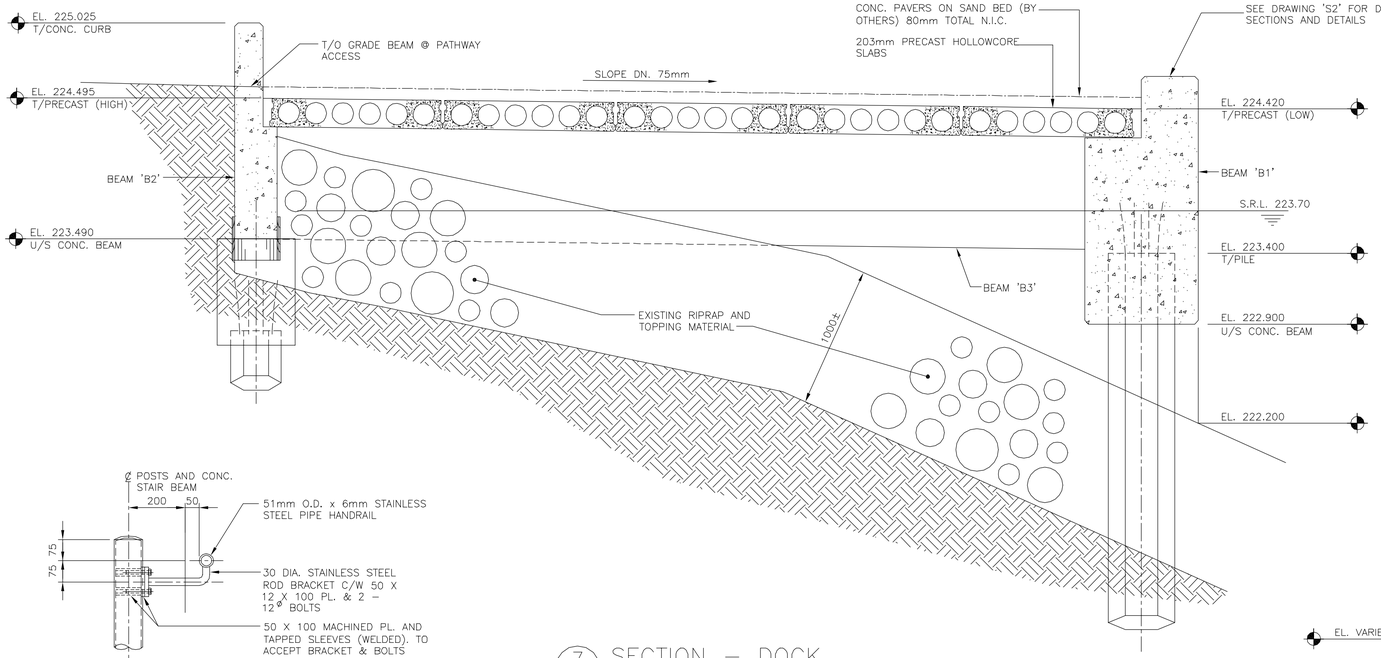
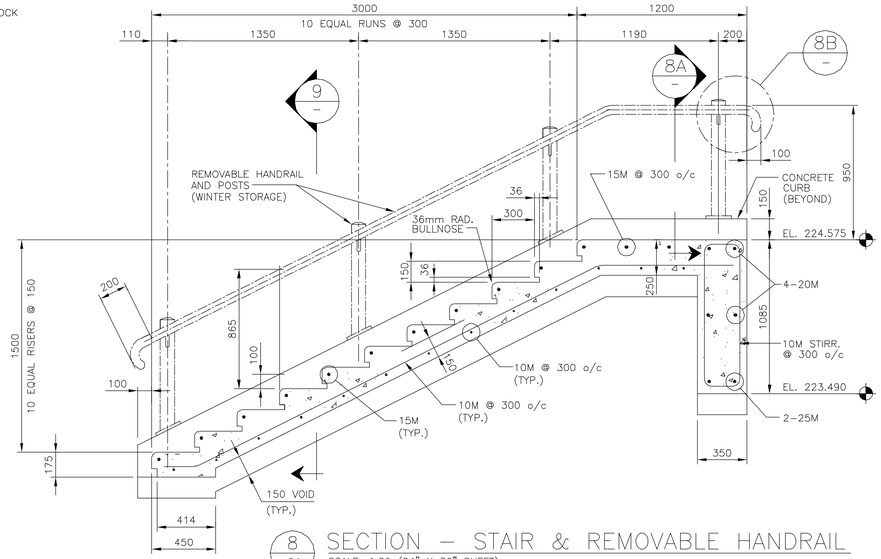
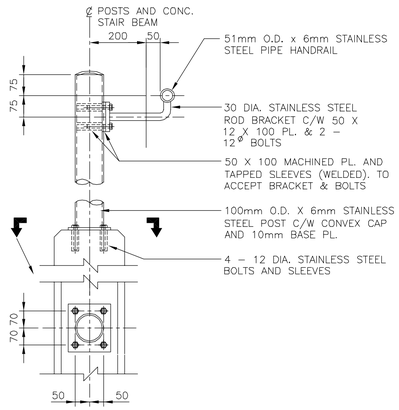
24x36B



7 / S1 SECTION – DOCK
SCALE: 1:20 (24" X 36" SHEET)
1:40 (11" X 17" SHEET)

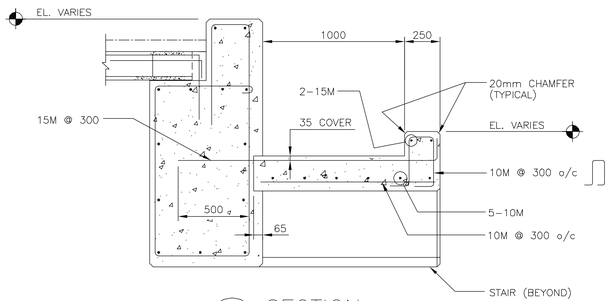


8 / S1 SECTION – STAIR & REMOVABLE HANDRAIL
SCALE: 1:20 (24" X 36" SHEET)
1:40 (11" X 17" SHEET)

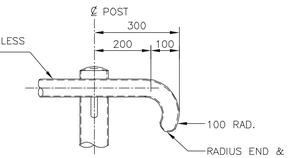


SECT.

8A / – SECTION
SCALE: 1:10 (24" X 36" SHEET)
1:20 (11" X 17" SHEET)



9 / S1 SECTION
SCALE: 1:20 (24" X 36" SHEET)
1:40 (11" X 17" SHEET)



8B / – DETAIL
SCALE: 1:10 (24" X 36" SHEET)
1:20 (11" X 17" SHEET)

GENERAL NOTES:

FOUNDATIONS (DRIVEN PRECAST CONCRETE PILES)

1. FOUNDATIONS SHALL BE DRIVEN PRECAST CONCRETE PILES AS SHOWN ON DRAWINGS.
2. DRIVEN PRECAST CONCRETE PILES HAVE BEEN DESIGNED FOR, AND SHALL BE DRIVEN TO REFUSAL TO DEVELOP A CAPACITY OF 100 KIPS (445 kN) AND 180 KIPS (800 kN) FOR 305mm AND 406mm PIPES RESPECTIVELY.
3. FABRICATE PRECAST PILES WITH CONCRETE OF 35 MPa MINIMUM 28 DAY COMPRESSIVE STRENGTH USING TYPE 50 SULPHATE RESISTANT CEMENT, IN ACCORDANCE WITH CAN3–A23.1 AND CAN3–A23.3 IN A PLANT CERTIFIED UNDER CSA A251.
4. FULL TIME INSPECTION BY A QUALIFIED INDEPENDANT GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA, SHALL BE PROVIDED DURING THE INSTALLATION OF ALL PILES. THE COST OF THIS SERVICE SHALL BE INCLUDED IN THE PILING CONTRACT.
5. THE PILING CONCTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND SERVICES IN PILING AREA WHETHER SHOWN OR NOT. EXPOSE ALL SERVICES CLOSE TO PILING AS REQUIRED. CONDITION OF NEARBY STRUCTURES (WITHIN 100' OF SITE), SHALL BE DOCUMENTED AND/OR PHOTOGRAPHED PRIOR TO DRIVING PILES. THE PILING CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ANY DAMAGE RESULTING FROM PILING OPERATIONS.
6. PILES SHALL NOT BE MORE THAN 50mm OUT OF POSITION LATERALLY AT THE TOP AND NOT MORE THAN 2% OUT OF PLUMB.
7. SPLIT OR SHATTERED PILES SHALL BE REJECTED.
8. DO NOT SPLICE PILES WITHOUT APPROVAL OF THE DESIGN ENGINEER.
9. PRE–BORE ALL PILES 3m.
10. RESET PILES LIFTED DURING DRIVING OF ADJACENT PILES.
11. CUT–OF PILES NEAT AND SQUARE AT ELEVATIONS INDICATED. PRESTRESSING STRANDS TO EXTEND 600mm MINIMUM ABOVE CUT–OFF ELEVATION FOR EMBEDMENT INTO STRUCTURAL COMPONENTS ABOVE.

CONCRETE

1. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CAN/CSA–A23.1–M90. SEE BELOW FOR MIX REQUIREMENTS.
2. CEMENT TYPE SHALL BE AS NOTED IN INDIVIDUAL MIX DESIGNS TO CAN/CSA–A5 (LATEST).
3. MIX WATER TO BE DRINKABLE.
4. ADMIXTURES SHALL NOT BE USED UNLESS SPECIFIED HEREIN OR APPROVED BY THE DESIGN ENGINEER. CALCIUM CHLORIDE SHALL NOT BE USED.
5. DESIGN, FABRICATE AND ERECT FORMWORK/SHORING IN ACCORDANCE WITH CAN/CSA–S269.3–M92. ALLOW SUFFICIENT CONCRETE CURING TIME PRIOR TO REMOVAL.
6. PLACE AND SECURE ALL EMBEDDED ANCHORS, WELD PLATES, SLEEVES, BUCKS, DOWELS, INSERTS, WATERSTOPS, ETC., PRIOR TO POURING CONCRETE. CO–ORDINATE WITH ALL TRADES.
7. LOCATE AND FABRICATE ALL CONSTRUCTION JOINTS, CONTROL JOINTS AND EXPANSION JOINTS AS DETAILED ON THE DRAWINGS. JOINTS NOT SHOWN SHALL BE BE APPROVED BY THE DESIGN ENGINEER PRIOR TO THE PLACEMENT OF CONCRETE.
8. CAST–IN–PLACE ANCHOR BOLTS SHALL MEET REQUIREMENTS OF OF ASTM A307.
9. EXPANSION ANCHORS SHALL BE HILTI OR APPROVED EQUAL, OR AS OTHERWISE NOTED, AND INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS.
10. GROUT REINFORCING DOWELS WITH EPOXY GROUT, STERNSON TALYGROUT 100 OR EQUAL. GROUT BASE PLATES WITH STERNSON M–BED STANDARD OR EQUAL. PLACE AND CURE ALL GROUT WITHIN TEMPERATURE RANGE RECOMMENDED BY MANUFACTURER.
11. PROVIDE ADEQUATE COLD/HOT WEATHER PROTECTION AS REQUIRED DURING CURING PERIOD.

CONCRETE MIX DESIGNS

PILECAPS	28 DAY COMP. STRENGTH	35 MPa
	CEMENT	TYPE 50
	W/C RATIO	0.45
	AGGREGATE SIZE (MAX.)	20mm
	ENTRAINED AIR	4%–6%
	SLUMP (MAX.)	90mm (±10mm)
GRADE BEAMS	28 DAY COMP. STRENGTH	30 MPa
	CEMENT	TYPE 10
	W/C RATIO	0.45
	AGGREGATE SIZE (MAX.)	20mm
	ENTRAINED AIR	4%–6%
	SLUMP (MAX.)	90mm (±10mm)

REINFORCING STEEL

1. REINFORCING STEEL TO BE NEW DEFORMED BILLET STEEL BARS CONFORMING TO CAN/CSA G30.18–M92. GRADES TO BE; 400 MPa FOR 15M BARS AND LARGER; 300 MPa FOR 10M BARS.
2. WELDED STEEL WIRE FABRIC SHALL CONFORM TO CAN/CSA G30.5–M1983. 400 MPa MINIMUM GRADE IN FLAT SHEETS ONLY UNLESS APPROVED OTHERWISE.
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 CSA A23.1, CSA A23.3 AND ACI 315–80 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" EXCEPT AS NOTED. LAP STEEL 36 BAR DIAMETERS (MINIMUM) UNLESS NOTED OTHERWISE.
4. LAP BEAM AND STRUCTURAL SLAB TOP REINFORCING AT CENTER SPAN, AND BOTTOM STEEL AT SUPPORTS.
5. BEND ALL HORIZONTAL REINFORCING 300mm AROUND CORNERS OR PROVIDE ADDITIONAL 600mm X 600mm ANGLE BARS.
6. REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE CONCRETE.
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:

C.I.P. PILES	75mm
PILECAPS	75mm
GRADE BEAMS (SIDES)	40mm
GRADE BEAMS (BOTTOM)	75mm

PRECAST CONCRETE SLABS/PANELS

1. PRECAST CONCRETE SLABS/PANELS SHALL BE DESIGNED AND FABRICATED BY OTHERS IN ACCORDANCE WITH CAN3–A23.1 AND CAN3–A23.3 IN A PLANT CONFORMING TO CSA A251.
2. SHOP DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA, SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO FABRICATION. THESE DRAWINGS SHALL CLEARLY INDICATE SIZES, SPANS, BEARING POINTS, DESIGN LOADS, DEFLECTION CRITERIA, CAMBER,GROUT BARS, CONNECTIONS, EMBEDDED INSERTS, OPENINGS, POUR STRIPS, GROUT AND REINFORCING REQUIREMENTS, ETC.
3. GROUT BARS AND CONNECTION INSERTS SHALL BE DESIGNED AND SUPPLIED BY THE PRECAST SUPPLIER.
4. CO–ORDINATE PLANT EMBEDDED INSERTS WITH ALL APPROPRIATE TRADES.
5. SURFACE PLANE ALIGNMENT BETWEEN ADJACENT SLABS/PANELS SHALL BE LIMITED TO SPAN/500 TO A MAXIMUM LIMIT OF 13mm.
6. PROVIDE 25mm DIAMETER DRAINAGE HOLE AT EACH END AND AT MIDSPAN OF SLAB CORE.
7. ALL SITE CUTTING, DRILLING, CORING, MODIFICATIONS, ETC. OF PRECAST SLABS/PANELS SHALL BE DONE WITH THE APPROVAL OF THE DESIGN ENGINEER AND THE PRECAST SUPPLIER, AND AS PER PRECAST SUPPLIER'S RECOMMENDATIONS.

NO.	D / M / Y	DESCRIPTION	BY
0	22/12/03	ISSUED FOR TENDER	RJL

REVISIONS / ISSUE

A. SECTION LETTER OR DETAIL NUMBER
B. DRAWING WHERE SECTION OR DETAIL IS DRAWN
OR
DRAWING WHERE SECTION OR DETAIL WAS INDICATED
— SECTION OR DETAIL SHOWN ON SAME DRAWING

A/B — A/–

KGS GROUP
CONSULTING ENGINEERS & PROJECT MANAGERS
WINNIPEG (204) 896–1209
THUNDER BAY (807) 345–2233

CLIENT: SCATLIFF+MILLER+MURRAY
landscape architecture urban design golf course design bridge architecture 3d simulation

PROJECT: NORWOOD GROVE CARRAC DOCK

DWG. DESCRIPTION: DOCK SECTION AND NOTES

ENG. STAMP: PROVINCE OF MANITOBA — R.J. LONG — REGISTERED PROFESSIONAL ENGINEER

DESIGNED: BY: RJL	CHECKED:	DRAWN: BY: JF	CHECKED:
APPROVED:			
SCALE: AS NOTED		DATE: NOVEMBER 2003	
KGS DWG. NO. 03–109–09		S3	
CLIENT DWG. NO.		REV: 0	

KGS FILE NO.: P:\Projects\2003\03-0109-09\CIVIL\Dwg\03-109-09-S3-REV0.dwg
24"x36"/PLOT SCALE: 20