

ENTUITIVE

FIELD INSPECTION SUMMARY REPORT

WEST MONTROSE COVERED BRIDGE

EN022-02331

FOR: REGION OF WATERLOO | **DATE:** OCTOBER 11, 2023



ENTUITIVE

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1. INTRODUCTION

Entuitive and its multi-faceted team of subconsultants were retained by the Region of Waterloo (ROW) in December 2022 to provide engineering consulting services for the "West Montrose Covered Bridge – Timber Truss Assessment and Design Assessment" project (ROW project no. 7626).

The West Montrose Covered Bridge is a wood truss covered bridge structure crossing the Grand River in the unincorporated community of West Montrose, in the Township of Woolwich, in the Region of Waterloo, Ontario. A key plan of the bridge location is shown below in Figure 1. The bridge is the only remaining wood covered bridge in Ontario to carry vehicular traffic. It was designated under the Township of Woolwich By-Law Number 60-2007 to be of cultural heritage value or interest pursuant to the provisions of Section 29 of the Ontario Heritage Act, R.S.O. 1990, Chapter O.18 (IBI Group Ltd. 2014).

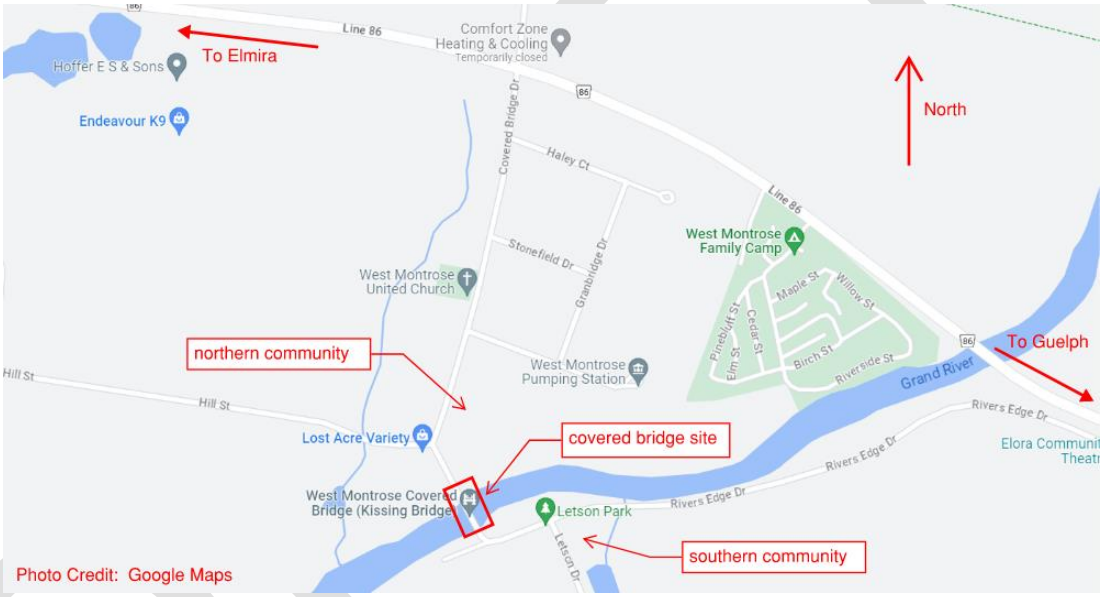


Figure 1 – Key Plan

The bridge was identified previously by others as needing structural rehabilitation. The purpose of Entutive's assignment is to assess the physical condition of the existing structure by means of an arm's length visual inspection and non-destructive testing, to develop and evaluate rehabilitation alternatives, to recommend a preferred rehabilitation alternative, to undertake preliminary and detailed design for the preferred rehabilitation alternative, and to provide contract administration services for the ensuing construction contract (Region of Waterloo 2022). Public consultation with key project stakeholders is a key component of the assignment.

The focus of the project is a rehabilitation solution that preserves the heritage fabric of the structure. Solutions are being focused on repairing defects in the least intrusive, reversible

means possible instead of replacing the entire structure. Preservation of the appearance of the bridge is a very important design criterion.

The project kicked off in January 2023. The work to date has included a review of the background materials, performance of an arm's length visual inspection and non-destructive testing, and performance of a structural evaluation to assess the load carrying capacity of the existing structure. The findings of these latter two items are the subject of this Field Inspection Summary Report.

2. THE EXISTING STRUCTURE

2.1 AVAILABLE BACKGROUND DOCUMENTS

The following background documents were made available to our technical team for review:

1) Drawings
    - Original bridge design drawings (no date or author provided but assumed to be by John Bear in 1880)
    - Bottom chord splice drawing by Ontario Department of Highways, dated August 1954
    - Steel Bailey truss drawing by Ontario Department of Highways, dated August 1966
    - Major rehabilitation tender drawings by IBI Group, dated September 1999
2) Specifications
    - Original bridge construction specifications (no date or author provided but assumed to be by John Bear in 1880)
3) Reports
    - West Montrose Covered Bridge Preservation Plan by IBI Group, dated April 2014
    - West Montrose Covered Bridge Snow Load Consultation by RWDI, dated January 2015
    - Conditions at West Montrose Covered Bridge by Moses Structural Engineers, dated November 2017
    - Structural Monitoring of West Montrose Covered Bridge by Struct-Sure Limited, dated April 2018
    - West Montrose Covered Bridge Structural Assessment of Options Report by Doug Dixon & Associates Inc., dated June 2019
    - West Montrose Covered Bridge Detailed Inspection Report by Doug Dixon & Associates Inc., dated June 2020

The existing bridge drawings have been appended to this report in Appendix A. The original specifications have been appended to this report in Appendix B.

2.2 STRUCTURE OVERVIEW

The West Montrose Covered Bridge is a two-span wood through truss structure carrying a single lane of traffic over the Grand River along Covered Bridge Drive (see Figure 2). The bridge is in the centre of West Montrose, connecting the northern and southern parts of the community. The bridge has two equal spans of approximately 28.9m. The spans are simply-supported, except that the bottom chord members are continuous over the pier. The total bridge length is approximately 60.3m (198ft), including wood portal framing that extends beyond the truss supports. The traveled width inside the bridge is 4648mm (15'-3").



Figure 2 – West Elevation View of Bridge

2.3 PRIMARY STRUCTURAL COMPONENTS

The following subsections describe the primary structural components and their function. All available existing drawings for the bridge are in Appendix A.

2.3.1. Wood Trusses

The original superstructure is a wood through-truss structure comprised of two planes of trusses. The wood truss members are oriented in a rare, if not unique, "hybrid Howe" configuration (see Figure 3). Each truss is comprised of a king post truss within a queen post truss within a larger queen post truss. The truss chord and diagonal members are comprised of large solid sawn wood timbers. Hardwood blocks, known as "squash blocks", act as spacers between the top chord and lower top chord members. The truss vertical members are comprised of steel tension rods (see Figure 4).

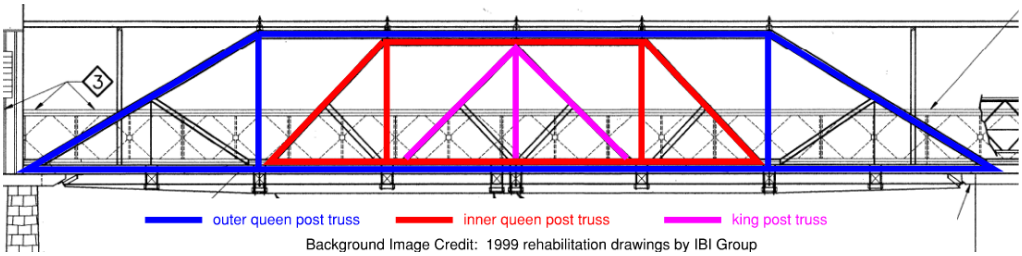


Figure 3 – "Hybrid Howe" Truss Configuration (one span shown)



Figure 4 – View of Wood Truss at Midspan Showing Solid Sawn Wood Diagonals & Top Chords + Steel Hanger Rods

The connections between the diagonals and top chord members are understood from visual inspection to be bearing-type connections, relying on the direct bearing of mitred joints for load transfer. The connections between the diagonals and bottom chords are understood to be notched bearing-type connections, with the notches acting as the lateral force transfer mechanism. (see Figure 5). The vertical steel tension rods pass through holes drilled in the chord and diagonal members. They are anchored above the top chords, thereby compressing the node connections and providing the clamping force for force transfer by friction in the wood connections.

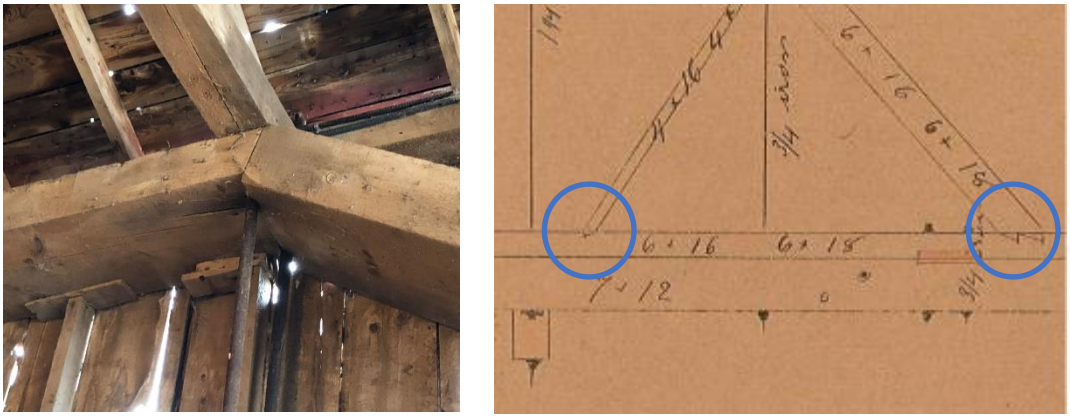


Figure 5 – Typical Truss Bearing-Type Connection (left); Typical Truss Notched-Type Connection (right; circled in blue from original bridge drawings)

2.3.2. Bailey Trusses

The original wood trusses were supplemented in the mid-1960's by the addition of a pair of steel Bailey trusses. The Bailey trusses were installed on the roadway side of the wood trusses (see Figure 6).



Figure 6 – Steel Bailey Trusses Shown with Interior White Cladding Removed

Significant efforts have been made to understand load-sharing between the original wood trusses and the steel Bailey trusses (IBI Group 2014 and Struct-Sure 2018). It is generally understood that the present-day load carried by the Bailey trusses is greater than the load at the time of their installation due to creep deformations in the original wood trusses that has likely caused a redistribution of wood truss dead load effects to the steel Bailey trusses.

The Bailey trusses are clad with white-coloured tongue-and-groove 1”x6” boards. These boards act as a splash guard for the Bailey trusses. They were installed at the same time as the Bailey trusses. The boards are oriented vertically. It is not known whether the bridge has always featured interior cladding, but an older photo of unknown date shows a previous version of the interior cladding with the boards oriented horizontally. IBI Group (2014) noted that the present-day Bailey truss cladding replaced 5’-0” deep cladding that preceded the Bailey trusses.

A 1997 structural evaluation of the bridge by IBI Group (2014) noted the Bailey trusses to be capable of supporting an 8 tonne live load with simultaneous snow loading considered on the roof. The same evaluation found the trusses capable of supporting 11 tonnes of live load without consideration of snow load. The evaluation was conducted per the 1991 Ontario Highway Bridge Design Code. All loads acting on the bridge were assumed to be carried by the Bailey trusses.

The same structural evaluation found the Bailey trusses to be severely overstressed in shear at the pier, to the point where rehabilitation was required to prevent closure of the bridge. The three panels of Bailey trusses centred at the pier were subsequently replaced by three panels of higher strength Mabey-Johnson truss, which was a proprietary successor to the

Bailey truss system. Doing so resulted in the 8 tonne (with snow) and 11 tonne (without snow) live loads remaining as the governing live loads for the Bailey truss system.

Refer to the work of IBI Group (2014) and Doug Dixon & Associates Limited (2019 and 2020) for more information on the steel Bailey trusses.

2.3.3. Floor System

The floor system consists of a wood deck supported on wood stringers, which are in turn supported on wood floor beams and needle beams (see Figure 7).

The deck is a transverse nail-laminated (NLT) deck comprised of 38mm x 89mm (2”x4”) laminations. The present-day deck was installed in 1999 as part of a major rehabilitation. It is comprised of spruce laminations. It replaced a similar NLT deck that was constructed in the 1950’s as part of a major rehabilitation undertaken by the Ontario Department of Highways (IBI Group 2014). The original bridge drawings indicate the original deck to be 3” thick sawn oak laminations laid transversely across the stringers. The original specifications indicate these oak planks to have been fastened to the stringers using wrought iron spikes.



Figure 7 – Floor System Showing Deck, Stringers, Floor Beams, and Needle Beams

The deck is supported by 12 lines of solid sawn wood stringers spaced at approximately 457mm (1’-6”) on centre. There are notable variations in the stringer depths, age, species, and span arrangement. There were only seven lines of stringers indicated on the original bridge drawings. They were all indicated to be 5”x10” members, except for the stringers centred along the bridge centreline, which were indicated to be 6”x12”. They were all indicated to be No. 1 grade members of the White Pine species (IBI Group 2014). The original stringers are reported to have been replaced in 1950 by 6” x 12”, but most of the field measurements suggest 10” deep stringers. At some point after the Bailey trusses were installed in the mid-

1960's, it is understood that an additional five stringers were added at equal spacings in between the original seven lines of stringers. These stringers were reported by by IBI Group (2014) to be 6"x12" No. 1 grade Douglas fir members.

During our inspections, we observed some of the stringers to have been notched to fit within the depth between the floor beams and deck. We observed some of the stringers to be simply-supported between the floor beams and needle beams, and others to be multi-span continuous members (see Figure 8). It appears that many of the stringers were replaced at various times.



Figure 8 – Simply-Supported Stringer with Notch (left); Continuous Stringer Without Notches (right)

The stringers are supported on wood floor beams that span between the bottom chord members. Every other floor beam extends outward beyond the plan limits of the floor system (see Figure 9). These longer floor beams are called needle beams. Of note, both the floor beams and needle beams are positioned below the bottom chords. This configuration is rare for covered bridges. The floor beams are usually positioned on top of the bottom chords.

In addition to performing the same role as the shorter floor beams, the needle beams also anchor the diagonal sway bracing. This bracing stiffens the superstructure against cross-sectional distortions and provides a load path for transmitting lateral loads from the top chords of the wood trusses down to the bottom chords and bottom lateral bracing. The sway bracing consists of steel tension rods with turnbuckle tensioning assemblies. They are anchored to the ends of the needle beams at their lower ends and to the edge beams (i.e. rafter plates) at their upper ends.

The top of the deck surface is shown in Figure 10. A tar-and-chip wearing surface was applied to the existing deck top surface to increase the available friction for traction. This wearing surface is not original. It likely was added when the original deck was replaced in the 1950's.



Figure 9 – Floor System Showing Needle Beams and Sway Bracing

The edges of the deck are delineated by wood curbs. The original bridge drawings show a wood median curb that no longer exists. It is likely that the median curb was replaced in the 1950's with the original deck planks.



Figure 10 – Interior View of Bridge From Deck Level

2.3.4. Exterior Cladding & Roof

The defining feature of the bridge is its exterior covering, which is comprised of vertical cladding boards and a shingled roof. The covering serves as the sacrificial protective layer for the wood truss superstructure. The vertical cladding boards extend from the roof down to the underside of the bottom chord members. Some of the original boards remain. They are

denoted by their tongue-and-groove interlock. Replacement boards of various vintages can be observed throughout. These replacement boards do not feature the tongue-and-groove interlock and were instead constructed in a board-and-batten configuration (see Figure 11).



Figure 11 – Exterior Cladding

A significant defect of the exterior cladding is that it is fastened directly to the exterior of faces of the wood truss members. This original detail is defective in that it allows for moisture to become trapped between the cladding and truss members, contributing to decay of the truss members. This issue was notably observed in the past for the bottom chord members. The 1999 major rehabilitation of the bridge sought to repair damage of this nature (see Figure 12). A similar repair was noted to have been made in 1933 (IBI Group 2014).



Figure 12 – Decay of Wood Truss Members at Exterior Cladding (repaired in 1999)

The exterior cladding is indicated to have been painted with “residue oil and brown fire-proof paint” in 1882, which is one year after the 1881 bridge construction, suggesting that the original bridge had an unpainted appearance. Depending on the elapsed time between this painting and the original construction, the cladding may have begun to exhibit the typical dull,

greyish appearance of weathered wood. It is not known when the bridge was painted with its current red colour. Records indicate the bridge to have been repainted in 1959, 1971, and 2004 (IBI Group 2014).

The roof is a gable roof with an approximate 2:1 slope. It consists of timber shingles supported by 19mm x 190mm lumber decking boards that are in turn supported on 44mm x 152mm rafters spaced at approximately 610mm (2'-0") on centre (see Figure 13). The top ends of the rafters terminate at a ridge board. The bottom ends of the rafters are supported by rafter plates that have been referred to as "edge beams" by others. These edge beams span between the truss top chord nodes. They are supported by solid sawn wood vertical posts outside the limits of the top chord members. The rafters are connected to the edge beams using a birdsmouth joint. The thrust from the rafters is restrained by transverse tie beams referred to as "cross beams". These members were originally singular solid sawn wood members. Many of them have been replaced by multi-ply laminated members comprised of dimension lumber.

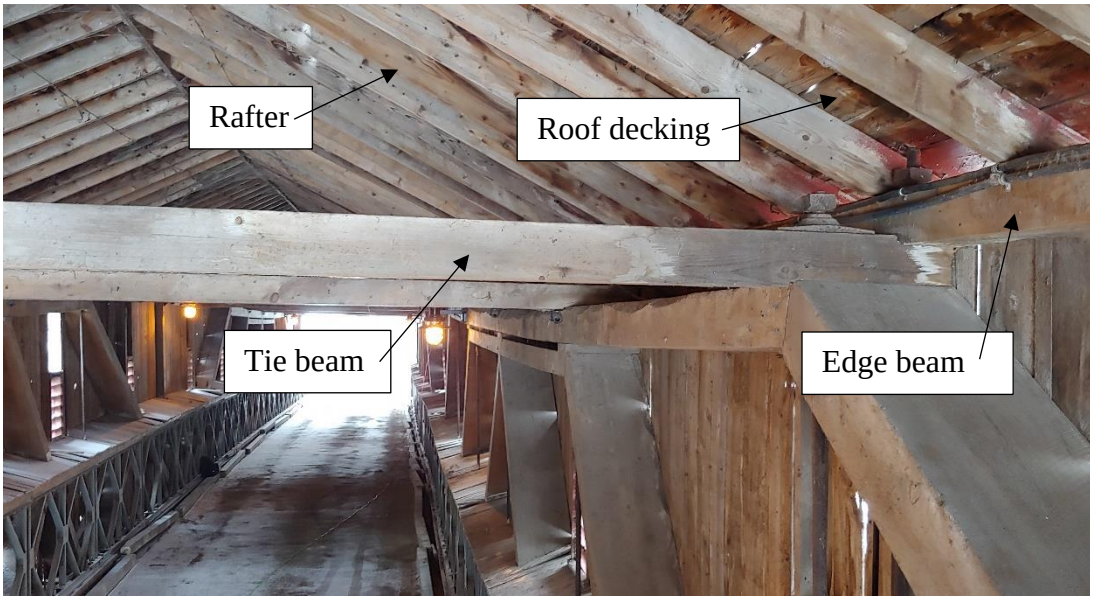


Figure 13 – Interior View of Roof System

The original roofing system was indicated to be "No. 1 shingles to be laid 5 inches to the weather". The Kitchener-Waterloo Record is noted to have reported the original roof to have been replaced in 1987 (IBI Group 2014). It is likely that the original roof was replaced at some time beforehand because of the 106 years that would have elapsed to that point since original construction. Roof repairs were also noted to have occurred in 2013.

2.3.5. Other Superstructure Elements

The original bridge featured a system of bottom lateral bracing in the form of 7/8" diameter steel rods (see Figure 14). This bracing would have formed a lateral truss with the bottom

chords, floor beams, and needle beams to transmit lateral loads to the abutments and pier more efficiently than through lateral bending of the bottom chords.

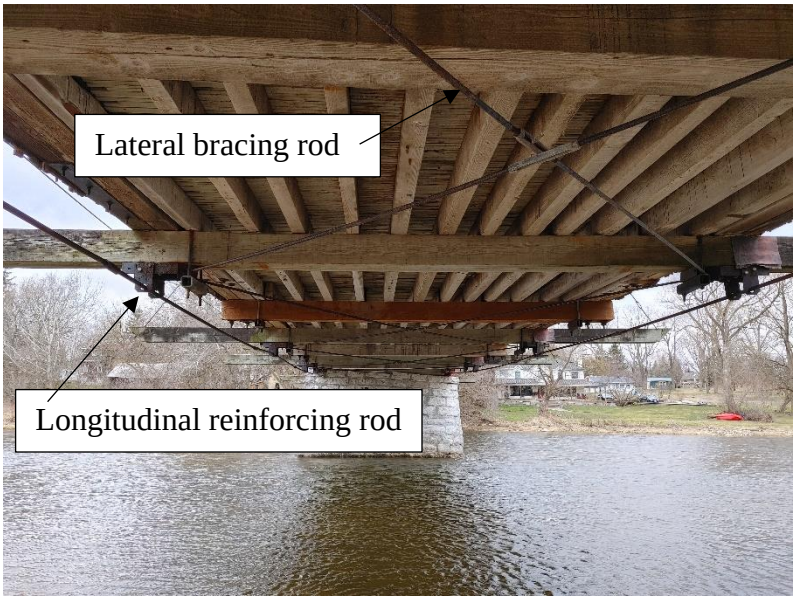


Figure 14 – Lateral Bracing Rods and Longitudinal Reinforcing Rods

A major rehabilitation in 1959 by the Ontario Department of Highways included the addition of longitudinal steel rods to reinforce the wood bottom chord members. These rods were positioned directly beneath the bottom chords (see Figure 14). They were connected to the bottom chords using steel offset assemblies. They were fitted with turnbuckles to enable their tensioning. Their function would have been analogous to external, unbonded tendons in post-tensioned concrete; that is, to compress the bottom chords to enable them to achieve a higher capacity and to provide the bottom chords with some ductility under tensile failure.

It is likely that the bottom lateral bracing rods were replaced at the same time that the longitudinal reinforcing rods were installed because both sets of rods are presently integrated into the same steel anchorage assemblies.

The longitudinal reinforcing rods are currently not functioning. They have gone slack, displaying a noticeable sag (see Figure 15). This condition is likely due to creep shortening of the bottom chords and relaxation in the rods and rod anchorages. There is evidence of this problem to date, with re-tensioning of these rods noted to have occurred in 1963, 1965/1966, and 1971 (IBI Group 2014).



Figure 15 – Noticeable Sag in Longitudinal Reinforcing Rods

2.3.6. Substructure & Foundations

The wood superstructure is supported on concrete abutments and a masonry pier. The original abutments were noted on the original bridge drawings to be wood cribs and the original pier was noted to be a wood pile bent. They were both replaced circa the turn of the 20th century (IBI Group 2014). The present-day abutments are made of concrete and are likely gravity walls given their supposed vintage. The present-day pier is a masonry pier of unknown founding depth (see Figure 16).



Figure 16 – South Concrete Abutment (left); Masonry Pier (right)

The wood trusses are supported on the abutments and pier by wood bolsters (see left side of Figure 16). These bolsters have at times been referred to as “compression blocks” at previous times in the bridge’s history. They act as the bearings for the truss, transferring all loads from the superstructure to the substructure. It is likely that localized crushing of these bolsters has

accommodated the rotational demands imposed by the bottom chords. The bolsters were most recently replaced in 1999. The present-day bolsters are incised, pressure preservative treated, solid sawn Douglas Fir 18”x12” members.

The concrete abutments and masonry pier are outside the scope of this report and are not commented on beyond Section 2 of this report. The wood bolsters are within the scope of this report and are discussed further in subsequent sections.

2.3.7. Utilities

The bridge is illuminated by a series of interior lamps that are positioned on the inside faces of the top chords. The wiring for this lighting runs along the top of the top chords (see Figure 17). There is an electrical panel at the southwest corner of the bridge that includes an electrical meter and an electrical safety switch. This panel is protected behind the same interior cladding that protects the Bailey trusses.





Figure 17 – Interior Lighting (left); Wiring for Lighting (right)

The bridge features a fire alarm system triggered by a linear heat detector (LHD). The wires for the LHD run along the west top chord members, alongside the electrical cables for the interior lighting. We understand this system was installed on the advice of the 2014 Preservation Plan by IBI Group. We also understand that mitigating fire hazard is of great interest to the Region of Waterloo and the bridge stakeholders.

2.4 STRUCTURE HISTORY

The West Montrose Covered Bridge has a very storied history. Like many covered bridges, it is referred to as the “Kissing Bridge” due to the privacy afforded by the exterior cladding and roof.

The bridge was designed by John Bear in 1880. It was built in 1881 by John Bear and his brother, Benjamin. The bridge has undergone numerous documented and undocumented repairs since then. Repairs and modifications of significance include:

- First painting of bridge with “residue oil and brown fire-proof paint” in 1882

- Coal oil lamps added for interior illumination in 1885
- Replacement of the wood pier with a masonry pier circa 1900
- Replacement of the wood crib abutments with concrete abutment (believed to have occurred sometime after the pier replacement)
- Localized replacement of decayed segment of bottom chord in 1933
- Installation of electrified lighting in 1950
- Major rehabilitation in 1959 including replacement of floor beams and needle beams, replacement of localized sections of the bottom chords, strengthening of the bottom chords by installation of longitudinal reinforcing rods, and repainting of the bridge
- Semi-retirement of the bridge in 1959 by construction of a new highway bridge to carry modern truck loading on the nearby Line 86
- Installation of steel Bailey trusses to supplement the wood trusses circa 1965
- Bridge repainted in 1971
- Replacement of the roof in 1987
- Major rehabilitation in 1999 consisting of strengthening of the steel Bailey trusses, localized replacement of decayed segments of wood truss members, and replacement of the nail-laminated deck
- Repainting of bridge in 2004

The bridge has a history of load posting. The bridge was first noted to be posted for a 2t live load traveling at maximum speed of 10mph in 1937. The maximum travel speed on the posting was reduced to 5mph in 1955. The posting was increased to a 5t limit in 1959 following the major rehabilitation that included installation of the bottom chord longitudinal reinforcing rods. No maximum speed was indicated for that posting. The bridge is currently posted for a 3t load limit. A structural evaluation of the Bailey trusses in 1997 by Giffels Associates Limited (subsequently IBI Group; now part of Arcadis) and subsequent major rehabilitation in 1999 ensured a live load capacity of 8t with simultaneous snow loading on the roof. In recent years, we understand that the bridge remained posted for a 3t load limit to discourage heavier vehicles from crossing the bridge.

Ownership of the bridge has changed throughout the bridge's history as follows:

- The bridge was designed and built on the authority of the Woolwich Township Council in 1880-1881
- The Ontario Department of Highways (predecessor to the present-day Ontario Ministry of Transportation) assumed ownership of the bridge in 1937
- The Region of Waterloo assumed ownership of the bridge in 1998 from the province

The local community has played a significant role in the continued preservation and celebration of the bridge. For instance, the West Montrose Residents Association (also known as the "Bridge Keepers") act as advocates for preserving the bridge. They hold annual events that celebrate the bridge, such as an annual Christmas caroling event inside the bridge. Also, we understand that the local Mennonite community contributed the labour to rebuild the nail-laminated deck during the last major rehabilitation in 1999. The bridge is very much a destination to the local community, in addition to its initial function as a river crossing.

A detailed history of the bridge is included in Appendix C. The history is comprised of excerpts from the 2014 West Montrose Covered Bridge Preservation Plan by IBI Group.

3. FIELD OBSERVATIONS AND INSPECTION FINDINGS

3.1 FIELD INSPECTIONS

The field inspections of the existing bridge were conducted in two phases. The first phase of inspections occurred from Tuesday, February 21st, 2023 to Monday, February 27th, 2023, excluding the weekend days. The inspection was conducted from deck level by David Moses (P.Eng.), Marcel Hong (P.Eng.), and Mark Prescott of Moses Structural Engineers. Andrew Lehan (P.Eng.) from Entuitive was present for the first day of inspection.

The bridge was fully closed to traffic for the first inspection phase. Traffic control was provided by Theo Vandenberk Construction Inc. (Theo Vandenberk). Roadwork permits were obtained from both the Region of Waterloo and the Township of Woolwich. The interior cladding was removed in advance of the inspection by Theo Vandenberk to improve inspection access to the existing wood trusses and steel Bailey trusses (see Figure 18). It was restored upon completion of the inspection phase before the road was reopened to traffic.



Figure 18 – Interior Cladding Removed for First Inspection

The second phase of inspection occurred from Tuesday, June 13th, 2023 to Thursday, June 15th, 2023. The inspection was conducted from a floating work platform positioned beneath the bridge in the Grand River. The inspection was completed by David Moses (P.Eng.), Marcel Hong (P.Eng.), and Mark Prescott of Moses Structural Engineers. The bridge remained open to traffic during the second inspection phase. The interior cladding was not removed.

3.2 INSPECTION METHODOLOGY AND EQUIPMENT

The scope of the inspection work consisted of the following:

- Arm's length visual inspection of the wood members, connections, and steel rods
- Resistance drilling measurements of the wood members using a 400mm long drilling rod to assess the likelihood of decay within a member
- Moisture content measurements of the wood members to assess the likelihood of decay within a member
- Removing small samples of the wood elements for species identification under microscope in a laboratory
- Visual grading of the in-situ wood members per the National Lumber Grades Authority's (NLGA) National Grading Rules for Canadian Lumber

Refer to the "On-Site Observations and Non-Destructive Testing at West Montrose Covered Bridge" report by Moses Structural Engineers in Appendix D of this Field Investigation Summary Report for further explanation of the inspection methodology.

The visual inspection work included the measurement of member cross-sections and, where accessible, member lengths. Surveyors tape measures, carpenters tape measures, calipers, and a digital protractor were used for these purposes.

An extension ladder, a baker's scaffold on casters, and a mechanized scissor lift were used to reach the upper portions of the interior of the superstructure during the first phase of inspection. The scissor lift model was selected to respect the bridge's 3t posted load limit. A portable light cart was used to illuminate the inside of the bridge. This equipment, except for the ladder, was rented locally from Woolwich Rentals in Elmira, Ontario.

The second phase of inspection was conducted from a floating work platform maneuvered beneath the bridge in the Grand River (see Figure 19). The platform was supplied and operated by Soderholm Maritime Services Inc. It was launched from private property at the southeast corner of the bridge. Permission to use the private property was obtained from the property owner, Mrs. Karen Cummings. The baker's scaffold was rented again from Woolwich Rentals. It was positioned on the work platform to gain up-close access to the underside of the deck.



Figure 19 – Floating Work Platform Used for On-Water Inspection

3.3 INSPECTION ACCESS LIMITATIONS

The entire structure could not be visually inspected at an arm's length because of certain access limitations.

The upper portion of the exterior cladding and the top of the roof were not inspected at arm's length because safe access could not be achieved. Working at these heights would have required the presence of engineered anchor points on the structure for fall-arrest tie-offs. These anchor points do not presently exist.

It was not possible to access all the top surface of the bottom chord members because of interference from the steel Bailey trusses and because some of this surface was covered with animal feces.

The exterior faces of the wood truss members could not be inspected because the exterior cladding is fastened directly to these faces. Direct inspection of these faces will only be possible when the exterior cladding is removed, which we anticipate will occur early in the construction phase. To mitigate risk, the resistance drilling was conducted to a depth of 400mm into the existing members. Most of these members have a nominal width of 457mm (1'-6"). It is our opinion that the drilling needle passed through the majority of these sections to acquire sufficient data to adequately assess existing conditions.

The electrical panel at the southwest corner of the bridge was not visible because the interior cladding had not been removed at this location.

3.4 KEY INSPECTION FINDINGS

The following subsections describe the key findings of the field inspections performed by Moses Structural Engineers. Refer to Appendix D for the full inspection findings.

There are several comments indicated to be conditional because the design live load for the rehabilitation has not been confirmed yet at the time of writing this report. Some members with physical defects may not require intervention if the design live load is of low enough magnitude.

3.4.1. Wood Species and Grades

Table 1 presents the member species and grades. The species were identified from laboratory analysis of samples collected from the existing wood elements during the field inspection. Member grades were determined by visual inspection in accordance with the NLGA's National Grading Rules for Canadian Lumber.

Table 1 – Wood Species and Grades

Member	*Species*	*Grade*
Top Chord (TC)	Eastern Hemlock	Select Structural
Lower Top Chord (LTC)	Red Pine	Select Structural
Squash Blocks	White Oak	N/A
Bottom Chord (LC)	Eastern Hemlock	Select Structural
Diagonals (D)	Red Pine/Eastern Hemlock	Select Structural
Lower Diagonal (LD)	Eastern White Pine	Select Structural
Floor Beams (FB)	Douglas Fir	Select Structural
Needle Beams (NB)	Douglas Fir	Select Structural
Stringers (S)	Eastern Hemlock	Select Structural
Nail-Laminated Deck	Spruce	Select Structural
Tie Beams (CRB)	Douglas Fir (original), SPF (assumed for replacements)	Select Structural
Vertical Posts	Eastern White Pine	Select Structural
Exterior Cladding	Eastern Hemlock	Select Structural
Curbs	Eastern Hemlock	Select Structural

3.4.2. Top Chord Members

The top chord (TC) members were found to be in fair condition (see Figure 20). The upper corners of these members were roughly chamfered throughout, resulting in variable cross-sectional dimensions. We believe these chamfers to likely have been present at the time of original construction. Checks were also present on the underside of the top chord members. The observed defects are not expected to affect the serviceability of the top chord members.



Figure 20 – Chamfers Corners of Top Chord Members (left); Checks on Underside of Top Chord (right)

Minor, localized decay was noted in a few locations along the top chord members. This decay was detected using resistance drilling measurements. The moisture contents readings were consistently >24% where decay was noted, which supports the resistance drilling findings. Most of the decay was noted to be on the outside half of the members. This finding is sensible because the exterior cladding is fastened directly to the outside face of the top chord members. This detail has the potential to trap moisture between the cladding and chord members, thereby creating favourable conditions for decay. It is anticipated that this detail can be corrected during the proposed bridge rehabilitation, such that the moisture contents of the members will drop below the fibre saturation point and decay will be arrested, if it is actively occurring. We recommend examining these areas further when the exterior cladding is removed during construction. It is not likely to have to repair these defects or replace these members.

3.4.3. Lower Top Chord Members

The lower top chord (LTC) members were found to be in fair condition (see Figure 21). Checks were present on the underside of these members. These defects are not expected to affect the serviceability of the lower top chord members.



Figure 21 – Checks on Underside of Lower Top Chord Members

Minor, localized decay was noted at the south end of the west truss lower top chord member. This decay was detected using resistance drilling measurements. The moisture contents readings were consistently <16% where decay was noted, which suggests the decay is not active. We recommend examining these areas further when the exterior cladding is removed during construction. It is not likely to have to repair these defects or replace these members.

3.4.4. Squash Blocks

The squash block (SQB) members were found to be in good condition, except for squash blocks SQB1 and SQB2 at the south ends of the trusses. These squash blocks were split into two pieces (see Figure 22). A sample was taken from squash block SQB2 for species testing during the 2017 inspection undertaken by Moses Structural Engineers. That testing identified advanced brown rot. These squash blocks require replacement.



Figure 22 – Squash Block SQB2 of West Truss Showing Split

3.4.5. Bottom Chord Members

The bottom chord (LC) members were found to be in fair-to-poor condition. Sections in fair condition exhibited checks on their underside as well as minor localized decay. These observations were typical of the west bottom chord members (LC1 and LC2).

Sections in poor condition exhibited severe decay and/or were observed to be very soft to the touch (see Figure 23), especially the east bottom chord members (LC3 and LC4). The bottom chord members feature “bolt of lightning” scarf joints (Pierce, P.C. et al. 2005) at their splices locations. A gap has formed in this joint in bottom chord members LC3 and LC4 between floor beam FB5 and needle beam NB4. This gap greatly comprises the performance of the joint. The members in poor condition are considered to have lost considerable strength.

It is very likely that the full length of bottom chord members will require replacement. The east bottom chord member is in poor condition at many locations. While there are segments in fair condition, the length of the bolted splice connections that would be required to remove and replace localized segments of chord would be such that full member replacement would be required. Given that the proposed rehabilitation is intended to achieve a design life of 50 years for the major structural elements, it would follow that the west bottom chord member be replaced to maintain parallel service lives. Replacement of the bottom chord members has been noted to be a common occurrence for wood covered bridges, particularly when the replacement of localized sections is complicated by splicing details (Pierce, P.C. et al. 2005).



Figure 23 – Severe Decay of East Bottom Chord Members LC3 & LC4 at Needle Beam NB1 (left); Unseating of "Bolt of Lightning" Scarf Joint in East Bottom Chord Members LC3 & LC4 (right)

3.4.6. Diagonal Members

A few diagonal members are in good condition, with no observable defects. Most of the diagonal members are in fair condition due to checking. These defects are not expected to affect the serviceability of the diagonal members.

Several of the diagonal members were observed to be in poor condition (see Figure 24). Diagonal members D6 and D7 in both trusses were in poor condition due to wide checks and decay. Snow was observed to have accumulated on these members, likely due to the louvre windows positioned directly above these members, in addition to holes in the exterior cladding and roof. This snow accumulation has likely provided the moisture necessary for decay to progress. The check in the west truss diagonal member D6 has progressed into a full member split. These members will require intervention to arrest the decay and address the checks and splits. Full member replacement is likely, subject to the demands from the chosen design live load.



Figure 24 – Large Snow-Covered Check With Decay in Diagonal Member D6E (left); Large Split in Diagonal Member D6W (middle); Missing Portion of Section in Diagonal Member D9W (right)

3.4.7. Lower Diagonal Members

Most of the lower diagonal members are in fair condition due to checking and water staining. These defects are not expected to affect the serviceability of the lower diagonal members.

Several lower diagonal members were observed to be in poor condition (see Figure 25). Lower diagonal members LD2W, LD3W, LD5E, LD6E, LD8E, and LD9W were observed to be in poor condition due to section loss. For lower diagonal members LD2W, LD3W, LD6E, and LD8E, the section loss appears to have been caused by abrasive splashing damage. For lower diagonal member LD5E, the section loss appears to be the result of a wood knot falling out. For lower diagonal member LD9W, the section loss appears to be the result of intentional notching of the member to preclude interference with the adjacent steel Bailey truss. It may be possible to leave these members as is depending on the magnitude of the design live load. Otherwise, reinforcement or replacement in kind will be necessary.

Lower diagonal member LD10E was observed to be in poor condition due to decay at the top end of the member where it connects to diagonal member D10. Partial replacement of this member at its upper end or full member replacement is expected.



Figure 25 – Abrasive Splash Damage in Lower Diagonal Member LD2W (left); Notch in Lower Diagonal LD9W (middle); Decay at Top End of Lower Diagonal Member LD10E (right)

3.4.8. Vertical Posts

The vertical post (VP) members were mostly found to be in fair condition. Post member VP4 of the west truss was noted to be in fair condition due to wear at its base. This defect is not expected to affect its the serviceability.

Vertical posts members VP1 and VP2 of the east truss and VP7 of the west truss were observed to be in poor condition to spitting and notching at the top ends of these members (see Figure 26). These members will require replacement.



Figure 26 – Splitting and Notches at Top Ends of Vertical Post Members VP1E (left) and VP7W (right)

3.4.9. Tie Beams

The wood tie beam (CRB) members were mostly found to be in good or fair condition. Fair conditions were indicated due to checking. These checks are not expected to affect the serviceability of the members.

Tie beam CRB4 was noted to be in fair condition due to evidence of relative vertical displacements between adjacent laminations of the built-up tie beam. This member is a tension member. The only bending in this member is from its own self-weight. Given the low magnitude of that bending, it is likely that these relative displacements were present when the member was installed. We do not expect these relative displacements to affect the serviceability of this member.

Tie beams CRB5, CRB13, and CRB17 were noted to be in poor condition due to decay at their ends (see Figure 27). Tie beam CRB11 was noted to be in poor condition due to a very large notch at its east end (see Figure 27), which significantly reduces its load-carrying capacity. All tie beams in poor condition will require replacement.

The are several distinct details for the connection between the tie beams and the top chords/edge beams. These details are complicated by the sway bracing anchorages at the needle beam locations. These details will be reviewed during detailed design. More tie beams may require replacement to address these connections. As aforementioned, the essence of the rehabilitation design will remain to intervene with the existing structure as little as possible.



Figure 27 – Splitting and Decay at End of Tie beam CRB17 (left); Large Notch at East End of Tie Beam CRB11 (right)

3.4.10. Floor System

The nail-laminated deck is in fair to poor condition. The tar-and-chip wearing surface has delaminated at many locations (see foreground of Figure 6). Decay was noted on the underside of the deck at many locations (see Figure 28). Some deck laminations were observed to have fractured or split (see Figure 28). We recommend that the deck be replaced because it is unlikely to be serviceable until the next intended major rehabilitation in 50 years.



Figure 28 – Decay in Underside of Deck (left); Broken Deck Laminations (right)

The stringers are in poor condition. They were generally observed to have moisture contents equal to or greater than 30%, which is quite high and sufficiently high for the progression of decay. Many of the stringers were very soft to the touch. Active decay was observed in some of the stringers (see Figure 29). Several stringers were observed to have notches in their undersides near the floor beams and needle beams. Splits have developed at some of these notches (see Figure 29). We recommend that the stringers be replaced because they will not be serviceable until the next intended major rehabilitation in 50 years.



Figure 29 – Decay in Underside of Stringer (left); Split in Stringer at Notch (right)

The floor beams and needle beams are in fair-to-poor condition. The areas in fair condition are due to checking (see Figure 30). The areas in poor condition are due to decay, which tend to be where these beams interface with the bottom chord members (see Figure 30). It is likely that moisture is being trapped at these locations. We recommend that the floor beams and needle beams be replaced because they are unlikely to be serviceable until the next intended major rehabilitation in 50 years.



Figure 30 – Checking on Underside of Floor Beam (left); Decay in Needle Beam Near Bottom Chord (right)

3.4.11. Roof

As noted in section 3.3, we were not able to inspect the shingles; however, given that they were supposedly last replaced in 1987, we recommend replacing them. The durability of the wood truss superstructure depends on a watertight roof.

The roof decking is in fair-to-poor condition. We observed holes in many of the decking planks. There was also plenty of staining visible (see Figure 31). There may be localized areas in poor condition at the tops of the planks where they interface with the shingles. This surface was not inspectable. We recommend reviewing the planks on a member-by-member basis once the shingles have been removed. All planks with holes will require replacement in kind. Additional planks may require replacement in kind due to decay that is currently not visible.



Figure 31 – Typical Staining and Holes in Roof Decking Planks

The rafters are in fair condition. There may be localized areas in poor condition at the tops of the rafters where they interface with the roof decking planks. This surface was not inspectable. We recommend reviewing the rafters on a member-by-member basis once the deteriorated roof decking planks have been removed. It may be necessary to replace some of the rafters in kind. We also recommend adding blocking to the rafters to stabilize them against lateral-torsional buckling.

3.4.12. Exterior Cladding

The exterior cladding is in fair-to-poor condition, with most of it in poor condition. There is significant staining and holes throughout (see Figure 32). The bottom ends of the cladding are generally decayed along the full length of the bridge. We recommend replacing the cladding. The durability of the wood truss superstructure depends on being protected by watertight cladding.



Figure 32 – Holes and Staining in Cladding (left); Decay of Cladding at Bottom Chord (right)

The existing cladding does not reach the underside of the roof decking because there is no blocking between the rafters. As such, driving precipitation can be blown up and around the top of the cladding, thereby compromising the wood superstructure. As noted above, we

recommend adding blocking to the rafters for structural reasons. Doing so will also allow this opening to be closed off to driving precipitation.

The original cladding featured a tongue-and-groove interlock. Subsequent replacement boards were installed in a board-and-batten configuration, with a batten board nailed onto the outside of two cladding planks to seal the gap between them. We recommend that the new cladding be installed using the board-and-batten configuration because it is easier to replace boards in that configuration. The board-and-batten configuration is not original to the bridge; however, judging from the appearance of the existing board-and-batten planks, it seems likely that they have been part of the structure for quite a long time.

3.4.13. Interior Cladding

The interior cladding that acts as a splash guard for the steel Bailey trusses is generally in good condition. There is no need to replace these members for reasons related to durability.

3.4.14. Steel Components

The steel rods comprising the truss verticals are in fair to poor condition due to generalized corrosion and localized pitting. The ends of these rods, including their wrought iron washers are in poor condition (see Figure 33). We recommend replacing these rods with mild carbon steel rods of the same appearance.



Figure 33 – Severely Corroded Washer at Bottom of Truss Vertical Rods (left); Corroded Washer at Top of Truss Vertical Rods (right)

The longitudinal bottom chord reinforcing rods are in poor condition because they have gone slack and are not functioning (see Figure 15). We recommend removing them from the bridge because they are not necessary.

The bottom lateral bracing steel rods are in fair condition due to corrosion. These rods will have to be removed with the non-functioning longitudinal reinforcing rods because they share the same connection hardware. We recommend reinstating the bottom lateral system. The existing steel rods likely cannot be reinstalled because of corrosion on their threaded turnbuckles. Our intent is to install new mild carbon steel rods with turnbuckles.

The sway bracing rods are in fair-to poor condition due to corrosion and poor seating at their anchorages (see Figure 34). The lower end anchorage details introduce tension perpendicular to the grain in the ends of the needle beams, which compromises the strength of these connections. The top end anchorage details involve significant strength-reducing notches in the tie beams. Neither detail is preferred. We recommend replacing the sway bracing with new mild carbon steel rods with improved details that don't compromise the connection capacities.



Figure 34 – Typical Sway Bracing Anchorage at Needle Beam (left);
Typical Sway Bracing Anchorage at Top Chord (right)

3.4.15. Deformations in the Existing Structure

The existing structure is visibly sagging. It is also visibly leaning towards the east (i.e. "racking"). Others have studied these deformations in detail (IBI Group 2014, Struct-Sure 2018, Doug Dixon & Associates 2020). Entuitive's surveying subconsultant, Callon Dietz, conducted a topographic survey and Lidar scan of the bridge in February 2023 to capture these deformations in detail.

We anticipate correcting the racking as part of the bridge rehabilitation to improve structural performance of the bridge. At present, the east wood and Bailey trusses are likely supporting more load than the west trusses.

The decision to address the vertical sag is one that should be informed by stakeholder preference. We do not believe the existing vertical sag to be a structural concern. Rather, we believe this sag to likely be the result of elastic deformations, creep deformations, and loss of stiffness due to member decay (mainly the bottom chords) and the loosening of connections over time. We do not expect any corrections made to the vertical sag to be long-lasting. The wood elements will undergo creep deflections again with time. Connections may also loosen over time, resulting in further deflections.

4. STRUCTURAL EVALUATION

A structural evaluation of the existing structure was performed by Entuitive in accordance with the CAN S6:19 Canadian Highway Bridge Design Code (CHBDC). The analysis examined

the existing wood structure acting without assistance from the steel Bailey trusses. The intent was to determine the loading that could be supported by the original wood structure. The project team is currently developing and evaluating rehabilitation alternatives. The purpose of our structural evaluation was to inform that process by providing an understanding of the weaker parts of the bridge.

4.1 STRUCTURAL ANALYSIS METHODOLOGY

The bridge was analyzed using CSiBridge version 24.1.0 structural analysis software. A two-dimensional model was created to model a single line of wood trusses (see Figure 35. All truss members were modeled using frame elements. All truss members were released of their in-plane end moments to behave as pin-ended members.

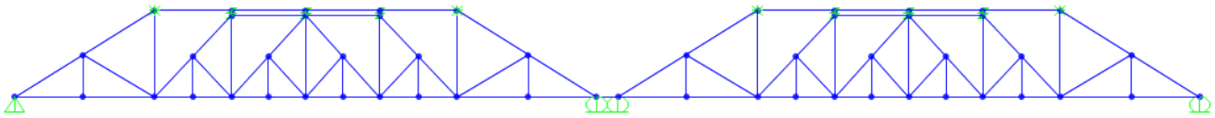


Figure 35 – CSiBridge Structural Analysis Model

Bending moments were determined for the wood truss elements as sum of first-order self-weight moments and second-order P-δ moments (i.e. local deformations to the element chord between member end nodes).

The weight of the roof, snow load, and floor system were assigned to the appropriate truss nodes by means of hand calculations.

The lever rule was used to assign the live load effects to the bottom chord nodes at the floor beam and needle beam locations.

4.2 MATERIAL PROPERTIES

The bottom and top chord members of the wood trusses were determined to be Eastern Hemlock with a Select Structural grade. The NLGA grading rules identify Eastern Hemlock as belonging to the Hemlock-Tamarack (Hem-Tam) species group. At present, there are no material properties published for the Hem-Tam species group in the CHBDC and the CSA O86:19 Engineering Design in Wood standard (CSA O86). In fact, a designer is forced to assume that Eastern Hemlock belongs to the Northern species group for determination of material properties. This species group has the lowest strength material properties and is thus an undesirable assumption.

Higher strength material properties were determined for Eastern Hemlock by comparison with the “Design Values for Wood Construction - National Design Specification (NDS) Supplement” published by the American Wood Council (AWC) (2018). This is an American design standard. The materials properties published within it cannot be used directly with wood resistance equations from Canadian design standards because the Canadian and American design standards have not been calibrated for statistical reliability. However, material properties for a given wood species can be compared directly with properties of

another species that is well documented in Canadian design standards for the purpose of linear interpolation of material properties for use with Canadian resistance equations. As such, the Eastern Hemlock material properties indicated in the NDS Supplement were compared against the Hem-Fir material properties. By inspection, the Hem-Fir properties are less than those for Eastern Hemlock except for an 8% difference in modulus of elasticity. So, the properties for Hem-Fir published in the CHBDC were assumed for Eastern Hemlock members with an 8% reduction for the modulus of elasticity.

A similar approach was taken for the red pine members by making a comparison to the S-P-F material properties published in the CHBDC.

The approach noted above used to obtain better material properties is one of engineering judgement. The project team is liaising with the NLGA to confirm the use of these properties. They represent the upper bound of potentially available strength. The need to use higher strength properties than those published for the Northern species combination may prove unnecessary depending on the chosen design live load. These properties will be revisited as the project progresses.

The following Table 2 summarizes the material properties used for the structural evaluation:

Table 2 – Material Properties for Structural Evaluation (MPa)

Failure Mode	*Eastern Hemlock*	*Red Pine*	*White Pine*
Bending (f_b)	16.8	13.0	12.8
Shear (f_v)	1.2	1.2	1.0
Compression Parallel to Grain (f_c)	13.0	8.9	7.2
Compression Perpendicular to Grain (f_{cp})	4.6	5.3	3.5
Tension Parallel to Grain (f_t)	7.4	4.7	6.5
50th Percentile Elastic Modulus (E_{50})	10615	7190	8000
5th Percentile Elastic Modulus (E_{05})	7490	5100	5500

4.3 LOADS AND LOAD COMBINATIONS

All loads and load combinations were determined in accordance with the CAN S6:19 Canadian Highway Bridge Design Code (CHBDC).

Special consideration was given to the possibility of snow acting on the roof simultaneously with heavy live load acting on the deck. The CHBDC does not provide guidance for this situation. The "Covered Bridges Manual" published by the United States Federal Highway Administration (2005) acknowledges that there is no published guidance on this topic, but that covered bridge experts believe that simultaneous loading by full snow load and full design live load to be highly unlikely. In light of this comment, snow load was considered to occur simultaneously with full design live load for the ULS 2 and ULS 3 load combinations, assuming a ULS load factor of 0.50 for the snow load. This approach is consistent with the MTO Structural Manual's recommendations for pedestrian bridges. An additional load combination was considered assuming a ULS load factor of 1.5 for the snow load, no live load on the bridge, and full ULS factored dead loads. This combination satisfies both MTO Structural Manual and the National Building Code of Canada.

4.4 MEMBER RESISTANCES

Resistances were determined for all wood members per Section 9 (Wood Structures) of the CHBDC. Resistances were determined for the steel hanger rods per Section 10 (steel structures) of the same code.

The connection resistances were not explicitly determined at this time. Instead, member utilizations were flagged when they exceeded a demand-to-capacity ratio of 75%. Connections for wood members tend to have 25%-30% less strength than the members themselves.

4.5 DEMAND-TO-CAPACITY (D/C) RATIOS

The RFP for this assignment called for the determination of demand-to-capacity (D/C) ratios for design live loads of 5t and 10t. As the project progressed, it became clear to the project team that these design live loads were too specific and not necessarily correlated with a real-life vehicle that the Region was looking to design for.

Instead, we determined D/C ratios for design live loads on a 1t incremental basis ranging from 3t to 15t, inclusive. This approach allowed the design team to understand the "fuse points" within the system; that is, the design live load above which further intervention to the wood truss would be necessary.

The following Table 3 summarizes the D/C ratios determined from the structural evaluation.

Table 3 – Demand-to-Capacity (D/C) Ratios

Design Live Load Weight	Top Chord	Lower Top Chord	Main Diagonals		Lower Diagonals	
			1st	2nd/3rd	1st	2nd/3rd
3 t	30%	41%	95%	32%	8%	3%
4 t	33%	51%	105%	36%	9%	3%
5 t	36%	61%	116%	40%	10%	3%
6 t	39%	70%	130%	45%	11%	3%
7 t	42%	80%	139%	50%	12%	3%
8 t	46%	90%	154%	56%	14%	3%
9 t	49%	100%	164%	61%	15%	3%
10 t	53%	110%	178%	67%	17%	3%
11 t	56%	121%	192%	73%	19%	3%
12 t	60%	131%	207%	79%	21%	3%
13 t	64%	141%	222%	86%	23%	3%
14 t	68%	152%	238%	93%	25%	3%
15 t	72%	162%	255%	100%	27%	3%

We have omitted the D/C ratios for the bottom chord members, floor beams, needle beams, stringers, NLT deck, and steel vertical rods because we recommend replacing these members due to their existing conditions. We expect that replacing these members with new members that respect the original member cross-sectional dimensions will suffice in achieving the strength to suit the chosen design live load.

The actual design live load to be used by the project team for the rehabilitation design is currently being determined through consideration of various rehabilitation alternatives.

5. RECOMMENDATIONS

This section summarizes our recommendations for the structural elements comprising the bridge. They follow from the field inspection results and the structural evaluation results. There are several recommendations indicated to be conditional because the design live load for the rehabilitation has not been confirmed yet at the time of writing this report. Some members with physical defects may not require intervention if the design live load is of low enough magnitude.

Where it pertains to the field inspection results, no action is required for the members found to be in good condition or fair condition. Members in poor condition generally require repair or replacement to address their physical defects. The level of intervention will be a function of the design live load for the rehabilitation, which will be confirmed later.

Our recommendations are based on the premise of the original wood trusses will support all loads acting on the bridge. The assumption is that the Bailey trusses are not present and that no new steel girders have been added. The project team is currently working on the

development and evaluation of rehabilitation alternatives. The result of that exercise may influence our recommendations.

The following Table 4 summarizes our recommendations for the structural elements based on the caveats noted above.

Table 4 – Recommended Actions for Structural Elements

Component	*Members*	*Recommendations*
Top Chord and Lower Top Chord Members	All	Consider fastening together to take advantage of combined strength if demands from chosen design live load exceed member capacities
Squash Blocks	SQB1 & SQB2	Replace entire members in kind
Bottom Chords	All	Replace entire members in kind; Members LC1 and LC2 may be partially salvageable if chosen design live load is of low enough magnitude
Diagonals	D3W	Replace lower portion of member in kind
	D6W, D6E, D7W, & D7E	Replace entire members in kind if demands from chosen design live load exceed member capacity and reinforcement is not feasible
	D9W	Replace damaged portion of member in kind if demands from chosen design live load exceed member capacity
Lower Diagonals	LD2W, LD3W, LD5E, LD6E, LD8E, and LD9W	Members may be salvageable as is if chosen design live load is low magnitude; Otherwise, reinforce or replace in kind as necessary
	LD10E	Replace upper portion of member or entire member in kind

Component (continued)	*Members (continued)*	*Recommendations (continued)*
Vertical Posts	VP1E, VP2E, VP7W	Replace entire members in kind
Tie Beams	CRB5, CRB11, CRB13, CRB17	Replace entire members in kind
Nail-Laminated Deck	All	Replace entire deck in kind; Apply new tar-and-chip wearing surface
Stringers	All	Replace entire members in kind
Needle Beams	All	Replace entire members in kind
Floor Beams	All	Replace entire members in kind
Exterior Cladding	All	Replace with board-and-batten style cladding
Interior Cladding	All	Salvage and reinstall if maintained in preferred design alternative
Roof	Shingles	Replace with cedar shingles (minimum 3 layers)
	Roof Decking	Replace members in kind as needed once top condition is inspected upon removal of existing shingles; At a minimum, all members with holes will requirement replacement.
	Rafters	Replace as needed if inspection of roof decking demonstrates decay in tops of rafters; Also install blocking between adjacent rafters
Truss Vertical Rods	All	Replace entire members in kind
Sway Bracing Rods	All	Replace entire members in kind
Bottom Lateral Bracing Rods	All	Replace entire members in kind
Bottom Chord Longitudinal Reinforcing Rods	All	Remove from bridge permanently

We recommend that all replaced members be treated with a fire retardant to mitigate fire risk. This is particularly important for the members with small cross-sections (i.e. exterior cladding, NLT deck laminations, and roofing) because they will ignite much easier than the larger timbers comprising the wood trusses. The specifications for the fire retardant will be established during detailed design.

We also recommend that all replaced members that will be subject to direct precipitation and/or notable repeated wetting-and-drying cycles (i.e. exterior cladding, NLT deck laminations, and roofing) be pressure-treated with a wood preservative. This approach will greatly increase the service life of these members. A water-borne preservative is the likely solution. The specifications for the preservative will be established during detailed design.

We recommend correcting the racking of the bridge so that the trusses are made plumb. We are not recommending any corrections to the vertical sag because we do not believe this sag to be a structural concern. We do, however, note that any corrections made to sag are not likely to be long-lasting because of creep deflections in the wood members.

6. CLOSURE

This report represents the conclusion of the initial phase of the project that concerns the investigation of the existing structure. The findings of this report will be used to inform and support the development and evaluation of rehabilitation alternatives.

This report was a joint effort between Entuitive and its subconsultant, Moses Structural Engineers. David Moses, P.Eng., from Moses Structural Engineers has taken responsibility for the field observations and inspection findings component of this report. Andrew Lehan, P.Eng., of Entuitive has taken responsibility for the remainder of this report.





FOR CONDITION ASSESSMENT

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APPENDIX A
EXISTING BRIDGE DRAWINGS

F

12 × 16

G

12 × 16

10 × 16

12 × 24

12 × 16

12 × 16

12 × 16

12 × 16

12 × 16

10 × 16

12 × 16

H

37 × 12

E

I

7/8 × 10 in.

1 3/8 × 8 in.

D

6 × 7

9 × 9

7/8 square

6 × 6

12 × 14

10 × 12

6 × 10

10 × 12

6 × 10

10 × 12

10 × 12

C

10 × 12

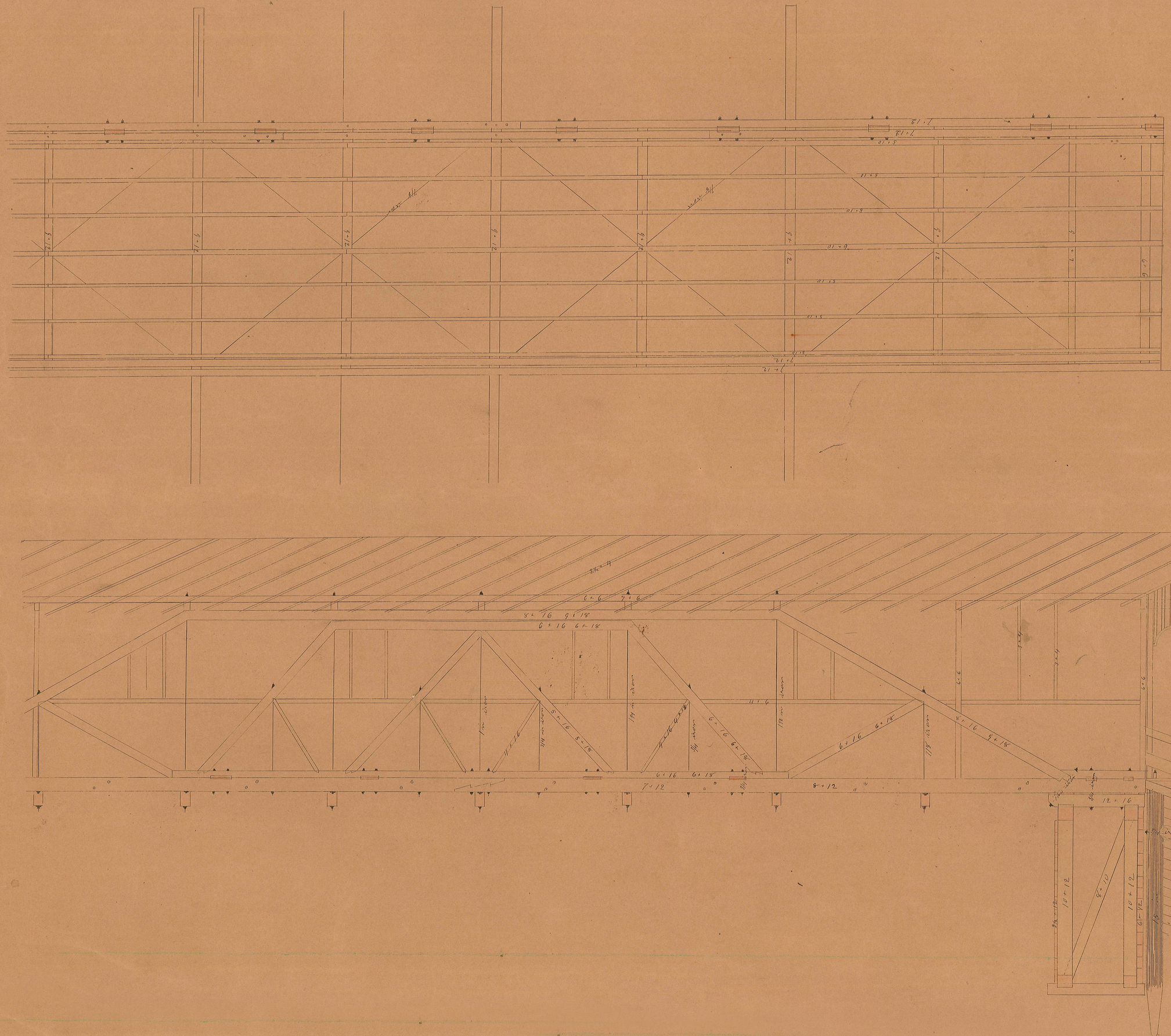
8 × 12

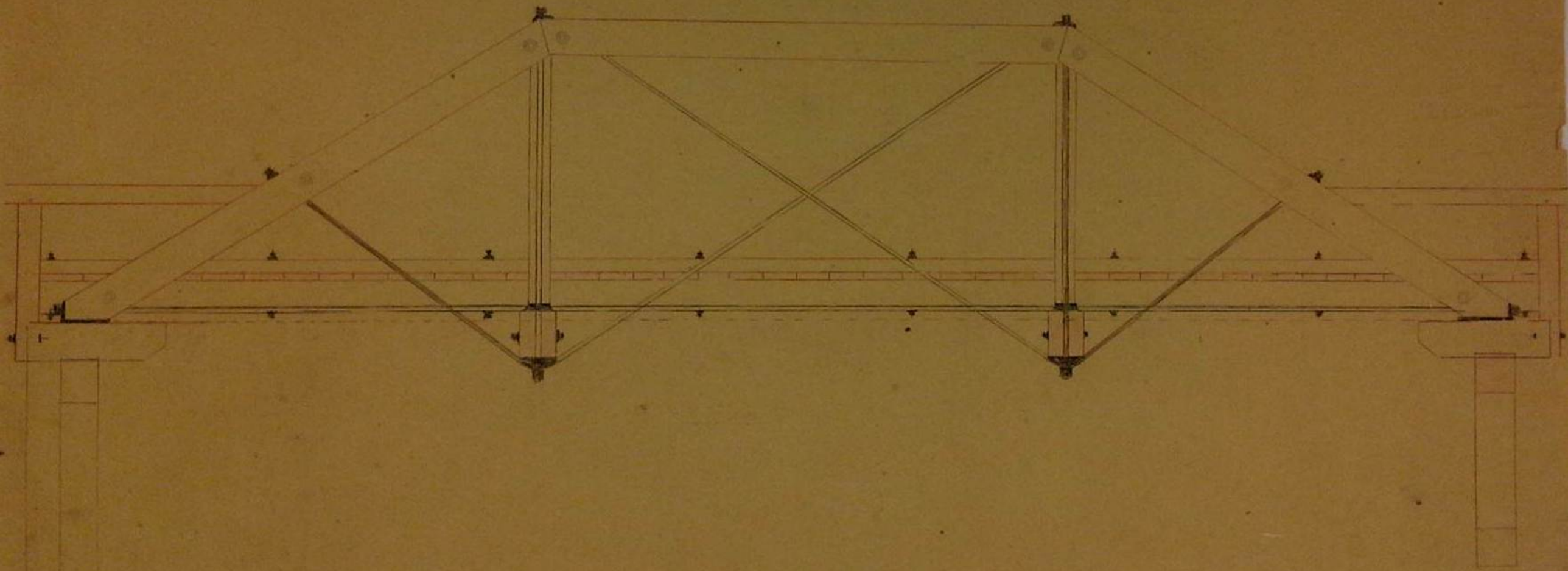
10 × 12

10 in.

Scale 1½ to one foot

10 in.

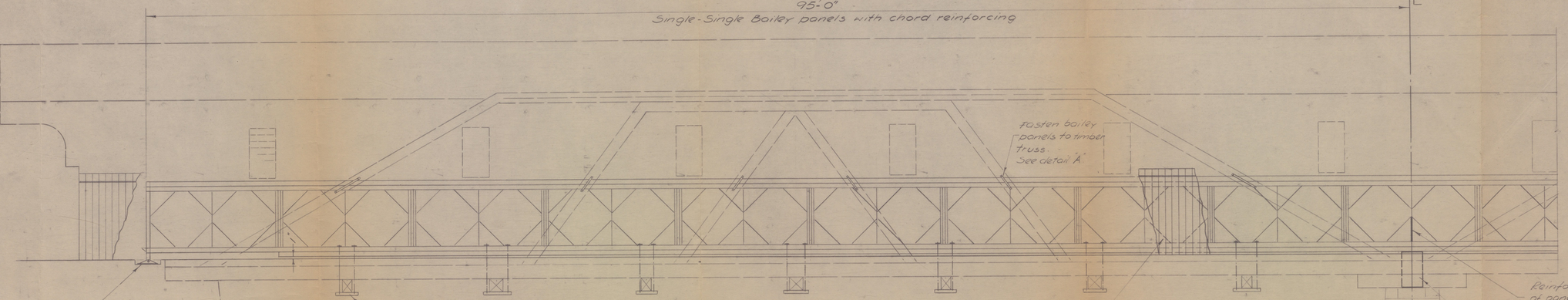

Shop Bill
Shop Bill
A



DB-BR-13 REVISED NOV. 63

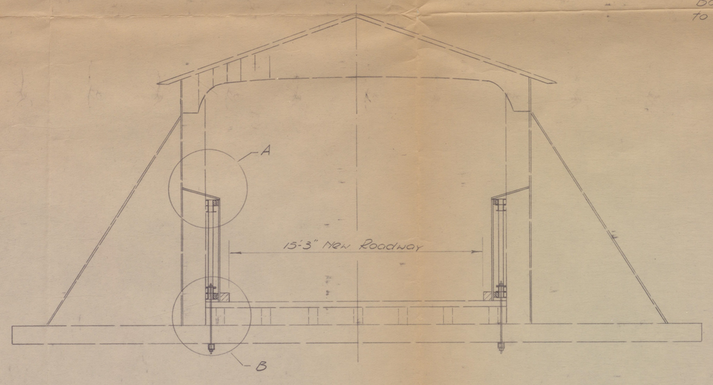
95'-0"
Single-Single Bailey panels with chord reinforcing

SYMMETRICAL ABOUT

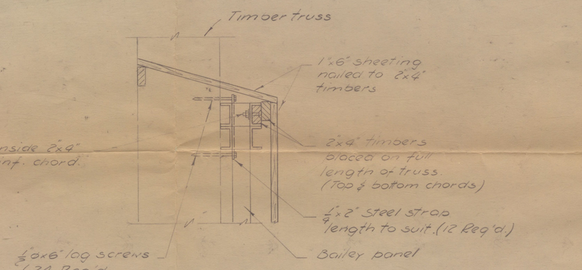


HALF ELEVATION OF BAILEY TRUSS
Scale $\frac{1}{4}$" = 1'-0"

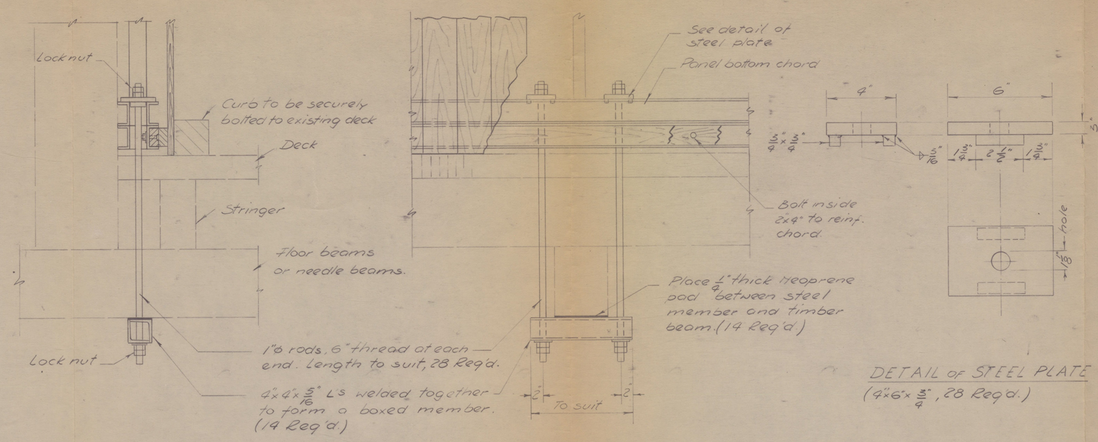
Note:
Dotted lines indicate components of existing structure.



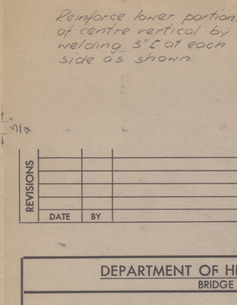
CROSS-SECTION Scale: $\frac{1}{4}$" = 1'-0"



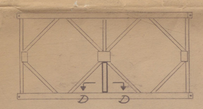
DETAIL "A"



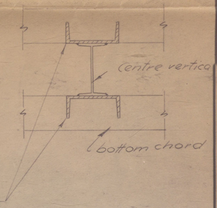
DETAIL "B" Scale: 1"=1'-0"



DETAIL of STEEL PLATE
(4"x6"x$\frac{5}{8}$", 28 Req'd.)



DETAIL "C"
(2 Req'd.)



Reinforce lower portion of centre vertical by welding 3"L at each side as shown.

PRINT RECORD		
No.	FOR	DATE

REVISIONS			
	DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS ONTARIO
BRIDGE DIVISION

BAILEY REINFORCING FOR WEST MONTROSE COVERED BRIDGE

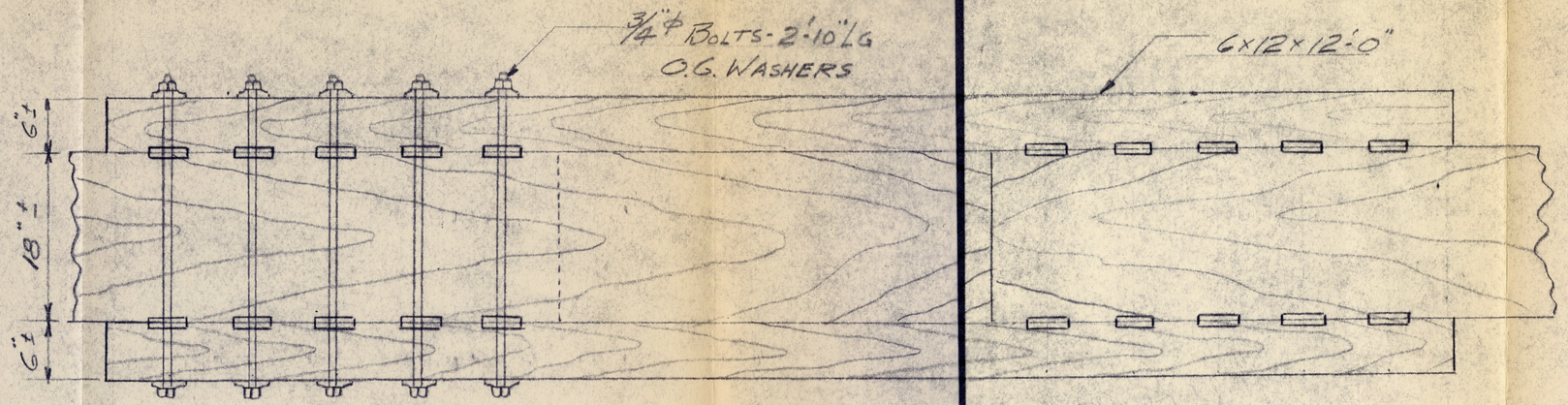
KING'S HIGHWAY No. 86 DIST. No. 3
CO. Waterloo
TWP. Woolwich LOT 71 CON.

APPROVED E.W. Richards
MAINT. BRIDGE ENGINEER

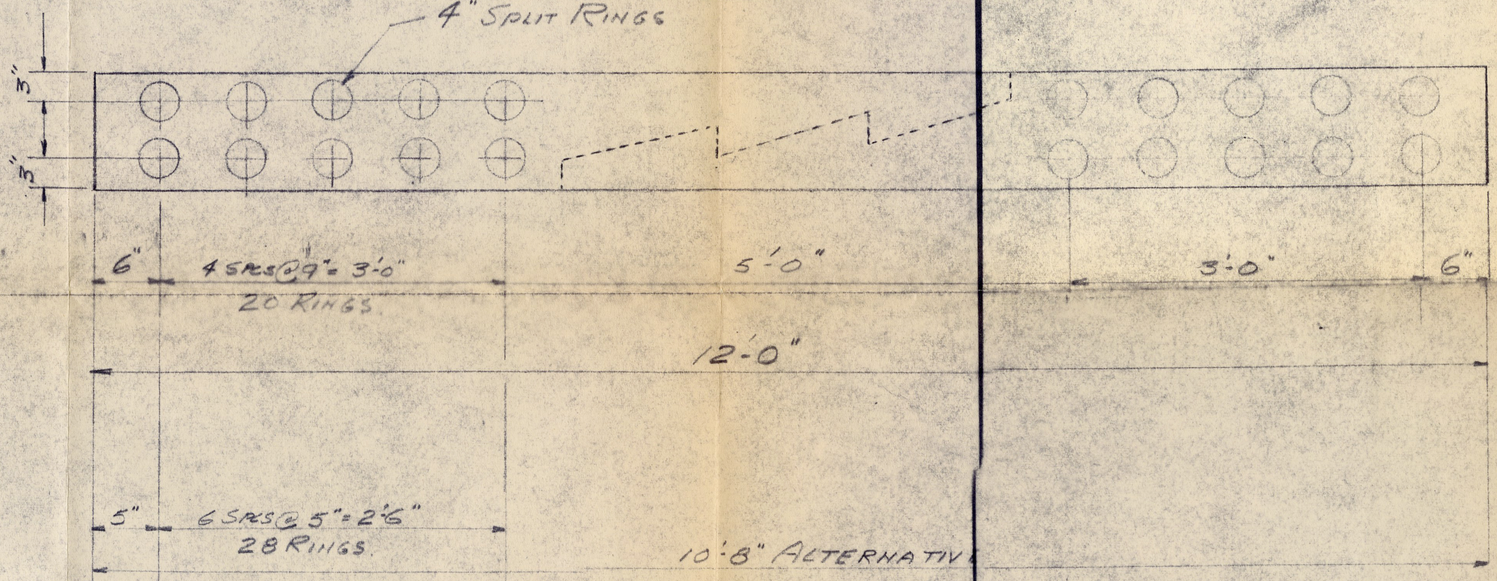
DESIGN	F.R.G.	CHECK	
DRAWING	F.R.G.	CHECK	
DATE	Aug 1966	LOADING	

SITE No. 33-58 W.P. No.
CONTRACT Nos.
DRAWING No. D-6035

N.W.C.L. TRANSLAR 2500-4-65



PLAN



ELEVATION

SCALE 3/4" = 1'-0"

BILL OF MATERIAL

FOR TWO SPLICES

80 - 4" TECO SPLIT RINGS

80 - 3/4ϕ SqHd BOLTS & NUTS (2'10" LG)

160 - 3/4" O.G. WASHERS

4 PCS - 12"x6"x12FT. TIMBER

PRINT RECORD		
No.	FOR	DATE
3	FILE-C.D.	13-7-54

REVISIONS:		
DATE	BY	DESCRIPTION

DEPARTMENT OF HIGHWAYS:-ONTARIO-

BRIDGE OFFICE:-TORONTO

-SPLICE-

WEST MOUNTROSE COVERED BRIDGE

THE KING'S HIGHWAY No. 86 DIV. No. 3

CO.

TWP. LOT CON.

DETAIL & MATERIAL

APPROVED

CHIEF BRIDGE ENGINEER CHIEF ENGINEER

DESIGN	W.B	CHECK		CONTRACT NUMBERS	
DRAWING	W.B	CHECK			
TRACING		CHECK		LOADING —	DRAWING NUMBER D-3511-1
DATE	AUG-13-54				

REPAIRS TO

WEST MONTROSE COVERED BRIDGE

VILLAGE OF WEST MONTROSE

TOWNSHIP OF WOOLWICH

Giffels Associates Limited
Consulting Engineers and Architects

CONTRACT No. 99038

KEN SEILING
REGIONAL CHAIRMAN

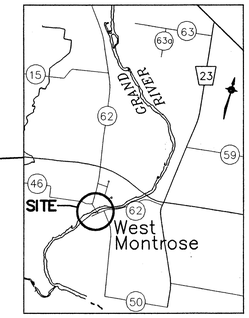
J. F. HAMMER, P. ENG.
ACTING COMMISSIONER OF ENGINEERING

BM-01

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The Regional
Municipality of Waterloo





KEY PLAN
NTS

ROAD No _____ ROAD NAME _____

WORK OF REPAIRS TO THE WEST MONTROSE COVERED BRIDGE

CONTRACT No 99038 FILE No 5885 SECTION No _____

LOCATION WEST MONTROSE, BRIDGE STREET OVER GRAND RIVER

MUNICIPALITY TOWNSHIP OF WOOLWICH

LIMITS : STATION _____ TO STATION _____

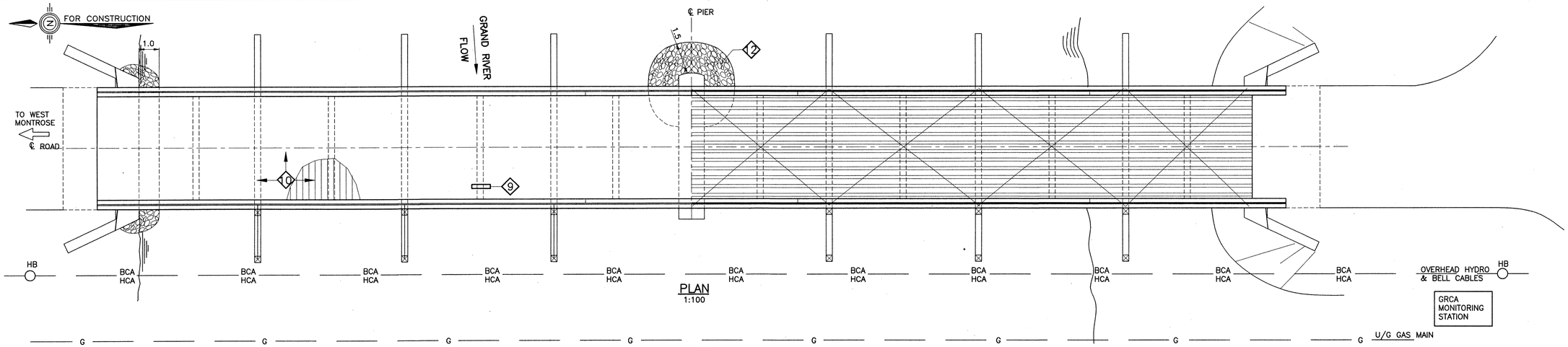
SOILS REPORT _____

DRAWING INDEX

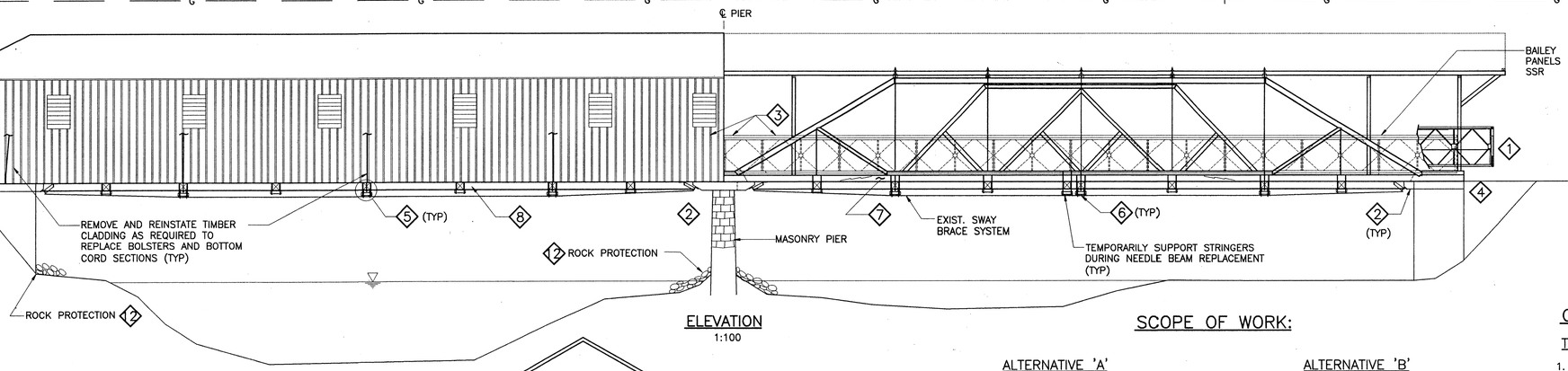
SHEET No	DESCRIPTION
	TITLE PAGE
	INDEX PAGE
1.	GENERAL ARRANGEMENT
2.	TEMPORARY SUPPORT SCHEME FOR BAILEY PANEL REPLACEMENT
3.	TIMBER TRUSS REPAIRS
4.	REPAIR DETAILS 1
5.	REPAIR DETAILS 2
6.	DECK REPLACEMENT

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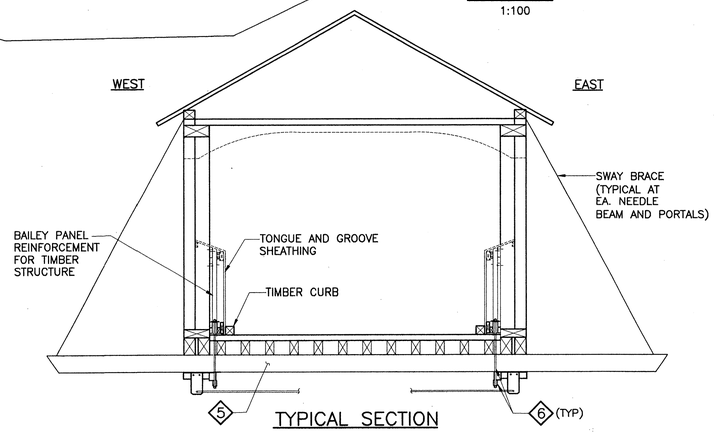
BM-01



PLAN
1:100



ELEVATION
1:100



TYPICAL SECTION
1:50

SCOPE OF WORK:

ALTERNATIVE 'A'

1. TEMPORARY SUPPORT SYSTEM
2. REPLACE TIMBER BOLSTERS AT PIER AND ABUTMENTS
3. BAILEY PANELS REPLACEMENT
4. RE-LEVEL BAILEY BEARINGS
5. REPLACE NEEDLE BEAMS
6. REPLACE NEEDLE BEAM BAILEY HANGERS
7. REPAIRS TO TIMBER TRUSS
8. DECAY STABILIZATION
9. STEEL HOLD DOWN PLATES (PROVISIONAL ITEM)

ALTERNATIVE 'B'

ITEMS 1 THROUGH 8 OF ALTERNATIVE 'A'

10. TIMBER DECK REPLACEMENT
11. DECK WEARING SURFACE
12. ROCK PROTECTION

GENERAL NOTES:

TIMBER

1. ALL TIMBER TO BE DOUGLAS FIR GRADE SELECT STRUCTURAL UNLESS NOTED OTHERWISE.
2. ALL WOOD SHALL BE WATER-BORNE PRESSURE PRESERVATIVE TREATED IN ACCORDANCE WITH OPSS 1601.
3. ALL NAILS, SPIKES, RODS AND BOLTS TO BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH CSA G164-M92.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE GRADE 350 AND SHALL CONFORM TO CSA STANDARD CAN/CSA-G40.21-M92.
2. BOLTS SHALL BE ASTM A325M TYPE 3.
3. ALL STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH CSA G164-M92.

CONSTRUCTION NOTES:

THE CONTRACTOR SHALL VERIFY ALL RELEVANT EXISTING DIMENSIONS AND DETAILS ON SITE AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS IN METRES OR MILLIMETRES UNLESS NOTED OTHERWISE.

P:\W99090\DEPT_47\WESTMONTROSE\WMCBGA.DWG

FIELD BOOK No:

CONTROLLING BM:

LICENCED PROFESSIONAL ENGINEER D.B.MOORE PROVINCE OF ONTARIO Sept 1/99

REGISTERED PROFESSIONAL ENGINEER E.P.BRUMFITT PROVINCE OF ONTARIO Sept 1/99

No	REVISIONS	BY	DATE
	ISSUED FOR TENDER		SEPT. 9/99

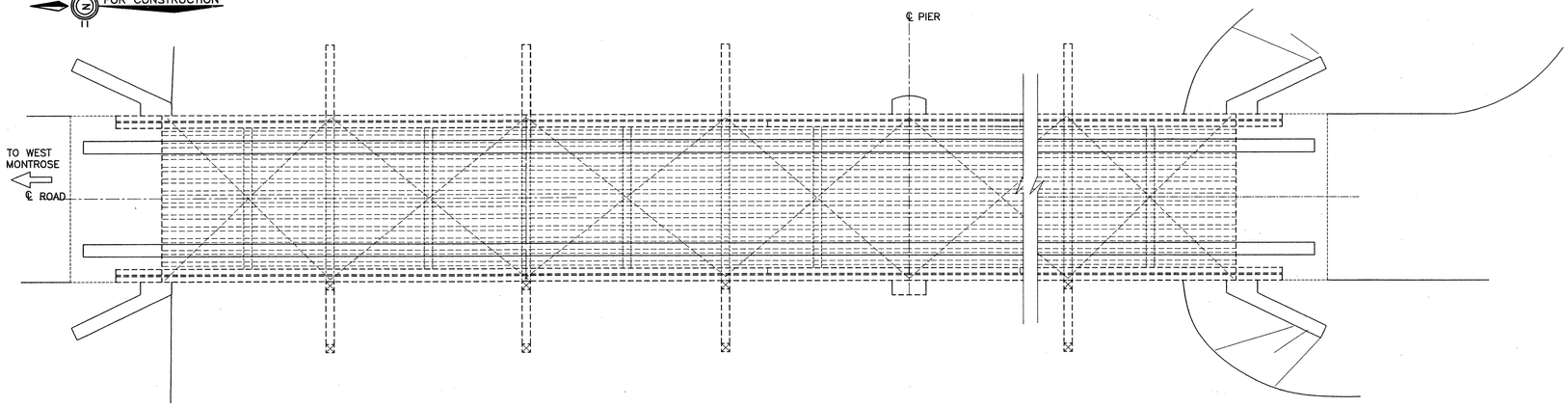
The Regional Municipality of Waterloo

WEST MONTROSE COVERED BRIDGE REPAIRS

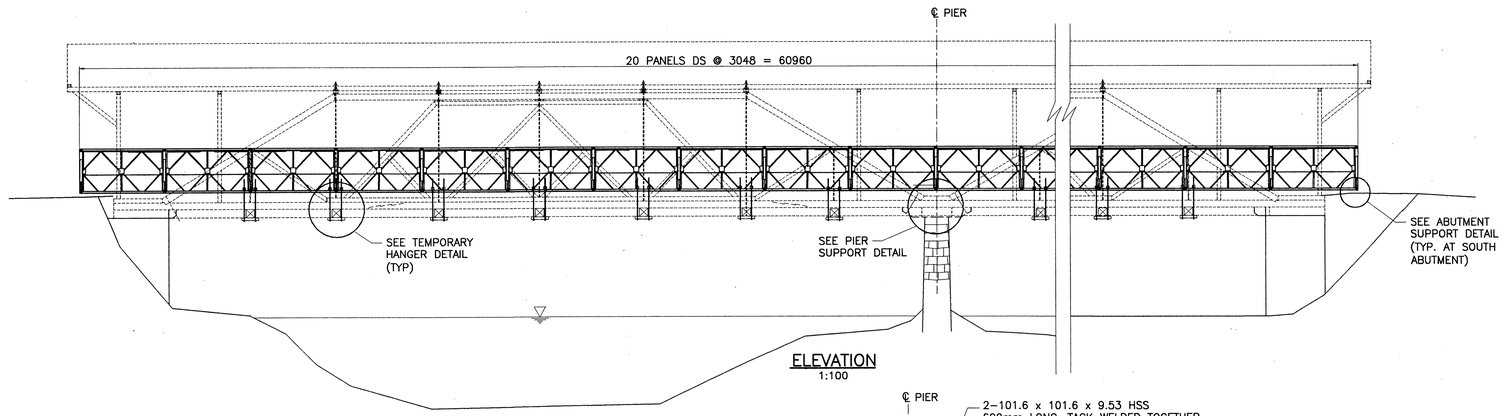
GENERAL ARRANGEMENT

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DWN: DG CHK'D: DBM
DATE: AUG. 1999
FILE No: 5885
CONTRACT No: 99038
DWG No: BM-01
CADD FILE NAME:
SHEET 1 OF 6

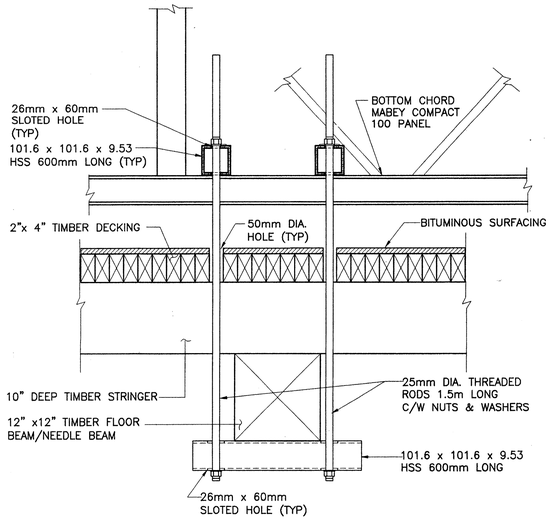
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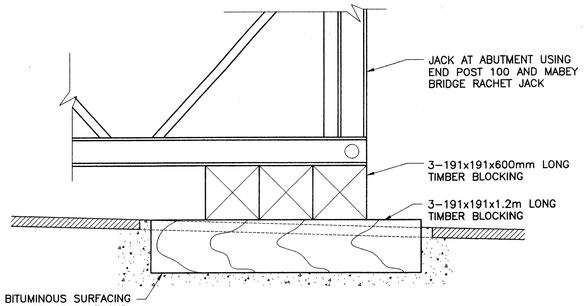
PLAN
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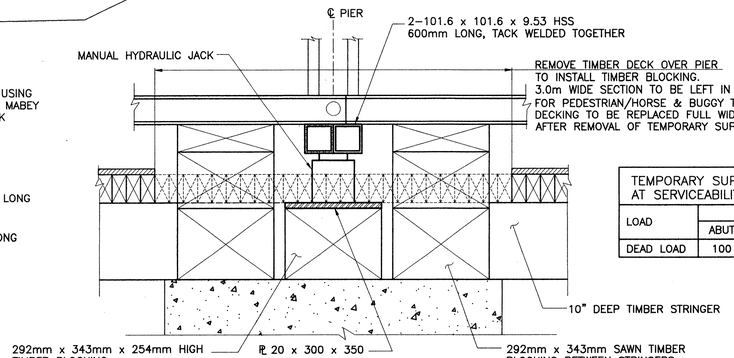
ELEVATION
1:100



TEMPORARY HANGER DETAIL
1:10

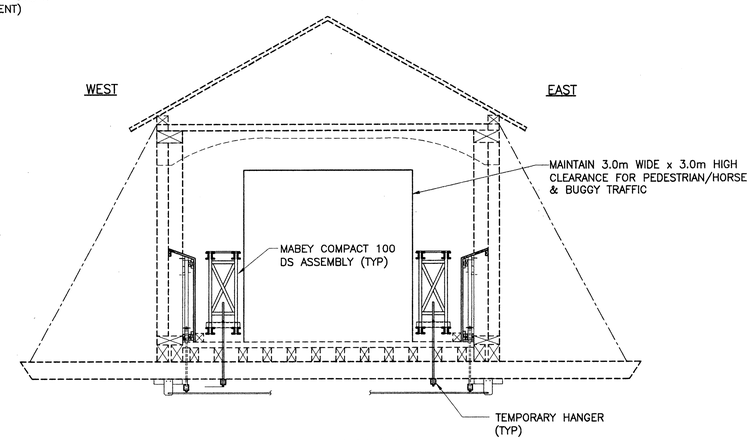


ABUTMENT SUPPORT DETAIL
1:10



PIER SUPPORT DETAIL
1:10

TEMPORARY SUPPORT REACTIONS AT SERVICEABILITY STATE		
LOAD	LOCATION	
	ABUTMENT	PIER
DEAD LOAD	100 kN	360 kN



TYPICAL SECTION
1:50

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FIELD BOOK No:

CONTROLLING BM:

LICENSED PROFESSIONAL ENGINEER D.B.MOORE PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER E.P.BRUMFITT PROVINCE OF ONTARIO

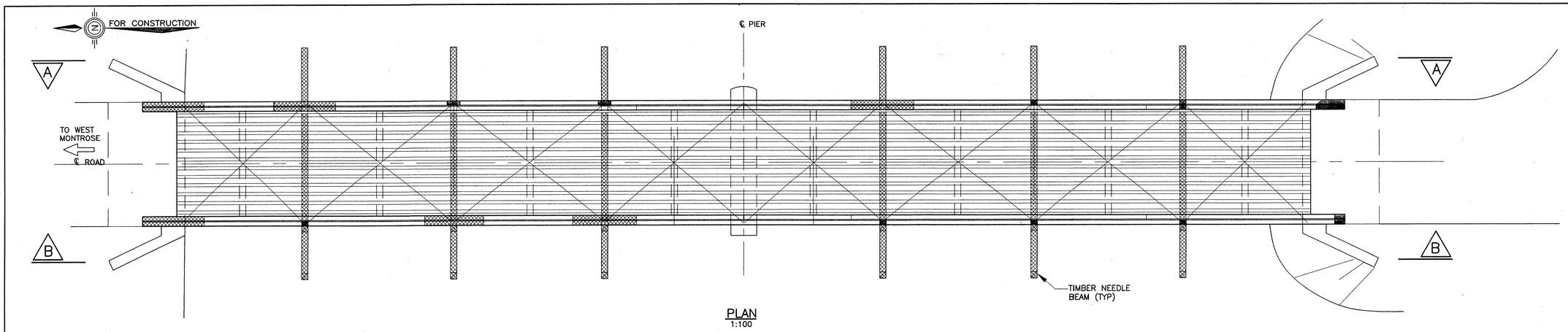
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	ISSUED FOR TENDER		SEPT. 9/99

The Regional Municipality of Waterloo

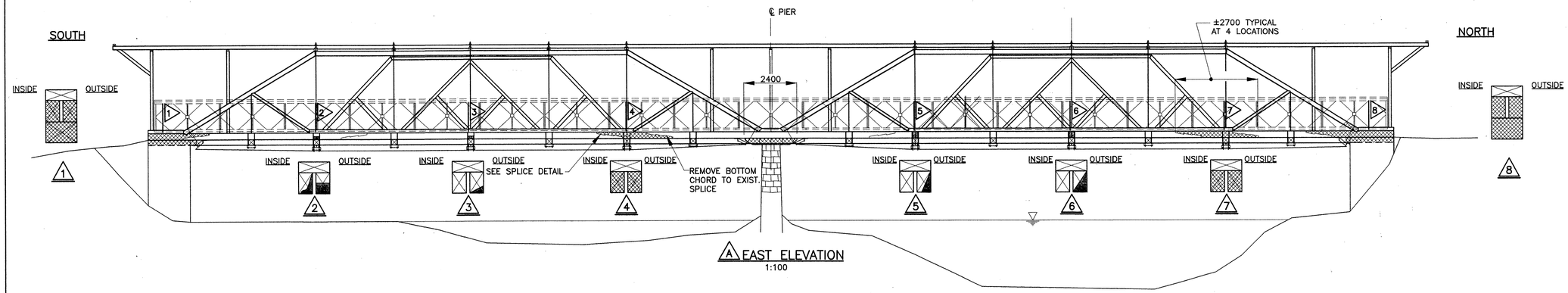
WEST MONTROSE COVERED BRIDGE REPAIRS

TEMPORARY SUPPORT SCHEME FOR BAILEY PANEL REPLACEMENT

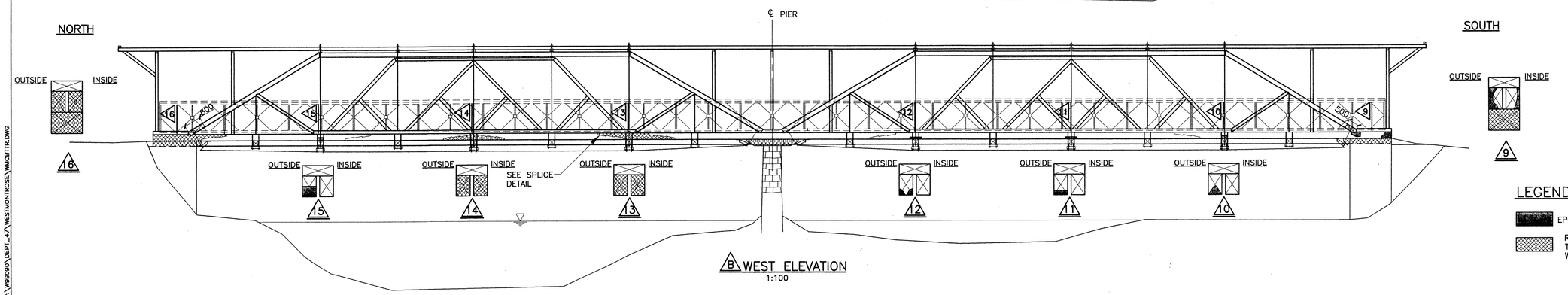
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	DATE: AUG. 1999		
FILE No: 5885	CONTRACT No: 99038		CADD FILE NAME:
			SHEET 2 OF 6



PLAN
1:100



A EAST ELEVATION
1:100



B WEST ELEVATION
1:100

LEGEND

- EPOXY STABILIZATION
- REMOVE EXIST. DETERIORATED TIMBER AND REPLACE WITH NEW TIMBER

P:\99209\DEPT_47\WESTMONTROSE\WMCBTR.DWG

FIELD BOOK No:

CONTROLLING BM:

LICENSED PROFESSIONAL ENGINEER D.B.MOORE PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER E.P.BRUMFITT PROVINCE OF ONTARIO

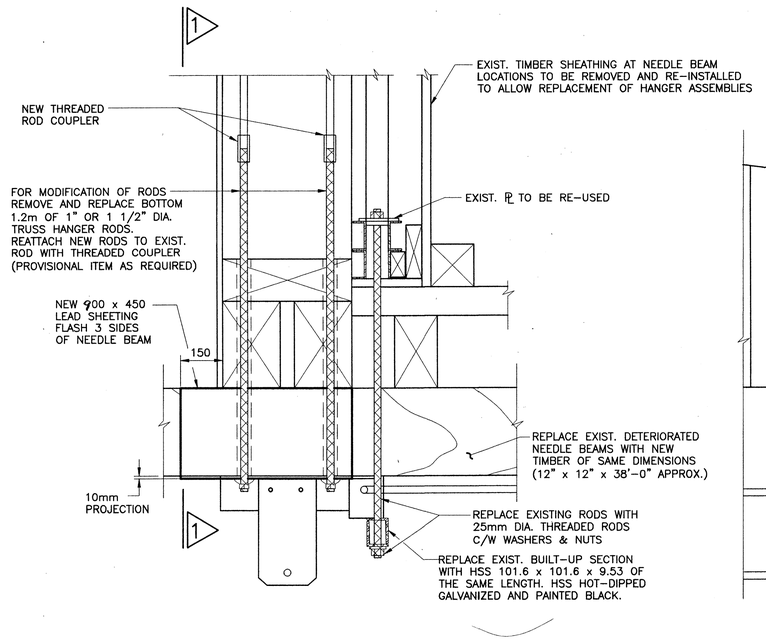
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	ISSUED FOR TENDER		SEPT. 9/99

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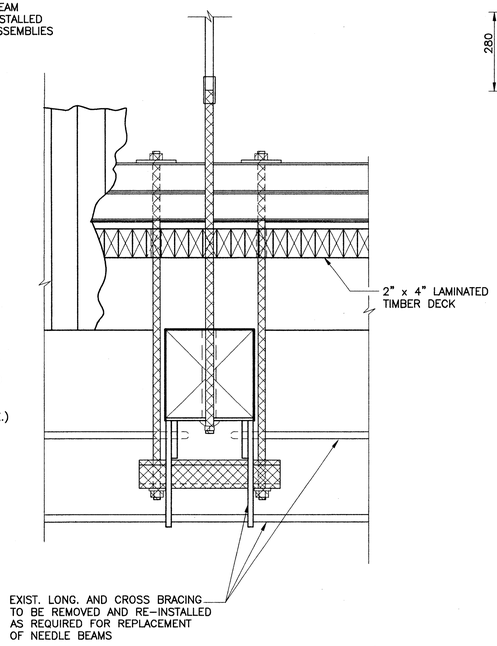
WEST MONTROSE COVERED BRIDGE REPAIRS

TIMBER TRUSS REPAIRS

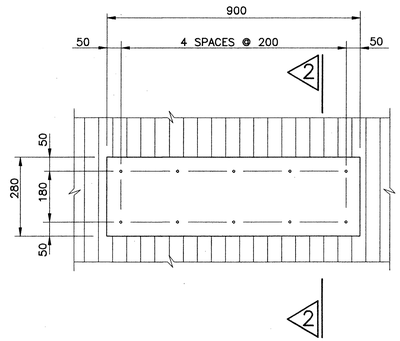
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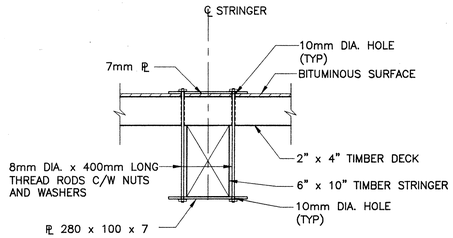
A HANGER REPLACEMENT DETAIL AND TRUSS ROD MODIFICATION
1:10



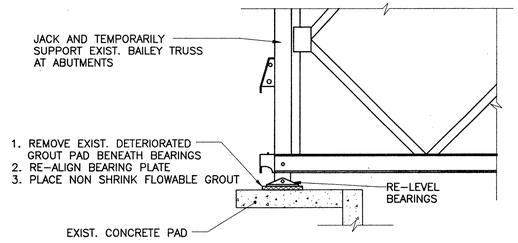
1
1:10



DECK HOLD DOWN PLATE DETAIL
1:10



2
1:10



BEARING REPAIR
N.T.S.

P:\W99090\DEPT. 47\WESTMONTROSE\WMCBRDT1.DWG

FIELD BOOK No:

CONTROLLING BM:

I. STANDARD PROFESSIONAL ENGINEER D.B.MOORE PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER E.P.BRUNETTI PROVINCE OF ONTARIO

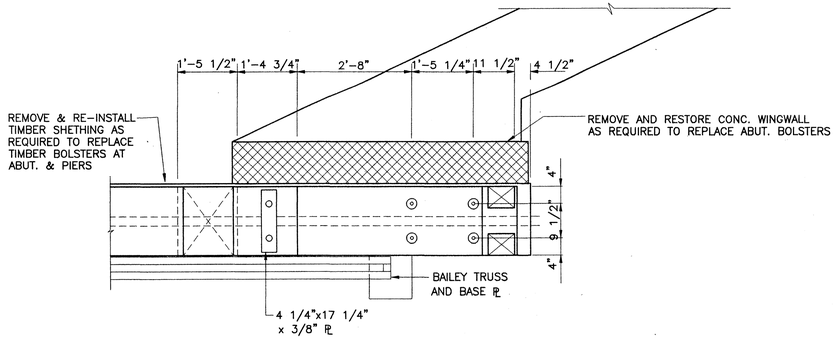
No	REVISIONS	BY	DATE
	ISSUED FOR TENDER		SEPT. 9/99

The Regional Municipality of Waterloo

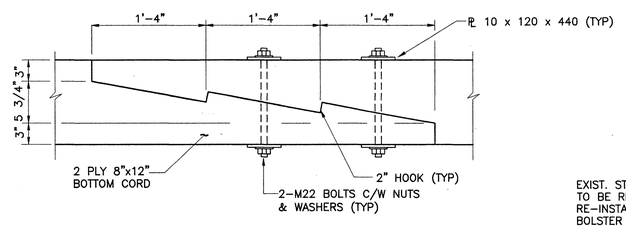
WEST MONTROSE COVERED BRIDGE REPAIRS

REPAIR DETAILS 1

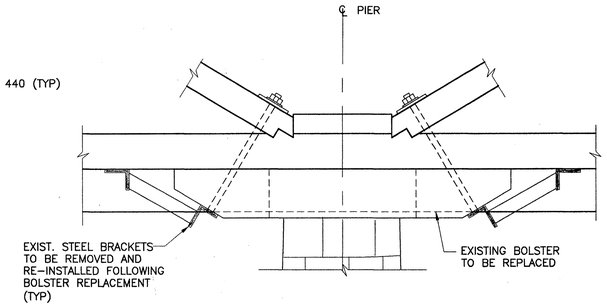
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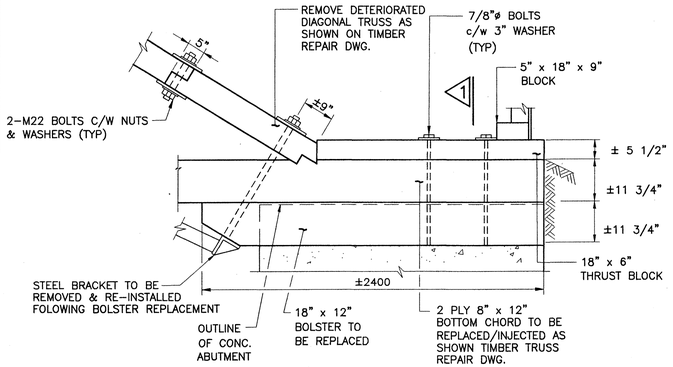
PLAN



BOTTOM CHORD SPLICE DETAIL
1:10

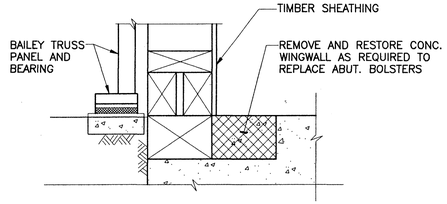


PIER BOLSTER REPLACEMENT DETAIL
1:20

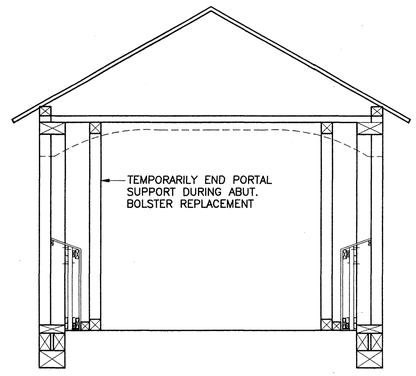


ELEVATION

B ABUTMENT BOLSTER REPLACEMENT DETAIL
1:20



1
1:20



TYPICAL SECTION
1:50

P:\W99000\DEPT_47\WESTMONTROSE\WMCBR0T2.DWG

FIELD BOOK No:

CONTROLLING BM:

D.B.MOORE — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

E.P.BRUMFITT — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

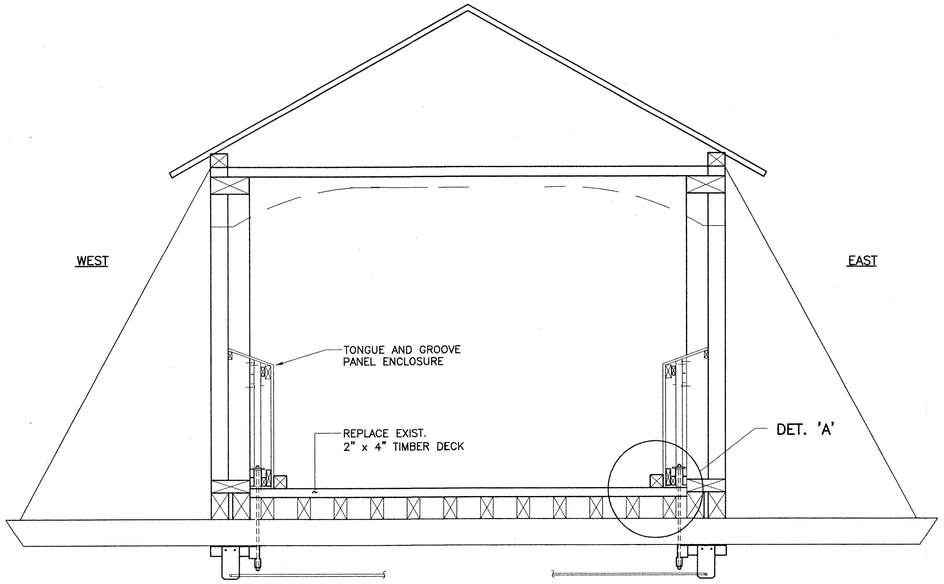
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	ISSUED FOR TENDER		SEPT. 9/99

The Regional Municipality of Waterloo

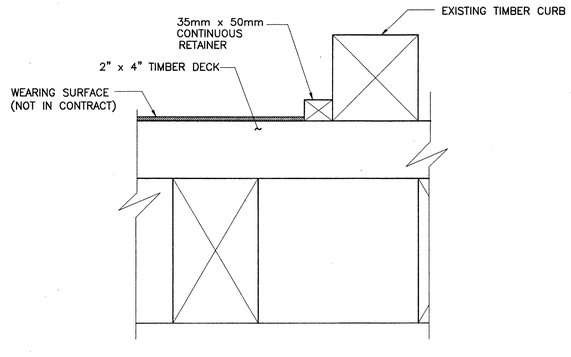
WEST MONTROSE COVERED BRIDGE REPAIRS

REPAIR DETAILS 2

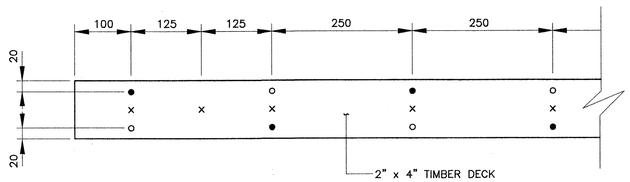
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			SHEET 5 OF 6



TYPICAL SECTION
1:75



DETAIL 'A'
1:20



NAILING PATTERN
1:20

NOTES:

- ● INDICATES NAILING OF 1st LAMINATION
- o INDICATES NAILING OF 2nd LAMINATION
- × INDICATES NAILING OF 3rd LAMINATION

100mm LONG COMMON NAILS IN ACCORDANCE WITH CSA STANDARD B111-1974, SHALL BE USED

EACH LAMINATE TO BE TOE NAILED TO EACH STRINGER

CONSTRUCTION SEQUENCE:

1. REMOVE AND SALVAGE TIMBER CURB.
2. REMOVE AND SALVAGE TONGUE & GROOVE PANELING.
3. REMOVE EXISTING 2" x 4" LAMINATED DECK.
4. RE-ALIGN FLOOR STRINGERS.
5. INSTALL NEW DECK.
6. REINSTALL TONGUE & GROOVE ENCLOSURE.
7. REINSTALL CURB PLUS RETAINER STRIP.
8. INSTALL DECK WEARING SURFACING.

P:\W9900\DEPT_47\WESTMONTROSE\WMCBRDR.DWG

FIELD BOOK No:

LICENSED PROFESSIONAL ENGINEER D.B.MOORE PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER E.P.BRUMMITT PROVINCE OF ONTARIO

CONTROLLING BM:

No	REVISIONS	BY	DATE
	ISSUED FOR TENDER		SEPT. 9/99

The Regional Municipality of Waterloo

WEST MONTROSE COVERED BRIDGE REPAIRS

DECK REPLACEMENT

SCALE: AS SHOWN
DWN: DG CHK'D: DBM
DATE: AUG. 1999
FILE No: 5885
CONTRACT No: 99038
DWG No: BM-01
CADD FILE NAME:
SHEET 6 OF 6

APPENDIX B
ORIGINAL BRIDGE CONSTRUCTION SPECIFICATIONS

Re: Covered Bridge over Grand River at West Montrose -
Township of Woolwich - King's Highway #86 (Ontario)

Built in 1881 by John and Sam Bear for the Township of Woolwich and later under the jurisdiction of the County of Waterloo and Ontario Department of Highways.

The material is principally white pine cut in the vicinity of Blair and Doon and some of the timbers are 9" x 18" and almost 50 feet long.

The structure is 196.5 feet long with an additional 6 ft. portal at each end. It consists of two equal spans with a clear inside width of 17 feet and height of 13 feet. The present substructure consists of concrete wing abutments and a stone centre pier. The original piers are said to have been cedar cribs. The roof is shingled and the outside walls sheeted vertically with single ply matched lumber. The trusses are also sheeted on the inside to a height of five feet above the floor. The original floor is said to have been 3" oak layed transversely and is now covered with 2" longitudinal planking. The upper chord of the main span is 9" x 18" and the lower chord made up of 2 pieces of 8" x 12" with spacers between making 12" x 18". All other truss timbers are 5" x 18" and 4" x 18" and the truss rods vary from 1" to 1-1/2" diameter. Needle beams are 8" x 12" and 8" x 14", the smaller extending just the width of the trusses while the larger extend beyond to provide braces for the top of the structure.

There are 10 to 11 stringers 4" x 5" x 10". They are not uniform in number or size.

The present condition of the bridge is remarkably good. All the timber visible from the inside is perfectly sound. From the outside however some decay is noticeable in the lower chord members, particularly the outside timbers on the west side. About 1933 this timber was found to be badly rotted at the first needle beam from the south end. The needle beam was replaced and the lower chord timber spliced with steel plates.

Mr. D. J. Emrey, Waterloo County Engineer, advises that at that time careful investigation was made of the condition of the bridge and this was the only weakness found. The most probable point of failure would be in the lower chord, for despite the inside and outside sheeting it is apparent that moisture can reach the timbers there.

At some time in the past the centre pier has apparently been undermined and has settled at the east, or upstream, and causing a noticeable tilting in that direction. There is also a sag of about 5" over the first panel point from each end, the cause not being readily apparent.

There are some holes in the roof and many vertical cracks in the outside sheeting. Many of the baffles in the openings along the sides are also missing, permitting free entry of any wind-driver rain or snow.

The location of the bridge with respect to its approaches is not good. There is a sharp turn and rather steep grade in the South approach and another sharp turn in the road some 300 feet from the North end. This turn is a blind one due to the situation of some buildings. There are also several bad curves and corners within a couple of miles of the bridge in both directions. The writer understands that surveys for a new location have been made in the past and are probably available in the Toronto office.

At the time of the present investigation (January 14th, 1942) there was a 17 ft. clearance between the bottom of the bridge and the top of the ice. The ice would be at winter low level.

Past floods have covered the roadway on the South bank of the stream. It remains to be seen whether the Shand Dam will remedy this flooding.

In spite of 4 ton (2 later) load limit signs, it is said that a reputed gross load of 17 tons passed over the bridge in 1940 and many heavy loads are undoubtedly crossing frequently.

The accompanying pictures will give some idea of the construction and the approaches. Unfortunately the general views are not well taken and these will be supplemented later.

An interesting point is that a contract used to be awarded annually for "snowing" the floor so that sleighs might travel without difficulty. This function is now performed by the patrolman. Lanterns are used to light the interior at night.

Specifications (PAGE 1)

For a bridge over the Grand River at Westmontrose in the Township of Woolwich in the County of Waterloo and province of Ontario.

Outside Measurement:

The Bridge to be 198 feet long, 20 feet wide and 13 feet from the low water mark to the top of the Corbel.

Abuttments:

Four bed-timbers as shown on Plan C. to be laid two feet below low water mark as shown, checked two inches for the mudsill to lay in as shown on Plan D. Bents constructed as shown on Plan D with four posts and braces as shown. Corbels to be checked one inch over the caps and place as shown on Plan A. Plank the front with 2½ inch plank - Oak or Rock Elm well spiked to the posts and braces with six inch wrought spikes. Plank the back with six inch Cedar Plank as shown on Plan A.

Approaches:

Drive five piles on each side as shown on Plan C to the depth of twelve feet - with two tie beams as shown on Plan C & A checked half & half to the tie beam and pile and bolt as shown on Plan A with 3/4 inch bolts. Cut the pile with the slope of the roadway and frame a cap on as shown on plan A. Place a railing there on as shown well fastened to the truss and with 3/4 bolts. Bind up with cedars as shown.

Pier:

Fifteen piles are to be driven to depth of twelve feet or as far as a hammer of one ton weight will drive them at the rate of 1/4 inch to a blow. Three piles to be driven side by side as shown on Plan A. Cut off two feet below water mark the center piles to be ten inches lower than the outside ones for the mud sill to lay on. The outside piles to be driven close to the inside and to be gained or boxed on the inside to let the mudsill in. Check 2 inches out of the lower side of sill to fit down on the inside pile as shown on Plan A. Bolt with 1 and 1/4 inch bolts as shown on plan A and E. Frame the pier as shown on Plan F & G with six inch bolt ice breaker to the mudsill as shown, the top with an Iron Strap 3/4 in. x 2 in. spiked to the cap as shown with 5/8 inch wrought spike 7 inches long. Plank both sides with three inch Oak or Rock Elm plank well spiked to the posts and ice breaker and braces with 7 inch wrought spike as shown on Plan H.

Truss:

Build the truss as shown on Plan A. The stringers to be built in ? 5½ pieces, the outside is in two pieces spliced in the center as shown on Plan A. Inside stringers is 2½ pieces or five pieces for the two span. One piece 56 feet long and the center will lay on the pier to reach half on one span and half on the other so as to bind the two together. Splice same as the outside with two bolts to each splice as shown on Plan A. The ? two stringers are boxed together with oak plank 4 x 12 inches checked into the stringer 1 inch so as to leave an opening of two inches between two stringers and to be bolted as shown on Plan A. The top stringer is 49 feet long laid on the top of the other two and boxed thereon with oak plank and bolted as shown on A. The truss is 16 inches wide for hard timber 18 inches for pine. Double rods all through as shown in dots on Plan A. The tside suspension rods run up through the plate. The inside through the tie beam. eedlebeams are bolted to the truss with short bolts between the two suspension rods so that the beam can at any time be removed without interfering with the truss.

Diagonal:

Rods as shown on Plan B shall cross under the short needlebeams and through the long ones as shown on Plan A and to have cast washers bevelled to fit the angle and wrought iron nuts. Thread the bolt not less than eight inches at both ends so that they can at any time be tightened up.

Lock Rails:

The lock rails to be checked half and half in the corbes and stringers and joice as shown on Plan C. Seven joice are placed in four lengths as shown on Plan B.

Roadway:

Plank with 3 inch oak plank not over ten inches wide spiked to the joice with 7 inch wrought spike. Two to each plank alternately on the joice. A piece of timber 6 x 8 inches shall be laid in the center of the roadway the entire length of roadway and bolted to the joice, one bolt every 6 feet as shown on Plan B and C. The same along both outsides the timber to be 1/2 x 5.

Stay Rods:

Stay rods or braces shall run through the needlebeams and tyebeams as shown on Plan D with suitable washers for the different angles - with thread nut eight inches at each end and good nuts.

Tye Beams:

The tye beams shall be checked over the truss one half inch and the plate one half inch over the tye beam. The stringers and truss, tye beams and plate are all bolted together by the suspension rod as shown on Plan A. The plate is carried after leaving the truss on posts as shown on Plan A and D. Framed to the tye beam and plate straight to the cap as shown with ? on rods as shown on Plan D.

Rafters:

The rafters to be framed to plate with heels to project 12 inches and lined half and half together at the top and pinned with 3/4 inch pins and to be well spiked to the plate and a stay of maple or oak one by one inch ? inches long bored and nailed with 3 inch wrought nail one to each rafter end plate.

Roofing Lath:

The rafters to be covered with roof lath 1 x 2 inches laid five inches apart and well nailed to rafters.

Finish:

Shall be finished with plaster board at gable ends 12 inches wide well nailed to lath. The nosing to run all round 3 inches wide well nailed to the rafters and plaster boards.

Shingles:

The entire roof to be covered with No. 1 shingles to be laid 5 inches to the weather and well nailed to the roof lath. Ridge boars to be made of three by four scantling as shown of Plan E.

Blinds:

As shown made of inch boards. Frame 1 x 5 casing slats 1 by 5 - size 2½ x 4 feet.

Siding:

To be made as shown on Plan I. Size and style is given on the plans. Bolts of the truss will come in contact with the siding as shown on Plan I. The bolts to be long enough to go through siding as shown. The siding to be well nailed with 3 inch cut nail and the bottom with 3? nail.

Timbers:

The pier and abuttments, corbles and plank for the roadway shall be oak. The remained pine if not otherwise specified--P.S. The needlebeams that project on the outside of bridge are to be covered with boards in a roof style.

Piles:

Piles under the pier shall be oak or rock elm. Piles for the approaches to be cedar.

Timbers:

Providing hard wood be used throughout can be all hard wood except plates and rafters. The difference in size of hard wood or pine is given on the plans. The pins with red ink.

Class of Timber:

All timbers to be used in the construction of said bridge to be good sound timber free from splits, shakes, large or loose knots or anything that has a tendency to impair its strength.

Class of Work:

All work shall be done in a good and workmanlike manner and everything to be carried out to full intent of plans and specifications.

Please Note: You can of course understand that I am unable to send you the different plans. But I think that the specifications will give a good idea of the structure of this the only covered bridge in Ontario.

A. Israel (Clerk @ Twp. Office)

Specifications

For a Bridge over the Grand River at Westmontrose in the Township of Woolwich in the County of Waterloo & Province of Ontario Canada—

Out Side Measurement — The Bridge to Be 198 feet long 20 feet wide and 13 feet from low water Mark to the top of the Corbel

Buttments — Four Bed-timbers as shown on Plan. C. to Be laid two feet below low water Mark as shown Checked two inches for the Mudsill to lay in as Shown on Plan D. Bents to constructed as shown on Plan D. with four Posts and Braces as shown Corbels to be checked one inch over the Caps and Place as shown on Plan A. Plank the front with 2½ in Plank - Oak or Rock Elm well Spiked to the Posts & Braces with six" wrought Spikes Plank the Back with six inch Cedar Plank as Shown on Plan A.

Aproaches — Drive five Piles on Each side as Shown on Plan - C - to the depth of twelve feet - With two tie Beams as Shown on Plan C & A Checked half & half to the tie Beam & Pile and Bolt as shown on Plan A. with 3/4 in Bolts Cut the Pile with the Slope of the roadway and frame a cap on as shown on Plan A. Place a railing there on as shown well fastened to the Truss and with 3/4 in Bolts Bind upp with Cedar as Shown

Pier — Fifteen Piles are to Be driven to depth of twelve feet or as far as a Hammer of One ton weight will drive them at the rate of ¼ in to a Blow Three Pile to Be drove side & side one as shown on Plan A.

Cutt of two feet below low water Mark the center Piles to be ten inches lower than the Out side Ones for the Mud Sill to lay on The out side Piles to be Drove Close to the inside and to Gained or Boxed on the inside to let the Mudsill in Chick 2 in out of the lower side of Sill to fitt down on the inside pile as shown on Plan & Bolted with 1¼ in Bolts as shown on Plan A & E. frame the Pier as shown on Plan F. & G with side inch tenoned Bolt Ice Breaker to the Mudsill as shown the top with one Iron Strap 3½ in. × 2 in Spiked to the Cap as shown with 5/8 in wrought Spike 7 in long Plank both sides with three in Oak or rockelm Plank well Spiked to the Posts and Ice Breaker & Braces with 7 in wrought Spike as shown on Plan H. Rebbitt the Ice Breaker on Each side as shown to receive Plank

Truss

Build the truss as shown on Plan. A. The Stringers is built in 5 in Pieces the outside is in two Peces Spliced in the center as shown on Plan. A inside Stringer is 2½ peces or five Paices for the 2 Span one Piece 56 feet long and the center will lay on the Pier to reach half on one Span and half on the other so as to Bind the two together Spliced the same as the outside with two Bolts to Each Splice as shown on Plan A. The two Stringers are Boxed together with oak Plank 4 by 12 in Checked into the Stringer inch so as to leave an opening of two inches between the two Stringers and to be Bolted as shown on Plan. A. The top Stringer is 49 feet long laid on the top of the other two and boxed there on with 2 by 16 in Oak Plank and Bolted as shown on. A. the truss is 16 in wide for Hard timber & 18 in for Pine Double rods all through as shown in plate on Plan A. the Out side suspension rods run upp through the Plate

The inside throughthe tie Beam Needlebeams are Bolted to the truss with Short Bolts between the two Suspension rods so that the Beam can at any time be removed with out Interfiering with the truss

Diagonal Rods as Shown on Plan B. Shall Cross under the Short Needle Beams and through the long ones as Shown on Plan A. and to have Cast washers bevel to fitt the angle and wrought Iron nutts threded the Bolt not less than eight inches at Both Ends so that they can at any time be tightened up

Lock rails. The lock rails to be Checked half and half in the Corbels and Stringers and joice as Shown on Plan C. Seven joice are Placed in four lenghts as Shown on Plan B.

Roadway Plank with 3 in oak Plank not over ten inches wide spiked to the joice with 7 in wrought Spike two to Each Plank alternately on the joice ~~& Opening Shall be left to Each joint as Shown on Plan B.~~ A peice of timber 6 × 8 in Shall be Laide in the center of the roadway the entire lenght of roadway and Bolted to the joice one Bolt every 6 feet as Shown on Plan B. and C. the same along both out sides the timber to be 3 in by 5

Stay rods or Braces Shall run through the Needlebeams and tye Beams as Shown on Plan D. with suittible washers for the different Angles - with ann thread cut Eight inches at Each End and Good Nutts

Tye Beams The tye Beams Shall be Checked over the truss one half inch and the Plate one half inch over the tye Beam the Stringers and truss tye Beams and Plate are all bolted together By the Suspension rod as Shown on the Plan A. The Plate is carried

after leeving the truss is carried on Posts as shown on Plan A & D. Framed to the tye Beem and Plate Strait to the cap as shown with iron rods as shown on Plan. D.

Rafters — The rafters to be framed to Plate with Heels to Project 12 inches and Gained half & half together at the tops and Pined with 3/4 in Pins and to be well Spiked to the Plate and a Stay of Maple or Oak one by one inch ten inches long board and Nailed with 3 in wrought Nail one to Each rafter and Plate

Roping latth — The rafters to Be covered with roof latth 1 by 2 in laid five inch Nailed to rafters

Cornish — Shall be finished with Plaster board at Gable Ends 12 in wide well nailed to Latth. The Mosing to run all round 3 in wide well Nailed to the rafters and Plaster Boards.

Shingles — The Entire roof to be Covered with No 1 Shingles to be laid 5 in to the exhether and well Nailed to roof latth Ridge Boards is to Be Made of three by four Scantling as shown on Plan -E.

Blinds — As Shown Made of inch Boards Frame 1 x 5 Cassing -g Casing 1 by 3 Slats 1 by 5 Size two and half by four feet- Placed as Shown On Plan-A- No 7 Blinds. 24.

Siding — To be Made as Shown on Plan. I. Size and Stile is Given on the Plans Bolts of the truss will Come in Contact with the Siding as Shown on Plan. I. The Bolts to be long enough to go through Siding as Shown — The Siding to be well Nailed with 3 in cut-Nail and and the Batton with 3 3/4 Nail

Timbers The Pier and Buttments Corbles and Plank for the Roadway Shall be Oak The remainder Pine if not otherwise Specified = P. S. the Needle Beams that Project on the out side of Bridge are to be covered with Boards in a roof Stile

Piles Piles under the Pier Shall be Oak or Rock Elm Piles for the aproaches to Be Cedar

Timbers Providing Hard wood be used throughout Can be all Hard wood Except Plates & rafters — The difference in Size of Hard wood or Pine is Given on the Plans. the Pine with red ink B

Class of Timber all Timbers to Be used in the Construction of Said Bridge to Be Good Sound timber free from Splits Shakes large or Loose Knots or anything that has a tendency to Impare it Streight to

Class of Work All work Shall be Done in a Good and workman like Manner and Every thing to be Carried Out to full intent of Plans & Specification

APPENDIX C
HISTORY OF THE BRIDGE

Excerpt from "West Montrose Covered Bridge Preservation Plan" by IBI Group (now part of Arcadis), dated April 2014

3 HISTORY

3.1 Historical Background

Throughout the 19th century the construction of covered timber truss bridges proliferated in North America. In the period from the construction of the first recorded bridge at the turn of the 19th century (by Timothy Palmer in Philadelphia) to shortly after the American Civil War it is estimated 10,000 to 12,000 such bridges were erected in the USA alone



Neglect, fire, flood and progress have sadly depleted that number significantly. In 1983 Adams recorded 1300 authentic covered bridges remaining in the U.S.A. In 1965, Petersen reported 1154, and in 1977, McKee reported only 844. Similarly, for the same reasons, and in spite of many such bridges being constructed in New Brunswick in the twentieth century, numbers in Canada dwindled from a recorded 425 in 1965 (Petersen) to less than half that number in 1997.

The Harringtons (1975) record seven historic covered bridges built in Ontario; West Montrose, Frankford, Nappanee, Peterborough, Trenton, Williamstown and Martintown. To these should be added the crossing at Shingle Bridge (Blair) on the Huron Road. West Montrose's Kissing Bridge represents the sole survivor of these. (It is noted one other covered timber truss bridge was constructed in 1992 in Guelph, Ontario for pedestrians and other small reproductions exist elsewhere in Ontario).

The West Montrose Covered Bridge represents the only authentic vehicular covered bridge in Ontario, the 8th oldest covered bridge in Canada, and probably the longest Queen Post variant bridge in North America. Only 65 to 70 Queen truss variants of this vintage or older remain in North America.

The bridge is an integral component of the cultural fabric of the local community and as such has been designated under Township of Woolwich by-Law Number 60-2007 to be of cultural heritage

value or interest pursuant to the provisions of section 29 of the Ontario Heritage Act, R.S.O. 1990, Chapter O.18.

Attributes identified in the By-Law which must be retained in any works (rehabilitation, restoration or modification) include:

- The original location of the bridge
- The original dimensions of the bridge
- The original truss configuration
- The central pier
- The exterior sheathing and interior paneling and louvered window openings
- The shingle gable roof
- The system of illumination by 'decorative' electric interior lamps
- Views to and into the bridge from the north and south banks of the Grand River

The fore going items must be inherent in the preservation planning.

3.2 Structure History

The structure is located on a township road off Waterloo Regional Road 86 over the Grand River in Lot 71, Township of Woolwich, in the Regional Municipality of Waterloo. The Township road formerly formed part of Regional Road 86.

Following its design in 1880:



"The covered bridge at West Montrose was built for Woolwich Township, Waterloo County, by the Bear (or Baer) brothers Sam and John in 1881, at a cost of $3179.50. The finest pine timbers some of them 9" X 18" X 50' were cut and hauled from Doon. Their finished bridge measured 196.5 feet across the Grand River with an additional 6-foot overhang at each portal. The bridge was 17 feet wide inside with a 13-foot clearance, and consisted of two equal spans resting on cedar cribs, now replaced by concrete (wing) abutments and a stone centre pier. The louvered window openings admitted air and light while keeping out snow and rain. The 3-inch oak planking was laid transversely and not nailed down" (Harrington, 1975)

At this time (or possibly later) much of the exterior sheeting of the west wall and part of the east wall was replaced. It is noted the original sheeting is tongue and groove battens between boards while the 'new' is butting barn boards with a batten covering the joints.

A major rehabilitation of the structure was carried out by the Ontario Department of Highways in 1950 when the original flooring was replaced with a laminated deck (2" x 4" laminations). The 2" x 4" spruce timber deck is covered with 1"± asphalt and is supported on a mixture of 5" x 10" No.1 White Pine (original) and 6" x 12" No. 1 Douglas Fir (new) stringers at 18"± centres. It is also recorded that approach modifications, installation of electric lighting and rebuilding of the centre pier (top?) was also included in the work. Highway 86 was re-routed north of the existing road (and the Village of West Montrose) in 1950.

As a result of concerns over the structural integrity of the bridge, the Ministry reinforced the bridge by the introduction of Bailey Panel Trusses placed adjacent to the existing timber trusses. The original internal paneling (to protect the lower 5' - 0" of the timber truss) was removed to place the Bailey Trusses. After installation, new tongue & groove paneling was added to enclose the Bailey resulting in a sympathetic reinforcement of the structure retaining the visual characteristics of the original, the Bailey trusses being completely hidden.



The original roofing fabric (No. 1 shingles, 5 inches to the weather) was replaced in 1987.

The superstructure is now supported on concrete abutments and a masonry pier. The date of replacement of the original timber crib abutments is unknown, however it is believed the pier was replaced in 1900 and assumed the abutments were replaced shortly thereafter.

The bridge provides a roadway width of approximately 15' between timber curbs and accommodates a single lane of vehicular traffic.

A chronological record of construction/maintenance of the bridge is included in Appendix 1 of this report. The summary is based on Ministry of Transportation Records, newspaper reports, literature reviews and reports from historical documents in the care of the Waterloo Historical Society.

3.3 Structural Systems

The trusses of the West Montrose Bridge are commonly referred to in literature as Queen Post Trusses. However their configuration does not truly represent a Queen Post and is probably more correctly described as a hybrid Howe configuration. The confusion probably arises from the unusual (if not unique) top chord configuration which gives the impression of two superimposed Queen Posts with a King Post at mid-span (see Appendix 2, Sheet 3). A true Queen Post includes two or three verticals, single uniform top chord and inclined end members (i.e. no interior diagonals). Queen Posts were entirely of heavy timber construction.

Cross bracing in the form of iron rods is included below the bottom chord level to transfer lateral wind loads to the support points. The cross bracing was supplemented by the Ministry with longitudinal chord reinforcing rods in 1959 as a strengthening.

The enclosure is simple post and beam construction typical of framed buildings of the time. However the system providing lateral stability of the frame is rare. Lateral stability is provided by the extension of alternate floor beams (needle beams) beyond the trusses to accommodate an inclined exterior rod brace. The system has been more recently supplemented by steel ships knees and cable bracing.

Few examples of this form of bracing have been found in the literature and those found incorporate enclosures around the brace/needle beam to prevent the deterioration observed at West Montrose. (Protection of some kind was an original intent at West Montrose, although it is not known if it was included in the original construction.)

Although added at a later date and of secondary interest, the Bailey system is of some historical significance. The system was developed by Donald Bailey of the Experimental Bridging Establishment in 1941 for the use of Allied Forces. Full scale production started in July 1941 with almost 700,000 panels being produced over final war years. The panels included in the West Montrose Bridge are part of this number being date marked 1944 and including the steel mill designated Frodingham.

> *"The Bailey Panel, BB.1, is a welded fabrication comprising two chord members interconnected by vertical and diagonal bracing. These members are made from special high tensile steel. At one end of the panel both chords terminate in male lugs and at the other end in female jaws. Panels are connected together end-to-end by engaging these lugs and jaws and inserting panel pins through the pin-holes."*

Further details of the existing structure can be found in the MTO Report ' Structural Evaluation of West Montrose Covered Bridge, MTO Site 33-58, 1997, prepared prior to transfer of ownership to the Region attached as Appendix 5.

3.4 MTO Ownership

The Ontario ministry assumed ownership of the bridge in 1937 and which they 'semi-retired' in 1959 with the construction of the Hwy 86 bridge over the River.

Under provincial stewardship major repairs to the bridge were carried out including replacement of the deck with a laminated timber deck, needle beam repairs and re-roofing.

In the 1950s, in response to structural concerns Bailey Truss lines were installed within the structure to supplement /replace the load carrying elements of the timber truss. The existing interior paneling was relocated, marginally reducing the road way width, in order to screen the bailey trusses and maintain the aesthetic of the interior

It is also noted that electrical illumination was added to the interior of the bridge in 1950

3.5 Regional Maintenance History

As a result of realignment of ownership of Provincial infrastructure the Region of Waterloo acquired ownership and responsibility for the Covered Bridge in 1998. Following the acquisition major rehabilitation works were carried out in 1999/2000 By Theo Vandenberk Contracting (see Appendix 2). In addition to significant replacement of deteriorated sections of the primary truss members, the work included temporary support of the superstructure to facilitate replacement of Bailey panels at the pier location to address local shear deficiencies and permit realignment of the Bailey Truss bearings. In particular the realignments included levelling of the north-west bearing through bearing seat reconstruction. Retainer pins were also installed to prevent lateral translation of the timber truss bolsters.

Circa 2003 repointing of the pier masonry was carried out.

In February 2011 during routine biannual bridge inspections a failure of the north-west bearing seat was identified and the seat reconstructed including the replacement of the original.

In September 2012 a passing canoeist reported observation of a significant crack in a primary floor beam. On investigation it was determined that failure of the beam could be attributed to passage of a significantly overweight vehicle. After a short period of closure the floor beam was replaced in kind.

Areas of deterioration were identified in the shingle roof and Fall 2013 saw limited repairs carried out to shingle roof with full replacement scheduled for a later date. Repairs included replacement of shingles in local areas of deterioration and full replacement of the ridge cap.

APPENDICES

Appendix 1 – Bridge Chronology

1880	John Bear Retained for Design
1881 Jan.	Tenders
1881	Construction
1882	Painting with 'residue oil and brown fire-proof paint'
1885 Dec.	Lamps (coal oil) added
Circa 1900 ?	Stone Pier Constructed to Replace Timber Pier
1904	Deck planked (over existing)
1933	Lower chord spliced. Needle beam replaced.
1937	DMO assumed bridge (2 Ton on posting/10 mph)
1950	Lamp lighting terminated/ electric illumination installed
1954-?5	• Laminated deck to replace oak planking • New centre pier bearings and Structure Leveling • Rebuilt approaches • Shutter type windows renovated • Electrical light set in lanterns (3-100 watt bulbs)
1955	Posting 2 Ton/5 mph
1959	Major Repairs (5 Ton posting) • Steel reinforced, poured concrete cap on centre pier • Needle beams removed and replaced • Floor beams removed and replaced • Rotted and cracked lower chord beams replaced • Corner bearer blocks replaced • Rub rail installed • Damaged concrete removed and re-poured on ballast walls • Concrete wall poured on north end to prevent further undermining of abutment wall • 1" dia. steel reinforcing chord, end to end with turn buckles (2 sides) • Vertical sheathing (6') installed on two sides • Structure painted complete Cont. IB 15-60 • Deck coated with colas and pea gravel • Bailey installed to carry bridge while repairs were being made, supported on pavement on ends and on centre pier.
1959	Semi-retired (new bridge upstream)
1960 Aug. 28	Recognized as provincial historic site
1963	Recommendations made to tighten reinforcing rods, take levels to monitor sag, enforce 5 Ton limit

1965 ? or more likely 1966	Major Rehabilitation by Ministry: • Tightening rods and hangers. • Erection of Internal Bailey Trusses started. • Needle beams and floor beams treated with coal tar preservative
Early 1970's	Repairs and repainted.
1971 Summer	Truss rods tightened. Ridge boards and battens tightened/repaired. Timber truss treated with preservative.
1971 October	Painting - interior and exterior
1986	Underwater inspection
1987	Re-roofing (K-W Record)
1995-96	Needle beam extensions replaced (using 2x12.laminations?)
1998	***Structure Acquired by the Regional Municipality of Waterloo***
1998	• Repairs to pier • Emergency repairs to needle beam using 2x12 lamination for the extensions • Temporary Deck Repairs • Reconstruction of north approach • Repairs to north abutment
1999/2000	Major Rehabilitation including • Repairs to timber trusses (replacement of rotted sections) • Cladding repair • Strengthening of Bailey trusses (panel replacements) • Bearing leveling • Full re-decking (Mennonite labour)
2000	Incorporation into Trans Canada Trail
2001?	Repairs to Pier, repointing all joints
2004	Bridge repainted
2007	Heritage Designation under Part IV of the Ontario Heritage Act
2011	North East bearing seat repair and bearing replacement
2012	Interior painting
2012	Floor beam replacement
2013	Roof repairs. Shingle repairs and ridge cap replacement

Notes:

1. Date replacement of abutments is not recorded, however believed to be late 19 century.
2. Undermining of pier and differential settlement took place prior to 1942.

1.0 Introduction

1.1 Background

Throughout the 19th century the construction of covered timber truss bridges proliferated in North America. In the period from the construction of the first recorded bridge at the turn of the century (by Timothy Palmer in Philadelphia) to shortly after the American Civil War it is estimated 10,000 to 12,000 such bridges were erected in the USA alone. Although generally associated with the Eastern States it is worthy of note that Western states should be accorded the same association. Neglect, fire, flood and "progress" has sadly depleted that number significantly. 1300 were recorded by Adams 1963 as remaining in USA; by Petersen 1965, 1154; and by McKee 1977, 844.

Similarly, for the same reasons and in spite of many such bridges being constructed in New Brunswick in the twentieth century, numbers in Canada dwindled from a recorded 425 in 1965 (Petersen) to less than half that number in 1997.

The Harringtons (1975) record seven historic covered bridges built in Ontario; West Montrose, Frankford, Napanee, Peterborough, Trenton, Williamstown and Martintown. To these should be added the crossing at Shingle Bridge (Blair) on the Huron Road. West Montrose's Kissing Bridge represents the sole survivor of these. (It is noted one other covered timber truss bridge was constructed in Ontario for pedestrians in Guelph 1992).

Giffels Associates Limited was retained by the Ministry of Transportation, Southwestern Region to carry out a detailed inspection and structural evaluation of the West Montrose Covered Bridge (Site 33-58) (photos 1 through 5). Quaile Engineering Ltd. was retained by Giffels as special consultant to perform inspection and evaluation of the timber components.

1.2 Structure History

The structure is located on a township road off Waterloo Regional Road 86 over the Grand River in Lot 71, Township of Woolwich, the Regional Municipality of Waterloo. The township road formerly formed part of Regional Road 86.

Following design in 1880 (see Appendix E for specifications)

> *"The covered bridge at West Montrose was built for Woolwich Township, Waterloo County, by the Bear (or Baer) brothers Sam and John in 1881, at a cost of $,3179.50.*

Excerpt from "West Montrose Covered Bridge Structural Evaluation Report" by Giffels Associates Ltd. (now part of Arcadis), dated 1997

> *The finest pine timbers some of them 9" X 18" X 50' were cut and hauled from Doon. Their finished bridge measured 196.5 feet across the Grand River with an additional 6-foot overhang at each portal. The bridge was 17 feet wide inside with a 13-foot clearance, and consisted of two equal spans resting on cedar cribs, now replaced by concrete (wing) abutments and a stone centre pier. The louvered window openings admitted air and light while keeping out snow and rain. The 3-inch oak planking was laid transversely and not nailed down" (Harrington, 1975).*

By 1933,

> *"in spite of sheeting outside and to a height of 5 feet inside, moisture had rotted part of the lower chord. A needle beam was replaced and the timber chord spliced with steel plates" (Harrington, 1975).*

At this time (or possibly later) much of the exterior sheeting of the west wall and part of the east wall was replaced. It is noted the original sheeting is tongue and groove battens between boards while the 'new' is butting barn boards with a batten covering the joints.

A major rehabilitation of the structure was carried out by the Ontario Department of Highways in 1950 when the original flooring was replaced with a laminated deck (2" x 4" laminations). The 2" x 4" spruce timber deck is covered with 1"± asphalt and is supported on a mixture of 5" x 10" No.1 White Pine (original) and 6" x 12" No. 1 Douglas Fir (new) stringers at 18"± centres. It is also recorded that approach modifications, installation of electric lighting and rebuilding of the centre pier (top?) was also included in the work. Highway 86 was re-routed north of the existing road (and the Village of West Montrose) in 1950.

As a result of concerns over the structural integrity of the bridge, in 1965 the Ministry reinforced the bridge by the introduction of Bailey Panel Trusses placed parallel to and adjacent to the existing timber trusses.

The original internal paneling (to protect the lower 5' - 0" of the timber truss) was removed to place the Bailey Trusses. After installation, new tongue & groove paneling was added to enclose the Bailey (see drawings Appendix C) resulting in a sympathetic reinforcement of the structure retaining the visual characteristics of the original, the Bailey being completely hidden (Photos 10 through 13).

The original roofing fabric (No. 1 shingles, 5 inches to the weather) was replaced in 1987.

A chronological record of construction/maintenance of the bridge is included as Appendix D This summary is based on Ministry of Transportation Records, newspaper reports, literature reviews and reports from historical documents in the care of the Waterloo Historical Society

The superstructure is now supported on concrete abutments and a masonry pier (photos 1, 2, and 55). The date of replacement of the originally specified timber substructure is unknown, as are details of the current substructure.

The bridge provides a roadway width of approximately 15' between timber curbs and accommodates a single lane of vehicular traffic.

1.3 Structural Systems

The trusses of the West Montrose Bridge are commonly referred to in literature as Queen Post Trusses. However their configuration does not truly represent a Queen Post and is probably more correctly described as a hybrid Howe configuration. The confusion probably arises from the unusual (if not unique) top chord configuration which gives the impression of two superimposed Queen Posts with a King Post at mid-span (photos 9 through 11). A true Queen Post includes two or three verticals, single uniform top chord and inclined end members (i.e. no interior diagonals). Queen Posts were entirely of heavy timber construction.

William Howe introduced iron rods as a modification to the popular 'Long' truss in 1840. He substituted iron rods with nuts and turn buckles for the timber uprights of the 'Long' configuration. However, as noted, the top chord configuration and joint configurations of the West Montrose Bridge represents a unique departure from the typical 'Howe' truss.

Cross bracing (iron rods) is included below the bottom chord (photo 26) to transfer lateral loads to the support points. The cross bracing was supplemented with longitudinal chord reinforcing rods in 1959 (photos 28 and 33).

The enclosure is simple post and beam construction typical of framed buildings of the time. However the system providing lateral stability of the frame is rare. Lateral stability is provided by the extension of alternate floor beams (needle beams) beyond the trusses to accommodate an inclined exterior rod brace (photos 1 through 4). This system was considered poor practice since it was considered that *"each passage of load would throw the top of the truss* (and enclosure) *back and forth on account of the deflection of the floor beam" (Fletcher & Snow in American Wooden Bridges 1976)*. The system has been supplemented by steel ships knees and cable bracing (photos 18 and 19)

Few examples of this form of bracing have been found in the literature and those found incorporate enclosures around the brace/needle beam to prevent the deterioration observed at

West Montrose. (Protection of some kind was an original intent at West Montrose, see Appendix E although it is not known if it was included in the original construction.)

Although added at a later date and of secondary interest, the Bailey system is of some historical significance. The system was developed by Donald Bailey of the Experimental Bridging Establishment in 1941 for the use of Allied Forces. Full scale production started in July 1941 with almost 700,000 panels being produced over final war years. The panels included in the West Montrose Bridge are part of this number being date marked 1944 and including the steel mill designated Frodingham.

> *"The Bailey Panel, BB.1, is a welded fabrication comprising two chord members interconnected by vertical and diagonal bracing. These members are made from special high tensile steel. At one end of the panel both chords terminate in male lugs and at the other end in female jaws. Panels are connected together end-to-end by engaging these lugs and jaws and inserting panel pins through the pin-holes."*

The bearing plates are modified type, B.B. 19. (photos 42 through 48)

> *The Bearing, BB.19, is a flat plate upon which a round bar is supported by four shaped stiffeners which divide the round bar into three sections. It accepts the loads from the end posts of the bridge and transfers them to baseplates or to concrete foundations. In single truss bridges, the end post sits on the centre section of the bearing bar.* (Bailey Uniflote Handbook)

Modification of this bearing by removal of end section of the bearing bar together with the selected placement location of the end post results in an uneven pressure distribution under the plate. The modifications were presumably made to facilitate installation and permit enclosure construction and timber curb placement to provide maximum roadway width.

APPENDIX D
ON-SITE OBRSERVATIONS AND NON-DESTRUCTIVE TESTING REPORT

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October 3, 2023

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150 Frederick St.
Kitchener, ON N2G 4J3
519-575-4400 mipinto@regionofwaterloo.ca

Attention: Michelle Pinto, P.Eng., MBA
Project Manager

CC:
Entuitive
200 University Avenue, 7th Floor
Toronto, ON M5H 3C6
437-219-4715 andrew.lehan@entuitive.com

Attention: Andrew Lehan, P.Eng., M.A.Sc.
Senior Engineer

Re: On-site Observations and Non-destructive Testing at West Montrose Covered Bridge, West Montrose, ON
Structural observations and measurement report on timber bridge

Introduction

Moses Structural Engineers Inc. was retained to perform on-site observations and non-destructive testing of the West Montrose Covered Bridge in West Montrose, Ontario. Site visits were conducted in two phases. Phase 1 took place from Tuesday February 21 to Thursday February 24, and Friday February 27, 2023 for the structural elements accessible from the inside of the bridge. Phase 2 took place from Tuesday June 13 to Thursday June 15, 2023 for the exterior structural elements accessible from the underside of the bridge. We had previously visited the bridge in September 2017 and issued a condition assessment report in November 2017 of select members accessible to us at the time of that site visit.

Reference documents

The following documents, received via email on September 2022, were referred for the preparation of this report:

- Drawing set for the repair of the bridge in 1999 which includes: General Arrangement, Temporary Support Scheme for Bailey Panel Replacement, and Timber Truss Repairs drawings; and

- West Montrose Covered Bridge Detailed Inspection Report prepared by Doug Dixon & Associates Inc. for The Region of Waterloo dated June 2020.

Scope of work

Our scope of work consisted of:

- A visual review of timber members, connections and steel rods required for evaluating the structural integrity of the bridge.
- Resistance drilling measurements with drilling rod of 400 mm maximum in length.
- Moisture content readings of wood members adjusted for temperature and relative humidity at the time and location of the site visit.
- Collection of wood samples to confirm species.

Assessment of the existing conditions, evaluation of the structural integrity, repair solutions for the bridge are not within the scope of this report.

Description of existing bridge

The 197-foot-long bridge was built in 1881, repaired over the years and rehabilitated in 1959 and 2000. The bridge is used by pedestrians, traffic, and horse-drawn vehicles to cross the Grand River. The structure is a covered, wooden truss bridge, comprised of two 98.5-foot spans supported by a stone pier near the midspan of the bridge. In 1959, steel Bailey trusses were installed and concealed behind wooden panels. A steel sway brace system was installed under the bridge. Refer to the detailed inspection report by Doug Dixon and Associates Inc. for a description of the existing bridge structure. Figures 1 and 2 were taken in February 2023 during the Phase 1 site visit and Figures 3, 4, 5 and 6 were taken in June 2023 during the Phase 2 site visit. Additional photographs can be found in the Appendices.



Figure 1: South Elevation



Figure 2: Bridge Interior – West Side (Facing North)



Figure 3: Bridge Exterior – West Side (Facing North-East)



Figure 4: Bridge Exterior – East Side (looking up from South-East corner)



Figure 5: Bridge Exterior – Underside (looking up from South abutment)



Figure 6: Bridge Exterior – East Side (looking South from mid-pier)

Non-destructive testing methodology and interpretation

Resistograph

Non-destructive testing of wood members was undertaken using resistance drilling to analyse internal conditions. The resistance drill (IML-RESI PowerDrill 400) is capable of drilling a maximum 400 mm into a wood member using a small diameter drill bit at constant RPM and forward velocity while measuring the torque experienced by the drill bit. The resulting resistance is plotted along the depth of the drill hole and provides a general picture of wood member condition including defects Since readings are taken at specific sample points, it is not always advisable to interpolate between drill locations. Figure 7 shows a sample resistance plot generated by the resistograph for one of the diagonal members.

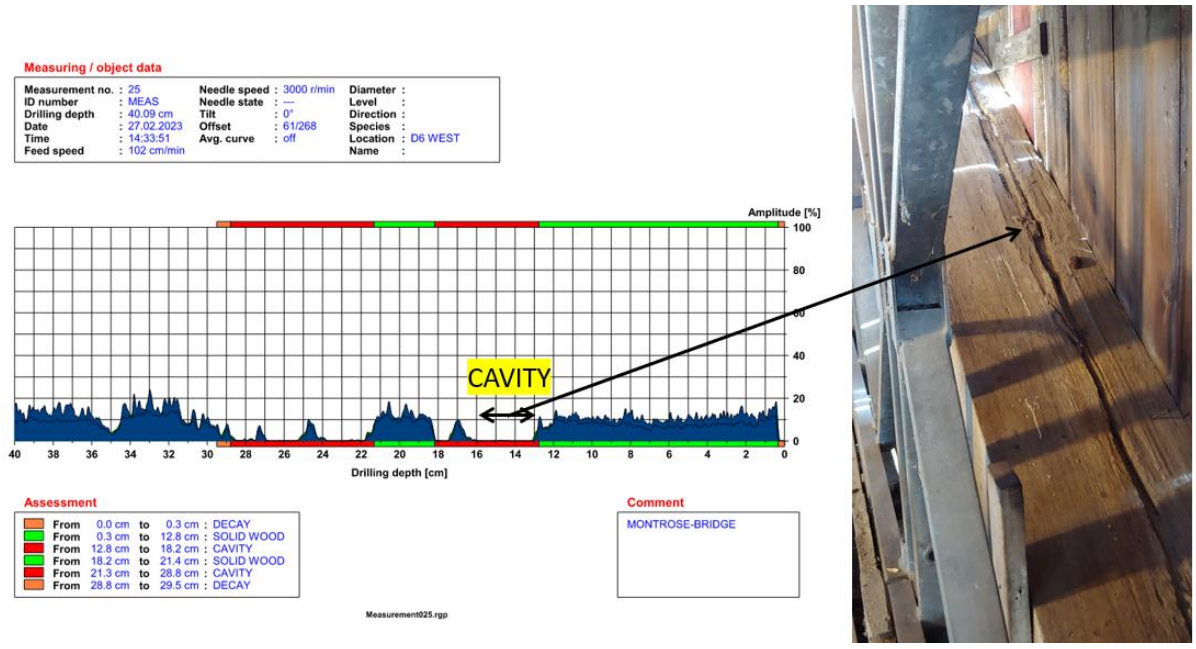


Figure 7: Sample Resistograph Reading of Interior Truss Diagonal

A constant plot indicates no change in resistance. Peaks in the plot indicate higher relative resistance as might be caused by drilling through a knot or tree rings. Troughs in the plot indicate lower relative resistance as might be caused by defects in the wood such as decay. Zero resistance in the plot indicates defects such as splits, checks and cavities where there is no wood to provide resistance. A

constant plot with very low amplitude may indicate wood with a constant resistance that is otherwise "soft" due to possible factors including high moisture content.

Needle drill locations of each member and descriptive summaries of the resistograph reading plots are provided in the Appendices B and C in a one-member-per-page format. Refer to Appendix A for member identifications. The resistograph results in Appendices B and C use terms "solid wood", "check", "decay", "cavity", and "gap". Solid wood indicates that no defect is detected. Check indicates a very small distance of zero resistance due to checking or a split. Cavity indicates a larger length of zero resistance including cavities caused by decay or due to natural defects in the wood. Gap is referred to the space between member of interest and the adjacent member where the needle penetrating through. Readings were taken either horizontally into the member breadth or vertically along the member depth depending on available access. Resistograph readings of the truss diagonals (D), lower diagonals (LD), top chords (TC), lower top chords (LTC), cross-beams (CRB), floor beams (FB), and needle beams (NB) were taken horizontally from the member sides during Phase 1 site visit with the exception of spacer blockers (SPB), where readings were taken vertically down from the top surface. All resistograph readings of the exterior lower chord (LC) and stringer (STR) member readings were taken vertically up from the underside of the members during the Phase 2 site visit.

The resistograph needle was not able to drill fully through the member sections of the truss diagonals (D), lower diagonals (LD), top chords (TC), and lower top chords (LTC) because the member breadth exceeds the needle length of 400 mm leaving approximately 50 mm of undrilled length. Drilling from the opposite side was not possible due to limited access. It is in our opinion that with 400 mm maximum drill length, the needle went through the majority of the section to acquire sufficient data and adequately assess existing conditions.

Some of the members were not fully drilled through because of an impenetrable element within the member (e.g., knots). In these cases, data was noted as impenetrable, or partially drilled and another fully drilled reading was taken nearby.

Moisture content measurement

The moisture content of wood is the percent ratio of the weight of water in wood to the oven-dry wood weight. Moisture content measurements of the existing members of the bridge were taken using a Delmhorst RC-1E meter rather than oven-dried specimens. The device consists of an analog meter and an electrode attached to a pair of insulated pins. The pins are driven into the wood member and the meter uses the electrical resistance between the tips of the pins to determine the percentage moisture content at the depth of the driven pins. The results are then corrected for pin type, ambient air temperature at the time of measurement, and wood species of the member.

Wood is well understood to decay above 30% moisture content and will not decay below 20% moisture content. Moisture contents between 20% and 30% represents an indeterminate area where decay may or may not have occurred. The rate of decay will depend on whether the wood is continually wet, is subject to cycles of wetting and drying and if moisture can become trapped. Additionally, wood can be more susceptible to decay when moisture enters the end grain as opposed to the side grain. Corrected moisture content readings are provided in the Appendices B and C in a one-member-per-page format. Refer to Appendix A for member identifications.

Visual observations

Wood members for bridge structure

Visual observations of wood members for the bridge structure are provided in Appendix B and C in a one-member-per-page format. Refer to Appendix A for member identifications. Locations of the vertical steel rod members and windows are measured from the north bearing end of the bridge and provided in Appendix D.

Wood members for roof structure

Roof planks, when viewed from below, appeared to be in fair condition – this was a cursory review and may not account for areas of localized deterioration or deterioration on the top side (under the shingles). Small holes and openings were visible from the underside at the time of the site visit. The roof rafters and ridge board appeared to be in good condition at the time of Phase 1 site visit with no visible sagging and deterioration.

Steel components

Corrosion and pitting were exhibited on the steel components as shown in Figures 8, 9, 10, and 11.



Figure 8: Existing Condition of Steel Components for Floor Beam Support



Figure 9: Existing Condition of Steel Components at Mid-Pier



Figure 10: Existing Condition of Steel Components for Needle Beam Support and Deck Cross-Brace Node



Figure 11: Existing Condition of Interior Steel Rods and Hardware

Some steel components exhibited milder corrosion than figures above as shown in Figure 12.



Figure 12: Existing Condition of Steel Components Below Lower Chords

Exterior cladding

As shown in Figures 4 and 6, the exterior cladding was found to be in fair-to-poor condition with small holes and openings in many damaged boards, as shown for example in Figure 13, and deterioration in boards. It should be noted the exterior cladding does not go up to the underside of the roof deck since there is not blocking between the roof rafters - this allows the interior wood truss members to be exposed to snow and rain.



Figure 13: Existing Condition of Exterior Cladding Viewed from Interior

Close to the South-East corner of the bridge, segments of the bottom portion of the exterior cladding are deteriorated along with the exterior lower chords. Refer to Appendix E for specific locations and pictures of decayed areas on the exterior cladding.

Interior cladding

The interior cladding appeared to be in fair condition at the time of the site visits and appears to provide some protection to the interior steel truss (Bailey truss) and the wood truss diagonals.

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Please contact us if you have any further questions or if you require any clarification.

Yours truly,

Moses Structural Engineers Inc.



David Moses, PhD, PEng, PE, LEED®AP
Principal



Mark Prescott, MSc
Associate



Marcel Hong, MASc, PEng
Associate

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engineers

Disclaimer

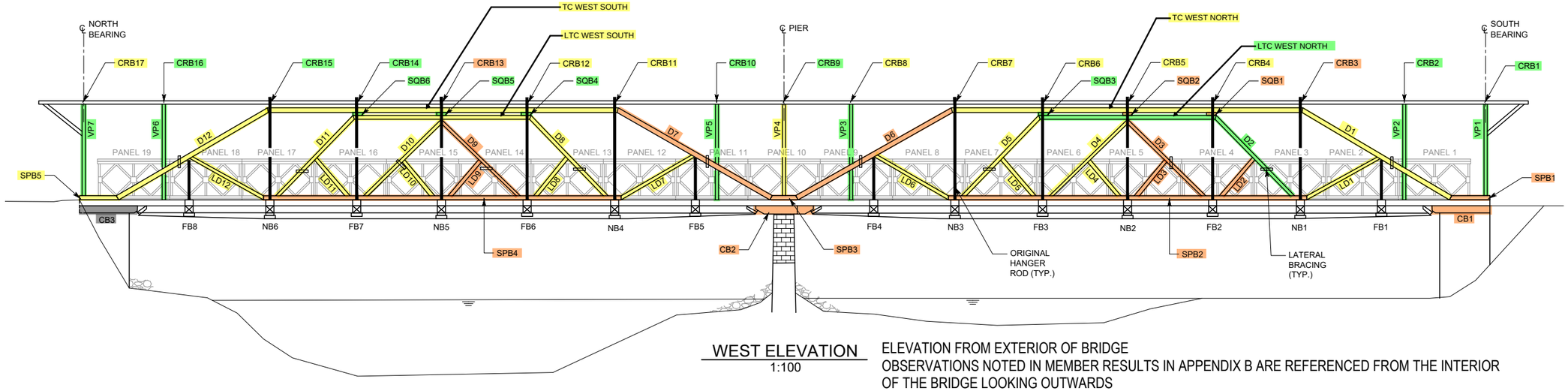
1. Information provided by Moses Structural Engineers Inc. is intended for the exclusive use of Region of Waterloo. Moses Structural Engineers Inc. will not provide results or information to any party other than the client, unless the client, in writing, requests that information be provided to a third party or unless disclosure by Moses Structural Engineers Inc. is required by law. Any use by a third party, of reports or documents authored by Moses Structural Engineers Inc., or any reliance by a third party, or decisions made by a third party, on the findings described in reports or documents authored by Moses Structural Engineers Inc., is the sole responsibility of such third parties. Moses Structural Engineers Inc. accepts no responsibility for damages suffered by any third party as a result of decisions made or work carried out based on reports or documents authored by Moses Structural Engineers Inc.
2. Moses Structural Engineers Inc. makes no representations concerning the legal and medical significance of our findings. With respect to regulatory compliance requirements, regulations change from time to time, and interpretation of their meaning and intent may also change. Moses Structural Engineers Inc. accepts no responsibility for any legal interpretation of the regulations, or the consequent financial effect on transactions, property values, or requirements for follow-up actions and costs.
3. This study and Report have been prepared in accordance with generally accepted engineering or structural engineering consulting practices in this area. No other warranty, expressed or implied, is made.
4. Reliance on Provided Information: The evaluation and conclusions contained in the Report we prepare are on the basis of conditions in evidence of limited sampling at the time of site visits and on the basis of information provided to the Engineer. The Engineer has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, the Engineer cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of persons providing information.
5. Independent Judgements of Client: The information, interpretations and conclusions in our Report will be based on the Engineer's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. The Engineer cannot accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. All investigations utilizing the standard of item 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sample points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report. This restriction of liability includes decisions made to buy, sell, retain or demolish a structure.
6. Nature and Exactness of Structural Integrity Description: Classification and identification of structural elements and their conditions have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations utilizing the standard of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.

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Appendix A: Member IDs & Existing Conditions Summary

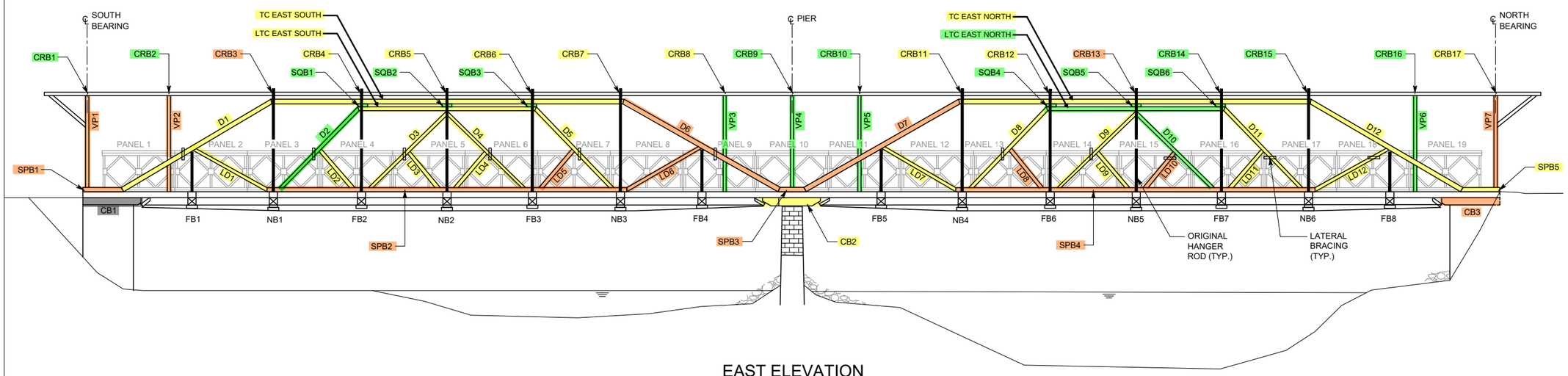
366 Adelaide Street West, Suite LL04, Toronto, Ontario, M5V 1R7 Tel: 416 255 3337
www.mosesstructures.com

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020



WEST ELEVATION
1:100

ELEVATION FROM EXTERIOR OF BRIDGE
OBSERVATIONS NOTED IN MEMBER RESULTS IN APPENDIX B ARE REFERENCED FROM THE INTERIOR OF THE BRIDGE LOOKING OUTWARDS



EAST ELEVATION
1:100

ELEVATION FROM EXTERIOR OF BRIDGE
OBSERVATIONS NOTED IN MEMBER RESULTS IN APPENDIX B ARE REFERENCED FROM THE INTERIOR OF THE BRIDGE LOOKING OUTWARDS

NOTE:
* refer to S100 and S101 for existing conditions of LC, STR, FB & NB.

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Toronto, Ontario, M5V 1R7
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EXISTING CONDITIONS

N/A
Member was not inspected either due to limited access or similar members previously inspected adequately represents the existing conditions.

POOR
Severe deterioration.

FAIR
Minor deterioration. Member is still serviceable.

GOOD
No comments from visual review and resistograph readings. Expected MC%.

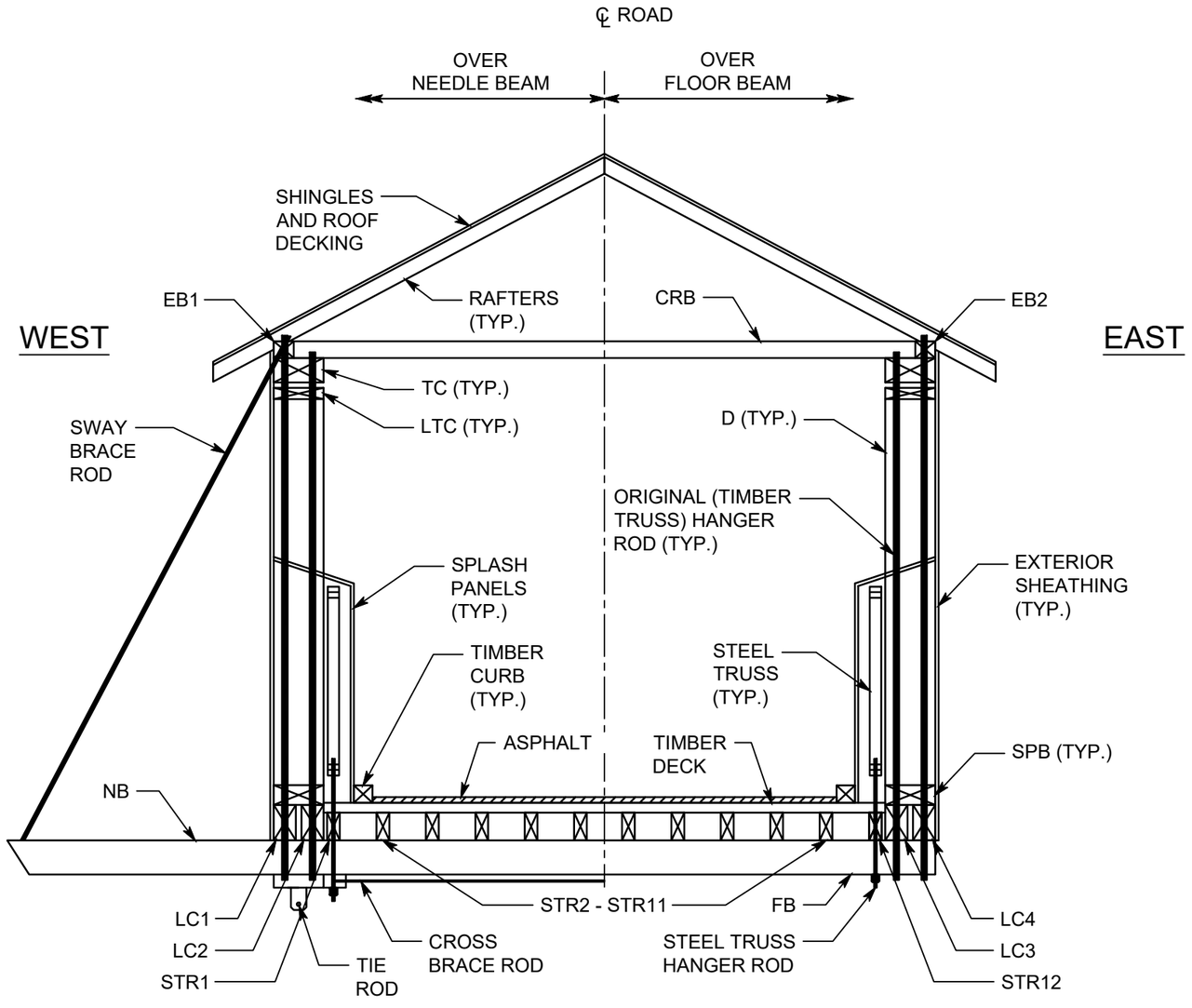
Project:
WEST MONTROSE BRIDGE
WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
ELEVATIONS

Drawing No:
S200



TYPICAL SECTION

1:50

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Project:
WEST MONTROSE BRIDGE

WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

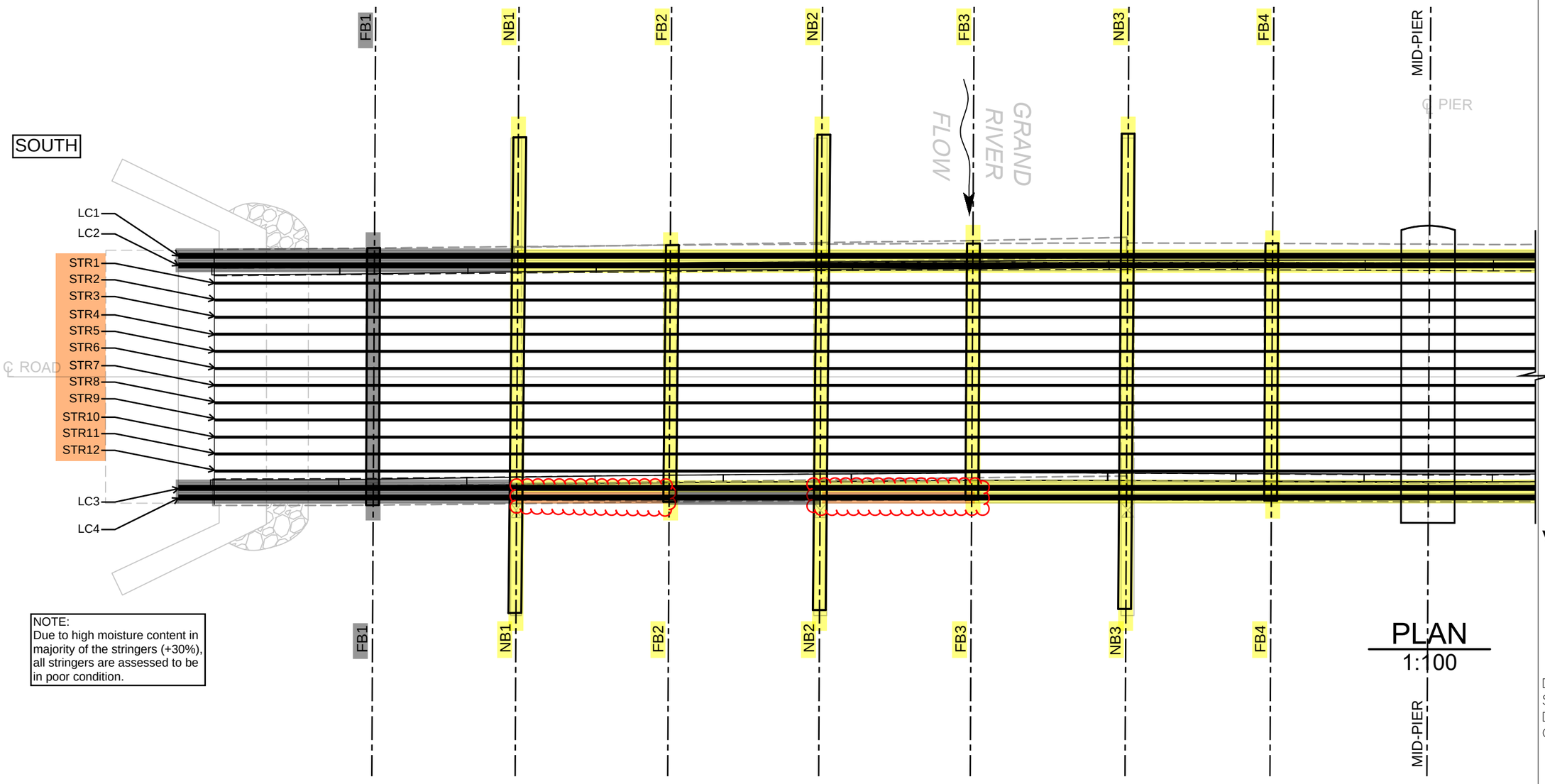
Drawing Title:
ELEVATIONS

Drawing No:
S201

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020

WEST

SOUTH



NOTE:
Due to high moisture content in majority of the stringers (+30%), all stringers are assessed to be in poor condition.

PLAN
1:100

EAST

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EXISTING CONDITIONS

N/A
Member was not inspected either due to limited access or similar members previously inspected adequately represents the existing conditions.

POOR
Severe deterioration.

FAIR
Minor deterioration. Member is still serviceable.

GOOD
No comments from visual review and resistograph readings. Expected MC%.

SEE S101 FOR CONTINUATION

Project:
WEST MONTROSE BRIDGE

WEST MONTROSE, ON

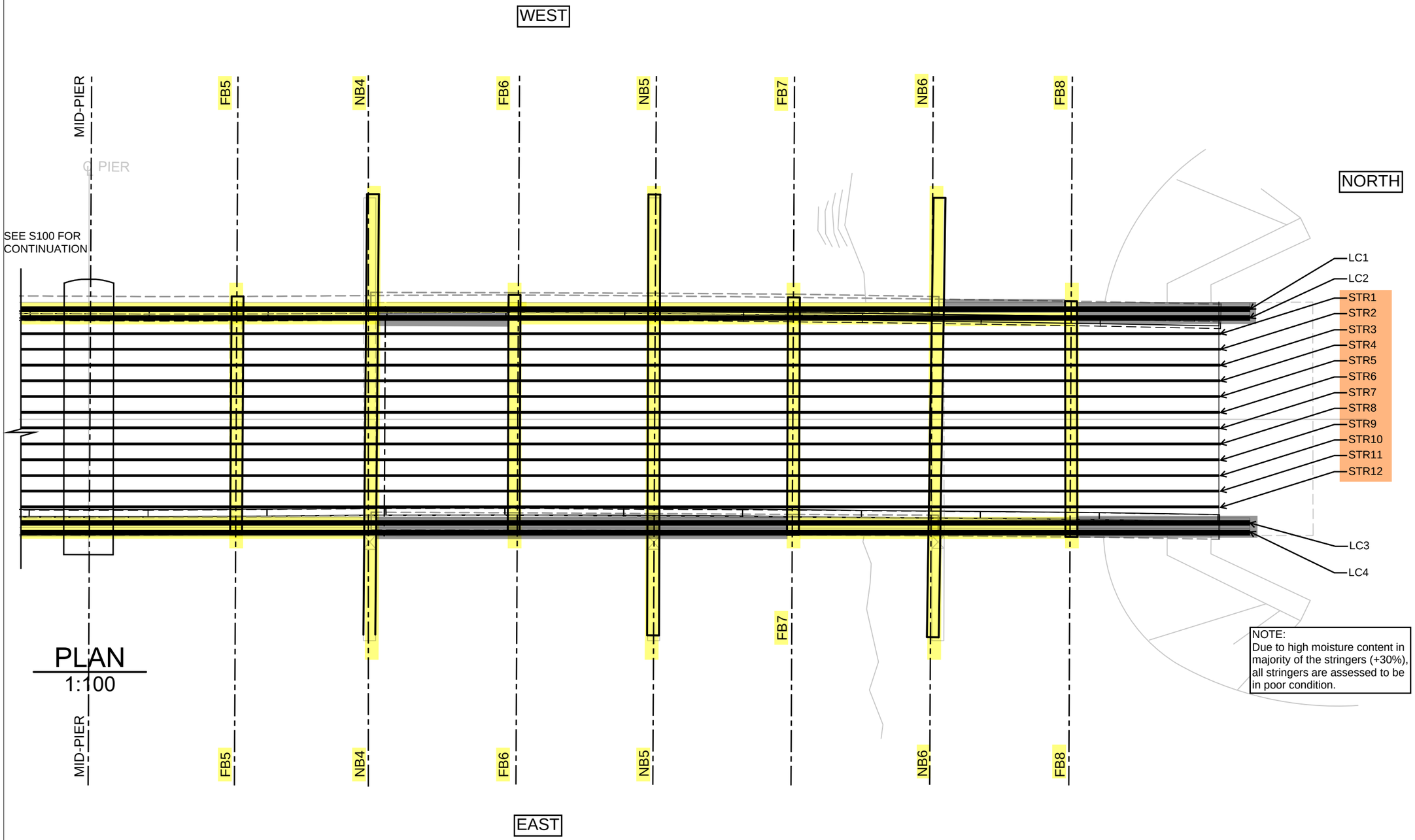
Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
BRIDGE DECK PLAN

Drawing No:
S100

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020



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info@mosesstructures.com

EXISTING CONDITIONS

N/A
Member was not inspected either due to limited access or similar members previously inspected adequately represents the existing conditions.

POOR
Severe deterioration.

FAIR
Minor deterioration. Member is still serviceable.

GOOD
No comments from visual review and resistograph readings. Expected MC%.

Project:
WEST MONTROSE BRIDGE
WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
BRIDGE DECK PLAN

Drawing No:
S101

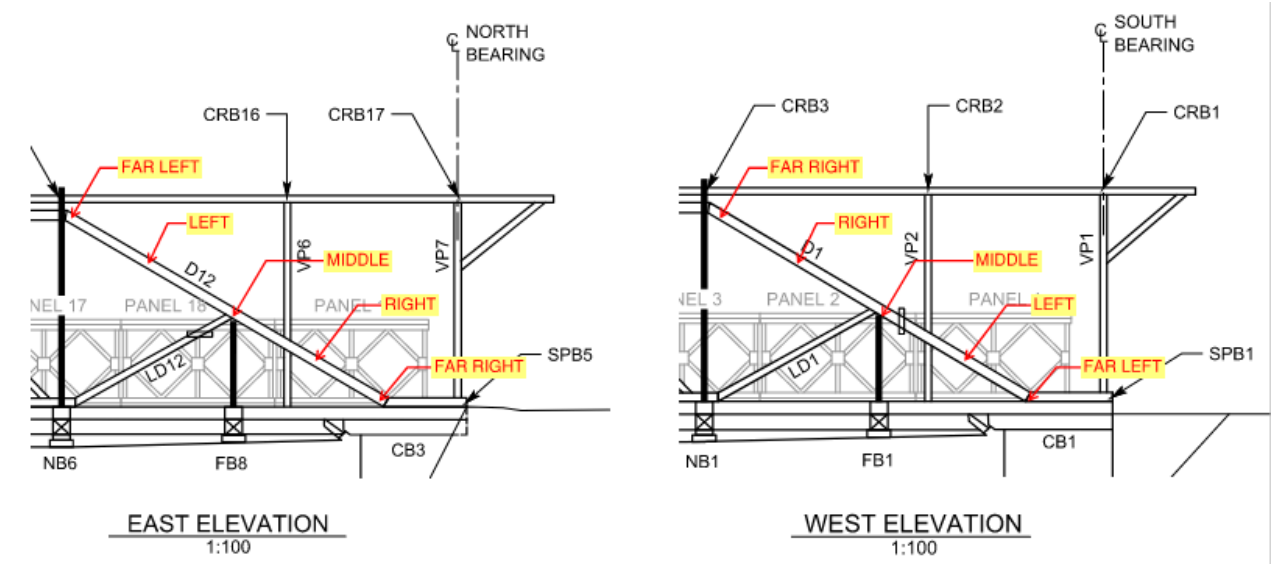
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Appendix B: Observations and Measurements from the Phase 1 Site Visit (February 21-24, 2023)

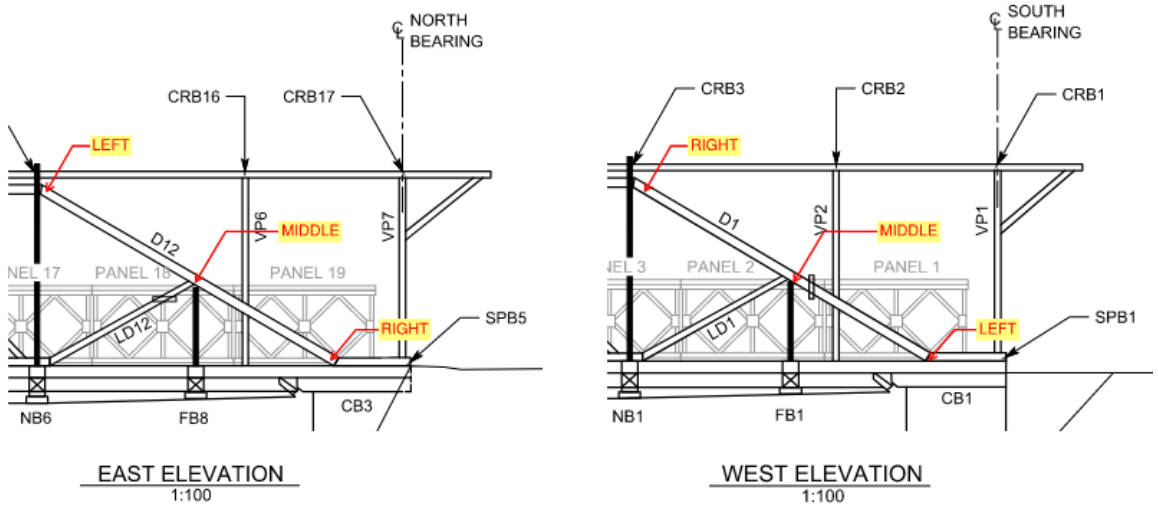
366 Adelaide Street West, Suite LL04, Toronto, Ontario, M5V 1R7 Tel: 416 255 3337
www.mosesstructures.com

Notes:

1. All measurements are in millimetres (mm).
2. Member observations and measurements recorded are provided in the following pages in one-member-per-page format. Where provided, each page provides the following for each member: cross-sectional dimensions, species via laboratory testing, visual review notes, connection information, wood grading estimation, moisture content, resistograph results, and sketches and/or pictures taken during the site visit.
3. Where provided, member dimensions are measured in 6 locations along the member: far left, left, middle, right, and far right where the measurer is standing inside the bridge looking outwards. Figure below shows references for members D12 EAST and D1 WEST. Member cross-sectional dimensions are given (WIDTH) x (DEPTH).



4. Where provided, moisture content and resistograph readings are taken from 3 locations along the member: left, middle, and right where the measurer is standing inside the bridge looking outwards. Figure below shows references for members D12 EAST and D1 WEST.



5. Observations and measurements from the Conditions Assessment report by MSE dated November 28, 2017 are also provided following the same one-member-per-page format in the subsequent page of the same member. The observations and measurements taken in 2017 are marked in light yellow textboxes.

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-4	D1 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	450x220	450x220	450x220	-	7740

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Check at underside of member; continuous along member full length
- Plank insert at underside of member at midpoint

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm OC c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	16.8			17.2			19.1	

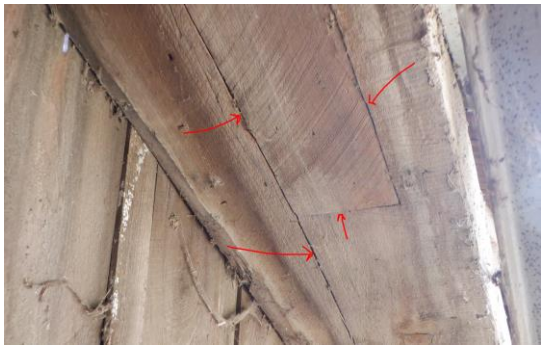
RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth is 400mm which is less than member breadth
Left end: Solid wood
Middle: 13mm check at 178mm horizontal drill depth
Right end: Solid wood

SKETCH / PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D1 EAST (D14 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.8-25.0						17.4	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member depth Right: decay from 241mm to 267mm drill depth, drilled through member width from INNER face up to 400mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-6	D2 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	450x150	450x145	445x140	-	4900

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Minor crushing at top underside
- Minor checks at underside
- Snow coverage on top of member at time of site visit

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	18.7			17.2			17.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D2 EAST (D13 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.8							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member width from INNER face up to 400mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D3 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x127	445x124	445x122	-	4740

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Checks on top and under sides
- Minor checks at interior narrow side

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	17.7			18.5			20.4	

RESISTOGRAPH RESULTS

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: 3mm check at 135mm horizontal depth

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D3 EAST (D12 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.5							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member width from INNER face up to 400mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D4 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x127	445x127	445x127	-	

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Minor checks at top surface near bottom connection
- Snow coverage on top of member at time of site visit

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.3			17.0			17.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: 3mm check at 158mm horizontal drill depth

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D4 EAST (D11 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.8							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member width from INNER face up to 400mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-4	D5 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	450x140	457x145	457x145	-	4900

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Large check on top side at mid-span
- Narrow checks on underside at bottom half of member
- Snow coverage on top of member at time of site visit

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	18.0			18.3			17.6	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D5 EAST (D10 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.8							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member width from INNER face up to 400mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D6 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x222	457x222	457x222	-	7730

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Decay at midpoint joint on the interior narrow side (below louver)
- Large check on top surface at bottom half of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	17.0			23.0			21.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: 8mm check at 250mm horizontal drill depth
Right end: Solid wood

SKETCH / PICTURES






REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D7 EAST (D9 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
• Check along member length
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	21.8						23.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Right: Solid through member depth, near INNER side Right: Drilled through member depth, decay from 0mm to 43mm near OUTER side Left: Drilled through member width, small split between 234mm and 236mm drill depths

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (ºC)	MEMBER ID	MEMBER TYPE
60-65	-6	D7 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x229	457x229	451x222	-	7710

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Minor checks observed on underside at top of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	17.9			22.4			19.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D7 EAST (D8 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							26.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Right: Drilled through member depth; decay between 178mm and 229mm drill depths near INNER side Right: Drilled through member depth; decay between 112mm and 229mm drill depths near OUTER side

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D8 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	464x152	451x152	451x152	-	4900

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Checks on top side at bottom of member
- Minor damages at corners of interior narrow side

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts complete with custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	16.2			19.2			17	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D9 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x127	445x127	445x130	-	4690

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Some snow coverage on top side at time of site visit
- Checking on top side at bottom of member
- Checking on interior narrow side

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts complete with custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	16.7			16.6			18.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D10 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	441x114	441x117	457x121	-	4700

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Water stains (early signs of decay) on top side at bottom half of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts complete with custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	19.2			23.7			23.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D11 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x152	457x152	457x149	-	4890

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Approximately 430mm long split at bottom of member and 460mm long split at top of member
- Check on top side continuous along member length
- Decay observed at midpoint behind Bailey truss
- Decay on interior corner at bottom of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts complete with custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	20.7			18.5			17.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-65	-5	D12 EAST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x222	451x222	457x216	-	7490

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Some snow coverage on top side of member at time of site visit
- Approximately 20mm gap at bottom lap joint
- Top sides not flush at bottom lap joint

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm on-center complete with 12mm thick washer plate + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods complete with custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	19.6			18.9			18.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-9	LD1 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	455x129	455x127	450x127	-	

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Minor check on underside at midpoint
- May previously had vertical post supporting at midpoint

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to LC

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.0						21.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-9	LD2 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	450x100	450x100	450x100	-	2150

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Checking on top and bottom sides
- Small check on interior narrow side
- Minor loss of edge bottom on interior face 6mm way up (approximately 50mm x 50mm x 610mm)
- Snow coverage on top side at time of site visit

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	18.8						16.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: 3mm check at 216mm horizontal drill depth

SKETCH / PICTURES






REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD3 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	464x102	457x102	457x102	-	2108

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Snow coverage on top side at time of site visit
- Deterioration along interior top corner (approximately 51mm x 51mm x 610mm)

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	19.0						18.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-10	LD4 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x108	445x105	445x108	-	2108

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Minor check on top side at bottom of member
- Old decay causing loss of cross-section at top and bottom corners of interior narrow face

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.7						15.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood,
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LD4 EAST (LD9 in 2017 report)	LOWER DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES
CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	20.5							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member depth near INNER side
Left: solid wood, drilled through member depth near OUTER side

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-11	LD5 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	448x102	448x102	448x102	-	

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Crushing at bottom exterior end
- Significant loss of cross-section due to splitting on exterior top corner at bottom of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.9						18.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Decay between 13mm and 26mm horizontal drill depth, 4mm check at 47mm horizontal drill depth
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LD5 EAST (LD10 in 2017 report)	LOWER DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							19.3	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Left: solid wood, drilled through member depth near INNER side Left: solid wood, drilled through member depth near OUTER side

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-10	LD6 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x127	457x121	451x121	-	3380

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Snow coverage on top side at time of site visit
- Approximately 50mmx50mmx610mm loss of cross-section due to decay on both top and bottom interior corners at bottom of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to LC

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	22.0						20.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-11	LD7 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x127	451x127	451x127	-	3590

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Minor checks on top side
- Small damage at interior top corner
- Pitted knot on interior narrow side (approximately 40 deep)
- Possible 460mm long split on exterior side at bottom of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to LC

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.9						22.9	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-9	LD8 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x95	445x95	445x95	-	2040

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Decay on interior top corner near member midpoint
- Wear and decay at top and bottom corners of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	16.4						17.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-10	LD9 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	438x95	445x95	445x95	-	2108

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Decay on interior top corner
- Checking on top side at bottom half of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

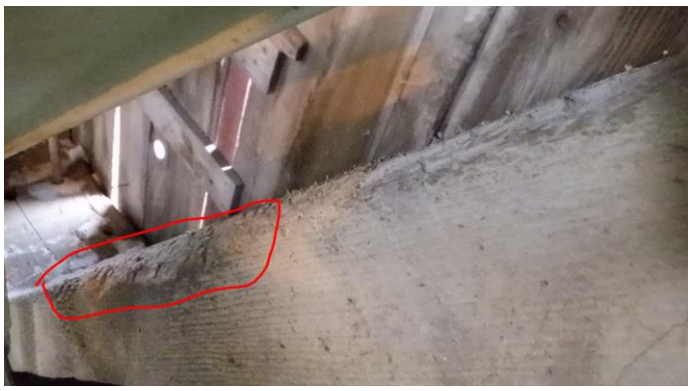
LEFT			MIDDLE			RIGHT		
	16.6						16.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: potential 77mm cavity between 279mm and 356mm horizontal drill depths
Right end: 3mm check at 195mm horizontal drill depth, possible 50mm decay between 350mm and 400mm horizontal drill depths

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-11	LD10 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x95	441x95	445x95	-	2096

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Decay on interior top corner
- Decay on interior narrow side and top side at top of member below D10

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	17.9						17.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: 3mm check at 190mm horizontal drill depth
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-11	LD11 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	454x102	451x102	445x102	-	2134

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Significant decay on interior narrow side at top of member
- Minor decay on interior narrow side of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	16.3						16.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: 6mm check at 289mm horizontal drill depth, decay beyond 318mm horizontal drill depth till max drill depth
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-11	LD12 EAST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x127	451x127	451x127	-	3500

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Damage on top corner at top of member
- Decay on top side at bottom of member
- Snow coverage on top side at time of site visit

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to LC

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	15.9						17.3	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Possible 10mm early decay between 350mm and 360mm horizontal drill depths

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	TC EAST NORTH	TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
445 WIDE @ BOT 216 MAX DEPTH	305 WIDE @ TOP 457 WIDE @ BOT 216 MAX DEPTH	356 WIDE @ TOP 457 WIDE @ BOT 216 MAX DEPTH	457x216	457x203	

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Top width is narrower and inconsistent along member length (see dimensions and pictures)
- Minor checks near midpoint

CONNECTION INFORMATION

4-span continuous member.
Left and Right ends: connected to diagonal members (D) with 2-19Ø vertical thru-rods.
Quarter intervals: Bearing on squash blocking on lower top chord (LTC).

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
17.5	34.0	19.0	22.0	19.4	18.3	16.8	16.8	20.9

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood with 9mm decay at 394mm horizontal drill depth
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: solid wood
Mid-point 3: solid wood
Node 4: solid wood
Mid-point 4: solid wood
Node 5: solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		TC EAST NORTH (TC2 in 2017 report)	TOP CHORD (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		235x451			

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

Evidence of bird nesting between TC and LTC.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
			16.8-18.0	18.0			16.8	17.4

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Middle: solid wood, drilled up to 400mm member width.
Right: decay from 354mm to 372mm, drilled up to 400mm member width.
Right: decay from 210mm to 261mm, drilled up to 400mm member width.

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-5	LTC EAST NORTH	LOWER TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x152	470x159	470x152	-	

SPECIES:	RED PINE

VISUAL REVIEW NOTES

- Minor damages on top interior corners

CONNECTION INFORMATION

2-span continuous member.
Left and Right ends: Bearing on diagonals (D) with 45° chamfered ends and 2-19mmØ thru rods to squash blocking and top chord (TC).
Middle: Same as left and right ends.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
18.9		29.0		18.1		18.4		18.1

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-5	TC EAST SOUTH	TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
457x241	445x241	457x222	451x229	457x210	

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Minor damages on top interior corners

CONNECTION INFORMATION

4-span continuous member.
Left and Right ends: connected to diagonal members (D) with 2-19mmØ vertical thru-rods.
Quarter intervals: Bearing on squash blocking on lower top chord (LTC).

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
17.7	18.5	17.4	18.9	19.4	17.4	17.7	17.4	16.2

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: solid wood
Mid-point 3: solid wood
Node 4: solid wood
Mid-point 4: solid wood
Node 5: solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-4	LTC EAST SOUTH	LOWER TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x149	457x143	451x130	-	

SPECIES:	RED PINE

VISUAL REVIEW NOTES

- Minor checks along member length

CONNECTION INFORMATION

2-span continuous member.
Left and Right ends: Bearing on diagonals (D) with 45° chamfered ends and 2-19mmØ thru rods to squash blocking and top chord (TC).
Middle: Same as left and right ends.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
17.2		16.8		16.4		14.7		17.6

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LTC EAST SOUTH (LTC2 in 2017 report)	LOWER TOP CHORD (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			451x152		

SPECIES:	RED PINE

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
24				23				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Right: Solid wood, drilled through member width up to 400mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
75-80	-3	TC WEST NORTH	TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
445x229	419 WIDE @ TOP 457 WIDE @ BOT 222 MAX DEPTH	381 WIDE @ TOP 457 WIDE @ BOT 222 MAX DEPTH	432 WIDE @ TOP 457 WIDE @ BOT 222 MAX DEPTH	457x184	

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Top width is narrower and inconsistent along member length (see dimensions and pictures)
- Vertical sagging evident
- Checks along member length on interior narrow side

CONNECTION INFORMATION

4-span continuous member.
Left and Right ends: connected to diagonal members (D) with 2-19mmØ vertical thru-rods.
Quarter intervals: Bearing on squash blocking on lower top chord (LTC).

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
17.0	17.3	22.6	29.4	24.1	21.1	16.2	17.4	24.8

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: 17mm decay between 89mm and 106mm horizontal drill depth, 13mm early decay between 268mm and 281mm horizontal drill depth
Mid-point 3: solid wood
Node 4: solid wood
Mid-point 4: solid wood
Node 5: solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
75-80	-3	LTC WEST NORTH	LOWER TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x140	457x152	457x152	-	

SPECIES:	RED PINE

VISUAL REVIEW NOTES

CONNECTION INFORMATION

2-span continuous member.
Left and Right ends: Bearing on diagonals (D) with 45° chamfered ends and 2-19mmØ thru rods to squash blocking and top chord (TC).
Middle: Same as left and right ends.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
19.3		20.4		21.1		17.8		17.4

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
75-80	-3	TC WEST SOUTH	TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
457x229	445x241	457x229	457x225	454x216	

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Checks on member underside
- Chamfer on interior top corner

CONNECTION INFORMATION

4-span continuous member.
Left and Right ends: connected to diagonal members (D) with 2-19mmØ vertical thru-rods.
Quarter intervals: Bearing on squash blocking on lower top chord (LTC).

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
15.4	17.0	15.4	20.2	15.4	20.8	12.9	16.7	14.3

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: solid wood
Mid-point 1: solid wood
Node 2: solid wood
Mid-point 2: solid wood
Node 3: solid wood
Mid-point 3: solid wood
Node 4: potential 13mm early decay between 38mm and 51mm horizontal drill depth
Mid-point 4: solid wood
Node 5: potential 4mm check at 191mm horizontal drill depth

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		TC WEST SOUTH (TC1 in 2017 report)	TOP CHORD (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		235x451			

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

Evidence of bird nesting between TC and LTC.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.0		16.1-16.8	15.5			16.1-17.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

All resistograph readings: Solid wood, drilled to 400mm horizontal drill depth from INNER face.

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
75-80	-3	LTC WEST SOUTH	LOWER TOP CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x152	457x152	448x152	-	

SPECIES:	RED PINE

VISUAL REVIEW NOTES

CONNECTION INFORMATION

2-span continuous member.
Left and Right ends: Bearing on diagonals (D) with 45° chamfered ends and 2-19mmØ thru rods to squash blocking and top chord (TC).
Middle: Same as left and right ends.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
15.4		14.2		14.7		13.2		14.2

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken from the interior side face
Drill depth is less than member breadth
Node 1: potential 6mm early decay at 184mm horizontal drill depths
Mid-point 1: 15mm early decay between 6mm and 21mm horizontal drill depths, 32mm deep decay at underside of LTC (measurement taken from member underside)
Node 2: solid wood
Mid-point 2: solid wood
Node 3: 4mm check at 193mm horizontal drill depth

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LTC WEST SOUTH (LTC1 in 2017 report)	LOWER TOP CHORD (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
				451x152	

SPECIES:	RED PINE

VISUAL REVIEW NOTES

- Zero checking
- 50mmØ knot on inner face; 2-38mmØ knots 75 apart further down beam
- Incipient decay
- Hyphae present

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.5							15.5

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right: Split from 198mm to 201mm, drilled from inner face up to 400mm horizontal

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-9	D1 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x225	457x222	454x229	-	7740

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- 560mm long check on interior narrow side
- Checks along member length on underside
- Undocumented repair: 762mm x 305mm x 9.5mm steel plate on top and under side of member plates complete with 2 rows or 3-13mmØ thru-bolts at 305mm on-center; underside plate edge located approximately 1320mm from top end of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.6			16.5			16.4	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: 7mm check at 290mm horizontal drill depth
Right end: 6mm check at 330mm horizontal drill depth

SKETCH / PICTURES






REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D1 WEST (D1 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			450x228		

SPECIES:	

VISUAL REVIEW NOTES

- Splice in member top segment

CONNECTION INFORMATION

GRADING ESTIMATION

-

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.5-21.1							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right: Solid wood, drilled through member depth near the INNER face.
Right: Solid wood, drilled through member depth near the OUTER face.

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (ºC)	MEMBER ID	MEMBER TYPE
60-70	-8	D2 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x152	457x156	445x152	-	4910

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	14.6			14.2			17.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D3 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x114	470x127	457x124	-	4730

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Decay on interior narrow side of member resulted in reduction of cross-sectional area

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	14.6			16.5			15.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood (reading from top face)
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D4 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x127	457x127	457x127	-	4680

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Incipient decay with hyphae present

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	17.3			15.8			19.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D4 WEST (D4 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	Red Pine

VISUAL REVIEW NOTES

- Incipient decay with hyphae present

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							14.3	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right: Solid wood, drilled to up 400mm from interior face

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D5 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x152	451x152	445x152	-	4910

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

Decay on interior corners at bottom half of member.

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	15.2			13.5			16.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D6 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	464x222	457x222	457x222	-	7700

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Significant pitted split approx. 38mm wide by 51mm deep max. on top side along entire bottom half of member length
- Checking at two bolts

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

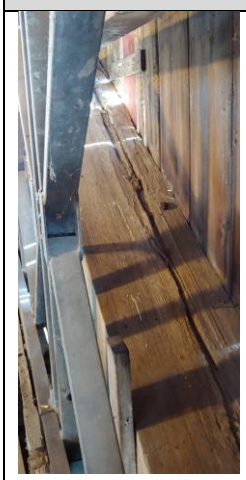
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	12.0			17.5			17.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: 50mm decay/split between 127mm and 179mm horizontal drill depths, 80mm decay/split between 213mm and 295mm horizontal drill depths
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D6 WEST (D6 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES

- Checking at two bolts (see pictures)

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	21.8							

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Left: Solid wood, drilled through member depth from top near INNER face
Left: Solid wood, drilled through member depth from top near OUTER face

SKETCH / PICTURES






REL. HUMIDITY (%)	AIR TEMP (ºC)	MEMBER ID	MEMBER TYPE
60-70	-8	D7 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	448x229	445x225	470x229	-	

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Significant pitted split approx. 38mm wide by 75mm deep max. by 2100mm long on top side along entire bottom half of member length
- Split on top side along entire top half of member length
- Top end not fully bearing on top chord

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connect to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION
STRUCTURAL SELECT

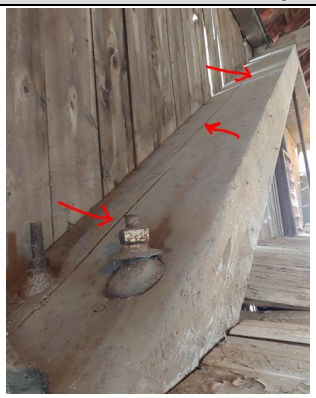
MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	17.9			18.5			22.4	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: 38mm decay/crack between 267mm and 305mm horizontal drill depths
Right end: 16mm potential early decay between 71mm and 87mm horizontal drill depths, 42mm decay between 104mm and 146mm horizontal drill depths

SKETCH / PICTURES






REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		D7 WEST (D7 in 2017 report)	DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES

- Split noted during visual review

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							23.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right: solid wood, drilled member depth up to 229mm from the top surface near INNER side
Right: solid wood, drilled through member depth from the top surface near OUTER side
Right: Decays and cavities through member width from the INNER side up to 400mm horizontal

- decay between 156mm and 278mm horizontal drill depths
- cavity between 278mm and 297mm horizontal drill depths
- decay between 297mm and 346mm horizontal drill depths

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D8 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x146	451x149	451x152	-	

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	15.0			16.2			16.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: 4mm check at 194mm horizontal drill depth

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D9 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x127	445x127	445x114	-	5195

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Damage on top corner on exterior narrow side reducing cross-sectional area
- Long check at bottom of member
- Refer to the assessment report by Moses Structural Eng. dated Nov. 28, 2017 for further notes.

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	17.1			15.8			17.9	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D10 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	470x127	448x127	451x127	-	5080

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Check on interior narrow side along top-half of member length
- Minor checks on top side near bottom of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

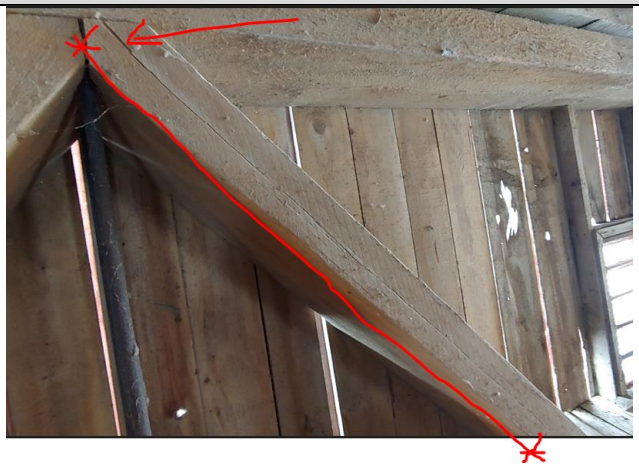
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	21.2			14.6			15.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: 4mm check at 103mm horizontal drill depth
Middle: 16mm decay/cavity between 33mm and 49mm horizontal drill depths
Right end: Solid wood

SKETCH / PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D11 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	438x146	445x146	445x146	-	

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Minor checks on top side near bottom of member

CONNECTION INFORMATION

Bottom: 2-19mmØ thru-bolts @ 225mm oc c/w 12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-bolts c/w custom washer & nuts to suit member slope
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	17.9			13.8			15.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	D12 WEST	DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x229	457x222	451x219	-	8035

SPECIES:	RED PINE / EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Checks on top side of bottom half of member
- Bottom lap joint offset by 20mm vertical and 12mm gap in-between

CONNECTION INFORMATION

Bottom: 4-19mmØ thru-bolts @ 225mm oc c/w 2-12mm thk washer pl + round washers & nuts per bolt connecting to lower chord (LC)
Midpoint: 2-19mmø thru-rods c/w custom washer & nuts to suit member slope; rods connects to LC
Top: Top chord (TC) bears on top end of diagonal (D) member

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	19.0			20.9			21.6	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-9	LD1 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x127	445x127	457x127	-	3550

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Longitudinal checks on underside at bottom half of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to lower chord (LC)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	13.1						15.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: 40mm decay/cavity between 69mm and 109mm horizontal drill depth, 9mm decay/crack between 231mm and 240mm horizontal drill depths, 3mm check at 257mm horizontal drill depth, 7mm decay/crack between 265mm and 272mm horizontal drill depths, 6mm decay/check between 343mm and 349mm horizontal drill depth
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD2 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x95	445x95	445x95	-	2130

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Decay at top and bottom interior corners along member length

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.0						14.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD3 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x108	445x108	445x102	-	2121

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Decay at top and bottom interior corners at bottom of member
- Check on top side at bottom of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	15.8						14.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD4 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x102	445x102	445x102	-	2108

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Check on underside at top and midpoint of member
- Minor decay on interior narrow side at midpoint of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	15.4						17.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: 4mm check at 229 horizontal drill depth

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LD4 WEST (LD4 in 2017 report)	LOWER DIAGONAL (2017)

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							15.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Right: solid wood, drilled through member depth

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD5 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x102	445x102	445x102	-	2134

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Checks on top side at top and bottom of member
- Check on bottom side at midpoint of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	19.0						18.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: 3mm check at 231mm horizontal drill depth

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD6 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x127	445x127	445x127	-	3520

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Longitudinal check on top side along member length
- Decay at top of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to lower chord (LC)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	17.9						13.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD7 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	457x133	451x133	451x140	-	

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Check on top side at bottom of member
- Minor checks on top side of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to lower chord (LC)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	14.6						16.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD8 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x102	445x102	445x102	-	2134

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Minor checks on top and underside of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	14.6						18.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: 4mm check at 156mm horizontal drill depth
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD9 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	464x95	457x95	451x95	-	2108

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Decay on narrow side
- Significant portion of cross-section at top corner was removed for Bailey Truss installation
- Approximately 150mm long split on top side at bottom of member
- Missing knot at top of member on interior narrow side

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	14.2						13.3	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood till 330mm horizontal drill depth, beyond drill bit likely skewed out of member after hitting a knot
Middle: Solid wood till 298mm horizontal drill depth, beyond drill bit likely skewed out of member after hitting a knot
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD10 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x102	445x102	445x102	-	2170

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
	14.7						13.7	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD11 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	445x102	445x95	445x95	-	2130

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Minor checks on top side at bottom of member
- Water staining on top side and exterior narrow side

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ thru-bolts connecting to diagonal member (D)

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.2						14.2	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
60-70	-8	LD12 WEST	LOWER DIAGONAL

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	451x127	457x124	457x121	-	

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

- Minor checks on top side at bottom of member

CONNECTION INFORMATION

Bottom: bearing on spacer block (SPB)
Top: 2-19mmØ continuous thru-rods connecting to diagonal member (D); rods connect to lower chord (LC)

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	16.2						15.0	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from interior side face, max drill depth less than member breadth
Left end: Solid wood
Middle: Solid wood
Right end: Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB1	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	178x152	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- 16mmØ steel horizontal rod adjacent to beam; hooked rod joint at midpoint

CONNECTION INFORMATION

Beam ends bearing on vertical posts (VP).

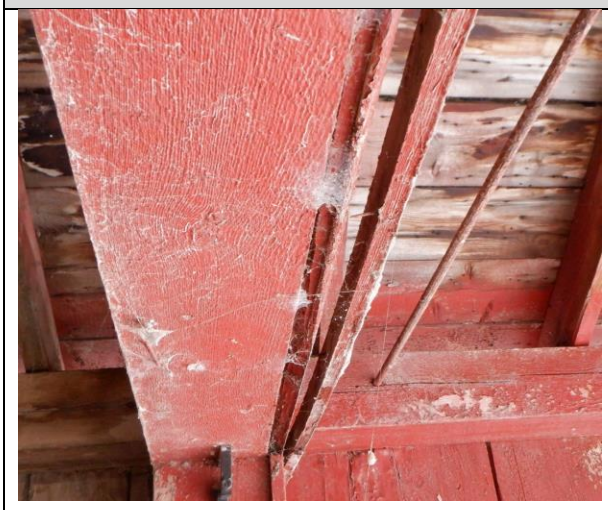
GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
	12						12.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB2	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	3-44x191	-	-	

SPECIES:	SPRCE-PINE-FIR (ASSUMED)

VISUAL REVIEW NOTES

- Triple-ply built-up beam reinforced with 38mmx140mm on each side complete with 15-lag bolts staggered
- Splits observed on reinforced ply ends at lag bolts

CONNECTION INFORMATION

Beam ends bearing on vertical posts (VP) and 2-38mm thick face-ply.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							15.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB3	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	184x149	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Severely weathered and loose fibres

CONNECTION INFORMATION

Beam ends: Bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Top side notched for perimeter beam (PB) bearing.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							15.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB4	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	5-38x191	-	-	

SPECIES:	SRUCE-PINE-FIR (ASSUMED)

VISUAL REVIEW NOTES

- Mild exposure to snow on top surface
- Displacement between each ply evident from underside

CONNECTION INFORMATION

East end: Bearing on top chord with 19mmØ continuous thru-rod complete with original convex compression washer and original nut. Nut and washer on recessed interior 3-plies.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
							16.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB5	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	200x171	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Decay at member end bearings
- Checks on sides at bearing ends and along member length

CONNECTION INFORMATION

Beam ends: Bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 19mm deep. Top side notched for perimeter beam bearing (PB).

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							16.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB6	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	178x152	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Checks on sides at bearing ends and along member length

CONNECTION INFORMATION

Beam ends: Bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 19mm deep. Top side notched 19mm deep for perimeter beam bearing (PB).

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							14.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB7	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	178x140	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Knot decay on top at East bearing end

CONNECTION INFORMATION

Beam ends: Bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 19mm deep.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							15.4	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB8	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	3-44x184	-	-	

SPECIES:	DOUGLAS-FIR (ASSUMED)

VISUAL REVIEW NOTES

- Minor splits at beam bearing ends
- 19mmx19mm square steel rod adjacent to beam; clevise-style joint at midpoint

CONNECTION INFORMATION

Beam ends: Mortise-and-tenon to vertical posts. Beam notched at bearing underside one end; post notched at bearing topside on other end.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							16.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB9	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	4-38x184	-	-	

SPECIES:	SPRUCE-PINE-FIR (ASSUMED)

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Beam ends: 152x305x6 thick bearing and face plate complete with 102mmx102mmx8mm stiffener plate complete with 4-6mmØ lag screw with washer per plate. 35mm typical between edge of plate and screw center. Screws and washers felt loose at time of site visit. Topside of beam notched to suit perimeter beam.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
							16.6	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB10	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	4-38x184	-	-	

SPECIES:	SPRUCE-PINE-FIR (ASSUMED)

VISUAL REVIEW NOTES

- 19mmx19mm square steel rod adjacent to beam; clevis-style joint at midpoint

CONNECTION INFORMATION

Beam ends: 152mmx30mm5x6mm thick bearing and face plate complete with 102mmx102mmx8mm stiffener plate complete with 4-6mmØ lag screw with washer per plate. 35mm typical between edge of plate and screw center.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
							16.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB11	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	184x140	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Top of beam end routed to for sway cable installation at East end

CONNECTION INFORMATION

Beam ends: Bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 10mm deep.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							19.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB12	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	181x149	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Beam ends: Bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 10mm deep.

GRADING ESTIMATION

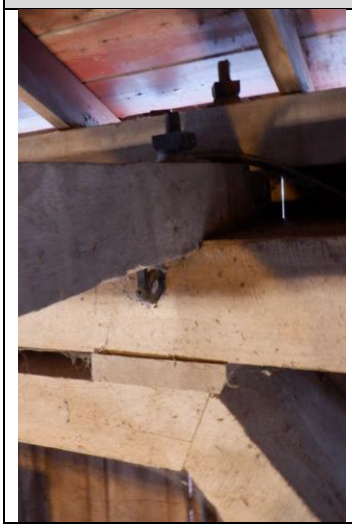
MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
							16.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB13	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	3-44x194	-	-	

SPECIES:	DOUGLAS-FIR (ASSUMED)

VISUAL REVIEW NOTES

- Damage/decay at member end bearing on top chord (TC)

CONNECTION INFORMATION

Beam ends: Bearing on top chords (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched ¾ member depth.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							15.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB14	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	178x152	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Beam ends: 305 bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 25mm deep.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
							16.4	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-6	CRB15	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	165x152	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

CONNECTION INFORMATION

Beam ends: 305mm bearing on top chord (TC) complete with 2-19mmØ continuous thru-rods with original convex compression washers and original nuts. Bearing underside notched 25mm deep.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
							18.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
65	-11	CRB16	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	143x191	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- 16mmØ steel horizontal rod adjacent to beam

CONNECTION INFORMATION

Beam ends: 152mmx305mmx6mm thick bearing and face plate complete with 102mmx102mmx8mm stiffener plate complete with 4-6mmØ lag screw with washer per plate. 35mm typical between edge of plate and screw center.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							16.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
85-95	-11	CRB17	CROSS BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	178x152	-	-	

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Splits at beam bearing ends
- 19mmx19mm square steel rod adjacent to beam; clevis-style joint at midpoint

CONNECTION INFORMATION

Beam ends: Mortise-and-tenon to vertical posts.

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							16.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Reading from side face
Solid wood

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6	SQB1 EAST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	292x445x57	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6	SQB2 EAST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	292x445x54	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6	SQB3 EAST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	292x445x64	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				16.2				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6	SQB4 EAST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x445x51	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				16.2				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6	SQB5 EAST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x445x51-57	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6	SQB6 EAST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x457x51	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				15.9				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
70-75	-3	SQB1 WEST (SqB1 in 2017 report)	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	305x457x64	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

Vertical split from 2017 report

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
70-75	-3	SQB2 WEST (SqB2 in 2017 report)	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x445x60	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

- Split perpendicular to grain at mid-point where steel rod is passing through
- Fits into gap between top and lower top chords; partially loose for 102 than full bearing; advanced decay, brown rot detected from species ID test

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
70-75	-3	SQB3 WEST (SqB3 in 2017 report)	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	292x445x54	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				13.5				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
70-75	-3	SQB4 WEST	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x457x51	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
70-75	-3	SQB5 WEST (SqB5 in 2017 report)	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x457x51	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				16.5				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
70-75	-3	SQB6 WEST (SqB6 in 2017 report)	SQUASH BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
-	-	279x457x51	-	-	

SPECIES:	WHITE OAK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				15.5				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LC1	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Measurements are taken at spacings along LC starting at the south end of the bridge. Measurements are taken from the top drilling down (units in **millimetres**). At most locations, the drill bit penetrated through the SPB on top of LC before penetrating the LC. Max drill depth does not reach the bottom of LC at locations with SPB on top. @4.3m: no SPB, 318 LC member depth and solid wood @15.6m: 152 SPB member depth and solid wood, 3 gap to LC, LC has potential splice at 152 vertical drill depth of member and solid wood @22.9m: 162 SPB member depth and solid wood, 5 gap to LC, LC has 17 crack or cavity between 77 and 94 vertical drill depth of member, early retraction at 267 depth vert due to dense knot @30.0m: 127 SPB member depth with top 83 depth vert decayed, 4 gap to LC, LC has 3 crack at 160 vert drill depth of member, early retraction at 324 vertical drill depth due to dense knot @37.2m: 140 SPB member depth and solid wood, 98 gap to LC or 98 loss of section at top of LC otherwise LC solid wood @44.5m: 150 SPB member depth and solid wood, 3 gap to LC, potential 3 crack at 169 vertical drill depth of member @51.9m: 156 SPB member depth and solid wood, 4 gap to LC, potential 24 early decay between 113 and 137 vertical drill depth of LC @59.2m: 127 SPB member depth and solid wood, 8 gap to LC, LC solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LC2	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Measurements are taken at spacings along LC starting at the south end of the bridge. Measurements are taken from the top drilling down (units in **millimetres**). At most locations, the drill bit penetrated through the SPB on top of LC before penetrating the LC. Max drill depth does not reach the bottom of LC at locations with SPB on top. @4.3m: no SPB, 308 LC member depth and solid wood @15.6m: 152 SPB member depth and solid wood, no gap to LC, potential 16 decay between 124 and 140 vertical drill depth of LC @22.9m: 158 SPB member depth and solid wood, 3 gap to LC, LC solid wood @30.2m: 127 SPB member depth and solid wood, 13 gap to LC, decay beyond 165 depth vert of LC till max drill depth @37.2m: 146 SPB member depth and solid wood, 4 gap to LC, 23 decay or cavity between 70 and 93 depth vert of LC, decay beyond 167 depth vert of LC till max drill depth or drill bit may have skewed out of member @44.5m: 152 SPB member depth and solid wood, LC solid wood @51.9m: 158 SPB member depth and solid wood, 3 gap to LC, LC solid wood @59.2m: 124 SPB member depth, potential 7 decay at 93 depth vert of SPB, 8 gap to LC, 3 crack at 124 vertical drill depth of LC, 3 crack at 197 depth vert of LC, decay beyond 224 vertical drill depth of LC till max drill depth or drill bit may have skewed out of member

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LC3	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)
Measurements are taken at spacings along LC starting at the south end of the bridge. Measurements are taken from the top drilling down (units in **millimetres**). At most locations, the drill bit penetrated through the SPB on top of LC before penetrating the LC. Max drill depth does not reach the bottom of LC at locations with SPB on top. @1.5m: 140 SPB member depth and solid wood, 10 gap to LC, LC solid wood @5.2m: no SPB, 305 LC member depth and solid wood @8.2m: 152 SPB member depth, 5 gap to LC, LC solid wood @12.2m: 152 SPB member depth, 3 gap to LC, LC solid wood @15.6m: no gap between SPB and LC, all solid wood @19.2m: no gap between SPB and LC, all solid wood @22.9m: 152 SPB member depth with 53 decay between 48 and 102 depth vert, 3 gap to LC, decay beyond 205 vertical drill depth of LC till max drill depth @26.5m: no SPB, 307 LC member depth with 3 crack at 127 vertical drill depth @30.2m: 127 SPB member depth and solid wood, 7 gap to LC, LC solid wood, early retraction at 279 vertical drill depth due to dense knot @39.7m: 158 SPB member depth and solid wood, 9 gap to LC, LC solid wood @46.4m: 152 SPB member depth, 5 gap to LC, LC solid wood @52.2m: 165 SPB member depth decayed full depth, LC solid wood but potential 13 decay of top surface @58.9m: 127 SPB member depth with 58 decay at underside, 19 gap to LC, LC solid wood @ 59.5m: 134 SPB member depth, potential 16 early decay mid-depth vertical drill depth of SPB, 3 crack at 126 vertical drill depth of SPB, 5 gap to LC, LC solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LC4	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	DOUGLAS FIR

VISUAL REVIEW NOTES

- Animal feces littered on top surface

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Measurements are taken at spacings along LC starting at the south end of the bridge.
Measurements are taken from the top drilling down (units in **millimetres**).
At most locations, the drill bit penetrated through the SPB on top of LC before penetrating the LC.
Max drill depth does not reach the bottom of LC at locations with SPB on top.
@1.5m: 136 SPB member depth, 5 gap to LC, potential 24 early decay top surface of LC otherwise solid wood
@5.2m: no SPB, 302 LC member depth and solid wood
@8.2m: no gap between SPB and LC, all solid wood
@12.2m: 152 SPB member depth, 3 gap to LC, LC solid wood
@15.6m: 152 SPB member depth, 4 gap to LC, 5 crack at 152 depth vert of LC, early retraction at 362 vertical drill depth due to dense knot
@19.2m: 152 SPB member depth, 102 decay at top of LC otherwise solid wood
@22.9m: 157 SPB member depth, 2 gap to LC, LC solid wood till early retraction at 241 vertical drill depth due to dense knot
@26.5m: no SPB, 297 LC member depth and solid wood
@30.2m: 127 SPB member depth with potential 7 early decay at 82 vertical drill depth, 7 gap to LC, LC solid wood
@39.7m: 152 SPB member depth and solid wood, 5 gap to LC, LC solid wood
@46.4m: 148 SPB member depth and solid wood, 8 gap to LC, LC solid wood
@52.2m: 140 SPB member depth estimated and fully decayed, LC solid wood but potentially some stop surface decay
@58.9m: 127 SPB member depth with 3 crack at 38 vertical drill depth and 4 crack at 84 vertical drill dpeth, 13 gap to LC, LC solid wood

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		SPB2 WEST (SB2 in 2017 report)	SPACING BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		450x130			

SPECIES:	UNKNOWN

VISUAL REVIEW NOTES

- Animal droppings littered on top surface

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				25				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		SPB3 WEST (SB3 in 2017 report)	SPACING BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	UNKNOWN

VISUAL REVIEW NOTES

- Animal droppings littered on top surface

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							24-30	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right reading 17: Decay from 37mm to 62mm, drill depth set to 114mm, holes in sliding and animal droppings.
Right reading 14: Solid wood, drill depth set to 114mm, could not drill into bottom chord, unknown if hardware is present.
Right reading 15: Solid wood, drill depth set to 114mm
Right reading 16: Solid wood, drill depth set to 114mm

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		SPB3 EAST (SB4 in 2017 report)	SPACING BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	UNKNOWN

VISUAL REVIEW NOTES

- Animal droppings littered on top surface

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							26.5	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right reading 67: 13mm gap at 127mm vertical drill depth, drilled to 400mm vertical drill depth

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		SPB2 EAST (SB5 in 2017 report)	SPACING BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	UNKNOWN

VISUAL REVIEW NOTES

- Animal droppings littered on top surface

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							25.8	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Right reading 61: Drilled through member depth, gap between members at 152mm depth.
Right reading 62: Drilled through member depth, gap between members at 152mm depth, decay detected in member below.
Right reading 63: No gap in members detected, small check in member below.

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		SPB1 EAST (SB6 in 2017 report)	SPACING BLOCK

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	UNKNOWN

VISUAL REVIEW NOTES

- Animal droppings littered on top surface

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				23.0				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

Middle reading 55: Decay from 129mm to 140mm, possible small split.
Middle reading 56: Solid wood, drilled through

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-6		RAFTER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		44x152@600			

SPECIES:	SPRUCE

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
							20.1	

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
			INT HORIZ MID-HEIGHT

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		102x102			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Span between truss diagonals on interior face. Original purpose to support splash panels prior to addition of steel trusses.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
			EXT HORIZ MID-HEIGHT

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x102			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Span between truss diagonals on exterior face. Provides support to exterior cladding and to vertical posts VP2, VP3, VP5 and VP6 on both truss elevations.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
65-70	-6	EB1/2	EDGE BEAMS ROOF

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		178x146			

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

- Continuous with scarf joints to connect sections; some scarf joints bear above CRB ends

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				20.5				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
			WINDOW WIND POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		44x102			

SPECIES:	UNKNOWN

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
90-95	-7	VP1 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Full-height.
Vertical split at top half of member.
Additional 152x152 vertical post on south face of member with a notch (rough cut) on top to suit steel bearing plate.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
				18.2				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP2 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Exterior horizontal mid-height beam to roof.
Vertical split from top on top half of member.
89mm deep notch from top of member to 1140mm approximately below top of member.
Notch inset with 2-38x140 built-up vertical.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
				16.9				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP3 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x140			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Exterior horizontal mid-height beam to roof.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				19.4				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP4 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		140x140			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Full-height.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				19.1				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP5 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		140x165			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Exterior horizontal mid-height beam to roof.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				19.9				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP6 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		140x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Exterior horizontal mid-height beam to roof.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				15.9				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP7 EAST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Full-height.
Additional 152x152 vertical post adjacent to member.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		
				17.6				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP1 WEST (VP1 in 2017 report)	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Full-height.
Additional 152x152 vertical post adjacent to member.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		
				16.1-20.5				

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP2 WEST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Exterior horizontal mid-height beam to roof.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP3 WEST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x165			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Exterior horizontal mid-height beam to roof.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP4 WEST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		140x140			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Full-height (4880 approximately in length).
Worn at bottom corner.
3-38x184 flat across top of post complete with 13Ø thru-bolts.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP5 WEST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES
Exterior horizontal mid-height beam to roof.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP6 WEST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x152			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Exterior horizontal mid-height beam to roof.
Separate block on top bearing. Connected via lag screws through steel back plates.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		VP7 WEST	VERTICAL POST

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		152x159			

SPECIES:	EASTERN WHITE PINE

VISUAL REVIEW NOTES

Full-height.
Vertical split at top half of member.
Additional 152x152 vertical post on south face of member with damages on top.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
			EXT 'WALL' CLADDING

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

203x22 thick boards and 60-64x19 thick battens. Painted.

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT RESULTS (CORRECTED) (%) (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
			CURBS

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT METER RESULTS (%)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

moses structural
engineers

Appendix C: Observations and Measurements from the Phase 2 Site Visit (June 13-15, 2023)

366 Adelaide Street West, Suite LL04, Toronto, Ontario, M5V 1R7 Tel: 416 255 3337
www.mosesstructures.com

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	FB2	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	310x295	305x295	305x298		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES
Disproportionate checks 76mm deep x 13mm wide. Large lengthwise checks indicating beam was likely replaced.
CONNECTION INFORMATION
Deformed and corroded HSS seat.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	15.2			15.5			14.1	

RESISTOGRAPH RESULTS
033L (Partial) – solid wood to 150mm vertical drill depth, likely cavity between 150mm and 165mm vertical drill depth, solid wood beyond to 310mm vertical drill depth 011Mid – solid wood to 305mm vertical drill depth 012Mid – 5mm thick surface decay, solid wood to 150mm vertical drill depth, 5mm check, solid wood beyond to 210mm vert drill depth, 7mm check, solid wood beyond to 315mm vert drill depth 009R – solid wood to 150mm vertical drill depth, 4mm check, solid wood beyond to 310mm vertical drill depth 010R – solid wood to 300mm vertical drill depth

PICTURES








REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	FB3	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	300x300	300x300	295x300		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	+80			+80			50.7	

RESISTOGRAPH RESULTS
082R – solid wood to 300mm vert drill depth 083mid – solid wood to 135mm vertical drill depth, either severe decay or drill skewed out of member beyond 098L – solid wood to 155mm vertical drill depth, possible 3mm check, solid wood to 310mm vertical drill depth

PICTURES


REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	FB4	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		300x300	300x300		See dwg.

SPECIES:	

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
				40.8			26.3	

RESISTOGRAPH RESULTS

126R (Partial) – solid wood to 275mm vertical drill depth (end of reading)
127R (Full) – solid wood to 300mm vertical drill depth
139mid – solid wood to 135mm vertical drill depth, possible 2mm check, solid wood beyond to 300mm vert drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	FB5	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	300x300	300x300	300x300		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Corrosion on steel thru-rods and on HSS at thru-rods. Debris (bird's nest) inside HSS.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	36.3			36.3			32.6	

RESISTOGRAPH RESULTS

2-018R – solid wood to 350mm vertical drill depth (50 belonging to new member above?), 15 gap/severe decay in new member, new member solid wood
2-019mid – solid wood to 325mm vertical drill depth
2-020L (Partial) – solid wood to 280mm vertical drill depth (end of reading), potential early decay between 240mm and 260mm

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	FB6	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	300x300	295x295	300x300		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES
Discontinuous check along south face of member length (approx. 50mm deep at max). Disproportionate check along bottom face of member length up to steel thru-rod connections.
CONNECTION INFORMATION
3-steel thru-rods with nuts and washers supporting the floor beam. Some likely corroded. Corrosion on rods and washers.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	30.2			26.3			17.6	

RESISTOGRAPH RESULTS
2-044R – solid wood to 305mm vertical drill depth 2-043mid – solid wood to 375mm vertical drill depth 2-045L – solid wood to 145mm vertical drill depth, 4 check, solid wood beyond to 310mm vertical drill depth

PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	FB7	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	320x300	310x300	310x300		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

Disproportionate checks at member underside (aligns with center thru-rods). Approx. 13mm wide max.
Disproportionate checks at member sides. Approx. 13mm wide max.

CONNECTION INFORMATION

HSS seat with steel rods – severe corrosion on both. Debris (bird's nest) inside HSS.
Rubber strips on top of HSS.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.2			16.9			18.0	

RESISTOGRAPH RESULTS

2-080L (Partial) – solid wood to 120mm vertical drill depth, potential early decay between 120 and 190, solid wood beyond to 210mm vertical drill depth (end of reading)
2-079mid (Partial) – solid wood to 270mm vertical drill depth
2-078R – solid wood to 75mm vertical drill depth, potential early decay between 75mm and 110mm, solid wood beyond to 260mm vertical drill depth, early decay in remainder of depth

PICTURES








REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	FB8	Floor beam

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	300x300	300x300	300x300		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

Disproportionate checks at member underside (aligns with center thru-rods).

CONNECTION INFORMATION

HSS seat with steel rods – severe corrosion on both.
Rubber strips on top of HSS.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	43.9			52.2			41.6	

RESISTOGRAPH RESULTS

2-091L – solid wood to 320mm vertical drill depth
2-090mid – solid wood to 145mm vertical drill depth, 5 check, solid wood beyond to 305 vertical drill depth
2-089R – solid wood to 130mm vertical drill depth, 11 cavity, solid wood beyond to 315 vertical drill depth

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC1 between NB1 & FB2	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			120x440		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Animal skull wedged between LC1 and LC2; wood potentially exposed to rotting carcass.
Wood shear key at midspan.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	16.9						18.8	

RESISTOGRAPH RESULTS

031L – solid wood to 310mm vertical drill depth, 3mm gap, new member (SPB)
034R (partial, early retraction) – solid wood to 260mm vertical drill depth

PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC1 between FB2 & NB2	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
120x(Inaccessible to measure)					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
105x380 wood shear key at midspan w/ 65mm gap between LC1 and LC2.

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
				21.3				

RESISTOGRAPH RESULTS
046L (Partial) – solid wood to 100mm vertical drill depth , potential early decay between 100mm and 120mm, possible minor split or check at 120mm, solid wood beyond to 246mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC1 between NB2 & FB3	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		175x300			See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

105x380 shear key and thru-rod at midspan between LC1 and LC2. 65 gap between LC1 and LC2.
Steel thru rods and hardware are very corroded; corrosion stain on wood around washer.

CONNECTION INFORMATION

Steel thru-rods at shear key – severely corroded; split at wood block below LC1 and LC2.
Wood check at steel thru-rods (aligns with rods).

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
				19.4				

RESISTOGRAPH RESULTS

047L (Partial) – Solid wood to 190mm vertical drill depth, 3mm split or check at 190mm, solid wood to 205mm vertical drill depth
048mid (Partial, early retraction at 207mm vertical drill depth) – solid wood to 175mm vertical drill depth, 23mm cavity between 175mm and 198mm, solid wood beyond

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC1 between FB3 & NB3	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	26.0						18.5	

RESISTOGRAPH RESULTS
102L – solid wood to 20mm vertical drill depth, 5mm check, solid wood beyond to 300mm vertical drill depth, 7mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC1 between NB3 & FB4	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.2						18.5	

RESISTOGRAPH RESULTS
110L – solid wood to 110mm vertical drill depth, drill bit likely skewed out of member beyond 141R – 2mm decay at underside, solid wood to 325mm vertical drill depth

PICTURES
 

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC1 between FB4 & mid-pier	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			195x310		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	19.1							

RESISTOGRAPH RESULTS
140L – 3mm decay at underside, solid wood to 325mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC1 between mid-pier & FB5	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	190x300				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	18.9							

RESISTOGRAPH RESULTS
2-017L – solid wood to 305mm vertical drill depth

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC1 between FB5 & NB4	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			190x300		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Wood shear key at FB5 support.

CONNECTION INFORMATION

Potential moisture trapping causing internal decay at end-grain of scarf joint based on resistograph result.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	15.1						17.6	

RESISTOGRAPH RESULTS

2-027L – solid wood to 297mm vertical drill depth, 4mm decay at top face
2-030R – solid wood to 125mm vertical drill depth, some 'softness' between 125mm and 150mm (potentially early decay), approx. 15mm gap (scarf joint), solid wood between 160mm and 210mm, severe decay/cavity between 210mm and 290mm (see connection information), solid wood between 290mm and 320mm

PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC1 between NB4 & FB6	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Splice approx. 1/3 span from NB4.
Wood shear key approx. 2/3 span from NB4 c/w 2-steel thru-rods.

CONNECTION INFORMATION

2-flat plates c/w 2-steel thru-rods at segment end.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC1 between FB6 & NB5	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
				200x300	See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Shear key at FB6 support.

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
							18.9	

RESISTOGRAPH RESULTS
2-047R – solid wood to 298mm vertical drill depth, 4mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC1 between NB5 & FB7	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Splice 1200mm from face of NB5.

CONNECTION INFORMATION
2-flat plates c/w 2-steel thru-rods at segment end.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.0							

RESISTOGRAPH RESULTS
2-059L – solid wood to 150mm vertical drill depth, 50mm gap (likely at scarf joint), solid wood to 310mm vertical drill depth beyond, 1mm gap, new member (SPB)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		LC1 between FB7 & NB6	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
55mm gap between LC1 and LC2.

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.0						20.8	

RESISTOGRAPH RESULTS
2-061L – solid wood to 300mm vertical drill depth, 1mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC2 btw NB1 & FB2	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Wood shear key at mid span.
Splice staggered with LC1 splice.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.8						21.3	

RESISTOGRAPH RESULTS

030L – solid wood to 310mm vertical drill depth, 1mm gap, new member (SPB)
035R (Partial) – solid wood to 185mm vertical drill depth, 10mm cavity between 185mm and 195mm, solid wood beyond to 210mm vertical drill depth
036R (Partial) – solid wood to 195mm vertical drill depth, 7mm cavity/check between 195mm and 202mm, solid wood beyond to 210mm vertical drill depth

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC2 btw FB2 & NB2	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	197x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	25.6							

RESISTOGRAPH RESULTS
044L – solid wood to 305mm vertical drill depth, 2mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC2 btw NB2 & FB3	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	205x295				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

105x380 shear key and thru-rod at midspan between LC1 and LC2. 65 gap between LC1 and LC2.
Steel thru rods and hardware are very corroded; corrosion stain on wood around washer.
Minor checks along length at underside through steel thru-rod.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.3							

RESISTOGRAPH RESULTS

049L – solid wood to 145mm vertical drill depth, possible 2mm check, solid wood to 300mm vertical drill depth, 3mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC2 btw FB3 & NB3	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	35.3							

RESISTOGRAPH RESULTS
101L – solid wood to 300mm vertical drill depth, 3mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (ºC)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC2 btw NB3 & FB4	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x290				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.0						18.5	

RESISTOGRAPH RESULTS
109L – solid wood to 300mm vertical drill depth, possible minor surface (1-2 mm) decay top and bottom faces 142R – solid wood to 295mm vertical drill depth, 9mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC2 btw FB4 & mid-pier	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.0						20.3	

RESISTOGRAPH RESULTS

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC2 btw mid-pier & FB5	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	17.6							

RESISTOGRAPH RESULTS
2-016L – solid wood to 305mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC2 btw FB5 & NB4	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	205x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	18.3						18.3	

RESISTOGRAPH RESULTS
2-026L – solid wood to 300mm vertical drill depth 2-029R – solid wood to 160mm vertical drill depth, 15mm cavity between 160mm and 175mm, solid wood beyond to 315mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC2 btw FB6 & NB5	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.8							

RESISTOGRAPH RESULTS
2-048L – solid wood to 300mm vertical drill depth, 3mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC2 btw NB5 & FB7	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.8							

RESISTOGRAPH RESULTS
2-058L – solid wood to 145mm vertical drill depth, 3mm check, solid wood beyond to 310mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC2 btw FB7 & NB6	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.4							

RESISTOGRAPH RESULTS
2-061L – solid wood to 300mm vertical drill depth 2-062L (Partial) – solid wood to 225mm vertical drill depth, 8mm cavity between 225mm and 303mm, solid wood beyond to 245mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC2 btw NB6 & FB8	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	190x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
45mm gap between LC2 and adjacent STR1.

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	32.9							

RESISTOGRAPH RESULTS
2-082L – solid wood to 300mm vertical drill depth, no gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC3 btw NB1 & FB2	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x271				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Putty at needle beam support. Debris build-up between LC3 and adjacent stringer.

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	15.4							

RESISTOGRAPH RESULTS
005L (Partial, early retraction) – solid wood to 270mm vertical drill depth, 4mm wide check, solid wood beyond to 280mm vertical drill depth 006 (Full) – solid wood to 270 vertical drill depth, 3mm wide check, solid wood beyond to 320mm vertical drill depth, 10mm gap, new member (SPB)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC3 btw NB2 & FB3	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	205x300		205x300		N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Damp/mushy wood.

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	56.0						High	

RESISTOGRAPH RESULTS
066L – solid wood to 305mm vertical drill depth, new member (SPB) 075L – solid wood to 310mm vertical drill depth, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC3 btw FB3 & NB3	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	26.0							

RESISTOGRAPH RESULTS
088L – solid wood to 305mm vertical drill depth, 3mm gap, new member (SPB)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC3 btw NB3 & FB4	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	170x(no access)				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Rotted corner approx. 1m long with holes assuming from boring beetles from face of needle beam.
Reinforced with 145x350 lumber c/w 2 rows of 4-19Ø bolts @ 235 OC installed to address rotted segment.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.6							

RESISTOGRAPH RESULTS

118L – solid wood to 305mm vertical drill depth
117R – solid wood to 70mm vertical drill depth, early decay between 70mm and 200mm vertical drill depth, severe decay for remainder of depth

PICTURES





REL. HUMIDITY (%)	AIR TEMP (ºC)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC3 btw FB4 & mid-pier	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Approx. 50 deep notch at FB4 end.
STR12 adjacent very close to LC3.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	26.0						21.0	

RESISTOGRAPH RESULTS

125L – solid wood to 180mm vertical drill depth, 3 check, solid wood between 183mm and 195mm vertical drill depth, needle possibly skewed out of the member beyond 195mm.

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC3 btw mid-pier & FB5	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.4							

RESISTOGRAPH RESULTS
2-001L (Partial, early retraction) – solid wood to 245mm vertical drill depth (end of reading)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC3 btw FB5 & NB4	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

45mm gap between STR12 and LC3.
Gap at scarf joint – further widening closer to bottom.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
							21.4	

RESISTOGRAPH RESULTS

2-033R – solid wood to 295mm vertical drill depth, 10mm gap, new member

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC3 btw FB7-NB6	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	220x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	24.5							

RESISTOGRAPH RESULTS
2-076L – solid wood to 170mm vertical drill depth, 4mm wide check, solid wood beyond to 305mm vertical drill depth, 3mm gap, new member

SKETCH

REL. HUMIDITY (%)	AIR TEMP (ºC)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC3 btw NB6-FB8	Lower Chord

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				N/A

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	19.5							

RESISTOGRAPH RESULTS
2-087L – solid wood to 180mm vertical drill depth, 6mm wide check, solid wood beyond to 310mm vertical drill depth, 30mm gap, new member

SKETCH

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC4 btw NB1 & FB2	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	205x275				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Cladding at side deteriorated approx. 300mm from bottom. Decay along full span length from exterior side reducing section by +/- 50mm. Putty at needle beam support.
CONNECTION INFORMATION
Steel rod+HSS beam seat. Custom steel plates for steel brace rod connections. Corroded fasteners

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	14.1							

RESISTOGRAPH RESULTS
003L (Partial) – solid wood to 15mm vertical drill depth, possible 3mm check, solid wood beyond to 275mm vertical drill depth, possible 2mm check, solid wood beyond to 285mm vertical drill depth (end of reading) 004L (Full) – solid wood to 15mm vertical drill depth, possible 2mm check, solid wood beyond to 325mm vertical drill depth, 4mm gap.

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	LC4 btw NB2 & FB3	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	183x300		210x300		

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Decay from exterior side along span length including segment beyond scarf joint. Full section appears intact. Gap at scarf joint. Stain on end of south segment. 80mm WD x 405mm LG wood shear key at midspan. Continuous check along member length at underside.
CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	39.7						27.7	

RESISTOGRAPH RESULTS
065L – solid wood to 100mm vertical drill depth, 7mm gap at scarf, solid wood beyond to 290mm vertical drill depth, 2mm gap. 074R – solid wood to 185mm vertical drill depth, 3mm check, solid wood beyond to 300mm vertical drill depth, 2 gap.

PICTURES









REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC4 btw FB3 & NB3	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x(no access)				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.7							

RESISTOGRAPH RESULTS
089L – solid wood to 300mm vertical drill depth, 2mm gap.

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	LC4 btw NB3 & FB4	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	215x(no access)				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

1700 LG x13 THK steel plate at bottom exterior corner of LC overpassing NB3 C/W 2-thru rods at 175 OC.
Interior thru-rods 450 away from face of NB both sides.
70 WD wood shear key directly above NB3 btw LC4 and LC3.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
				26.0				

RESISTOGRAPH RESULTS

119L Partial – solid wood to 185mm vertical drill depth, 5mm check, solid wood beyond to 225mm vertical drill depth (end of reading)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC4 btw FB4 & mid pier	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	210x300				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Lengthwise hairline check along span.

CONNECTION INFORMATION
70mm WD x400mm LG wood shear key directly above NB3 btw LC4 and LC3 (20 gap).

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
							17.8	

RESISTOGRAPH RESULTS

PICTURES


REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC4 btw mid-pier & FB5	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	220x300				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.8							

RESISTOGRAPH RESULTS
2-005L – solid wood to 300mm vertical drill depth

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC4 btw FB5 & NB4	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.0							

RESISTOGRAPH RESULTS
2-034R – solid wood to 305mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC4 btw FB7 & NB6	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	30.7							

RESISTOGRAPH RESULTS
2-077L – solid wood to 295mm vertical drill depth, 8mm gap

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	LC4 btw NB6 & FB8	LOWER CHORD

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	200x300				

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.8							

RESISTOGRAPH RESULTS
2-088L – solid wood to 215mm vertical drill depth, 4mm check, solid wood beyond to 255mm vertical drill depth, severe decay to 300mm vertical drill depth, 30mm gap/severe decay to member above

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
59	13.8	NB1	NEEDLE BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			300x305		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Corrosion on steel brace rods and end plates.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		

RESISTOGRAPH RESULTS
001R – solid wood to 305mm vertical drill depth 002R (partial) – solid wood to 240mm vertical drill depth

PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	NB2	NEEDLE BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
			300x305		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES
Pressure treated (incised on all 4 sides). Sagging visible. Staining on all 4 sides; most severe on top side and outside of bridge underside.
CONNECTION INFORMATION
Corrosion on steel brace rods and end plates.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.7			25			50.7	

RESISTOGRAPH RESULTS
059L – solid wood to 310mm vertical drill depth 060L – solid wood to 90mm vertical drill depth, potential early decay between 90mm and 120mm, solid wood beyond to 200mm vertical drill depth, potential early decay between 200mm and 300mm vertical drill depth 056mid – solid wood to 310mm vertical drill depth 057mid – 10mm bottom surface decay, solid wood beyond to full depth of section 072R – solid wood to 100mm vertical drill depth, some potential softening from 100mm to full depth of section 073R – solid wood to 265mm vertical drill depth mm, severe decay beyond for remainder of depth

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	NB3	NEEDLE BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	300x300	300x300	305x305		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

Pressure treated (incised on all 4 sides).
Disproportionate checks along member length at sides and underside.
Staining on all 4 sides; most severe on top side and outside of bridge underside.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.1			38.1			46.0	

RESISTOGRAPH RESULTS

124R –very low amplitude between 0mm and 280mm vertical drill depth excluding tree rings decayed due to high moisture, solid wood beyond to 305mm vertical drill depth
122L –very low amplitude between 0mm and 250mm vertical drill depth excluding tree rings (decayed due to high moisture), solid wood beyond to 305mm vertical drill depth

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE

57.6	16.7	NB4	NEEDLE BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	**LEFT**	**MIDDLE**	**RIGHT**	**FAR RIGHT**	**LENGTH (+/-)**
	300x300	300x300	300x300		See dwg.

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES
Pressure treated (incised on all 4 sides). Disproportionate checks along member length at sides and underside. Staining on all 4 sides; most severe on top side and outside of bridge underside.
CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			**MIDDLE**			**RIGHT**		
	16.5			31.3			18.7	

RESISTOGRAPH RESULTS
2-028L – solid wood to 320mm vertical drill depth 2-031Mid – solid wood to 70mm vertical drill depth, potential early decay between 70mm and 100mm, solid wood beyond to 310mm depth 2-032R – 6mm bottom face decay, solid wood beyond to 170mm vertical drill depth, 4mm check, solid wood beyond to 305mm vertical drill depth

PICTURES






REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE

56.8	16.1	NB5	NEEDLE BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	**LEFT**	**MIDDLE**	**RIGHT**	**FAR RIGHT**	**LENGTH (+/-)**
	300x305	300x305	300x300		

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Pressure treated (incised on all 4 sides). Disproportionate checks along member length at sides and underside. Staining on all 4 sides; most severe on top side and outside of bridge underside.
CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			**MIDDLE**			**RIGHT**		
	38.3			41.6			30.8	

RESISTOGRAPH RESULTS
2-085R – solid wood to 245mm vertical drill depth , 7mm check, solid wood beyond to 275mm vertical drill depth , potential early decay between 275mm and 305mm 2-056Mid – solid wood to 310mm vertical drill depth, 5mm gap, SPB member 2-057L – solid wood to 265mm vertical drill depth, drill bit potentially skewed out of member beyond?

PICTURES			
			
REL. HUMIDITY (%)	**AIR TEMP (°C)**	**MEMBER ID**	**MEMBER TYPE**

56.8	16.1	NB6	NEEDLE BEAM

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	**LEFT**	**MIDDLE**	**RIGHT**	**FAR RIGHT**	**LENGTH (+/-)**
	300x300	290x300			

SPECIES:	DOUGLAS-FIR

VISUAL INSPECTION NOTES

Pressure treated (incised on all 4 sides).
Disproportionate checks along member length at sides.
Staining on all 4 sides; most severe on top side and outside of bridge underside.

CONNECTION INFORMATION

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			**MIDDLE**			**RIGHT**		
	32.0			27.0			40.5	

RESISTOGRAPH RESULTS

2-086R – solid wood to 305mm vertical drill depth
2-084Mid – solid wood to 315mm vertical drill depth
2-081L – solid wood to 320mm vertical drill depth

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		STR1 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	44.1						42.6	

RESISTOGRAPH RESULTS
029L – solid wood to 250mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
		STR1 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	95x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.8						30.6	

RESISTOGRAPH RESULTS
043 middle – solid wood to 93mm vertical drill depth, 2mm check, solid wood to 250mm vertical drill depth, 8mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR1 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	90x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	30.6							

RESISTOGRAPH RESULTS
050 L – solid wood to 250mm vertical drill depth (low amplitude potentially due to high moisture content)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR1 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	+80							

RESISTOGRAPH RESULTS
051L – solid wood to 250mm vertical drill depth (low amplitude)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR1 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	31.5						22.2	

RESISTOGRAPH RESULTS
108 L – solid wood to 249mm vertical drill depth, 2mm gap, new member (deck) 143 R (Partial – early retraction) – solid wood to 237mm vertical drill depth (end of reading)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR1 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	39.1						31.5	

RESISTOGRAPH RESULTS
2-002 R – solid wood for full member depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR1 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	110x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	28.6							

RESISTOGRAPH RESULTS
2-015 L – solid wood to 248mm vertical drill depth, 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR1 btw FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	115x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.8							

RESISTOGRAPH RESULTS
2-025 L – solid wood to 248mm vertical drill depth, no gap to new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR1 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250	130x120 (narrow)			See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	25.1							

RESISTOGRAPH RESULTS
2-046 L – solid wood to 254mm vertical drill depth (low amplitude)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR1 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.8							

RESISTOGRAPH RESULTS
2-063 L – solid wood to 250mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR2 between NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Soft (mushy), wet to touch, and staining.
25mmØ partial depth holes at 75mm on-center.

CONNECTION INFORMATION

Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	42.0							

RESISTOGRAPH RESULTS

028L – solid wood to 243mm verticalical drill depth (low amplitudes), new member (deck) beyond

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR2 between FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x255				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	30.0							

RESISTOGRAPH RESULTS
042L – solid wood to 205mm vertical drill depth (low amplitudes indicating softness), 51mm top surface decay, new member (deck) starts at 256mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR2 between NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x255				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	38.0							

RESISTOGRAPH RESULTS
051L – solid wood to 253mm vertical drill depth (low amplitudes indicating wood softness), 8mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR2 between FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	80.0+							

RESISTOGRAPH RESULTS
099L – solid wood to 248mm vertical drill depth (moderate amplitudes indicating wood softness), 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR2 between NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beams at each end with no blockings between adjacent stringers at supports.
Wood shims at NB3 bearing support.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	44.0						40.0	

RESISTOGRAPH RESULTS

107L – 2mm bottom surface decay, solid wood to 242mm vertical drill depth (low-moderate amplitudes indicating likely wood softness), 2mm gap, new member (deck)
144R – 2mm bottom surface decay, solid wood to 243mm vertical drill depth (low-moderate amplitudes indicating likely wood softness, 16mm gap/decay, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR3 between FB4 & mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	90x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	26.5						17.5	

RESISTOGRAPH RESULTS

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR2 between mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	160x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.0							

RESISTOGRAPH RESULTS

2-014L – solid wood to 203mm vertical drill depth, 15mm cavity with decay, solid wood beyond to 246mm vertical drill depth, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR2 between FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.5							

RESISTOGRAPH RESULTS
2-024L – solid wood to 248mm vertical drill depth (low amplitudes indicating wood softness), 5mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR2 between FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	25.5							

RESISTOGRAPH RESULTS
2-049L – solid wood to 256mm vertical drill depth (low amplitudes indicating wood softness), 5mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR3 between FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	145x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	25.5							

RESISTOGRAPH RESULTS
2-064L – solid wood to 257mm vertical drill depth (distinct tree rings), 2mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR3 between NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Very soft (mushy) and wet to touch. Water staining throughout.

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports. Crushing at bearing ends.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	33.5							

RESISTOGRAPH RESULTS
027L – solid wood to 250mm vertical drill depth (fairly low amplitudes), no gap to new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR3 between FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Very soft (mushy) and wet to touch. Water staining throughout.

CONNECTION INFORMATION

Bearing on beams at each end with no blockings between adjacent stringers at supports.
Shimmed at floor beam bearing.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.7							

RESISTOGRAPH RESULTS

041L – solid wood to 240mm vertical drill depth (fairly low amplitudes), no gap to new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR3 between NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	38.5							

RESISTOGRAPH RESULTS
053L – solid wood to 243mm vertical drill depth (fairly low amplitudes), 7mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR3 between FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	145x255				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	57.7							

RESISTOGRAPH RESULTS

095L (Partial) – N/A

097L (Full) – solid wood to 253mm vertical drill depth (distinct tree rings), 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR3 between NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	41.9							

RESISTOGRAPH RESULTS
106L – solid wood to 253mm vertical drill depth (distinct tree rings), 2mm gap, new member (deck) 145R – 2mm face decay at underside, solid wood to 255mm vertical drill depth (low amplitudes between distinct tree rings), 4 gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR3 between FB4 & mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	160x310				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.
Approximately 64mm deep notch at beam bearing.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	36.6							

RESISTOGRAPH RESULTS

Impenetrable.

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR3 between mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Chamfered corner resulting to 100mm in reduction of section width.

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	45.8							

RESISTOGRAPH RESULTS
2-013L (Partial) – solid wood to 47mm vertical drill depth (early retraction, end of reading)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR3 between FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	33.7							

RESISTOGRAPH RESULTS
2-023L – solid wood for full member depth (low amplitudes), no gap to new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE

56.8	16.1	STR3 between FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	**LEFT**	**MIDDLE**	**RIGHT**	**FAR RIGHT**	**LENGTH (+/-)**
	120x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			**MIDDLE**			**RIGHT**		
	32.2							

RESISTOGRAPH RESULTS
2-050L – 2mm face decay at underside, solid wood to 90ertical drill depth, 2mm check, solid wood to 244mm vertical drill depth, 2mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR3 between FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.9							

RESISTOGRAPH RESULTS
2-065L – 2mm face decay at underside, solid wood to 230mm vertical drill depth (low amplitudes), 20mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR3 between NB6 & FB8	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams at each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	37.4							

RESISTOGRAPH RESULTS
2-083L – solid wood to 247mm vertical drill depth, 7mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR4 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	115x254 75 min. width				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Continuous check on sides.
Damp and staining on sides.

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	47.0							

RESISTOGRAPH RESULTS

026L – solid wood to 245mm vertical drill depth, 18mm gap/decay, new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR4 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	36.0							

RESISTOGRAPH RESULTS
039L (Partial) – solid wood to 145mm vertical drill depth depth (end of reading)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR4 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Damaged corner near NB2 end.

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	64.0							

RESISTOGRAPH RESULTS

054L – solid wood to 125mm vertical drill depth depth, 2mm check, solid wood to 243mm vertical drill depth depth , 3mm decay, 2mm gap, new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR4 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	53.8							

RESISTOGRAPH RESULTS
094L – solid wood to 248mm vertical drill depth depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR4 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Continuous check on sides. Damp and staining on sides.

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports. Wood shim on bearing end at NB3.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	56.4						39.1	

RESISTOGRAPH RESULTS
105L – solid wood to 62mm vertical drill depth depth , 4mm check, solid wood to 245mm vertical drill depth depth, no gap to decayed new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR4 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	145x295				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.
Approximately 64mm deep notch at beam bearing.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	63.0						57.7	

RESISTOGRAPH RESULTS

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR4 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.9							

RESISTOGRAPH RESULTS
2-012L – solid wood with indications of early decay to 252mm vertical drill depth depth (low amplitude), 8mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR4 btw FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	48.5							

RESISTOGRAPH RESULTS
2-022L – solid wood to 260mm vertical drill depth depth with indications of early decay between 110mm and 160mm, 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR4 btw FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	59.0							

RESISTOGRAPH RESULTS
2-051L – solid wood to 253mm vertical drill depth with indications of early decay between 60mm and 110mm, 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR4 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	53.5							

RESISTOGRAPH RESULTS
2-066L – solid wood to 245mm vertical drill depth (distinct tree rings), no gap to new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR5 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	153x248				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	32.0							

RESISTOGRAPH RESULTS
024L – solid wood to 150mm vertical drill depth, potential early decay between 150mm and 180mm, solid wood with some potential defects to 240mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR5 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.7							

RESISTOGRAPH RESULTS
040L – solid wood to 240mm vertical drill depth (low amp)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR5 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x225				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	33.5							

RESISTOGRAPH RESULTS
055L – solid wood, no gap to new member

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR5 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	140x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	High							

RESISTOGRAPH RESULTS
093L – solid wood to 115mm vertical drill depth, 1mm check, solid wood for remainder

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR5 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Wet to touch near FB3.

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	65.6						High	

RESISTOGRAPH RESULTS
104L – solid wood to 215mm vertical drill depth, 5mm decay, solid wood to 240mm vertical drill depth , 9mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR5 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x300				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.
Approximately 64mm deep notch at beam bearing.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	50						63	

RESISTOGRAPH RESULTS

2-001L (Partial) – 25mm no resistance, solid wood to 245mm vertical drill depth with potential 5mm defect at 200mm
Impenetrable on right side.

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR5 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x260				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.9							

RESISTOGRAPH RESULTS
Impenetrable at South end of member (left).

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR5 btw FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	High							

RESISTOGRAPH RESULTS
2-021L – solid wood to 245mm vertical drill depth, 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR5 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	140x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	42.9							

RESISTOGRAPH RESULTS
2-085L – solid wood to 248mm vertical drill depth, 6mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR6 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		130x255			See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
				23.8				

RESISTOGRAPH RESULTS
061 mid – solid wood to 200mm vertical drill depth, 6mm check, solid wood until 215mm vertical drill depth, cavity between 215mm and 230mm vertical drill depth, solid wood to 257mm vertical drill depth, 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR6 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	48.8							

RESISTOGRAPH RESULTS
092L – solid wood to 251mm vertical drill depth, decayed new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR6 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	47.5						34.1	

RESISTOGRAPH RESULTS
103L (Partial) – solid wood to 145mm vertical drill depth (end of reading, early retraction)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR6 btw FB4 & mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	110x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	55.1						46.3	

RESISTOGRAPH RESULTS

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR6 btw mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	32.2							

RESISTOGRAPH RESULTS
2-011L – solid wood to 249mm vertical drill depth (low amplitude), no gap to new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR6 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	60.9							

RESISTOGRAPH RESULTS
2-054L – solid wood to 160mm vertical drill depth, likely early decay between 160mm and 200mm, solid wood to 257mm vertical drill depth , 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR6 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	45.8							

RESISTOGRAPH RESULTS
2-068L – solid wood to 260mm vertical drill depth (distinct tree rings)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR7 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
				42.6				

RESISTOGRAPH RESULTS

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR7 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	42.6							

RESISTOGRAPH RESULTS

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR7 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
		120x245			See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
							High	

RESISTOGRAPH RESULTS
062 middle (Partial) – solid wood to 168mm vertical drill depth (low amplitude) 063 middle (Full) – solid wood to 247mm vertical drill depth (low amplitude), 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR7 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.
Shim at bearing at FB3 partially protecting cavity at underside of stringer.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	47.5							

RESISTOGRAPH RESULTS

091L – solid wood to 235mm vertical drill depth, 8mm gap/decay, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR7 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	65.6						55.9	

RESISTOGRAPH RESULTS
111L – solid wood to 243mm vertical drill depth, 6mm gap, new member (deck) 133R – 2mm bot face decay, solid wood to 249mm vertical drill depth, 5mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR7 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Soft and damp (mushy).

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	39.1						34.1	

RESISTOGRAPH RESULTS
Impenetrable.

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR7 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Approximately 64mm x 105mm notch, 220mm from face of FB.
Soft and damplitude (mushy). Moss grown on sides.

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	39.1						34.1	

RESISTOGRAPH RESULTS

2-010L – solid wood with indications of early decay to 260mm vertical drill depth (low amplitude), 2mm gap, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR7 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x230				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Soft and damp (mushy).

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	60.9							

RESISTOGRAPH RESULTS

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR7 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x260				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	45.8							

RESISTOGRAPH RESULTS
2-069L – solid wood to 130mm vertical drill depth (low amplitude), cavity between 130mm and 185mm, solid wood beyond to 260mm vertical drill depth (low amplitude), 6mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR8 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	124x242				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.2						42.6	

RESISTOGRAPH RESULTS
015L – solid wood to 90mm vertical drill depth, cavity between 90mm and 130mm, solid wood beyond to 243mm vertical drill depth, 5mm gap, new member (deck) [low amplitudes] 017R – solid wood to 248mm vertical drill depth (low amplitude between distinct tree rings), 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR8 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x255				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Damage on corner; wood strip peeling off.

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	High						High	

RESISTOGRAPH RESULTS
067L – solid wood to 200mm vertical drill depth, cavity between 200mm and 220mm, solid wood beyond to 256mm vertical drill depth, 4mm gap, new member (deck) [low amplitudes] 081R – solid wood to 255mm vertical drill depth (low amplitudes), no gap to new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR8 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	52.5							

RESISTOGRAPH RESULTS
090L – solid wood to 250mm vertical drill depth (low amplitudes), 10mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR8 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	47.5						47.5	

RESISTOGRAPH RESULTS
112L – solid wood to 249mm vertical drill depth (low amplitudes), 12mm gap, new member (deck) 134R – 2mm bottom face decay, solid wood to 254mm vertical drill depth , 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR8 btw FB4 & mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	50.0						41.9	

RESISTOGRAPH RESULTS

132L – solid wood to 250mm vertical drill depth (low amplitudes)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	16.1	STR8 btw mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	25.1							

RESISTOGRAPH RESULTS
2-009L – solid wood with likely early decay to 251mm vertical drill depth (low amplitudes), 9mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	16.1	STR8 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	60.3							

RESISTOGRAPH RESULTS
2-041L (Partial) – solid wood to 205mm vertical drill depth (low amplitudes) 2-042R (Full) – solid wood to 234mm vertical drill depth (low amplitudes), 12mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	16.1	STR8 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	59.0							

RESISTOGRAPH RESULTS
2-070L – solid wood to 249mm vertical drill depth (low amplitudes), 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR9 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
							27.7	

RESISTOGRAPH RESULTS
018R – solid wood to 250mm vertical drill depth (low amplitude), 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR9 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	110x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.1							

RESISTOGRAPH RESULTS

014L – solid wood to 245mm vertical drill depth (low amplitude), 2mm gap, new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR9 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250		100x250		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Very soft (mushy) and wet to touch. Water stain on all sides.

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports. Deterioration at corner near NB bearing end. Significant decay+cavity and notch at FB bearing end.

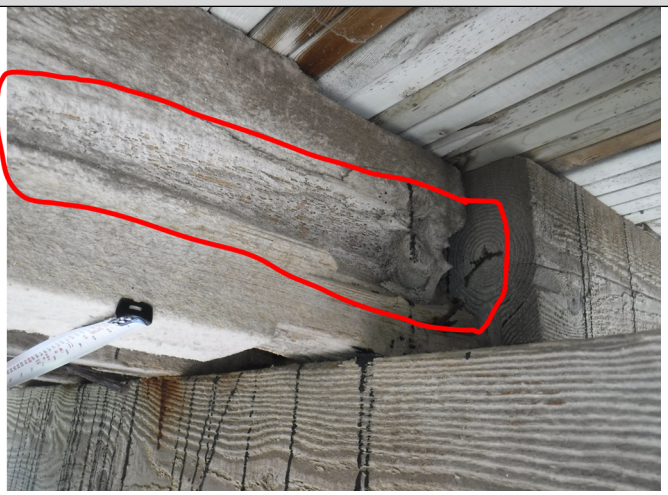
GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	+80						48.3	

RESISTOGRAPH RESULTS
068L – solid wood to 250mm vertical drill depth (low amplitude), 3mm gap, new member (deck) 079R – 27mm decay, solid wood beyond to 250mm vertical drill depth (low amplitude), no gap to new member

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR9 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	160x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	37.8							

RESISTOGRAPH RESULTS
087L – solid wood to 160mm vertical drill depth, 4mm check, solid wood beyond to 255mm vertical drill depth, 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR9 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	32.1						34.1	

RESISTOGRAPH RESULTS
113L – solid wood to 250mm vertical drill depth, 4mm gap, new member (deck) 135R – solid wood to 255mm vertical drill depth, 3mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR9 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Continuous section split from notch near pier.
Surface deterioration at sides.

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.
Notched near bearing end on pier.

GRADING ESTIMATION

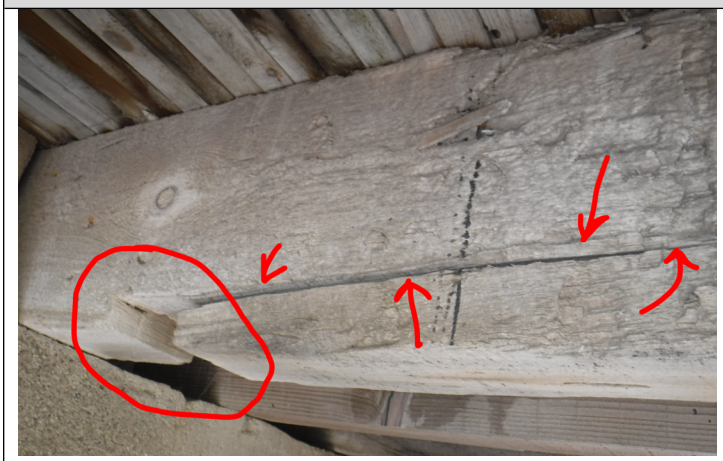
STRUCTURAL SELECT

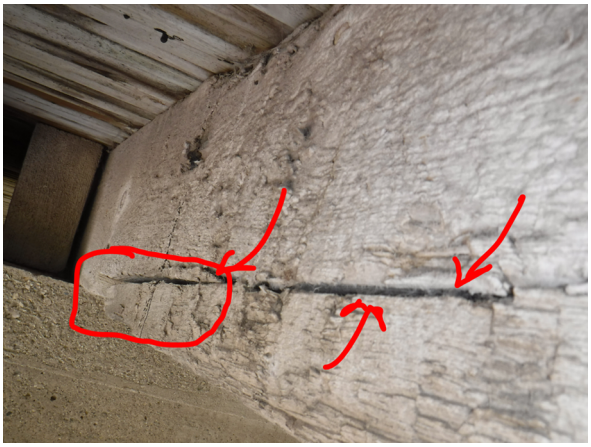
MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	47.5						19.7	

RESISTOGRAPH RESULTS

131L – solid wood to 160mm vertical drill depth, early to moderate decay beyond for remainder of member

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR9 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x220		95x150		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Chamfer at top and bottom corners; reduced cross-sectional area.

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	32.2							

RESISTOGRAPH RESULTS
2-008L – solid wood to 250mm vertical drill depth, 8mm gap, new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR9 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250 120 min. width				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.6							

RESISTOGRAPH RESULTS
2-040L – solid wood to 25mm vertical drill depth , early decay between 25mm and 60mm, solid wood beyond to 228mm vertical drill depth , decay between 228mm and 250mm, gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR9 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	54.7							

RESISTOGRAPH RESULTS
2-071L – solid wood to 251mm vertical drill depth (low amplitude between distinct tree rings), 2mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR10 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	20.7						22.5	

RESISTOGRAPH RESULTS
013L – solid wood to 230mm vertical drill depth (low amplitude), 10mm decay, 12mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR10 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	28.4							

RESISTOGRAPH RESULTS
023L – solid wood to 225mm vertical drill depth, 7mm decay, 20mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR10 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	80x135			135x240	See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Chamfer at bottom corner towards NB; cross-section reduction. Chamfer at top corner at towards FB; cross-section reduction. Staining at sides.
CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	42.6						+80	

RESISTOGRAPH RESULTS
069L – solid wood to 165mm vertical drill depth, 90mm gap/decay, new member (deck) 073R – solid wood to 260mm vertical drill depth

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR10 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	41.9						30.1	

RESISTOGRAPH RESULTS
086L – solid wood to 245mm vertical drill depth (low amplitudes), no gap to new member 121R – solid wood to 247mm vertical drill depth (low feed amplitudes), 10mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR10 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250 80 min. width				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Chamfer and damages at top and bottom corners; reduced cross-sectional area.
Stringer is warped.

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.
Reinforced with wood side plate above NB bearing.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	26.0						29.4	

RESISTOGRAPH RESULTS

114L – early retraction
136R – solid wood to 180mm vertical drill depth, 2mm check, solid wood beyond to 235mm vertical drill depth, 19mm gap/decay, new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR10 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Water stains on sides.

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.
Check at side near bearing end of mid-pier.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.1						22.2	

RESISTOGRAPH RESULTS

130L – solid wood to 220mm vertical drill depth, 46mm gap/decay, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR10 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.1							

RESISTOGRAPH RESULTS
2-008L – solid wood to 250mm vertical drill depth, 8mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR10 btw NB4 & FB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	110x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports. Notch at NB4 bearing.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.6						23.9	

RESISTOGRAPH RESULTS
2-036L – solid wood to 243mm vertical drill depth, 7mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR10 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.6							

RESISTOGRAPH RESULTS
2-039L – solid wood to 80mm vertical drill depth, probable early decay between 80mm and 130mm, solid wood beyond to 165mm vertical drill depth, probable early decay between 165mm and 250mm (low amplitudes excluding rings)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR10 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	160x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	36.2							

RESISTOGRAPH RESULTS
2-072L – solid wood to 280mm vertical drill depth (distinct tree rings), 6mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR11 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	110x247 62 min width		90x248		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Chamfered/damaged top and bottom corners; reduced cross-sectional area.

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

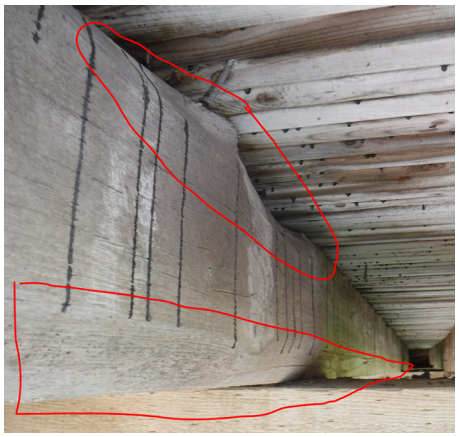
MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	21.3						25.0	

RESISTOGRAPH RESULTS

008L – solid wood to 248mm vertical drill depth, 3mm gap, new member (deck)
020R – solid wood to 251mm vertical drill depth, 8mm gap, new member (deck)

PICTURES







REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR11 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	39.7							

RESISTOGRAPH RESULTS
022L – solid wood to 246mm vertical drill depth (low amplitudes), 2mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR11 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	100x253		100x250		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
19x63 notch at mid-span. Swallows' nest along stringer.
CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	42.6						+80	

RESISTOGRAPH RESULTS
070L – solid wood to 254mm vertical drill depth (low amplitudes), 3mm gap, new member (deck) 077R – 8mm face decay at underside, solid wood to 252mm vertical drill depth, 10mm gap, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR11 btw FB3 & NB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	25.3						25.3	

RESISTOGRAPH RESULTS
085L – solid wood to 260mm vertical drill depth (low amplitudes), 3mm gap, new member (deck) 120R – solid wood to 251mm vertical drill depth (low amplitudes), 4mm gap, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR11 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x245				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.5						31.5	

RESISTOGRAPH RESULTS
115L – 2mm decay from underside, solid wood to 100mm vertical drill depth, 17mm cavity, solid wood beyond to 250mm vertical drill depth, 18mm gap, new member (deck) [low amplitudes] 137R – 2mm decay from underside, solid wood to 260mm vertical drill dept, 10mm gap, new member (deck) [low amplitudes]

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR11 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Continuous check at underside and sides. Bird's nest between adjacent stringer and below bearing at FB.

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.5						22.2	

RESISTOGRAPH RESULTS
129L – solid wood to 245mm vertical drill depth, no gap to new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR11 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	120x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Discontinuous check at sides near mid-pier bearing end.
Staining at sides.

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	23.5						22.2	

RESISTOGRAPH RESULTS

2-007 – solid wood to 255mm vertical drill depth (low amplitude), 4mm gap, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR11 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
					See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	38.7							

RESISTOGRAPH RESULTS
2-038L – solid wood to 260mm vertical drill depth (low amplitude), no gap to new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR11 btw FB7 & NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	140x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	29.3							

RESISTOGRAPH RESULTS
2-073L (Partial) – solid wood to 250mm vertical drill depth 2-074L (Full) – solid wood to 190mm vertical drill depth, drill bit possibly skewed out of the member beyond 190mm

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR12 btw NB1 & FB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	145x248		150x245		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Debris built-up between adjacent stringer. 38 x 87 notch at 745 from face of NB1. Damaged corners.
CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.5						18.8	

RESISTOGRAPH RESULTS
007L – solid wood to 215mm vertical drill depth, 6mm check, solid wood beyond to 250mm vertical drill depth (low amplitude) 016R – solid wood to 235mm vertical drill depth, 15mm gap, new member (deck)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR12 btw FB2 & NB2	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	15				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Damaged corner with bird's nest at FB2 end.

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION

STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	15.0							

RESISTOGRAPH RESULTS

021L – solid wood to 220mm vertical drill depth, 8mm cavity, solid wood beyond to 250mm vertical drill depth, 8mm gap, new member (deck) (low amplitude)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
57.6	16.7	STR12 btw NB2 & FB3	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	124x250		125x250		See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES
Noticeable wood twist (torsion) along member length.

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	32.0						34.7	

RESISTOGRAPH RESULTS
071L – solid wood to 250mm vertical drill depth, 2mm gap, new member (deck) (low amplitude) 076R – solid wood to 250mm vertical drill depth, 5mm gap, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR12 btw NB3 & FB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Damaged corners resulting approx. 75 member depth cut.

CONNECTION INFORMATION

Bearing on beams on each end with no blockings between adjacent stringers at supports.
Stringer ends on bearing blocks.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.2							

RESISTOGRAPH RESULTS

116L – 2mm face decay, solid wood to 255mm vertical drill depth, 9mm gap, new member (deck)
138R – 2mm face decay, solid wood to 260mm vertical drill depth, 7mm gap, new member (deck)

PICTURES



REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR12 btw FB4 & Mid-pier	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	150x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	24.7						39.1	

RESISTOGRAPH RESULTS
128L – solid wood to 240mm vertical drill depth, 18mm gap/decay, new member (deck)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
58.8	18.6	STR12 btw Mid-pier & FB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	125x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

Stringer is used as reinforcement (partial sistering) to LC3.

CONNECTION INFORMATION

Bearing on beam and mid-pier with no blockings between adjacent stringers at supports.
Corrosion on bolt connection used for partial sistering.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	22.2						26.0	

RESISTOGRAPH RESULTS

2-006L – indications of early decay for full 255mm vertical drill depth (low amplitude)

PICTURES





REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR12 btw FB5 & NB4	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	90x240				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	27.8							

RESISTOGRAPH RESULTS
2-035L – solid wood to 240mm vertical drill depth

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR12 btw FB6 & NB5	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	34.3							

RESISTOGRAPH RESULTS
2-037L – solid wood to 255mm vertical drill depth (low amplitude)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
56.8	16.1	STR12 btw FB7 and NB6	STRINGER

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)
	130x250				See dwg.

SPECIES:	Eastern Hemlock

VISUAL INSPECTION NOTES

CONNECTION INFORMATION
Bearing on beams on each end with no blockings between adjacent stringers at supports.

GRADING ESTIMATION
STRUCTURAL SELECT

MOISTURE METER RESULTS (CORRECTED) (%)								
LEFT			MIDDLE			RIGHT		
	30.7							

RESISTOGRAPH RESULTS
2-075L – solid wood to 253mm vertical drill depth (low amplitude)

PICTURES

REL. HUMIDITY (%)	AIR TEMP (°C)	MEMBER ID	MEMBER TYPE
			CURBS

DIMENSIONS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH) (BxH) (mm)					
FAR LEFT	LEFT	MIDDLE	RIGHT	FAR RIGHT	LENGTH (+/-)

SPECIES:	EASTERN HEMLOCK

VISUAL REVIEW NOTES

CONNECTION INFORMATION

GRADING ESTIMATION

MOISTURE CONTENT METER RESULTS (%)								
LEFT			MIDDLE			RIGHT		

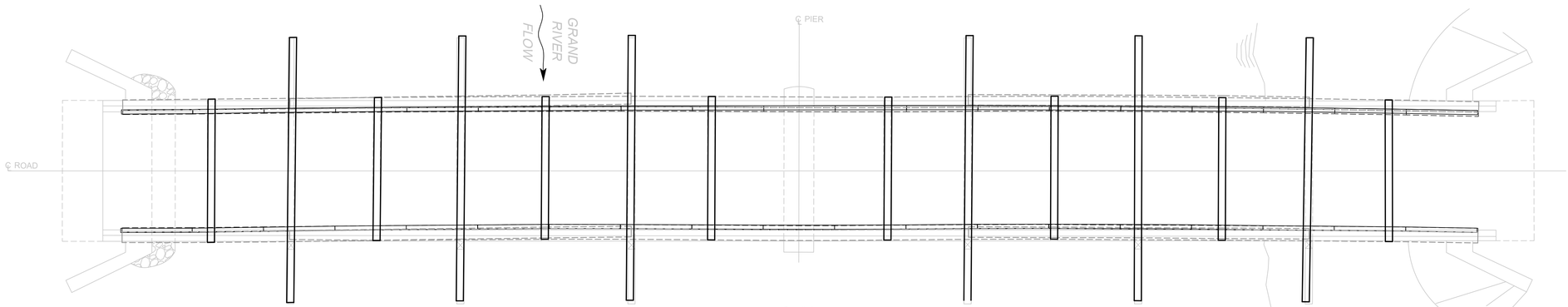
RESISTOGRAPH RESULTS (ELEVATION: LOOKING OUTWARDS, PLAN: LOOKING NORTH)

SKETCH / PICTURES

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engineers

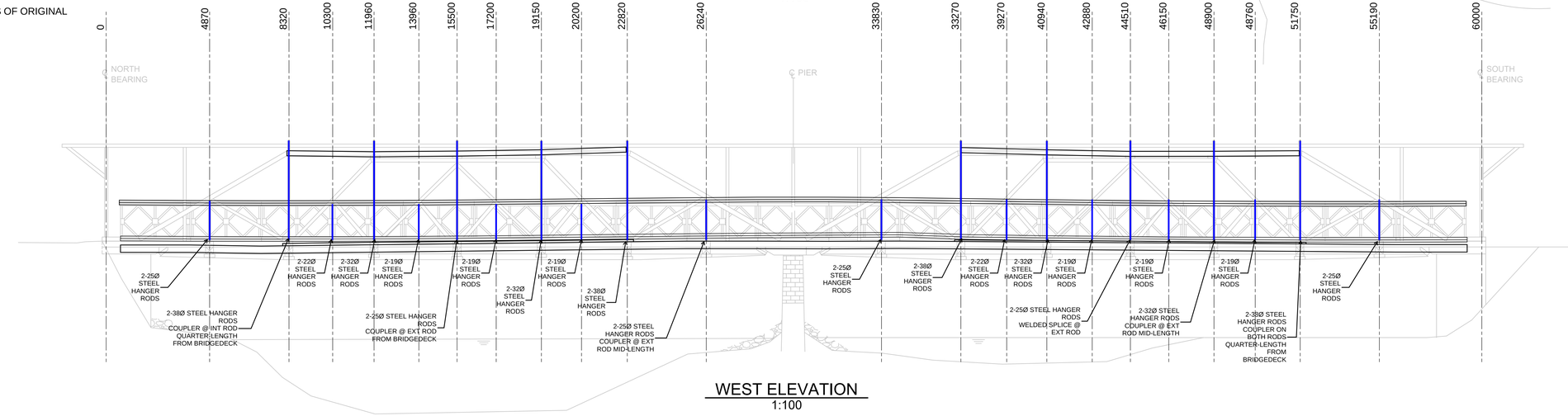
Appendix D: Field Measurements Along Bridge Length

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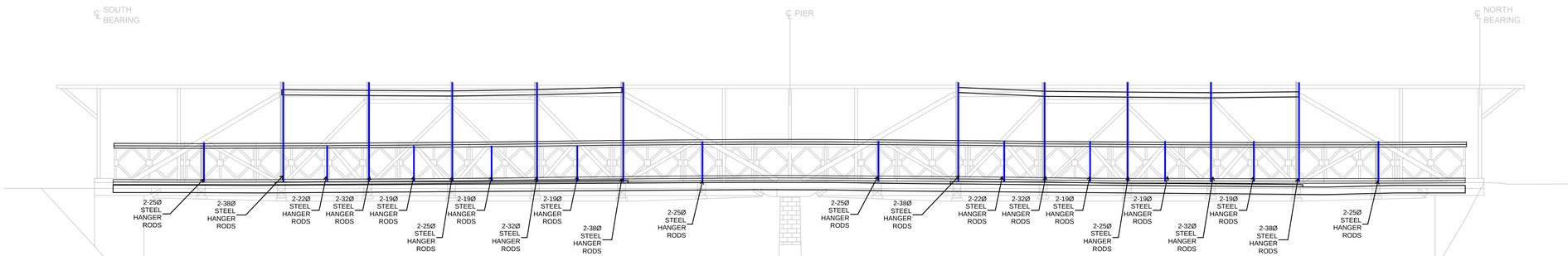


PLAN
1:100

MEASURED LOCATIONS OF ORIGINAL STEEL HANGER RODS:



WEST ELEVATION
1:100



EAST ELEVATION
1:100

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020

MEASUREMENTS SHOWN ON THESE PLANS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

CAD FILE: X:\Projects\19-057 Region of Waterloo - West Montrose Covered Bridge - Broken Beams\DDA CAD Drawings\19-057_002SY.dwg
MODIFIED: 2020-06-09 2:51:53 PM BY: kli
PLOTTED: 2020-06-10 10:22:02 AM BY: kli

Region of Waterloo

No.	DATE	REVISIONS	INITIAL	SIGNED

DOUG DIXON & ASSOCIATES INC

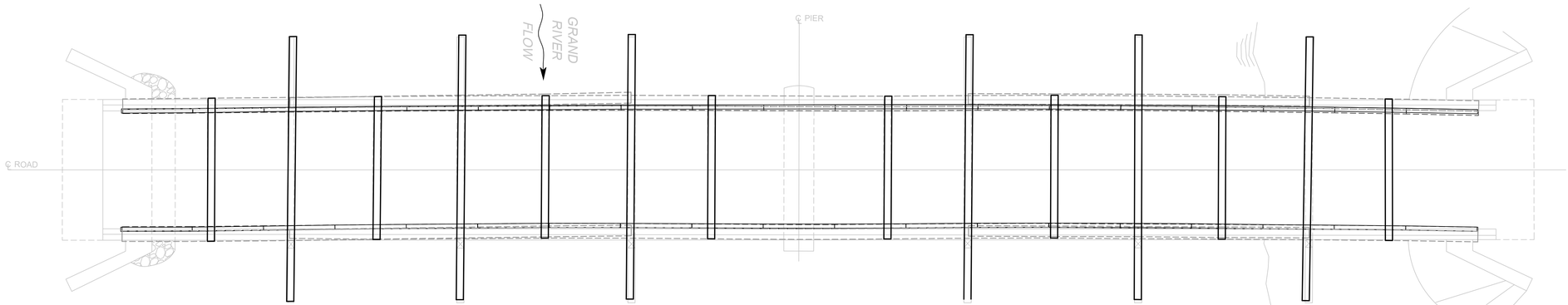
DESIGN	
DRAWN	A. ZHANG
CHECKED	
SCALE	AS NOTED
DATE	June 9, 2020

WEST MONTROSE COVERED BRIDGE

DRAWING 2

CONTRACT No. _____

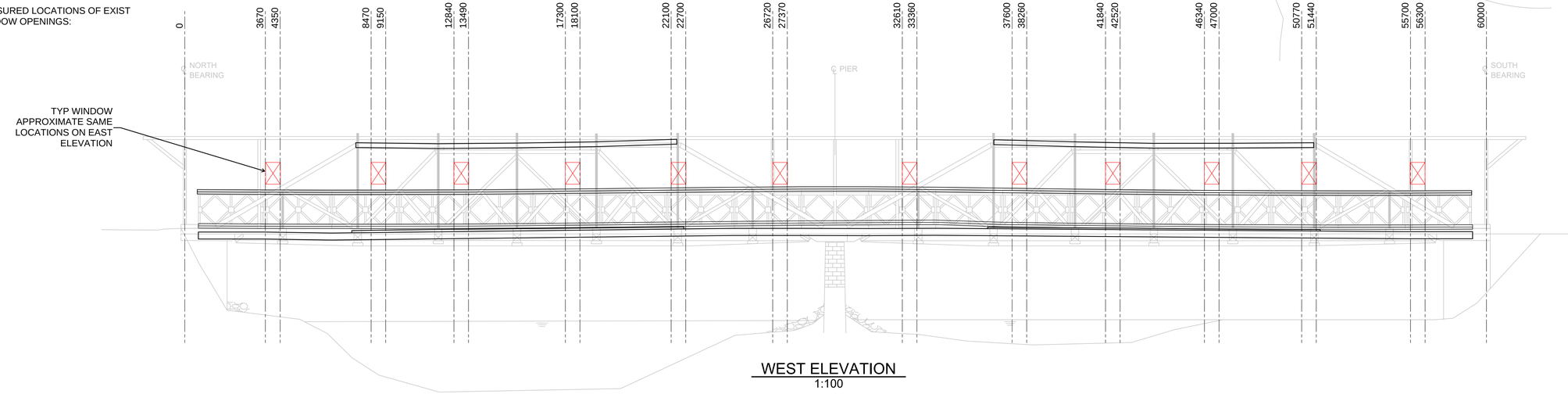
SHEET S2



PLAN
1:100

MEASURED LOCATIONS OF EXIST WINDOW OPENINGS:

0, 3670, 4350, 8470, 9150, 12840, 13490, 17300, 18100, 22100, 22700, 26720, 27370, 32610, 33360, 37600, 38260, 41840, 42520, 46340, 47000, 50770, 51440, 55700, 56330, 60000



WEST ELEVATION
1:100

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020

MEASUREMENTS SHOWN ON THESE PLANS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

CAD FILE: X:\Projects\19-057 Region of Waterloo - West Montrose Covered Bridge - Broken Beams\DDA CAD Drawings\19-057_002SY.dwg
MODIFIED: 2020-06-09 2:51:53 PM BY: kli
PLOTTED: 2020-06-10 10:22:02 AM BY: kli

Region of Waterloo

No.	DATE	REVISIONS	INITIAL	SIGNED

DOUG DIXON & ASSOCIATES INC

DESIGN	
DRAWN	A. ZHANG
CHECKED	
SCALE	AS NOTED
DATE	June 9, 2020

WEST MONTROSE COVERED BRIDGE

DRAWING 2

CONTRACT No. _____

SHEET S2

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Appendix E: Recorded Observations on Bridge Deck Plan

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BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020

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PRELIMINARY



ANIMAL SKULL WEDGED BTW LCs BUT NO WOOD ROT FROM CARCASS OBSERVED

WEST

SOUTH

FB1 NB1 FB2 NB2 FB3 NB3 FB4 MID-PIER

℄ PIER

SCARF JOINT ENDS TYP @ LC

MEMBER ENDS TYP @ STR

GRAND RIVER FLOW

2.00 m
1.08 m
1.20 m
1.20 m
2.15 m

LC1
LC2
STR1
STR2
STR3
STR4
STR5
STR6
STR7
STR8
STR9
STR10
STR11
STR12
LC3
LC4

℄ ROAD

1.96 m
0.44 m
+/-2.00 m

SEE S101 FOR CONTINUATION

FB1 NB1 FB2 NB2 FB3 NB3 FB4 MID-PIER

PLAN
1:100

ROT/DECAY AT CLADDING & PARTIALLY TO LC4
DSCF2209.JPG





EAST

ROT/DECAY AT SIDE OF LC
MOSS GROWTH
DSCF2289.JPG



Project:
WEST MONTROSE BRIDGE

WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
BRIDGE DECK PLAN

Drawing No:

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020

WEST

MID-PIER

FB5

NB4

FB6

NB5

FB7

NB6

FB8

℄ PIER

NORTH

SEE S100 FOR CONTINUATION

0.97 m

1.18 m

2.02 m

1.20 m

+/- 1.60 m

LC1
LC2
STR1
STR2
STR3
STR4
STR5
STR6
STR7
STR8
STR9
STR10
STR11
STR12
LC3
LC4

0.95 m

1.20 m

1.22 m

+/-1.60 m

+/-1.60 m

NLT LAM SPLIT



PLAN
1:100

EAST

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PRELIMINARY

Project:
WEST MONTROSE BRIDGE

WEST MONTROSE, ON

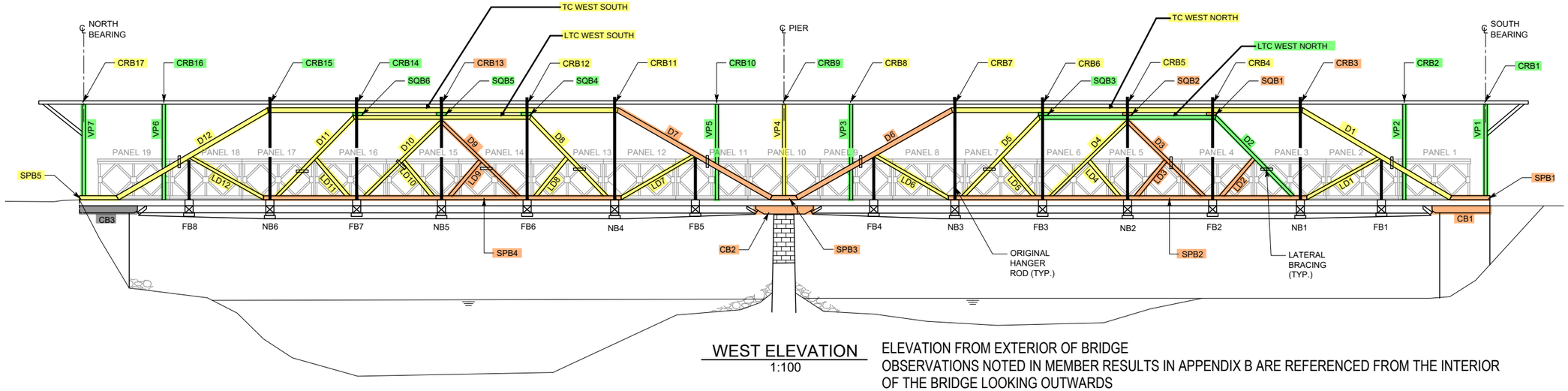
Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
BRIDGE DECK PLAN

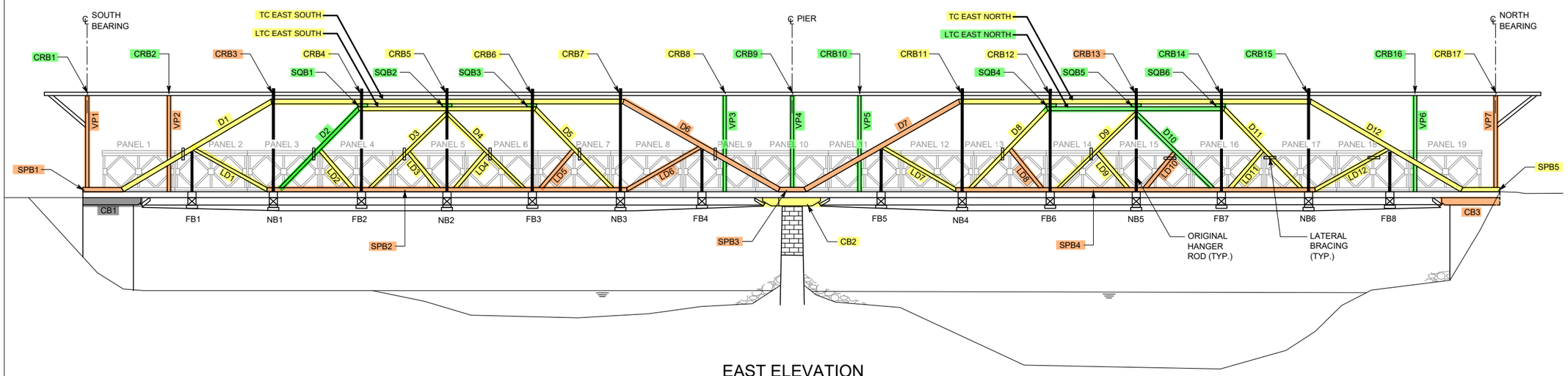
Drawing No:

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020



WEST ELEVATION
1:100

ELEVATION FROM EXTERIOR OF BRIDGE
OBSERVATIONS NOTED IN MEMBER RESULTS IN APPENDIX B ARE REFERENCED FROM THE INTERIOR OF THE BRIDGE LOOKING OUTWARDS



EAST ELEVATION
1:100

ELEVATION FROM EXTERIOR OF BRIDGE
OBSERVATIONS NOTED IN MEMBER RESULTS IN APPENDIX B ARE REFERENCED FROM THE INTERIOR OF THE BRIDGE LOOKING OUTWARDS

NOTE:
* refer to S100 and S101 for existing conditions of LC, STR, FB & NB.

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EXISTING CONDITIONS

N/A
Member was not inspected either due to limited access or similar members previously inspected adequately represents the existing conditions.

POOR
Severe deterioration.

FAIR
Minor deterioration. Member is still serviceable.

GOOD
No comments from visual review and resistograph readings. Expected MC%.

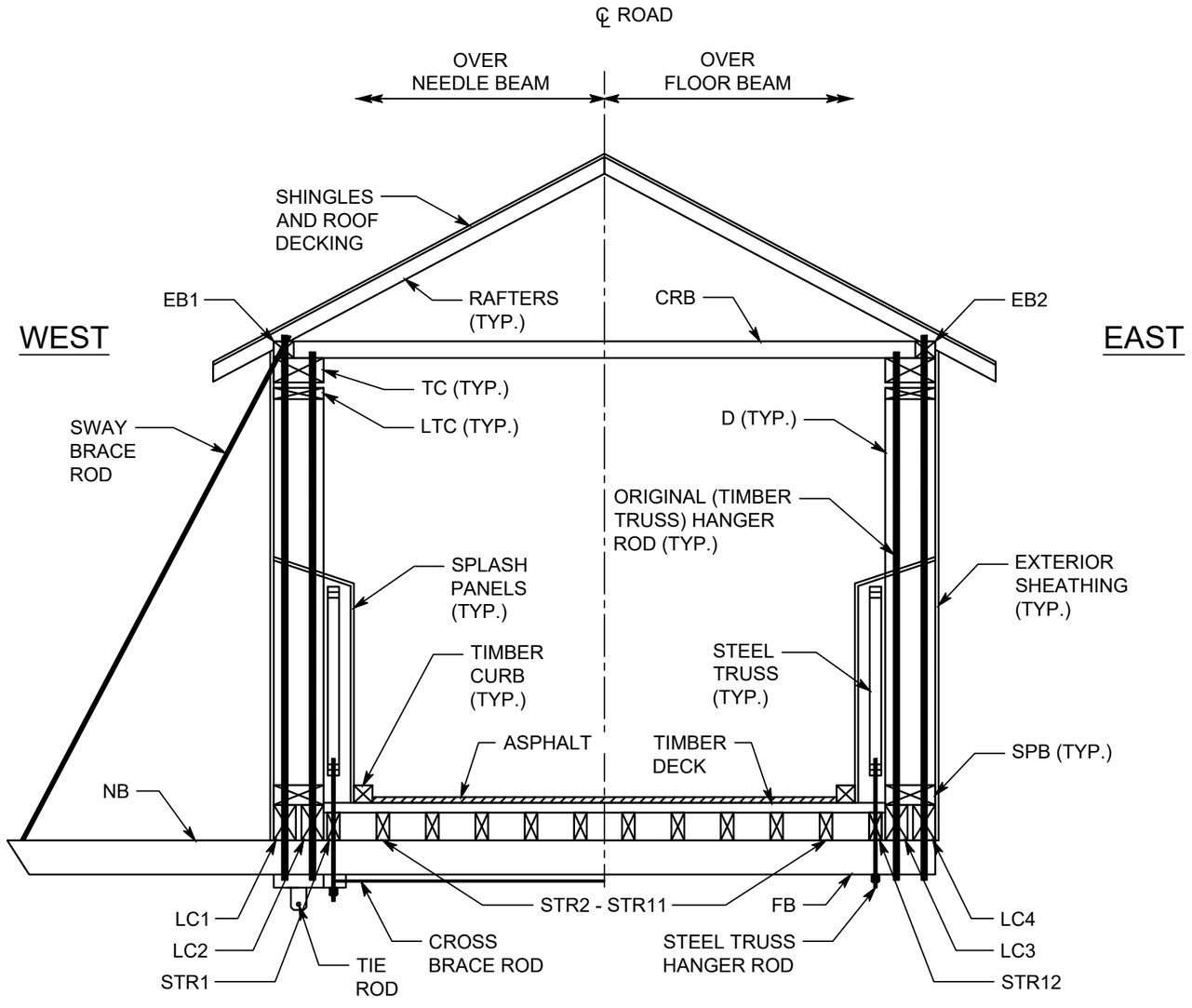
Project:
WEST MONTROSE BRIDGE
WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
ELEVATIONS

Drawing No:
S200



TYPICAL SECTION

1:50

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Project:
WEST MONTROSE BRIDGE

WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

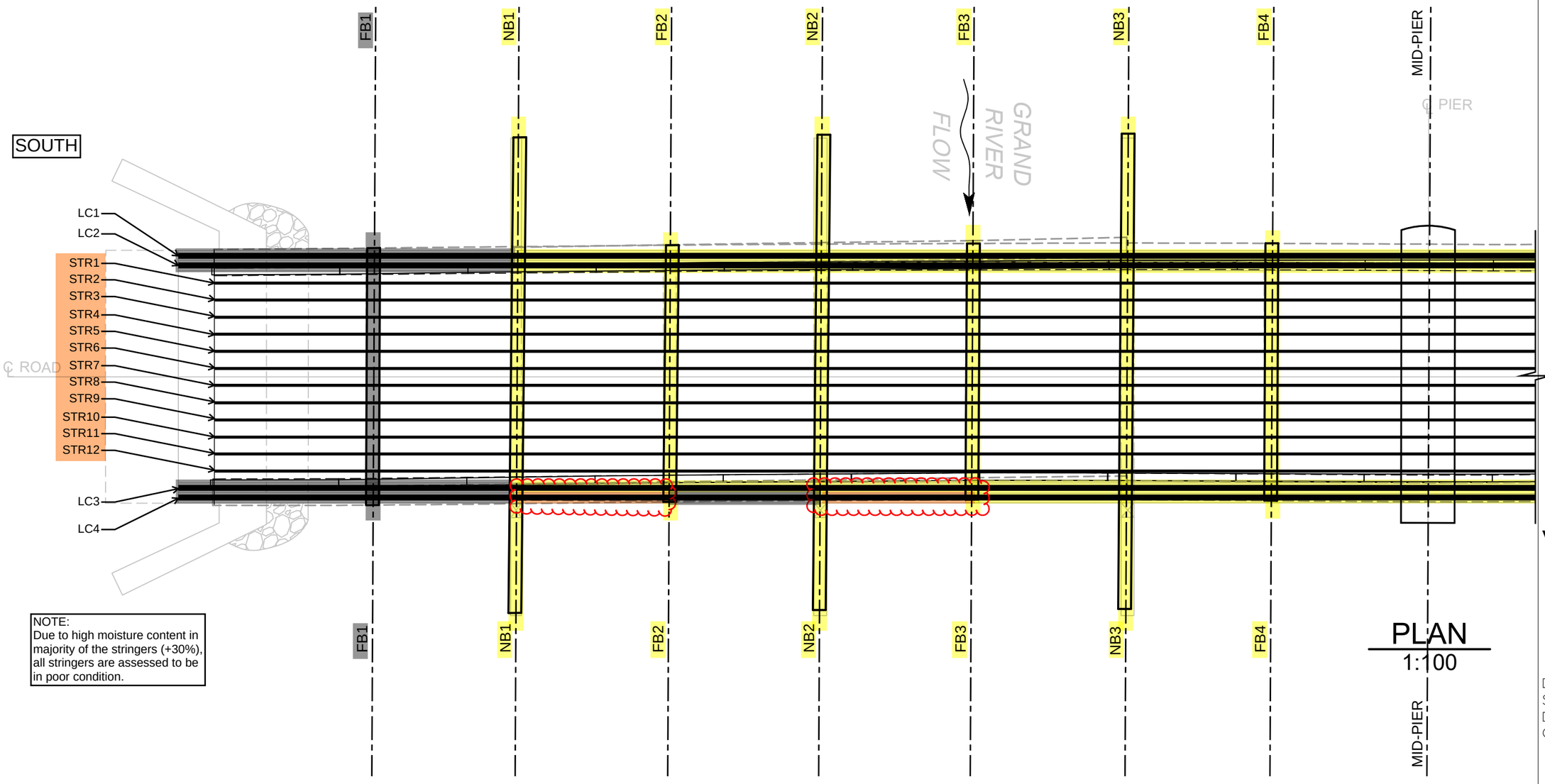
Drawing Title:
ELEVATIONS

Drawing No:
S201

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020

WEST

SOUTH



NOTE:
Due to high moisture content in majority of the stringers (+30%), all stringers are assessed to be in poor condition.

PLAN
1:100

EAST

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EXISTING CONDITIONS

N/A
Member was not inspected either due to limited access or similar members previously inspected adequately represents the existing conditions.

POOR
Severe deterioration.

FAIR
Minor deterioration. Member is still serviceable.

GOOD
No comments from visual review and resistograph readings. Expected MC%.

SEE S101 FOR CONTINUATION

Project:
WEST MONTROSE BRIDGE

WEST MONTROSE, ON

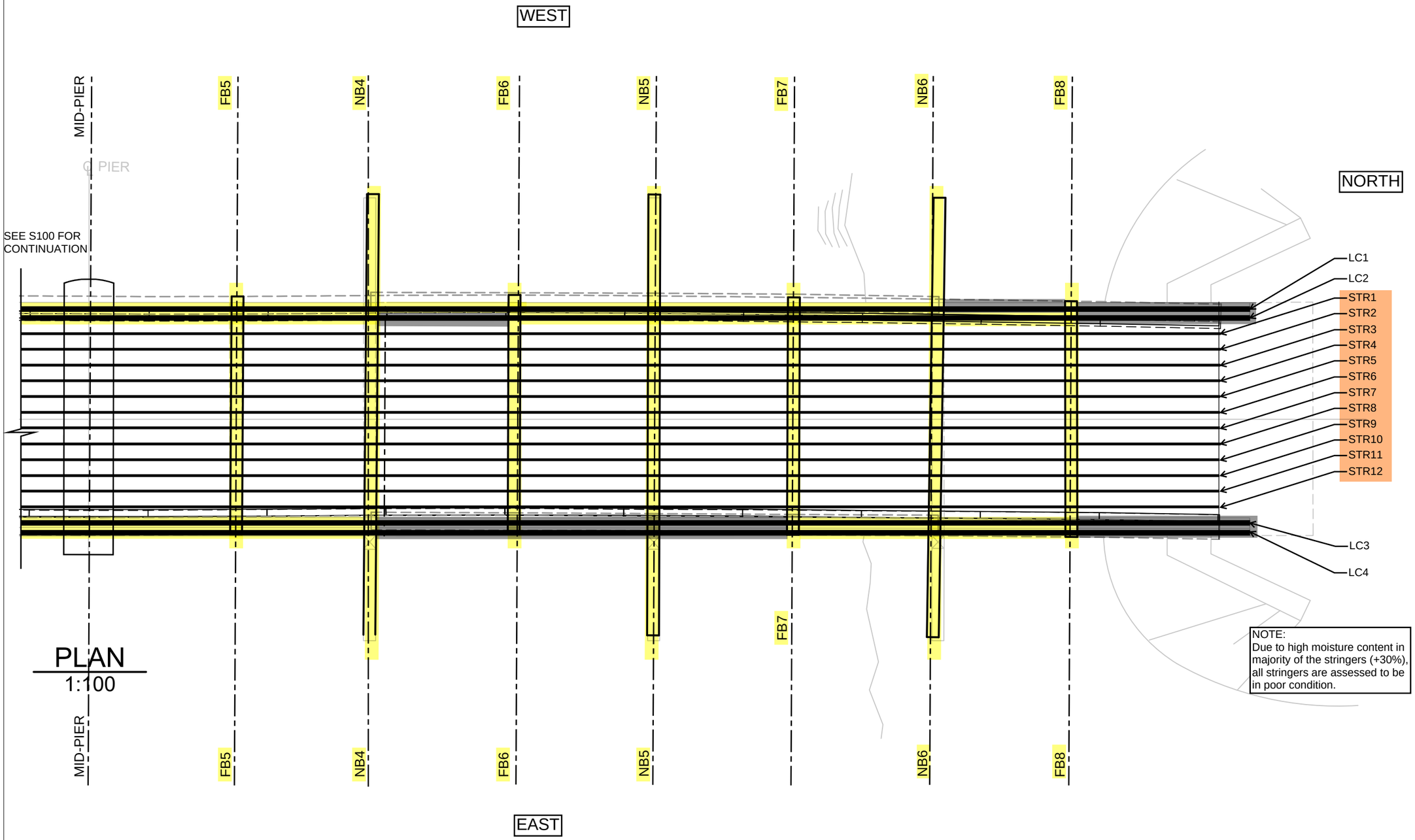
Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
BRIDGE DECK PLAN

Drawing No:
S100

BRIDGE DWG. EXCERPT FROM "WEST MONTROSE BRIDGE - DETAILED INSPECTION REPORT" BY DOUG DIXON & ASSOCIATES DATED JUNE 9, 2020



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Tel: 416 255 3337
info@mosesstructures.com

EXISTING CONDITIONS

N/A
Member was not inspected either due to limited access or similar members previously inspected adequately represents the existing conditions.

POOR
Severe deterioration.

FAIR
Minor deterioration. Member is still serviceable.

GOOD
No comments from visual review and resistograph readings. Expected MC%.

Project:
WEST MONTROSE BRIDGE
WEST MONTROSE, ON

Project No:
22.124

Date: JUNE 2023
Scale: AS NOTED
Drawn By: MH
Checked By: DM

Drawing Title:
BRIDGE DECK PLAN

Drawing No:
S101