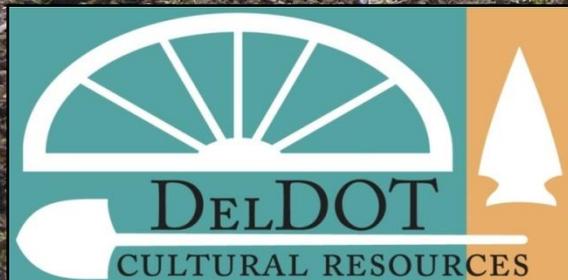


THE ROUTE 301 ARCHAEOLOGY PROGRAM IN DELAWARE: 9 CRM FIRMS 1 TEAM

David S. Clarke
Archaeologist
Delaware Department
of Transportation





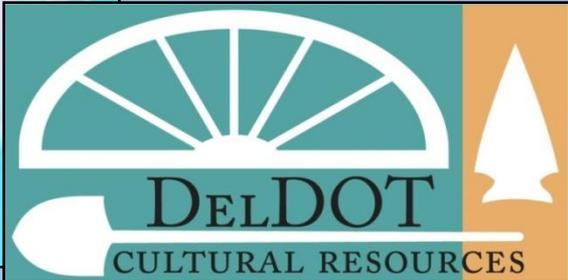
Pennsylvania

New Jersey

Maryland



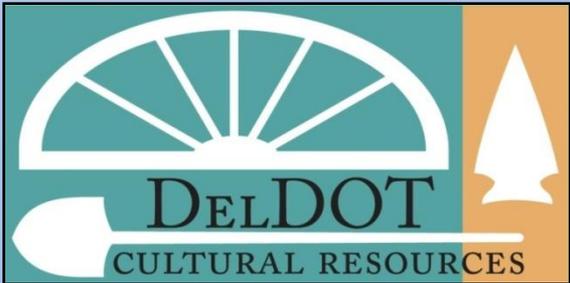
**U.S. ROUTE
301 PROJECT**



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**U.S. ROUTE
301 PROJECT**

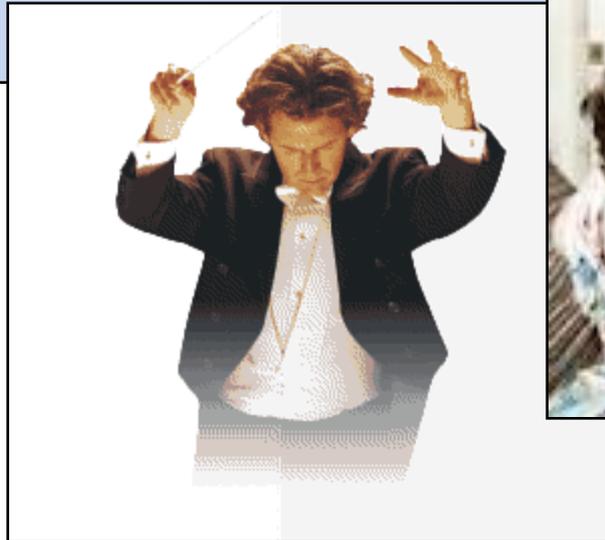


THE U.S. ROUTE 301 ARCHAEOLOGY PROGRAM:

FHWA MEGA PROJECT, EIS LEVEL PROJECT, MOA FOR THE ARCHAEOLOGY PROGRAM

DELDOT 2 ARCHAEOLOGISTS, DE SHPO 1 REVIEWER

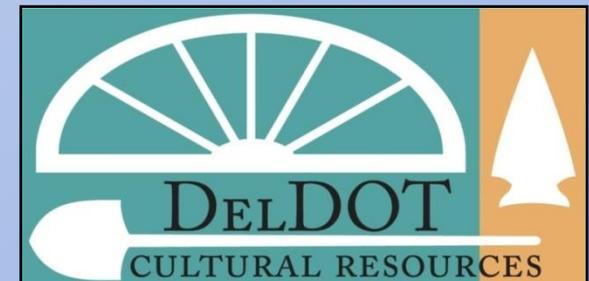
EARLY ON DECISION TO SPLIT UP THE WORK BETWEEN MANY CRM FIRMS FOR A NUMBER OF REASONS



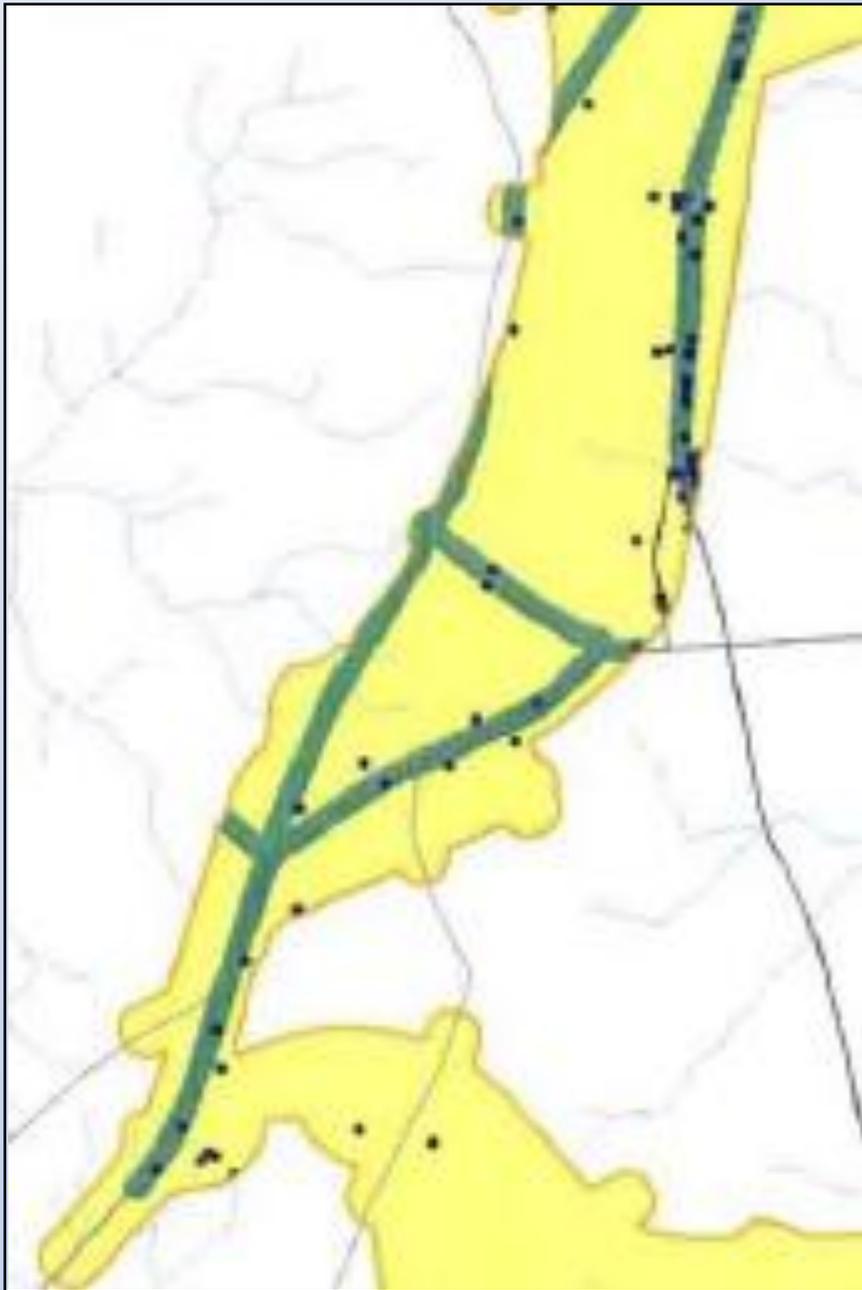
U.S. ROUTE 301 ARCHAEOLOGY PROGRAM

WARNING: THIS IS THE MOST EXCITING SLIDE IN THE POWER POINT

1. GIS BASED PREDICTIVE MODEL FOR HISTORIC AND PREHISTORIC SITE POTENTIAL
2. PHASE IA – INTENSIVE BACKGROUND RESEARCH, HEAVILY FRONT LOADED
3. PHASE IB FIELDWORK – INTENSIVE SURVEY, MOST WAS PEDESTRIAN SURVEY ON OVER 500 ACRES OF LAND
4. **PHASE I RESULTS – 62 ARCHAEOLOGY SITES IDENTIFIED**
5. 8 SITES IMPACTS WERE AVOIDED OR MINIMIZED ENOUGH VIA DESIGN SHIFTS TO ALLOW THEM TO GO DIRECTLY INTO COVENANT STATUS
6. **26 SITES WERE IN THE PHASE II PROGRAM**
7. THE PHASE III PROGRAM IS SLATED FOR LATER IN 2012.



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U.S . ROUTE 301, GIS BASED HISTORIC PREDICTIVE MODEL

Purple Dots – High

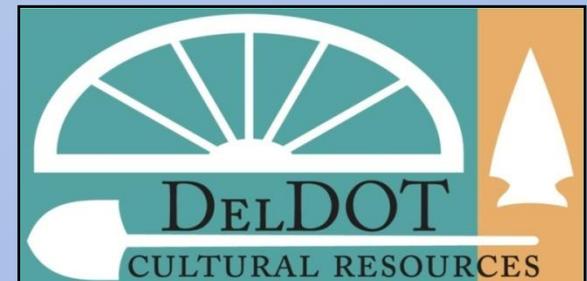
Spot locations based off historic maps

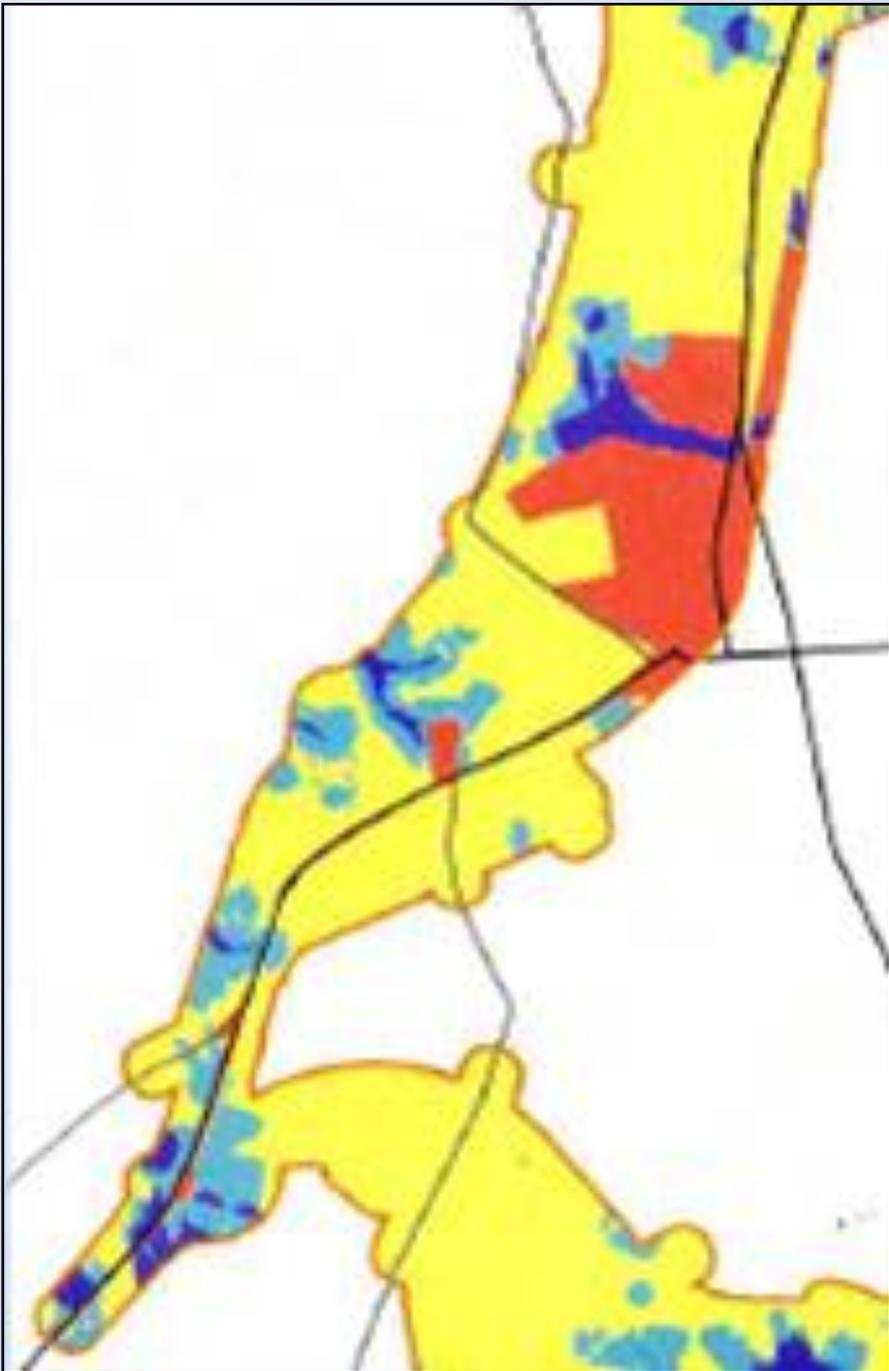
Green – Moderate

Roads based off historic maps

Yellow – Low

Areas based off of purely GIS database of cultural and natural features
(ex. closeness to water)





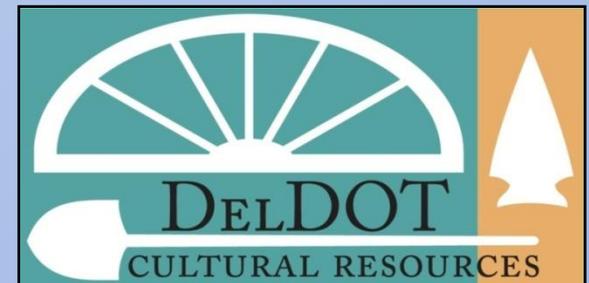
U.S . ROUTE 301, GIS BASED, PREHISTORIC PREDICTIVE MODEL

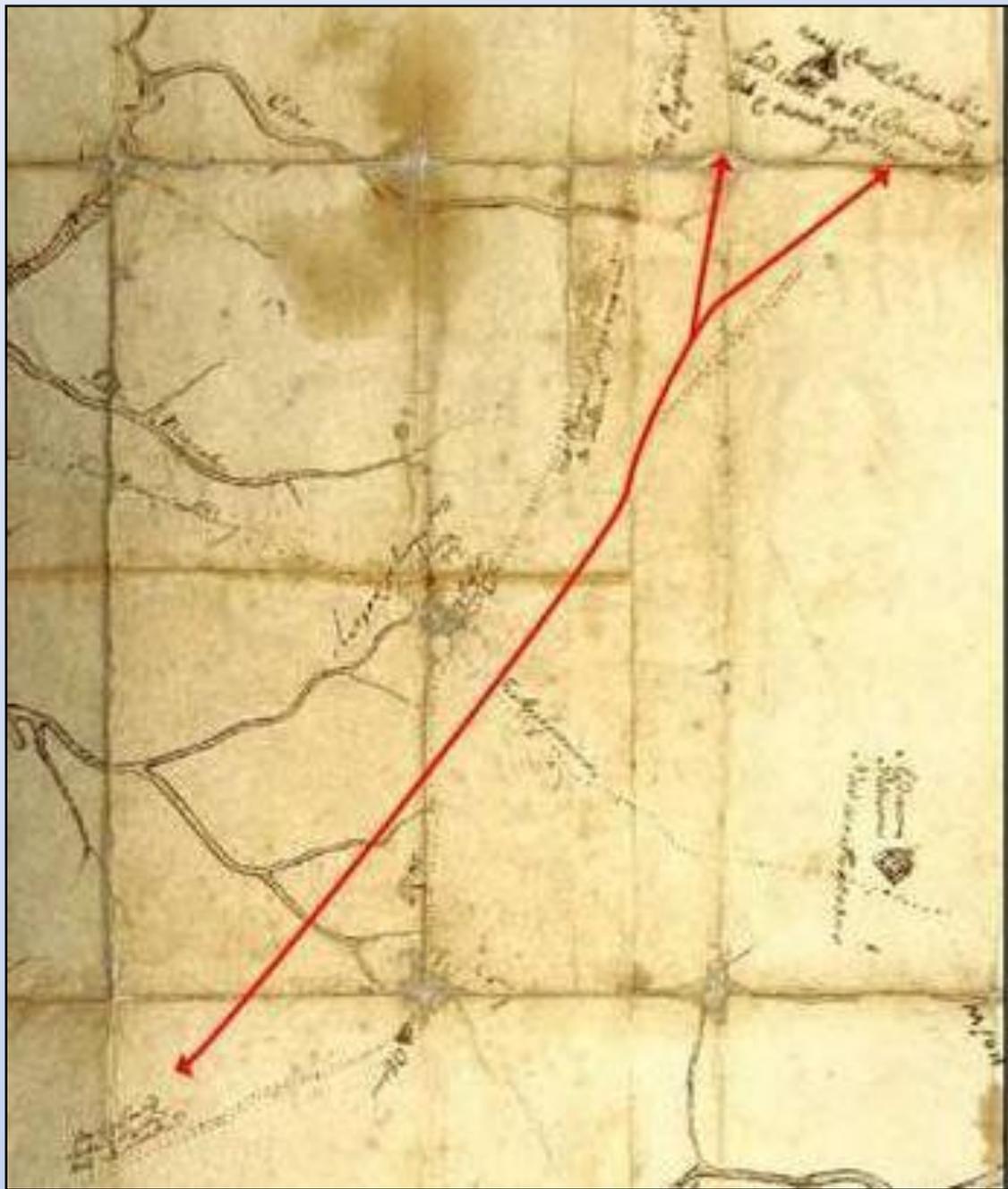
Dark Blue – High

Light Blue – Moderate

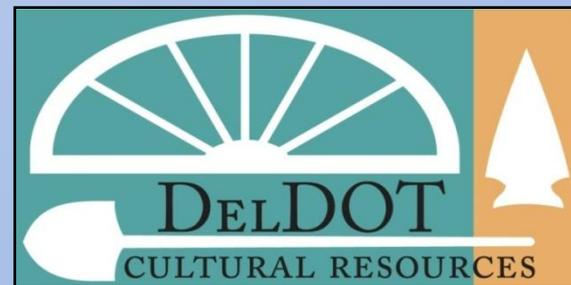
Yellow – Low

Red – Nil (modern disturbance)

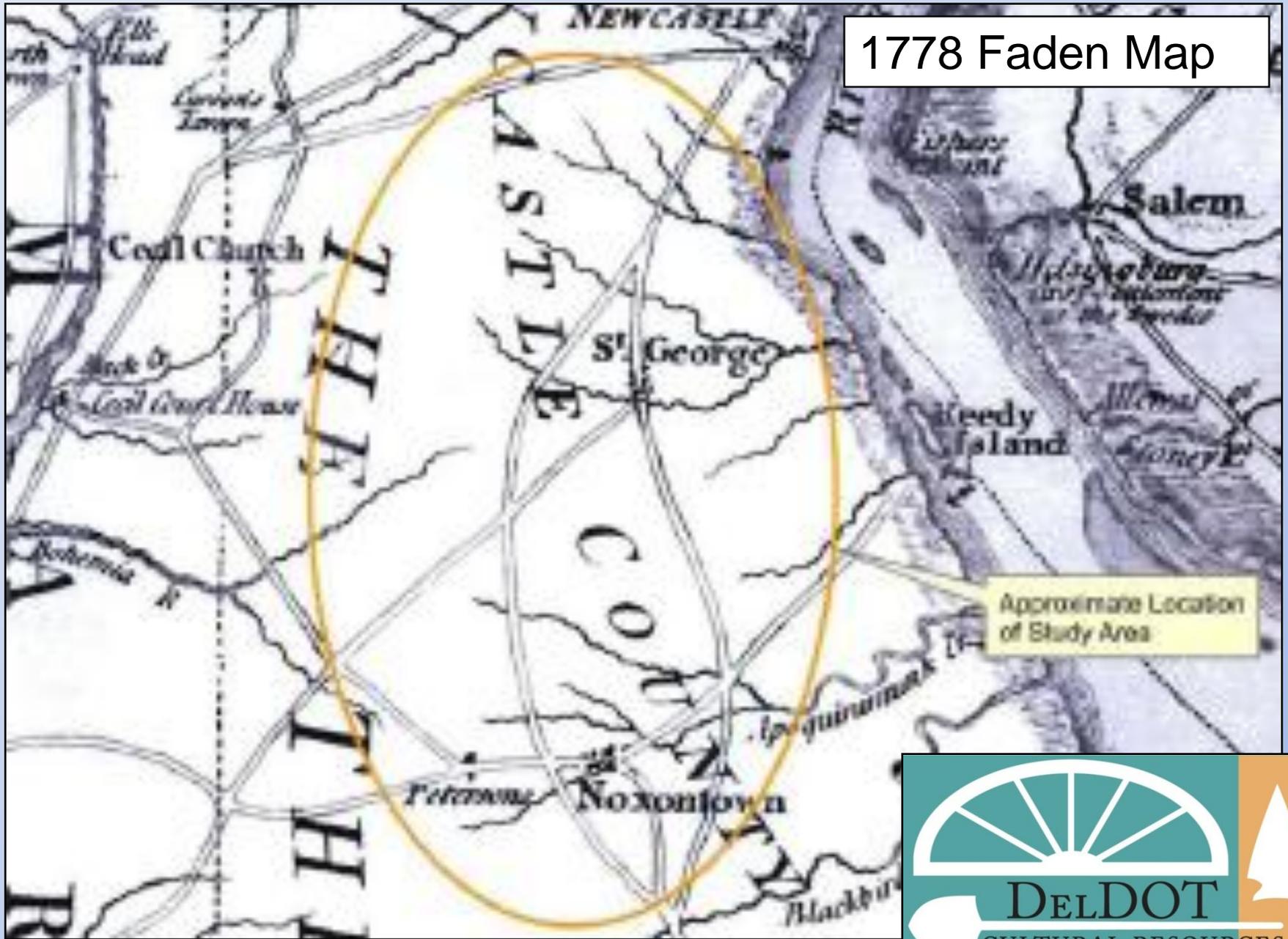




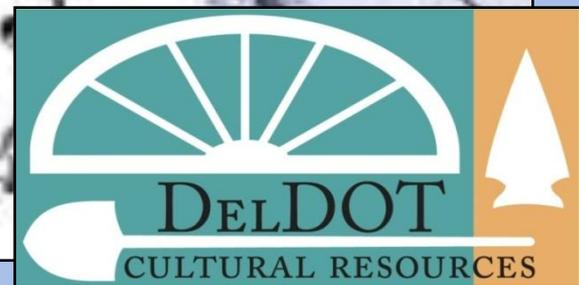
A 5 mile section of the
Route 301 Project
shown on the **1740**
Rumsey family papers
manuscript map

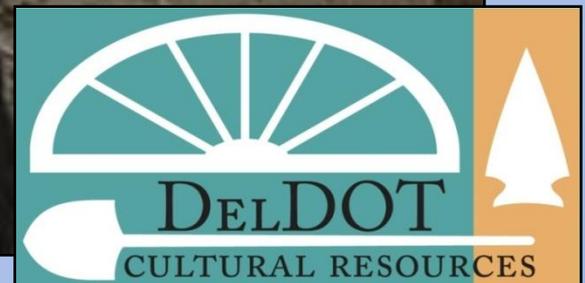


1778 Faden Map



Approximate Location of Study Area





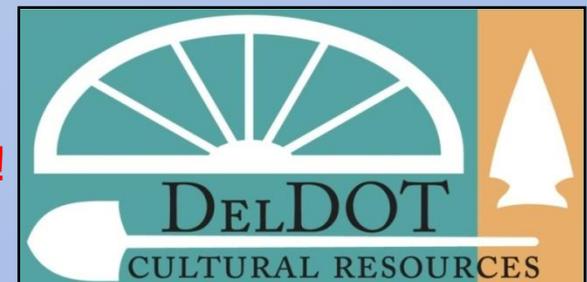
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U.S. ROUTE 301 PHASE III PROGRAM

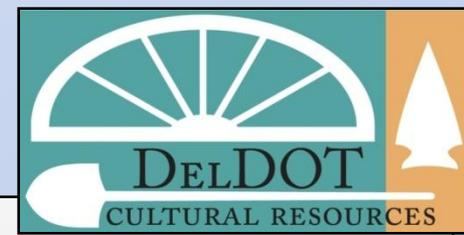
TRADITIONAL AND ALTERNATIVE MITIGATION STRATEGIES

SITE EXCAVATION, PUBLIC TOURS,
WEBSITES, ASSESSING THE
PREDICTIVE MODEL, BOOKLETS,
UPDATING CONTEXT, ASSESSING
THE GEOPHYSICAL WORK DONE ON
THE PROJECT, UPDATING STATE AND
REGIONAL DATABASES, ENGAGING
LOCAL SCHOOLS, LECTURES,
JOURNALS, SPECIALIZED STUDIES,
UPDATING
DE CHRIS
SYSTEM,
AND MORE!



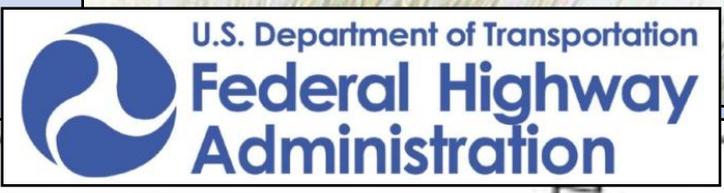
WWW.ARCHAEOLOGY.DELDOT.GOV

THANK YOU !



HUNTER RESEARCH

Historical Research



DOVETAIL

CULTURAL RESOURCE GROUP I, INC.

ARCHAEOLOGICAL & HISTORICAL CONSULTANTS, INC.

SLIDE 1

The route 301 project in Delaware is a rare opportunity to look into the past and identify archaeological sites from the 17th and 18th centuries. The Delaware Department of Transportation (DelDOT) is in the throes of its largest public works project in over 12 years. DelDOT plans to construct 17 miles of new grade-separated highway across southern New Castle County, to move traffic safely and efficiently from U.S. route 301 in Maryland onto the existing Delaware state route 1 corridor. Background research, phase I, and phase II archaeological survey work have identified numerous 17th and 18th century historic archaeological sites that will completely alter what we thought we knew about this early historic time period in Delaware and the Mid-Atlantic region. The sheer quantity and quality of these early historic sites is amazing and every new site we find sheds more light on this time period in Delaware.

An environmental impact statement (EIS) and memorandum of agreement (MOA) were completed for this project. The MOA outlines the process to complete all the archaeology for this project under the direction of DelDOT. This archaeology program has utilized the talents of 9 cultural resource management firms (CRM). The 9 CRM firms have contributed to the project in various capacities from geographic information system (GIS) based predictive modeling to detailed historic research, field work, lab work, report writing, and public

outreach. With the support of the Federal Highway Administration (FHWA), DelDOT has combined the talents of the 9 CRM firms and will be able to complete the archaeology program on this mega project prior to construction and I feel confident that we will also be under budget on the Archaeology program for this MEGA project.

This photograph was taken a few years ago at the onset of the phase I program, and as you can see there were some enormous pedestrian surveys undertaken. This specific survey area was a 65 acre farm field.

SLIDE 2

HERE IS MAP OF THE PROJECT AREA

SLIDE 3

HERE IS A MORE DETAILED MAP OF THE NEW HIGHWAY, this is a mega project for FHWA, a mega project (which is the technical term for FHWA) is any project over the 500 million mark, this project is estimated to be about 800 million dollars. The Archaeology program is a drop in the bucket of the overall project cost, but still a hefty sum upwards of 12-15 million. One of the many initiatives of a mega project for FHWA is an attempt to split up the work as much as possible to spread the federal dollars around between many entities, thus not creating a monopoly on the work. This was NOT the major deciding factor in the decision to split up the Archaeology program between so many CRM firms, but did play a positive role in the direction the signatories to the MOA wanted the Archaeology program managed.

SLIDE 4

Here are some general stats about the project, READ THE SLIDE. DeIDOT has 2 Archaeologist, and the DE SHPO has 1 reviewer for this mega project. So in the end it came down to a cast of 3 to manage and oversee the Archaeology program, in addition to all the other DeIDOT projects, in that we did not stop the rest of the state DOT's Archaeology program for this single mega project. That being said, myself and my two partners in crime, Kevin Cunningham and Gwen Davis have been extremely busy these past few years. Here are 3 images that can best describe our roles during this project. At times we have felt like crazy people with the work load, and questioning why we split up the work between so many CRM firms just trying to keep track of whom is doing what where. At times we feel like the maestro directing all the CRM firms to make sweet music of the Archaeology program, and lastly at times we feel like referees either between ourselves, the 9 CRM firms or between DeIDOT, SHPO and FHWA. Now some of the reasons we decided to split up the work between so many CRM firms begins with the idea that the more firms involved would allow us the ability to get the project done on time, because the Archaeology program has a very small window to be complete going from a record of decision (ROD) on the EIS to construction in roughly 3 years. Splitting up the work between so many CRM firms also provides multiple view points on the research agenda in that all the experts we brought to the table on this project from our 9 CRM firms has broadened our research basis and allowed us not to have a tunnel vision attitude when it comes to what is important and what research design questions are we really going after. I think after you hear some of the papers today you'll agree with me that hiring so many CRM firms and splitting up the work, while under direct management of DeIDOT and SHPO, have some amazing results and yet have still been able to keep continuity between the CRM

firms, survey areas, and work load, while being able to keep to the idea under the mega project umbrella of splitting up the pie as much as possible and still having a positive outcome. I can also tell you that by splitting up the work load between so many CRM firms it has created a more technically and financially competitive market in that the CRM firms have been jockeying for position to not only provide us with the highest quality Archaeological expertise, but also competitive pricing.

SLIDE 5

Here is some data about the project,

The Archaeology program has had a logical and thought out plan starting with

1. The GIS based predictive modeling program, which was based on a number of cultural and environmental factors and done by a single CRM firm. I can tell you that at the end of this mega project, we will be doing an assessment of the predictive model to see how well it worked, and I can already tell you we have learned a ton of information that will play into future predictive modeling for the DELMARVA region.
2. The phase IA program was split up by 4 new firms independent of the firm that did the predictive model, and each produced a large volume on the history and archaeological potential of their specific survey area by combining both the GIS based predictive model and their detailed background research. I have to mention also, that during the phase IA program DelDOT and SHPO mandated and facilitated for the 4 CRM firms to share their data with each other, and this trend has continued throughout the remainder of the project. I can honestly say that this heavily loaded up front effort has paid off immensely by being able to hone in on where to do phase IB testing, and has created some big cost savings on the project.

3. The phase IB fieldwork mostly consisted of pedestrian survey of over 500 acres of land and again some standard field methods were mandated, such as piece plotting all artifacts found during pedestrian survey to be able to build detailed artifact distribution maps and thus be able to define sites, as well as testing artifact concentrations found during pedestrian survey with both shovel test pits and units, yes I said units the phase I level. Again this heavily loaded up front predictive modeling, phase IA and phase IB effort has paid off with some big financial savings going into the phase II program with a wealth of information that has allowed us to be more stealthy in the excavations and research designs getting us to a point where we are able to make informed eligibility determinations.

5. This was a major win, win for everyone in that working with the design teams we were able to move the alignment a bit here and there as well as tweak the burrow pit and storm water management locations to be able to avoid a number of archaeological sites and thus not have to further investigate them, but preserve them in place via land covenants and save a lot of money by not having them go into the phase II program. Let us all not forget about our Archaeological ethics, in that preservation in place is always our first choice.

SLIDE 6

HISTORIC PREDICTIVE MODEL MAP One of the first tasks of the U.S. route 301 archaeology program was to complete an archaeological predictive model as shown here the project alignment had not been set yet, and what we see here is the project corridor. The GIS based predictive model for the project concluded that there were areas of high archaeological potential for historic resources, these are spot locations and a generous buffer X feet wide was given to each location to account for mapping error. Areas of moderate potential are shown in Green and

represent overlays of historic roads throughout the project corridor. Areas of low potential are shown in yellow.

SLIDE 7

PREHISTORIC PREDICTIVE MODEL MAP – again here we see a portion of the project corridor but with this image we are seeing the prehistoric predictive model. This GIS based predictive model for the project concluded that there were areas of high archaeological potential for prehistoric resources, as shown in dark blue, moderate potential in light blue, low potential in yellow (point them out), and nil in red (areas of modern disturbance). This GIS model was based off of a number of natural and cultural features such as topography, hydrologic features, soil permeability, percent slope, distance to water, distance to known Native American sites, etc...

SLIDE 8

During the background research phase of this project, numerous historic maps were compiled to determine the potential for archaeological resources in the project corridor. One of the most influential early historic maps is the 1740 manuscript map from the Rumsey family papers. This map depicts numerous 18th century cart roads, in both Maryland and Delaware that cross the project corridor. The potential exists for some of the cart roads on this map to date back into the mid to late 17th century. Utilizing this map and detailed background research in conjunction with the GIS based predictive model has aided our archaeological survey to test areas with the greatest likelihood of finding archaeological sites dating to the 17th and 18th centuries.

SLIDE 9

Here is another of the dozens of historic maps; we have for this project area. The next step in the archaeology program was to do the fieldwork with phase I and subsequently phase II archaeological survey work. Again at the phase I level we identified 62 Archaeology sites and took 26 of them into the phase II program. To date we have completed all the phase II fieldwork and are currently assessing the 26 sites eligibility based on consultants management summaries. In the coming months DelDOT and DE SHPO will make their decisions on mitigations plans to be carried out over the summer and fall of 2012, with the coming spring 2013 construction start date.

SLIDE10

Here is a picture of a partially excavated 18th century cellar hole showing a brick foundation and steps leading down into the cellar. Archaeological sites from this time period are very rare in Delaware and across the Mid-Atlantic region, thus making this project all the more important to our collective knowledge about the culture of the American Colonies prior to being the United States of America. Most of the route 301 project corridor has been used as agricultural land for the past 300 years. This factor is a very important reason why the potential exists to have buried archaeological deposits beneath the plow zone soils that date to the 17th and 18th centuries. Part of the phase I survey was to test for early historic archaeology sites associated with early historic cart roads. Results from the phase I survey indicated that there were intact archaeological sites associated with the cart roads depicted on the 1740 map. Preliminary dating results from these archaeology sites have them being occupied as early as the 17th century and some possible continuing into the 18th and 19th centuries. Preliminary results as to the function of these early historic archaeology sites has them being domestic in nature (houses and outbuildings such as barns, smoke houses), trade related (wharfs / landings),

and procurement (limonite / bog iron extraction). This specific site we are looking is one the 8 sites that after the phase I was able to be preserved in place via design changes and thus go into protective covenant status. All 8 sites being preserved in place will be fenced off and monitored during construction.

SLIDE 11

The next step in the archaeological program is to begin phase III mitigation work later this year both traditional on site excavation and off-site alternative mitigation. As archaeological sites were identified for the route 301 project their locations have been mapped to determine their relationship to each other and early historic cart roads. You'll have to stick around to the end of the symposium to see some of these amazing maps that show the sheer density of early historic sites on this landscape. The route 301 project has provided us with a more accurate model for identifying archaeological sites from the 17th and 18th centuries. Our preliminary results are concluding that the heavily loaded up front predictive modeling phase IA, and phase IB efforts are paying off via the amount of archaeological sites we are finding and what we already know about them from our detailed background research, and intensive phase I survey programs prior to going into the phase II program. Subsequently the detailed phase II field efforts have again allowed us to make more informed decisions about eligibility of sites, in that we did not stop phase II excavations as soon as we found intact features with artifacts or dense concentrations of intact early historic artifacts. Rather we pushed the phase II program to genuinely be able to definitively determine both the horizontal and vertical boundaries of the sites, and be able to justify the sites eligibility not only against criteria A, B, C, and D of the national register, and State and Regional context, but reporting about the sites with the reality that we are not going to take all the eligible sites into a traditional phase III program and we will have to weigh

all the potentially eligible sites against each other and State and Regional context. This will allow us to make more informed decisions about mitigation strategies, both traditional on site excavations and alternative off site work, as well as further tune and tweak our research design questions to better address this early historic time period in Delaware and the surrounding region.

SLIDE12

The route 301 archaeology program takes a holistic approach from the beginning of the project, which included a GIS based predictive model, detailed background research, and an intensive archaeological testing strategy, to identifying archaeology sites. This project has the potential to alter our viewpoint about the economic and cultural landscape from the 17th and 18th centuries in Delaware. In the future, all of this new information from the route 301 archaeology program will be synthesized to see how it may revise our collective knowledge about the history of Delaware, Maryland, and the entire Mid-Atlantic region. These preliminary results are nothing less than astounding and will continue to fuel our research needs for this project as we move forward with additional archaeological work.