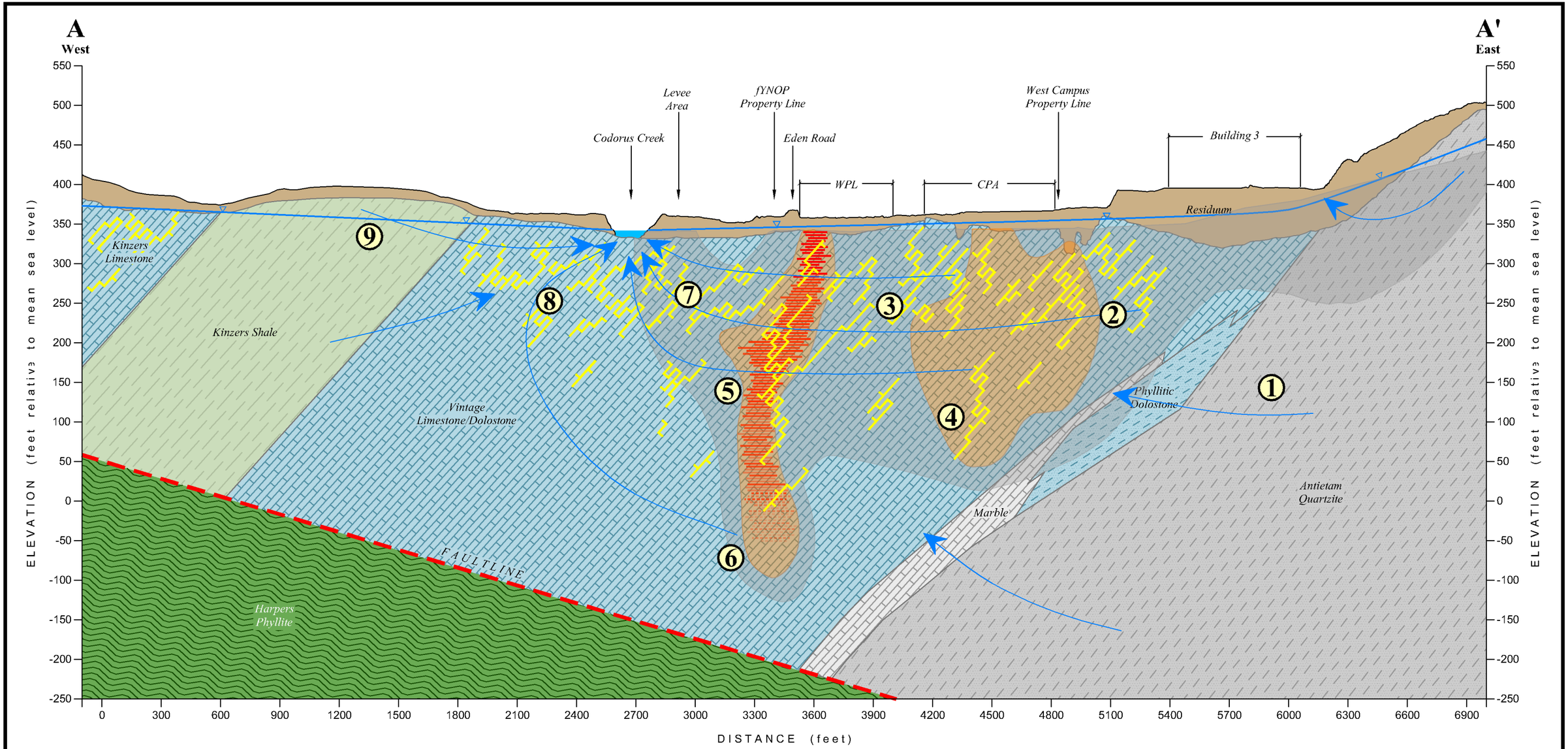

NOTES

1. Groundwater migrates from east to west, from high topographic areas underlain by quartzite sandstone to the carbonate aquifer that underlies the western half of the site.
2. Groundwater flows within the carbonate aquifer through a network of solution channels and fractures. Flow direction is widely variable, but the net direction is westward.
3. The frequency of solution cavities in the carbonate aquifer above 170' - 200' bgs is 15% - 19%. Below this depth, the frequency is 2%, and the hydraulic conductivity is reduced.
4. Deep conduits (> 200' bgs) are connected to the shallow conduit system.
5. DNAPL is suspected to have penetrated downward through the karstified portion of the aquifer and into the underlying fractured portion of the aquifer against an upward vertical piezometric head. DNAPL adsorbs onto and diffuses into the rock matrix and dissolves in groundwater. Natural processes degrade the TCE & PCE into cis12DCE.
6. At depth, anaerobic dechlorination has completely degraded TCE & PCE to cis12DCE.
7. Under natural flow conditions (without operation of the groundwater extraction system), all impacted groundwater flowing through the CPA & WPL discharges into Codorus Creek.
8. Due to discrete conduits, site-impacted groundwater can pass beneath (west of) the creek through solution channels before discharging to the creek.
9. Noncarbonate Kinzers Shale eliminates the potential for development of solution channels connecting the site to carbonate rocks further west, and is a barrier that forces the discharge of site-impacted groundwater to the creek.

LEGEND

- Solution Channels (Conceptualized)
- Water Table
- Generalized Net Direction of Groundwater Flow
- Residual DNAPL (Chlorinated Hydrocarbons)
- Dissolved Chlorinated Hydrocarbons Partitioning From DNAPL Sources
- Dissolved Chlorinated Hydrocarbons Migrating with Groundwater (Advection)

Approximate Horizontal Scale
0 500'

Approximate Vertical Scale
0 125'

Vertical Exaggeration 4x

Figure 4.0-2
(revised 1/18/2018)

Former York Naval Ordnance Plant
1425 Eden Road, York, PA 17402

Conceptual Site Model
Cross Section A-A'
Non-Pumping Conditions

DRAWN BY: JPB	CHECKED & APPROVED BY: SMS	DATE: 7/14/2016

Q:\10000\10012\Data\CAD\10012CS07.dwg

GROUNDWATER SCIENCES CORPORATION