



**Sunoco Logistics**



# Sunoco Logistics Mariner East project

East Goshen Township Update – March 21, 2017

**SXL**  
LISTED  
NYSE

# Mariner East Timeline

- **PA DEP Chapters 102 & 105 permits received - February 2017**
- **ME2 construction commenced - mid-February 2017**
- **East Goshen construction timing - March/ April 2017**
- **ME2 20-inch pipe construction complete Q3 2017**
- **ME2 16-inch pipe sequential construction into 2018**



# Mariner East: Chester County Overview





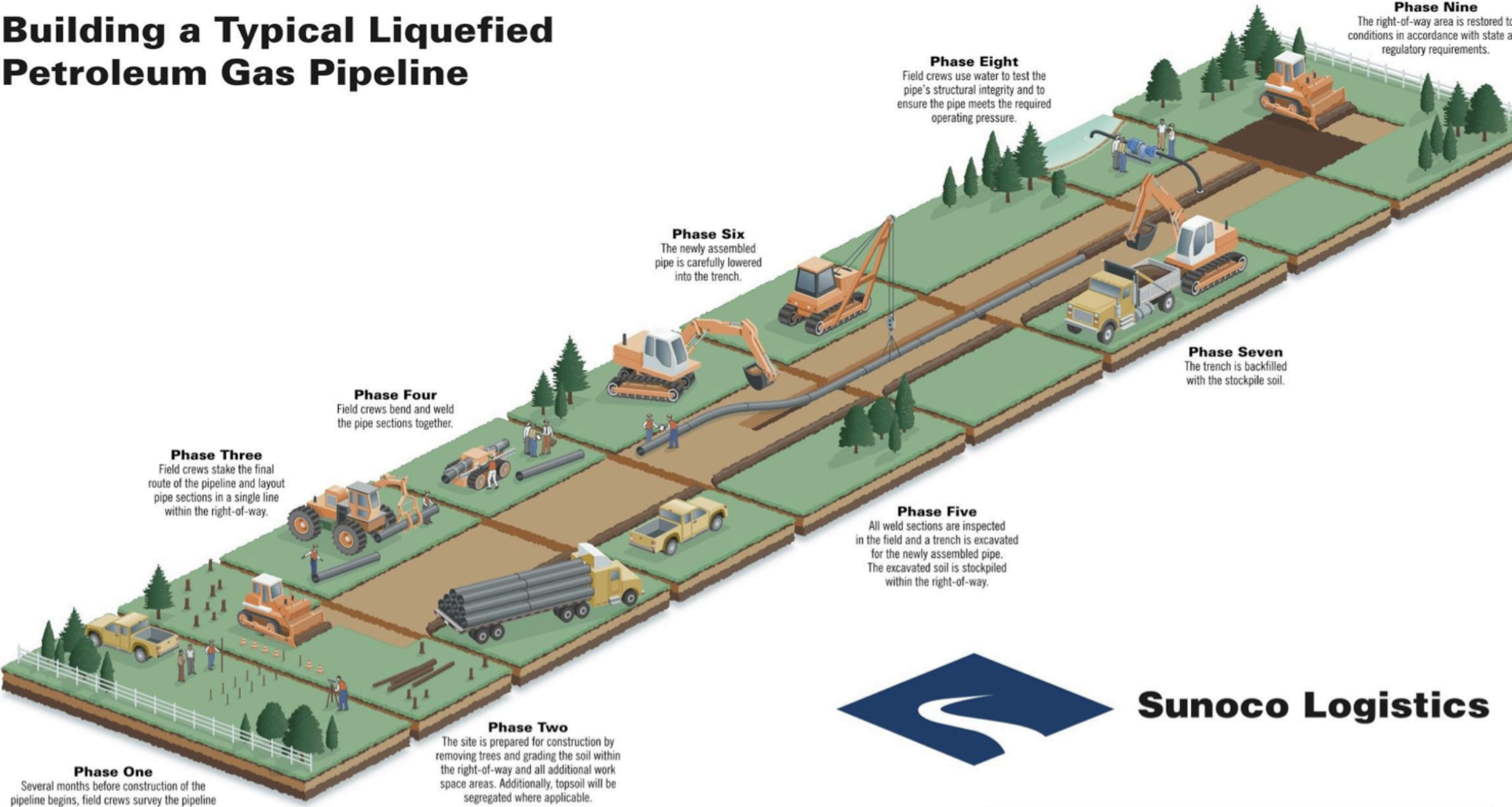
# Mariner East: East Goshen Overview





# Construction Method: Open Cut

## Building a Typical Liquefied Petroleum Gas Pipeline



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**NOTE:** These illustrations are conceptual and general in nature; specific construction and restoration techniques could vary depending on circumstances.

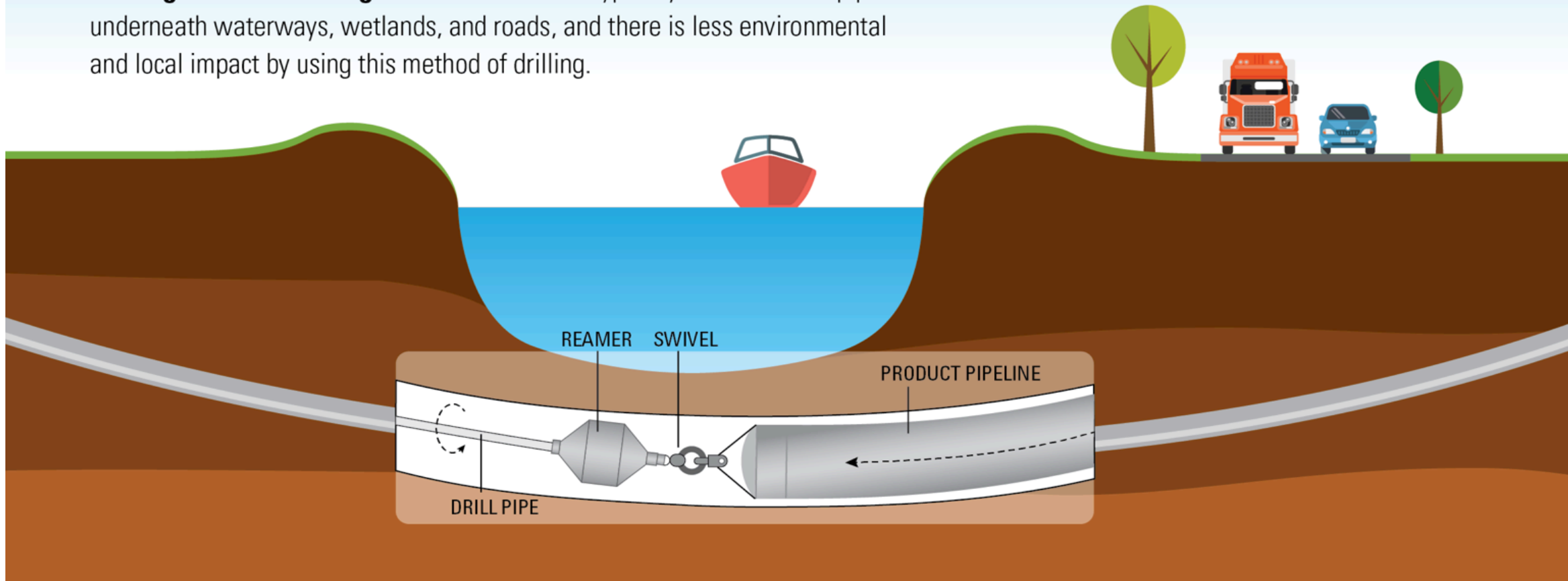
**Sunoco Logistics**

# Construction Method: Horizontal Directional Drill (HDD)

## Horizontal Directional Drilling

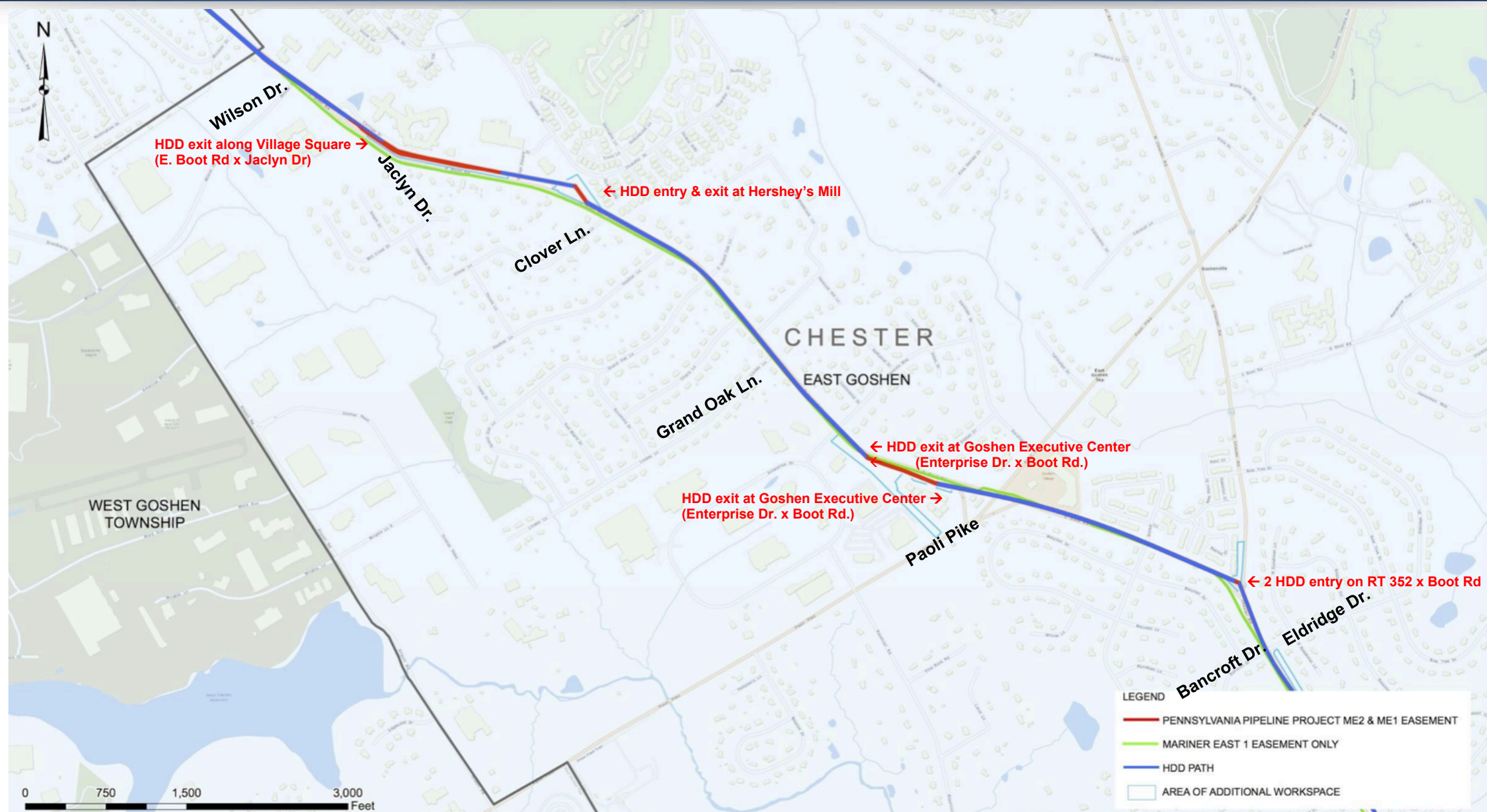


**Horizontal Directional Drilling (HDD) is used to install pipe underground over long distances.** HDD is typically used to install pipe underneath waterways, wetlands, and roads, and there is less environmental and local impact by using this method of drilling.

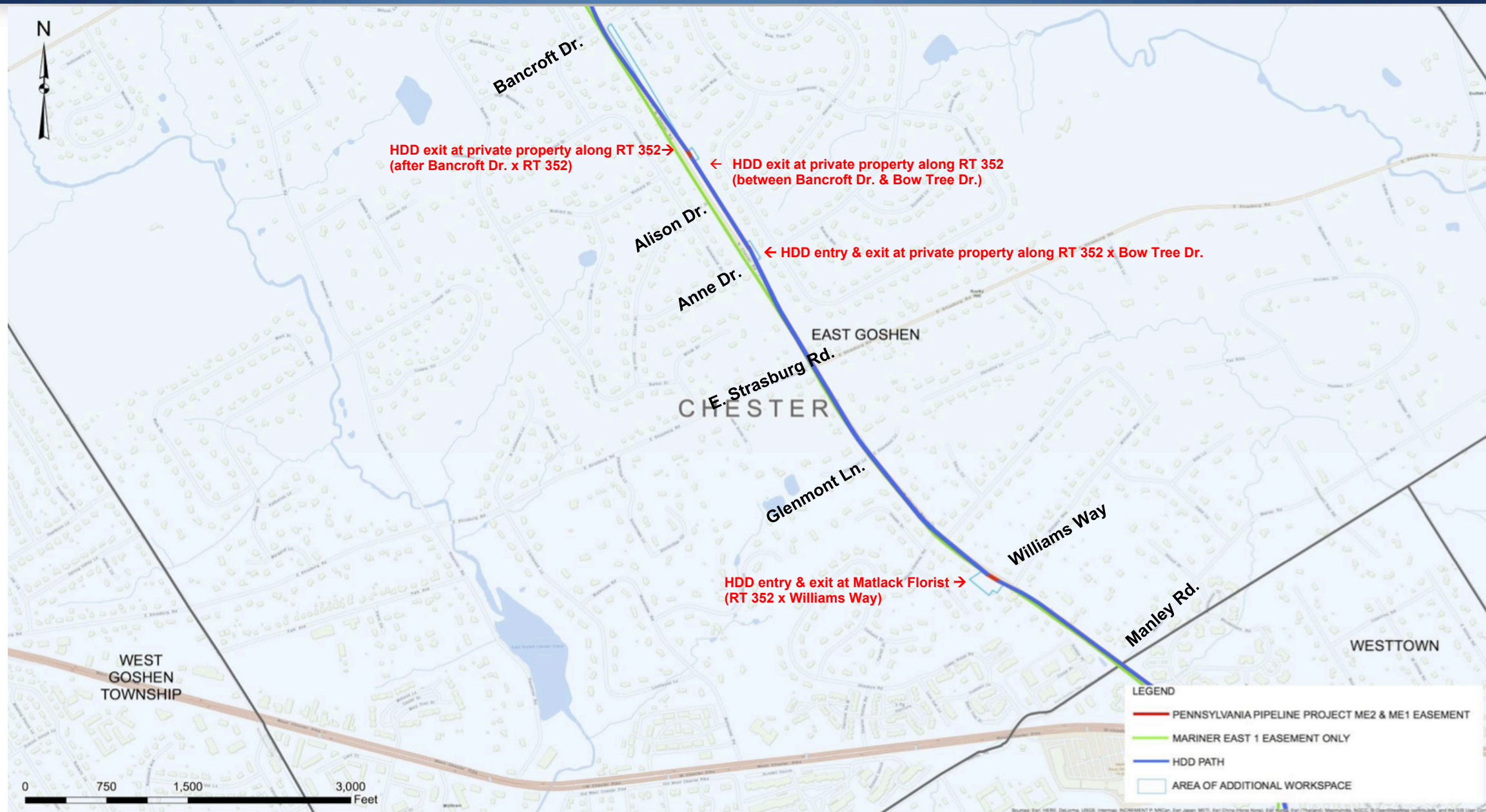




# Mariner East: East Goshen



# Mariner East: East Goshen





# Three Phases of Construction

- **Preparation**

- Surveying
- Tree clearing
- Grading /  
Leveling / Matting

- **Mobilization & Activation**

- Equipment preparation and set-up
- Construction
- Environmental inspection
- Pipeline installation

- **Restoration**

- Landscape renovation
- Road restoration
- Right of Way marker placement

# HDD - Drill Rig Sample



- Pipe loader transports with the rig
- Micro-processor, touch screen controls
- Variable cooling fan for superior noise reduction
- Cummins QSX15 T4 final engine *(or Tier 3 depending on country of purchase)*



**660,000 lbs. (300 Tonnes) Thrust//Pullback**



# Pipeline Pullback Area For HDD



# Protecting Ground Water Systems

## ■ PADEP Permit

- Contains Plans that detail how we protect both surface and groundwater during construction of Mariner East 2.
- Plans Include:
  - Water Supply Plan
  - Inadvertent Return Plan
  - Void Mitigation Plan
  - Prevention, Preparedness and Contingency Plan



# Protecting Ground Water Systems

- **Survey of Mariner 2 Corridor**

- Hydrogeologic Review completed by Professional Registered Geologist and Geologic Specialist.
- Comprehensive Hydrogeological Review and Aquifer Assessment Completed.
- Identification of geology (i.e., underlying formation) at each Horizontal Directional Drill (HDD) location.
  - Soil Types / Thickness
  - Bedrock Type / Thickness
  - Structural Features
  - Groundwater Depth / Yield
  - Topography
- Identification of Surface Water Features and Classification
  - Streams
  - Wetlands

- **Identification of Water Supplies**

- Private Water Supply Wells & Springs
- Public Water Supply Well Source Water Protection Areas

# Protecting Ground Water Systems

- **Preconstruction (Baseline) Potable Well Sampling & Well Yield Testing**

- Well Testing offered to property owners along corridor prior to start of construction to establish a baseline at Expense of Sunoco Logistics.
- Permission from Well Owner necessary to commence testing, and or desire for third party to complete testing.

- **Baseline Testing Includes:**

- Testing to determine the Well Yield or Specific Capacity (requires well head to be opened).
- Made available to Land Owners 150 feet from Centerline of Construction.
- Post Construction Sampling being made available to Land Owners after the completion of Construction.

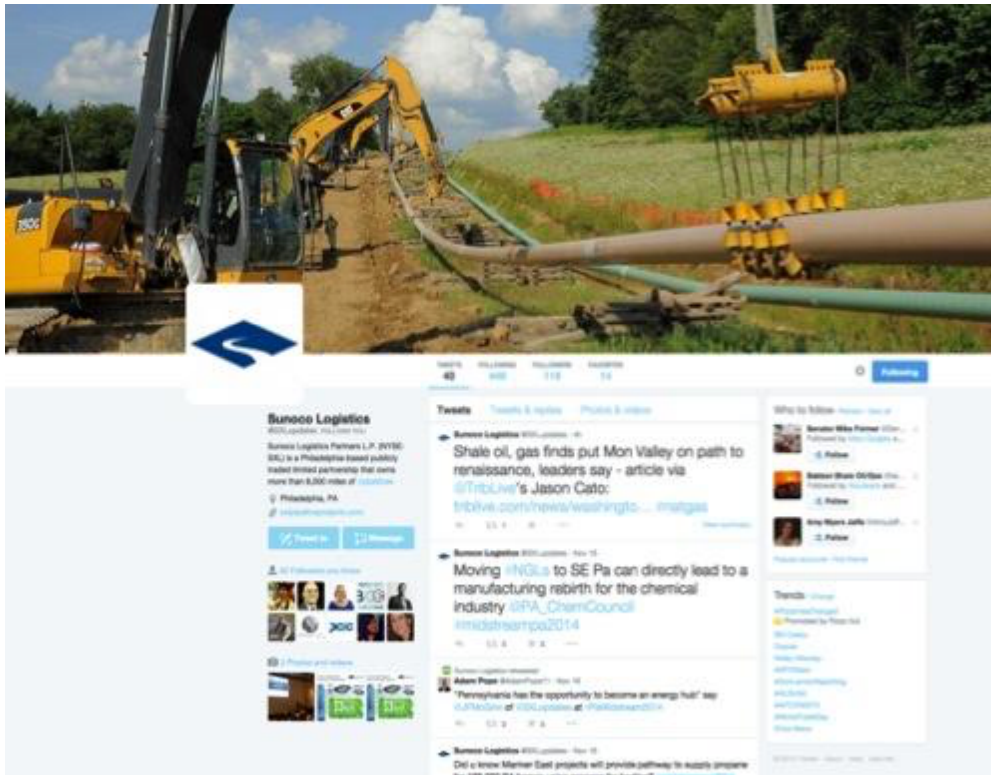
- **Parameters:**

- INORGANICS: pH ▪ Specific Conductance ▪ Turbidity ▪ Total Dissolved Solids (TDS) ▪ Total Suspended Solids (TSS) ▪ Hardness ▪ Anions: Bromide, Chloride, Sulfate ▪ Total Alkalinity
- TRACE METALS: Metals Analysis (Ba, Ca, Fe, K, Mg, Mn, Na)
- ORGANICS: BTEX ▪ Light Gas Analysis [Methane, Ethane, Propane]



# For More Information

**SXL Hotline: 1855-430-4491**  
**[www.sxlpipelineprojects.com](http://www.sxlpipelineprojects.com)**



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