Aviation Investigation Final Report

Location:	Port Huron, Michigan	**Accident Number:**	CEN15FA087
Date & Time:	December 24, 2014, 12:54 Local	**Registration:**	N38884
Aircraft:	Piper PA-34-200T	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation		

Analysis

The private pilot was conducting a business flight. He had obtained weather briefings on the day before and the day of the flight, which indicated marginal visual flight rules conditions. However, upon arrival in the vicinity of the airport, instrument meteorological conditions prevailed with visibility at or below the approach's visibility minimums. However, the pilot contacted the controller, obtained the weather information, and chose to continue the approach. Radar data showed that the airplane's final approach course was unstabilized. The last data point along the final approach course was about 0.5 mile southwest of the missed approach point, which was near the runway 4 approach end at an altitude of 1,100 ft. The missed approach procedure was to climb to 2,500 ft, make a climbing left turn to 4,000 feet, proceed direct to the outer marker, and hold. The lack of radar data points below 1,100 feet between the approach and departure ends of runway 4 may indicate that the airplane was below 1,100 ft over the runway area, which may indicate that the pilot attempted to visually acquire the runway environment with visibilities that did not allow for adequate visual reference to land. Likely unable to see the runway, the pilot notified air traffic control that he was executing a missed approach. The airplane impacted a wooded area about 0.39 mile north/northwest of the runway 4 departure end. The wreckage path length and slope through the trees was consistent with a shallow angle of impact at relative high speed. It is likely that the pilot continued flight below the minimum descent altitude without visually acquiring the runway and did not execute the missed approach procedures in a timely manner. Examination of the wreckage did not reveal any anomalies that would have precluded normal operation of the airplane. The filed alternate airport for the flight showed weather about the time of the accident that was above weather minimums for a precision approach that was available at the alternate airport.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's decision to continue flight below the minimum descent altitude without visually acquiring the runway and his delayed and improperly executed missed approach procedure in instrument meteorological conditions.

Findings

Personnel issues	Delayed action - Pilot
Aircraft	(general) - Not attained/maintained
Environmental issues	Below approach minima - Contributed to outcome

Factual Information

History of Flight

Approach-IFR missed approach	Miscellaneous/other
Approach-IFR missed approach	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On December 24, 2014, at 1254 eastern standard time, a Piper PA-34-200T, N38884, impacted trees and terrain during a missed approach from an instrument landing system (ILS) approach to runway 4 at St Clair County International Airport (PHN), Port Huron, Michigan. The airplane was destroyed by impact forces. The private pilot sustained fatal injuries. The airplane was registered to GL Holdings LLC and was operated by the pilot under the provisions of 14 Code of Federal Regulations Part 91 as a business flight. Instrument meteorological conditions (IMC) prevailed at the time of the accident with weather below approach minimums. The flight was operating on an instrument flight rules flight plan and departed from Hanover County Municipal Airport (OFP), Richmond, Virginia, at 1025 destined to PHN.

The pilot called Lockheed Martin Flight Service (LMFS) several times before the departure of the accident flight and received official weather briefings twice. The first call to LMFS occurred on December 23, 2014 at 1308 for a flight from OFP to PHN with a departure time of 1500. The pilot told the LFMS that he was trying to determine whether the weather at PHN was below minimums and his personal minimums. The LMFS briefer told the pilot that the Selfridge Air National Guard Base (MTC), Mount Clemens, Michigan terminal forecast (TAF) indicated a gradual change from 1600 to 1700: wind from 140 degrees at 9 knots, visibility about 3 statute (sm) miles due to light drizzle mist, broken ceiling of 600 feet mean sea level (msl), and an overcast ceiling of 1,000 feet msl up until 1700. Then temporary conditions; 4 sm visibility due to light rain showers an overcast ceiling of 1,000 feet msl changing over between 1600 and 1700 with a surface wind of 160 degrees at 6 knots, visibility of 5 sm due to mist, overcast ceiling of 600 feet msl. The briefer tells the pilot that there will be another gradual changing over between 2100 and 2200: surface winds of 130 degrees at 6 knots, visibility of 3 sm due to light rain, overcast ceiling of 1,000 feet msl which is valid until December 24, 2014 at 0300. After 2200, temporary conditions of 1 sm, light rain mist, and overcast ceiling of 700 feet msl. The LMFS briefer then provided a TAF the covered the destination airport for December 24, 2014 that indicated all morning until a gradual change from 1200 to 1300 for marginal visual flight rules (VFR) conditions, wind from 020 degrees at 6 knots, visibility 5 sm, mist, few clouds at 1,500 feet msl, broken ceiling of 3,000 feet msl changing over marginal VFR, visibility 4 sm, light rain and mist, overcast ceiling of 1,000 feet msl. After 1300, temporary conditions forecasted visibility down to 1 sm with light rain. The pilot then stated, "okay so it's better tomorrow than today that's for sure."

The pilot requested and got the forecast information for a flight on December 24, 2014 with the TAF forecast on December 23, 2014 forecasting ceilings above instrument flight rules IFR conditions for December 24, 2014. The pilot made his next call to LMFS on December 24, 2014 at 0917 and received an official weather briefing. The pilot received all the official weather forecast products, including Area

Forecast, Airmen's Meteorological Information (AIRMETs), Pilot Reports (PIREPs), and the TAF from MTC. The weather conditions and forecast were for low IFR conditions for the accident site and these weather conditions and forecast were worse than predicted from the weather forecast from the previous days' TAF from MTC. The pilot referenced the previous days' forecast during communication at 0928:55.

The pilot made his final call to LMFS at 0956:48 to file his IFR flight plan and no weather information was requested at that time. The IFR flight plan that the pilot filed with LMFS had: departure time – 1030, destination - OFP, destination PHN, route - direct, time en route - 2:40, altitude 8,000 feet mean sea level, fuel - 6:00, alternate airport – Saginaw County H W Browne Airport (HYX), Saginaw, Michigan. HYX was located about 66.2 miles west/northwest of PHN.

During the filing of the flight plan, the LMFS briefer asked the pilot if he required the latest information on adverse [weather] conditions for the route of flight or anything else that the pilot needed help with; the pilot responded "ah the route sucks". The briefer responded "yeah," and the pilot stated "I just got that a little bit ago so". The final call ended at 0957:53.

A fixed base operator line service employee at OFP stated that the airplane departed on December 24, 2014, mid-morning, after receiving 104.2 gallons of fuel in both wings. The airplane started up normally and seemed to idle normally as well. The airplane seemed to be in good condition as he did not notice any apparent leaks, cracks, or otherwise out of place conditions concerning the airplane. The pilot did not ask for anything other than fuel that day.

A rerecording of ATC communications between N38884 and MTC approach indicated that upon initial contact with the MTC approach controller, the pilot reported level at 8,000 feet. The approach controller provided an altimeter setting of 29.41 inches of mercury (hg), which was acknowledged by the pilot.

The approach controller asked the pilot if he had the current weather at PHN and the pilot said "i'm just getting it now". The controller responded, "roger." The pilot then said he had the weather at PHN. The controller then asked which approach the pilot was requesting and the pilot said the ILS 4 approach. The controller told the pilot was then told to expect the ILS approach.

The pilot was issued and acknowledged a decent to 3,000 feet at pilot's discretion, which was followed by the controller telling the pilot to fly a heading of 290 degrees for vector to intercept the ILS final approach course. The pilot was asked to provide flight conditions. The pilot acknowledged the heading of 290 degrees and stated flight conditions were IMC. The controller told the pilot to turn right to heading 320 degrees which was acknowledge by the pilot.

The controller told the pilot that he was 10 miles from the final approach fix, turn right heading 010 degrees, maintain 2,300 feet until established on the localizer, and he was cleared for the ILS 4 approach at PHN, which was read back to the controller by the pilot.

The controller then asked if the pilot if he needed a radar vector "back on [to the localizer]". The pilot told the controller that he thought he "uh we're coming around to it I think I can grab it." The controller responded, "roger".

The controller provided the pilot with an altimeter setting 29.44 inches of mercury (Hg) for PHN, which was read back by the pilot. The controller instructed the pilot to report IFR cancellation with the current radio frequency for MTC approach or with flight service. The pilot told the controller that the IFR cancellation "will probably be with flight service we're going to be right at minimums on this one". The controller then approves a frequency change for the pilot to the advisory frequency for PHN. The pilot acknowledges the change to the advisory frequency and states that he is on the localizer course for runway 04.

The next transmission is made by the pilot stating "triple eight four missed approach." The approach controller states "roger." About 45 seconds later, the controller then instructs the pilot to report airplane altitude. The controller attempts to contact the pilot after no response. There were no additional recorded transmissions from the pilot.

A witness who resided about two miles northwest of PHN stated that about 1252, "I was standing on the east side of my home on the front porch and had noticed the dense fog in the area. It's become a habit of mine to keep a close eye on the weather. This day, especially, because of the dense fog lingered into the afternoon. I estimated the weather to have approximately a 1/4 mile visibility or less, with a ceiling of approximately 150 to 200 feet. I heard a plane coming into [PHN]. I recognized the sound as a twin non-radial engine piston airplane approaching from the south, on what sounded to me to be the ILS runway 04 approach. I was paying particular attention due to the fog and low visibility. I am very familiar with this approach, as I have done this approach many times. After hearing this plane approach, I was concerned and thought to myself, "This plane is not going to be able to get into the airport due to the dense fog". I continued to listen as the plane was heading in a northern direction. I could hear the engines running and appeared to run normally. After a minute or so of hearing the engines, I heard both engines go into full throttle position. The engines were out of sync for approximately two to three seconds and then synced up. It sounded like they were in full throttle at this point. Based on my training and experience, it sounded as the plane was executing a missed approach. I could hear the engines almost to the area of Smiths Creek Road, well past the missed approach point. I heard the engines for another 10 seconds, then heard what sounded like one engine was chewing trees. I heard this for approximately 5 to 10 seconds. Then I heard the other engine, still in full throttle mode for another three to five seconds and come to an abrupt stop as if it hit something. Judging from the sounds and distance from where I was at outside of my home, I could tell the airplane was well north and west of the runway. It did not have the normal sound of an airplane doing a missed approach on runway 04; it appeared to be closer to my house then normal for a missed approach at the airport."

An alert notice (ALNOT) was issued at 1348 for the airplane with last known position as on approach for PHN.

Pilot Information

Certificate:	Private	**Age:**	52,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 1, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	627 hours (Total, all aircraft), 348 hours (Total, this make and model), 494 hours (Pilot In Command, all aircraft), 53 hours (Last 90 days, all aircraft), 31 hours (Last 30 days, all aircraft)		

The pilot, age 52, was issued a Federal Aviation Administration (FAA) private pilot certificate with a single-engine land airplane and multiengine land rating on January 27, 2011. The FAA pilot certificate was only valid when accompanied by a Canadian pilot certificate which had a multiengine instrument rating but was not transferred to the pilot's FAA pilot certificate.

The pilot held a Canadian airman medical certificate, category 3, with an issuance date of March 2013 and the following limitation/restriction: "glasses must be worn".

A pilot logbook recovered from the wreckage had flight entries dated from August 3, 2009 and December 20, 2014. The last two flight entries were dated December 20, 2014 from OFP to MQS and MQS to OFP. The pilot's total flight time in single-engine airplanes was: 166.1 hours as pilot-in-command and 73.6 hours as dual instruction received. The pilot's total flight times for multiengine airplanes were: 328.2 hours as pilot-in-command and 58.8 hours dual instruction received.

The pilot's instrument flight experience was logged as: 175.9 instrument conditions, 21.5 hours with a hood, 11.2 hours simulator, and 53 instrument approaches. During December 2014, the pilot flew a total of three instrument approaches, two of which were on December 5, 2014 during a flight from David Wayne Hooks Memorial Airport (DWH) Houston, Texas to Northeast Alabama Regional Airport (GAD) Gadsden, Alabama and one on December 9, 2014 at OFP to PHN. Prior to December 2014, the pilot flew two instrument approaches in June 2014 and one instrument approach in August 2014. There were no entries in the logbook indicating the types of these approaches flown.

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N38884
Model/Series:	PA-34-200T	**Aircraft Category:**	Airplane
Year of Manufacture:	1977	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	34-7770352
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental
ELT:	Installed, activated, aided in locating accident	**Engine Model/Series:**	
Registered Owner:	GL HOLDINGS LLC	**Rated Power:**	
Operator:	Pilot	**Operating Certificate(s) Held:**	None

N38884 was a 1977 Piper PA-34-200T, serial number 34-7770352 was registered to GL Holdings LLC on December 23, 2011 and was operated by the pilot. The airplane was powered by two Continental Motors L/TSIO-360-EB engines, left engine serial number 809133-R, and right engine serial number 312123.

The aircraft, engines, and propellers underwent their last annual inspection dated July 25, 2014 at: aircraft total time - 7,797.9 hours, tachometer time – 1,552.5 hours, left engine total time – 1,897.7 hours, left engine since overhaul – 1,897.7 hours, right engine total time - 4,366 hours, right engine since major overhaul - 894.1 hours.

A tachometer gauge at the accident site sustained impact damage and had an indication of 1,614.9 hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PHN	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	17:57 Local	**Direction from Accident Site:**	225°
Lowest Cloud Condition:		**Visibility**	0.25 miles
Lowest Ceiling:	Overcast / 200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.4 inches Hg	**Temperature/Dew Point:**	6°C / 6°C
Precipitation and Obscuration:	Moderate - None - Fog		
Departure Point:	Richmond, VA (OFP)	**Type of Flight Plan Filed:**	IFR
Destination:	Port Huron, MI (PHN)	**Type of Clearance:**	IFR
Departure Time:	10:25 Local	**Type of Airspace:**	

Area Forecast

The Area Forecast issued at 0545, valid at the accident time, forecasted an overcast ceiling at 2,000 feet msl with tops to flight level 310, visibility of 3 miles, light rain, and mist. The outlook was for IFR ceilings with rain, mist, wind.

Terminal Aerodrome Forecasts (TAFs)

CYZR was the closest non-official site to the accident site with a TAF. The TAF valid at the time of the accident was issued at 1218 and was valid for a 8-hour period beginning at 1200. The CYZR forecast from 1218 expected a variable wind at 3 knots, a quarter mile visibility, fog, and a vertical visibility of 200 feet agl. Temporary conditions between 1200 and 1900 of 2 and a half miles visibility, light rain, mist and an overcast ceiling at 600 feet agl were forecast.

Coleman A. Young Municipal Airport (DET) was the closest site with a NWS TAF located 37 miles southwest of the accident site. The TAF valid at the time of the accident was issued at 1232 and was valid for a 24-hour period beginning at 1300. The 1232 forecast expected a wind from 030° at 5 knots, a quarter mile visibility, drizzle, fog, and a vertical visibility of 200 feet agl around the time of the accident. The closest TAF forecast for the accident site from CYZR and the official NWS TAF from DET forecasted LIFR ceilings and visibilities for the accident site at the accident time before the takeoff time of 1025.

Destination Airport Weather (PHN)

PHN weather at 1217 was reported as wind from 060° at 4 knots, ½ sm visibility, fog, an overcast ceiling at 200 above ground level (agl), temperature of 6° Celsius (C), dew point temperature of 6° C, and an altimeter setting of 29.45 inches Hg. Remarks: automated station with precipitation

discriminator.

PHN weather at 1237 was reported as wind calm, ½ sm visibility, fog, an overcast ceiling at 200 agl, temperature of 6° C, dew point temperature of 6° C, and an altimeter setting of 29.44 inches Hg.

PHN weather at 1257 was reported as wind calm, ¼ sm visibility, fog, an overcast ceiling at 200 agl, temperature of 6° C, dew point temperature of 6° C, and an altimeter setting of 29.41 inches Hg. Remarks: automated station with precipitation discriminator.

PHN weather at 1317 was reported as wind calm, ¼ sm visibility, fog, an overcast ceiling at 200 agl, temperature of 6° C, dew point temperature of 6° C, and an altimeter setting of 29.40 inches of mercury. Remarks: automated station with precipitation discriminator.

Alternate Airport Weather (HYX)

HYX weather at 1215 was reported as wind from 020° at 11 knots, 3 sm visibility, an overcast ceiling at 500 agl, temperature of 3° C, dew point temperature of 3° C, and an altimeter setting of 29.48 inches Hg. Remarks: automated station with precipitation discriminator.

HYX weather at 1235 was reported as wind from 030° at 11 knots with gusts to 16 knots, 5 sm visibility, light rain, an overcast ceiling at 300 agl, temperature of 3° C, dew point temperature of 3° C, and an altimeter setting of 29.46 inches Hg. Remarks: automated station with precipitation discriminator.

HYX weather at 1255 was reported as wind from 350° at 9 knots with gusts to 14 knots, 4 sm visibility, light rain, an overcast ceiling at 300 agl, temperature of 3° C, dew point temperature of 3° C, and an altimeter setting of 29.46 inches Hg. Remarks: automated station with precipitation discriminator.

HYX weather at 1315 was reported as wind from 350° at 11 knots, 2 ½ sm visibility, light snow, an overcast ceiling at 500 agl, temperature of 3° C, dew point temperature of 3° C, and an altimeter setting of 29.44 inches Hg. Remarks: automated station with

Airport Information

Airport:	St Clair County International PHN	**Runway Surface Type:**	Asphalt
Airport Elevation:	650 ft msl	**Runway Surface Condition:**	
Runway Used:	4	**IFR Approach:**	ILS
Runway Length/Width:	5104 ft / 100 ft	**VFR Approach/Landing:**	

Destination Airport (PHN)

PHN was a non-towered airport served by runway 4/22 (5,104 feet by 100 feet, asphalt/grooved) and runway 10/22 (4,000 feet by 75 feet, asphalt). The airport elevation was 650 feet. The ILS 4 approach chart follows:

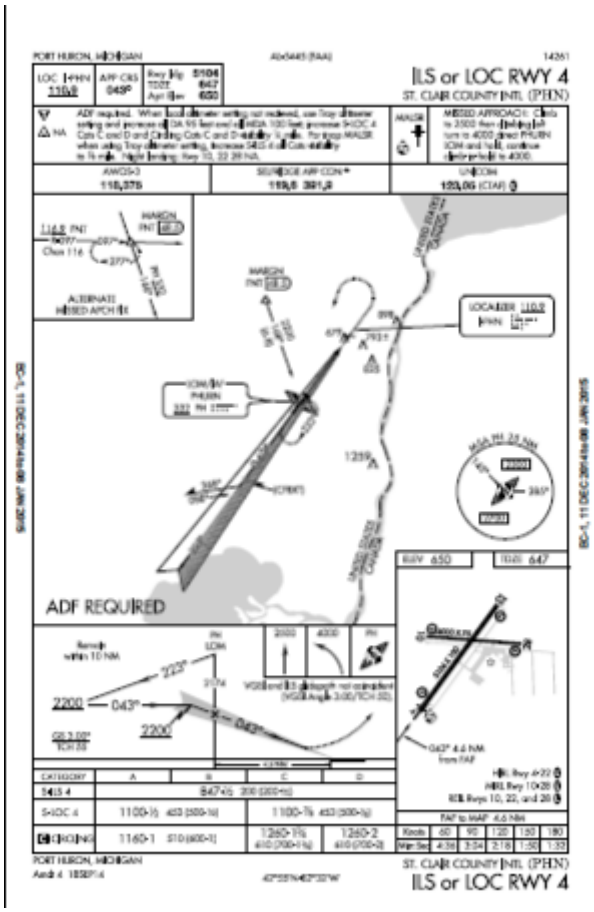

Figure 1: The ILS 4 approach chart shows straight-in approach minimums with a decision height of 847 feet and a ½ mile visibility. The locator outer marker, PHURN, was 4.6 miles from the approach end of runway 4 which had a touchdown zone elevation of 647 feet. The missed approach procedure upon reaching the missed approach point/decision height was climb to 2,500 feet then climbing left turn to 4,000 feet direct PHURN and hold, continue climb-in-hold to 4,000 feet.

Alternate Airport (HYX)

HYX was a non-towered airport served by runway 9/27 (5,002 feet x 100 feet, asphalt) and 5/23 (2,952 feet by 60 feet, asphalt). The airport had an elevation of 601 feet. HYX was equipped with the following approaches: ILS OR LOC/DME RWY 27, RNAV (GPS) RWY 09 and RNAV (GPS) RWY 27, and VOR/DME-A.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	42.969963,-82.419502(est)

The main wreckage was located about 0.39 miles on a heading of about 336 degrees from the departure end of runway 4, behind a house and in a wooded area with trees with an estimate height of 40-50 feet. The wreckage path to the main wreckage was about 275 feet in length and with a heading of about 032 degrees through the trees. The wreckage path contained broken trees, which were fallen in the direction of the wreckage path, and pieces of the airplane wings. The main wreckage included the fuselage and the attached empennage with its horizontal and vertical stabilizers and their respective control surfaces. The main wreckage, airframe, and engines did not display evidence of soot or fire damage.

Control cable continuity was verified from the vertical and horizontal stabilizer control surfaces to the cockpit. The right wing was fragmented and the flap and aileron were found along the debris line. A portion of the right aileron control cable remained with the fuselage but the rest of the cable was not noted. The outboard section of the left wing was separated and found along the debris path with the aileron. Both the aileron control and aileron balance cable had been pulled from the fuselage during the impact sequence. Sections of the cable were found along the debris trail. All separations of the control cables were consistent with overload. Most of the left wing flap remained with the inboard section of the wing. The wing flap, wing flap torque tube, and the cockpit wing flap control handle were all positioned consistent with a 25-degree flap setting.

The right landing gear was separated and the gear actuator was in the retracted position.

The instrument panel containing the flight/navigation instruments sustained impact damaged and was separated from the rest of the instrument panel. The altimeter gauge had an altimeter setting of about 29.42 inches Hg. The horizontal situation navigation course arrow was bent toward the left indicating about 030 degrees. The tail of the arrow was about 230 degrees. The orange triangular heading select bug was about 070 degrees.

Both engines were found near the main wreckage with the propellers separated at their propeller hubs, which displayed separation features consistent with overload.

Medical and Pathological Information

An autopsy of the pilot was conducted by the St. Clair County, Michigan Office of the Medical Examiner. The medical examiner's report listed the cause of death as multiple blunt traumatic injuries and the manner of death as accident.

The FAA Final Forensic Toxicology Fatal Accident Report for the pilot reported: oxymetazoline detected in urine; oxymetazoline not detected in blood (heart); cyanide - not performed; carbon monoxide - no carbon monoxide detected in blood (heart); volatiles – no ethanol detected in vitreous.

According to the FAA website, Aerospace Medical Research, oxymetazoline is a decongestant used in the treatment of nasal congestion.

Tests and Research

Both engines were shipped to Continental Motors, Mobile, Alabama for disassembly examination under the supervision of a FAA Inspector. The examination revealed no mechanical abnormalities that would lead to an inflight/operational failure.

Radar data derived from the Mount Clemens military airport surveillance radar located at the Selfridge Air National Guard Base, Mount Clemens, Michigan was plotted along the final approach course for runway 4, which is depicted in the following figures.

Figure 1: The radar flight track of N38884 is indicated by red dots. Direction of flight is indicated by black arrows. Final approach course of the ILS RWY 4 approach to PHN is indicated by a red arrow.

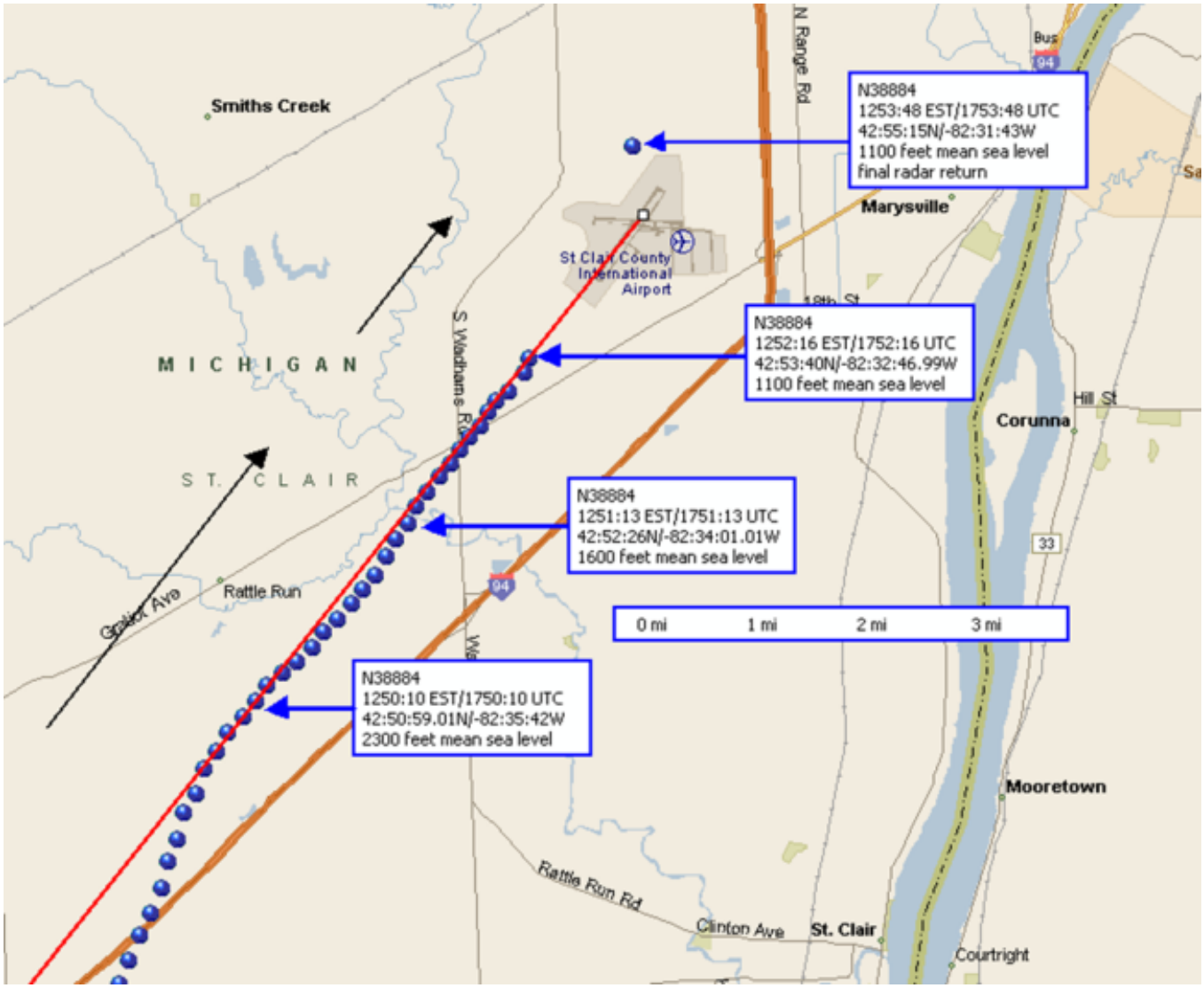

Figure 2: A closer view of the radar flight track for N38884 showing the last recorded radar altitude of the airplane which was 1,100 feet and about 0.7 miles from the approach end of runway 4. The next recorded radar altitude for the airplane was northwest of the departure end of runway 4 near the accident site.

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Douglas Crall; Federal Aviation Administration; East Michigan FSD; Belleville, MI Nicole Charnon; Continental Motors, Inc.; Mobile, AL Michael McClure; Piper Aircraft, Inc.; Vero Beach, FL
Original Publish Date:	May 2, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=90537