3.0 SETTING

The Purple Section 1 alignment lies almost entirely within the Mid-drainage Zone of the Upper Coastal Plain physiographic province, with its westernmost extreme extending into the Midpeninsular Drainage Divide Zone. The Mid-drainage Zone is the relatively narrow strip of Coastal Plain containing the middle reaches of streams that flow from the Midpeninsular Drainage Divide east to the Delaware River. It is a flat to gently rolling region of low relief, with the greatest elevational differences exhibited along the major stream courses. Elevations at the western end of the Purple Section 1 alignment are generally 70-75' above sea level (asl), gently decreasing to the east to 40-50' asl at its northeastern terminus. The lowest point on the alignment is the Scott Run floodplain (near the northeast end), which lies at about 30' asl. Most of the land crossed by Purple Section 1 is under active cultivation but a few areas of secondary forest and thick brush are present. The residential and commercial development typical of the area has as yet had little impact on the Purple Section 1 corridor. Disturbance is limited primarily to existing road crossings and to the vicinity of the Scott Run crossing where some grading of the surface and installation of a sewer main and utility lines has been carried out, and the northeastern end of the alignment where it joins existing SR 1.

Five stream crossings occur along the alignment; wooded riparian zones flank most of these streams. South of Boyds Corner Road drainage from the corridor is to the Appoquinimink River, via Drawyer Creek. Crossings in this part of the alignment include two unnamed 1st order streams – both crossed near their sources – and the Spring Mill Branch of Drawyer Creek. The Spring Mill Branch is a 2nd order stream at the crossing. Less than a kilometer below its confluence with Drawyer Creek, the Appoquinimink River flows into the Delaware River. North of Boyds Corner Road, the alignment passes within 100 m of the source of Scott Run, later crossing a middle reach of Scott Run – by which point it is a 2nd order stream. A short distance to the northeast of this crossing, the alignment crosses a 2nd order tributary of Scott Run. This crossing occurs at the point where two short 1st order streams combine to create the tributary. Scott Run flows to the Chesapeake and Delaware Canal, joining it just west of where the canal enters the Delaware River.

The area traversed by the Purple Section 1 alignment is underlain by the fluvial sands of the middle Pleistocene Columbia Formation. Along the alignment these may be capped to varying depths by the late Pleistocene Lynch Heights and Scotts Corner Formations, both associated with marine transgressions. As discussed below (see Section 7.0) cobbles were observed on the surface in several areas in the western half of the project's APE. In all likelihood, these are part of the bedload of fluvial channels associated with the Columbia Formation, exhumed by erosion or by bioturbation (e.g., tree-throws, burrowing animals, human activity, etc.). Soils of the uplands within the Purple Section 1 APE belong to the Matapeake, Mattapex, Sassafras, and Woodstown series, all formed in old marine or fluviomarine sediments and, in the case of the Matapex and Matapeake series, a cap of silty aeolian material. These soils have no potential to contain deeply buried cultural material. Where possible – in cultivated or fallow fields – they are well suited to testing by surface survey following plowing and disking. In areas of woods and

brush, these soils are best sampled by shovel tests extending to depths of 30-60 cm below surface.

As also discussed below (Section 7.0), results of a limited number of bucket auger probes excavated during Phase Ia field survey suggest that many short 1st order stream hollows within the corridor may have been filled by as much as 1 m of historic slopewash, following scouring of pre-contact sediments from the hollow floor. Both of these processes were, in all likelihood, the result of historic land-clearing and the introduction of intensive agriculture. Precontact sediments on the floors of 2nd and 3rd order stream hollows such as Spring Mill Branch and Scott Run may also have been scoured out by historic floods and replaced with historic sediment, although augering at the source of the 2nd order tributary of Scott Run revealed what appeared to be precontact sediments beneath 1 m or more of historic alluvium. This suggests that in such settings – where several small 1st order streams combine to form a 2nd order stream – there may have been insufficient water flow to scour out precontact alluvium or to move the large input of historic alluvium through the system, resulting in burial and preservation of the precontact surface. Because of the thickness of the packet of historic alluvium, settings such as these are best tested using 1 m x 1 m excavation units.