ENVIRONMENTAL IMPACT ASSESSMENT

PREPARED FOR THE TIGUE PROPERTY LOCATED IN EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

PREPARED BY ESE CONSULTANTS, INC.

10/5/2015

Tigue Tract, East Bradford Township Environmental Impact Assessment

1) Watersheds:

The Northern and Western portions of the site drain North and West to Plum Run. The Pennsylvania Department of Environmental Protection (PADEP) Chapter 93 (Water Quality Standards) indicates the designated use of Plum Run is a *warm water fishes*, *migratory fishes* (WWF, MF). The majority of the project site drains to the south to an un-named tributary to Plum Run. This un-named tributary also has a designated use of *warm water fishes* and *migratory fishes*. Plum Run has confluence with Brandywine Creek, which has the same designated use (WWF, MF) on the main stem, from the confluence of the East and West Branches (which is upstream from the site) to the Pennsylvania-Delaware border. None of these streams are listed in the most recent Pennsylvania Fish and Boat Commission Pennsylvania *Wild Trout Waters* (August, 2015), which includes all stream sections within the Commonwealth that support the natural reproduction of trout. Therefore, wetlands that are hydrologically connected to these streams are not considered *Exceptional Value* wetlands.

2) Soils and Land:

The site has been identified on the East Bradford Township Agricultural Resources Map as having an "Other ASA properties" designation. The ASA abbreviation is better known as "Agricultural security areas". Below are the soil types and designations that are present on the noted parcels.

- Califon (CaB): Very deep, moderately well or somewhat poorly drained soils formed in colluvium derived from granitic gneiss
- Chrome (ChC2, ChD2): Moderately deep, well drained, residually weathered soil derived from serpentine
- Codorus (Co): Very deep, moderately well or somewhat poorly drained soil formed in recent alluvium derived from upland soils weathered from metamorphic and crystalline rocks.
- Cokesbury (CpA): Deep or very deep, poorly drained soil formed in colluvium derived from granitic gneiss on upland depressions and concave footslopes.
- Gladstone (GdB, GdC): Very deep, well drained soil derived from residually weathered granitic gneiss.
- Gladstone-Parker (GeD): A soil complex containing soils with inclusions in close association of soils with properties of Gladstone and Parker series.
- Hatboro (Ha): Very deep, poorly drained soil formed in alluvium weathered from micaceous schist.
- Parker (PaB, PaC, PaD, PaE): Very deep, somewhat excessively drained soil, residually weathered from granitic gneiss.

Overall, the site has a rolling topography that consists of about 8 acres of steep slopes on the Northern parcel and just under 2 acres of steep slopes on the Southern parcel. The Northern parcel features a

ridgeline that divides the site causing drainage to flow to either Plum run on the Northern side of the parcel, or to Tigue Road, on the Southern portion of the parcel.

Currently the site is not listed as being preserved for Open Space, however the 2009 Open Space, Recreation & Environmental Resources Plan lists the parcels being discussed as an "Open space priority" according to the Future Open Space Protection Priorities Map for East Bradford Township

3) **Woodlands and Forest:**

The majority of the project site consists of acreage used historically and currently for active agricultural or pasture uses. Virtually all non-wooded areas are utilized by agricultural activities resulting in a highly manipulated flora and frequent disturbances that impact fauna.

There are several small wooded and/or tree mass areas scattered throughout the site, while more contiguous woodland forms the northern and western boundary of the project area. The contiguous wooded areas are generally found on steep slopes and floodplains and are outside the proposed limit of disturbance for the project. Fallow meadows and scrub shrub are found in the lowlands adjacent to the un-named tributary to Plum Run and on the rising uplands on the south side of this watercourse.

Trees within the proposed LOD exceeding twelve (12) inches at breast height (dbh) were located and identified. A total of 135 trees meeting this size were identified within or close to the potential LOD with approximately 55-60 of these trees being proposed for removal. A breakdown of the tree species in the order of most to least common observed, including the number count is as follows. (Invasive species hightlighted):

- Black locust (*Robinia pseudoacacia*): 35
- Tree of heaven (*Ailanthus altissima*): 26
- Ash species (*Fraxinus spp.*): 24
- Black walnut (*Juglans nigra*): 16
- Sugar maple (*Acer saccharum*): 10
- Black cherry (*Prunus serotina*): 7
- Silver maple (*Acer saccharinum*): 5
- White pine (*Pinus strobus*): 2
- Honey locust (*Gleditisia triacanthos*): 2
- White mulberry (*Morus alba*): 2
- Hawthorne sp. (*Crataegus sp.*): 1
- Spruce sp. (*Picea*): 1
- Hickory sp. (*Carya sp.*): 1
- Elm sp. (*Ulmus sp.*): 1
- Pear sp. (*Pyrus sp.*): 1
- Cherry sp. (*Prunus sp.*): 1
- Unidentified: 1

The understory of the wooded areas within the LOD and the fallow meadows and scrub shrub contain many invasive species including the following that were observed:

- Herbaceous:
  - Japanese stiltgrass (*Microstedium vimineum*)
  - Reed canary grass (*Phalaris arundinacea*)
  - Garlic mustard (*Alliaria petiolata*)
  - Canada thistle (*Cirsium arvense*)
- Vine:
  - Mile-a-minute (*Persicaria perfoliata*)
- Shrub:
  - Japanese barberry (*Berberis thunbergii*)
  - Multiflora rose (*Rosa multiflora*)
  - Autumn olive (*Elaegnus umbellata*)
- Tree:
  - Tree of heaven (*Alianthus altissima*)

It is notable that Japanese stiltgrass dominates the herbaceous communities where tree canopies are incomplete. In addition, a virtual monoculture of Tree of heaven forms a wooded cluster within the open meadow on the south side of Tigue Road. The herbaceous and shrub communities are also dominated by invasive species such as Japanese stiltgrass, multiflora rose, and autumn olive and can be seen in the photo below:

4.) Biota:

Given the proximity of the site to surrounding urbanized and suburban settings, as well as the use as frequent disturbances from routine agricultural practices, site fauna expected to reside or utilize as part of their range could include rabbit, raccoon, groundhogs, fox, deer, possum, and skunk.

Prior to submitting permits to PADEP, the project area will be screened for rare, threatened, or endangered species, utilizing the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Tool.

The Pennsylvania Natural Heritage Program's Interactive Map was utilized to review the project site for potentially important natural areas, habitat for rare plants and animals, and other resources. The project site was not noted to have any documented sites.

5.) Known Environmental Impact:

As of the most recent site visit, there was no documented or visual evidence of any environmental impact to the surrounding area.

6.) Township Environmental Inventory Map – The township engineer has informed the applicant that no such map exists therefor this section has been omitted.

7.) Existing Conditions Plan - Please refer to the attached exhibit titled Existing Conditions Plan.

8.) Environmental Compliance - Identification and inventory of additionally required resources shall be completed prior to preliminary plan submission.

Development Plan Analysis:

The Conditional Use plan featuring 91 Total Homes that is being submitted in conjunction with this EIA report reflects the environmental protection and natural resource goals identified by East Bradford Township. At this stage of the plan submission process the applicant has identified potentially suitable locations for storm water management areas as denoted on the plan. Should this project receive the recommendation to progress to the preliminary plan stage requiring fully engineered plans, the applicant will ensure that there will be no net gain or increased discharge to surface water bodies from the proposed storm water management facilities. Through best management practices the applicant will also be able to ensure the protection of the local watershed as well as negate any potential impact to the properties and receptors downstream of Plum Run and its tributaries.

Another focus of the proposed layout was to preserve the existing steep slopes to the greatest extent possible and minimize the amount of vegetative disturbance while also demonstrating a regard for locating open space areas near scenic ridgelines, picturesque valleys and critical natural resources. Marketing studies have shown that homes located near existing stands of mature vegetation have a higher value and help to reduce energy costs while also promoting a healthier social life-style. The proposed plan has made every effort to reduce vegetative removal by locating homes on the site where grading can be kept to a minimum, thus preserving the surrounding stands of mature cover. In areas where vegetative removal is necessary, it should be noted that this would provide for an opportunity to focus on the removal of the many existing invasive plant species that are currently dominating the forest floor. In

conjunction with the replacement of any trees being removed, if required, there would be a chance to re-introduce native plant species and to better increase the diversity of the current eco-system.

On the Northern parcel, the road network was designed and laid out to minimize the impact to the steep slopes and vegetative cover as much as possible. The multi-family product that is being proposed was specifically located on the Northern side of the existing knoll in order to preserve the scenic vista to the greatest extent possible. In areas where development is shown on a ridge-line in order to preserve steeply-sloped areas, the applicant proposed Single-Family Detached dwellings on 15,000 SF Lots, a far less concentrated use compared to the multi-family component. The majority of the required open space proposed for this parcel was located along Tigue Road in order to preserve and improve upon the existing scenic quality and character of this site. The remaining open space that was required by the Zoning code was placed along Plum Run to further improve East Bradford's greenways and protect the valuable natural resources associated with the stream and wetland area.

The Southern parcel features a mixed use of 21 Homes on a cul-de-sac. Only the road, labeled Road E, should require any disturbance to the existing steep slopes on this parcel. In combination with the topography that slopes down towards a Plum Run tributary and the proposed 50' Tract Buffer, the applicant will be able to negate many of the negative views created by the proposed development through proper plant selection and site grading. The majority of the required open space for this parcel was located along the Plum Run tributary to improve the potential greenway connection and protect the existing stream and surrounding wetland as is the overall goal of the Township.

Positive & Negative Impact Assessment:

To a large extent the negative impact of steep slope disturbance has been minimized by first identifying the location of steep slopes in the Township required categories of 20-30 % and 30% and greater. The proposed community access drives were located to maximize sight distance for safety and allow the best alignment to work with the existing contour of the property thereby reducing impact on steep slopes. The interior road network meanders along the contour to the ridge line which may produce a negative impact from a "scenic vista" standpoint, however it is the most efficient way to achieve minimum disturbance of steep slopes and potential prime agricultural soils locations. Streams, floodplain and wetlands have been avoided and will in essence be preserved in their natural state through the placement of open space adjacent to these environmentally sensitive areas. The increase in storm water management due to impervious surface runoff will be handled through appropriate reduction techniques including; detention and infiltration facilities as allowed by soil permeability and watershed distribution. All these facilities will infiltrate and or detain runoff to Township and State requirements. Soil erosion and control facilities will clean runoff during site clearing, grading and stabilization phases. Upon completion of site grading these facilities will be converted to permanent facilities or removed. Another positive impact will occur when the barn is repaired and weatherized to improve its appearance along the Tigue Road frontage. This will help maintain and enhance the rural character of the streetscape for years to come. Overall, by way of appropriate and environmentally conscious site planning techniques, many of the impacts that are typically associated with development will be negated through the use of best management practices, the preservation of steeply-sloped areas, the preservation of mature vegetation and the placement of open space around environmentally critical areas as well as existing scenic corridors.

Visual Analysis: Please refer to the attached exhibit titled Photo Location Map and corresponding photos that serves as a visual analysis of the site.

Existing Services Map: Please refer to the attached exhibit titled Existing Services Map that notes the locations of the services that can be expected to serve the site.

By-Right Plan vs. Open Space Development Option:

The base zoning for the three zoning districts which run through this property allow for 2-Acre Lots, 1-Acre Lots and 25,000SF Lots. A by-right plan for this site would allow between 38-41 Homes with no emphasis on preserving scenic vistas or the protection of critical environmentally sensitive areas that could be permanently preserved through the open space development option. The open space development option, while proposing a higher density than the by-right plan, does help meet the goals of the Township by proposing the expansion of Township greenway areas by locating open space in and around critical riparian zones. It should also be noted that the open space development option, as proposed on the conditional use plan, furthers the Township's goals of attempting to preserve scenic vistas, mature stands of vegetation and steeply-sloped areas.

Negative Impact Description, Identification & Remedy:

At this time, the applicant is only proposing a sketch plan which does not show final grading, however preliminary rough grades have been estimated to minimize negative impacts on steep slopes and environmentally sensitive areas.

Wetlands Report:

A wetland delineation has been recently performed for this site by Del-Val Soil & Environmental Consultants and is shown on the existing conditions plan and the site plan but as of this time a jurisdictional delineation has not yet been approved by the United States Army Corp. of Engineers.

Certification Statement:

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is to the best of my knowledge and belief, true, accurate, and complete.

Hannah Mazzaccaro, AICP, PP

Justin Barnett, RLA

Michael Warrick, CPSS

NUMBER REFERS TO PHOTO LOCATION ON ATTACHED EXHIBIT

ESE

EIA EXHIBIT
PHOTO LOCATION PLAN
TIGUE PROPERTY

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

DATE: 10-05-2015 DRAWN BY: JTR

PHOTO LOCATION 1

PHOTO LOCATION 2

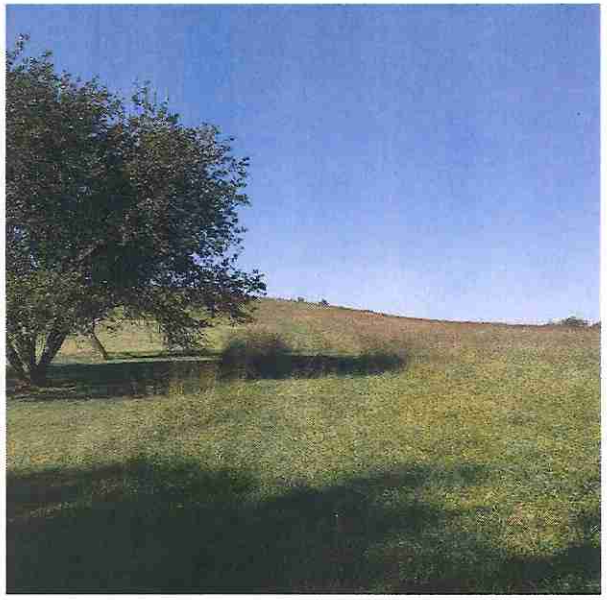


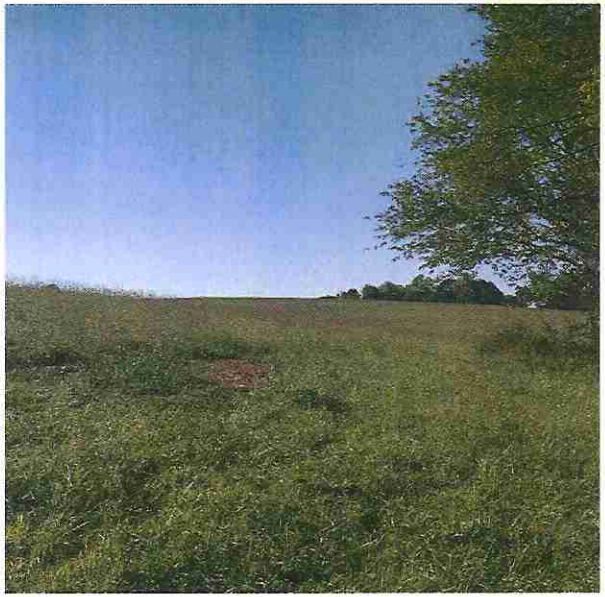
PHOTO LOCATION 3



PHOTO LOCATION 4



PHOTO LOCATION 5



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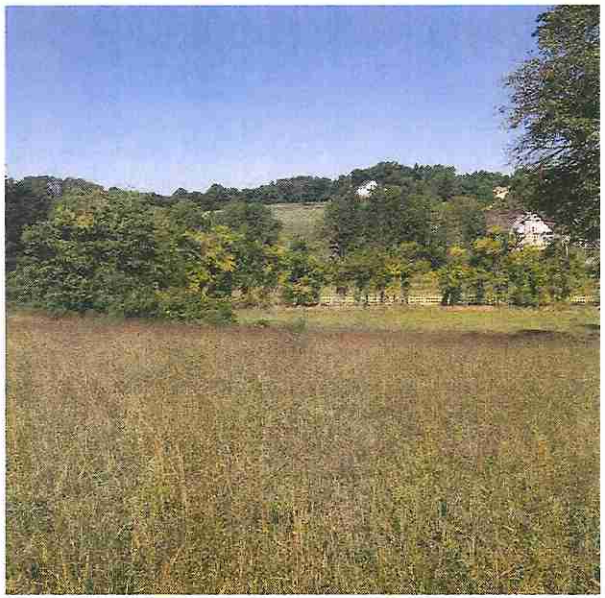
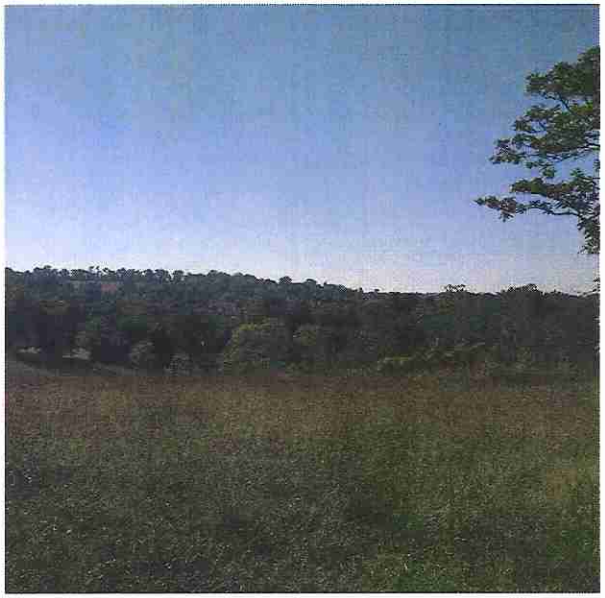


PHOTO LOCATION 7

PHOTO LOCATION 8



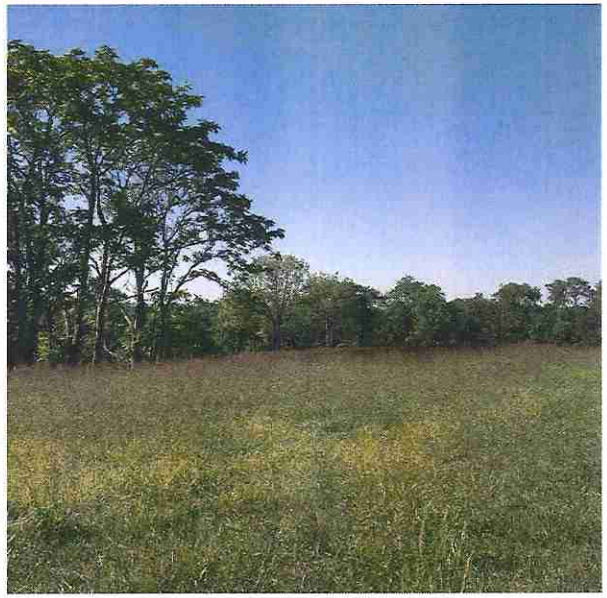


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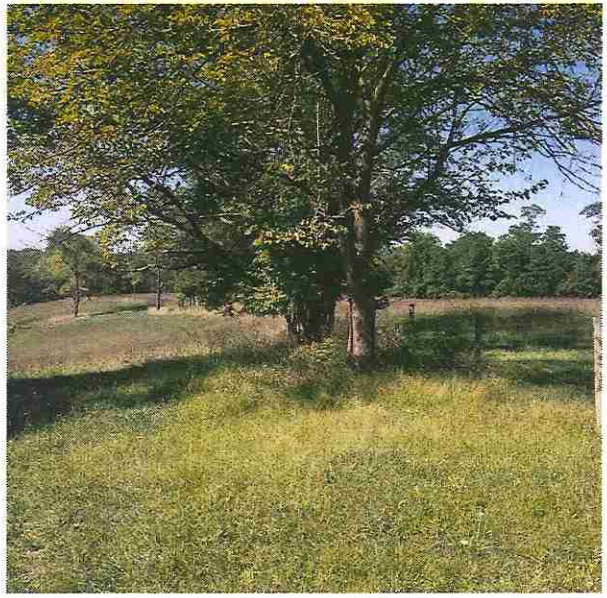
PHOTO LOCATION 10



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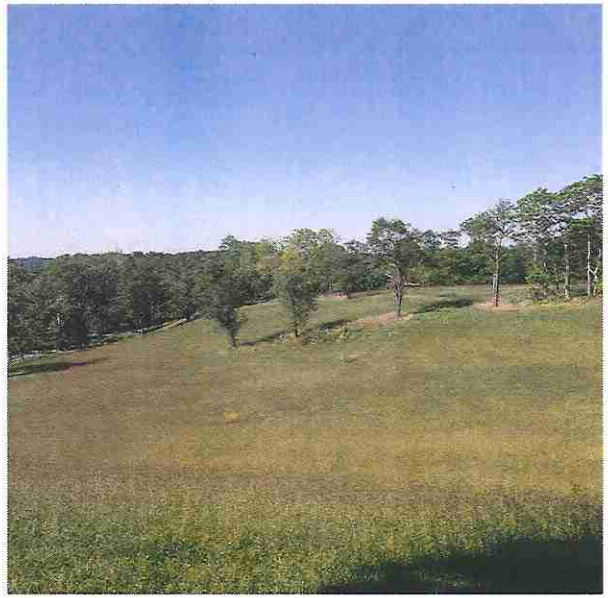

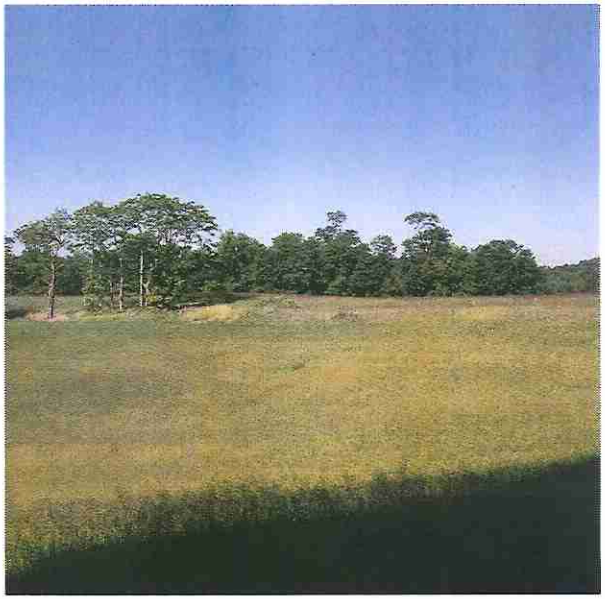

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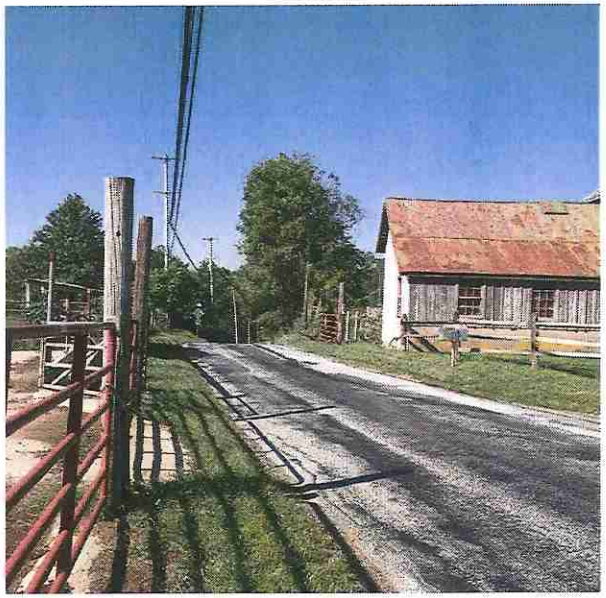

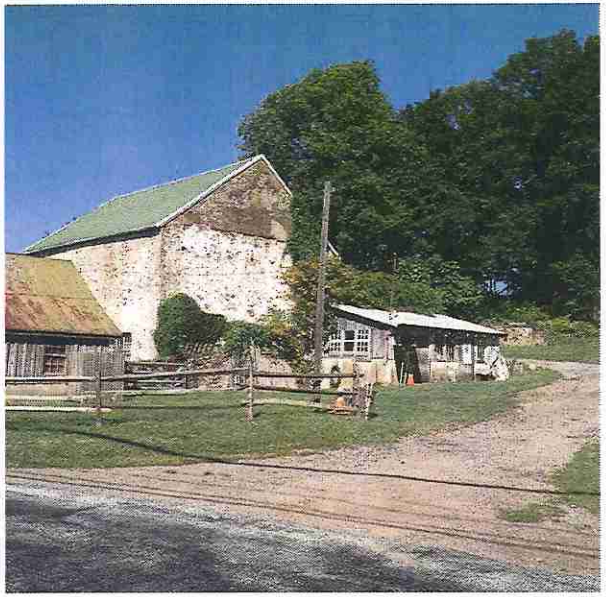

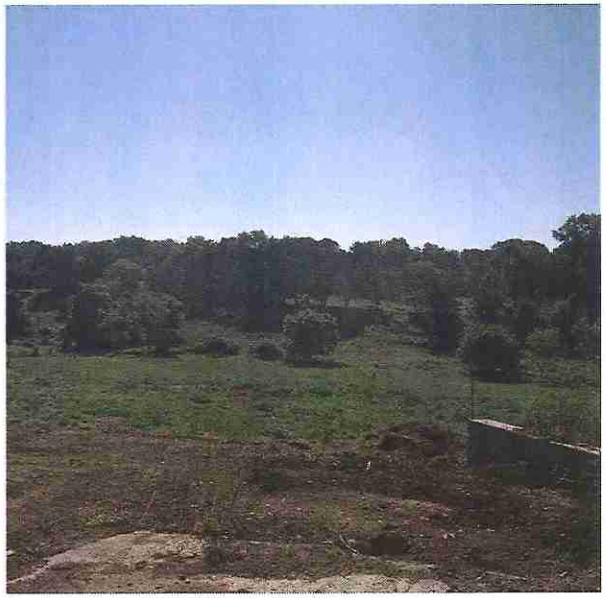

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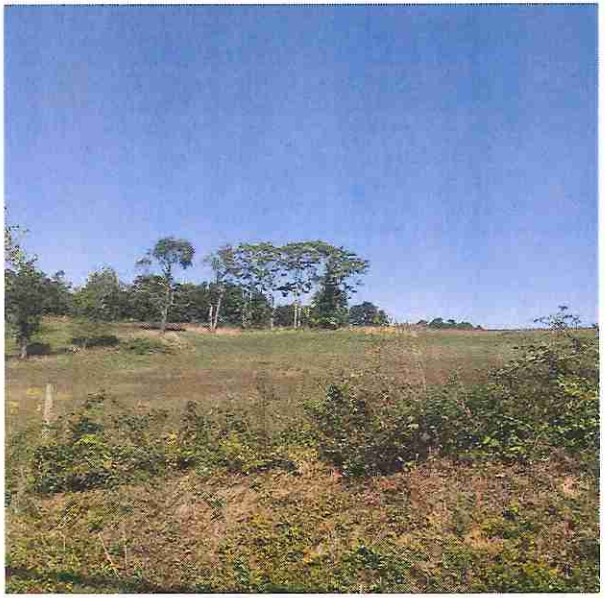

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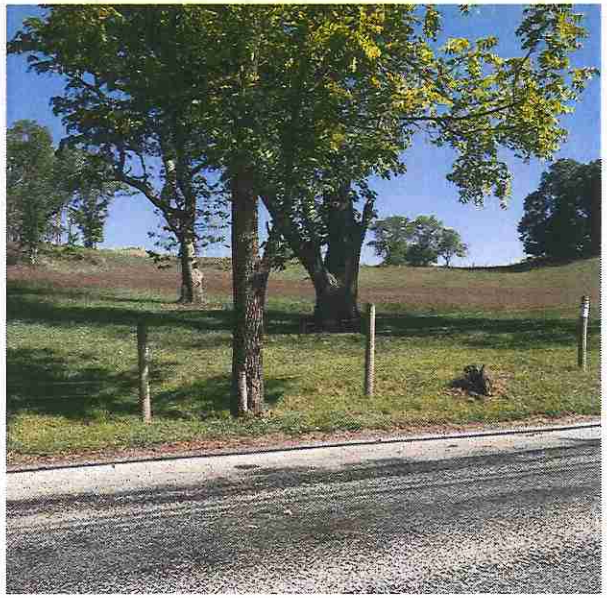

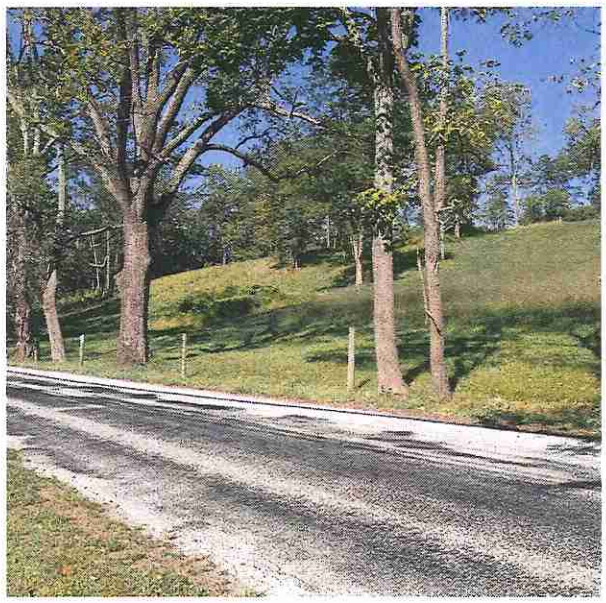

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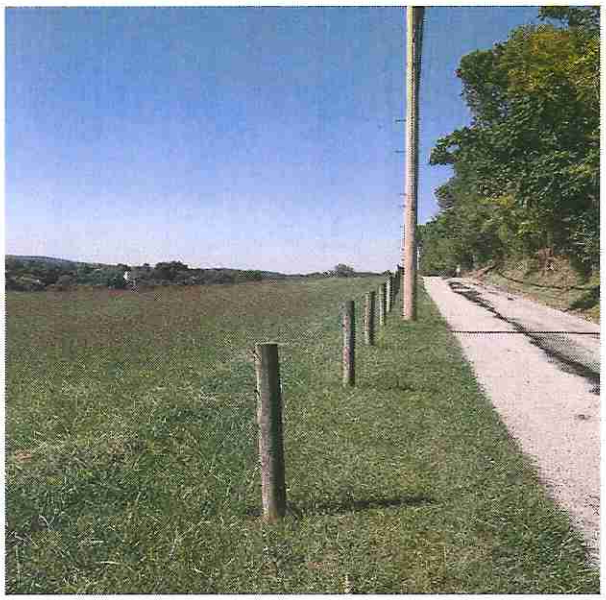
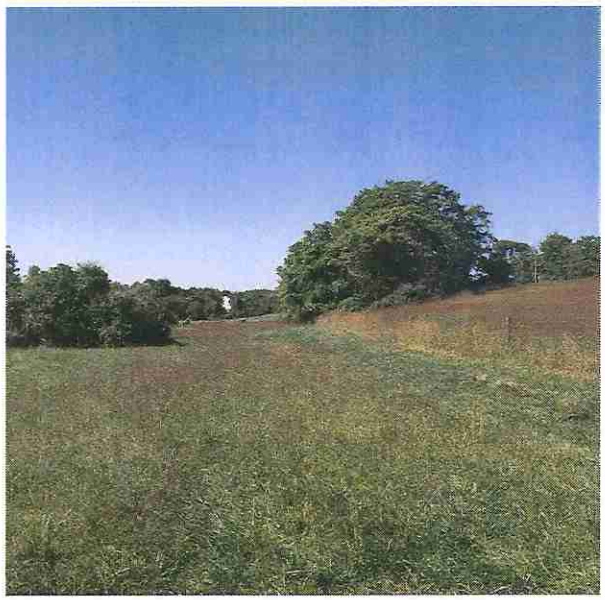


PHOTO LOCATION 17

PHOTO LOCATION 18

PHOTO LOCATION 19



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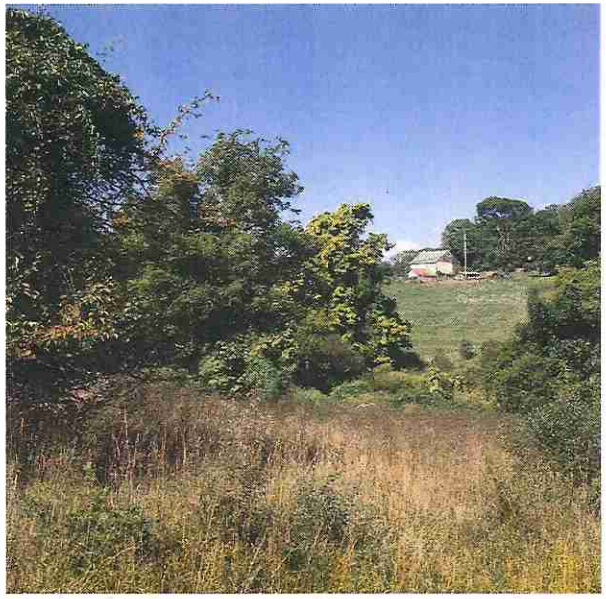


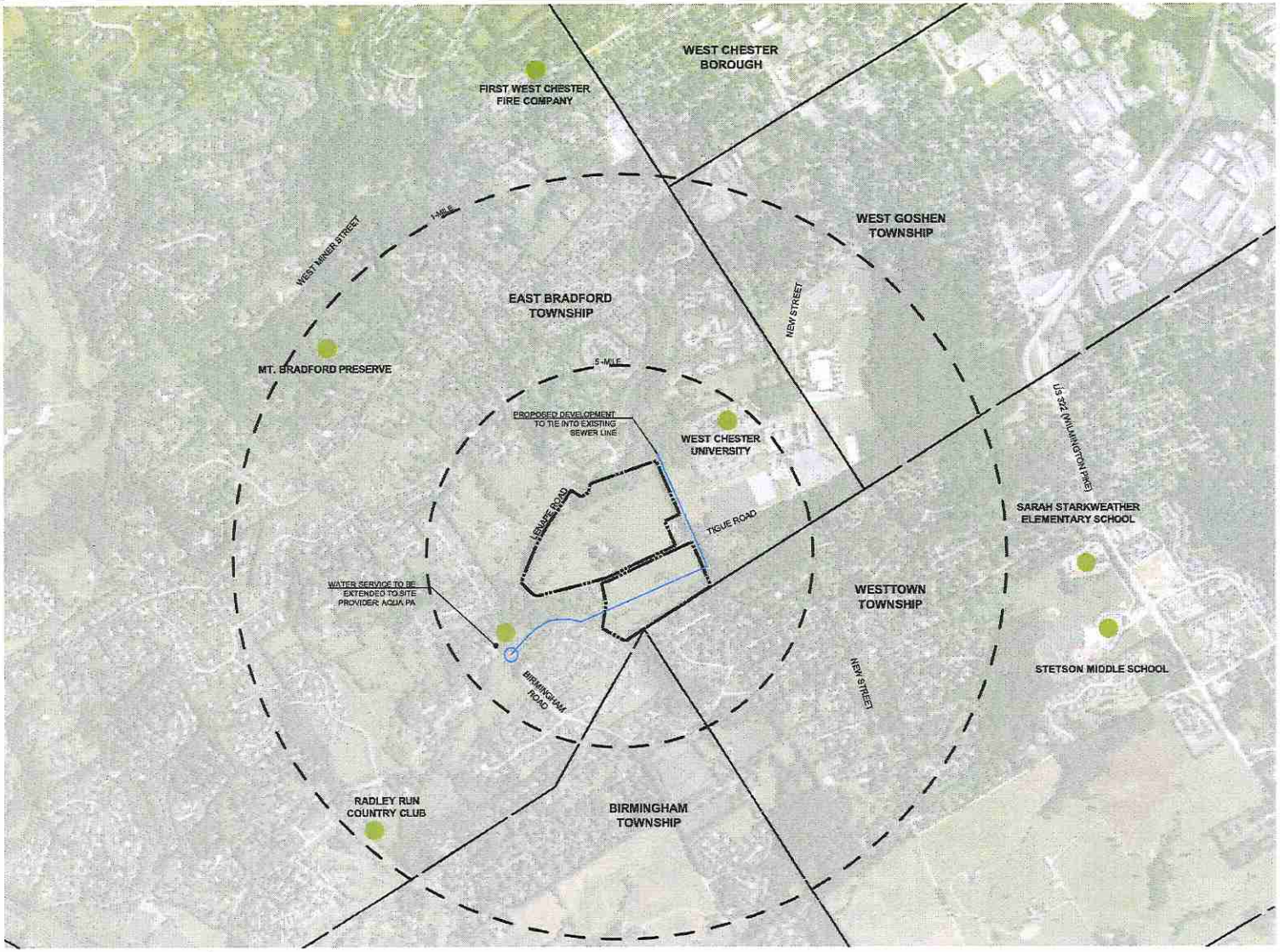

EXISTING SERVICES & FACILITIES NEAR SITE

EMERGENCY SERVICES

POLICE SERVICE: WEST CHESTER POLICE (NOT SHOWN ON MAP)

FIRE SERVICE: FIRST WEST CHESTER FIRE CO. (SHOWN ON MAP)

AMBULANCE SERVICE: GOOD FELLOW AMBULANCE (NOT SHOWN ON MAP)

EDUCATIONAL SERVICES

SARAH STARKWEATHER ELEMENTARY SCHOOL (SHOWN ON MAP)

STETSON MIDDLE SCHOOL (SHOWN ON MAP)

BAYARD RUSTIN HIGH SCHOOL (WEST CHESTER) (NOT SHOWN ON MAP)

WEST CHESTER UNIVERSITY (SHOWN ON MAP)

WEST CHESTER PUBLIC LIBRARY (NOT SHOWN ON MAP)

PARKS AND RECREATIONAL SERVICES

MT. BRADFORD PRESERVE (SHOWN ON MAP)

RADLEY RUN COUNTRY CLUB (SHOWN ON MAP)

UTILITY SERVICES

WATER TO BE PROVIDED BY AQUA PA VIA LATERAL EXTENSION FROM BIRMINGHAM ROAD

SEWER SERVICE TO TIE INTO EXISTING SERVICE ADJACENT TO EASTERN PROPERTY LINE

ELECTRIC SERVICE TO BE DETERMINED

ESE

NORTH

700 350 0 700 1400 2100

GRAPHIC SCALE: 1" = 1400'

EXISTING SERVICES MAP

TIGUE PROPERTY

EAST BRADFORD TOWNSHIP, CHESTER COUNTY, PA

SCALE: 1"=1400' DATE: 10-05-2015 DRAWN BY: JTB