Name unknown
Photos See photo log.
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:11
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0620694 N 4754549 Datum NAD83
Descriptive Location On Hutchinson Rd ~ 300 m south of Hwy 3

Water Quality
Dissolved Oxygen (mg/L) 3.87 pH 7.69 Conductivity (µS/cm) 754
Water Temperature (°C) 24.97 Air Temperature (°C) 30°C
Time *in situ* measurements taken 15:16

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.0 (m) Maximum Pool Depth 30 (cm)
Mean Bankfull Width 7.0 (m) Mean Water Depth 15 (cm)
____ % Riffle 100 % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability none observed.

Substrate (% cover)
____ Bedrock ____ Cobble 10 Sand 40 Silt 20 Muck
____ Boulder ____ Gravel 20 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

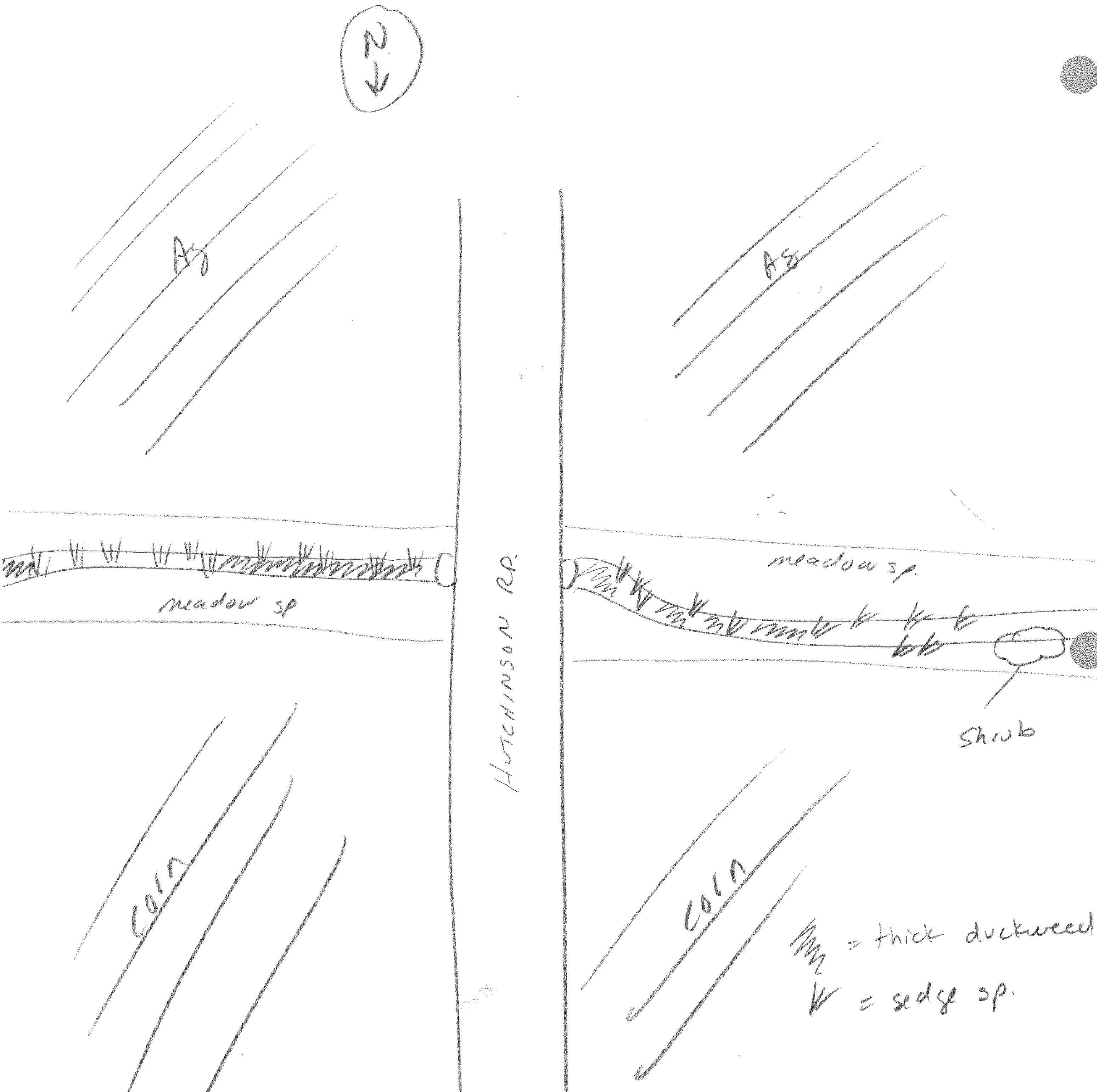
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
3% sparse shrubs, reed canary
Adjacent Land Use
ag, rds

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. ____

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
Ag
Ag
meadow sp
meadow sp.
HUTCHINSON RD.
shrub
corn
corn
= thick duckweed
= sedge sp.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 69.2
Watercourse Name unknown
Photos See photo log.
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:22
Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0621122 N 4753870 Datum NAD83
Descriptive Location Along Hutchinson Rd from ~ 50 south of Hwy 3 to ~ 100 m south of Jenny Jump Rd on West Side. Runs Parallel

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.0 (m) Maximum Pool Depth 10 (cm)
Mean Bankfull Width 4.0 (m) Mean Water Depth 5 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability no flow. No observed erosion

Substrate (% cover)
_____Bedrock _____Cobble 10 Sand 50 Silt 30 Muck
_____Boulder _____Gravel 10 Clay _____ Marl _____Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg) (Overhanging Vegetation) Woody Debris Boulder Other _____

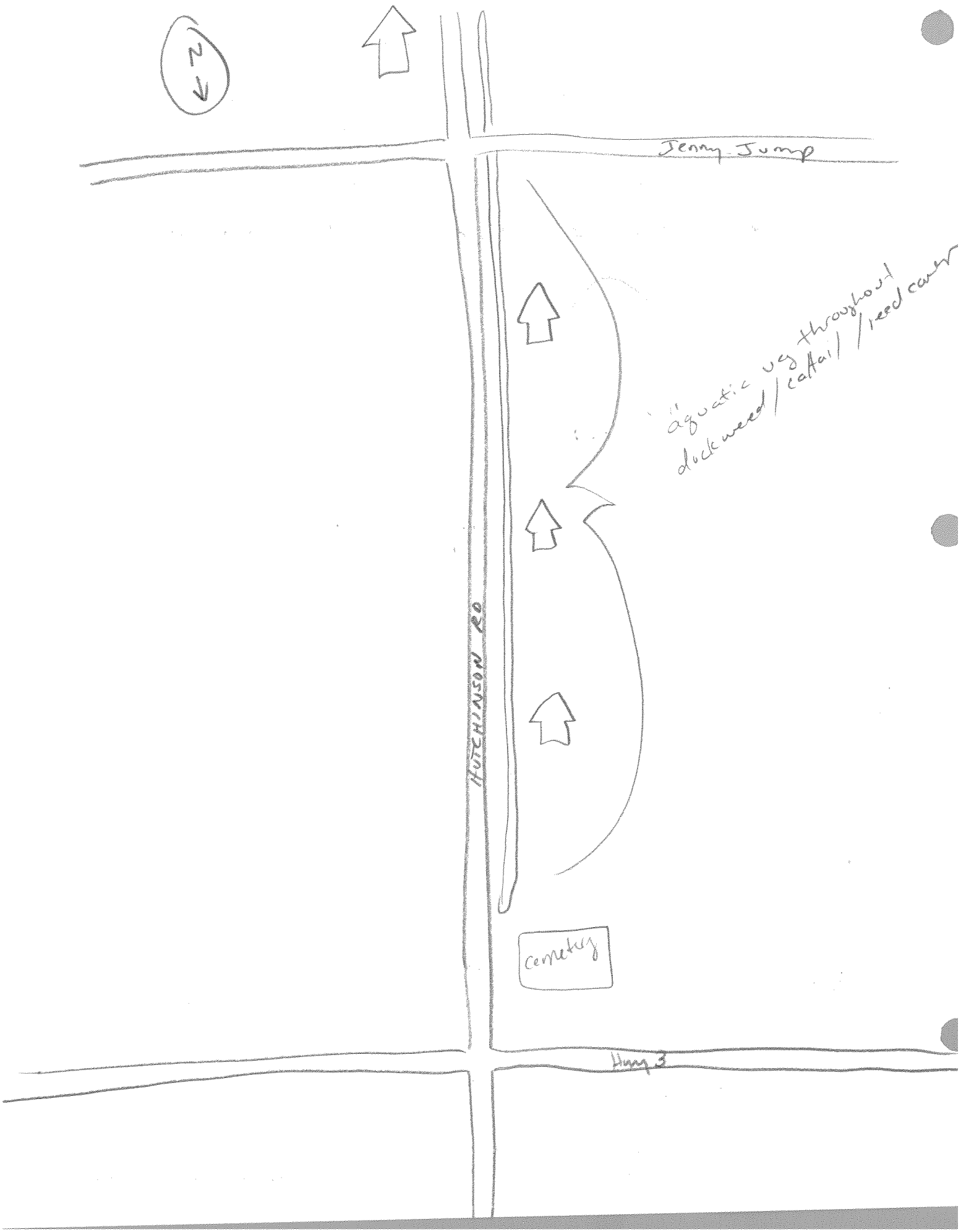
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
40% mature + immature tree + shrub species, reed canary.
Adjacent Land Use
houses, rd, ag.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
lack of water
Note any fish observations none.

Waterbody Notes
Natural Watercourse_____ Trapezoidal Channel ✓ Grassed Swale_____ Buried Tile_____
Surficial Drainage (i.e. furrows)_____ Dugout Pond_____ Dominated by Aquatic Veg ✓ Dry_____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
Jenny Jump
aquatic veg throughout
duckweed / cattail / reed canar
HUTCHINSON RD
cemetery
Hwy 3

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 70-1
Watercourse Name Unknown
Photos see photo log
Date 2012 06 19
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:56
Weather conditions in previous 24 hrs hot + humid, minor precip
GPS Coordinates (Zone) 17T E 0622993 N 4755428 Datum NAD83
Descriptive Location On Twnline Dunnville/Wainfleet rd ~ 800m South of Bockner Rd

Water Quality
Dissolved Oxygen (mg/L) 3.98 pH 7.93 Conductivity (µS/cm) 579
Water Temperature (°C) 23.21 Air Temperature (°C) 30°c
Time *in situ* measurements taken 16:03

Watercourse Dimensions & Morphology
Mean Watercourse Width 3.0 (m) Maximum Pool Depth 50 (cm)
Mean Bankfull Width 6.0 (m) Mean Water Depth 30 (cm)
____ % Riffle 100 % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability none observed but recent dredging on south bank.

Substrate (% cover)
____ Bedrock ____ Cobble ____ Sand 40 Silt 40 Muck
____ Boulder ____ Gravel 20 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other ____

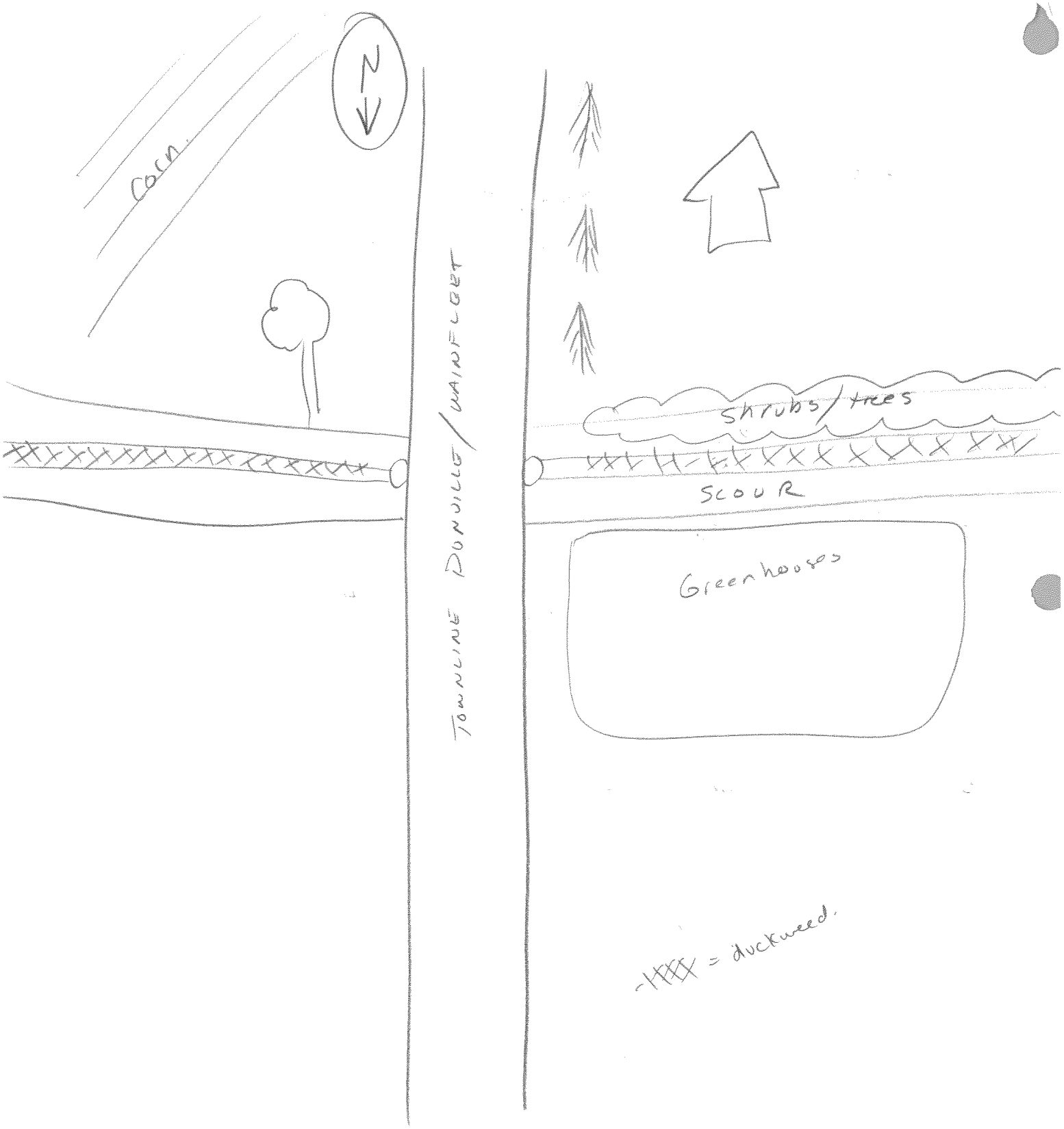
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
50% mature/imature tree + shrub species.
Adjacent Land Use
green houses, houses.

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, nursery, foraging
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations none

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. ____

Field Notes Authored by MF Field Notes QA/QCed by MFE


N
Corn.
TOWNLINE DONVILLE / WAINFLEET
shrubs / trees
SCOUR
Greenhouses
-HXXX = duckweed.

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REA

Stantec

Station # 71-1
Watercourse Name Unknown
Photos See photo log
Date 2012 06 19

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 1622

Weather conditions in previous 24 hrs Minor precip
GPS Coordinates (Zone) 17T E 0623948 N 4755150 Datum NAD83
Descriptive Location On Hendershot Rd ~400m south of Hwy 3. Near farm silos

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 28°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.0 (m) Maximum Pool Depth 8.0 (cm)
Mean Bankfull Width 5.0 (m) Mean Water Depth 5.0 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability None

Substrate (% cover)

_____ Bedrock _____ Cobble 10 Sand 40 Silt 30 Muck
_____ Boulder _____ Gravel 20 Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
3% reed canary grass
Adjacent Land Use
ag fields, rd.

Fish Habitat Potential

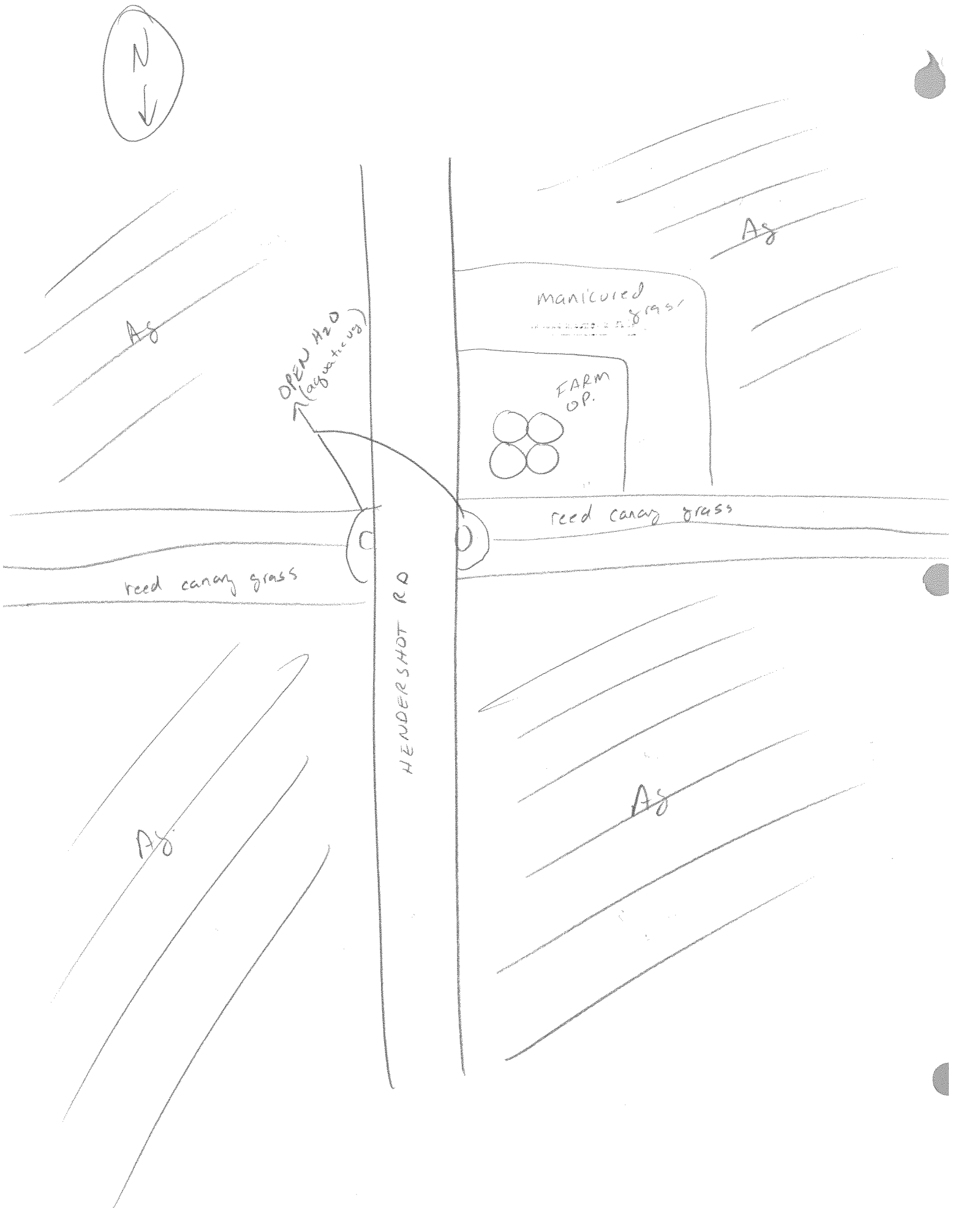
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Possible spawn
Migratory Obstructions (seasonal, permanent)
lack of water, thick ~ reed canary grass
Note any fish observations none

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
Ag
Ag
manicured grass
OPEN H2O (aquaticus)
FARM OP.
reed canary grass
reed canary grass
HENDERSHOT RD
Ag
Ag

Defined channel

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 72-1
Watercourse Name Unknown
Photos See photo log
Date 2017 06 19

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 15:37

Weather conditions in previous 24 hrs minor precip
GPS Coordinates (Zone) 17T E 0621115 N 4753895 Datum NAD83
Descriptive Location On Hutchinson Rd ~250m north of Jenny Jump Rd

Water Quality

OFF ROW

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

OFF ROW

Mean Watercourse Width 2.0 (m) Maximum Pool Depth N/A (cm)
Mean Bankfull Width 5.0 (m) Mean Water Depth N/A (cm)
N/A % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

OFF ROW

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2/0 reed canary grass, sparse shrubs
Adjacent Land Use
ag, houses

Fish Habitat Potential

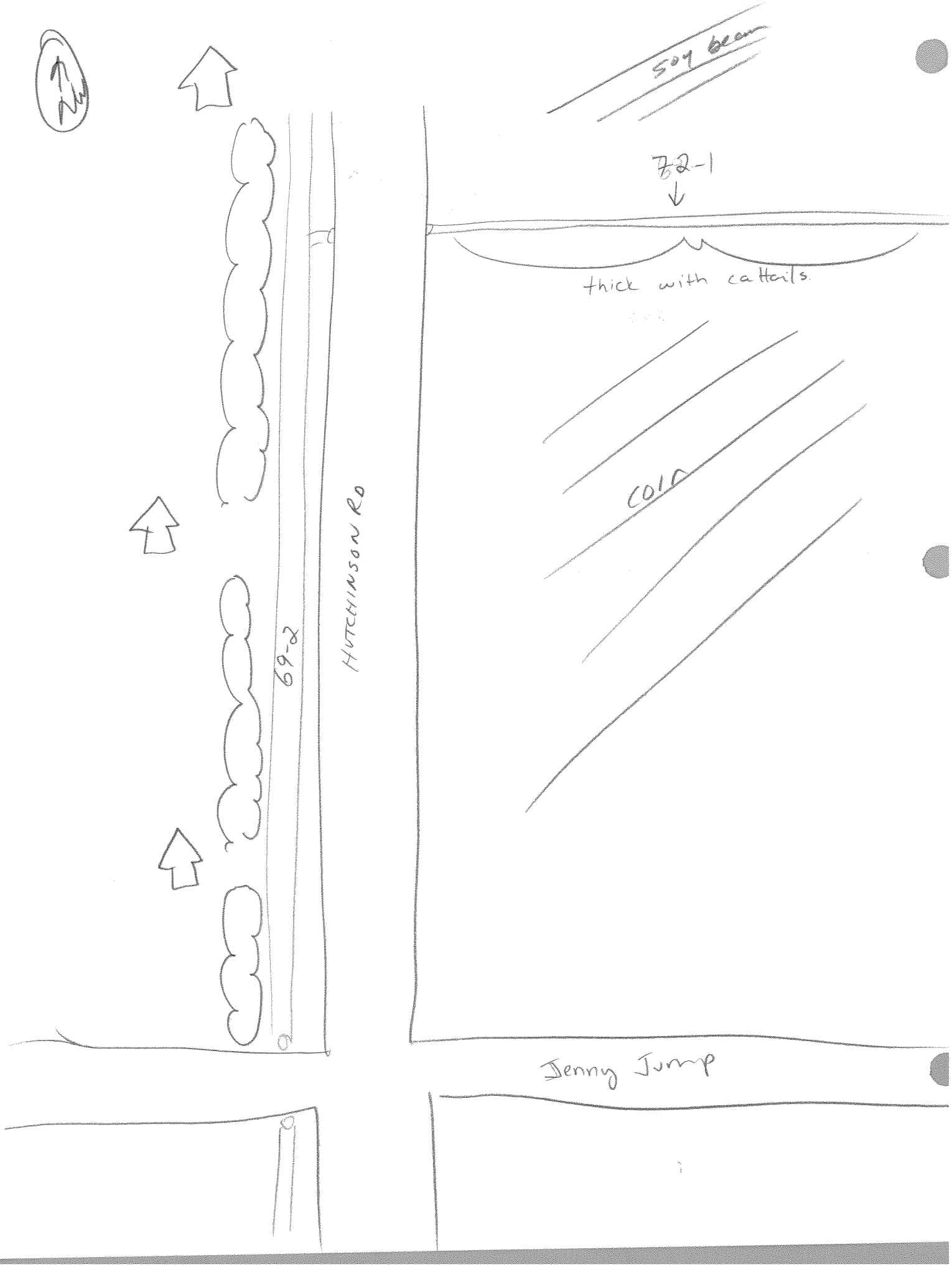
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
lack of water, thick veg
Note any fish observations none - OFF ROW

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
Soy bean
72-1
thick with cattails
COIN
HUTCHINSON RD
69-2
Jenny Jump

REA
DRY

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 73-1
Watercourse Name unknown
Photos See photo log.
Date June 20/12
Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 09:20
Weather conditions in previous 24 hrs No precip
GPS Coordinates (Zone) 17T E 0623995 N 4754257 Datum Nad83
Descriptive Location On Hendershot Rd ~ 400m north of Townline Dunville/Nanf

Water Quality

DRY
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

DRY
Mean Watercourse Width 2.0 (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width 4.0 (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability None.

Substrate (% cover)

_____ Bedrock	_____ Cobble	_____ Sand	40 Silt	30 Muck	
_____ Boulder	_____ Gravel	30 Clay	_____ Marl	_____ Detritus	

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
4% cattail, reed canary grass
Adjacent Land Use
ag fields, houses.

Fish Habitat Potential

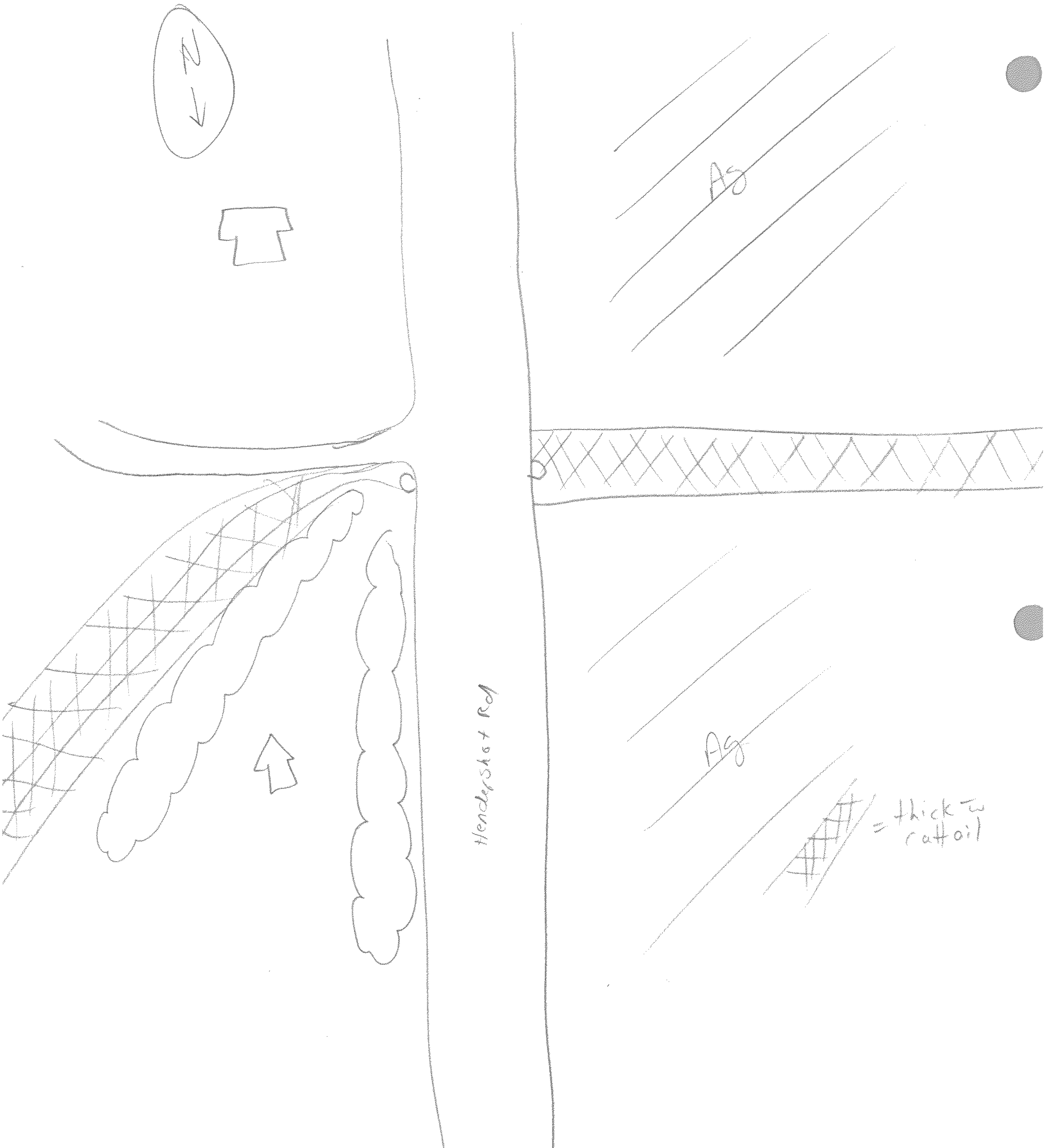
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
dry @ times
Note any fish observations none - dry

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile ✓
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MFE



N
Ag
Hendershot Rd
Ag
= thick w cattail

BFC - East Kelly Drain Nan R

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 73-2
Watercourse Name unknown
Photos —
Date June 20/12

Project Name Niagara Wind
Project # 1 160950269
Field Staff M. Faiella, M. Ellah
Time 9:32

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 623876 E 4754036 N Datum IT N
Descriptive Location off of Tauline Dunnville - Wainfleet, West of Hendershot Rd, South of 73-1

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 32°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other terrestrial vegetat

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
_____
Adjacent Land Use
farmland

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
_____
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations _____

Waterbody Notes

Natural Watercourse _____ Trapezoidal Channel _____ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) ✓ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. —

Field Notes Authored by M. Faiella Field Notes QA/QCed by JL

G:\01609\resource\Internal Info and Teams\Aquatic Resources\Field Sheets\Stantec\Form 02 Wind Farm Waterbody Rapid Assessment Form.doc

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

ENDS @ C
Bank Rd
Drains
can

Station # 74-1
Watercourse Name unknown
Photos See photo log
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 10:31

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E N Datum Nad83
Descriptive Location On Hutchinson Rd on west side of road (parallel)
From ~600m north of Booker Rd to ~500m south of Booker Road.
START: 17T 0621757, 4752809 END: 17T 0623609, 4749927

Water Quality

Too shallow

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 3.0 (m) Maximum Pool Depth 10 (cm)
Mean Bankfull Width 6.0 (m) Mean Water Depth 5 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability some dredging @ northern end of reach

Substrate (% cover)

_____Bedrock _____Cobble 10 Sand 40 Silt 40 Muck
_____Boulder _____Gravel 10 Clay _____ Marl _____Detritus

In-water Cover

Cover Types Present (circle):
Undercut Banks (Deep Pool) Watercress (Aquatic Veg) (Overhanging Vegetation) Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
20% Sumac, other shrubs, reed canary grass, cattail, pockets of mature trees
Adjacent Land Use
Rds, houses, ag fields

Fish Habitat Potential

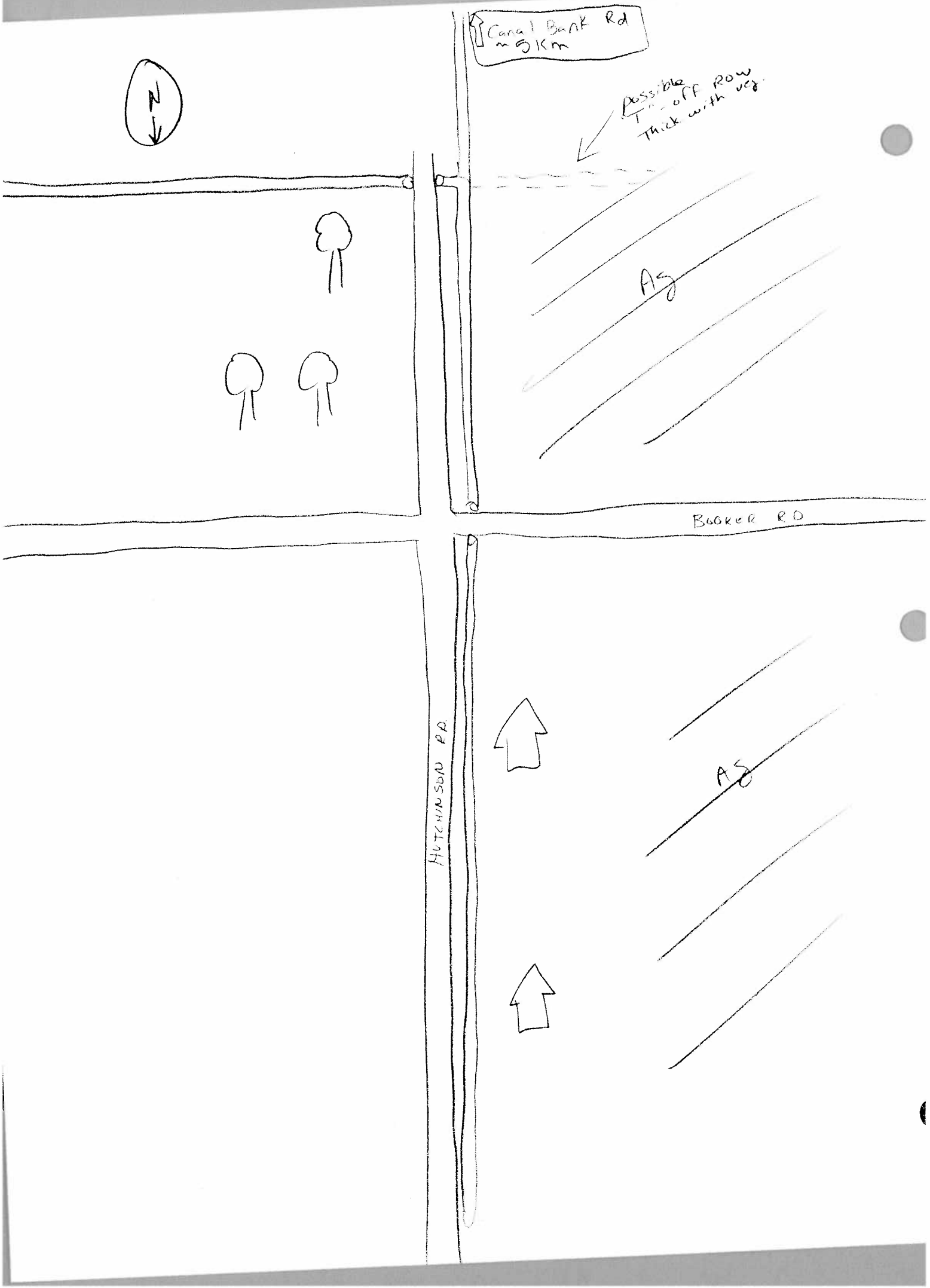
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, nursery, forage
Migratory Obstructions (seasonal, permanent)
thick aquatic veg + lack of water @ times.
Note any fish observations none.

Waterbody Notes

Natural Watercourse_____ Trapezoidal Channel ✓ Grassed Swale_____ Buried Tile_____
Surficial Drainage (i.e. furrows)_____ Dugout Pond_____ Dominated by Aquatic Veg ✓ Dry_____

Other Habitat Notes, Incidental Wildlife Observations, etc. Barn swallows (20'ish)

Field Notes Authored by MF Field Notes QA/QCed by MEF


Canal Bank Rd
~5km
N
Possible T-off ROW
Thick with veg.
Ag
BOOKER RD
HUTCHINSON RD
Ag

WIND FARM WATERBODY RAPID ASSESSMENT FORM

NON REA

Stantec

Station # 73-2
Watercourse Name unknown
Photos 913, 914, 915
Date June 12

Project Name Niagara Wind
Project # 160958269
Field Staff MF, MF
Time 09:40

Weather conditions in previous 24 hrs no precip
GPS Coordinates (Zone) 17T E N Datum Nad83
Descriptive Location Connected to 73-1. Located South of REA (73-1) Channel along Townline Rd. Dredged on west property as well

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble Mf Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

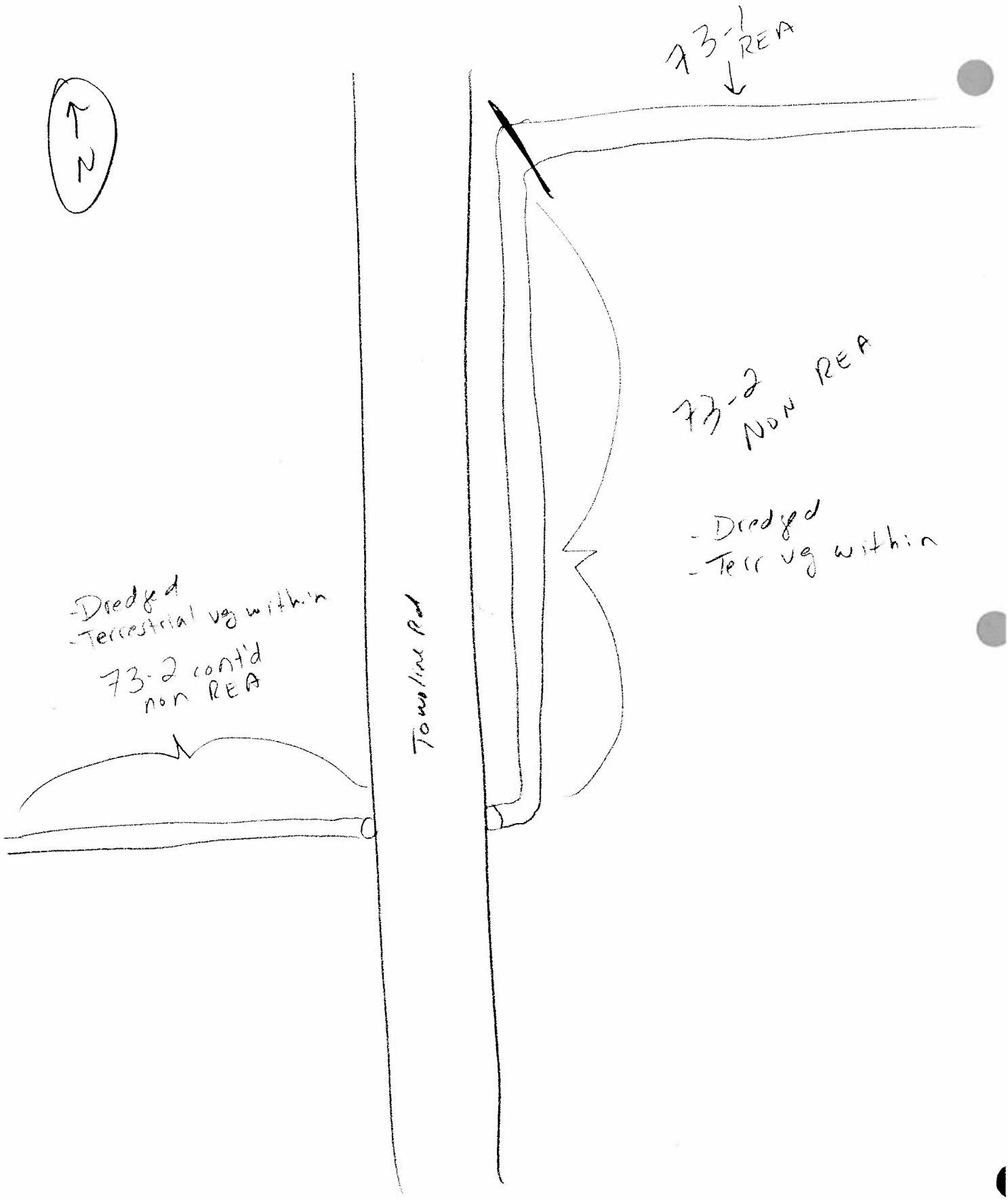
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Channel has been dredged and is dominated by young terrestrial veg
Adjacent Land Use _____

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) _____
Migratory Obstructions (seasonal, permanent) _____
Note any fish observations Dry

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
73-1
REA
73-2
NON REA
- Dredged
- Terr vg within
- Dredged
- Terrestrial vg within
73-2 cont'd
non REA
Transmission Line Road

WIND FARM WATERBODY RAPID ASSESSMENT FORM

~~NOAE~~ M.F
REA
DRY

Stantec

Station # 75-1
Watercourse Name unknown
Photos See photo log
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 09 : 53

Weather conditions in previous 24 hrs None
GPS Coordinates (Zone) 17T E 0623721 N 4752879 Datum Nad83
Descriptive Location On Booker Rd ~ 800m west of Twnline Dunville/Wainfleet

DRY

Water Quality
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width _____ (m) Maximum Pool Depth _____ (cm)
Mean Bankfull Width _____ (m) Mean Water Depth _____ (cm)
_____ % Riffle _____ % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability _____

Substrate (% cover)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

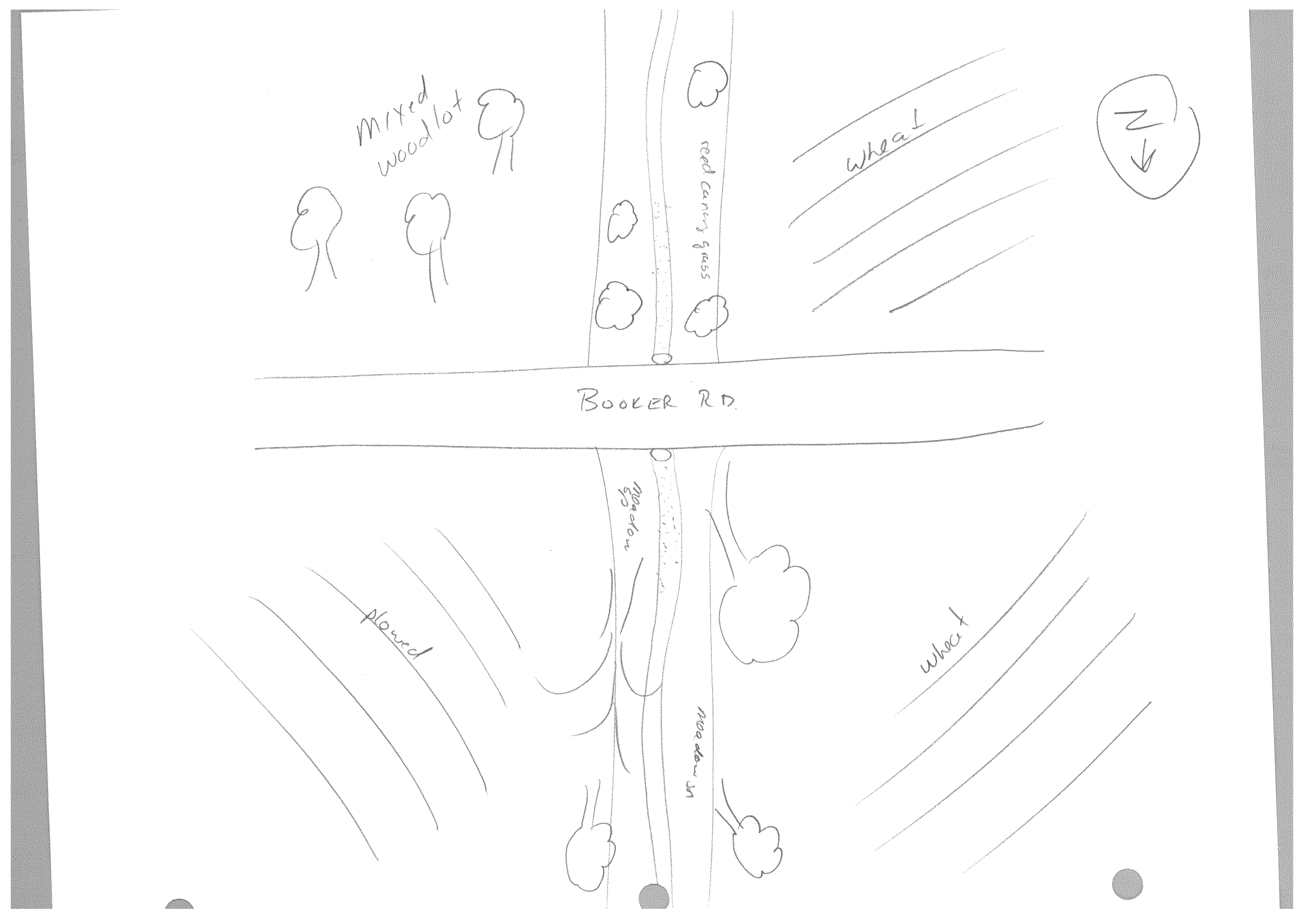
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Channel with dogwood sp, poplar sp, sumac, red pine, other meadow sp
Adjacent Land Use _____

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) _____
Migratory Obstructions (seasonal, permanent) _____
Note any fish observations _____

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. trapezoidal channel with sedges and cattails mp.

Field Notes Authored by MF Field Notes QA/QCed by MEE


mixed woodlot
road
grass
wheat
N
BOOKER RD.
ditch
meadow
planted
wheat

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 77-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 25

Project Name Niagara Wind
Project # 160950269
Field Staff ME, ME
Time 13:00

Weather conditions in previous 24 hrs hot & humid
GPS Coordinates (Zone) 17T E 0621224 N 4749592 Datum NAD83
Descriptive Location On Bird Rd ~ 500m north of Canal Bank Rd. on east side of rd. (parallel)

DRY

Water Quality

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 1.5 (m) Maximum Pool Depth ~ (cm) DRY
Mean Bankfull Width 3.0 (m) Mean Water Depth ~ (cm)
~ % Riffle ~ % Pool ~ % Run ~ % Flat
Evidence of eroding banks, Comments on bank stability none
Full of cattail + sedge but dry

Substrate (% cover)

Bedrock	Cobble	Sand 40	Silt 40	Muck
Boulder	Gravel 20	Clay	Marl	Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% mature trees + shrubs along riparian zone
Adjacent Land Use
ag fields

Fish Habitat Potential

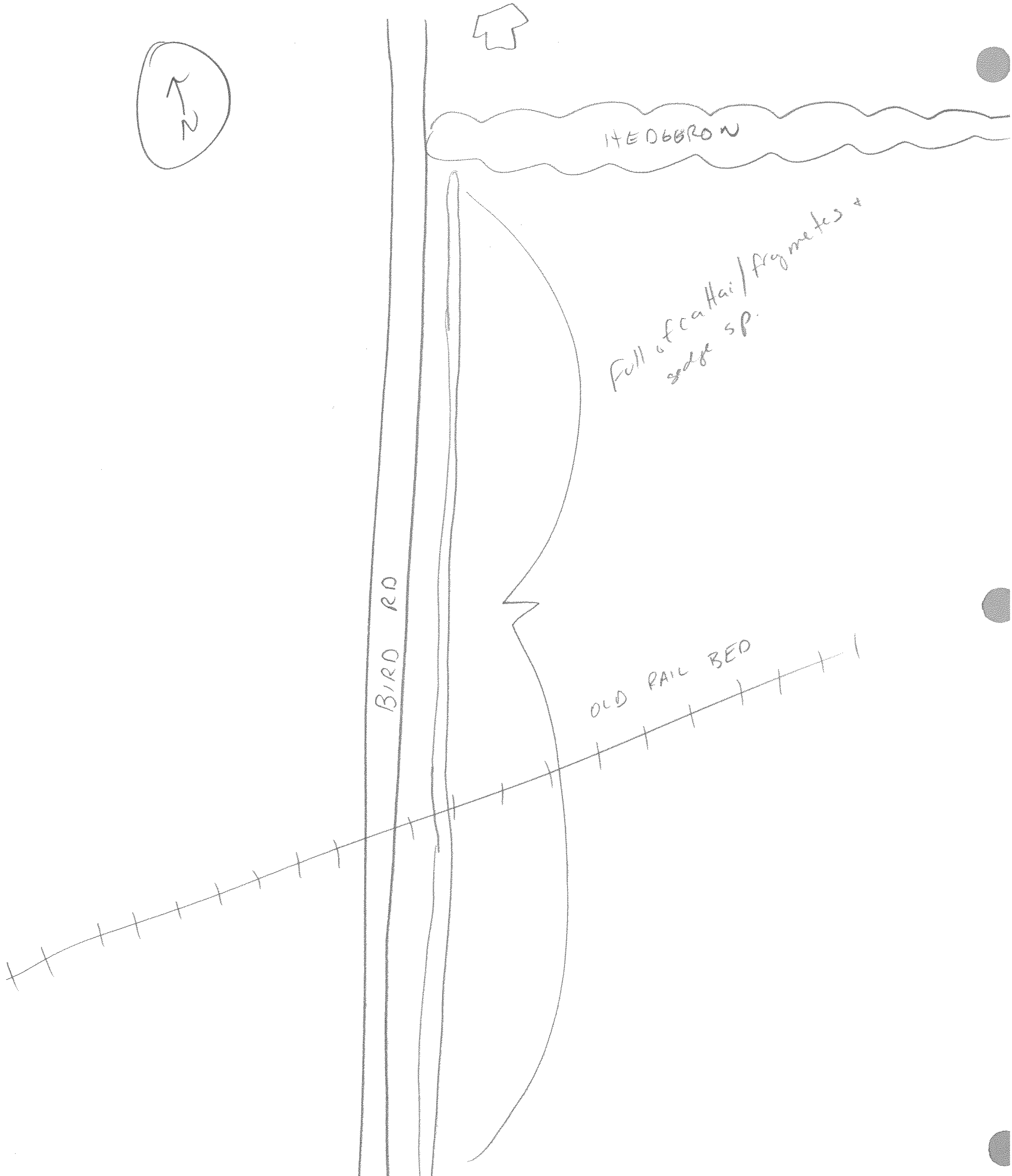
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Possible spawn. Connected to Feeder Canal
Migratory Obstructions (seasonal, permanent)
dry
Note any fish observations None.

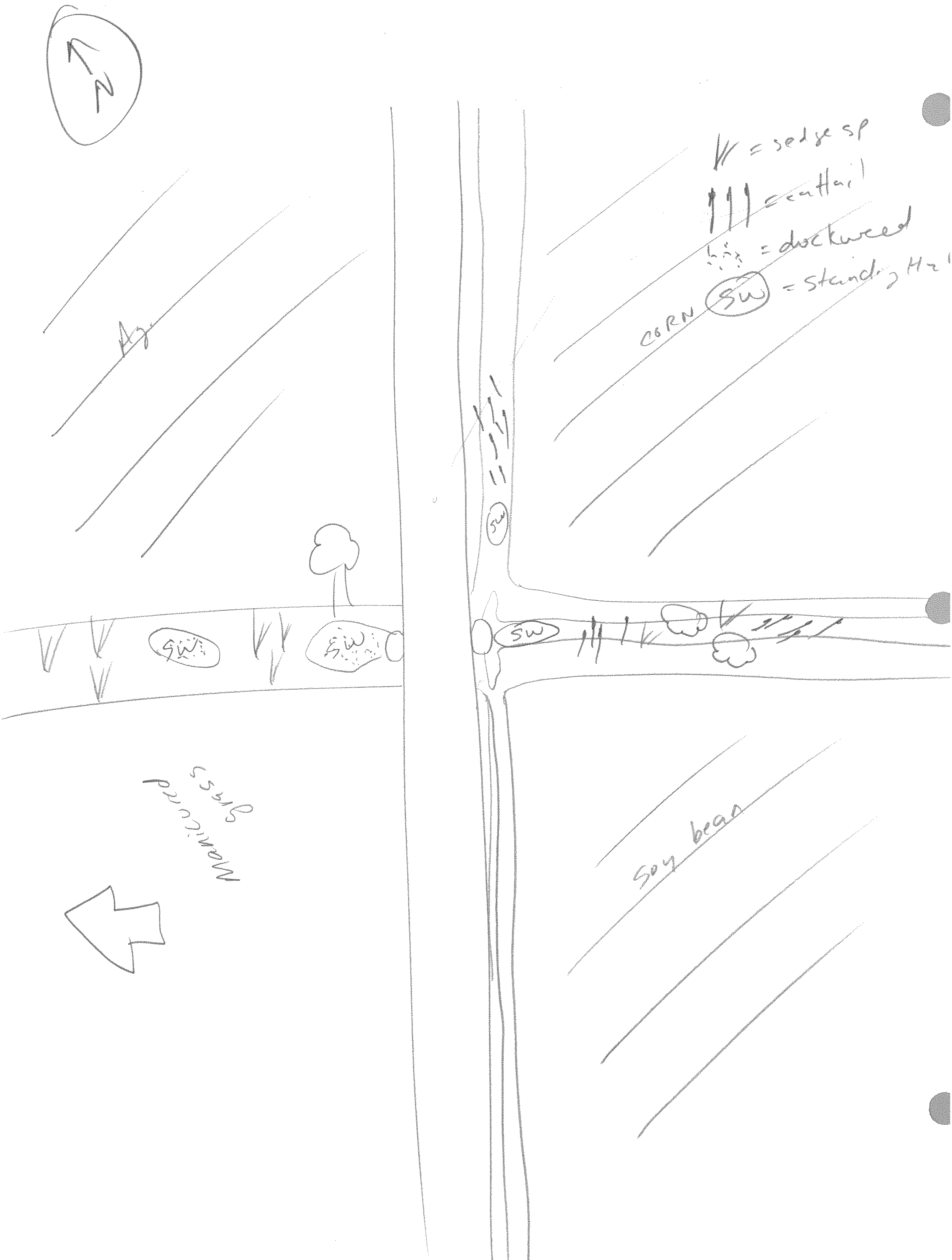
Waterbody Notes

Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEE


N
HEDGEROW
Full of cattail/fragmites +
sedge sp.
BIRD RD
OLD RAIL BED
Canal Bank Rd


N
= sedge sp
= cattail
= duckweed
SW = standing H2O
CORN
Ag
SW
Manicured grass
Soy bean

Off Row. Could not properly assess. Water observed. Has been dredged but considered ROA waterbody - REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 78-1
Watercourse Name unknown
Photos See photo log
Date 2012 06 25

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 13:38

Weather conditions in previous 24 hrs No precip.
GPS Coordinates (Zone) 17T E 0622481 N 4749465 Datum NAD83
Descriptive Location On Canal Bank Rd ~ 1km east of Bird Rd

Water Quality (OFF ROW)
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width 2.5 (m) Maximum Pool Depth N/A (cm)
Mean Bankfull Width _____ (m) Mean Water Depth N/A (cm)
_____ % Riffle 100 % Pool _____ % Run _____ % Flat
Evidence of eroding banks, Comments on bank stability none observed but recently dredged (1-2 years)

Substrate (% cover) (N/A?)
_____ Bedrock _____ Cobble _____ Sand _____ Silt _____ Muck
_____ Boulder _____ Gravel _____ Clay _____ Marl _____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
Overhanging Vegetation Woody Debris Boulder Other _____

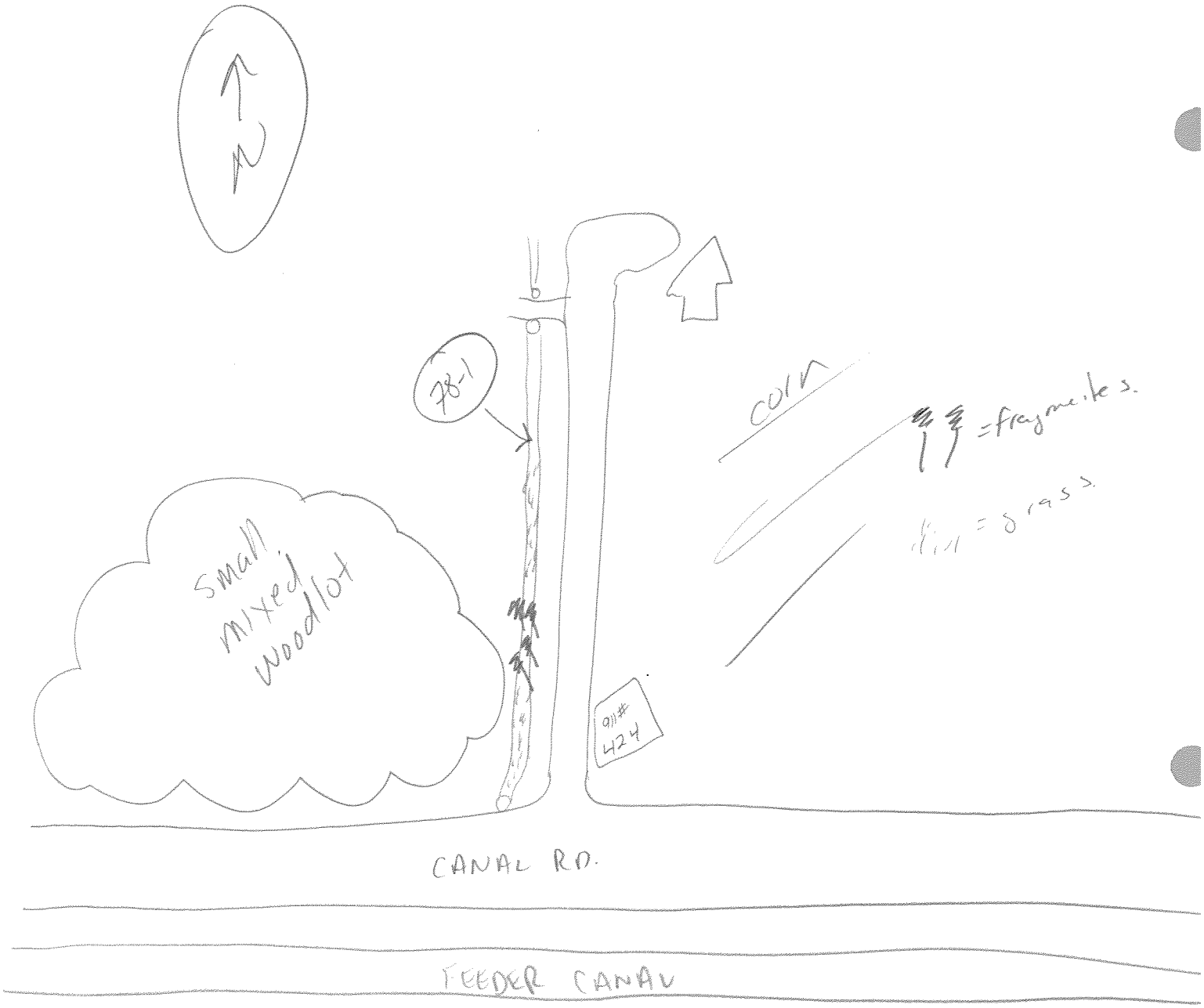
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
0%
Adjacent Land Use
ag fields

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn. Connected to Feeder Canal
Migratory Obstructions (seasonal, permanent)
Note any fish observations Done - off ROW

Waterbody Notes
Natural Watercourse _____ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg _____ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MFF


N
78-1
corn
= fragments.
= grass.
small mixed woodlot
oil # 424
CANAL RD.
FEEDER CANAL

REA
CANAL

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 79-1
Watercourse Name unknown
Photos See photo log.
Date June 20/12

Project Name Niagara Wind
Project # 160958269
Field Staff ME, MF
Time 11 : 12

Weather conditions in previous 24 hrs none - hot + humid
GPS Coordinates (Zone) 17T E 0622558 N 4749489 Datum Nad83
Descriptive Location On Canal Bank Rd. Canal runs along rd. Canal runs on west side of Canal Bank Rd.

Water Quality

OFF ZOW

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Could n see Fl

Mean Watercourse Width 8.0 (m) Maximum Pool Depth ~>100 (cm)
Mean Bankfull Width 10.0 (m) Mean Water Depth ~50.0 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability none observed.

Substrate (% cover)

_____ Bedrock _____ Cobble _____ Sand 30 Silt 45 Muck
_____ Boulder _____ Gravel 20 Clay _____ Marl 5 Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks (Deep Pool) Watercress (Aquatic Veg) (Overhanging Vegetation) (Woody Debris) Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
40% immature/mature tree + shrub species throughout
Adjacent Land Use
Houses, rds, ag fields

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
Nursery, spawn, forage.
Migratory Obstructions (seasonal, permanent)
none observed.
Note any fish observations None

Waterbody Notes

Natural Watercourse ✓ Trapezoidal Channel ✓ Grassed Swale _____ Buried Tile _____
Surficial Drainage (i.e. furrows) _____ Dugout Pond _____ Dominated by Aquatic Veg ✓ Dry _____

Other Habitat Notes, Incidental Wildlife Observations, etc. _____

Field Notes Authored by MF Field Notes QA/QCed by MEE

CANAL

CANAL BANCO

Has been dredged recently but riparian full of cattails. Channel would have been full of cattails and will again

REA

STANDING WAT + DRY SP=

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 80-1
Watercourse Name unknown
Photos see photo log
Date 2012 06 20

Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 14:11

Weather conditions in previous 24 hrs no precip
GPS Coordinates (Zone) 17T E 0621309 N 4747055 Datum NAD83
Descriptive Location On Rymer Road ~200m west of Dickhout Rd. Runs parallel with road on South sid.

Water Quality

Too Shallow

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) _____
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 0.3 (m) Maximum Pool Depth 4 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 2 (cm)
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability has been dredged recently

Substrate (% cover)

_____Bedrock _____Cobble _____Sand 40 Silt 40 Muck
_____Boulder _____Gravel 20 Clay _____Marl _____Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10% from tree side mature trees.
Adjacent Land Use
ag fields, houses

Fish Habitat Potential

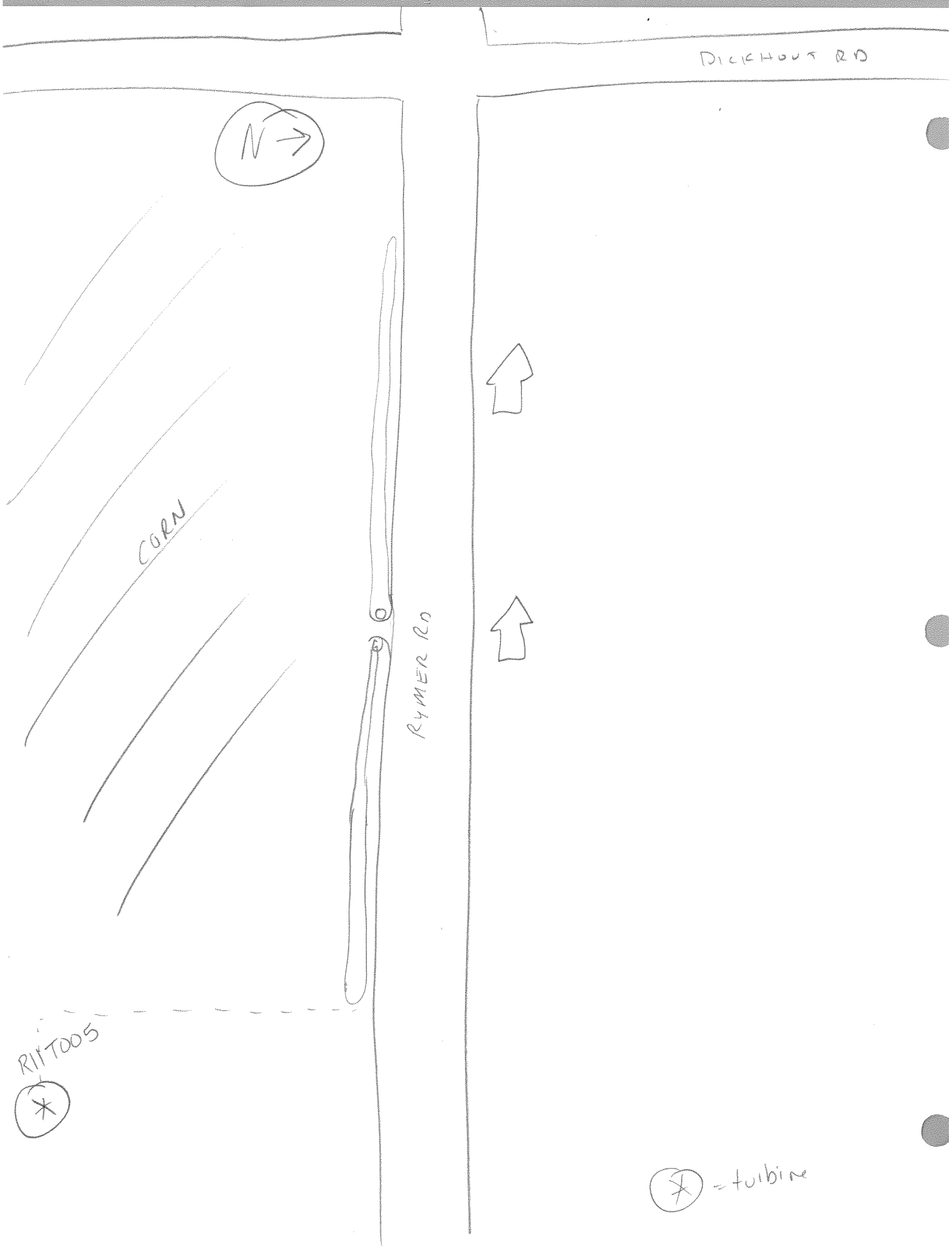
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawning
Migratory Obstructions (seasonal, permanent)
dry @ times
Note any fish observations none

Waterbody Notes

Natural Watercourse_____ Trapezoidal Channel MP Grassed Swale_____ Buried Tile_____
Surficial Drainage (i.e. furrows)_____ Dugout Pond_____ Dominated by Aquatic Veg_____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. ~~not connected to~~ W.P. ~~any water bodies within 1 km~~ Roadside ditch containing int. Stream

Field Notes Authored by MF Field Notes QA/QCed by MEE


DICKHOUT RD
N
CORN
RYMER RD
RIITOOS
= turbine

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # 81-1
Watercourse Name UNKNOWN
Photos See photo log
Date 2012 06 20
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 13:52
Weather conditions in previous 24 hrs No precip
GPS Coordinates (Zone) 17T E 0621911 N 4748513 Datum NAD83
Descriptive Location On Bird Rd ~ 800m south of Canal Bank Rd

STAND. WATER

Water Quality
Dissolved Oxygen (mg/L) ~~26.71~~ 3.89 pH 7.80 Conductivity (µS/cm) 987
Water Temperature (°C) 26.71 Air Temperature (°C) 29°C
Time *in situ* measurements taken 14:00

Watercourse Dimensions & Morphology
STANDING WATER
Mean Watercourse Width 30 (m) Maximum Pool Depth 10 (cm)
Mean Bankfull Width 50 (m) Mean Water Depth 2 (cm)
____% Riffle ____% Pool ____% Run ____% Flat
Evidence of eroding banks, Comments on bank stability none observed

Substrate (% cover)
____ Bedrock ____ Cobble ____ Sand 40 Silt 30 Muck
____ Boulder ____ Gravel 30 Clay ____ Marl ____ Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other ____

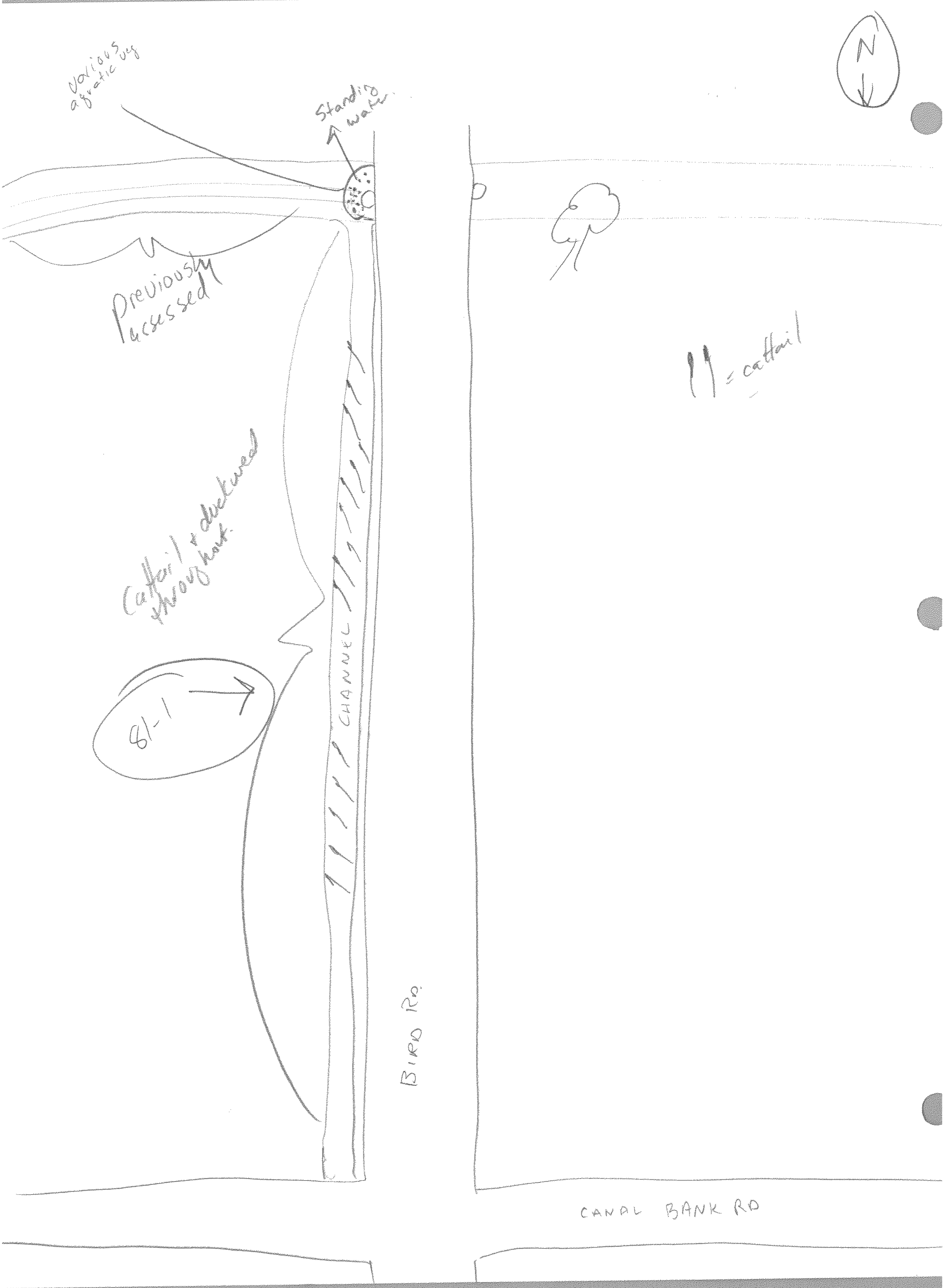
Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
2% cattail + meadow sp. choked w cattails
Adjacent Land Use
ag fields, rd

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings)
possible spawn
Migratory Obstructions (seasonal, permanent)
dry @ times
Note any fish observations none

Waterbody Notes
Natural Watercourse ____ Trapezoidal Channel ✓ Grassed Swale ____ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ✓ Dry ____

Other Habitat Notes, Incidental Wildlife Observations, etc. ____

Field Notes Authored by MF Field Notes QA/QCed by MEF



N
various aquatic veg
Standing water
Previously accessed
= cattail
Cattail + duckweed throughout
8l-1
CHANNEL
BIRD RD.
CANAL BANK RD

REA

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Pockets of Standing w No flows.

Stantec

Station # 83-1
Project Name Niagara Wind
Watercourse Name unknown
Project # 160950269
Photos See photo log
Field Staff ME, MF
Date 2012 06 26
Time 14:48
Weather conditions in previous 24 hrs no precipitation
GPS Coordinates (Zone) 17T E 0625918 N 4749203 Datum NAD83
Descriptive Location On Miner Rd ~ 15m north of Hutchinson Rd

Water Quality

TOY Shallow

Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 30°c
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.0 (m) Maximum Pool Depth 8 (cm)
Mean Bankfull Width 3.0 (m) Mean Water Depth 4 (cm) very shallow
_____% Riffle 100 % Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability
none observed

Substrate (% cover)

_____Bedrock _____Cobble _____Sand 40 Silt 30 Muck
_____Boulder _____Gravel 30 Clay _____Marl _____Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress (Aquatic Veg)
(Overhanging Vegetation) Woody Debris Boulder Other _____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
30% mature + immature shrub + tree species.
Adjacent Land Use
rds, houses, woodlot, ag fields

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn (possible) for frogs.
Migratory Obstructions (seasonal, permanent)
dry @ times: pockets of standing water
Note any fish observations none

Waterbody Notes

Natural Watercourse_____ Trapezoidal Channel ✓ Grassed Swale_____ Buried Tile_____
Surficial Drainage (i.e. furrows)_____ Dugout Pond_____ Dominated by Aquatic Veg ✓ Dry ✓ 80%

Other Habitat Notes, Incidental Wildlife Observations, etc. Song birds, arrowhead, RCG

Field Notes Authored by MF Field Notes QA/QCed by MEE

N
HOUSE
HOUSE
HOUSE
HOUSE
HOUSE
BARN
* = arrowhead
: duckweed
: cattail
: shrubs
MINOR RD
HUTCHINSON RD
83-2
old access bridge
woodlot

WIND FARM WATERBODY RAPID ASSESSMENT FORM

REP

Stantec

Station # 93-2
Watercourse Name unknown
Photos see photo log
Date 2012 06 20
Project Name Niagara Wind
Project # 160950269
Field Staff ME, MF
Time 13:10
Weather conditions in previous 24 hrs no precipitation - hot + humid
GPS Coordinates (Zone) 17T E [illegible] N [illegible] Datum NAD83
Descriptive Location Connects to 93-1 and continues 500 m away from Hutchinson Rd.

E 0625899 N 4749162

Water Quality

Dissolved Oxygen (mg/L) 3.04 pH 7.90 Conductivity (µS/cm) 500
Water Temperature (°C) 22.34 Air Temperature (°C) 30°C
Time *in situ* measurements taken

Is in situ good

Watercourse Dimensions & Morphology

Mean Watercourse Width 2.5 (m) Maximum Pool Depth >60.0 (cm)
Mean Bankfull Width 10.0 (m) Mean Water Depth 30.0 (cm)
% Riffle 100 % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability none observed.

Substrate (% cover)

Bedrock Cobble Sand 30 Silt 40 Muck
Boulder Gravel 30 Clay Marl Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
15% wild grape, trees, shrubs
Adjacent Land Use
ag fields

Fish Habitat Potential

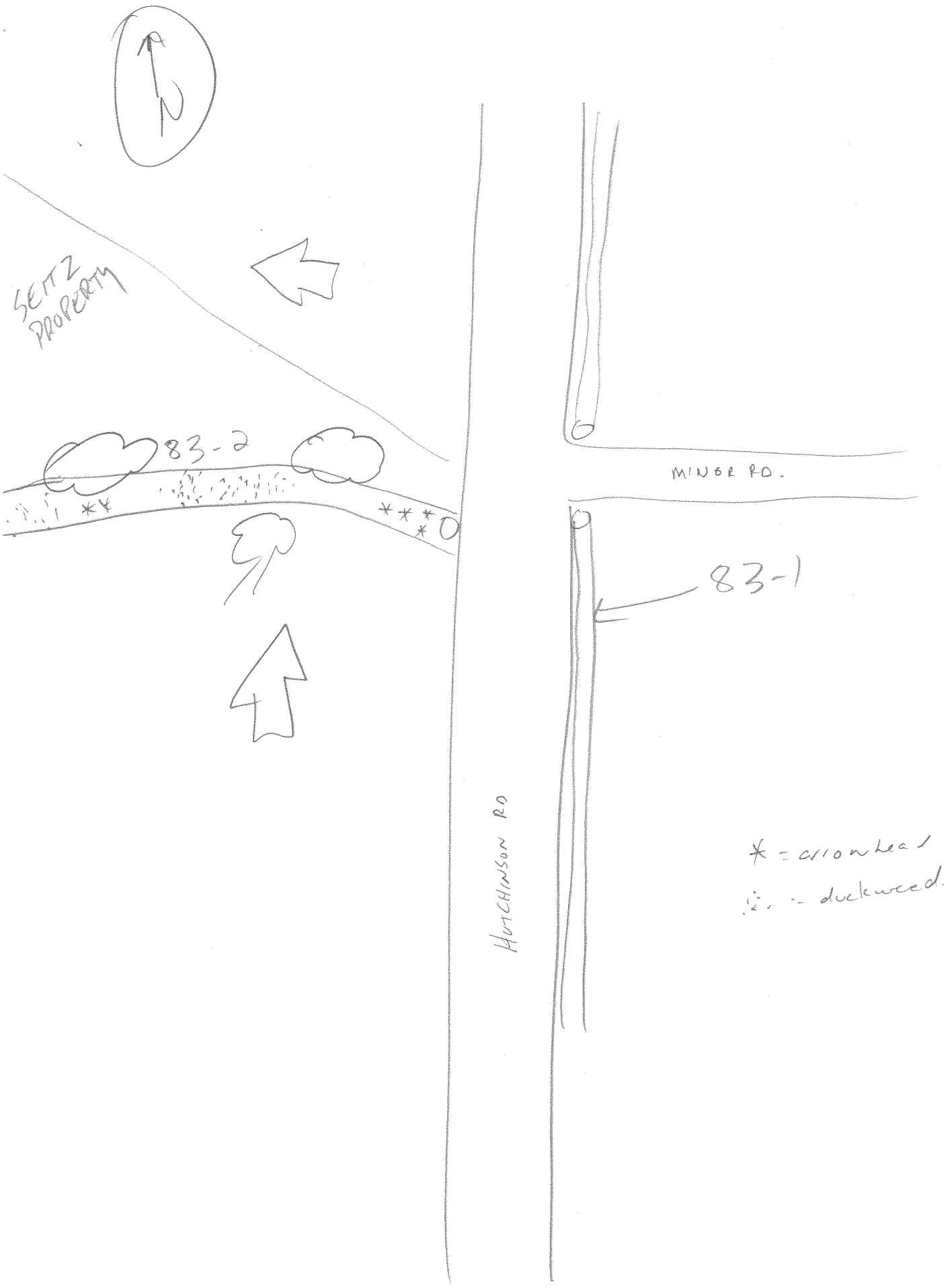
Critical Habitat (spawning or nursery areas, groundwater upwellings)
spawn, forage, nursery
Migratory Obstructions (seasonal, permanent)
none observed
Note any fish observations none

Waterbody Notes

Natural Watercourse Trapezoidal Channel ✓ Grassed Swale Buried Tile
Surficial Drainage (i.e. furrows) Dugout Pond Dominated by Aquatic Veg ✓ Dry

Other Habitat Notes, Incidental Wildlife Observations, etc. painted turtle

Field Notes Authored by MF Field Notes QA/QCed by MEF


N
SEITZ PROPERTY
83-2
MINOR RD.
83-1
HUTCHINSON RD
* = arrowhead
∴ = duckweed

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # R11T082
Watercourse Name 2
Photos 8059 - 8067
Date 19 Sept 2012
Project Name Niagara Wind Farm
Project # 160960269
Field Staff Trevor Chandler, Hamish Aubrey
Time 12:45 pm
Weather conditions in previous 24 hrs Fine; Rain day prior
GPS Coordinates (Zone) 17T E 0618259 N 4754960 Datum NAD 83
Descriptive Location Corn field with watercourse 2 connecting downstream
North of Hwy 3 by approx 700 m, 600 m East of Crown Rd

Water Quality NA - no surface water
Dissolved Oxygen (mg/L) _____ pH _____ Conductivity (µS/cm) _____
Water Temperature (°C) _____ Air Temperature (°C) 17°C
Time *in situ* measurements taken _____

Watercourse Dimensions & Morphology
Mean Watercourse Width Dry (m) Maximum Pool Depth No pools - dry (cm)
Mean Bankfull Width 2-3 (m) Mean Water Depth Dry (cm)
_____% Riffle _____% Pool _____% Run _____% Flat
Evidence of eroding banks, Comments on bank stability No evidence of fluvial erosion
channel is Adjacent fields are ploughed to top of bank

Substrate (% cover) → Soil

x	Bedrock	x	Cobble	Yes - 10	Sand	Yes - 70	Silt x Muck
x	Boulder	x	Gravel	Yes - 10	Clay	[illegible]	Marl x Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other Dry -

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
Agricultural weeds - 60% shaded - herbacious exotics
Adjacent Land Use
Corn field, agricultural

Fish Habitat Potential No water, unlikely to bear fish
Critical Habitat (spawning or nursery areas, groundwater upwellings)
Migratory Obstructions (seasonal, permanent) Low - no flow
Note any fish observations No

Waterbody Notes
Natural Watercourse No Trapezoidal Channel Mostly Grassed Swale No Buried Tile Unlikely
Surficial Drainage (i.e. furrows) No Dugout Pond No Dominated by Aquatic Veg No Dry Yes

Other Habitat Notes, Incidental Wildlife Observations, etc. Straight trapezodial channel along entire site. Channel bed does not appeared to be plowed but channel is used to drain agricultural fields. Water sourced from wetland situated north of channel. No aquatic plants

Field Notes Authored by Trevor + Hamish Field Notes QA/QCed by MF

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # GL-SGR3 1
Watercourse Name Spring Creek Tributary 1
Photos 8135 ~~8139~~ 8140
Date 19 Sept 2012

Project Name Niagara Wind Farm
Project # 160960269
Field Staff Trevor + Hamish
Time 5:35 pm

Weather conditions in previous 24 hrs Fine - Rain, 15°C
GPS Coordinates (Zone) 17T E 0620005 N 4775198 Datum Nad83
Descriptive Location South Grimsby Rd 3 200 m north of Yonge St

Water Quality NA - Dry
Dissolved Oxygen (mg/L) ___ pH ___ Conductivity (µS/cm) ___
Water Temperature (°C) ___ Air Temperature (°C) 17°C
Time *in situ* measurements taken ___

Watercourse Dimensions & Morphology
Mean Watercourse Width Dry (m) Maximum Pool Depth ___ (cm)
Mean Bankfull Width ___ (m) Mean Water Depth ___ (cm)
___ % Riffle ___ % Pool ___ % Run ___ % Flat
Evidence of eroding banks, Comments on bank stability ___

Substrate (% cover) Rip-rap in box culvert
___ Bedrock 100 Cobble ___ Sand 100 (Soil) Silt ___ Muck
___ Boulder ___ Gravel ___ Clay ___ Marl ___ Detritus

In-water Cover Dry
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other ___

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
80% shaded - grasses
Adjacent Land Use
Agricultural

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) unlikely
Migratory Obstructions (seasonal, permanent) no - low flow
Note any fish observations no

Waterbody Notes
Natural Watercourse ~~Y~~ N Trapezoidal Channel Y Grassed Swale N Buried Tile N
Surficial Drainage (i.e. furrows) N Dugout Pond N Dominated by Aquatic Veg N Dry Y

Other Habitat Notes, Incidental Wildlife Observations, etc.
Box culvert - approx 6m wide - some ponded water under culvert, otherwise channel is dry

Field Notes Authored by Hamish Field Notes QA/QCed by MP

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # CL-SGR32A
Watercourse Name Trib to Spring Creek 2
Photos 8141-5
Date Sept 19/12
Weather conditions in previous 24 hrs Rain
GPS Coordinates (Zone) 17T E 0620161 N 4776015 Datum Nad83
Descriptive Location South Grimsby Rd 3, 400m N of Con 7

Project Name Niagara Wind
Project # 160950769
Field Staff Trevor Chandler & Hamish A
Time 5:50

Water Quality

Dry

Dissolved Oxygen (mg/L) / pH / Conductivity (μS/cm) /
Water Temperature (°C) Air Temperature (°C) 17°C
Time *in situ* measurements taken

Watercourse Dimensions & Morphology

Mean Watercourse Width ____ (m) Maximum Pool Depth ____ (cm)
Mean Bankfull Width ____ (m) Mean Water Depth ____ (cm)
____ % Riffle ____ % Pool ____ % Run ____ % Flat
Evidence of eroding banks, Comments on bank stability Stable

Substrate (% cover)

____ Bedrock ____ Cobble ____ Sand 100% Silt ____ Muck
____ Boulder ____ Gravel ____ Clay ____ Marl ____ Detritus

In-water Cover

Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other ____

Riparian Zone

Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
10%, agric pasture/grasses, early
Adjacent Land Use
agric/pasture

Fish Habitat Potential

Critical Habitat (spawning or nursery areas, groundwater upwellings)
none
Migratory Obstructions (seasonal, permanent)
Dry
Note any fish observations none

Waterbody Notes

Natural Watercourse ____ Trapezoidal Channel ____ Grassed Swale ✓ Buried Tile ____
Surficial Drainage (i.e. furrows) ____ Dugout Pond ____ Dominated by Aquatic Veg ____ Dry ✓

Other Habitat Notes, Incidental Wildlife Observations, etc. poorly defined channel in grassy field

Field Notes Authored by Trevor Chandler Field Notes QA/QCed by MF

WIND FARM WATERBODY RAPID ASSESSMENT FORM

Stantec

Station # CL-SGR 3 3
Watercourse Name Spring Creek
Photos 3146 ~~3147~~ 3149
Date 19 Sept 2012
Weather conditions in previous 24 hrs Fine - Rain 15°C
GPS Coordinates (Zone) 17T E 0620237 N 4776591 Datum NAD 8
Descriptive Location South Grimsby Road 3 - ~~Fly Rd~~ 20 m ~~from~~ South of Fly Rd

Project Name Niagara Wind ~~Project~~ Farm
Project # 160960269
Field Staff Trevor + Hamish
Time 6:05 pm

Water Quality NA - Dry at Culvert
Dissolved Oxygen (mg/L) / pH / Conductivity (µS/cm) /
Water Temperature (°C) / Air Temperature (°C) 17°C
Time *in situ* measurements taken

Watercourse Dimensions & Morphology
Mean Watercourse Width 3 (m) Maximum Pool Depth ~30 (cm)
Mean Bankfull Width ~6 (m) Mean Water Depth 5 cm (cm)
% Riffle 100 % Pool % Run % Flat
Evidence of eroding banks, Comments on bank stability Stable

Substrate (% cover)
Bedrock Cobble Sand 100 ~~Peat~~ Silt Muck
Boulder Gravel Clay Marl Detritus

In-water Cover
Cover Types Present (circle): Undercut Banks Deep Pool Watercress Aquatic Veg
Overhanging Vegetation Woody Debris Boulder Other

Riparian Zone
Riparian Cover (% of watercourse shaded, dominant vegetation, mature or early successional)
70 % - shaded by grasses + trees + aquatic veg
Adjacent Land Use
Rural residential - lawn ~~weed~~ wooded area, agricultural field

Fish Habitat Potential
Critical Habitat (spawning or nursery areas, groundwater upwellings) unlikely
Migratory Obstructions (seasonal, permanent) no - low flow + heavily vegetated
Note any fish observations no

Waterbody Notes
Natural Watercourse Trapezoidal Channel Y Grassed Swale N Buried Tile N
Surficial Drainage (i.e. furrows) N Dugout Pond N Dominated by Aquatic Veg Y Dry N

Other Habitat Notes, Incidental Wildlife Observations, etc.
Concrete box culvert - approx 4-5 m
Watch the poison ivy!

Field Notes Authored by Hamish Field Notes QA/QCed by MR