

Pont Aran

Weir Removal in a Town Centre

Dam Removal Europe Sep 2017

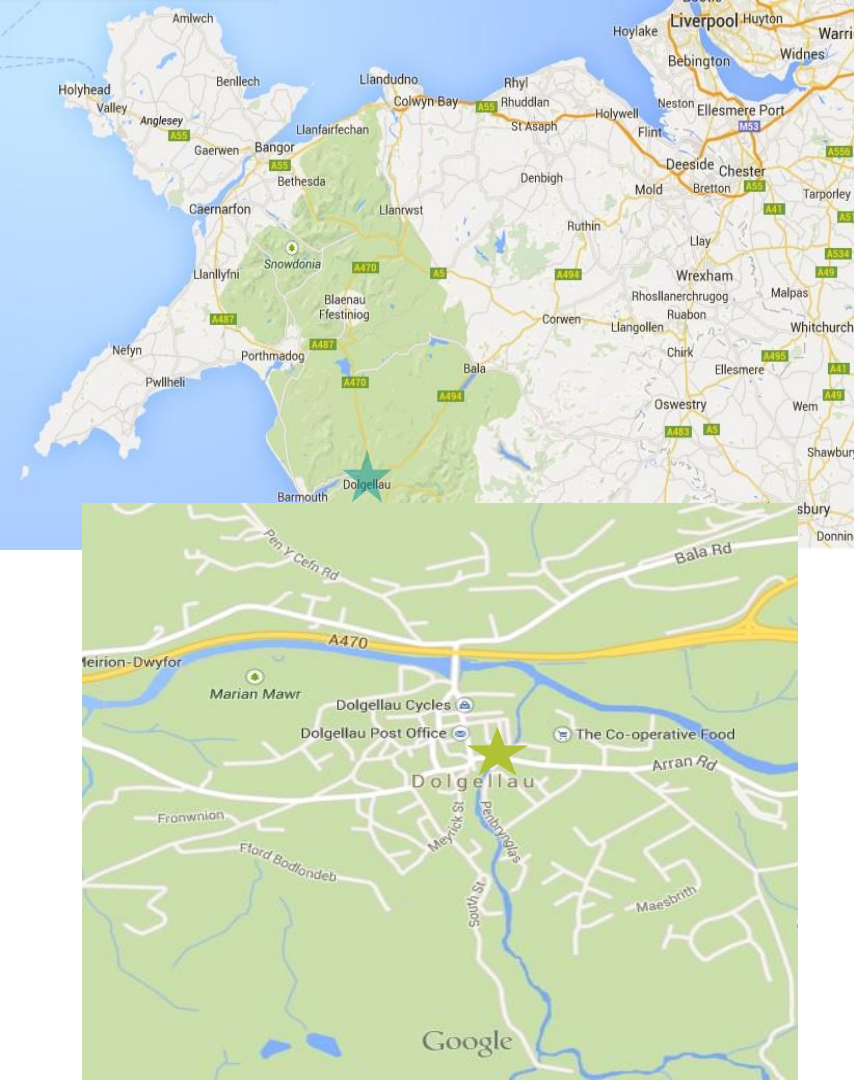
Dam and Weir Removal in the Urban Environment



Team

- **Oly Lowe** - NRW Geomorphologist
- **John Davies** – NRW Project Manager
- **Ann Griffith** – NRW Flood Risk Management Team
- **Marianne Jones** – NRW Environmental Lead
- **Tommi Hughes and Phil Oliver** – NRW Fisheries/Biodiversity
- **Heulwen Baughn** – B&V Environmental lead and ECW
- **Will Shaw** – B&V Engineering Design lead
- **Alun Griffiths** (Contractor)





Project

Dolgellau Flood Alleviation Scheme

Client
Natural Resources Wales

Location
Gwynedd, Wales

Expertise
Flood Risk Management

Opportunity

Weir removal as part of flood risk management scheme

Solution

Removal of weir and bed-regrading

Discussions with local community groups

Archaeological record taking

Protection to bridge and wall foundations

Outcome

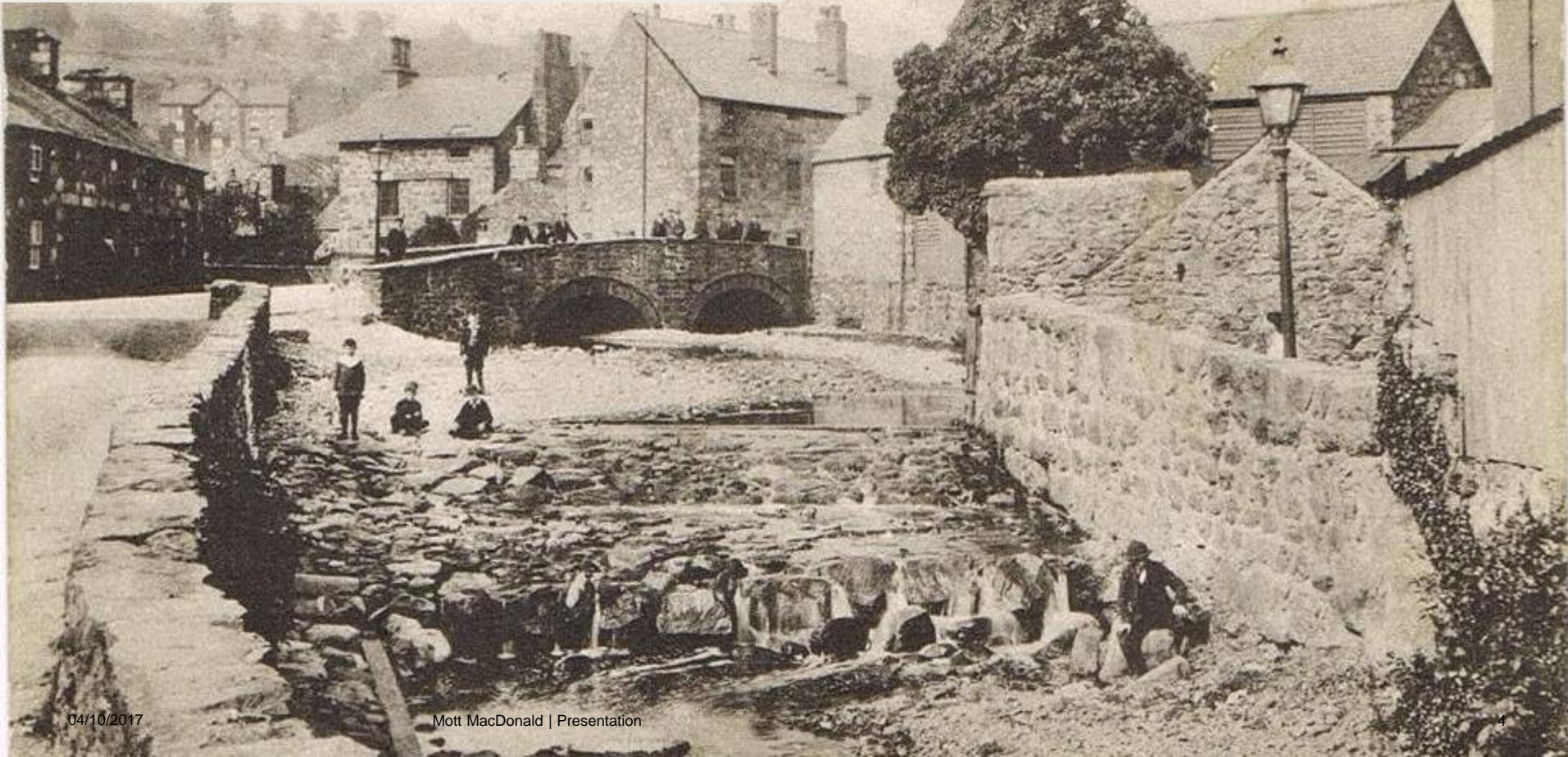
Reduced flood risk

Improved fish passage potential

Improved river connectivity

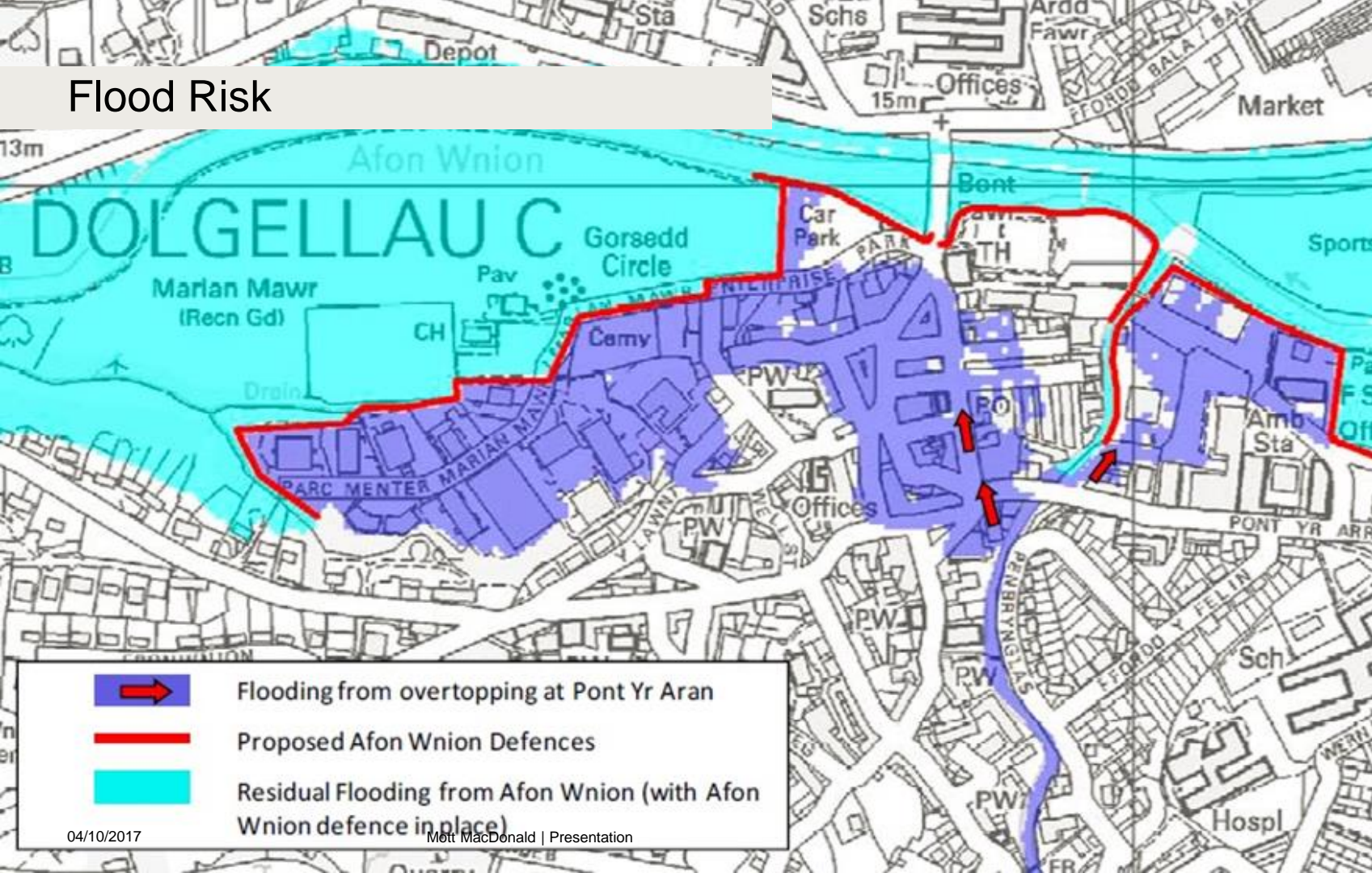
Cost-effective

Historic context



2014

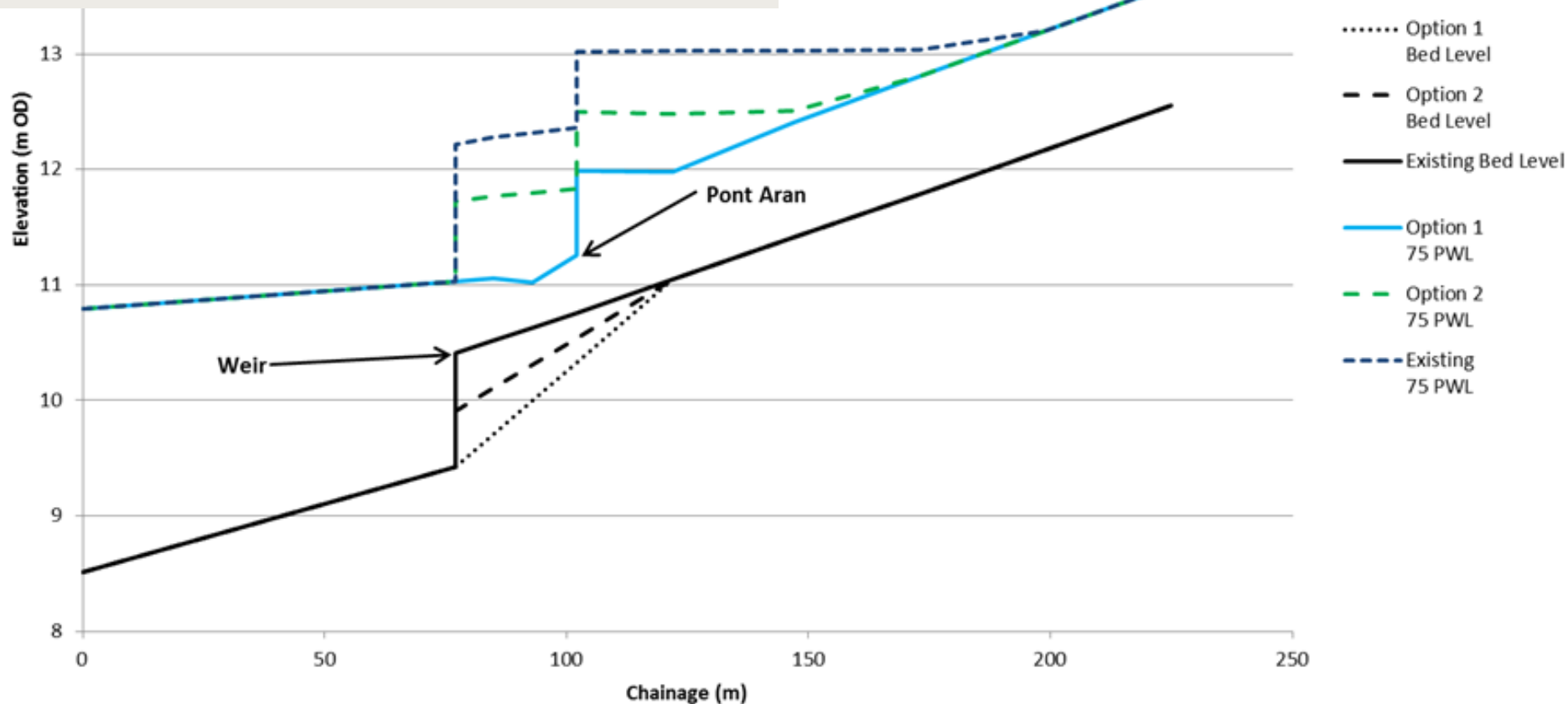
Flood Risk



Flood Risk – raise walls?



Weir removal – effect on flood level



Benefits, risks, consultation

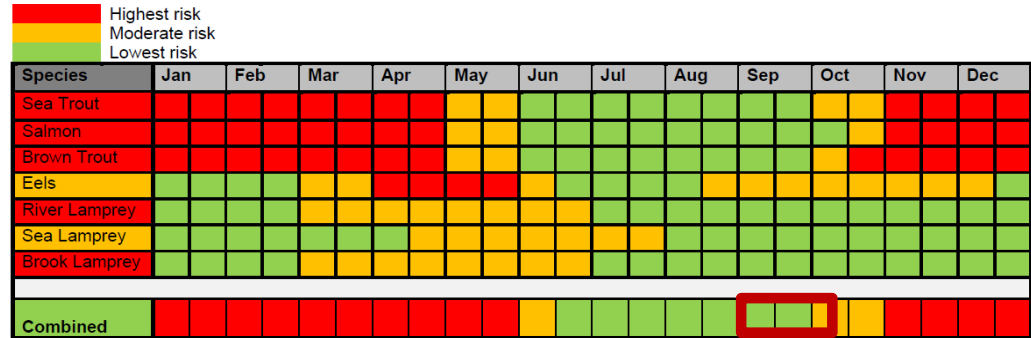
- Visual impact less than wall raising
- Less and shorter construction impact (short term risk to fish and sediment release)
- Local WFD and fish passage benefits
- Risk of changes in erosion and deposition - geomorphological input
- Risk to services and existing infrastructure
- Consultation with town council, local heritage group Snowdonia National Park Authority
- Works undertaken as permitted development in advance of main scheme

Archaeological record



Fish

- Consultation with local fisheries officers
- Monitoring sites (salmon, sea trout, eel)
- Timing and risk of disturbance (traffic light)
- Map of sensitive spawning locations
- Temporary works / construction mitigation
- Reinstating river bed features



Sediment control



Communication during (de)construction

- Engineering supervision 2-3 visits per week
- Client communication
- Environmental Clerk of Works
- Geomorphologist at key stages
- Communicate bed reinstatement to site foreman and surveyors
- Direct placement of larger stone and bed features
- Photos illustrating construction and reinstatement on following slides

River bed out of water

- Material management, stockpiling and re-use
- Japanese Knotweed
- Vehicle movements



Bridge invert design

- In-channel construction and flow management
- Asymmetric levels under arches
- Roughness / fish passage
- Retro-fit of low cost baffles in one arch



Flashy rivers!

- Change in level within 2 hours - just while finishing bed reinstatement on final day of works!





Photos from Black & Veatch





Photos from Black & Veatch





Photo from Black & Veatch



Photo from Natural Resources Wales



Photos from Black & Veatch





Photos from Black & Veatch



Photos from Natural Resources Wales



Summary

Flood risk

Weir removal
can have
multiple benefits
for flood risk &
environment

Value

Weir removal
can be cost
effective
compared to
other options

Risks

Short term
impacts and
risks require
management

Design

Need to
consider
proportionate
erosion
protection

Public

In urban areas
expect public
interest!

Communicate

Words, pictures,
face to face



Thank you – any questions?

joanne.barlow@mottmac.com