Perturbed Curvature Quantities

$$\delta R_{\lambda\mu\nu\kappa} = h^{\alpha}{}_{\lambda} R_{\alpha\mu\nu\kappa} - \tfrac{1}{2}\nabla_\kappa\nabla_\lambda h_{\mu\nu} + \tfrac{1}{2}\nabla_\kappa\nabla_\mu h_{\nu\lambda} + \tfrac{1}{2}\nabla_\kappa\nabla_\nu h_{\mu\lambda} - \tfrac{1}{2}\nabla_\nu\nabla_\kappa h_{\mu\lambda} + \tfrac{1}{2}\nabla_\nu\nabla_\lambda h_{\kappa\mu} - \tfrac{1}{2}\nabla_\nu\nabla_\mu h_{\kappa\lambda}. \tag{1}$$

$$\delta R_{\mu\nu} = \tfrac{1}{2} g^{\alpha\beta}(\nabla_\alpha\nabla_\beta h_{\mu\nu} - \nabla_\alpha\nabla_\mu h_{\beta\nu} - \nabla_\alpha\nabla_\nu h_{\beta\mu} + \nabla_\nu\nabla_\mu h_{\alpha\beta}) \tag{2}$$