

C12-1-51

TETLP OPEN PROJECT STREAM SUMMARY

OPEN Facility: 30" 36" MP: 3017+00 Compressor Station

Observers: Rick Paquette / Mike Lychucka Date: 07/16/2012

Town: Richmond County: Belmont

Crossing Name/ID: C12-1-51-109-21 Recent Rain Event (date/amount):

Flow Characteristics

Bank Full Width (average): 4' average pipeline @ 2' Flow Conditions: Flowing Subsurface Moist Channel Dry

Flow Type	Flow Velocity N/A	Comments:
<input type="checkbox"/> Perennial	<input type="checkbox"/> Torrential	No flow observed at time of visit
<input type="checkbox"/> Interstitial	<input type="checkbox"/> Mod/Slow	
<input checked="" type="checkbox"/> Ephemeral	<input type="checkbox"/> Fast	
	<input type="checkbox"/> Eddies	

Max Pool Depth: > 40 cm/15.8 in < 40 cm/15.8 in Max Pool Depth: N/A

Max Run Depth: N/A

Riffle and Pool Width: Same Wider Pool Wider Riffle

N/A

Channel and Bank Characteristics

Channel Substrate %:	Origin	Quality	Bank Height
<input type="checkbox"/> BLDR Slab	<input type="checkbox"/> Limestone	Silted Stream Channel	2 ft
5% <input checked="" type="checkbox"/> Boulder	<input type="checkbox"/> Tills	<input type="checkbox"/> High	Bank Erosion
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Wetlands	<input type="checkbox"/> Moderate	L R
20% <input checked="" type="checkbox"/> Cobble	<input type="checkbox"/> Hardpan	<input checked="" type="checkbox"/> Normal	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> None- Some
<input type="checkbox"/> Gravel	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Free	<input type="checkbox"/> <input type="checkbox"/> Moderate
<input type="checkbox"/> Sand	<input type="checkbox"/> Rip/Rap	Embeddedness	<input type="checkbox"/> <input type="checkbox"/> High-Severe
70% <input checked="" type="checkbox"/> Silt Mud	<input type="checkbox"/> Lacustrine	<input type="checkbox"/> Extensive	
<input type="checkbox"/> Clay Hardpan	<input checked="" type="checkbox"/> Shale	<input type="checkbox"/> Moderate	
<input type="checkbox"/> Peat-Muck	<input type="checkbox"/> Coal Fines	<input checked="" type="checkbox"/> Normal	
<input type="checkbox"/> Artificial		<input type="checkbox"/> None	
5% <input checked="" type="checkbox"/> Woody/Leaf Debris	Reclaimed mine		
<input type="checkbox"/> Fine Detritus			

Embedded Riffle/Run: No

Stream Cover

Instream Cover (presence 0-3 [ranges 0, 1-33%, 33-66%, 66-100%])	Instream Total Cover	Canopy Cover
0 Undercut Bank	1 Boulders	<input type="checkbox"/> 90-100% Closed
0 Overhanging Veg.	0 Backwater	<input checked="" type="checkbox"/> 70-90%
0 Shallows (slow moving)	0 Aquatic Macrophytes	<input type="checkbox"/> 45-70%
0 Rootmats	1 Logs or Woody Debris	<input type="checkbox"/> 10-45%
1 Rootwads		<input type="checkbox"/> 0-10% Open

Stream Morphology and Riparian Zone

Sinuosity	Gradient (estimate)	Riparian Zone (Right/Left)	Flood Plain Quality
<input type="checkbox"/> High	<input type="checkbox"/> Flat (0.5/100 ft)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Wide >50 m	<input checked="" type="checkbox"/> Forested -
<input type="checkbox"/> Mod	<input type="checkbox"/> Mod Flat	<input type="checkbox"/> <input type="checkbox"/> Mod 10-50 m	<input checked="" type="checkbox"/> Shrub or old field - Powerline ROW
<input type="checkbox"/> Low	<input checked="" type="checkbox"/> Mod (2/100 ft)	<input type="checkbox"/> <input type="checkbox"/> Narrow 5-10 m	<input type="checkbox"/> Hay field
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Mod Severe	<input type="checkbox"/> <input type="checkbox"/> Very Narrow <5	<input type="checkbox"/> Active Pasture
# of Bends 0	<input type="checkbox"/> Severe (10/100 ft)		<input type="checkbox"/> Row crops
			<input type="checkbox"/> Development

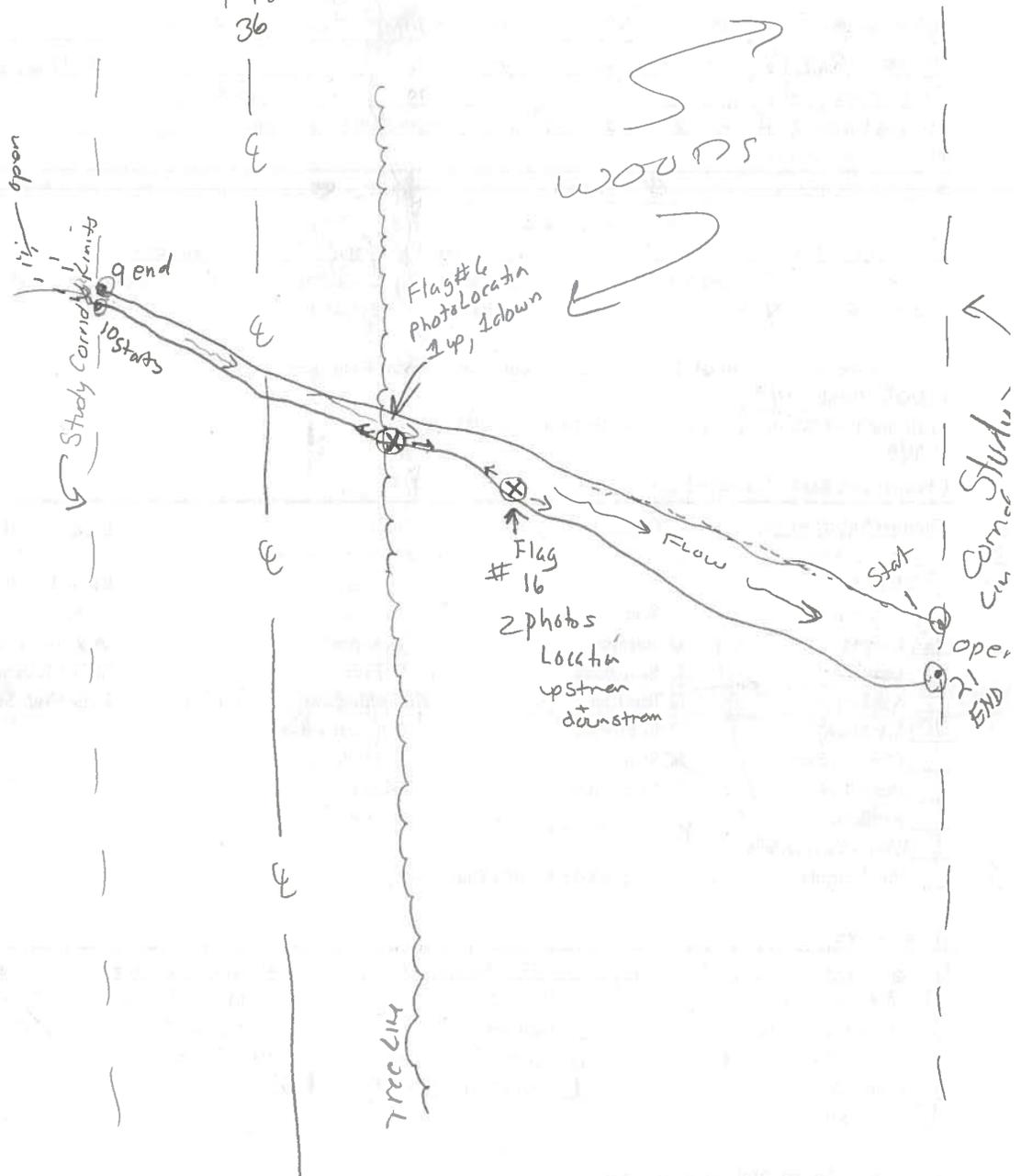
Stream Ecology and Associated Wildlife Comments (i.e. marcos, salamanders, fish):

Livestock footprints/traffic observed in some segments.

STREAM SKETCH

North
↑

Stream diminishes as you move up slope



C-12-1-51

(1-9) Flags
(10-21)

Checklist:

- Stream ID# = C-12-1-51
- North arrow.
- Detailed sketch of stream (Riffle, Run, Pool).
- Natural and man-made features – roads, culverts, outcrops, structures, etc.
- Photo locations.
- Location of important wildlife sign.



Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) :

34

SITE NAME/LOCATION TETLP's OPEN Project

SITE NUMBER C12-1-S1 RIVER BASIN Ohio River East DRAINAGE AREA (mi²) 0.27

LENGTH OF STREAM REACH (ft) 122 LAT. .40.0049 LONG. -.80.8440 RIVER CODE _____ RIVER MILE _____

DATE 7/16/12 SCORER R. Paquette, M. Lychw COMMENTS surveyed 264' total, 122' within proposed ROW

NOTE: Complete All Items on This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

MODIFICATIONS:

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<u>5</u>	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<u>70</u>
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>5</u>
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<u>20</u>	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 25 (A) 15 (B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

19

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS no flow at time of survey MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30

0

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 1.2

Bankfull Width Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS transmission line right of way to NW of stream

FLOW REGIME (At Time of Evaluation) (Check *ONLY* one box):

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - Yes No QHEI Score N/A (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Trib to McMahon Creek Distance from Evaluated Stream _____
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: Lansing, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Belmont Township / City: Richland

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 7/15/13 Quantity: <0.5"

Photograph Information: See Photo Index

Elevated Turbidity? (Y/N): N Canopy (% open): 10-30

Were samples collected for water chemistry? (Y/N): N/A (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) N/A If not, please explain: N/A

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

Ephemeral stream, flowing to the southeast with livestock footprints observed along stream banks.

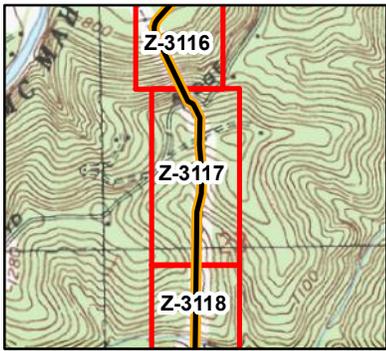
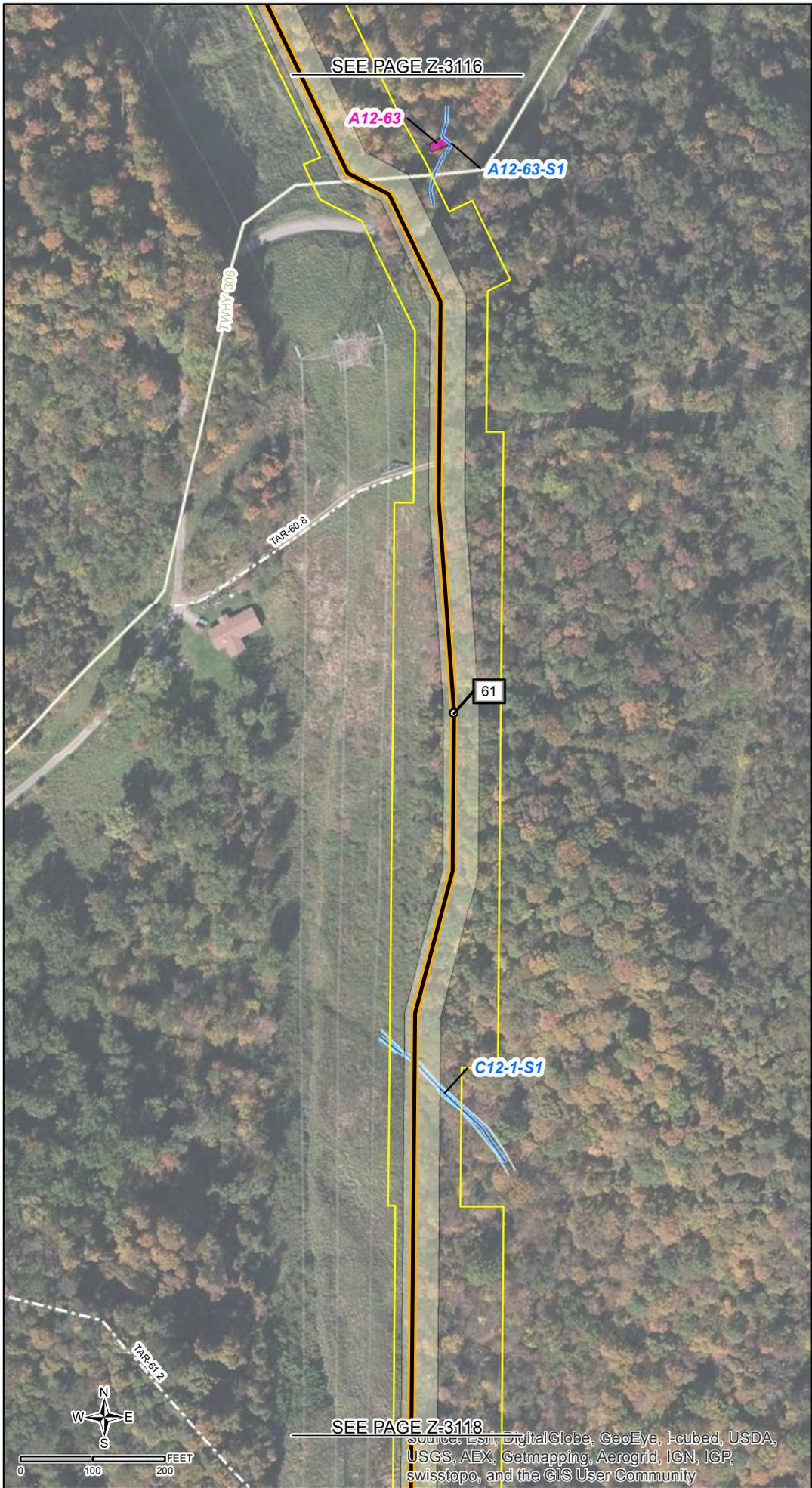
FLOW 

**OPEN 30" Mainline Waterbody Photographs
Belmont County, Ohio**

**Richland Township MP 61.09
C12-1-S1**

Photo 1	Photo 2
	
Photo 3	Photo 4
N/A	N/A

Photo 1: Ephemeral stream, looking upstream to the NW
Photo 2: Ephemeral stream, looking downstream to the SE



LEGEND

- 1 MILE POST
- PROPOSED PIPELINE
- PROPOSED ACCESS ROAD
- DELINEATED STREAM
- DELINEATED WATERBODY EDGE
- EXISTING ROAD CENTERLINE
- DELINEATED WATERBODY
- DELINEATED WETLAND
- PROPOSED PERMANENT EASEMENT
- PROPOSED CONSTRUCTION WORKSPACE
- MUNICIPALITY BOUNDARY

Data Sources: ESRI, Spectra, TRC, Hatch Mott MacDonald

Projection: NAD83, StatePlane
Ohio NorthFIPS 3401
US Survey Feet

Spectra Energy Partners.
Texas Eastern Transmission, LP
5409 Westchester Court, Houston, TX 77056-6558 713.927.5000

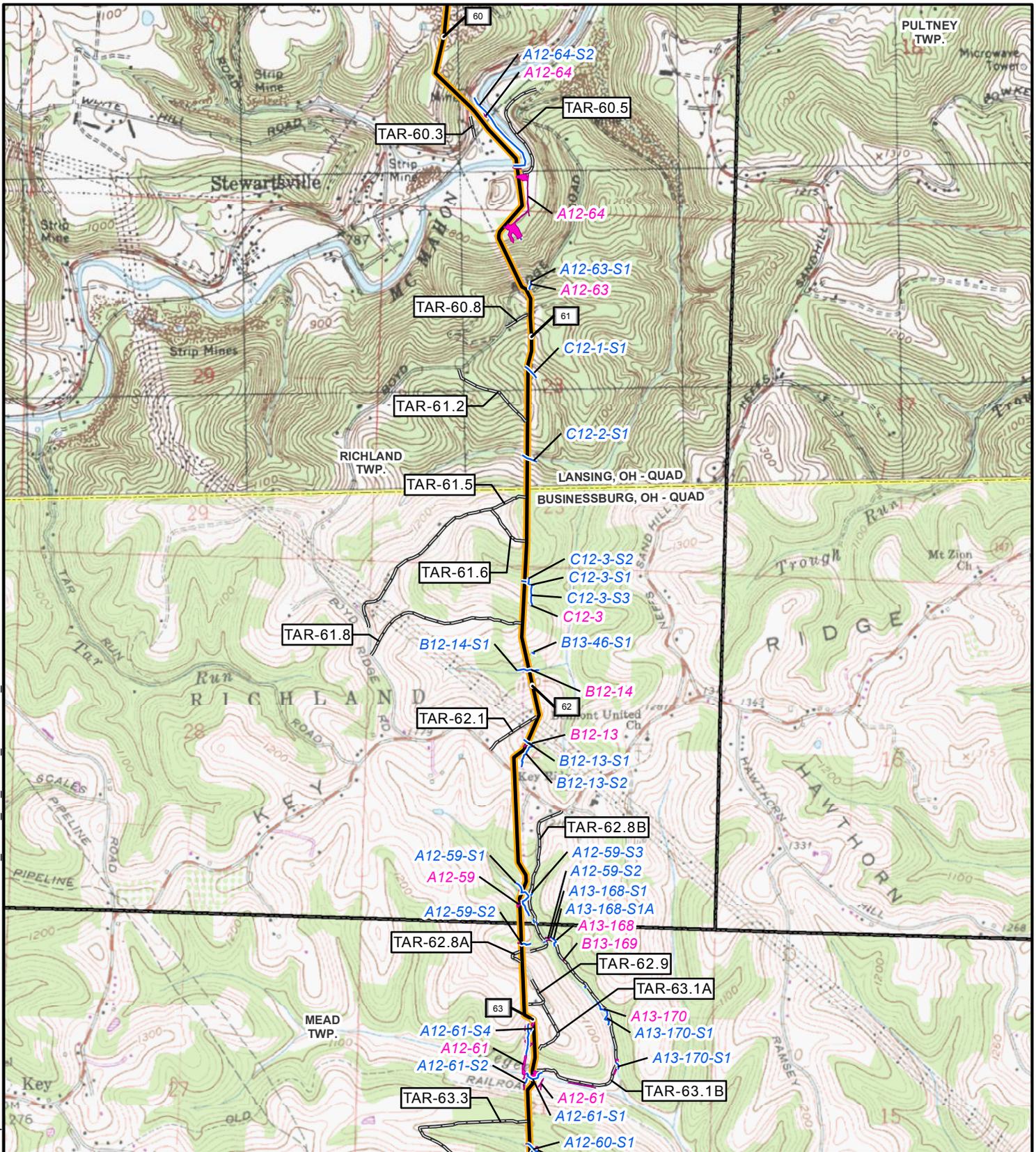
Spectra Natural Gas Pipeline
2015 OPEN Project
Proposed 30in. Line NO. 73

Natural Resource Maps
Map Z-3117

Hatch Mott MacDonald
Created: 02/19/2014

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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- | | | | |
|---------------------------------|-------------------------|----------------------------|-----------------------------|
| MILE POST | DELINEATED WETLAND | PROPOSED M&R STATION | PROPOSED COMPRESSOR STATION |
| PROPOSED PIPELINE | DELINEATED WATERBODY | PROPOSED REGULATOR STATION | MUNICIPALITY BOUNDARY |
| PROPOSED ACCESS ROAD | PROPOSED STAGING AREA | PROPOSED TAP VALVE | COUNTY BOUNDARY |
| EXISTING TEXAS EASTERN PIPELINE | PROPOSED MAINLINE VALVE | | USGS QUADRANGLE BOUNDARY |
| DELINEATED STREAM CENTERLINE | | | |



**TITLE: OPEN PROJECT
DELINEATED STREAMS & WETLANDS - USGS QUAD MAP**

LOC.: BELMONT COUNTY, OHIO REV. 0

CKD. BY: HMMHOL ENG. DATE: 02/2014 W.O.

DRN. BY: HMMHOL SCALE: 1" = 2000' DWG. NO. Z-2019



Texas Eastern Transmission, LP
5400 Westheimer Court, Houston, TX 77056-5310 713/627-5400

I.G.