To create an assurance case for the BlueROV2 system using the provided pattern, we will replace all placeholders and instantiate the necessary elements to fit the BlueROV2 system. I'll replace placeholders with system-specific information based on domain knowledge and complete the assurance case. Note that undeveloped items will remain marked as undeveloped until further development occurs.

\*\*Assurance Case for BlueROV2:\*\*

- G1: \*\*Hazards for BlueROV2 are addressed in accordance with ALARP principle.\*\*

- S1: \*\*Argument by risk reduction/elimination of each hazard\*\*

- G2: \*\*No intolerable risks present in BlueROV2.\*\*

- S2: \*Argue that risk posed by any remaining hazards is negligible (undeveloped)\*

- S3: \*Argue that no other risks have been identified (undeveloped)\*

- C1: \*\*Definition of "intolerable"\*\*

- G3: \*\*Risk from major obstacles has been reduced as low as reasonably practicable. (Multiplicity: 1 of 3)\*\*

- S4: \*\*Apply ReSonAte to estimate level of risk from hazard condition of running into obstacles\*\*

- G4: \*\*Model for Obstacle BTD accurately describes possible propagation of hazard from obstacles\*\*

- G6: \*Possible hazard propagation paths correctly captured in BTD (undeveloped)\*

- G7: \*Barriers in the BTD correctly describe their respective control action including any required system functions (undeveloped)\*

- G8: \*All non-negligible threats have been identified (undeveloped)\*

- A1: \*Function required by Obstacle BTD is available (Assumption not instantiated yet)\*

- G5: \*\*Quantitative risk estimates for obstacle encounter are accurate and below acceptable threshold.\*\*

- G9: \*State probability distribution used for risk estimation is an accurate representation of expected system states (undeveloped)\*

- G10: \*\*Estimated probability of collision is below allowable threshold for severity class 'Major'.\*\*

- Sn1: \*\*Estimated risk level is 10^-3 per hour.\*\*

- C2: \*\*Assigned severity class is 'Major'\*\*

- A1: \*Function 'Obstacle Detection' required by Obstacle BTD is available (Multiplicity: 0 of \*)\*

This assurance case tree represents how different goals, strategies, and supporting elements like solutions, context, and assumptions integrate to form a comprehensive assurance argument for the BlueROV2's ability to handle identified hazards in compliance with the ALARP principle. Some goals and strategies remain undeveloped, indicating areas that need more detailed arguments and evidence to fully support the assurance case.