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FUTURE DEVELOPMENT FEASIBILITY NARRATIVE

HARVARD LANE

RADNOR TOWNSHIP, DELAWARE COUNTY

Harvard Lane is part of the Woodlands II subdivision approved by Radnor Township in the early 1980s. Located in the R-1 zoning district, the original subdivision was developed under the township's density modification provisions of the Zoning ordinance which allows the modification of lot area, yard and use requirements in certain zoning districts in connection with single family development for the purpose of encouraging conservation and use of open space, the preservation of natural features, and the attractive arrangements of dwellings by permitting the design and layout of dwellings to be closely related to the physical characteristics of the site.

Harvard Lane is one of four residential cul-de-sac streets in the subdivision. It connects to Bryn Mawr Avenue, and provides frontage and access to lots 11 and 34 thru 48. Lot 11 contains an existing dwelling which was incorporated into the subdivision and lots 34 thru 48 were newly created lots. Dartmouth Road accesses Bryn Mawr Avenue to the west of Harvard Lane and serves lots 1 thru 10. Cornell Drive accesses Roberts Road to the north of the site and provides access to lots 16 thru 31. Princeton Court which intersects with Cornell Drive serves lots 12 thru 15 and lots 32 and 33.

The lots fronting on Dartmouth Road, Cornell Drive and Princeton Court were developed, but only the infrastructure improvements associated with the new Harvard Lane were constructed. The roadway, sanitary and storm sewers, and stormwater management basin were constructed; however the road, storm sewers and stormwater management basin were never dedicated to Radnor Township. Sometime in the 1980s, a house was constructed on lot 47, however with the exception of the original dwelling on lot 11, all the remaining lots along Harvard Lane remain undeveloped.

Harvard Lane intersects with Bryn Mawr Avenue at a 90 degree angle and runs in a northward direction for approximately 500 feet before turning westward and paralleling Bryn Mawr Avenue. Lots 42 thru 48 are located on the southerly side of Harvard Lane, and an area of open space is located between these lots and Bryn Mawr Avenue. Meadowbrook Run, a tributary to Darby Creek flows in a westerly direction through the open space. The stream and its floodplain encroach along the rear of lots 42 thru 48. The stream flows through a culvert constructed beneath Harvard Lane and a stormwater management basin was constructed along the easterly side of the Harvard Lane entrance

road within the stream floodplain. The stream flows between the basin and the lots. The Harvard Lane lots slope southwards towards the stream. As part of the 80s subdivision areas of steep slopes (at the time 22% and greater) were identified. The subdivision plans show a few small areas of steep slope on portions of lots 34, 41 and 42.

In June of 2003, a topographic survey of the site was conducted to show the updated condition of the site with the completion of the roadway and infrastructure improvements. In addition to the survey, a HEC-RAS floodplain study was performed to determine the extent of the 100-year floodplain of Meadowbrook Run. The floodplain shown on the original subdivision had been based on the then current FEMA floodplain maps. Since the FEMA maps were based on an approximate analysis of the stream, no base flood elevations had been determined. The HEC-RAS study computed the base flood elevations along the stream and the resulting floodplain was plotted on the new topographic survey.

The 2003 survey and HEC-RAS study revealed that the floodplain of Meadowbrook Run extended farther into the lots along the stream than was depicted on the original plan. The redelineated floodplain significantly reduces the building envelope of the lots on the south side of Harvard Lane that border the stream. The envelopes of lots 43, 46 and 48 are reduced to the point where it would be difficult to construct a building on these lots.

In addition, the 2003 survey showed additional steep slopes on lots 34, 35, and 41 thru 48 as a result of the grading that took place as a result of the roadway construction. After the subdivision was approved, Radnor Township redefined their regulated steep slopes to areas of 20% and greater in place of the previous 22% and greater slope. Although it can be demonstrated that these additional steep slopes were man made and therefore not regulated, these slopes do make development of and access to some of these lots somewhat more difficult.

As noted, a stormwater detention basin was part of the original subdivision. Detailed plans and calculations for the original subdivision appear to be unavailable. The original engineering firm that prepared the plans is no longer in business, and Radnor Township discarded many of their old files including the files for this site years ago as a result of damage from a flood in their storage area. It appears that the stormwater management basin was designed to control runoff from the roadway only and it does not appear that any provisions were made for stormwater control for the individual lots. The plans for the site appear to show that the basin was designed as a wet pond with 4-feet or so of volume above the pool level for stormwater management. Current conditions however show that the pond is full to the overflow spillway elevation indicating that the system is not operating as designed.

This office had discussions with Radnor Township officials several years ago regarding future development of this tract. At the time, the township noted that the road and improvements were never dedicated to the township and they were aware that the stormwater basin was not operating correctly. The township engineer and the public

works director noted that testing would have to be performed on the roadway and storm and sanitary lines to insure that they meet current standards and that any issues would need to be corrected prior to the township accepting dedication of the streets and sewers.

Future development of the site will have to comply with current township stormwater management requirements. In addition, an NPDES permit will be required for the earth disturbance. It does not appear that a wetland review of the site was ever performed. Such a review could reveal the presence of wetlands on the lots bordering the stream which could have additional impact on the already restricted building envelopes of these lots.

It is uncertain whether sanitary sewer capacity is still allocated to the site. Sewer capacity was most likely granted at the time of the subdivision approval. However because of the time lapse between original approvals and current day, re-application for sewer capacity may be required.

The township stormwater management ordinance and current DEP BMP measures require ground water recharge to be implemented as part of stormwater management controls. Each lot will be required to provide its own individual stormwater management system for the development. Percolation testing is required to demonstrate that the soils can absorb the prescribed stormwater recharge volume.

Future development of the site will most likely require the following:

- A wetland review and delineation.
- Additional as-built survey to reflect current topographic conditions, tree locations, infrastructure and utility elevations, wetland locations and conditions of the existing stormwater management basin.
- Possible lot line changes to adjust lots to compensate for non-buildable areas of current lots. As noted above, lots, 42 thru 48 have been compromised as a result of the updated flood plain delineation and site grading and could be further compromised as a result of wetland investigations of the site.
- Testing and review of roadway and storm and sanitary conditions.
- Repair and rehabilitation of the existing stormwater management basin.
- Repair of any noted, roadway, curbing, and storm and storm sewer improvements.
- An NPDES permit for site grading and improvements.
- Stormwater percolation testing on all lots.
- Individual Township grading permits for lot construction.
- Further review and discussions with township officials.
- Possible sewage facility planning module approval for sewage capacity.