

**Sunoco Logistics LP  
Pennsylvania Pipeline Project  
February 3, 2017**

**Cultural Resources – Archaeological Investigations Update**

Tetra Tech conducted supplemental archaeological investigations on behalf of SPLP to meet their Section 106 of the NHPA obligations for the Project from May 2016 through January 2017. The supplemental archaeological investigations surveyed approximately 47 ha, (116.2 ac). Phase I archaeological investigations consisted of pedestrian survey of the entire APE and systematic subsurface testing and surface inspection of the Project APE determined sensitive for the presence of archaeological resources. Surveys were conducted following the PA SHPO's *Cultural Resource Management in Pennsylvania: Guidelines for Archaeological Investigations in Pennsylvania* (2016). The supplemental Phase I archaeological investigations identified two new sites and relocated one previously recorded site.

Previously recorded site 36WH1344 will be avoided via horizontal directional drill with minimal impacts from a timber matted travel lane. Timber mats distribute weight and reduce compaction. There is no evidence indicating artifacts other than durable lithics are present at site 36WH1344. Therefore, with the reduced compaction, it is Tetra Tech's opinion that there are no adverse effects to site 36WH1344 as a result of the Project. An avoidance plan to protect portions of the site that might lie outside of the Project APE has been developed and will be implemented during construction. Newly identified site 36YO0463 is not recommended eligible for the NRHP and since it is Tetra Tech's opinion that its research potential has been exhausted, no additional archaeological investigations are recommended at that site. It is Tetra Tech's opinion that newly identified site 36YO0462 is potentially eligible for listing in the NRHP and recommended Phase II site evaluations.

As part of the supplemental archaeological investigations, Tetra Tech conducted Phase II evaluations at two sites, previously-identified site 16WH1621 and 36YO0462. Tetra Tech recommends 36WH1621 not eligible for listing in the NRHP. After Phase II evaluations at 36YO0462 failed to yield sufficient data to make a positive determination, and in consultation with the SHPO, construction plans were changed to drill under the site to avoid additional impacts. Since adverse impacts were mitigated, Phase II evaluations were halted. While the 36YO0462 is potentially eligible for listing in the NRHP, no recommendation is possible without additional investigations. SPLP has selected a 30-ft wide travel lane through the less artifact-dense portion of the site. To minimize impacts, timber matting will be used as well as an avoidance plan that includes fencing to restrict accidental entry into the site. It is Tetra Tech's opinion that the area selected for the travel lane is not a contributing component of the site's overall NRHP eligibility. If the design plans must be altered, areas of new APE will be re-evaluated and the SHPO consulted.

In summary, as a result of the supplemental surveys two sites are recommended not eligible for listing because both fail to meet the minimum criteria for NRHP listing, impacts at one site were recommended as non-adverse, and no determination was made for one site that will be avoided via horizontal direction drill. A list is provided below of all of the archaeological sites within the proposed ROW that were evaluated for NRHP listing (Phase II level investigations) and their status or recommendations.

## Summary of Phase II Archaeological Site NRHP Evaluations

Site Number	County	Township	Lat	Long	Eligibility Determination	Recommendations	Notes
36BK0926	Berks	New Morgan	40.1879	-75.8918	Undetermined	Implement avoidance plan including monitoring and general inadvertent return plan.	Site avoided by realignment; avoidance plan included.
36BL0014	Blair	Frankstown	40.4394	-78.3292	Pending	No additional investigations.	Failed to meet minimum criteria for NRHP listing after Phase II site evaluation.
36BL0120	Blair	Frankstown	40.4455	-78.3244	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination July 25, 2015 (ER# 2013-1862-42).
36CB0212	Cambria	Jackson	40.4277	-78.8043	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).
36CH0958	Chester	Upper Uwchlan	40.0765	-75.7049	Undetermined	Portion of the site within the APE does not contribute to the site's overall eligibility. Changes in the currently defined APE resulting in additional ground disturbance will require SHPO notification. Implement avoidance plan including monitoring.	Avoidance plan included.
36CH0959	Chester	Upper Uwchlan	40.0782	-75.7085	Undetermined	Portion of the site within the APE does not contribute to the site's overall eligibility. Changes in the currently defined APE resulting in additional ground disturbance will require SHPO notification. Implement avoidance plan including monitoring.	Avoidance plan included.
36CH0960	Chester	West Nantmeal	38.8423	-75.6444	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).
36HU0228	Huntington	Tell	40.3075	-77.7259	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).
36JU0123	Juniata	Lack	40.3003	-77.6907	Pending	No additional investigations.	Failed to meet minimum criteria for NRHP listing after Phase II site evaluation.
36LA1412	Lancaster	Clay	40.284	-76.2225	Undetermined	Portion of the site within the APE does not contribute to the site's overall eligibility. Changes in the currently defined APE resulting in additional ground disturbance will require SHPO notification. Implement avoidance plan including monitoring.	Avoidance plan included.
36LA1574	Lancaster	West Cocalico	40.2808	-76.208	Undetermined	Implement avoidance plan including monitoring and general inadvertent return plan.	Site avoided by HDD; avoidance plan included.
36LA1575	Lancaster	Clay	40.2854	-76.228	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).
36LA1576	Lancaster	Clay	40.282	-76.2199	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).
36LA1577	Lancaster	Clay	40.2851	-76.2268	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).

Site Number	County	Township	Lat	Long	Eligibility Determination	Recommendations	Notes
36LE0202	Lebanon	South Annville	40.2782	-76.4873	Pending	Portion of the site within the APE does not contribute to the site's overall eligibility. Changes in the currently defined APE resulting in additional ground disturbance will require SHPO notification. Implement avoidance plan including monitoring.	Avoidance plan included.
36LE0209	Lebanon	West Cornwall	40.2842	-76.4598	Undetermined	Portion of the site within the APE does not contribute to the site's overall eligibility. Changes in the currently defined APE resulting in additional ground disturbance will require SHPO notification. Implement avoidance plan including monitoring.	Avoidance plan included.
36LE0551	Lebanon	Heidelberg	40.2855	-76.236	Pending	Not eligible for NRHP; No additional investigations.	Failed to meet minimum criteria for NRHP listing after Phase II site evaluation.
36PE0085	Perry	Toboyne	40.2737	-77.5399	Undetermined	Implement avoidance plan including monitoring.	Site avoided by alignment change; avoidance plan included.
36WH1621	Washington	Nottingham	40.2272	-74.0473	Pending	No additional investigations.	Failed to meet minimum criteria for NRHP listing after Phase II site evaluation.
36WM1055	Westmoreland	Derry	40.4451	-79.3026	Not Eligible	Not eligible for NRHP; No additional investigations.	SHPO determination September 15, 2016 (ER# 2013-1862-42).
36WM1056	Westmoreland	Derry	40.4451	-79.3026	Undetermined	Portion of the site within the APE does not contribute to the site's overall eligibility. Changes in the currently defined APE resulting in additional ground disturbance will require SHPO notification. Implement avoidance plan including monitoring.	Avoidance plan included.
36YO0462	York	Fairview	40.1978	-76.8036	Pending	Potentially Eligible	Site avoided by HDD; Phase II evaluations terminated with inconclusive results.

At the request of the SHPO, Sunoco developed detailed avoidance plans for 16 sites within the ROW and for seven sites immediately adjacent to the ROW. The table below summarizes the avoidance plan for each site, followed by individual site avoidance plan figures.

**Summary of Avoidance Plans for the Pennsylvania Pipeline Project**

Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36AL0655	Allegheny	Forward	40.229467	-79.960012	Undetermined	HDD / Timber Mats	Site is avoided by HDD. A 20-foot travel lane passing through the site will be covered with timber matt. Timber mats distribute weight and reduce compaction. Safety fencing and "No Access" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36BK0926	Berks	New Morgan	40.187849	-75.891814	Undetermined	Reroute	Site is completely avoided by a route change. No access to the site is anticipated. The construction activity's southern limits of disturbance (LOD) will be lined by orange safety fencing and signs reading, "No Access" will be prominently display along the length of the fence. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36BL0122	Blair	Woodbury	40.432993	-78.266806	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.

Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36CH0958	Chester	Upper Uwchlan	40.076168	-75.70441	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36CH0959	Chester	Upper Uwchlan	40.078254	-75.708506	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36CH0961	Chester	Upper Uwchlan	40.08549	-75.722506	Undetermined	N/A	LOD reduced to existing 8-inch pipeline ROW to avoid any new impacts to the site. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.

Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36CH0964	Chester	Upper Uwchlan	40.029375	-75.618609	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36CH0965	Chester	Upper Uwchlan	40.032078	-75.619955	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36CH0966	Chester	Upper Uwchlan	40.031398	-75.619850	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36CU0219	Cumberland	North Middleton	40.239560	-77.177689	Undetermined	HDD	As a result of ROW realignment, the site is now 135 ft to the north of the proposed pipeline. Additionally, HDD construction will be used in this area. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.

Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36LA1412	Lancaster	Clay	40.284089	-76.222607	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36LA1574	Lancaster	West Cocalico	40.280853	-76.207959	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36LA1578	Lancaster	West Cocalico	40.283527	-76174104	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36LA1581	Lancaster	West Cocalico	40.282997	-76.126807	Undetermined	Reroute / HDD	As a result of ROW realignment, the site is now 145 ft to the south of the proposed pipeline. Additionally, HDD construction will be used in this area. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.

Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36LE0202	Lebanon	South Annville	40.278409	-76.487199	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36LE0209	Lebanon	South Annville	40.284575	-76.460089	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36PE0085	Perry	Toboyne	40.27378	-77.539840	Undetermined	HDD	As a result of ROW realignment, the site is now 75 ft to the south of the proposed pipeline. Additionally, HDD construction will be used in this area. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.

Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36WH0237	Washington	North Strabane	40.236120	-80.132068	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36WH0444	Washington	North Strabane	40.234258	-80.142365	Undetermined	HDD / Timber Mats	Site is avoided by HDD. A 20-foot travel lane passing through the site will be covered with timber matt. Timber mats distribute weight and reduce compaction. Safety fencing and "No Access" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36WH1344	Washington	North Strabane	40.235523	-80.138186	Undetermined	HDD / Timber Mats	PENDING SHPO CONCURANCE - Site is avoided by HDD. A 20-foot travel lane passing through the site will be covered with timber matt. Timber mats distribute weight and reduce compaction. Safety fencing and "No Access" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.

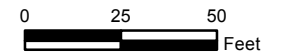
Site Number	County	Township	Lat	Long	NRHP Eligibility	Avoidance Measure	Avoidance Plan
36WM1056	Westmoreland	Derry	40.235523	-80.138186	Undetermined	N/A	Portions of the site that may exist outside of the APE are the subject of the avoidance plan. The LOD will be lined by orange safety fencing as shown in accompanying figure, "No Access" will be prominently display along the length of the fence. Any changes in alignment will require additional SHPO consultation and additional archaeological investigations may be required. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36YO0260	York	Fairview	40.199228	-76.798773	Undetermined	HDD	Site is avoided by HDD. No access to the site is anticipated. Safety fencing and "No Access - Sensitive Resource" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.
36YO0462	York	Fairview	40.197527	-76.803586	Undetermined	HDD / Timber Mats	PENDING SHPO CONCURRENCE - Site is avoided by HDD. A 20-foot travel lane passing through the site will be covered with timber matt. Timber mats distribute weight and reduce compaction. Safety fencing and "No Access" signs will be placed along the travel lane and an Inadvertent Return Plan submitted. The site will be included in the archaeological monitoring program that meets the requirements and follows the recommendations of PA SHPO provided in the September 14, 2016 letter.



Site avoided by Bore. Inadvertent return plan developed. Timber mats placed on travel lane to minimize impacts to pre-contact site. Archaeological monitors will be onsite.

- Legend**
- Area of Potential Effect
  - Archaeological Site
  - Parcel
  - Aquatic Resource
  - Timber Matting
  - Bore
  - Safety Fencing
  - Stream
  - Existing Utilities
  - Sensitive Resource Sign

**Site Location**



**36AL0655  
Construction Avoidance Plan**

Prepared By

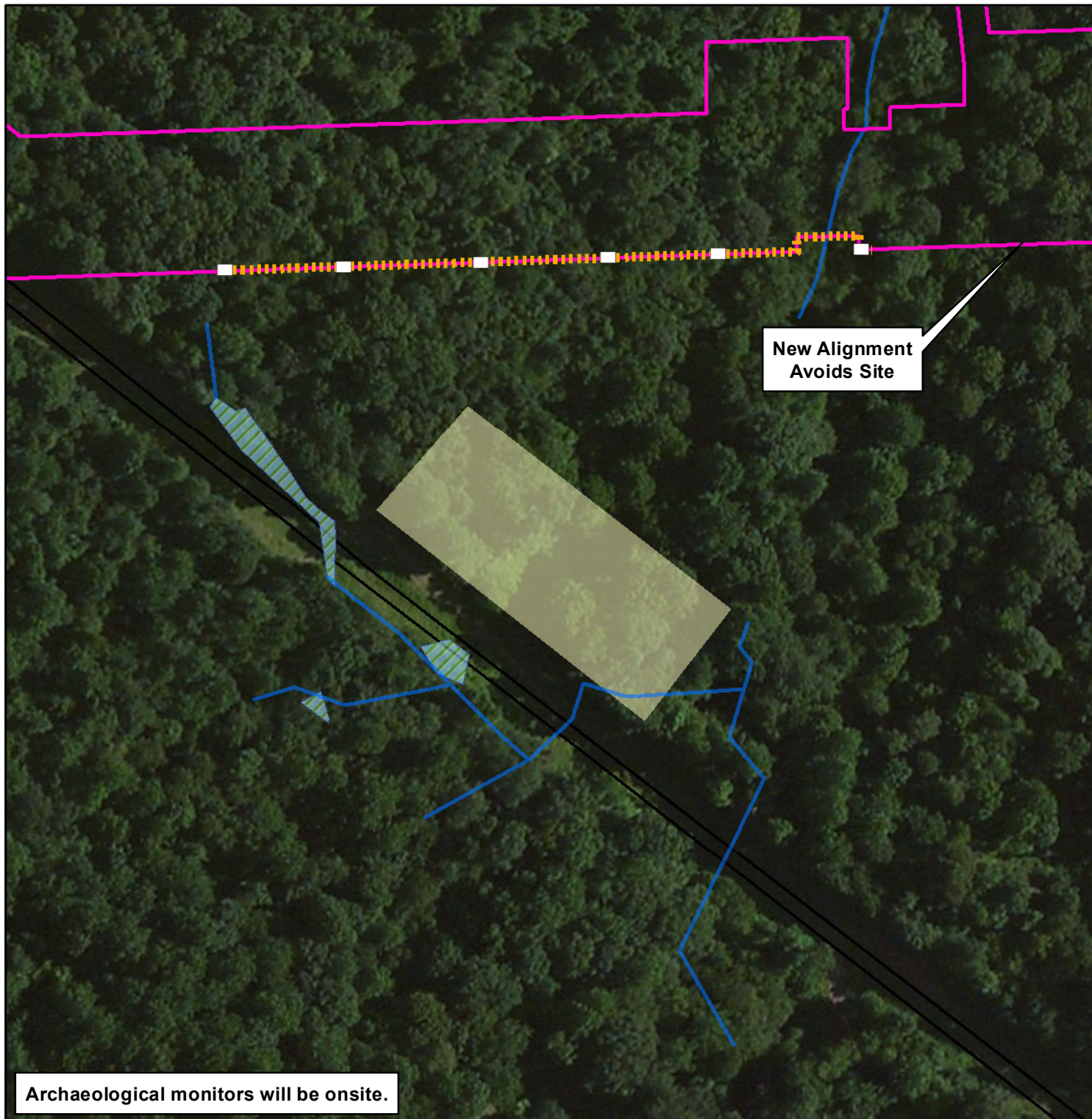


Date:  
1/25/2017

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

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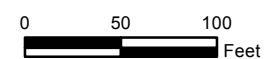
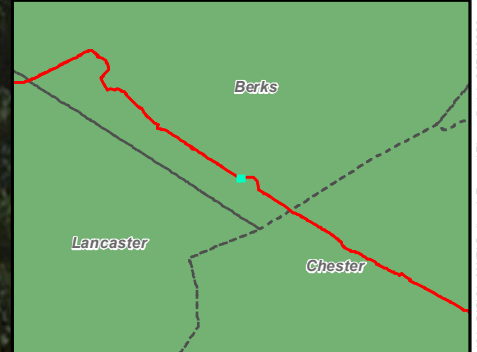


New Alignment Avoids Site

**Legend**

- Area of Potential Effect
- Archaeological Site
- Aquatic Resource
- Safety Fencing
- Stream
- Existing Utilities
- Sensitive Resource Sign

**Site Location**



**36BK0926  
Construction Avoidance Plan**

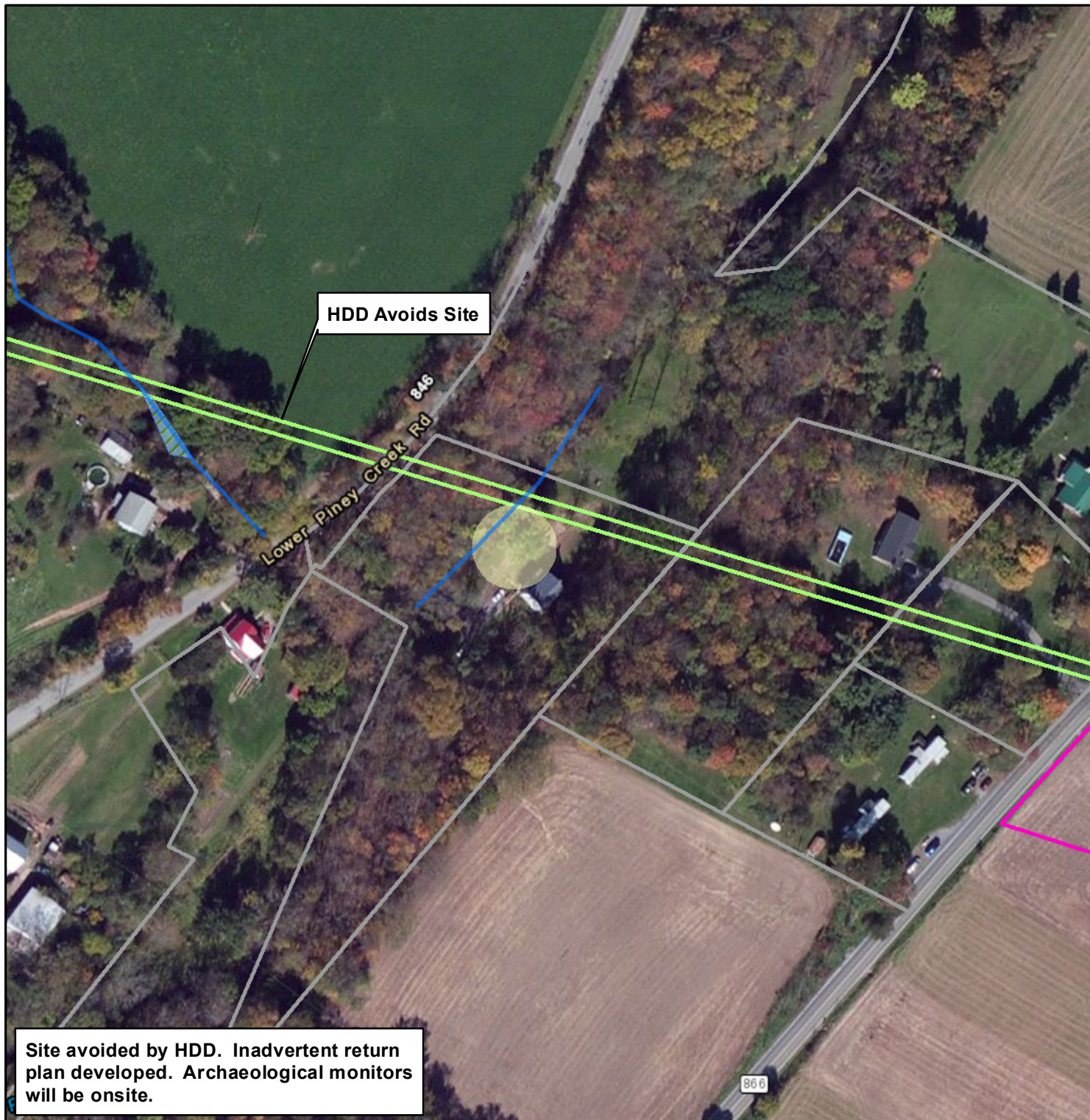
Prepared By **TETRA TECH** Date: **1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/20/13  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

**Archaeological monitors will be onsite.**

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HDD Avoids Site

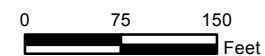
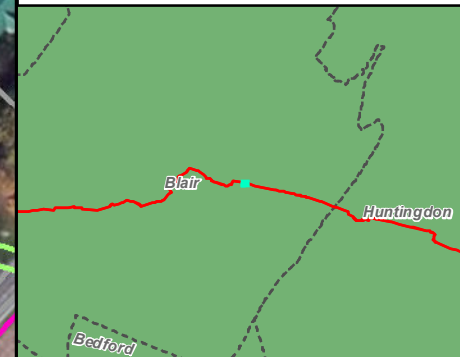
Lower Piney Creek Rd  
846

868

**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  HDD
-  Stream

**Site Location**



**36BL0122**  
**Construction Avoidance Plan**

Prepared By



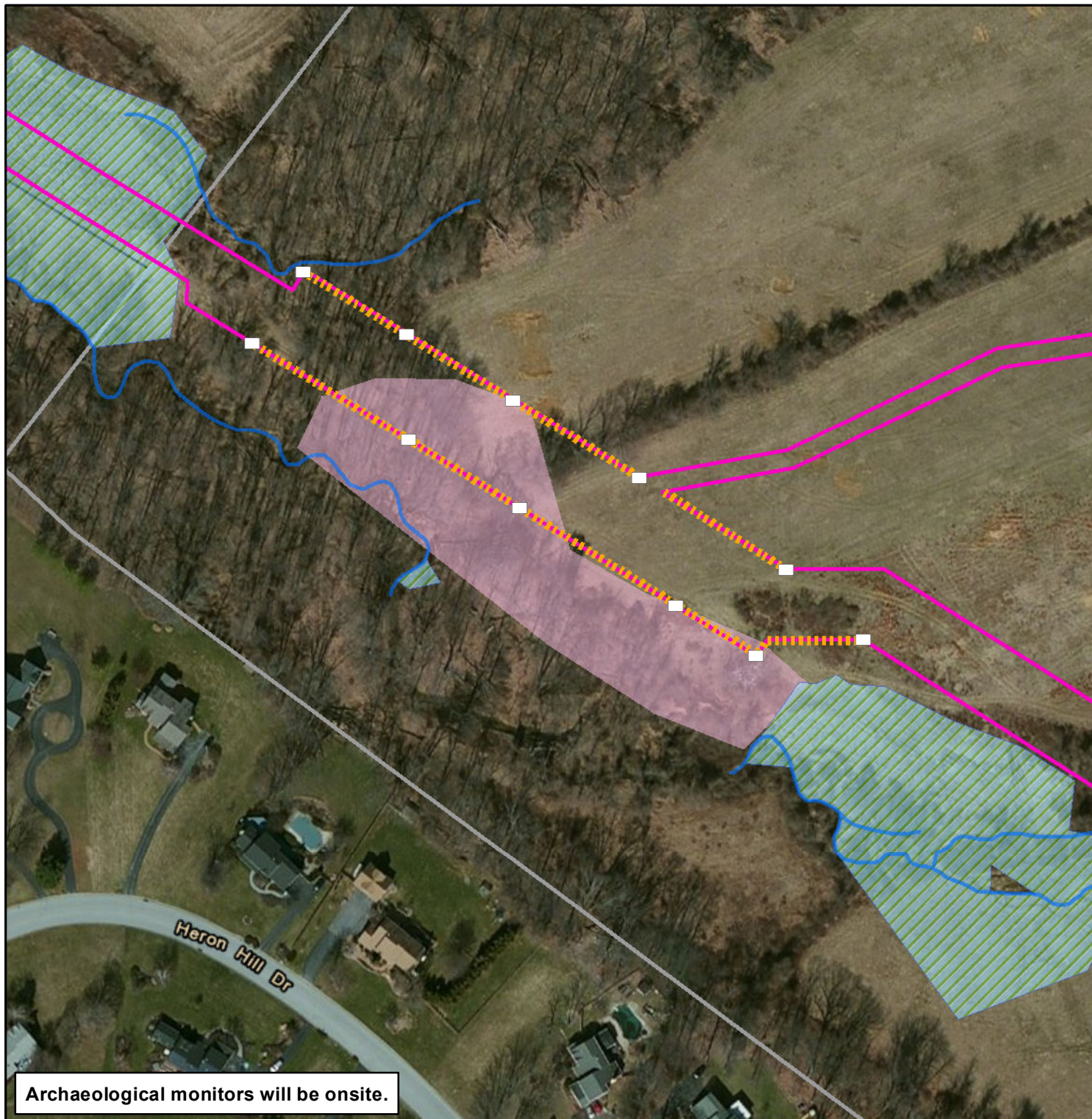
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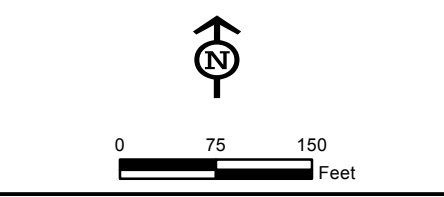
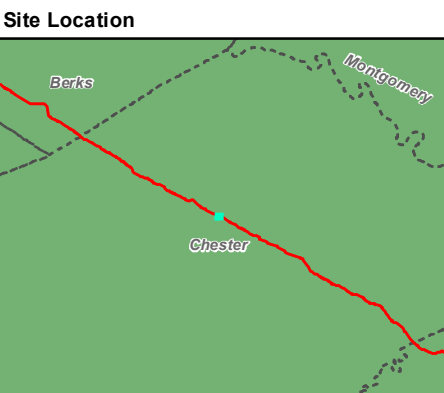
**Site avoided by HDD. Inadvertent return plan developed. Archaeological monitors will be onsite.**

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**Legend**

- Area of Potential Effect
- Archaeological Site
- Parcel
- Aquatic Resource
- Safety Fencing
- Existing Utilities
- Stream
- Sensitive Resource Sign



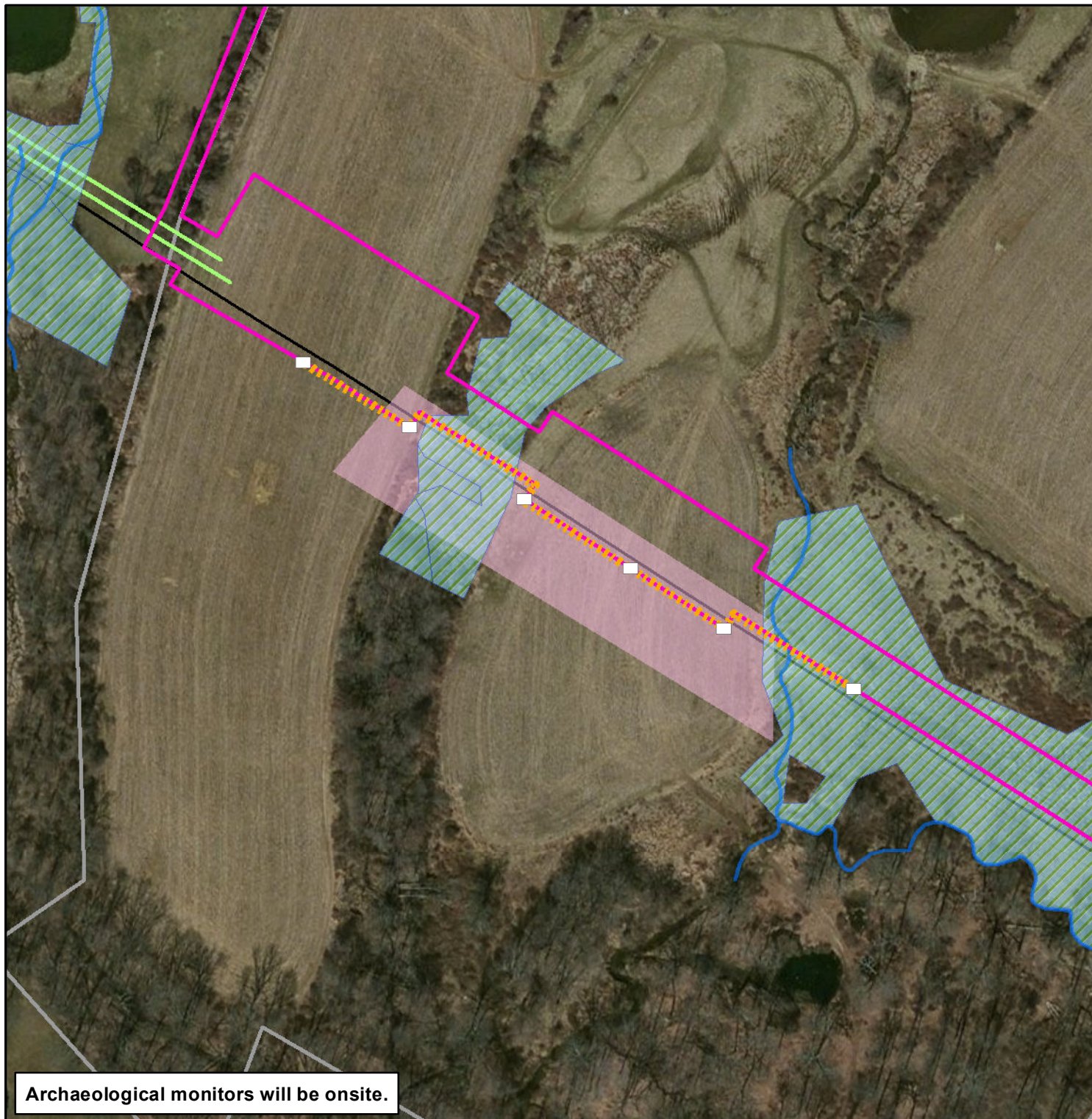
**36CH0958**  
**Construction Avoidance Plan**

Prepared By **TETRA TECH** Date: **1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
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Coordinate System: NAD 83 Stateplane, PA South, Feet

Archaeological monitors will be onsite.

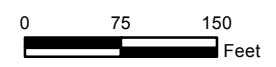
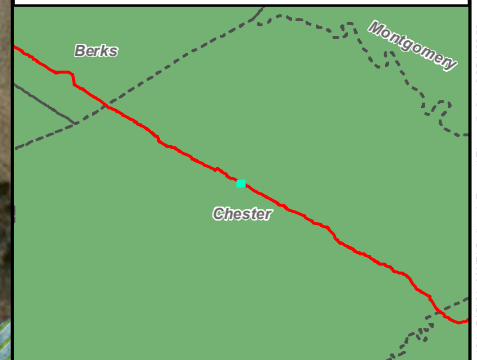
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**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  HDD
-  Safety Fencing
-  Stream
-  Existing Utilities
-  Sensitive Resource Sign

**Site Location**



**36CH0959  
Construction Avoidance Plan**

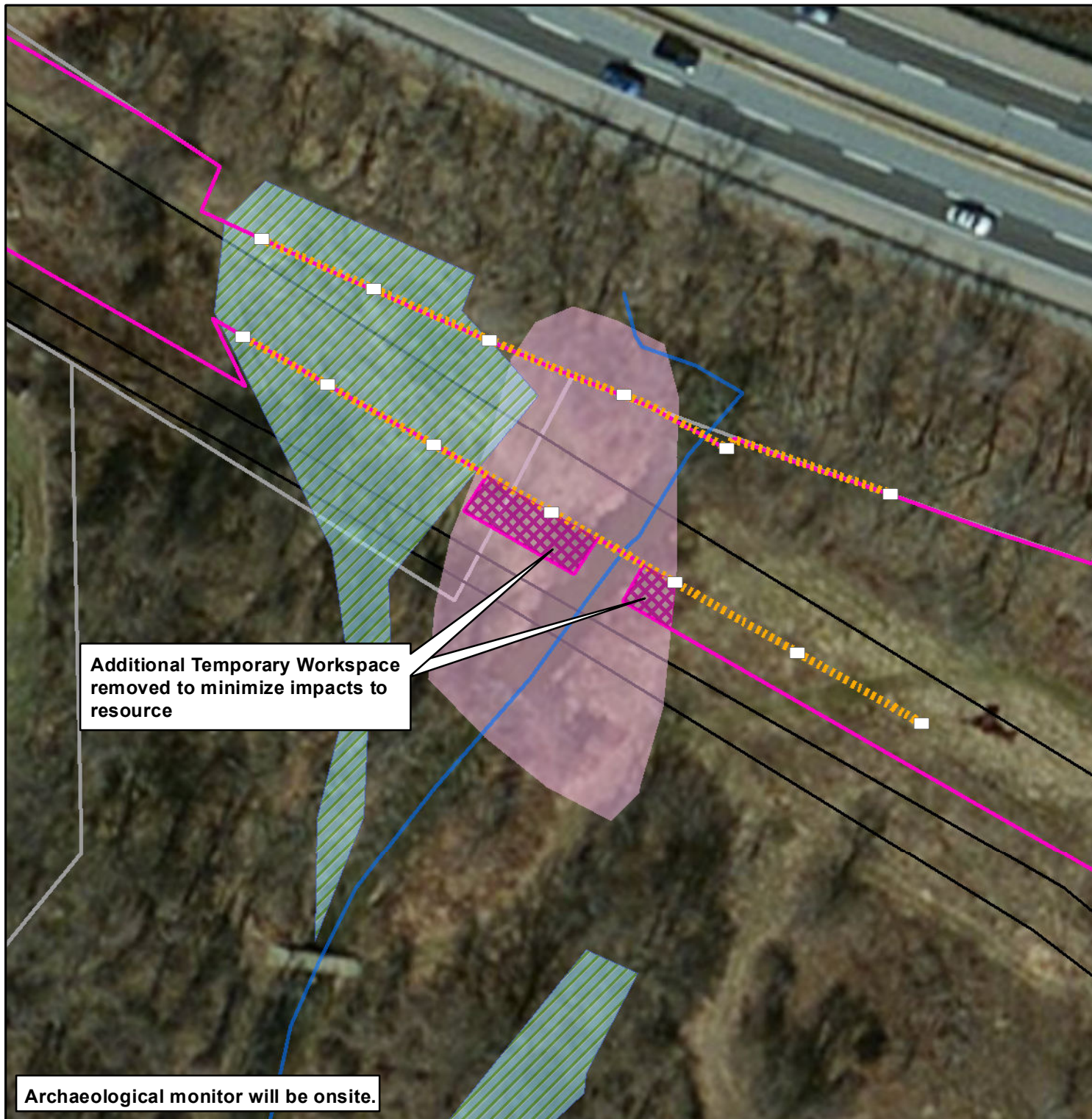
Prepared By  **TETRA TECH** Date: **1/25/2017**

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Coordinate System: NAD 83 Stateplane, PA South, Feet

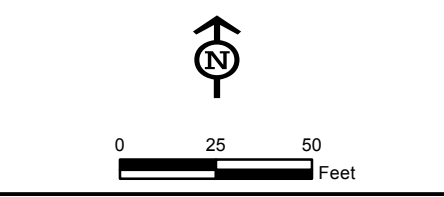
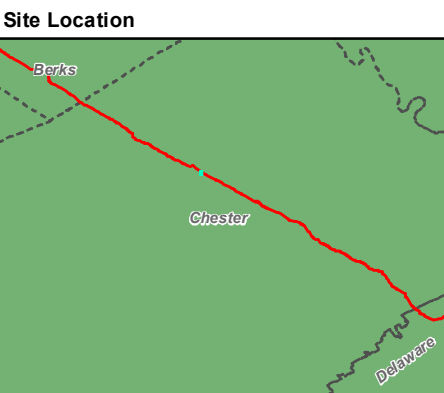
**Archaeological monitors will be onsite.**

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**Legend**

- Area of Potential Effect
- Archaeological Site
- Removed Workspace
- Parcel
- Aquatic Resource
- Safety Fencing
- Stream
- Existing Utilities
- Sensitive Resource Sign

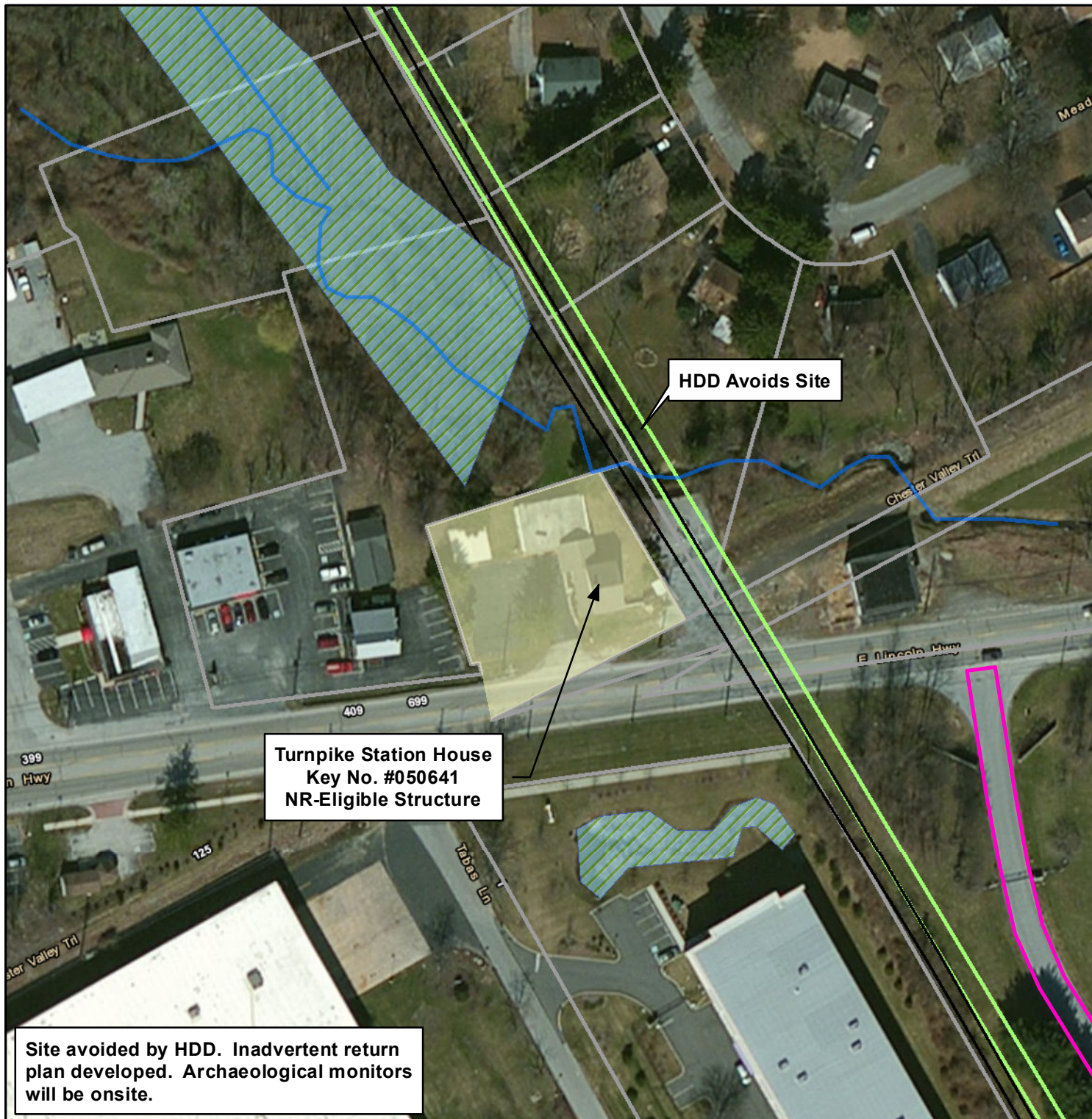


**36CH0961**  
**Construction Avoidance Plan**


Prepared By **TETRA TECH** Date: **1/25/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15  
Coordinate System: NAD 83 Stateplane, PA South, Feet

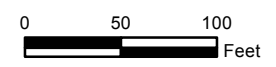
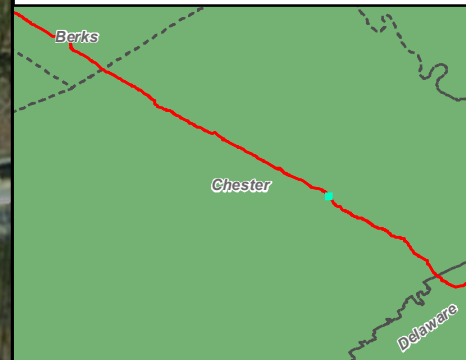
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**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  HDD
-  Stream
-  Existing Utilities

**Site Location**



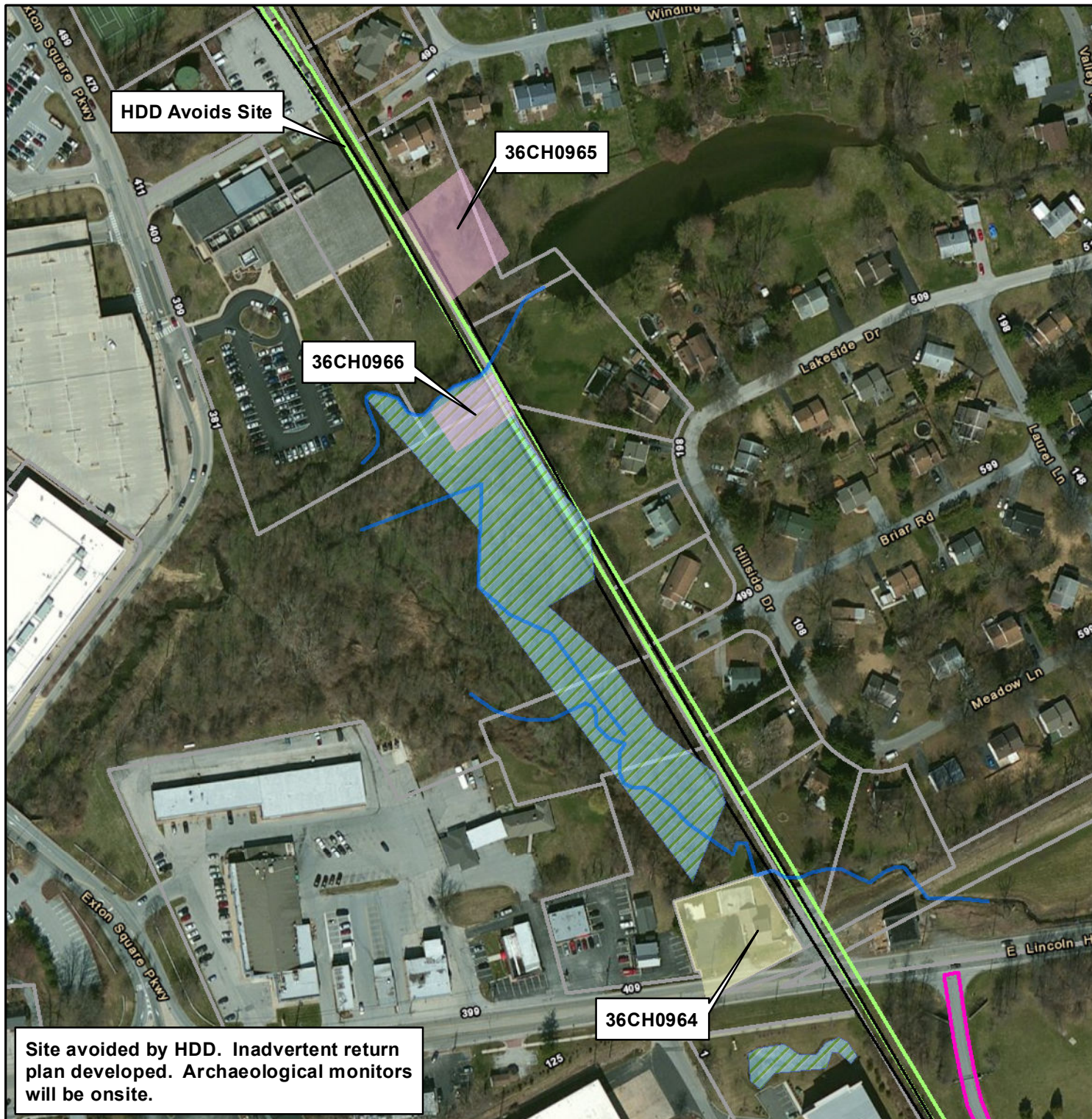
**36CH0964  
Construction Avoidance Plan**

Prepared By  **TETRA TECH** Date: **1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15

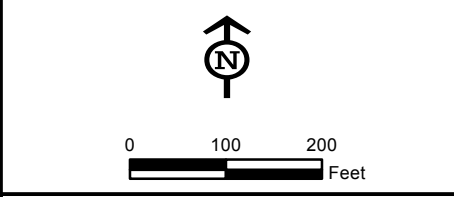
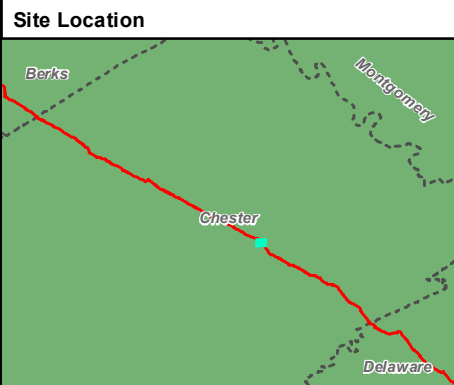
Coordinate System: NAD 83 Stateplane, PA South, Feet

**Site avoided by HDD. Inadvertent return plan developed. Archaeological monitors will be onsite.**



**Legend**

- Area of Potential Effect
- Archaeological Site
- Archaeological Site
- Parcel
- Aquatic Resource
- HDD
- Stream
- Existing Utilities



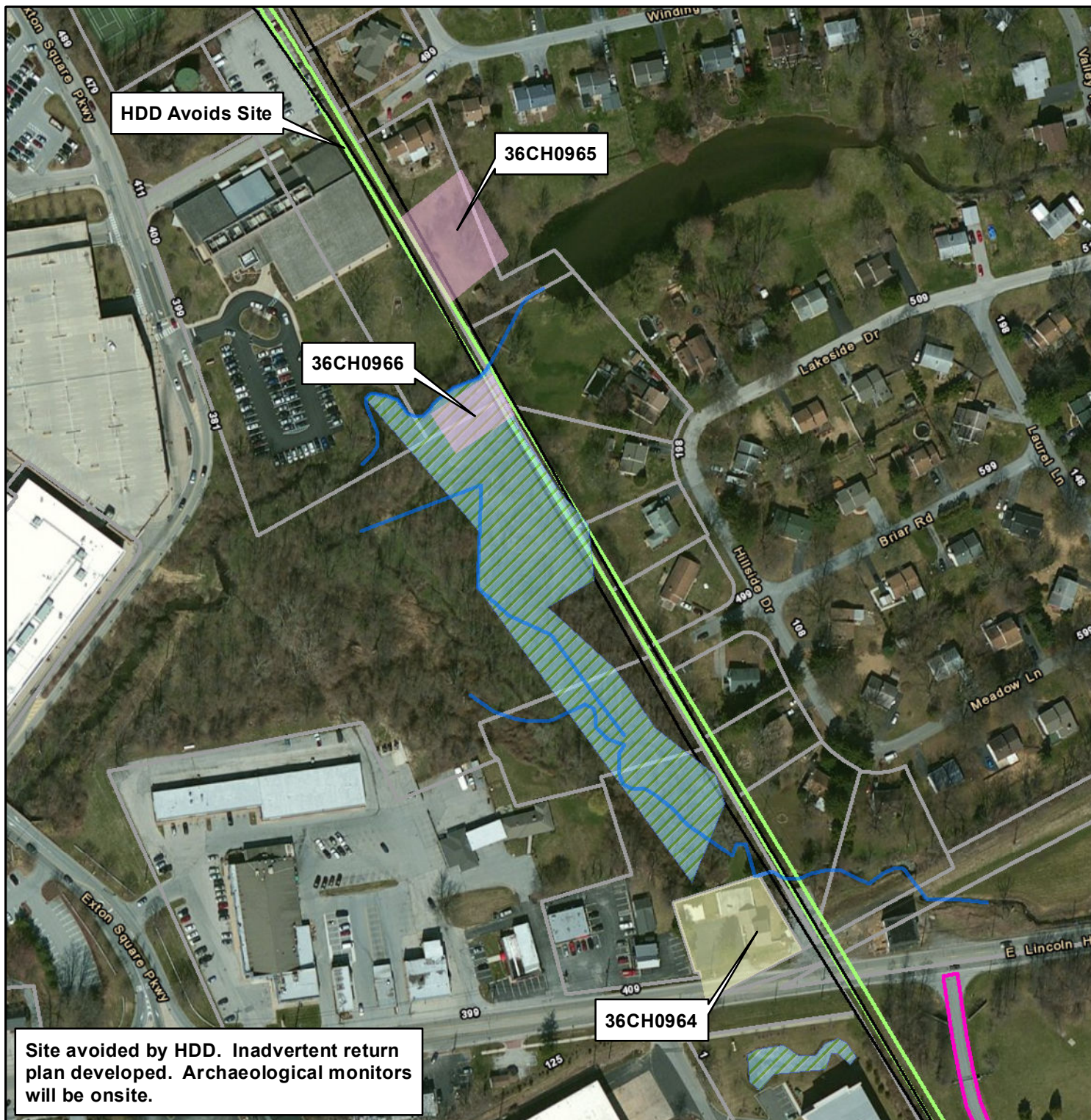
**36CH0965  
Construction Avoidance Plan**

Prepared By TETRA TECH	Date: 1/23/2017
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Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

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HDD Avoids Site

36CH0965

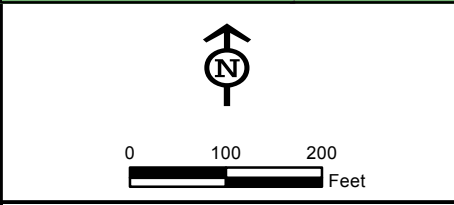
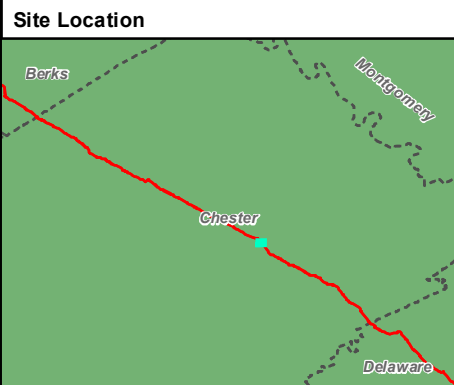
36CH0966

36CH0964

Site avoided by HDD. Inadvertent return plan developed. Archaeological monitors will be onsite.

**Legend**

- Area of Potential Effect
- Archaeological Site
- Archaeological Site
- Parcel
- Aquatic Resource
- HDD
- Stream
- Existing Utilities



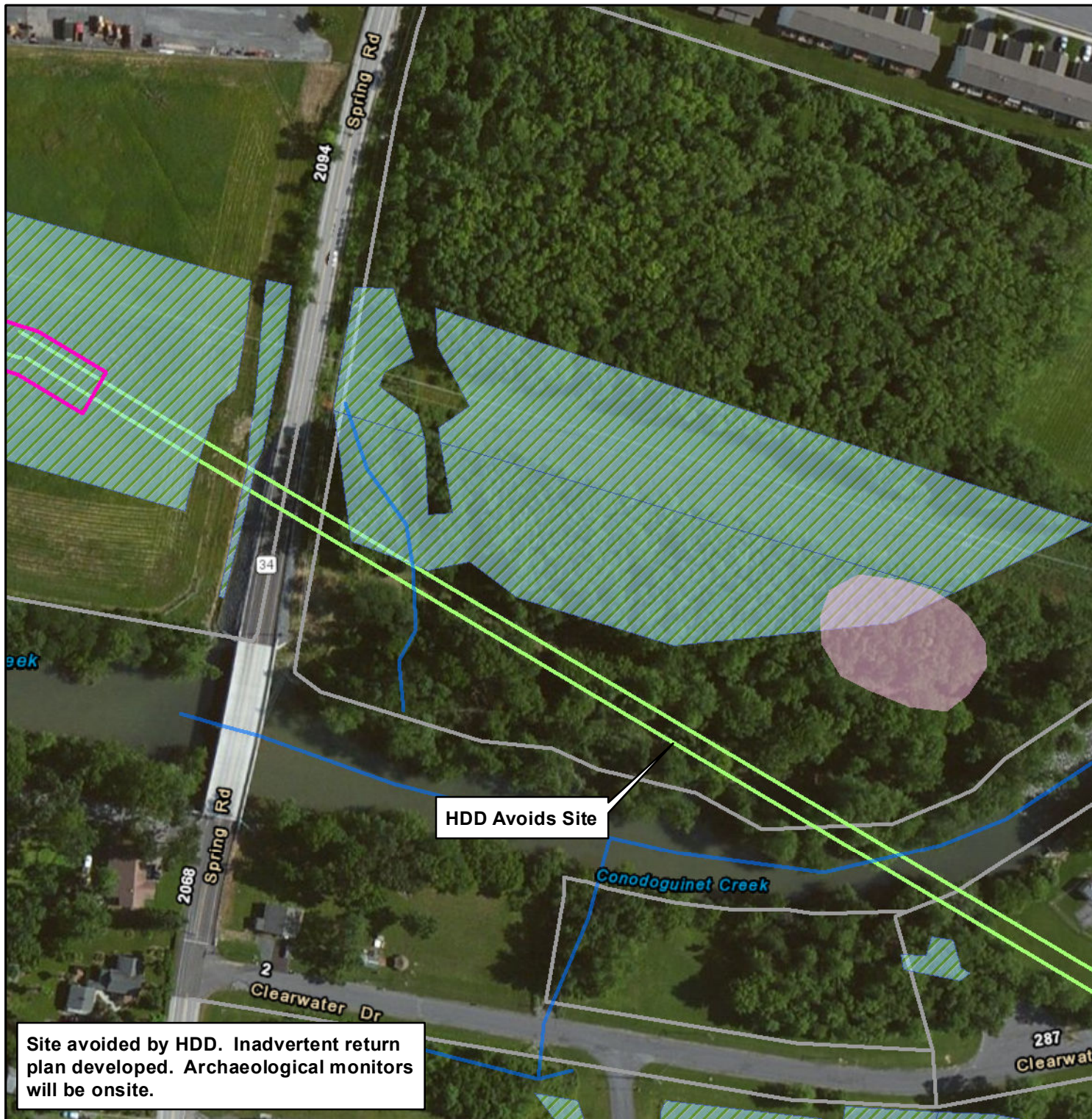
**36CH0966  
Construction Avoidance Plan**

Prepared By	TETRA TECH	Date:	1/23/2017
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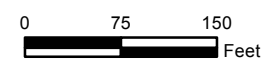
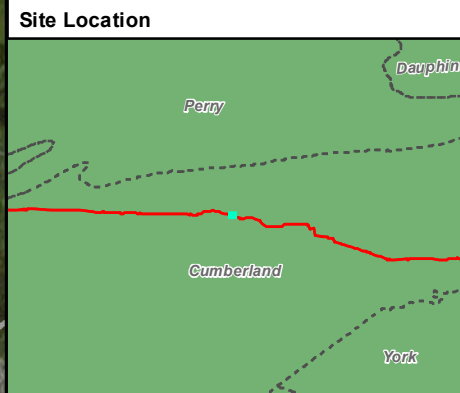
Base Map: ESRI ArcGIS Online, Imagery taken 06/20/13  
Centerline/Workspace Cooridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

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- Legend**
- Area of Potential Effect
  - Archaeological Site
  - Parcel
  - Aquatic Resource
  - HDD
  - Stream



**36CU219  
Construction Avoidance Plan**

Prepared By <b>TETRA TECH</b>	Date: <b>1/23/2017</b>
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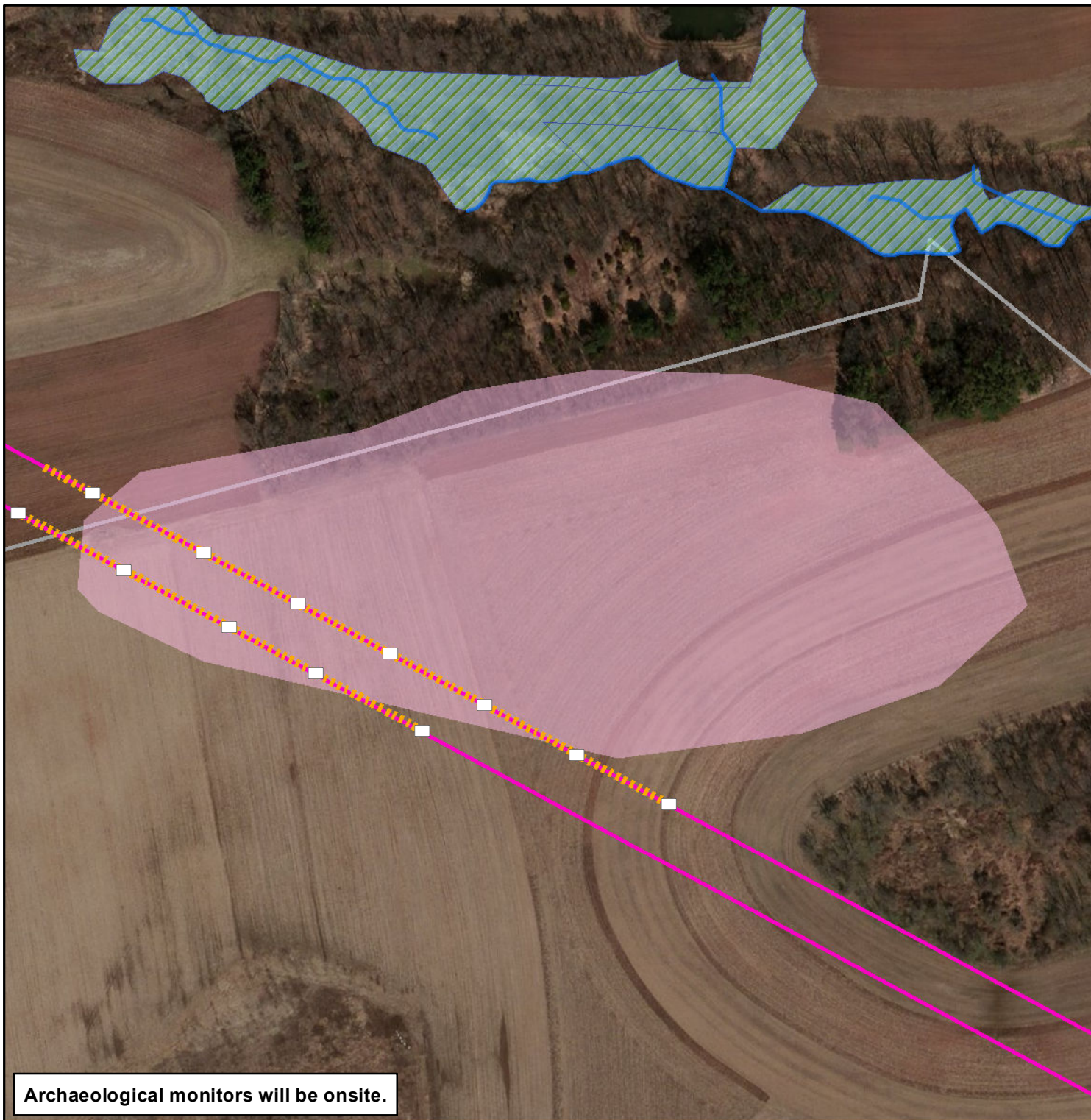
Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Cooridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

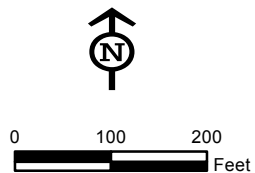
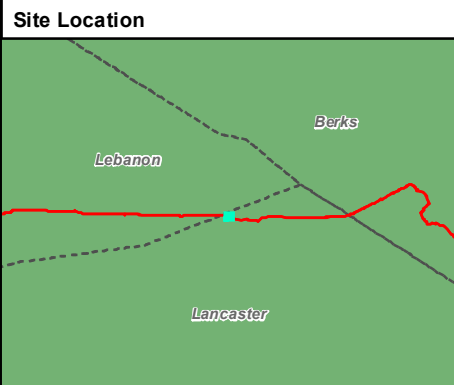
**Site avoided by HDD. Inadvertent return plan developed. Archaeological monitors will be onsite.**

**HDD Avoids Site**

I:\mass09\GIS Data\PROJECT SIT 12\060958\_PPP\_REL\Mariner Phase 2\_Permitting\01\_GIS\01\_MXD\Cultural\_Report\Figures\_1a-1\_36CU0219.mxd



- Legend**
- Area of Potential Effect
  - Archaeological Site
  - Parcel
  - Aquatic Resource
  - Safety Fencing
  - Stream
  - Sensitive Resource Sign



**36LA1412  
Construction Avoidance Plan**

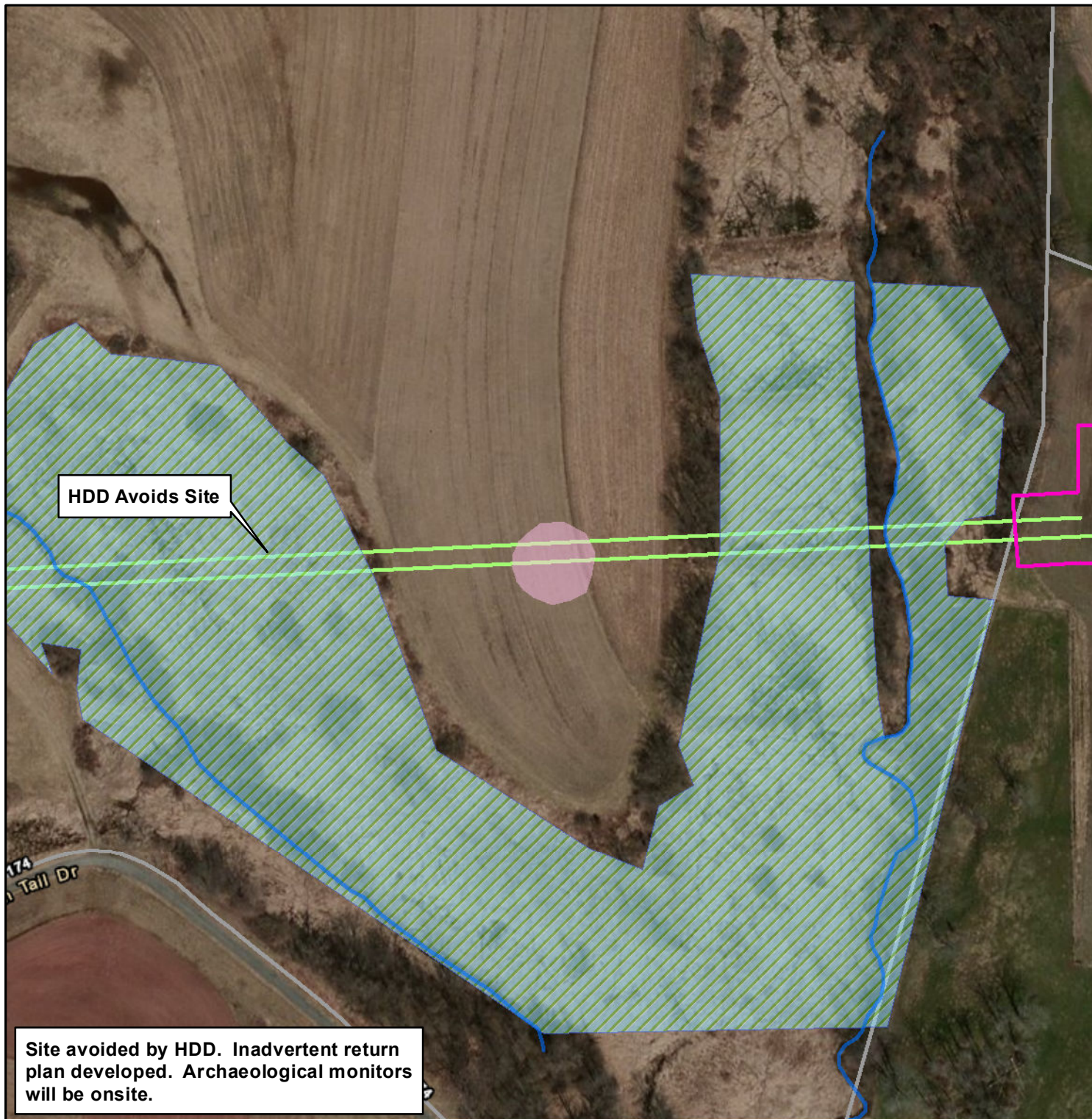
Prepared By  **TETRA TECH** Date: **1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

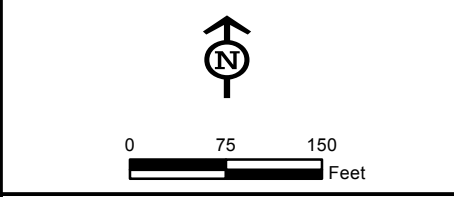
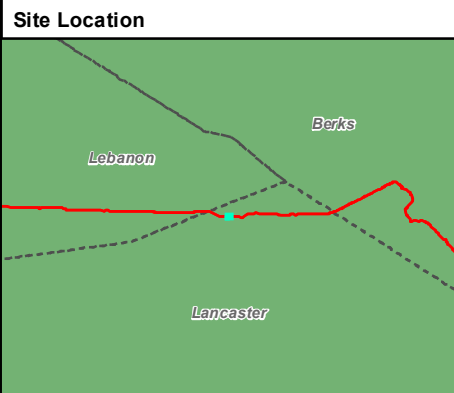
**Archaeological monitors will be onsite.**

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**Legend**

- Area of Potential Effect
- Pre-Contact Archaeological Site
- Parcel
- Aquatic Resource
- HDD
- Stream

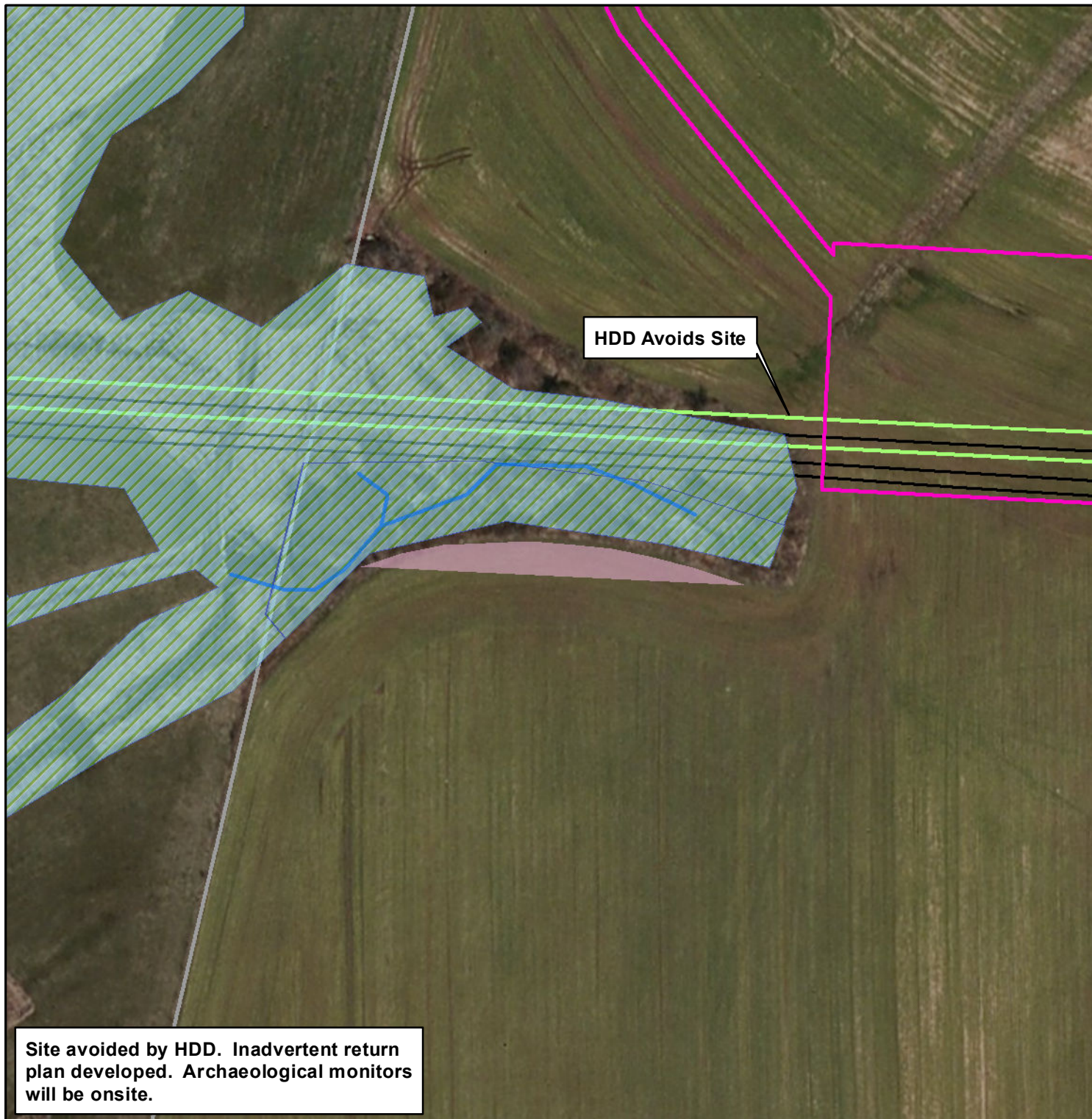


**36LA1574**  
**Construction Avoidance Plan**

Prepared By **TETRA TECH** Date: **1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Cooridor 12/17/15  
Coordinate System: NAD 83 Stateplane, PA South, Feet








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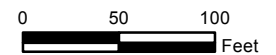
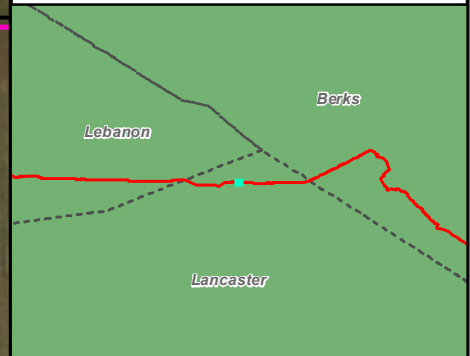
HDD Avoids Site

Site avoided by HDD. Inadvertent return plan developed. Archaeological monitors will be onsite.

**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  HDD
-  Stream
-  Existing Utilities

**Site Location**



**36LA1578  
Construction Avoidance Plan**

Prepared By

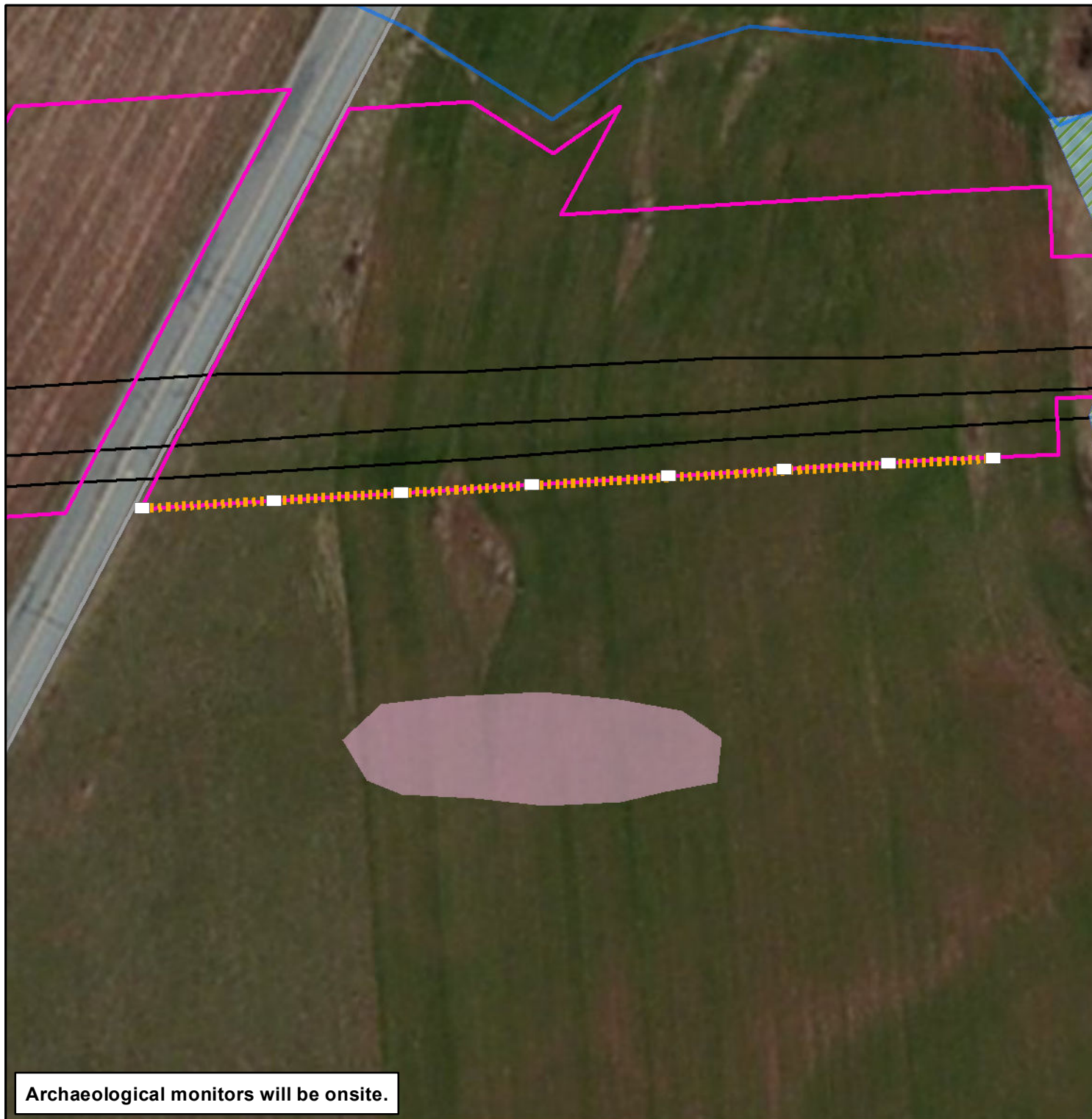


Date:









1/23/2017

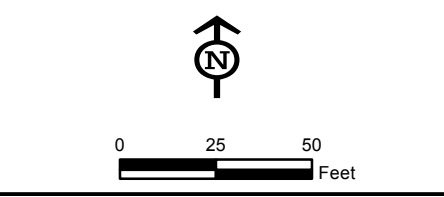
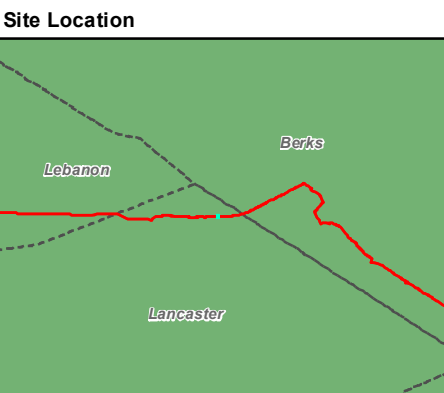
Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Cooridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet



**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  Safety Fencing
-  Stream
-  Existing Utilities
-  Sensitive Resource Sign



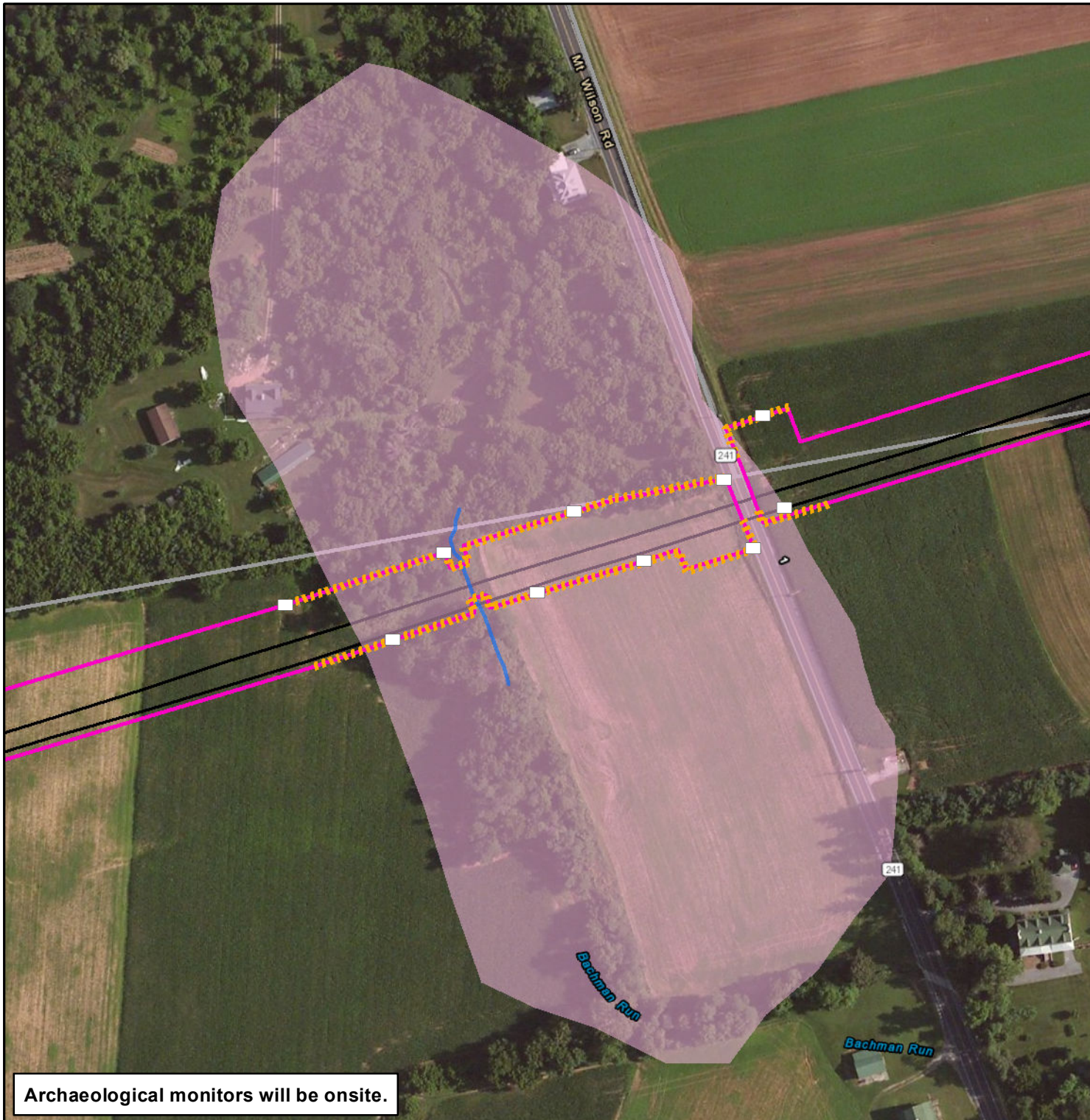
**36LA1581**  
**Construction Avoidance Plan**

Prepared By 	Date: <b>1/23/2017</b>
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Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
 Centerline/Workspace Corridor 12/17/15  
 Coordinate System: NAD 83 Stateplane, PA South, Feet

**Archaeological monitors will be onsite.**

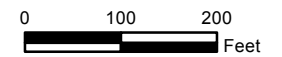
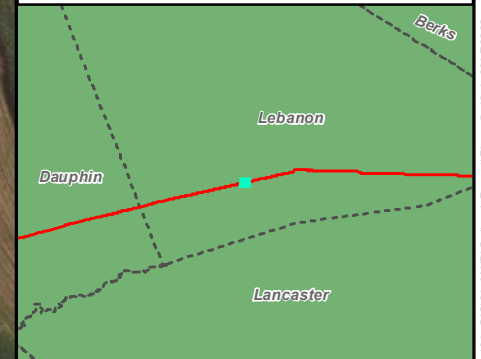
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**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Safety Fencing
-  Stream
-  Existing Utilities
-  Sensitive Resource Sign

**Site Location**



**36LE0202  
Construction Avoidance Plan**

Prepared By

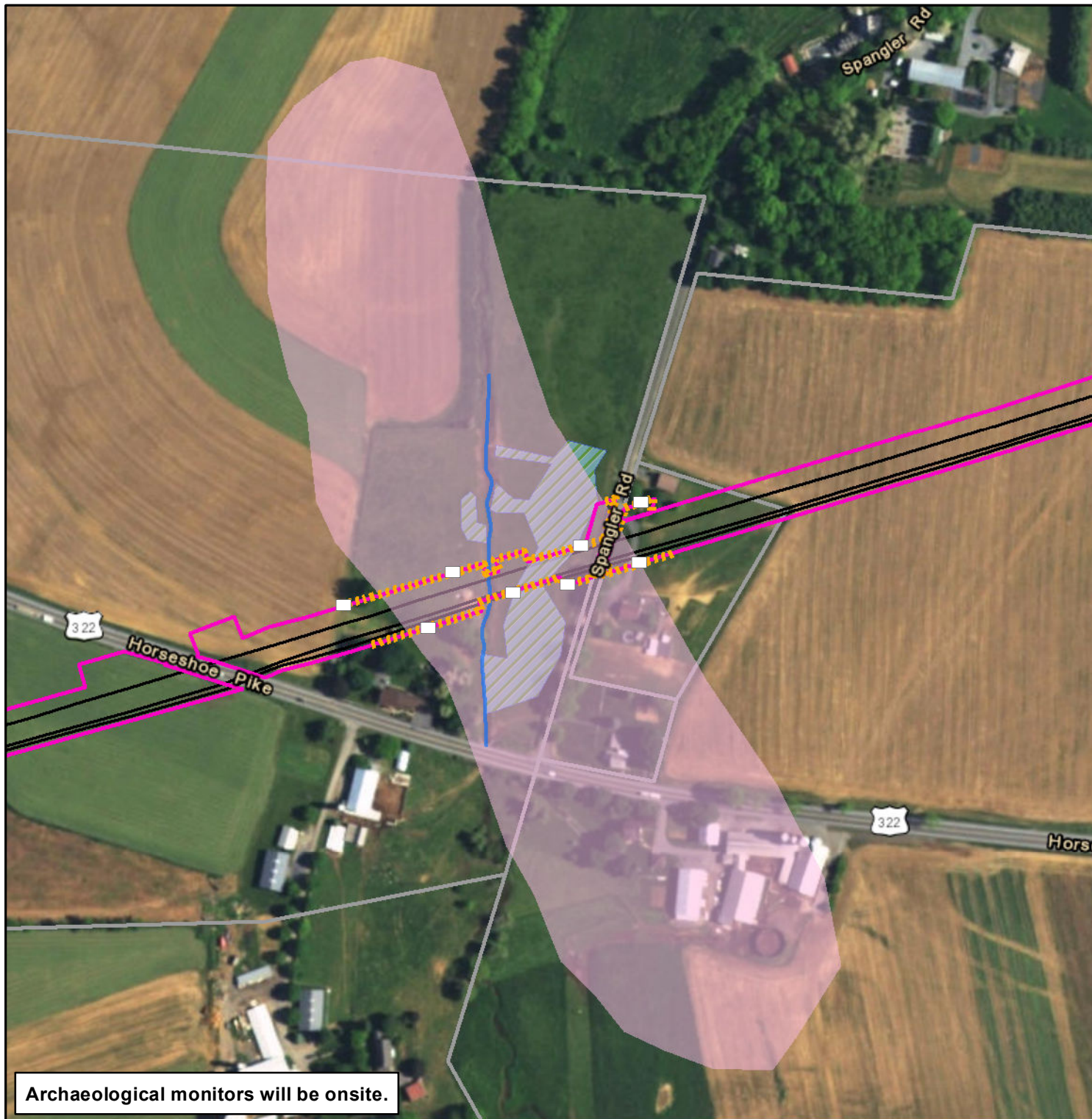


Date:  
1/27/2017

Base Map: ESRI ArcGIS Online, Imagery taken 06/20/13  
Centerline/Workspace Corridor 12/17/15

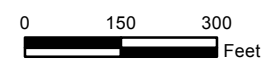
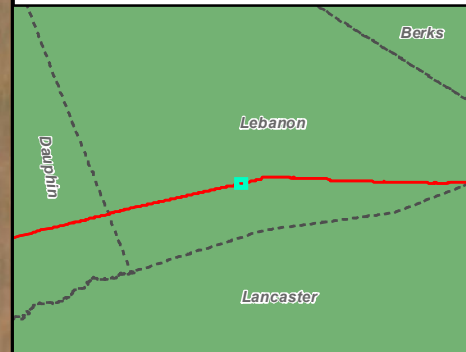
Coordinate System: NAD 83 Stateplane, PA South, Feet

Archaeological monitors will be onsite.



- Legend**
- Area of Potential Effect
  - Archaeological Site
  - Parcel
  - Aquatic Resource
  - Safety Fencing
  - Stream
  - Existing Utilities
  - Sensitive Resource Sign

**Site Location**



**36LE0209  
Construction Avoidance Plan**

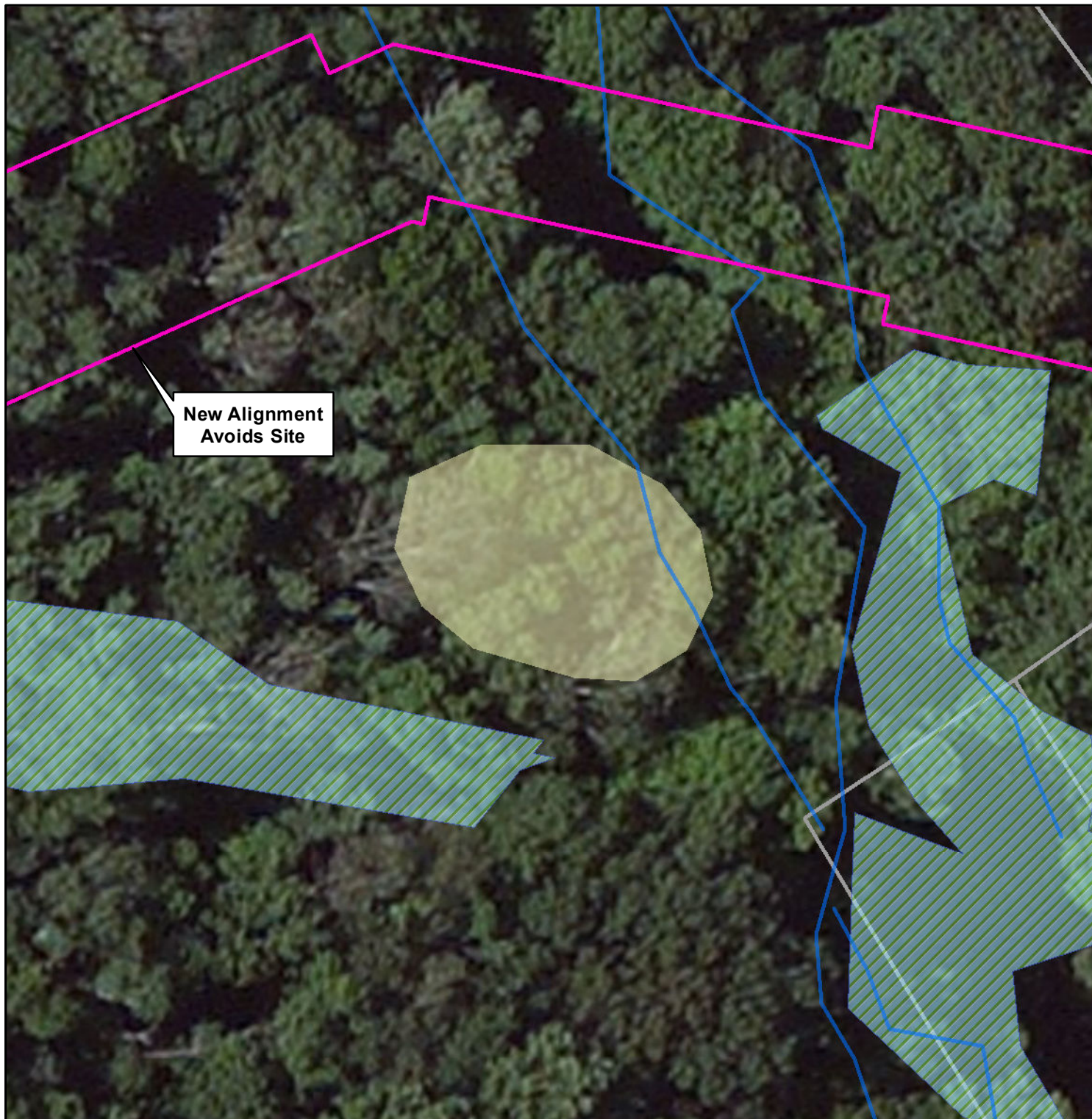
Prepared By  TETRA TECH	Date: 1/27/2017
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Base Map: ESRI ArcGIS Online, Imagery taken 06/20/13  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet






**Archaeological monitors will be onsite.**

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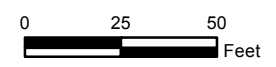
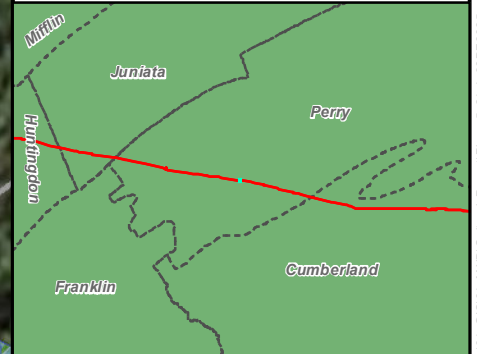


New Alignment Avoids Site

**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  Stream

**Site Location**



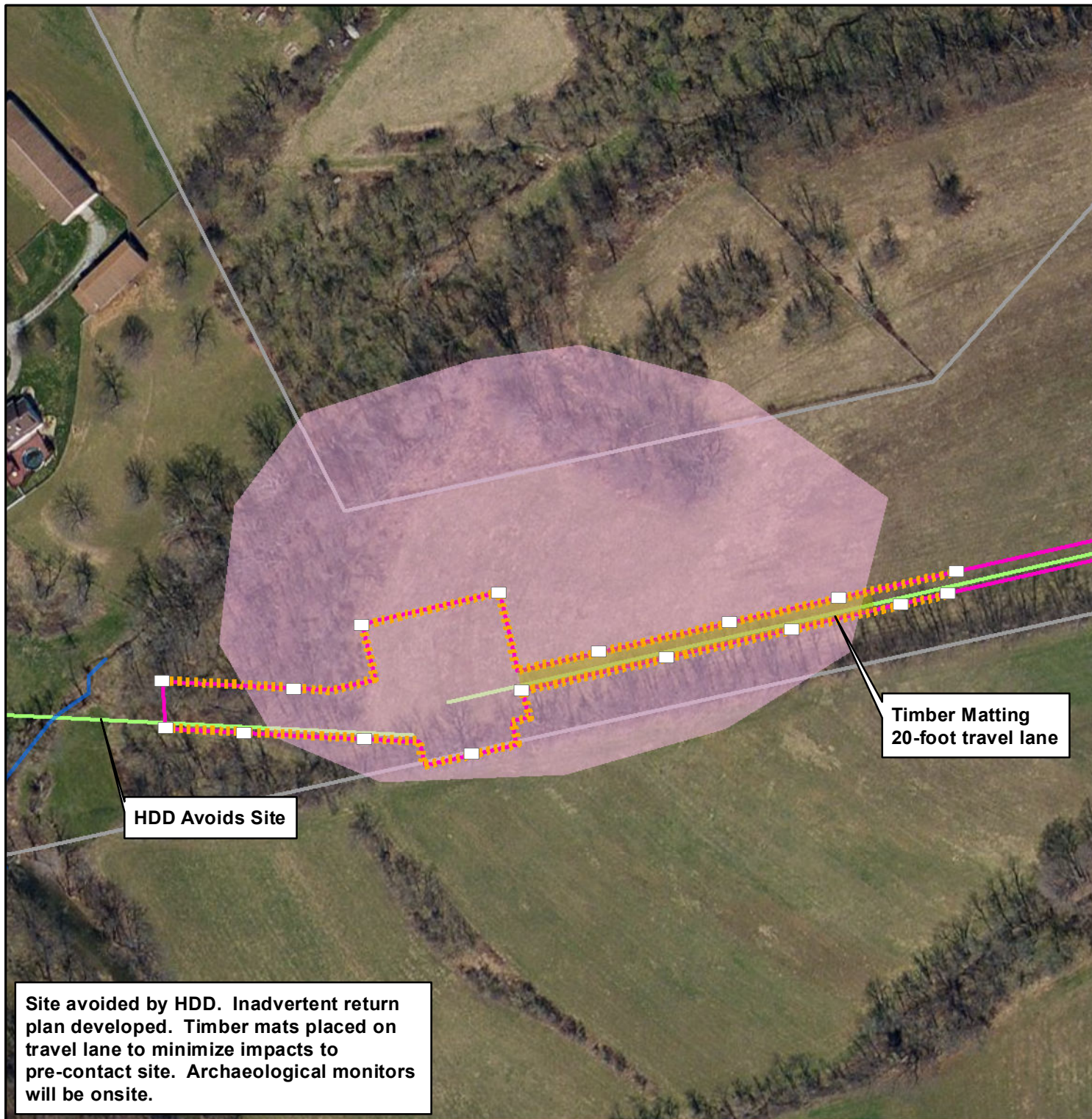
**36PE0085**  
**Construction Avoidance Plan**

Prepared By		Date:	1/23/2017
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Base Map: ESRI ArcGIS Online, Imagery taken 06/20/13  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

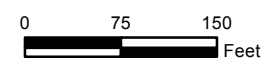
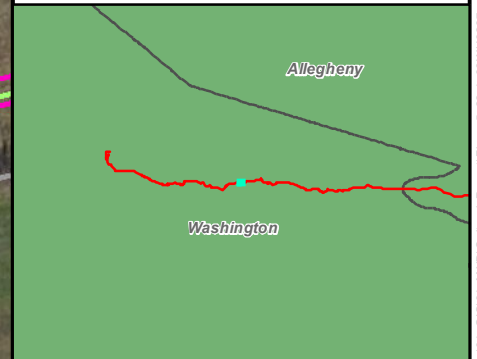
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**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Timber Matting
-  HDD
-  Safety Fencing
-  Stream
-  Existing Utilities
-  Sensitive Resource Sign

**Site Location**



**36WH0237**  
**Construction Avoidance Plan**

Prepared By 	Date: 1/25/2017
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Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
 Centerline/Workspace Corridor 12/17/15

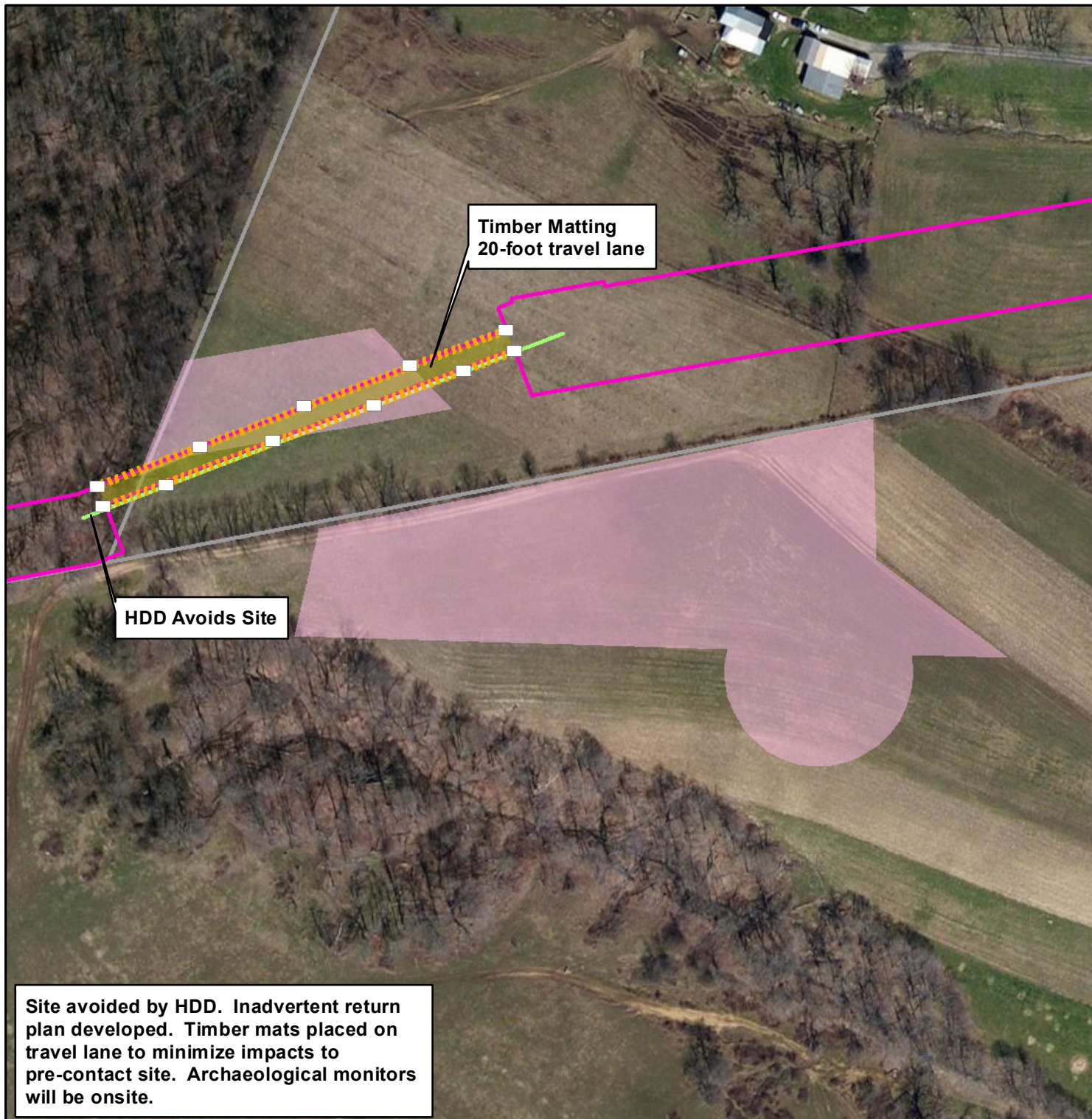
Coordinate System: NAD 83 Stateplane, PA South, Feet

**HDD Avoids Site**




**Timber Matting  
 20-foot travel lane**

**Site avoided by HDD. Inadvertent return plan developed. Timber mats placed on travel lane to minimize impacts to pre-contact site. Archaeological monitors will be onsite.**

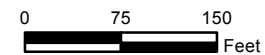
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**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Timber Matting
-  Aquatic Resource
-  HDD
-  Safety Fencing
-  Stream
-  Existing Utilities
-  Sensitive Resource Sign

**Site Location**



**36WH0444**  
Construction Avoidance Plan

Prepared By

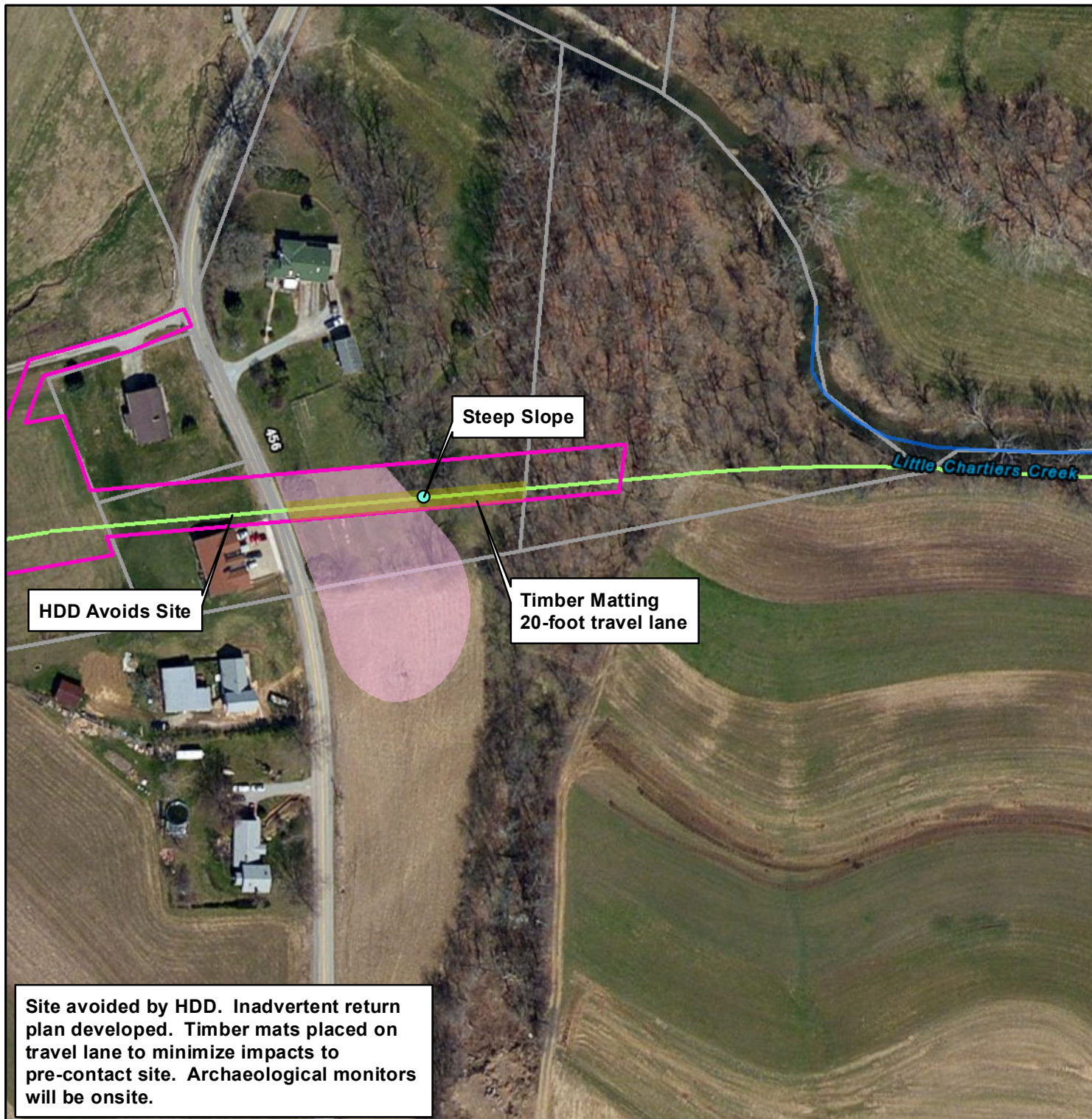


Date:  
1/25/2017

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Cooridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

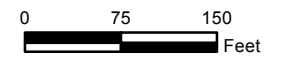
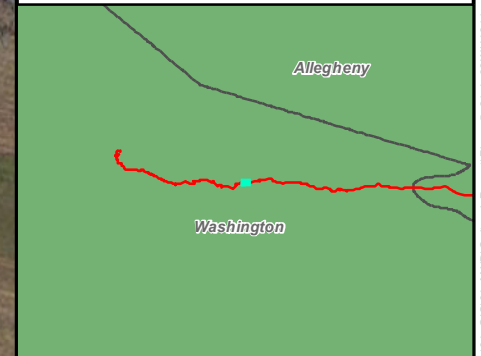
Site avoided by HDD. Inadvertent return plan developed. Timber mats placed on travel lane to minimize impacts to pre-contact site. Archaeological monitors will be onsite.



**Legend**

- Area of Potential Effect
- Archaeological Site
- Parcel
- Timber Matting
- HDD
- Stream

**Site Location**



**36WH1344  
Construction Avoidance Plan**

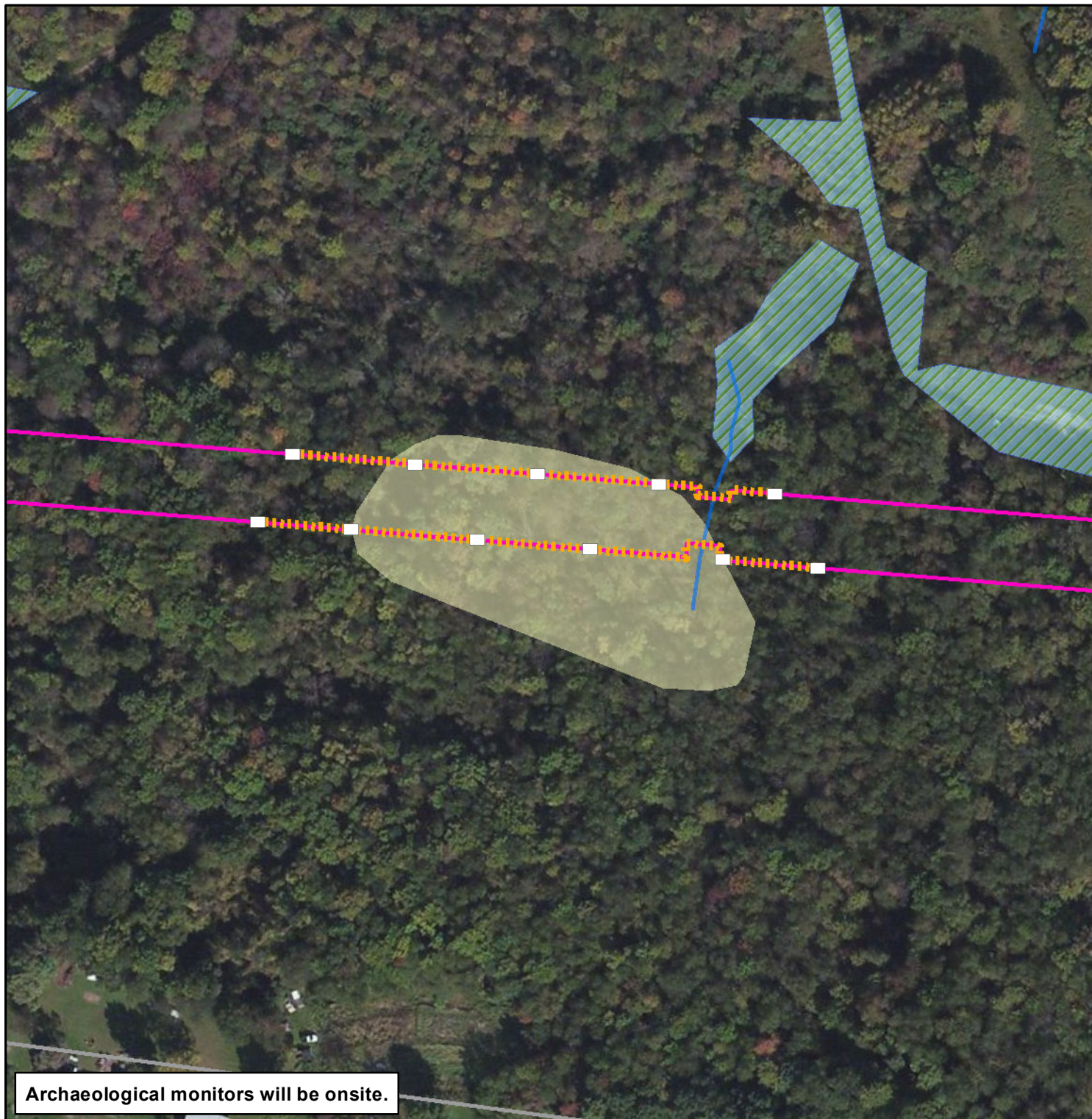
Prepared By



Date:  
**1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Cooridor 12/17/15

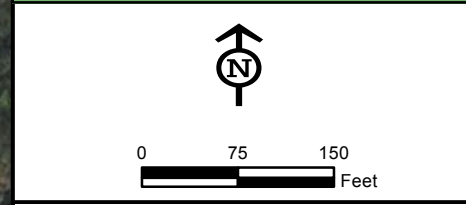
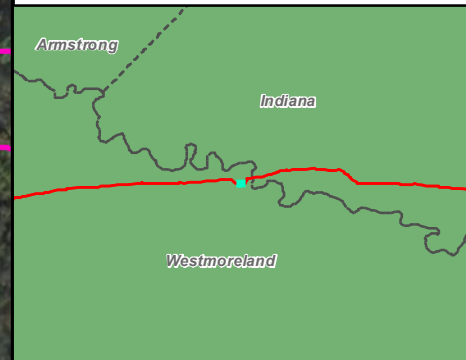
Coordinate System: NAD 83 Stateplane, PA South, Feet




**Legend**

- Area of Potential Effect
- Archaeological Site
- Parcel
- Aquatic Resource
- Safety Fencing
- Stream
- Sensitive Resource Sign

**Site Location**



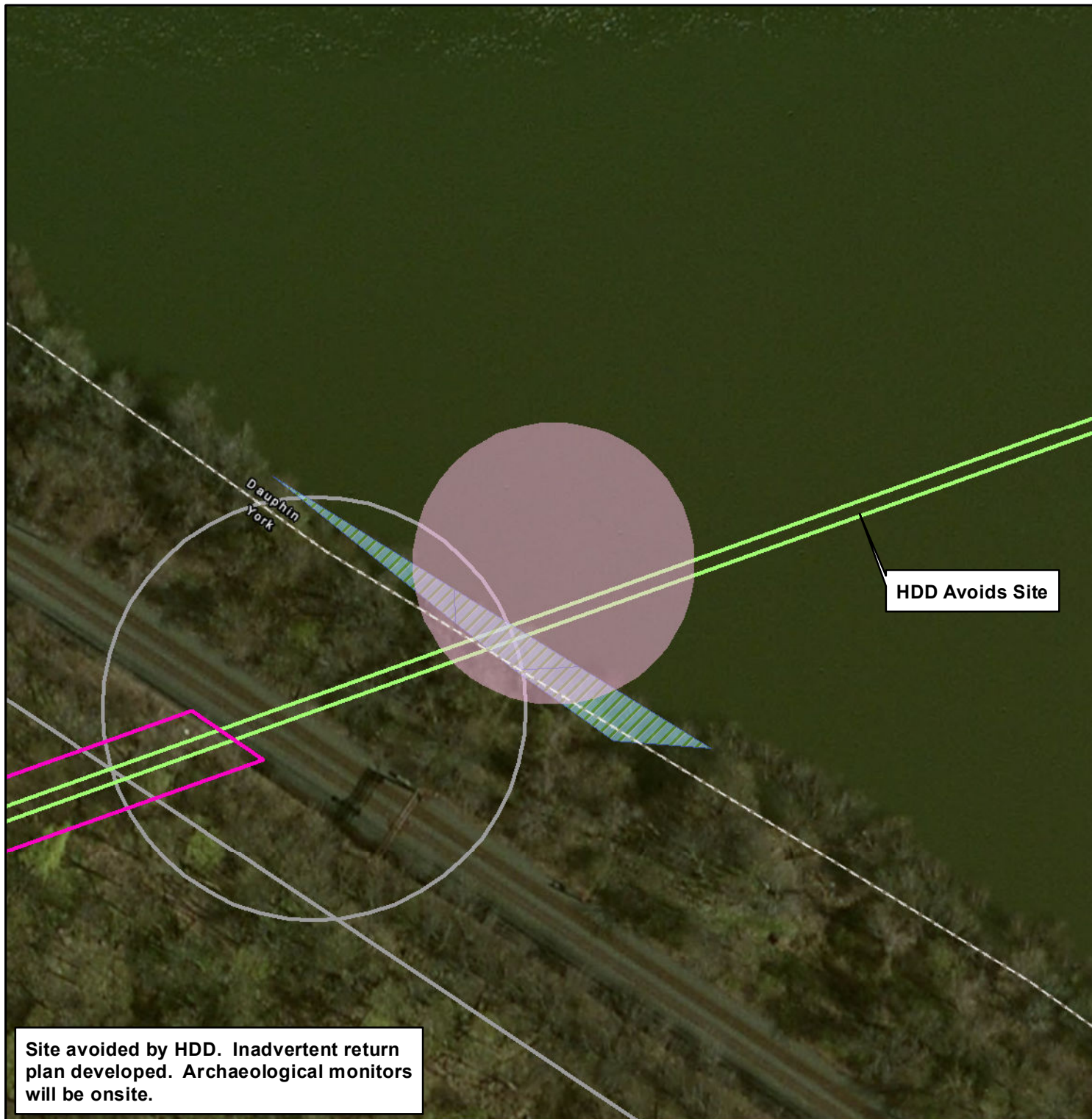
**36WM1056**  
**Construction Avoidance Plan**

Prepared By  **TETRA TECH** Date: **1/23/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15  
Coordinate System: NAD 83 Stateplane, PA South, Feet

**Archaeological monitors will be onsite.**

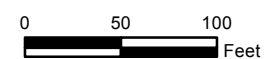
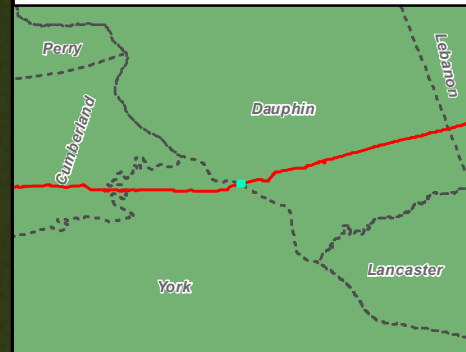
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**Legend**

-  Area of Potential Effect
-  Archaeological Site
-  Parcel
-  Aquatic Resource
-  HDD

**Site Location**



**36YO0260**  
**Construction Avoidance Plan**

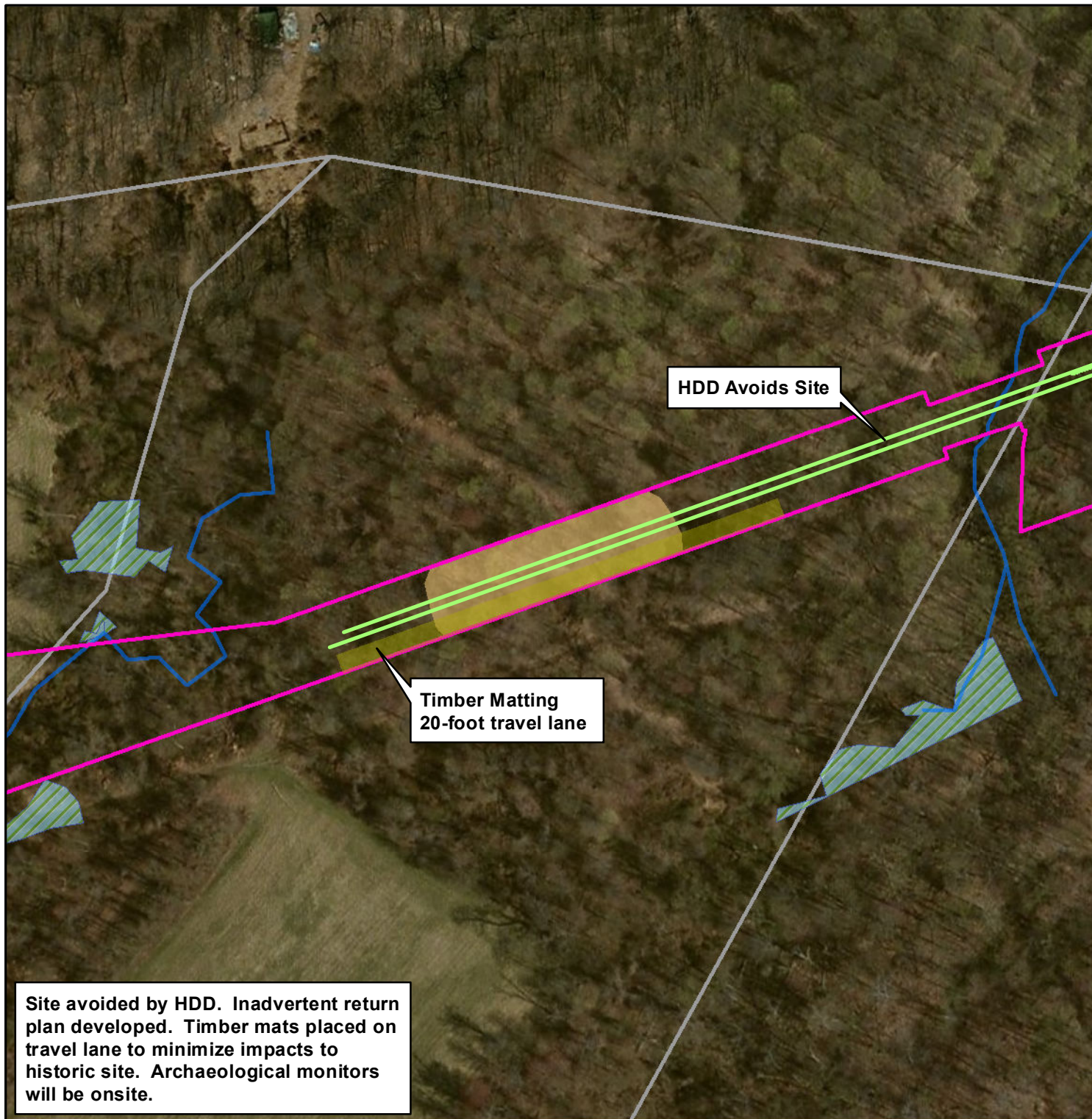
Prepared By 	Date: <b>1/23/2017</b>
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Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

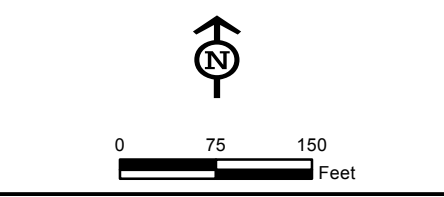
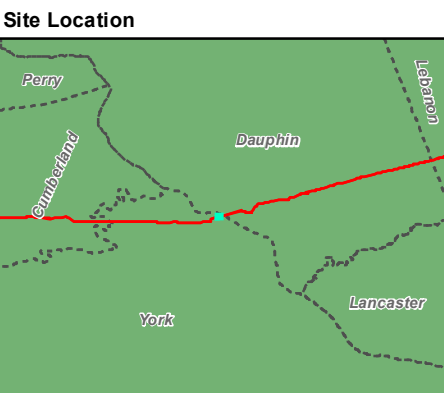
**Site avoided by HDD. Inadvertent return plan developed. Archaeological monitors will be onsite.**

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**Legend**

- Area of Potential Effect
- Archaeological Site
- Parcel
- Timber Matting
- Aquatic Resource
- Stream
- HDD



**36Y00462**  
**Construction Avoidance Plan**

Prepared By **TETRA TECH** Date: **1/29/2017**

Base Map: ESRI ArcGIS Online, Imagery taken 06/2013  
Centerline/Workspace Corridor 12/17/15

Coordinate System: NAD 83 Stateplane, PA South, Feet

Site avoided by HDD. Inadvertent return plan developed. Timber mats placed on travel lane to minimize impacts to historic site. Archaeological monitors will be onsite.