



**Sunoco Logistics**



**Sunoco Pipeline L.P.**  
**Right of Way Department**  
P.O. Box 5095  
Sugar Land, TX 77478-5095

January 29, 2016

Pennsylvania Game Commission  
Real Estate Division  
2001 Elmerton Avenue  
Harrisburg, Pennsylvania 17110

Re: MARINER EAST 2 PIPELINE PROJECT

**ATTN: Nathan Havens, Right of Way Administrator**

**RE: State Game Lands Unit 276** (Sunoco Tract Ids: IN-0030.0000)

Mr. Havens:

Enclosed please find our *Application for Right-of-Way License* for the above referenced State Game Land Unit. This application package includes overhead images and technical drawings that depict: our proposed right-of-way, our proposed centerline, the relational distances between the two proposed pipelines, the existing Sunoco right-of-way, adjacent facilities where applicable, and any temporary workspaces needed to complete the project. Sunoco will use their existing right-of-way for spoil space to minimize the impact to the game lands.

Also enclosed is a cd containing the shapefiles of our proposed work on the game lands for your convenience.

As always, please feel free to call me at the number below or email me with any questions. We look forward to working with you or your representative.

Very truly yours,

Stan Wisniewski  
Permit Agent  
Representing Sunoco Pipeline L.P.  
Phone: 314-601-5780  
Email: stan.wisniewski@percheronllc.com

COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA GAME COMMISSION

APPLICATION FOR RIGHT-OF-WAY LICENSE  
STATE GAME LANDS

**Instructions to applicant:**

Applicant shall submit to the Land Management Group Supervisor (LMGS) in triplicate the following: **Completed Application, Maps, Plans, Drawings and an Alternatives Analysis including a statement of need and the reason why the chosen route is the best option.**

1. **Completed application:** Application shall be typed or printed and be clearly legible. Incomplete or illegible applications will be returned. Applicant shall describe the project in detail and include the items in paragraphs 2 through 4 below.
2. **Maps, plans and drawings:** To expedite the review process, maps, plans and drawings should be included which fully illustrate the facilities to be located and the extents of the uses requested. Maps should show the location of the project and a site plan, including County/Township names, State Game Lands (SGL) number and GPS or latitude/longitude coordinates of the project. The information provided should allow one not familiar with the area to be able to locate the project site and be able to clearly discern the scope of work and be able to formulate an assessment of the proposed impacts to the State Game Lands.
3. **Alternatives considered:** Applicant shall identify what alternatives have been explored, if any, including a statement of need and the reasons for selecting this location or route over other alternatives considered.
4. **Non-refundable application fee:** Applicant shall submit along with the information requested above a non-refundable application fee of \$150.00, made payable to the Pennsylvania Game Commission. This fee is to cover some of the administrative costs of reviewing the application and is due whether the Commission ultimately approves or denies the right-of-way license request.
5. **Laws, Rules, Regulations and Permits:** Applicant shall comply with all laws, rules and regulations applicable to the project. All required permits, PA One Call and Erosion & Sedimentation (E & S) control plans are the sole responsibility of the applicant, copies of permits and E & S Plans shall be provided to the Land Management Group Supervisor upon receipt if required.

THE APPLICANT BY SUBMITTING THIS APPLICATION HEREBY ACKNOWLEDGES THAT THEY HAVE BEEN ADVISED AND UNDERSTAND THAT THE SUBMISSION OF THIS APPLICATION AND NON-REFUNDABLE APPLICATION FEE DOES NOT CONSTITUTE A GUARANTEE OF THE ISSUANCE OR RECEIPT OF A LICENSE FOR RIGHT-OF-WAY IN, OVER, THROUGH OR ACROSS PENNSYLVANIA STATE GAME LANDS. ALL APPLICATIONS RECEIVED ARE REVIEWED BY THE COMMISSION AND EVALUATED FOR IMPACTS TO WILDLIFE, WILDLIFE HABITATS AND THE OVERALL USE AND MANAGEMENT OF THE STATE GAME LANDS. APPLICANTS SHOULD ANTICIPATE A MINIMUM OF 120 DAYS FOR THE REVIEW AND APPROVAL PROCESS ON MINOR PROJECTS WITH MORE COMPLEX PROJECTS BEING ADJUSTED ACCORDINGLY. THE COMMISSION RESERVES THE RIGHT TO REQUIRE ADDITIONAL INFORMATION FROM THE APPLICANT TO EVALUATE THIS REQUEST. LICENSES FOR RIGHT-OF-WAY WILL ONLY BE ISSUED BY THE COMMISSION, WHEN IN ITS SOLE DETERMINATION, THE GRANTING OF THE RIGHT-OF-WAY WILL NOT BE INCONSISTENT WITH THE PURPOSE OF THESE LANDS. APPLICANTS WILL RECEIVE A DETERMINATION FROM THE COMMISSION UPON COMPLETION OF ITS REVIEW.

**(This section to be completed by applicant)**

**Date:**

**APPLICANT:** Sunoco Pipeline L.P.

(Name of Corporation, Partnership or Individual)

Texas

23-3102656

Organized under the laws of the State/Commonwealth of

Fed. ID or Social Security Number

3807 West Chester Pike, Newton Square, PA 19073

Principal place of business

535 Fritztown Road, Sinking Spring, PA 19608

Billing address

The applicant hereby applies for a License for Right-of-Way over a portion of State Game Lands No. 276, Situate in the Township(s) of Burrell, County(s) of Indiana, Commonwealth of Pennsylvania, with the right to construct, operate, maintain and remove (or use and maintain in the case of established roads), (See description below).

The proposed right-of-way will be used for (check all that apply):

- Personal use
- Private use
- Public use
- Business use
- Non-profit business
- Government business
- Commercial business

And shall extend for a distance of approximately 4085.29 feet in, on, over, across or through State Game Lands, and will require a right-of-way width of 50 feet. Also, 0 feet of existing Commission administrative road will be required for construction and maintenance of the project.

In addition, 193329.4 square feet of temporary construction area and 0 feet of temporary road use will be required to construct the project for a period of 12 months from the start of construction.

All extents of the requested right-of-way, facilities to be located, temporary construction areas, and road uses etc. should be clearly and accurately shown and depicted on the maps and drawings included with this application.

Provide a complete description of the project and the right-of-way requested, including facilities to be located, alternatives considered, statement of need, a construction target date and a timeline for completion. Include maps, plans and drawings which accurately depict the project, the facilities associated with the project and extents of uses requested.

Use additional paper if necessary

Description:

See Exhibit A attached hereto.

Alternatives:

See Exhibit B attached hereto.

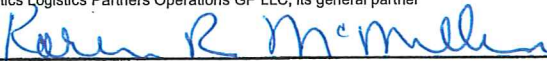
Statement of need:

See Exhibit A attached hereto.

Construction timeline:

January 1, 2016 to January 1, 2017

Sunoco Pipeline L.P.  
Sunoco Logistics Logistics Partners Operations GP LLC, its general partner

Signature of Applicant: 

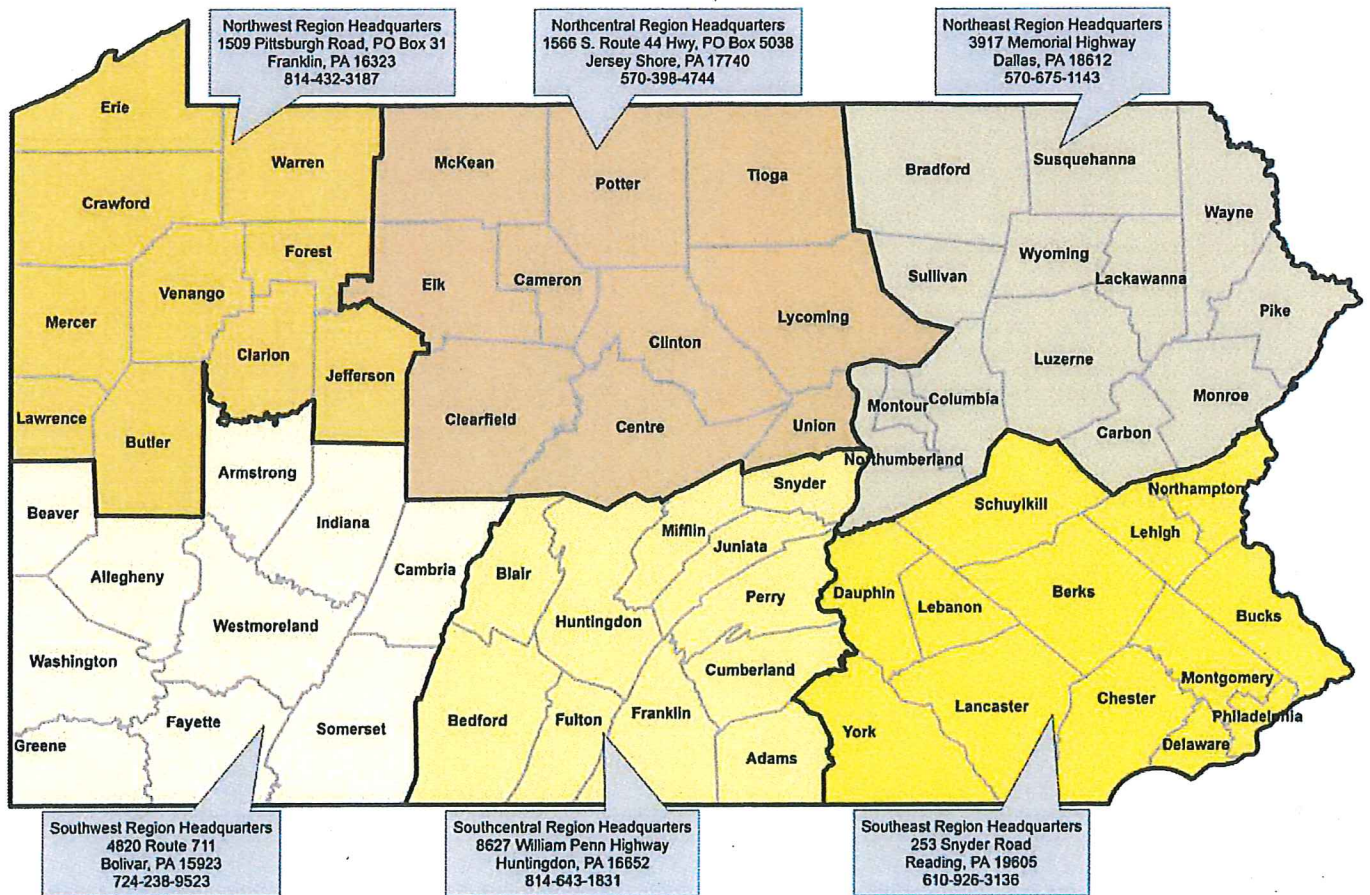
Printed Name of Applicant: Karen McMillan

Applicant Title: Director of Right of Way (Attorney in Fact)

Telephone: (281) 637-6550 Cell: \_\_\_\_\_

Fax: \_\_\_\_\_ Email address: KRMcmillan@Sunocologistics.com

The Land Management Group Supervisor (LMGS) may be contacted through the respective Pennsylvania Game Commission regional headquarters. Note some State Game Lands may be maintained by LMGS's in adjacent regions. Additional information about the Game Commission and its programs is available on the agency's website. <http://www.pgc.state.pa.us/>



**If applying for Communications Facilities:**

**Completion of form R/W 67 is required and shall be completed as an addendum to this R/W 68, if applying for an antenna site on SGL.**

Exhibit A

Description

And

Statement of Need

## **PENNSYLVANIA PIPELINE PROJECT PROJECT DESCRIPTION**

Sunoco Pipeline, L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project (Project) that would expand existing pipeline systems to provide natural gas liquid (NGL) transportation of up to 700,000 barrels per day. The Project involves the installation of two parallel pipelines located primarily within a 306-mile, existing 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania to SPLP's Marcus Hook facility in Delaware County, Pennsylvania with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306 miles) and a second, up to 20-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, Pennsylvania to the Marcus Hook facility, paralleling the initial line for approximately 255 miles.

The following sections describe the Project's purpose and need (Section 1) as well as the facilities that will be constructed as part of the Project (Section 2). In addition, the land requirements, agency coordination, and public health and safety considerations are presented in Sections 3, 4, and 5 respectively.

### **1.0 PURPOSE AND NEED**

The Project will provide transportation service for up to 350,000 barrels per day of NGLs (e.g., propane, butane and ethane) per pipeline from the Utica and Marcellus Shale formations for both domestic and international markets. SPLP's upstream customers currently extract natural gas in the form of methane from the aforementioned geologic formations for distribution to the community. The NGLs will provide fuel for power generation, heating and cooking.

Upstream shippers are currently limited by the shortage of NGL transport systems. The Project will supply additional transportation services to ship these NGLs to an existing port facility. In addition, the Project will provide along its route across Pennsylvania various exit points for supply of desperately needed propane supplies, at affordable prices, to local Pennsylvania distributors for use as heating and/or cooking fuel by consumers in Pennsylvania and neighboring states, especially during peak demand periods when supplies would otherwise become short. In addition, when completed, the Project will promote sustained economic development and jobs-creation throughout multiple regions in Pennsylvania.

Based on the source of NGLs on the western side of the Commonwealth and the final destination/distribution points located over 300 miles across the Commonwealth and on the eastern side of the Commonwealth, it is necessary to cross watercourses, floodways, and wetlands. Although SPLP has assessed a number of alternatives and has significantly reduced the impacts to these resources (refer to Attachment 18 – Alternatives Analysis), there are unavoidable temporary and permanent impacts to wetlands, streams, and floodways associated with the Project. However, the majority of these impacts are temporary and the resources will be restored to their pre-existing condition/cover type following Project construction (refer to the Resource Tables in the Environmental Assessment, Attachment 11).

The Project has been designed to fulfill SPLP's overall project purpose to transport NGL and no additional actions or future impacts to water resources are necessary to meet this goal. Specifically, SPLP does not have any reasonably foreseeable future actions associated with this

Project and is committed to limiting the impacts to those identified in the Resource Tables; consequently, there will be no secondary impacts associated with this Project.

## **2.0 PROJECT FACILITIES**

The proposed Project consists of a number of components that are all necessary to ensure proper and safe operation of a pipeline, and to satisfy SPLP's objective of providing NGLs to currently underserved Pennsylvania communities and to an in-demand market that can be served from a distribution center located in Marcus Hook. SPLP has thoroughly assessed the Project needs and has identified the minimal facilities necessary to successfully and safely transport NGLs across the Commonwealth. This section provides a brief description of the required Project facilities.

### **2.1 PIPELINE FACILITIES**

The Project includes two new, up-to 20-inch diameter pipelines with maximum operating pressures (MOPs) of 1,480 pounds per square inch gauge (psig) installed within or adjacent to 306 miles of existing ROW corridors through 17 Pennsylvania counties (Table 1). The majority of the new ROW will be co-located adjacent to existing utility corridors, including approximately 230 miles of pipeline that will be co-located in the existing SPLP Mariner East pipeline system that is currently used for the transportation of NGLs. The following provides the details of the proposed pipeline facilities:

- *Pipeline 1: Houston, Pennsylvania to Marcus Hook, Pennsylvania* – This is an incremental expansion of SPLP's capacities to transport NGLs to the Marcus Hook facility. This Phase of the Project will include installing a 20-inch diameter steel pipeline and pump stations (Section 2.2). The route of the pipeline is located either inside or adjacent to the existing Sunoco pipeline ROW and is approximately 306 miles long.
- *Pipeline 2: Delmont, Pennsylvania to Marcus Hook, Pennsylvania* – The pipeline route for the second pipeline will include 255 miles of up-to 20-inch diameter steel pipeline that will parallel the first line.

**Table 1. Pennsylvania Pipeline Project Pipeline Facilities**

Type of Facility	Description	Pipeline 1 Length (miles)	Pipeline 2 Length (miles)	County
Pipeline	Installation of a 20-inch new pipeline from Houston PA to Marcus Hook, PA  &  Installation of an up to 20-inch new pipeline in parallel from Delmont, PA to Marcus Hook, PA	19.9	0.0	Washington
		9.1	0.0	Allegheny
		37.8	15.0	Westmoreland
		18.8	18.8	Indiana
		23.3	23.3	Cambria
		23.5	23.5	Blair
		26.2	26.2	Huntingdon
		3.0	3.0	Juniata
		10.4	10.4	Perry
		33.1	33.1	Cumberland
		6.5	6.5	York
		11.5	11.5	Dauphin
		19.7	19.7	Lebanon
		7.5	7.5	Lancaster
		20.4	20.4	Berks
		24.0	24.0	Chester
		11.7	11.7	Delaware
	<b>Project Total</b>	<b>306.4</b>	<b>254.6</b>	

**2.2 ABOVEGROUND FACILITIES**

In order to support the expansion of SPLP’s existing pipeline systems and provide NGL transportation of up to 700,000 barrels per day, the Project will involve modifications to seven existing pump stations and one meter station. The following provides a brief description of the proposed modifications/upgrades:

- *Houston, Washington County, Pennsylvania* – Project will include installing meters on the outlets from existing storage, injection pumps, control valves, associated piping and accessory structures.
- *Delmont, Westmoreland County, Pennsylvania* – Project will expand the existing pump station with added booster pumps, associated piping and accessory structures.
- *Ebensburg, Cambria County, Pennsylvania* – Project will construct a new pump station with booster pumps, leak detection metering, associated piping and accessory structures.
- *Mount Union, Huntingdon, Pennsylvania* - Project will expand the pump station with added booster pumps, associated piping and accessory structures.
- *Doylesburg, Perry County, Pennsylvania* - Project will expand the pump station with added booster pumps, associated piping and accessory structures.

- *Middletown, Dauphin County, Pennsylvania* – Project will expand the existing pump station with added booster pumps, associated piping and accessory structures.
- *Beckersville, Berks County, Pennsylvania* – Project will add to the pump station with leak detection metering, associated piping and accessory structures.
- *Twin Oaks, Delaware County, Pennsylvania* – Project will install custody transfer meters and control valves at the existing meter station.

In addition to the pump station/meter station modifications, the Project includes installing 53 Mainline Block Valve stations, which have been located at as many existing valve sites as possible.

### **2.3 SUPPORT SITES - ACCESS ROADS AND PIPE / CONTRACTOR YARDS**

As part of the Project, SPLP has identified a number of existing public and private roads that will be used for temporary construction access to the mainline pipeline Right-of-Way (ROW) and existing pump stations/meter station. A few of the roads will provide access to the new block valve locations and will be permanently maintained. The locations of all the access roads have been specifically sited to avoid wetland/stream impacts, to the maximum extent possible, and are identified on the enclosed kmz file.

In addition to the access roads, the Project will require a number of contractor and pipe yards that will be used for equipment, pipe, and material storage, as well as temporary field offices and pipe preparation/field assembly areas during construction. Site selection and acquisition of these areas will continue throughout the planning and permitting stages of the Project. The sizes of the areas will vary depending on the selected site and their actual use/function; however, contractors will be required to site the pipe and contractor yards in previously developed areas that will require no new land disturbance and/or natural resource impacts.

### **3.0 ENVIRONMENT – LAND REQUIREMENTS**

As previously stated, the proposed Project consists of several components including construction of two pipelines, modifications to existing pump/meter stations, addition of block valves, and access roads, all of which will have temporary and permanent land requirements. Construction of the new pipelines will typically require a 75-foot-wide construction ROW consisting of a 50-foot-wide post-construction, permanently maintained ROW and 25 feet of temporary workspace to facilitate installation of the pipelines. Additional temporary workspace areas of varying size are proposed in certain areas to support additional excavation, soil storage, or equipment workspace needs (e.g., road/railroad crossings, areas with steep slopes or side hills, certain stream/wetland crossings, crossovers of existing utilities, etc.). The 25 feet of temporary workspace and all additional temporary workspace areas would be restored and allowed to revert back to its pre-construction condition. All construction workspaces are clearly defined within the project mapping as presented on the enclosed kmz file.

The construction ROW will be reduced to 50 feet, with no new permanent ROW requirements, when crossing sensitive areas including streams and wetlands to reduce the overall project impacts as well as the long-term permanent impacts. In addition, SPLP has modified their construction methods to further reduce environmental impacts; specifically, a number of sensitive areas will be

horizontal directionally drilled (HDD) to avoid impacts (refer to Attachment 18 – Alternatives Analysis and Attachment 19 – Mitigation Plan).

Construction of the Project's aboveground facilities and permanent access roads will have additional land requirements. Typically, new block valve stations are 60 feet by 90 feet and will consist of a gravel pad/area with a chain-link fence installed for public safety. Pump station modifications depend on site conditions and the land area required to install the new equipment but typically require 4-8 acres of additional land. Access to the Project area will primarily be limited to existing non-public roads, driveways, and farm lanes that will require either no improvements or just minor improvements. Permanent access roads to new valve settings, typically 12 feet wide, will be required. All proposed temporary and permanent access roads are clearly defined within the provided project mapping (enclosed kmz file) and have been quantified in the Resource Tables provided in Attachment 11. Additional support sites, such as pipe/contractor yards, are to be sited on previously disturbed areas and typically range from 5-15 acres in size. In the post-construction phase, temporary roads and work areas will be allowed to revert, or be restored to, pre-construction conditions.

The Project will not permanently alter, modify, or obstruct any watercourses; therefore, there are no potential threats to life or property, safe navigation, and/or property or riparian rights of owners upstream, downstream, or adjacent to the Project. Similarly, SPLP does not have any reasonably foreseeable future actions associated with this Project and is committed to limiting the land requirements (impacts) to those identified in the Resource Tables.

#### **4.0 AGENCY COORDINATION**

As presented throughout this Joint Application and summarized below, SPLP has been diligent in their coordination with the federal, state, and local agencies responsible for regulating the Project.

- Attachment 3 provides the Act 14 notifications distributed to all the local counties and municipalities requesting their input;
- Attachment 4 includes the Cultural Resource Notice that indicates ongoing coordination with the Pennsylvania Historical and Museum Commission regarding potential resources in the Project area; and,
- Attachment 6 provides a summary of the completed and ongoing coordination (surveys and results) with various agencies associated with species of concern located throughout the Project area.

Also, complete ESCGP-2 applications have been prepared and submitted to PADEP and the local County Conservation Districts. In addition, SPLP has held meetings with the Delaware River Basin Commission (DRBC) and is actively determining the applicability of the Project for review by both the DRBC and Susquehanna River Basin Commission. SPLP will ensure the Project is consistent with the policies of both river basin commissions and will forward any such determinations when the coordination efforts are complete.

## 5.0 PUBLIC HEALTH AND SAFETY

Liquid pipeline facilities, such as SPLP's Project, that are designed and maintained in accordance with U.S. Department of Transportation (DOT) regulations and industry standards have an excellent record of public safety and reliability. Specifically, for hazardous liquids pipeline systems and pump stations in general, empirical information illustrates an extremely low potential for public hazard for incidents associated with the operation of interstate hazardous liquids pipeline facilities such as the proposed Project.

The proposed Project will be designed, constructed, operated, and maintained in accordance with DOT federal safety standards, 49 CFR Part 195. The regulations are intended to ensure adequate protection for the public from hazardous liquids pipeline failures. Part 195 Sub Part C specifies material selection and qualification, design requirements, protection from internal, external, and atmospheric corrosion. In addition, SPLP will implement and/or adhere to the safety practices outlined below:

- SPLP will perform regular leak detection surveys in accordance with DOT regulations.
- SPLP's cathodic protection system is inspected at regular intervals to ensure proper operating conditions consistent with DOT requirements for corrosion mitigation.
- New aboveground facilities will be fenced with required signs posted. Existing facilities will remain securely fenced to prevent unauthorized access.
- Any potential hazards will be minimized by emergency shutdown and pressure restriction in any necessary section of pipeline.
- Under DOT regulations provided in 49 CFR. §195.402(E), SPLP will establish an Emergency Plan that provides written procedures to minimize hazards from a gas pipeline emergency.
- SPLP has a Computational Pipeline Monitoring (CPM) leak detection system in place as required by 49 CFR 195.134.
- SPLP has a Public Awareness Program that informs and educates public, (affected municipalities, school districts, businesses, and residents) appropriate government organizations, and persons engaged in excavation related activities on:
  - Use of a one-call notification system prior to excavation and other damage prevention activities;
  - Possible hazards associated with unintended releases from a hazardous liquid or carbon dioxide pipeline facility;
  - Physical indications that such a release may have occurred;
  - Steps that should be taken for public safety in the event of a hazardous liquid or carbon dioxide pipeline release; and
  - Procedures to report such an event.

Exhibit B

Alternatives

Analysis

Exhibit B

**SUNOCO PIPELINE L.P.**

# **Pennsylvania Pipeline Project**

**Alternatives Analysis**

**Application for Right-of-Way License  
State Game Lands  
Pennsylvania Game Commission**

*December 2015*



**TETRA TECH**

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## ALTERNATIVES ANALYSIS

### 1.0 INTRODUCTION

This Alternatives Analysis is being prepared to support Sunoco Pipeline's, L.P. (SPLP) Application for a Right-of-Way License through State Game Lands (SGLs) with the Pennsylvania Game Commission (PGC) for the Pennsylvania Pipeline Project (Project). The PGC requires as part of the application to identify alternatives that have been explored, including a statement of need, and the reasons for selecting the [Project] location, route, and workspaces over other alternatives considered. SPLP has been diligent in investigating alternatives and ultimately siting a Project that avoids and minimizes adverse effects on the natural and human environment located along the approximately 300-mile route.

### 2.0 EVALUATION OF ALTERNATIVES

During the development and siting of the proposed Project, SPLP considered a number of different alternatives including the No-Action alternative, as well as alternate routes, alternative workspaces, and alternative construction design methods (e.g., drill, bore). From the beginning of the Project, design engineers were provided rules and guidelines for siting the Project across the Commonwealth's landscape that would result in the least environmentally damaging practicable alternative. Property ownership, natural resources, cultural resources, agricultural resources, infrastructure, and special use or area designations were all considered during siting. While it is impractical to document all the actions taken by SPLP to avoid/minimize impacts, the intent of this report is to provide a summary of the major actions SPLP has taken to accomplish this goal, in particular across SGLs. Specifically, the following sections describe the No-Action alternative analysis, highlight some of the minor/major route variations, and construction methods incorporated into the Project.

#### 2.1 NO-ACTION ALTERNATIVE

The No-Action Alternative considers the potential benefits and adverse impacts if the Project were not constructed. If the Project were not constructed, one potential benefit would be the absence of environmental impacts associated with construction and operation of the Project; however, the local communities/markets in need of the natural gas liquids (NGLs) that would no longer be provided would be adversely impacted. Specifically, the purpose/need of the Project to transport low cost Marcellus Shale production to markets locally and domestically in the U.S. and to international markets would not be met. Consequently, the No-Action Alternative would likely require the use of other energy sources to satisfy the growing energy demand that would not be met by the Project. Accordingly, customers in those markets would have fewer available and likely more expensive options for obtaining natural gas supplies in the near future.

According to the Energy Information Administration's (EIA) Annual Energy Outlook 2015 (AEO 2015), energy consumption is projected to grow through 2040 even with increases in energy conservation and energy efficiency (EIA 2015). This is evident in the natural gas industry, where domestic consumption increased 2.8 percent from 2013 to 2014, to 73.6 billion

cubic feet per day (Bcfd). Within Pennsylvania alone, natural gas consumption increased from 706.2 Bcfd in 1997 to 1,090 Bcfd in 2013, with dramatic usage coming from the electric generation sector. Due to the increasing demands for energy and abundant supply of natural gas, natural gas consumption is forecast to continue to increase, adding to the rapid growth and expansion of natural gas drilling and production currently in occurrence. NGLs are related to natural gas as they are produced with natural gas in Marcellus shale (and other formations) and extracted via the same wells. Unfortunately, despite the vast increases in natural gas production, the lack of distribution infrastructure has constrained the natural gas and NGLs markets. These constraints have caused many portions of eastern Pennsylvania and New England to be affected by volatile natural gas and NGLs prices, particularly during cold snaps in the winter heating season. The spikes in price mostly result from insufficient pipeline capacity to transport natural gas and NGLs supplies to those markets where it is most needed. The Pennsylvania Public Utilities Commission (PA PUC) has indicated that additional pipelines could help remove these constraints and stabilize regional markets, and would help move the vastly increased Marcellus Shale gas production to consumers (PA PUC 2015).

Currently, NGLs are being hauled by truck and rail to the Sunoco Marcus Hook facility for processing, storage, and distribution. Under the No Action Alternative, large quantities of NGLs would continue to be shipped long distances from Marcellus production areas to Sunoco's Marcus Hook facility by truck and rail. By contrast, pipelines are considered to be a safer, more efficient mode of transport for many types of substances, including natural gas and NGLs. Alternatively, other pipeline projects may be proposed and constructed, and the associated environmental impacts would be necessary because existing infrastructure is currently not sufficient to provide firm transportation service for the large volumes required to alleviate supply shortages in eastern Pennsylvania and nearby markets in New England, as well as other areas. Nonetheless, assuming business-as-usual trends continue (i.e. current growth rates, world oil prices, and resource assumptions), the AEO2015 forecasts in the Reference Case scenario that liquid fuels, including NGLs, will continue to be imported (EIA 2015).<sup>1</sup> For the reasons discussed above, the No-Action Alternative would not fulfill the purpose or objectives of the Project and was not selected.

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<sup>1</sup> Due to the uncertainties inherent in energy market projections, the AEO 2015 indicates that the Reference case result should not be viewed in isolation; however for purposes of this Alternatives Analysis, the NGL import forecast is based on the Reference Case (business-as-usual) scenario as the No Action Alternative represents baseline levels against which the Project can be compared.

### 2.3 ROUTE VARIATIONS

SPLP has co-located the Project with existing right-of-ways (ROWs) for the majority of the route. This proved to be the primary means for avoiding new impacts to sensitive resources (i.e., forested wetlands) and for minimizing environmental impacts for the entire Project. Not only is the proposed ROW co-located with existing utilities, it is overlapped with SPLP owned and operated ROWs for the majority of the Project. The overlap allows 10-25 feet of the exiting line to be used as the new ROW as well as to facilitate workspace for installation. The need for additional workspaces that are not portions of existing ROWs (i.e., greenspace) greatly reduces the overall environmental impacts. In addition, SPLP has implemented a number of other route variations, both minor and major, to further reduce the environmental impacts associated with the Project. On SGLs, most of the Project is co-located with SPLP's existing 8-inch pipeline corridor and where it deviates foreign utility line corridors are followed to the maximum extent practicable. An overview of the routing across SGLs by the Project are discussed herein.

SPLP evaluated numerous route variations along the original proposed route in response to engineering and environmental constraints identified during the initial/early planning and design process, during field surveys, and coordination regarding other issues of concern (i.e. land use impacts, permanent easement acquisitions, and overall Project costs). A large number of these variations were specifically developed to reduce impacts in environmentally sensitive areas such as wetlands and streams, cultural/historical significant resources, and threatened/endangered species habitats or those habitats for species of concern.

Existing publicly available data, including aerial photography, topographic maps, National Wetland Inventory ("NWI") maps, USGS quadrangle maps, and parcel maps/attributes were incorporated into a project specific geographic information system (GIS) geo-database used for initial analysis of each route variation. Landowners and agencies were contacted to survey properties and discuss potential easements. In addition, field surveys were conducted to evaluate further routing opportunities. The intent was to identify an environmentally sound, technically feasible, and cost-effective pipeline route for the transportation of NGLs.

Alternative route variations within SGLs were evaluated and are described in further detail below. This includes three (3) route variations that were evaluated where the Project varies from collocating the pipeline with existing ROWs. Initially, the collocation of the Project on SGLs represents the least environmentally damaging practicable alternative, however as the Project progressed and other natural resources were identified some route variations were warranted. With the routes variations presented below, the Project across SGLs further reduces environmental impacts.

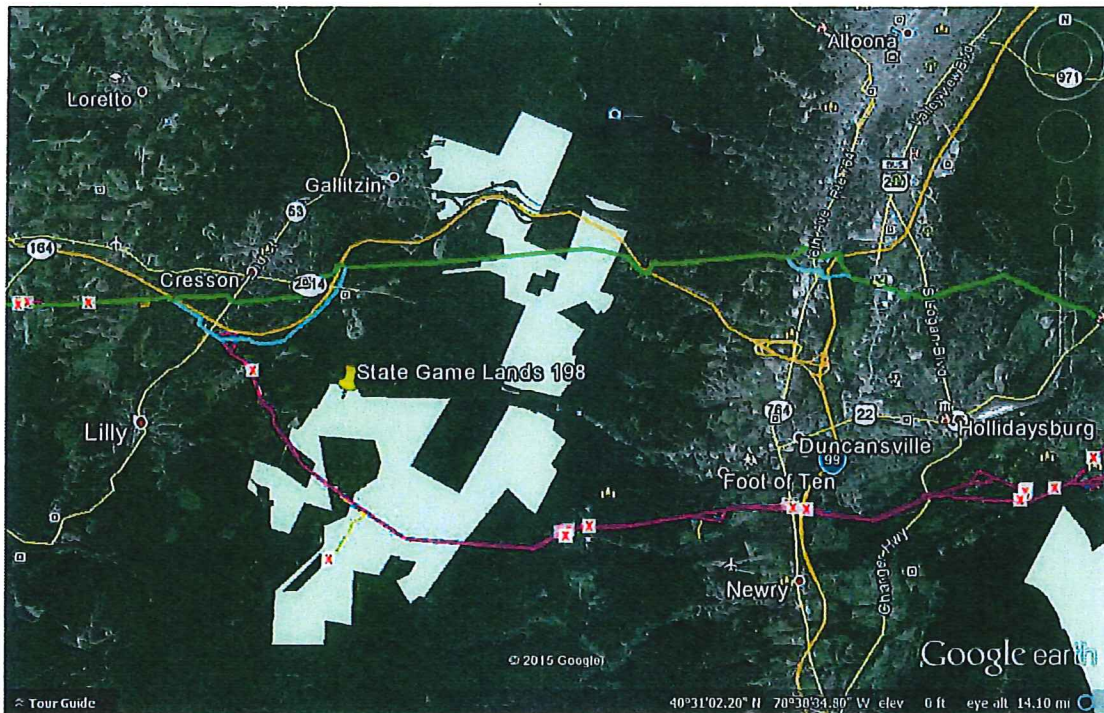
**SGL 276**

The Project through SGL 276 parallels SPLPs existing 8-inch pipeline corridor for 0.78 mile. The collocation with SPLPs line allows for the overlap of workspaces with the existing maintained corridor and an overall reduction in the need for workspaces within undisturbed habitats. A relocation to the north would have resulted in potential traffic/access impacts in the vicinity of SR-22 (William Penn Hwy), a major thoroughfare, and/or would require additional pipeline mileage that would still require crossing SGL 276 via a new greenfield ROW. This was not considered practical or economically feasible. A reroute to the south (could have paralleled an existing foreign utility ROW), but would have required additional clearing/disturbance of previously undisturbed habitat as workspace overlap opportunities would have been limited. Also a proposal to the south would of required the Project to head for and plan for a crossing of SGL 153 or routing back north towards SR-22, resulting in a much longer length of new ROW construction across the local landscape. Only 3 streams and a small wetland are crossed under the current proposal and no sensitive species are encountered.



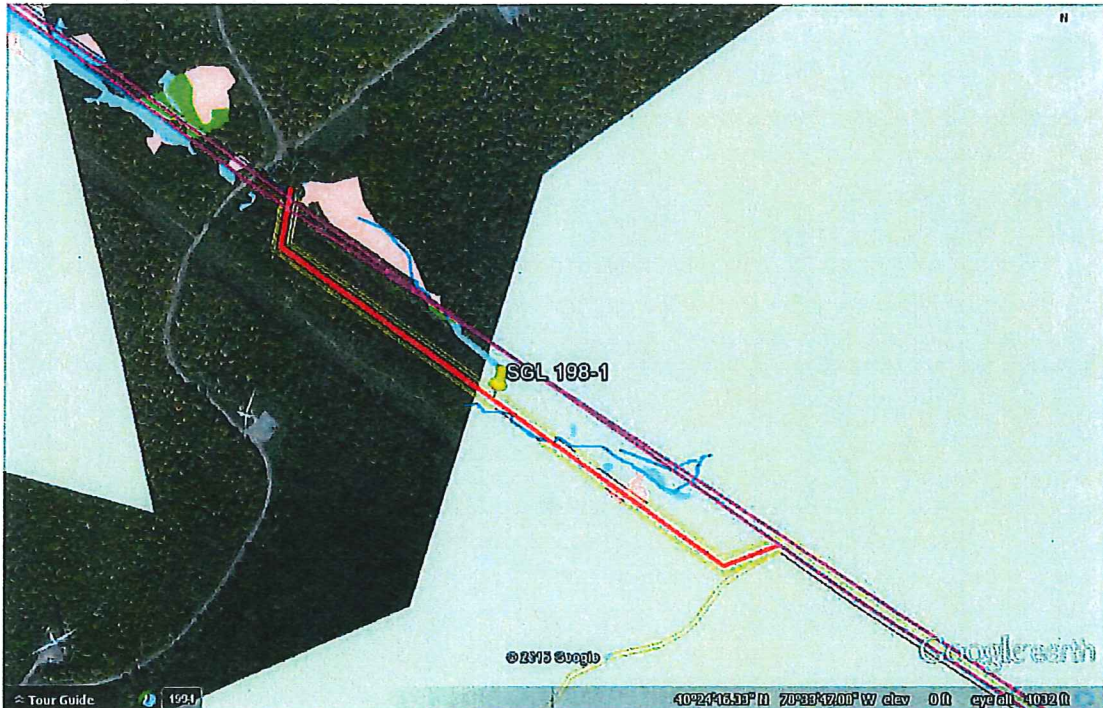
**SGL 198**

The proposed Project alignment (in pink) through the southern half of SGL 198 is the result of a major route variation (in pink) that was evaluated and adopted to avoid the heavily developed City of Altoona and the Allegheny Portage Railroad National Historic Site, a site marked historical by the Pennsylvania Historical and Museum Commission (PHMC) on April 1, 1947, and a designated National Historic Landmark (NHL) listed in the U.S. National Register of Historic Places on December 29, 1962. The green alignment in the screen shot below represents SPLPs 8-inch pipeline alignment from which the proposed alignment deviates in this area. Incorporation of this major route alternative avoided potentially significant environmental impacts to the City of Altoona, and specifically to cultural/historic resources in the area. Despite this deviation, SPLP continued to design and plan to collocate with existing utility ROW were ever practicable. This Route variation also includes two (2) minor route variations that were adopted and are discussed as SGL 198-1 and SGL 198-2 below.



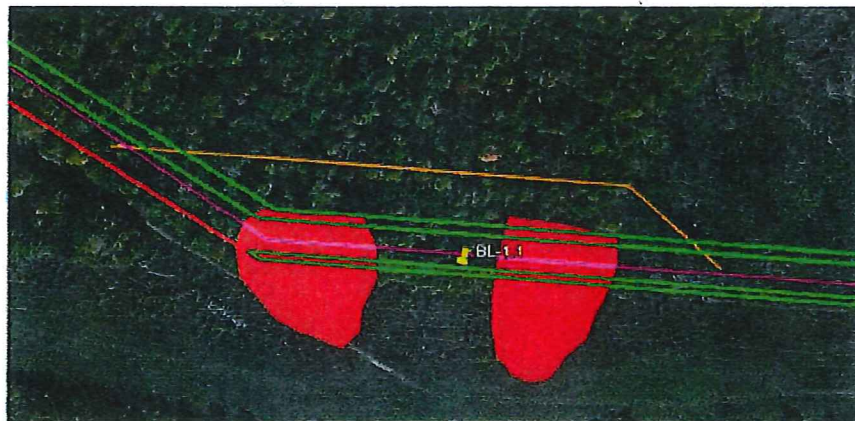
**SGL 198-1**

Route Variation SGL 198-1 is a minor route variation (in red line) that was adopted as part of a larger route variation (a major reroute around the City of Altoona and the Allegheny Portage Railroad site), and was preferred in order to avoid clearing forested wetlands (shaded in light red below) and disturbing previously undisturbed habitat. Forested wetlands are considered to be some of the highest quality wetlands and avoidance of these areas is one of the highest of priorities for the Project during design. This route variation continues to parallel the existing Enterprise/Buckeye easement to the north and existing Texas eastern pipeline easement to the south and was offset to avoid encroachment of these ROWs. The narrow strip of undisturbed forested area is proposed to avoid the encroachment onto these foreign easements that through title searches were not clearly defined.



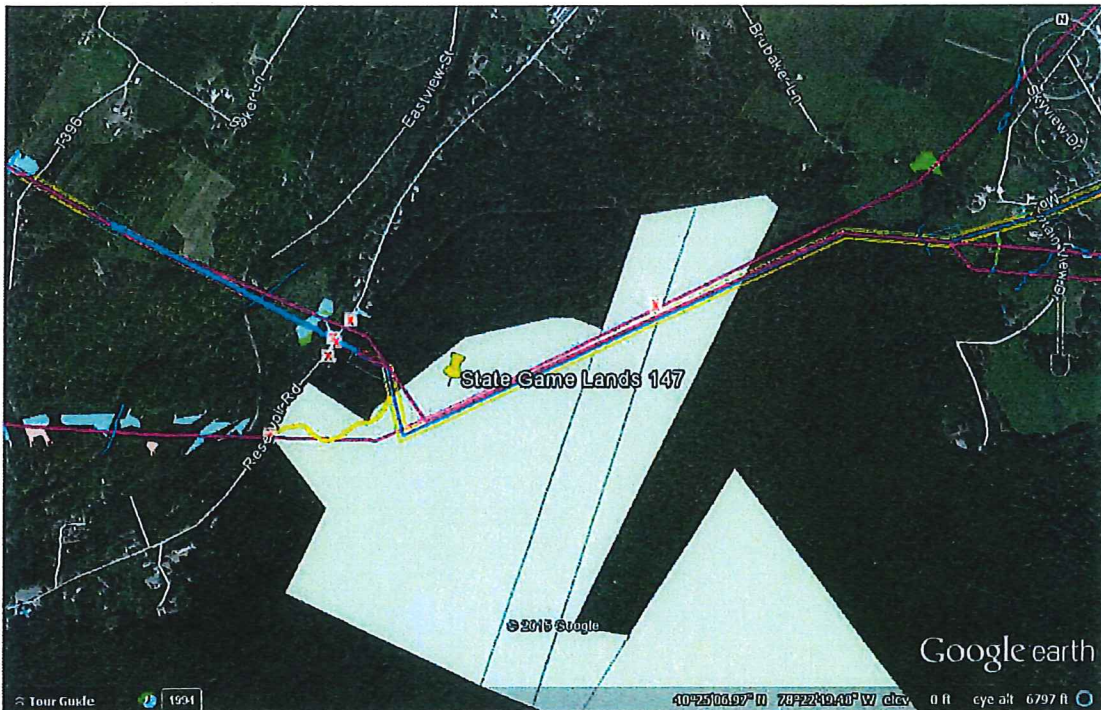
**SGL 198-2**

Reroute SGL 198-2 (in red) below is a minor route variation that was a part of a larger route variation (around the City of Altoona and the Allegheny Portage Railroad site) and was adopted to avoid the presence of confirmed timber rattlesnake (*Crotalus horridus*) dens in the area. Timber rattlesnakes are protected by the Pennsylvania Fish and Boat Commission and damages to den areas are prohibited. As such, SPLP determined that moving the centerline of the pipeline ROW 25 feet to the north, would meet the needs of the Project and minimizes impacts to protected species.

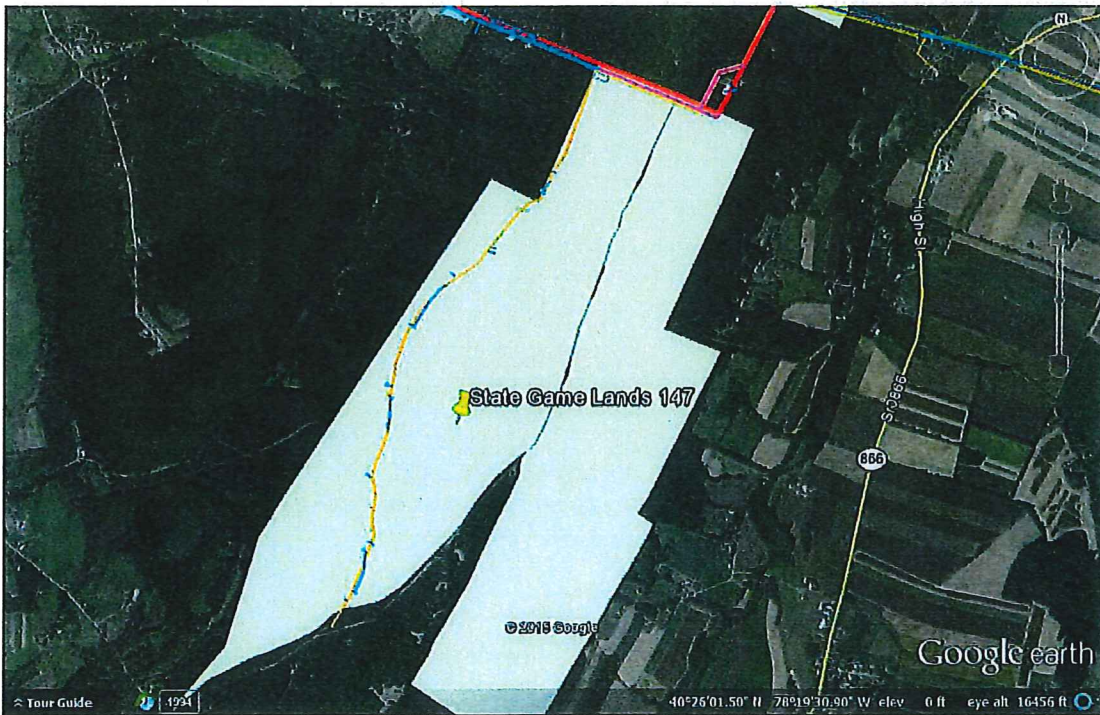


**SGL 147**

The Project alignment crosses SGL 147 three (3) times. The Project alignment veers away from the original proposed route (in green—not shown) as a result of a major reroute around the City of Altoona/Allegheny Portage Railroad site. The proposed route enters the first crossing of SGL 147 near Reservoir Road. As shown in the figure below, the Project alignment (in pink and yellow, originating at T396) is the result of a reroute that traverses SGL 147 for approximately 0.71 mile northeast towards Mountainview Drive. The original route was to enter SGL 147 immediately to the east of Reservoir Road, but to avoid a large group of wetlands a route further north was selected and resulted in a shorter length of ROW across this portion of SGL 147. The proposed alignment quickly collocates with the existing utility corridor on its south side for the majority of its length after entering SGL from the north.



The second SGL 147 Project crossing (shown in the bottom half of the figure below) is for approximately 0.37 mile (in red) before heading northeast to cross a SGL 147 for a third time for approximately 0.22 mile (in green). This route variation was adopted to avoid a conservation easement and to parallel the Lancer pipeline ROW, as well as to utilize a temporary access road (TAR) off State Route 2020 through SGL 147 (as shown in orange below).



**SGL 118**

The Project alignment traverses through SGL 118 twice, paralleling SPLPs existing 8-inch pipeline corridor for approximately 0.56 mile, and 0.15 mile. This alternative was adopted as it was considered the more environmentally/economically feasible alternative as it would not require additional pipeline mileage and would avoid clearing and disturbing previously undisturbed habitat to the north/south of the existing cleared corridor.



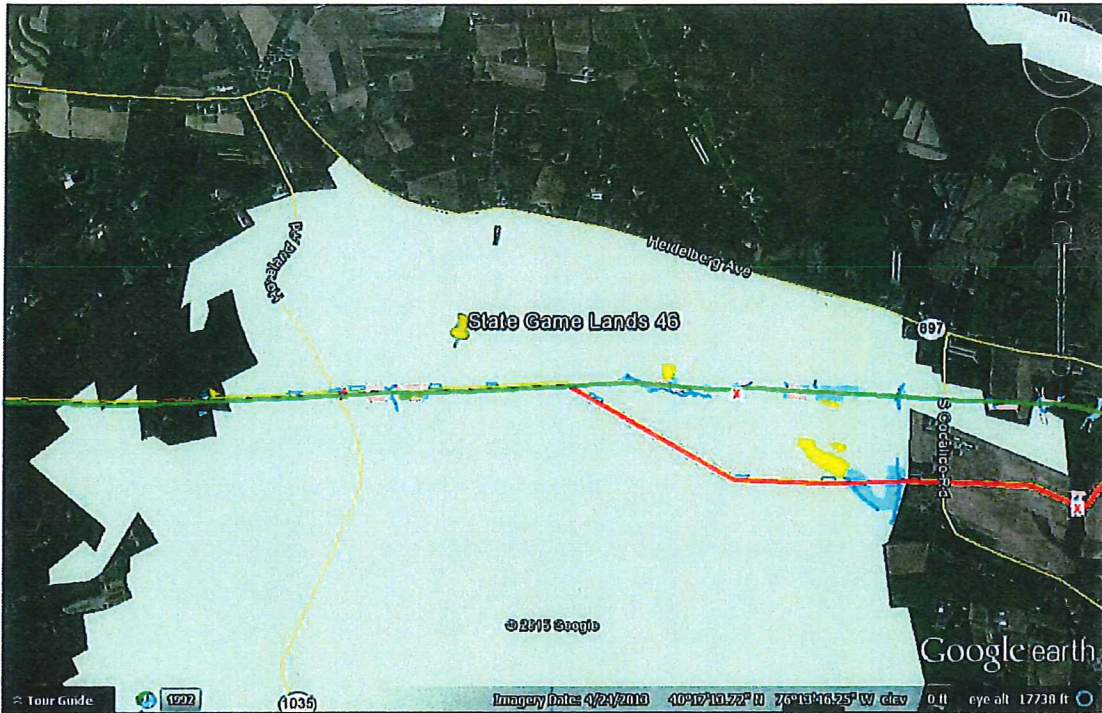
**SGL 71**

The Project alignment crosses SGL 71 twice paralleling SPLPs existing 8-inch pipeline corridor (in green) for approximately 0.88 and 1.71 miles. Reroutes to the north/south of the SGL 71 were not considered economically or environmentally feasible as it would require additional pipeline mileage and would require the clearing/disturbance of previously undisturbed habitat.



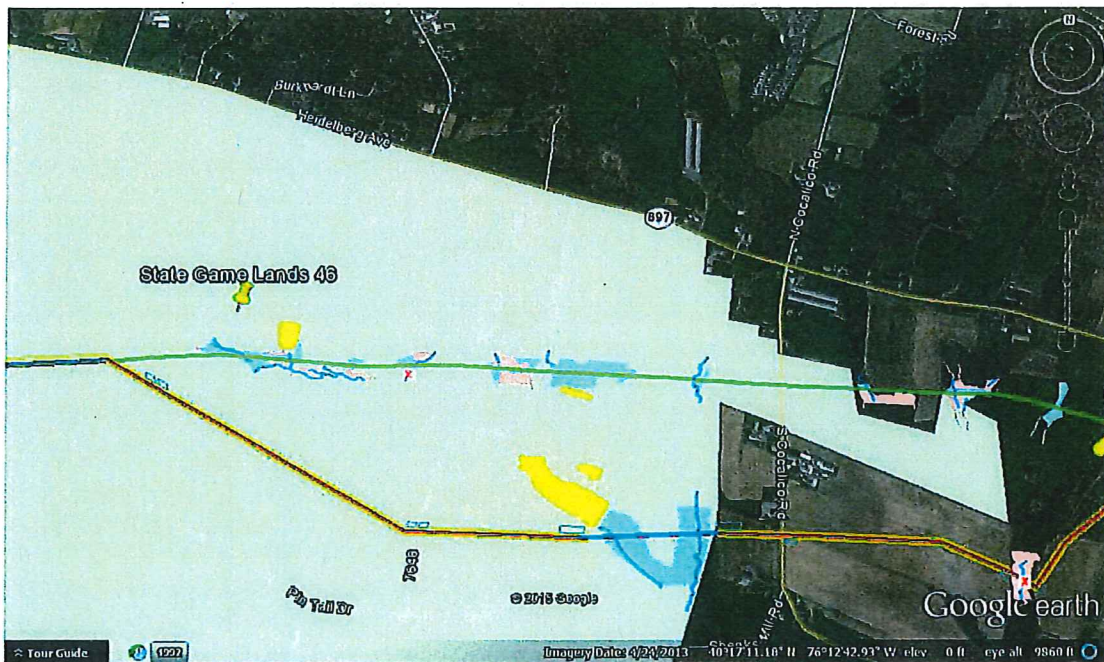
**SGL 46**

The Project alignment traverses through SGL 46 for 2.49 miles, paralleling SPLP's existing 8-inch pipeline corridor for approximately 1.21 miles of the 2.49 miles. The collocation with SPLP's line allows for the overlap of workspaces with the existing maintained corridor and an overall reduction in the need for workspaces within undisturbed habitats. The deviation from the existing line is explained below.



**SGL 46-1**

Under SGL 46-1 the Project alignment diverts southeast (in red) from the existing ROW (in green) approximately 0.66 mile to avoid potential impacts to a series of wetlands (including forested wetlands shaded in blue and red) and an identified cemetery off South Calico Road. This State Game Land's wetlands are known to harbor the federally listed threatened bog turtle and a reduction of wetland impacts was of high priority, in particular those traversed by the 8-inch pipeline. This reroute was established in coordination with SGL managers and SPLP designers and biologists. In addition, the reroute reduces impacts on State Game Lands by incorporating HDD (in blue below) through wetlands, and reducing the total length traversed on SGL 46 by 0.25 miles compared to the alignment to the north along the exiting 8-inch pipeline.



**SGL 52**

The Project alignment traverses SGL 52 paralleling SPLP's existing 8-inch pipeline corridor for approximately 0.21 mile prior to intersecting Interstate 176, the Morgantown Expressway. Reroutes to the north would have resulted in an additional 0.26 mile of pipeline which would require additional clearing and the disturbance of previously undisturbed habitat, and thus was not considered an environmentally or economically feasible alternative.

**2.3 VALVE SITE ALTERNATIVES****PA 655:**

The east side of the PA 655 valve site at Hares Valley Road is easily accessible from the road, does not have wetland or stream areas, and has a gentle slope. It is 3.3 pipeline miles from the upstream valve site (Happy Hills Road) to Hares Valley Road, and 5.8 pipeline miles to the downstream valve site at the Mt. Union pump station. If Hares Valley was to be removed, there would be 9.10 miles between block valves, which exceeds the recommended 7.5 mile spacing maximum per 49 CFR Part 195 (DOT for transportation of Hazardous Liquids by Pipeline). Siting the valve at Hill Valley Road, the nearest paved road to the east and not on SGLs, would space the Happy Hills Road and that site by 7.0 miles, while meeting DOT regulations this spacing would not represent the safest. At the localized level the west side of Hares Valley Road is also SGL property.

**Hopeland Road:**

This site was chosen because it is an expansion of an existing valve site. A new valve site would increase the overall environmental impacts in general area.

#### 4.0 REFERENCES

EIA 2014. Energy Information Administration, EIA Natural Gas Consumption by End Use, December 2014; Available online at: <http://www.eia.gov>.

EIA 2015. U.S. Energy Information Administration, Annual Energy Outlook 2015 with projections to 2040; DOE/EIA 0383 (2015); April 2015. Available online at: [http://www.eia.gov/forecasts/aeo/pdf/0383\(2015\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf)

PADCNR 2015. Pennsylvania Department of Conservation and Natural Resources, Appendix G – Wetlands Update; Pennsylvania Waterways and Wetlands Update Pennsylvania Outdoor Recreation Plan 2014-2019, April 2015; Available online at: [http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr\\_20030876.pdf](http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20030876.pdf)

PA PUC 2015. Pennsylvania Public Utility Commission. Pennsylvania 2014 Gas Outlook Report. June 2015. Available online at: [http://www.puc.state.pa.us/NaturalGas/pdf/Gas\\_Outlook\\_Report-2014.pdf](http://www.puc.state.pa.us/NaturalGas/pdf/Gas_Outlook_Report-2014.pdf)

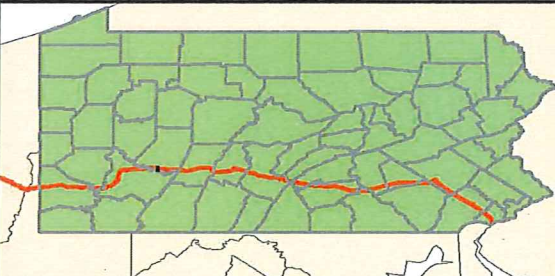
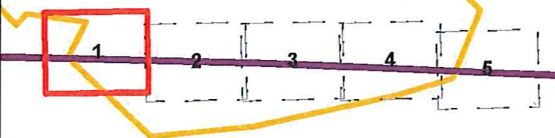
Tiner, Ralph W., Wetlands of the Northeast, Results of the National Wetlands Inventory, U.S. Fish and Wildlife Service, Northeast Region, Hadley, MA, 2010; Available online at: [http://www.fws.gov/northeast/ecologicalservices/pdf/Northeast\\_Wetlands\\_Final\\_Report.pdf](http://www.fws.gov/northeast/ecologicalservices/pdf/Northeast_Wetlands_Final_Report.pdf)

# Overhead Images

# PA State Game Land 276

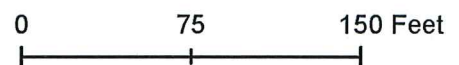
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SGL 276



-  SGL Entry/Exit
-  PA State Game Land 46
-  HDD
-  Proposed Pipelines
-  Permanent Easement at HDD
-  Permanent Easement
-  20 Foot Spoil Space
-  Proposed Block Valve
-  Temporary Workspace
-  ROW - Clearing Only
-  ROW - Travel Only
-  Permanent Access Road
-  Temporary Access Road
-  Stream
-  County
-  PuB Wetland
-  PEM Wetland
-  PFO Wetland
-  PSS Wetland
-  Confirmed Timber Rattlesnake Den

### Route Through PA State Game Land 276



Sheet 1 of 5      Scale 1:1000

Prepared By:	Date:
	1/2016

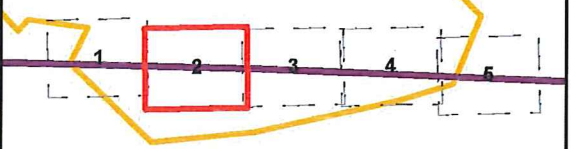

Base Map;  
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 Coordinate System NAD 83  
 Stateplane, PA South, Feet























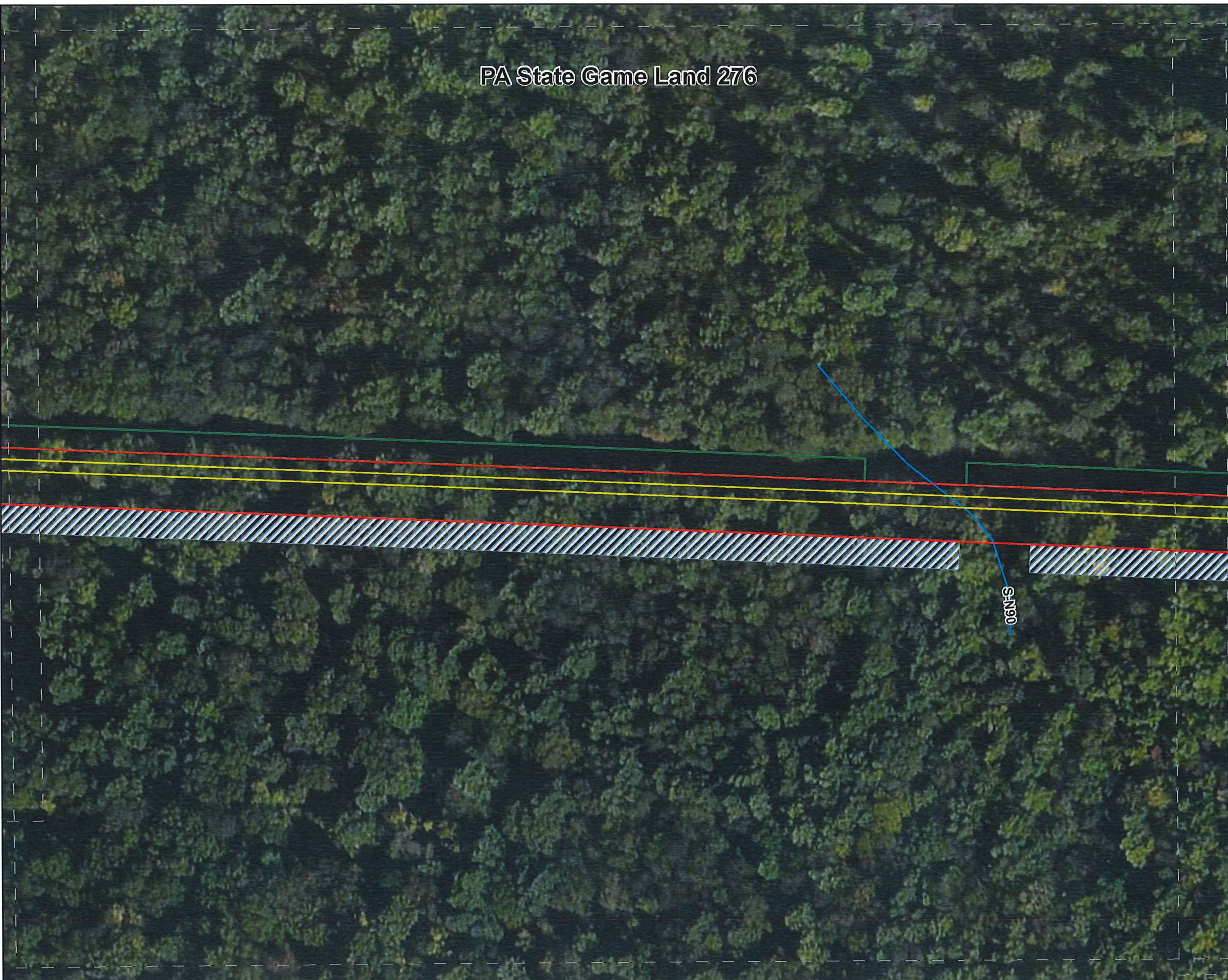
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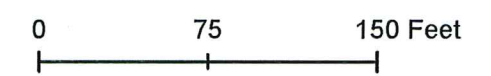
SGL 276

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-  Confirmed Timber Rattlesnake Den




## Route Through PA State Game Land 276



Sheet 2 of 5      Scale 1:1000

Prepared By:  TETRA TECH      Date: 1/2016

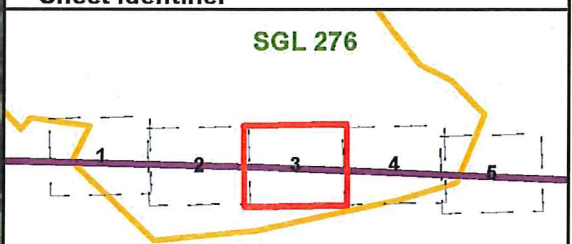

Base Map; ESRI World Imagery, October 2011  
 Coordinate System NAD 83  
 Stateplane, PA South, Feet























# PA State Game Land 276

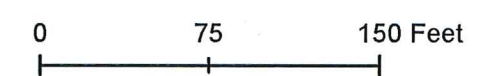
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## Route Through PA State Game Land 276



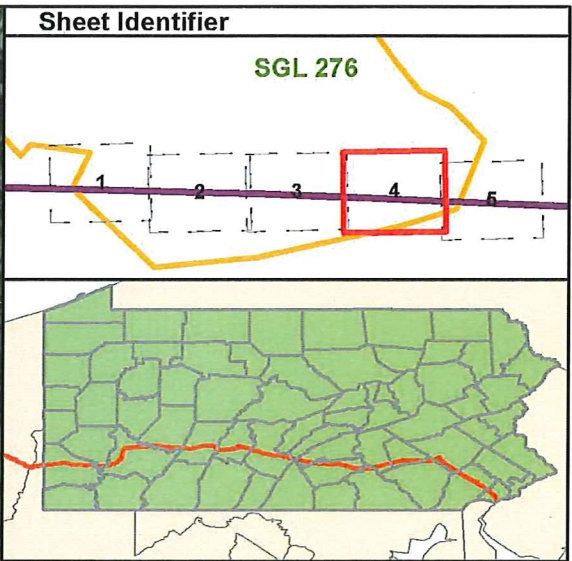
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Prepared By:  TETRA TECH      Date: 1/2016

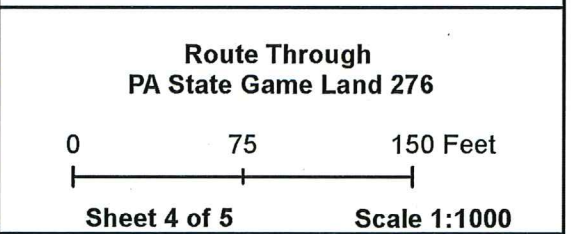
Base Map; ESRI World Imagery, October 2011  
 Coordinate System NAD 83  
 Stateplane, PA South, Feet



# PA State Game Land 276



- SGL Entry/Exit
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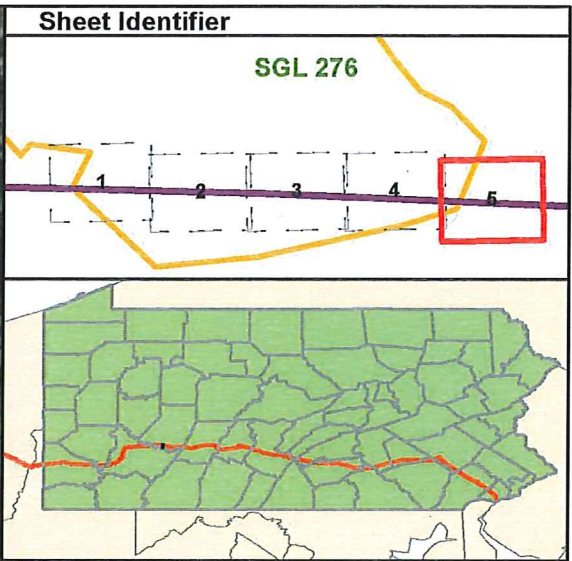


Prepared By: TETRA TECH Date: 1/2016

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 Stateplane, PA South, Feet

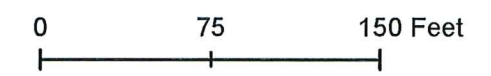


# PA State Game Land 276



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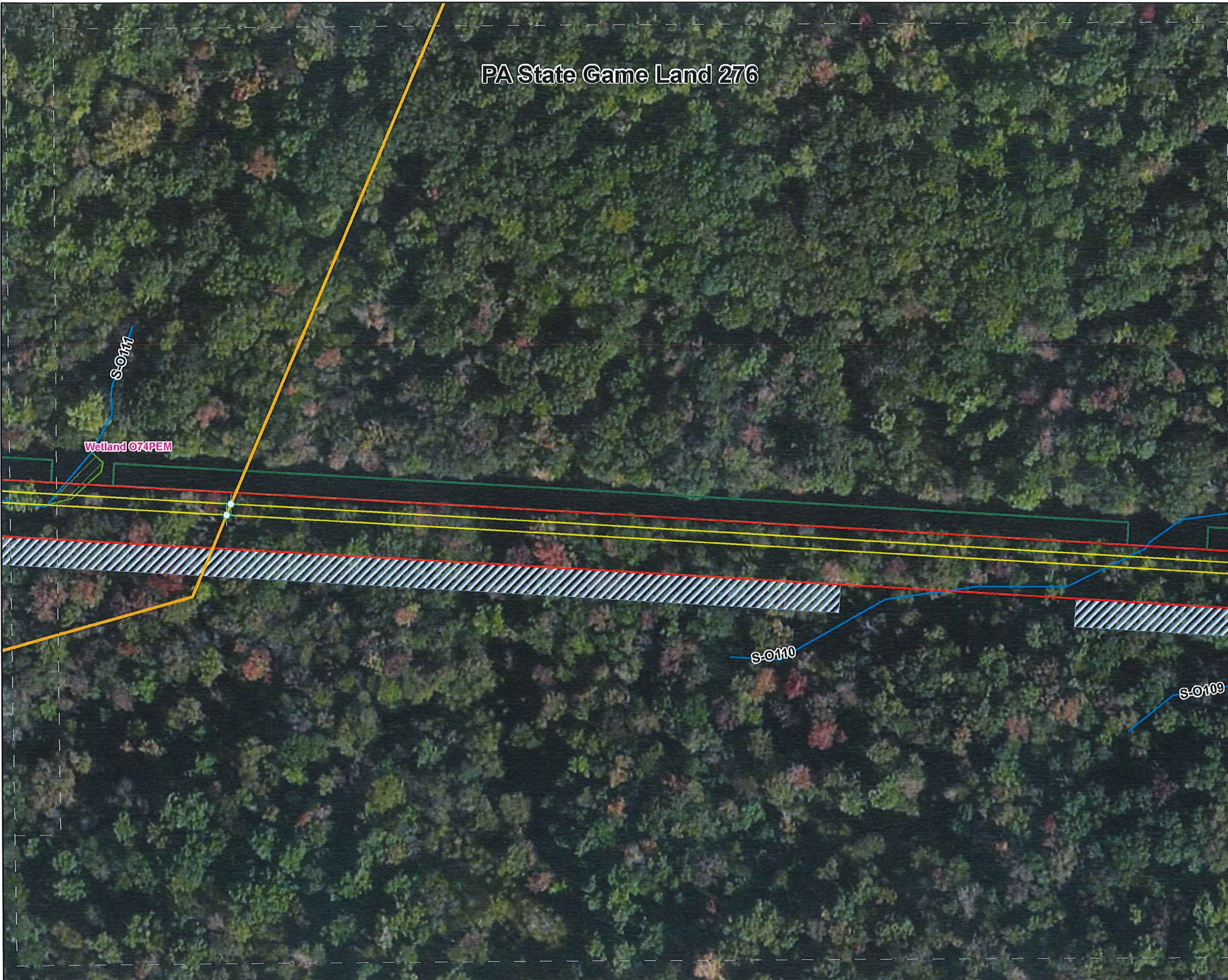
## Route Through PA State Game Land 276



Sheet 5 of 5      Scale 1:1000

Prepared By: TETRA TECH      Date: 1/2016




Base Map; ESRI World Imagery, October 2011  
 Coordinate System NAD 83  
 Stateplane, PA South, Feet



# Technical Drawings

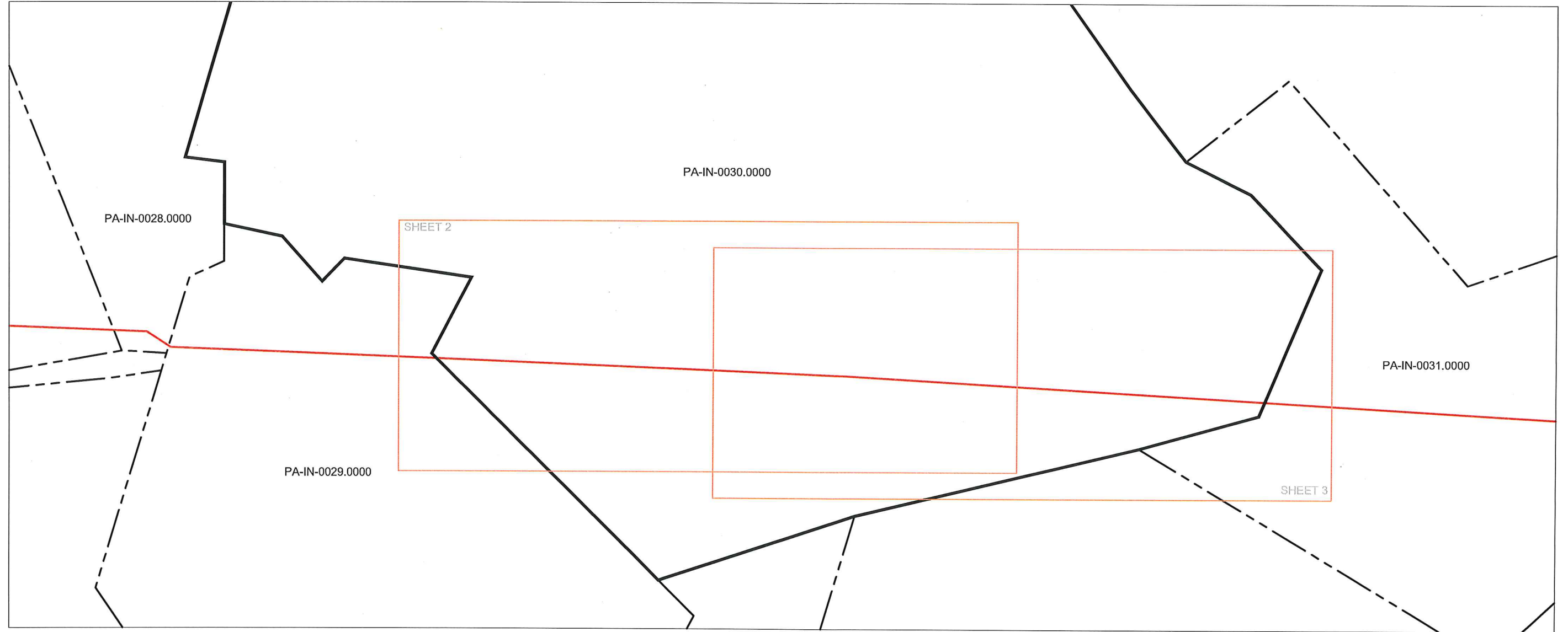
**EXHIBIT B**  
**BURRELL TOWNSHIP**  
**INDIANA COUNTY**  
**PENNSYLVANIA**

LEGEND

- R.O.D.I.C.P.A. INDIANA COUNTY RECORDER OF DEEDS, PA.
- P.O.B. POINT OF BEGINNING
- P.O.T. POINT OF TERMINATION
- ( ) RECORD BEARING AND DISTANCE
- PROPERTY CORNER FOUND
- PROPERTY CORNER NOT FOUND
- △ PROPOSED PIPELINE/DEED LINE INTERSECTION
- PROPOSED PIPELINE VERTICE
-  PROPOSED PERMANENT EASEMENT
-  PROPOSED TEMPORARY WORK SPACE
-  PROPOSED ADDITIONAL TEMPORARY WORK SPACE



Scale: 1" = 500'



- NOTES:**
1. THE PURPOSE OF THIS PLAN IS TO SHOW THE LIMITS OF THE PROPOSED PERMANENT AND TEMPORARY EASEMENTS CROSSING THE SUBJECT PROPERTY. THE PROPERTY LINES SHOWN HEREON, WERE COMPILED FROM THE BEST AVAILABLE RECORD INFORMATION AND GEO-REFERENCED TO APPARENT BOUNDARY EVIDENCE AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
  2. THE INFORMATION SHOWN HEREON IS AN ILLUSTRATION OF THE APPARENT PROPERTY LINES IN RELATION TO THE PROPOSED EASEMENTS. IT SHOULD NOT BE USED AS A PROPERTY BOUNDARY SURVEY.
  3. BEARINGS SHOWN HEREON ARE GRID BEARINGS BASED ON THE PROJECT COORDINATE SYSTEM OF NAD 83, PENNSYLVANIA STATE PLANE, SOUTH ZONE, U.S. SURVEY FEET. DISTANCES SHOWN HEREON ARE GRID DISTANCES AND A SCALE FACTOR MUST BE APPLIED TO CONVERT TO GROUND DISTANCES.
  4. CORNER TIES WITH "±" REFERENCE, ARE APPROXIMATE SCALED DISTANCES.
  5. EXISTING PIPELINE INFORMATION HAS BEEN PROVIDED BY ROONEY ENGINEERING.

TOTAL DISTANCE ACROSS PROPERTY: 4,085.29 FT  
 PROPOSED PERMANENT EASEMENT: 4.69 ACRES  
 TEMPORARY WORK SPACE: 2.31 ACRES  
 ADDITIONAL TEMPORARY WORK SPACE: 0.00 ACRES

REV NO.:  
4




SURVEYED BY:  <b>TRICO Surveying &amp; Mapping, Inc.</b> <small>441 West Geafly Pk. Indianapolis, IN 47504                  Phone: 812-338-7033 Fax: 812-338-7035 Web: www.tricosurveying.com</small>	 <b>Sunoco Pipeline L.P.</b> SUNOCO LOGISTICS PARTNERS, L.P. 535 FRITZTOWN RD SINKING SPRINGS, PA 19608
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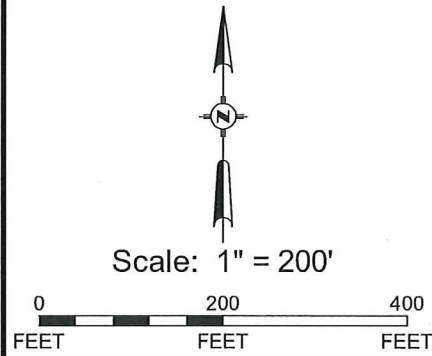
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DRAWN BY: JAK	DRAWN DATE: 9/09/15	CHECKED BY: JMP	PLOT DATE: 1/26/16
TRACT NO. PA-IN-0030.0000		PAGE 1 OF 3	

# EXHIBIT B

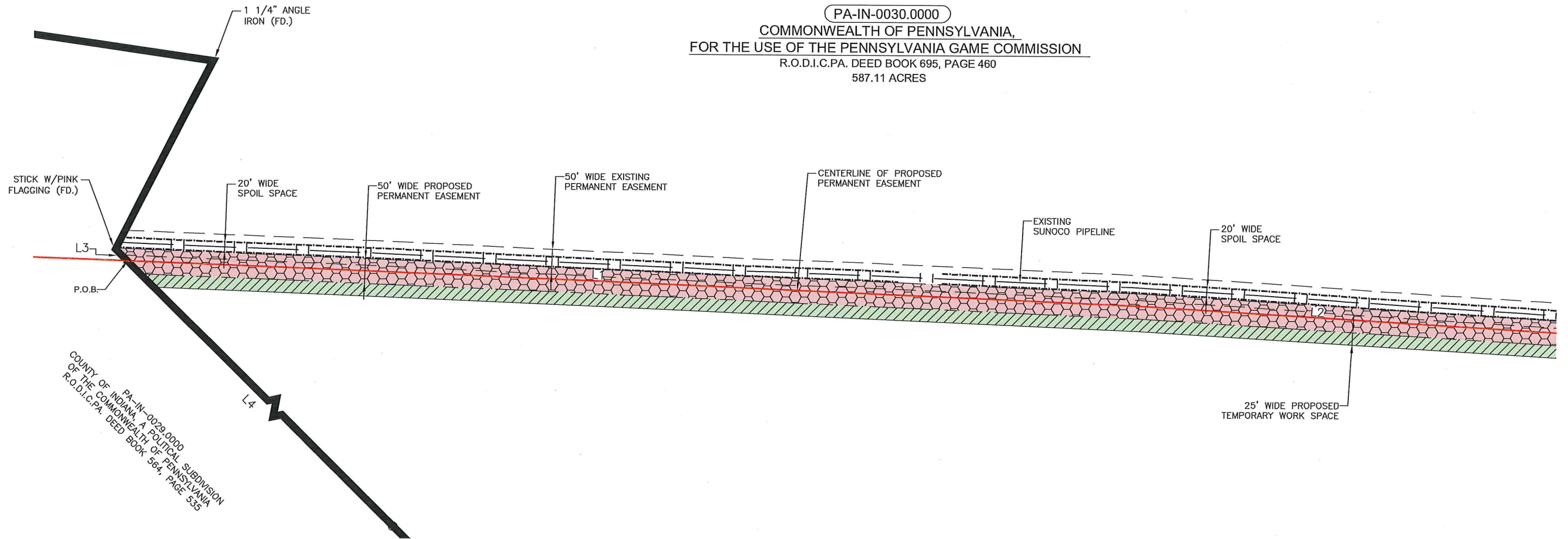
## BURRELL TOWNSHIP INDIANA COUNTY PENNSYLVANIA

### LEGEND


- R.O.D.I.C.PA. INDIANA COUNTY RECORDER OF DEEDS, PA.
- P.O.B. POINT OF BEGINNING
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- ( ) RECORD BEARING AND DISTANCE
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-  PROPOSED PERMANENT EASEMENT
-  PROPOSED TEMPORARY WORK SPACE
-  PROPOSED ADDITIONAL TEMPORARY WORK SPACE



PA-IN-0030.0000  
COMMONWEALTH OF PENNSYLVANIA,  
FOR THE USE OF THE PENNSYLVANIA GAME COMMISSION  
R.O.D.I.C.PA. DEED BOOK 695, PAGE 460  
587.11 ACRES



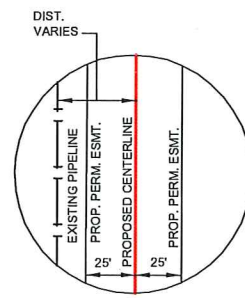
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L4	S45°10'06"E	1795.88'
L5	S22°52'57"W	73.26'
L6	N22°52'57"E	713.05'

SURVEYED BY:  
 TRICO Surveying & Mapping, Inc.  
441 West Greasy Pike, Huntington, IN 47504  
Phone: 812-335-7000 Fax: 812-335-7005 Web: www.tricosurveying.com

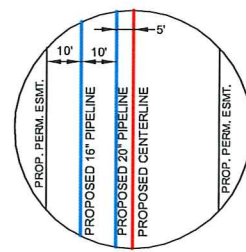
 Sunoco Pipeline L.P.  
SUNOCO LOGISTICS PARTNERS, L.P.  
535 FRITZTOWN RD  
SINKING SPRINGS, PA 19608

**PERMANENT EASEMENT & RIGHT OF WAY  
CROSSING PROPERTY OF  
COMMONWEALTH OF PENNSYLVANIA,  
FOR THE USE OF THE PENNSYLVANIA GAME COMMISSION  
STATE GAME LANDS 276**

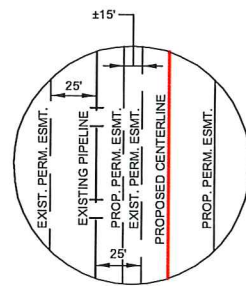
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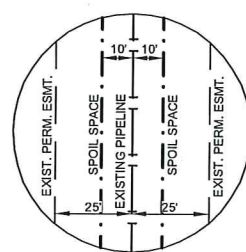
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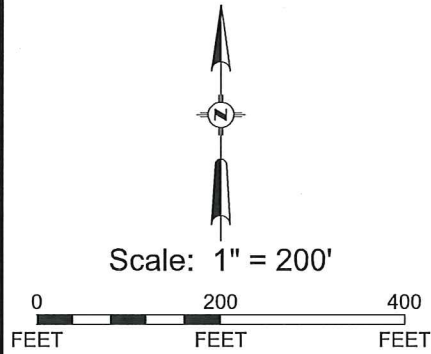
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TRACT NO. PA-IN-0030.0000		PAGE 2 OF 3		

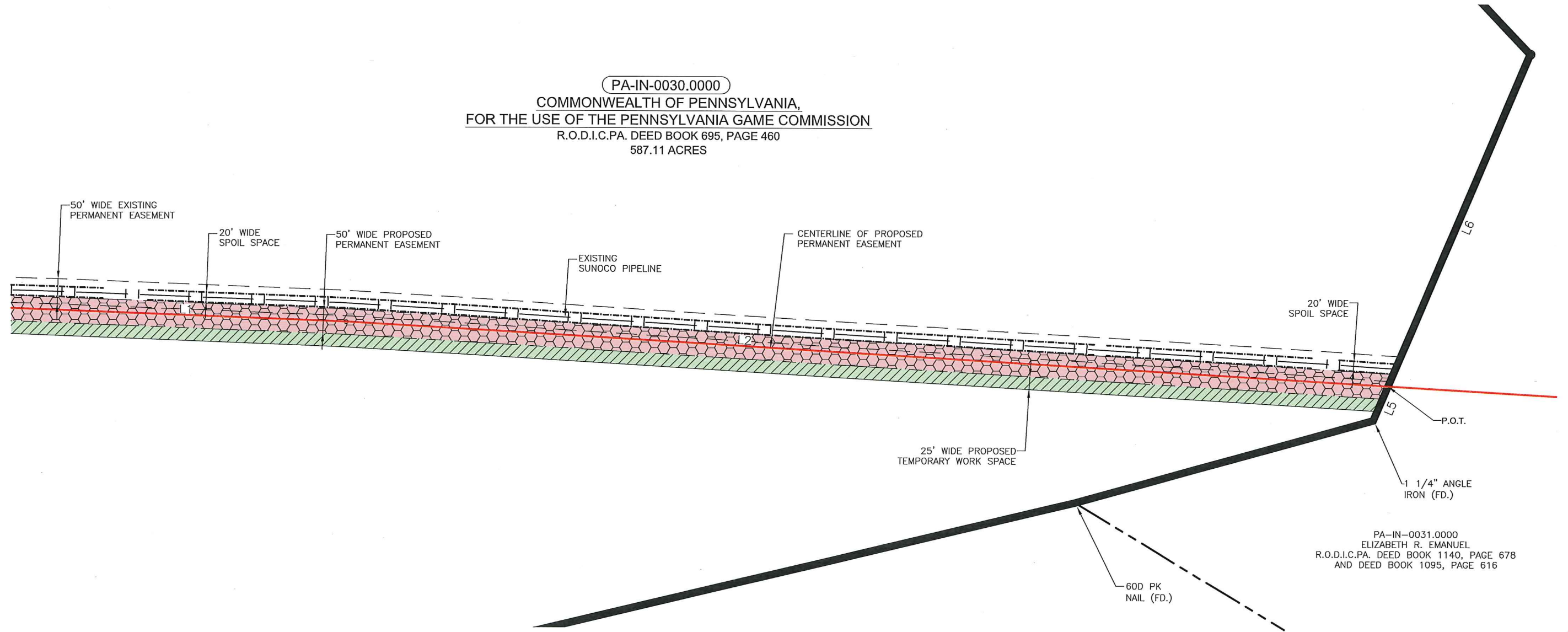
# EXHIBIT B

## BURRELL TOWNSHIP INDIANA COUNTY PENNSYLVANIA

LEGEND	
R.O.D.I.C.P.A.	INDIANA COUNTY RECORDER OF DEEDS, PA.
P.O.B.	POINT OF BEGINNING
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○	PROPOSED PIPELINE VERTICE
	PROPOSED PERMANENT EASEMENT
	PROPOSED TEMPORARY WORK SPACE
	PROPOSED ADDITIONAL TEMPORARY WORK SPACE



PA-IN-0030.0000  
COMMONWEALTH OF PENNSYLVANIA,  
FOR THE USE OF THE PENNSYLVANIA GAME COMMISSION  
R.O.D.I.C.P.A. DEED BOOK 695, PAGE 460  
587.11 ACRES



PA-IN-0031.0000  
ELIZABETH R. EMANUEL  
R.O.D.I.C.P.A. DEED BOOK 1140, PAGE 678  
AND DEED BOOK 1095, PAGE 616

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L5	S22°52'57"W	73.26'
L6	N22°52'57"E	713.05'

<p><b>SURVEYED BY:</b></p> <p>TRICO Surveying &amp; Mapping, Inc. 441 West Gouley Pike, Pottsville, Pa 17404 Phone: 610-336-7030 Fax: 610-336-7033 Web: www.tricosurveying.com</p>	<p><b>Sunoco Pipeline L.P.</b></p> <p>SUNOCO LOGISTICS PARTNERS, L.P. 535 FRITZTOWN RD SINKING SPRINGS, PA 19608</p>
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**PERMANENT EASEMENT & RIGHT OF WAY  
CROSSING PROPERTY OF  
COMMONWEALTH OF PENNSYLVANIA,  
FOR THE USE OF THE PENNSYLVANIA GAME COMMISSION  
STATE GAME LANDS 276**

REV NO: 4	DRAWN BY: JAK	DRAWN DATE: 9/09/15	CHECKED BY: JMP	PLOT DATE: 1/26/16
TRACT NO. PA-IN-0030.0000				

- NOTES:**
- THE PURPOSE OF THIS PLAN IS TO SHOW THE LIMITS OF THE PROPOSED PERMANENT AND TEMPORARY EASEMENTS CROSSING THE SUBJECT PROPERTY. THE PROPERTY LINES SHOWN HEREON, WERE COMPILED FROM THE BEST AVAILABLE RECORD INFORMATION AND GEO-REFERENCED TO APPARENT BOUNDARY EVIDENCE AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
  - THE INFORMATION SHOWN HEREON IS AN ILLUSTRATION OF THE APPARENT PROPERTY LINES IN RELATION TO THE PROPOSED EASEMENTS. IT SHOULD NOT BE USED AS A PROPERTY BOUNDARY SURVEY.
  - BEARINGS SHOWN HEREON ARE GRID BEARINGS BASED ON THE PROJECT COORDINATE SYSTEM OF NAD 83, PENNSYLVANIA STATE PLANE, SOUTH ZONE, U.S. SURVEY FEET. DISTANCES SHOWN HEREON ARE GRID DISTANCES AND A SCALE FACTOR MUST BE APPLIED TO CONVERT TO GROUND DISTANCES.
  - CORNER TIES WITH "2" REFERENCE, ARE APPROXIMATE SCALED DISTANCES.
  - EXISTING PIPELINE INFORMATION HAS BEEN PROVIDED BY ROONEY ENGINEERING.

