BRIDGE CONDITION REPORT

REGION:	**1**
DISTRICT:	**1**
ROUTE:	**Fox River Trail North Island Bridge**
OWNER:	**Geneva Park District**
COUNTY:	**Kane**
JOB NUMBER:	**P-91-057-07**
STRUCTURE NUMBER:	**None**

LOCATION:	**Fox River Trail North Island Bridge (IL 38 at IL 25)**

PREPARED BY:	Mark S. Wylie, Farnsworth Group, Inc.
DATE PREPARED:	October 17, 2007
PROPOSED LETTING DATE:	Unknown

<u>Table of Contents</u>

I. Geographical & Administrative Data:

Structure Number:	**None**
County:	**Kane**
Route Carried:	**Fox River Trail**
Feature Crossed:	**Backwater Channel of Fox River**
Section:	**06-P0005-00-BR**
Station:	**12+92.00**
Roadway Classification:	**Pedestrian/Bike Trail**
Design/Posted Speed:	**10 mph**
ADT (current/design):	**N/A**
ADTT (current/design):	**N/A**
DHV:	**N/A**
Inventory Rating HS:	**None**
Operating Rating HS:	**None**
Sufficiency Rating:	**None**

Construction / Reconstruction / Repair History:

- Originally built in 1931.
- There is no history of repair work.

Note: The Asbestos Determination Certification in Attachment I states that asbestos was not detected in the Bituminous Bridge Deck Wearing Surface or Waterproofing Membrane.

II. Physical Description of Structure:

- The Superstructure consists of concrete deck with haunched thru-girder beams. The beams also are the railing for the bridge.
- The Substructure consists of two-closed concrete abutments, and four (4) solid concrete piers.
- 182'-6" back to back abutments and 8'-2" Face to Face Rail.
- 5-Span Bridge with span lengths of varying from 34’-8” to 38’-0” from centerline abutment to centerline of pier.
- The bridge has no skew.
- The existing wearing surface is a bituminous overlay with an approximate thickness of 2” over the 6” concrete deck.
- The existing bridge is on a tangent horizontal alignment and a 0.0% vertical alignment.
- There is a utility attached to the underside of the bridge. The pipe appears to be water main quality pipe however the pipe could be a carrier pipe for electric.
- There is a water main on the park ≈ 50 ft. south of the bridge.

III. Field Inspection & Physical Evaluation:

Superstructure:

General:

The superstructure consists of a five span bridge with a 6” concrete deck spanning between the two haunched concrete thru-girders.

Deck:

The bituminous wearing surface is in fair to poor condition with map cracking that covers the entire length of the deck. Transverse cracks have also formed along the joints over the piers. In March and April of 2005 field tests were constructed by Universal Construction Testing, Ltd. On the bridge deck using Non-destructive Ground Penetrating Radar (GPR) and core samples. According to these tests and a subsequent report dated April 25, 2005 the concrete deck was constructed with non-air entrained concrete. Because of this lack of air-entraining the deck has deteriorated due to freeze-thaw action (see Attachment B for a copy of this report). The bridge railing which is part of the thru-girders does meet currently acceptable AASHTO Standards and are in fair to poor condition (because of the lack of air-entraining).

Beams:

The beams are a series of simple spans spanning from piers to piers and abutments to piers. The concrete thru-girder beams are showing signs of deterioration with areas of deteriorated concrete, areas with concrete section loss (spalled areas) and some signs of efflorence cracking. Since the deck does not have air-entraining it is a good assumption the beams also do not contain air-entrained concrete.

Joints:

The joints over the piers are allowing water to seep thru the deck. These joints have allowed debris to accumulate on top of the piers. The joints at the abutments appear to be working better than the pier joints. These joints appear to have a concrete gutter to take the water away from the bridge.

Bearings:

The roller bearings at the piers have “locked-up”. There are two bearings on each pier and two bearings at each abutment. As the pictures how there is advanced deterioration around several of the bearings because of water seeping thru the joints in the deck above the piers. The bearings do not appear to allow the beams to move.

Substructure:

The Substructure consists of two-closed concrete closed abutments and four solid concrete piers. According to vertical cores performed by Testing Service Corporation in July 2007 all the piers and abutments are founded on rock (except Pier 1). (See Attachment D for a copy of this report) Horizontal cores were also performed on both the piers and abutments by Testing Service Corporation (TSC) in 2005. A copy of this report is included in Attachment C.

According to these cores no reinforcement or mesh were encountered in either the piers or abutments.

Abutments:

According to the cores performed by Testing Service Corporation along with visual non-destructive testing performed by Farnsworth Group, Inc. the south abutment is in good condition with minor deterioration. The north abutment cores revealed several cracks which extend thru the cross-section of the cores.

Piers:

<u>Pier No. 1:</u> There is staining and efflorence throughout the pier cap. There also is some cracking which extends thru the cross section according to TSC's report in 2005. One of the cores did not show any deterioration. According to TSC's report in July 2007 the footing for this pier is not founded on bedrock but on fractured gravel.

<u>Pier No. 2:</u> There is staining and efflorence throughout the pier cap. There is some minor cracking on the pier stem, according to the cores performed by TSC in 2007. One of the coes did not show any deterioration. According to TSC's report in July 2007 the footing is founded on bedrock.

<u>Pier No. 3:</u> There is staining and efflorence on the pier cap. There is also some efflorence staining on the east side of the pier. There is a 3' x 3' deteriorated area on the east end of the south side of the pier. According to the cores performed by TSC in 2005 there were some cracks which extended through the cross-section of the cores. According to TSC's report in July 2007 the footing is founded on bedrock.

<u>Pier No. 4:</u> There is staining and efflorence throughout the pier cap. The pier stem appears in good condition. According to the cores performed by TSC in 2005 there were no signs of deterioration. Also according to TSC's report in July 2007 the footing is founded on bedrock.

<u>Geometric, Horizontal & Vertical Clearance / Hydraulic Data:</u>

Horizontal Geometry:

The minimum horizontal clearance for this bridge to remain in place is 8'-0" face to face of rails, which is approximately the same as the existing clear width of 8'-2". A 10'-0" face to face of parapets dimension is satisfactory for replacement.

Vertical Geometry:

The current vertical alignment meets currently acceptable AASHTO Standards.

Hydraulic Data:

The existing structure carries a back water channel for the rock river, therefore hydraulics are not an issue.

No reports of flooding over the bridge are on file with the District.

IV. Potential Scope of Work Determination & Analysis:

1. Rehabilitation – Repair of Existing Bridge/Construct Bridge Underneath:

Option No. 1:

General:

Because of the condition of the concrete due to the detamination layers and lack of air-entranment in the deck as pointed out in the report from UCT (page 5 in Appendix A) attempting to repair the bridge deck and superstructure is not feasible, therefore this option is not a viable option. Preliminary costs were done to build another bridge under the existing bridge assuming the deck is removed and a new deck built. The existing beams will need to be supported during construction in addition to being tied into the new deck/bridge. The piers and abutments would need to be widened to accommodate this additional bridge.

The bridge would be closed during construction. Pedestrian traffic will be detoured

Geometrics:

The structure width face to face of 8’6” would be the same width as the existing bridge. This width does not meet the width of 10’0” recommended by AASHTO. This bridge will not be skewed.

Load Capacity:

The proposed structure will be analyzed for the for the following loading (Final Design)

- Dead Load
  1. 25 psf Future Wearing Surface
  2. 1’6” thick reinforced concrete slabs

- Live Load
  1. Pedestrian Loading 85 psf

Bridge Rail Type:

The concrete Girder would remain as the railings

Structure Service Life:

The new elements for the structure would have a minimum service life of 75 years. The service life of the existing beams would be considerably less, probably 10 to 15 years.

Overall Economics:

The preliminary construction cost estimate for this option is $1,100,000 for the structure, $50,000 for the Roadway. The Grand Total (Preliminary Cost) is $1,150,000.

(See Attachment F for a detailed cost estimate)

Hydraulic Capacity:

This option would require the low beam to be lowered approximately one foot in order to build the structure under the bridge. Because of this the hydraulic capacity of the bridge would be reduced, this would need to be approved by the Office of Water Resources.

2. Reconstruction – Superstructure Replacement:

Option No. 2:

General:

The superstructure replacement will consist of a five (5) span bridge with a 6" thick reinforced concrete deck supported by two (2) reinforced concrete haunched beams (span lengths: 34'-8" in spans #1 & #5 and 36'-0" in span #2 & #4) and span length 38'-0" in span constructed on the existing substructure elements. The existing south abutments will be converted to semi-integral abutment. A new north abutment along with new pier No. 1 will be built. The pier caps will be removed and replaced (made longer) to accommodate the wider bridge. The bridge will be closed during construction. Pedestrian traffic will be detoured. One additional option is to add pedestrian overlooks on both sides of the bridge.

Geometrics:

The proposed superstructure replacement will require the roadway to be raised less than 3". Elastomeric bearing assemblies (±6") will be required under the beams at the semi-integral abutments and the piers. The proposed superstructure will not be skewed. The proposed face to face of rail dimension will by 10'-0", which meets current AASHTO guidelines for pedestrian bridges.

Load Capacity:

The proposed structure will be analyzed for the following loading (Final Design):

- Dead Load:
  1. 25 psf Future Wearing Surface.
  2. 7" thick reinforced concrete slab.

- Live Load:
  1. Pedestrian Loading 85 psf

Bridge Rail Type:

Either use the concrete girder as the railing or use a decorative metal rail.

Structure Service Life:

This structure should have a minimum service life of 75 years.

Overall Economics:

The preliminary construction cost estimate for this option is $550,000 for the Structure, $50,000 for the bike trail, with a potential savings of $20,000 if a metal rail is used. The Grand Total (Preliminary Cost) is $600,000.

(See Attachment F for a detailed cost estimate)

Hydraulic Capacity:

The proposed low beam elevation and hydraulic opening is the same as the existing bridge, therefore the hydraulics will not change with the new structure.

V. Discussion and Recommended Scope of Work:

Discussion of Options:

Option No. 1:

Positive Merits:
- This option maintains the existing concrete beams.

Negative Merits:
- Shorter service life, due to condition of existing beams.
- Decrease in Hydraulic Opening (may be difficult to permit).
- Support of beams during Construction very difficult.
- Bridge is narrow, therefore not as safe.
- Cost is approximately twice of Option 2; $1,150,000 versus $600,000.

Option No. 2:

Positive Merits:
- Maintains appearance of haunched beams.
- Longer service life due to new Superstsructure.
- Hydraulic Opening will remain the same as the existing bridge.
- Bridge is wider with a pedestrian overlook, therefore safer.
- Cost is approximately half of Option 1; $600,000 versus $1,150,000.

Negative Merits:
- None

Recommended Scope of Work:

Due to the good condition of the existing substructure elements except for Pier 1 and the north Abutment, Reconstruction – Superstructure Replacement is recommended. Option No. 2 is recommended, due to the cost and above noted positive and negative merit items.

ATTACHMENTS:

Attachment A. Location Map

Attachment B. Universal Construction Testing Report April 28, 2005 (Deck Testing)

Attachment C. Testing Service Report November 17, 2005 (Horizontal Cores)

Attachment D. Testing Service Report July 27, 2007 (Vertical Cores)

Attachment E. Field Inspection Sketches

Attachment F. Cost Estimates

Attachment G. Proposed Structure Drawings (Option No. 1 and Option No. 2)

Attachment H. Structure Photos

Attachment I. Asbestos Determination Certification

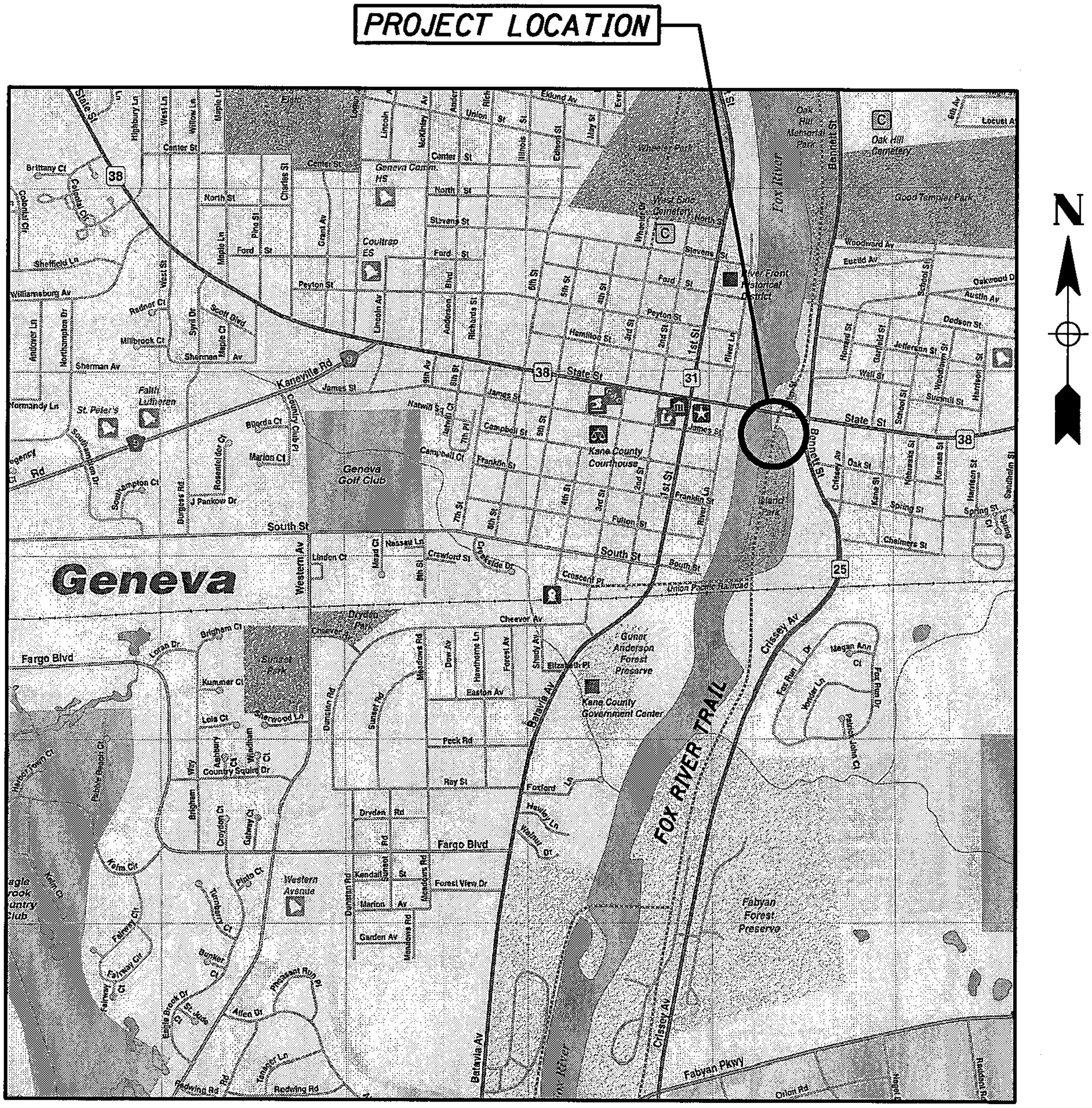
Attachment J. Proposed Plan & Profiles (Option No. 1 and Option No. 2)

ATTACHMENT

A

Location Map

GENEVA PARK DISTRICT
NORTH ISLAND BRIDGE
LOCATION MAP



ATTACHMENT

B

Universal Construction Testing Report April 28, 2005 (Deck Testing)

Universal
Construction
Testing, Ltd.

Report

Evaluation
of
Pedestrian Bridge Deck
at
Geneva Park District
Geneva, Illinois

for

Geneva Park District

UCT Project 05048
April, 2005

1548 Old Skokie Road
Highland Park, IL 60035
Tel 847.831.5343
Fax 847.831.4912

UCT

Universal Construction Testing, Ltd.

April 28, 2005 UCT Project No. 05048

Mr. Larry Gabriel
Geneva Park District
710 Western Avenue
Geneva, IL 60134

RE: **Evaluation of Pedestrian Bridge Deck**
Geneva Park District
Geneva, Illinois

Dear Mr. Gabriel:

Reported herewith are the results of the nondestructive and laboratory testing program completed by Universal Construction Testing, Ltd. at the referenced bridge structure.

The investigative testing was necessitated by your concerns regarding the integrity of the bridge deck and its long term serviceability, due to the extensive cracking manifested by deck surface.

This field work was carried out between March 16 and April 7, with the data interpretation, laboratory analyses and report compilation completed by April 28, 2005.

EXECUTIVE SUMMARY

1. *Nondestructive Ground Penetrating Radar (GPR) method was used to survey the entire bridge deck.*

2 *The nondestructive survey was complemented by obtaining representative core samples in questionable areas.*

3. *The concrete core samples, retrieved from the deck, were subjected to laboratory studies, which included chloride content analysis and petrographic examination.*

4. *The obtained NDT data is graphically compiled in the attached Figures 1 through 6. The data interpretation is explained below in this report.*

5. *The combined analysis of Ground Penetrating Radar and laboratory analyses enabled us to arrive at the following general conclusions:*

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UCT

- *The NDT survey, conducted prior to removal representative core samples, revealed an extensive debonding of the entire topping layer from the underlaying structural concrete. Moreover, the GPR survey strongly indicated signs of concrete deterioration within the deck slab;*

- *All removed core samples, including the one subjected to petrographic examination, manifested signs of severe freeze-thaw damage of concrete throughout the entire deck thickness;*

- *Noticeably, no measurable corrosion related losses of reinforcing steel were detected in the course of our investigation. This can be explained by minor chloride ingress in all analyzed areas. Possibly, the bridge was not subjected to heavy salt applications;*

- *A visual observation of the slab underside revealed numerous honeycombed areas apparently resulting from poor concrete consolidated during the original construction;*

6. *The results of our investigation suggest that long-term serviceability of the concrete is seriously compromised while the reinforcement is in an adequate condition.*

7. *It is our understanding that the preceding information will be evaluated by the Structural Engineer of Record for acceptance and rehabilitation of the surveyed bridge deck.*

Field Work

The work was necessitated by numerous cracks manifested on top bridge surface as is shown on photo below.

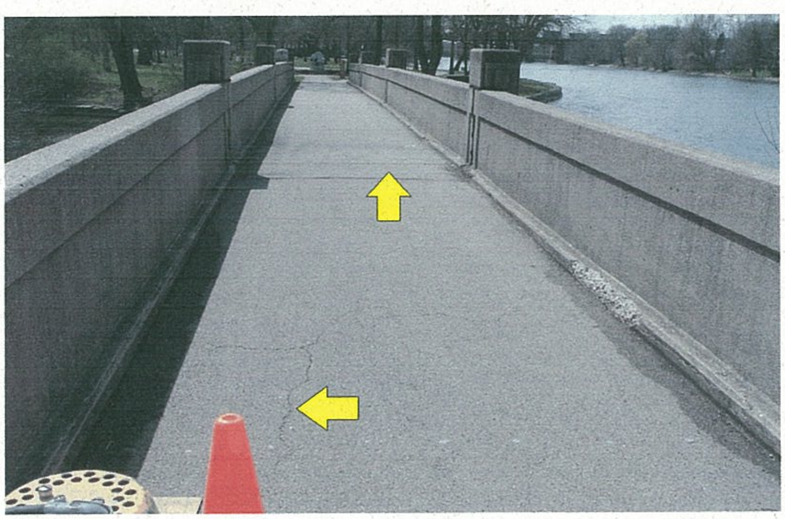


Photo 1 - The investigated bridge deck exhibits numerous cracks traveling in both north-south and east-west directions.

The studies were limited only to the deck and did not include other structural members.

Three (3) independent nondestructive test methods were considered for application in the testing program, namely Impulse-Response (IR), Impact-Echo (I-E) and Ground Penetrating Radar (GPR).

After initial trial testing, the Ground Penetrating Radar (GPR) method was found to be the most useful for this particular project.

The GPR scans were made at 2-ft grid along the entire bridge length.

An outline of the Ground Penetrating Radar equipment along with a summary of the technology principles are shown in Figure 1.

The operating principle of used Ground Penetrating Radar System (GPR). An antenna, which is dragged across the surface, transmits short pulses of electromagnetic energy (within a specific broad frequency band) that penetrate into the surveyed material. The used pulses ranged from 1 to 3 nanoseconds (nsec) in duration and contained up to three peaks. Analysis and interpretation of the signal was based upon well-defined nominal center frequency values. Each pulse travels through the material, and a portion of the energy is reflected back to the antenna when an interface between materials of dissimilar dielectric properties is encountered. The antenna received the reflected energy and generated an output signal proportional to the amplitude of the reflected electromagnetic field. The received signal thus contained information on what was reflected, how quickly the signal traveled, and how much of the signal was attenuated. These quantities depended upon the spatial configuration and electrical properties of the member under investigation.

The primary material properties that affect the transmitted and reflected energy are the dielectric constant and the conductivity. A concrete's dielectric constant, also known as dielectric permittivity, is the amount of electrostatic energy stored per unit volume for a unit potential gradient. Electrical conductivity, the reciprocal of electrical resistivity, is a measure of the ease with which an electrical current can be made to flow through a material. Analysis of the recorded time-domain waveforms permitted determination of the depth of the reflecting interface assuming the known relative dielectric constant. The depth of the reflecting interface was obtained from the measured round trip travel time and the speed of the electromagnetic wave. The contrast in dielectric constant determines the amount of reflected energy at the interface between two dissimilar materials.

The dielectric constant of concrete is affected by the nature of the materials and moisture content. By definition, the relative dielectric constant of air equals 1. Note that the dielectric constant of water is much higher than the other listed materials. This makes water the most significant dielectric contributor to construction materials and explains why radar is highly sensitive to moisture. As the moisture content increases, the dielectric constant of the material, such as concrete, also increases.

Radar detects the arrival time and energy level of a reflected electromagnetic pulse. Since electromagnetic wave propagation is affected by changes in dielectric properties, variations in the condition and configuration of a structure will cause changes in the signal.

Information is obtained by observing the return time, amplitude, shape, and polarity of the signal. Concrete conditions, such as voids, honeycombing, and high moisture and chloride contents can be inferred from changes in the dielectric constant and conductivity of the concrete.

The used instrumentation for GPR in the project included the following main components: an *antenna unit*, a *control unit*, a *display device*, and a *storage device*. The antenna emits the electromagnetic wave pulse and receives the reflections. For a given material, the depth of penetration and resolution of GPR are functions of the frequency content of the pulse. Lower frequencies penetrate deeper but provide less resolution, while higher frequencies provide more detail but have less depth of penetration.

The 1.5 GHz nominal frequency Model 5100 antenna, was used throughout the project.

The control unit is the heart of a GPR system. It controls the repetition frequency of the pulse, provides the power to emit the pulse, acquires and amplifies the received signal, and provides output to a display device. Data are usually stored in an analog recorder or in a digital storage device for later analysis and interpretation.

Display devices include oscillographs that plot a succession of recorded waveforms, from which it is possible to readily observe changes in the waveform patterns. Computer software is also available to permit various signal processing methods to aid in data interpretation, such as subtraction of a reference signal or color display based on signal amplitude and polarity.

Test Data

The obtained test results are summarized graphically in Figures 1 through 7.

Figures 2 through 6 illustrate cross-sectional conditions within the slab as revealed by GPR scans for each of the six (6) individual sections moving from north to south ends of the bridge deck.

The presented GPR scans clearly revealed debonding of the 1.5 to 2-inch thick bituminous concrete overlay from the underlying 6-inch thick structural concrete slab. These condition prevail practically throughout the entire deck.

The slab itself manifests concrete delamination through its entire depth, particularly pronounced in the areas immediately below the interface zone with asphalt and in the lower portion. The latter can be attributed to poorly consolidated concrete exhibited by the slab underside (see photo 2 below and attached Figure 1) .

Photo 2 - Pockets of exposed aggregate particles with no cement paste bond were found in several areas of bridge underside.

The removed core samples corroborated the GPR findings showing numerous internal delamination layers.

While the concrete is in advance stage of deterioration throughout the entire slab, the embedded reinforcement appears to be in a relatively corrosion free state.

Laboratory Studies

Based upon the results of the NDT survey, four (4) different areas were selected for removal representative core samples. The purpose of obtaining the samples was two-fold.

- To verify the results of nondestructive survey;
- To establish the serviceability characteristics of the concrete.

The laboratory testing included chloride profile analysis and petrographic microscopy.

Chloride Content was determined according to the applicable provisions of Standard Methods ASTM C1218. and AASHTO T260. The core specimens were cut at three (3) designated depth increments (0-1, 1-2 and 2-3 inches) from the top concrete surface and pulverized. The water-soluble chloride contents are shown in Table below.

Table 1. Chloride Content of Concrete

Sample Number	Location in Structure	Level tested, inches from concrete top	Chloride ion (CL^-) Content		
			by weight of concrete %	by weight of cement* %	by weight of concrete (PPM)*
C-1	1st span 25' from north	0-1.0	0.031	**0.21**	310
	end, 4' west of east end	1.0-2.0	0.028	**0.19**	280
		2.0-3.0	0.020	**0.13**	200
C-2	2nd span 26'-7" from	0-1.0	0.012	**0.08**	120
	north expansion joint,	1.0-2.0	0.009	**0.07**	90
	3'-7" from east wall	2.0-3.0	0.006	**0.04**	60
C-3	4th span 9'-8" from	0-1.0	0.006	**0.04**	60
	north expansion joint,	1.0-2.0	0.009	**0.07**	90
	6'-2" from east wall	2.0-3.0	0.009	**0.07**	90
C-4	5th span 16' from	0-1.0	0.006	**0.04**	60
	north expansion joint,	1.0-2.0	0.009	**0.07**	90
	6'-2" from east wall	2.0-3.0	0.009	**0.07**	90
Remarks: *) Assumed cement content 560 lbs/cu.yd. and U.W. = 3800 pcy.					

Please be advised that based on the present state of knowledge, maximum chloride content of ***0.15%*** *by weight of cement* is suggested by ACI to minimize the risk of chloride-induced corrosion in conventionally reinforced concrete.

Therefore, the chloride contamination of the bridge deck is found to be rather low, especially taking into consideration the age of structure. The only area where chloride ingress exceeds the corrosion threshold is Core C-1.

The relatively low chloride ingress probably can be explained by limited de-icing salt application (if any) coupled with the asphalt overlay protection. It also explains the low corrosion related damage observed in the embedded reinforcing steel.

Petrographic Examination was conducted on Core **C-4** according to the applicable provisions of Standard Practices ASTM C856, C294, and C457. The specimen was cut lengthwise to provide a 1-inch thick plate. The plate was lapped using progressively finer silicon carbide abrasives. The lapped surface was examined using a stereomicroscope at 105X magnification. The paste was examined at 400X magnification using a polarized microscope in order to determine aggregate and paste mineralogy and microstructure.

Below are the results of petrographic examination.

Core **C-4**

General

The core has a 2-3/4-inch diameter and approximately 5-1/4-inch length. The top surface has a 2-1/4-inch thick layer of asphalt. The bottom has a formed surface.

Reinforcement

One rectangular 5/8" size steel rebar is located 7/8" from the bottom. The steel is very mildly corroded.

Cracks

The core is very highly cracked full depth. It was received in two major segments - the top segment is 3" thick and the bottom 1-1/2" to 1-3/4"thick. Several fragments, that broke off in between the two segments, were also received.

The cracks are visual size (macro-cracks) and microcracks. The majority of the cracks travel horizontally and thus appear to be result of typical cycling freezing-thawing deterioration.

Secondary cracks due to ASR (alkali-silica reaction) are present. The reactive rocks are chert, silt stone (in the fine aggregate), granodiorite (in the coarse) and argillaceous lime stone in the coarse and fine aggregate.

The cracks are lined with ettringite and silica gel. Both the coarse and fine aggregates are in a state of ASR.

Photomicrograph of Core C-4 shows extensive cracking due to freeze-thaw damage along with ASR and ettringite deposits in voids and cracks.

Carbonation

The depth of the top carbonation is between **3 to 5** mm.

Air Content

The concrete in this core is non-air-entrained having 1.1% of entrapped air.

Cement Content

The cementitious content is close to **560** lbs/yd^3.

Water-Cementitious Ratio

The water-cementitious ratio is estimated at **0.52** $\pm$ 0.02.

Paste Properties

Overall Condition	poor
Color	light gray
Hardness	moderate
Luster	dull
Porosity	moderate to high
Paste Volume	27.33%
Morphology of Calcium Hydroxide	fine crystals
Mineralogy of the Cement	C-S-H
Hydration	highly advanced
Relict Cement Grains	present
Mineral Admixture	not present
Degree of Differential Settlement	low
Magnitude of Bleeding	low

Aggregates

The fine aggregate is a natural sand with typical grading consisting of quartz, feldspar, granite, diorite, weathered granite, chert, basalt, silt stone, ironstone, with a small amount of arkose and clay stone.

The coarse aggregate is a 1" top size gravel consisting of limestone, argillaceous limestone, granite, grandiorite, chert, diabase and weathered trap rock.

******

We appreciate the opportunity to be of service to you. If you should have any questions, please feel free to contact us at your convenience.

Sincerely yours,
Universal Construction Testing, Ltd.

Mike Isteefanos

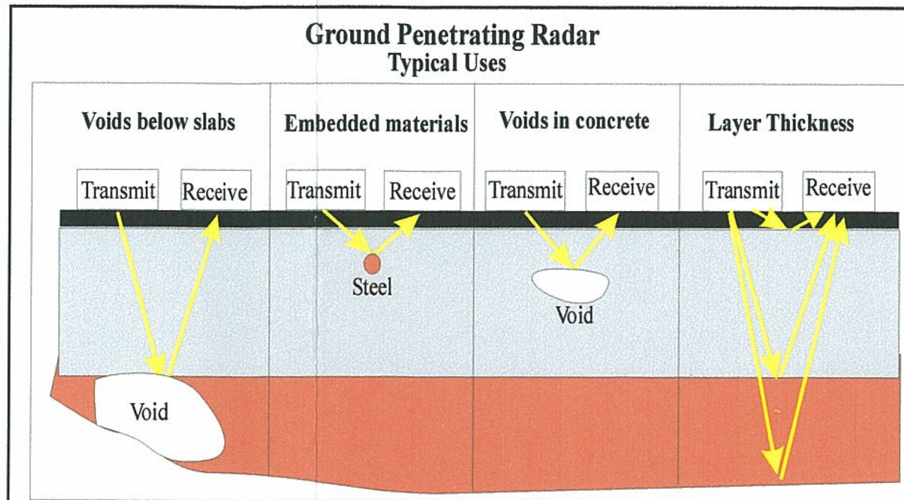
Mike Isteefanos, NDE Level II
Project Leader

Boris Dragunsky, PhD, FACI
Principal

UCT

General view of the bridge and core locations

Photos of bridge view from bottom showing examples of poor consolidation of concrete in the original construction and signs of efflorescence



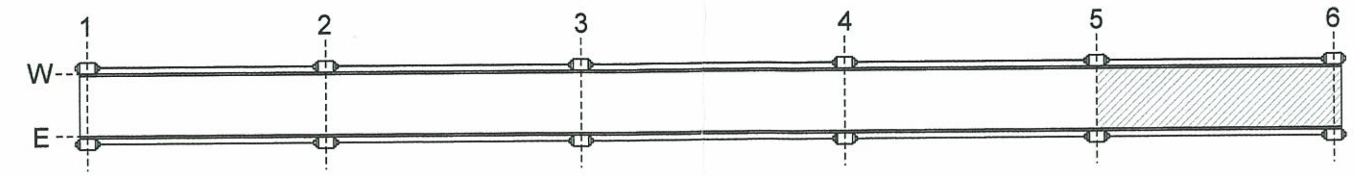
A transmitting ariel on GPR equipment sends pulses of radio waves into the ground and the returning reflections are detected by a receiving ariel. When radio waves travel across boundaries which have a significant difference in their electrical properties, they are reflected back to the receiving ariel, the greater the change, the greater the amplitude of the returning signal. Each signal trace is sent to a computer screen, where the amplitudes are displayed with the magnitude of amplitudes represented by various colors. A complete scan can consist of several thousand individual traces. Many scans, taken in a precise pattern, can be subjected to computer analysis to produce contour plots of two dimensional slices, enabling visualization of the data at selected depths.

GPR equipment set-up

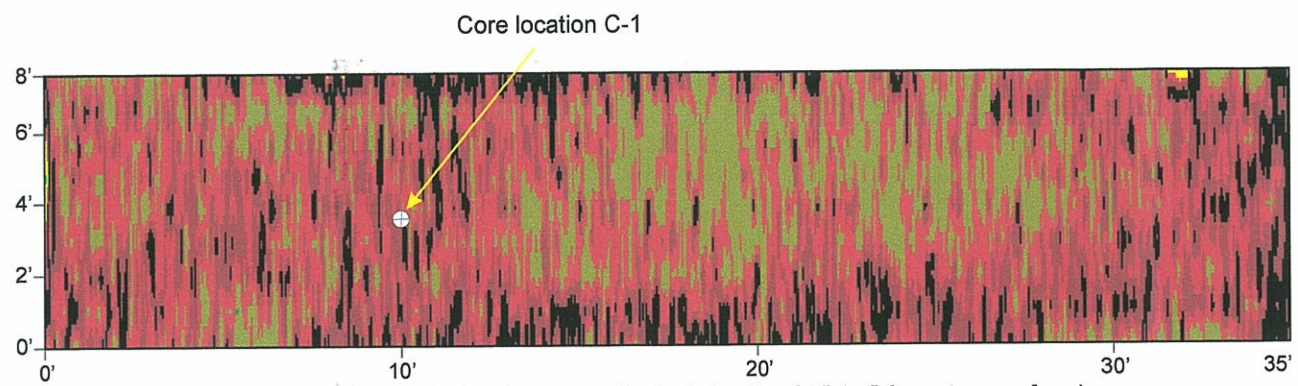
Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org **UCT**	**Geneva Park District Pedestrian Bridge Geneva, Illinois**	UCT Project 05048 Scale: NTS	Date: April 2005 By : MI Apr. BD	**General View and Test Procedures**	Figure 1

Photo of Core C-1 - top view

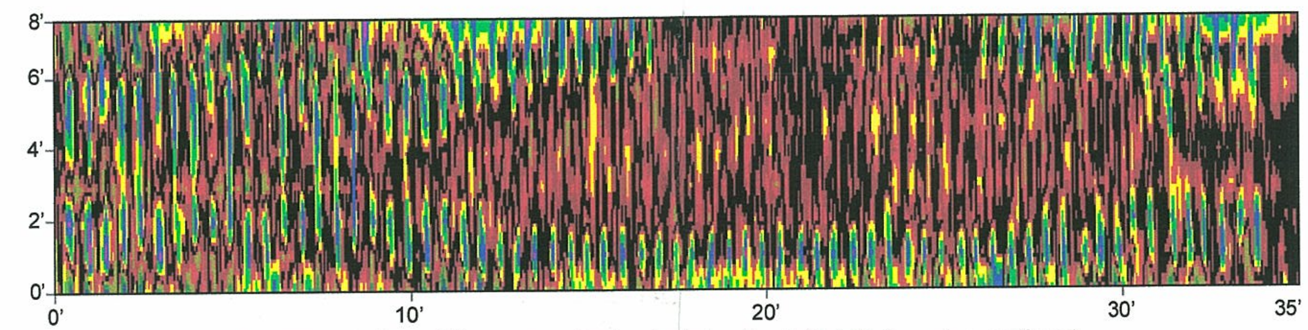
Photo of Core C-1 - view from bottom



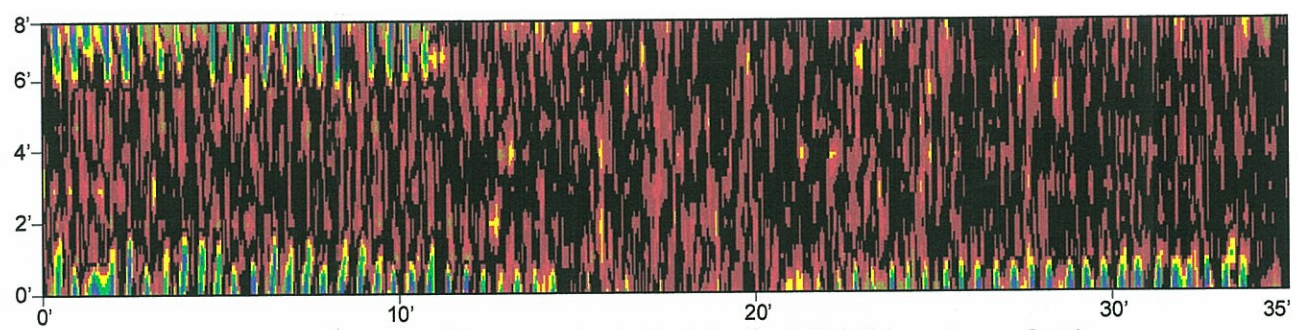
Survey location



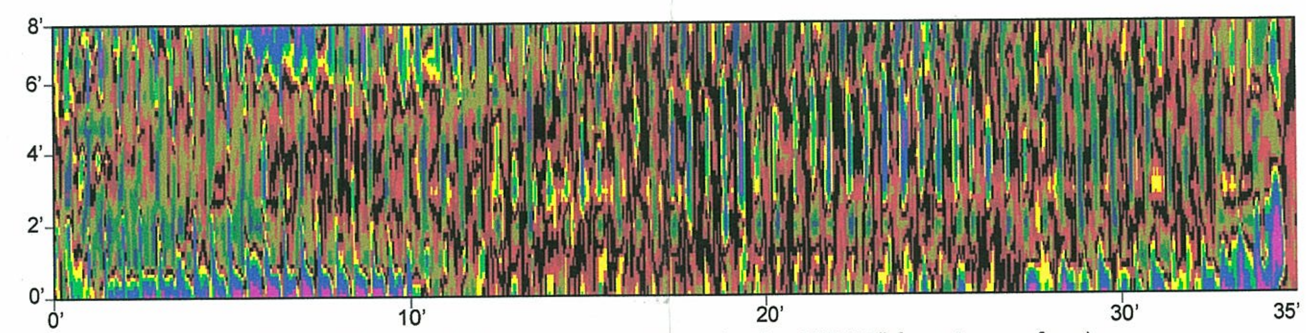
Horizontal slice of the concrete deck at depth of 2" (-4" from top surface)



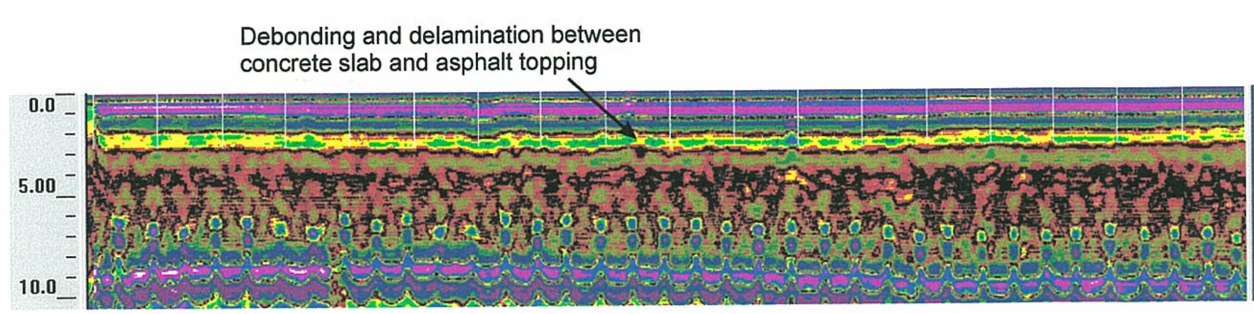
Horizontal slice of the concrete deck at depth of 4" (-6" from top surface)



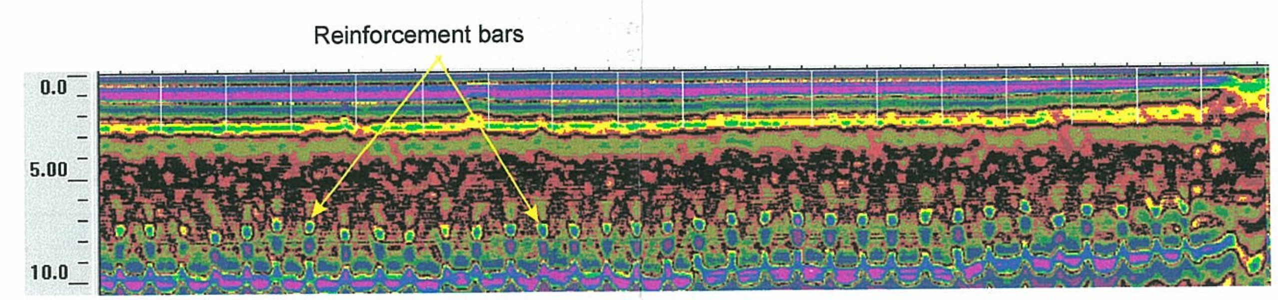
Horizontal slice of the concrete deck at depth of 3" (-5" from top surface)



Horizontal slice of the concrete deck at depth of 5" (-7" from top surface)



Vertical slice in the concrete slab 3' west of E-5, from 0' to 18' north



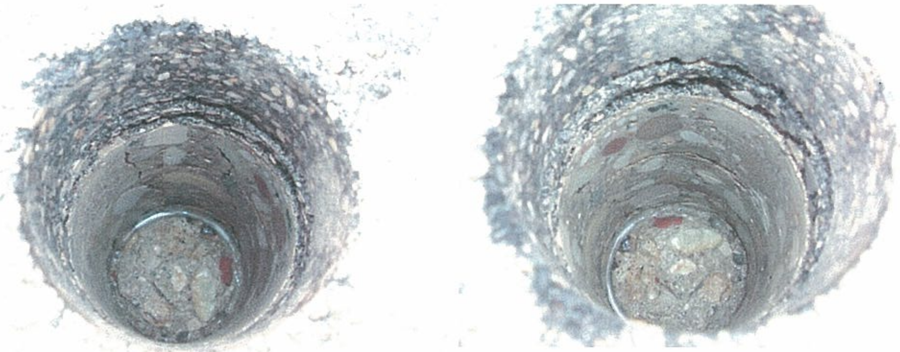
Vertical slice in the concrete slab 6' west of E-5, from 17' to 35' north

Legend

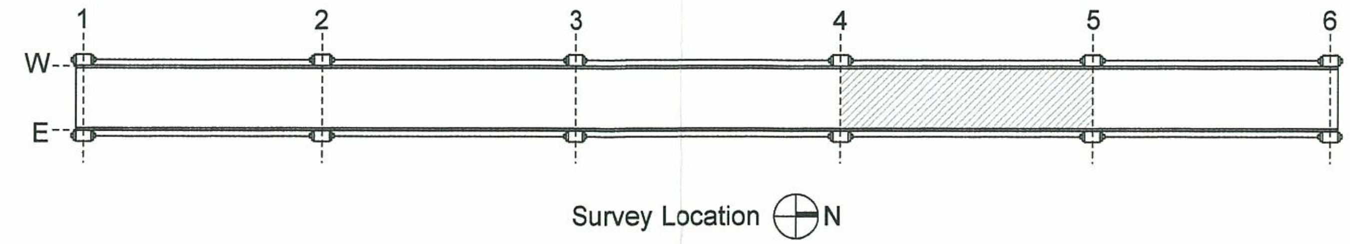
Least Worst

Degree of delamination

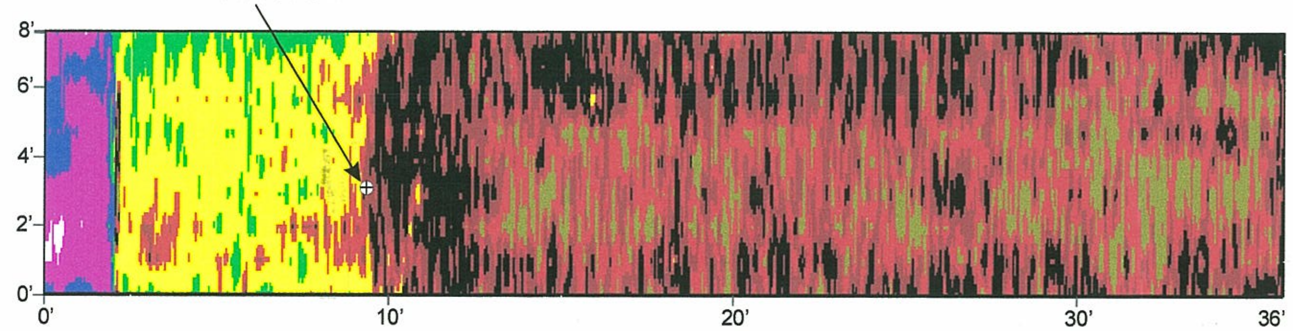
Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org **UCT**	**Geneva Park District** **Pedestrian Bridge** **Geneva, Illinois**	UCT Project 05048 Scale: NTS	Date: April 2005 By : MI Apr. BD	**Ground Penetrating Radar Images**	Figure 2



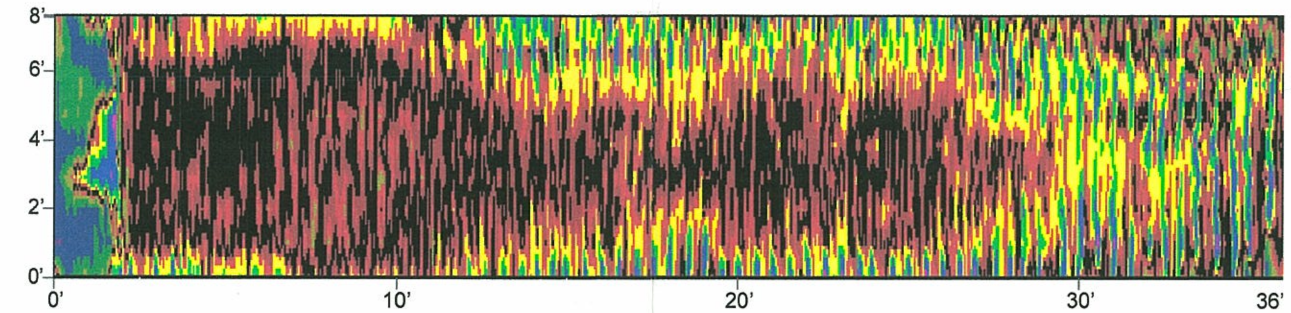
Photos of Core C-2 - top view



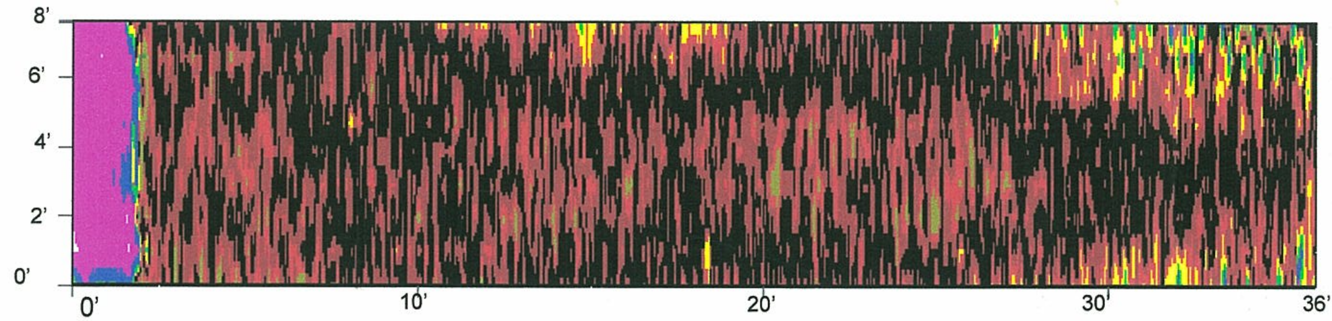
Core location C-2



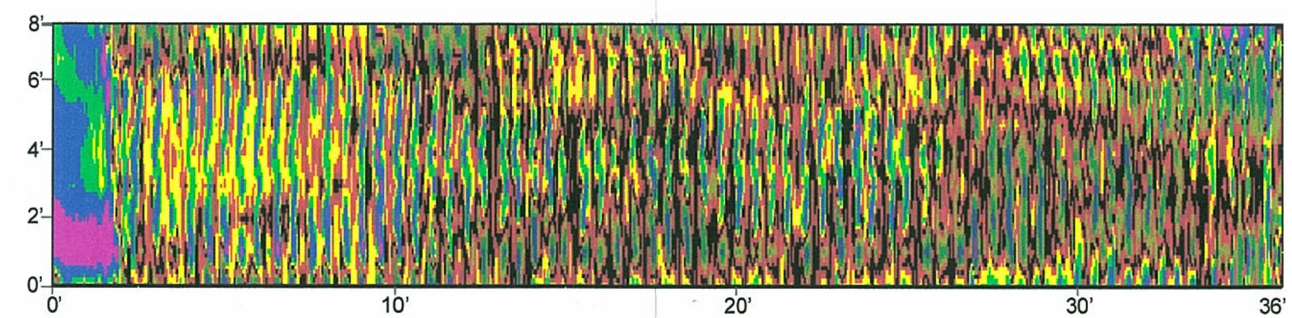
Horizontal slice of the concrete deck at depth of 2" (-4" from top surface)



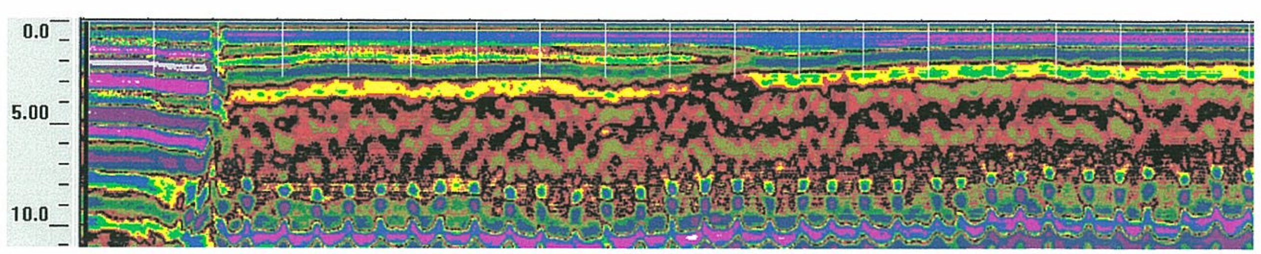
Horizontal slice of the concrete deck at depth of 4" (-6" from top surface)



Horizontal slice of the concrete deck at depth of 3" (-5" from top surface)



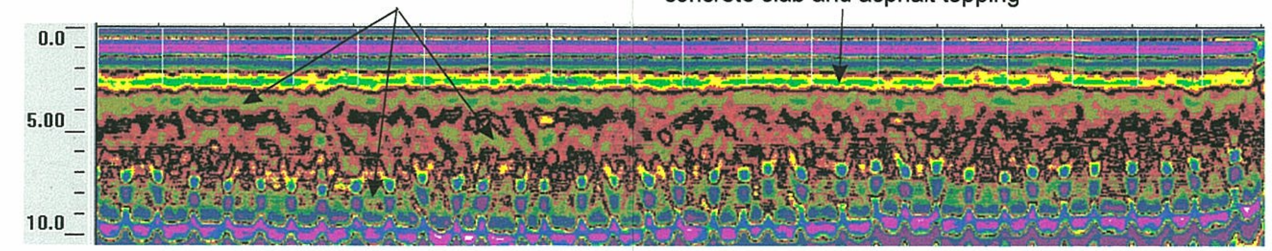
Horizontal slice of the concrete deck at depth of 5" (-7" from top surface)



Vertical slice in the concrete slab 6' west of E-4, from 0' to 18' north

Delamination

Debonding and delamination between concrete slab and asphalt topping



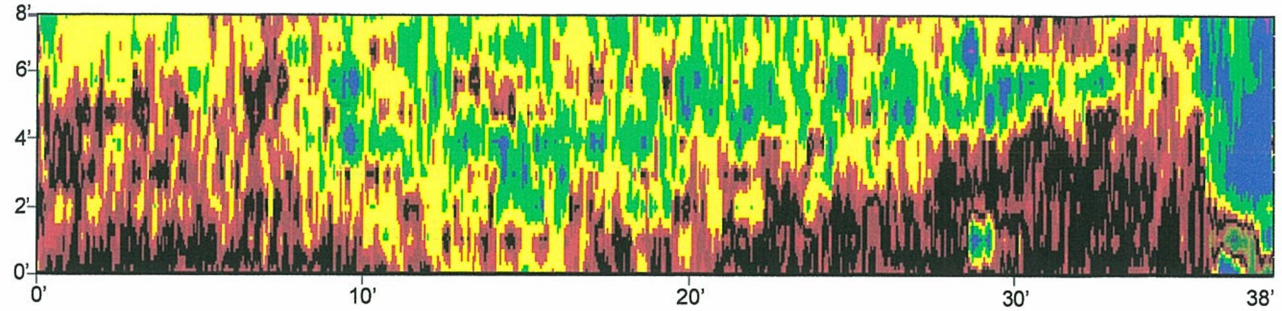
Vertical slice in the concrete slab 3' west of E-4, from 16' to 36' north

Legend

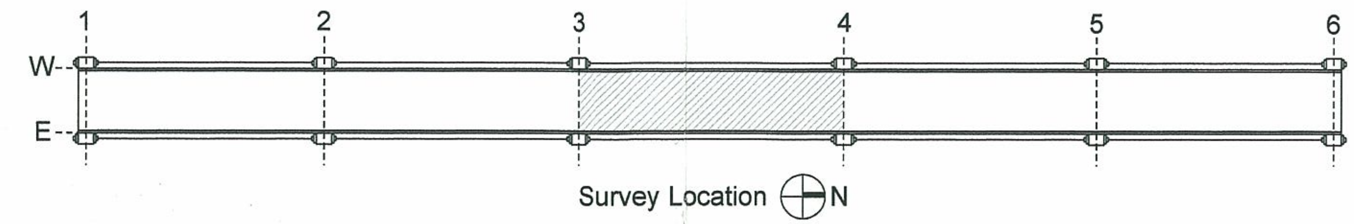
Least Worst

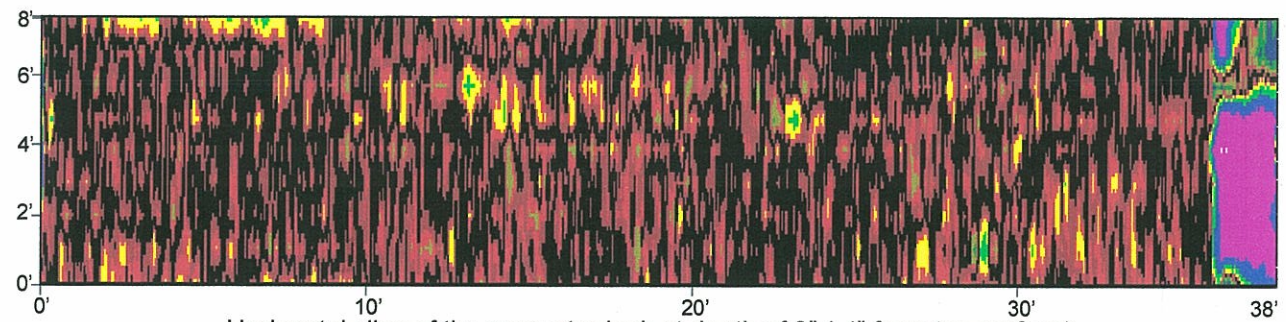
Degree of delamination

Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org **UCT**	**Geneva Park District** **Pedestrian Bridge** **Geneva, Illinois**	UCT Project 05048 Scale: NTS	Date: April 2005 By : MI Apr. BD	**Ground Penetrating Radar Images**	Figure 3

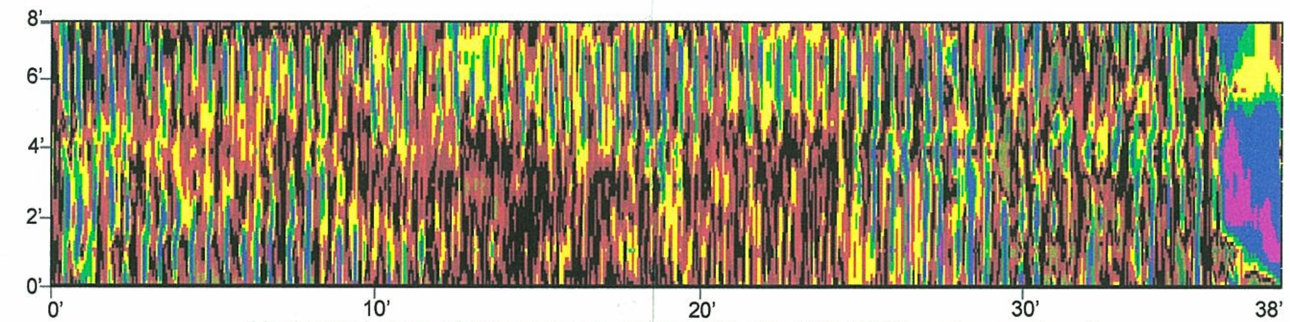


Horizontal slice of the concrete deck at depth of 1" (-3" from top surface)

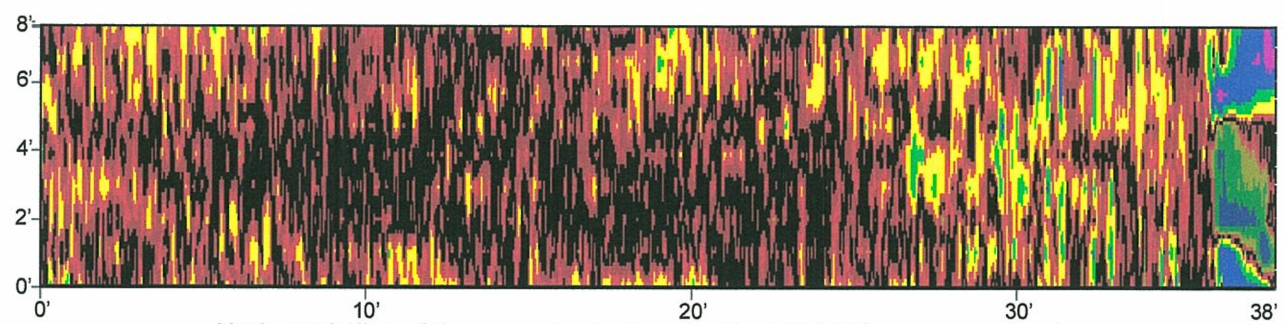




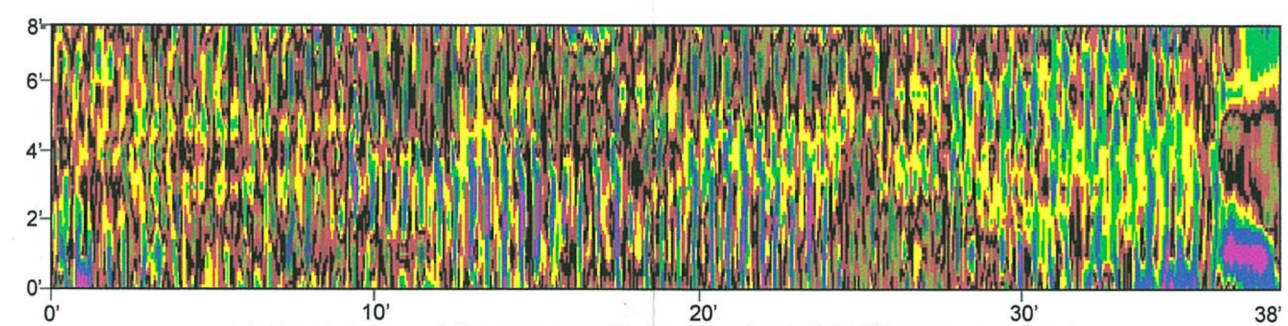
Horizontal slice of the concrete deck at depth of 2" (-4" from top surface)



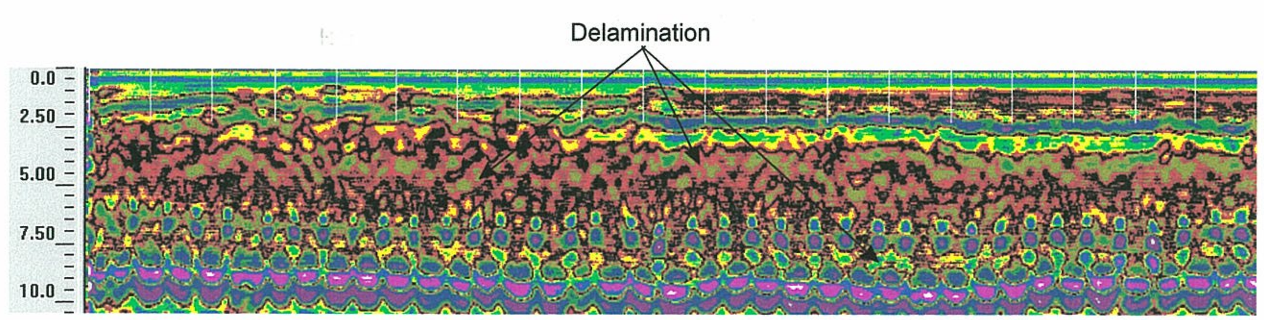
Horizontal slice of the concrete deck at depth of 4" (-6" from top surface)



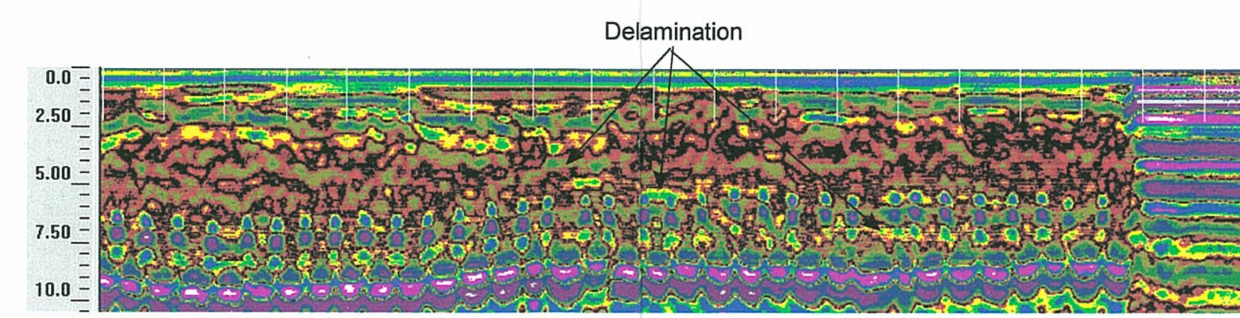
Horizontal slice of the concrete deck at depth of 3" (-5" from top surface)



Horizontal slice of the concrete deck at depth of 5" (-7" from top surface)



Vertical slice in the concrete slab 5' west of E-3, from 0' to 19' north



Vertical slice in the concrete slab 5' west of E-3, from 19' to 38' north

Legend

Least  Worst

Degree of delamination

Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org **UCT**	**Geneva Park District** **Pedestrian Bridge** **Geneva, Illinois**	UCT Project 05048 Scale: NTS	Date: April 2005 By : MI Apr. BD	**Ground Penetrating Radar Images**	Figure 4

Photo of Core C-3 - top view

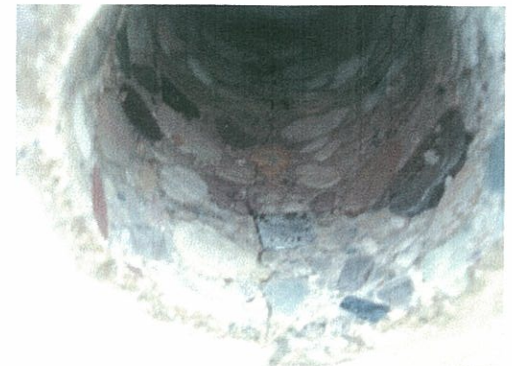
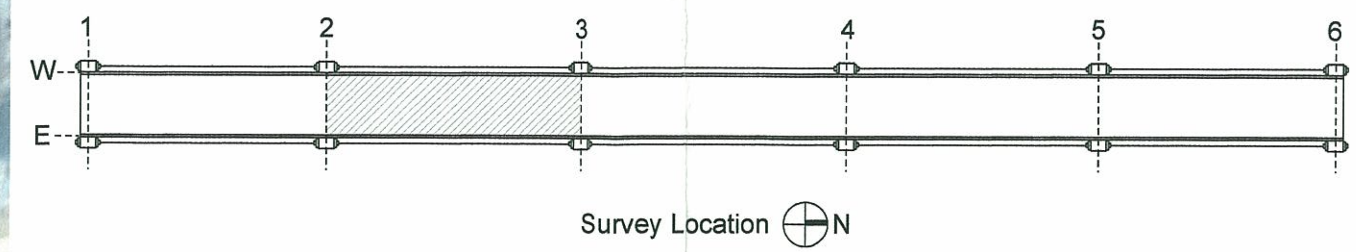
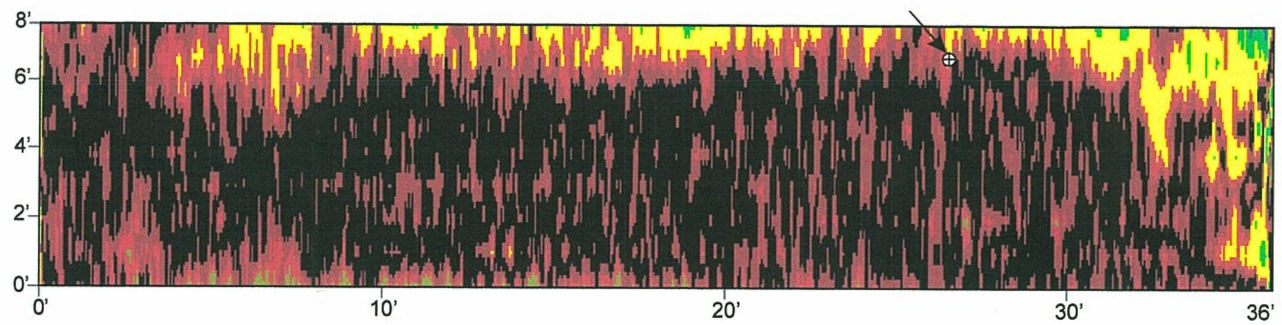
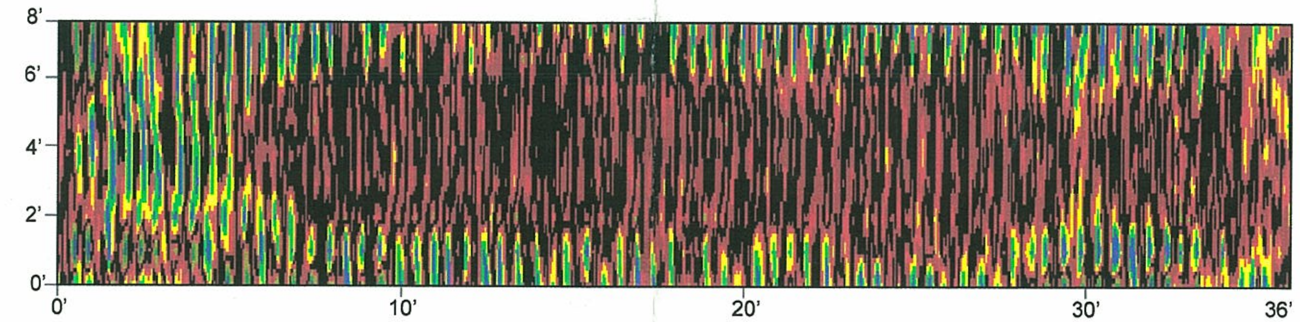


Photo of Core C-3 - view from bottom

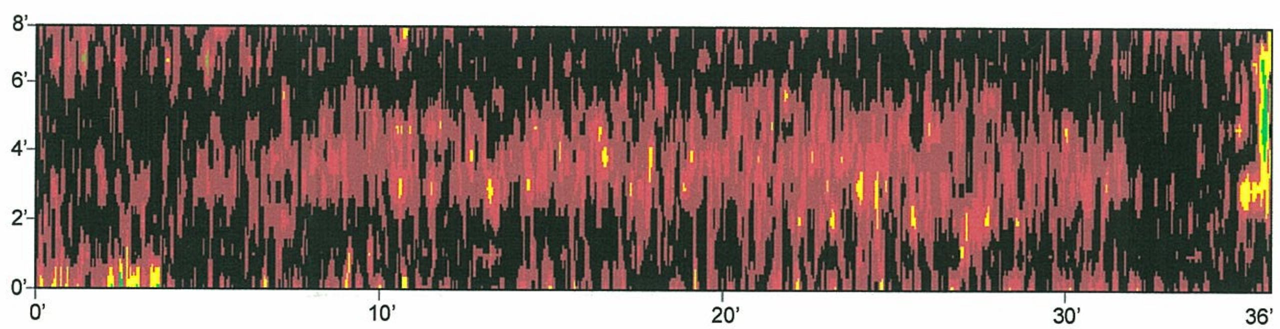




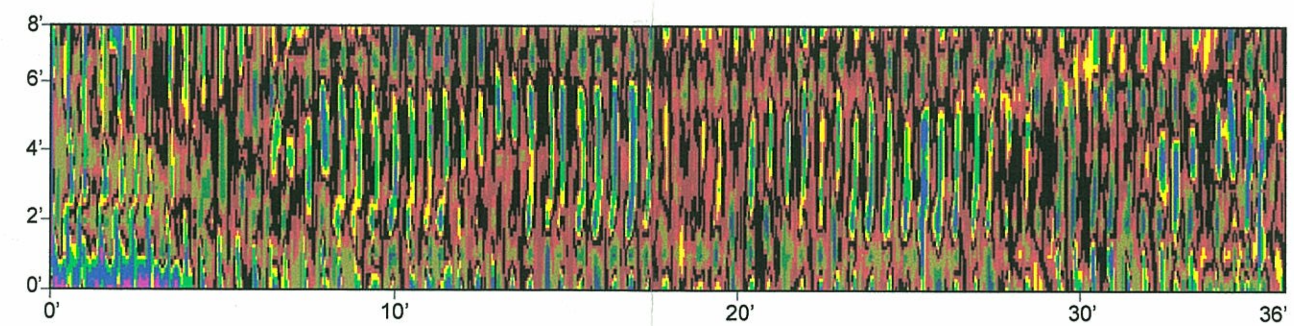
Horizontal slice of the concrete deck at the depth of 2" (-4" from top surface)



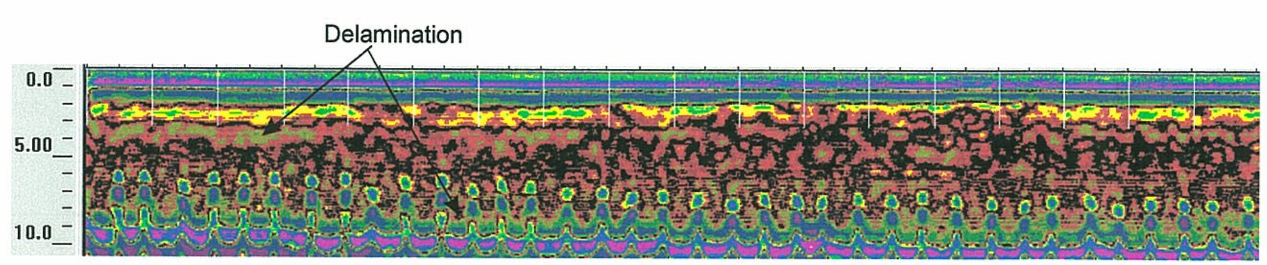
Horizontal slice of the concrete deck at the depth of 4" (-6" from top surface)



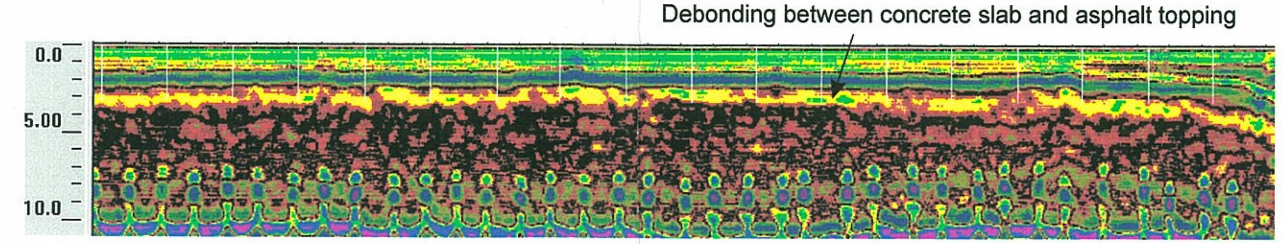
Horizontal slice of the concrete deck at the depth of 3" (-5" from top surface)



Horizontal slice of the concrete deck at the depth of 5" (-7" from top surface)



Vertical slice in the concrete slab - 1' west of E-2, from 0' to 18' north



Vertical slice in the concrete slab - 7' west of E-2, from 18' to 36' north

Legend

Degree of delamination

Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org **UCT**	**Geneva Park District Pedestrian Bridge Geneva, Illinois**	UCT Project 05048	Date: April 2005	**Ground Penetrating Radar Images**	Figure 5
			By : MI		
		Scale: NTS	Apr. BD		

Photo of Core C-4 - top view

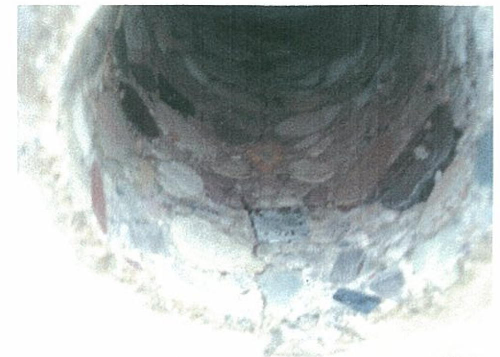
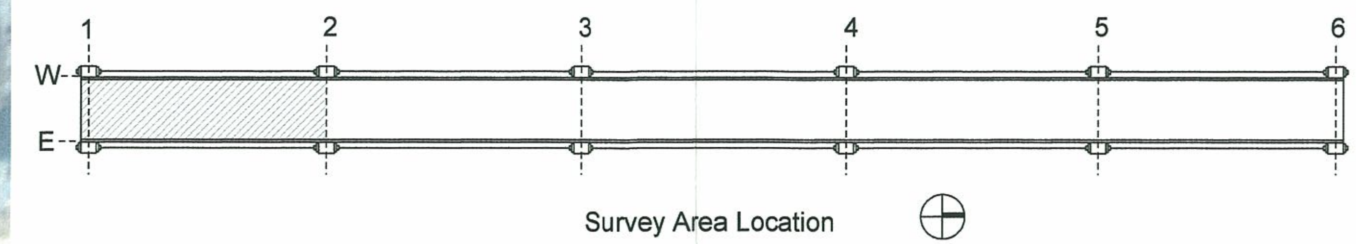
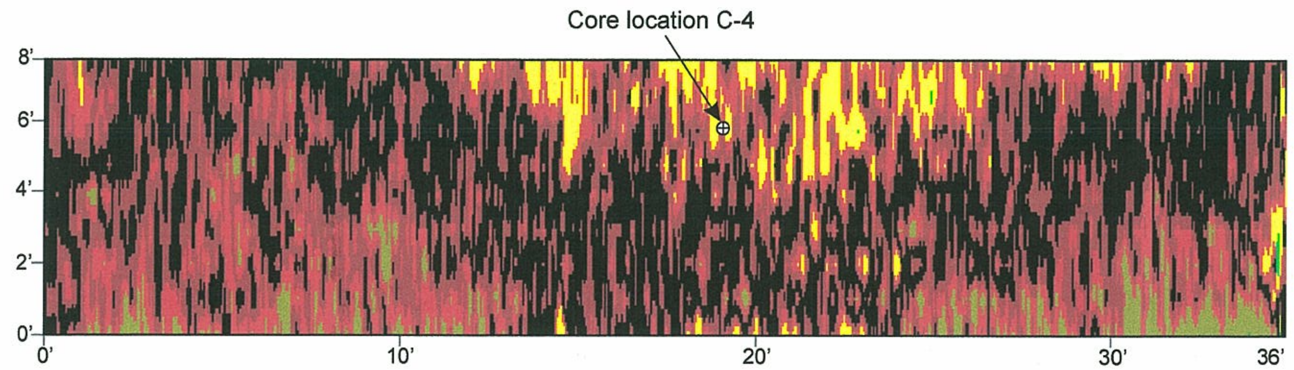
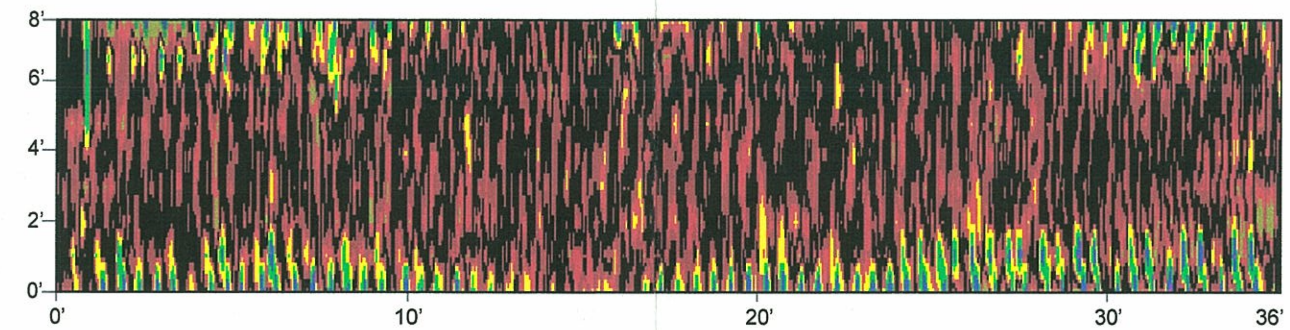


Photo of Core C-4 - view from bottom

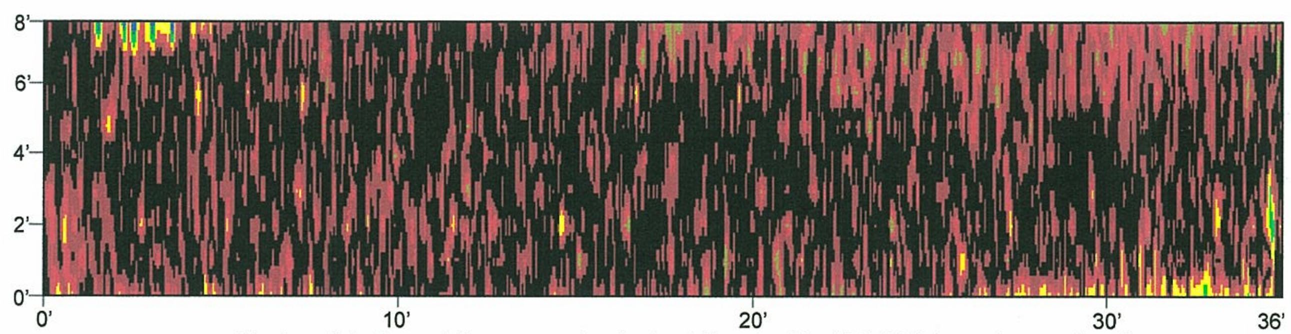




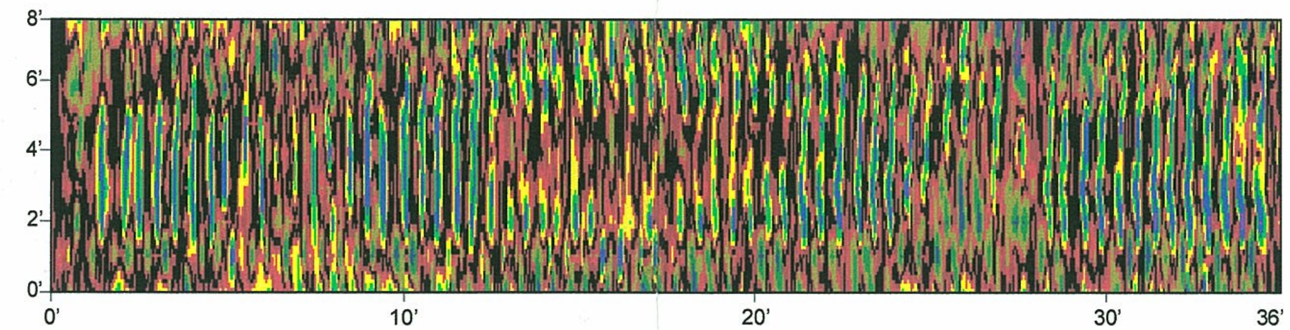
Horizontal slice of the concrete deck at the depth of 2" (-4" from top surface)



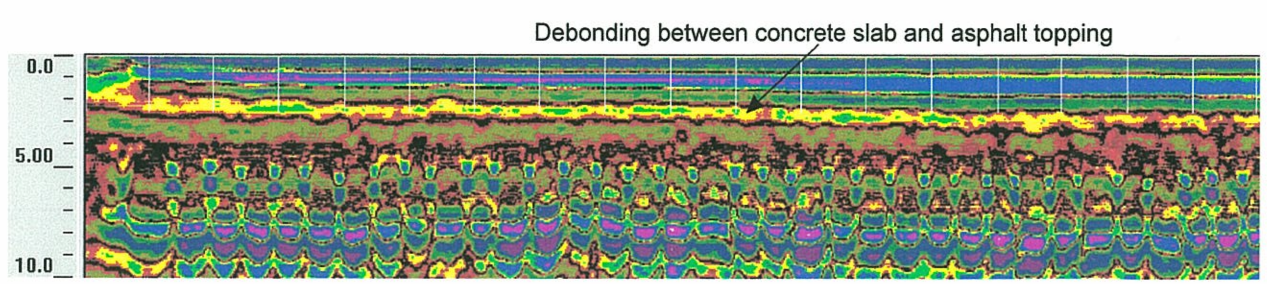
Horizontal slice of the concrete deck at the depth of 4" (-6" from top surface)



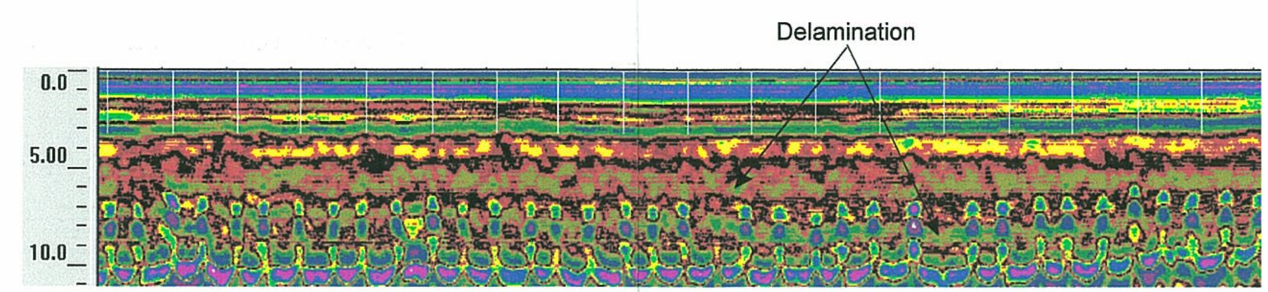
Horizontal slice of the concrete deck at the depth of 3" (-5" from top surface)



Horizontal slice of the concrete deck at the depth of 5" (-7" from top surface)



Vertical slice in the concrete slab - 1' west of E-1, from 0' to 18' north



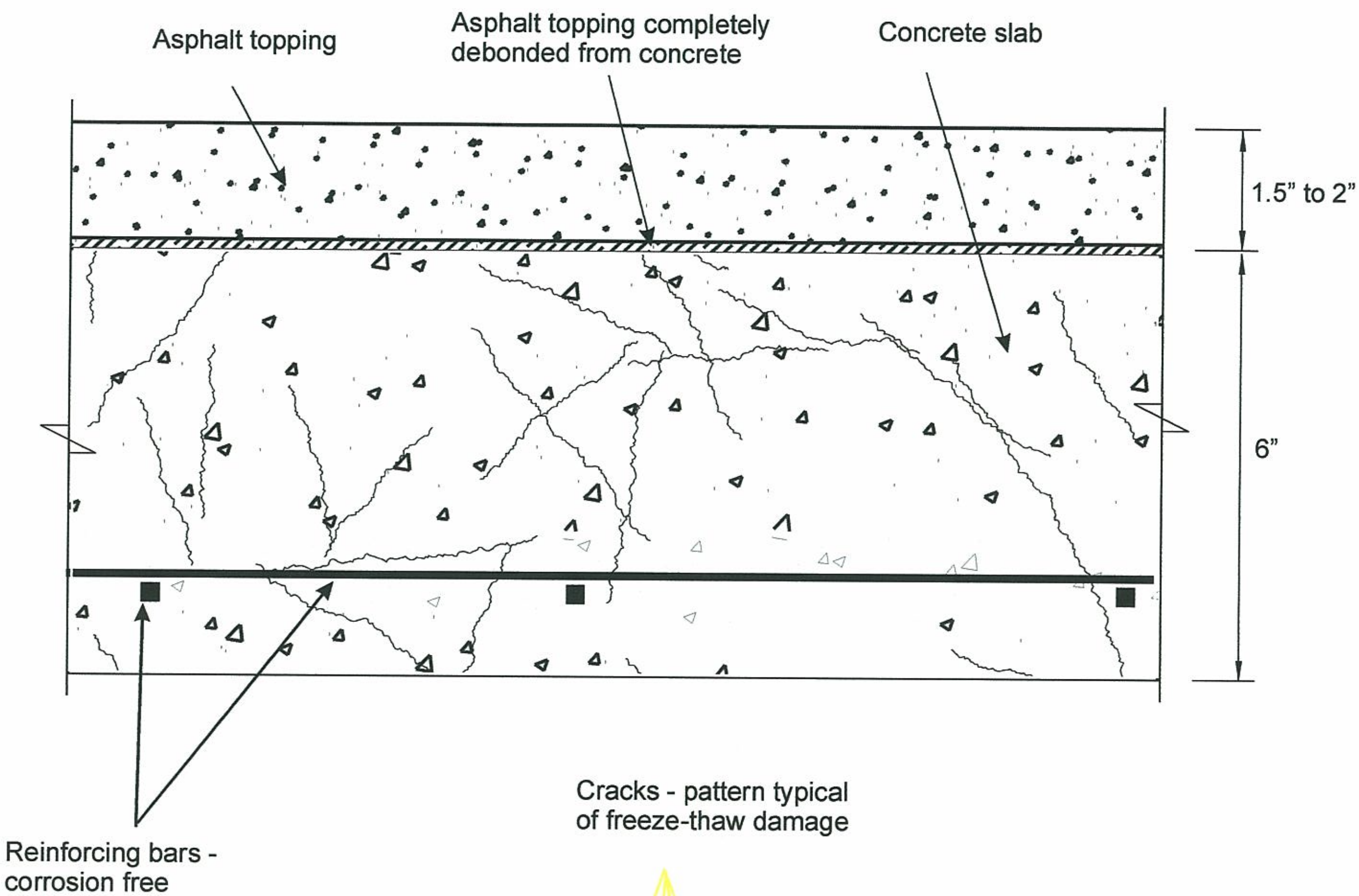
Vertical slice in the concrete slab - 7.5' west of E-1, from 18' to 35' north

Legend

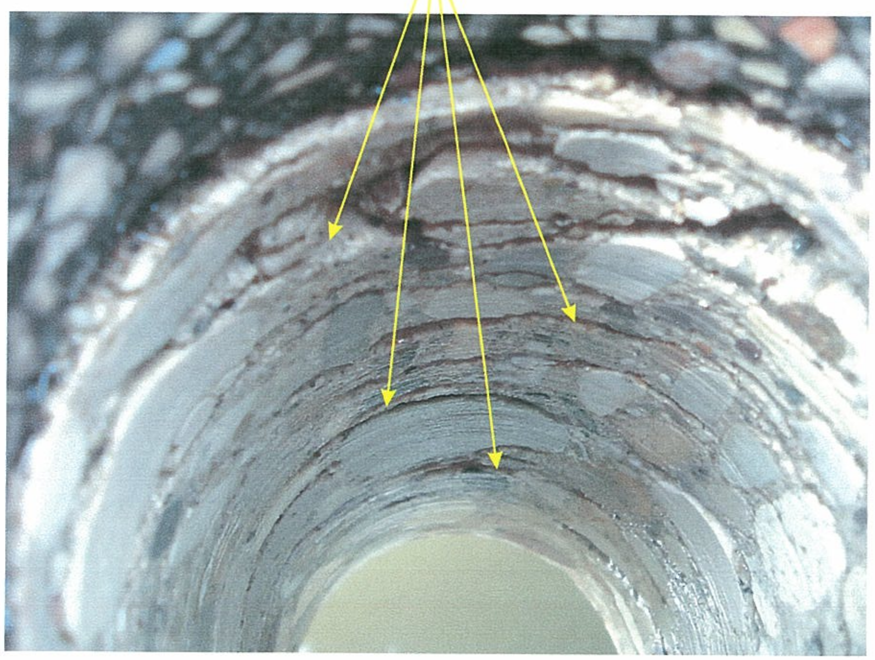
Least  Worst

Degree of delamination

Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org **UCT**	**Geneva Park District** **Pedestrian Bridge** **Geneva, Illinois**	UCT Project 05048 Scale: NTS	Date: April 2005 By : MI Apr. BD	**Ground Penetrating Radar Images**	Figure 6



Cracks - pattern typical of freeze-thaw damage



Universal Construction Testing, Ltd. 1548 Old Skokie Rd, Highland Park, IL 60035 (847) 831.5343 www.constructiontesting.org UCT	Geneva Park District Pedestrian Bridge Geneva, Illinois	UCT Project 05048 Date: April 2005	Bridge Deck Conditions	Figure 7

ATTACHMENT

C

Testing Service Report November 17, 2005 (Horizontal Cores)

TSC
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Carol Stream, Illinois

November 17, 2005

Mr. Larry Gabriel
Geneva Park District
710 Western Avenue
Geneva, Illinois 60134

Re: L-63,896
Report 1
North Island Park
North Bridge
Geneva, Illinois

Dear Mr. Gabriel:

This correspondence presents the results of our coring program for the north and south abutment walls and piers of the North Island Park, North Pedestrian Bridge. Air-Void Analysis and physical condition of the concrete cores are addressed in this report.

To initiate this study, a total of twelve (12) core locations were marked in the field by a representative of Testing Service Corporation according to the site plan prepared by the Farnsworth Group, Inc. The field work consisted of obtaining four (4) inch diameter cores at the upper and lower segment of each abutment wall and pier. Concrete cores were obtained by means of a diamond tipped core barrel which was drilled into the vertical surface of each structure at a right angle. Upon completion of sampling each of the core holes were patched with (Set-45), high-early strength concrete. Each of the core location's were photographed and made part of this report. Core specimens were identified, packaged and transported to our Carol Stream Laboratory for additional testing. Physical condition of each core was described and each core was measured for length. Core specimens were then packaged and transported to Construction Technology Laboratories located in Skokie, Illinois for petrographic analysis.

Review of the Construction Technology Laboratories (CTL) report revealed the following. Initial testing including Air-Void-System Analysis was performed on cores C1, C3 and C4. Results showed that the concrete in each of the cores was not air-entrained. Of the remaining cores, C5, C8 and C10 were examined with a stereomicroscope which revealed similar Air-Void-System as the three tested cores. Based on examination, it was determined by CTL that cores C5, C8 and C10 are also not air-entrained. The remaining cores were not tested by CTL. The complete report of Air-Void-System Analysis prepared by CTL is included with this report.

The following table presents the core locations and measurements of each core specimen.

Core No.	Structure	Core Location	Length of Core (In Inches)
1	South Abutment Wall	Upper segment of Wall on North Face	13.0
2	South Abutment Wall	Lower Segment of Wall on North Face	13½
3	Pier No. 1	Lower Segment of Pier on South Face	9¾
4	Pier No. 1	Upper segment of Pier on North Face	13 ¼
5	Pier No. 2	Upper segment of Pier on South Face	11⅛
6	Pier No. 2	Lower segment of Pier on North Face	13 ¼
7	Pier No. 3	Lower segment of Pier on South Face	7.0
8	Pier No. 3	Upper segment of Pier on North Face	12.0
9	Pier No. 4	Upper segment of Pier on South Face	12 ¾
10	Pier No. 4	Lower segment of Pier on North Face	12.0
11	North Abutment Wall	Lower segment of Wall on South Face	10 ⅜
12	North Abutment Wall	Upper segment of Wall on South Face	7 ¾

The table below describes the sequence of photos (9) that follow Page 2.

Fig. 1	South Abutment Core 1 Lower Core
Fig. 2	South Abutment Core 2 Upper Core
Fig. 3	Pier 1 South Face Core 3 Upper Core
Fig. 4	Pier 1 North Face Core 4 Lower Core
Fig. 5	Northeast Corner of Pier 1
Fig. 6	Northeast Corner of Pier 1
Fig. 7	East Face of Pier 1
Fig. 8	Pier 2 South Face Core 5 Upper Core
Fig. 9	Pier 2 North Face Core 6 Lower Core
Fig. 10	Pier 3 South Face Core 7 Lower Core
Fig. 11	Pier 3 South Face Core 7 Lower Core
Fig. 12	Pier 3 North Face Core 8 Upper Core
Fig. 13	Pier 3 North Face Core 8 Upper Core
Fig. 14	Pier 4 South Face Core 9 Lower Core
Fig. 15	Pier 4 North Face Core 10 Upper Core
Fig. 16	North Abutment Core 12 Upper Core
Fig. 17	North Abutment Core 11 Lower Core

The following summary prepared by Testing Service Corporation includes a physical description of each core and discussion of concrete distress.

Cores C1 and C2 represent the South Abutment Wall. Each of the core specimens were observed in sound condition with no evidence of deterioration.

Cores C3 and C4 represent the south and north face of Pier # 1. Core C3 revealed a diagonal crack that extends thru the cross section of the core. Also, several superficial hairline cracks were observed just below the top or surface of the core. Core C4 was found in sound condition with no evidence of deterioration.

Cores C5 and C6 represent the south and north face of Pier # 2. Core C5 is considered to be in sound condition and no evidence of deterioration. Core C6 revealed one crack that extended thru the cross-section of the core. The crack is located approximately seven inches below the top or surface of the core.

Cores C7 and C8 represent the south and north face of Pier # 3. Core C7 revealed one crack that extends thru the cross-section of the core. Several superficial hairline cracks were also observed just below the top or surface of the core. Core C8 revealed one diagonal crack that extends thru the cross-section of the core. The crack is located approximately four inches below the top or surface of the core.

Cores C9 and C10 represent the south and north face of Pier # 4. Each of the cores were observed to be in sound condition with no evidence of deterioration.

Cores C11 and C12 represent the North Abutment Wall. Each of the cores revealed several cracks that extend thru the cross-section of the cores. Cracks were located approximately two to five inches below the surface of core C11 and two and five inches below the surface of core C12.

Review of the physical condition of the concrete cores revealed internal cracking of the concrete at the location selected for the investigation. Cores C1, C2, C4, C5, C9, and C10 were found in sound condition and cores C3, C6, C7, C8, C11 and C12 revealed large cracks that extend thru the entire cross-section of each core. Reinforcement steel or wire mesh was not encountered.

Photographs of the bridge structure were also obtained at different angles to provide an over-all view of the physical condition of the concrete. Review of the photographs demonstrates concrete deterioration such as pattern cracking, scaling, efflorescence and joint spall.

The following definition of concrete distress are provided.

Pattern cracking can be described as fine openings on a concrete surface.

Scaling appears as local flaking or peeling away of the near-surface portion of hardened concrete.

Efflorescence appear as deposit of salts, usually white, formed on a surface, the substance having emerged in solution from within concrete and subsequently been precipitated by evaporation.

Joint spall appears as a spall or erosion next to a joint.

The following photograph log of the bridge structures is included with this report.

Please call if there are any questions or if we may be of further service.

Sincerely,

TESTING SERVICE CORPORATION

Thomas J. Morris, P.E.
Vice President

Prepared by,

John W. Moky
Section Manager

TJM:JWM:ml
Enc. Photograph Log with Photos (36 Pages)
CTL Report
cc: M. Wylie

Fig. 1 South Abutment Core 1 Lower Core

Fig. 2 South Abutment Core 2 Upper Core

Testing Service Corporation

Fig. 3 Pier 1 South Face Core 3 Upper Core

Fig. 4 Pier 1 North Face Core 4 Lower Core

Testing Service Corporation

Fig. 5 Northeast Corner of Pier 1

Fig. 6 Northeast Corner of Pier 1

Testing Service Corporation

Fig. 7 East Face of Pier 1

Fig. 8 Pier 2 South Face Core 5 Upper Core

Fig. 9 Pier 2 North Face Core 6 Lower Core

Testing Service Corporation

Fig.10 Pier 3 South Face Core 7 Lower Core

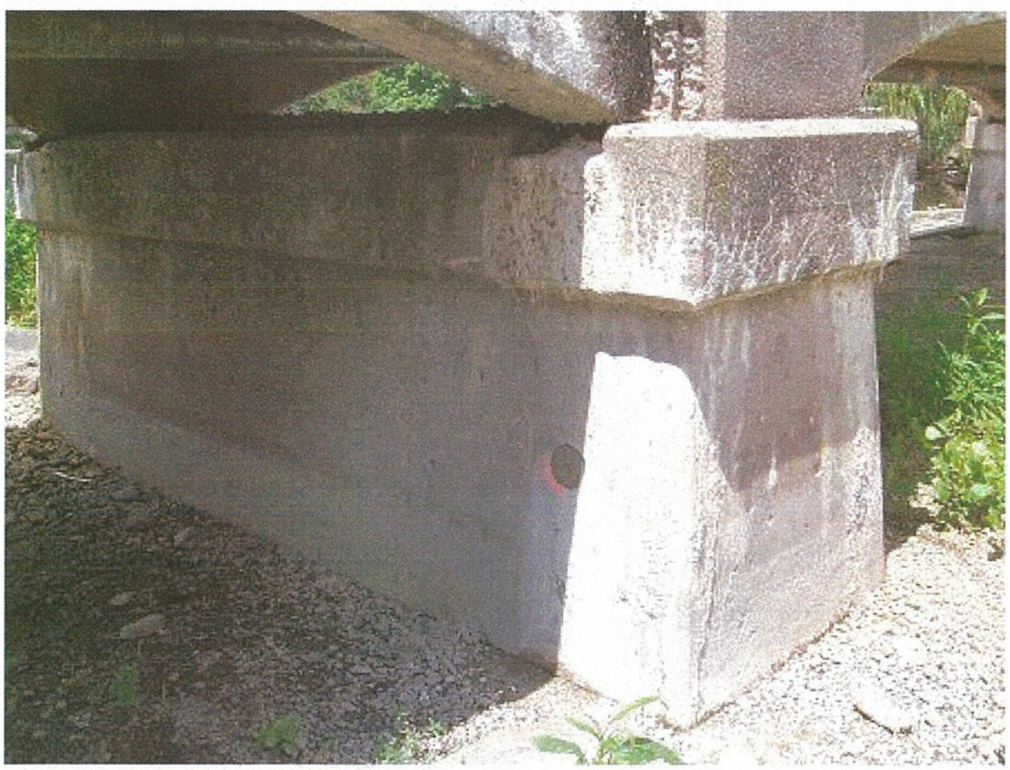

Fig. 11 Pier 3 South Face Core 7 Lower Core

Fig. 12 Pier 3 North Face Core 8 Upper Core

Fig. 13 Pier 3 North Face Core 8 Upper Core

Testing Service Corporation

Fig. 14 Pier 4 South Face Core 9 Lower Core

Fig. 15 Pier 4 North Face Core 10 Upper COre

Fig. 16 North Abutment Core 12 Upper Core

Fig 17 South Abutment Core 11 Lower Core

ATTACHMENT

D

Testing Service Report July 27, 2007 (Vertical Cores)

TSC

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Geo-Environmental Drilling & Sampling

Report of Site Exploration

Island Park North Bridge

Geneva, Illinois

Geneva Park District

GEOTECHNICAL GROUP

CAROL STREAM

July 27, 2007
L - 69,344

REPORT OF SITE EXPLORATION
ISLAND PARK NORTH BRIDGE
GENEVA, ILLINOIS

PREPARED FOR:
GENEVA PARK DISTRICT
710 WESTERN AVENUE
GENEVA, ILLINOIS 60134

PREPARED BY:
TESTING SERVICE CORPORATION
457 EAST GUNDERSEN DRIVE
CAROL STREAM, ILLINOIS 60188
(630) 653-3920

TABLE OF CONTENTS

July 27, 2007

L - 69,344

REPORT OF SITE EXPLORATION
ISLAND PARK NORTH BRIDGE
GENEVA, ILLINOIS

1.0 INTRODUCTION

This report presents the results of a soils exploration performed to evaluate the condition and support of the existing bridge piers and abutments of the Island Park North Bridge. The bridge is located on the east side of the Fox River and to the south of Roosevelt Road (Route 38) in Geneva, Illinois. This report supplements TSC report L-63,896 (dated November 17, 2005) which consisted of performing shallow cores (i.e. 1' +/-) into the sides of the piers and abutments. For the readers' reference, we have included in the Appendix of this report pictures of the piers and abutments that were taken in 2005.

The bridge deck was noted to consist of approximately 2 inches of bituminous concrete over approximately 5½ inches of Portland Cement concrete. The bituminous concrete was judged to be in poor condition. The outer surface of the piers and abutments were noted to exhibit some cracking and spalling.

These geotechnical services were provided in accordance with TSC Proposal No. 38,405 dated May 14, 2007 and the attached General Conditions, which are incorporated herein by reference. This report presents the results of borings, laboratory testing and recommendations based on that work.

2.0 FIELD WORK AND LABORATORY TESTING

Six (6) borings were planned for this study. One boring was to be performed at the location of each abutment and also each of the four (4) piers. The borings were to be advanced through the bridge deck and pier or abutment to the underlying bedrock or soil.

It should be noted that at the location of Pier 1 (Boring 2), a combination of gravel and fractured rock material was encountered below the pier. When we could not core through this material, the hole was abandoned and a new boring (i.e. Boring 2A) was performed approximately 6 inches to the west of the original location.

The borings were performed using a trailer-mounted coring machine with a 4-inch diameter stackable core barrel system. The core samples were advanced through the bridge deck, the piers or the abutments and then into the underlying bedrock. Total coring depths in the range of 10 feet were performed.

The core samples were measured in the field and then labeled so they could be transported to our laboratory where they were described and photographed by a geologist and/or engineer. In addition, representative portions of the Portland Cement concrete cores were saw cut so that compression strength tests could be performed. The results of these tests are summarized on the Boring logs included with this report and also in the following subsection of this report.

3.0 DISCUSSION OF TEST DATA AND RECOMMENDATIONS

Ground surface elevations at the borings were referenced to an assumed elevation of 100.0 for the top of a "PK" nail which was located approximately 38' south of the Route 38 bridge and approximately 5" west of the east curb line of the river walkway. Based on this reference point, the ground surface elevations at the borings were noted to range from a low of approximately 102.4 at Borings 1 and 6 to a high of approximately 103.2 at Borings 3 and 4.

3.1 Borings

In Table 1 which follows, we have summarized the results of the Borings.

Table 1

BORING NUMBER	BRIDGE DECK	PIER OR ABUTMENT	SUPPORT MATERIAL
1	0"-1.5" Bituminous Concrete 1.5"-7" P.C. Concrete	2.5'-9.4' P.C. Concrete	9.4'-11' Dolomite
2	0"-2" Bituminous Concrete 2"-7.5" P.C. Concrete	2.5'-9.2' P.C. Concrete (Horizontal Crack at 3.4')	9.2'-9.5' Dolomite with clay partings
2A	0"-2" Bituminous Concrete 2"-7.5" P.C. Concrete	2.5'-10' P.C. Concrete (Horizontal Crack at 3.4')	9'-10' Fractured Dolomite and Gravel
3	0"-3" Bituminous Concrete 3"-9" P.C. Concrete	2.5'-9' P.C. Concrete	9'-11' Dolomite
4	0"-2¼" Bituminous Concrete 2¼"-2½" Steel Plate 2½"-9" P.C. Concrete	2.5'-8.5' P.C. Concrete	8.5'-9' Dolomite
5	0"-2" Bituminous Concrete 2"-8" P.C. Concrete	2.5'-8.3' P.C. Concrete	8.3'-10' Dolomite
6	0"-1" Bituminous Concrete 1"-8" P.C. Concrete	2.5'-8' P.C. Concrete (Horizontal Crack at 3.6')	8'-13.5' Dolomite

At each of the following locations: Borings 2 and 2A (Pier 1) and also Boring 6 (North Abutment), a horizontal crack was noted at an approximate depth of 3½ feet from the surface of the bridge.

In order to evaluate the strength of the Portland Cement piers and abutments, representative sections of the cores were selected so that they could be saw cut and compression strength tests could be performed. The results of these tests are summarized in Table 2 which follows.

TABLE 2

BORING NUMBER	DEPTH OF SAMPLE FROM TOP OF BRIDGE DECK	COMPRESSION STRENGTH VALUE IN PSI
1	7.5'-8.2'	9,400
2	6'-6.7'	7,550
2A	6.5'-7.2'	7,740
3	6.5'-7.2'	7,720
4	6.5'-7.2'	8,450
5	5.2'-5.8'	8,290
6	5.5'-6.2'	6,800

All cores had a diameter of 4" and a length of 8"

Review of the coring data indicates that all of the piers and abutments except Pier 1 (Borings 2 and 2A) were supported on bedrock. Pier 1, however, was supported on fractured gravel. It did, however, appear that possible bedrock was encountered approximately 10 feet below the top of the bridge deck at the location of Boring 2A.

To illustrate the condition of the piers and abutments, the core samples were photographed. (Please see pictures included in the Appendix of this report). It should be noted that while the Portland Cement concrete cores appear cracked in the pictures, the majority of these cracks were made when the cores were extracted below our coring machine. Due to the limited height of the machine, it was necessary to break many of the cores so that they could be removed from the stacked barrel system. It should also be noted that the large number of fractures at the Boring 2A location were caused by the core lifter which was jamming inside the core barrel. The cracks which were noted to be from the deterioration of the concrete were located approximately 3½ feet from the surface of the bridge deck at the location of Borings 2, 2A and 6.

3.2 Bearing Capacity

All of the piers and abutments except Pier 1 (Borings 2 and 2A) were founded on bedrock. It is our opinion that the bedrock is capable of supporting a design bearing stress of 12,000 psf. While higher design values may be obtainable, they but will likely require additional coring and/or testing to be performed.

In reference to Borings 2 and 2A, it is recommended that a design bearing value in the range of 8000 psf be considered. If higher values are required, it is recommended that a new pier be constructed that is socketed into bedrock.

Based on the age of the piers and abutments, it is assumed that the bottoms of these structures have been designed to resist scour. Unless major changes are made in the flow of the Fox River in this area, it is our opinion that these structures are probably safe against scour. If additional safety against scour is required at the Pier 1 location, it is recommended that the underlying fractured rock and gravel be pressure grouted or a new pier be constructed.

4.0 CLOSURE

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings, the nature and extent of which may not become evident until during the course of construction. If variations are then identified, recommendations contained in this report should be re-evaluated after performing on-site observations.

Charles DuBose
Vice President
Registered Professional Engineer
Illinois No. 062-041049

CHARLES R. DUBOSE
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REGISTERED
PROFESSIONAL
ENGINEER
STATE OF ILLINOIS

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

As the client of a consulting geotechnical engineer, you should know that site subsurface conditions cause more construction problems than any other factor. ASFE/The Association of Engineering Firms Practicing in the Geosciences offers the following suggestions and observations to help you manage your risks.

A GEOTECHNICAL ENGINEERING REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS
Your geotechnical engineering report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. These factors typically include: the general nature of the structure involved, its size, and configuration; the location of the structure on the site; other improvements, such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask your geotechnical engineer to evaluate how factors that change subsequent to the date of the report may affect the report's recommendations.

Unless your geotechnical engineer indicates otherwise, do not use your geotechnical engineering report:

- when the nature of the proposed structure is changed, for example, if an office building will be erected instead of a parking garage, or a refrigerated warehouse will be built instead of an unrefrigerated one;
- when the size, elevation, or configuration of the proposed structure is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership; or
- for application to an adjacent site.

Geotechnical engineers cannot accept responsibility for problems that may occur if they are not consulted after factors considered in their report's development have changed.

SUBSURFACE CONDITIONS CAN CHANGE
A geotechnical engineering report is based on conditions that existed at the time of subsurface exploration. Do not base construction decisions on a geotechnical engineering report whose adequacy may have been affected by time. Speak with your geotechnical consultant to learn if additional tests are advisable before construction starts.Note, too, that additional tests may be required when subsurface conditions are affected by construction operations at or adjacent to the site, or by natural events such as floods, earthquakes, or ground water fluctuations. Keep your geotechnical consultant apprised of any such events.

MOST GEOTECHNICAL FINDINGS ARE PROFESSIONAL JUDGMENTS
Site exploration identifies actual subsurface conditions only at those points where samples are taken. The data were extrapolated by your geotechnical engineer who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your geotechnical engineer can work together to help minimize their impact. Retaining your geotechnical engineer to observe construction can be particularly beneficial in this respect.

A REPORT'S RECOMMENDATIONS CAN ONLY BE PRELIMINARY
The construction recommendations included in your geotechnical engineer's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Because actual subsurface conditions can be discerned only during earthwork, you should retain your geotechnical engineer to observe actual conditions and to finalize recommendations. Only the geotechnical engineer who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations are valid and whether or not the contractor is abiding by applicable recommendations. The geotechnical engineer who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS
Consulting geotechnical engineers prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your geotechnical engineer prepared your report expressly for you and expressly for purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the geotechnical engineer. No party should apply this report for any purpose other than that originally contemplated without first conferring with the geotechnical engineer.

GEOENVIRONMENTAL CONCERNS ARE NOT AT ISSUE
Your geotechnical engineering report is not likely to relate any findings, conclusions, or recommendations

about the potential for hazardous materials existing at the site. The equipment, techniques; and personnel used to perform a geoenvironmental exploration differ substantially from those applied in geotechnical engineering. Contamination can create major risks. If you have no information about the potential for your site being contaminated, you are advised to speak with your geotechnical consultant for information relating to geoenvironmental issues.

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical engineering report. To help avoid misinterpretations, retain your geotechnical engineer to work with other project design professionals who are affected by the geotechnical report. Have your geotechnical engineer explain report implications to design professionals affected by them, and then review those design professionals' plans and specifications to see how they have incorporated geotechnical factors. Although certain other design professionals may be familiar with geotechnical concerns, none knows as much about them as a competent geotechnical engineer.

BORING LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

Geotechnical engineers develop final boring logs based upon their interpretation of the field logs (assembled by site personnel) and laboratory evaluation of field samples. Geotechnical engineers customarily include only final boring logs in their reports. Final boring logs should not under any circumstances be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimize the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes, and unanticipated costs are the all-too-frequent result.

To minimize the likelihood of boring log misinterpretation, give contractors ready access to the complete geotechnical engineering report prepared or authorized for their use. (If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared and that developing construction cost estimates was not one of the specific purposes for which it was prepared. In other words, while a contractor may gain important knowledge from a report prepared for another party, the contractor would be well-advised to discuss the report with your geotechnical engineer and to perform the additional or alternative work that the contractor believes may be needed to obtain the data specifically appropriate for construction cost estimating purposes.) Some clients believe that it is unwise or unnecessary to give contractors access to their geotechnical engineering reports because they hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems. It also helps reduce the adversarial attitudes that can aggravate problems to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because geotechnical engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against geotechnical engineers. To help prevent this problem, geotechnical engineers have developed a number of clauses for use in their contracts, reports, and other documents. Responsibility clauses are not exculpatory clauses designed to transfer geotechnical engineers' liabilities to other parties. Instead, they are definitive clauses that identify where geotechnical engineers' responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your geotechnical engineering report. Read them closely. Your geotechnical engineer will be pleased to give full and frank answers to any questions.

RELY ON THE GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE

Most ASFE-member consulting geotechnical engineering firms are familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a construction project, from design through construction. Speak with your geotechnical engineer not only about geotechnical issues, but others as well, to learn about approaches that may be of genuine benefit. You may also wish to obtain certain ASFE publications. Contact a member of ASFE or ASFE for a complimentary directory of ASFE publications.

ASFE PROFESSIONAL FIRMS PRACTICING IN THE GEOSCIENCES
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TSC

TESTING SERVICE CORPORATION

GENERAL CONDITIONS

Geotechnical and Construction Services

1. PARTIES AND SCOPE OF WORK: If Client is ordering the services on behalf of another, Client represents and warrants that Client is the duly authorized agent of said party for the purpose of ordering and directing said services, and in such case the term "Client" shall also include the principal for whom the services are being performed. Prices quoted and charged by TSC for its services are predicated on the conditions and the allocations of risks and obligations expressed in these General Conditions. Unless otherwise stated in writing, Client assumes sole responsibility for determining whether the quantity and the nature of the services ordered by Client are adequate and sufficient for Client's intended purpose. Unless otherwise expressly assumed in writing, TSC's services are provided exclusively for client. TSC shall have no duty or obligation other than those duties and obligations expressly set forth in this Agreement. TSC shall have no duty to any third party. Client shall communicate these General Conditions to each and every party to whom the Client transmits any report prepared by TSC. Ordering services from TSC shall constitute acceptance of TSC's proposal and these General Conditions.

2. SCHEDULING OF SERVICES: The services set forth in this Agreement will be accomplished in a timely and workmanlike manner. If TSC is required to delay any part of its services to accommodate the requests or requirements of Client, regulatory agencies, or third parties, or due to any cause beyond its reasonable control, Client agrees to pay such additional charges, if any, as may be applicable.

3. ACCESS TO SITE: TSC shall take reasonable measures and precautions to minimize damage to the site and any improvements located thereon as a result of its services or the use of its equipment; however, TSC has not included in its fee the cost of restoration of damage which may occur. If Client desires or requires TSC to restore the site to its former condition, TSC will, upon written request, perform such additional work as is necessary to do so and Client agrees to pay to TSC the cost thereof plus TSC's normal markup for overhead and profit.

4. CLIENT'S DUTY TO NOTIFY ENGINEER: Client represents and warrants that Client has advised TSC of any known or suspected hazardous materials, utility lines and underground structures at any site at which TSC is to perform services under this agreement.

5. DISCOVERY OF POLLUTANTS: TSC's services shall not include investigation for hazardous materials as defined by the Resource Conservation Recovery Act, 42 U.S.C.§ 6901, et, seq., as amended ("RCRA") or by any state or Federal statute or regulation. In the event that hazardous materials are discovered and identified by TSC, TSC's sole duty shall be to notify Client.

6. MONITORING: If this Agreement includes testing construction materials or observing any aspect of construction of improvements, Client's construction personnel will verify that the pad is properly located and sized to meet Client's projected building loads. Client shall cause all tests and inspections of the site, materials and work to be timely and properly performed in accordance with the plans, specifications, contract documents, and TSC's recommendations. No claims for loss, damage or injury shall be brought against TSC unless all tests and inspections have been so performed and unless TSC's recommendations have been followed.

TSC's services shall not include determining or implementing the means, methods, techniques or procedures of work done by the contractor(s) being monitored or whose work is being tested. TSC's services shall not include the authority to accept or reject work or to in any manner supervise the work of any contractor. TSC's services or failure to perform same shall not in any way operate or excuse any contractor from the performance of its work in accordance with its contract. "Contractor" as used herein shall include subcontractors, suppliers, architects, engineers and construction managers.

Information obtained from borings, observations and analyses of sample materials shall be reported in formats considered appropriate by TSC unless directed otherwise by Client. Such information is considered evidence, but any inference or conclusion based thereon is, necessarily, an opinion also based on engineering judgment and shall not be construed as a representation of fact. Subsurface conditions may not be uniform throughout an entire site and ground water levels may fluctuate due to climatic and other variations. Construction materials may vary from the samples taken. Unless otherwise agreed in writing, the procedures employed by TSC are not designed to detect intentional concealment or misrepresentation of facts by others.

7. SAMPLE DISPOSAL: Unless otherwise agreed in writing, test specimens or samples will be disposed immediately upon completion of the test. All drilling samples or specimens will be disposed sixty (60) days after submission of TSC's report.

8. TERMINATION: This Agreement may be terminated by either party upon seven days prior written notice. In the event of termination, TSC shall be compensated by Client for all services performed up to and including the termination date, including reimbursable expenses.

9. PAYMENT: Client shall be invoiced periodically for services performed. Client agrees to pay each invoice within thirty (30) days of its receipt. Client further agrees to pay interest on all amounts invoiced and not paid or objected to in writing for valid cause within sixty (60) days at the rate of twelve (12%) per annum (or the maximum interest rate permitted by applicable law, whichever is the lesser) until paid and TSC's costs of collection of such accounts, including court costs and reasonable attorney's fees.

10. WARRANTY: TSC's professional services will be performed, its findings obtained and its reports prepared in accordance with these General Conditions and with generally accepted principles and practices. In performing its professional services, TSC will use that degree of care and skill ordinarily exercised under similar circumstances by members of its profession. In performing physical work in pursuit of its professional services, TSC will use that degree of care and skill ordinarily used under similar circumstances. This warranty is in lieu of all other warranties or representations, either express or implied. Statements made in TSC reports are opinions based upon engineering judgment and are not to be construed as representations of fact.

Should TSC or any of its employees be found to have been negligent in performing professional services or to have made and breached any express or implied warranty, representation or contract, Client, all parties claiming through Client and all parties claiming to have in any way relied upon TSC's services or work agree that the maximum aggregate amount of damages for which TSC, its officers, employees and agents shall be liable is limited to $50,000 or the total amount of the fee paid to TSC for its services performed with respect to the project, whichever amount is greater.

In the event Client is unwilling or unable to limit the damages for which TSC may be liable in accordance with the provisions set forth in the preceding paragraph, upon written request of Client received within five days of Client's acceptance of TSC's proposal together with payment of an additional fee in the amount of 5% of TSC's estimated cost for its services (to be adjusted to 5% of the amount actually billed by TSC for its services on the project at time of completion), the limit on damages shall be increased to $500,000 or the amount of TSC's fee, whichever is the greater. This charge is not to be construed as being a charge for insurance of any type, but is increased consideration for the exposure to an award of greater damages.

11. INDEMNITY: Subject to the provisions set forth herein, TSC and Client hereby agree to indemnify and hold harmless each other and their respective shareholders, directors, officers, partners, employees, agents, subsidiaries and division (and each of their heirs, successors, and assigns) from any and all claims, demands, liabilities, suits, causes of action, judgments, costs and expenses, including reasonable attorneys' fees, arising, or allegedly arising, from personal injury, including death, property damage, including loss of use thereof, due in any manner to the negligence of either of them or their agents or employees or independent contractors. In the event both TSC and Client are found to be negligent or at fault, then any liability shall be apportioned between them pursuant to their pro rata share of negligence or fault. TSC and Client further agree that their liability to any third party shall, to the extent permitted by law, be several and not joint. The liability of TSC under this provision shall not exceed the policy limits of insurance carried by TSC. Neither TSC nor Client shall be bound under this indemnity agreement to liability determined in a proceeding in which it did not participate represented by its own independent counsel. The indemnities provided hereunder shall not terminate upon the termination or expiration of this Agreement, but may be modified to the extent of any waiver of subrogation agreed to by TSC and paid for by Client.

12. SUBPOENAS: TSC's employees shall not be retained as expert witnesses except by separate, written agreement. Client agrees to pay TSC pursuant to TSC's then current fee schedule for any TSC employee(s) subpoenaed by any party as an occurrence witness as a result of TSC's services.

13. OTHER AGREEMENTS: TSC shall not be bound by any provision or agreement (i) requiring or providing for arbitration of disputes or controversies arising out of this Agreement or its performance, (ii) wherein TSC waives any rights to a mechanics lien or surety bond claim; (iii) that conditions TSC's right to receive payment for its services upon payment to Client by any third party or (iv) that requires TSC to indemnify any party beyond its own negligence These General Conditions are notice, where required, that TSC shall file a lien whenever necessary to collect past due amounts. This Agreement contains the entire understanding between the parties. Unless expressly accepted by TSC in writing prior to delivery of TSC's services, Client shall not add any conditions or impose conditions which are in conflict with those contained herein, and no such additional or conflicting terms shall be binding upon TSC. The unenforceability or invalidity of any provision or provisions shall not render any other provision or provisions unenforceable or invalid. This Agreement shall be construed and enforced in accordance with the laws of the State of Illinois. In the event of a dispute arising out of or relating to the performance of this Agreement, the breach thereof or TSC's services, the parties agree to try in good faith to settle the dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association as a condition precedent to filing any demand for arbitration, or any petition or complaint with any court. Should litigation be necessary, the parties consent to jurisdiction and venue in an appropriate Illinois State Court in and for the County of DuPage, Wheaton, Illinois or the Federal District Court for the Northern District of Illinois. Paragraph headings are for convenience only and shall not be construed as limiting the meaning of the provisions contained in these General Conditions.

APPENDIX

UNIFIED CLASSIFICATION CHART

LEGEND FOR BORING LOGS

BORING LOGS

PHOTOGRAPHS OF PIERS AND ABUTMENTS
CORE SAMPLES OBTAINED AT BORINGS 1-6
(4 SHEETS)

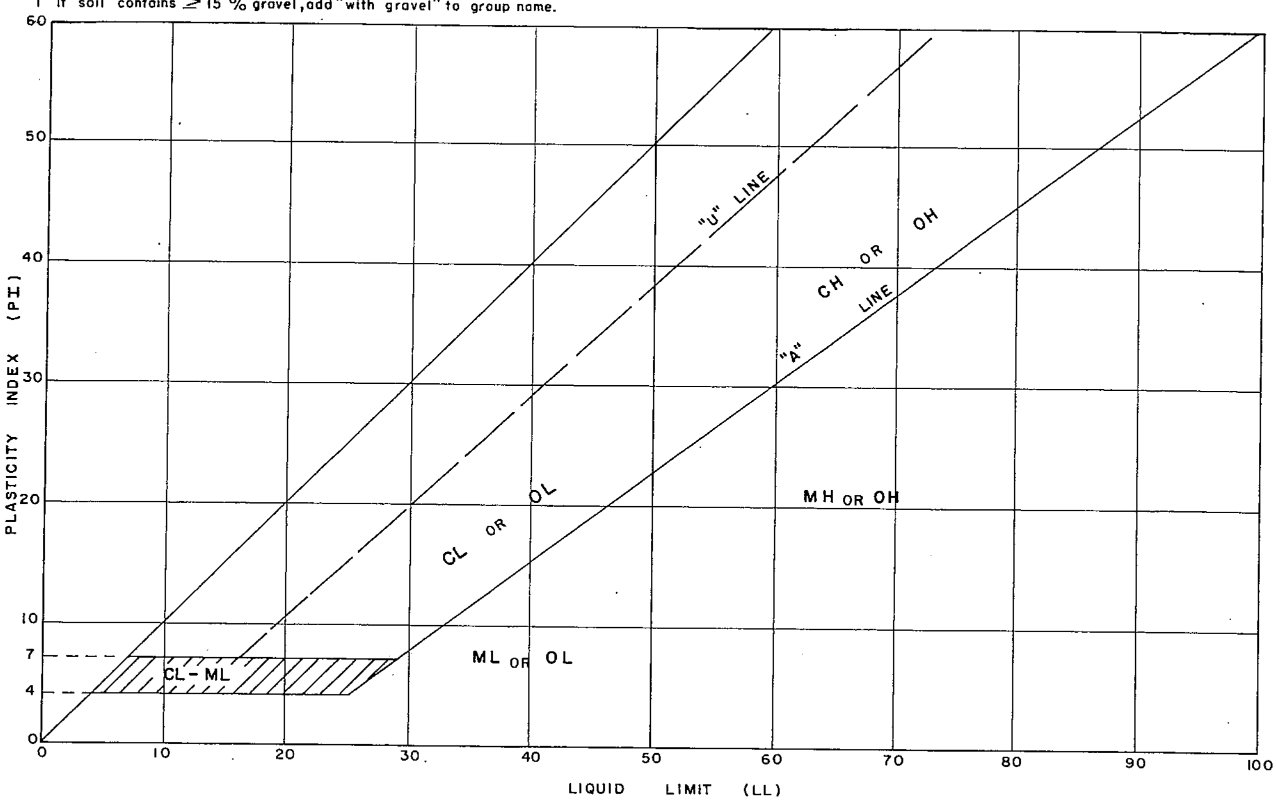
PHOTOGRAPHS OF BRIDGE PIERS AND ABUTMENTS
OBTAINED AT BORINGS 1-6
TAKEN FOR TSC JOB NO. L-63,869
DATED NOVEMBER 17, 2005
(12 SHEETS)

BORING LOCATION PLAN

TESTING SERVICE CORPORATION
UNIFIED CLASSIFICATION CHART

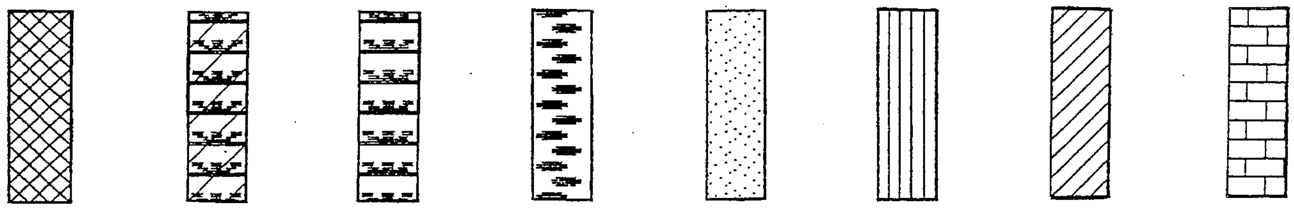
Criteria for assigning group symbols and group names using laboratory tests[a]				Soil classification: Group symbol	Soil classification: Group name[b]
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS Less than 5% fines[c]	$C_u \geq 4$ and $1 \leq C_c \leq 3$[e]	GW	Well graded gravel[f]
			$C_u < 4$ and/or $1 > C_c > 3$[e]	GP	Poorly graded gravel[f]
		GRAVELS WITH FINES More than 12% fines[c]	Fines classify as ML or MH	GM	Silty gravel f,g,h
			Fines classify as CL or CH	GC	Clayey gravel f,g,h
	SANDS 50% or more of coarse fraction passes No. 4 sieve	CLEAN SANDS Less than 5% fines[d]	$C_u \geq 6$ and $1 \leq C_c \leq 3$[e]	SW	Well-graded sand[i]
			$C_u < 6$ and/or $1 > C_c > 3$[e]	SP	Poorly graded sand[i]
		SANDS WITH FINES More than 12% fines[d]	Fines classify as ML or MH	SM	Silty sand g,h,f
			Fines classify as CL or CH	SC	Clayey sand g,h,f
FINE-GRAINED SOILS 50% or more passed the No. 200 sieve	SILTS & CLAYS Liquid limit less than 50%	Inorganic	PI > 7 and plots on or above "A" line j	CL	Lean clay k,l,m
			PI < 4 or plots below "A" line j	ML	Silt k,l,m
		Organic	$\frac{\text{Liquid limit — oven dried}}{\text{Liquid limit — not dried}} < 0.75$	OL	Organic clay k,l,m,n Organic silt k,l,m,o
	SILTS & CLAYS Liquid limit 50% or more	Inorganic	PI plots on or above "A" line	CH	Fat clay k,l,m
			PI plots below "A" line	MH	Elastic silt k,l,m
		Organic	$\frac{\text{Liquid limit — oven dried}}{\text{Liquid limit — not dried}} < 0.75$	OH	Organic clay k,l,m,p Organic silt k,l,m,q
Highly organic soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

a. Based on the material passing the 3-in (75-mm) sieve.
b. If field sample contained cobbles and/or boulders, add "with cobbles and/or boulders" to group name.
c. Gravels with 5 to 12% fines require dual symbols
   - GW-GM well graded gravel with silt
   - GW-GC well graded gravel with clay
   - GP-GM poorly graded gravel with silt
   - GP-GC poorly graded gravel with clay
d. Sands with 5% to 12% fines require dual symbols
   - SW-SM well graded sand with silt
   - SW-SC well graded sand with clay
   - SP-SM poorly graded sand with silt
   - SP-SC poorly graded sand with clay
e. $C_u = D_{60}/D_{10}$ $\quad C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
f. If soil contains ≥ 15% sand, add "with sand" to group name.
g. If fines classify as CL-ML, use dual symbol GC-GM, SC-SM.
h. If fines are organic, add "with organic fines" to group name.
i. If soil contains ≥ 15% gravel, add "with gravel" to group name.
j. If Atterberg Limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI ≥ 4 or plots below "A" line.
p. PI plots on or above "A" line.
q. PI plots below "A" line.



TESTING SERVICE CORPORATION

LEGEND FOR BORING LOGS



FILL TOPSOIL PEAT GRAVEL SAND SILT CLAY DOLOMITE

SAMPLE TYPE:

SS	=	Split Spoon
ST	=	Thin-Walled Tube
A	=	Auger

FIELD AND LABORATORY TEST DATA:

N	=	Standard Penetration Resistance in Blows per Foot
Wc	=	In-Situ Water Content
Qu	=	Unconfined Compressive Strength in Tons per Square Foot
	*	Pocket Penetrometer Measurement; Maximum Reading = 4.5 tsf
γD	=	Dry Unit Weight in Pounds per Cubic Foot

WATER LEVELS:

▼	While Drilling
▽	End of Boring
▼	24 Hours

SOIL DESCRIPTION:

MATERIAL	PARTICLE SIZE RANGE
BOULDER	Over 12 inches
COBBLE	12 inches to 3 inches
Coarse GRAVEL	3 inches to ¾ inch
Small GRAVEL	¾ inch to No. 4 Sieve
Coarse SAND	No. 4 Sieve to No. 10 Sieve
Medium SAND	No. 10 Sieve to No. 40 Sieve
Fine SAND	No. 40 Sieve to No. 200 Sieve
SILT and CLAY	Passing No. 200 Sieve

COHESIVE SOILS

CONSISTENCY	Qu
Very Soft	Less than 0.3
Soft	0.3 to 0.6
Stiff	0.6 to 1.0
Tough	1.0 to 2.0
Very Tough	2.0 to 4.0
Hard	4.0 and over

COHESIONLESS SOILS

RELATIVE DENSITY	N
Very Loose	0 - 4
Loose	4 - 10
Firm	10 - 30
Dense	30 - 50
Very Dense	50 and over

MODIFYING TERM	PERCENT BY WEIGHT
Trace	1 - 10
Little	10 - 20
Some	20 - 35

PROJECT Island Park North Bridge, Geneva, Illinois

CLIENT Geneva Park District, Geneva, Illinois

TSC

BORING 1 DATE STARTED 7-19-07 DATE COMPLETED 7-19-07 JOB L-69,344

ELEVATIONS

GROUND SURFACE 102.4

END OF BORING 91.4

WATER LEVEL OBSERVATIONS

▽ WHILE DRILLING

▽ AT END OF BORING

▼ 24 HOURS

DISTANCE BELOW SURFACE IN FEET	LENGTH	RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ DRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
0			RN-1	CORE							0-1.5" Bituminous Concrete 1.5"-7" P.C. Concrete
									0.6	101.8	Open space between bridge deck and abutment
									2.5	99.9	P.C. Concrete Core Sample 7.5'-8.2' 9,400 psi Horizontal Cracks caused when the core was retrieved from the core barrel
5			RN-2	CORE							
									9.4	93.0	DOLOMITE gray silty thin bedded with clay partings
10											
											End of Boring at 11.0'
15											

DRILL RIG NO. 232

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT Island Park North Bridge, Geneva, Illinois

CLIENT Geneva Park District, Geneva, Illinois

TSC

BORING 2 DATE STARTED 7-19-07 DATE COMPLETED 7-19-07 JOB L-69,344

ELEVATIONS	
GROUND SURFACE	102.9
END OF BORING	93.4

WATER LEVEL OBSERVATIONS

WHILE DRILLING	
AT END OF BORING	
24 HOURS	

DISTANCE BELOW SURFACE IN FEET	LENGTH	RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
0			RN-1	CORE					0.6	102.3	0"-2" Bituminous Concrete 2"-7.5" Portland Cement Concrete
									2.5	100.4	Open space between bridge deck and pier
5			RN-2	CORE					9.2	93.7	Horizontal Crack noted at a depth of 3.4' P.C. Concrete Core Sample 6'-6.7' 7,550 psi
											Fractured DOLOMITE gray with clay partings
10											End of Boring at 9.5'
15											

DRILL RIG NO. 232

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

TSC 69344.GPJ TSC_ALL.GDT 7/27/07

PROJECT **Island Park North Bridge, Geneva, Illinois**

CLIENT **Geneva Park District, Geneva, Illinois**

TSC

BORING **2A** DATE STARTED **7-19-07** DATE COMPLETED **7-19-07** JOB **L-69,344**

ELEVATIONS		WATER LEVEL OBSERVATIONS	
GROUND SURFACE	102.9	WHILE DRILLING	
END OF BORING	92.9	AT END OF BORING	
		24 HOURS	

DISTANCE BELOW SURFACE IN FEET	LENGTH	RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
0			RN-1	CORE					0.6	102.3	0"-2" Bituminous Concrete 2"-7.5" P.C. Concrete
									2.5	100.4	Open space between bridge deck and pier
5			RN-2	CORE					9.0	93.9	Horizontal Crack noted at 3.4' P.C. Concrete Core Sample 6.5'-7.2' 7,720 psi
10											DOLOMITE rock fragments
15											End of Boring at 10.0'

DRILL RIG NO. **232**

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT **Island Park North Bridge, Geneva, Illinois**

CLIENT **Geneva Park District, Geneva, Illinois**

TSC

BORING **3** DATE STARTED **7-18-07** DATE COMPLETED **7-18-07** JOB **L-69,344**

ELEVATIONS

GROUND SURFACE **103.2**

END OF BORING **92.2**

WATER LEVEL OBSERVATIONS

WHILE DRILLING

AT END OF BORING

24 HOURS

DISTANCE BELOW SURFACE IN FEET	LENGTH	RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
0			RN-1	CORE					0.8	102.4	0"-3" Bituminous Concrete 6"-9" P.C. Concrete
									2.5	100.7	Open Space between Bridge Deck and Pier
5			RN-2	CORE					9.0	94.2	Horizontal Cracks in core caused when the core was extracted from the core barrel P.C. Concrete Core Sample 6.5'-7.5' 7,720 psi
10											DOLOMITE, light gray, silty, thin bedded with clay partings, dense
15											End of Boring at 11.0'

TSC 69344.GPJ TSC_ALL.GDT 7/27/07

DRILL RIG NO. 232

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT Island Park North Bridge, Geneva, Illinois

CLIENT Geneva Park District, Geneva, Illinois

BORING 4 DATE STARTED 7-18-07 DATE COMPLETED 7-18-07 JOB L-69,344

ELEVATIONS		WATER LEVEL OBSERVATIONS	
GROUND SURFACE	103.2	WHILE DRILLING	
END OF BORING	94.2	AT END OF BORING	
		24 HOURS	

SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
RN-1	CORE					0.8	102.4	0"-2¼" Bituminous Concrete 2¼"-2½" Steel Plate 2½"-9" P.C. Concrete
						2.5	100.7	Open Space between Bridge Deck and Pier
RN-2	CORE					8.5	94.7	Horizontal Cracks caused when core removed from core barrel P.C. Concrete Core Sample 6.5'-7.2' 8,450 psi
								DOLOMITE, light gray, silty, bedded with gray clay partings, dense
								End of Boring at 9.0'

DISTANCE BELOW SURFACE IN FEET (0–15); LENGTH; RECOVERY

DRILL RIG NO. 232

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

TSC 69344.GPJ TSC_ALL.GDT 7/27/07

PROJECT Island Park North Bridge, Geneva, Illinois

CLIENT Geneva Park District, Geneva, Illinois

TSC

BORING 5 DATE STARTED 7-17-07 DATE COMPLETED 7-17-07 JOB L-69,344

ELEVATIONS		WATER LEVEL OBSERVATIONS	
GROUND SURFACE	102.8	WHILE DRILLING	
END OF BORING	92.8	AT END OF BORING	
		24 HOURS	

DISTANCE BELOW SURFACE IN FEET	LENGTH	RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
0			RN-1	CORE					0.7	102.1	0"-2" Bituminous Concrete 2"-8" P.C. Concrete
									2.5	100.3	Open Space between Bridge Deck and Top of Pier
5			RN-2	CORE					8.3	94.5	Horizontal Cracks in core caused when core extracted from core barrel P.C. Concrete Core Sample 5.2'-5.8' 8,290 psi
10											DOLOMITE, light gray, weathered tan, silty, thin bedded with dark gray clay partings
15											End of Boring at 10.0'

TSC 69344.GPJ TSC_ALL.GDT 7/27/07

DRILL RIG NO. 232

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

PROJECT Island Park North Bridge, Geneva, Illinois

CLIENT Geneva Park District, Geneva, Illinois

TSC

BORING 6 DATE STARTED 7-17-07 DATE COMPLETED 7-17-07 JOB L-69,344

ELEVATIONS		WATER LEVEL OBSERVATIONS	
GROUND SURFACE	102.4	WHILE DRILLING	
END OF BORING	88.9	AT END OF BORING	
		24 HOURS	

DISTANCE BELOW SURFACE IN FEET	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γDRY	DEPTH	ELEV.	SOIL DESCRIPTIONS
0	RN-1	CORE					0.7	101.7	0"-1" Bituminous Concrete 1"-8" P.C. Concrete
							2.5	99.9	Open Space between Bridge Deck and Top of Abutment
5							8.0	94.4	Horizontal Cracks caused when core extracted from core barrel P.C. Concrete Core Sample 5.5'-6.2' 6,800 psi
10	RN-2	CORE							DOLOMITE, light gray, weathered tan, silty, thin bedded with dark gray clay partings, dense
15									End of Boring at 13.5'

DRILL RIG NO. 232

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

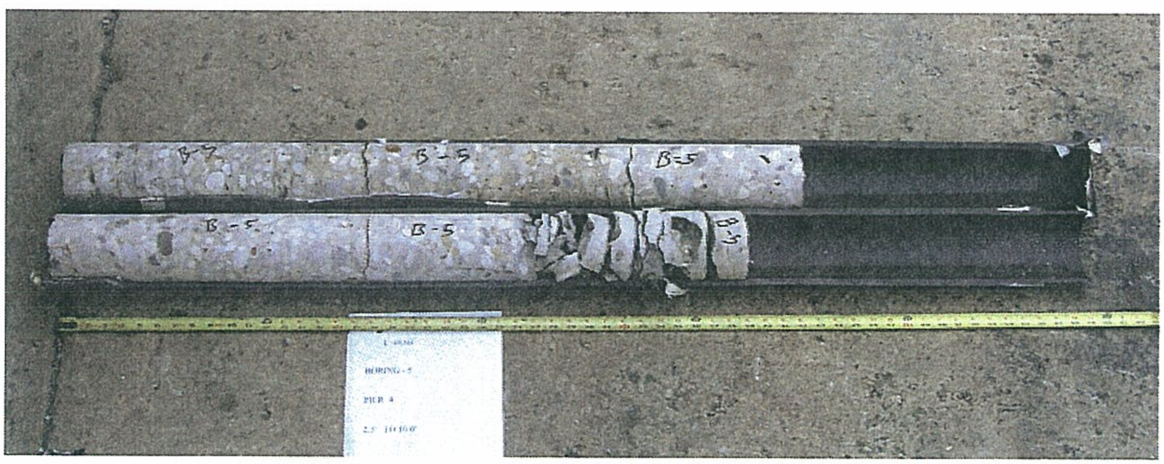
BORING 1
SOUTH ABUTMENT
2.5'-11.0'

BORING 2
PIER 1
2.5'-9.5'

L-69,344
BORING 2A
2.5'-10.0'

L-69,344
BORING 3
PIER 2
2.5'-9.0'

L-69,344
BORING 4
PIER 3
2.5'-8.5'



L-69,344
BORING 5
PIER 4
2.5'-10.0'

L-69,344
BORING 6
NORTH ABUTMENT
2.5'-13.5'

Testing Service Corporation

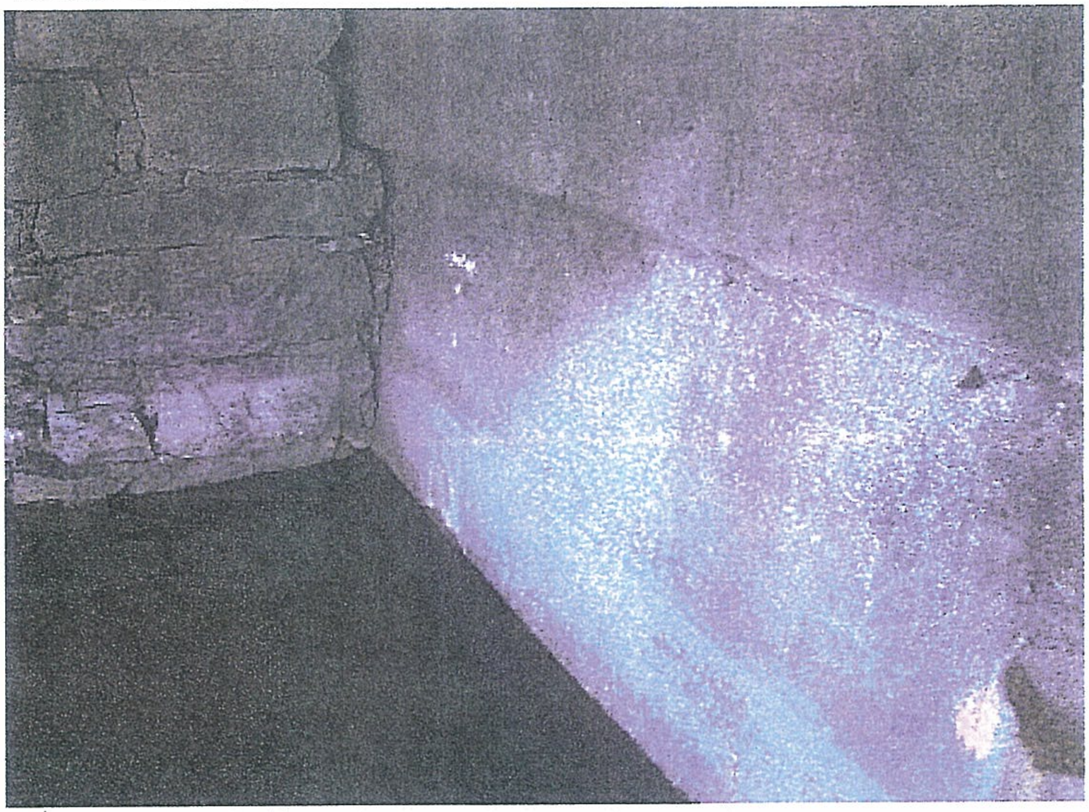


Fig. 1 South Abutment

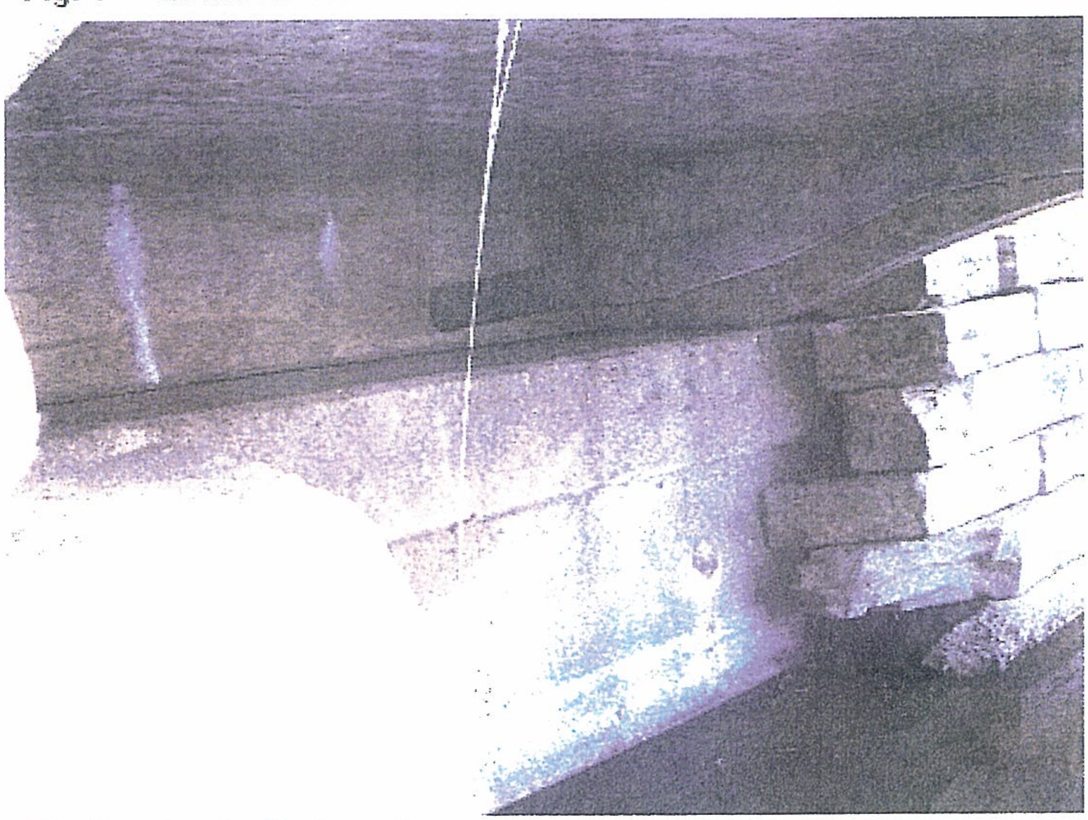


Fig. 2 South Abutment

Testing Service Corporation

Fig. 3 Pier 1 South Face

Fig. 4 Pier 1 North Face

Testing Service Corporation

Fig. 5 Northeast Corner of Pier 1

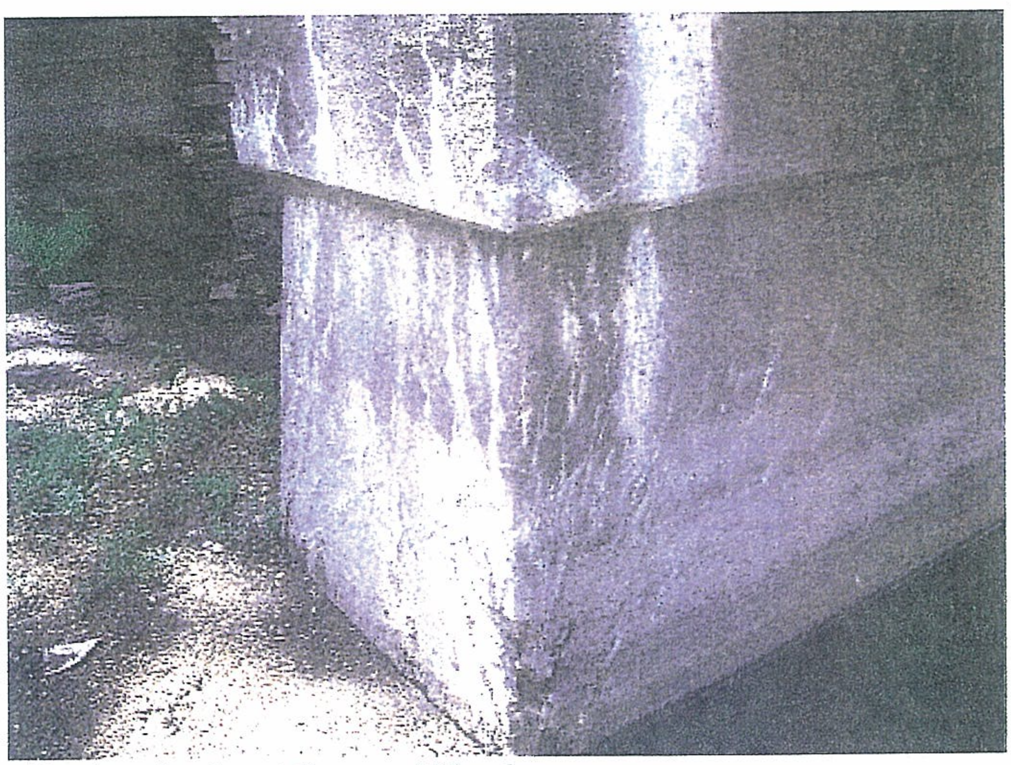


Fig. 6 Northeast Corner of Pier 1

TSC

Testing Service Corporation

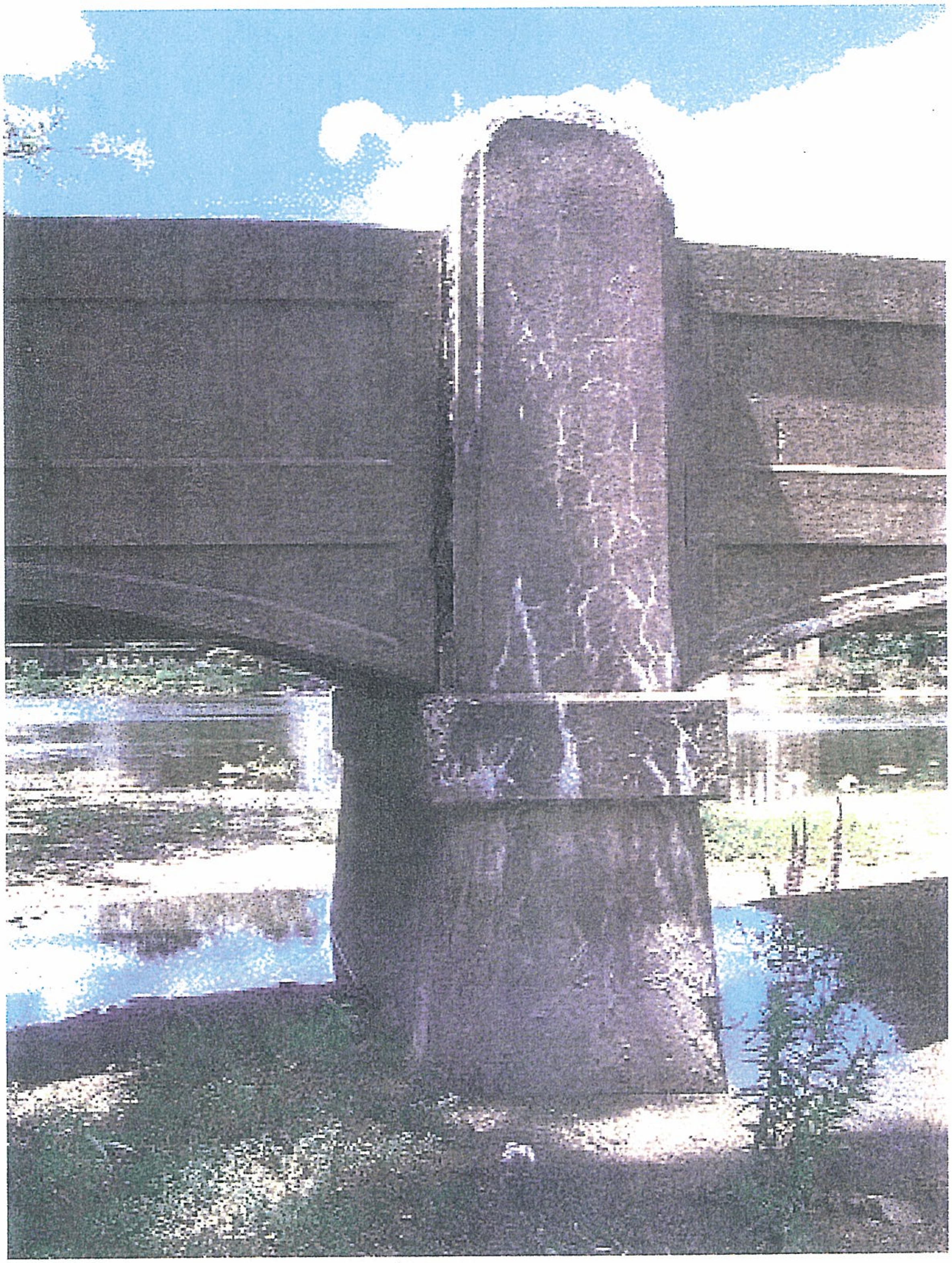


Fig. 7 East Face of Pier 1

Testing Service Corporation

Fig. 8 Pier 2 South Face

Fig. 9 Pier 2 North Face

Testing Service Corporation


Fig.10 Pier 3 South Face


Fig. 11 Pier 3 South Face

Fig. 12 Pier 3 North Face

Fig. 13 Pier 3 North Face

Fig. 14 Pier 4 South Face

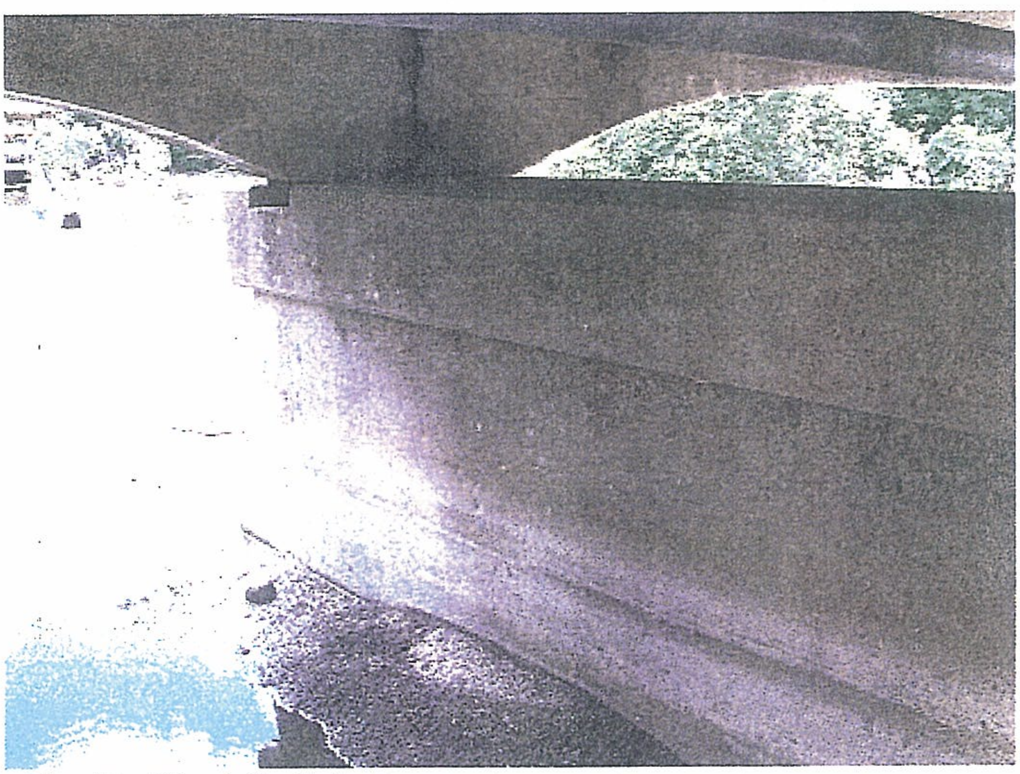


Fig. 15 Pier 4 North Face

TSC

Testing Service Corporation

Fig. 16 North Abutment

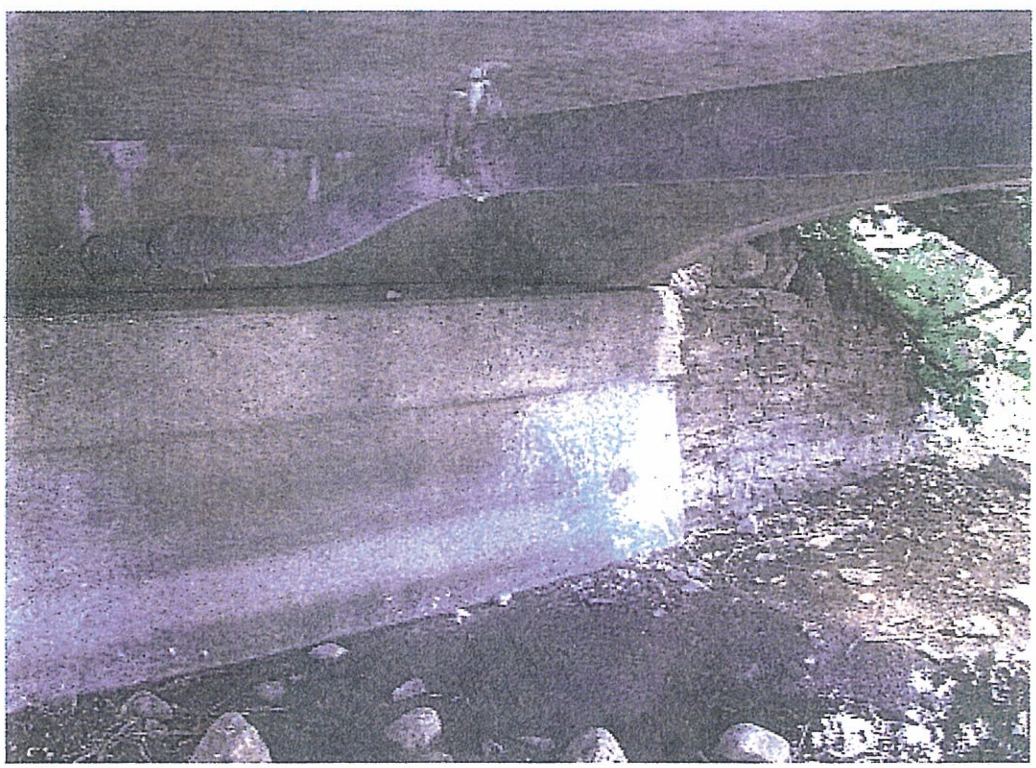
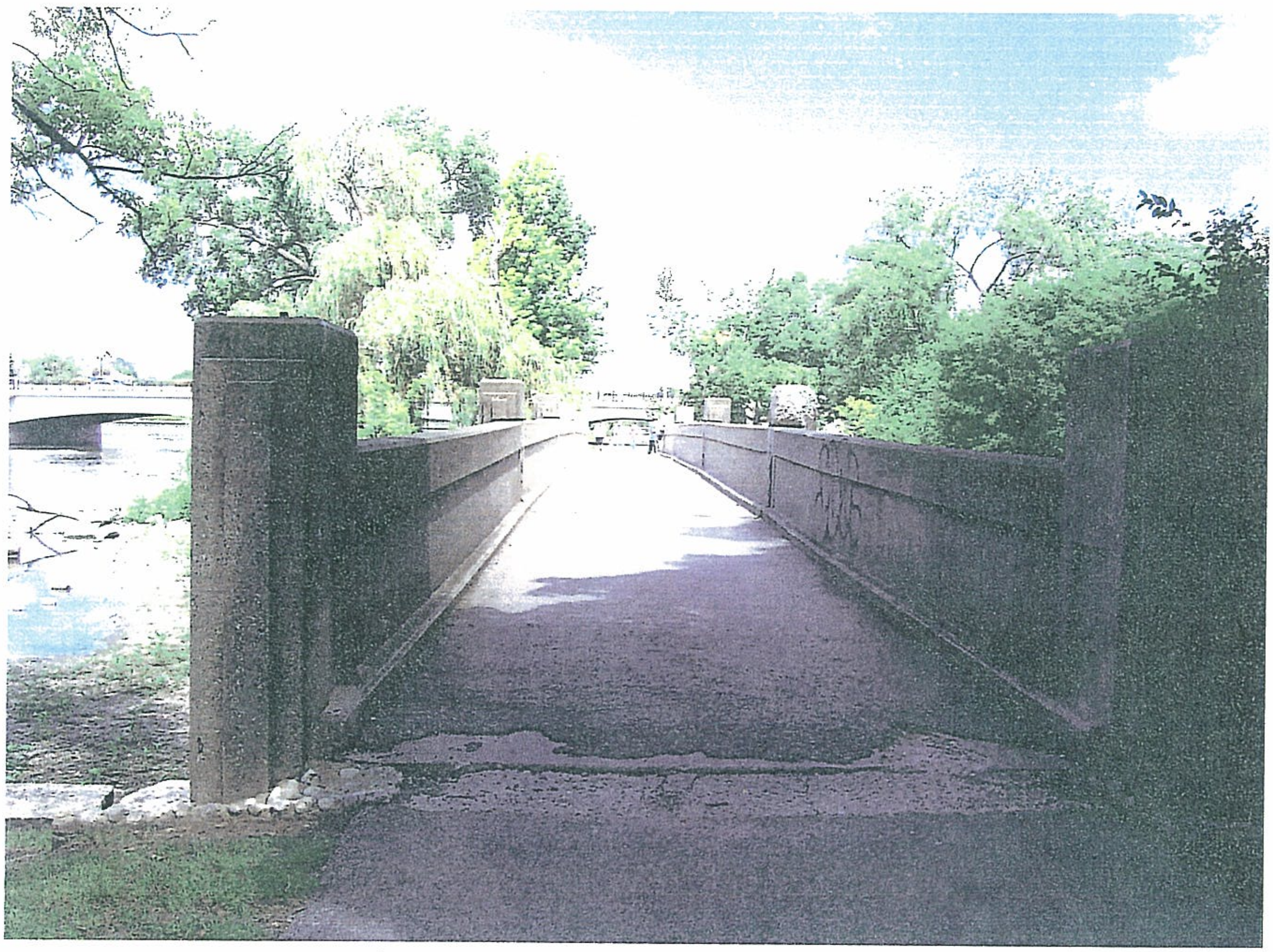


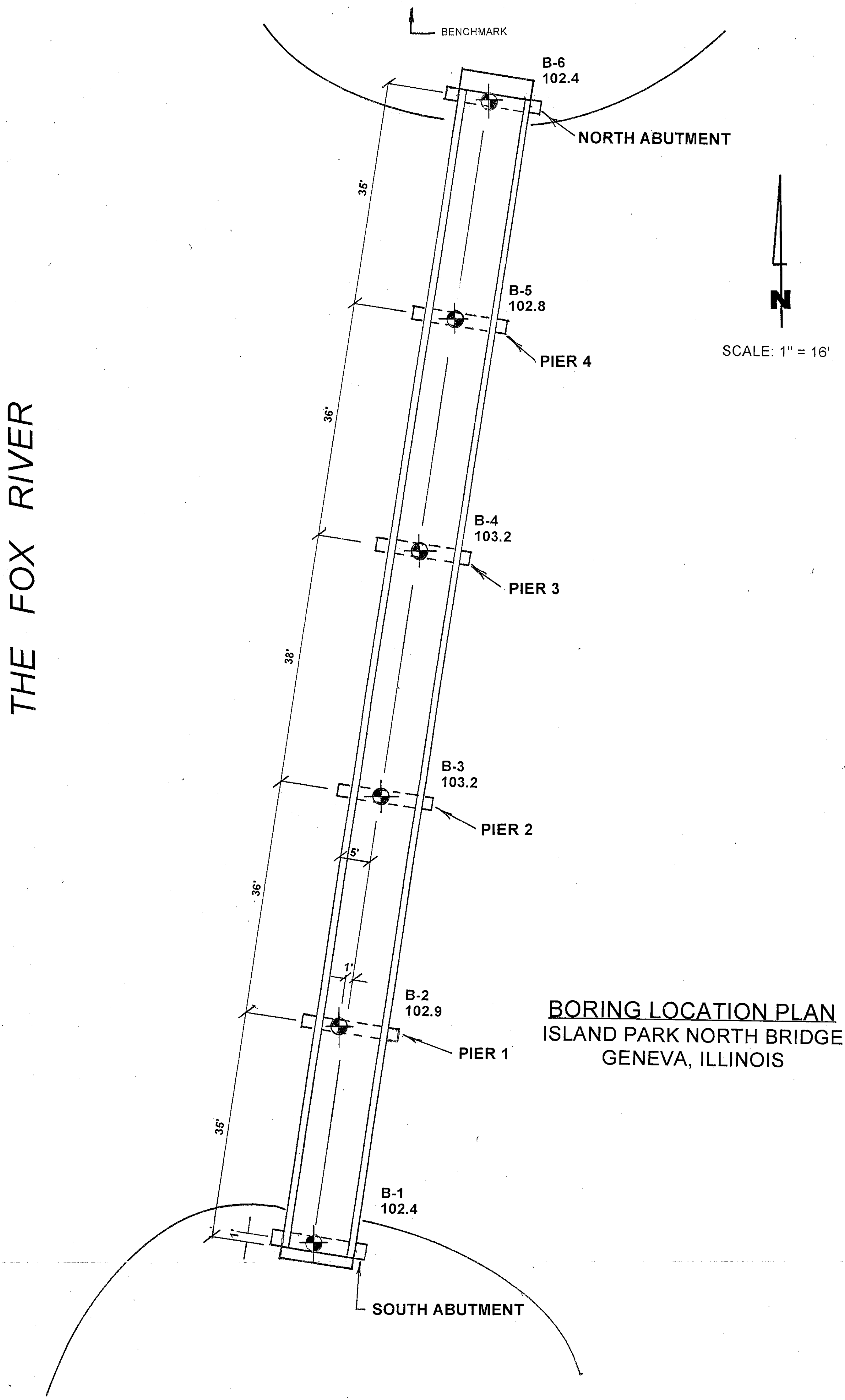
Fig 17 South Abutment



Looking north at south end of bridge

Looking south
PIER 2 in foreground
PIER 1 in background

Looking south at south abutment
PIER 1 in foreground



BORING LOCATION PLAN
ISLAND PARK NORTH BRIDGE
GENEVA, ILLINOIS

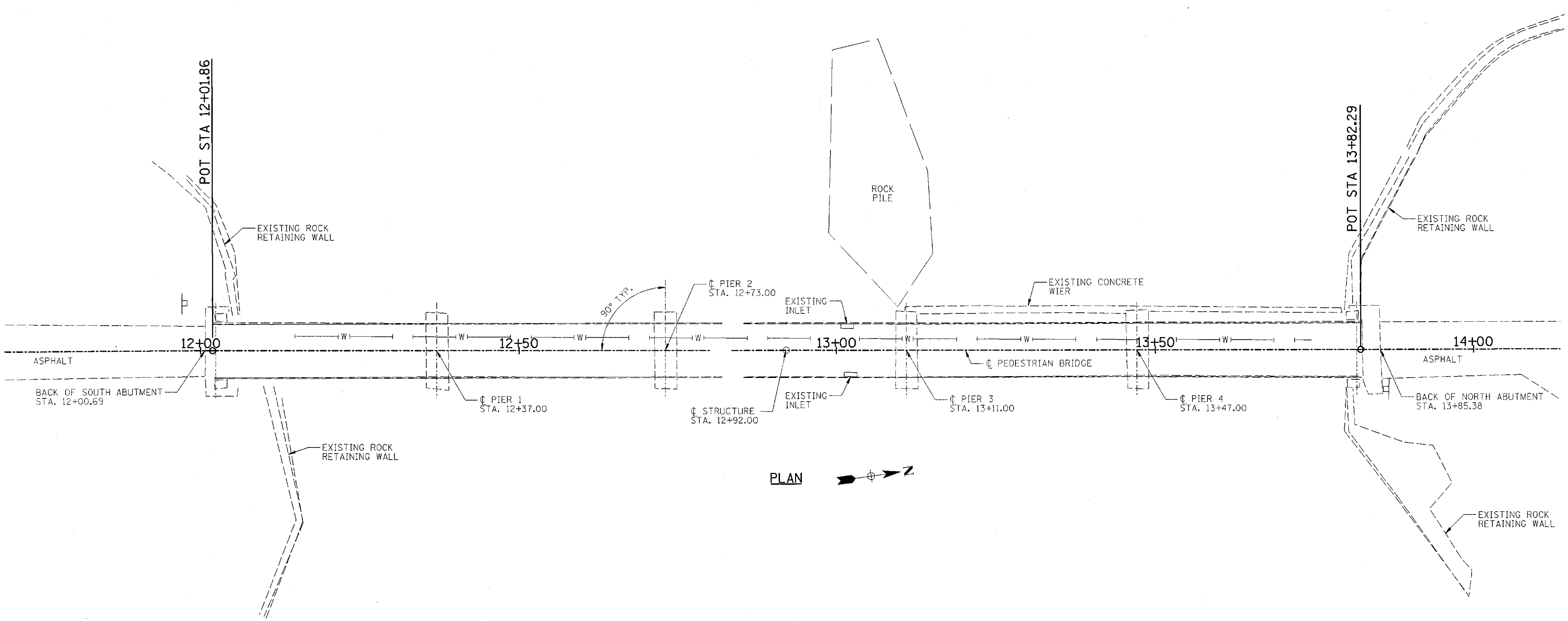
BENCHMARK: 'PK' NAIL SET IN ASPHALT PAVEMENT 35' SOUTH OF ROUTE 38 BRIDGE AND 5 " WEST OF EAST CURB LINE, ELEVATION: 100.00

TESTING SERVICE CORPORATION 457 EAST GUNDERSEN DRIVE CAROL STREAM, ILLINOIS 60188	DRAWN BY: JPZ CHECKED BY: SIK JOB NO.: L-69,344 DATE: JULY 2007	PAGE NO. 1

ATTACHMENT

E

Field Inspection Sketches



REVISIONS	
NAME	DATE

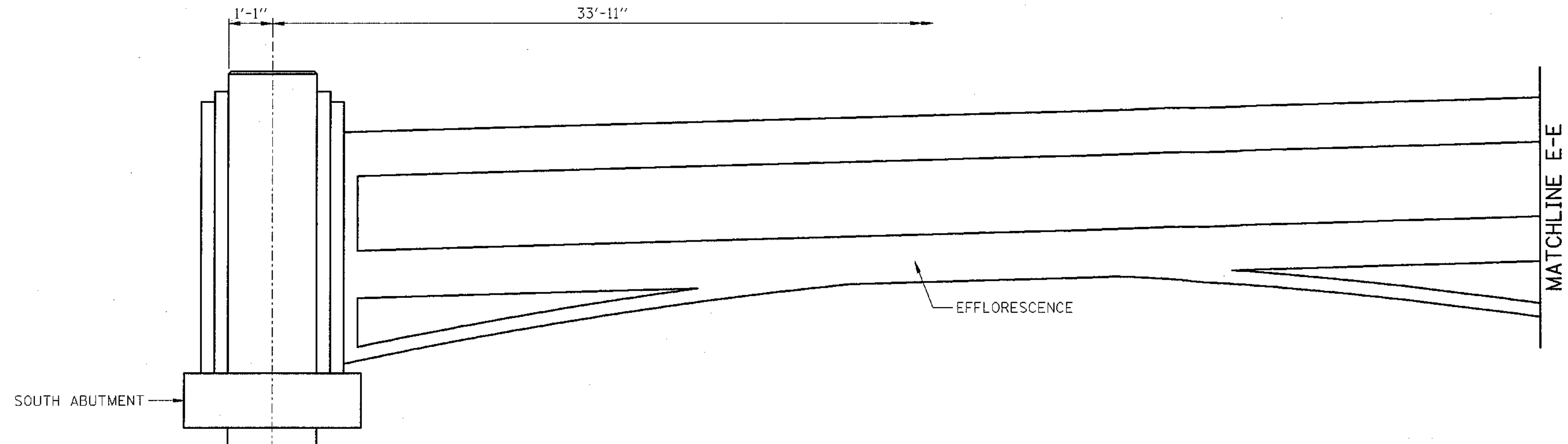
PLAN

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

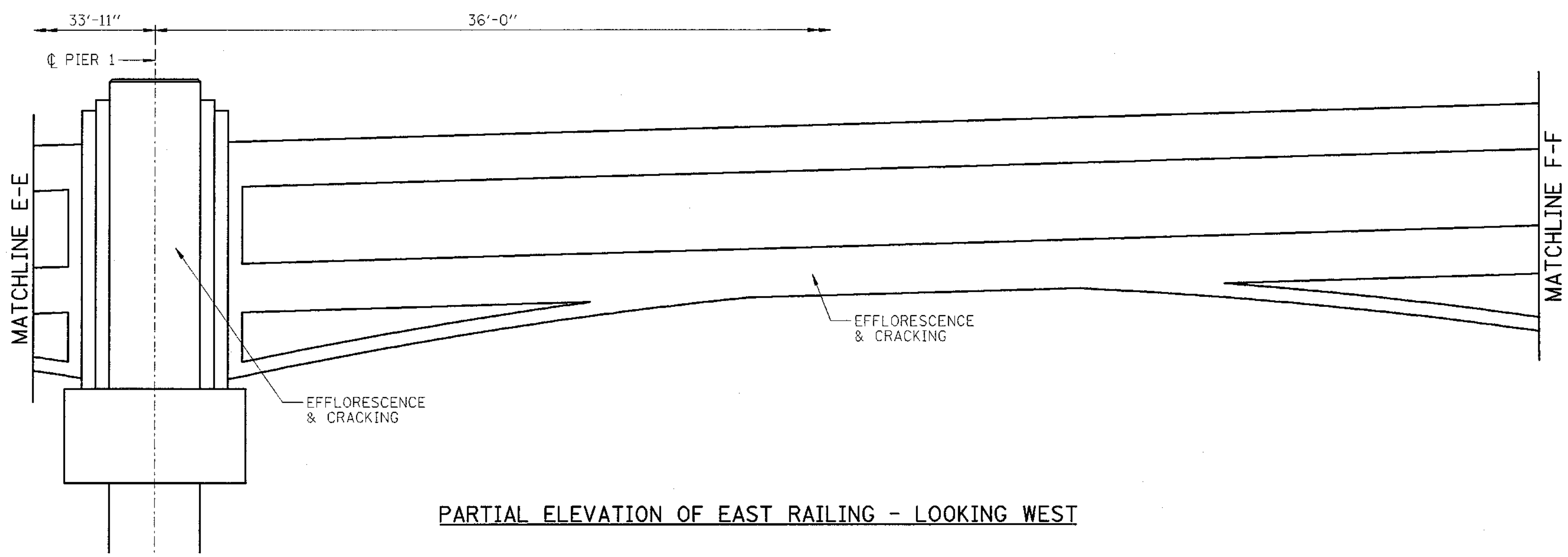
DESIGNED BY: MSW DRAWN BY: DJM
DATE: 09/12/07 CHECKED BY: MSW

FARNSWORTH GROUP, INC. CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX

24-7965



PARTIAL ELEVATION OF EAST RAILING - LOOKING WEST



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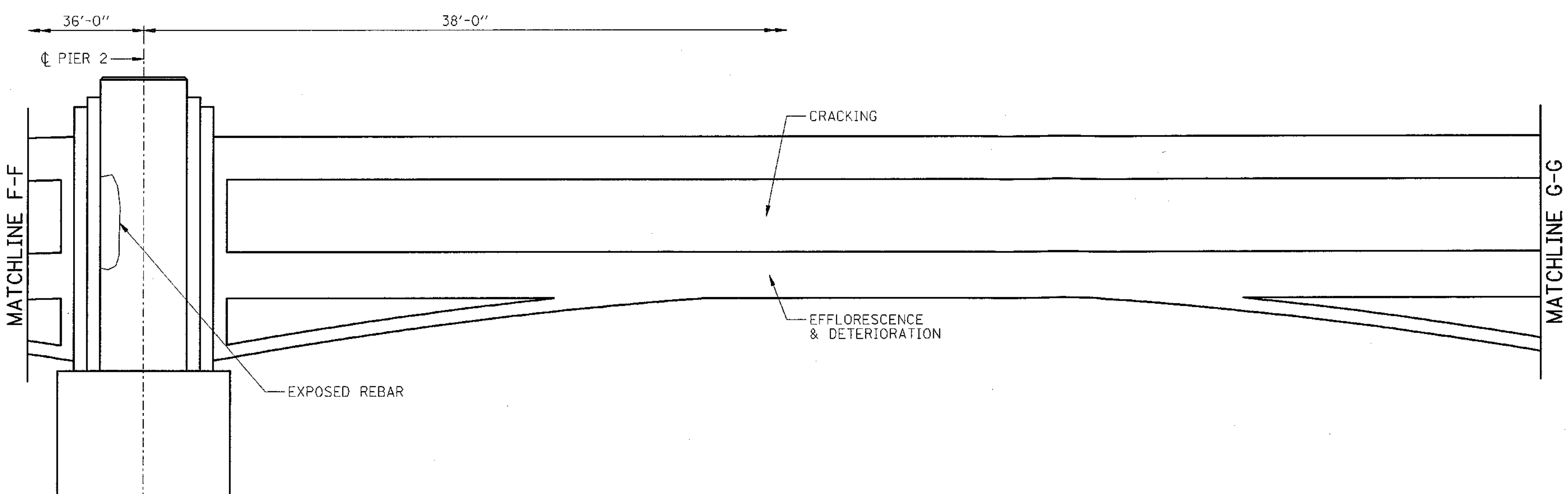

PARTIAL ELEVATION OF EAST RAILING - LOOKING WEST

REVISIONS	
NAME	DATE

PARTIAL ELEVATIONS

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

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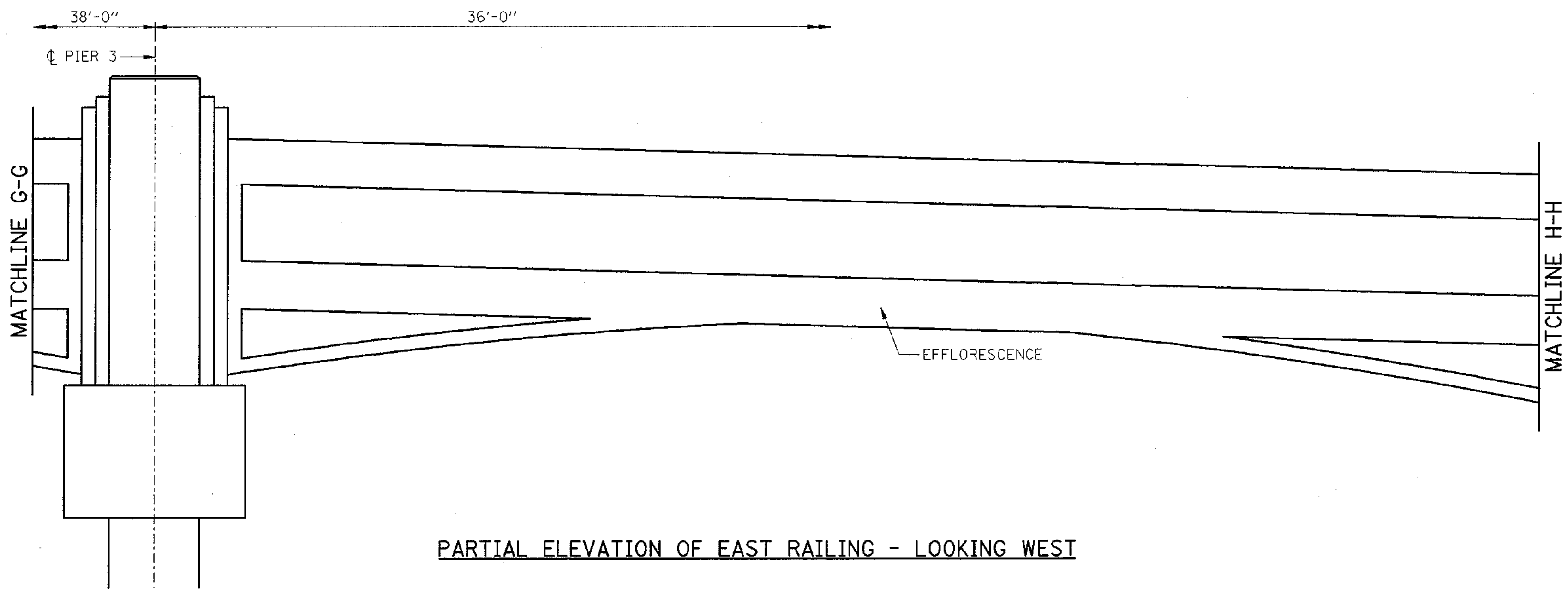

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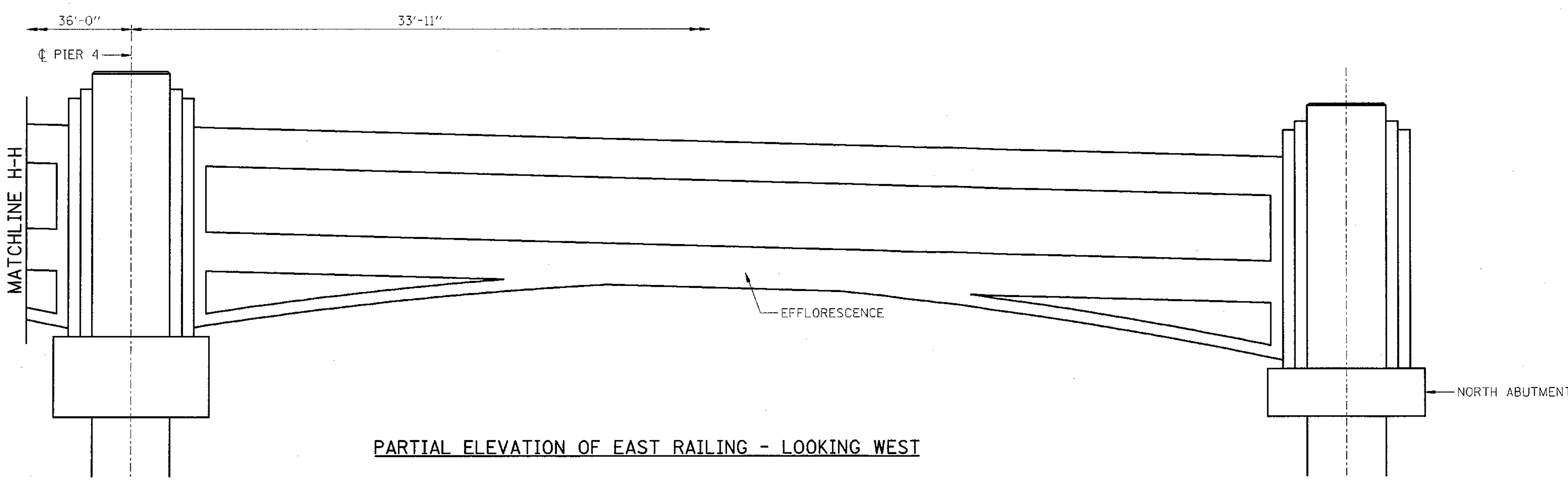

PARTIAL ELEVATION OF EAST RAILING - LOOKING WEST

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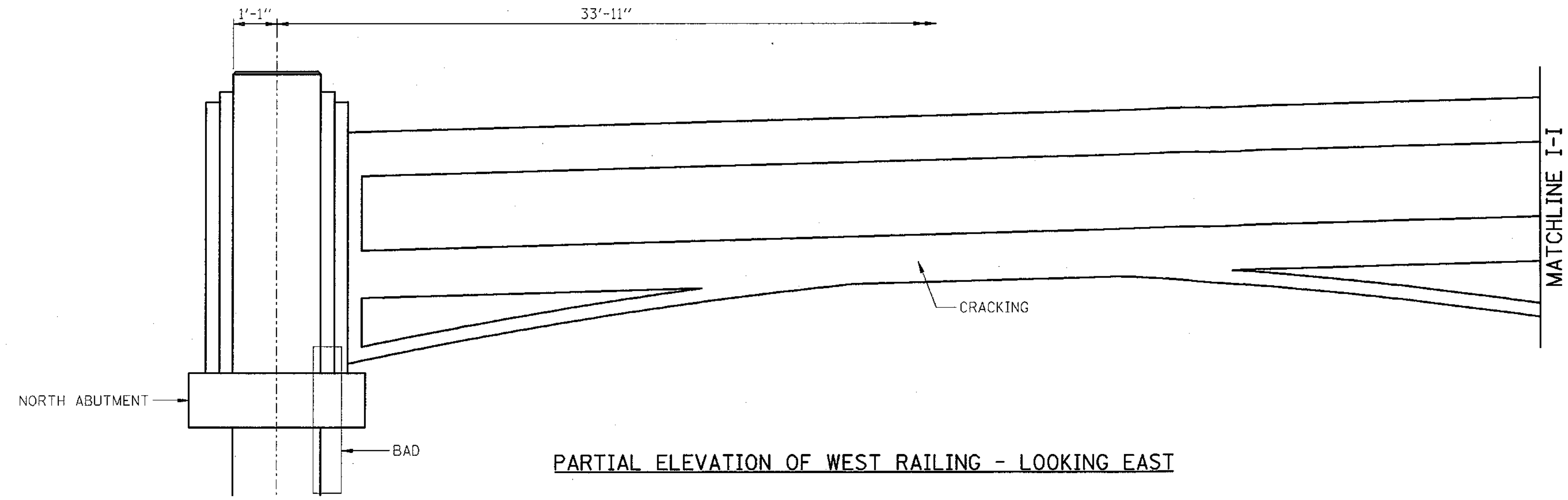

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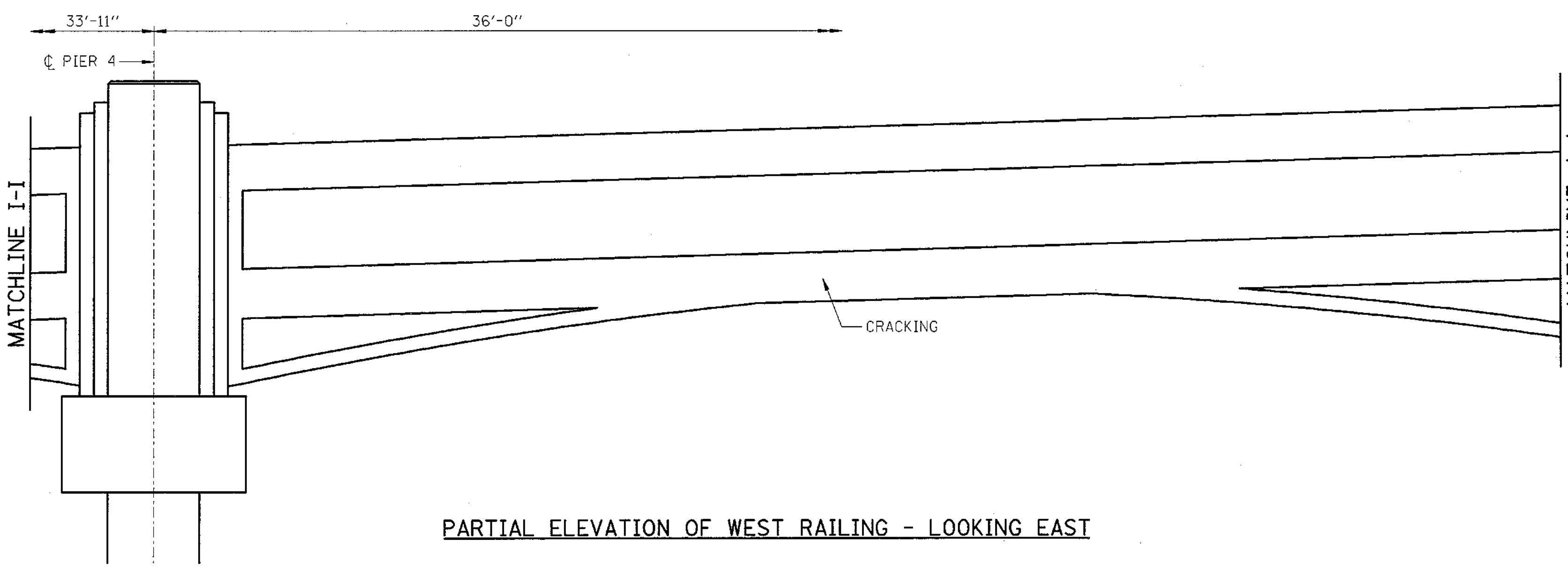

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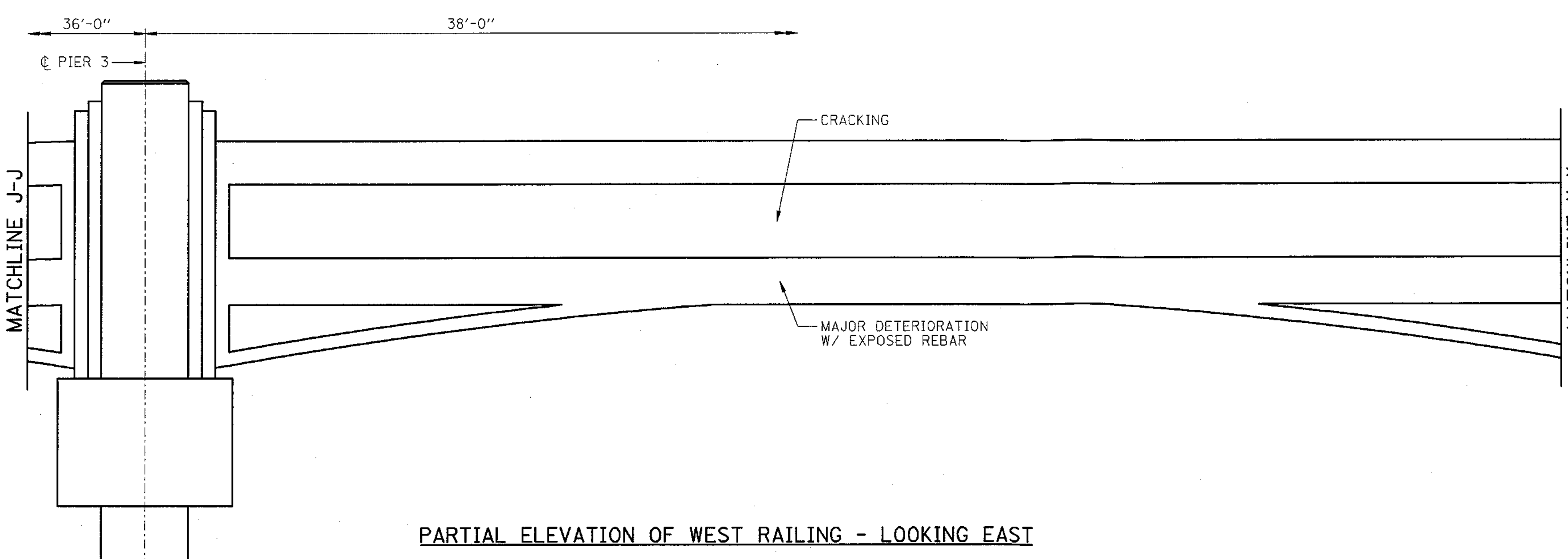

PARTIAL ELEVATION OF WEST RAILING - LOOKING EAST

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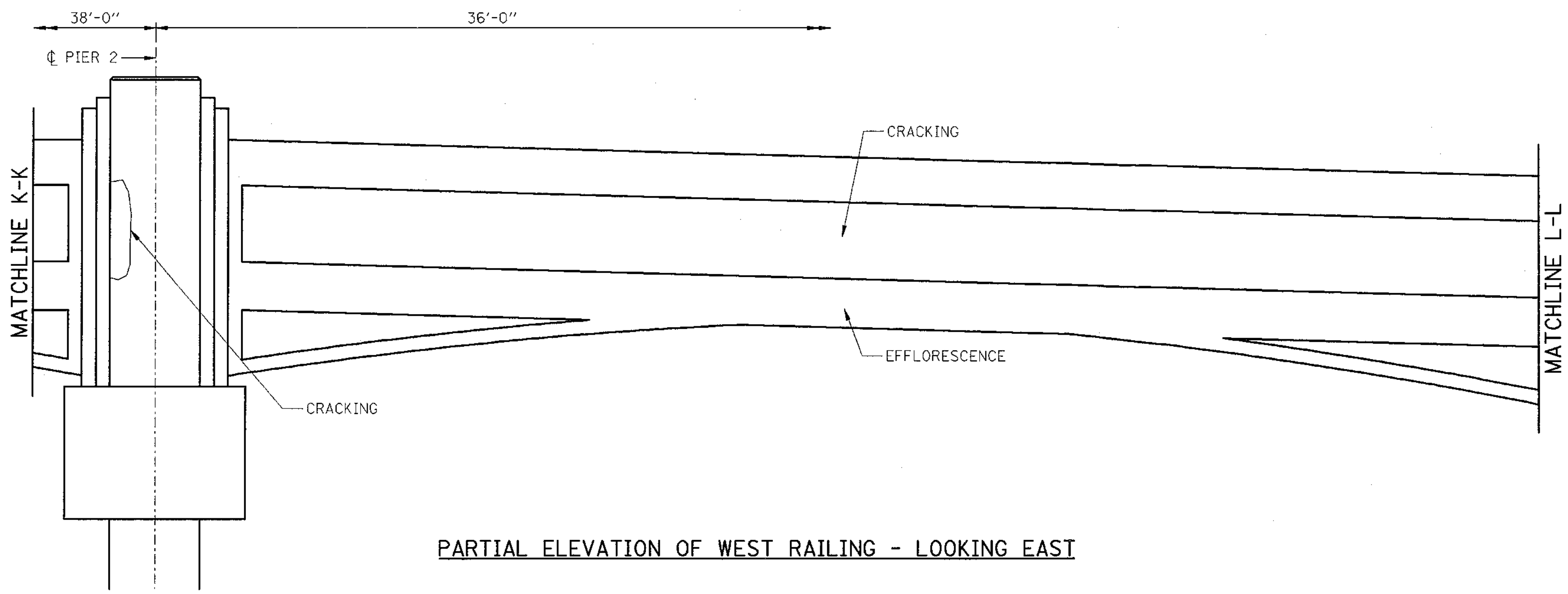

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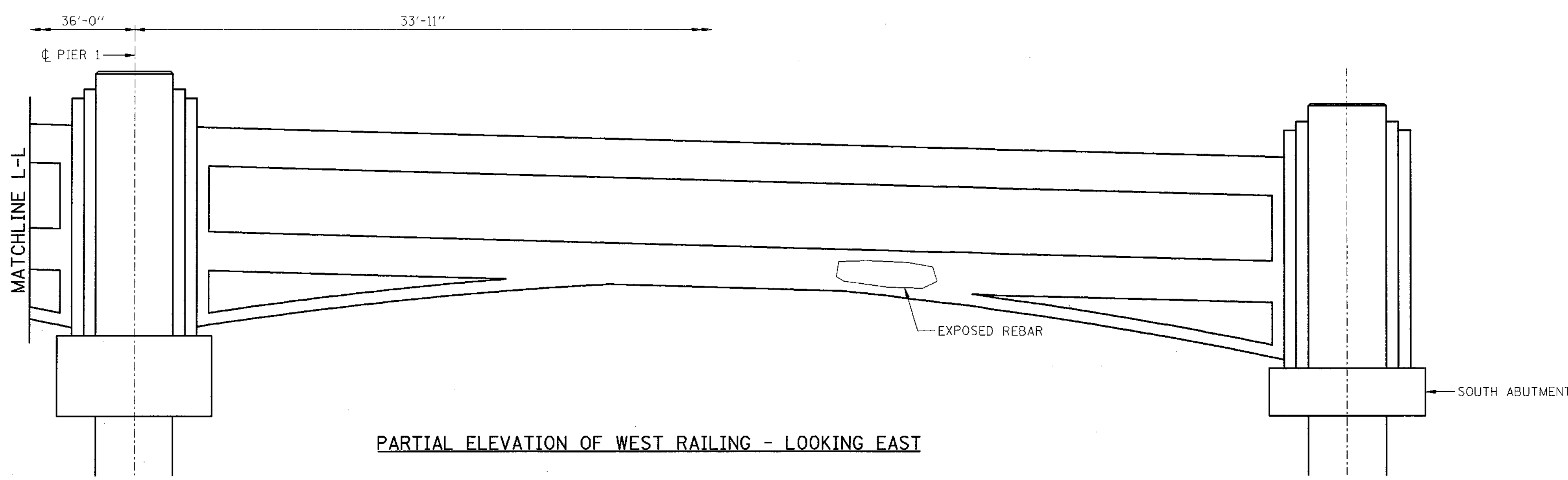

PARTIAL ELEVATION OF WEST RAILING - LOOKING EAST

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NAME	DATE

PARTIAL ELEVATIONS

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

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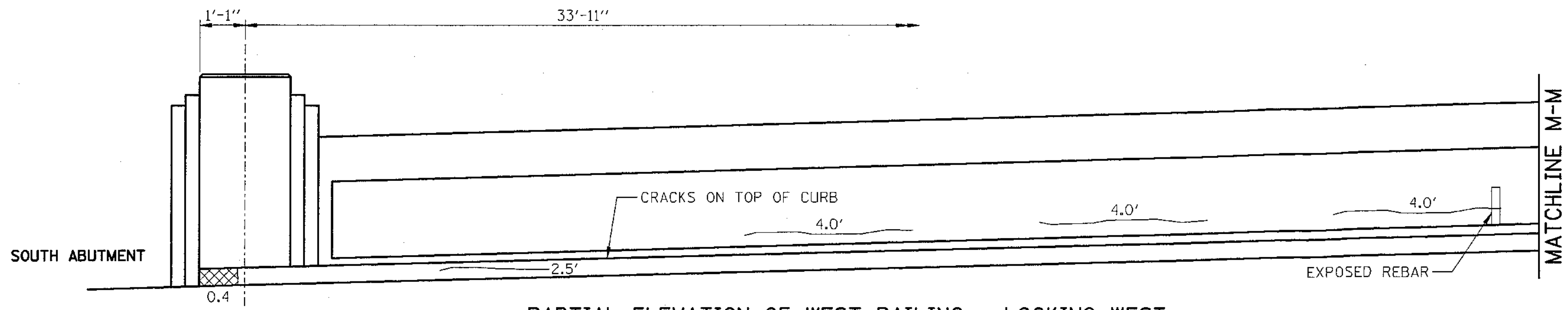
CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX



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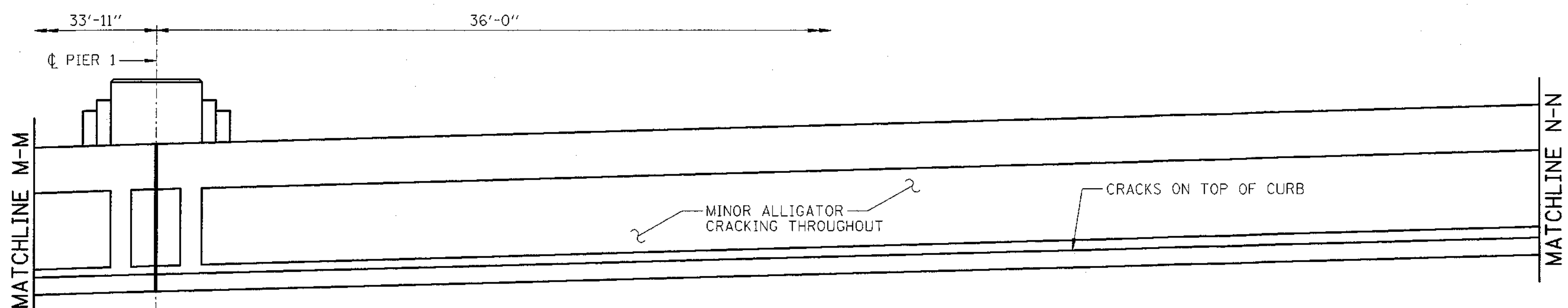

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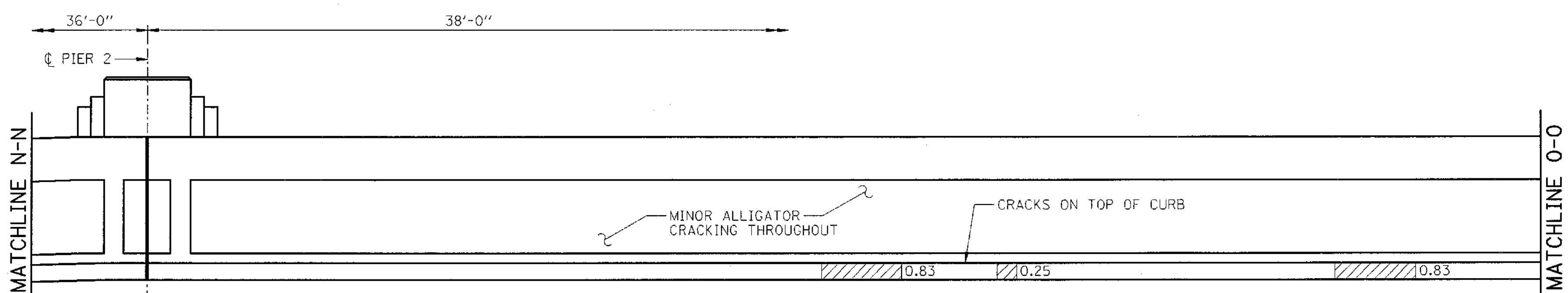

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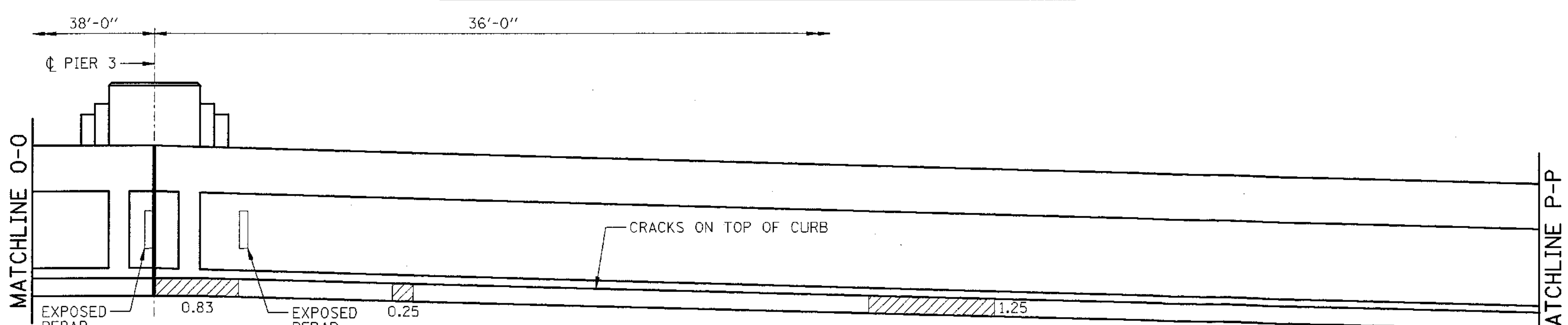

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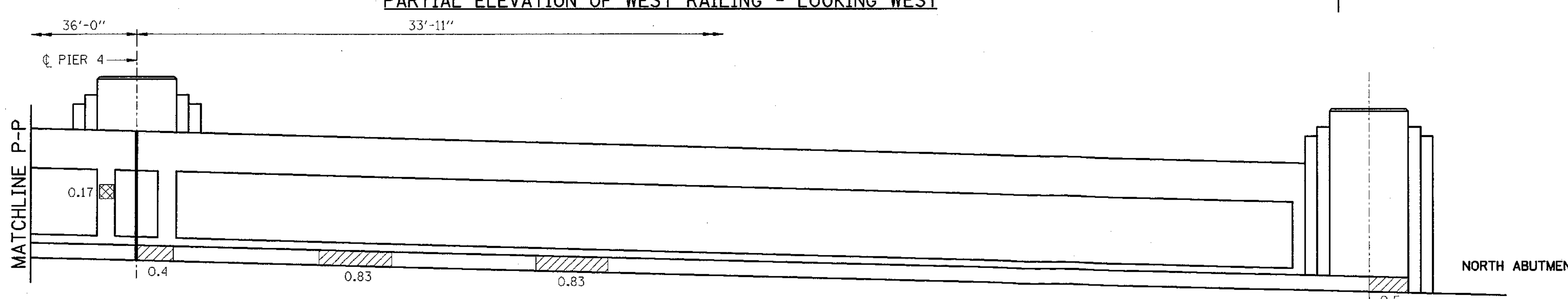

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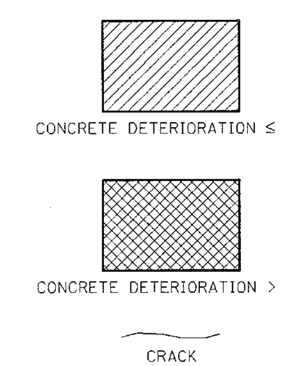

REVISIONS	
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PARTIAL ELEVATIONS

BRIDGE CONDITION REPORT
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GENEVA PARK DISTRICT
GENEVA, ILLINOIS

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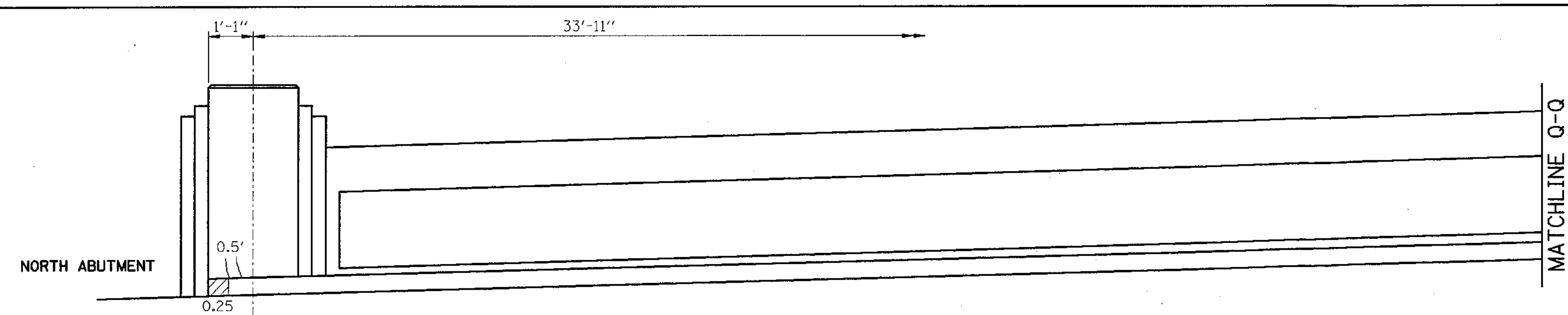

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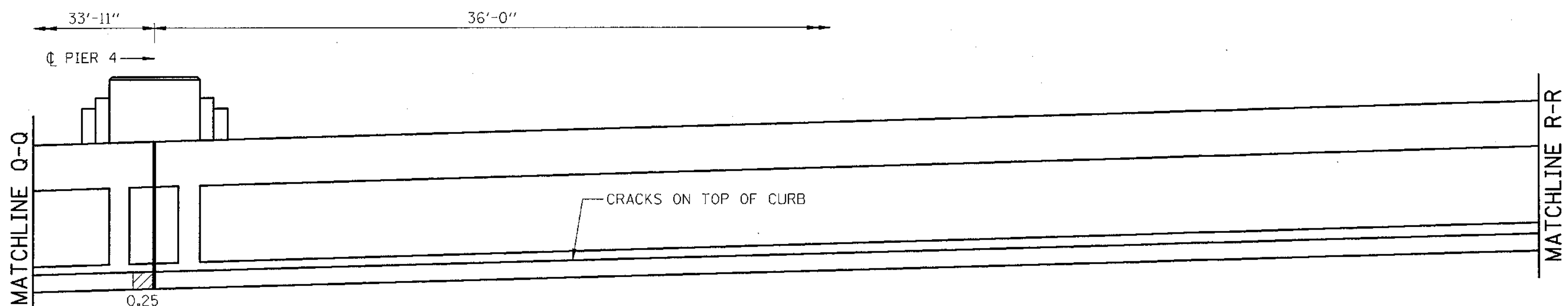

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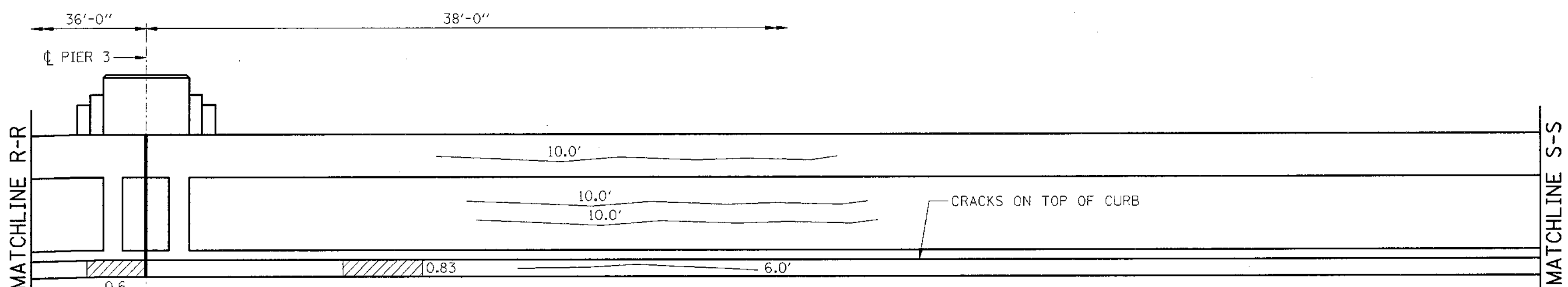

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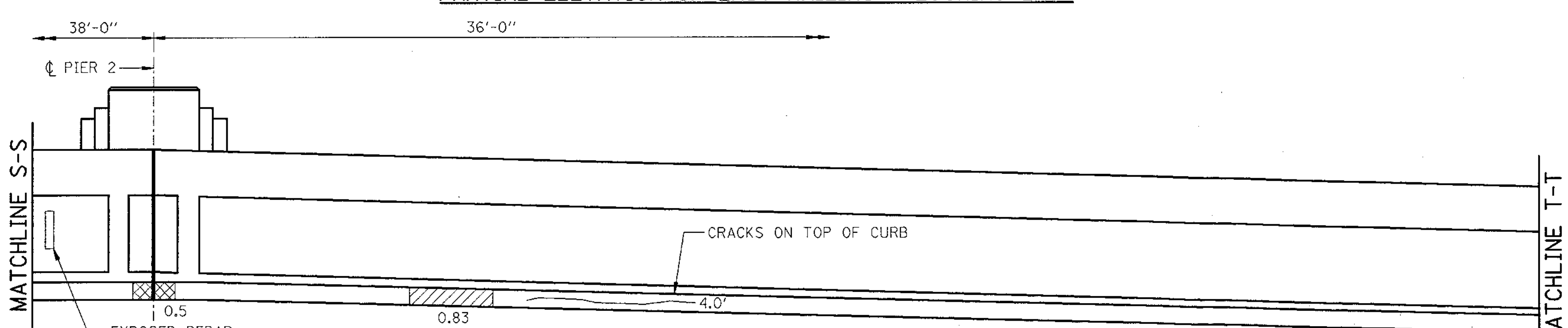
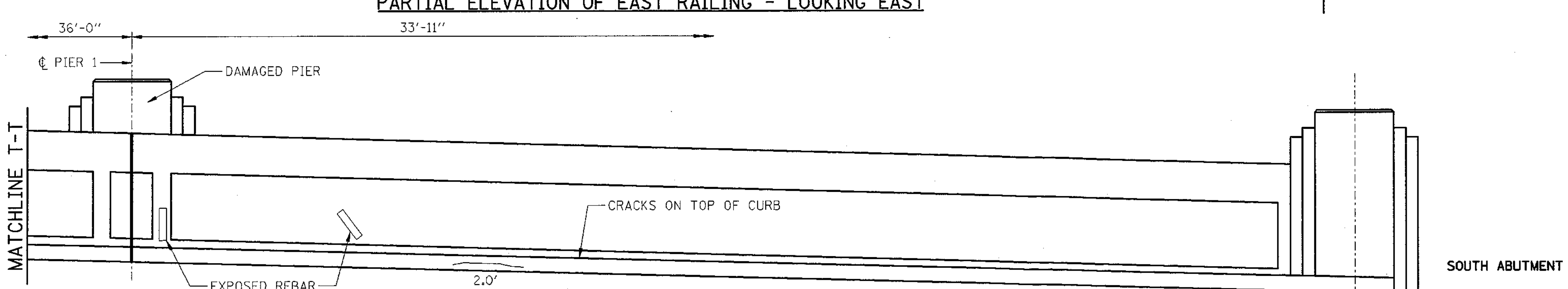


PARTIAL ELEVATION OF EAST RAILING - LOOKING EAST



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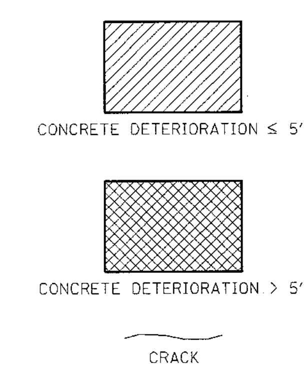

REVISIONS	
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PARTIAL ELEVATIONS

BRIDGE CONDITION REPORT
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GENEVA PARK DISTRICT
GENEVA, ILLINOIS

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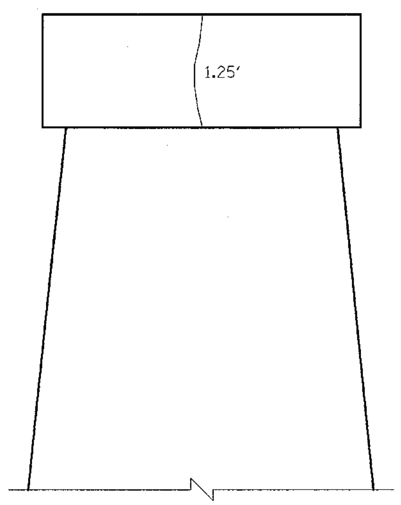
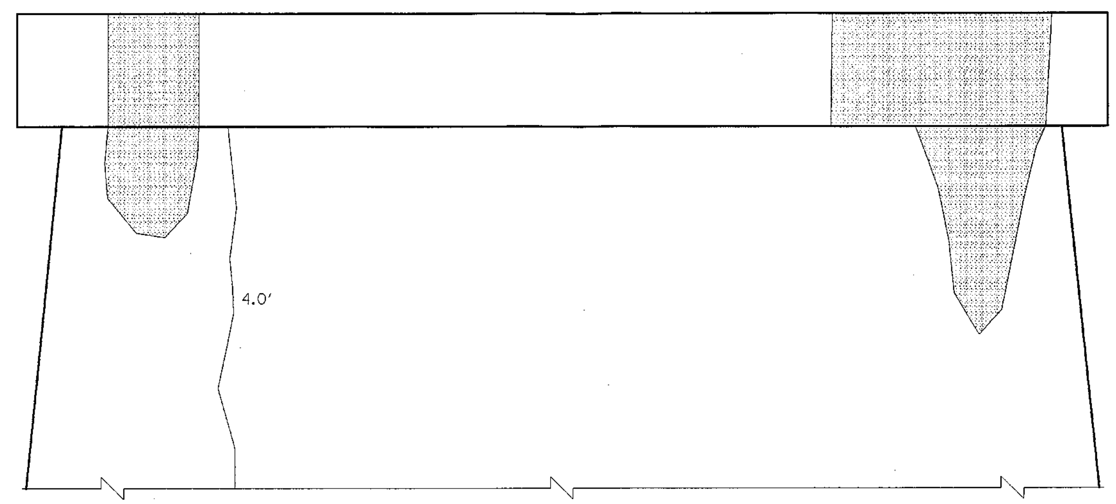
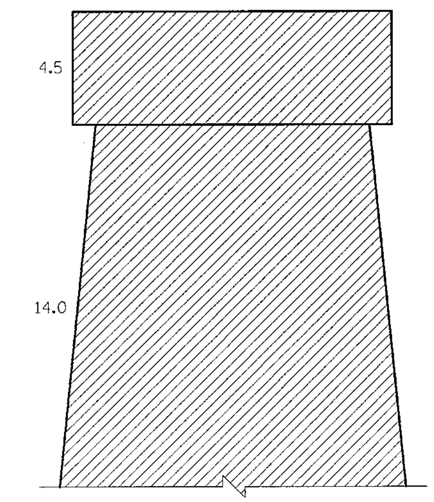


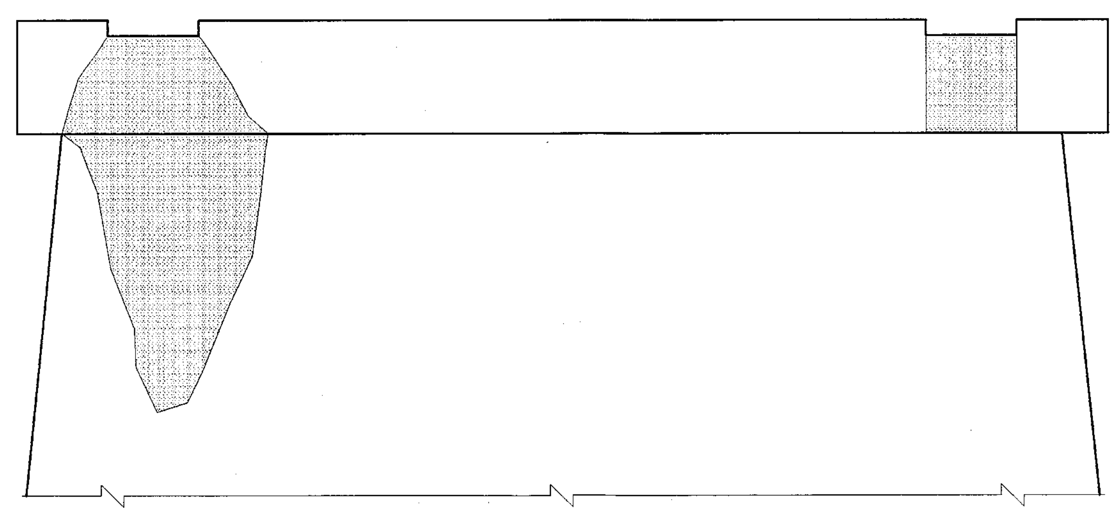
WEST END VIEW - LOOKING EAST



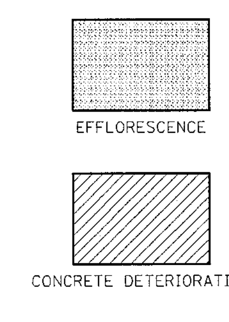
NORTH ELEVATION VIEW - LOOKING SOUTH



EAST END VIEW - LOOKING WEST



SOUTH ELEVATION VIEW - LOOKING NORTH



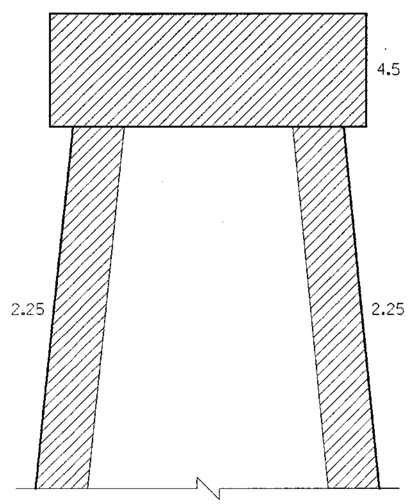
REVISIONS	
NAME	DATE

PIER NO. 1

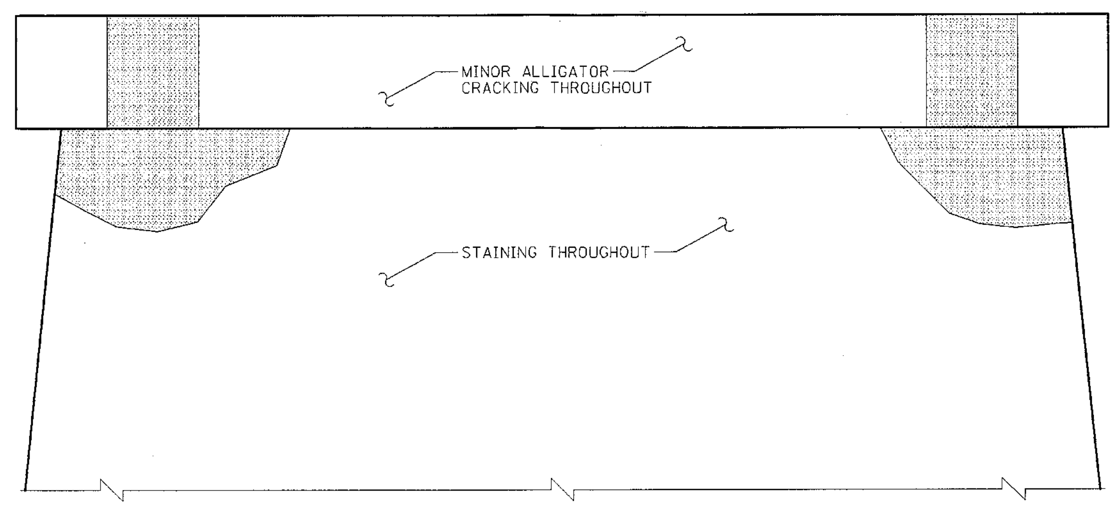
BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

DESIGNED BY: MSW DRAWN BY: DJM
DATE: 09/12/07 CHECKED BY: MSW

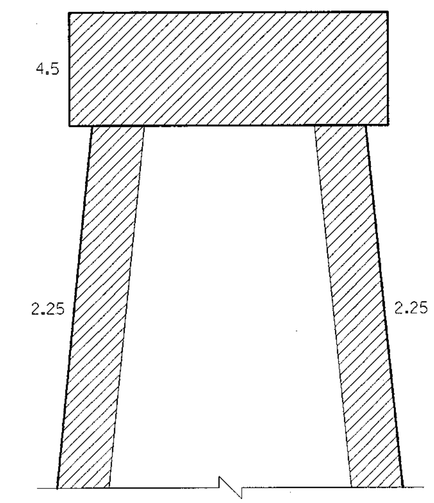
FARNSWORTH GROUP, INC. CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX



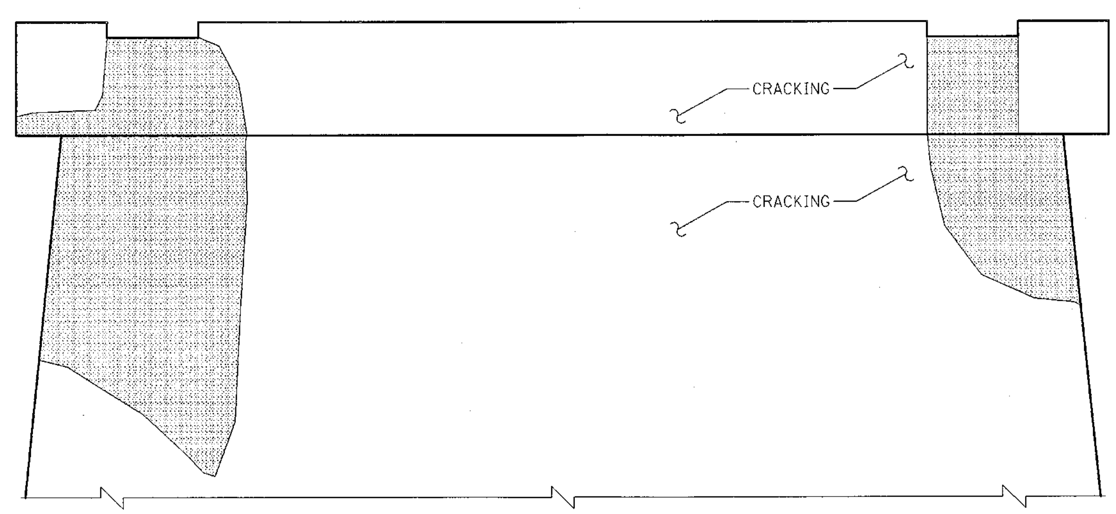
WEST END VIEW - LOOKING EAST



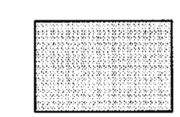
NORTH ELEVATION VIEW - LOOKING SOUTH



EAST END VIEW - LOOKING WEST



SOUTH ELEVATION VIEW - LOOKING NORTH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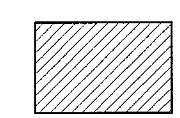
CONCRETE DETERIORATION

REVISIONS	
NAME	DATE

PIER NO. 2

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

DESIGNED BY: MSW
DRAWN BY: DJM
DATE: 09/12/07
CHECKED BY: MSW

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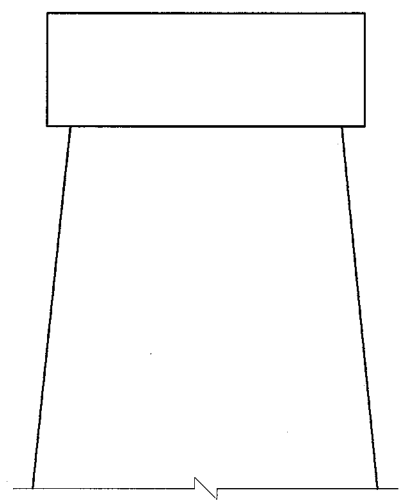
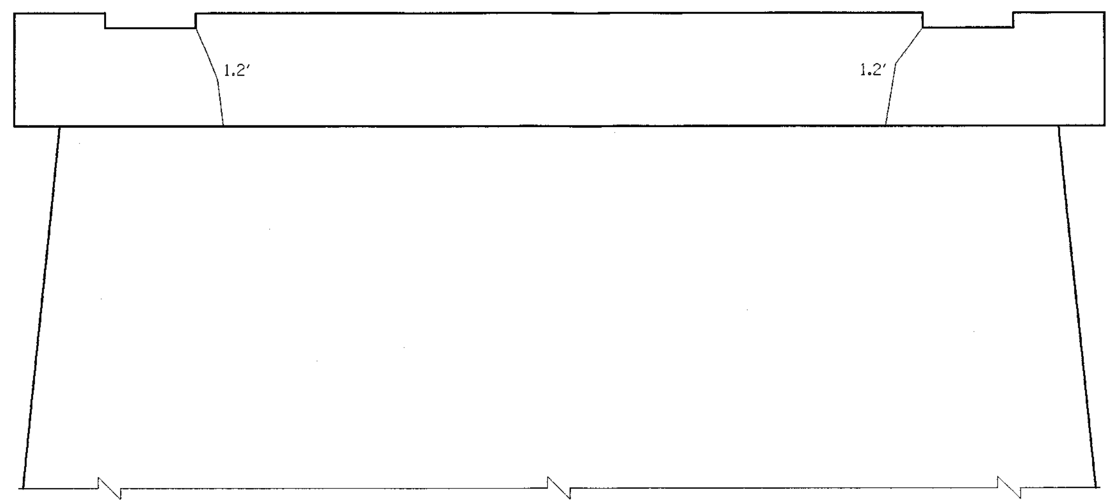
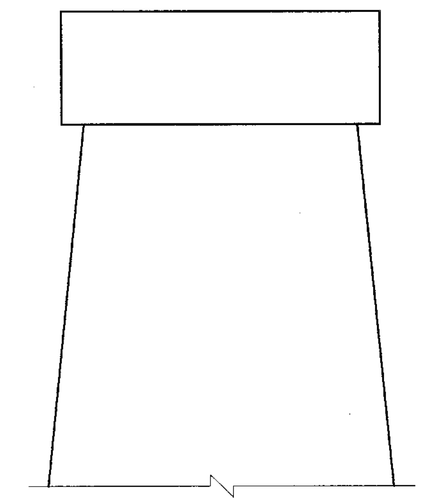
CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX



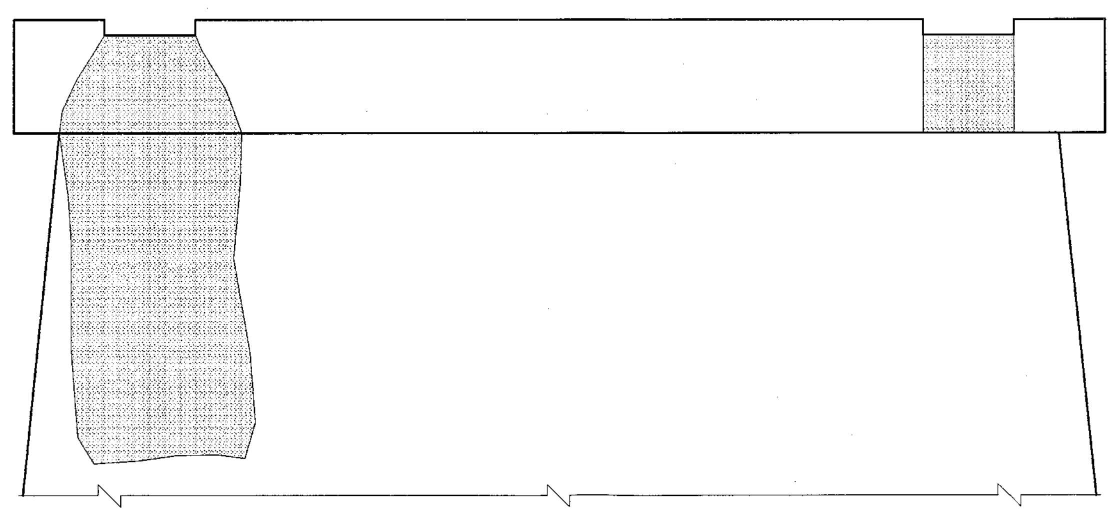
WEST END VIEW - LOOKING EAST



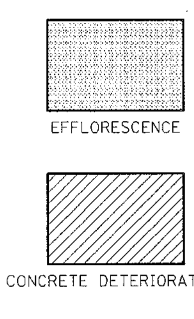
NORTH ELEVATION VIEW - LOOKING SOUTH



EAST END VIEW - LOOKING WEST



SOUTH ELEVATION VIEW - LOOKING NORTH



REVISIONS	
NAME	DATE

PIER NO. 4

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

DESIGNED BY: MSW DRAWN BY: DJM
DATE: 09/12/07 CHECKED BY: MSW

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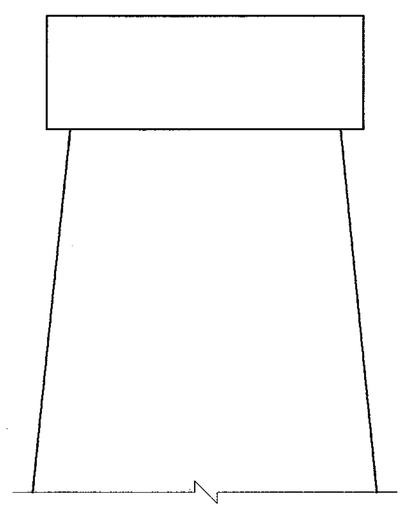
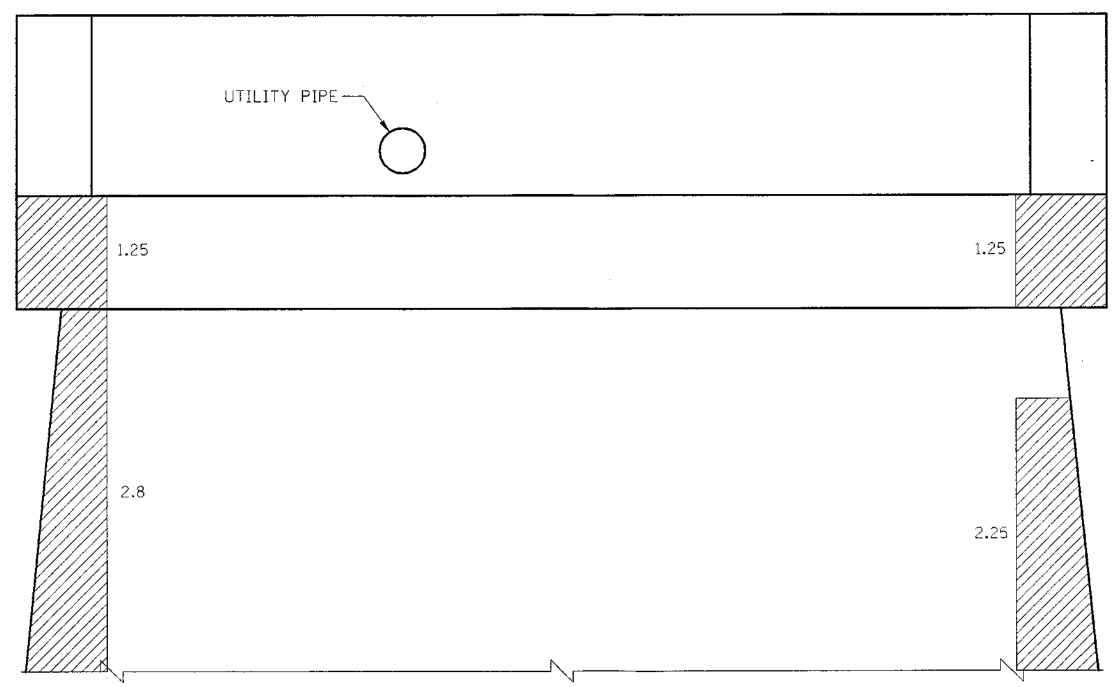
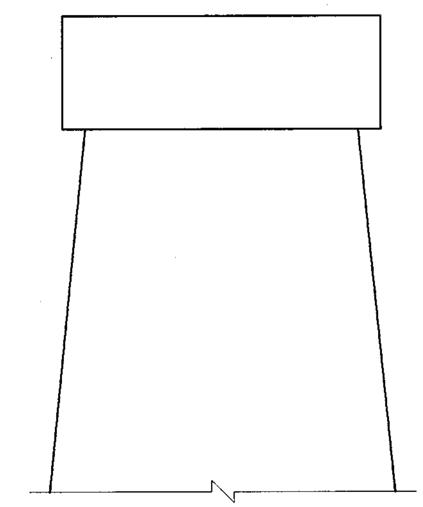


WEST END VIEW - LOOKING EAST



ELEVATION VIEW - LOOKING NORTH



EAST END VIEW - LOOKING WEST

REVISIONS	
NAME	DATE

NORTH ABUTMENT

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

DESIGNED BY: MSW
DRAWN BY: DJM
DATE: 09/12/07
CHECKED BY: MSW

FARNSWORTH GROUP, INC.
CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX

ATTACHMENT

F

Cost Estimates

North Island Bridge - Preliminary Cost Estimate
10/16/2007

Option 1 Repair Structure, Build Structure Underneath Existing Structure

Bridge Items:				
Item	Unit	Quantity	Unit Price	Total Cost
Concrete Superstructure	Cu. Yd.	100	$2,000	$200,000
Pilasters - Repair	Each	12	$3,000	$36,000
Concrete Structures	Cu. Yd.	50	$2,000	$100,000
Reinforcing Bars, Epoxy Coated	Pound	40,000	$3	$120,000
Removal of Existing Concrete Deck	Cu. Yd.	40	$2,000	$80,000
Deck Drains	Each	20	$500	$10,000
Bridge Deck Grooving	Sq. Yd.	180	$7	$1,260
Protective Coat	Sq. Yd.	450	$3	$1,350
Name Plates	Each	1	$1,000	$1,000
Bearings	Each	12	$1,000	$12,000
Rock Excavation for Structures	Cu. Yd.	20	$300	$6,000
Riprap	Sq. Yd.	120	$60	$7,200
Cofferdams	Each	6	$20,000	$120,000
Support Existing Concrete Beams	Each	2	$50,000	$100,000
Repair Existing Concrete Beams	S.F.	1,000	$100	$100,000
Subtotal:				$894,810
Contingency (± 20%):				$205,190
Bridge Preliminary Construction (cost in 2007):				$1,100,000

Bike Trail Items:				
Item	Unit	Quantity	Unit Price	Total Cost
Bike Trail Removal	Sq. Yd.	500	$20	$10,000
Bituminous Concrete Surface Course	Ton	60	$240	$14,400
Bridge Approach Pavement	Sq. Yd.	70	$240	$16,800
Subtotal:				$41,200
Contingency (± 15%):				$8,800
Bike Trail Preliminary Construction (cost in 2007):				$50,000

Assumptions:

1) Add onto existing bridge substructure units
2) Same widths as existing bridge
3) Assume 200' north and south of proposed bridge
4) No engineering or utility costs are included with this estimate

Grand Total - Preliminary Construction Cost (2007)	$1,150,000

North Island Bridge - Preliminary Cost Estimate
10/16/2007

Option 2 Similar Structure (Haunched Beams) w/ Pedestrian Overlooks

Bridge Items:				
Item	Unit	Quantity	Unit Price	Total Cost
Concrete Superstructure	Cu. Yd.	140	$1,200	$168,000
Pilasters	Each	12	$2,000	$24,000
Concrete Structures	Cu. Yd.	60	$750	$45,000
Reinforcing Bars, Epoxy Coated	Pound	40,000	$2	$80,000
Removal of Existing Superstructure	Each	1	$50,000	$50,000
Deck Drains	Each	20	$500	$10,000
Bridge Deck Grooving	Sq. Yd.	200	$7	$1,400
Protective Coat	Sq. Yd.	450	$3	$1,350
Name Plates	Each	1	$1,000	$1,000
Bearings	Each	12	$1,000	$12,000
Rock Excavation for Structures	Cu. Yd.	10	$100	$1,000
Riprap	Sq. Yd.	120	$60	$7,200
Cofferdams	Each	2	$20,000	$40,000
Concrete Removal (Substructure)	Cu. Yd.	45	$500	$22,500
Decorative Bridge Rail	Foot	80	$80	$6,400
Subtotal:				$469,850
Contingency (± 15%):				$80,150
Bridge Preliminary Construction (cost in 2007):				$550,000

Bike Trail Items:				
Item	Unit	Quantity	Unit Price	Total Cost
Bike Trail Removal	Sq. Yd.	500	$20	$10,000
Bituminous Concrete Surface Course	Ton	60	$240	$14,400
Bridge Approach Pavement	Sq. Yd.	70	$240	$16,800
Subtotal:				$41,200
Contingency (± 15%):				$8,800
Bike Trail Preliminary Construction (cost in 2007):				$50,000

Assumptions:

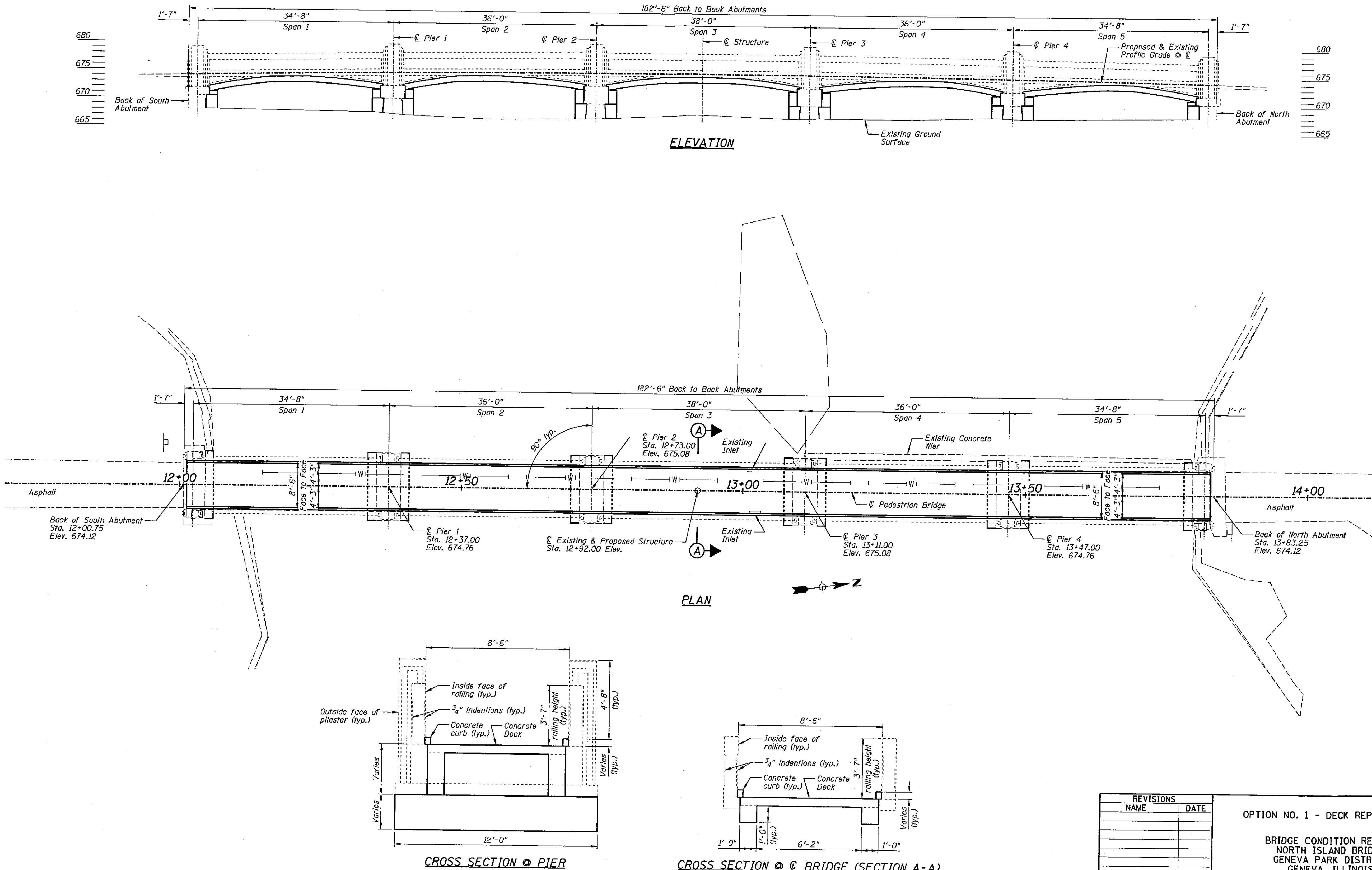
1) Re-use South Abutment and Piers 2, 3, and 4 based on reports from TSC
2) New North Abutment and Pier 1
3) 10' wide Face to Face Rail
4) Assume 200' north and south of proposed bridge
5) No engineering or utility costs are included with this estimate

Grand Total - Preliminary Construction Cost (2007)	$600,000

ATTACHMENT

G

Proposed Structure Drawings (Option No. 1 and Option No. 2)



REVISIONS	
NAME	DATE

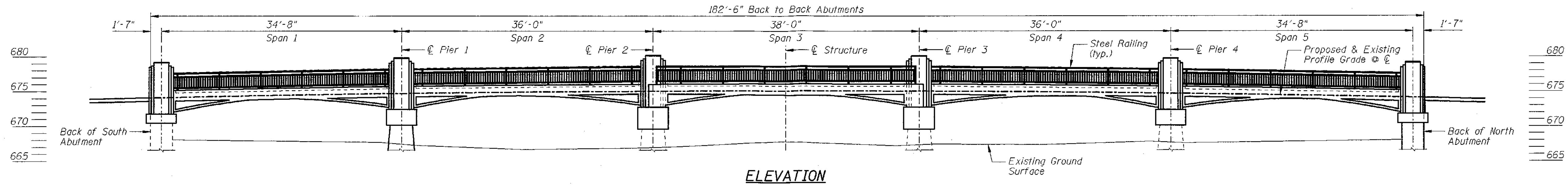
OPTION NO. 1 - DECK REPLACEMENT

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

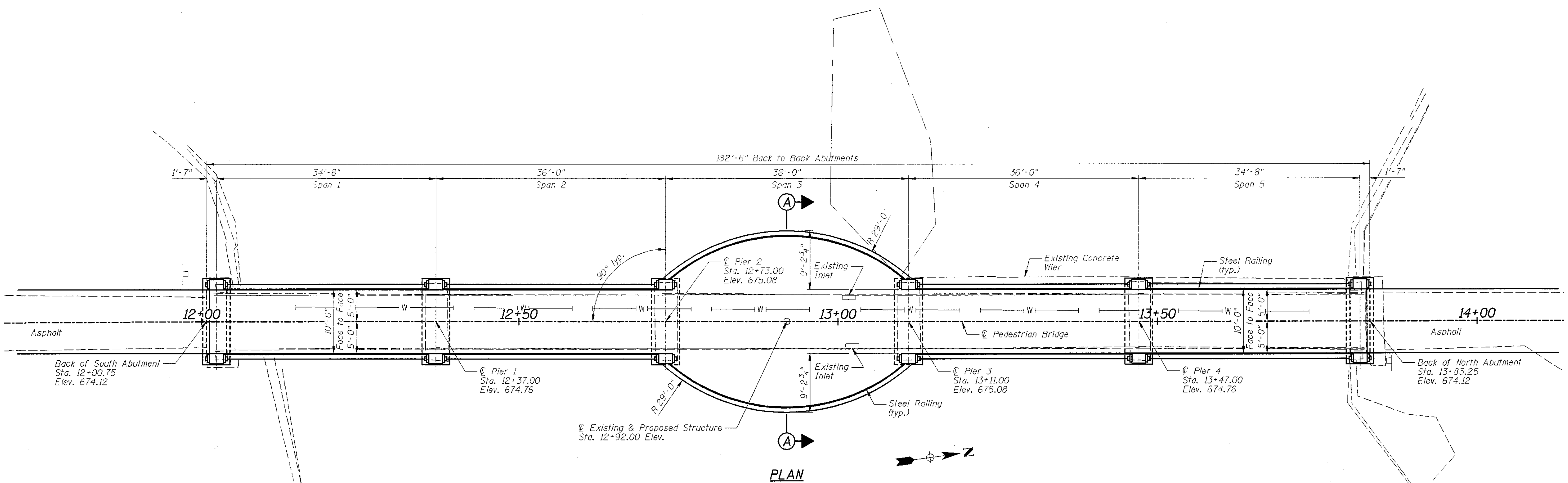
DESIGNED BY: MSW
DRAWN BY: DJM
DATE: 09/12/07
CHECKED BY: MSW

FARNSWORTH GROUP, INC.
CONSULTING ENGINEERS - 2709 MCGRAW DRIVE BLOOMINGTON, ILLINOIS 61704 (309) 663-8435 / (309) 663-1571 FAX

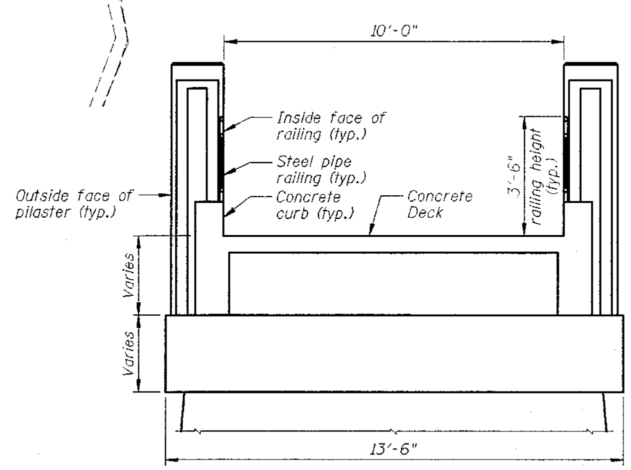
24-7965



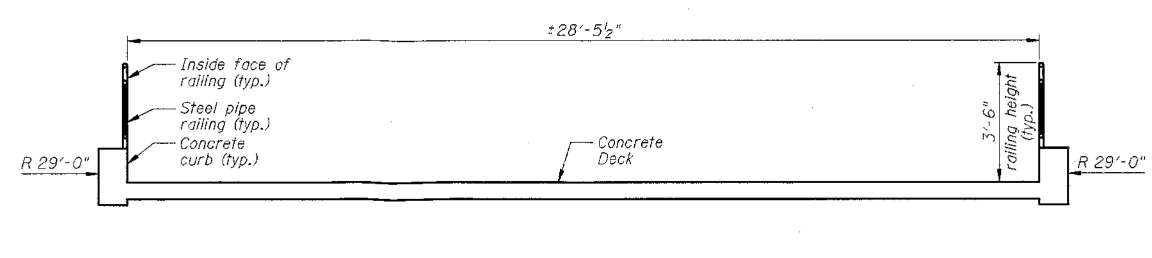
ELEVATION



PLAN
(2 viewing decks)



CROSS SECTION @ PIER



CROSS SECTION @ ℄ BRIDGE (SECTION A-A)

REVISIONS NAME	DATE

PROPOSED STRUCTURE

BRIDGE CONDITION REPORT
NORTH ISLAND BRIDGE
GENEVA PARK DISTRICT
GENEVA, ILLINOIS

DESIGNED BY: MSW DRAWN BY: DJM
DATE: 09/12/07 CHECKED BY: MSW

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ATTACHMENT

H

Structure Photos

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking South at Bridge

Looking West at Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking at Bridge from Northeast

Looking North from Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking at Bride Southwest

Looking East from Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking North from Bridge

Looking South from Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking Northeast from Bridge

Looking East from Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking Southeast from Bridge

Looking Southwest from Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Looking West from Bridge

Looking Northwest from Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

West Side South Pilaster at South Abutment (Typical Pilaster)

West Side Rail South Abutment to Pier 1 (Typical Rail West Side)

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Damaged Pilaster East Side Pier 1

East Side Rail South Abutment to Pier 1 (Typical Rail East Side)

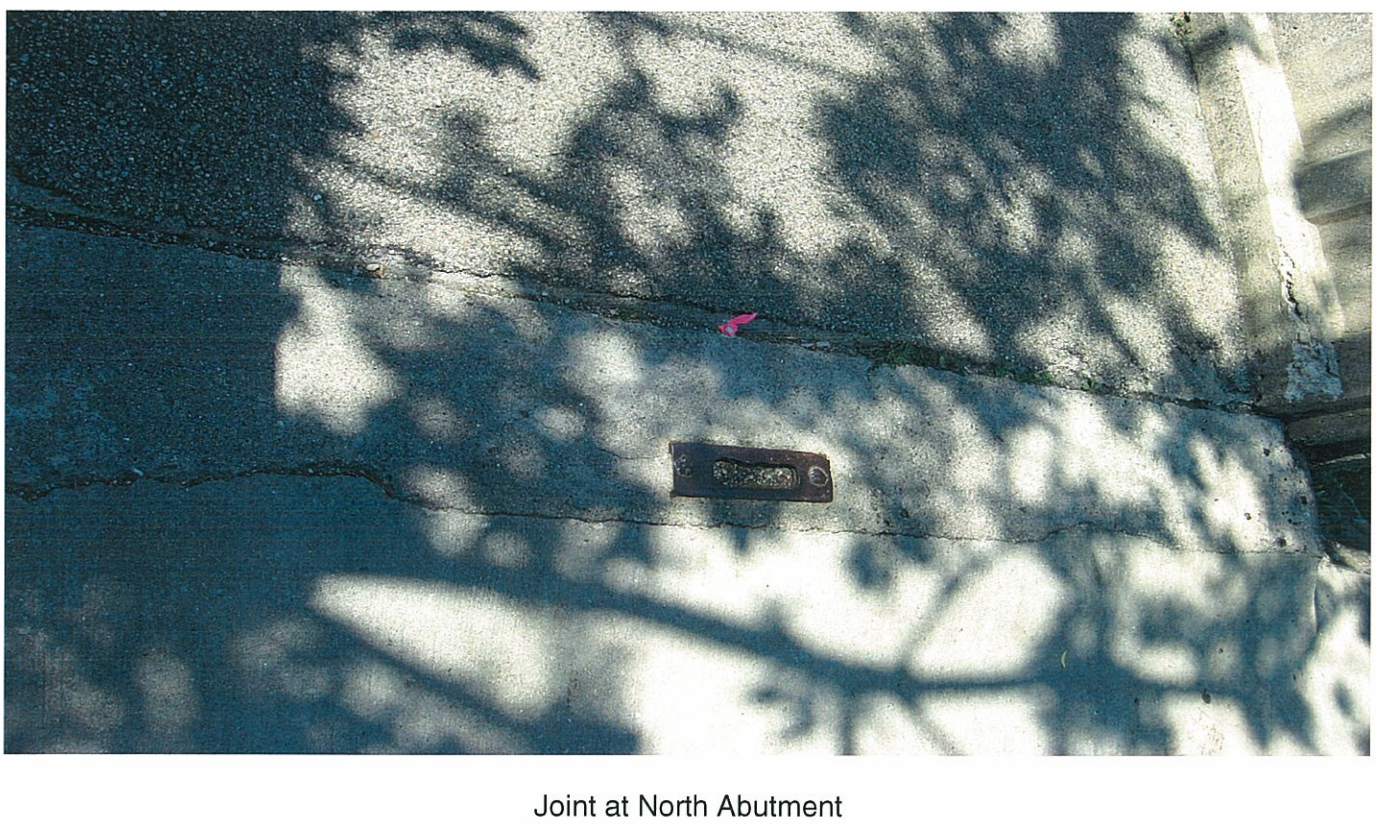
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Joint/Gutter South Abutment

South Abutment Joint

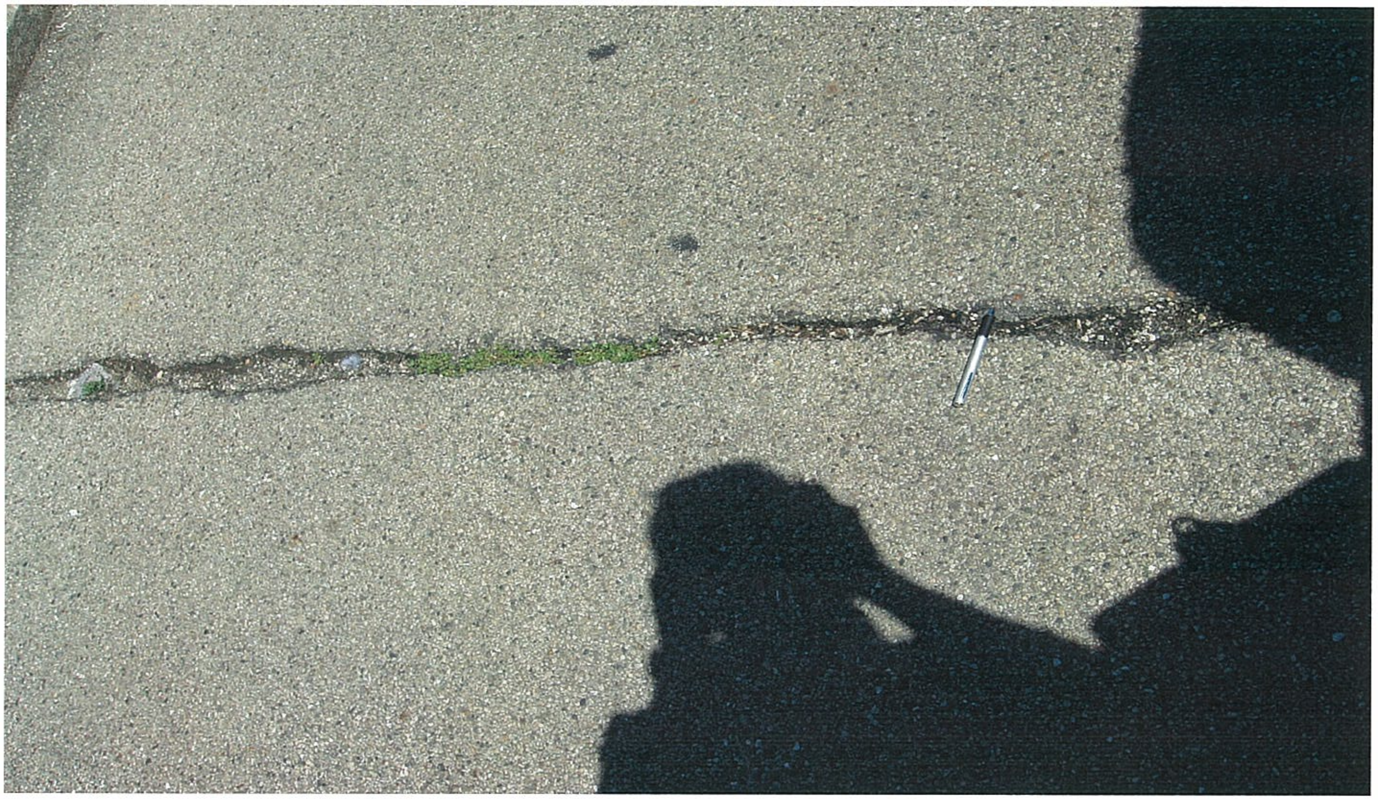
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Joint/Gutter North Abutment



Joint at North Abutment

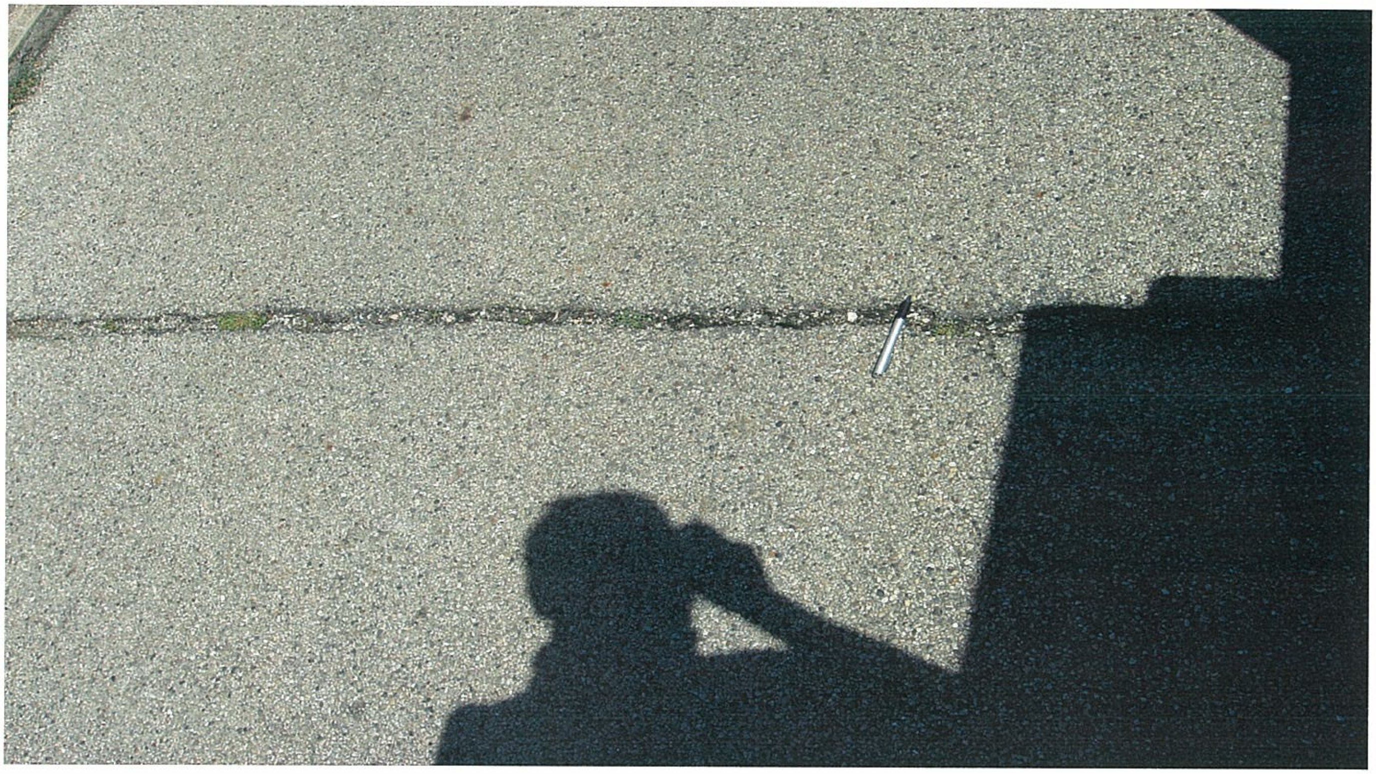
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



Pier 1 Joint

Pier 2 Joint

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



Crack North of Pier
(no joint at Pier 3)

Joint at Pier 4

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Typical Cracking in Deck

Typical Drain in Deck ±10' West of Pier 3 North Side

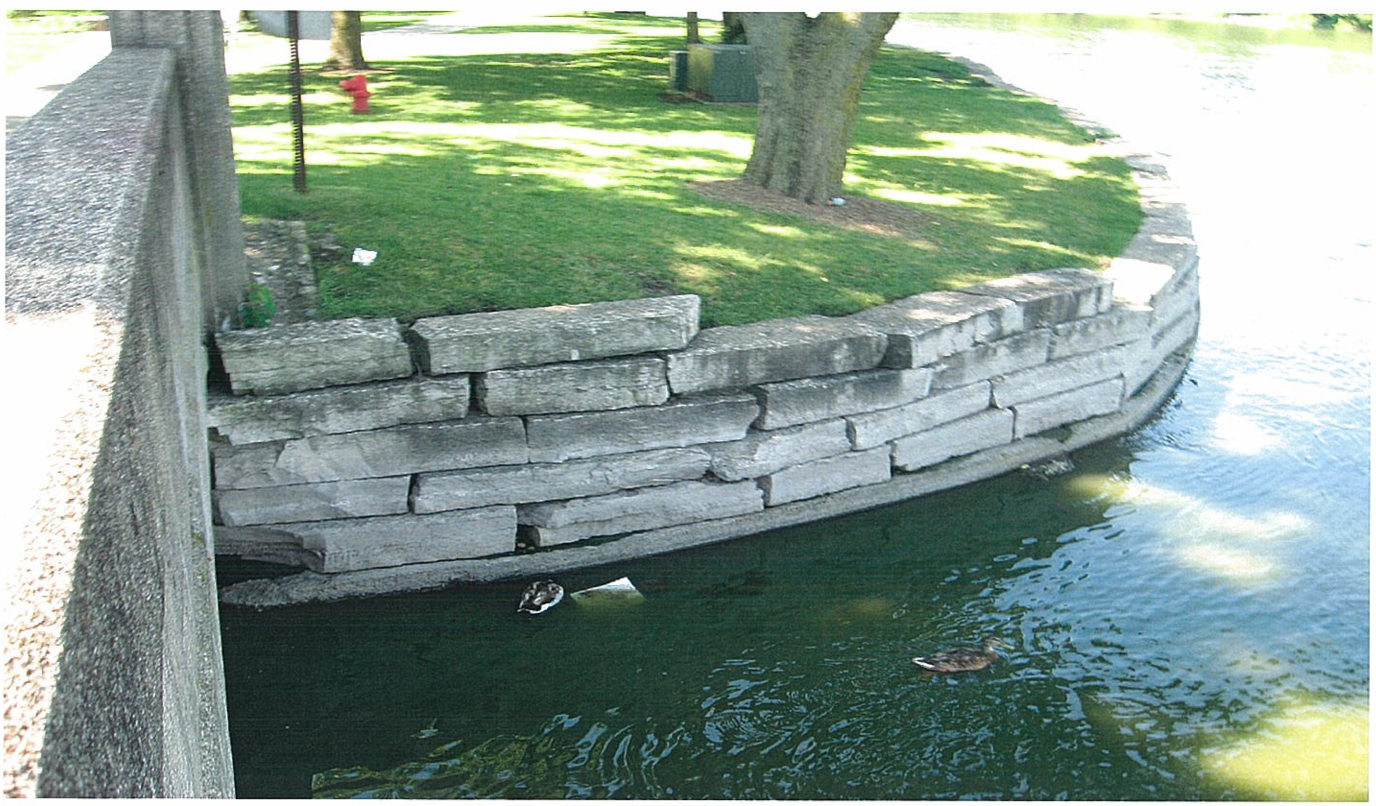
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Rock Wall Northeast of Bridge

Rock Wall Northwest of Bridge

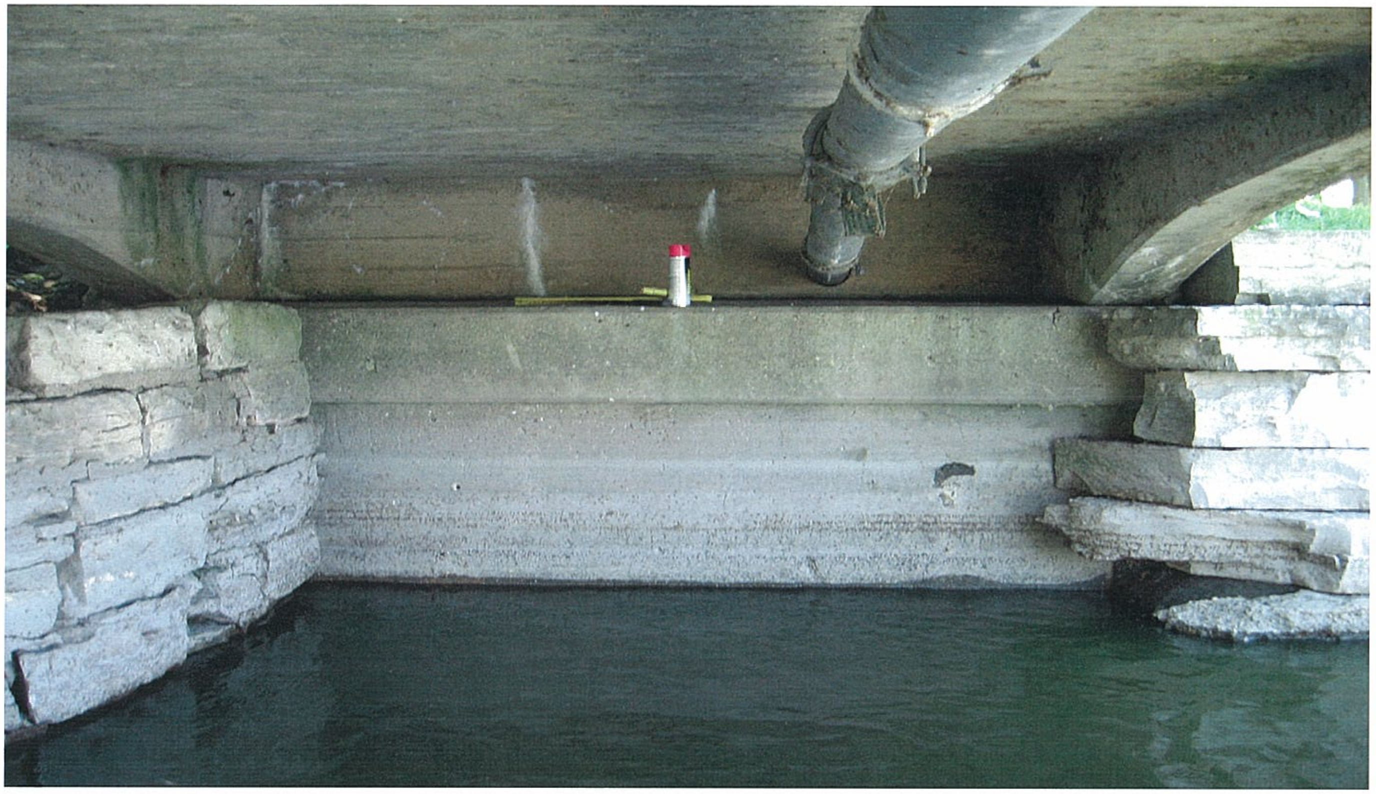
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Rock Wall Southeast of Bridge

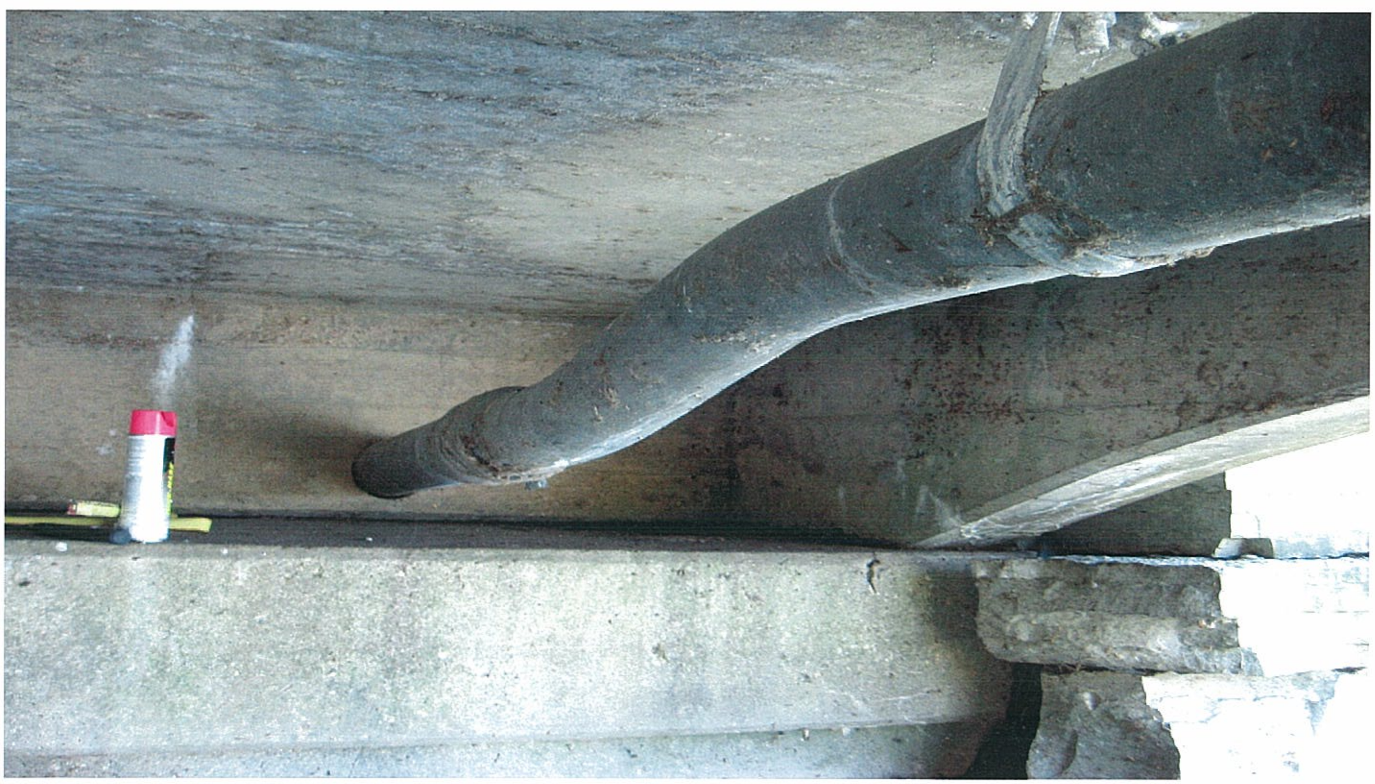


Rock Wall Southwest of Bridge

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



South Abutment Overall



South Abutment Utility thru Wall

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

South Abutment Utility Joint

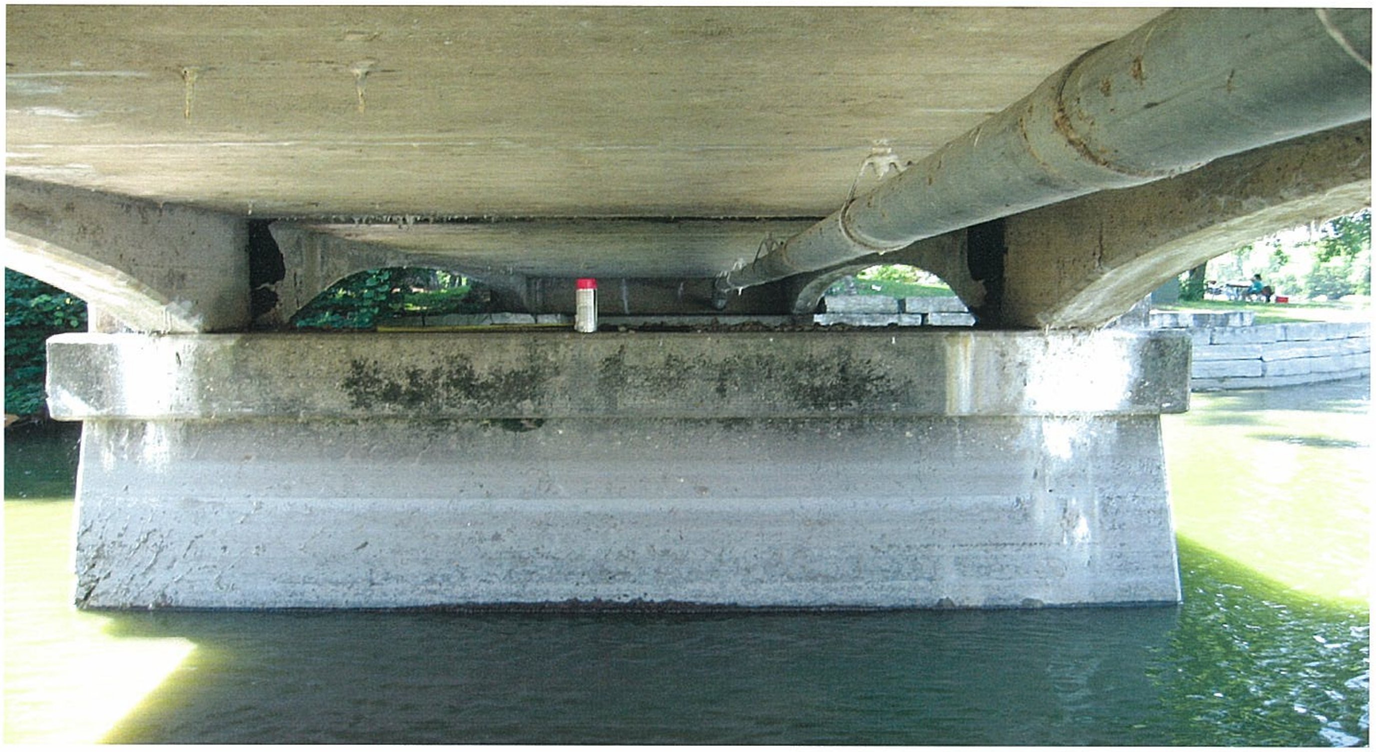
South Abutment Typical Pipe Hanger

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

South Abutment Southwest Stone Wall Joints

South Abutment Southeast Wall

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

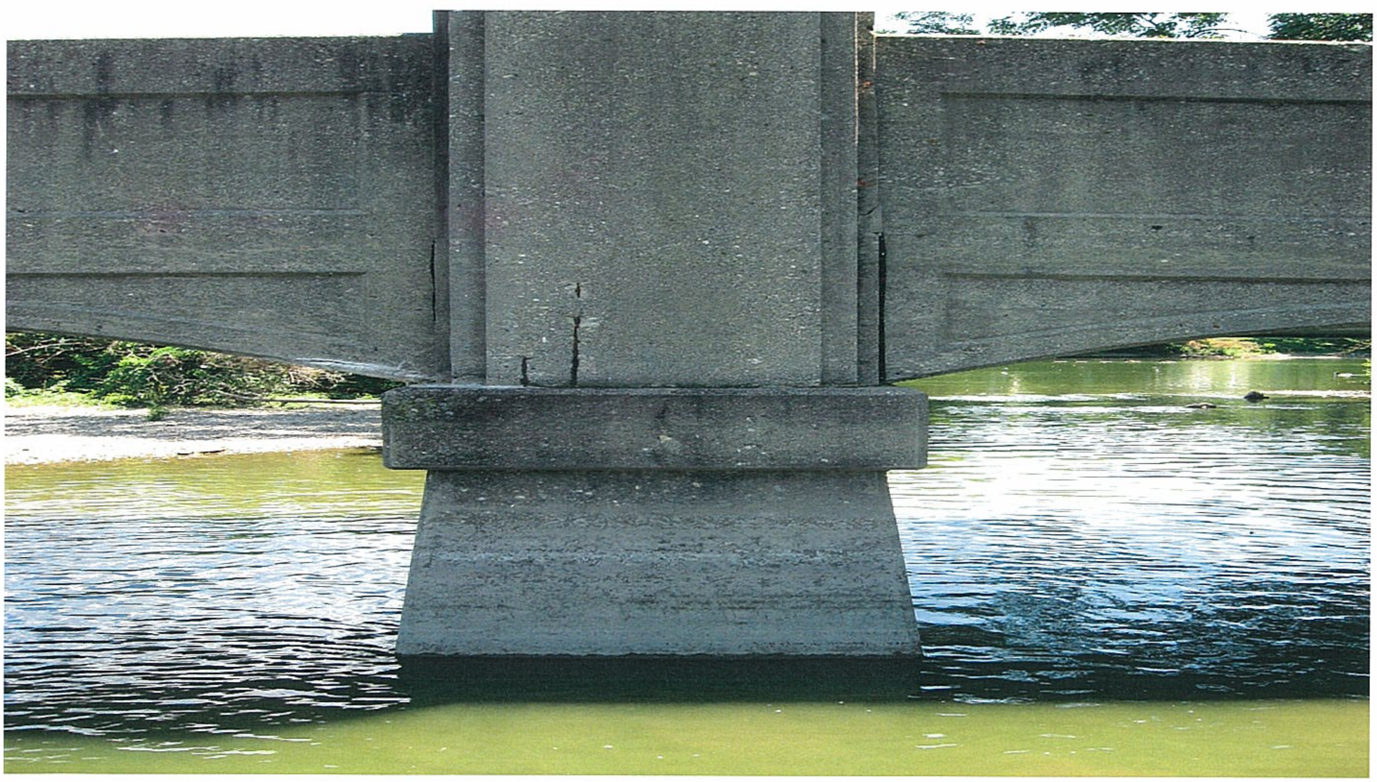


Pier 1 North Face

Pier 1 South Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 1 East Face



Pier 1 West Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 1 Northwest Beam Pocket (No Pocket)

Pier 1 Northeast Beam Pocket (No Pocket)

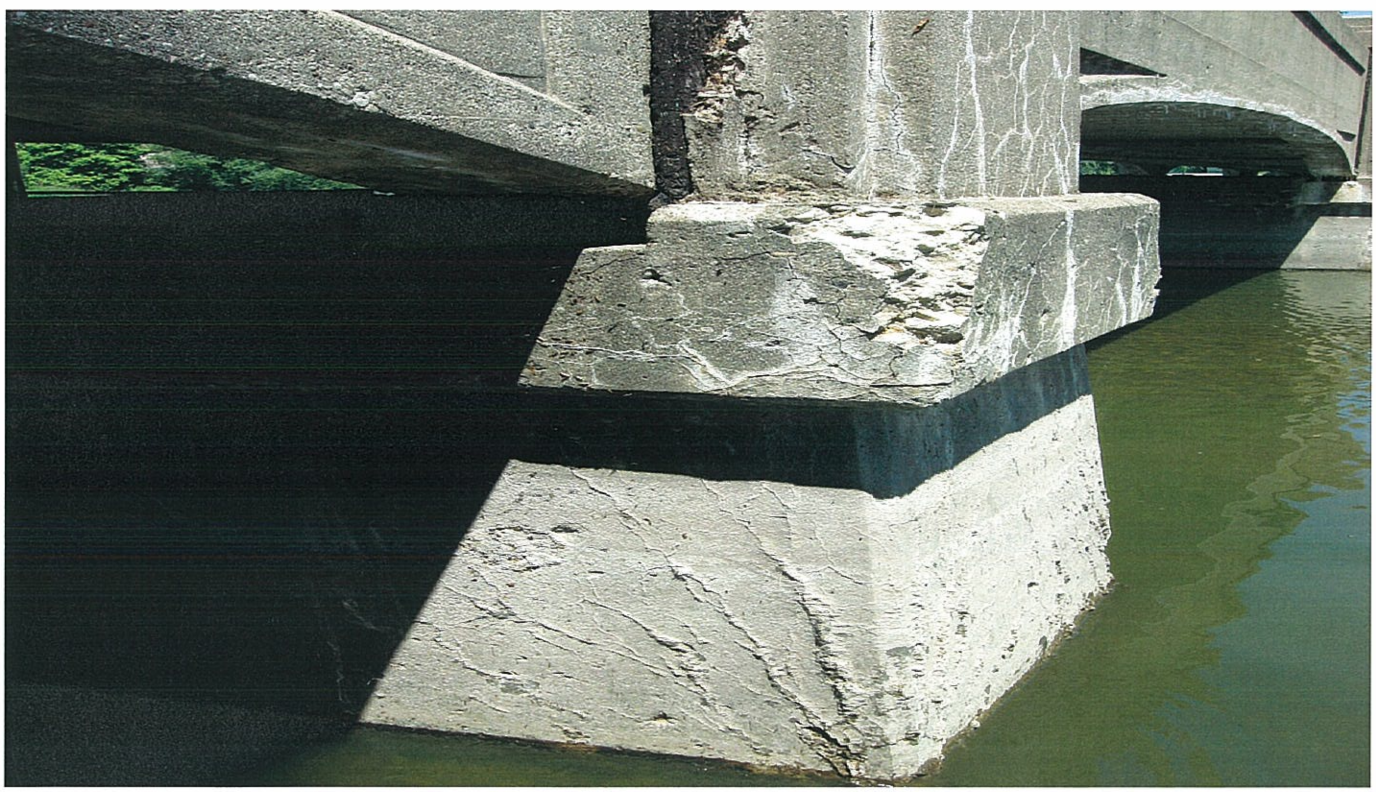
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 1 Southeast Beam Pocket

Pier 1 Southwest Beam Pocket

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

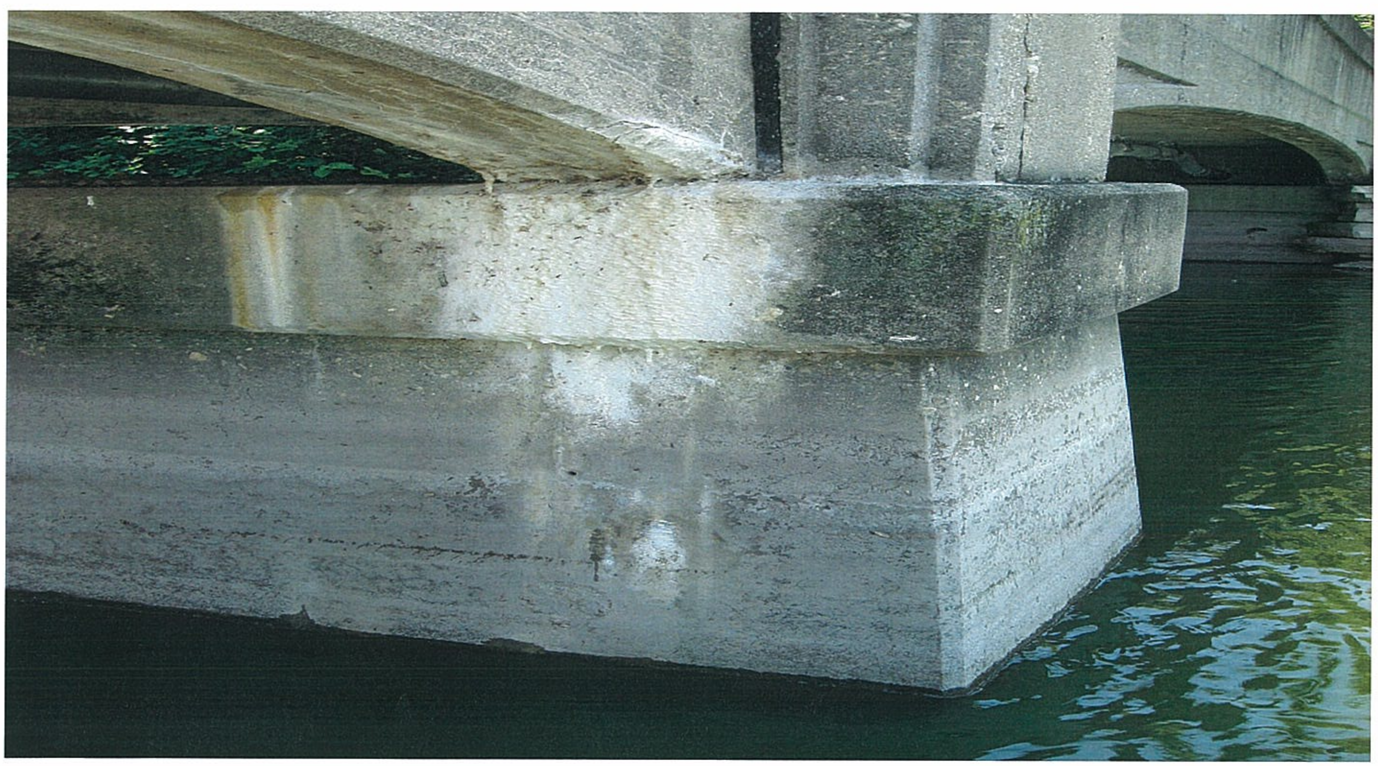
Pier 1 Southwest Corner Deterioration



Pier 1 Southeast Corner Deterioration

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

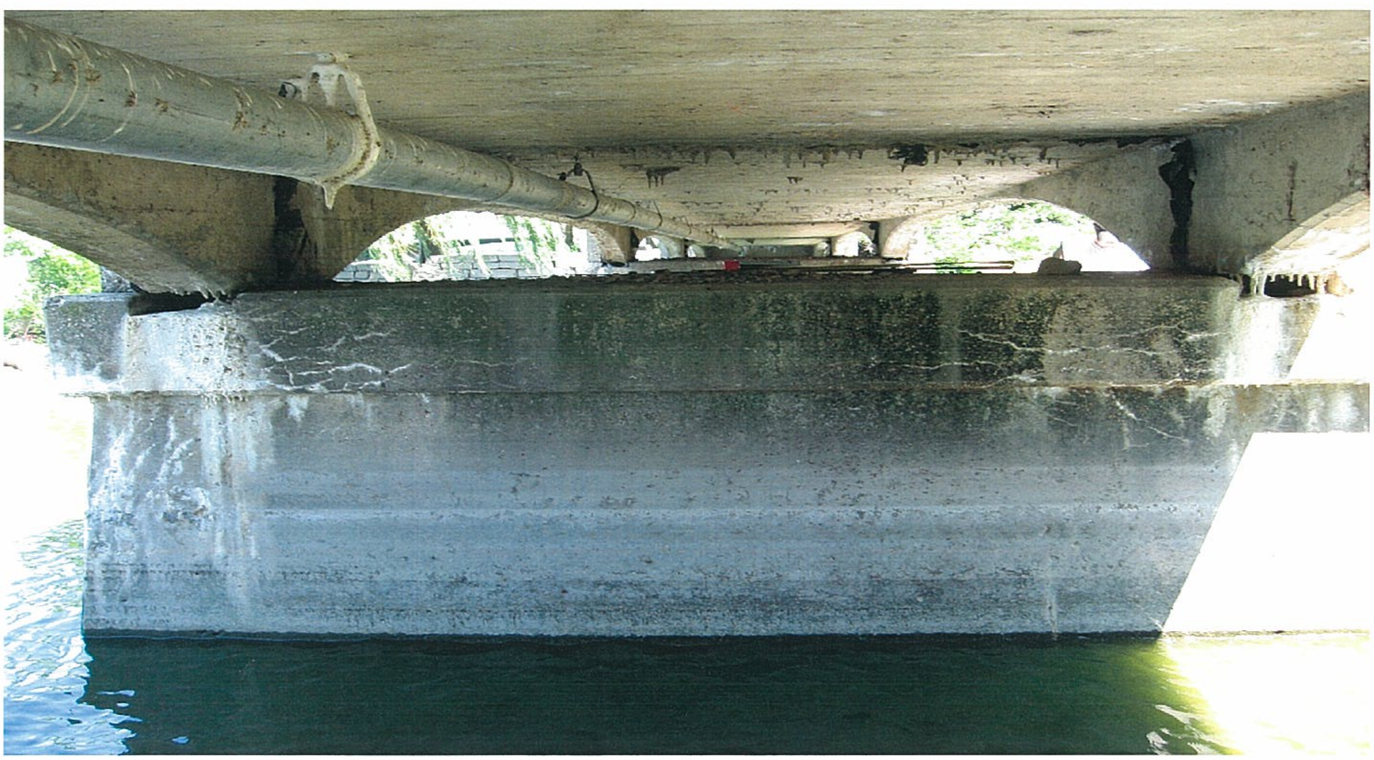
Pier 1 Northeast Corner Deterioration



Pier 1 Northwest Corner Deterioration

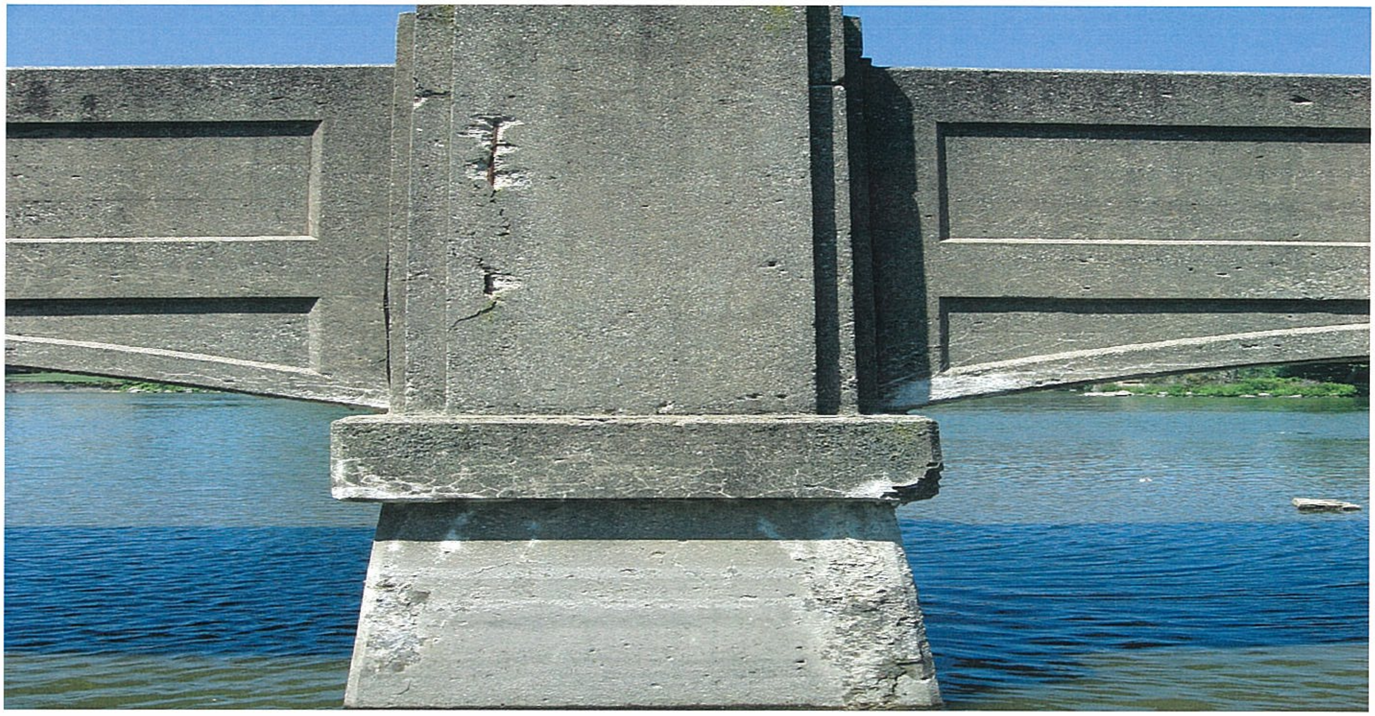
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 2 North Face

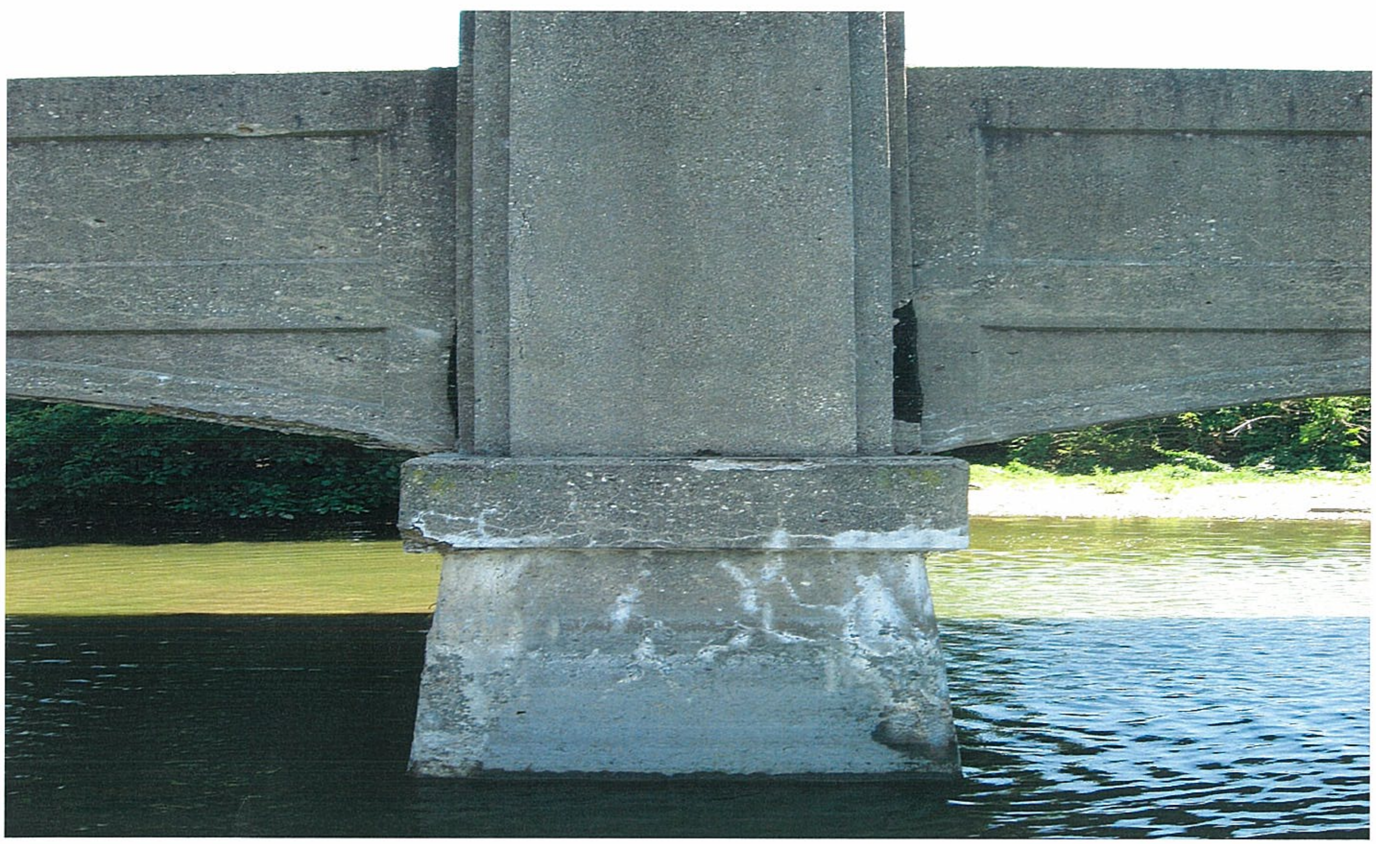


Pier 2 South Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



Pier 2 East Face



Pier 2 West Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 2 Northwest Beam Pocket (No Pocket)

Pier 2 Northeast Beam Pocket (No Pocket)

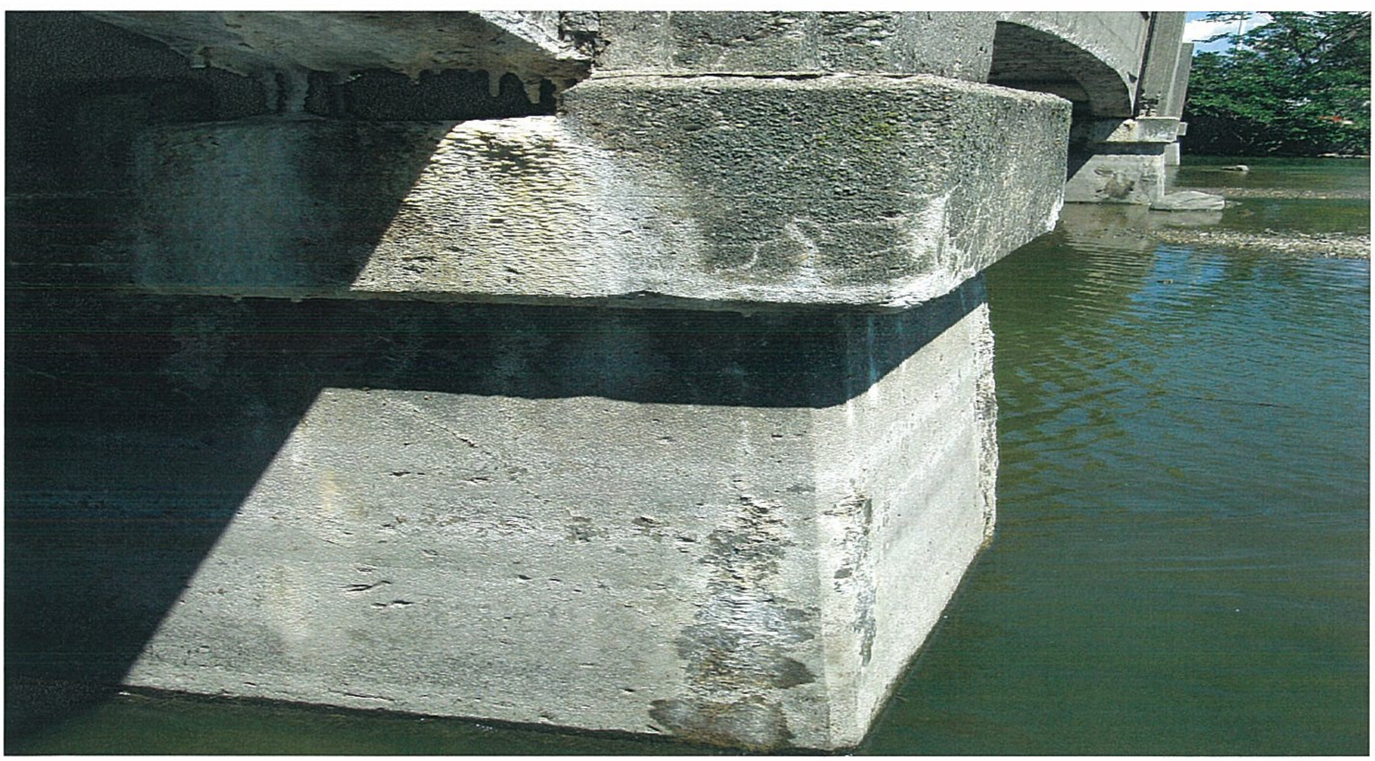
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 2 Southeast Beam Pocket

Pier 2 Southwest Beam Pocket

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

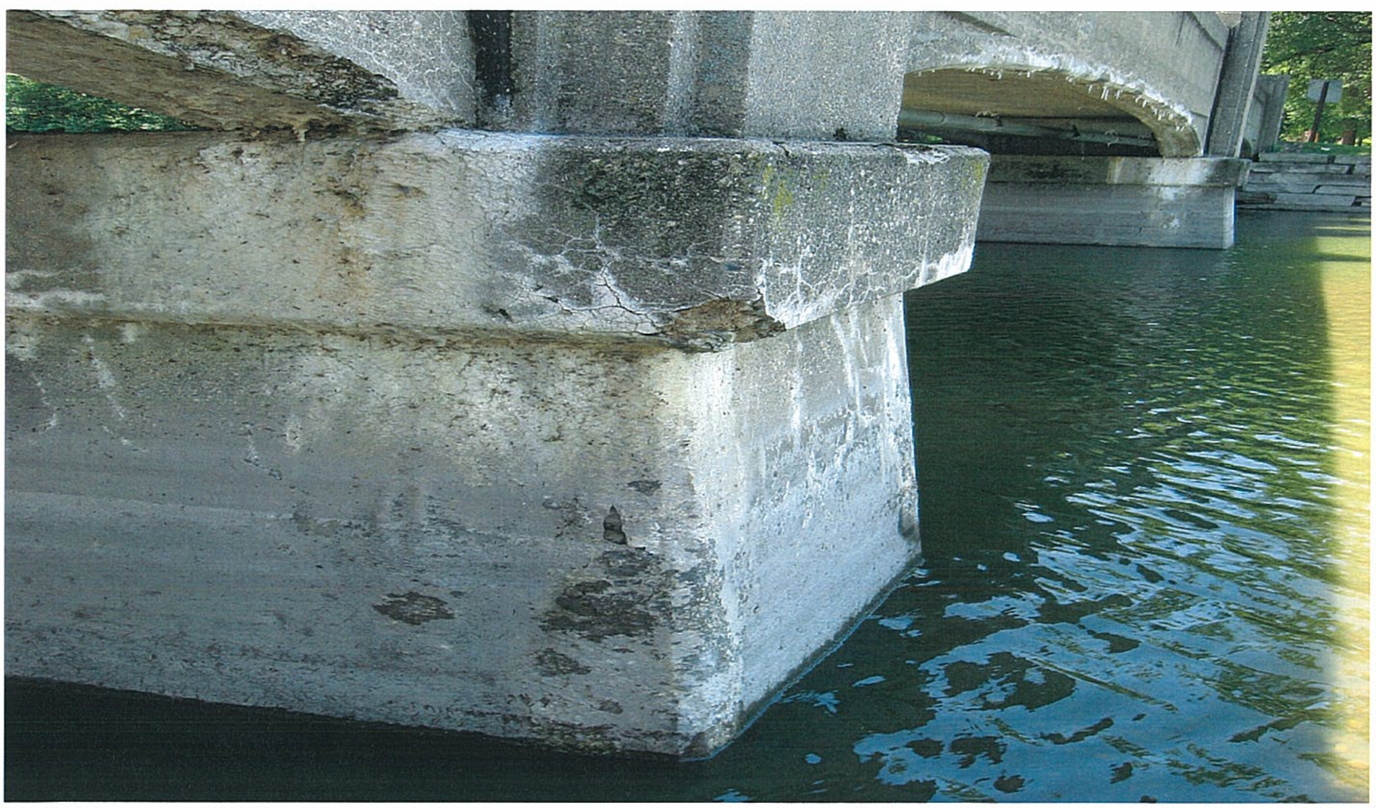
Pier 2 Southwest Corner Deterioration



Pier 2 Southeast Corner Deterioration

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

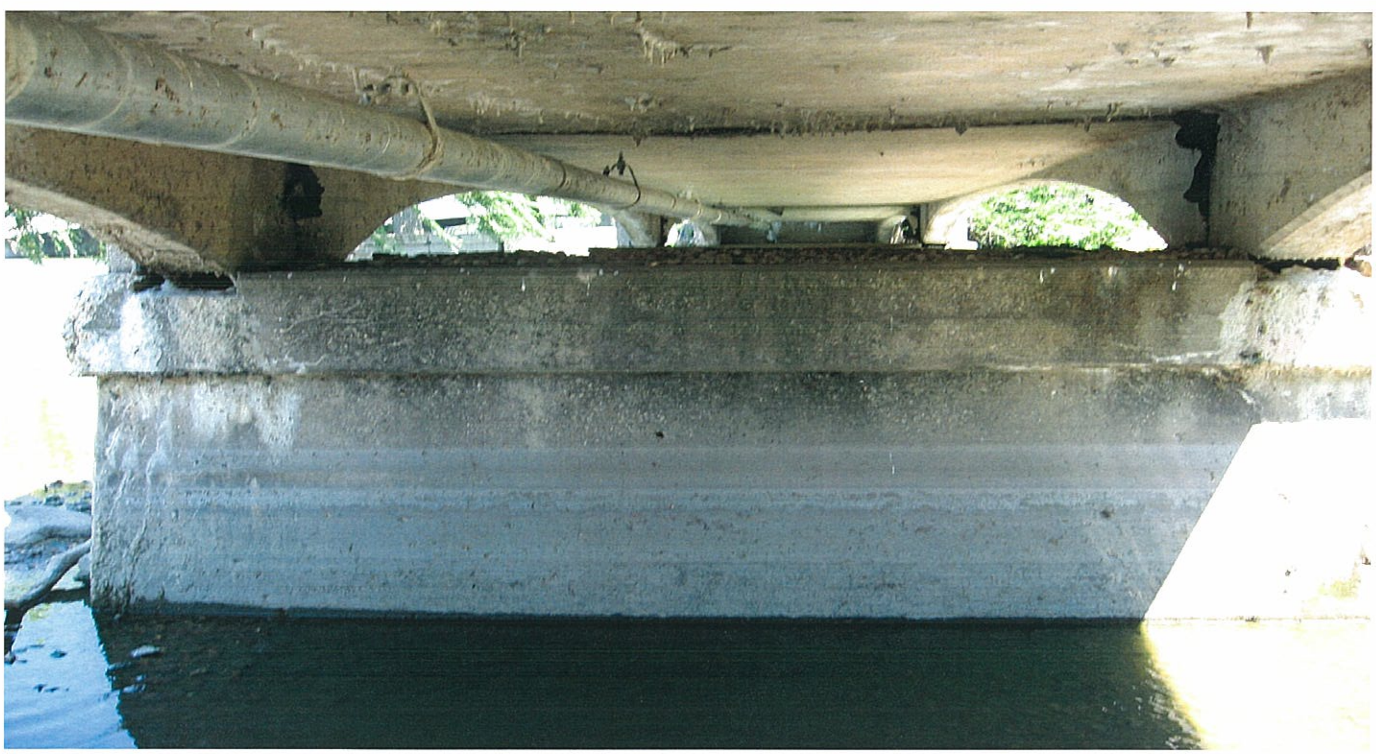
Pier 2 Northeast Corner Deterioration



Pier 2 Northwest Corner Deterioration

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

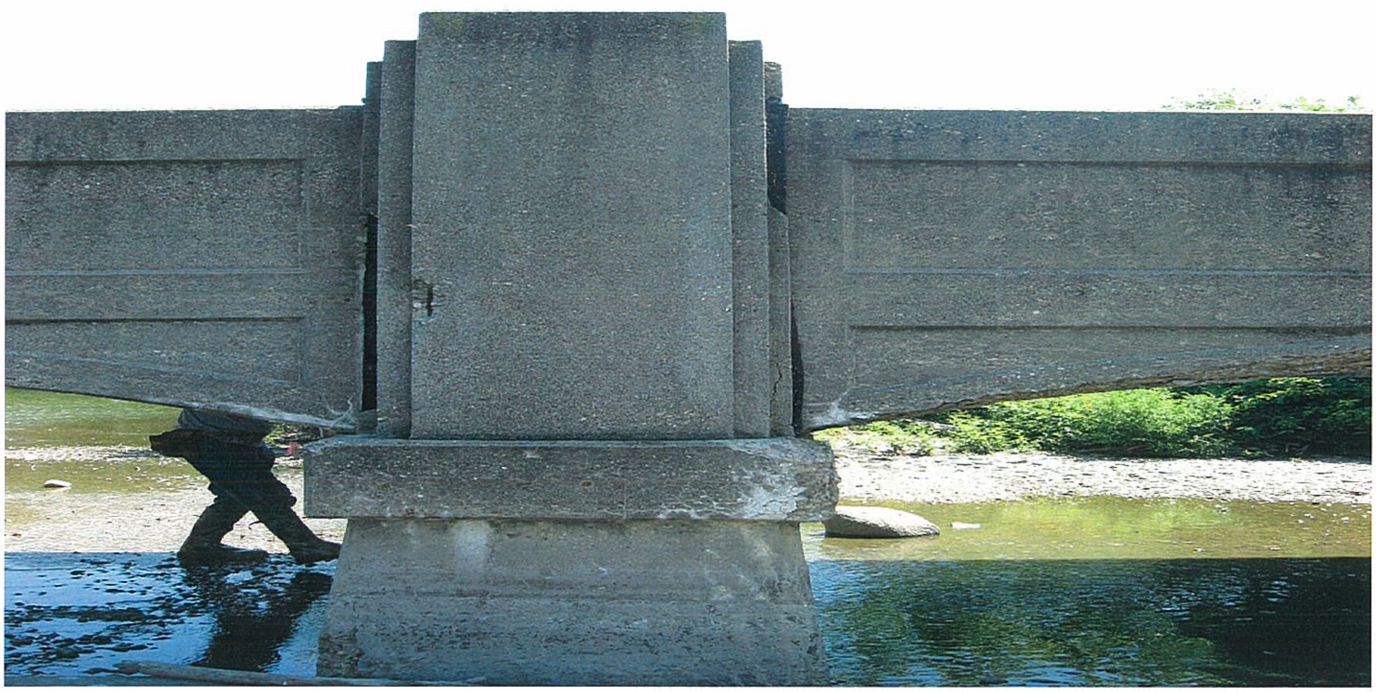
Pier 3 North Face



Pier 3 South Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 3 East Face



Pier 3 West Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 3 Northwest Beam Pocket (No Pocket)

Pier 3 Northeast Beam Pocket (No Pocket)

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 3 Southeast Beam Pocket

Pier 3 Southwest Beam Pocket

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 3 Southwest Corner Deterioration

Pier 3 Southeast Corner Deterioration

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 3 Northeast Corner Deterioration

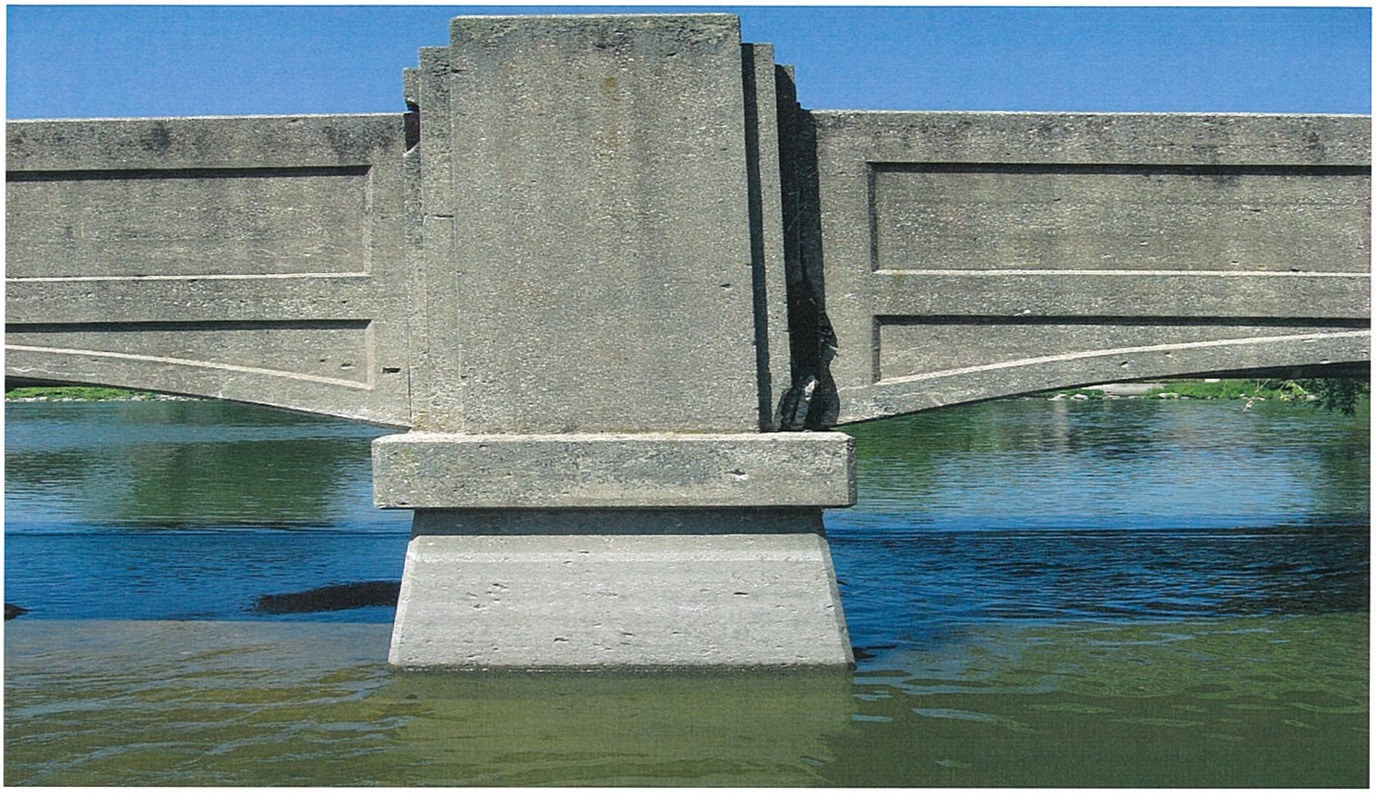
Pier 3 Northwest Corner Deterioration

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 4 North Face

Pier 4 South Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



Pier 4 East Face

Pier 4 West Face

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Pier 4 Northwest Beam Pocket

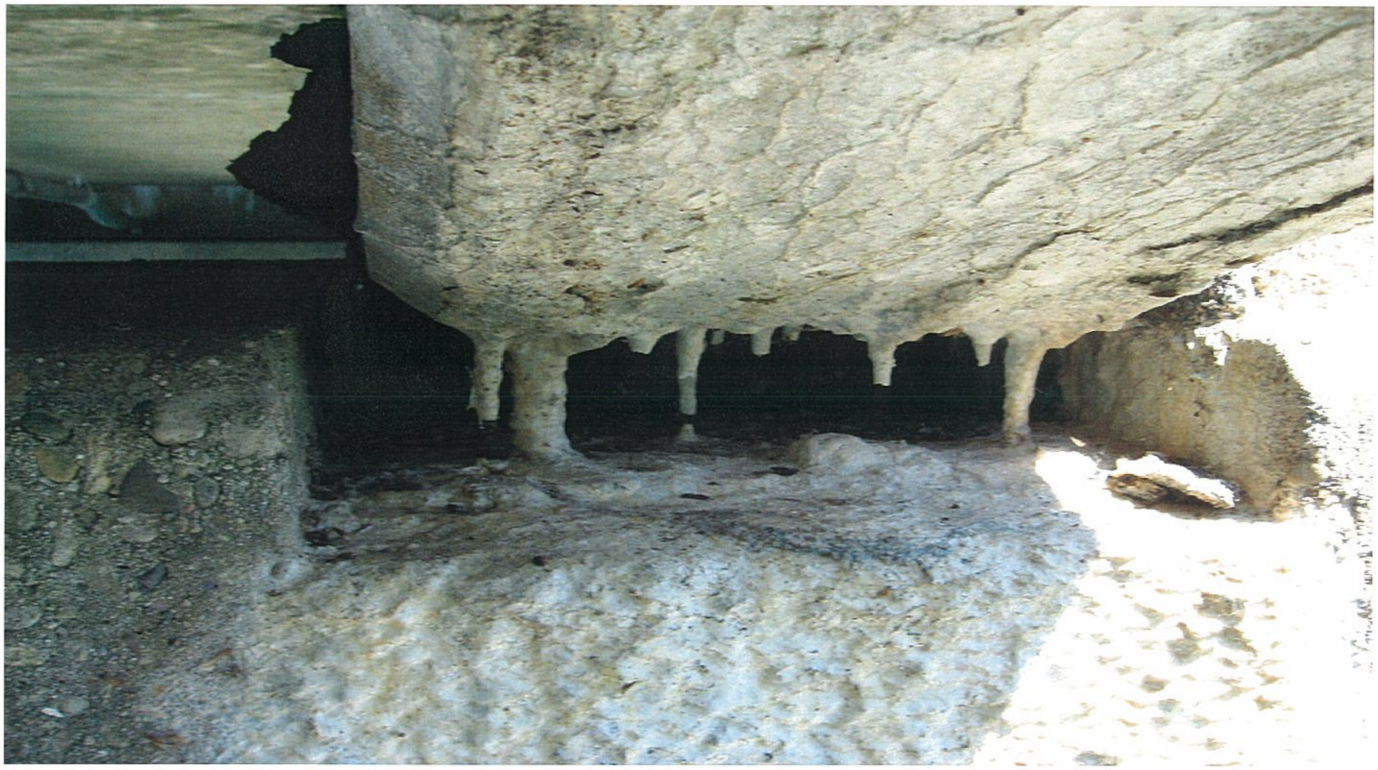
Pier 4 Northeast Beam Pocket

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

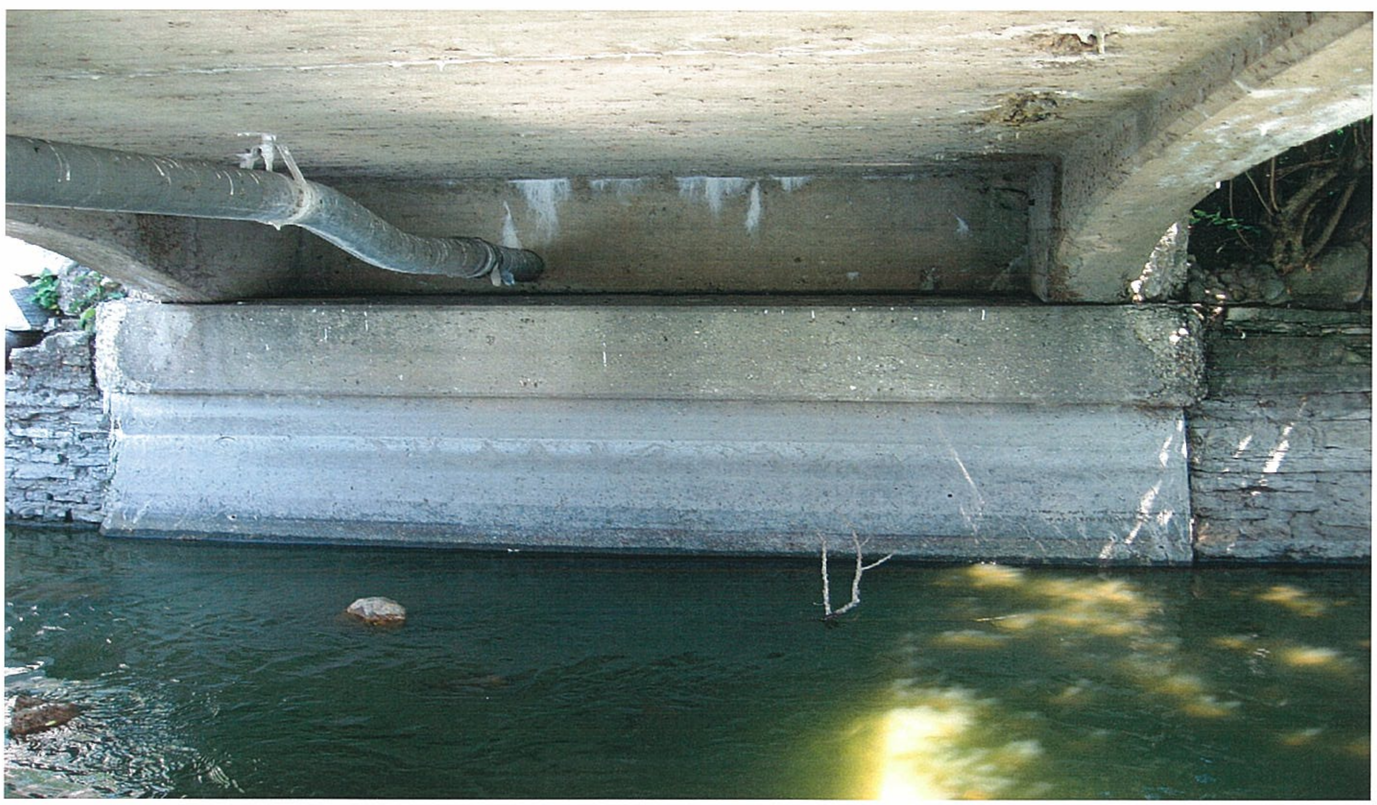
Pier 4 Southeast Beam Pocket

Pier 4 Southwest Beam Pocket

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



Pier 4 Northeast Beam Pocket Rocker Bearing East Side



North Abutment Overall

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

North Abutment West Wall Joins North Abutment

North Abutment w/ Utility Coming Thru Back Wall

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

North Abutment West Edge Northwest Wall

North Abutment East Wall Joint

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

North Abutment Northeast Wall Edge

Wall Northeast From Below C27

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Span 1 West Side

Under Bridge Span 1 East Side

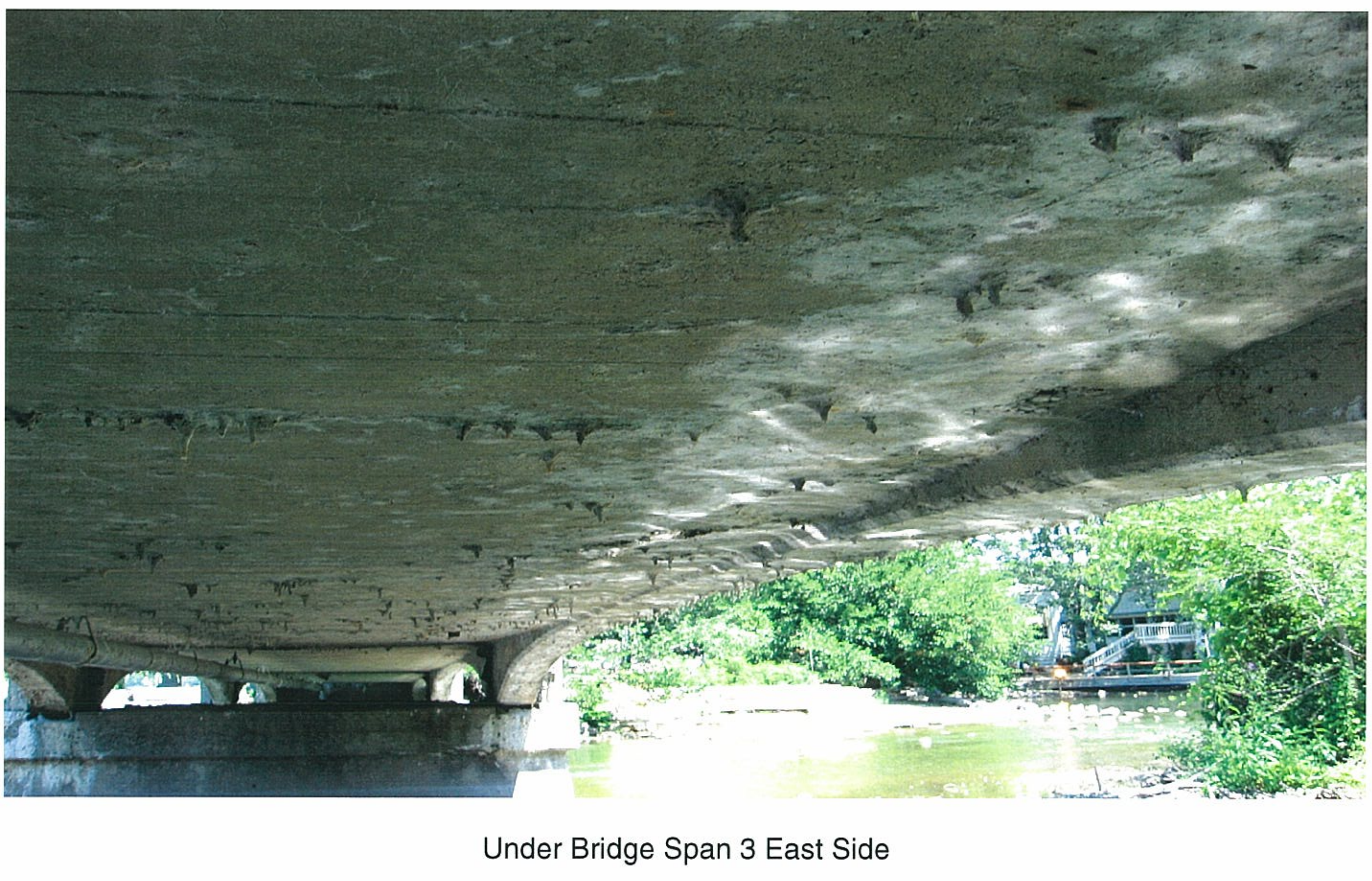
Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Span 2 West Side

Under Bridge Span 2 East Side

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Span 3 West Side



Under Bridge Span 3 East Side

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Span 4 West Side

Under Bridge Span 4 East Side

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Span 5 West Side

Under Bridge Span 5 East Side

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Typical Bad Area Span 5 East Side

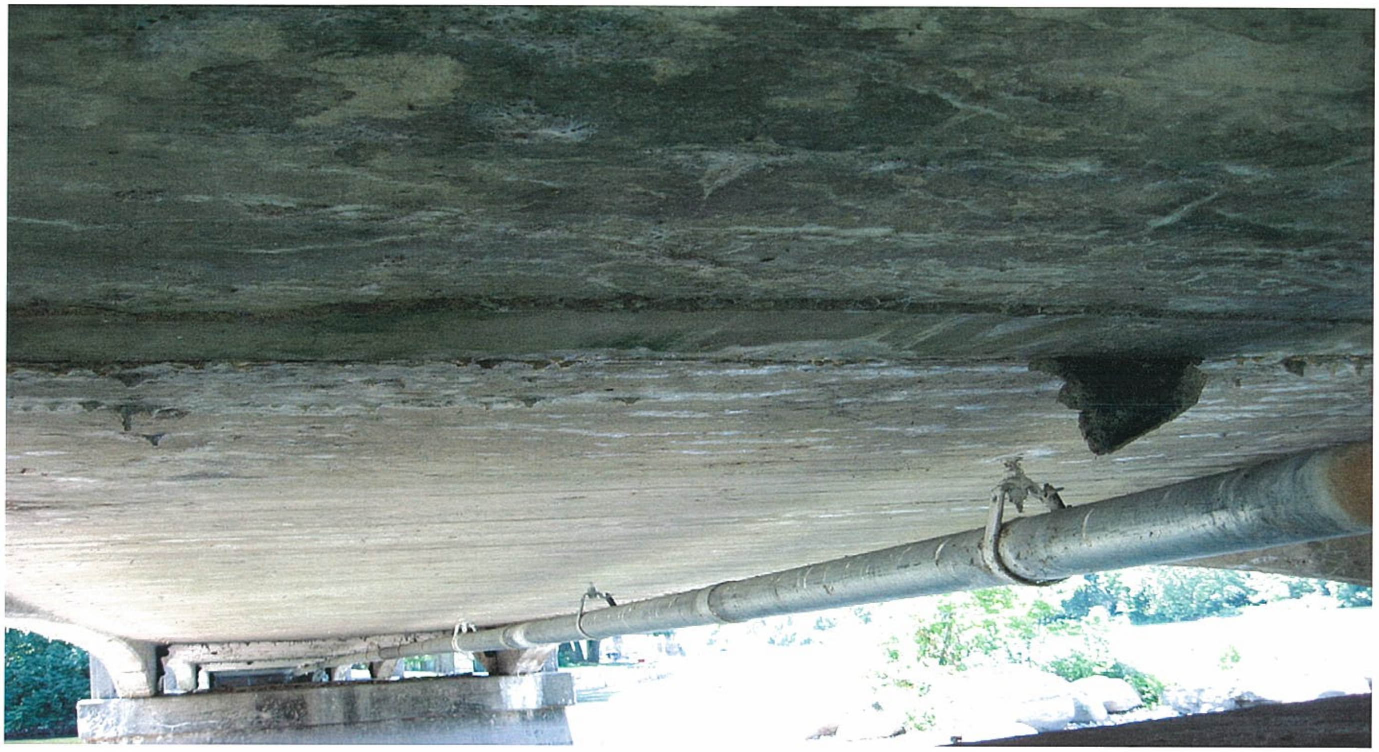
Under Bridge Joint Pier 1 North Side

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Joint Pier 2 North Side

Under Bridge Joint Pier 3 North Side

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge



Under Bridge Lack of Joint Pier 4

Under Bridge West Side Bridge Old Flood Walls

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Span 5 East Side Outer-wall Typical East Side Beam/Parapet

Under Bridge Span 1 West Side Outer Typical West Side Beam/Parapet

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Under Bridge Typical Connection for Beam to Pilaster

Under Bridge Northwest Side of North Abutment

Geneva Park District
Fox River Trail North Island Bridge
Kane County/Section 06-P4005-00-BR
North Bridge

Island Park Sign

Light for Island Park Sign

ATTACHMENT

I

Asbestos Determination Certification

Illinois Department of Transportation

Asbestos Determination Certification

Structure Identification

Structure Number(s) (000-0000):
Geneva Park District
North Island, North Bridge

Asbestos Determination

☐ 1. The identified structures are included in the list that the USEPA exempted from the asbestos notification requirements in its letter of October 19, 2001.

☐ 2. The identified structures were unconfirmed for asbestos involvement as of October 19, 2001 but have subsequently been determined, on the basis of information available in the District office, not to involve asbestos in a bituminous bridge deck wearing surface or waterproofing membrane.

☒ 3. The identified structures were unconfirmed for asbestos involvement as of October 19, 2002 but have subsequently been determined, through testing, not to involve asbestos in a bituminous bridge deck wearing surface or waterproofing membrane. The test results were obtained in conformance with the approved "Sampling and Testing Procedures for Asbestos in Bituminous Bridge Deck Wearing Surface or Waterproofing Membrane" (Attachment 2 to BDE Procedure Memorandum 26-02).

☐ 4. The identified structures have been determined to involve asbestos in a bituminous bridge deck wearing surface and/or waterproofing membrane. The District will ensure compliance with the asbestos notification requirements for work on these structures that could disturb the asbestos-containing materials. The District also will ensure that the special provision for "Asbestos Waterproofing Membrane and Asbestos Bituminous Concrete Surface Removal (BDE)" is included in any contract for demolition of these structures or for other work involving removal of the existing bituminous bridge deck wearing surface and/or waterproofing membrane.

☐ 5. The identified structures had been determined to involve asbestos in a bituminous bridge deck wearing surface and/or waterproofing membrane. Removal operations have been completed for all asbestos bituminous concrete surface and asbestos waterproofing membrane on the identified structures.

Certification

Name: Mark Wylie Position Title: Structural Engineer

Office Address: 2709 McGraw Drive

Bloomington, IL 61704 Phone Number: (309) 663-8435

Mark S Wylie
Signature

10/17/07
Date

TSC
TESTING SERVICE CORPORATION

Corporate Office:
360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2988

Local Office:
457 E. Gundersen Drive, Carol Stream, IL 60188-2492
630.653.3920 • Fax 630.653.2726

Local Office
September 20, 2007

Mr. Larry Gabriel
Geneva Park District
710 Western Avenue
Geneva, Illinois 60134

Re: L - 69,344
Asbestos Testing on Cores 3 and 4
Island Park North Bridge
Geneva, Illinois

Dear Mr. Gabriel:

Enclosed are the results of the asbestos testing performed on the bituminous concrete at Borings 3 and 4. As is denoted in the footnote, no asbestos was detected at either location. The invoice covering these services will be sent in a few days. One (1) additional copy of the results will be sent to both Mr. Steve Persinger of Geneva Park District and Mr. Mark Wylie of The Farnsworth Group.

Respectfully submitted,

TESTING SERVICE CORPORATION

Charles R. DuBose, P.E.
Vice President

CRD:tlv
Enc.
cc: Mr. Steve Persinger, Geneva Park District
Mr. Mark Wylie, The Farnsworth Group

BULK ASBESTOS SAMPLE EVALUATION - ASPHALT SAMPLES
POLARIZED LIGHT MICROSCOPY (PLM) TECHNIQUE

NVLAP LAB ID 101130-0

Company Name:	Testing Service Corporation	**Client Project Ref:**	TSC L-69,344
Contact	Charles R. DuBose	**Project Location:**	Island Park North Bridge
Address:	457 E. Gunderson Drive	**TEM Project:**	41534
	Carol Stream Illinois 60188-2492	**Analyzed by:**	Karen Buehler
		Date Analyzed:	9/14/2007

Sample Information				Fibrous Materials				Non-Fibrous Materials	
Client Sample ID Description	TEM ID.	COLOR	ACM	Asbestos Fibers Type	Asbestos Fibers Percent	Non-Asbestos Fibers Type	Non-Asbestos Fibers Percent	Filler Binder	Comments
69344 B-3	194084	Black	N/D	Chrysotile Amosite		Organic Mtl. Acid Soluble	5.57 66.26	28.17	
69344 B-4	194085	Black	N/D	Chrysotile Amosite		Organic Mtl. Acid Soluble	4.49 42.30	53.21	

Samples were analyzed following the procedures contained in the EPA Method 600/R-93/116, July 1993. This report applies only to samples tested.

SLM: The optical resolution of polarized light microscopy limits the size of fibers that are visible. In samples where very small fibers may be present, the asbestos fibers may be smaller than the resolution limit of a polarized light microscope. In those cases, the result of the PLM analysis is not conclusive where the sample is reported as non-asbestos. Samples that are expected to contain small fibers (such as floor tile samples) and that are reported as non-asbestos by PLM should be further anlayzed by transmission electron microscopy.

Key: ACM = Asbestos Containing Material as defined in USEPA NESHAP Regulation; TR = Trace; N/D = None Detected

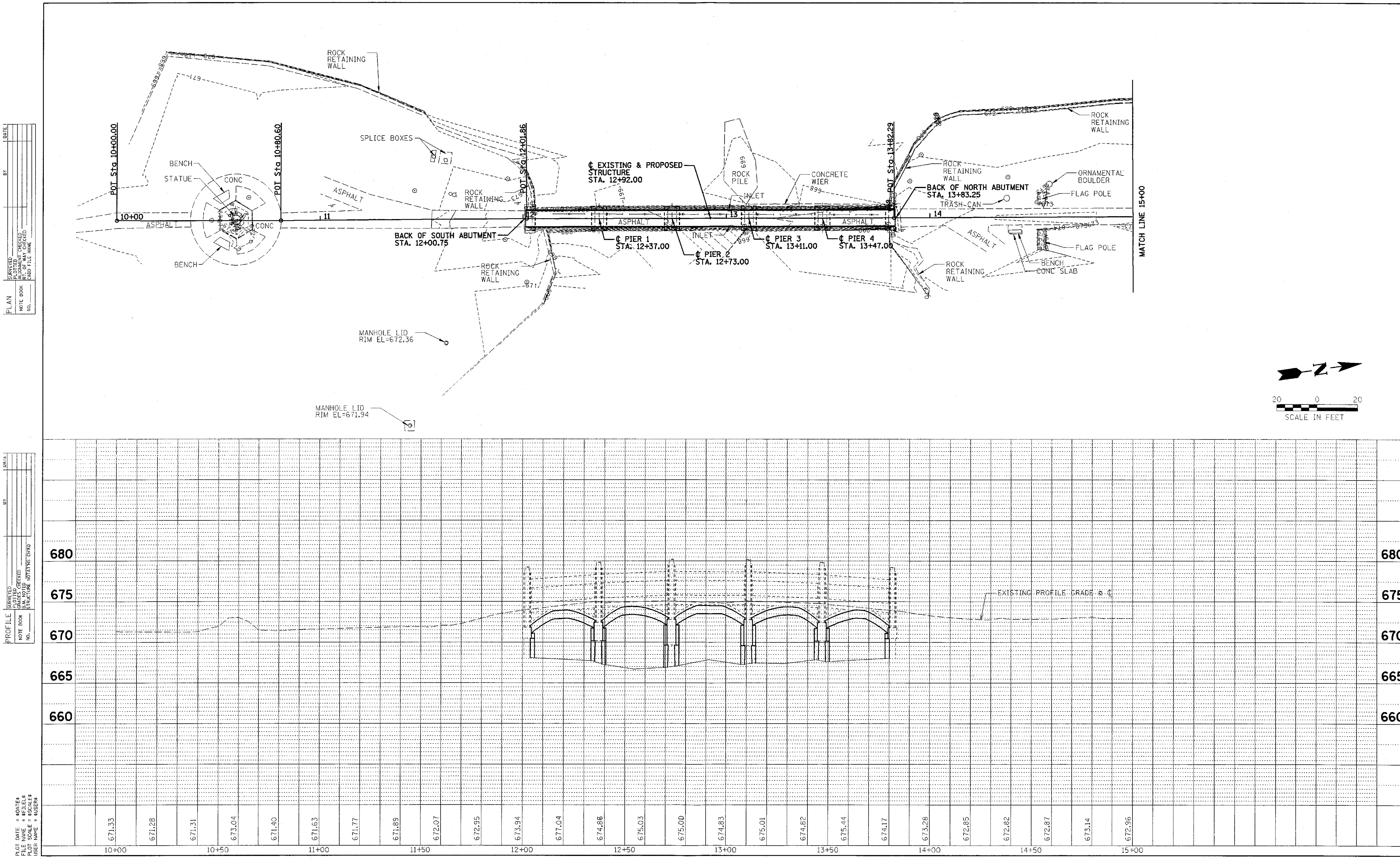
Karen Buehler

Signature of Analyst

ATTACHMENT

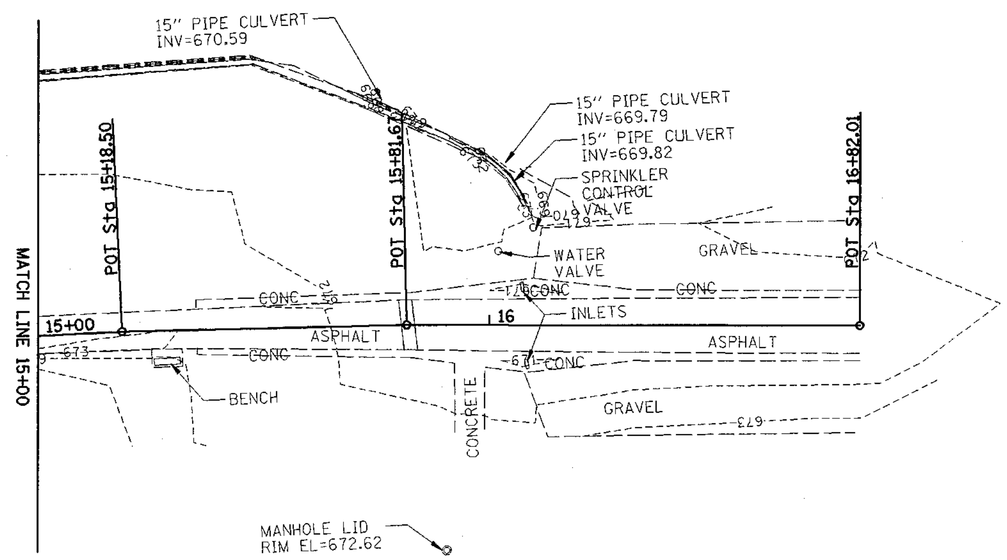
J

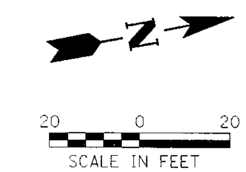
Proposed Plan & Profiles (Option No. 1 and Option No. 2)



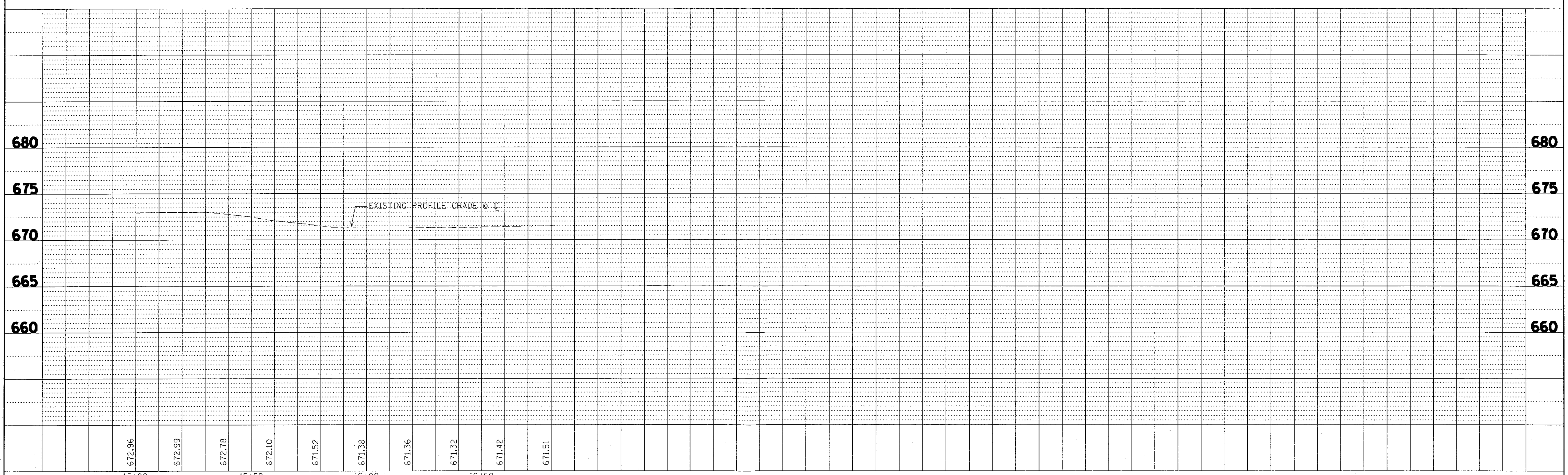
OPTION NO. 1 - DECK REPLACEMENT

PLAN
NOTE BOOK NO.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME





PROFILE
NOTE BOOK NO.
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATIONS CHKD



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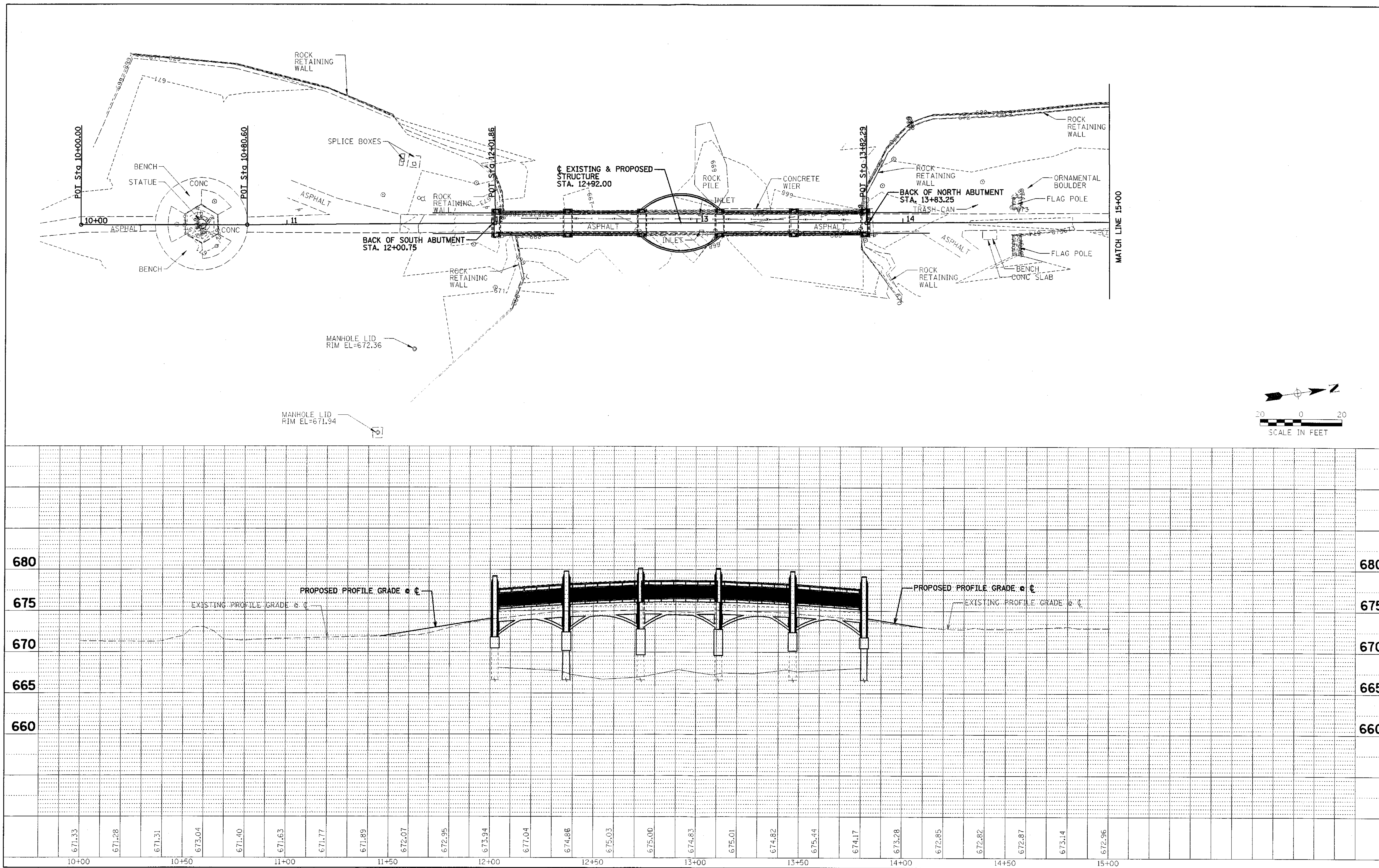
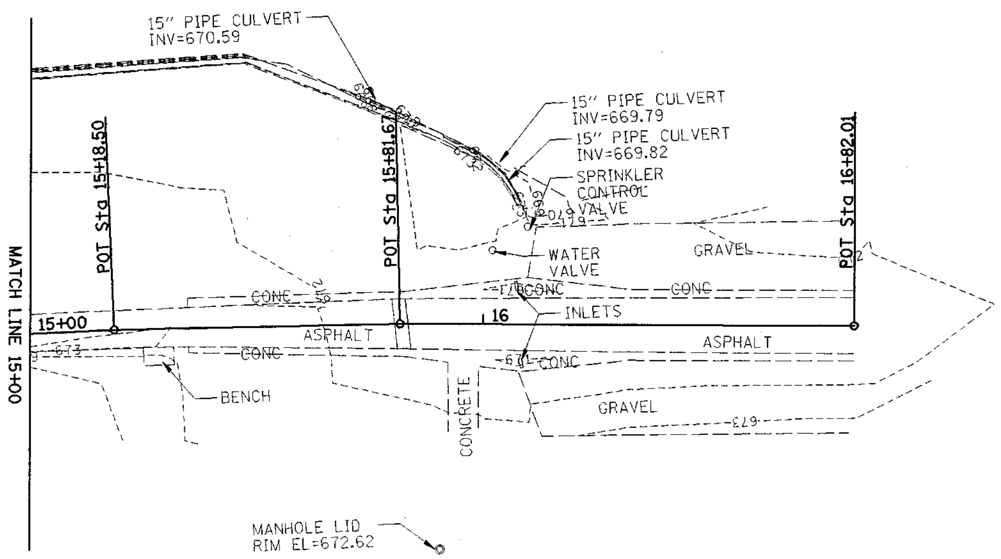
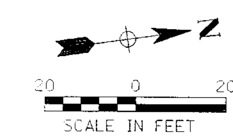
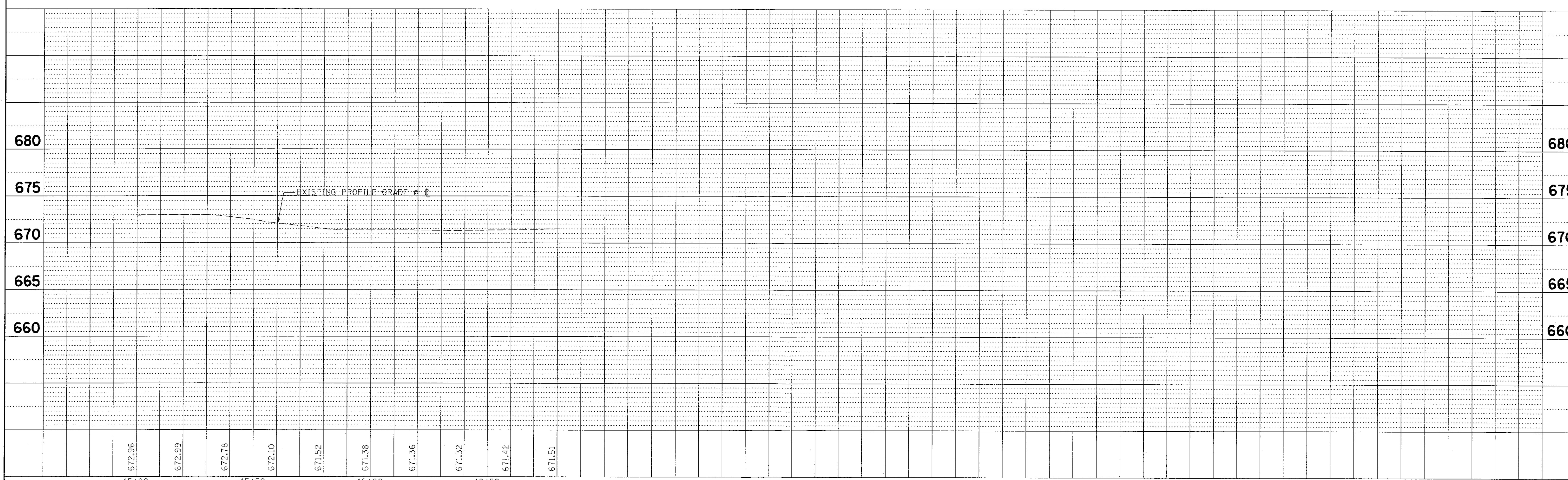
PLOT SCALE = $SCALE$
USER NAME = $USER$



OPTION 2 - SUPERSTRUCTURE REPLACEMENT







OPTION 2 - SUPERSTRUCTURE REPLACEMENT