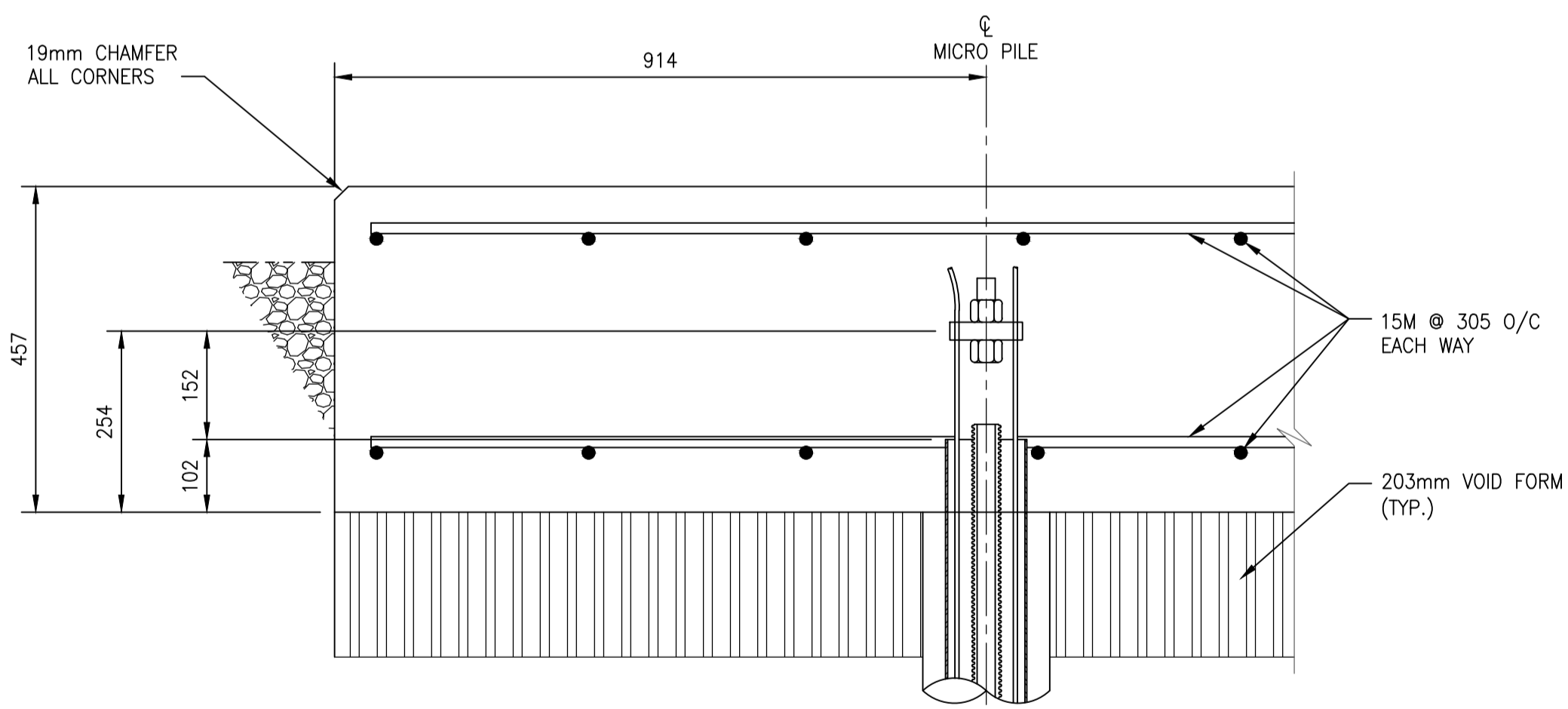


PLAN
SCALE: 1 : 20



SECTION A-A
SCALE: 1 : 8

GENERAL NOTES:

- DO NOT SCALE DRAWINGS.
- THESE NOTES ARE TO BE READ IN CONJUNCTION WITH ALL PERTINENT CODES AND CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.
- DESIGN CODES:
NATIONAL BUILDING CODE (NBC) OF CANADA
STEEL CODE CSA S16.1
CONCRETE CODE CSA A23.1, A23.2, A23.3
- VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN PRIOR TO COMMENCING CONSTRUCTION.
- TAKE MEASUREMENTS IN FIELD AS REQUIRED TO VERIFY OR SUPPLEMENT DIMENSIONS SHOWN.
- MODIFY EXISTING WORK TO ACCOMMODATE NEW CONSTRUCTION AS APPROVED. VERIFY DIMENSIONS, ELEVATIONS AND EXTENT OF WORK WITH DRAWINGS PRIOR TO PROCEEDING WITH CONSTRUCTION.

SHOP DRAWINGS:

- THE CONTRACTOR SHALL SUBMIT SPECIFIED SHOP DRAWINGS TO THE CONTRACT ADMINISTRATOR FOR REVIEW. ALL SUBMISSIONS MUST BE IN METRIC UNITS.
- SHOP DRAWINGS FOR THE FOLLOWING COMPONENTS SHALL BE SEALED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF MANITOBA:

REINFORCING STEEL.
- THE CONTRACTOR SHALL REVIEW SHOP DRAWINGS, PRODUCT DATA AND SAMPLES PRIOR TO SUBMISSION AND STAMP AND SIGN DRAWINGS INDICATING CONFORMANCE TO THE CONTRACT REQUIREMENTS. THE CONTRACTOR SHALL VERIFY:

FIELD MEASUREMENTS
FIELD CONSTRUCTION CRITERIA
WEIGHTS AND LOADS
- THE CONTRACTOR SHALL COORDINATE EACH SUBMISSION WITH REQUIREMENTS OF WORK AND CONTRACT DOCUMENTS. INDIVIDUAL SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL ALL RELATED DRAWINGS ARE AVAILABLE.
- THE CONTRACTOR SHALL NOTIFY THE CONTRACT ADMINISTRATOR, IN WRITING AT TIME OF SUBMISSION, OF DEVIATIONS FROM REQUIREMENTS OF CONTRACT DOCUMENTS.
- THE CONTRACTOR'S RESPONSIBILITY FOR ERRORS AND OMISSIONS IN SUBMISSION IS NOT RELIEVED BY THE CONTRACT ADMINISTRATOR'S REVIEW OF SUBMITTALS.
- NO DELAY OR CLAIMS WILL BE ALLOWED THAT ARISE BECAUSE OF DELAYS IN SUBMISSION, RE-SUBMISSION, AND REVIEW OF SHOP DRAWINGS.

FOUNDATION PILING

- PILING CONTRACTOR SHALL TAKE PRECAUTIONS DURING EXCAVATION NOT TO DAMAGE EXISTING FOUNDATIONS OR FACILITIES. SHORE AND BRACE SHALLOW FOUNDATIONS WITHIN IMMEDIATE VICINITY OF EXCAVATION TO AVOID SHIFTING AND UNDERMINING OF FOOTINGS.
- INSTALLATION OF ALL PILING SHALL BE OVERSEEN BY APPROPRIATELY QUALIFIED FIELD PERSONNEL AND ACCURATE LOG RECORDS KEPT BY THE PILING CONTRACTOR, INCLUDING A RECORD OF ALL PROBLEMS ENCOUNTERED DURING DRILLING. RECORDS SHALL INCLUDE:
-EXCAVATION LOGS
-SHAFT COMPLETION DEPTHS
-AS CONSTRUCTED DIMENSIONS
-PILE ECCENTRICITY IF ENCOUNTERED
- THE ENGINEER MUST BE INFORMED OF ANY REQUIREMENT FOR DEVIATION FROM THE APPROVED DRAWINGS BEFORE THE WORK IS UNDERTAKEN.
- TOP OF PILE ELEVATIONS ARE AS SHOWN ON DRAWINGS. THE PILING CONTRACTOR SHALL USE THE BENCH MARK PROVIDED BY THE OWNER FOR LAYOUT OF THE WORK.

FOUNDATIONS (MICROPILES)

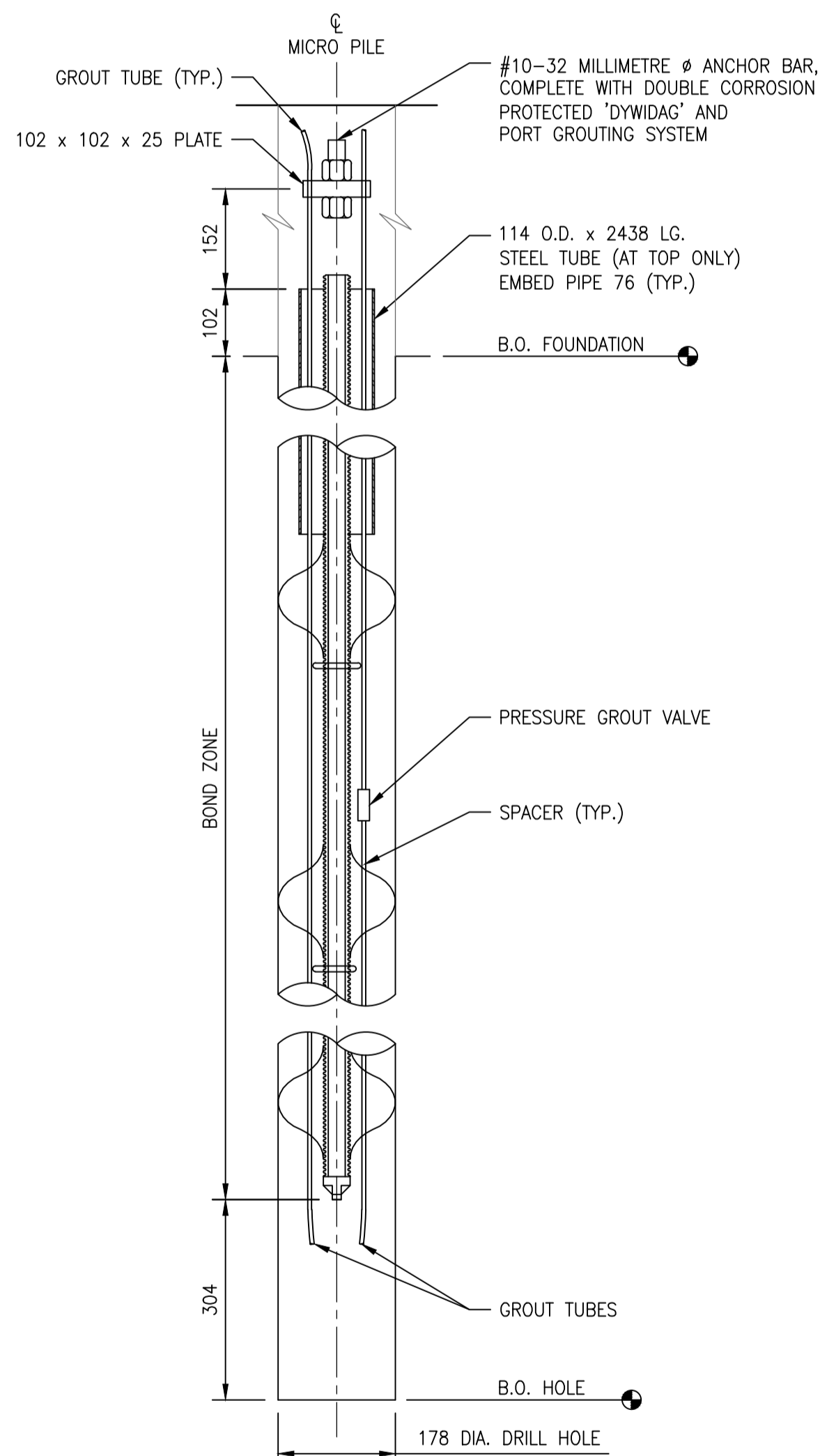
- INSTALLATION SHALL BE UNDERTAKEN BY A CONTRACTOR QUALIFIED FOR THIS WORK.
- THE CONTRACTOR SHALL:
-STIPULATE THE INSTALLATION CLASSIFICATION TYPE
-STIPULATE THE DRILLING TECHNIQUE UTILISED TO MINIMISE DISTURBANCE TO ADJACENT SOIL AND STRUCTURES
-SHALL PROVIDE DESIGN AND ENGINEER SEALED DRAWINGS AND CALCULATIONS FOR THE MICROPILE DESIGN. CONTRACTOR TO PROVIDE QC PROCEDURE
-INSTALL MICRO PILES AS SHOWN IN THE CONSTRUCTION DOCUMENTS
- PILE DESIGN SHALL BE BY CONTRACTOR TO LIMIT STATES LOADS SHOWN ON THE CONSTRUCTION DOCUMENTS. PROVIDE FOR LATERAL LOADING AS REQD. CONTRACTOR TO STIPULATE CASED ZONE, TRANSFER ZONE AND BOND ZONE FOR MICROPILE.
- PROVIDE A ZINC RICH EPOXY PRIMER FOR THE TOP 2.5 M OF ALL PILES AND THE PILE HEAD U/N.
- CASING SHALL CONFORM TO API 5CT AND ASTM A252 HAVING A MINIMUM YIELD STRENGTH OF 80 KSI (552 MPa). SPLICE CASING SEGMENTS USING THREADED CONNECTIONS PROVIDING A SMOOTH CONTINUOUS OUTER SURFACE.
- STEEL REINFORCING SHALL CONFORM TO CSA G279, GRADE 75.
- CEMENT GROUT SHALL BE PUMPABLE NEAT CEMENT CONFORMING TO ASTM C150 HAVING A W:C RATIO OFF APPROX 0.45 AND AN F.C OF 4000 PSI MIN. GROUT MAY HAVE SAND AGGREGATE IF PUMPABLE. PROVIDE EXPANDING NON-CHLORIDE ADMIXTURE SIKKA INTERPLAST N AS REQUIRED.
- FABRICATE MICRO PILES AS STIPULATED; PROVIDE ADDED LENGTH FOR INSTALLATION.

CAST-IN-PLACE CONCRETE

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO CSA STANDARD CSA A23.1 AND CSA A23.2 INCLUDING HEATING/HOARDING AND REQUIREMENTS FOR COLD WEATHER CONCRETING.
- CEMENT SHALL BE TYPE HS SULPHATE RESISTING FOR ALL CONCRETE INCLUDING PILES AND PILE CAPS.
- ALL NEW CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 35 MPA AT 28 DAYS, AND A MINIMUM 25 MPA PRIOR TO THE REMOVAL OF SLAB AND BEAM FORMWORK.
- REINFORCING STEEL SHALL CONFORM TO CSA G30; GRADE 400.
- ALL STEEL TO BE DETAILED IN ACCORDANCE WITH THE LATEST RSIO (REINFORCING STEEL INSTITUTE OF ONTARIO) MANUAL OF STANDARD PRACTICE, CSA A23.1 AND CSA A23.3, EXCEPT AS NOTED ON DRAWINGS.
- ALL REINFORCING STEEL SHALL BE HELD IN PLACE AND TIED BY THE USE OF PROPER ACCESSORIES SUPPLIED BY THE REINFORCING STEEL FABRICATOR.
- ALL REINFORCING STEEL SHALL BE CLEANED OF ALL DIRT, GREASE AND ALL OTHER DELETERIOUS MATERIALS PRIOR TO PLACING.
- REINFORCING STEEL SHALL NOT BE WELDED OR HEATED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- COVER TO REINFORCING STEEL SHALL BE AS FOLLOWS:
PILES - 76 SIDES
PILE CAPS & TIE BEAM - 51 TOP, 76 BOT, 51 SIDES

EXCAVATION AND BACK FILL

- TAKE PRECAUTION DURING EXCAVATION/DEMOLITION WORK TO AVOID ANY DAMAGE TO ADJACENT EXISTING FOUNDATIONS/FACILITIES.
- WHERE COMPACTED GRANULAR FILL IS SPECIFIED THE SUB GRADE SHALL BE COMPACTED TO 98% OF STANDARD PROCTOR DENSITY PRIOR TO PLACING COMPACTED GRANULAR BASE.
- COMPACTED GRANULAR BASE SHALL BE PLACED IN 102 MAXIMUM LIFTS AND COMPACTED TO 100% OF STANDARD PROCTOR DENSITY.

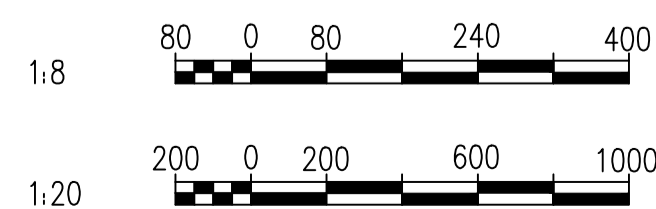


EACH PILE TO BE DESIGNED BY THE CONTRACTOR TO RESIST THE MINIMUM OF THE FOLLOWING UNFACTORED LOADS:
60kN COMPRESSION
9kN LATERAL (ANY DIRECTION)

DETAIL 1
SCALE: 1 : 8

FOR BID PURPOSES ONLY:
NOT FOR CONSTRUCTION

| DRAWING NUMBER | REFERENCE DRAWINGS |
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| SNC-Lavalin Inc. 148 Nature Park Way Winnipeg, MB, Canada R3P 0X7 204-786-8080 | |
| DESIGNED BY: K. KOTYK | CHECKED BY: D. COATES |
| DRAWN BY: M.J. PERSSON | APPROVED BY: I. PARKINSON |
| SCALE: AS SHOWN | ISSUED FOR CONSTRUCTION BY: DATE: |
| DATE: 2016/02/11 | DATE: |
| CONSULTANT NO.: | |

ENGINEER'S SEAL

PRELIMINARY
NOT TO BE
USED FOR
CONSTRUCTION

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

COCKBURN FLOOD AND WASTEWATER PUMPING STATION
2016 UPGRADES
STRUCTURAL FOUNDATION
NEW WORK

| | | | |
|---|---------------------|-------------------|-------------------|
| CITY DRAWING NUMBER 1-0127A-S0001 | SHEET 001 | REV. 00 | SIZE A1 |
|---|---------------------|-------------------|-------------------|