Water Body Feature Name	Water Body Location ID	Description of Water Body at Water Body Location	Water Body (Yes/No)	Distance to Project Location Component (m)	EIS Required (Yes/No)
Ptsebe Trib F	WB77	intermittent/permanent water body, partially channelized, fish observed	Yes	WT- >120 AR- >120 <b>OL- 46</b> UL- >120 <b>CA- 38</b> BU- >120	Yes
Ptsebe Trib G	WB76	intermittent/permanent water body, naturalized defined channel, fish observed	Yes	WT- >120 AR- >120 <b>OL- Crossing</b> UL- >120 <b>CA- Crossing</b> BU- >120	Yes
Ptsebe Trib H	WB75	intermittent/permanent water body, channelized	Yes	WT- >120 AR- >120 <b>OL- Crossing</b> UL- >120 <b>CA- Crossing</b> BU- >120	Yes
Ptsebe Trib	WB72	intermittent/permanent water body,	Yes	WT- >120 AR- >120 <b>OL- 16</b> UL- >120 <b>CA- Crossing</b> BU- >120	Yes
I	WB74	through agricultural fields	Yes	WT- >120 AR- >120 <b>OL- Crossing</b> UL- >120 <b>CA- Crossing</b> BU- >120	Yes
Ptsebe Trib J	WB73	intermittent/permanent water body, channelized, flows along agricultural fields	Yes	WT- >120 AR- >120 <b>OL- 119</b> UL- >120 <b>CA- 105</b> BU- >120	Yes
Ptsebe Trib K	WB71	ephemeral, channelized drainage feature through agricultural fields	No	N/A	No
Ptsebe Trib L	WB70	ephemeral, channelized drainage feature through agricultural fields	No	N/A	No
Ptsebe Trib M	WB69	ephemeral, channelized drainage ditch along road	No	N/A	No

WT- Wind Turbine AR- Road Access OL- Overhead Line (transmission line) UL- Underground Line CA- Construction Activity (includes crane walk, and staging and disturbance areas) BU- Building (includes substation and interconnection point) N/A- Not Applicable

6.2.2 Sydenham River Watershed

6.2.2.1 Sydenham River

The records review identified a total of 7 potential watercourses associated with the Sydenham River drainage area within the project area (NRSI 2012a).

NRSI biologists conducted site investigations on the identified watercourse features and have confirmed that none of these watercourses have characteristics that warrant consideration as a water body. A summary of site conditions associated with all features considered during the site investigation, including distances to project location, is provided in Table 9.

## Table 9. Water Body Site Investigations Summary for Adelaide Wind Energy Centre Project Area – Sydenham River

Water Body Feature Name	Water Body Location ID	Description of Water Body at Water Body Location	Water Body (Yes/No)	Distance to Project Location Component (m)	EIS Required (Yes/No)
Stevenson Drain	WB8	ephemeral, swale through agricultural field	No	N/A	No
	WB9	ephemeral, swale through agricultural field	No	N/A	No
Sullivan	WB36	ephemeral, poorly defined channel	No	N/A	No
Drain	WB37	ephemeral, channelized drain	No	N/A	No
	WB66	ephemeral, channelized drain	No	N/A	No

Water Body Feature Name	Water Body Location ID	Description of Water Body at Water Body Location	Water Body (Yes/No)	Distance to Project Location Component (m)	EIS Required (Yes/No)
	WB67	ephemeral, channelized drain	No	N/A	No
Sydenham Trib A	WB13	ephemeral, no water body feature present	No	N/A	No
Dortman's Drain	WB27	ephemeral, no water body feature present	No	N/A	No
Richardson -Early Drain	WB28	ephemeral, no water body feature present	No	N/A	No
Johnson Drain- Branch A	WB52	ephemeral, poorly defined channel	No	N/A	No
Raply	WB53	ephemeral, swale through agricultural field	No	N/A	No
Drain	WB54	ephemeral, swale through agricultural field	No	N/A	No

Legend WT- Wind Turbine

AR- Road Access

OL- Overhead Line (transmission line)

UL- Underground Line CA- Construction Activity (includes crane walk, and staging and disturbance areas)

BU- Building (includes substation and interconnection point)

N/A- Not Applicable

#### 6.3 Seepage Areas

No seepage areas were identified through the site investigations.

#### 7.0 Modifications to the Records Review

Results of the site investigation led to the further classification of several potential water bodies as non-water bodies based on the observed site-specific conditions These modifications are discussed further below.

Ausable River drainage area records review identified 9 potential water bodies within the project area (NRSI 2012). Findings of the site investigations confirmed that of these 9 potential water bodies, 2 have been confirmed to have at least some habitat that warrants water body classification and warrant further consideration as part of the Environmental Impact Study. The remaining 7 features have been confirmed to be agricultural swales, temporary drainage, or grassed waterways that do not warrant consideration in the EIS in accordance with the REA Regulation.

Adelaide Creek drainage area records review identified 19 potential water bodies within the project area (NRSI 2012). Findings of the site investigations confirmed that of these 19 potential water bodies, 8 have been confirmed to have at least some habitat that warrants water body classification and warrant further consideration as part of the Environmental Impact Study. The remaining 11 features have been confirmed to be agricultural swales, temporary drainage, or grassed waterways that do not warrant consideration in the EIS in accordance with the REA Regulation.

Mud Creek drainage area records review identified 4 potential water bodies within the project area (NRSI 2012). Findings of the site investigations confirmed that of these 4 potential water bodies, 3 have been confirmed to have at least some habitat that warrants water body classification and warrant further consideration as part of the Environmental Impact Study. The remaining feature has been confirmed to be an agricultural swale that does not warrant consideration in the EIS in accordance with the REA Regulation.

Ptsebe Creek drainage area records review identified 13 potential water bodies within the project area (NRSI 2012). Findings of the site investigations confirmed that of these 13 potential water bodies, 8 have been confirmed to have at least some habitat that warrants water body classification and further consideration as part of the EIS. The remaining 5 features have been confirmed to be agricultural swales, temporary drainage, or grassed waterways that do not warrant consideration in the EIS in accordance with the REA Regulation.

Sydenham River drainage area records review identified 7 potential water bodies within the project area (NRSI 2012). Findings from the site investigations confirmed that of these 7 potential water bodies, none have been confirmed to have habitat that warrants water body classification; therefore, these features do not require consideration in the EIS as per the REA Regulation.

#### 8.0 Summary of Site Investigation

In accordance with the REA Regulation, NRSI has completed water body site investigations for the proposed Adelaide Wind Energy Centre project area. Site investigations were conducted to confirm the presence/absence of water bodies identified during the records review (NRSI 2012), pinpoint any corrections to features identified during the records review, and document new water bodies not previously identified. Field investigations also focused on the characterization of the identified features. The results of this records review have been summarized in Table 10 below.

Criteria	Associated Water Body Features
	Site investigations have confirmed the presence of 19 water bodies overlapping the project area, all of which are within the Ausable River watershed.
i. In a water body	These overlaps represent proposed crossing locations for access roads, transmission line or cabling. All of these water bodies represent permanent or intermittent watercourses. All of which are designated as warmwater fisheries containing warmwater baitfish species, with exception of the Lenting Drain which is classified as a cool/coldwater system.
	Each of these potential water bodies will be discussed in detail as part of the Environmental Impact Study.
ii. Within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity	None
iii. Within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity	None
	Site investigations have confirmed the presence of 23 water bodies within the project area, all of which are within the Ausable River watershed.
IV. Within 120 m of the average annual high water mark of a permanent or intermittent stream	Most of these water bodies are designated warmwater fisheries, with the exception of the Lenting Drain which is classified as cool/coldwater system. Each of these water bodies will require the completion of an Environmental Impact Study

Table 10.	Summary of Water Body Site investigations for the Adelaide Wind Energy
Centre	

Criteria	Associated Water Body Features
iv. Within 120 m of a seepage area	None

#### 9.0 References

- Credit Valley Conservation and Toronto Region Conservation. March 2009. Evaluation, Classification and Management of Headwater Drainage Features: Interim Guidelines.
- Natural Resource Solutions Inc. April 2012. Adelaide Wind Energy Centre Water Body Report – Records Review. (NRSI 2012)

Ontario Ministry of Natural Resources. 2006. Inland Ontario Lakes Designated for Lake Trout Management. Available at: http://www.ontla.on.ca/library/repository/mon/14000/262222.pdf. Accessed December 9, 2010

Appendix I Site Investigation Field Notes

		<b>NATURAL RESOURCE</b> Sequentic, Terrestrial and Wetland Biologen	SOLUTIONS INC	HABITAT CHARACTERIZATION
PROJECT	r (Number & Nam	10: 13.30 Adelarde u	JC	Page 1 of 2
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Drainane	Svstem Arch	0	Zone:	Northing: 4261530
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Valley	Slope:	Gentie (< 5) Mioderate	(0 - 10 ) orech (-	13 ) 20 fr 30
	Extent of Natural	Vegetation (m)		- 20 00 02
	Vegetation Type:	goldenred, grasses,	herb s	
		>		
				.00
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	Academic i the	Participant and	more dans he	
	1	L. MIANI N. A.L.		
	Vegetation Densi	ty (HML): M-L	Cu-10	de: 0 15%
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Land	agricultura.			
Use	0			
Other	(groundwater, si	oils, pools, vegetation, etc.)		
Notes	why side h	evently due in veg.		
	found du	e to divid		
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Bank Veg	etation Type:	mere bachs		Bank Veg. Density (H/M/L): M- L
C. LANKING	CIDETDATE	6- 10- 1 C C C		
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		People. J	Mad.	
Sand:)	0	Cobble:	Mari.	Ouldi.
INSTREA	M HABITAT AND	COVER		
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Riffles:		Woody Debris:		Cobble:
Backwater	i	Vegetation:	(ast side)	Other:
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		I TO ILS ALLON AN	0.200	
		2		
		City C. See Minter Street	SCC Stream Cross	Section
AHP Aquat	ic Habitat Point	GWI Groundwater Input	DOX Dissolved O	ygen Stn
AHY Aquat	ic Habitat Area	CKC Creek Crossing	VSS Visual Survey	Stn
TMP Temp	Monitor Stn	WEL Well	WQS Water Quali	y Stn
FI W Flow	Monitor Stn	CUL Culvert		

Image: Section of the section of t	ATER	3     4       ATER QUALITY     Vater Temp. (°C): 14       Vater Temp. (°C): 14     D.0.       In Taken: (°C): 10     D.0.       In Dollarde: watercourse and name, flow directing hannel modifications, adjacent landuse, roa       In Dollarde: watercourse and name, flow directing hannel modifications, adjacent landuse, roa       In Dollarde: valacent landuse, roa	(ppm):	Visible Characteristics/Other Parameters:
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-box alvert yn wide -bonchi von honchi von Photo# <u>Bescription</u> 793 - defined nhannel 793 - defined nhannel	-box culvert yn wide -bonchul van bonchul van Photos TAKN Photos TAKN Photos Action Photos Description Photos Descripti	- pot fish halo	Hat - < Incland	
PHOTOS TAKEN PHOTOS TAKEN 790 - box culvert - d/s view (N sid c) 796 - defined channel 796 - d/s view (N sid c) 796 - d/s view 796 - d/s view 796 - d/s view 797 - Inmited free over 798 - dis view 799 - Inmited Aree over 799 - Inmited Aree over 799 - Jos view	PHOTOS TAKEN     Photo #     Description       TAU - bex culvert - d/s view (N side)     Photo #     Description       TAU - bex culvert - d/s view (N side)     TAP - channel     TAP - channel       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - channel       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tree cult     TAP - d/s view (N side)     TAP - d/s view (N side)       TAP - Invited tre cult     TAP - d/s view (N side)     TAP - d/s	-box culvert	4m wide	
PHOTOS TAKEN Photo # Description Photo # Description TAU = box culvert = d/S view (N side) TAP = chrannel TAP = defined channel TAP = limited tree outer TAP = linited tr	Photos TAKEN     Photos #     Description       Photos #     Description     Photos #     Description       PAu - box culvert - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - d/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel     Pm - channel       PAB - u/s view (N sids)     Pm - channel<			
Photo # Description Photo # Description 794 - box culvert - d/s view (N side) 799 - channel 796 - d/s view 799 - himited tree cover 799 - himited tree cover 799 - Junited tree cover 799 - Junited tree cover	Photo #         Description         Photo #         Description           794 - box culvert - d/S view (N side)         799 - channel         799 - channel           795 - defined channel         799 - channel         799 - channel           796 - d/S view         799 - channel         799 - channel           797 - himited free cover         201 - d/S view         201 - d/S view           799 - himited free cover         201 - d/S view         201 - d/S view           799 - himited free cover         201 - d/S view         201 - d/S view           799 - himited free cover         201 - d/S view         201 - d/S view           799 - Jos view         201 - d/S view         201 - d/S view           798 - distributed free cover         201 - d/S view         201 - d/S view           799 - distributed free cover         201 - d/S view         201 - d/S view           790 - distributed free cover         201 - d/S view         201 - d/S view           791 - himited free cover         201 - d/S view         201 - d/S view           700 - distributed free         201 - d/S view         201 - d/S view           701 - box         201 - d/S view         201 - d/S view         201 - d/S view           701 - box         201 - d/S view         201 - d/S view         201 - d/S view	HOTOS TAKEN		
GENERAL COMMENTS	GENERAL COMMENTS Fish observed, unususal conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:	Photo # Descripti 794 - box Culver 795 - defined chav 796 - dl5 view	1 - d/S view (N side) 799 - chain nnel 2012 - d/S view (N side) 799 - chain nnel 2012 - d/S view -	Description Arales Jiew
	Fish observed, unususal conditions, differences from previous site visit, landowner comments, topography, general land use and vegetation, etc.:	SENERAL COMMENTS		beer beer

A NATURAL RESOURCE SOLUTIONS INC.

HABITAT CHARACTERIZATION

	•			Page 1 of 2
PROJEC	CT (Number & Nan	ne): 1230 Adebide WF		
	all G McVe	du	C 1 0 1 0	ation.
Station	WC # 54			
Waterbo	DI HOLEIONCE			NDT Northing 2041000
Urainage	Solution Hugh	le K		
Location	in System: ()	nous Dr		oncession:
- iddy		Weather C	onditions:	
Time Cta	arted 12 10	Wind: LI		Cloud Cover (%): 100
Time Fin	lished: 1230	Precipitatio	וו: נשוט ן	
AD IACE	INT I ANDS			
Valley	Slope:	Gentle (< 5°) Moderate (	5 - 15°) Steep (	> 15°) 20 to 30 +
	EXtent of Natural		22 22	low Houde
	vegetation Type.	D. araster notdentrod	5 -	, to the short shrubs, rasher ny,
			10 11 01	apidentind 1 201
Riparial	n Flood Plain - externation Type:	ent of frequent flood (m).	20101 01-0	200 200 200 200 200 200 200 200 200 200
		for the second second	7	
	Vegetation Dens	ity (HML): H		
Canopy	Type: de cidi	WOR WERS	Quality and % sh	ade: south ride - good 70%
Land	agriculture	e, form house, cous		north side poor 3570
Use	, ,			
Other Notes	Inmited fl	iolis, pools, vegeration, etc.) Out - the less than	stim	
CHANN	EL MORPHOLOG			Cradiant (HMM) Y
Channel	Width (range (m))	50-05		Meander/Straight Nonvolor
Bank He	eignt (range (m)):	entrop of water): 20 - 900		Bank Stability: Cood
Bank Ve	getation Type: Qr	Sullace of watch , 50 - 00		Bank Veg. Density (H/M/L): N
CHANNE	EL SUBSTRATE %	,0		
Clay	30	Gravel: 10	Boulder	Muck: 10
Silt		Peddle:	Mari	Other
INSTRE	AM HABITAT AND	) COVER		
Pools:	7	Undercut Banks:	-	Boulder/Rock:
Riffles:		Woody Debris:		Cobble:
Backwat	ter	Vegetation:		Other:
INSTRE	AM VEGETATION	oatino) Familv/Genus/speci	se	Description/Abundance
is) and i				atimptation ether
		an know ?		Charles the manager
CODES:		SWI Surface Water Input	SCS Stream Cros	ss Section bouren Stn
AHP Aqu AHY Aqu Thip Tem	Jatic Habitat Point Jatic Habitat Area	GVVI Groundwater input CKC Creek Crossing M/FI M/elt	VSS Visual Surve WQS Water Qual	ey Str lity Str
FLW Flor	w Monitor Stn	CUL Culvert		

FLOW CONDITIONS Cross-Section Wetted Width (m) 5 Depths, equ	Page 2 of 2 ally spaced (cm) Discharge/Pool/Riffle/Run/Notes
to deep/mur	ky to estimate
s s s s s s s s s s s s s s s s s s s	h places
5 WATER OILALITY	
Water Temp. (°C): 15 D.O. (ppm):	pH: Visible Characteristics/Other Parameters: TDS (ppm): murtur water
SITE DRAWING Include: watercourse and name, flow direction, riffle/pool/ru	in habitat, side tributaries, station location, approx. reach length,
channel modifications, adjacent landuse, roads & road nam solostantial creek - fish trabitiat	es, bridges, culverts, north arrow, etc Dre Serth
-steep slope on west bank	
- erosion present	
bankful width = 13 15m	
PHOTOS TAKEN	
Photo # Description	Photo # Description
760 - north side alignments view	773 - US VIELU 773 - OUS SIONE SOUTH FORMY AND 773 - UIS SIONE SOUTH FORMY AND
GENERAL COMMENTS	
Fish observed, unususal conditions, differences from previe and vegetation, etc.: wo fish observed	ous site visit, landowner comments, topography, general land use

		NATURAL RESOURCE S	olutions inc.	HABITAT CHARACTERIZATION
PROJEC	T (Number & Nar	ne): 1230 Ademide u	- Li	Page 1 of 2
Field Sta	IT: G Marve	Hon		
Station:	WC # 33	- als side	Site Location:	
Waterboo	ay unknow	N N	GPS Datum: Nf	IDES Easting: OY4 IN4
Drainage	System: Ausal	ole k	Zone: 17 T	Northing 4764303
Location	in System: © C	uddy Dr	Municipality: Sh	athroy - Loradoc
Appr. Ke	ach Length (m).			
Survey D	Date: 19 Sept	2011 Weather C	onditions:	Abrian ar arrivante a
Time Stau	rted: 1330	Wind: H	Cloud	over (%): 100
Time Fini	ished: 134 7	Precipitatio	n: Caw	
ADJACE	NT LANDS			
Valley	Slope: Extent of Natura	(Gentle (< 5°)) Moderate ( Vegetation (m) (0-10)	5 - 15°) Steep (> 15°) 10 to 20 20 to 3	30+
	Vegetation Type	: maple calar pharce	Shruzz, goldenier	
	Look Diele	ant of femalions flood (m).	10 to 20	20 to 30 30+
Zone	Vegetation Type	ent of mequent inout (m).		
	Vegetation Dens	ity (HML): M.		
Canopy	Type: decid		Quality and % shade: Ac	Ir 45%
Land	residental	, agricultural		
Use Other	(aroundwater s	coils mools vegetation, etc.)		
Notes	Source and a second		in whe flour	
		ALL ALLA MIC COLOR		
CHANNE	IL MORPHOLOG	×		
Channel	Width (range (m))	· 50 - 1.0m	Gradie	nt (H/M/L): L
Bank Hei	ght (range (m))	SSM.	Bank	tability:
Bank Van	pe (degrees irori	sullace of water). 30 - 00	Bank	eg. Density (H/M/L): H
CHANNE	SURSTRATE	for solutions		
Car	1 C	Gravel: 10	Boulder:	Muck, 5
Silt	)	Pebble:	Bedrock:	Detritus:
Sand:)	0	(Cobble:)5	Mart:	Other.
INSTREA	AM HABITAT AND	COVER		
Pools: v		Undercut Banks	Boulde	r/Rock: //
Riffles: -		Woody Debris:	Other	٢
INSTRF4	M VEGETATION			
Type (su	bmerg./emerg./fl	oating) Family/Genus/speci	SS Descr	ption/Abundance
CODES:		SWI Surface Water Input	SCS Stream Cross Section	
AHP Aqui AHY Aqui	atic Habitat Point atic Habitat Area o Monitor Str	GWI Groundwater Input CKC Creek Crossing WFI Well	VSS Visual Survey Stn VSS Visual Survey Stn VVQS Water Quality Stn	
FLW Flow	/ Monitor Stn	CUL Culvert		

FLOW CONDITIONS	Page 2 c	o.I
Cross-Section Wetted Width (m) 5 Depths, 1 ・イ5か 3	equally spaced (cm) Discharge/Pool/Riffle/Run/Notes	
5		
WAI EK QUALITY Water Temp. (°C): 12 ° D.O. (ppm): <sup>-</sup> Air Temp. (°C): 10 ° Time Taken: 1340 Conductivity (µ Location Taken: @ Crossing	TDS (ppm):	
SITE DRAWING Include: watercourse and name, flow direction, riffle/p	pool/run habitat, side tributaries, station location, approx. reach length,	
- defined channel		
- murky - fish habitat		
- hant ful width 1- 15m		
PHOTOS TAKEN		
Photo # Description	Photo # Description	
775 · US view south side of rel 776 · View of culverts d/s side 778 · d/s side view	780 - Substrates I flow 781 - " 782 - north side - Cast view 783 - ", " uest view (have)	
GENERAL COMMENTS	previous site visit. landowner comments, topography, general land use	
and vegetation, etc. No fish seen		

		ATURAL RESOURCE S Latic, Terrestrial and Wetland Biolog	OLUTIONS INC.	HABITAT CHARACTERIZATION
PROJEC1	T (Number & Name)	: lazo Adelade u	JC.	Page 1 of 2
Field Stai	T: ( Mycverc	4	Site Location:	
Station:				An Destination
Waterbod	V. UNENOUN		GPS Datuit: OH	Northing 121
Drainage	System: Ausable	л Л	7016 (イ)	SO CHOILE SUMION
Location i	n System: © C.U	day Dr.	Lot & Concession	HINTON - L'ANADICC-
Appi. Ned			Conditione.	
Survey D	are: 14 Kopt 1			
Time Star		Precipitati	nicari chies in	
	of L1 maile		6.00	
Vallev	Slope:	Gentle (< 5°) Moderate	(5 - 15°) Steep (> 15°)	
-	Extent of Natural Ve	egetation (m) (0-10	10 to 20 20 to 30	30+
	Vegetation Type: o	poldenical, grasses,	budade	
	,			
Rinarian	Flood Plain - extent	of frequent flood (m):	0-10-10 to 20	20 to 30 30+
Zone	Vegetation Type: 6	prasses a rool	)	
	Vegetation Density	(HML): +1 - d/s side	apis sin-1	
Canopy	Type: aross		Quality and % shade: 00	× - 10-20%
Land	and third			
Use	- A			
Other	(groundwater, soil	s, pools, vegetation, etc.)		
Notes	- uls side	recently dugout		
CHANNE	I MORPHOLOGY			
Channel V	Nidth (range (m)): F		Gradier	it (H/W/L): C-
Bank Heid	aht (range (m)):		Meande	rr/Straight
Bank Slop	be (degrees from sur	face of water) IS- 45°	Bank S	ability: -au
Bank Veg	etation Type: 9r.a.	sses	Bank V	eg. Density (H/M/L): P1-C
CHANNE	L SUBSTRATE %			10
Clay> (	Q	Gravel:	Boulder:	MUCK SCO
Sitt		Pebble:	Bedrock:	Detritus:
Sand:	00	Cobble:	Mart:	OLEI.
INSTREA	M HABITAT AND C	OVER		
Pools:		Undercut Banks:	Boulde	KOCK:
Riffles: -	{	Woody Debris.		
Backwate		Vegetation:	Omer.	and the second se
INSTREA	M VEGELATION		Descri	ntion/Abundance
Type (sul	bmerg./emerg./floai	ring) Family/denus/spec	2000	
		levilsariat	y a SSe	
CODES:		SWI Surface Water Input	SCS Stream Cross Section	
AHP Aqua AHY Aqua	ttic Habitat Point ttic Habitat Area	GWI Groundwater Input CKC Creek Crossing M/E1 M/eII	VSS Visual Survey Stn VOS Water Quality Stn	
FLW Flow	Monitor Stn	CUL Culvert		

FLOW CONDITIONS		Page 2 of 2
Cross-Section Wetted Width (m)	5 Depths, equally spaced (cm)	Discharge/Pool/Riffle/Run/Notes
-: N: 6 4: 4	WQ9 .	
WATER QUALITY		
Water Temp. (°C): 13 °C Air Temp. (°C) 10 Time Taken: 1410 Location Taken: @ Construction	D.O. (ppm):	Visible Characteristics/Other Parameters:
SITE DRAWING		
Include: watercourse and name, flow channel modifications, adjacent landus	direction, riffle/pool/run habitat, side tribut se, roads & road names, bridges, culverts	aries, station location, approx. reach length, , north arrow, etc
- recently influenced		
- pockets of water Als		
, grasser human		
V Jord	1	
MULTI Q- J.S M	· Jm deep	
PHOTOS TAKEN		
Photo # Description	Photo #	Description
786 - US VEW (such : 787 - G(s New Charth 788 - Shallew pool Cless+	side of id is solve the - uls	uters lert uls culture area -uls
GENERAL COMMENTS		
Fish observed, unususal conditions, diant and vegetation, etc.	fferences from previous site visit, landow	ner comments, topography, general land use
ho fish seen		
no aquatic veg		

	Aquatic, Terrestrial and Wetland Biologists	HABITAT CHARACTERIZATION Page 1 of 2
PROJEC	CT (Number & Name): 1330 Adelande WF	4
Fleid Station: Station: Waterboo Drainage Location	I I I I I I I I I I I I I I I I I I I	, Easting: OU 39391 Northing: 4761462 OU - Caradoc
Survey E Time Star Time Fini	Date: 1억 오~어 2011 Weather Conditions: Larted: 1워스 nished: 13 20 Precipitation: 가까마	(%): 100 %o
Valley	Slope:     Gentle (< 5°)     (Moderate (5 - 15°))     Steep (> 15°)       Extent of Natural Vegetation (m)     0-10     10 to 20     20 to 30       Vegetation Type:     Sincle (most) (most) (most)     0.10     ash, map (e, g, recd-since)       NJ Side (west)     0.10     ash, map (e, g, recd-since)     °St	M. Side (cast) N. Side (cast) ncc , guldenicd, ctcrid
Riparian Zone	In Flood Plain - extent of frequent flood (m): (0-10) 10 to 20 20 to Vegetation Type: burdack , goldenical, aster , grasses Vegetation Density (HML):	30 30+
Canopy Land Use	y Type: cash side deriv/ranif Quality and % shade: 70% west side grasses agricultural (cash side) farming - 00416 Indimovater soils, nools, vegetation, etc.)	
CUNEL	(Biodildwater) solie) protest resonances	

#### Bank Veg. Density (H/M/L): high stranght 1 Description/Abundance P dar Detritus: (Muck) Other: Meander/Straight: Gradient (H/M/L 4-normalary Boulder/Rock: Bank Stability: Cobble: Other: Stream Cross Section 5 Boulder Bedrock: Marl: SCS Family/Genus/species ¢, Undercut Banks: δŌ 06. Woody Debris: SWI Surface Water Input 0199E Vegetation: (m) B 00 R 0 Bank Slope (degrees from surface of water) 5 dś Pebble: Gravel: Cobble: COVER 10 Type (submerg./emerg./floating) .30 0 OL DO SC **INSTREAM HABITAT AND** CHANNEL MORPHOLOGY Channel Width (range (m)): CHANNEL SUBSTRATE % **INSTREAM VEGETATION** Bank Height (range (m)). Bank Vegetation Type: 0 Backwater: CODES: Riffles: Pools: Sand: Clay: Silt

no flow

~

Duride

252

YCORY

under

box culvert

Notes

DOX Dissolved Oxygen Stn VSS Visual Survey Stn

Groundwater Input

Creek Crossing

GWI

AHP Aquatic Habitat Point AHY Aquatic Habitat Area TMP Temp Monitor Stn

FLW Flow Monitor Stn

Culvert

Well

WEL

WQS Water Quality Stn

Cross-Section Wetted Width (m) 5 Denths.	edually spaced (cm) Discharne/Pool/Riffle/Run/Notes
	SHOWINNISHINGTON ING INCOME (INCOME STATES
0.0	
2 4	
61	±
WATER QUALITY	
Water Temp. (°C): 1/ D.O. (ppm):	pH: Visible Characteristics/Other Parameters:
AIL TEMP. (*C): 14	1DS (ppm):
Location Taken: @ ひたり	(cm):
SITE DRAWING	
Include: watercourse and name, flow direction, riffle/pc	ol/run habitat, side tributaries, station location, approx. reach length,
channel modifications, adjacent landuse, roads & road	names, bridges, culverts, north arrow, etc
- large strallow pool d/s of re	ad lead side ten tough and with the
	deb
	>
1 = 10 +10W = riscopt from tile dra	
wight , uturn lotainer parter	. The depth
itest side	
INJOYER MURRIN	
More of Strand	
- no flaw ~	
Minited wind or 1 20	
DHOTOS TAKEN	
Photo # Description	Photo # Description
THT - rils rasi side of kennood	753. UK Side of kerwad
749 drawning scuatean field	754 monthy worker/1109 law
751 - AACH East Sich action north	735 - West Side taring such
753 - COS Sorle farmy south	
GENERAL COMMENTS	
Fish observed, unususal conditions, differences from pr and vegetation etc.	evious site visit, landowner comments, topography, general land use
no fish observed grass (Irbuiltes in	Partition of allowing
	Last roots OF CJ CARREN











Project (Number & Name): /x(St_&Sorn3r) Field Staff: Read-Weiner Reiter R
Survey Date: こうかか。る Weather Conditions: Time Started 1600 Temp (*0), Wind, Cloud Cover (%), Precipitation: 3 <sup>o</sup> , 以小が <sup>4 -1</sup> , つのは、のアビレ わ Time Finished 1610 Precipitation in Prior 48hrs (mm), の
Site # J/G + C Survey Dath GPS Location: 13
Channel Dimensions and Morphology Current stage (low how/normal flow/high flow): Sow Est flow rate (Usec) $f$ Channel characteristics (straight/meandering, defined/poorty defined): $Sr_{got} + -J_{got} + -J_{got}$
Channel Gradient (HMML), L Avg. Wetted Width (m): デャ Avg Water Depth (m): C/3 (Max Pool Depth (m): C/, 4/A Avg. Bandkull Width (m): デャ Avg. Bankfull Depth (m): C/3 (Max Pool Depth (m): C/, 4/A Substrate Composition (%) Boulder. Coble: Gravel Fines: 9/D Channel Morph (%) Flat. JOR Riftle Run Pool:
In-stream Habitat Leavedy debris); / / / / / / / / / / / / / / / / / / /
Riparian Habitat Riparian Vegotation イークロン Canopy Cover (% and species): 人 Addecent Land Use
Surface Water Temp ("C) / Turbidity (LMMH) M Colour
Photographs <b># Direction Taken Description Other Photos</b> Upstream view 37 R Downstream view 37 8 Channel 37 9
General Comments/General Description of Watercourse Fish observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, drainage characteristics etc.
Waterbody (Y/N/Maybe) Discussion: $\sqrt{eS} \sim -\frac{1}{2} \omega \eta \epsilon$ 5.7 $e$
Water Body Sketch Include: waterbody identifier, approx. reach length, Include: waterbody identifier, approx. reach length, channel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern, lake intet and outiet location, etc.
Drus clad
Naim Red

Survey Date:         Characteristic State         Conditions:           Time Started:         340         1         Weather Conditions:           Time Started:         340         1         Temp (°C), Wind, Cloud Cover (%), Precipitation (* ur -d) (* / / / / / / / / / / / / / / / / / /
Site # US/0 Drainage system. Marce (19, Easting OH 2173) Drainage system. Marching (17, 20, 173) Channel Drainesions and Morpholay Note (10, 2173) Channel Oracetonics (straightmeandering, defined/poorly defined): (7, 2, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,
Channel Dimensions and Morphology Current stage (low flowinormal flow), <i>Mice.</i> no. 114 Est. flow rate (Lisec). 5 Channel of academic intervistics (stargitumeanoenng, defined). <i>Mice.</i> Lisec, <i>La. Ac. La. Ac. Ac.</i>
Channel Gradient (HJML), M Avg. Wetted Width (m); $\sigma$ 3, Avg Water Depth (m); $\partial O S$ Max. Pool Depth (m); $O$ 3, Avg. Bankful Width (m); L $\sigma$ Avg. Bankful Depth (m); $\delta$ 1, $\delta$ Substrate Composition (%) Boulder/O Cobbe(3) Gravel 3, $\sigma$ Fines. $f O$ Exbannel Month (%), Farat 3, O Rither 3, O Run 3, O Pool; $\beta$ 0, $\sigma$
Bank Stope and Stability. //OO . 0.000
In-stream Habitat In-stream Habitat Features (i.e. woody debrie) Mndur Carl Davids, Carie , woody deven S In-stream Vecetation
Riparian Habitat Riparian Vegetation T- $\gamma$ S, here, Canopy Cover (% and species): $\mathcal{OO}$ de colucius frees Adjacent Land Use: $4a_{11}a_{12}a_{13}$
Surface Water / / Temp (*C). 5 Turbidity (UM/H): L Colour. C/ ca/
Photographs # Direction Taken Description Other Photos Upstream view 374 E Downstream view 375 W Channel 370 W
General Comments/General Description of Watercourse Fish observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meande drainage characteristics etc. $\log VS = \delta f = Crosion$
Waterbody (YINIMAybe) Discussion: Yes, substrate shorting, meand 12 mg. flowing . Flowing
Water Body Sketch Include: watercourse name, flow direction, riffle/pool/run habitat, side tributaries,water body identifier, approx react ctammel modifications, adjaent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainagt Take intel and onthe location etc.
Helo Pro 4 4 1 (
ALA STA
Elen held Ed

Structure         Temperature         Conditionent         March         Conditionent           Time States         Time Stat		
State with the second s	Survey Date: えん Mar - 13, Weather Conditions: Time Started: えの Temp (C), Mad Clover (%), Precipitation: イ, レック 5, パッム Time Finished. ろの Precipitation in Prov 48Ins (mm): ①	Spear
Current State (International Activities) (IN) Est flow rate (Leec) Art A Current space (and fourther flow) (IN) (IN) Aux Pool Depth (IN) Aux Pool Depth (IN) (IN) Aux Pool Depth (IN) (IN) (IN) (IN) (IN) (IN) (IN) (IN)	Site # 1//Site # 2015 Constition: 77 Constituent Press, 2014/27-0 Dramage system Press, 2014/27-0 Incetion in system Press, 2014/27-0	
Aconomic and consistent (HMM). Any Water Depth (m), Swaw Pool Depth (m), Sway Bankuli (ben), (m), Swaya Bankuli (ben), Swaya Bankuli (ben), Swaya Bankuli (ben), (m), Swaya Bankuli (ben), Swaya Bankuli (ben), (m), Swaya Bankuli (ben), (m), Swaya Bankuli (ben), Swaya Bankuli (ben	Channel Dimensions and Morphology Current stage (low/frommal flow/inigh flow): <i>[0,v.</i> ] Est flow rate (L/sec): S Channel characteristics (straight/meandering, defined/poorly defined) <i>Markur ra Auf-ural</i>	
Instream Habitat Instream Habitat Instream Vegation Repaired Vega	Channel Gradient (H1ML), Aug Water Depth (m): こ 別 Max Pool Depth (m) ろ え Avg. Wetted Width (m): ア Avg Water Depth (m) こ 別 Max Pool Depth (m) ろ ス Avg Banktull Width (m): ア Avg. Bankfull Depth (m) こ 名 Channel Morph (%) Bauder. Coobler の Gravel の Fines: ア の Channel Morph (%) Fait 30 Riffie / 0 Run (0 Pool: 20 Bank Stope and Stability. 97 April	
Riparian Habitat Riparian Habitat Riparian Vegetion Adjacent Vegetion Endrow Water Endrow Water Endrow Water Photographs Photo	In-stream Habilat In-stream Habilat Features (i.e. woody debris) いんりしい つってく In-stream Vecention エールト・	
Surface Water Temp (C): Turbidity (LMH) Colour Temp (C): Direction Taken Description (Other Photos Distremanties Downstream view Downstream view Downstre	Riparian Habitat Riparian Vegetation ールシールを、Canopy Cover (% and species): ろの糸 de C オルシルら トrceS Actionent Land Use	
Photographs       # Direction Taken       Description       Other Photos         Upstream view       Image: Stream view       Image: Stream view       Image: Stream view         Upstream view       Image: Stream view       Image: Stream view       Image: Stream view         Downstream view       Image: Stream view       Image: Stream view       Image: Stream view         Downstream view       Image: Stream view       Image: Stream view       Image: Stream view         Downstream view       Image: Stream view       Image: Stream view       Image: Stream view         Downstream view       Image: Stream view       Image: Stream view       Image: Stream view         Downscription of Waterbody       Image: Stream view       Image: Stream view       Image: Stream view         Downscription of Waterbody       Image: Stream view       Image: Stream view       Image: Stream view         Upstream view       Image: Stream view       Image: Stream view       Image: Stream view       Image: Stream view         Upstream view       Image: Stream view       Image: Stream view       Image: Stream view       Image: Stream view         Upstream view       Image: Stream view       Image: Stream view       Image: Stream view       Image: Stream view         Upstream view       Image: Stream view       Image: Stream view <t< td=""><td>Surface Water / Colour Cook Colour Cert</td><td></td></t<>	Surface Water / Colour Cook Colour Cert	
General Comments/General Description of Watercourse Fish observed, unususal conditions, topography, general land use and vegetation, channized, meandering, drainage characteristics at: Concert to the field of the	Photographs # Direction Taken Description Other Photos Upstream view 371 5 Downstream view 376 5 Channel 376	
Waterbook (YiNiMaybe) Discussion: Ye's Substrate She hay were strend how at the the win strend how waterbook (YiNiMaybe) Discussion: Ye's Substrate Book Skotch Water Book Skotch Include: watercourse name, flow direction, riffle/pool/run habitat, side tributaries, water body identifier, approx. reach length, channel modifications: adjacent landes, roads 8, and names, bridges, culverts, north arrow, ongin of flow drainage pattern, take inter and outerfocation etc. Book and names, bridges, culverts, north arrow, ongin of flow drainage pattern, take inter and outerfocation etc. Book and names, bridges, culverts, north arrow, ongin of flow drainage pattern. Book and the state outerfocation etc. Book and the st	General Comments/General Description of Watercourse Fish observed, unususal conditions, topography, general land use and vegetation, channized, naturalized, mea drainage charactensitics etc. Plc.M.	dering,
Water Body Sketch Include: watercourse name, flow direction, riffle/pool/run habitat, side tributaries, water body identifier, approx. reach length. channel modifications: adjacent landuse. roads 5 mad names, bridges, culverts, north arrow, ongin of flow, drainage pattern: lake inlet and oure/ocation, etc.	Waterbody (YNIMaybe) Discussion: Yes Substraire She fing were to find the firm of	3
Elginter and Ran Hard Par	Water Body Sketch Include: watercourse name, flow direction, riffle/pool/run habitat, side tributaries,water body identifier, approx re channel modifications: adjacent landuse: roads 6 road names, bridges, culverts, north arrow, ongin of flow, drai lake inlet and outle/location, etc	ach length. age pattern:
Elginter and Kilhood Ed	Hard Ma C	1
	Elginter a Kithood &d	)

e Starter 345 Temp (*5), Wind, Cloud Cover (%), Precipitation, 77, Wed S, 90% C, 10% cup e Finished: 1210 Precipitation in Prior 48ms (mm): 0 Precipitation in system: Sut we have no safe grands (1) angle system: Sut A Autor Des (1) alton in system: Sut A Autor Des (1) and Gasting (1) alton (1) and Gasting (1) and Casting (1) and Cast	the Started: 1845 Temp (°C), Wind, Cloud Cover (%), Precipitation: 7, 1045, 20860, 0precipited: 1310, 1300, 1310,
annel Dimensions and Morphology rent stage (low flow/normal flow/nigh flow): Buy Est flow rate (Useo): Methed Width (m): Any Water Depth (m) (45 Max. Pool Depth (m): Bankull Wildh (m): A Any Bankull Wellin (m): A Any Bankull (m): A Any Bankull Wellin (m): A Any Bankull (m): A Any Any Any Any Any Any Any Any Any An	e # いん ろア ・ Sulvean Dem GPS Location: /アT ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・
and stated Witch (m): (3 Ang Water Depth (m), 0.5 Bankfull Width (m): (3 Ang Bankfull Depth (m): 0.4 Stateted Witch (m): (3 Ang Bankfull Depth (m): 0.6 astrate Composition (%) Boulder: Cooble: Gravel: 40 Fines: 60 and Morph (%) Fart (00 Rifle: Run: Pool: astrate Stability: 150° Good and Morph (%) Fart (00 Rifle: Run: Pool: and Morph (%) Fart (00 Rifle: Run: Pool: astrate Habitat tream Habitat atream H	annel Dimensions and Morphology rrent stage (low flow/normal flow/high flow): Jew Alow Est. flow rate (L/sec): Ø annel characteristics (straight/meandering, defined/poorly defined): Meandering , defined (channeli zed)
stream Habitat stream Habitat stream Habitat stream Vegetation: T- grasses arian Habitat arian Habitat ar	annel Gradient (H/M/L): し 9. Wetted Width (m): う Avg Water Depth (m): 0. 45 Max. Pool Depth (m): 0. 5 9. Bankfull Width (m): う Avg. Bankfull Depth (m): 0. 4 9. Bankfull Width (m): う Avg. Bankfull Depth (m): 0. 4 bstrate Composition (%) Boulder: Cobble: Gravel: 40 Fines: 60 annel Morph (%) Flat/00 Riffle: Run: Pool: annel Morph (%) /50° 6.004 nk Slope and Stability: /50° 6.004
arian Habitat arian Vegetation: T- gristed with Canopy Cover (% and species): 10, 7- grists, hereby, four deal works acent Land Use: Marculure face Water in CO: 4 Turbidity (LM/H): L Colour: Clear of CO: 4 Turbidity (LM/H): L Colour: Clear procession and species): 10, 7- grists, hereby, four deal face Water in CO: 4 Turbidity (LM/H): L Colour: Clear of CO: 4 Turbidity (LM/H): L Colour: Clear mp (CO: 4 Turbidity (LM/H): L Colour: Clear mp (CO: 4 Turbidity (LM/H): L Colour: Clear and Strate Water of CO: 4 Turbidity (LM/H): L Colour: Clear and Strate Water and Strate Marcular and Strate Marcular and Strate Marcular hobserved, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, inage characteristics eff, Surface algae Marcular of observed for observed for observed for observed (NNMAVDe) Discussion: No. Ds flow, Channel Tech, Iack of Water al/S	stream Habitat Features (i.e woody debris): Mndrcut banks, Colvert pool stream Vegetation: T- ara secs
face Water       Turbidity (LMMH). L       Colour: Clear         np (CO: 4       Turbidity (LMMH). L       Colour: Clear         otographs       #       Direction Taken       Description         stream view       344       SM       ME         matel       345       ME       Me         annel       345       SM       Me         annel       345       SM       Me         nobserved, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, inage characteristics etg       Surface afgee Ma+S         of G. b Served       Served       Surface afgee Ma+S       Me         of observed       Surface afgee Ma+S       Me       MS	arian Habitat arian Vegetation: T- grussed hubs, Canopy Cover (% and species): / O , T- gruss, herbs, few decidions accent Land Use: Accounting
otographs # Direction Taken Description Other Photos stream view 343 NE wristream view 343 NE manel 345 NE annel 345 NE annel 345 NE neral Comments/General Description of Watercourse h observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, image characteristics etg of fish observed, Swifzee algae Mats rog observed in observed is surface algae Mats and ised, fack of water d/S	rface Water Curbidity (L/M/H): 人 Colour: ごんのご
neral Comments/General Description of Watercourse h observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, inage characteristics etc. Surface algee mats of fisch observed, Surface algee mats rog observed interbody (Y/NMavbe) Discussion: No. No. No. No. Channelized, 1966 of 10946 d/S.	otographs <b>#</b> Direction Taken Description Other Photos SHS $N \in$ we stream view $343$ $N \in$ wistream view $344$ $S M$ annel $345$
	neral Comments/General Description of Watercourse h observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, image characteristics etg Surface algee Mats ay fish observed, Surface algee Mats rog observed terbody (YINMaybe) Discussion: NO, กอ flow, Channelized, 1966 of wate d/S
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X X X X X X X X X X X X X X X X X X X	gravel

ATURAL RESOURCE Se Aquatic Terrestrial and Wetland Biologis	OLUTIONS INC. Renewable Energy Water Body Site Investigation
Project (Number & Name): 1330 - Po	242.14.186
Survey Date: 30- Mir-19 W Time Started: 3330 Time Finished: 1330	(eather Conditions: emp (*6).Wind, Cloud Cover (%), Precipitation $7^{\circ}$ , and $=$ 0.1% $\mathcal{K}$ . Derce, precipitation in Prior 481% (mm).
Site # V/5 55 V855 Welling G Drainage system and the first E	PS Location: / 7 2855 2855 asting: 04420P3/ass6 0445075 orthing:
Channel Dimensions and Morphology Current stage (low flow/normal flow/high fl Channel characteristics (straight/meander	iow);Est. flow rate (Lisec); ing. defined/poorty defined):/hnder.g. 240.3
Ohannel Gradient (HMML), L. Avg Wa Veg Wetted Width (m) — Avg Wa Avg Bankfull Width (m) — Avg Bank Substrate Composition (%) Boulder. Channel Morch (%)	ter Deoth (m): // Max Pool Depth (m): // tull Deoth (m): // Max Pool Depth (m): // Cobble // Gravelt // Fines: // Riffle // Run Pool: //
Sank Slope and Stability: n-stream Habitat n-stream Habitat Features (i.e woody det	aris): // :/ :/ :/ :/ :/ :/ :/ :/ :/ :/ :/ :/
restream vergeration Algorian Vergation Viparian Vergation Adjacent Land Use: Auro	anopy Cover (% and species): $\mathscr{O}$ :
Surface Water Turbidity (LM/H)	Colour /
Photographs # Direction Ta Upstream view 350 5 Downstream view 351 $N$ Dannel	ken Description Other Photos 349 C. satet
General Comments/General Descriptio Fish observed, unususal conditions, topo drainage characteristics etc. ປັກຝຍຽ(oun d ຢີາຈຳວຈຼາຍ.	n of Watercourse graphy, general land use and vegetation, channitzed, naturalized, meandering,
Vaterbody (Y/N/Maybe) Discussion: $\mathcal{N}($	0
Nater Body Sketch nclude: watercourse name, flow direction channel modifications, adjacent landuse, i channel modifications, acto ake inlet and outlet location, etc. No Sul face wate (	, riffe/pool/run habitat, side tributaries,water body identifier, approx reach length, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern, $p_1 \in \mathcal{H}^*$

Project (Number & Name): [3.39 Ault) and C Field Staff: Rean U. Rush R. Walcher Conditions: Time Stated (1915) Precipitation in Prior 48hrs (mm); Site # JJ533 GPS Location: (7 7 Site # JJ533 GPS Location: (7 7
Survey Date: 5-My (2) Weather Conditions: Time Started: 73 '5 Temp (*C), Wind, Cloud Cover (%), Precipitation: 72 word 3, 1202 - 8 precip Time Finished: 14-00 Site # JB53 GPS Location: 77 GPS Location: 77 word 3, 1202 - 8 precip
Deviance states C. A. Frank, Alt & A. F.
Location in system. Jointy of Locati
Channel Dimensions and Morphology Current stage (low flow/flogh flow): / ວຸມ Est flow rate (L/sec): ົງ S Channel characteristics (straight/meandering, defined/poorty defined): ກາຂອງປະຊາຊົງ ປະການ ຂາງ
Avg. Wretted Wicht (m) 2, Avg. Water Depth (m) () 4.5 Max. Pool Depth (m): 2, 5 x Avg. Watted Wicht (m): 3 Avg. Bankfull Depth (m), 0, 7 Substrate Composition (%) Boulder: Cobble 5 Gravel 5 Fines: 7 Channel Morph (%) Flat/OD Riftle Run. Pool:
In-stream Habitat In-stream Habitat Features (i.e. woody debris): <i>"Ery "Le visody debris"): "Ery "Le visody "Le visody "Le visody"): "Ce "Le visody "Le visody"): "Ce "Le visody "Le visody"): "Ce "Le visody"): "Ce "Le visody "Le visody"): "Ce "Le visody"; "Ce "Le visody"): "Ce "Le visody"; "Ce "Le visody"): "Le visody"; "Ce "Le visody"; "Ce "Le visody"): "Ery "Le visody"; "Ce "Le visody"; "Le viso</i>
Riparian Habitat Riparian Vepetation (1975), 2010 Canopy Cover (% and species): 576
Surface Water Temp (*C): O Turbidity (LMH); L Colour: //an 200405 Se
Photographs # Direction Taken Description Other Photos Upstream view 355 Downstream view 355 Channel
General Comments/General Description of Watercourse Fish observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, drainage characteristics etc.
Waterbody Minimayber Discussion NO > Low flow, the feed, chanceliced dign
Water Body Sketch Include: watercourse name, flow direction, riffle/pool/run habitat, side tributaries, water body identifier, approx reach length, channel modifications, adjacent landuse, roads & road names, bridges, cutverts, north arrow, orbit of tow, drainage petitem lake inlet and outlet location etc.

Market States       Weather For Conditions:       Weather States (imm)       Market States (imm) </th <th>Charles Party and Charles Part</th> <th>ar R</th>	Charles Party and Charles Part	ar R
In # The Data Continue of the C	urvey Date: 50 March 13 ime Started: 14.5 ime Finished: 14.5	Weather Conditions: Temp (*C), Wind, Cloud Cover (%), Precipitation: $4^{2}$ , $mad_{3}$ , $30^{2}$ , $20^{2}$ , $70^{2}$ , $72^{2$
taimer Dimensions and Morphology taimer Stage (or with and point) from from the set of the set	ite # 0.6.39 (Ded wave Preinen en	GPS Location: / 7 7 Easting: Northing
The same Galacti (HMU)       Arg Water Depti (m) C Max. Pool Depti (m): 0 3         The same Galacti (HMU)       Arg Bankhul Depti (m): 0 5         The same Galacti (HMU)       Arg Bankhul Depti (m): 0 5         The same Galacti (HMU)       Arg Bankhul Depti (m): 0 5         The same Galacti (HMU)       Arg Bankhul Depti (m): 0 5         The same Habitation       Corbie         Testream Habitation       Canopy Cover (% and species)         Testream Habitation       Canopy Cover (% and species)         Testream Habitation       Canopy Cover (% and species)         Stream Vegetation       Turbicting (MMH)         Colour       Colour         Description       Other Photos         Marker Water       Colour         Description       Other Photos         Stream Vegetation       Marker Course         Stream Vegetation       Marker Pack         Stream Vegetation       Marker Pack         Stream Vegetation       Marker Pack         Stream Vegetation       Marker Pack	hannel Dimensions and Morp urrent stage (low flow/normal fit hannel characteristics (straight)	hology withigh flow): / ۱۰ k Est. flow rate (Lised): 1 meandering, defined/poorty defined): Skright / Skanke tod
restream Habitat estream Habitat terteam Vegetation: 、、、、 terteam Vegetation: 、、、、 terteam Vegetation: 、、、、 terteam Vegetation: 、、、、 terteam Vegetation: 、、、、 terteam Vegetation: 、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、	thannel Gradient (HMML), /_ vg. Wetted Width (m), 2, 4 vg. Bankfull Width (m), 2, 4 ubstrate Composition (%) Bo ubstrate Composition (%) Bo and Stope and Stability. ///00	Avg Water Depth (m): 0 \$5 Max. Pool Depth (m): 0 3   Bankfull Depth (m): 0 5 Max. Pool Depth (m): 0 3   Jdec Cobble 6 Gravet/0 Fines: 8 5 Flat /00 Riftie Run: Pool:
เกิดสาสา Habitat Canopy Cover (% and species). Canopy Cover (%	n-stream Habitat n-stream Habitat Features (i.e.w n-stream Veoetation: 7770	ady debris): دېمخو
emp Color Action Lucienty (LMH): Colour. Action Ac	Uparian Habitat Iparian Vegetation Control Hu	Canopy Cover (% and species): $\mathscr{O}\%$
hotographs # Direction Taken Description Other Photos boxistream view デー University in the photos providence of the photos powers and versity of the photos power and the photos power and the photos power and the photos power and the photos prevent of the photos	emp ("C): D Turbidity (L/	WHI: Colour Brownish
isingle characteristics etc isingle characteristics etc Vaterbody (YNNMaybe) Discussion いん チェデルからが しかい いん スパス いうご く こうかん インシンジ イン シンジ イン ス イバシン Vater Body Sketch netude: water body identifier, approx reach length, thannel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern thannel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern thannel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern than a outlet location, att	hotographs # Dire lpstream view 351 bownstream view 361 thannel	ction laken Description Uther Friotos
Vator Body Sketch Vator Body Sketch netude: waterourse name. Row direction. riffle/pool/run habitat, side tributaries, water body identifier, approx reach length, annel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern trannel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern that inlet and outlet location, are	isheral Comments/Ganeral D. ish observed, unususal conditic rainage characteristics etc	scription of Watercourse ins. topography, general land use and vegetation, channized, naturalized, meandering, ins. topography, general land use and vegetation, channels $\mathcal{A} \cong \mathcal{A}$ and $\mathcal{A} \cong \mathcal{A}$
thannel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin or now, drainage parent, ake inlet and outlet location, etc. A N	トーセージッシア・サイン・シー Vator Body Sketch notude: watercourse name, flow	く メチトレン direction, riffle/pool/run habitat, side tributaries,water body identifier, approx_reach leng
- 10 C	thannel modifications, adjacent are inlet and outlet location, and	anduse, roads & road names, bridges, cuiverts, north arrow, ongin of now, draimage parts
L Codd	- (	Frida

oject (Number & Name): ଜି.୪୦୦ ୫୦୦ ୫୦ eld Staff: ନିର୍ଦ୍ଦନ ଅନ୍ୟୁନ ନିର୍ବତ ୫୦୦ ୫୦
urvey Date: う Mart - へ Weather Conditions: me Started: えんて Temp ("O, Wind, Cloud Cover (%), Precipitation: ら. いろ く. ントー シー me Finished:
te # いんどう ひゃかいこ ひゃへ GPS Location: つ anage system
hannel Dimensions and Morphology urrent stage (low flowinormal flowihigh flow): /o ⇔ Est flow rate (L/sec): / hannel characteristics (straight/meandering, defined): ∑r 2000 (2000)
rannel Gradient (H.M.U.) Avg Water Depth (m): 0, 09 Max. Pool Depth (m): 0。 名 g. Bankull Width (m): (A. Avg. Bankfull Depth (m): 0, 名 Bankull Width (m): (A. Avg. Bankfull Depth (m): 0, 名 ubstrate Composition (%) Boulder. Cobbie: Gravel: Fines: / 00 annel Morph (%) Fiat(00 Riffle: Run: Pool:
estream Habitat Features (i.e. woody debris): estream Habitat Features (i.e. woody debris):
parian regetation
argen Water Solution
eneral Comments/General Description of Watercourse sh observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, ainage characteristics etc ปอก เป็นการปารี่อง
laterbody (Y/N/Maybe) Discussion: N® → C + + + + + + + + + + + + + + + + + +
ater Body Sketch clude: watercourse name, flow direction, riffle/pool/run habitat, side tributaries,water body identifier, approx reach length, wannel modifications, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern, ke inlet and outlet location, etc.
Field
+

ATURAL KESOURCE SOLUTIONS INC. Renewable Energy Water Body Site Investigation
Project (Number & Name): 13.10 - Adding & Field Staff: R. and M
Survey Date: 20-100- 2010 Weather Conditions: Time Stated 1950 Temp (C), Wind, Cloud Cover (%), Precipitation: 27, 71-74 6, 1, 30C.C. 3proup Time Finished: 150 Precipitation in Prior 48ths (mm): 0
Drainage system: Free M. Northino: 2008 Location: 201 Drainage system: Free M. Northino: 2018 8 9
Channel Dimensions and Morphology Current stage (low flowinormal flow/high flow): 70/1-41 Est flow rate (Usec)
Channel Gradient (HMM): し Avg Water Depth (m) つつ) Max Pool Depth (m): つつう Avg Wetted Width (m): つ、Avg Water Depth (m): つつう (Max Pool Depth (m): つつう Avg Bankfull Width (m): つう Avg Bankfull Depth (m): つうつう Substrate Composition (%) Boulder: つ Cobble: Gravel: Fines: 子〇 Channel Morph (%) Fist : O Riffie: Run: Pool: Bank Store and Stathity
In-stream Habitat In-stream Habitat Features (i.e woody debris) In-stream Vecetablion
Riparian Habitat Riparian Vegetation
Surface Water Terms PCD Turbidity (LMMH) Colour Clev
Photographs # Direction Taken Description Other Photos Upstream view ろら ビ Downstream view ろら い Channel 36.7
General Comments/General Description of Watercourse Fish observed, unususal conditions, topography, general land use and vegetation, channlized, naturalized, meandering, drainage characteristics etc
Westerbody (YINIMaybe) Discussion: $\mathcal{N} \to f_1^{j}]_{\mathcal{L}}$ of $f_k \neq 0$
Water Body Sketch Include: watercourse name, flow direction, riffle/pool/run habitat, side tributaries, water body identifier, approx reach length, include: watercourse name, flow directions, adjacent landuse, roads & road names, bridges, culverts, north arrow, origin of flow, drainage pattern, take inlet and outlet location, etc $\mathcal{F}_{1}^{(n)}(\mathcal{O})$
milet (undergrand)
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Tield

Project (Number & Name): 73.0. Add at the intervence of the propertitions:       Find Statt:       Kinn w. R.         Find Statt:       Kinn w. R.       Repristion:       Fand Statt:       Kinn w. R.         Find Statt:       Find Statt:       Fand Statt:       Fand Statt:       Kinn w. R.         Find Statt:       Find Statt:       Fand Statt:       Fand Statt:       Fand Statt:       Fand Statt:       Mathematical Statt: </th <th>The Stated Survey Stated Survey Stated France Solutions: Survey Stated France Solutions: Survey Stated France Solutions: France Solutions:</th> <th></th> <th></th>	The Stated Survey Stated Survey Stated France Solutions: Survey Stated France Solutions: Survey Stated France Solutions: France Solutions:		
Survey Date:     Weather Conditions:       Survey Date:     Weather Conditions:       Time State:     Temp (Ci), Mind. (Doud Cover (%), Pjecphtation       Time State:     Testing:       Time State:     Testing:       State     State:       Time State:     Testing:       State     State:       State     State:       State     State:       State     State:       Orannel Dimensions and Morphology       Catanel Dimensions and Morphology       Channel Dimensions and Morphology       Channel Dimensions and Morphology       Channel Gracterrithm     Ass Pool Depth (m):       And Statem (min)     Max. Pool Depth (m):       Channel Gracterrithm     Max. Pool Depth (m):       Channel Gracterrithm     Max. Pool Depth (m):       Channel Gracterrithm     Max. Pool Depth (m):       And Statem (min)     Max. Pool Depth (m):       Channel Gracterrithm     Max. Pool Depth (m):       And Statem (min)     Max. Pool       Substate Composition (%)     Boulder:     Cobie       Granter Month     Max. Pool     Pool:       And Statem     Max. Pool     Pool:       And Statem     Max. Pool       And Statem     Composition     Max. Pool       Substate Composition (%) <th>Survey Date:       Warding Conditions:         Three Results:       Preprint Conditions:         Three Results:       Preprint Conditions:         Three Results:       Preprint Conditions:         Three Results:       Preprint Conditions:         Damage astern:       Easting and the conditions:         Damage astern:       Easting and the conditions:         Damage astern:       Easting and the conditions:         Damage astern:       Max. Pool Depth (m):         Damage astern:       Max. Pool De</th> <th>Project (Number &amp; Name): 12,30 10 dolard2 Field Staff: 16,000 00 20 20 20 6</th> <th></th>	Survey Date:       Warding Conditions:         Three Results:       Preprint Conditions:         Three Results:       Preprint Conditions:         Three Results:       Preprint Conditions:         Three Results:       Preprint Conditions:         Damage astern:       Easting and the conditions:         Damage astern:       Easting and the conditions:         Damage astern:       Easting and the conditions:         Damage astern:       Max. Pool Depth (m):         Damage astern:       Max. Pool De	Project (Number & Name): 12,30 10 dolard2 Field Staff: 16,000 00 20 20 20 6	
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# NATURAL RESOURCE SOLUTIONS INC.

#### **Renewable Energy Water Body Site Investigation**

Aquatic, Terrestrial and Wetland Biologists

Project # 1230 Project N		t Name: A	41.0.	h.p.			Cr	ew.			Project Sup	pervisor	Di	te Nov	2 -11	1	
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Aquatic, Terrestrial and Wetland Biologists

Renewable Energy Water Body Site Investigation

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Appendix II Site Investigation Photographs

#### 1230 Adelaide Wind Energy Centre Water Body Photographs

#### Adelaide Creek Subwatershed

Adelaide Creek



Figure 1 WB59 (upstream)



Figure 2 WB60 (upstream)



Figure 3 WB34 (downstream)





Figure 3 WB48 (upstream)



Figure 5 WB61 (grassed waterway)

Adelaide Creek Tributary B



Figure 6 WB1 (grassed waterway)

Adelaide Creek Tributary C



Figure 7 WB31 (downstream)

## Adelaide Creek Tributary D



Figure 8 WB32 (no surface water body)

Adelaide Creek Tributary E



Figure 9 WB33 (upstream)

Adelaide Creek Tributary F



Figure 10 WB64 (upstream)

#### **Cleland Drain**



Figure 11 WB2 (upstream)

#### Brent Drain A



Figure 12 WB3 (grassed waterway)

#### Wilson Drain



Figure 13 WB4 (upstream)

#### Brown Drain



Figure 14 WB7 (upstream)

Brown Drain Branch A



Figure 15 WB6 (upstream)

Brown Drain Branch B



Figure 16 WB5 (grassed waterway)

#### Morgan Drain



Figure 17 WB15 (upstream)



Figure 18 WB16 (downstream)



Figure 19 WB17 (upstream)

Morgan Drain Branch A



Figure 20 WB14 (upstream)

#### Down Drain



Figure 21 WB18 (upstream)

Branton Drain



Figure 22 WB19 (grassed waterway)



Figure 23 WB20 (no surface water body)

Rombout Drain



Figure 24 WB29 (no surface water body)

#### Seeds Drain



Figure 25 WB30 (upstream)



Figure 26 WB38 (upstream)



Figure 27 WB56 (no surface water body)



Figure 28 WB55 (no surface water body)

#### Mud Creek Subwatershed

#### Dodman's Drain



Figure 29 WB22 (upstream)



Figure 30 WB21 (upstream)



Figure 31 WB39 (downstream)



Figure 32 WB51 (downstream)

#### Walker Drain



Figure 33 WB23 (upstream)

Sutherland Drain



Figure 34 WB24 (upstream)

## Vangeffen Drain



Figure 35 WB25 (no surface waterbody)



Figure 36 WB26 (no surface waterbody)

#### Ausable River Watershed

Ausable River



Figure 37 WB41 (upstream)

Ausable Tributary A



Figure 38 WB44 (no surface water body)

#### Ausable Tributary D



Figure 39 WB40 (no surface water body)

Lenting Drain Drainage Catchment

Lenting Drain



Figure 40 WB42 (upstream)



Figure 41 WB10 (upstream)



Figure 42 WB11 (upstream)

#### Big Swamp Drain Drainage Catchment

Big Swamp Drain



Figure 43 WB68 (Downstream)
Ptsebe Creek Drainage Catchment

Ptsebe Tributary A



Figure 44 WB65 (upstream)

## Ptsebe Tributary B



Figure 45 WB62 (grassed waterway)



Figure 46 WB63 (grassed waterway)