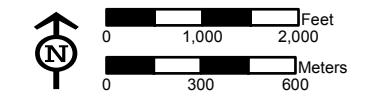
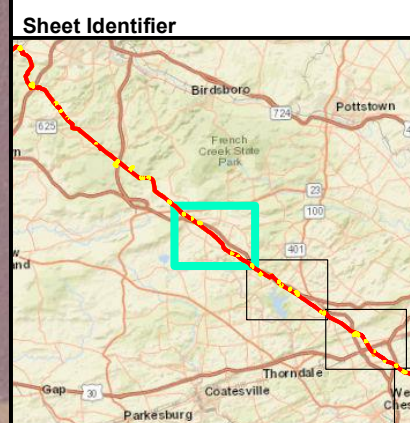


Start of Line  
PADEP Southeast Region  
Lat: 40° 9' 21.272" N  
Lon: 75° 50' 34.717" W

- ### Legend
- Access Road
  - Alignment Centerline
  - Limit of Disturbance
  - Block Valve/Station
  - Antietam and Harpers Formations undivided (Cah)
  - Chickies Formation (Cch)
  - Ledger Formation (Cl)
  - Vintage Formation (Cv)
  - Zooks Corner Formation (Czc)
  - Diabase (Jd)
  - Stockton Formation (Trs)
  - Ultramafic rocks (Xu)
  - Anorthosite (a)
  - Franklin Marble (fm)
  - Graphitic felsic gneiss (gg)
  - Banded mafic gneiss (gga)
  - Felsic and intermediate gneiss (ggd)
  - Graphitic felsic gneiss (gqm)



**GEOLOGIC UNIT MAP  
ATTACHMENT 5-1  
PENNSYLVANIA PIPELINE PROJECT  
NOVEMBER 12, 2016 ALIGNMENT  
SUNOCO LOGISTICS, L.P.  
CHESTER COUNTY,  
PENNSYLVANIA**



**Notes:**  
Aerial photograph provided by ESRI's  
ArcGIS Online World Imagery map service  
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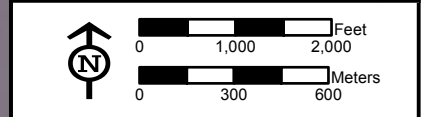
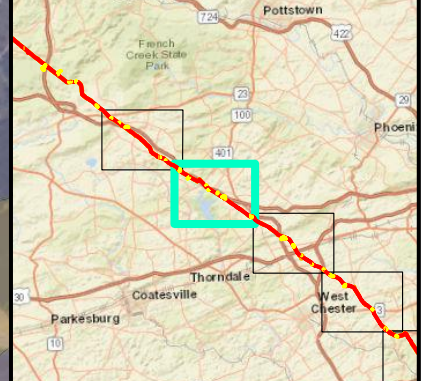
FGH P:\GIS\SUNOCO\MARINER EAST 2\MXD\PPP-ESG\PPP\PIPELINE\_SOUTHEAST\_GEOLOGY\_ESG\PPP\MXD\112116\_JN



**Legend**

- Access Road
- Alignment Centerline
- Limit of Disturbance
- Block Valve/Station
- Chickies Formation (Cch)
- Ultramafic rocks (Xu)
- Anorthosite (a)
- Franklin Marble (fm)
- Graphitic felsic gneiss (gg)
- Banded mafic gneiss (gga)
- Felsic and intermediate gneiss (ggd)
- Graphitic felsic gneiss (gqm)
- Metadiabase (md)

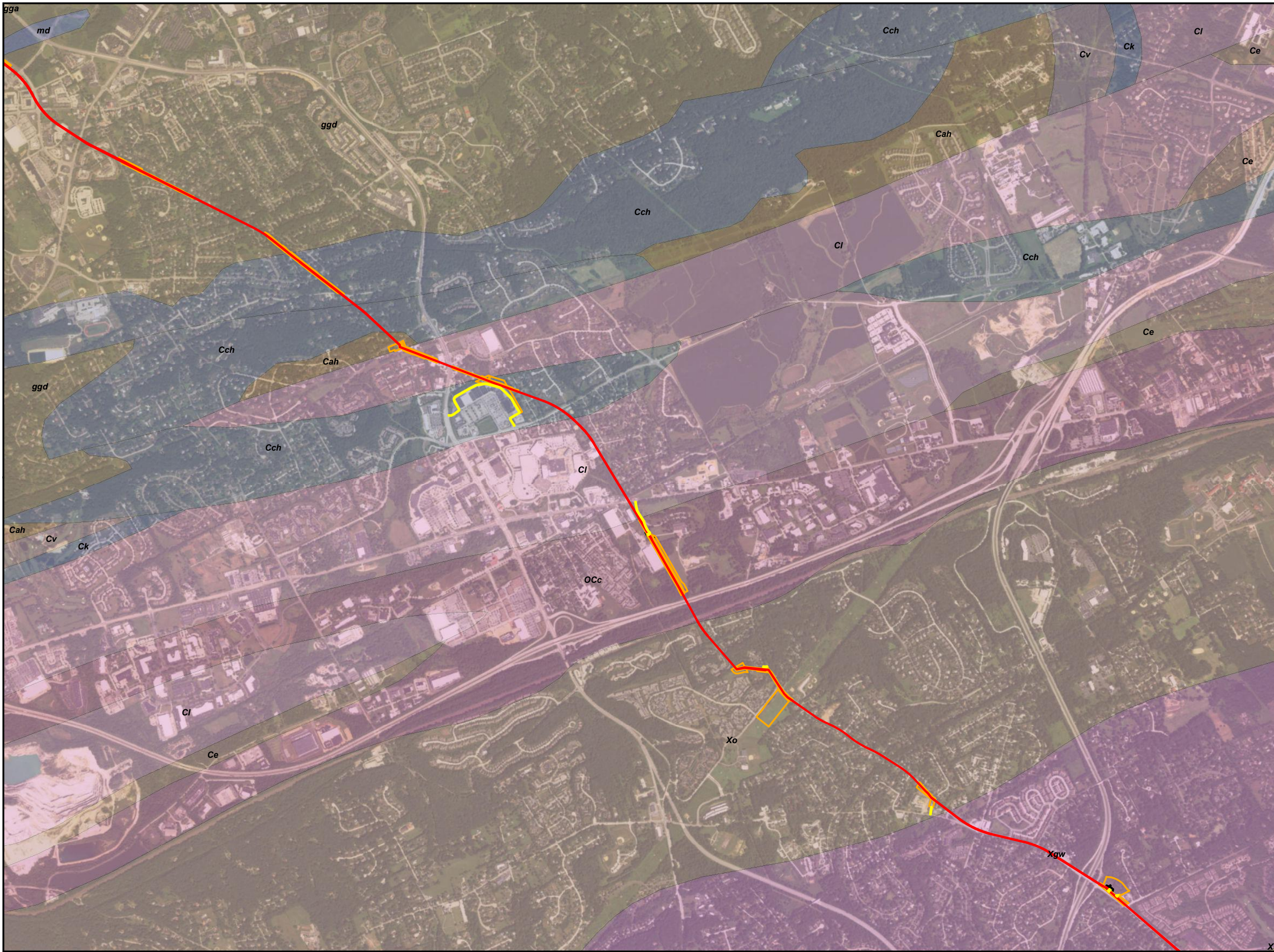
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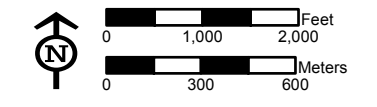
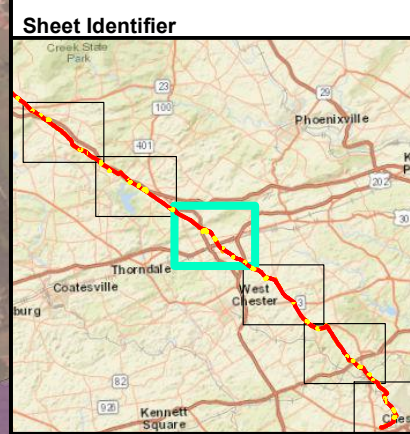
**GEOLOGIC UNIT MAP**  
**ATTACHMENT 5-2**  
**PENNSYLVANIA PIPELINE PROJECT**  
**NOVEMBER 12, 2016 ALIGNMENT**  
**SUNOCO LOGISTICS, L.P.**  
**CHESTER COUNTY,**  
**PENNSYLVANIA**



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- ### Legend
- Access Road
  - Alignment Centerline
  - Limit of Disturbance
  - Block Valve/Station
  - Antietam and Harpers Formations undivided (Cah)
  - Chickies Formation (Cch)
  - Elbrook Formation (Ce)
  - Kinzers Formation (Ck)
  - Ledger Formation (Cl)
  - Vintage Formation (Cv)
  - Conestoga Formation (OCC)
  - Glenarm Wissahickon Formation (Xgw)
  - Octoraro Formation (Xo)
  - Ultramafic rocks (Xu)
  - Banded mafic gneiss (gga)
  - Felsic and intermediate gneiss (ggd)
  - Metadiabase (md)

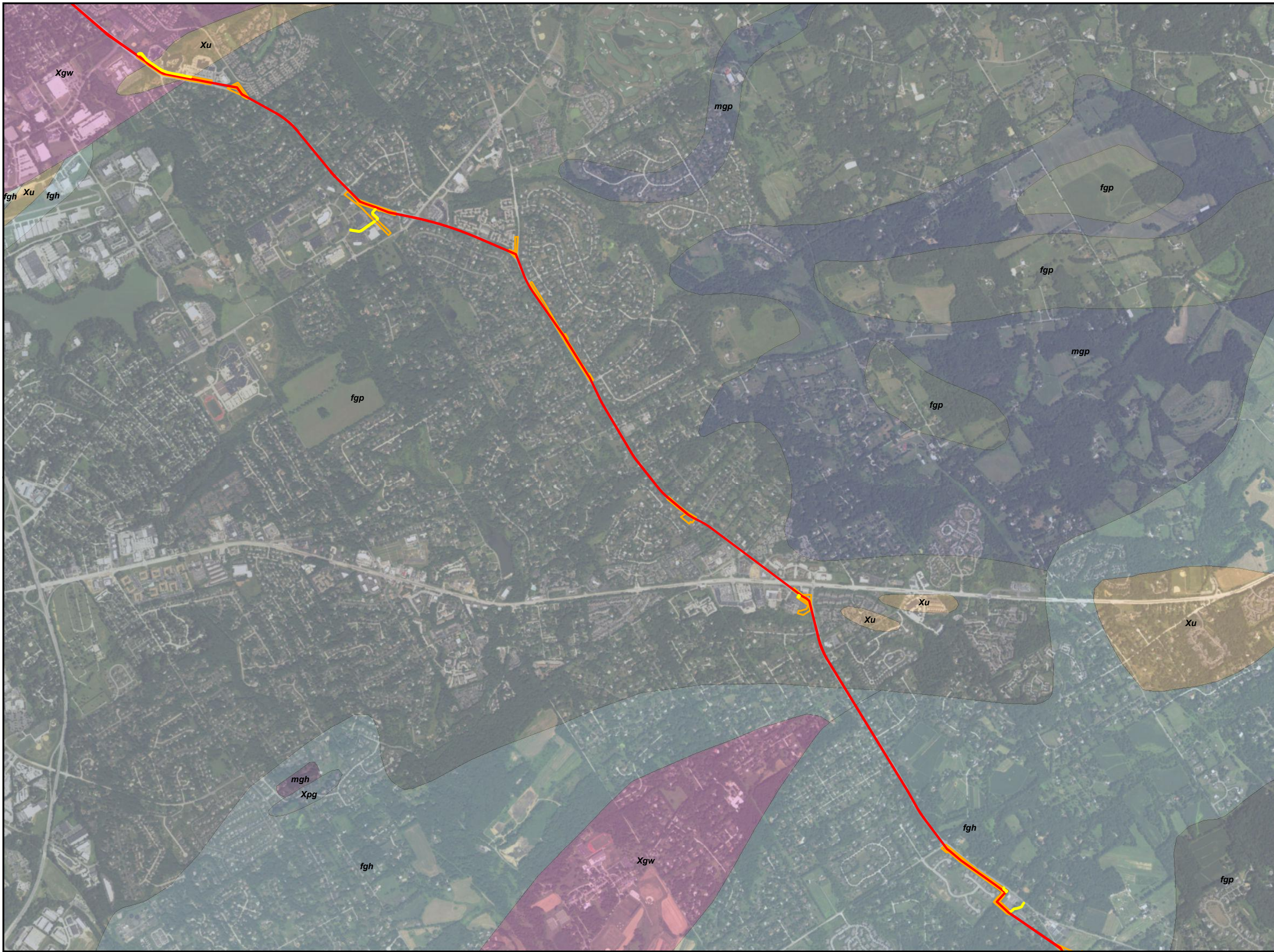


**GEOLOGIC UNIT MAP**  
**ATTACHMENT 5-3**  
**PENNSYLVANIA PIPELINE PROJECT**  
**NOVEMBER 12, 2016 ALIGNMENT**  
**SUNOCO LOGISTICS, L.P.**  
**CHESTER COUNTY,**  
**PENNSYLVANIA**

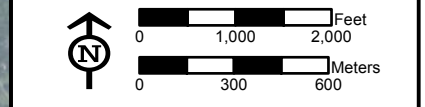
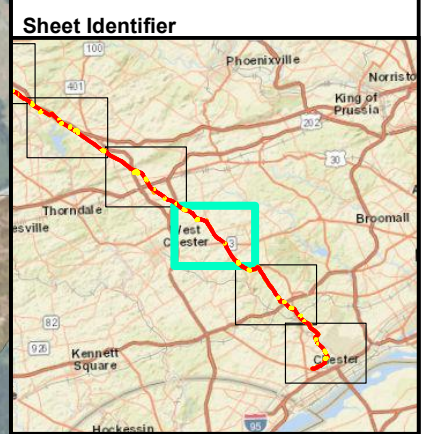


Notes:  
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- Legend**
- Access Road
  - Alignment Centerline
  - Limit of Disturbance
  - Block Valve/Station
  - Glenarm Wissahickon Formation (Xgw)
  - Pegmatite (Xpg)
  - Ultramafic rocks (Xu)
  - Felsic and intermediate gneiss (fgh)
  - Felsic gneiss (fgp)
  - Mafic gneiss (mgh)
  - Mafic gneiss (mgp)



**GEOLOGIC UNIT MAP**  
**ATTACHMENT 5-4**  
**PENNSYLVANIA PIPELINE PROJECT**  
**NOVEMBER 12, 2016 ALIGNMENT**  
**SUNOCO LOGISTICS, L.P.**  
**CHESTER, DELAWARE COUNTY,**  
**PENNSYLVANIA**



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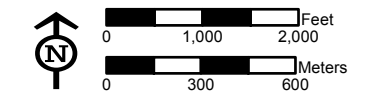
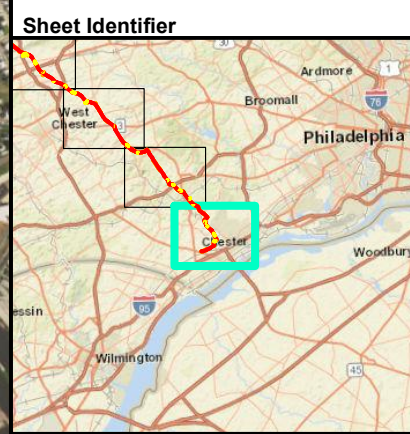
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- ### Legend
- Access Road
  - Alignment Centerline
  - Limit of Disturbance
  - Block Valve/Station
  - Pensauken and Bridgeton Formations undifferentiated (Tpb)
  - Anorthosite (Xa)
  - Granitic gneiss and granite (Xgr)
  - Glenarm Wissahickon Formation (Xgw)
  - Mafic gneiss (Xmgh)
  - Mafic gneiss (Xmgp)
  - Ultramafic rocks (Xu)
  - Wissahickon Formation (Xw)
  - Felsic and intermediate gneiss (fgh)

End of Line  
PADEP Southeast Region  
Lat: 39° 50' 40.042" N  
Lon: 75° 25' 3.896" W



**GEOLOGIC UNIT MAP  
ATTACHMENT 5-6  
PENNSYLVANIA PIPELINE PROJECT  
NOVEMBER 12, 2016 ALIGNMENT  
SUNOCO LOGISTICS, L.P.  
DELAWARE COUNTY,  
PENNSYLVANIA**



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