

---

---

# BIRD RIVER WATERSHED EXPOSED SOIL SURVEY

---

---

*To Restore Bird River Boating Channels & 90 Miles of  
Tributary Streams to Child Friendly Waters Status*

Prepared By  
Richard Klein  
Community & Environmental Defense Services  
21300 Heathcote Road  
Freeland, Maryland 21053  
410-654-3021  
Rklein@ceds.org  
ceds.org/esp

On Behalf Of The  
**Bird River Restoration Campaign**  
1216 Stumpfs Road  
Baltimore, Maryland 21220  
(410) 335-8915  
kavakava1216@msn.com

December 29, 2014

# CONTENTS

SUMMARY .....	1
How the Survey Was Conducted .....	1
Survey Findings .....	1
Construction Sites .....	1
Cropfields .....	3
Channel Erosion Below Stream Crossings .....	3
Other Areas of Exposed Soil .....	3
THE BIRD RIVER VOLUNTEERS .....	4
TO RESTORE BIRD RIVER BOATING CHANNELS & 90 MILES OF STREAMS .....	5
FENCE OFF OUR STREAMS OR RESTORE THEM TO CHILD FRIENDLY WATERS ...	6
BIRD RIVER SMALL WATERSHED ACTION PLAN .....	6
INITIAL ORGANIZING MEETING HELD .....	7
EXPOSED SOIL SURVEY LAUNCHED .....	7
FOLLOW UP ON GOOD & NOT SO GOOD SITES .....	9
EXPOSED SOIL SURVEY FINDINGS .....	9
Construction Sites .....	9
Crop Fields .....	11
Channel Erosion Below Stream Crossings .....	12
Other Areas of Exposed Soil .....	12
FUTURE SURVEYS & OTHER VOLUNTEER ACTIVITIES .....	13
BIRD RIVER WATERSHED COALITION .....	13
BIRD RIVER EXPOSED SOIL SURVEY INSTRUCTIONS .....	15
BIRD RIVER EXPOSED SOIL SURVEY FORM .....	17

## **SUMMARY**

The greatest outcome from the *Bird River Exposed Soil Survey* was our finding that construction site compliance with State soil erosion control laws has increased nearly nine-fold from 5% last summer to 44% today! This success means a dramatic reduction in the eroded soil - sediment pollution - entering Honeygo Run, Whitmarsh Run, numerous unnamed streams and Bird River! This success is due to a series of actions carried out by the Bird River Restoration Campaign and 30 other local, statewide and national organizations to support Baltimore County and the Maryland Department of the Environment in improving compliance with our Clean Water laws. This effort is an excellent example of what can happen when citizens provide clean water law enforcement agencies with the public support needed to make these laws work. The [Baltimore County Department of Permits, Inspections & Approvals](#) deserves our most heartfelt thanks for this impressive success. But now we must continue to support the County in raising compliance to the point that fully protects the Bird River, which is around 90%. Concurrently, we'll pursue other pollution sources that prevent Bird River and its 90 miles of tributaries, like those in Carney, Chase, Fullerton, Overlea, Parkville, Perry Hall, Nottingham and other communities, from meeting our definition of *Child Friendly Waters*.

### **How the Survey Was Conducted**

A total of 58 volunteers participated in the survey which was conducted in November, 2014. About half these volunteers attended a training session to learn how to identify four categories of potential sediment sources: construction sites, crop fields, stream channel erosion below road crossings, and other sources such as abandoned mining operations. These volunteers then recruited others which increased our ranks to 58. The names of the Bird River Volunteers will be found at the end of this summary.

After the training session the volunteers formed into two- to five-person teams. Each team was assigned a two square mile area of the Bird River watershed to survey. The volunteers drove all of the public roads within the area while looking for the four categories of potential sediment sources. The volunteers met again a week later to report their findings. The Volunteers also learned how to identify those responsible for each source. Finally, they received advice on how to write a *Thank You* letter to the owners of properties exhibiting good erosion control. A similar letter was written to those where additional erosion control was needed.

### **Survey Findings**

The Bird River volunteers identified a total of 122 potential sediment sources: 29 active construction sites, 16 crop fields, 58 stream crossings, and 19 "other" sources. A map of the Bird River watershed and the general location of the 122 potential sediment sources will be found on the next page.

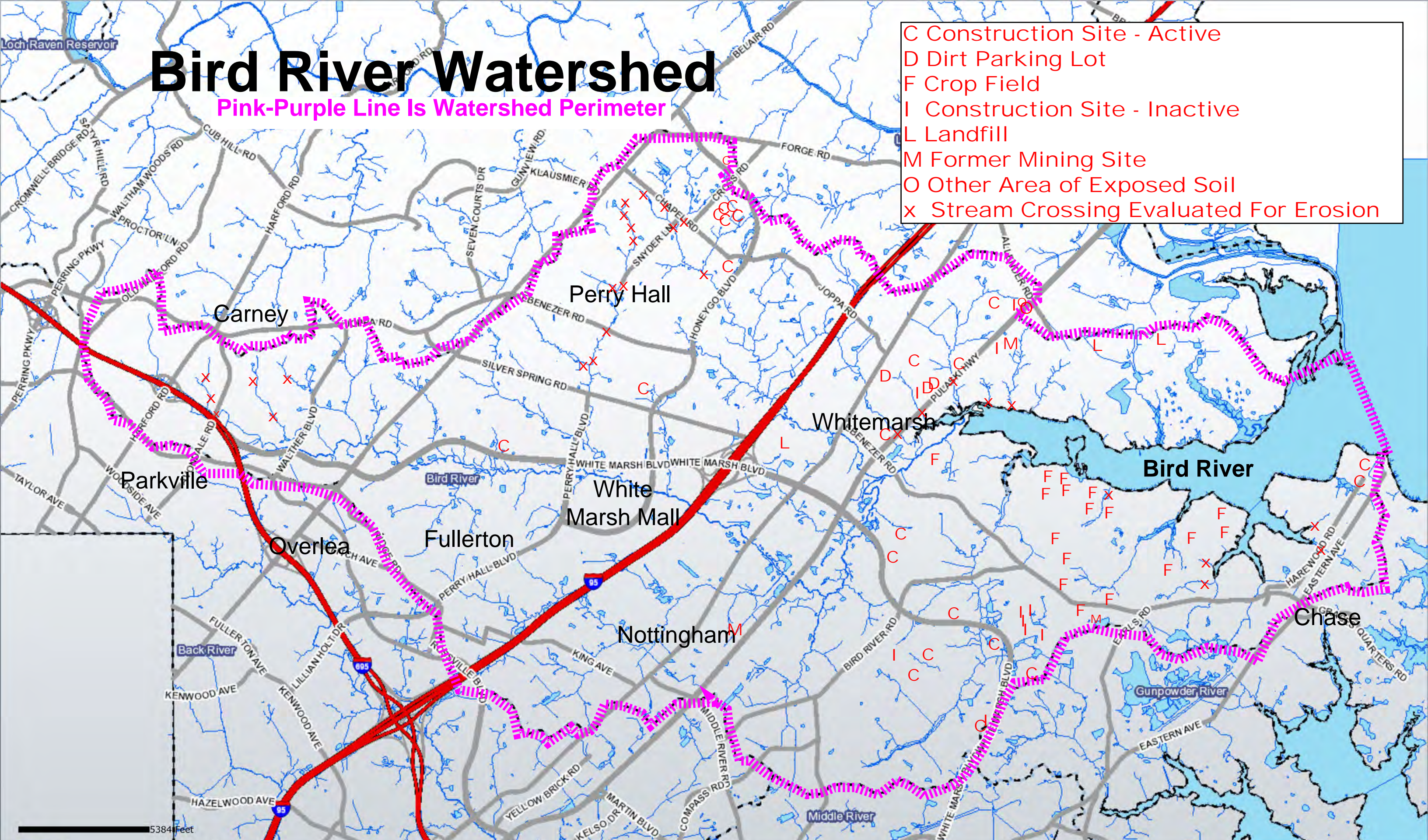
**Construction Sites:** As stated earlier, the greatest outcome from the Bird River Exposed Soil Survey is the finding that the *stabilization* rate on construction sites has increased nearly nine-fold from 5% last summer to 44% today! Last summer 22 local, statewide and national organizations surveyed 105 construction sites in Baltimore City and the surrounding counties of



# Bird River Watershed

Pink-Purple Line Is Watershed Perimeter

- C Construction Site - Active
- D Dirt Parking Lot
- F Crop Field
- I Construction Site - Inactive
- L Landfill
- M Former Mining Site
- O Other Area of Exposed Soil
- x Stream Crossing Evaluated For Erosion





Anne Arundel, Baltimore, Carroll, Harford and Howard. This effort was known as the Greater Baltimore Survey.<sup>1</sup> The June-July survey focused on compliance with State laws and policies requiring that construction site soils be stabilized from the erosive effects of rainfall and runoff. Stabilization is usually achieved by blanketing soil with straw mulch and a seeding of grass. Stabilization reduces soil erosion and sediment pollution by 90% to 99% while other measures, like the black silt cloth placed around many construction sites, only keeps a third to half the sediment out of nearby waterways. In eastern Baltimore County the Greater Baltimore Survey documented that 5% of construction site soils were stabilized in compliance with the State law. But the November survey noted a 44% compliance rate. The Greater Baltimore Survey also documented that about 90% of construction site soil met the State criteria requiring stabilization. So at 44% the Bird River compliance rate is about halfway to our goal of 90%.

**Cropfields:** Of the 16 crop fields surveyed, an incredible 80% benefitted from two of the most effective erosion control practices: winter cover crops and conservation tillage. The [Baltimore County Soil Conservation District](#) deserves the credit for this success. Given how woefully underfunded and understaffed this agency is their success is even more amazing. The Bird River Volunteers will be sending Thank You letters to the owners of farms where cover crops or conservation tillage was found. Campaign leaders will be meeting with the owners of farms that could benefit from greater use of conservation practices. Since Bird River residents constitute the bulk of the customers shopping at the farm stands and stores operated by these farm owners, we anticipate a congenial relationship while we explore ways to support one another.

**Channel Erosion Below Stream Crossings:** Of the 58 stream crossings inventoried by the Bird River Volunteers, 50% exhibited signs of downstream channel erosion. The Volunteers are seeking permission from property owners to measure just how far downstream the erosion extends. Options for restoring the more serious erosion problems will be discussed with the [Baltimore County Department of Environmental Protection & Sustainability](#).

**Other Areas of Exposed Soil:** The Bird River Volunteers identified 19 “other” areas of exposed soil. These areas consist of ten inactive construction sites, three former mining sites, three landfills, and three dirt parking lots. The 19 areas cover 772 acres of which 27% is soil exposed to the erosive effects of rainfall and runoff. Google Earth aerial photos indicate some of these sites have been eroding for more than four years! We have asked the Baltimore County Department of Permits, Approvals and Inspections to work with the owners of the inactive construction sites to achieve full stabilization. Bird River Restoration Campaign leaders sit on the citizen advisory board for several of the landfills. We hope to engage the landfill owners in a discussion of how they could accelerate stabilization of exposed soils. It may be up to the Maryland Department of the Environment to encourage stabilization of former mining sites and dirt parking lots.

---

<sup>1</sup> The Greater Baltimore Survey Report is posted at: <http://ceds.org/esp/ES=PRreport.pdf>

# THE BIRD RIVER VOLUNTEERS

Jeff Baker	Sandra Magsamen	Darrell Strathy
Hilly Bell	John McCormack	Buzz Stromberger
Lin Bleakley	Becky Mohr	Sandra Stromberger
Tom Bleakley	David Mohr	Jim Sullivan
Bill Cole	Jamie Molinell	Janet & Pete Terry
Charlie Conklin	Barbara Nypaver	Courtney Topolski
Carol Curran	Mark Nypaver	Marek Topolski
Joe Curran	Helen Orem	Charles Umstead
Linda Felts	Phillip Orem	Linda Umstead
Mickey Fenzel	Lois Panzer	Frankie Valentin
Heather Hartshorn	Mike Panzer	Laura Varanko
Karen Henley	Zanig Pawlowski	Stephen Varanko
Gary Hettchen	Linda Prestianni	Casey Weikle
Dorothy Hinnant	Stephanie Quaerna	Donna Welch
Niles Jones	Steve Quaerna	Gerald Welsh
Richard Kauffman	Margaret Sanzone	Linda Westerfield
Charles Kief	Susan Smith	Debbie Wood
Richard Klein	Wayne Sody	
Steve Kline	Jim Spath	
Amy Lamp	Alice Strathy	

## **TO RESTORE BIRD RIVER BOATING CHANNELS & 90 MILES OF STREAMS**

This is why the Bird River Restoration Campaign was formed then initiated the Exposed Soil Survey.

Going back to colonial times, Bird River has a long history of excessive sediment pollution due to first farming, then logging, followed by mining, and now construction activity. Since the 1960s those who live on and near Bird River have struggled to halt the sediment influx and to use dredging to recreate the boating channels that once allowed navigation throughout the River.

In the late 1990s, Bird River residents thought they would finally get the relief they had sought for decades. Baltimore County announced a massive dredging project that would restore 27,000 feet of channels throughout the River at a cost of \$1.3 million. The dredging project was completed in 2001. But within a decade much of the upper boating channels had filled back in with sediment from Whitemarsh Run and other parts of the watershed.

The sediment originated as soil erosion on upland sources: forest clearing in the 1800s, then mining in the 1900s, and construction activity beginning in the 1960s. A large part of this upland sediment was deposited along the 90 miles of streams draining the 26 square-mile watershed. These streamside sediments had been accumulating since the 1800s.

Turning watershed forests into shopping centers, housing projects and other forms of development dramatically increases the frequency and severity of flooding. Floodwater volumes only seen once a century can return annually. This causes floods to erode stream banks far more rapidly. In many parts of the watershed stream channels are now two- to eight-times wider than they likely were in colonial times. Widening is a result of bank erosion, which releases a massive amount of sediment directly into flooding streams. It was this massive amount of sediment from bank erosion and that from upland sources (construction, mining, etc.) that filled in the upper portions of the 2001 channels so rapidly.

In 1970, Maryland was the first to adopt a statewide law requiring erosion and sediment pollution control on construction and mining sites. But Bird River advocates have never been satisfied that these laws were fully enforced. In 1982, Maryland enacted a law requiring developers to control the floodwater increases caused by new buildings, streets and parking lots. Today, about a third of all the development in the Bird River watershed drains to these stormwater management measures, which are mostly ponds. Eventually, stormwater measures will be installed to control flooding and pollution from the other two-thirds of existing development. But this could take decades.

Rather than asking Bird River residents to wait decades (again) for relief, Baltimore County launched an ambitious campaign to stabilize the rapidly eroding stream banks which were thought to be a major source of the sediment that filled in the River channels. Now the last of these stream bank stabilization projects is nearing completion. It is the hope of the Bird River Restoration Campaign that another dredging project can be launched. We believe this will be

more likely if we can show that other watershed sediment sources have been curtailed as well. It is this hope which motivated the Bird River Restoration Campaign to launch the *Bird River Exposed Soil Survey*. Through the Survey we sought to identify these *other* watershed sediment sources and to get each source stabilized, thereby removing this impediment to River dredging. We're also exploring the feasibility of expanding the sediment trapping wetland areas presently being created above Ebenezer Road as a way to further prolong the life of the next dredging (final?) dredging project.<sup>2</sup>

### **FENCE OFF OUR STREAMS OR RESTORE THEM TO CHILD FRIENDLY WATERS**

Eliminating significant sediment sources would then set the stage for pursuing other water quality issues that make the neighborhood waters of Carney, Chase, Fullerton, Nottingham, Overlea, Parkville, Perry Hall, Whitemarsh and other portions of the 26 square-mile watershed unfit for our children and adults. In fact, the Campaign has set the goal of restoring Honeygo Run, Whitemarsh Run, Bird River, and the many unnamed feeder streams to a condition we call *Child Friendly Waters*, which are:

- waters free of the disease-causing organisms common to runoff from lawns and streets;
- where safety issues such as quicksand like sediment deposits, caused by excessive sediment releases from mining and construction, do not exist,
- where there's an abundance of fish and other aquatic life to fascinate young and old alike, and
- the waters are accessible to the public via boat, walking, etc.

Presently none of the 90 miles of waterways in the Bird River watershed meet all four *Child Friendly* criteria. Yet all parents know how difficult it is to keep children from playing in neighborhood waters. Given that we cannot fence off 90 miles of streams, we have but one option - restore these waters to a *Child Friendly* condition. This is not only achievable but the next section presents the County's plan to achieve this goal.

### **BIRD RIVER SMALL WATERSHED ACTION PLAN**

In 2014, the Baltimore County Department of Environmental Protection & Sustainability released the *Bird River Small Watershed Action Plan*.<sup>3</sup> The Plan, known as the SWAP, provides a wealth of information about the current state of Bird River, the sources of degradation and sets forth a strategy for restoring the River. The organizers of the Bird River Restoration Campaign hope to support the County in greatly accelerating the pace at which the SWAP is fully implemented. However, the SWAP lacked sufficient detail regarding erosion sources and the

---

<sup>2</sup> This is a \$4.9 million project of the Maryland Transportation Authority: [www.i-95expresstolllanes.com/linked\\_files/misc/Whitemarsh\\_Run\\_Preservation\\_Area\\_Brochure.pdf](http://www.i-95expresstolllanes.com/linked_files/misc/Whitemarsh_Run_Preservation_Area_Brochure.pdf)

<sup>3</sup> The *Bird River Small Watershed Action Plan* is available online at: <http://www.baltimorecountymd.gov/Agencies/environment/watersheds/birdmain.html>



effectiveness of enforcement efforts. This prompted Campaign organizers to employ a volunteer based search for eroding soils as the first restoration activity.

### **INITIAL ORGANIZING MEETING HELD**

The first Campaign organizing meeting was held at the Bird River Beach Community Hall on October 23, 2014. As a testament to the level of interest among those who treasure Bird River, consider that a standing-room only crowd was drawn to this meeting and the publicity consisted of \$250 worth of 4" x 6" cards and posters along with emails and word-of-mouth. At that meeting all those present agreed with Campaign organizers that our first joint effort would be a road survey of the 26 square-mile watershed for areas of exposed soils. Half of those who attended signed up to participate in the survey.

### **EXPOSED SOIL SURVEY LAUNCHED**

On the morning of Saturday, November 15<sup>th</sup>, 27 volunteers attended a training session held at the Bird River Beach Community Hall. Several days before the 15<sup>th</sup> prospective volunteers received an email with a link to a 16-minute, narrated, PowerPoint presentation posted to YouTube and accessed by clicking: [ceds.org/birdriver/1115](https://www.youtube.com/watch?v=ceds.org/birdriver/1115). The volunteers were also urged to begin looking for one to three other people to form a survey team.

Though volunteers were asked to listen to the presentation beforehand, it was shown again on November 15<sup>th</sup>. Volunteers also received the *Bird River Exposed Soil Survey Instructions* found at the end of this report.

This initial survey focused on four potential sources of sediment pollution:

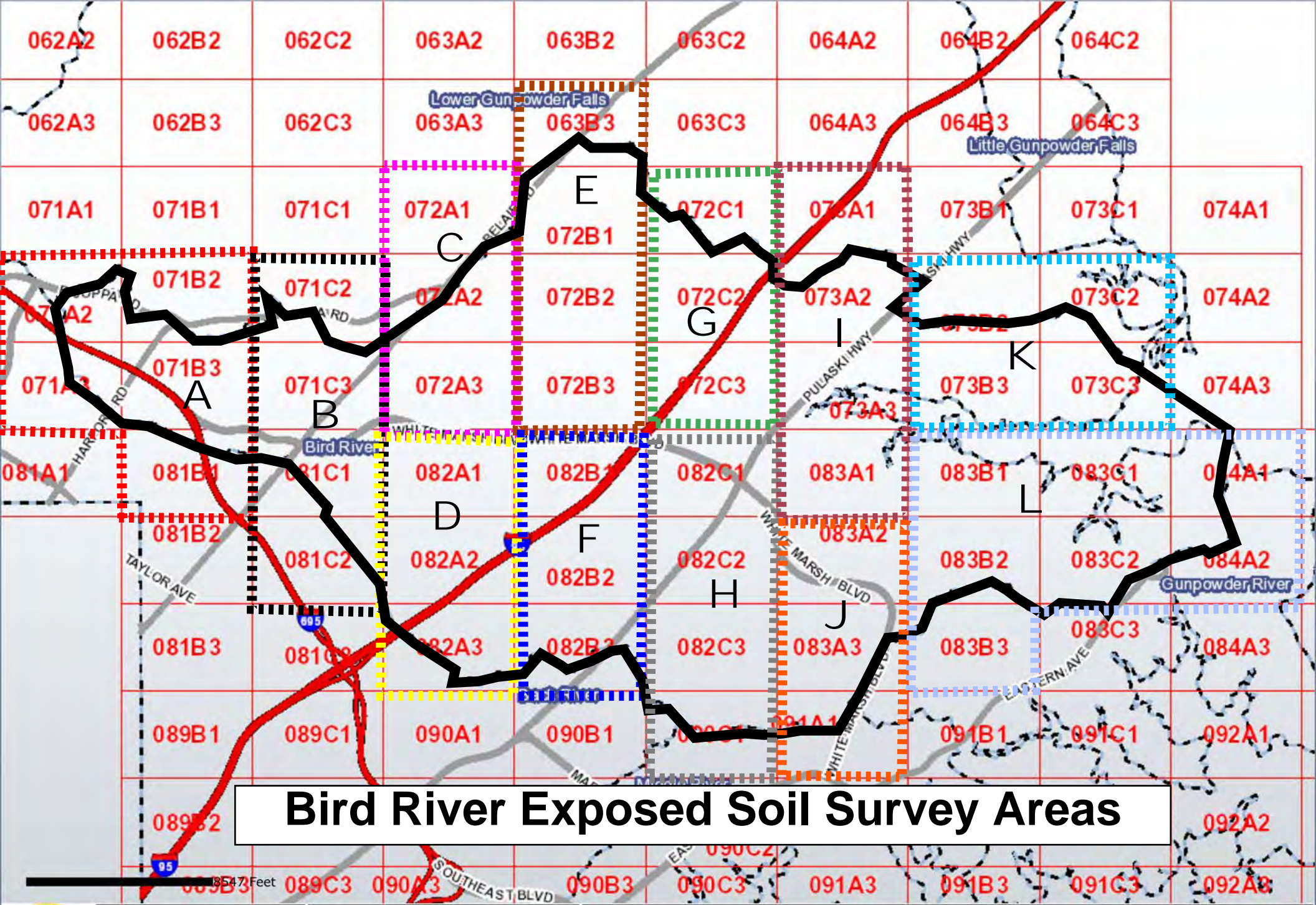
- Construction sites;
- Crop fields;
- Stream channels below road crossings; and
- “Other” sources including abandoned mining operations, isolated gullies, etc.

The watershed was divided into twelve survey areas shown on the next page and lettered A to L. Each survey area covers about two square miles. Baltimore County 200-scale maps and aerial photos were used as the base maps for the survey. The maps were printed in color from the County’s *My Neighborhood* website<sup>4</sup> with the Environmental option and the following layers turned on: Rivers and Streams, Street Centerlines, and Watersheds. Each survey area consisted of three to six adjoining 200 scale maps. A total of 58 volunteers served on the 12 survey teams.

Those who attended the November 15<sup>th</sup> training session formed into two to five-person teams. Each team took a survey area and received a packet containing: survey forms like that

---

<sup>4</sup> See: <http://myneighborhood.baltimorecountymd.gov/>



# Bird River Exposed Soil Survey Areas



My Neighborhood Map

Created By  
 Baltimore County  
 My Neighborhood



This data is only for general information purposes only. This data may be inaccurate or contain errors or omissions. Baltimore County, Maryland does not warrant the accuracy or reliability of the data and disclaims all warranties with regard to the data, including but not limited to, all warranties, express or implied, of merchantability and fitness for any particular purpose. Baltimore County, Maryland disclaims all obligation and liability for damages, including but not limited to, actual, special, indirect, and consequential damages, attorneys' and experts' fees, and court costs incurred as a result of, arising from or in connection with the use of or reliance upon this data.



at the end of this report, color 200 scale grid maps and aerial photos, a clipboard, a thumb drive for storing digital photos, a dry-erase board and pen. The Volunteers were instructed to write the date, site ID, 200 scale map number, their last names and site coordinates on the dry erase board. They would then make the dry erase board the subject of the first photo taken at each site. The teams were asked to drive all the public roads ramifying their survey areas, but to avoid any roads which were marked as private. Also, the volunteers were instructed to stay on public areas whenever they left their cars. From this Survey we learned that the dry erase boards and noting GPS coordinates was more trouble than it was worth. Noting site locations on the 200 scale street map provided all the precision needed. Many of the Volunteers saved their digital photos with names that clearly showed where each was taken.

### **FOLLOW UP ON GOOD & NOT SO GOOD SITES**

After presenting their findings on November 22<sup>nd</sup>, the volunteers viewed an 11-minute presentation on how to identify those responsible for erosion control at each of the four source categories. The presentation can be viewed on YouTube at: [ceds.org/birdriver/1122](https://ceds.org/birdriver/1122) The volunteers also received sample letters<sup>5</sup>, BRRC letterhead, envelopes and reply postcards to use in:

- Thanking developerrs that met stabilization requirements on their construction sites;
- Urging other developers to improve stabilization;
- Thanking farm owners whose crop fields benefitted from erosion control measures; and
- Urging the owners of "other" eroding sites to stabilize their property and suggesting sources of technical assistance.

### **EXPOSED SOIL SURVEY FINDINGS**

The teams met again at the Hall on the following Saturday, November 22<sup>nd</sup>. Each team gave a five-minute summary of what they found. The summary portion of this report contains a map showing the location of the 122 potential sediment sources the volunteers found.

#### **Construction Sites**

The Bird River Volunteers identified 29 construction sites in the watershed. The Volunteers assessed the extent to which the 29 sites met stabilization requirements. Overall, the sites exhibited a compliance rate of 44% with State and local laws requiring that soils exposed on a construction site be treated with a protective layer of straw mulch and grass once building and road construction begins. These *stabilization* measures can reduce erosion and sediment pollution by 90% to 99%. Perimeter controls, like black silt fence and ponds, can only capture a third to half the sediment eroded from a site.

Last June and July, 33 volunteers with 22 local, statewide and national organizations surveyed 105 construction sites in Baltimore City and the five surrounding counties (Anne

---

<sup>5</sup> See: <http://ceds.org/birdriver/SampleLetters.pdf>



Arundel, Baltimore, Carroll, Harford and Howard). This effort was known as the *Greater Baltimore Survey*.<sup>6</sup> The Survey showed an overall compliance rate of 23% with stabilization requirements. Harford County achieved the highest stabilization rate (37%), followed by Baltimore City and Howard County (27% each). Anne Arundel, Baltimore and Carroll counties had the lowest stabilization rates (12% - 19%).

There was a marked difference in the compliance rate when eastern and western Baltimore County was compared. On June 24<sup>th</sup> ten eastern Baltimore County sites had a 5% compliance rate vs. 30% for 12 western sites inventoried on July 2<sup>nd</sup>. The Bird River watershed is in the eastern part of Baltimore County. In fact, a number of the sites assessed on June 24<sup>th</sup> were in the Bird River drainage basin. Therefore, the 44% November compliance rate is a **nearly nine-fold** improvement over the 5% compliance rate found last summer in eastern Baltimore County during the Greater Baltimore Survey.

The Volunteers have sent letters to the responsible parties at a number of the construction sites thanking those with a high degree of stabilization. A similar letter was sent to those responsible for the other sites urging better control. We hope to meet soon with Baltimore County Department of Permits, Inspections & Approvals director Arnold Jablon to thank him personally and his staff for this incredible accomplishment.

After meeting with Baltimore County officials following the July Greater Baltimore Survey we learned that the sediment control inspection staff had been reduced from seven to four, but recently restored to seven inspectors once again. This may account for much of the nine-fold improvement. Subsequent to that meeting the small but significant erosion problem pictured to the right was corrected. And progress was even made at a controversial site known as Nottingham Ridge.<sup>7</sup> County and State enforcement agencies directed the owner to halt Nottingham Ridge erosion by covering exposed soils with straw mulch and planting grass seed. We are awaiting more recent aerial photos to verify that the site has been fully stabilized.

Unfortunately, there are a number of other large construction sites in the watershed, particularly along the MD43 corridor, that were cleared, brought to rough grade but only partially stabilized over



---

<sup>6</sup> The Greater Baltimore Survey report is posted at: [ceds.org/esp/ES=PREport.pdf](http://ceds.org/esp/ES=PREport.pdf). A *Baltimore Sun* article regarding the survey can be viewed at: [http://articles.baltimoresun.com/2014-09-19/features/bal-lax-mud-pollution-enforcement-alleged-in-baltimore-area-20140919\\_1\\_construction-sites-pollution-mud](http://articles.baltimoresun.com/2014-09-19/features/bal-lax-mud-pollution-enforcement-alleged-in-baltimore-area-20140919_1_construction-sites-pollution-mud)

<sup>7</sup> For background on Nottingham Ridge visit: [cedsnews.com/2014/08/19/nottingham-ridge-an-example-why-bay-recovery-progresses-so-slowly/](http://cedsnews.com/2014/08/19/nottingham-ridge-an-example-why-bay-recovery-progresses-so-slowly/)

the past four years. Some of these sites have been eroding away and polluting Bird River for up to four years. These inactive sites are addressed below under “Other” sources.

When we meet with County officials we’ll explore how we can further support the Department in increasing compliance from 44% to the 90% maximum determined through the Greater Baltimore Survey.

### **Crop Fields**

Corn, soy bean, vegetable and other crop fields account for about 9% of the land in the Bird River watershed and nearly 17% of the eroded soil.<sup>8</sup> The key to minimizing soil erosion is to locate crop fields on soils with a low erosion potential and to use various soil conservation practices. Two of the most important practices are winter cover crops and conservation tillage. The Maryland Department of Agriculture pays farm owners \$25 to \$100 per acre to plant winter cover crops.<sup>9</sup> If planted around October 1<sup>st</sup>, cover crops like barley, rye and wheat can reduce nitrogen releases into Bird River by 47%.<sup>10</sup> If not planted until November 1<sup>st</sup> then only 20% of nitrogen is kept out of the River.<sup>11</sup> However, by blanketing soil and minimizing erosion, even a late cover crop can do much to reduce sediment releases into Bird River. Another key practice is conservation tillage where substantial plant residue (stalks, leaves, etc.) is left on the surface to protect the soil from erosive forces following harvest. The Bird River Volunteers found that an incredible 80% of the 16 crop field they inventoried benefitted from either cover crops or conservation tillage.

The Volunteers are sending Thank You letters to the owners of farms with cover crops and/or conservation tillage. For the farms which exhibited signs of erosion and low use of erosion controls, we’ll be meeting with each owner to offer the Campaign’s support in helping them make greater use of these measures. We met with the local Soil Conservation District expert on farm erosion control to learn what practices were applicable along with the technical and financial assistance for implementing each. The [Baltimore County Soil Conservation District](#) deserves the credit for the 80% success. Given how woefully underfunded and understaffed this agency is their success is even more amazing.

Most of the farmers operate stores and stands. Most of their customers are local residents. So maintaining a good relationship with area residents should serve as a strong motivator for increased use of stabilization measures. Plus, the Campaign is considering the possibility of augmenting payments and other incentives for using erosion and nutrient control

---

<sup>8</sup> Basis: Table 3-1, in the *Bird River Small Watershed Action Plan*, available online at: <http://www.baltimorecountymd.gov/Agencies/environment/watersheds/birdmain.html>

<sup>9</sup> For further detail on cover crops visit: [mda.maryland.gov/resource\\_conservation/Pages/cover\\_crop.aspx](http://mda.maryland.gov/resource_conservation/Pages/cover_crop.aspx)

<sup>10</sup> *Developing Nitrogen, Phosphorus and Sediment Reduction Efficiencies for Tributary Strategy Practices*, 2009, available online at: [http://archive.chesapeakebay.net/pubs/bmp/BMP\\_ASSESSMENT\\_FINAL\\_REPORT.pdf](http://archive.chesapeakebay.net/pubs/bmp/BMP_ASSESSMENT_FINAL_REPORT.pdf)

<sup>11</sup> Ibid.

measures. We also plan to meet with the County's Department of Planning to see how we might support the County's efforts to enroll more farm acres in the agricultural land preservation program.<sup>12</sup>

### **Channel Erosion Below Stream Crossings**

The Bird River Volunteers stopped at 58 points where a road crosses a stream within the 26 square-mile watershed. They looked for three erosion indicators in the channel downstream of the crossing:

- bare banks where high-velocity floodwaters had eroded away vegetation exposing the underlying soil and rock;
- roots growing from banks indicating the surface had receded due to erosion since roots do not grow in air - only in soil, and
- whether the bottom of the pipe crossing or concrete culvert was higher than the bed immediately downstream indicating that the channel had been lowered through erosion.

The Volunteers found one or more of these indicators at 50% of the crossings. Bare banks were observed at 36% of the crossings and the root-channel bed indicators were seen at 26% of the crossings. Next the Volunteers will seek permission from those who own property downstream of eroding crossings to measure how far downstream erosion extends. We'll then seek a meeting with the County's Department of Environmental Protection & Sustainability to discuss how the more serious channel erosion sites identified by the Volunteers can be corrected.

### **Other Areas of Exposed Soil**

The Bird River Volunteers identified 19 "other" areas of exposed soil. These areas consist of:

- 10 inactive construction sites;
- 3 former mining sites;
- 3 landfills; and
- 3 dirt parking lots.

The 19 areas cover 772 acres of which 27% is soil exposed to the erosive effects of rainfall and runoff. Google Earth aerial photos indicate some of these sites have been eroding for more than four years! We have asked the Baltimore County Department of Permits, Approvals and Inspections to work with the owners of the inactive construction sites to achieve full stabilization. Bird River Restoration Campaign leaders sit on the citizen advisory board for several of the landfills. We hope to engage the landfill owners in a discussion of how they could accelerate stabilization of exposed soils. It may be up to the Maryland Department of the Environment to encourage stabilization of former mining sites and the dirt parking lots.

---

<sup>12</sup> For further detail on the County's ag preservation program visit: <http://www.baltimorecountymd.gov/Agencies/planning/landpreservation/>



## **FUTURE SURVEYS & OTHER VOLUNTEER ACTIVITIES**

Given how successful this first Volunteer survey has been, the Campaign is considering future efforts such as:

- Assessing the stormwater ponds and other Best Management Practices in the watershed for maintenance needs. These measures capture runoff from about a third of all existing development. They could be trapping a tremendous amount of sediment, assuming they are all well maintained. But we know at least some are not.
- Monitoring the County's website for new development projects proposed for the Bird River watershed. We'll show the volunteers how to review plans for these projects for compliance with [Environmental Site Design](#) and other laws essential to preserving Bird River;
- We'll ask the Baltimore County Department of Environmental Protection & Sustainability for a list of all projects in the Bird River watershed exempted from Environmental Site Design, as Nottingham Ridge was, then begin working with the developers and County to win better control for the projects that have yet to break ground;
- We'll occasionally monitor the 40 plus road crossings and other access point on the 90 miles of streams in the Bird River watershed for excessive muddiness following storms of one-inch or more. This may allow us to pin-point eroding areas that would otherwise remain hidden;
- We'll occasionally monitoring storm drain outfalls during dry weather for discharges. Most storm drains should be dry. Those carrying a flow of liquid during dry weather may indicate illegal pollution discharges; and
- We'll occasionally monitor dumpsters, particularly those serving restaurants where grease is deposited, for leaks onto adjacent areas. Though small in volume these leaks can be highly-contaminated.

If you would like to participate in any of these surveys then contact Bird River Restoration Campaign president Janet Terry at 410-335-8915 and [kavakava1216@msn.com](mailto:kavakava1216@msn.com) or Richard Klein at 410-654-3021 and [Rklein@ceds.org](mailto:Rklein@ceds.org).

## **BIRD RIVER WATERSHED COALITION**

The 26 square-mile watershed is home to about 60,000 people living in 24,000 households. Many of these residents are represented by community or homeowner associations. These residents will be the direct beneficiaries as Bird River and her 90 miles of tributaries improve in quality. The cleaner waters will likely spawn numerous effort to create near-stream parks, hiking trails and other recreation opportunities. We plan to reach out to the associations, first by letting them know of the tremendous success documented in this report. We'll also ask the

associations to consider forming a partnership with the Bird River Restoration Campaign. Since most associations have a means of communicating with their members, we would hope the partnership would make it far easier to disseminate information about how to reduce pollution from the home, yard and car. We would ask each partner to identify any water related issue of concern to their members. We would then association our partner in seeking correction through the collective influence of the coalition of partners. A similar organization existed in the 1970s, which was known as the Whitemarsh Run Watershed Coalition. Given all the advances over the past 40 years we anticipate that the new coalition will be even more successful.

---

---

---

# BIRD RIVER EXPOSED SOIL SURVEY INSTRUCTIONS

---

Of all of Maryland's waterways, Bird River is arguably the most polluted with sediment. As a result many of her boating channels have disappeared, fish and crabs are far less abundant, and nearby residents are robbed of many quality of life benefits. The goal of this survey is to identify all areas of exposed soil within the 26 square-mile area draining to Bird River. Together, as the *Bird River Restoration Campaign*, we'll then develop a strategy for halting the erosion on each area, which will reduce the amount of sediment entering our River.

## HOW THE SURVEY WILL BE CONDUCTED

We've divided the 26 square mile watershed into 12 survey areas. We ask that you and one or two others form a team. Each team will be assigned one of these survey areas. You'll receive a packet containing street maps and aerial photos covering your survey area. After a one-hour training session is completed, we'll ask that your team spend the next two- or three-hours driving all the roads throughout your area. We suggest you use the highest vehicle any team member has. The extra foot or so of height will allow you to see much more. You need not feel compelled to drive all the roads in one day. In fact you have a week to complete the survey. However, most surveys areas can be completed in two- or three-hours.

## PLEASE DO NOT TRESPASS

As you drive you'll be looking for four categories of exposed soil: construction sites, crop fields, eroded channels below points where a road crosses a waterway, and other sources such as abandoned mining operations. *Please do not trespass.* Only drive roads that are public. *DO NOT drive roads that are gated or posted with No Trespassing signs.* Do NOT walk onto private property to get a better look.

## POLLUTION EMERGENCIES

If you come across what you perceive as a severe sediment pollution source then please contact Richard Klein immediately: 410-654-3021 or [Rklein@ceds.org](mailto:Rklein@ceds.org). He'll work with you to get it corrected ASAP.

## SURVEY AREAS

Each survey area is composed of grids from the County 200 scale mapping system. Your packet also contains survey forms. Please use a separate form for each grid surveyed. We suggest driving all the roads within one grid before going to the next. Be aware that the Bird River watershed only covers part of some grids. Please do not survey into another watershed.

## DRY ERASE BOARD AS SUBJECT OF FIRST PHOTO

Each packet also contains a dry erase board and dry erase pen. We ask that you take enough photos of each exposed soil area so others can clearly understand the nature of the area. *But your first photo at each exposed soil area must be of the dry erase board.* Write the following on the board using the dry erase pen in each packet: date, last name of team members, grid number, ID number for the exposed soil area (e.g. C1, F2, etc.), area name (if applicable) and GPS coordinates (preferable as degrees, minutes, seconds dd mm ss, North then West). By photographing the dry erase board at each area first, we'll know where all subsequent photos were taken. Try to set your digital camera so each image has a unique number.

## BE DISCREET, BUT NOT SECRETIVE

Try not to be too obvious when taking photos or viewing an area. But be honest if anyone asks what you're doing, then ask if they'd like to help. What we mean is don't stand in front of someone's home while taking a photo of a bare spot in their lawn. Instead take the photo from your vehicle.

## SURVEY FORM HEADER

Always use a blue pen like the one attached to the clipboard you were given. Again, use a separate form everytime you begin surveying a new grid area. Write the names of all team members, then the date (15 Nov 2014) and the grid number which you'll find at the bottom of both the street map and aerial photo. Focus on any light colored areas you see on the aerial. These light areas could be exposed soil. Don't fret if you can't find a public road that allows you to see the area. We'll likely fly over the area and the entire watershed in a month or so. Also, the aerial photos are a year or two old so the light area may now be homes or some



other use.

### **CONSTRUCTION SITES**

The survey form has space for ten sites, labeled C1 to C10, within each grid. If you find more than ten sites in a grid then start a second form for the grid. Frequently you'll find a sign at the site entrance giving the name of the project being built. This is entered under project name on the form. Also, this is the point where you should enter data on the dry erase board and make it the subject of your first photo. You are then ready to complete the form for this first construction site. Check the appropriate box under *Are Buildings, Roads, etc. Under Construction?* If yes, then all soils disturbed by site clearance and earth-moving should be covered with a thick layer of either straw mulch or grass. The exception is road and parking lot areas which should have four inches of stone. All three *stabilization* measures - straw, grass and stone - can reduce erosion and sediment pollution by 90% - 99%. Note the percent of disturbed soils which are (fully) stabilized to the degree that you can't see the underlying soil through mulch, grass or stone. As always, base this estimate on what you can see from public areas. Note photo numbers then enter the coordinates for the site location. Locate the site on the aerial photo as best you can. Attempt to draw a line around the site boundary then write the ID (C1) within the boundary.

### **CROP FIELDS**

Of course these are farm fields where corn, soybeans and other crops are grown. After photographing the dry erase board take enough photos of the field so the entire area can be seen. Note whether a winter cover crop has been planted as evidence by short, grasslike plants growing sparsely throughout the field. Note the percent of the field where you can see soil through stalks, leaves or other crop residue. Note whether rills (less than four inches) or gullies (> four inches) are present. Again, base your observations only on what can be seen from adjoining roads and other public areas. Locate the crop field on the aerial photo as best you can. Attempt to draw a line around the site boundary then write the ID (F1) within the boundary.

### **PIPE OUTFALLS**

The street map shows streams as blue lines. Stop at each point where a road crosses a stream then look downstream of the crossing for the channel erosion indicators given on the survey form: exposed roots, bare banks, or the stream bed is lower than the bottom

of the pipe or concrete structure that carried the stream beneath the road. After photographing the dry erase board take enough photos to clearly show all erosion indicators. If you find a well-vegetated, stable channel then take photos of this too. Of course record the photo numbers and GPS coordinates. Locate the site on the street map, write the ID (P1) nearby and draw a line to the crossing.

### **OTHER SOURCES**

This catchall category could range from a pile of exposed soil on someone's front yard to a massive old sand and gravel mine which was never stabilized. The form provides extra space to describe the nature of the area. Note whether you see signs that the area is eroding: rills, gullies, or a trail of mud flowing from the exposed soil. Of course record the photo numbers and GPS coordinates. Note the location on the aerial photo or street map.

### **COMMENTS**

Space is provided at the end of the form for any additional information you'd like to provide for exposed soil areas or other relevant features you encounter.

### **TRANSFER PHOTOS TO MEMORY STICK**

We suggest you transfer all the digital photos you took to the memory stick that was enclosed within your packet, then bring it with you on November 22nd.

### **PLEASE ATTEND NOVEMBER 22<sup>ND</sup> MEETING**

On Saturday, November 22<sup>nd</sup> we'll meet again at the Bird River Beach Hall, beginning at 10:00 am. Hopefully at least one member of your team can attend to present your findings and to participate in our discussion of next steps to get sediment pollution sources corrected.

### **IF NO TEAM MEMBER CAN ATTEND...**

Then sometime before November 22<sup>nd</sup> get your survey forms, aerial photos, etc. to:

Buzz & Sandy Stromberger  
6512 Blackhead Road  
Baltimore, MD 21220  
410-335-5149

***Thank you!***

# BIRD RIVER EXPOSED SOIL = POLLUTION SURVEY

Survey Team Members: \_\_\_\_\_

Date: \_\_\_\_\_ Map Grid: \_\_\_\_\_

## CONSTRUCTION SITES = C

ID	Project Name	Are Buildings, Roads, Etc. Under Construction?	Percent Fully Stabilized	Photo Numbers	GPS (degrees minutes seconds)
C1		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C2		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C3		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C4		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C5		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C6		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C7		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C8		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C9		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W
C10		<input type="checkbox"/> Yes <input type="checkbox"/> No	%		N                      W

## CROP FIELDS = F

ID	Do You See Signs of a Winter Cover Crop?	Percent of Crop Field Where Soil Can Be Seen Through Residue	Rills- Gullies Present	Photo Numbers	GPS (degrees minutes seconds)
F1	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F2	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F3	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F4	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F5	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F6	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F7	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F8	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F9	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W
F10	<input type="checkbox"/> Yes <input type="checkbox"/> No	%	<input type="checkbox"/> Yes <input type="checkbox"/> No		N                      W

**over →**

**PIPE OUTFALLS = P**

ID	Do You See Any of these Signs of Erosion Downstream of the Pipe?	Photo Numbers	GPS (degrees minutes seconds)
P1	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P2	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P3	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P4	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P5	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P6	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P7	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P8	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P9	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W
P10	<input type="checkbox"/> Exposed Roots <input type="checkbox"/> Bare Bank <input type="checkbox"/> Bed Lower Than Pipe Bottom		N W

**OTHER AREAS OF EXPOSED SOIL = O**

ID	Nature of Exposed Area	Is Area Eroding?	Photo Numbers	GPS (degrees minutes seconds)
O1		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O2		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O3		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O4		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O5		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O6		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O7		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O8		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O9		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W
O10		<input type="checkbox"/> Yes <input type="checkbox"/> No		N W

**COMMENTS:**

---



---



---



---



---



---



---



---



---



---