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VIA EMAIL

Michael J. Ash, Esq., CRE, Partner
Carlin, Ward, Ash, Heiart - Attorneys at Law
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Flood Mitigation Review
Cedar Lane, American Legion Drive and Beverly Road
Block 705, Lot 4.01; Block 707, Lots 1-5; Block 819, Lots 1, 13-14, 16-17
Township of Teaneck, Bergen County, New Jersey
Colliers Engineering & Design Project No.: 26004406A

Dear Mr. Ash,

As requested, Colliers Engineering & Design ("CED") has completed an engineering review of the proposed off-site flood mitigation plan submitted by Crossroads Companies, LLC, in connection with properties located along Cedar Lane, American Legion Drive, and Beverly Road in the Township of Teaneck. The following document was submitted:

- Regional Off Site Drainage Improvements for Redevelopment of Cedar Lane Preliminary Design Report, prepared by James E. Henry, PE, PP, of Dynamic Engineering, dated February 2026".

The submitted report evaluates flooding conditions along the Belle Avenue corridor; a regional low point receiving runoff from an approximately 175-acre tributary drainage area and proposes off-site improvements intended to increase stormwater conveyance capacity in coordination with the Cedar Lane redevelopment.

Based on CED's review and the information available at the Township Engineer's Office, the proposed off-site drainage improvements will mitigate flooding by increasing conveyance capacity through a constrained portion of the existing stormwater system. As the proposal is preliminary in nature, additional engineering detail, field verification, and regulatory documentation are required to confirm feasibility, constructability, and compliance with applicable regulations. The following summary and comments are provided for consideration.

Summary of Proposed Flood Mitigation

The Developer's primary mitigation measure consists of constructing a parallel storm sewer system to supplement the existing Belle Avenue/Cedar Lane trunk line, comprising approximately 1,350

linear feet of new 36-inch to 42-inch diameter storm sewer piping arranged as seven parallel pipes, extending from the existing underground culvert at Belle Avenue and Beverly Road, through the Block 819 redevelopment area, crossing Cedar Lane, and continuing along American Legion Drive to the southern limit of Block 707.

The analysis utilizes a HEC-RAS 6.6 two-dimensional unsteady flow model with an integrated pipe network to evaluate a 25-year, 24-hour storm event using NOAA Atlas 14 rainfall data and treats the Belle Avenue/Beverly Road culvert and Sagamore Park underground detention basin as existing conditions. The Dynamic Engineering report includes, as appendices, the Township's 2022 Belle Avenue Area Drainage Study and the Fastech Consulting Engineers drainage study, which serve as baseline references. Under proposed conditions, the report indicates an approximate 15 percent increase in modeled system capacity for the 25-year storm.

Engineering Design & Constructability

1. Plan and profile drawings for the entire proposed parallel storm sewer alignment, from the Belle Avenue/Beverly Road culvert to the southern terminus along American Legion Drive, showing:
 - Pipe size, material, and class.
 - Proposed inverts, rims, slopes, and cover.
 - All junction structures, manholes, and connection details.
 - Limits of construction and restoration.
2. Detailed typical sections and crossing details at Cedar Lane, American Legion Drive identifying whether construction is proposed as open-cut or trenchless and how surface restoration will be handled.
3. Tie-in details at upstream and downstream connections, including confirmation that proposed inverts are hydraulically compatible with existing structures.
 - The Drainage Improvement Sketch (Appendix) illustrates the parallel pipes running alongside the existing 36"-42" RCP and tying into the existing stormwater infrastructure, but does not identify or label new manholes, junction boxes, or inlet structures. Confirm if new drainage structures will be required to accommodate the parallel pipes.
 - Confirm that the downstream system has sufficient capacity to accept flows conveyed by the proposed upstream pipes and will not result in negative downstream impacts.
4. Right-of-way and easement exhibits clearly identifying:
 - Improvements within public ROW versus private property.

- Permanent access and maintenance easements.
- Temporary construction easements (if required).

Existing Conditions Verification

5. Survey-verified as-built data for all existing drainage structures at proposed connection points, including:
 - Rim and invert elevations.
 - Pipe sizes, materials, and alignment.
 - Confirmation of structure dimensions (assumed sizes must be field-verified).
6. Subsurface Utility Engineering (SUE) documentation identifying existing utilities within the proposed parallel pipe corridor, including:
 - Horizontal and vertical utility locations.
 - Conflict points and proposed mitigation or relocations.
 - Results of test pits/potholing at critical crossings.

Geotechnical & Groundwater

7. Geotechnical borings and groundwater observations along representative segments of the proposed alignment to confirm:
 - Anticipated groundwater elevations.
 - Dewatering requirements.
 - Trench stability and support needs.
 - Suitability of proposed pipe bedding and backfill.
8. Dewatering and excavation approach narrative, including measures to prevent adverse impacts to adjacent properties and existing drainage during construction.

Hydraulic Modeling & Flood Mitigation Verification

9. Complete HEC-RAS model package used in the Dynamic analysis, including:
 - Geometry files (2D mesh and pipe network).
 - Boundary conditions and tailwater assumptions.
 - Rainfall hyetograph and distribution.
 - Manning's n values, curve numbers, and impervious coverage layers.

- Storage area inputs for the Sagamore Park detention system.
10. Existing vs. proposed condition flood mapping outputs, including flood depth and extent maps at historically impacted locations along Belle Avenue, and clear identification of which municipal improvements are included in the “existing conditions” baseline.
 11. Hydraulic Grade Line (HGL) and surcharge analysis for the proposed parallel pipes, all junction structures, upstream and downstream tie-ins.

Permitting & Approvals

12. List of required permits and approvals, including roadway opening permits, environmental permits (if applicable), and coordination with any third-party agencies or utilities.
13. Construction cost opinion and schedule, for Township awareness of scale, duration, and potential coordination impacts.

In conclusion, the proposed off-site drainage improvements build upon the Township’s previously documented drainage studies and constructed mitigation measures by increasing conveyance capacity through a constrained portion of the system. However, additional engineering detail, field verification, and regulatory documentation are required to confirm that the proposed parallel storm sewer network is constructible and hydraulically effective.

Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,

Colliers Engineering & Design, Inc.



Nevien Valenzuela, P.E., CME
Senior Project Manager

NV

cc: Maurice Rached, P.E., PTOE, CED (via email)