

# Indian Creek stream survey 12-30-14

Data Collectors:

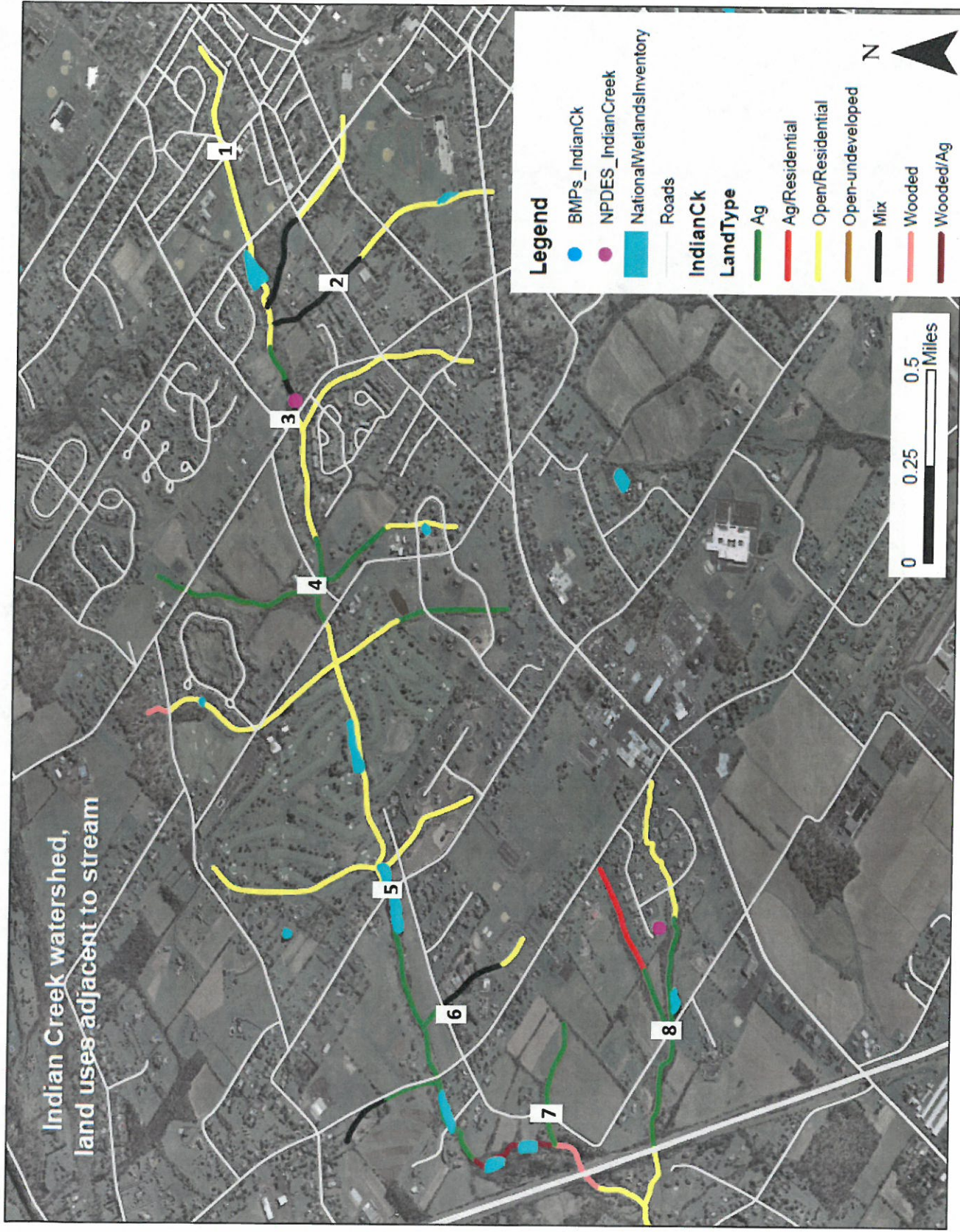
Kelsey Hensley – *photographer*

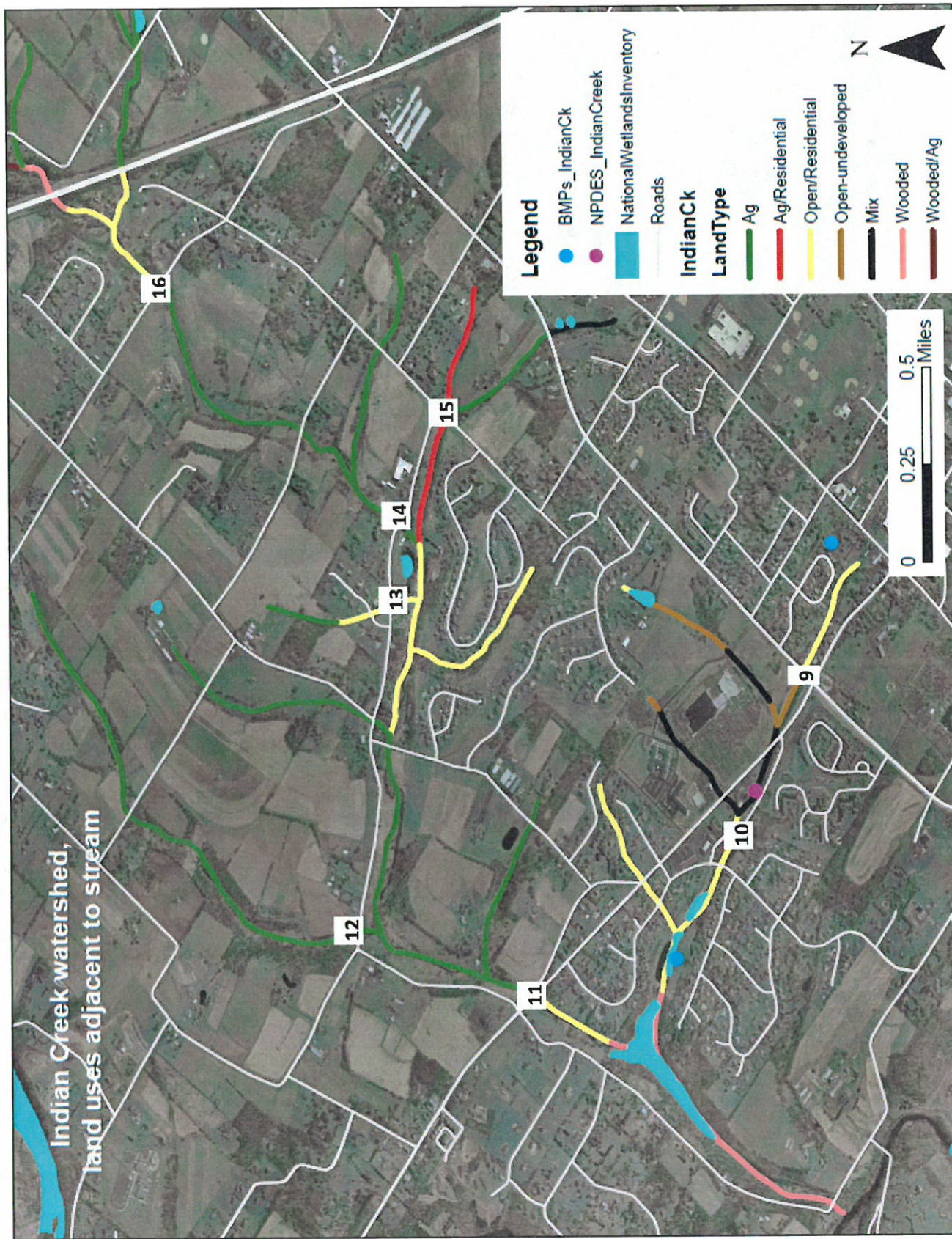
Jon Markovich – *channel depth reader*

Bill Richardson – *stadia rod holder*

Jen Sincock – *data recorder*

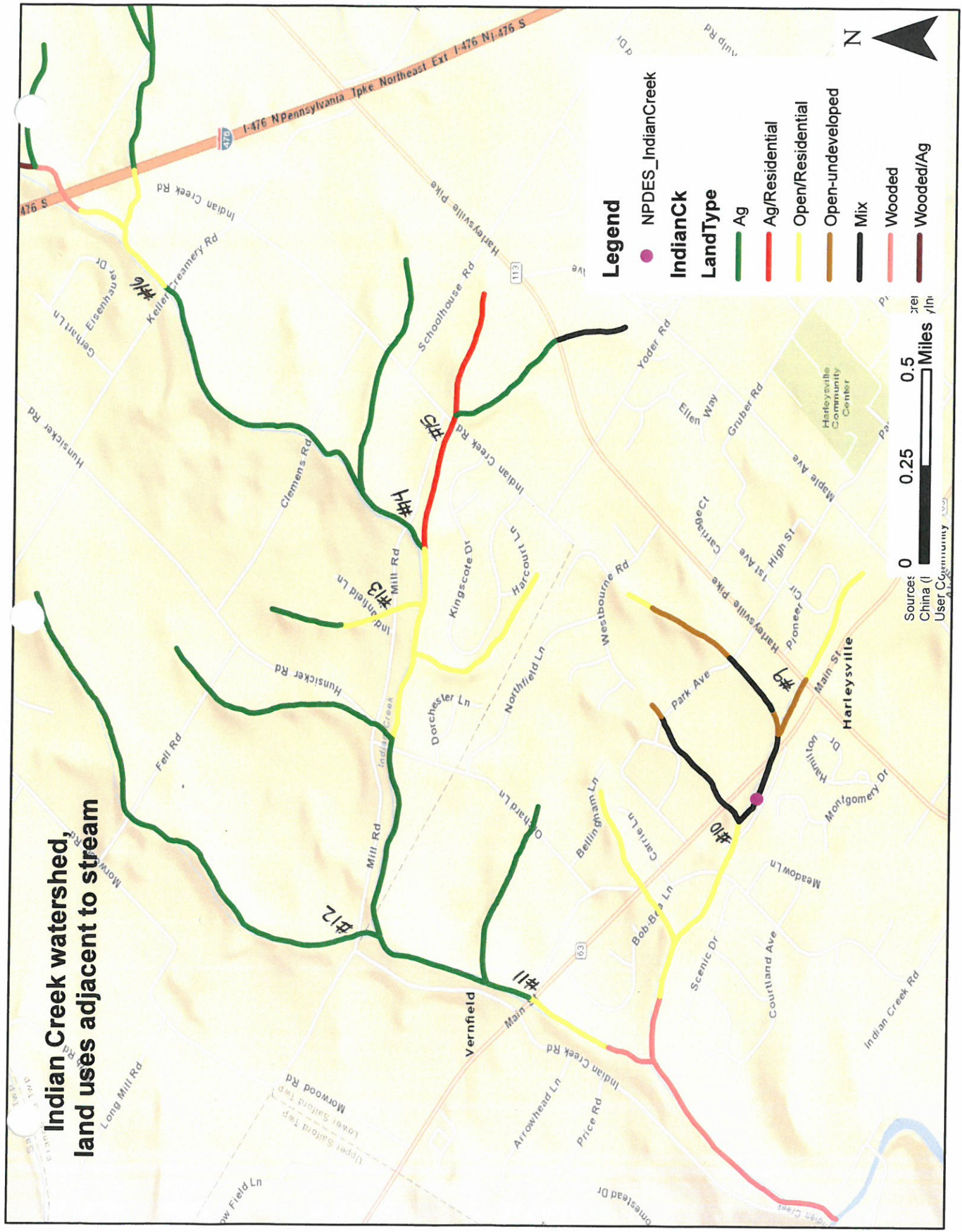
Measurements and observations recorded using the “Protocol for collecting eroding streambank and channel attributes” (2014).







# Indian Creek watershed, land uses adjacent to stream



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: Indian CK Date: 12/30/2014  
 Location: Site #1, Ball Park  
 GPS ID (hr:min:sec) 9449102 GPS Lat/Long: N 40° 19.4473' W 75° 20.2450'  
 Data Collectors: Bill Richardson, Jan Sirocek, Kelsey Hensley, Jon Markovich

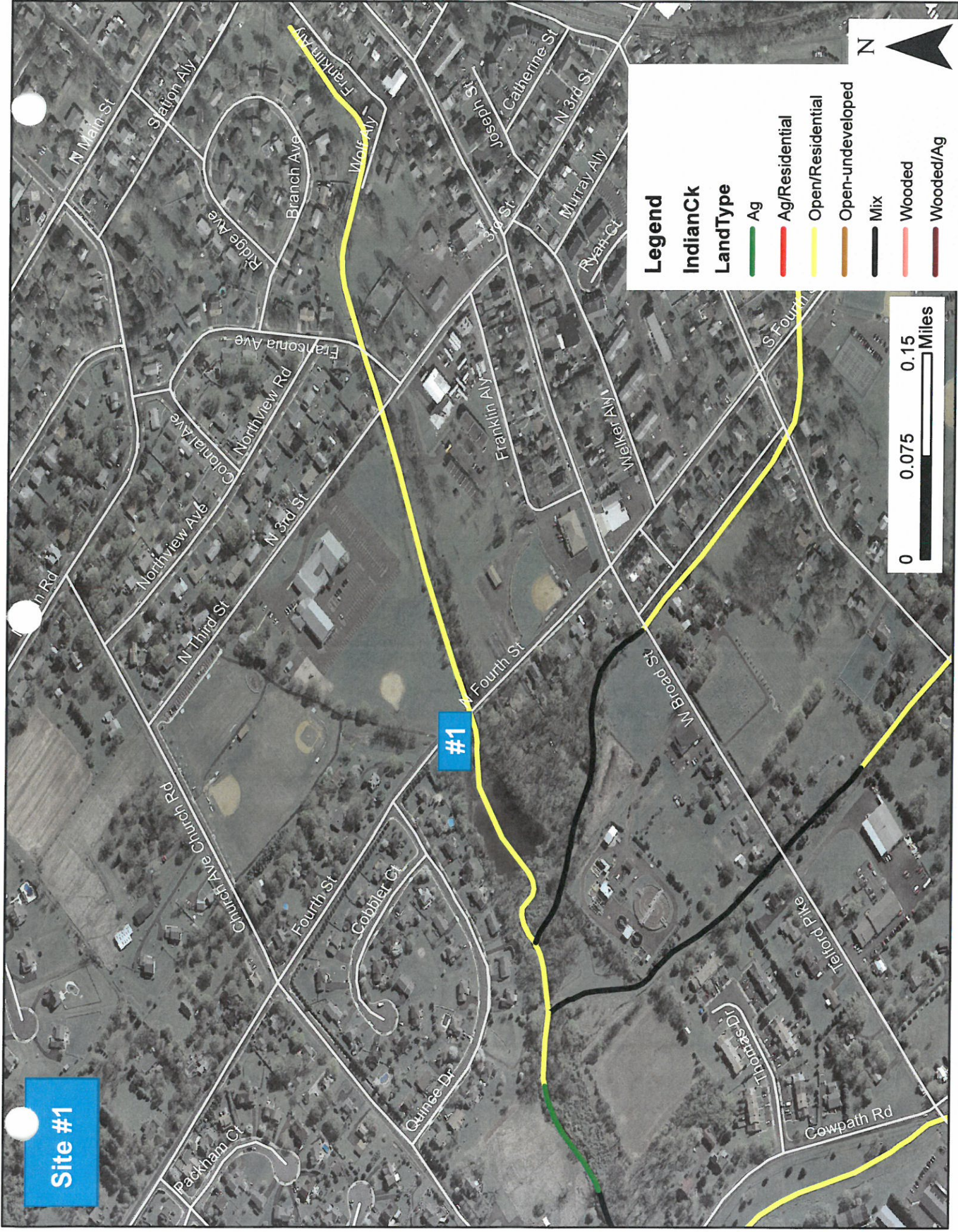
Current weather: Precipitation No Precipitation  
 Past weather (last 24hrs): Precipitation No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) 1.63 Estimated Channel Length (m) see lat/long.  
 Upstream N 40° 19.4778' W 75° 20.1349'  
 Downstream N 40° 19.4325' W 75° 20.2929'



Site #1

#1

**Legend**

**IndianCk**

**LandType**

Ag

Ag/Residential

Open/Residential

Open-undeveloped

Mix

Wooded

Wooded/Ag



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: 2 UNT - Cowlish + Telford Pike Date: 12/30/14  
 Location: Site #2  
 GPS ID (hr:min:sec) 10:41:29 GPS Lat/Long: N 40° 19.0982' W 75° 20.5988'  
 Data Collectors: John Markovich, Kelsey Henley, Jen Sirock, Bill Richardson

Current weather: Precipitation No Precipitation  
 Past weather (last 24hrs): Precipitation No Precipitation

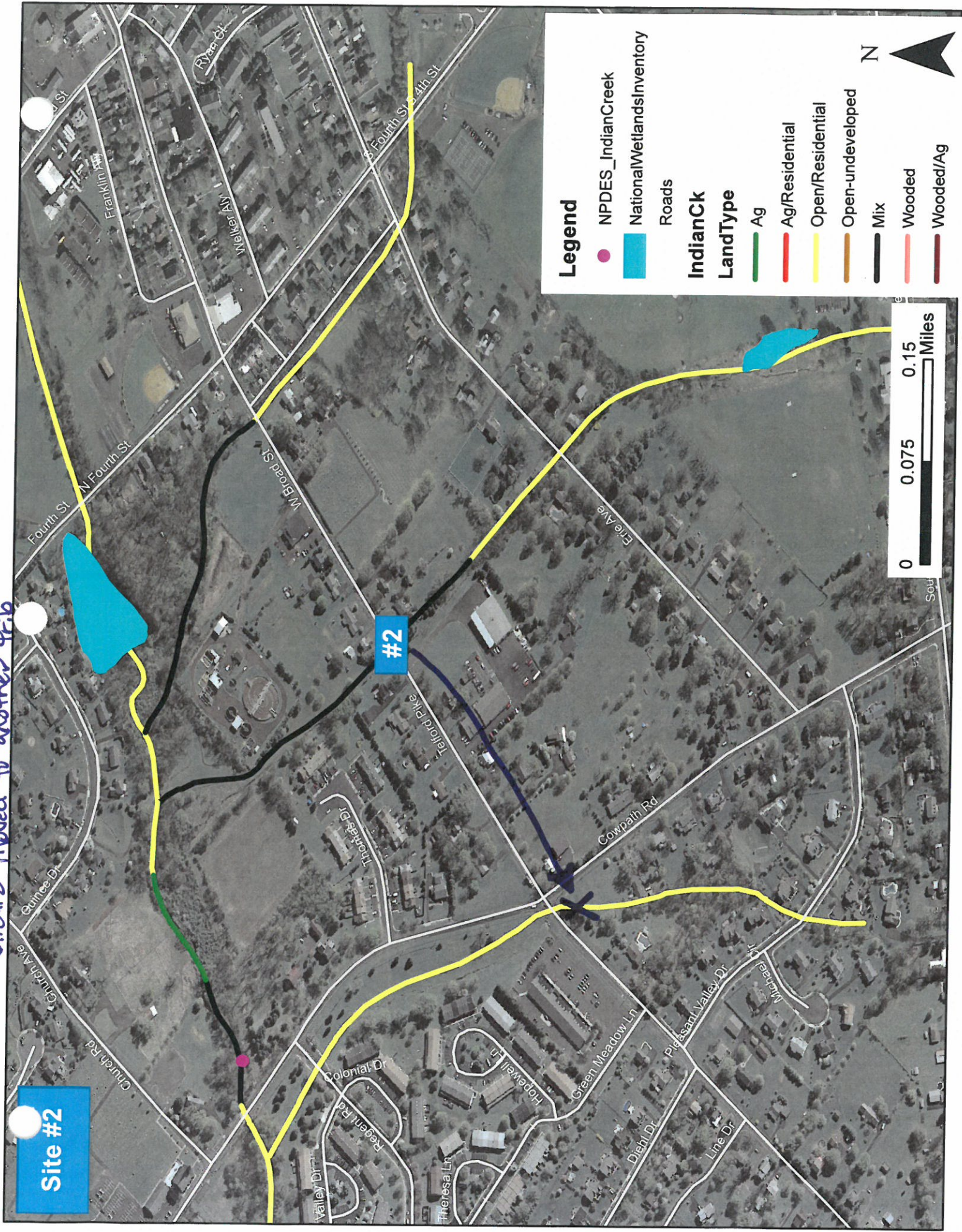
## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.) <i>River Left</i>	individual houses or housing developments with large open lawns; minimal riparian buffer width <i>River Right</i>	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) 0.6 Estimated Channel Length (m) 100m

Site #2 moved to another tribut



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: Indian Ck

Date: 12/30/14

Location: Site #3 - mainstem (downstream of WWTP)

GPS ID (hr:min:sec) 10:37:35

GPS Lat/Long: N40°19.2998' W75°20.7701'

Data Collectors: Markovich, Hensley, Sincok, Richardson

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

Right Bank  
loss on left bank.

## Streambank/Channel Measurements

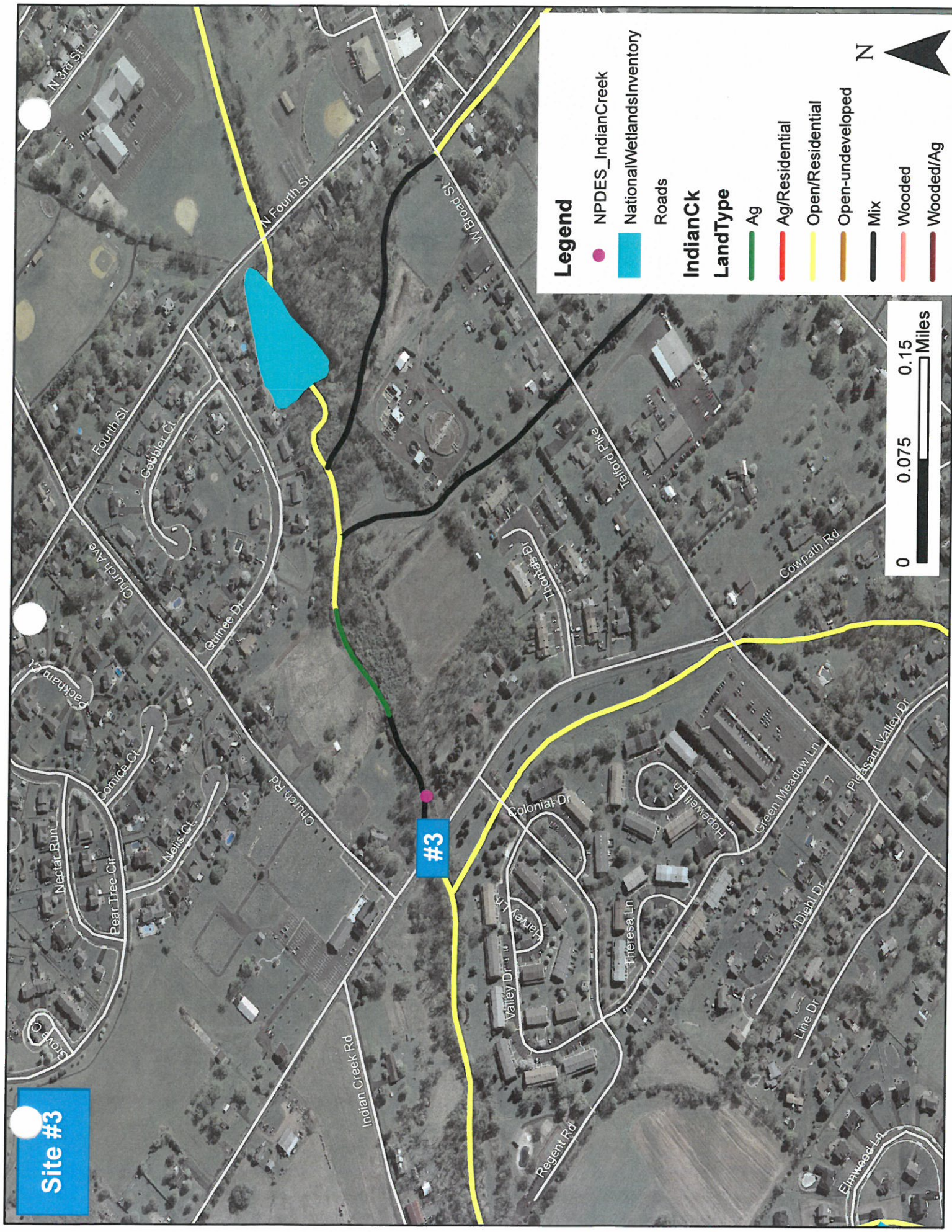
Channel Depth (m) 1.69

Estimated Channel Length (m) ~100 m.

most

Additional Comments (note water appearance, odor, algal growth, substrate embeddedness)

Heavy algae growth - most likely *Cladophora* - long, filamentous.



**Legend**

- NPDES\_IndianCreek
- NationalWetlandsInventory
- Roads
- IndianCk
- LandType
  - Ag
  - Ag/Residential
  - Open/Residential
  - Open-undeveloped
  - Mix
  - Wooded
  - Wooded/Ag



Site #3

# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: Indian CK

Date: 12/30/2014

Location: Site #4, mainstem @ Indian CK Rd

GPS ID (hr:min:sec) 10:59:19

GPS Lat/Long: N 40°19.251' W 75°21.1818'

Data Collectors: Marisovich, Richardson, Sisco, Hensley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) 1.8m

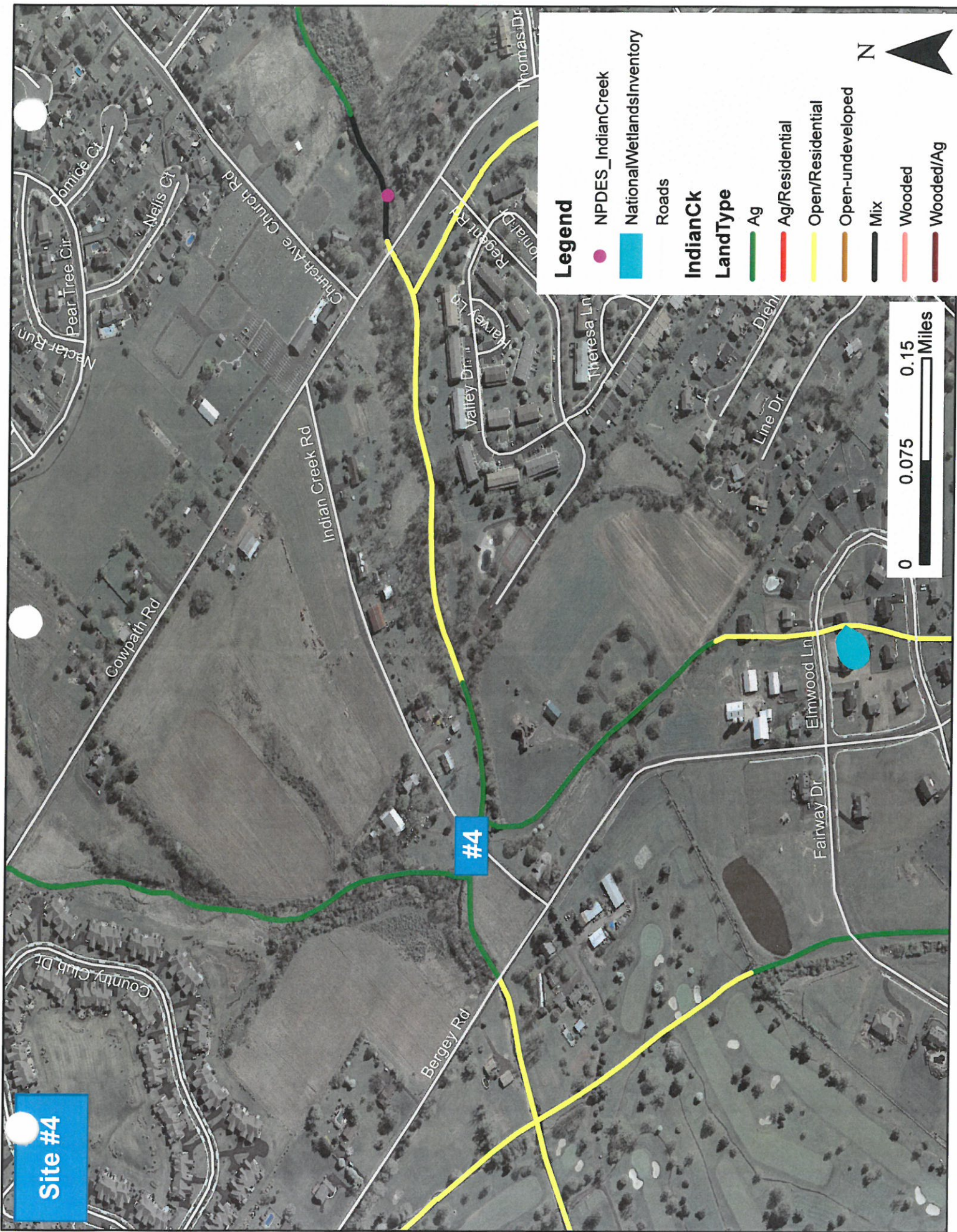
Estimated Channel Length (m) \_\_\_\_\_

Upstream Lat/Long: N 40°19.2613' W 75°21.1106'

Downstream Lat/Long: N 40°19.2519' W 75°21.1818'

Additional Comments (note water appearance, odor, algal growth, substrate embeddedness)

moderate-heavy algae probably Chladophora - filamentous  
covering the stream bed + rocks.



Site #4

#4

**Legend**

- NPDES\_IndianCreek
- NationalWetlandsInventory
- Roads
- IndianCk
- LandType
  - Ag
  - Ag/Residential
  - Open/Residential
  - Open-undeveloped
  - Mix
  - Wooded
  - Wooded/Ag

N



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: Indian Ck Date: 12/30/2014

Location: Site #5, Crosses Godshall Rd - mainstem

GPS ID (hr:min:sec) 11:25:44

GPS Lat/Long: N 40° 19.1059' W 75° 21.7129'

Data Collectors: Markovich, Richardson, Sincro, Hersley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees	mostly steep with some overhangs	
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) \_\_\_\_\_

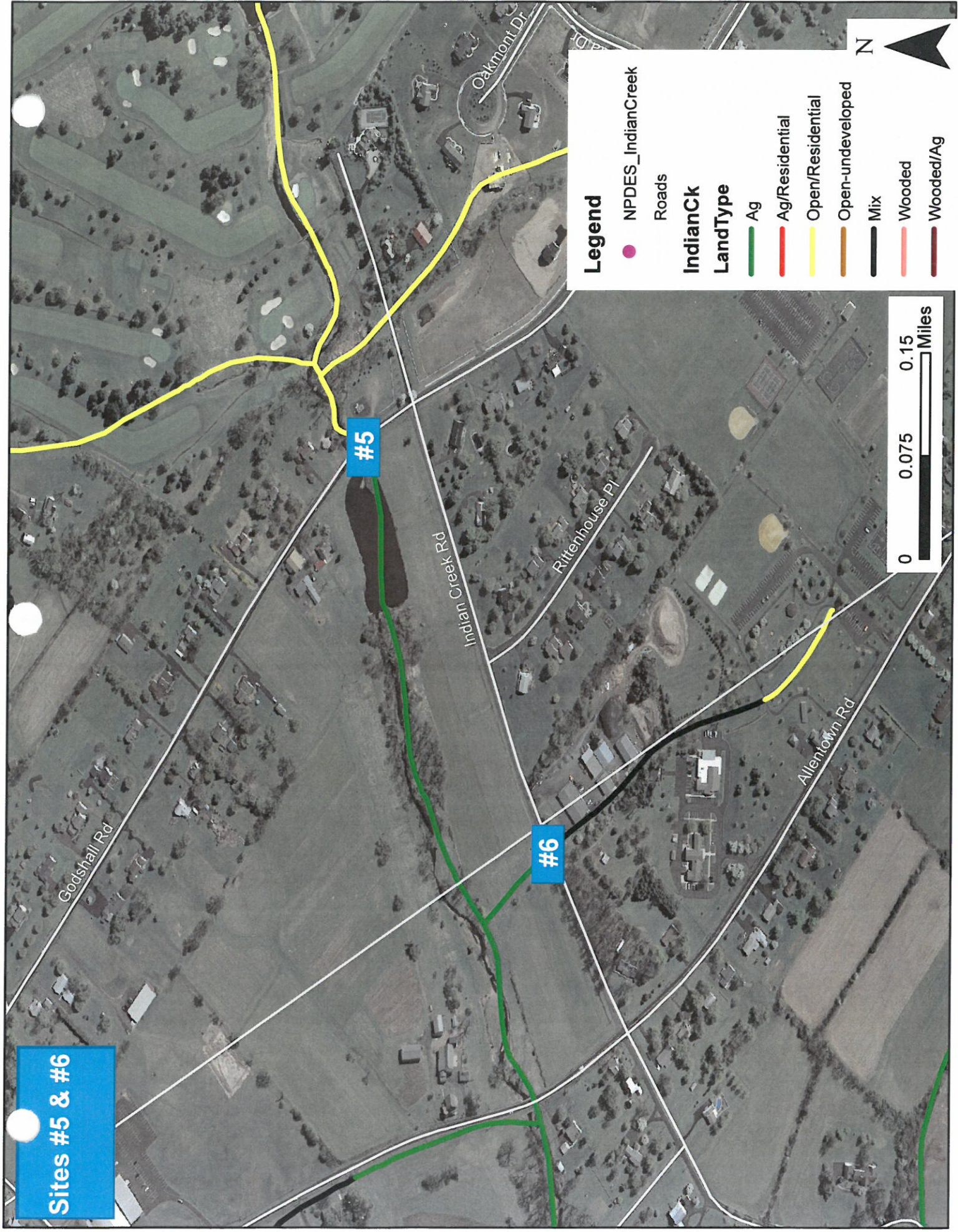
Estimated Channel Length (m) 150 m.

Pool 2.2 m

~~5.0 m~~

Additional Comments (note water apperance, odor, algal growth, substrate embeddedness)

Very turbid, stream bed sediment choked algae.



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: UNT of Indian Creek

Date: 12/30/2014

Location: Sites #6 & #7

GPS ID (hr:min:sec) \_\_\_\_\_

GPS Lat/Long: \_\_\_\_\_

Data Collectors: Markovich, Richardson, Sincok, Hensley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

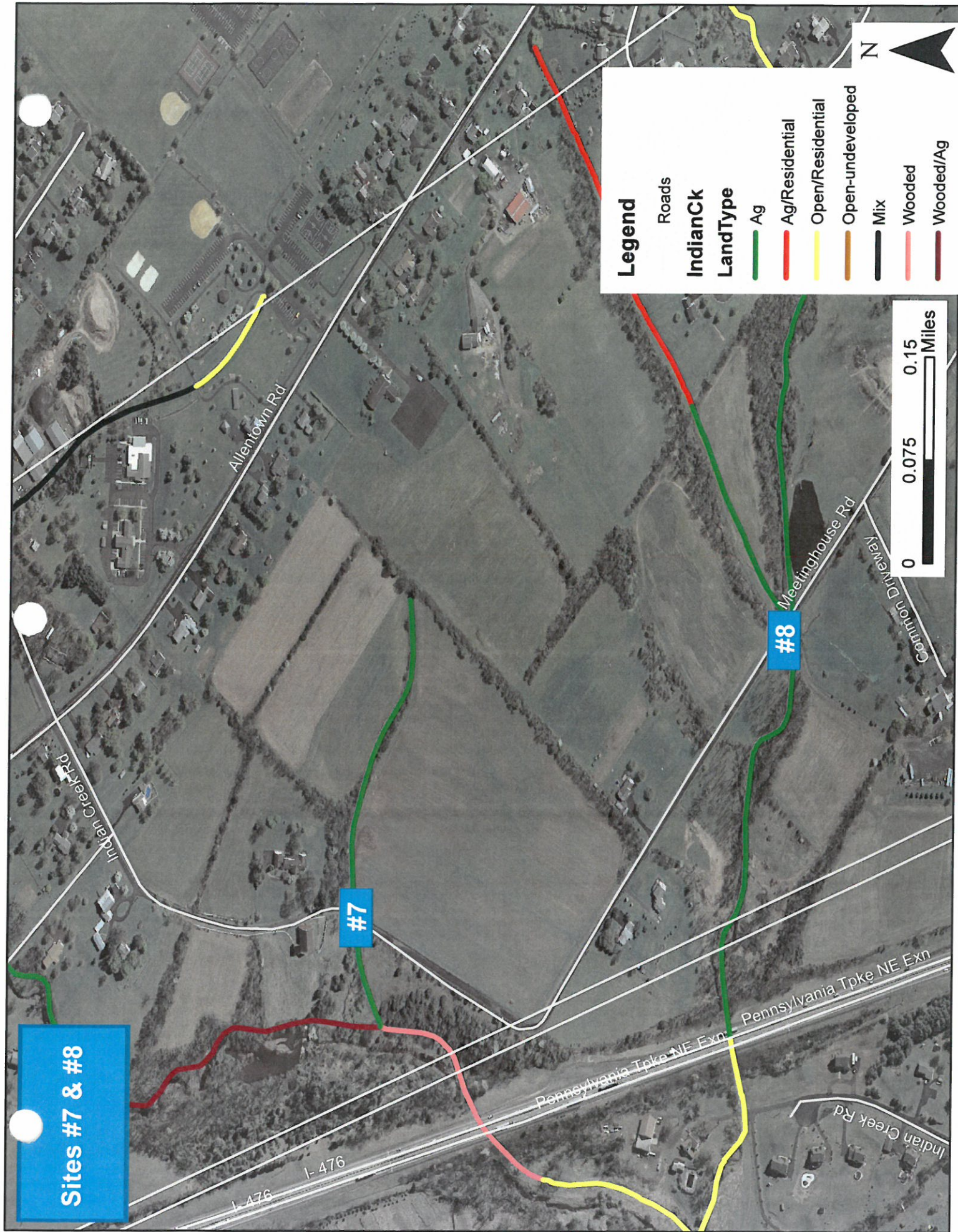
Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) \_\_\_\_\_

Estimated Channel Length (m) \_\_\_\_\_

\* DRY Channels \*  
did not sample



**STREAMBANK EROSION DATA SHEET - Measurement and Observation**

**Header Information**

Watershed/Stream Name: Indian CK

Date: 12/30/2014

Location: Site #8, UNT on Meetinghouse Rd

GPS ID (hr:min:sec) 11:51:06

GPS Lat/Long: N40°18.4575', W75°22.1537'

Data Collectors: Markovich, Richardson, Sincok, Hersley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

**Streambank/Channel Observations**

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	<u>45 - 90 degrees</u>	> 90 degrees	<u>Some overhang.</u>	
Surface Protection	0 - 50%	<u>&gt; 50%</u>			

**Streambank/Channel Measurements**

Channel Depth (m) 1.7

Estimated Channel Length (m) 100 m.

Some algae, diatoms in stream bed.

# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: UNT

Date: 12/30/17

Location: Site #9 next to Grant + Harbottle Pike

GPS ID (hr:min:sec) 12:13:13

GPS Lat/Long: \_\_\_\_\_

Data Collectors: Richardson, Hensley, Markovich, Smith

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m <u>river left</u>	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

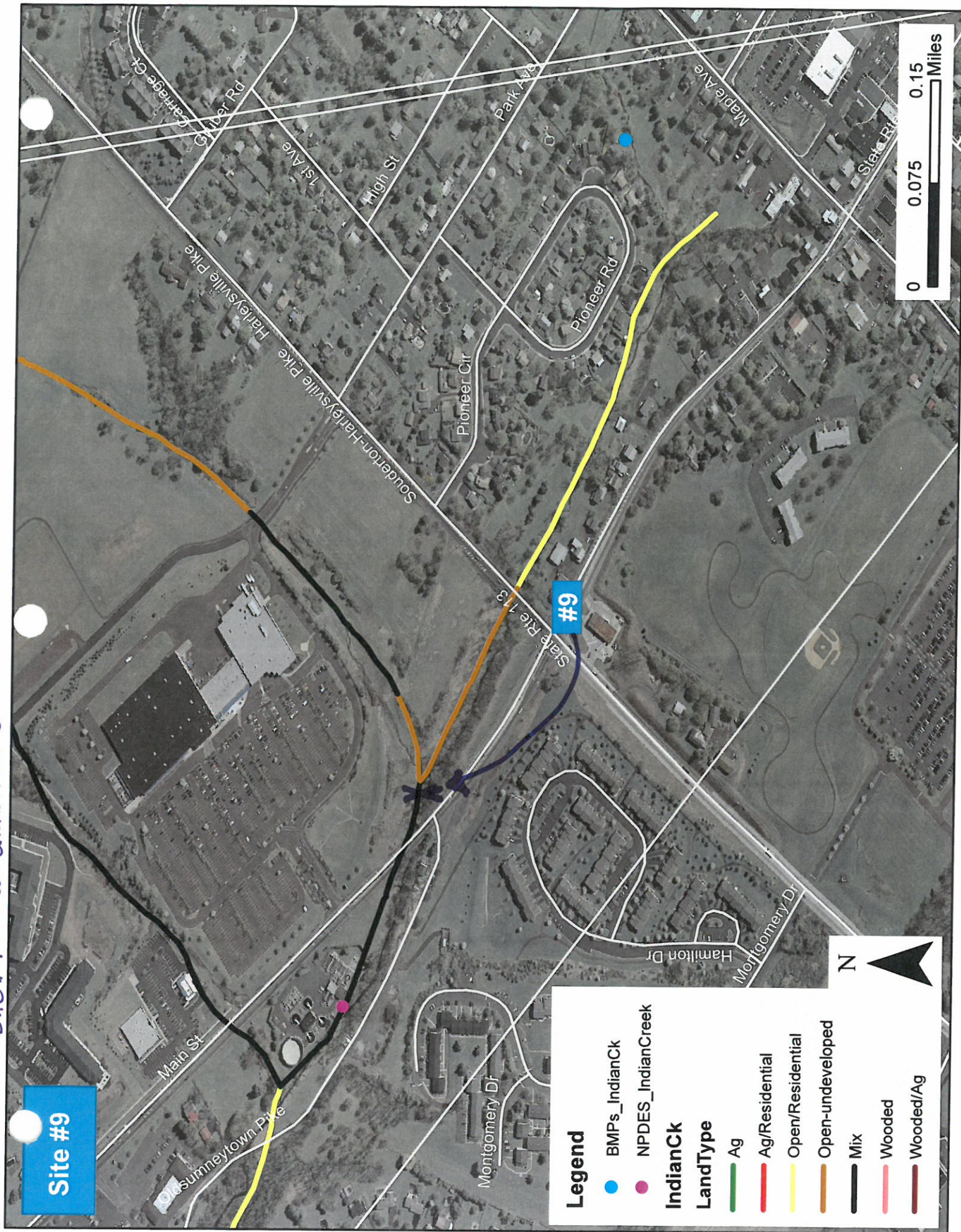
Channel Depth (m) 1.2

Estimated Channel Length (m) \_\_\_\_\_

check map for distance

St. Rte 113 to ~~Old Sweeney Pike~~ + Main St.

site #9 moved downstream



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: WNT to Indian Creek

Date: 12/30/14

Location: Site #10 off old Sumner town

GPS ID (hr:min:sec) 12:58:59

GPS Lat/Long: N 40° 17.1919' W 75° 23.9640'

Data Collectors: Richardson, Hensley, Markoncha, Sunaib

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer. <i>grassy</i>	
Bank Angle	Shallow	Steep	Overhang		
	<u>0 - 45 degrees</u> <i>right bank</i>	<u>45 - 90 degrees</u> <i>left bank</i>	> 90 degrees		
Surface Protection	0 - 50%	<u>&gt; 50%</u>			

## Streambank/Channel Measurements

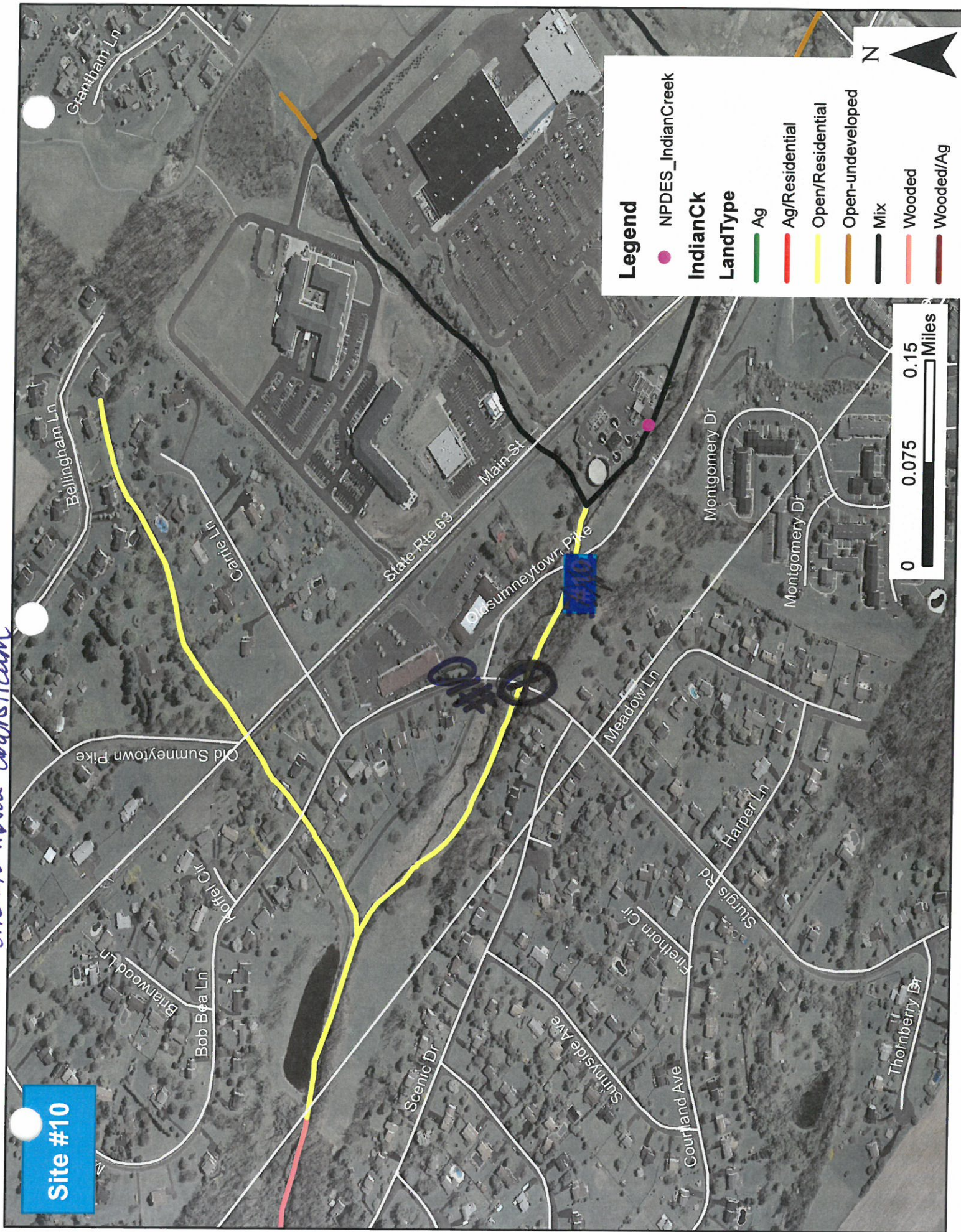
Channel Depth (m) 0.9 m

Estimated Channel Length (m) 200 m.

*Some algae present.*

Site #10 moved downstream

Site #10



**STREAMBANK EROSION DATA SHEET - Measurement and Observation**

**Header Information**

Watershed/Stream Name: Indian CK

Date: 12/30/2014

Location: Site #11 Main St & Old Sumner town

GPS ID (hr:min:sec) 1:16:10

GPS Lat/Long: N 40° 17.6148' W 75° 24.2126'

Data Collectors: Markovich, Richardson, Sincok, Hensley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

**Streambank/Channel Observations**

Predominant Land Uses	<u>Agriculture</u>	Open	Mixed	<u>Residential</u>	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	<u>Moderate</u>	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	<u>Marginal</u>	<u>Poor</u>	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m <u>left bank</u>	Surrounding area consists of short grasses and/or bare soil; no streambank buffer. <u>right bank</u>	
Bank Angle	<u>Shallow</u> <u>right bank</u>	<u>Steep</u> <u>left bank</u>	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	<u>&gt; 50%</u>			

**Streambank/Channel Measurements**

Channel Depth (m) \_\_\_\_\_

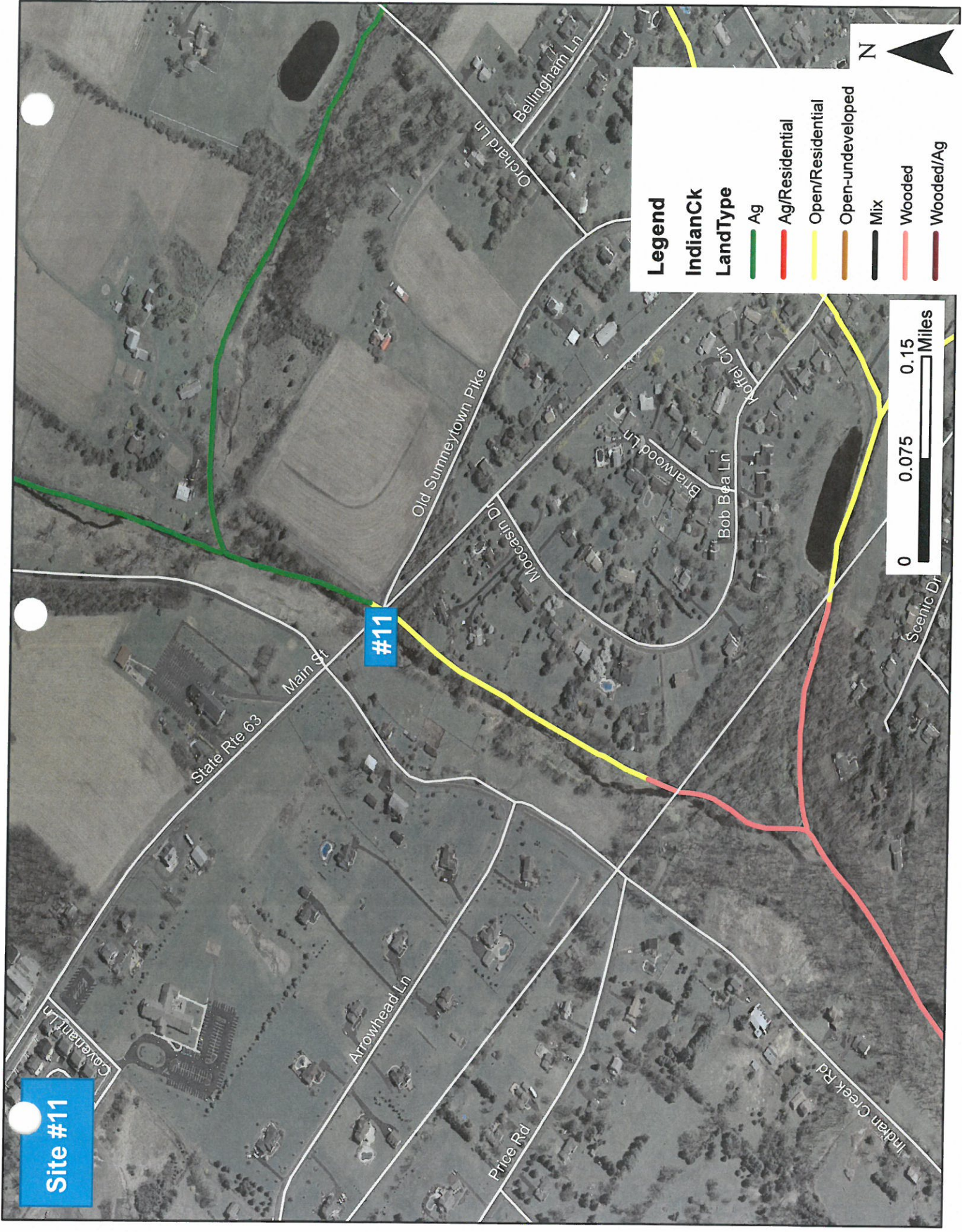
Estimated Channel Length (m) 200 m.

right bank: 0.9m

left bank: 3.0m.

Algae in stream on large sub strata.

Heavy algae growth - probably Chlorella



Site #11

#11

**Legend**

**IndianCk**

**LandType**

Ag

Ag/Residential

Open/Residential

Open-undeveloped

Mix

Wooded

Wooded/Ag



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: UNT of Indian CK

Date: 12/30/2014

Location: Site #12 off of Mill Rd & Indian Creek Rd

GPS ID (hr:min:sec) 134:24

GPS Lat/Long: N 40° 18.0051' W 75° 24.0826'

Data Collectors: Markovich, Richardson, Sircock, Hensley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) 0.68

Estimated Channel Length (m) 7150 m

Streambed is slightly silty-fine sediment clayey  
Stream is running thru grassy wetland  
intact  
silt may be washed.

Sites #12

#12

Hunsicker Rd

Hard Ln

Mill Rd

Indian Creek Rd

Main St

**Legend**

**IndianCk**

**LandType**

- Ag
- Ag/Residential
- Open/Residential
- Open-undeveloped
- Mix
- Wooded
- Wooded/Ag



\* correction : Site #13 was on the mainstream of Indian CK.

# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: UNT of Indian Creek

Date: 12/30/2014

Location: Site #13 UNT of Indian Creek, Off Mill Rd near Indianfield Ln

GPS ID (hr:min:sec) 1:47:57

GPS Lat/Long: N40°17.846' W75°23.4346'

Data Collectors: Markovich, Richardson, Sincok, Hensley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
	agricultural lands with minimal riparian buffers	open space such as parks and golf courses	highly impervious areas (industrial land use, parking lots, STPs, etc.)	individual houses or housing developments with large open lawns; minimal riparian buffer width	prominent riparian buffers with minimal human impact (no development, lots of woody vegetation)
Flow Condition	Dry	Stagnant	Slow	Moderate	Fast
	no water in the channel	very little water in the channel, mostly present as standing pools; no visual flow	Water moving slowly, with a smooth, unbroken surface	Water moving, with small ripples, waves and eddies	Water movement rapid and turbulent, surface with intermittent whitewater with breaking waves
Riparian Vegetation	Optimal	Sub-Optimal	Marginal	Poor	
	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width >5m	Surrounding area consists of several sizes of trees, shrubs, and grasses; streambank buffer width 1-5m	Surrounding area consists of either trees OR shrubs; buffer ranges from 1m to >5m	Surrounding area consists of short grasses and/or bare soil; no streambank buffer.	
Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) 1.72

Estimated Channel Length (m) 500 m

heavy algae covering rocks.

# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: Indian Creek

Date: 12/30/2014

Location: Site #14, off Mill Rd →

GPS ID (hr:min:sec) 2:10:53

GPS Lat/Long: N 40° 17.9578' W 75° 23.0931'

Data Collectors: Markovich, Richardson, Sinceck, Hensley

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
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Bank Angle	Shallow	Steep	Overhang		
	<u>0 - 45 degrees</u>	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	<u>&gt; 50%</u>			

## Streambank/Channel Measurements

Channel Depth (m) 1.35

Estimated Channel Length (m) 200m

heavy algae growth

# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: WNT to Indian Creek Date: 12/30/14  
 Location: Site # 15 Mill Rd + Indian Creek near Goodshall's Pond  
 GPS ID (hr:min:sec) 2:22:05 GPS Lat/Long: N40°17.7657' W75°22.9087'  
 Data Collectors: R. Jackson, Markovich, Hensley, Sumrell

Current weather: Precipitation No Precipitation  
 Past weather (last 24hrs): Precipitation No Precipitation

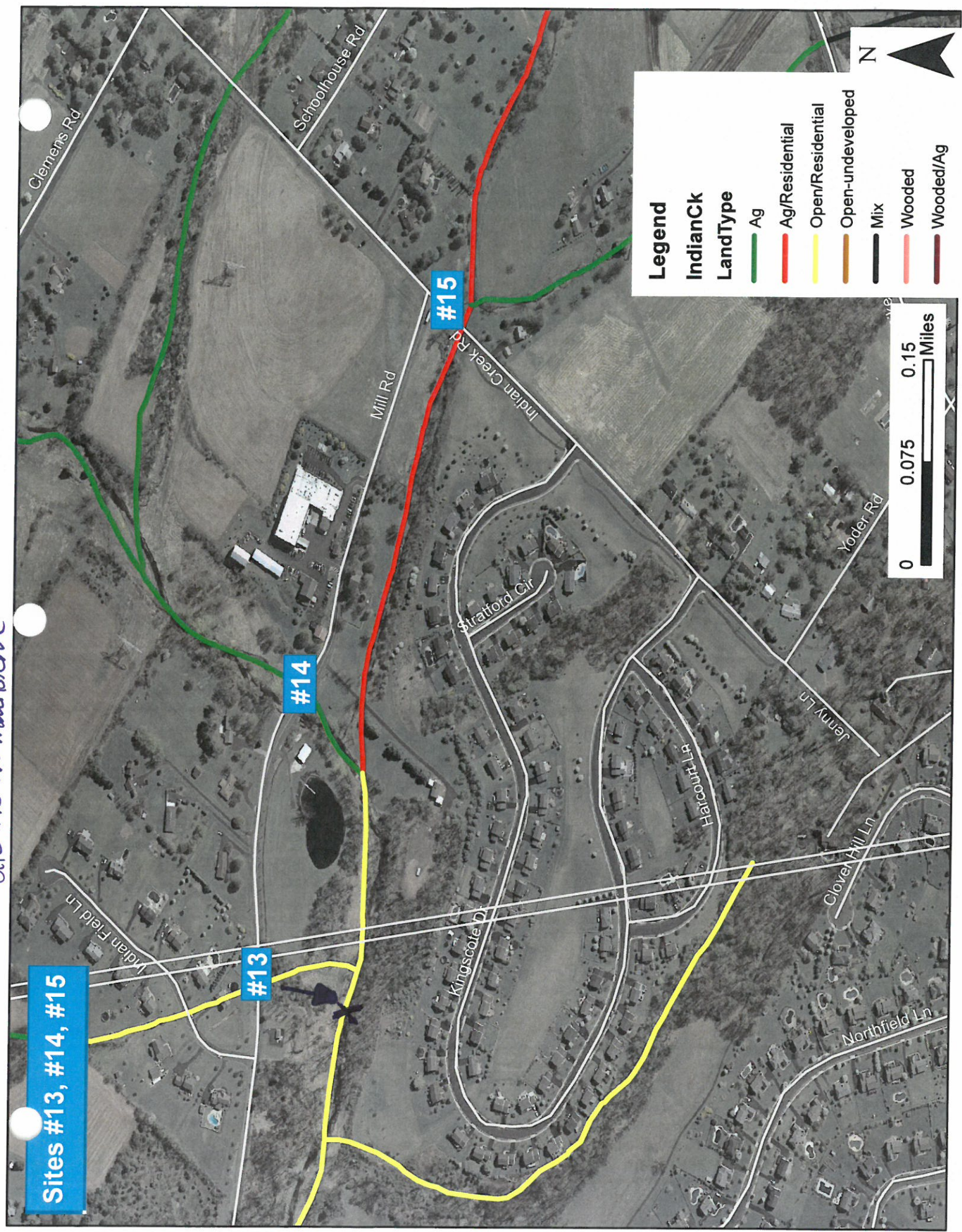
## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
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Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees	45 - 90 degrees	> 90 degrees		
Surface Protection	0 - 50%	> 50%			

## Streambank/Channel Measurements

Channel Depth (m) 0.9 m Estimated Channel Length (m) 200 m

Site #13 on mainstem



# STREAMBANK EROSION DATA SHEET - Measurement and Observation

## Header Information

Watershed/Stream Name: Indian Creek

Date: 12/30/14

Location: Site # 16 Keller Creamery Rd.

GPS ID (hr:min:sec) 2:31:52

GPS Lat/Long: N 40.18 3826' W 95.22.6057'

Data Collectors: Robertson, Melton, Hunsley, Sumner

Current weather:

Precipitation

No Precipitation

Past weather (last 24hrs):

Precipitation

No Precipitation

## Streambank/Channel Observations

Predominant Land Uses	Agriculture	Open	Mixed	Residential	Wooded
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Bank Angle	Shallow	Steep	Overhang		
	0 - 45 degrees <u>Down Right</u>	45 - 90 degrees <u>Down Right</u>	> 90 degrees		
Surface Protection	0 - 50%	> 50%			
	<u>Down Right</u>	<u>Down Right</u>			

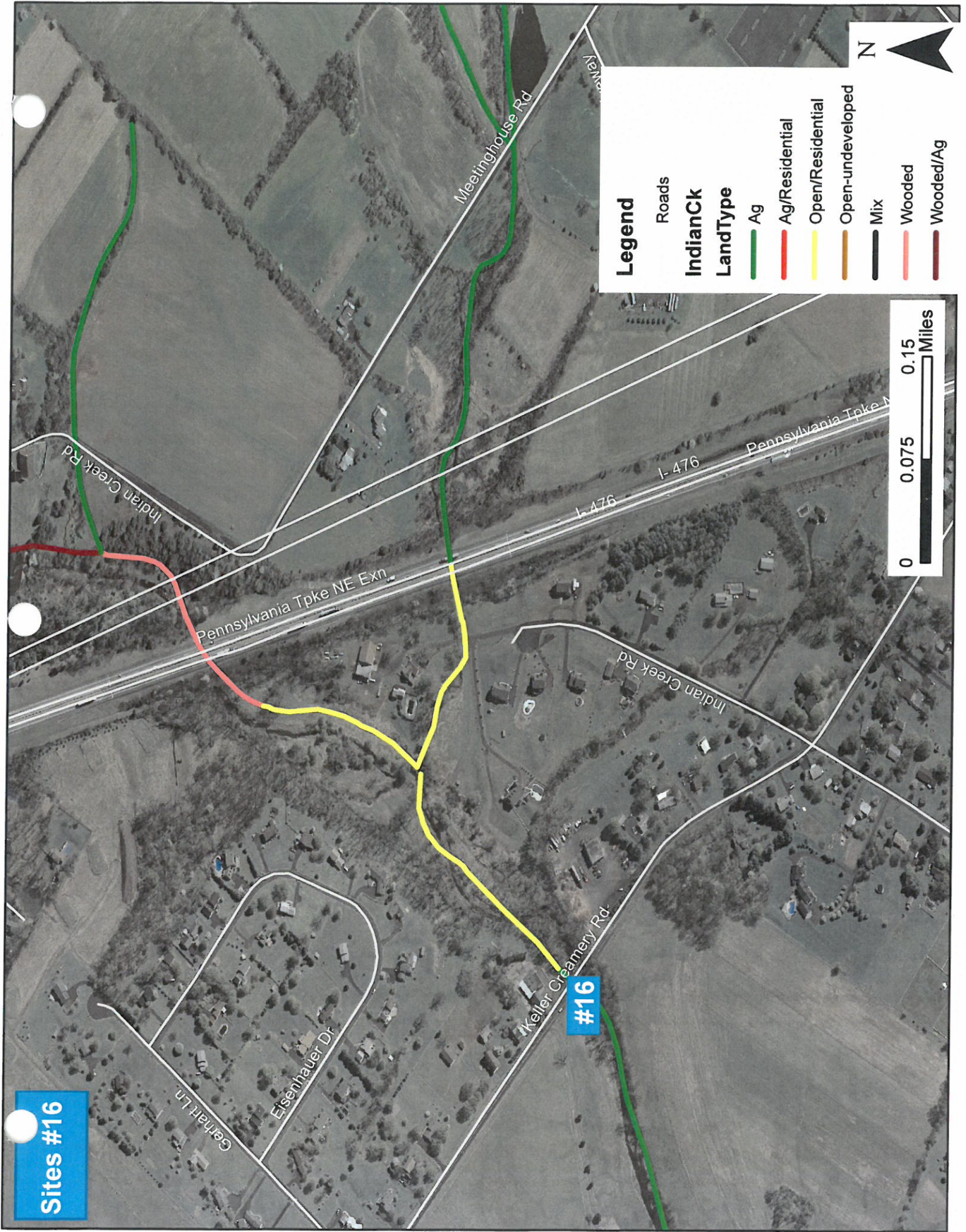
## Streambank/Channel Measurements

Channel Depth (m) Right bank 1.6m 1.6  
Left bank 2.8m

Estimated Channel Length (m) 300 m.

Sample site taken downstream of dam. (~200m) Very turbid water.

Note: Dam on upstream side of Keller Creamery Rd. Moderate-heavy algae





IMGP0058.JPG



IMGP0002.JPG



IMGP0003.JPG



IMGP0004.JPG



IMGP0005.JPG



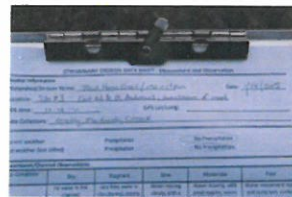
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IMGP0011.JPG



IMGP0012.JPG



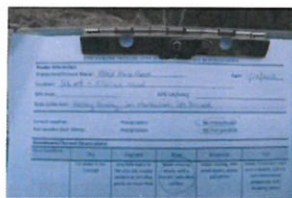
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IMGP0014.JPG



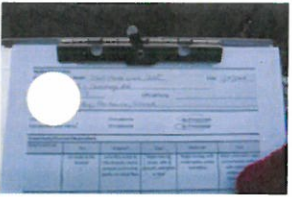
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IMGP0021.JPG



IMGP0023.JPG



IMGP0025.JPG



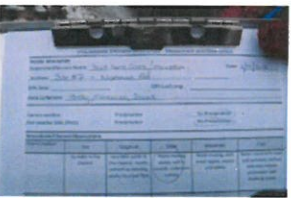
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IMGP0031.JPG



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IMGP0036.JPG



IMGP0038.JPG



IMGP0039.JPG



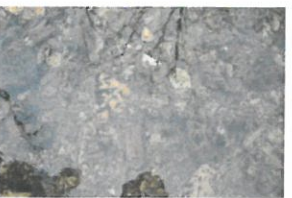
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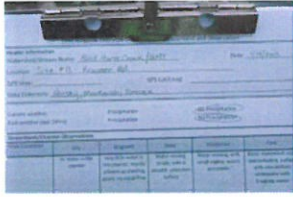
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IMGP0046.JPG



IMGP0048.JPG



IMGP0050.JPG



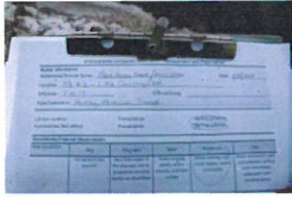
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IMGP0052.JPG



IMGP0053.JPG



IMGP0055.JPG



IMGP0056.JPG



IMGP0057.JPG

STREAMBANK EROSION DATA SHEET - Photo

Header Information

Photo ID: 0003  
 GPS time or Site #: 9:42:02  
 hr:min:sec

Direction, circle one Upstream Downstream

Bank, circle one (facing downstream) River Left River Right

Photo description: riffle site #1

Header Information

Photo ID: 0004, 0005 - townhouse  
 GPS time or Site #: 9:42:02  
 hr:min:sec

Direction, circle one Upstream Downstream

Bank, circle one (facing downstream) River Left River Right

Photo description: infrastructure failure - outfall from townhouse housing development

Header Information

Photo ID: 0006  
 GPS time or Site #: 9:42:02  
 hr:min:sec

Direction, circle one Upstream Downstream

Bank, circle one (facing downstream) River Left River Right River Middle

Photo description: Pond that Indian Creek drains to from site 1

STREAMBANK EROSION DATA SHEET - Photo

Header Information

Photo ID: 0009  
 GPS time or Site #: Site # 2 10:21:29  
 hr:min:sec

Direction, circle one Upstream Downstream

Bank, circle one (facing downstream) River Left River Right

Photo description: UNT at Conquest Rd + Telford Pike

Header Information

Photo ID: 0012  
 GPS time or Site #: 10:37:35  
 hr:min:sec

Direction, circle one Upstream Downstream

Bank, circle one (facing downstream) River Left River Right

Photo description: Algae picked up by Bill from stream

Header Information

Photo ID: 0013  
 GPS time or Site #: 10:37:35  
 hr:min:sec

Direction, circle one Upstream Downstream

Bank, circle one (facing downstream) River Left River Right

Photo description: Stagnant Area with algae.

## STREAMBANK EROSION DATA SHEET - Photo

## Header Information

Photo ID:

0014

GPS time or Site #:

10:37:35

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Site #3 measurement of channel depth.

## Header Information

Photo ID:

0015

GPS time or Site #:

10:37:35

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

land use at Site #3

## Header Information

Photo ID:

0018

GPS time or Site #:

10:59:19. Site #4

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Site #4 channel depth measurement

## STREAMBANK EROSION DATA SHEET - Photo

## Header Information

Photo ID: 009 0019

GPS time or Site #: 10:59:19

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Land use @ #4

## Header Information

Photo ID: 0022

GPS time or Site #: 11:25:44

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Site 5 measurement of pool channel depth

## Header Information

Photo ID: 0023

GPS time or Site #: 6/7 5 + 6

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Sheep Near Indian Creek  
on Indian Creek Rd. near Allenbrook Rd

STREAMBANK EROSION DATA SHEET - Photo

Header Information

Photo ID: #24 0024

GPS time or Site #: \_\_\_\_\_

Direction, *circle one* Upstream Downstream

Bank, *circle one* River Left River Right  
(facing downstream)

Photo description: Site # 7 dry tributary to Indian Creek

Header Information

Photo ID: 0027

GPS time or Site #: 11:51:06

Direction, *circle one* Upstream Downstream

Bank, *circle one* River Left River Right  
(facing downstream)

Photo description: Site # 8 measurement.

Header Information

Photo ID: 0028

GPS time or Site #: 11:51:06

Direction, *circle one* Upstream Downstream

Bank, *circle one* River Left River Right  
(facing downstream)

Photo description: Site # 8 Land use.

## STREAMBANK EROSION DATA SHEET - Photo

## Header Information

Photo ID: 0031  
GPS time or Site #: 12:13:13

Direction, *circle one*    Upstream    Downstream

Bank, *circle one*    River Left    River Right  
(facing downstream)

Photo description: Site # 9 measurement

## Header Information

Photo ID: 0034  
GPS time or Site #: 12:58:59

Direction, *circle one*    Upstream    Downstream

Bank, *circle one*    River Left    River Right  
(facing downstream)

Photo description: Site # 10 measurement

## Header Information

Photo ID: 0037  
GPS time or Site #: 1:16:10

Direction, *circle one*    Upstream    Downstream

Bank, *circle one*    River Left    River Right  
(facing downstream)

Photo description: Site # 11 Indian Creek Algae in stream

## STREAMBANK EROSION DATA SHEET - Photo

## Header Information

Photo ID:

0038

GPS time or Site #:

1:16:10

Direction, circle one

Upstream

Downstream

Bank, circle one

River Left

River Right

(facing downstream)

Photo description:

Site # 11 measuring stream channel depth.

## Header Information

Photo ID:

0044

GPS time or Site #:

1:34:24

Direction, circle one

Upstream

Downstream

Bank, circle one

River Left

River Right

(facing downstream)

Photo description:

Site # 12 measurement of channel depth.

## Header Information

Photo ID:

0049

GPS time or Site #:

1:47:57

Direction, circle one

Upstream

Downstream

Bank, circle one

River Left

River Right

(facing downstream)

Photo description:

Site # 13 measurement of channel depth.

0050

1:47:57

River Right Algal covering rocks in ripple area

## STREAMBANK EROSION DATA SHEET - Photo

## Header Information

Photo ID: 0051  
GPS time or Site #: 1:47:57

Direction, *circle one* Upstream Downstream

Bank, *circle one* River Left River Right  
(facing downstream)

Photo description:

Site #13 River Right Algae covering rocks  
in ripple area

## Header Information

Photo ID: 0054  
GPS time or Site #: 2:10:53

Direction, *circle one* Upstream Downstream

Bank, *circle one* River Left River Right  
(facing downstream)

Photo description:

Site #14 channel depth measurement

## Header Information

Photo ID: 0055  
GPS time or Site #: 2:10:53

Direction, *circle one* Upstream Downstream

Bank, *circle one* River Left River Right  
(facing downstream)

Photo description:

Site #14 left bank  
looking upstream lead user @ site #14.

STREAMBANK EROSION DATA SHEET - Photo

Header Information

Photo ID: 0058

GPS time or Site #: 2:22:05

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Site # 15 channel depth measurement

Header Information

Photo ID: 0061

GPS time or Site #: 2:31:52

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Site # 16 Dam on upstream side of Keller Creamery Road.

Header Information

Photo ID: 0062

GPS time or Site #: 2:31:52

Direction, circle one

Upstream

Downstream

Bank, circle one  
(facing downstream)

River Left

River Right

Photo description:

Site # 16 channel depth measurement

STREAMBANK EROSION DATA SHEET - Photo

**Header Information**

Photo ID: 0063

GPS time or Site #: 2:31:52

Direction, *circle one*      Upstream      Downstream

Bank, *circle one*      River Left      River Right  
(facing downstream)

Photo description: Sgt #16 Channel Depth Measurement

\_\_\_\_\_

\_\_\_\_\_

**Header Information**

Photo ID: \_\_\_\_\_

GPS time or Site #: \_\_\_\_\_

Direction, *circle one*      Upstream      Downstream

Bank, *circle one*      River Left      River Right  
(facing downstream)

Photo description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Header Information**

Photo ID: \_\_\_\_\_

GPS time or Site #: \_\_\_\_\_

Direction, *circle one*      Upstream      Downstream

Bank, *circle one*      River Left      River Right  
(facing downstream)

Photo description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_