

TETLP OPEN PROJECT STREAM SUMMARY

OPEN Facility: 30" 36" MP: Compressor Station
 Observers: AF KC Date: 10/5/13
 Town: Zichland County: Bolmont
 Crossing Name/ID: A13-238-S1 Recent Rain Event (date/amount): 9/21/13 >0.5"

Flow Characteristics

Bank Full Width (average): 2.5' Flow Conditions: Flowing Subsurface Moist Channel Dry

Flow Type		Flow Velocity		Comments:
<input type="checkbox"/> Perennial	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Torrential	<input type="checkbox"/> Mod/Slow	<u>No flow at time of survey</u>
<input type="checkbox"/> Interstitial	<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: No Flow
 Max Run Depth: No Flow
 Riffle and Pool Width: Same Wider Pool Wider Riffle

Channel and Bank Characteristics

Channel Substrate %:	Origin	Quality	Bank Height
<input type="checkbox"/> BLDR Slab	<input type="checkbox"/> Limestone	<i>Silted Stream Channel</i>	<u>1'</u> ft
<input 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
<input type="checkbox"/> Cobble	<input type="checkbox"/> Hardpan	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> None- Some
<input type="checkbox"/> Gravel	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Free	<input checked="" type="checkbox"/> Moderate
<input type="checkbox"/> Sand	<input type="checkbox"/> Rip/Rap	Embeddedness	<input type="checkbox"/> High-Severe
<u>55</u> <input checked="" type="checkbox"/> Silt Mud x	<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	
<u>45</u> <input checked="" type="checkbox"/> Woody/Leaf Debris x			
<input type="checkbox"/> Fine Detritus			

Embedded Riffle/Run: No flow

Stream Cover

Instream Cover (presence 0-3 [ranges 0, 1-33%, 33-66%, 66-100%])	Instream Total Cover	Canopy Cover
<u>0</u> Undercut Bank	<input type="checkbox"/> Extensive 75-100%	<input type="checkbox"/> 90-100% Closed
<u>1</u> Overhanging Veg.	<input type="checkbox"/> High 25-75%	<input type="checkbox"/> 70-90%
<u>0</u> Shallows (slow moving)	<input checked="" type="checkbox"/> Mod. 5-25%	<input checked="" type="checkbox"/> 45-70% <u>60%</u>
<u>0</u> Rootmats	<input type="checkbox"/> Low <5%	<input type="checkbox"/> 10-45%
<u>0</u> Rootwads		<input type="checkbox"/> 0-10% Open

Stream Morphology and Riparian Zone

Sinuosity	Gradient (estimate)	Riparian Zone (Left/Right)	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 type="checkbox"/> Forested
<input type="checkbox"/> Mod	<input type="checkbox"/> Mod Flat	<input type="checkbox"/> Mod 10-50 m	<input checked="" type="checkbox"/> Shrub or old field <u>R & L</u>
<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Mod (2/100 ft)	<input type="checkbox"/> Narrow 5-10 m	<input type="checkbox"/> Hay field
<input type="checkbox"/> None	<input checked="" type="checkbox"/> Mod Severe	<input type="checkbox"/> Very Narrow <5	<input type="checkbox"/> Active Pasture
# of Bends <u>1 1/2</u>	<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):

None Obs.

STREAM SKETCH

10/3/13

4
2

No flow at time of
Survey.



SI
(1-5a)

Campbell Johnson Rd

V pasture

V pasture

Checklist:

-
-
-
-
-
-

Stream ID# = A13-238-S1 (1-5a)

- 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) :

13

SITE NAME/LOCATION TETLP's OPEN Project
 SITE NUMBER A13-238-S1 RIVER BASIN Ohio River East DRAINAGE AREA (mi²) 0.01
 LENGTH OF STREAM REACH (ft) 12' LAT. .40.024579 LONG. -.80.845473 RIVER CODE _____ RIVER MILE _____
 DATE 10/03/13 SCORER A. Finamore, K. Caron COMMENTS surveyed 125' total, 12' 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]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	55
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	45
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<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 0 (A) 6 (B) 2
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

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

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 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 checked="" 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) 0.7'

HHEI Metric Points

Substrate Max = 40

8

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

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

COMMENTS active cow pasture on each side of stream

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" 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 type="checkbox"/> None	<input checked="" 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: Unnamed 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: 9/21/13 Quantity: >0.5"

Photograph Information: See Photo Index

Elevated Turbidity? (Y/N): N Canopy (% open): 30-55%

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 located in an active cow pasture. No flow observed at time of survey.

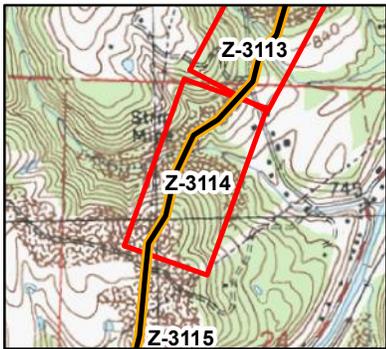
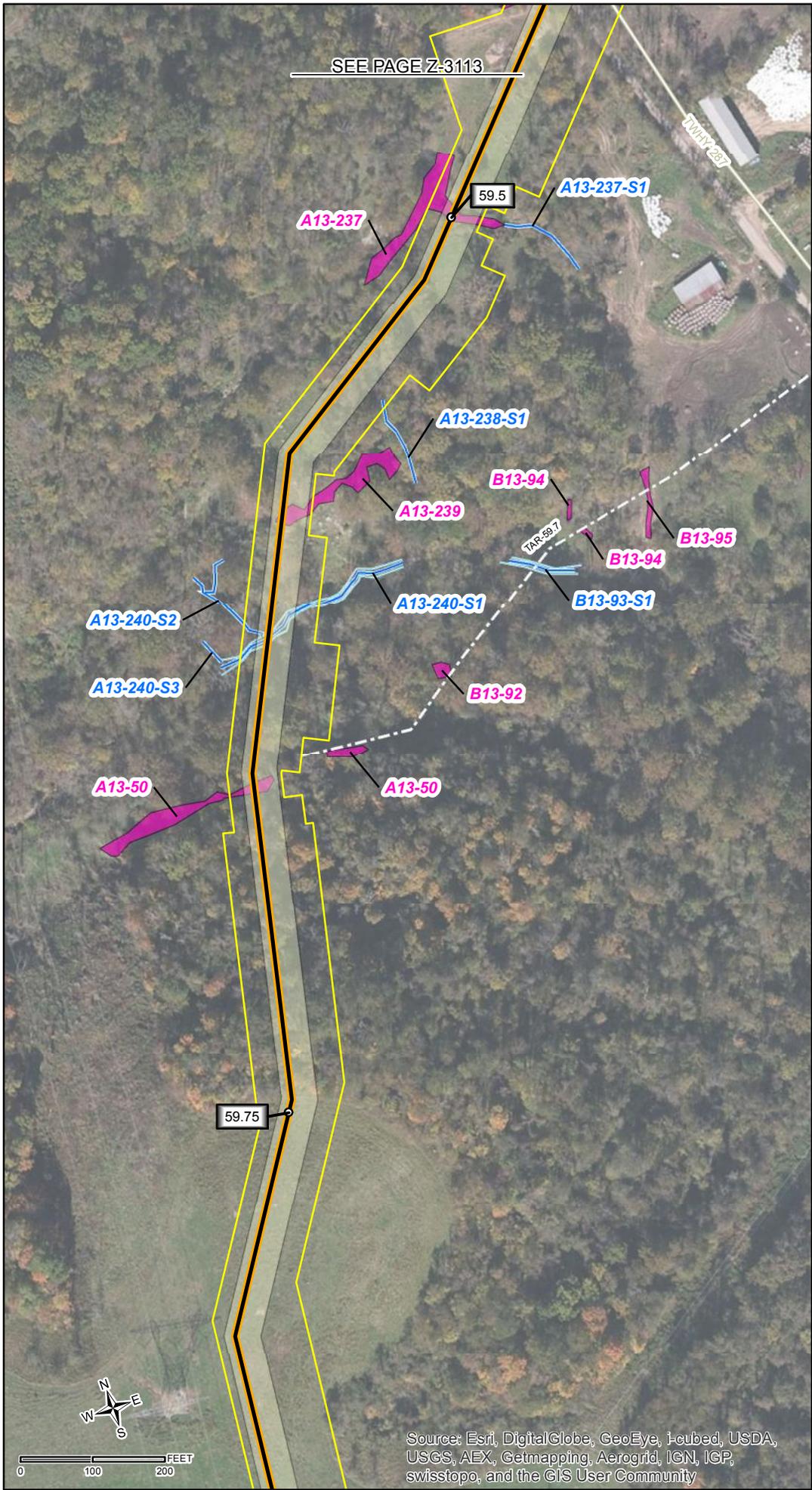
FLOW 

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

**Richland Township MP 59.56
A13-238**

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

Photo 1: Ephemeral stream, looking upstream to the north
Photo 2: Ephemeral stream, looking downstream to the south



LEGEND

- 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
5408 Westwood Court, Houston, TX 77056-6518 713.827.5000

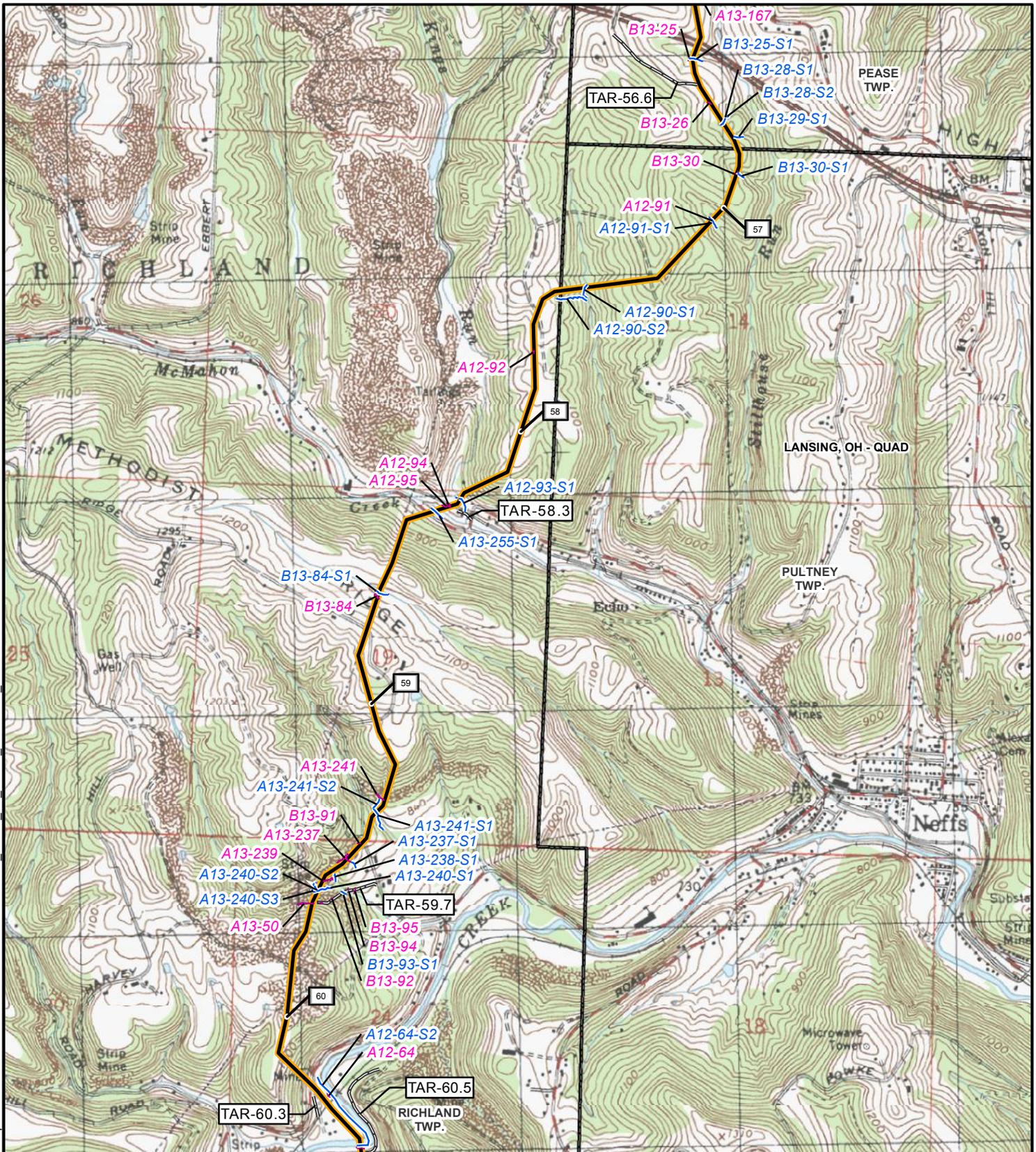
Spectra Natural Gas Pipeline
2015 OPEN Project
Proposed 30in. Line NO. 73

Natural Resource Maps
Map Z-3114

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

P:\Spectra\OPEN\data\Prod\Work\GIS\W\XD\SPECTRA_OPEN_ES_QUAD_EXCERPT_85x11.mxd



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-2018



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

I.G.