

Use Attainability Analysis
for
Water Body Identification # 1780
Nations Creek

Conducted by:
Environmental Resources Coalition

To:
Missouri Department of Natural Resources
Water Protection Program

Submitted: November 29, 2005



Stream Description – WB ID: 1780 – Nations Creek

Nations Creek (WB# 1780) is located in the Eastern Ozark Border (Level IV region 39g) of the Ozark Highlands eco-region. Chapman et al. (2002) characterized the region as the following:

The Eastern Ozark Border ecoregion is a transitional area between the interior ecoregions of the Ozark Highlands (39) and the Interior River Valleys and Hills (72) ecoregion to the east. Moderately dissected hills and sheer bluffs typify the region. Soils can be rocky and thin on steep slopes, with areas of claypan or loess similar to the Black River Hills Border (39j) to the southwest. Compared to the Central Plateau (39d), however, the loess mantle in this region tends to be deeper and more expansive on the uplands. Potential natural vegetation is a mix of oak forest, savanna, glades, and prairies. Land cover is variable with forests, woodlands, and cleared areas in cropland and pasture. This ecoregion has more cropland agriculture than adjoining Ozark regions (39j, 39f).

The Nations Creek classified stream segment (WB# 1780) is a two mile class C stream located in southwestern Perry County. This classified reach is the receiving water body of the Port Perry Service Company lagoon outfall (MO0116998). Only two county roads provide access to this stream segment. The reach flows south to southeast and extends from just upstream of County Road 726 to the low water crossing on County Road 716, where it joins the next classified stream segment of Nations Creek. During the first visit, the assessment team walked over 75 percent of the entire stream segment. The area surrounding the water body is primarily composed of forest and small farm pastures.

Chapman, S.S., Omernik, J.M., Griffith, G.E., Schroeder, W.A., Nigh, T.A., and Wilton, T.F., 2002, Ecoregions of Iowa and Missouri (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,800,000).

Note: During the first visit to each site, ERC selected an assessment location (either upstream or downstream) based on which side appeared deepest or most likely for whole body recreation.

Field Data Sheets for Recreational Use Stream Surveys

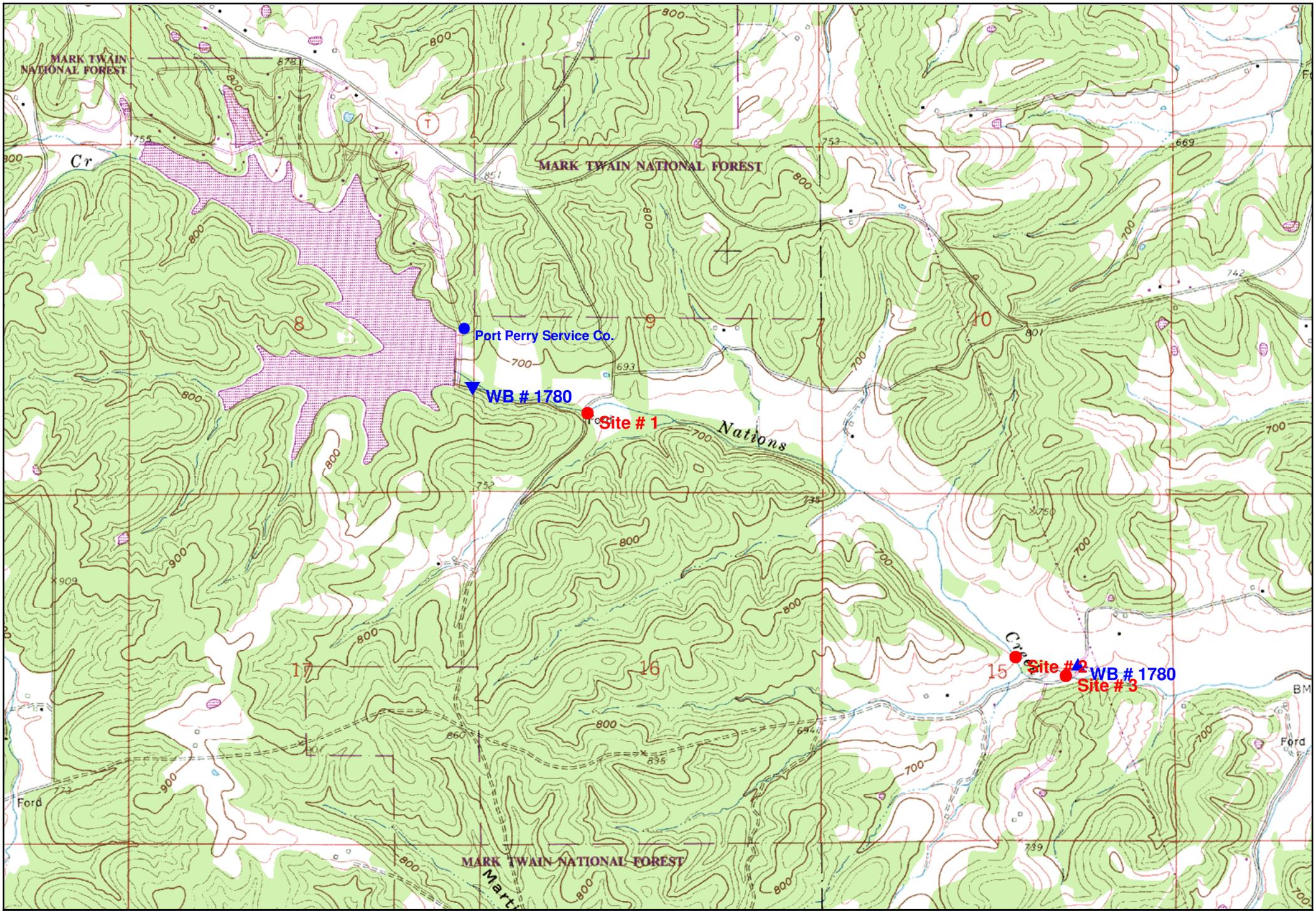
Data Sheet A: Water Body Identification

Water Body Name: Nations Creek
8 – digit HUC: 07140105
Missouri WBID # 1780
County: Perry County
Upstream Legal Description: Sec. 8, T34N, R9E, Perry County
Downstream Legal Description: Sec. 15, T34N, R9E, Perry County
Upstream Coordinates: Latitude 37.6601178° N , Longitude 90.0487432° W
Downstream Coordinates: Latitude 37.6491252 ° N , Longitude 90.0091295 ° W
Discharger Facility Name(s): Port Perry Service Co. WWTF
Discharger Permit Number(s): MO0116998
Number of Sites Evaluated: 3
Name of Surveyor and Telephone Number: Robert R. Bacon, (573) 634-7078
Organization: Environmental Resources Coalition (ERC)
Position: Director of Aquatic Services

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA sheet is true and accurate.

Signed: Robert R. Bacon

Date: 11-29-2005



Name: PARKER LAKE
Date: 11/30/2005
Scale: 1 inch equals 1818 feet

Location: 037.6580329° N 090.0453151° W

Weather Conditions

Weather conditions for the field surveys and the previous ten days are listed in the tables below.

Data from the Midwestern Regional Climate Center
Fredericktown, Missouri - Station ID: 233038

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Avg. Temp (°F)
04/06/2005	0.05	54	74	64
04/07/2005	0.11	55	69	62
04/08/2005	0.10	49	69	59
04/09/2005	0	43	74	59
04/10/2005	0	44	78	61
04/11/2005	0	54	80	67
04/12/2005	0.51	52	66	59
04/13/2005	0.09	49	68	59
04/14/2005	0	39	53	46
04/15/2005	0	35	67	51
04/16/2005	0	36	73	55

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Avg. Temp (°F)
05/25/2005	0	46	74	60
05/26/2005	0	47	75	61
05/27/2005	0	44	73	59
05/28/2005	0	47	81	64
05/29/2005	0	53	81	67
05/30/2005	0	53	82	68
05/31/2005	0	56	83	70
06/01/2005	0	51	81	66
06/02/2005	0	55	81	68
06/03/2005	0	56	70	63
06/04/2005	0	60	83	72

Weather Conditions (continued)

Weather conditions for the field surveys and the previous ten days are listed in the tables below.

Data from the Midwestern Regional Climate Center
Fredericktown, Missouri - Station ID: 233038

Date	Precipitation (Inches)	Min. Temp (°F)	Max. Temp (°F)	Avg. Temp (°F)
10/17/2005	0	35	73	54
10/18/2005	0	43	78	61
10/19/2005	0	43	79	61
10/20/2005	0	49	87	68
10/21/2005	0.55	54	69	62
10/22/2005	0	39	54	47
10/23/2005	0.18	38	64	51
10/24/2005	0.02	39	49	44
10/25/2005	0	32	51	42
10/26/2005	0	27	54	41
10/27/2005	0	38	57	48

WB # 1780 – Nations Creek

Site # 1 - County Road 276

GPS Location

**37.6598896 North
90.0489752 West**

Upstream Views

No Picture

Downstream Views

04/16/05



06/04/05



Physical Dimensions – Site # 1

	04/16/05	06/04/05
Assessment Location	Downstream	Downstream
Time	3:35 PM	9:27 AM
Stream Type	Riffle	Riffle
Width (m)	16.15	15.54
Length (m)	22.86	22.86
Avg. Depth (cm)	16.00	5.00
Maximum Depth (cm)*	19.0	5.0
Flow Present	Yes	Yes – very low flow
Flow (cfs)	-	-

SUBSTRATE

Cobble	10%	10%
Gravel	0%	0%
Sand	0%	0%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	90%	90%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	None
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	Periphyton	Periphyton
Surface Deposits	None	None

* Maximum depth is the maximum depth within the stream cross-section

NOTES: Site # 1 uppermost site on Nations Creek.

WB # 1780 – Nations Creek

Site # 2 – County Road 716 – upstream

**(This is the deepest pool that was assessed on the entire classified segment.)
This pool is located just under two tenths of a mile upstream of Co. Road 716**

GPS Location

37.6488827 North

90.0261184 West

Upstream Views of Pool

06/04/05

10/27/05



Downstream View of Pool

06/04/05



Physical Dimensions – Site # 2

(Deepest Pool that was Assessed on the Classified Stream Segment)

	06/04/05	10/26/05
Assessment Location	Pool	Pool
Time	8:01 AM	3:00 PM
Stream Type	Pool	Pool
Width (m)	9.45	9.75
Length (m)	22.86	22.86
Maximum Pool Depth (cm)	95.0	90.0
Flow Present	Yes	Yes
Flow (cfs)	-	-

SUBSTRATE

Cobble	10%	10%
Gravel	90%	90%
Sand	0%	0%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	None
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Lightly Turbid
Bottom Deposits	None	None
Surface Deposits	None	None

NOTES:

This site was visited on three occasions (4/16/05, 6/4/05, and 10/26/05) and the maximum pool depth was assessed on two occasions (6/4/05, and 10/26/05). At this location the assessment team did not find any evidence of recreational use (trail, trash, rope swing, fire ring etc.) on any of the three visits.

WB # 1780 – Nations Creek

Site # 3 - County Road 716

GPS Location

37.6492222 North

90.0235275 West

Upstream Views

04/16/05

06/04/05



Downstream Views

The downstream view is outside of the classified reach.

Physical Dimensions – Site # 3

	04/16/05	06/04/05
Assessment Location	Upstream	Upstream
Time	3:45 PM	7:45 AM
Stream Type	Run	Run
Width (m)	5.18	4.11
Length (m)	15.24	15.24
Avg. Depth (cm)	8.89	3.67
Maximum Depth (cm)*	14.0	8.0
Flow Present	Yes	No
Flow (cfs)	-	-

SUBSTRATE

Cobble	60%	60%
Gravel	40%	40%
Sand	0%	0%
Silt	0%	0%
Mud / Clay	0%	0%
Bedrock	0%	0%
	100%	100%

OTHER

Uses Observed	None	None
Evidence of Human Use (WBCR)	None	None
Aquatic Vegetation	None	None
<i>Water Characteristics</i>		
Odor	None	None
Color	Clear	Clear
Bottom Deposits	Periphyton	Periphyton
Surface Deposits	None	None

* Maximum depth is the maximum depth within the stream cross-section

Site Descriptions

Site #1: Site # 1 of Nations Creek is located on County Road 726, and is the uppermost assessment site of the classified stream segment. Forest land and a farm lot surround the stream at this site.

Site #2: Site # 2 of Nations Creek is located just under two tenths of a mile upstream of County Road 716. This is the deepest pool found during our walking assessment of the stream segment. An assessment site was established at this location to determine the maximum pool depth of the deepest pool. There was no evidence of recreational use at the site during any of our four visits to the site. Forest surrounds the stream at this location.

Site #3: Site # 3 of Nations Creek is located just upstream of the County Road 716 low water bridge. Forest land and a farm pasture surround the stream at this site.

On 04/16/05 our assessment team walked over 75 percent of the stream segment. During this walking assessment particular attention was paid to the lower portion of the stream.

I, the undersigned, hereby affirm to the best of my knowledge that all information reported on the UAA data sheets, are true and accurate.

Signed: Robert R Bacon

Date: 11-29-2005

Organization: ERC

Position: Dir of Aquatic Services

Summaries of Interviews

The following interviews were conducted by Abby Welschmeyer with adjacent landowners and potential creek users. The interviews were conducted in-person, or over the phone. Some of the questions asked are as follows:

- How long have you lived near this body of water?
- Do you or your family use this body of water for recreational activities?
 - If not used, why?
 - If used, what type of activities, how many times per year, and under what flow conditions (low, medium, or high)?
- Have you seen other people using the water body? (If so, many of the same aforementioned questions apply.)

To assist in the collection of interviews, letters were developed detailing the water quality rule, our affiliation with the Department of Natural Resources, and our contact information. These letters were left at residences near the water body when no one answered the door. This turned out to be a very effective way of quickly collecting key interviews with people most familiar with the resource.

Date: 06/04/05

Time: 9:32 AM

Name: Debbie Boland

Reason for interview: lives near Site # 1

Debbie Boland has lived near Nations Creek for 18 years. She does not use the water body for recreation because there is not enough water. Ms. Boland stated that she has not seen anyone else using the stream.

Date: 06/04/05

Time: 8:41 AM

Name: Darryl McLain

Reason for Interview: has weekend home near Site # 2

Darryl McLain has lived near Nations Creek for 34 years. He stated that he does not use the stream for recreation because the WWTF dumps in it, but would consider using it if it was cleaner. Mr. McLain claimed that the WWTF may take advantage of heavy rains by dumping more waste into the stream than they should. He stated also that he has noticed deer and livestock that drink from the stream have runny stools. Mr. McLain said he has seen people fishing and wading in the water body on the Fourth of July, but knows that people would use it more often if it were cleaned up.

Summaries of Interviews (cont'd)

Date: 06/04/05

Time: 9:07 AM

Name: Kevin Harris

Reason for Interview: with friends at weekend home near Site # 2

Kevin Harris has lived near Nations Creek for 37 years. He stated that he has not used the stream for several years because the stream is “contaminated”. Mr. Harris stated that he has heard rumors that raw sewage has been seen in the stream on several occasions. He commented that he has not seen anyone in the stream because of its undesirable state.

Date: 06/04/05

Time: 9:12 AM

Name: Richard McLain

Reason for Interview: has weekend home near Site # 2

Richard McLain has lived near Nations Creek for 44 years. He stated that he used to wade in the stream, but stopped in 1987 due to the WWTF. He said he occasionally fishes from the bank, but never gets in the water. Mr. McLain commented that he has seen several people fishing during the summer months, but knows that people would use it more often if it were cleaned up. “The creek gets really nasty at times,” he stated, referring to several rumors about raw sewage in the stream.