

Cassettes to be fixed to rough stone wall with M12x250 resin anchor bolts with Fischer Fis V 360s vinyl ester resin O.S.A with HDPE spacers & washers. To be shimmed and grouted to fill voids as required. Remaining small gaps to be filled with marine grade Sikaflex 291i or similar.

Angled external tab to fix cassette to wall with M12x180 stainless steel resin anchors with Fischer FIS V 360s vinyl ester resin or similar.

External tab to fix cassette to wall.

Eel pass Cassette 1

Eel pass Cassette 2

Eel pass Cassette 3

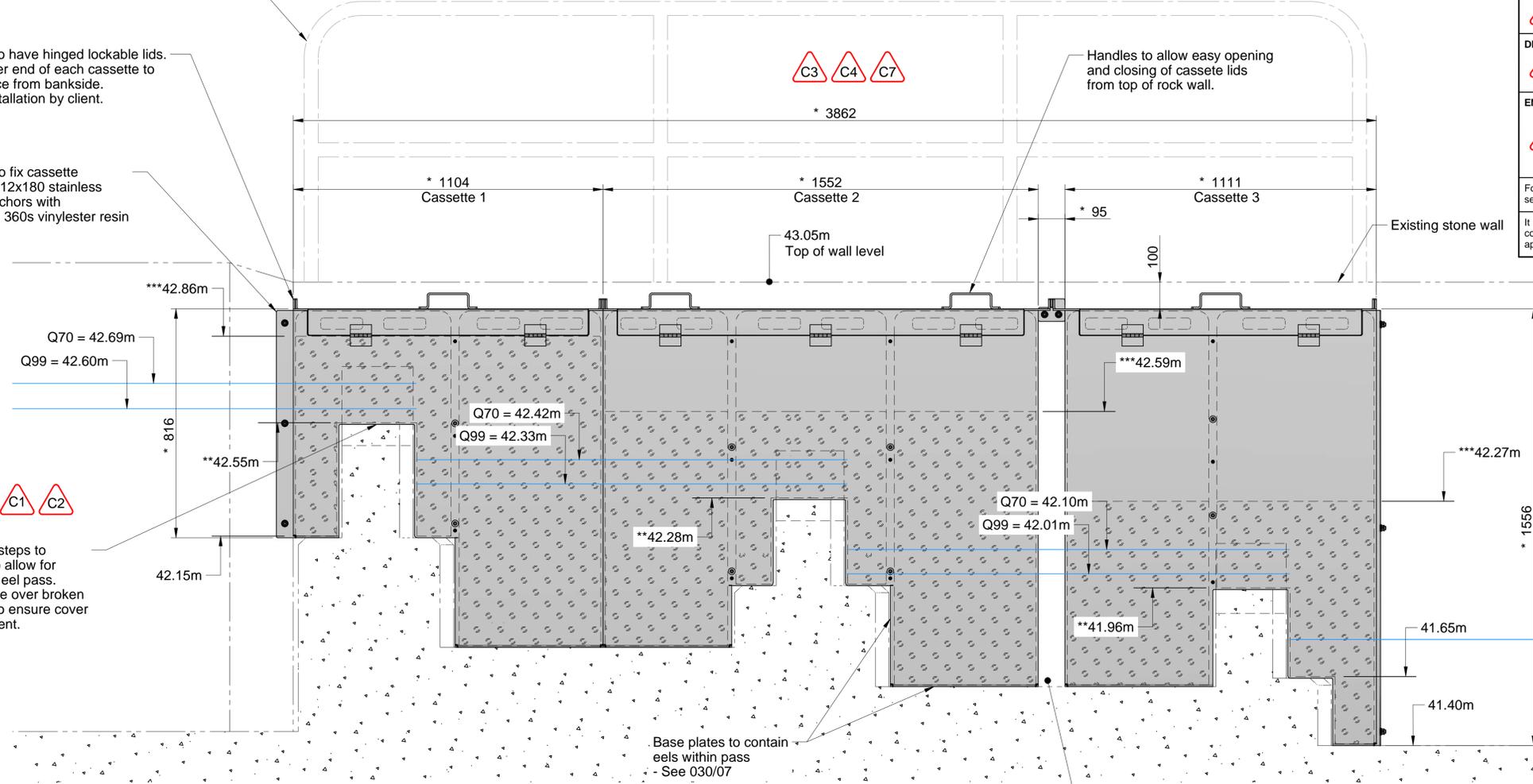
Existing Concrete weir steps to be notched to accommodate eel pass. - See 030/10

Indicative railing shown. Subject to design & install by others. Lateral load - 0.74kN/m to EC1

Eel pass cassettes to have hinged lockable lids. Padlock-able at either end of each cassette to allow for maintenance from bankside. Subject to railing installation by client.

External tab to fix cassette to wall with M12x180 stainless steel resin anchors with Fischer FIS V 360s vinyl ester resin or similar.

Handles to allow easy opening and closing of cassette lids from top of rock wall.



SAFETY HEALTH & ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following risks and information.

Risks listed here are not exhaustive. Refer to Designer's Risk Assessment and pre-construction phase plan.

CONSTRUCTION

Managing flow & stage levels in Bradley Brook

- Monitor flow levels & flood warnings.
- Check adequacy of cut-off & stability of cofferdams.
- Ensure cofferdams are suitable and are properly maintained. To be inspected by competent person before every shift / after event that may affect suitability.
- Ensure operatives can gain shelter or escape if water enters

Working near water

- Produce suitable RAMS
- Avoid working near water where possible
- Contractor to establish 2.0m min. control zone adjacent to watercourse. Additional controls required within control zone.
- Allow provision for fixed edge protection to eliminate falls into water
- Allow provision for systems for work positioning and fall arrest
- Assess bank stability / conditions considering access for personnel and machinery

Risk of falls from height

- Check depth of excavations
- Allow provision for fixed guard rails to eliminate falls from height and appropriate means of access not involving ladders
- Allow provision for systems for work positioning and fall arrest

Interface with public & other site operations

- Assess risk to public on site
- Check adequate warning signs and fencing in place

Services

- Check for identified & unidentified services. Clearly highlight any services that may affect works
- Ground penetrating activities must be carried out in accordance with HSE guidance document HSC47 & PAS 128:2014 Specification for underground utility detection, verification and location

Installation

- Use of toxic or hazardous chemicals - Cementitious products and/or grouts could be harmful to operatives & environment.

Drilling

- Risk of operatives experiencing hand arm vibration

OPERATIONAL

Access for Debris Clearance

- Risk of fall from height subject to railing installation by client

Unauthorised access by public

- Site opened to public

DECOMMISSIONING

Pass Removal

- Removal of concrete and aluminium from channel, see construction risks

ENVIRONMENTAL

Pollution of Watercourse

- Create a suitable dry working area
- Refer to 'Guidance for Pollution Prevention 2018'
- Produce a Site Waste Management Plan
- Produce a Site Environmental Emergency Plan
- Have a suitable incident Response Plan in place

For information relating to Use, Cleaning and Maintenance see the Health and Safety File

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

NOTES:

1. DIMENSIONS:

- Are in millimetres unless otherwise stated.
- Marked thus (*) are approximate.
- All levels are in metres to Site Datum.

2. SPECIFICATION:

All works to be carried out in accordance with the Environment Agency Minimum Technical Requirements which shall be the Civil Engineering Specification for the Water Industry (CESWI).

3. ALUMINIUM:

- All Eel pass plates & extrusions to be in aluminium unless otherwise indicated.
- All structural aluminium alloys to BS 8118.
- Sheet plate grade to be Alloy 5083 0 Temper or similar approved.
- Thin walled extrusions to be 6082 T6 Temper or similar approved.

All aluminium welds to match substrate thickness, typically 5mm for structural plate & stiffeners. All welds to be continuous unless otherwise indicated.

4. BOLTS:

- All stainless steel to BS950.
- All fasteners to be stainless steel A2 (304) set screws, M12 (in 14mm dia holes) unless otherwise indicated.
- All fasteners to have white M12 (or to suit) nylon washers to isolate stainless steel fasteners from aluminium alloy extrusions & plates unless otherwise indicated.
- Nut & bolt cover caps in black plastic polyethylene to be fitted where fittings are externally exposed on side walls above ground or bed level.

5. FABRICATION:

- Fabrication drawings to be prepared by the fabricator.
- All fabricated structural steelwork & aluminium structures executed to conform to BS EN 1090-2.
- Size of connection plates & bolt hole positions to suit fabrication tolerances and checked for fit prior to deliver to site.

6. ASSEMBLY:

- All bolted connection plates to receive 2 bead lines of black Sika-flex 2911 marine adhesive on assembly of modules to form pass unit.
- Residual open joints to be filled with sika-flex.

7. PAINT SYSTEM:

- Paint system applied to external (visible) areas only.
- Colour TBC subject to client preference.
- To be applied in accordance with manufacturer's instructions.

For Information Purposes only
Not for construction

Rev.	Date	Description	Auth.	Chkd.	Appr.
P02	21/05/25	Detailed Design	JE	JR	DG
P01	31/03/25	Draft Detailed Design	JE	MG	DG

Status: **Detailed Design**

PROJECTION	Signatures
	Authored: J. Ellis Checked: M. Giblin Approved: D. Griffiths

Scale: As Shown



Designer: **FISHTEK**

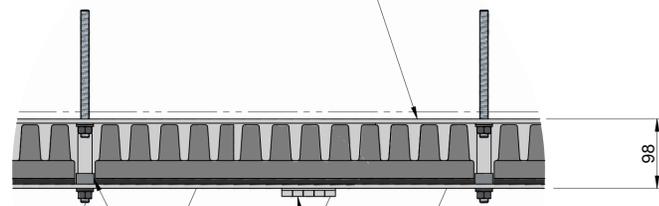
Project: **Three Brooks Weirs**

Title: **Outflow Weir General Arrangement**

Drawing No.	Project No.	Revision
030	3540333	P02
Original Size	Sheet	Of
A1	2	3

SUBJECT TO FURTHER SITE MEASUREMENTS AND FABRICATION DESIGN

Cassettes to be fixed to rough stone wall with M12 resin anchors, shimmed and grouted. Remaining small gaps to be filled with marine grade Sikaflex 291i or similar. - See 030/04

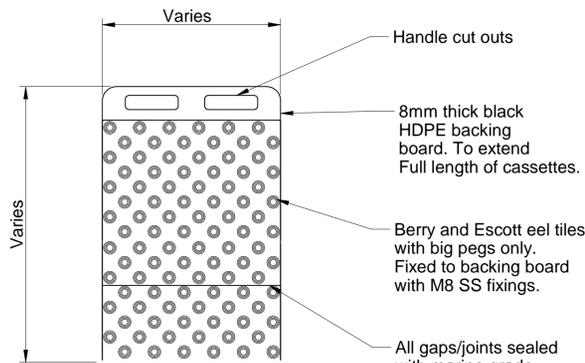


Internal HDPE dividers secured to external facing cassette wall with M5 countersunk SS fixings. - See 030/08

Cassettes to have hinged lockable lids. (Not shown)

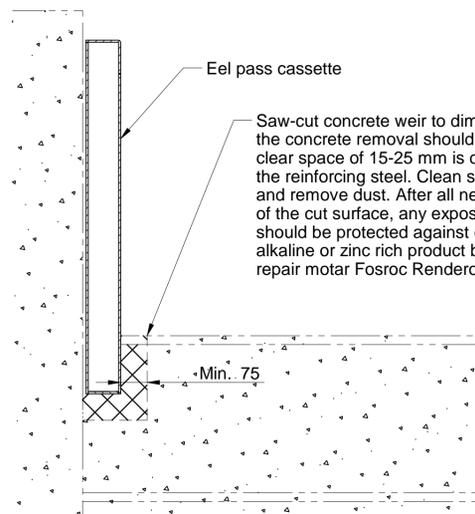
030/06 Typ. Cassette - Plan

Lid omitted for clarity
Scale - 1:5



030/09 Typ. Eel Tile Unit

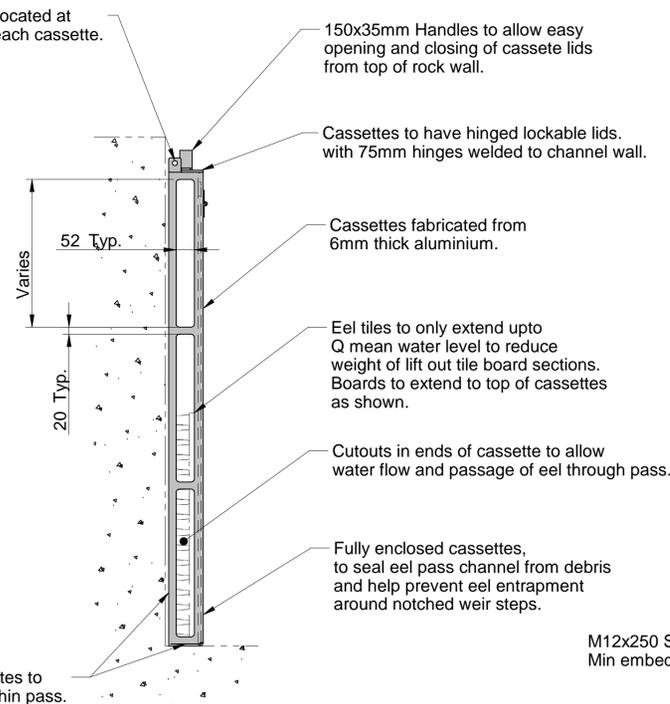
Scale - 1:10



030/10 Notch Cut Out Detail

Scale - 1:10

Padlock tabs located at both ends of each cassette.



030/07 Typ. Cassette - End Elevation

Scale - 1:10

150x35mm Handles to allow easy opening and closing of cassette lids from top of rock wall.

Cassettes to have hinged lockable lids with 75mm hinges welded to channel wall.

Cassettes fabricated from 6mm thick aluminium.

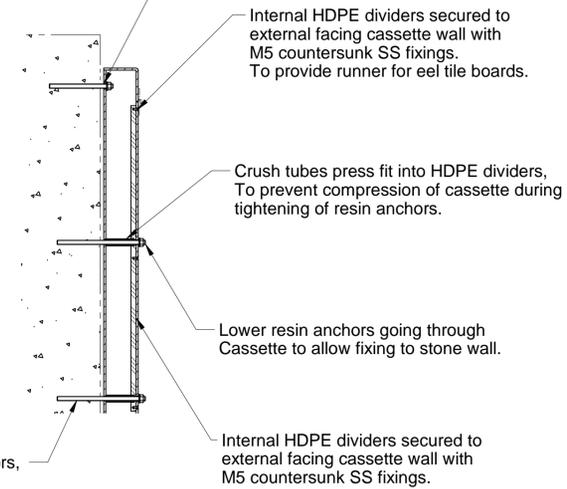
Eel tiles to only extend upto Q mean water level to reduce weight of lift out tile board sections. Boards to extend to top of cassettes as shown.

Cutouts in ends of cassette to allow water flow and passage of eel through pass.

Fully enclosed cassettes, to seal eel pass channel from debris and help prevent eel entrapment around notched weir steps.

Base & side plates to contain eels within pass.

Cassettes to be fixed to rough stone wall with M12 resin anchors, shimmed and grouted to fill voids. Remaining small gaps to be filled with marine grade Sikaflex or similar. - See 030/04



030/08 Typ. Cassette Wall Mounting

Scale - 1:10

Internal HDPE dividers secured to external facing cassette wall with M5 countersunk SS fixings. To provide runner for eel tile boards.

Crush tubes press fit into HDPE dividers, To prevent compression of cassette during tightening of resin anchors.

Lower resin anchors going through cassette to allow fixing to stone wall.

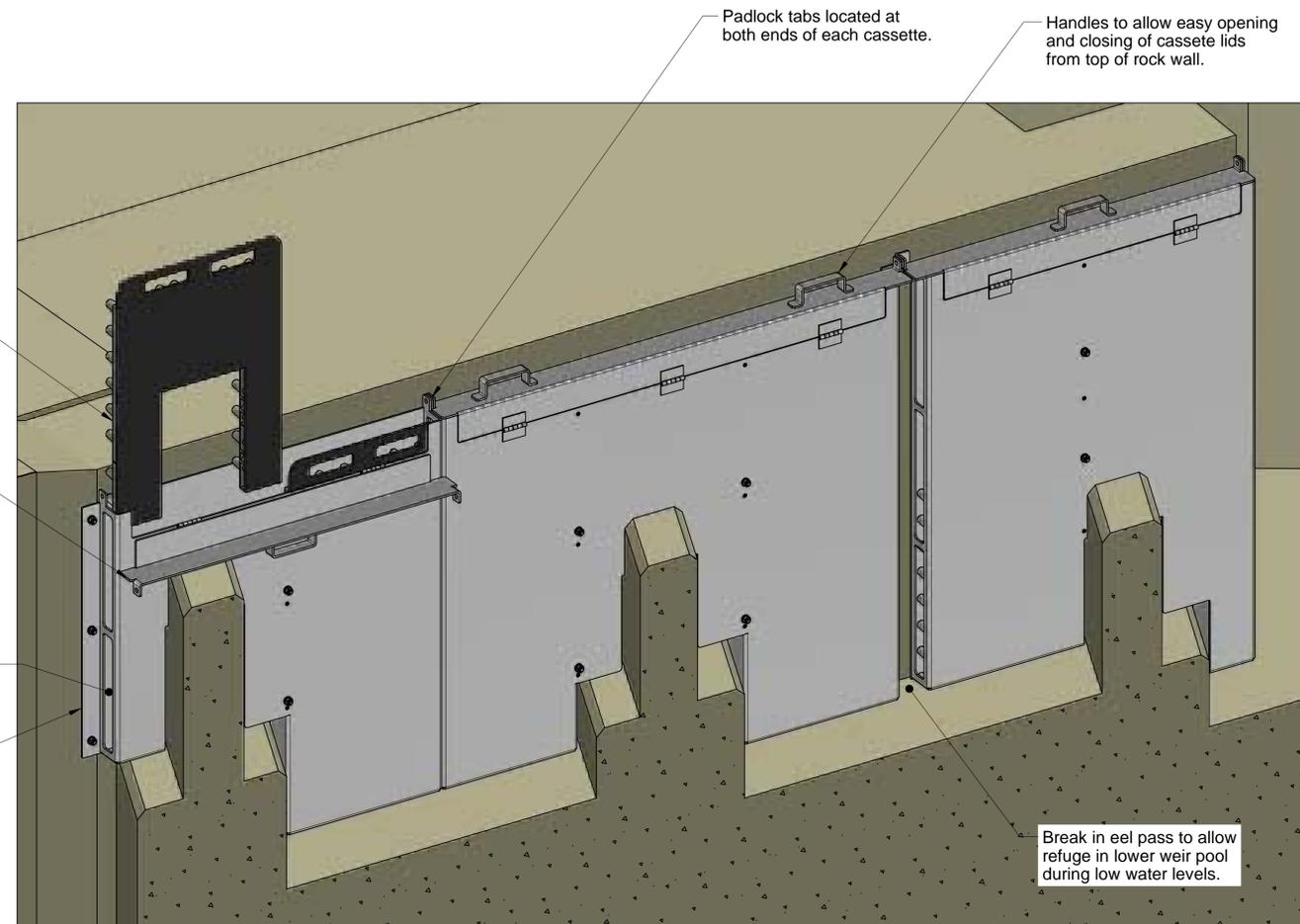
Internal HDPE dividers secured to external facing cassette wall with M5 countersunk SS fixings.

Eel tile boards to be profile cut around each weir step.

Lids to have 90 deg return to expose handles on eel tile boards for easy removal.

Cutouts in ends of cassettes to allow water flow and passage of eel through pass.

External tab to fix cassette to wall.



Break in eel pass to allow refuge in lower weir pool during low water levels.

030/11 Eel Pass assembly - Isometric

Scale - 1:10

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Copyright reserved		Signatures	
PROJECTION	Author	J. Ellis	<i>[Signature]</i>
	Checked	M. Giblin	<i>[Signature]</i>
	Approved	D. Griffiths	<i>[Signature]</i>

Scale: As Shown

Client:

Designer:

Project: Three Brooks Weirs

Title: Outflow Weir Eel Pass Details

Drawing No.	Project No.	Revision
030	3540333	P02
Original Size	Sheet	Of
A1	3	3