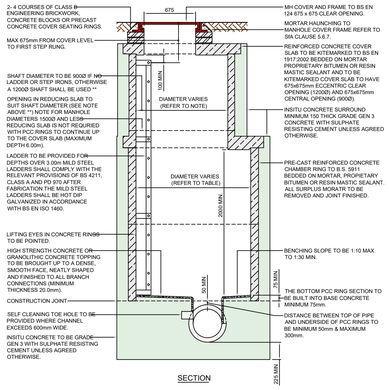
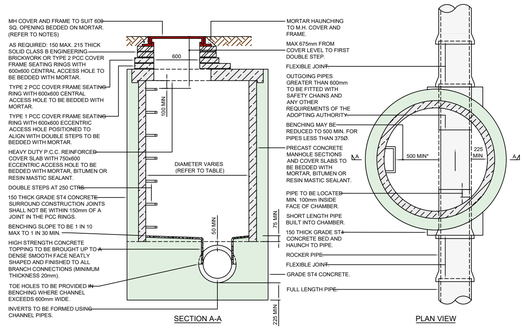
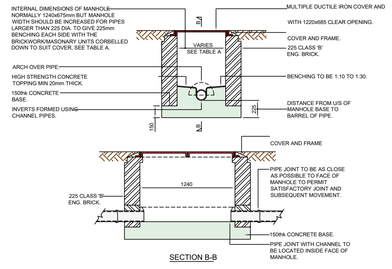


TYPICAL MANHOLE DETAIL:
TYPE 'A' DEPTH TO SOFFIT OF PIPE 3.00 TO 6.00m
(SCALE 1:20)



TYPICAL MANHOLE DETAIL:
TYPE 'B' DEPTH TO SOFFIT OF PIPE 1.45 TO 3.00m
(SCALE 1:20)



TYPICAL MANHOLE DETAIL:
TYPE 'C' DEPTH TO SOFFIT OF PIPE 1.00
(SCALE 1:20)

DRAINAGE DETAILS NOTES:

1. ALL INSITU AND PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS8500 AND BRE SPECIAL DIGEST 1 FOR SULPHATE EXPOSURE. FOR THE EXPOSURE CLASS REFER TO THE RECOMMENDATIONS OUTLINED IN THE GROUND/SITE INVESTIGATION REPORT.

2. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911, BS EN 1916 AND BS EN 1917AND BE KITE MARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.

3. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124, HAVE 600x600 CLEAR OPENINGS UNLESS OTHERWISE SPECIFIED AND BE OF NON-ROCKING DESIGN WITHOUT CUSHION INSERTS AND BE KITE MARKED. LOAD CLASS D400 IN TRAFFICKED AREAS AND LOAD CLASS B125 IN FOOTWAYS, LANDSCAPED AND PEDESTRIAN AREAS WHERE REQUIRED, COVERS SHALL BE RECESSED TO RECEIVE THE ARCHITECTS SPECIFIED FINISH.

4. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 124 AND BE OF NON ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITE MARKED. LOAD CLASS D400 IN INDUSTRIAL ESTATE ROADS AND AREAS CARRYING REGULAR HEAVY TRAFFIC AND LOAD CLASS C250 IN ESTATE ROADS AND CAR PARKING AREAS. IN ALL ROAD LOCATIONS, THE GRATE SHALL BE HINGED ON THE SIDE OF THE TRAFFIC DIRECTION (LEFT HAND OPENING).

5. ALL EXTERNAL PIPEWORK TO BE LAID WITH CLASS S PIPE BEDDING DETAIL WITH 1200mm MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 900mm COVER UNDER LANDSCAPING AND 600mm COVER UNDER FOOTWAYS UNLESS OTHERWISE NOTED ON THE DRAINAGE LAYOUT. WHERE COVER IS LESS THAN THAT STATED ABOVE, A CLASS A PIPE BEDDING DETAIL SHALL BE USED ON PIPES 225Ø. AND LARGER., FOR PIPES LESS THAN 225Ø. USE A CLASS Z PIPE BEDDING DETAIL. UNDER BUILDINGS A CLASS S PIPE BEDDING DETAIL SHALL BE USED, WHERE PIPES ARE LAID WITHIN THE VICINITY OF FOOTINGS/ FOUNDATIONS CLASS Z BEDDING TO BE USED.

6. WHERE CONCRETE PROTECTION IS REQUIRED TO PIPEWORK, THE CONCRETE SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION OF THE CONCRETE BY MEANS OF A SHAPED COMPRESSIBLE FILLER.

7. WHERE TWO PIPELINES CROSS WITH LESS THAN 300mm COVER, SURROUND EACH PIPE WITH A FULL CONCRETE BED AND SURROUND (CLASS Z DETAIL) FOR NOT LESS THAN 1000mm CENTRED ON THE CROSSING AND EXTENDED AS REQUIRED TO WITHIN 150mm OF THE NEAREST FLEXIBLE JOINT.

8. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE BARREL/CROWN

9. UNDER TRAFFICKED AREAS BACKFILL ABOVE THE PIPE BEDDING MATERIAL SHALL BE IMPORTED HARD CLEAN GRANULAR MATERIAL UP TO FORMATION LEVEL (IE CRUSHED ROCK) ALL CRUSHED ROCK TO BE USED IN BACKFILL SHALL MEET THE FOLLOWING GRADE:-
 - 100% PASSING
 - 85% - 100% PASSING
 - 0% - 10% PASSING

 IMPORTED GRANULAR BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 225mm (LAYER THICKNESS TO BE DETERMINED BY THE CONTRACTOR TO SUIT COMPACTION LAYER THICKNESS ETC). EACH LAYER IS TO BE COMPACTED TO FORM A STABLE TRENCH BACKFILL.

10. UNDER LANDSCAPING AREAS BACKFILL ABOVE THE PIPE BEDDING MATERIAL SHALL BE SUITABLY SELECTED MATERIAL CONSISTING OF UNIFORM SOIL, FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, ORGANIC MATTER AND FROZEN SOIL. BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. SHOULD THE EXCAVATED MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A SUITABLE HARD GRANULAR MATERIAL SHALL BE USED UP TO FORMATION LEVEL.

11. ALL PLASTIC PIPES, BENDS AND JUNCTIONS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 1401, BS4660, BS EN 13476, BS EN 13598, BS EN 12666 AND BS EN 1852 DEPENDING UPON THE TYPE OF PLASTIC PIPE BEEN USED AND ALL SHALL BE KITE MARKED. PIPES FOR SURFACE WATER SHALL BE THERMO-PLASTIC STRUCTURED TWIN WALL PIPES SIZES 150Ø TO 600Ø TO WIS 4-35-01 AND WATER INDUSTRY CERTIFIED (NOTE PLASTIC PIPE ARE NOT PERMITTED ABOVE 600Ø THESE SHOULD BE CONCRETE SEE NOTE 2). JOINTS SHALL BE FLEXIBLE, COLOUR BLACK. THE STRUCTURAL DESIGN OF BURIED PIPES UNDER VARIOUS LOADS SHALL BE TO BS EN 1295. (NOTE SHOULD PLASTIC PIPES BE PROPOSED BY THE CONTRACTOR AND THE PIPE MANUFACTURER WILL BE REQUIRED TO PROVIDE BEDDING AND DEFORMATION CALCULATIONS TO THE ENGINEER FOR REVIEW.

12. ALL PERFORATED PLASTIC PIPES SHALL COMPLY WITH BS 4962 AND BE KITE MARKED.

13. ALL RUBBER PIPE SEALS SHALL BE EPDM MATERIAL AND COMPLY WITH BS EN:681.

14. SUMPED MANHOLES EXCLUDE BENCHING

GENERAL NOTES

1. MANHOLE SCHEDULE AVAILABLE IN DRAWING: MJF-JBA-XX-XX-DR-D-0010-DRAINAGE_LONG_SECTIONS_2
2. FOR DETAILS ON MANAGEMENT AND MAINTENANCE OF MANHOLES REFERENCE: MJF-JBA-XX-XX-TN-Z-0001-MAINTENANCE_SCHEDULE
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.

POSITION & SIZE OF ACCESS HOLE IN CONCRETE COVER SLAB TO TYPE A & B MANHOLES.		
SHAFT/CHAMBER SIZE	MANHOLE LESS THAN 1.5m DEPTH (COVER LEVEL TO PIPE SOFFIT)	MANHOLE GREATER THAN OR EQUAL TO 1.5m DEPTH (COVER LEVEL TO PIPE SOFFIT)
900mm	675x675 CENTRAL	675x675 CENTRAL
1050mm	750x750 CENTRAL	675x675 ECCENTRIC
1200mm	675x675 ECCENTRIC	675x675 ECCENTRIC
1500mm	1200x675 CENTRAL	675x675 ECCENTRIC
1800mm - 3000mm	1200x675 ECCENTRIC	675x675 ECCENTRIC

SHORT AND ROCKER PIPE LENGTHS APPLICABLE TO ALL MANHOLE TYPES	
NOMINAL SIZE	EFFECTIVE LENGTH
150mm - 600mm	600mm
675mm - 750mm	1000mm
825mm AND ABOVE	1250mm

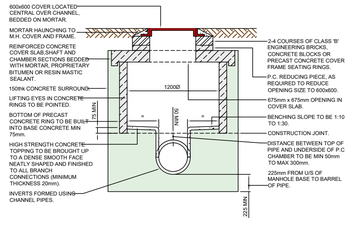
TYPE B MANHOLE DETAILS MAY BE APPLIED TO TYPE A MANHOLES FOR CHAMBER DIAMETERS LESS THAN 1500Ø & UP TO 6.0m DEPTH TO SOFFIT

REFER TO STRUCTURAL ENGINEERS DRAWING FOR DETAILS OF MANHOLE COVER LOCATED IN THE GROUND FLOOR SLABS A RECESSED COVERS SHOULD BE USED TO ACCEPT THE ARCHITECTS REQUIRED FINISHES.

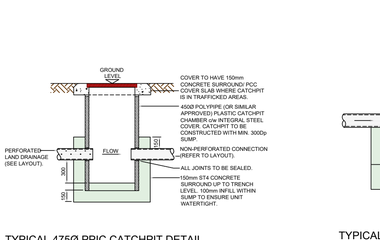
TABLE APPLICABLE TO MANHOLE TYPES A & B (CHAMBER SIZES ARE MINIMUM REQUIRED. SEE LAYOUT FOR VARIATIONS, IF ANY.	
DIA. OF LARGEST PIPE IN MH	CHAMBER SECTION INT. DIA.
LESS THAN 375mm	1200mm
375mm - 450mm	1500mm
500mm - 700mm	1500mm
750mm - 900mm	1800mm
1000mm	2100mm

MANHOLE COVER TYPES		
LOCATION	COVER TYPE	NOTES
ACCESS ROAD & SERVICE YARD	CLASS D400	
CAR PARK AREAS-TARMAC	CLASS C250	
CAR PARK AREAS - BLOCK PAVED	CLASS C250	RECESS INFILL TYPE
LANDSCAPED AREAS	CLASS B125	
OFFICE INTERNAL CORE	CLASS C250	RECESS INFILL TYPE
WAREHOUSES	CLASS D400	RECESS INFILL TYPE

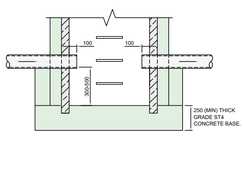
ALL MANHOLES COVERS ARE TO BE IN ACCORDANCE WITH BS EN124. INTERNAL MANHOLE COVERS ARE TO BE DOUBLE SEAL AND LOCKABLE WITH EDGINGS TO ARCHITECTS DETAILS (ARCHITECT TO SPECIFY THE INTERNAL COVERS TO SUIT POTENTIAL LOADINGS AND FLOOR FINISHES).
ALL MANHOLE COVERS ARE TO BE AS NOTED ON THE MANHOLE SCHEDULE.



TYPICAL MANHOLE DETAIL:
TYPE 'E' DEPTH TO SOFFIT OF PIPE 1.05 TO 1.50m
(FOR PIPES UP TO AND INCLUDING 375Ø)
(SCALE 1:20)



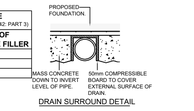
TYPICAL 475Ø PPIC CATCHPIT DETAIL
(SCALE 1:20)



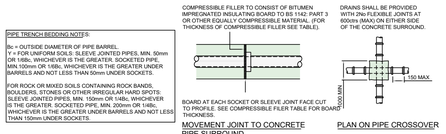
TYPICAL CATCHPIT MANHOLE DETAIL (PCC RINGS)
(NOTE: CHAMBER TO BE CONSTRUCTION AS STANDARD TYPE B PPC MANHOLE)
(SCALE 1:20)

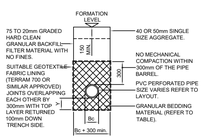
GRANULAR BEDDING MATERIAL (ALL AGGREGATES TO TABLE 4 OF BS 882 :1983)		
NOMINAL PIPE DIA.	SINGLE SIZED	GRADE
150mm	10mm, OR 14mm	14mm - 5mm
200mm - 300mm	10mm, 14mm OR 20mm	14mm - 5mm OR 20mm - 5mm
375mm - 525mm	14mm OR 20mm	14mm - 5mm OR 20mm - 5mm
GREATER THAN 525	14mm, 12mm OR 40mm	14mm - 5mm, 20mm - 5mm OR 40mm - 5mm

COMPRESSIBLE FILLER TABLE (BITUMEN IMPREGNATED INSULATING BOARD TO BS 1142: PART 3)	
NOMINAL PIPE DIA.	THICKNESS OF COMPRESSIBLE FILLER
LESS THAN 450mm	18mm
450mm - 1200mm	36mm
GREATER THAN 1200mm	54mm

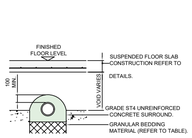


DRAIN SURROUND DETAIL

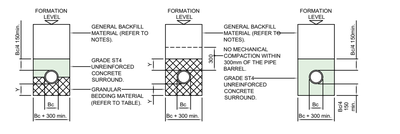




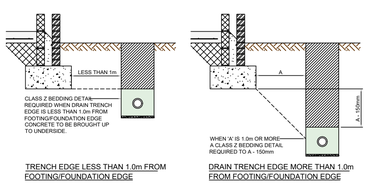
FILTER DRAIN DETAIL
(REFER TO NOTES)



CLASS Zx BEDDING DETAIL
(REFER TO NOTES)



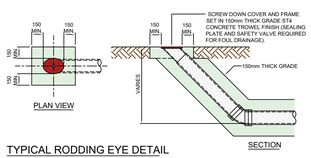
RIGID PIPE TRENCH BEDDING DETAILS



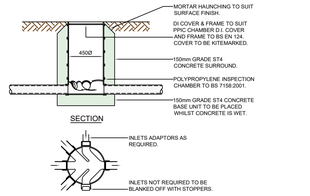
TRENCH EDGE LESS THAN 1.0m FROM FOOTING/FOUNDATION EDGE

DRAIN TRENCH EDGE MORE THAN 1.0m FROM FOOTING/FOUNDATION EDGE

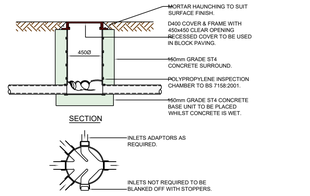
BEDDING DETAIL IN VICINITY OF FOOTINGS/FOUNDATIONS



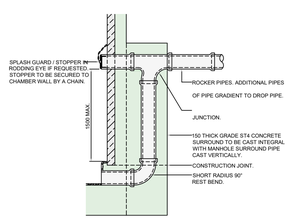
TYPICAL RODDING EYE DETAIL
(SCALE 1:20)



TYPICAL PPIC IN SOFT LANDSCAPING AND PRIVATE FOOTWAYS DEPTH UP TO 1.200m
(SCALE 1:20)



TYPICAL PPIC IN LIGHTLY TRAFFICKED AREAS DEPTH UP TO 1.200m
(SCALE 1:20)



TYPICAL BACKDROP DETAIL
(SCALE 1:20)

Rev.	Description	Date	Author	Designer	Checker	Approver
P06	REVIEW PRIOR TO PLANNING SUBMISSION	14/08/24	HR	SC	WD	JP
P05	ADDITION OF SCHEDULE REFERENCE	05/08/24	SC	SC	WD	JP
P04	FOR PLANNING	16/07/24	HR	WD	SC	JP
P03	FOR FINAL CLIENT COMMENT AND REVIEW	15/07/24	HR	SC	WD	JP
P02	AMENDMENTS FOLLOWING CLIENT COMMENTS	10/06/24	HR	SC	WD	JP
P01	FOR CLIENT REVIEW	28/05/24	HR	HR	SC	JP

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Project Title
C&S ENERGY BESS

Drawing Title
STANDARD MANHOLE DETAILS

AMERESCO

Parent Model
NOT FROM MODEL

Security Classification	Scale
OFFICAL	**AS STATED**

Author	Designer	Checker	Approver
H RAMJAN	**H RAMJAN**	**S CATTERICK**	**J PANESAR**

Suitability	Status	Revision
FOR PLANNING	**A2**	**P06**

Information Container: **MJF-JBA-XX-XX-DR-D-0003-Manhole-Details.dwg**
A1 Sheet Size