

GENERAL

- 1. GEOMETRY, REINFORCEMENT AND LAYOUT OF THE EXISTING STRUCTURE ARE BASED ON EXISTING DESIGN INFORMATION AND LIMITED FIELD SURVEY DATA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL NECESSARY DIMENSIONS SUCH THAT WORK CAN BE CONSTRUCTED AS SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.
2. WHOLE DIMENSIONS SHOWN ON THESE DRAWINGS ARE IN MILLIMETERS. DECIMAL DIMENSIONS ARE IN METRES.
3. THE SCALES SHOWN ON THESE DRAWINGS ARE BASED ON A1 SIZED DRAWING SHEETS. DO NOT DETERMINE DIMENSIONS BY SCALING OFF DRAWINGS.
4. EXCEPT WHERE INDICATED OTHERWISE THESE DRAWINGS SHOW DETAILS FOR THE COMPLETED STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF WORKERS AND THE DESIGN AND STABILITY OF ANY TEMPORARY WORKS DURING CONSTRUCTION. CONSTRUCTION METHODS REQUIRING THE TEMPORARY INSTALLATION OF SHORING, SCAFFOLDING, BRACING, ETC. SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW AND ACCEPTANCE PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA TO PERFORM AND TAKE RESPONSIBILITY FOR ANY SUCH DESIGNS NECESSARY TO COMPLETE THE CONSTRUCTION AND AS REQUIRED BY THE CONTRACT DOCUMENTS.
5. CONTRACTOR TO REPORT ALL UNSOUND CONDITIONS IMMEDIATELY TO THE CONTRACT ADMINISTRATOR.

SCOPE OF MAINTENANCE WORK & SEQUENCE NOTES:

- 1. SCOPE OF MAINTENANCE WORK: THE SCOPE OF WORK INCLUDES REINFORCED CONCRETE MAINTENANCE TO THE NORWOOD BRIDGES (NB AND SB), CAPPING OF THE OVERHEAD SIGN STRUCTURE ON THE NORWOOD SB BRIDGE, ZINC ALUM METALLIZING TO THE NORWOOD AND MAIN STREET BRIDGES PIERS (NB AND SB), AND BENCH REPLACEMENTS ON THE NORWOOD BRIDGES (NB AND SB).

WORKS HAVE BEEN SUB-CATEGORIZED INTO TYPES, AS DESCRIBED BELOW. LOCATIONS AND EXTENTS TO BE MARKED BY THE CONTRACT ADMINISTRATOR IN THE FIELD:

- a. CONCRETE PATCH REPAIRS NORWOOD NB - REMOVE DELAMINATED CONCRETE 25mm PAST THE EXISTING REINFORCEMENT. SURFACE PREPARATION BY ABRASIVE BLASTING, INSTALLATION OF XPT ANODE CATHODIC PROTECTION, INSTALL MESH AND PERFORM FORMED AND PRESSURE Poured GROUT PATCH REPAIR.
b. CONCRETE PATCH REPAIR WITH MESH NORWOOD SB - REMOVE DELAMINATED CONCRETE, DRILL HOLES AND INSTALL EPOXY THREADED RODS. SURFACE PREPARATION BY ABRASIVE BLASTING, INSTALLATION OF XPT ANODE CATHODIC PROTECTION, INSTALLATION OF STAINLESS STEEL WIRE MESH, AND PERFORM FORMED AND PRESSURE Poured GROUT PATCH REPAIR.
c. OVERHEAD SIGN STRUCTURE CAPPING NORWOOD SB - REMOVE CONCRETE TO EXTENTS SHOWN ON DRAWINGS, CUT BACK PROJECTING ANCHOR BOLTS AND CONDUIT DUCT, SEAL CONDUIT OPENING WITH GROUT OR EPOXY, AND PERFORM FORMED AND Poured GROUT CAP TO DIMENSIONS SHOWN ON DRAWINGS.
d. ZINC ALUM METALLIZING AND ZINC CLAD SEALING OF WEST PIER ARMOUR PLATES, NOSINGS, AND PROTECTION PLATES ON NORWOOD AND MAIN STREET BRIDGES (NB AND SB) - REMOVE EXISTING COPPER FROM METAL BY GRINDING OR ABRASIVE BLASTING (OR METHOD APPROVED BY THE CONTRACT ADMINISTRATOR), ABRASIVE BLAST EXPOSED STEEL, APPLY ZINC ALUM METALLIZING TO STEEL SURFACE AT A THICKNESS OF 8 TO 12 MILS.
e. BENCH REPLACEMENTS NORWOOD BRIDGES (NB AND SB) - REMOVE EXISTING BENCHES AND ANCHOR BOLTS, AND REPLACE WITH NEW IPE BENCHES.

WORK ZONES AND ACCESS:

- 1. MAINTENANCE WORKS ARE REQUIRED AT SEVERAL LOCATIONS AS SHOWN ON THE REPAIR LOCATION PLAN ON SHEET 03.
2. CONCRETE PATCH REPAIRS - REPAIRS ON THE EXTERIOR SPANDREL WALLS.
3. OVERHEAD SIGN STRUCTURE CAPPING - ACCESS BY SCAFFOLDING OVER THE BIKE LANE OR AS ACCEPTED BY THE CONTRACT ADMINISTRATOR.
4. ZINC ALUM METALLIZING - ACCESS PIERS FROM THE ICE DURING THE WINTER MONTHS.
5. BENCH REPLACEMENTS - ACCESS FROM THE SIDEWALK AND BIKE PATHS AS REQUIRED.

TRAFFIC STAGING AND LANE CLOSURES:

- 1. CONCRETE PATCH REPAIRS: A PERIODIC MEDIAN LANE CLOSURE IS ALLOWED FOR CONCRETE PATCH REPAIRS. THE LANE CLOSURE IS NOT PERMITTED DURING PEAK HOURS.
2. OVERHEAD SIGN STRUCTURE CAPPING: THE CONTRACTOR IS ALLOWED TO CLOSE THE CURB LANE OF THE SOUTHBOUND NORWOOD BRIDGE DURING OFF-PEAK HOURS. THE CONTRACTOR IS ALLOWED TO CLOSE THE BIKE LANE AT ANY TIME TO FACILITATE WORK.
3. ZINC ALUM METALIZING: NO LANE CLOSURES ARE PERMITTED. ALL WORK IS CONDUCTED FROM THE ICE BELOW WHEN SAFE TO DO SO. THE CONTRACTOR MUST COORDINATE WITH THE FORKS TO MAINTAIN THE WINTER RIVER TRAIL AT ALL TIMES DURING METALLIZING OPERATIONS.
4. BENCH REFURBISHMENT: NO LANE CLOSURES ARE PERMITTED. THE CONTRACTOR IS ALLOWED TO CLOSE THE SIDEWALK TO FACILITATE REFURBISHMENT OF THE EXISTING BENCHES.

DESIGN NOTES:

- 1. DESIGN STANDARD: CANADIAN HIGHWAY BRIDGE DESIGN CODE S6-14; UPDATE NO.1, APRIL 2016; UPDATE NO.2, JULY 2017.

MATERIAL NOTES:

- 1. GROUT: MASTEREMACO S 440 MC LOW-SHRINK HIGH-EARLY STRENGTH CONCRETE GROUT. MINIMUM COMPRESSIVE STRENGTH OF GROUT CUBE: 40 MPa @ 7 DAYS; 50 MPa @ 28 DAYS.
2. STAINLESS STEEL WELDED WIRE MESH: CONFORMING TO AISI 304.
3. POST-INSTALLED FASTENINGS:
a. INSTALLATION OF POST-INSTALLED FASTENINGS BY TRAINED PERSONNEL TO MANUFACTURER'S INSTRUCTIONS.
b. USE ADHESIVE ANCHOR SYSTEMS UNLESS NOTED OTHERWISE.
c. EPOXY ADHESIVE SHALL BE TWO-PART INJECTABLE ADHESIVE SPECIFICALLY DESIGNED FOR STRUCTURALLY CONNECTING ANCHORS TO EXISTING CONCRETE. BASIS OF DESIGN: HILTI RE500.
4. CORROSION CONTROL SYSTEM: EMBEDDED GALVANIC ANODE GALVASHIELD XPT 60g

- ZINC PER ANODE SUPPLIED BY VECTOR CORROSION TECHNOLOGIES OR ACCEPTED EQUIVALENT.
5. BENCHES: BENCH REFURBISHMENT IS TO BE IN ACCORDANCE TO THE DRAWINGS AND NOTES.
6. METALLIZING: ZINC ALUM METALLIZING OF EXISTING PIERS TO BE PLATTZINC 85/15 ZINC/ALUMINUM WIRE SUPPLIED BY VECTOR CORROSION TECHNOLOGIES OR ACCEPTED EQUIVALENT.

TIMBER FORMWORK NOTES:

- 1. FORMWORK SHALL BE DESIGNED BY THE CONTRACTOR TO MEET THE REQUIREMENTS OF CAN/CSA S269.1-16.
2. DESIGN FORMWORK TO RESIST THE FULL HYDROSTATIC PRESSURE OF GROUT.
3. REPAIR ALL FORM-TIE HOLES USING AN ACCEPTED TROWEL-ON PATCHING MATERIAL. SUBMIT PROPOSED PRODUCT FOR CONTRACT ADMINISTRATOR'S REVIEW AND ACCEPTANCE.
4. OBSERVE THE FOLLOWING LIMITS ON MECHANICALLY ANCHORED FORM TIE PLACEMENT WITH RESPECT TO EXISTING GIRDERS AND WALLS:
a. FORM TIES REQUIRING COMPLETE PENETRATIONS THROUGH GIRDERS OR WALLS SHALL NOT BE PERMITTED.
b. REMOVE ALL TEMPORARY MECHANICAL ANCHORS FOLLOWING COMPLETION OF THE WORK, AND REPAIR HOLES. ANY ANCHOR COMPONENTS TO BE LEFT-IN-PLACE MUST BE STAINLESS STEEL.
5. MINIMUM PLYWOOD THICKNESS 20 mm. MAXIMUM STUD SPACING 450 mm CENTRE TO CENTRE. MAXIMUM WHALER SPACING 760 mm CENTRE TO CENTRE.

REPAIR TASK NOTES:

- 1. PROTECTION OF THE ENVIRONMENT:
a. UNDER NO CIRCUMSTANCES IS ANY MATERIAL OR DEBRIS PERMITTED TO GO INTO THE EXISTING WATERWAY. ALL MATERIAL AND DEBRIS SHALL BE CONTAINED AND DISPOSED OF PROPERLY.
2. PROPOSED SEQUENCE - CONCRETE PATCH REPAIRS
a. IMPLEMENT SCAFFOLDING OFF ICE WHEN SAFE TO DO SO, OR BY OTHER APPROVED MEANS OF ACCESS.
b. MEDIAN LANE CLOSURES ARE PERMITTED DURING OFF-PEAK HOURS.
c. CONDUCT REMOVALS & ABRASIVE BLASTING.
d. INSTALL XPT ANODES TO EXISTING REINFORCEMENT.
e. INSTALL STAINLESS STEEL WIRE MESH.
f. PERFORM FORMED AND PRESSURE Poured PATCH REPAIR.
3. REMOVALS:
a. CONDUCT GIRDER AND WALL REMOVALS IN THE PRESENCE OF THE CONTRACT ADMINISTRATOR'S REPRESENTATIVE, BY MEANS AND METHODS REVIEWED AND ACCEPTED BY THE CONTRACT ADMINISTRATOR. CONDUCT OTHER REMOVALS BY MEANS AND METHODS REVIEWED AND ACCEPTED BY THE CONTRACT ADMINISTRATOR.
b. USE A REBAR LOCATOR TO LOCATE EXISTING REINFORCING PRIOR TO REMOVALS. DO NOT DAMAGE EXISTING REINFORCING DURING REMOVALS.
c. PROVIDE SAWCUTS WHERE NECESSARY TO LIMIT THE EXTENTS OF DEMOLITION. SAWCUT DEPTH SHALL NOT EXCEED 25 mm.
d. PERFORM REMOVALS WITH CHIPPING HAMMERS NO HEAVIER THAN NOMINAL 7 kg CLASS.
e. REMOVALS SHALL BE TYPICALLY TO AT LEAST THE FACE OF EXISTING REINFORCEMENT AND THE DEPTH OF DELAMINATED CONCRETE FOR NORWOOD SB REPAIRS. REMOVALS BEYOND THE FACE OF EXISTING REINFORCEMENT FOR NORWOOD SB SHALL PROCEED ONLY IN THE PRESENCE OF THE CONTRACT ADMINISTRATOR.
f. REMOVALS SHALL BE TYPICALLY AT LEAST 25mm PAST THE BACK OF EXISTING REINFORCEMENT AND THE DEPTH OF DELAMINATED CONCRETE FOR NORWOOD NB REPAIRS. REMOVALS GREATER THAN 150mm IN DEPTH FOR NORWOOD NB SHALL PROCEED ONLY IN THE PRESENCE OF THE CONTRACT ADMINISTRATOR.
g. FOR NORWOOD SB, CONDUCT ADDITIONAL REMOVALS BEHIND EXISTING MILD STEEL REINFORCEMENT WHICH IS EXPOSED IN THE PATCH AREA, TO FORM A GAP BEHIND THE EXISTING REINFORCEMENT WITH A CLEAR OFFSET OF 20 mm OVER THE RADIUS OF THE REINFORCEMENT. ALL DEBRIS SHALL BE COLLECTED AND DISPOSED OF AT AN APPROPRIATE FACILITY OFF-SITE.
4. SURFACE PREPARATION OF COLD JOINTS FOLLOWING REMOVALS - ABRASIVE BLASTING:
a. BLASTING ABRASIVE SHALL BE NON-METALLIC AND FREE OF CORROSION PRODUCING CONTAMINANTS AND OIL.
b. ALL SURFACES OF THE COLD JOINT INTERFACE INCLUDING CONCRETE AND EXPOSED REINFORCING STEEL ARE TO BE ABRASIVELY BLASTED TO THE REQUIREMENTS OF SSPC-SP6/ NACE NO.3 COMMERCIAL BLAST CLEANING TO REVEAL A CLEAN SUBSTRATE AND KEPT CLEAN UNTIL CONCRETE PATCH PLACEMENT.
c. ABRASIVE BLASTING SHALL BE FOLLOWED BY A HIGH PRESSURE WATER WASH TO REMOVE ALL RESIDUES.
d. THE PREPARED SURFACE SHALL BE INSPECTED BY THE CONTRACT ADMINISTRATOR'S REPRESENTATIVE PRIOR TO CLOSING UP FORMS.
5. GIRDER AND WALL CONCRETE REPAIRS:
a. INSTALL STAINLESS STEEL MESH FOR REPAIR AREA, IF DIRECTED BY THE CONTRACT ADMINISTRATOR. DRILL SUPPLEMENTARY ANCHORS AND/OR ATTACH SUPPLEMENTARY STAINLESS STEEL REINFORCING MESH. REFER TO REPAIR DETAILS.
b. INSTALL EMBEDDED GALVANIC ANODE GALVASHIELD XPT 60g ZINC PER ANODE SUPPLIED BY VECTOR CORROSION TECHNOLOGIES. TIE TO EXISTING REINFORCEMENT. CONFIRM ELECTRICAL CONTINUITY.
c. APPLY WATER TO THE COLD JOINT INTERFACE PRIOR TO CLOSING FORMS IN ORDER TO ACHIEVE A SATURATED SURFACE DRY CONDITION. CONDUCT PATCH REPAIR WITHIN 12 HOURS OF CLOSING FORMS. ENSURE WATERTIGHTNESS OF FORMWORK.
d. INSTALL FORMWORK.
e. FORMS SHALL BE INSPECTED BY THE CONTRACT ADMINISTRATOR AND BY THE PUMPING CONTRACTOR PRIOR TO CONDUCTING THE PATCH REPAIR. ENSURE TUBES ARE POSITIONED TO ALLOW ALL AIR TO ESCAPE FROM FORMS.
f. PREPARE AND PLACE GROUT ACCORDING TO THE TENDER DOCUMENT.

- g. PUMP GROUT INTO FORMS. CAP INLET AND OUTLET TUBES ONCE PRESENCE OF GROUT THROUGHOUT PATCH CONFIRMED.
h. CURE REPAIRS FOR 7 DAYS PRIOR TO FORM REMOVAL.

OVERHEAD SIGN STRUCTURE (OHSS) CAPPING NOTES:

- 1. REMOVALS:
a. CONDUCT REMOVALS IN THE PRESENCE OF THE CONTRACT ADMINISTRATOR'S REPRESENTATIVE, BY MEANS AND METHODS REVIEWED AND ACCEPTED BY THE CONTRACT ADMINISTRATOR.
b. PROVIDE SAWCUTS WHERE NECESSARY TO LIMIT THE EXTENTS OF DEMOLITION. SAWCUT DEPTH SHALL NOT EXCEED 25 mm.
c. PERFORM REMOVALS WITH CHIPPING HAMMERS NO HEAVIER THAN NOMINAL 7 kg CLASS.
d. REMOVALS SHALL BE TYPICALLY TO THE DIMENSIONS SHOWN ON THE DRAWINGS OR AS DIRECTED BY CONTRACT ADMINISTRATOR.
2. PROJECTING ANCHOR BOLTS AND CONDUIT:
a. CUT BACK EXISTING PROJECTING ANCHOR BOLTS AND CONDUIT TO PROVIDE 50mm COVER TO NEW CONCRETE CAP DIMENSIONS.
b. SEAL CONDUIT OPENING WITH GROUT OR EPOXY TO ENSURE WATER TIGHTNESS.
3. CAPPING:
a. INSTALL STAINLESS STEEL WIRE MESH.
b. INSTALL FORMWORK.
c. FORMS SHALL BE INSPECTED BY THE CONTRACT ADMINISTRATOR AND BY THE CONTRACTOR PRIOR TO CONDUCTING THE CAPPING.
d. PREPARE AND PLACE GROUT ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
e. GROUT TO BE GRAVITY FED INTO FORM.

METALLIZING NOTES:

- 1. PROTECTION OF THE ENVIRONMENT:
a. UNDER NO CIRCUMSTANCES IS ANY MATERIAL OR DEBRIS PERMITTED TO GO INTO THE EXISTING WATERWAY. ALL MATERIAL AND DEBRIS SHALL BE CONTAINED AND DISPOSED OF PROPERLY.
2. REMOVALS:
a. REMOVE EXISTING COPPER METALLIZING DOWN TO EXISTING STEEL BY MEANS OF GRINDING OR ABRASIVE BLASTING, OR OTHER MEANS AS APPROVED BY THE CONTRACT ADMINISTRATOR.
b. REMOVALS EXTENTS SHALL BE TO ALL EXPOSED COPPER ON THE UPSTREAM FACE OF THE PIERS ABOVE ICE LEVEL. REMOVALS SHALL NOT TAKE PLACE BELOW ICE LEVEL.
3. SURFACE PREPARATION OF EXISTING STEEL - ABRASIVE BLASTING:
a. BLASTING ABRASIVE SHALL BE NON-METALLIC AND FREE OF CORROSION PRODUCING CONTAMINANTS AND OIL.
b. ALL SURFACES OF THE EXPOSED STEEL ARE TO BE ABRASIVELY BLASTED TO THE REQUIREMENTS OF SSPC-SP6/ NACE NO.3 COMMERCIAL BLAST CLEANING TO REVEAL A CLEAN SUBSTRATE AND KEPT CLEAN UNTIL ZINC ALUM METALLIZING.
c. CONTAMINATION REMOVAL USING AN ALCOHOL BASED SOLUTION MAY BE REQUIRED.
d. THE PREPARED SURFACE SHALL BE INSPECTED BY THE CONTRACT ADMINISTRATOR'S REPRESENTATIVE PRIOR TO METALLIZING.
4. METALLIZING APPLICATION:
a. METALLIZE ALL SURFACES INDICATED ON DRAWINGS.
b. FINAL METALLIZING THICKNESS TO BE BETWEEN 8 TO 12 MILS AFTER POLISHING.
c. BASIS OF METALLIZING: PLATTZINC 85/15 ZINC/ALUMINUM WIRE.
5. QUALITY ASSURANCE TESTING:
a. CONTRACTOR TO HAVE A REGISTERED NACP-2 SPECIALIST TO APPLY METALLIZING, AND TO TAKE SAMPLES FOR TESTING.

BENCH REFURBISHING NOTES:

- 1. REMOVALS:
a. CONTRACTOR TO REMOVE EXISTING BENCHES ON THE NORWOOD BRIDGES.
b. MEMBERS TO BE UNBOLTED AND WELDS TO BE CAREFULLY CUT.
c. EXISTING ANCHOR RODS INTO LIMESTONE TO BE REMOVED AND HOLES TO BE SEALED FLUSH WITH EPOXY OR GROUT IF NEEDED.
2. REFURBISHMENT:
a. STEEL BARS, AND SUPPORT CHANNEL TO BE SALVAGED, CLEANED AND RE-GALVANIZED FOR RE-USE.
b. WOOD TO BE SALVAGED, SANDED TO REMOVE SURFACE DEFECTS, AND HAVE NEW HOLES DRILLED (IF NEEDED) FOR NEW LAG BOLTS.
c. FABRICATE NEW GALVANIZED CONNECTION PLATES.
d. DRILL AND TAP DROP-IN ANCHORS INTO LIMESTONE BENCH CONNECTION.
e. EXISTING HSS RAIL TO BE REPLACED WITH MATCHING GALVANIZED SECTION WITH LONGER CONNECTION KEY.
3. DISPLAY BENCH:
a. THE CITY HAS REFURBISHED THE SOUTHMOST BENCH ON NORWOOD NB ACCORDING TO THIS PROCEDURE.
b. REFURBISHED BENCH BY THE CITY WILL SERVE AS A DISPLAY FOR THE CONTRACTOR.
c. REFURBISHED BENCHES DETAILS AND QUALITY TO MATCH THAT OF THE DISPLAY BENCH.



METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

LOCATION APPROVED
UNDERGROUND STRUCTURES
SUPR. U/G STRUCTURES COMMITTEE
NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

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THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
2019 BRIDGE MAINTENANCE NORWOOD AND MAIN STREET BRIDGES
GENERAL NOTES
CITY DRAWING NUMBER B103-19-02/B104-19-02
SHEET 02 OF 12
DRAWING No. 02 REV 1