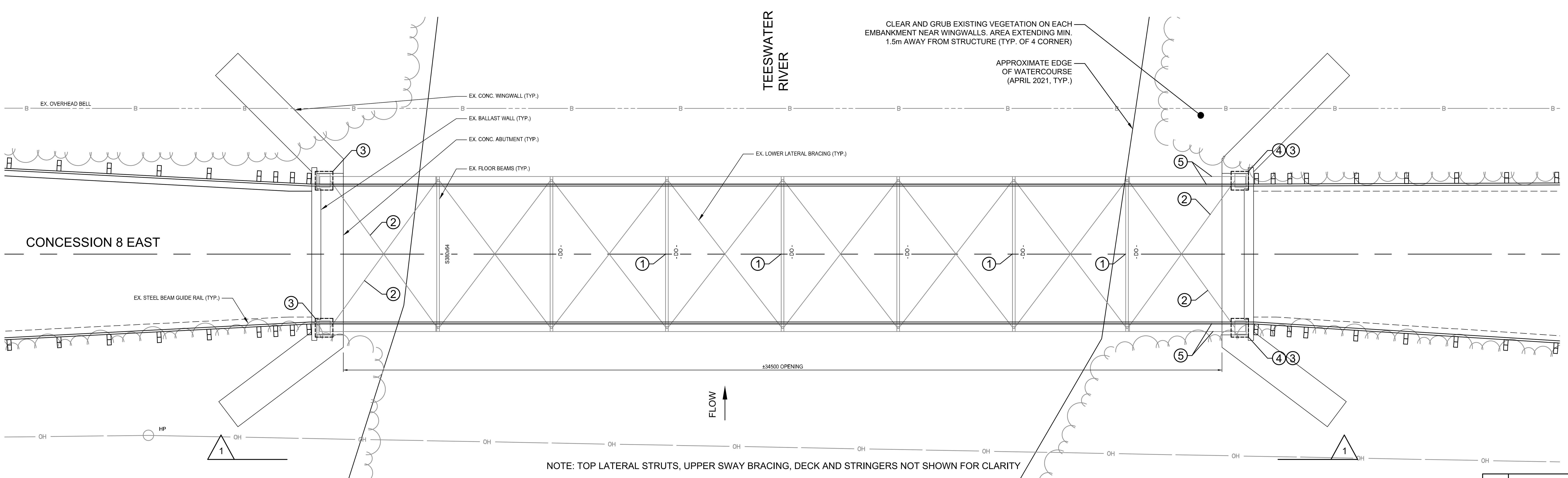
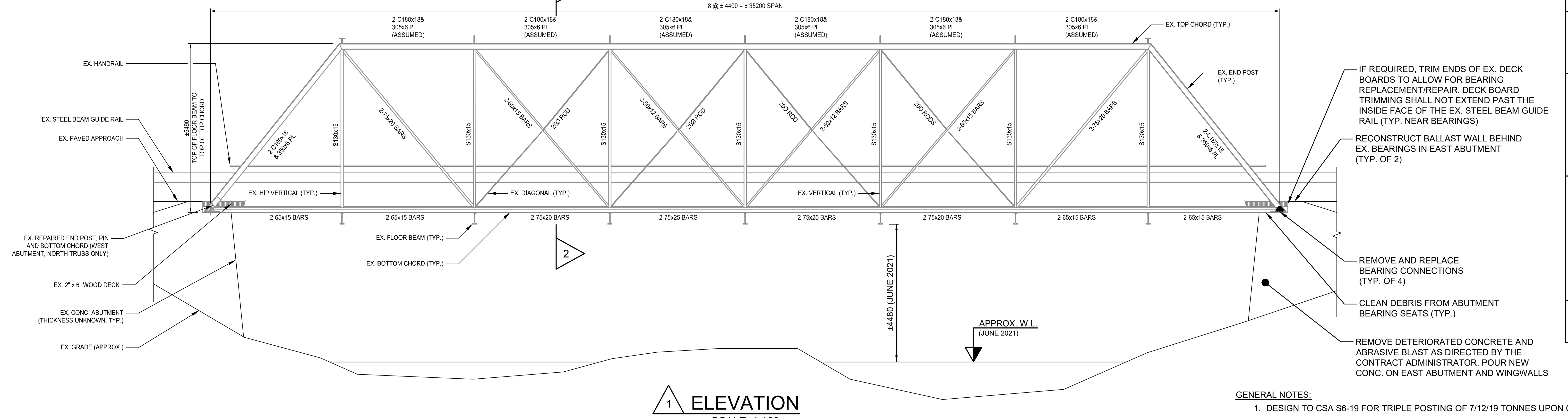
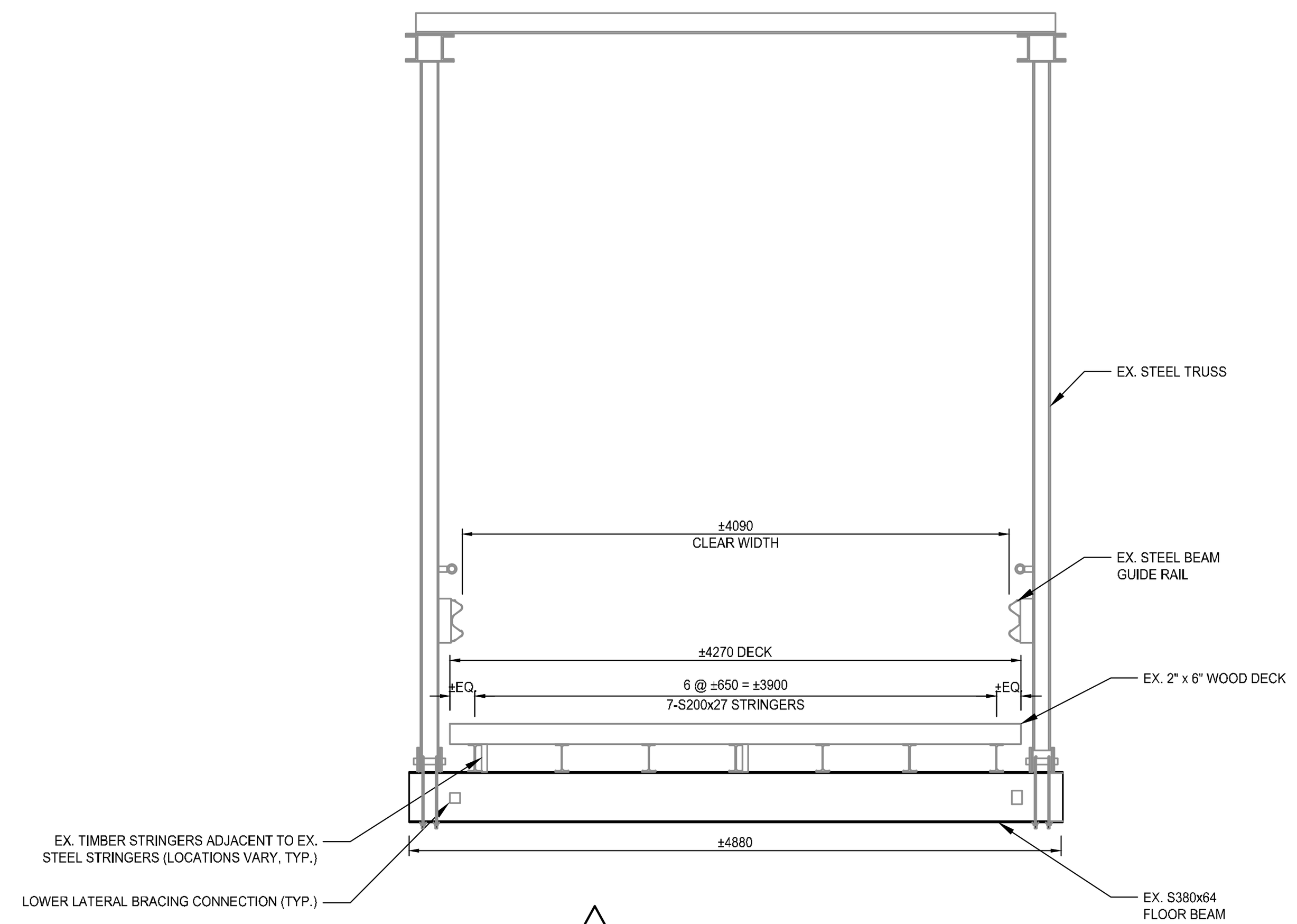


PLAN
SCALE: 1:100



1 ELEVATION
SCALE: 1:100



2 SECTION
SCALE: 1:50

No.	STEEL WORK DESCRIPTION
1	REMOVE EX. FLOOR BEAM AND INSTALL NEW S380x64 FLOOR BEAM (TOTAL OF 4)
2	REMOVE EX. 32 DIA. LOWER LATERAL BRACING AND INSTALL NEW STEEL 32 DIA. LOWER LATERAL BRACING WITH 42 DIA. EYELET. SALVAGE AND REINSTALL STEEL BLOCK AND HARDWARE AT THE CONNECTION WITH FLOOR BEAMS. (TOTAL OF 4)
3	REMOVE EX: • SHOE PLATES (TOTAL OF 4) • SHOE PLATES TO END POST ANGLES (TOTAL OF 4) • PIN NUTS (TOTAL OF 4) INSTALL NEW: • SHOE PLATES • SHOE PLATES TO END POST ANGLES • PIN NUTS
4	REMOVE EX.: • PINS (TOTAL OF 2) • BEARINGS (TOTAL OF 2) • MASONRY PLATES (TOTAL OF 2) • END POSTS AROUND PIN (TOTAL OF 2) INSTALL NEW: REV. 4 • PINS • BEARINGS • ~~MASONRY PLATES~~ • END POSTS AROUND PINS
5	REMOVE ± 1100 LONG SECTION OF EXISTING BOTTOM CHORD AT BEARING CONNECTION AND BOLT NEW ±1500 LONG BOTTOM CHORD (TOTAL OF 4 BOTTOM CHORD PLATES)

"-DO-" MEANS THE MEMBER SIZE IS THE SAME AS DENOTED ELSEWHERE

GENERAL NOTES:

1. DESIGN TO CSA S6-19 FOR TRIPLE POSTING OF 7/12/19 TONNES UPON COMPLETION OF REPAIRS LIVE LOAD.
2. SPECIFICATIONS: OPSS VOLUME 9 AND SPECIAL PROVISIONS.
3. REFER TO OPSD FOR ABBREVIATIONS.
4. ALL ELEVATIONS IN METRES, ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
5. DO NOT SCALE DRAWINGS.
6. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.
7. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK SHALL BE SUBMITTED FOR APPROVAL.
8. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES PRIOR TO AND DURING CONSTRUCTION. LOCATION OF EXISTING UTILITIES TO BE VERIFIED IN THE FIELD.

CONCRETE:

1. C-1, 35MPa @ 28 DAYS FOR ALL CONCRETE UNLESS NOTED OTHERWISE.
2. MAX AGGREGATE SIZE 13mm FOR PATCH REPAIRS, 20mm FOR ALL OTHER CONCRETE UNLESS OTHERWISE APPROVED.
3. ALL MIX DESIGNS AND ADMIXTURES TO BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO USE.

CLEAR COVER TO REINFORCING STEEL:

1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 100 ± 25.
2. REMAINDER 70 ± 20 UNLESS NOTED OTHERWISE.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE GRADE 400W.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE CLASS 'B'.
3. ALL INSERTS AND THREADING ARE PART OF REINFORCING STEEL.
4. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS12-1, UNLESS INDICATED OTHERWISE.
5. ALL DOWELS SHALL BE SECURED USING HILTI HIT HY 200 SAFE SET EPOXY RESIN OR APPROVED EQUIVALENT FROM THE MTO DSM (DESIGNATED SOURCES FOR MATERIALS) LIST.

CONSTRUCTION NOTES:

1. CONTRACT ADMINISTRATOR SHALL REVIEW REINFORCING STEEL AND FORMWORK PRIOR TO ANY CONCRETE POURS. PROVIDE MINIMUM 48 HOURS NOTICE.
2. CONSTRUCTION JOINTS SHALL ONLY BE MADE AT LOCATIONS SHOWN ON THE DRAWINGS OR AS APPROVED BY THE CONTRACT ADMINISTRATOR.
3. SUCCESSIVE POURS SHALL BE SUITABLY KEYED TOGETHER.
4. FALSEWORK SHALL NOT BE REMOVED WITHOUT THE CONTRACT ADMINISTRATOR'S APPROVAL.
5. ALL EXPOSED EDGES TO BE CHAMFERED 20mm UNLESS NOTED OTHERWISE.
6. TOTAL CONSTRUCTION LIVE LOADING ON BRIDGE STRUCTURE SHALL NOT EXCEED 900 kg (MAX. UDL OF 0.5 KPa) UNTIL TRUSS BEARING CONNECTIONS AND BOTTOM CHORDS ARE REPLACED. AFTERWARDS, TOTAL CONSTRUCTION LIVE LOADING CAN BE INCREASED TO 0.5 KPa OVER ENTIRE DECK DURING FLOOR BEAM REPLACEMENTS.
7. EXCAVATIONS SHALL BE PER SOIL CLASS AND OCCUPATIONAL HEALTH AND SAFETY ACT.
8. ALL IMPORTED FILL MATERIAL TO BE COMPACTED TO MINIMUM 98% SPMDD, UNLESS NOTED OTHERWISE.
9. ANY DAMAGE TO THE EXISTING STRUCTURE DURING REMOVALS OR RECONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
10. ALL PROPRIETARY REPAIR PRODUCTS SHALL BE SELECTED FROM THE MTO DSM (DESIGNATED SOURCES FOR MATERIALS) LIST AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

NOTES :

1. TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED. ALL EXISTING FEATURES WERE TAKEN FROM GOOGLE AERIAL IMAGERY AND FIELD MEASUREMENTS.
2. UNDERGROUND INFRASTRUCTURE LOCATIONS WERE PROVIDED BY THE RESPECTIVE UTILITIES AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR AND REQUIRED TO HAVE UTILITY LOCATES COMPLETED PRIOR TO CONSTRUCTION. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE TO ANY UTILITY DURING CONSTRUCTION.

LEGEND

- PROPERTY LINE
- EX. DITCH
- EX. OVERHEAD BELL LINE
- EX. GAS LINE
- EX. FENCE LINE
- EX. OVERHEAD HYDRO
- TREE LINE

BENCH MARKS :

LICENSED PROFESSIONAL ENGINEER 2022-04-20 A.J. GALEZOWSKI 100217780 PROVINCE OF ONTARIO 212327

LICENSED PROFESSIONAL ENGINEER April 20/22 J. BORGES 100503702 PROVINCE OF ONTARIO

NO.	DATE	REVISION DESCRIPTION	CH'KD
04	2022-04-21	ISSUED FOR CONSTRUCTION	J.B.
03	2022-03-01	ISSUED FOR TENDER	B.W.
02	2021-08-26	ISSUED FOR TENDER	B.W.
01	2021-08-04	ISSUED FOR REVIEW	B.W.

GM BluePlan ENGINEERING
GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
1260 - 2ND AVENUE EAST, UNIT 1, OWEN SOUND, ON N4K 2J3
TEL. 519-376-1805
www.gmblueplan.ca

GREENOCK STRUCTURE 0006 REHABILITATION

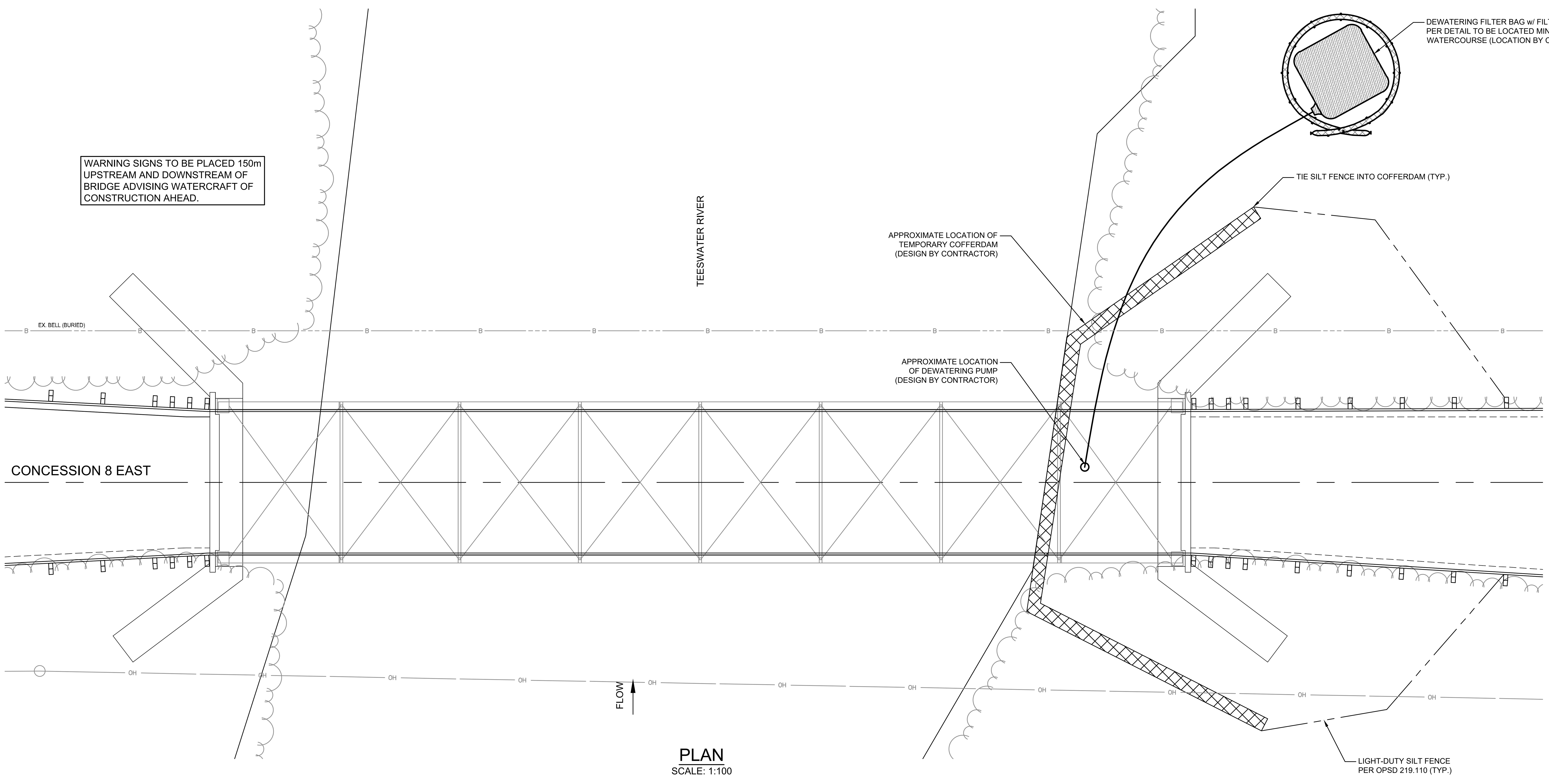
CONCESSION 8 EAST GREENOCK

MUNICIPALITY OF BROCKTON
CONTRACT No. 212327-A

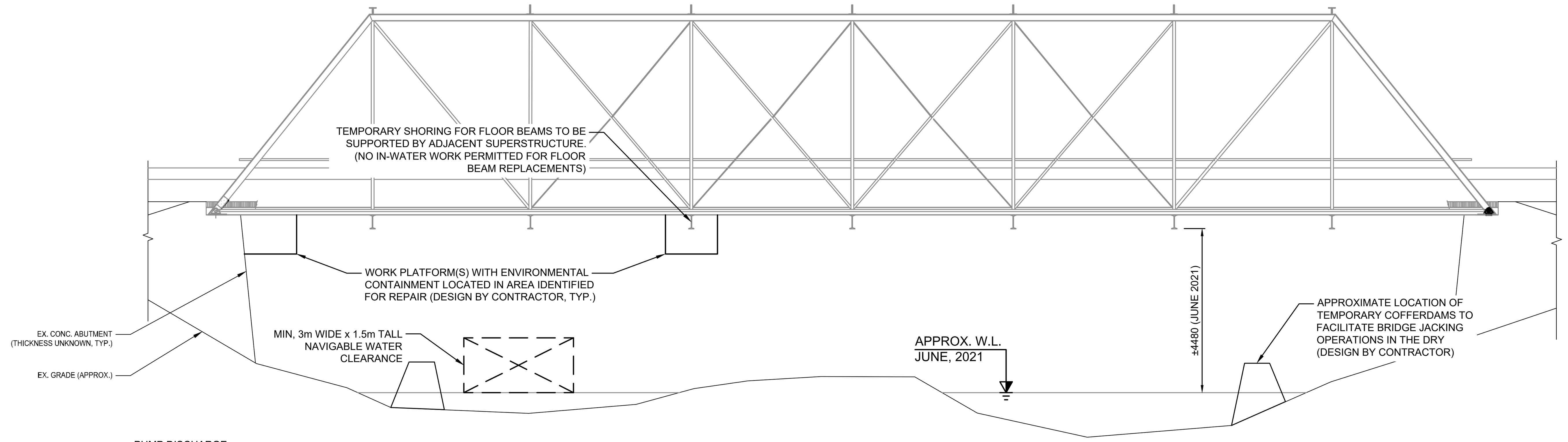
GENERAL ARRANGEMENT

DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
E.V.S.	B.W.	212327	1
DESIGNED BY : J.B.	DATE : MAY 2021	SCALE : AS SHOWN	

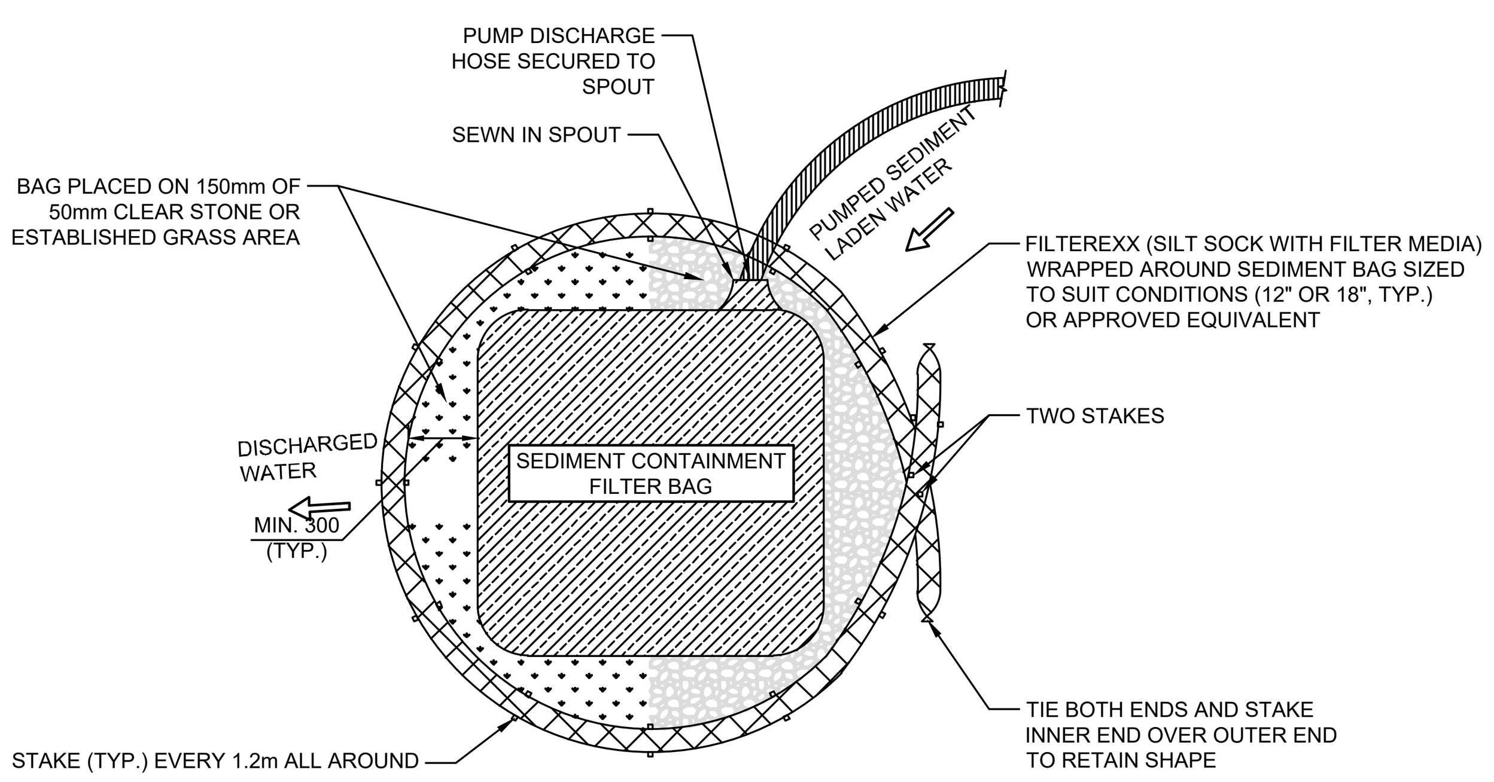
WARNING SIGNS TO BE PLACED 150m UPSTREAM AND DOWNSTREAM OF BRIDGE ADVISING WATERCRAFT OF CONSTRUCTION AHEAD.



PLAN
SCALE: 1:100



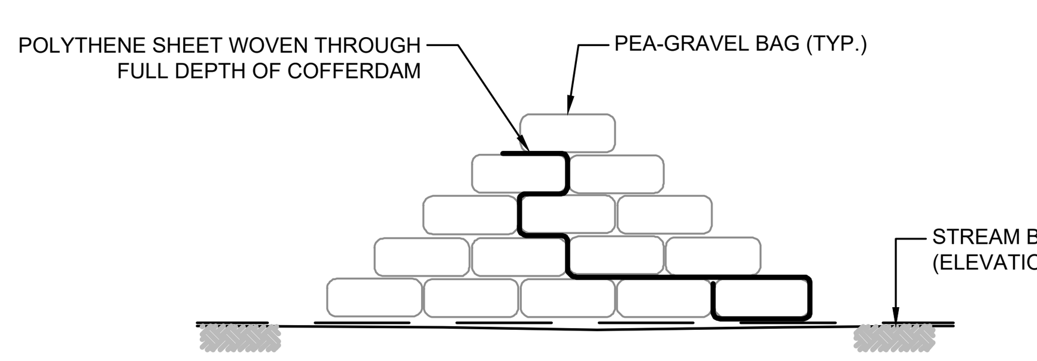
ELEVATION
SCALE: 1:100



DEWATERING FILTER BAG W/ FILTER SOCK BARRIER
N.T.S.

SUGGESTED SEQUENCE OF CONSTRUCTION:

1. CLOSE ROAD AND INSTALL EROSION AND SEDIMENT CONTROLS.
2. ISOLATE EAST/WEST ABUTMENT AND COMPLETE REPAIRS.
3. COMPLETE BALLAST WALL REPAIRS TO EAST ABUTMENT.
4. JACK BRIDGE AND COMPLETE BEARING REPLACEMENTS WITH ASSOCIATED STEEL WORK, AND LOWER BRACING REPLACEMENT.
5. COMPLETE FLOOR BEAM REPLACEMENT.
6. COMPLETE REQUIRED SITE RESTORATION.
7. OPEN ROAD AND REMOVE EROSION AND SEDIMENT CONTROLS ONCE DISTURBED AREAS HAVE STABILIZED.



NOTE:

TEMPORARY COFFERDAM DESIGNED BY CONTRACTOR. DETAIL IS CONCEPTUAL ONLY AND REPRESENTS MINIMUM STANDARD OF CONSTRUCTION. ALTERNATIVES MAY INCLUDE, BUT ARE NOT LIMITED TO, SHEET PILES AND METER BAGS.

TYPICAL SECTION OF COFFERDAM
N.T.S.

ENVIRONMENTAL REQUIREMENTS:

1. ANY DEWATERING OPERATIONS REQUIRED TO COMPLETE THE WORK IN THE DRY ARE NOT TO EXCEED 50,000 LITRES PER DAY WITHOUT A MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP) PERMIT TO TAKE WATER OR COMPLETION OF AN ENVIRONMENTAL ACTIVITY AND SECTOR REGISTRY (AS APPLICABLE).
2. THE CONTRACTOR IS RESPONSIBLE FOR PREPARATION, COST AND SUBMISSION OF ALL REPORTS, PLANS AND APPLICATIONS REQUIRED TO SECURE A PERMIT TO TAKE WATER (CATEGORY 1, 2 OR 3) OR ENVIRONMENTAL ACTIVITY AND SECTOR REGISTRY (AS APPLICABLE) FROM THE MECP FOR DEWATERING OPERATIONS WHICH EXCEED 50,000 LITRES PER DAY.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY WORKSITE ISOLATION, DIVERSION AND DEWATERING SYSTEMS. THE CONTRACTOR SHALL SUBMIT PLANS FOR THESE SYSTEMS TO BE REVIEWED BY THE CONSERVATION AUTHORITY PRIOR TO COMMENCEMENT OF CONSTRUCTION. DIVERSION AND WORK SITE ISOLATION DETAILS IN THE DRAWING SET ARE CONCEPTUAL ONLY.
4. ALL MATERIAL AND EQUIPMENT USED FOR THE PURPOSE OF OR GENERATED DURING COMPLETION OF THE WORKS SHALL BE OPERATED, STORED AND REMOVED FROM SITE IN A MANNER THAT PREVENTS ANY DELETERIOUS SUBSTANCE. (EG. PETROLEUM PRODUCTS, SILT, DEBRIS, ETC.) FROM ENTERING THE WATERCOURSE.
5. ANY STOCKPILED MATERIALS SHALL BE STORED AND STABILIZED AWAY FROM AND ABOVE THE HIGH WATER MARK.
6. IN WATER WORK IS TO OCCUR BETWEEN JULY 15 AND SEPTEMBER 15 (INCLUSIVE).
7. ALL DISTURBED AREAS SHALL BE STABILIZED AND RE-VEGETATED AS REQUIRED UPON COMPLETION OF WORK AND RESTORED TO A PRE-DISTURBED STATE OR BETTER, INCLUDING RE-INSTATEMENT AND RE-STABILIZATION OF THE WATERCOURSE.
8. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO COMMENCEMENT OF WORK, AND MAINTAINED THROUGHOUT CONSTRUCTION, TO PREVENT ENTRY OF SEDIMENT INTO THE WATERCOURSE OR THE MOVEMENT OF RE-SUSPENDED SEDIMENT.
9. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE LEFT IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
10. NO WORK IS PERMITTED IN THE WATERCOURSE AND NO MATERIAL SHALL BE RELEASED INTO THE WATERCOURSE. WORK IS TO BE COMPLETED IN THE DRY.
11. NO MACHINERY SHALL CROSS THE WATERCOURSE AT ANY TIME. MACHINERY THAT IS REQUIRED ON THE OPPOSITE SIDE OF THE WATERCOURSE WHILE THE STRUCTURE IS BEING REPLACED SHALL BE DRIVEN ACROSS THE STRUCTURE ITSELF, HAULED BY FLOAT, OR DRIVEN AROUND ON ROADS.
12. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY TEMPORARY PROTECTION MEASURES OR DEBRIS CONTAINMENT SYSTEMS NECESSARY TO PREVENT ANY CONCRETE, RUBBLE, DEMOLITION DEBRIS, OR DUST FROM ENTERING THE WATERCOURSE. SUCH MATERIAL SHALL BE REMOVED FROM TEMPORARY PROTECTION MEASURES REGULARLY AND AT THE END OF EACH DAY.
13. THE SEDIMENT AND EROSION CONTROL MEASURES MAY BE SUBJECT TO CHANGE OR MODIFICATIONS AS A RESULT OF SITE DEVELOPMENT OR CHANGES ON-SITE.
14. ADDITIONAL SILT FENCE, STRAW BALES, CLEAR STONE, ETC. SHALL BE KEPT ON-SITE FOR REPAIRS TO PROPOSED SEDIMENT AND EROSION CONTROL FEATURES.
15. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE EVALUATED ON A WEEKLY BASIS AND AFTER ANY STORM EVENT. ANY REPAIRS REQUIRED ARE TO BE RECTIFIED IMMEDIATELY.
16. SEDIMENT LADEN WATERS ARE TO BE TREATED PRIOR TO DISCHARGING INTO THE WATERCOURSE.
17. MACHINERY, VEHICLES, EQUIPMENT, AND PUMPS SHALL NOT BE REFUELED OR CLEANED WITHIN 30 METERS OF THE WATERCOURSE.
18. ALL MACHINERY SHALL BE MAINTAINED FREE OF FLUID LEAKS AND SHALL ARRIVE ON-SITE IN A CLEAN AND WASHED CONDITION.
19. AN EMERGENCY SPILL KIT SHALL BE KEPT ON SITE AT ALL TIMES. THE CONTRACTOR SHALL COMPLY WITH ALL MECP REQUIREMENTS AND SHALL REPORT SPILLS TO THE SPILLS ACTION CENTRE (1-800-268-6060).
20. MEASURES SHALL BE TAKEN TO PREVENT CONCRETE LEACHATE FROM ENTERING THE WATERCOURSE. ALL CEMENTITIOUS PRODUCTS INCLUDING CONCRETE, GROUT, AND MORTAR SHALL BE COMPLETELY ISOLATED FROM PRECIPITATION AND WATERCOURSE FLOW FOR A MINIMUM OF 48 HOURS (OR UNTIL SIGNIFICANTLY CURED) TO ALLOW THE PH TO REACH NEUTRAL LEVELS. CONTAINMENT FACILITIES SHALL BE PROVIDED AT THE SITE FOR WASH DOWN OF CONCRETE TRUCKS, PUMPS, EQUIPMENT, AND TOOLS AS REQUIRED.
21. SMALL MESH SEINE TO BE USED TO EXCLUDE FISH FROM THE PROJECT AREA. ALL FISH STRANDED WITHIN THE PROJECT AREA DURING CONSTRUCTION SHALL BE RELOCATED BY A QUALIFIED BIOLOGIST.
22. THE CONTRACTOR SHALL MONITOR THE WEEKLY WEATHER FORECAST ON A DAILY BASIS AND PREPARE THE SITE ADEQUATELY FOR CONDITIONS THAT MAY CAUSE WATER LEVELS TO RISE.
23. THE CONTRACTOR SHALL BE AWARE THAT THE WATER LEVEL SPECIFIED ON THE CONTRACT DRAWINGS HAS BEEN PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND BY NO MEANS INDICATES THE WATER LEVEL AT THE TIME OF CONSTRUCTION OR THE HIGH WATER LEVEL FOR THE WATER COURSE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE THE PROJECT REGARDLESS OF THE WATER LEVEL AT THE TIME OF CONSTRUCTION.

NOTES :

1. TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED. ALL EXISTING FEATURES WERE TAKEN FROM GOOGLE AERIAL IMAGERY AND FIELD MEASUREMENTS.
2. UNDERGROUND INFRASTRUCTURE LOCATIONS WERE PROVIDED BY THE RESPECTIVE UTILITIES AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR AND REQUIRED TO HAVE UTILITY LOCATES COMPLETED PRIOR TO CONSTRUCTION. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE TO ANY UTILITY DURING CONSTRUCTION.

BENCH MARKS :

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

LICENSED PROFESSIONAL ENGINEER 2022-04-20 A.J. GALEZOWSKI 100217780 PROVINCE OF ONTARIO
212327

LICENSED PROFESSIONAL ENGINEER April 20/22 J. BORGES 100503702 PROVINCE OF ONTARIO

NO.	DATE	REVISION DESCRIPTION	CH'KD
04	2022-04-21	ISSUED FOR CONSTRUCTION	J.B.
03	2022-03-01	ISSUED FOR TENDER	B.W.
02	2021-08-26	ISSUED FOR TENDER	B.W.
01	2021-08-04	ISSUED FOR REVIEW	B.W.

GM BluePlan ENGINEERING
GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
1260 - 2ND AVENUE EAST, UNIT 1, OWEN SOUND, ON N4K 2J3
TEL. 519-376-1805 www.gmblueplan.ca

GREENOCK STRUCTURE 0006 REHABILITATION

CONCESSION 8 EAST GREENOCK

MUNICIPALITY OF BROCKTON CONTRACT No. 212327-A

EROSION AND SEDIMENT CONTROL

DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
E.V.S.	B.W.	212327	2
DESIGNED BY : J.B.	DATE : MAY 2021	SCALE : AS SHOWN	

STRUCTURAL STEEL NOTES:

1. ALL STRUCTURAL STEEL SHALL BE CSA STANDARD G40.20/G40.21 GRADE 350W. CHARPY IMPACT ENERGY TESTING REQUIRED FOR LOWER LATERAL X-BRACING, BOTTOM CHORDS AND FLOOR BEAMS. THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES AND THE TEST TEMPERATURE SHALL BE 0°C FOR LOWER LATERAL X-BRACING AND BOTTOM CHORDS, AND -20 DEGREES CELSIUS FOR FLOOR BEAMS. ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD G40.20/G40.21 OR ASTM SPECIFICATION A588.
2. FLOOR BEAM SHALL BE COATED WITH TWO COATS OF SHOP APPLIED EXTERIOR ZINC RICH ANTI-CORROSIVE PRIMER. TOUCH UP IN FIELD AS REQUIRED.
3. UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

REV. 4

MATERIAL THICKNESS OF THICK PART JOINED (mm)	MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12

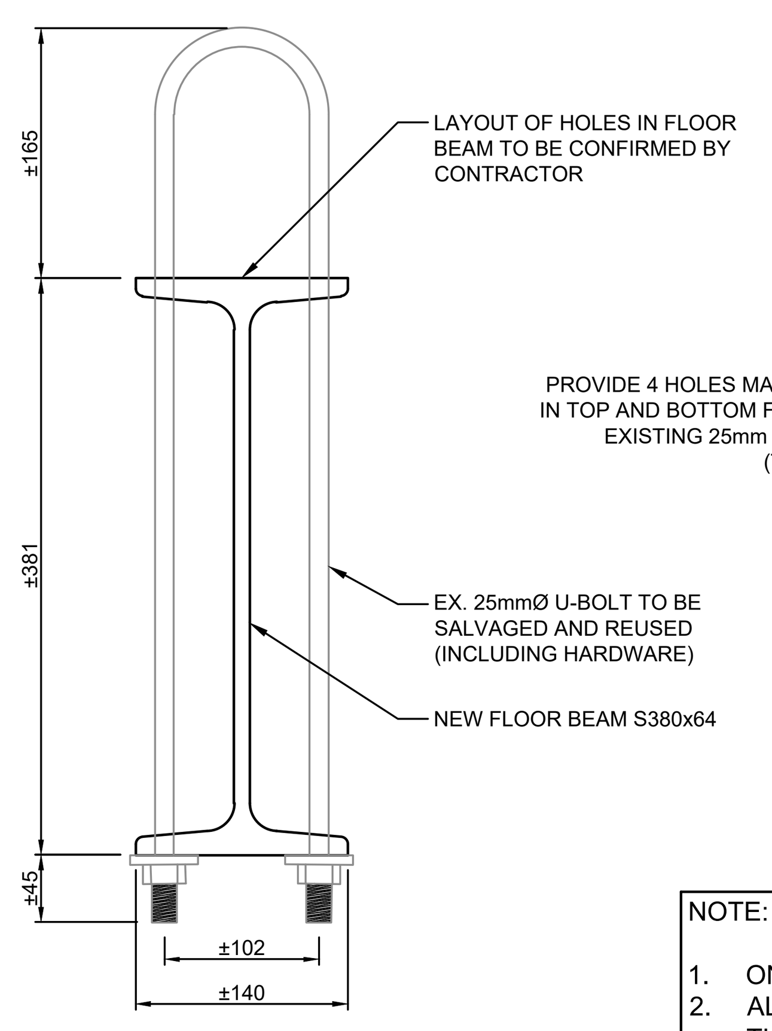
4. ALL BOLTS SHALL BE ASTM A490 TYPE 1, UNLESS NOTED OTHERWISE.
5. ALL ANCHOR RODS AND PINS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE.
6. ALL HOLES IN STEEL BOLT/ANCHOR ROD/PIN MEMBERS ARE TO BE DRILLED NO MORE THAN 2mm LARGER THAN THE MEMBER DIAMETER.
7. ALL BOLT OR NUTS ON ANCHOR RODS/PINS SHALL BE TIGHTENED USING "TURN-OF-BUT" METHOD WITH ADDITIONAL 1/3 TURN FROM SNUG PER CSA S6.
8. ALL HARDWARE (BOLTS, WASHERS, NUTS, ANCHOR RODS, PINS, ETC.) SHALL BE HOT-DIPPED GALVANIZED

SUGGESTED CONSTRUCTION SEQUENCE FOR FLOOR BEAM REPLACEMENT:

1. REMOVE AND SALVAGE EXISTING LOWER LATERAL BRACING, INCLUDING BOLTS AND STEEL SHIMS, IN BAYS ADJACENT TO FLOOR BEAM REMOVAL. LOWER LATERAL BRACING REMOVAL TO TAKE PLACE DURING LOW WIND SPEEDS.
2. INSTALL TEMPORARY SUPPORTS UNDER EXISTING STRINGERS (TO BE SUPPORTED BY EXISTING SUPER STRUCTURE).
3. VERIFY THAT ALL STRINGERS ARE DISCONNECTED FROM THE EXISTING FLOOR BEAM.
4. REMOVE FLOOR BEAM FROM EXISTING U-BOLT CONNECTIONS AT TRUSS PIN.
5. INSTALL NEW STEEL FLOOR BEAM ON SALVAGED U-BOLT CONNECTIONS.
6. ENSURE ALL EXISTING STRINGERS ARE FULLY BEARING ON THE NEW FLOOR BEAM AND FASTEN STRINGERS TO FLOOR BEAMS.
7. SLOWLY REMOVE TEMPORARY SUPPORTS UNDER EXISTING STRINGERS.
8. RE-INSTALL LOWER LATERAL BRACING.

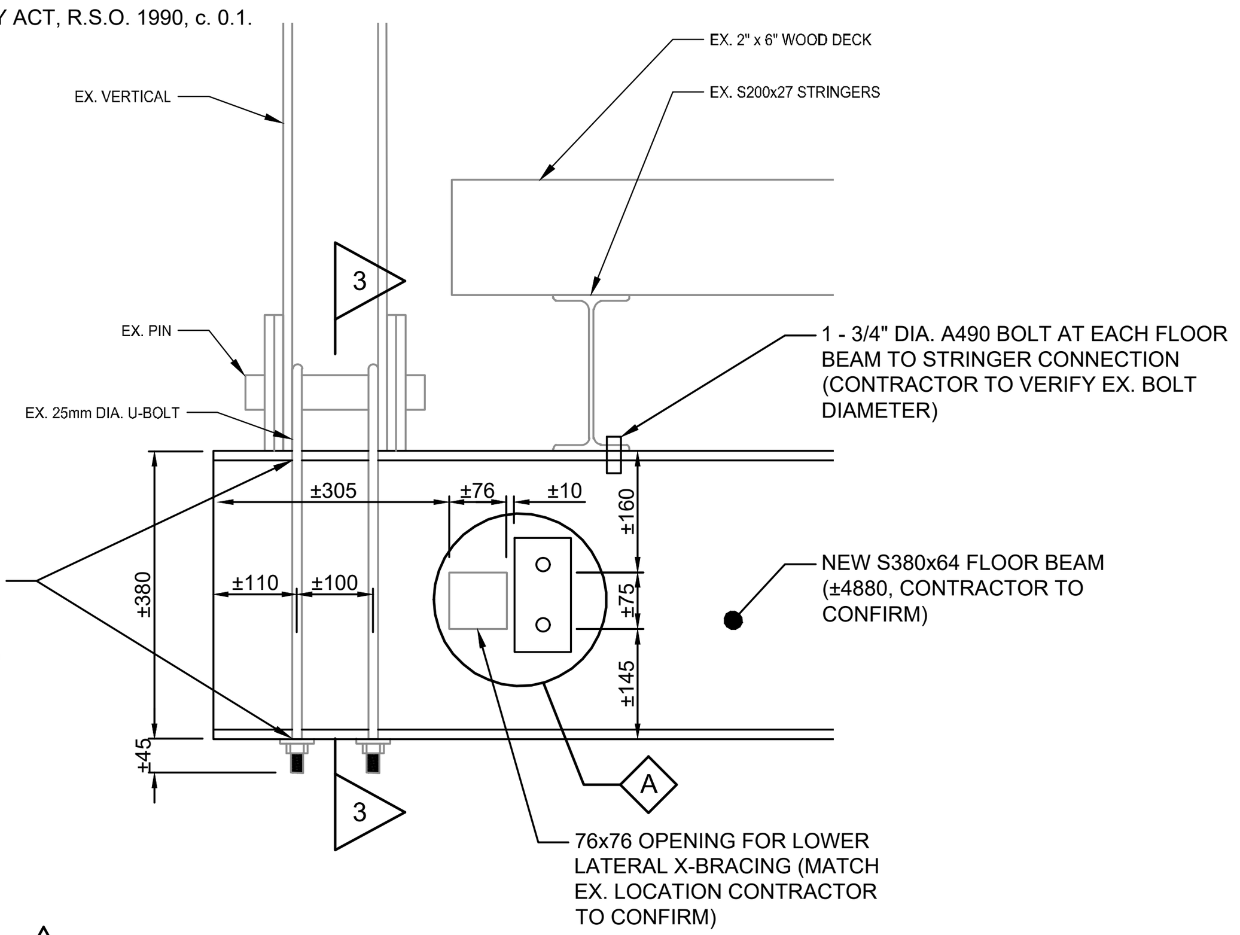
FLOOR BEAM REPLACEMENT NOTES:

1. A MAXIMUM OF ONE FLOOR BEAM CAN BE REMOVED AND REPLACED AT ANY GIVEN TIME.
2. NO MATERIAL SHALL BE STORED ON DECK DURING FLOOR BEAM REMOVAL AND REPLACEMENT.
3. ALL TEMPORARY SUPPORTS TO BE DESIGNED BY THE CONTRACTOR. SHOP DRAWINGS OF TEMPORARY SUPPORTS TO BE STAMPED BY PROFESSIONAL ENGINEER REGISTERED IN ONTARIO AND SUBMITTED FOR APPROVAL PRIOR TO BEGINNING WORK.
4. ALL TEMPORARY SUPPORTS SHALL MEET REQUIREMENTS OF LATEST OCCUPATIONAL HEALTH AND SAFETY ACT, R.S.O. 1990, c. 0.1.



3 SECTION

SCALE: 1:5



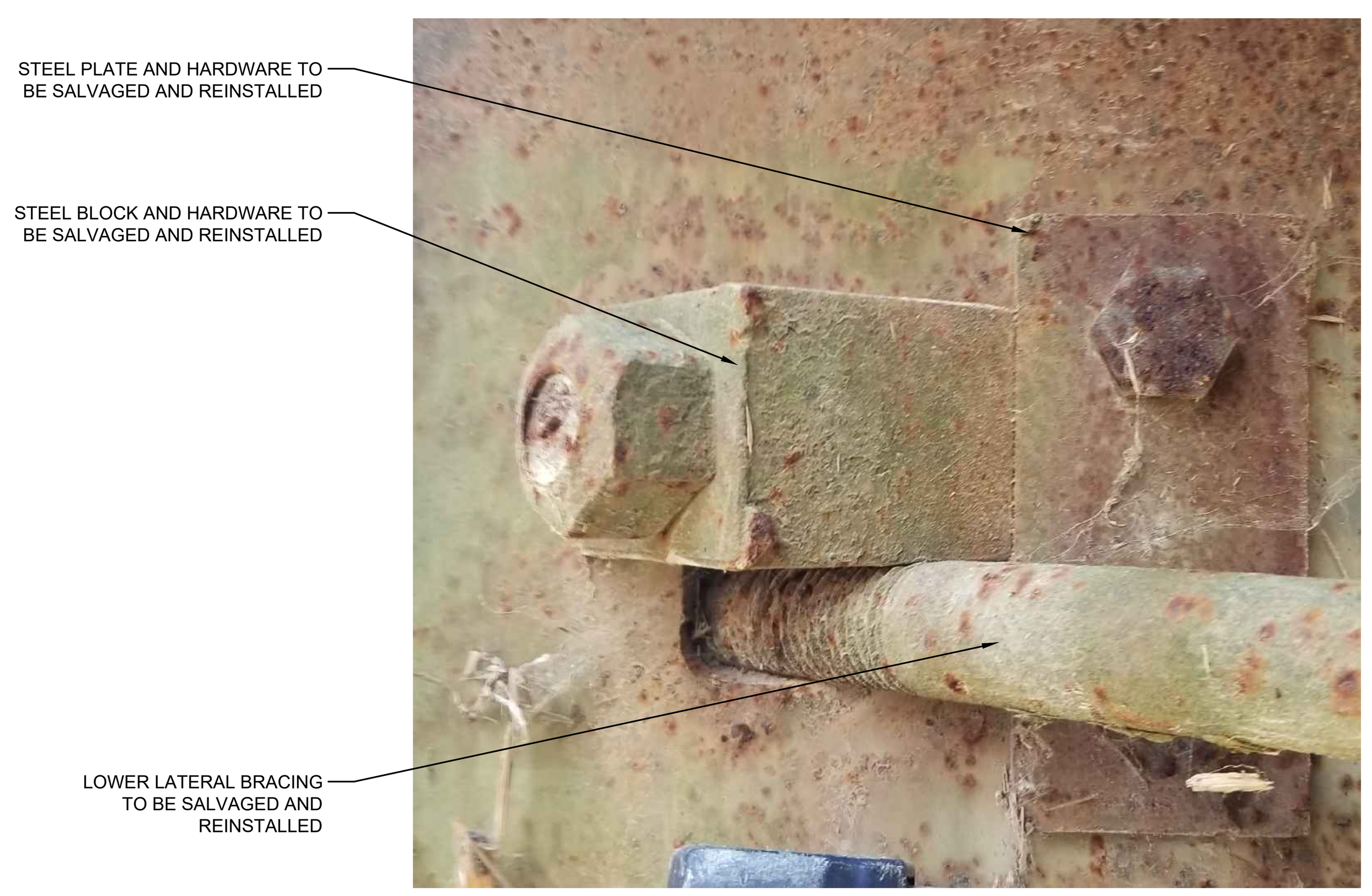
1 FLOOR BEAM DETAIL

SCALE: 1:10

(LOWER LATERAL BRACING NOT SHOWN FOR CLARITY)

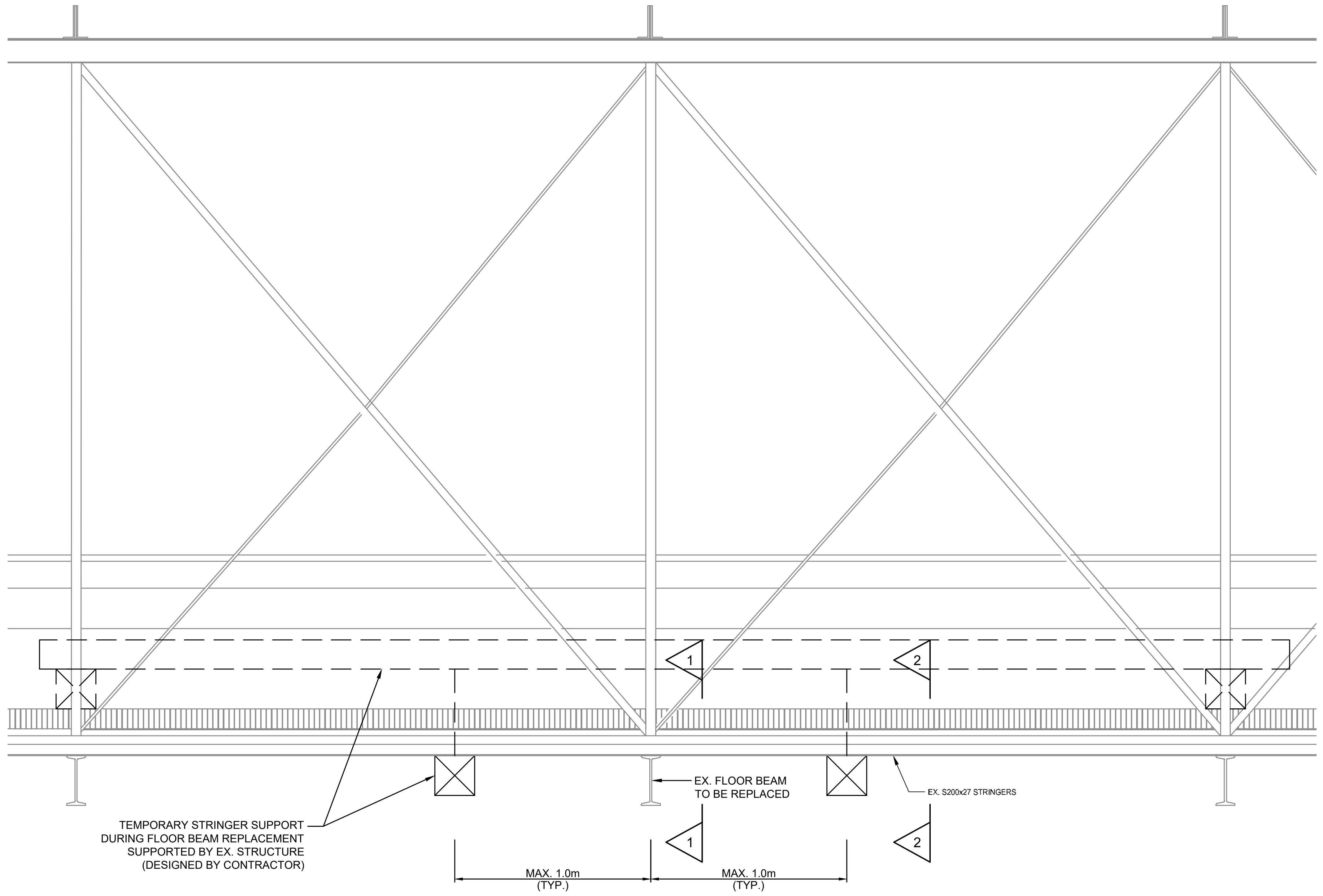
NOTE:

1. ONE END OF PROPOSED FLOOR BEAM SHOWN. OTHER END IS A MIRROR IMAGE.
2. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY DIMENSIONS IN THE FIELD PRIOR TO STEEL FABRICATION.
3. LOCATION AND SIZE OF WEB OPENING FOR LOWER LATERAL BRACING TO MATCH SITE CONDITIONS.
4. LOCATION OF STEEL PLATES IN WEBS TO MATCH SITE CONDITIONS.
5. HOLES IN THE TOP AND BOTTOM FLANGE OF THE PROCESSED FLOOR BEAM SHALL BE FIELD DRILLED TO MATCH LOCATION OF EXISTING U-BOLTS OR SHOP DRILLED BASED ON FIELD MEASURED TEMPLATE.



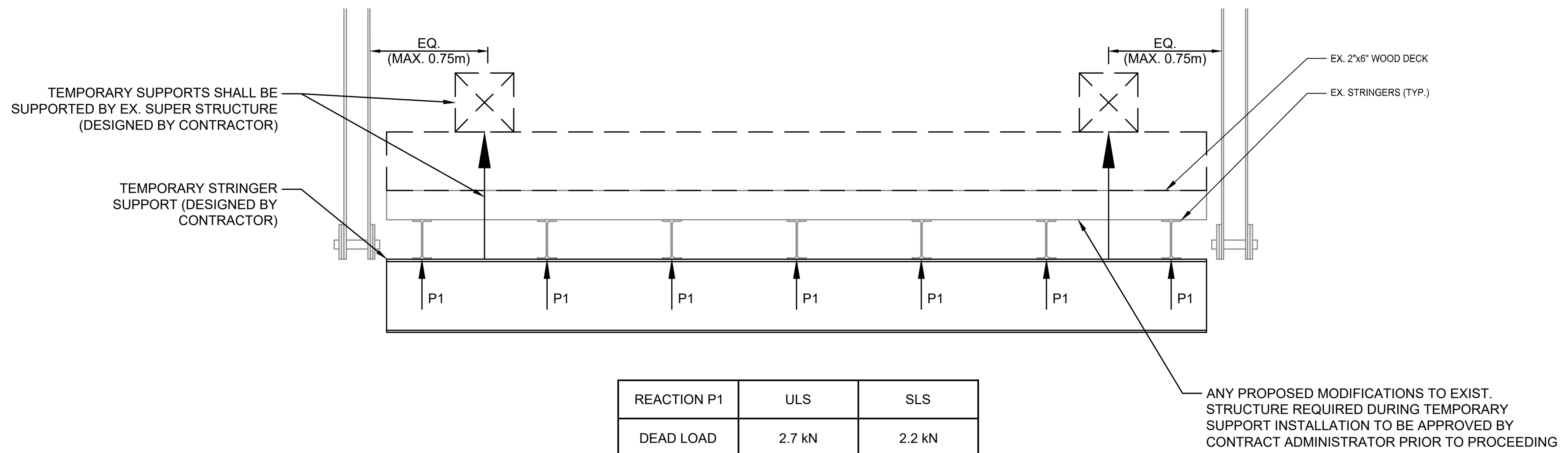
A LOWER LATERAL BRACING CONNECTION

CONTRACTOR TO FIELD MEASURE AND VERIFY ALL DIMENSIONS AND STEEL MEMBERS SIZES PRIOR TO COMPLETING ANY FABRICATION OR INSTALLATION OPERATIONS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SHOP DRAWINGS REFLECT ONSITE CONDITIONS.



TEMPORARY DECK SUPPORT FOR FLOOR BEAM REPLACEMENT

SCALE: 1:30



REACTION P1	ULS	SLS
DEAD LOAD	2.7 kN	2.2 kN
LIVE LOAD	1.5 kN	0.9 kN
TOTAL LOAD	4.2 kN	3.1 kN

NOTE:

1. THE SPECIFIED POINT LOADS ARE APPROXIMATE, AND REPRESENT THE ANTICIPATED REACTIONS FROM EACH BAY OF STRINGERS BEARING ON THE TEMPORARY SUPPORT.
2. ALL SPECIFIED POINT LOADS INCLUDE: SELF WEIGHT OF WOOD DECK, STEEL STRINGERS, AND CONSTRUCTION LIVE LOAD ALLOWANCE OF 0.5 kPa (SPECIFIED).
3. THE PROPOSED TEMPORARY SUPPORT IS CONCEPTUAL ONLY. THE CONTRACTOR MAY PROPOSE ALTERNATIVE TEMPORARY SUPPORT METHODOLOGIES FOR REVIEW BY THE CONTRACT ADMINISTRATOR.

2 SECTION

SCALE: 1:25

NOTES :

1. TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED. ALL EXISTING FEATURES WERE TAKEN FROM GOOGLE AERIAL IMAGERY AND FIELD MEASUREMENTS.
2. UNDERGROUND INFRASTRUCTURE LOCATIONS WERE PROVIDED BY THE RESPECTIVE UTILITIES AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR AND REQUIRED TO HAVE UTILITY LOCATES COMPLETED PRIOR TO CONSTRUCTION. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE TO ANY UTILITY DURING CONSTRUCTION.

BENCH MARKS :

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

LICENSED PROFESSIONAL ENGINEER 2022-04-20 A.J. GALEZOWSKI 100217780 PROVINCE OF ONTARIO

212327

LICENSED PROFESSIONAL ENGINEER April 20/22 J. BORGES 100503702 PROVINCE OF ONTARIO

NO.	DATE	REVISION DESCRIPTION	CH'KD
04	2022-04-21	ISSUED FOR CONSTRUCTION	J.B.
03	2022-03-01	ISSUED FOR TENDER	B.W.
02	2021-08-26	ISSUED FOR TENDER	B.W.
01	2021-08-04	ISSUED FOR REVIEW	B.W.

GM BluePlan ENGINEERING

GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA

1260 - 2ND AVENUE EAST, UNIT 1, OWEN SOUND, ON N4K 2J3

TEL. 519-376-1805 www.gmblueplan.ca

GREENOCK STRUCTURE 0006 REHABILITATION

CONCESSION 8 EAST GREENOCK

MUNICIPALITY OF BROCKTON CONTRACT No. 212327-A

FLOOR BEAM NOTES AND DETAILS

DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
E.V.S.	B.W.	212327	3
DESIGNED BY :	DATE :	SCALE :	
J.B.	MAY 2021	AS SHOWN	

JACKING NOTES:

1. ALL JACKING SHALL BE COMPLETED SIMULTANEOUSLY. THE STRUCTURE IS TO BE JACKED BY THE TOP CHORDS NEAR END POSTS OR OTHER APPROVED METHOD AS PROPOSED BY THE CONTRACTOR.
2. AT NO TIME SHALL THE BRIDGE BE JACKED UNDER THE PRESENCE OF ANY LIVE LOAD.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND DETAILED JACKING PROCEDURE FOR REVIEW AS PER THE OPSS 922 AND CONTRACT SPECIFICATIONS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.
4. THE JACKING EQUIPMENT AND OPERATIONS SHALL BE VERIFIED IN THE FIELD BY THE RESPONSIBLE ENGINEER, AS PER THE CONTRACT SPECIFICATIONS.
5. HYDRAULIC JACKS TO BE FITTED WITH APPROPRIATE LOCKING COLLARS TO FUNCTION AS TEMPORARY SUPPORTS
6. THE CONTRACTOR SHALL DESIGN SUPPLY AND INSTALL A DISPLACEMENT CONTROLLED JACKING TEMPORARY SUPPORT SYSTEM TO FACILITATE STEEL REPAIRS, BEARING REPLACEMENT, AND CONCRETE BEARING SEAT REPAIRS.
7. TEMPORARY SUPPORT SYSTEM TO BE DESIGNED TO ENSURE LATERAL AND LONGITUDINAL STABILITY AND SHALL ALLOW FOR THERMAL MOVEMENTS AS REQUIRED. LUBRICATION OF TEMPORARY SUPPORT IS REQUIRED.
8. CONTRACTOR TO MONITOR THE TEMPORARY SUPPORT SYSTEM FOR VERTICAL, TRANSVERSE AND LONGITUDINAL MOVEMENTS AND CARRY OUT STRENGTHENING, ADJUSTMENTS OR ADDITIONAL JACKING AS REQUIRED.
9. THE CONTRACTOR SHALL MEASURE THE EXISTING BEARINGS TO CONFIRM HEIGHTS.
10. THE TOTAL LIFT FROM JACKING SHALL BE SUFFICIENT TO RELIEVE THE BEARING LOADS. THE MAXIMUM DIFFERENCE BETWEEN TWO JACKING POINTS SHALL NOT EXCEED 2mm.
11. THE BRIDGE SHALL BE RETURNED TO ITS EXISTING ELEVATION FOR THE TEMPORARY SUPPORT AND FINAL CONDITIONS.
12. THE DURATION OF THE STRUCTURE BEING SUPPORTED ON THE TEMPORARY SUPPORTS AT ANY ONE LOCATION SHALL NOT EXCEED 14 DAYS.
13. JACKING BRACKETS USED FOR JACKING SHALL BE DESIGNED, FABRICATED AND INSTALLED BY THE CONTRACTOR. ALL BRACKETS, TEMPORARY SUPPORTS, AND ASSOCIATED ANCHORS INTO CONCRETE (IF INSTALLED) SHALL BE REMOVED UPON COMPLETION OF THE WORK AND ALL CONCRETE SURFACES RESTORED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
14. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS OF BEARING ASSEMBLIES, STRUCTURE, UTILITIES, AND ALL OTHER RELEVANT FEATURES TO ENSURE THE SUPERSTRUCTURE IS FREE TO LIFT. REMOVE DEBRIS AND CLEAR GAPS PRIOR TO JACKING.
15. THE CONTRACTOR SHALL IMMEDIATELY STOP JACKING OPERATIONS IF APPLIED LOADS REACH 200% OF THE SPECIFIED JACKING PERMANENT LOADS, OR IF UNEXPECTED OR DETRIMENTAL STRUCTURAL EFFECTS ARE OBSERVED AT ANY TIME. THE CONTRACTOR SHALL LOWER THE BRIDGE BACK DOWN, INFORM THE CONTRACT ADMINISTRATOR , AND STOP JACKING OPERATIONS UNTIL FURTHER DIRECTION IS PROVIDED BY THE DESIGN ENGINEER AND OWNER.
16. THE CONTRACTOR SHALL PERFORM REPAIRS TO THE EXISTING STRUCTURE PRIOR TO JACKING, SO THAT JACKING AND TEMPORARY SUPPORT BEARING SURFACES ARE SOUND AND COMPETENT. CONCRETE SHALL REACH A MINIMUM OF 75% OF THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH PRIOR TO LOADING (WHERE WORK IS ANTICIPATED AT THE JACKING POINT).
17. ALL JACKING SURFACES SHALL BE LEVEL.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF ALL JACKING AND TEMPORARY SUPPORT COMPONENTS FOR THE ENTIRE DURATION THEY ARE IN USE.
19. REFER TO CONTRACT SPECIFICATIONS FOR JACKING SYSTEM, AND TEMPORARY WORKS DESIGN AND SUBMISSION REQUIREMENTS.

JACKING AND TEMPORARY SUPPORTING DATA	SERVICEABILITY LIMIT STATES LOADING (SLS)
	P1
JACKING LOAD (DEAD LOAD)	90 kN
JACKING LOAD (LIVE LOAD)	0 kN
TEMPORARY SUPPORT LOAD (TOTAL LOAD)	110 kN

NOTE:

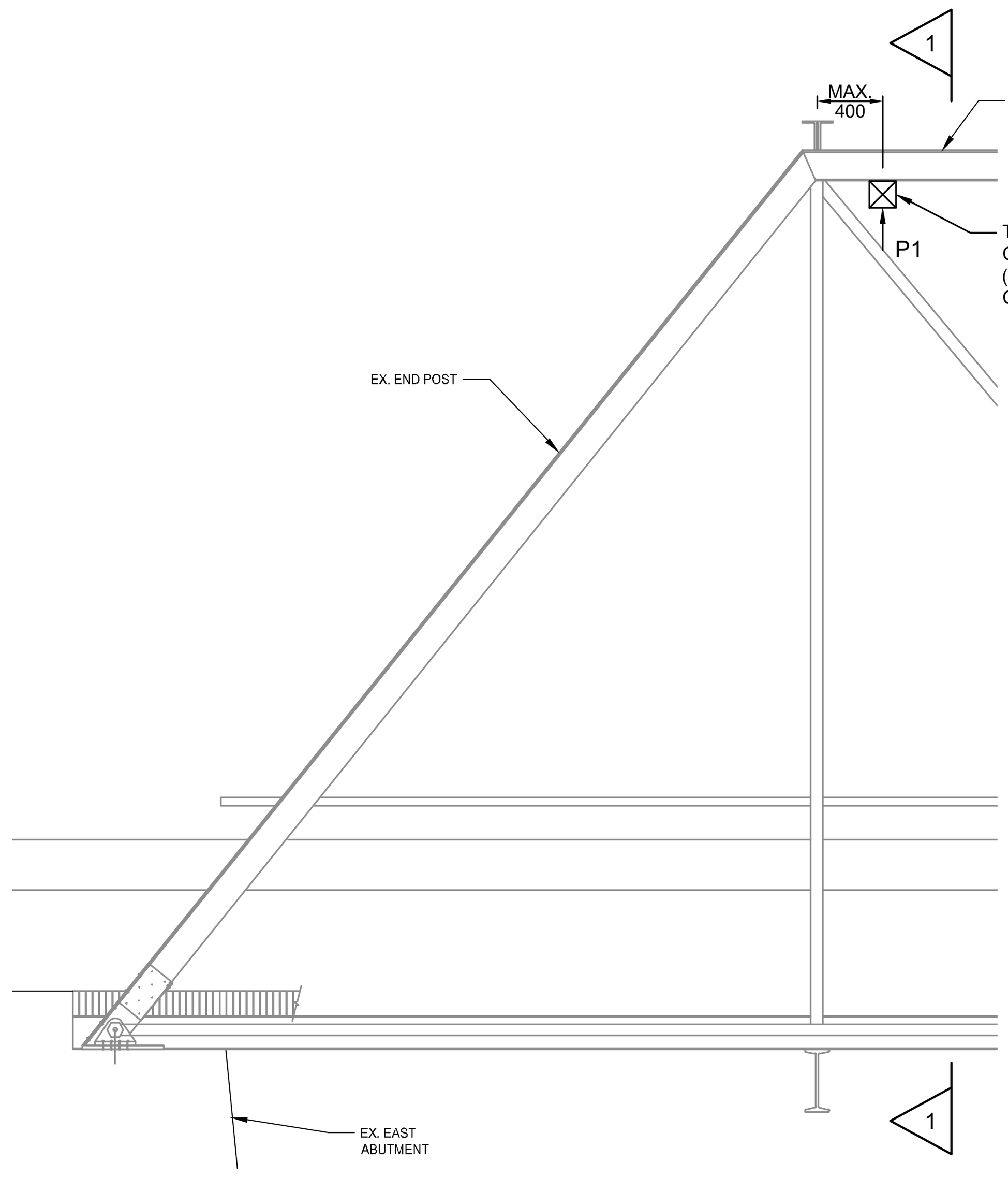
1. PROVIDED JACKING DEAD LOADS INCLUDE THE FOLLOWING: EXISTING STEEL TOP CHORDS, BOTTOM CHORDS, VERTICALS, DIAGONALS, END POSTS, LATERAL BRACING MEMBERS, STRINGERS, FLOOR BEAMS AND BARRIERS. THE CONTRACTOR SHALL MAKE ALLOWANCES FOR ANY ADDITIONAL LOADS DUE TO PLATFORMS, FORMWORK, ETC.
2. TEMPORARY SUPPORT LOADS INCLUDE AN ALLOWANCE FOR LIGHT CONSTRUCTION TRAFFIC/LIVE LOADING NOT EXCEEDING 900 kg (SPECIFIED) OVER ENTIRE STRUCTURE (MAX. UDL OF 0.5 KPa).
3. RATED WORKING CAPACITY OF JACKS SHALL BE DESIGNED TO BE AT LEAST 200% OF THE SLS DEAD LOAD SHOWN IN THE TABLE.
4. TEMPORARY SUPPORT SYSTEM SHALL BE DESIGNED TO AT LEAST 150% OF THE SLS TOTAL LOAD SHOWN IN THE TABLE.
5. THE SPECIFIED JACKING LOADS ARE APPROXIMATE, AND REPRESENT THE ANTICIPATED REACTIONS DURING THE JACKING PROCESS.
6. THE SPECIFIED TEMPORARY SUPPORT LOADS ARE APPROXIMATE, AND REPRESENT THE ANTICIPATED REACTIONS WHILE THE BRIDGE IS ON TEMPORARY SUPPORTS.
7. NO GEOTECHNICAL INVESTIGATION HAS BEEN COMPLETED ON THE SITE. CONTRACTOR SHALL MAKE REASONABLE ASSUMPTIONS DURING THE DESIGN OF ALL TEMPORARY SUPPORTS FOR JACKING OPERATIONS.

STRUCTURAL STEEL NOTES:

1. ALL STRUCTURAL STEEL SHALL BE CSA STANDARD G40.20/G40.21 GRADE 350W. CHARPY IMPACT ENERGY TESTING REQUIRED FOR LOWER LATERAL X-BRACING, BOTTOM CHORDS AND FLOOR BEAMS. THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES AND THE TEST TEMPERATURE SHALL BE 0°C FOR LOWER LATERAL X-BRACING AND BOTTOM CHORDS, AND -20 DEGREES CELSIUS FOR FLOOR BEAMS. ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD G40.20/G40.21 OR ASTM SPECIFICATION A588. REV. 4
2. ALL STRUCTURAL STEEL SHALL BE COATED WITH ONE SHOP-APPLIED EXTERIOR ZINC RICH ANTI-CORROSIVE PRIMER. TOUCH UP IN FIELD AS REQUIRED.
3. UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

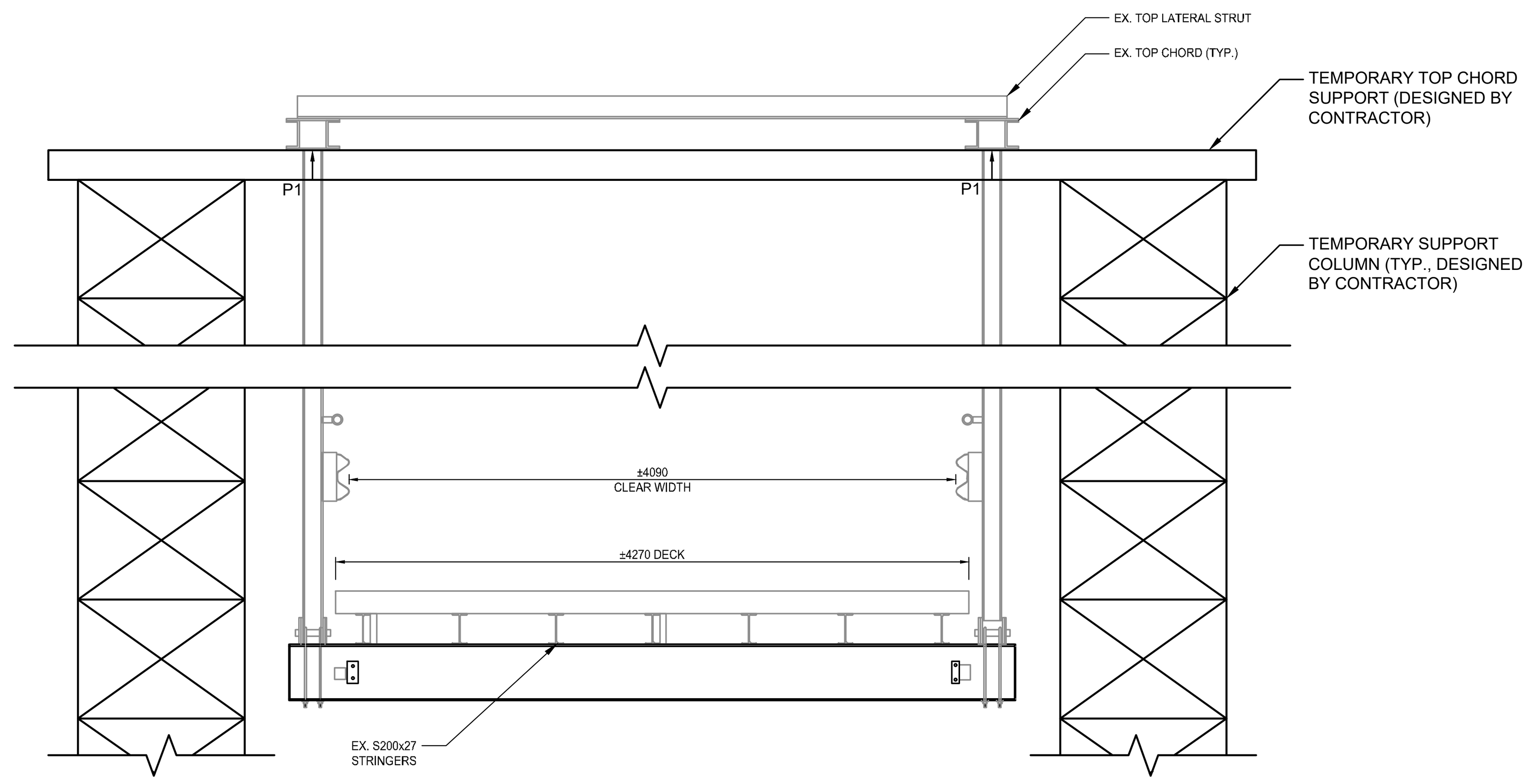
MATERIAL THICKNESS OF THICKER PART JOINED (mm)	MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12

4. ALL WELDING SHALL COMPLY WITH CSA W47.1 AND CSA W59.
5. ALL BOLTS SHALL BE ASTM A490 TYPE 1, UNLESS NOTED OTHERWISE.
6. ALL ANCHOR RODS AND PINS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE.
7. ALL HOLES IN STEEL BOLT/ANCHOR ROD/PIN MEMBERS ARE TO BE DRILLED NO MORE THAN 2mm LARGER THAN THE MEMBER DIAMETER.
8. ALL BOLTS OR NUTS ON ANCHOR RODS/PINS SHALL BE TIGHTENED USING "TURN-OF-BUT" METHOD WITH ADDITIONAL 1/3 TURN FROM SNUG PER CSA S6.
9. ALL HARDWARE (BOLTS, WASHERS, NUTS, ANCHOR RODS, PINS, ETC.) SHALL BE HOT-DIPPED GALVANIZED.



TEMPORARY SUPPORTS FOR EAST BEARING REPLACEMENT (CONCEPTUAL)

SCALE: 1:40
(WEST SIMILAR)



1 SECTION

SCALE: 1:40

CONTRACTOR TO FIELD MEASURE AND VERIFY ALL DIMENSIONS AND STEEL MEMBERS SIZES PRIOR TO COMPLETING ANY FABRICATION OR INSTALLATION OPERATIONS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SHOP DRAWINGS REFLECT ONSITE CONDITIONS.

NOTES :

BENCH MARKS :

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

LICENSED PROFESSIONAL ENGINEER
2022-04-20
A.J. GALEZOWSKI
100217780
PROVINCE OF ONTARIO
212327

LICENSED PROFESSIONAL ENGINEER
April 20/22
J. BORGES
100503702
PROVINCE OF ONTARIO

NO.	DATE	REVISION DESCRIPTION	CH'KD
04	2022-04-21	ISSUED FOR CONSTRUCTION	J.B.
03	2022-03-01	ISSUED FOR TENDER	B.W.
02	2021-08-26	ISSUED FOR TENDER	B.W.
01	2021-08-04	ISSUED FOR REVIEW	B.W.

GM BluePlan ENGINEERING

GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA

1260 - 2ND AVENUE EAST, UNIT 1, OWEN SOUND, ON N4K 2J3
TEL. 519-376-1805 www.gmblueplan.ca

GREENOCK STRUCTURE 0006 REHABILITATION

CONCESSION 8 EAST GREENOCK

MUNICIPALITY OF BROCKTON
CONTRACT No. 212327-A

JACKING DETAILS

DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
E.V.S.	B.W.	212327	4
DESIGNED BY :	DATE :	SCALE :	
J.B.	MAY 2021	AS SHOWN	

BEARING NOTES:

1. LAMINATED BEARINGS SHALL BE DESIGNED AND SUPPLIED BY GOODCO Z-TECH OR APPROVED EQUIVALENT.
2. BEARINGS TO BE DESIGNED BY BEARING SUPPLIER. PROPOSED SIZE SHOWN TO BE VERIFIED. DESIGN BEARINGS FOR TOTAL LOAD COUPLED WITH MAX. ROTATION.
3. BEARINGS TO BE LAMINATED RUBBER.
4. BEARINGS SHALL MEET THE REQUIREMENTS OF OPSS 1202 AND SECTION 11 OF S6-19. BEARINGS SHALL BE INSTALLED IN ACCORDANCE WITH OPSS 922.
5. ALL WELDING SHALL CONFORM TO THE LATEST CSA STANDARD W59-M AND W47.1.
6. SIZE OF THE PINTLE PLATE AND ELASTOMERIC BEARING PAD, AND THE EMBEDMENT DEPTH OF THE PINTLES TO BE DETERMINED BY BEARING SUPPLIER. THE COMBINED TOTAL HEIGHT OF BEARING SYSTEM SHALL MATCH THE HEIGHT OF THE EXISTING BEARING SYSTEM. USE OF BEDDING GROUT WILL NOT BE PERMITTED.
7. THE CONTRACTOR SHALL VERIFY STEEL PLATE AND CONCRETE BEARING SEAT ELEVATIONS PRIOR TO JACKING.

BEARING DATA		
LOCATION		EAST ABUTMENT
TYPE		LAMINATED PADS
SIZE (mm)		450x350
HARDNESS (°SHORE A)		55±5
No. REQUIRED		2
SERVICEABILITY LIMIT STATES	DEAD LOAD (kN)	80
	TOTAL LOAD (kN)	200
	TOTAL MOVEMENT (mm)	32
ULTIMATE LIMIT STATES	DEAD LOAD (kN)	90
	TOTAL LOAD (kN)	290

SUGGESTED CONSTRUCTION SEQUENCE FOR EAST BEARING REPLACEMENT:

1. REMOVE EAST BALLAST WALLS MARKED FOR REMOVAL.
2. INSTALL TEMPORARY SUPPORTS UNDER EXISTING TOP CHORDS.
3. VERIFY THAT EXISTING BEARINGS ARE DISCONNECTED FROM THE ABUTMENT BEARING SEAT.
4. REMOVE BOTTOM LATERAL BRACING CONNECTION TO EXISTING EAST BEARINGS. BOTTOM LATERAL BRACING TO BE REMOVED DURING EXPECTED LOW WIND SPEEDS.
5. JACK THE STRUCTURE FROM TEMPORARY SUPPORTS.
6. REMOVE EAST END POSTS, BEARINGS, AND EAST BOTTOM CHORDS MARKED FOR REMOVAL.
7. REMOVE CONCRETE IN BEARING SEATS MARKED FOR REMOVAL.
8. INSTALL NEW END POST AND BOTTOM CHORD ELEMENTS, PIN, BENT PLATES, AND SHOE PLATES.
9. INSTALL BEARING TEMPLATE OR PERMANENT BEARINGS AND LOWER BRIDGE INTO FINAL POSITION.
10. FORM AND POUR NEW CONCRETE IN BEARING SEATS WITH BEARING TEMPLATES OR PERMANENT BEARINGS IN PLACE.
11. INSTALL NEW BEARINGS BY JACKING THE BRIDGE AND REMOVING BEARING TEMPLATE (IF APPLICABLE)
12. INSTALL NEW BOTTOM LATERAL BRACING.
13. SLOWLY REMOVE TEMPORARY SUPPORTS. AFTER CONCRETE IN BEARING SEAT REACHES 75% OF COMPRESSIVE STRENGTH.

STRUCTURAL STEEL NOTES:

REV. 4

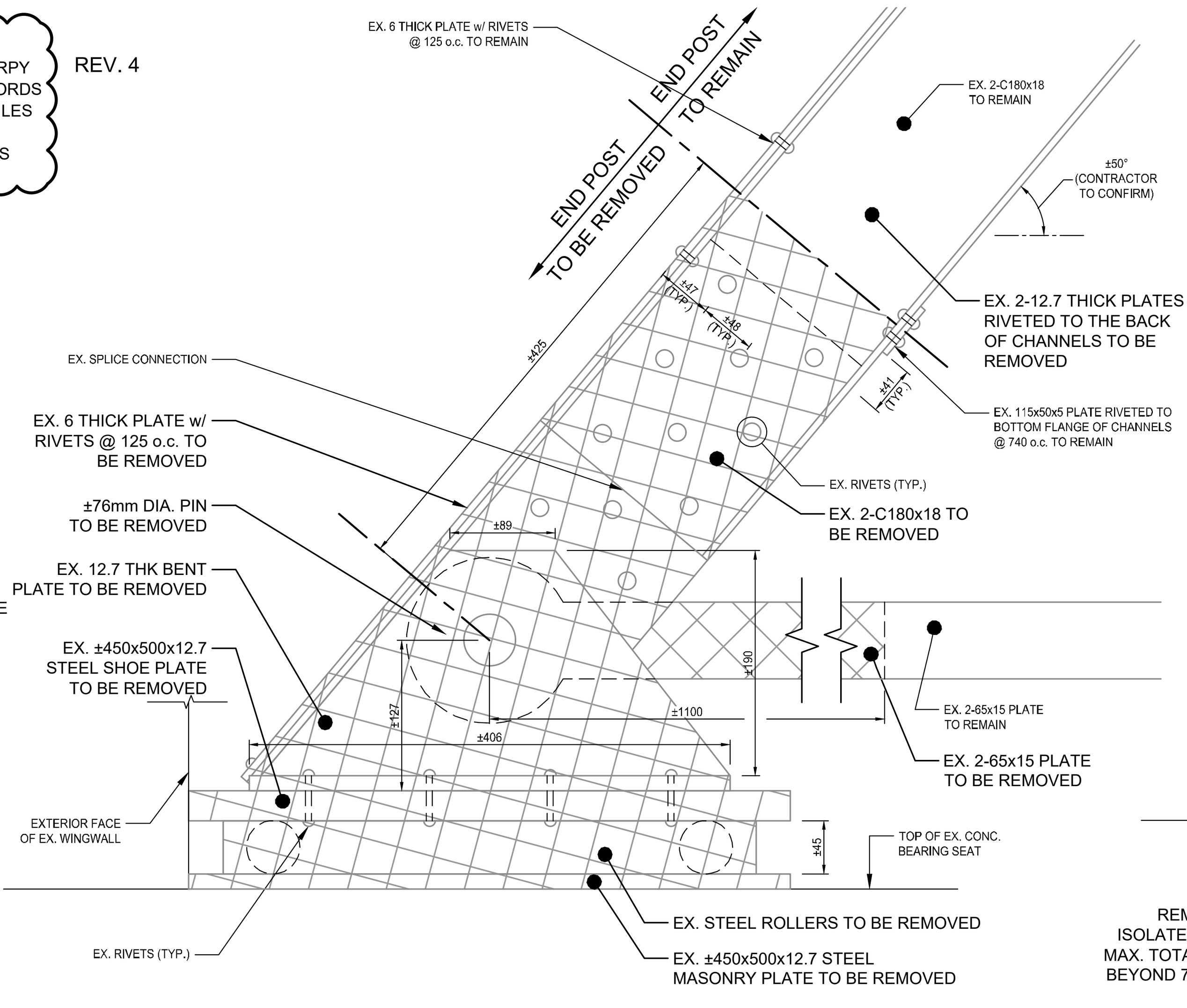
1. ALL STRUCTURAL STEEL SHALL BE CSA STANDARD G40.20/G40.21 GRADE 350W. CHARPY IMPACT ENERGY TESTING REQUIRED FOR LOWER LATERAL X-BRACING, BOTTOM CHORDS AND FLOOR BEAMS. THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES AND THE TEST TEMPERATURE SHALL BE 0°C FOR LOWER LATERAL X-BRACING AND BOTTOM CHORDS, AND -20 DEGREES CELSIUS FOR FLOOR BEAMS. ROLLED SECTIONS SHALL CONFORM TO CSA STANDARD G40.20/G40.21 OR ASTM SPECIFICATION A588.
2. ALL STRUCTURAL STEEL SHALL BE COATED WITH TWO COATS OF SHOP-APPLIED EXTERIOR ZINC RICH ANTI-CORROSIVE PRIMER. TOUCH UP IN FIELD AS REQUIRED.
3. UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)	MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12

4. ALL WELDING SHALL COMPLY WITH CSA W47.1 AND CSA W59.
5. ALL BOLTS SHALL BE ASTM A490 TYPE 1, UNLESS NOTED OTHERWISE.
6. ALL ANCHOR RODS AND PINS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE.
7. ALL HOLES IN STEEL BOLT/ANCHOR ROD/PIN MEMBERS ARE TO BE DRILLED NO MORE THAN 2mm LARGER THAN THE MEMBER DIAMETER.
8. ALL BOLTS OR NUTS ON ANCHOR RODS/PINS SHALL BE TIGHTENED USING "TURN-OF-BUT" METHOD WITH ADDITIONAL 1/3 TURN FROM SNUG PER CSA S6.
9. ALL HARDWARE (BOLTS, WASHERS, NUTS, ANCHOR RODS, PINS, ETC.) SHALL BE HOT-DIPPED GALVANIZED.

SUGGESTED CONSTRUCTION SEQUENCE FOR WEST BEARING REPAIR:

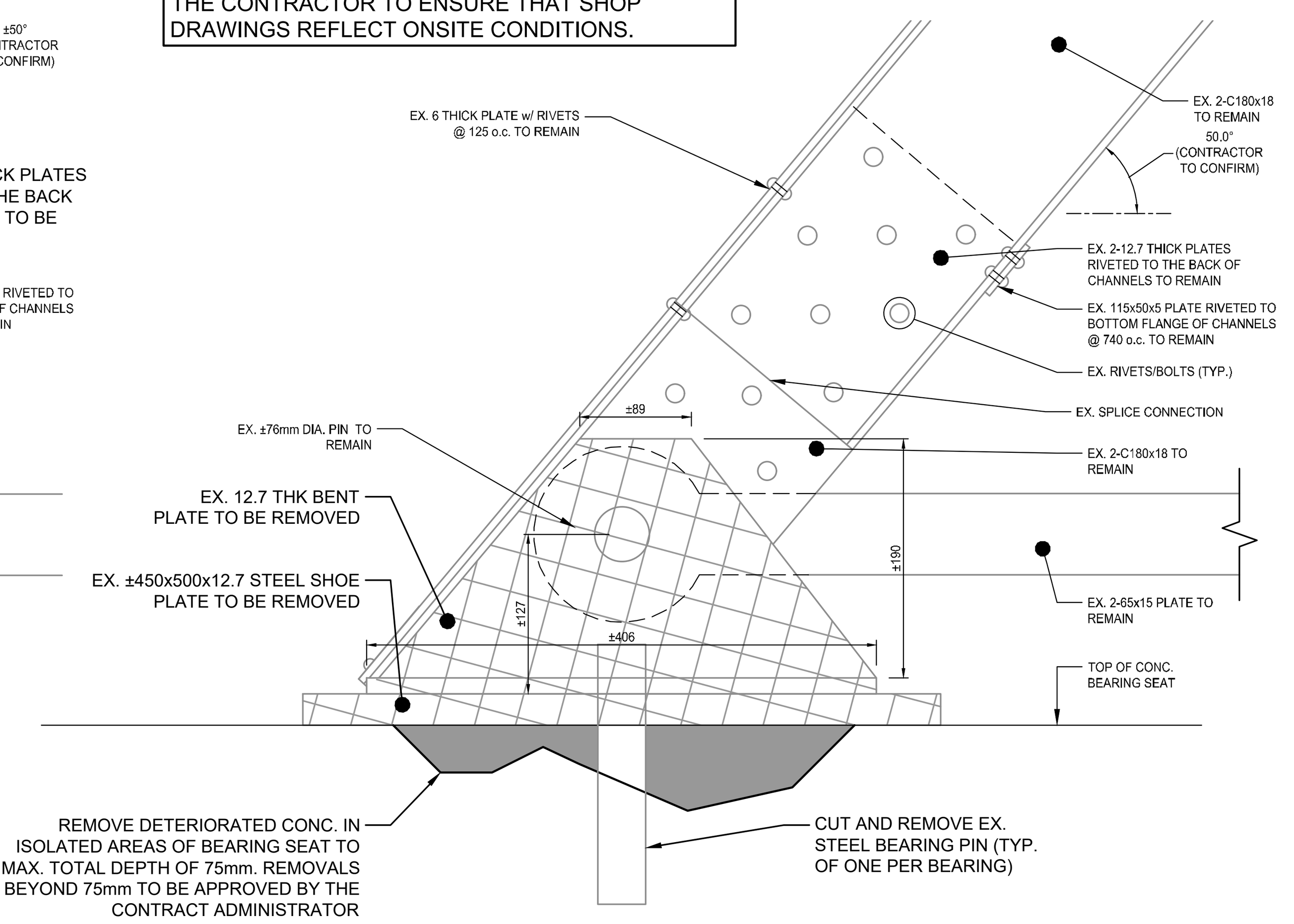
1. INSTALL TEMPORARY SUPPORTS UNDER EXISTING TOP CHORDS.
2. REMOVE BEARING ANCHORS AND VERIFY THAT EXISTING BEARINGS ARE DISCONNECTED FROM THE ABUTMENT BEARING SEAT.
3. REMOVE BOTTOM LATERAL BRACING CONNECTION TO EXISTING WEST BEARINGS. BOTTOM LATERAL BRACING TO BE REMOVED DURING EXPECTED LOW WIND SPEEDS.
4. JACK THE STRUCTURE FROM TEMPORARY SUPPORTS.
5. REMOVE SHOE PLATES, SHOE PLATE TO END POST ANGLES, AND PIN NUT.
6. REMOVE CONCRETE IN BEARING SEATS (IF REQUIRED).
7. INSTALL NEW SHOE PLATES, SHOE PLATE TO END POST ANGLES, AND PIN NUT.
8. LOWER BRIDGE INTO FINAL POSITION
9. FORM AND POUR NEW CONCRETE IN BEARING SEATS WITH SHOE PLATES IN PLACE (IF APPLICABLE).
10. INSTALL NEW BOTTOM LATERAL BRACING.
11. SLOWLY REMOVE TEMPORARY SUPPORTS.



EAST BEARING REMOVALS

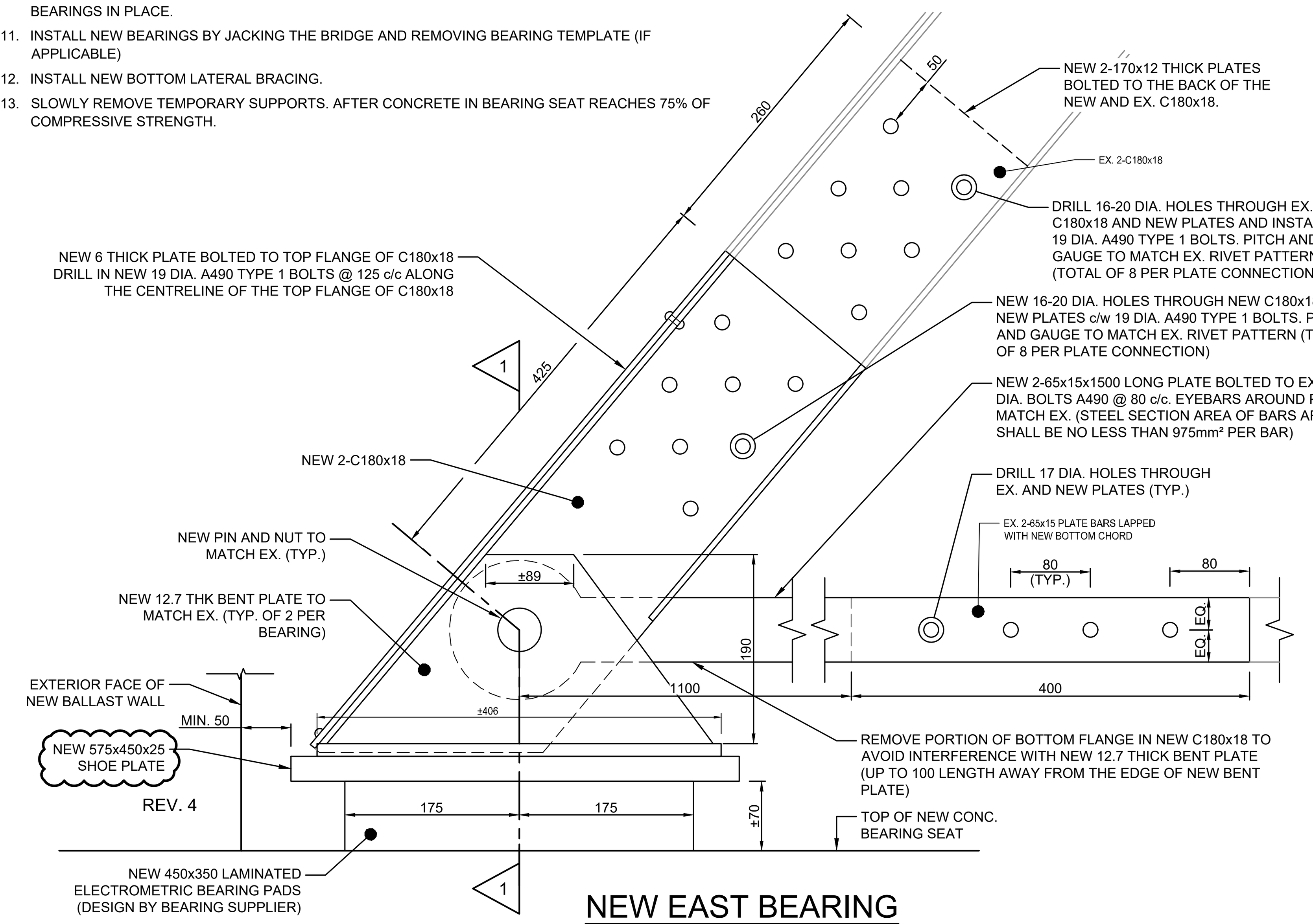
SCALE: 1:5
(LOWER LATERAL BRACING NOT SHOWN FOR CLARITY)

CONTRACTOR TO FIELD MEASURE AND VERIFY ALL DIMENSIONS AND STEEL MEMBER SIZES PRIOR TO COMPLETING ANY FABRICATION OR INSTALLATION OPERATIONS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SHOP DRAWINGS REFLECT ONSITE CONDITIONS.



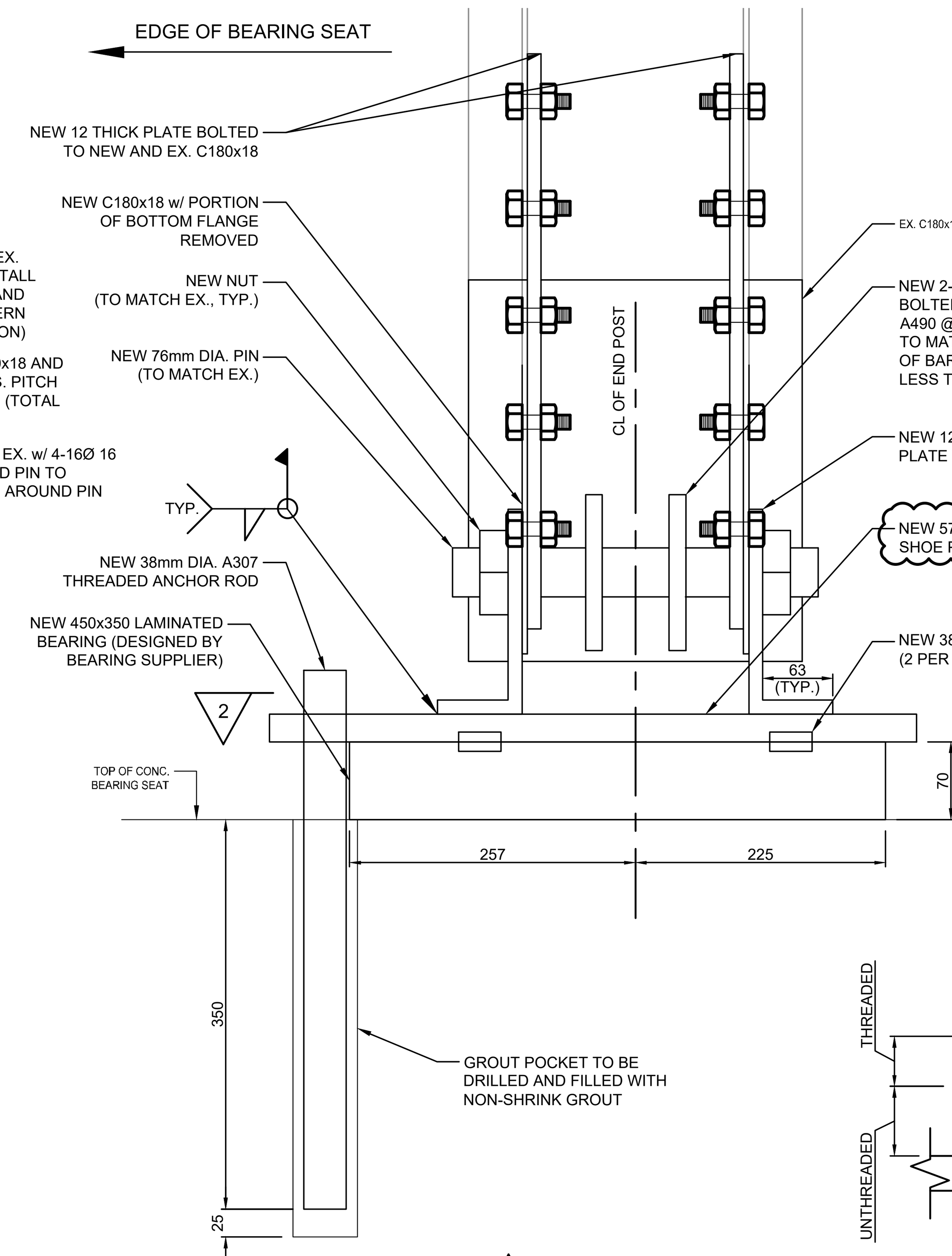
WEST BEARING REMOVALS

SCALE: 1:5
(LOWER LATERAL BRACING NOT SHOWN FOR CLARITY)



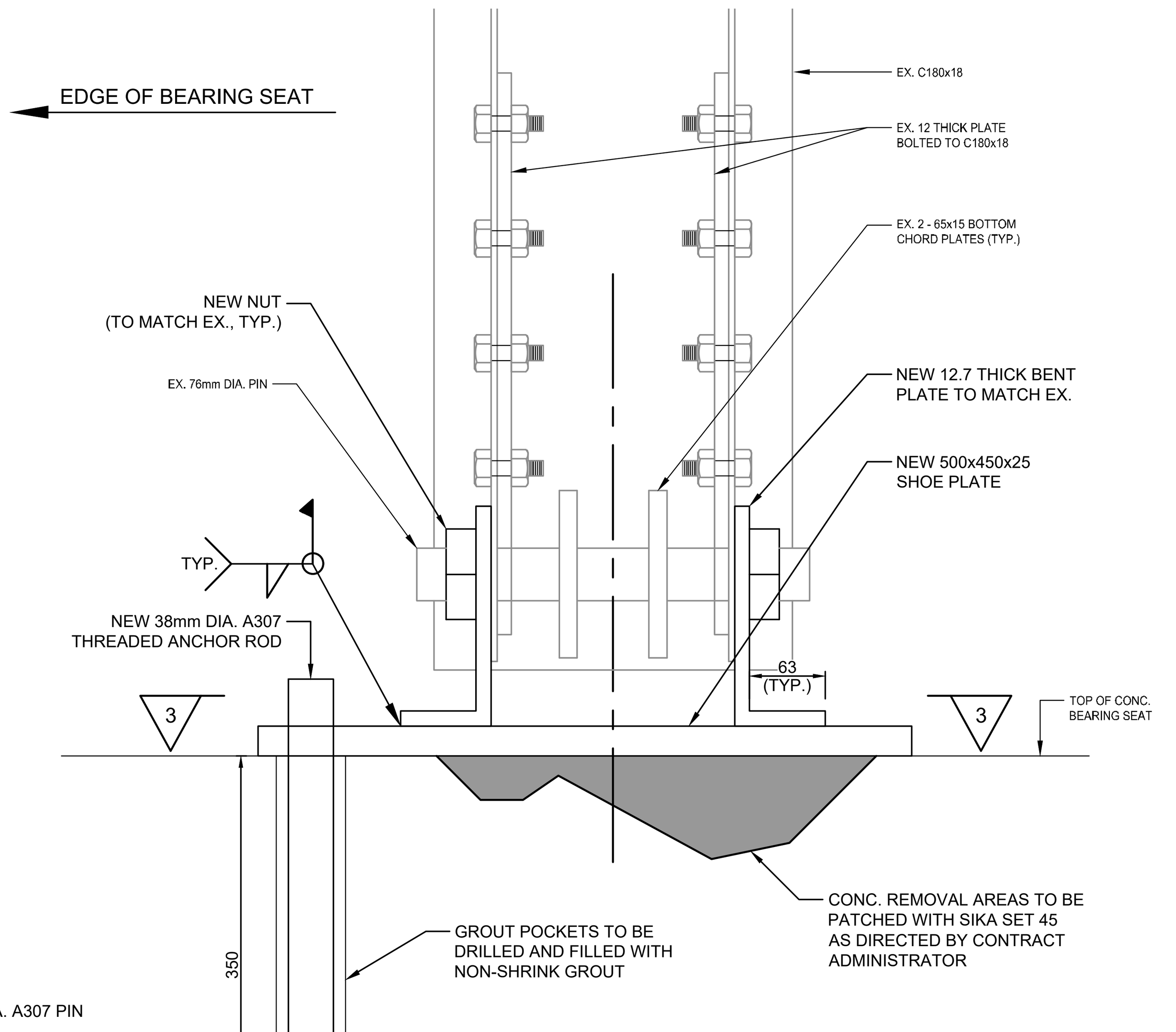
NEW EAST BEARING

SCALE: 1:5
(BEARING ANCHOR NOT SHOWN FOR CLARITY)



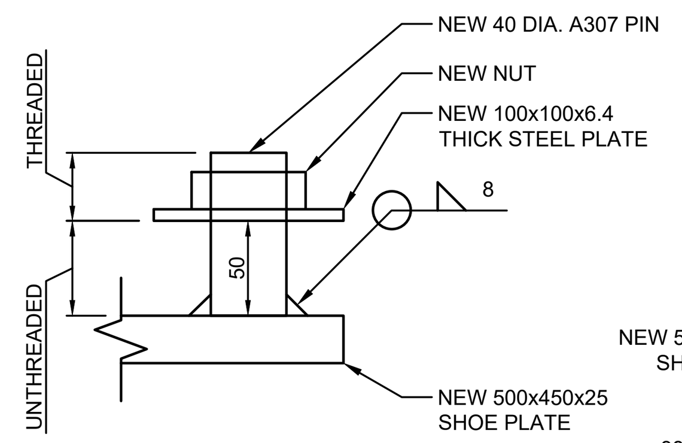
1 SECTION

SCALE: 1:5



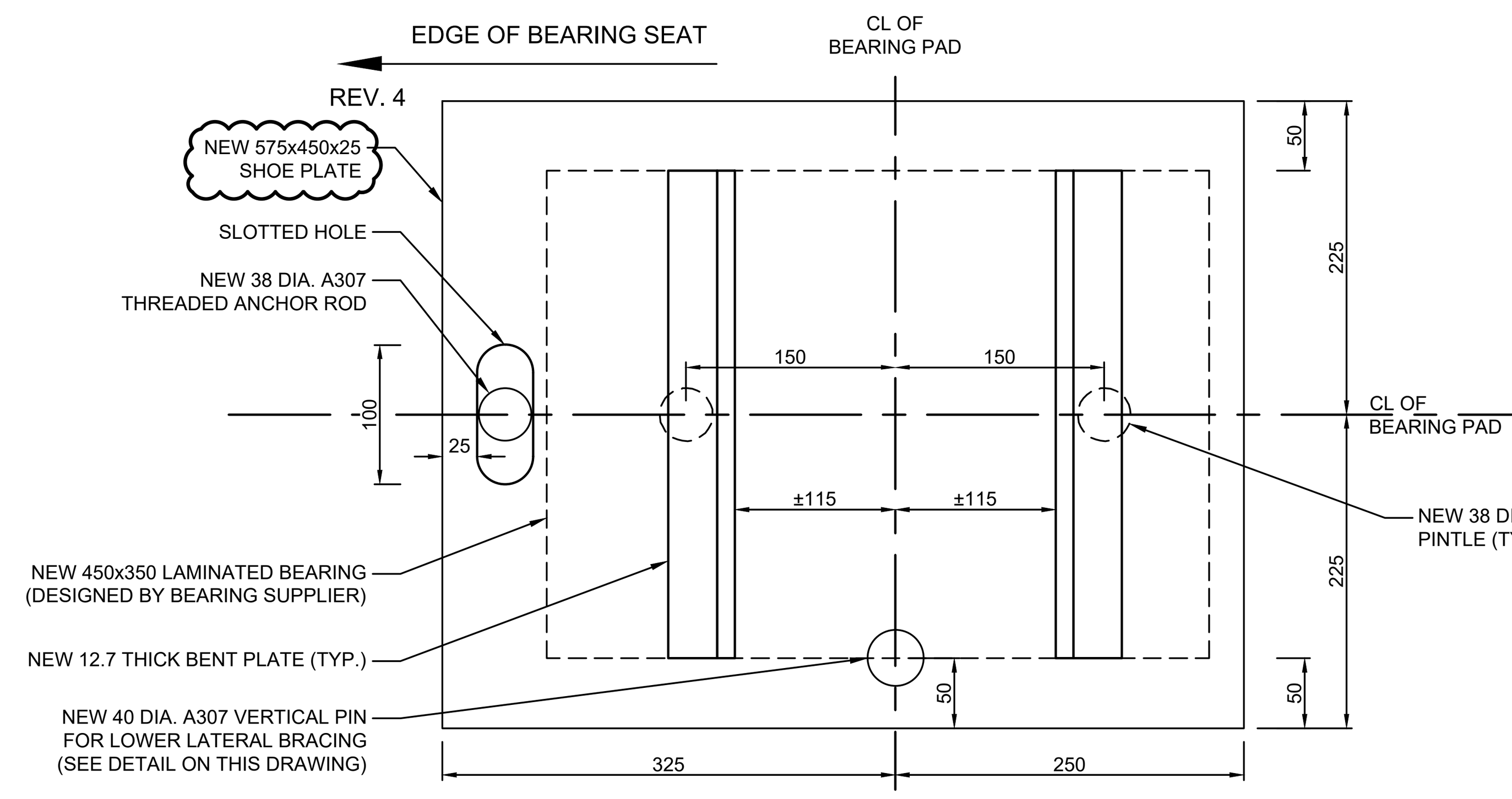
WEST BEARING REPAIR SECTION VIEW

SCALE: 1:5



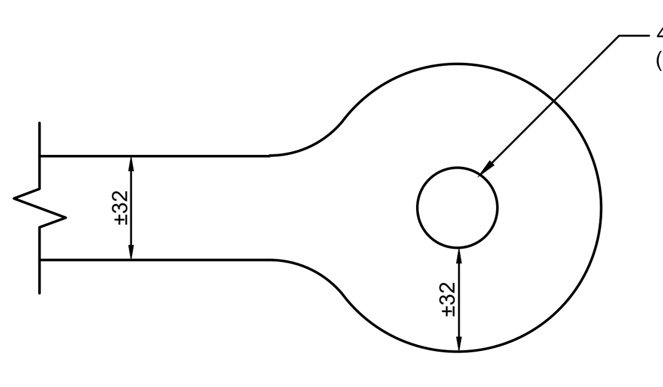
VERTICAL PIN IN LOWER LATERAL BRACING

SCALE: 1:4
(LOWER LATERAL BRACING NOT SHOWN FOR CLARITY)



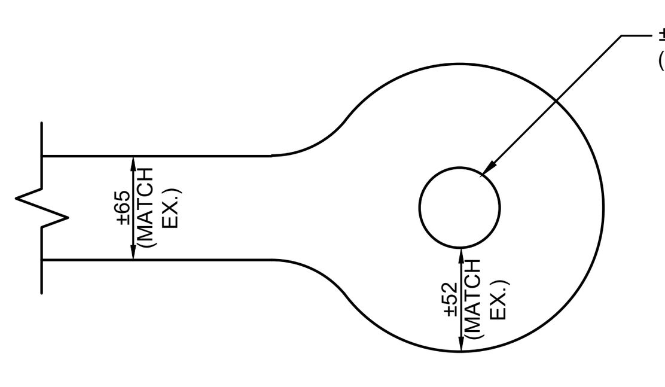
2 SECTION

SCALE: 1:5



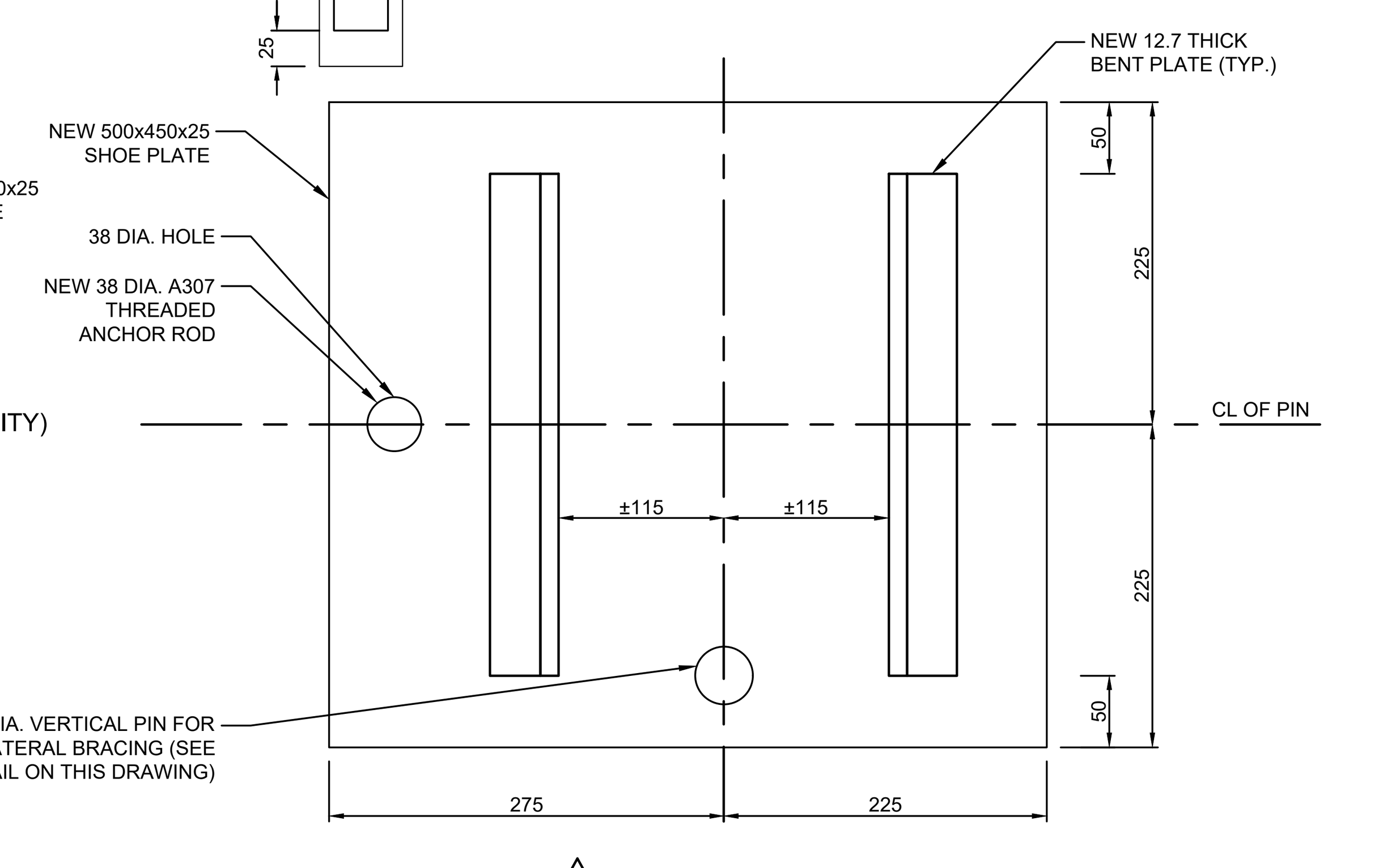
LOWER LATERAL BRACING AT BEARING CONNECTION

SCALE: N.T.S.



BOTTOM CHORD AT BEARING CONNECTION

SCALE: N.T.S.



3 SECTION

SCALE: 1:5

NOTES :

1. TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED. ALL EXISTING FEATURES WERE TAKEN FROM GOOGLE AERIAL IMAGERY AND FIELD MEASUREMENTS.
2. UNDERGROUND INFRASTRUCTURE LOCATIONS WERE PROVIDED BY THE RESPECTIVE UTILITIES AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR AND REQUIRED TO HAVE UTILITY LOCATES COMPLETED PRIOR TO CONSTRUCTION. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE TO ANY UTILITY DURING CONSTRUCTION.

- STEEL REMOVAL
- CONCRETE PATCHING IN ABUTMENT AND WINGWALL WALLS

BENCH MARKS :

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

LICENSED PROFESSIONAL ENGINEER 2022-04-20 A.J. GALEZOWSKI 100217780 PROVINCE OF ONTARIO 212327

LICENSED PROFESSIONAL ENGINEER April 20/22 J. BORGES 100503702 PROVINCE OF ONTARIO

NO.	DATE	REVISION DESCRIPTION	CH'KD
04	2022-04-21	ISSUED FOR CONSTRUCTION	J.B.
03	2022-03-01	ISSUED FOR TENDER	B.W.
02	2021-08-26	ISSUED FOR TENDER	B.W.
01	2021-08-04	ISSUED FOR REVIEW	B.W.

GM BluePlan ENGINEERING
GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
1260 - 2ND AVENUE EAST, UNIT 1, OWEN SOUND, ON N4K 2J3
TEL. 519-376-1805 www.gmblueplan.ca

GREENOCK STRUCTURE 0006 REHABILITATION

CONCESSION 8 EAST GREENOCK

MUNICIPALITY OF BROCKTON CONTRACT No. 212327-A

BEARINGS NOTES AND DETAILS

DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
E.V.S.	B.W.	212327	5
DESIGNED BY :	DATE :	SCALE :	
J.B.	MAY 2021	AS SHOWN	

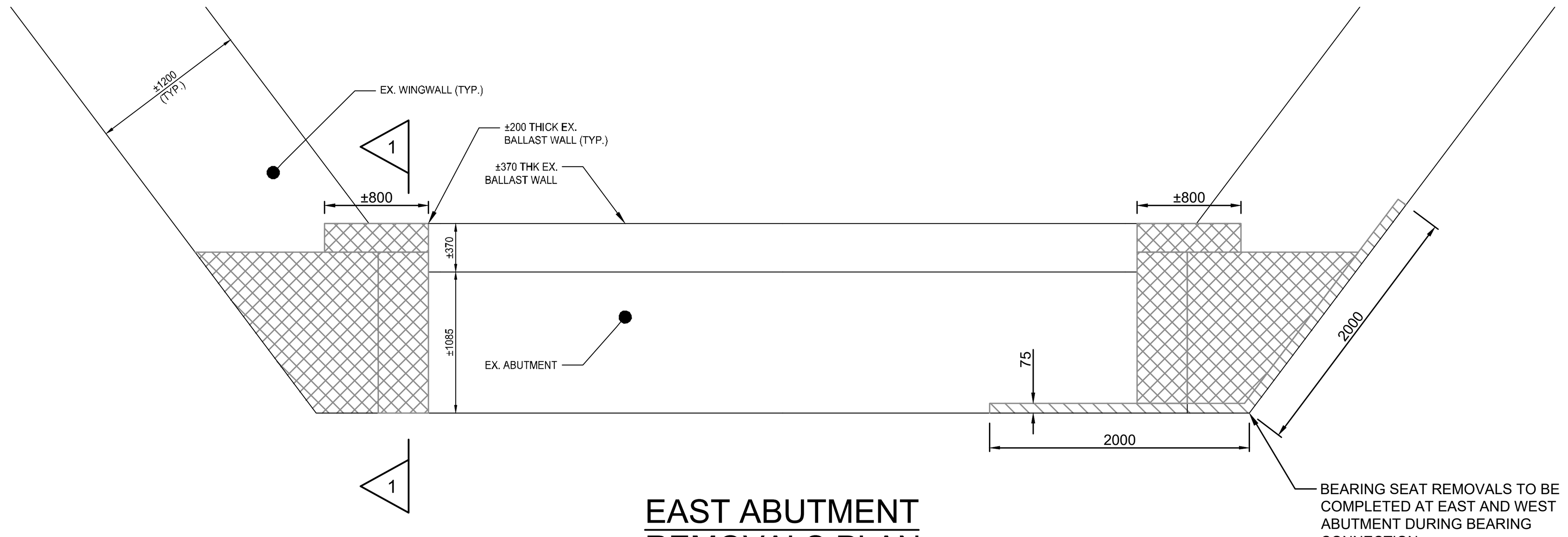
CONCRETE REMOVAL AND REPAIR NOTES:

1. THE STABILITY AND INTEGRITY OF THE STRUCTURE SHALL BE MAINTAINED AT ALL STAGES OF CONSTRUCTION. ANY DAMAGE TO THE STRUCTURE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AT NO COST TO THE OWNER.
2. WORK ON THE STRUCTURE SHALL BE IN STRICT COMPLIANCE WITH THE MOST CURRENT VERSION OF THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS VOLUME 9 (REVISED).
3. SAWCUTS AT LIMITS OF REMOVALS SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICHEVER IS LESS.
4. REMOVE ONLY DELAMINATED CONCRETE WITHIN LIMITS OF DEMARCATION BY CONTRACT ADMINISTRATOR.
5. WHEN REINFORCEMENT STEEL IS EXPOSED, CONCRETE SHALL BE REMOVED AT LEAST 25mm AROUND THE BAR.
6. REINFORCING STEEL SHALL BE RETAINED IN AREAS OF CONCRETE REMOVAL UNLESS OTHERWISE STATED. REINFORCING STEEL TO BE RETAINED SHALL BE SANDBLASTED CLEAN AND COATED WITH AN APPROVED RUST INHIBITING PAINT PRIOR TO NEW CONCRETE BEING PLACED (WHERE SPECIFIED IN CONTRACT). RE-TIE EXPOSED REINFORCING STEEL AT ALL INTERSECTIONS. REPLACE CORRODED REINFORCING STEEL AT DIRECTION OF THE CONTRACT ADMINISTRATOR. EXISTING REINFORCING STEEL BARS SHALL ONLY BE CUT AS DIRECTED BY THE CONTRACT ADMINISTRATOR AS A NON-PAY ITEM.
7. PLACE NEW REINFORCEMENT, DOWELS, ANCHORS OR WELDED WIRE FABRIC AS PER DETAILS OR AS DIRECTED BY CONTRACT ADMINISTRATOR.
8. PRE-WET EX. CONCRETE SUBSTRATE SURFACE 24 HOURS PRIOR TO PLACING NEW CONCRETE.
9. CONCRETE REMOVALS AND REPAIRS SHOWN ON THESE DRAWINGS ARE SCHEMATIC REPRESENTATIONS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT BE SCALED OR USED FOR MEASUREMENT OF QUANTITIES.
10. CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.

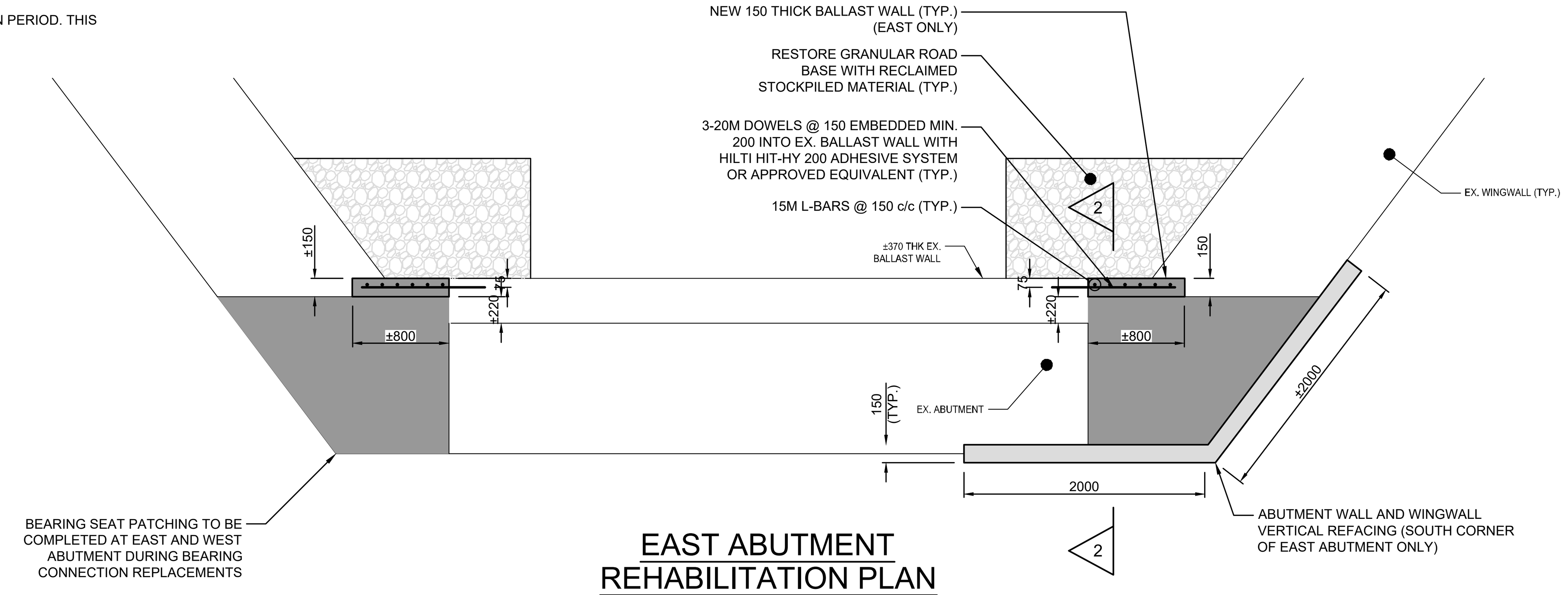
CONCRETE COLD WEATHER REQUIREMENTS:

IN COLD WEATHER, ALL HEATING EQUIPMENT AND PROTECTIVE ENCLOSURES SHALL BE ON THE JOB, READY FOR USE WHEN CONCRETE IS PLACED. SUCH EQUIPMENT SHALL BE ADEQUATE FOR PURPOSE OF HEATING THE CONCRETE MATERIALS AND PROTECTING THE CONCRETE IN ACCORDANCE WITH THE FOLLOWING:

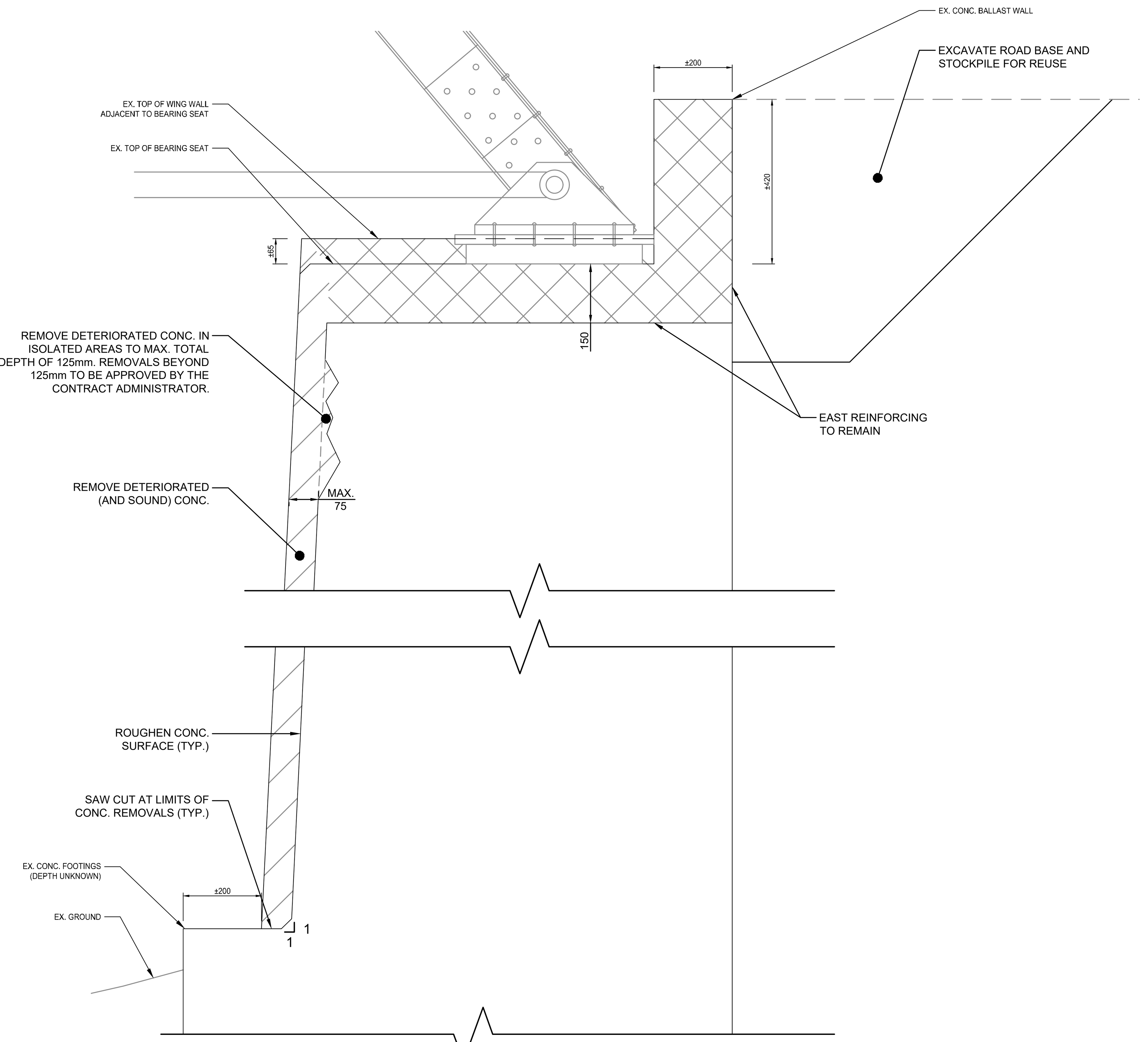
1. WHENEVER THE TEMPERATURE OF SURROUNDING ATMOSPHERE IS 5°C TO 10°C, NO CONCRETE WORK SHOULD BE DONE UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
2. WHENEVER THE TEMPERATURE OF THE SURROUNDING ATMOSPHERE IS 5°C OR LOWER OR THERE IS PROBABILITY OF IT FALLING BELOW 5°C, ALL AGGREGATES AND WATER SHALL BE PRE-HEATED AND ALL FORMS, FILL AND GROUND WITH WHICH THE CONCRETE IS IN CONTACT OR IS CALCULATED TO COME IN CONTACT WITH, SHALL BE DEFROSTED. STEEL REINFORCEMENT AND AGGREGATES SHALL BE PROTECTED BY ADEQUATE MEANS TO PREVENT FORMATION OF AN ICE FILM.
3. ALL CONCRETE WHEN PLACED IN THE FORMS SHALL HAVE A TEMPERATURE OF BETWEEN 18°C AND 27°C AND ADEQUATE MEANS SHALL BE PROVIDED BY ENCLOSURES AND HEATING EQUIPMENT FOR MAINTAINING TEMPERATURE OF AT LEAST 22°C FOR THE FIRST SEVEN DAYS AND AT LEAST 10°C FOR AS MUCH MORE TIME AS MAY BE NECESSARY, AS DETERMINED BY THE ENGINEER, TO ENSURE THE PROPER CURING OF THE CONCRETE.
4. ALL CANVAS OR OTHER PROTECTIVE COVERING SHALL BE KEPT CLEAR OF ALL CONCRETE IN ORDER TO PERMIT FREE OF AIR AROUND NEW POURS AND PATCHES.
5. THE CONTRACTOR IS TO PROTECT THE SOIL FROM FREEZING DURING THE CONSTRUCTION PERIOD. THIS INCLUDES FOOTINGS OR OTHER CONCRETE ELEMENTS THAT HAVE BEEN CAST.



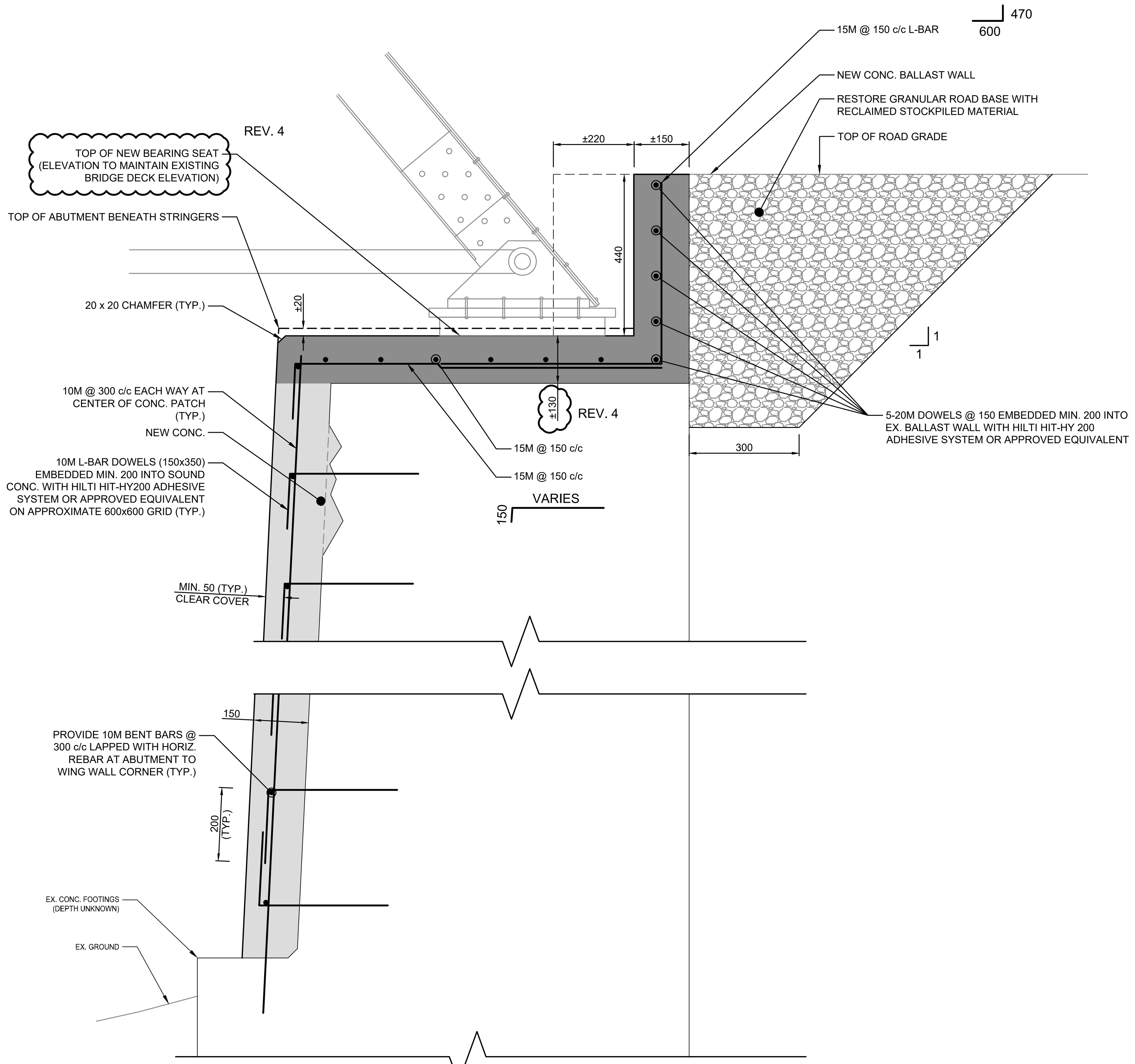
EAST ABUTMENT REMOVALS PLAN
SCALE: 1:40



EAST ABUTMENT REHABILITATION PLAN
SCALE: 1:40



SECTION 1
SCALE: 1:30



SECTION 2
SCALE: 1:30

NOTES :

1. TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED. ALL EXISTING FEATURES WERE TAKEN FROM GOOGLE AERIAL IMAGERY AND FIELD MEASUREMENTS.
2. UNDERGROUND INFRASTRUCTURE LOCATIONS WERE PROVIDED BY THE RESPECTIVE UTILITIES AND ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR AND REQUIRED TO HAVE UTILITY LOCATES COMPLETED PRIOR TO CONSTRUCTION. CONTRACTOR IS SOLELY RESPONSIBLE FOR DAMAGE TO ANY UTILITY DURING CONSTRUCTION.

- CONCRETE REMOVALS IN BEARING SEATS AND BALLAST WALL
- CONCRETE REMOVALS IN ABUTMENT AND WINGWALL WALLS
- CONCRETE PATCHING IN BEARING SEAT AND BALLAST WALL
- CONCRETE PATCHING IN ABUTMENT AND WINGWALL WALLS

BENCH MARKS :

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

LICENSED PROFESSIONAL ENGINEER 2022-04-20 A.J. GALEZOWSKI 100217780 PROVINCE OF ONTARIO 212327

LICENSED PROFESSIONAL ENGINEER April 20/22 J. BORGES 100503702 PROVINCE OF ONTARIO

NO.	DATE	REVISION DESCRIPTION	CH'KD
04	2022-04-21	ISSUED FOR CONSTRUCTION	J.B.
03	2022-03-01	ISSUED FOR TENDER	B.W.
02	2021-08-26	ISSUED FOR TENDER	B.W.
01	2021-08-04	ISSUED FOR REVIEW	B.W.

GM BluePlan ENGINEERING
GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
1260 - 2ND AVENUE EAST, UNIT 1, OWEN SOUND, ON N4K 2J3
TEL. 519-376-1805 www.gmblueplan.ca

GREENOCK STRUCTURE 0006 REHABILITATION

CONCESSION 8 EAST GREENOCK

MUNICIPALITY OF BROCKTON
CONTRACT No. 212327-A

ABUTMENT CONCRETE REPAIR DETAILS

DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
E.V.S.	B.W.	212327	6
DESIGNED BY :	DATE :	SCALE :	
J.B.	MAY 2021	AS SHOWN	