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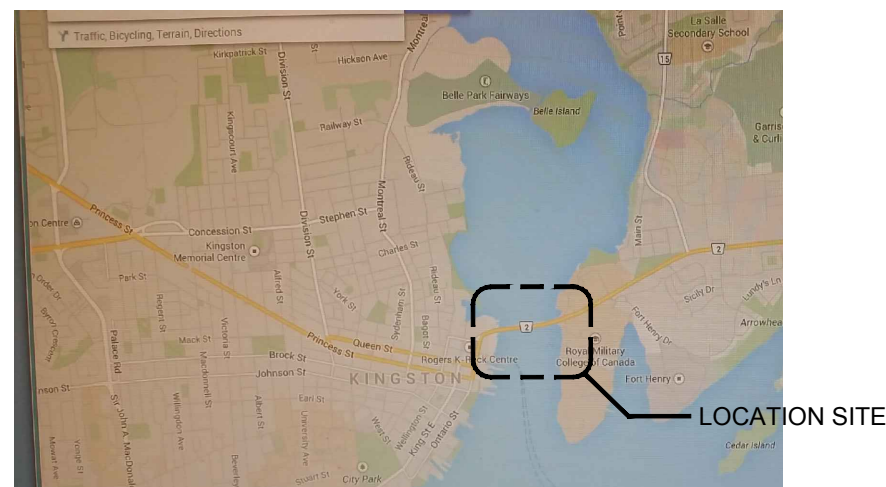
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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

LASALLE CAUSEWAY - BASCULE BRIDGE REPLACEMENT OF SPAN LOCKS PROJECT NO. R.082857.001

PARSONS



Canada

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 Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

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Do not scale drawings.
Verify all dimensions and conditions on site and
immediately notify the engineer of all discrepancies.

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Detail No.
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drawing no. - where detail required
dessin no. - où détail exigé

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dessin no. - où détaillé

project title
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Ontario

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin

INDEX OF DRAWINGS

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approuve par

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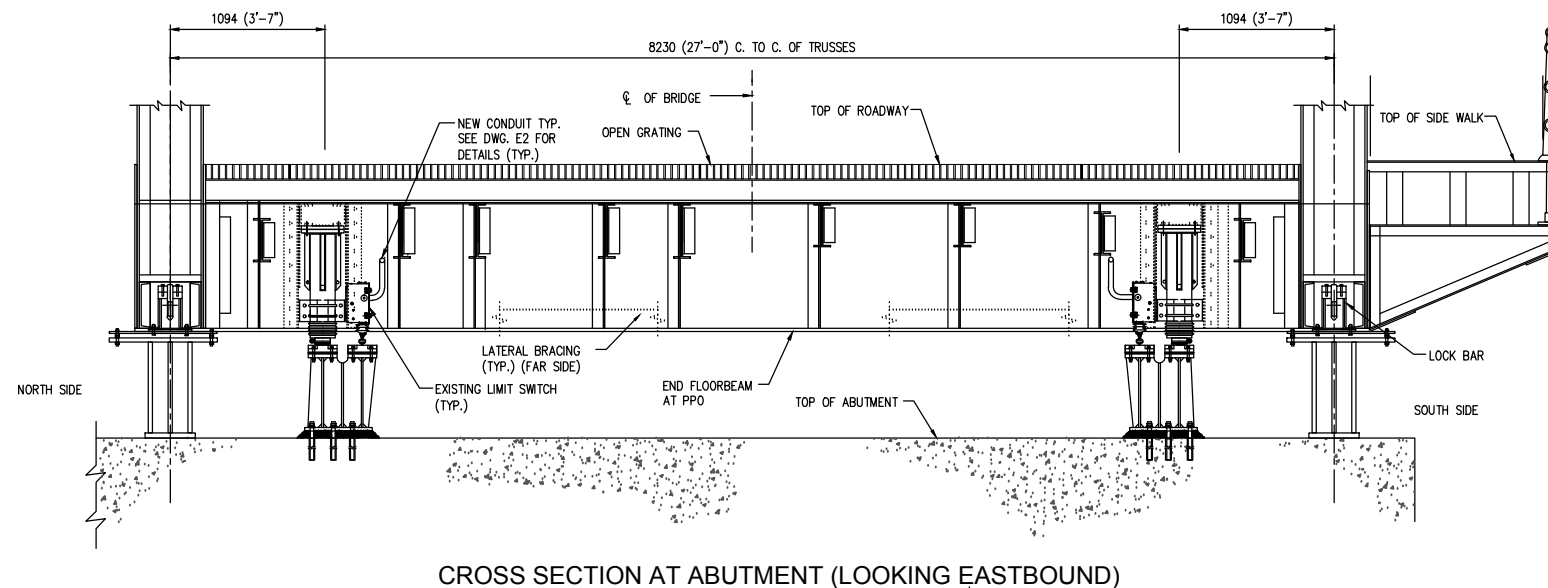
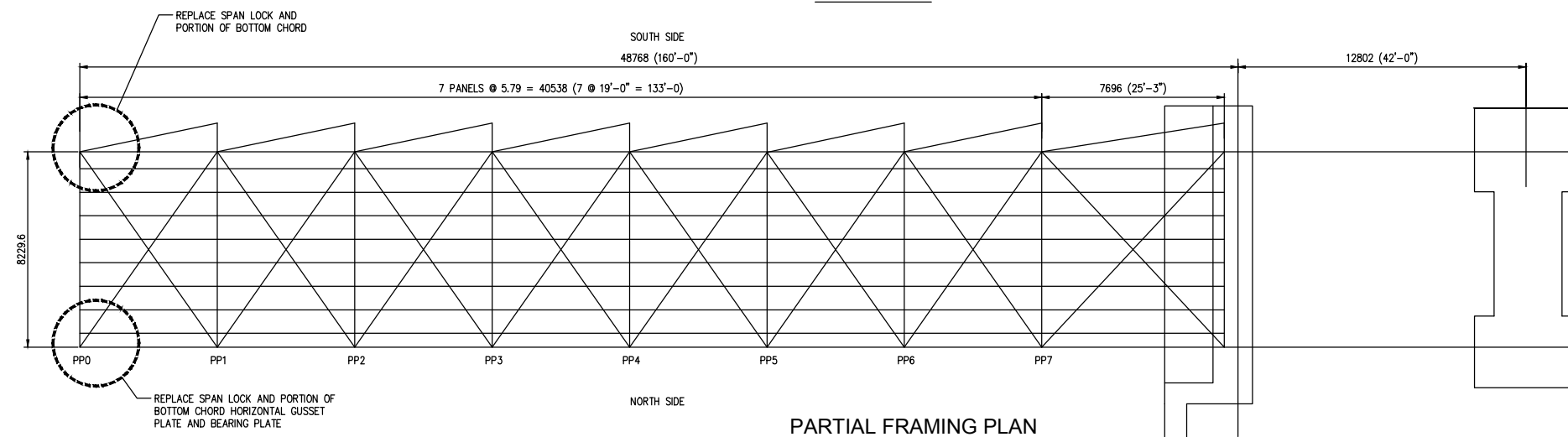
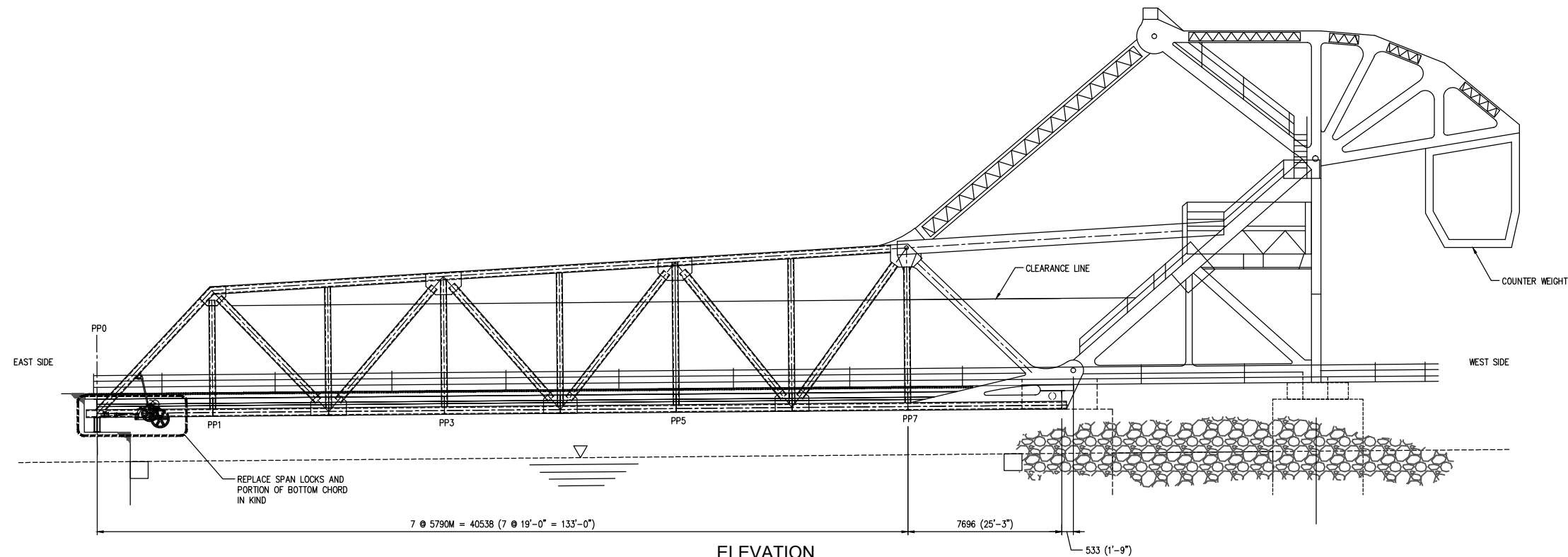
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Professional Engineers
Ontario

Temporary Licensee

Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
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LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
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GENERAL PLAN ELEVATION
AND CROSS SECTION

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G-2

SUGGESTED CONSTRUCTION SEQUENCE:

1. SECURE BRIDGE TO REST PIER AGAINST UPLIFT AND ANY SIDE MOVEMENT IN THE FULLY LOWERED POSITION SO EXISTING SPAN LOCKS CAN BE REMOVED. METHOD OF SECURING BRIDGE SHALL BE SUBMITTED TO THE DEPARTMENT REPRESENTATIVE PRIOR TO INSTALLATION.
2. REMOVE AND STORE ALL MECHANICAL COMPONENTS OF SPAN LOCKS FOR BOTH BOTTOM CHORDS. CONTRACTOR TO SUBMIT HIS PROCEDURE FOR REMOVING COMPONENTS TO THE DEPARTMENT REPRESENTATIVE FOR APPROVAL.
3. REFURBISH EXISTING MECHANICAL COMPONENTS AND SUPPLY NEW COMPONENTS OF THE SPAN LOCKS AS SHOWN ON THE ATTACHED DRAWINGS.
4. FABRICATE NEW NORTH AND SOUTH BOTTOM CHORDS INCLUDING ALL DIAPHRAGMS, TRANSVERSE STIFFENERS, BATTEN PLATES, LACING BARS AND SPLICE PLATES..
5. ASSEMBLE NEW BOTTOM CHORD ASSEMBLIES INCLUDING ALL CHANNELS, DIAPHRAGMS, BATTEN PLATES AND LACING BARS IN THE FABRICATION SHOP. ONCE ASSEMBLED, ATTACH ALL NEW AND REFURBISHED COMPONENTS OF THE SPAN LOCKS WITH THE NEW CHORD ASSEMBLIES. ONCE CHORDS AND SPAN LOCK ASSEMBLY IS COMPLETE, DEMONSTRATE OPERATION OF THE REFURBISHED/REPLACED SPAN LOCK SYSTEM USING THE MOTOR TO THE SATISFACTION OF THE DEPARTMENT REPRESENTATIVE. THE ENTIRE COMPLETE ASSEMBLY INCLUDING BOTH BOTTOM CHORDS AND ALL MACHINERY SHALL BE SUITABLY SUPPORTED SO THAT NO MOVEMENT OCCURS DURING OPERATION OF MACHINERY WITH THE MOTOR. THIS ASSEMBLY INCLUDES THE INBOARD BEARINGS AND SUPPORTS. THE BEARINGS AND SUPPORTS AT STRINGERS (FOR THE TRANSVERSE SHAFT) SHALL ALSO BE ASSEMBLED SUPPORTED AND ANCHORED.
6. CONTRACTOR TO DEMONSTRATE THAT GEAR T AND THE CRANKSHAFT WITH CONNECTING RODS CAN ROTATE 360° WITHOUT INTERFERENCE
7. MACHINERY PARTS ALONG WITH BOTTOM CHORDS SHALL BE ASSEMBLED ON SUPPORTING MEMBERS IN THE SHOP AND HOLES SHALL BE DRILLED WITH COMPONENTS IN CORRECT ALIGNMENT AND RELATIVE POSITION. MEMBERS SHALL BE MATCH MARKED, BOTH TO THE SUPPORTS AND TO EACH OTHER, AND ERECTED IN THE FIELD IN THE SAME RELATIVE POSITIONS.
8. ONCE THE CONTRACTOR HAS DEMONSTRATED THE CORRECT OPERATION OF THE REFURBISHED SPAN LOCK SYSTEM, THE BOTTOM CHORD ASSEMBLIES CAN BE DISASSEMBLED AND SHIPPED TO THE JOB SITE.
9. IN REPLACING THE BOTTOM CHORDS, ONLY ONE CHANNEL OF EACH CHORD MAY BE REPLACED AT A TIME. CONTRACTOR TO SUBMIT HIS PROPOSED PROCEDURE FOR REPLACING THE BOTTOM CHORD ASSEMBLIES TO THE DEPARTMENT REPRESENTATIVE FOR APPROVAL.

NOTES:

GENERAL:

1. DO NOT SCALE DRAWINGS
2. THE LATEST VERISON OF ALL REFERENCE DOCUMENTS SHALL APPLY.
3. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CANADIAN HIGHWAY BRIDGE DESIGN CODE CSA S6-06 (2014 EDITION).
4. FEATURES OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME CHARACTER AS SHOWN FOR SIMILAR CONDITIONS.
5. DIMENSIONS RELATING TO EXISTING CONSTRUCTION MUST BE FIELD VERIFIED BY CONTRACTOR BEFORE STARING ANY WORK OR FABRICATION.
6. THE CONTRACTOR SHALL EXAMINE THE SITE AND SATISFY HIMSELF OF THE ACTUAL CONDITIONS AND REQUIREMENTS OF THE WORK.
7. RIVETS ARE NOTED ON THE ORIGINAL DRAWING AS BEING 3/4" RIVETS IN 1 1/8" HOLES. ORIGINAL CONSTRUCTION 1916.
8. MANY RIVETS HAVE BEEN PREVIOUSLY REPLACED WITH BOLTS.
9. FIT-UP ADJUSTMENT TO ALIGN COMPONENTS MAYBE REQUIRED.

STRUCTURAL:

STRUCTURAL STEEL:

1. ALL NEW STRUCTURE STEEL SHALL CONFORM TO CSA G40.20 AND CSA G40.21 GRADE 350WT. AND COMPLY WITH REQUIREMENTS IN ASTM A6M.
2. STEEL IS DESIGNED AND SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE OISC "CODE OF STANDARD PRATICE FOR STRUCTURAL STEEL" AND CAN3-S16.1.
3. ALL BOLTS SHALL BE NEW 3/4" DIAMETER AND CONFORM TO ASTM STANDARD A325 OR A325M. UNLESS OTHERWISE NOTED, ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN OF NUT METHOD.
4. NO FIELD WELDING IS PERMITTED.
5. WELDING IN THE FABRICATION SHOP SHALL BE MADE WITH E480xx ELECTRODES IN ACCORDANCE WITH CSA W59 AND SHALL BE PERFORMED BY A WELDER QUALIFIED UNDER CSA W47.1-92. SURFACES TO BE WELDED SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATTER INCLUDING PAINT FILM.
6. THE SHOP FABRICATOR SHALL BE CERTIFIED TO THE REQUIREMENTS OF CSA STANDARD W47.1 (DIVISION 1 OR 2.1).
7. STRUCTURAL STEEL MEMBERS SHALL BE PAINTED WITH THREE COAT PAINT SYSTEM SPECIFIED. FAYING SURFACES OF ALL BOLTED CONNECTIONS MUST BE BLAST CLEANED SURFACES CLASS B OR BETTER. THE MEAN SLIP COEFFICIENT FOR CLASS B SHALL BE 0.5. MINIMUM HOLES SHALL BE NOT MORE THAN 2mm LARGER THAN THE ACTUAL SIZE OF THE BOLT. TOUCH-UP DAMAGED AREAS AFTER ERECTION. PAINT ALL SURFACES AFFECTED BY WORK WITH PAINT SYSTEM SPECIFIED.
8. ALL WELDS SHALL BE SHOWN ON SUBMITTED SHOP DRAWINGS AND SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER. DESIGNED WELDS SHALL COMPLY WITH MINIMUM SIZES STIPULATED IN CSA W59.
9. WHERE HOLE LOCATIONS MUST BE LOCATED TO SUIT EXISTING BOLT HOLES, PLATE DIMENSIONS SHALL BE ADJUSTED TO PROVIDE BOLT EDGE/END DISTANCE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE CHBDC.

STEEL FABRICATION AND ERECTION:

1. SHOP DRAWINGS SHALL BE SUBMITTED TO DEPARTMENTAL REPRESENTATIVE FOR THE APPROVAL FOR ALL ITEMS. MANUFACTURER'S CATALOG CUTS AND OTHER LITERATURE SHALL BE SUBMITTED FOR ALL MECHANICAL AND ELECTRICAL ITEMS.
2. EXISTING FASTENER HOLES SHALL BE REAMED WHERE REQUIRED BY THE DEPARTMENTAL REPRESENTATIVE TO REMOVE RIVET HOLE CRACKS AND FISSURES AND ALLOW INSTALLATION OF NEW BOLTS. REMAINING SHALL COMPLY WITH HOLE SIZE REQUIREMENTS FOR SPECIFIED BOLTS SET FORTH IN THE CHBDC. WHERE DIRECTED TO REAM LARGER THEN THE HOLE SIZE REQUIRED FOR THE SPECIFIED BOLT SIZE, THE BOLT SIZE SHALL BE INCREASED TO SUIT THE REAMED HOLE SIZE AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE
3. WHERE HOLES IN NEW STEEL MUST ALIGN WITH HOLES IN EXISTING STEEL, HOLES SHALL BE FABRICATED 6 (1/4") UNDERSIZE IN THE SHOP AND REAMED TO SIZE IN THE FIELD AFTER ALIGNMENT AND ASSEMBLY. IF THE MISALIGNMENT EXCEEDS 6 (1/4"), THE NEW STEEL SHALL NOT BE ACCEPTED AND SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO EXTRA COST AS DETERMINED BY THE DEPARTMENTAL REPRESENTATIVE.
4. NEW HOLES IN EXISTING MATERIAL SHALL BE DRILLED TO A TEMPLATE.
5. ALL NEW STRUCTURAL STEEL SHALL BE CLEANED, PRIMED AND FULLY PAINTED IN THE SHOP AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS.

GENERAL CONSTRUCTION AND PROCEDURES:

1. THE CONTRACTOR SHALL PLAN AND CONTROL THE PROCESS/PROCEDURES TO THE EXTENT NECESSARY TO ENSURE THAT TOLERANCES IN THE CONTRACT DOCUMENTS ARE COMPLIED WITH. THE DEPARTMENTAL REPRESENTATIVE SHALL BE ENTITLED TO DEMAND THAT ANY SPECIFIC WORKING /INSPECTION PROCEDURE BE ADJUSTED IF SUCH PROCEDURE APPEARS NOT TO PROVIDE ADEQUATE SECURITY AGAINST EXCEEDING OF TOLERANCES.
2. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATION TO CONSTRUCTION DETAILS AND WORK CONDITIONS. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS FOLLOWING WRITTEN APPROVAL FROM DEPARTMENTAL REPRESENTATIVE.
3. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE OWNER, THE DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE DEPARTMENTAL REPRESENTATIVE AT THE EXPENSE OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL TAKE PRECAUTIONS SO AS NOT TO LEAVE DEBRIS, MATERIALS, TOOLS, ETC. ON THE BRIDGE SURFACE WHEN LEAVING THE WORK AREA ON A DAILY BASIS.
5. HORIZONTAL, VERTICAL AND DETAIL DIMENSIONS AND ELEVATIONS SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM THE ORIGINAL DESIGN DRAWINGS, SHOP DRAWINGS, AND SUBSEQUENT MODIFICATION DRAWINGS OF THE EXISTING STRUCTURES. THE CONTRACTOR SHALL PERFORM FIELD MEASUREMENTS TO ESTABLISH CONTROL POINTS AND TO VERIFY ALL EXISTING DIMENSIONS AFFECTING FABRICATION AND CONSTRUCTION. SHOP AND CONSTRUCTION DRAWINGS SHALL SHOW DESIGN DIMENSIONS AND FIELD DIMENSIONS WHENEVER THEY DIFFER.
6. RECORD DRAWINGS OF THE EXISTING STRUCTURE ARE ON FILE AT THE OFFICES OF PWGSC. RECORD DRAWINGS OF THE EXISTING STRUCTURE WILL BE MADE AVAILABLE TO THE SUCCESSFUL BIDDER FOR REFERENCE, BUT MAY NOT BE REMOVED.
7. WHERE EXISTING MATERIAL IS TO BE CONNECTED TO NEW MATERIAL, UNLESS OTHERWISE NOTED, THE EXISTING SURFACE SHALL BE CLEANED TO SSPC-SP 3-82 (R 2004).POWER TOOL CLEANING OF ALL PAINT, LOOSE RUST, OR OTHER FOREIGN MATERIAL PRIOR TO INSTALLATION OF NEW MATERIAL. FEYING SURFACES SHALL BE PRIMED ONLY. AFTER NEW MATERIAL IS INSTALLED, THE AFFECTED SURFACES MUST BE PRIMED AND PAINTED WITH PRESCRIBED PAINT SYSTEM.
8. REMOVAL OF RIVETS SHALL BE PERFORMED IN A MANNER SUCH THAT EXISTING MATERIAL TO REMAIN IS NOT DAMAGED. REMOVAL METHODS SHALL BE IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
9. ANY WORK OVER THE NAVIGATION CHANNEL MUST BE COORDINATED WITH THE BRIDGE OPERATOR. THE CONTRACTOR SHALL SUBMIT TO THE PWGSC FOR APPROVAL TWO (2) COPIES OF THE PLANS AND SCHEDULE OF OPERATIONS FOR WORK OVER THE NAVIGATION CHANNEL. AT LEAST 14 DAYS PRIOR TO THE COMMENCEMENT OF ANY WORK OVER THE NAVIGATIONAL CHANNEL, PWGSC SHALL NOT BE HELD RESPONSIBLE FOR ANY DELAYS SUFFERED BY THE CONTRACTOR FOR FAILURE TO ADHERE TO THIS REQUIREMENT.
10. EXCEPT AS SHOWN ON THE PLANS, NO WELDING OF ANY NATURE SHALL BE PERFORMED WITHOUT THE WRITTEN CONSENT OF THE DEPARTMENTAL REPRESENTATIVE AND THEN ONLY IN THE MANNER AND LOCATION(S) DESIGNATED IN THE AUTHORIZATION.
11. BOLT LAYOUT AND SPACING NOT INDICATED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH BRIDGE DESIGN CODE CSA S6-06 AND SHALL BE DETAILED ON SUBMITTED SHOP DRAWINGS (2014 EDITION).
12. ALL CUTTING OF STEEL IN THE FIELD SHALL BE BY MECHANICAL CUTTING WHEEL UNLESS OTHERWISE DIRECTED. THE CUT SURFACES SHALL BE GROUND SMOOTH.
13. PAINT REMOVAL AND TOUCH-UP PAINTING REQUIRED FOR THE WORK IN THIS CONTRACT SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT SPECIFICATIONS FOR PAINTING. ALL COSTS FOR PAINT REMOVAL AND TOUCH-UP PAINTING SHALL BE COVERED UNDER THE LUMP SUM CONTRACT BID.
14. THE CONTRACTOR SHALL SUBMIT TO THE DEPARTMENTAL REPRESENTATIVE A DETAILED WRITTEN PLAN OF OPERATIONS COINCIDENT WITH THE PROJECT SCHEDULE AND EACH SUBSEQUENT SCHEDULE UPDATE AS DEFINED WITHIN THE CONTRACT SPECIFICATIONS.
15. THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE PERMITTED LANE CLOSURES AS DEFINED IN THE CONTRACT SPECIFICATIONS. WORK THAT DOES NOT AFFECT THE TRAFFIC MAY BE PERFORMED OUTSIDE THE TIMES OF THE RESTRICTIVE LANE CLOSURES BUT MUST REMAIN IN CONFORMANCE WITH THE ACCEPTED WRITTEN PLAN OF OPERATIONS. AND DEPARTMENTAL REPRESENTATIVE'S APPROVALS.
16. DURING REMOVAL AND CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOT BE PERMITTED TO DROP MATERIAL OR DEBRIS FROM THE BRIDGE NOR SHALL ANY WATER WHICH IS USED FOR WASHING PURPOSES OR OTHER SIMILAR OPERATIONS WHICH CAUSES IT TO BECOME POLLUTED WITH SAND, SILT, CEMENT, OIL OR OTHER IMPURITIES BE DEPOSITED INTO THE CATARAQUI RIVER

17. PROTECTIVE SHIELDS SHALL BE USED TO CATCH POTENTIAL FALLING MATERIAL AND SHIELD THE AREA BELOW THE WORK. THE LOAD CARRYING CAPACITY OF THE PROTECTIVE SHIELDS SHALL BE CONSISTENT WITH THE NATURE OF THE WORK BEING PERFORMED IN ANY PARTICULAR LOCATION. IF THE ENGINEER DETERMINES THAT ADEQUATE PROTECTIVE SHIELDS ARE NOT BEING PROVIDED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE WORK SHIELD ARE EMPLOYED.
18. THE CONTRACTOR SHALL SUBMIT TO THE DEPARTMENTAL REPRESENTATIVE FINAL DESIGN DRAWINGS AND DESIGN CALCULATIONS OF ALL TEMPORARY ACCESS AND CONSTRUCTION PLATFORMS AND PROTECTIVE SHIELDS. THESE DRAWINGS SHALL BE FULLY DIMENSIONED AND SHALL SHOW ALL ATTACHMENTS TO THE EXISTING BRIDGE MEMBERS. DRAWINGS AND CALCULATIONS SHALL EACH BEAR THE SIGNATURE AND SEAL OF THE DESIGNER WHO SHALL BE A LICENSED PROFESSIONAL ENGINEER IN ONTARIO. ATTACHMENTS TO THE EXISTING STRUCTURE, THAT IN THE OPINION OF DEPARTMENTAL REPRESENTATIVE, COULD BE DAMAGING TO ANY COMPONENT OF THE BRIDGE STRUCTURE SHALL NOT BE USED.
19. THE CONTRACTOR SHALL LIMIT THE WEIGHT OF ANY TEMPORARY ACCESS STRUCTURE, PROTECTIVE SHIELDS OR SPECIAL EQUIPMENT TO BE SUPPORTED TO THE EXISTING BRIDGE. PRIOR TO THE INSTALLATION OF ANY TEMPORARY MATERIAL ON THE BRIDGE, THE CONTRACTOR SHALL SUBMIT THE WEIGHT LIMITS AND OTHER LOADING CONDITIONS TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW AND ACCEPTANCE. CALCULATIONS AS TO THE CAPACITY OF THE STRUCTURE TO ACCOMMODATE THE PROPOSED LOADS SHALL ALSO BE SUBMITTED AND SHALL BEAR THE SIGNATURE AND SEAL OF THE DESIGNER WHO SHALL BE A LICENSED PROFESSIONAL ENGINEER IN ONTARIO. IN NO CASE SHALL THE TEMPORARY LOADS RESULT IN A CONDITION THAT WOULD EXCEED THE OPERATING CRITERIA AS DEFINED BY CANADIAN HIGHWAY BRIDGE DESIGN CODE CSA S6-06 (2014 EDITION).
20. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE SIZE, WEIGHT AND TYPE OF ALL CONSTRUCTION EQUIPMENT TO BE USED ON THE STRUCTURE AND TO ASSESS THE ADEQUACY OF THE STRUCTURE FOR ITS USE BASED ON THE EXISTING CONDITION OF THE STRUCTURE. NO EQUIPMENT SHALL BE PERMITTED ON THE STRUCTURE THAT WOULD RESULT IN A CONDITION THAT EXCEEDS OPERATING CRITERIA AS DEFINED BY THE MOST CURRENT EDITION OF CHBDC. THE DETERMINATION OF THE PERMISSIBLE LOADS SHALL BE MADE BY A LICENSED PROFESSIONAL ENGINEER IN ONTARIO EMPLOYED BY THE CONTRACTOR. INTENDED LOADINGS FOR LIFTING ALONG WITH THE WRITTEN DETERMINATION BY THE CONTRACTOR'S PROFESSIONAL ENGINEER, SHALL BE SUBMITTED TO THE DEPARTMENT REPRESENTATIVE FOR REVIEW AT LEAST 10 WORKING DAYS PRIOR TO MOVING THIS EQUIPMENT TO THE BRIDGE STRUCTURE.
21. THE CONTRACTOR SHALL OBTAIN HIS OWN ELECTRICAL POWER SOURCE FOR ALL CONSTRUCTION OPERATIONS AND SHALL NOT BE PERMITTED TO USE ANY EXISTING UTILITIES ON THE BRIDGE AS A SOURCE OF POWER.
22. EXCEPT WHILE INCLUDED WITHIN A PARTICULAR PHASE OF CONSTRUCTION, THE BRIDGE MAINTENANCE WALKS, THE ROADWAY, AND ANY BRIDGE EASEMENT SHALL NOT BE USED FOR STORAGE OF MATERIALS OR EQUIPMENT AND SHALL NOT BE COVERED OR BLOCKED IN ANY WAY WITHOUT WRITTEN AUTHORIZATION BY DEPARTMENTAL REPRESENTATIVE.
23. THE CONTRACTOR SHALL SUBMIT TO DEPARTMENTAL REPRESENTATIVE FOR APPROVAL, HIS PLAN AND SCHEDULE FOR ERECTING ALL NEW STRUCTURAL STEEL ON THE BRIDGE SUPERSTRUCTURE. THIS PLAN MUST BE SUBMITTED AT LEAST 14 DAYS PRIOR TO THE COMMENCEMENT OF ANY REMOVAL WORK.
24. UNLESS OTHERWISE DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE, ALL EXISTING OPEN BOLT OR RIVET HOLES REMAINING AFTER THE REMOVAL OF EXISTING MATERIAL THAT ARE NOT TO BE USED FOR A NEW CONNECTION, SHALL BE FILLED WITH THE APPROPRIATE SIZE FULLY TENSIONED HIGH STRENGTH BOLT.
25. ALL PRIMED AND FULLY PAINTED UPWARD-FACING EDGES OF MEMBERS AND OTHER ELEMENTS MATED TO GUSSET PLATES, SPLICE PLATES, SHEAR TABS, CLIP ANGLES, BEAM WEBS, TO EACH OTHER, ETC. ARE TO BE SEALED PERMANENTLY AGAINST ACCUMULATION AND/OR PENETRATION OF MOISTURE BETWEEN THE FAYING SURFACES OF CONNECTIONS.
26. CONTRACTOR TO SUBMIT A DETAILED PLAN (INCLUDING ERECTION DRAWINGS) OF HIS PROPOSED REMOVAL AND INSTALLATION OF ALL STRUCTURAL AND MECHANICAL COMPONENTS TO THE DEPARTMENTAL REPRESENTATIVE FOR APPROVAL. THIS PLAN MUST BE SUBMITTED AT LEAST 14 DAYS PRIOR TO COMMENCEMENT OF ANY WORK.
27. CONTRACTOR TO SUBMIT SITE-SPECIFIC HEALTH AND SAFETY PLAN PER SPECIFICATION REQUIREMENTS.

LEGEND:

- CONNECTION NEW MATERIAL TO EXISTING MATERIAL WITH H.S. BOLT THROUGH EXISTING BOLT HOLE
- NEW H.S. BOLT CONNECTION,
 - 1. NEW MATERIAL ONLY
 - 2. NEW MATERIAL TO EXISTING MATERIAL THROUGH NEW HOLES

A REFERENCE DISTANCE BETWEEN TWO REFERENCE LOCATIONS BEYOND AND TO EITHER SIDE OF THE LIMITS OF BOTTOM CHORD CHANNEL REMOVAL, SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO COMMENCING REMOVALS WORKS. FOR MORE DETAILS REFER TO "SPLICE PLATE-ELEVATION" ON DRAWINGS S-8

 Public Works and Government Services Canada
Architectural and Engineering Services
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Services d'architecture et de génie
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PARSONS

 Professional Engineers Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge in Kingston, Ontario for Public Works Government Services Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

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LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL NOTES

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dessiné par
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designed by
conç par
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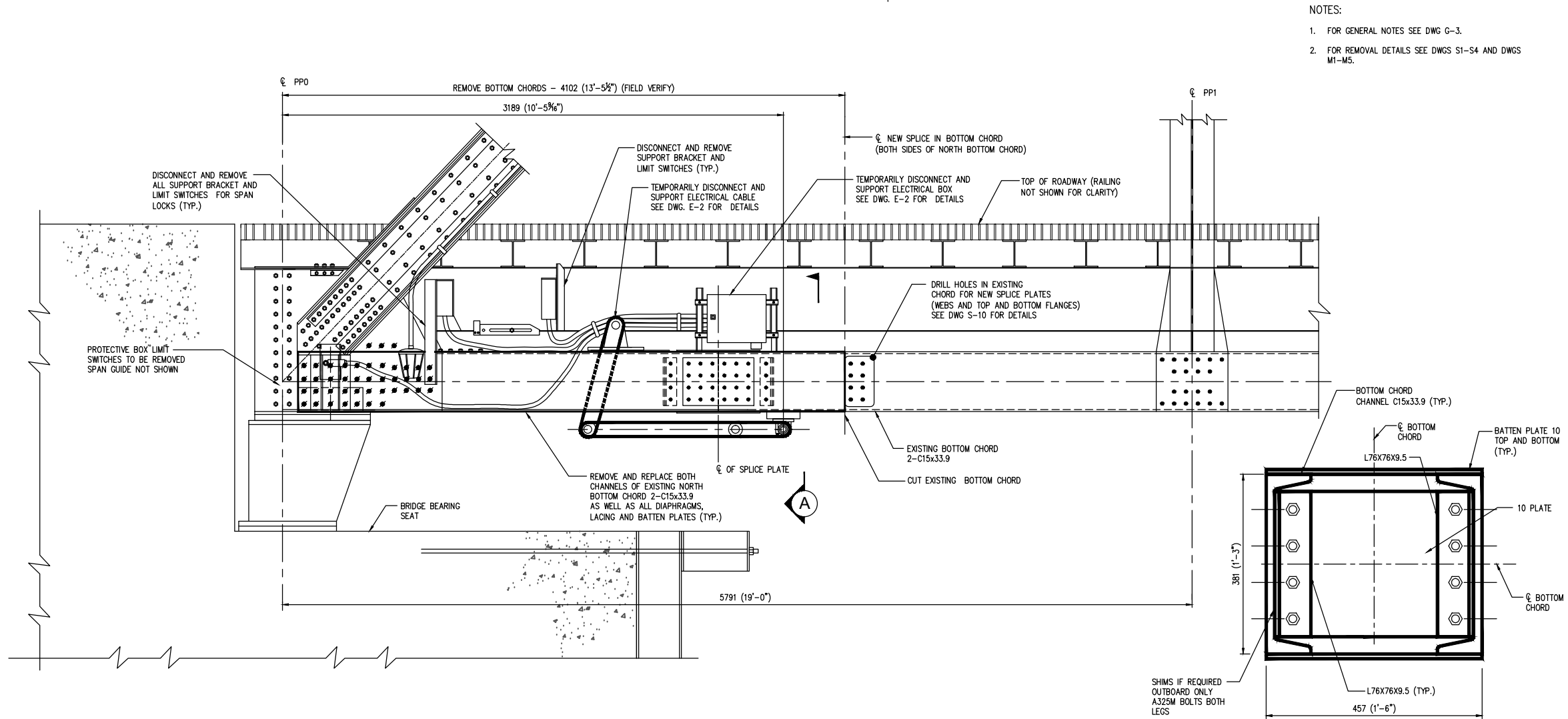
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project date
date du projet
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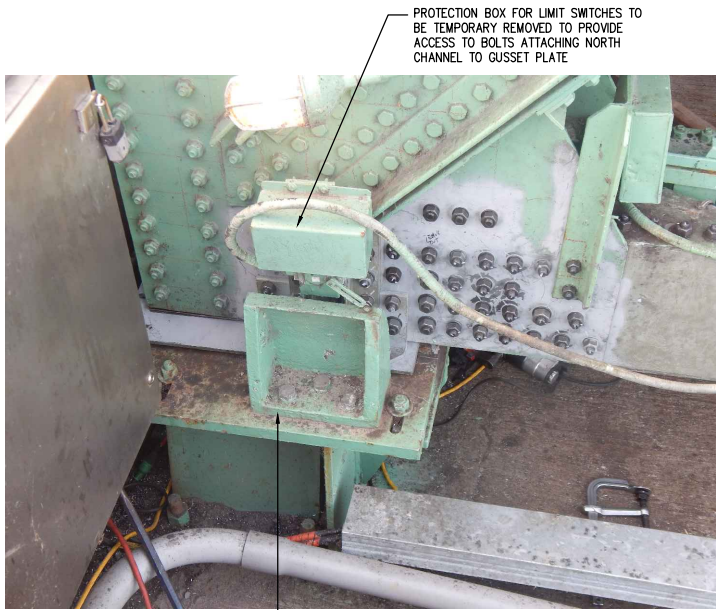
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dessiné no.
G-3



PARTIAL ELEVATION VIEW OF EXISTING NORTH BOTTOM CHORD (EXTERIOR) (NORTHSIDE)

SECTION A-A (LOOKING EAST)



PROTECTION BOX FOR LIMIT SWITCHES TO BE TEMPORARILY REMOVED TO PROVIDE ACCESS TO BOLTS ATTACHING NORTH CHANNEL TO GUSSET PLATE



TEMPORARILY DISCONNECT AND REMOVE SUPPORT BRACKET FOR LIMIT SWITCHES

TEMPORARILY DISCONNECT AND REMOVE SUPPORT ELECTRICAL BOX

SPAN GUIDE TO BE TEMPORARILY REMOVED AND REINSTALLED TO PROVIDE ACCESS TO BOLTS ATTACHING NORTH CHANNEL TO GUSSET PLATE

PHOTOGRAPHS OF NORTH BOTTOM CHORD - NORTH SIDE

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.

PARSONS

Professional Engineers Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge in Kingston, Ontario for Public Works Government Services Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

revision	description	date
1	ISSUED FOR TENDER	2016/11/28
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A	Detail No. No. du détail
B	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL ELEVATION
EXTERIOR BOTTOM CHORD
NORTH SIDE REMOVAL

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

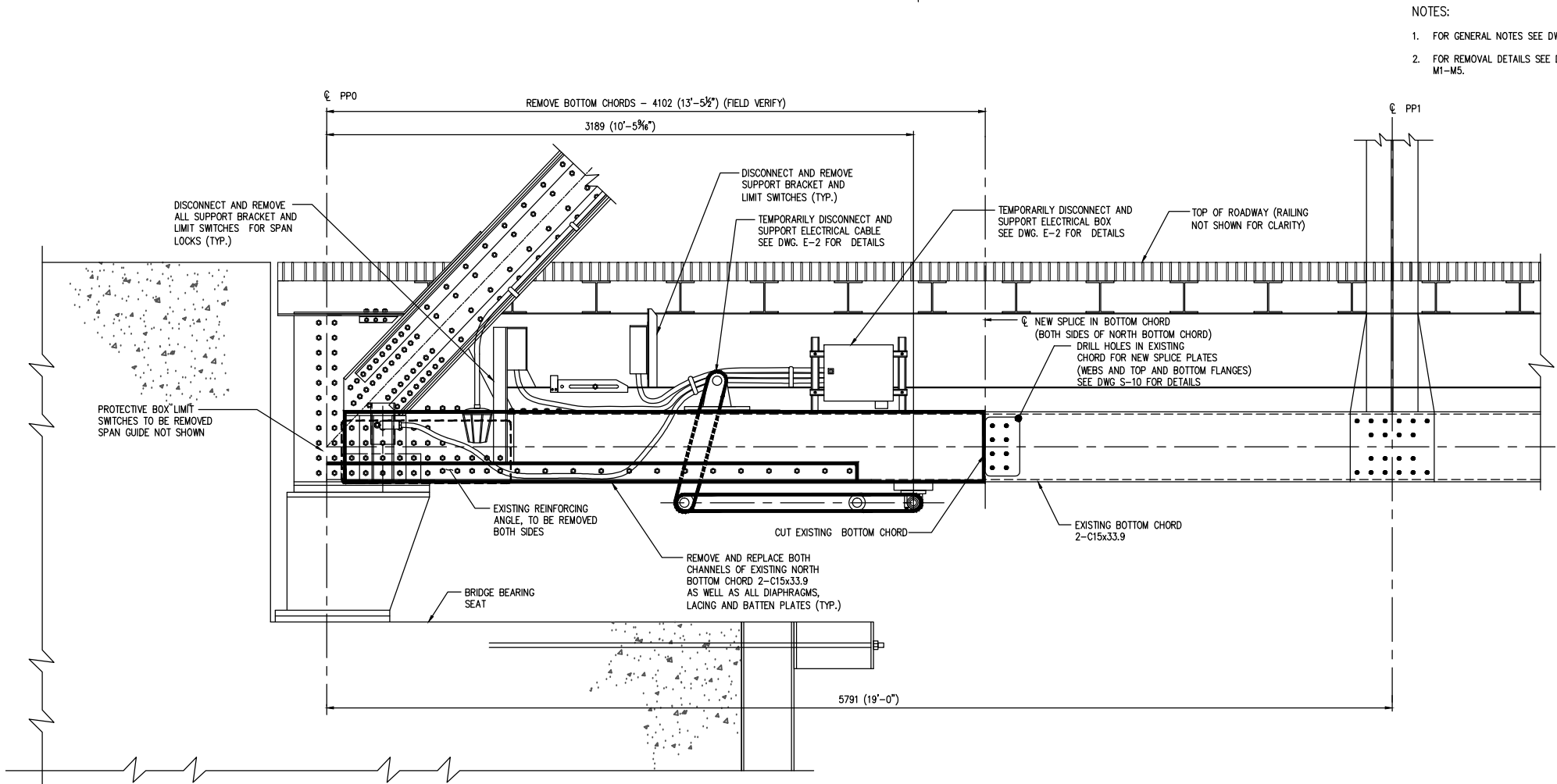
approved by
approuvé par
M. MANSFIELD

sender
soumission
R. GRATL
project manager
administrateur de projets

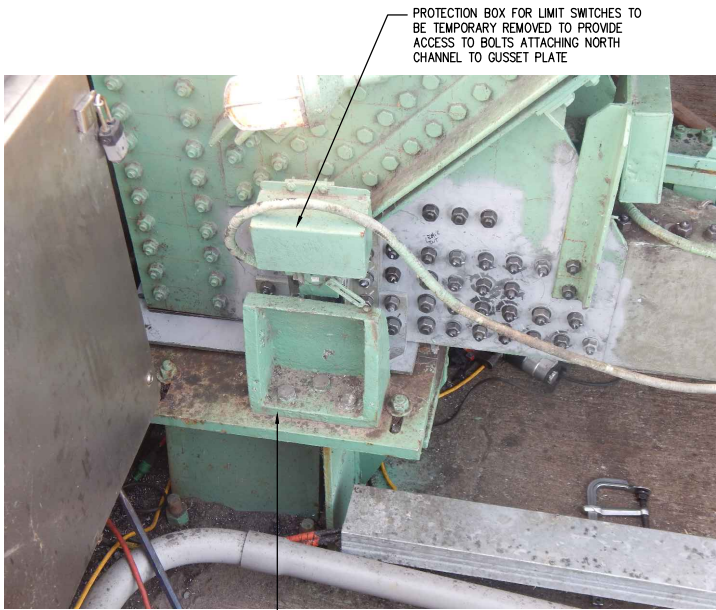
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-1



PARTIAL ELEVATION VIEW OF EXISTING NORTH BOTTOM CHORD (EXTERIOR) (SOUTHSIDE)



TEMPORARILY DISCONNECT AND REMOVE SUPPORT ELECTRICAL BOX

SPAN GUIDE TO BE TEMPORARILY REMOVED AND REINSTALLED TO PROVIDE ACCESS TO BOLTS ATTACHING NORTH CHANNEL TO GUSSET PLATE

PHOTOGRAPHS OF NORTH BOTTOM CHORD - NORTH SIDE

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.



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**Professional Engineers
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C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

Ontario

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL ELEVATION
EXTERIOR BOTTOM CHORD
NORTH SIDE REMOVAL

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

approved by
approuvé par
M. MANSFIELD

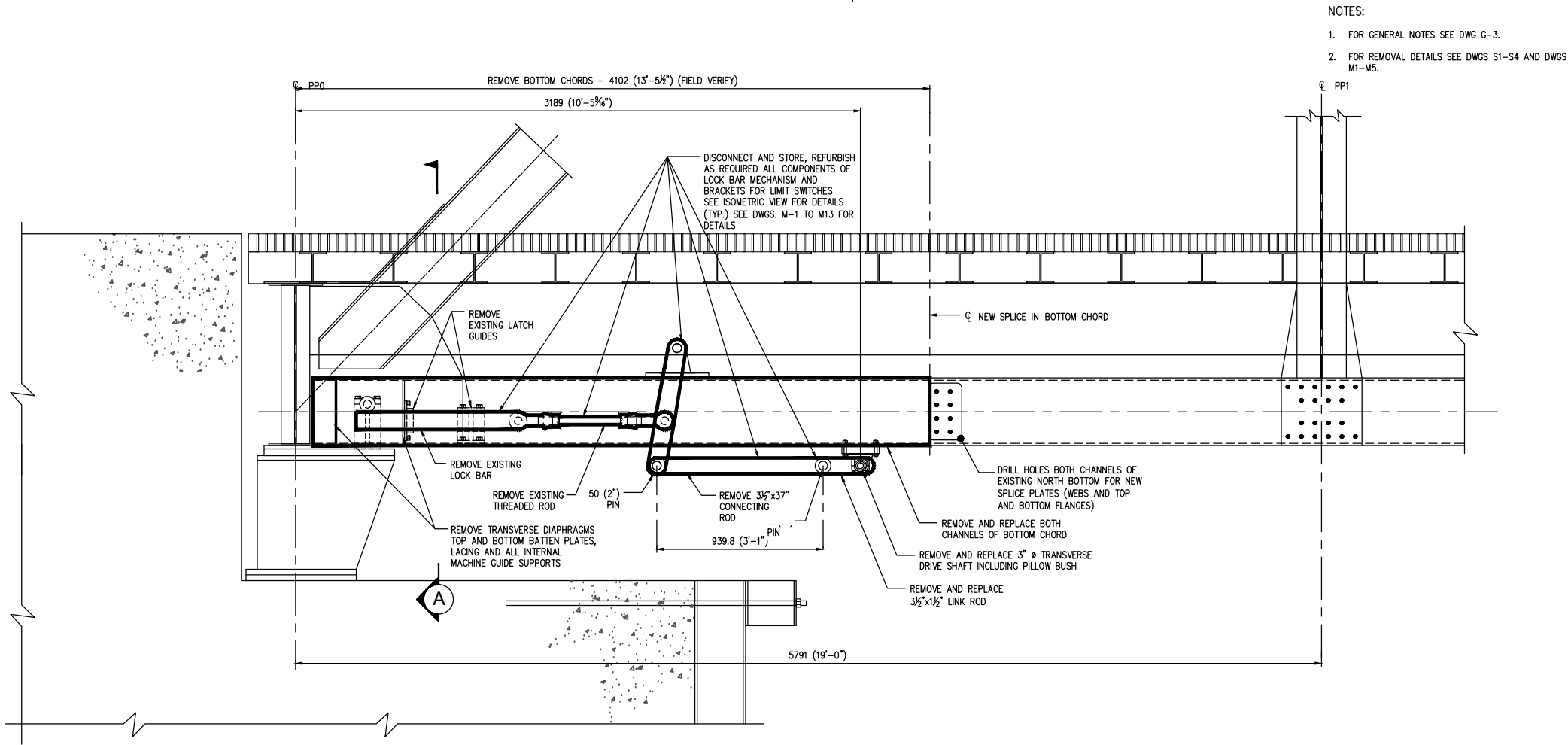
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soumission
R. GRATL

project manager
administrateur
de projets

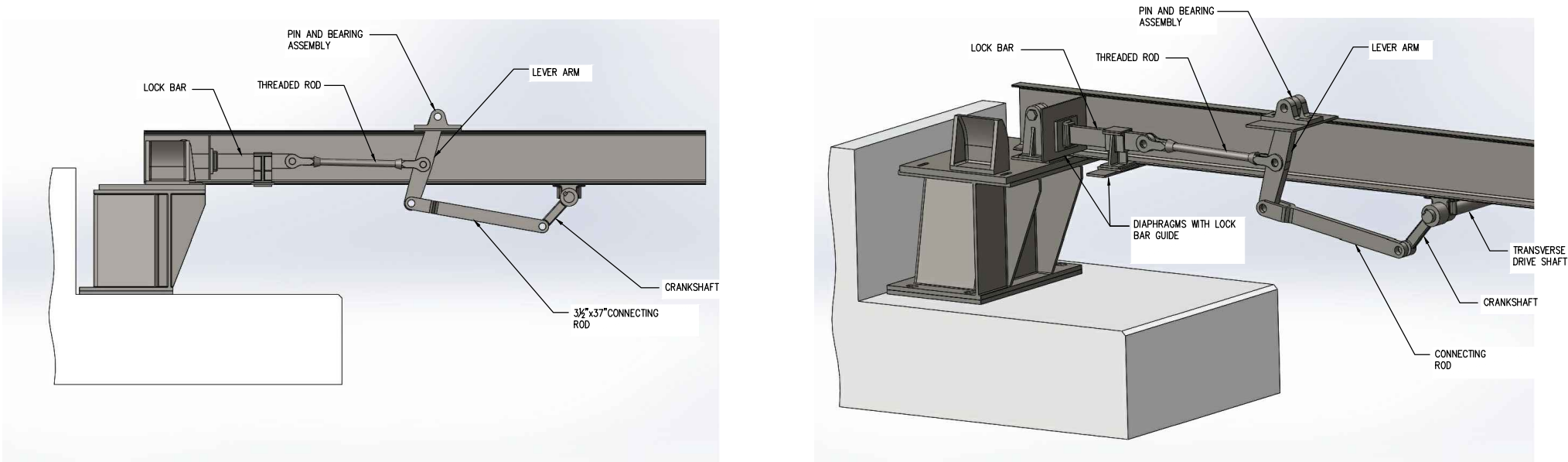
project date
date du projet
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project no.
no. du projet
R.082857.001

drawing no.
dessin no.
S-2



PARTIAL ELEVATION VIEW OF EXISTING NORTH BOTTOM CHORD (INTERIOR)



ISOMETRIC VIEWS OF EXISTING MECHANICAL COMPONENTS IN NORTH BOTTOM CHORD (INTERIOR)

revision	description	date
1	ISSUED FOR TENDER	2016/11/28
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B	No. du détail
C	drawing no. - where detail required dessin no. - où détail exigé
	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet
Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL ELEVATION
INTERIOR BOTTOM CHORD
NORTH SIDE REMOVAL

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

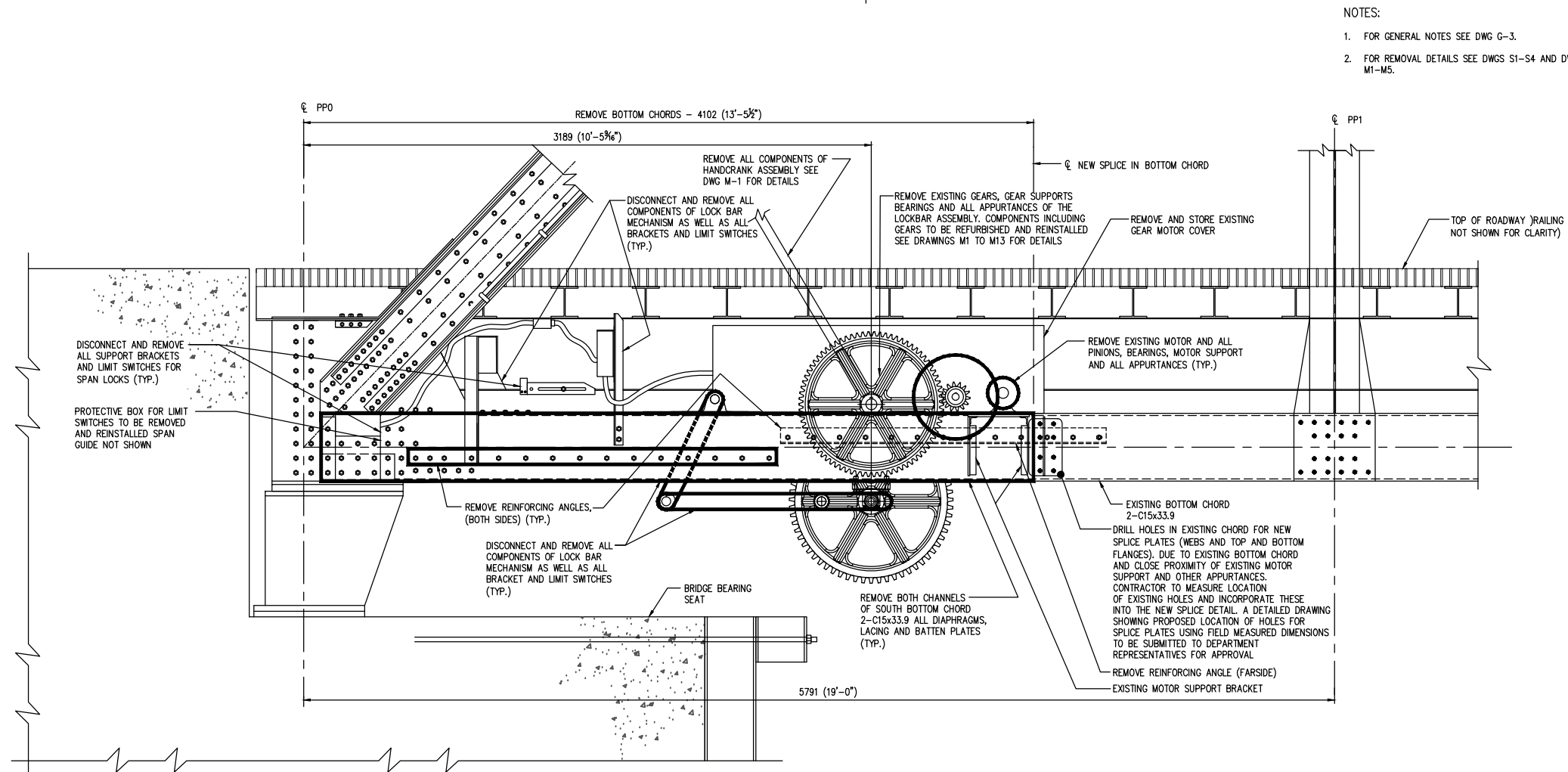
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-3



PARTIAL ELEVATION VIEW OF EXISTING SOUTH BOTTOM CHORD (EXTERIOR)



PHOTOGRAPHS OF SOUTH BOTTOM CHORD (SOUTH SIDE)

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Ontario

Temporary Licensee

Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
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Collaborator: Maurice Mansfield, P.Eng.
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	drawing no. - where detailed dessin no. - où détaillé

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titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

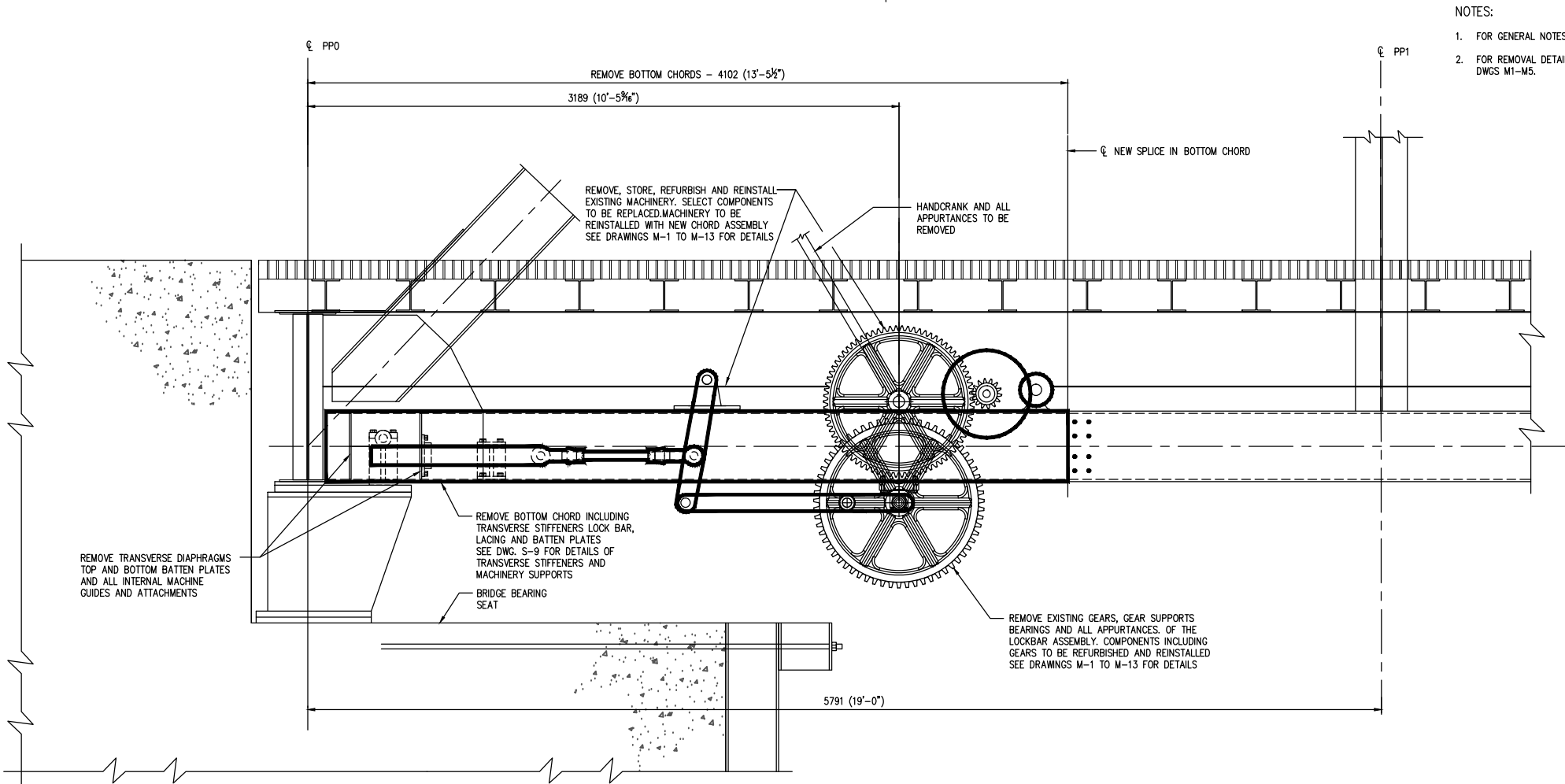
Ontario

REPLACEMENT OF SPAN LOCKS

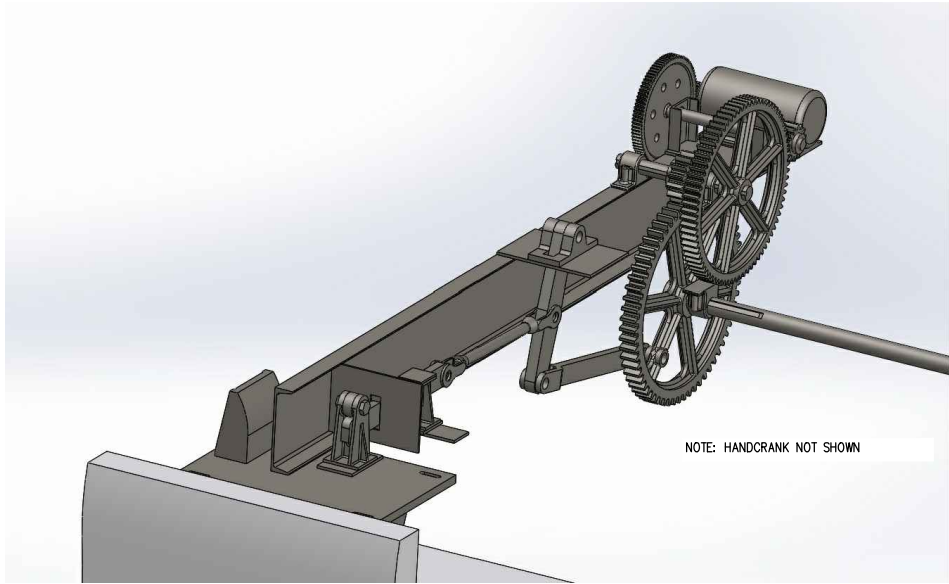
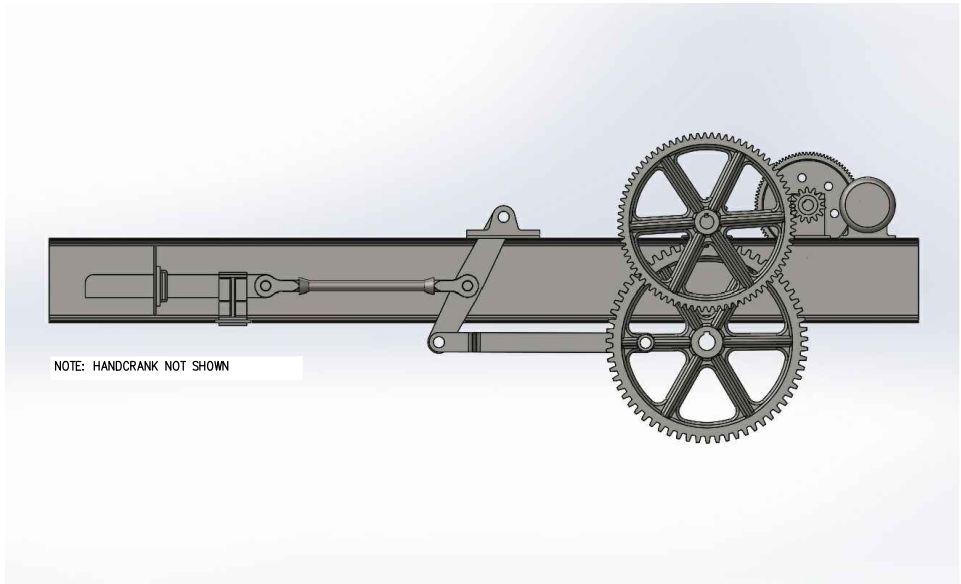
drawing title
titre du dessin

GENERAL ELEVATION
EXTERIOR BOTTOM CHORD
SOUTH SIDE REMOVAL

drawn by dessiné par	G. TAYLOR
designed by conçu par	J. SCHMID
approved by approuvé par	M. MANSFIELD
sender soumission	R. GRATL
project manager administrateur de projets	
project date date du projet	NOVEMBER 2016
project no. no. du projet	R.082857.001
drawing no. dessiné no.	S-4



PARTIAL ELEVATION VIEW OF EXISTING SOUTH BOTTOM CHORD DRIVE SIDE (INTERIOR VIEW)



ISOMETRIC VIEWS OF SOUTH BOTTOM CHORD DRIVE SIDE (INTERIOR)

- NOTES:
1. FOR GENERAL NOTES SEE DWG G-3.
 2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.


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Collaborator: Maurice Mansfield, P.Eng.
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titre du projet
Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

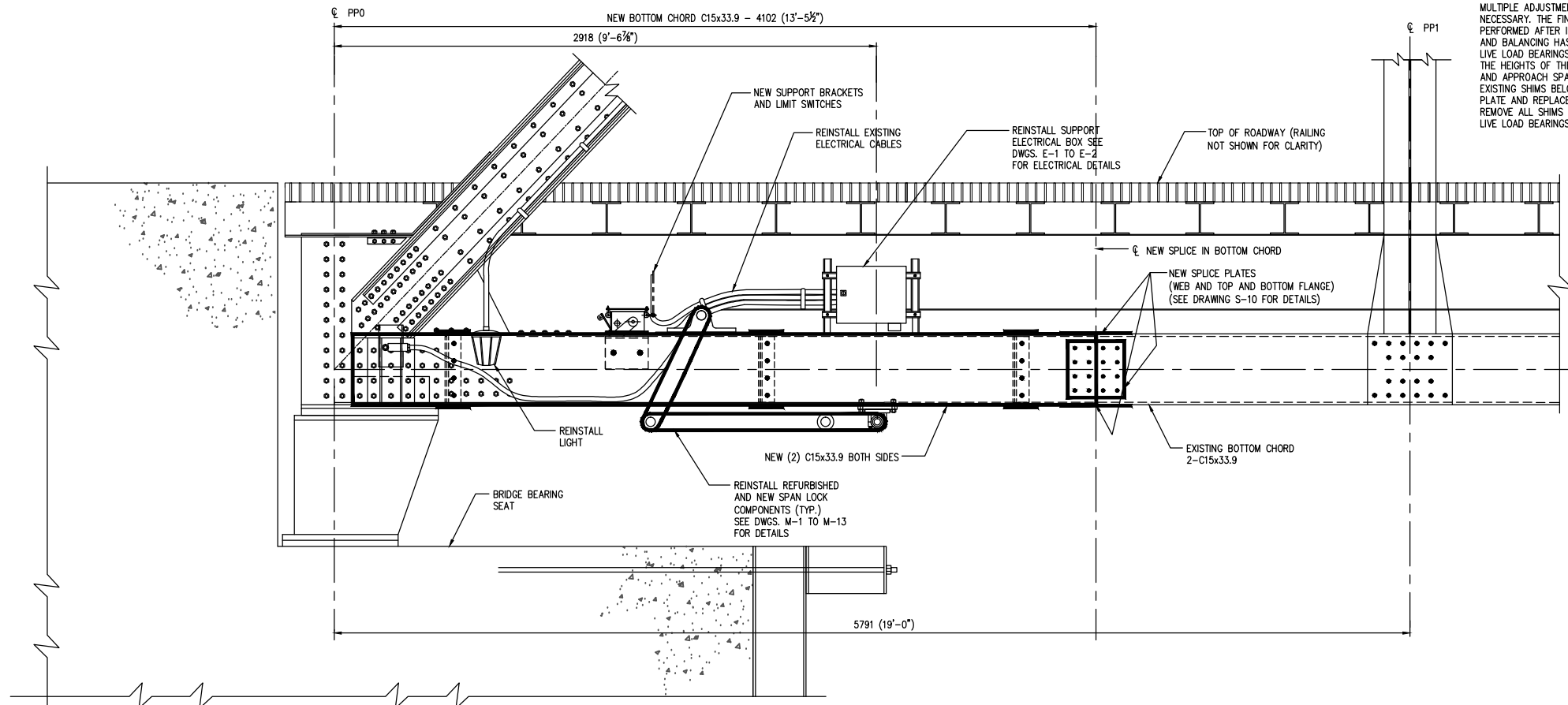
drawing title
titre du dessin
GENERAL ELEVATION
INTERIOR BOTTOM CHORD
SOUTH SIDE REMOVAL

drawn by
dessiné par
G. TAYLOR
designed by
conçu par
J. SCHMID
approved by
approuvé par
M. MANSFIELD
sender
soumission
R. GRATL
project manager
administrateur
de projets

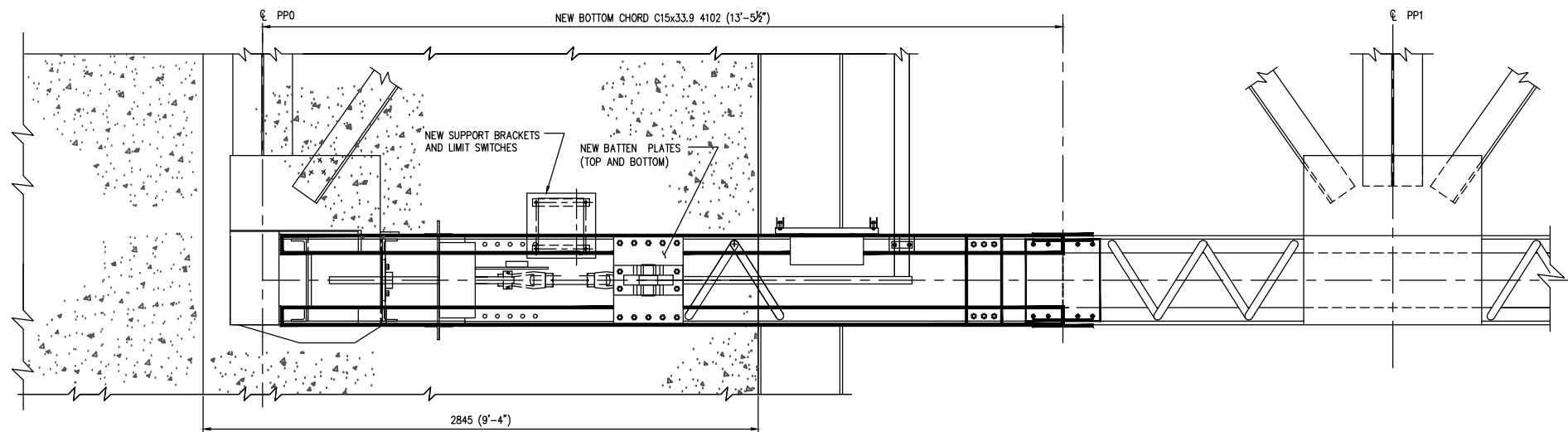
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date du projet
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project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-5



PARTIAL ELEVATION VIEW OF PROPOSED NORTH BOTTOM CHORD (EXTERIOR)



PARTIAL PLAN OF NORTH BOTTOM CHORD

NOTES:

- FOR GENERAL NOTES SEE DWG G-3.
- FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
- LIVE LOAD BEARINGS: THE CONTRACTOR SHALL FURNISH AND INSTALL NEW SHIMS FOR THE LIVE LOAD BEARINGS. THE CONTRACTOR SHALL REMOVE THE TOP PLATE OF THE LIVE LOAD BEARINGS TO INSTALL THE RECEIVING SOCKET AND TO REPLACE ALL SHIMS AND TO ADJUST SHIMS. MULTIPLE ADJUSTMENTS SHALL BE PERFORMED AS NECESSARY. THE FINAL ADJUSTMENT SHALL BE PERFORMED AFTER INSTALLATION OF ALL NEW MATERIAL AND BALANCING HAS BEEN COMPLETED. SHIMMING AT THE LIVE LOAD BEARINGS SHALL BE PERFORMED TO EQUALIZE THE HEIGHTS OF THE ROADWAY AT THE BASCULE SPAN AND APPROACH SPAN. THE CONTRACTOR SHALL REMOVE EXISTING SHIMS BELOW THE LIVE LOAD BEARING TOP PLATE AND REPLACE WITH NEW. THE CONTRACTOR SHALL REMOVE ALL SHIMS WELDED TO THE TOP PLATE OF THE LIVE LOAD BEARINGS AND GRIND ALL WELDS SMOOTH.



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Professional Engineers
Ontario

Temporary Licensee

Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
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Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
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dessin no. - où détail exigé
C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet

Ontario

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin

GENERAL ELEVATION
EXTERIOR BOTTOM CHORD
NORTH SIDE PROPOSED

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. SCHMID

approved by
approuvé par

M. MANSFIELD

sender
soumission

R. GRATL

project manager
administrateur
de projets

project date
date du projet

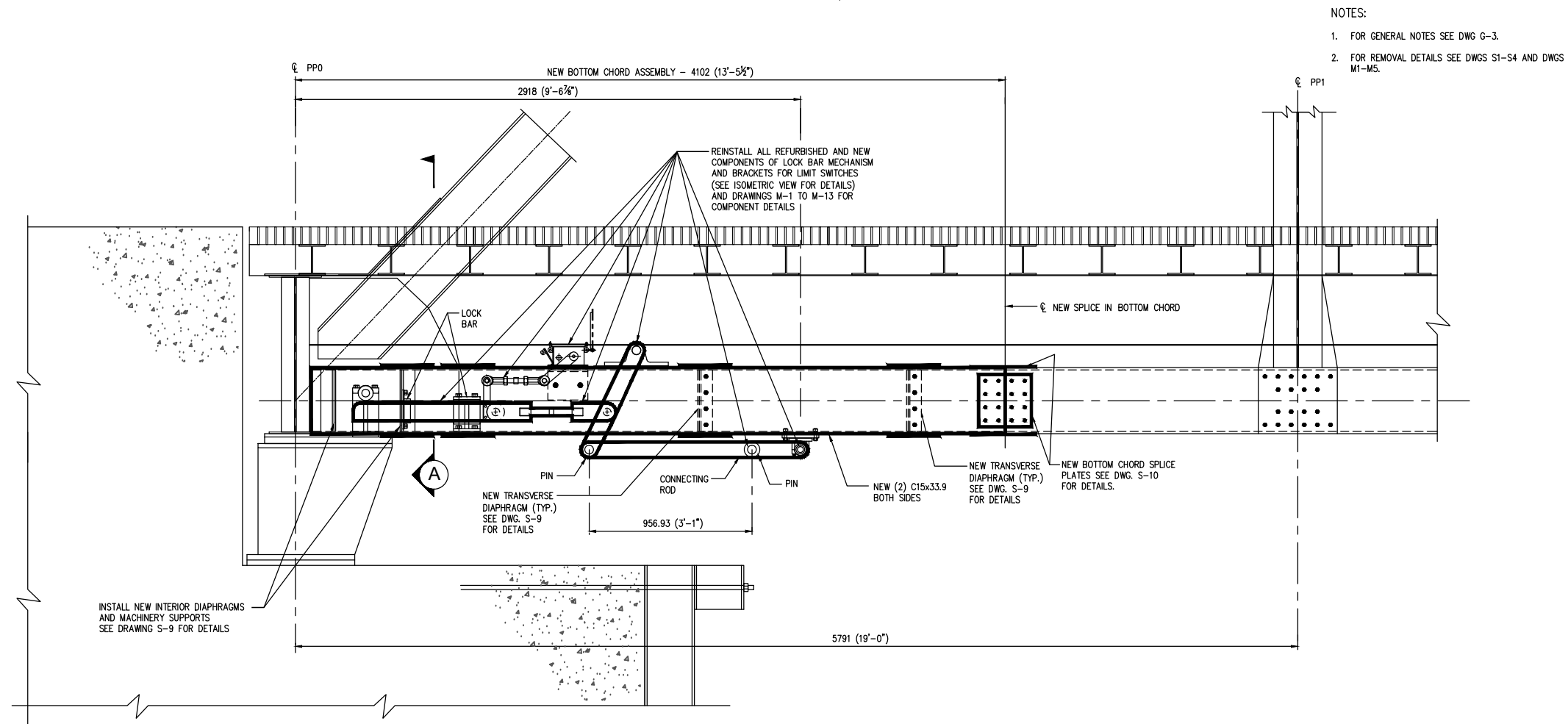
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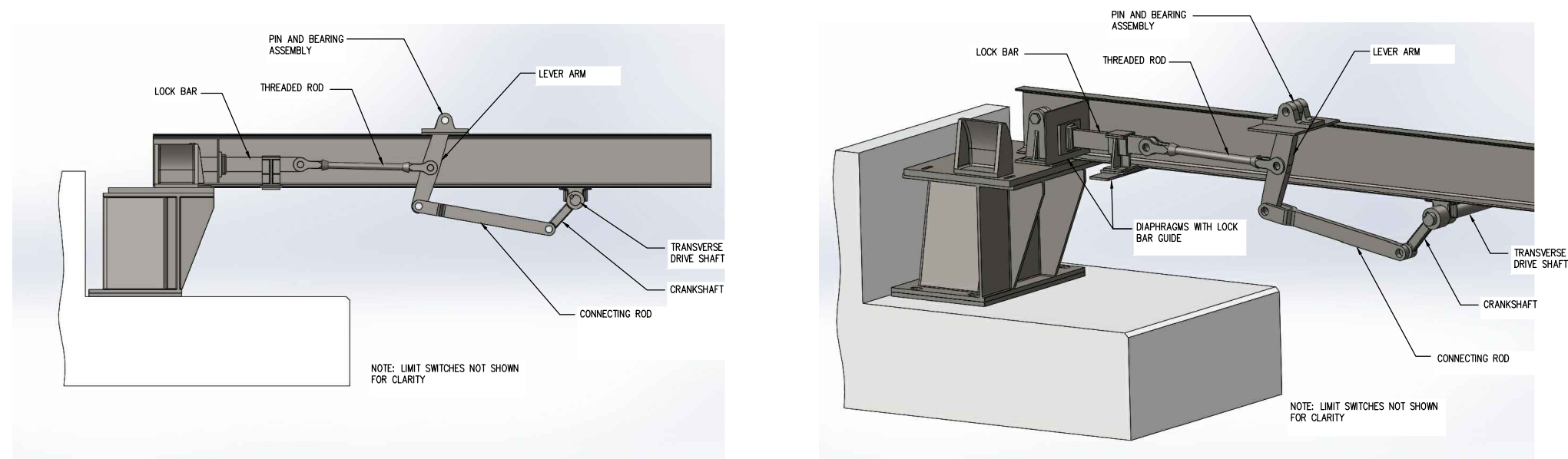
R.082857.001

drawing no.
dessiné no.

S-6



PARTIAL ELEVATION VIEW OF PROPOSED NORTH BOTTOM CHORD (INTERIOR)



**ISOMETRIC VIEWS OF PROPOSED NORTH BOTTOM CHORD (INTERIOR) (NTS)
(SHOWING REINSTALLED SPAN LOCK MECHANISM)**



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No. du détail
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dessin no. - où détail exigé
C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet
1 LASALLE CAUSEWAY
BASCULE BRIDGE
Ontario
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL ELEVATION
INTERIOR BOTTOM CHORD
NORTH SIDE PROPOSED

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

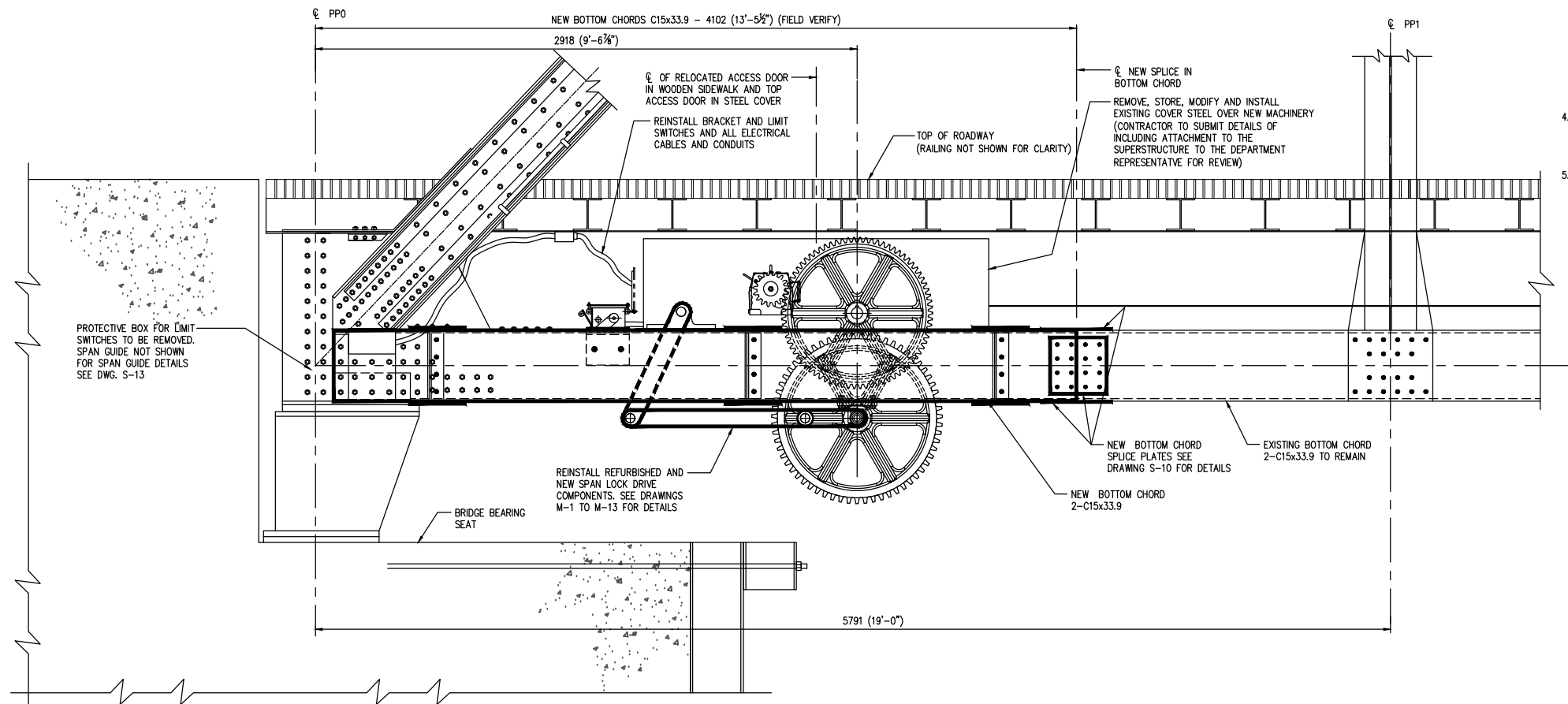
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approuvé par
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R. GRATL
project manager
administrateur
de projets

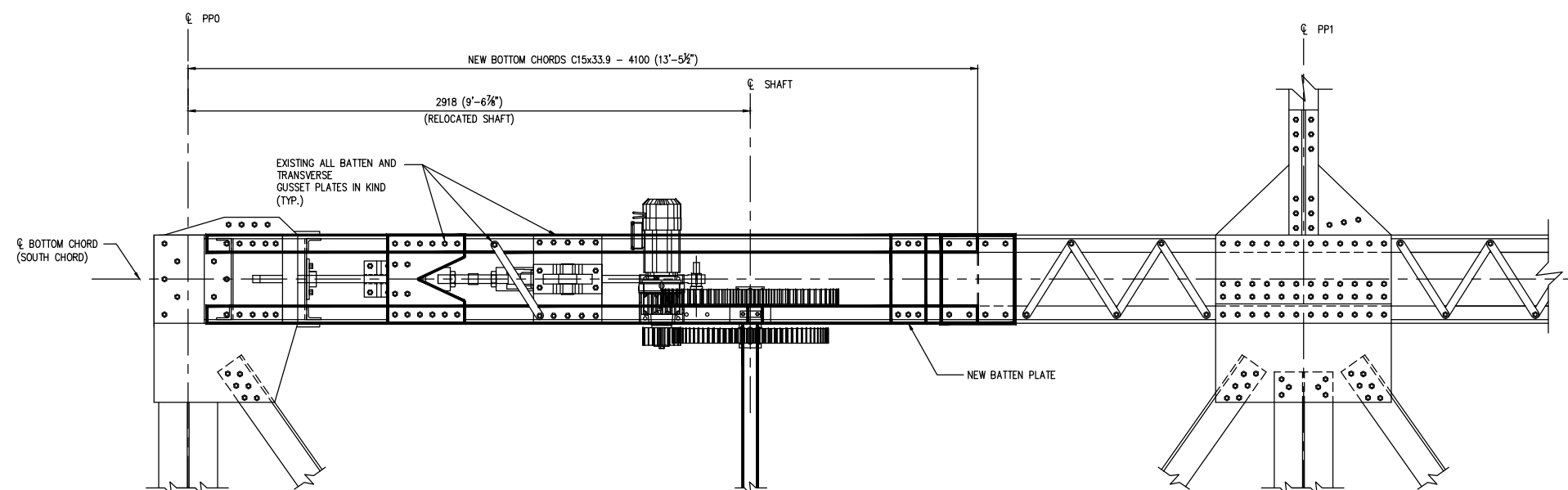
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-7



PARTIAL ELEVATION VIEW OF PROPOSED SOUTH BOTTOM CHORD (EXTERIOR)



PARTIAL PLAN OF UNDERSIDE SOUTH BOTTOM CHORD

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
3. LIVE LOAD BEARINGS: THE CONTRACTOR SHALL FURNISH AND INSTALL NEW SHIMS FOR THE LIVE LOAD BEARINGS. THE CONTRACTOR SHALL REMOVE THE TOP PLATE OF THE LIVE LOAD BEARINGS TO INSTALL THE RECEIVING SOCKET AND TO REPLACE ALL SHIMS AND TO ADJUST SHIMS. MULTIPLE ADJUSTMENTS SHALL BE PERFORMED AS NECESSARY. THE FINAL ADJUSTMENT SHALL BE PERFORMED AFTER INSTALLATION OF ALL NEW MATERIAL AND BALANCING HAS BEEN COMPLETED. SHIMMING AT THE LIVE LOAD BEARINGS SHALL BE PERFORMED TO EQUALIZED THE HEIGHTS OF THE ROADWAY AT THE BASCULE SPAN AND APPROACH SPAN. THE CONTRACTOR SHALL REMOVE EXISTING SHIMS BELOW THE LIVE LOAD BEARING TOP PLATE AND REPLACE WITH NEW. THE CONTRACTOR SHALL REMOVE ALL SHIMS WELDED TO THE TOP PLATE OF THE LIVE LOAD BEARINGS AND GRIND ALL WELDS SMOOTH.
4. PROVIDE AND INSTALL A NEW REMOVABLE ACCESS DOOR IN THE SIDE OF THE COVER TO ACCESS THE MOTOR FOR HAND CRANKING. THE DOOR SHALL BE HINGED AND HAVE A HASP FOR LOCKING.
5. REMOVE, RELOCATE AND REINSTALL SIDEWALK PLANKS AND HATCH TO LOCATE HATCH OVER THE MOTOR PINION AND GEAR MESH. PROVIDE ANY REQUIRED HARDWARE TO MATCH EXISTING.



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Canada.

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dessin no. - où détail exigé
C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL ELEVATION
EXTERIOR BOTTOM CHORD
SOUTH SIDE PROPOSED

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

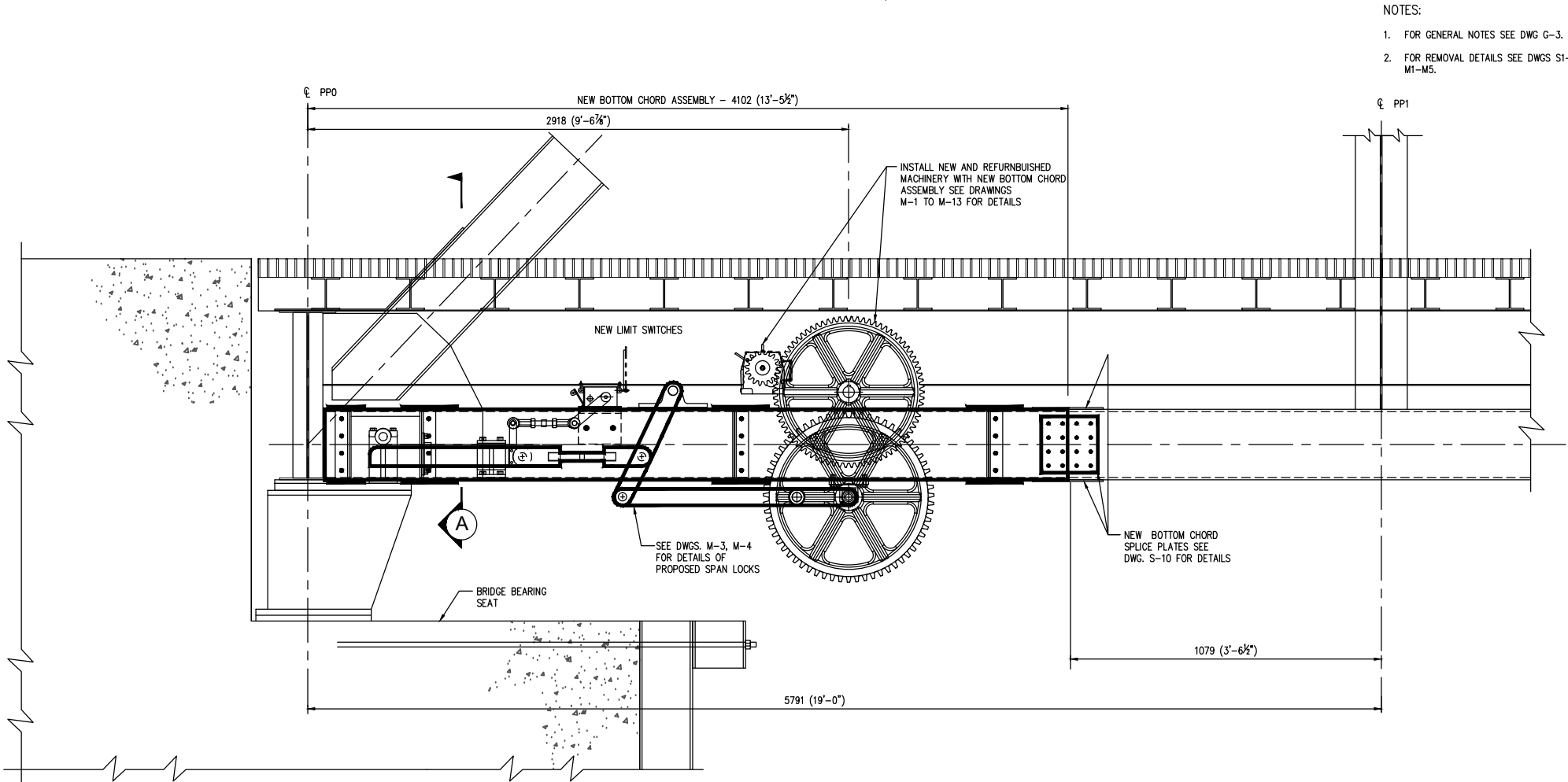
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approuvé par
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R. GRATL
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administrateur
de projets

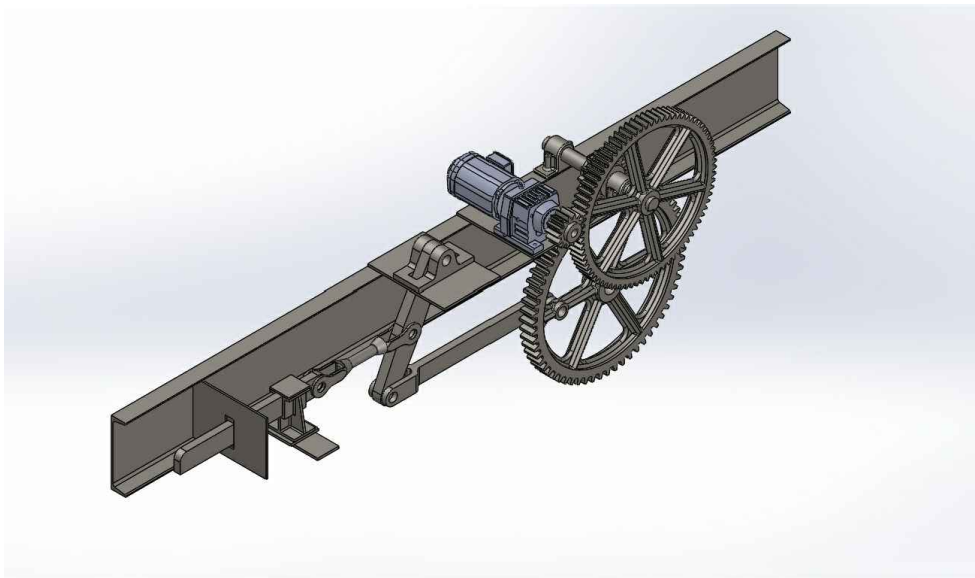
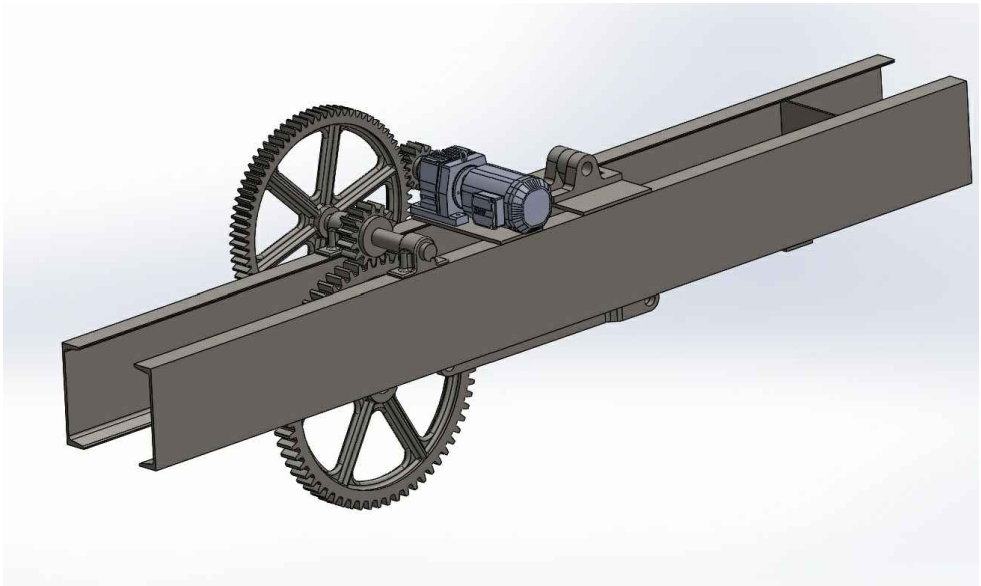
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date du projet
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project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-8



PARTIAL ELEVATION VIEW OF PROPOSED SOUTH BOTTOM CHORD DRIVER SIDE (INTERIOR)



ISOMETRIC VIEWS OF PROPOSED SOUTH BOTTOM CHORD DRIVE SIDE (INTERIOR)

- NOTES:
1. FOR GENERAL NOTES SEE DWG G-3.
 2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.

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B	B drawing no. - where detail required dessin no. - où détail exigé
C	C drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

Ontario

drawing title
titre du dessin

GENERAL ELEVATION
INTERIOR BOTTOM CHORD
SOUTH SIDE PROPOSED

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. SCHMID

approved by
approuvé par

M. MANSFIELD

tender
soumission

R. GRATL

project manager
administrateur
de projets

project date
date du projet

NOVEMBER 2016

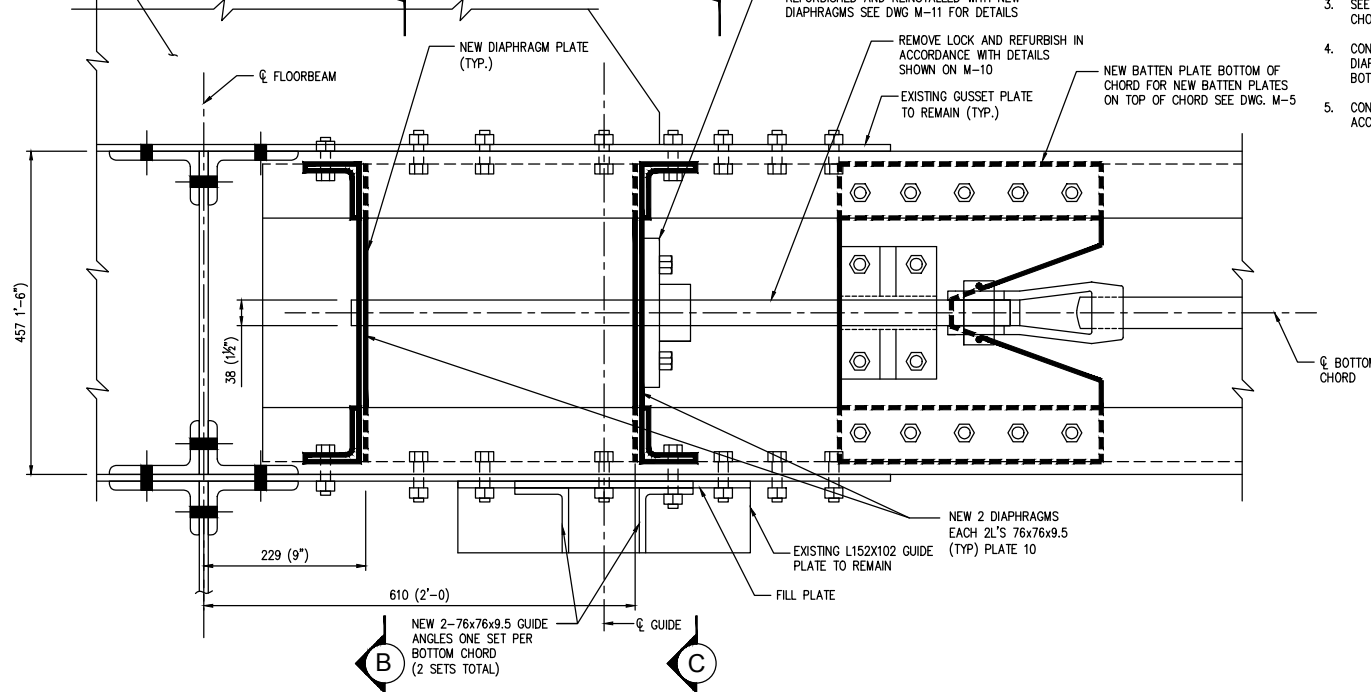
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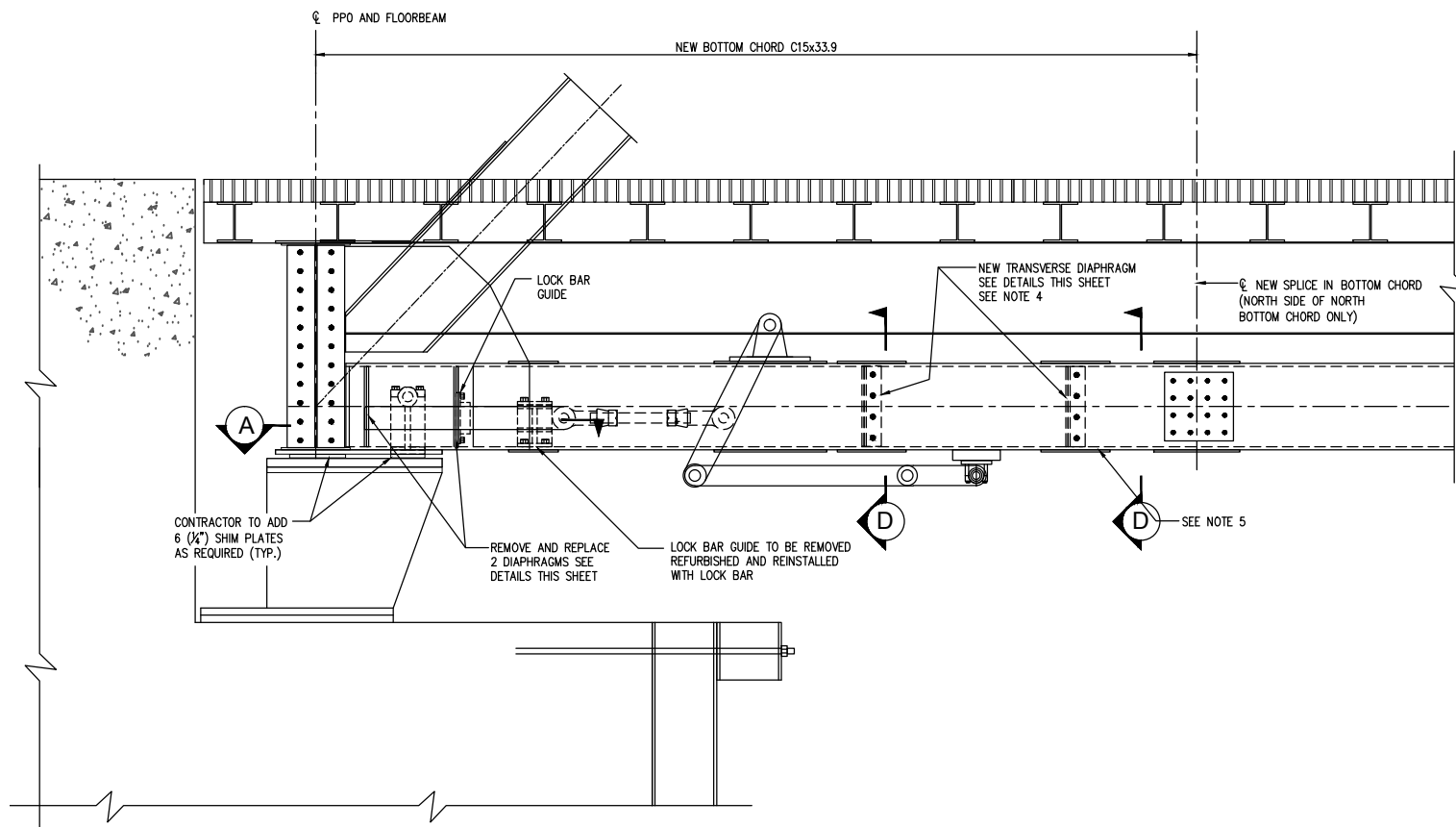
drawing no.
dessiné no.

S-9

EXISTING GUSSET SOUTH SIDE
NEW GUSSET PLATE NORTH
SIDE



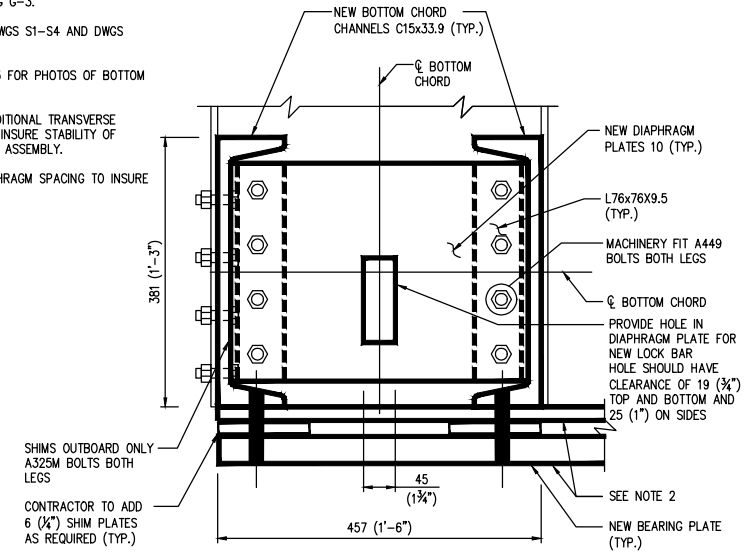
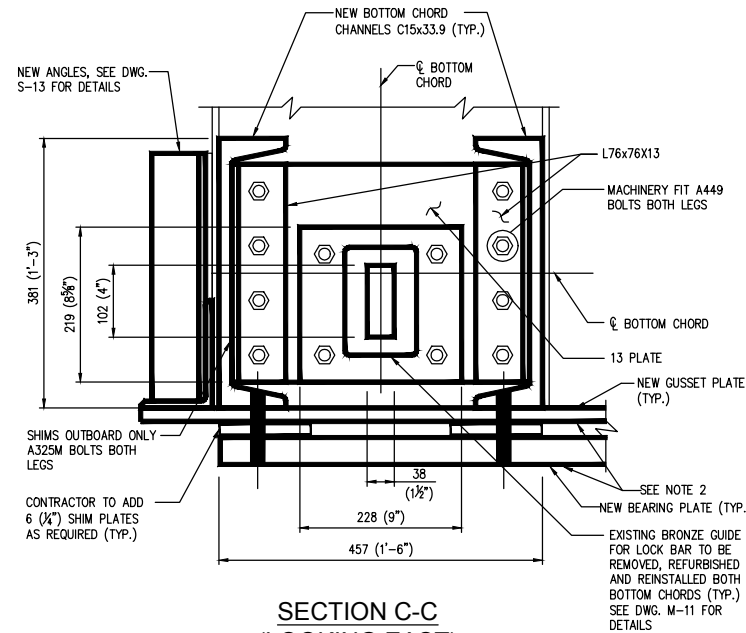
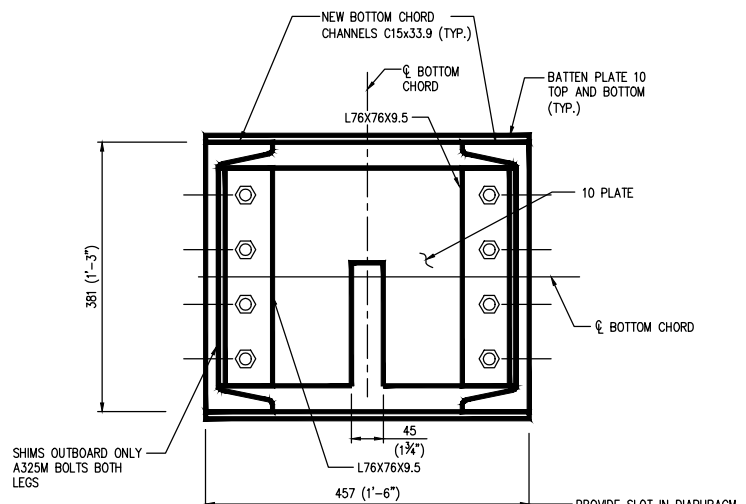
SECTION A-A



PARTIAL ELEVATION VIEW SHOWING DIAPHRAGMS FOR PROPOSED NORTH BOTTOM CHORD (INTERIOR)
(SOUTH BOTTOM CHORD SIMILAR)

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
3. SEE DRAWING S-11 AND S-13 FOR PHOTOS OF BOTTOM CHORD INTERIOR.
4. CONTRACTOR TO PROVIDE ADDITIONAL TRANSVERSE DIAPHRAGMS IF REQUIRED TO INSURE STABILITY OF BOTTOM CHORD DURING TRIAL ASSEMBLY.
5. CONTRACTOR TO DETAIL DIAPHRAGM SPACING TO INSURE ACCESS FOR CONSTRUCTION.

SECTION B-B
(LOOKING EAST)SECTION C-C
(LOOKING EAST)SECTION D-D
(LOOKING EAST)

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Collaborator: Maurice Mansfield, P.Eng.
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project title
titre du projet

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
BOTTOM CHORD - DIAPHRAGM
DETAILS

drawn by
dessiné par G. TAYLOR

designed by
conçu par J. SCHMID

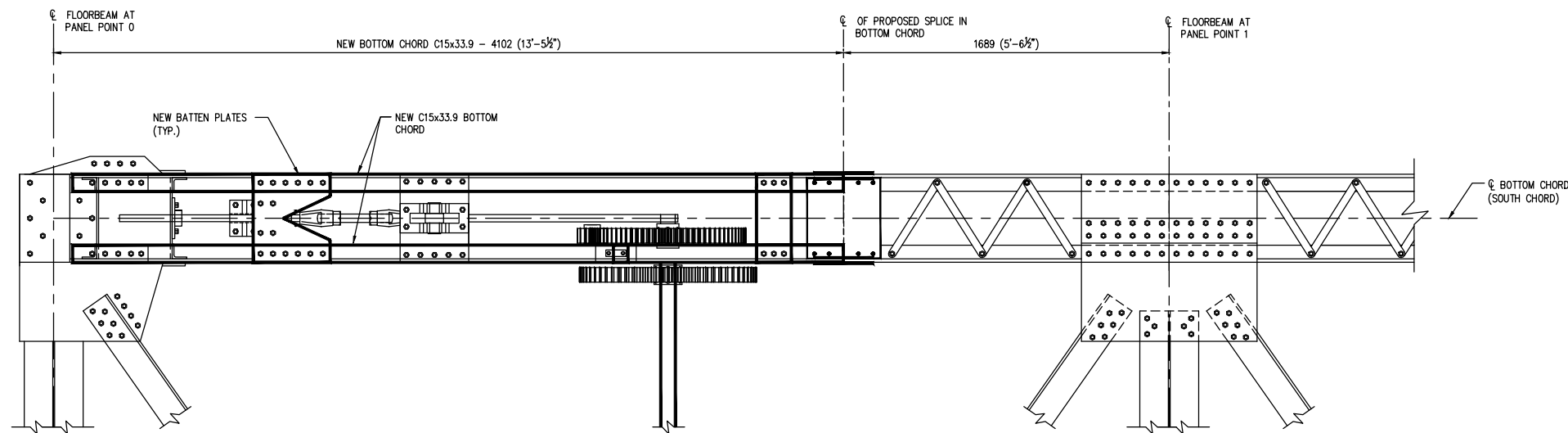
approved by
approuvé par M. MANSFIELD

sender
soumission R., GRATL project manager
administrateur de projets

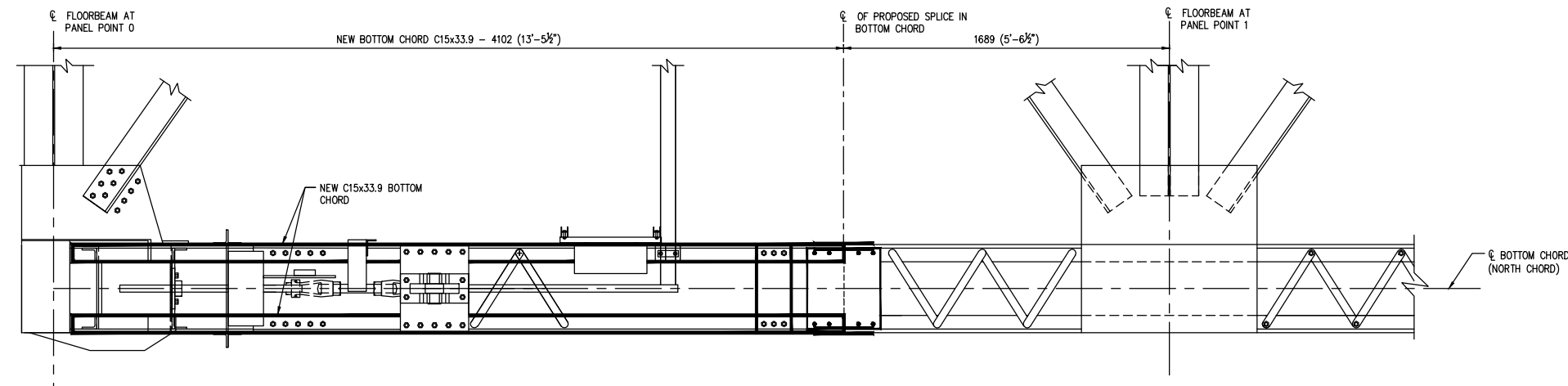
project date
date du projet NOVEMBER 2016

project no.
no. du projet R.082857.001

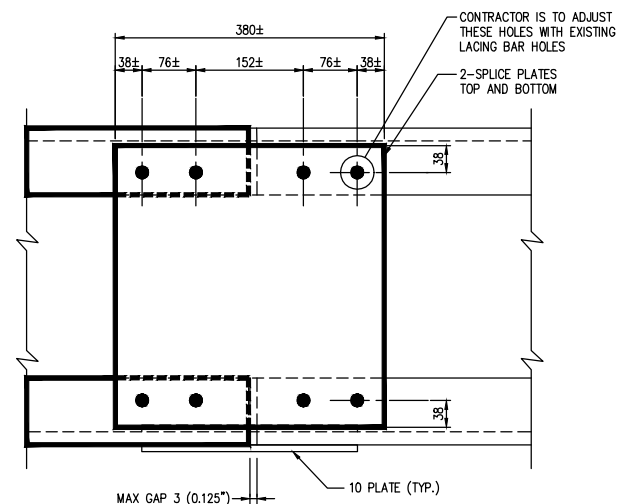
drawing no.
dessiné no. S-10



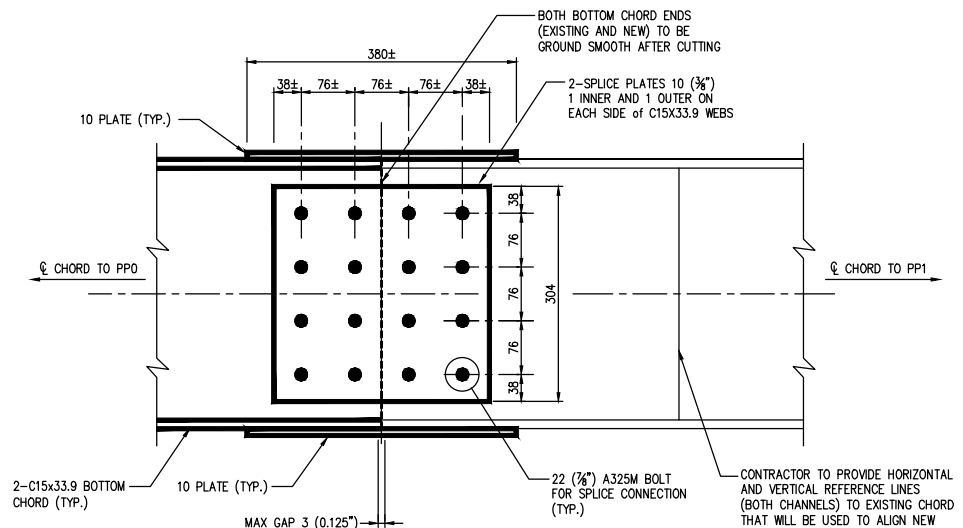
PARTIAL PLAN VIEW OF SOUTH SIDE



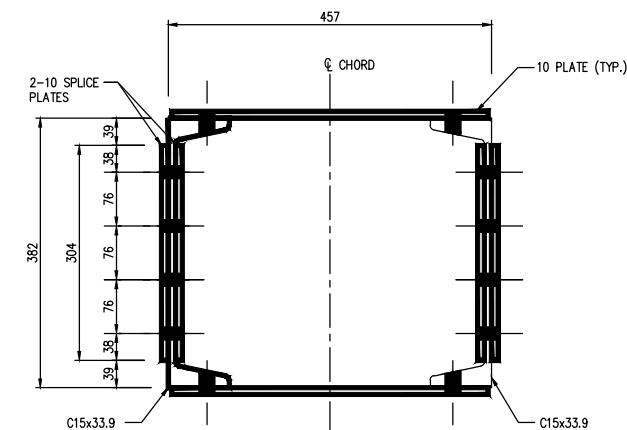
PARTIAL PLAN VIEW OF NORTH SIDE



SPlice PLATE - PLAN



SPlice PLATE - ELEVATION



SPlice PLATE - SECTION

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5. FOR LATERAL BRACING REMOVAL AND REPLACEMENT DETAILS SEE DWG. S-15.
3. DUE TO CLOSE PROXIMITY OF EXISTING MOTOR SUPPORTS AND OTHER APPURTANCES ON THE SOUTH BOTTOM CHORD, CONTRACTOR TO MEASURE LOCATION OF EXISTING HOLES AND INCORPORATE THOSE INTO THE NEW SPlice DETAIL. A DETAILED DRAWING SHOWING PROPOSED LOCATION AND LAYOUT OF PROPOSED BOLT HOLES FOR SPlice PLATES USING FIELD MEASUREMENTS. DIMENSIONS TO BE SUBMITTED TO DEPARTMENT REPRESENTATIVE FOR APPROVAL.
4. SINCE ONLY ONE BOTTOM CHORD CHANNEL CAN BE REPLACED AT A TIME, THE CONTRACTOR MUST PROVIDE TEMPORARY SPlice PLATES TO SECURE THE TOP AND BOTTOM CHANNEL FLANGES WHILE THE ADJACENT BOTTOM CHORD CHANNEL IS BEING REPLACED.
5. FOR SPlice PLATE CONNECTION ALL BOLTS TO BE 22 (7/8) Ø A325M BOLTS.



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PARSONS



**Professional Engineers
Ontario**
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

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revision	description	date

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A Detail No.
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dessin no. - où détail exigé
C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
DETAILS OF NEW
IN BOTTOM CHORD SPlice

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

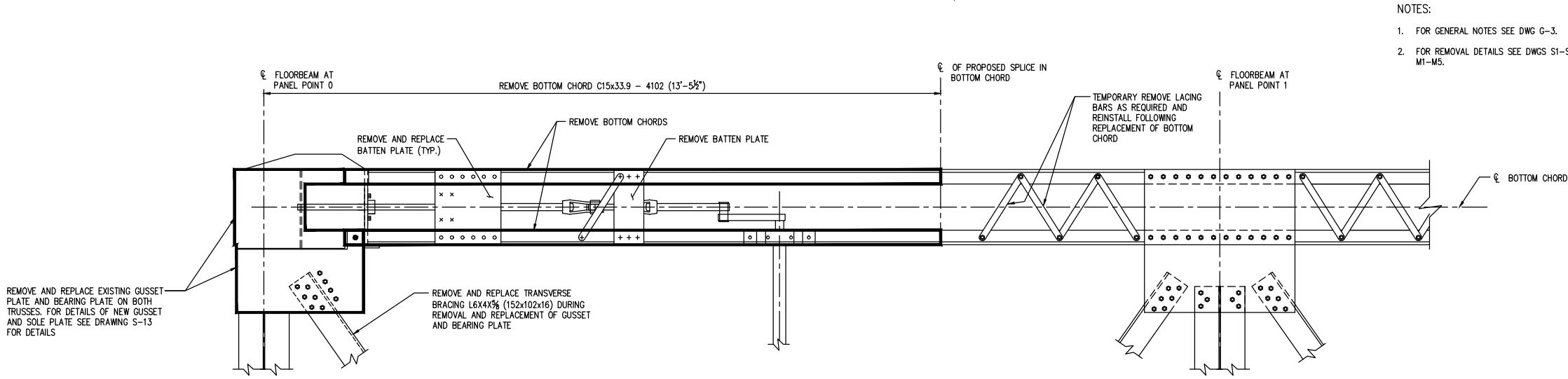
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

project date
date du projet
NOVEMBER 2016

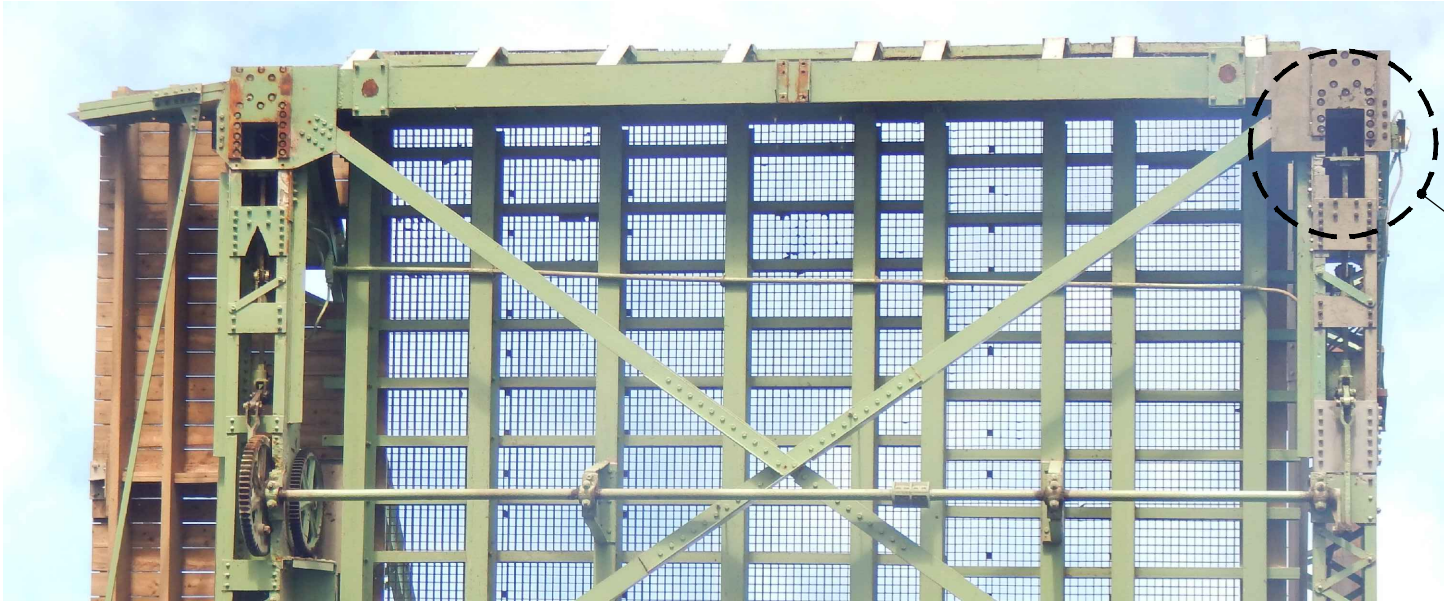
project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-11



- NOTES:
1. FOR GENERAL NOTES SEE DWG G-3.
 2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.

PARTIAL PLAN VIEW OF UNDERSIDE OF NORTH BOTTOM CHORD (LOOKING UP)






OVERALL VIEW SHOWING GUSSET PLATE AND BEARING PLATE TO BE REMOVED AND REPLACED ON BOTH SIDES

REPLACE EXISTING GUSSET PLATE AND BEARING PLATE (BOTH TRUSSES)



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project title titre du projet	Ontario
LASALLE CAUSEWAY BASCULE BRIDGE	
REPLACEMENT OF SPAN LOCKS	

drawing title titre du dessin
REMOVAL DRAWINGS FOR REPLACEMENT OF HORIZONTAL GUSSET & BEARING PLATE AT PPO

drawn by dessiné par	G. TAYLOR
-------------------------	-----------

designed by conçu par	J. SCHMID
--------------------------	-----------

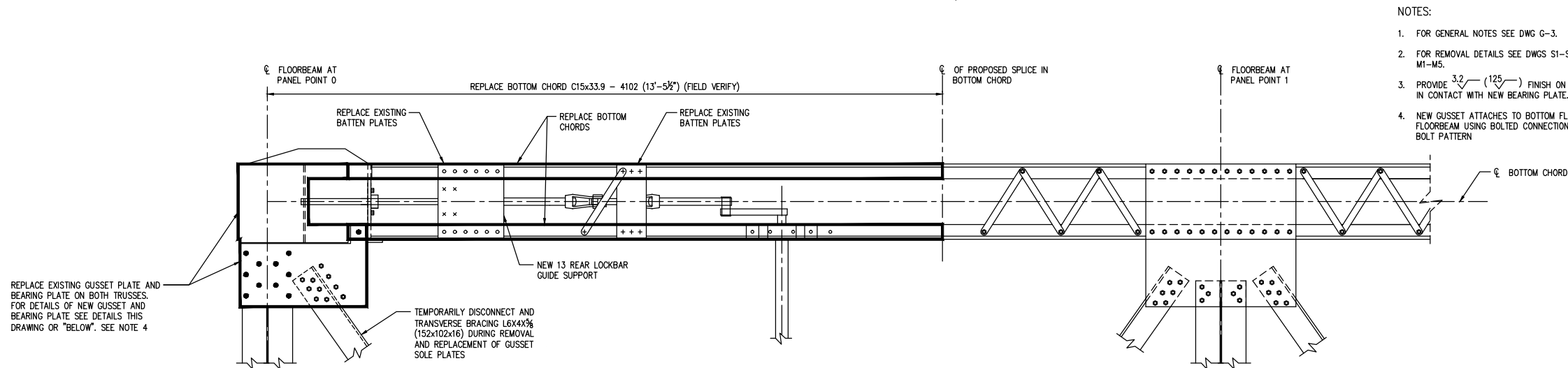
approved by approuvé par	M. MANSFIELD
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sender soumission	R. GRATL	project manager administrateur de projets
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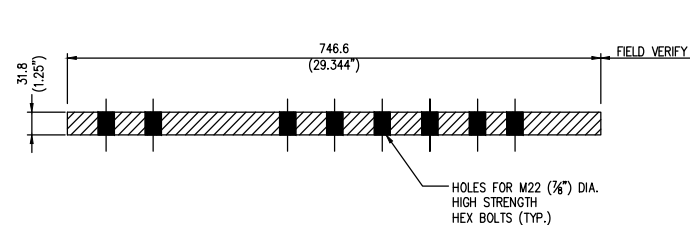
project date date du projet	NOVEMBER 2016
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project no. no. du projet	R.082857.001
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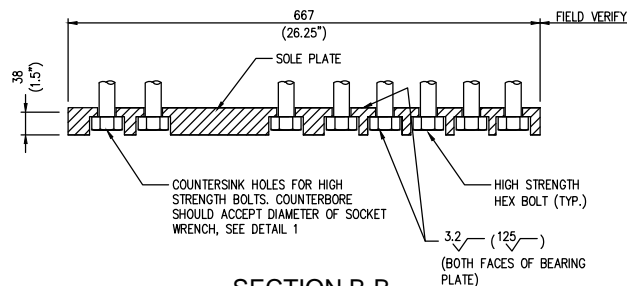
drawing no. dessiné no.	S-12
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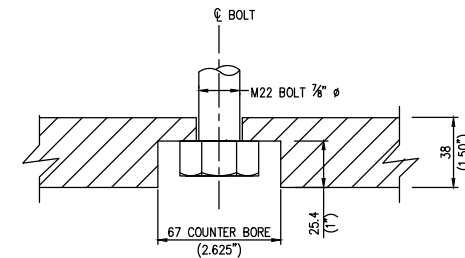
PARTIAL PLAN VIEW OF UNDERSIDE OF NORTH BOTTOM CHORD (LOOKING UP) (EXISTING CONDITION)



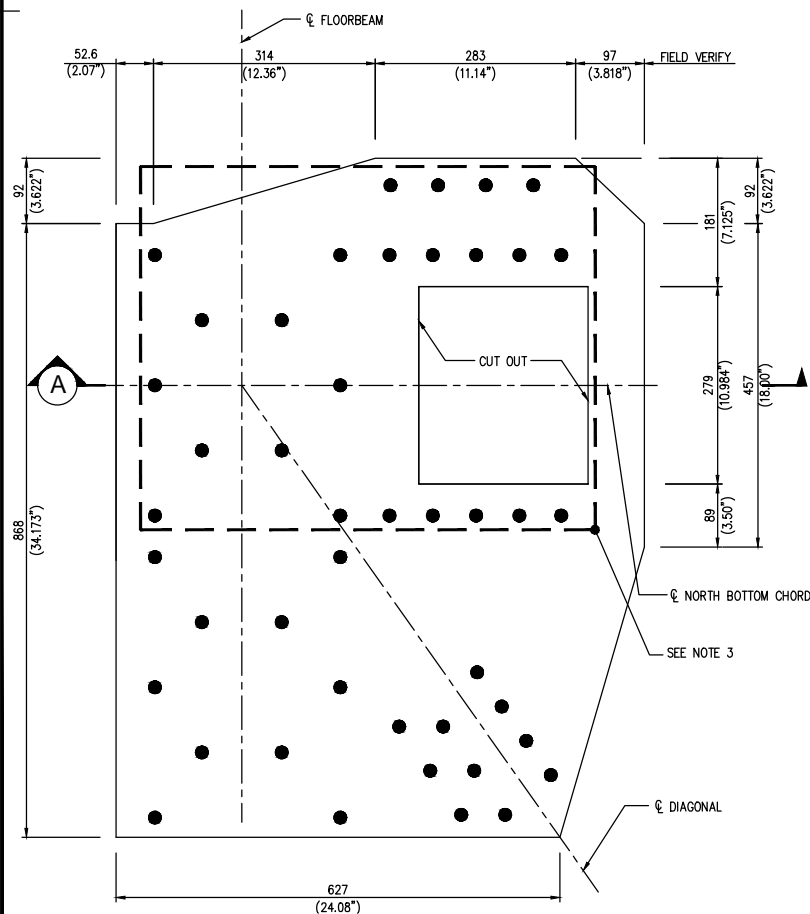
SECTION A-A



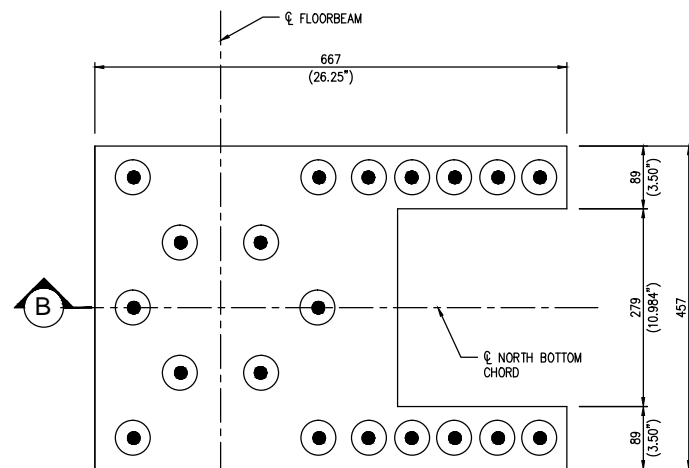
SECTION B-B



DETAIL - 1 COUNTER SUNK BOLT FOR BEARING PLATE

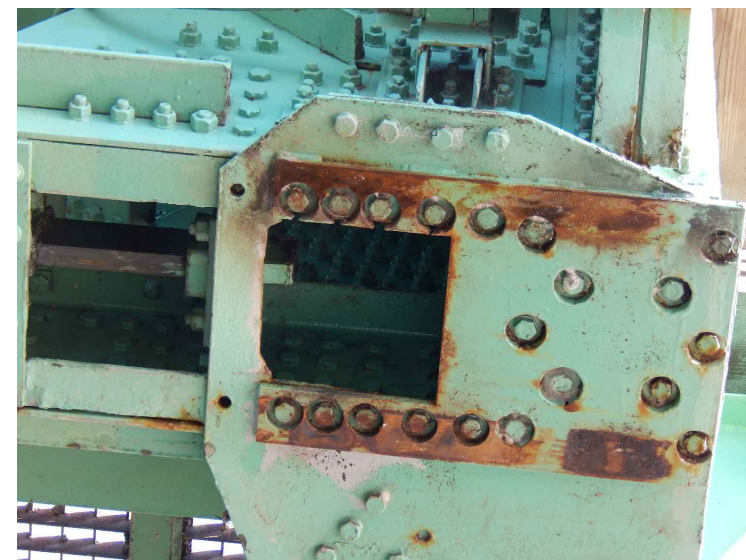


DETAIL OF GUSSET PLATE



DETAIL OF BEARING PLATE

NOTE:
CONTRACTOR TO FIELD MEASURE BOLT PATTERN
ON GUSSET PLATES AND REPLICATE ON
NEW GUSSET AND SOLE PLATES.



PICTURES OF GUSSET AND SOLE PLATE

PHOTO SHOWS GUSSET ON SOUTH SIDE OF BRIDGE

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
3. PROVIDE 3/2 (125) FINISH ON PART OF GUSSET IN CONTACT WITH NEW BEARING PLATE.
4. NEW GUSSET ATTACHES TO BOTTOM FLANGE OF EXISTING FLOORBEAM USING BOLTED CONNECTION. SEE DETAIL FOR BOLT PATTERN



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project title
titre du projet
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

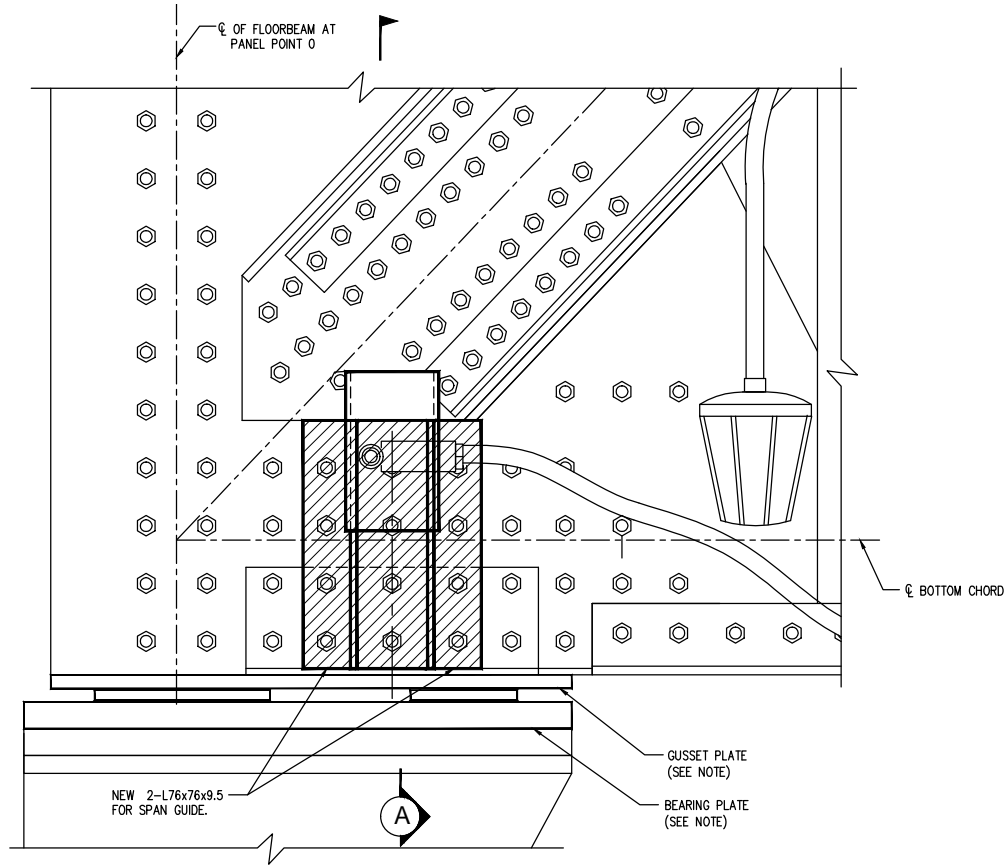
drawing title
titre du dessin
REPLACEMENT OF HORIZONTAL
GUSSET AND BEARING PLATES
AT PPO

drawn by
dessiné par
G. TAYLOR
designed by
conçu par
J. SCHMID
approved by
approuvé par
M. MANSFIELD
tender
soumission
R. GRATL
project manager
administrateur
de projets

project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

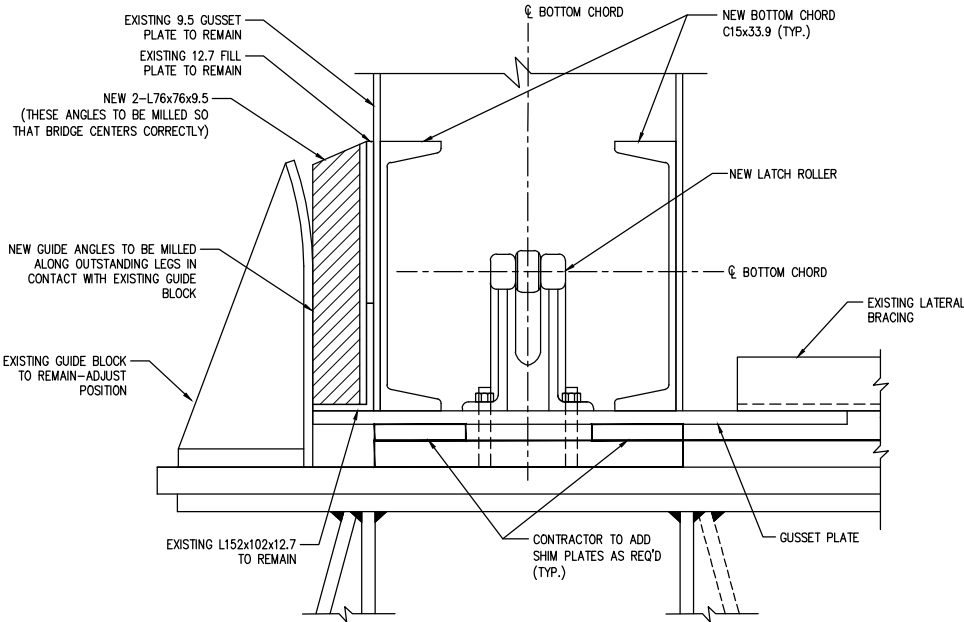
drawing no.
dessiné no.
S-13



DETAIL AT LOWER CHORD EXTERIOR



LOOKING UPWARDS AT LOCK BAR
GUIDE SHOWN IN SECTION C-C, DWG. S-10



SECTION A-A



LOOKING DOWN AT TRANSVERSE STIFFENER
INSIDE BOTTOM CHORD STIFFENER AT TOP
SHOWN IN SECTION B-B, DWG. S-10



LOOKING AT EXISTING GUIDE ANGLES
ON SOUTH BOTTOM CHORD

- NOTES:
1. FOR GENERAL NOTES SEE DWG G-3.
 2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
 3. GUIDE ANGLES ARE LOCATED ON THE NORTH SIDE OF THE NORTH BOTTOM CHORD AND SOUTH SIDE OF SOUTH BOTTOM CHORD.

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
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Région de l'Ontario

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project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin

REPLACEMENT OF
GUIDE ANGLES

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. SCHMID

approved by
approuvé par

M. MANSFIELD

tender
soumission

R. GRATL

project manager
administrateur
de projets

project date
date du projet

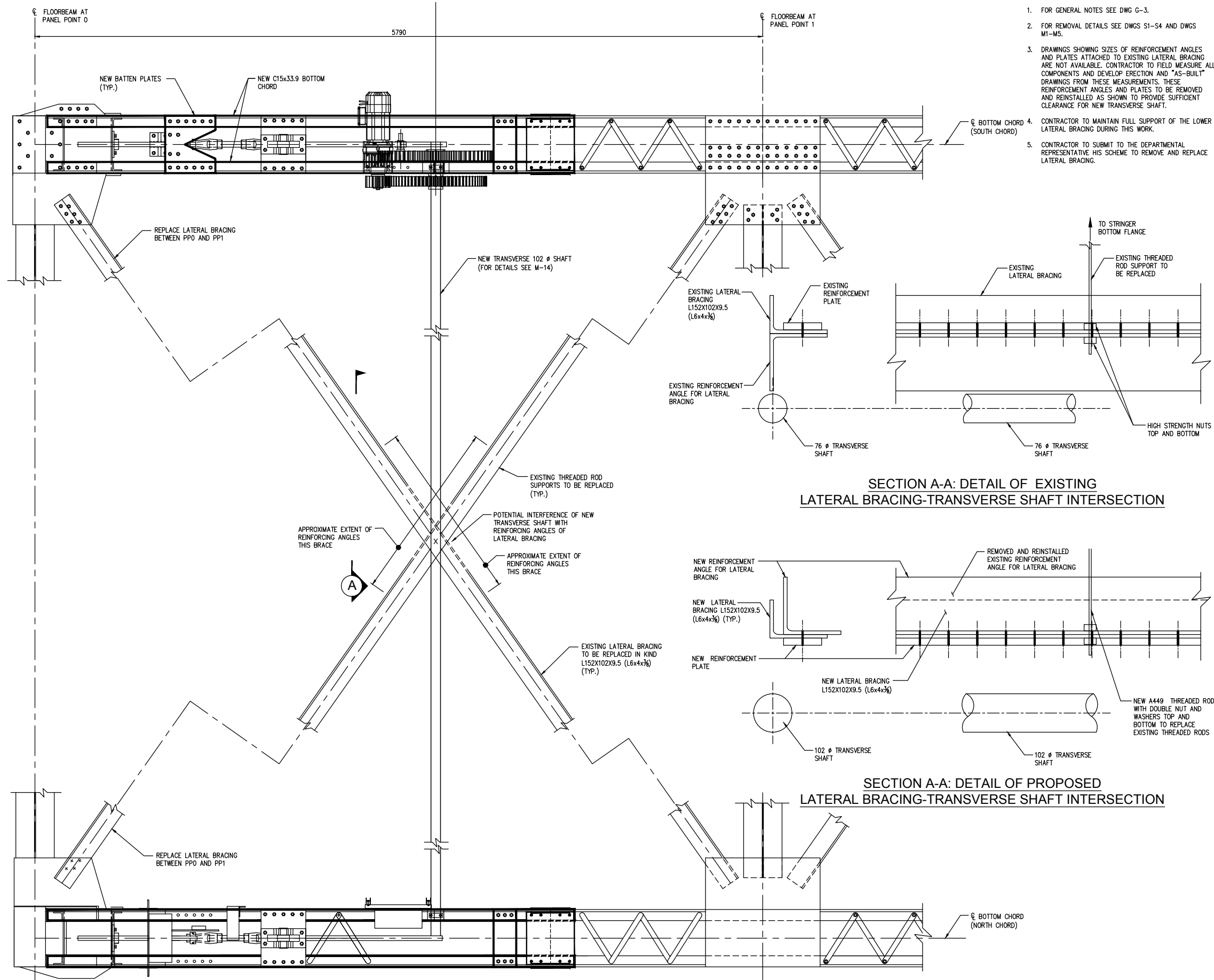
NOVEMBER 2016

project no.
no. du projet

R.082857.001

drawing no.
dessiné no.

S-14



NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
3. DRAWINGS SHOWING SIZES OF REINFORCEMENT ANGLES AND PLATES ATTACHED TO EXISTING LATERAL BRACING ARE NOT AVAILABLE. CONTRACTOR TO FIELD MEASURE ALL COMPONENTS AND DEVELOP ERECTION AND "AS-BUILT" DRAWINGS FROM THESE MEASUREMENTS. THESE REINFORCEMENT ANGLES AND PLATES TO BE REMOVED AND REINSTALLED AS SHOWN TO PROVIDE SUFFICIENT CLEARANCE FOR NEW TRANSVERSE SHAFT.
4. CONTRACTOR TO MAINTAIN FULL SUPPORT OF THE LOWER LATERAL BRACING DURING THIS WORK.
5. CONTRACTOR TO SUBMIT TO THE DEPARTMENTAL REPRESENTATIVE HIS SCHEME TO REMOVE AND REPLACE LATERAL BRACING.



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dessin no. - où détaillé

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titre du projet

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
DETAILS OF LOWER
LATERAL BRACING
MODIFICATIONS

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. SCHMID

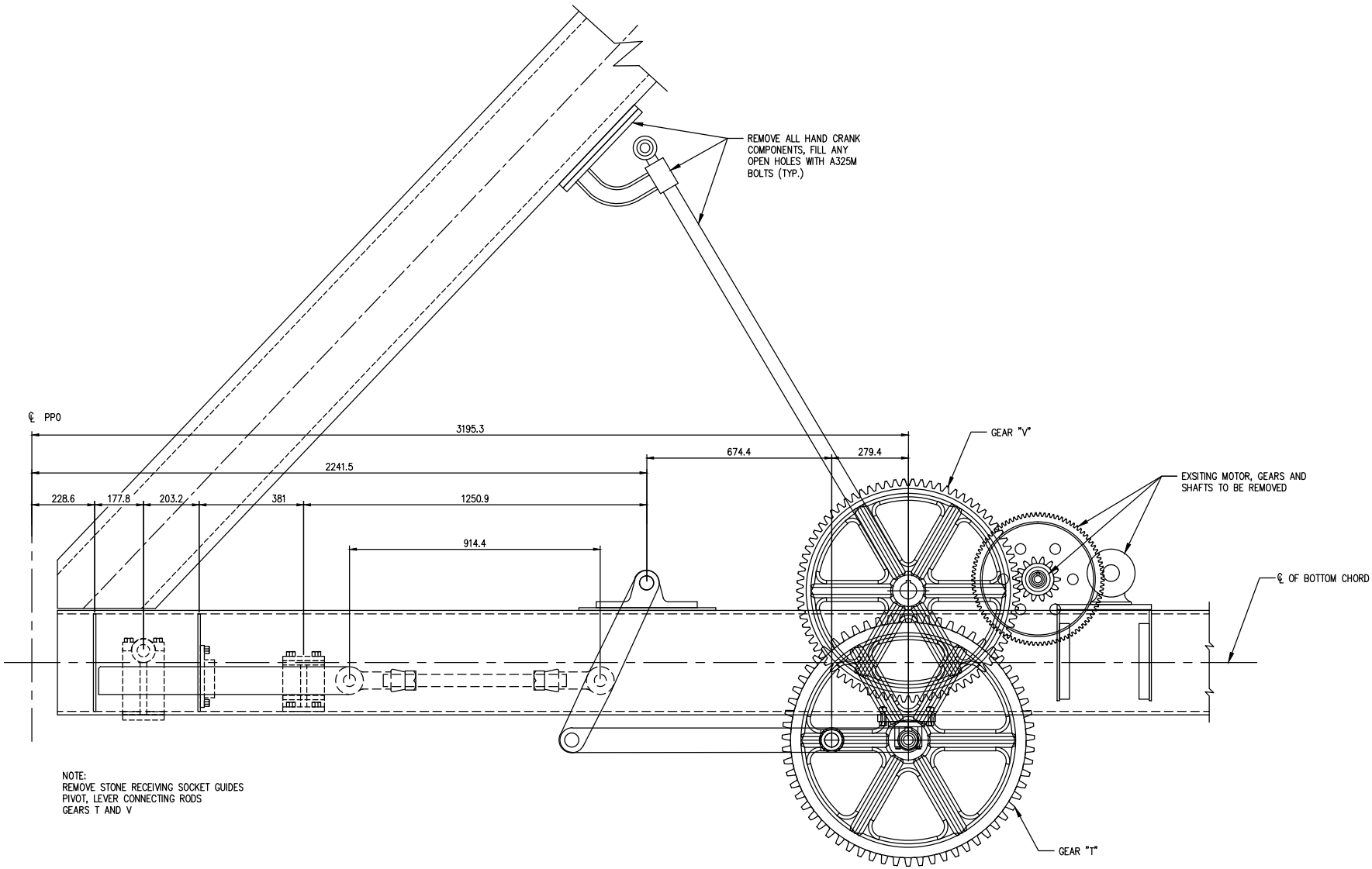
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

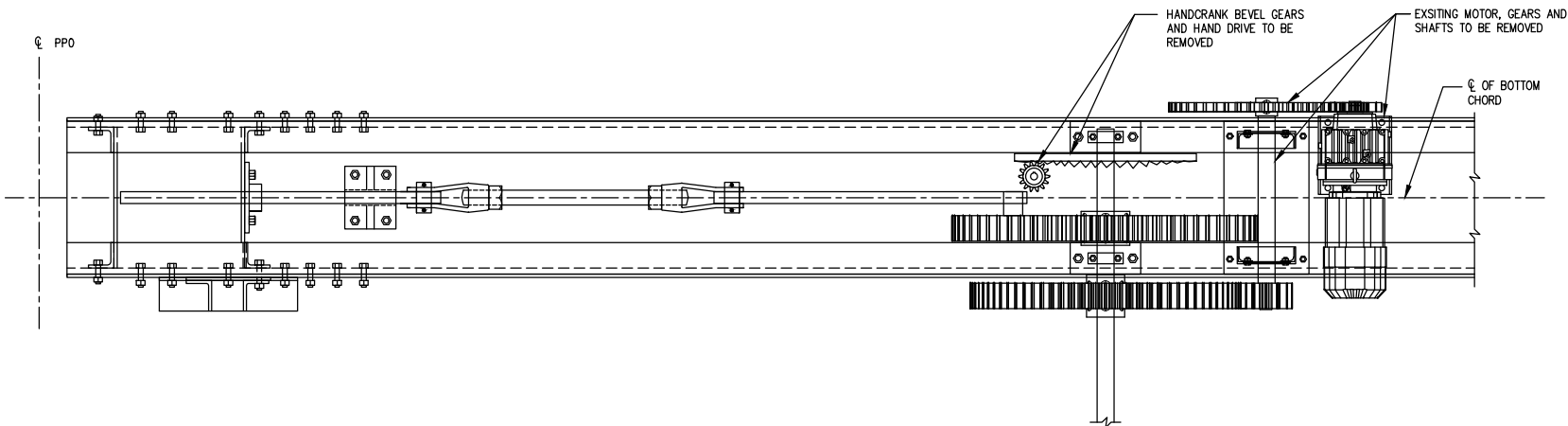
project date
date du projet
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project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
S-15



ELEVATION - EXISTING SPAN LOCK FULLY ENGAGED



PLAN - EXISTING SPAN LOCK FULLY ENGAGED

- NOTES:
1. FOR GENERAL NOTES SEE DWG G-3.
 2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
 3. WORK THIS DRAWING WITH DRAWING M-13.
 4. DIMENSIONS CONVERTED TO METRIC FROM ENGLISH.

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
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	A Detail No. No. du détail B drawing no. - where detail required dessin no. - où détail exigé C drawing no. - where detailed dessin no. - où détaillé
---	--

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
DETAILS OF EXISTING
SPAN LOCK MACHINERY
FULLY ENGAGED

drawn by dessiné par	G. TAYLOR	project manager administrateur de projets
designed by conçu par	J. KEYT	
approved by approuvé par	M. MANSFIELD	
tender soumission	R. GRATL	
project date date du projet	NOVEMBER 2016	
project no. no. du projet	R.082857.001	
drawing no. dessiné no.	M-1	

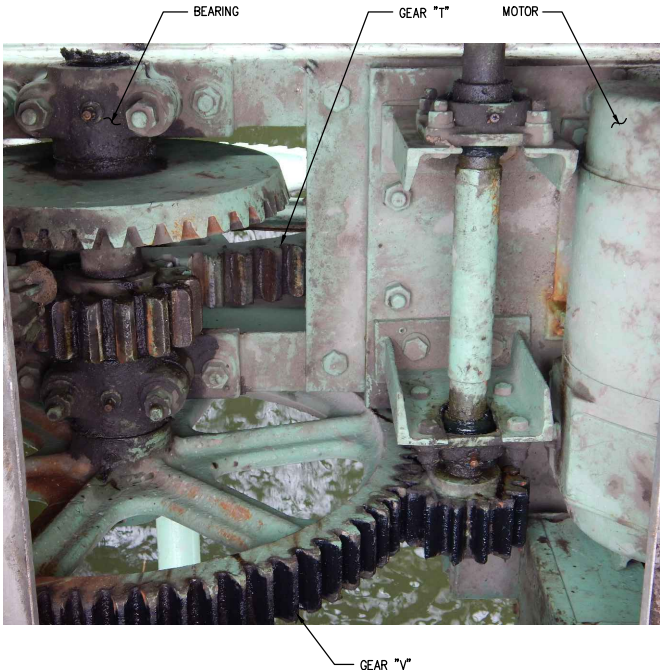
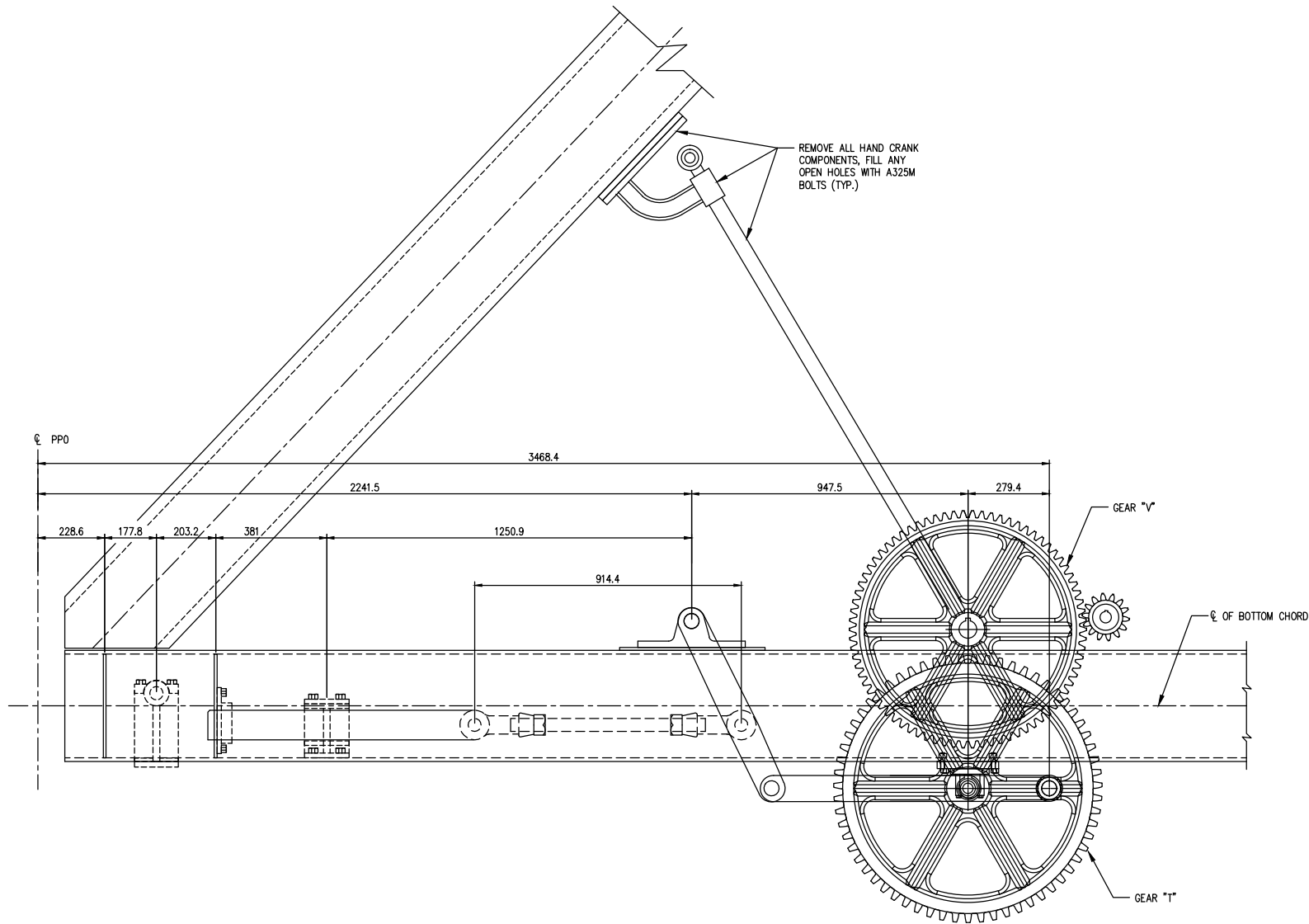
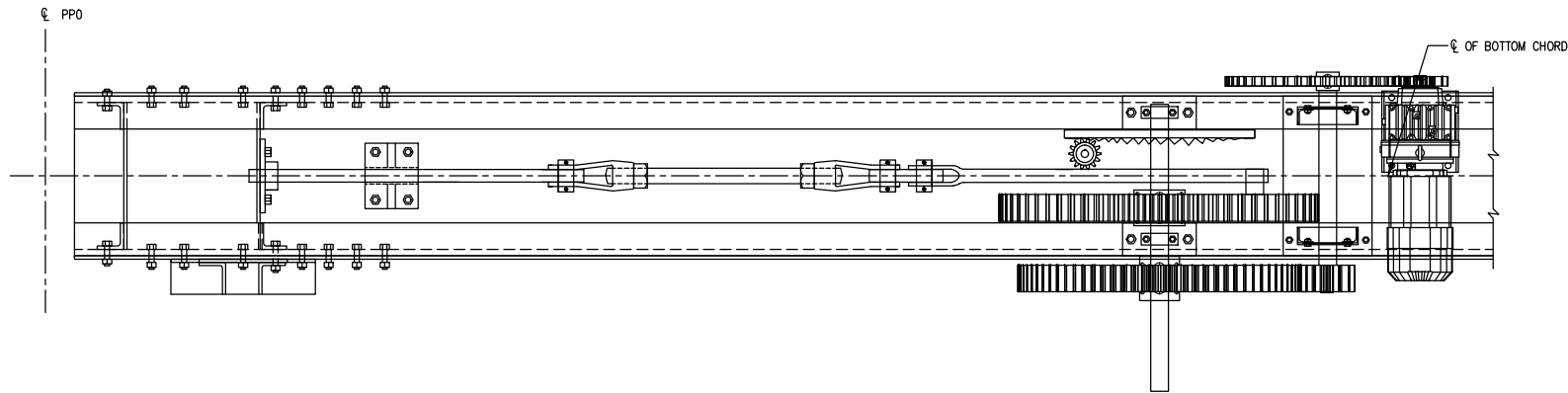


PHOTO OF MACHINERY LOOKING DOWN
FROM SIDEWALK HATCH



ELEVATION - EXISTING SPAN LOCK FULLY DISENGAGED



PLAN - EXISTING SPAN LOCK FULLY DISENGAGED

NOTES:

1. FOR GENERAL NOTES SEE DWG G-3.
2. FOR REMOVAL DETAILS SEE DWGS S1-S4 AND DWGS M1-M5.
3. WORK THIS DRAWING WITH DRAWING M-13.
4. DIMENSIONS CONVERTED TO METRIC FROM ENGLISH.

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project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin

DETAILS OF EXISTING
SPAN LOCK MACHINERY
FULLY DISENGAGED

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. KEYT

approved by
approuvé par

M. MANSFIELD

sender
soumission

R. GRATL

project manager
administrateur
de projets

project date
date du projet

NOVEMBER 2016

project no.
no. du projet

R.082857.001

drawing no.
dessiné no.

M-2

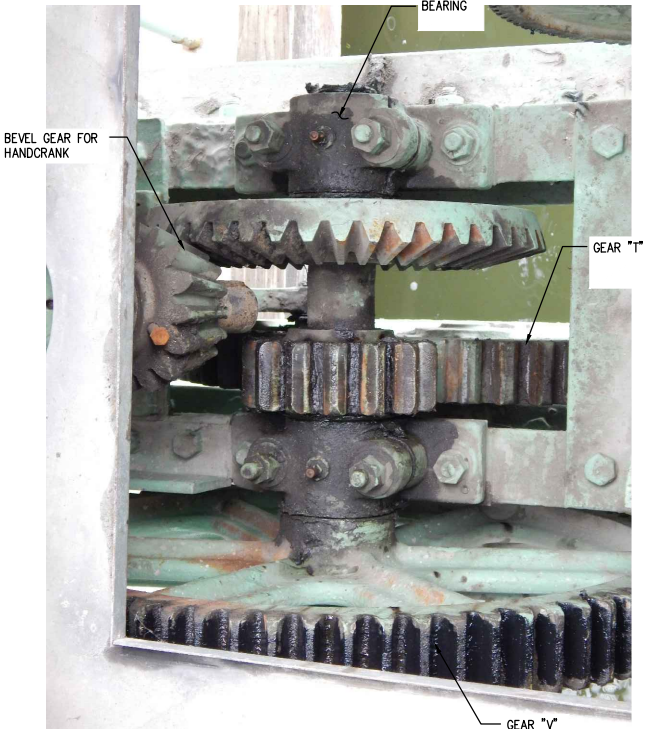
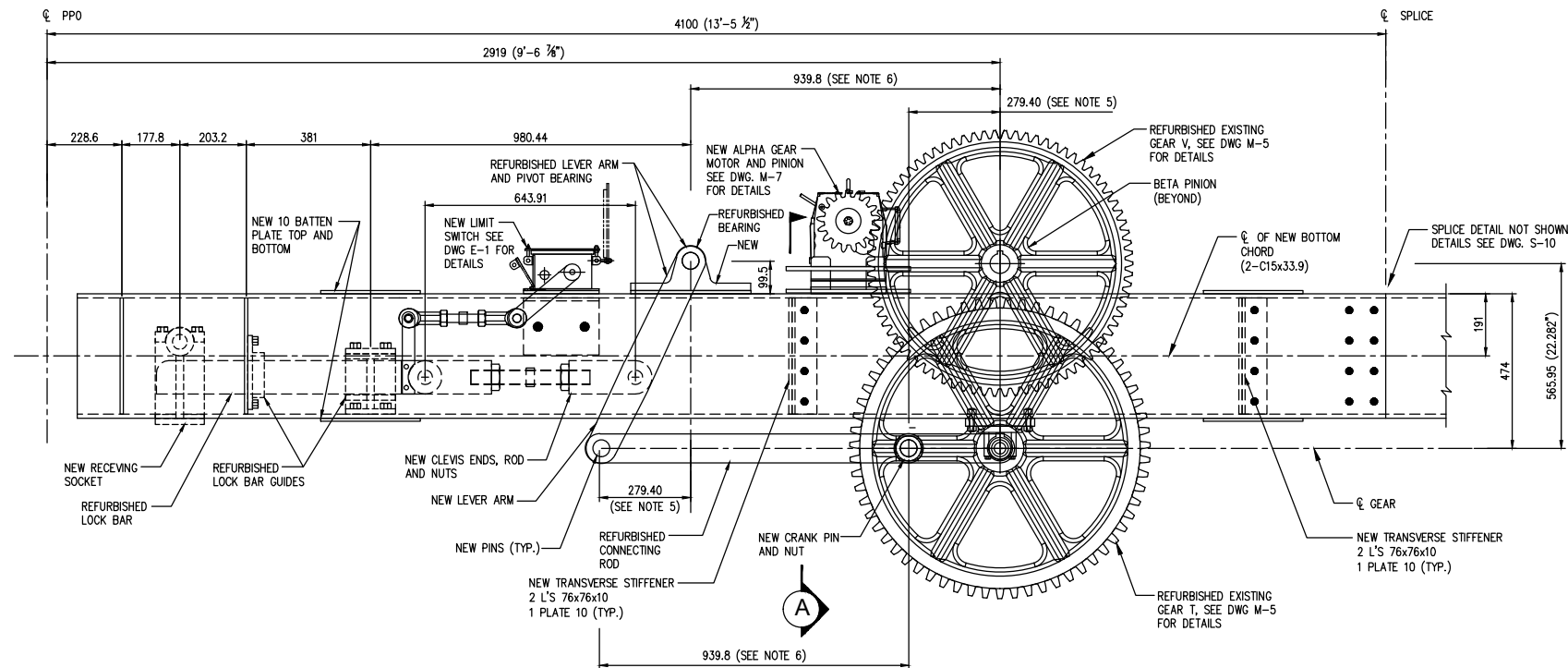
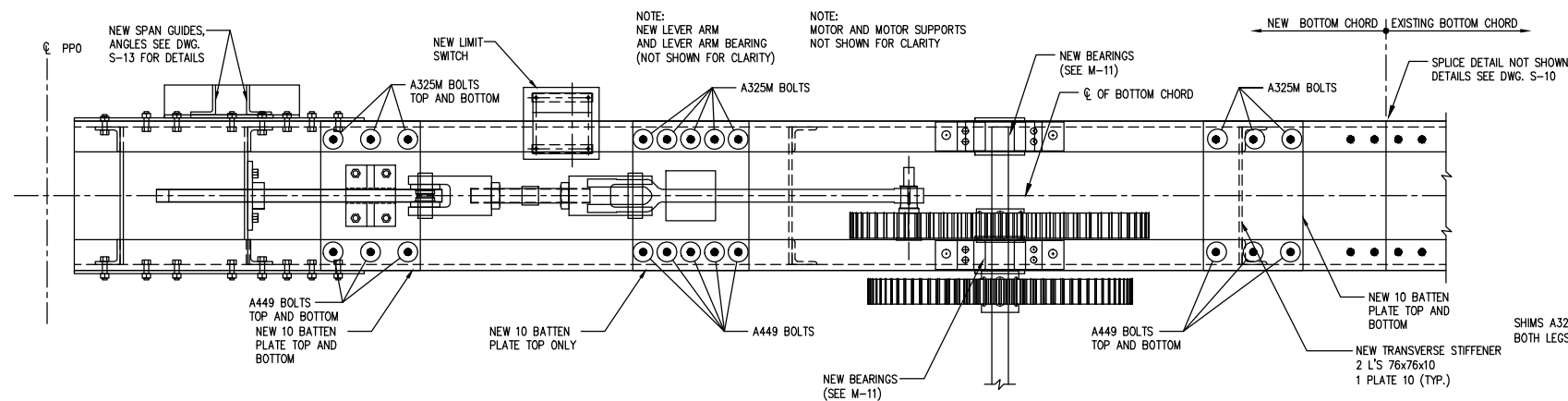


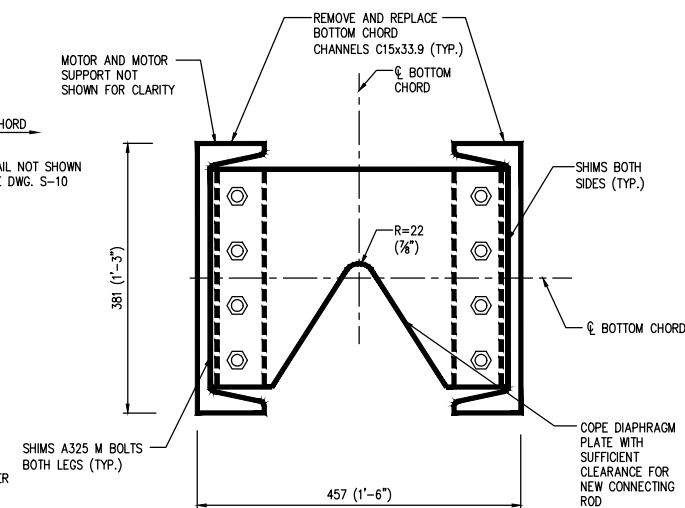
PHOTO OF MACHINERY LOOKING DOWN
FROM SIDEWALK HATCH



ELEVATION - NEW SPAN LOCK FULLY ENGAGED



PLAN - NEW SPAN LOCK FULLY ENGAGED



SECTION A-A

NOTES:

1. WORK THESE DWGS. WITH NOTES SHOWN ON DWG. G-3.
2. DETAILS OF MECHANICAL COMPONENTS SHOWN ON DWGS. M-6 TO M-11.
3. REFER TO M-13 FOR FURTHER NOTES.
4. FOR PLAN-LIMIT SWITCH ASSEMBLY AND DIMENSIONS SEE DWG. E-1 FOR DETAILS.
5. CRANK ARM LENGTH SEE GEAR T ELEVATION M-6.
6. CONNECTING ROD LENGTH SEE M-8.



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project title
titre du projet

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
DETAILS OF NEW
SPAN LOCK MACHINERY
FULLY ENGAGED

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. KEYT

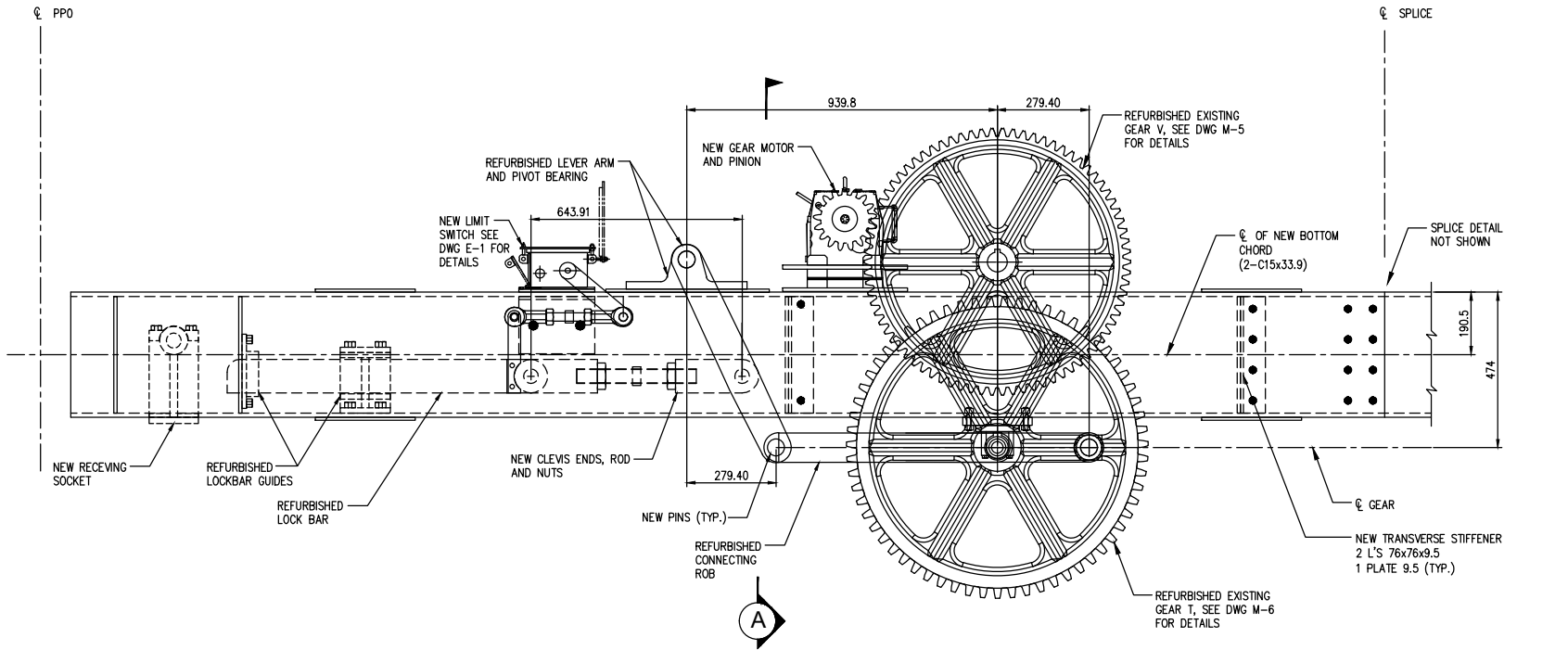
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

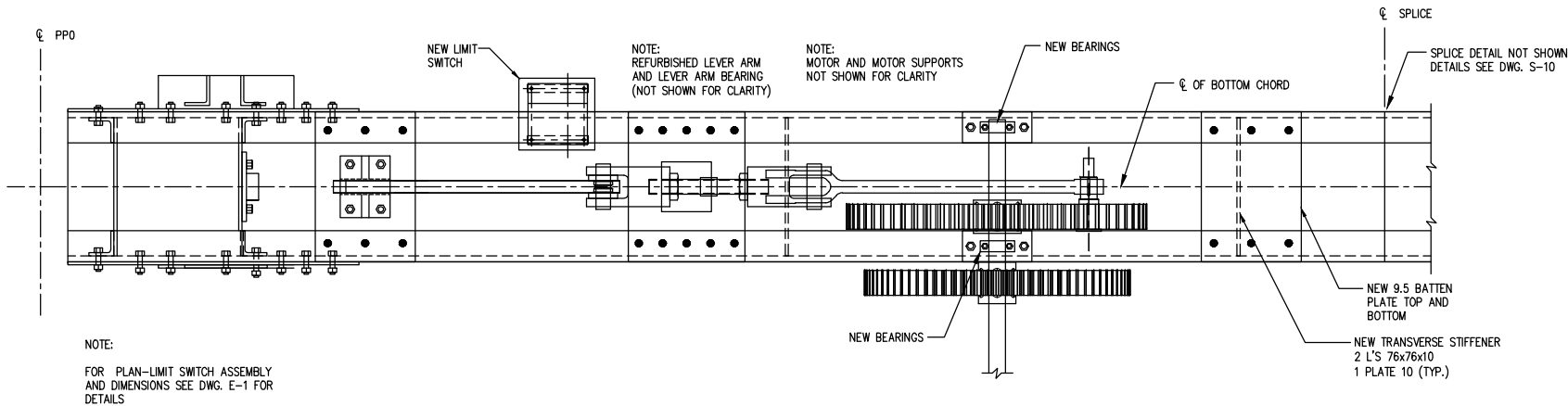
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
M-3



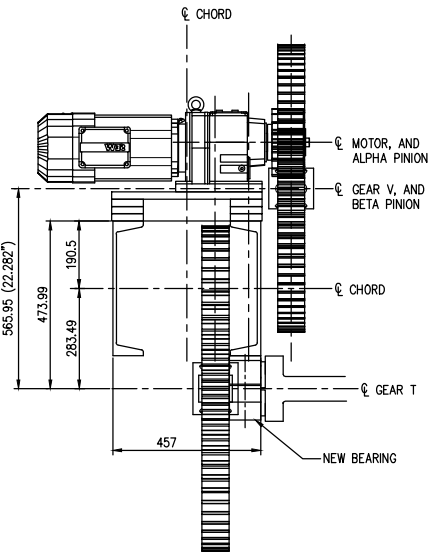
ELEVATION - NEW SPAN LOCK FULLY DISENGAGED



PLAN - NEW SPAN LOCK FULLY DISENGAGED

NOTES:

1. WORK THESE DWGS. WITH NOTES SHOWN ON DWG. G-3.
2. DETAILS OF MECHANICAL COMPONENTS SHOWN ON DWGS.M-6 TO M-11.
3. WORK THIS DWG. WITH DWG. M-13.
4. FOR PLAN-LIMIT SWITCH ASSEMBLY AND DIMENSIONS SEE DWG. E-1 FOR DETAILS.
5. CRANK ARM LENGTH SEE GEAR T ELEVATION M-6.
6. CONNECTING ROD LENGTH SEE M-8.



SECTION A-A

 Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region


Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

PARSONS

 Professional Engineers
Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

revision	description	date
1	ISSUED FOR TENDER	2016/11/28
0	ISSUED FOR 99% REVIEW	2016/11/01

Do not scale drawings.
Verify all dimensions and conditions on site and
immediately notify the engineer of all discrepancies.

	A Detail No. No. du détail B drawing no. - where detail required dessin no. - où détail exigé C drawing no. - where detailed dessin no. - où détaillé
---	--

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
DETAILS OF NEW
SPAN LOCK MACHINERY
FULLY DISENGAGED

drawn by
dessiné par G. TAYLOR

designed by
conçu par J. KEYT

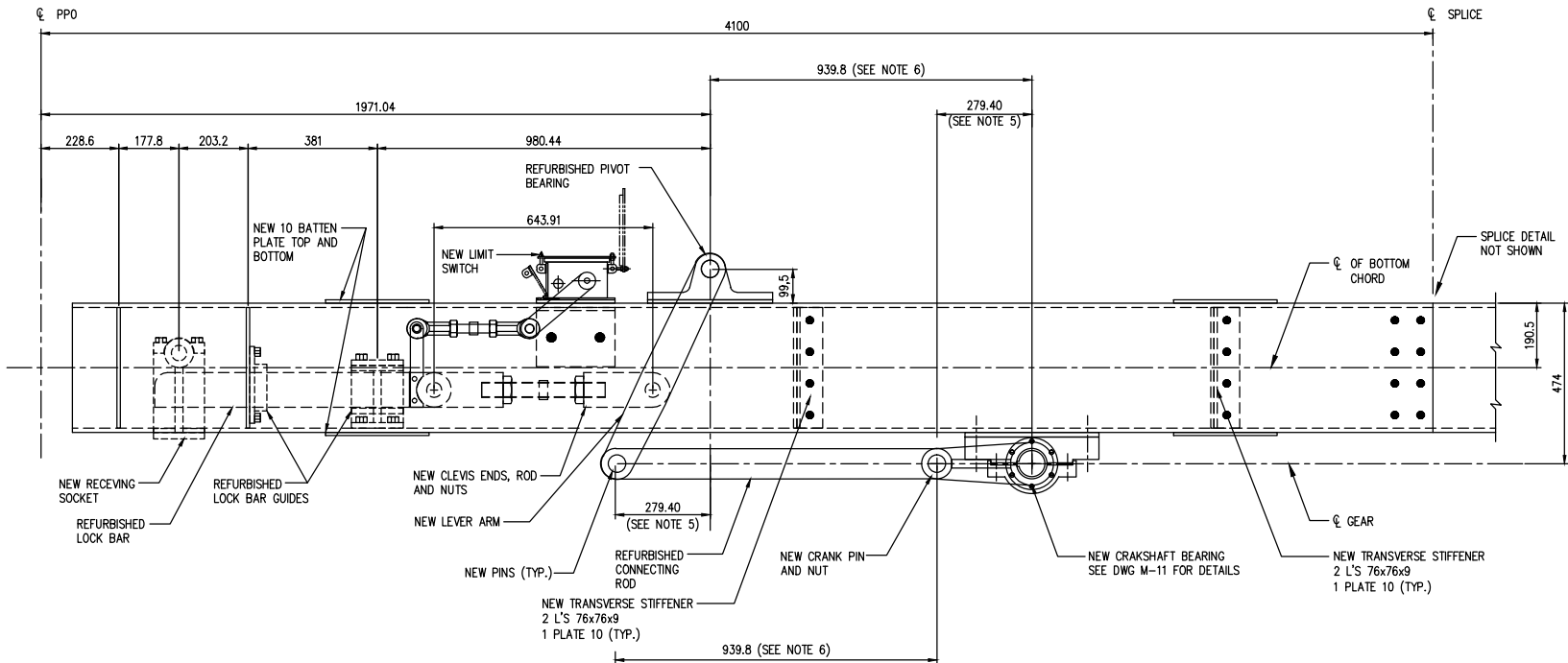
approved by
approuvé par M. MANSFIELD

tender
soumission R.GRATL project manager
administrateur de projets

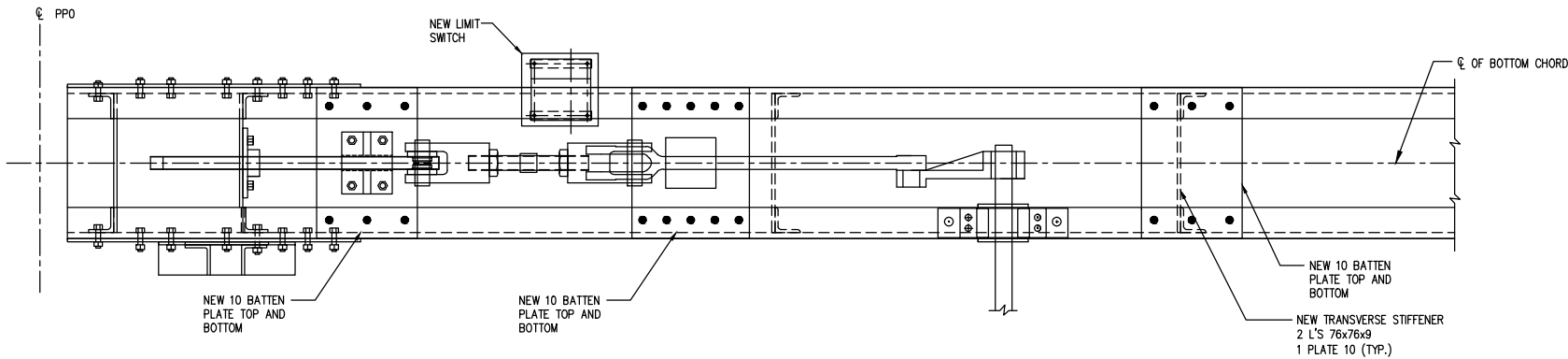
project date
date du projet NOVEMBER 2016

project no.
no. du projet R.082857.001

drawing no.
dessiné no. M-4



ELEVATION - NEW SPAN LOCK FULLY ENGAGED



PLAN - NEW SPAN LOCK FULLY ENGAGED

- NOTES:
1. WORK THESE DWGS. WITH NOTES SHOWN ON DWG. G-3.
 2. DETAILS OF MECHANICAL COMPONENTS SHOWN ON DWGS.M-6 TO M-11.
 3. REFER TO M-13 FOR FURTHER NOTES.
 4. FOR PLAN-LIMIT SWITCH ASSEMBLY AND DIMENSIONS SEE DWG. E-1 FOR DETAILS.
 5. CRANK ARM LENGTH SEE GEAR T ELEVATION M-6.
 6. CONNECTING ROD LENGTH SEE M-8.

 Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region


Travaux publics et
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	A Detail No. No. du détail B drawing no. - where detail required dessin no. - où détail exigé C drawing no. - where detailed dessin no. - où détaillé
---	--

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin

DETAILS OF NEW
SPAN LOCK MACHINERY
FULLY ENGAGED

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. KEYT

approved by
approuvé par

M. MANSFIELD

tender
soumission

R. GRATL
project manager
administrateur
de projets

project date
date du projet

NOVEMBER 2016

project no.
no. du projet

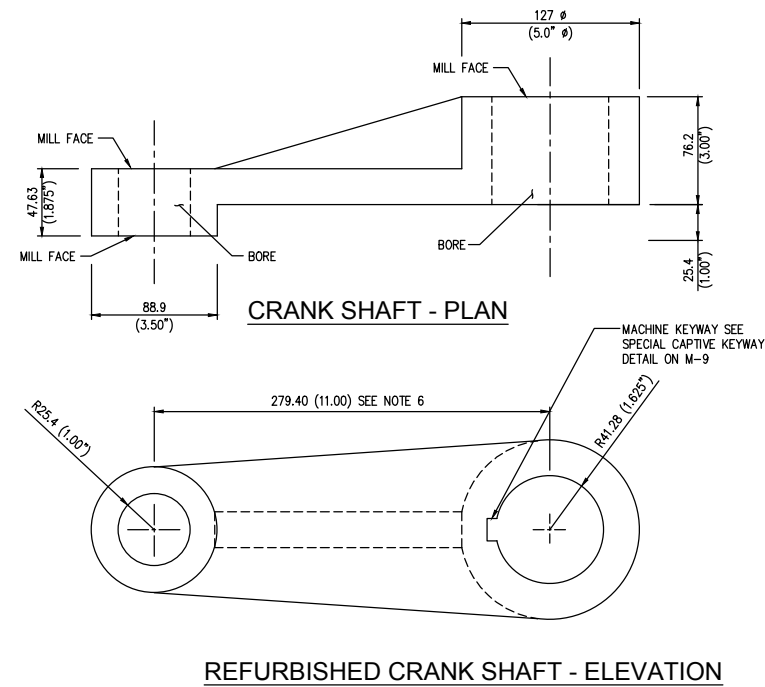
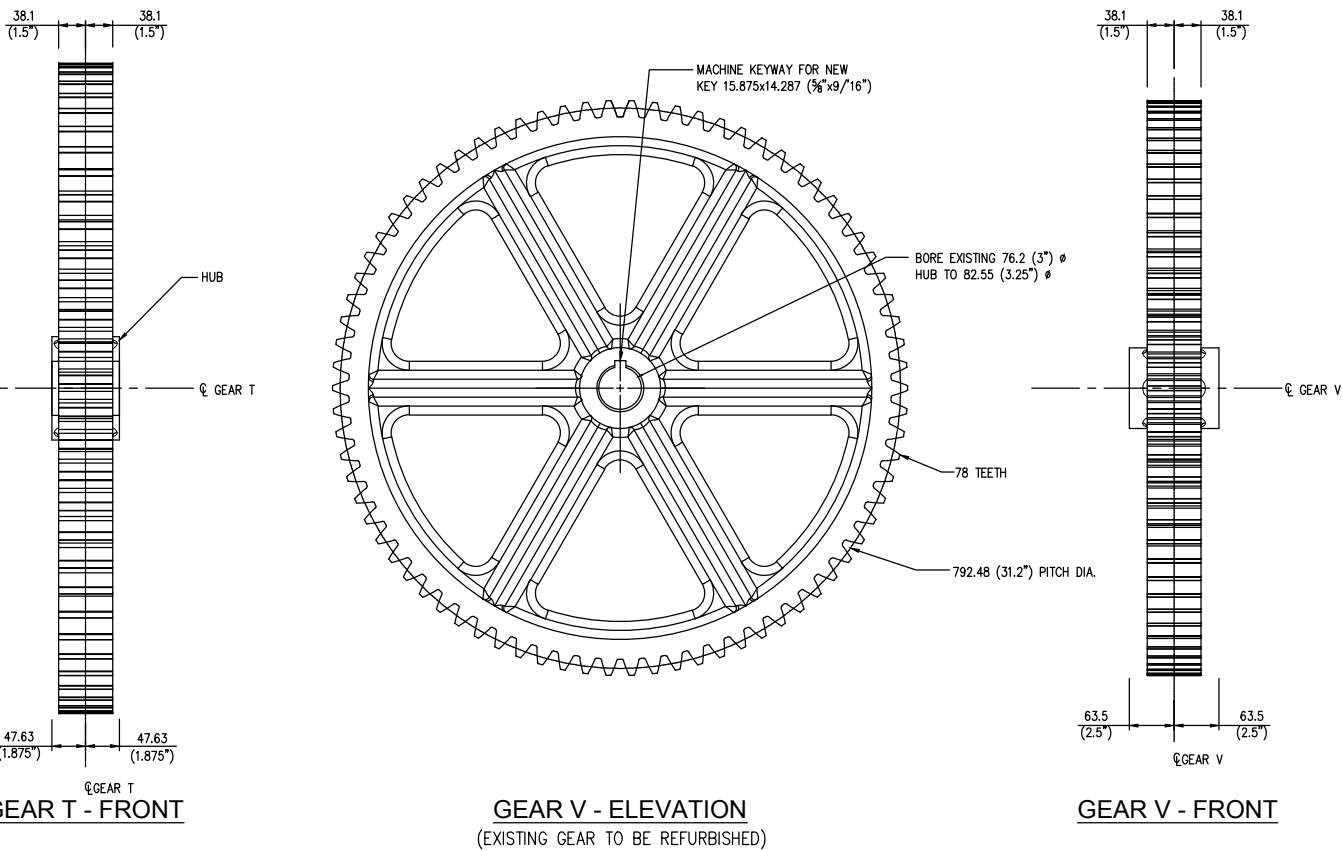
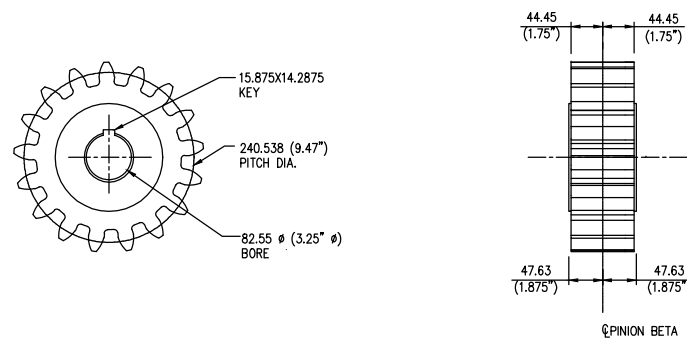
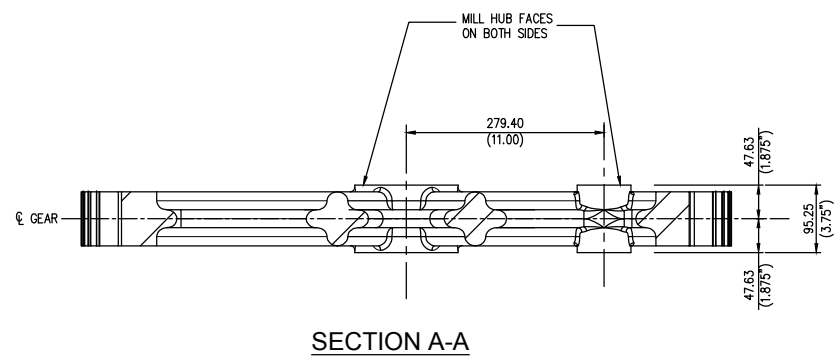
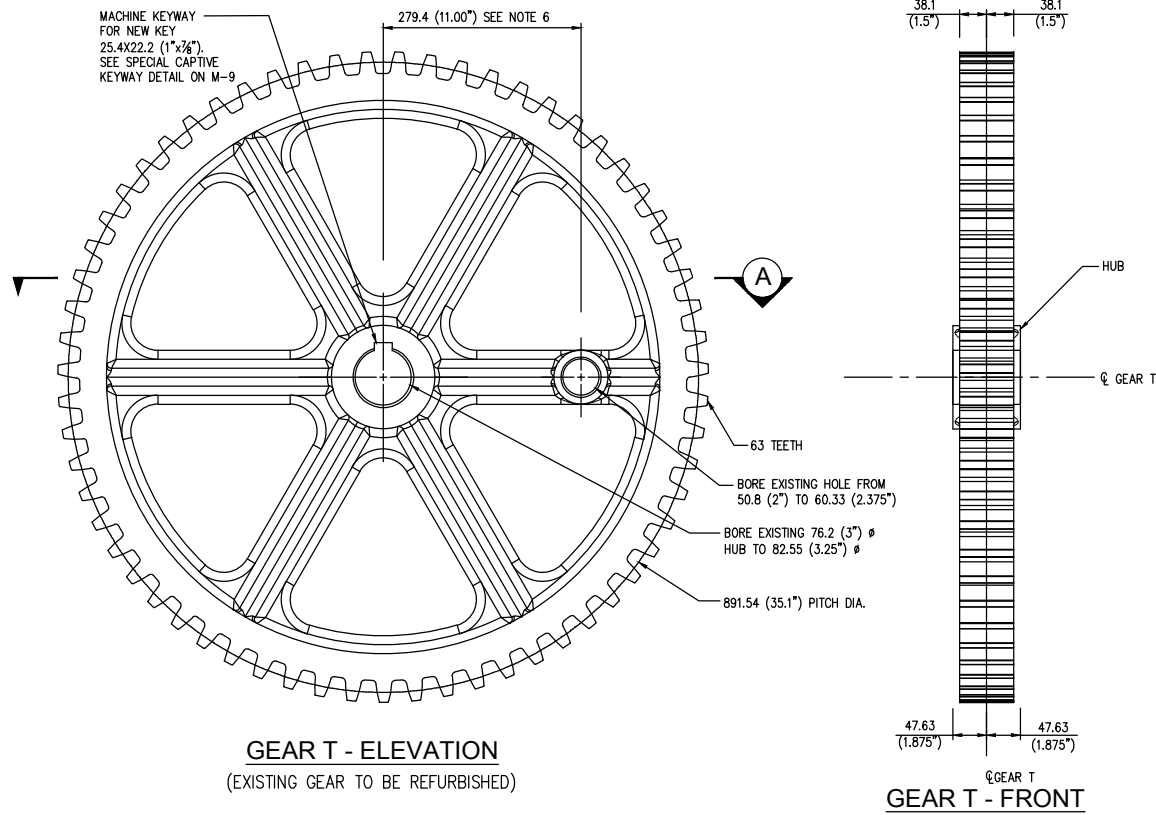
R.082857.001

drawing no.
dessiné no.

M-5

NOTES:

1. THE CONTRACTOR SHALL DETERMINE THE LENGTHS OF THE CRANKSHAFT, GEAR T SHAFT AND FLOATING SHAFT BASED ON FIELD MEASUREMENTS, COUPLING MANUFACTURER'S RECOMMENDED GAP AND STRINGER LOCATION.
2. THE THRUST COLLAR IS DESIGNED AS A HEAT EXPANDED SHRINK FIT COLLAR. AN ALTERNATIVE DESIGN UTILIZING A TAPERED SLEEVE AND FASTENERS MAY BE SUBMITTED FOR REVIEW.
3. THE CRANK ARM LENGTH OF GEAR T AND THE CRANKS SHAFT SHOULD BE THE SAME. MEASURE BORES AND CRANK ARM LENGTH AND SUBMIT TO THE ENGINEER FOR APPROVAL PROPOSED NEW DIMENSIONS FOR BORES, KEYS AND CRANK ARM LENGTHS.



REFURBISH GEARS AND CRANKSHAFT AS FOLLOWS:

1. MACHINE GEAR HUBS AND CRANK PIN HUBS BORE COLINEAR WITH PITCH
2. MACHINE HUB RACKS PERPENDICULAR TO BORE.
3. MACHINE KEY WAYS.
4. REFER TO DWG. M-13 FOR FURTHER NOTES.
5. CHAMFER ALL BORES TO 3,175X45° (0.125X45°).
6. CRANKSHAFT DISTANCE BETWEEN BORE CENTER LINES SHALL BE EQUAL TO GEAR T DISTANCE BETWEEN BORE CENTER LINES.
7. SUBMIT MEASUREMENTS AND PROPOSED FINAL DIMENSIONS FOR REVIEW WITH SHOP DRAWINGS.



Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

PARSONS



**Professional Engineers
Ontario**

Temporary Licensee

Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
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Canada.

Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
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A Detail No.
No. du détail

B drawing no. - where detail required
dessin no. - où détail exigé

C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet

Ontario

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin

DETAILS
OF TWO MAIN GEARS
AND PINION BETA

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. KEYT

approved by
approuvé par

M. MANSFIELD

tender
soumission

R. GRATL

project manager
administrateur
de projets

project date
date du projet

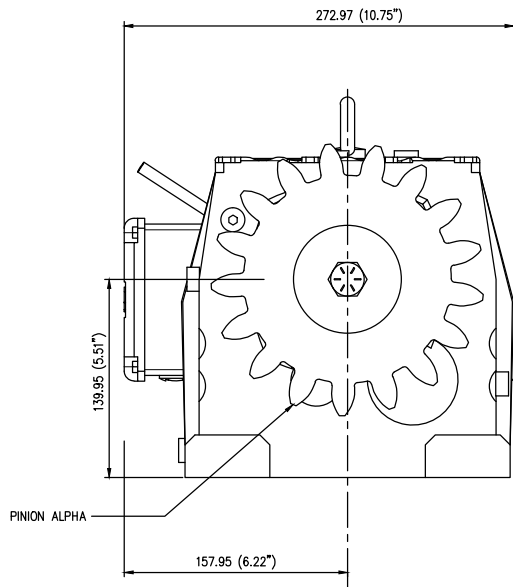
NOVEMBER 2016

project no.
no. du projet

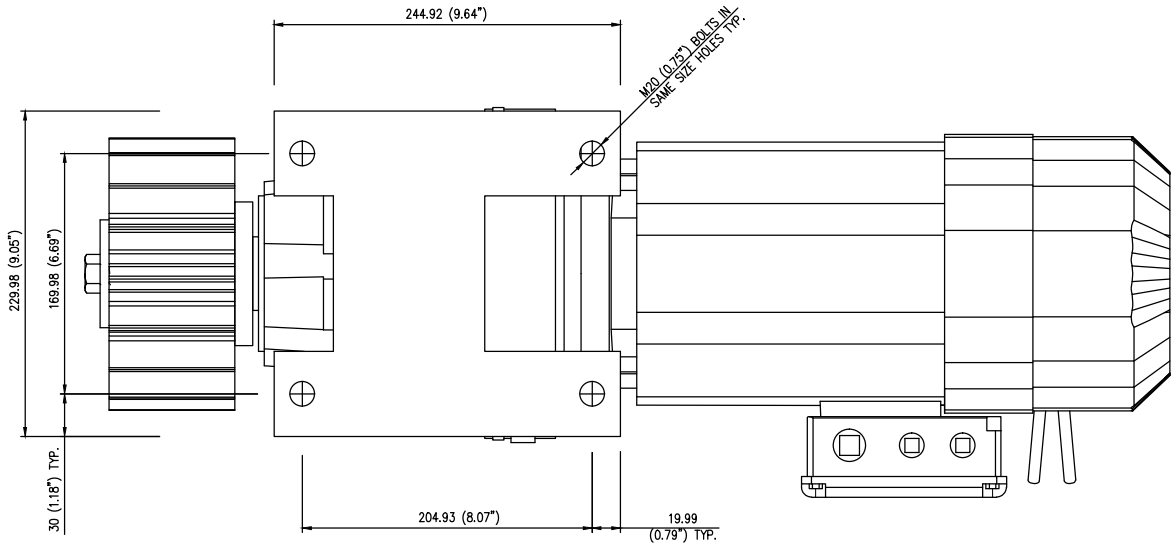
R.082857.001

drawing no.
dessiné no.

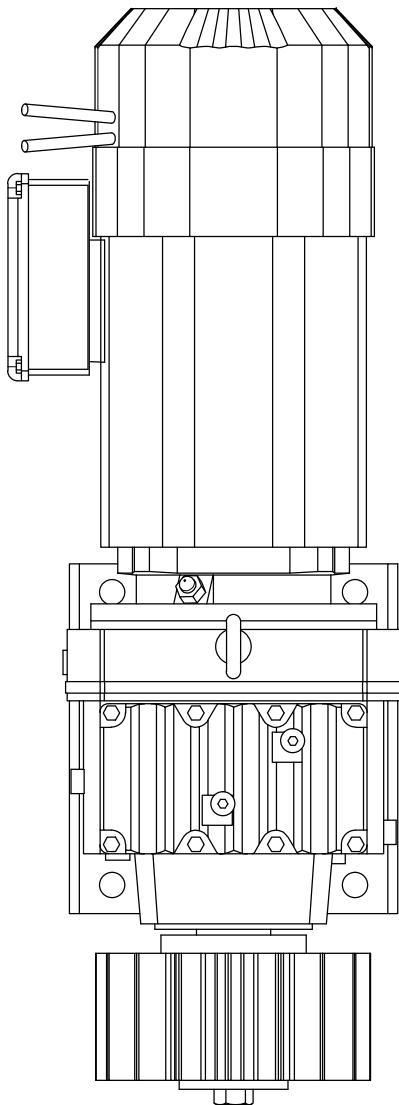
M-6



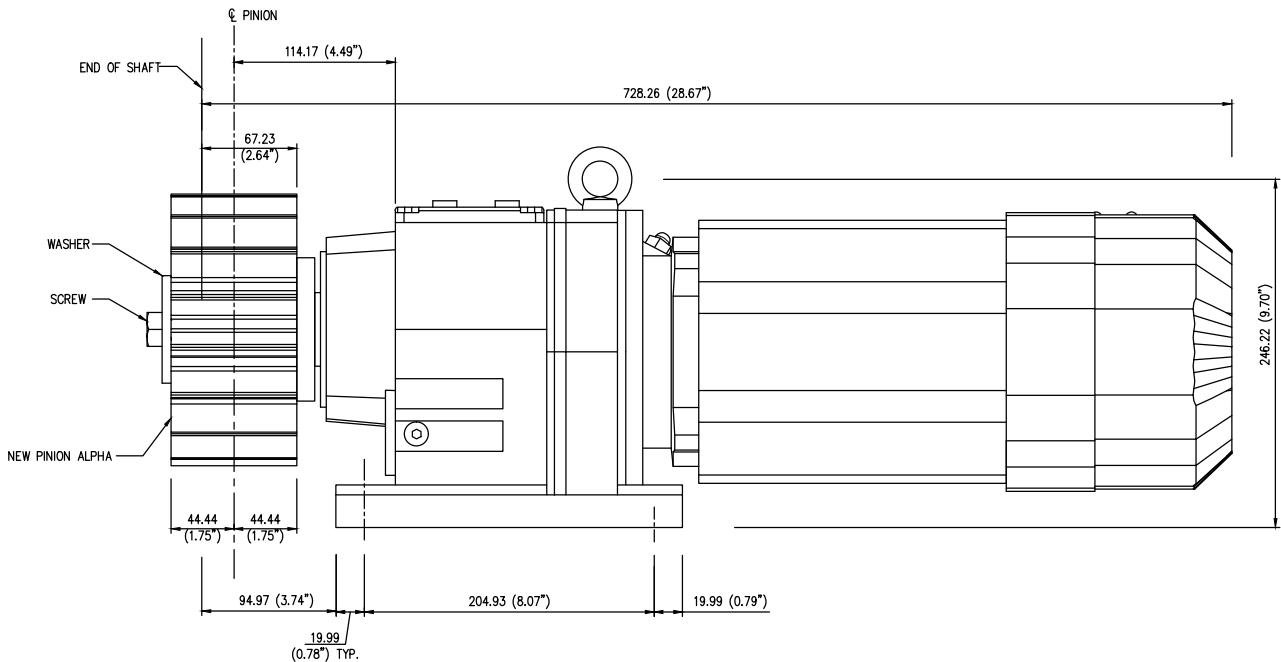
GEAR MOTOR - LOOKING SOUTH



GEAR MOTOR - BOTTOM



GEAR MOTOR - PLAN



NEW GEAR MOTOR - LOOKING EAST

NOTES:
1. WORK THIS DWG. WITH DWG. M-13.

 Public Works and
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B	No. du détail
C	drawing no. - where detail required
	dessin no. - où détail exigé
	drawing no. - where detailed
	dessin no. - où détaillé

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS
OF BOTTOM CHORD

drawing title
titre du dessin
DETAILS OF NEW
PINION ALPHA AND MOTOR

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. KEYT

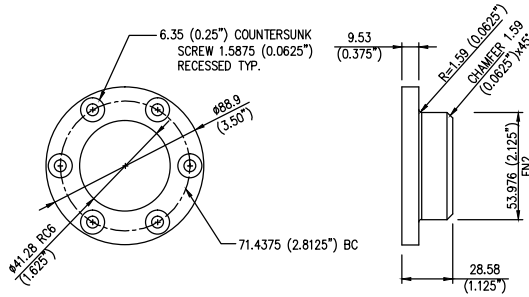
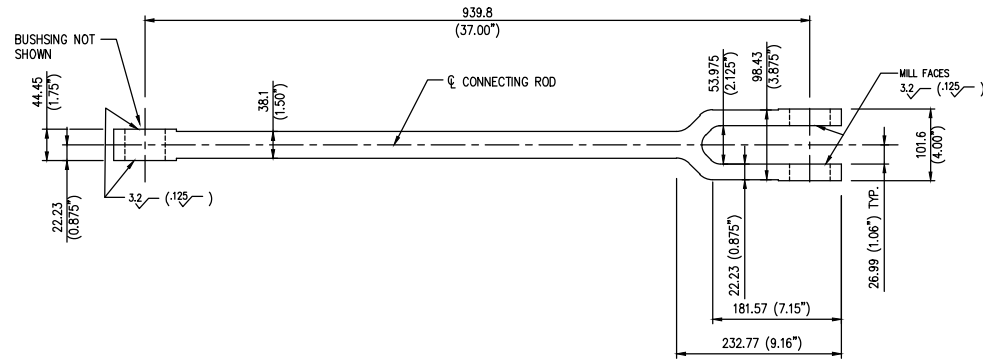
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

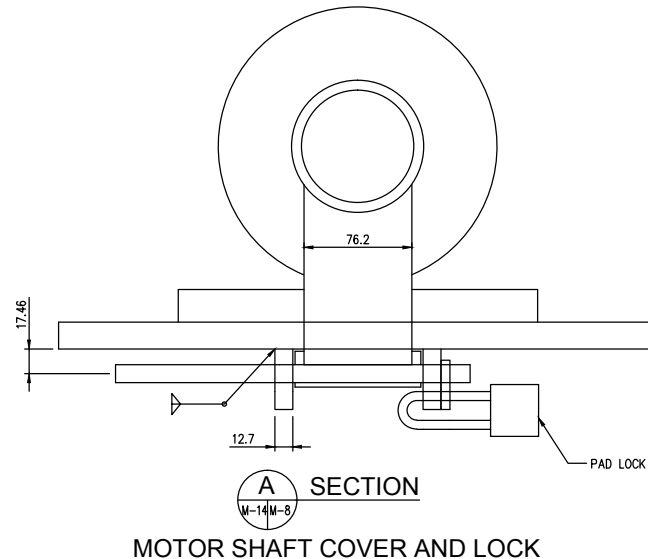
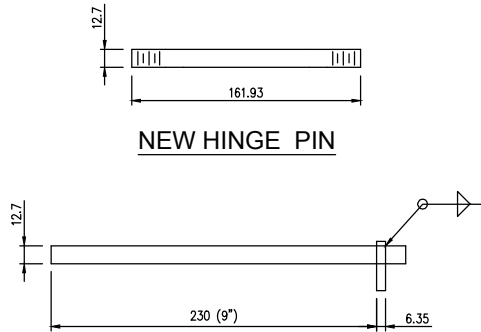
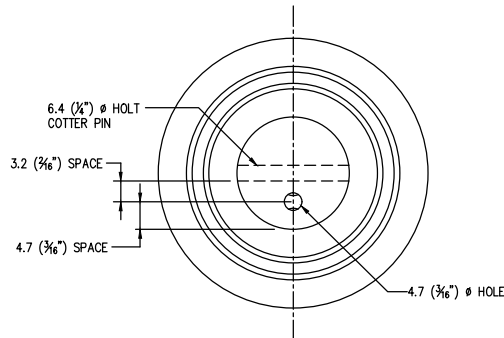
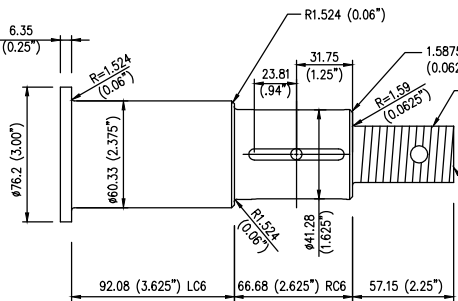
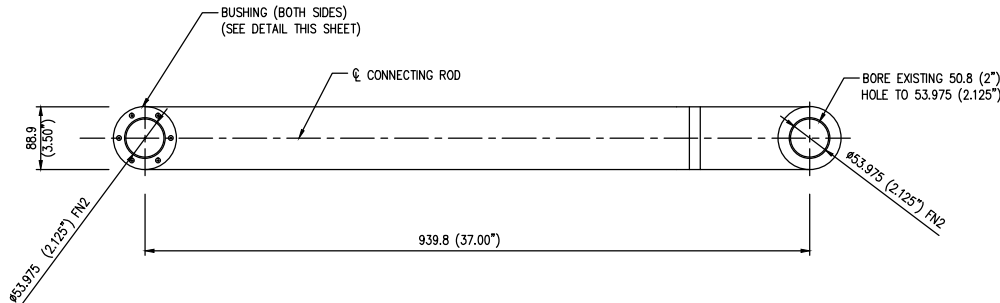
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

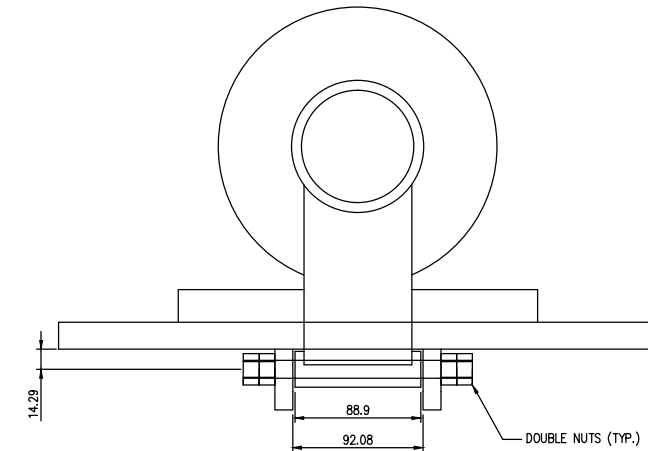
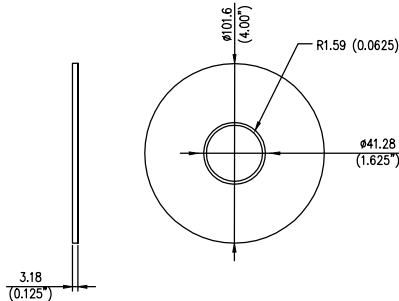
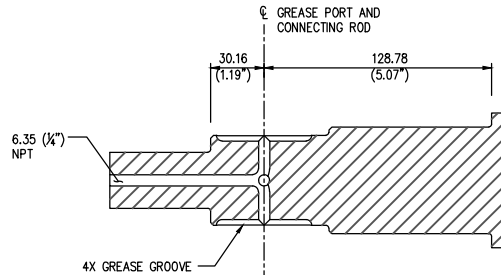
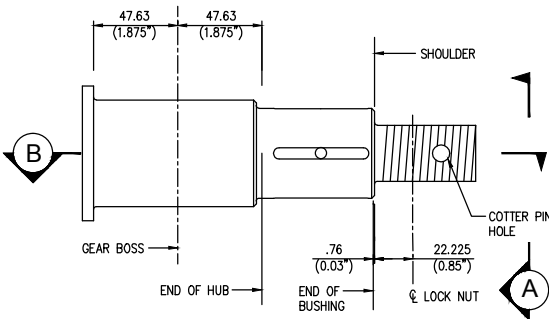
drawing no.
dessiné no.
M-7



- NOTES:
- ALL DETAILS AT LIMIT SWITCH SHAFT CONNECTION TO BE VERIFIED AND COORDINATED WITH LIMIT SWITCH MANUFACTURER.
 - PROVIDE 3/4" BOLTS, NUTS LARGE FLAT WASHERS, FLAT WASHERS AND LOCK WASHERS FOR THE ROD ENDS OF THE LINK.



MOTOR SHAFT COVER AND LOCK



MOTOR SHAFT COVER HINGE

Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region
Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

PARSONS

Professional Engineers
Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
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Collaborator: Maurice Mansfield, P.Eng.
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B	No. du détail
C	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet
Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
CONNECTING ROD DETAILS

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. KEYT

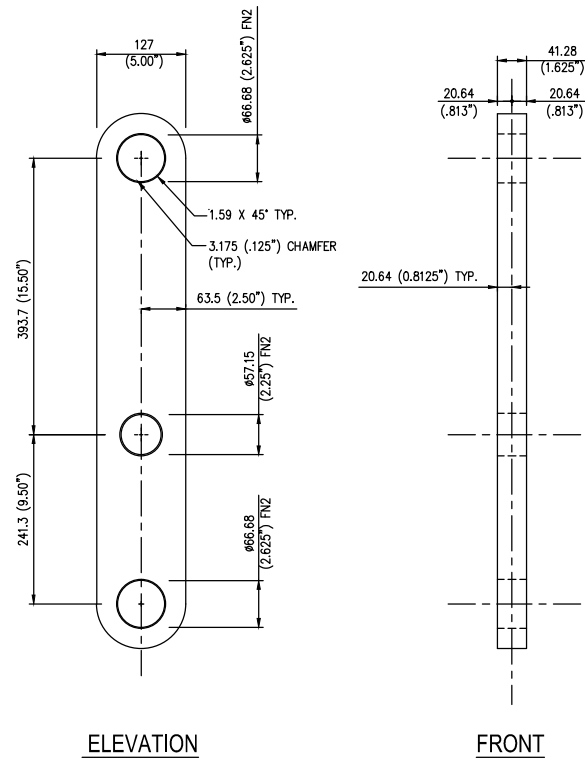
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

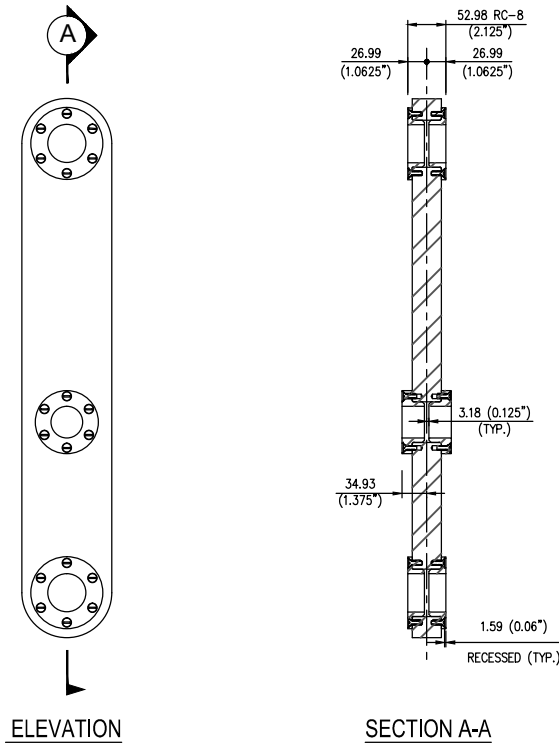
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

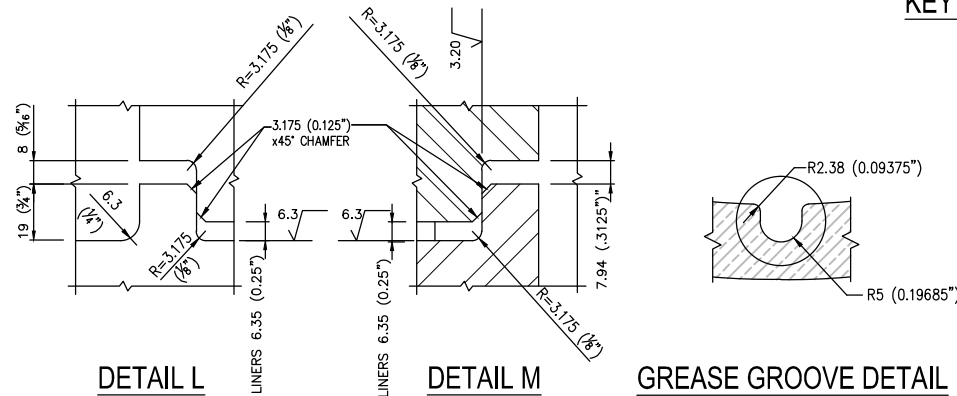
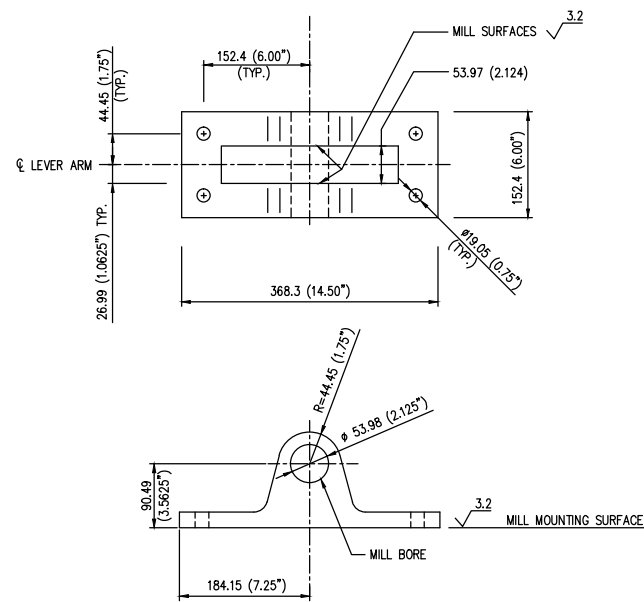
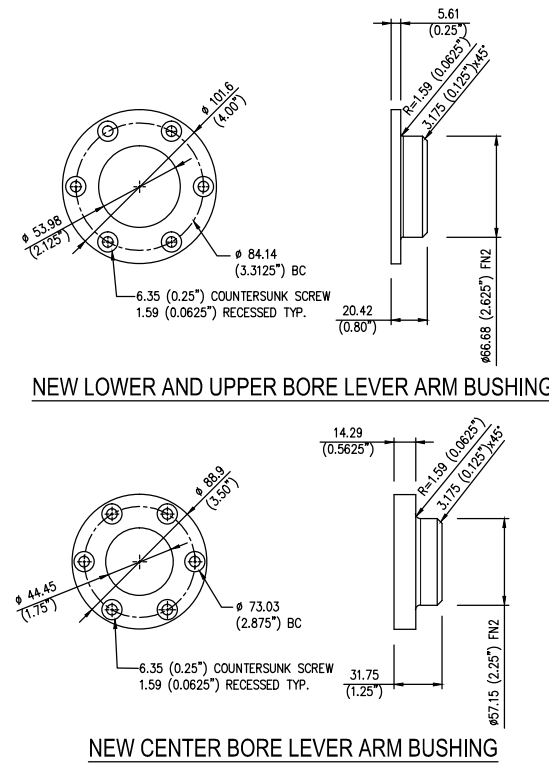
drawing no.
dessiné no.
M-8



NEW LEVER ARM
F.A.O. 125 MICRO INCHES



NEW LEVER ARM ASSEMBLY WITH BUSHINGS



CAPTIVE KEY

SPECIAL CAPTIVE KEY

CAPTIVE KEYWAY

SPECIAL CAPTIVE KEYWAY

KEY AND KEYWAY DETAILS

NOTES:

- KEYS AND KEYWAYS SHALL HAVE FILLET RADI AND CHAMFERS IN ACCORDANCE WITH ANSI B17.1 TABLE 2.
- WHERE 2 KEYS ARE USED, KEYWAYS SHALL BE SPACED 120° APART.
- TOP TO BOTTOM AND SIDE TO SIDE FITS OF KEYS IN KEYWAYS SHALL CONFORM TO ANSI B17.1 CLASS II.

PARSONS

revision	description	date
1	ISSUED FOR TENDER	2016/11/28
0	ISSUED FOR 99% REVIEW	2016/11/01

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B	No. du détail
C	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
**LEVER ARM
AND PIVOT DETAILS**

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. KEYT

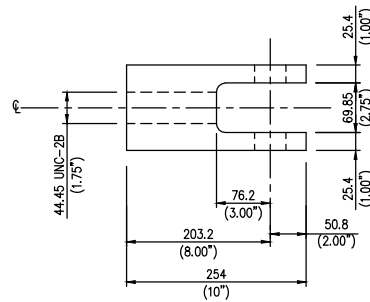
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL

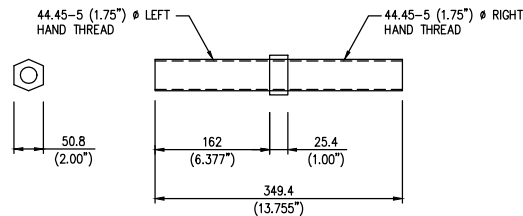
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

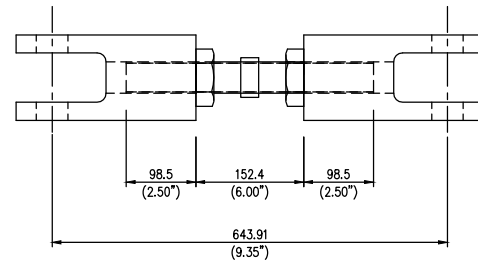
drawing no.
dessiné no.
M-9



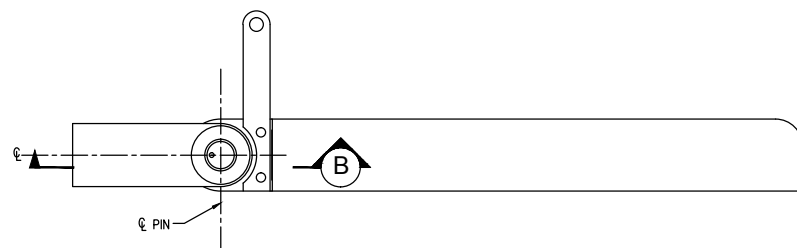
NEW THREADED ROD CLEVIS ENDS
2 LH THREAD 2 RH THREAD



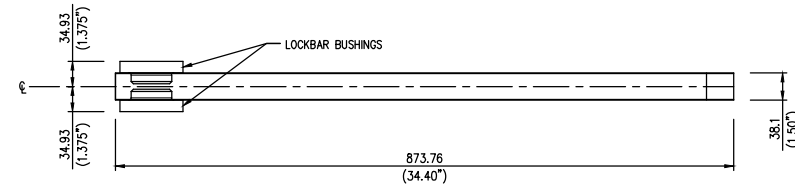
NEW THREADED ROD



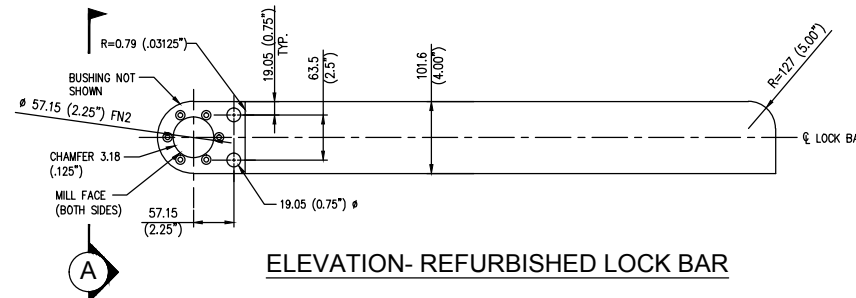
NEW THREADED ROD CLEVIS ENDS ASSEMBLED



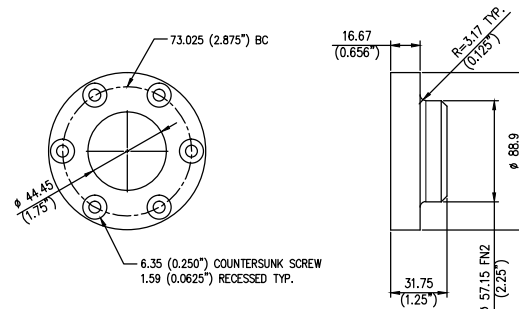
TYPICAL PIN ASSEMBLY AS SHOWN ON LOCK BAR



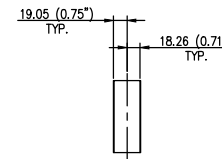
PLAN - REFURBISHED LOCK BAR WITH BUSHING



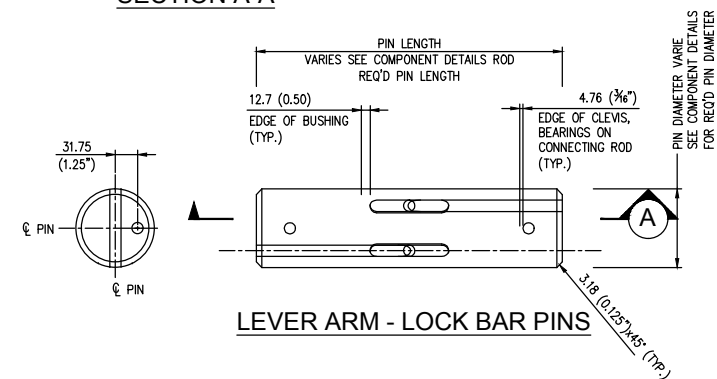
ELEVATION- REFURBISHED LOCK BAR



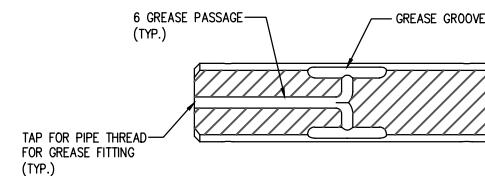
LOCK BAR BUSHING



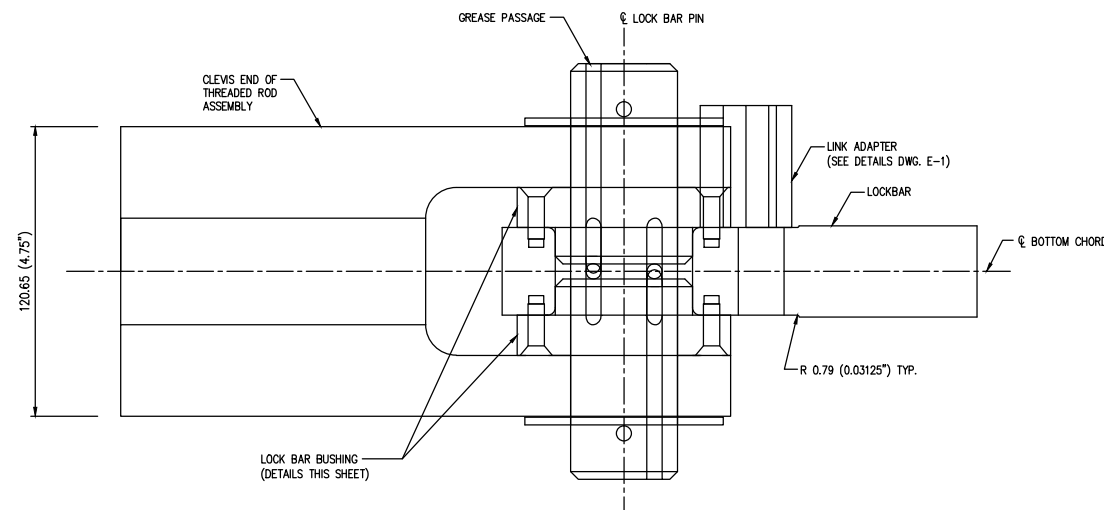
SECTION A-A



LEVER ARM - LOCK BAR PINS



SECTION A-A



SECTION B-B

PARSONS

Professional Engineers Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for LaSalle Bridge in Kingston, Ontario for Public Works Government Services Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

1	ISSUED FOR TENDER	2016/11/28
0	ISSUED FOR 99% REVIEW	2015/6/11/01
revision	description	date

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A	Detail No.
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C	drawing no. - where detail required dessin no. - où détail exigé
D	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet

LASALLE CAUSEWAY
BASCULE BRIDGE

PARTIAL REPLACEMENT
OF BOTTOM CHORD

drawing title
titre du dessin
CLEVIS ROD AND LOCK BAR
DETAILS

drawn by
dessiné par G. TAYLOR

designed by
conçu par J. KEYT

approved by
approuvé par M. MANSFIELD

tender
soumission R. GRATL project manager
administrateur de projets

project date
date du projet NOVEMBER 2016

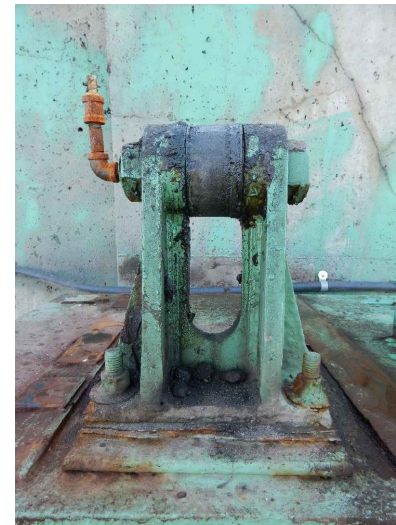
project no.
no. du projet R.082857.001

drawing no.
dessiné no. M-10

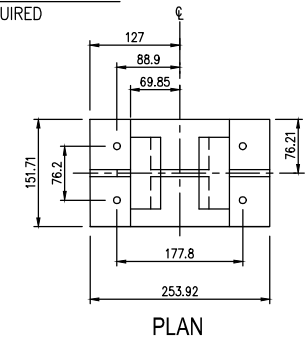


NOTES:

1. ALL PLATES SHALL BE FILLET WELDED 10 (.375") UNLESS SHOWN OTHERWISE.
2. ALL STIFFENERS AND BOTTOM PLATE SHALL BE 20 (0.75") THICK UNLESS SHOWN OTHERWISE.




PHOTOS OF EXISTING RECEIVING SOCKET

**PARSONS**

1	ISSUED FOR TENDER	2016/11/28
0	ISSUED FOR 99% REVIEW	2016/11/01
revision	description	date

Do not scale drawings.
Verify all dimensions and conditions on site and
immediately notify the engineer of all discrepancies.


A Detail No.
No. du détail
B drawing no. — where detail required
dessin no. — où détail exigé
C drawing no. — where detailed
dessin no. — où détaillé

project title titre du projet	
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LASALLE CAUSEWAY
BASCULE BRIDGE

PARTIAL REPLACEMENT OF BOTTOM CHORD

drawing title
titre du dessin

LOCK BAR GUIDES AND
PILLOW BLOCK DETAILS

drawn by
dessine par

designed by
conc par

J. KEYT

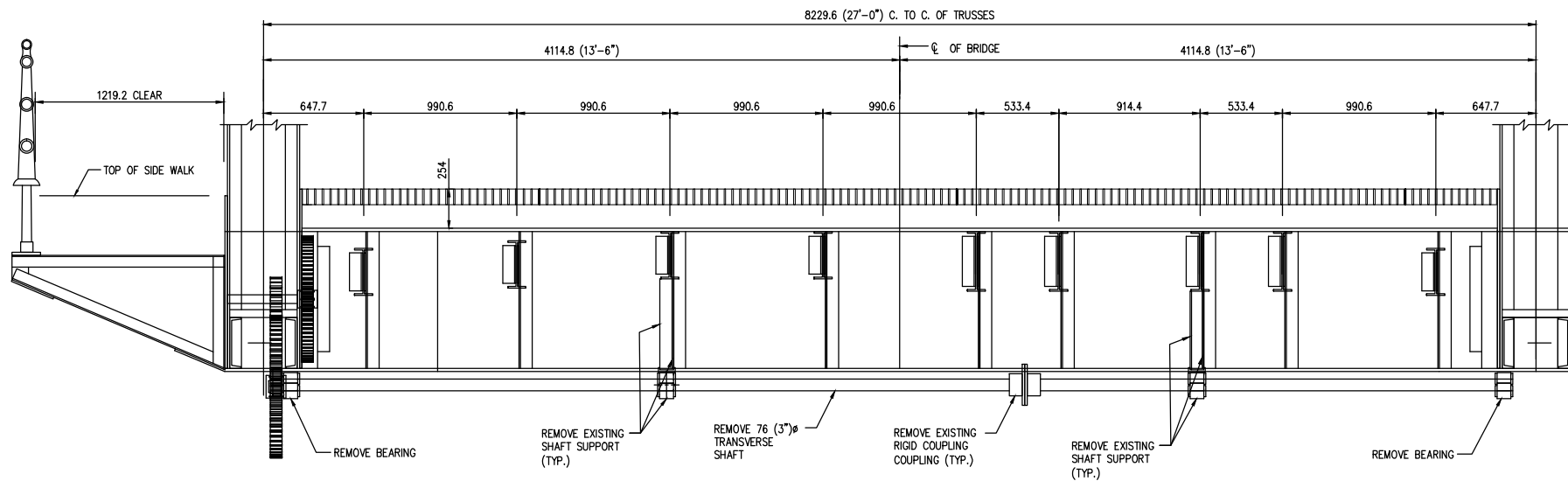
approved by
approuvé par

tender soumission	project manager administrateur de projets
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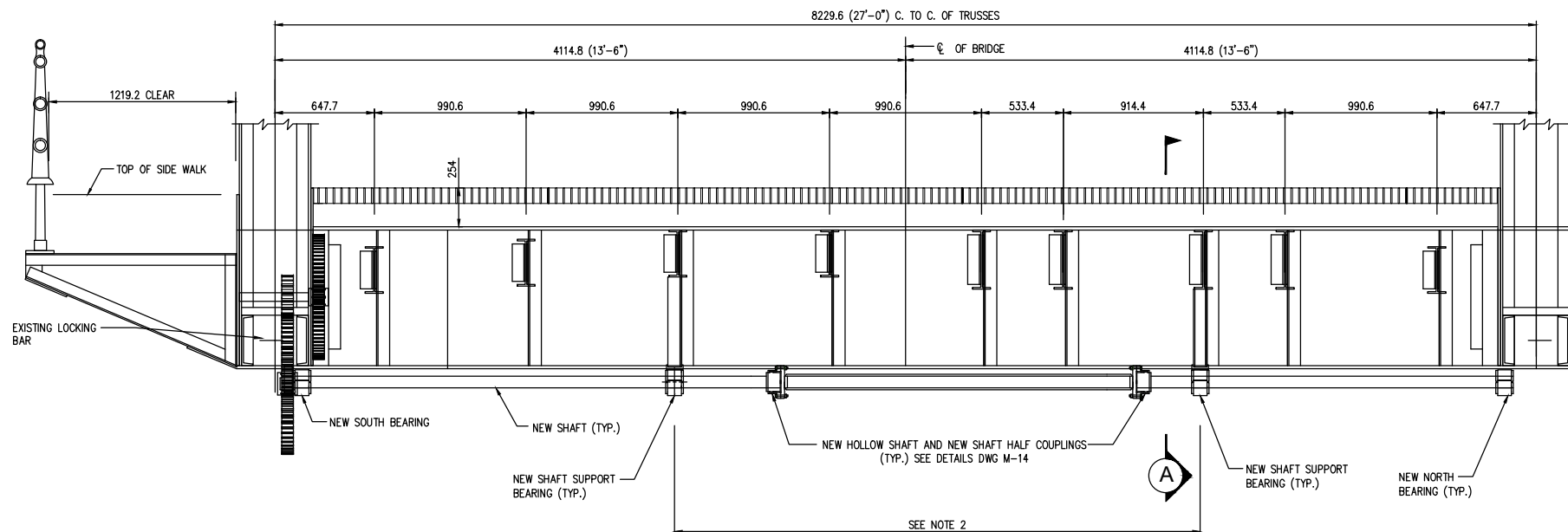
project date
date du projet NOVEMBER 2016

project no. no. du projet	R.082857.001
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drawing no.
dessine no. M-11



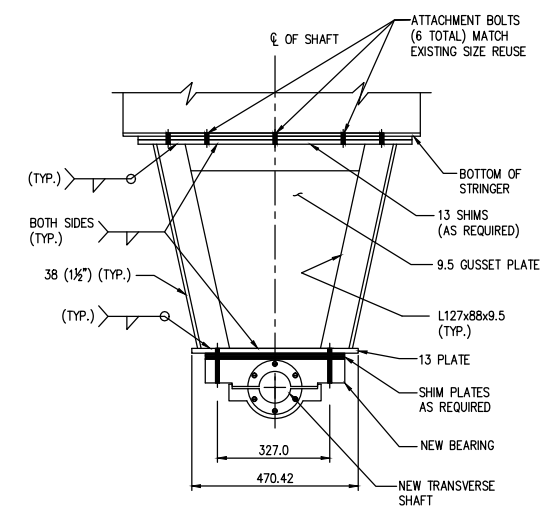
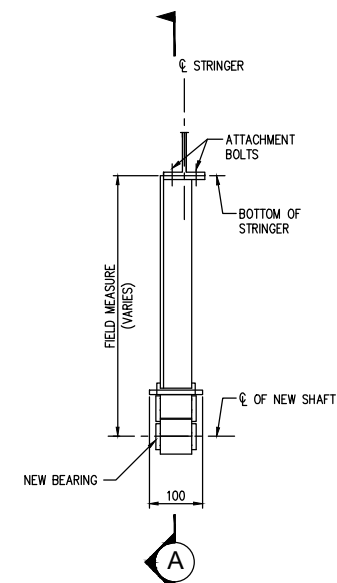
CROSS SECTION OF EXISTING BRIDGE (LOOKING WESTBOUND)



CROSS SECTION OF PROPOSED BRIDGE (LOOKING WESTBOUND)

NOTES:

1. WORK THESE DWGS. WITH NOTES SHOWN ON DWG. G-3.
2. EXISTING LOWER LATERAL BRACING IS TO BE COPED AS REQUIRED TO ACCOMMODATE NEW LARGER DIAMETER FLOATING SHAFT.
3. FILL EMPTY HOLES FOR REMOVED BEARING SUPPORT WITH HIGH STRENGTH BOLTS.

SECTION A-A
DETAIL OF NEW SHAFT SUPPORT

Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

PARSONS



**Professional Engineers
Ontario**
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

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project title
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LASALLE CAUSEWAY
BASCULE BRIDGE

PARTIAL REPLACEMENT
OF BOTTOM CHORD

drawing title
titre du dessin
CROSS SECTION OF BRIDGE
LOOKING WESTBOUND

drawn by
dessiné par G. TAYLOR

designed by
conçu par J. KEYT

approved by
approuvé par M. MANSFIELD

tender
soumission R. GRATL project manager
administrateur de projets

project date
date du projet NOVEMBER 2016

project no.
no. du projet R.082857.001

drawing no.
dessiné no. M-12

SPAN LOCK ASSEMBLY SCHEDULE OF COMPONENTS AND MATERIALS				
COMPONENT	MAKE	SIZE	MODEL	RATING
MOTOR	SEW EURODRIVE, AC SQUIRREL CAGE		DRE100LC4	5 HP @ 1750 RPM
BRAKE	SEW EURODRIVE		BE5HR	394 IN-LBS
SPAN LOCK REDUCER	SEW EURODRIVE	18.8:1 RATIO	R77	7.5 HP 1750 RPM
FLOATING SHAFT COUPLINGS	KOPFLEX	2.5H	SBFR	56,700 IN-LBS
FEMALE SPHERICAL ROD ENDS RH	AURORA	3/4"	CW 12S	WITH STUD AND ZERK FITTING
FEMALE SPHERICAL ROD ENDS LH	AURORA	3/4"	CG 12S	WITH STUD AND ZERK FITTING

COMPONENT	MATERIAL SPECIFICATION
RECEIVING SOCKET	A668 CL G A709 GR 50
RECEIVING ROLLER	A668 CL G
GUIDE BUSHINGS	C86300
CONNECTING ROD THREADED TURNBUCKLE	A668 CL K
CONNECTING ROD BEARING HOUSINGS	A668 CL K
CONNECTING ROD BUSHINGS	ASTM B22-C95400
CRANKSHAFT BUSHINGS	ASTM B22-C95400
CRANKSHAFT BEARINGS HOUSING	ASTM A668 CLASS G OR A709 GR 50
PINS	A668 CL K
LINERS	MIL-S-22499
THREADED ROD	ASTM A449
NUTS	ASTM A563 GRACE C, C3
HAND CRANK	ANSI 1025
SCREWS	ASTM A449
LIMIT SWITCH LINKAGE	ASTM A709 GR50
LINK ADAPTER	ASTM A709 GR50
LINK	ASTM A449
BRONZE SCREWS	ASTM F468
FLOATING SHAFT TUBE	AISI 1035
FLOATING SHAFT FLANGE	ASTM A709 GR 50
SHAFTS	ASTM A668 CLASS D
GREASE FITTINGS	GIANT BUTTON HEAD

GEAR DIMENSIONS							
GEAR	STATUS	PITCH DIA. (IN)	TEETH	PITCH (IN/TEETH)	FACE WIDTH (IN)	BORE (IN)	KEY (IN)
a	REPLACEMENT	6.80	17	2½ DP	3.50	1.63	¾x¾
T	EXISTING	35.10	63	1¾ CP	3.00	3.25	1x1
B	REPLACEMENT	9.47	17	1¾ CP	3.50	3.25	¾x¾
V	EXISTING	32.10	78	2½ DP	3.00	3.25	¾x¾

TABLE OF FITS AND FINISHES		ENGLISH		METRIC	
PART	FIT	FINISH (MICRO-INCH)	FIT	FINISH (MICRO-METER)	
MACHINERY BASE ON STEEL	—	250	—	6.3	
MACHINERY BASE ON MASONRY	—	500	—	12.5	
SHAFT JOURNALS	RC6	8	H8/f7	0.2	
JOURNAL BUSHING	RC6	16	H8/f7	0.4	
SPLIT BUSHING IN BASE	LC1	125	H7/h6	3.2	
SOLID BUSHING IN BASE (TO 3.1MM WALL)	FN1	63	H7/s6	1.6	
SOLID BUSHING IN BASE (OVER 3.1MM WALL)	FN2	63	H7/s6	1.6	
HUBS ON SHAFTS (TO 50.8 MM BORE)< 50.8MM	FN2	32	H7/s6	0.8	
HUBS ON SHAFTS (OVER 50.8 MM BORE)> 50.8MM	FN2	63	H7/s6	1.6	
TURNED BOLTS IN FINISHED HOLES	LC6	63	H7/h6	1.6	
SLIDING BEARINGS	RC6	32	H8/f7	0.8	
ROLLING SURFACES	—	63	—	1.6	
BEARING SURFACES	—	32	—	0.8	
MACHINERY PARTS IN FIXED CONTACT	—	125	—	3.2	
OTHER MACHINED SURFACES		FINISH ALL OVER — 250		FINISH ALL OVER — 6.3	
KEYS AND KEYWAYS	TOP & BOTTOM	—	63	—	1.6
	SIDES	—	63	—	1.6

GENERAL MACHINERY NOTES (METRIC):

- DETAILS OF MACHINERY SHALL CONFORM TO THE AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, WITH 2007 INTERIM REVISIONS THROUGH 2011, UNLESS OTHERWISE SHOWN ON THE PLANS, OR PROVIDED IN THE SPECIAL PROVISIONS.
- PROVIDE STAINLESS STEEL SHIMS FOR LEVELING AND ALIGNING ALL MACHINERY COMPONENTS. SHIMS SHALL BE 13 NOMINAL THICKNESS, UNLESS OTHERWISE SPECIFIED, WITH ADJUSTMENT VARIATIONS AS DESCRIBED IN THE SPECIFICATIONS. ANYWHERE SHIMS ARE REQUIRED, TAPERED SHIMS MAY BE NECESSARY TO ACHIEVE BEARING ACROSS A BEARING SURFACE WHILE MAINTAINING ALIGNMENT. THE THICKNESS AND TAPER SHALL BE BASED ON MEASUREMENTS. TAPERED SHIMS WHERE NECESSARY SHALL BE PROVIDED AT NO ADDITIONAL COST.
- MACHINERY DIMENSIONS SHOWN ON DRAWINGS ARE DIMENSIONS AFTER MACHINING.
- ALL BOLTS SHALL BE FINISH BODY HIGH STRENGTH MEETING THE REQUIREMENTS OF ASTM A449, UNLESS OTHERWISE INDICATED. THE FINISH BODY HIGH STRENGTH BOLT TO HOLE CLEARANCE SHALL BE MINIMUM 0.0762 AND MAXIMUM 0.254, UNLESS OTHERWISE NOTED. WHERE STRUCTURAL FIT HIGH STRENGTH BOLTS ARE SPECIFIED THE BOLT TO HOLE CLEARANCE SHALL BE BETWEEN 0.0762 AND 1.5875, UNLESS OTHERWISE NOTED. WHERE TURNED BOLTS/FASTENERS ARE SPECIFIED, THE BOLT TO HOLE CLEARANCE SHALL BE LC-6, UNLESS OTHERWISE NOTED. ALL H.S. FASTENERS SHALL HAVE A HARDENED PLAIN WASHER F436 UNDER THE HEAD AND THE NUT. HIGH STRENGTH BOLTS THAT HAVE BEEN TORQUED SHALL NOT BE REUSED.
- MODEL NUMBERS AND DETAILS OF MOTORS COUPLINGS, REDUCERS AND OTHER STANDARD COMPONENTS ARE BASED ON CURRENT MANUFACTURER'S CATALOG DATA AT THE TIME THE PLANS WERE PREPARED. EQUIVALENT MODELS FROM OTHER MANUFACTURERS MAY BE SUBSTITUTED AT THE OPTION OF THE CONTRACTOR AND WITH THE APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE. ALL RELATED STRUCTURAL, MECHANICAL, ARCHITECTURAL AND ELECTRICAL DETAILS SHALL BE REVISED BY THE CONTRACTOR TO SUIT THE CERTIFIED DIMENSIONS OF THE COMPONENTS ACTUALLY FURNISHED AT NO ADDITIONAL COST TO THE DEPARTMENT. MENTION OF A MANUFACTURER'S NAME OR MODEL NUMBER DOES NOT REPRESENT A PREFERENCE, BUT IS USED TO SET A STANDARD.
- UNLESS OTHERWISE INDICATED OR REQUIRED FOR THE PROPER ASSEMBLY OF PARTS, DIMENSIONAL TOLERANCES AND FINISHES FOR MACHINERY IN GENERAL SHALL BE AS FOLLOWS:

SURFACE	TOLERANCE
MACHINED (TO 25.4)	+/- 0.381
MACHINED (OVER 25.4)	+/- 0.762
ROLLED	+/- 0.762
NON-MACHINED CAST (TO 25.4")	+/- 0.762
NON-MACHINED CAST (OVER 25.4)	+/- 1.5875
BOLT HOLE LOCATIONS	+/- 0.762
- ALL CORNERS AND EDGES OF CASTINGS SHALL HAVE SUITABLE FILLETS AND RADII, IN GENERAL THE FILLET OR RADII SHALL BE A MINIMUM OF 12R. FOR SECTIONS GREATER THAN 50.8 AND 6.35R. ON THINNER SECTIONS. CASTINGS SHALL BE PROVIDED WITH A BOSS FOR VERTICAL MOUNTING BOLTS AND SPOT FACE FOR HORIZONTAL MOUNTING BOLTS. BOSSES SHALL BE 6.35 HIGH AND SHALL HAVE A MINIMUM DIAMETER OF 6.35 PLUS THE NOMINAL WASHER DIAMETER. SPOT FACES SHALL BE 1.5875 DEEP AND HAVE A MINIMUM DIAMETER OF 6.35 PLUS THE NOMINAL WASHER DIAMETER. THE CONTRACTOR SHALL ADHERE TO THE PROPER CASTING AND COOLING PROCESS, SO THAT SURFACE SHRINKAGE CRACKS ARE ELIMINATED.
- ALL SURFACES OF FORGINGS SHALL BE MACHINED TO THE DIMENSIONS SHOWN ON THE PLANS.
- ALL SURFACES OF BRONZE CASTINGS SHALL BE MACHINED TO THE DIMENSIONS SHOWN ON THE PLANS.
- ALL TRANSITIONS OF SURFACES OF MACHINERY PARTS SHALL BE BLENDED SMOOTH.
- THE EDGES AND CORNERS OF ALL MACHINERY PARTS SHALL BE DETAILED AND MACHINED WITH SUITABLE FILLETS AND CHAMFERS. IN GENERAL THE MINIMUM EDGE OR CORNER, RADIUS OR CHAMFER SHALL BE 1.5875 IF PART THICKNESS IS LESS THAN 25.4 AND 3.175 IF EQUAL OR GREATER, UNLESS OTHERWISE NOTED. IN THE CASE OF MATING PARTS, ALLOWANCE SHALL BE MADE FOR THE PROPER FIT AND ASSEMBLY, SUCH DETAILS SHALL BE SHOWN ON SHOP DRAWINGS.
- FASTENERS THAT REQUIRE TAPPED HOLES, SHALL BE DETAILED WITH A MINIMUM THREAD ENGAGEMENT OF 1.5 TIMES THE NOMINAL BODY DIAMETER. A 3.175 COUNTERBORE SHALL BE PROVIDED IN THE BASE MATERIAL FOR FASTENERS LESS THAN 25.4 DIAMETER AND 6.35 FOR GREATER THAN 25.4 DIAMETER. SUITABLE THREAD RELIEF SHALL BE PROVIDED TO PROPERLY TENSION THE FASTENERS. COUNTERSUNK FASTENERS SHALL BE DETAILED WITH A MINIMUM OF A 1.5875 RECESS.
- ASSEMBLY OF TWO COMPONENTS WITH AN INTERFERENCE FIT SHALL BE ACHIEVED BY APPLYING HEAT TO ONE COMPONENT AND COOLING THE OTHER COMPONENT. THE ACTUAL PROCEDURE USED FOR THE ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. THE USE OF LIQUID NITROGEN OR ANY TEMPERATURE BELOW MINUS 78.5 DEGREES C TO COOL SUCH COMPONENTS IS PROHIBITED.
- VERIFY THAT THE GREASE GROOVES HAVE BEEN PROPERLY CUT TO THE DIMENSIONS SHOWN ON APPROVED SHOP DRAWINGS. ADDITIONALLY VERIFY THAT EACH GROOVE HAS THE PROPER RADIUS TO THE JOURNAL SURFACE TO ASSURE PROPER DISTRIBUTION OF LUBRICANT.
- CHECK THE FIT OF THE BEARINGS WITH ITS RESPECTIVE SHAFT JOURNAL SURFACE. MATCH MARK ALL JOURNAL COMPONENTS AFTER VERIFICATION OF THE PROPER FIT. FOR EACH BEARING BORE AND SHAFT JOURNAL DIAMETER, A MINIMUM OF (6) MEASUREMENTS FOR EACH SHALL BE RECORDED, (2) 180° APART AT THE ENDS AND CENTER OF EACH COMPONENT. ADDITIONAL MEASUREMENTS SHALL BE TAKEN IF NECESSARY TO ESTABLISH PROPER FIT AND ASSEMBLY.
- AFTER ACCEPTANCE OF SHOP INSPECTION, PROTECT JOURNAL SURFACES FOR SHIPMENT.
- KEYS AND KEYWAYS SHALL HAVE FILLET RADII AND CHAMFERS IN ACCORDANCE WITH ANSI B17.1 TABLE 2.
- TOP TO BOTTOM AND SIDE TO SIDE FITS OF KEYS IN KEYWAYS SHALL, CONFORM TO ANSI B17.1 CLASS II.
- COMPONENTS BEING REFURBISH WITH EXISTING INTERFERENCE FIT SHALL BE HEATED RAPIDLY AND REMOVED QUICKLY TO AVOID DAMAGE FROM HEAT, EXCESSIVE FORCE AND ABRASION. MAX TEMP 177°C MONITOR WITH HEAT GUN, TEMPERATURE SENSITIVE CRAYON.

GENERAL MACHINERY NOTES (ENGLISH):

- DETAILS OF MACHINERY SHALL CONFORM TO THE AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, WITH 2007 INTERIM REVISIONS THROUGH 2011, UNLESS OTHERWISE SHOWN ON THE PLANS, OR PROVIDED IN THE SPECIAL PROVISIONS.
- PROVIDE STAINLESS STEEL SHIMS FOR LEVELING AND ALIGNING ALL MACHINERY COMPONENTS. SHIMS SHALL BE 1/2" NOMINAL THICKNESS, UNLESS OTHERWISE SPECIFIED, WITH ADJUSTMENT VARIATIONS AS DESCRIBED IN THE SPECIFICATIONS. ANYWHERE SHIMS ARE REQUIRED, TAPERED SHIMS MAY BE NECESSARY TO ACHIEVE BEARING ACROSS A BEARING SURFACE WHILE MAINTAINING ALIGNMENT. THE THICKNESS AND TAPER SHALL BE BASED ON MEASUREMENTS. TAPERED SHIMS WHERE NECESSARY SHALL BE PROVIDED AT NO ADDITIONAL COST.
- MACHINERY DIMENSIONS SHOWN ON DRAWINGS ARE DIMENSIONS AFTER MACHINING.
- ALL BOLTS SHALL BE FINISH BODY HIGH STRENGTH MEETING THE REQUIREMENTS OF ASTM A449, UNLESS OTHERWISE INDICATED. THE FINISH BODY HIGH STRENGTH BOLT TO HOLE CLEARANCE SHALL BE MINIMUM 0.003" AND MAXIMUM 0.010", UNLESS OTHERWISE NOTED. WHERE STRUCTURAL FIT HIGH STRENGTH BOLTS ARE SPECIFIED THE BOLT TO HOLE CLEARANCE SHALL BE BETWEEN 0.003" AND .0625", UNLESS OTHERWISE NOTED. WHERE TURNED BOLTS/FASTENERS ARE SPECIFIED, THE BOLT TO HOLE CLEARANCE SHALL BE LC-6, UNLESS OTHERWISE NOTED. ALL H.S. FASTENERS SHALL HAVE A HARDENED PLAIN WASHER F436 UNDER THE HEAD AND THE NUT. HIGH STRENGTH BOLTS THAT HAVE BEEN TORQUED SHALL NOT BE REUSED.
- MODEL NUMBERS AND DETAILS OF MOTORS COUPLINGS, REDUCERS AND OTHER STANDARD COMPONENTS ARE BASED ON CURRENT MANUFACTURER'S CATALOG DATA AT THE TIME THE PLANS WERE PREPARED. EQUIVALENT MODELS FROM OTHER MANUFACTURERS MAY BE SUBSTITUTED AT THE OPTION OF THE CONTRACTOR AND WITH THE APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE. ALL RELATED STRUCTURAL, MECHANICAL, ARCHITECTURAL AND ELECTRICAL DETAILS SHALL BE REVISED BY THE CONTRACTOR TO SUIT THE CERTIFIED DIMENSIONS OF THE COMPONENTS ACTUALLY FURNISHED AT NO ADDITIONAL COST TO THE DEPARTMENT. MENTION OF A MANUFACTURER'S NAME OR MODEL NUMBER DOES NOT REPRESENT A PREFERENCE, BUT IS USED TO SET A STANDARD.
- UNLESS OTHERWISE INDICATED OR REQUIRED FOR THE PROPER ASSEMBLY OF PARTS, DIMENSIONAL TOLERANCES AND FINISHES FOR MACHINERY IN GENERAL SHALL BE AS FOLLOWS:

SURFACE	TOLERANCE
MACHINED (TO 1")	+/- .015"
MACHINED (OVER 1")	+/- .03"
ROLLED	+/- .03"
NON-MACHINED CAST (TO 1")	+/- .03"
NON-MACHINED CAST (OVER 1")	+/- .0625"
BOLT HOLE LOCATIONS	+/- .03"
- ALL CORNERS AND EDGES OF CASTINGS SHALL HAVE SUITABLE FILLETS AND RADII, IN GENERAL THE FILLET OR RADII SHALL BE A MINIMUM OF 1/2"R. FOR SECTIONS GREATER THAN 2" AND 1/4"R. ON THINNER SECTIONS. CASTINGS SHALL BE PROVIDED WITH A BOSS FOR VERTICAL MOUNTING BOLTS AND SPOT FACE FOR HORIZONTAL MOUNTING BOLTS. BOSSES SHALL BE 1/4" HIGH AND SHALL HAVE A MINIMUM DIAMETER OF 1/4" PLUS THE NOMINAL WASHER DIAMETER. SPOT FACES SHALL BE .0625" DEEP AND HAVE A MINIMUM DIAMETER OF 1/4" PLUS THE NOMINAL WASHER DIAMETER. THE CONTRACTOR SHALL ADHERE TO THE PROPER CASTING AND COOLING PROCESS, SO THAT SURFACE SHRINKAGE CRACKS ARE ELIMINATED.
- ALL SURFACES OF FORGINGS SHALL BE MACHINED TO THE DIMENSIONS SHOWN ON THE PLANS.
- ALL SURFACES OF BRONZE CASTINGS SHALL BE MACHINED TO THE DIMENSIONS SHOWN ON THE PLANS.
- ALL TRANSITIONS OF SURFACES OF MACHINERY PARTS SHALL BE BLENDED SMOOTH.
- THE EDGES AND CORNERS OF ALL MACHINERY PARTS SHALL BE DETAILED AND MACHINED WITH SUITABLE FILLETS AND CHAMFERS. IN GENERAL THE MINIMUM EDGE OR CORNER, RADIUS OR CHAMFER SHALL BE .0625" IF PART THICKNESS IS LESS THAN 1" AND 1/8" IF EQUAL OR GREATER, UNLESS OTHERWISE NOTED. IN THE CASE OF MATING PARTS, ALLOWANCE SHALL BE MADE FOR THE PROPER FIT AND ASSEMBLY, SUCH DETAILS SHALL BE SHOWN ON SHOP DRAWINGS.
- FASTENERS THAT REQUIRE TAPPED HOLES, SHALL BE DETAILED WITH A MINIMUM THREAD ENGAGEMENT OF 1.5 TIMES THE NOMINAL BODY DIAMETER. A 1/8" COUNTERBORE SHALL BE PROVIDED IN THE BASE MATERIAL FOR FASTENERS LESS THAN 1" DIAMETER AND 1/4" FOR GREATER THAN 1" DIAMETER. SUITABLE THREAD RELIEF SHALL BE PROVIDED TO PROPERLY TENSION THE FASTENERS. COUNTERSUNK FASTENERS SHALL BE DETAILED WITH A MINIMUM OF A 1/16" RECESS.
- ASSEMBLY OF TWO COMPONENTS WITH AN INTERFERENCE FIT SHALL BE ACHIEVED BY APPLYING HEAT TO ONE COMPONENT AND COOLING THE OTHER COMPONENT. THE ACTUAL PROCEDURE USED FOR THE ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. THE USE OF LIQUID NITROGEN OR ANY TEMPERATURE BELOW MINUS 109.3 DEGREES F TO COOL SUCH COMPONENTS IS PROHIBITED.
- VERIFY THAT THE GREASE GROOVES HAVE BEEN PROPERLY CUT TO THE DIMENSIONS SHOWN ON APPROVED SHOP DRAWINGS. ADDITIONALLY VERIFY THAT EACH GROOVE HAS THE PROPER RADIUS TO THE JOURNAL SURFACE TO ASSURE PROPER DISTRIBUTION OF LUBRICANT.
- CHECK THE FIT OF THE BEARINGS WITH ITS RESPECTIVE SHAFT JOURNAL SURFACE. MATCH MARK ALL JOURNAL COMPONENTS AFTER VERIFICATION OF THE PROPER FIT. FOR EACH BEARING BORE AND SHAFT JOURNAL DIAMETER, A MINIMUM OF (6) MEASUREMENTS FOR EACH SHALL BE RECORDED, (2) 180° APART AT THE ENDS AND CENTER OF EACH COMPONENT. ADDITIONAL MEASUREMENTS SHALL BE TAKEN IF NECESSARY TO ESTABLISH PROPER FIT AND ASSEMBLY.
- AFTER ACCEPTANCE OF SHOP INSPECTION, PROTECT JOURNAL SURFACES FOR SHIPMENT.
- KEYS AND KEYWAYS SHALL HAVE FILLET RADII AND CHAMFERS IN ACCORDANCE WITH ANSI B17.1 TABLE 2.
- TOP TO BOTTOM AND SIDE TO SIDE FITS OF KEYS IN KEYWAYS SHALL, CONFORM TO ANSI B17.1 CLASS II.
- COMPONENTS BEING REFURBISH WITH EXISTING INTERFERER FIT SHALL BE HEATED RAPIDLY AND REMOVED QUICKLY TO AVOID DAMAGE FROM HEAT, EXCESSIVE FORCE AND ABRASION. MAX TEMP 350°F MONITOR WITH HEAT GUN, TEMPERATURE SENSITIVE CRAYON.



Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et
Services gouvernementaux Canada

Services d'architecture et de génie
Région de l'Ontario

PARSONS



Professional Engineers
Ontario

Temporary Licensee

Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.

Collaborator: Maurice Phibbs, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

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project title
titre du projet

Ontario

LASALLE CAUSEWAY
BASCULE BRIDGE

PARTIAL REPLACEMENT
OF BOTTOM CHORD

drawing title
titre du dessin

LIST OF MATERIALS
AND NOTES

drawn by
dessiné par

G. TAYLOR

designed by
conçue par

J. KEYT

approved by
approuvé par

M. MANSFIELD

tender
soumission

R., GRATL

project manager
administrateur
de projets

project date
date du projet

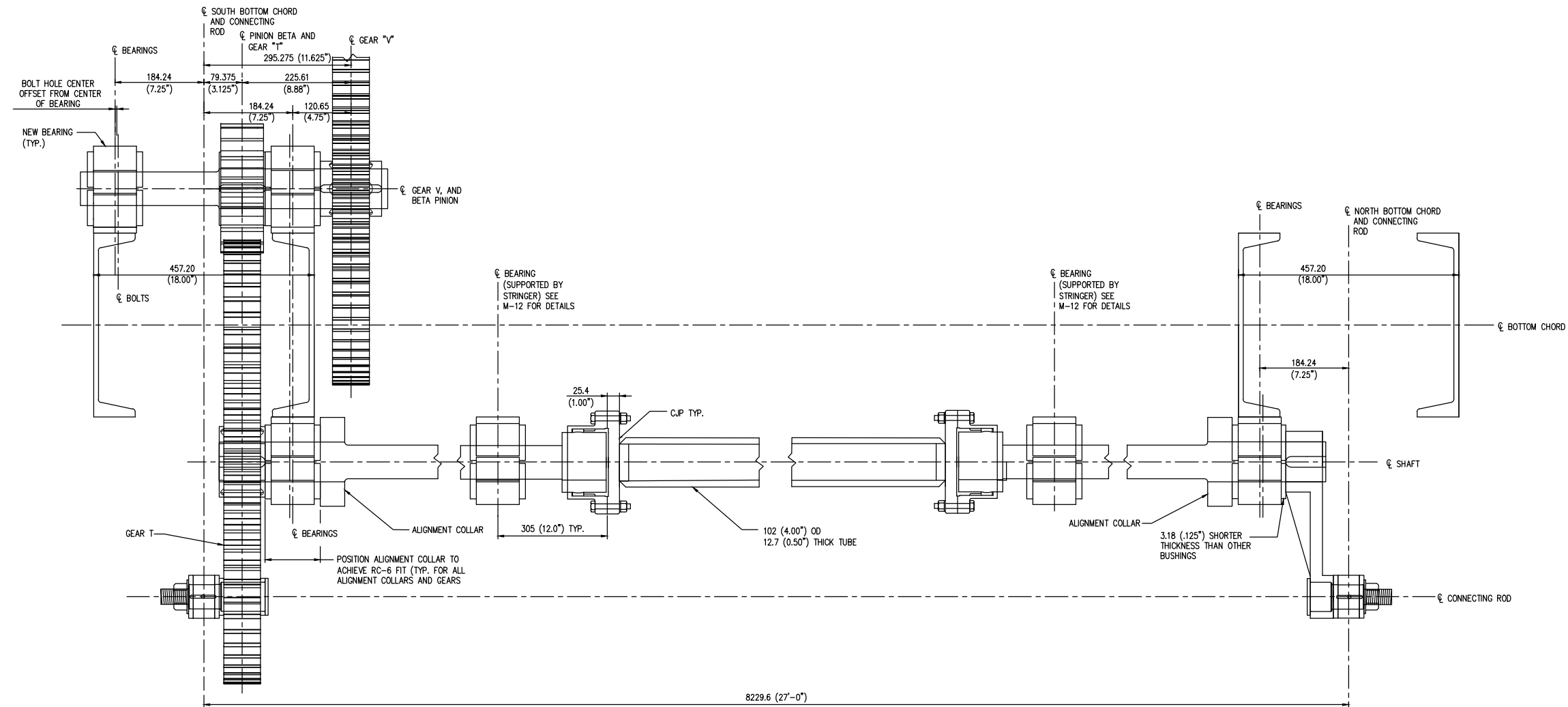
NOVEMBER 2016

project no.
no. du projet

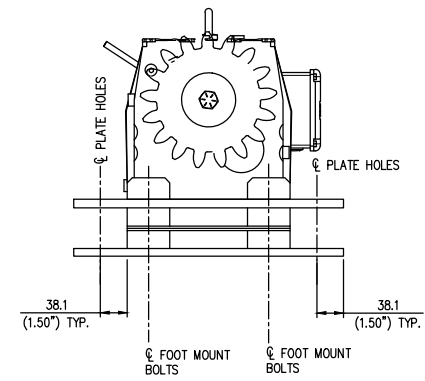
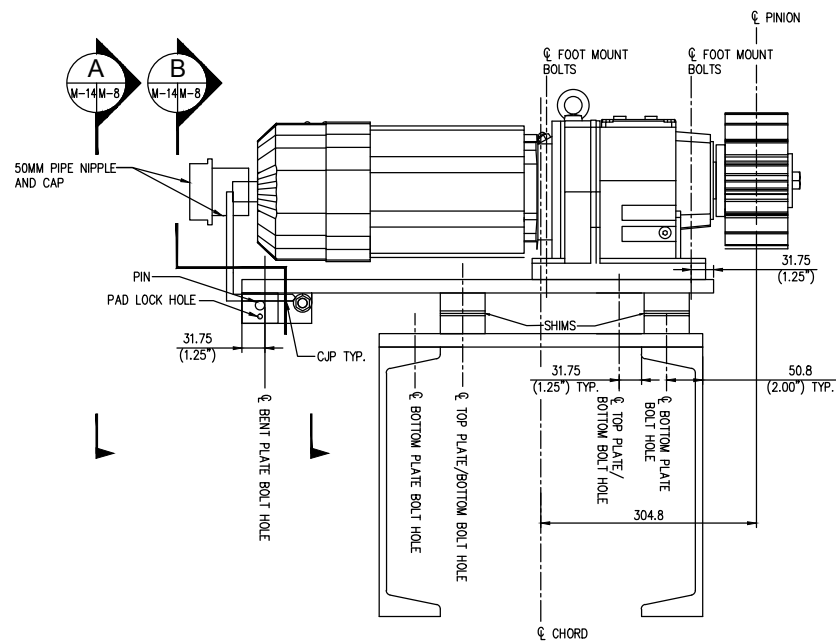
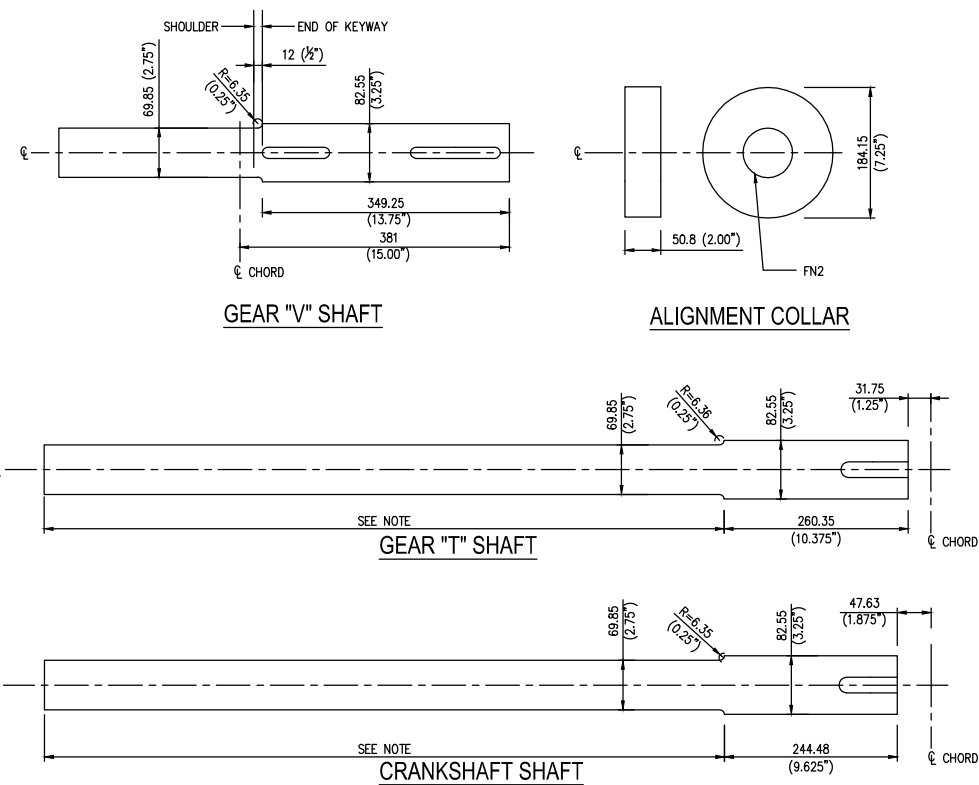
R.082857.001

drawing no.
dessiné no.

M-13



NORTH AND SOUTH CHORD SECTION VIEWS



PARSONS

Professional Engineers
Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

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LASALLE CAUSEWAY
BASCULE BRIDGE

PARTIAL REPLACEMENT
OF BOTTOM CHORD

drawing title
titre du dessin
NORTH AND SOUTH CHORD
MACHINERY LOCATIONS

drawn by
dessiné par

G. TAYLOR

designed by
conçu par

J. KEYT

approved by
approuvé par

M. MANSFIELD

tender
soumission

R. GRATL

project date
date du projet

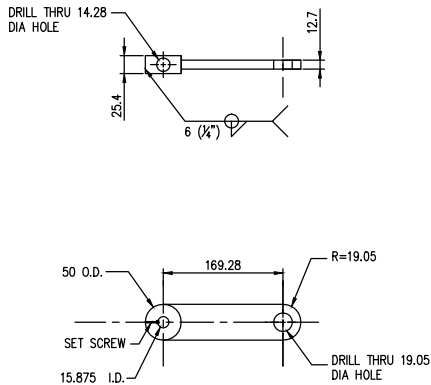
NOVEMBER 2016

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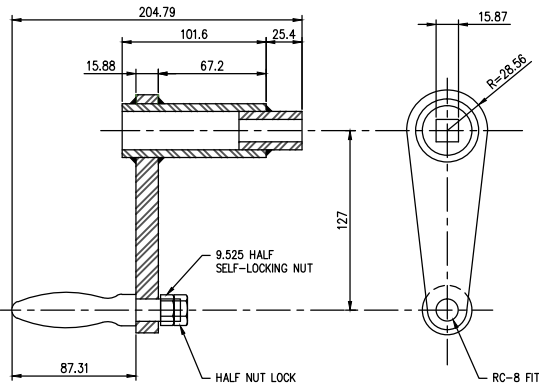
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dessiné no.

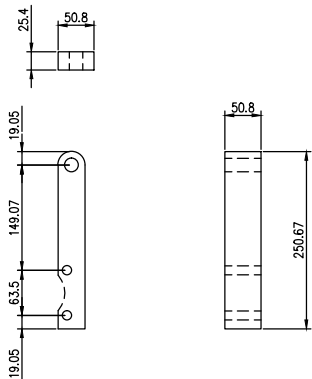
M-14



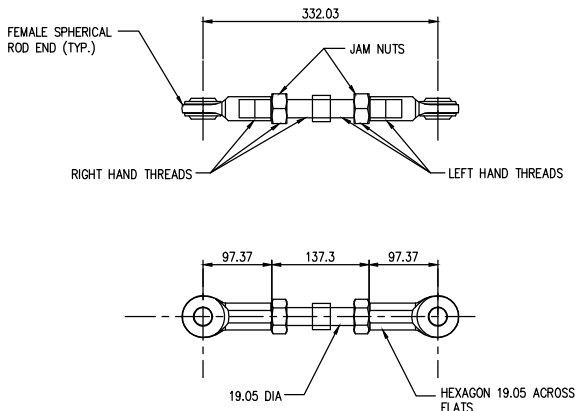
LIMIT SWITCH LINKAGE



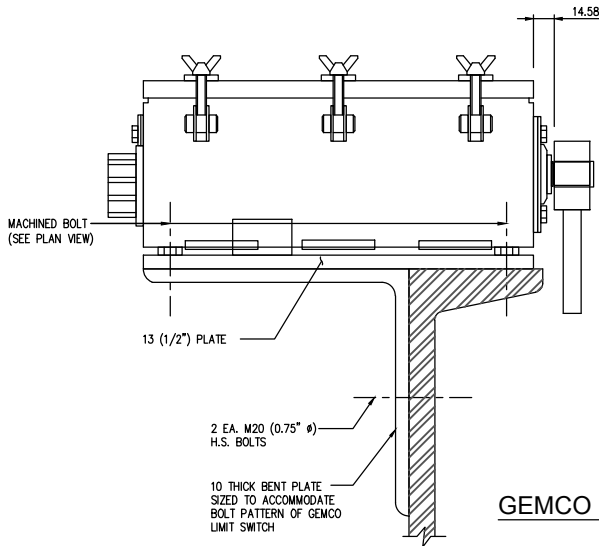
HAND CRANK



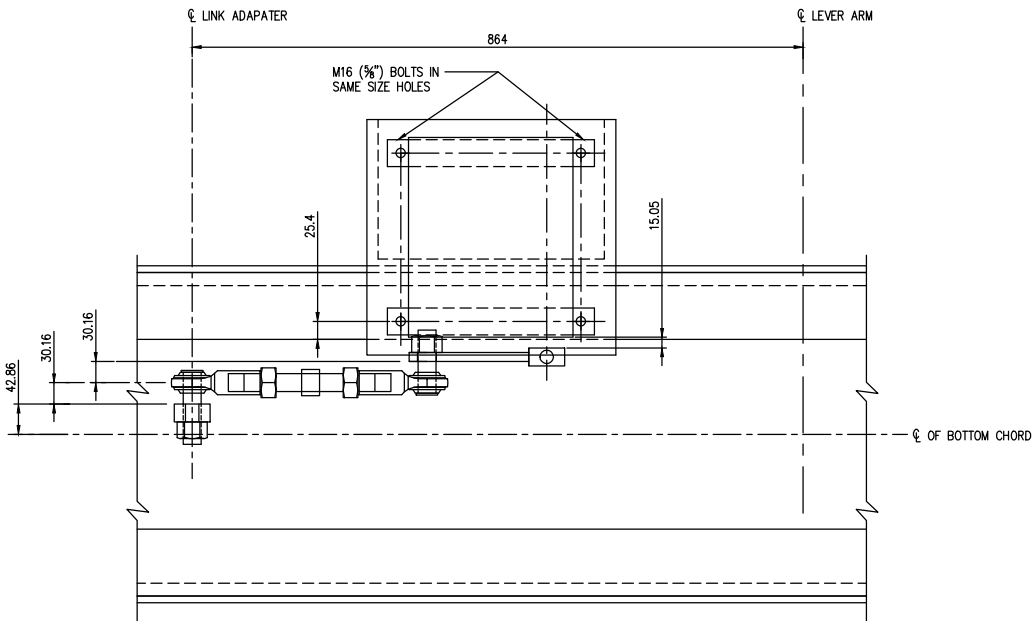
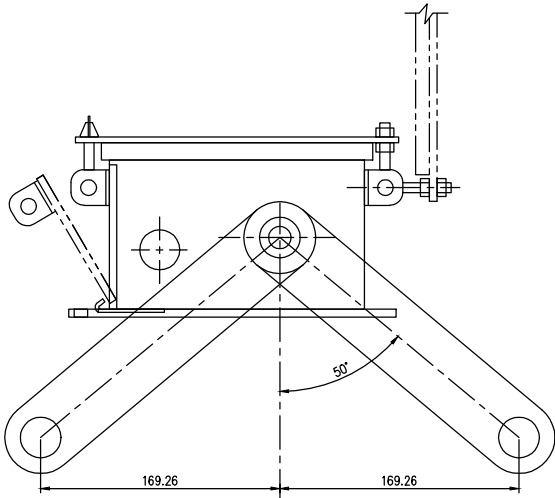
LINK ADAPTER



LINK



GEMCO LIMIT SWITCH



LIMIT SWITCH AND LINKAGE

NOTES:

1. ALL DETAILS AT LIMIT SWITCH SHAFT CONNECTION TO BE VERIFIED AND COORDINATED WITH LIMIT SWITCH MANUFACTURER.
2. PROVIDE 20 3/4\"/>



Public Works and
Government Services Canada
Architectural and Engineering Services
Ontario Region

Travaux publics et
Services gouvernementaux Canada
Services d'architecture et de génie
Région de l'Ontario

PARSONS



Professional Engineers
Ontario
Temporary Licensee
Name: John Schmid
Number: 100215526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
Association of Professional Engineers of Ontario

revision	description	date
1	ISSUED FOR TENDER	2016/11/28
0	ISSUED FOR 99% REVIEW	2016/11/01

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immediately notify the engineer of all discrepancies.



- A Detail No.
No. du détail
B drawing no. - where detail required
dessin no. - où détail exigé
C drawing no. - where detailed
dessin no. - où détaillé

project title
titre du projet

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE

REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
GENERAL ELEVATION
EXTERIOR BOTTOM CHORD
NORTH SIDE PROPOSED

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. KEYT

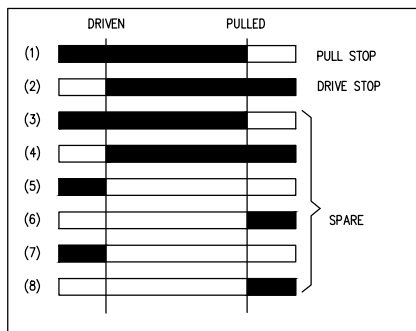
approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

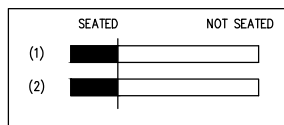
project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

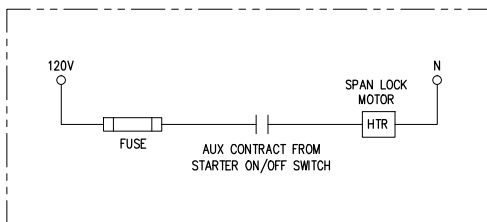
drawing no.
dessiné no.
E-1



SPAN LOCK SWITCH (SLC) 2 REQUIRED



FULLY SEATED LIMIT SWITCHES (FS) TWO EXISTING (FOR REFERENCES)



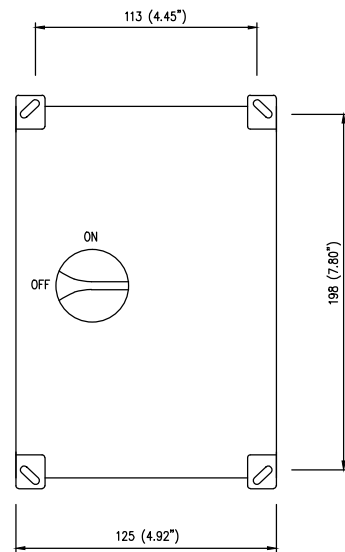
SPAN LOCK MOTOR MCC STARTER CUBICLE
(HEATER CIRCUIT)

NOTES:

- CAREFULLY PULL BACK EXISTING CONDUCTORS FROM EXISTING SPAN LOCK MOTOR AND BRAKE. THESE CONDUCTORS SHALL BE EXTENDED TO NEW SPAN LOCK MOTOR AND BRAKE SYSTEM VIA NEW CONDUIT, JUNCTION BOX JBSL1 AND DISCONNECT SWITCH.
- DISCONNECT SWITCH, NON FUSED 60A, 600V NEMA 4X, PADLOCKABLE IN ON AND OFF POSITION, 3Ø 60HZ.
- PROVIDE AND INSTALL JUNCTION BOX SL1 TO RECEIVE EXTENDED CONDUCTORS FROM EXISTING BOX SL.
- PROVIDE AND INSTALL JUNCTION BOX LS1 TO RECEIVE NEW CONDUCTORS FROM EXISTING JUNCTION BOX LS.
- PROVIDE NEW AND INSTALL RIGID GALVANIZED STEEL CONDUIT AS REQUIRED. CONDUIT SHALL BE SIZED PER ELECTRICAL CODE.
- THE CONTRACTOR SHALL TRACE ALL WIRES FROM THE EXISTING STAINLESS STEEL JUNCTION BOX JBSL MOUNTED TO THE BOTTOM CHORD TO ALL LIMIT SWITCHES AND PREPARE A JB LS SCHEMATIC. COORDINATE THIS SCHEMATIC WITH DRAWING NO. E-7 PROJECT NO. R013375.019 DATED 2013/01/18. MAKE AS BUILT CORRECTIONS AS NECESSARY SUCH THAT DWG. E-7 SHALL ACCURATELY SHOW THE EXISTING CONDITION.
- SUBMIT THE SCHEMATIC TO THE ENGINEER FOR REVIEW AND APPROVAL TOGETHER WITH DWG. NO. E-7.
- PROVIDE SCHEMATIC WIRING DIAGRAM OF THE SPAN LOCK MOTOR, BRAKE AND DISCONNECT SWITCH SHOWING CONDUIT AND CONDUCTOR SIZES. SUBMIT FOR APPROVAL A SCHEMATIC WIRING DIAGRAM TO SHOW CIRCUIT OF ALL NEW REPLACEMENT LIMIT SWITCHES AND HOW THEY ARE INCORPORATED INTO THE EXISTING CONTROL SCHEME (PROVIDE MODIFIED AND APPROVED AS BUILT DRAWING E-7, SEE NOTE 6 ABOVE).
- WIRE THE NEW LIMIT SWITCHES ACCORDING TO THE APPROVED SCHEMATIC USING 12 AWG /2.05MM WIRE. TYPE XHHW-2.
- PROVIDE A DISCONNECT SWITCH FOR THE MOTOR AND BRAKE IN CLOSE PROXIMITY TO THE MOTOR. PROVIDE INTERMEDIATE TERMINAL BOX AT THE LOCATION OF THE EXISTING MOTOR TO EXTEND CONDUCTORS TO NEW DISCONNECT SWITCH AS NECESSARY.
- PROVIDE ALL INCIDENTAL ADDITIONAL MATERIALS TO COMPLETE THIS INSTALLATION.
- MODIFY SPAN LOCK MOTOR MCC STARTER CUBICLE TO PROVIDE 120VOLT SUPPLY TO THE SPAN LOCK MOTOR ANTI CONDENSATION HEATER SYSTEM. THE 120V OFF CONDITION. POWER SHALL BE OFF WHEN SPAN LOCK MOTOR STARTER IS ISOLATED TO THE NECESSARY CIRCUIT PROTECTION FOR HEATER CIRCUIT. PROVIDE AND INSTALL NEW CONDUCTORS AND CONDUIT FROM MCC TO FIXED JB. IDENTIFY SPARE CONDUCTORS BETWEEN THE FIXED JB AND JBSL. RE DESIGNATE THEM AS SPAN LOCK MOTOR HEATER CIRCUIT CONDUCTORS. PROVIDE AND INSTALL NEW HEATER CIRCUIT CONDUCTORS BETWEEN JBSL, JBSL1, JBSL1, THROUGH TO HEATER CIRCUIT CONNECTION AT SPAN LOCK MOTOR.
- MODIFY SPAN LOCK MOTOR MCC STARTER CUBICLE AS NECESSARY TO MAKE NEW SPAN LOCK MOTOR AND BRAKE FUNCTION CORRECTLY.
- ADJUST EXISTING FULLY SEATED LIMIT SWITCHES AS REQUIRED.
- VERIFY EXISTING CONDUIT ROUTING MATCHES REMOVAL DIAGRAM.

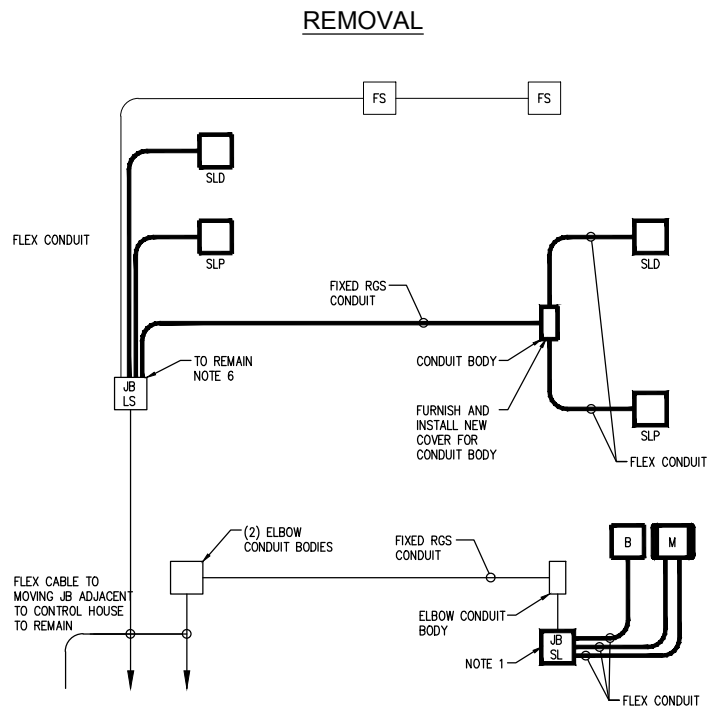
LEGEND:

- M - SPAN LOCK MOTOR
- B - BRAKE
- FS - FULLY SEATED LIMIT SWITCH
- SLD - SPAN LOCK DRIVEN LIMIT SWITCH
- SLP - SPAN LOCK PULLED LIMIT SWITCH
- JB - JUNCTION BOX
- SLC - SPAN LOCK CAM LIMIT SWITCH
- DS - DISCONNECT SWITCH
- LS - LIMIT SWITCH
- SL - SPAN LOCK

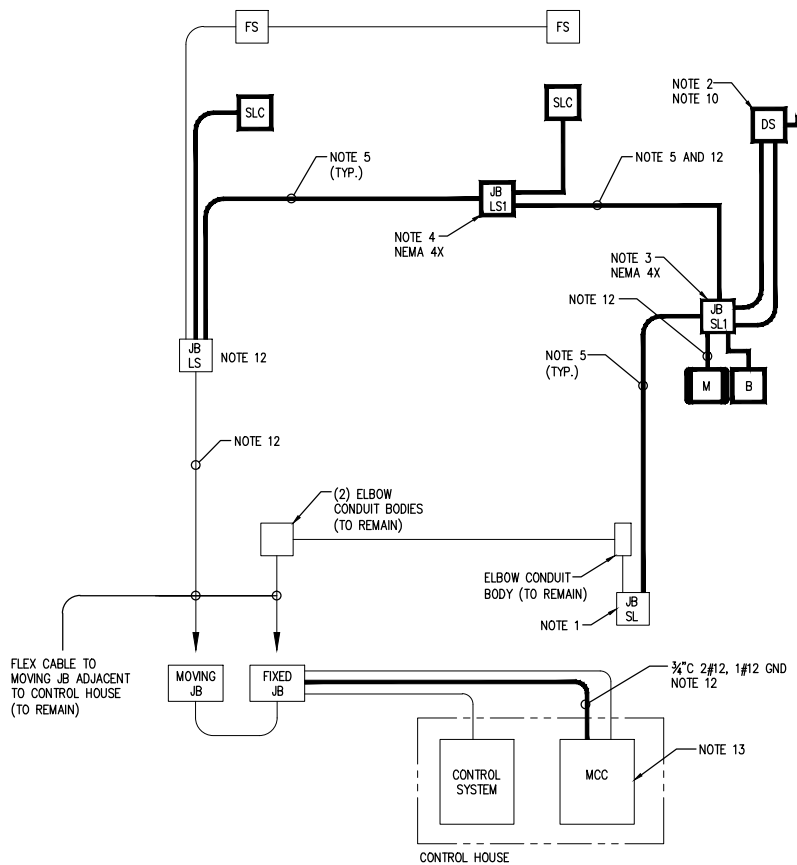


ENCLOSED MOTOR DISCONNECT SWITCH

NOTE 2 AND 10



FINAL CONDITION



PARSONS

 Professional Engineers
Ontario
Temporary Licensee
Name: John Schmid
Number: 10021526-01
Limitations: Structural engineering for La Salle Bridge
in Kingston, Ontario for Public Works Government Services
Canada.
Collaborator: Maurice Mansfield, P.Eng.
Expiry Date: March 31, 2017
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revision	description	date
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C	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet
Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE
REPLACEMENT OF SPAN LOCKS

drawing title
titre du dessin
ELECTRICAL DIAGRAMS
AND NOTES

drawn by
dessiné par
G. TAYLOR

designed by
conçu par
J. KEYT

approved by
approuvé par
M. MANSFIELD

tender
soumission
R. GRATL
project manager
administrateur
de projets

project date
date du projet
NOVEMBER 2016

project no.
no. du projet
R.082857.001

drawing no.
dessiné no.
E-2



1. CONTRACTOR SHALL PROVIDE SCHEDULE OF BRIDGE CLOSURES AT LEAST 14 DAYS PRIOR TO WORK COMMENCEMENT FOR APPROVAL.
2. CONTRACTOR SHALL CONFIRM WORK OR CANCELLATION OF DAILY CLOSURES PRIOR TO WORK COMMENCEMENT.
3. CONTRACTOR SHALL FOLLOW PUBLIC NOTICE PROTOCOL (TO BE PROVIDED DURING PRE-CONSTRUCTION MEETING).
4. ALL NIGHTLY DETOUR SIGNAGE AND TC-54 BARRELS TO BE STORED AND/OR PLACED OUT OF TRAFFIC RIGHT LINES DURING DAYLIGHT HOURS.
5. REFLECTIVE SIGNS APPROXIMATELY 1200x7500mm WITH ADVANCED WARNING OF NIGHT-TIME LANE CLOSURES TO BE APPROVED AND PLACED AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
6. ADVANCED WARNING SIGNS SHALL BE PLACED AT HIGHWAY 15 AND HIGHWAY 401


 CONSTRUCTION STAGING AREA.

 BARGE



COORDINATION AND APPROVAL OF DATES REQUIRED.
CLOSURE WILL ONLY BE ALLOWED TO COMPLETE REPAIRS
AND PREPARE AND PAINT AREAS THAT ARE OTHERWISE
COMPLETELY INACCESSIBLE OR WHERE CONSTRUCTION
ACTIVITIES CANNOT BE EXCLUDED FROM AFFECTING TRAFFIC.

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	A	Detail No. No. du détail
	B	drawing no. — where detail required dessin no. — où détail exigé
	C	drawing no. — where detailed dessin no. — où détaillé

Ontario
LASALLE CAUSEWAY
BASCULE BRIDGE

PARTIAL REPLACEMENT OF BOTTOM CHORD

drawing title
titre du dessin

STAGING AREA
TRAFFIC CONTROL
PLAN

drawn by
dessine par

designed by conc par	J. SCHMID
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approved by
approuvé par

tender	project manager
soumission	administrateur de projets

project date date du projet	NOVEMBER 2016
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project no. no. du projet	R082857.001
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drawing no. _____
dessine no. _____ T-1