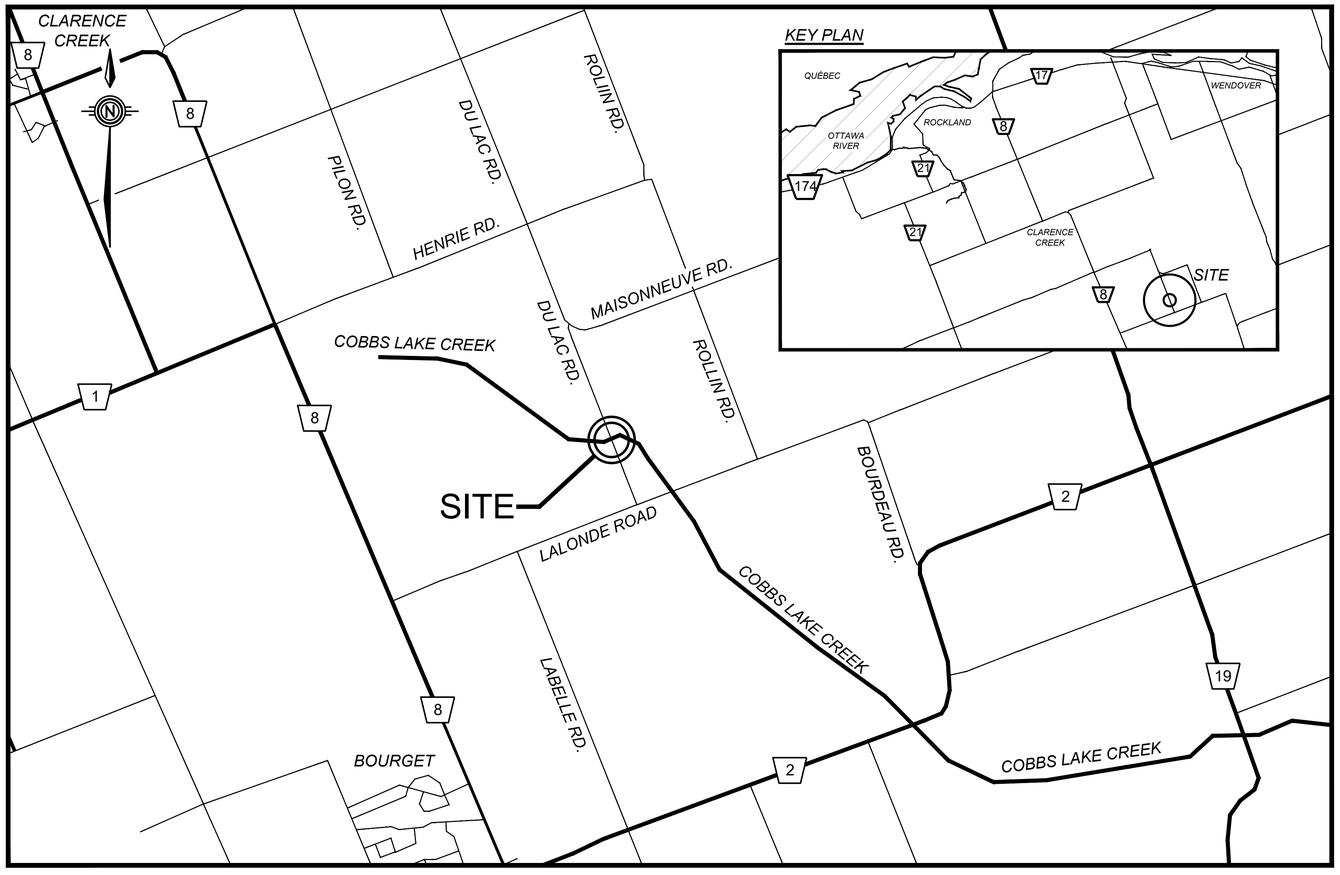
THE CITY OF CLARENCE-ROCKLAND



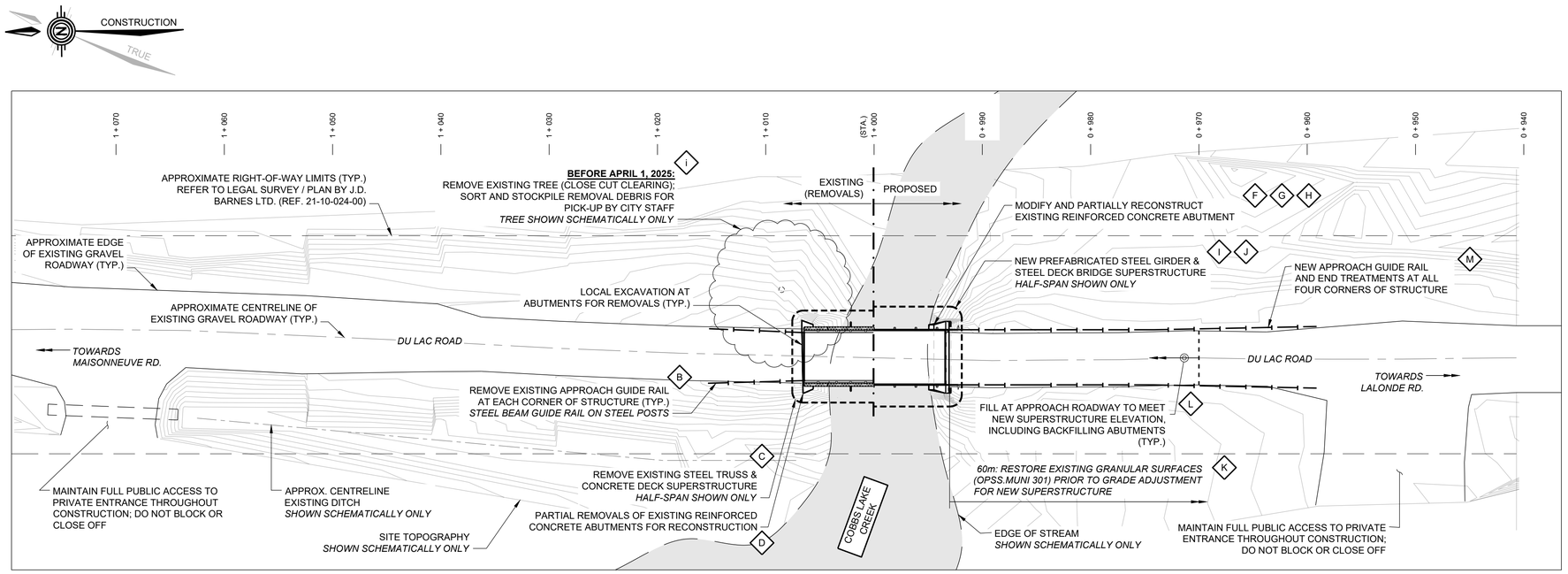
LIST OF DRAWINGS

Clarence-Rockland

COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

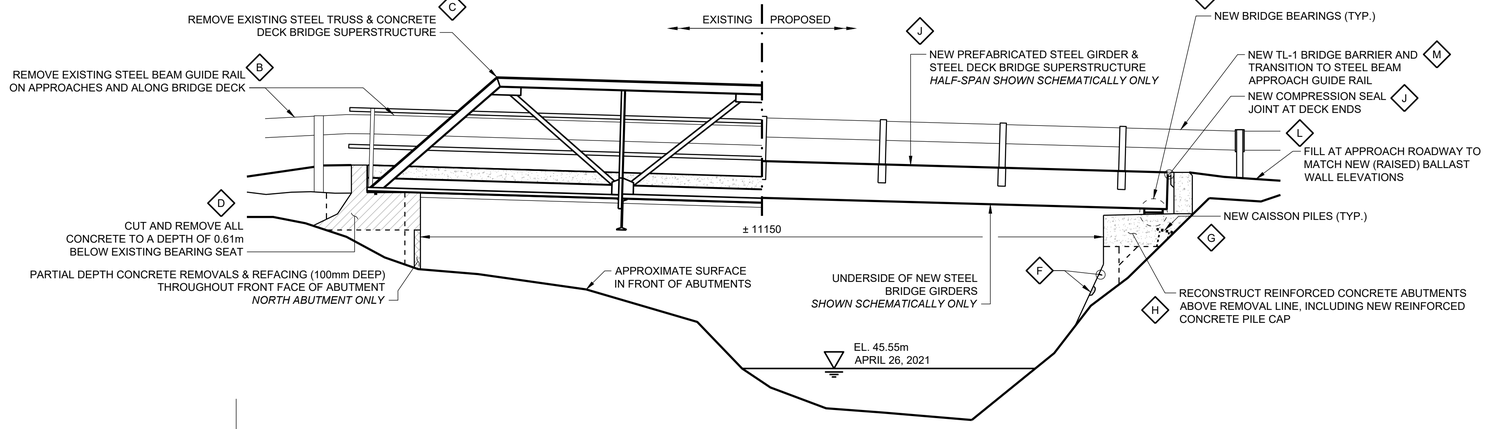
CONTRACT No. 2025-001

HP ENGINEERING



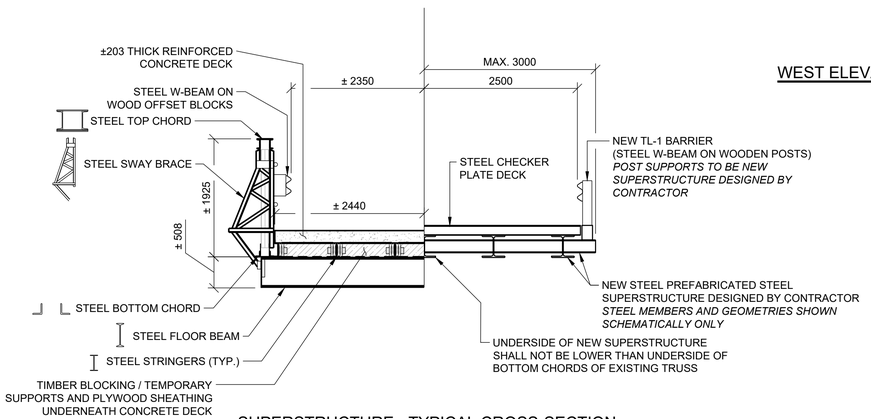
PLAN - GENERAL ARRANGEMENT

1:200



WEST ELEVATION - EXISTING & PROPOSED

1:50



SUPERSTRUCTURE - TYPICAL CROSS-SECTION EXISTING & PROPOSED

1:50

GENERAL NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.
2. DESIGN LOADING: CSA S6:19 CANADIAN HIGHWAY BRIDGE DESIGN CODE.
3. CLASS OF CONCRETE: EXPOSURE CLASS C-1 (35 MPa) TO CSA A23.1:24.
4. REINFORCING STEEL BARS:
   - ALL REINFORCING STEEL BARS SHALL BE GRADE 400W TO CSA G30.18:21.
   - UNLESS INDICATED OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE "CLASS B".
   - 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 MTO STRUCTURAL STANDARD DRAWING SS112-1 "HOOK DIMENSIONS FOR REINFORCING STEEL BARS" UNLESS NOTED OTHERWISE.
5. ALL CONCRETE EDGES DEPICTED AS BEING SQUARE SHALL BE CHAMFERED 20mm x 20mm UNLESS SPECIFICALLY NOTED OTHERWISE.
6. CLEAR COVER TO REINFORCING STEEL IN CONCRETE SHALL BE 70mm ± 20mm, UNLESS NOTED OTHERWISE.
7. THE NEW PREFABRICATED STEEL SUPERSTRUCTURE SHALL BE DESIGNED, FABRICATED, DELIVERED, AND ERECTED BY THE CONTRACTOR.
8. UNLESS NOTED OTHERWISE, ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT ONTARIO PROVINCIAL STANDARDS.
9. UNLESS NOTED OTHERWISE, ALL MATERIALS SUPPLIED SHALL BE FROM MTO DESIGNATED SOURCES.
10. ALL EXISTING CONDITIONS SHOWN ON THE CONTRACT DRAWINGS ARE TAKEN FROM FIELD MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS PRIOR TO COMMENCING THE DESIGN OR FABRICATION FOR THE NEW PREFABRICATED STEEL BRIDGE SUPERSTRUCTURE. A SET OF DETAILED FIELD MEASUREMENTS OF EXISTING CONDITIONS SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR INFORMATIONAL PURPOSES.
11. THE EXISTING WATERCOURSE AND SURROUNDING NATURAL ENVIRONMENT SHALL BE PROTECTED AT ALL TIMES FOR THE DURATION OF THE WORK. ALL ENVIRONMENTAL PROTECTION SYSTEMS SHALL BE FULLY EFFECTIVE IN PREVENTING CONTAMINATION OF THE WATERWAY AND SURROUNDING NATURAL ENVIRONMENT.
12. THE CONTRACTOR'S PRICE FOR THE WORK SHALL INCLUDE ALL LABOUR, EQUIPMENT, MATERIAL, AND TRANSPORTATION NECESSARY TO COMPLETE THE WORK, INCLUDING ANY AND ALL INCIDENTAL WORK WHETHER OR NOT EXPLICITLY DETAILED ON THE CONTRACT DRAWINGS BUT REQUIRED FOR PROPER PERFORMANCE AND COMPLETION OF THE WORKS AS PER THE CONTRACT DOCUMENTS.
13. THE SCOPE OF WORK INDICATED ON THE GENERAL ARRANGEMENT DRAWING IS PROVIDED FOR GENERAL INFORMATION ONLY AND IS NOT EXHAUSTIVE.
14. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER 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 THE WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THE, AS PART OF THEIR WORK.
15. UNLESS NOTED OTHERWISE, ALL ELEVATIONS ARE IN METERS ABOVE SEA LEVEL AND ALL OTHER DIMENSIONS ARE IN MILLIMETERS.

GENERAL SCOPE OF WORK:

BEFORE FULL MOBILIZATION AND ROAD CLOSURE:

- (i) CLOSE CUT CLEARING OF EXISTING TREE AT NORTHEAST CORNER OF THE STRUCTURE (BEFORE APRIL 15, 2025).
- *NOT DEPICTED* (ii) INSTALL TEMPORARY TURTLE EXCLUSION FENCING (BEFORE MAY 1, 2025).
- *NOT DEPICTED* (iii) INSTALL PORTABLE VARIABLE MESSAGE SIGNS (PVMS) 7-DAYS IN ADVANCE OF THE ROAD CLOSURE. REMOVE PVMS UPON ROAD CLOSURE AND IMPLEMENT DETOUR ROUTE AND ROAD CLOSURE SIGNAGE PER OTM BOOK 7.
- *NOT DEPICTED* (iv) COMPLETE DETAILED FIELD MEASUREMENTS OF EXISTING CONDITIONS. DESIGN AND COMMENCE FABRICATION FOR NEW STEEL BRIDGE SUPERSTRUCTURE.

FULL MOBILIZATION:

- *NOT DEPICTED* (A) IMPLEMENT TRAFFIC CONTROL PLAN AND DETOUR ROUTE SIGNING; CLOSE THE ROAD TO ALL TRAFFIC. INSTALL FULL ENVIRONMENTAL PROTECTION / EROSION & SEDIMENT CONTROL MEASURES.
- (B) REMOVE EXISTING STEEL BEAM GUIDE RAIL AT APPROACHES AND ALONG BRIDGE DECK.
- (C) REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND DISPOSE OF ALL COMPONENTS OFF-SITE.
- (D) EXCAVATE LOCALLY AT ABUTMENTS AND COMPLETE FULL-DEPTH AND PARTIAL-DEPTH CONCRETE REMOVALS.
- *NOT DEPICTED* (E) COMPLETE REFACING OF NORTH ABUTMENT WITH NEW STAINLESS STEEL DIAMOND WIRE MESH.
- (F) COMPLETE PARTIAL DEPTH REPAIRS AND EPOXY-CRACK INJECTION AT SOUTH ABUTMENT.
- (G) INSTALL NEW GROUTED STEEL PILE CAISSONS AT BOTH ABUTMENTS.
- (H) COMPLETE NEW REINFORCED CONCRETE CONSTRUCTION OF UPPER ABUTMENTS AND WINGWALLS, INCLUDING NEW PILE CAP / BEARING SEAT AND BALLAST WALLS (BOTH ABUTMENTS)
- (I) INSTALL NEW BEARING ASSEMBLIES AT BOTH ABUTMENTS
- (J) FABRICATE, DELIVER, AND ERECT NEW PREFABRICATED STEEL BRIDGE SUPERSTRUCTURE, INCLUDING BEARING ASSEMBLIES AND ANY STEEL COATING & WELDING NOT COMPLETED IN-SHOP. INSTALL NEW EXPANSION JOINT ASSEMBLIES (COMPRESSION SEALS).
- (K) RESTORE EXISTING GRAVEL ROADWAY SURFACES AT BOTH APPROACHES
- (L) BACKFILL ABUTMENTS AND ADD FILL TO ROADWAY TO MEET NEW BALLAST WALL ELEVATIONS
- (M) INSTALL NEW STEEL BEAM APPROACH GUIDE RAIL AND TL-1 BRIDGE BARRIER ALONG NEW BRIDGE SUPERSTRUCUTRE, INCLUDING TRANSITIONS.
- *NOT DEPICTED* (N) CONSTRUCT NEW ENTRANCES ON EAST AND WEST SIDE OF ROADWAY (STA 1+975) TO OPSD 301.010, INCLUDING NEW 900mm DIA. x 12m LONG HDPE CULVERTS TO CROSS EXISTING DITCH.
- *NOT DEPICTED* (O) INSTALL NEW ROAD CLOSURE GATES AT STA 1+965 AND STA 0+250 (MTOD 960.010 - MODIFIED).
- *NOT DEPICTED* (P) AT BOTH APPROACHES, INSTALL NEW Wa-24 "NARROW STRUCTURE" SIGN WITH Wa-24t "ONE LANE" TAB AND "Wa-70t "NARROW BRIDGE" TAB (STA 1+180 & STA 0+820).
- *NOT DEPICTED* (Q) REMOVE ENVIRONMENTAL PROTECTION / EROSION & SEDIMENT CONTROL MEASURES. REMOVE TRAFFIC CONTROL MEASURES AND OPEN ROADWAY TO TRAFFIC. DEMOBILIZE FROM SITE.

HP ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

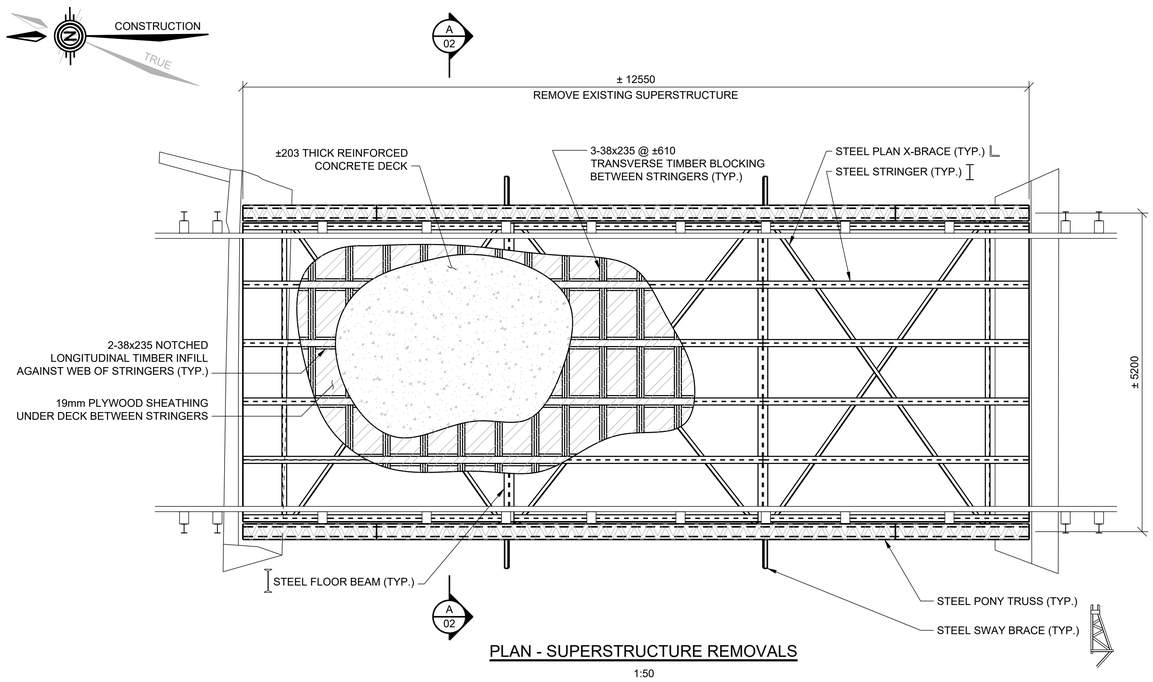
NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: GENERAL ARRANGEMENT

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 1 OF 11
DWG. NO. 01A

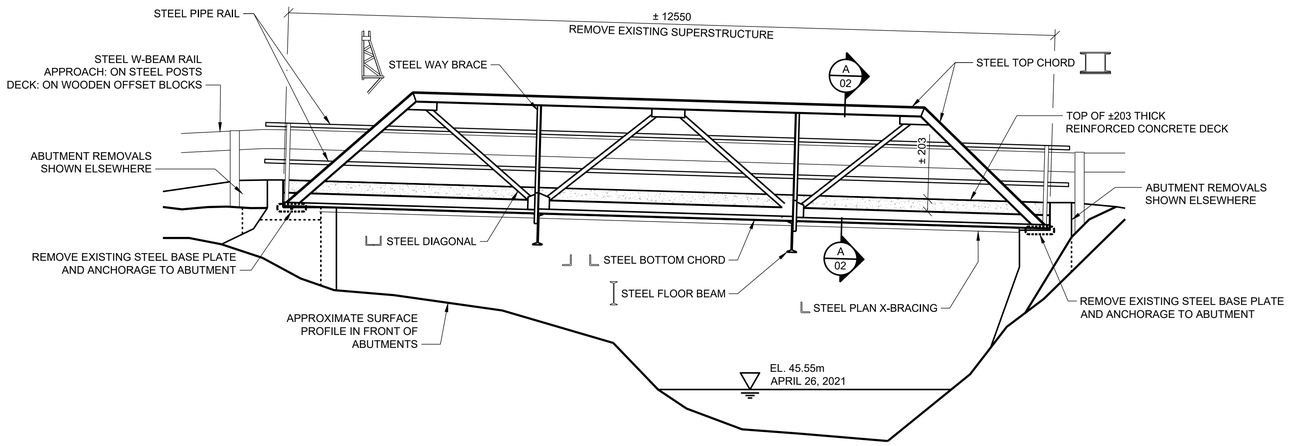


PLAN - SUPERSTRUCTURE REMOVALS

1:50

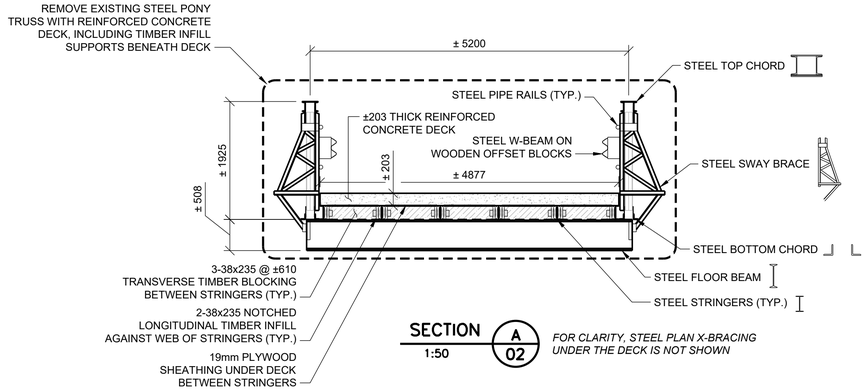
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE TO ESTABLISH HIS OWN MEANS OF ACCESS TO COMPLETE THE WORK.
3. ALL EXISTING CONDITIONS SHOWN ON THE DRAWING ARE TAKEN FROM SITE MEASUREMENTS ARE APPROXIMATE ONLY. NOT ALL COMPONENTS ARE SHOWN (E.G. GUSSET PLATES, RIVETS, LATTICE BRACING, ETC.). THE CONTRACTOR SHALL REVIEW THE STRUCTURE IN-PERSON AND AT THEIR OWN DISCRETION TO CONDUCT THEIR OWN MEASUREMENTS, UNDERSTANDING OF THE COMPONENTS / CONNECTIONS, UNDERSTANDING OF MATERIAL CONDITION, AND ASSESSMENT OF WEIGHT. ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S MEASUREMENTS / GEOMETRIES AND THOSE SHOWN ON THIS DRAWING SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW AND APPROVAL TO PROCEED WITH THE REMOVALS.
4. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ESTABLISH ADEQUATE AND APPROPRIATE LEVELS OF DEBRIS CONTAINMENT TO ENSURE THAT ABSOLUTELY NO DEMOLITION MATERIALS ARE PERMITTED TO ENTER THE WATERCOURSE OR NATURAL ENVIRONMENT. SUCH MEASURES SHALL BE CLEARLY INDICATED IN THE CONTRACTOR'S REMOVAL PLAN.
5. THE AVERAGE WATER LEVEL IN THE WATERCOURSE FLUCTUATES DUE TO SEASONAL FLOODING AND PERIODICALLY DUE TO RAIN EVENTS. THE WATER LEVEL SHOWN ON THIS DRAWING IS REPRESENTATIVE ONLY OF THE ELEVATION MEASURED ON THE DATE INDICATED AND MAY NOT REPRESENT THE ACTUAL WATER LEVEL DURING CONSTRUCTION.



WEST ELEVATION - SUPERSTRUCTURE REMOVALS

1:50



SECTION A 02

1:50

FOR CLARITY, STEEL PLAN X-BRACING UNDER THE DECK IS NOT SHOWN

HP ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

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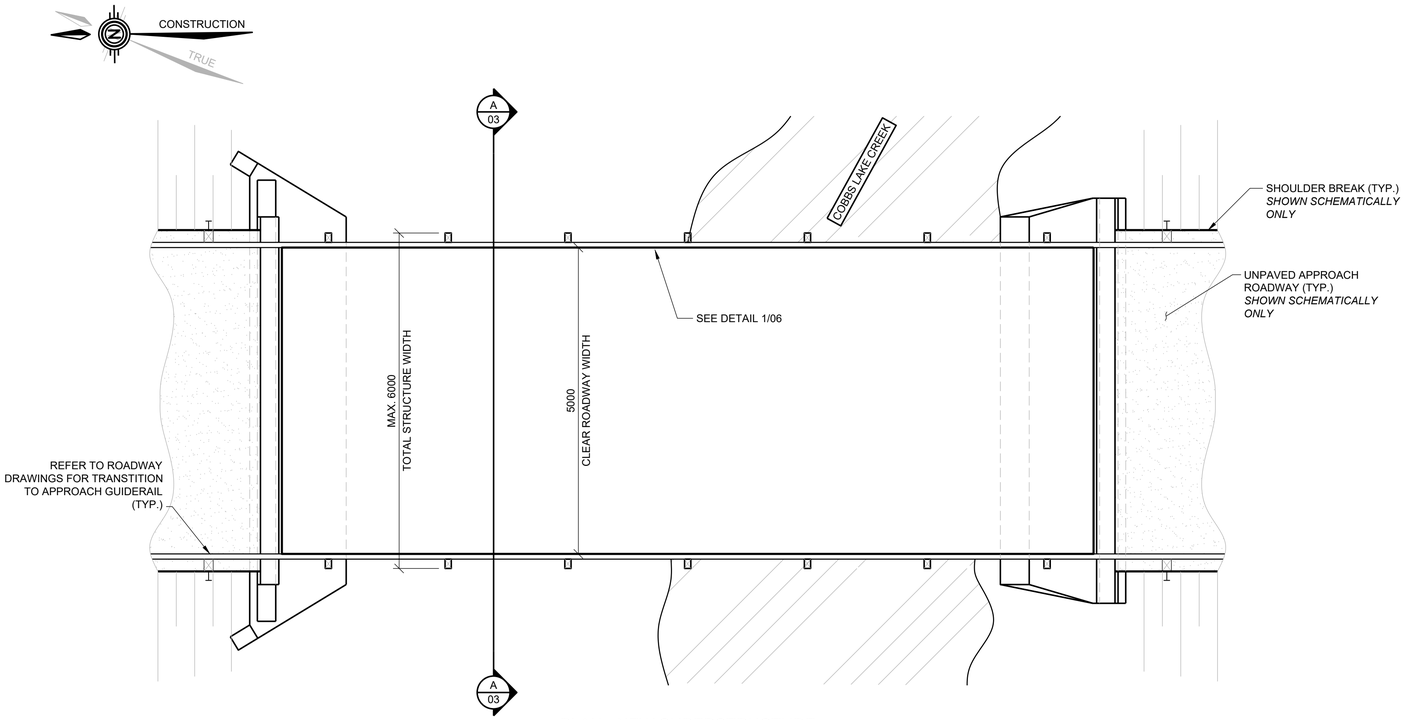
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

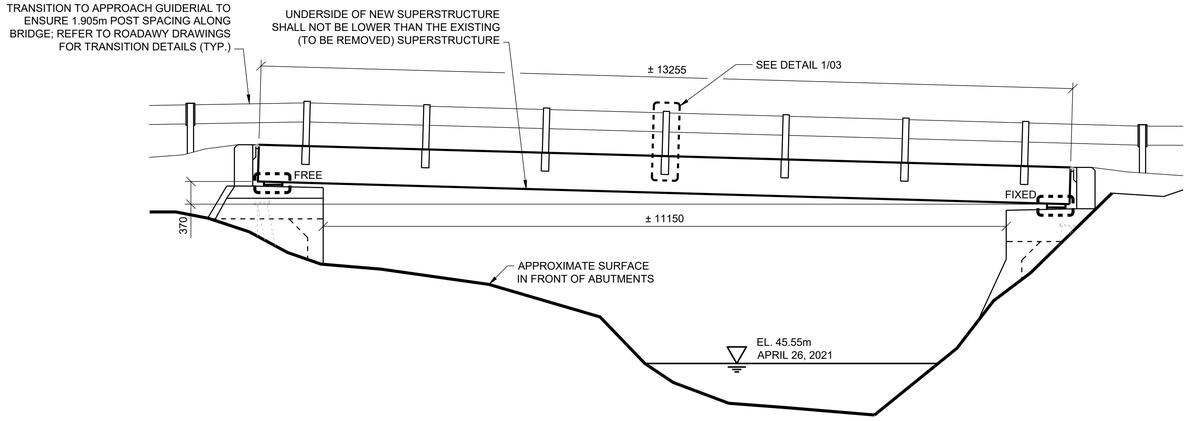
DRAWING TITLE: SUPERSTRUCTURE – REMOVALS

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 2 OF 11
DWG. NO. 02A



PLAN - NEW SUPERSTRUCTURE

1:50



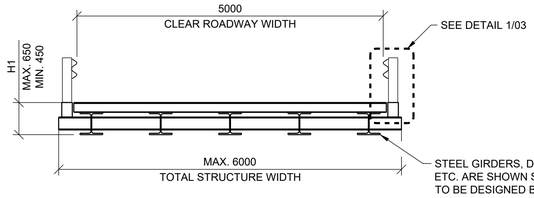
WEST ELEVATION - NEW SUPERSTRUCTURE

1:50

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE TO ESTABLISH HIS OWN MEANS OF ACCESS TO COMPLETE THE WORK.
3. ALL EXISTING CONDITIONS SHOWN ON THE DRAWING ARE TAKEN FROM SITE MEASUREMENTS ARE APPROXIMATE ONLY. NOT ALL COMPONENTS ARE SHOWN (E.G. GUSSET PLATES, RIVETS, LATTICE BRACING, ETC.). THE CONTRACTOR SHALL REVIEW THE STRUCTURE IN-PERSON AND AT THEIR OWN DISCRETION TO CONDUCT THEIR OWN MEASUREMENTS, UNDERSTANDING OF THE COMPONENTS / CONNECTIONS, UNDERSTANDING OF MATERIAL CONDITION, AND ASSESSMENT OF WEIGHT. ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S MEASUREMENTS / GEOMETRIES AND THOSE SHOWN ON THIS DRAWING SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW AND APPROVAL TO PROCEED WITH THE REMOVALS.
4. THE AVERAGE WATER LEVEL IN THE WATERCOURSE FLUCTUATES DUE TO SEASONAL FLOODING AND PERIODICALLY DUE TO RAIN EVENTS. THE WATER LEVEL SHOWN ON THIS DRAWING IS REPRESENTATIVE ONLY OF THE ELEVATION MEASURED ON THE DATE INDICATED AND MAY NOT REPRESENT THE ACTUAL WATER LEVEL DURING CONSTRUCTION.
5. THE OWNER MAY, AT THEIR SOLE DISCRETION, GIVE PREFERENCE TO LOW MAINTENANCE DESIGNS DURING THE TENDER REVIEW.
6. PARAMETERS FOR DESIGN OF THE NEW PRE-FABRICATED BRIDGE SUPERSTRUCTURE:
   - THE SUPERSTRUCTURE SHALL BE OF A *STEEL GIRDER & STEEL DECK (CHECKER PLATE)* CONSTRUCTION.
   - ALL ROLLED STRUCTURAL STEEL SHALL BE WEATHERING STEEL (ATMOSPHERIC CORROSION RESISTANT STEEL) GRADE 350A TO CSA G40.20/G40.21.
   - ALL STEEL PLATES SHALL BE WEATHERING STEEL (ATMOSPHERIC CORROSION RESISTANT STEEL) GRADE 300A TO CSA G40.20/G40.21.
   - THE STEEL CHEKER PLATE (BRIDGE DECK RIDING SURFACE) SHALL BE GRADE 300W TO CSA G40.20/G40.21.
   - IF THE STEEL CHECKER PLATE BRIDGE DECK IS FABRICATED OUT OF MULTIPLE PIECES, NO GAPS SHALL BE PERMITTED BETWEEN ADJACENT PLATE SECTION. ANY GAPS SHALL BE FULLY FILLED WITH CONTINUOUS WELD AND ACCOUNTED FOR IN THE DESIGN OF THE SUPERSTRUCTURE.
   - COATING NEW STEEL:
     - ALL STRUCTURAL STEEL SURFACES WITHIN A DISTANCE OF 3.0m FROM THE ENDS OF THE BRIDGE GIRDERS SHALL BE COATED, EXCEPT FOR SURFACES IN CONTACT WITH CONCRETE AND SURFACES OF BOLTED JOINTS.
     - ALL SURFACES OF THE STEEL CHECK PLATE BRIDGE DECK RIDING SURFACE SHALL BE COATED.
     - COATING SHALL BE AN APPROVED 3-COAT EPOXY-ZINC / EPOXY / POLYURETHANE SYSTEM AS INDICATED IN THE CONTRACT DOCUMENTS.

   SUPERSTRUCTURE SHALL BE PRE-CAMBERED FOR DEAD LOAD (SELF-WEIGHT AND ANY SUPERIMPOSED DEAD LOADS) OF ALL COMPONENTS. THE ENDS OF GIRDERS AND BEARING STIFFENERS (IF ANY) SHALL BE TRULY VERTICAL UNDER FULL DEAD LOAD.
   - CLEAR ROADWAY WIDTH OF 5000 mm, AS DEPICTED ON THIS DRAWING.
   - THE TOTAL HEIGHT OF THE NEW SUPERSTRUCTURE AND THE BEARING ASSEMBLIES SHALL MEET THE REQUIREMENTS DEPICTED ON THIS DRAWING (I.E. THE CONTRACTOR'S ENGINEER SHALL DESIGN THE NEW SUPERSTRUCTURE AND BEARING ASSEMBLIES TO ACHIEVE THE ALLOWABLE RANGES FOR "H1" AND "H2" AS DEPICTED BELOW).
   - THE GROSS WEIGHT OF THE PREFABRICATED BRIDGE (INCLUDING BEARING ASSEMBLIES, BARRIERS, AND THE DECK WEARING SURFACE, SHALL NOT EXCEED 30,000 KILOGRAMS.
   - THE BRIDGE BARRIER BE A TL-1 STEEL W-BEAM RAIL ON WOOD POSTS, AS DEPICTED BELOW.
     - THE ENGINEER RESPONSIBLE FOR THE SUPERSTRUCTURE DESIGN SHALL DESIGN SUPPORTS FOR THE BRIDGE BARRIER POSTS TO BE ATTACHED TO THE NEW SUPERSTRUCTURE. THE ATTACHMENT POINTS SHALL BE DESIGNED TO RESIST, AT MINIMUM, FACTORED TL-1 IMPACT LOADS BASED ON THE POST SPACING INDICATED ON THIS DRAWING.
     - ATTACHMENTS FOR BARRIER POSTS SHALL BE DESIGNED TO SIMPLIFY AND REDUCE THE COST OF REPLACING BARRIER POSTS. ATTACHMENTS SHALL ALSO BE DESIGNED TO PREVENT PREMATURE DETERIORATION OF THE BRIDGE BARRIER POSTS (E.G. THROUGH TRAPPED MOISTURE).
     - ALTERNATIVE BRIDGE BARRIER SYSTEMS MAY BE PROPOSED BY THE ENGINEER RESPONSIBLE FOR THE DESIGN OF THE BRIDGE SUPERSTRUCTURE. ANY PROPOSED ALTERNATIVE BARRIERS SHALL MEET THE MINIMUM REQUIREMENTS OF A TL-1 BARRIER TO *NCHRP REPORT 350* OR *MASH 2016 (AASHTO)*. ALTERNATIVE BRIDGE BARRIER SYSTEMS MUST ALSO HAVE A CRASH-TESTED MINIMUM TL-1 TRANSITION TO APPROACH STELE BEAM GUIDE RAIL (LEGACY SBGR OR M20 PER MTO ROADSIDE DESIGN MANUAL).
   - BRIDGE BEARING ASSEMBLIES SHALL BE DESIGNED TO ALLOW FOR EXPANSION (THERMAL OR OTHERWISE) AT THE NORTH ABUTMENT ("FREE END") AND FOR FULL LONGITUDINAL RESTRAINT AT THE SOUTH ABUTMENT ("FIXED END"). THE DESIGN ENGINEER SHALL ALSO CONSIDER THE NEED FOR OTHER FORMS OF RESTRAINTS AS MAY BE REQUIRED PER CSA S6:19 AND THE STRUCTURAL MANUAL (E.G. TO PREVENT LIFT-OFF).
   - END JOINT ASSEMBLIES SHALL CONSIST OF COMPRESSION SEALS BONDED / ANCHORED TO THE BRIDGE SUPERSTRUCTURE AND TO THE CONCRETE BALLAST WALL. ALL END JOINTS SHALL BE DESIGNED WITH A MINIMUM 25mm / MAXIMUM 50mm GAP AT 15°C. ALL JOINTS SHALL BE DESIGNED TO RESIST THE DESIGN LOADS AND ACCOMMODATE THE MOVEMENTS OF THE BRIDGE AS PRESCRIBED IN CSA S6:19 AND THE STRUCTURAL MANUAL.
   - ANY OTHER CONSTRAINTS DEPICTED ON THIS DRAWING OR ELSEWHERE IN THE CONTRACT DOCUMENTS WHICH MAY NOT BE EXPLICITLY LISTED ABOVE.



SECTION A 03

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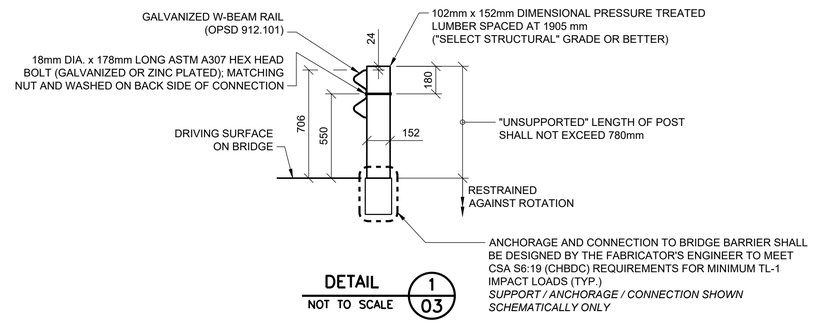


DETAIL 1 03

NOT TO SCALE

HP ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

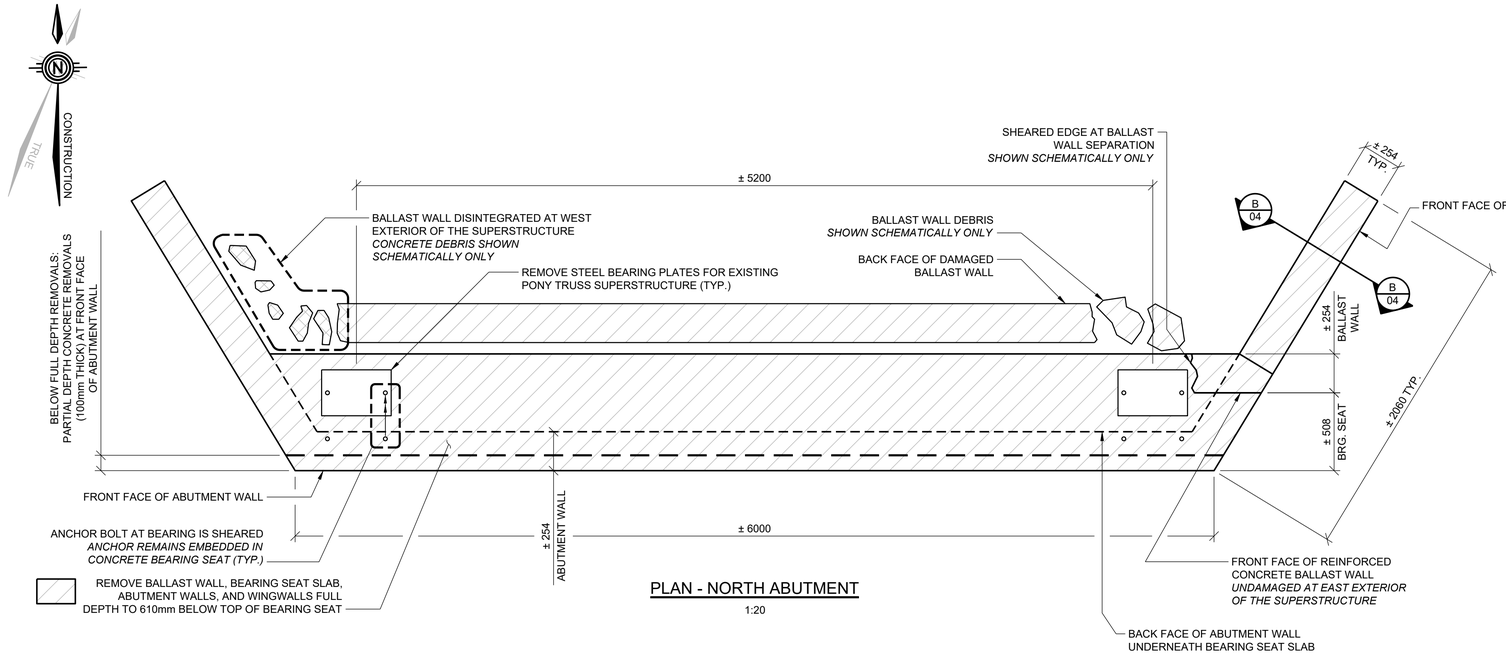
NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: NEW SUPERSTRUCTURE

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 2 OF 11
DWG. NO. 03A

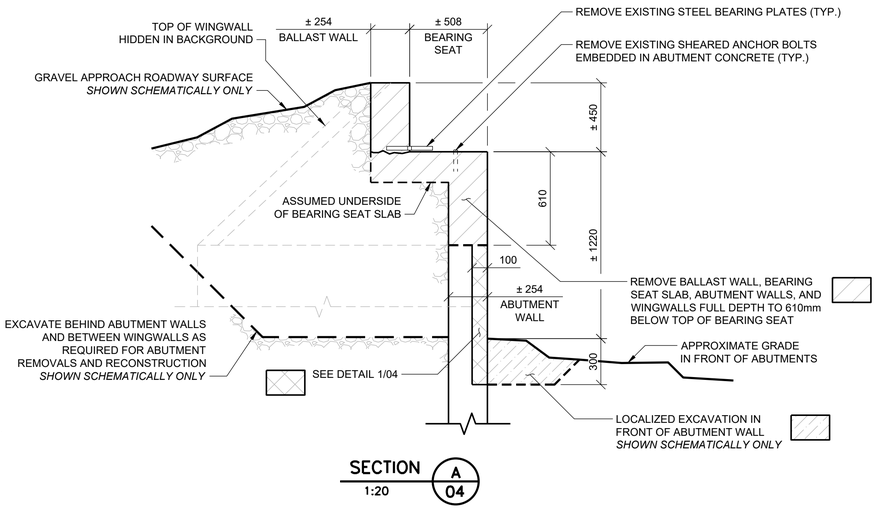


PLAN - NORTH ABUTMENT

1:20

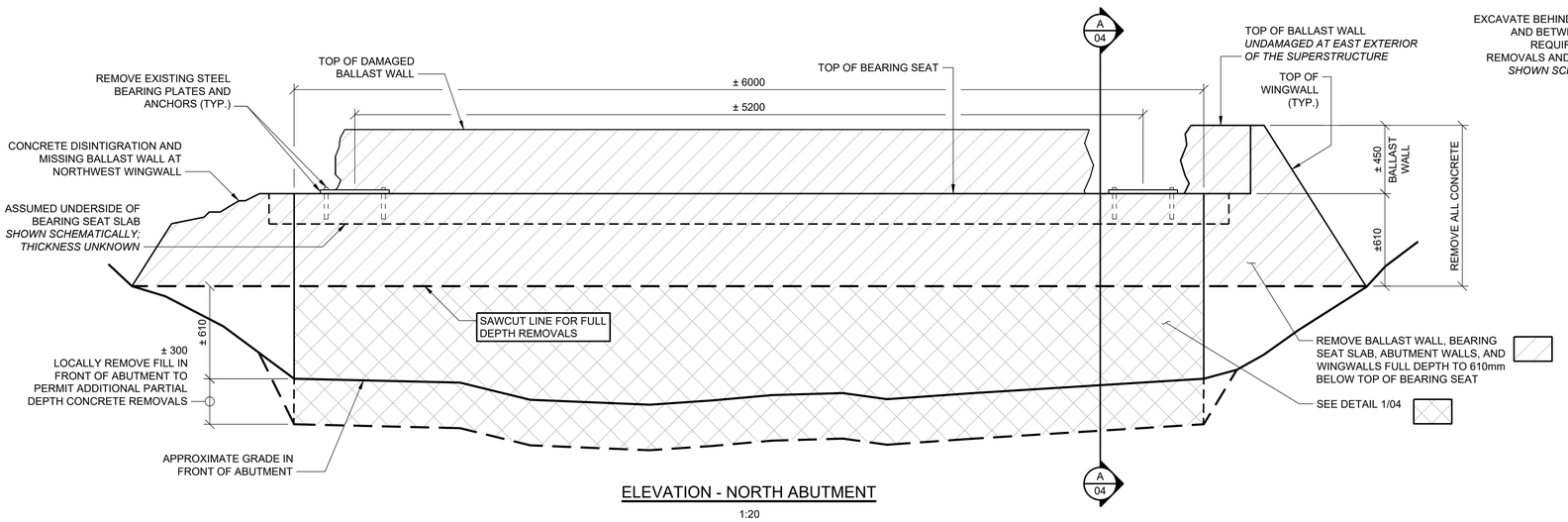
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ALL PARTIAL DEPTH REMOVALS SHALL BE DELINEATED WITH A 25mm SAW CUT.
3. EXISTING REINFORCING STEEL IS NOT DEPICTED. ALL EXISTING REINFORCING STEEL WITHIN THE LIMITS OF ANY FULL DEPTH CONCRETE REMOVALS SHALL BE CUT FLUSH AT THE CONCRETE REMOVAL LIMITS.
4. ALL EXISTING REINFORCING STEEL WITHIN PARTIAL DEPTH CONCRETE REMOVAL LIMITS SHALL BE MAINTAINED AND PROTECTED. REFER TO TYPICAL PARTIAL DEPTH CONCRETE REMOVAL DETAILS.
5. THE AVERAGE WATER LEVEL IN THE WATERCOURSE FLUCTUATES DUE TO SEASONAL FLOODING AND PERIODICALLY DUE TO RAIN EVENTS. THE WATER LEVEL SHOWN ON THIS DRAWING IS REPRESENTATIVE ONLY OF THE ELEVATION MEASURED ON THE DATE INDICATED AND MAY NOT REPRESENT THE ACTUAL WATER LEVEL DURING CONSTRUCTION.



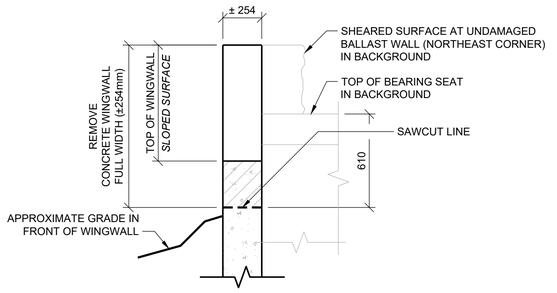
SECTION A 04

1:20



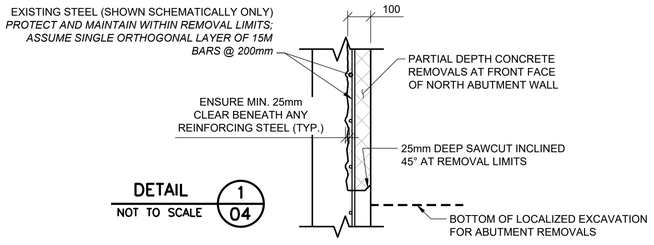
ELEVATION - NORTH ABUTMENT

1:20



SECTION B 04

1:20



DETAIL 1 04

NOT TO SCALE

ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

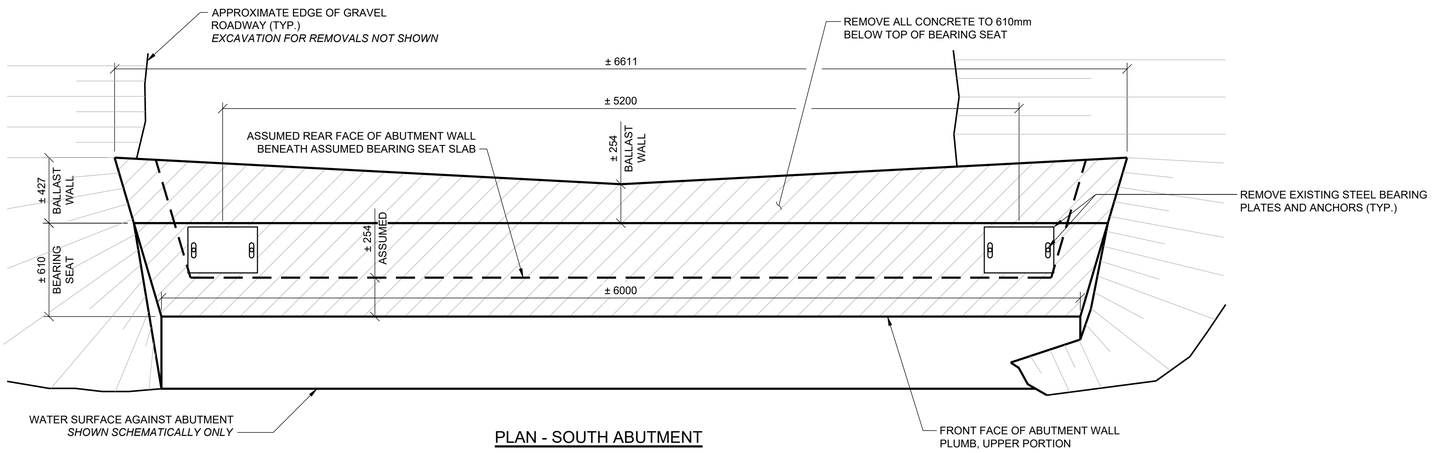
DRAWING TITLE: REMOVALS – NORTH ABUTMENT

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 4 OF 11
DWG. NO. 04A

CONSTRUCTION
TRUE

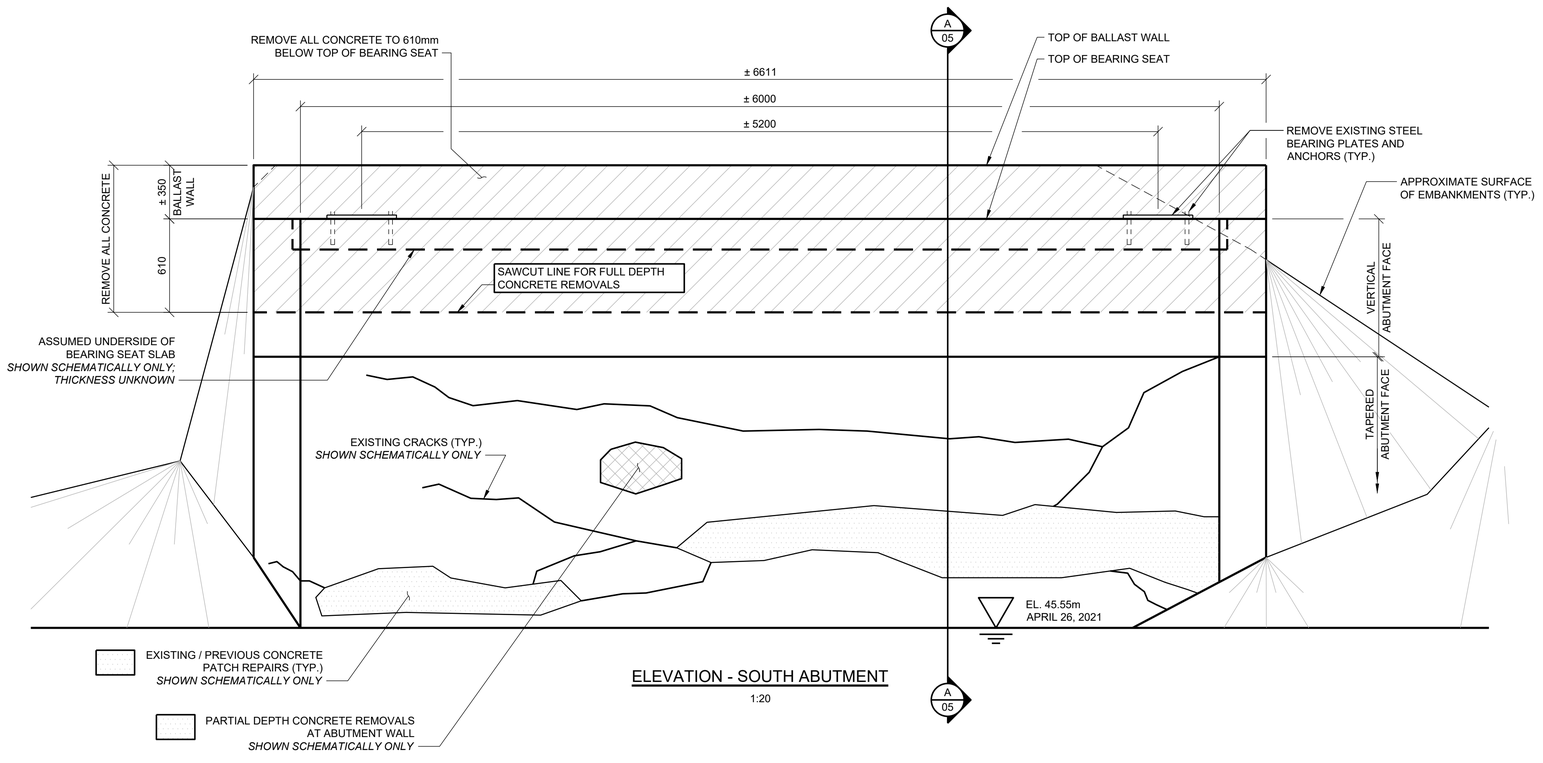
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ALL PARTIAL DEPTH REMOVALS SHALL BE DELINEATED WITH A 25mm SAW CUT.
3. EXISTING REINFORCING STEEL IS NOT DEPICTED. ALL EXISTING REINFORCING STEEL WITHIN THE LIMITS OF ANY FULL DEPTH CONCRETE REMOVALS SHALL BE CUT FLUSH AT THE CONCRETE REMOVAL LIMITS.
4. ALL EXISTING REINFORCING STEEL WITHIN PARTIAL DEPTH CONCRETE REMOVAL LIMITS SHALL BE MAINTAINED AND PROTECTED. REFER TO TYPICAL PARTIAL DEPTH CONCRETE REMOVAL DETAILS.
5. THE AVERAGE WATER LEVEL IN THE WATERCOURSE FLUCTUATES DUE TO SEASONAL FLOODING AND PERIODICALLY DUE TO RAIN EVENTS. THE WATER LEVEL SHOWN ON THIS DRAWING IS REPRESENTATIVE ONLY OF THE ELEVATION MEASURED ON THE DATE INDICATED AND MAY NOT REPRESENT THE ACTUAL WATER LEVEL DURING CONSTRUCTION.



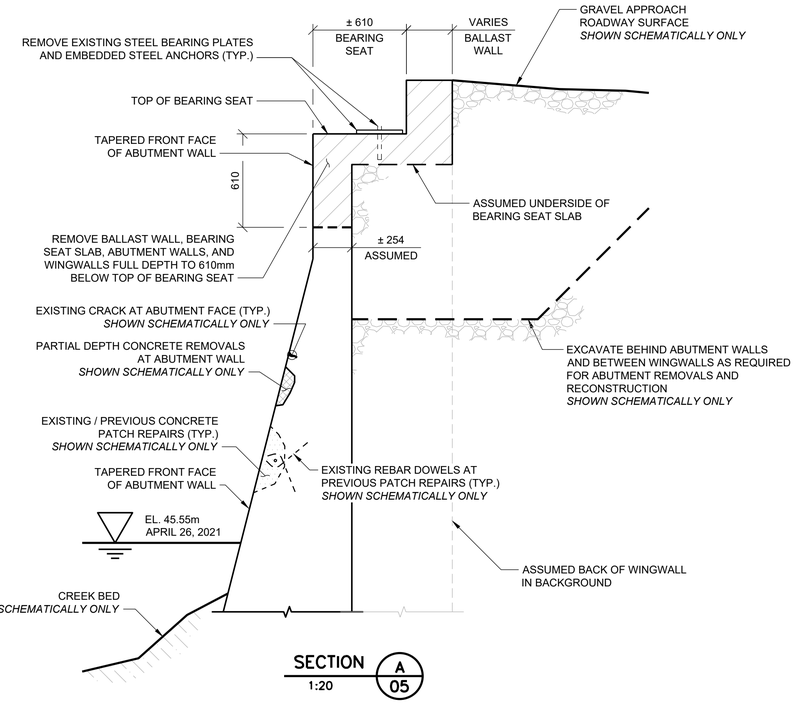
PLAN - SOUTH ABUTMENT

1:20



ELEVATION - SOUTH ABUTMENT

1:20



SECTION A 05

1:20

HP ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

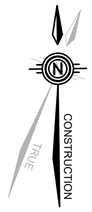
NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

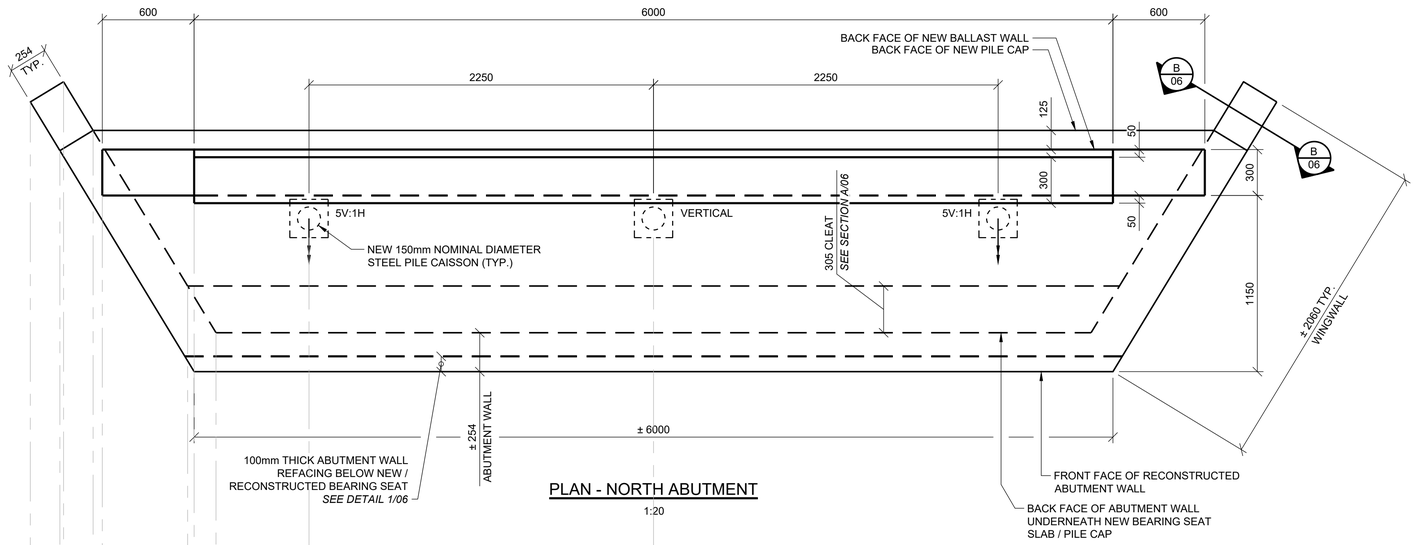
CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: REMOVALS – SOUTH ABUTMENT

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 5 OF 11
DWG. NO. 05A





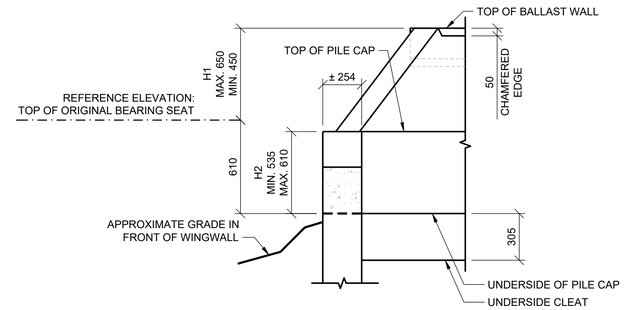
PLAN - NORTH ABUTMENT

1:20

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ABUTMENT RECONSTRUCTION DIMENSIONS ARE SHOWN FOR BIDDING PURPOSES AND WILL BE FINALIZED BY HP ENGINEERING AFTER APPROVING THE STEEL SUPERSTRUCTURE DESIGN DRAWINGS DEVELOPED BY THE PREFERRED BIDDER (I.E. THE CONTRACTOR) AFTER AWARD OF THE CONTRACT. SOME DIMENSIONS ARE INDICATED AS HAVING A RANGE OF ALLOWABLE VALUES. THE BRIDGE SUPERSTRUCTURE SHALL BE DESIGNED TO FALL WITHIN ANY DIMENSIONAL RANGES DEPICTED.
3. NEW GROUTED STEEL CAISSON PILES:
   - 150 mm NOMINAL DIAMETER STEEL CAISSONS WITH 10 mm NOMINAL WALL THICKNESS; LEAVE IN-PLACE AFTER GROUTING
   - DRILLED AND SOCKETED MINIMUM 900mm INTO SOUND BEDROCK AND CUT AT THE TOP TO THE FINAL INDICATED ELEVATIONS.
   - FULLY FILLED WITH TREMIE GROUT LEVELED TO THE TOP OF THE CAISSON
   - CAISSONS CAPPED AT TOP WITH MINIMUM 250 mm x 250 mm x 12.5 mm NOMINAL THICKNESS PERIMETER-WELDED STEEL PLATES
   - FOR BIDDING PURPOSES, ASSUME 11.0 m LONG CAISSONS, INCLUDING SOCKETED ENDS INTO BEDROCK.
   - MINIMUM ULS (ULTIMATE LIMITS STATES) FACTORED RESISTANCE PER PILE = 400 kN
   - STEEL GRADE 350W TO CSA G40.20 OR APPROVED EQUIVALENT

C.J. OPTIONAL / PERMITTED CONSTRUCTION JOINTS

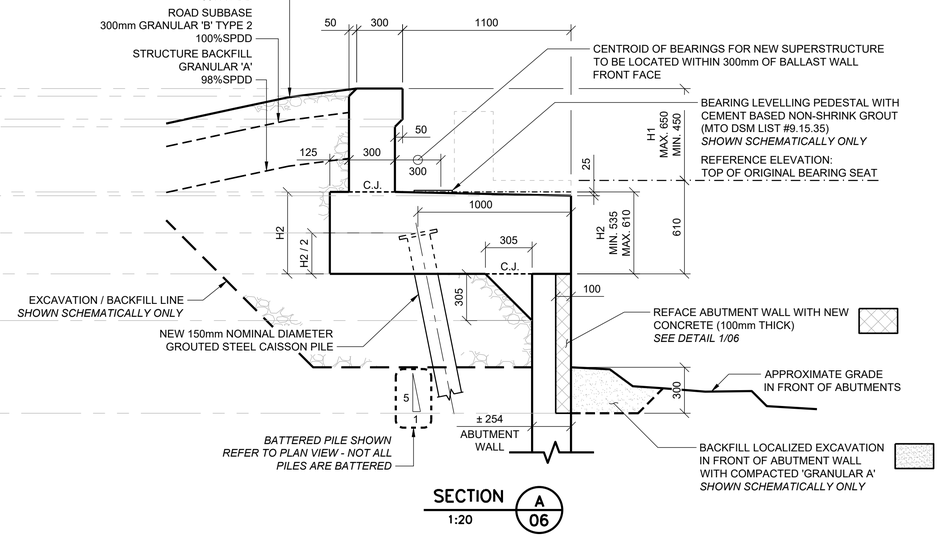


SECTION B 06

1:20

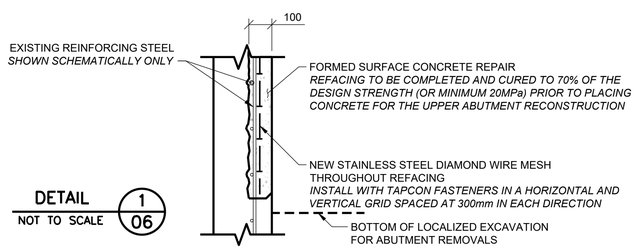
ELEVATION - NORTH ABUTMENT

1:20



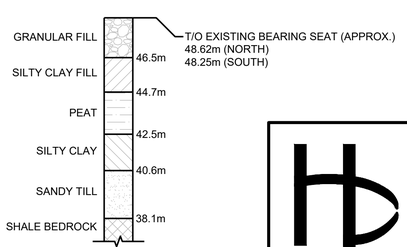
SECTION A 06

1:20



DETAIL 1 06

NOT TO SCALE



HP ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

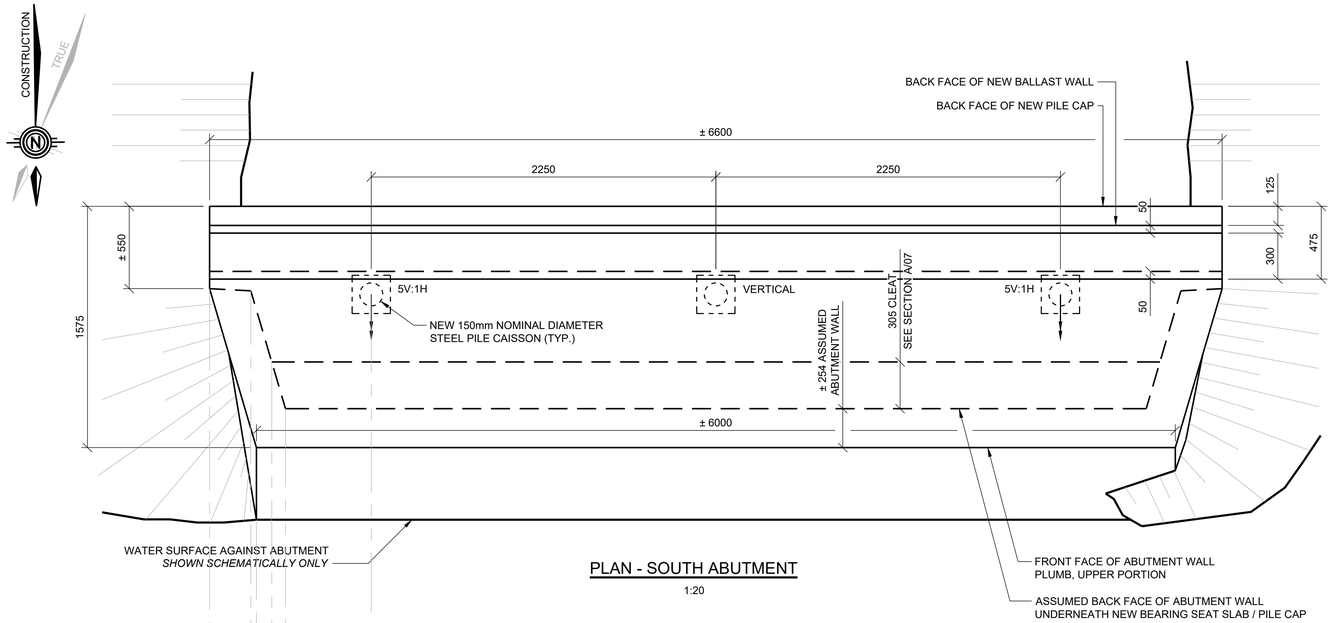
NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: RECONSTRUCTION – DIMENSIONAL NORTH ABUTMENT

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 6 OF 11
DWG. NO. 06A



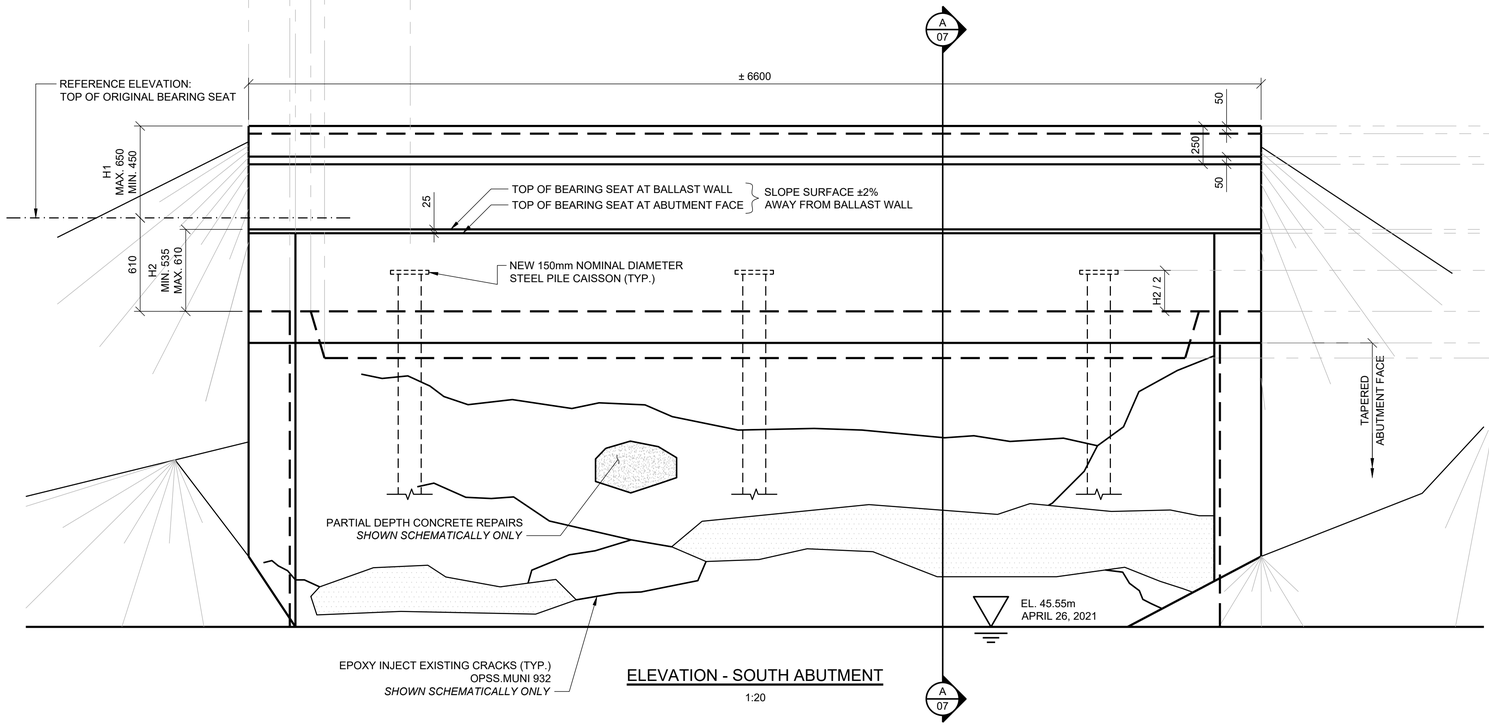
PLAN - SOUTH ABUTMENT

1:20

NOTES:

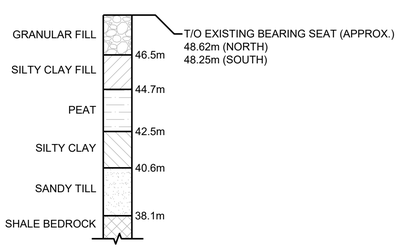
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ABUTMENT RECONSTRUCTION DIMENSIONS ARE SHOWN FOR BIDDING PURPOSES AND WILL BE FINALIZED BY HP ENGINEERING AFTER APPROVING THE STEEL SUPERSTRUCTURE DESIGN DRAWINGS DEVELOPED BY THE PREFERRED BIDDER (I.E. THE CONTRACTOR) AFTER AWARD OF THE CONTRACT. SOME DIMENSIONS ARE INDICATED AS HAVING A RANGE OF ALLOWABLE VALUES. THE BRIDGE SUPERSTRUCTURE SHALL BE DESIGNED TO FALL WITHIN ANY DIMENSIONAL RANGES DEPICTED.
3. NEW GROUTED STEEL CAISSON PILES:
   - 150 mm NOMINAL DIAMETER STEEL CAISSONS WITH 10 mm NOMINAL WALL THICKNESS; LEAVE IN-PLACE AFTER GROUTING
   - DRILLED AND SOCKETED MINIMUM 900mm INTO SOUND BEDROCK AND CUT AT THE TOP TO THE FINAL INDICATED ELEVATIONS.
   - FULLY FILLED WITH TREMIE GROUT LEVELED TO THE TOP OF THE CAISSON
   - CAISSONS CAPPED AT TOP WITH MINIMUM 250 mm x 250 mm x 12.5 mm NOMINAL THICKNESS PERIMETER-WELDED STEEL PLATES
   - FOR BIDDING PURPOSES, ASSUME 11.0 m LONG CAISSONS, INCLUDING SOCKETED ENDS INTO BEDROCK.
   - MINIMUM ULS (ULTIMATE LIMITS STATES) FACTORED RESISTANCE PER PILE = 400 kN
   - STEEL GRADE 350W TO CSA G40.20 OR APPROVED EQUIVALENT

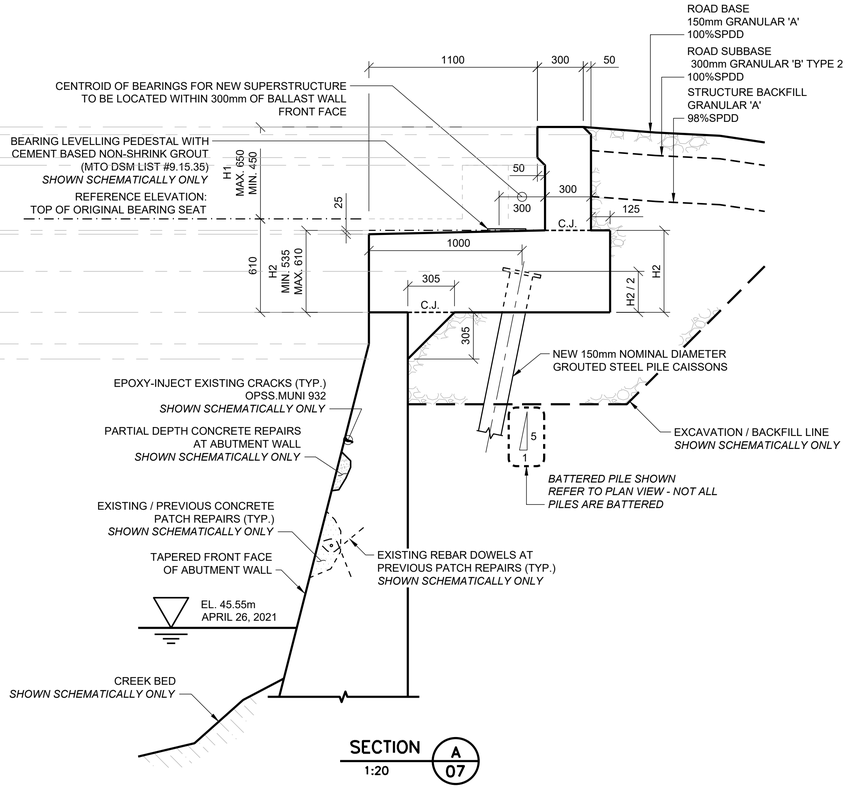
C.J. OPTIONAL / PERMITTED CONSTRUCTION JOINTS



ELEVATION - SOUTH ABUTMENT

1:20





SECTION A/07

1:20

ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: RECONSTRUCTION - DIMENSIONAL SOUTH ABUTMENT

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 7 OF 11
DWG. NO. 07A

CONSTRUCTION
TRUE

15M @ 150mm
FRONT FACE - STRAIGHT
BACK FACE - 90° STD. HOOK

5-15M
EVENLY SPACED
EACH FACE

2-15M
EVENLY SPACED

TYP. AT WINGWALL-BALLAST WALL INTERFACE:
3-15M BENT BARS EVENLY SPACED

TYPICAL ALONG SLOPED BALLAST WALLS:
15M @ 150mm
FRONT FACE - STRAIGHT
BACK FACE - 90° STD. HOOK
LENGTH VARIES

2-15M BENT BARS EACH FACE
AT TOP OF SLOPED SURFACE

2-15M STRAIGHT DOWELS
EACH FACE WITHIN SLOPED PORTION
STAGGER ROWS

B 08

TYPICAL ALONG WINGWALLS:
3-15M SPACED EVENLY
CUT FOR COVER WHEN SLOPED SURFACE IS INTERCEPTED AT WINGWALL ENDS

5V:1H
VERTICAL
5V:1H

9-25M
EVENLY SPACED
T.L.L. & B.U.L.
LENGTH VARIES

TYP. ALONG WINGWALLS:
3-20M EVENLY SPACED
T.U.L. & B.L.L.
LENGTH VARIES

15M @ 600mm
DOWEL

20M @ 200mm
T.U.L. & B.L.L.

TYPICAL ALONG WINGWALLS:
15M @ 300mm DOWELS

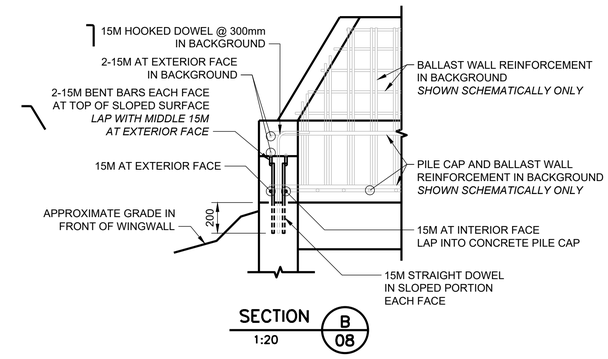
15M @ 300mm DOWEL

2-15M EVENLY SPACED

PLAN - NORTH ABUTMENT
1:20

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ALL DOWELS SHALL BE DRILLED AND SET WITH AN APPROVED EPOXY ADHESIVE. MINIMUM EMBEDMENT LENGTH SHALL BE 200mm UNLESS NOTED OTHERWISE.



SECTION B 08
1:20

TYPICAL ALONG SLOPED BALLAST WALL:
15M @ 150mm EACH FACE
VARIABLE LENGTH

15M @ 600mm DOWEL

20M @ 200mm
T.U.L.& B.L.L.

15M @ 150mm
FRONT FACE - STRAIGHT
BACK FACE - 90° STD. HOOK

A 08

5-15M
EVENLY SPACED
EACH FACE

9-25M
EVENLY SPACED
IN NEW PILE CAP
T.L.L. & B.U.L.

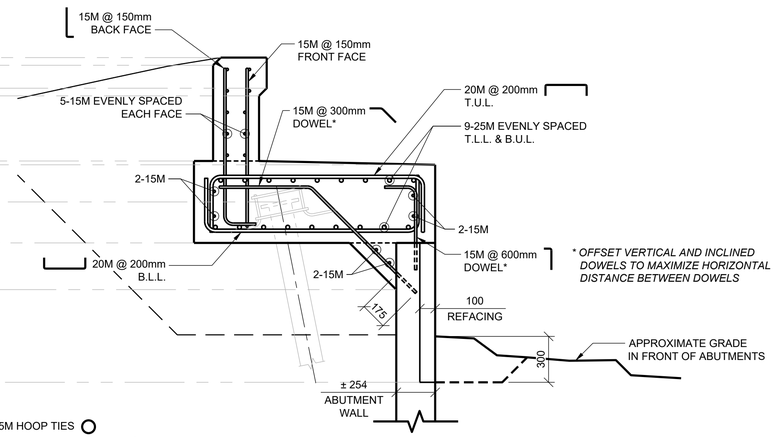
2-15M
AT FRONT FACE
AND BACK FACE
OF NEW PILE CAP

2-15M

15M @ 300mm
DOWEL

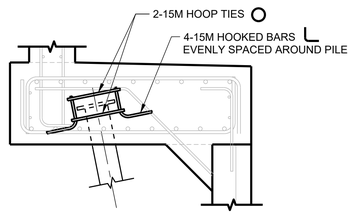
A 08

ELEVATION - NORTH ABUTMENT
1:20



* *OFFSET VERTICAL AND INCLINED DOWELS TO MAXIMIZE HORIZONTAL DISTANCE BETWEEN DOWELS*

SECTION A 08
1:20



REINFORCEMENT AROUND PILES
1:20

SIMILAR DETAILS FOR STRAIGHT PILE, BUT ROTATED

ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT
CITY OF CLARENCE-ROCKLAND

PROJECT TITLE
COBBS LAKE BRIDGE (STRUCTURE 09)
SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE
RECONSTRUCTION - REINFORCEMENT
NORTH ABUTMENT

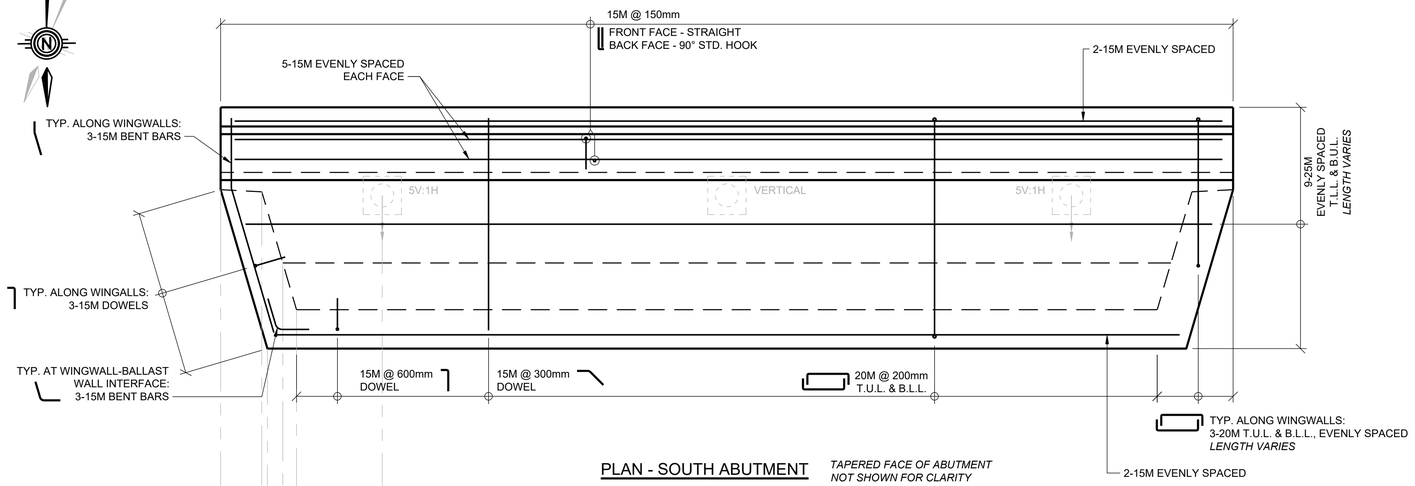
DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO.
2025-001
SHEET 8 OF 11
DWG. NO.
08A

CONSTRUCTION

TRUE

NOTES:

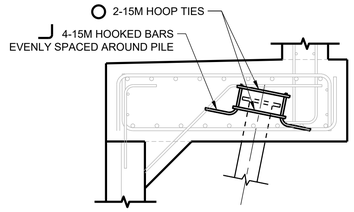
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ALL DOWELS SHALL BE DRILLED AND SET WITH AN APPROVED EPOXY ADHESIVE. MINIMUM EMBEDMENT LENGTH SHALL BE 200mm UNLESS NOTED OTHERWISE.



PLAN - SOUTH ABUTMENT

1:20

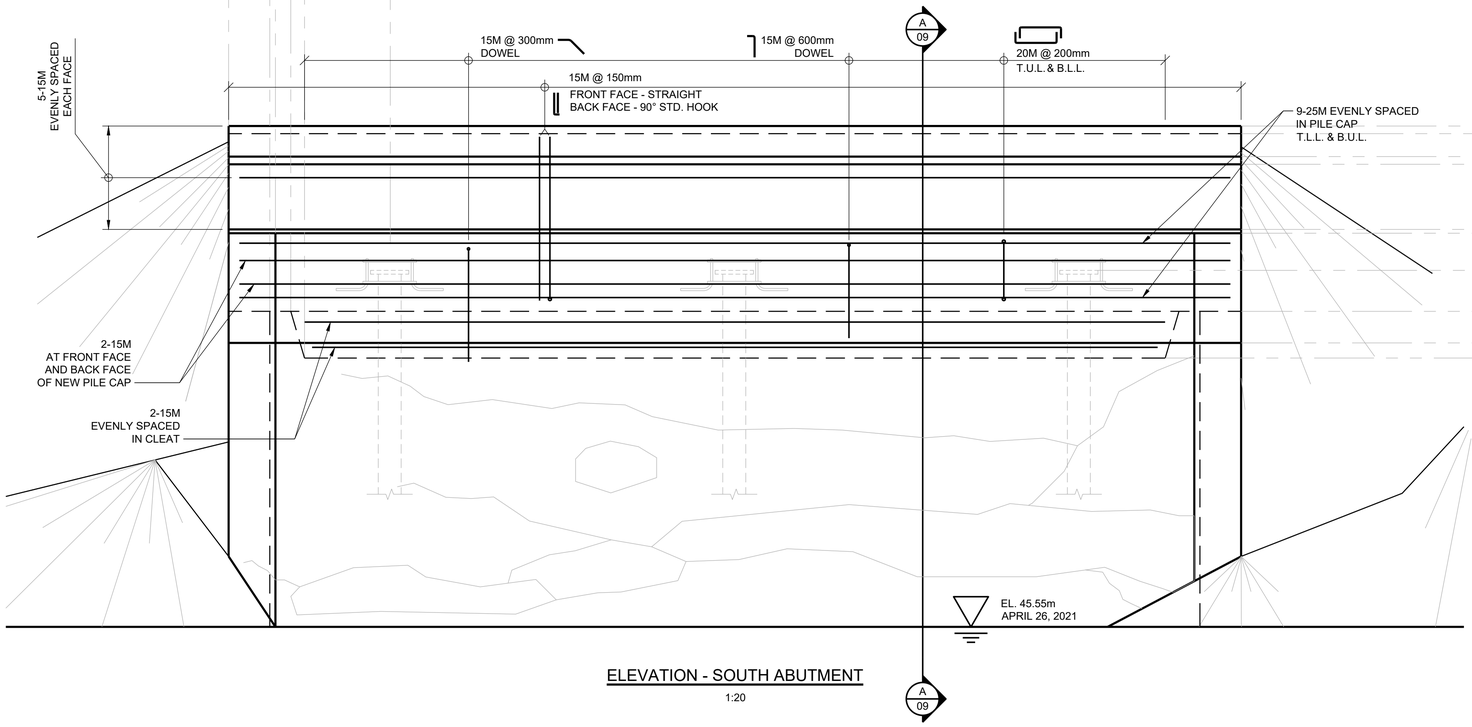
TAPERED FACE OF ABUTMENT NOT SHOWN FOR CLARITY



REINFORCEMENT AROUND PILES

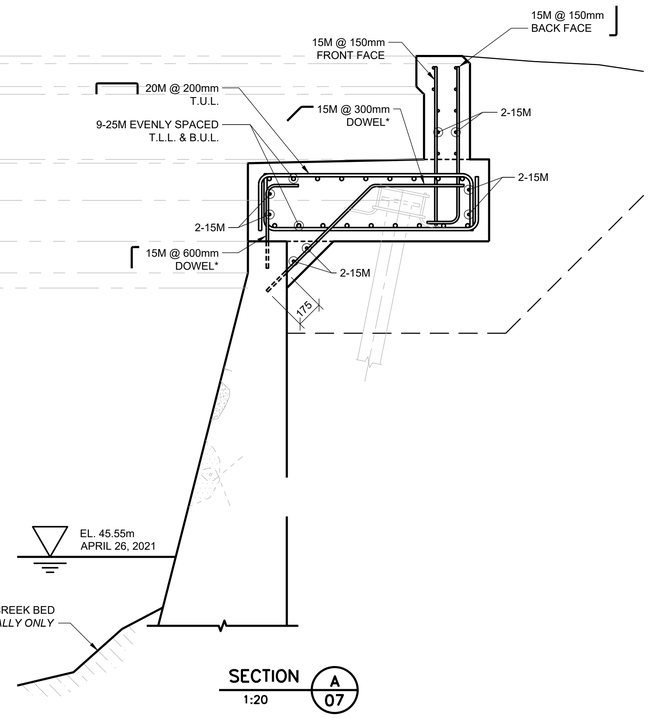
1:20

SIMILAR DETAILS FOR STRAIGHT PILE, BUT ROTATED



ELEVATION - SOUTH ABUTMENT

1:20



SECTION A 07

1:20

ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

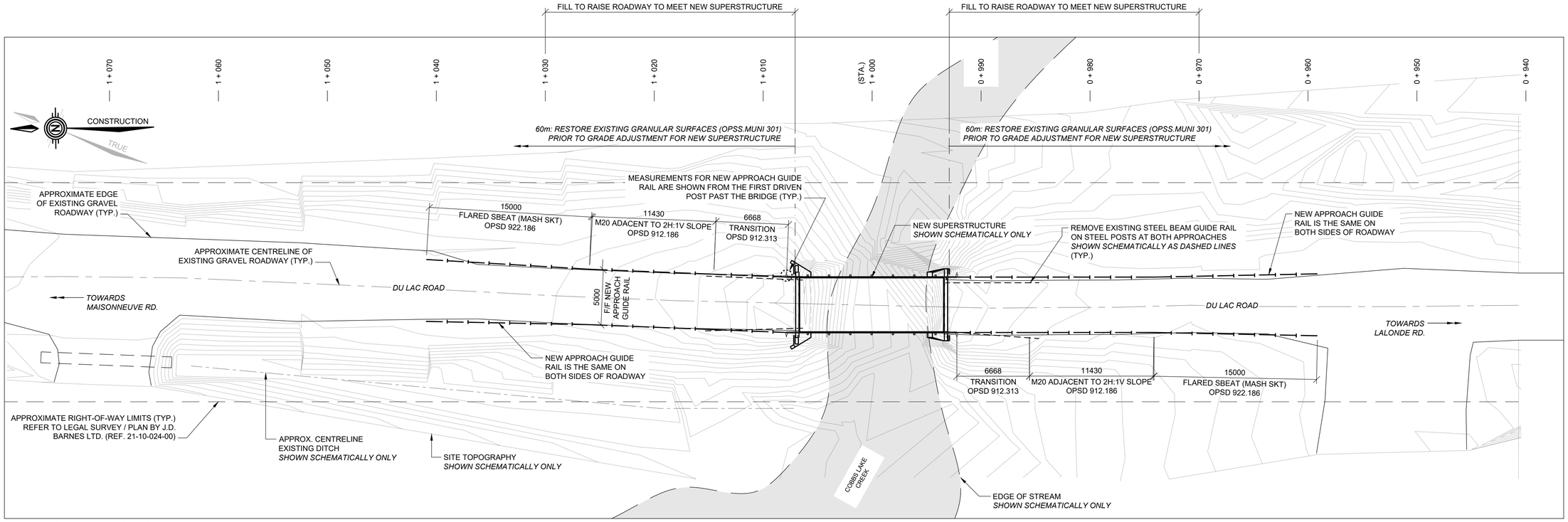
PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: RECONSTRUCTION - REINFORCEMENT SOUTH ABUTMENT

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 9 OF 11
DWG. NO. 09A

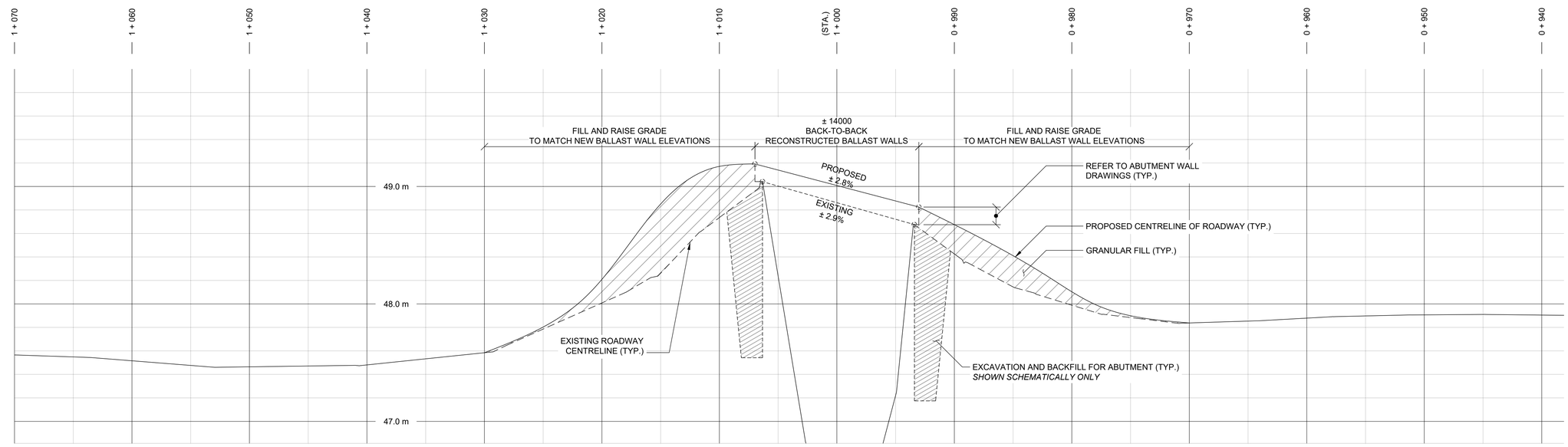
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. THE CONTRACT ADMINISTRATOR SHALL REVIEW AND APPROVE THE CONTRACTOR'S DELINEATION OF APPROACH GUIDE RAIL PRIOR TO MOBILIZATION OF INSTALLATION EQUIPMENT AND LABOUR FORCES. SOME ADJUSTMENTS MAY BE REQUIRED TO MATCH EXISTING ROADWAY ALIGNMENTS; APPROACH GUIDERAIL IS ONLY SHOWN SCHEMATICALLY ON THIS DRAWING.



PLAN - ROADWAY WORKS AT STRUCTURE

1:200



PROFILE - ROADWAY CENTRELINE

1:200 H

HD ENGINEERING

V. K. T. DWIVEDI 100073709 24/12/18 LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

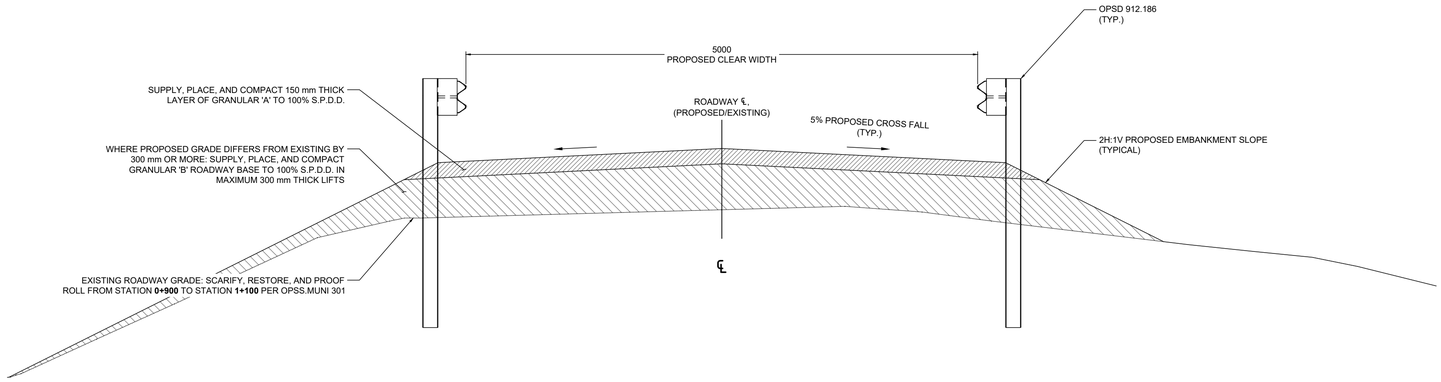
PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: ROADWAY – PLAN & PROFILE

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 10 OF 11
DWG. NO. 10A

NOTES:

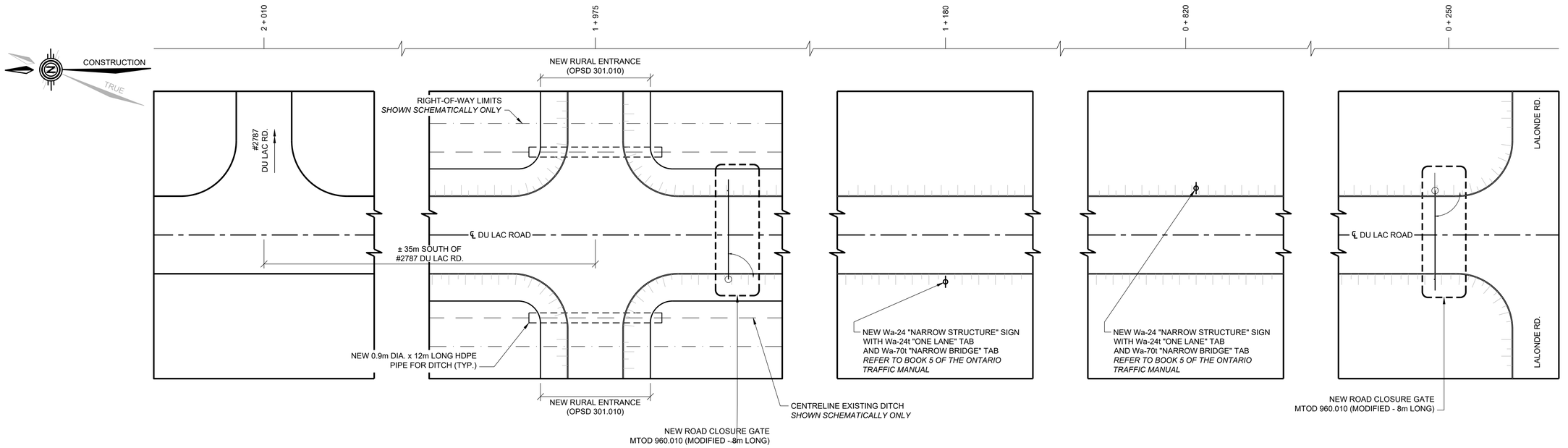
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. COORDINATE WITH THE CONTRACT ADMINISTRATOR DURING CONSTRUCTION TO REVIEW AND APPROVE THE LOCATION OF ALL NEW SIGN AND GATE INSTALLATIONS.
3. OBTAIN EXPLICIT WRITTEN APPROVAL FROM THE CITY OF CLARENCE-ROCKLAND PRIOR TO ENCROACHING PAST RIGHT-OF-WAY LIMITS (AS MAY BE REQUIRED FOR NEW ENTRANCES). COORDINATE WITH THE CONTRACT ADMINISTRATOR DURING CONSTRUCTION TO OBTAIN APPROVAL AND PRIOR TO THE DELIVERY OF ANY MATERIALS OR EQUIPMENT TO COMPLETE THE WORK.



TYPICAL ROADWAY CROSS-SECTION
1:30

DRAWING NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DOCUMENTS.
2. ALL UNITS ARE IN MILLIMETRES AND ELEVATIONS IN METRES UNLESS SPECIFIED OTHERWISE.
3. **BOTH ROADWAY CLOSURE GATES SHOWN SHALL BE CUSTOM FABRICATED TO 8.0 m OVERALL LENGTH (AS OPPOSED TO 9.0 m AS SHOWN IN THE MTOD 960.101 DRAWING).**



HD ENGINEERING

LICENSED PROFESSIONAL ENGINEER
V. K. T. DWIVEDI
100073709
24/12/18
PROVINCE OF ONTARIO

NO.	REVISION	BY	DATE
	ISSUED FOR TENDER	T.D.	24/12/18

CLIENT: CITY OF CLARENCE-ROCKLAND

PROJECT TITLE: COBBS LAKE BRIDGE (STRUCTURE 09) SUPERSTRUCTURE REPLACEMENT

DRAWING TITLE: ROADWAY – DETAILS

DATE: DECEMBER 2024
Dwn. J.B. Chk. T.D
Scale: AS SHOWN
Des. T.D. Chk. J.P.
CONTRACT NO. 2025-001
SHEET 11 OF 11
DWG. NO. 11A