



## **PROPOSED PLAN OF REMEDIAL ACTION**

Whittington Woods Site, Operable Unit-1  
Bear, Delaware  
DNREC Project No. DE-1509



July 2012

Delaware Department of Natural Resources and Environmental Control  
Division of Waste and Hazardous Substances  
Site Investigation & Restoration Section  
391 Lukens Drive  
New Castle, Delaware 19720

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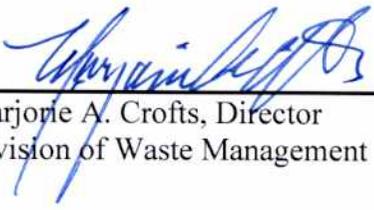
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Operable Unit 1 (OU-1)  
Bear, Delaware  
DNREC Project No. DE-1509



**Approval:**

This Proposed Plan meets the requirements of the Hazardous Substance Cleanup Act.

Approved by:

Marjorie A. Crofts, Director Division of Waste Management
7.18.12
Date



## **What is the Proposed Plan of Remedial Action?**

This Proposed Plan of Remedial Action (Proposed Plan) summarizes the actions that are being proposed to address contamination found at this Site, and requests public comment. A legal notice is published in the newspaper for a 20-day comment period. DNREC will consider and address all public comments that are received and then will publish a Final Plan of Remedial Action (Final Plan) for the Site.

## **What is the Whittington Woods Site, Operable Unit 1 (OU-1)?**

In July 2011 the current owners of the Whittington Woods Site entered into a Voluntary Cleanup Program (VCP) Agreement to conduct a Remedial Investigation and perform a remedy, if necessary, with the oversight of DNREC. The Whittington Woods Site is located off of Minnie's Lane in Bear, Delaware, as shown on Figure 1. The Site was previously described as Tax Parcels 10-038.00-004 and 10-038.00-005 but has been subdivided into individual building lots and is now tax parcels 10-039.10-622 through 10-038.20-180, 10-038.20-112 through 10-038.20-131, 10-039.30-234, 10-003.30-235, and 10-038.40-146 through 10-038.40-153. The Site is approximately 88.7-acres, zoned residential, and has been approved for an 83-home residential community with open space by New Castle County. The Site has been divided into Operable Unit 1 (OU-1) and Operable Unit 2 (OU-2). This proposed plan addresses Operable Unit 1 (OU-1), consisting of the southern 31.23 acres of the Site as presented in Figure 2. OU-1 is currently occupied by one newly-constructed model home, the former farmhouse and barns/sheds, and partially-developed residential lots.

The northern part of the Site is being addressed separately as Operable Unit-2 (OU-2).

## **What happened at the Whittington Woods Site?**

The Whittington Sand and Gravel facility occupied approximately 75% of a 197-acre property owned and operated by Mr. Thomas D. Whittington, Sr. According to information obtained from Mr. Thomas D. Whittington, Jr., his family had acquired the Site in the early 1900s and was mined for sand and gravel since the early 1940s. Historical aerial photographs show that prior to the 1940s, the Site had consisted of agricultural fields, with the Whittington family farm on the southern part of the Site.

Mr. Whittington, Jr. identified that from 1945 to 1968, two separate areas of the Site were occupied by an open dump-and-burn pit. The Site received waste from several industries and municipalities, including Continental Diamond Fiber, DuPont Company, Amoco, GM and Chrysler. The industrial wastes may have included: solvents; paints; paint sludges; chemical wastes; plastics; automotive parts; tires; hardware; as well as municipal and industrial wastes. The OU-1 portion of the Site was used primarily for agriculture; however, some sand/gravel

quarrying or industrial operations may have occurred on OU-1. The locations of these operations are uncertain because the Site was re-graded in the 1990's prior to residential development.

### **What is the environmental problem at the Whittington Woods Site?**

As part of the Remedial Investigation, (RI), in 2011 and 2012, LandmarkJCM collected 736 soil samples from OU-1, and 20 groundwater samples from the entire Site. An average of 10 soil samples were collected per residential lot, consisting of five (5) shallow and five (5) deep samples. These samples were analyzed for metals, volatile organic compounds, semi-volatile organic compounds, pesticides and PCBs. The results of the analysis indicated that aluminum, vanadium, iron and manganese were detected over their respective cleanup limits for residential use - but these concentrations were below naturally-occurring or 'background' concentrations. DNREC does not require the cleanup of substances if they are present at concentrations below their naturally-occurring or 'background' concentrations. Antimony exceeded the unrestricted URS values in four (4) shallow soil sample locations, arsenic in two (2) deep soil sample locations, and Polycyclic Aromatic Hydrocarbons (PAHs) at four (4) shallow soil sample locations. The risk assessment showed there was no unacceptable risk to future residents or construction workers from the shallow or deep soils. Elevated concentrations of lead, chromium beryllium and arsenic were detected in the three (3) wells in the vicinity of the suspected burial areas on OU-2. Further groundwater delineation will be performed as part of the OU-2 investigation. Drinking water for the community will be provided by Artesian Water Company.

### **What clean-up actions have been taken at the Whittington Woods Site?**

Between January and April, 2011, the Site's developer Knollwood Development Corporation excavated approximately 3,656.8 tons of contaminated soil from a portion of OU-2, in the area of lots 49, 50, 51 and 52, where burnt material was found. These soils were stockpiled on OU-1 and found to contain hazardous waste level concentrations of lead. The stockpiled soils were later properly transported and disposed of offsite. Confirmatory soil sampling where the soils were stockpiled on OU-1 showed no exceedances of the DNREC cleanup criteria.

### **What does the owner want to do at the Whittington Woods Site, OU-1?**

The Site will be a single family home housing community, built according to the development plan approved by New Castle County.

### **What additional clean-up actions are needed at the Whittington Woods Site, OU-1?**

DNREC proposes the following remedial actions for the Site, which needs to be completed before a Certificate of Completion of Remedy (COCR) can be issued:

1. Prior to any homes being occupied on OU-1, access to OU-2 will be restricted by at least an eight (8) foot high chain link fence, with appropriate signage, along the dividing line of OU-1 and OU-2. A DNREC approved Long Term Stewardship (LTS) Plan will be developed to ensure the fence is properly maintained and inspected for defects and

evidence of trespassing; or the completion of the OU-2 remedial investigation and any necessary remediation that may be required.

2. DNREC must be notified immediately if the future construction reveals any previously unknown contamination or debris burial areas on OU-1.

### **What are the long term plans for OU-1 of the Site?**

Operable Unit 1 of the Site (OU-1) will be used for single family housing.

### **How can I find additional information or comment on the Proposed Plan?**

The complete file on the Site including the Remedial Investigation Report and the various reports are available at the DNREC office, 391 Lukens Drive in New Castle, 19720. Most documents are also found on: <http://www.nav.dnrec.delaware.gov/DEN3/>

The 20-day public comment period begins on July 22, 2012 and ends at close of business (4:30 pm) on August 13, 2012. Please send written comments to the DNREC office at 391 Lukens Drive, New Castle, DE 19720 to Kristen Thornton, Project Officer or Robert Newsome, Public Information Officer.

Figure 1: Location Map

Figure 2: Area Map

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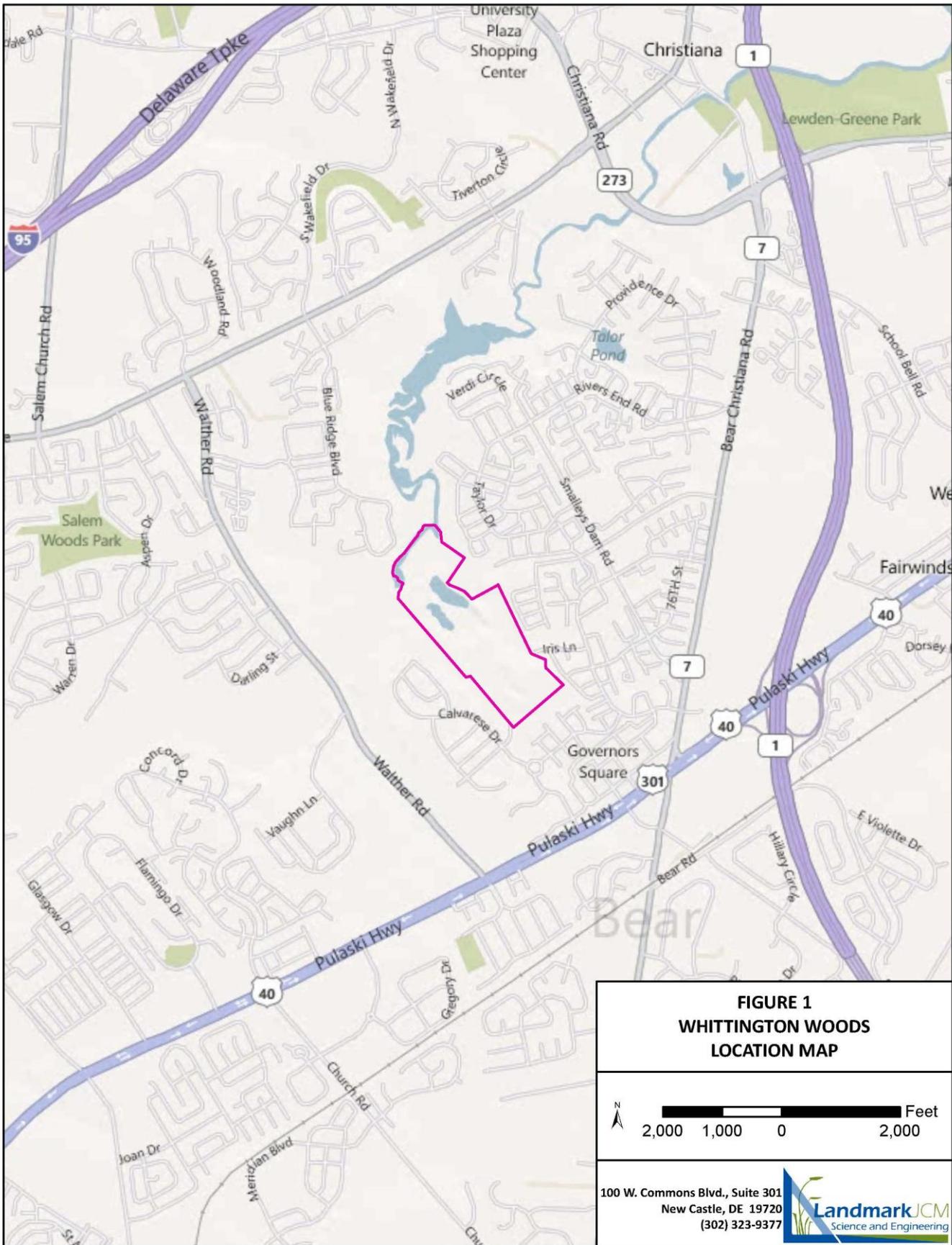
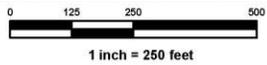


Figure 1: Location Map



Data Source:  
Bing Maps Hybrid - ArcGIS Online

**OU-1 AREA  
WHITTINGTON WOODS**

One Corporate Commons, Suite 301  
100 W Commons Blvd.  
New Castle, DE 19720  
302-323-9377



**Figure 2: Area Map**

## Glossary of Terms Used in this Proposed Plan

<b>Background Level</b>	The concentration of substances widely present in the soil, sediment, air, surface water or groundwater in the vicinity of a facility, or at a comparable reference area, due to natural causes or human activities other than releases from, or activities on, the facility, as determined by the Department.
<b>Certification of Completion of Remedy (COCR)</b>	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
<b>Contaminant of Concern (COC)</b>	Potentially harmful substances at concentrations above acceptable levels.
<b>Exposure</b>	Contact with a substance through inhalation, ingestion, or direct contact with the skin. Exposure may be short term (acute) or long term (chronic).
<b>Final Plan of Remedial Action</b>	DNREC's adopted plan for cleaning up a hazardous site.
<b>Hazardous Substance Cleanup Act (HSCA)</b>	Delaware Code Title 7, Chapter 91. The law that enables DNREC to identify parties responsible for hazardous substances releases and requires cleanup with oversight of the Department.
<b>Human Health Risk Assessment (HHRA)</b>	An assessment done to characterize the potential human health risk associated with exposure to site related chemicals.
<b>Oversight</b>	Supervision by the Department of a person's work on any aspect of a remedy during the performance of that work, including the Department's review of any work done prior to the Department's supervision that now requires the Department's approval.
<b>Proposed Plan of Remedial Action</b>	A written plan, issued by the Department for public comment, describing the appropriate remedial action under the Act at a facility for the current or anticipated land use to protect public health or welfare or the environment.
<b>Remedial Investigation</b>	An evaluation of a release or imminent threat of release of a hazardous substance at a facility to determine the nature, extent, and impact of the release and the collection of data necessary to conduct a feasibility study of remedial alternatives.
<b>Risk</b>	Likelihood or probability of injury, disease, or death.
<b>SIRS</b>	Site Investigation Restoration Section of DNREC, which oversees cleanup of sites that were contaminated as a result of past use, from dry cleaners to chemical companies.
<b>Uniform Risk-Based Remediation</b>	A set of concentration criteria for various

<b>Standards (URS)</b>	contaminants potentially present in site media that are developed for protection of human health and the environment.
<b>Voluntary Cleanup Program</b>	The remedial process established by the Department under 7 Del.C. Ch. 91, into which a party voluntarily enters into, provided the application is approved by the Department, for the purpose of conducting a remedy at a facility.
<b>Voluntary Cleanup Program Agreement</b>	A legal and administrative document entered into between the Department and the VCP applicant that provides for the performance of a remedy at a facility, and the reimbursement of the Department's oversight costs, by the applicant.