

The Schooner Metropolis: A Field Report



(D. Hendrix Photo)

Written by: C. Golden, D. Hendrix, K. Jaroh

Acknowledgements

The Metropolis Project team would like to thank the following for their support, for without which this project would not have been possible

- The Grand Traverse Bay Underwater Preserve
- Gourdie Frasier Engineering
- McLain Cycle and Fitness
- Scuba North
- The Nautical Archaeological Society

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NAS II Field Report

Beginning in April and ending in August 2009 an archaeological survey for the wreck of a 19th century Great Lakes schooner called the Metropolis was planned and executed. This survey was conducted by the following NAS II students; Corydon Golden, Kristina Jaroh, Dan Hendrix, and Kevin O'Meara. This site was selected based on its location and relevance to local and regional history. Located in the Grand Traverse Bay area of Northern Lake Michigan this bay contains over twenty known ship wrecks. These wrecks are protected by the Grand Traverse Bay Underwater Preserve which is a state recognized charter dedicated to the study and preservation of underwater cultural heritage in the Grand Traverse region. With support from the preserve, the study and survey of the Metropolis was successfully able to take place.

The aim of the project was to document and study the historical and archaeological value and aspects of the Metropolis. In order to achieve this aim the project was broken into two parts: historical and archaeological. The historical component consisted of researching for information on the metropolis and speaking with local residents about their knowledge regarding the wreck. The archaeological aspect consisted of documenting the wreck site in situ. with photograph, a field survey and video. The intended outcomes of this project were to produce an accurate survey of the wreck to be used to document how the wreck changes overtime due to ice and other factors of nature. Another use for taking an accurate survey was to verify the accuracy of the Sector Scan Sonar imaging which was previously taken on the site. The other outcome was to put together a well documented local history of the Metropolis.

Location

Located at 44 58.229N, 85 27.955W the wreck lies approximately 100 yards (91.4m) off the west shore of the east arm of Grand Traverse Bay located in north east Lake Michigan (Fig 1&2&3) The Grand Traverse Bay region has historically been home to many lumber mills, iron foundries, and also has a rich history of agriculture within the region, all of which played a very important economic role. The lumber mills and iron foundries formerly located here played a very important role in the development of the railroad system throughout the Midwest United States. (Young) These industries drew many ships to the region for cargo as well as personal transport as many historic summer cottages are located here and hence forth many shipwrecks are located here. The Metropolis itself lies near Old Mission Peninsula which is also home to a light house built in 1870 and lies approximately 1 1/2 miles (2.4 km) north of the wreck.

Fig 1: The Great Lakes in North America (Google 2009)

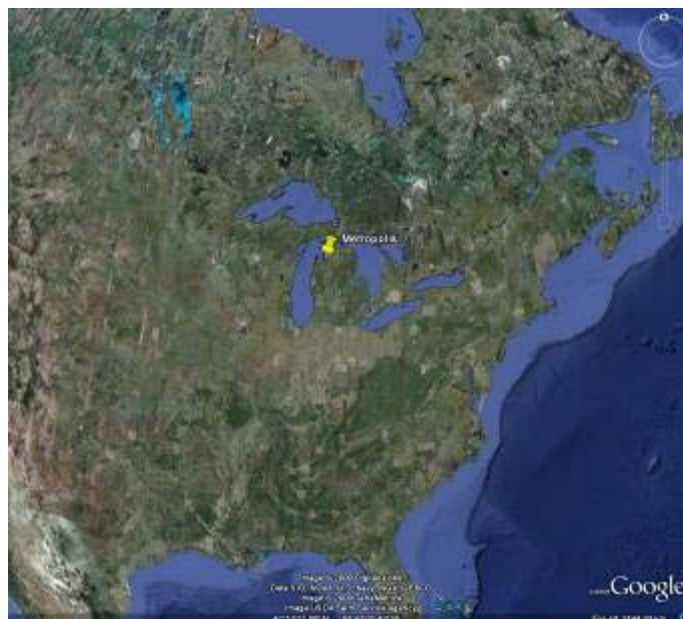


Fig 2: Lake Michigan (Google 2009)

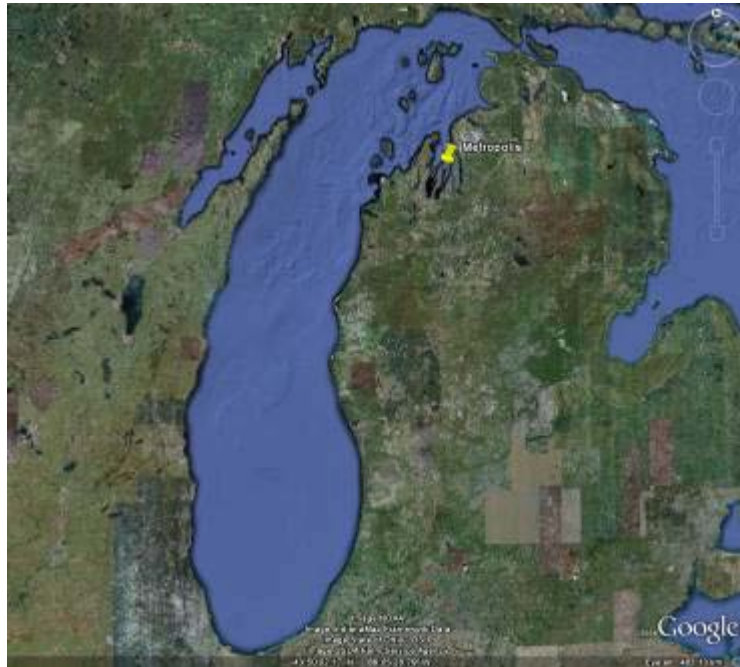
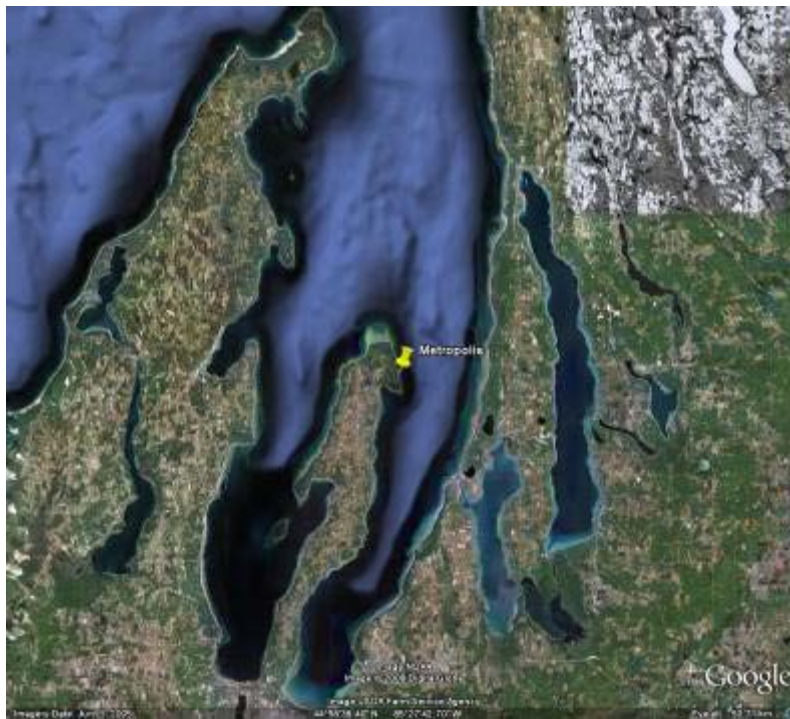


Fig 3: Grand Traverse Bay (Google 2009)



SURVEY METHODOLOGY

The wreck of the Metropolis was studied and surveyed during several field trips over the summer months of 2009. On May 4, 2009 a reconnaissance trip was made in kayaks to locate the wreck of the Metropolis. The lake was calm and the water was clear, so the wreck was easily located about one mile north of Old Mission Bay. A location on the shore was identified for placement of an electronic distance measuring survey instrument. On July 2, 2009 a trip was planned to begin the survey. This trip was aborted due to an approaching storm. On July 5, 2009 an attempt was made to conduct a survey of the wreck using an electronic shore station (Kristina Jaroh, Dr. Holley) and a survey pole with divers.(Dan Hendrix, Kevin O'Meara, Corydon Golden) This survey method was not successful due to surge and waves. It was impossible to hold the survey pole steady so that a survey point could be recorded from shore(as shown in video appendix b). It was also noted that the depth of water in which the wreck lay was about two feet (.6m) deeper over the wreck than in past years, making it difficult to stabilize the survey pole. Only about six inches (15.24 cm) of the pole was out of the water and visible to shore station personnel. Also, it was difficult to communicate from the diver on the bottom to the swimmer on the surface then to the shore station personnel. Hand signals were not found to be effective. Because of the water depth and the distance to shore, it was determined that the survey of the wreck should be conducted using divers and the more traditional offset survey method.

On July 8, 2009 Kevin O'Meara visited the site and took both still and motion pictures of the wreck. On July 28, 2009 and July, 29 2009 the wreck of the Metropolis was surveyed by two divers (Kevin O'Meara and Dan Hendrix) using the offset survey method. This work was

conducted from a pontoon boat with a boat operator and safety tender on board during diving operations.

The procedure to conduct the offset survey was as follows: On the first day, two permanent survey markers were installed at either end of the wreck, at the center of the line of the keel (Fig 4). The survey markers were steel reinforcement rods, which were driven into the bottom with a hammer. The markers were installed about four inches away from the end of the keel at each end of the wreck. Care was taken to avoid touching the keel with the survey markers. A tape measure was then attached to one of the survey markers and laid out along the top of the keel to the second survey marker.

Figure 4 Survey marker (K. O'Meara) pictured: D. Hendrix



On the first day of the survey (July 28, 2009), the keel, keelsons and the mast step were all measured by two divers. The divers started the survey at the beginning of the measuring

tape that was laid out on top of the keel. A second, shorter tape was used to measure the dimensions of the keel structure at selected points along the first tape measure. One diver held the short tape at the center of the keel on the first tape. The second diver played out the tape and noted the distance to points on the keel and keelsons. The first diver then wrote down both measurements and made a sketch of the keel and keelsons. Both divers then repeated the procedure and moved along the keel from one end of the wreck to the other. All measurements were made perpendicular to the keel. The field notes and measurements taken by the divers are included in appendix to this report.

On the second day of the survey (July 29, 2009), the same offset survey process was repeated. This time all of the ribs and planks on either side of the keel were measured. Again the divers started the survey at the beginning of the measuring tape that was laid out on top of the keel. The distance out to the ribs was measured, as well as the dimensions of each rib. A sketch was made showing the ribs, their dimensions, and their relationship to the keel. All measurements were made perpendicular to the keel. The field notes and measurements taken by the divers are included in Appendix G to this report.

After the field work was completed, the field notes and measurements taken during two days of diving were compiled and a composite drawing of the wreck was created. This drawing is shown in Fig.5. On September 20, 2009 Chris Doyle visited the site and took numerous still photographs of the Metropolis to use in the creation of a composite photographic image of the entire wreck.

SITE ANALYSIS

The section of the wreck of the Metropolis discussed in this report rests in approximately ten feet of water (3.04m) and is only about 300 feet (91.4m) from shore. It is easily accessible and therefore presents an ideal study site for an underwater survey completed in fulfillment of a NAS II course in underwater archaeology.

Field notes with sketches and dimensions were made during two days of diving on this shallow section of the Metropolis. These field notes and sketches are included in the Appendix of this report. A composite drawing was created from the field notes and is also included (Fig 4)

This drawing shows the keel, keelsons, visible ribs and planks, and includes detail sketches and dimensions. Many of the ribs and planks are broken off, missing, or are covered with sand. The manual survey (Fig. 5) taken using the offset method measures the site at 107 feet (32.61m) and the sector scan sonar (Fig. 6) scales the site to 105 feet (32.0m). This discrepancy is acceptable due to the variation of the sand covering the wreck. Excavation was not possible due to state law.

Fig:5 Site Drawing (D. Hendrix)

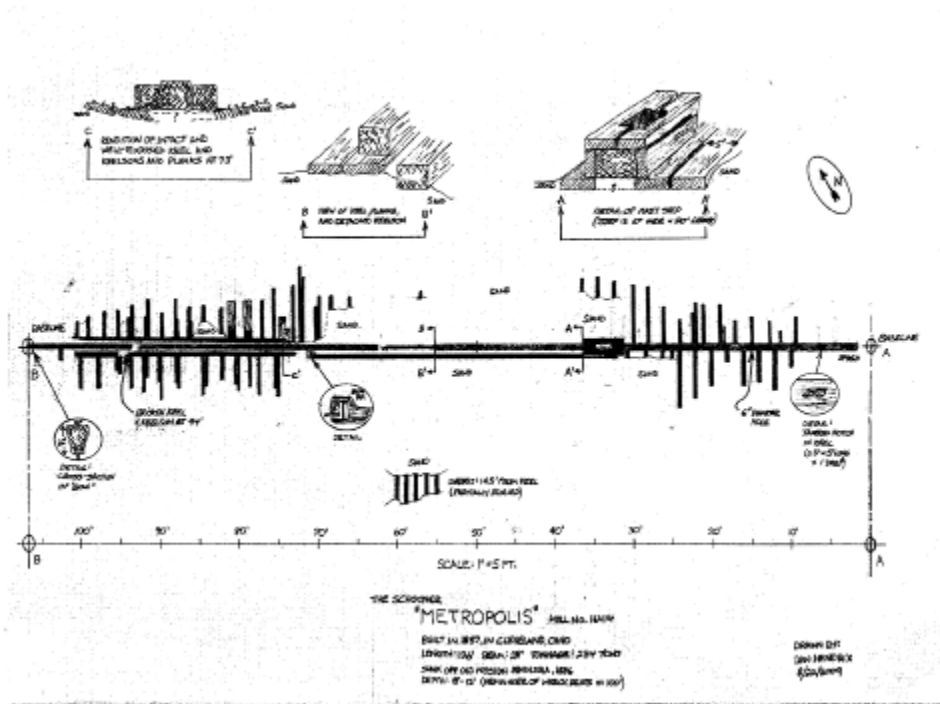
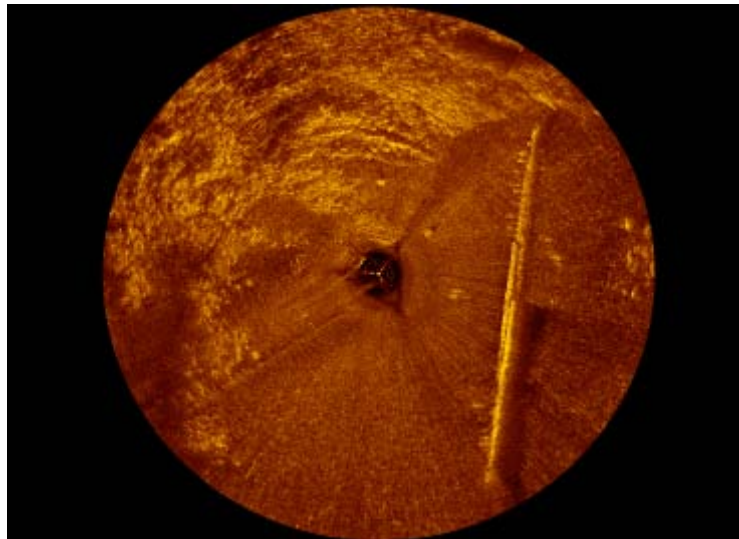


Fig:6 Sector Scan Sonar (Brian Abbott) R= 75' (22.8m)



A second section of the wreck rests farther offshore in approximately 120 feet (36.5m) of water and is therefore beyond the scope of this preliminary study. As discussed earlier in this report, the Metropolis ran aground in shallow water in a November storm in 1887. The wreck was determined to be unsalvageable by the owners and so the entire ship was abandoned at that time.

In the 1960s it became fashionable in the Great Lakes area to utilize anchors, chain, fixtures and white oak lumber recovered from shipwrecks to decorate homes and businesses. A cottage industry developed in northern Michigan to recover these items from the wrecks and to fabricate tables, bars, chairs and wall decorations. (Figure 7.1&7.2) The historical value of the wrecks was not yet recognized, and so many of them were stripped and plundered for profit. The Metropolis is a case in point.

Figure 7: Coffee table made from planks of the Metropolis (C. Golden Photo)



Figure 7.2: Unpreserved under side of coffee table note the Iron peg heads (C. Golden Photo)



Most of the hull planks from the Metropolis have been removed. Only the spikes remain, sticking out of the sandy bottom. All of the fixtures, rigging, chain, etc. is gone. Some of these items may have been removed many years ago or may have been swept away by storms and ice. The deep portion of the Metropolis wreck was separated from the shallow portion during a salvage attempt, but it was lost in deep water and remains there today. A deflated lift bag is still attached to the deep portion of the wreck (See appendix C).

The specifics of this salvage attempt are not known and are beyond the scope of this report. However, many of the items from the Metropolis, including the rudder, were reportedly used as decorations and bar fixtures in a popular restaurant in Charlevoix, Michigan.

History of the Metropolis

The city of Cleveland Ohio held a strategic location for the development of the shipbuilding industry. Lake Erie was an outlet for many rivers and lake transportation began to flourish. Ohio became the place to build wooden ships thanks to their large supply of white oak. Cleveland was the center for the maritime industry in the Great Lakes because of the exploration of iron-ore trade in the surrounding states. The Great Lakes were eventually opened up by the Erie Canal and the Welland Canal, making the area available to settlement and water transportation. Peck and Masters, a ship building firm based in Cleveland, was the first to build a ship specifically designed for the trade of iron-ore.

Irvine Masters moved from New York to Ohio in 1851 where he soon became a Cleveland mayor as well as a ship maker. Masters became business partners with Elihu M. Peck who also moved to Ohio from New York. Together they created the Peck & Masters shipbuilding company, building the larger ships on the Great Lakes. These men constructed over fifty ships and concentrated on conventional wooden schooners for the transportation of bulk cargo on the Great Lakes. The partnership ended however by 1865 when Masters' poor health led to his death. Peck continued on in the seven years that followed and built about fifty more ships. The partnership led to innovative designs that are used in modern ships today.

The Metropolis, known by no other name, was built in 1857 by Peck & Masters of Cleveland. This 2-masted wooden schooner was built in 1857 and measured 126x28x11 and was capable of carrying a gross tonnage of 246 tons. The ship received major repairs in 1874-75 and 1880-84. The ship was lost in a storm on November 26 1886 in Lake Michigan and was

driven ashore to keep her from breaking apart. She was eventually wrecked apart by the rough waves. She was carrying iron fillings and lumber at the time of her wreck.

The "Metropolis" was first launched in April 1857 and was owned by W.T. Richmond and Captain John Waters. The home port to the Metropolis was port Chicago. Waters was the master of the Metropolis during its first season and did regular runs as a lumber carrier. The Metropolis had a twenty-nine year career. The Metropolis ran aground in October 1857 at Middle Island on Lake Huron and was undamaged. In November of 1867 she was broken up and was called to be a total loss after being stranded at Waugoshance in Lake Michigan. She was carrying a cargo of grain, which washed ashore and lightened the boat enough to set her afloat again. On April 16, 1869, the "Metropolis" was damaged in a collision with the "William T. Groves", a bark on the Detroit River. The schooner was struck near the bow. In September of 1871 the fore topmast was carried away in a storm on Lake Michigan. A year later, in September 1872, the "Metropolis" became stranded. She struck a reef at Hog Island while loaded with coal that was bound for Chicago. There was nominal damage and was a day or two late to Chicago. During October of 1873, emergency repairs were done to her sails to fix damages from a gale in Lake Michigan. (Neuman)

Captain Duncan Corbett took over control of the schooner after Waters. ON December 7th, 1882, the "Metropolis" left port with fair winds. She encountered difficulties though and a dispatch received from Northport that a schooner was ashore at Light House Point and that the deck load of lumber was being jettisoned. The loss of cargo totaled \$150. In September 1882, the captains brother John fell through an open hatch of the "Metropolis". Pigs of iron fell on

him before others realized he was down there. He suffered several bruises and a broken right leg. In May of 1883, \$800 worth of cargo was lost off the coast near of Manistee and there was \$20 worth of damage to the schooner. On May 26, 1883, the "Metropolis" collided with the steamer "Monahansett". The steamer was bound for Escanaba in consort with another ship- the "Metacomet". The result of the collision was a hole spanning 8 feet (2.43m) long which was situated 6 feet to 7 feet (1.8-2.8m) below the plank shear on the port bow. The "Metropolis" was towed to Escanaba by the "Monahansett".(Neuman)

On November 24, 1886 the "Metropolis" was carrying a cargo of lumber and iron from Elk Rapids to Chicago. The schooner ran aground during a snow storm at three AM. and the captain and crew were fortunate enough to make it to shore. (Boursaw [6,7,9])They scuttled her to keep her from breaking up while they awaited a wrecking tug from Cheboygan which arrived a few days later. The wrecking tug was unable to pump the "Metropolis" out as there was a plank that was loosened and she was taking on too much water too quickly. The attempt to salvage was abandoned after two days of trying to slow the leak. The Elk Rapids Iron Company purchased the wrecked vessel on December 6th to protect its insurance interest on the cargo. The ship was valued at \$6000 and insured for \$4000. (Neuman) Most cargo and rigging from the schooner were salvaged. It is rumored that the Van Meter farm barn on top of the bluff on Old Mission is made from the lumber the "Metropolis" was carrying. (Appendix D and E) The white oak lumber was also used for flooring in a log cabin built by Bill Hyslop, an Old Mission resident. The "Metropolis" had few expensive remains during 1874-75 and 1880 and 1885.

Conclusion and Recommendation

Possible future research to be done with the Metropolis site would be to follow up on claims of the Van Meter barn being made of wood from the cargo of the Metropolis. This future research could be done by using dendrochronology to date the timbers of the barn, therefore possibly linking the age of the timbers to the time period when the Metropolis wrecked. Also Sector Scan imaging should be done on both the shallow and deep portion of the site to track any changes that may occur over time to the Metropolis. A full survey of the deep portion is not deemed necessary. With the precision of the Sector Scan imaging an accurate depiction of this site may be rendered without risk to personnel. The current condition of the remains of the Metropolis, included with the history of abuse this site has endured is a reminder why Great Lakes archaeological sites (and others like them) need to be protected and preserved. The threats now facing the site of the Metropolis from invasive species such as zebra mussels and continued seasonal ice damage, makes the survey and study conducted on the site all the more important and urgent. The project of surveying the Metropolis was as an excellent experience for all members of the project team to be able to utilize the skills learned in NAS 1. Surveying the site also acted as a learning experience. With the difficulties faced due to harsh weather patterns making survey methodology difficult; which in turn allowed the project team to use their NAS 1 skills to overcome any and all obstacles, while still following safety procedures. Yet overall, the wreck of the schooner Metropolis serves as a physical link to the rich maritime history of the Grand Traverse region and henceforth needs to be preserved for future generations to acquire knowledge of their region's historical and economic impact in the state of Michigan as well as the rest of the United States.

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"Great Lakes Vessels Online." *Historical Collections of the Great lakes*. Bowling Green State university, 5

July 2003. Web. 3 Nov. 2009. <<http://ul.bgsu.edu/cgi-bin/xvs2.cgi>>.

Neuman, Michael. "The Metropolis." File last modified on 1983. Essay.

Young, David, Mr. Telephone interview. Apr. 2009.

Index to Appendix

Appendix A: Video Overview (See attached Files: Dive 1)

Appendix B: Video of Survey Attempt (See attached file: Dive 2)

Appendix C: Photos

Appendix D: VanMeter Farm Barn

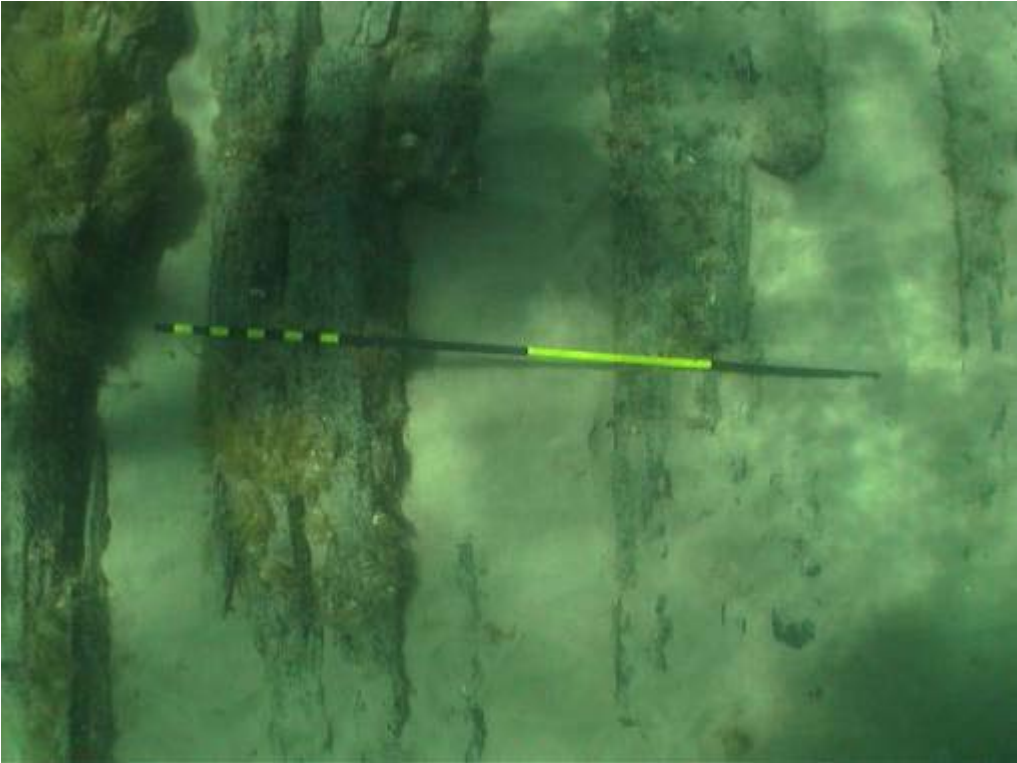
Appendix E: Timbers in Barn

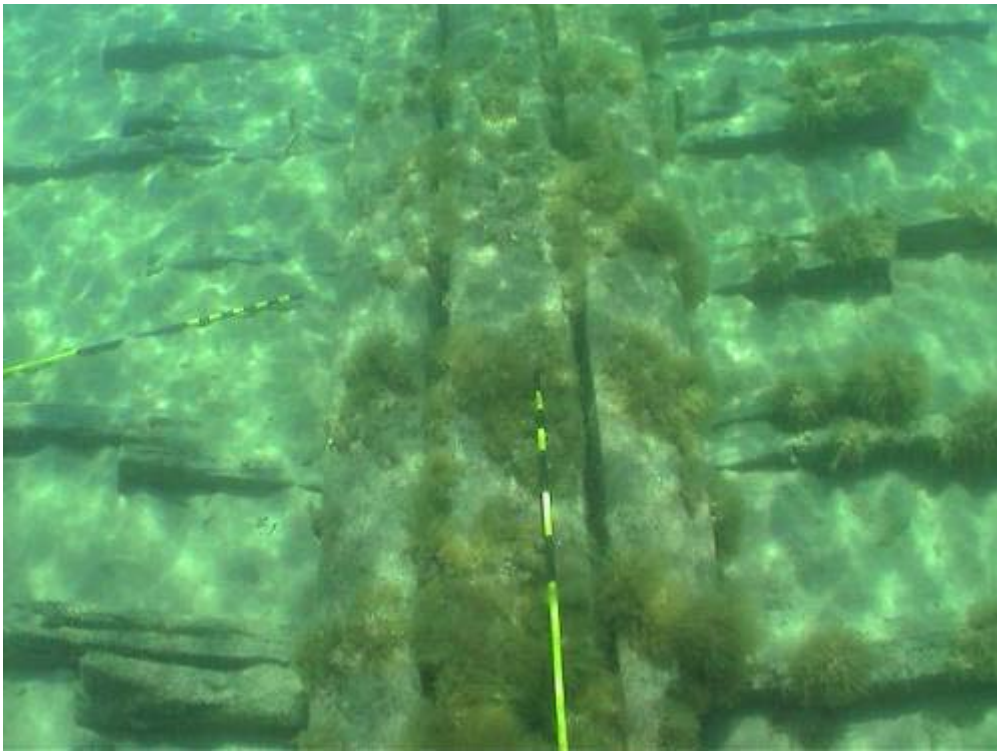
Appendix F: Sector Scan of Deep Portion

Appendix G: Notes and Drawings

Appendix H: Dive Plans

Appendix C: Photos Scale shown is 1 m







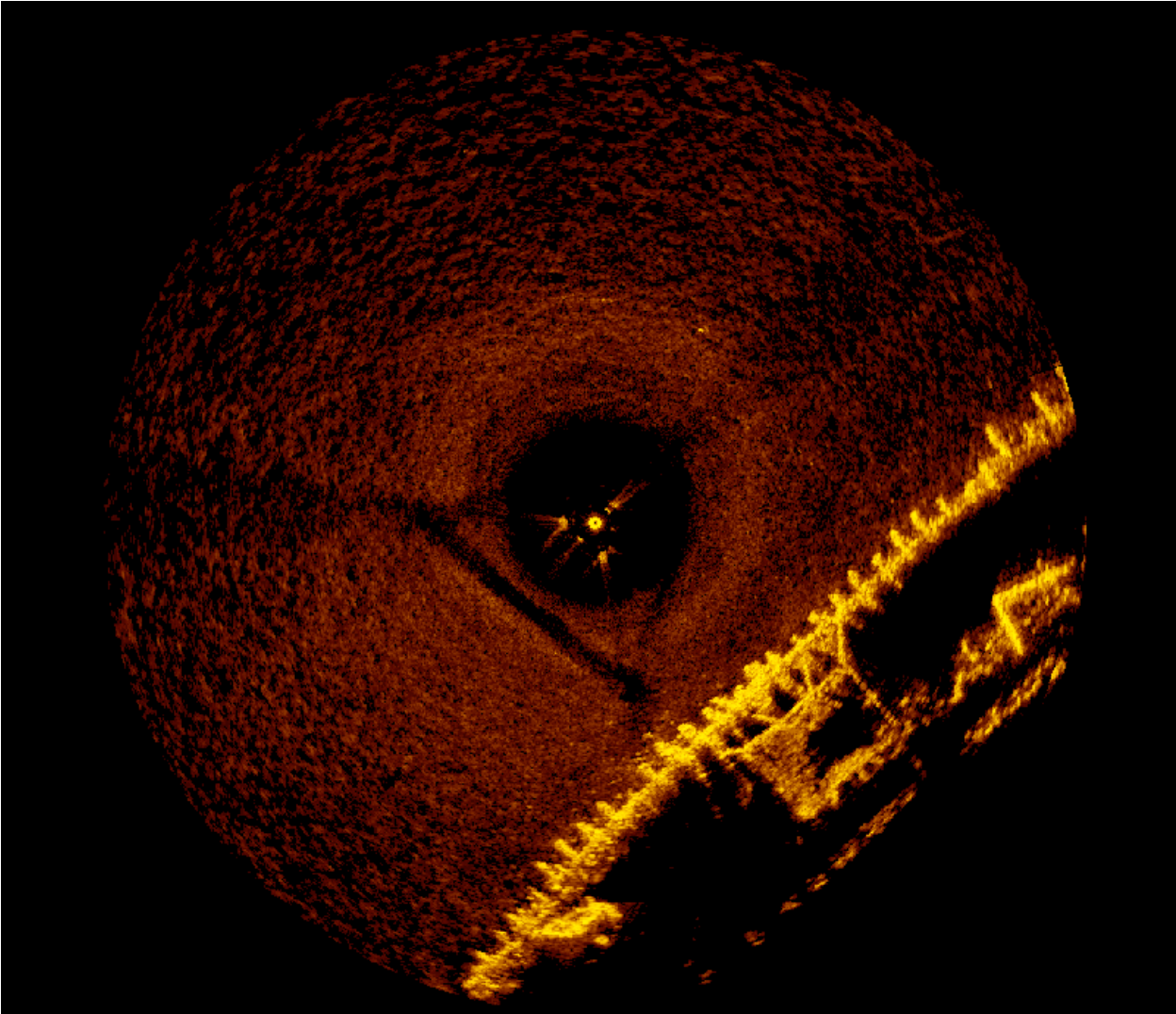
Appendix D: Van Meter Farm Barn



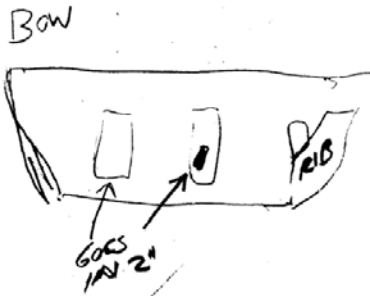
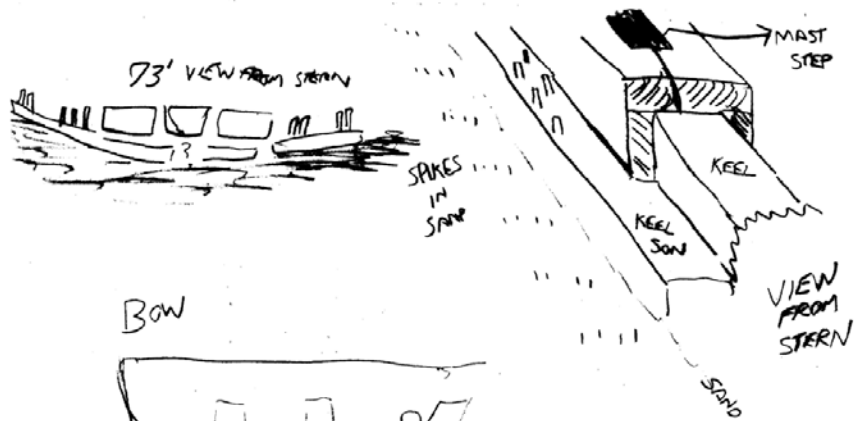
Appendix E: Timbers in the Barn



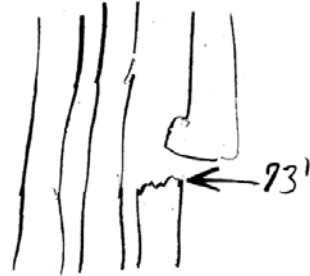
Appendix F: Sector Scan of the Deep portion of the Metropolis (Brian Abbott)

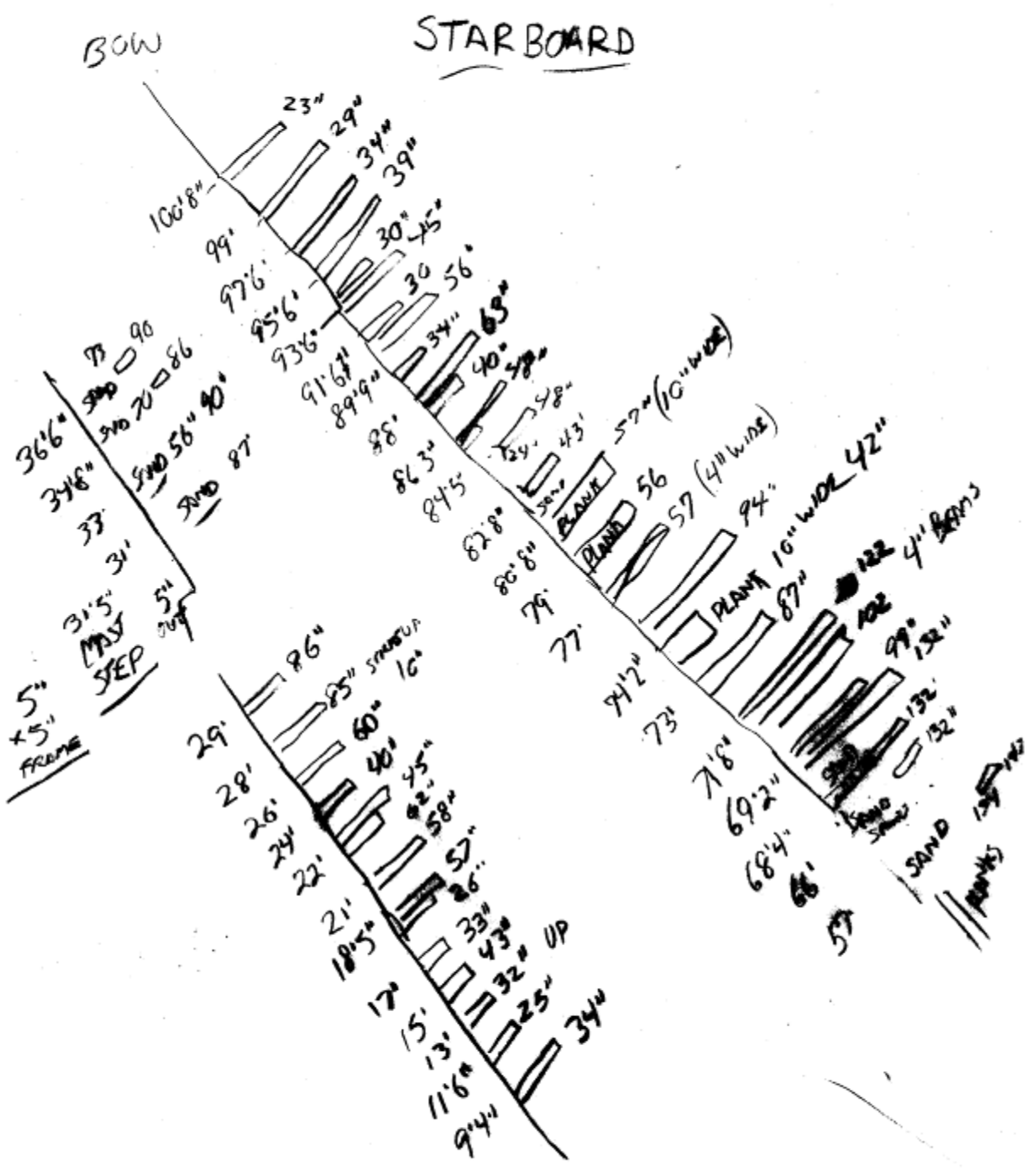


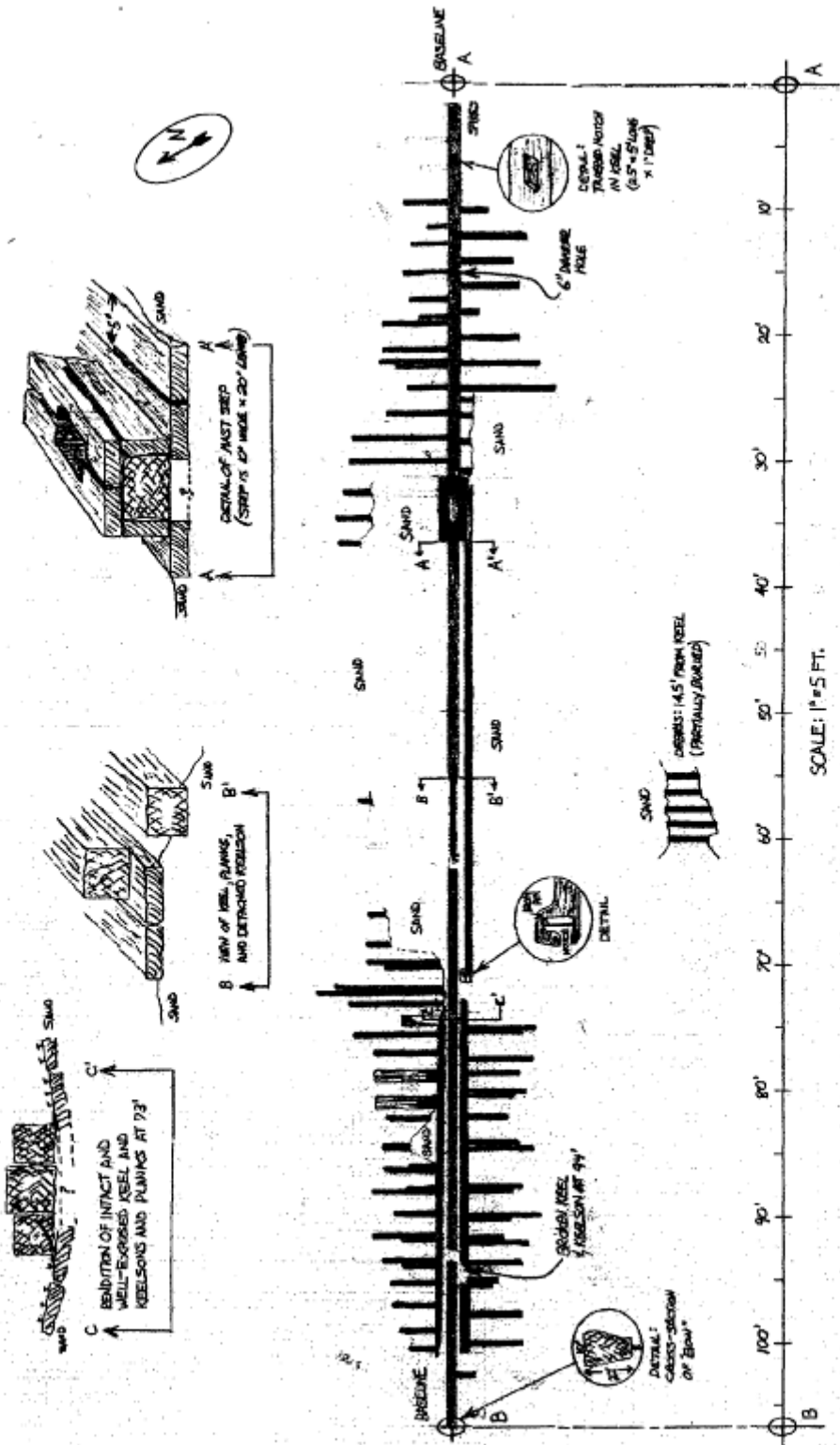
Appendix G : Notes and Drawings



NOTE:
 AT 94' CENTER KEEL
 IS BROAD
 EDGE OR BURN IN
 PORT KEELSON
 ST 90 KEELSON IS
 INFAST







THE SCHOONER
"METROPOLIS" MILL NO. 14114
 BUILT IN 1857, IN CLEVELAND, OHIO
 LENGTH: 126' BEAM: 28' TONNAGE: 234 TONS
 SANK OFF OLD PISTON, KENNESAW, 1886
 DEPTH: 6'-12" (REMAINDER OF WRECK RESTS IN 100')

DRAWN BY:
 DAN HENDRIX
 8/22/2009

Appendix H: Dive Plans

HSE Diveplan.doc



NAS Dive Plan

Supervisor <i>DAN HENDRIX</i>	2nd Supervisor <i>KEVIN O'MEARA</i>
Diver responsible for first aid <i>DAN HENDRIX</i>	
Diver 1 <i>KEVIN O'MEARA</i>	Diver 2 <i>DAN HENDRIX</i>
Diver 3 <i>COREY GOLDEN</i>	Diver 4
Location <i>EAST BAY</i>	Date <i>7/5/2009</i>
Vessel/Shore Cox <i>PONTOON BOAT</i>	Table used <i>NONE</i>
Nearest chamber <i>ALPENA</i>	Tel No <i>989-356-2252</i>
Weather <i>70° WIND NNE 10-15</i>	Sea state
U/w visibility <i>15'</i>	Scuba/SDDE/other <i>SCUBA</i>
Water speed Direction <i>SURGE, WAVES 2-3'</i>	HW/LW Slack water <i>N/A</i>

Dive Plan:-

- 1) SET UP SHORE STATION: EDM (ELECTRONIC DISTANCE MEASUREMENT) (DR. HOLLEY, KRISTINE JARCH)
- 2) HOLD SURVEY ROD AT POINTS ON THE WRECK AND SIGNAL TO SHORE TO TAKE A READING.

COMMENTS:

The waves were too rough and there was too much surge to hold the survey rod steady. It was impossible to communicate from the diver to the surface to the shore. The water was deeper than previous years, so less than a foot of the survey rod stuck out of the water.

CONCLUSION: This method won't work because of the water depth and the difficulty in holding the survey rod steady.

Use a continuation sheet if required

Supervisors signature:- *Dan Hendrix*

TOTAL DIVE TIME: 90 MINUTES AT 8'
DAN & KEVIN: SCUBA, COREY: SNORKEL

NAS Dive Plan

Supervisor <u>DAN HENDRIX</u>	2nd Supervisor <u>KEVIN O'MEARA</u>
Diver responsible for first aid <u>DAN HENDRIX</u>	
Diver 1 <u>DAN HENDRIX</u>	Diver 2 <u>KEVIN O'MEARA</u>
Diver 3	Diver 4
Location <u>EAST BAY - OLD MISSION PENN.</u>	Date <u>7/28/09</u>
Vessel/Shore <u>PONTOON BOAT</u>	Table used
Cox	<u>NONE</u>
Nearest chamber <u>KALAMAZOO</u>	Tel No <u>616-341-7654</u>
Weather <u>WIND 3-5 SOUTH, 70°F</u>	Sea state <u>CALM</u>
U/w visibility <u>30'</u>	Scuba/SDDE/other <u>SCUBA</u>
Water speed	HW/LW
Direction <u>NO CURRENT</u>	Slack water <u>NO TIDE</u>

Dive Plan:- DAY I

- 1) SURVEY AND MEASURE THE WRECK OF THE METROPOLIS (SUNK 1886). DAY I
- 2) DRIVE A SURVEY MARKER (STEEL RE-ROD) INTO THE BOTTOM AT EACH END OF THE KEEL. RUN A TAPE
- 3) MEASURE ALL THE WAY ALONG THE KEEL FROM ONE RE-ROD TO THE OTHER RE-ROD.
- 4) MEASURE THE KEEL, KEELSONS, MAST STEP, AND OTHER FEATURES USING THE OFFSET METHOD.
- 5) TAKE PHOTOGRAPHS.

ALTERNATE CHAMBER: ALPENA GENERAL HOSPITAL
989-356-8075, 989-356-7260, 989-356-7252
EMERGENCY: DIAL 911
KEVIN: PHOTOGRAPHER, MEASURER DAN: RECORDER, ARTIST
LINDA O'MEARA: TOPSIDE BOAT/SAFETY

Use a continuation sheet if required

Supervisors signature:- Dan Hendrix

TOTAL DIVE TIME: 118 MINUTES @ 8 FEET

NAS Dive Plan

Supervisor DAN HENDRIX	2nd Supervisor KEVIN O'MEARA
Diver responsible for first aid DAN HENDRIX	
Diver 1 DAN HENDRIX	Diver 2 KEVIN O'MEARA
Diver 3	Diver 4
Location EAST BAY - OLD MISSION PENIN.	Date 7/29/09
Vessel/Shore PONTOON BOAT	Table used NONE
Cox	
Nearest chamber KALAMAZOO	Tel No 616-341-7654
Weather WIND 0-5 SOUTH 70°F	Sea state CALM
U/w visibility 30'-40'	Scuba/SDDE/other SCUBA
Water speed	HW/LW
Direction NO CURRENT.	Slack water NO TIDE

Dive Plan:- DAY II

- 1) SURVEY AND MEASURE THE WRECK OF THE METROPOLIS, (SUNK 1886). DAY II.
- 2) USING THE EXISTING SURVEY MARKERS (INSTALLED YESTERDAY), LAY OUT THE TAPE MEASURE ALONG THE KEEL AND MEASURE ALL OF THE RIBS, SPIKES, DEBRIS, AND OTHER FEATURES.
- 3) TAKE PHOTOGRAPHS

ALTERNATE CHAMBER: ALBENA GENERAL HOSPITAL
989-356-8075, 989-356-7260, 989-356-7252
EMERGENCY: CALL 911

KEVIN: PHOTOGRAPHER, MEASURER DAN: RECORDER, ARTIST.
LINDA O'MEARA: TOPSIDE BOAT, SAFETY

Use a continuation sheet if required

Supervisors signature:-



TOTAL DIVE TIME: 100 MINUTES @ 8 FEET



NAS Dive Plan

Supervisor <i>CHRIS DOYAL</i>	2nd Supervisor <i>DAN HENDRIX</i>
Diver responsible for first aid <i>DAN HENDRIX</i>	
Diver 1 <i>CHRIS DOYAL</i>	Diver 2 <i>DAN HENDRIX</i>
Diver 3	Diver 4
Location <i>EAST BAY - OLD MISSION</i>	Date <i>9/20/09</i>
Vessel/Shore <i>CHRIS DOYAL'S BOAT</i> Cox	Table used <i>NONE</i>
Nearest chamber <i>ALPENA</i>	Tel No <i>989 336-7252</i>
Weather <i>WIND SOUTH 0-5 MPH</i>	Sea state <i>CALM</i>
U/w visibility <i>30'</i>	Scuba/SDDE/other <i>SNORKEL</i>
Water speed	HW/LW
Direction <i>NONE</i>	Slack water <i>NO TIDE</i>

Dive Plan:-

SNORKEL - TAKE PHOTOS OF METROPOLIS FOR CREATION OF A MOSAIC PHOTO.

WATER TIME: 30 MINUTES

Use a continuation sheet if required

Supervisors signature:-

Dan Hendrix