

TETLP OPEN PROJECT STREAM SUMMARY

STW's
3355+00

OPEN Facility: 30" 36" MP: Compressor Station

Observers: SE, JG Date: 7/22/13

Town: Meach County: Belmont

Crossing Name/ID: B13-22-51 Recent Rain Event (date/amount): 4/19/13

Flow Characteristics

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

<u>Flow Type</u>		<u>Flow Velocity</u>		<u>Comments:</u>
<input type="checkbox"/> Perennial	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Torrential	<input type="checkbox"/> Mod/Slow	<input checked="" type="checkbox"/> No Flow
<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: NA

Max Run Depth: NA

Riffle and Pool Width: Same Wider Pool Wider Riffle

Channel and Bank Characteristics

<u>Channel Substrate %:</u>	<u>Origin</u>	<u>Quality</u>	<u>Bank Height</u>
<u>10</u> BLDR Slab x	<input checked="" type="checkbox"/> Limestone	<u>Silted Stream Channel</u>	<u>1</u> ft
<u> </u> Boulder	<input type="checkbox"/> Tills	<input type="checkbox"/> High	Bank Erosion
<u> </u> Bedrock	<input type="checkbox"/> Wetlands	<input type="checkbox"/> Moderate	L R
<u>10</u> Cobble x	<input checked="" type="checkbox"/> Hardpan	<input checked="" type="checkbox"/> Normal	<input checked="" type="checkbox"/> None- Some
<u>15</u> Gravel x	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Free	<input type="checkbox"/> Moderate
<u>3</u> Sand x	<input type="checkbox"/> Rip/Rap	Embeddedness	<input type="checkbox"/> High-Severe
<u>5</u> Silt Mud	<input type="checkbox"/> Lacustrine	<input type="checkbox"/> Extensive	
<u> </u> Clay Hardpan	<input type="checkbox"/> Shale	<input type="checkbox"/> Moderate	
<u> </u> Peat-Muck	<input type="checkbox"/> Coal Fines	<input type="checkbox"/> Normal	
<u> </u> Artificial		<input checked="" type="checkbox"/> None	
<u>55</u> Woody/Leaf Debris x			
<u>2</u> Fine Detritus x			

Embedded Riffle/Run: NA *ephemeral dry channel*

Stream Cover

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

Stream Morphology and Riparian Zone

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

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

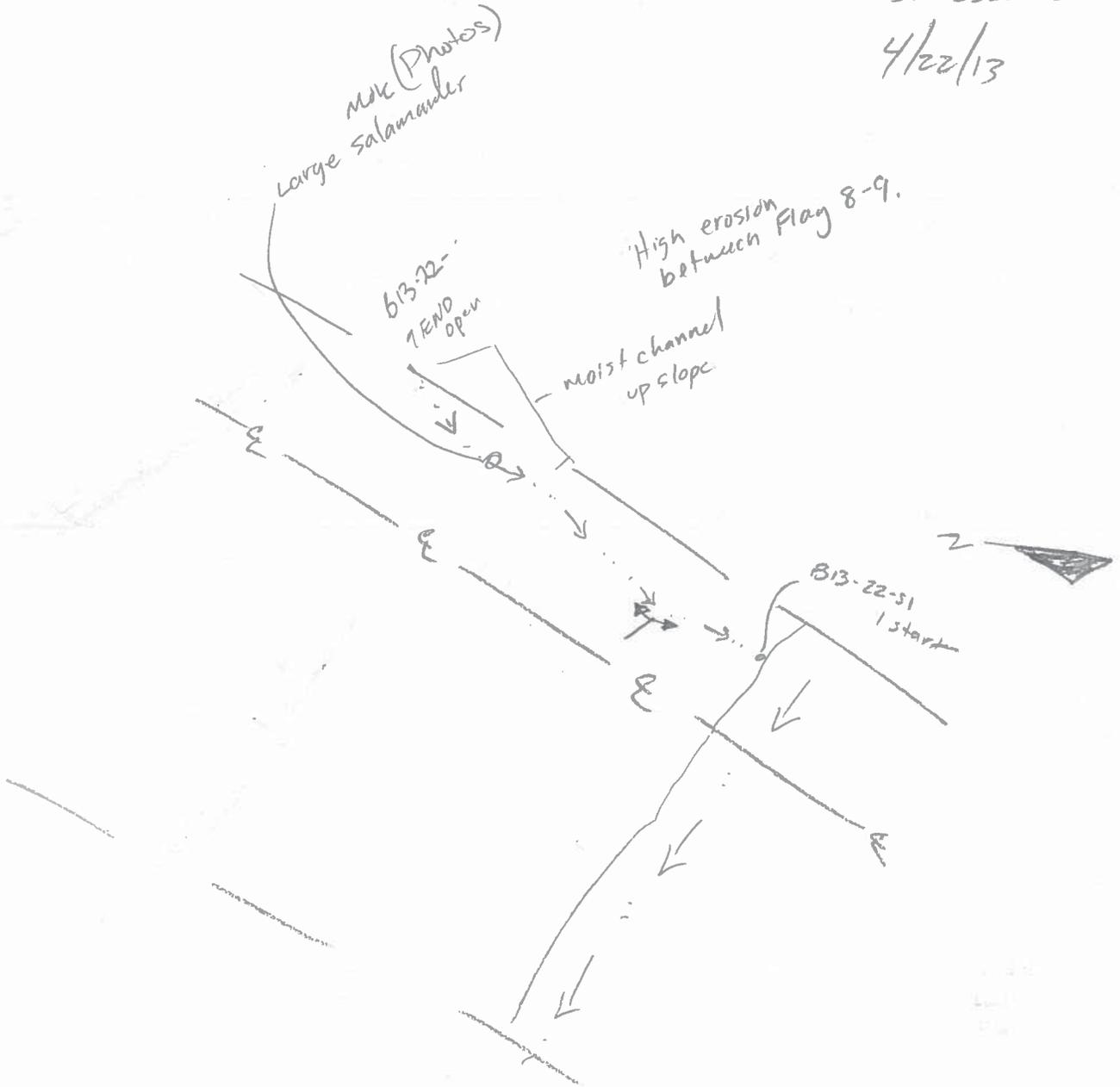
large mole salamander Brownish with pink hue. Burrows hole noticed between / under Flat rocks.

Spring Salamander Adult

STREAM SKETCH

STA: 3355+00

4/22/13



Checklist:

- Stream ID# = B13-22-51
- 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) :

24

SITE NAME/LOCATION TETLP's OPEN Project
 SITE NUMBER B13-22-S1 RIVER BASIN Ohio River East DRAINAGE AREA (mi²) 0.02
 LENGTH OF STREAM REACH (ft) 44 LAT. .39.94135 LONG. -80.85072 RIVER CODE _____ RIVER MILE _____
 DATE 4/22/13 SCORER S. Everette, J. Gravel COMMENTS surveyed 247' total, 44' 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>10</u>	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<u>5</u>
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>55</u>
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<u>2</u>
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<u>10</u>	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<u>15</u>	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<u>3</u>	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 20 (A) 12 (B) 7

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 _____ 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) 0.6

HHEI Metric Points

Substrate Max = 40

19

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 type="checkbox"/>	<input 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 _____

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

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10 ft/100 ft)
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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 Rock Hollow 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: Businessburg, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____
County: Belmont Township / City: Mead

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 4/19/13 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) Y 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: Adult spring salamander

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, no flow at time of survey with highly eroded banks going downslope to the north.

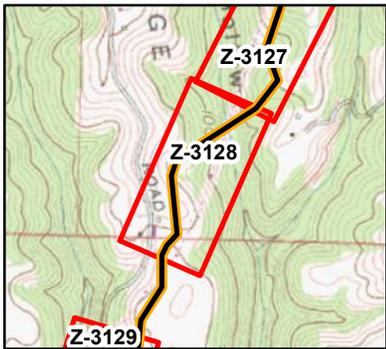
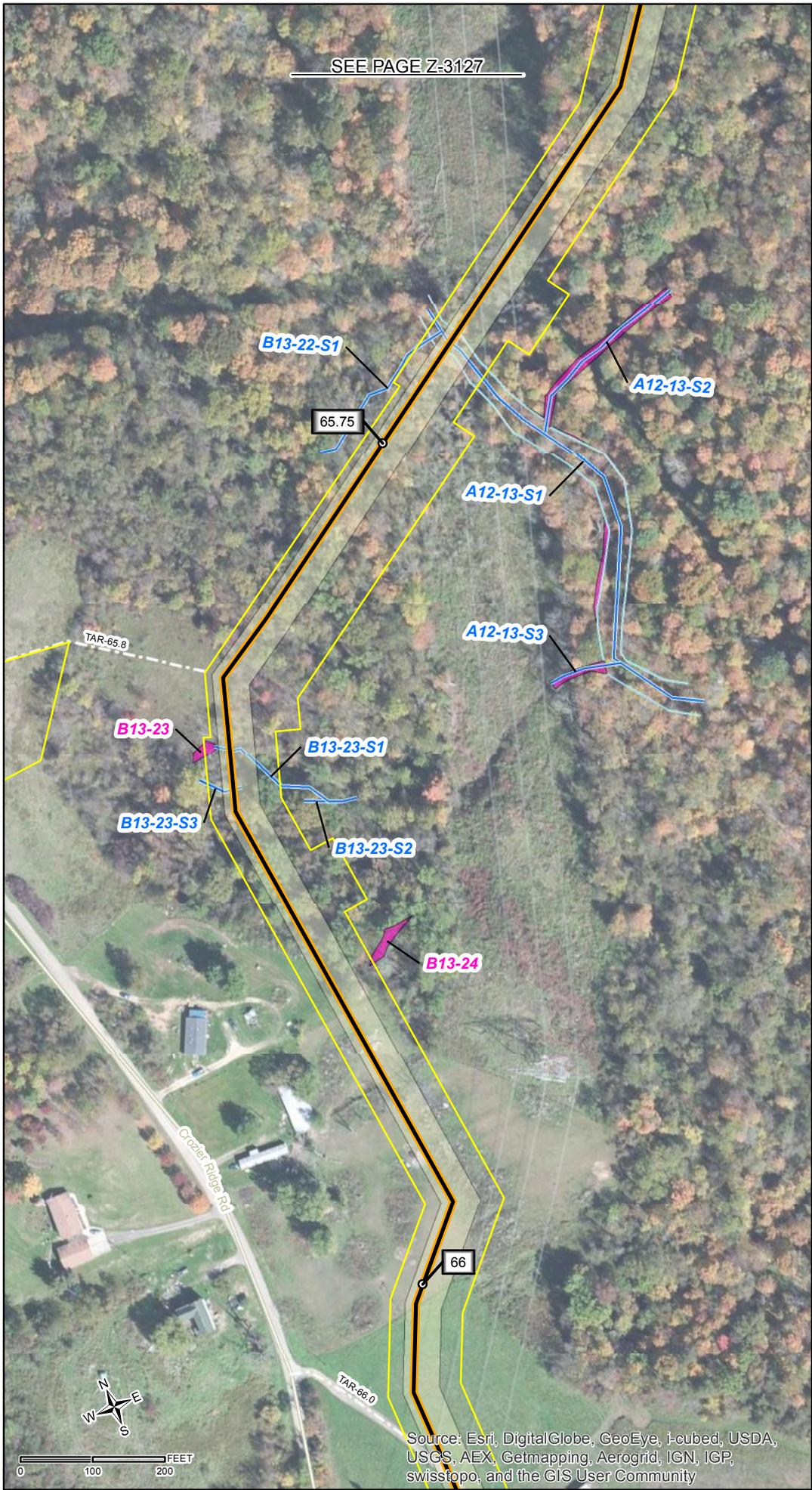
FLOW 

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

**Mead Township MP 65.74
B13-22-S1**

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

Photo 1: Ephemeral stream, looking upstream to the SW
Photo 2: Ephemeral stream, looking downstream to the NE



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 Westchester Court, Houston, TX 77056-6518 713.827.5400

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

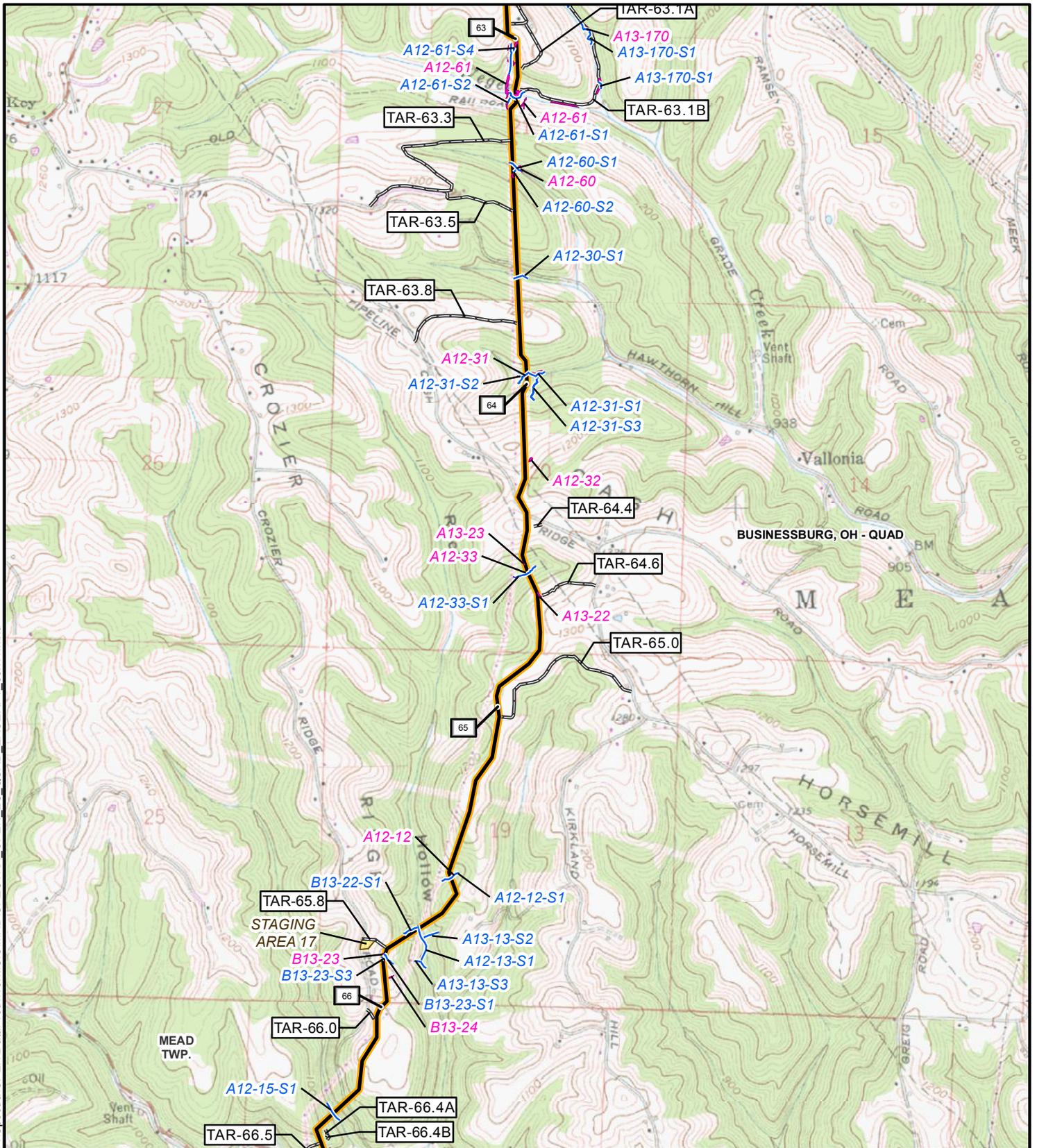
Natural Resource Maps
Map Z-3128

Hatch Mott MacDonald
100 Lower Westfield Rd.
Piquette, MI 49078
PH: (419) 524-1100 Fax: (419) 524-0154

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\DX\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-2020



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

I.G.