To instantiate the given assurance case pattern for the BlueROV2 system, we will replace the placeholders with specific information related to BlueROV2. We will also remove all the pattern-specific decorators and finalize the hierarchical structure.

Here is the instantiated assurance case for the BlueROV2 system represented in a tree format:

```

- Goal (G1, Hazards for BlueROV2 system addressed in accordance with ALARP principle.)

- Strategy (S1, Argument by risk reduction/elimination of each hazard)

- Goal (G2, No intolerable risks present in the system.)

- Context (C1, Definition of "intolerable")

- Strategy (S2, Argue that risk posed by any remaining hazards is negligible) - [Undeveloped]

- Strategy (S3, Argue that no other risks have been identified) - [Undeveloped]

- Goal (G3, Risk from hazard has been reduced as low as reasonably practicable)

- Context (C2, Assigned severity class is BlueROV2 Hazard Severity)

- Strategy (S4, Apply ReSonAte to estimate level of risk from hazard condition BlueROV2 Hazard)

- Assumption (A1, Function required by BTD is available)

- Goal (G4, Model BTD accurately describes possible propagation of hazard BlueROV2 Hazard)

- Goal (G5, Quantitative risk estimates are accurate and below acceptable threshold)

- Goal (G9, State probability distribution used for risk estimation is an accurate representation of expected system states) - [Undeveloped]

- Goal (G10, Estimated probability of consequence is below allowable threshold for severity class BlueROV2 Consequence)

- Solution (Sn1, Estimated risk level BlueROV2 attr:RiskEst)

- Goal (G6, Possible hazard propagation paths correctly captured in BTD) - [Undeveloped]

- Goal (G7, Barriers in the BTD correctly describe their respective control action including any required system functions) - [Undeveloped]

- Goal (G8, All non-negligible threats have been identified) - [Undeveloped]

```

Summary of changes:

1. \*\*Placeholders replaced\*\*:

- {A :: System} -> BlueROV2 system

- {B:: Hazard} -> hazard

- {S:: BTD} -> BTD

- {R:: Hazard} -> BlueROV2 Hazard

- {C:: Hazard.Severity} -> BlueROV2 Hazard Severity

- {U:: Consequence} -> BlueROV2 Consequence

- {T: Function} -> Function

- {V :: attr:RiskEst} -> BlueROV2 attr:RiskEst

2. Removed the decorators related to assurance case patterns:

- Uninstantiated

- UndevelopStantiated

- HasPlaceholder

- HasChoice

- HasMultiplicity

3. Indicated undeveloped strategies and goals with their corresponding labels for clarity.

This tree structure reflects the hierarchical nature of the assurance case for the BlueROV2 system, clearly depicting the relationships and dependencies between different elements of the assurance argument.