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March 24, 2015

Jim Clearwater
MJS Engineering & Land Surveying, PC
261 Greenwich Avenue
Goshen, NY 10924

Subject: **GUANERI SUBDIVISION**
Town of Chester, New York

Dear Mr. Clearwater:

WSP USA Corp. (WSP) has reviewed the Sketch Plan for the Guaneri Subdivision in the Town of Chester. Our recommendations are based on the following:

- I. Existing Conditions
- II. Trip Generation
- III. AASHTO Design Criteria

Overview

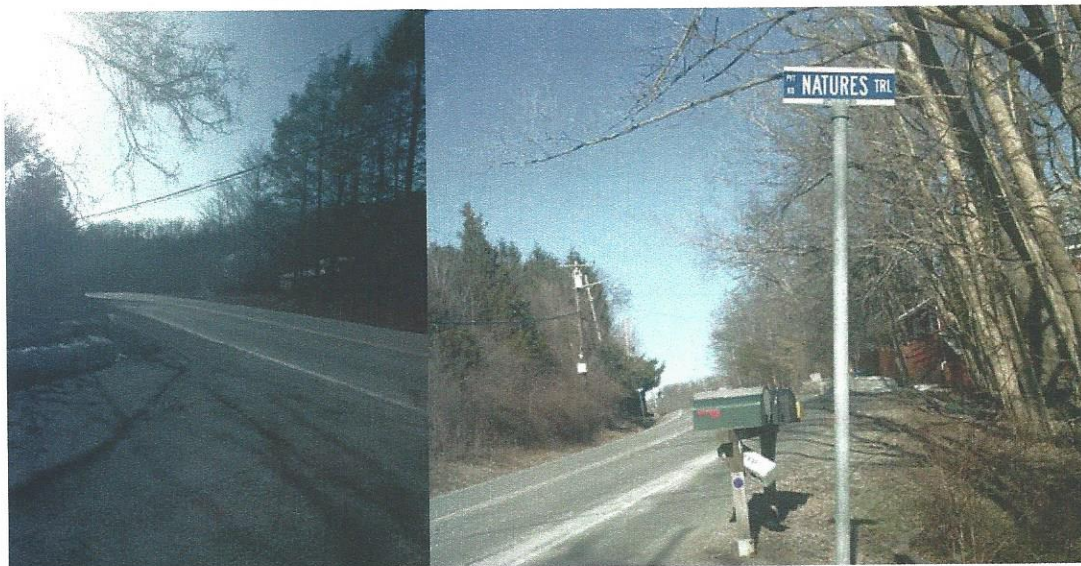
The project site is located on Nature's Trail in The Town of Chester, New York. Nature's Trail forms a T-intersection with Gibson Hill Road, which serves as a connection for the Town of Chester and Monroe to The Town of Warwick. Nature's Trail is controlled by a stop sign to Gibson Hill Road and has limited sight distance in both directions.

I. Existing Conditions

Nature's Trail is a narrow road giving home owner's access to Gibson Hill Road. The current road conditions contain many potholes and uneven pavement surfaces. The traveled way width of the existing roadway does not meet the current minimum requirements as stated in AASHTO. For traveled-ways with less than 400 vehicles/per AASHTO recommends a minimum width of 18ft.



There is also limited sight distance to Gibson Hill Road in both directions.



II. Trip Generation

The Guaneri Subdivision consists of a proposed 1 Single-Family Detached House. The traffic generated by this use was estimated based on the data published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition (2012). Table 1 summarizes the estimated trip generation.

Guaneri Subdivision Trip Generation

ITE CODE	LAND USE	SIZE		Average Daily Trips (24 Hours)			AM Peak Hour (one hour between 7am and 9am)			PM Peak Hour (one hour between 4 and 6pm)		
				Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
210	Single Family	1	DU	8	8	15	3	8	10	1	1	2

Source: ITE Trip Generation 9th Edition, ITE Trip Generation Handbook 2nd Edition

Table1

On average 15 total trips would be added to Nature's Trail. The AM Peak Hour would have 10 of these trips and the PM Peak Hour would contain 2. The remaining 3 trips would occur throughout the day during off peak hours. The formulas used to calculate the total trips were taken from the ITE source mentioned above and are intended for use with larger developments. The actual number of trips generated should be significantly less than what Table 1 shows. In any event, the total number of trips listed in Table 1, when added to the existing roadway network is not expected to have any adverse effects on traffic operations at the intersection with Gibson Hill Road.



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III. AASHTO Design Criteria

The minimum roadway width should be 18' and is the sum of the traveled way and graded shoulder listed in the table below:

Metric					US Customary				
Minimum width of traveled way (m) for specified design volume (veh/day)					Minimum width of traveled way (ft) for specified design volume (veh/day)				
Design speed (km/h)	under 400	400 to 1500	1500 to 2000	over 2000	Design speed (mph)	under 400	400 to 1500	1500 to 2000	over 2000
20	5.4	6.0 ^a	6.0	6.6	15	18	20 ^a	20	22
30	5.4	6.0 ^a	6.6	7.2 ^c	20	18	20 ^a	22	24 ^c
40	5.4	6.0 ^a	6.6	7.2 ^c	25	18	20 ^a	22	24 ^c
50	5.4	6.0 ^a	6.6	7.2 ^c	30	18	20 ^a	22	24 ^c
60	5.4	6.0 ^a	6.6	7.2 ^c	40	18	20 ^a	22	24 ^c
70	6.0	6.6	6.6	7.2 ^c	45	20	22	22	24 ^c
80	6.0	6.6	6.6	7.2 ^c	50	20	22	22	24 ^c
90	6.6	6.6	7.2 ^c	7.2 ^c	55	22	22	24 ^c	24 ^c
100	6.6	6.6	7.2 ^c	7.2 ^c	60	22	22	24 ^c	24 ^c
Width of graded shoulder on each side of the road (m)					Width of graded shoulder on each side of the road (ft)				
All speeds	0.6	1.5 ^{a,b}	1.8	2.4	All speeds	2	5 ^{a,b}	6	8

Recommendations

In order to comply with AASHTO roadway width criteria we recommend that the applicant provide 18 feet of traveled way width on Nature's Trail for the approximately 350 foot length from Gibson Hill Road to the proposed driveway. A low type pavement such as loose gravel is acceptable provided that a 3% cross slope is maintained. We also recommend that the potholes be repaired and the roadway improved to provide an even riding surface along this segment of Natures Trail. In order to improve sight distance at the intersection with Gibson Hill Road we recommend that the plantings in the public right of way be removed to the maximum extent possible without affecting vegetation on the adjacent private properties.

Based on the above mentioned factors we feel that adding the proposed Guaneri 1 lot subdivision will not have an adverse impact on operations and safety along Nature's Trail or at the intersection with Gibson Hill Road.

Please contact me should you require any clarification of this recommendation or need any additional information.

Sincerely,

Katherine T. Craig, P.E.

Project Manager

WSP • USA CORP.