

**AECOM**

Field Crew: *CB, TS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# *1005, 1166* ~~Turbid~~ *C11*  
 Date: *Dec 15/11* Start time: *10:40* End Time: *11:20*

Weather Conditions: *Cloudy, 11°C* Field Notes By: *CB*

**Site Location**

*Branson Line, South of Pepper Rd.* \* See notes on second sheet

**UTM Co-ordinates**

Easting: <i>0448003</i>	Northing: <i>4803205</i>	Description: <i>culvert at road.</i>
Easting: <i>0448000</i>	Northing: <i>4802847</i>	Description:
Easting:	Northing:	Description:
Easting:	Northing:	Description:

*North  
South  
Cross*

*\* For South branch Roadside*

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

*tile drain inputs observed - flowing*

**In-Situ Water Quality**

WT (°C): *8.1* AT (°C):  
 pH: *8.03* Cond (µs/cm): *539*  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: *turbid, brown*

**Stream Morphology**

Site Length (m):	Bank Stability:						
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <i>2</i>	Mean Bankfull Width (m): <i>2.5</i>	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mean Wetted Depth (m): <i>n/a</i>	Mean Bankfull Depth (m): <i>n/a</i>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Flow Description: *good flow*

Notes:

**Stream Morphology (continued)**

**Substrate (<=>)**

- Description**
- Bo - Boulder
  - Co - Cobble
  - Gr - Gravel
  - Sa - Sand
  - Si - Silt
  - Cl - Clay
  - MK - Muck
  - DT - Detritus
  - Other

*gr, sa > muck, clay*

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

**Notes:**

*high flow*

**Habitat**

**Instream Cover (%)**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*\* hard to see bc water too turbid but instream veg high (75%)*

**Canopy Cover (% closed cover):**

- 100-90%  30-1%
- 90-60%  0%
- 60-30%

**Types of Cover (% cover)**

- Trees \_\_\_\_\_ Shrubs 10 Man-made structures \_\_\_\_\_
- Grasses 90 Herbaceous \_\_\_\_\_ Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions  Man-Made
- Natural

**Description:**

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

*- flat*

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

Other General Comments Regarding the Study Area:

- on Property 1005 no watercourse was observed. The stream appears to be buried → still appears to follow where the stream may have been due to grassed swale. → walked entire area where water course was supposed to be. ↳ tile drain input noted at Road Inlet
- Property 1146 - appears to be newly buried due to colour of soil. No watercourse observed - tile drain input noted at road inlet
- Prop's 1167, 1166 no access ∴ roadside survey completed for watercourse 1147

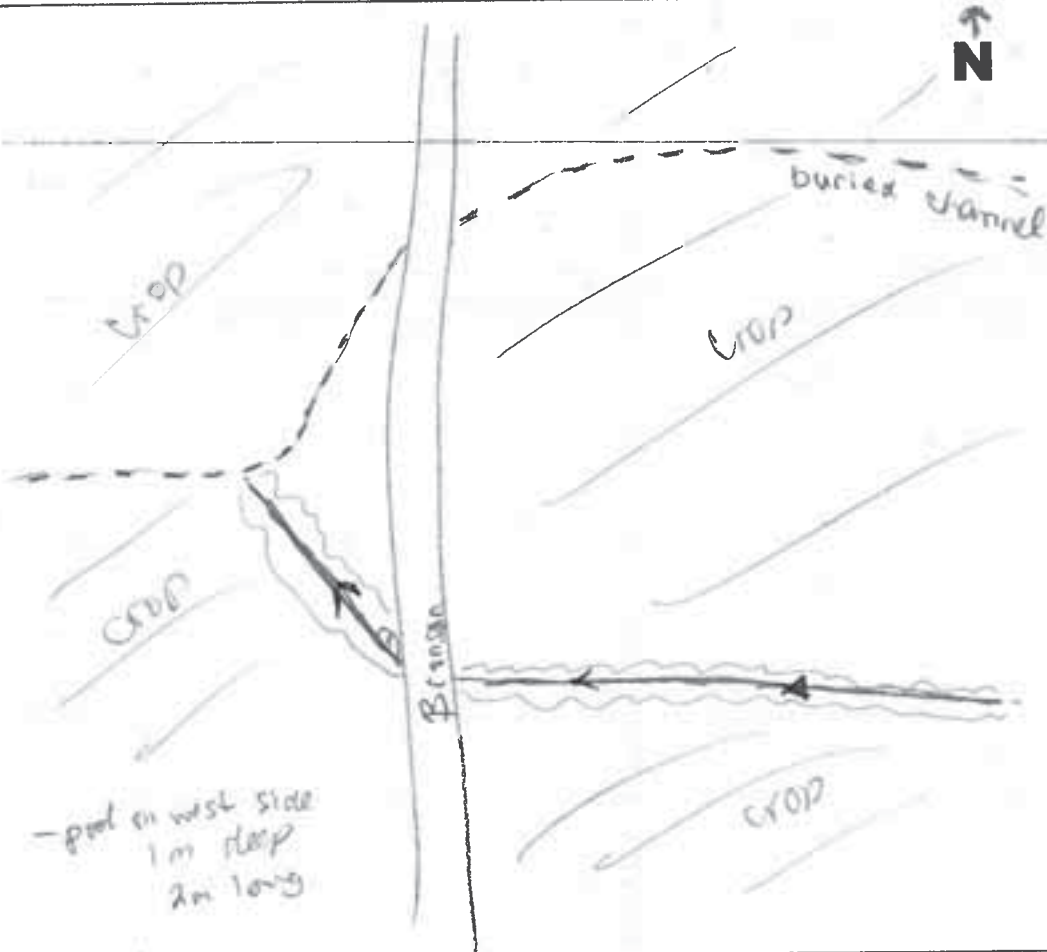
Photo log

Picture #	Description	Picture #	Description
6-13	East side (North Branch)		
14-15	West side (North Branch)		
16-17	West (South branch)		
18-19	East (South branch)		

AECOM

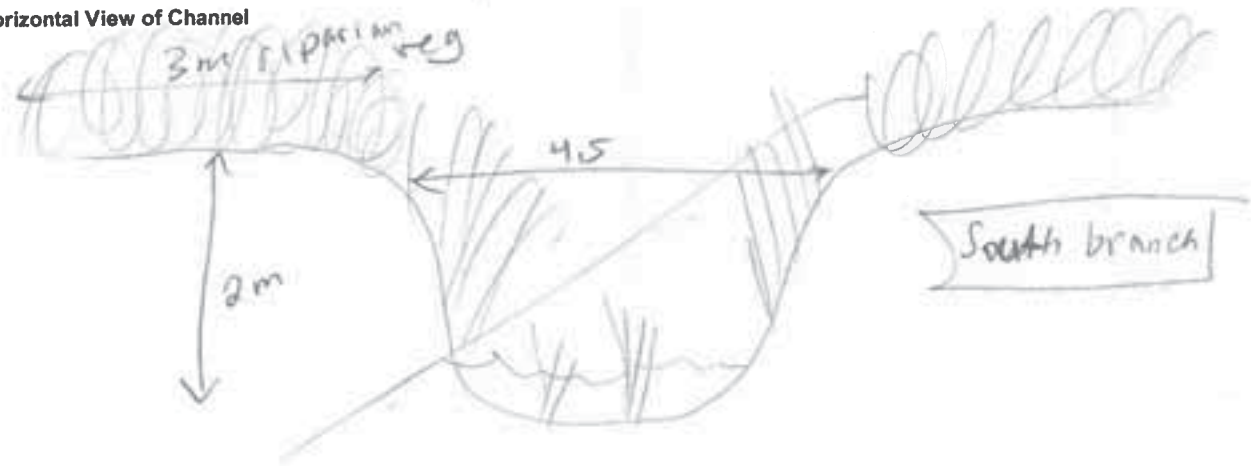
Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1005 + 1166 Turbine # C11



LEGEND	
10d depth (cm)	
6w width	
Riffle	→
Run/Glide	→
Pool	○
Island/Bar	■
Fine Substrate	○
Gravel Substrate	###
Cobble/Boulder	oOoO
Debris	***
Cattail	CT
Submerg/Float Veg	SV/FV
Emergent	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	☐
Dam/Weir	^^^
Riparian Tree	⊗
Seep/Spring	↳
Undercut Bank	—
Barrier to Fish Movement	-
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	⌊

Horizontal View of Channel



**AECOM**

Field Crew: CB, TS

**General Information**

Study Area: Jericho Goshan Bluewater Land Parcel# 1091 Turbine # C14  
 Date: Dec 15/11 Start time: 13:15 End Time: 13:25

Weather Conditions: Rainy, 11°C Field Notes By: CB

**Site Location**

Bronson Line, North of McDonald

**UTM Co-ordinates**

Easting: 0448099 Northing: 4802263 Description: Advent of Bronson  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

Other: ↳ one patch

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

tile drain inputs observed at west end of site

**In-Situ Water Quality**

WT (°C): 8.6 AT (°C): 11°C  
 pH: 7.96 Cond (µs/cm): 517  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: grayish in colour

**Stream Morphology**

Site Length (m): \_\_\_\_\_ Bank Stability:

Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):	<u>1.3</u>	Mean Bankfull Width (m):	<u>2.5</u>	Left Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m):	<u>0.35</u>	Mean Bankfull Depth (m):	<u>0.85</u>	Right Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: higher flow, velocity mod-high

Notes:

**AECOM**

**Stream Morphology (continued)**

**Substrate (<=>)**

- Description**  
 Bo - Boulder  
 Co - Cobble  
 Gr - Gravel  
 Sa - Sand  
 Si - Silt  
 Cl - Clay  
 M - Muck  
 DT - Detritus  
 Other

*Si = Gr = Cl > Co, Bo, Sa*

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

Notes: *high flow*

**Habitat**

Instream Cover (%) *85*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
		5	10	80	5	

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

*Emergent grasses*

**Canopy Cover (% closed cover):**

- 100-90%  30-1%   
 90-80%  0%   
 60-30%

**Types of Cover (% cover)**

Trees 10 Shrubs \_\_\_\_\_  
 Grasses 90 Herbaceous \_\_\_\_\_  
 Man-made structures \_\_\_\_\_  
 Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions  Man-Made   
 Natural

Description:

*potential low flow barrier  
 w/ culvert - at time of  
 investigation OK though*

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*flat*

Terrestrial features Present  Yes  No

Terrestrial Recon Form Filled out Yes  No

*potential low flow barrier in stream elevation drop*

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Other General Comments Regarding the Study Area:

- Active den (pass coyote / fox) at property line
- appears to be agri drain

Photo log

Picture #	Description	Picture #	Description
28-42	moving nest		
34	- elevation drop		
40	- tile drain on <del>the</del> <sup>the</sup> property		
42	"		

AECOM

Watercourse Sketch

Study Area:

Jericho

Goshen

Bluewater Land Parcel# 1041

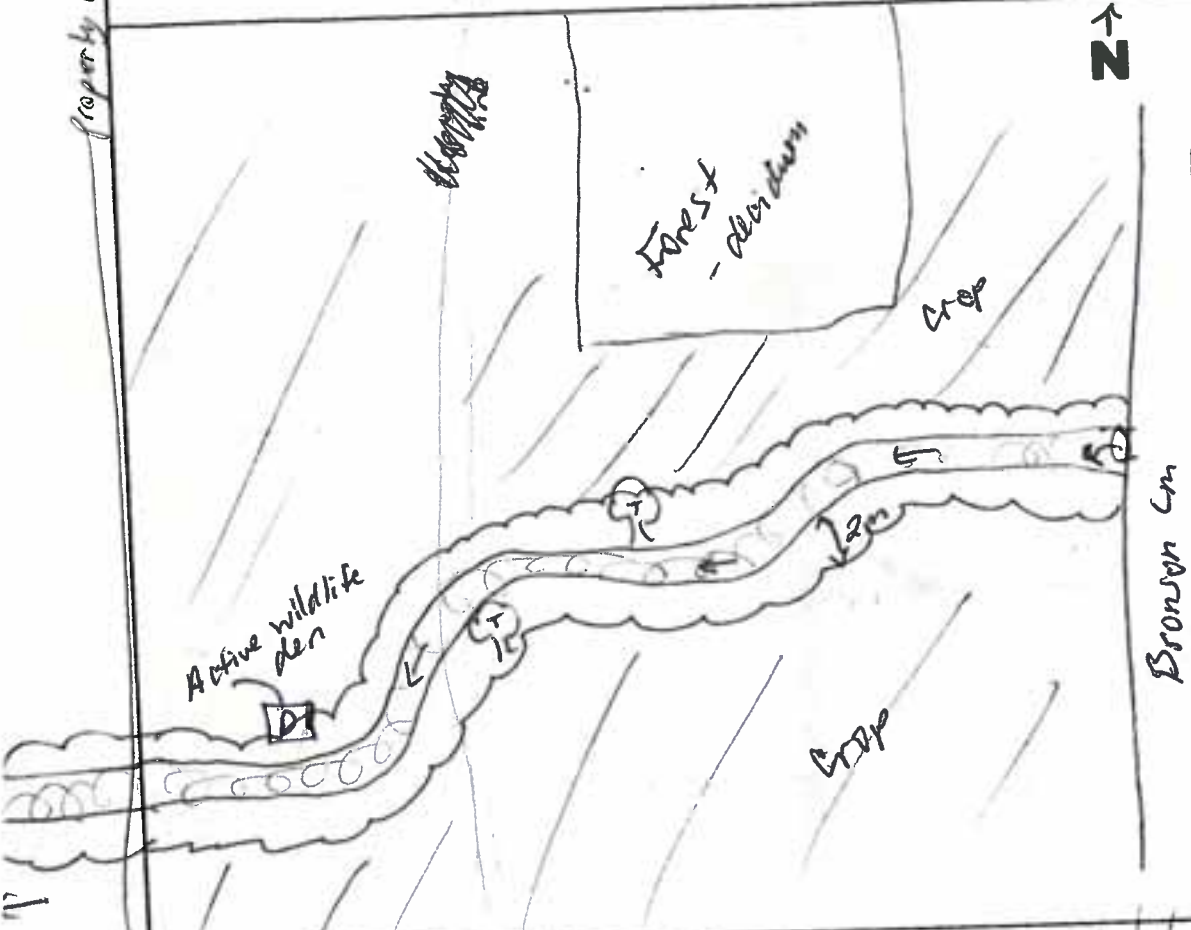
Turbine #

C 14

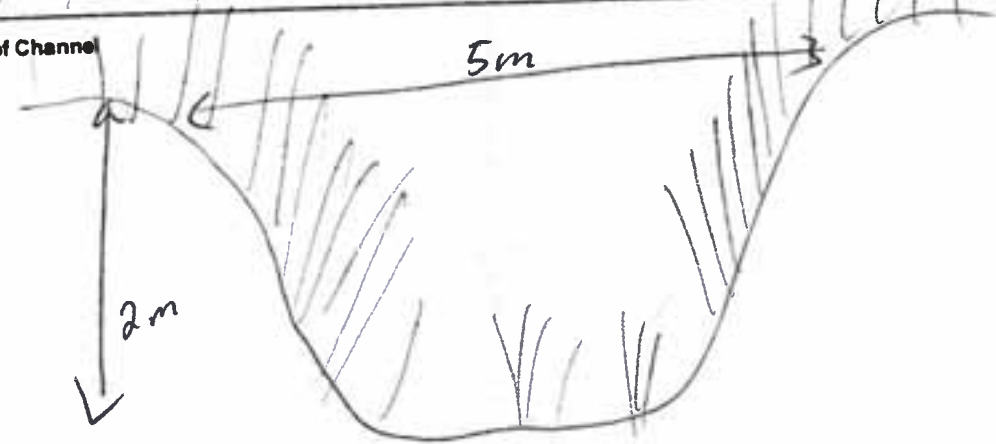
proper by line.



LEGEND	
10d depth (cm)	
Bar width	
Riffle	
Run/Glide	
Pool	
Island/Bar	
Fine Substrate	
Gravel Substrate	
Cobble	
Boulder	
Debris	
CT Cattail	
SVPV Submerg/Float Veg	
EV Emergent	
W Watercross	
Fe Iron Staining	
Eroded Bank	
Riprap / Other Stabilization	
Instream Log/Tree	
Dam/Weir	
Riparian Tree	
Seep/Spring	
Undercut Bank	
Barrier to Fish Movement	
Seasonal Barrier	
Fence line	
Culvert	



Horizontal View of Channel





**AECOM**

Field Crew: CB, TS

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1040 Turbine # G544 C15  
 Date: July 27/11 Start time: 8:45 End Time: 9:45

Weather Conditions: Sunny 20°C Field Notes By: CB

**Site Location**

Bronson + between Keppen + McDonald.

**UTM Co-ordinates**

Easting: 0449016 Northing: 4802372 Description: W/str conn  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

Corn field.

**In-Situ Water Quality**

WT (°C): 17.3 AT (°C): 18°C  
 pH: 8.26 Cond (µs/cm): 1.32  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m):  
 Channel Dimensions  
 Mean Wetted Width (m): 1.0 Mean Bankfull Width (m): 1.5  
 Mean Wetted Depth (m): 0.15 Mean Bankfull Depth (m): 0.3  
 Bank Stability:  

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description:

flowing - not fast - only in confined beds

Notes:

Stream Morphology (continued)

Substrate (< = >)

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

Description

si-clay > gr-sa > bould-co

Notes:

Morphological Structure (%)

Pool	Riffle	Run	Flat
20%		<del>30%</del>	<del>50%</del>

30% 50%

Habitat

Instream Cover (%)

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	/	5%	5%	90%	/	

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

grasses, cattail

Canopy Cover (% closed cover):

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

Types of Cover (% cover)

- Trees 50%
- Grasses 50%
- Shrubs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

Obstructions to Fish Passage

- No Obstructions
- Natural
- Man-Made

Description:

Drainage Features within Study Area

Observations of Land Topography within 120 m buffer area:

- no rills or gullies noted to be draining in. No tile drains

Terrestrial features Present

Yes

No

- riparian

Terrestrial Recon Form Filled out

Yes

No

-> not big enough.

AECOM

July 27/11

~~G1511~~ C15

Other General Comments Regarding the Study Area:

- ~ 2-3 fish noted - in pool (staded)
- 1 frog

Photo log

Picture #	Description	Picture #	Description
1	site entry		
2	site overview		
3	"		
4	upstream		
5	downstream		
6	moving downstream		
7	TOP of banks		
8	end of site downstream		
9	upstream end of site		

C15

AECOM

July 27/11

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Watercourse Sketch

Study Area:

Jericho

Goshen

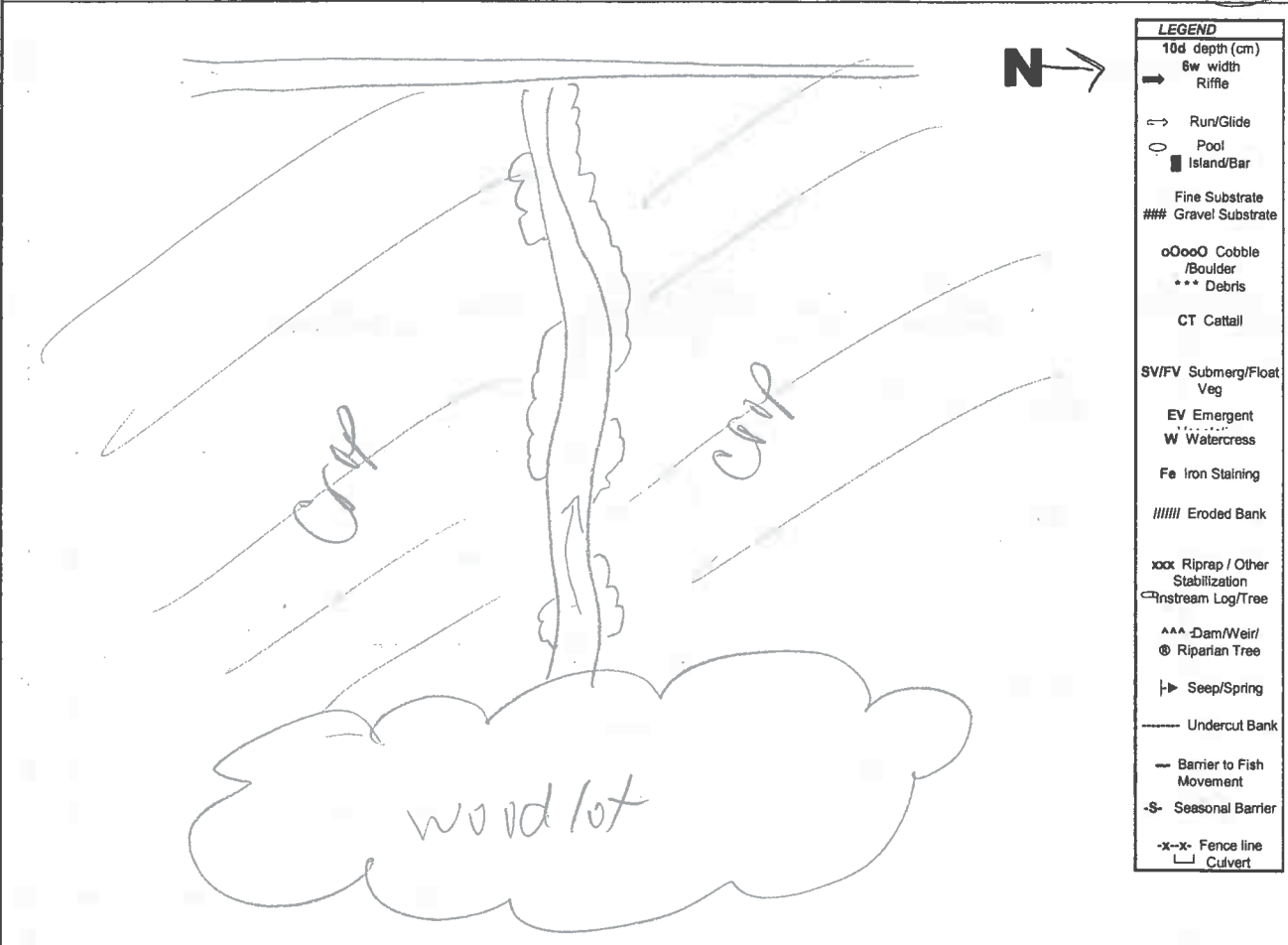
Bluewater Land Parcel#

1040

Turbine #

~~GE14~~

C15



Horizontal View of Channel

v. steep banks and shallower banks



**AECOM**

Field Crew: *CB, TJS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# *GSN 1040* Turbine # *C 15*

Date: *Dec 15 / 11* Start time: *11:46* End Time: *12:26*

Weather Conditions: *Cloudy, 11°C → Rain* Field Notes By: *CB*

**Site Location**

*Branson Line, North of McDonald Line.*

**UTM Co-ordinates**

Easting: *0448387* Northing: *4802292* Description: *in stream mid-way*  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

*none observed*  
*Note - corn fields surround the stream*

**In-Situ Water Quality**

WT (°C): *8.3* AT (°C):  
 pH: *7.14* Cond (µs/cm): *527*  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: *grey/brown colour*

**Stream Morphology**

Site Length (m): Bank Stability:

				Stable	Slightly unstable	Moderately unstable	Unstable
<b>Channel Dimensions</b>							
Mean Wetted Width (m):	<i>2.3</i>	Mean Bankfull Width (m):	<i>3</i>	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m):	<i>0.3</i>	Mean Bankfull Depth (m):	<i>0.75</i>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: *high flow, moderate speed*

Notes:

**Stream Morphology (continued)**

**Substrate (< = >)**

- Description**
- Bo - Boulder
  - Co - Cobble
  - Gr - Gravel
  - Sa - Sand
  - Si - Silt
  - Cl - Clay
  - MK - Muck
  - DT - Detritus
  - Other

*cl/mk > sand gr, co*

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

Notes: *high flow*

**Habitat**

Instream Cover (%) *80*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
			5	95		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*- emergent grasses*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 10
- Grasses 80
- Shrubs 10
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*- flat*

**Terrestrial features Present**

Yes

No

**Terrestrial Recon Form Filled out**

Yes

No

AECOM

C15

Page 3 of 4

Other General Comments Regarding the Study Area:

top

- dredged agri drain
- channel v. veg w grasses + becomes deeper inside as you move east

Photo log

Picture #	Description	Picture #	Description
20	at Road		
<del>21-26</del> 27	moving towards East		

AECOM

Watercourse Sketch

Study Area:

Jericho

Cosher

Bluewater Land Parcel#

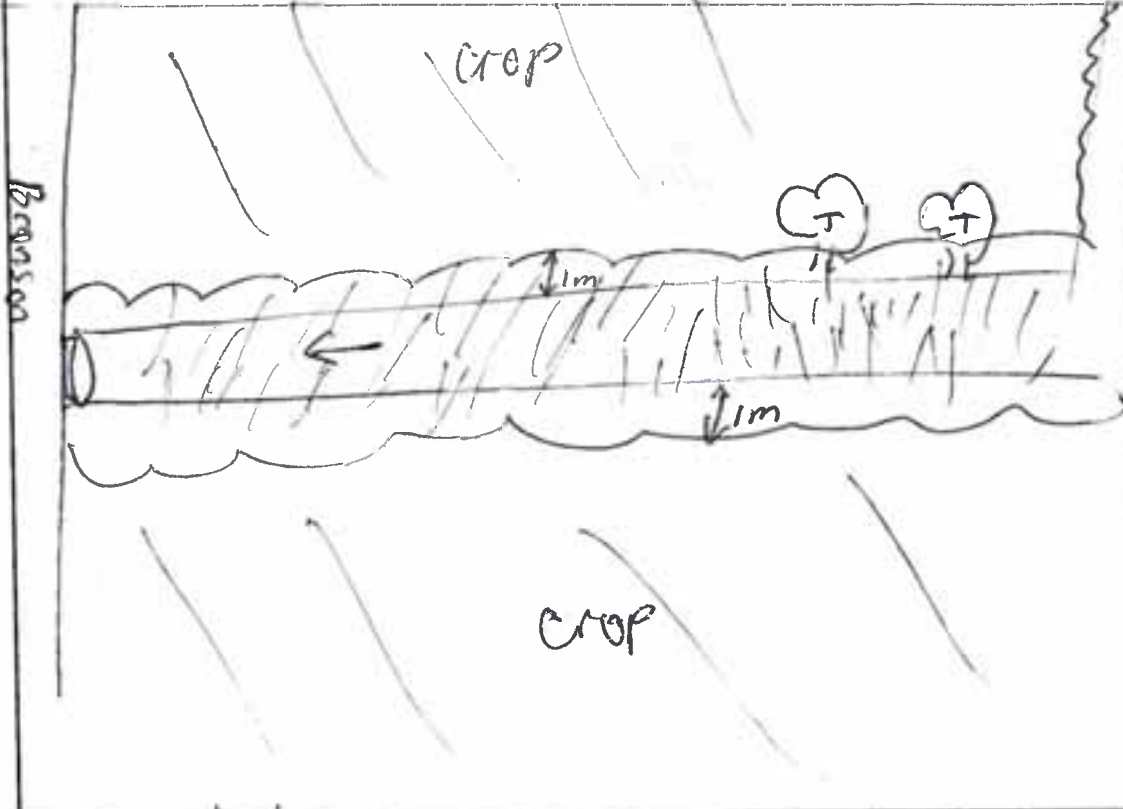
1040

Turbine#

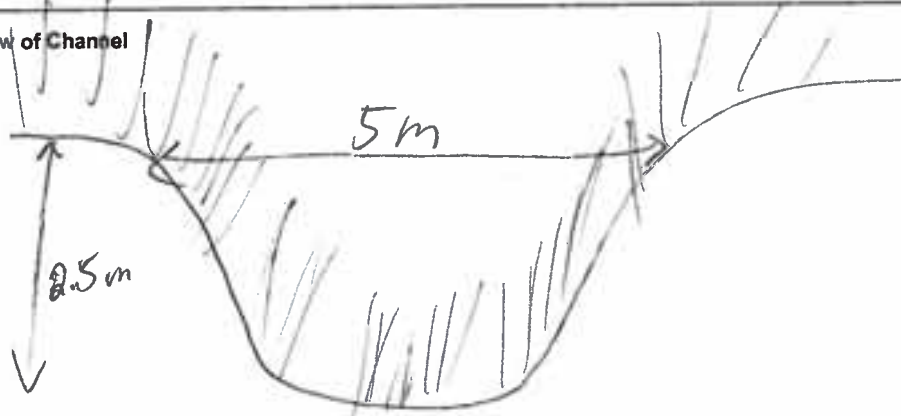
C15



LEGEND	
10d depth (cm)	→
8w width	→
Riffle	→
Run/Glide	→
Island/Bar	■
Fine Substrate	—
Gravel Substrate	###
Cobble/Boulder	oOoO
Debris	***
Cattail	CT
Sub emerg/Float Veg	SV/FV
Emergent	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	—
Dam/Weir	^^^
Riparian Tree	⊙
Seep/Spring	↳
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	⌊



Horizontal View of Channel





Water Bodies Assessment Field Collection Form

<b>AECOM</b>			
<b>General Information</b>			
Study Area: Jericho	<u>Goshen</u>	Bluewater	Land Parcel# <u>CSH 2030</u> Site ID: <u>015</u>
Date: <u>Nov 22/12</u>	Start time: <u>10:00</u>	End Time: <u>10:40</u>	
Weather Conditions: <u>Sunny 7°C</u>		Field Crew: <u>C. Boros</u>	Field Notes By: <u>C. Boros</u>
<b>Site Location</b>			
<u>Babylon Rd, south of South Rd.</u>			
<b>UTM Co-ordinates (continue on page 3 if necessary)</b>			
Easting: <u>453502</u>	Northing: <u>4791269</u>	Description: <u>corner - S end</u>	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
<b>Surrounding Landuse</b> Residential <input type="checkbox"/> Meadow <input type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Forest <input type="checkbox"/> Livestock <input type="checkbox"/> Other _____		<b>Type of Watercourse</b> Intermittent <input type="checkbox"/> Channelized <input checked="" type="checkbox"/> Permanent <input checked="" type="checkbox"/> Natural Channel <input type="checkbox"/> Ephemeral <input type="checkbox"/> _____	
Description: <u>Crops - corn + grass</u>		Description: <u>straight</u>	
Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)			
<u>tile drain inputs observed - flowing</u>			
Is any portion of the water body underground or not as mapped? Y / N			
If Yes describe: _____			
GPS Coordinate: Easting - _____		Northing - _____ Description - _____	
<b>Description of Land Topography Surrounding Water Body (rolling hills, sloping towards water body)</b>			
<u>flat</u>			
<b>In-Situ Water Quality</b>		<b>Ground Water and Seepage Indicators</b>	
WT (°C): <u>5°C</u>	AT (°C): <u>7°C</u>	Watercress <input type="checkbox"/> Bank Seepage <input type="checkbox"/>	
pH: <u>7.66</u>	Cond (µs/cm): <u>441</u>	Iron Staining <input type="checkbox"/> None <input type="checkbox"/>	
D.O. (mg/L) <u>8.7</u>	Water Clarity: Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/>	Bubbling <input type="checkbox"/> _____ <input type="checkbox"/>	
Water Colour: <u>n/a</u>		Other <input type="checkbox"/>	
Notes: <u>took readings in water w. v. 1:10 flow</u>		Details: <u>water speedwell box - small changes at start</u>	

## Water Bodies Assessment Field Collection Form

Stream Morphology																											
Site Length (m): <i>~250m</i>		Bank Stability:																									
Channel Dimensions		<table style="width: 100%; text-align: center;"> <tr> <td></td> <td>Stable</td> <td>Slightly unstable</td> <td>Moderately unstable</td> <td>Unstable</td> </tr> <tr> <td>Left Bank</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Right Bank</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>			Stable	Slightly unstable	Moderately unstable	Unstable	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
	Stable	Slightly unstable	Moderately unstable	Unstable																							
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																							
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																							
Mean Wetted Width (m): <i>0.70</i>	Mean Wetted Depth (m): <i>0.15</i>	Description: <i>no evidence of erosion</i>																									
Mean Bankfull Width (m): <i>2.5</i>	Mean Bankfull Depth (m): <i>0.5</i>																										
Mean Top of Bank Width (m): <i>4.5</i>	Mean Top of Bank Depth (m): <i>2</i>																										
Flow Description: (high or low flow conditions, stagnant, etc)																											
<i>visible flow around first corner and straight but then no visible flow at end through cattail</i>																											
Substrate (< = >)		Morphological Structure (%)																									
<table style="width: 100%;"> <tr> <th style="width: 15%;">Bo - Boulder</th> <th style="width: 15%;">Co - Cobble</th> <th style="width: 15%;">Gr - Gravel</th> <th style="width: 15%;">Sa - Sand</th> <th style="width: 15%;">Si - Silt</th> <th style="width: 15%;">Cl - Clay</th> <th style="width: 15%;">MK - Muck</th> <th style="width: 15%;">DT - Detritus</th> </tr> <tr> <td colspan="8">Description: <i>Si &gt; Cl = mk &gt;&gt; gr = sa</i></td> </tr> </table>		Bo - Boulder	Co - Cobble	Gr - Gravel	Sa - Sand	Si - Silt	Cl - Clay	MK - Muck	DT - Detritus	Description: <i>Si &gt; Cl = mk &gt;&gt; gr = sa</i>								<table border="1" style="width: 100%; text-align: center;"> <tr> <th>Pool</th> <th>Riffle</th> <th>Run</th> <th>Flat</th> </tr> <tr> <td></td> <td></td> <td></td> <td><i>100</i></td> </tr> </table>		Pool	Riffle	Run	Flat				<i>100</i>
Bo - Boulder	Co - Cobble	Gr - Gravel	Sa - Sand	Si - Silt	Cl - Clay	MK - Muck	DT - Detritus																				
Description: <i>Si &gt; Cl = mk &gt;&gt; gr = sa</i>																											
Pool	Riffle	Run	Flat																								
			<i>100</i>																								
Notes:		<i>Straight channel</i>																									
Instream Cover (%)																											
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks																					
				<i>75</i>		Average Depth: (% Cover)																					
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%																											
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)																											
<i>emergent grasses &gt;&gt; cattail</i>																											
Canopy Cover (% closed cover):				Types of Cover (% cover)																							
100-90%	<input type="checkbox"/>	30-1%	<input checked="" type="checkbox"/>	Trees <i>95</i>	Shrubs	Man-made structures																					
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>	Grasses <i>5</i>	Herbaceous	Other																					
60-30%	<input type="checkbox"/>																										
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%																											
Notes: (vegetation species, types of structures)																											
<i>very sparse w trees + hard wares canopy cover by no leaves on tree</i>																											
Riparian Vegetation				Riparian Vegetation																							
Width and Description of riparian vegetation:		LB - <i>in 0.5m - grasses + meadow</i>		RB - <i>in 0.5m - grasses + meadow</i>																							
Overhanging Vegetation Present: <i>Y / N</i>				% Overhanging Vegetation:																							
Description of Overhanging Vegetation:																											
Obstructions to Fish Passage																											
None Observed	<input checked="" type="checkbox"/>	Man-Made	<input type="checkbox"/>	Natural	<input type="checkbox"/>	Low Flow Barrier																					
Description of Barrier:																											
Height of Barrier (m):																											
GPS Coordinates:																											

Water Bodies Assessment Field Collection Form

AECOM

Date: Nov 22 / 12

Land Parcel/Site ID: G5H 2030

Page 3 of 4

Other General Comments Regarding the Study Area:

Watercourse straight channelized with soft substrate.  
 western part of stream heavily vegetated in  
 stream is no visible flow.

Additional UTM Coordinates:

Photo log			
Picture #	Description	Picture #	Description
1-2	overview		
3	channel		
4	water speedwell		
5	overview		
6-7	channel		
8	west overview		
9-10	bridge + view west from bridge		
11-13	channel		
14	end of site		

Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area:

Jericho

Goshen

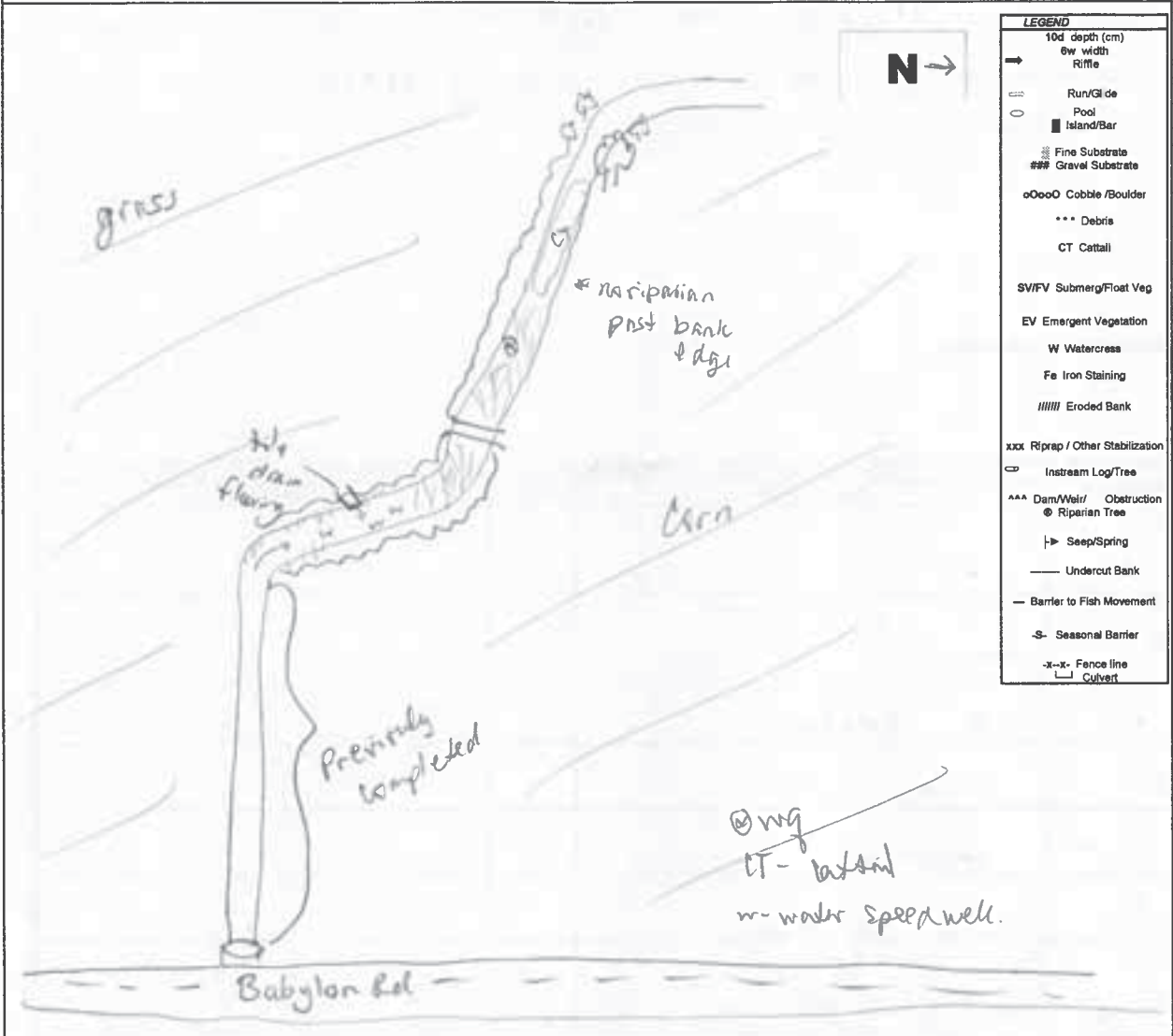
Bluewater

Land Parcel#

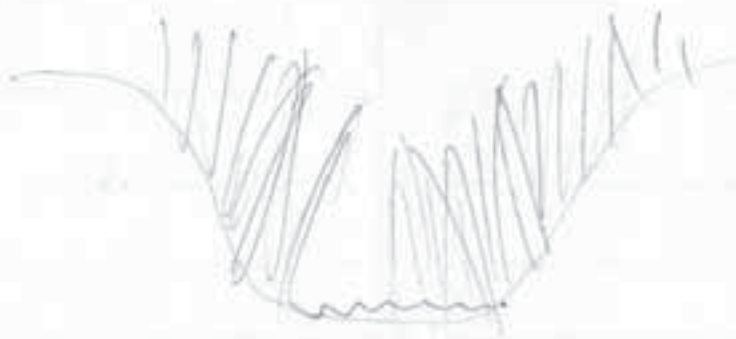
ESH 2030

Site ID

015



Horizontal View of Channel



Initial QA/QC By:

Date:

Technical QA/QC By:

Date:

**AECOM**

Field Crew: CB, TS

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 2099 Turbine # ~~GE-37~~ C31  
 Date: July 27/11 Start time: 9:50 End Time: 10:30

Weather Conditions: Sunny Field Notes By: CB

**Site Location**

Dashwood and Parr Line.

**UTM Co-ordinates**

Easting: <u>0454250</u>	Northing: <u>4799397</u>	Description: <u>start of study area</u>
Easting: <u>0454209</u>	Northing: <u>4799668</u>	Description: <u>end of study area</u>
Easting:	Northing:	Description:
Easting:	Northing:	Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

no channel

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

Does not exist - p/overlaid over

**In-Situ Water Quality**

WT (°C): \_\_\_\_\_ AT(°C): \_\_\_\_\_  
 pH: \_\_\_\_\_ Cond ( s/cm): \_\_\_\_\_  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m):	Bank Stability:
Channel Dimensions	Stable Slightly unstable Moderately unstable Unstable
Mean Wetted Width (m):	Left Bank <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Mean Bankfull Width (m):	Right Bank <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Mean Wetted Depth (m):	
Mean Bankfull Depth (m):	

Flow Description:

Notes:

**Stream Morphology (continued)**

**Substrate (< = >)**

- Description**
- Bo - Boulder
  - Co - Cobble
  - Gr - Gravel
  - Sa - Sand
  - Si - Silt
  - Cl - Clay
  - MK - Muck
  - DT - Detritus
  - Other

**Morphological Structure (%)**

Pool	Riffle	Run	Flat

Notes:

**Habitat**

**Instream Cover (%)**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

**Canopy Cover (% closed cover):**

- 100-90%       30-1%   
 90-60%       0%   
 60-30%

**Types of Cover (% cover)**

- Trees \_\_\_\_\_ Shrubs \_\_\_\_\_ Man-made structures \_\_\_\_\_  
 Grasses \_\_\_\_\_ Herbaceous \_\_\_\_\_ Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions       Man-Made   
 Natural

**Drainage Features within Study Area**

Observations of Land Topography within 120-m buffer area:

Description:

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

C 31

AECOM

July 27/11

~~575 37~~

C31

Page 3 of 4

Other General Comments Regarding the Study Area:

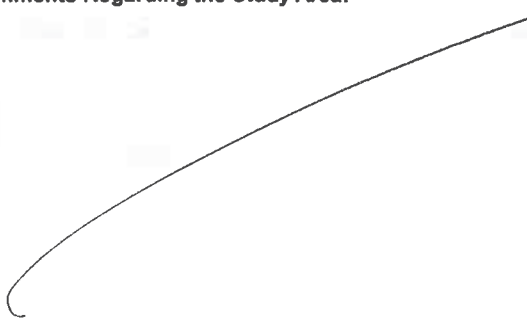


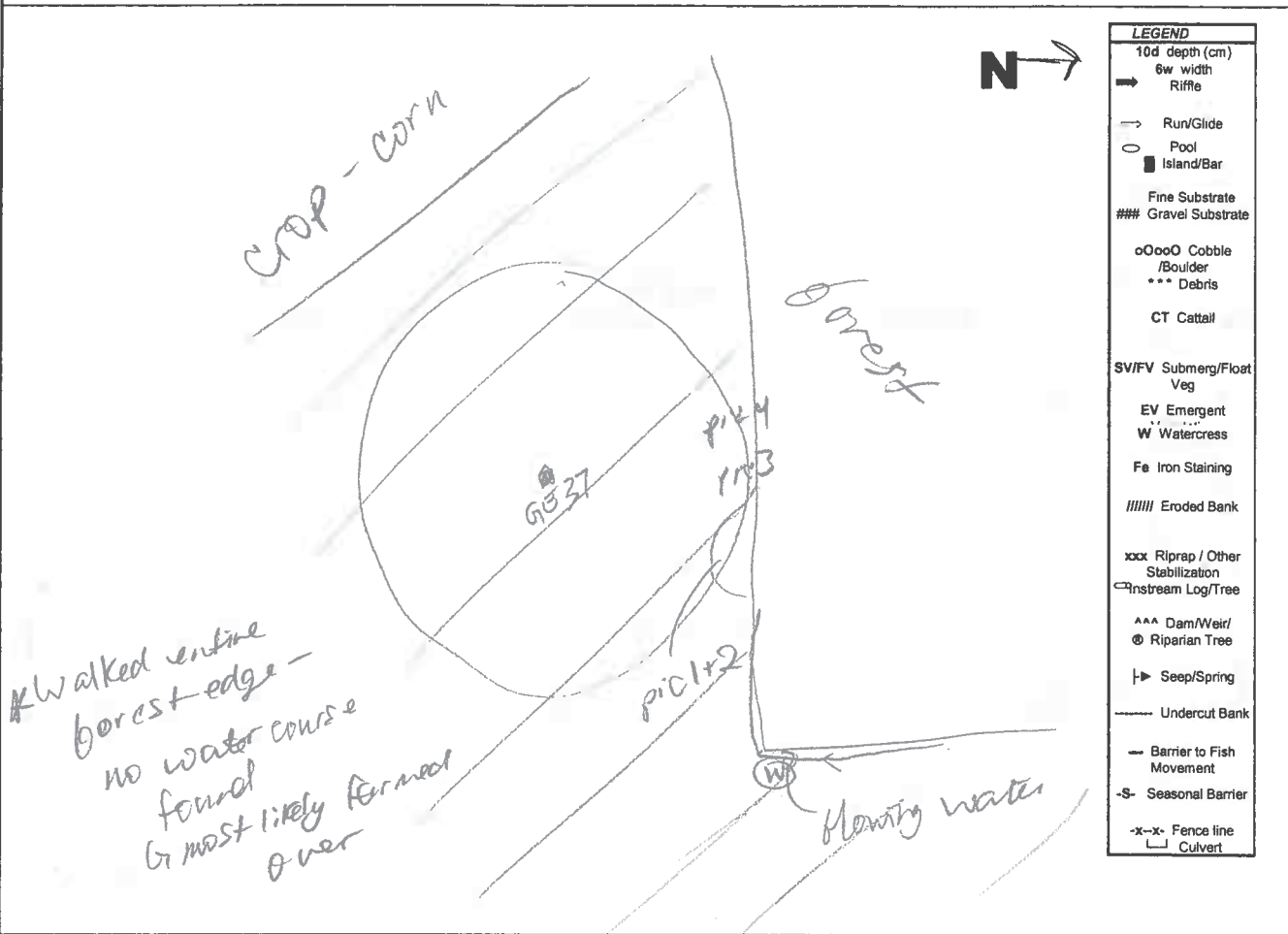
Photo log

Picture #	Description	Picture #	Description
1	Start of study area		
2	Shows filled stream + pond.		
3	depression - may have been pond - now plowed. P3		
4	interface of forest + crops		

C31

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 2099 Turbine # ~~GE 37~~ C31



Horizontal View of Channel





**AECOM**

Field Crew: CB, MO

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1015 Turbine# C33

Date: Dec 9/11 Start time: 11:40 End Time: 11:40

Weather Conditions: Snow Field Notes By: CB

**Site Location**

Huron St, west of Babylon

**UTM Co-ordinates**

Easting: 0451591 Northing: 4797769 Description: in stream

Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

**Surrounding Landuse/Pollution Sources**

- Residential
- Agriculture
- Forest
- Meadow
- Wetland
- Livestock

**Type of Watercourse**

- Intermittent
- Permanent
- Ephemeral
- Channelized
- Natural Channel

Other: \_\_\_\_\_

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

**In-Situ Water Quality**

WT (°C): 4.9°C AT (°C): NA  
 pH: 7.67 Cond (µ/cm): 394  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

- Watercress  Bank Seepage
- Iron Staining  None
- Bubbling  Other

*- only at culvert area*

Notes: \_\_\_\_\_

**Stream Morphology**

Site Length (m): 150m

**Bank Stability:**

**Channel Dimensions**

Mean Wetted Width (m):	<u>2m</u>	Mean Bankfull Width (m):	<u>3.5</u>
Mean Wetted Depth (m):	<u>0.23</u>	Mean Bankfull Depth (m):	<u>0.75</u>

Stable      Slightly unstable      Moderately unstable      Unstable

Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Flow Description:**

Although soil exposed banks stable

Notes:

moderate flow

**AECOM**

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- M - Muck
- DT - Detritus
- Other

Description

*sa >> gr, cl > dt*

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
		100	

Notes:

**Habitat**

**Instream Cover (%)**

*20*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	30			10		leaf debris 60

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*Watercress, grasses*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-80%
- 80-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 70
- Grasses \_\_\_\_\_
- Shrubs 30
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*flat*

**Terrestrial features Present**

Yes No *- possibly*

**Terrestrial Recon Form Filled out**

Yes No

Other General Comments Regarding the Study Area:

- channel appears to have been dug out for adjacent farmers to use as drainage  
 & multiple tile drain inputs

41-55

Photo log

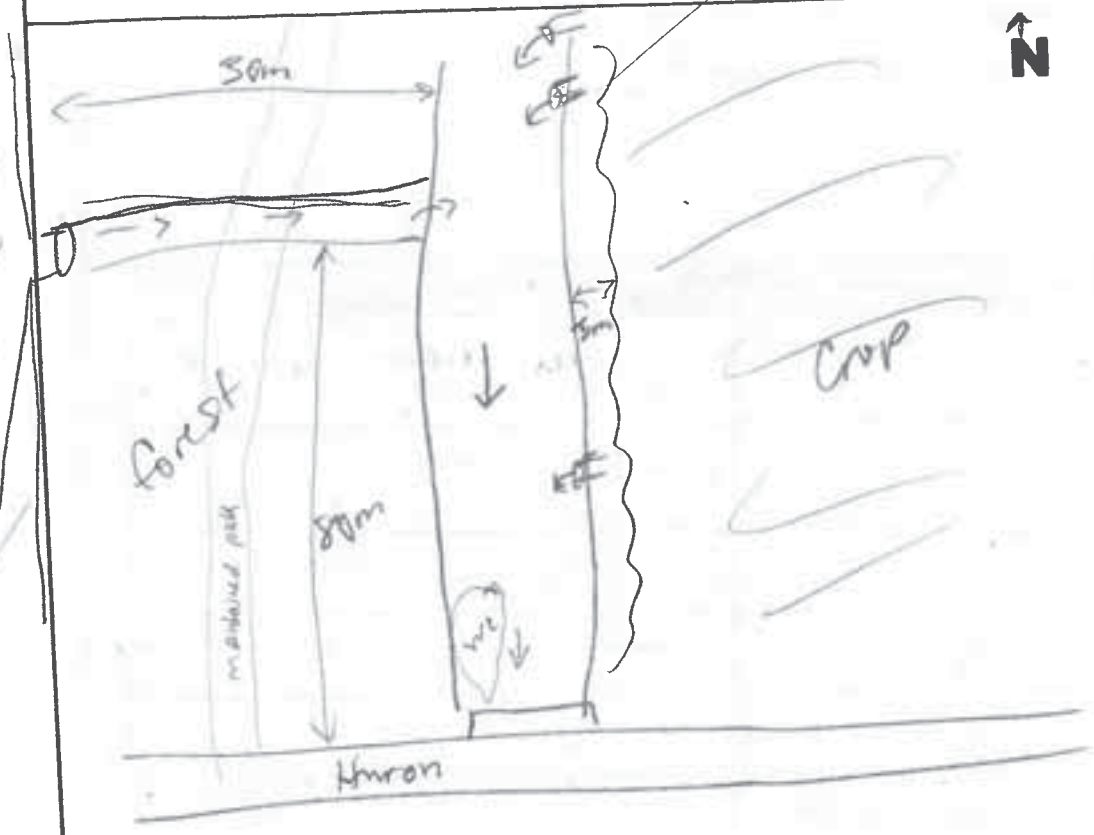
Picture #	Description	Picture #	Description
41	looking North	52	All drains looking N
42	WC @ culvert	53	—
43	looking N	54	looking at South side
44	Wig Sample	55	"
45	"		
46	looking S under culvert		
47	tile drain N/E side of channel		
48	looking S		
49	looking North		
50	channel input from west		
51	" looking up the channel		

AECOM

Watercourse Sketch

C33

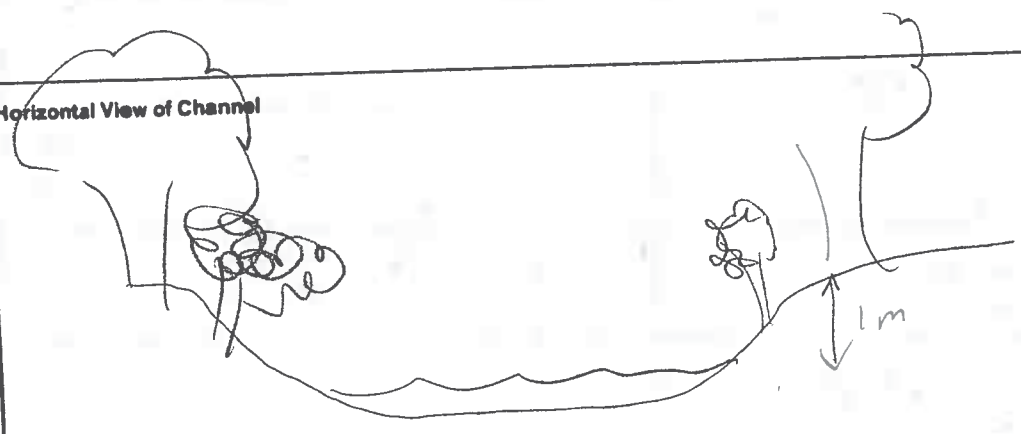
Study Area: Jericho Goshen Bluewater Land Parcel# 1019



**LEGEND**

- 10d depth (cm)
- Bar width
- Rifle
- Run/Glide
- Pool
- Island/Bar
- Fine Substrate
- Gravel Substrate
- Cobble/Boulder
- Debris
- CT Catfall
- Submerg/Float Veg
- EV Emergent
- W Watercross
- Fe Iron Staining
- Eroded Bank
- Riprap / Other Stabilization
- Stream Log/Tree
- Dam/Weir
- Riparian Tree
- Seep/Spring
- Undercut Bank
- Barrier to Fish Movement
- Seasonal Barrier
- Fence line
- Culvert

Horizontal View of Channel



Property ID:

C33-Roadside

Date:

Nov 18-2011

Property Access:

Huron

Start Time:

1:22

End Time:

1:27

Field Investigators:

Dalt + Ferris

Weather:

Overcast 0 C

Terrestrial Feature Present: No  Yes

Provide brief description of observations (i.e. hedgerow, treerow, woodlot, valleylands, deciduous vs coniferous, crop)

on north side-

Photograph Numbers:

Aquatic Feature Present: No  Yes

Provide brief description (i.e. drainage ditch, watercourse, intermittent, permanent)

Buffer-south ~ 4m either side. -north woodlot  
Flowing south ~ 3s/m. Mostly (un)flat (20%) field (10%)  
Permanent-channelized - vegetated grass(s) + tree(w) bank  
1.0m wide & 0.15m deep wetted width  
GW Sheen south side + WC.  
(canopy cover 90% seasonal tree, southside 10% grass

Photograph Numbers:

# 212-216



C36

<b>AECOM</b>		Page 1 of 4	
Field Crew: <u>CB, TS</u>			
<b>General Information</b>			
Study Area: <u>Jericho</u> <u>Goshen</u> <u>Bluewater</u>	Land Parcel# <u>2108</u>	Turbine # <u><del>36B</del></u>	<u>G705</u>
Date: <u>Sep 27/11</u>	Start time: <u>13:20</u>	End Time: <u>14:00</u>	
Weather Conditions: <u>Sunny, 18°C</u> <u>(last 24hrs 10mm rain)</u>	Field Notes By: <u>CB</u>		
<b>Site Location</b>			
<u>Opp Babylon going West - North of Kirkton</u>			
<b>UTM Co-ordinates</b>			
Easting: <u>045 3139</u>	Northing: <u>479 6315</u>	Description: <u>down/s of culvert @ road.</u>	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
Easting: _____	Northing: _____	Description: _____	
<b>Surrounding Landuse/Pollution Sources</b>		<b>Type of Watercourse</b>	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other: _____			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow) <u>no tile drains noted, no gullies or wells</u>			
<b>In-Situ Water Quality</b>		<b>Ground Water Indicators</b>	
WT (°C): <u>11°C</u>	AT (°C): <u>18°C</u>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: _____	Cond ( s/cm): _____	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Water Clarity: <u>Clear</u> <input checked="" type="checkbox"/>	<u>Turbid</u> <input type="checkbox"/>	Bubbling <input type="checkbox"/>	Other <input type="checkbox"/>
Notes: <u>w/g meter not available</u>			
<b>Stream Morphology</b>			
Site Length (m) <u>~300m</u>		Bank Stability:	
<b>Channel Dimensions</b>		Stable	Slightly unstable
Mean Wetted Width (m): <u>1.5</u>	Mean Bankfull Width (m): <u>2.75</u>	Moderately unstable	Unstable
Mean Wetted Depth (m): <u>0.15</u>	Mean Bankfull Depth (m): <u>0.40</u>	Left Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>
		Right Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>
Flow Description: <u>visible flow</u>			
Notes: _____			

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

si, cl >> sa > co, bo

Notes:

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
		100	

Instream Cover (%) ~~30~~ 50

**Habitat**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
		5	5	<del>90</del> 90		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

emergents (cattail), grasses

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 10
- Grasses 90
- Shrubs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

**Notes:**

Channel choked w cattail

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

flat

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No



C36

AECOM

Sep 27/11

AW 436B

Page 3 of 4

Other General Comments Regarding the Study Area:

- it is a channelized watercourse dividing 2 properties  
 - mvt

Photo log

Picture #	Description	Picture #	Description
59	site overview		
60	culvert on east side		
61	" on west side		
62	west culvert		
63	channel - showing veg		
64	culvert for crossing		
65	"		
66	channel		
67	"		
68	looking east <del>at</del> " channel		
69	looking west - channel		

C36

AECOM

Watercourse Sketch

Study Area:

Jericho

Goshen

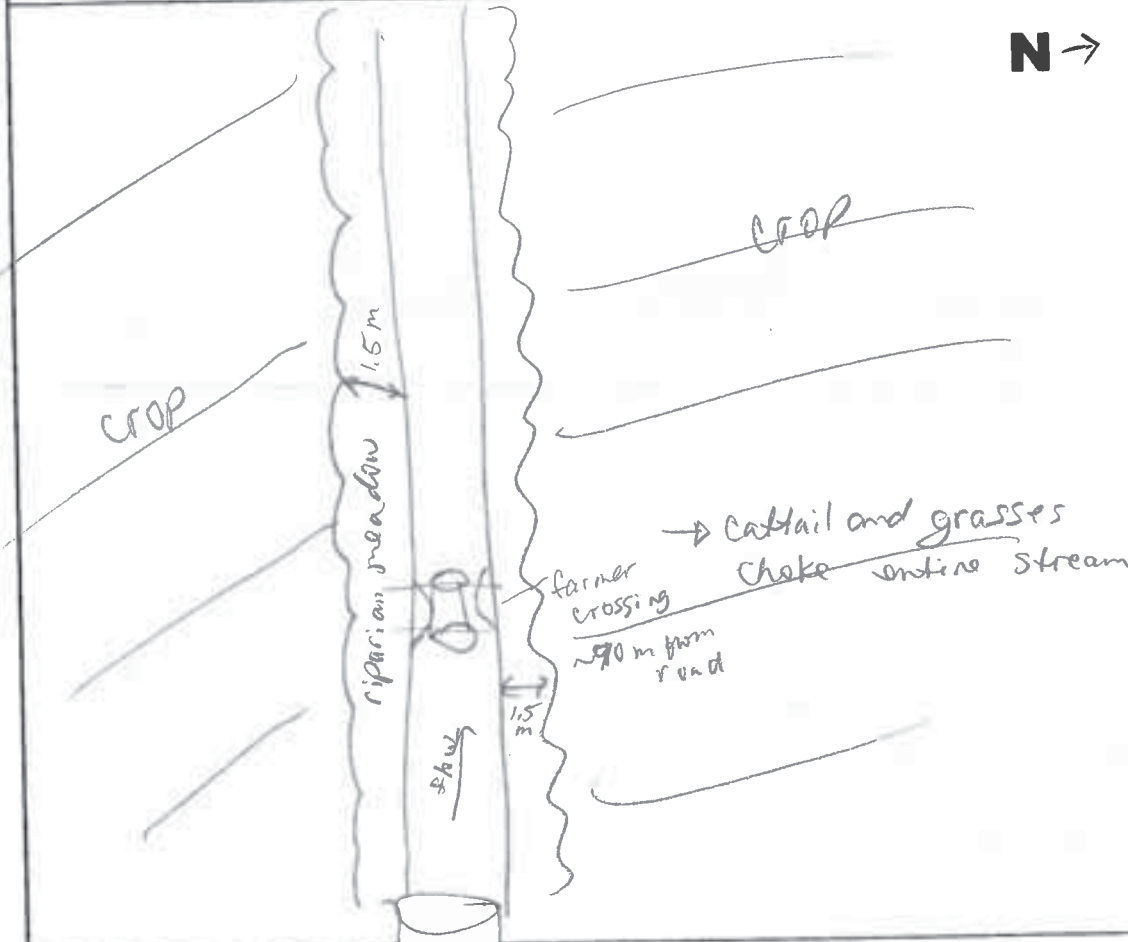
Bluewater

Land Parcel# 2108

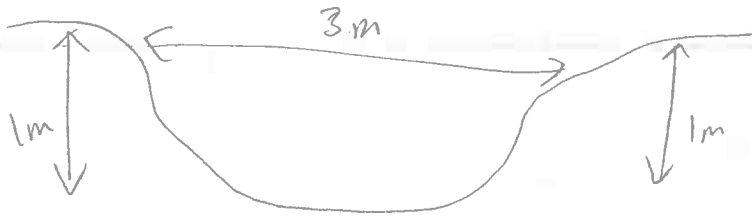
Turbine # ~~CW C36B~~



LEGEND	
10d depth (cm)	—
8w width	—
Riffle	—
Run/Glide	—
Pool	○
Island/Bar	■
Fine Substrate	—
Gravel Substrate	###
Cobble/Boulder	oOoO
Debris	***
CT Cattail	—
SV/FV Submerg/Float Veg	—
EV Emergent	—
W Watercress	—
Fe Iron Staining	—
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	—
Dam/Wear	^^^
Riparian Tree	⊙
Seep/Spring	↳
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	┌



Horizontal View of Channel



Property ID: Gos 2044 (C37) Date: Dec 9/11

Property Access: Roadside acc. Start Time: 15:40  
End Time: 16:20

Field Investigators: CB, MD Weather: Snow

Terrestrial Feature Present: No  Yes

Provide brief description of observations (i.e. hedgerow, treerow, woodlot, valleylands, deciduous vs coniferous, crop)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Photograph Numbers: \_\_\_\_\_

Aquatic Feature Present: No  Yes

Provide brief description (i.e. drainage ditch, watercourse, intermittent, permanent)

(West) 0453862 ± 4m // (East) 0454542 ± 3m  
#795992 // 4796089

\* Aquatic mammal (possibly muskrat) observed (West)  
\* Pheasant or turkey observed (East)

Photos #82-84 - At culvert // #87 - Channel overview  
#85-86 - C37 West // #88 - site overview  
#89-90 - Channel + ditch

Photograph Numbers: 82-90

Notes on back →

- Watercourse is a channelized feature and same at both culverts

[ MWW - 2m    MSW - 2.5m  
  MWS - ?    MSW - ?

- Substrate - pins w/ cobble + boulders at culverts
- Channel choked w/ cattails in some areas
- Riparian buffer 15m
- Visible flow
- water clear
- poor canopy cover

C42

<b>AECOM</b>		Page 1 of 4	
		Field Crew: <i>CB, TS</i>	
<b>General Information</b>			
Study Area: Jericho <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Goshen</span> Bluewater	Land Parcel# 1759 2252	Turbine # <del>C42</del> <i>C42B</i>	
Date: <i>Sep 27/11</i>	Start time: <i>15:00</i>	End Time: <i>15:40</i>	
Weather Conditions: <i>Shiny, 18°C (last 24hrs 10mm rain)</i>		Field Notes By: <i>CB</i>	
<b>Site Location</b>			
<i>On Blackbush Lane - north of Kirkton</i>			
<b>UTM Co-ordinates</b>			
Easting: <i>0447032</i>	Northing: <i>4795291</i>	Description: <i>culvert @ road</i>	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
<b>Surrounding Landuse/Pollution Sources</b>		<b>Type of Watercourse</b>	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/> <i>W</i>
Agriculture <input checked="" type="checkbox"/> <i>W</i>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/> <i>E</i>
Forest <input checked="" type="checkbox"/> <i>E</i>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)			
<i>- none noted on agri side or forest besides roadside ditches</i>			
<b>In-Situ Water Quality</b>		<b>Ground Water Indicators</b>	
WT (°C): <i>11</i>	AT (°C): <i>18</i>	Watercress <input checked="" type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: <i>—</i>	Cond (s/cm): <i>—</i>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/> <i>f</i>
Water Clarity: Clear <input checked="" type="checkbox"/>	Turbid <input checked="" type="checkbox"/>	Bubbling <input type="checkbox"/>	Other <input type="checkbox"/>
Notes: <i>- water sl. turbid</i>			
<i>~ 30m down/100m up culvert on agri side large patch of watercress</i>			
<b>Stream Morphology</b>			
Site Length (m): <i>west ~ 50m East ~ 100m</i>	Bank Stability:		
Channel Dimensions	<i>f</i>	<i>a</i>	
Mean Wetted Width (m): <i>1m 2.15</i>	Mean Bankfull Width (m): <i>1.5m 3</i>	Stable	Slightly unstable
Mean Wetted Depth (m): <i>0.25 0.30</i>	Mean Bankfull Depth (m): <i>0.50 0.5</i>	Moderately unstable	Unstable
		Left Bank	Right Bank
		<i>a</i> <input checked="" type="checkbox"/> <i>f</i>	<i>a</i> <input checked="" type="checkbox"/> <i>f</i>
Flow Description: <i>- in the forest visible flow</i>			
Notes:			

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

f = si, mk, dt  
a = si, cl.

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		f - 70	f - 30
		a - 50	a - 50

**Notes:**

agri channel highly veg so  
approximation of Run/flat difficult

**Habitat**

**Instream Cover (%)**

f = 20 a = 35

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	f = 80 a = 10	a = 5	a = 5	a = 80		detritus
						f = 20

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

emergents, grasses, submergents

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60% f  a
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees f = 95
- Grasses a = 50
- Shrubs f = 5
- Herbaceous a = 50
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions  Natural
- Man-Made

Description: culvert not reached.

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

flat

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

C42

AECOM

Sep 27/11

~~Gas C42~~

Other General Comments Regarding the Study Area:

- fishes observed. (east side)
- forest channel not veg present
- > agri channel banks + bed completely veg.
  - ↳ watercress present in large clumps in a couple locations

Photo log

Picture #	Description	Picture #	Description
84	site overview on west side		
85	east side culvert		
86	east forest / down/s		
87	forest up/s		
88	forest down/s		
89	west culvert		
90	agri down/s		
91, 92	watercress on agri side		
93	agri down/s		
94	"		
95	agri down/s end		

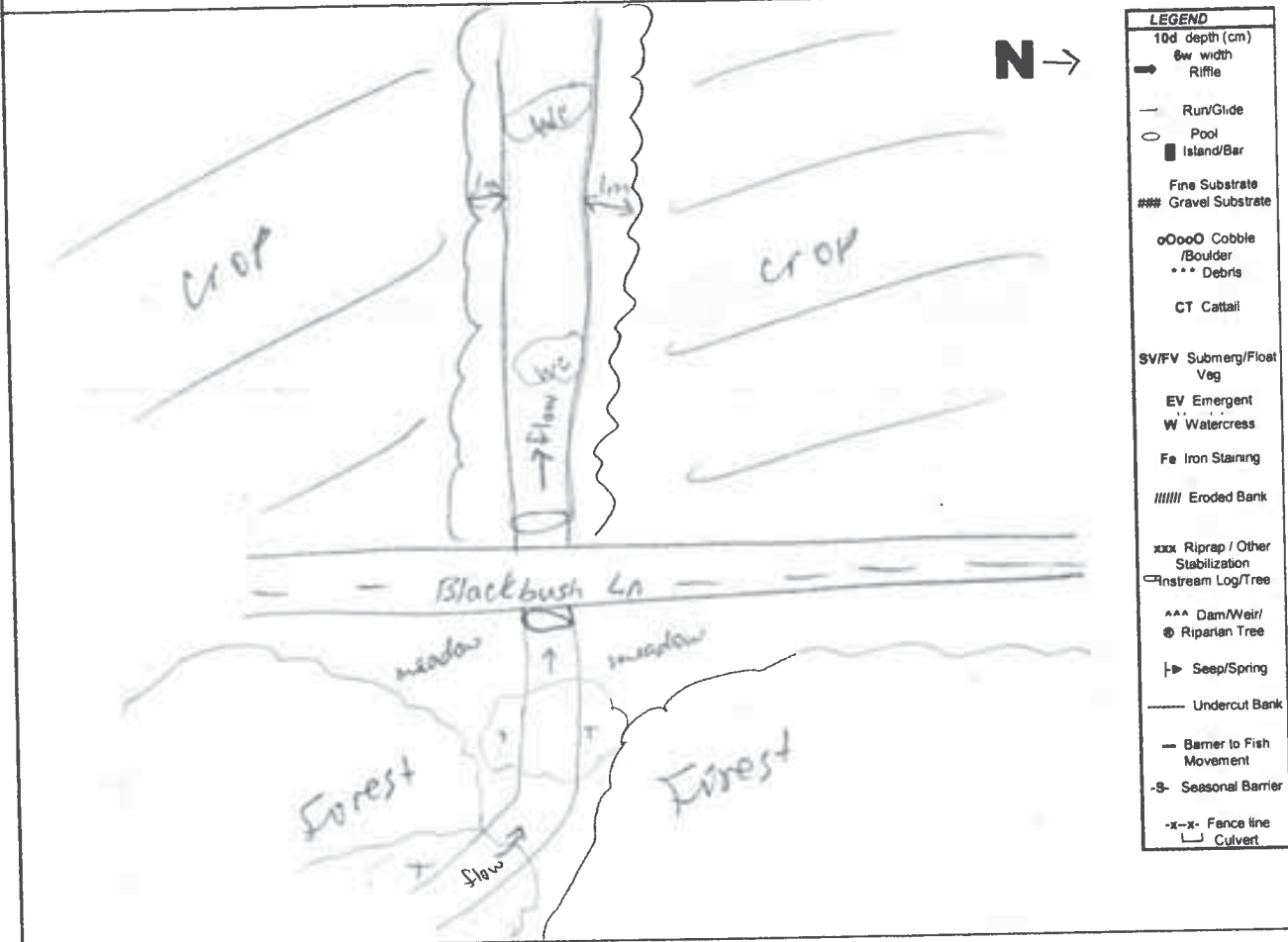
C42

C42

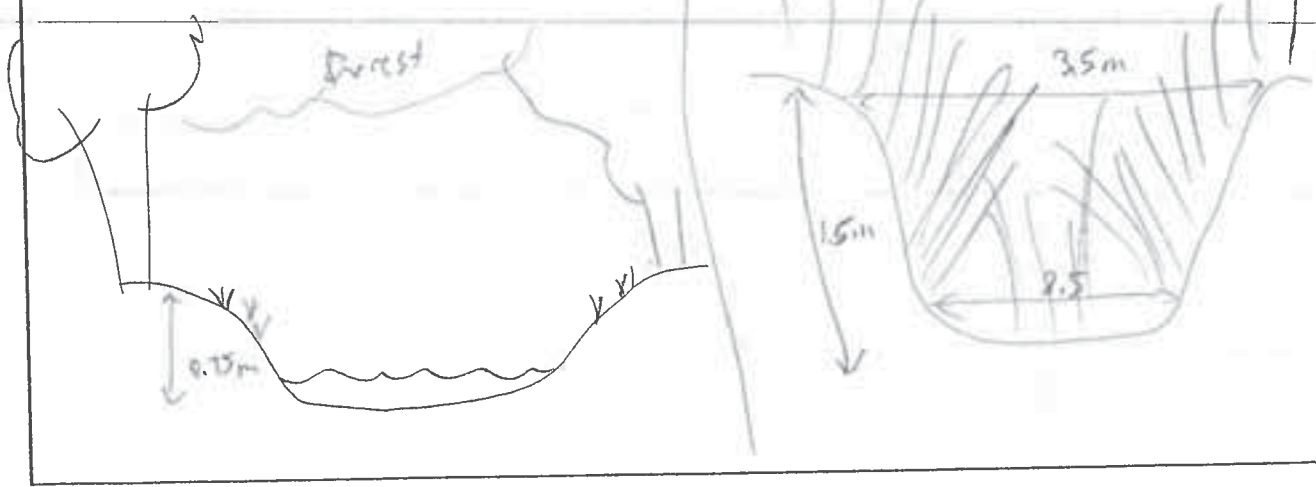
AECOM

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 159 2252 Turbine # ~~G05-C42~~



Horizontal View of Channel





C43

<b>AECOM</b>		Page 1 of 4	
Field Crew: <u>CB, TS</u>			
<b>General Information</b>			
Study Area: Jericho <u>Goshen</u> Bluewater	Land Parcel# <u>22350 &amp; 2237</u>	Turbine # <u>GDS</u> <del>C42A</del>	
Date: <u>Sep 28/11</u>	Start time: <u>8:30</u>	End Time: <u>9:10</u>	<u>(G=20)</u>
Weather Conditions: <u>Cloudy, 12°C</u>		Field Notes By: <u>CB</u>	
<b>Site Location</b>			
<u>East of Cedar Swamp, North of Kirkton</u>			
<b>UTM Co-ordinates</b>			
Easting: <u>445752</u>	Northing: <u>4795067</u>	Description: <u>East end of site - by stream</u>	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
<b>Surrounding Landuse/Pollution Sources</b>		<b>Type of Watercourse</b>	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/>
Forest <input checked="" type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow) <u>- ephemeral channels noted feeding into main watercourse</u>			
<b>In-Situ Water Quality</b>		<b>Ground Water Indicators</b>	
WT (°C): <u>9</u>	AT (°C): <u>13</u>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: <u>/</u>	Cond ( s/cm): <u>/</u>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Water Clarity: Clear <input type="checkbox"/>	Turbid <input checked="" type="checkbox"/>	Bubbling <input type="checkbox"/>	Other <input type="checkbox"/>
Notes: <u>w/g meter not available</u>			
<b>Stream Morphology</b>			
Site Length (m): <u>~100m</u>		Bank Stability:	
<b>Channel Dimensions</b>		Stable	Slightly unstable
Mean Wetted Width (m): <u>2.2</u>	Mean Bankfull Width (m): <u>4m</u>	Moderately unstable	Unstable
Mean Wetted Depth (m): <u>0.3</u>	Mean Bankfull Depth (m): <u>1m</u>	Left Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>
		Right Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>
Flow Description: <u>- right bank had major erosion on one of the meander bends</u> <u>- moderate flow</u>			
Notes:			

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

sa, si, cl > gr > co

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
25	15	60	

**Notes:**

pool stretched for long periods  
 → max depth in pool ~ 0.60m

**Habitat**

Instream Cover (%) 40

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	30	5	50	/	15	

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 90
- Grasses \_\_\_\_\_
- Shrubs 10
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

**Description:**

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

-slightly rolling

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

C43

AECOM

Sep 28/11

~~G795 C42A~~

(G7E20)

Page 3 of 4

## Other General Comments Regarding the Study Area:

- water turbid; hard to see aquatic life
- southern portion of stream previously surveyed for turbine.

## Photo log

Picture #	Description	Picture #	Description
112	Overall Site		
113	Ephemeral Pool #1		
114	" " #2		
115	Stream channel		
116	meandering stream channel		
117	Stream Pool		
118	Stream channel		
119	Riffles		
120	Stream channel		
121	Bank erosion		
122	Stream run		

C43

AECOM

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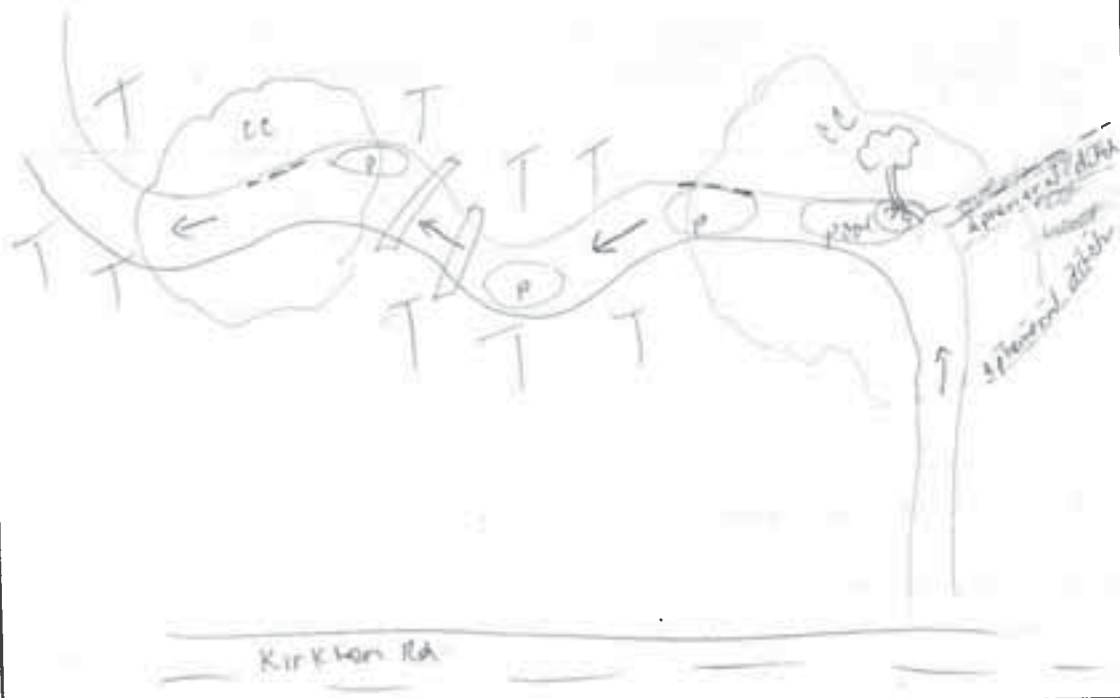
Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 2236/2237 Turbine # GOS-142A

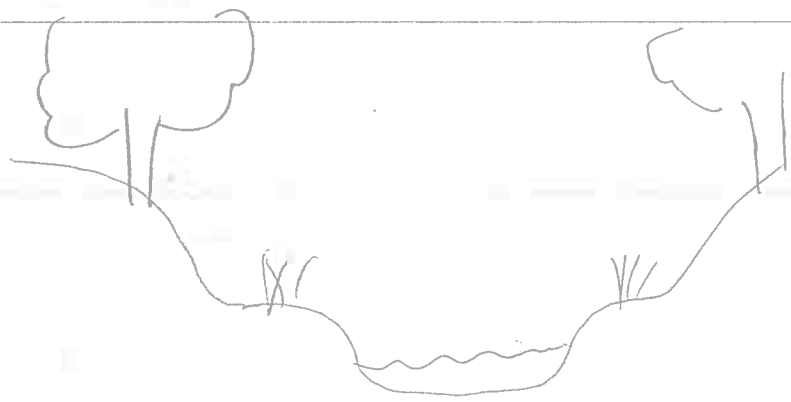


T = tree  
P = pool

LEGEND	
10d depth (cm)	6w width
→	Riffle
—	Run/Glide
○	Pool
■	Island/Bar
—	Fine Substrate
###	Gravel Substrate
oOoO	Cobble/Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
—	Instream Log/Tree
^^^	Dam/Weir
⊙	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
┌	Culvert



Horizontal View of Channel



**AECOM**

Field Crew: *CB, TS*

**General Information**

Study Area: Jericho Goshep Bluewater Land Parcel# *2236* Turbine # ~~SM119~~ (43)  
 Date: *July 27/11* Start time: *10:50* End Time: *11:40*

Weather Conditions: *Sunny, 23°C* Field Notes By: *CB*

**Site Location**

*Kirklan + Shipka Ln.*

**UTM Co-ordinates**

*17T*  
 Easting: *0445879* Northing: *4794979* Description: *north end.*  
 Easting: *0446025* Northing: *4794834* Description: *South end.*  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

**In-Situ Water Quality**

WT (°C): ~~8.7~~ *18.7* AT (°C): *23°*  
 pH: *8.19* Cond (µs/cm): *0.95*  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

*none noted*

Notes:

**Stream Morphology**

Site Length (m): *entire site.* Bank Stability:

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Channel Dimensions

Mean Wetted Width (m): <i>2</i>	Mean Bankfull Width (m): <i>3 m</i>
Mean Wetted Depth (m): <i>.20</i>	Mean Bankfull Depth (m): <i>0.50</i>

Flow Description:

*slow flow*

Notes:

*no tile drain inputs noted*

**AECOM**

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

*cl, si >> gr, co > Bo*

Morphological Structure (%)			
Pool	Riffle	Run	Flat
10	10		80

**Notes:**

*riffles only in forest area (North side)*

**Habitat**

**Instream Cover (%)** *50*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	<i>50</i>	<i>15</i>	<i>15</i>	<i>/</i>	<i>20</i>	

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

Trees *50*    Shrubs *10*    Man-made structures \_\_\_\_\_  
 Grasses *25*    Herbaceous *15*    Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions  Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

*- forest may be ELL'd.*

C43

AECOM

C43

~~5/11/19~~

~~5/11/19~~

Page 3 of 4

Other General Comments Regarding the Study Area:

- fish observed. (minnows)
- wood frog, green frog

Photo log

Picture #	Description	Picture #	Description
1	start of site looking up/s North		
2	looking down/s.		
3	eg of riffle-		
4	flats		
5	- looking N side of culvert		
6	looking S side of culvert		
7	on S side of road.		
8	looking down/s		
9	looking up/s		
10	end of site		

C43

AECOM

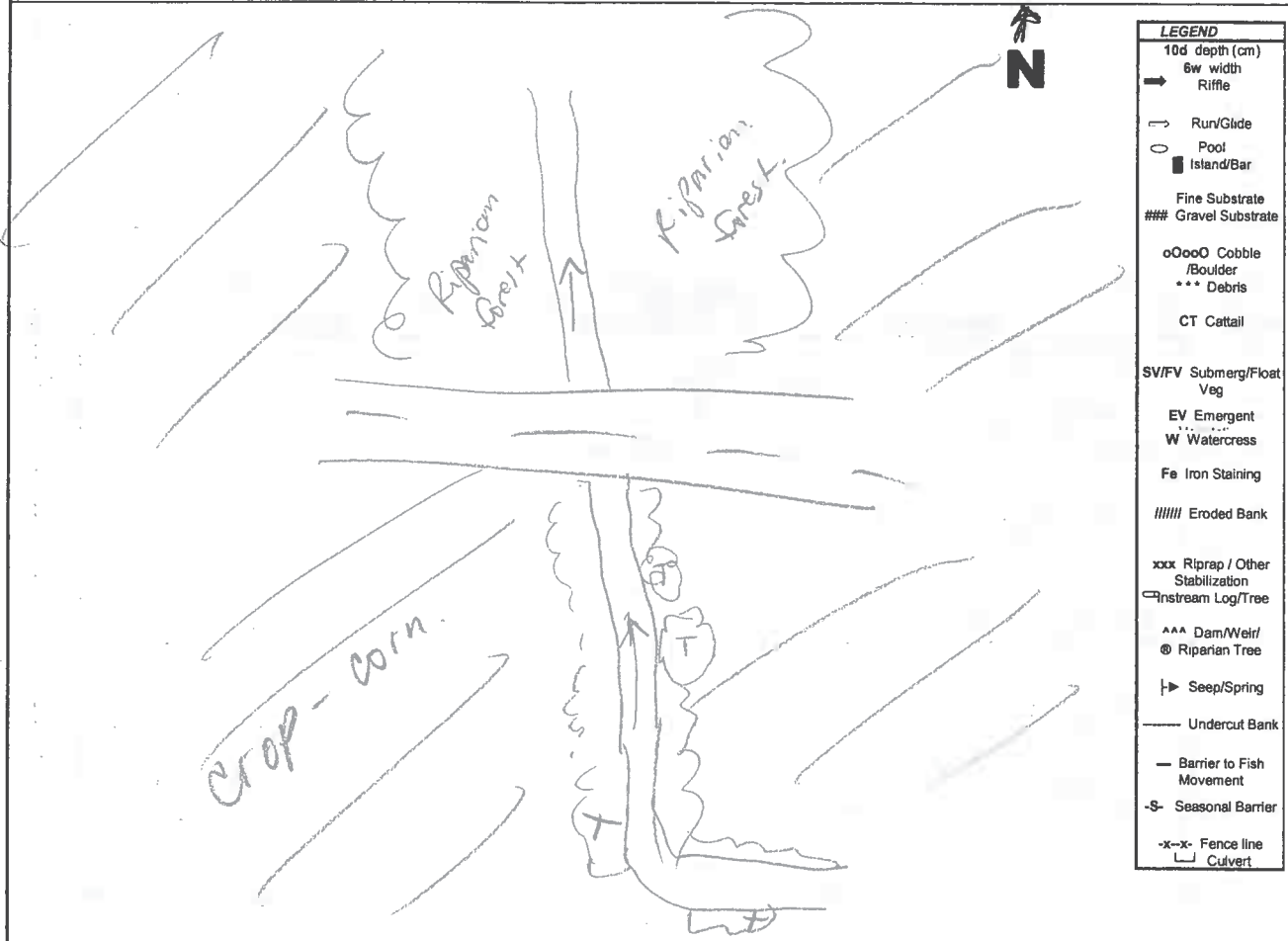
July 27/11

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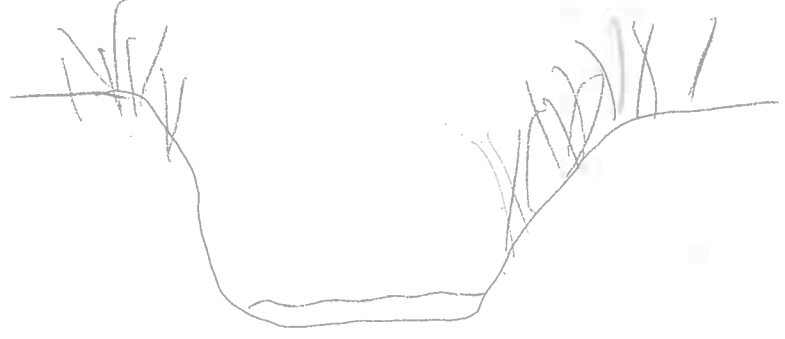
Watercourse Sketch

C43

Study Area: Jericho Goshen Bluewater Land Parcel# 2236 Turbine # ~~51119~~



Horizontal View of Channel





**AECOM**

Field Crew: *CB, TS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1504 Turbine # ~~6522~~ (C48)  
 Date: July 27/11 Start time: 11:40 End Time: 12:20

Weather Conditions: Sunny, 27°C Field Notes By: CB

**Site Location**

Kirkton Rd. - between Shipka + Blackash Ln.

**UTM Co-ordinates**

Easting: <u>0448179</u>	Northing: <u>4794779</u>	Description: <u>north end.</u>
Easting: <u>0446279</u>	Northing: <u>4794577</u>	Description: <u>South end.</u>
Easting:	Northing:	Description:
Easting:	Northing:	Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- no wells or gullies noted but very overgrown

**In-Situ Water Quality**

WT (°C): 20.3 AT (°C): 27  
 pH: 8.47 Cond (µs/cm): 0.97  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m): entire reach

**Bank Stability:**

**Channel Dimensions**

Mean Wetted Width (m): <u>1.2</u>	Mean Bankfull Width (m): <u>1.7</u>
Mean Wetted Depth (m): <u>0.15</u>	Mean Bankfull Depth (m): <u>0.5</u>

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Flow Description:**

very low flow

Notes:

no gullies

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

*cl, si >> gr, sa > cob > Bo*

Notes:

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
10	5	5	80

**Habitat**

**Instream Cover (%)** *60*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	<i>20</i>	<i>10</i>	<i>10</i>	<i>10</i>	<i>50</i>	

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

*grasses*

**Canopy Cover (% closed cover):**

100-90%

90-60%

60-30%

30-1%

0%

**Types of Cover (% cover)**

Trees *25*

Grasses *65*

Shrubs

Herbaceous *10*

Man-made structures

Other

**Notes:**

*Stream almost completely covered by grasses on banks*

**Obstructions to Fish Passage**

No Obstructions   
Natural

Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*None noted.*

**Terrestrial features Present**

Yes

No

**Terrestrial Recon Form Filled out**

Yes

No

AECOM

July 27/11

GE 22

C43

Other General Comments Regarding the Study Area:

- fish observed (minnows)
- frogs observed.
- racoon observed.

Photo log

Picture #	Description	Picture #	Description
1	up - North end of site		
2	AW/S - North end of site.		
3	- midway		
4	- midway		
5	South end of site		
6	South end of site.		
7	pic of water lilies		

C43

AECOM

July 27/11

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Watercourse Sketch

Study Area:

Jericho

Goshen

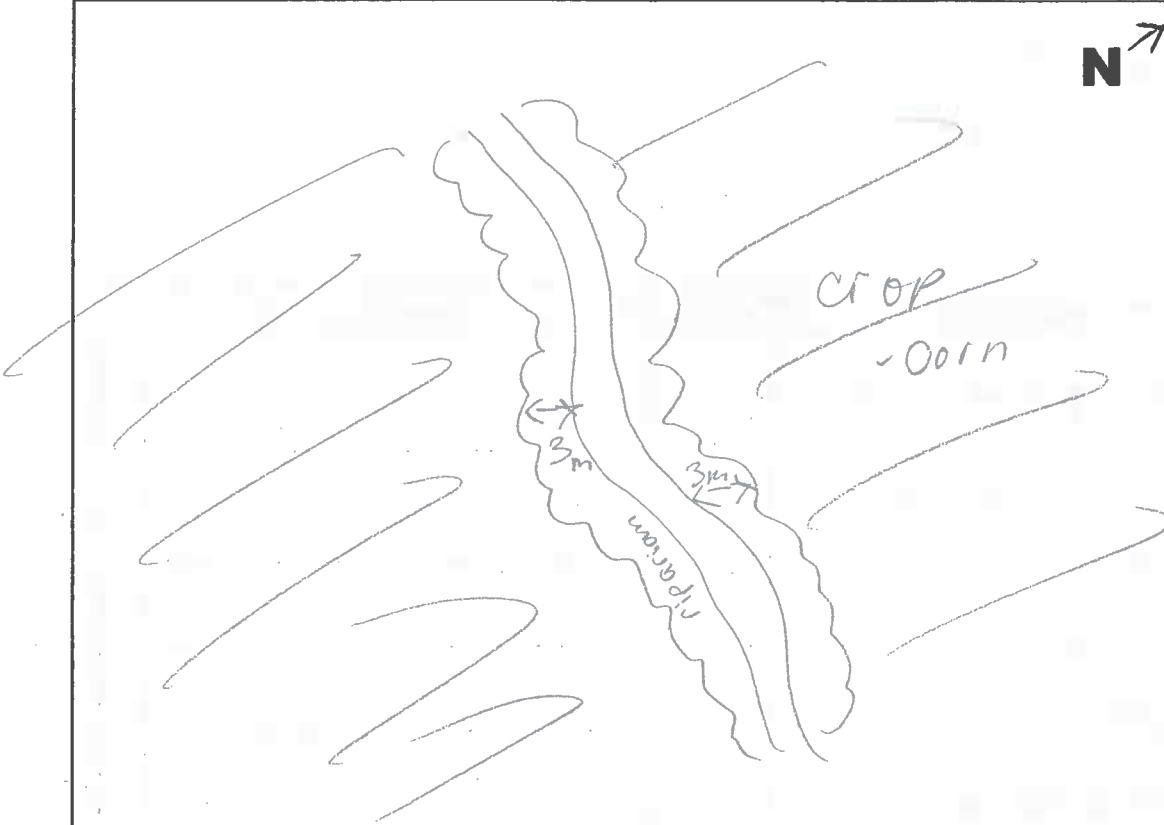
Bluewater Land Parcel#

1504

Turbine #

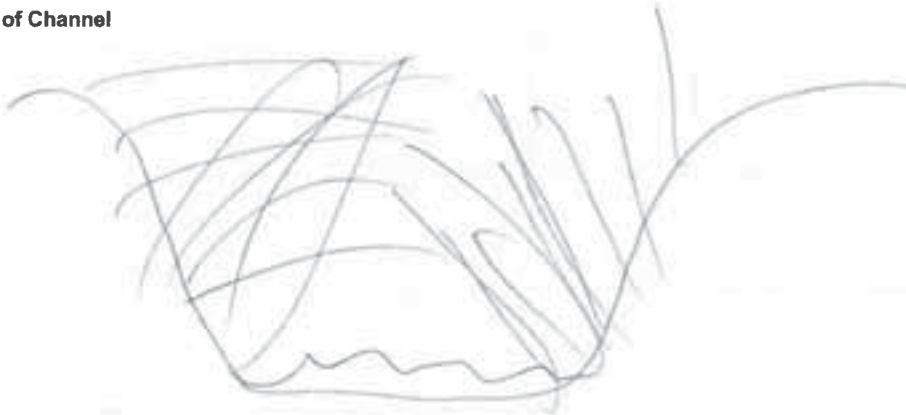
~~4522~~

43



LEGEND	
10d depth (cm)	6w width
→	Riffle
↔	Run/Glide
○	Pool
■	Island/Bar
	Fine Substrate
###	Gravel Substrate
oOoo	Cobble
●	Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
—	Instream Log/Tree
^^^	Dam/Weir/
⊗	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
┌	Culvert

Horizontal View of Channel



**AECOM**

Field Crew: CB, JP

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# GSH 252/1759 Turbine # GOS C44  
 Date: Sept 7/11 Start time: 18:00 End Time: 18:20

Weather Conditions:

Cloudy, 15°C

Field Notes By:

CB

**Site Location**

Blackbush line - south of Kirkton

**UTM Co-ordinates**

Easting: 0447190 Northing: 4794329 Description: East Culvert  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

**In-Situ Water Quality**

WT (°C): / AT(°C):  
 pH: / Cond ( s/cm): /  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

potentially on west side

Notes: w/g meter not available

**Stream Morphology**

Site Length (m): ~30m up+ down /s.

**Channel Dimensions**

at road culverts  
 Mean Wetted Width (m): 2 Mean Bankfull Width (m): /  
 Mean Wetted Depth (m): 0.25 Mean Bankfull Depth (m): /

**Bank Stability:**

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description:

no visible flow

Notes:

banks well veg w grasses + jewelweed

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

MK, Si, Cl

Morphological Structure (%)			
Pool	Riffle	Run	Flat
			100

**Notes:**

no visible flow at roadside

**Habitat**

Instream Cover (%) ~ 30

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	10			90		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

grasses, submergents

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

Trees 60      Shrubs 20      Man-made structures \_\_\_\_\_  
 Grasses 20      Herbaceous \_\_\_\_\_      Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions       Man-Made
- Natural

**Description:**

- culverts not perched

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

flat

**Terrestrial features Present**

Yes

No

- ELC completed by JP.

**Terrestrial Recon Form Filled out**

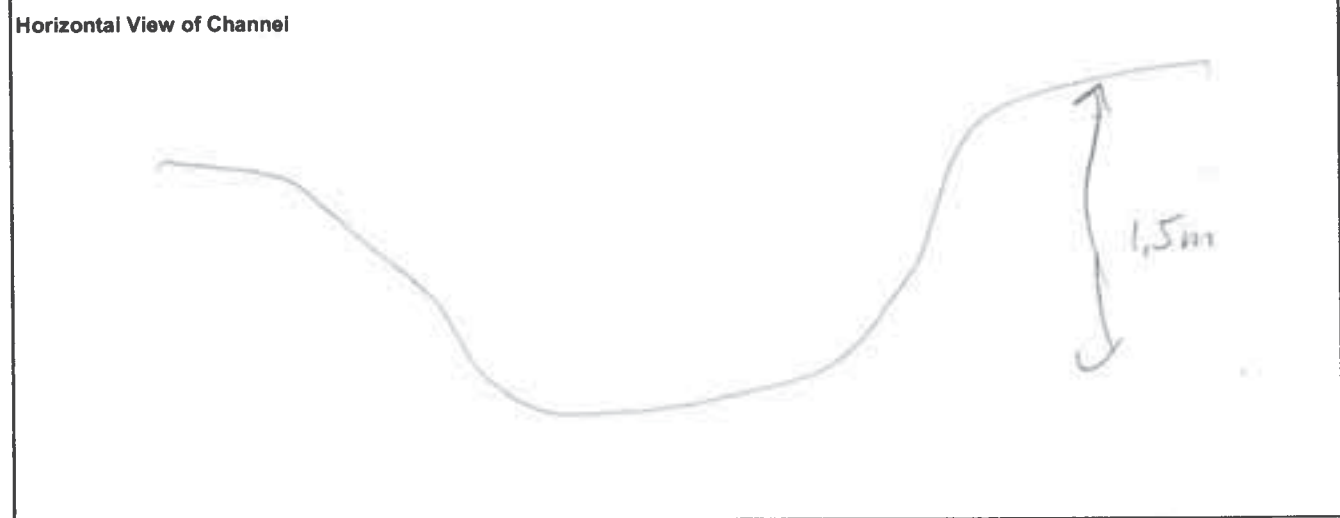
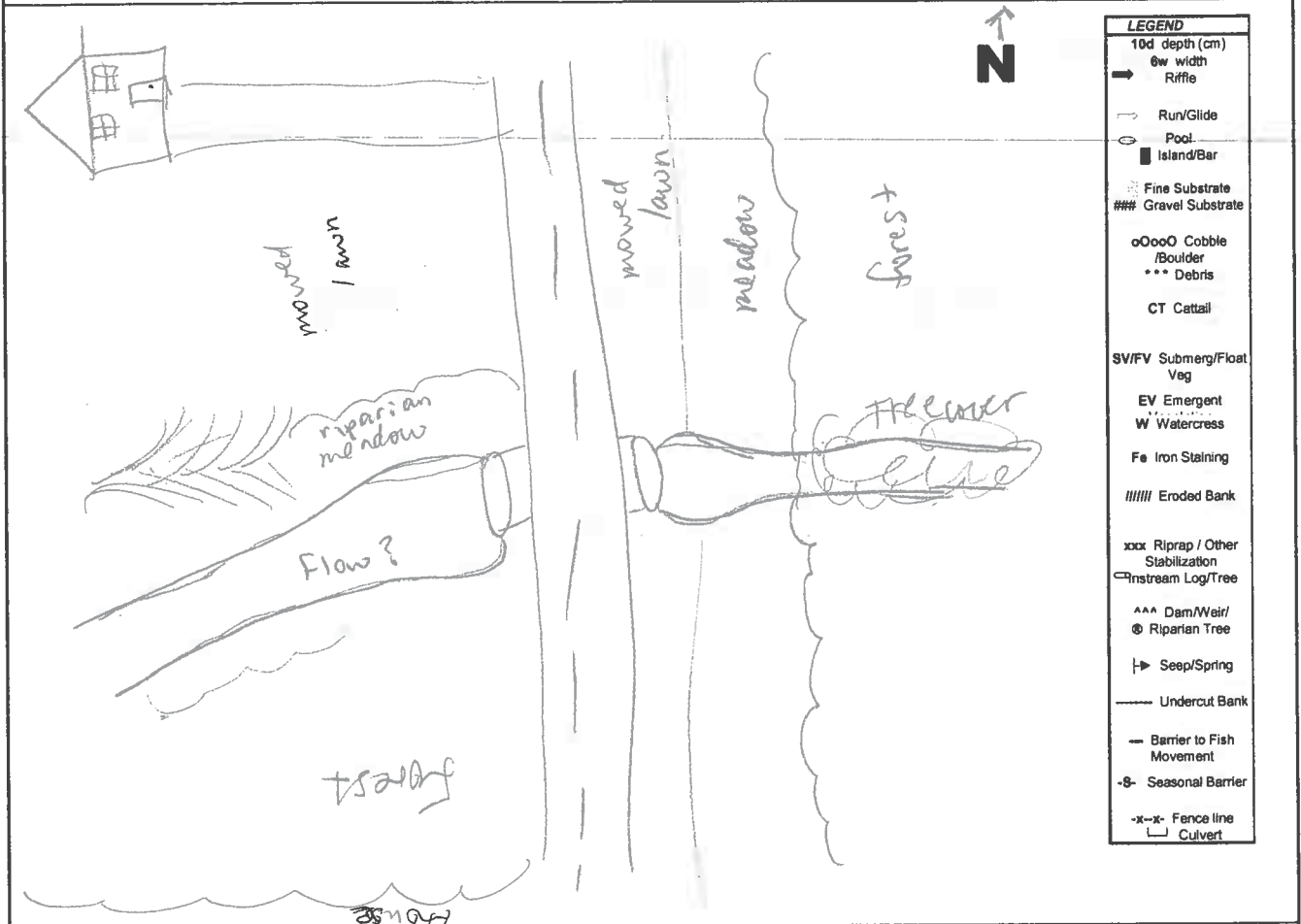
Yes

No



Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 65P176Z/148 Turbine # GRS-CL4





**AECOM**

Field Crew: *TS, CS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# *1498, 1499* -Turbine# *C45*  
 Date: *Dec 16/11* Start time: *15:20* End Time: *15:40*

Weather Conditions: *Cloudy 10C* Field Notes By: *CS*

**Site Location**

*Shipka Ln, north of Coediton* \* *Roadside by property GSH 1499*

**UTM Co-ordinates**

Easting: *0445169* Northing: *4793849* Description: *Advent at road*

Easting: Northing: Description:

Easting: Northing: Description:

Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock  *-South side pasture*

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

*-tile drains noted - flowing*

**In-Situ Water Quality**

WT (°C): / AT (°C): /  
 pH: / Cond (  $\mu$ S/cm): /  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: *brown*

**Stream Morphology**

Site Length (m): Bank Stability:

Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):	<i>1.5m</i>	Mean Bankfull Width (m):	<i>3m</i>	Left Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m):	<i>0.40</i>	Mean Bankfull Depth (m):	<i>0.80</i>	Right Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: *visible flow, mod levels*

Notes:

**AECOM**

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

Description

Si, Cl

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

Notes:

light meander in channel

**Habitat**

**Instream Cover (%)**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

→ could not access

**Canopy Cover (% closed cover):**

- 100-90%
- 90-80%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 5
- Grasses 95
- Shrubs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

flat

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

AECOM

Page 3 of 4

Other General Comments Regarding the Study Area:

- box Culvert
- ASE Completed from GSH 1498 on C45 watercourse  
↳ same<sup>no</sup> characteristics found downstream at roadside.

Picture #		Description	
Picture #	Description	Picture #	Description
142-143	West not assessed.		
144-149	East		

C45

AECOM

Watercourse Sketch

Study Area:

Jericho

Goshen

Bluewater Land Parcel#

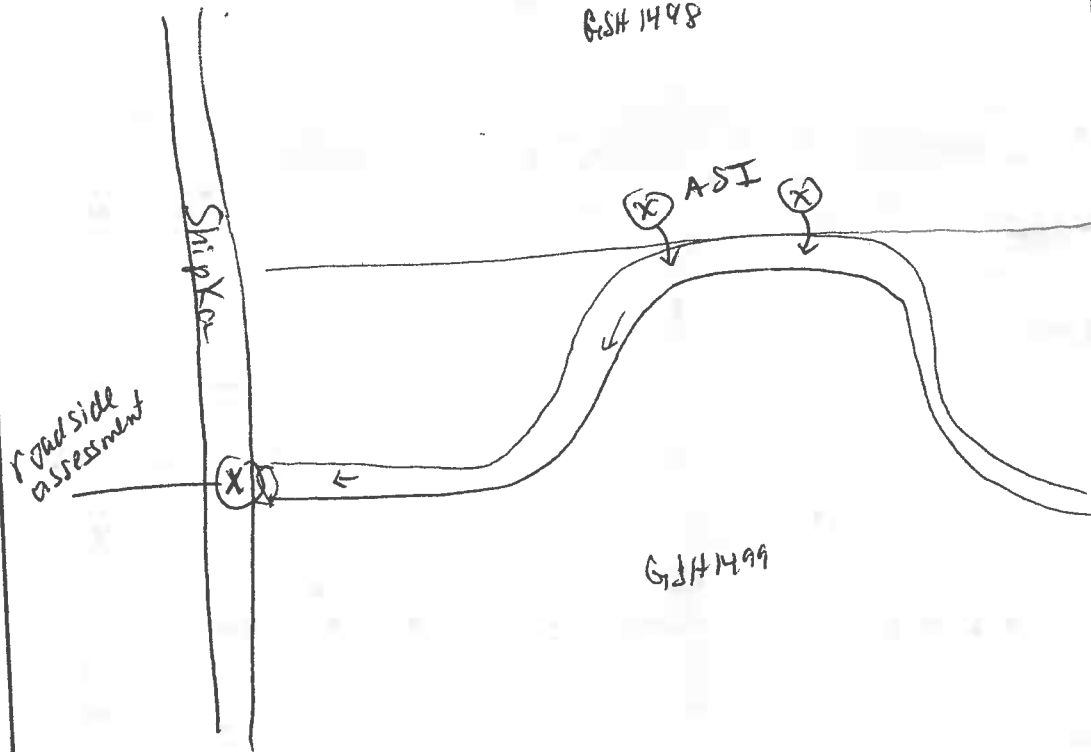
1489 1499

Turbine #

C45



LEGEND	
10d depth (cm)	→
5w width	→
Rifle	→
Run/Glide	—
Pool	○
Island/Bar	■
Fine Substrate	—
Gravel Substrate	—
Cobble/Boulder	○
Debris	...
Catfall	CT
Submerg/Floa Veg	BV/FV
Emergent	EV
Weir/cress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	—
Dam/Wer/ Riparian Tree	▲▲▲
Seep/Spring	↳
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-B-
Fence line	-x-x-
Culvert	—



Horizontal View of Channel

**AECOM**

Field Crew: *CB, TS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# *1658* Turbine # ~~0477~~ *C46*  
 Date: *July 27/11* Start time: *15:30* End Time: *16:10*

Weather Conditions: *Cloudy, 25°C* Field Notes By: *CB*

**Site Location**

~~On the road~~ *Shipka + Kirkton*

**UTM Co-ordinates**

Easting: <i>0444388</i>	Northing: <i>4793774</i>	Description: <i>East end</i>
Easting: <i>0444290</i>	Northing: <i>4793815</i>	Description: <i>West end</i>
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other: *~30m N 6-5*

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

*none noted*

**In-Situ Water Quality**

WT (°C): *23* AT (°C): *30*  
 pH: *7.04* Cond (µs/cm): *0.45*  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m):				Bank Stability:				
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable	
Mean Wetted Width (m):	<i>4</i>	Mean Bankfull Width (m):	<i>6</i>	Left Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m):	<i>0.20</i>	Mean Bankfull Depth (m):	<i>0.8</i>	Right Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: *no visible flow for most of site*

Notes: *no obvious drainage into stream*

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

*gr >>> sa, cl > bo > dt*

Morphological Structure (%)			
Pool	Riffle	Run	Flat
	1	99	

**Notes:**

*1 mea stream confined ~2m long - riffles*

**Habitat**

**Instream Cover (%)**

*40*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	<del>80</del> 70	5	5	/	20	

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*(Handwritten scribble)*

**Canopy Cover (% closed cover):**

- 100-90%  30-1%
- 90-60%  0%
- 60-30%

**Types of Cover (% cover)**

- Trees 100 Shrubs \_\_\_\_\_
- Grasses \_\_\_\_\_ Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

**Notes:**

*tree roots creating good habitat*

**Obstructions to Fish Passage**

- No Obstructions  Man-Made
- Natural

**Description:**

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

*bank flat, may have drainage feature but did not see any*

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

AECOM

July 27/11



C46

Other General Comments Regarding the Study Area:

- appears to be fish habitat ~~and some structure~~  
 ↳ fish observed (minnow)

Photo log

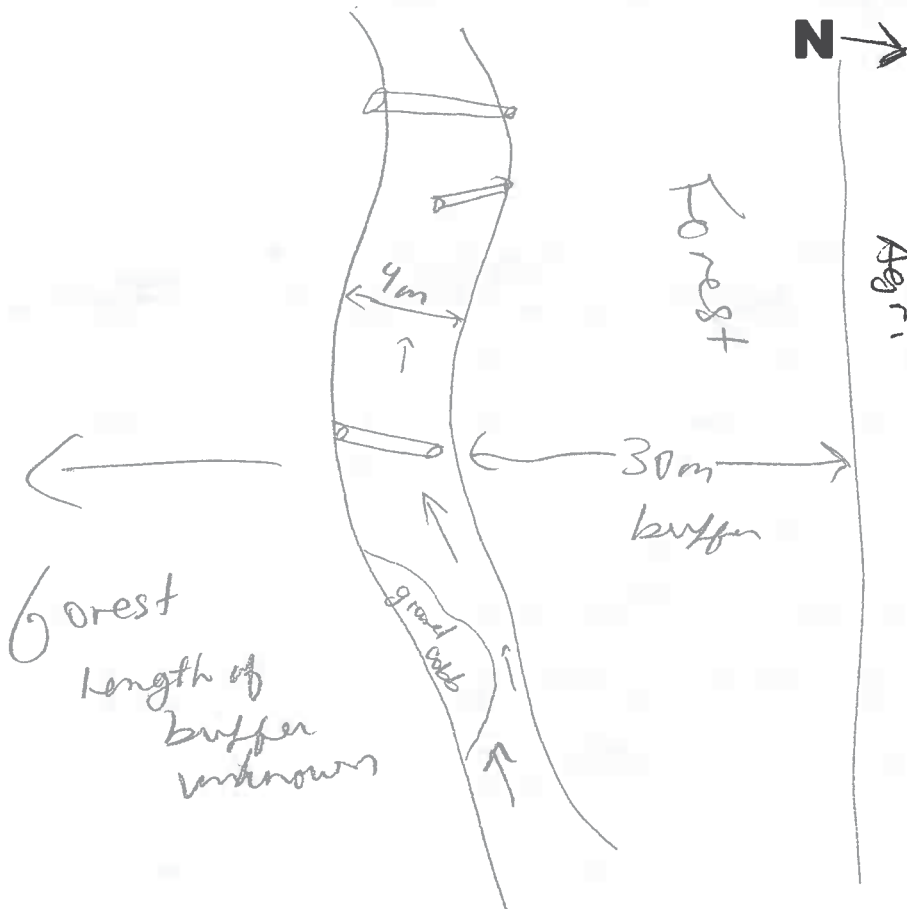
Picture #	Description	Picture #	Description
1	East end		
2	"		
3	-river narrows then opens again - pools on either end		
4	West end <del>drift</del>		
5	west end <del>drift</del>		

C46

Watercourse Sketch

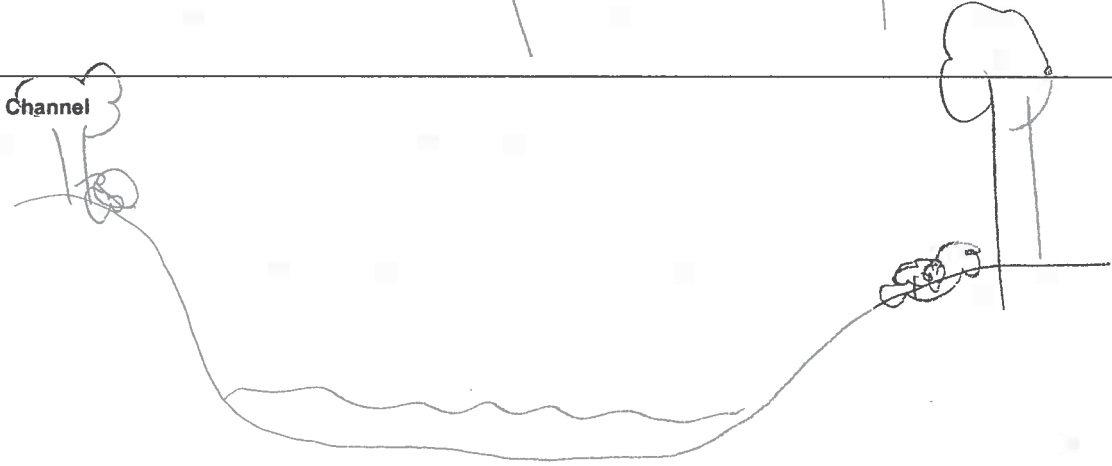
Study Area: Jericho Goshen Bluewater Land Parcel# 1658

Turbine # ~~47577~~ C46



LEGEND	
10d depth (cm)	→
6w width	⇌
Riffle	⇌
Run/Glide	⇌
Pool	○
Island/Bar	■
Fine Substrate	·
Gravel Substrate	##
Cobble/Boulder	oOoO
Debris	***
Cattail	CT
Submerg/Float Veg	SV/FV
Emergent	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxx
Upstream Log/Tree	⌢
Dam/Weir/	^^^
Riparian Tree	⊗
Seep/Spring	⊢
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	⌊

Horizontal View of Channel





<b>AECOM</b>		Page 1 of 4	
Field Crew: <u>CB, TS</u>			
<b>General Information</b>			
Study Area: Jericho <u>Goshen</u> Bluewater	Land Parcel# <u>1658</u>	Turbine # <u>GAS - C46</u>	
Date: <u>Sep 28/11</u>	Start time: <u>9:30</u>	End Time: <u>10:15</u>	
Weather Conditions: <u>Cloudy, 11°C</u>		Field Notes By: <u>CB</u>	
<b>Site Location</b>			
<u>West of Cedar Swamp, South of Kirkton</u>			
<b>UTM Co-ordinates</b>			
Easting: <u>0444865</u>	Northing: <u>4793927</u>	Description: <u>~50m west from start</u>	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
<b>Surrounding Landuse/Pollution Sources</b>		<b>Type of Watercourse</b>	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)			
<u>- dredged drainage ditch dividing properties</u>			
<u>- tile drain inputs noted</u>			
<b>In-Situ Water Quality</b>		<b>Ground Water Indicators</b>	
WT (°C): <u>9</u>	AT (°C): <u>15</u>	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: <u>/</u>	Cond ( s/cm): <u>/</u>	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Water Clarity: Clear <input type="checkbox"/>	Turbid <input checked="" type="checkbox"/>	Bubbling <input type="checkbox"/>	Other <input type="checkbox"/>
Notes: <u>w/g meter not available</u>			
<b>Stream Morphology</b>			
Site Length (m): <u>~100 m</u>		Bank Stability:	
<b>Channel Dimensions</b>		Stable	Slightly unstable
Mean Wetted Width (m): <u>1.3</u>	Mean Bankfull Width (m): <u>2</u>	Moderately unstable	Unstable
Mean Wetted Depth (m): <u>0.4</u>	Mean Bankfull Depth (m): <u>0.9</u>	Left Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>
		Right Bank <input checked="" type="checkbox"/>	<input type="checkbox"/>
Flow Description: <u>fast flowing - esp after tile drain inputs</u> <u>3 sec/2m</u>			
Notes: <u>banks well veg.</u>			
Notes: <u>- deeply channelized, not entirely veg.</u>			

**AECOM**

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

*si, cl, gr, sand > coll bo*

Notes:

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
		100	

**Habitat**

Instream Cover (%) *25*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other: <del>_____</del>
	10		70	20		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*emergent, grasses,*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

Trees \_\_\_\_\_ Shrubs 30  
 Grasses 50 Herbaceous 20  
 Man-made structures \_\_\_\_\_  
 Other \_\_\_\_\_

**Notes:**

*not many areas overgrown leaving open water*

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

*-slightly rolling but no gullies observed*

**Terrestrial features Present**

Yes

No

**Terrestrial Recon Form Filled out**

Yes

No

C46

AECOM

Sep 28/11

~~C46~~

Other General Comments Regarding the Study Area:

- evidence of beaver in area + dam observed at mid-point

Photo log			
Picture #	Description	Picture #	Description
129	overview of stream		
130	stream run		
131	" "		
132	" "		
133	thick veg. in stream channel		
134	stream channel		
135	" "		
136	" "		
137	thick veg. cover in stream channel		
138	" "		
139	Beaver Dam		

C46

AECOM

Watercourse Sketch

Study Area:

Jericho

Goshen

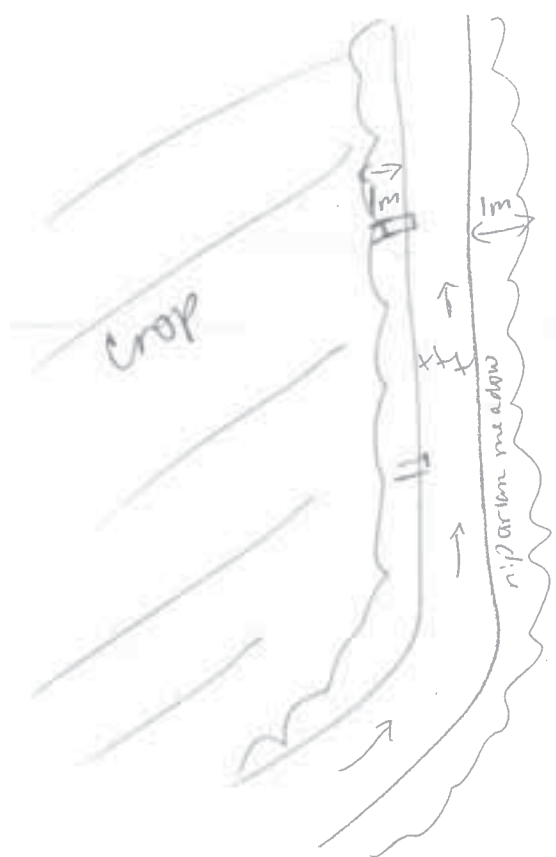
Bluewater Land Parcel#

1658

Turbine #

GOS-046

N →

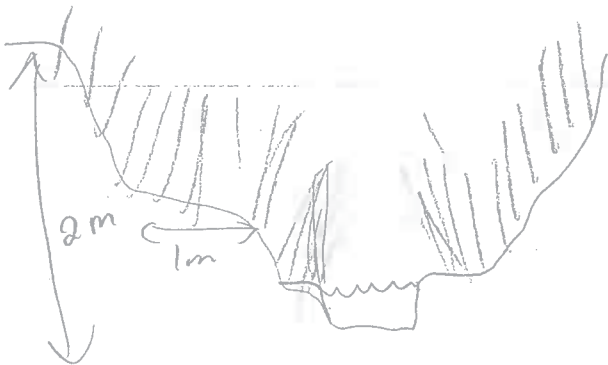


LEGEND	
10d depth (cm)	→
6w width	—
Riffle	○
Run/Glide	■
Pool	o
island/Bar	###
Fine Substrate	o o o o
Gravel Substrate	•••
Cobble/Boulder	CT
Debris	SV/FV
Cattail	EV
Submerg/Float Veg	W
Emergent	Fe
Watercress	
Iron Staining	xxx
Eroded Bank	□
Riprap / Other Stabilization	□
Instream Log/Tree	▲▲▲
Dam/Weir	⊗
Riparian Tree	↳
Seep/Spring	---
Undercut Bank	—
Barrier to Fish Movement	-S-
Seasonal Barrier	-x-x-
Fence line	┌
Culvert	

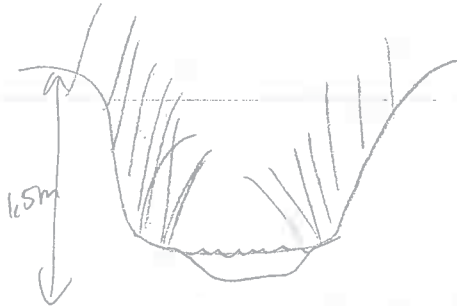
tile input  
xxx beaver dam

Horizontal View of Channel

West end



East end



\*looking down/S

Water Bodies Assessment Field Collection Form

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1605/1619/1606 Site ID: D05 C48

Date: May 11/12 Start time: 8:00 End Time: 10:17

Weather Conditions: Sunny, 90C Field Crew: C. Boras, J. Epp  
Field Notes By: C. Boras

Site Location

Crediton Rd and Corbett Ln Roadside Survey for GSH 1606

UTM Co-ordinates (continue on page 3 if necessary)

Easting: 443142 Northing: 4792186 Description: D05 start  
Easting: 444098 Northing: 4792502 Description: D05 end  
Easting: 443135 Northing: 4792437 Description: D05 GSH1606

Easting: Northing: Description:

Surrounding Landuse

- Residential
- Agriculture
- Forest
- Other
- Meadow
- Wetland
- Livestock

Description: crop fields, wheat planted, old corn field

Type of Watercourse

- Intermittent
- Permanent
- Ephemeral
- Channelized
- Natural Channel

Description: North branch west of Corbett is naturally formed but everything roadside is just channelized

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

tile drain inputs - flowing -> providing flow to stream

Is any portion of the water body underground or not as mapped? Y/N

If Yes describe:

GPS Coordinate: Easting - Northing - Description -

Description of Land Topography Surrounding Water Body (rolling hills, sloping towards water body)

flat

In-Situ Water Quality

WT (°C): 9.5 AT (°C): 12.0C  
pH: / Cond ( s/cm): /  
D.O. (mg/L) /  
Water Clarity: Clear  Turbid

Water Colour: n/a

Notes: w/g meter not working

Ground Water and Seepage Indicators

- Watercress
- Iron Staining
- Bubbling
- Other
- Bank Seepage
- None
- pebble well

Details:

found in first stretch (north branch) only - not roadside

**Water Bodies Assessment Field Collection Form**

Stream Morphology							
Site Length (m): 700m				Bank Stability:			
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): 0.60	Mean Wetted Depth (m): 0.20			Left Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Bankfull Width (m): 1	Mean Bankfull Depth (m): 0.5			Right Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Top of Bank Width (m): 3	Mean Top of Bank Depth (m): 2.5	Description: Slumping + erosion mostly occurring in North branch. Little slumping roadside					
Flow Description: (high or low flow conditions, stagnant, etc) moderate flow North Branch, slow to stagnant in roadside							
Habitat							
Substrate (<=>)				Morphological Structure (%)			
Bo - Boulder	Description			Pool	Riffle	Ruin	Flat
Co - Cobble	North Branch: clay packed bottom w/ gr, co, sa, si, dt			20	5	15	0
Gr - Gravel	Roadside: dt, mk > si, cl > gr, sa						65
Sa - Sand							95
Si - Silt				Notes: slight meandering in North branch No meandering roadside			
Cl - Clay							
MK - Muck							
DT - Detritus							
Instream Cover (%) NB = 80 R = 95							
Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks	
20		10	20	30		Average Depth: 0.10m	
40		2	3	50		(% Cover) 5 North branch	
Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%							
*Aquatic Vegetation Species Present (algae, submergent, emergent etc.) NB = algae (attached + filamentous) > grasses < LT R = grasses > algae > LT / phrag							
Canopy Cover (% closed cover):				Types of Cover (% cover)			
100-90% <input type="checkbox"/>	30-1% <input checked="" type="checkbox"/>			Trees 10	Shrubs 5	Man-made structures	
90-60% <input type="checkbox"/>	0% <input type="checkbox"/>			Grasses 80	Herbaceous 5	Other	
60-30% <input type="checkbox"/>							
Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%							
Notes: (vegetation species, types of structures) Spruces, elm, red cedar, black locust, hemlock							
Riparian Vegetation							
Width of riparian vegetation: NB > 1.5m - grasses R > South < 0.5m grasses West 1.5m - grasses							
Description of vegetation community surrounding 30 m from watercourse: Agr. Crop fields							
Obstructions to Fish Passage							
No Obstructions <input checked="" type="checkbox"/>	Man-Made <input type="checkbox"/>	Natural <input type="checkbox"/>	Low Flow Barrier <input type="checkbox"/>				
Description of Barrier:							
Height of Barrier (m)				GPS Coordinates:			

Water Bodies Assessment Field Collection Form

AECOM

Date: May 11/12

Land Parcel/Site ID: <sup>DOS</sup> 1605/1620/1606 <sup>C48</sup> Page 3 of 4

Other General Comments Regarding the Study Area:

the beginning section of study area (North Branch) was slightly meandering and has ripples and pools. there was slumping + erosion occurring throughout. instream cover high (mix of cobbles + algae) but canopy cover low. As we moved up to the roadside section the watercourse was straight and had more grass, algae and debris in the channel. Substrate more stony + debris, canopy cover low.

<sup>DOS</sup> GSA 1606 - Roadside → Channel comes down through forest runs along roadside 10m

Additional UTM Coordinates: then heads back into forest. Channel has water (could not see flow) and is ~0.5m width. It is cattail choked, and grasses growing throughout. Depth looks like shallow water < 20cm

Photo log

Picture #	Description	Picture #	Description
1a	Sheet		
1b	Convergence overview	35-42	Road adjacent
2	Looking east	43	Bend towards forest
3	Looking west		
4	East channel overview		
5	West channel overview		
<del>6-7</del>	North channel overview		
8-10	↓		
11-14	North channel → road overview		
15-21	Roadside - west of Corbett		
22-32	Roadside - East of Corbett		
33	↓ - bend north		
34	after bend north		

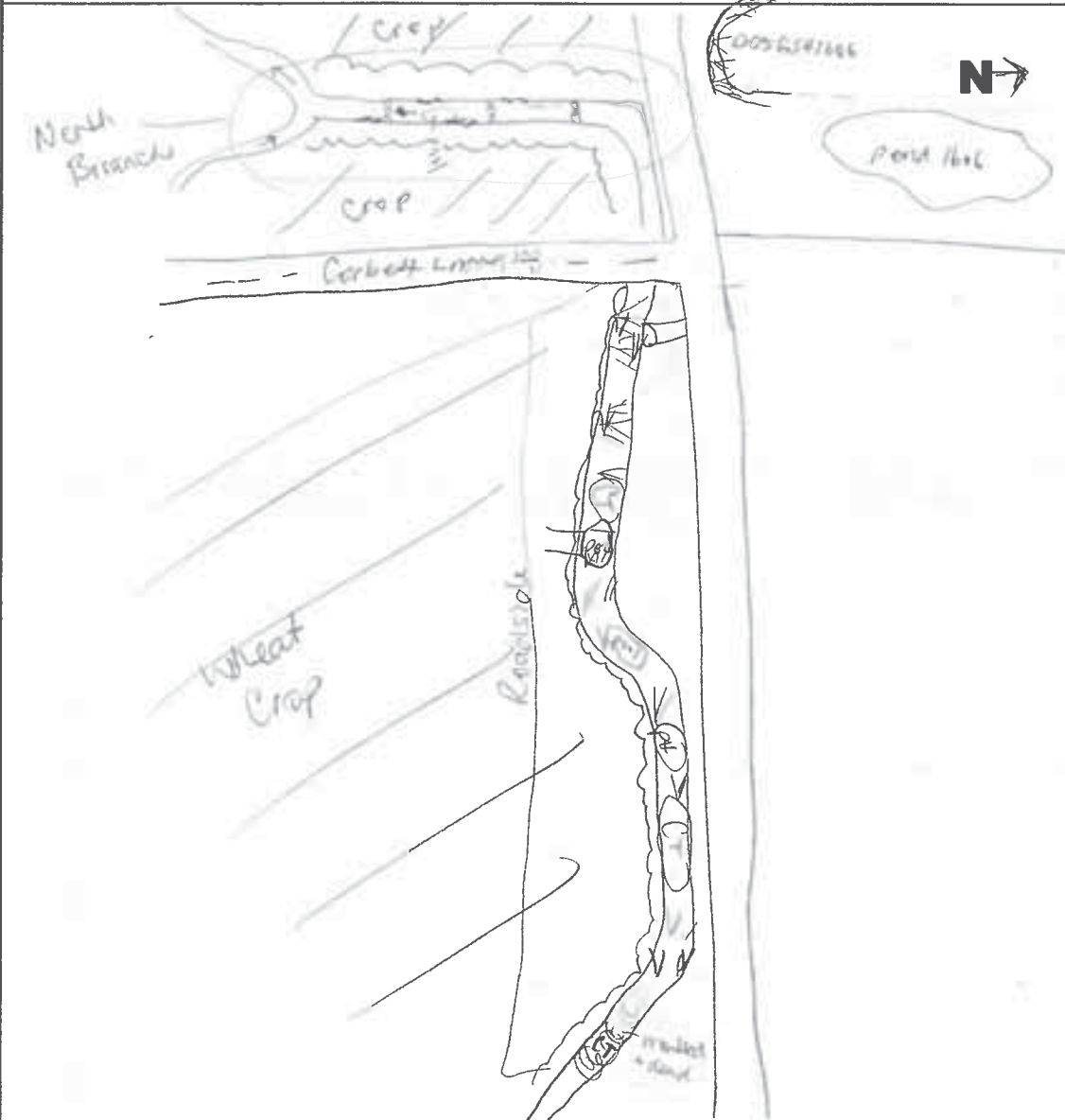
Water Bodies Assessment Field Collection Form

AECOM

Page 4 of 4

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 11605/11619/11626 Site ID D05 C48



LEGEND	
10d	depth (cm)
0w	width
→	Riffle
⇨	Run/Glide
○	Pool
■	Island/Bar
■	Fine Substrate
###	Gravel Substrate
oOooO	Cobble/Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent Vegetation
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
☐	Instream Log/Tree
AAA	Dam/Weir Obstruction
⊙	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—S—	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
⌊	Culvert

Horizontal View of Channel



Initial QA/QC By: L Bentley

Date: May 16, 2012

Technical QA/QC By: Slutken

Date: May 30/12



**AECOM**

Field Crew: SA, BGM

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1619 Turbine # ~~18~~ C48  
 Date: July 14/2011 Start time: 11:00 End Time: 11:00

Weather Conditions: sunny ~28°C  
very windy Field Notes By: SA

**Site Location**

South side of Crediton Line

**UTM Co-ordinates**

Easting: 443779 Northing: 4792309 Description: Goshen 18  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

roadside ditch @ checked channel @ falls @ roads

**In-Situ Water Quality**

WT (°C): AT (°C):  
 pH: Cond ( s/cm):  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m): Bank Stability:  

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 Channel Dimensions:  
 Mean Wetted Width (m): Mean Bankfull Width (m):  
 Mean Wetted Depth (m): Mean Bankfull Depth (m):

Flow Description:

dry roadside ditch

Notes:

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

Sa = Si

**Morphological Structure (%)**

Pool	Riffle	Run	Flat

**Notes:**

none

**Habitat**

**Instream Cover (%)**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
				95%		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

Cattails

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees \_\_\_\_\_
- Grasses \_\_\_\_\_
- Shurbs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

**Notes:**

Cattails

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

**Description:**

none observed  
low flow

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

flow into roadside  
ditch

**Terrestrial features Present**

Yes No

**Terrestrial Recon Form Filled out**

Yes No

Other General Comments Regarding the Study Area:

Cattail choked roadside ditch

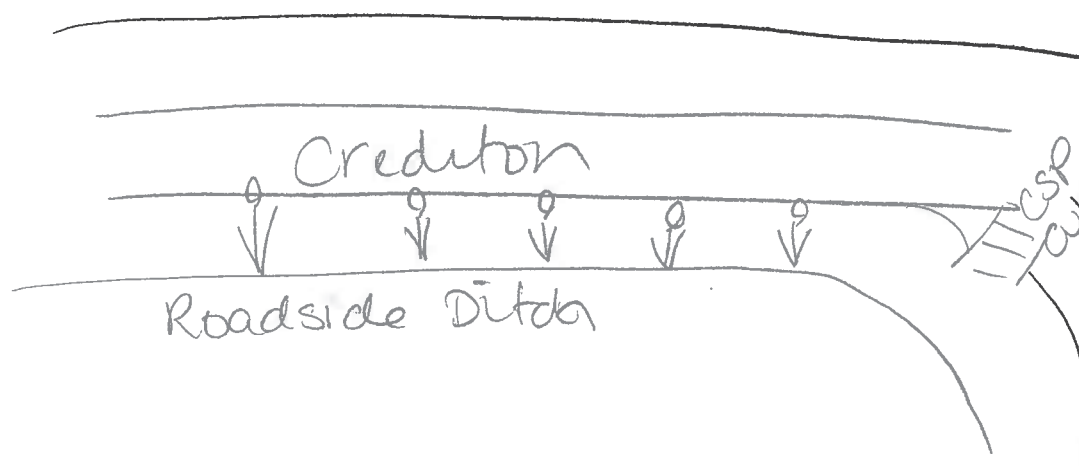
Photolog			
Picture #	Description	Picture #	Description
26	facing v/s		
27	View of dry channel		
28	facing d/s		
29	overview		
30	facing v/s		
31	facing d/s		
32	View from culvert dry channel		

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1619 Turbine # ~~57E18~~ (C48)



LEGEND	
10d depth (cm)	
θw width	
Riffle	→
Run/Glide	⇨
Pool	○
Island/Bar	■
Fine Substrate	·
Gravel Substrate	###
Cobble/Boulder	oOooO
Debris	***
Cattail	CT
Submerg/Float Veg	SV/FV
Emergent	EV
Watercress	W
Iron Staining	F
Eroded Bank	
Riprap / Other Stabilization	xxx
Instream Log/Tree	☐
Dam/Weir	^^^
Riparian Tree	⊗
Seep/Spring	┆▶
Undercut Bank	—
Barrier to Fish Movement	- - -
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	┌



Horizontal View of Channel

C48

<b>AECOM</b>		Page 1 of 4	
Field Crew: CB, TS			
<b>General Information</b>			
Study Area: Jericho	Goshe	Bluewater	Land Parcel# 65H1640
Date: Sep 28/11	Start time: 12:45	Turbine # <del>049</del> and <del>057</del>	
Weather Conditions: Sunny 17°C		Field Notes By: CB	
<b>Site Location</b>			
Just south of Crediton Rd btwn Corbett & Shipta * watercourse buried where we had property access → observations made of the watercourse from property edge.			
<b>UTM Co-ordinates</b>			
Easting: 0444329	Northing: 4792446	Description: @ stream @ forest edge	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
<b>Surrounding Landuse/Pollution Sources</b>		<b>Type of Watercourse</b>	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input type="checkbox"/>
Forest <input checked="" type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow) - could not investigate			
<b>In-Situ Water Quality</b>		<b>Ground Water Indicators</b>	
WT (°C):	AT (°C):	Watercress <input type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: /	Cond ( s/cm): /	Iron Staining <input type="checkbox"/>	None <input checked="" type="checkbox"/>
Water Clarity: Clear <input checked="" type="checkbox"/>	Turbid <input checked="" type="checkbox"/>	Bubbling <input type="checkbox"/>	Other <input type="checkbox"/>
Notes: sl. turbid.			
<b>Stream Morphology</b>			
Site Length (m): 20m		Bank Stability:	
<b>Channel Dimensions</b>		Stable	Slightly unstable
Moderately unstable	Unstable		
Mean Wetted Width (m): 2m	Mean Bankfull Width (m): 4	Left Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>
Mean Wetted Depth (m): 0.2	Mean Bankfull Depth (m): 0.8	Right Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>
Flow Description:			
Notes:			

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

co > Si, U. sand

Notes:

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

**Habitat**

Instream Cover (%) 40

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	10	10	80			

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 100
- Grasses \_\_\_\_\_
- Shrubs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description: perched culvert

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

✓ flat

**Terrestrial features Present**

Yes

No → not on accessible property though

**Terrestrial Recon Form Filled out**

Yes

No

Sep 28/11

C48

AECOM

Gas C49, ~~C50~~

Page 3 of 4

Other General Comments Regarding the Study Area:

- watercourse buried under corn crop is ~~substantiated~~ <sup>aquatic survey</sup>  
 was not completed for site to access  
 ↳ walked into crop ~30m and did not see stream  
 resurface.

Photo log

Picture #	Description	Picture #	Description
165	overall view of Feature		
166	Tile drainage		
167	Perched culvert		
168	Downstream View		
170	looking up to disappearing stream		
171	" "		
172	" "		

C49

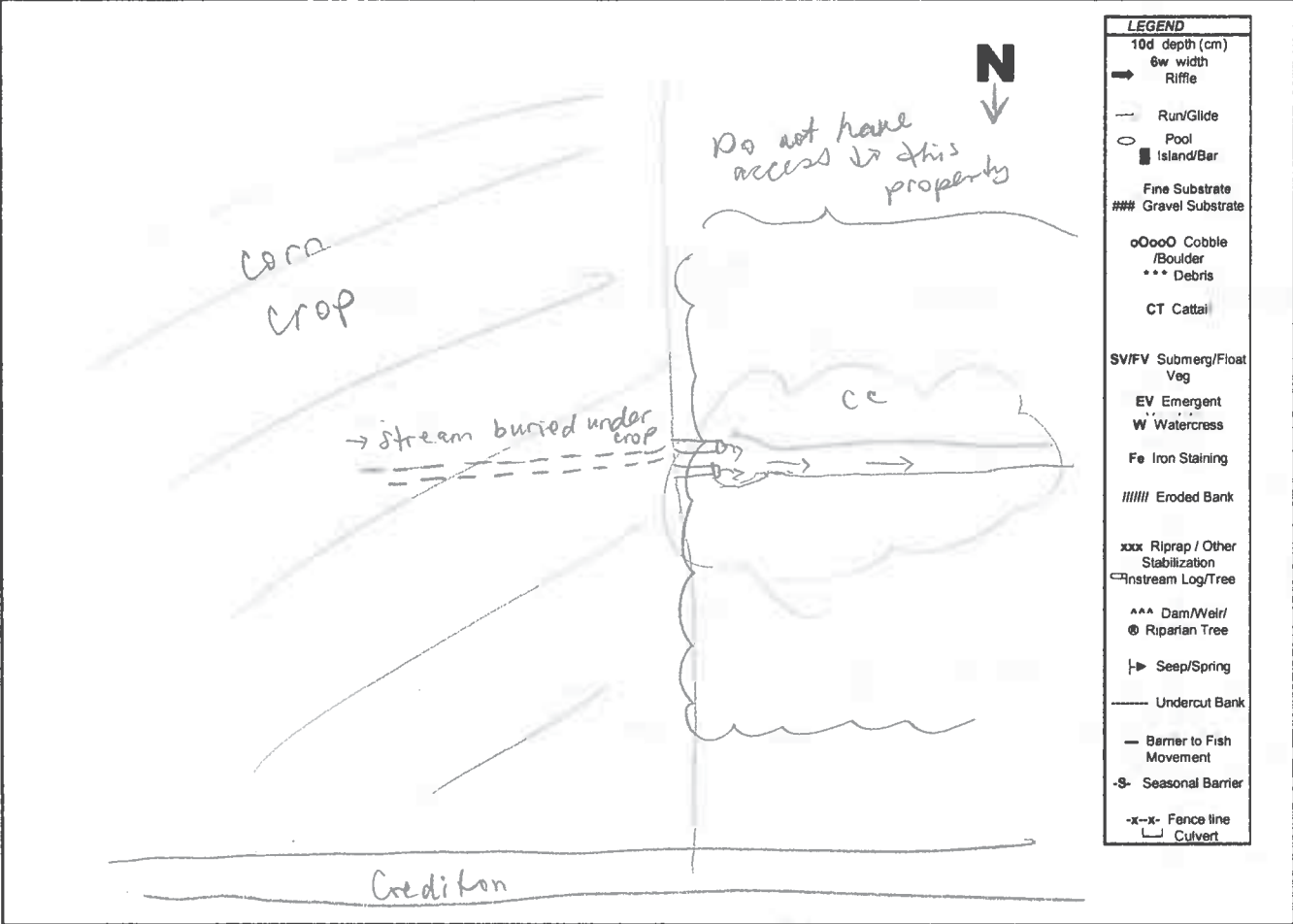
C48

AECOM

Page 4 of 4

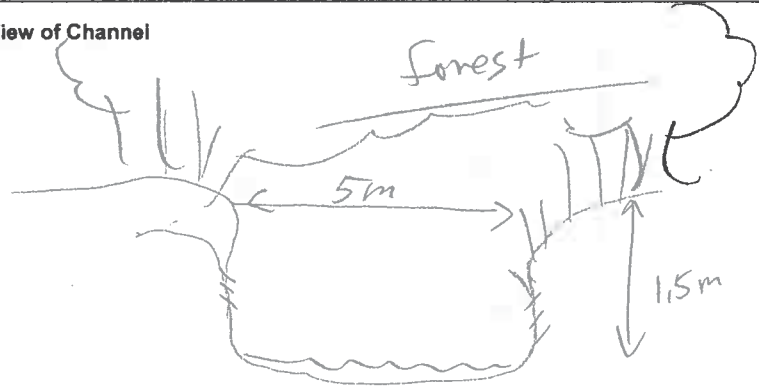
Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1640 Turbine # ~~199~~ ~~50~~



LEGEND	
10d depth (cm)	6w width
→	Riffle
—	Run/Glide
○	Pool
■	Island/Bar
•••	Fine Substrate
###	Gravel Substrate
oOoO	Cobble/Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
☐	Instream Log/Tree
^^^	Dam/Weir
⊗	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
☐	Culvert

Horizontal View of Channel





Water Bodies Assessment Field Collection Form

C52

AECOM

General Information

Study Area: Jericho Goshen Bluewater Land Parcel# 1744 Site ID: D36 D42  
 Date: Apr 26/12 Start time: 10:25 End Time: 10:45  
 Weather Conditions: overcast, ~10°C Field Crew: S. Atton, S. Lohnes  
 Field Notes By: SA

Site Location

west blackbush line - back of farm field along north property line  
ASA on GSH 1745

UTM Grid Coordinates (continue on page 2 if necessary)

Easting: 0446804 Northing: 4793573 Description: Current crossing  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

Surrounding Landuses

Type of Watercourse

Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	_____ <input type="checkbox"/>
Other <input type="checkbox"/>			

Description: crops on either side Description: straightened channel, starting to naturalize

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

Is any portion of the water body underground or not as mapped? Y N  
 If Yes describe:

GPS Coordinate: Easting - \_\_\_\_\_ Northing - \_\_\_\_\_ Description - \_\_\_\_\_

Description of Land Topography Surrounding Water Body (rolling hills, sloping towards water body)

relatively flat

In-Situ Water Quality

Ground Water and Seepage Indicators

WT (°C): 9.28 AT (°C): 10°C  
 pH: 8.12 Cond (µs/cm): 598  
 D.O. (mg/L): 12.30  
 Water Clarity: Clear  Turbid

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  \_\_\_\_\_   
 Other

Water Colour: none

Details:

clumps of watercress

Notes: farmer drives through creek may cause turbidity issues, potential for equipment leaks

Water Bodies Assessment Field Collection Form

**Stream Morphology**

Site Length (m): 100

**Channel Dimensions**

Mean Wetted Width (m): 1.5	Mean Wetted Depth (m): 0.21
Mean Bankfull Width (m): 3.0	Mean Bankfull Depth (m): 1.0
Mean Top of Bank Width (m): 6	Mean Top of Bank Depth (m): 2.5

**Bank Stability:**

	Stable	Slightly unstable	Moderately unstable	Unstable
Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Right Bank	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Description: RB very steep, signs of erosion

Flow Description: (high or low flow conditions, stagnant, etc)  
low flow, low gradient

**Habitat**

Substrate (<=>): Si > Gr > Co  
Clay Bottom

Morphological Structure (%)			
Pool	Riffle	Run	Flat
10	10	60	20

Notes:

**Instream Cover (%)**

Other	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	None	Undercut Banks
	20		5	30		Average Depth: 0.15 (% Cover) 10

Note: Low = 0 - 30%; Moderate = 30 - 75%; High = 75 - 100%

\*Aquatic Vegetation Species Present (algae, submergent, emergent etc.)  
overhanging vegetation

**Canopy Cover (% closed cover):**

100-90%	<input type="checkbox"/>	30-1%	<input type="checkbox"/>
90-60%	<input type="checkbox"/>	0%	<input type="checkbox"/>
60-30%	<input checked="" type="checkbox"/>		

**Types of Cover (% cover)**

Trees \_\_\_\_\_ Shrubs 30 Man-made structures \_\_\_\_\_  
Grasses 20 Herbaceous \_\_\_\_\_ Other \_\_\_\_\_

Note: Low = 0 - 30%; Moderate = 30 - 60%; High = 60 - 100%

Notes: (vegetation species, types of structures)  
willow and alder, grasses attached algae along bottom and rocks

**Riparian Vegetation**

Width of riparian vegetation: 5m RB 75m LB

Description of vegetation community surrounding 30 m from watercourse:  
cultural meadow

**Obstructions to Fish Passage**

No Obstructions  Man-Made  Natural  Low Flow Barrier

Description of Barrier: concrete has been dumped into stream to create crossing

Height of Barrier (m): 0.20m ults + dls  
1 cm water depth

GPS Coordinates: same coordinates as crossing

C59

AECOM

Date: Apr 26 / 2012 Land Parcel/Site ID: ~~D42~~ ~~D26~~ 1744 Page 3 of 4

Other General Comments Regarding the Study Area:

- straightened channel starting to naturalize
- overhanging vegetation
- undercutting near bank full
- completed ASH on adjacent property

Additional UTM Coordinates:

Photo Log			
Picture #	Description	Picture #	Description
115	start		
116	crossing		
117	perch d/s		
118	u/s from crossing		
119	d/s from crossing		
120	u/s		
121	Substrates		

Water Bodies Assessment Field Collection Form

Study Area:

Jericho

Goshen

Bluewater

Land Parcel#

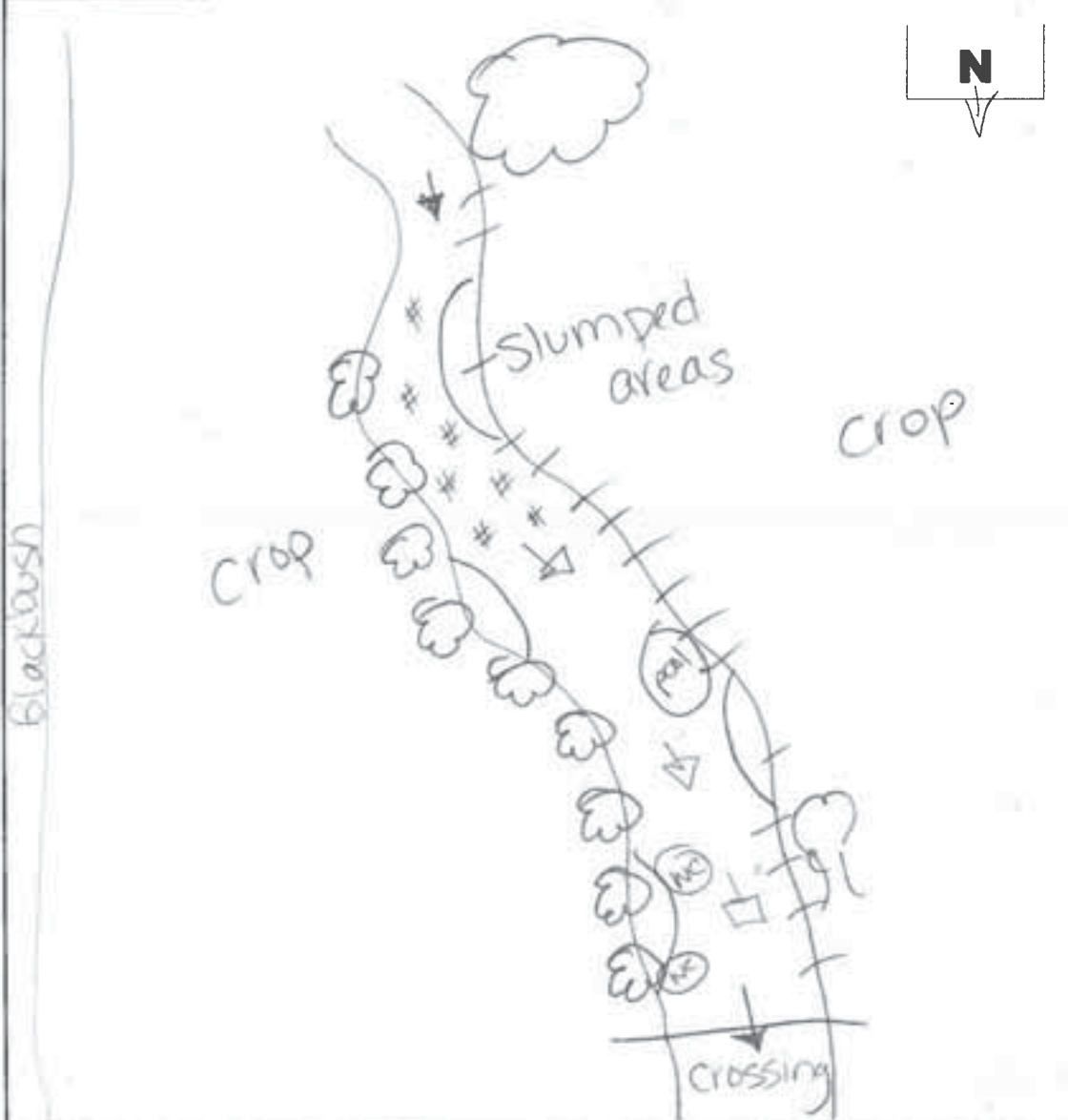
1744

Site ID

236

(C52)

042



LEGEND	
10d depth (cm)	→
6w width	⇌
Riffle	○
Run/Glide	□
Pool	○
Island/Bar	■
Fine Substrate	■
Gravel Substrate	###
Cobble/Boulder	oOooO
Debris	***
Cattail	CT
Submerg/Float Veg	SV/FV
Emergent Vegetation	EV
Watercress	W
Iron Staining	Fe
Eroded Bank	
Riprap / Other Stabilization	xxxx
Instream Log/Tree	⊃
Dam/Weir / Obstruction	AAA
Riparian Tree	⊙
Seep/Spring	↳
Undercut Bank	—
Barrier to Fish Movement	—
Seasonal Barrier	-S-
Fence line	-x-x-
Culvert	⌊

Horizontal View of Channel



Initial QA/QC By: L. Bentley

Date: May 2, 2012

Technical QA/QC By: N.L.

Date: 8<sup>th</sup> May 2012

**AECOM**

Field Crew: *CB, TS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1743 Turbine # C002 C52  
 Date: Dec 16/11 Start time: 11:55 End Time: 12:35

Weather Conditions: Cloudy 10C Field Notes By: CB

**Site Location**

Blackbush Ln, north of Crediton \* Roadside Survey  
West ~~side~~ side

**UTM Co-ordinates**

Easting: 9447330 Northing: 4793314 Description: Culvert  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

*↳ appears to be naturalizing*

Other: \_\_\_\_\_  
 Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

**In-Situ Water Quality**

**Ground Water Indicators**

WT (°C): \_\_\_\_\_ AT (°C): \_\_\_\_\_  
 pH: \_\_\_\_\_ Cond (µs/cm): \_\_\_\_\_  
 Water Clarity: Clear  Turbid

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: wq meter not working

**Stream Morphology**

Site Length (m): 50m Bank Stability:

Channel Dimensions		Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <u>2.0</u>	Mean Bankfull Width (m): <u>3.3</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m): <u>n/a</u>	Mean Bankfull Depth (m): <u>n/a</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Left Bank Right Bank

Flow Description: mod flow, mod levels  
 Notes: -> large pool at culvert area little visible flow but downstream flowing

**AECOM**

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

Description

n/a

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
	15	85	

Notes:

slight meander

**Habitat**

**Instream Cover (%)**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

→ some cattails observed but no access + water too turbid to see through

**Canopy Cover (% closed cover):**

- 100-90%
- 90-80%
- 80-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 50
- Grasses 50
- Shrubs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

flat

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

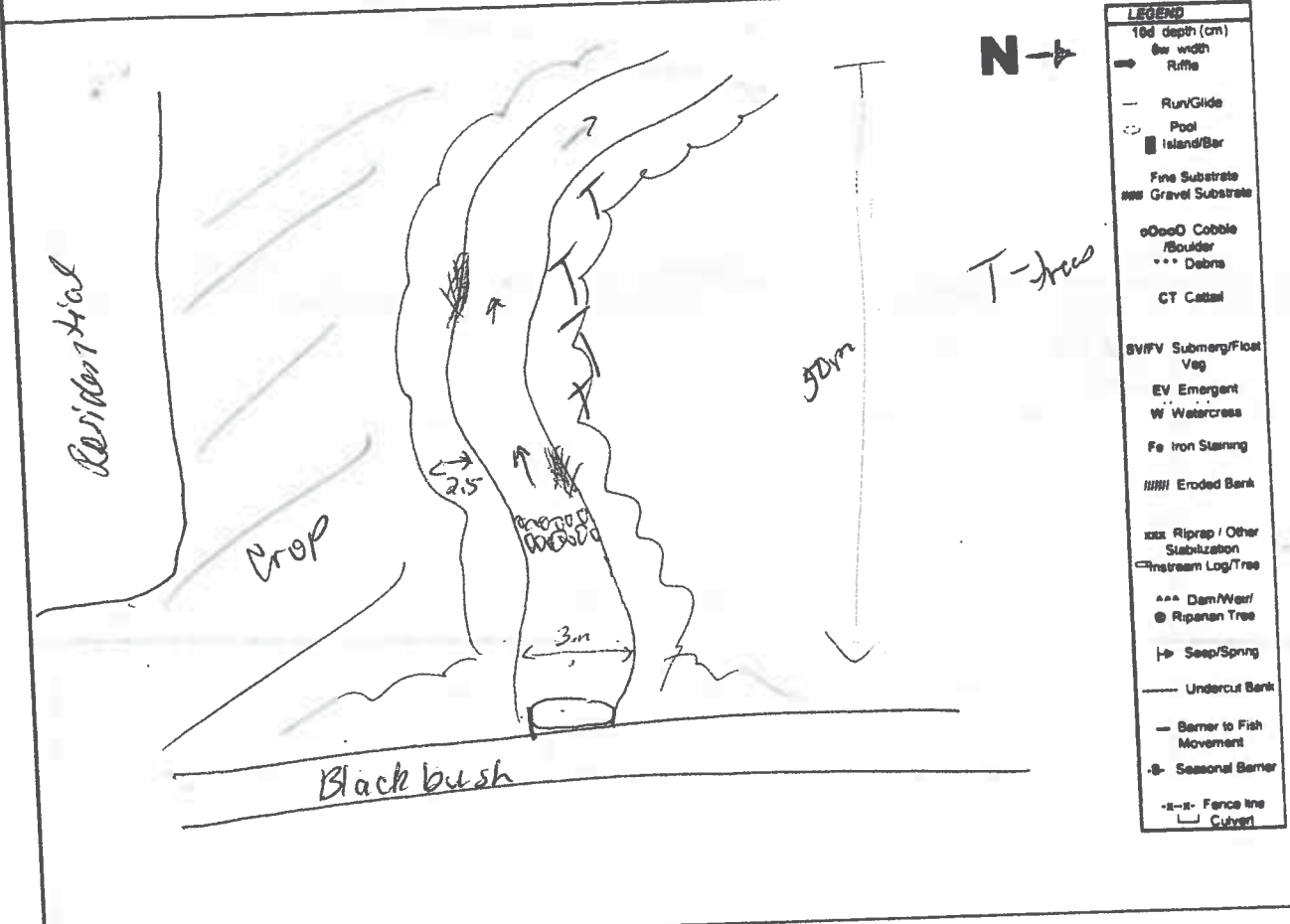
C52



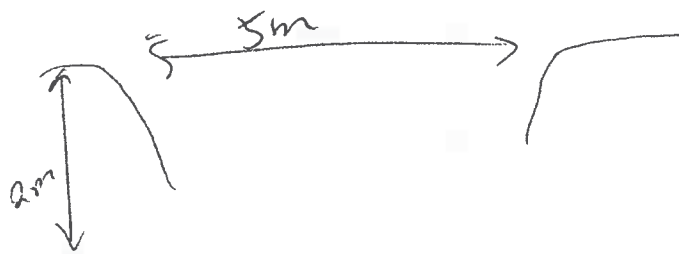
AECOM

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1743 Turbine # E2027 C52



Horizontal View of Channel





<b>AECOM</b>		Page 1 of 4	
		Field Crew: <u>CB, TS</u>	
<b>General Information</b>			
Study Area: <u>Jericho</u> <u>Gosher</u> <u>Bluewater</u>	Land Parcel# <u>1078</u>	Turbine # <u>GOS-C52</u>	
Date: <u>Sep 28 / 11</u>	Start time: <u>11:10</u>	End Time: <u>11:50</u>	
Weather Conditions: <u>Sunny, 17°C</u>		Field Notes By: <u>CB</u>	
<b>Site Location</b>			
<u>On Blackbush Ln, north of Crediton</u> → only access to East side of Road *			
<b>UTM Co-ordinates</b>			
Easting: <u>0447339</u>	Northing: <u>4793322</u>	Description: <u>@ road culvert</u>	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
Easting:	Northing:	Description:	
<b>Surrounding Landuse/Pollution Sources</b>		<b>Type of Watercourse</b>	
Residential <input type="checkbox"/>	Meadow <input type="checkbox"/>	Intermittent <input type="checkbox"/>	Channelized <input checked="" type="checkbox"/>
Agriculture <input checked="" type="checkbox"/>	Wetland <input type="checkbox"/>	Permanent <input checked="" type="checkbox"/>	Natural Channel <input checked="" type="checkbox"/>
Forest <input type="checkbox"/>	Livestock <input type="checkbox"/>	Ephemeral <input type="checkbox"/>	
Other:			
Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow) <u>- gullies by bridge</u>			
<b>In-Situ Water Quality</b>		<b>Ground Water Indicators</b>	
WT (°C): <u>11</u>	AT (°C): <u>17</u>	Watercress <input checked="" type="checkbox"/>	Bank Seepage <input type="checkbox"/>
pH: <u>/</u>	Cond ( s/cm): <u>/</u>	Iron Staining <input type="checkbox"/>	None <input type="checkbox"/>
Water Clarity: <u>Clear</u> <input type="checkbox"/>	<u>Turbid</u> <input checked="" type="checkbox"/>	Bubbling <input type="checkbox"/>	Other <input type="checkbox"/>
Notes: <u>Could not see into</u>		<u>found in clearing throughout</u>	
<b>Stream Morphology</b>			
Site Length (m): <u>~100m</u>		Bank Stability:	
<b>Channel Dimensions</b>		Stable	Slightly unstable
Mean Wetted Width (m): <u>3</u>	Mean Bankfull Width (m): <u>5</u>	Moderately unstable	Unstable
Mean Wetted Depth (m): <u>0.45</u>	Mean Bankfull Depth (m): <u>1m</u>	Left Bank <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Right Bank <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Flow Description: <u>minor erosion + slumping</u>			
Notes: <u>moderate flow</u>			

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

si, sa } gr } } co, bo

Notes:

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
		100	

Instream Cover (%) 35

**Habitat**

→ difficult to see into stream to observe substrate

↓  
may be an underestimate

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
	50			50		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

grasses.

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

Trees 30 Shrubs 40 Man-made structures \_\_\_\_\_  
 Grasses 10 Herbaceous 20 Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions  Man-Made
- Natural

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

-flat

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

AECOM

Sep 28/11

GOS (C52)

Page 3 of 4

Other General Comments Regarding the Study Area:

- Water v. turbid - difficult to survey aquatic community
- West side of watercourse appears to be the same as the east side. More trees, ~~but same channel characteristics~~ and slightly more confined channel (from what was visible from road)

~~scribble~~



Photo log

Picture #	Description	Picture #	Description
153	Stream riparian looking west	164	Stream channel
154	Stream riparian looking east		
155	Recon. site		
156	Stream Pool		
157	looking east		
158	view of Box culvert		
159	looking downstream		
160	stream channel		
161	water crest		
162	" "		
163	upstream		

AECOM

Watercourse Sketch

Study Area:

Jericho

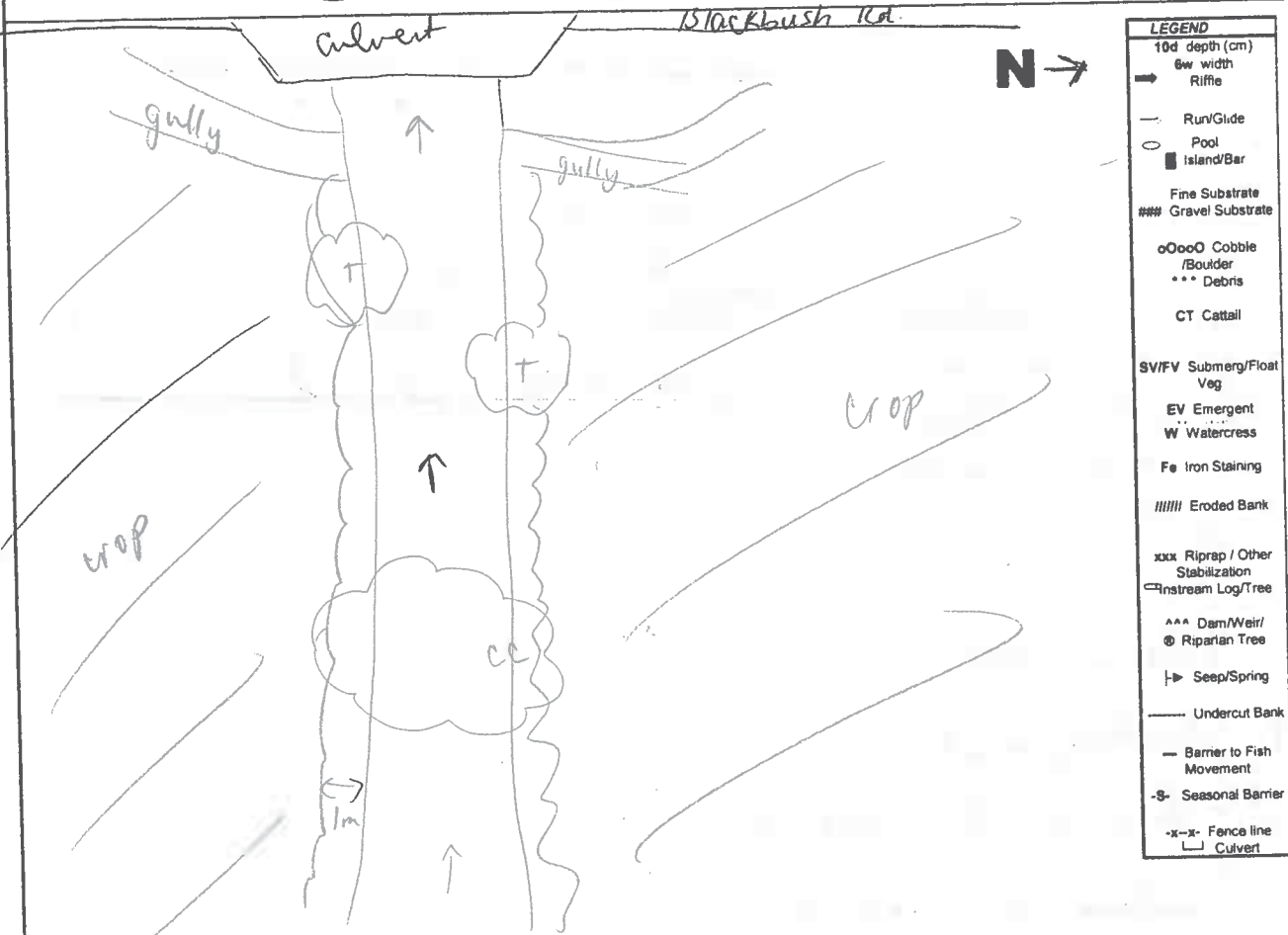
Goshen

Bluewater Land Parcel#

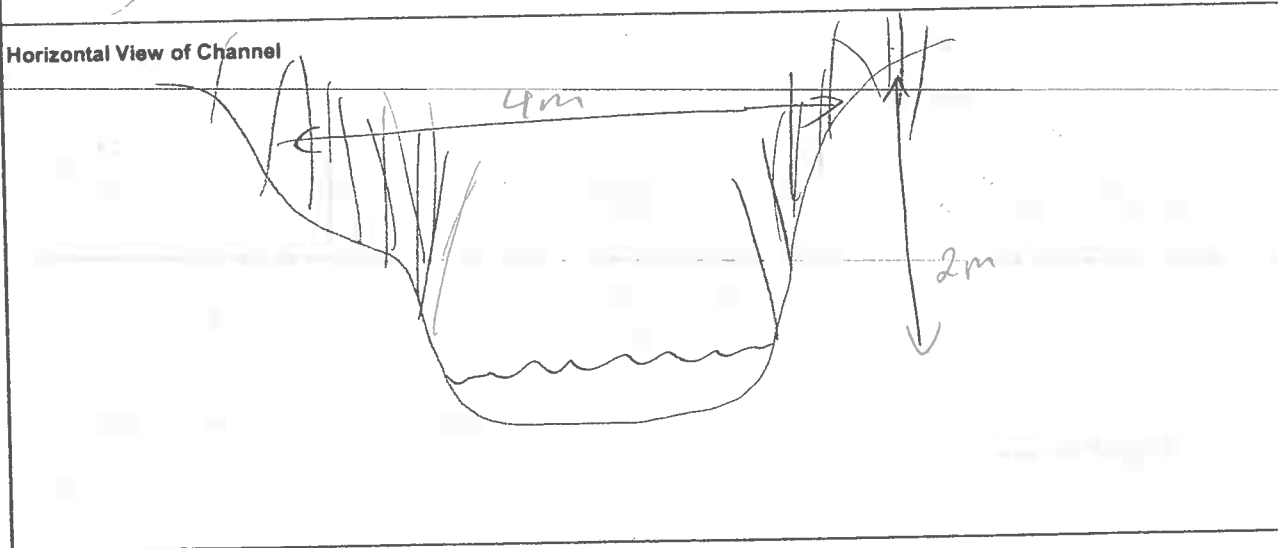
1078

Turbine #

GOS-C52



Horizontal View of Channel



C52

**AECOM**

Field Crew: *CB, JP*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# *1078* Turbine # ~~045-153~~  
 Date: *Sep 8/11* Start time: *11:00* End Time: *12:00*

Weather Conditions: *Cloudy, 15°C* Field Notes By: *CB*

**Site Location**

*Crediton Rd. - east of Black Bush line.*

**UTM Co-ordinates**

Easting: *4748207* Northing: *4793171* Description: *Crediton Rd culvert*  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other: \_\_\_\_\_  
 Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)  
*no inputs noted however adjacent farmland probably drains into it.*

**In-Situ Water Quality**

WT (°C): / AT (°C): /  
 pH: / Cond ( s/cm): /  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: *w/g meter not available*

**Stream Morphology**

Site Length (m): *~ 350m*  
 Bank Stability:  

Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
A	B	A	B				
Mean Wetted Width (m):	<i>1.2</i>   <i>2</i>	Mean Bankfull Width (m):	<i>2</i>   <i>3.5</i>	Left Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m):	<i>0.10</i>   <i>0.20</i>	Mean Bankfull Depth (m):	<i>0.3</i>   <i>0.5</i>	Right Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: *slow flow*

Notes:

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

A B  
 Si, Sa > gr > co > bo  
 Si, Sa > gr > co > bo

Notes:

**Morphological Structure (%)**

Pool		Riffle		Run		Flat	
A	B	A	B	A	B	A	B
10	15	10	5	40	30	40	50

30

**Habitat**

**Instream Cover (%)**

A = 50 B = 50

None	Woody Debris		Boulders		Cobble		Aquatic Vegetation*		Undercut Bank		Other:
	A	B	A	B	A	B	A	B	A	B	
	10	30	10	5	50	40	10	20	20	5	

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

algae, emergent, grasses.

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

Trees 20 Shrubs 60 Man-made structures \_\_\_\_\_  
 Grasses 10 Herbaceous \_\_\_\_\_ Other \_\_\_\_\_

**Notes:**

**Obstructions to Fish Passage**

- No Obstructions  Natural
- Man-Made

**Description:**

**Drainage Features within Study Area**

**Observations of Land Topography within 120 m buffer area:**

flat - agri fields adjacent

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

C52

AECOM

Sept 8/11

GRS ~~C53~~

Page 3 of 4

Other General Comments Regarding the Study Area:

- It appears that the channel was dredged + channelized however has now started to naturalize in meandering process causing pools, riffles etc.

Photo log

Picture #	Description	Picture #	Description
1	Crediton Rd - Substrate A	12	"
2	Crediton Rd - stream overview A	13	Stream overview B
3	Site overview A	14	Watercress B
4	Substrate - algae - spotted fish A	15	Substrate B
5	erosion + rocks in stream A	16	Stream overview B
6	emergent plant A	17	Site overview B
7	overview A	18	Stream overview B
8	in stream A	19	" B
9	" A	20	" B
10	fish habitat A	21	"
		22	"
11	T-intersection blwn A+B	23	"
		24	"

25 Site overview B

26 Stream overview B

C52

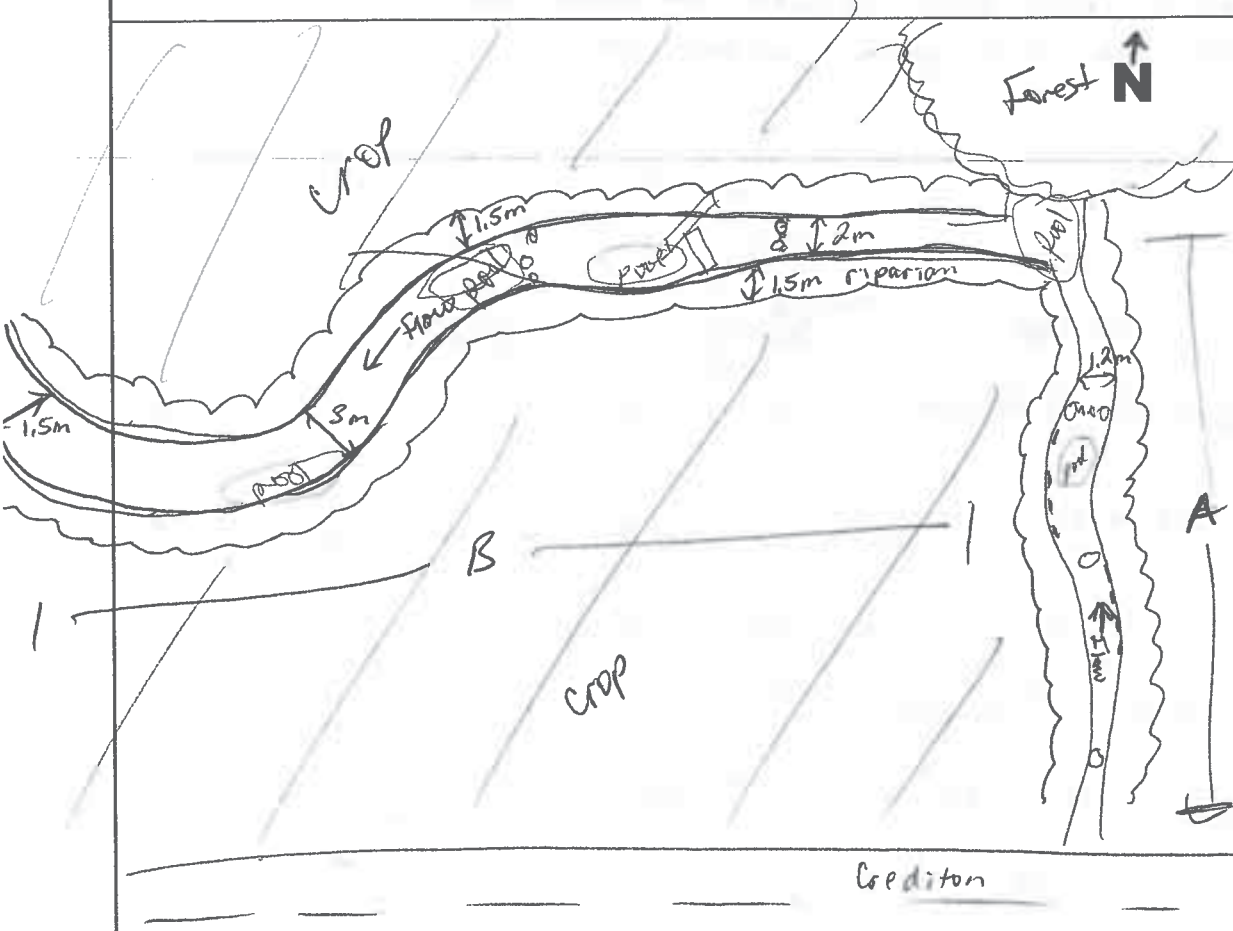
AECOM

Page 4 of 4

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1078

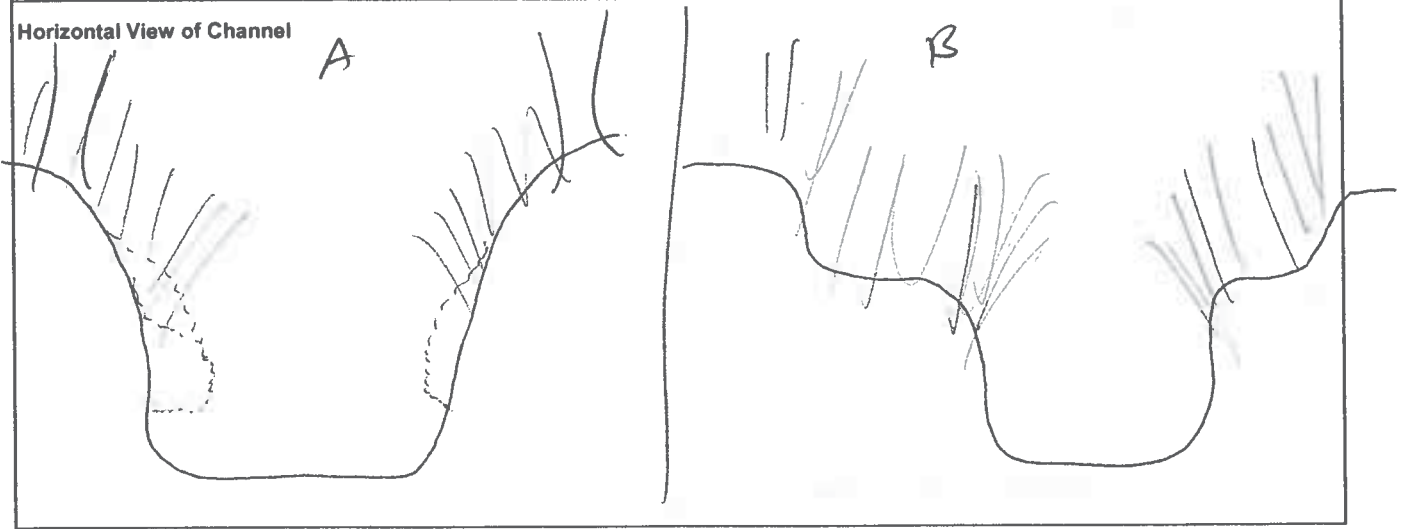
Turbine # ~~645-653~~



**LEGEND**

- 10d depth (cm)
- 6w width
- Riffle
- Run/Glide
- Pool
- Island/Bar
- Fine Substrate
- ### Gravel Substrate
- o o o o Cobble
- / Boulder
- \*\*\* Debris
- CT Cattail
- SV/FV Submerg/Float Veg
- EV Emergent
- W Watercress
- Fe Iron Staining
- ||||| Eroded Bank
- xxx Riprap / Other Stabilization
- Instream Log/Tree
- \*\*\* Dam/Weir/
- ⊙ Riparian Tree
- ↳ Seep/Spring
- Undercut Bank
- Barrier to Fish Movement
- 8- Seasonal Barrier
- x-x- Fence line
- Culvert

Horizontal View of Channel





**AECOM**

Field Crew: CB, TS

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 2161 Turbine# C56  
 Date: Dec 16 / 11 Start time: 9:00 End Time: 9:40

Weather Conditions: Cloudy, 1°C Field Notes By: CB

**Site Location**

Crediton Ln, west of Babylon

**UTM Co-ordinates**

Easting: <u>0452872</u>	Northing: <u>4793439</u>	Description: <u>at stream</u>
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other: \_\_\_\_\_

Notes: (Include any inputs into the system i.e. tile drainage, seepages, overland flow)

-tile drain input noted

**In-Situ Water Quality**

WT (°C): / AT (°C): /  
 pH: / Cond ( s/cm): /  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercross  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: Wg meter not working

**Stream Morphology**

Site Length (m): _____				Bank Stability:			
Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <u>2</u>	Mean Bankfull Width (m): <u>2.5</u>	Mean Wetted Depth (m): <u>0.5</u>	Mean Bankfull Depth (m): <u>0.8</u>	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: mod flow, levels high

Notes: \_\_\_\_\_

No A

**AECOM**

**Stream Morphology (continued)**

**Substrate (<=>)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

Description

*Si, Cl > Gr*

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

Notes:

*high flow*

**Habitat**

Instream Cover (%) <i>30</i>						
None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
				100		

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

*emergent grasses*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-80%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees \_\_\_\_\_
- Grasses 100
- Shrubs \_\_\_\_\_
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*- flat*

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

*C56*



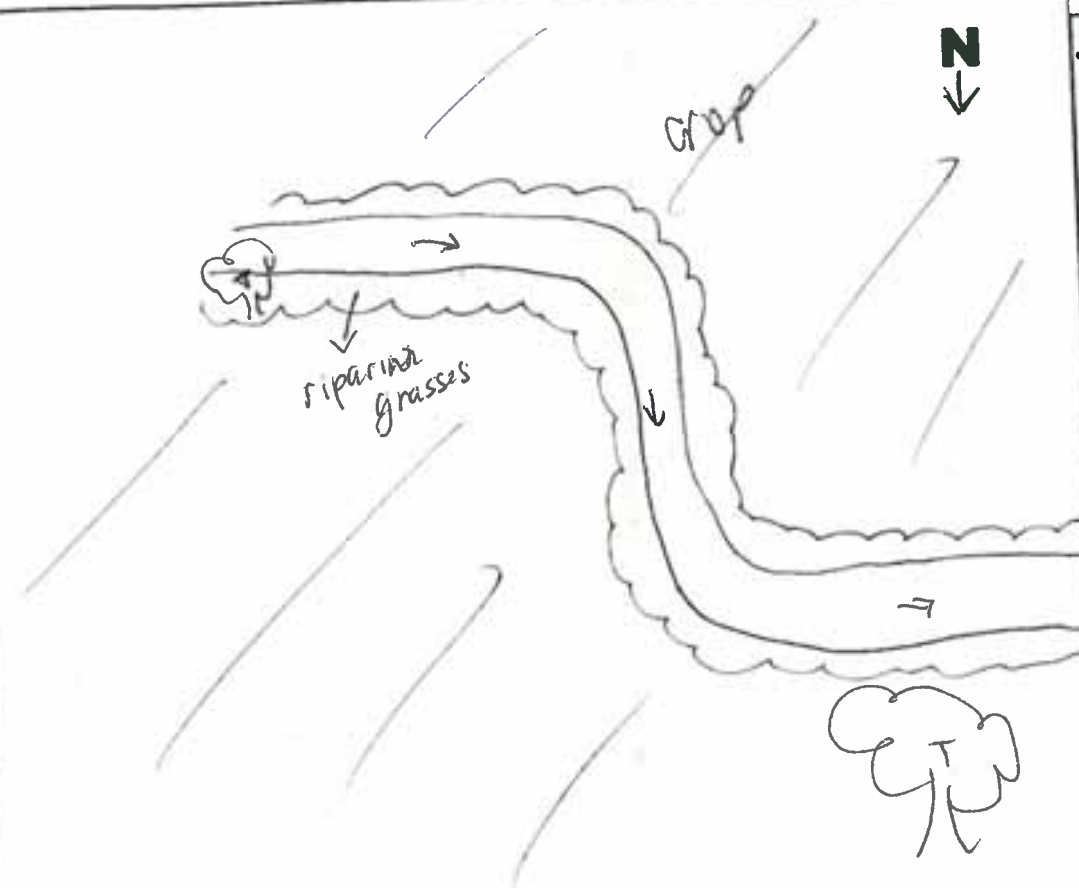
AECOM

Watercourse Sketch

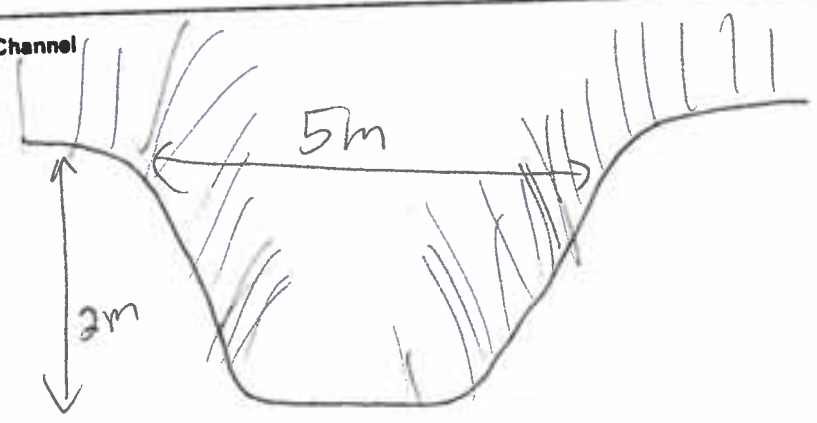
Study Area: Jericho Goshon Bluewater Land Parcel # 2161 Turbine # C56

**LEGEND**

- 1 1/2" depth (cm)
- 6" width
- Rifle
- Run/Glide
- Pool
- Island/Bar
- Fine Substrate
- Gravel Substrate
- Cobble/Boulder
- Debris
- Catal
- Submerg/Float Veg
- Emergent
- Watercress
- Iron Staining
- Eroded Bank
- Riprap / Other Stabilization
- Instream Log/Tree
- Dam/Wear/
- Riparian Tree
- Seep/Spring
- Undercut Bank
- Barrier to Fish Movement
- Seasonal Barrier
- Fence line
- Culvert



Horizontal View of Channel



**AECOM**

Field Crew: CB, AS

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1767 Turbine # GOS-~~1767~~ (61)  
 Date: Oct 6/11 Start time: 12:15 End Time: 12:45

Weather Conditions: Sunny, 18°C Field Notes By: CB

**Site Location**

on Blackbush Ln. → only East side surveyed  
 ↳ west no access (ASA)

**UTM Co-ordinates**

Easting: <u>0447500</u>	Northing: <u>4792250</u>	Description: <u>culvert @ road.</u>
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____
Easting: _____	Northing: _____	Description: _____

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other: \_\_\_\_\_

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

- multiple tile drain

**In-Situ Water Quality**

WT (°C): / AT (°C): /  
 pH: / Cond ( s/cm): /  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: w/g meters not available

**Stream Morphology**

Site Length (m): ~100m

Channel Dimensions				Bank Stability:			
	Stable	Slightly unstable	Moderately unstable	Unstable			
Mean Wetted Width (m): <u>1.3</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Left Bank		
Mean Bankfull Width (m): <u>1.5</u>					Right Bank		
Mean Wetted Depth (m): <u>0.15</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Mean Bankfull Depth (m): <u>0.45</u>							

Flow Description: - moderate to fast flow  
 Notes: → evidence of erosion - exposed soils

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

*gr > Co > si, cl  
+ film of algae on rocks*

Notes:

Morphological Structure (%)			
Pool	Riffle	Run	Flat
	15	85	

**Habitat**

Instream Cover (%) *70*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other: <i>overhanging</i>
			50	20		30

\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)

*algae + emergents*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees \_\_\_\_\_
- Grasses *80*
- Shrubs *20*
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions  Natural
- Man-Made

Description:

*culvert not placed*

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*- flat*

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

**Other General Comments Regarding the Study Area:**

- culvert 2m
- appears to be an agricultural drain for surrounding crops
- > channel on west side appears to be same dimensions

**Photo log**

Picture #	Description	Picture #	Description
302	looking west		
303	looking east		
304	channel - instream (E)		
305	culvert		
306	substrate		

Watercourse Sketch

Study Area:

Jericho

Goshen

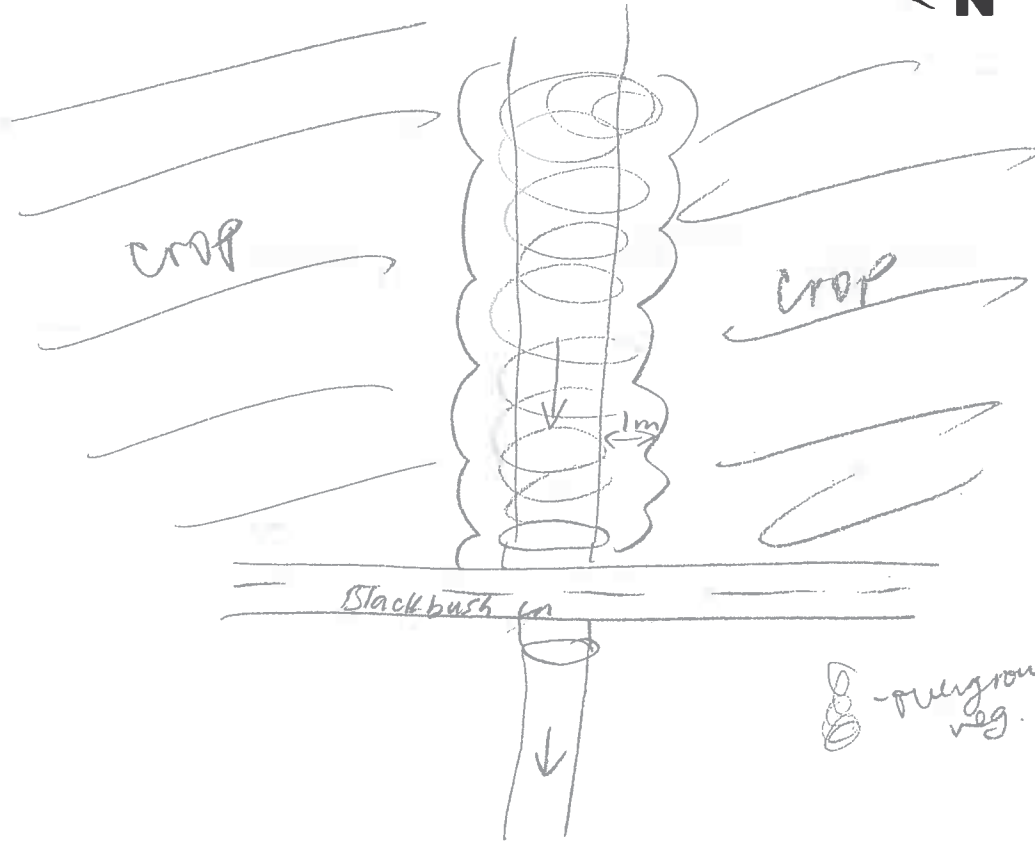
Bluewater Land Parcel#

1767

Turbine #

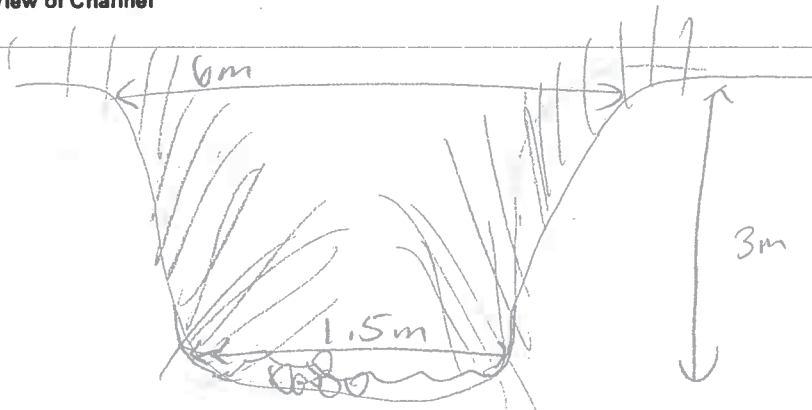
GRS

C61



LEGEND	
10d	depth (cm)
8w	width
→	Riffle
—	Run/Glide
○	Pool
■	Island/Bar
○	Fine Substrate
##	Gravel Substrate
oOoo	Cobble / Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
□	Instream Log/Tree
AAA	Dam/Weir
⊙	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—	Barrier to Fish Movement
-B-	Seasonal Barrier
-x-x-	Fence line
□	Culvert

Horizontal View of Channel





**AECOM**

Field Crew: NL JAG

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 1079 Turbine # ~~5842~~ C62  
 Date: 13/07/11 Start time: 16:00 End Time: 16:55

Weather Conditions: Sunny Field Notes By: NL

**Site Location**

accessed by Shupka Rd - thru edge of annual field

**UTM Co-ordinates**

Easting: 044 5777 Northing: 479 1397 Description: @ end of w/c  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

None  
 NO obvious point sources but algae indicates non-point pollution from agriculture.

**In-Situ Water Quality**

**Ground Water Indicators**

WT (°C): AT (°C):  
 pH: Cond ( s/cm):  
 Water Clarity: Clear  Turbid

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m): Bank Stability:  

Channel Dimensions		Bank Stability			
		Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m):	2m	Mean Bankfull Width (m):	2.5	Left Bank	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Mean Wetted Depth (m):	10cm	Mean Bankfull Depth (m):	2m	Right Bank	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Flow Description:

EST.

Notes:

Stagnant. No flow. Choked with algae + grasses

**Stream Morphology (continued)**

**Substrate (< = >)**

- Bo - Boulder
- Co - Cobble
- Gr - Gravel
- Sa - Sand
- Si - Silt
- Cl - Clay
- MK - Muck
- DT - Detritus
- Other

**Description**

*MK*

*estimated - choked with green algae*

**Morphological Structure (%)**

Pool	Riffle	Run	Flat
			<i>50</i>

Notes:

**Habitat**

**Instream Cover (%)**

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
				<i>100</i>		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*algae*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees \_\_\_\_\_
- Grasses *50*
- Shurbs \_\_\_\_\_
- Herbaceous *50*
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions  Natural
- Man-Made

Description:

*No slow flow  
watering  
+ build up of algae*

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*flat*

**Terrestrial features Present**

Yes No

**Terrestrial Recon Form Filled out**

Yes No

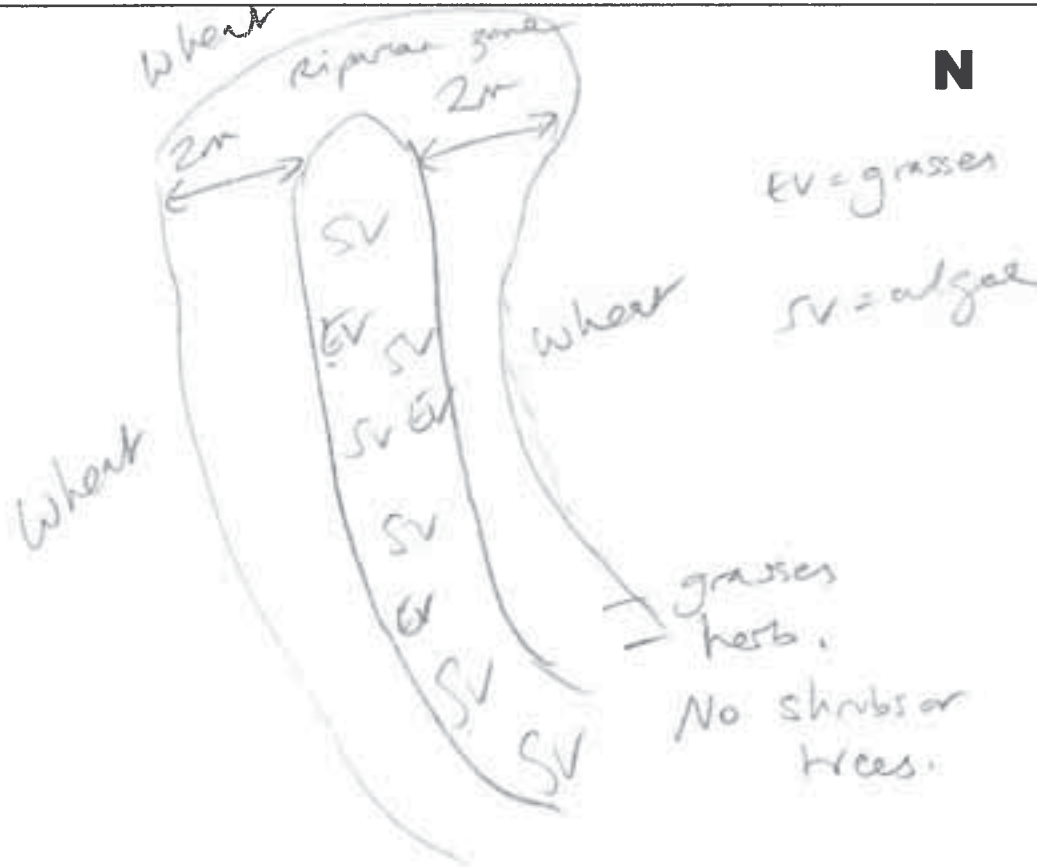
8

Other General Comments Regarding the Study Area:

Photolog			
Picture #	Description	Picture #	Description
229	Gen Location		
230	Upstream		
231	downstream		
232	Bank + watercourse		

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1079 Turbine # ~~C62~~ C62



N

LEGEND	
10d depth (cm)	8w width
→	Riffle
→	Run/Glide
○	Pool
■	Island/Bar
—	Fine Substrate
###	Gravel Substrate
oOoO	Cobble/Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
—	Instream Log/Tree
^^^	Dam/Weir
⊙	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
┌	Culvert

Horizontal View of Channel



**AECOM**

Field Crew: *CB, AS*

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# *1079/1635/1636* Turbine # *603-C63*  
 Date: *Oct 6/11* Start time: *12:50* End Time: *13:35*

Weather Conditions: *Sunny, 18°C* Field Notes By: *CB*

**Site Location**

*On Shipka Ln*

**UTM Co-ordinates**

Easting: *0445499* Northing: *4791472* Description: *culvert on west side of road*  
 Easting: Northing: Description:  
 Easting: Northing: Description:  
 Easting: Northing: Description:

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

*- inputs noted on east side*

**In-Situ Water Quality**

WT (°C): / AT (°C): /  
 pH: / Cond (s/cm): /  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes:

**Stream Morphology**

Site Length (m): Bank Stability:

Channel Dimensions				Stable	Slightly unstable	Moderately unstable	Unstable
W	E	W	E				
Mean Wetted Width (m):	<i>1 1.5</i>	Mean Bankfull Width (m):	<i>3 2.5</i>	Left Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m):	<i>0.15</i>	Mean Bankfull Depth (m):	<i>0.6 0.5</i>	Right Bank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Flow Description: *slow*

Notes: *- visible flow (slow - moderate)*  
*- one area of erosion - on west side blow out area just downs of culvert.*



AECOM

Page 3 of 4

## Other General Comments Regarding the Study Area:

- watercourse slightly different on either side of road
- landuse/crop diff on either side
- frogs observed on east side.

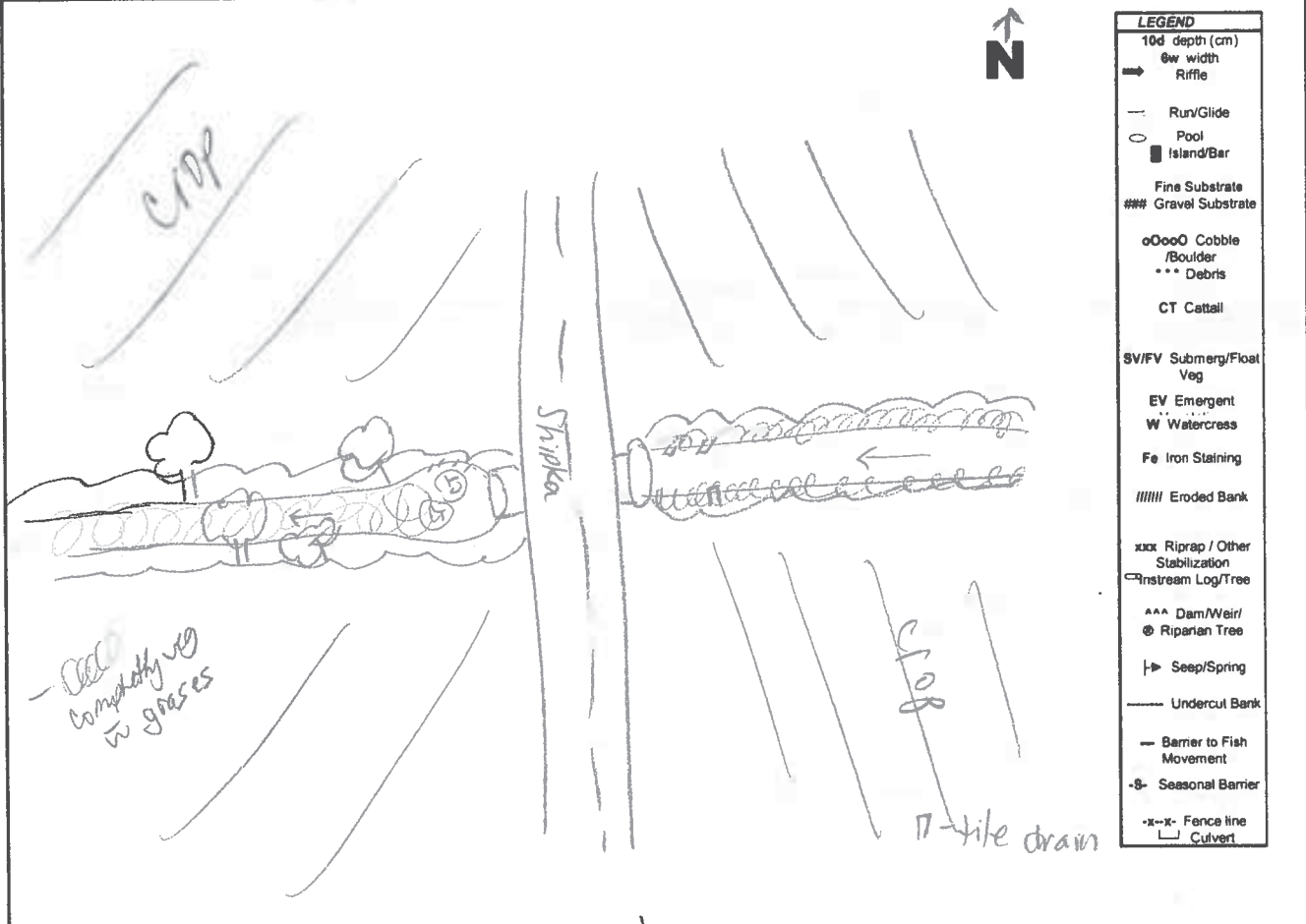
## Photo log

Picture #	Description	Picture #	Description
307	West overview		
308	East overview		
309	Channel - west		
310	"		
311	→ bankfull line		
312	East - tile drains		
313	Channel - east		
314	Substrate		
315	overview		
316	east - substrate		
317	laneway on property 1635		

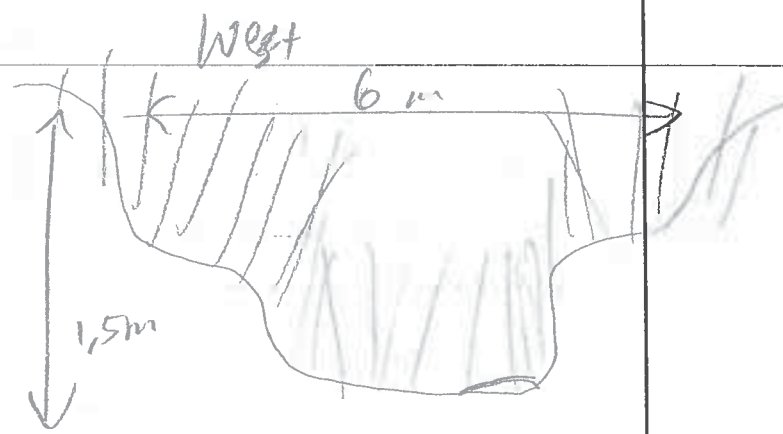
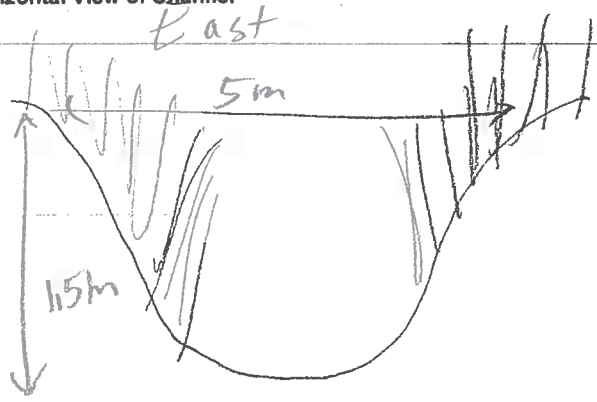
C63

Watercourse Sketch

Study Area: Jericho Goshen Bluewater Land Parcel# 1079/1635/1136 Turbine # C63



Horizontal View of Channel





**AECOM**

Field Crew: CB, TS

**General Information**

Study Area: Jericho Goshen Bluewater

Land Parcel# 1635, 1636

Transect#

EC63 C201

Date: Dec 16/11

Start time: 14:45

End Time:

Weather Conditions:

Cloudy, 10C

Field Notes By:

CB

**Site Location**

Shupka Ln, North of South Rd.

**UTM Co-ordinates**

Easting: 0445484

Northing: 4791472

Description: Stream side

Easting:

Northing:

Description:

Easting:

Northing:

Description:

Easting:

Northing:

Description:

**Surrounding Landuse/Pollution Sources**

- Residential
- Agriculture
- Forest
- Meadow
- Wetland
- Livestock

**Type of Watercourse**

- Intermittent
- Permanent
- Ephemeral
- Channelized
- Natural Channel

Other:

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

tile drain observed - flowing

**In-Situ Water Quality**

WT (°C):

AT (°C):

pH:

Cond ( s/cm):

Water Clarity: Clear  Turbid

**Ground Water Indicators**

- Watercress
- Iron Staining
- Bubbling
- Bank Seepage
- None
- Other

Notes: Sl. turbid, wq meter not working

**Stream Morphology**

Site Length (m):

Bank Stability:

**Channel Dimensions**

Mean Wetted Width (m): 1.5 Mean Bankfull Width (m): 1.75

Mean Wetted Depth (m): 0.25 Mean Bankfull Depth (m): 0.60

- |            | Stable                              | Slightly unstable        | Moderately unstable      | Unstable                 |
|------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| Left Bank  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Right Bank | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Flow Description:

Visible flow, mod levels

Notes:

**Stream Morphology (continued)**

**Substrate (<=>)**

- Description**
- Bo - Boulder
  - Co - Cobble
  - Gr - Gravel
  - Sa - Sand
  - Si - Silt
  - Cl - Clay
  - MK - Muck
  - DT - Detritus
  - Other

*Si, Cl, Gr > Co > Bo*

Notes:

Morphological Structure (%)			
Pool	Riffle	Run	Flat
		100	

**Habitat**

**Instream Cover (%)**

*80*

None	Woody Debris	Boulders	Cobble	Aquatic Vegetation*	Undercut Bank	Other:
		10	10	<del>10</del> 80		

**\*Aquatic Vegetation Types Present (algae, submergent, emergent etc.)**

*- Emergent grass + Cattails*

**Canopy Cover (% closed cover):**

- 100-90%
- 90-60%
- 60-30%
- 30-1%
- 0%

**Types of Cover (% cover)**

- Trees 1
- Grasses 90
- Shrubs 9
- Herbaceous \_\_\_\_\_
- Man-made structures \_\_\_\_\_
- Other \_\_\_\_\_

Notes:

**Obstructions to Fish Passage**

- No Obstructions
- Natural
- Man-Made

Description:

**Drainage Features within Study Area**

Observations of Land Topography within 120 m buffer area:

*- flat*

**Terrestrial features Present**

Yes  No

**Terrestrial Recon Form Filled out**

Yes  No

C63



Watercourse Sketch

Study Area:

Jericho

Goshen

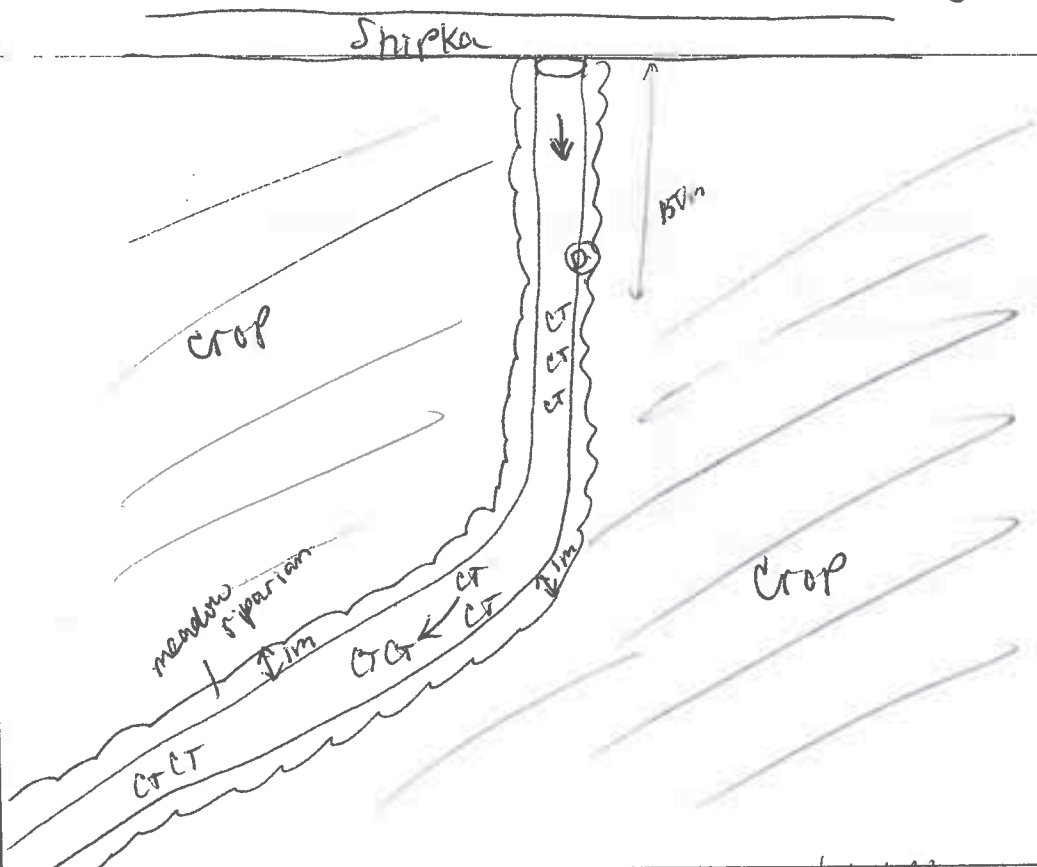
Bluewater

Land Parcel# 1635, 1636

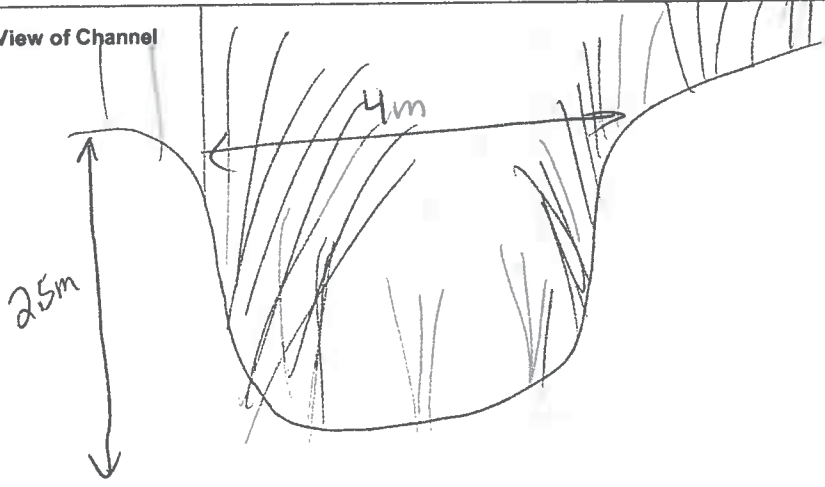
Turbine #

C63

LEGEND	
10d depth (cm)	
6w width	
→	Riffle
↔	Run/Glide
○	Pool
◻	Island/Bar
•	Fine Substrate
###	Gravel Substrate
○○○○	Cobble/Boulder
***	Debris
CT	Cattail
SV/FV	Submerg/Float Veg
EV	Emergent
W	Watercress
Fe	Iron Staining
	Eroded Bank
xxx	Riprap / Other Stabilization
□	Instream Log/Tree
AAA	Dam/Weir/
⊙	Riparian Tree
↳	Seep/Spring
—	Undercut Bank
—	Barrier to Fish Movement
-S-	Seasonal Barrier
-x-x-	Fence line
⌊	Culvert



Horizontal View of Channel



**AECOM**

Field Crew: DART + Ferris

**General Information**

Study Area: Jericho Goshen Bluewater Land Parcel# 65H1079 Turbine # C63  
 Date: NOV-18-2011 Start time: 10:00 65H1035 End Time: 10:22

Weather Conditions: Sunny, 0C Field Notes By: DART

**Site Location**

C63 - crosses Shipka

**UTM Co-ordinates**

Easting: 445495 Northing: 4791473 Description: C63a  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_  
 Easting: \_\_\_\_\_ Northing: \_\_\_\_\_ Description: \_\_\_\_\_

**Surrounding Landuse/Pollution Sources**

Residential  Meadow   
 Agriculture  Wetland   
 Forest  Livestock

**Type of Watercourse**

Intermittent  Channelized   
 Permanent  Natural Channel   
 Ephemeral

Other: \_\_\_\_\_

Notes: (include any inputs into the system i.e. tile drainage, seepages, overland flow)

Agriculture on both sides.

**In-Situ Water Quality**

WT (°C): 4.8 AT (°C): 0C  
 pH: 7.01 Cond (µs/cm): 746  
 Water Clarity: Clear  Turbid

**Ground Water Indicators**

Watercress  Bank Seepage   
 Iron Staining  None   
 Bubbling  Other

Notes: water slightly grey.  
algae in water.

**Stream Morphology**

Site Length (m): \_\_\_\_\_ Bank Stability: \_\_\_\_\_  
Bank Height 2.0 Bankwidth = 50m  
**Channel Dimensions**  

	Stable	Slightly unstable	Moderately unstable	Unstable
Mean Wetted Width (m): <u>1.5</u>	Mean Bankfull Width (m): <u>2.7</u>	Left Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean Wetted Depth (m): <u>0.15</u>	Mean Bankfull Depth (m): <u>0.60</u>	Right Bank <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Flow Description:**

1.5/m - flowing west. CSP - not perched either side  
2 tile drains - east side north bank flowing + on south bank.  
vegetated banks - cattails, grasses, some trees  
Buffer on top of bank ~2m either side.