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PRE-CAST CONCRETE STORMWATER DETENTION CHAMBER SYSTEM URBANPOND

MINIMUM BEARING CAPACITY -150kPa (SERVICEABILTY LIMIT STATE)

GENERAL NOTES:

- OCEAN PROTECT TO PROVIDE URBANPOND UNITS, END WALL PANELS, AND JOINT TAPE.
- TYPICAL Ø600mm OR 900X900 ACCESS OPENING TO BE LOCATED IN THE CENTRE OF EITHER LEG, UNLESS NOTED OTHERWISE. ACCESS LIDS SHALL BE CLASS D.
- OCEAN PROTECT DOES NOT PROVIDE RISERS UNLESS DETAILED IN THE QUOTATION. ALL ACCESS COVERS SUPPLIED LOOSE TO BE PLACED, BOXED UP AND BEDDED INTO FINISHED LEVEL BY OTHERS.
- MANHOLE RISERS, COVERS AND FRAMES TO BE INSTALLED BY OTHERS ACCORDING TO APPROVED LAYOUT PLANS
- SITE-SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
- DRAWING NOT TO SCALE.

INSTALLATION NOTES:

- TANK TO BE INSTALLED WITH FULL PERIMETER BURIED EQUALLY - WALLS TO BE EVENLY LOADED ON ALL FOUR SIDES
- TANK SYSTEM TO BE INSTALLED WITH MAXIMUM 2 PERCENT FALLS TO FLOOR, WALLS AND ROOF SLAB
- TANKS SHALL BE PLACED ON STABLE GROUND WITH A MINIMUM SOIL BEARING CAPACITY OF 150 kPa UNDER NORMAL SERVICE CONDITIONS
- BACKFILLING MUST OCCUR AROUND TANK TO SUPPORT STRUCTURE BEFORE FILL OVER URBANPOND IS PLACED.
- TANK HAS INSUFFICIENT MASS TO OVERCOME BUOYANCY. SITES WITH HIGH GROUNDWATER LEVELS SITES WILL REQUIRE SITE-SPECIFIC ANTI-FLOAT MEASURES. IT IS NOT THE RESPONSIBILITY OF OCEAN PROTECT TO DETERMINE IF A SITES GROUND WATER LEVEL REQUIRES ADDITIONAL ANTI-FLOAT MEASURES. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY THE ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE ALL EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING DETAIL PROVIDED SEPARATELY).
- CONTRACTOR TO INSTALL AND LEVEL THE STRUCTURE AND APPLY SEALANT TO ALL JOINTS.
- JOINTS ON INSIDE BASE AND WALLS TO BE SEALED WITH BACKING ROD AND SEALANT. IF A HIGHER STANDARD OF SEALING IS REQUIRED PLEASE TALK TO OCEAN PROTECT.
- WALLS AND LID JOINTS TO BE COVERED EXTERNALLY WITH 150mm WIDE BITUMEN TAPE.
- TANKS SHALL BE LIMITED TO CONSTRUCTION TRAFFIC ONLY UNTIL THE CONCRETE HAS ATTAINED FULL 28-DAY STRENGTH PRIOR TO INSTALLATION AND BACK-FILLING.

FOUNDATION REQUIREMENTS & BACKFILLING

- SPECIAL CARE SHOULD BE TAKEN WHEN BACKFILLING AND COMPACTING IN THE VICINITY OF THE TAPE SEAL TO PREVENT DAMAGE OR DISPLACEMENT OF THE SEAL
- BACKFILLING MUST OCCUR BEFORE PLACING FILL ON THE UNIT TO SUPPORT THE WALLS OF THE SYSTEM. WARNING: DO NOT ALLOW THE TANK TO FILL WITH WATER PRIOR TO COMPLETION OF BACKFILL AS THIS CAN DISPLACE THE WALL PANELS.
- DO NOT ALLOW WATER TO FLOW AROUND THE URBANPOND PRIOR TO BACKFILL AS THIS COULD COMPROMISE THE INSTALLATION.
- THE INVERT LEVEL OF THE TANK IS GOVERNED BY THE SUBGRADE PREPARATION. ENSURING THAT THE FINISHED FLOOR LEVEL OF THE TANK INVERT IS IN ACCORDANCE WITH THE HYDRAULIC ENGINEERS DESIGN IS THE RESPONSIBILITY OF OTHERS.
- TANK SUBGRADE PREPARATION BY OTHERS IN ACCORDANCE WITH OCEAN PROTECT STANDARD SPECIFICATIONS. BEDDING TO BE 5-10mm GRAVEL / SAND.
- FOUNDATION FALL AND GRADING IN ACCORDANCE WITH DESIGN ENGINEERS REQUIREMENTS, NOT EXCEEDING 1:50 BY OTHERS. I.E. IF FALL IS REQUIRED TO BASE OF URBANPOND, THIS MUST BE ACHIEVED BY GRADING THE SUB-GRADE BY OTHERS.
- BACKFILL AROUND THE URBANPOND STRUCTURE WITH EITHER A WELL-DRAINING GRANULAR MATERIAL

HYDROSTATIC ACTIONS AND WATER TIGHTNESS:

- URBANPOND SYSTEMS ARE SUPPLIED IN STORMWATER DETENTION (SHORT RESIDENCE TIME) AND RETENTION (LONG RESIDENCE TIME) CONFIGURATIONS.
- ONSITE STORMWATER DETENTION (OSD) TANKS THAT ARE:
  1. BELOW GROUND AND BACKFILLED.
  2. NOT DESIGNED TO HOLD WATER FOR EXTENDED DURATIONS.
  3. DRAIN BETWEEN STORM EVENTS.

  ARE TYPICALLY SEALED WITH HIGH PERFORMANCE SEALANT APPLIED INTERNALLY TO ABUTTING PRECAST CONCRETE COMPONENTS. THIS STANDARD OF SEALING IS TYPICALLY CONSIDERED APPROPRIATE FOR MOST GRAVITY DRAINING OSD APPLICATIONS.

- URBAN POND CAN BE USED FOR WATER RETENTION HOWEVER WATERPROOFING AND JOINT SEALING TO BE DESIGNED AND INSTALLED BY OTHERS.

DESIGN PARAMETERS APPLIED IN DESIGN REFERENCE:

- AS NZS 1170.0 - 2002 STRUCTURAL DESIGN ACTIONS - GENERAL PRINCIPLES
- AS NZS 1170.1 - 2002 STRUCTURAL DESIGN ACTIONS - PERMANENT, IMPOSED AND OTHER ACTIONS
- AS 3600-2018 CONCRETE STRUCTURES
- AS 3735-2001- CONCRETE STRUCTURES RETAINING LIQUIDS
- AS 3996-2019 ACCESS COVERS AND GRATES
- AS 5100.2-2017 - BRIDGE DESIGN - DESIGN LOADS
- AS 5100.5-2017 - BRIDGE DESIGN - CONCRETE
- AS 4678-2002 - EARTH-RETAINING STRUCTURES

DESIGN FOR DURABILITY - DESIGN LIFE = 50 YEARS

- CLASS B2 EXPOSURE MINIMUM EXTERNAL FACES - 30mm COVER TO REINFORCING - REPETITIVE PROCEDURES INTENSE COMPACTION AND RIGID FORMWORK - AS 3735-2001- CONCRETE STRUCTURES RETAINING LIQUIDS
- APPROVED MIX DESIGN - S50 MPa / MAX. 20mm AGGREGATES
- CURE CONTINUOUSLY FOR 7 DAYS
- COMPLIANT CEMENT MATERIAL PROPORTIONS IN ACCORDANCE WITH AS5100.5 TABLE 4.4.1(B)
- TANK SITES LIMITED TO SITES WITH ACCELERATION COEFFICIENTS OF 0.08, AND SOIL PROFILES CLASSIFIED AS ROCK MATERIALS OR SOILS WITH NOT MORE THAN 30 M OF MEDIUM DENSE TO VERY DENSE COARSE SANDS AND GRAVELS, FIRM STIFF HARD CLAYS OR CONTROLLED FILL. OTHERWISE, TANK DESIGN SHALL REQUIRE A SITE-SPECIFIC STRUCTURAL DESIGN.

ULTIMATE LIMIT STATE DESIGN LOAD:

- CLASS D ACCESS COVER TO AS3996 2019 = 240kN
- W80 WHEEL LOADING TO AS5100.2 = 201.6kN CONCENTRATED LOAD
- HORIZONTAL EARTH PRESSURES:

  - KO = 0.5 AND ULS = 1.5 FOR EARTH PRESSURE AND 1.8 FOR SURCHARGE PRESSURES
- ALLOWANCE FOR SUPPORTING AND PLACING FILL OVER UNITS DEPTH RANGE 200mm TO 2400mm

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TITLE SHEET
SPECIFICATION DRAWING

DRAWING
1
SD

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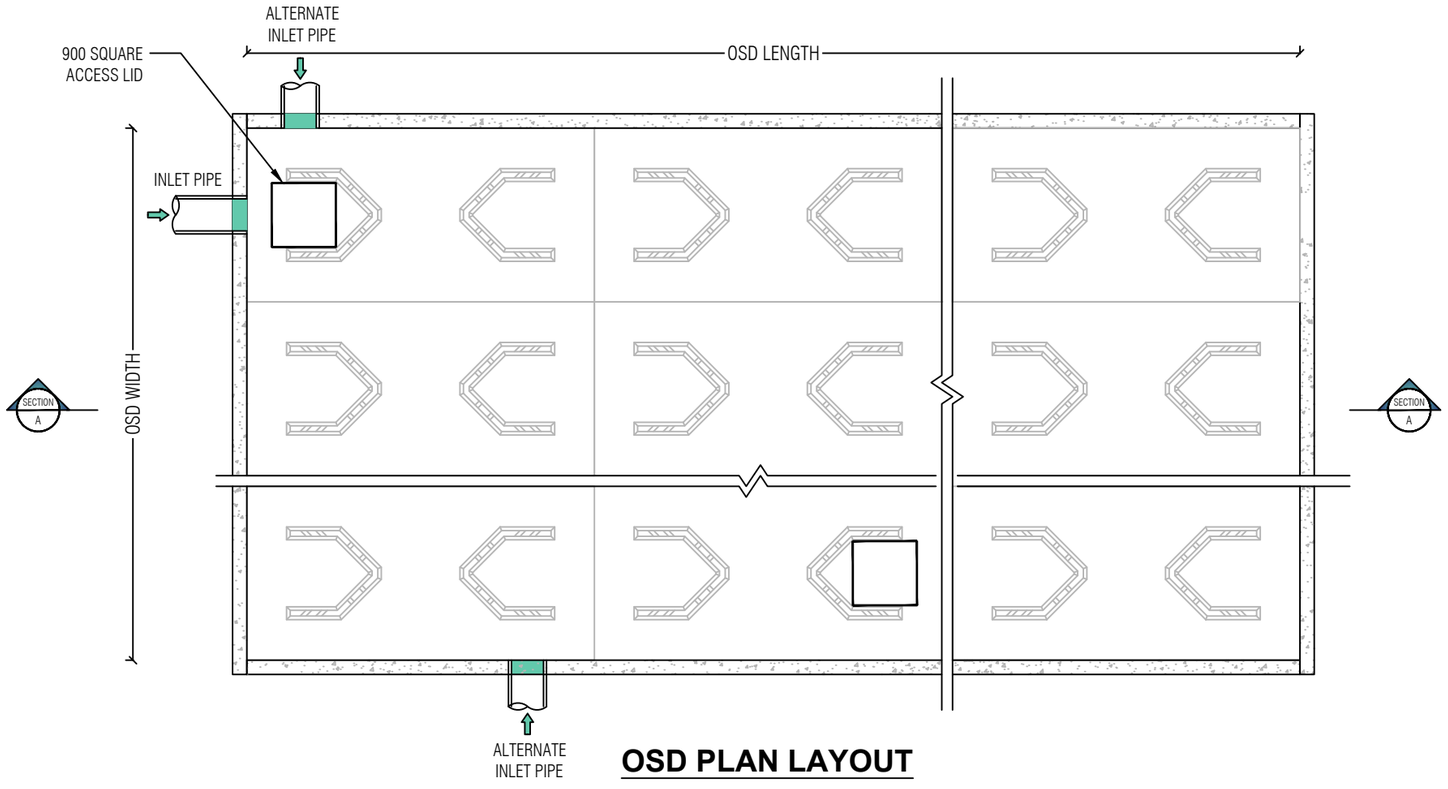
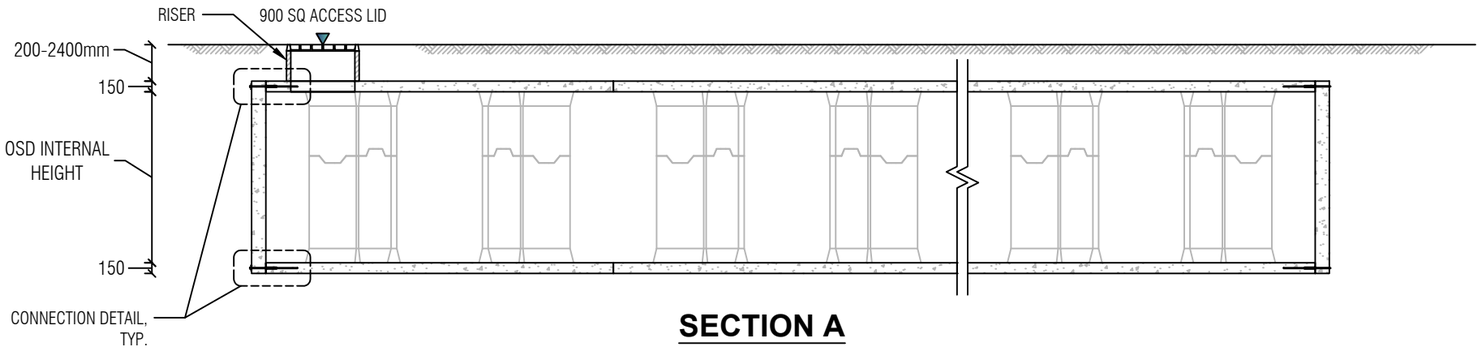
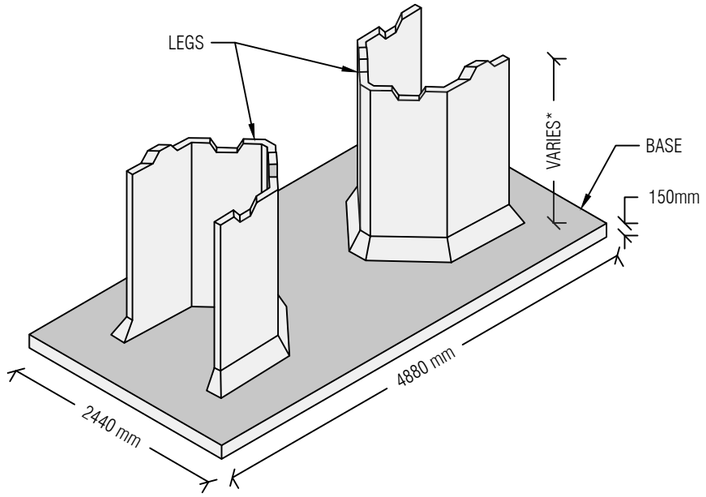


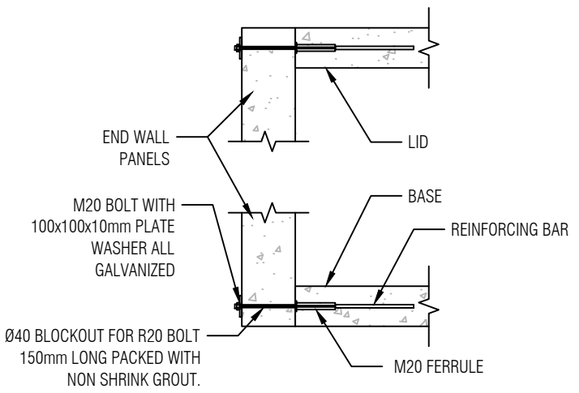
OSD PLAN LAYOUT



SECTION A



ISOMETRIC VIEW



CONNECTION DETAIL, TYP.

* TYPICAL OSD INTERNAL HEIGHT RANGES FROM 600mm to 3600mm WITH 100mm INCREMENTS.
FOR CUSTOM DESIGNS, PLEASE CONTACT OCEAN PROTECT.

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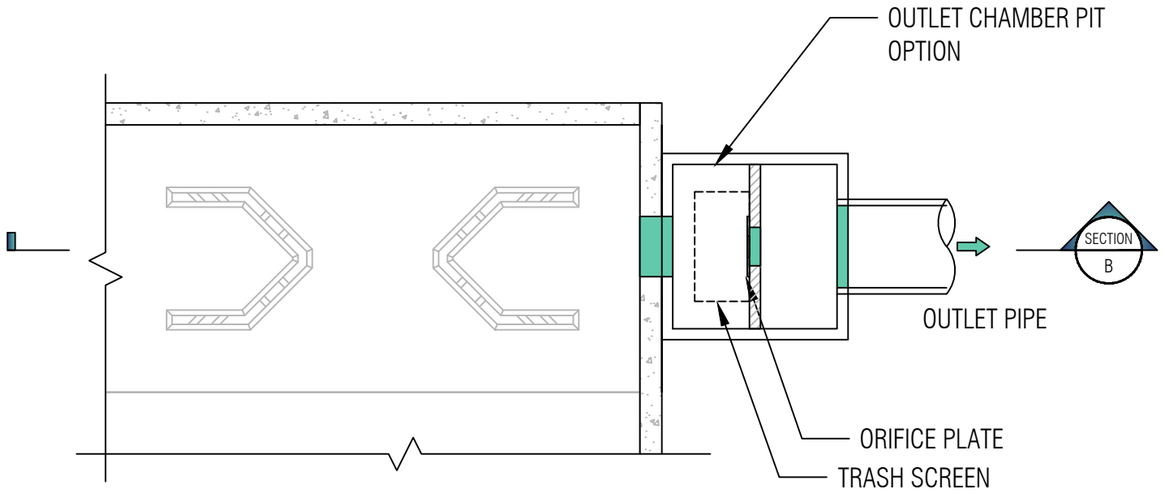
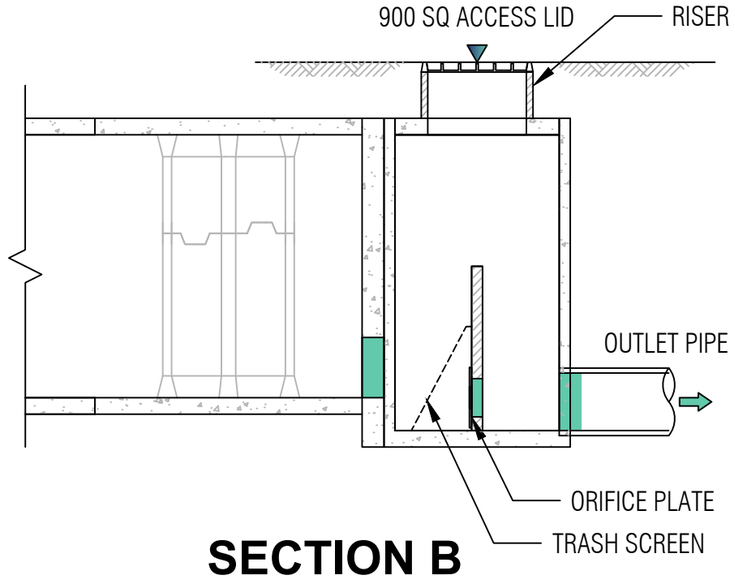
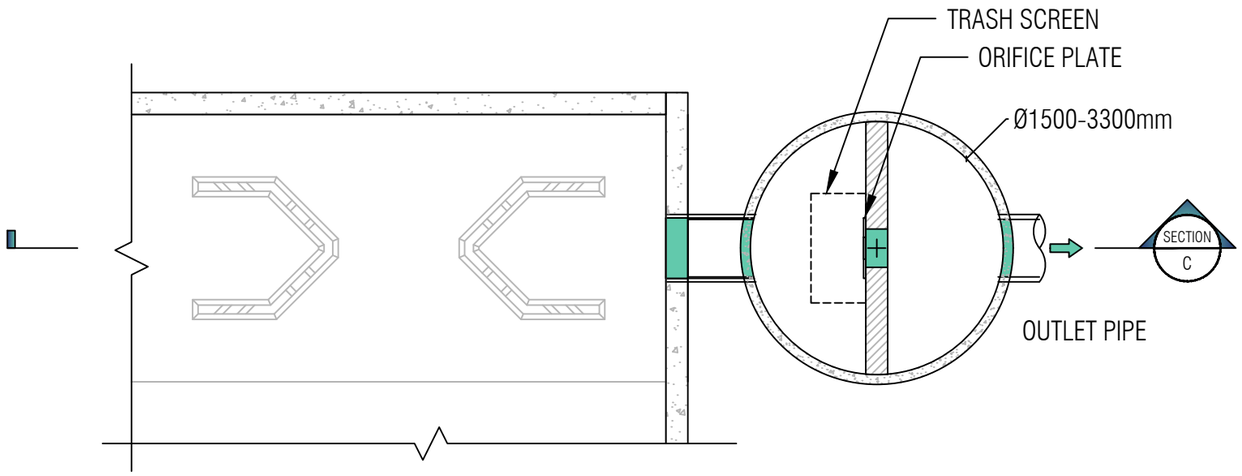


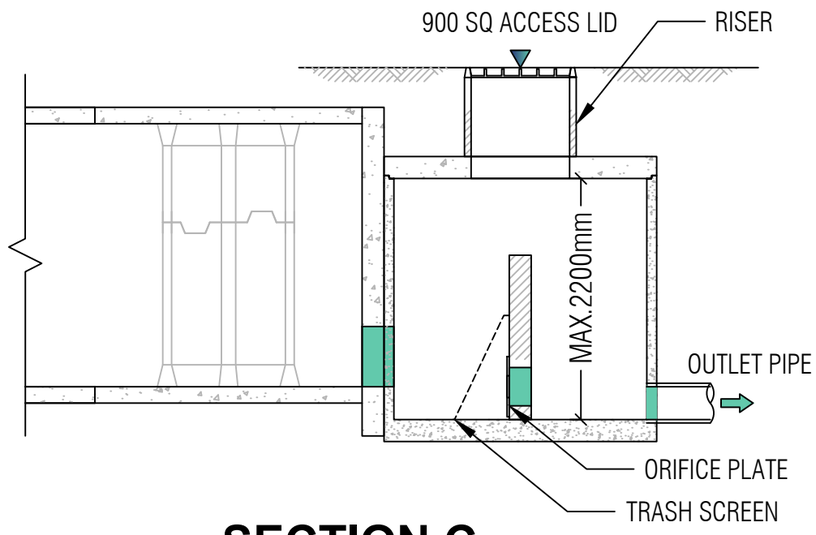
OUTLET CHAMBER TANK OPTION 1



SECTION B TANK OPTION 1



OUTLET CHAMBER MANHOLE OPTION 2



SECTION C MANHOLE OPTION 2

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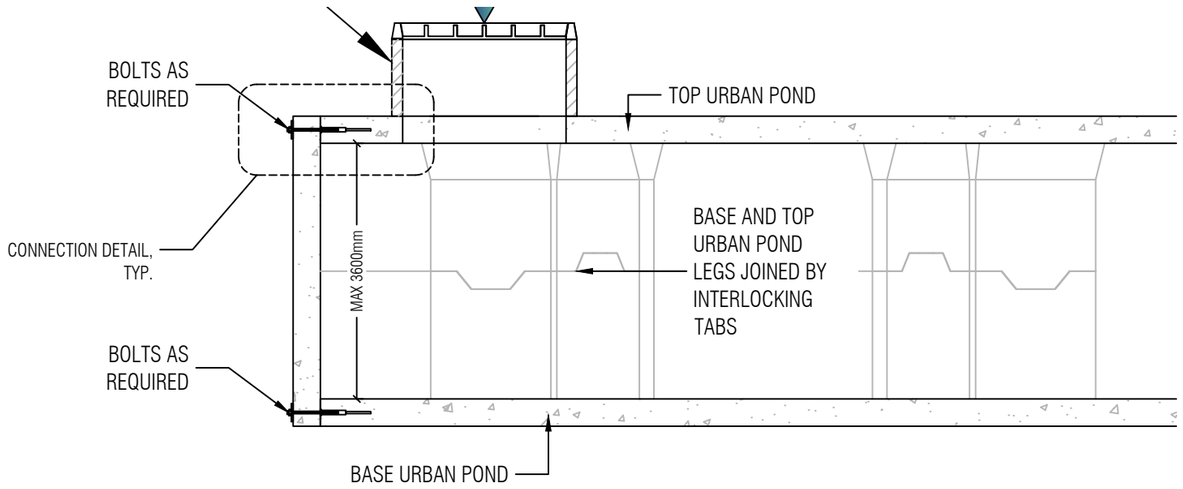
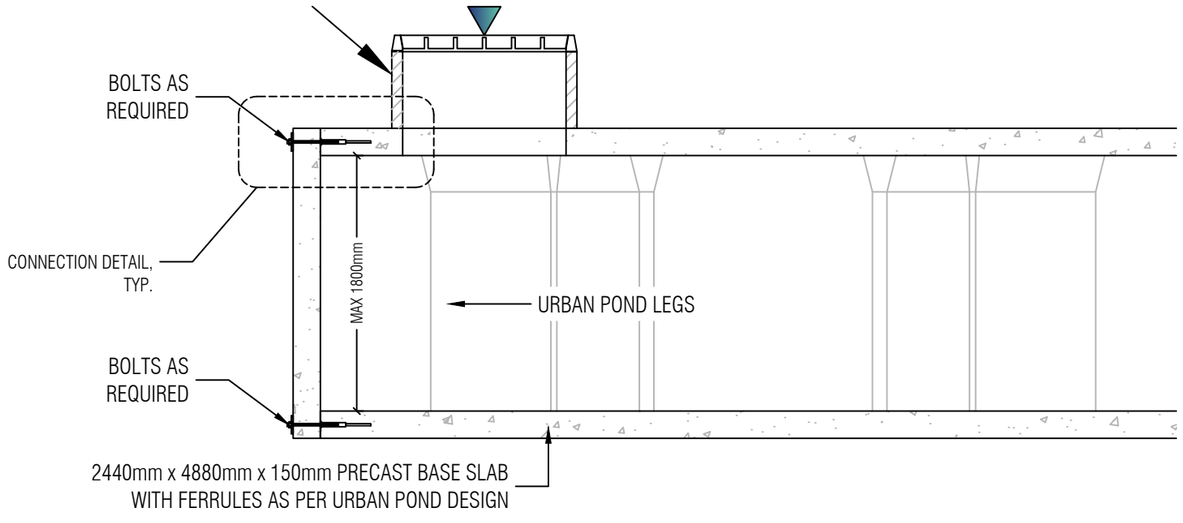
OPTION 1



OPTION 1

- URBANPOND TOP AND BOTTOM WITH INTERLOCKING LEGS
- EACH WALL TO BE FASTENED AT TOP AND BOTTOM TO URBAN POND TOP AND BASE PIECE. 2 TOP AND 2 BOTTOM

OPTION 2



OPTION 2

- URBANPOND TOP WITH LEGS DOWN
- LEG CONNECTION TABS REMOVED (FLAT END LEGS)
- LEGS SITTING PRECAST 2440x4880x150 BASE SLAB WITH FERRULES AS PER URBAN POND DESIGN
- EACH WALL TO BE FASTENED AT TOP AND BOTTOM TO URBAN POND TOP PIECE AND BASE SLAB. 2 TOP AND 2 BOTTOM

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