

MEMORANDUM



TO: RANDY AULER, PARKS, RECREATION & FORESTRY
DIRECTOR

FROM: MATT WIKTOROWSKI, SUPERINTENDENT OF PARKS

SUBJECT: BROOKFARM PARK PEDESTRIAN BRIDGE

DATE: FEBRUARY 11, 2008

On Thursday, January 17, City of Novi staff inspected the foot bridge that spans Ingersol Creek connecting Brookfarm Park and Village Oaks Elementary. The inspection found that recent flooding has caused stream bank erosion on the north side of the creek, limiting access to the bridge. As a result, the City of Novi has temporarily closed the bridge, secured the site and notified Village Oaks Elementary.

Upon consulting with the engineering department and Anderson, Eckstein and Westrick, Inc. (Report Attached), it has been determined that the bridge can be temporarily fixed with minimal disturbance to the site. The division intends to begin work on this project at the end of the month.

I will keep you apprised on our efforts to reopen the bridge. If you have any questions please don't hesitate to contact me at 248.735.5634

City of Novi

**BROOKFARM
PEDESTRIAN BRIDGE
INSPECTION REPORT**

AEW PROJECT NO. 822-013

Anderson, Eckstein and Westrick, Inc.



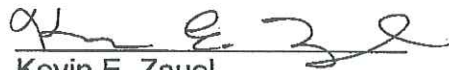
**Civil Engineers
Surveyors
Architects**

Brookfarm Pedestrian Bridge
Inspection Report

AEW Project No. 822-013

February 1, 2008

Prepared by



Kevin E. Zael
Senior Project Engineer

Brookfarm Pedestrian Bridge
Inspection Report
AEW Project No. 822-013

This inspection has been undertaken at the request of the City of Novi to assess the structural condition of the pedestrian bridge that crosses the Ingersoll Drain. Specifically, the foundations were visually inspected for stability due to erosion of the drain embankment.

On January 23, 2008, the writer visited the site and inspected the pedestrian bridge providing access between Brookfarm Park to the north of the drain and Village Oaks Elementary School to the south. We understand that the original bridge and foundations were believed to be constructed by the neighboring school in the mid 1980's, that the original timber bridge was soon afterwards replaced with the current prefabricated steel structure, and that no design drawings are available. The bridge was temporarily closed to foot traffic the previous week due to concern for pedestrian safety at the north abutment. The visual inspection was performed with the anticipation of reopening the bridge as soon as possible, and thus was limited due to ice and snow conditions. No information on the size, depth or scour conditions of the foundations below the water line was able to be determined.

The steel structure, bearing connections and concrete foundations appear to be in generally fair condition, with only minor surface rusting of the steel components. The alignment of the bridge relative to the foundations appears sound, which suggests that no appreciable settlement or movement of the foundations has occurred at this time. However, the loss of the embankment immediately to the north of the north abutment, the reason the bridge was closed, is likely to worsen and compromise this foundation in the future if not properly addressed. Refer to the pictures in Appendix "A".

It has been reported that the Ingersoll drain floods its banks in the vicinity of the pedestrian bridge a couple times a year, at times submerging the walking surface of the structure. To our knowledge, this bridge has not been permitted within the floodplain and floodway, and thus presents a liability to cause harmful interference to the surrounding park, school and residents. FEMA may also consider this a violation which could jeopardize the City's standing in the National Flood Insurance Program. Discussion with the City and the City's attorney regarding the liability of future use of this bridge is recommended.

We further recommend performing a hydraulic study to determine the effect the bridge has on flood flow as well as to determine the embankment protection near the abutments required to mitigate the damaging effects of scour. The study will also provide bypass recommendations for flow during flooding events.

Brookfarm Pedestrian Bridge
Inspection Report
AEW Project No. 822-013

We understand the city would like to reopen the bridge in the immediate future to allow the school children north of the drain access to the school for the remainder of the school year. The following measures (refer to picture 7 in Appendix "A") should be taken at a minimum, closely monitored and maintained as required, especially during the spring and periods of high flow or flooding, and considered a temporary solution:

- The two fence posts at the northeast quadrant should be removed entirely or embedded a minimum of 3'-6" below grade.
- The opening between the north concrete abutment and the finished grade should be filled in with free draining pea gravel.
- Riprap or stone measuring 4 inches at a minimum should be added to the north bank for a minimum of 10 feet on the east side of the abutment and extend into the drain to the southern face of the abutment wall, preferably over filter fabric material.
- In addition, removal of the portion of chain link fencing that extends below the bridge is recommended to reduce the possibility of collecting debris and restricting the flow further.

Appendix A



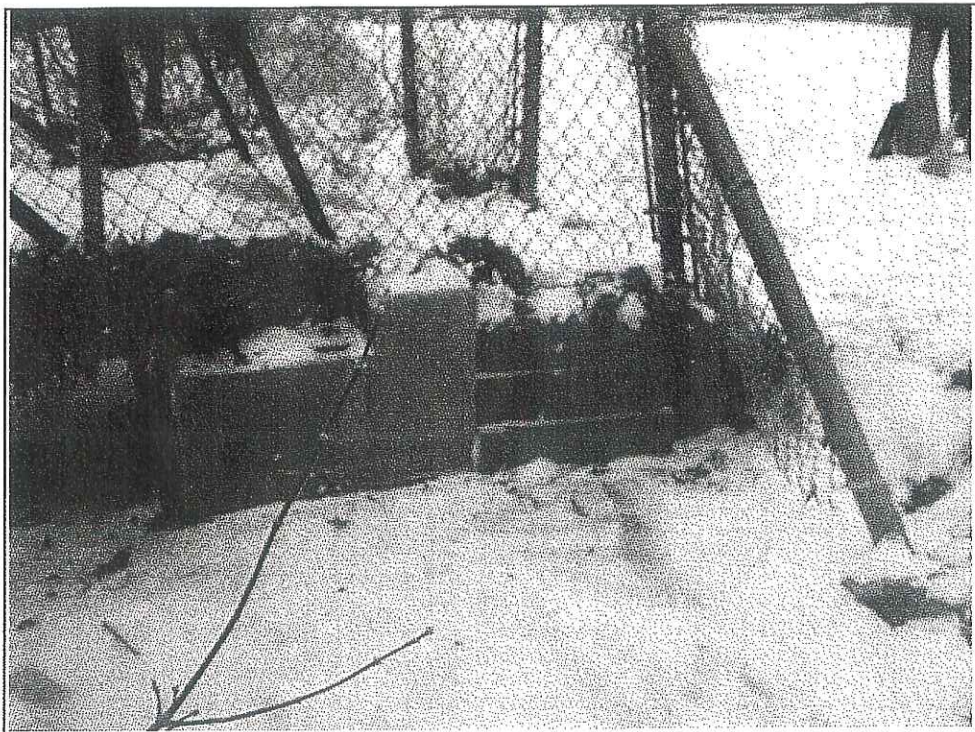
Picture 1- Looking north at bridge



Picture 2 – South half of west elevation



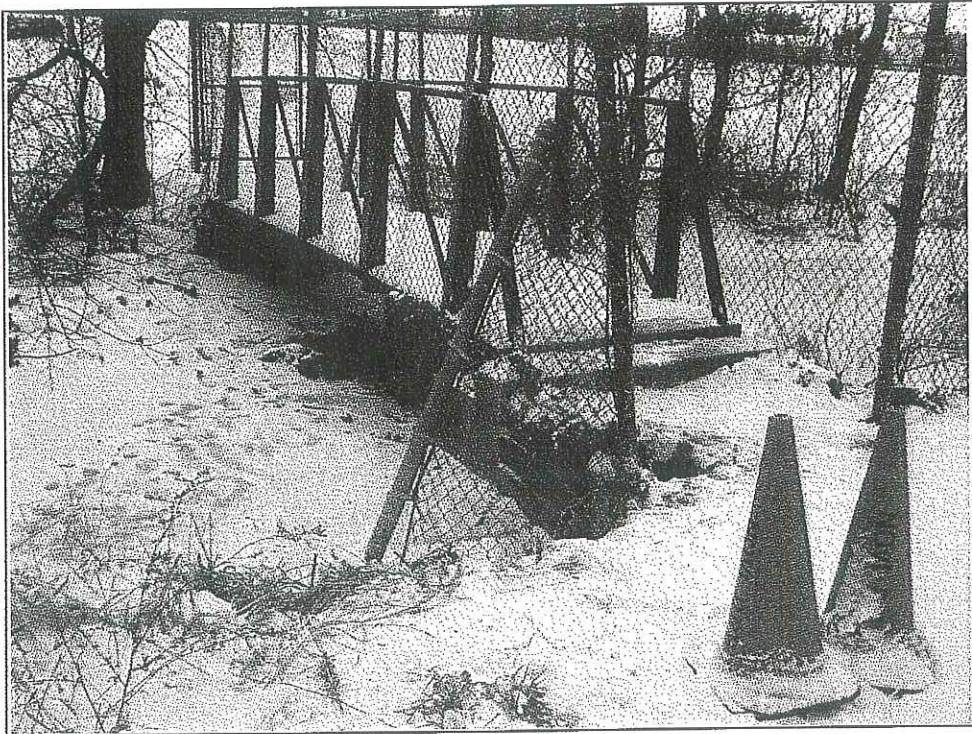
Picture 3 – North half of west elevation



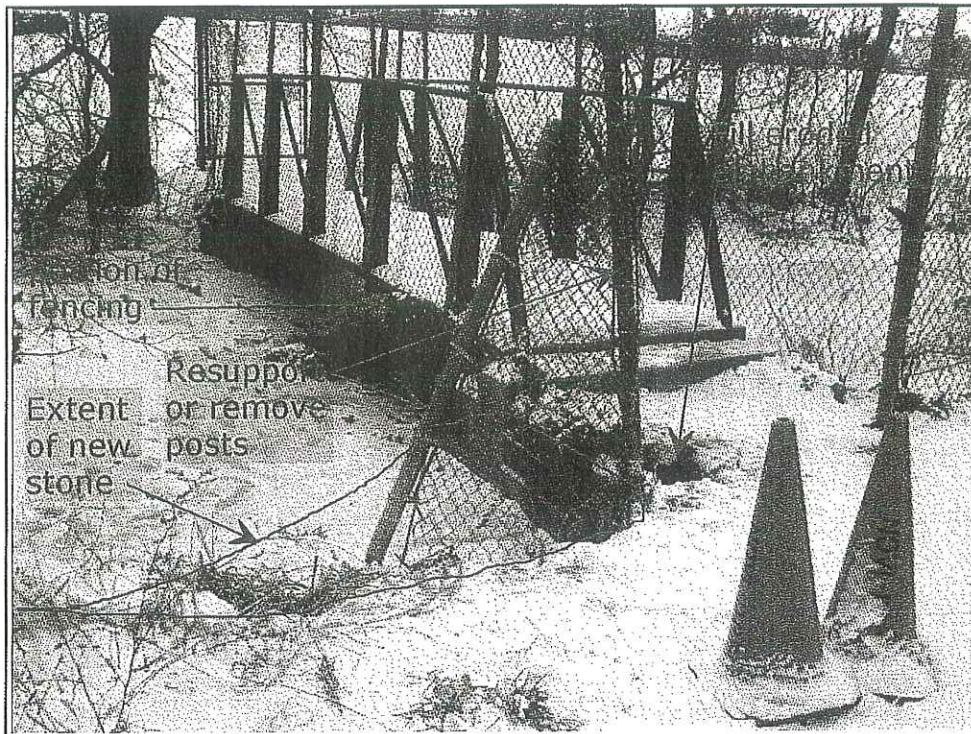
Picture 4 – East face of north abutment



Picture 5 – Access to bridge at north abutment



Picture 6 – Looking south at bridge



Picture 7 – Recommendations

