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September 3, 2021

Township of Mahwah
475 Corporate Drive
Mahwah, NJ 07430
Attn: Ms. Geraldine Entrup
Administrative Officer, Planning Board

**RE: Proposed Industrial Warehouse
Russo Acquisitions, LLC
1000 MacArthur Boulevard
Block 135.01, Lot 65
Mahwah Township
Bergen County, New Jersey
ATDE Project No. ANJ21026**

Dear Ms. Entrup:

Atlantic Traffic & Design Engineering, LLC (ATDE) is in receipt of **Mahwah Police Department's review** memorandum dated July 19, 2021 regarding the above-referenced project. In response, we are providing 18 copies of the following items:

1. Sight Distance Plan Exhibit prepared by Bohler, dated September 3, 2021.
2. Sight Distance Exhibit Profile prepared by Bohler, dated September 3, 2021.
3. WB-67 Truck Turning Exhibit prepared by Bohler, revised September 3, 2021.

At the request of the Mahwah Police Department, Bohler and ATDE explored shifting the proposed MacArthur Boulevard driveway to the south end of the property. This was determined not to be feasible based on the following design considerations:

- At the southeastern corner of the property, the elevation of MacArthur Boulevard is El. 417-419 NAVD88, whereas the site elevations are El. 440. There is an approximate 23-foot grade change over 160 feet +/-, rendering a driveway slope not conducive to truck operations.
- Lowering the site grades around the building and associated parking/truck loading areas would severely impact the feasibility of managing on-site and off-site stormwater, due to the presence of shallow seasonal high groundwater elevations observed during geotechnical testing on site. Based on the latest stormwater regulations amended by the NJDEP in March 2021, as well as the stormwater review completed by the Highlands Council as part of the Applicant obtaining its Highlands Consistency Determination,

Atlantic Traffic & Design Engineering, LLC

compliance to the latest regulations could not be satisfied based on basin to groundwater separation requirements, and volume control. It should also be noted that a significant portion of the MacArthur Boulevard drainage system is handled and conveyed to an existing detention basin on the existing site occupied by TD Bank. Under the proposed conditions, the drainage system continues to be handled through a modified on-site stormwater facility as shown on the Bohler civil plans. With the introduction of a road crossing further south, the stormwater could not be handled from the Township road in compliance with Township/State requirements.

The following provides a summary of the Mahwah Police Department comments and the ATDE responses.

Comments:

- The location of the shared entrance/exit for semi-tractor-trailers on MacArthur Boulevard for the proposed warehouse at the intersection of MacArthur Blvd., and Grandview Lane create the following safety concerns:
 1. The location is on a curved part of the roadway creating limited site distance in both directions. As the plans appear to show the driveway directly across from Grandview Lane, just passed the crest of the hill, on a radius with limited visibility for the operator of a semi-tractor-trailer and oncoming vehicle traffic. (Posted Speed Limit 35 M.P.H)

A meeting was held on August 18, 2021 with the Township Police Department and Boswell Engineering to discuss the new site access proposed along MacArthur Boulevard. Per the discussions, the Applicant has agreed to provide AASHTO recommended Intersection Sight Distance (ISD) for the driveway movements which will require the clearing of brush and limbing of trees within the sight triangles.

Additionally, the recommended AASHTO Stopping Sight Distance (SSD) for westbound traffic on MacArthur Boulevard approaching the new access will be exceeded with the recommended clearing of brush and limbing of trees within the roadway median in the vicinity of the hill crest. The MacArthur Boulevard posted speed limit is 35 miles per hour and all of the sight distance calculations were based on a 40 mile per hour design speed. The proposed sight triangles are also conservative in that they are based on longer critical gaps for the left-in and right-out tractor trailer movements.

Also, as discussed at the meeting, the curb taper for the proposed westbound left-turn lane at the new site driveway would be increased from approximately 75 feet to approximately 150 feet which will help tractor trailers enter the new turn lane more efficiently. The curb radii at the new site access has also been modified to allow tractor trailers to turn right into the adjacent curb lane.

2. A left turn lane must be added to the roadway but due to the size of the semi-tractor -trailer and driver capabilities this most likely would cause the semi-tractor-trailer to veer into the immediate right lane of traffic in order to complete the turn, potentially causing a traffic safety hazard. A traffic control signal should be added to safely control the flow of traffic along MacArthur Blvd., and safely permit vehicles to enter and exit the proposed facility.

As noted above, a new left-turn lane is proposed along westbound MacArthur Boulevard within the existing median that will permit the stacking of at least 2 WB-67 tractor trailers. The curblane taper into the turn lane has been extended and site obstructions within the median are proposed to be removed to provide more than adequate sight distance.

ATDE has reviewed traffic volumes for the MacArthur Boulevard intersection with Grandview Lane and the proposed site driveway. This analysis determined that the traffic volumes are too low to meet any of the Federal Highway Administration traffic signal warrants as published in the *Manual on Uniform Traffic Control Devices* (MUTCD). With the provision of appropriate sight triangles, the intersection is expected to operate efficiently under two-way stop control.

3. Assuming the left turn lane is added, when semi-tractor-trailers are stopped due to the traffic signal in the queue in order to turn into the entrance. The overall length of the trucks (between 65 to 73 feet) could potentially extend into the normal lane of traffic and affect the Ridge Road/MacArthur Boulevard intersection. (This in turn could create a hazard for the crossing guards and children during school hours.)

The westbound MacArthur Boulevard left-turn lane has been designed to accommodate at least 2 WB-67 tractor trailers which is the maximum vehicle queue anticipated for this movement.

4. If semi-tractor-trailers are lined up in the queue and extend past the left turn lane only, the potential for vehicle traffic traveling westbound through the MacArthur Blvd. and Ridge Road intersection and accelerating toward semi-tractor-trailers expectantly stopped in the normal travel lane.

As described above, the proposed westbound left-turn lane storage is anticipated to be adequate for the proposed development. Further, the Applicant is proposing to improve the westbound sight line obstructions within the median. With these modifications, the recommended AASHTO SSD would be exceeded in the westbound direction. Further, it is important to note that tractor trailers in the left-turn lane are much larger and taller than typical passenger vehicles, and therefore will be more visible to westbound traffic.

5. The exit located in the shared section of driveway also poses a limited site distance for vehicles exiting and vehicles approaching the intersection.

The sight triangles proposed for the new site access on MacArthur Boulevard will not only benefit the site driveway, but will also significantly improve sight lines along eastbound MacArthur Boulevard which are currently limited due to site obstructions along the inside of the roadway curve.

6. Depending on how the semi-tractor-trailer driver positions his/her truck to exit the location, they could easily block the entrance for semi-tractor-trailers attempting to make a right or left turn into the shared entrance/exit. This would potentially cause semi-tractor-trailers to unsafely back up onto MacArthur Boulevard.

Bohler has revised the proposed MacArthur Boulevard driveway geometry to ensure that the largest WB-67 tractor trailers can simultaneously turn left into and right out of the access point. This is demonstrated through the AutoTurn truck runs shown on the WB-67 Truck Turning Exhibit.

7. The potential exists for the semi-tractor-trailer driver to miss the left turn into the complex, which again could cause unsafe backing down MacArthur and or an improper U-turn in one of the center median cut-outs. This would cause a significant safety issue as the semi-tractor-trailer while attempting to navigate this turn would potentially block all four lanes of travel.

The Applicant proposes to provide guide signage within the MacArthur Boulevard median in the westbound direction in advance of the left-turn lane to ensure that tractor trailers entering the site do not pass the site driveway.

8. Another traffic safety concern that may arise with the additional semi-tractor-trailer traffic is semi-tractor-trailers parking alongside MacArthur Blvd. near the Ramapo Center in order to purchase food items.

“No Parking Any Time” regulatory signs are currently provided in the westbound direction of MacArthur Boulevard along the Ramapo Center site frontage. ATDE recommends that similar signs be installed within the median for westbound traffic in this area so that vehicles do not park within the westbound median shoulder.

9. Semi-tractor-trailers exiting the locations will need an acceleration lane in order to prevent vehicles from possibly colliding with them due to the blind curve in the road as well as the posted 35 M.P.H. speed limit.

As described above, the new site driveway on MacArthur Boulevard will provide AASHTO recommended ISD for tractor trailers turning right out of the site. These calculations were based on generous standards specifically for tractor trailers which require a longer critical gap and the intended to allow tractor trailers to turn onto a roadway with minimal impact to vehicle travel speeds.

10. Based on the drawing rendered it appears that semi-tractor-trailers when exiting will take up both lanes of travel, causing an unsafe condition for vehicular traffic.

The MacArthur Boulevard driveway design has been modified to provide additional geometry such that tractor trailers will be able to turn into the adjacent curb lane on McArthur Boulevard eastbound.

- Ridge Road between West Ramapo Avenue and MacArthur Boulevard has weight restrictions as per Township of Mahwah Ordinance 7-4.1/7A-10, Vehicles over four tons gross vehicle weight are hereby excluded from streets or parts of streets described in Schedule VI. Although the site is located on MacArthur Boulevard and has direct access to Route 17and or Rt. 202 in order to avoid this section of Ridge Road, we are currently experiencing multiple occasions with Amazon semi-tractor-trailers traveling on Ridge Road in the area described above. I have spoken to Amazon about

this issue and although they have agreed to assist in preventing their semi-tractor-trailers from traveling along Ridge Road past the Township of Mahwah Schools, it still occurs. The issue appears to be threefold, one many of the Amazon drivers are independent/long-haul drivers, the Amazon location is relatively new, and the driver's GPS puts them on this route. I only see an increase of this type of traffic along this roadway if this location is approved. The Mahwah Police will enforce the weight restriction, but this will only add to the volume of traffic on Ridge Road during school times.

During the Township meeting, it was discussed that Boswell Engineering would provide the Mahwah Police Department with signage recommendations to help enforce the truck restrictions along Ridge Road north of MacArthur Boulevard.

- Due to the location of the site, the likelihood of semi-tractor-trailers idling for extended periods of time in violation of NJ Title 39 as well as the Township of Mahwah Ordinance 7-18 Trucks Idling.

The Applicant is agreeable to enacting NJ Title 39 on the subject property.

- In summary, the driveway plan needs to be designed in a safer manner to allow for clearer site lines for the flow of traffic in and out of the facility as well as the motoring public. A traffic control signal should be in the plan in order to allow a safer flow of traffic. The design of the intersection needs to address the issues of how many semi-tractor-trailers can reasonably and safely fit in the turn lane as well as the proper roadway design to address large trucks safely turning into the facility. The entrance/exit should take into consideration and address the turning radius of the semi-tractor-trailers and be properly suited in order for the operators to enter and exit safely. The Township should consider the close proximity to the schools on Ridge Road and the possibility of semi-tractor-trailers improperly using the area of ridge Road which is prohibited to semi-tractor-trailers based on the weight limitations. In addition to young inexperienced drivers that attended Mahwah High School on a yearly basis. The additional truck traffic this will bring to Macarthur Blvd. in addition to the two-hundred (200) plus trucks a day, in and out of the Amazon facility causing the deterioration of the Townships roadways in a exponentially.

As described above, the Applicant is proposing geometric improvements that would allow the new site driveway proposed along MacArthur Boulevard to function appropriately for the intended design vehicles with a focus on left-in and right-out tractor trailer movements. The proposed traffic improvements will include the development of significant sight triangles for the various intersection movements associated with the new driveway, including the clearing of obstructions in advance of the intersection in the westbound direction and increase of the curb taper into the westbound left-turn lane.

A review of the MUTCD traffic signal warrants has indicated that signalization of the intersection is not appropriate. However, with the proposed improvements, the new site driveway is expected to operate efficiently under two-way stop control.

Please contact the undersigned if there are any questions regarding the above.

Very truly yours,

Atlantic Traffic & Design Engineering, LLC
N.J. P.E. Cert. of Authorization No. 24GA27957900



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encl

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