## GENERAL NOTES:

1. THIS STRUCTURE HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 3 OF THE MANITOBA BUILDING CODE–2011.
2. ALL STANDARDS AND CODES SPECIFIED SHALL BE THE LATEST REVISION AVAILABLE.
3. SITE VERIFY ALL DIMENSIONS, ELEVATIONS, DETAILS, QUANTITIES AND CONDITIONS PRIOR TO START OF ANY DEMOLITION, CONSTRUCTION OR PREFABRICATION OF ANY BUILDING COMPONENT.
4. EXISTING STRUCTURAL SUPPORTS WHICH INTERFERE WITH NEW WORK SHALL BE RELOCATED UPON APPROVAL BY CONTRACT ADMINISTRATOR.
5. THE CONTRACTOR SHALL ENSURE THAT ALL BURIED SERVICES ARE LOCATED AND MARKED PRIOR TO EXCAVATION.
6. ALL BUILDING SYSTEMS COMPONENTS SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER UNLESS SPECIFIED OTHERWISE.
7. SHIP, STORE, HANDLE, ERECT, INSTALL, ETC. ALL BUILDING MATERIALS, COMPONENTS, FIXTURES, EQUIPMENT, ETC. AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
8. ALL DEMOLITION, FABRICATION, CONSTRUCTION, ETC. SHALL BE CARRIED OUT IN ACCORDANCE WITH ALL PERTINENT BUILDING CODES, AND LOCAL BYLAWS AND ORDINANCES.
9. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADEQUATE PROTECTION FOR THE EXISTING FACILITY/PROPERTY TO PREVENT PHYSICAL DAMAGE AND LOSS OF VALUE OR USE OF ANY KIND, AS A RESULT OF DEMOLITION, CONSTRUCTION AND RELATED ACTIVITIES.
10. TIME AND DURATION OF ANY NECESSARY DISRUPTION IN THE USE OF ANY ROOM, SPACE, SERVICE, EQUIPMENT, ETC. SHALL BE COORDINATED WITH, AND APPROVED BY THE CONTRACT ADMINISTRATOR AT THE START OF THE PROJECT. PROVIDE CONTRACT ADMINISTRATOR WITH MINIMUM ONE WEEK NOTICE (OR AS REQUIRED) PRIOR TO EACH ACTUAL OCCURRENCE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE OWNER AND THE CONTRACT ADMINISTRATOR OF ANY PREVIOUSLY UNNOTICED PRE–EXISTING FLAW OR CONDITION THAT MIGHT INCREASE THE SCOPE OF WORK OR COMPROMISE NEW CONSTRUCTION, PRIOR TO THE START OF DEMOLITION AND CONSTRUCTION, OR AS SOON AS IT IS DISCOVERED.
12. DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE PROJECT TECHNICAL SPECIFICATIONS.

## EXCAVATION & BACKFILL:

1. REMOVE ALL FILL MATERIALS, DELETERIOUS SOILS AND ORGANICS IN AREAS REQUIRING GRANULAR BASE MATERIALS. COMPACT SUBGRADE TO 95% STANDARD PROCTOR DENSITY. SUB–EXCAVATE AND REPAIR ALL AREA EXHIBITING UNSUITABLE DEFLECTIONS.
2. GRANULAR BASE TO BE PLACED ON GRADE SHALL BE COMPACTED TO 100% AND BACKFILL TO 95% STANDARD PROCTOR DENSITY IN MAXIMUM 150mm LIFTS.
3. DO NOT COMPACT FROZEN BACKFILL OR PLACE ON FROZEN SUBGRADE.
4. SUB–GRADE, SUB–BASE AND BASE COURSE MATERIALS AND CONSTRUCTION METHODS SHALL BE AS PER CITY OF WINNIPEG SPECIFICATION CW3110 AND BACKFILL TO CW2030, UNLESS NOTED OTHERWISE.
5. SUBGRADE AND BASE COURSE INSTALLATION SHALL BE INSPECTED AND APPROVED BY CONTRACT ADMINISTRATOR, AT CONSTRUCTION PHASES AS DETERMINED BY CONTRACT ADMINISTRATOR, BEFORE WORK IS TO COMMENCE.

## REINFORCING STEEL:

1. REINFORCING STEEL TO BE NEW DEFORMED BILLET STEEL BARS CONFORMING TO CSA G30.18–09 (R2014). GRADE TO BE 400 MPa.
2. REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE CONCRETE.
3. SUBMIT SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS & QUANTITIES OF REINFORCING STEEL, BENDING & CUTTING SCHEDULES, SUPPORTING & SPACING DEVICES, ETC. FOR REVIEW PRIOR TO FABRICATION. DETAIL, FABRICATE AND PLACE REINFORCING IN ACCORDANCE WITH CSA A23.1–09 (R2014), CSA A23.3–14] AND ACI SP–66 (2004) UNLESS NOTED. LAP STEEL 36 BAR DIAMETERS (MINIMUM) UNLESS NOTED.
4. LAP BEAM AND STRUCTURAL SLAB TOP REINFORCING AT CENTER SPAN, AND BOTTOM STEEL AT SUPPORTS.
5. BEND ALL HORIZONTAL REINFORCING 305mm AROUND CORNERS OR PROVIDE ADDITIONAL 610mm X 610mm ANGLE BARS.
6. PROVIDE AT EACH FACE, 2–15M EXTRA BARS ALONG ALL SIDES, AND 2–15M DIAGONAL BARS AT ALL CORNERS OF OPENINGS UNLESS NOTED. PROJECT ALL BARS 610mm PAST CORNERS.
7. TIE, SUPPORT AND SPACE ALL REINFORCING STEEL WITH PROPER APPROVED DEVICES DESIGNED FOR USE IN REINFORCED CONCRETE, TO PREVENT DISPLACEMENT OF REINFORCING AND ENSURE SPECIFIED CONCRETE COVER.
8. PROVIDE MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:

| | |
|---|---|
| GRADE BEAMS (SIDES) | 50mm |
| GRADE BEAMS (BOTTOM) | 64mm |
| SLAB–ON–GRADE (TOP) | 50mm |
| SLAB–ON–GRADE (BOTTOM) | 75mm |
| STRUCTURAL SLAB (TOP & BOTTOM) | 50mm |
| CURBS (TOP AND SIDES) | 38mm |

## CONCRETE:

1. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CSA A23.1–09 (R2014). SEE BELOW FOR MIX REQUIREMENTS.
2. ADMIXTURES SHALL NOT BE USED UNLESS SPECIFIED HEREIN OR APPROVED BY THE CONTRACT ADMINISTRATOR. CALCIUM CHLORIDE SHALL NOT BE USED.
3. MIX WATER SHALL BE POTABLE.
4. DESIGN, FABRICATE AND ERECT FORMWORK/SHORING IN ACCORDANCE WITH CAN/CSA–S269.1–16. ALLOW SUFFICIENT CONCRETE CURING TIME PRIOR TO REMOVAL.
5. CONTRACTOR TO EMPLOY A THIRD–PARTY ENGINEER TO DESIGN FORMWORK AND SHORING. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA FOR REVIEW.
6. CONCRETE FINISHING SHALL MEET THE REQUIREMENTS OF CSA A23.1–09 (R2014).
7. FORM RELEASE AGENT SHALL BE BIODEGRADABLE, NON–STAINING AND NON–VOLATILE.
8. PROVIDE ADEQUATE COLD/HOT WEATHER PROTECTION AS REQUIRED DURING CURING PERIOD.
9. PLACE AND SECURE ALL EMBEDDED ANCHORS, WELD PLATES, SLEEVES, BUCKS, DOWELS, INSERTS, WATERSTOPS, ETC., PRIOR TO PLACING CONCRETE. CO–ORDINATE WITH ALL SUBCONTRACTORS FOR EMBEDDING OF ALL OTHER, CONDUIT, SERVICES, BLOCKING, ETC.
10. LOCATE AND FABRICATE ALL CONSTRUCTION JOINTS, CONTROL JOINTS AND EXPANSION JOINTS AS DETAILED ON THE DRAWINGS. JOINTS NOT SHOWN SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO THE PLACEMENT OF CONCRETE.
11. WATERSTOP TO BE 150mm PVC TYPE 2 BY DURAJOINT (NO MOVEMENT), OR APPROVED EQUAL IN ACCORDANCE WITH B8.
12. ALL EXPOSED CORNERS TO HAVE 25mm CHAMFER FILLET UNLESS NOTED.
13. CAST–IN–PLACE ANCHOR BOLTS SHALL MEET REQUIREMENTS OF ASTM F1554 GR. 55.
14. EXPANSION ANCHORS SHALL BE HILTI KWIK–BOLTS OR APPROVED EQUAL IN ACCORDANCE WITH B8, UNLESS NOTED. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
15. GROUT REINFORCING DOWELS WITH EPOXY GROUT HILTI HIT–HY 200, OR APPROVED EQUAL IN ACCORDANCE WITH B8. GROUT BASE PLATES WITH NON–SHRINK GROUT SIKA M–BED STANDARD, OR APPROVED EQUAL IN ACCORDANCE WITH B8. PLACE AND CURE ALL GROUT WITHIN TEMPERATURE RANGE RECOMMENDED BY MANUFACTURER.
16. BONDING AGENTS SHALL BE USED TO ADHERE NEW CONCRETE TO EXISTING CONCRETE OR STEEL. ACCEPTABLE PRODUCT: SIKADUR 32 HI–MOD (EPOXY), SIKA LATEX R (ACRYLIC, MIX INTO GROUT) OR APPROVED EQUAL IN ACCORDANCE WITH B8.
17. THE CONCRETE SUPPLIER SHALL BE CERTIFIED TO MEET THE REQUIREMENTS OF CSA A23.1–09 (R2014).
18. THE CONCRETE SUPPLIER SHALL SUBMIT CONCRETE MIX DATA SUBMISSION FORMS FOR EACH TYPE OF CONCRETE SPECIFIED FOR REVIEW PRIOR TO BATCHING ANY CONCRETE.
19. ROOF INSULATION TO BE 50mm THICK HI–60 STYROFOAM INSULATION.

## CONCRETE MIX DESIGNS:

CONCRETE MIX DESIGN SHALL BE PROPORTIONED TO MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:

BASE SLABS, WALLS AND ROOFS, PRECAST ROOF SLABS:

| | |
|---|---|
| EXPOSURE CLASS | S–2 |
| MIN. 28 DAY COMP. STRENGTH | 30 MPa |
| MIN. 56 DAY COMP. STRENGTH | 32 MPa |
| CEMENT TYPE | HS |
| ENTRAINED AIR CONTENT | 4%–7% |

## STRUCTURAL STEEL GRATING:

1. STEEL GRATING AND GRATING STAIR TREADS TO BE TYPE 19–4 STANDARD FLOWFORGE STEEL GRATING BY FISHER & LUDLOW.
2. BEARING BARS TO BE 32mm DEEP X 4.8mm WIDE, SPACED AT 30mm CENTERS FOR INTERIOR SURFACES, UNLESS NOTED OTHERWISE.
3. GRATING SHALL HAVE A GALVANIZED FINISH.
4. ALL CUT EDGES SHALL BE BANDED.
5. GRATING STAIR TREADS SHALL HAVE CHECKER PLATE NOSING.
6. ALL GRATING AND STAIR TREADS SHALL BE PERMANENTLY WELDED, OR CLIPPED TO STRUCTURAL FRAMING UNLESS NOTED. MINIMUM OF 2 CLIPS PER EACH STRUCTURAL SUPPORT TO BE PROVIDED.; MINIMUM 40mm LONG 5mm FILLET WELD PLACED AT EACH STRUCTURAL INTERMEDIATE SUPPORT IN THE MIDDLE OF THE PANELS AND AT THE FOUR BEARING BAR ENDS, 150mm FROM EACH SIDE OF PANEL.

## STRUCTURAL AND MISCELLANEOUS STEEL:

1. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH CAN/CSA S16 (2014).
2. STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF CAN/CSA G40.20/G40.21 (2013).

| | |
|---|---|
| ROLLED W–SHAPES | CSA G40.21–350W |
| ROLLED SHAPES & PLATES | CSA G40.21–300W |
| STANDARD PIPE | ASTM A53–12 |
| ANCHOR BOLTS (GALV.) | ASTM A307–14 |
| BOLTS, NUTS, & WASHERS | ASTM A325–14 |
| WELDING ELECTRODES | CSA W48–14 |

3. WELDING SHALL BE IN ACCORDANCE WITH CSA W59 (2013), BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.1–09 (R2014). ALL WELDS TO BE 6mm UNLESS NOTED OTHERWISE.
4. FIELD CONNECTIONS SHALL BE BOLTED 19mm DIAMETER A325 BEARING TYPE UNLESS NOTED OTHERWISE. BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH CSA S16 (2014).
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
6. STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FINISHED AS INDICATED BELOW, UNLESS OTHERWISE NOTED, OR APPROVED EQUAL IN ACCORDANCE WITH B8.:

   GALVANIZED STEEL
   – SURFACE PREP. TO SP8 (PICKLING).
   – HOT DIPPED GALVANIZED TO ASTM A123–13.
7. FIELD TOUCH–UP WITH ZINC–RICH COATING, TO MATCH GALVANIZED STEEL. ACCEPTABLE PRODUCT: ZINGA OR APPROVED EQUAL IN ACCORDANCE WITH B8.
8. FIELD TOUCH–UP PAINT TO CONNECTIONS, WELDS, BURNED OR DAMAGED SURFACES, AND UNFINISHED SURFACES AT COMPLETION OF ERECTION AND SHALL MATCH THICKNESS AS SPECIFIED.
9. PAINTED SURFACES OF EXISTING STEEL SHALL BE GROUND SMOOTH TO BARE METAL PRIOR TO FIELD WELDING.
10. HEAT STRAIGHTENING PROCEDURE SHALL BE APPROVED BY A WELDING ENGINEER AND BE SUBMITTED PRIOR TO REPAIR OF BENT MEMBERS.

| NO. | DRAWING NUMBER | REFERENCE DRAWING TITLE |
|---|---|---|
| 10 | – | – |
| 9 | – | – |
| 8 | – | – |
| 7 | – | – |
| 6 | – | – |
| 5 | – | – |
| 4 | – | – |
| 3 | – | – |
| 2 | – | – |
| 1 | – | – |

REFERENCE DRAWINGS

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
KGS Group
No. 245

B.M.
ELEV.
CONSTRUCTION COMPLETION DATE: YYYY MM DD

| NO. | REVISIONS | DATE | BY |
|---|---|---|---|
| 1 | RE–ISSUED FOR TENDER | 2024 05 16 | JMW |
| 0 | ISSUED FOR TENDER | 2024 04 26 | JMW |

KGS GROUP

| | | | |
|---|---|---|---|
| DESIGNED BY | JMW | CHECKED BY | CMS |
| DRAWN BY | FBV | APPROVED BY | JMW |
| SCALE: | AS SHOWN | RELEASED FOR CONSTRUCTION | |
| DATE | 2024 01 24 | DATE | |

PLOT DATE: 2024 05 15

ENGINEER'S SEAL
PROVINCE OF MANITOBA
J.M. WALTER
Member 24941
REGISTERED PROFESSIONAL ENGINEER
2024-05-15

CONSULTANT DRAWING NUMBER
23–0107–009_S2.1

BID OPPORTUNITY: 301–2024
CONTRACT NUMBER: 1A

Winnipeg

# THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

CENTREPORT SOUTH REGIONAL WATER AND WASTEWATER SERVICING
PHASE 1A CONTRACT 4A – FEEDER MAIN

OFFTAKE STRUCTURES – GENERAL NOTES

CITY DRAWING NUMBER 1–0798F–S0001–001

SHEET 29 OF 34

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