D-2266 Beagle Club

PROJECT OVERVIEW

Oxford Mining Company, LLC. conducted surface mining operations on the D-2266 Beagle Club mine site from 2006 through 2009, recovering the No. 9 and 11 coal. The permitted area encompasses 278 acres, of which 67 acres were affected by pre-law mining. This pre-SMCRA mining left many pit impoundments, unreclaimed spoil piles and dangerous exposed highwalls. The mining operations eliminated these hazards while restoring the functionality of the stream resources which were severely impacted by pre-law mining.

The approved Jurisdictional Determination identified 24,777 feet of stream on-site. Upon reviewing the locations of streams and wetlands within the project area in relation to the location of coal reserves, Oxford took great care to revise the permit area. As a result of extensive mine planning, 401 / 404 applications were submitted asking for authorization to impact 10,993 feet of stream. The 401/404 applications were approved on May 25, 2006 and June 8, 2006 respectively.

Once mining operations commenced, Oxford took great care in avoiding streams where practical. Total stream impacts totaled approximately 8,500 feet, of which 7,000 feet has been reconstructed to date.

In order to better understand stream reconstruction, Oxford hired biologists to conduct sampling on the reconstructed portions of Stream A, one (1) year after constructing the channel. The sampling sheets accompany this document. As seen, Stream A has met and exceeded the performance standards set forth in the 401/404 permits. Oxford has successfully mitigated the direct, unavoidable mining impacts to Stream A. The portion of Stream A that was previously mined (as seen on the maps) scored a 31 which puts it well into the Class III category. Class III is typically defined as streams found to have native fauna adapted to cool-cold perennial flowing water characterized by a community of vertebrates, and/or a diverse community of benthic macroinvertebrates. Oxford's reconstructed stream scored 31 and 37 at the end of the recommended sampling season (as macros are becoming less abundant). We will conduct additional samplings in the spring as we anticipate even higher scores.

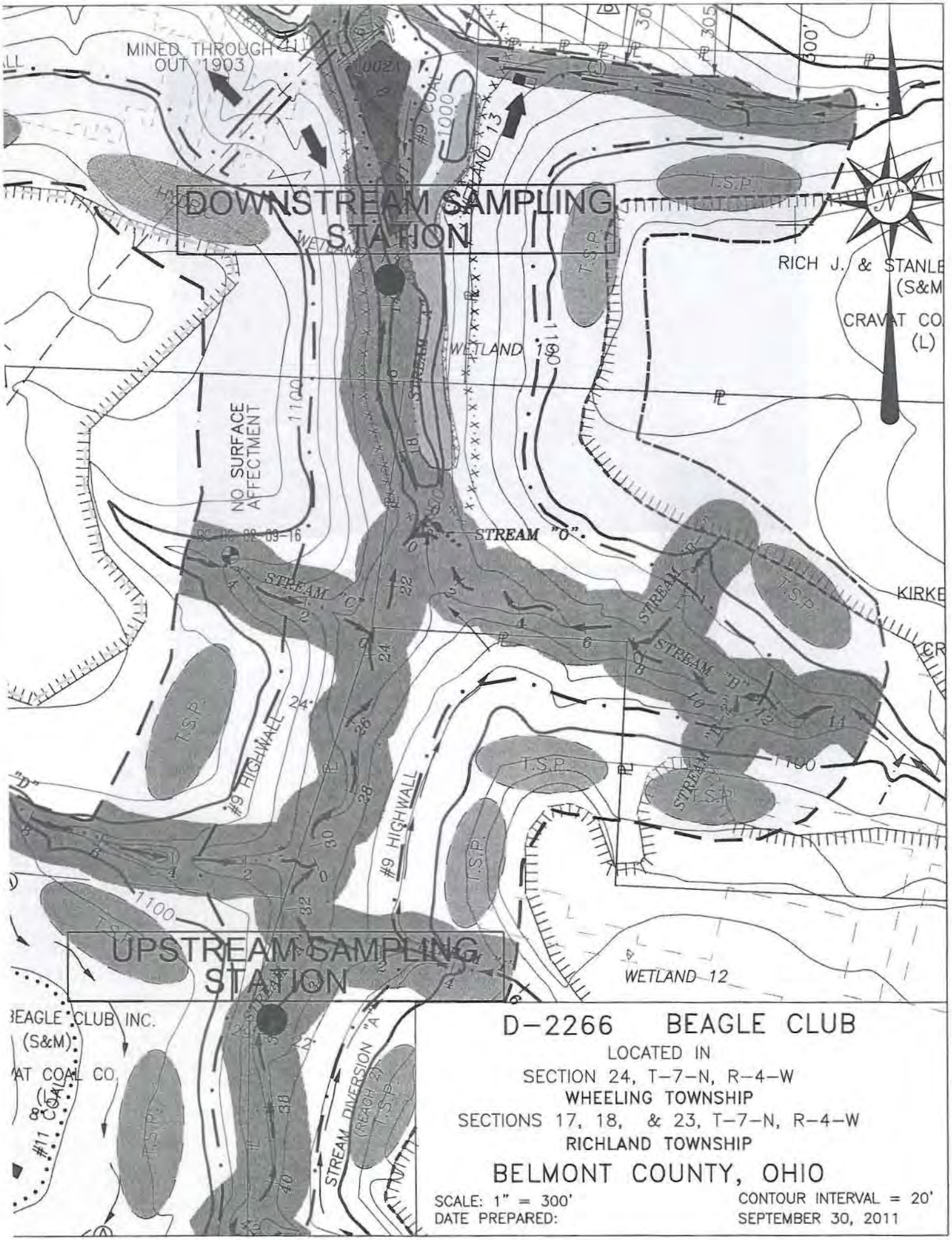
PHOTOS

PHOTOS TAKEN DURING RECONSTRUCTION

Picture 1 – Backfilling and grading was complete in November 2009.

Picture 2 – Stream A was constructed in April – June 2010.

Picture 3 – Another view of Stream A, looking upstream. Topsoil is being placed on the left bank.


MINED THROUGH OUT 1903
DOWNSTREAM SAMPLING STATION
WETLAND 13
WETLAND 19
RICH J. & STANLE
(S&M
CRAVAT CO
(L)
NO SURFACE AFFECTMENT
STREAM "O"
STREAM "C"
STREAM "B"
KIRKE
#9 HIGHWALL
UPSTREAM SAMPLING STATION
WETLAND 12
BEAGLE CLUB INC.
(S&M)
AT COAL CO.
#11 COAL
STREAM DIVERSION "A"
(REACH 2)
T.S.P.
D-2266 BEAGLE CLUB
LOCATED IN
SECTION 24, T-7-N, R-4-W
WHEELING TOWNSHIP
SECTIONS 17, 18, & 23, T-7-N, R-4-W
RICHLAND TOWNSHIP
BELMONT COUNTY, OHIO
SCALE: 1" = 300'
CONTOUR INTERVAL = 20'
DATE PREPARED:
SEPTEMBER 30, 2011

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 70

SITE NAME/LOCATION Boggs Club - D-2000

SITE NUMBER Stream A RIVER BASIN Wheeling Creek DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) 200' LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____

DATE 9/23/04 SCORER _____ COMMENTS Headwater Stream A

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

STREAM CHANNEL MODIFICATIONS: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	25%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]		☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐ ☐	BEDROCK [16 pt]		☐ ☐	FINE DETRITUS [3 pts]	
☐ ☒	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	
☒ ☐	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	
☐ ☐	SAND (<2 mm) [6 pts]		☐ ☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 100 (A) 21 (B) 4

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):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☒ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 20

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☒ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 7'

HHEI Metric Points

Substrate Max = 40: 25

A + B

Pool Depth Max = 30: 25

Bankfull Width Max=30: 20

This information must also be completed

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

L R	RIPARIAN WIDTH (Per Bank)	L R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L R	
☒ ☒	Wide >10m	☐ ☐	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐ ☐	Moderate 5-10m	☒ ☒	Immature Forest, Shrub or Old Field	☐ ☐	Urban or Industrial
☐ ☐	Narrow <5m	☐ ☐	Residential, Park, New Field	☐ ☐	Open Pasture, Row Crop
☐ ☐	None	☐ ☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS _____

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

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

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

☐ None	☐ 1.0	☐ 2.0	☒ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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)

October 24, 2002 Revision

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

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ 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: St. Clairsville NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Belmont Township / City: Wheeling & Richland Twps/St Clairsville

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Sept 26 2011 Quantity: < .25

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): Y (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) Y Voucher? (Y/N) Y Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____

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

Comments Regarding Biology: _____

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

FLOW →

Stream A - Headwaters

3. Macroinvertebrate Scoring Sheet:

THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)

Sessile Animals (**Porifera, Cnidaria, Bryozoa**) (HMFEI pts = 1)	Crayfish (**Decapoda**) (HMFEI pts = 2) 2	Fishfly Larvae (**Corydalidae**) (HMFEI pts = 3)
Aquatic Worms (**Turbellaria, Oligochaeta, Hirudinea**) (HMFEI pts = 1) 1	Dragonfly Nymphs (**Anisoptera**) (HMFEI pts = 2)	Water Penny Beetles (**Psephenidae**) (HMFEI pts = 3) 3
Sow Bugs (**Isopoda**) (HMFEI pts = 1) 1	Riffle Beetles (**Dryopidae, Elimidae, Ptilodactylidae**) (HMFEI pts = 2) 1	Cranefly Larvae (**Tipulidae**) (HMFEI pts = 3) 3
Scuds (**Amphipoda**) (HMFEI pts = 1) 1	Larvae of other Flies (**Diptera**) Name: (HMFEI pts = 1)	**EPT TAXA*** Total No. EPT Taxa = ____
Water Mites (**Hydracarina**) (HMFEI pts = 1)	Midges (**Chironomidae**) (HMFEI pts = 1) 1	Mayfly Nymphs (**Ephemeroptera**) Taxa Present: Leptophlebiidae Baetidae Heptagenniidae Caenidae [HMFEI pts = No. Taxa (x) 3] 12
Damselfly Nymphs (**Zygoptera**) Coenagrionidae (HMFEI pts = 1) 1	Snails (**Gastropoda**) Physidae (HMFEI pts = 1) 1	
Alderfly Larvae (**Sialidae**) (HMFEI pts = 1) 1	Clams (**Bivalvia**) (HMFEI pts = 1)	Stonefly Nymphs (**Plecoptera**) Taxa Present: Perlidae [HMFEI pts = No. Taxa (x) 3] 3
Other Beetles (**Coleoptera**) (HMFEI pts = 1)	Other Taxa :	
Other Taxa:	Other Taxa:	Caddisfly Larvae (**Trichoptera**) Taxa Present: Hydropsychidae Philopotamidae [HMFEI pts = No. Taxa (x) 3] 6
Other Taxa:	Other Taxa	

*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID_____ Time Spent (minutes): 1 hour

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

Final HMFEI Calculated Score (Sum of All White Box Scores) = 37

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM
IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM
IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible]

SITE NUMBER Stream A RIVER BASIN [illegible] DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) [illegible] LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____

DATE 9/28/2011 SCORER _____ COMMENTS [illegible] A

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	15%
☐☐	BOULDER (>256 mm) [16 pts]	15%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☒	COBBLE (65-256 mm) [12 pts]	20%	☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	50%	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 70% (A) 21 (B) 4

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):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☒ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 5

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☒ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 5'

HHEI Metric Points

Substrate Max = 40	25
A + B	
Pool Depth Max = 30	25
Bankfull Width Max=30	20

This information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☒	☒	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☒	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☒	☒	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

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

☐ None	☐ 1.0	☒ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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)

October 24, 2002 Revision

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

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ 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: _____ NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: _____ Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: [illegible] Quantity: [illegible]

Photograph Information: _____

Elevated Turbidity? (Y/N): N Canopy (% open): [illegible]

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): Y (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)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: _____

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

FLOW →

Upper tributary
Stream A - Bank
[illegible]

3. Macroinvertebrate Scoring Sheet:

THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)

Sessile Animals (Porifera, Cnidaria, Bryozoa) (HMFEI pts = 1)	Crayfish (Decapoda) (HMFEI pts = 2)	Fishfly Larvae (Corydalidae) (HMFEI pts = 3)
Aquatic Worms (Turbellaria, Oligochaeta, Hirudinea) (HMFEI pts = 1) [1]	Dragonfly Nymphs (Anisoptera) (HMFEI pts = 2) [2]	Water Penny Beetles (Psephenidae) (HMFEI pts = 3) [3]
Sow Bugs (Isopoda) (HMFEI pts = 1) [1]	Riffle Beetles (Dryopidae, Elimidae, Ptilodactylidae) (HMFEI pts = 2)	Cranefly Larvae (Tipulidae) (HMFEI pts = 3) [3]
Scuds (Amphipoda) (HMFEI pts = 1)	Larvae of other Flies (Diptera) Name: (HMFEI pts = 1)	EPT TAXA* Total No. EPT Taxa = ____
Water Mites (Hydracarina) (HMFEI pts = 1)	Midges (Chironomidae) (HMFEI pts = 1)	Mayfly Nymphs (Ephemeroptera) Taxa Present: Caenidae [HMFEI pts = Baetidae No. Taxa (x) 3] Leptophlebiidae [9]
Damselfly Nymphs (Zygoptera) Coenagrionidae Calopterygidae (HMFEI pts = 1) [1]	Snails (Gastropoda) Physidae (HMFEI pts = 1) [1]	
Alderfly Larvae (Sialidae) (HMFEI pts = 1)	Clams (Bivalvia) (HMFEI pts = 1)	Stonefly Nymphs (Plecoptera) Taxa Present: Chloroperlidae [HMFEI pts = No. Taxa (x) 3] [3]
Other Beetles (Coleoptera) Haliplidae Dytiscidae (HMFEI pts = 1) [1]	Other Taxa :	
Other Taxa:	Other Taxa:	Caddisfly Larvae (Trichoptera) Taxa Present: Philopotamidae [HMFEI pts = Hydropsychidae No. Taxa (x) 3] [6]
Other Taxa:	Other Taxa	

*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID_____ Time Spent (minutes): 1 hour

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

_____

_____

_____

Final HMFEI Calculated Score (Sum of All White Box Scores) = [31]

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM
IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM
IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM

Stream A- Reconstructed Portion Looking Downstream

Stream A- Headwaters Looking Upstream