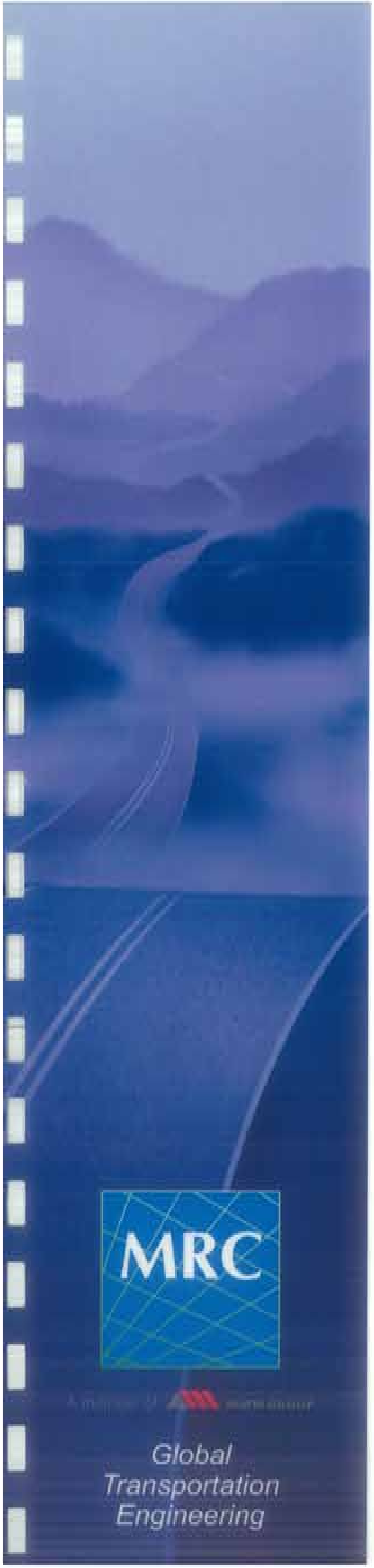
APPENDIX F1

TANSLEY BRIDGE CONDITION SURVEY REPORT 2009



Halton REGION

Dundas Street (Reg. Rd. 5) Class EA Study Brant Street (Reg. Rd. 18) to Proudfoot Trail

Tansley Bridge
Dundas Street at Bronte Creek
Bridge No. 005109
MTO Site N0. 010-0111

CONDITION SURVEY REPORT

VOLUME 1

October 2009

Regional Municipality of Halton

Tansley Bridge
Dundas Street at Bronte Creek
MTO Site Number 010-0111

Condition Survey Report

Report Prepared By:

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T. Small for Gideon Tjandra

Gideon Tjandra, E.I.T.

Report Approved By:

LICENSED PROFESSIONAL ENGINEER
T. P. A. SMALL
Oct 30/09
PROVINCE OF ONTARIO

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Senior Bridge Engineer

MRC

A member of MMM GROUP

McCormick Rankin Corporation
October 2009

TABLE OF CONTENTS **Page**

APPENDICES

File: W:\7k\7108 Dundas St. EA Guelph Line to Appleby\7108-08.300 Structural\304 Reports\Tansley Bridge\7108cf Tansley Bridge - Structure Investigation Report.DOC

STRUCTURE IDENTIFICATION SHEET

GENERAL INFORMATION

STRUCTURE NAME Tansley Bridge over Bronte Creek Westbound Lanes

BRIDGE NUMBER 005109-2-2 **DISTRICT NUMBER** 14000

HIGHWAY/WATERCOURSE **Above** - **Below** Bronte Creek

TYPE OF STRUCTURE Atmospheric corrosion resistant structural steel girder bridge

NUMBER OF SPANS 4 **SPAN LENGTHS** 50.292 m, 60.960 m, 60.960 m, 50.292 m

ROADWAY WIDTH 9.170 m **YEAR BUILT** 1980

DIRECTION OF STRUCTURE east-west

SEQUENCE NUMBER N/A **TOWNSHIP NUMBER** N/A

LHRS NUMBER N/A **MTO SITE No.** 010-0111

LOCATION 1.12 km east of Appleby Line **JURISDICTION** Municipality of Halton

INSPECTOR'S NAME Jigish Naik, P.Eng.

PARTY MEMBERS Gideon Tjandra, E.I.T., Christopher Fulton, E.I.T., David Hyunh, McClain & Co., On Track Safety Ltd., Craftsman Cutting Company

DATE OF INSPECTION July 19 – 20th, 2009

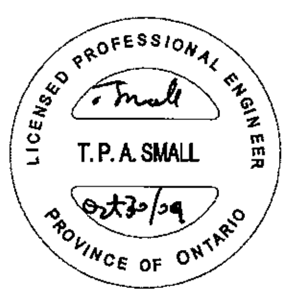
TEMPERATURE 20 - 30 °C **WEATHER** Sunny, cloudy

MTO REGION Southwest **AADT** 29 620

DECK RIDING SURFACE Asphalt

YEAR LAST REHABILITATED 2004

ENGINEERS STAMP



STRUCTURE IDENTIFICATION SHEET

GENERAL INFORMATION

STRUCTURE NAME Tansley Bridge over Bronte Creek Eastbound Lanes

BRIDGE NUMBER 005109-1-2 **DISTRICT NUMBER** 14000

HIGHWAY/WATERCOURSE **Above** - **Below** Bronte Creek

TYPE OF STRUCTURE Structural steel deck truss bridge

NUMBER OF SPANS 4 **SPAN LENGTHS** 45.720 m, 60.960 m, 60.960 m, 45.720 m

ROADWAY WIDTH 9.170 m **YEAR BUILT** 1930

DIRECTION OF STRUCTURE East-West

SEQUENCE NUMBER N/A **TOWNSHIP NUMBER** N/A

LHRS NUMBER N/A **MTO SITE No.** 010-0111

LOCATION 1.12 km east of Appleby Line **JURISDICTION** Municipality of Halton

INSPECTOR'S NAME Jigish Naik, P.Eng.

PARTY MEMBERS Gideon Tjandra, E.I.T., Christopher Fulton, E.I.T., David Hyunh, McClain & Co., On Track Safety Ltd., Craftsman Cutting Company

DATE OF INSPECTION July 17 – 18th, 2009

TEMPERATURE 24-32 °C **WEATHER** Sunny, cloudy

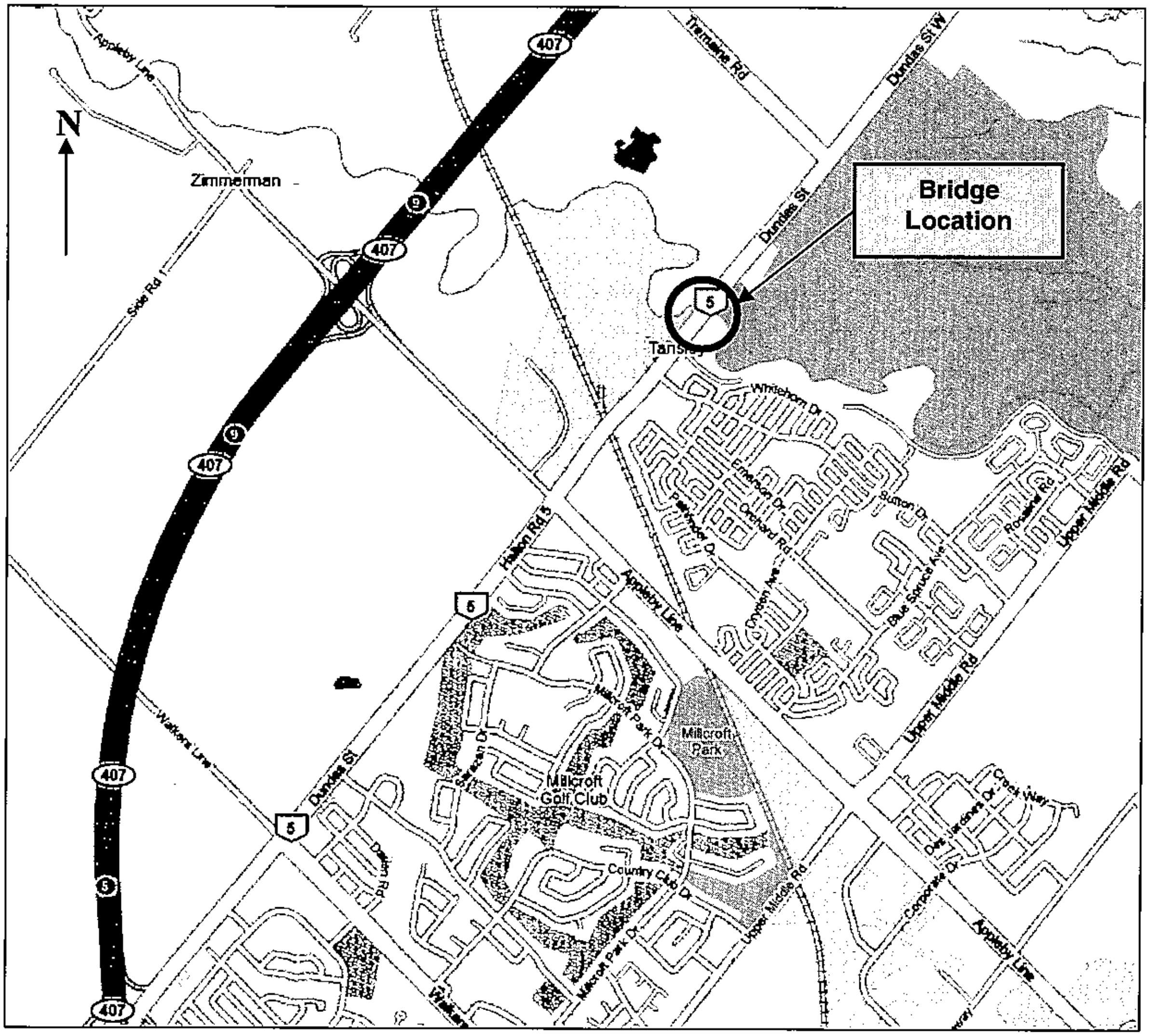
MTO REGION Southwest **AADT** 35 000

DECK RIDING SURFACE Asphalt

YEAR LAST REHABILITATED 2004

ENGINEERS STAMP

LICENSED PROFESSIONAL ENGINEER
T. P. A. SMALL
Oct 30/09
PROVINCE OF ONTARIO



Tansley Bridge, Dundas Street at Bronte Creek
1.12 km East of Appleby Line

KEY PLAN

1. INTRODUCTION

1.1 General

McCormick Rankin Corporation (MRC), a member of MMM Group, was retained by the Regional Municipality of Halton to undertake Municipal Class Environmental Assessment (EA) for the planned widening of Dundas Street from the existing four lanes to six lanes. The study limits for the widening are from Guelph Line to Appleby Line. The Tansley Bridge is within the study limits and will also need to be widened to accommodate the planned increase in number of traffic lanes.

A condition survey of the Tansley Bridge is included in the Class EA study to assess the existing structure needs and provide data for the structural evaluation of the existing structure. The data collected will also be used to determine the feasibility of the proposed widening alternatives from a structural perspective. This report presents the results of the condition survey of the Tansley Bridge.

The Tansley Bridge, located on Dundas Street at Bronte Creek comprises two side-by-side structures. The original structure was completed in 1948 and comprises a steel deck truss superstructure. The truss deck was modified and a steel girder type bridge added on the north side of the crossing in 1978 to facilitate the widening of Dundas Street from two to the current four lanes of traffic. The two superstructures act independently of each other and are separated by a 25 mm wide longitudinal joint located in the median. In addition, the substructures for each stucture are essentially independent of each other.

The entire width, including the EBL and WBL structure, of Tansley Bridge is 22.250 m. This width includes 0.455 m wide concrete barrier walls with a single parapet rail on the north and south side of the bridge. In addition, a 1.220 m wide concrete median comprised of the EBL and WBL deck cantilevers separated by a 25 mm gap. The bridge was constructed normal to the roadway alignment.

In the current configuration, the original truss structure carries eastbound traffic while newer steel girder structure carries the westbound traffic lanes. The condition survey comprised a bridge deck condition survey and underbridge inspection of the eastbound lane and westbound lane structures of Tansley Bridge over Bronte Creek (MTO Site Number 010-0111). The bridge deck condition survey work was completed over a four (4) day period, July 17th to 20th, 2009. The underbridge inspection was completed over a seven (7) day period, July 17th to 21st and 24th to 25th, 2009.

The report includes the following:

- A summary of significant findings; and,
- Discussions of findings and the results of the laboratory testing.

1.2 Structure Description

1.2.1 Eastbound Lane (Deck Truss) Bridge

The bridge is located on Dundas Street at Bronte Creek, 1.12 km east of Appleby Line in the Regional Municipality of Halton. For the purpose of this report, the Tansley Bridge lies in the east to west direction and Bronte Creek flows from north to south.

The eastbound lane (EBL) substructure for the truss superstructure was constructed from 1946 to 1947 and the superstructure constructed in 1948. The superstructure comprises three multi-span continuous deck trusses supporting a concrete deck. The four spans are symmetrical about the midspan of the structure, being 45.72 m±; 60.96 m±; 60.96 m±; 45.72 m± from east to west respectively. The substructure comprises reinforced concrete abutments and piers founded on shale bedrock. Due to the steep valley of Bronte Creek the piers vary in height from approximately 15.2 m to 27.4 m above the founding rock.

The truss superstructure was rehabilitated in 1978, when Dundas Street was widened and the WBL structure constructed. The work in 1978 removed the deck cantilevers, constructed a sidewalk and barrier wall with single rail on the south side, constructed new expansion joints at the abutments, and provided a new raised median with longitudinal joint adjacent to the westbound lane structure. The structure modification reduced the width of the superstructure from 16.1 m to 12.345 m, replaced the steel stringers, and provided a new concrete deck with asphalt wearing surface and waterproofing. The trusses were essentially maintained as they were originally constructed.

The bridge was rehabilitated again in 2004. The 2004 rehabilitation replaced the south barrier wall, patched the concrete deck, replaced the asphalt and waterproofing system, and replaced the longitudinal joint seal in the raised median.

The EBL roadway cross-section has a 9.170 m travelled roadway comprising two (2) 3.660 m wide lanes, 0.400 m horizontal clearance from the centre median and 1.450 m right shoulder. A 1.805 m wide sidewalk is located on the south side.

1.2.2 Westbound Lane (Steel Girder) Bridge

The westbound lane (WBL) structure was constructed in 1978 and rehabilitated in 2004. The superstructure is 9.905 m wide with four continuous spans (50.29 m±; 60.96 m±; 60.96 m±; 50.29 m±). The girders are not coated and comprise atmospheric corrosion resistant structural steel. The girders are composite with concrete deck, and an asphalt wearing surface is provided. The span arrangement matched the centreline of bearings of the truss structure at the piers, but the longer exterior spans extend past the abutments of the truss structure.

The pier footings were founded on shale bedrock. The abutment footings were constructed on compacted granular fill and founded on steel H-piles driven to bedrock.

The roadway cross-section comprises 9.170 m travelled roadway including two (2) 3.660 m wide lanes, 0.400 m horizontal clearance from the centre median and 1.425 m right shoulder.

The bridge was rehabilitated in 2004 under the same contract that rehabilitated the EBL structure. The 2004 rehabilitation replaced the north barrier wall, patched the concrete deck, and replaced the asphalt and waterproofing system. Other work in the 2004 rehabilitation contract included filling of eroded and washed out areas of the embankments, and, placing new rip-rap material.

1.3 Investigation Scope

Recently, one (1) condition survey was undertaken for the Regional Municipality of Halton, in 1999 by Totten Sims Hubicki Associates. The 1999 *Bridge Inspection Report* included the results of the inspection of sawn asphalt samples and concrete cores. In addition, three (3) municipal bridge appraisal inspections were completed in 1998, 2006 and 2008.

The 2009 condition survey completed by MRC was undertaken as part of an environmental assessment. The deck condition survey was completed in accordance with the *Structure Rehabilitation Manual* (MTO, April 2007) for update surveys on one lane in each direction. Half of the bridge deck was assessed to obtain a reasonable representation of the deck's overall condition for the environmental assessment. The right lane and right shoulder of the eastbound and westbound structures were investigated.

In addition, a soffit and superstructure investigation was completed with the use of an underbridge inspection unit. The bearings and areas of the substructure were inspected with the underbridge inspection unit where possible.

The condition of the steel trusses, including gussets, and steel girders of the WBL structure was assessed by visual inspection. The investigation included obtaining remaining metal thickness measurements in corroded areas on the gussets and girders, where accessible. The truss gussets were measured and photographed with scale to determine each gusset configuration including rivet locations of the member connections to the gussets. The truss member components were measured to verify the built-up members shown on the original structure drawings.

The substructure was visually inspected and concrete sounded, where accessible by ladders and underbridge inspection vehicle to determine the extent of concrete delaminations on the piers and abutments.

Throughout this report, reference is made to Photographs and drawings that are included in Appendix D and Appendix E, respectively.

2. DECK CONDITION SURVEY

2.1 General

General views of Tansley Bridge are shown in Photographs 1 to 8.

The bridge deck condition survey was conducted in accordance with Part 1 of the *Structure Rehabilitation Manual.*

Sketches attached in Appendix E show the general arrangement of the structure and girder / truss labelling referenced throughout this report.

A total of eight (8) sawn asphalt samples were extracted from the asphalt-riding surface and 20 core samples were retrieved from the deck. For a matter of clarity, 'deck' refers to both the EBL and WBL structure unless otherwise stated.

The sawn asphalt samples and core samples were subject to several qualitative and quantitative observations. These observations included the bond of the asphalt to the waterproofing as well as the bond of the waterproofing to the deck. The concrete deck was inspected for any delaminations, scaling or cracks; and measurements of concrete cover and asphalt thickness were taken.

Descriptions and photographs of the sawn asphalt samples and core samples are included n Appendix B and Appendix C.

Locations of sawn asphalt and core samples are included in Drawings 1 to 4.

2.2 Bituminous Surface and Waterproofing

The full depth of the asphalt wearing surface and waterproofing system on the bridge was removed and replaced as part of the 2004 rehabilitation work.

The hot applied asphalt waterproofing membrane and asphalt wearing surface was generally in good condition. The thickness of the asphalt and waterproofing on the deck, measured from core and sawn sample locations, varied from 46 mm to 95 mm and averaged 78 mm. The thickness of the asphalt measured 93 mm and 96 mm from cores taken on the east approach slab and 110 mm and 112 mm from cores taken on the west approach slab. The waterproofing membrane thickness ranged from 3 mm to 19 mm with an average thickness of 8 mm.

The bond of waterproofing to the underlying concrete surface was in fair condition at all sample locations. Upon removal of the asphalt wearing surface and waterproofing the deck was found dry, indicating that the waterproofing system is performing adequately.

2.3 Concrete Deck

As part of the 1978 construction contract that involved the erection of the north structure, the original reinforced concrete deck of the south structure was replaced. The new deck was constructed to allow for a 25 mm gap between the deck cantilevers at the centre median.

The concrete deck is generally in fair condition based on observations made at sawn asphalt sample and core sample locations. No defects or deteriorations were noted in the concrete at any of the eight (8) sawn asphalt samples or 20 core sample locations, except at core C19. At this location, a narrow vertical crack was noted to extend 30 mm below the level of the reinforcing steel bar. We note that light corrosion was noted on the reinforcing steel bar. The crack measured 0.20 mm wide and extends 130 mm below the top of the concrete surface.

The concrete cover readings, taken on the exposed concrete deck surface, ranged from 71 mm to 103 mm for the longitudinal reinforcing steel bars and 64 mm to 94 mm for the transverse reinforcing steel bars. The concrete cover to the top upper layer (transverse) reinforcing steel bars averaged 77 mm.

2.4 Core Testing

Cores were removed from the deck for several purposes. Upon removal, a visual inspection was completed on the concrete deck and any reinforcing steel that may have been intercepted. The cores were also used to verify the depth of concrete cover.

In total, 20 cores were retrieved from the deck; 16 were taken from the deck (eight (8) from each structure), and four (4) from approach slabs (one (1) from each slab). All cores were 100 mm in diameter.

The depth of concrete in the deck cores varied from 65 mm to 205 mm and averaged a depth of 123 mm. The depth of the concrete in the full depth approach slab cores varied from 240 mm to 268 mm and averaged a depth of 257 mm.

Transverse and longitudinal reinforcing steel bars varying in size from #5 to #11 (old imperial designation) were intercepted at 18 core locations. On average, concrete cover to the top reinforcing steel bars measured 72 mm in the bridge deck. We note that, light corrosion was noted at two (2) core sample locations (C7 and C19). Reinforcing steel bars appeared to be in good condition at all other core locations.

MRC retained the services of Golder Associates to provide destructive testing services. Cores were tested in accordance to the *Structure Rehabilitation Manual* (MTO, April 2007). Three (3) testing procedures were undertaken to determine the chloride content, air void system, and compressive strength. In total, eight (8) cores were selected for destructive testing purposes.

The results of the testing are included in Appendix F and are summarized in the core logs found in Appendix B. Indication of which cores were tested is shown on the condition survey drawings in Appendix E.

Chloride Ion Content Testing

The chloride ion content of the deck was determined by testing four (4) core samples for acid soluble chloride ion content. The core samples tested were retrieved from areas of the deck with varying corrosion potentials. The cores included C5 and C9 from the EBL structure and C12 and C14 from the WBL structure.

The chloride content profile was measured from successive 10 mm thick slices to a depth of 90 mm. Testing procedures and review of the cores were in accordance with Cores for Total Soluble Chloride Ion Content (MTO LS-417).

The *Structure Rehabilitation Manual* states that a chloride content of 0.20% or greater by mass of cement is necessary to depassivate the concrete and permit corrosion of the steel bars. For a typical cement factor of 300 kg/m^3 this corresponds to a chloride content of 0.025% by mass of concrete.

In determining the chloride content profile, it is necessary to establish a background chloride content value. The value is taken as the lowest measured reading from all the cores to set a benchmark. This value represents the chloride content which may have already been in place at the time of construction, and does not contribute to the corrosion. The actual chloride content reading is subtracted by the background value to obtain a corrected measurement.

The background chloride ion content for the EBL structure was 0.041% and was found in the 80-90 mm horizon of core number C9. The background chloride ion content for the WBL structure was 0.040 and was found in the 20-30 mm horizon of core number C12.

Table 2.1 – Chloride Ion Content Testing Summary

Core Sample Tested for Chloride Ion Content	Depth at Which Chloride Ion Content of 0.025% is Exceeded*
C5	40-50 mm, 60-70 mm
C9	N/A
C12	N/A
C14	N/A
** A chloride content of 0.025% by mass of concrete is the minimum required to permit corrosion of embedded reinforcing steel.*	

Cover meter readings at the sawn asphalt sample locations and the cover measured at core locations show that the reinforcing steel is located approximately 72 mm to 77 mm below the concrete surface. The above table therefore indicates that the chloride ion content at the level of the reinforcing steel bars may be sufficient to initiate corrosion of the reinforcing steel at one (1) of the four (4) core sample locations.

We note that light corrosion was observed in 11 % of the core samples where reinforcing steel was exposed.

Air Void System Testing

The *MTO Structure Rehabilitation Manual* classifies concrete as properly entrained with air if the following parameters are met:

(1) Air content > 3 %;
(2) Spacing factor < 0.20 mm; and,
(3) Specific surface > 24 mm^2/mm^3.

Cores C2 and C15 were tested for hardened air void system parameters in accordance to ASTM C457. The results indicated that both cores C2 and C15 contained adequate air content and specific surfaces, but insufficient spacing factors.

Compressive Strength Testing

Core C4 and C17 were tested for compressive strength in accordance to CSA A23.2-00-14C. Results indicated a corrected compressive strength of 51.9 MPa and 63.9 MPa for C4 and C17, respectively.

2.5 Corrosion Potential Survey

A 3 m by 3 m grid was used in conducting the corrosion potential survey; as per the *Structure Rehabilitation Manual*, the deck area of the bridge is greater than 500 m^2 and the deck was constructed after 1975.

The corrosion potential readings are grouped into three ranges as follows:

- ***Low Range***: If potentials over an area are greater (more positive) than -0.200 V, there is a greater than 90 % probability that no reinforcing steel corrosion is occurring in that area at the time of measurement;
- ***Mid Range***: If potentials over an area are within the range of -0.200 V to -0.350 V, corrosion activity of the reinforcing steel in that area is uncertain; and
- ***High Range***: If potentials over an area are less (more negative) than -0.350 V, there is a greater than 90 % probability that reinforcing steel corrosion is occurring in that area at the time of measurement.

Table 2.2 provides a summary of the corrosion potential readings recorded during testing.

Table 2.2 – Corrosion potential reading summary

Corrosion Potential (V)	% of Surveyed Deck Area
0.000 to -0.200	74
-0.200 to -0.350	24
Less than -0.350	2

Based upon the above results, the reinforcing steel in 2 % of the deck area has a high probability of active corrosion. The highest corrosion potential readings were found adjacent to the south sidewalk, north barrier wall and along the joints at both ends of the bridge. Furthermore, 24 % of the deck area is identified as having an uncertain corrosion activity.

The above readings do not include corrosion potential readings taken directly on the sidewalk, where 57 % of the readings taken on the sidewalk indicated a high corrosion potential.

It should be noted that the corrosion potential survey is only a guideline and may not accurately predict the locations of corrosion. This is supported by the observation made from two (2) core samples containing lightly rusted bars that were retrieved from areas of low corrosion potential. However, it is possible that these bars were rusted when installed in the original construction.

The corrosion potential readings are presented in the condition survey drawings in Appendix E.

2.6 Deck Soffit

A visual inspection survey was completed on the deck soffit. Refer to Sketches included in Appendix E for a general arrangement of the structure, girder / truss, span, and pier labelling referenced throughout this report. A delamination sounding survey of the soffit was not possible due to the limiting reach of the underbridge inspection unit. Therefore, the delamination survey for the soffit is based on observation only.

Many areas of delaminations and spalling were noted over the entire span length, but generally in the deck cantilevers directly under the centre median. Exposed corroded reinforcing steel bars typically had medium corrosion or severe corrosion. Multiple reinforcing steel bars were exposed at several locations. Large portions of the cantilever in where bars were exposed were noted with wet areas. See Photographs 10, 11 and 39 for typical deterioration on the interior deck cantilever.

Exterior deck cantilevers appeared to be in generally good condition with minor concrete spalling at stringer locations (see Photograph 40). The interior deck soffit was generally in good condition with narrow stained random cracking in various areas. No cracks of significant width or length (severe) were found on the deck soffit.

The typical soffit condition of the south structure is shown in Photograph 41.

The typical soffit condition of the north structure is shown in Photograph 42.

3. UNDERBRIDGE INSPECTION

3.1 The Assignment

MRC was retained, in part, to undertake a field inspection of the structural steel in the deck trusses of the Tansley Bridge over Bronte Creek. This field inspection was to entail the following:

1. Confirmation of section / member proportions as shown on the existing structure drawings;
2. Identification of section loss from corrosion by obtaining measurements using callipers for members, components, batten and gusset plates;
3. Measurement of the size / depth of corrosion pits;
4. Identification of the size / location of perforations in members and components (battens and gusset plates);
5. Obtain steel thickness using an ultrasonic thickness gauge at random locations and locations where callipers prove ineffective;
6. Identify member distortions (if any);
7. Visually inspect rivets and bolts for loose, broken or deteriorated connections;
8. Identify rivet head section loss to establish the need for replacement;
9. Identify the location of debris build up;
10. Visually examine the condition of the existing coating;
11. Visually inspect the electrical ground cables;
12. Note deterioration of conduit (if any); and,
13. Visual inspection of the bearings.

In addition to measurements and observations, photographs of deterioration or other notable features were also taken.

One (1) crew of two (2) inspectors were assigned to the inspection. The crew consisted of Gideon Tjandra E.I.T., and, Jigish Naik P.Eng., Chris Fulton E.I.T., or David Hyunh. Trevor Small, P.Eng also inspected areas of concern found by the crew.

Field inspection notes are included in Appendix G (bound separately) for reference.

3.2 Access for Inspection

Access to complete the inspection was obtained using underbridge access equipment as manufactured by DFM Enterprises, Inc. and supplied by McClain Company, Inc. The unit model was a “Bridgemaster” with a maximum horizontal reach of 15.24 m (50’) and a maximum lowering depth of 17.07 m (56’). The unit was positioned on the bridge deck for access. Photograph 43 shows the unit operating on one of the deck truss spans.

Photograph 44 shows the unit accessing the westbound structure on one of the steel girder bridge spans.

Operation of the unit was completed by a certified operator provided by McClain & Company, Inc.

Traffic control was provided by On Track Safety Ltd. to close the south lane of Dundas Street in the eastbound and westbound direction within the prescribed lane closure times.

3.3 Identification of Members

Spans of both the north structure and south structure are identified as west exterior span, west interior span, east interior span, or east exterior span.

Trusses in the deck truss spans were identified from T1 to T3. Truss "T1" was the north truss in any span and truss "T3" was the south truss in any span. The top and bottom chord nodes were identified as "U" for upper chord and "L" for the lower chord. The nodes were numbered consecutively from "0" (zero) at abutments increasing consecutively toward the centre pier, which was node number "28". An "E" or "W" was used to distinguish whether the node was in a span east or west of the centre pier. For example, "U3E" was the fourth node from the east abutment of a deck truss on the upper chord. Similarly, "L14W" was the fifteenth node from the west abutment on the lower chord. Any member within a truss is therefore identifiable with several alpha-numeric identifiers. For example, U3E-L4E is a diagonal which runs from node U3E to node L4E.

The exterior spans consist of nodes "0" to "12" and the interior spans consist of nodes "12" to "28". Sketches included in Appendix E shows the node identification system for the exterior and interior deck truss spans.

In this manner, any member can be identified as shown below:

- T3/L6E-L7E identifies the lower chord member between node L6 and L7 in the easterly span (span between the east abutment and east pier); the third truss from the north (T3)
- T2L6E-T3L6E identifies the bracing member in the lower chord plane between truss 2 and truss 3 running between node L6E in each truss

Similarly for the steel girder bridge, girders are identified with a prefix "G" and a numerical value starting from the north girder. For example, "G3" is the south most girder in any steel girder span. Field observations were recorded in relative distance from bearings, splices or bracing members.

3.4 Field Methodology

In general the inspection crews relied on visual observations to identify an area of interest.

Once the underbridge access equipment was positioned to provide access to the area of interest, field measurements were obtained. These could be as simple as the confirmation of a member's proportions or as detailed as the measurement of depth of a corrosion pit or member distortion.

Corrosion Pits – are defined as small diameter (less than 50 mm) areas of local section loss. These were measured with a small straight edge and digital caliper and recorded to the nearest millimetre.

Section Loss – was measured using a carpenter's level / straight edge and the probe end of the digital caliper. The depth of section loss and overall extent (transverse and/or longitudinal to the member's axis) was recorded by the inspector.

Rust Jacking – was measured (using the digital caliper) as the total number of millimetres of separation between two components.

Member Size – was confirmed by measuring in detail one truss in half of the bridge. These measurements included flange width, flange thickness, member depth, web thickness, the location and dimensions of batten plates, numbers and sizes of rivets in battens, gusset plate thickness, and the thickness and width of any additional plates constituting the built up member. Other members were then randomly checked for conformity.

Perforations – were identified and measured as to the extent (size) of the perforation and its location along the members.

Ultrasonic Thickness Readings – were taken on a random basis to confirm measurements obtained using other methods or to obtain measurements of material thickness which were not easily obtained using other conventional methods. In these instances, the coating or rust was removed by grinding using an electric rotary grinder. These areas were later repaired using Amercoat Canada's Amerlock® 400 (Grey) High Solids Epoxy Coating applied as per the manufacturer's recommendations.

Member Distortion – was measured by using a string line (clamped to the ends of the member) and measuring the maximum offset from the string line to the member using a conventional measuring tape. Shorter distortions were measured using a 600 mm long carpenter's level.

Photographs – were generally taken of the various defects along with typical Photographs of various members and connections.

Rivets / Bolts – were observed and identified as to being loose, missing or corroded. Corroded rivets were identified as to the percentage of loss observed in the rivet head.

Coating – the general conditions of the coating was recorded. The types of defects in the coating were also recorded although not for specific members or spans due to the extensive number of occurrences.

This report will summarize the major findings, give average values of section loss and provide a further summary of section loss by member and span. Specific defect which may be the basis of a repair during a rehabilitation contract may not specifically be discussed in the following, but may be found in the field notes. This report is only intended as an overview of the record of inspection.

4. DECK TRUSS STRUCTURE

4.1 General

The condition of the four (4) deck truss spans are generally in fair condition. Deterioration appeared to be consistent from span to span with similar observations noted in each. For instance, exterior trusses (T1 and T3) were typically prone to surface deterioration including light to very severe corrosion, corrosion pitting, seam corrosion, rust jacking and section loss. The interior truss (T2) was in good condition compared to the exterior trusses. Few deterioration observations were made on structural members of T2.

Surface deterioration was also typically noted in members adjacent to the abutments and piers.

The general condition of the structural members is shown in Photographs 73 and 74.

4.2 Main Members

4.2.1 Upper Chords

The condition of the upper chords of each truss appears to be consistent from span to span. T1, which supports the interior deck cantilever, was found with numerous areas of corrosion deteriorations. T2 and T3 were generally found to be in good condition with limited deterioration.

Truss 1

Corrosion was prevalent in the upper chord members of T1. These forms of corrosion were typically light and minor in severity that included corrosion pitting, light corrosion and seam corrosion. Coating breakdown was observed at these locations that affected batten plates, flanges and lacing members. Photograph 45 and 46 show the typical condition of the upper chord members. Light seam corrosion was generally noted at gusset plate connections, lacing connections and between the web stiffener plates and the channel webs of the built up section. This is the preceding step leading to future rust jacking.

Truss 2

Very little deterioration was noted in the upper chord members of T2.

Truss 3

T3 contained slightly more areas of very light corrosion and corrosion pitting than T2. These areas were localized and were generally noted in the west interior span, which includes; channel webs, flanges, lacing and batten plates. A general condition of the upper chord in T3 is shown in Photograph 47.

4.2.2 Lower Chords

Similar to the upper chord, deterioration was typically consistent of each truss from span to span. Members of T1 contained corrosion deteriorations and appeared to be active / ongoing. T2 was found with a limited amount of light seam corrosion, generally at the gusset connection to the built up member. T3 contained members with corrosion deteriorations and section loss that appear to have been cleaned and recoated.

Truss 1

The lower chord members of T1 typically contained widespread areas of light corrosion on the built up member (see Photograph 48). At the gusset connections, light to moderate seam corrosion was noted along the gusset plate and the built-up member interface. This seam corrosion appears to be active and in some locations have advanced to severe section loss and moderate rust jacking. Section loss of the gusset plates due to seam corrosion is generally localized, affecting only the lower 25 mm of the gusset plate (at the built up member interface). This section loss was recorded in some locations to be as much as 30 % of the original gusset plate thickness. Photograph 49 and 50 show the condition of a gusset plate with section loss due to seam corrosion. The rust jacking typically measured between 5 mm to 15 mm of the gusset plate's displacement (generally at the corners). The gussets also contained local areas of light corrosion in various plates.

Truss 2

Very little deterioration was observed in the lower chord members of T2. Light seam corrosion was noted at several gusset plate and built up member interfaces. Nominal section loss was observed at these locations.

Truss 3

Corrosion deterioration was typically observed in the lower chord members of T3. Light seam corrosion was noted on lacing and upper flange areas of the lower chord, and gusset plates (see Photograph 51). Light to moderate rust jacking was noted in various areas of seam corrosion. This rust jacking of gusset plates typically measured less than 10 mm at the corners (see Photograph 52). Areas of section loss were generally recorded on gusset plates due to either localized corrosion or seam corrosion. Cleaning and coating of the gusset plates appeared to have been previously completed. Most of these corrosion areas do not appear to be active except for the members with seam corrosion.

Significant Findings

Gusset plates at L22E and L28 of T3 contained the greatest section loss (see Photograph 53 and 54). As much as 58 % of section loss was recorded of the gusset plate at the seam. This measurement was taken on the south gusset plate at node L22E. The gusset plates at L22E and L28 approximately have 10 % to 30 % section loss on average. All other gusset plates of T3, with a reduced cross-section, generally have localized areas of section loss (at the seams or small local areas). See the table included in Appendix H for significant section loss measurements recorded on gusset plates.

Perforations were observed in four (4) locations and recorded in the lower chord, gusset plate and batten plate of T3. We note that these perforations were only observed in the two (2) interior spans. The following are the locations and sizes of the perforations that were recorded:

Table 4.1 – List of Perforations

Member	Structural Component	Perforation size (diameter) (mm)	Photograph Number
T3/L22E-L20E	Batten plate	20	55
T3/L22E	Gusset plate	25	56
T3/L12W	Gusset plate	12	57
T3/L28-L26E	Lower flange	10	58
T1/U27W-L28	Lower flange	2	-

During the field inspection, MRC's inspectors found a crack in a gusset plate that appeared to be a laminar tear. The tear was observed in the east interior span of truss T3 at node L12E. This gusset plate is located at the east pier. The tear, in the parallel direction of the plate, was found on the top portion. The tear appears to split the gusset plate in half over a 50 mm length, 10 mm width and 10 mm depth. Corrosion was noted within the tear. Given the observed size and location of the tear, we believe the tear does not presently pose as a major structural concern. However, the tear should be closely monitored in future inspections to determine any growth in severity. Photograph 59 and 60 shows the tear within the gusset plate.

Despite the above mentioned deterioration, the overall condition of the trusses is generally in good to fair condition. Corrosion of the structural steel members is typically light in severity. Section loss of the members is generally localized and small in area. Rust jacking appears to have no significant consequence to the structural connections and connection components.

4.2.3 Diagonals and Verticals

The diagonals and verticals were generally in good condition. Similar to the upper and lower chord members, the condition of the diagonals and verticals of trusses were consistent from span to span. Members of T1 contained corrosion deterioration and appeared to be active / ongoing. T2 was found with a nominal amount of very light corrosion. T3 contained members with corrosion deterioration and section loss that appear to have been cleaned and recoated.

Truss T1

T1 contained several members with localized areas of light corrosion, light corrosion pitting and coating breakdown. The areas of these deteriorations were relatively minor in relation to the overall size of the member. Typically these areas were approximately 300 mm x 1000 mm or less. Photograph 61 and 62 show the typical corrosion deterioration found in truss T1.

Truss T2

T2 had members that were in good condition and with almost no areas of deterioration.

Truss T3

Members of T3 were generally in good condition. However, several T3 members contained local and large areas of section loss that were previously cleaned and coated and did not appear to be actively corroding. Diagonal and vertical members with minor section loss are generally located at pier nodes L12W, L28 and L12E (see Photograph 63 and 64). Based on field measurements, 1 mm to 2 mm of section loss was recorded on flanges and webs.

4.2.4 Wind Bracing

The wind bracing, which includes the horizontal and vertical bracing, is generally in good condition. Few members were noted with very light corrosion. No noticeable concentration of deterioration was observed in any particular area.

4.3 Substructure

Bearings were noted to be in generally good condition structurally with light corrosion noted in several pier bearings and light to medium corrosion noted in abutment bearings. However, debris build-up was observed in almost all roller bearings, which may impact their functional capabilities. Photograph 75 and 76 show the general condition of the bearings.

Abutments and Wingwalls

Abutments were accessed from the embankments. Three (3) minor areas of delaminations were noted on the east abutment. The total amount of observed spalling in the east abutment totalled 3.9 m^2. The west and east abutment bearing seats generally appeared to be in good condition (see Photograph 65).

Inspection of the ballast walls was limited due to the large height and trusses obstructing the face of the wall. Based on visual inspection, nearly 50 % of the walls were found delaminated. Approximately 31.8 m^2 and 36.3 m^2 were noted in the east abutment ballast walls and west abutment ballast walls respectively. Large areas of the walls were noted wet or wet stained.

Abutment wingwalls were generally in fair condition. The southwest wingwall contained one (1) large area of delamination and one (1) large area of spalling. The southeast wingwall contained two (2) horizontal wide cracks along the entire length of the wall where visible.

Piers

The reinforced concrete piers founded on spread footings are of varying heights. Based on original construction drawings, the pier heights are approximately 11.287 m (37'), 22.869 m (24') and 25.573 m (84') for the west, centre and east pier respectively. The pier bents consist of two spandrel legs with separate pier footings. Pier bents support trusses with fixed bearings at the centre pier and roller bearings at the east and west pier.

The piers were accessed by two (2) methods; ladder from the ground level and the underbridge inspection unit from the deck surface. From the ground level, a vertical height of approximately 3.5 to 5.0 m was reachable. From the underbridge inspection unit, a vertical height of approximately 2 m of the pier cap was reachable. The concrete piers are generally in fair and poor condition. Large areas of delaminations, spalling and exposed reinforcing steel was evident in all three (3) piers.

The west pier contained many areas of delaminations and spalling. Detailed inspection of the pier was completed by delamination survey and visual inspection. Several large areas contained exposed corroded reinforcing steel. In total, the west pier contained 41.7 m^2 of delaminations and spalling. This value corresponds to 18 % of the entire pier face (approximately 231 m^2). Square reinforcing steel bars were observed at spalling locations. Approximately 30 % to 50% of the bar surface was exposed at the most severe locations. Section loss of the steel reinforcing bars was noted due to moderate to severe corrosion. See Photographs 66 to 68 for common observations made on the west pier.

The centre pier contained numerous areas of narrow and medium cracking. Vertical and random cracking was observed throughout all faces of the pier (see Photograph 69). A large delaminated area, approximately 10 m^2, was noted on the south face of the north leg. Several localized areas of spalling were observed in the pier cap and are attributed to inadequate concrete cover. Large delaminations were noted on the pier cap surface at the south end.

The east pier contained very large areas of delaminations that would go undetected without a delamination survey. Of the total area, 255 m^2, inspected with the inspection unit 20.3 m^2 was found delaminated. Also, 4.1 m^2 of spalling was noted. These areas include the pier cap and the pier legs at the ground level. The pier also contains local areas of minor spalling in various areas.

Refer to the abutment and pier condition survey drawings included in Appendix E.

4.4 Miscellaneous Observations

4.4.1 Missing Rivets / Bolts and Unfilled Holes

Throughout the trusses there were few observations made for missing bolts and rivets. On a structure of this age, size and complexity this is not unexpected.

In general, the missing connections occurred singly. We believe that the reasons of the missing connectors were varied. In some instances there appeared to be a misalignment of a single hole in a connection from a fabrication error. Other holes were the remains of temporary bracing used during construction.

In total, 26 fasteners were observed missing or loose.

4.4.2 Damaged Members / Distortions

There were also several occurrences of damaged and distorted members observed in the field.

Distortions or "ripples" in the plates of built up members were observed at several locations. Several of the horizontal wind braces have been damaged either during erection or as a result of subsequent damage during the rehabilitation or coating contracts. In addition, flanges of chords were found distorted in various areas. At these locations, impact damage was generally noted.

Distortion of the lower built up member was noted in three locations about the west pier bearings. The lower flange of T1 and T2 were distorted just west of the bearings. The lower flange of T2 was also distorted just east of the bearings. Upon closer inspection of the distorted lower flange, identical notches were observed. The distortions are believed to have been as a result of previous bridge jacking forces. Photographs 70 to 72 show the distortions observed.

As discussed in previous sections, gusset plate distortions were noted in areas of rust jacking only. No other observed distortion was observed at nodal connection locations.

4.4.3 Coating Condition

Given the scope of work entailed, the condition of the coating was visually assessed. In general, the coating is in good condition with the exception of the coating observed on T1.

For T1, many coating defects were noted. T1 was observed to be undergoing light corrosion due to coating breakdown. This was particularly evident at the edges of the plates and members of the upper chord. Various vertical and diagonal members contained areas of coating breaking which is attributed to the observed light corrosion.

The coating system of T2 and T3 is generally in good condition. Few coating defects were noted in both trusses.

No evidence of cracked coating was observed, which may be associated with distortion in members.

5. GIRDER STRUCTURE

5.1 General

The condition of the four (4) girder spans are generally in good to fair condition. Deterioration appeared to be consistent from span to span with similar observations noted in each. For instance, exterior girders (G1 and G3) were typically prone to surface deterioration such as light to severe corrosion and section loss. The interior girder (G2) was in good condition compared to the exterior girders. Few deterioration observations were made for the structural components of G2.

See Photographs 77 to 80 for general views of the structural members.

5.2 Main Members

5.2.1 Web Plate

The webs of girders were generally in good condition, varying from each girder.

Girder G1

Very light corrosion was noted in the north web face of G1. Corrosion was found within the lower 300 mm portion of the web plate. Section loss of the plate was negligible (see Photograph 85). Very light corrosion was also noted in various areas of the horizontal plate stiffener. The horizontal plate stiffener on the north face of G1 (east exterior span), contains a 300 mm section of weld flux material that was not removed during the girder manufacturing process. Photograph 81 shows an example of this remaining fragment of weld flux material.

Girder G2

The web plate of G2 was generally in good condition. Few deterioration observations were made at the time of inspection that included localized areas of very light corrosion.

Girder G3

The web plate of G3 is in fair condition despite the copious amount of rust noted on the south face. This face is exposed to the runoff from the leaking longitudinal joint and was noted with rusting throughout. The opposite face (north side) was generally in good condition. Section loss measurements were taken on the south face of the web plate with callipers, where applicable, and an ultrasonic thickness gauge. To obtain measurements, rust was removed with a metal grinder to ensure proper contact between the thickness gauge and steel. The total rust was also measured to understand the severity of the section loss and to compare rust thickness in other areas. In general, rust was measured to correspond to a 10:1 expansion ratio in relation to section loss. In total, 26 thickness gauge measurements were completed on the south face of G3. The thicknesses ranged from 7.7 mm to 10.7 mm, and averaged 9.2 mm. These measurements were generally taken at areas of section loss. See Photographs 82 to 84 for typical examples of section loss in the web plate.

We note that considerable section loss was observed on the bolt heads and nuts at splice plate connections of G3. Moderate to severe corrosion was noted on the south face of G3 at these splice connections. However, no bolts were missing or were severed due to rust jacking. See Photographs 86 for typical section loss on bolt heads.

5.2.2 Upper and Lower Flange

The flanges of G1 and G2 are generally in good condition. Nominal section loss was recorded in few areas of the lower flange of G1. All section loss measured less than 1 mm.

The upper and lower flange of G3 is in fair condition despite the consistent light to moderate corrosion noted throughout. Light corrosion and nominal section loss was noted on the upper flange. A maximum section loss of 2 mm was recorded in the lower flange. Similar to the web plate, bolt heads and nuts at splice plate locations were noted with section loss. A typical example of section loss in a bolt head is shown in Photographs 87 and 88.

5.2.3 Wind Bracing

The wind bracing between all girders were generally in good condition. Photograph 79 shows the general condition of the wind bracing members. Light corrosion was noted on the abutment diaphragm between G1 and G2.

5.3 Substructure

Abutments and Wingwalls

Abutments were accessed from the embankments. Two (2) minor areas of delaminations were noted on the west abutment and one (1) minor area of delamination on the east abutment. A total of 0.6 m^2 of delaminations were noted in the east abutment. A total of 1.3 m^2 of spalling and delaminations were noted in the west abutment. The abutment bearing seats appeared to be generally in good condition.

Inspection of the ballast walls was limited due to the large height and abutment diaphragm obstructing the face of the wall. Based on visual inspection large areas of the walls were noted wet or wet stained.

Abutment wingwalls were found in generally good condition.

Abutment bearings were generally in fair to poor condition. At the west abutment bearings, debris had built-up from the leaking expansion joints and the bearing components were severely corroded (see Photograph 91). Medium corrosion on bearing components was noted at the east abutment (see Photograph 89).

Piers

The reinforced concrete piers founded on spread footings vary in height. Based on original construction drawings, the pier height from the footing is 19.1 m (62.8'), 35 m (114.7') and 35 m (114.8') for the west, centre and east pier respectively.

Piers were accessed by two (2) methods; ladder from the ground level and the underbridge inspection unit from the deck surface. From the ground level, a vertical height of approximately 5.0 m was reachable. From the underbridge inspection unit, a vertical height of approximately 7.5 m (24.6') was reachable form the deck level. The concrete piers are generally in good condition. Few deterioration or defect observations were made. Narrow cracking, as shown in Appendix E condition survey drawings, was observed throughout the west face of the centre pier.

Pier bearings are generally in good condition. Bearings supporting G3 were observed with light to medium surface corrosion at the west pier (see Photograph 92). No significant deterioration on the bearings or bearing components was observed at the middle and east pier (see Photograph 90).

6. OTHER COMPONENTS

6.1 Expansion Joints

A longitudinal expansion joint is used to separate the eastbound superstructure and westbound superstructure. Before 2004, a 25 mm open gap existed between the two structures. During the 2004 rehabilitation work, a Jeene 25 mm type "W" joint seal was installed. The joint condition from the above surface indicates that the joint is brittle and has little ductility. A visual inspection from below the structure confirms that the longitudinal joint is leaking. The soffit below the longitudinal joint displays delaminations, spalling, and transverse stained cracks (see Photographs 9 to 11).

Based on the 1977 construction drawings, Wabo Maurer modular D-520 expansion joints were constructed at the abutments on both the north and south structure. At all joint locations, debris accumulation is prevalent (see Photographs 12 and 13). Areas of spalling and local delaminations were noted on the ballast walls, along with large amounts of patchwork from the 2004 rehabilitation (approximately 30 – 50 % of the total concrete area) (see Photograph 14). Deterioration of the concrete end dams were noted (see Photograph 13). The west sidewalk joint of the south structure has a distorted armouring angle which appears to have been caused by impact (see Photograph 15). The seals on the north structure have been extruded from the joint at the ends (see Photograph 16). This may indicate movement of the joint or possibly debris accumulation within the joint. The leaking joints were identified as the main cause of delaminations at the abutments, water ponding, and wet staining on the ballast wall (see Photographs 17 and 18).

6.2 Drainage

The eastbound and westbound lane structures have a longitudinal slope of +0.5 % from the west to the east. Transversely, the north and south structure riding surface has a cross-fall which drains surface water away from the median at a 2 % slope.

Seven (7) deck drains (984 mm by 229 mm with a 152 x 152 mm drain pipe) exist along the north parapet wall and five (5) are along the south sidewalk (see Photograph 19). One (1) catch basin was noted at the curb face of each structure, west of the west approach slabs (see Photograph 20).

6.3 Barrier Walls, Railings and Sidewalk

The concrete barrier walls with railing were constructed as part of the 2004 rehabilitation work. The walls are generally in fair condition. The south wall contains approximately 100 m of vertical medium and narrow cracks and the north wall contains approximately 80 m. Roughly 90 % of these cracks extend the entire height of the wall and approximately 80 % of the cracks exhibit water or rust staining. The above figures for cracking do not take into account the large amount of map cracking which is present over the majority of the wall area. Medium map cracking exists on approximately 10.3 m^2 of the south barrier wall and 7 m^2 on the north barrier wall, and light map cracking is common throughout. Spalling at the base of the wall was noted in various locations along the south parapet wall, amounting to a total area of approximately 0.3 m^2 (see Photographs 21-23).

Railing consists of a single galvanized steel tube, 85 mm in diameter. The railing is in good condition and was noted with small local areas of light corrosion (see Photograph 24).

The sidewalks are in fair condition and exhibit medium transverse cracking (34 m), spalling (0.5 m^2), delaminations (1.5 m^2) and settlement (at joint locations) (see Photographs 25 to 28).

6.4 Approaches

The asphalt wearing surface on the approaches is in fair condition with sealed transverse and longitudinal cracks at the edge of the approach slabs (see Photograph 29).

Full depth cores C1, C10, C11 and C20 confirmed that approach slabs exist on the east and west approaches. Cores C1 and C11 indicate the west approach slabs are between 260 and 268 mm thick with an overlaying asphalt thickness of between 110 and 112 mm. Cores C10 and C20 show the east approach slabs are between 240 and 260 mm thick, with an overlying asphalt thickness of 93 to 96 mm. Reinforcing steel bars were found in three of the approach slab cores and are in good condition.

There are steel beam guide rails (SBGR) at all four corners of the bridge. Based on the applicable standard drawings listed on the rehabilitation contract drawings (OSPD 912.130 and OSPD 912.430), the connection of the rails to the barrier walls and assembly is in accordance with current standards (see Photographs 30 to 32). The SBGR system is generally in good condition.

6.5 Utilities and Signage

Four (4) Bell Canada ducts are located within the concrete curbs underneath the south sidewalk. Duct contents include 1-100 pair copper and 1-fibre optic cable. Markers exist on both the east and west sides of the bridge indicating the presence of buried telephone cable (see Photograph 33).

No light standards are located on the structure, although there are light standards present to the west of the bridge, along the eastbound and westbound lanes. Three (3) light pole bases exist on the southern side of the bridge, but they are not in use.

Along the northeast and southwest steel beam guide rails a "bridge ices" sign and "Bronte Creek" sign are posted. Along the southeast steel beam guide rail a "school bus turning" sign exists. At either end of the median there are signs instructing drivers to stay to the right of the median accompanied by a yellow flashing light (see Photographs 34-36). Hazard markers are also located at the ends of all four of the steel beam guide rails at the crash attenuators.

Hydro power lines exist on the south side of the bridge and run parallel to the bridge (see Photograph 37).

Exposed pipelines were found to the southeast of the bridge, although the contents are unknown (see Photograph 38).

APPENDIX A
DECK CONDITION SURVEY FORMS

SURVEY EQUIPMENT AND CALIBRATION PROCEDURES

Component Type: Deck **Site No.** 010-0175

1. Delaminations:

Weight of Chain: 2.2 **Kg/m**
Other Equipment: Mason's hammer

2. Concrete Cover:

Covermeter Make and Model: Elcometer Protovale 331, Model T
Battery Check: **Reading at Start of Test:** O.K.
Reading at End of Test: O.K.
Concrete Cover Check: **Location of Check:** Concrete block with reinforcing steel
Actual Depth & Rebar Dia.: Cover: 75 mm & Size: 15M
Reading Before Test: 75 mm
Readings Each 30 min During Test: 75 mm
Readings End of Test: 75 mm

3.0 Corrosion Activity

3.1 Corrosion Activity (July 7th, 2009 – West exterior span of EBL structure):

Half Cell Make & Model: Cupric Sulphate, MCM RE-5
Multimeter Make & Model: Radio Shack CAT NO. 22-813
Length and Gauge of Lead Wires: 120m - #16
Deck Temp: **Start of Test:** 24.5 **°C** **End of Test:** 25.0 °C
Ambient Temp: **Start of Test:** 20.0 **°C** **End of Test:** 29.5 **°C**
Battery Check: O.K.
Ground Check: **Method of Connection:** Compression clamp

Ground Location:	K1 100 S 200 E	**Check Location:**	N7 600 N 600 E
Lead Resistance:	1.4Ω	**Voltage Drop (mV's):**	0.2 mV
Resistance:	3.6Ω	**Resistance Reversed:**	3.8Ω

Grid Point Potential Readings Check - See Table Below

Location	Initial Reading	Check Reading*	Check Reading - Latex Concrete Overlay**
L3	-0.197 V	-0.206 V	N/A
L4	-0.176 V	-0.199 V	N/A
L5	-0.184 V	-0.180 V	N/A
L6	-0.167 V	-0.170 V	N/A
L7	-0.158 V	-0.159 V	N/A

3.2 Corrosion Activity (July 7th, 2009 – Interior spans of EBL structure):

Half Cell Make & Model: Cupric Sulphate, MCM RE-5
Multimeter Make & Model: Radio Shack CAT NO. 22-813
Length and Gauge of Lead Wires: 120m - #16

Deck Temp:	**Start of Test:**	24.5 °C	**End of Test:**	25.0 °C
Ambient Temp:	**Start of Test:**	20.0 °C	**End of Test:**	29.5 °C

Battery Check: O.K.
Ground Check: **Method of Connection:** Compression clamp

Ground Location:	K10 350 N 140 W	**Check Location:**	N20 250 N 1050 E
Lead Resistance:	0.9Ω	**Voltage Drop (mV's):**	0.4mV
Resistance:	1.1Ω	**Resistance Reversed:**	1.5Ω

Grid Point Potential Readings Check - See Table Below

Location	Initial Reading	Check Reading*	Check Reading - Latex Concrete Overlay**
K13	-0.110 V	-0.103 V	N/A
K14	-0.111 V	-0.101 V	N/A
K15	-0.144 V	-0.142 V	N/A
K16	-0.125 V	-0.104 V	N/A
K17	-0.114 V	-0.100 V	N/A

4.3 Corrosion Activity (July 7th, 2009 – East exterior span of EBL structure):

Half Cell Make & Model: Cupric Sulphate, MCM RE-5
Multimeter Make & Model: Radio Shack CAT NO. 22-813
Length and Gauge of Lead Wires: 120m - #16

Deck Temp:	**Start of Test:**	24.5 °C	**End of Test:**	25.0 °C
Ambient Temp:	**Start of Test:**	20.0 °C	**End of Test:**	29.5 °C

Battery Check: O.K.
Ground Check: **Method of Connection:** Compression clamp

Ground Location:	K22 300 S 600 W	**Check Location:**	N29 600 N 250 W
Lead Resistance:	0.8Ω	**Voltage Drop (mV's):**	0.3mV
Resistance:	0.7Ω	**Resistance Reversed:**	0.9Ω

Grid Point Potential Readings Check - See Table Below

Location	Initial Reading	Check Reading*	Check Reading - Latex Concrete Overlay**
N22	-0.334 V	-0.335 V	N/A
N23	-0.212 V	-0.215 V	N/A
N24	-0.314 V	-0.330 V	N/A
N25	-0.372 V	-0.375 V	N/A
N26	-0.385 V	-0.381 V	N/A

3.4 Corrosion Activity (July 8th, 2009 – West exterior span of WBL structure):

Half Cell Make & Model: Cupric Sulphate, MCM RE-5
Multimeter Make & Model: Radio Shack CAT NO. 22-813
Length and Gauge of Lead Wires: 120m - #16
Deck Temp: **Start of Test:** 20.0 ^{0}C **End of Test:** 23.5 ^{0}C
Ambient Temp: **Start of Test:** 22.0 ^{0}C **End of Test:** 27.0 ^{0}C
Battery Check: O.K.
Ground Check: **Method of Connection:** Compression clamp

Ground Location:	E1 100 N 100 E	**Check Location:**	G8 500 N 300 E
Lead Resistance:	7.9Ω	**Voltage Drop (mV's):**	0.3mV
Resistance:	4.5Ω	**Resistance Reversed:**	5.2Ω

Grid Point Potential Readings Check - See Table Below

Location	Initial Reading	Check Reading*	Check Reading - Latex Concrete Overlay**
F1	-0.227 V	-0.234 V	N/A
F2	-0.178 V	-0.185 V	N/A
F3	-0.130 V	-0.170 V	N/A
F4	-0.144 V	-0.154 V	N/A
F5	-0.130 V	-0.138 V	N/A

3.5 Corrosion Activity (July 8th, 2009 – Interior spans of WBL structure):

Half Cell Make & Model: Cupric Sulphate, MCM RE-5
Multimeter Make & Model: Radio Shack CAT NO. 22-813
Length and Gauge of Lead Wires: 120m - #16
Deck Temp: **Start of Test:** 20.0 ^{0}**C** **End of Test:** 23.5 ^{0}**C**
Ambient Temp: **Start of Test:** 22.0 ^{0}**C** **End of Test:** 27.0 ^{0}**C**
Battery Check: O.K.
Ground Check: **Method of Connection:** Compression clamp

Ground Location:	E10 750 W	**Check Location:**	G20 450 N 600 E
Lead Resistance:	2.3Ω	**Voltage Drop (mV's):**	10.5mV
Resistance:	10.1Ω	**Resistance Reversed:**	9.5Ω

Grid Point Potential Readings Check - See Table Below

Location	Initial Reading	Check Reading*	Check Reading - Latex Concrete Overlay**
G10	-0.362 V	-0.366 V	N/A
G11	-0.310 V	-0.318 V	N/A
G12	-0.216 V	-0.224 V	N/A
G13	-0.221 V	-0.238 V	N/A
G14	-0.326 V	-0.330 V	N/A

3.6 Corrosion Activity (July 8th, 2009 – East exterior span of WBL structure):

Half Cell Make & Model: Cupric Sulphate, MCM RE-5
Multimeter Make & Model: Radio Shack CAT NO. 22-813
Length and Gauge of Lead Wires: 120m - #16
Deck Temp: **Start of Test:** 20.0 °C **End of Test:** 23.5 °C
Ambient Temp: **Start of Test:** 22.0 °C **End of Test:** 27.0 °C
Battery Check: O.K.
Ground Check: **Method of Connection:** Compression clamp

Ground Location:	E22 200 N 850 W	**Check Location:**	G29 300 N 400 W
Lead Resistance:	6.1Ω	**Voltage Drop (mV's):**	0.1mV
Resistance:	1.4Ω	**Resistance Reversed:**	3.5Ω

Grid Point Potential Readings Check - See Table Below

Location	Initial Reading	Check Reading*	Check Reading - Latex Concrete Overlay**
F24	-0.114 V	-0.110 V	N/A
F25	-0.125 V	-0.122 V	N/A
F26	-0.196 V	-0.201 V	N/A
F27	-0.226 V	-0.239 V	N/A
F28	-0.232 V	-0.236 V	N/A

* Check at least 5 readings at beginning of test and each change in ground.

** On decks with latex modified concrete overlay, check at least 5 locations by drilling holes through the latex concrete overlay into the original concrete substrate.

DETAILED CONDITION SURVEY SUMMARY SHEET
ASPHALT COVERED DECK
DECK RIDING SURFACE

Site 010-0111

OSIM Identifier **Deck**

1. Dimensions and Area of Survey

Width between E abutment curbs (total travelled roadway) 19 m

Width between W abutment curbs (total travelled roadway) 19 m

Length between abutment joints (north structure: WBL) 222.50 m

Area of deck riding surface (north structure: WBL) 2 113.75 m2

Length between abutment joints (south structure: EBL) 213.36 m

Area of deck riding surface (south structure: EBL) 2 026.92 m2

2. Asphalt Surface Cracks

Orientation	Unsealed	Sealed	
Transverse	-	-	m
Longitudinal	-	-	m
Diagonal	-	-	m

Remarks

The wearing surface is in good condition.

3. Asphalt Condition and Depth

Condition *	Thickness (mm)		
	Min	Max	Avg
G	46	95	78

* G - Good F - Fair P - Poor V- Variable Good to Poor

4. Waterproofing

Type	Condition	Conc. Bond	Thickness (mm)		
			Min.	Max.	Avg.
Hot Applied Asphalt	**G**	**P**	**3**	**19**	**8**

Note:
The protection board bond to the asphalt was found in poor condition.

* G - Good F - Fair P - Poor V- Variable Good to Poor

DETAILED CONDITION SURVEY SUMMARY SHEET
ASPHALT COVERED DECK
DECK RIDING SURFACE

Site 010-0111

OSIM Identifier **Deck**

5. Concrete Cover – Cores and Sawn Samples

Minimum	Maximum	Average	
64	94	77	mm

Note: Only include covers for top upper layer of rebar measured at sawn sample locations.

6. Corrosion Activity

Minimum	Maximum	Average	
-0.056	-0.404	-0.158	V

0 to -0. 20	-0. 20 to -0. 30	-0. 30 to -0.35	-0. 35 to -0.45	<-0.45	V
2859	768	172	79	0	m^2
74	20	4	2	0	%

7. Defective Cores and Sawn Samples

Corrosion Activity (Volts)	Cores and Sawn Samples						
	Total in Each Area	Delaminated, Spalled, Severe			Medium Scaling*		
		No.	m^2	%	No.	m^2	%
0 to –0.20	8	-	-	-	-	-	-
-0.20 to –0.35	6	-	-	-	-	-	-
-0.35	0	-	-	-	-	-	-

* The percent calculation should be of the entire deck area investigated. The values obtained should be used with caution as large errors may occur when a small number of samples are used for the calculation or when the samples are not randomly distributed over the entire deck area.

DETAILED CONDITION SURVEY SUMMARY SHEET
ASPHALT COVERED DECK
DECK RIDING SURFACE

Site 010-0111

OSIM Identifier Deck

8. Adjusted Chloride Content Profile

Corrosion Activity at Core Location (volts)		0 to -. 20	-. 20 to -. 35	<-. 35
Chloride Content *	0-10 mm	0.023	0.024	-
	20-30 mm	0.019	0.000	-
	40-50 mm	0.027	0.020	-
	60-70 mm	0.027	0.015	-
	80-90 mm	-	-	-
	100-110 mm	-	-	-

* Average chloride content as % chloride by weight of concrete after deducting background chlorides for all cores taken in each range of corrosion potential.

Note:
0 V to -0.200 V, Core C5
-0.200 V to -0.350 V, Core C12

9. Chloride Content at Level of Rebar

Core No.	C5	C9	C12	C14
Chloride Content *	0.027	0.010	0.015	0.010

* Chloride content as % chloride by weight of concrete after deducting background chlorides

10. AC Resistance Test Data of Epoxy Coated Rebar

Measured AC Resistance between Connection # 1 and # 2						Calculated AC Resistance*
Connection #1	Connection # 2					
	G1	G2	G3	G4	G5	
G1	N/A	-	-	-	-	-
G2	-	N/A	-	-	-	-
G3	-	-	N/A	-	-	-
G4	-	-	-	N/A	-	-
G5	-	-	-	-	N/A	-

* See Appendix 1E for calculating AC resistance contributed by individual rebar.

DETAILED CONDITION SURVEY SUMMARY SHEET
ASPHALT COVERED DECK
DECK RIDING SURFACE

Site 010-0111

OSIM Identifier **Deck**

11. Concrete Air Entrainment

Concrete Air Entrained? Yes ______ No ______ Marginal __x__

12. Compressive Strength

Average Compressive Strength __57.9__ MPa

DETAILED CONDITION SURVEY SUMMARY SHEET
EXPANSION JOINTS

NORTH STRUCTURE

Bridge No. 010-0111

Dimensions	Abutments				Intermediate	
	Joint 1		Joint 2		Joint 3	Joint 4
	N	E	S	W		
a (mm)	-	-	-	-	-	-
b (mm)	-	-	-	-	-	-
b' (mm)	-	-	-	-	-	-
c (mm)	-	9500	-	9500	-	-
d (mm)	-	-	-	-	-	-
d' (mm)	-	-	-	-	-	-
e (mm)	-	-	-	-	-	-

Depth of Asphalt @ Deck Side			N/E	S/W	N/E	S/W
1 (mm)	-	-	-	-	-	-
2 (mm)	-	-	-	-	-	-
3 (mm)	-	-	-	-	-	-

Width: Top of Ballast Wall and End Dams								
	E	W	E	W	N/E	S/W	N/E	S/W
1 (mm)	330	700	700	310	-	-	-	-
2 (mm)	-	-	-	-	-	-	-	-
3 (mm)	-	-	-	-	-	-	-	-

Gap Dimensions				
1 (mm)	-	-	-	-
2 (mm)	-	-	-	-
3 (mm)	-	-	-	-

Misc. Joint Details		Skew Angle	0	
Exp.	Yes	Yes	-	-
Fixed	No	No	-	-
Type	Strip-seal	Strip-seal	-	-
Leaking	Yes	Yes	-	-
Angle Size	-	-	-	-
Temp. °C	Deck	-	Ambient	-

Remarks

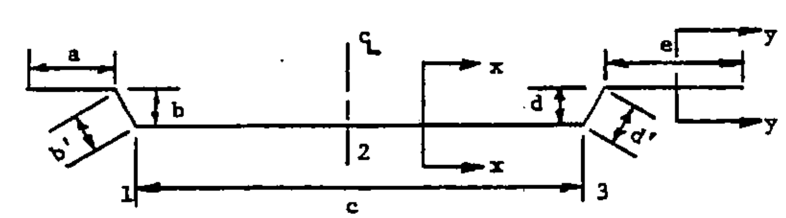
West Joint

- Rubber seal popped out at north end
- Debris accumulation
- Ballast wall has patchwork and spalling
- End dam has localized spalling and delaminations, 40% of total area is patched

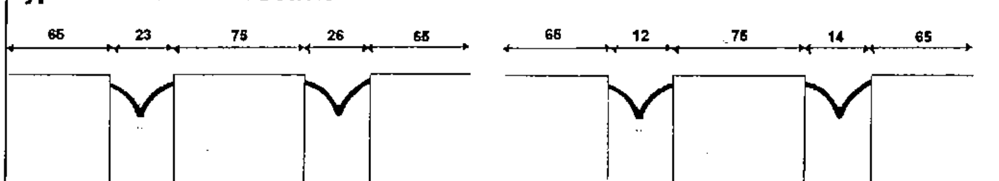
East Joint

- Debris accumulation
- Rubber seal popped out at north and south ends
- End dam has 30% area patched
- Seal broken between approach slab and ballast wall

N Joint Dimensions S



Typical Sections At Joints



West Joint	East Joint

DETAILED CONDITION SURVEY SUMMARY SHEET
EXPANSION JOINTS

SOUTH STRUCTURE

Bridge No. 010-0111

Dimensions	Abutments: Joint 1 N	Abutments: Joint 1 E	Abutments: Joint 2 S	Abutments: Joint 2 W	Intermediate: Joint 3	Intermediate: Joint 4
a (mm)	-	1750	-	1730	-	-
b (mm)	-	150	-	165	-	-
b' (mm)	-	160	-	170	-	-
c (mm)	-	9170	-	9180	-	-
d (mm)	-	150	-	140	-	-
d' (mm)	-	155	-	145	-	-
e (mm)	-	850	-	850	-	-

Depth of Asphalt @ Deck Side			Joint 3 N/E	Joint 3 S/W	Joint 4 N/E	Joint 4 S/W
1 (mm)	-	-	-	-	-	-
2 (mm)	-	-	-	-	-	-
3 (mm)	-	-	-	-	-	-

Width: Top of Ballast Wall and End Dams	E	W	E	W	N/E	S/W	N/E	S/W
1 (mm)	560	740	340	700	-	-	-	-
2 (mm)	-	-	-	-	-	-	-	-
3 (mm)	-	-	-	-	-	-	-	-

Gap Dimensions	Joint 1	Joint 2	Joint 3	Joint 4
1 (mm)	-	-	-	-
2 (mm)	-	-	-	-
3 (mm)	-	-	-	-

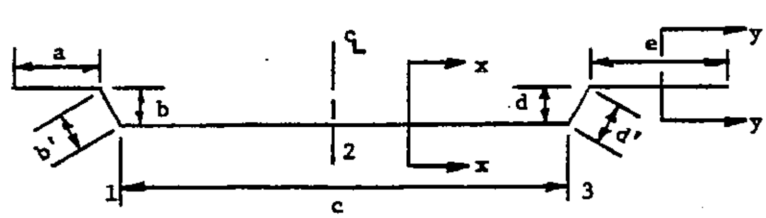
Misc. Joint Details		Skew Angle	0	
Exp.	Yes	Yes	-	-
Fixed	No	No	-	-
Type	Strip-seal	Strip-seal	-	-
Leaking	Yes	Yes	-	-
Angle Size	-	-	-	-
Temp. °C	Deck	-	Ambient	-

Remarks

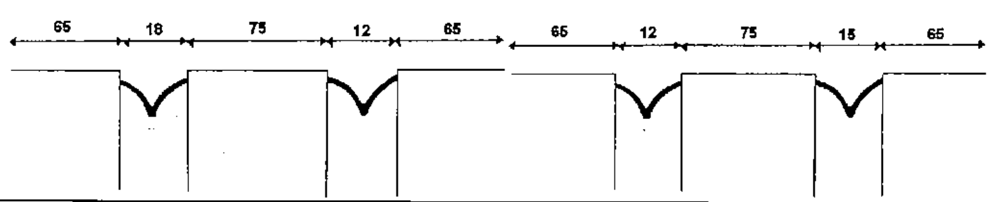
West Joint
- Debris accumulation
- Ballast wall has concrete spall at west edge
- End dam has 4m of patchwork
- East angle distorted at sidewalk

East Joint
- Debris accumulation
- Sealed crack and spalling along east side of concrete end dam
- Large number of concrete patches on ballast wall and end dam (approximately 50% of area)

N **Joint Dimensions** S



Typical Sections At Joints



West Joint	East Joint

APPENDIX B
CORE PHOTOGRAPHS, SKETCHES, AND LOGS

CORE C1

CORE C2

CORE C3

CORE C4

CORE C5

CORE C6

CORE C7

CORE C8

CORE C9

CORE C10

CORE C11

CORE C12

CORE C13

CORE C14

CORE C15

CORE C16

CORE C17

CORE C18

CORE C19

CORE C20

CORE LOG ASPHALT COVERED BRIDGE DECKS

 Site Number 010-0111

Core No.		C1		C2		C3	
Location		2000W of W exp. joint, 2600N of S curb		G4 500N 1100W		H17 1200N 700W	
Diameter, mm		100		100		100	
Thickness of asphalt, mm		110		80		90	
Asphalt Thickness at Nearest Grid Point, mm		-		-		-	
Thickness of Concrete, mm		260		75		140	
Full Depth (Yes/No)		Y		N		N	
Condition of Asphalt		G		G		G	
Waterproofing-W/P Type		-		Hot Applied Asphalt		Hot Applied Asphalt	
Condition of W/P		-		G		G	
W/P Thickness, mm		-		5		4	
Bond of Asphalt or W/P to Concrete		-		P		P	
Defects in Concrete		None		None		None	
Condition Rebar		-		G		G	
Corrosion Potential, V		N/A		- 0.106		-0.206	
Compressive Strength, MPa		-		-		-	
Chloride Content		Total	Corrected	Total	Corrected	Total	Corrected
% Chloride by weight of concrete	0 - 10 mm	-	-	-	-	-	-
	20 - 30 mm	-	-	-	-	-	-
	40 - 50 mm	-	-	-	-	-	-
	60 - 70 mm	-	-	-	-	-	-
	80 - 90 mm	-	-	-	-	-	-
Air Voids	Air Content, %	-		9.5		-	
	Spec. surf., mm^2/mm^3	-		13.48		-	
	Spacing factor, mm	-		0.169		-	
Testing Laboratory		-		Golder Associates		-	
Remarks: Orientation of rebar and cover (L=Longitudinal, T=Transverse) Presence of overlay patch and thickness Other observed defects		• West approach slab (south structure)		• #5 Transverse – 70 mm cover		• #5 Transverse – 70 mm cover • #4 Longitudinal – 90 mm cover • #6 Transverse – 140 mm cover	

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

CORE LOG ASPHALT COVERED BRIDGE DECKS

 Site Number 010-0111

Core No.		C4		C5		C6	
Location		G20 900N 1100W		H38 1100N 1700W		G39 1200N	
Diameter, mm		100		100		100	
Thickness of asphalt, mm		80		80		70	
Asphalt Thickness at Nearest Grid Point, mm		-		-		-	
Thickness of Concrete, mm		205		75		145	
Full Depth (Yes/No)		N		N		N	
Condition of Asphalt		G		F		F	
Waterproofing (W/P) Type		Hot Applied Asphalt		Hot Applied Asphalt		Hot Applied Asphalt	
Condition of W/P		G		G		G	
W/P Thickness, mm		6		5		7	
Bond of Asphalt or W/P to Concrete		P		P		P	
Defects in Concrete		None		None		None	
Condition Rebar		-		-		G	
Corrosion Potential, V		- 0.105		- 0.292		- 0.097	
Compressive Strength, MPa		51.9		-		-	
Chloride Content		Total	Corrected	Total	Corrected	Total	Corrected
% chloride by weight of concrete	0 - 10 mm	-	-	0.064	0.023	-	-
	20 - 30 mm	-	-	0.060	0.019	-	-
	40 - 50 mm	-	-	0.068	0.027	-	-
	60 - 70 mm	-	-	0.068	0.027	-	-
	80 - 90 mm	-	-	-	-	-	-
Air Voids	Air Content %	-		-		-	
	Sp. Surface, mm²/mm³	-		-		-	
	Spacing factor, mm	-		-		-	
Testing Laboratory		Golder Associates		Golder Associates		-	
Remarks - Orientation of rebar – (L)ongitudinal, (T)ransverse - Presence of [illegible] and [illegible] - Other observed defects				• Ground check		• #5 Longitudinal – 85 mm cover • #5 Longitudinal – 130 mm cover	

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

CORE LOG ASPHALT COVERED BRIDGE DECKS

 Site Number 010-0111

Core No.		C7		C8		C9	
Location		G57 750N 1600E		H60 1000N 150E		G73 1000N 800E	
Diameter, mm		100		100		100	
Thickness of asphalt, mm		80		75		70	
Asphalt Thickness at Nominal Grid Points, mm		-		-		-	
Thickness of Concrete, mm		140		125		95	
Full Depth (Yes/No)		N		N		N	
Condition of Asphalt[1]		F		F		G	
Waterproofing (W/P) Type		Hot Applied Asphalt		Hot Applied Asphalt		Hot Applied Asphalt	
Condition of W/P[1]		G		G		G	
W/P Thickness, mm		12		7		5	
Bond of Asphalt or W/P to Concrete		P		F		P	
Defects in Concrete[2]		None		None		None	
Condition Rebar[3]		LR		G		G	
Corrosion Potential, V		- 0.071		- 0.170		- 0.094	
Compressive Strength, MPa		-		-		-	
Chloride Content		Total	Corrected	Total	Corrected	Total	Corrected
% Chloride by Weight of Concrete	0 - 10 mm	-	-	-	-	0.050	0.009
	20 - 30 mm	-	-	-	-	0.044	0.003
	40 - 50 mm	-	-	-	-	0.051	0.010
	60 - 70 mm	-	-	-	-	0.051	0.010
	80 - 90 mm	-	-	-	-	0.041	0.000
Air Voids	Air Content, %	-		-		-	
	Specific Surface, mm²/mm³	-		-		-	
	Spacing Factor, mm	-		-		-	
Testing Laboratory		-		-		Golder Associates	
Remarks: Orientation of reinforcement (L = Longitudinal, T = Transverse); Presence of cracks, depth and thickness; Other observed defects		• #5 Longitudinal – 85 mm cover • #5 Transverse – 135 mm cover		• #5 Longitudinal – 80 mm cover		• #5 Transverse – 80 mm cover	

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

CORE LOG ASPHALT COVERED BRIDGE DECKS

 Site Number 010-0111

Core No.		C10		C11		C12	
Location		G74 1800E		B1 350S 3500W		A1 1100S 750E	
Diameter, mm		100		100		100	
Thickness of asphalt, mm		96		112		70	
Asphalt Thickness at Nearest Grid Point, mm		-		-		-	
Thickness of Concrete, mm		260		268		75	
Full Depth (Yes/No)		Y		Y		N	
Condition of Asphalt[1]		G		G		G	
Waterproofing (W/P) Type		-		-		Hot Applied Asphalt	
Condition of W/P[1]		-		-		G	
W/P Thickness, mm		-		-		14	
Bond of Asphalt or W/P to Concrete		-		G		P	
Defects in Concrete[2]		None		Air void		None	
Condition Rebar[3]		G		G		G	
Corrosion Potential, V		N/A		N/A		- 0.308	
Compressive Strength, MPa		-		-		-	
Chloride Content		Total	Corrected	Total	Corrected	Total	Corrected
% Chloride by weight of concrete	0 – 10 mm	-	-	-	-	0.064	0.024
	20 – 30 mm	-	-	-	-	0.040	0.000
	40 – 50 mm	-	-	-	-	0.060	0.020
	60 – 70 mm	-	-	-	-	0.055	0.015
	80 – 90 mm	-	-	-	-	--	--
Air Voids	Air Content, %	-		-		-	
	Spec. surface, mm²/mm³	-		-		-	
	Spacing factor, mm	-		-		-	
Testing Laboratory		-		-		Golder Associates	
Remarks: - Orientation of rebars and cover (L=Longitudinal, T=Transverse) - Location of overlay patch, and distress - Other observations		• #5 Transverse – 150 mm cover • East approach slab (south structure)		• West approach slab (north structure) • #6 Longitudinal – 185 mm cover • #5 Transverse – 205 mm cover • Air void in concrete		• #5 Transverse – 50 mm cover • Ground location	

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

CORE LOG ASPHALT COVERED BRIDGE DECKS

Site Number 010-0111

Core No.		C13		C14		C15	
Location		B15 1000S 1200W		A20 1000S 900W		A30 400S 1400W	
Diameter, mm		100		100		100	
Thickness of Asphalt, mm		85		80		75	
Asphalt Thickness of Spread Grit [illegible], mm		-		-		-	
Thickness of Concrete, mm		150		130		65	
Full Depth (Yes/No)		N		N		N	
Condition of Asphalt		G		G		F	
Waterproofing (W/P) Type		Hot Applied Asphalt		Hot Applied Asphalt		Hot Applied Asphalt	
Condition of W/P		-		G		G	
W/P Thickness, mm		10		11		19	
Bond of Asphalt or W/P to Concrete		F		P		P	
Defects in Concrete		None		None		None	
Condition Rebar		G		G		N/A	
Corrosion Potential, V		- 0.076		- 0.254		- 0.253	
Compressive Strength, MPa		-		-		-	
Chloride Content		Total	Corrected	Total	Corrected	Total	Corrected
% Chloride by weight of concrete	0 - 10 mm	-	-	0.041	0.001	-	-
	20 - 30 mm	-	-	0.050	0.010	-	-
	40 - 50 mm	-	-	0.050	0.010	-	-
	60 - 70 mm	-	-	0.050	0.010	-	-
	80 - 90 mm	-	-	0.045	0.005	-	-
Air Voids	Air Content %	-		-		9.3	
	Spec. Surf. Area /mm	-		-		18.65	
	Spacing factor, mm	-		-		0.121	
Testing Laboratory		-		Golder Associates		Golder Associates	
Remarks: [illegible] Other observations		• #6 Transverse – 60 mm cover • #6 Longitudinal – 145 mm cover		• #6 Transverse – 45 mm cover • #10 Longitudinal – 75 mm cover • #6 Longitudinal – 125 mm cover		• Ground location	

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

CORE LOG ASPHALT COVERED BRIDGE DECKS

 Site Number 010-0111

Core No.	C16	C17	C18
Location	A20 1000S 900W	B57 1000N 1000W	2350W of E exp. joint, 1180S of NPW
Diameter, mm	100	100	100
Thickness of asphalt, mm	80	84	81
Asphalt Thickness at Nearest Grid Point, mm	-	-	-
Thickness of Concrete, mm	140	90	160
Full Depth (Yes/No)	N	N	N
Condition of Asphalt	F	F	F
Waterproofing (W/P) Type	Hot Applied Asphalt	Hot Applied Asphalt	Hot Applied Asphalt
Condition of W/P	G	G	G
W/P Thickness, mm	9	6	6
Bond of Asphalt or W/P to Concrete	F	P	P
Defects in Concrete	Air void	Air void	Air void
Condition Rebar	G	G	G
Corrosion Potential, V	- 0.254	- 0.077	N/A
Compressive Strength, MPa	-	63.9	-
Chloride Content % Chloride by weight of concrete	Total / Corrected	Total / Corrected	Total / Corrected
0 – 10 mm	- / -	- / -	- / -
20 – 30 mm	- / -	- / -	- / -
40 – 50 mm	- / -	- / -	- / -
60 – 70 mm	- / -	- / -	- / -
80 – 90 mm	- / -	- / -	- / -
Air Voids: Air Content, %	-	-	-
Air Voids: Specific Surface, mm^2/mm^3	-	-	-
Air Voids: Spacing factor, mm	-	-	-
Testing Laboratory	-	Golder Associates	-
Remarks [illegible]	• #6 Transverse – 70 mm cover • #10 Longitudinal – 90 mm cover • #6 Longitudinal – 140 mm cover	• Ground location • Unable to measure size of rebar - 85 mm cover	• #6 Transverse – 62 mm cover

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

CORE LOG ASPHALT COVERED BRIDGE DECKS

 Site Number 010-0111

Core No.	C19	C20	
Location	A69 760E 3400S	A75 2000E	
Diameter, mm	100	100	
Thickness of asphalt, mm	80	93	
Asphalt Thickness at Nearest Grid Point, mm	-	-	
Thickness of Concrete, mm	162	240	
Full Depth, (Y/N)	N	Y	
Condition of Asphalt	F	G	
Waterproofing (W/P) Type	Hot Applied Asphalt	-	
Condition of W/P	F	-	
W/P Thickness, mm	8	-	
Bond of Asphalt or W/P to Concrete	P	G	
Defects of Concrete	C	Air void	
Condition Rebar	LR	-	
Corrosion Potential, V	- 0.078	N/A	
Compressive Strength, MPa	-	-	

Chloride Content % Chloride by weight of Concrete		C19 Total	C19 Corrected	C20 Total	C20 Corrected	Total	Corrected
	0 - 10 mm	-	-	-	-		
	20 - 30 mm	-	-	-	-		
	40 - 50 mm	-	-	-	-		
	60 - 70 mm	-	-	-	-		
	80 - 90 mm	-	-	-	-		

		C19	C20	
Air Voids	Air Content, %	-	-	
	Spec. surface, mm²/mm³	-	-	
	Spacing Factor, mm	-	-	
Testing Laboratory		-	-	
Remarks: - Orientation of rebars and cover (L= Longitudinal, T=Transverse) - Presence of cracks (width and depth) - Other observed defects		• #6 – 85 mm cover • #9 – 110 mm cover	• #6 Longitudinal – 185 mm cover • East approach slab (north structure)	

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Condition Rebar - LR = Light Rust, SR = Severe Rust, N/A = No rebar exposed

APPENDIX C
SAWN ASPHALT SAMPLE
PHOTOGRAPHS AND LOGS

Sawn Asphalt S1

Sawn Asphalt S2

Sawn Asphalt S3

Sawn Asphalt S4

Photograph unavailable

Sawn Asphalt S5

Sawn Asphalt S6

Sawn Asphalt S7

Sawn Asphalt S8

SAWN ASPHALT SAMPLE LOG

 Site Number 010-0111

Sample No.	S1	S2	S3
Location	H10 1000N 1100E	H28 700N 850E	H53 1100N 1200E
Size, mm x mm	300x300	300x300	300x300
Thickness of Asphalt, mm	95	90	85
Thickness of Asphalt at Nearest Grid Point, mm	-	-	-
Condition of Asphalt	F	F	F
Waterproofing (W/P) Type	Hot Applied Asphalt	Hot Applied Asphalt	Hot Applied Asphalt
W/P Thickness, mm	5	3	4
Condition of W/P	G	G	G
Bond of W/P to Asphalt	F	F	G
Bond of Asphalt or W/P to Concrete	F	F	F
Concrete Cover to Reinforcing, mm (Note orientation of rebar)	93 – Trans. 100 – Long.	94 – Trans. 103 – Long.	85 – Trans. 94 – Long.
Defects in Concrete Surface	None	None	None
Corrosion Potential @ Nearest Grid Point	- 0.178	- 0.168	- 0.200
Remarks			

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Rebar orientation – L = Longitudinal, T = Transverse

SAWN ASPHALT SAMPLE LOG

 Site Number 010-0111

Sample No.	S4	S5	S6
Location	H64 1000N 350E	A13 750S 475W	B27 900S 1000W
Size, mm x mm	300x300	300x290	260x275
Thickness of Asphalt, mm	87	46	65
Thickness of Asphalt at Nearest Grid Point, mm	-	-	-
Condition of Asphalt	F	F	G
Waterproofing (W/P) Type	Hot Applied Asphalt	Hot Applied Asphalt	Hot Applied Asphalt
W/P Thickness, mm	6	Unknown	9
Condition of W/P	G	F	G
Bond of W/P to Asphalt	G	F	G
Bond of Asphalt or W/P to Concrete	F	F	F
Concrete Cover to Reinforcing, mm (Note orientation of rebar)	74 – Long. 64 – Trans.	- -	76 – Long. 69 – Trans.
Defects in Concrete Surface	None	None	None
Corrosion Potential @ Nearest Grid Point	- 0.333	- 0.275	- 0.083
Remarks			

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Rebar orientation – L = Longitudinal, T = Transverse

SAWN ASPHALT SAMPLE LOG

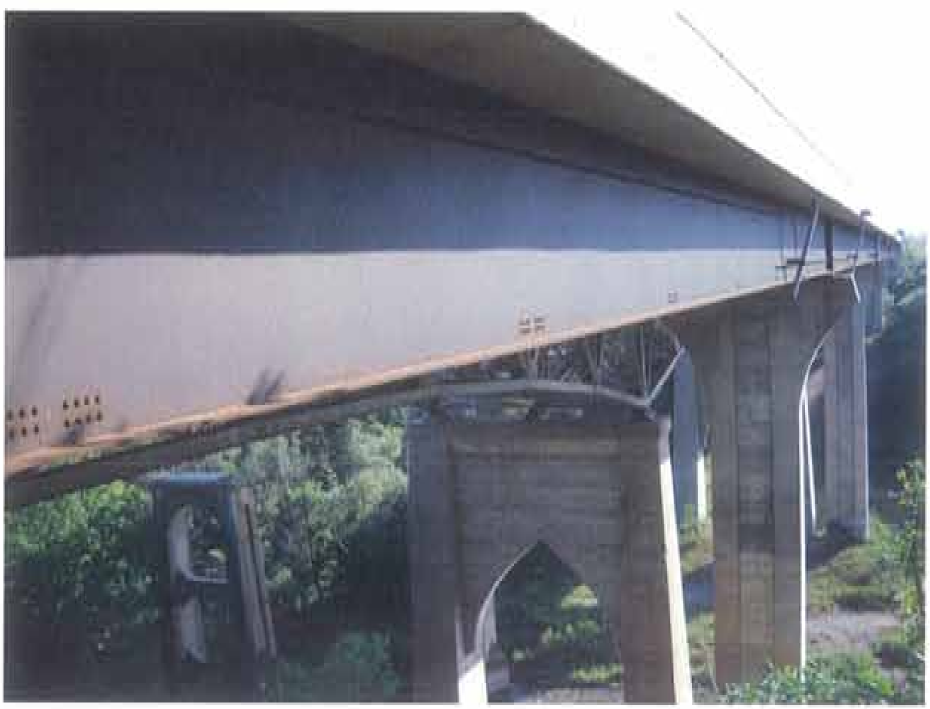
Site Number 010-0111

Sample No.	S7	S8	
Location	A64 1000S 700W	A46 900S	
Size, mm x mm	300x300	260x300	
Thickness of Asphalt, mm	70	80	
Thickness of Asphalt at Nearest Grid Point, mm	-	-	
Condition of Asphalt	G	G	
Waterproofing (W/P) Type	Hot Applied Asphalt	Hot Applied Asphalt	
W/P Thickness, mm	8	12	
Condition of W/P	G	G	
Bond of W/P to Asphalt	G	G	
Bond of Asphalt or W/P to Concrete	F	F	
Concrete Cover to Reinforcing, mm (Note orientation of rebar)	71 – Long. 66 – Trans.	76 – Long. 68 – Trans.	
Defects in Concrete Surface	None	None	
Corrosion Potential @ Nearest Grid Point	- 0.196	- 0.177	
Remarks			

1. Condition - G = Good, F = Fair, P = Poor.
2. Defects - C = Cracked, D = Delamination, R = Rough, Sc = Scaling, S = Spalling
3. Rebar orientation – L = Longitudinal, T = Transverse

APPENDIX D
SITE PHOTOGRAPHS

Photograph 1. South elevation of south structure



Photograph 2. North elevation of north structure

Photograph 3. West approach, looking west from bridge

Photograph 4. East approach, looking east from bridge

Photograph 5. Downstream Bronte Creek from bridge, looking south

Photograph 6. Upstream Bronte Creek from bridge, looking northwest

Photograph 7. Underside of bridge, looking east (west interior span shown)

Photograph 8. General view of the bridge deck, looking southeast

Photograph 9. Typical condition of centre longitudinal joint, looking west

Photograph 10. Spalling in south deck cantilever of north bridge, looking east; note: photo shows the concrete deck cantilever at the centre median

Photograph 11. Typical deterioration of deck cantilever at the centre median, looking west; note: spalling, rust staining, wet staining and transverse cracking

Photograph 12. Debris build-up in the east sidewalk joint of the south bridge; note: the large accumulation of debris build-up at this location may indicate the approach sidewalk has settled

Photograph 13. Typical accumulation of debris within the transverse joints at the abutments; note: concrete disintegration at the concrete end dam (typical)

Photograph 14. Typical condition of concrete patching in concrete end dams and ballast wall (completed during the 2004 rehabilitation work)

Photograph 15. Distortion of west sidewalk joint, facing south-west; note: impact damage on steel angle

Photograph 16. Pop-out of joint seal at the west joint of the north structure, looking north; note: pop-out is typical of the ends of all the joints on the north structure

Photograph 17. Typical deterioration of abutment under north structure

Photograph 18. Typical deterioration of abutment under south structure

Photograph 19. Typical deck drain with vegetation growth

Photograph 20. Typical catch basin west of bridge existing on both the north and south structures

Photograph 21. Typical vertical cracking with staining on barrier wall

Photograph 22. Typical map cracking on barrier walls

Photograph 23. Concrete disintegration at the base of the south barrier wall

Photograph 24. Typical condition of railing; note: light surface corrosion

Photograph 25. Typical narrow to medium transverse cracking on sidewalk

Photograph 26. Large spall and delamination on sidewalk near east end of bridge

Photograph 27. Typical delamination in sidewalk

Photograph 28. Typical settlement of the sidewalk and accumulation of debris (located near the abutments)

Photograph 29. Sealed transverse and longitudinal cracks at the east approach slabs (looking north)

Photograph 30. Connection of steel beam guide rail to parapet wall at north west corner of bridge (typical)

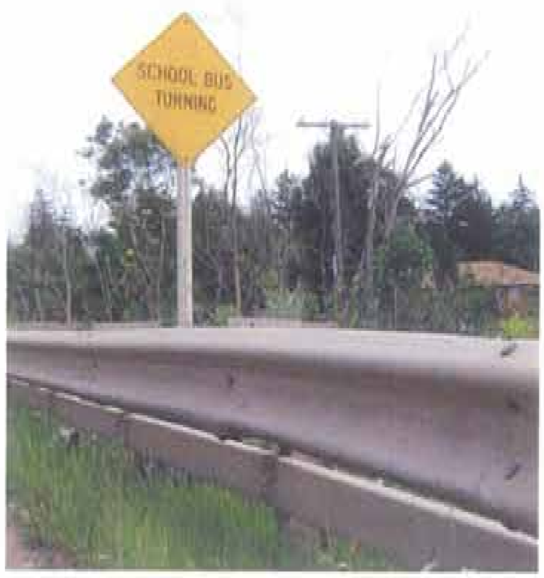
Photograph 31. Damage to south east steel beam guide rail

Photograph 32. Southwest steel beam guiderail with crash attenuator, looking east (typical); note: the fire hydrant

Photograph 33. Marker to southeast of bridge indicating presence of buried telephone cable. Telephone markings were also found at the southwest and northeast corners of the bridge.

Photograph 34. "Bridge Ices" sign present along the southwest steel beam guide rail, looking east. A similar sign exists along the northeast steel beam guiderail.

otograph 35. "Bronte Creek" sign present at the northeast corner of the bridge, looking west. A similar sign is present at the south-west corner of the bridge.



otograph 36. "School Bus Turning" sign present along the south-east steel beam guide rail, looking east.

Photograph 37. Hydro lines running on the south side of the bridge.

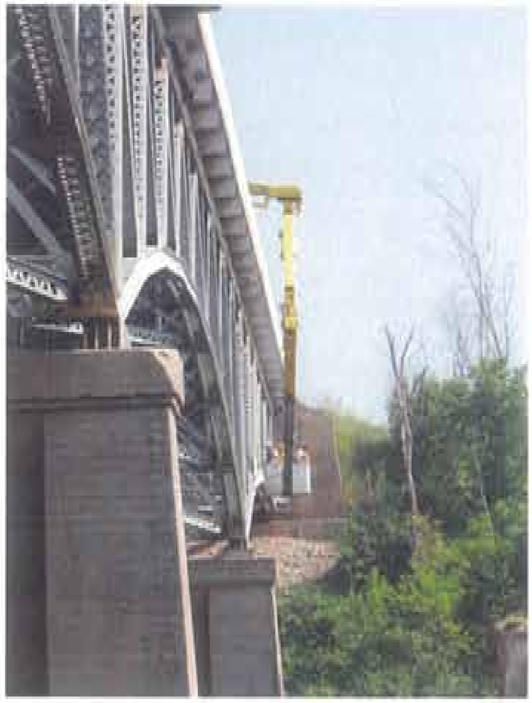
Photograph 38. Exposed pipeline to the southeast of the bridge

Photograph 39. Concrete delaminations in deck cantilever of south structure

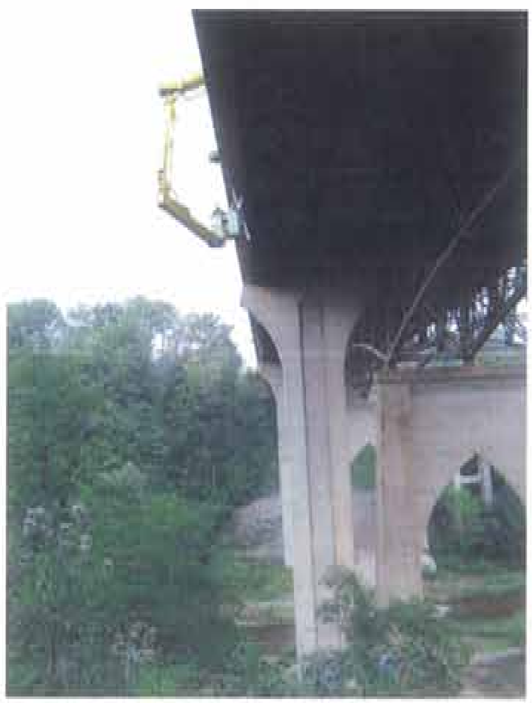
Photograph 40. South deck cantilever of south structure; note: delamination on top of transverse floor beam, and section loss of the transverse floor beam

Photograph 41. Typical soffit condition of the south structure

Photograph 42. Typical soffit condition of the north structure



Photograph 43. MRC inspection crew inspecting truss 'T3' of the south structure

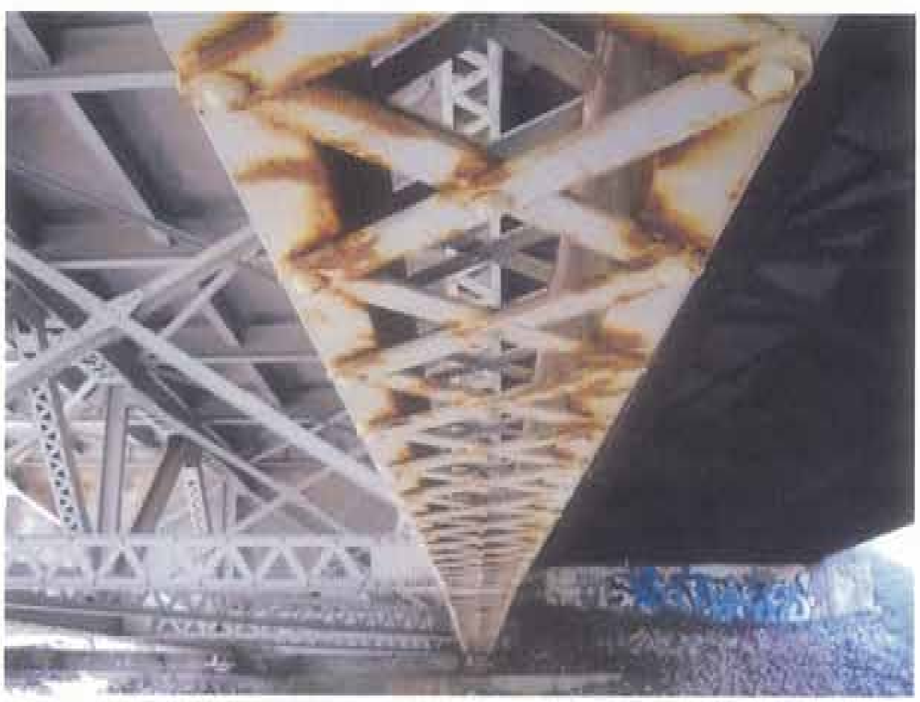


Photograph 44. MRC inspection crew inspecting girder 'G1' of the south structure

Photograph 45. Typical light corrosion noted on the upper chord member of truss T1

Photograph 46. Typical light corrosion noted on the upper chord member of truss T1

Photograph 47. Typical condition of the upper chord members of truss T3



Photograph 48. Typical light corrosion noted on the lower chord members of truss T1

Photograph 49. Section loss in lower chord gusset plate at T1/L12E due to seam corrosion

Photograph 50. Ultrasonic thickness measurements at T1/L12E (6.8 mm at section loss, 10.8 mm original thickness); see Photograph 49 for description

Photograph 51. Light seam corrosion noted in lower chord members of T3

Photograph 52. Rust jacking noted in lower chord gusset plate

Photograph 53. Section loss due to previous and active corrosion, south gusset plate at T3/L28 shown; note: ultrasonic thickness measurements taken to determine section loss

Photograph 54. Section loss due to previous and active corrosion, south gusset plate at T3/EL22 shown; note: ultrasonic thickness measurements taken to determine section loss

Photograph 55. Perforation in upper batten plate of T3/L22E-L20E (20 mm diameter)

Photograph 56. Peroration in north gusset plate of T3/L22E (~25 mm diameter)

Photograph 57. Perforation in south gusset plate of T3/L12W (12 mm diameter)

Photograph 58. Perforation in lower flange of T3/L28-L26E (10 mm)

Photograph 59. Tear in south gusset plate of T3 at L12E

Photograph 60. Close-up of tear in south gusset plate at L12E

Photograph 61. Typical light corrosion noted in diagonal and vertical members of T1

Photograph 62. Typical medium corrosion noted in diagonal and vertical members of T1

Photograph 63. Section loss due to previous corrosion in diagonal member T3/L22E-U23E

Photograph 64. Section loss due to previous corrosion in vertical member T3/L22E-U22E

Photograph 65. East abutment of north structure (T1 and T2 shown)

Photograph 66. West pier of the north structure and south structure

Photograph 67. Typical spalling and delaminations noted in the west pier of the south structure

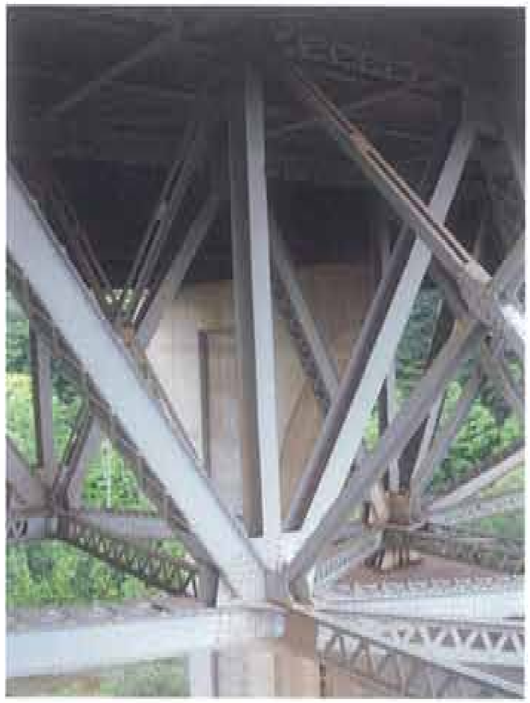
Photograph 68. Large concrete spalling in west face of west pier

Photograph 69. Centre pier contained areas of vertical narrow concrete cracking

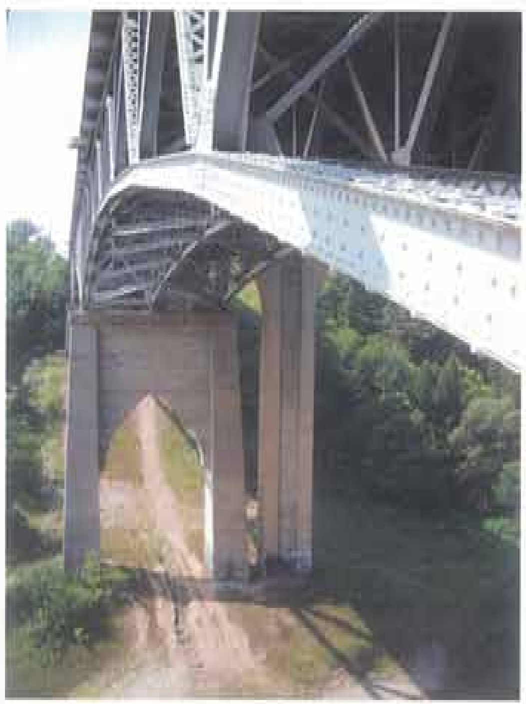
Photograph 70. Distortion in T1/L12W-T1/L10W about west pier bearings

Photograph 71. Distortion in T2/L12W-T2/L14W about west pier bearings

Photograph 72. Typical notch noted in distortions in lower chord flanges about west pier bearings



Photograph 73. Typical condition of T2 condition, T2/L26W shown



Photograph 74. Lower chord member of T3 in east interior span

Photograph 75. Typical abutment bearing condition, T1/L0E shown at east abutment

Photograph 76. Typical fixed pied bearing condition, T3/L28 shown at the centre pier

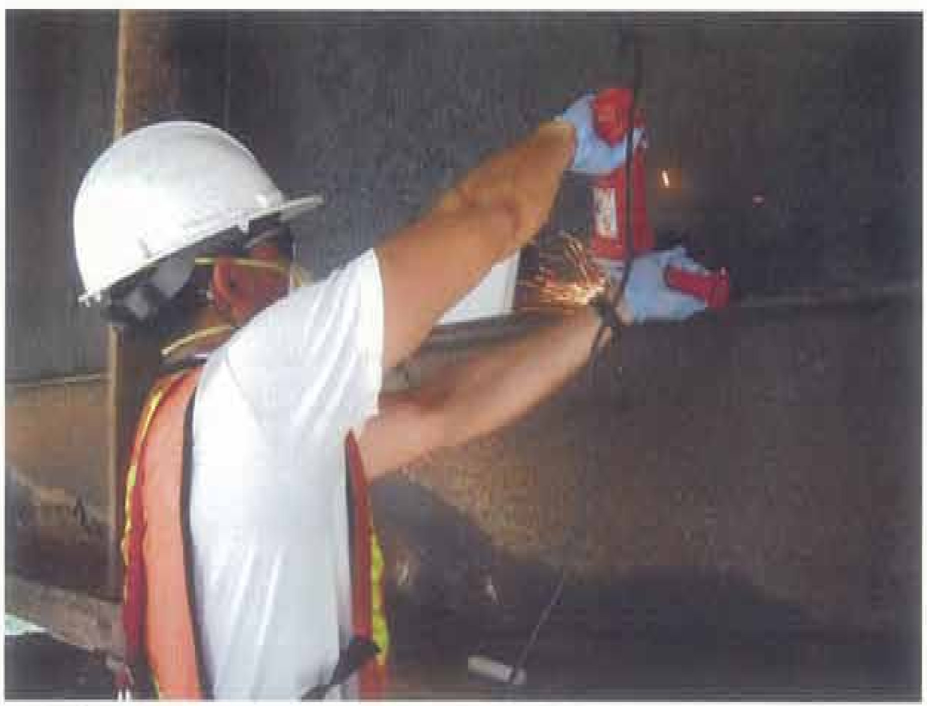
Photograph 77. Typical condition of G1, east exterior span shown

Photograph 78. Web splice plate, G1 shown

Photograph 79. Underside of north structure, east interior span shown

Photograph 80. East abutment of north structure

Photograph 81. Longitudinal web stiffener plate weld broken at several locations, G1 shown



Photograph 82. Metal grinder used to clean surface prior to testing of section loss, G3 shown

Photograph 83. Typical rust expansion noted in web plate of G3

Photograph 84. Ultrasonic thickness measurements taken in areas of section loss; note: this photograph was taken in the same location as Photograph 83

Photograph 85. Nominal section loss in web plate of G1

Photograph 86. Section loss in bolt heads at splice plate and section loss in lower flange, G3 shown

Photograph 87. Section loss in splice bolted connection components in lower flange of G3

Photograph 88. Severe corrosion in splice bolted connection components of lower flange of G3

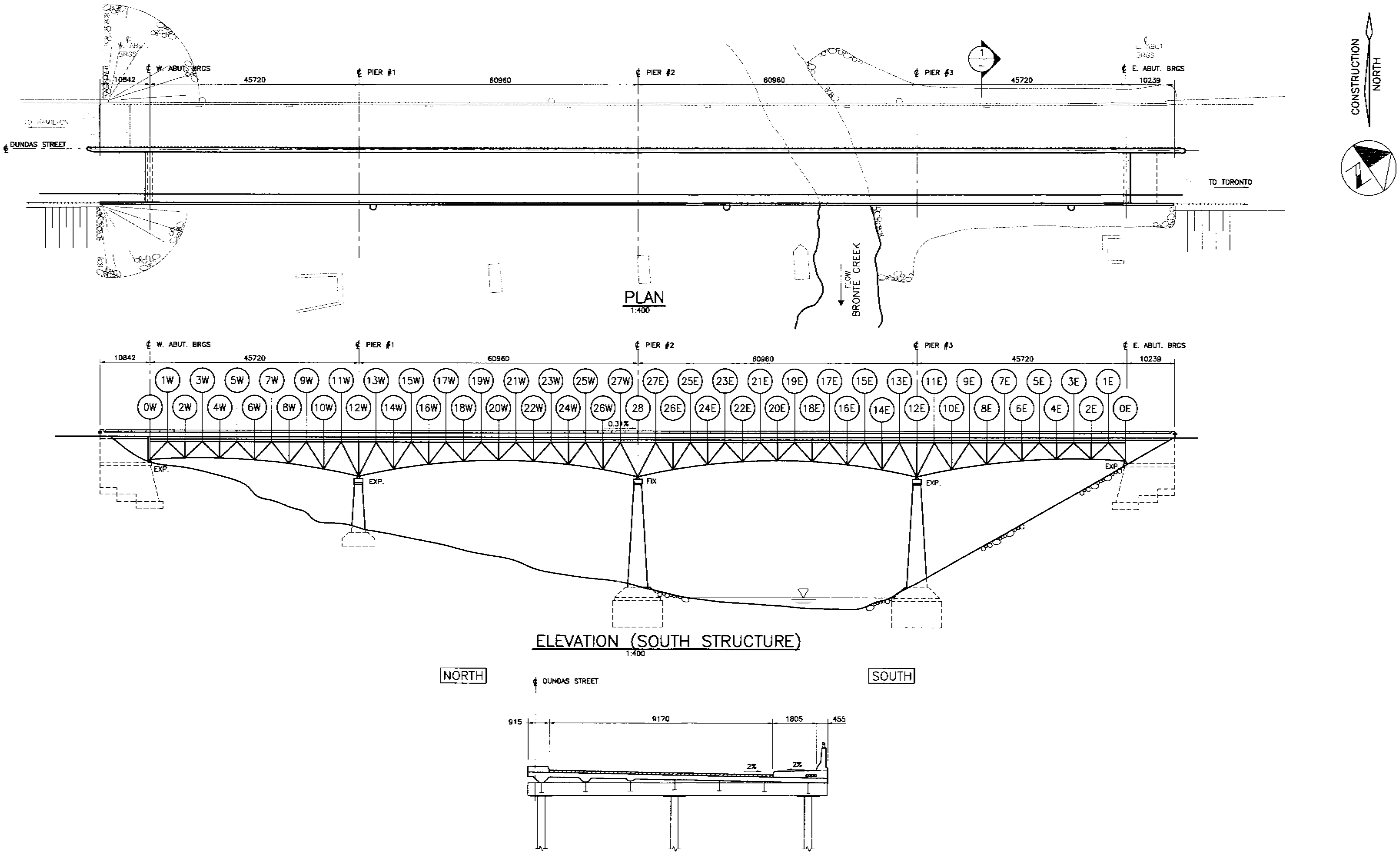
Photograph 89. Typical condition of bearings at east abutment, G2 shown

Photograph 90. Typical condition of bearings at east pier, G3 shown

Photograph 91. Typical condition of bearings at west abutment, G3 shown

Photograph 92. Condition of bearing supporting G3 at the west pier

APPENDIX E
DECK CONDITION SURVEY DRAWINGS



PLAN
1:400

ELEVATION (SOUTH STRUCTURE)
1:400

SECTION 1
1:75

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale	AS SHOWN			References	

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TITLE
GENERAL ARRANGEMENT
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SOUTH STRUCTURE

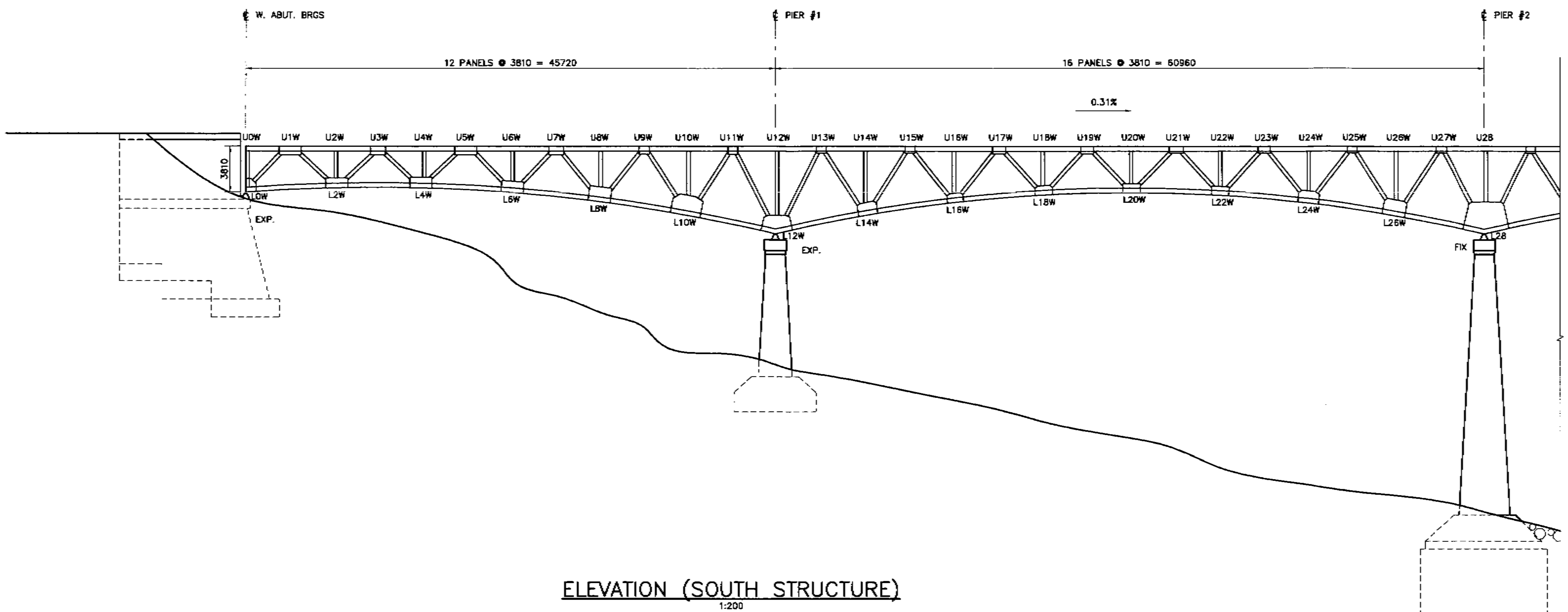
Consultant File Nº

Regional Drawing Nº

CONTRACT Nº

Drawing Nº
SHEET 1 OF 19

DATE PLOTTED: 09/10/26 15:20:14



ELEVATION (SOUTH STRUCTURE)

1:200

*WEST SPANS SHOWN, EAST SPANS SIMILAR

*DECK NOT SHOWN FOR CLARITY

FILE LOCATION-S:\7108\IANSLLY BRIDGE\
DRAWING NAME: 57108-300-002CS.DWG
DRAWN BY: CLAIR A
MODIFIED: 09/10/26 15:21:18
DATE PLOTTED: 09/10/26 15:21:18

Notes

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Scale AS SHOWN				References	

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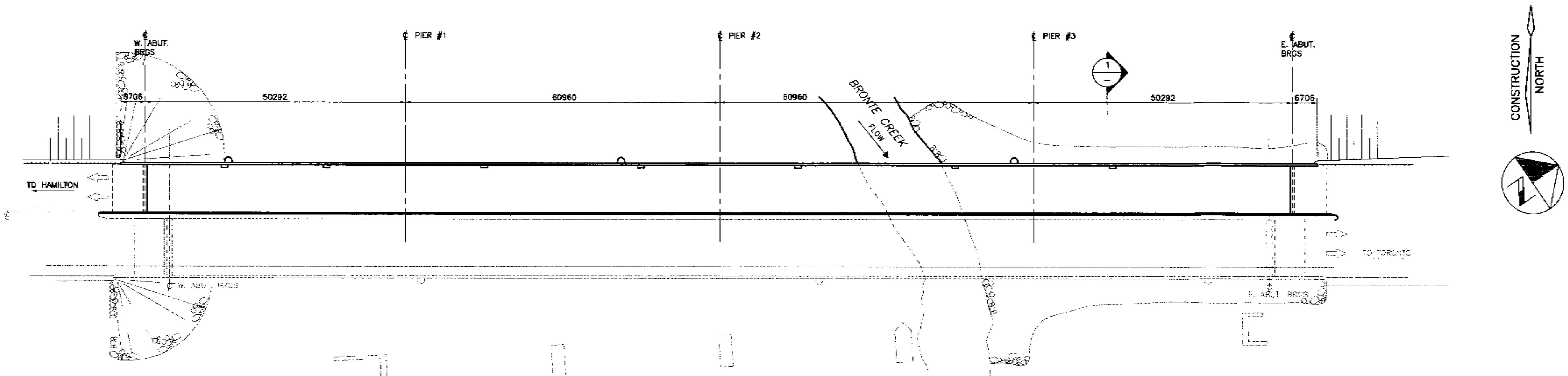
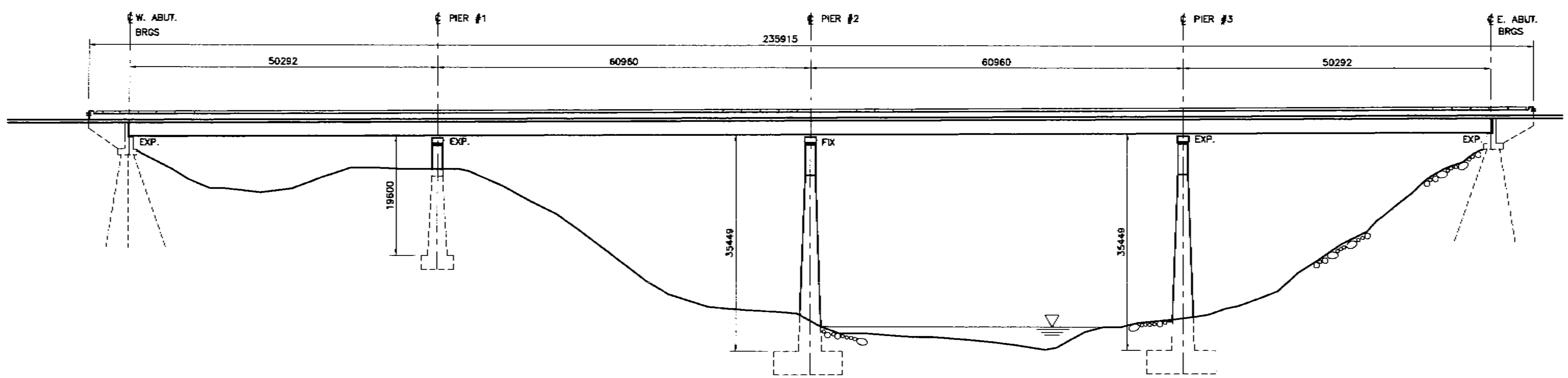
TITLE
STRUCTURE STEEL DECK TRUSSES
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SOUTH STRUCTURE

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 2 OF 19



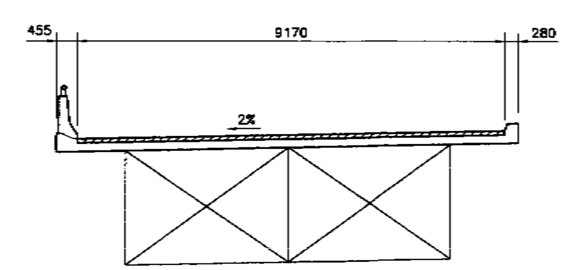
PLAN
1:400



ELEVATION (NORTH STRUCTURE)
1:400

NORTH

SOUTH



SECTION 1
1:75

Notes		
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	REVISIONS	MANU CAD
Design	GT	Ch'kd TS
Drawn	CA	Ch'kd GT
Scale	AS SHOWN	

Date

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DUNDAS STREET BRIDGE
OVER BRONTE CREEK
NORTH STRUCTURE

Consultant File Nº

Regional Drawing Nº

CONTRACT Nº

Drawing Nº
SHEET 3 OF 19

FILE LOCATION-S:\7108\TANSLEY BRIDGE\
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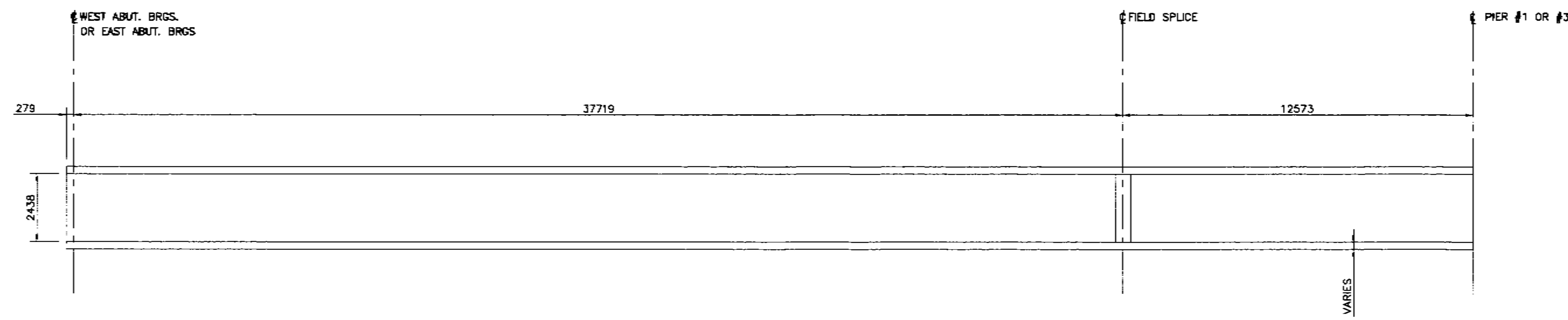
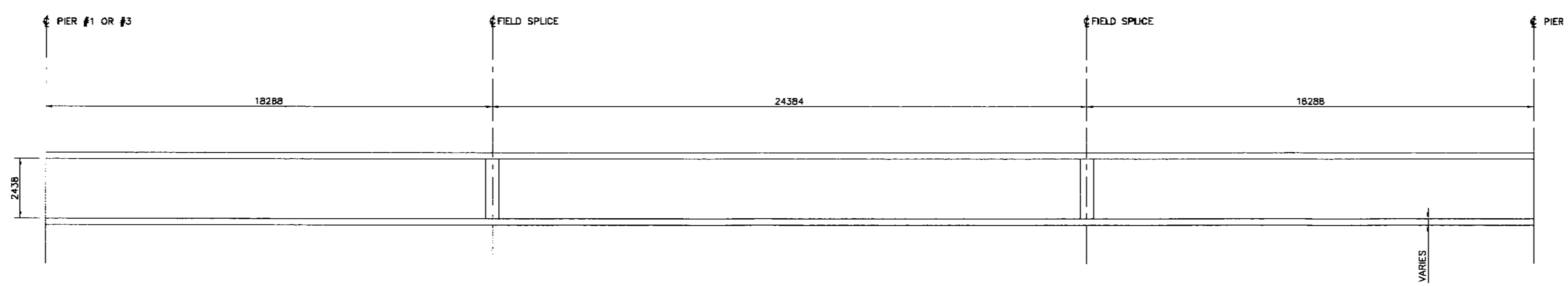
DRAWN BY: CLAIR A
MODIFIED: 09/10/23 15:34:59
DATE PLOTTED: 09/10/23 15:34:59



50292mm (165') SPAN – GIRDER ELEVATION

1:100



60960mm (200') SPAN – GIRDER ELEVATION

1:100

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale	AS SHOWN			References	

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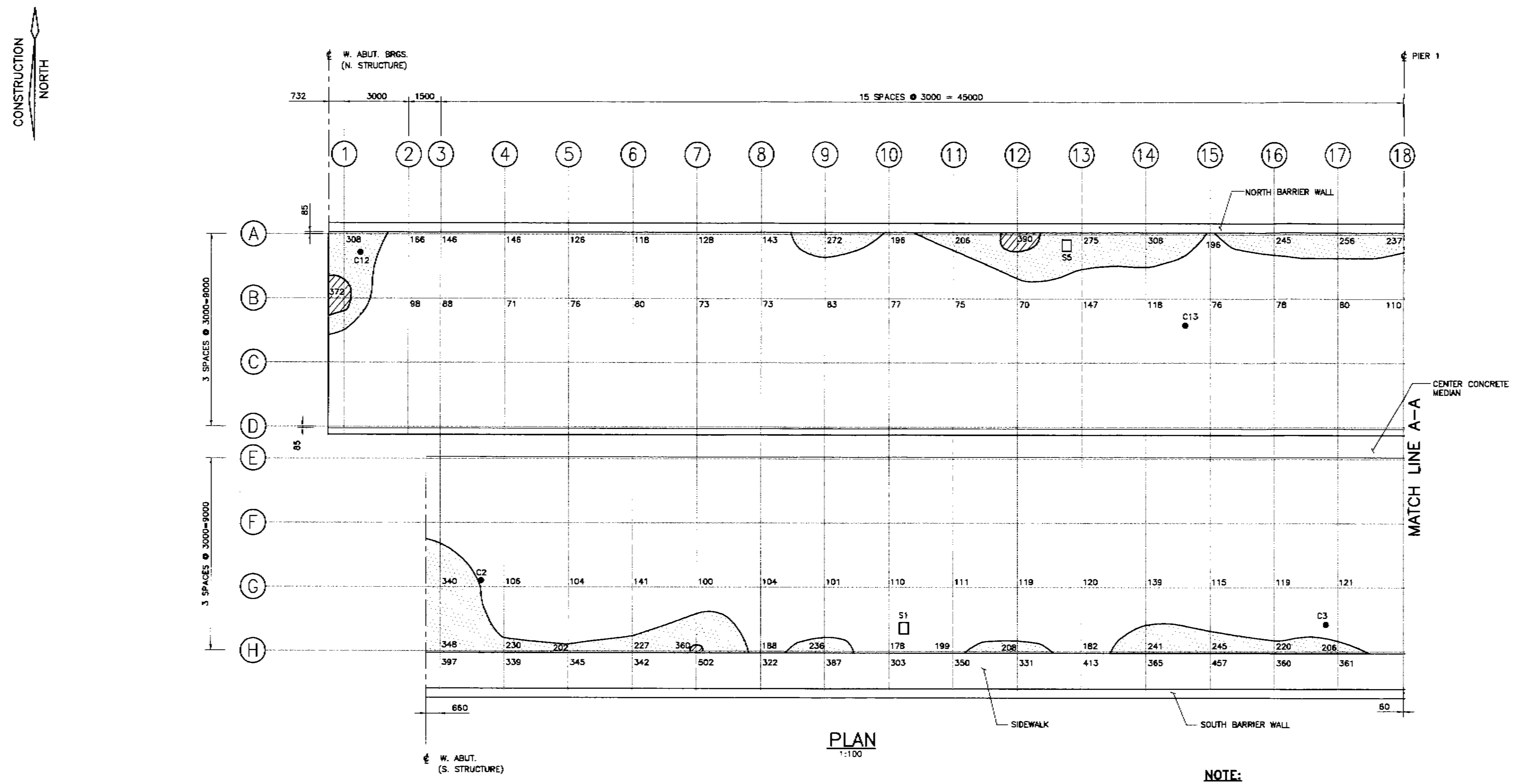
TITLE
STRUCTURE STEEL PLATE GIRDERS
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
NORTH STRUCTURE

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 4 OF 19



PLAN
1:100

NOTE:
C1 IN SOUTH STRUCTURE WEST APPROACH SLAB.
C11 IN NORTH STRUCTURE WEST APPROACH SLAB.

LEGEND:

C1● CORE SAMPLE LOCATION & IDENTIFICATION
S1□ SAWN SAMPLE LOCATION & IDENTIFICATION

LEGEND FOR CORROSION POTENTIAL SURVEY:

0 TO −190 mV
200 TO −350 mV
MORE NEGATIVE THAN 350 mV
175 HALF CELL POTENTIAL (NEGATIVE VOLTS $\times 10^{-3}$)

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale			References		

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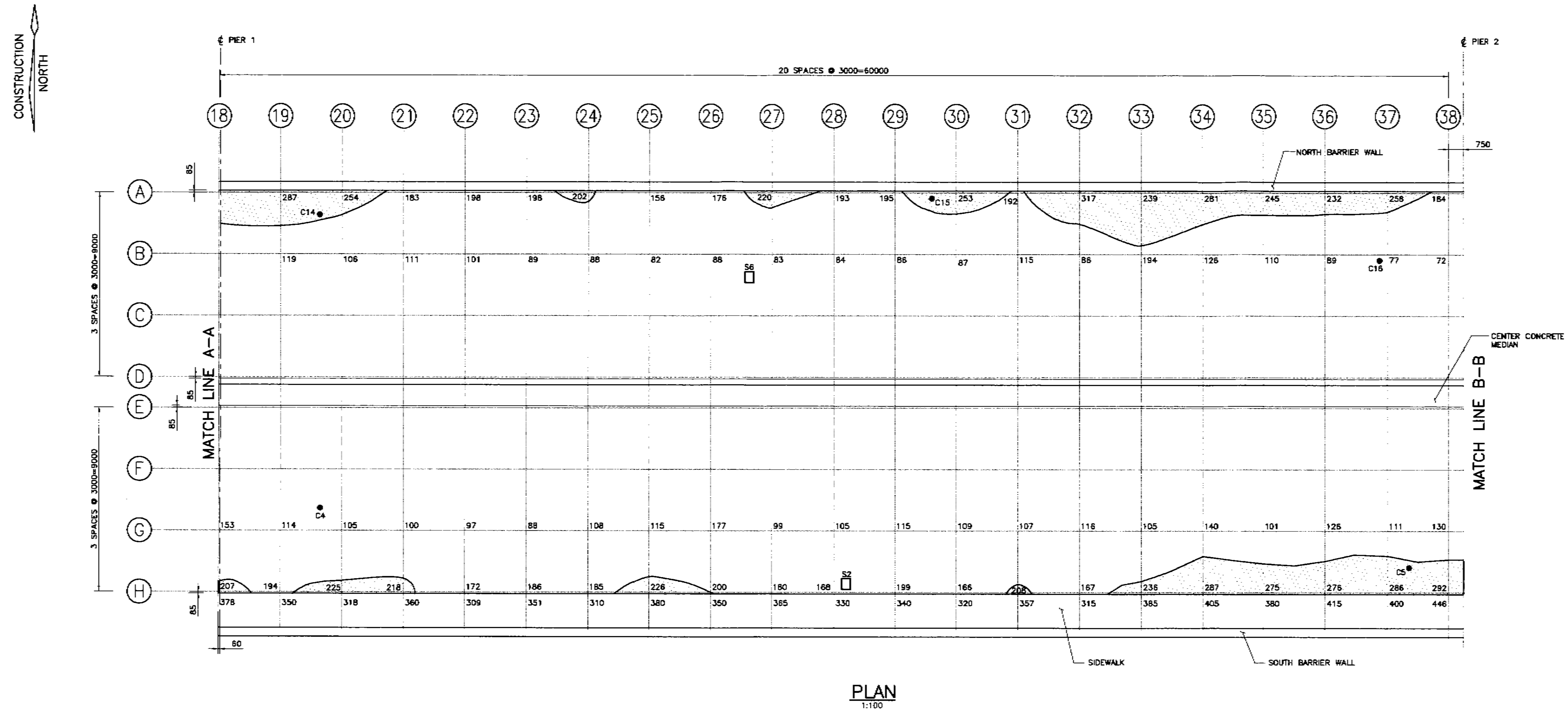
TITLE
HALF CELL POTENTIAL SURVEY
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SAMPLE LOCATIONS

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 5 OF 19



PLAN

1:100

LEGEND:

C1● CORE SAMPLE LOCATION & IDENTIFICATION

S1□ SAWN SAMPLE LOCATION & IDENTIFICATION

LEGEND FOR CORROSION POTENTIAL SURVEY:

0 TO −190 mV

200 TO −350 mV

MORE NEGATIVE THAN 350 mV

175 HALF CELL POTENTIAL (NEGATIVE VOLTS x10^{-3})

FILE LOCATION: S:\7108\TANSLEY BRIDGE\
DRAWING NAME: S/108-300-006CS.DWG MODIFIED: 09/10/23 15:44:25
DRAWN BY: CLAIR A.
DATE PLOTTED: 09/10/23 15:44:25

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale				References	

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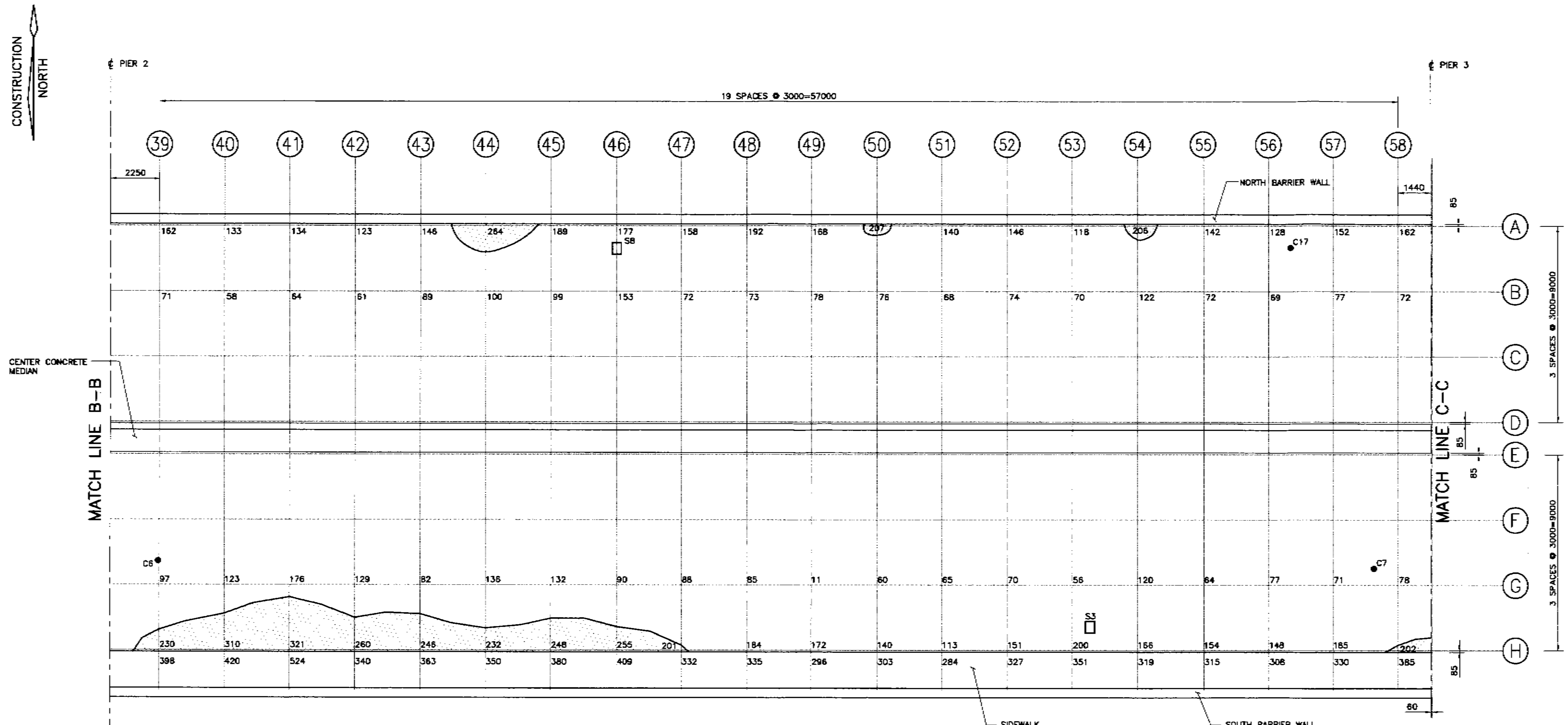
TITLE
HALF CELL POTENIAL SURVEY
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SAMPLE LOCATIONS

Consultant File Nº

Regional Drawing Nº

CONTRACT Nº

Drawing Nº
SHEET 6 OF 19



PLAN
1:100

LEGEND:

C1● CORE SAMPLE LOCATION & IDENTIFICATION

S1□ SAWN SAMPLE LOCATION & IDENTIFICATION

LEGEND FOR CORROSION POTENTIAL SURVEY:

0 TO -190 mV

200 TO -350 mV

MORE NEGATIVE THAN 350 mV

175 HALF CELL POTENTIAL (NEGATIVE VOLTS $\times 10^{-3}$)

FILE LOCATION-S:\7108\TANSLEY BRIDGE\
DRAWING NAME: S7108-300-007CS.DWG
DRAWN BY: CLAIR A. MODIFIED: 09/10/23 15:49:09
DATE PLOTTED: 09/10/23 15:49:09

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale				References	

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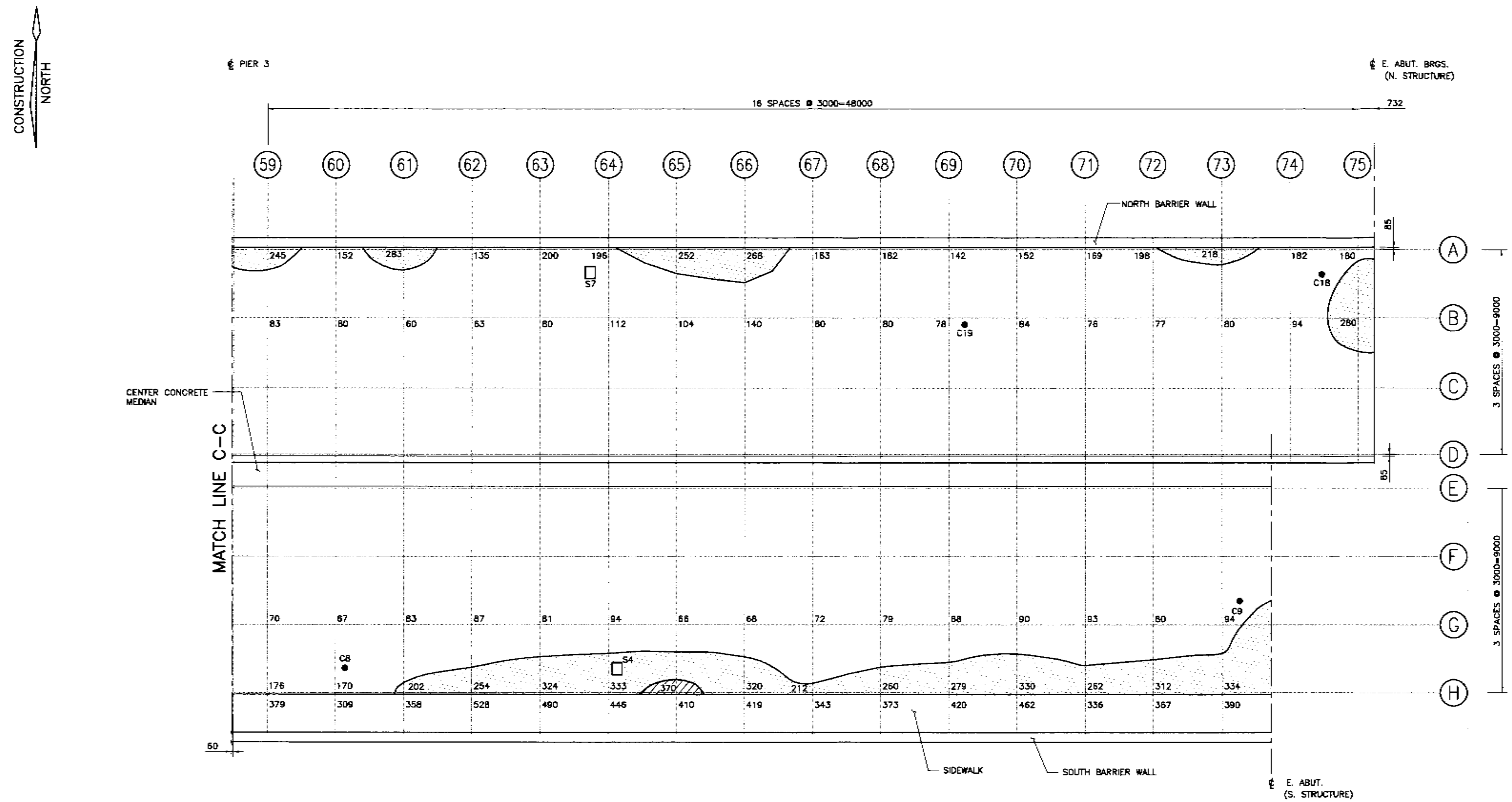
TITLE
HALF CELL POTENTIAL SURVEY
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SAMPLE LOCATIONS

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 7 OF 19



PLAN

1:100

LEGEND:

C1● CORE SAMPLE LOCATION & IDENTIFICATION

S1□ SAWN SAMPLE LOCATION & IDENTIFICATION

LEGEND FOR CORROSION POTENTIAL SURVEY:

- 0 TO −190 mV
- 200 TO −350 mV
- MORE NEGATIVE THAN 350 mV
- 175 HALF CELL POTENTIAL (NEGATIVE VOLTS $\times 10^{-3}$)

NOTE:

C10 IN SOUTH STRUCTURE EAST APPROACH SLAB.
C20 IN NORTH STRUCTURE EAST APPROACH SLAB.

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale			References		

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TITLE
HALF CELL POTENTIAL SURVEY
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SAMPLE LOCATIONS

Consultant File Nº

Regional Drawing Nº

CONTRACT Nº

Drawing Nº

SHEET 8 OF 19

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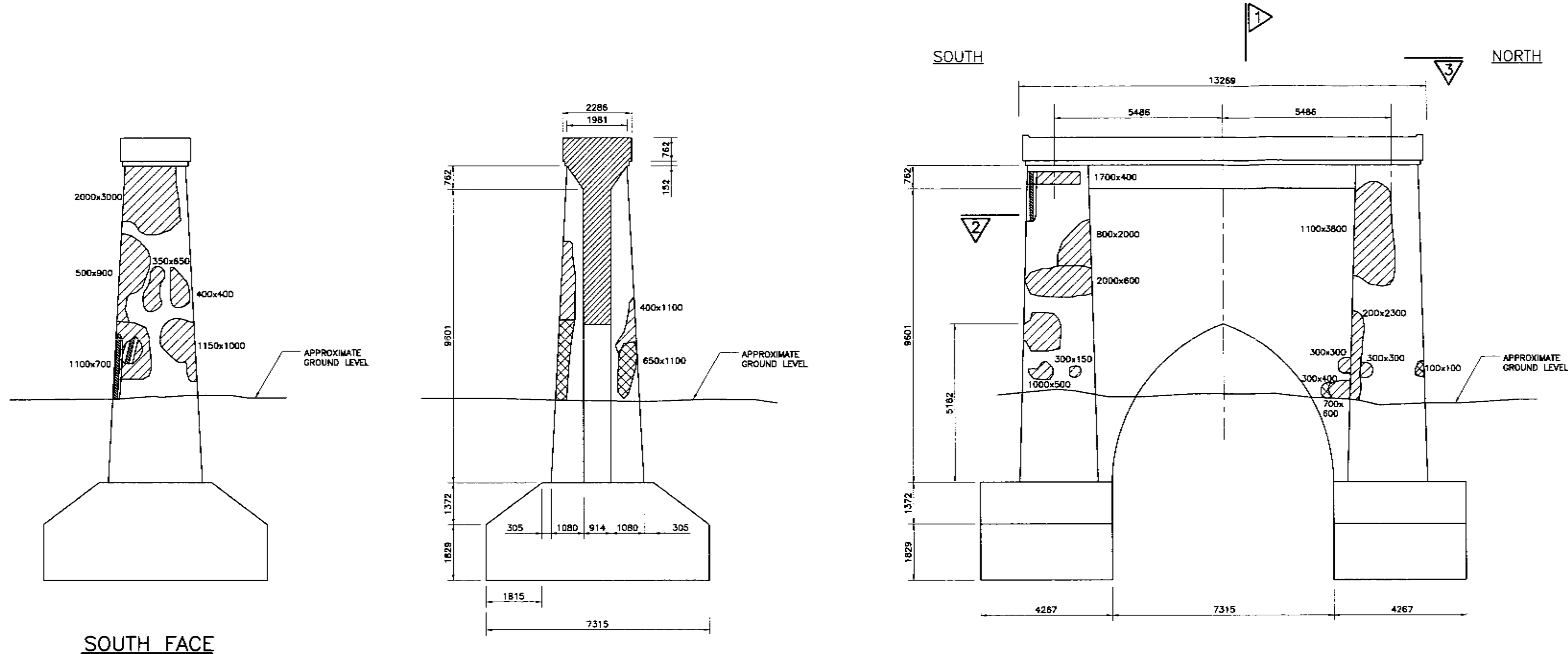
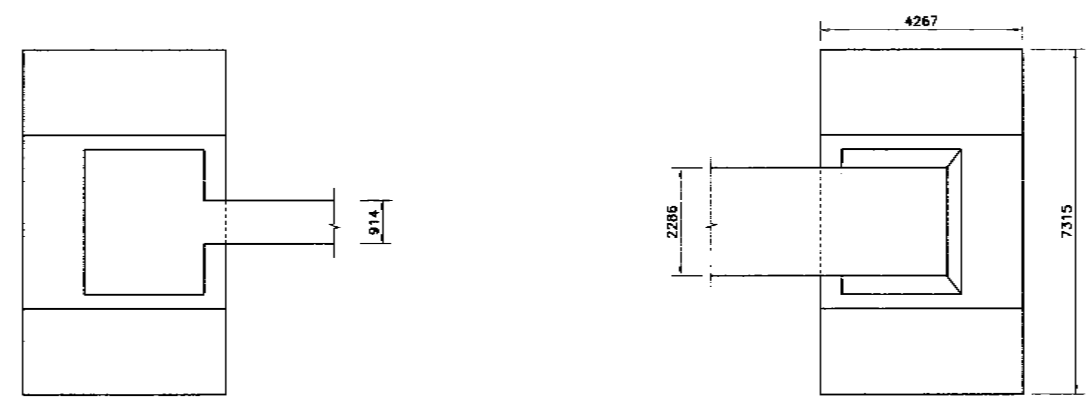


SOUTH FACE
1:75

1
1 : 75

ELEVATION – PIER # 1 (EAST FACE)
1:75



HALF PLAN
2
1 : 75

HALF PLAN
3
1 : 75

PLAN – FOOTING
1:75

NOTE:
DIMENSIONS ON SURFACE DEFECTS ARE APPROXIMATE ONLY.

LEGEND:

- NARROW CRACK
- MEDIUM CRACK
- WIDE CRACK
- STAINED CRACKS
- DELAMINATIONS
- SPALLS
- EXPOSED REINFORCING STEEL
- LIGHT SCALING
- MEDIUM SCALING
- SEVERE SCALING
- VERY SEVERE SCALING
- SURFACE RUST STAIN

FILE LOCATION: S:\7108\TANSLEY BRIDGE\
DRAWING NAME: S/7108-300-009CS.DWG
DRAWN BY: CLAIR A.
DATE PLOTTED: 09/10/26 15:23:09
MODIFIED: 09/10/26 15:23:09

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale				References	

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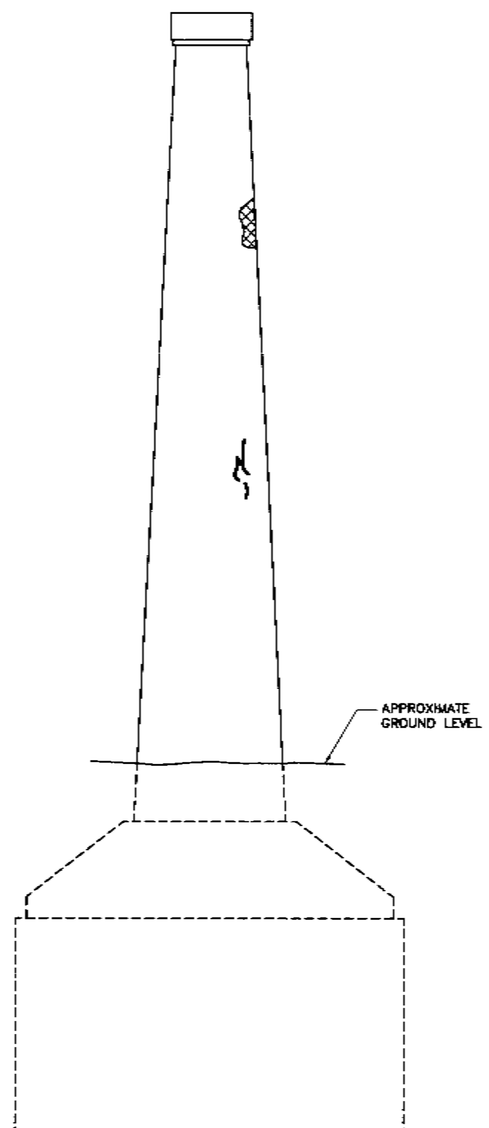
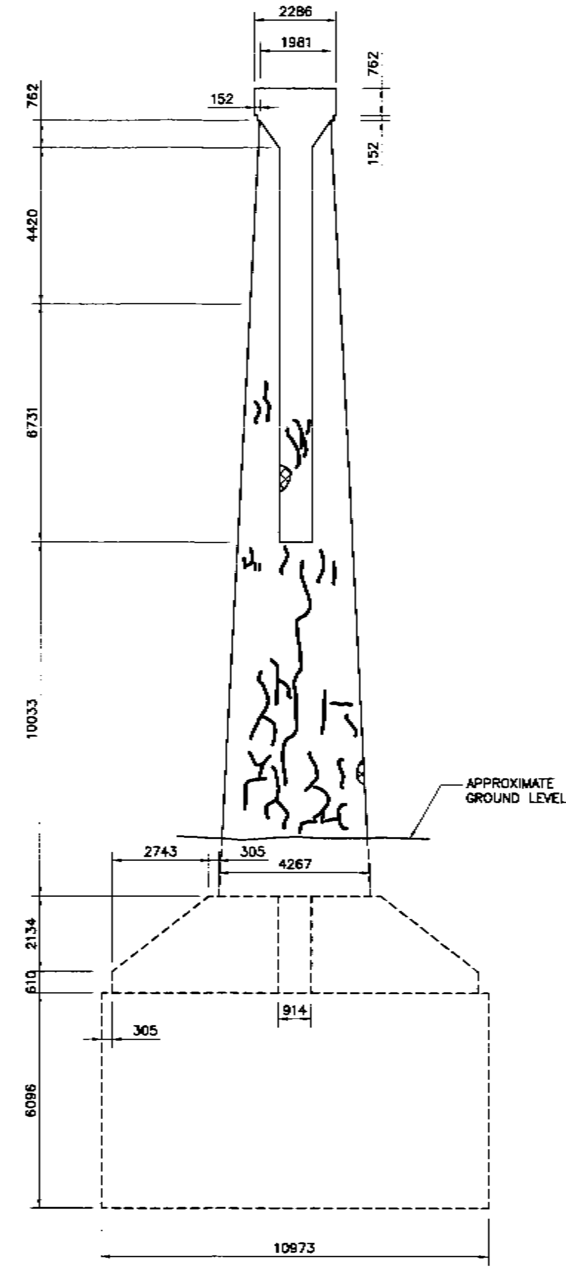
TITLE
PIER # 1
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SOUTH STRUCTURE

Consultant File Nº
Regional Draw'ng Nº
CONTRACT Nº
Drawing Nº
SHEET 9 OF 19



NORTH FACE
1:100



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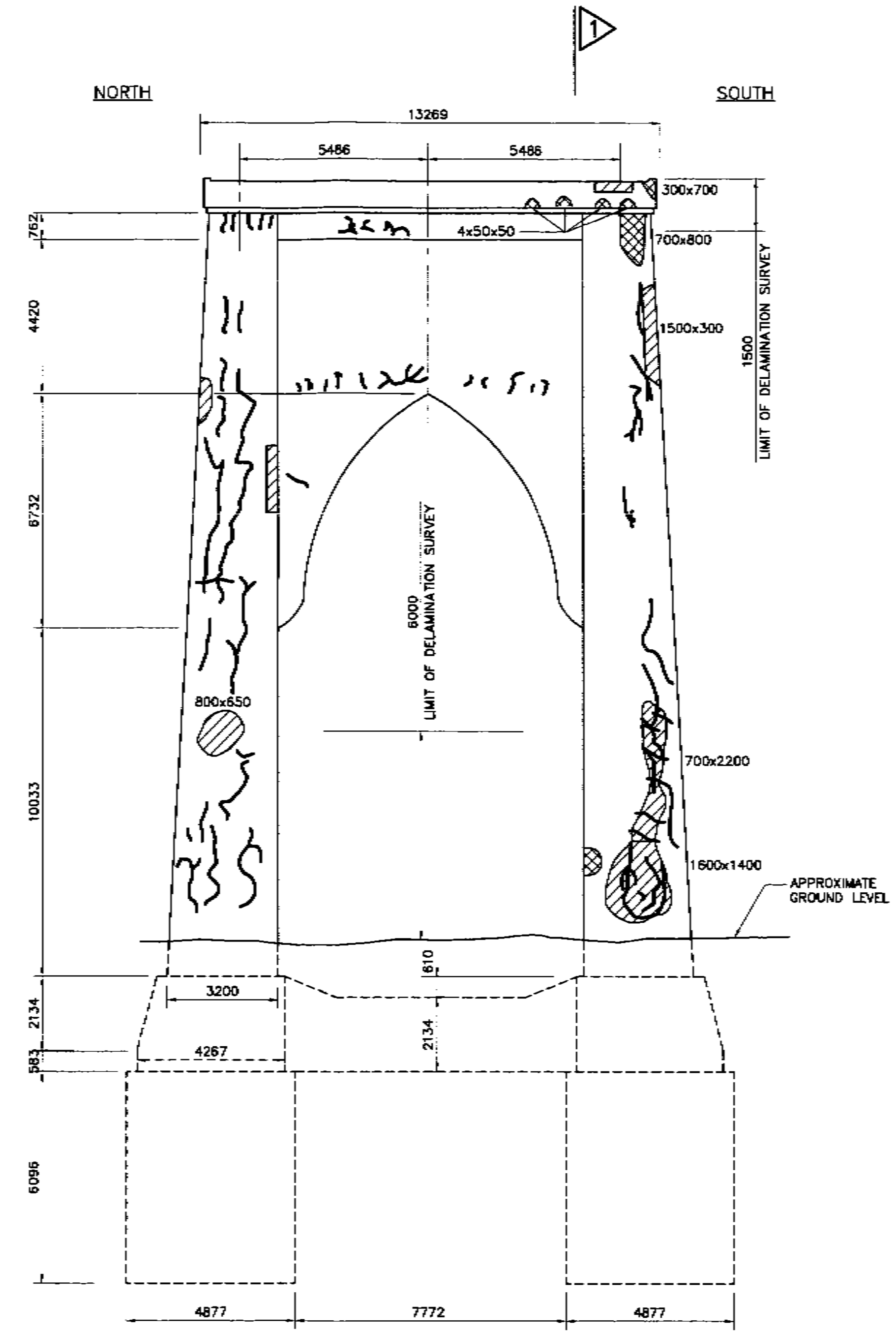

ELEVATION – PIER # 2 (WEST FACE)
1:100

LEGEND:

- NARROW CRACK
- MEDIUM CRACK
- WIDE CRACK
- STAINED CRACKS
- DELAMINATIONS
- SPALLS
- EXPOSED REINFORCING STEEL
- LIGHT SCALING
- MEDIUM SCALING
- SEVERE SCALING
- VERY SEVERE SCALING
- SURFACE RUST STAIN

NOTE:
DIMENSIONS ON SURFACE DEFECTS ARE APPROXIMATE ONLY.

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale			References		

Field Notes
REGION BOOK

APPROVALS
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Regional
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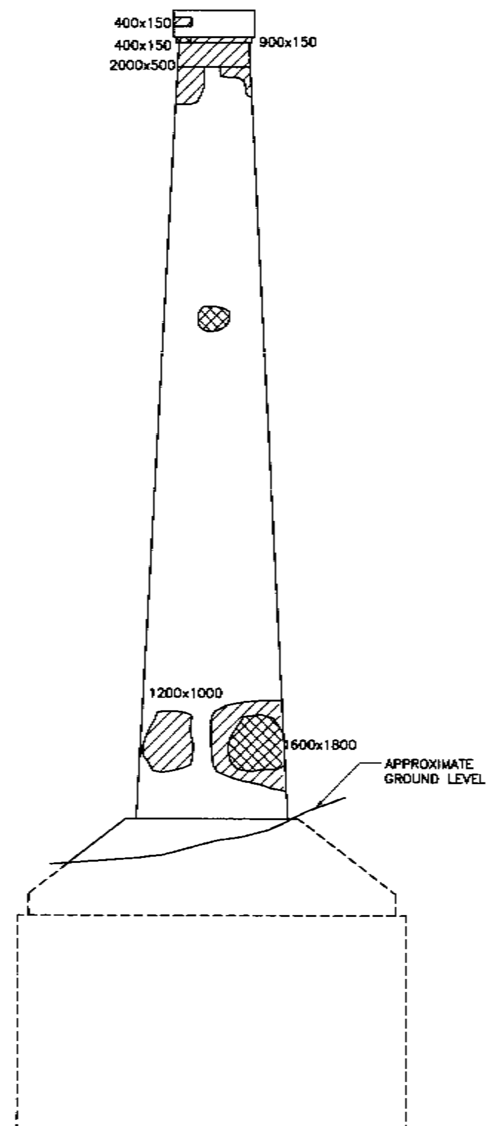
Manager, Design Services

McCORMICK RANKIN CORPORATION

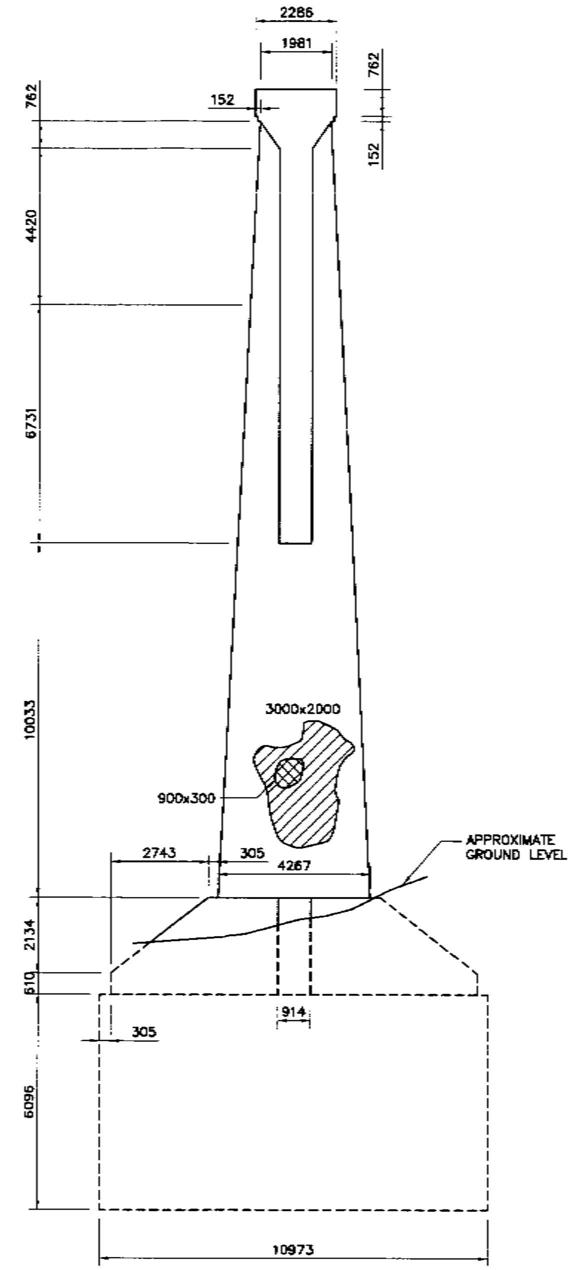
Halton

TITLE
PIER # 2
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SOUTH STRUCTURE

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 12 OF 19



SOUTH FACE
1:100



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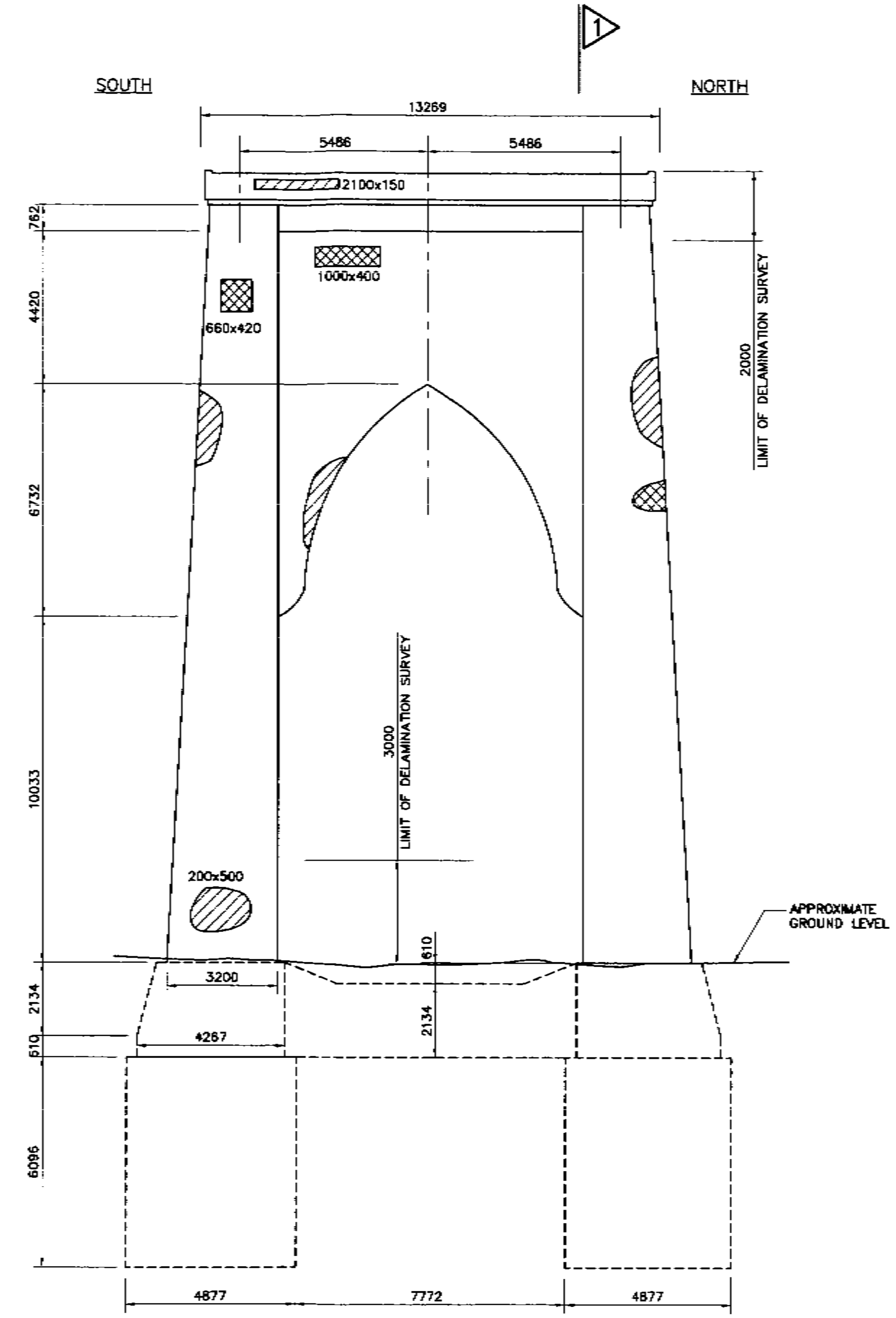

ELEVATION – PIER # 3 (EAST FACE)
1:100

LEGEND:

- NARROW CRACK
- MEDIUM CRACK
- WIDE CRACK
- STAINED CRACKS
- DELAMINATIONS
- SPALLS
- EXPOSED REINFORCING STEEL
- LIGHT SCALING
- MEDIUM SCALING
- SEVERE SCALING
- VERY SEVERE SCALING
- SURFACE RUST STAIN

NOTE:
DIMENSIONS ON SURFACE DEFECTS ARE APPROXIMATE ONLY.

Notes

Nº	Date	By	REVISIONS	MANU	CAO
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale				References	

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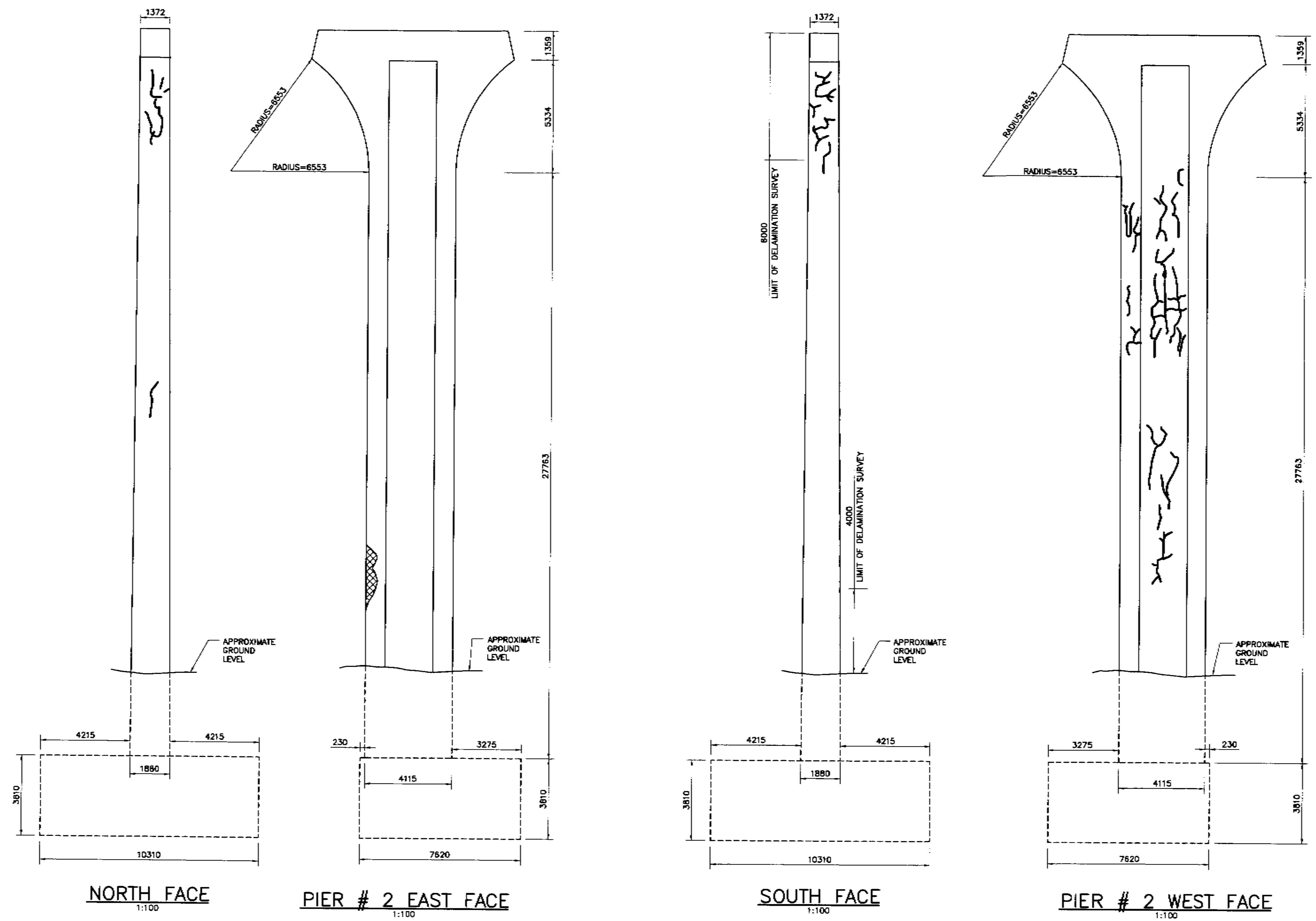
Halton

TITLE
PIER # 3
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SOUTH STRUCTURE

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 13 OF 19



LEGEND:

- NARROW CRACK
- MEDIUM CRACK
- WIDE CRACK
- STAINED CRACKS
- DELAMINATIONS
- SPALLS
- EXPOSED REINFORCING STEEL
- LIGHT SCALING
- MEDIUM SCALING
- SEVERE SCALING
- VERY SEVERE SCALING
- SURFACE RUST STAIN

NOTE:
DIMENSIONS ON SURFACE DEFECTS ARE APPROXIMATE ONLY.

Notes

Nº	Date	By	REVISIONS	MANU	CAD

Design	GT	Ch'kd	TS	Date
Drawn	CA	Ch'kd	GT	
Scale				References

Field Notes
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Director, Engineering Services

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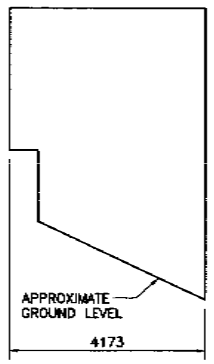
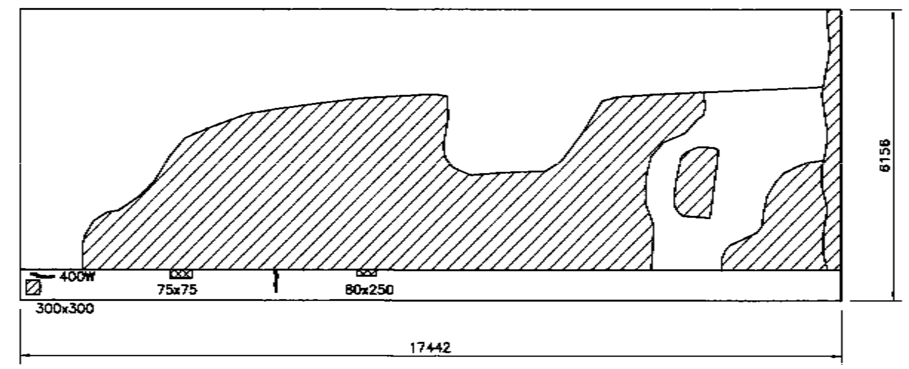
Halton

TITLE
PIER # 2
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
NORTH STRUCTURE

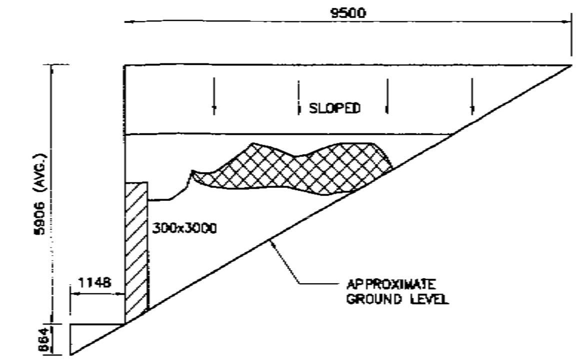
Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº



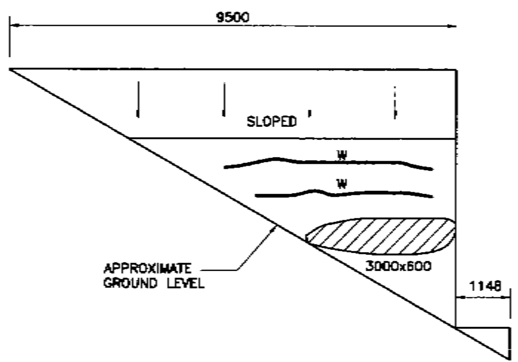
NORTH EAST WINGWALL
1:75



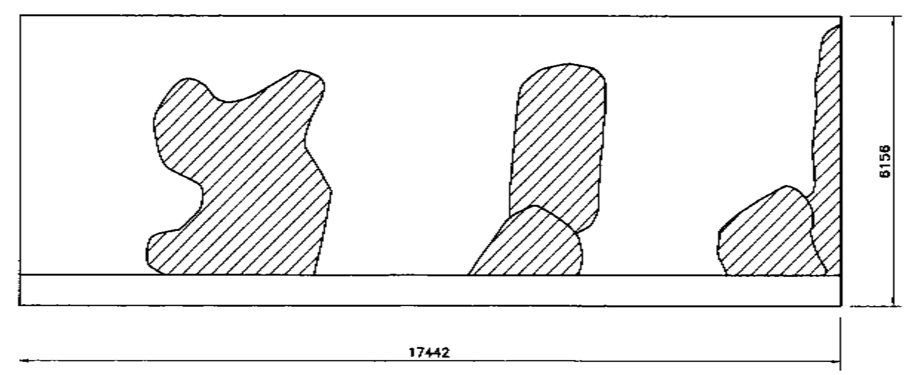
EAST ABUTMENT
1:75



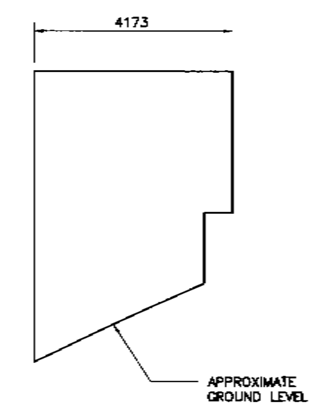
SOUTH EAST WINGWALL
1:75



SOUTH WEST WINGWALL
1:75



WEST ABUTMENT
1:75



NORTH WEST WINGWALL
1:75

LEGEND:

NARROW CRACK	EXPOSED REINFORCING STEEL
MEDIUM CRACK	LIGHT SCALING
WIDE CRACK	MEDIUM SCALING
STAINED CRACKS	SEVERE SCALING
DELAMINATIONS	VERY SEVERE SCALING
SPALLS	SURFACE RUST STAIN

NOTE:
DIMENSIONS ON SURFACE DEFECTS ARE APPROXIMATE ONLY.

DATE PLOTTED: 09/10/23 16:44:4

FILE LOCATION: S:\7108\TANSLEY BRIDGE\
DRAWING NAME: S7108-300-01RCS.DWG MODIFIED: 09/10/23 16:44:4
DRAWN BY: CLAIR A.

Notes

Nº	Date	By	REVISIONS	MANU	CAD

Design	GT	Ch'kd	TS	Date
Drawn	CA	Ch'kd	GT	
Scale				References

Field Notes
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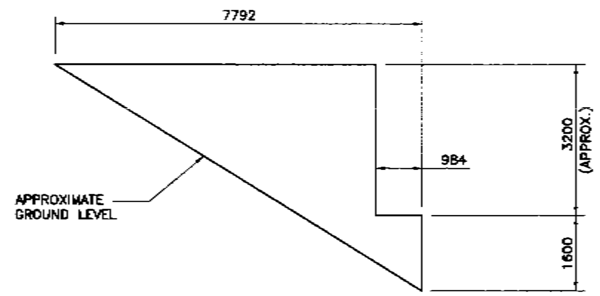
Halton

TITLE
ABUTMENTS AND WINGWALLS
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
SOUTH STRUCTURE

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 18 OF 19



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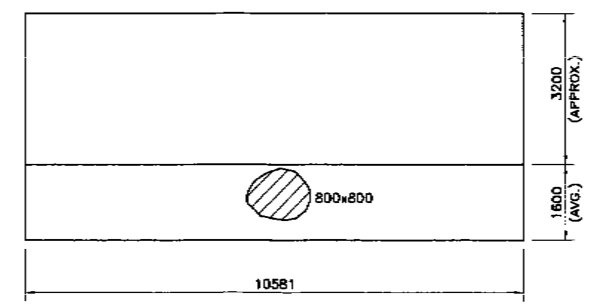
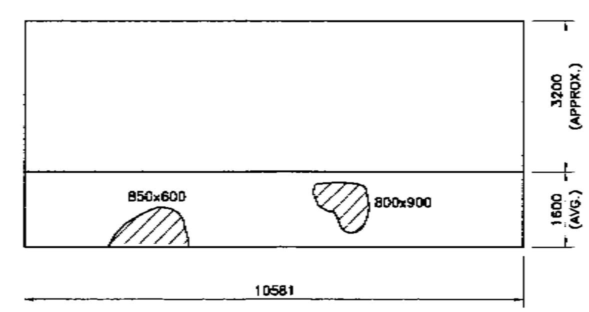
1:75



EAST ABUTMENT
1:75



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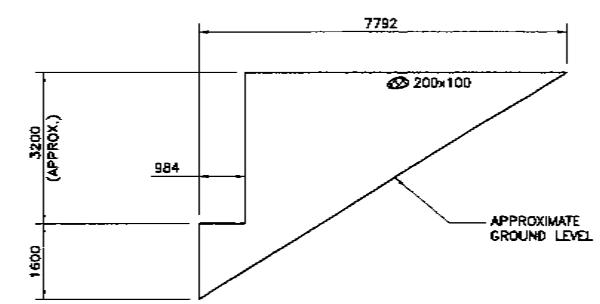

NORTH WEST WINGWALL
1:75

LEGEND:

- NARROW CRACK
- MEDIUM CRACK
- WIDE CRACK
- STAINED CRACKS
- DELAMINATIONS
- SPALLS
- EXPOSED REINFORCING STEEL
- LIGHT SCALING
- MEDIUM SCALING
- SEVERE SCALING
- VERY SEVERE SCALING
- SURFACE RUST STAIN

NOTE:
DIMENSIONS ON SURFACE DEFECTS ARE APPROXIMATE ONLY.

FILE LOCATION: S:\7108\TANSLEY BRIDGE\
DRAWING NAME: 57108-300-0195S.DWG
DRAWN BY: CLAIR A.
MODIFIED: 09/10/26 15:24:21
DATE PLOTTED: 09/10/26 15:24:21

Notes

Nº	Date	By	REVISIONS	MANU	CAD
Design	GT	Ch'kd	TS	Date	
Drawn	CA	Ch'kd	GT		
Scale				References	

Field Notes
REGION BOOK

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Halton

TITLE
ABUTMENTS AND WINGWALLS
DUNDAS STREET BRIDGE
OVER BRONTE CREEK
NORTH STRUCTURE

Consultant File Nº
Regional Drawing Nº
CONTRACT Nº
Drawing Nº
SHEET 19 OF 19

APPENDIX F
LABORATORY TESTING RESULTS

Golder Associates

MCCORMICK RANKIN CORPORATION

OCT 1 5 2009

MISSISSAUGA OFFICE

September 30, 2009

09-1175-0021

Client: McCormick Rankin Corporation
2655 North Sheridan Way
Mississauga, ON L5K 2P8

Attention: Mr. Christopher Fulton

**RE: SUMMARY OF CONCRETE CORE TESTING
TANSLEY BRIDGE OVER BRONTE CREEK
MRC FILE NO.: 7108.300**

Core Number	C15	C17
Golder Lab Number	C-09-1371	C-09-1369
Compressive Strength		
Capped Height (mm)	-	93.7
Average Diameter (mm)	-	93.3
Density (Mg/m^3)	-	2.394
Capping Materials	-	End Grinder
Load (kN)	-	502.4
Compressive Strength (MPa)	-	73.5
Corrected Compressive Strength (MPa)	-	63.9
Moisture Condition at time of Test	-	Moist
Air Voids Parameters		
Total Air Content (%)	9.3	-
Specific Surface (mm^2/mm^3)	18.65	-
Spacing Factor (mm)	0.121	-
Remarks		

Note:

1. Compressive strength testing was carried out according to CSA A23.2-00-14C.
2. Air void content and parameters were determined according to ASTM C457 using a modified point count method.

Issued by: [signature] for

John A. Watkins, Laboratory Services Manager

TS/JR/JAW/nj

09-1175-0021 TSL 2009/09/30 Tansley Bridge C-09-1364-1371

Golder Associates Ltd.
100 Scotia Court, Whitby, Ontario Canada L1N 8Y6
Tel: (905) 723 2727 Fax: (905) 723 2182 www.golder.com

Golder Associates

September 30, 2009

09-1175-0021

Client: McCormick Rankin Corporation
2655 North Sheridan Way
Mississauga, ON L5K 2P8

Attention: Mr. Christopher Fulton

RE: SUMMARY OF CONCRETE CORE TESTING
TANSLEY BRIDGE OVER BRONTE CREEK
MRC FILE NO.: 7108.300

Core Number	C2	C4
Golder Lab Number	C-09-1370	C-09-1368
Compressive Strength		
Capped Height (mm)	-	186.5
Average Diameter (mm)	-	93.3
Density (Mg/m^3)	-	2.350
Capping Materials	-	End Grinder
Load (kN)	-	355.1
Compressive Strength (MPa)	-	51.9
Corrected Compressive Strength (MPa)	-	51.9
Moisture Condition at time of Test	-	Moist
Air Voids Parameters		
Total Air Content (%)	9.5	-
Specific Surface (mm^2/mm^3)	13.48	-
Spacing Factor (mm)	0.169	-
Remarks		

Note:

1. Compressive strength testing was carried out according to CSA A23.2-00-14C.
2. Air void content and parameters were determined according to ASTM C457 using a modified point count method.

Issued by: [signature] for

John A. Watkins, Laboratory Services Manager

TG/JR/JAW/sj

09-1175-0021 TBL 2009'09'30 Tansley Bridge C-09-1364-1371

50 BEST EMPLOYERS IN CANADA 2009 REPORT ON BUSINESS

BEST MANAGED COMPANIES

Golder Associates

September 30, 2009 09-1175-0021

Client: McCormick Rankin Corporation
2655 North Sheridan Way
Mississauga, ON L5K 2P8

Attention: Mr. Christopher Fulton

RE: SUMMARY OF CONCRETE CORE TESTING
TANSLEY BRIDGE OVER BRONTE CREEK
MRC FILE NO.: 7108.300

Core Number **Golder Lab Number**	C5 C-09-1364	C9 C-09-1365	C12 C-09-1366	C14 C-09-1367
Acid Soluble Chloride Ion Content *(% Cl by Weight of Concrete)*				
0 – 10 mm	0.064	0.050	0.064	0.041
20 – 30 mm	0.060	0.044	0.040	0.050
40 – 50 mm	0.068	0.051	0.060	0.050
60 – 70 mm	0.068	0.051	0.055	0.050
80 – 90 mm	–	0.041	–	0.045
Remarks:				

Note:

1. Acid soluble chloride ion content was determined according to MTO Test Method LS-417, Rev.16.

Issued by: Stephen Boyd for

John A. Watkins, Laboratory Services Manager

TSJ/RJ/JAW/aj

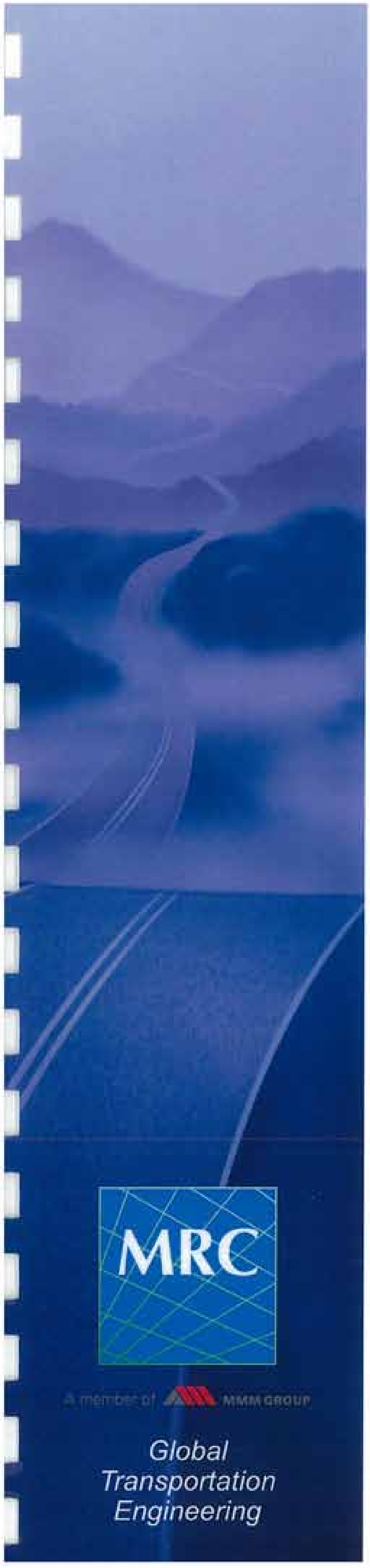
09-1175-0021 TBL 2009'09'30 Tansley Bridge C-09-1364-1371

APPENDIX H
SECTION LOSS MEASUREMENTS

Tansley Bridge over Bronte Creek
Underbridge Inspection
Gusset Plate Section Loss Measurements

Truss	Gusset	N/S	UTG Readings / Section Loss	Average
			EAST EXTERIOR SPAN	
1	L4E	N	10.6, 9.0	10.6
2	-	-	-	-
3	L0E	S	~1-2	10.5
	L12E	S	11.5, 7.5	11.5
			EAST INTERIOR SPAN	
1	L14E	N	10.8, 9.7, 10.8, 8.7, 6.5	10
	L22E	N	10.8, 6.9, 6.7	10.8
	L26E	N+S	~1-2 (area: 2x50x200)	10.6
2	-	-	-	-
3	L14E	N+S	~1	10
	L18E	S	~1-3	10
	L22E	N	~1-2 (area: 10x300)	10.7
	L22E	S	4.4, 7.6, 10.7, 4.8, 5.6	7.57
	L28	N	9.1, 9.2, 7.5, 9.0, 8.3	8.53
	L28	S	10.5, 8.5, 9.6, 8.5, 9.6, 6.6, 7.1, 8.0	8.55
			WEST INTERIOR SPAN	
1	L26W	N	~1	10.6
2	-	-	-	-
3	L14W	S	~1-2	**10**
	L12W	N	~2-5	11.5
	L12W	S	~5-7	11.5
	L18W	S	~1	10
	L24W	N+S	~1-2	**10**
	L22W	N+S	~1-2	10.7
			WEST EXTERIOR SPAN	
1	L10W	N	~2-5	10.9
2	-	-	-	-
3	L0W	N	~2-4	**10**
	L6W	S	~1	10
	L10W	S	~1	10.9

Note:
'~' indicates the amount of cross-section loss
'bold' values indicate assumed thicknesses
N/S indicate north or south gusset plate



Halton
REGION

Dundas Street (Reg. Rd. 5) Class EA Study Brant Street (Reg. Rd. 18) to Proudfoot Trail

Tansley Bridge
Dundas Street at Bronte Creek
Bridge No. 005109
MTO Site N0. 010-0111

CONDITION SURVEY REPORT
VOLUME 2 (APPENDIX G)

October 2009

Regional Municipality of Halton

Tansley Bridge
Dundas Street at Bronte Creek
MTO Site Number 010-0111

Appendix G of Condition Survey Report

Report Prepared By:

Christopher Fulton, E.I.T.

Report Reviewed By:

T. Small for Gideon Tjandra

Gideon Tjandra, E.I.T.

Report Approved By:

LICENSED PROFESSIONAL ENGINEER
T. Small
T. P. A. SMALL
Oct 30/09
PROVINCE OF ONTARIO

Trevor Small, M.A.Sc., P.Eng.
Senior Bridge Engineer

MRC

A member of MMM GROUP

McCormick Rankin Corporation
October 2009

South Structure
East Exterior Span

MRC

A member of MMM GROUP

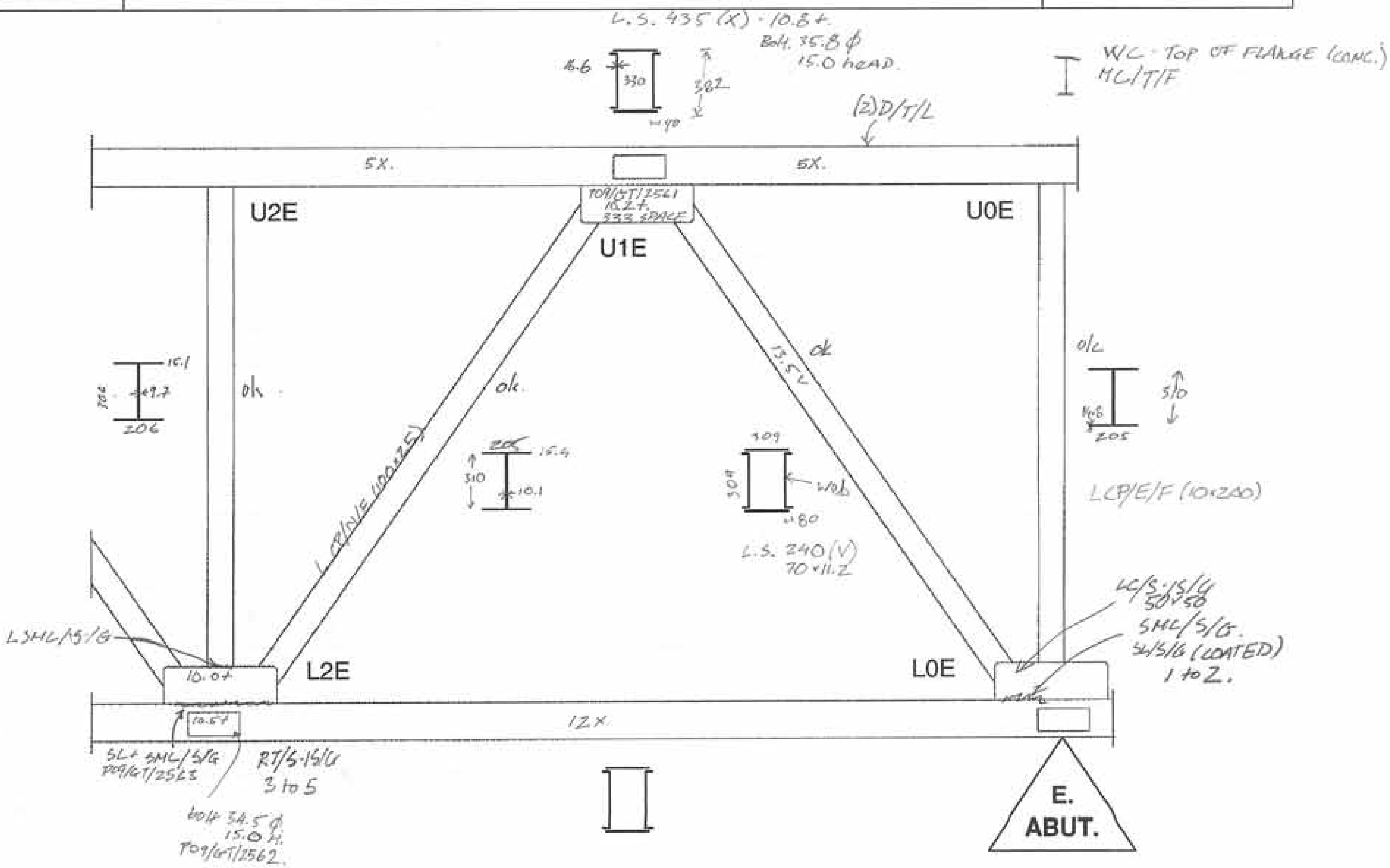
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165 FOOT SPAN

SPAN E. EXT

TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E. EXT Truss: 3

Date: AUG, 2009

Inspected By: GT / DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

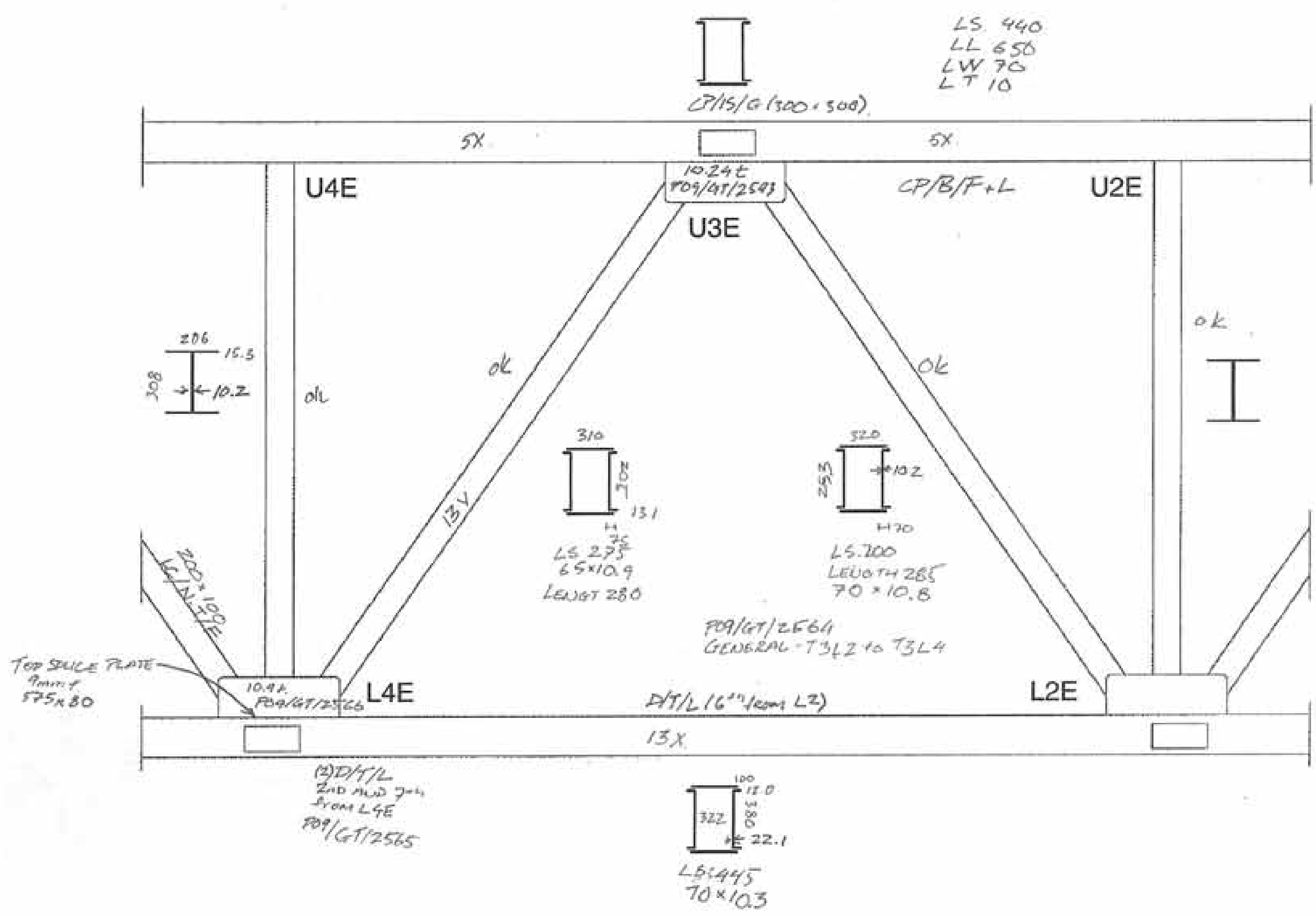
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165 FOOT SPAN

SPAN E. EXT

TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

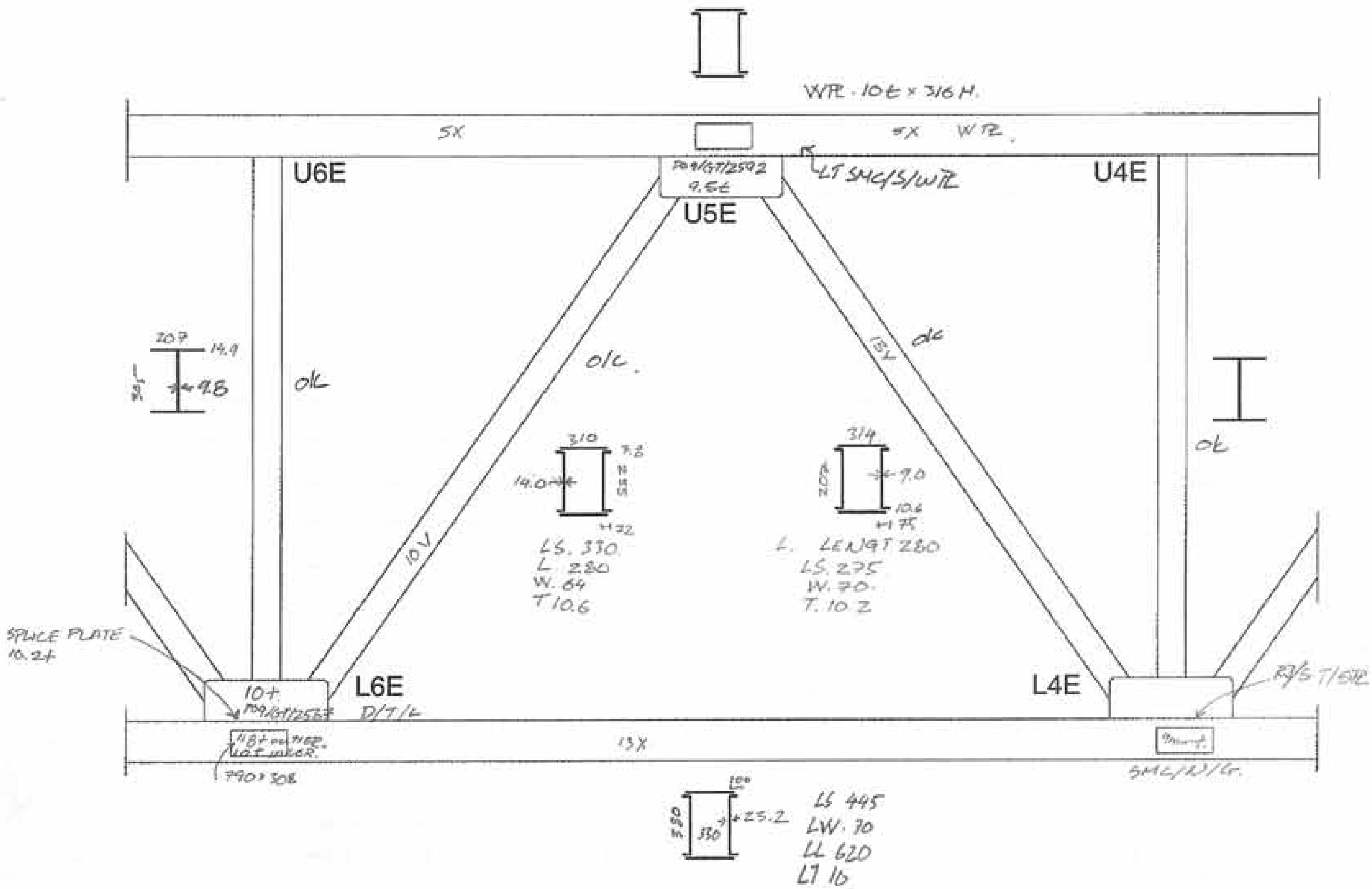
Span: E.EXT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165 FOOT SPAN SPAN E.EXT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E.EXT Truss: 3

Date: AUG, 2009

Inspected By: GT+SH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

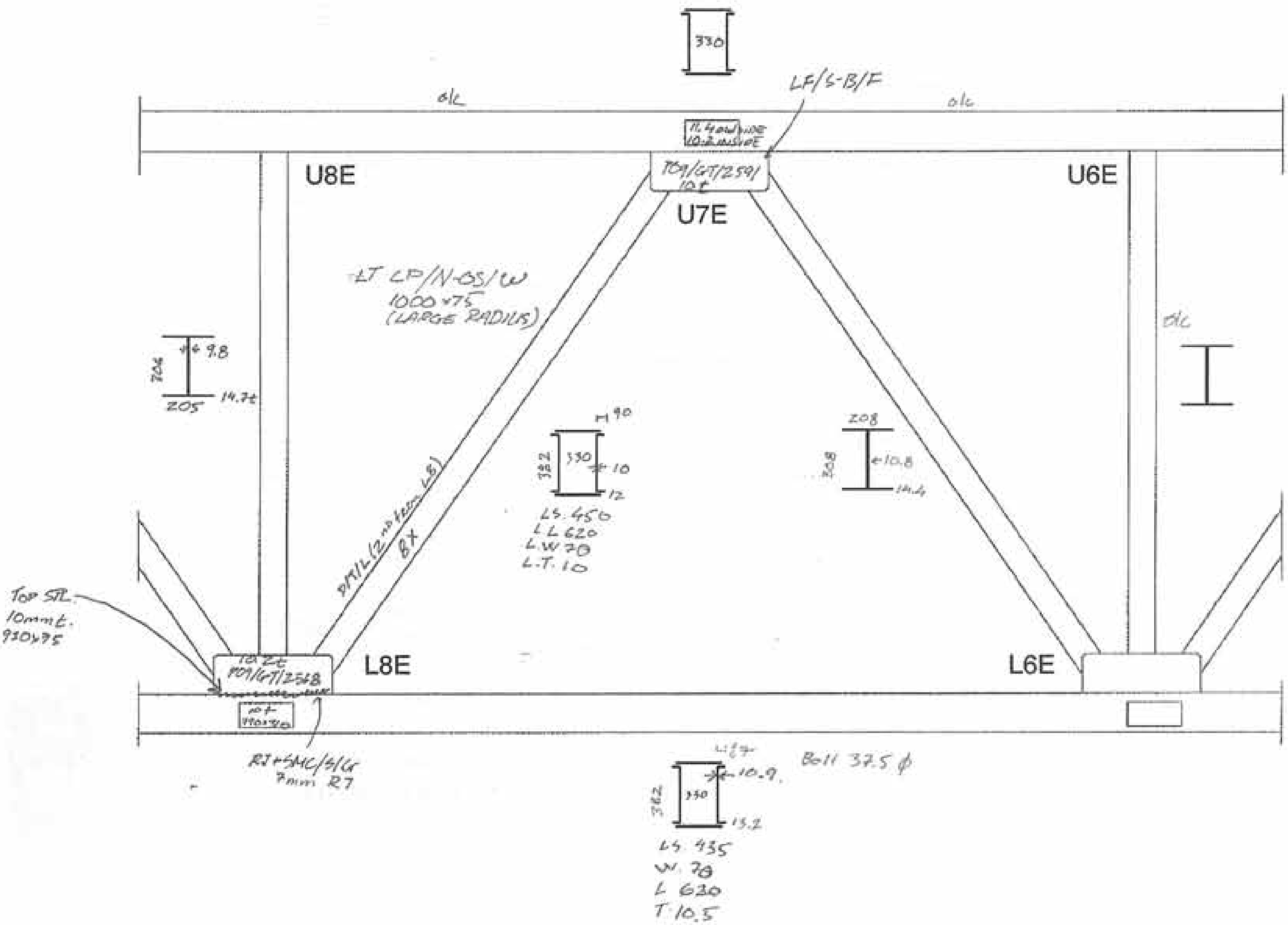
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165 FOOT SPAN

SPAN E. EXT

TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E.EXT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

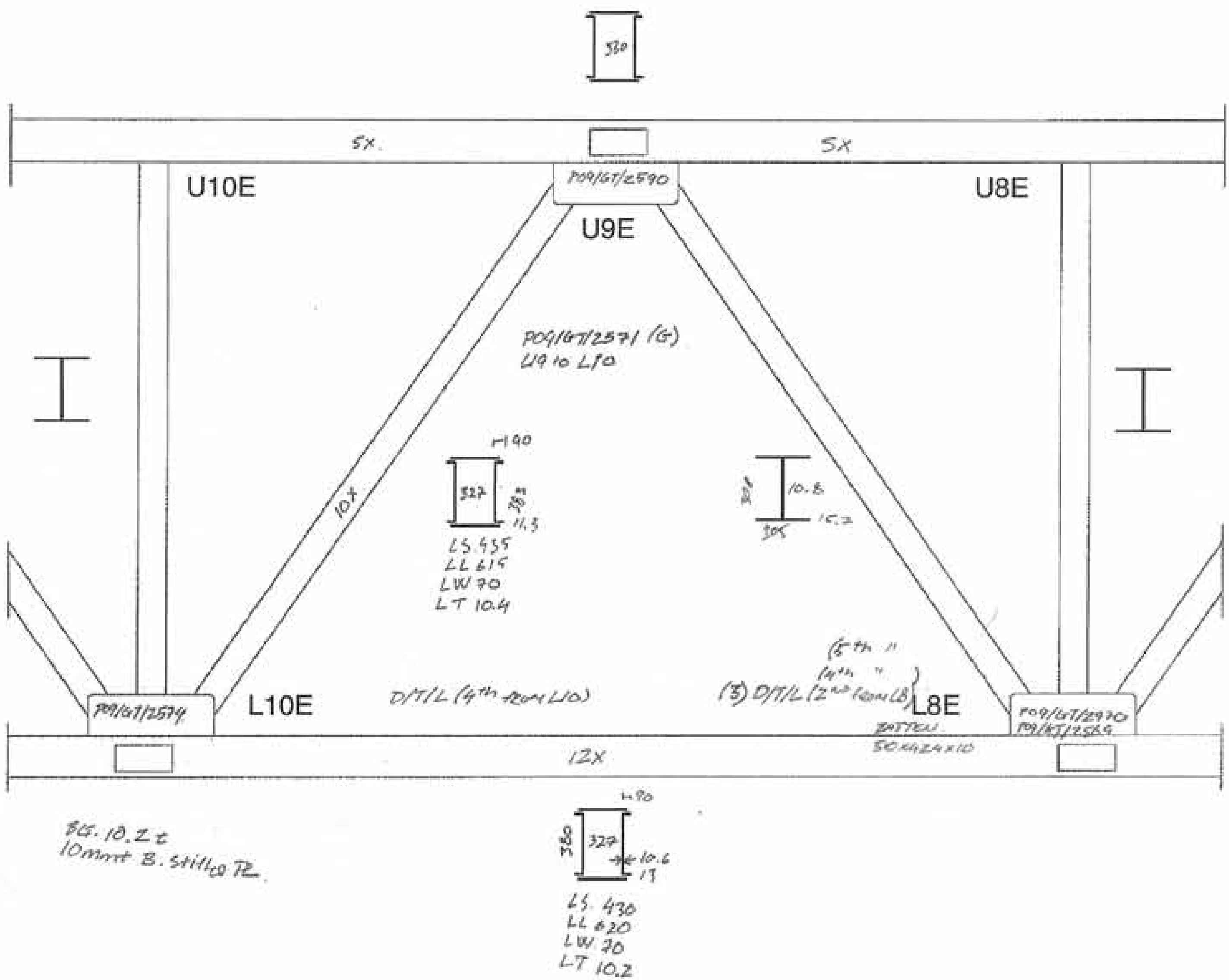
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165 FOOT SPAN

SPAN E. EXT

TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

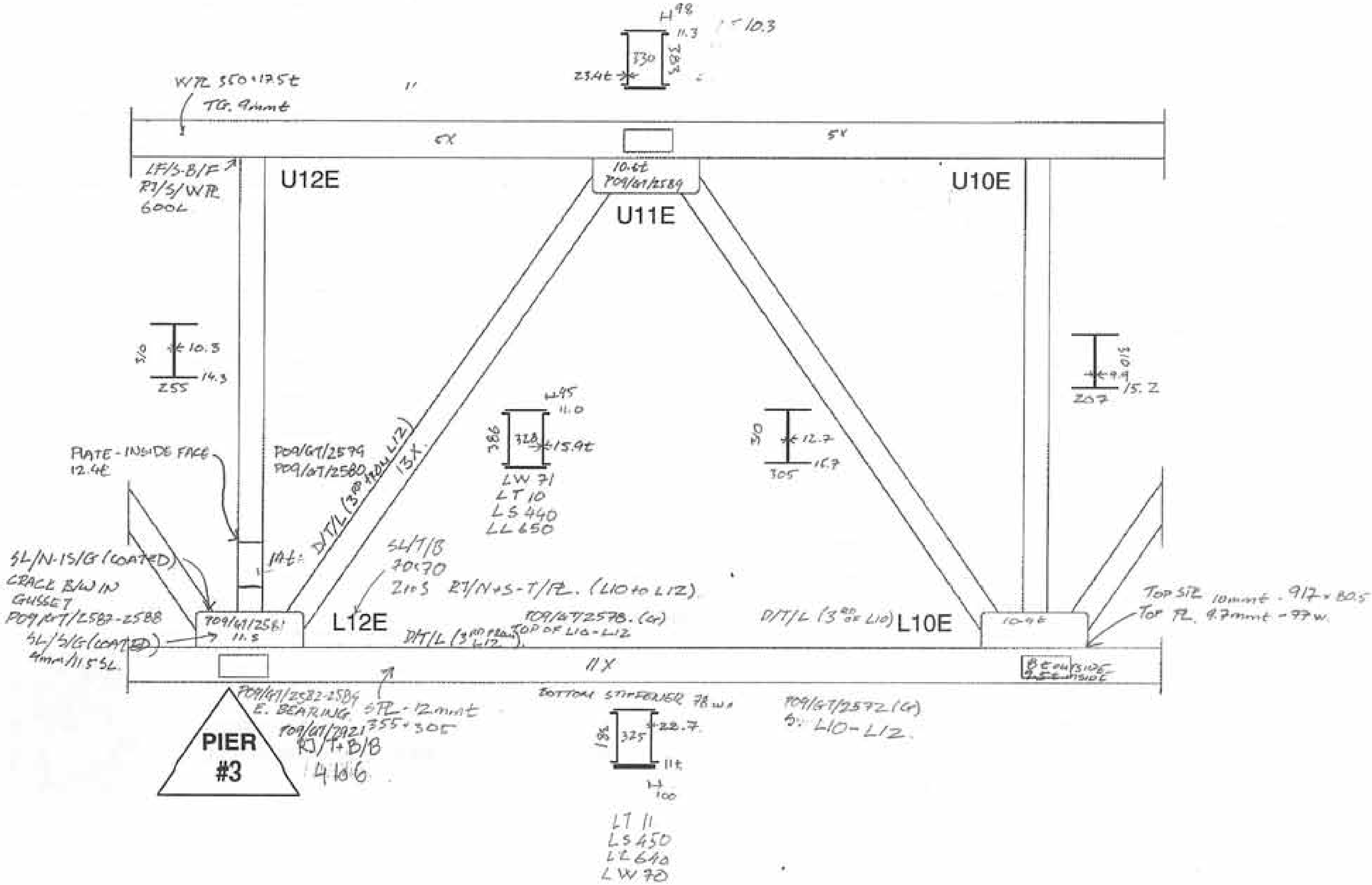
Span: E.EXT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165 FOOT SPAN SPAN E.EXT TRUSS 3



Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

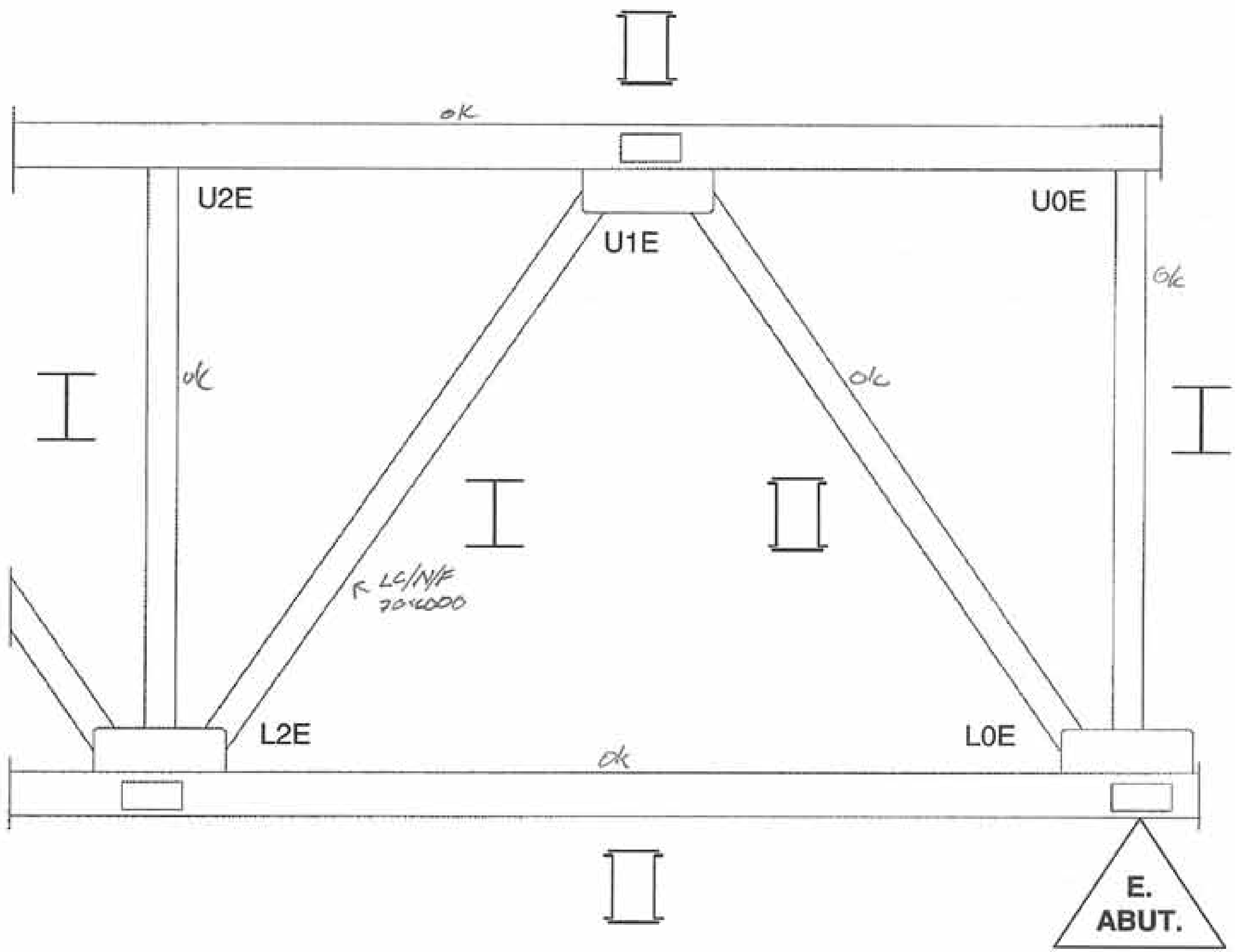
Span: E,EXT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E.EXT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

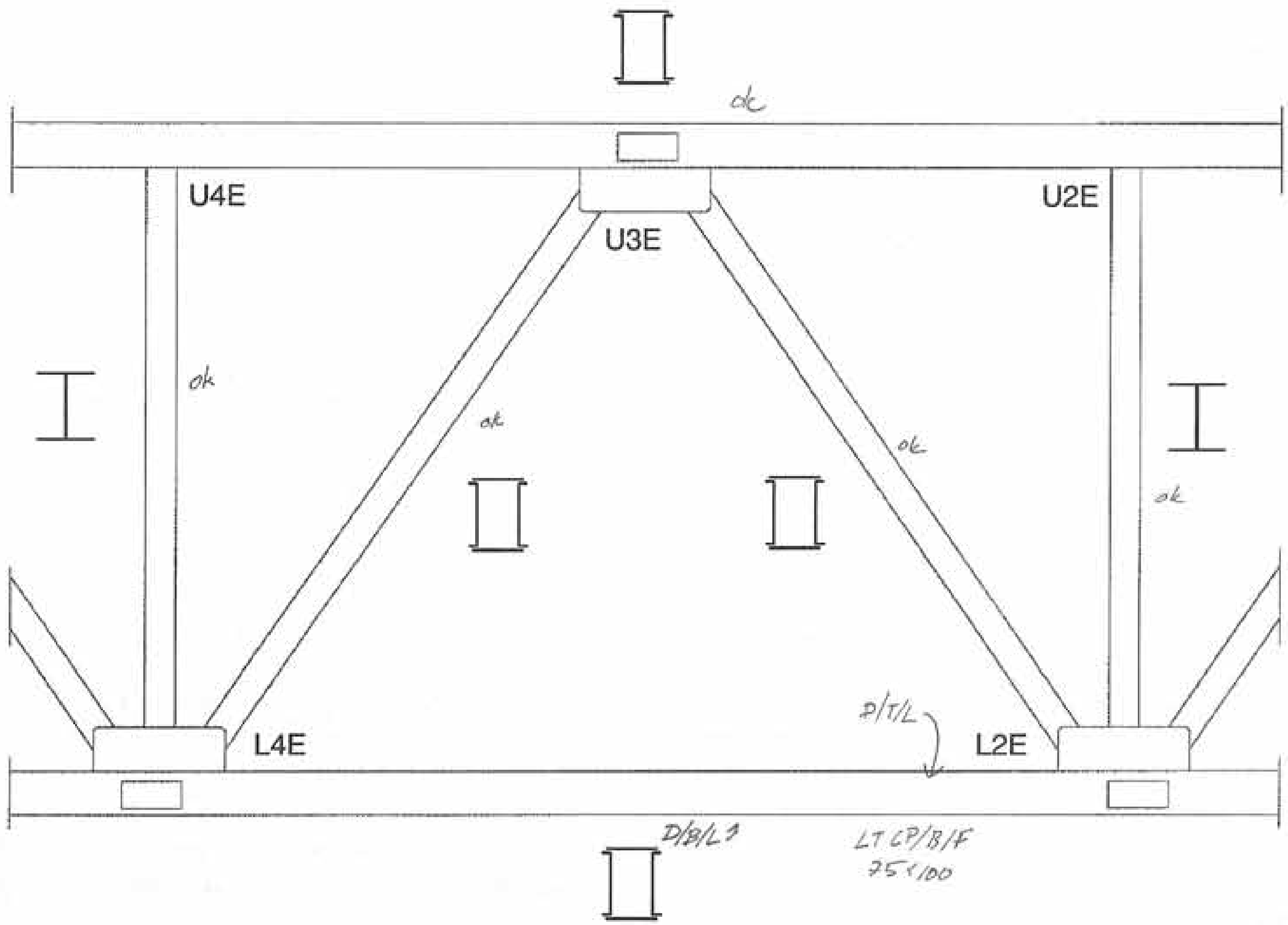
Span: E, EXT Truss: 2

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E. EXT TRUSS Z



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

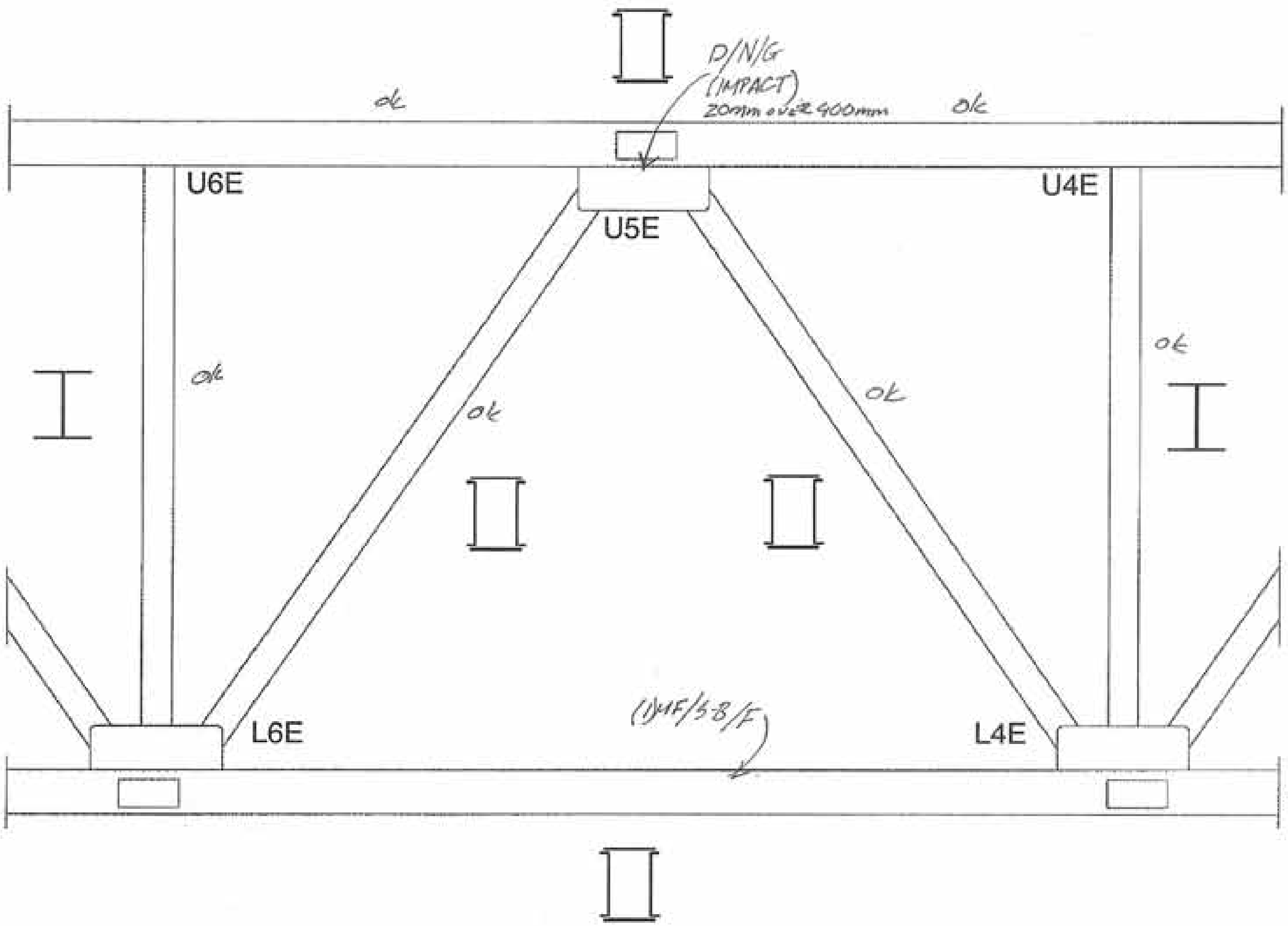
Span: E.EXT Truss: 2

Date: AUG, 2009

Inspected By: GT + DP

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E·EXT TRUSS Z



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

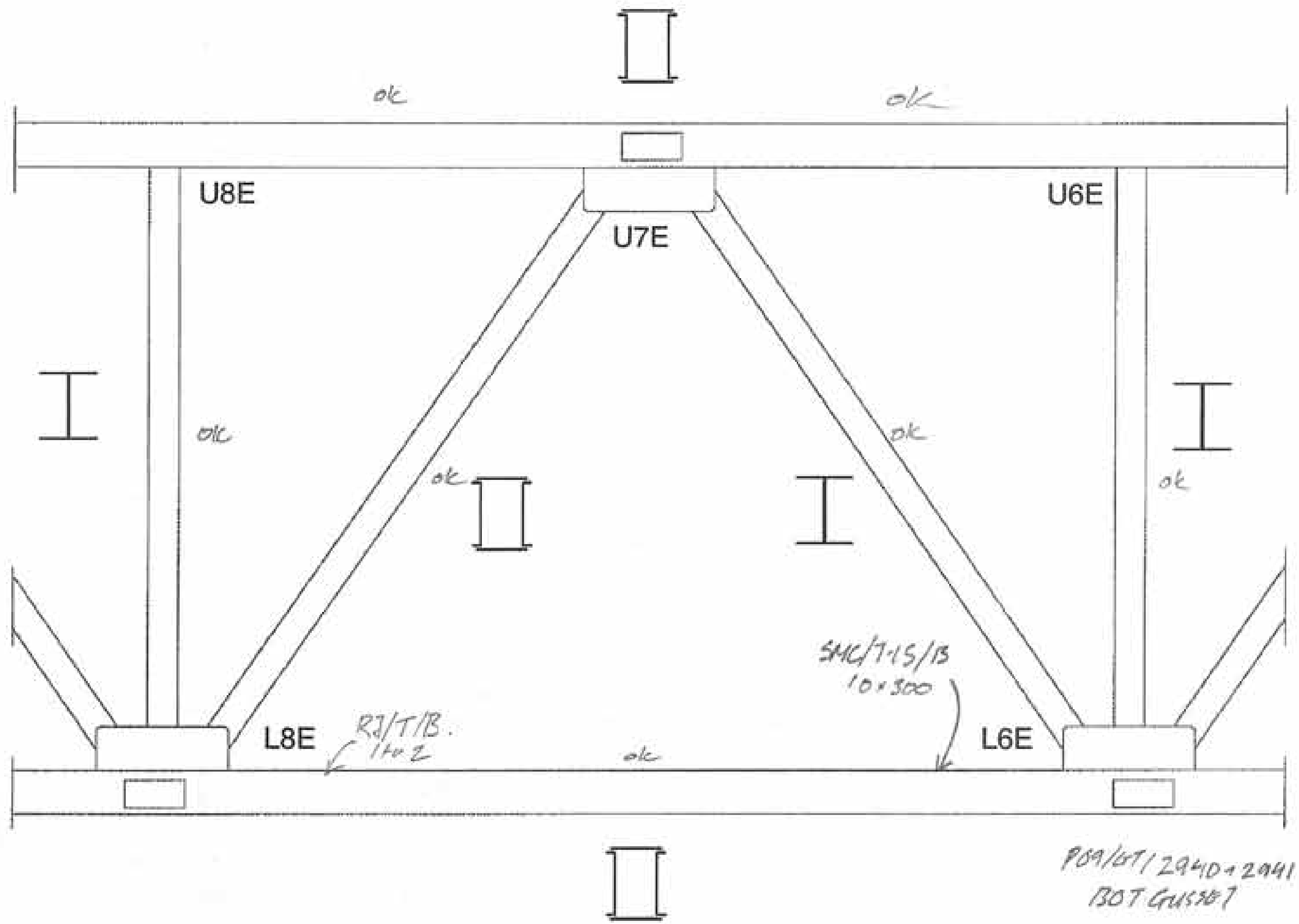
Span: E.EXT Truss: 2

Date: AUG, 2009

Inspected By: [illegible]

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E.EXT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

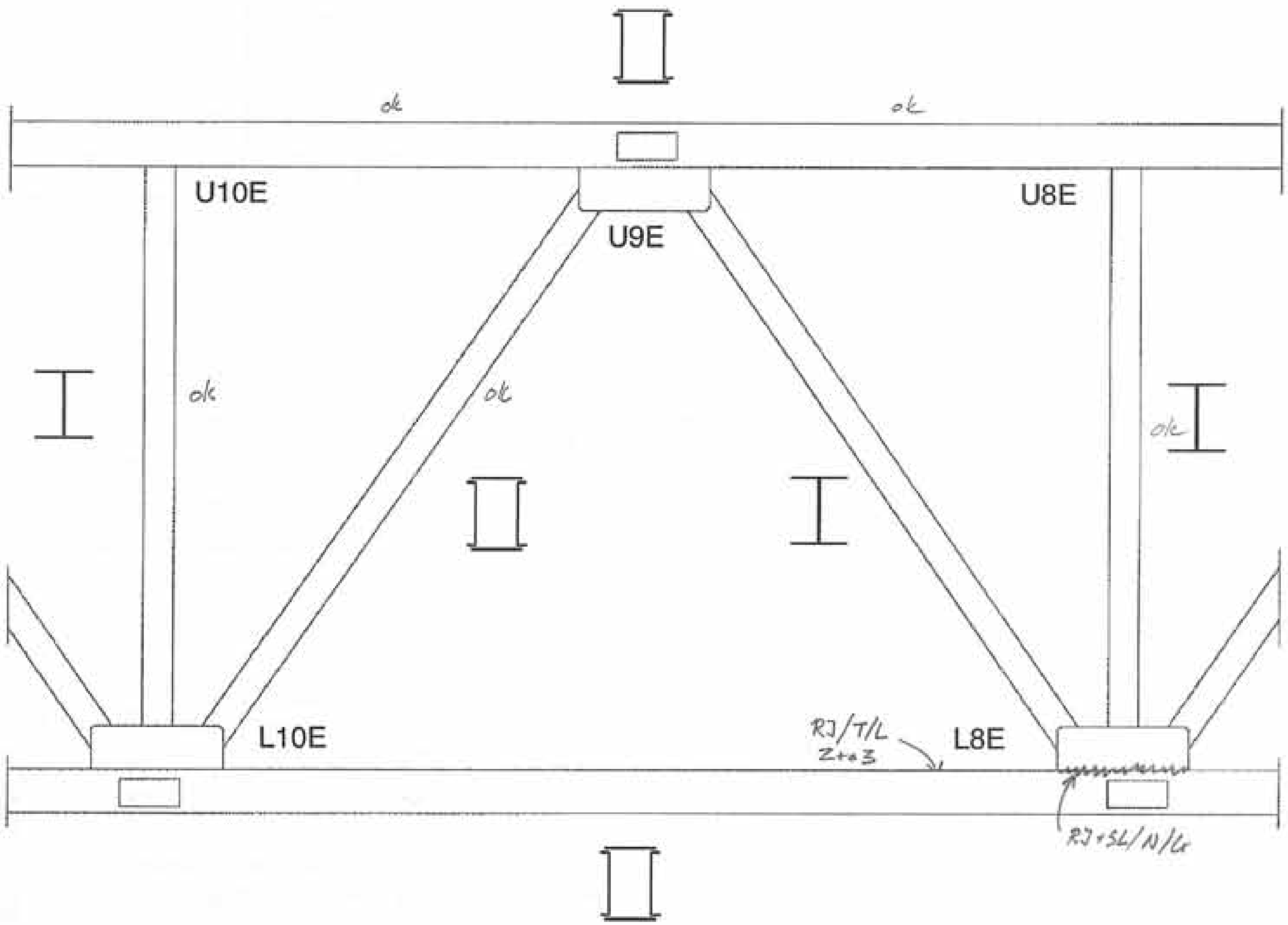
Date: AUG, 2009

Inspected By: GT + SH

Span: E.EXT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165 FOOT SPAN SPAN E EXT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

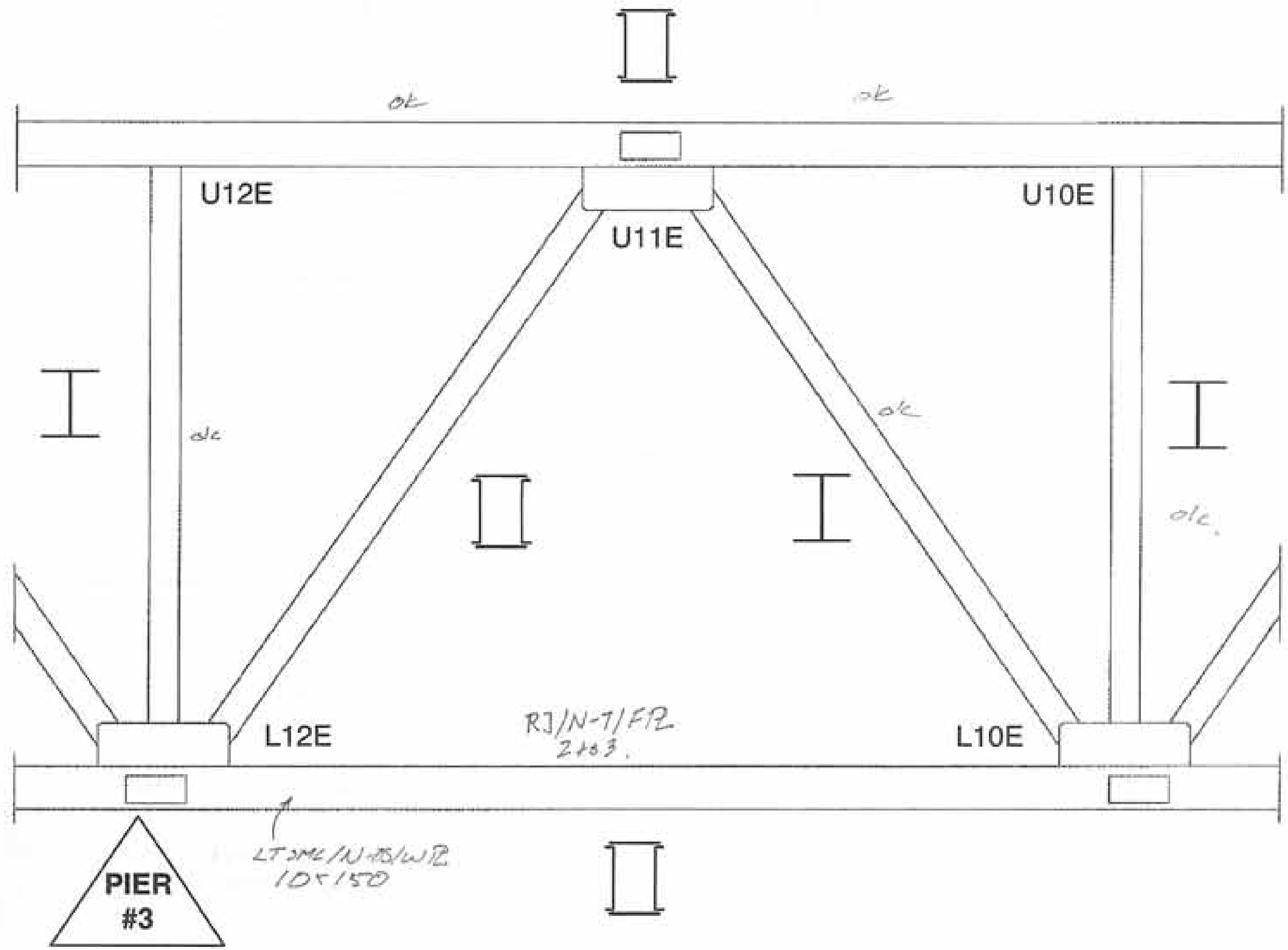
Span: E.EXT Truss: 2

Date: AUG, 2009

Inspected By: G? - ?

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E.EXT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: [illegible]

Span: E.EXT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

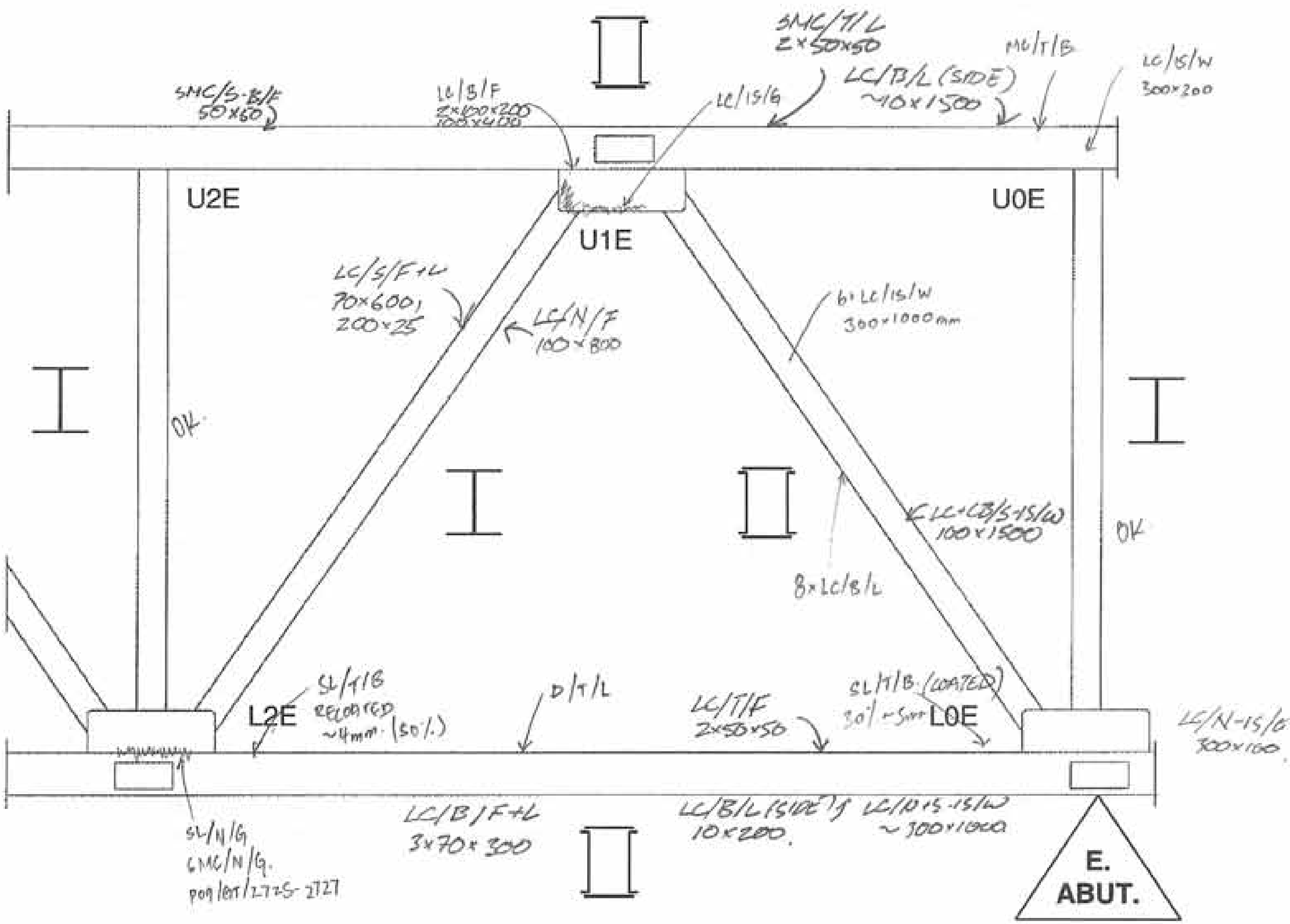
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN E EXT

TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: EEXT Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

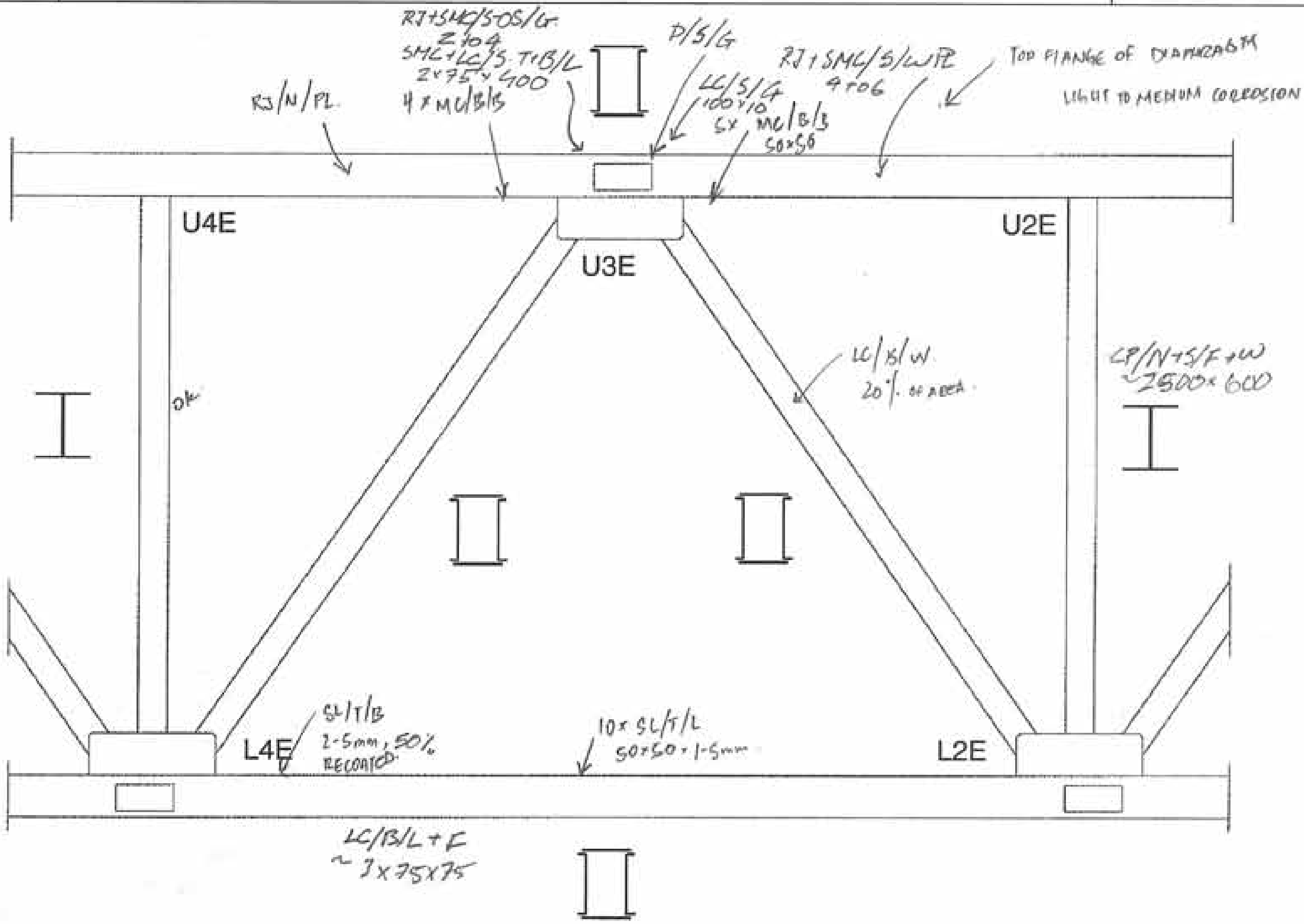
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN E EXT

TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

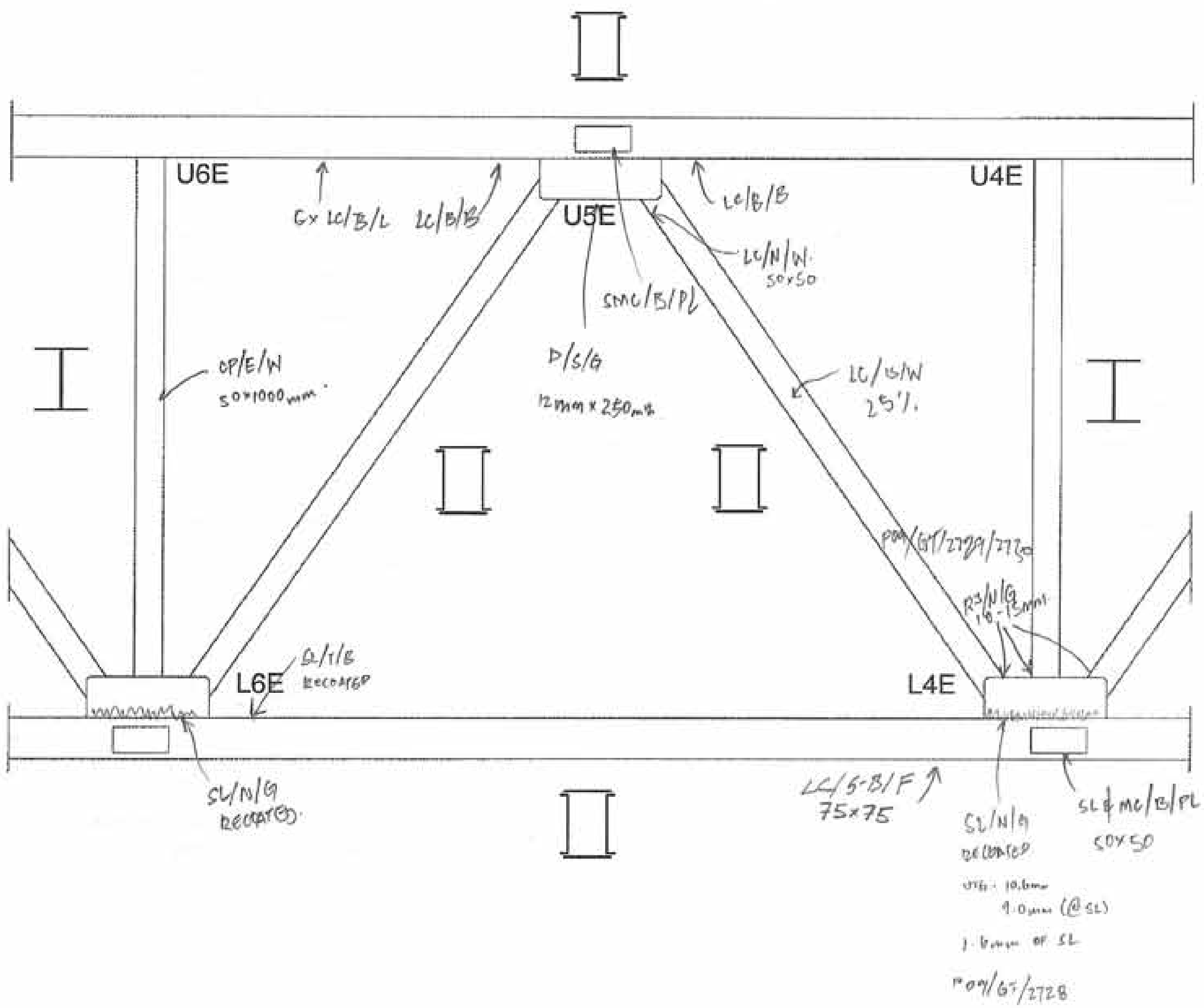
Span: E.EXT Truss: /

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E EXT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

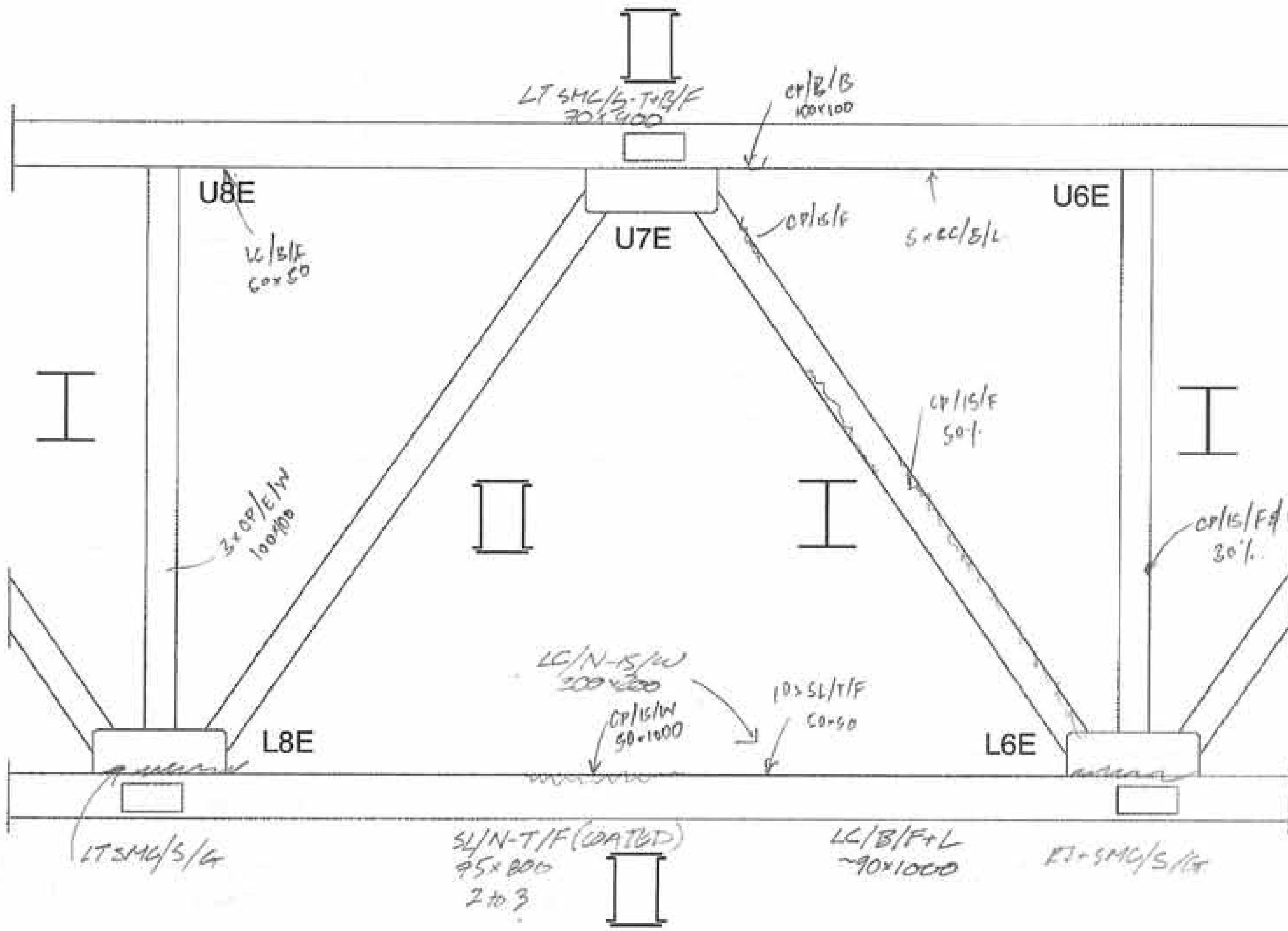
Span: E, EXT Truss: /

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC — A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165 FOOT SPAN SPAN E EXT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT DP

Span: E.EXT Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

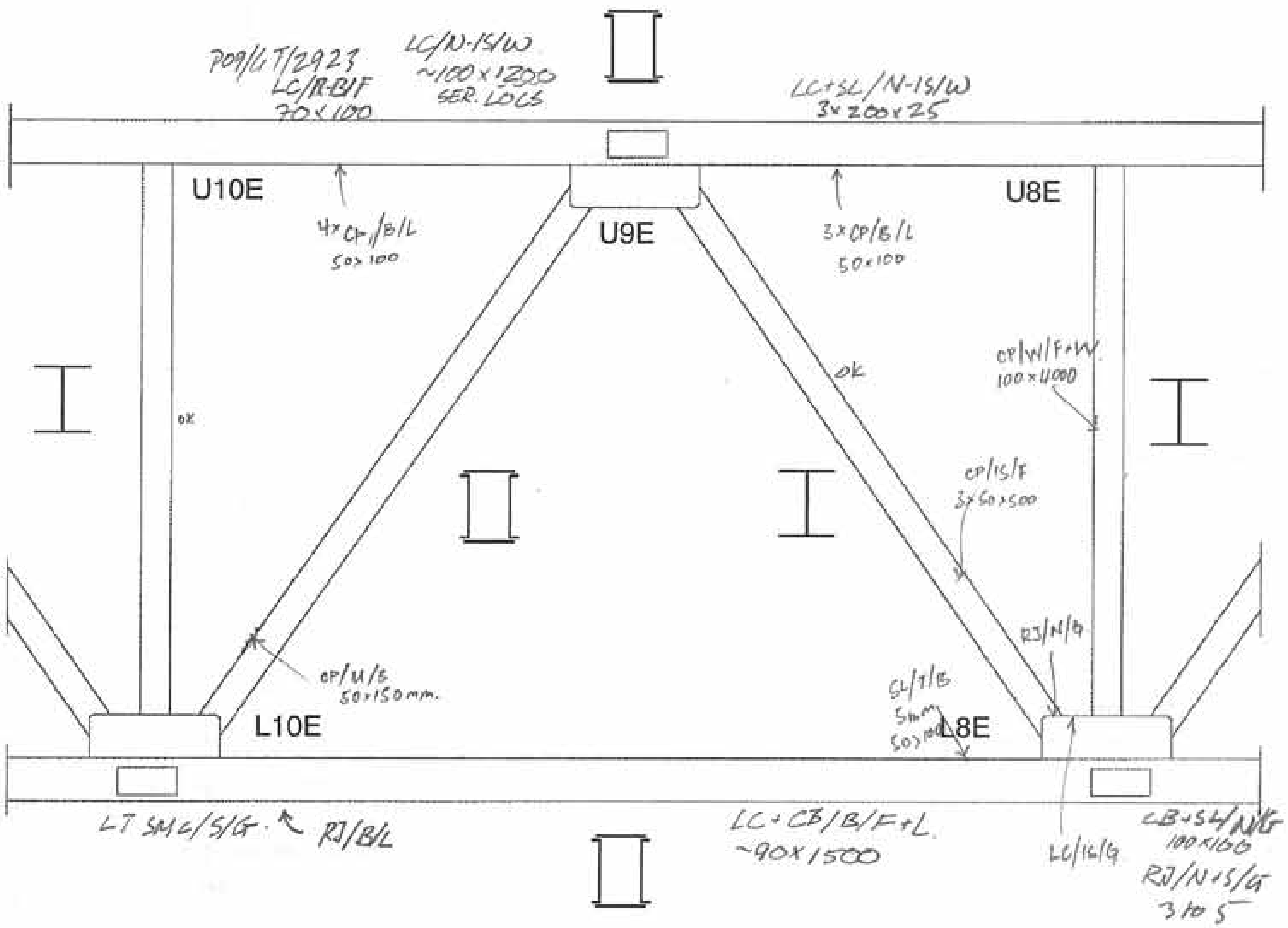
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN E EXT

TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

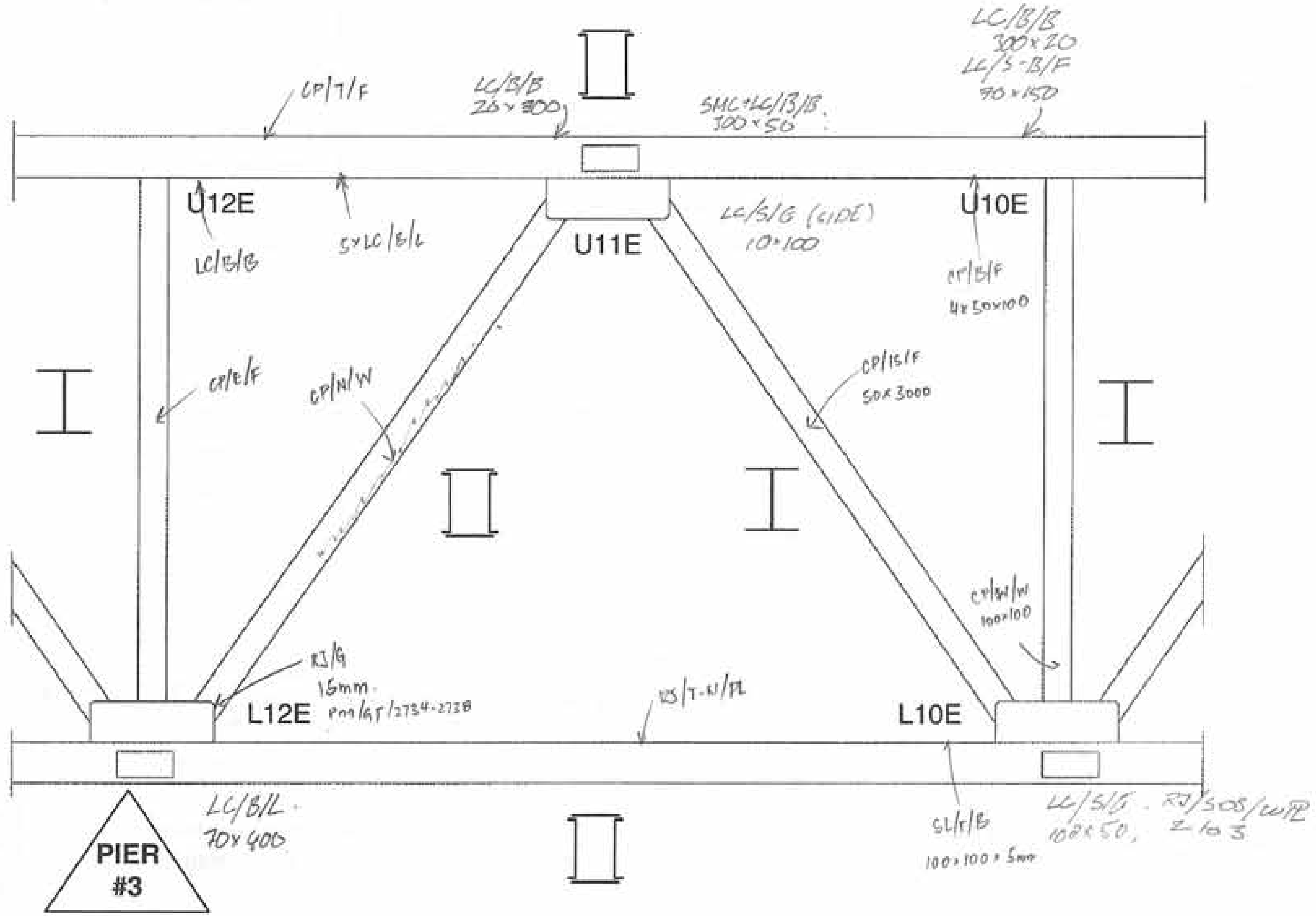
Span: E.EXT Truss: /

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN E EXT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: [illegible]

Span: E.EXT Truss: /

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

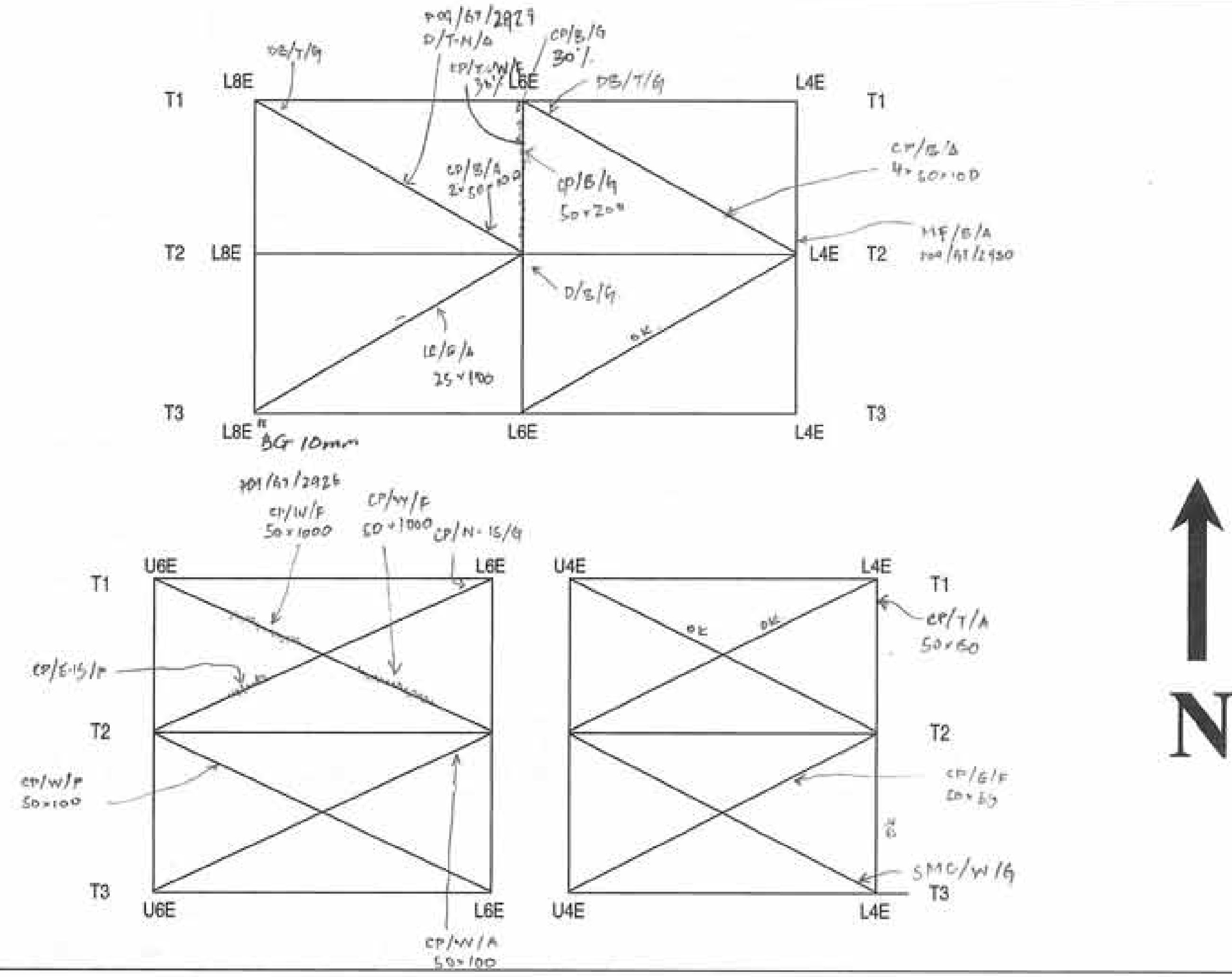
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165 FOOT SPAN

SPAN 4

TRUSS WB



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: 4 Truss: WB

Date: Apr, 2009

Inspected By: GT + JH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

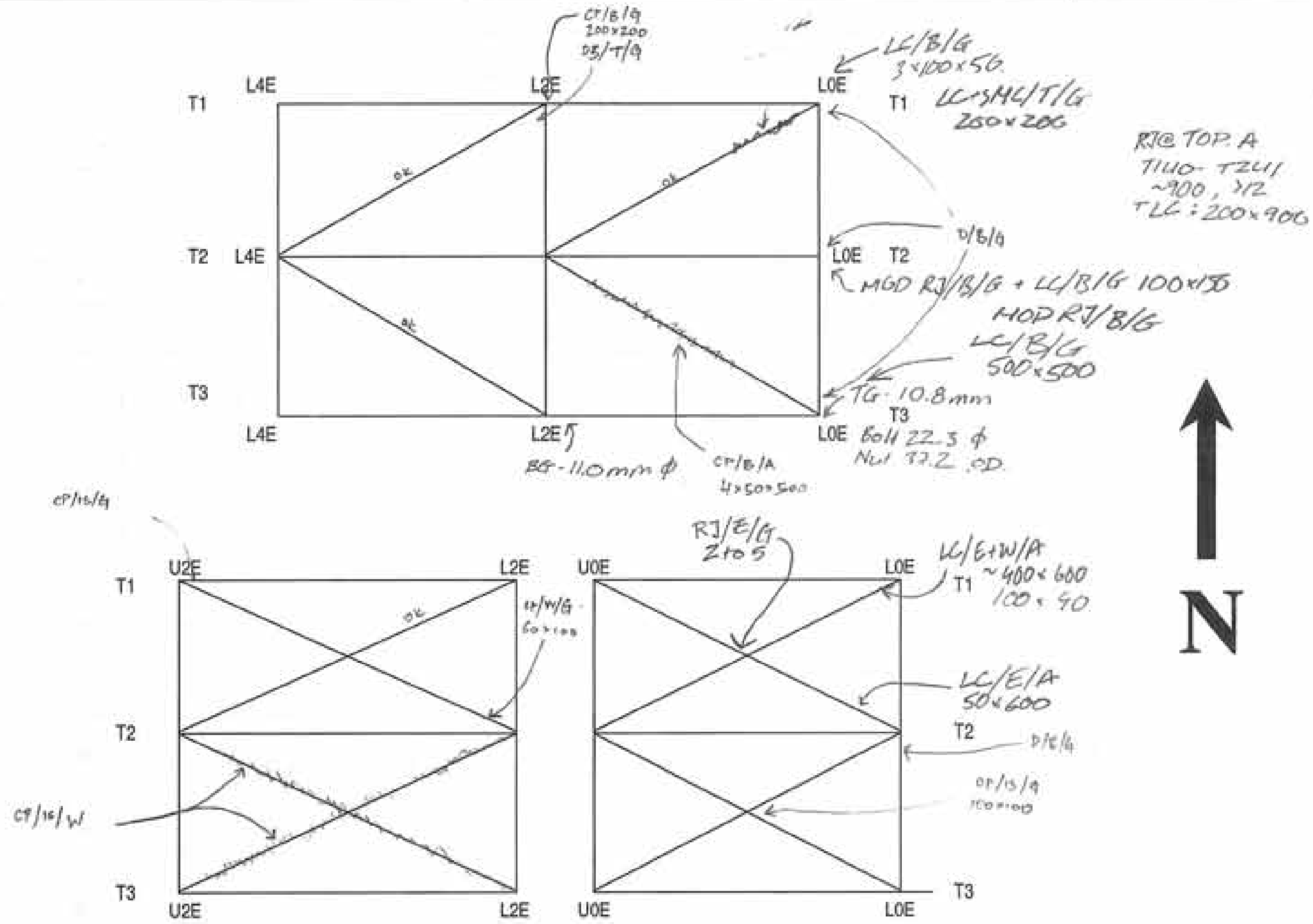
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN 4

TRUSS WB



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

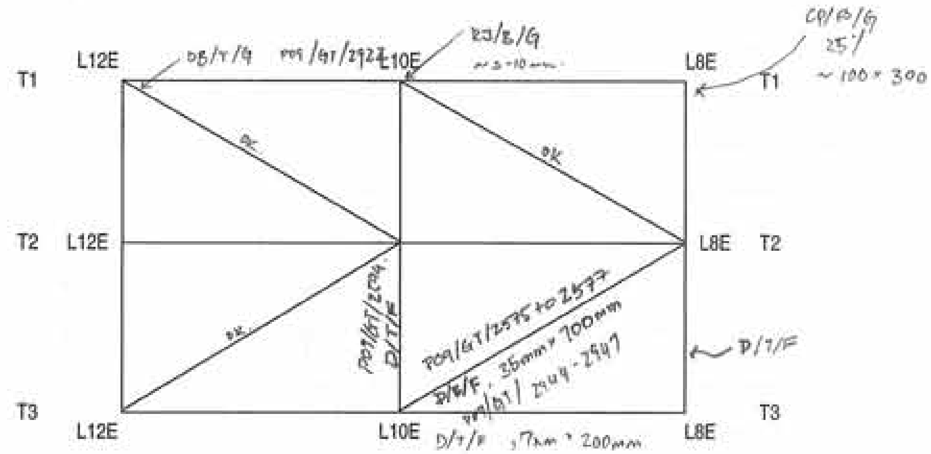
Date: AUG, 2009

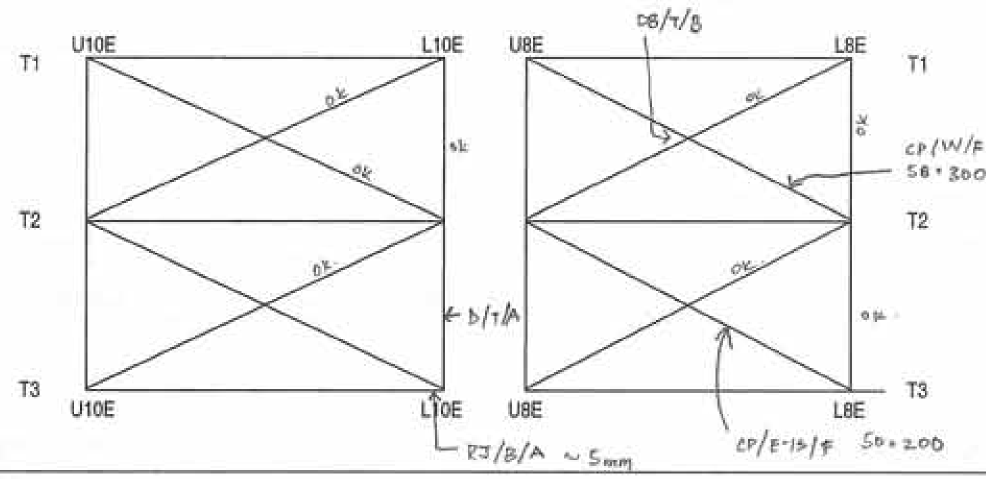
Inspected By: GZ + DP

Span: 4 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN 4 TRUSS WB





N

MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

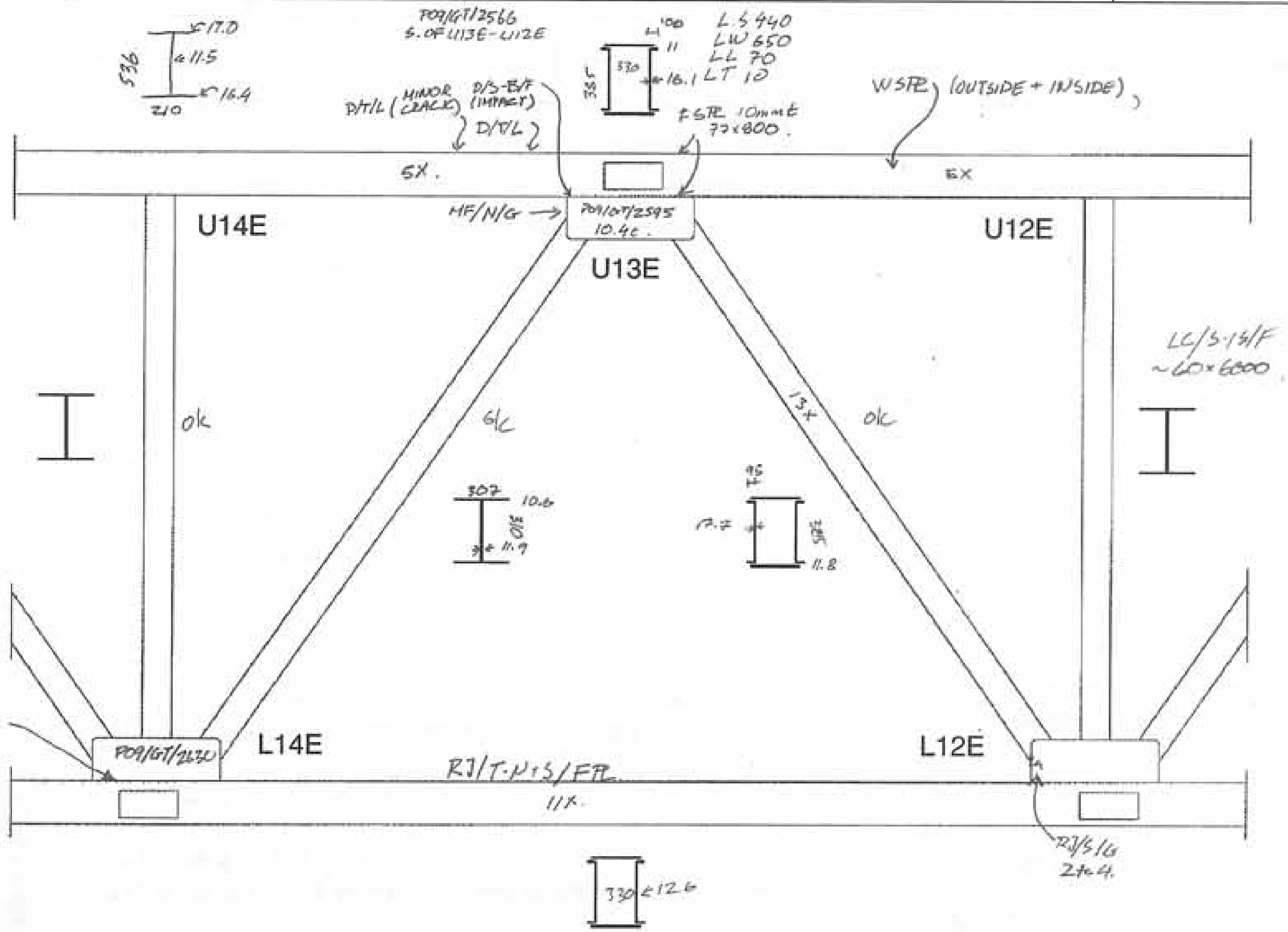
Inspected By: GT + DH

Span: 4 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

South Structure
East Interior Span

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E.INT. TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

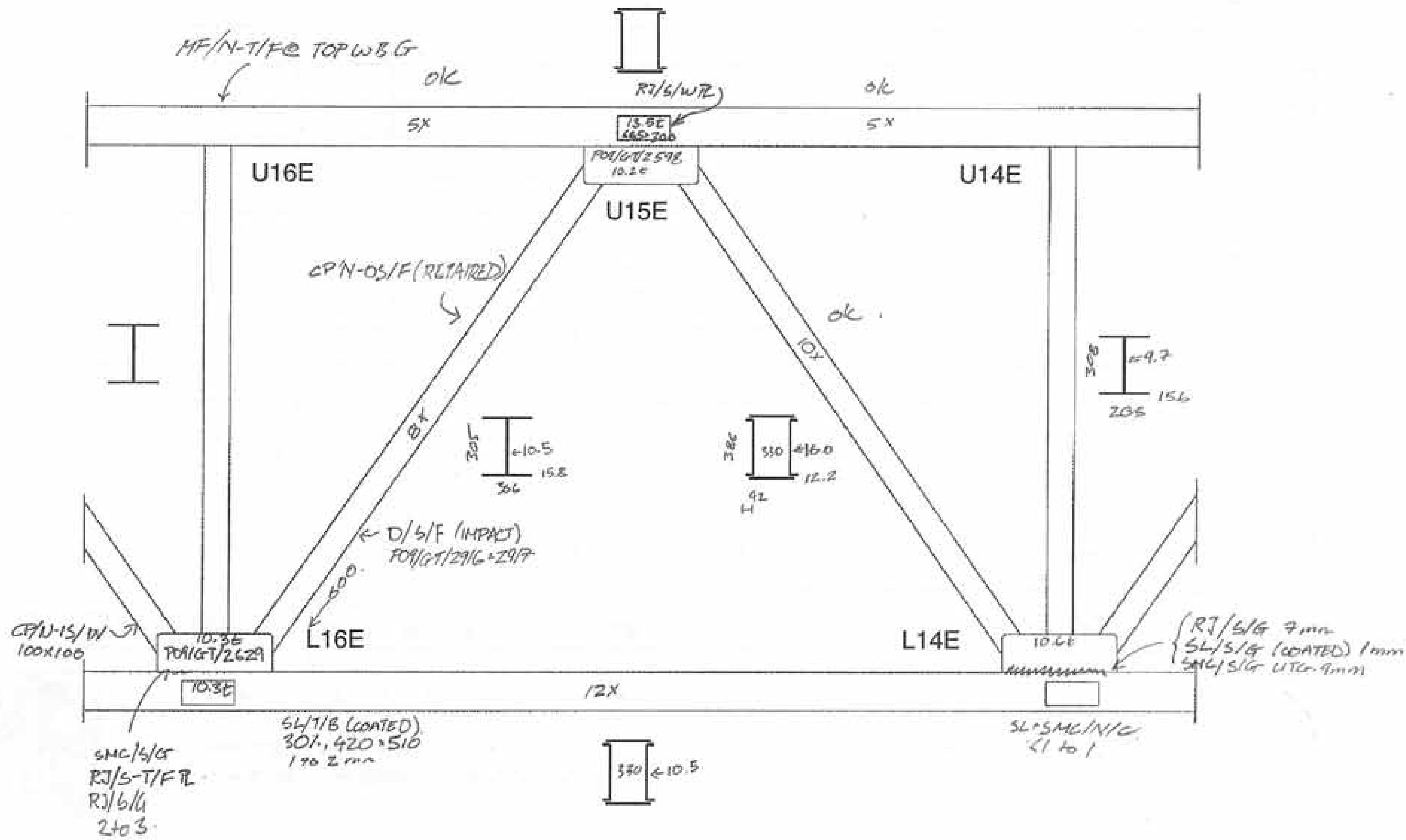
Date: AUG, 2009

Inspected By: GT+DH

Span: E, INT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
T3U15-T3L14 ANGLE PL				75mm, 9.5mmt

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E-INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

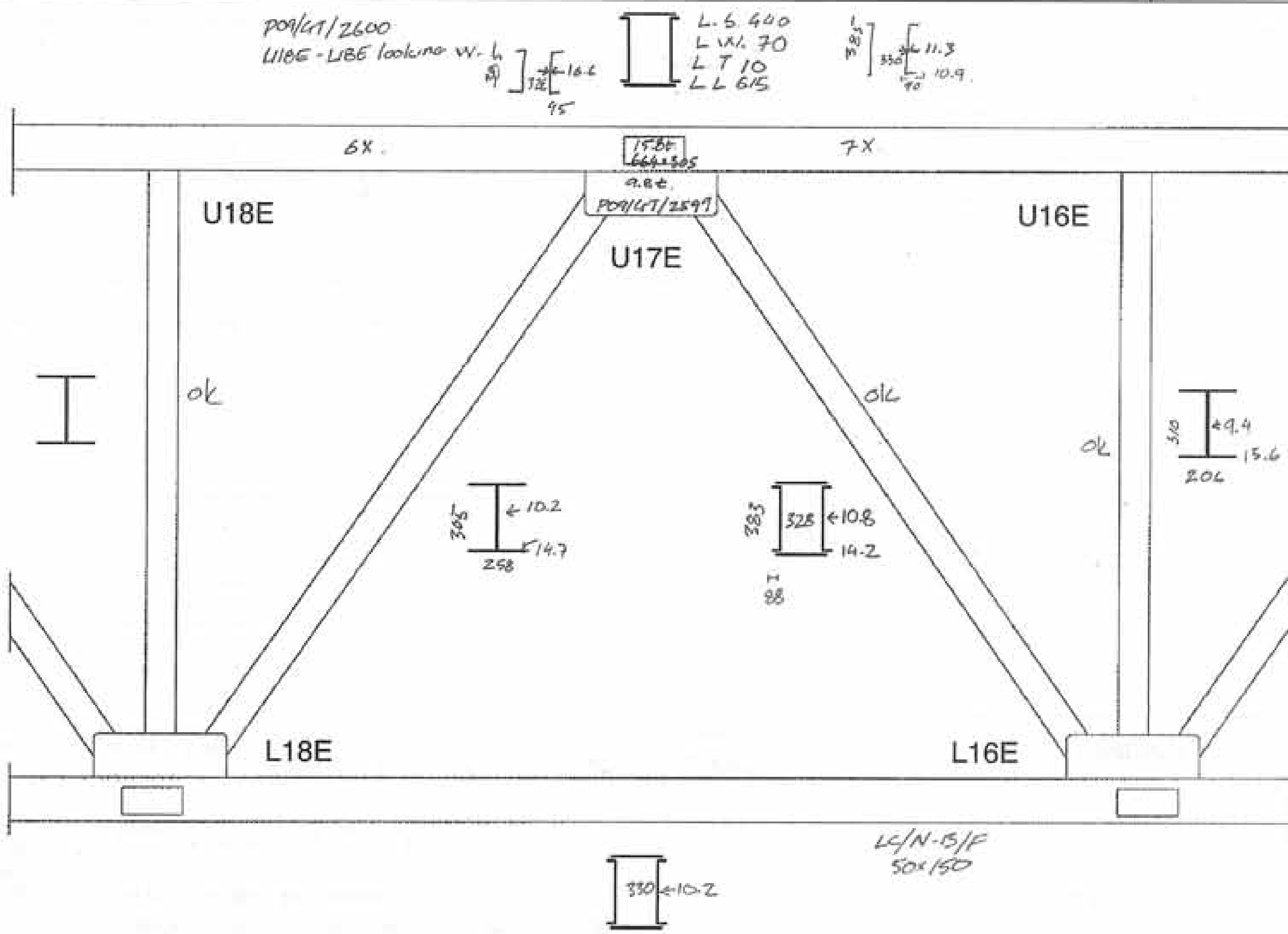
Span: E.INT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT + DH

Span: E, INT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

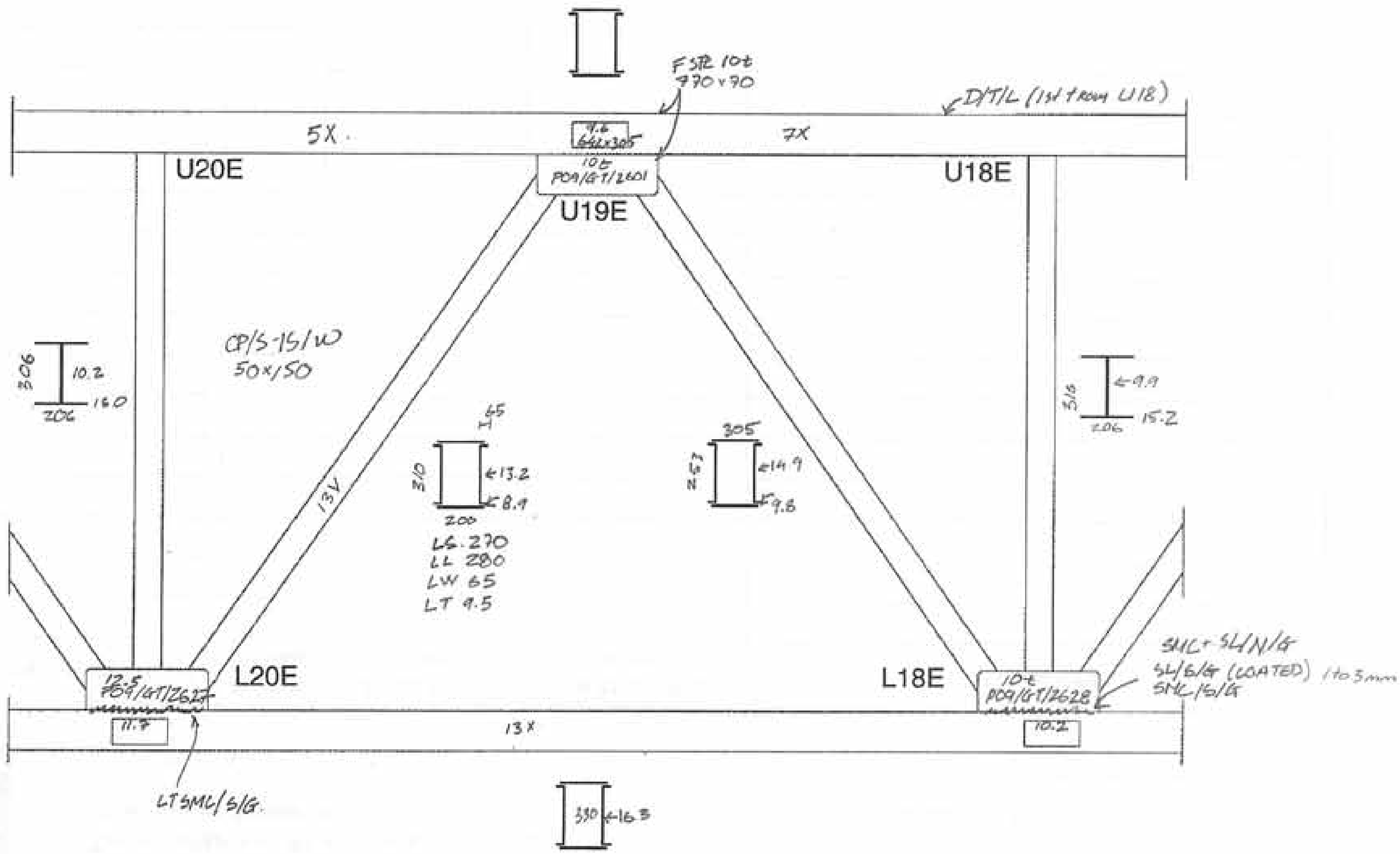
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN E. INT

TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

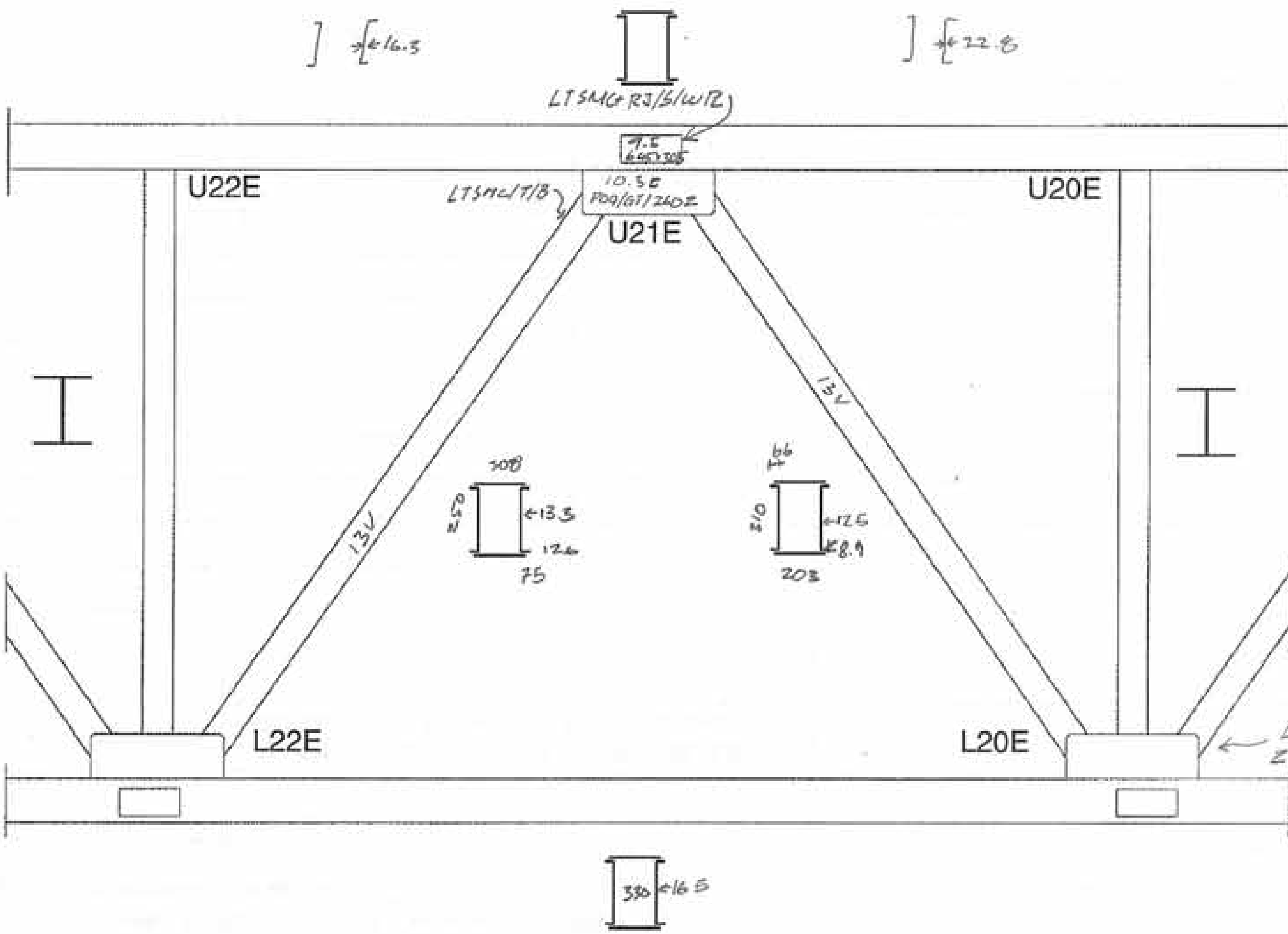
Span: E.INT Truss: 3

Date: AUG, 2009

Inspected By: [illegible]

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E INT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

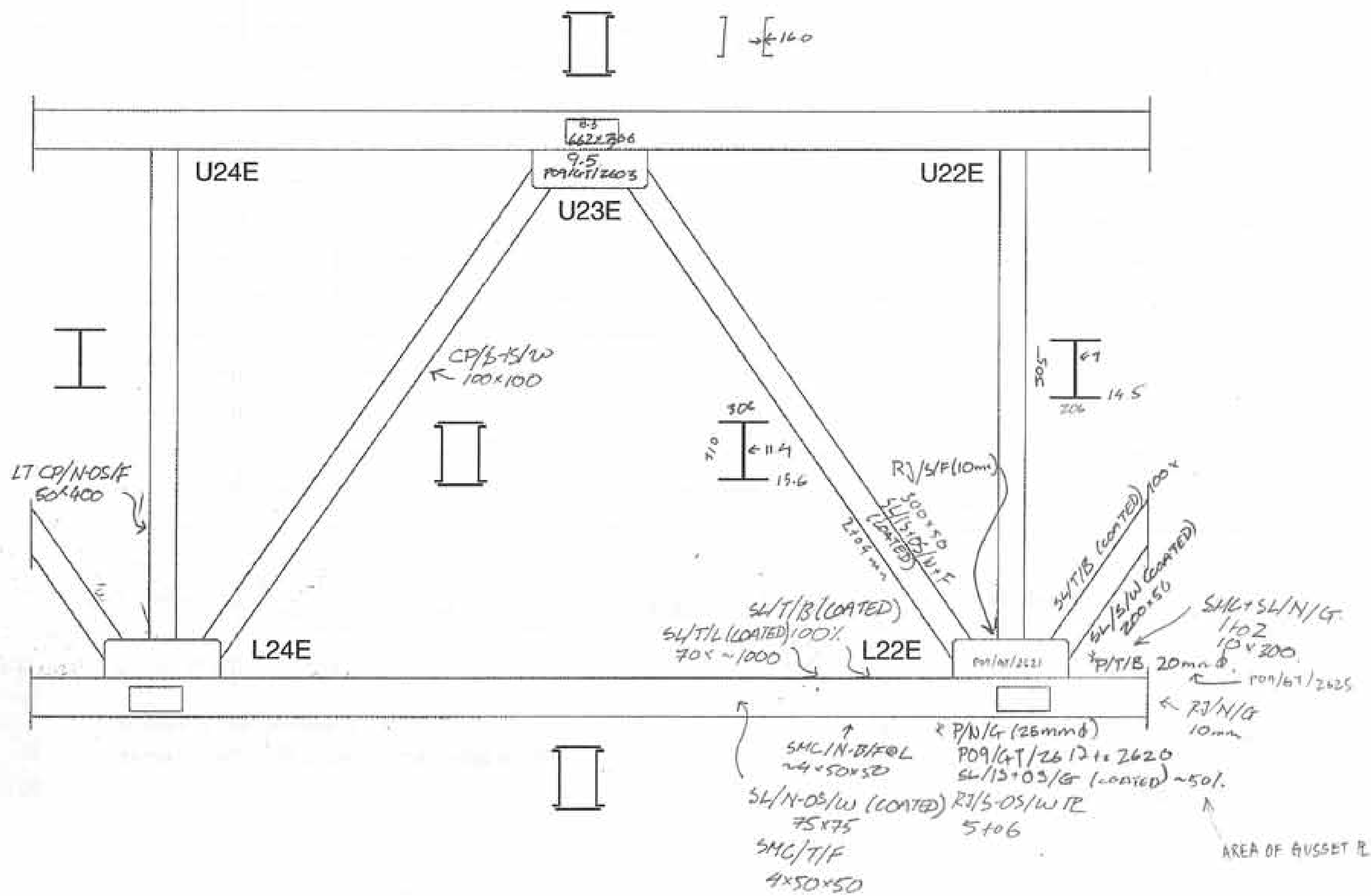
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN E. INT

TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: ST-DH

Span: E INT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
L2 2E G				USG 4.4, 7.6, 10.7, 4.8, 5.6
L2 2E-U2 3E F				UST. 12.8, 12.2, 18.14

MRC

A member of MMM GROUP

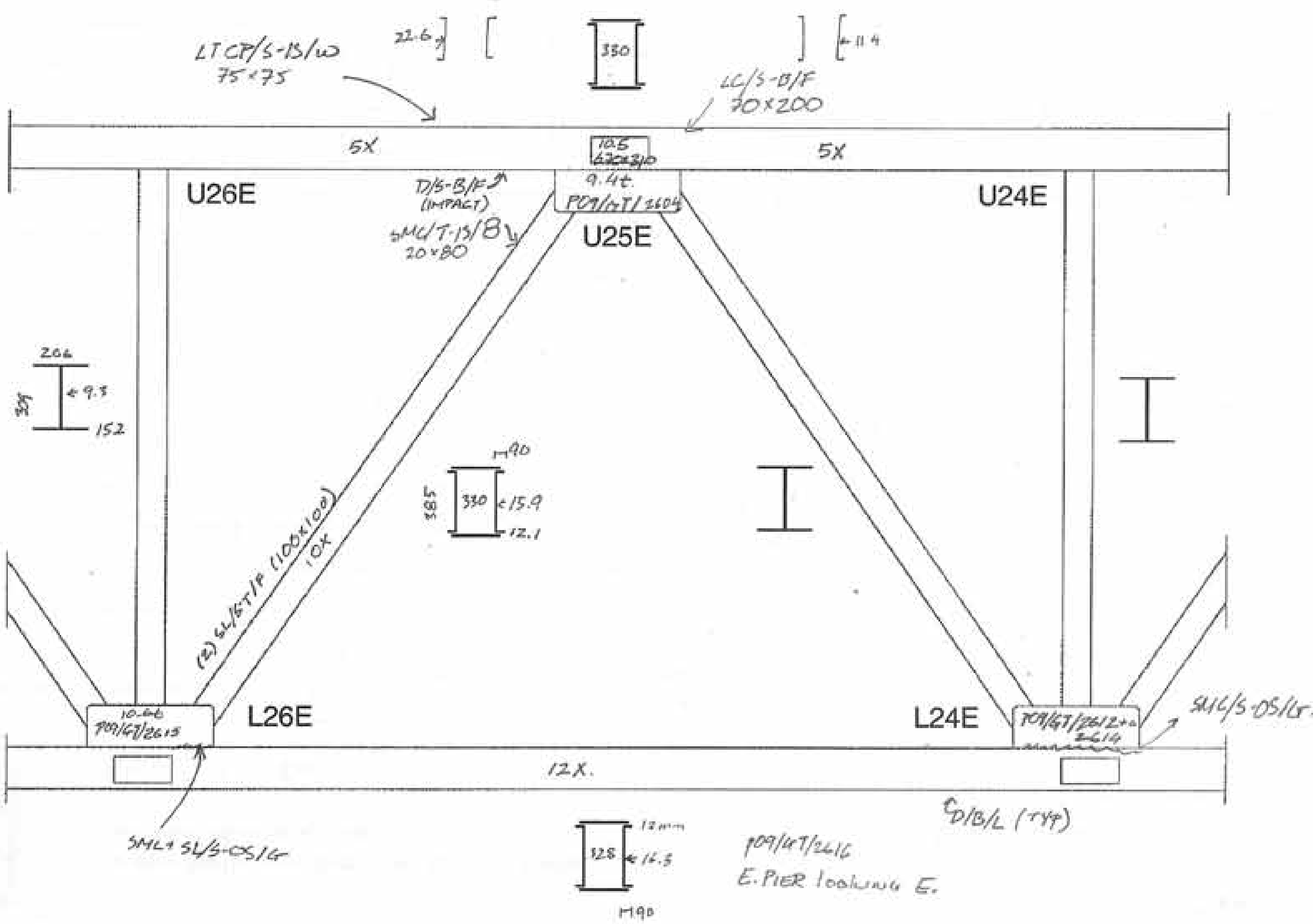
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN E INT

TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

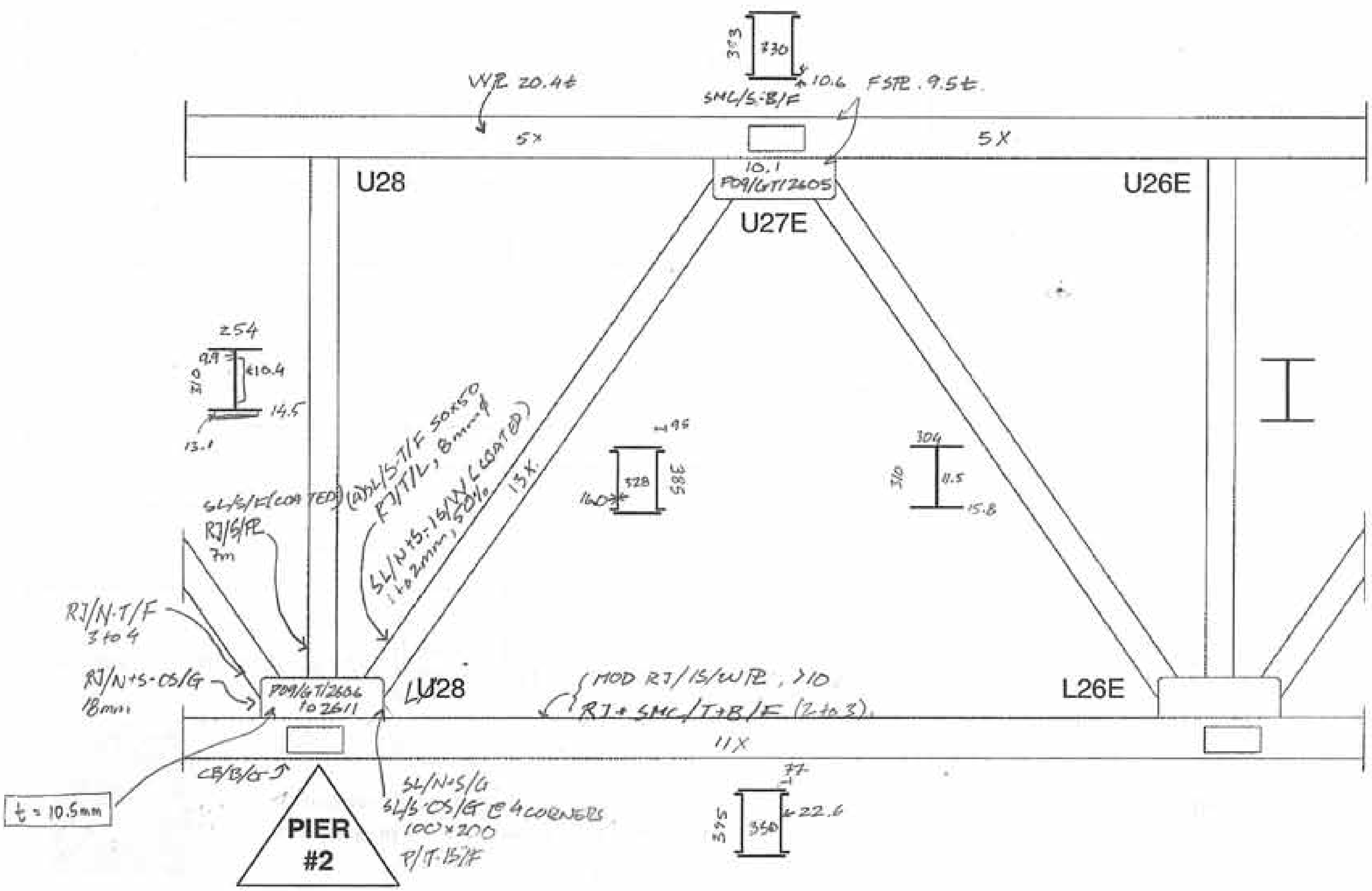
Span: E.INT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E. INT TRUSS 3



Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

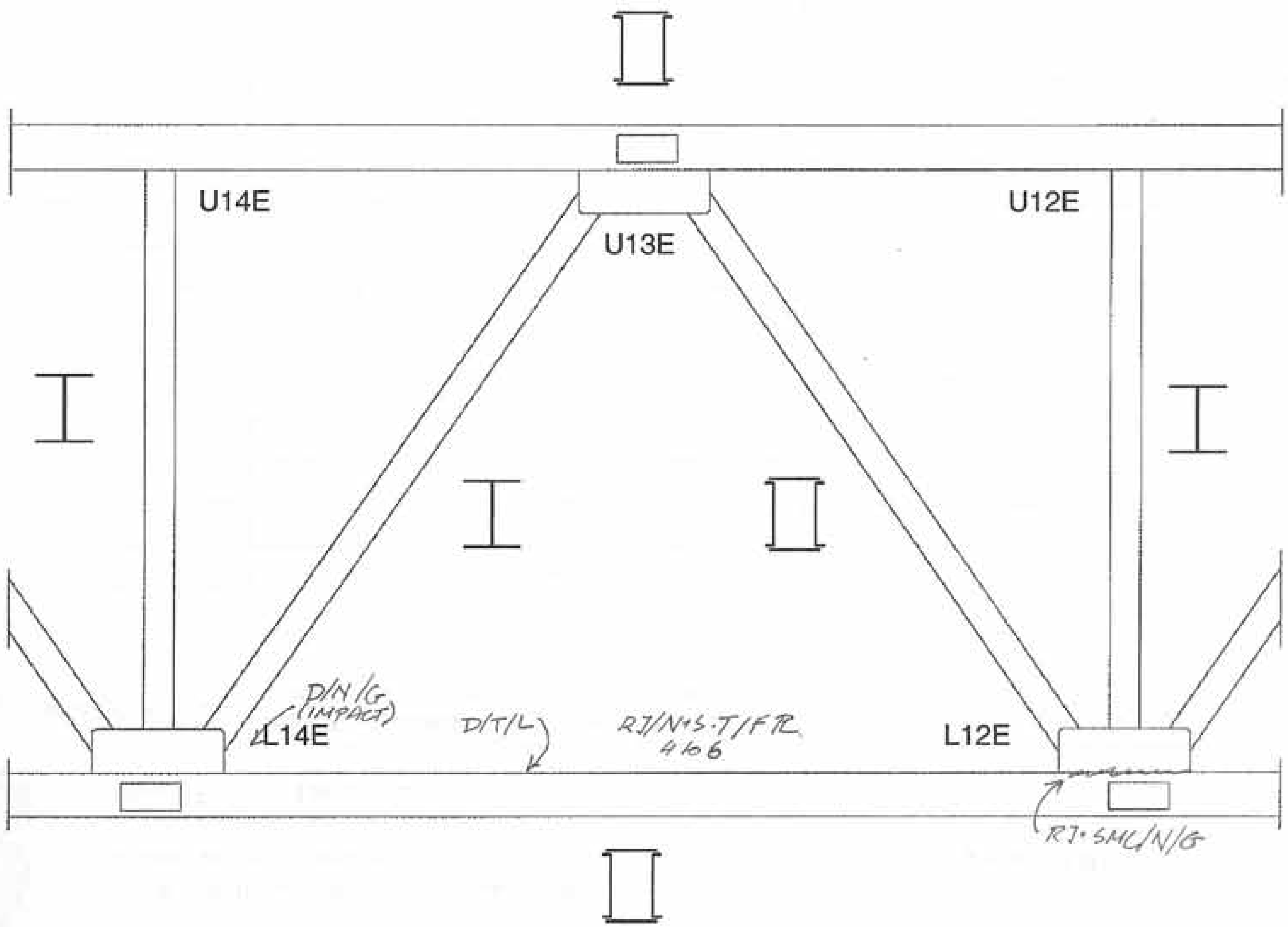
Date: AUG, 2009

Inspected By: GT-DH

Span: E.INT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
L28 SOUTH GUSSET SOU FACE				UTG. 10.5, 8.5, 9.6, 8.5, 9.6, 6.6, 7.1, 8.0
N-GUSSET				UTG. 9.1, 9.2, 7.5, 10, 35

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E.INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

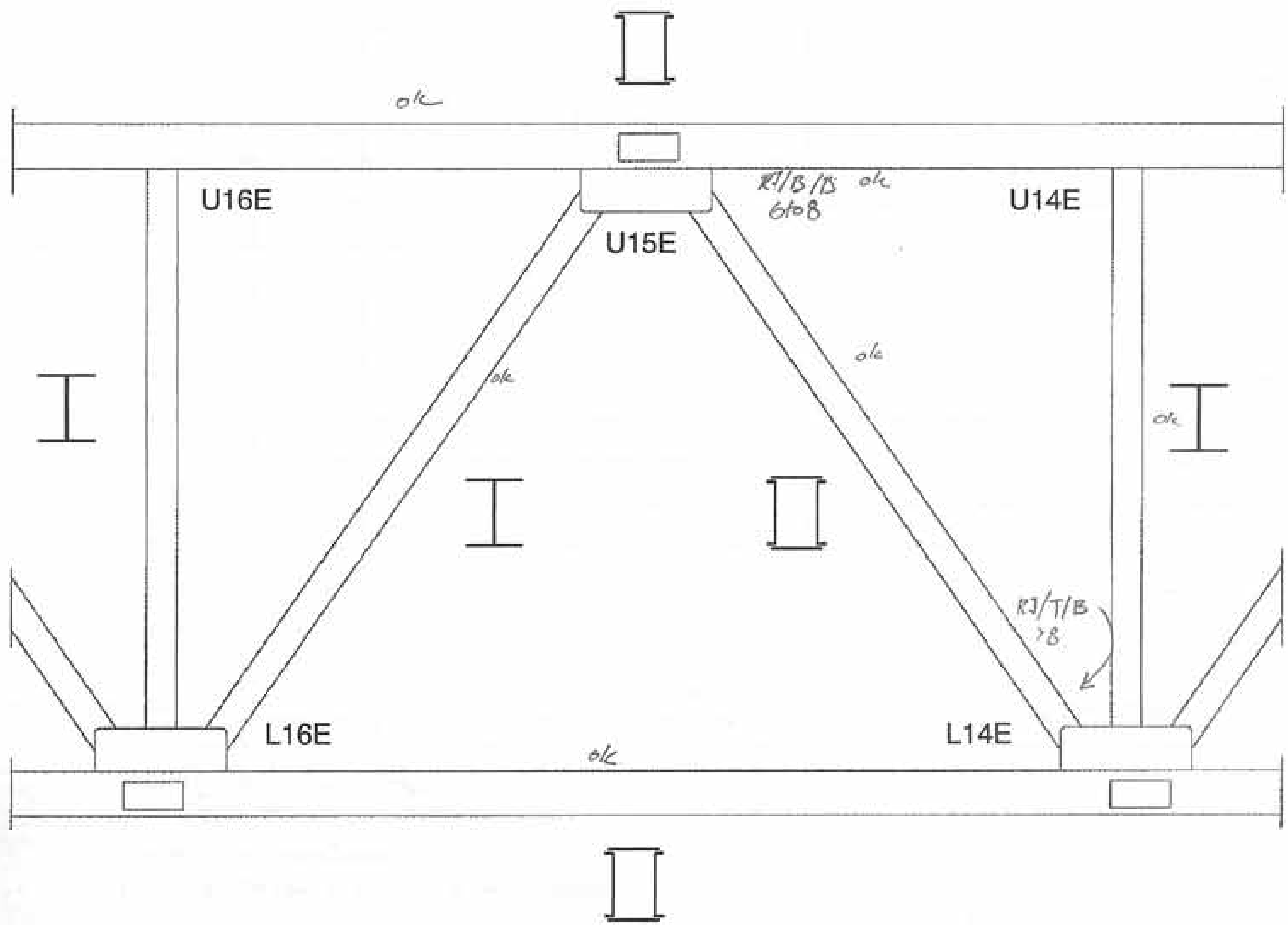
Date: AUG, 2009

Inspected By: GT + DH

Span: E, INT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E.INT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E.INT Truss: 2

Date: AUG, 2009

Inspected By: GT-DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

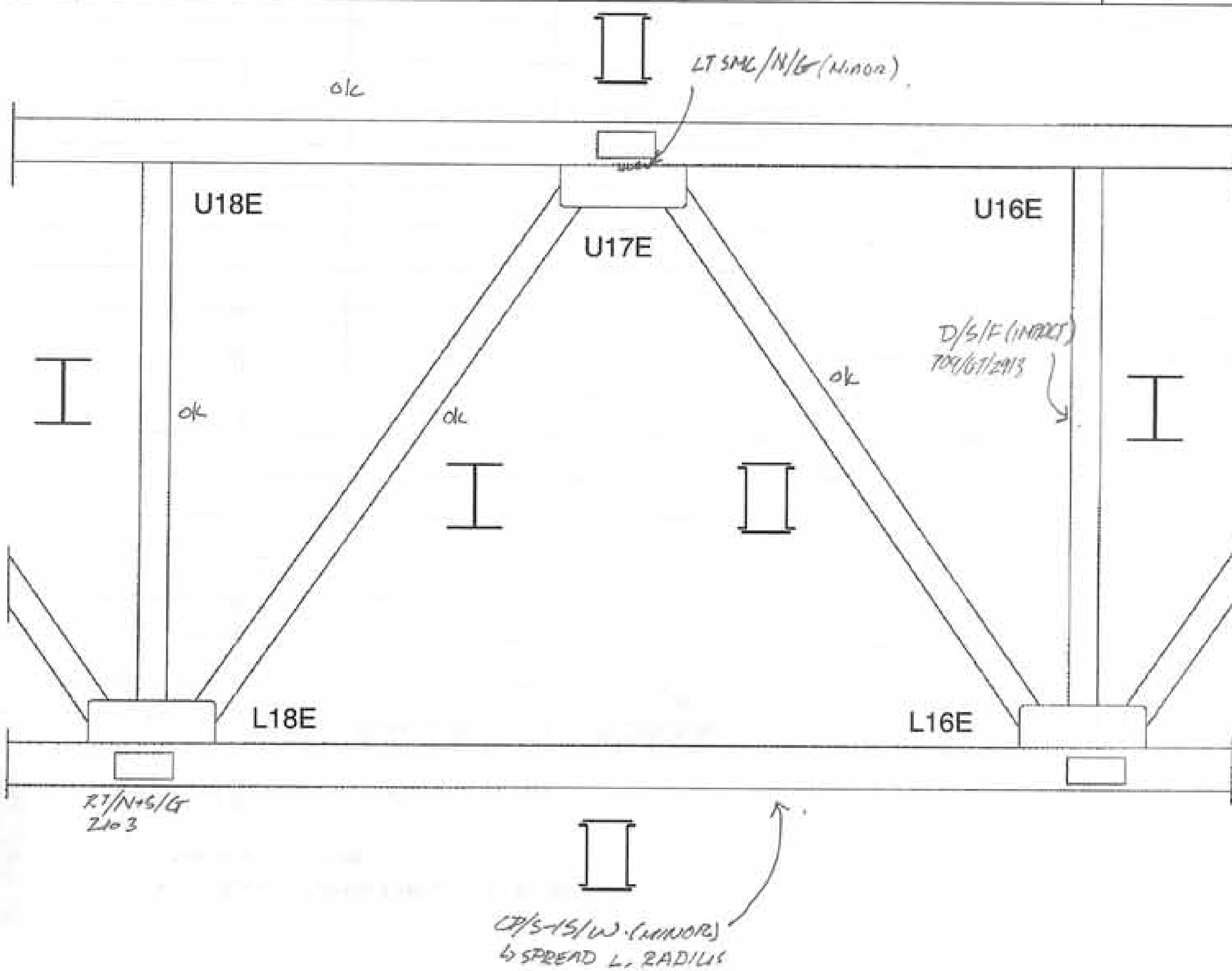
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN E. INT

TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

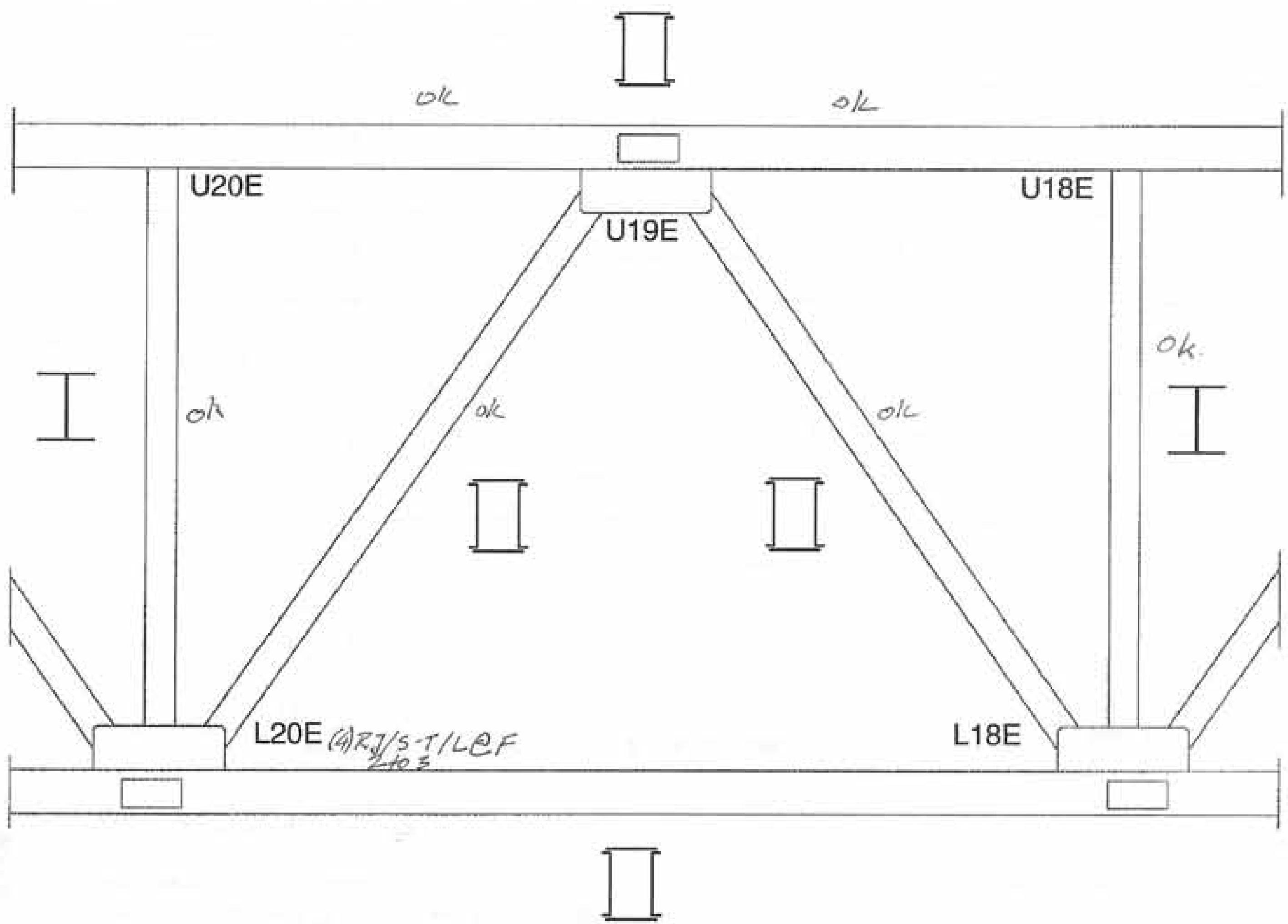
Date: AUG, 2009

Inspected By: GT + DM

Span: E.INT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

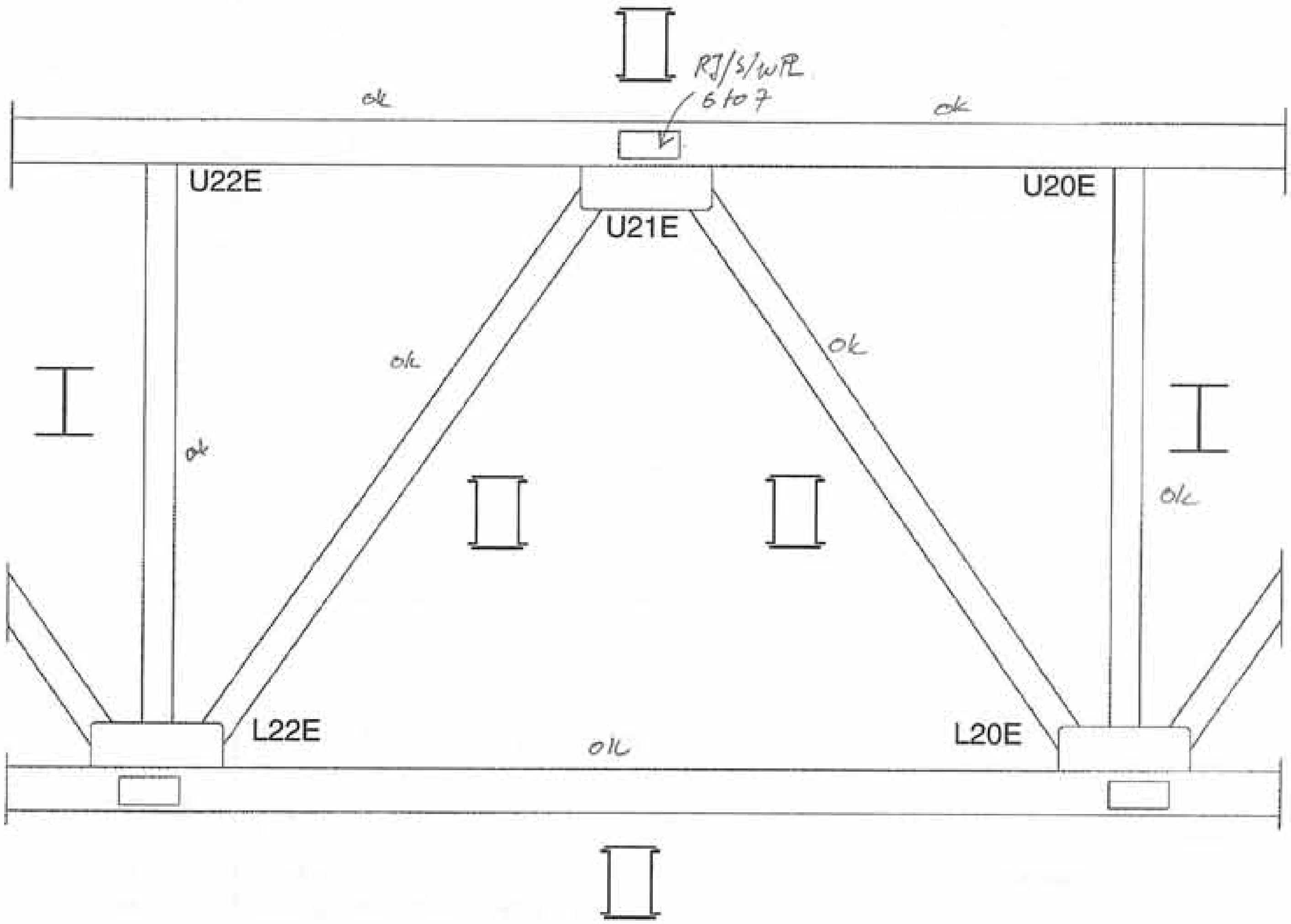
Date: AUG, 2009

Inspected By: GT + DH

Span: E. INT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E. INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

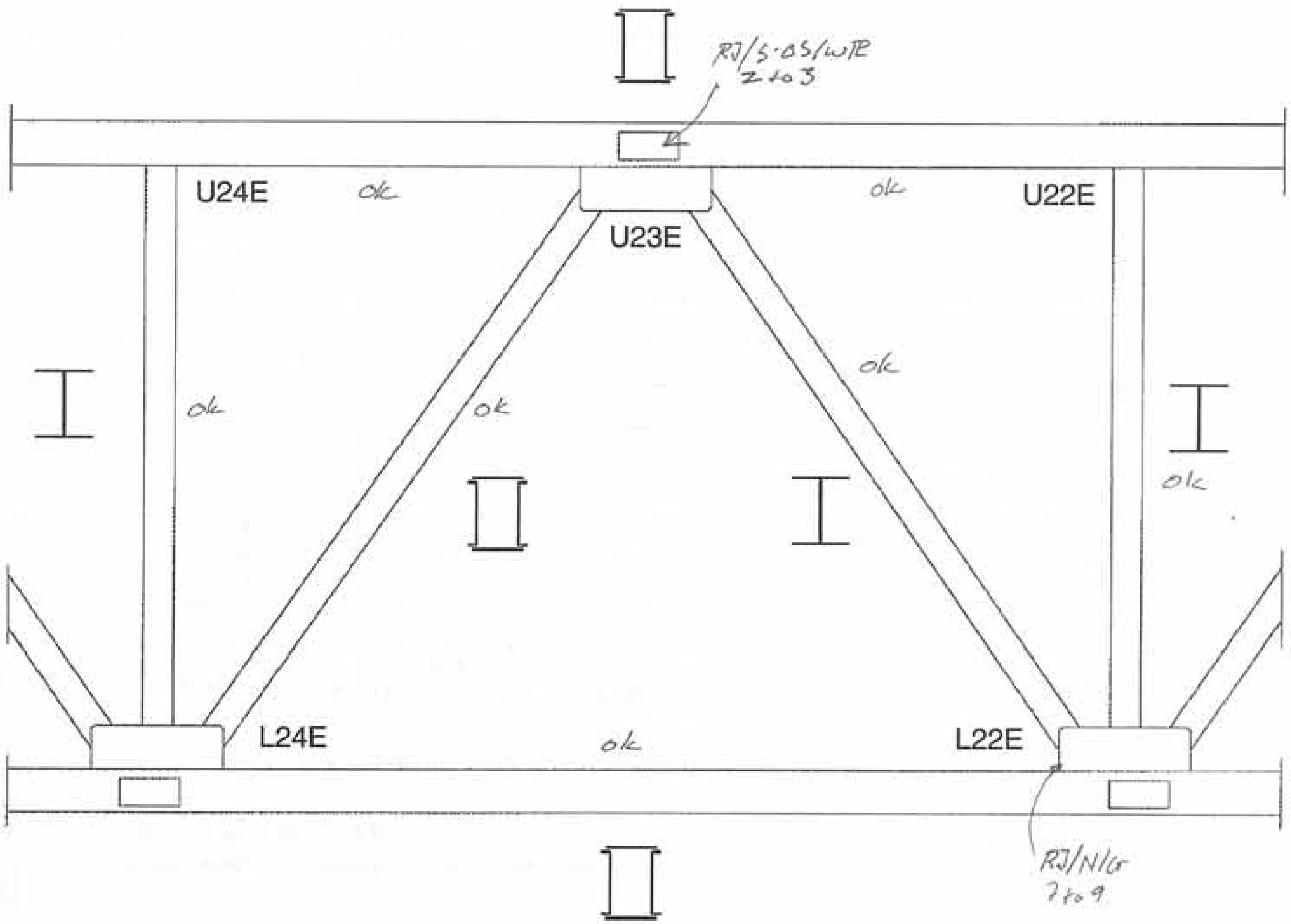
Span: E.INT Truss: 2

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

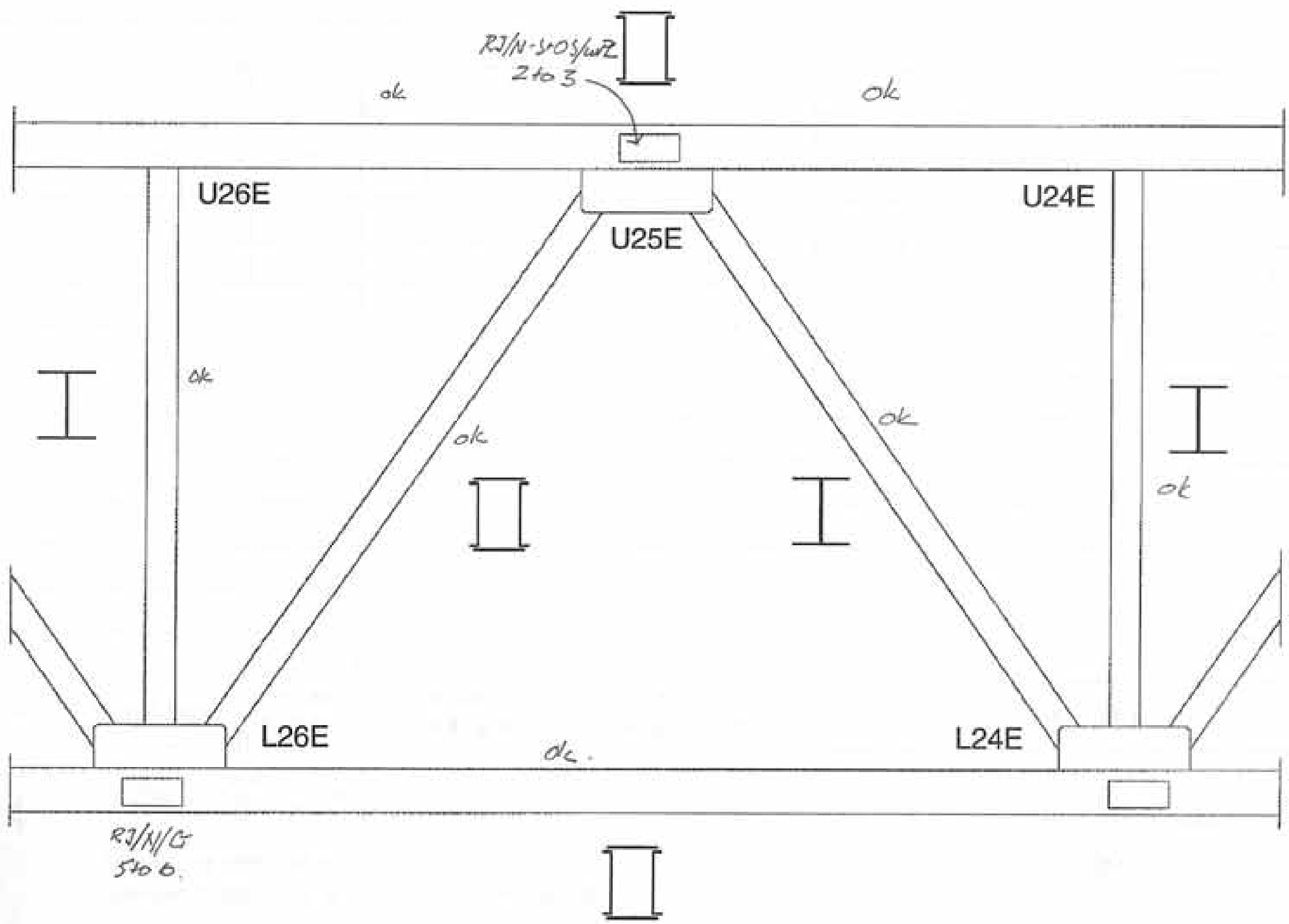
Span: E.INT Truss: 2

Date: AUG, 2009

Inspected By: [illegible]

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

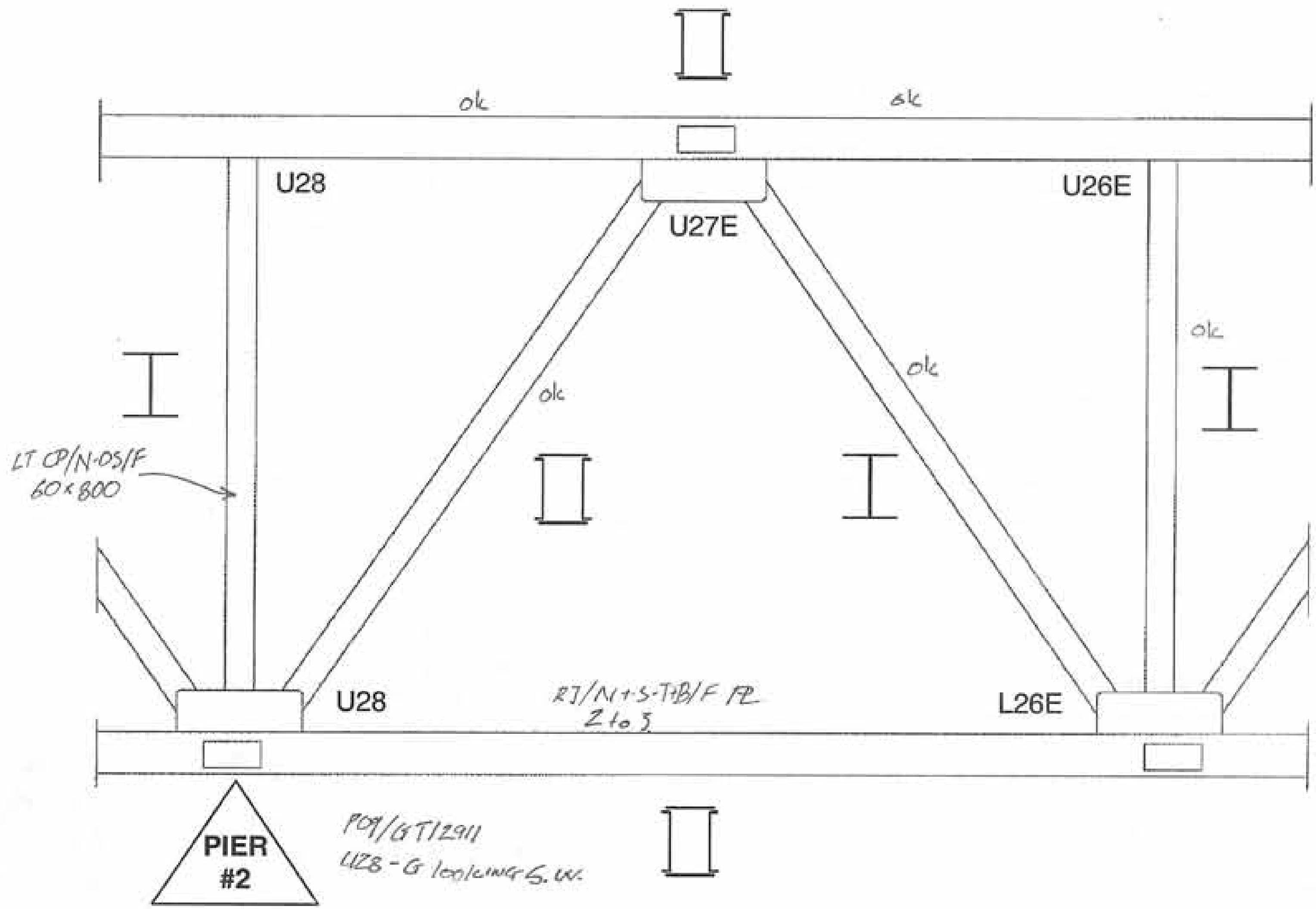
Span: E.INT Truss: 2

Date: AUG, 2009

Inspected By: GH - DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E. INT. TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

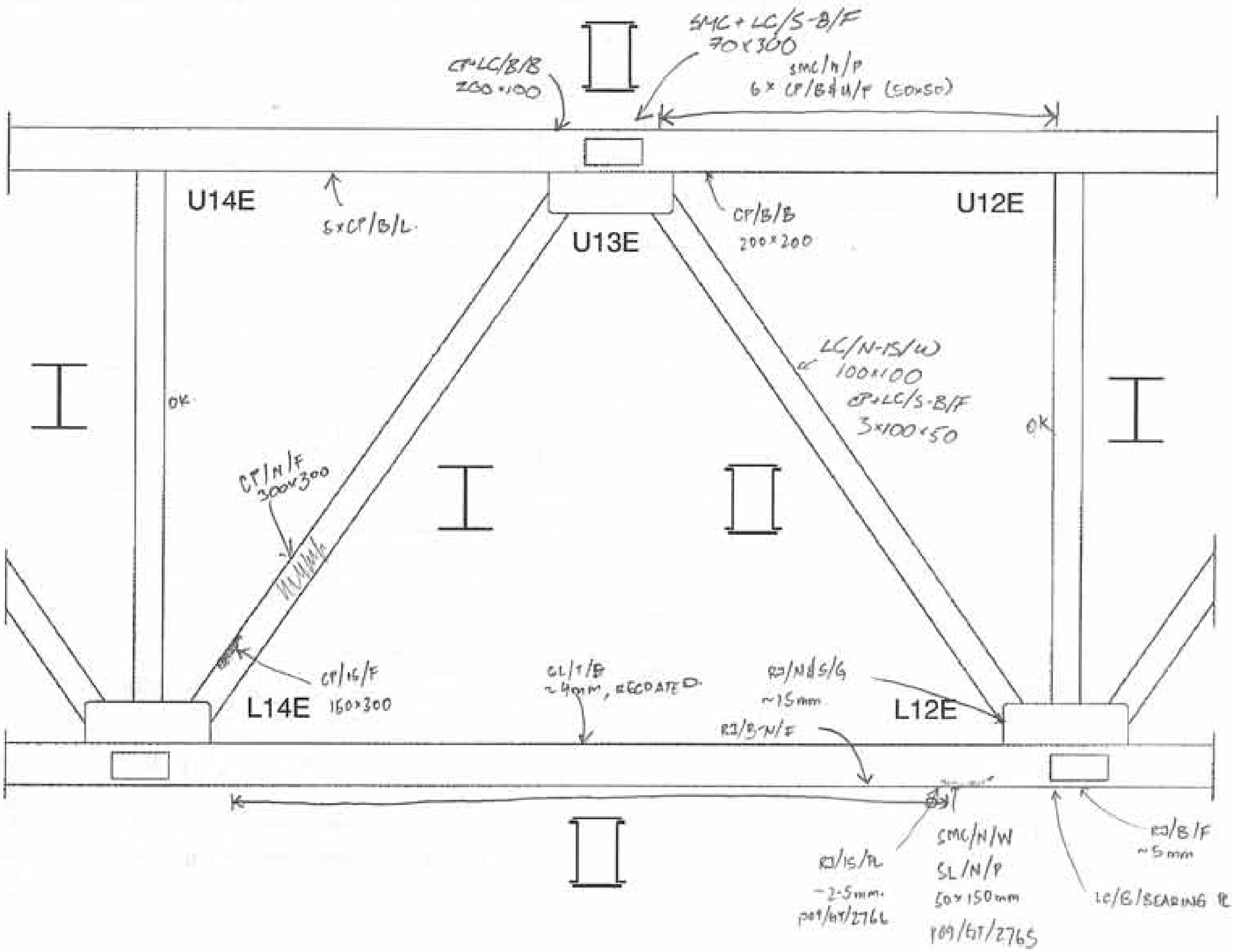
Span: E, EAST Truss: 2

Date: AUG, 2009

Inspected By: [illegible]

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E.INT. TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

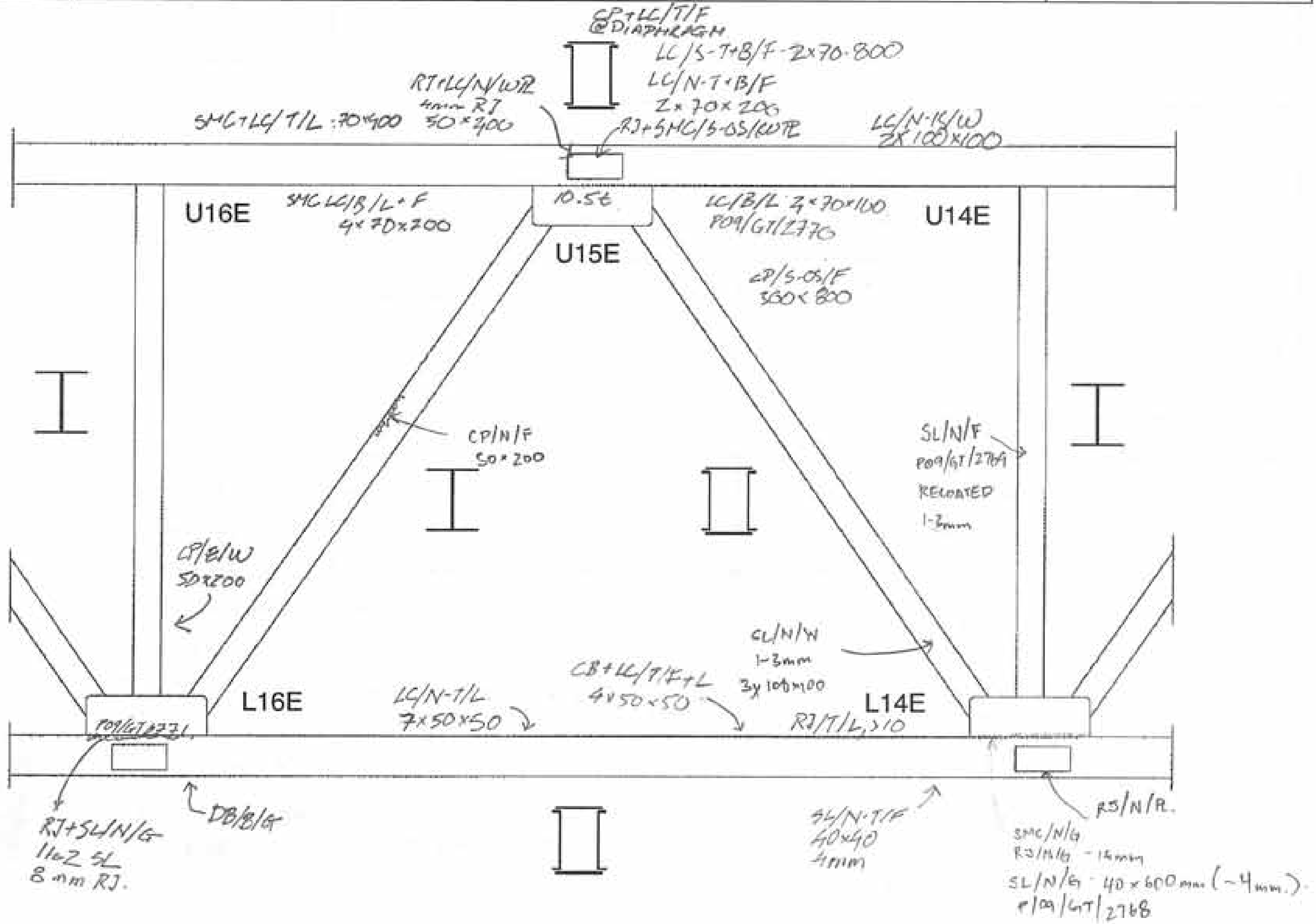
Span: E.INT Truss: 1

Date: AUG, 2009

Inspected By: GT / JH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E.INT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

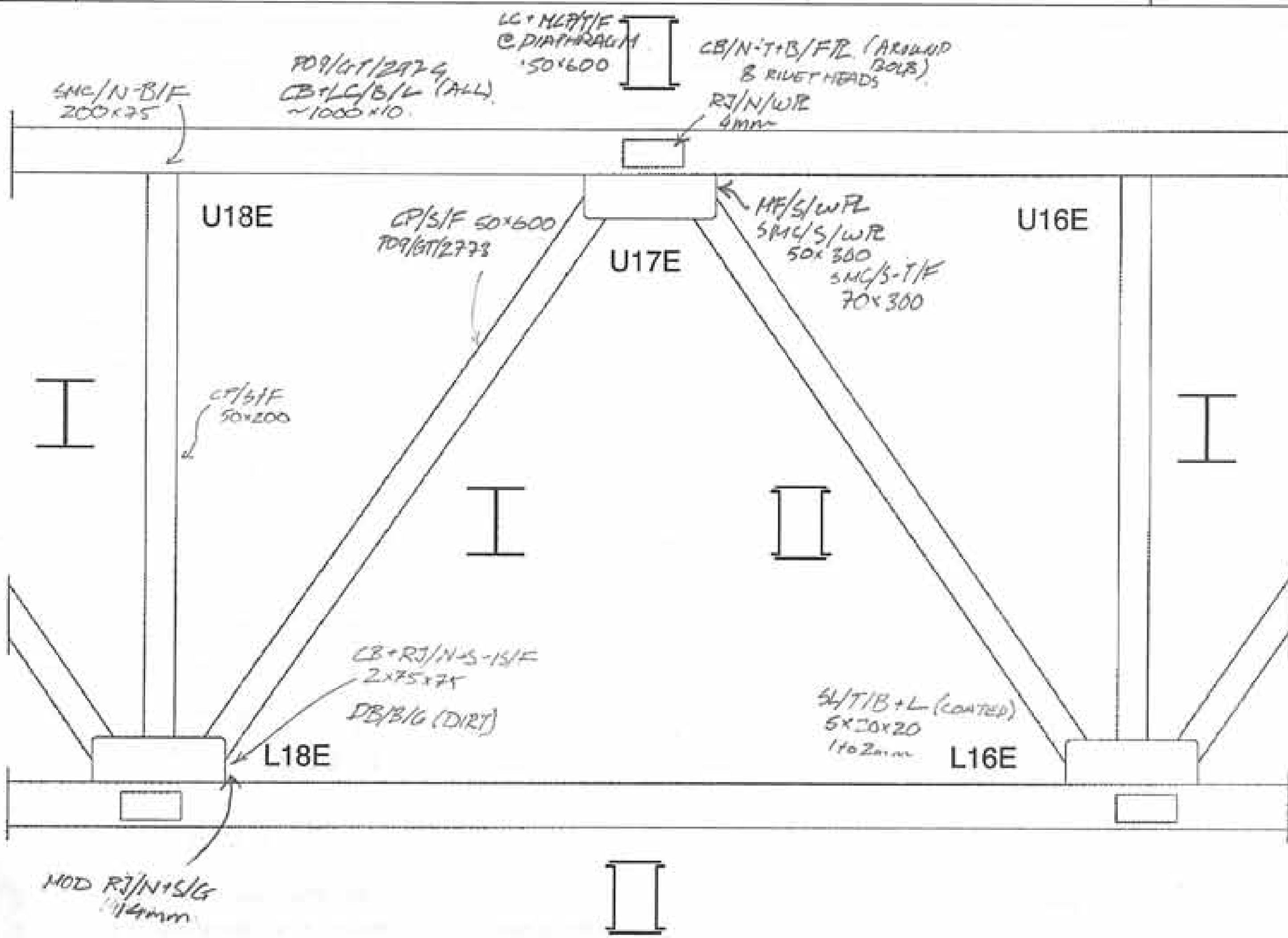
Span: E.INT Truss: 1

Date: AUG. 20, 2009

Inspected By: GT

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
11L/4E - N.GUSSET PL			10.3	UTG: 10.8, 9.7, 10.8, 8.7, 6.5

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT + DH

Span: E, INT Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

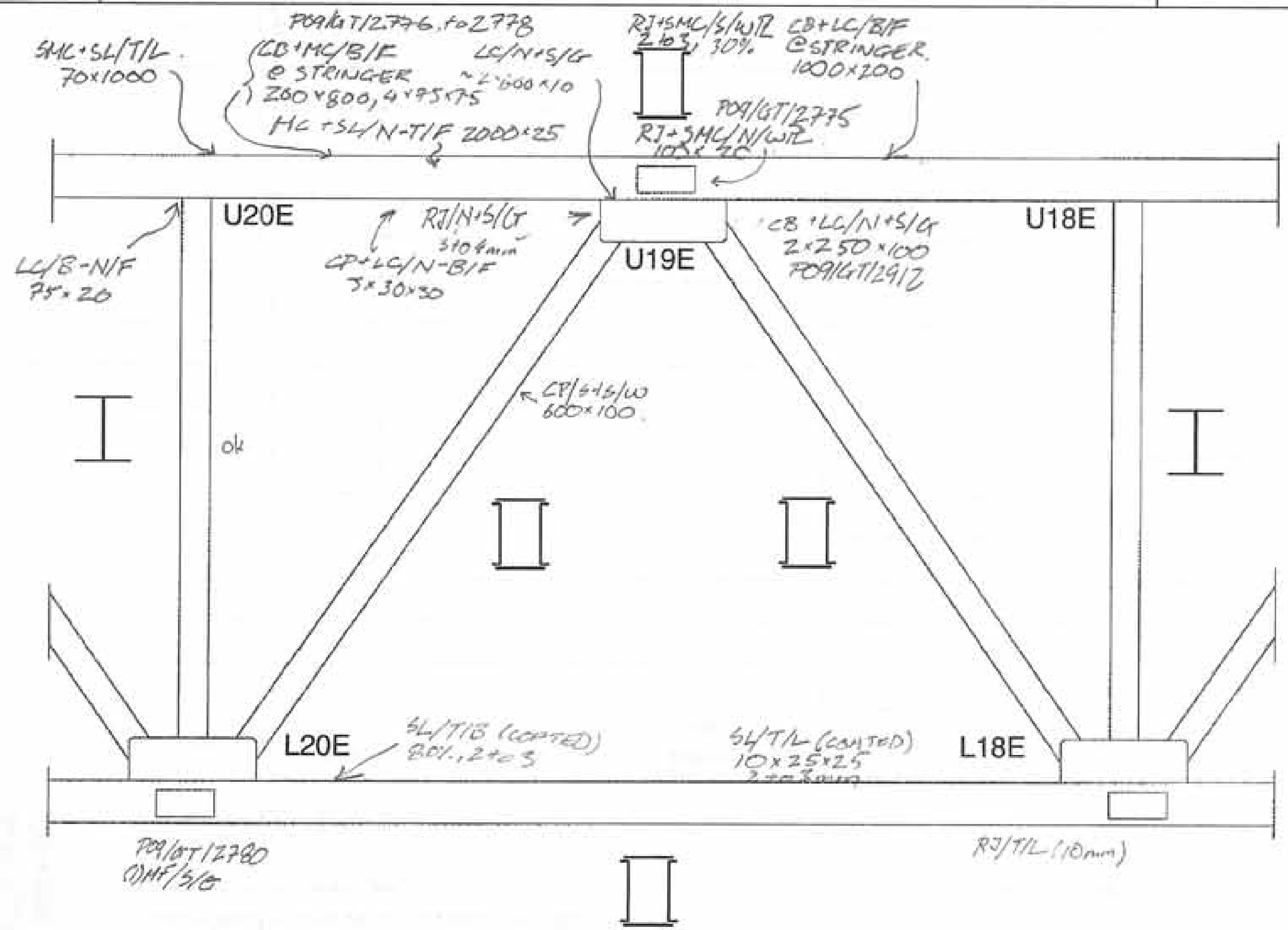
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN EINT

TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

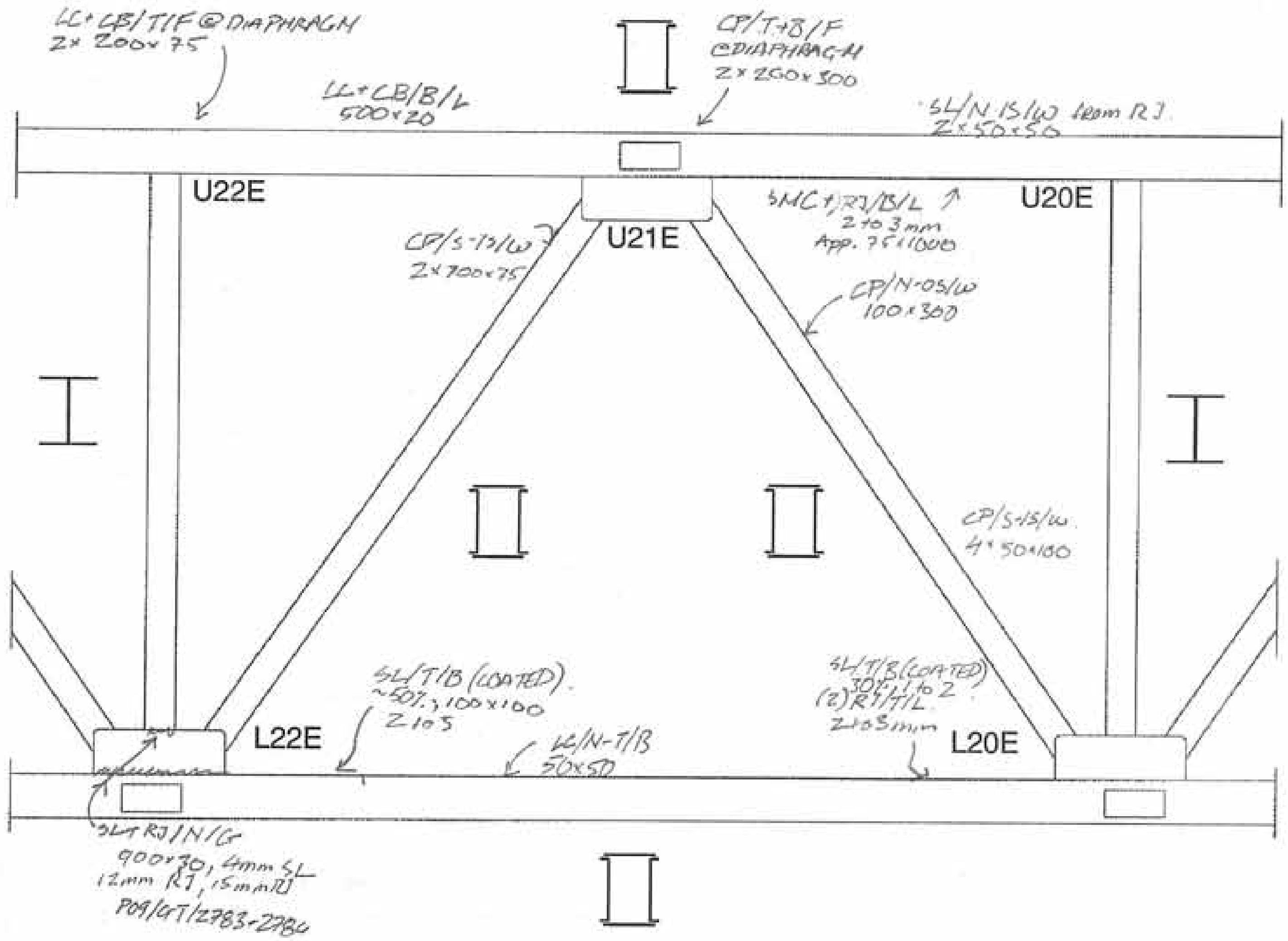
Date: AUG, 2009

Inspected By: GT + DH

Span: E.INT Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

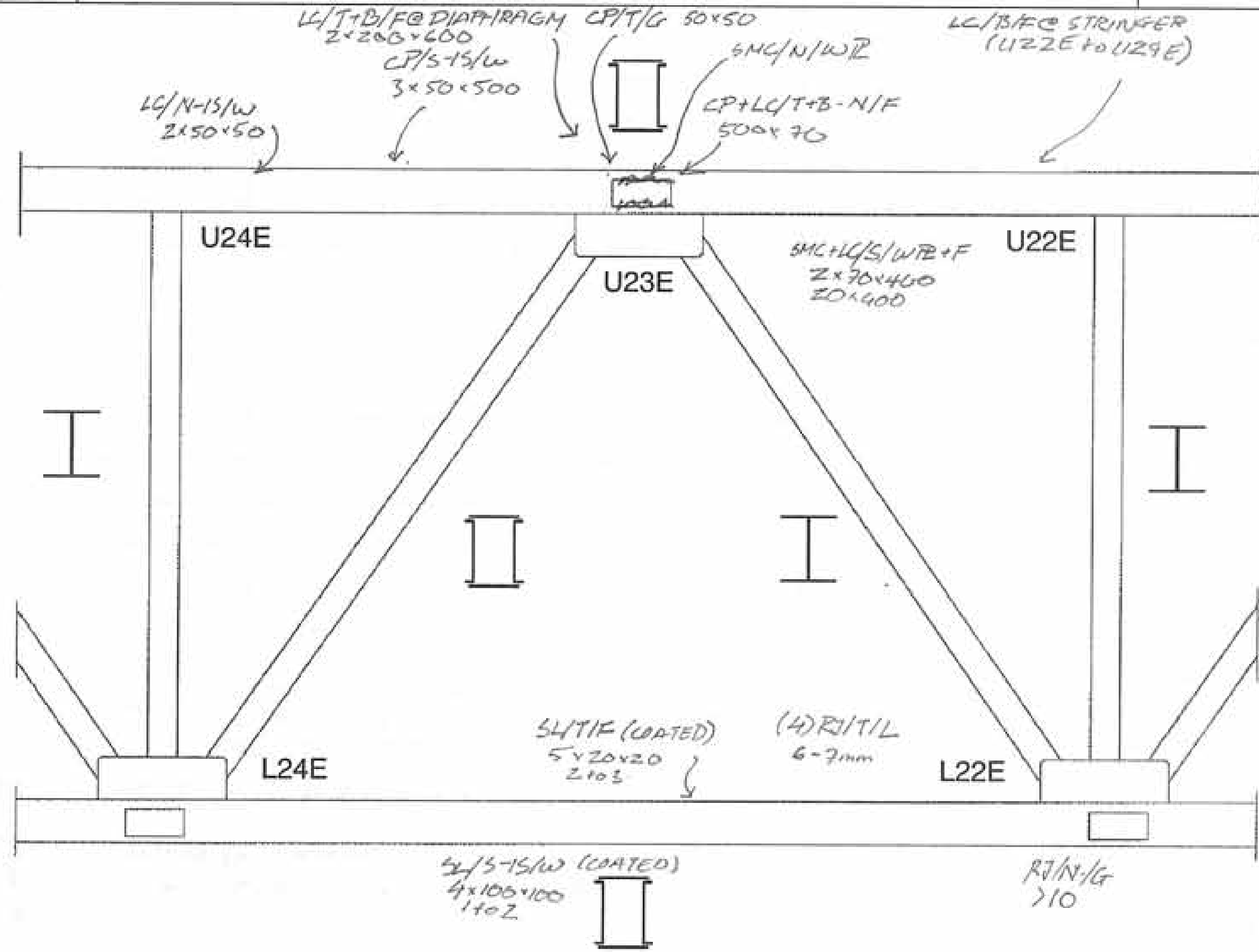
Span: E, INT Truss: 1

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
LZZE (NOR. FACE) G				UTG: 10.8, 6.9, 6.7

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E, INT Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

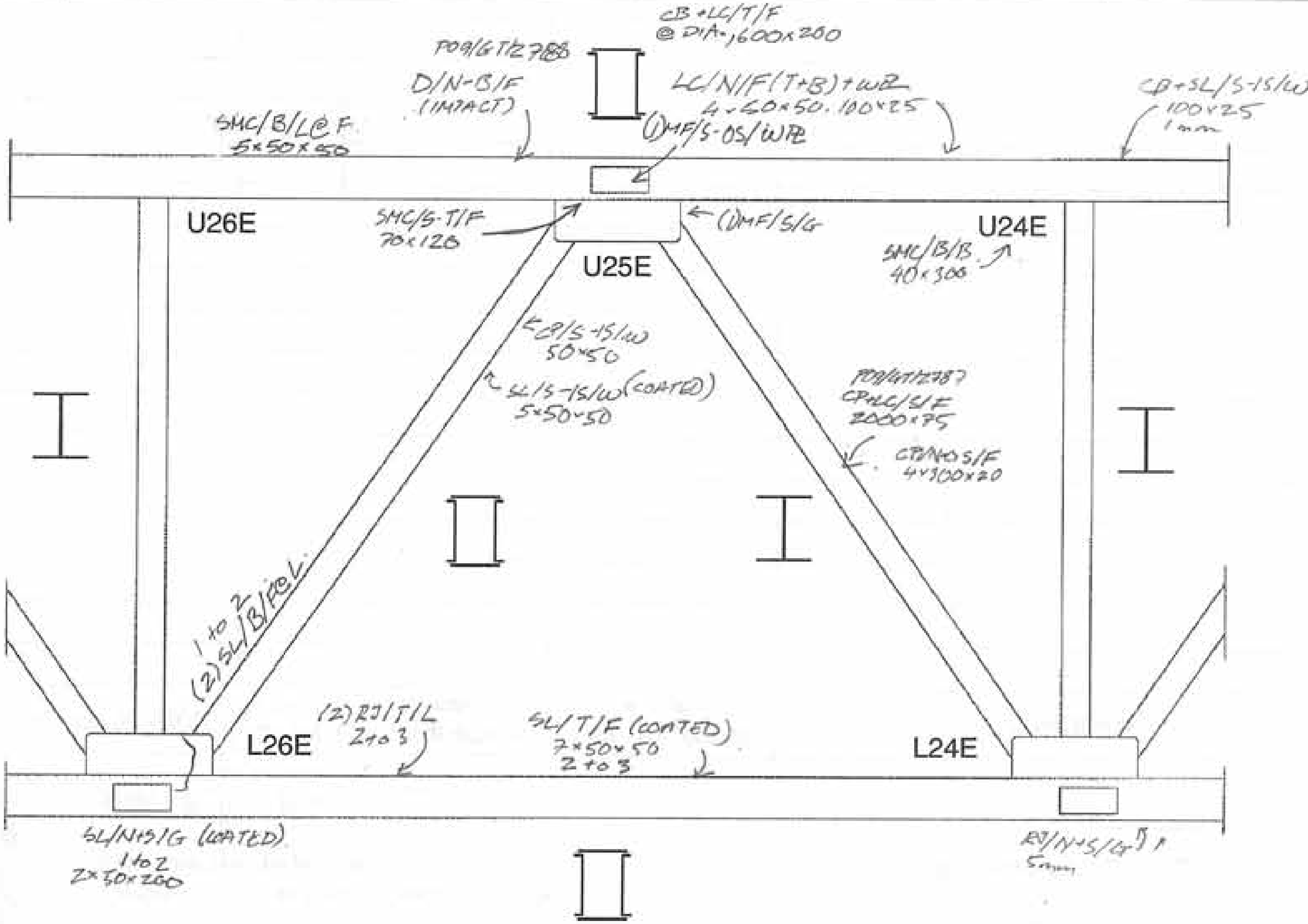
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

2 90' FOOT SPAN

SPAN E INT

TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

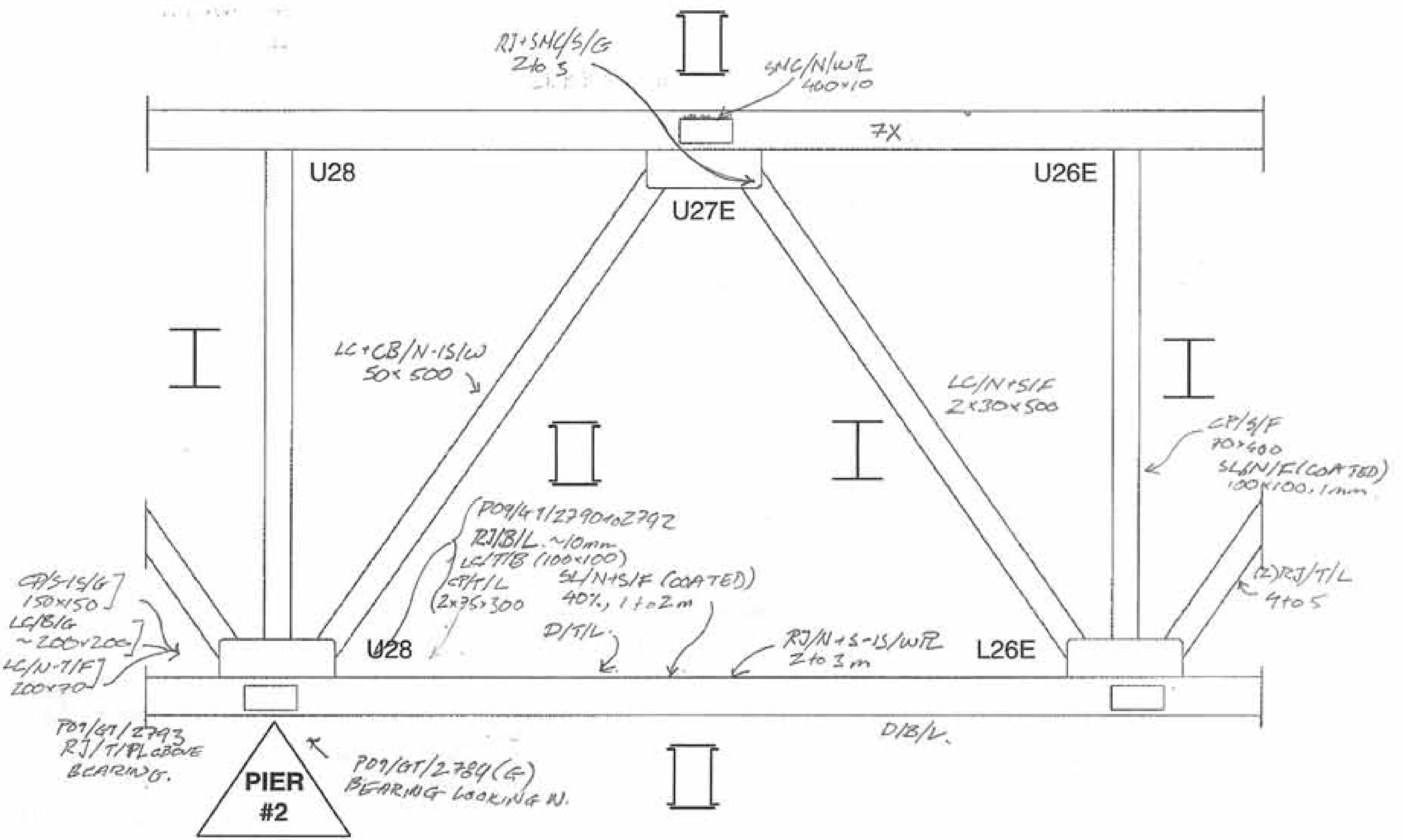
Span: EAST Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN E INT TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: E.INT Truss: 1

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

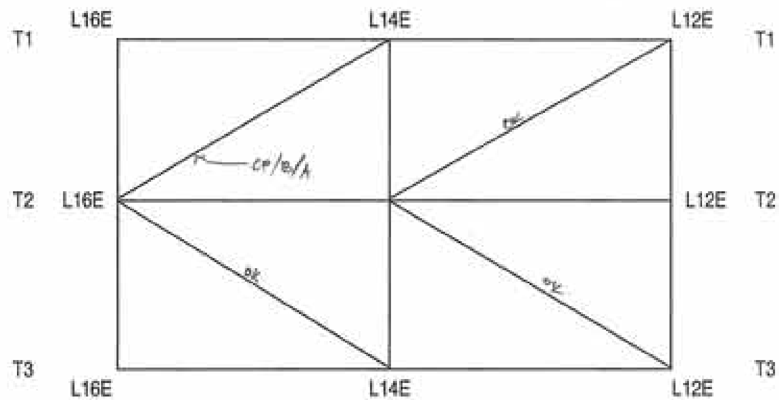
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

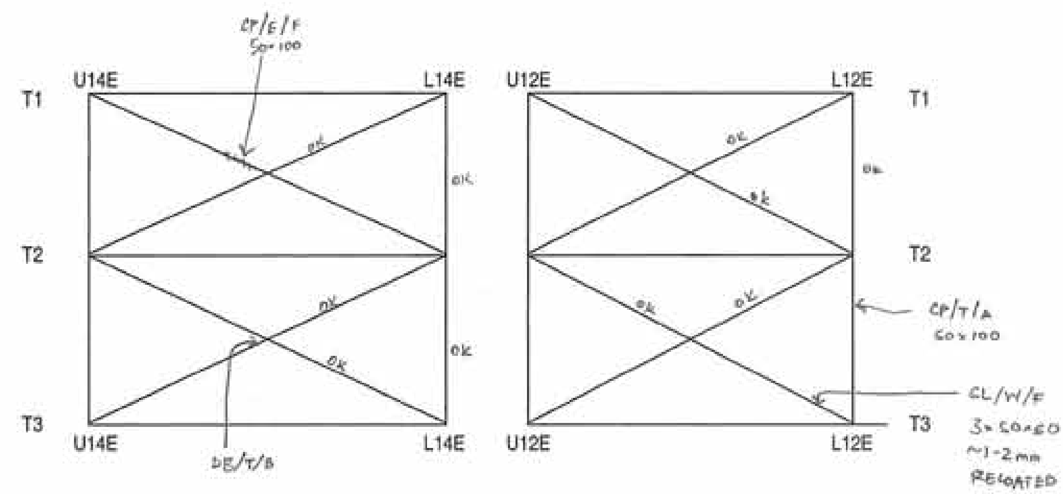
STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 3

TRUSS WB





N

MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: 3 Truss: WB

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

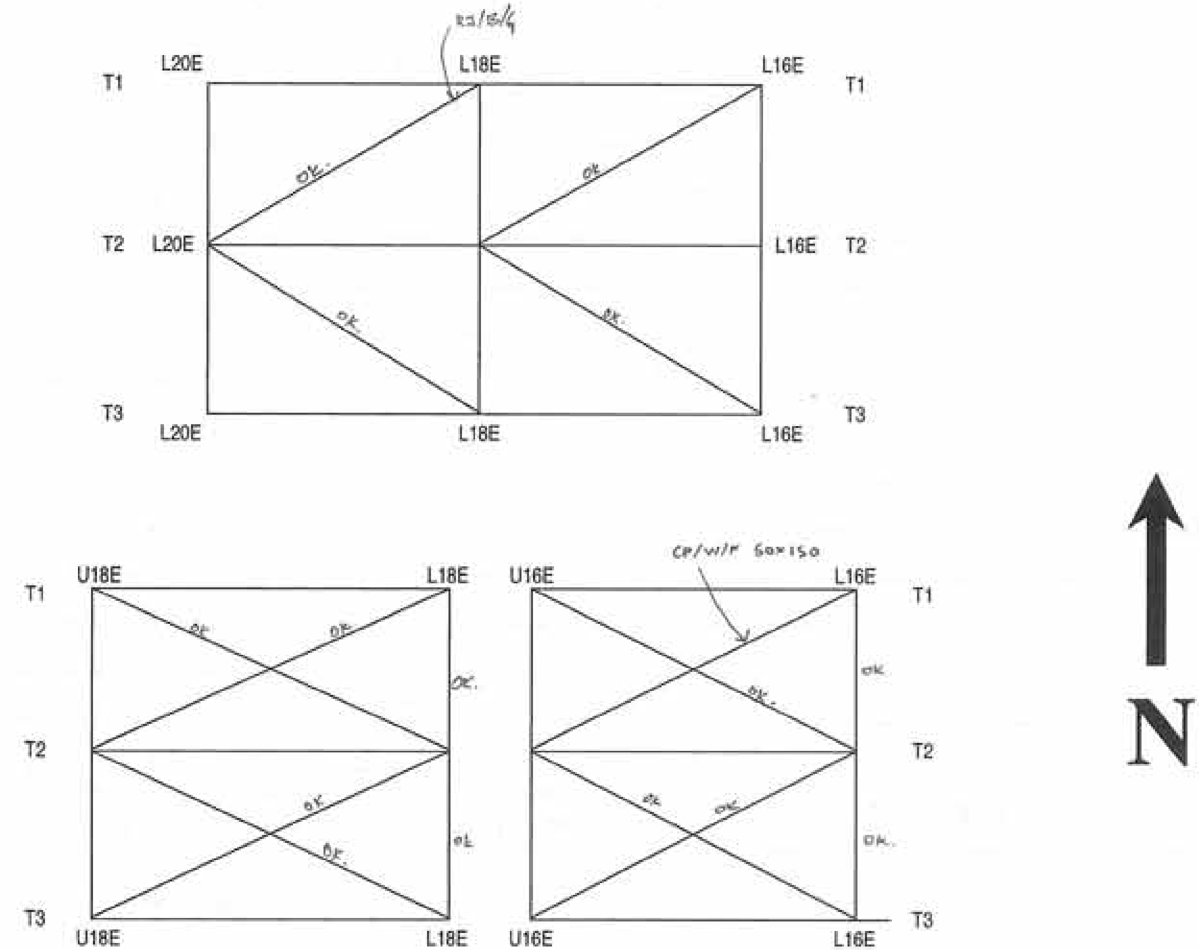
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 3

TRUSS WB



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: ____________, 2009

Inspected By: ____________

Span: 3 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

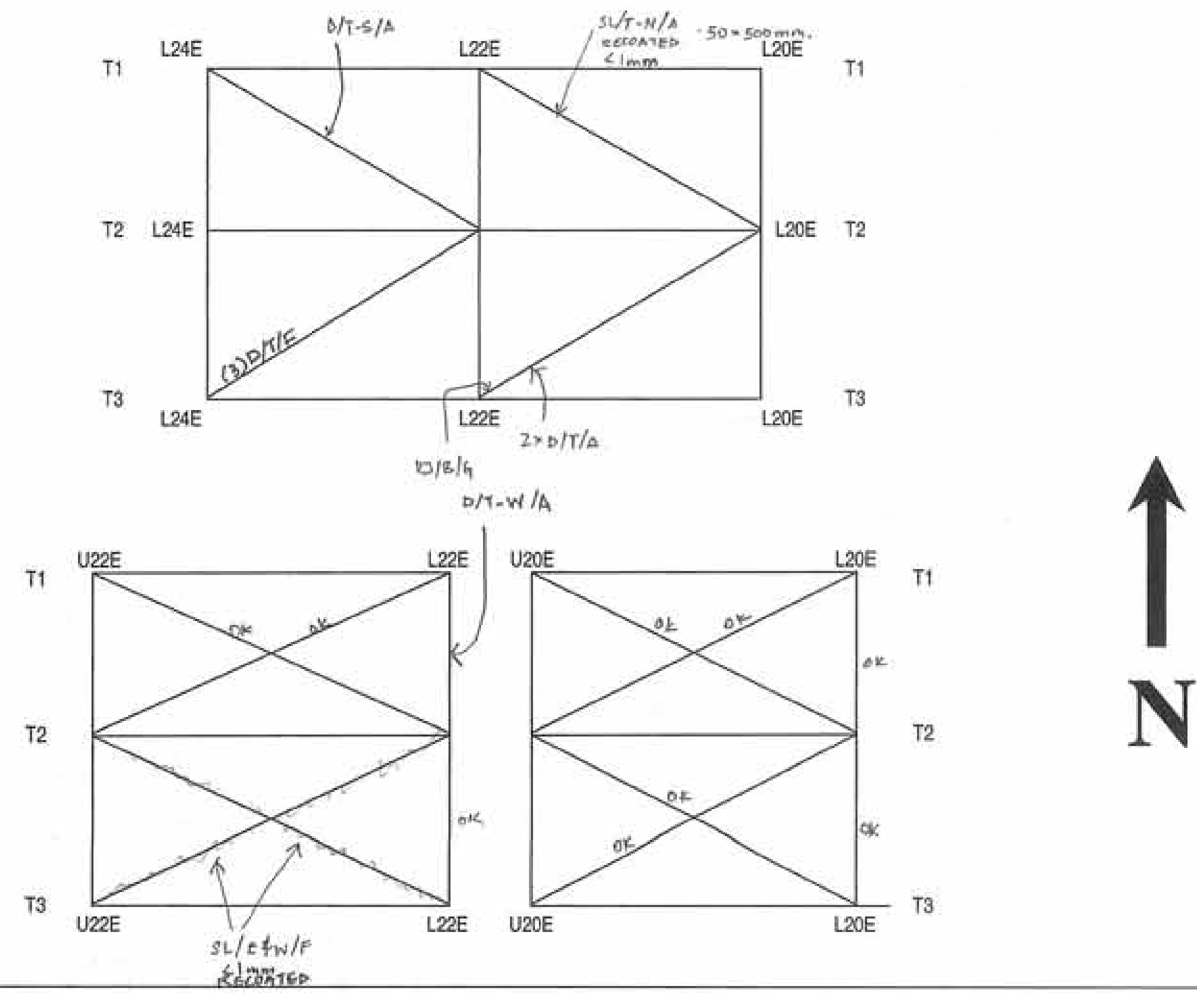
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 3

TRUSS WB



MRC
A member of MMM GROUP

Date: AUG, 2009

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Inspected By: [illegible]

Span: 3 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

7108 TANSLEY

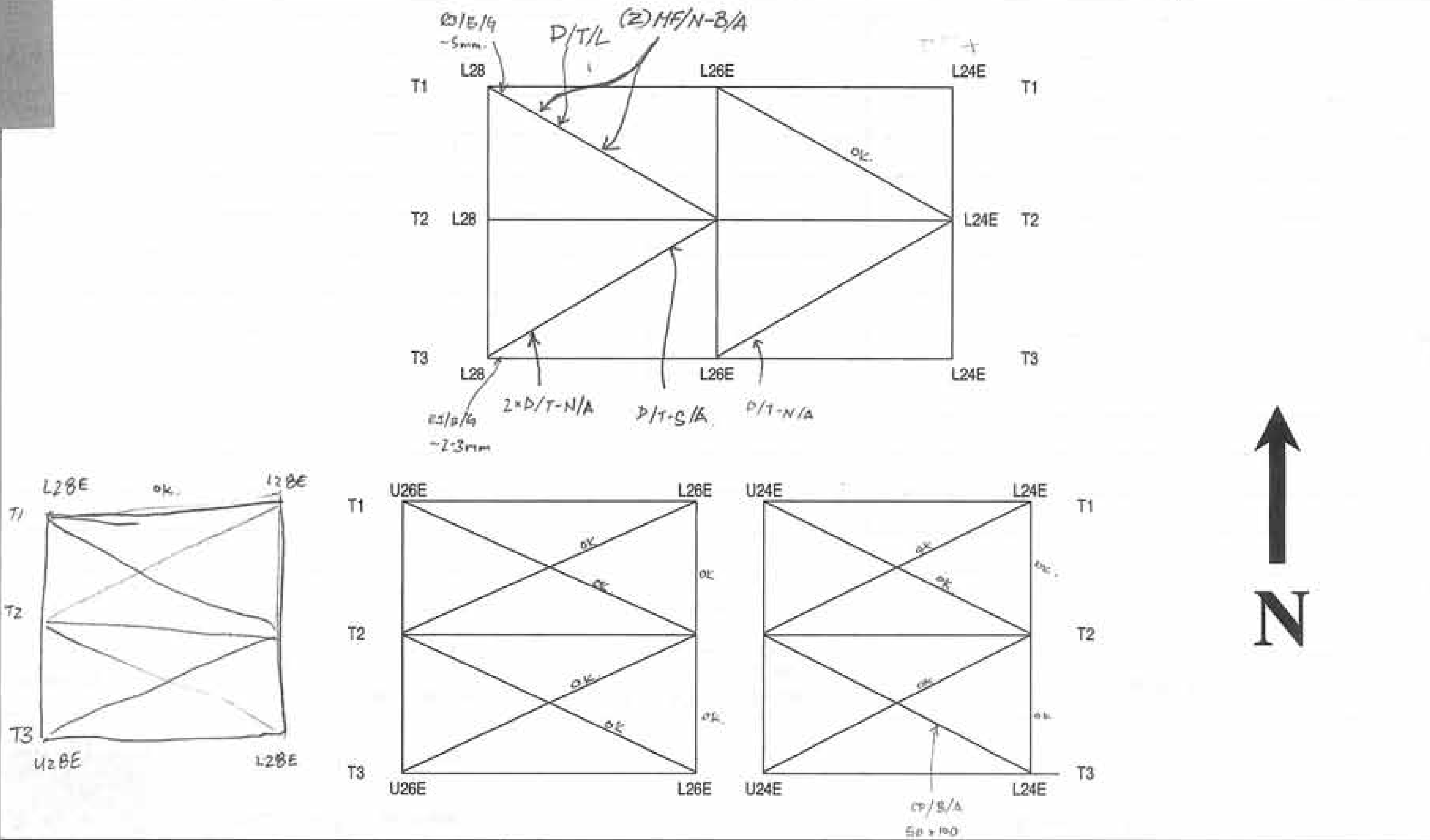
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 3

TRUSS WB



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: 3 Truss: WB

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

South Structure
West Exterior Span

MRC

A member of MMM GROUP

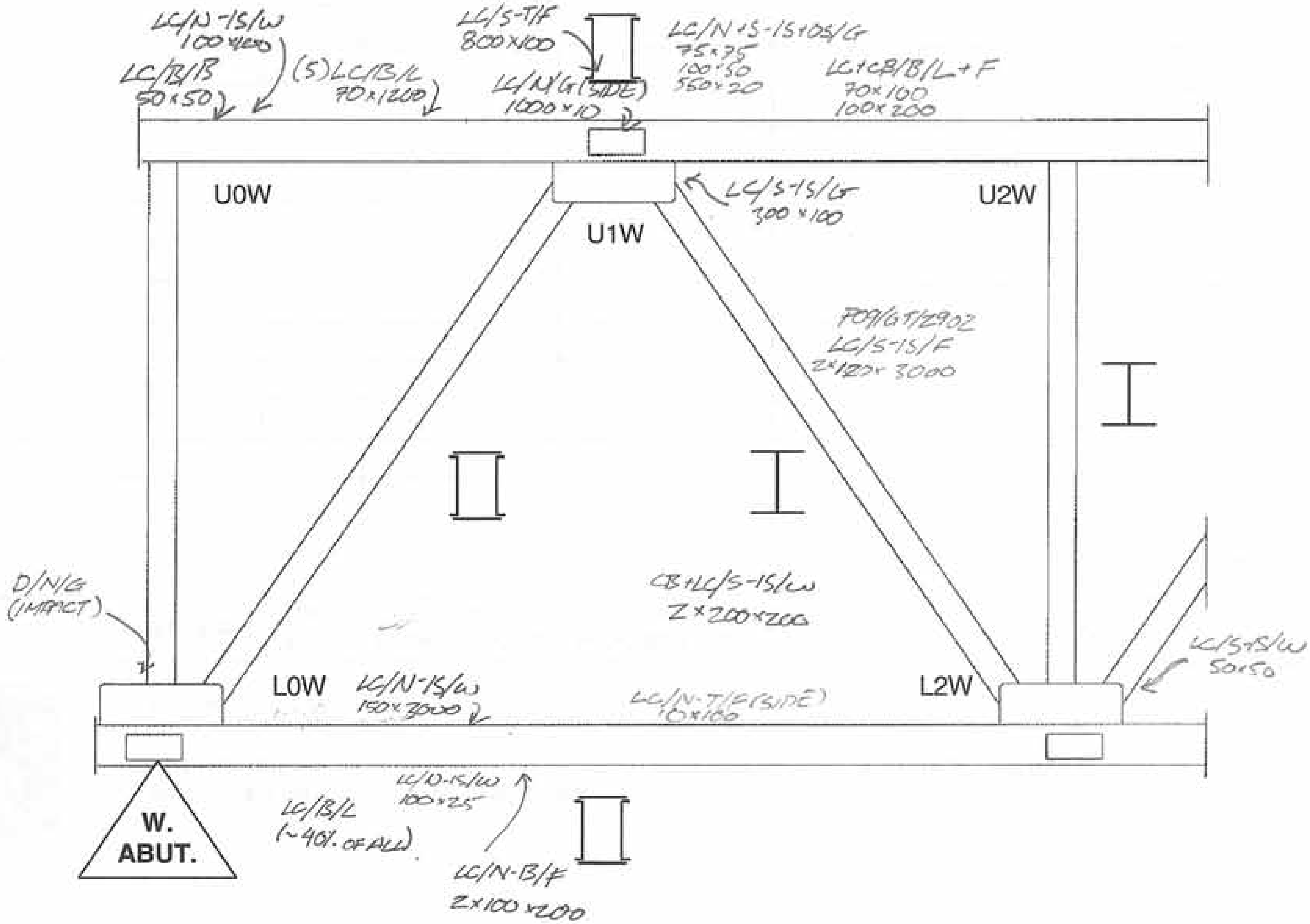
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN W. EXT.

TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

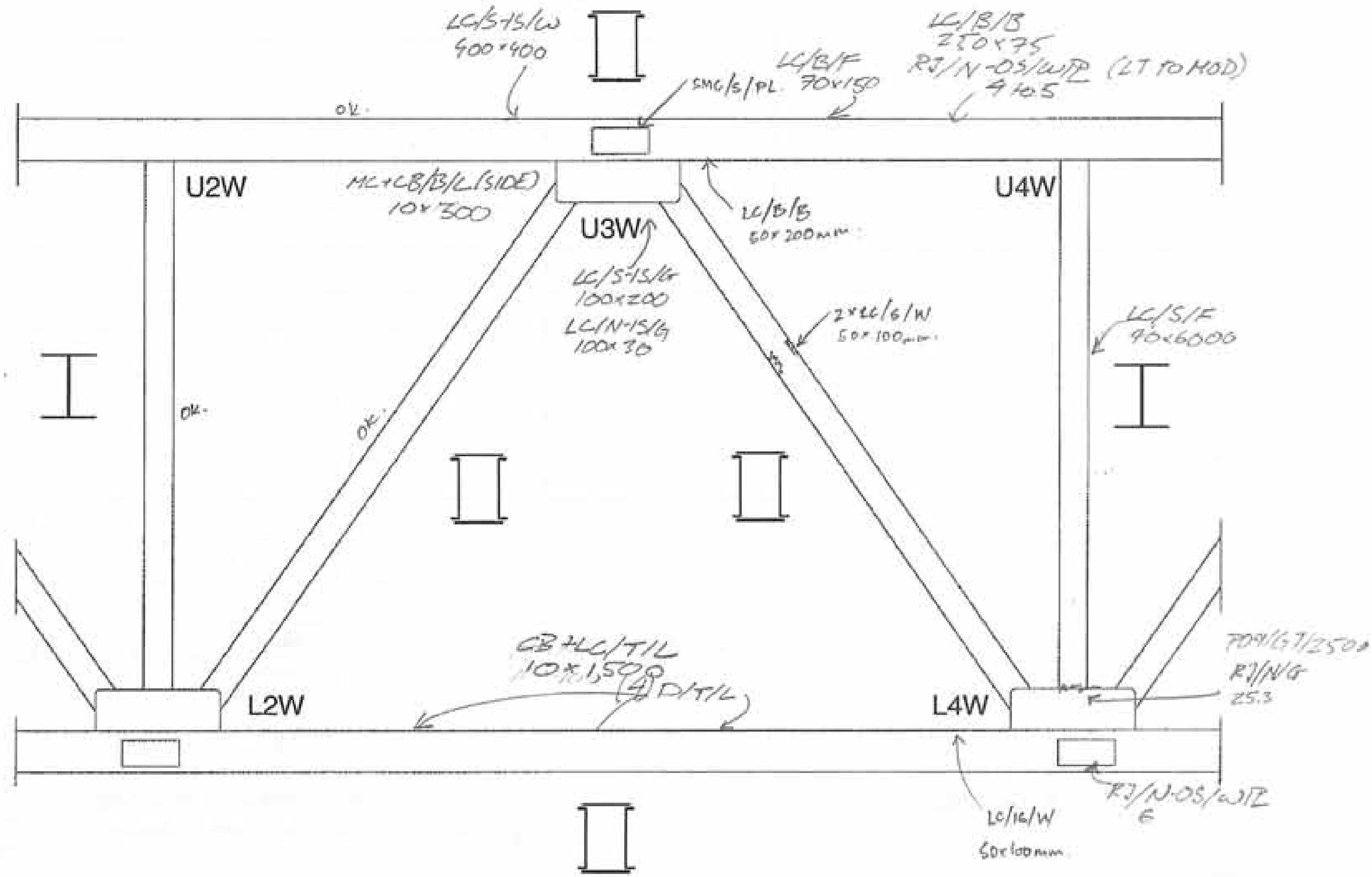
Date: AUG, 2009

Inspected By: GT + DH

Span: W. EXT Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W. EXT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

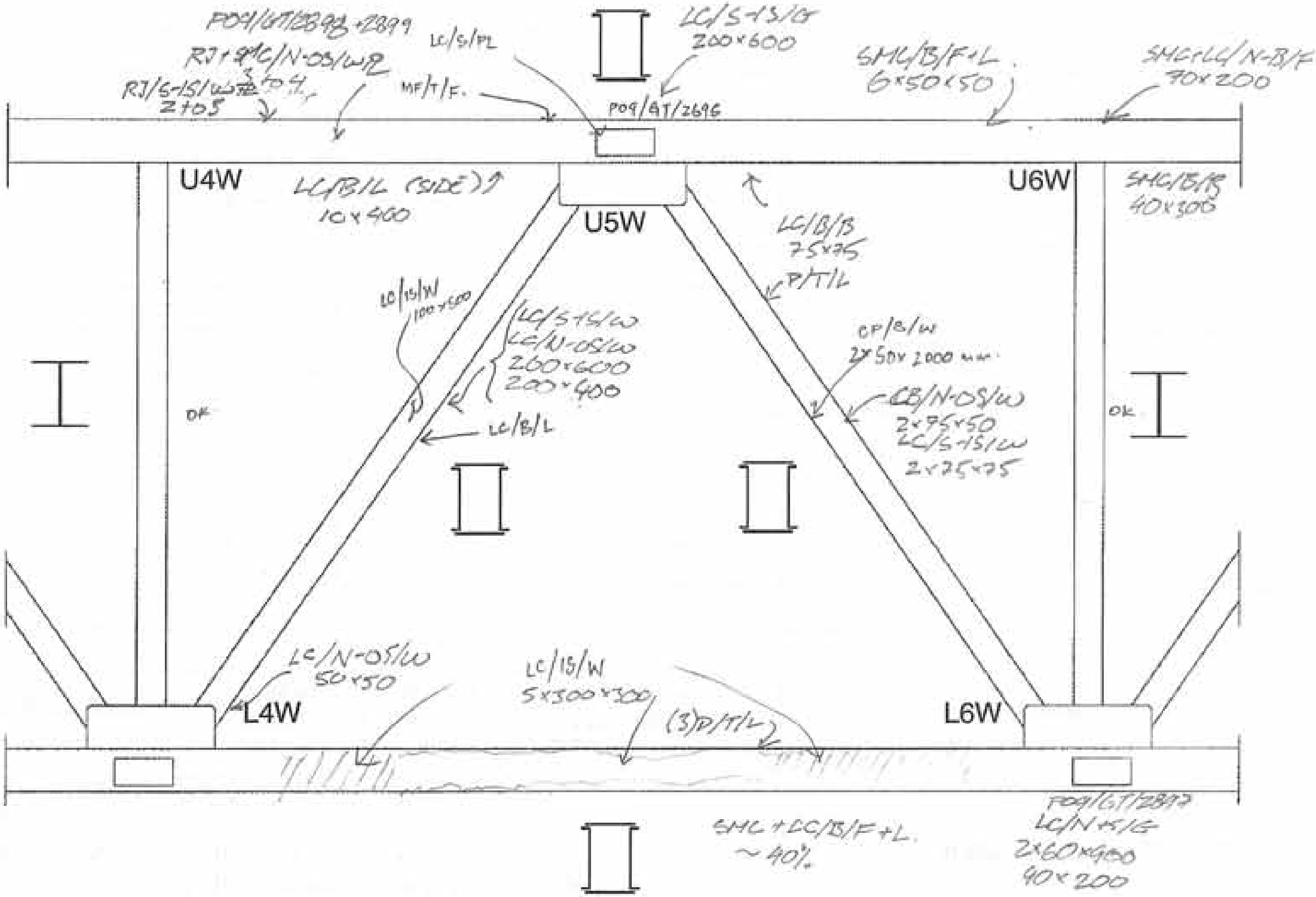
Span: W. EXT Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

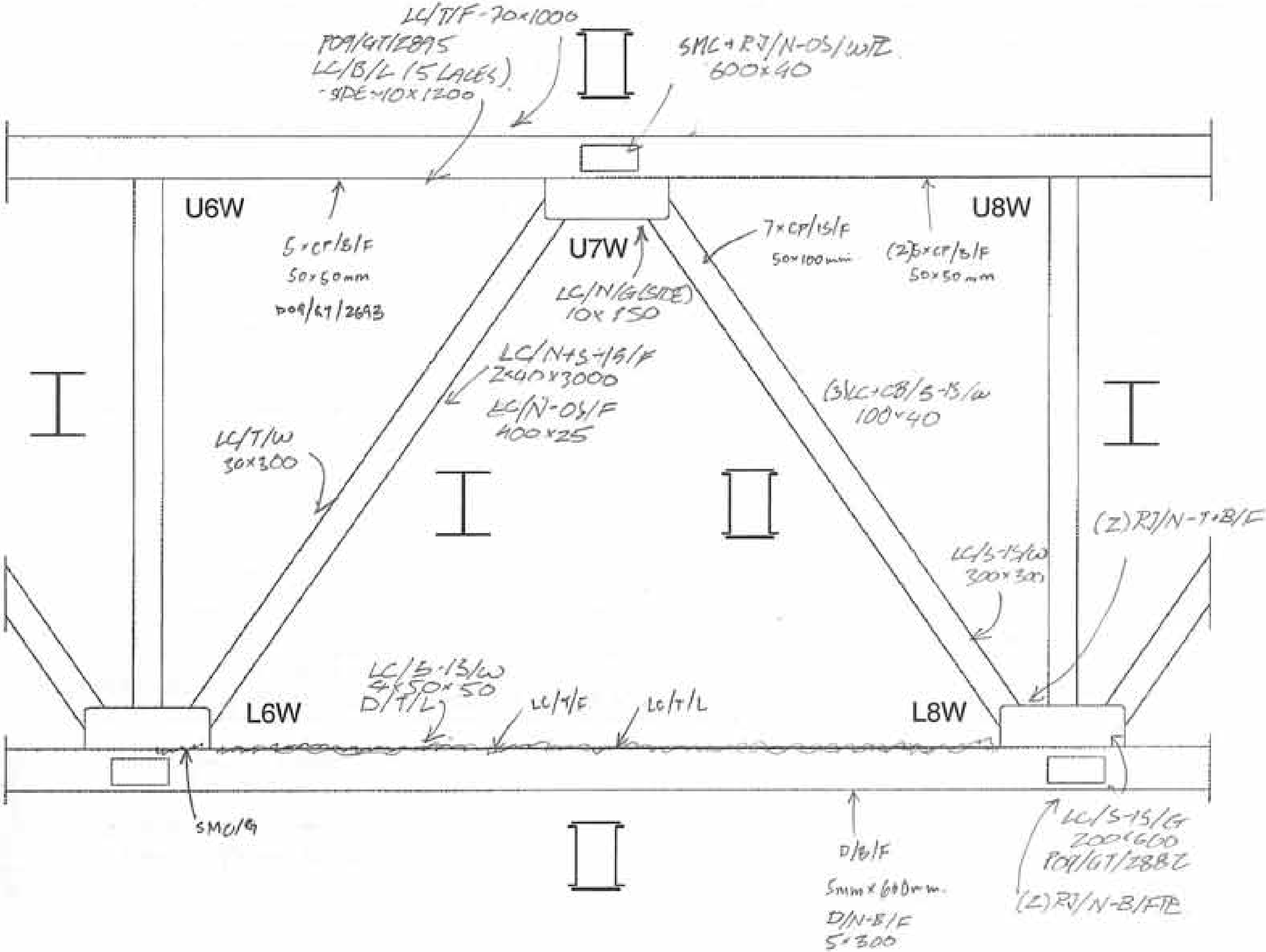
Span: W.EXT Truss: 1

Date: AUG, 2009

Inspected By: GT-DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

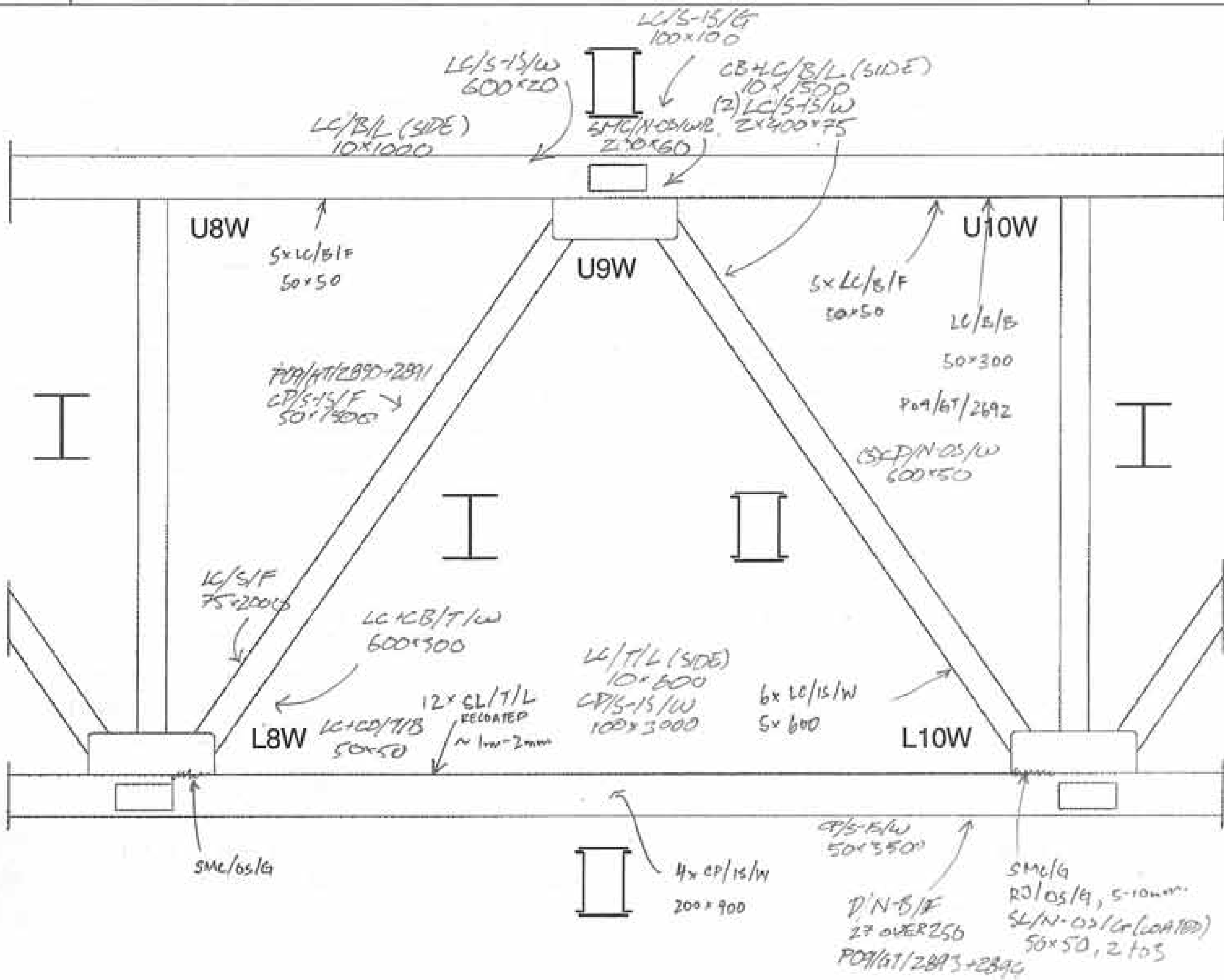
Span: W.EXT Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W.EXT Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

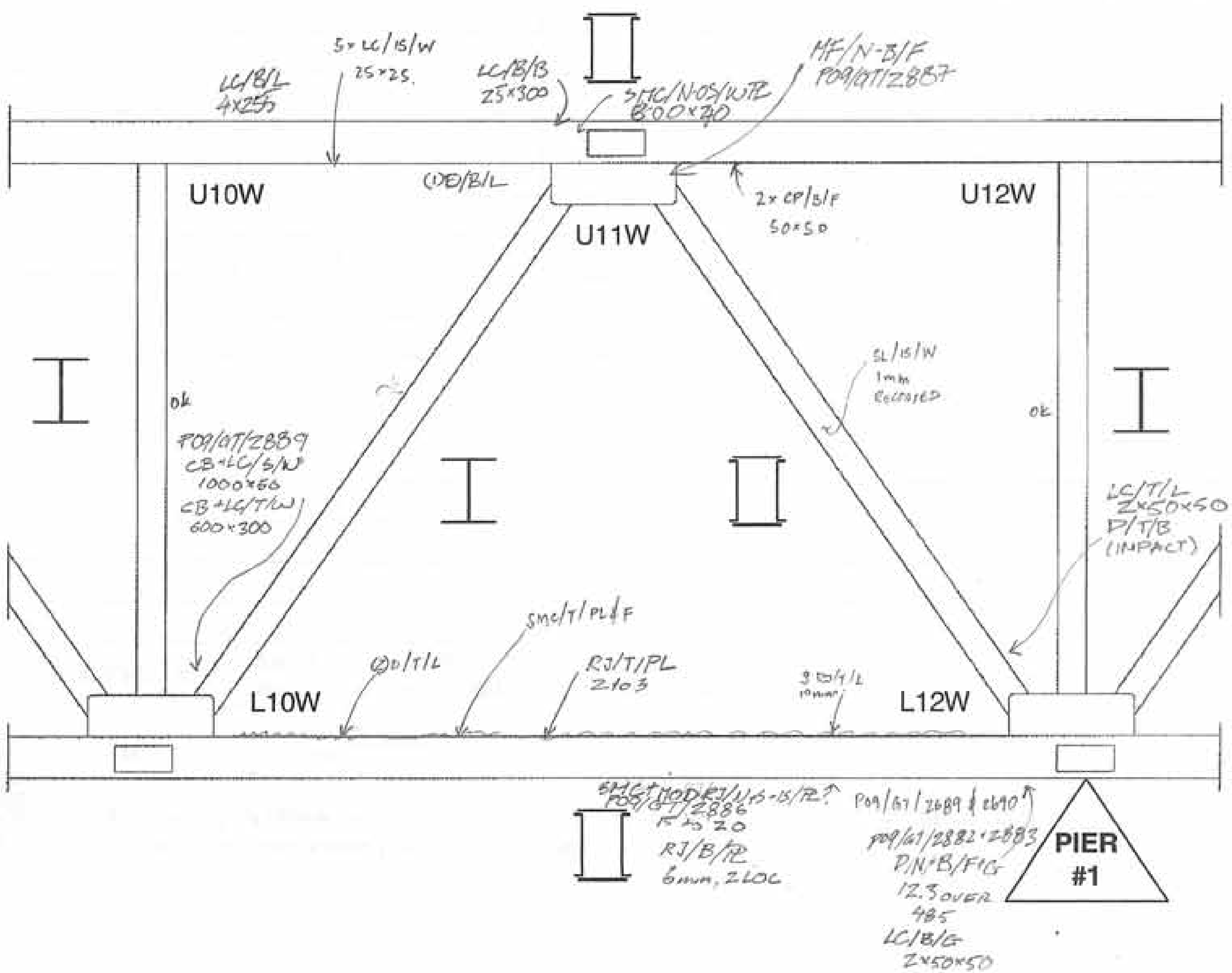
STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN W.EXT.

TRUSS 1

correct



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

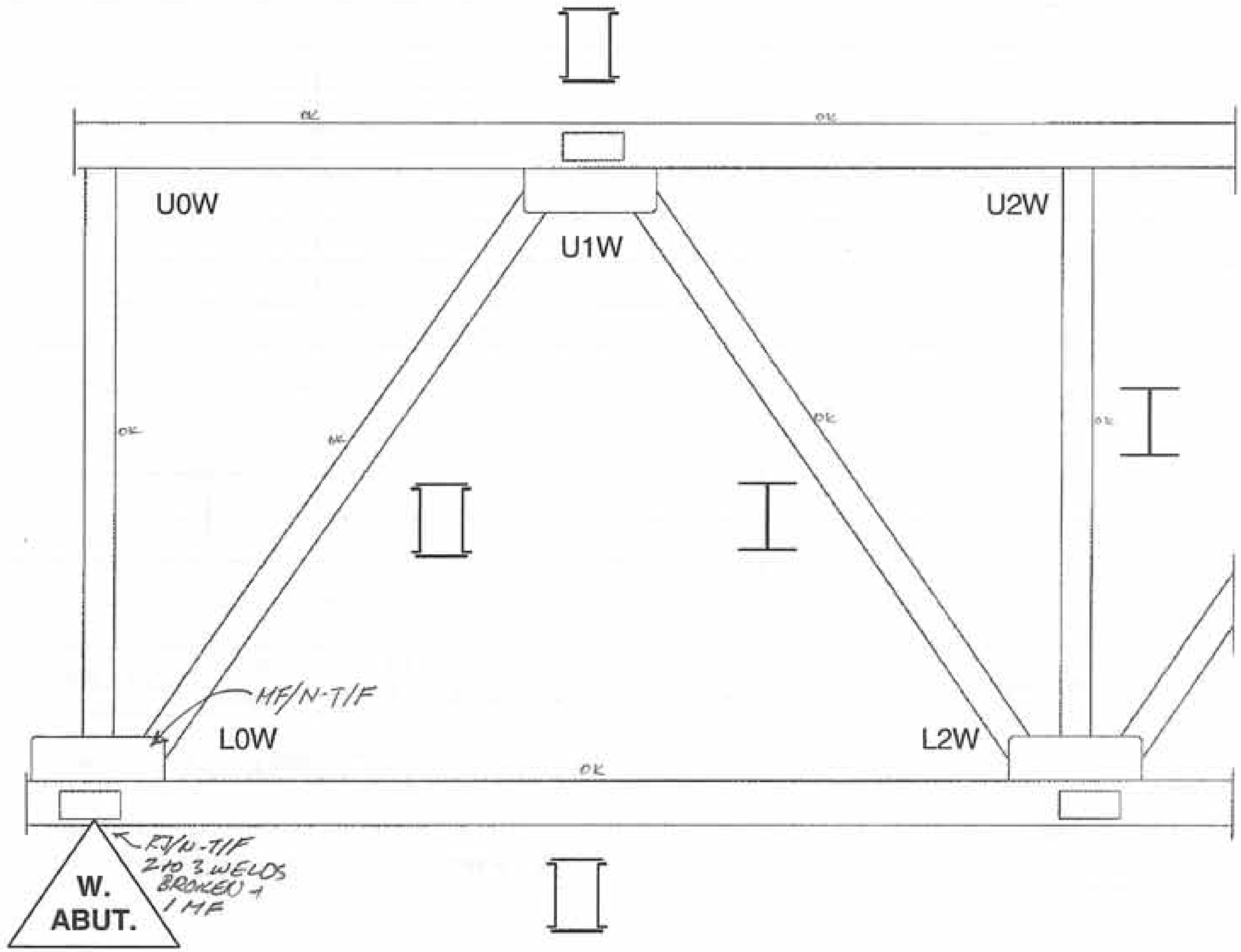
Date: AUG, 2009

Inspected By: GT + DH

Span: U.EXT Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

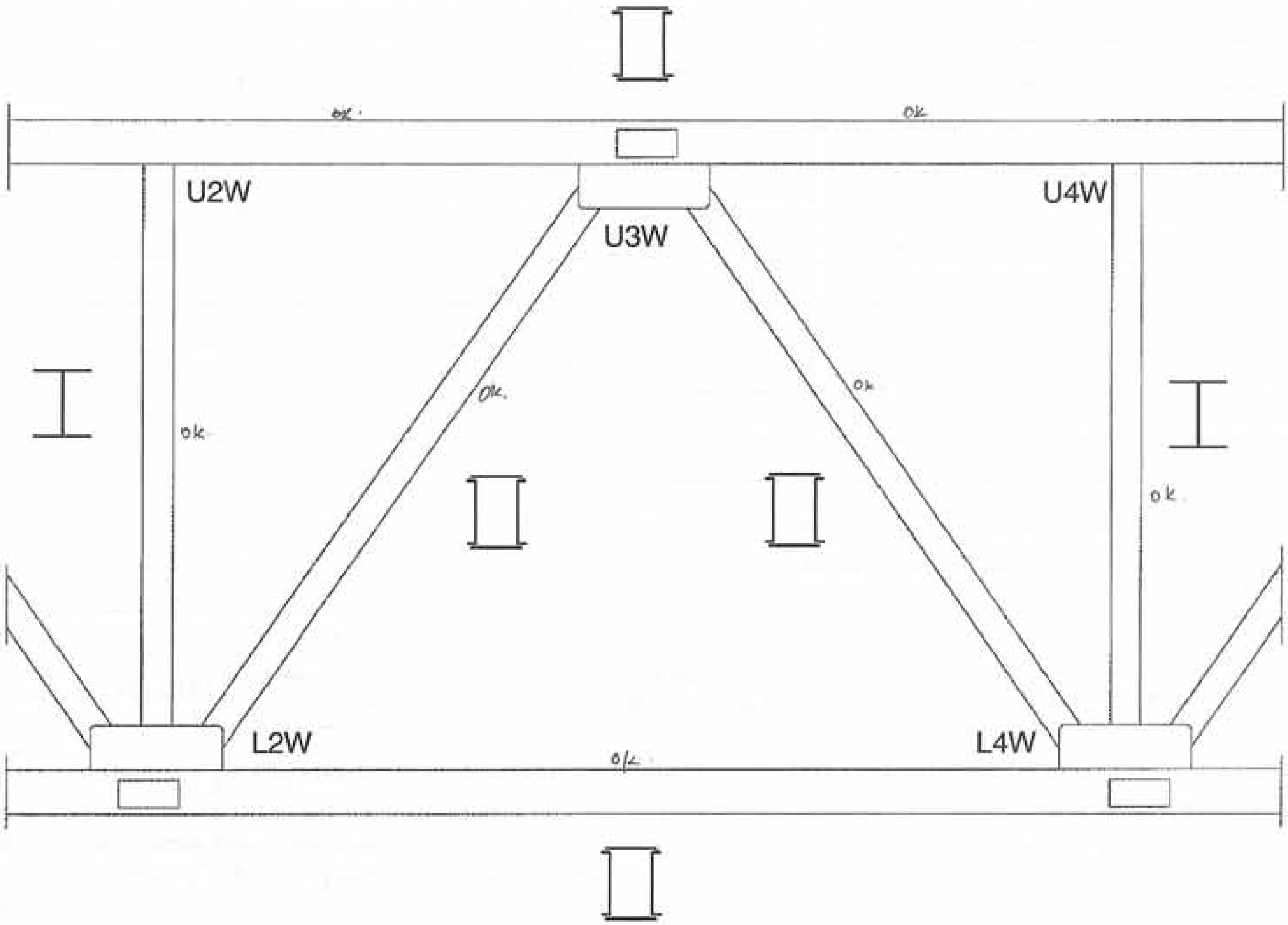
Span: W. EXT Truss: 2

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W. EXT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

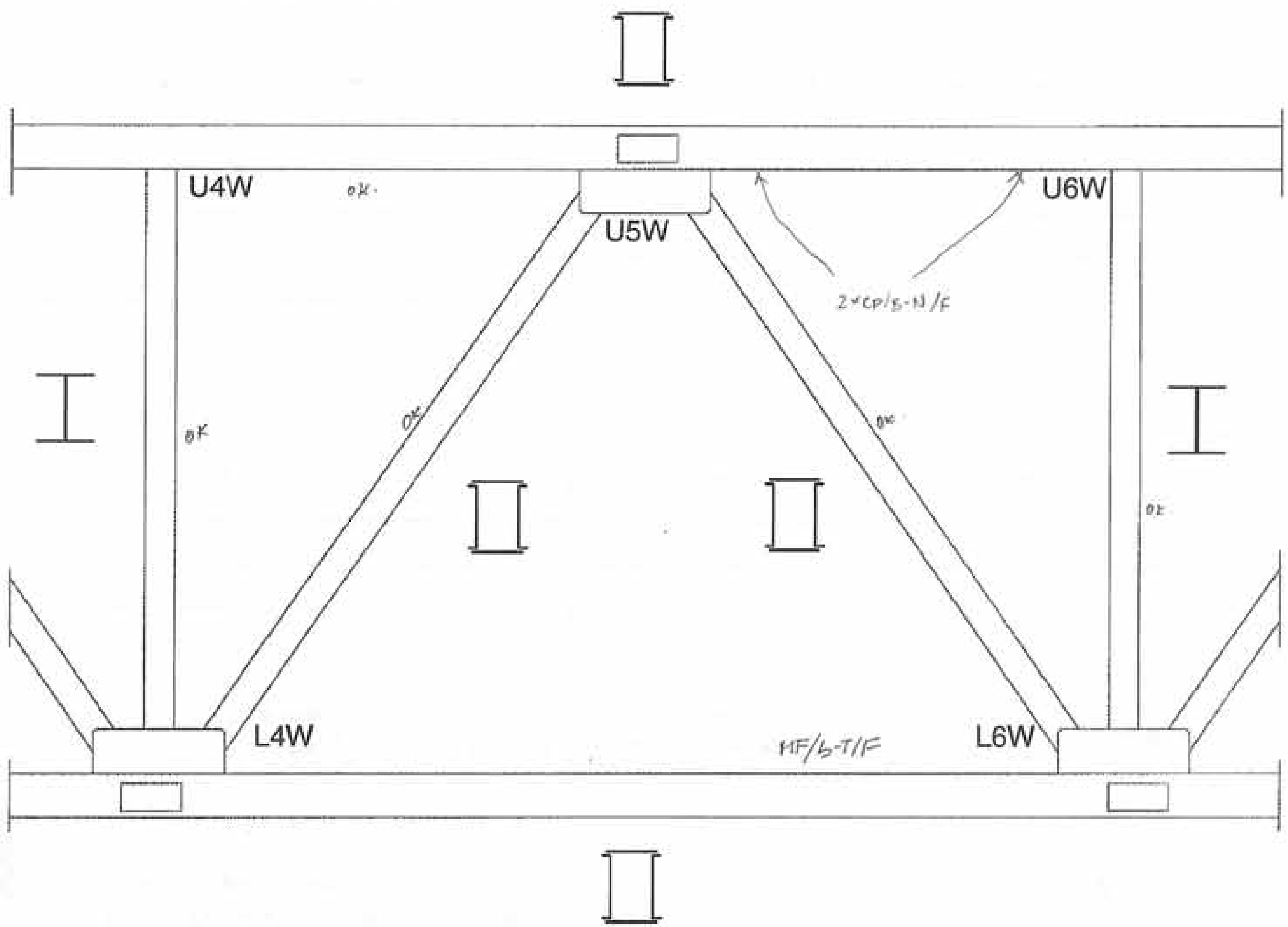
Date: AUG, 2009

Inspected By: GT-DH

Span: W. EXT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 2.



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

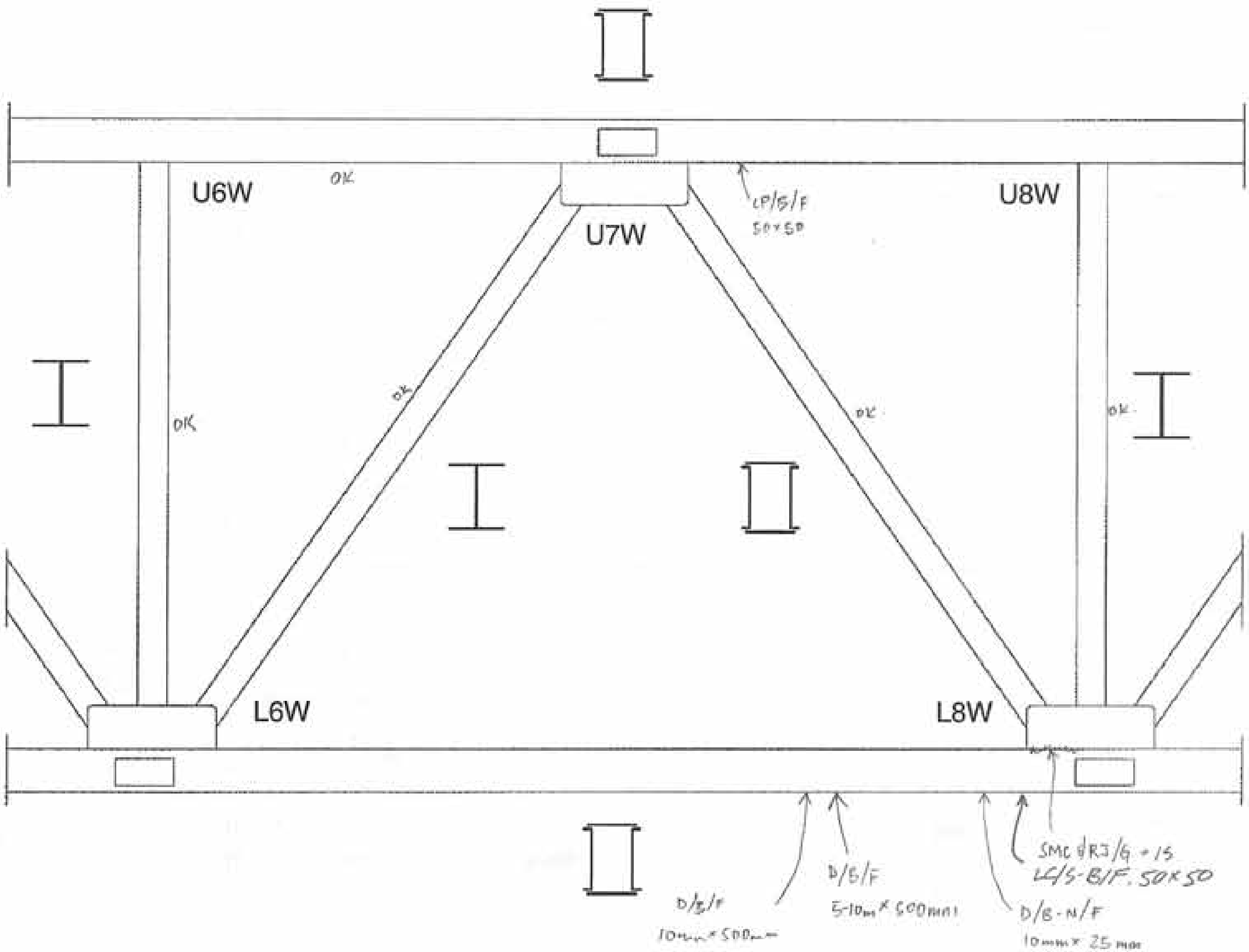
Span: W, EXT Truss: 2

Date: AUG, 2009

Inspected By: GT-DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN WEST TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

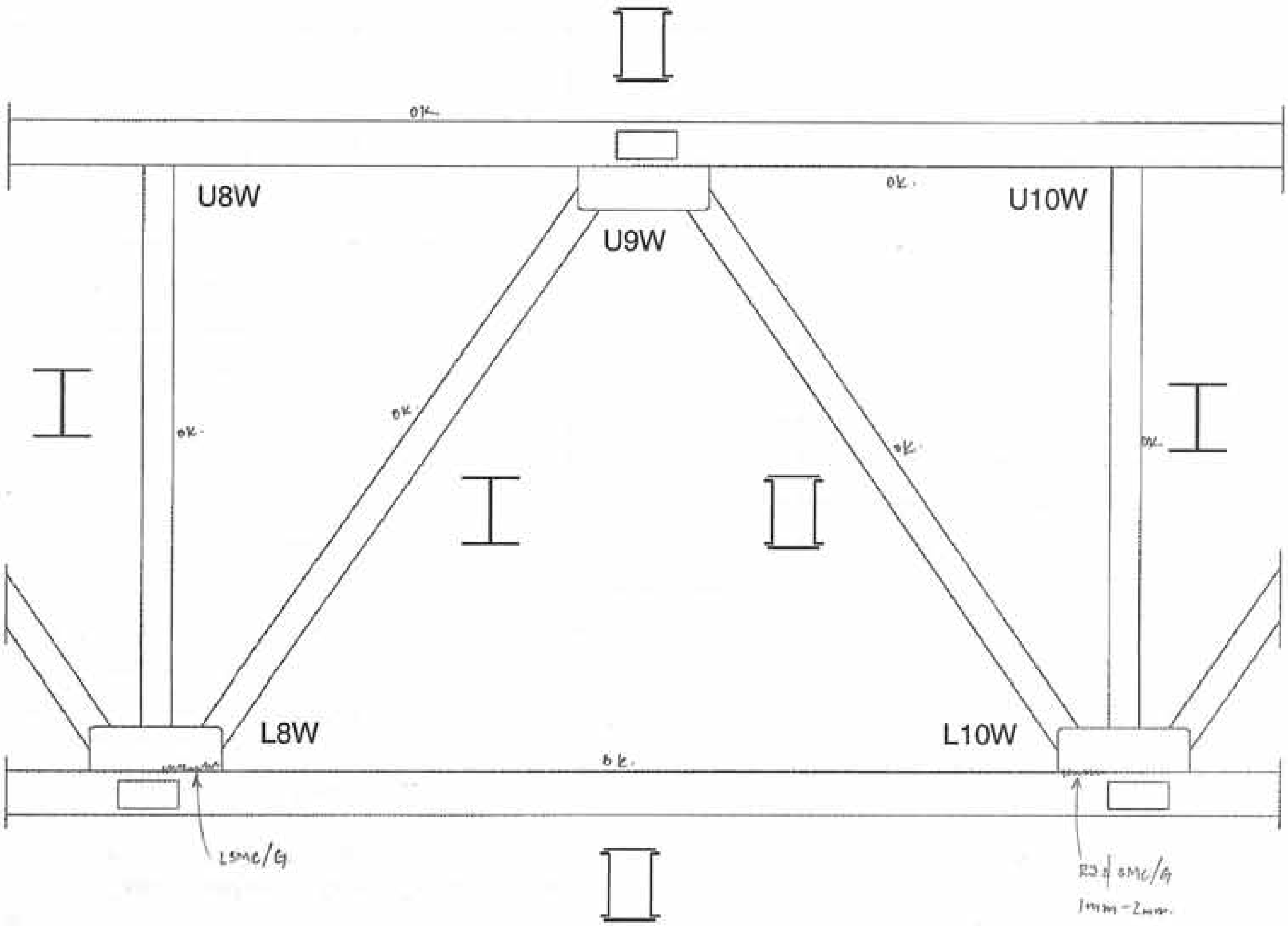
Date: AUG, 2009

Inspected By: GT-DH

Span: W.EXT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W. EXT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

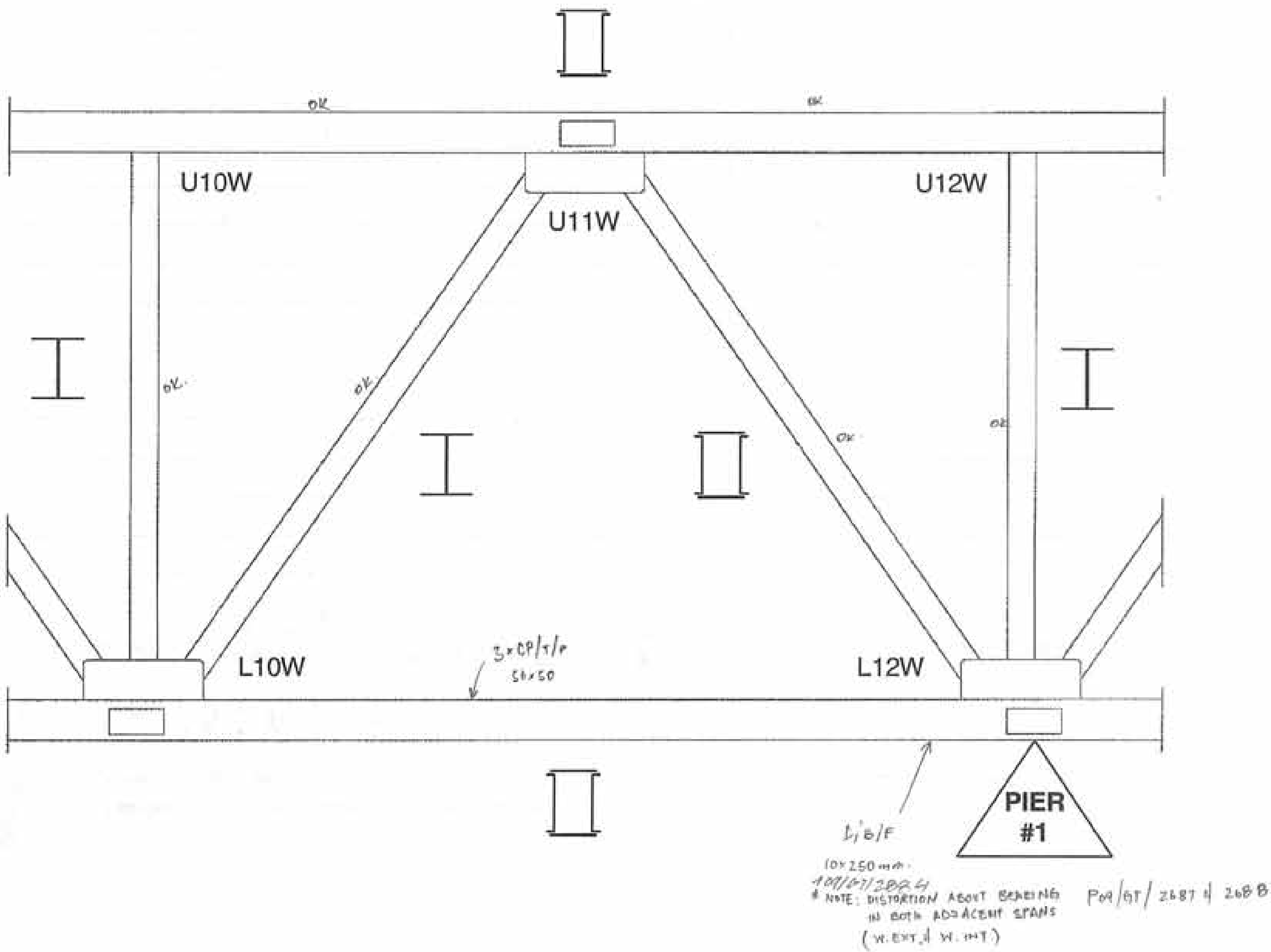
Date: AUG, 2009

Inspected By: GT+DH

Span: W.EXT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

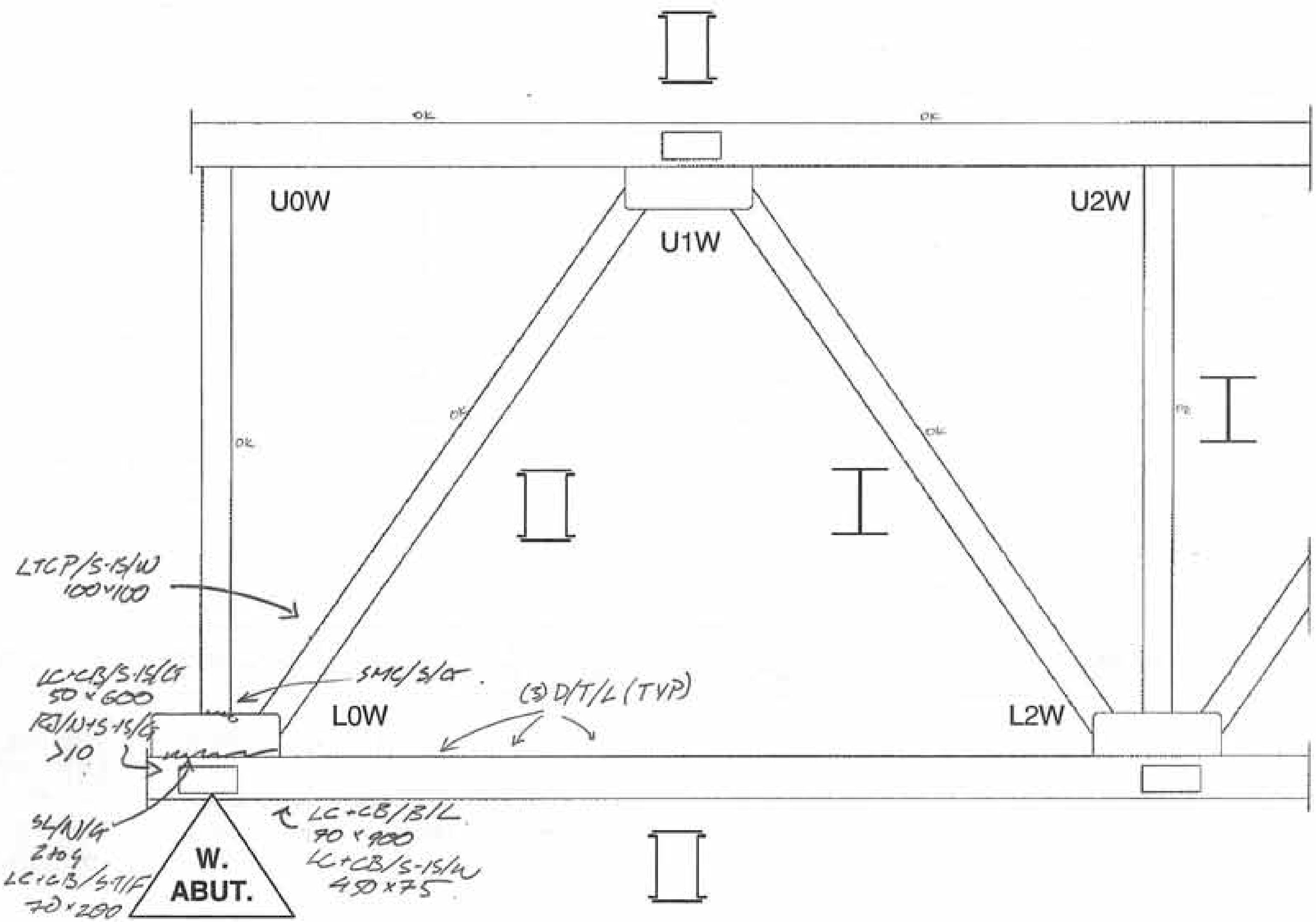
Span: U.EXT Truss: 2

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W.EXT TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

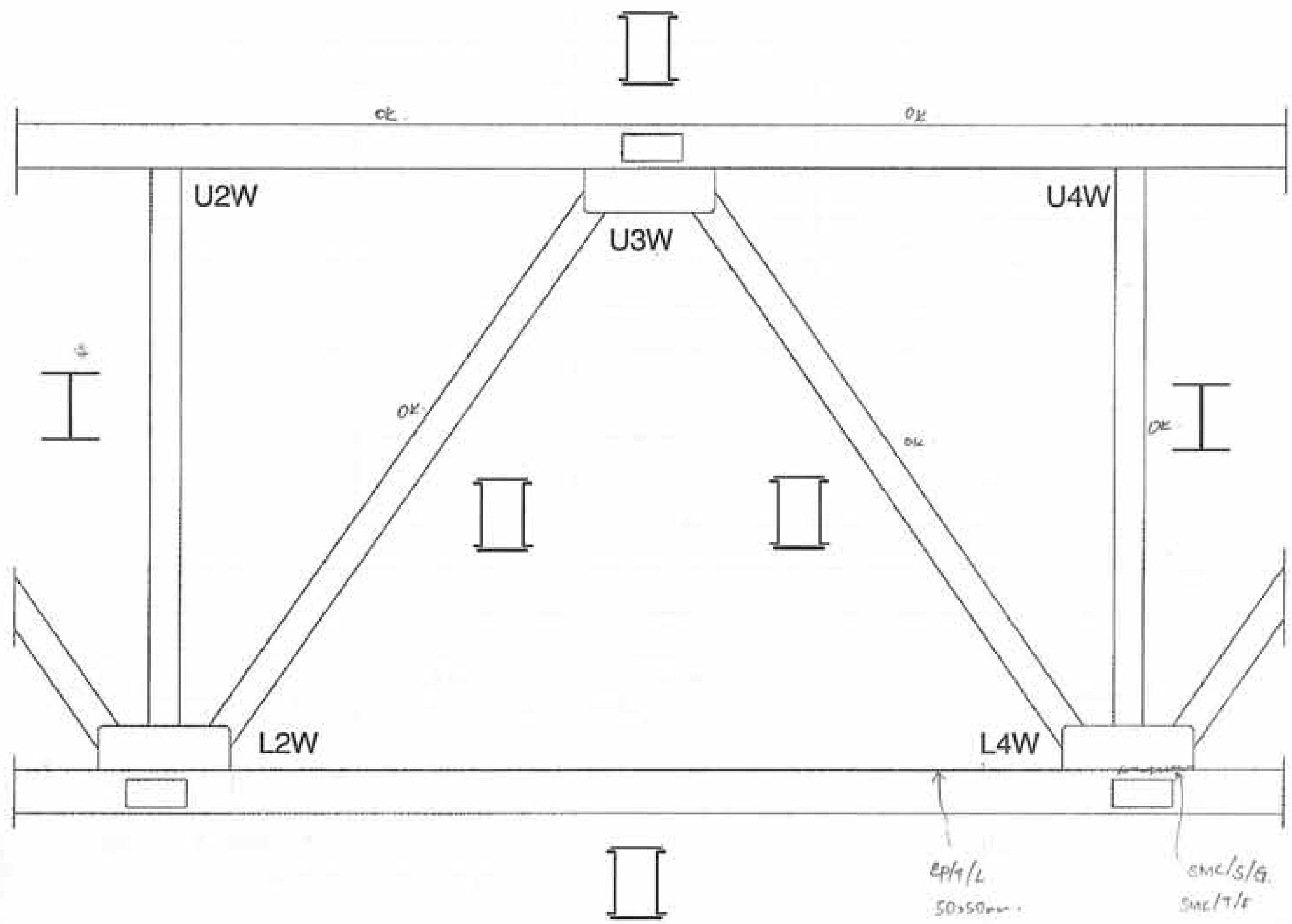
Span: U.EXT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W. EXT TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

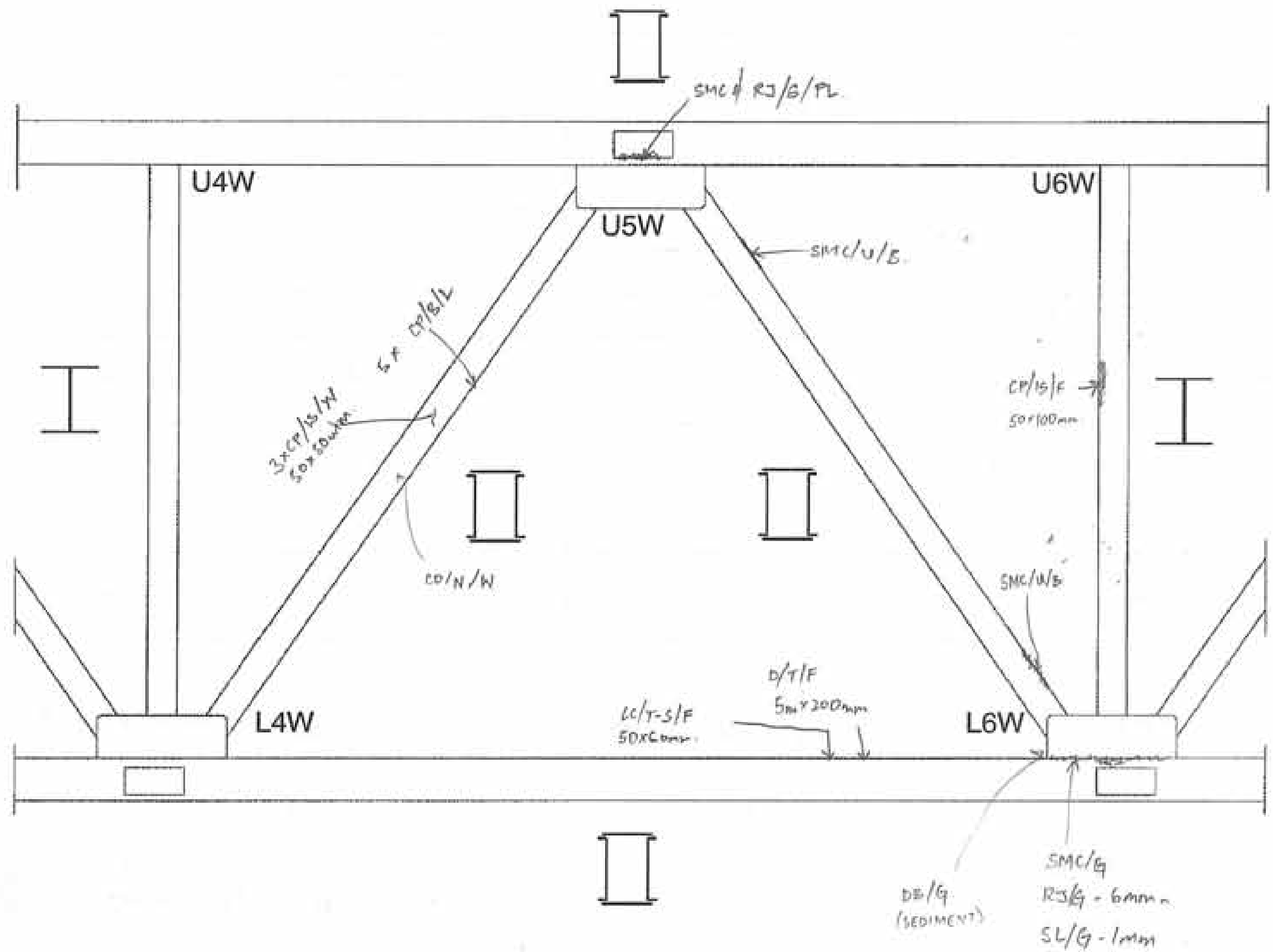
Date: AUG, 2009

Inspected By: GT-DH

Span: W.EXT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W. EXT TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

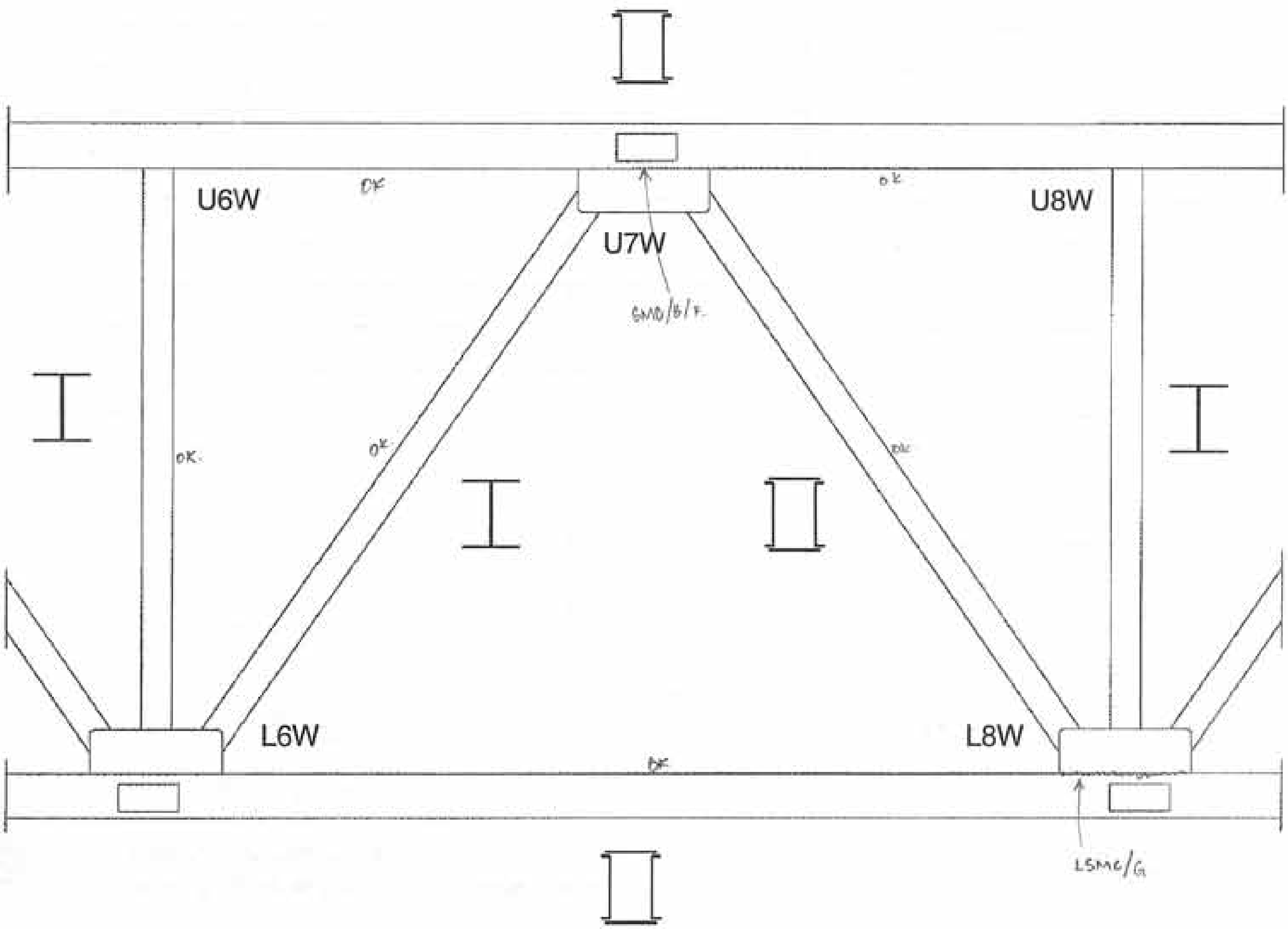
Span: W.EXT Truss: 3

Date: AUG, 2009

Inspected By: GT-DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN W. EXT TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

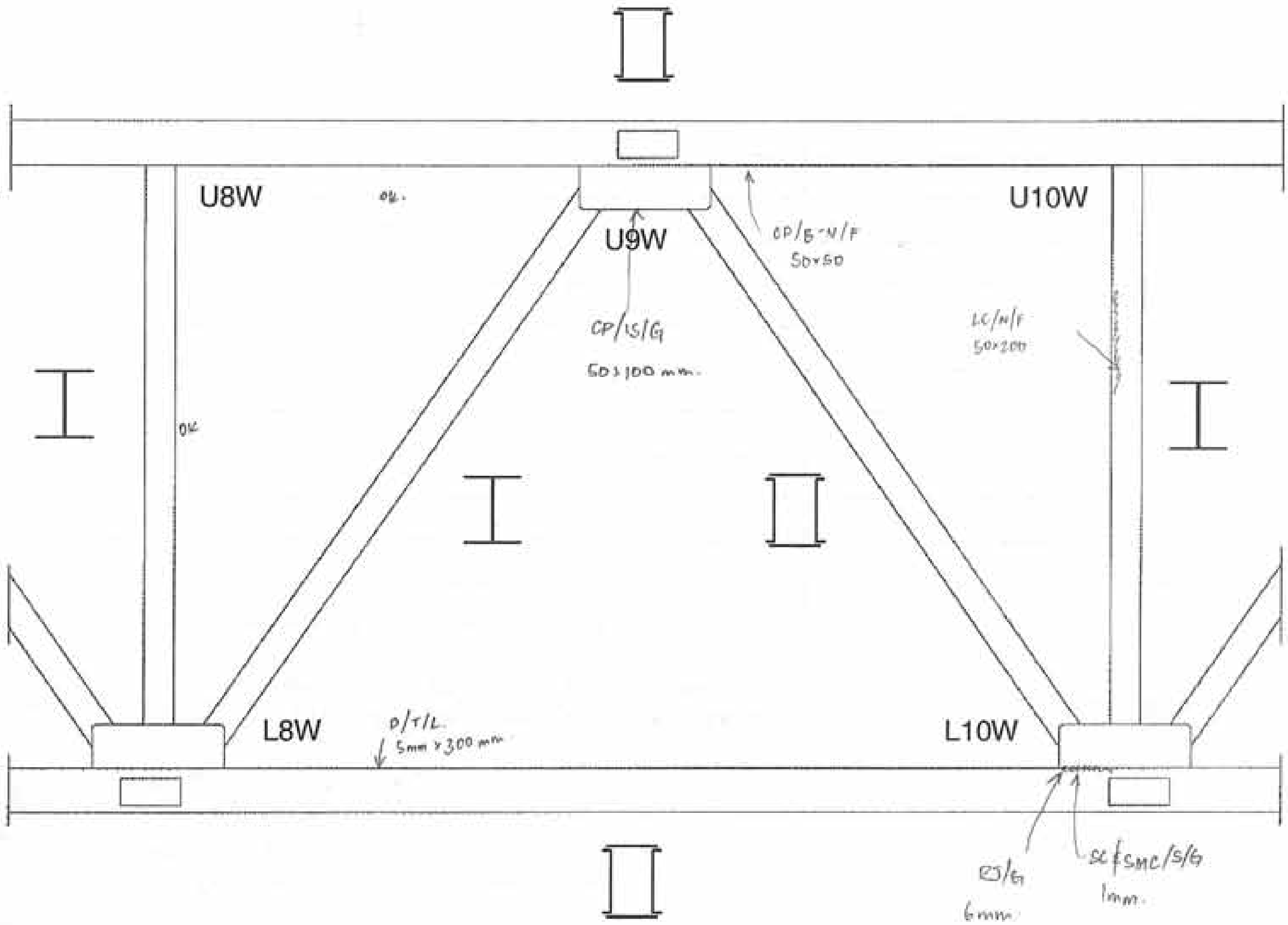
Span: W. EXT Truss: 3

Date: AUG, 2009

Inspected By: GT-DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMMGROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165 FOOT SPAN SPAN W.E. TRUSS 3



MRC
A member of MMMGROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT+DH

Span: W.E. Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

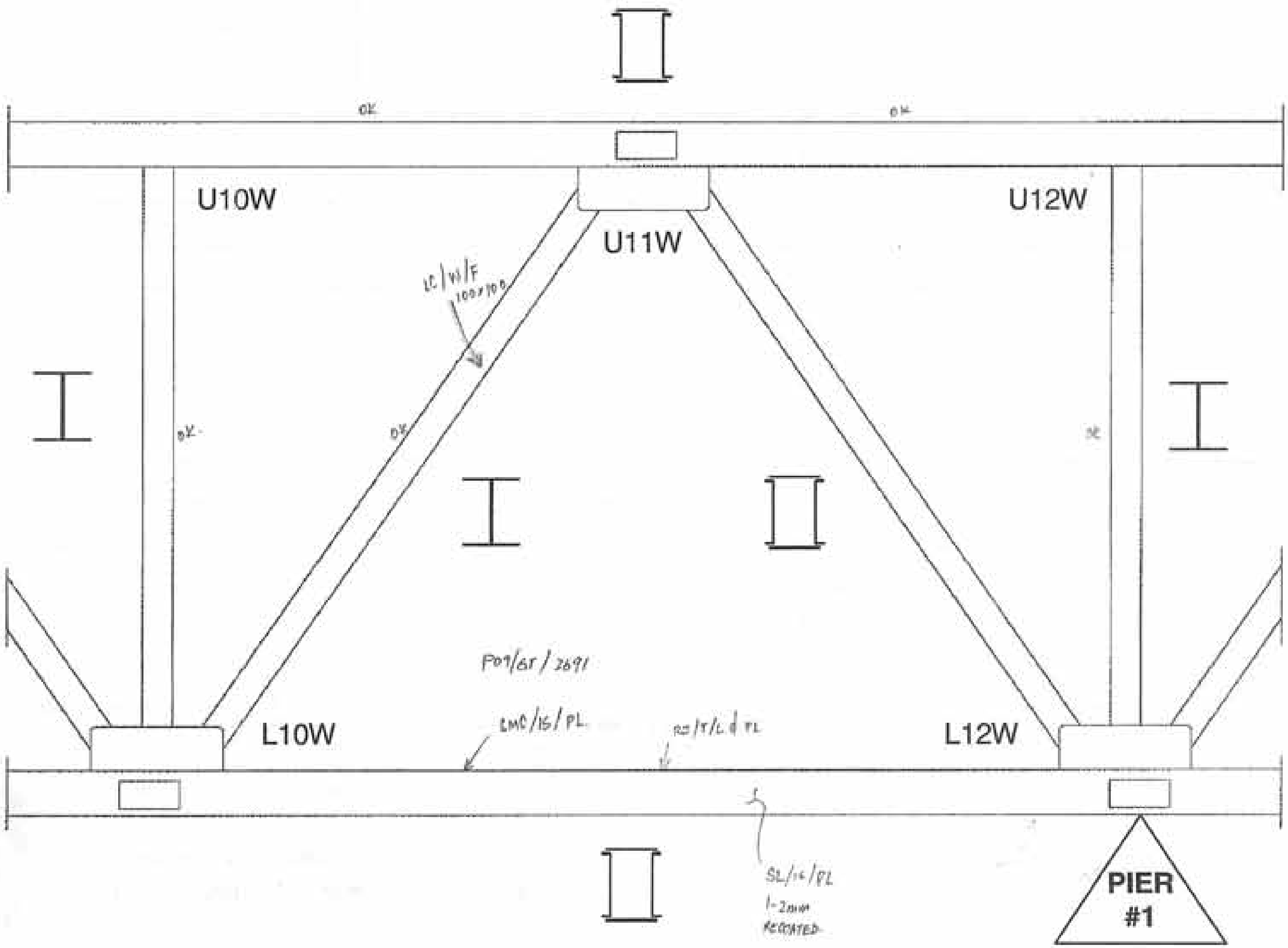
STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN W. EXT

TRUSS 3.

CORRECT.



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W, EXT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

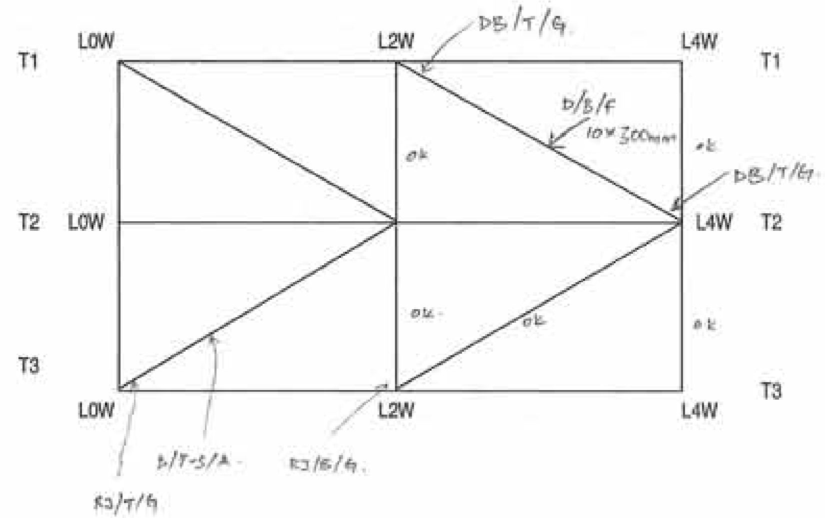
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

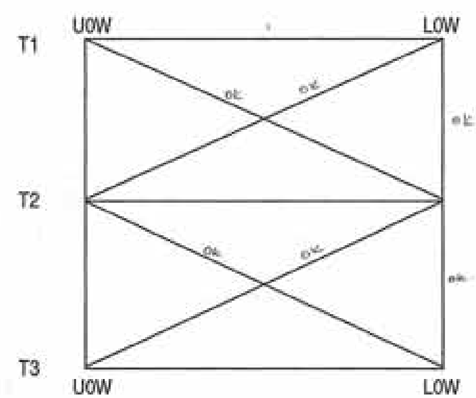
STRUCTURAL STEEL INSPECTION

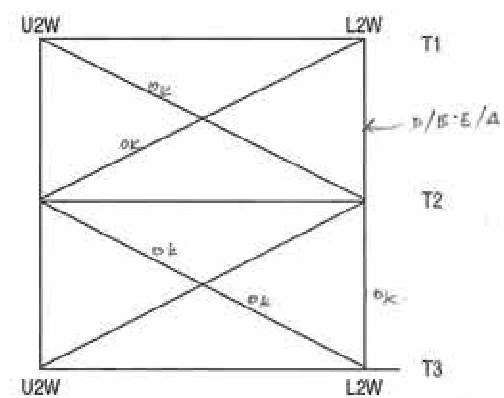
165' FOOT SPAN

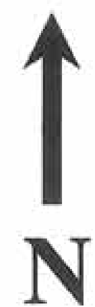
SPAN 1

TRUSS WB









MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT+DH

Span: 1 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

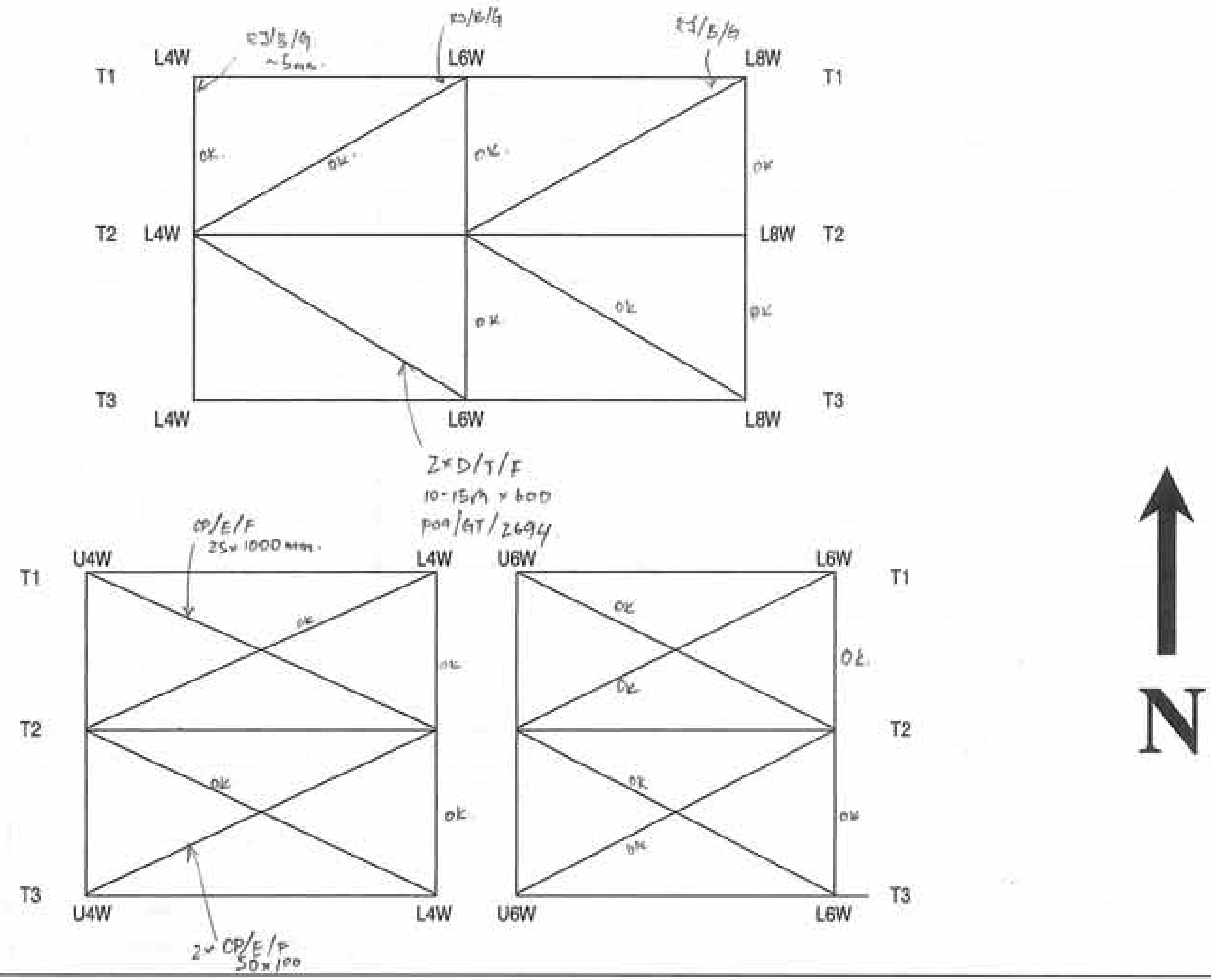
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

165' FOOT SPAN

SPAN 1

TRUSS WB



MRC
A member of MMMGROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

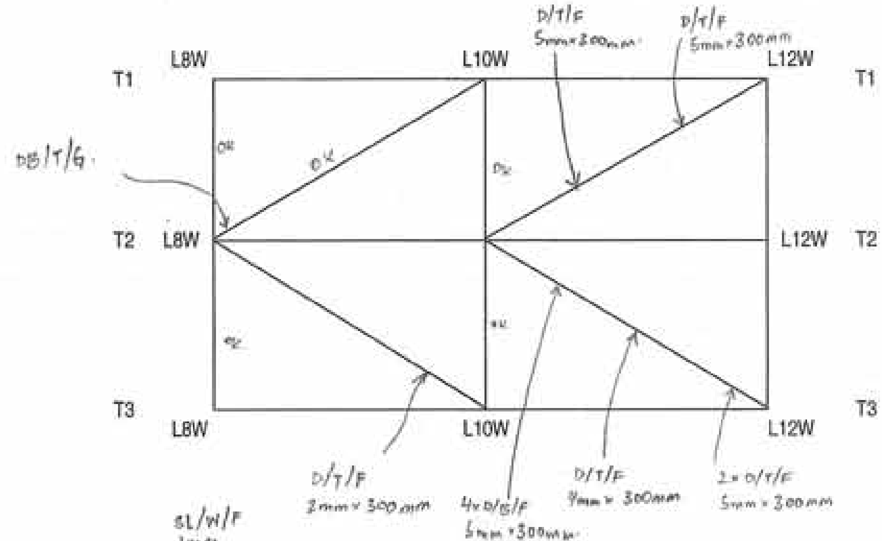
Date: AUG, 2009

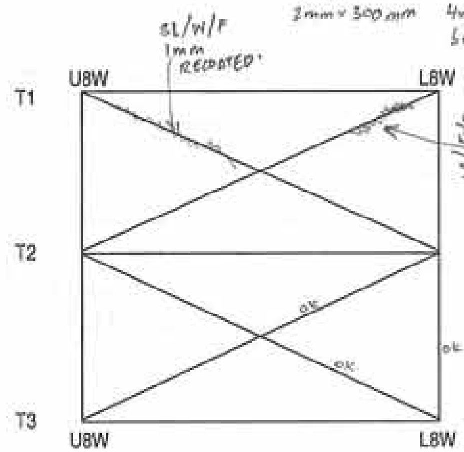
Inspected By: GT + DH

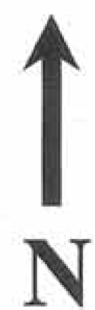
Span: 1 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	165' FOOT SPAN SPAN 1 TRUSS WB







MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: 1 Truss: WB

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

South Structure
West Interior Span

MRC
A member of MMM GROUP

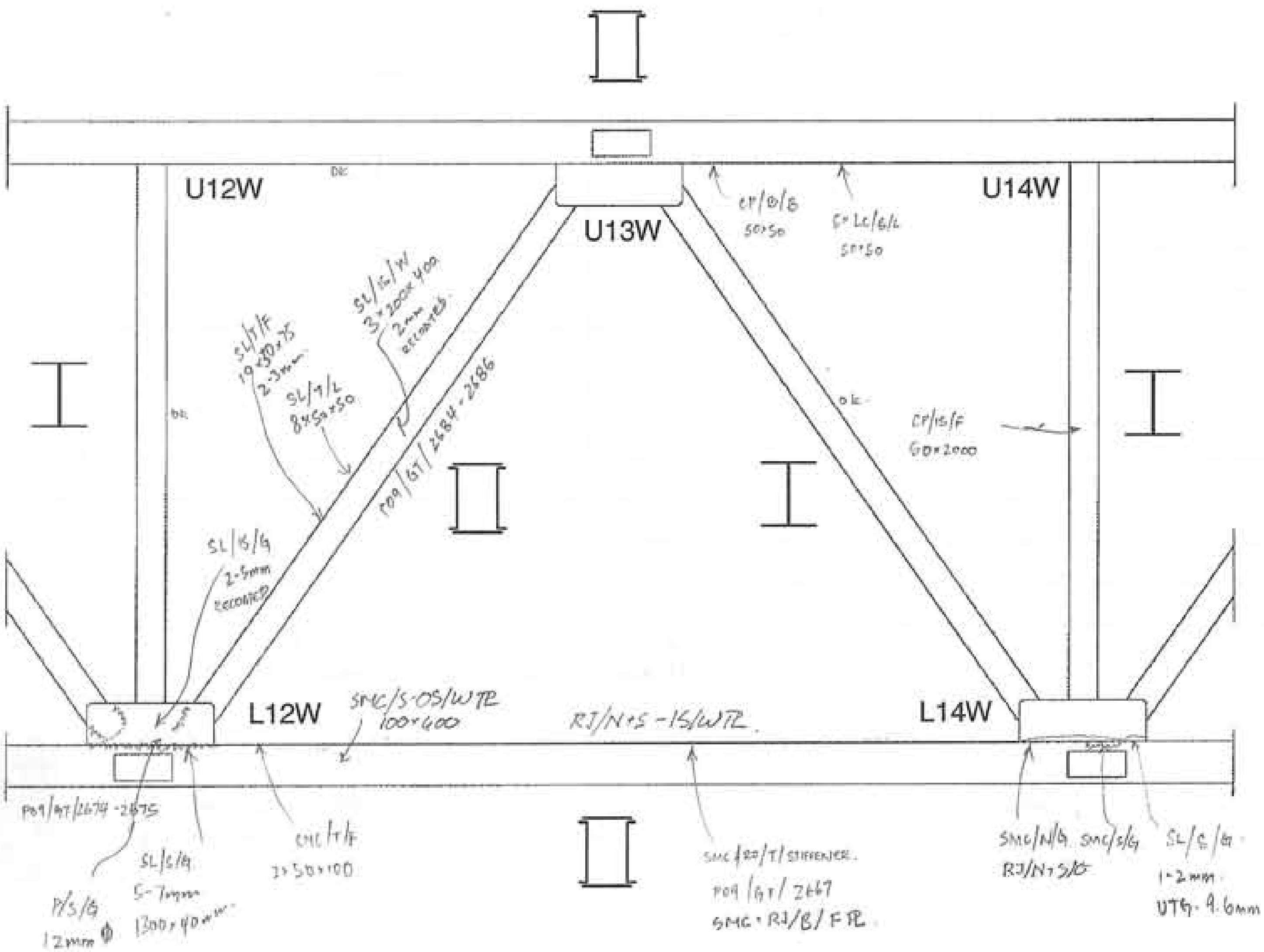
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN W. INT

TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

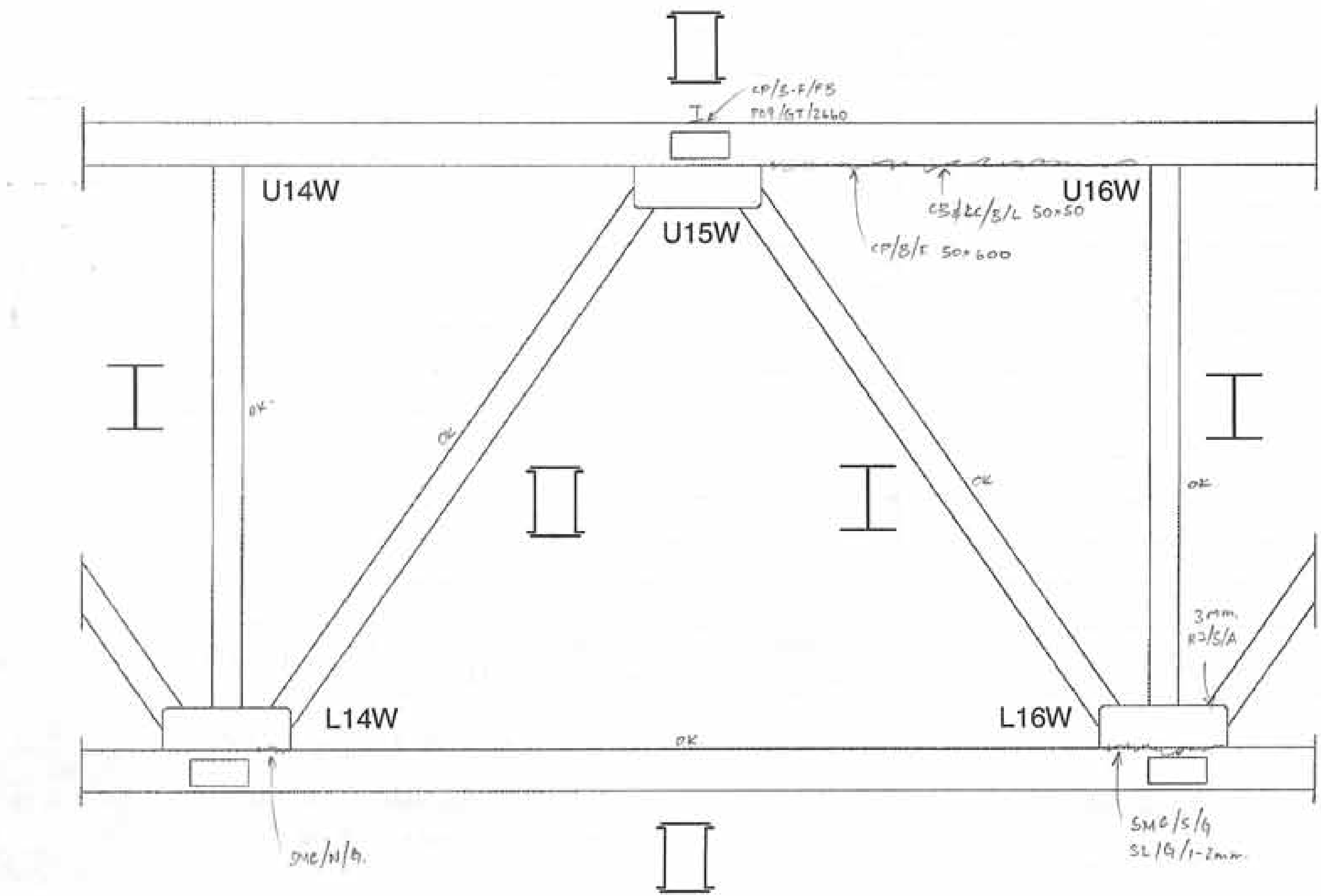
Date: AUG, 2009

Inspected By: GT-DH

Span: W,INT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

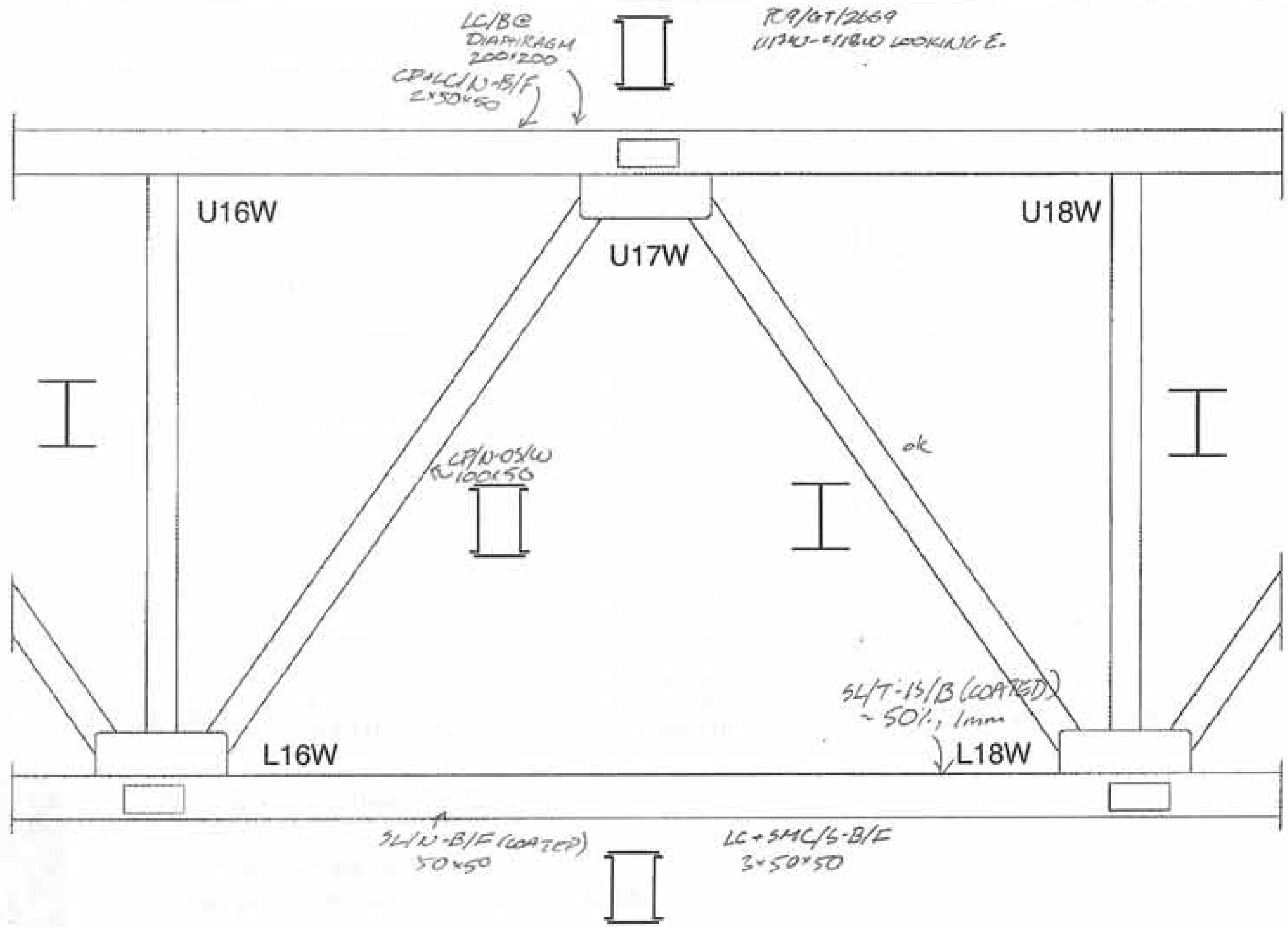
Span: W. INT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W.INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

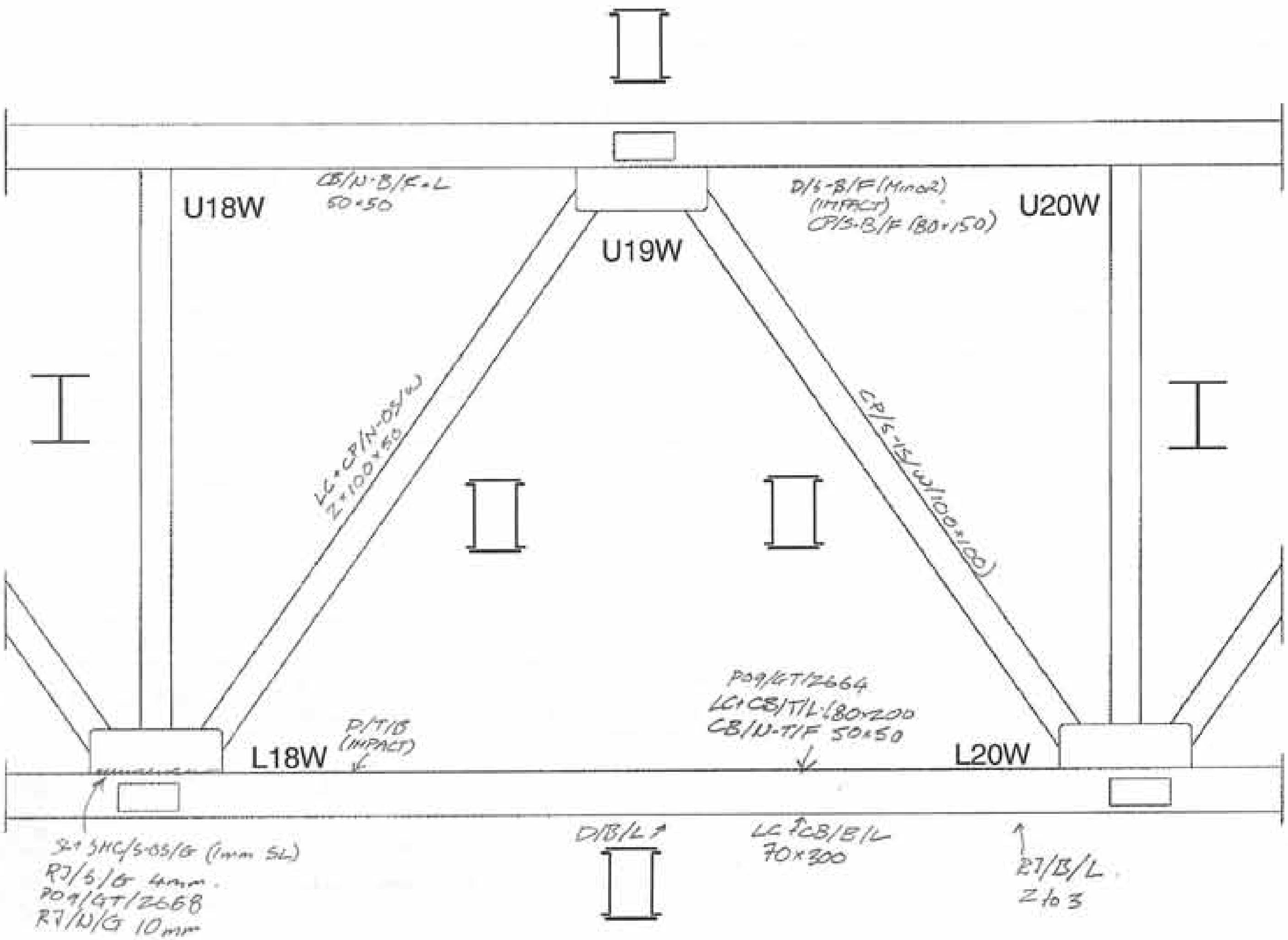
Span: W.INT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

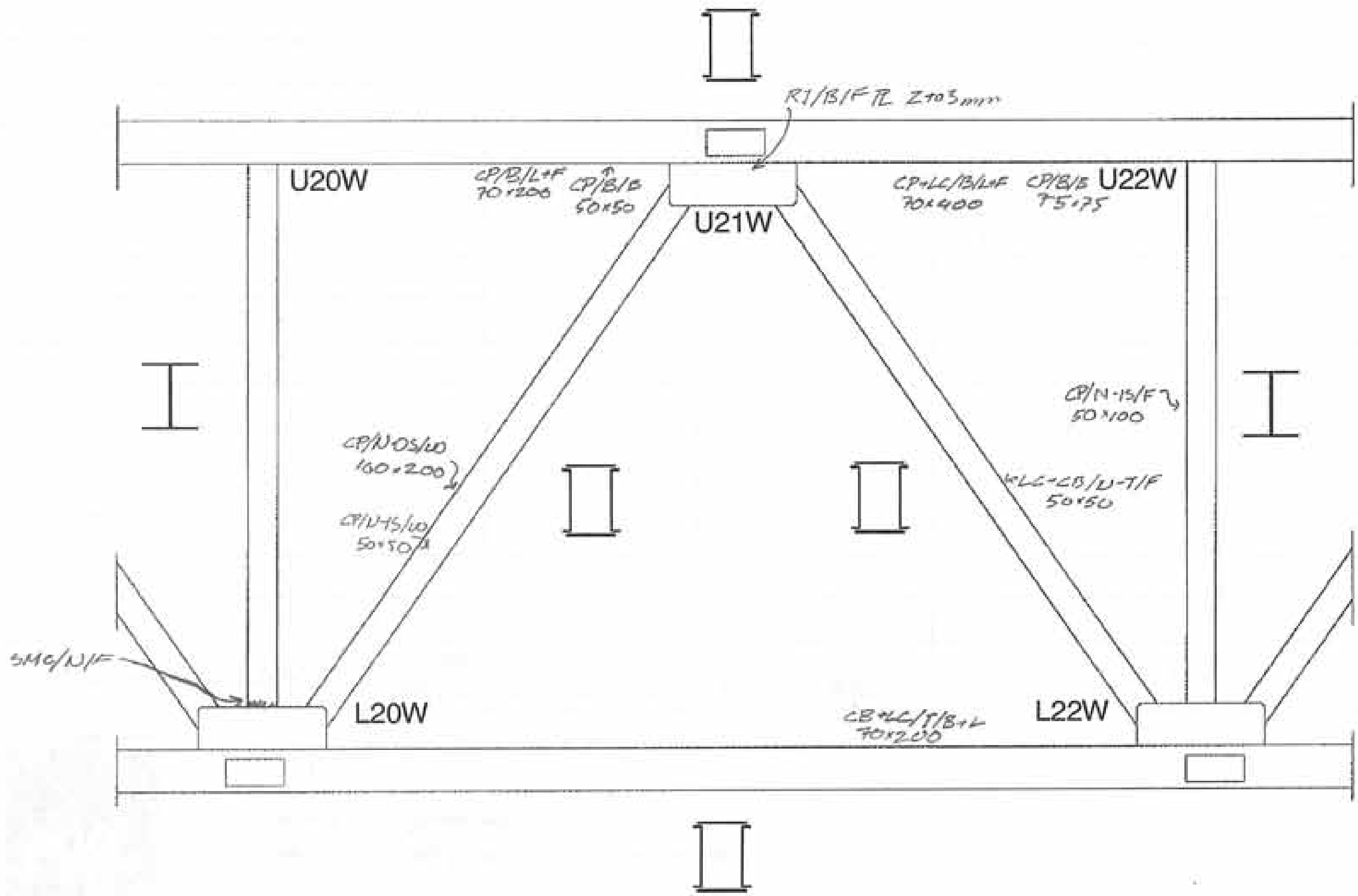
Span: W, INT Truss: 3

Date: AUG, 2009

Inspected By: GT+DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W. INT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

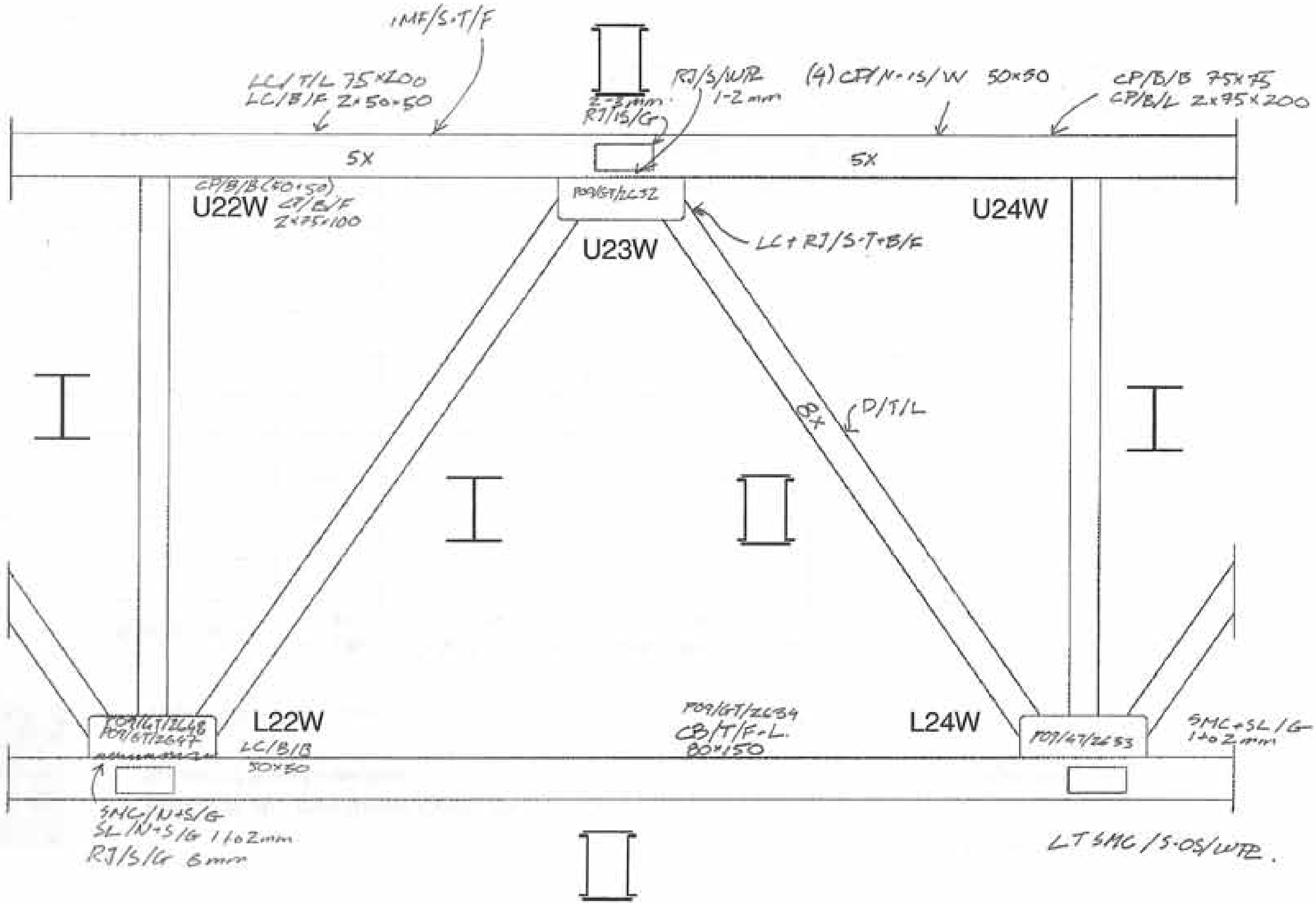
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN W INT

TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

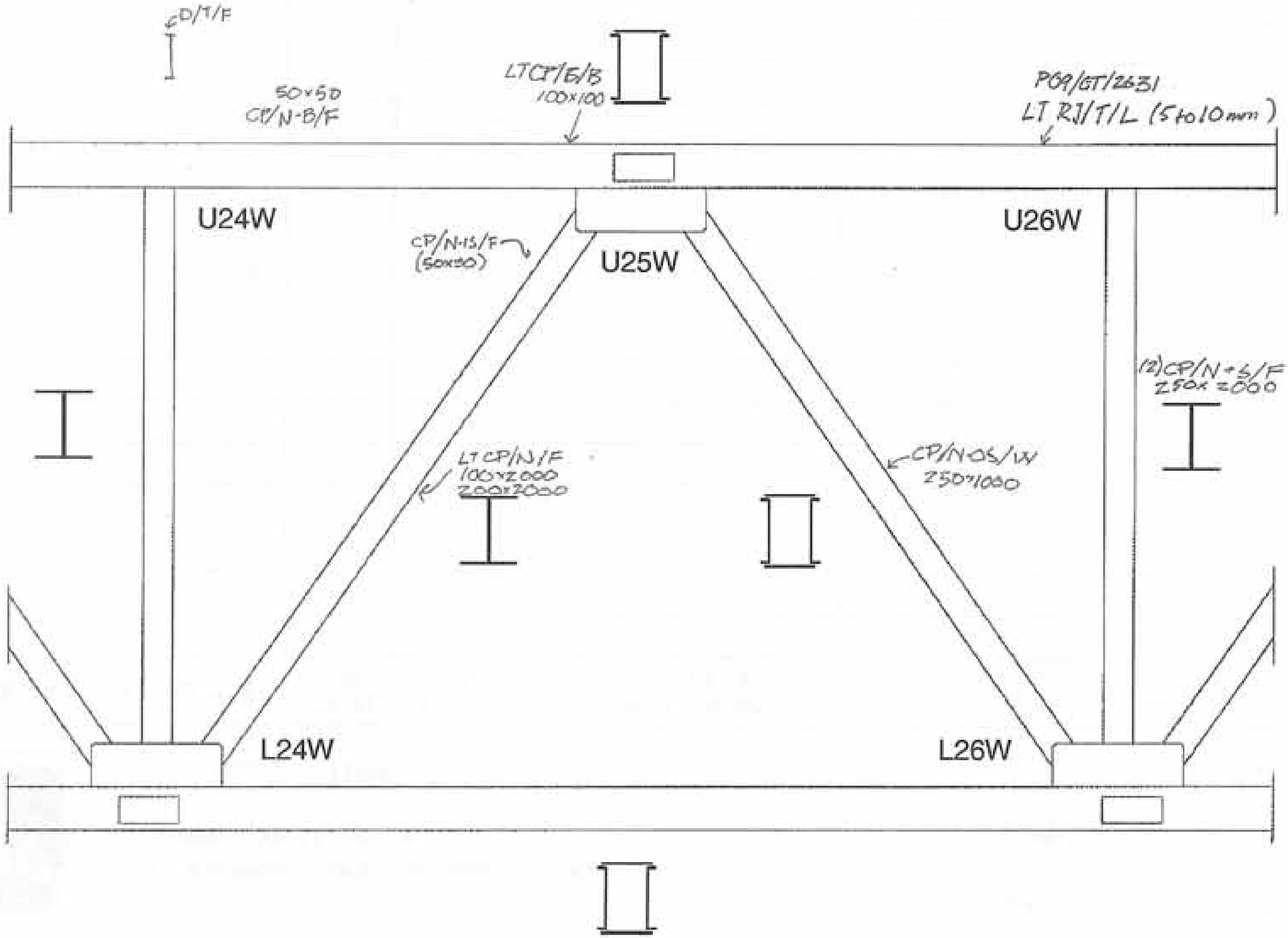
Date: AUG, 2009

Inspected By: GT-DH

Span: W.INT Truss: 3

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
L22 W G.				U/TO - SEAM CORR. 10.9, 11.0, 10.8, 9.7, 9.8, 10.3

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 3



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

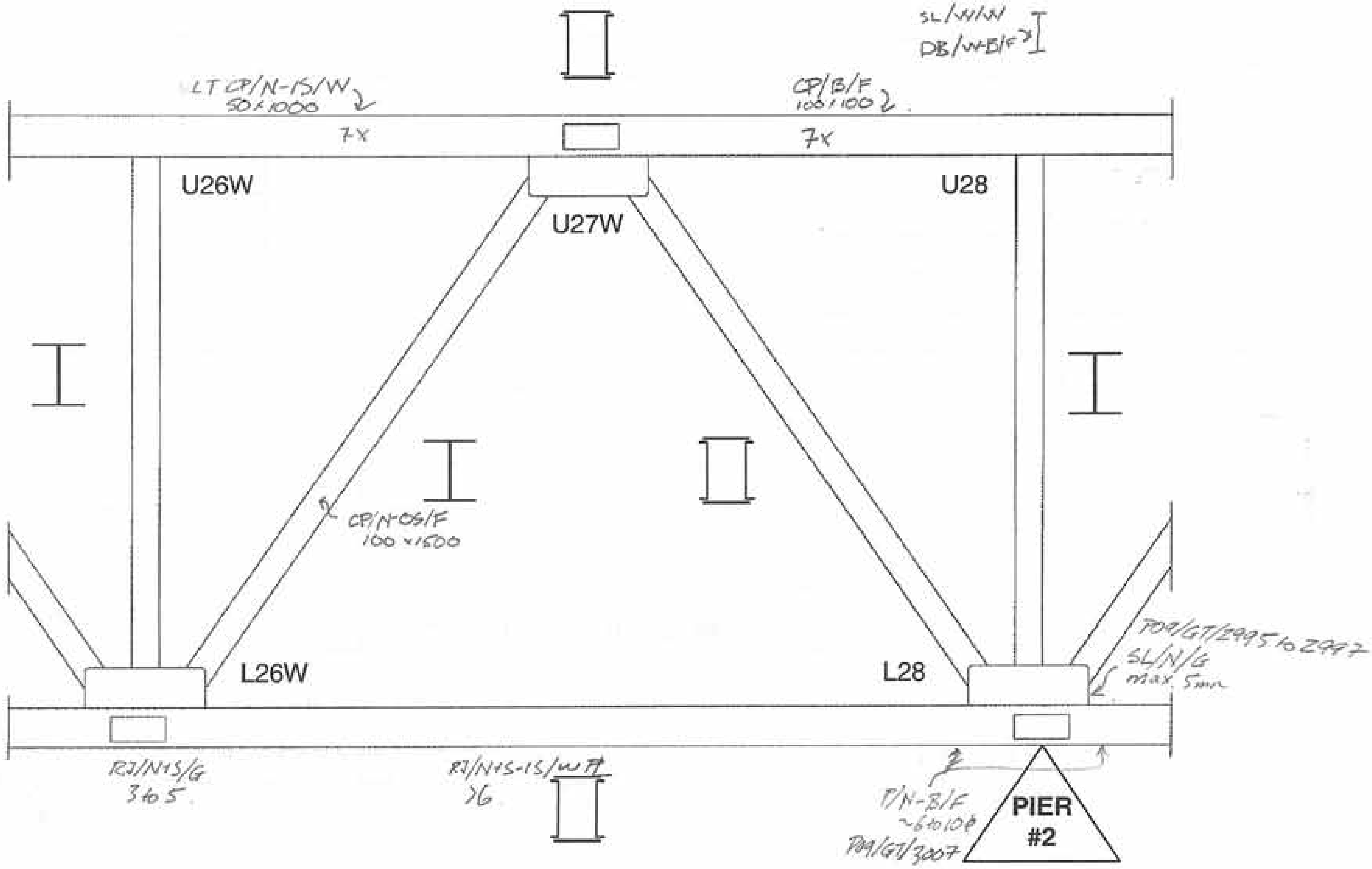
Span: W.INT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 3



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

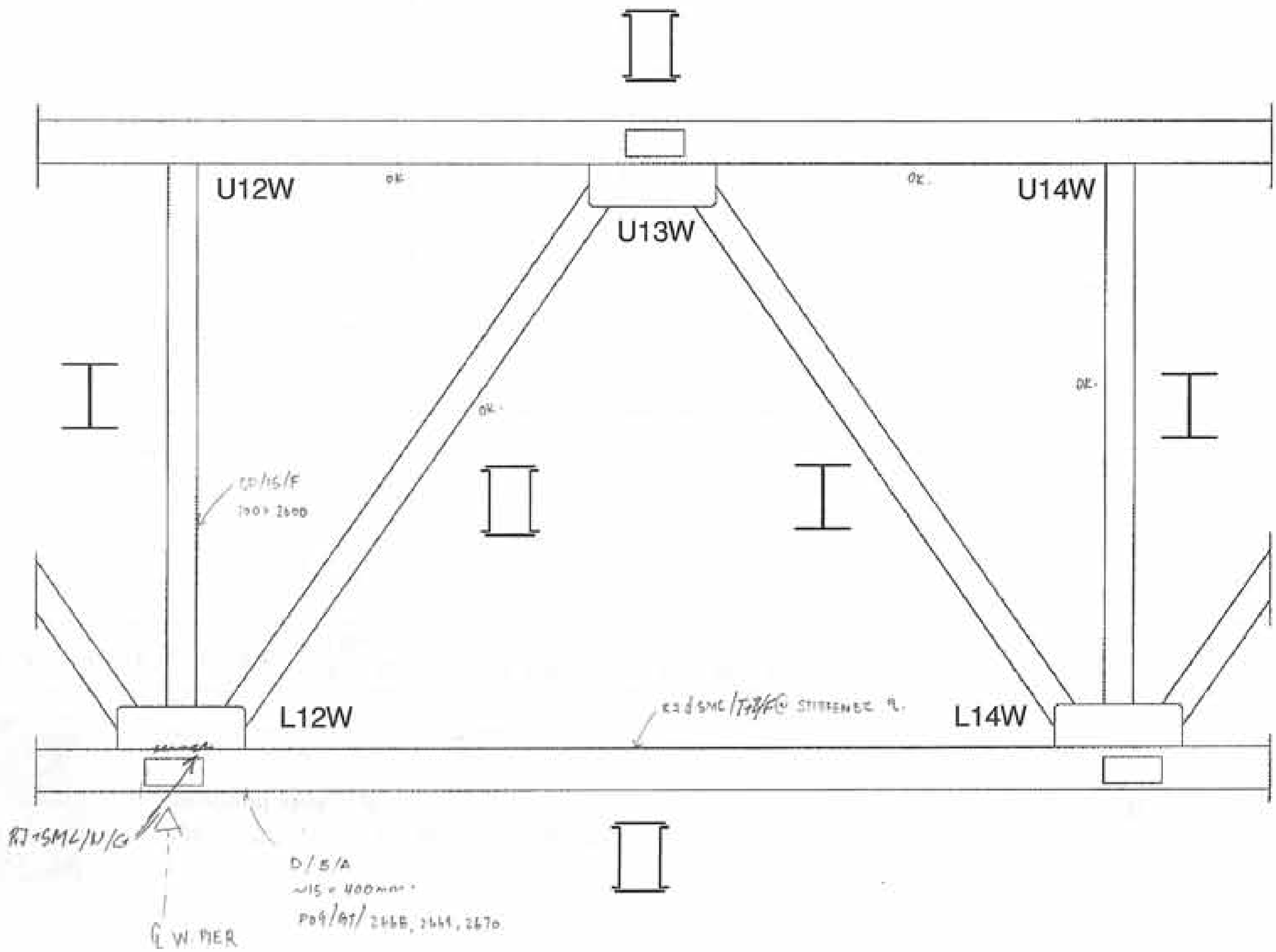
Span: W.INT Truss: 3

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS
L28-- [illegible] [illegible]			7.2, 7.4 @ [illegible]	
L28W N.GUSSET				STF @ SL 4.4, 7.6, 7.7

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W.INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

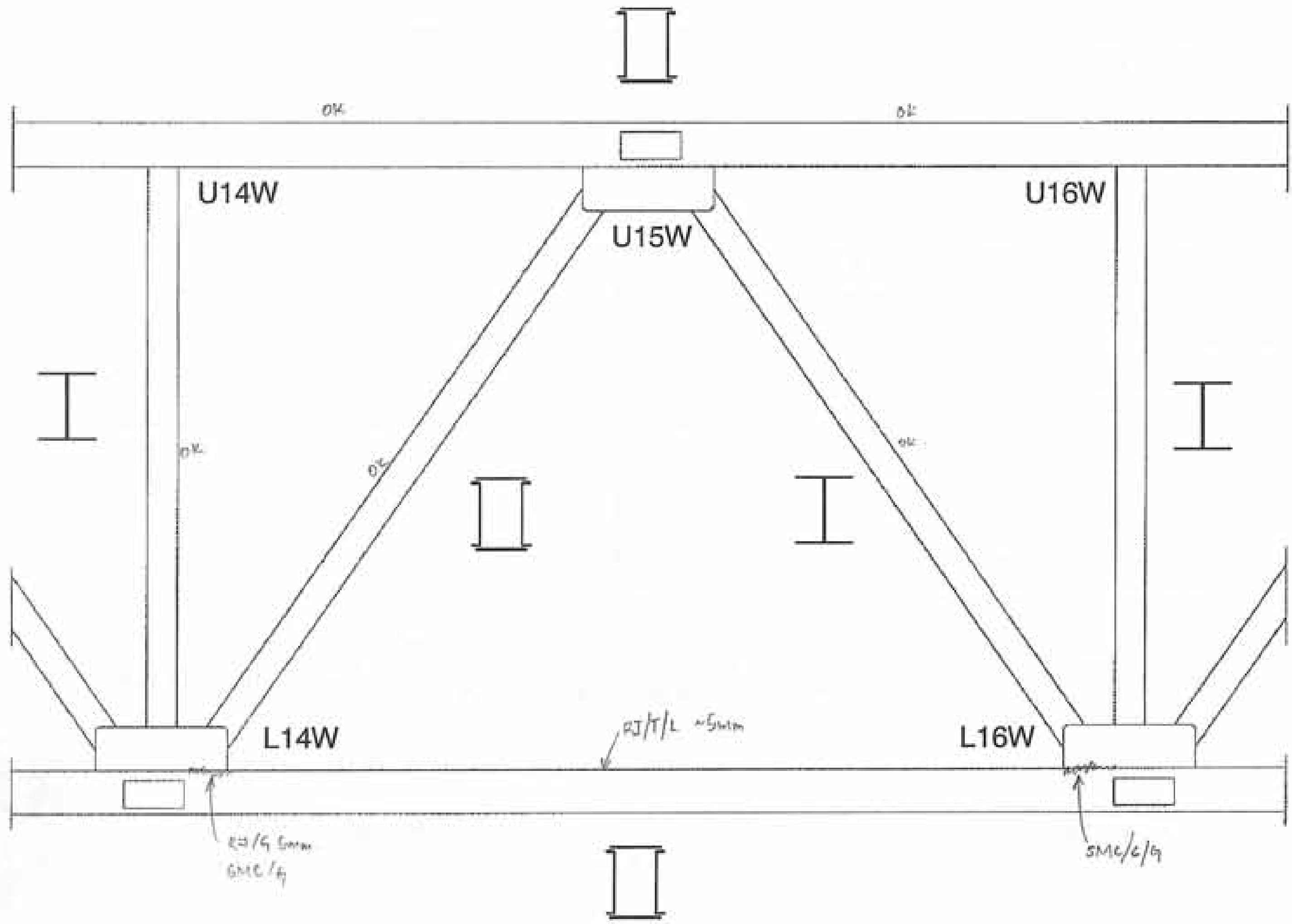
Span: W. INT Truss: 2

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

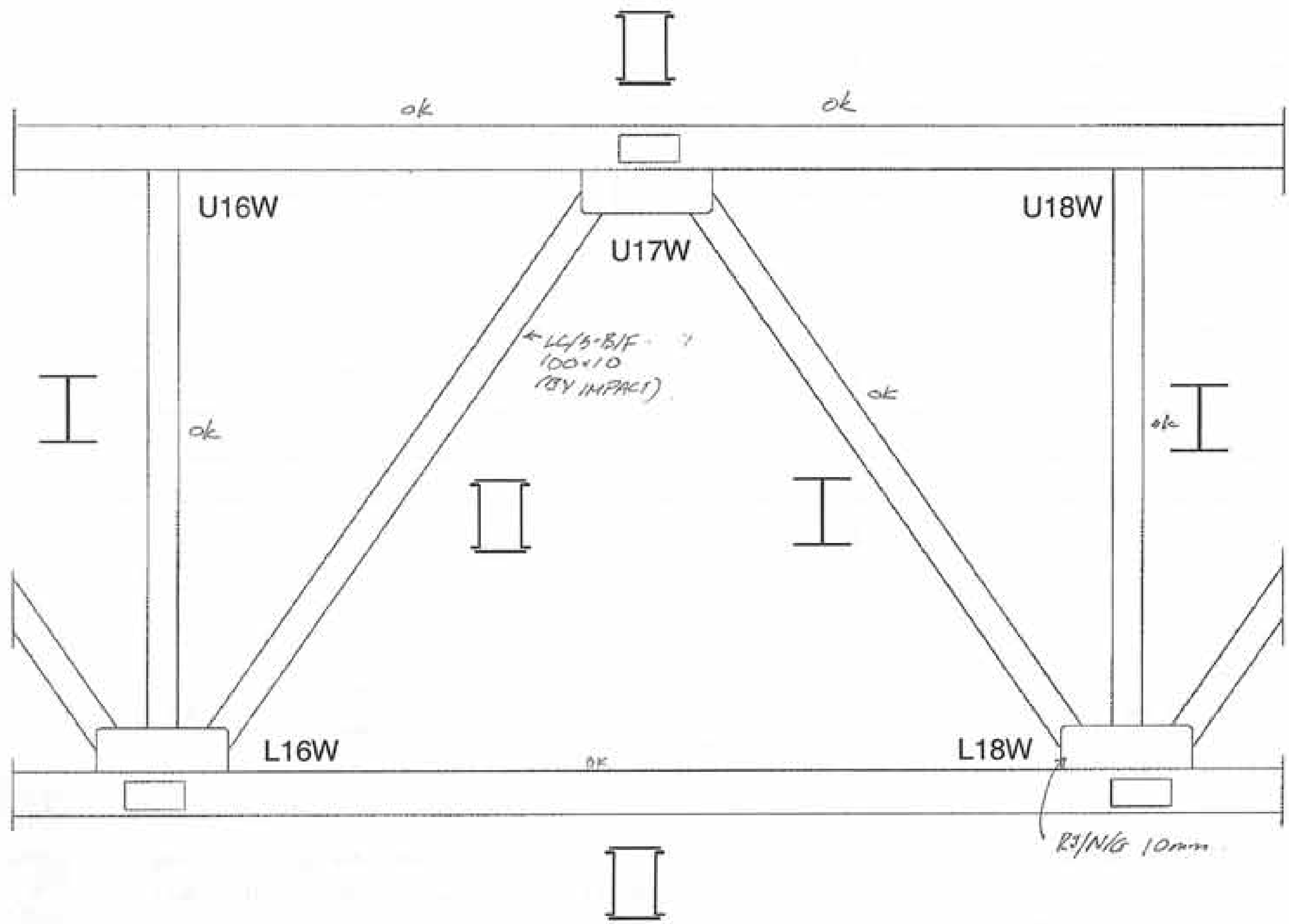
Span: W. INT Truss: 2

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

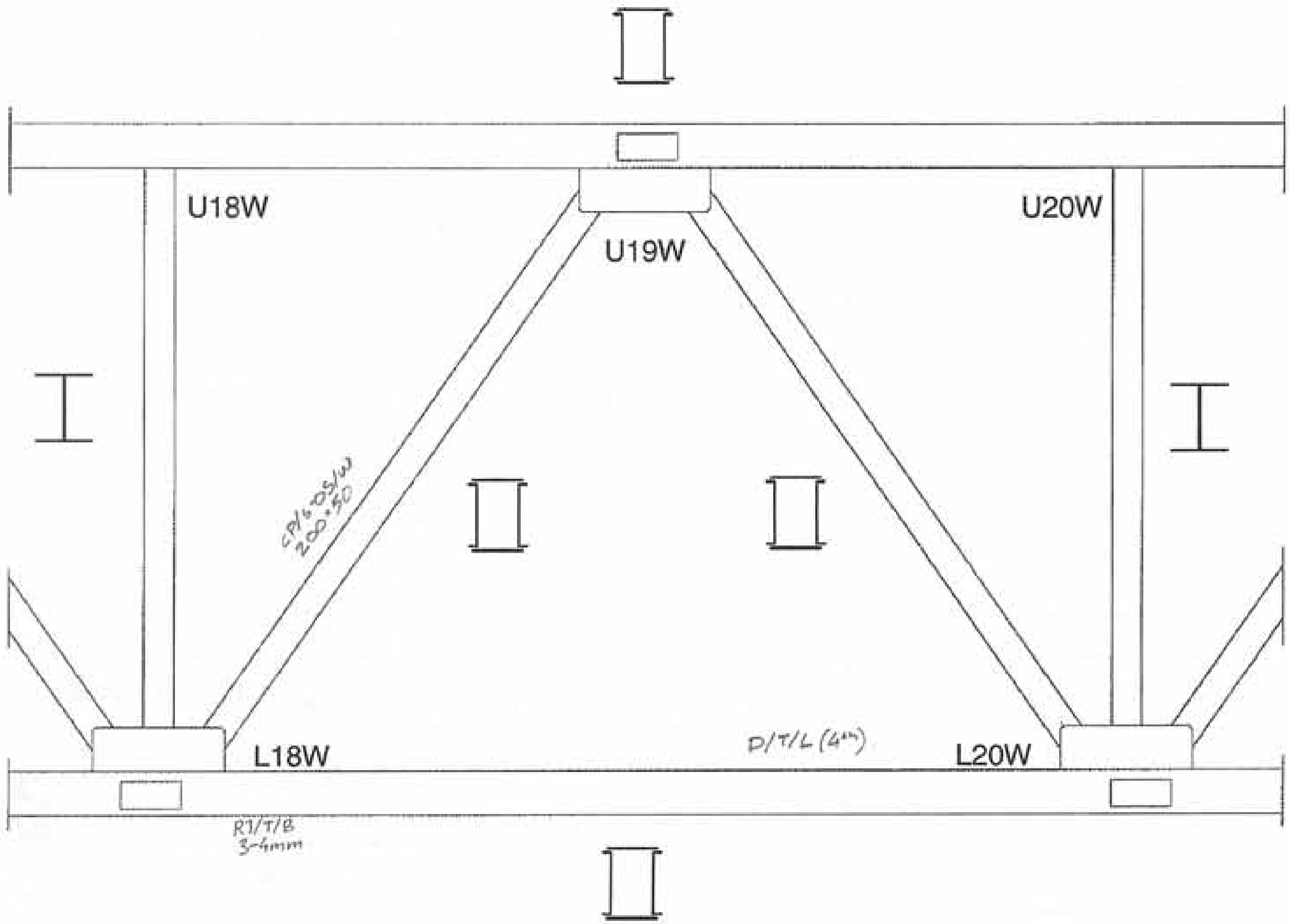
Span: W, INT Truss: 2

Date: FEB, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. NT TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

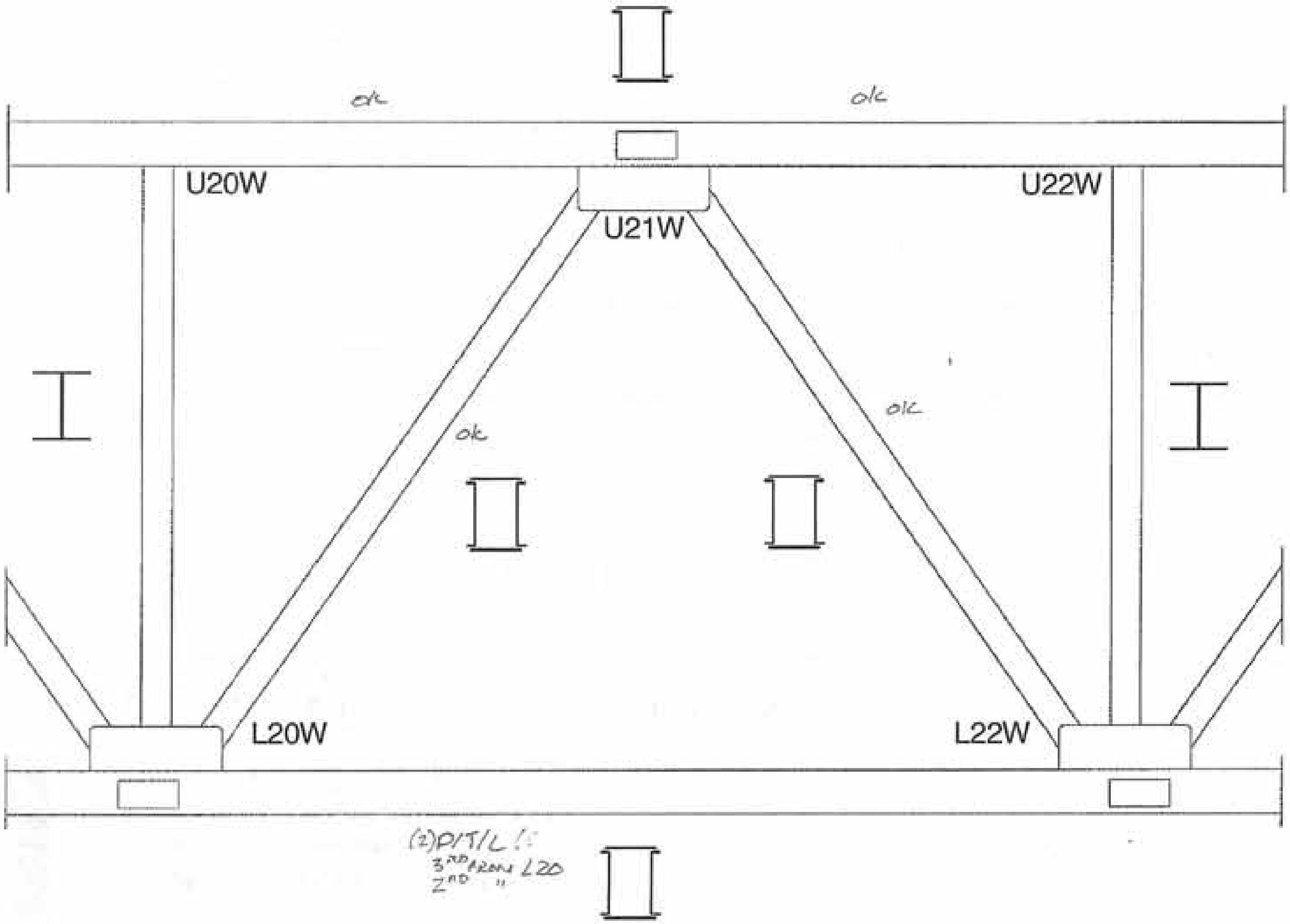
Span: W. INT Truss: 2

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 2



Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

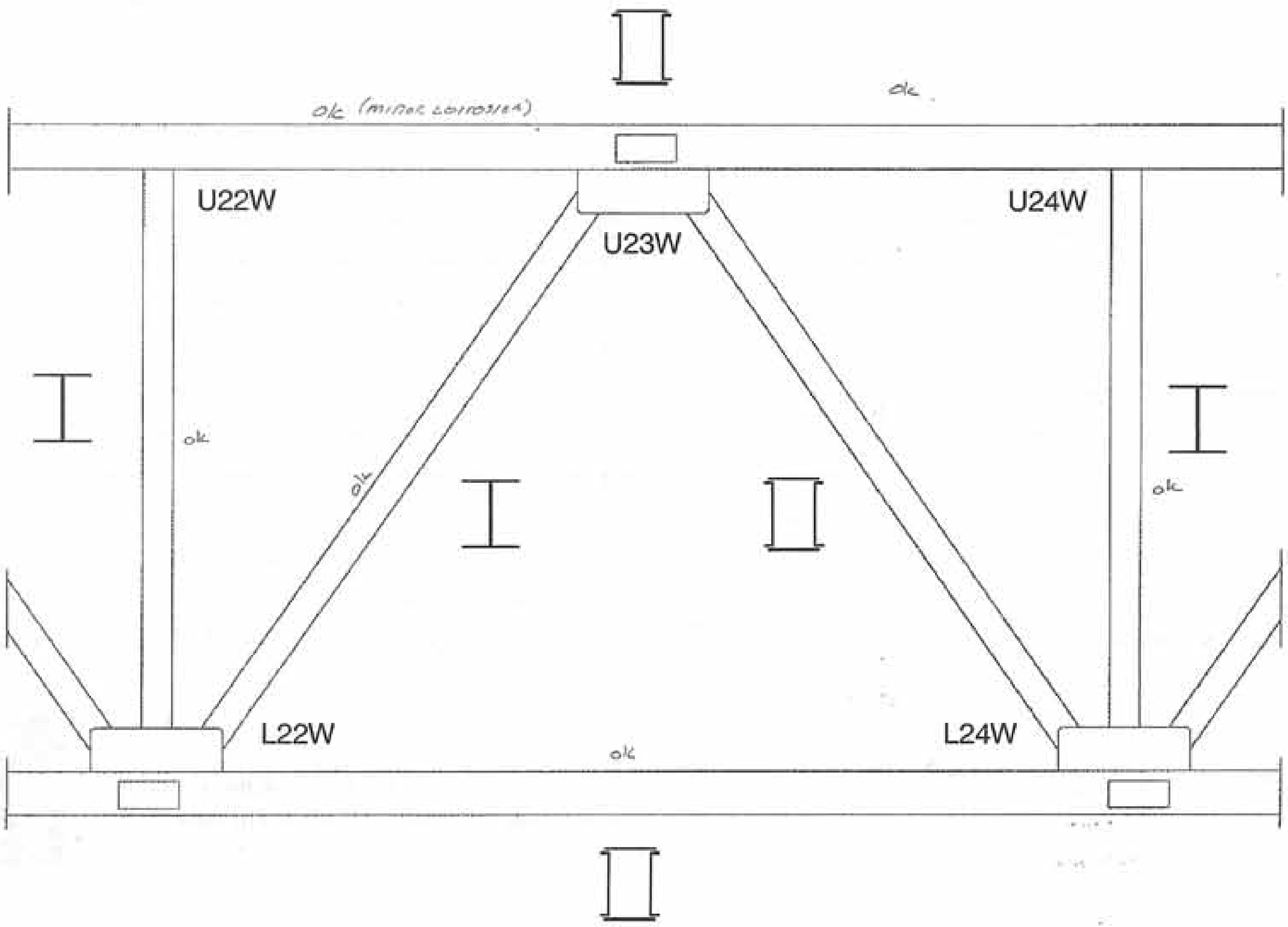
Date: AUG, 2009

Inspected By: GT+DH

Span: W,INT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W. INT TRUSS 2



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W.INT Truss: 2

Date: AUG, 2009

Inspected By: GT/DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

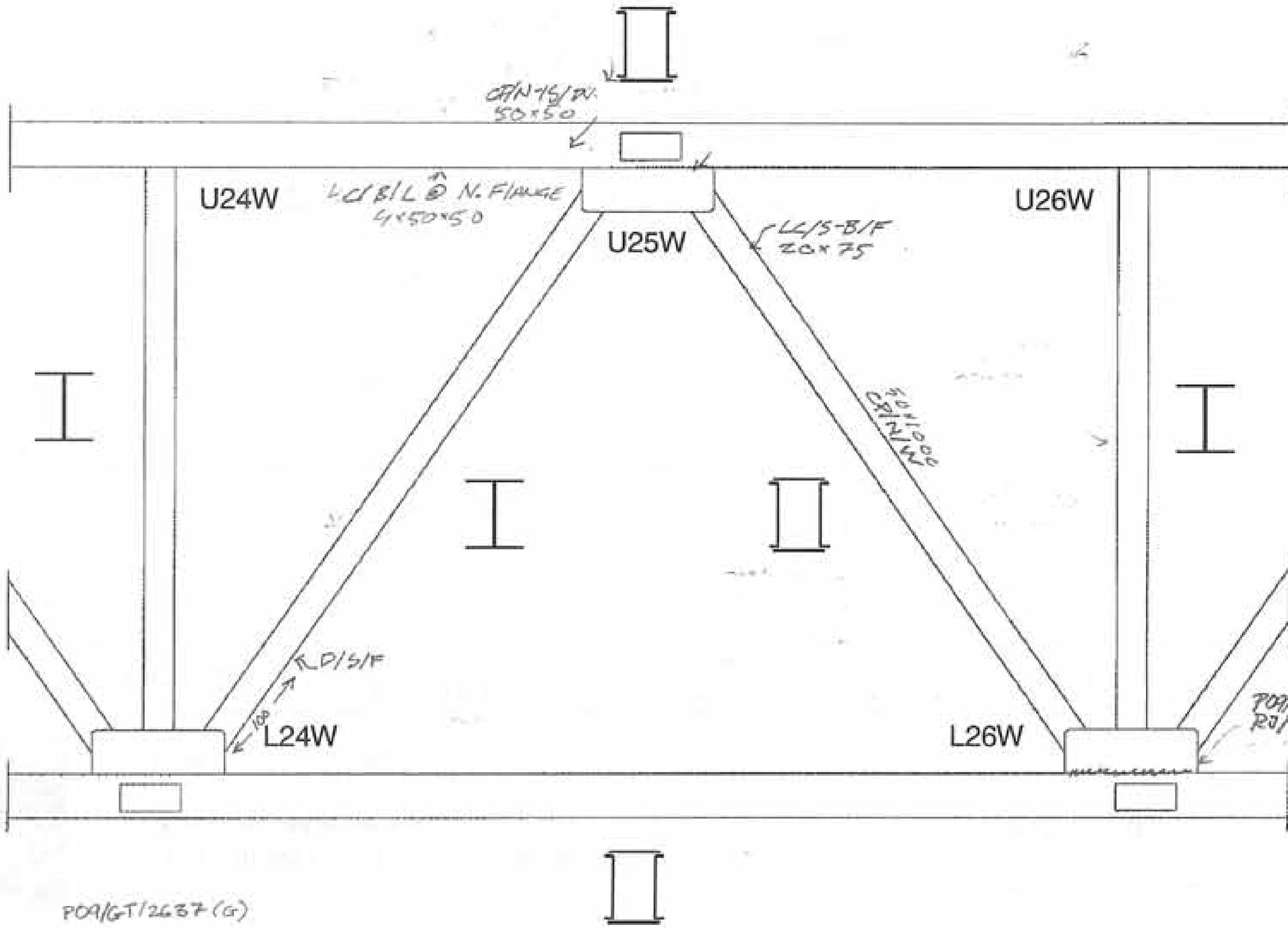
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN W. INT

TRUSS 2



P09/GT/2637 (G)
L24W - GUSSET PL
LOOKING S.W.

MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT + DH

Span: W.INT Truss: 2

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP

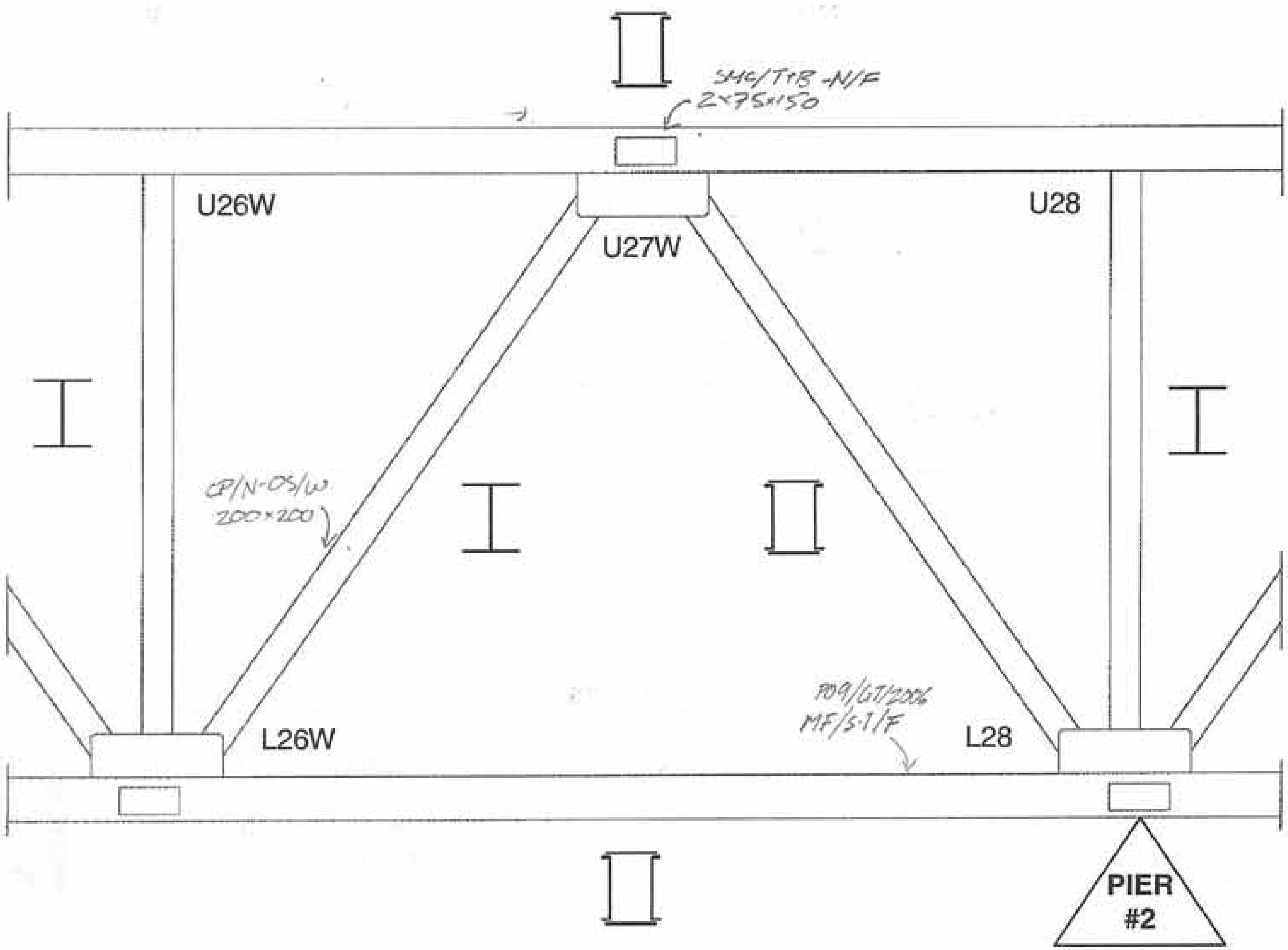
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN W.INT

TRUSS 2



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W.INT Truss: 2

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

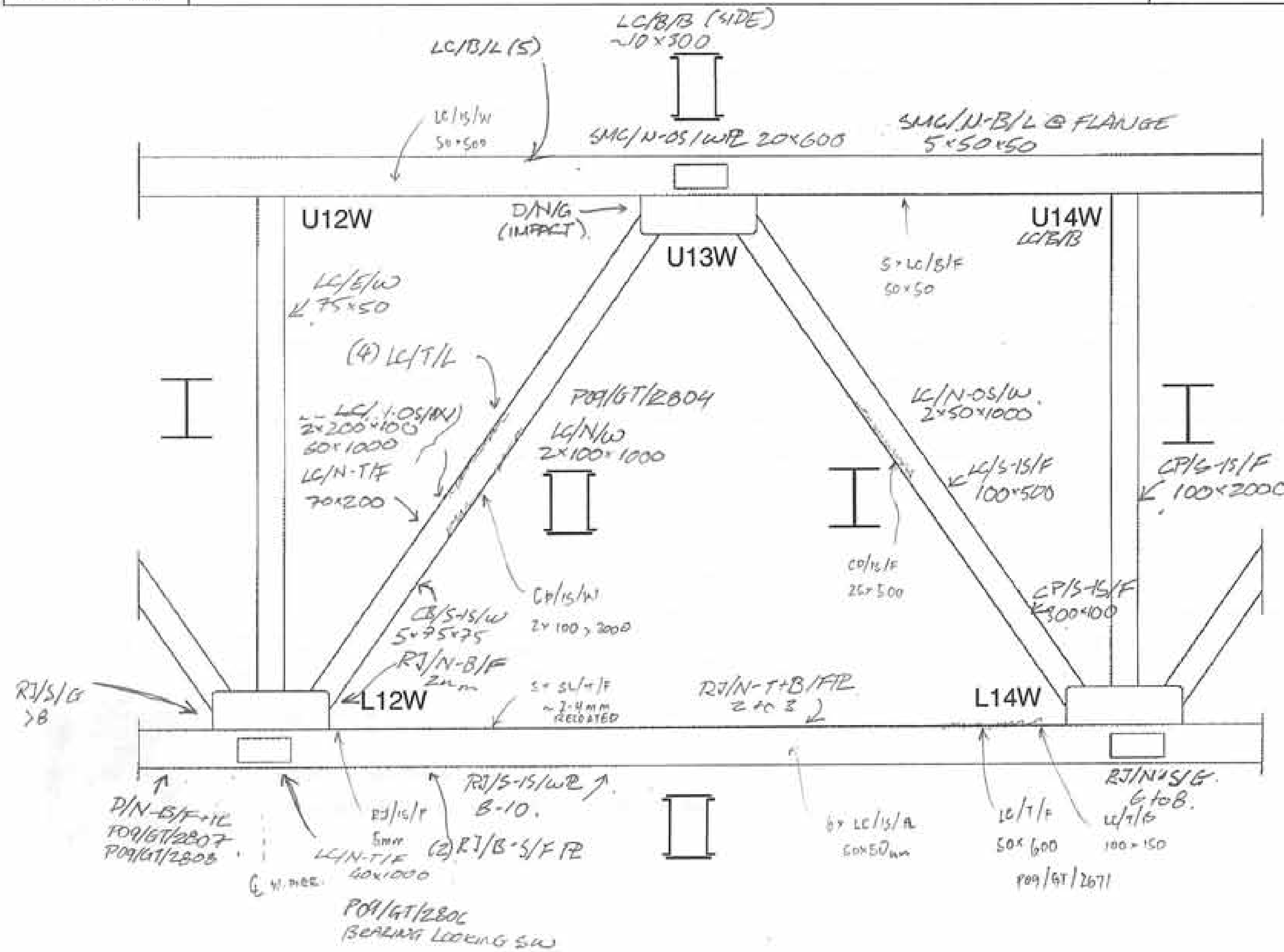
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN WI

TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

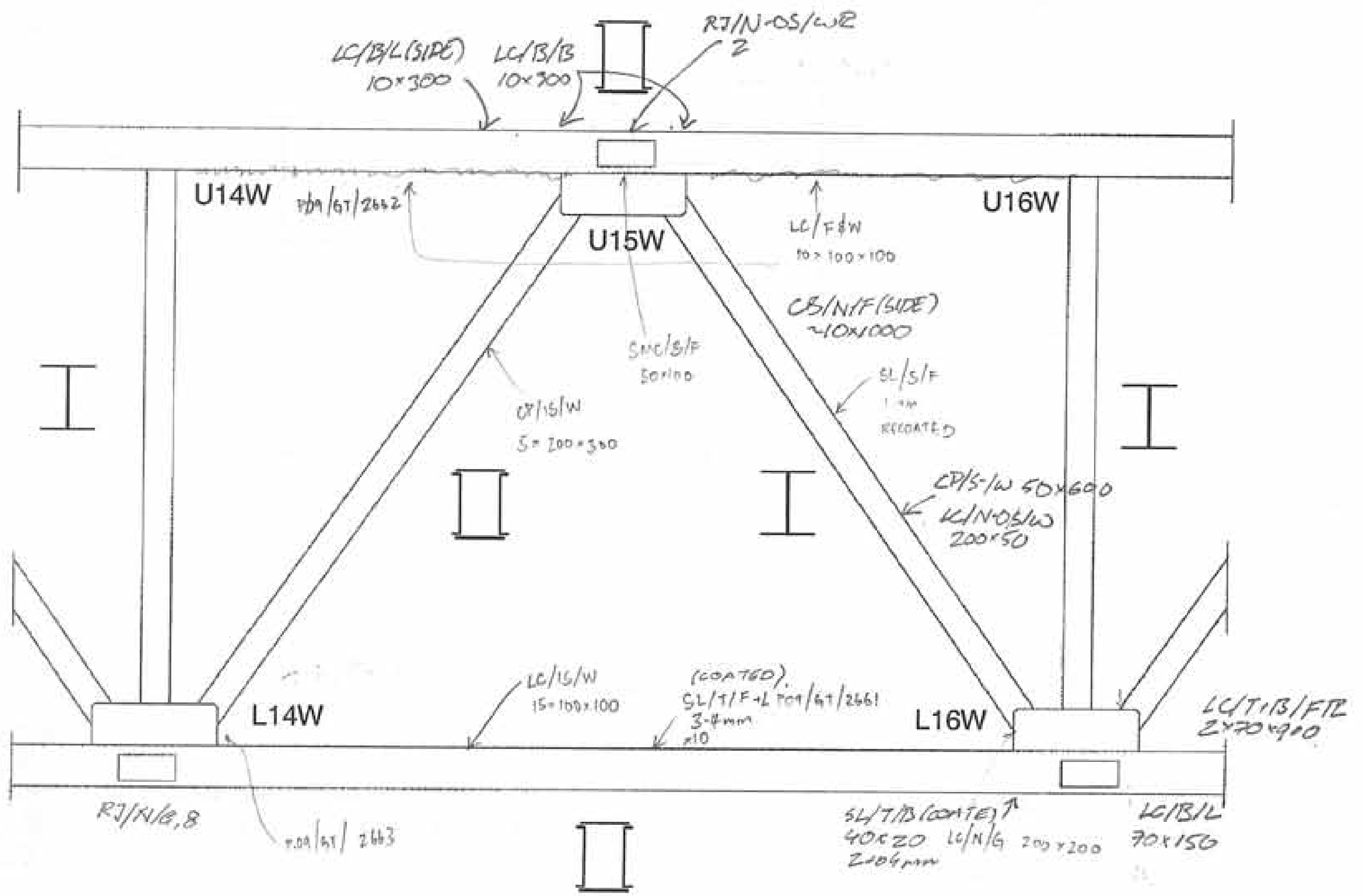
Span: W.I Truss: 1

Date: AUG, 2009

Inspected By: GT・DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN W.I TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

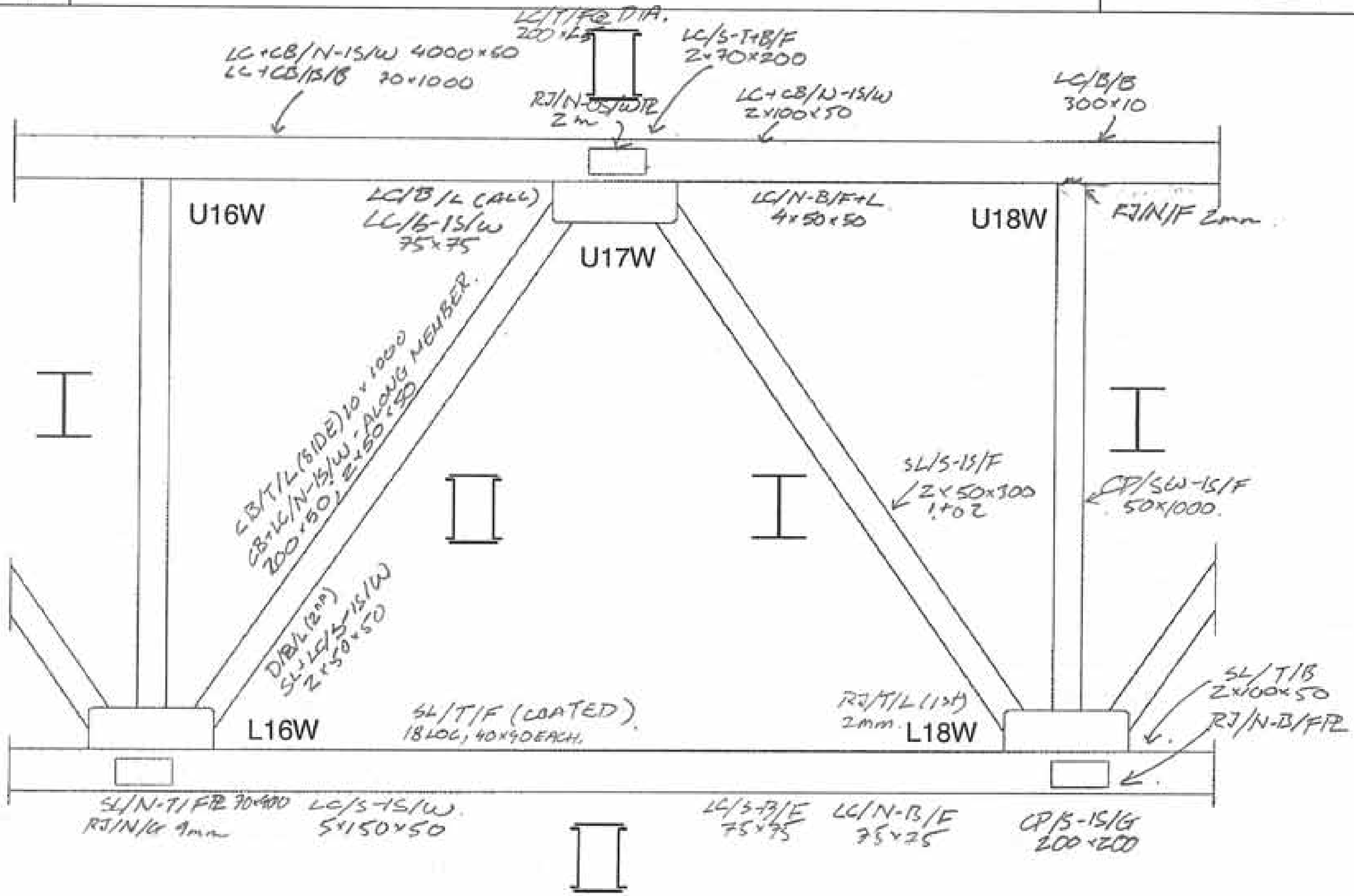
Date: AUG, 2009

Inspected By: GT-DH

Span: W.E Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN WI TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

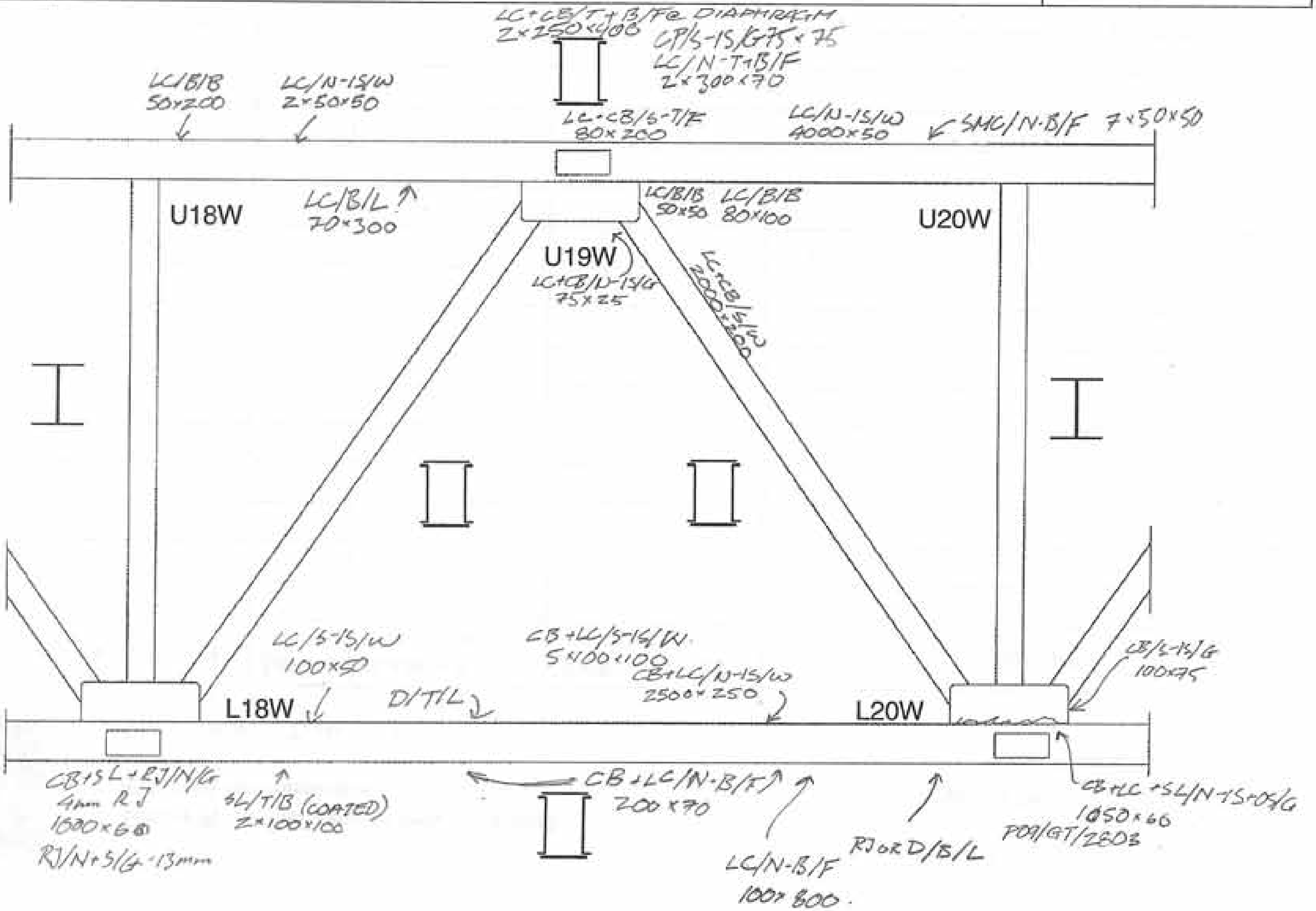
Date: AUG, 2009

Inspected By: GT+DH

Span: W.I Truss: 1

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN WI TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W, I Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

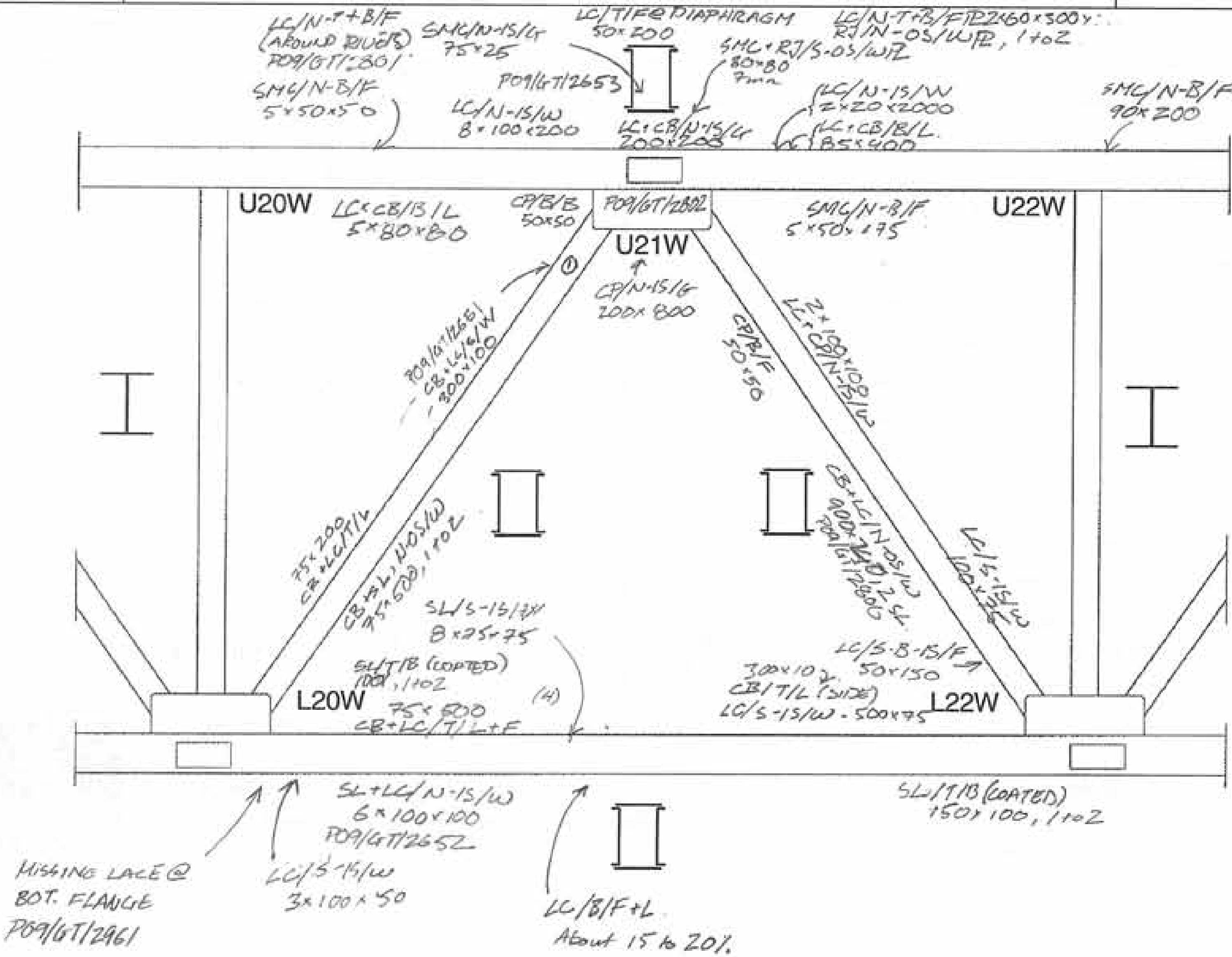
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN WI

TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W, I Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

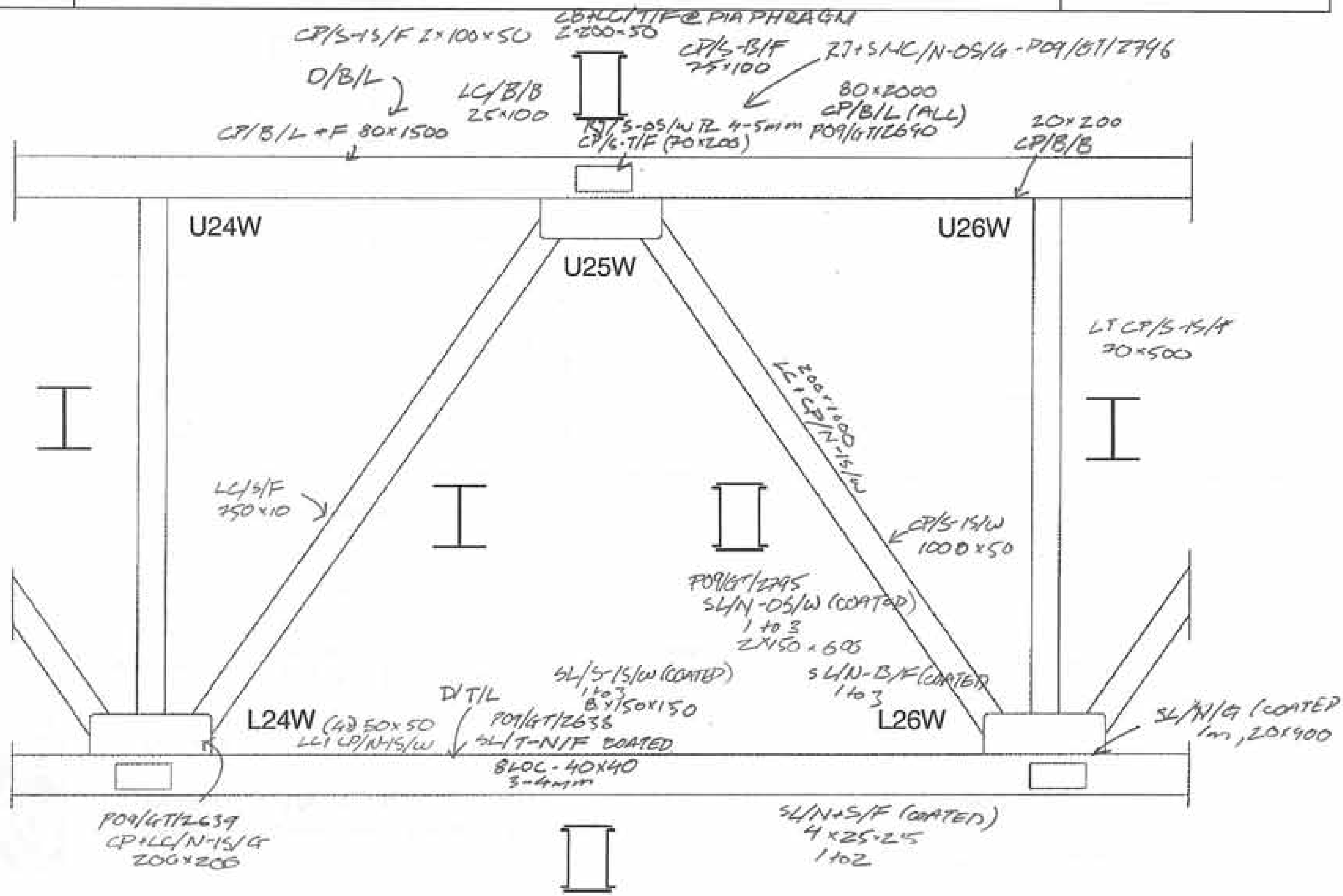
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN WI

TRUSS 1



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W.I Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC
A member of MMM GROUP

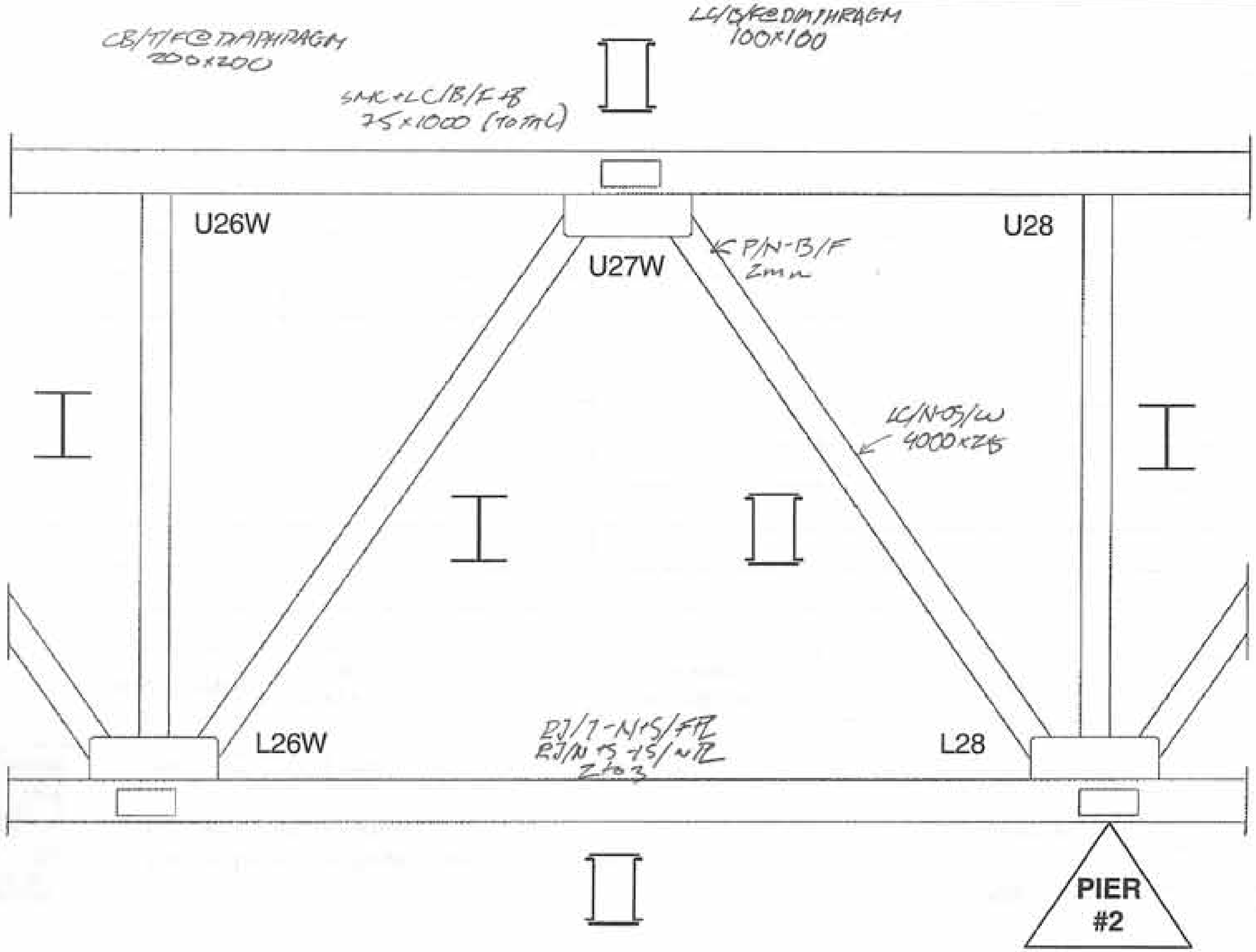
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN WI

TRUSS 1



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: W.I Truss: 1

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC

A member of MMM GROUP

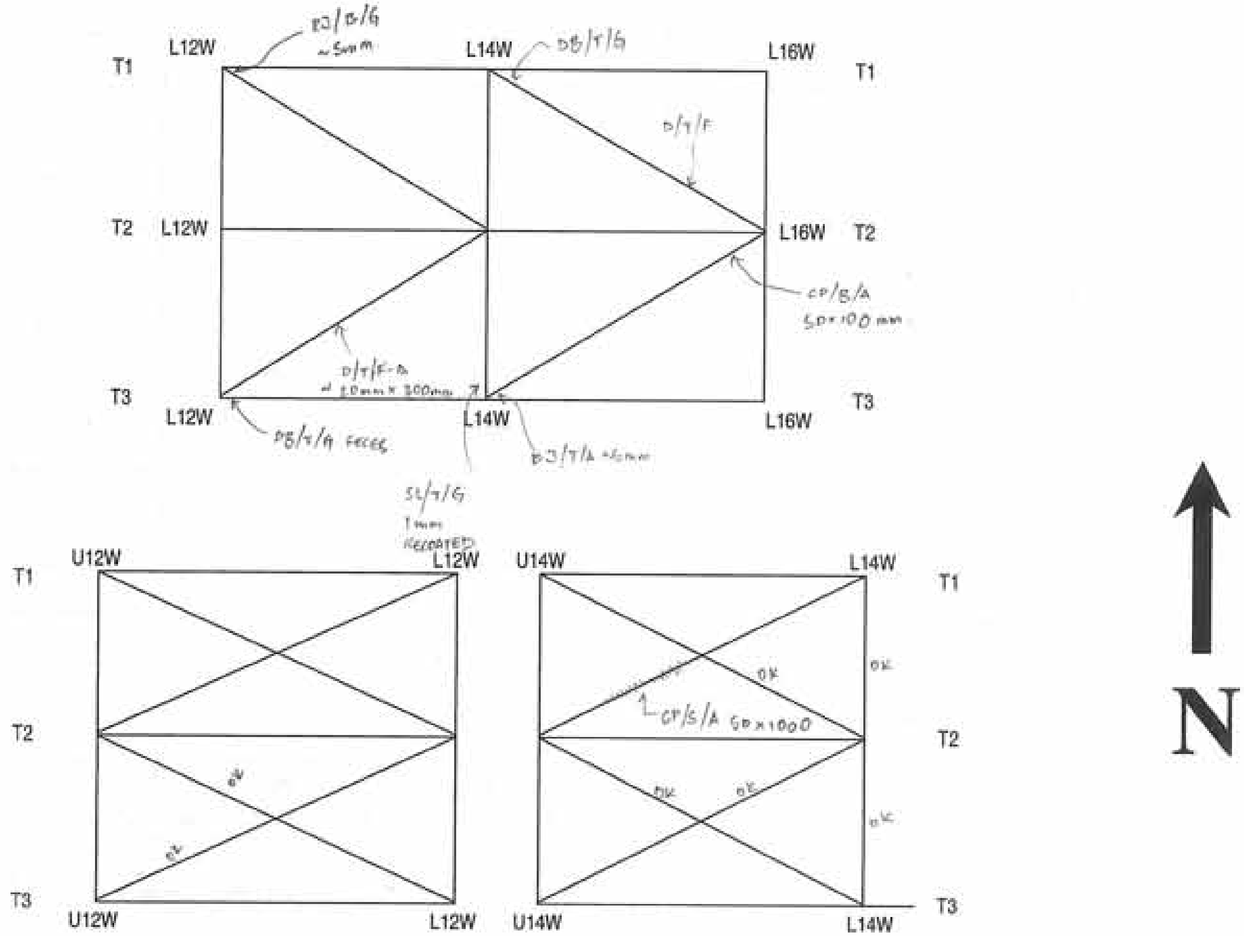
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 2

TRUSS WB



MRC
A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

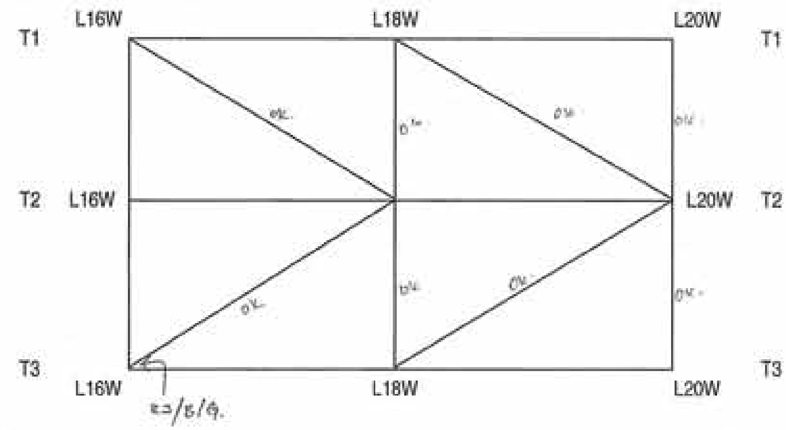
Date: AUG, 2009

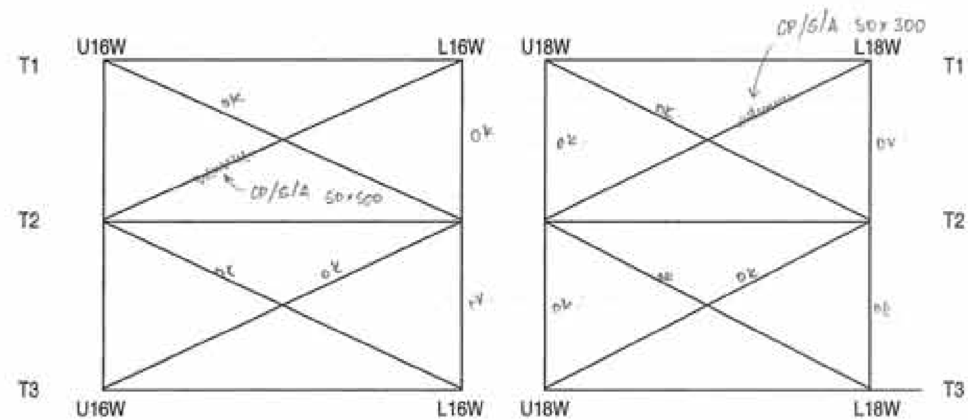
Inspected By: GT + DH

Span: 2 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

MRC A member of MMM GROUP	TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE STRUCTURAL STEEL INSPECTION	200' FOOT SPAN SPAN 2 TRUSS WB





N

MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Span: 2 Truss: WB

Date: AUG, 2009

Inspected By: GT + DH

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

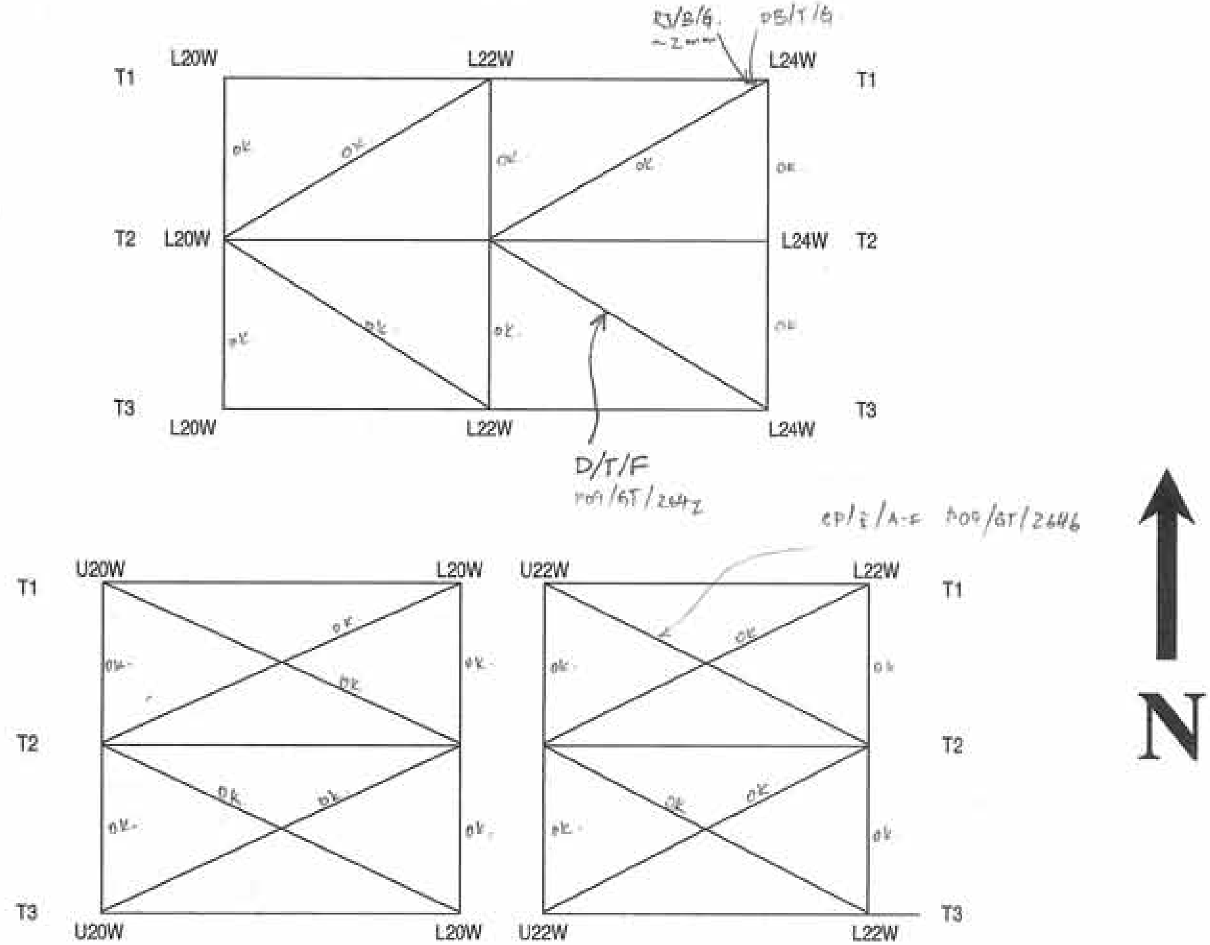
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 2

TRUSS WB



MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: [illegible]

Span: 2 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

A member of MMM GROUP

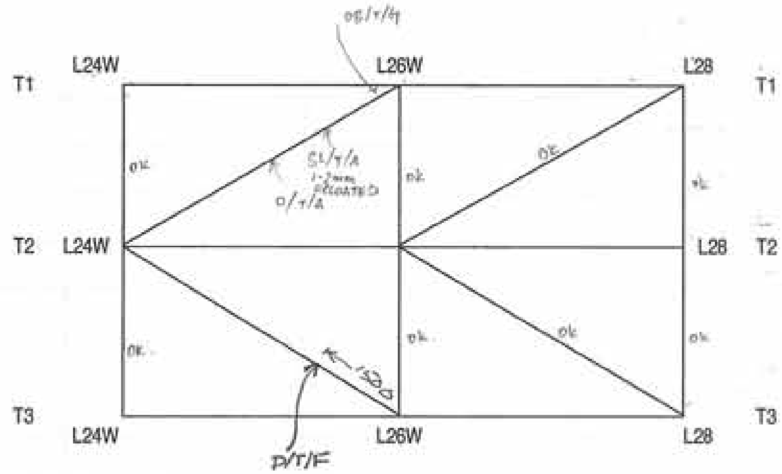
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

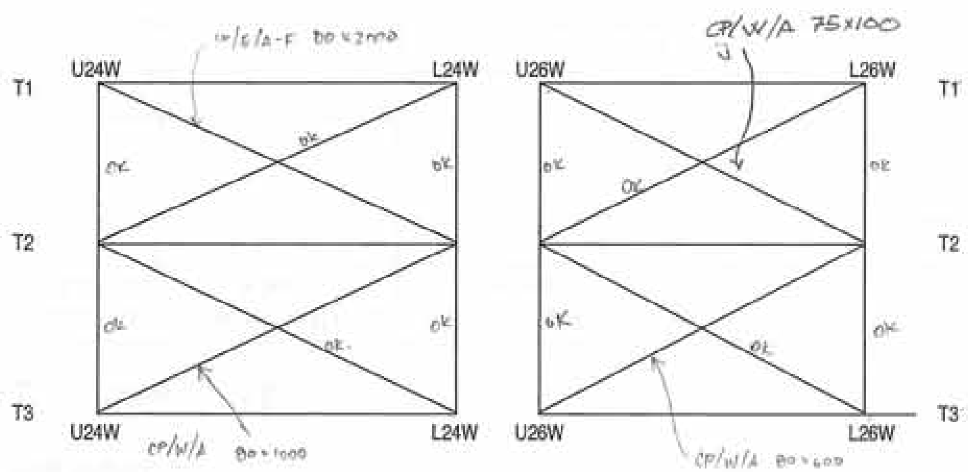
STRUCTURAL STEEL INSPECTION

200' FOOT SPAN

SPAN 2

TRUSS WB





N

MRC

A member of MMM GROUP

Tansley Bridge over Bronte Creek, South Bridge
Structural Steel Inspection

Date: AUG, 2009

Inspected By: GT + DH

Span: 2 Truss: WB

MEMBER / NODE DESCRIPTION	DEPTH, d (mm)	FLANGE WIDTH, b (mm)	WEB THICKNESS, w (mm)	COMMENTS

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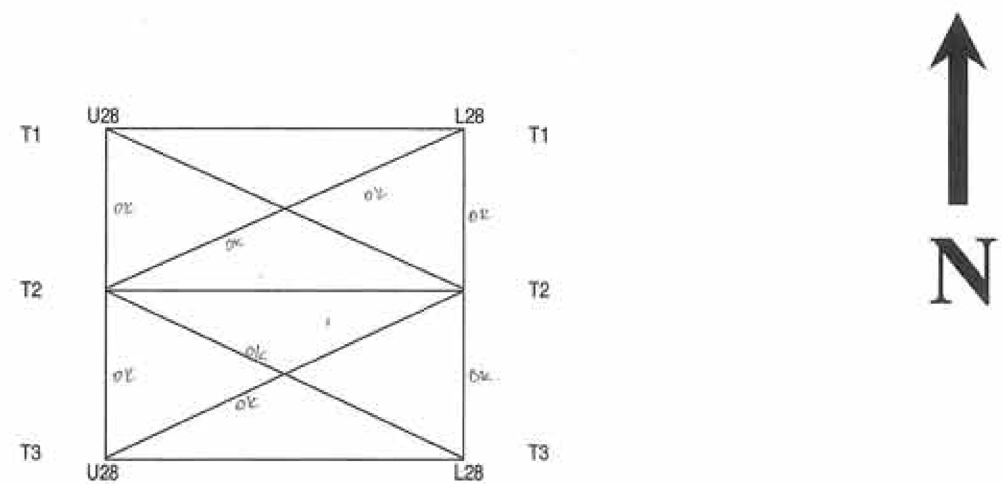
TANSLEY BRIDGE OVER BRONTE CREEK, SOUTH BRIDGE

STRUCTURAL STEEL INSPECTION

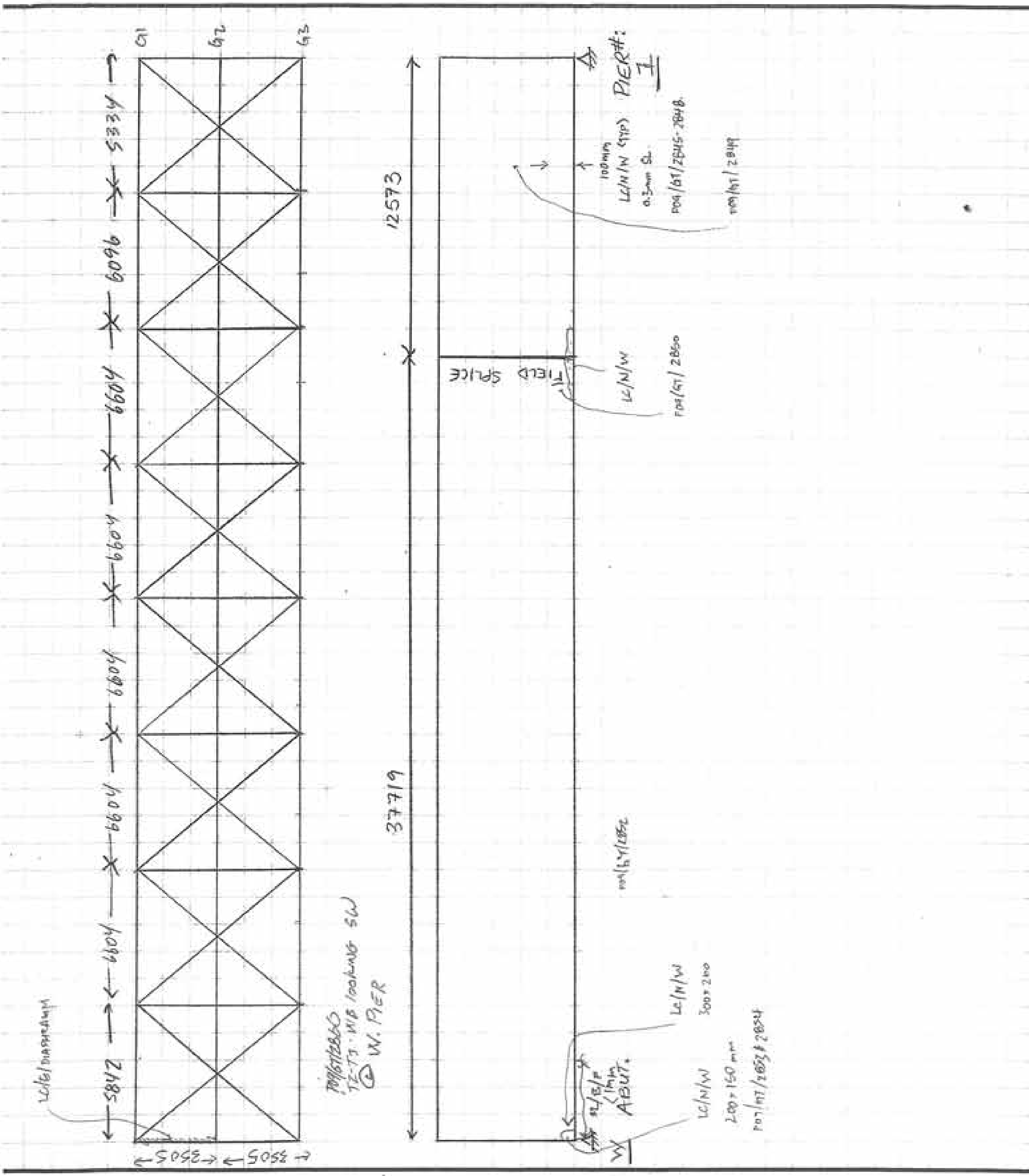
200' FOOT SPAN

SPAN ______

TRUSS __WB__



North Structure
West Exterior



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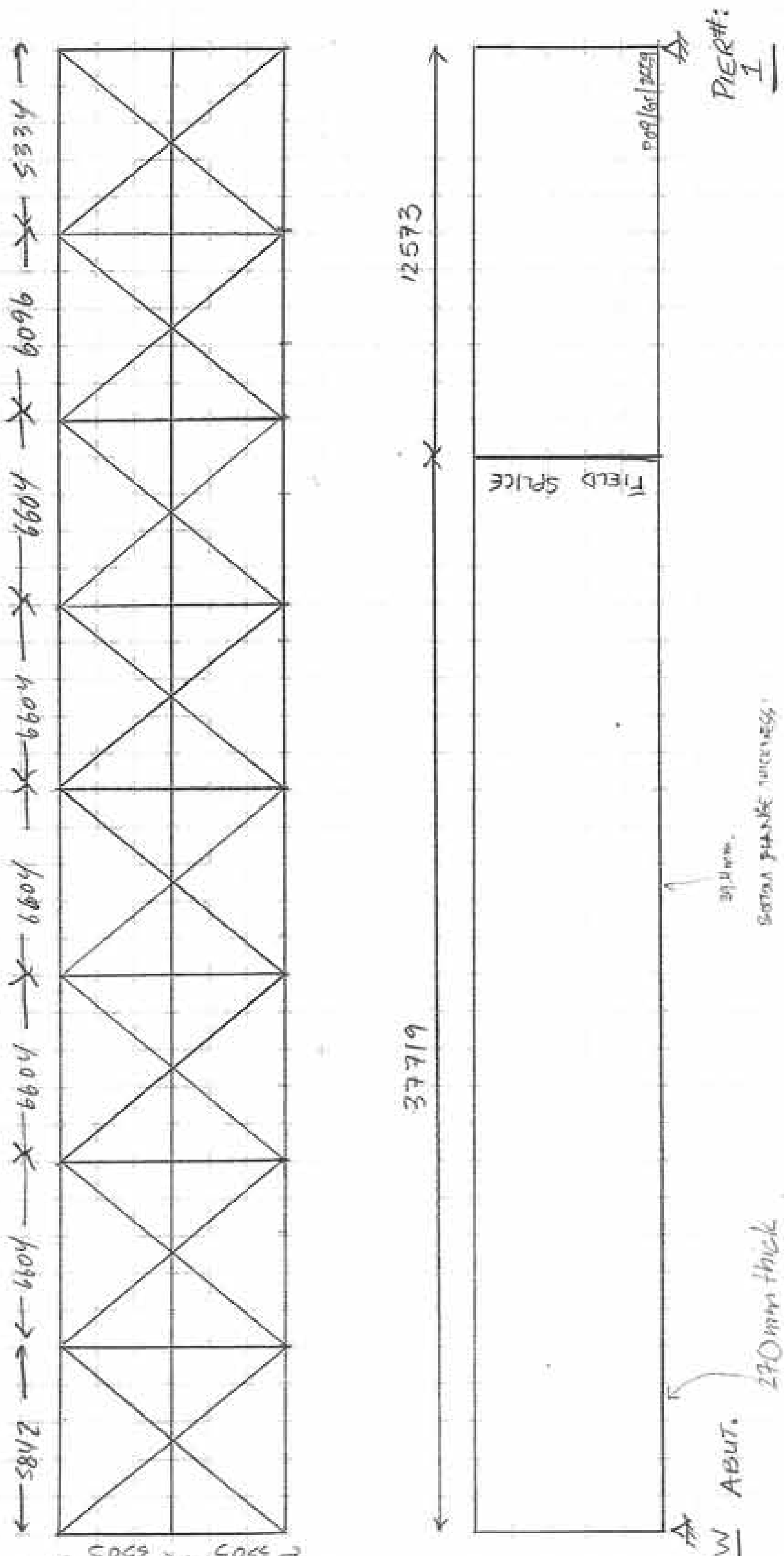
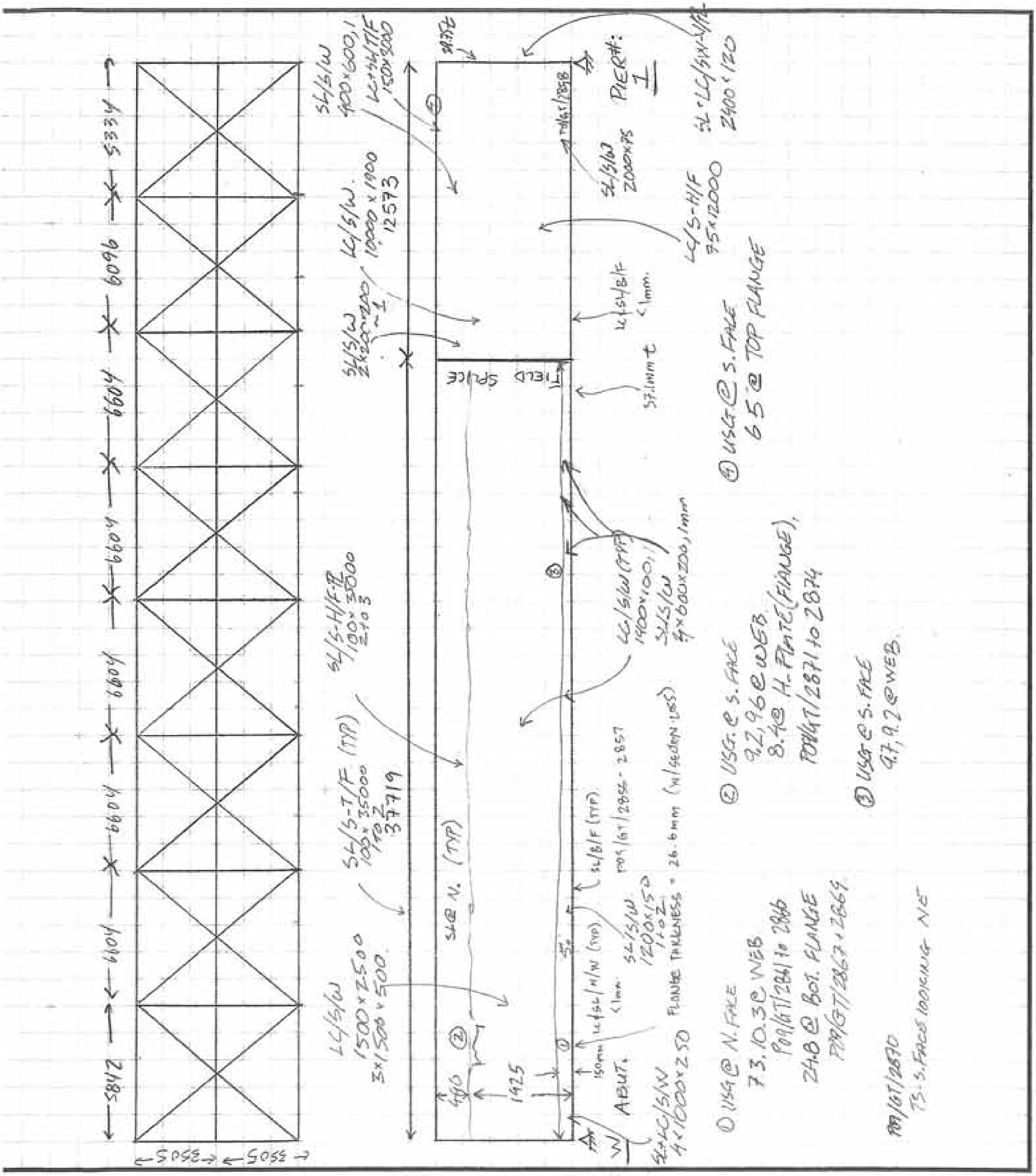
PROJECT ____________________ W.O. No. 7108

DESIGNED G. TJANDRA DATE AUG. 21/09

CHECKED ____________ DATE ____________ PAGE 1 OF ____



McCORMICK RANKIN CORPORATION	PROJECT		W.O. No.	7108
	DESIGNED	A. TJONDRO	DATE	AUG 31/04
	CHECKED		DATE	
			PAGE	OF



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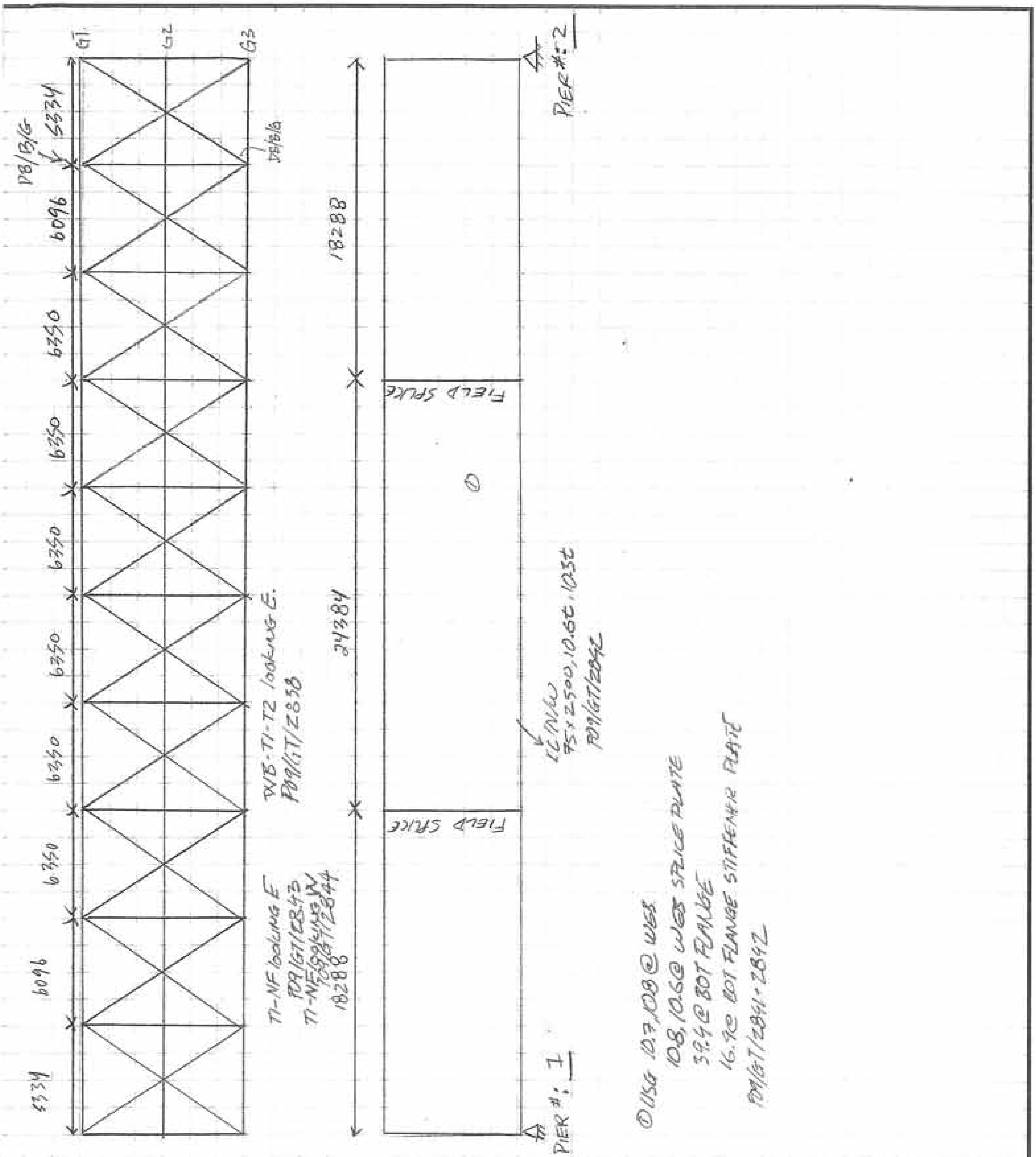
			PAGE ___ OF ___

North Structure West Interior



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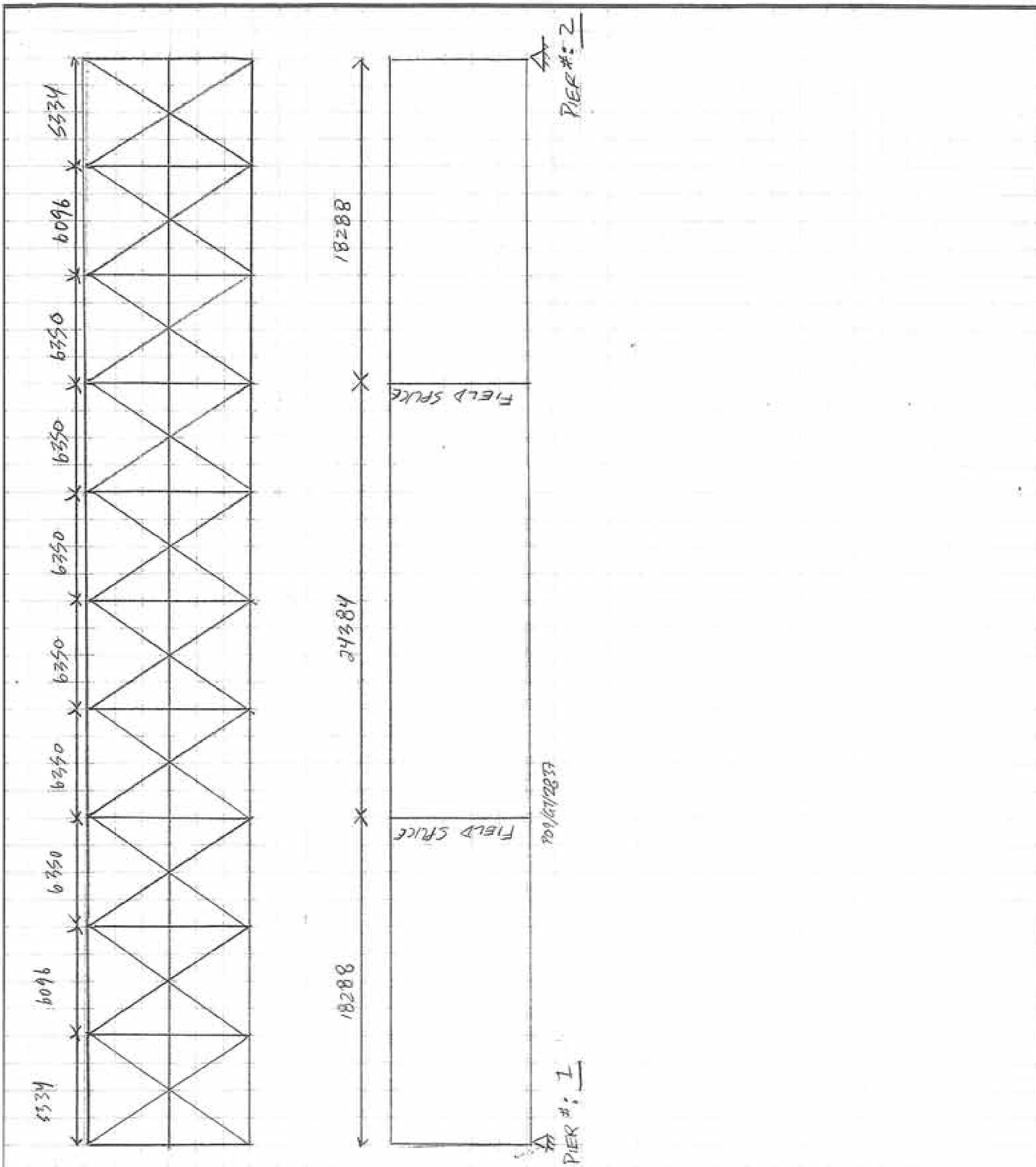

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DESIGNED G TJANDRA DATE AUG-20/09

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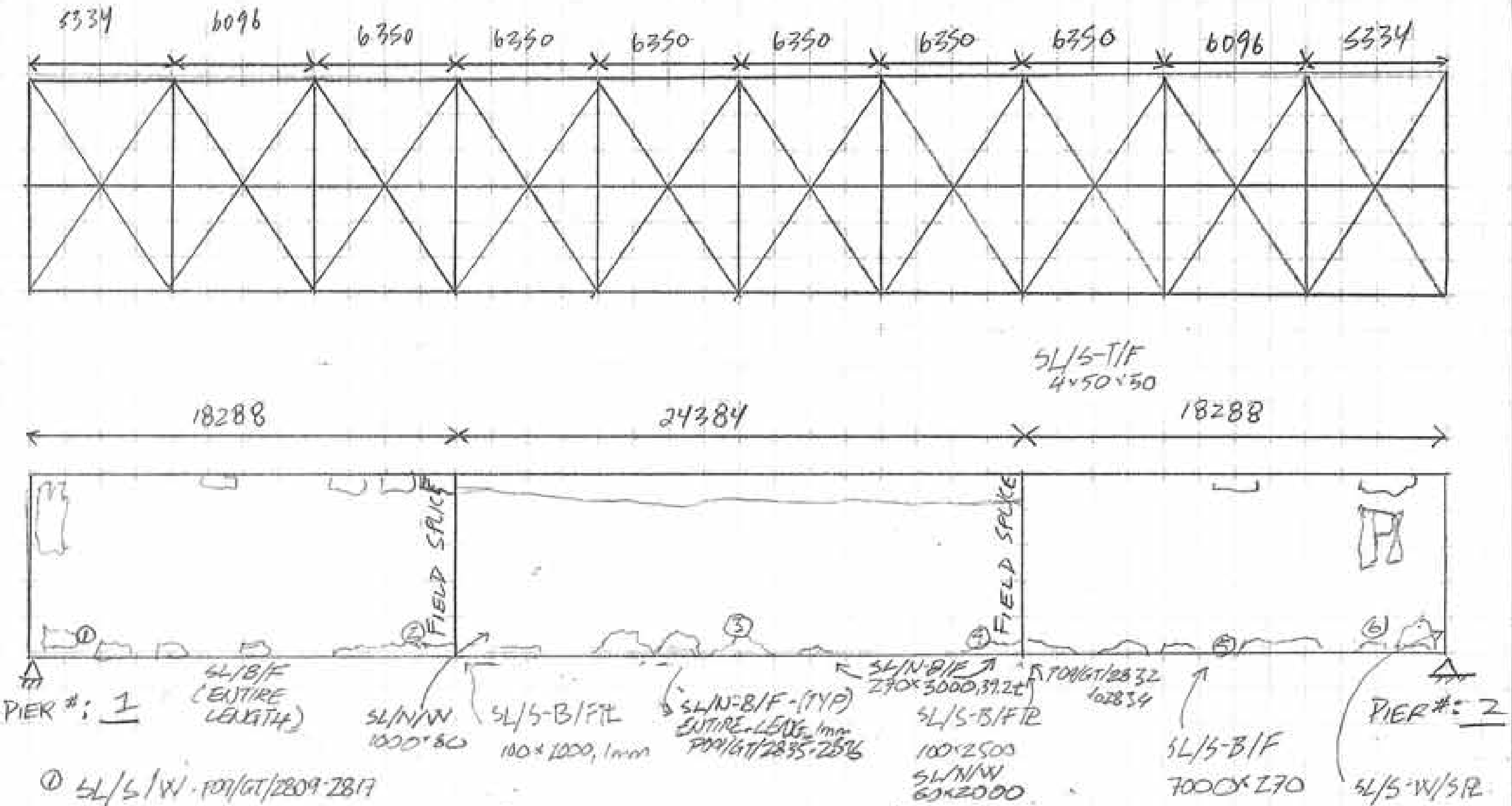

① SL/S/W - P09/GT/2809-2817
UTG: 9.6, 9.6, 9.3,
3.9, 8.7, 8.6
9.0, 9.2
+ FLANGE Thickness
66.5mm (BOT)

② SL/S/W - P09/GT/2818
UTG. 9.6, 9.6, 9.8

③ SL/S/W - P09/TG/2819, 2820
UTG

④ SL/S/W ~2mm
UTG 8.1, 9.5
P09/GT/2821 to 2825

⑤ SL/S-B/F
UTG 36.7
CALIPER: 38.2 (Actual)
P09/GT/2826 to 2828

⑥ SL/S/W
UTG: 8.9, 7.7
P09/GT/2829-2831

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DESIGNED G. TJANDRA DATE AUG 20/09

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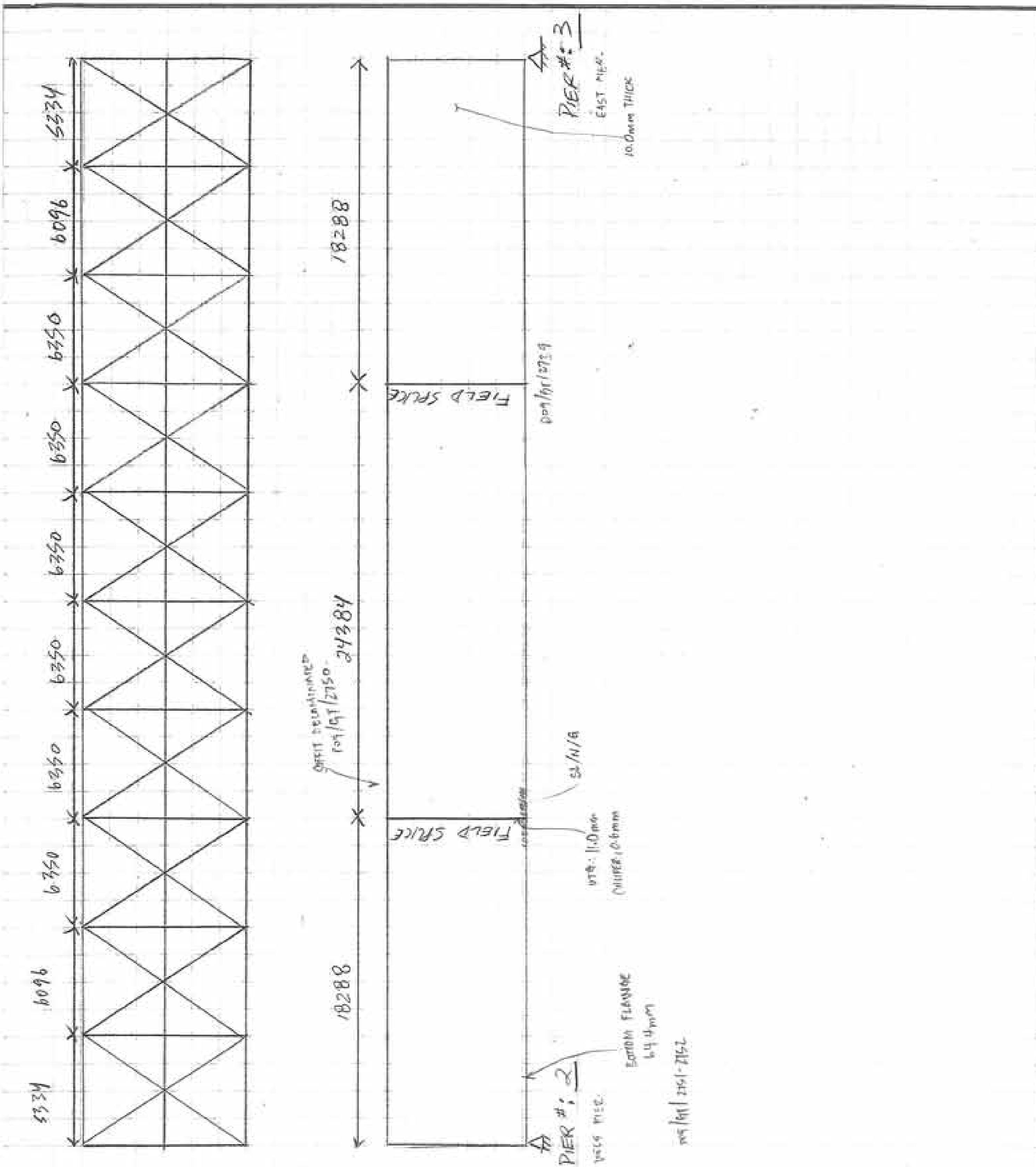
North Structure East Interior



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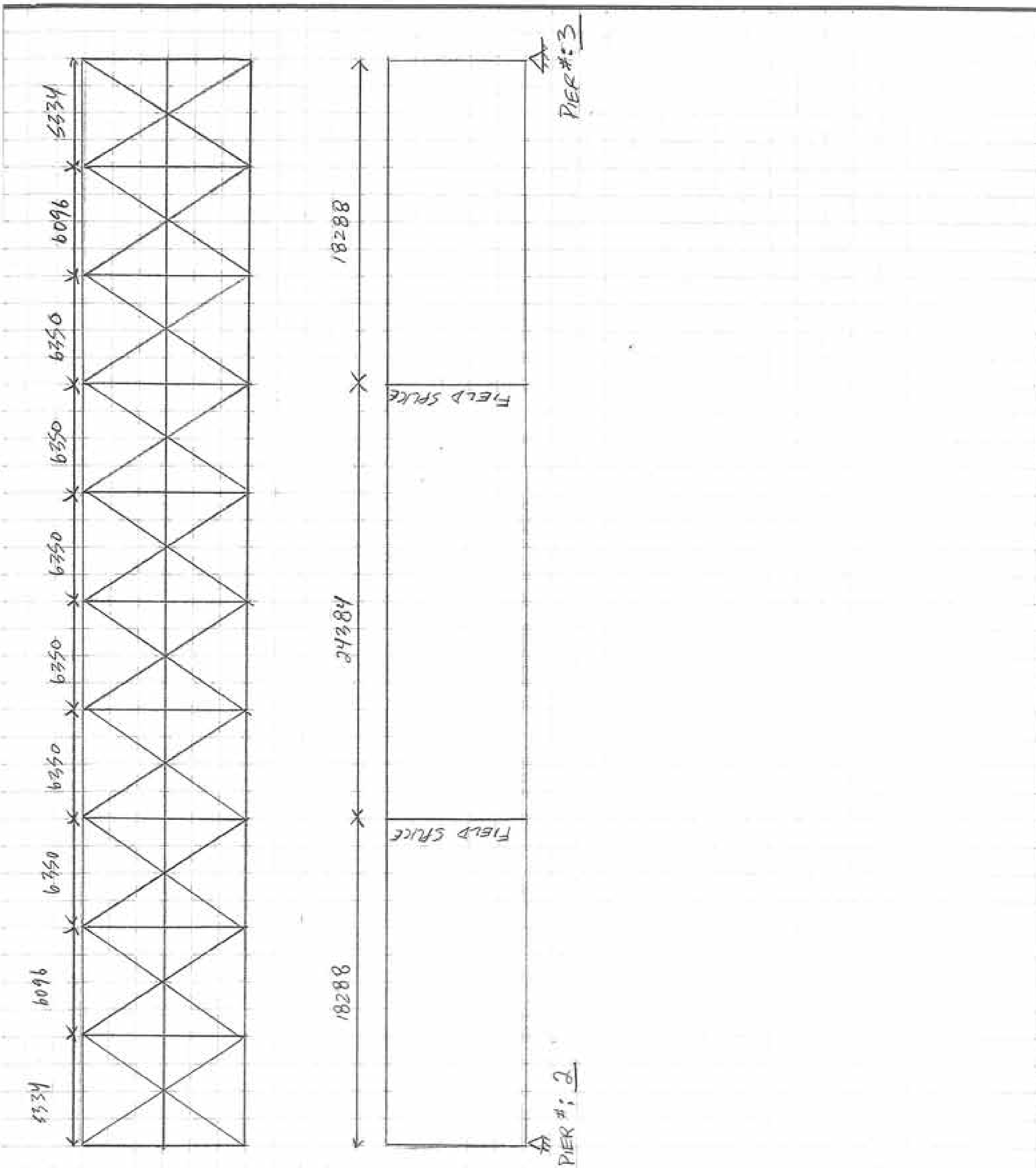

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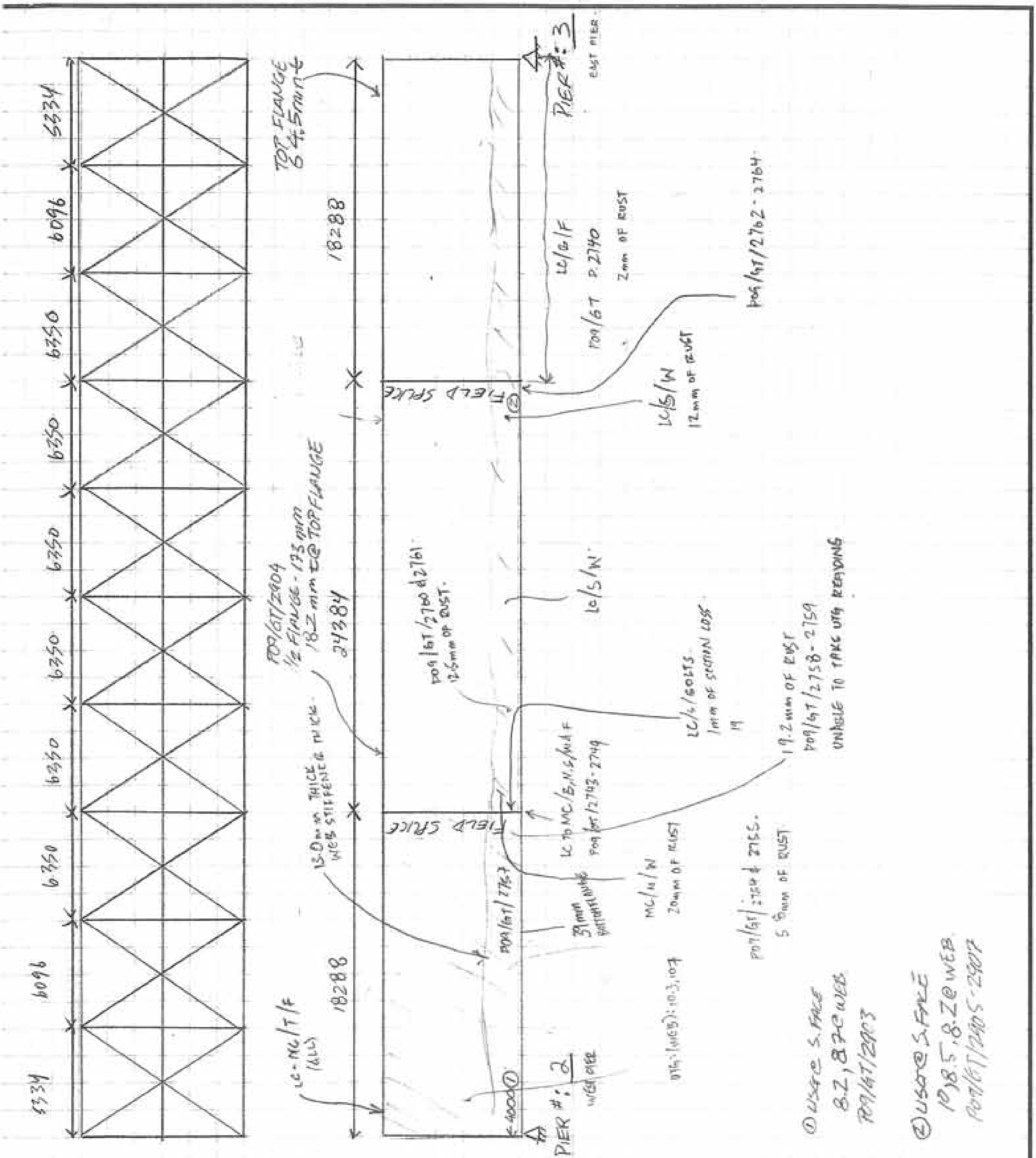

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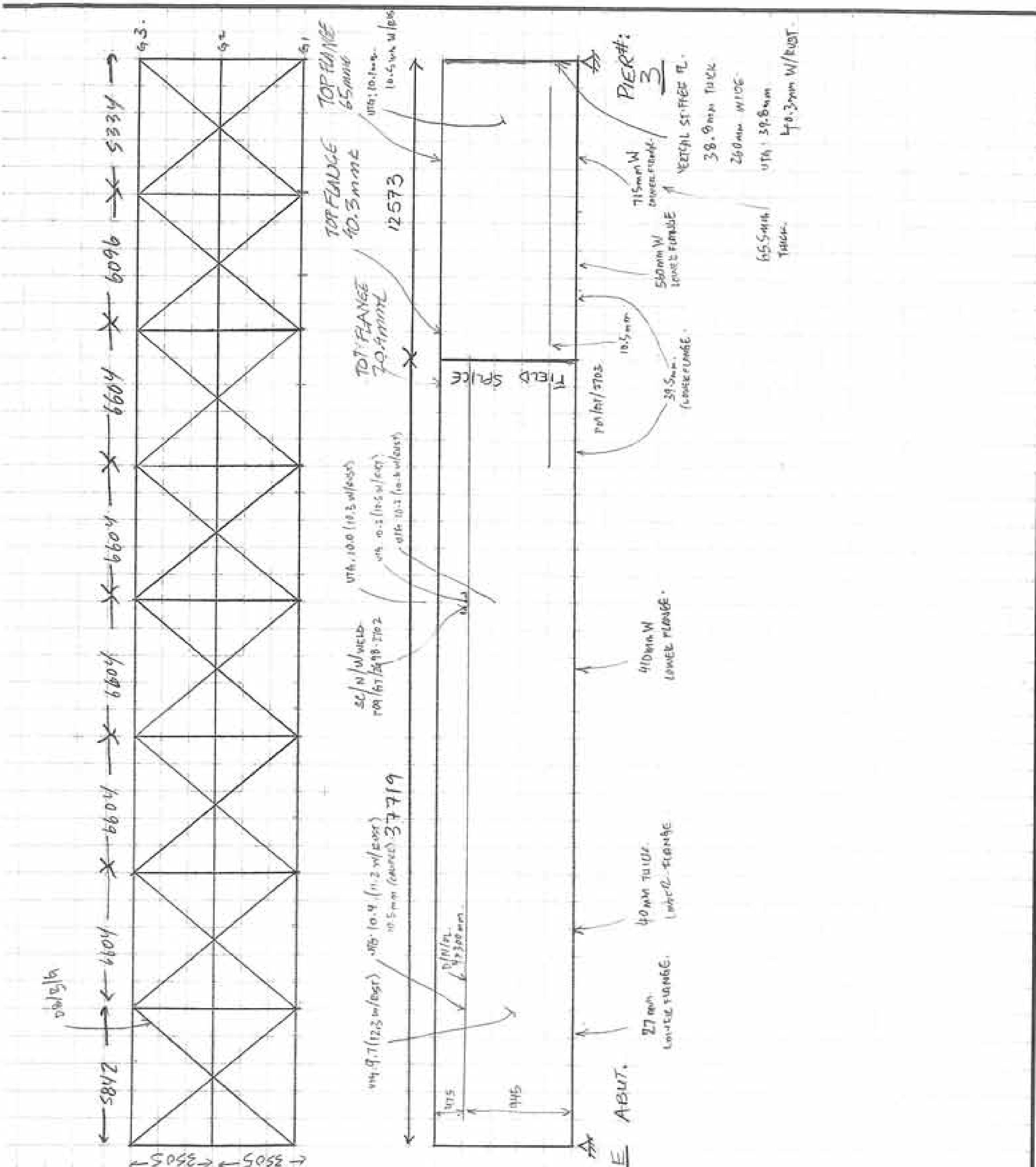
North Structure
East Exterior



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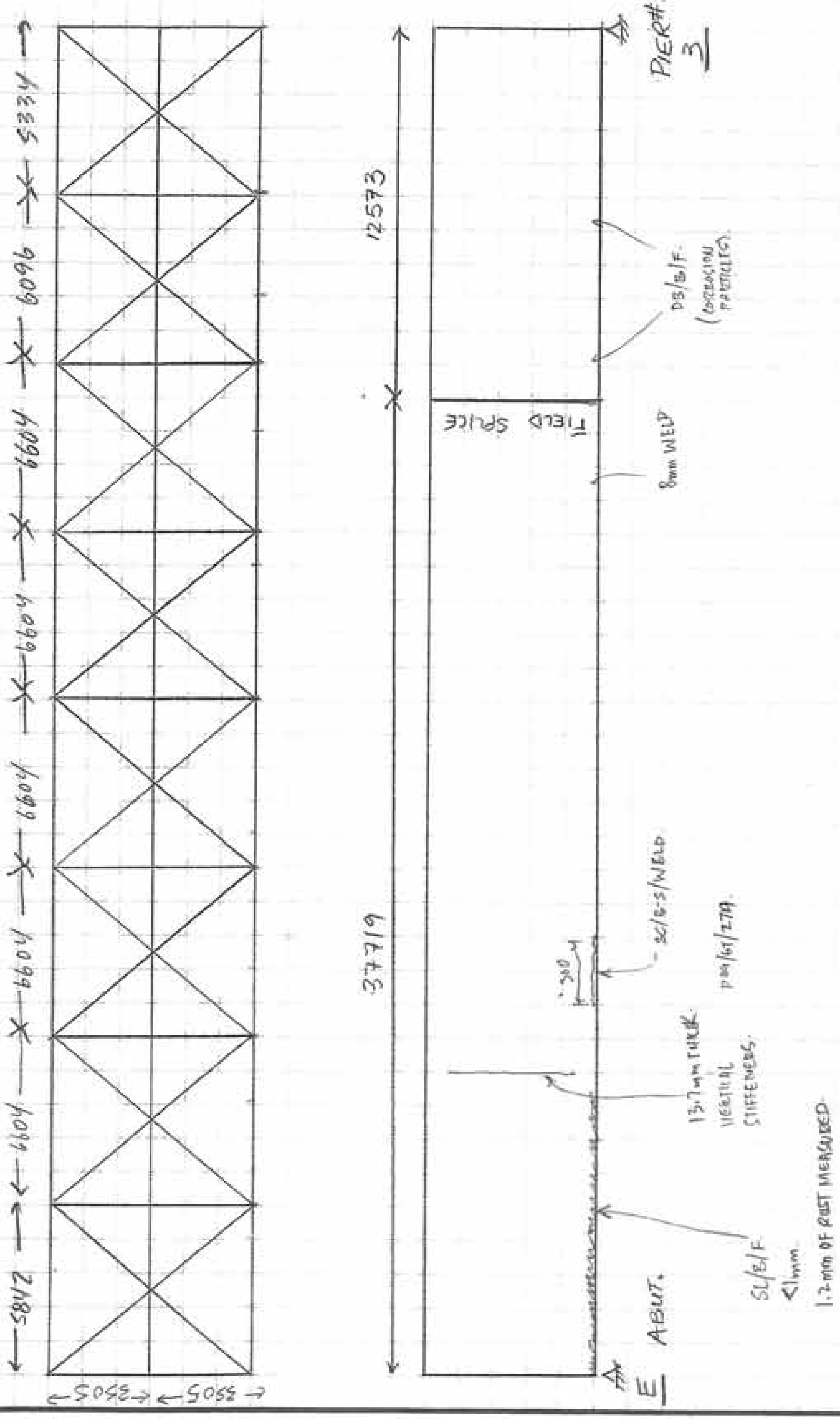

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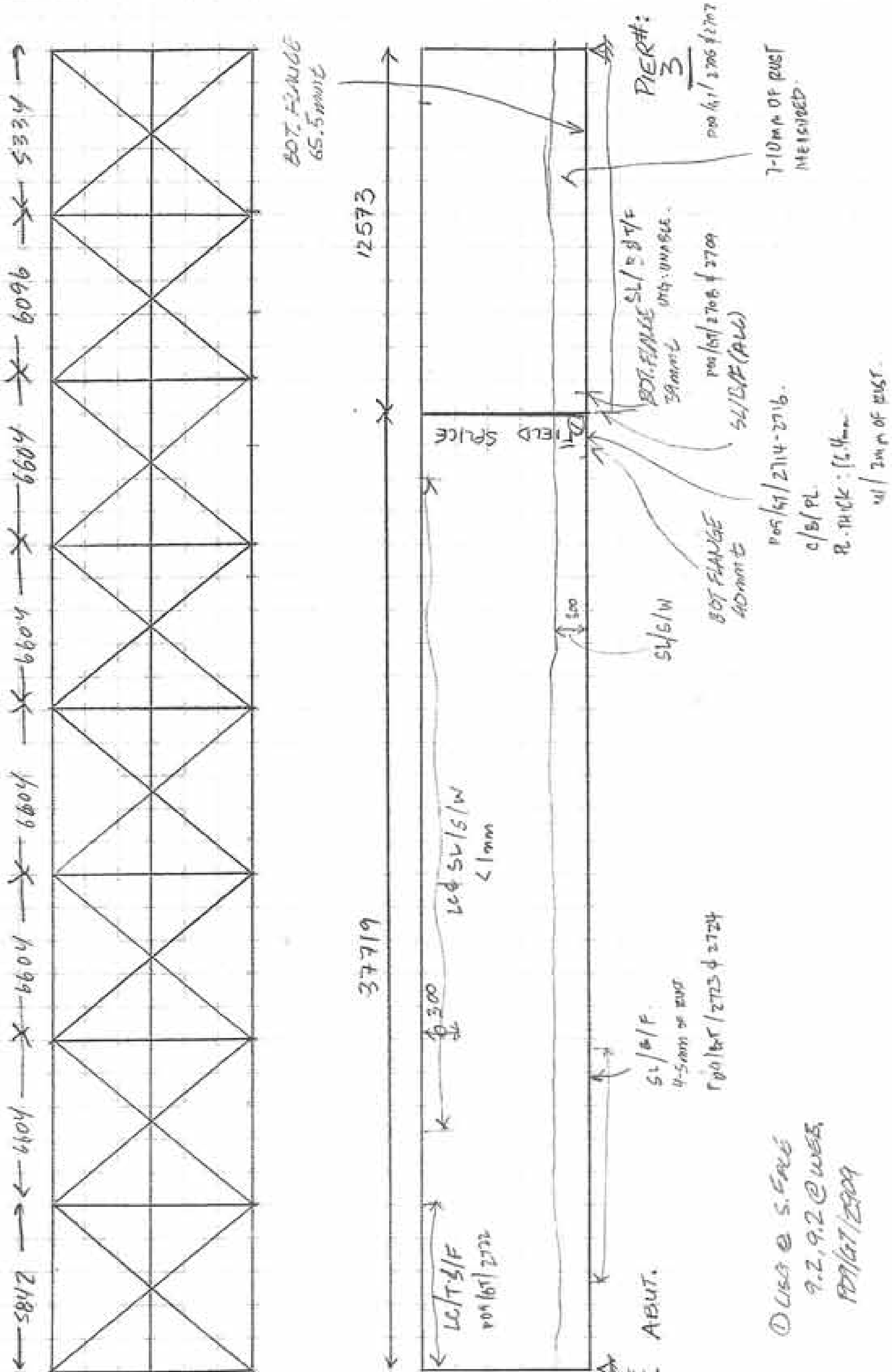

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