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NOTES

- DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED AND VERIFIED ON SITE.
- DETAILS ON THIS DRAWING ASSUMES A STRAIGHT AND LEVEL FOUNDATION RUN. IF THE PROPOSED LAYOUT REQUIRES A DIFFERENT LAYOUT THAN THAT PROVIDED ON THIS DRAWING CONTACT MFD INTERNATIONAL FOR ALTERNATIVE DESIGN SOLUTION.
- STANDARD DETAILS TO BE COMBINED TO FORM APPROPRIATE NO. OF BOLLARDS/RUN. ALL RUNS MUST HAVE THE APPROPRIATE STANDARD ENDS.
- SEPARATE BENDING SCHEDULE MUST BE USED EACH TIME A SECTION IS REQUIRED E.G. FOR 2x "INNER 4N" BOLLARD RUN" USE 2x APPROPRIATE BENDING SCHEDULE.

EXCAVATION

- ALL EXCAVATIONS PREFERABLY TO BE HAND DUG DUE TO THE PRESENCE OF EXISTING SERVICES.
- AREAS TO BE EXCAVATED SHOULD BE CAT SCANNED PRIOR TO AND AT REGULAR INTERVALS DURING EXCAVATION, TO LOCATE THE PRESENCE OF SERVICES.
- WHERE EXCAVATION IS OVER-DUG, BACKFILL AROUND BASES SHALL BE IN MASS CONCRETE.
- MIN. GROUND SAFE BEARING PRESSURE 100kN/m²

BLINDING

- SURFACES TO RECEIVE SHEET OVERLAYS OR CONCRETE TO HAVE 50mm OF BLINDING.
- PERMISSIBLE DEVIATIONS ON SURFACE LEVEL: +0 -25mm.

MORTAR FILLING/BLINDING OF BOLLARDS

- SPOCES FILLED WITH:
 - UP TO 50mm - GROUT
 - 50 TO 80mm - DAMP MORTAR OF 1:2 CEMENT, SAND
 - GREATER THAN 80mm - MASS CONCRETE
- WELL TAMPED AGAINST PROPERLY FIXED SUPPORTS AS FILLING PROCEEDS.
- CEMENT: PORTLAND CEMENT TO BS EN 197-1 - CEM 42.5 OR CLASS 52.5.
- SAND: TO BS 882, GRADING LIMIT M OR EQUIVALENT TO BS EN 12620.

GROUT

- GROUT USED FOR INFILL AROUND BOLLARDS TO BE COMBEXTRA HF MANUFACTURED BY FOSROC OR SIMILAR INCLUDING PRE-SCANNING OF PRE-FORMED POCKET WHERE REQUIRED BY MANUFACTURER.
- THE CONTRACTOR IS TO ENSURE THAT PRIOR TO POURING THE GROUT THE AREA IS FREE FROM WATER AND DEBRIS, OIL, GREASE OR ADHERENT MATERIAL. IF THE CONCRETE SURFACE IS DEFECTIVE, IT MUST BE CUT BACK TO A SOUND BASE.
- THE CONTRACTOR MUST DEMONSTRATE THAT THERE ARE NO GAPS, AND THAT NO CRACKS DEVELOP ONCE THE GROUT HAS BEEN POURED.

CONSTRUCTION

- CONSTRUCTION JOINT TO BE:
 - PLACED MID WAY BETWEEN BOLLARDS
 - AT MAXIMUM OF 15m CENTRES
- MAXIMUM CLEAR DISTANCE BETWEEN BOLLARDS TO BE 1200mm.

FOR STANDARD REINFORCED CONCRETE DETAILS REFER TO DRAWING Nr. 3686/000/202

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REV	DATE	DESCRIPTION	MDL	AJ
A	11.07.11	ISSUED FOR CONSTRUCTION	MDL	AJ



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PROJECT

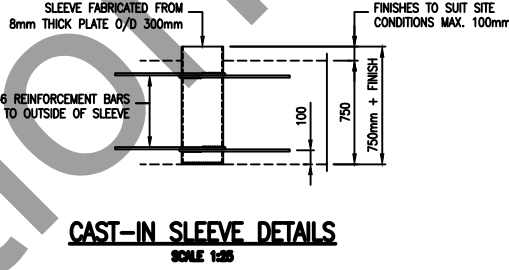
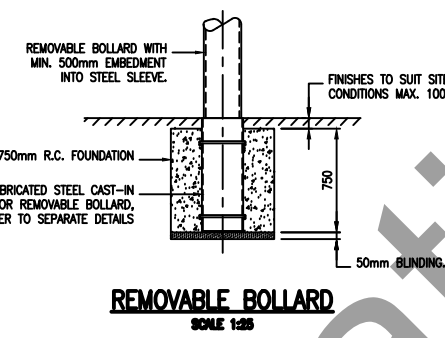
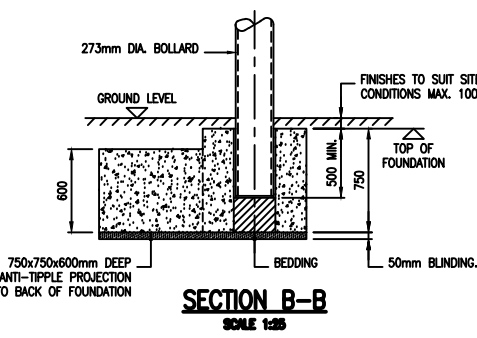
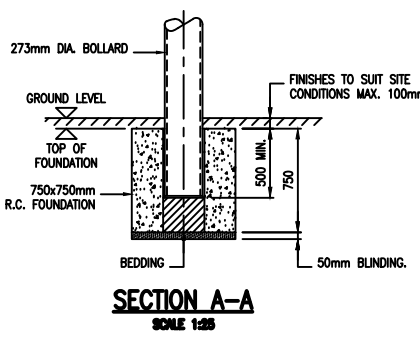
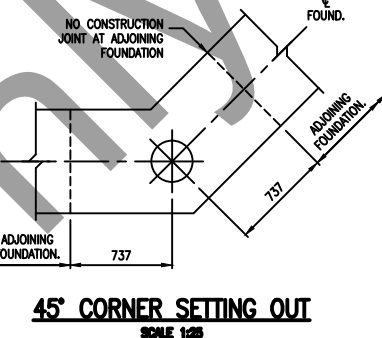
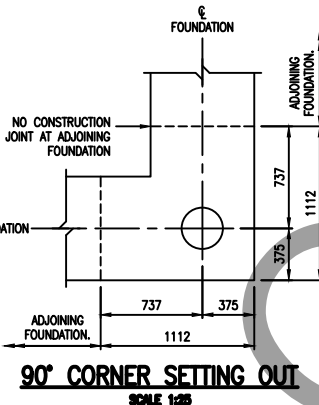
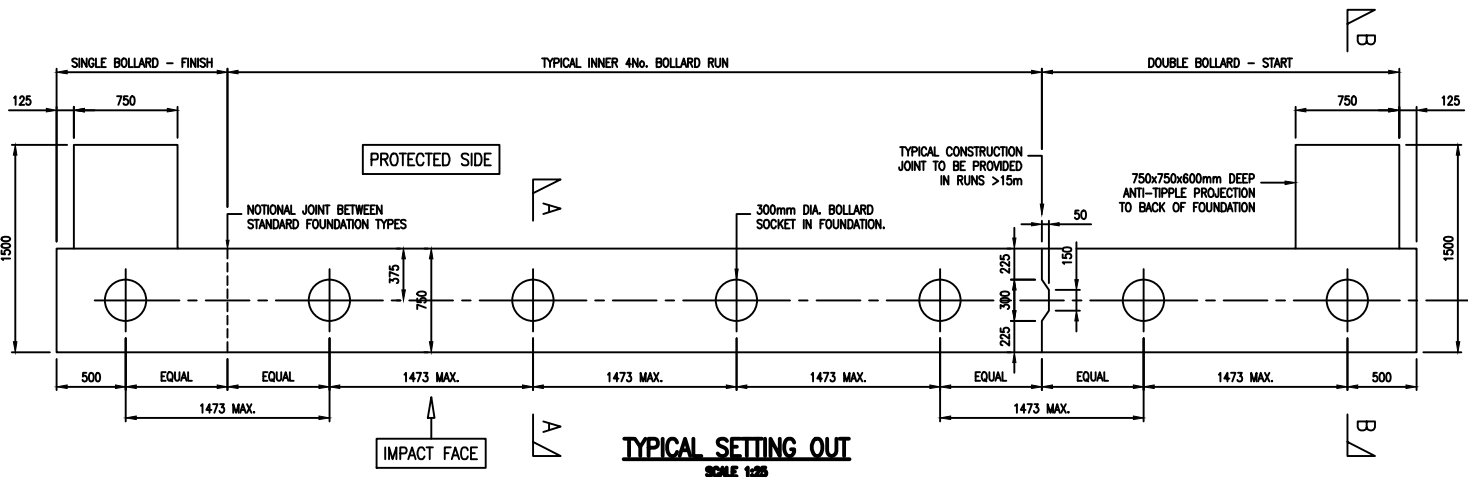
TITLE

NEPTUNE - 273mm DIA BOLLARD
STANDARD FOUNDATION DETAILS
(7.5T AT 50mph)

SCALE	AS SHOWN	DATE	09.07.11
DESIGN/CAD	MDL	REVIEWED BY	AJ

DRAWING NUMBER	3686/000/201	REV	A
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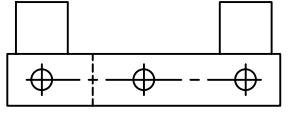
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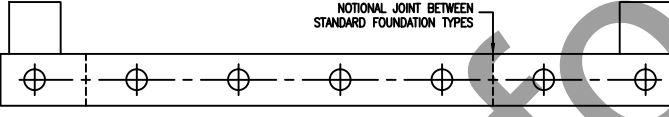
FOR STANDARD REINFORCED CONCRETE DETAILS
REFER TO DRAWING Nr. 3686/000/202

GENERIC BOLLARD ARRANGEMENTS

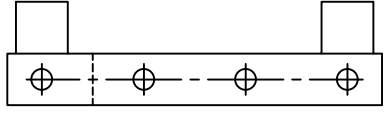
POSSIBLE ARRANGEMENTS FOR INFORMATION BUT NOT LIMITED TO THOSE SHOWN BELOW



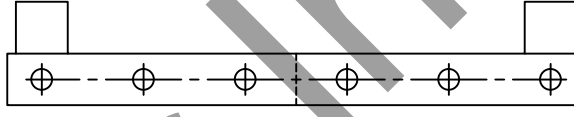
STRAIGHT 3Nc. BOLLARD ARRANGEMENT
1Nc. DOUBLE BOLLARD - START
1Nc. INNER BOLLARD RUN
1Nc. SINGLE BOLLARD - FINISH



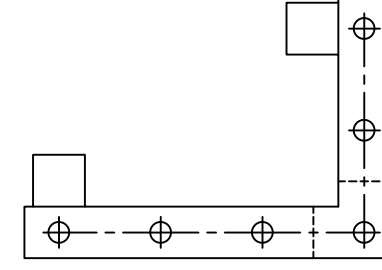
STRAIGHT 7Nc. BOLLARD ARRANGEMENT
1Nc. DOUBLE BOLLARD - START
1Nc. INNER BOLLARD RUN
1Nc. SINGLE BOLLARD - FINISH



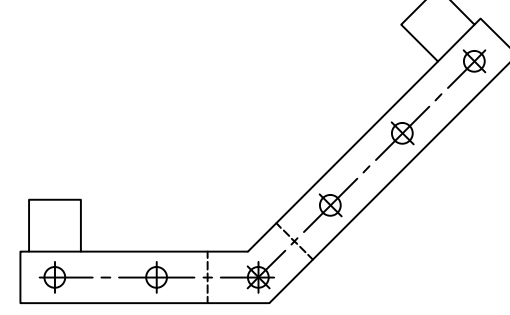
STRAIGHT 4Nc. BOLLARD ARRANGEMENT
1Nc. TRIPLE BOLLARD - START
1Nc. SINGLE BOLLARD - FINISH



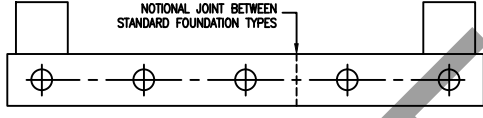
STRAIGHT 6Nc. BOLLARD ARRANGEMENT
1Nc. TRIPLE BOLLARD - START
1Nc. TRIPLE BOLLARD - FINISH



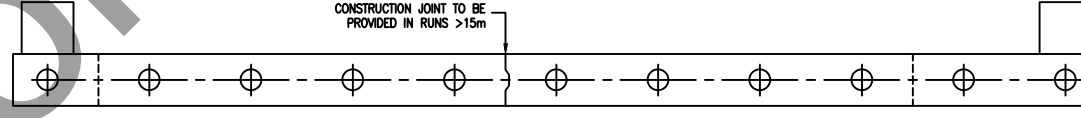
90° CORNER 6Nc. BOLLARD ARRANGEMENT
1Nc. DOUBLE BOLLARD - START
1Nc. 90° CORNER
1Nc. TRIPLE BOLLARD - FINISH



45° CORNER 6Nc. BOLLARD ARRANGEMENT
1Nc. TRIPLE BOLLARD - START
1Nc. 45° CORNER
1Nc. DOUBLE BOLLARD - FINISH



STRAIGHT 5Nc. BOLLARD ARRANGEMENT
1Nc. DOUBLE BOLLARD - START
1Nc. TRIPLE BOLLARD - FINISH



STRAIGHT 11Nc. BOLLARD ARRANGEMENT
1Nc. DOUBLE BOLLARD - START
2Nc. INNER BOLLARD RUN
1Nc. SINGLE BOLLARD - FINISH

