



DATE: January 12, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study. Over the past month, the following work was accomplished:

Staff from MMI and Hickory Creek conducted site visits and investigations at several of the focus areas. The primary purpose of the visits was to develop preliminary flood mitigation alternatives at each of the focus areas, which will be further evaluated and refined through the use of hydraulic modeling and other engineering methods. The site investigations entailed inspection of the riparian corridor, streambed and banks, and included documentation of riparian cover, flood prone areas, and channel structure. Photographic documentation was collected, and will be used for model calibration, as well as in presentations and reports. Visually inspections and field measurements of several bridges were also conducted.

MMI continued to collect and review available data and resource information relating to hydrology, hydraulics and flood history in the Schoharie Creek watershed.

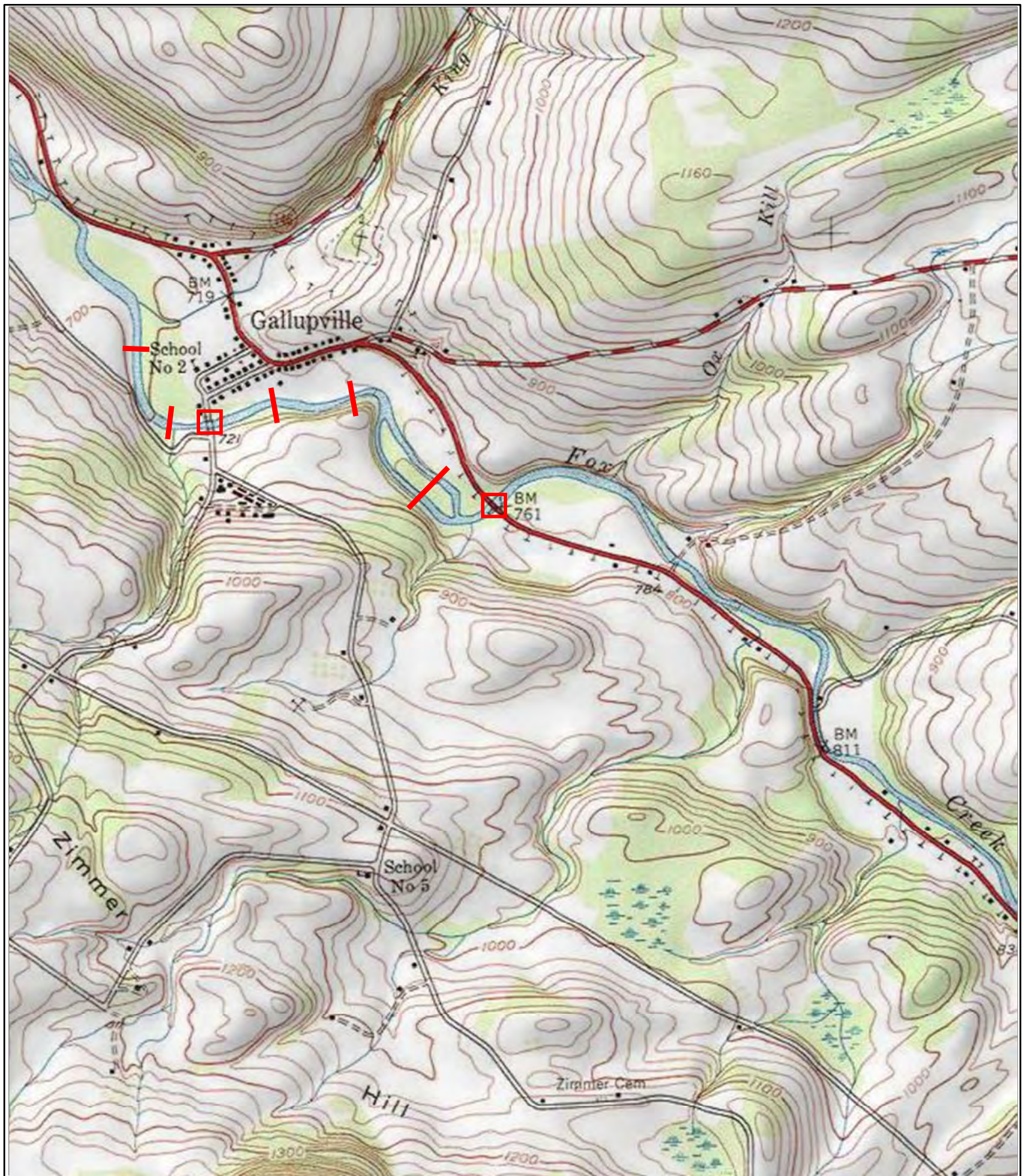
MJ Engineering and Land Surveying conducted channel survey and measurements of bridges within the focus areas. Field survey has been completed and processed for the sites listed below, and will be ready for delivery to MMI shortly. Maps showing the locations of survey cross sections and bridges are appended to this status report.


- Fox Creek
- Schoharie Creek in Middleburgh
- Schoharie Creek in North Blenheim
- Schoharie Creek in Schoharie

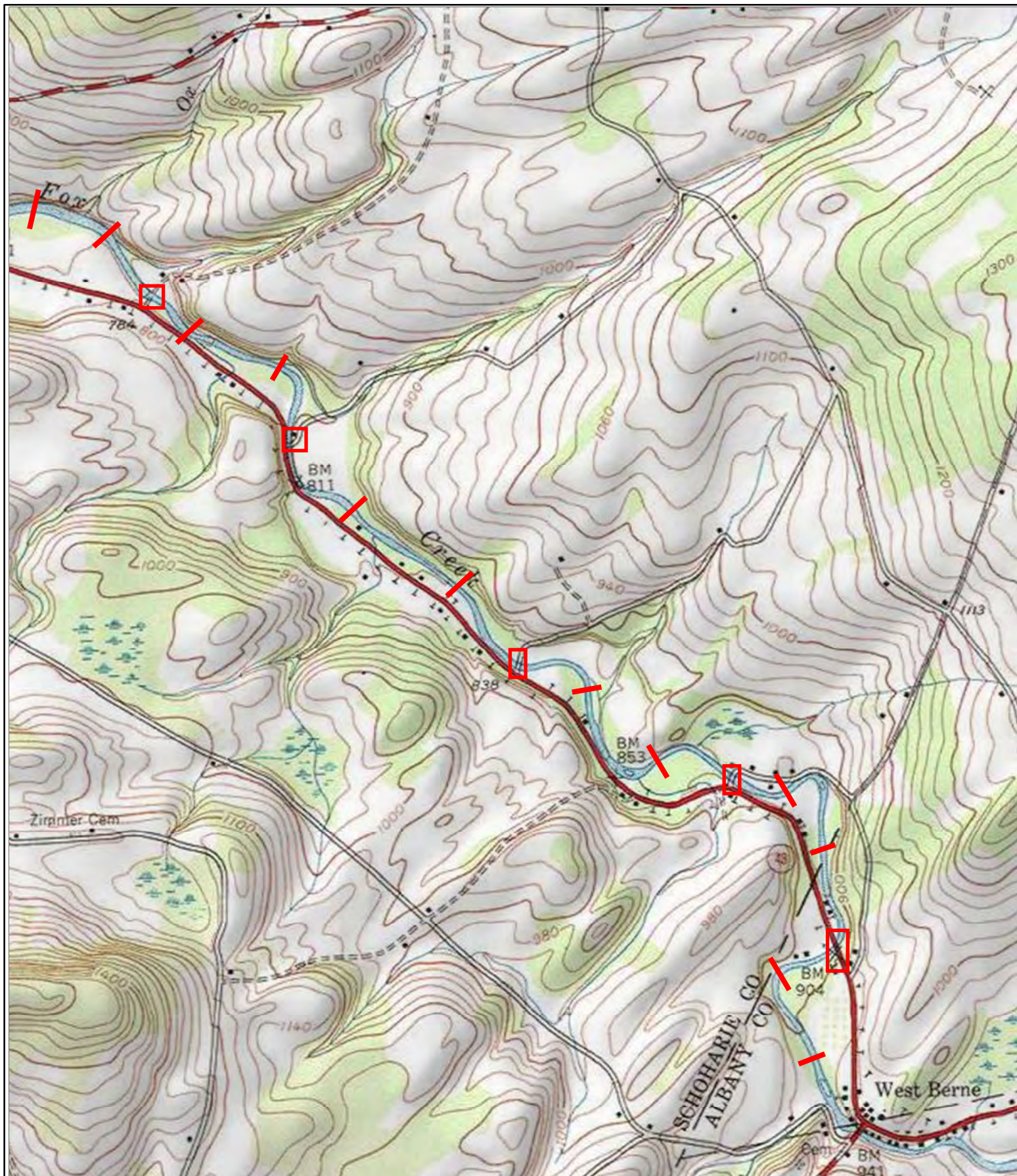
Survey in additional focus areas is underway, and coordination with MJ Engineering to complete the survey is ongoing. MMI has prioritized the focus areas, and MJ will collect survey at as many as possible with the available resources.

Next Steps

- MJ Engineering and Land Surveying to complete survey work
- MMI to continue to develop flood mitigation alternatives
- Initiate hydraulic modeling and assessment in focus areas



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 USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data

Fox Creek Area 2 - Survey Request USGS Quad Map "Gallupville"

LOCATION:
 New York

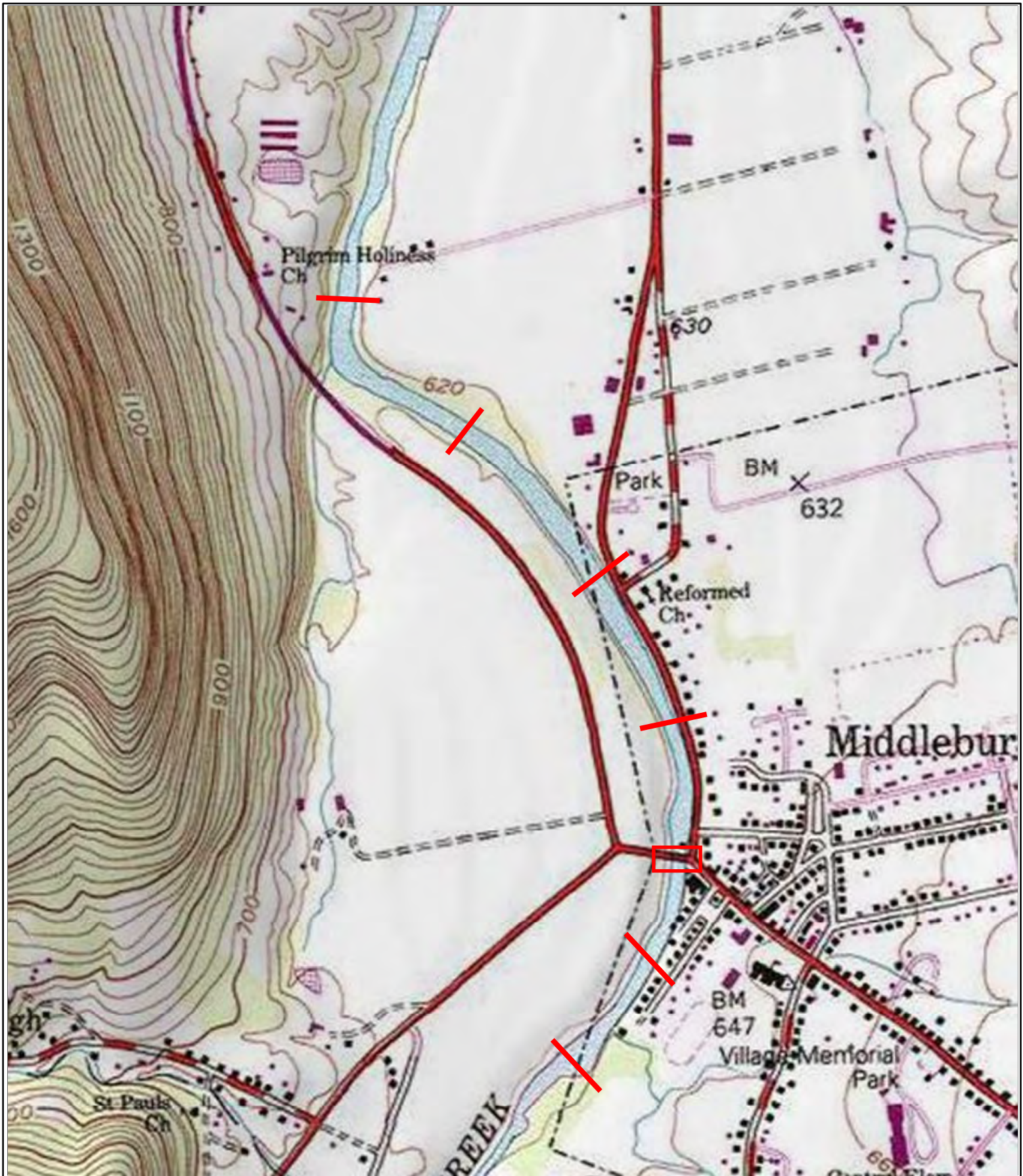


Schoharie Flood Mitigation Studies

MXD: Y:\4805-05\Maps\SurveyFoxCreek.mxd

Map By: JCS
 MMI#: 4805-05
 Original: 11/16/2015
 Revision: 11/16/2015
 Scale: 1 inch = 1,500 feet

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 USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data

Middleburgh Area - Survey Request USGS Quad Map "Middleburgh"

LOCATION:
 New York




Schoharie Flood Mitigation Studies

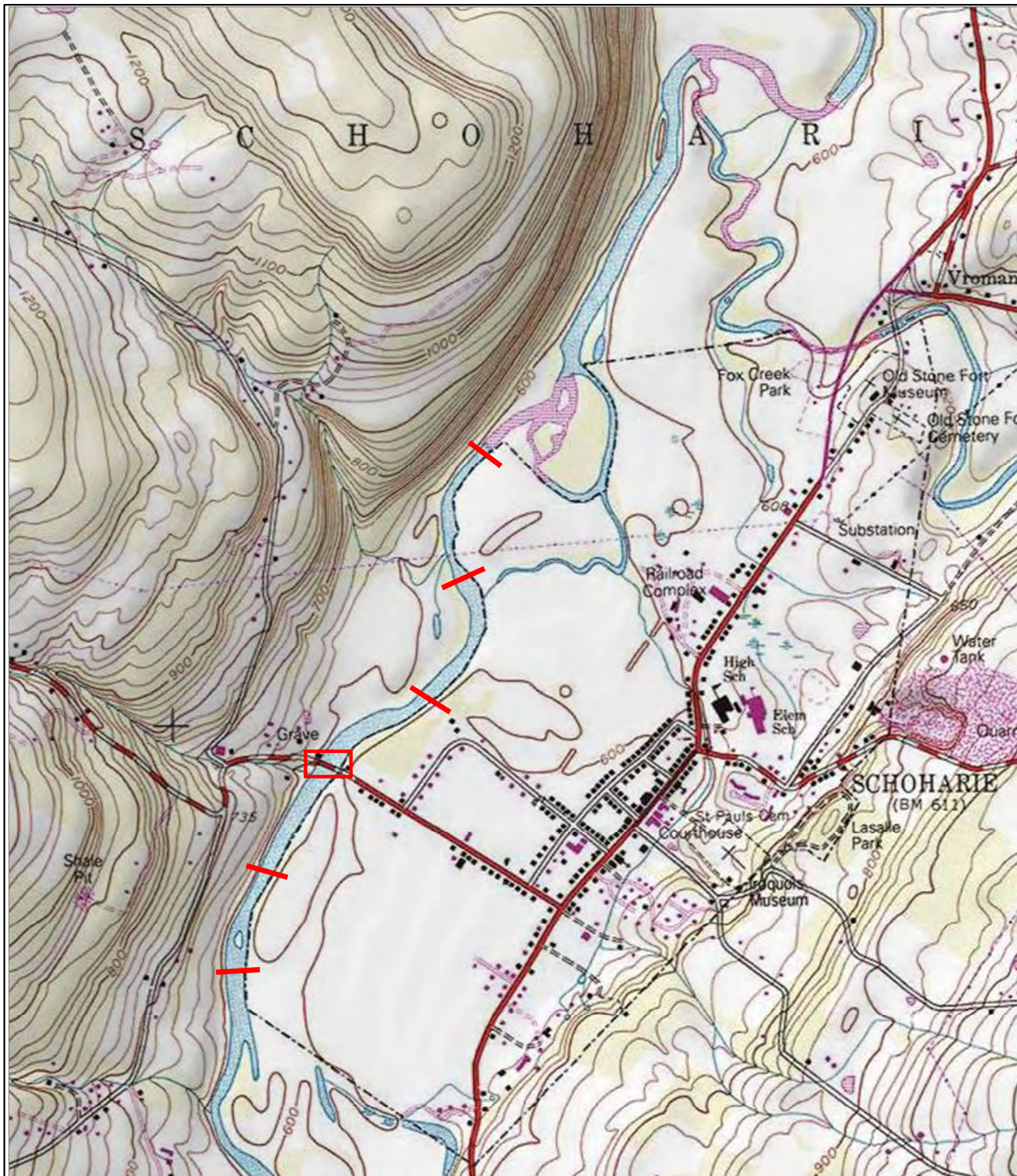
MXD: Y:\4805-05\Maps\SurveyMiddleburgh.mxd

Map By: JCS
 MMI#: 4805-05
 Original: 11/16/2015
 Revision: 11/16/2015
 Scale: 1 inch = 1,000 feet

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Schoharie Area - Survey Request USGS Quad Map "Schoharie"

LOCATION:
New York



Schoharie Flood Mitigation Studies

MXD: Y:\4805-05\Maps\SurveySchoharie.mxd

Map By: JCS
MMI#: 4805-05
Original: 11/16/2015
Revision: 11/16/2015
Scale: 1 inch = 1,500 feet

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DATE: February 2, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study. During the month of January the following work has been accomplished:

MJ Engineering and Land Surveying continued channel survey and measurements of bridges within the focus areas. Survey data from Fox Creek has been delivered to MMI (see appended maps from MJ showing bridge and cross section locations).

The Fox Creek focus area includes an approximately 4.8-mile long reach of Fox Creek beginning downstream of the County Route 9 bridge in the hamlet of West Berne in Albany County, and extending downstream to below the School Street bridge in the hamlet of Gallupville, Schoharie County. This section of Fox Creek runs along or crosses Route 443 for its entire length and passes under a total of seven bridges. There have been numerous reports of flooding, sediment aggradation and debris jams in this area, especially at the bridges. Survey files from additional focus areas are anticipated from MJ this week.

MMI continued to collect and review available data and resource information relating to hydrology, hydraulics and flood history in the Schoharie Creek watershed. Bridge and channel measurements were made in the Village of Cobleskill, and design drawings were obtained for the replacement County Route 23A bridge at Warnerville Cutoff.

MMI has now obtained all available FEMA HEC-RAS hydraulic models, and hydraulic modeling work has begun. Hydraulic analysis is currently underway along the section of Fox Creek described above; at the Patria Road bridge over House Creek and the West Fulton Road (County Route 4) bridge over Panther Creek in the hamlet of West Fulton; and at an unnamed culvert crossing under NY Route 30 in Middleburgh, just south of Christmas Tree Lane.

Next Steps

- MJ Engineering and Land Surveying to complete survey work and deliver all files to MMI
- MMI to continue to develop flood mitigation alternatives
- MMI to progress with hydraulic modeling

**Hydraulic Cross Sections
Schoharie County
Fox Creek Area 1 and Area 2
“Gallupville Quad”
Town of Wright, Schoharie County**

M.J. Engineering and Land Surveying, P.C. was requested by *Milone & MacBroom* to perform hydraulic cross sections along a portion of the Fox Creek from the Schoharie County/ Albany County Line to the Village of Gallupville in the Town of Wright, Schoharie County. Hydraulic cross sections are located on sketches provided designated as Fox Creek –Area 1 & Area 2. The “wet section” and overbank survey along the stream channels are to augment FEMA cross sections in developing new modeling for flood-prone streams in current FEMA modeling.

M.J. Engineering and Land Surveying, P.C. performed the hydraulic cross sections utilizing a Trimble GPS base station and Rover receiver. The horizontal values are reported in English units on the New York State Plane Coordinate System, Eastern Zone, referenced to the North American Datum of 1983/2011.

The vertical datum for this project is based upon North American Vertical Datum of 1988 (NAVD88). All elevations are in English units.



NOTES:

HORIZONTAL DATUM NEW YORK STATE PLANE
EAST ZONE NAD 83/(2011) IN U.S. SURVEY FEET
DERIVED FROM STATIC GPS AND BASE STATION
GPS RTK OBSERVATIONS.

VERTICAL DATUM IS REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
IN FEET.

SUBMITTAL / REVISIONS							
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1533 Crescent Road - Clifton Park, NY 12065

HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "GALLUPVILLE"
FOX CREEK AREA 1
TOWN OF WRIGHT, SCHOHARIE COUNTY

SCALE: N.T.S.
CONTRACT No.: -
MJ PROJ. No.: 1121.03
DATE: JANUARY 15, 2016



NOTES:

HORIZONTAL DATUM NEW YORK STATE PLANE
EAST ZONE NAD 83/(2011) IN U.S. SURVEY FEET
DERIVED FROM STATIC GPS AND BASE STATION
GPS RTK OBSERVATIONS.

VERTICAL DATUM IS REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
IN FEET.

MATCHLINE SHEET 2

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HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "GALLUPVILLE"
FOX CREEK AREA 2
TOWN OF WRIGHT, SCHOHARIE COUNTY
SHEET 1 OF 4

SCALE: N.T.S.
CONTRACT No.: -
MJ PROJ. No.: 1121.03
DATE: JANUARY 15, 2016



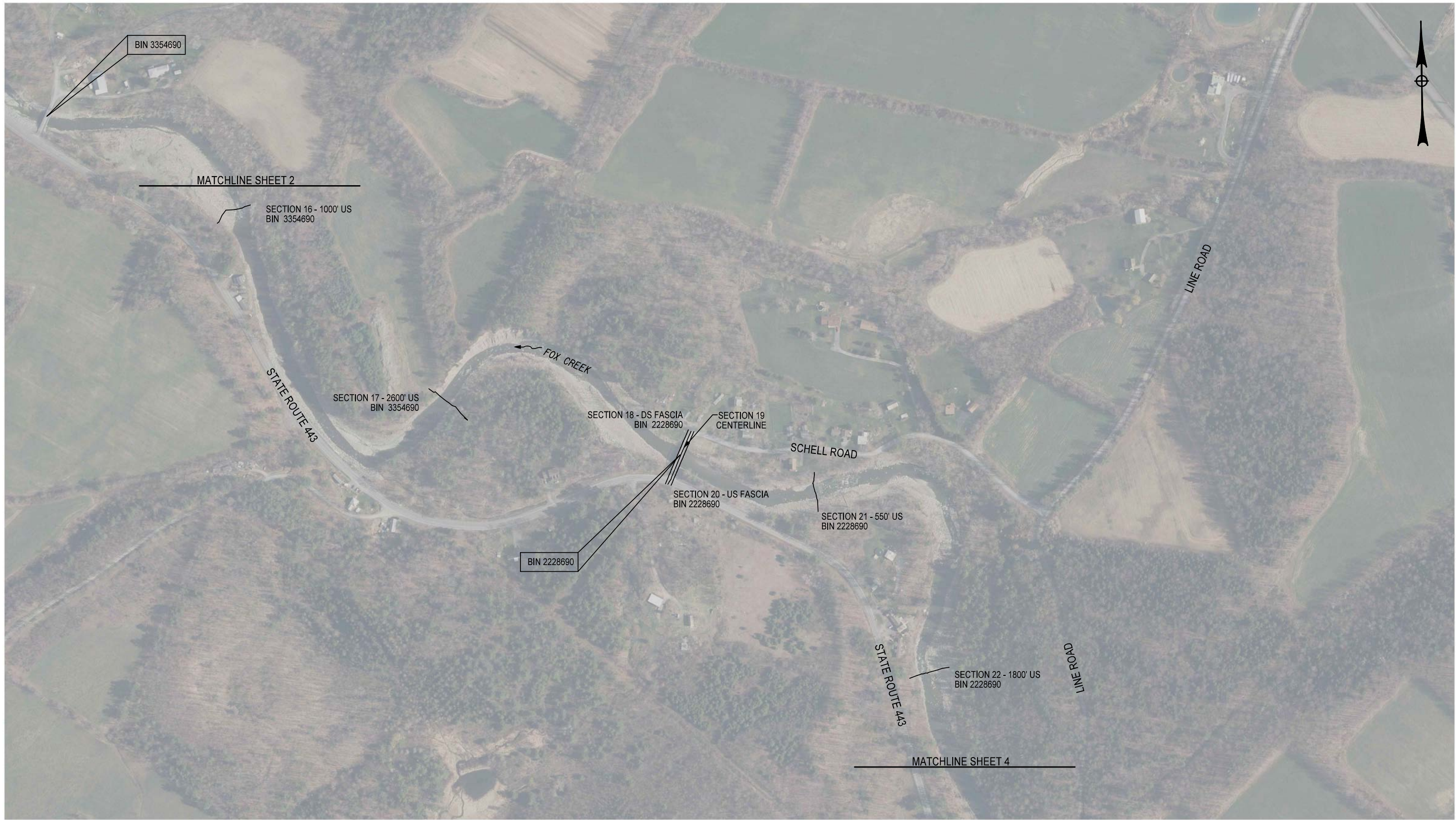
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						DRAWN BY:	
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HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "GALLUPVILLE"
FOX CREEK AREA 2
TOWN OF WRIGHT, SCHOHARIE COUNTY
SHEET 2 OF 4

SCALE: N.T.S.
CONTRACT No.:
MJ PROJ. No.: 1121.03
DATE: JANUARY 15, 2016



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HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "GALLUPVILLE"
FOX CREEK AREA 2
TOWN OF WRIGHT, SCHOHARIE COUNTY
SHEET 3 OF 4

SCALE: N.T.S.
CONTRACT No.: -
MJ PROJ. No.: 1121.03
DATE: JANUARY 15, 2016



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HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "GALLUPVILLE"
FOX CREEK AREA 2
TOWN OF WRIGHT, SCHOHARIE COUNTY
SHEET 4 OF 4

SCALE: N.T.S.
CONTRACT No.: -
MJ PROJ. No.: 1121.03
DATE: JANUARY 15, 2016



DATE: March 7, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study. During the month of February the following work has been accomplished:

MJ Engineering and Land Surveying continued their processing of channel survey and measurements of bridges within the focus areas, delivering survey data to MMI for Schoharie Creek through North Blenheim and Middleburgh. Maps showing survey locations within both areas are appended.

The North Blenheim focus area includes an approximately 1.5 mile reach of Schoharie Creek as it flows through the hamlet of North Blenheim, which was severely damaged by flooding during Tropical Storm Irene. The reach includes the NY State Route 30 bridge and the abutments of the historic Blenheim covered bridge, which is no longer in place. This reach of Schoharie Creek has been evaluated by FEMA using approximate engineering methods only, meaning that identification of areas subject to flooding has been approximated, and no water surface elevations are provided. The FEMA Flood Insurance Rate Map indicates that the 100-year flood event inundates much of the developed area of the hamlet of North Blenheim along Route 30.

The Middleburgh focus area includes approximately 1.8 mile reach of Schoharie Creek as it flows through Middleburgh, including the NY State Route 30 bridge. Flooding has occurred along River Street and, less frequently, on Main Street.

Hydraulic modeling work continues. Hydraulic analysis is continuing at the Patria Road bridge over House Creek and the West Fulton Road (County Route 4) bridge over Panther Creek in the hamlet of West Fulton, and at an unnamed culvert crossing under NY Route 30 in Middleburgh, just south of Christmas Tree Lane.

Next Steps

- MJ Engineering and Land Surveying to complete survey work and deliver all files to MMI
- MMI to continue to develop flood mitigation alternatives
- MMI to progress with hydraulic modeling



NOTES:

HORIZONTAL DATUM NEW YORK STATE PLANE
EAST ZONE NAD 83/(2011) IN U.S. SURVEY FEET
DERIVED FROM STATIC GPS AND BASE STATION
GPS RTK OBSERVATIONS.

VERTICAL DATUM IS REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
IN FEET.

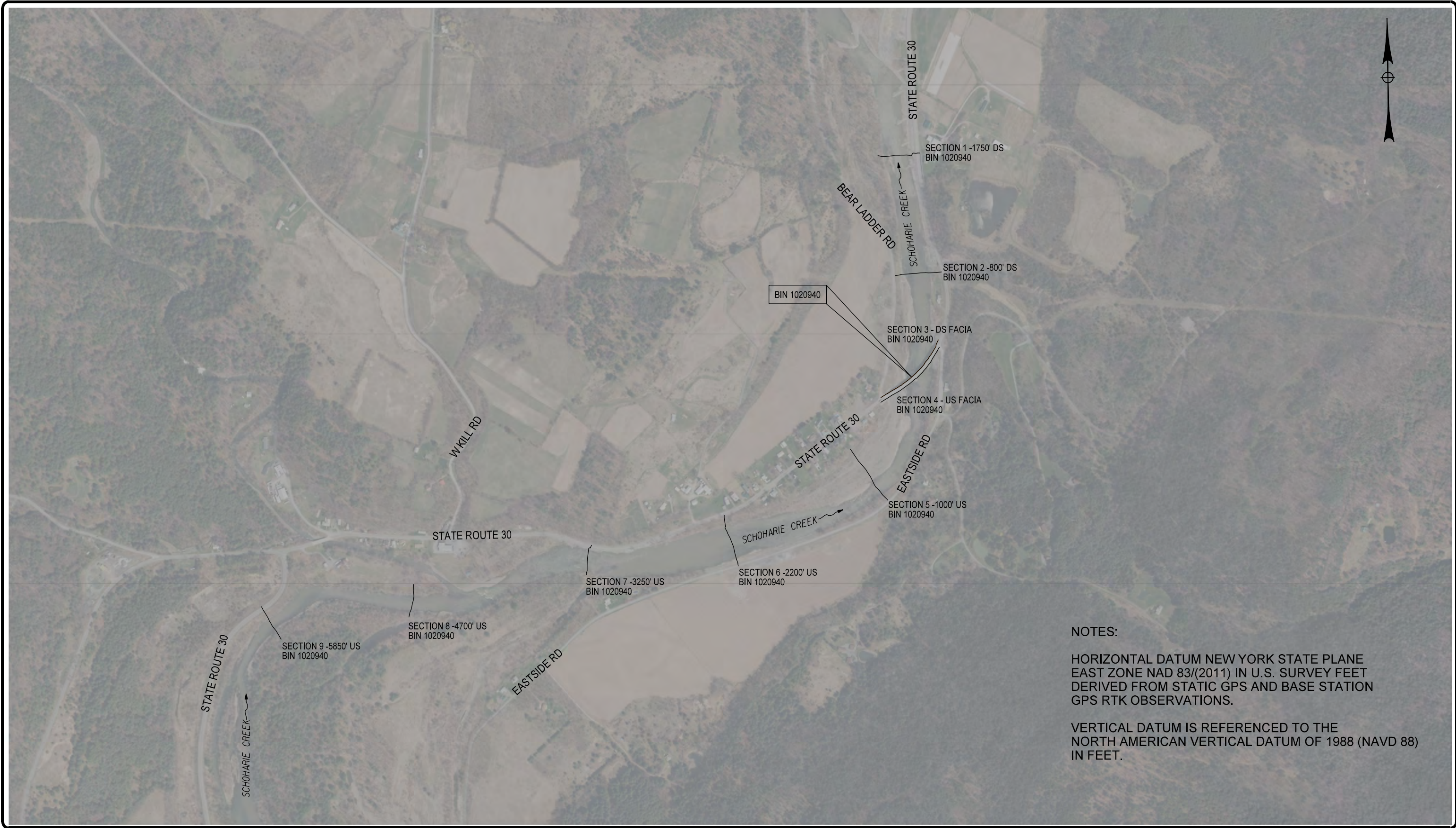
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No.	DATE	DESCRIPTION	BY	REVIEWED BY:	DATE	PROJ. MANAGER:	JGM
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						DESIGNED BY:	
						DRAWN BY:	KS
						CHECKED BY:	MJF



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HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "MIDDLEBURGH"
SCHOHARIE CREEK
TOWN OF MIDDLEBURGH,
SCHOHARIE COUNTY

SCALE:	N.T.S.
CONTRACT No.:	-
MJ PROJ. No.:	1121.03
DATE:	FEBRUARY 17, 2016



NOTES:

HORIZONTAL DATUM NEW YORK STATE PLANE
EAST ZONE NAD 83/(2011) IN U.S. SURVEY FEET
DERIVED FROM STATIC GPS AND BASE STATION
GPS RTK OBSERVATIONS.

VERTICAL DATUM IS REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
IN FEET.

SUBMITTAL / REVISIONS					
No.	DATE	DESCRIPTION	BY	REVIEWED BY:	DATE

PROJ. MANAGER:	JGM
CHIEF DESIGNER:	
DESIGNED BY:	
DRAWN BY:	KS
CHECKED BY:	MJF



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1533 Crescent Road - Clifton Park, NY 12065

HYDRAULIC CROSS SECTION SKETCH
USGS QUAD MAP "GILBOA"
SCHOHARIE CREEK
TOWN OF GILBOA, SCHOHARIE COUNTY

SCALE:	N.T.S.
CONTRACT No.:	-
MJ PROJ. No.:	1121.03
DATE:	FEBRUARY 17, 2016



DATE: April 11, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study.

MJ Engineering and Land Surveying delivered additional survey data to MMI. Survey was provided for Schoharie Creek where it flows through the Town and Village of Schoharie, including the Bridge Street (County Route 1a) bridge. MJ also provided survey for the lower reaches of Cobleskill Creek near Central Bridge.

The Schoharie focus area includes an approximately 1.5 mile reach of Schoharie Creek, extending downstream from Bridge Street. Flooding problems have been reported to the west of Main Street, and Main Street reportedly flooded during Irene. The FEMA Flood Insurance Rate Maps indicate that the 100-year flood event inundates portions of the commercial area.

The Central Bridge focus area includes the downstream-most reach of Cobleskill Creek as it passes under the Church Street and Route 30A bridges, near its confluence with Schoharie Creek. Flooding and channel instability has been reported in this area.

Hydraulic modeling work continues. During the past month we have done extensive modeling along the focus area on Fox Creek upstream of and including Gallopville, which includes analysis of seven bridges, and along Schoharie Creek in North Blenheim. We have also been conducting calculations at potential floodwater storage locations.

Next Steps

- MMI to continue with H&H, hydraulic modeling and development of flood mitigation alternatives
- Hickory Creek is assembling recommendations relating to riparian buffers, wetland protection, green infrastructure
- MMI to conduct field visits to verify modeling results and conduct spot checks at focus areas



DATE: May 10, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study.

Hydraulic modeling work and the evaluation of flood mitigation alternatives is coming to a close. We are also wrapping up calculations at potential floodwater storage locations. MMI's subconsultant, Hickory Creek, is providing recommendations relating to riparian buffers, wetland protection, and green infrastructure.

At the end of May, MMI will be producing a technical memorandum summarizing the results of our hydraulic modeling and alternatives analysis, and providing preliminary flood mitigation recommendations. This will allow SCSWCD and its partners to review the recommendations with the appropriate stakeholders in the watershed, and begin to prepare materials for upcoming funding opportunities.

Next Steps

- Finalize hydraulic modeling
- Finalize floodwater storage calculations
- Integrate Hickory Creek's recommendations on riparian buffers, wetland protection, and green infrastructure
- Produce technical memorandum providing preliminary flood mitigation recommendations
- Begin cost assessments, identification of funding sources, and permitting assessment
- Continue development of draft engineering report



DATE: June 9, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study.

At the end of May, MMI produced a technical memorandum that summarized the results of our hydraulic modeling and alternatives analysis to date, and provided preliminary flood mitigation recommendations within a total of 17 focus areas. The intention of the memo was to allow SCSWCD and its partners to review the recommendations with the appropriate stakeholders in the watershed, and begin to prepare materials for upcoming funding opportunities. On June 8 a call was convened with the project stakeholders, which provided an opportunity for MMI to gather feedback on the recommendations, and to collect additional information on flooding and potential flood mitigation alternatives within the focus areas.

Next Steps

In June we will be further refining our analysis and recommendations, evaluating additional flood mitigation measures in several of the focus areas, developing more detailed cost opinions, and continuing with production of the engineering report. We will also begin the identification of funding sources, and the assessment of permitting requirements.



DATE: July 12, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the status of the Schoharie Creek Watershed Flood Mitigation Study.

The team at Milone & MacBroom has been continuing to develop and refine the flood mitigation analysis and recommendations in the draft engineering report. This has included the evaluation of additional flood mitigation measures in several of the focus areas, including sediment removal from the channel, flood walls, and levees. We are developing more detailed cost opinions for several alternatives, and have been creating graphics for inclusion in the report. We have also begun the process of identifying funding sources, and the assessment of permitting requirements.



DATE: August 11, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the Schoharie Creek Watershed Flood Mitigation Study.

We have been continuing to develop and refine the flood mitigation analysis and recommendations in the draft engineering report. The majority of the report has now been drafted. Our partner at Hickory Creek is working on identifying funding sources and assessing permitting requirements for the recommended alternatives.

We have set a target date of September 30 for completion and delivery of the draft engineering report. After delivery of the draft report we will be looking for feedback from SCSWCD and the other conservation districts and stakeholders. For the public meeting to present the report findings, we have set a tentative timeline of mid-October. We will work with SCSWCD and the other partners to set a specific date, and to identify the location and format for the meeting.



DATE: September 15, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the Schoharie Creek Watershed Flood Mitigation Study.

Hydraulic modeling and analysis has been completed at two final focus areas: at Warnerville Cutoff over Cobleskill Creek, and at Coyer Road along Schoharie Creek.

We have now completed the data collection, hydraulic modeling, alternatives analysis, and flood mitigation recommendation components of the Schoharie Creek Watershed flood study. We are finishing up, reviewing and formatting the draft engineering report, and producing graphics to accompany the report. Our partner at Hickory Creek has provided the sections of the report on funding sources and regulatory permitting requirements, which will be reviewed and included in the report.

We are targeting September 30 for completion and delivery of the draft engineering report to SCSWCD. After delivery, we will be looking for feedback from SCSWCD and the other conservation districts and stakeholders. The final report will address comments received on the draft report.

Working with SCSWCD, we have set a tentative timeline of mid-October for a public meeting to present the results. We will work with SCSWCD and the other partners to set a specific date, and to identify the location and format for the meeting.



DATE: October 12, 2016

MMI #: 4805-05

PROJECT: Schoharie Creek Watershed Flood Study

SUBJECT: Project Status Report

Following is a monthly update on the Schoharie Creek Watershed Flood Mitigation Study.

The draft engineering report was delivered to SCSWCD on September 30, and was subsequently made available to the other conservation districts and stakeholders.

You can access the report on Milone & MacBroom's FTP site by going to this link:

<https://clients.miloneandmacbroom.com/>

Username: Schoharie

Password: Flood

Peter Nichols at SCSWCD has asked that conservation district personnel respond to him with comments by October 14. He will compile comments and provide them to Milone & MacBroom. The final report will address comments received on the draft report.

We will continue to work with SCSWCD and other stakeholders to set a date for a public meeting to present the results, and to identify a location and format for the meeting.

Next Steps

- Compile and address comments and issue final engineering report
- Coordinate public meeting to present the results of the flood mitigation study