

October 5, 2018

Mr. Armand Quadrini
Covered Bridge Partners, LLC
450 Loudon Road
Loudonville, NY 12211

RE: Response to Comments, Covered Bridge Village, Michael Road, Town of East Greenbush, Rensselaer County, New York; CM Project No. 115-030

Dear Mr. Quadrini,

Creighton Manning Engineering, LLP (CM) has reviewed the traffic related comments included in the July 3, 2018 review letter provided by Greenman-Pedersen, Inc. (GPI). Below is a summary of the comments and our responses.

Comment #1 (Future Covered Bridge Way and Michael Road): Michael Road is being re-aligned due to the limited sight distance. The plans do provide a preliminary horizontal re-alignment of the road. However, there is no supporting documentation indicating what is proposed intersection sight distance and if it is adequate for the design speed. The designer should refer to Chapter 5 of the NYSDOT Highway Design Manual and AASHTO "A Policy on Geometric Design of Highways and Streets. The supporting documentation should include design criteria, preliminary plan showing horizontal curves, Point of Curvature, Point of Tangency, and proposed sight distance. A preliminary profile should also be provided that includes proposed grades, vertical curves and sight distance. The proposed horizontal and vertical alignments should extend a minimum of 100 feet beyond limits of proposed improvements to show how it connects to the existing road.

Response: As noted in the current site plan included in **Attachment A**, Michael Road will no longer being realigned. Likewise, the *Covered Bridge Way* driveway has been relocated to approximately 60 feet south of the existing brick garage on Michael Road. The following is the sight distance evaluation prepared for the new driveway location as well as the Michael Road/Elliot Road intersection.

Sight Distance Evaluation

Speed data collected by CM in the vicinity of the Site Driveways shows that the 85th percentile travel speed on Michael Road is 35 mph. The sight distances measured in the field were compared to the guidelines presented in *A Policy on Geometric Design of Highways and Streets, 2011* published by the American Association of State Highway Transportation Officials (AASHTO) and NYSDOT design guidance (EB 17-007) for a 35 mph operating speed. It is noted that the AASHTO desired stopping sight distances were adjusted to account for the three percent upgrade on Michael Road south of the proposed Site Driveway. The results of the evaluation are summarized in **Table 1**.

Table 1 – Sight Distance Summary (feet)

Intersection		Intersection Sight Distance ¹				Stopping Sight Distance ²	
		Right-Turn from Driveway (D _L)	Left-Turn from Driveway		Left-Turn from Michael Road (D _S)	SSD _{NB}	SSD _S
			Looking Left (D _L)	Looking Right (D _R)			
Michael Road/Site Driveway	Available	400	400	515 ³	355	355	515
	Recommended	335	390	390	285	215	225
Michael Road/Elliott Road	Available	>500	>500	>500	>500	>500	>500
	Recommended	335	390	390	285	225	225

¹ Intersection sight distance is measured from an eye height of 3.5 feet to an object height of 3.5 feet

² Stopping sight distance measured for an eye height of 3.5 feet to a 2-foot object located in the path of northbound and southbound vehicles on Michael Road. Stopping sight distances were adjusted to account for a three percent upgrade in the northbound direction south of the site driveway.

³ Sight distance measured from the proposed site driveway assuming that the existing garage is removed.

The sight distance evaluation indicates that the available intersection sight distance for vehicles turning into or out of the Site Driveway meet or exceed the AASHTO guidelines for a 35 mph operating speed. In addition, the available stopping sight distance for vehicles traveling northbound and southbound on Michael Road exceed the AASHTO guidelines. Further, the intersection and stopping sight distance at the Michael Road/Elliott Road intersection exceed the AASHTO guidelines for the applicable 35 mph operating speed.

Comment #2 (Michael Road and Luther Road): This intersection is controlled by a traffic signal and since majority of the proposed traffic will be utilizing it, we recommend that a crash analysis be conducted that may identify safety problems that may be correctable by studying past crashes that have occurred at or near the intersection. We suggest a 3-year accident history be studied. Refer to Chapter 5 of the NYSDOT Highway Design Manual for additional information.

Response: Accident data was requested from NYSDOT to determine accident trends at the Michael Road/Luther Road (NY Route 151) intersection. Accident summaries and details were provided by the NYSDOT Safety and Information Management System for the latest three years of available data from the period between June 1, 2015 and May 31, 2018 and are contained under **Attachment B**. An accident analysis was performed to quantify the number of accidents and identify any accident patterns or concentrations. The predominant accident types are summarized in **Table 2**.

Table 2 – Accident Summary

Intersections on Fuller Road	Collision Severity				Collision Type								
	Non-Reportable	Property Damage	Injury	Fatality	Rear-End	Overtaken	Fixed Object/Animal	Right-Angle	Overtaking/Sideswipe	Other	Left Turn	Right Turn	Pedestrian
Michael Road/Luther Road (NY Route 151)	3	7	2	0	5	0	4	0	2	0	0	0	1
Michael Road/Elliott Road	0	0	0	0	0	0	0	0	0	0	0	0	0

As shown in the table, there were no accidents at the Michael Road/Elliott Road intersection. The data shows 12 accidents at the Michael Road/Luther Road (NY Route 151) intersection of

which five were rear end collisions, four were collisions with a fixed object or animal, and two were overtaking/sideswipes. There was one pedestrian crash at the intersection. A review of the accident data indicates that driver inattention, following too closely, defective brakes, and improper turning were the common contributing factors to the most prevalent accidents. Roadway design did not appear to be a contributing factor in any of the reported accidents.

Comment #3 (Michael Road and Elliot Road): This intersection is controlled by a "STOP" sign on Michael Road. Since 25% of the traffic will be utilizing this intersection, we also recommend that a crash analysis be conducted that may identify safety problems that may be correctable by studying past crashes that have occurred at or near the intersection. In addition, we recommend a sight distance analysis be conducted to make sure there is adequate sight distance based upon the design speed.

Response: See responses to Comment #1 and Comment #2.

Comment #4 (Michael Road Pedestrian Crossing): Adequate sight distance needs to be provided to improve safety. A high visibility crosswalk marking should be provided for pedestrians to cross to/from Community Way and Covered Bridge Way. In addition, the designer needs to consider other elements to provide for a safe crossing that includes signage, ADA accessibility and any other elements to improve safety.

Response: The site designer has responded to this comment separately, but to summarize, the applicant is willing to construct a crosswalk but has no control of the property on the east side of the intersection; therefore a crosswalk and/or sidewalk up to the Michael Road/Community Way intersection is out of the applicants control.

Please call our office if you have any questions or comments regarding the above analysis.

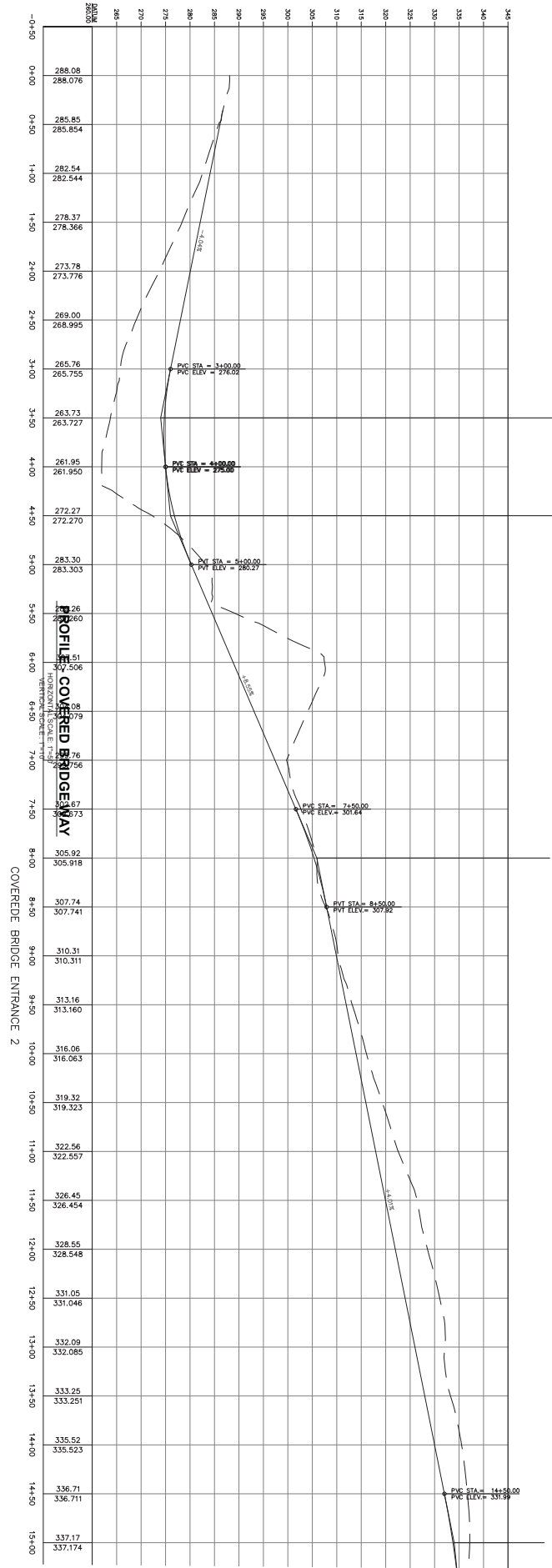
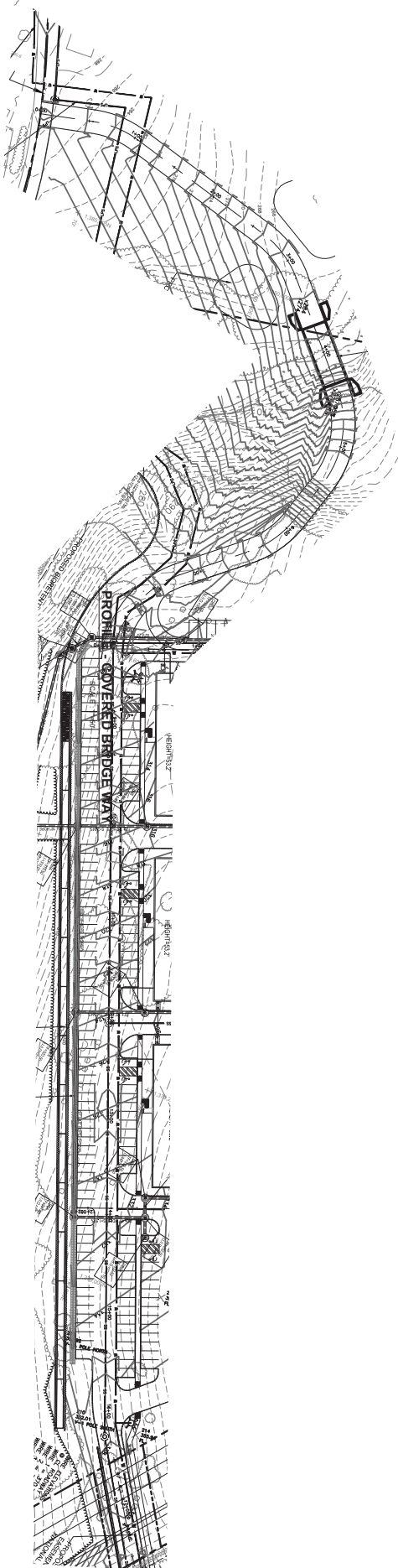
Respectfully submitted,
Creighton Manning Engineering, LLP


Kenneth Wersted, P.E., PTOE
Associate


Jesse Vogl
Assistant Project Planner

Attachment A
Site Plan

Covered Bridge Village
Town of East Greenbush, New York



PROFILE COVERED BRIDGE WAY
VERTICAL SCALE: 1"=10'

COVERED BRIDGE ENTRANCE 2

TOWN OF EAST GREENBUSH COUNTY OF RENSSELAER
COVERED BRIDGE VILLAGE
PLAN & PROFILE
COVERED BRIDGE WAY
TAX MAP NO.: 186.00-6-19.125

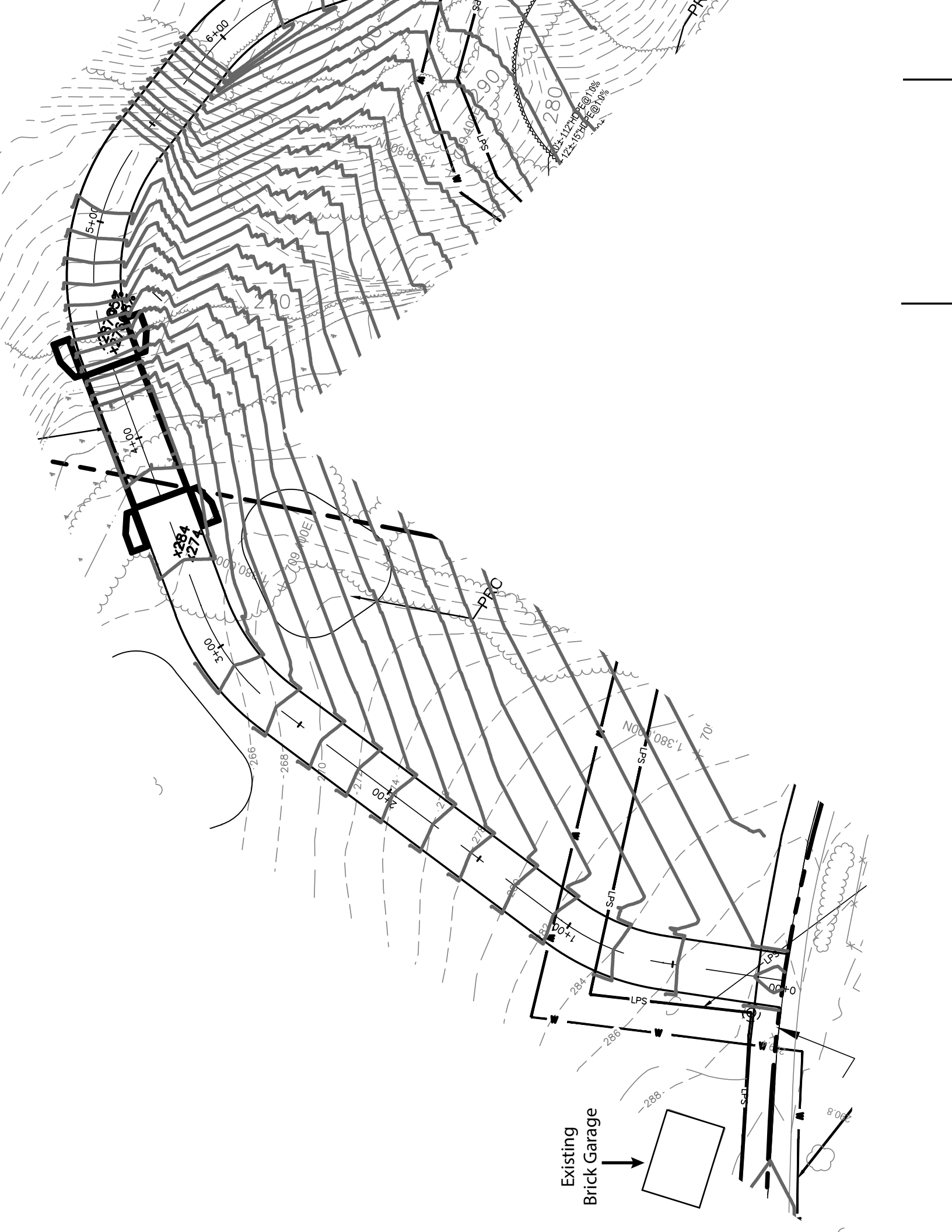
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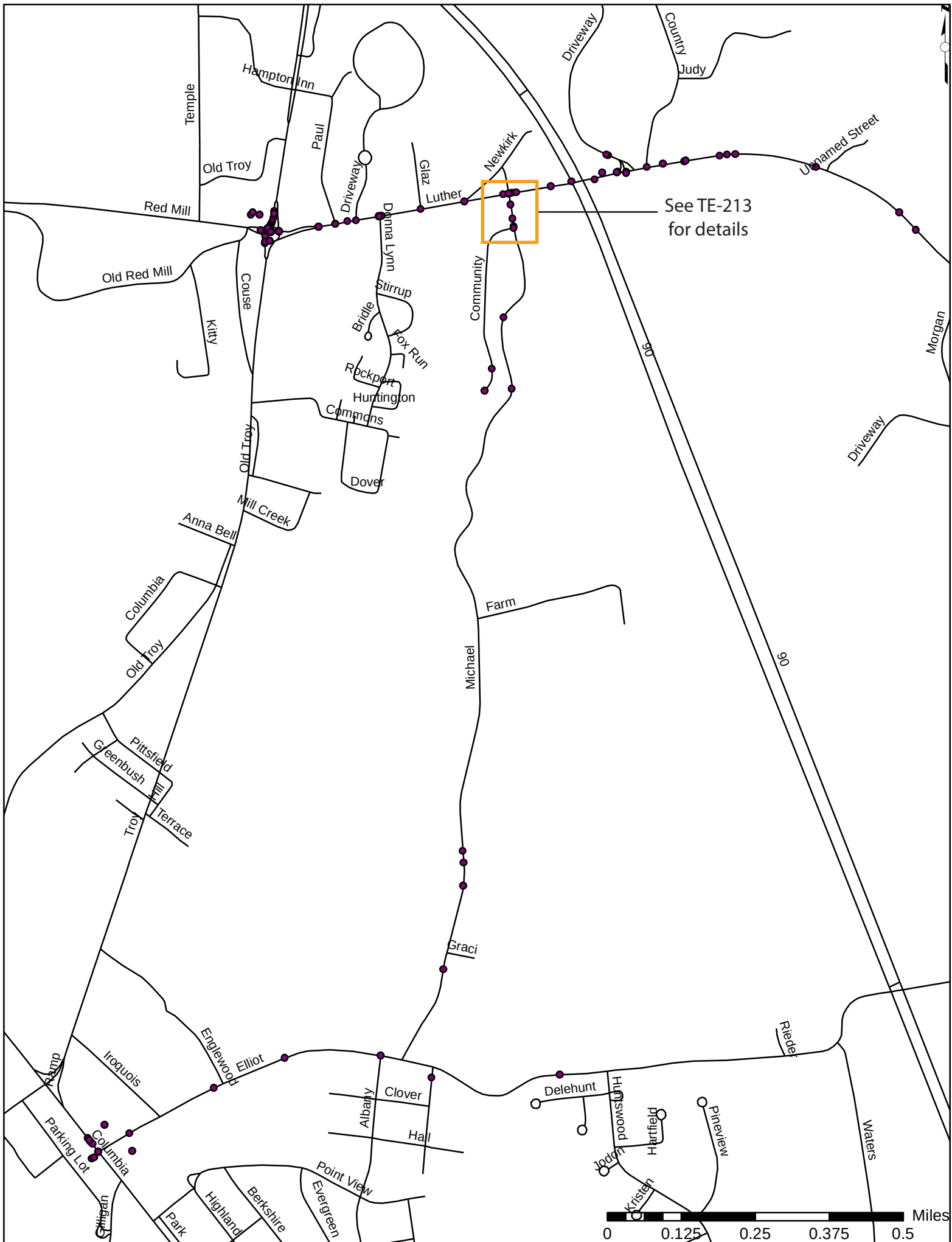
REVISIONS		
NO.	DESCRIPTION	BY DATE

P1
SHEET 1 OF 1



Attachment B
Accident Data

Covered Bridge Village
Town of East Greenbush, New York



DETAILS OF ACCIDENT HISTORY FOR LOCATION (AS SHOWN ON CRASH DIAGRAM)

DIAGRAM SHEET

STUDY NO.				ROUTE NO. or STREET NAME: Luther Road (NY Route 151)								COUNTY: Rensselaer MUNICIPALITY: East Greenbush BY: JBV DATE: 9/25/2018			
P.I.N.				AT INTERSECTION WITH / OR BETWEEN: Michael Road											
INVENTORY NO.															
NO. OF MONTHS: 36		LIGHT CONDITIONS (LC)		ROADWAY CHARACTER (RC)						ROADWAY SURFACE CONDITION (RSC)		WEATHER (WEA)			
		1. Daylight 2. Dawn 3. Dusk 4. Dark Road Lighted 5. Dark Road Unlighted		SEV	LC	RC	RSC	WEA	CONTRIB FACTORS	REF MKR	ACC TYPE	1. Dry 2. Wet 3. Muddy 4. Snow/Ice 5. Slush 10. Other		1. Clear 2. Cloudy 3. Rain 4. Snow 5. Sleet/Hail/Freezing Rain 6. Fog/Smog/Smoke 10. Other	
NO	CASE	DATE	TIME	# OF VEH								DESCRIPTION			
1	35751257	6/5/2015	10:07	2	INJURY	1	1	1	04, 18, YY	151 14011026	SIDESWIPE	V2 was turning right onto Luther Rd from Michael Rd. V1 was turning left onto Michael Rd from Luther Rd. Impact between the two vehicles occurred in the Luther Rd eastbound lane where it meets the Michael Rd northbound turning lane. V1 was operating in the wrong lane of travel. Driver of V1 states she did not see V2 as she turned and thought she was in the correct lane. Driver of V2 states she turned right, and V1 came at he into her lane, and that she could not avoid being struck by V1.			
14	36539689	12/16/2016	17:15	1	PDO	5	1	2	XX		DEER				
41	36753624	5/31/2017	14:19	2	PDO	1	1	1	09, YY		REAR END	vehicles exited parking lot of columbia turnpike onto luther road. vehicles backed up in traffic following the traffic signal on luther road at michael road. operator of v1 was following to closely striking v2 from behind causing the accident.			
45	37207309	3/7/2018	16:43	1	PDO	1	2	4	66, YY	151 14011026	SIGN POST	V1 was E/B on luther rd and slid off the roadway at Michael Rd. striking the street sign. The roadway was snow covered and slippery.			
62	36745576	5/30/2017	14:11	3	PDO	1	1	2	09, YY	151 14011026	OTHER	VEHICLES EXITED COLUMBIA HIGH SCHOOL WESTBOUND ONTO LUTHER ROAD. VEHICLES SLOWED TO STOP FOR THE TRAFFIC SIGNAL AT THE INTERSECTION OF LUTHER ROAD AND MICHAEL ROAD. DRIVER OF V1 WAS FOLLOWING TRAFFIC TOO CLOSELY STRIKING V2 FROM THE REAR FORCING IT INTO THE REAR OF V3. V2 TOWED FROM THE SCENE DUE TO HEAVY FRONT END DAMAGE.			
88	37156019	2/21/2018	11:57	1	NR	1	2	1	42, YY	151 14011026	GUIDE RAIL	V1 WAS TRAVELING WEST ON LUTHER ROAD. DRIVER OF V1 STATED THAT HE WAS ATTEMPTING TO STOP FOR A VEHICLE IN FRONT OF HIM WHEN HIS BRAKES GAVE OUT. TO AVOID THE OTHER VEHICLE, V1 WENT OFF THE SHOULDER OF THE ROAD STRIKING A GUARD RAIL AND THEN A CROSSWALK SIGN POST. THE SIGN POST WAS DAMAGED. NYS DOT WAS NOTIFIED ABOUT THE DAMAGE TO THE SIGN POST.			

117	35960931	11/4/2015	14:18	1	INJURY	1				2	1	1	1	14, YY		PEDESTRIAN	
119	37162532	2/23/2018	16:15	1	PDO	1				2	2	3		18, YY	151 14011026	CURBING	
128	36861937	8/15/2017	11:26	2	NR	1				1	1	2		04, YY	151 14011026	REAR END	V2 was stopped at the red traffic light when V1 struck V2 from behind. V1 driver stated the he was distracted by a bug and did not see V2 stopped in front of him.
133	36571694	1/19/2017	07:10	2	NR	1				2	2	2		09, YY		REAR END	BOTH VEHICLES TRAVELING EASTBOUND ON LUTHER ROAD. V2 STOPPED IN TRAFFIC AND WAS REAR ENDED BY V1. D1 STATES THAT HER FOOT SLIPPED OFF THE BRAKE CAUSING HER STRIKE V2.
135	36285798	6/30/2016	17:31	2	PDO	1				2	1	1		09, 19, YY		REAR END	VEHICLE 2 WAS STRUCK BY VEHICLE 1 WHILE STOPPED AT THE TRAFFIC SIGNAL. VEHICLE 1 THEN FLED THE SCENE EAST BOUND ON S/R 151. THE OPERATOR OF VEHICLE 1 WAS ISSUED FOR A SUSPENDED DRIVERS LICENSE AND LEAVING THE SCENE OF A PDAA.