STAFF REPORT

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DELAWARE AND RARITAN CANAL COMMISSION

DRCC #: 20-3033C
DATE: July 15, 2021
PROJECT NAME: Culver Estates -- Proposed Residential Development
Latest Submission Received: June 28, 2021

Applicant:
Remeliq Consulting, Inc.
c/o Piyush Patel/Parius Kapadia
20 Ridge Road
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Engineer:
Lorali E. Totten, P.E., P.P.
Crest Engineering Associates, Inc.
100 Rike Drive
Millstone, NJ 08535
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Project Location:

Road	Municipality	County	Block(s)	Lot(s)
Culver Road	South Brunswick Township	Middlesex	37	7.01, 7.02, 7.03, 7.04, 7.05 & 7.06 (*Formerly 4 & 7*)

Jurisdictional Determination:

Zone B	Major	Nongovernmental

Subject to Review for:

Drainage	Visual	Traffic	Stream Corridors
X			

THIS STAFF REPORT IS ISSUED AS A GUIDE TO APPLICANTS IN COMPLYING WITH DRCC REGULATIONS. IT IS NOT AN APPROVAL. NO CONSTRUCTION SHALL BEGIN UNTIL A CERTIFICATE OF APPROVAL HAS BEEN ISSUED.

Documents Received: Site Plans (12 sheets) dated April 29, 2011 and last revised October 12, 2011 prepared by Crest Engineering Associates, Inc.; Pre-Development

Drainage Map (1 sheet) dated August 13, 2007 and last revised October 20, 2011 prepared by Crest Engineering Associates, Inc.; Proposed Drainage Map (1 sheet) dated April 16, 2007 prepared by Crest Engineering Associates, Inc.; Survey and As-Built Grading Plan (1 sheet) dated December 5, 2014 prepared by Crest Engineering Associates, Inc.; Stormwater Report (369 pages) dated April 6, 2007 and last revised September 5, 2012 prepared by Crest Engineering Associates, Inc.; Site photographs (4 pages) undated and unattributed.

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Staff comments continued below.

The application is complete and shall be presented to the Commission for their action with a staff recommendation of approval at the August 18, 2021 meeting, based upon the following analysis:

Existing Conditions: This project area is a series of lots totaling 50.09 acres in size located on the side of Culver Road in the Township of South Brunswick, Middlesex County, approximately miles east of the Delaware and Raritan Canal and within Commission Review Zone B. Historically, the northern portion of the site was comprised of about 22 acres of small grain cultivated farm fields while the southern portion of the site and along the western property line there are about 28 acres of woods.

The Commission approved the construction of seven houses and a detention basin in 2005 (DRCC #04-3033). In 2007, the Commission received a proposal for the modification of the prior approval which proposed the construction of six houses totaling

1.17 acres of new impervious surface coverage, which was submitted for review but never received approval (DRCC #07-3033A). In 2014, the Commission issued a certificate of approval for the creation of a six single-family residential lot subdivision with frontage on Culver Road (DRCC #13-3033B). One of the six lots (Lot 7.03) has since been developed with a two-story residential dwelling with a circular pervious asphalt driveway. The dwelling utilizes a septic bed that is located at the front of the lot. Two bio-retention swales have been constructed and the corresponding storm sewer pipe has been installed up to the stormwater collection system located at the frontage of Lot 2.

Proposed Project: The applicant proposes to construct five additional single-family residential homes with frontage on Culver Road. The residential dwellings will have driveways and be serviced by individual septic systems and public water through the existing water main within Culver Road. Culver Road will also be widened, and new sidewalks will be installed as part of the project. Based upon the submitted application, the project will result in a total increase about 69,006 square feet (1.58 acres) of impervious surface area. The proposed project would also result in a total area of land disturbance of approximately 571,518 square feet (13.12 acres).

Stream Corridor: The project is located within the Millstone Watershed in the Raritan River Drainage Basin. Devil's Brook is located approximately 50 feet from the southwest corner of the property and its associated 100-year floodplain is located onsite. As part of the 2005 approval, a Commission stream corridor was delineated, and 14.87 acres of stream corridor was preserved through a conservation easement held by the Commission. In accordance with N.J.A.C. 7:45-9.3(b), more than 25 feet of usable yard between the stream corridor and the proposed residential dwellings has been provided. The current project does not propose any encroachments into the stream corridor. Commission conservation easement signage will also be placed at 250-foot intervals, as well as at the corners of a delineated stream corridor. As part of this application, the applicant has provided an acceptable plan for the implementation of the signage requirement as noted on sheet 4 of 12 of the "Overall Development Plan," dated April 16, 2007, and last revised on May 3, 2021.

Stormwater Runoff Quantity: The submitted application proposes to manage stormwater runoff primarily through improved changes in the land use cover that will result in a decrease in overall runoff off of the project site. The existing site has been historically farmed with area of woods. The stormwater report contends that as a result of the change in ground cover from cultivated farmland to grass and the reseeding of the remaining undisturbed farm area to grass cover, no on-site detention is proposed because post-development peak runoff flow rates and volume will be less than the pre-development conditions. In other words, for stormwater that is leaving the site, post-construction runoff hydrographs for the 2, 10, and 100-year storm events will not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events.

The submitted calculations utilized the Natural Resource Conservation Service (NRCS) Technical Release No. 55 (TR-55) hydrologic methodology, Standard unit hydrograph rainfall distribution and current New Jersey 24-hour rainfall frequency data for Middlesex County to compute peak runoff flow rates and volumes. Based upon a review

of the submitted summary table results, both runoff flow and runoff volume will be reduced in the post-development conditions. Therefore, the proposed project will meet the specific runoff quantity standards of N.J.A.C. 7:45-8.6(a)2.

Water Quality: The Commission requires that all proposed full-depth pavement, including newly and reconstructed parking and access drives that are being renewed, must meet water quality standards in accordance with Commission regulations (N.J.A.C. 7:45-8.7). This includes reduction of the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by a rate of 80 percent (%) of the anticipated load from the developed site. Based upon the submitted application, new pavement areas along access driveways and along the roadway widening are being proposed on the site. In order to provide water quality treatment for runoff leaving the site, the applicant has proposed a combination of water quality best management practice (BMP) measures, including pervious concrete for each of the proposed driveways, bio-retention swale areas and a manufactured treatment device (MTD) as part of the proposed roadway widening. Two bio-retention swales have been constructed as part of the previous Commission approval. The overall weighted water quality TSS rate of removal will be greater than 80%. Therefore, the proposed stormwater quality design addresses the requirements of N.J.A.C. 7:45-8.7.

Groundwater Recharge: The existing soils for the project area are classified as hydrologic soil group B and C type soils by the NRCS. Commission regulations require that stormwater management measures maintain 100% of the average annual pre-construction groundwater recharge volume for the site; or that any increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated. The applicant has submitted a completed Annual Groundwater Recharge Analysis Spreadsheet (NJDEP GSR-32) to analyze groundwater recharge for both pre- and post-development site conditions. The results of the analysis indicate that 64,374 cubic feet of additional annual groundwater infiltration will be provided. The increase in recharge volume is the result of changes in land use ground cover from cultivated farmland to grass. Therefore, the groundwater recharge requirements of N.J.A.C. 7:45-8.5 have been met.

Nonstructural Methods: To assist in determining that sufficient nonstructural stormwater management strategies have been incorporated into the project site design "to the maximum extent practical", the NJDEP Nonstructural Strategies Point System (NSPS) spreadsheet has been completed for this project. The results of the NSPS spreadsheet indicate that the ratio of proposed to existing site points (171%) is equal to or greater than the required site points ratio (115%). Therefore, based upon the results of the spreadsheet analysis, the project has proposed nonstructural measures that are adequate, and the project is therefore designed in accordance with N.J.A.C. 7:45-8.4.

Stormwater Management Maintenance Plan: A stormwater management maintenance plan document has been previously submitted for the BMP elements proposed for the project. The plan includes maintenance details for the proposed pervious concrete, bio-swale areas, underground drywells and Continuous Deflective Separator (CDS) MTD

unit by CONTECH. The plan was prepared in accordance with the requirements of N.J.A.C. 7:45-8.8.

Staff Recommendation: Staff recommends approval.

Sincerely,

John Hutchison
Executive Director

c. Middlesex County Planning Board
South Brunswick Township Planning Board
Kenneth Pape, Esq. (kpape@hpnjlaw.com)