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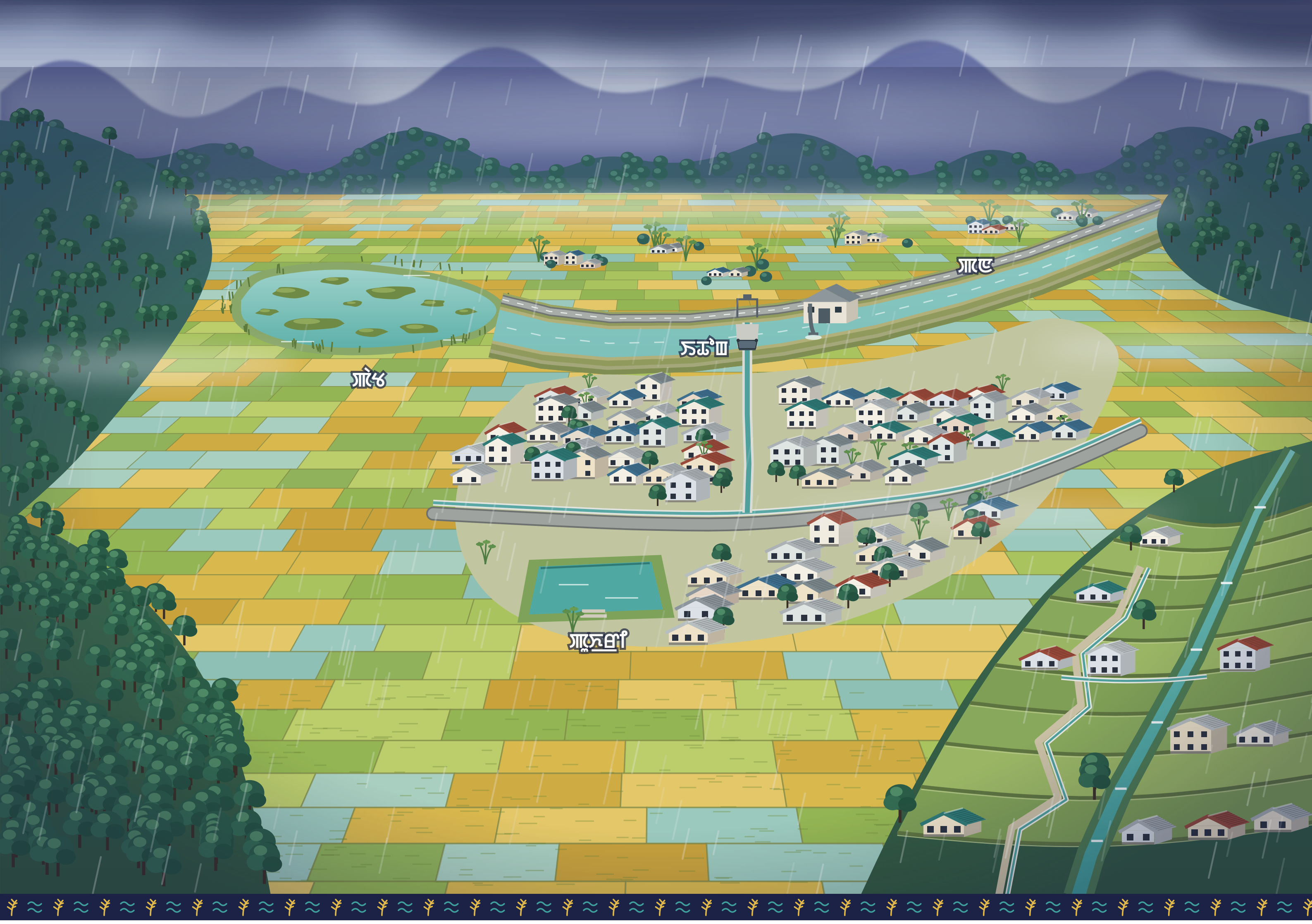

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Neer

ꯗ꯭ꯔꯥꯐꯠ ꯑꯁꯤꯒꯤ ꯃꯇꯥꯡꯗ

ꯅꯣꯠ. ꯃꯁꯤ *ꯃꯅꯤꯄꯨꯔꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯍꯧꯔꯛꯐꯝ ꯍꯀꯆꯥꯡ ꯑꯦꯇꯂꯁ* ꯑꯁꯤꯒꯤ ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0-ꯗꯤ꯫ ꯃꯁꯤ Neer-ꯒꯤ ꯃꯅꯤꯄꯨꯔꯒꯤꯗꯃꯛ ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯁꯦꯝꯕ ꯏꯁꯤꯡꯒꯤ ꯍꯧꯔꯛꯐꯝ ꯑꯦꯇꯂꯁ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯂꯩꯔꯤ꯫

ꯁꯣꯔꯁꯁꯤꯡ. ꯃꯥꯂꯦꯝ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯁꯔꯀꯥꯔ, ꯃꯁꯤꯒꯤ ꯀꯥꯡꯂꯨꯞ, ꯀꯥꯎꯟꯁꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯤꯌꯥꯝꯒꯤ ꯅꯠꯔꯒꯥ ꯁꯔꯀꯥꯔꯒꯤ ꯑꯣꯐꯤꯁꯁꯤꯡ, ꯅꯠꯔꯒꯥ ꯃꯁꯤꯒꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠꯁꯤꯡ, ꯁꯔꯀꯥꯔ ꯃꯍꯥꯛ ꯅꯠꯔꯒꯥ ꯑꯣꯐꯤꯁꯤꯑꯦꯜ ꯑꯣꯏꯕ ꯁꯣꯔꯁꯁꯤꯡ, ꯑꯣꯐꯤꯁꯤꯑꯦꯜ ꯄꯣꯔꯇꯦꯜ ꯅꯠꯔꯒꯥ ꯄꯕ꯭ꯂꯤꯛ ꯁꯣꯔꯁꯁꯤꯡ꯫ ꯃꯈꯥꯗꯥ, ꯃꯁꯤ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯁꯟ, ꯍꯥꯎꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯔꯕꯟ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Municipal Administration, Housing and Urban Development Department; MAHUD), ꯇꯥꯎꯟ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Town Planning Department; TPD), ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (Planning and Development Authority, Manipur; PDA Manipur), ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC) ꯅꯠꯔꯒꯥ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯥꯎꯟꯁꯤꯜ (Municipal Council) ꯅꯠꯔꯒꯥ ꯅꯒꯔ ꯄꯟꯆꯥꯌꯠ (Nagar Panchayat) ꯑꯃꯁꯨꯡ, ꯅꯠꯔꯒꯥ ꯏꯝꯐꯥꯜ ꯁ꯭ꯃꯥꯔꯠ ꯁꯤꯇꯤ ꯂꯤꯃꯤꯇꯦꯗ (Imphal Smart City Ltd)-ꯒꯤ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ, ꯃꯦꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯄꯕ꯭ꯂꯤꯛ ꯗꯦꯇꯥꯁꯤꯡ꯫ ꯂꯃꯗꯝꯁꯤꯡꯒꯤ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ ꯀꯃꯤꯇꯤ (Hill Areas Committee)-ꯒꯤ, ꯑꯣꯇꯣꯅꯣꯃꯁ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯥꯎꯟꯁꯤꯜ (Autonomous District Council) ꯑꯃꯁꯨꯡ ꯅꯠꯔꯒꯥ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯁꯟꯁꯤꯡ, ꯚꯤꯂꯦꯖ ꯑꯊꯣꯔꯤꯇꯤ (Village Authority) ꯑꯃꯁꯨꯡ ꯅꯠꯔꯒꯥ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ (Hill Areas)-ꯒꯤ ꯑꯣꯐꯤꯁ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ, ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯒꯤ ꯃꯈꯥ ꯊꯪ ꯁꯤꯖꯤꯟꯅꯕ, ꯑꯣꯇꯣꯅꯣꯃꯁ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯠ ꯂꯦꯚꯦꯜ ꯀꯃꯤꯇꯤ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978 (Manipur Flood Plain Zoning Act, 1978)-ꯒꯤ ꯃꯈꯥ ꯊꯪ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯊꯣꯔꯤꯇꯤ (Flood Zoning Authority) ꯑꯃꯁꯨꯡ ꯒꯤ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ, ꯃꯦꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯕ꯭ꯂꯤꯛ ꯗꯦꯇꯥꯁꯤꯡ꯫ ꯃꯥꯂꯦꯝ ꯑꯁꯤꯒꯤ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯃꯦꯄ ꯊꯦꯡꯅꯕ ꯃꯍꯩ, ꯁ꯭ꯇꯦꯠ ꯑꯣꯐꯤꯁ ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁꯦꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Water Resources Department; WRD), ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Public Health Engineering Department; PHED), ꯄꯕ꯭ꯂꯤꯛ ꯋꯥꯔꯛꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Public Works Department; PWD), ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖꯒꯤ ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ (Directorate of Environment and Climate Change; DoECC) ꯅꯠꯔꯒꯥ ꯐꯣꯔꯦꯁ꯭ꯠ, ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Forest, Environment and Climate Change Department), ꯃꯅꯤꯄꯨꯔ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (Manipur Pollution Control Board; MPCB), ꯂꯣꯀꯇꯥꯛ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ (Loktak Development Authority; LDA), ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯁ ꯑꯊꯣꯔꯤꯇꯤ (Manipur State Wetlands Authority; MSWA), ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ (Manipur State Disaster Management Authority; MSDMA), ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Relief and Disaster Management Department), ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Revenue Department) ꯅꯠꯔꯒꯥ ꯗꯦꯄꯨꯇꯤ ꯀꯃꯤꯁꯅꯔ (Deputy Commissioner) ꯑꯃꯥ, ꯃꯅꯤꯄꯨꯔ ꯍꯥꯏ ꯀꯣꯔꯠ (High Court of Manipur), ꯅꯦꯁꯅꯦꯜ ꯒ꯭ꯔꯤꯟ ꯠꯔꯥꯏꯕ꯭ꯌꯨꯅꯦꯜ (National Green Tribunal; NGT) ꯅꯠꯔꯒꯥ ꯁꯨꯞꯔꯤꯝ ꯀꯣꯔꯠ (Supreme Court), ꯅꯠꯔꯒꯥ ꯄꯥꯔꯂꯤꯌꯥꯃꯦꯟꯠꯀꯤ ꯗꯦꯇꯥ ꯑꯃꯥ ꯅꯠꯔꯒꯥ ꯑꯣꯐꯤꯁ ꯄꯕ꯭ꯂꯤꯛ ꯗꯦꯇꯥ ꯑꯃꯥ, ꯁ꯭ꯇꯦꯠ ꯑꯣꯐꯤꯁ ꯁꯦꯟꯠꯔꯦꯜ ꯋꯥꯇꯔ ꯀꯃꯤꯁꯟ (Central Water Commission; CWC), ꯏꯟꯗꯤꯌꯥ ꯃꯤꯇꯤꯌꯣꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (India Meteorological Department; IMD), ꯁꯦꯟꯠꯔꯦꯜ ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯥꯇꯔ ꯕꯣꯔꯗ (Central Ground Water Board; CGWB), ꯁꯦꯟꯠꯔꯦꯜ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (Central Pollution Control Board; CPCB), ꯅꯦꯁꯅꯦꯜ ꯏꯅꯁ꯭ꯇꯤꯇ꯭ꯌꯨꯠ ꯑꯣꯐ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ (National Institute of Hydrology; NIH), NHPC, ꯁꯦꯟꯠꯔꯦꯜ ꯏꯂꯦꯛꯠꯔꯤꯁꯤꯇꯤ ꯑꯊꯣꯔꯤꯇꯤ (Central Electricity Authority; CEA), ꯅꯦꯁꯅꯦꯜ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ (National Disaster Management Authority; NDMA) ꯅꯠꯔꯒꯥ ꯃꯤꯅꯤꯁ꯭ꯠꯔꯤ ꯑꯣꯐ ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯠ, ꯐꯣꯔꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ (Ministry of Environment, Forest and Climate Change; MoEF&CC), ꯅꯠꯔꯒꯥ ꯔꯤꯃꯣꯠ ꯁꯦꯟꯁꯤꯡ ꯗꯦꯇꯥ, ꯒꯨꯒꯜ ꯄꯥꯟꯗ ꯑꯃꯁꯨꯡ ꯑꯦꯀꯦꯗꯦꯃꯤꯛ ꯑꯃꯥ, ꯁ꯭ꯇꯦꯠ ꯑꯣꯐꯤꯁ ꯃꯅꯤꯄꯨꯔ ꯁꯥꯏꯟꯁ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯣꯂꯣꯖꯤ ꯀꯥꯎꯟꯁꯤꯜ (Manipur Science and Technology Council; MASTEC), ꯑꯦꯁꯤꯌꯥꯟ ꯏꯟꯐ꯭ꯔꯥꯁ꯭ꯠꯔꯛꯆꯔ ꯏꯟꯚꯦꯁ꯭ꯠꯃꯦꯟꯠ ꯕꯦꯡꯛ (Asian Infrastructure Investment Bank; AIIB), ꯅ꯭ꯌꯨ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯕꯦꯡꯛ (New Development Bank; NDB) ꯅꯠꯔꯒꯥ WAPCOS, ꯃꯥꯂꯦꯝ ꯑꯁꯤ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯗꯦꯇꯥ ꯑꯁꯤ ꯗꯣꯀꯨꯃꯦꯟꯇ ꯊꯦꯡꯅꯕ ꯄꯥꯏꯕꯥ ꯆꯠꯂꯤ꯫ ꯗꯦꯇꯥ ꯑꯁꯤꯗ ꯊꯦꯡꯅꯕ ꯑꯁꯤ ꯋꯥꯐꯝ ꯍꯥꯌꯗꯨꯅ ꯍꯥꯌꯔꯤ꯫ ꯗꯦꯇꯥ ꯑꯃꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ ꯕꯦꯁꯗ ꯃꯥꯂꯦꯝ ꯑꯁꯤꯒꯤ ꯗꯦꯇꯥꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ ꯑꯣꯏꯔꯤ꯫

ꯑꯍꯦꯅꯕ ꯂꯥꯏꯔꯤꯛ ꯇꯝꯕ. ꯃꯈꯥꯒꯤ ꯑꯦꯛꯇꯁꯤꯡ ꯑꯃꯗꯤ ꯄꯥꯎꯈꯨꯝ ꯄꯤꯕꯒꯤ ꯄꯥꯎꯈꯨꯃꯗꯥ ꯇꯣꯉꯥꯟꯅꯥ ꯂꯥꯏꯁꯤꯟꯂꯕ ꯃꯦꯡꯂꯦꯡ ꯑꯣꯏꯒꯤ ꯑꯍꯦꯅꯕ ꯂꯥꯏꯔꯤꯛ ꯇꯝꯕ॥ ꯃꯇꯝ ꯑꯃꯗ ꯌꯦꯡꯂꯒ, ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ 2024 (Model Manipur Unified Building Bye-Laws 2024; ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯥꯏ-ꯂꯣꯖ 2024) ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕꯤꯕ ꯇꯥꯔꯛ ꯕꯥꯏ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅꯥ ꯍꯧꯖꯤꯛ ꯍꯥꯄꯆꯤꯟꯕ ꯁꯦꯃꯒꯠꯂꯕ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡ; ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯖꯣꯅꯤꯡ/ꯌꯨꯖ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯕꯥꯏ-ꯂꯣꯖ, 2026 (Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026); ꯔꯤꯚꯥꯏꯖ ꯇꯧꯔꯕ ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯂꯒꯤ GIS ꯕꯦꯖ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)) ꯑꯃꯁꯨꯡ ꯑꯇꯩꯒꯤ ꯁꯍꯔꯁꯤꯡꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯁꯤꯡ; ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (Manipur Town and Country Planning Act, 1975; MTCP Act) ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 (Manipur Municipalities Act, 1994); ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006 (Manipur Loktak Lake (Protection) Act, 2006; ꯂꯣꯛꯇꯥꯛ ꯑꯦꯛꯠ); ꯃꯅꯤꯄꯨꯔ ꯃꯍꯩꯃꯉꯥꯜ ꯑꯣꯏ ꯂꯝ ꯂꯃꯀ ꯑꯃꯁꯨꯡ ꯁꯦꯡꯂꯕ ꯑꯦꯛꯠ, 2014 (ꯂꯝ-ꯂꯃꯀ ꯑꯦꯛꯠ); ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯂꯝꯕꯤ ꯂꯃꯍꯥꯟꯕ ꯑꯦꯛꯠ, 1978; ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯦꯛꯠ, 1971 (Manipur (Hill Areas) District Councils Act, 1971; ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯦꯛꯠ); ꯀꯦꯁ ꯑꯃꯁꯨꯡ ꯁꯔꯀꯥꯔꯒꯤ ꯑꯦꯗꯚꯥꯏꯖꯔꯤꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯁꯥꯏꯇ ꯑꯦꯛꯁꯞꯔꯇꯀꯤ ꯀꯟꯁꯜꯇꯦꯁꯟ ꯁꯥꯏꯇ ꯑꯍꯦꯅꯕ ꯁꯥꯏꯇꯁꯤꯡ॥

ꯃꯅꯤꯄꯨꯔ ꯑꯃꯁꯨꯡ ꯃꯐꯝꯁꯤꯡ ꯁꯤꯟꯗꯨ ꯆꯠꯐꯝ. ꯂꯝꯕꯤ ꯑꯗꯨꯒꯤ ꯑꯍꯦꯅꯕ ꯃꯈꯥꯗ ꯁꯥꯡꯕꯒ ꯆꯥ ꯑꯗꯨ ꯇꯧ, ꯑꯃꯁꯨꯡ ꯃꯄꯨꯡꯐꯥ ꯑꯗꯨ ꯃꯈꯥꯔꯤ ꯁꯥꯡꯕꯗ ꯁꯥꯏ॥ ꯁꯤꯟꯗꯨ ꯆꯃꯗꯤ ꯄꯥꯔꯕꯗꯤ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯖꯤꯁ꯭ꯂꯦꯇꯤꯕ ꯑꯦꯁꯦꯝꯕꯂꯤ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ) ꯑꯣꯔꯗꯔ, 1972 (Manipur Legislative Assembly (Hill Areas Committee) Order, 1972)-ꯒꯤ ꯑꯄꯥꯟꯗꯒꯤ ꯂꯧꯖꯤꯟꯕ ꯁꯥꯡꯗꯨꯅ ꯆꯃꯗꯤꯗꯤ, ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯦꯛꯠꯀꯤ 2008-ꯒꯤ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠꯁꯤꯡꯒꯤ ꯍꯥꯏꯕ ꯃꯈꯥꯗꯨ ꯑꯍꯦꯅꯕ ꯂꯝꯕꯤꯗꯨ ꯁꯥꯡꯗꯤ; ꯅꯝꯕꯤꯗ ꯑꯗꯤꯕ ꯁꯥꯡꯕꯖꯤꯟꯗꯨꯒꯤ ꯑꯣꯏꯕꯤꯖꯤꯟ 371C-ꯗ ꯄꯥꯔꯕꯒꯤ ꯆꯃꯗꯤꯗꯤꯒꯤ ꯅꯥꯏꯁꯤꯡꯕ ꯃꯦꯃꯕꯔꯁꯤꯡꯒꯤ ꯂꯦꯖꯤꯁ꯭ꯂꯦꯇꯤꯕ ꯑꯦꯁꯦꯝꯕꯂꯤꯒꯤ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤꯒꯤ ꯑꯃꯒꯤꯗꯃꯛ ꯊꯥꯕꯗ ꯁꯥꯅ, ꯑꯗꯤꯁꯨ ꯍꯥꯏꯅꯕ ꯑꯃꯅ ꯑꯁꯤꯡꯕ ꯂꯝꯕꯤꯗꯨ ꯁꯥꯡꯗꯤꯕ ꯃꯁꯨꯡ ꯅꯥꯏꯗ॥ ꯃꯅꯤꯄꯨꯔ ꯃꯌꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 ꯑꯁꯤ "ꯄꯥꯔꯕꯗꯤ ꯆꯃꯗꯤ ꯑꯣꯏꯕꯕ ꯃꯅꯤꯄꯨꯔ ꯂꯝꯕꯤ ꯁꯨꯃꯍꯠꯅ ꯄꯣꯛꯇꯦ" (extends to the whole of the State of Manipur except the Hill Areas), ꯂꯦꯡꯁꯥꯏꯅꯕꯤ ꯃꯥꯏꯒꯤ ꯑꯃꯅ ꯃꯥꯏꯄꯣꯛꯄ ꯃꯁꯨꯡ ꯅꯥꯏꯗ, ꯑꯦꯛꯠ ꯑꯁꯤ ꯃꯂꯩꯗꯥ ꯃꯁꯨꯡ ꯑꯗꯨ ꯁꯥꯏꯅꯤꯡ; ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯥꯏ-ꯂꯣꯖ 2024 ꯑꯁꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ, ꯗꯤꯃꯥꯏꯌꯟ ꯁꯦꯝꯕ ꯄ꯭ꯂꯥꯟꯗꯤꯗꯤ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕꯤꯕ ꯇꯥꯔꯛ ꯕꯥꯏꯁꯤꯡꯒꯤ ꯆꯃꯗꯤꯗꯤꯅ ꯄꯣꯛꯇꯦ; ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯃꯁ ꯑꯦꯛꯠ, 1960 (Manipur Land Revenue and Land Reforms Act, 1960)-ꯒꯤ ꯃꯈꯥꯗ ꯇꯧꯕ ꯆꯃꯗꯤꯗꯤꯅ ꯄꯣꯛꯇꯕ ꯂꯝ-ꯂꯃꯀ ꯑꯦꯛꯠ ꯑꯁꯤ ꯄꯥꯔꯕꯗꯤ ꯆꯃꯗꯤꯗꯤꯅ ꯁꯥꯡꯗ, ꯃꯈꯥꯔꯤ ꯑꯁꯤꯗ ꯅꯥꯏꯗꯕ ꯃꯁꯨꯡ ꯅꯥꯏꯗ॥ MTCP Act ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯂꯝꯕꯤ ꯂꯃꯍꯥꯟꯕ ꯑꯦꯛꯠ, 1978 ꯑꯁꯤ ꯂꯝꯕꯤ ꯁꯨꯃꯍꯠꯅ ꯄꯣꯛꯇꯦ॥ ꯄꯥꯔꯕꯗꯤ ꯆꯃꯗꯤꯗꯤꯅ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜꯁꯤꯡꯗꯤꯗꯤꯒꯤ ꯅꯥꯏꯕꯥꯛ ꯃꯈꯥ ꯇꯧꯕ ꯊꯥꯕꯗꯤꯗꯤ ꯇꯩ: ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯦꯛꯠꯀꯤ ꯁꯦꯛꯁꯟ 29(1)-ꯗ ꯑꯁꯤꯒꯨꯝꯕꯗꯤꯗꯤꯒꯤ ꯃꯈꯥꯗꯨ "ꯅꯣꯡꯗꯤ ꯁꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯤꯇꯦꯁꯟꯒꯤ ꯁ꯭ꯀꯤꯃꯁꯤꯡ" (water supply and sanitation schemes), "ꯁꯦꯃꯗꯤ ꯂꯕ, ꯁꯦꯃꯕ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯟꯕ" (the construction, repair and maintenance of embankments), ꯇꯧꯃꯅ ꯊꯥꯗꯣꯛꯄ, "ꯇꯧꯖꯅ ꯁꯦꯝꯕ ꯇꯧꯃꯍꯩ ꯊꯕꯗ ꯁꯦꯝꯕ ꯑꯁꯤꯒꯨꯝꯕ ꯁꯥꯏꯅꯃꯗꯤꯗꯤ" (residential or other non-agricultural purposes)-ꯒꯤꯗꯃꯛ ꯆꯃ ꯁꯥꯏꯕ, ꯑꯃꯁꯨꯡ ꯒꯨꯝꯕꯗꯤꯗ "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤꯒꯤ ꯄꯥꯎꯇꯥꯛ" (in consultation with the Hill Areas Committee) ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯑꯃꯅ ꯂꯤꯕꯗ ꯄꯥꯏꯕ "ꯌꯨꯃꯗꯥꯡꯒꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯗꯨꯒꯤ ꯑꯁꯤꯒꯨꯝꯕ ꯄꯥꯎꯇꯥꯛ ꯑꯃꯁꯨꯡ" (village planning or any other matter) ꯇꯧꯔꯛ ꯁꯥꯟ (ꯑꯍꯥꯅꯕ ꯆꯃꯗꯤꯗꯤ ꯑꯁꯤ ꯆꯃꯗꯤꯅꯒꯤ ꯅꯥꯏꯗꯤꯗꯤꯅꯒꯤ ꯁꯥꯏꯅꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯎ ꯁꯥꯏꯗꯕꯗꯤ [TBC])॥ ꯃꯂꯩꯗꯤꯗꯤꯒꯤ ꯃꯂꯩꯗꯥ ꯃꯇꯦꯡꯄꯥꯡ ꯑꯃꯁꯨꯡ ꯕꯤꯜꯗꯤꯡ ꯃꯦꯡꯂꯦꯡ ꯂꯃꯖꯤꯡ, ꯑꯃꯁꯨꯡ ꯄꯥꯔꯕꯗꯤ ꯆꯃꯗꯤꯗꯤꯒꯤꯗꯃꯛ ꯕꯤꯜꯗꯤꯡ ꯂꯃꯗꯝ ꯅꯥꯏꯕꯥꯛꯀꯤ ꯃꯔꯤ ꯑꯃꯁꯨꯡ ꯅꯥꯏꯗꯤꯗꯤ॥ 2006-ꯗ ꯍꯥꯄꯆꯤꯟꯕꯗꯤ ꯁꯦꯛꯁꯟ 29(1A)-ꯗ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜꯅ ꯑꯃꯁꯨꯡ "ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯄ꯭ꯂꯥꯟ ꯁꯦꯃꯒꯠꯄ ꯁꯤꯟꯗꯤꯅꯕ ꯑꯣꯇꯣꯅꯣꯃꯁ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯀꯤ ꯆꯃꯒꯤ ꯁꯔꯨꯛ ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯑꯦꯔꯤꯌꯥ ꯑꯣꯏꯅ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧ" (notify any part of the area of the Autonomous District as urban area for the purpose of formulation of development plan) ꯍꯥꯏꯕꯗꯤ, ꯃꯁꯤꯅ ꯃꯂꯩ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯁꯍꯔ ꯑꯃꯅ ꯂꯩꯔꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯑꯗꯨꯒꯨꯝꯕ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯗꯤꯗꯤ [TBC]॥ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜꯁꯤꯡꯒꯤ ꯃꯇꯝ 30 ꯅꯣꯚꯦꯝꯕꯔ 2022-ꯗ ꯂꯣꯏꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ 2025-ꯗꯒꯤ ꯄꯥꯔꯕꯗꯤ ꯁꯥꯡꯗ ꯁꯦꯃꯒꯠꯂꯤꯕ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯔꯁꯤꯡꯗꯤ ꯃꯈꯥꯒꯤ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯔꯁꯤꯡ ꯑꯗꯨꯗ ꯊꯕꯛ ꯁꯥꯡꯅ, ꯁꯦꯝꯕ ꯃꯥꯏꯄꯥꯛꯄꯗꯤ ꯃꯁꯨꯡ ꯅꯥꯏꯗ; ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜꯁꯤꯡꯒꯤ ꯃꯂꯩ ꯁꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯝ ꯍꯥꯄꯆꯤꯟꯅ ꯁꯥꯏꯗꯤ, ꯑꯃꯁꯨꯡ ꯍꯥꯄꯆꯤꯟꯕꯗꯤ ꯁꯥꯡꯗꯤ [TBC]॥ ꯒꯥꯎꯁꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡꯗꯤ ꯃꯅꯤꯄꯨꯔ ꯒꯥꯎꯁꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯖ ꯏꯟ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯑꯦꯛꯠ, 1956 (Manipur Village Authorities in Hill Areas Act, 1956)-ꯒꯤ ꯃꯈꯥꯗ ꯊꯕꯛ ꯁꯥꯅ, ꯃꯁꯤ ꯁꯥꯏꯅꯤꯡ [TBC]॥ ꯃꯔꯝ ꯑꯁꯤꯗ, ꯄꯥꯔꯕꯗꯤ ꯆꯃꯗꯤꯗꯤꯅ ꯃꯈꯥꯔꯤ ꯑꯁꯤꯗ ꯂꯝꯕꯤꯒꯤ ꯗꯤꯁꯥꯏꯅꯃꯦꯡꯁꯦꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁꯤꯗꯤꯗꯤꯗ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯗꯤ ꯁꯦꯝꯕꯗꯤ ꯄꯥꯔꯕꯗꯤ (ꯆꯃꯗꯤꯗꯤ, ꯊꯥꯗꯤ, ꯀꯂꯚꯔꯠ (culvert)-ꯗꯤ, ꯗ꯭ꯔꯦꯟ (drain)-ꯗꯤ, ꯅꯣꯡꯗꯤ ꯁꯤꯕ, ꯕꯟꯗ (bund)-ꯗꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯗꯤ ꯅꯥꯏꯕꯒꯤ ꯊꯕꯛꯗꯤ, ꯀꯥꯇ 1.5.1(b)) ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯇꯧꯗꯤꯕ ꯕꯦꯖ ꯑꯃꯁꯨꯡꯗ ꯄꯥꯕ ꯄꯥꯏ; ꯃꯊꯛꯇ, TPD-ꯗ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯍꯤꯃꯁꯤꯡꯗꯤꯗꯤꯒꯤꯗꯃꯛ "ꯇꯝꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡ ꯑꯅꯤꯃꯛ" (both valley and hills) ꯂꯦꯃꯗꯤꯕ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ

ꯂꯥꯏꯁꯦꯟ ꯊꯥꯗꯕ ꯁꯦꯟꯇ꯭ꯔꯦꯜꯒꯤ ꯑꯦꯗꯚꯥꯏꯖꯔꯤ ꯑꯃꯅ ꯂꯩ ꯍꯥꯌꯕ ꯍꯥꯏ, ꯃꯇꯝ ꯑꯗꯨꯅ ꯔꯤꯚꯥꯏꯖꯟ ꯕꯦꯁ-ꯂꯥꯏꯟ 2024 ꯑꯗꯨ ꯄꯨꯕ꯭ꯂꯤꯁ ꯇꯧꯔꯒꯗꯕꯅꯤ꯫ ꯄꯤꯗꯒꯤ ꯂꯃꯆꯠꯀꯤ ꯍꯧꯖꯤꯛ ꯑꯃꯥꯏꯕꯗ ꯂꯩꯕꯥꯛ ꯑꯁꯤꯒꯤ ꯑꯃꯥꯏꯕꯗ ꯃꯁꯛ ꯑꯣꯏꯅ ꯆꯠꯂꯤꯕꯅꯤ꯫ ꯀꯣꯔꯄꯣꯔꯦꯁꯟꯒꯤ ꯋꯥꯔꯗꯁꯤꯡ ꯑꯃꯗꯤ ꯃꯁꯤ ꯄꯨꯔꯛꯄ 29-ꯒꯤ ꯃꯔꯛꯇ ꯌꯥꯑꯣꯔꯤꯕꯥ ꯑꯣꯏꯗꯕ ꯍꯦꯟꯅ ꯑꯃꯗꯤ ꯑꯍꯥꯅꯕ, ꯂꯩꯔꯤꯕ ꯄꯨꯔꯛꯄ 29(1A) ꯁꯦꯟꯇꯔꯗ ꯃꯌꯥꯝ ꯃꯇꯨꯡꯒꯤ ꯃꯔꯛꯇ ꯀꯟꯠꯔꯣꯜ ꯁꯦꯟꯇꯔ ꯑꯃꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯂꯩꯕ ꯍꯥꯏ꯫ ꯑꯗꯨꯕꯨ, MAHUD-ꯅ ꯔꯤꯚꯥꯏꯖꯟ ꯕꯦꯁ-ꯂꯥꯏꯟ 2024 ꯑꯗꯨ ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯇ ꯇꯧꯕ ꯄꯨꯔꯛꯄ ꯑꯗꯣꯝꯒꯤ ꯑꯗꯨꯃꯛꯇꯒꯤ ꯃꯔꯛꯇ ꯑꯃꯥꯡꯂꯕ ꯂꯩꯕ ꯍꯥꯏ, ꯑꯃꯁꯨꯡ ꯁꯤꯡꯊꯕ ꯂꯥꯏꯅ ꯕꯥꯡꯂ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅ ꯑꯥꯃꯥꯡꯂꯕꯃꯥꯡꯂꯕ ꯑꯗꯨ ꯃꯍꯥꯛꯀꯤ ꯃꯇꯦꯡꯒꯤ ꯕꯦꯁ-ꯂꯥꯏꯟꯗ ꯂꯥꯎꯊꯣꯛꯂꯕ ꯍꯥꯏ; TPD ꯑꯃꯁꯨꯡ PDA Manipur-ꯅ ꯍꯤꯡꯃꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡ, ꯄꯦꯠ (pat; ꯂꯩꯃꯥ ꯂꯩꯔꯤꯕ ꯁꯦꯟꯇꯔꯂꯕ)-ꯗꯥ ꯕꯖꯥꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯧꯁꯤꯡ ꯍꯦꯟꯅꯒꯤ ꯑꯥꯔꯦꯡꯁꯤꯡ ꯃꯣꯡꯊꯥ ꯁꯦꯟꯇꯔꯂꯣꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯤꯅꯥꯁꯤꯡ ꯁꯦꯟꯇꯔꯂꯣꯏꯁꯤꯡꯒꯤ ꯂꯥꯏꯕ-ꯊꯨꯡ ꯁꯥꯃꯨ ꯇꯧꯁꯤꯟꯕ ꯍꯥꯏ; WRD-ꯅ ꯇꯨꯔꯦꯂꯒꯤ ꯄꯨꯔꯛꯄꯁꯤꯡ ꯑꯣꯏꯔꯤꯕ (outfall), ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯁꯤꯡꯒꯤ ꯗꯥꯏꯅꯦꯖꯁꯤꯡ ꯂꯩꯃꯤꯕ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯟ ꯂꯥꯏꯁꯤꯡ ꯑꯃꯇꯥꯒꯤ ꯑꯃꯁꯤꯡꯗ ꯄꯨꯖꯕ ꯄꯤꯕ ꯍꯥꯏ; ꯑꯃꯁꯨꯡ LDA ꯑꯃꯁꯨꯡ MSWA-ꯅ ꯃꯍꯥꯛ ꯂꯩꯃꯥꯏꯗꯥ ꯗꯥꯁꯦꯟꯇꯔꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯁꯦꯟ ꯊꯥꯗꯕ ꯁꯦꯟꯇꯔꯂꯣꯏꯁꯤꯡ ꯑꯣꯏꯔꯤꯕꯅꯤ ꯍꯥꯏ꯫ ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯇ ꯑꯃꯁꯤꯡꯅ ꯃꯍꯥꯛ ꯂꯩꯈꯤꯕ꯫ ꯑꯗꯨꯕꯨꯗꯥ ꯂꯃ ꯍꯥꯌꯕꯅ ꯊꯥꯖꯕ ꯊꯥꯗꯥꯕꯅ ꯂꯩꯕ ꯄꯦꯠꯇꯒꯤ ꯂꯃꯂꯦ; ꯄꯤꯗꯒꯤ ꯂꯃꯆꯠꯀꯤ ꯂꯃ ꯑꯃꯗꯤ ꯀꯣꯔꯄꯣꯔꯦꯁꯟꯒꯤ ꯋꯥꯔꯗꯁꯤꯡ ꯑꯃꯁꯨꯡꯗꯥ ꯃꯔꯛꯇ ꯄꯣꯛꯂꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯇꯔꯒꯤ ꯂꯃ ꯂꯩꯕꯒꯤ ꯊꯥꯖꯕꯅ ꯃꯍꯥꯛꯀꯤ ꯃꯥꯏꯊꯥꯏꯕꯥ ꯊꯣꯛꯂꯦ [TBC]꯫ ꯃꯁꯤꯡꯁꯥꯔ ꯑꯃꯗꯤꯅ ꯍꯤꯡꯃꯒꯤ ꯗꯥꯏꯕꯥ (corridor)-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯖꯤꯡꯁꯤꯡ ꯃꯣꯡꯊꯥ ꯁꯦꯟꯇꯔ ꯑꯃꯅ ꯊꯥꯗꯥꯕ ꯂꯩꯍ ꯂꯩꯔꯤꯕ ꯑꯥꯃꯥꯡꯃꯥꯡꯂꯕꯅ ꯈꯨꯗꯣꯡꯊꯥꯕꯍ; ꯂꯃ ꯂꯩꯊꯣꯛꯄ ꯍꯥꯏ ꯍꯥꯌꯅ ꯍꯥꯌꯕ꯫

ꯃꯃꯤꯡꯁꯤꯡ. ꯃꯇꯝ, ꯇꯨꯔꯦꯜ, ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯍꯥꯏꯕ ꯑꯍꯥꯅꯕꯁꯤꯡ, ꯄꯥꯎꯖꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ IMD ꯑꯃꯁꯨꯡ CWC-ꯒꯤ ꯂꯦꯃꯁꯤꯡꯗ ꯃꯃꯤꯡ ꯂꯩꯔꯤꯕ ꯂꯦꯡꯂꯤꯡ ꯑꯃꯗꯒꯤ ꯄꯥꯎꯗꯤ ꯂꯤ:

- **Imphal (Tulihal) (A)** (ꯍꯥꯏꯗ꯭ꯔꯣ 42623, ꯂꯩꯕ ꯃꯇꯝꯒꯤ ꯗꯦꯇꯥ 1953–2012) ꯑꯃꯗꯤ ꯏꯝꯐꯥꯜ ꯑꯦꯌꯔꯄꯣꯔꯠ ꯂꯩꯕ IMD-ꯒꯤ ꯂꯦꯃꯁꯤꯡ, IMD-ꯒꯤ ꯑꯣꯐꯤꯁ ꯀꯦꯇꯦꯂꯣꯒꯁꯤꯡꯗꯒꯤ ꯄꯨꯕꯇꯥꯁꯤꯡꯗ ꯌꯥꯎꯕ ꯃꯔꯛꯇ ꯂꯦꯃꯁꯤꯡꯒꯤ ꯂꯦꯃꯁꯤꯡ ꯑꯃꯍꯥꯏꯕꯁꯤꯡ꯫ ꯃꯁꯤꯡꯁꯥꯔ ꯑꯃꯗꯤꯅ "Tulihal" ꯍꯥꯌꯕꯗꯤ ꯂꯦꯃꯁꯤꯡꯒꯤ ꯃꯃꯤꯡꯗ ꯍꯥꯏꯕꯃꯥ ꯍꯥꯏ꯫ "Imphal" ꯍꯥꯌꯕꯅ ꯃꯃꯤꯡ ꯊꯥꯗꯕ MASTEC-ꯒꯤ ꯁꯔꯛ ꯈꯨꯗꯣꯡꯗꯒꯤ ꯍꯥꯏꯕꯅꯒꯤ ꯌꯥꯎꯕ ꯂꯩꯕ ꯃꯇꯝꯒꯤ ꯑꯣꯏꯕꯥꯗ ꯑꯃꯗꯤ ꯀꯦꯇꯦꯂꯣ ꯌꯥꯏꯐꯕꯒꯤꯅꯃꯥ ꯒꯦꯠ ꯑꯗꯨꯃꯥꯂꯤ, ꯃꯁꯤꯡꯁꯥꯔ ꯑꯃꯗꯤꯅ ꯍꯥꯏꯗꯕ ꯃꯌꯥꯝ ꯍꯥꯏꯗ;
- **ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ** (Imphal river; Imphal Turel) ꯑꯃꯗꯤ ꯏꯝꯐꯥꯜ ꯑꯃꯁꯨꯡ ꯄꯣꯛꯄꯥ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯡꯗꯒꯤ ꯍꯦ ꯊꯥꯕꯕ ꯂꯣꯏꯕꯗ ꯁꯦꯡꯂꯤ; **ꯏꯊꯥꯏ ꯕꯦꯔꯦꯖ** (Ithai barrage)-ꯗ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕ, ꯂꯣꯛꯇꯥꯛ ꯑꯃꯗꯤ ꯊꯥꯗꯕꯥꯅ ꯃꯐꯃꯗ ꯁꯦꯡꯄ ꯇꯨꯔꯦꯜ ꯑꯗꯨ **ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯂꯤ** (Manipur river)꯫ ꯄꯥꯎꯖꯦꯜꯁꯤꯡꯅ ꯃꯃꯤꯡ ꯄꯥꯡꯕ ꯑꯗꯨ ꯑꯣꯏꯕꯗ ꯃꯇꯝꯁꯤꯡꯗ ꯊꯥꯗꯤ: ꯂꯥꯏꯑꯥ ꯑꯥꯃꯥꯡꯅ "ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ ꯊꯨꯡꯂꯕ ꯃꯇꯝ" (the confluence of Manipur river and Khuga) ꯍꯥꯌꯅ ꯍꯥꯏ, ꯑꯃꯁꯨꯡ CPCB-ꯅ ꯊꯥꯗꯔꯛꯒꯤ ꯏꯊꯥꯏ ꯊꯥꯕ ꯖꯤꯡꯕ ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯂꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯗꯤ ꯂꯤꯂꯣꯠ ꯑꯣꯏꯕ꯫ **ꯏꯊꯥꯏ** (Ithai) ꯑꯃꯗꯤ **Ethai** ꯍꯥꯌꯅꯁꯨ ꯍꯥꯏ;
- **ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ** (Nambul) ꯑꯃꯗꯤ ꯏꯝꯐꯥꯂꯒꯤ ꯃꯇꯨꯡꯗꯒꯤ ꯁꯦꯡꯂꯤꯕ ꯇꯨꯔꯦꯂꯤ; **ꯅꯝꯕꯣꯜ** (Nambol) ꯑꯃꯗꯤ ꯕꯤꯁꯅꯨꯄꯨꯔ ꯄꯨꯡꯗ ꯂꯩꯕ ꯑꯣꯏꯔꯕ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯔꯦ ꯑꯃꯗꯤ;
- **ꯃꯄꯤꯊꯦꯜ ꯗꯦꯝ** (Mapithel dam) ꯑꯃꯗꯤ ꯊꯧꯕꯜ ꯃꯜꯇꯤꯄꯥꯔꯄꯣꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯠ (Thoubal Multipurpose Project)-ꯗꯥ ꯗꯦꯃꯗꯤ, ꯑꯃꯁꯨꯡ ꯄꯣꯠꯂꯣꯝꯁꯤꯡꯅ ꯃꯃꯤꯡ ꯑꯗꯤꯃꯥ ꯂꯤꯂꯤꯗꯅ;
- **ꯆꯣꯇꯣꯕꯦꯀ꯭ꯔ** (Chotebekra), **Chotobekra** ꯍꯥꯌꯅꯁꯨ ꯍꯥꯏ, ꯑꯃꯗꯤ ꯂꯦꯃꯁꯤꯡ ꯑꯃꯗꯤꯅ ꯂꯩꯕ CWC-ꯒꯤ ꯂꯦꯃꯁꯤꯡ ꯑꯃꯍꯥꯏꯕꯁꯤꯡ, ꯂꯥꯏꯊꯥꯏꯕꯃꯒꯤ ꯃꯔꯛꯇꯗ ꯕꯥꯍꯥ ꯇꯨꯔꯦꯂꯗ ꯂꯤ; CWC-ꯒꯤ ꯄꯨꯕꯇꯥꯁꯤꯡꯒꯤ ꯇꯨꯔꯦꯂꯣꯗꯥꯏꯗꯥꯏꯄꯂꯩ ꯑꯃꯗ ꯃꯍꯥꯛ ꯏꯝꯐꯥꯜ ꯍꯥꯏꯕ ꯄꯥꯎꯒꯤ ꯃꯔꯛꯇ ꯖꯦꯀꯥꯟꯗꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯅꯥ ꯂꯥꯏꯊꯥꯏꯕꯃ ꯄꯥꯎꯗꯥ ꯂꯤ, ꯃꯁꯤꯡꯁꯥꯔ ꯑꯃꯗꯤꯅ ꯍꯥꯏꯗꯕ ꯃꯌꯥꯝ ꯍꯥꯏꯗ;
- **ꯂꯝꯐꯦꯂꯄꯦꯠ** (Lamphelpat) ꯑꯃꯗꯤ Lamphelphet ꯍꯥꯌꯅꯁꯨ ꯍꯥꯏ; ꯃꯗꯨꯒꯤ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯊꯥꯗꯄ ꯃꯇꯝ **ꯁꯃꯨꯁꯥꯡ ꯅꯂꯥ** **(Shamushang nallah)** ꯑꯃꯗꯤ ꯍꯥꯏ ꯗꯥꯡꯁꯗꯥ ꯑꯥꯡꯅꯥꯡ Samushang ꯑꯃꯁꯨꯡ CPCB-ꯒꯤ ꯂꯤꯂꯣꯠꯗ Samusang ꯑꯍꯥꯅꯕ ꯂꯤ; ꯑꯃꯁꯨꯡ **ꯅꯥꯒꯥ ꯅꯨꯂꯥꯍ** (Naga Nullah) ꯑꯃꯗꯤ Naga Nallah ꯍꯥꯌꯅꯁꯨ ꯍꯥꯏ;
- **"ꯁꯨꯒꯅꯨ ꯍꯝꯄ"** ("Sugnu hump") ꯑꯃꯗꯤ ꯏꯊꯥꯏꯒꯤ ꯃꯔꯛꯇ ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯂꯗ ꯂꯩꯕ ꯅꯨꯡꯒꯤ ꯂꯤꯟ (rock sill)-ꯗꯥ MASTEC-ꯅ ꯊꯥꯗꯕ ꯃꯃꯤꯡꯗꯤ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯔꯛ ꯑꯃꯗꯤ ꯃꯗꯨꯒꯤ 800 m-ꯒꯤ ꯃꯅꯨꯡꯗ 756.7 m-ꯗꯒꯤ 763.7 m ꯖꯤꯡꯕ ꯌꯥꯎꯍꯟꯂꯕꯅꯤ꯫ ꯕꯦꯁꯂꯥꯏꯟꯒꯤ ꯒꯦꯠꯂꯣꯏꯗꯅ ꯗꯥꯏꯃꯦꯇꯕ ꯄꯥꯎꯕꯂꯤ, ꯃꯁꯤꯗꯅ ꯑꯗꯨꯕꯨ ꯄꯨꯃꯕꯒꯤ ꯊꯥꯗꯖꯝ ꯗꯦꯇꯥꯒꯤ ꯄꯥꯎ;
- **ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ** (WRD) ꯑꯃꯗꯤ ꯃꯃꯤꯡꯗ ꯍꯤꯡꯒꯤ ꯄꯨꯔꯛꯄ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯟ ꯗꯥꯏꯗꯦꯇꯥꯒꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Irrigation and Flood Control Department; IFCD) ꯑꯍꯥꯅꯕꯃꯤ, ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯑꯗꯤꯄ ꯑꯃꯁꯨꯡ ꯊꯥꯗꯄꯥꯔꯇꯃꯦꯟꯇꯁꯤꯡꯅ ꯑꯣꯏꯕ ꯃꯃꯤꯡ ꯑꯗꯨ ꯂꯤꯂꯤꯗꯅ;
- CWC-ꯒꯤ ꯗ꯭ꯔꯦꯟ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯁꯤꯡꯅ ꯂꯦꯃꯁꯤꯡ ꯄꯨꯃꯕ **ꯂꯦꯕꯦꯜ 2(c), "Barak and others"**-ꯗ ꯊꯝꯂꯤ, ꯃꯗꯨꯒꯤ ꯇꯨꯔꯦꯂꯁꯤꯡ ꯑꯗꯨ ꯂꯦꯕꯦꯜ 2(b)-ꯒꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯗꯥ ꯂꯦꯕꯦꯜ ꯂꯤꯂꯣꯠꯅ "Barak, Kalden and Manipur rivers" ꯍꯥꯌꯅ ꯄꯥꯎꯔꯤ; "Kalden" ꯑꯃꯗꯤ ꯀꯂꯥꯗꯟ (Kaladan)-ꯅꯤ, ꯃꯁꯤꯡꯁꯥꯔ ꯑꯃꯗꯤꯅ ꯍꯥꯏꯗꯕ ꯃꯌꯥꯝ ꯍꯥꯏꯗ꯫ CWC-ꯅ ꯂꯦꯕꯦꯜ 2(c)-ꯒꯤꯗꯃꯛ ꯗꯤꯄꯥꯔꯇꯃꯦꯟ

ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕꯥ ꯈꯪꯗꯣꯛꯅꯕꯥ꯫ ꯃꯥꯂꯦꯝꯒꯤ ꯃꯥꯂꯦꯝꯒꯤ ꯑꯔꯤꯕ ꯊꯕꯛ ꯃꯦꯞꯁꯤꯡ ꯂꯩ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯃꯥꯏꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝꯒꯤ **ꯃꯦꯞ 2(b), South Brahmaputra**-ꯗ ꯊꯥꯕꯂꯕ ꯔꯤꯕ, ꯍꯥꯏꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯕ ꯍꯨꯏꯗꯕ ꯂꯩꯗꯕ, ꯊꯦꯡꯕ ꯂꯥꯏꯅꯥ [TBC]꯫
ꯃꯦꯞꯁꯤꯡ ꯑꯁꯤ ꯍꯥꯏꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ 2A-ꯗ ꯃꯥꯍꯩ ꯂꯩꯕ ꯁꯦꯡꯕꯒꯤ ꯖꯣꯟ ꯑꯃꯁꯨꯡ (MN-Z1-ꯗꯒꯤ MN-Z3 ꯐꯥꯑꯣꯕ) ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯈꯪꯖꯤꯅꯒꯤ ꯃꯦꯞ-ꯑꯥꯏꯔꯤꯕ ꯍꯥꯏ (MN-A, MN-A1, MN-B, MN-C ꯑꯃꯁꯨꯡ MN-C1) ꯂꯩꯔꯦ, ꯇꯦꯕꯜ 7-ꯗ ꯌꯥꯎꯕ ꯅꯤꯡꯊꯤ ꯌꯥꯎꯔꯤꯕꯒꯤ ꯃꯥꯏꯀꯩꯒꯤ ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ 2 ꯂꯩꯔꯦ, ꯏꯁꯤꯡ ꯀꯥꯍꯥꯟꯕ ꯖꯣꯟꯒꯤ ꯑꯥꯏꯟ, 1978-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ "flood zone" ꯂꯩꯔꯦ, ꯑꯃꯁꯨꯡ ꯖꯣꯟꯒꯤ ꯑꯥꯏꯟꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ ꯖꯣꯟꯒꯤ ꯃꯔꯨ ꯖꯣꯟ (Core Zone) ꯑꯃꯁꯨꯡ ꯕꯐꯔ ꯖꯣꯟ (Buffer Zone) ꯁꯨ ꯂꯩꯔꯦ;

- **ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ 2024** ꯑꯁꯤ *ꯍꯧꯖꯤꯛ* ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯀꯥꯔꯤꯒꯨꯝꯕ ꯀꯥꯃꯤ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡꯗꯥ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯁꯤꯡꯗꯃꯛ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅ ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯥꯡꯊꯣꯛꯅꯕꯥ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡꯗꯤ; ꯒꯥꯖꯦꯠꯇꯥ ꯄꯤꯔꯕ ꯑꯁꯤ **"Bye-Laws"** ꯍꯥꯌꯅꯥ ꯀꯧꯏ, ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯅꯥ ꯀꯥꯡꯂꯣꯟꯗꯥ ꯑꯃꯁꯨꯡꯁꯤꯡꯗꯥ "ꯕꯥꯏ-ꯂꯣ 93" ꯍꯥꯌꯅꯥ ꯀꯧꯏ꯫ ꯇꯦꯕꯜ 1 ꯑꯃꯁꯨꯡ 10-ꯗ ꯌꯥꯎꯕ **"MBBL 2016"** ꯑꯁꯤ 2016-ꯒꯤ ꯃꯣꯗꯦꯜ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖꯅꯤ, ꯃꯃꯥꯡꯒꯤ ꯕꯥꯏ-ꯂꯣꯖ ꯂꯩꯔꯦ;
- **ꯏꯝꯐꯥꯜ ꯁꯍꯔꯒꯤ ꯔꯤꯁ꯭ꯛ ꯏꯅꯐꯣꯔꯃꯗ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟ – 2043 (ꯗ꯭ꯔꯥꯐꯠ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ)** ꯑꯁꯤ ꯏꯝꯐꯥꯜ ꯁꯍꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯅꯤ; "Imphal Master Plan 2043" ꯑꯃꯗꯤ ꯞꯂꯥꯟ ꯑꯁꯤꯅꯤ, ꯄꯥꯝꯕꯦ ꯗꯔꯥꯐꯇꯀꯤ ꯑꯃ ꯂꯩꯔꯦ꯫ ꯁꯍꯔ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯌꯥꯎꯕ **ꯔꯤꯁ꯭ꯛ ꯏꯅꯐꯣꯔꯃꯗ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯁꯤꯡ** (Risk Informed GIS Based Master Plans; RIMP) ꯑꯁꯤ ꯄꯥꯝꯕꯦ ꯞꯂꯥꯟꯁꯤꯡꯅꯤ, ꯃꯈꯣꯌ ꯀꯧꯏ;
- **PDA Manipur** ꯑꯁꯤ MTCP Act-ꯀꯤ ꯁꯦꯛꯁꯟ 13-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯦꯃꯈꯤꯕ ꯞꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯅꯥ ꯃꯁꯤꯒꯤꯗꯃꯛ ꯑꯊꯣꯔꯤꯇꯤ ꯁꯦꯝꯕ ꯈꯦꯠꯅꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯔꯦ; ꯃꯁꯤ ꯁꯦꯃꯕ ꯄꯥꯝꯕꯦ ꯑꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯏ;
- WRD-ꯒꯤ ꯄꯤꯕꯥꯒꯤ ꯂꯦꯚꯦꯂꯁꯤꯡ, ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯗ ꯀꯥꯡꯂꯣꯟꯁꯤꯡꯅ ꯈꯪꯗꯣꯛꯅꯕ ꯃꯑꯣꯡꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯎꯕ, ꯑꯁꯤ ꯃꯤꯄꯥꯏꯗ ꯌꯥ, ꯑꯃꯁꯨꯡ ꯀꯥꯍꯥꯕ ꯍꯥꯏꯖꯤꯟ ꯑꯃꯁꯨꯡꯅ ꯃꯇꯨꯡꯒꯤ ꯗꯥꯞꯇ ꯍꯥꯌꯗꯥ [TBC]: ꯄꯥꯝꯕ ꯑꯣꯏꯅ, ꯃꯤꯅꯨꯊꯣꯡ (Minuthong)-ꯗ ꯁꯍꯔ ꯄꯤꯕꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ (WL) 785.900 m, ꯏꯁꯤꯡ ꯂꯦꯚꯦꯜ (FL) 786.900 m ꯑꯃꯁꯨꯡ ꯍꯥꯏꯌꯥꯕ ꯏꯁꯤꯡ ꯂꯦꯚꯦꯜ (HFL) 788.400 m ꯌꯥ꯫ ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯅꯥ ꯂꯦꯚꯦꯜ ꯄꯥꯝꯕꯤꯕꯁꯤꯡ ꯇꯥꯔꯤꯕꯅꯤ ꯒꯥꯇ, ꯄꯥꯟꯕ ꯑꯃꯁꯨꯡ ꯗꯥꯞꯇ ꯍꯥꯌ; ꯑꯃꯁꯨꯡ
- ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯗ **"the monsoon" ꯑꯃꯁꯨꯡ "the monsoon season" (ꯅꯣꯡꯖꯨ, ꯅꯣꯡꯖꯨꯒꯤ ꯃꯇꯝ) ꯍꯥꯌꯕꯁꯤ 1 ꯖꯨꯅꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯂꯩꯕ ꯁꯦꯡꯕꯒꯤ ꯃꯇꯃꯗꯤ**꯫ ꯃꯁꯤ IMD-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯇꯨꯡ ꯂꯩꯔꯦ: IMD-ꯅ ꯑꯥꯔꯝꯕꯗ ꯑꯃꯁꯨꯡ ꯃꯥ ꯊꯦꯡꯕ ꯀꯥꯔꯤ-ꯅꯣꯡꯖꯨꯒꯤ ꯊ ꯑꯣꯏꯅ ꯊꯥꯔꯤ, ꯑꯃꯁꯨꯡ ꯁꯍꯔꯗ ꯅ-ꯂꯥꯏꯄꯨꯛ ꯅꯣꯡꯖꯨꯒꯤ ꯂꯥꯛꯄ ꯍꯧꯕ ꯆꯨꯃꯊ 5 ꯇꯨꯡ (IMD-ꯒꯤ 2020-ꯒꯤ ꯂꯥꯛꯄꯁꯤꯡꯒꯤ ꯃꯇꯝꯗ 1 ꯇꯨꯡ) ꯑꯃꯁꯨꯡ ꯂꯥꯛꯄ ꯂꯣꯟꯕ ꯆꯨꯃꯊ 15 ꯑꯣꯛꯇꯣꯕꯔꯗꯤ, IMD-ꯒꯤ ꯔꯤꯇꯤꯇꯗꯒꯤ ꯀꯥꯔꯤꯕ ꯍꯨꯏꯗꯕ ꯂꯩꯗꯕ꯫ ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯒꯤ ꯃꯇꯝ ꯑꯁꯤ 1 ꯖꯨꯅꯗ ꯍꯧꯏ, ꯃꯔꯝꯗꯤ ꯁꯍꯔꯒꯤ ꯖꯨꯟ ꯑꯃꯁꯨꯡ ꯃꯥꯒꯤ ꯂꯩ ꯁꯦꯡꯕꯒꯤ ꯊꯦꯡꯅꯕꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯄꯨꯕꯥꯡꯒꯤ ꯌꯥꯝꯅꯕꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯌꯥꯝꯅ, ꯑꯃꯁꯨꯡ ꯂꯩꯂꯕ ꯃꯇꯃꯒꯤ ꯑꯃꯗ-ꯑꯃ ꯀꯥꯔꯤꯕꯤꯕ ꯄꯨꯛꯅꯤꯡꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯝꯅ ꯑꯁꯤ ꯅꯣꯡꯖꯨ ꯍꯥꯌꯕꯤꯅ ꯂꯩꯔꯤ (ꯇꯦꯕꯜ 2)꯫

ꯍꯥꯏꯔꯤꯕ ꯑꯁꯤꯅꯥ ꯑꯍꯥꯅꯕ ꯃꯑꯣꯡ ꯑꯃ ꯁꯤꯖꯤꯟꯅꯔꯦ ꯑꯃꯁꯨꯡ ꯃꯃꯤ ꯑꯃꯒꯤ, ꯍꯥꯏꯖꯤꯟ ꯑꯃꯒꯤ ꯂꯩꯔꯤꯕ ꯃꯇꯨꯡꯗ ꯑꯃꯒꯤ ꯃꯐꯝꯗ ꯑꯄꯨꯅꯕꯁꯤꯡ ꯑꯃ ꯊꯝꯂꯤ꯫ ꯕꯥꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯤꯡꯁꯤꯡꯒꯤ ꯃꯃꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯇꯝ ꯁꯦꯝ ꯃꯇꯨꯡꯗ ꯄꯨꯔꯀꯤ ꯃꯊꯧ ꯄꯥꯝ:

- **ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ 2024** ꯑꯁꯤ ꯍꯧꯖꯤꯛ ꯃꯅꯤꯄꯨꯔ ꯕꯤꯜꯗꯤꯡ ꯃꯣꯗꯦꯜ ꯕꯥꯏ-ꯂꯣ, 2024 ꯅꯤ, ꯃꯅꯤꯄꯨꯔ ꯃꯤꯎꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤ ꯑꯥꯏꯟ, 1994 (1994-ꯒꯤ ꯑꯥꯏꯟ ꯅꯝꯕꯔ 43)-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯞꯂꯥꯅꯤꯡ ꯑꯥꯏꯟ, 1975 (1975-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯥꯏꯟ ꯅꯝꯕꯔ 11)-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1)-ꯒꯤ ꯃꯇꯨꯡ, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ MAHUD ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) (5 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯒꯥꯖꯦꯠ ꯑꯦꯛꯁꯠꯔꯥꯑꯣꯔꯗꯤꯅꯥꯔꯤ No. 253)-ꯅ "ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯞꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯅ ꯂꯧꯁꯤꯟꯅꯕꯒꯤꯗꯃꯛ" (for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur) ꯈꯪꯗꯣꯛꯅꯕꯤꯔꯦ꯫ ꯃꯁꯤꯕ "ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯞꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯖꯨꯔꯤꯁꯗꯤꯛꯁꯅꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯎꯕ ꯂꯃꯗ ꯁꯟꯗꯣꯛꯀꯅꯤ" (shall extend to the Master Plan areas or notified Planning areas and area under the jurisdiction of all the Urban Local Bodies of Manipur) (ꯕꯥꯏ-ꯂꯣ 1(2))꯫ ꯃꯁꯤꯕꯒꯤ ꯔꯤꯁꯤꯚꯤꯡꯁꯤꯡꯅ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯂꯤꯀꯨꯒꯤ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡ "1998-ꯒꯤ ꯃꯣꯗꯦꯜ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ ꯄꯨꯟꯁꯤꯟ ꯑꯣꯏꯕ" (based on Model Building Bye-laws of 1998) ꯑꯣꯏꯔꯝꯃꯤ ꯑꯃꯁꯨꯡ 18-ꯗ ꯀꯔꯤꯃꯌꯥ ꯌꯔꯝꯃꯥ ꯍꯥꯌꯅꯥ ꯀꯔꯤ꯫ ꯃꯍꯧꯕꯤ, ꯃꯈꯣꯌꯒꯤ ꯑꯃꯁꯨꯡ ꯇꯤꯔꯤꯕꯤꯍ ꯃꯤꯎꯅꯤꯁꯤꯄꯥꯜ ꯀꯥꯎꯟꯁꯤꯜꯁꯤꯡꯒꯤ 2025-ꯒꯤ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡ 16 ꯇꯤꯁꯦꯝꯕꯔ 2025-ꯗ ꯑꯔꯣꯏꯕ ꯑꯣꯏꯅ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯤ, TPD-ꯒꯤ ꯋꯦꯕꯁꯥꯏꯠ ꯇꯤꯃꯗ ꯄꯥꯔꯕ ꯍꯨꯏꯗꯕ ꯂꯩꯗꯕ; 15 ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯒꯤ "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" ꯑꯃ ꯃꯈꯥ ꯑꯁꯨꯛ ꯇꯤꯃꯗ ꯄꯥꯔꯤ ꯑꯁꯨꯛ ꯀꯥꯔꯤꯕ

[TBC]; ꯑꯃꯁꯨꯡ IMC-ꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ, 2025 ꯁꯨꯃꯤꯌ ꯑꯃꯁꯨꯡꯌꯥꯎ ꯂꯣꯏꯁꯤꯟꯅ ꯌꯥꯎꯔꯤ ꯄꯨꯔꯦ ꯍꯥꯏꯕ ꯈꯪꯅꯔꯤ꯫ ꯃꯁꯤꯒꯤ ꯃꯃꯥꯡꯗ IMC-ꯗ IMC ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ, 2013 ꯂꯩꯔꯝꯃꯤ, ꯃꯗꯨ 2019 ꯑꯃꯁꯨꯡ 2022-ꯗ ꯑꯃꯨꯛ ꯍꯟꯅ ꯌꯦꯡꯁꯤꯟꯈꯤ, ꯑꯃꯁꯨꯡ 2024-ꯒꯤ ꯑꯍꯣꯡꯕ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯦꯃꯗꯣꯀꯄꯒꯤ ꯆꯠꯅꯕꯤ ꯑꯃ ꯑꯣꯏꯅ ꯄꯥꯝꯂꯝꯂꯤꯕ ꯈꯪꯅꯔꯤ, ꯃꯗꯨ "ꯁꯔꯀꯥꯔꯅ ꯂꯦꯞꯄ ... ꯇꯥꯡ ꯑꯗꯨ ꯁꯃꯤꯟꯅ ꯊꯥꯛꯇꯕꯗꯤ" (come into force on such date as the State Government may … appoint); ꯃꯗꯨꯒꯤ ꯑꯄꯨꯅꯕ ꯁꯔꯀꯥꯔ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯐꯪꯂꯤꯗ꯭ꯔꯤ [TBC]꯫ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯑꯗꯨꯅ ꯍꯦꯟꯅ ꯑꯃꯒꯤ ꯃꯈꯜ ꯆꯠꯅꯕꯤꯗꯨ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ; ꯂꯝꯕꯤ ꯕꯤꯜꯗꯤꯡ ꯑꯃꯅ ꯂꯣꯌꯅꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗꯨ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯃꯇꯝꯗ, ꯂꯝꯕꯤ ꯕꯤꯜꯗꯤꯡ ꯑꯃꯒꯤ ꯄꯥꯝꯕꯩꯗꯨ ꯃꯇꯝ ꯐꯥꯏ꯫ ꯍꯦꯟꯅ ꯑꯃꯒꯤ ꯕꯥꯏ-ꯂꯣ 92-ꯅ, ꯈꯪꯅꯔꯤꯕ ꯃꯇꯨꯡꯗ, "ꯃꯤꯌꯥꯝ ꯂꯝ ꯂꯩꯕꯥꯛꯀꯤ 600 m-ꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯕꯥꯔꯦꯖ ꯅꯥꯀꯣꯜ 30 ꯗꯤꯒ꯭ꯔꯤ ꯂꯩꯕ ꯂꯝꯗ" (on land above 600 m from the mean sea level and with an average slope of 30 degrees) ꯁꯦꯝ ꯊꯤꯕ, ꯃꯗꯨꯅ ꯀꯣꯔꯤꯗꯣꯔ ꯍꯦꯅꯒꯠꯂ ꯀꯨꯃꯁ ꯊꯤꯔꯛꯂꯤ; ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯑꯗꯨꯅ ꯃꯗꯨ 2024-ꯒꯤ IMC-ꯒꯤ ꯆꯠꯅꯕꯤ ꯄꯥꯝꯕꯩꯗ ꯂꯩꯔꯕꯅ ꯍꯥꯌꯕꯗꯤ, ꯃꯗꯨꯅ 30°-ꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯅꯥꯀꯣꯜꯁꯤꯡꯗ ꯁꯦꯝ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯊꯤꯕ ꯑꯃꯁꯨꯡ 21–30°-ꯒꯤ ꯅꯥꯀꯣꯜꯁꯤꯡꯗ ꯈꯋꯥꯏ ꯑꯋꯥ ꯂꯣꯏꯅꯕ 7 m ꯍꯥꯏꯠ ꯌꯥꯍꯟꯂꯦ;

- **MAHUD**-ꯅ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗꯨ ꯑꯃꯁꯨꯡ ꯂꯣꯌꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗꯨ ꯁꯦꯃꯈꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗꯨ ꯂꯣꯌꯅꯕ ꯐꯥꯏ꯫ 1965-66-ꯗ ꯁꯦꯃꯈꯤꯕ MAHUD-ꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕ **TPD**-ꯅ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗꯨ ꯁꯦꯃꯈꯤ, ꯃꯈꯣꯌꯒꯤ ꯃꯅꯨꯡꯗ "ꯐꯝꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡ ꯑꯅꯤꯃꯛ" (both valley and hills) ꯂꯩꯕ ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯛ ꯍꯦꯗꯀ꯭ꯋꯥꯔꯇꯔ 14-ꯒꯤꯗꯃꯛ 2042-ꯒꯤ ꯍꯣꯔꯥꯏꯖꯟ ꯂꯩꯕ GIS ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗꯨ ꯌꯥꯑꯣꯏ, ꯑꯣꯅꯂꯥꯏꯟ ꯕꯤꯜꯗꯤꯡ ꯄꯥꯔꯃꯤꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ (Online Building Permission System; OBPS)-ꯗ ꯂꯤꯡꯖꯦꯜ-ꯇꯧꯕ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤꯗꯃꯛ ꯕꯤꯜꯗꯤꯡ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗꯨ ꯌꯦꯡꯂꯤ ꯐꯥꯏ, ꯑꯃꯁꯨꯡ AMRUT-ꯀꯤ ꯂꯝꯕꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯅ꯫ **PDA Manipur** ꯑꯁꯤ MTCP Act-ꯀꯤ ꯁꯦꯛꯁꯟ 13-ꯒꯤ ꯃꯈꯥ 1975 ꯅꯠꯔꯒ 1976-ꯗ ꯁꯦꯃꯈꯤ, ꯄꯤꯔꯦ ꯐꯪꯂꯤꯕꯅꯤ ꯈꯪꯅꯔꯤꯕ [TBC]; ꯃꯗꯨ ꯁꯦꯃꯈꯤꯕ ꯃꯐꯃꯗ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ ꯁꯔꯀꯥꯔꯀꯤ ꯍꯣꯠ ꯂꯝ ꯃꯗꯨꯗ ꯄꯥꯡꯊꯣꯛꯂꯤ꯫ **ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯂꯦꯟꯗ ꯌꯨꯖ/ꯖꯣꯅꯤꯡ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯕꯥꯏ-ꯂꯣ, 2026** (22 ꯖꯥꯅꯨ 2026-ꯒꯤ MAHUD ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ No. BBL-101/1/2024-MAHUD-MAHUD; 23 ꯖꯥꯅꯨ 2026-ꯒꯤ ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁꯠꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ No. 157), MTCP Act-ꯀꯤ ꯁꯦꯛꯁꯟ 24(e)-ꯒꯥ ꯂꯣꯏꯅꯅ ꯁꯦꯛꯁꯟ 91(1)(iv)-ꯒꯤ ꯃꯈꯥ ꯁꯦꯃꯈꯤꯕ, ꯑꯁꯤꯅ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯖꯣꯟ ꯂꯦꯟꯗꯨꯁꯤꯡ ꯁꯦꯃꯈꯤ, ꯃꯁꯤꯒꯤ ꯃꯅꯨꯡꯗ "Agriculture" ꯑꯃꯁꯨꯡ "Pond, Drain, Rivers and Canals" ꯌꯥꯑꯣꯏ;
- **ꯀꯣꯔꯤꯗꯣꯔ ꯍꯦꯅꯒꯠꯂꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐꯥꯕ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯁꯛꯇꯥꯛꯄꯗ)** ꯑꯁꯤ 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)-ꯅ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯤ ꯑꯃꯁꯨꯡ ꯍꯦꯅꯒꯠꯂ ꯍꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯅꯒꯠꯂ ꯌꯥꯝꯂꯕꯀꯤ 151.38 km² ꯌꯥꯑꯣꯏ꯫ ꯃꯗꯨꯗ ꯅꯨꯡꯒꯤ ꯍꯣꯡꯕ ꯍꯥꯔꯤꯒꯤ ꯁꯦꯛꯁꯟ ꯑꯃꯥꯌꯥ ꯂꯩꯇꯦ꯫ ꯍꯦꯅꯒꯠꯂ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ **ꯗꯤꯖꯥꯏꯟ ꯍꯥꯏꯕꯗꯥꯡ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗꯨ** ꯑꯁꯤ 17 ꯑꯣꯛꯇꯣꯕꯔ 2025-ꯗ ꯑꯄꯨꯅꯕ ꯑꯍꯅꯕ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯤ ꯄꯤꯔꯦ ꯂꯤꯄꯣꯔ ꯇꯧꯔꯤ, ꯑꯗꯨꯕꯨ TPD-ꯒꯤ 2025-26-ꯒꯤ ꯑꯦꯅꯨꯌꯦꯜ ꯔꯤꯄꯣꯔꯇꯇꯅ ꯃꯁꯤꯒꯤ ꯆꯠꯅꯕꯤ ꯔꯤꯄꯣꯔꯠ "ꯁꯕꯃꯤꯠ ꯇꯧꯔꯦ" (has been submitted) ꯍꯥꯌꯅ ꯍꯥꯏ; ꯌꯦꯛꯅ ꯑꯣꯏ ꯑꯁꯤ ꯌꯦꯡꯂꯕ, ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗꯨ, ꯃꯁꯤꯅ ꯃꯇꯥ ꯇꯧꯕ ꯍꯣꯡꯕ ꯍꯥꯌꯐꯝꯒꯤ ꯖꯒꯥꯊꯨꯕꯒꯤ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯍꯟꯒꯥ ꯂꯥꯏꯅꯅ, ꯄꯤꯈꯤꯗ [TBC];
- **IMC** ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜꯇꯤꯖ ꯑꯦꯛꯇ, 1994-ꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯍꯦꯅꯒꯠꯂꯒꯤ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟꯅꯤ, ꯋꯥꯔꯗ 27 ꯂꯩ; ꯃꯗꯨ 2014 ꯅꯠꯔꯒ 2016-ꯗ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ ꯑꯍꯔꯝꯂꯕ, ꯄꯤꯔꯦ ꯐꯪꯂꯤꯕꯅꯤ ꯈꯪꯅꯔꯤꯕ [TBC]꯫ ꯁꯔꯀꯥꯔ ꯑꯁꯤꯗ ꯄ꯭ꯔꯁꯥꯁꯟꯃꯊꯛ ꯗꯤꯕꯦꯁ ꯂꯝꯕꯤ ꯕꯥꯗ 27 ꯂꯩ꯫ ꯀꯣꯔꯤꯗꯣꯔ ꯍꯦꯅꯒꯠꯂꯒꯤ ꯄꯥꯡꯊꯣꯛ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯁꯤ IMC-ꯒꯤ ꯈꯨꯗꯒꯤ ꯍꯧꯔꯦ ꯌꯥꯑꯣꯏ, ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯃꯅꯨꯡꯗ PWD (ꯈꯣꯉꯒꯤ ꯃꯂꯝꯀꯤ ꯁꯨꯕꯥꯀꯤꯗꯃꯛ), WRD (ꯇ꯭ꯔꯦꯟꯁꯤꯡꯗꯨ, ꯄꯥꯠꯁꯤꯡꯗꯨ, ꯍꯣꯡꯕ ꯍꯥꯌꯐꯝꯒꯤ ꯌꯦꯡꯁꯤꯟꯕ, ꯈꯣꯡꯖꯦꯜꯄꯥꯟ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯄꯥꯛꯄꯥꯛ), PHED (ꯁꯤꯅꯊꯥꯅꯤꯡ), DoECC (ꯅꯣꯡꯃꯥꯏ ꯇ꯭ꯔꯦꯟꯗ ꯌꯦꯡꯁꯤꯟꯕꯤ ꯍꯣꯡꯕꯁꯤꯡꯒꯤ ꯍꯤꯅꯥꯏꯗꯥꯡꯗꯥꯕ) ꯑꯃꯁꯨꯡ LDA-ꯅ ꯁꯨꯕꯥ ꯅꯠꯔꯒ ꯌꯦꯡꯁꯤꯟꯕꯤ ꯐꯥꯏꯗꯕ;
- **ꯂꯣꯛꯇꯥꯛ ꯑꯦꯛꯇ** (2006-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯇ ꯅꯝꯕꯔ 3, ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁꯠꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ No. 13(E), 2007-ꯒꯤ ꯑꯦꯛꯇ 5 ꯑꯃꯁꯨꯡ 2019-ꯒꯤ ꯑꯦꯛꯇ 8-ꯅ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯦꯃꯗꯣꯛꯂꯕ) ꯑꯁꯤ ꯄꯨꯝꯅ ꯑꯃꯒꯤ "236.21 Sq. km ꯄꯨꯝꯕ" (the whole of 236.21 Sq. km)-ꯗ ꯌꯥꯎꯕ, ꯑꯗꯨꯕꯨ ꯀꯩꯕꯨꯜ ꯂꯝꯖꯥꯎ ꯅꯦꯁꯅꯦꯜ ꯄꯥꯔꯛ (Keibul Lamjao National Park; 40 km²) ꯅꯠꯔꯒ ꯇꯥꯛꯃꯨ ꯐꯤꯁꯔꯤ ꯐꯥꯔꯝ (Takmu Fishery Farm; 5 km²)-ꯗ ꯌꯥꯎꯗꯕ꯫ ꯃꯁꯤꯒꯤ 70.30 km² ꯂꯩꯕ **ꯀꯣꯔ ꯖꯣꯟ** ꯑꯁꯤ "ꯗꯦꯕꯦꯂꯞꯃꯦꯟꯇ ꯂꯩꯗꯕ ꯖꯣꯟ ꯅꯠꯔꯒ ꯃꯄꯨꯡꯐꯥꯅ ꯉꯥꯀꯊꯣꯛꯂꯕ ꯖꯣꯟ" (the No-Development Zone or Totally Protected Zone)-ꯅꯤ; ꯄꯨꯝꯅ ꯑꯃꯒꯤ ꯑꯣꯏꯊꯣꯛ ꯂꯦꯞꯂꯤ ꯑꯃ **ꯕꯐꯔ ꯖꯣꯟ**ꯅꯤ, ꯃꯐꯝ ꯑꯗꯨꯗ ꯁꯦꯛꯁꯟ 19-ꯅ ꯑꯣꯏꯊꯣꯛ ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯃꯔꯝ "ꯍꯤꯗꯥꯛꯂꯣꯏꯗꯕ, ꯁꯦꯡꯗꯕ ꯅꯠꯔꯒ ꯂꯩꯄꯥꯛꯁꯤꯡꯗꯨ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯊꯣꯛ ꯃꯤꯑꯣꯏ ꯂꯩꯐꯝꯁꯤꯡꯗꯒꯤ ꯂꯥꯀꯄ ꯐꯥꯗꯕ ꯑꯃꯗꯥ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯂꯤꯕ ꯊꯥꯗꯣꯛꯄ" (Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements) ꯑꯃꯁꯨꯡ "ꯂꯝ ꯗꯤꯡꯂꯤꯁꯤꯜ, ꯄꯥꯜ ꯁꯦꯝꯕ ꯅꯠꯔꯒ ꯍꯣꯡꯕꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯈꯣꯉꯕꯤ ꯁꯣꯀꯍꯅꯕ" (Land reclamation, bunding or disturbing the

natural course of drainages) ꯊꯤꯡꯅꯥ꯫ LDA-ꯅꯥ ꯃꯗꯨ ꯂꯧꯁꯤꯟ ꯌꯥꯏꯅ, ꯏꯆꯝꯕ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯉꯥꯏꯅꯕꯒꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Forest and Environment Department)-ꯅꯥ ꯅꯤꯡꯒꯠ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯑꯣꯏꯅꯥ꯫ ꯑꯣꯏꯕ ꯑꯗꯨ ꯄꯥꯛꯊꯣꯛꯂꯤ ꯃꯊꯧ ꯊꯧꯗꯣꯛ ꯆꯠꯅ ꯌꯥꯏ꯫ ꯄꯥꯛ ꯑꯆꯧꯕ ꯑꯣꯏꯕ ꯑꯗꯨ ꯃꯗꯨꯒꯤ ꯂꯩꯃꯐꯝꯗꯨ ꯅꯤꯡꯊꯤꯅꯥ 246.72 km² (MASTEC) ꯑꯃꯁꯨꯡ 250 km² (ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯅꯥꯏꯗ) ꯍꯤꯔꯝꯗꯥ ꯄꯥꯝꯕꯤ, ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗ ꯑꯣꯏꯕ ꯑꯗꯨꯅꯥ ꯊꯣꯛꯂꯤꯕ ꯃꯇꯝ ꯌꯥꯎꯗꯕꯅꯤ꯫ ꯅꯤꯡꯌꯥꯡ ꯑꯗꯨ 23 ꯃꯦꯡ 1990-ꯗ ꯂꯩꯃꯐꯝ ꯂꯩꯅꯕ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯗꯤꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯤ ꯑꯃꯁꯨꯡ 16 ꯄꯨꯜ 1993-ꯗ ꯃꯦꯀꯦꯟꯗꯤ ꯂꯤꯁ꯭ꯇꯗ ꯊꯝꯂꯤ, ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯅꯥꯏꯗ;

- **ꯃꯅꯤꯄꯨꯔ ꯂꯩꯄꯥꯛ ꯄꯨꯟꯁꯤ ꯅꯤꯡꯊꯤ ꯑꯥꯏꯟ, 1978** (1978-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯥꯏꯟ ꯅꯝꯕꯔ 10; 1 ꯖꯥꯟꯌꯨꯋꯔꯤ 1978-ꯒꯤ ꯒꯦꯖꯦꯠ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯤꯀꯦꯁꯟ No. 185)-ꯅꯥ ꯂꯩꯄꯥꯛ ꯅꯤꯡꯊꯤ ꯑꯦꯛꯇꯤꯚ ꯑꯃꯥ, ꯁꯤꯟꯇꯣꯡꯒꯤ ꯄꯨꯟꯁꯤꯗꯨꯒꯤ ꯂꯩꯃꯐꯝ, ꯑꯃꯁꯨꯡ "ꯃꯇꯤ ꯅꯦꯅꯕ ꯇꯥꯟꯗꯕꯒꯤ ꯃꯇꯨꯡ ꯅꯥꯏꯗ" (with reference to relative risk) ꯍꯥꯔꯗꯥꯐꯟ ꯅꯦꯇꯣꯔꯤꯒꯤꯗꯃꯛ ꯊꯧꯗꯣꯛ ꯌꯥꯕ꯫ ꯈꯥꯡꯗꯤ 1-ꯗꯒꯤ 7 ꯏꯁꯤꯡ ꯍꯥꯛꯇꯃꯛ, ꯑꯥꯏꯊꯧꯅꯕ ꯑꯃꯃꯤ ꯑꯃꯒꯤ ꯈꯥꯡꯅꯕ ꯇꯥꯡꯈꯩ ꯅꯤꯔꯤꯗꯒꯤ ꯄꯣꯛꯂꯤ [TBC]꯫ ꯂꯩꯄꯥꯛ ꯅꯤꯡꯊꯤ ꯑꯦꯛꯇꯤꯚ ꯑꯃꯒꯤ ꯑꯦꯂꯥꯏꯟꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯅꯤꯡ ꯅꯤꯡꯖꯤꯡꯅꯕ ꯑꯃꯁꯨꯡ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ, ꯑꯃꯁꯨꯡ ꯂꯧꯕ ꯑꯣꯏꯗ ꯅꯣꯡꯃ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯅꯤꯡꯊꯤ ꯍꯥꯔꯗꯥꯐꯟ ꯑꯣꯏꯕ "ꯍꯧꯖꯤꯛ ꯏꯁꯤꯡ ꯌꯥꯗꯔꯤ" (is yet to be done) ꯍꯥꯌꯅꯥ ꯄꯨꯜ 2026-ꯗ ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ (ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯅꯥꯏꯗ); ꯃꯁꯤꯡꯂꯕ ꯑꯣꯏꯕꯅꯥ ꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯖꯤꯡꯅꯕ ꯌꯥꯗꯕ ꯍꯥꯌꯅꯥ ꯅꯥꯟꯗ;
- **ꯄꯥꯝꯕꯤ-ꯅꯤꯡꯂꯦꯛ ꯑꯥꯏꯟ** (2014-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯥꯏꯟ ꯅꯝꯕꯔ 10; 2 ꯖꯥꯟꯌꯨꯋꯔꯤ 2014-ꯒꯤ ꯒꯦꯖꯦꯠ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯤꯀꯦꯁꯟ No. 150)-ꯅꯥ ꯄꯥꯝꯕꯤ ꯅꯤꯡꯂꯦꯛ (paddy land) ꯑꯃꯁꯨꯡ ꯔꯥꯃꯁꯥꯔ ꯂꯩꯃꯐꯝ ꯑꯣꯏꯕ ꯅꯤꯡꯊꯤ ꯅꯤꯡꯖꯤꯡ ꯃꯦꯅꯤꯌꯥꯃꯤꯗ ꯑꯃꯥꯌꯥꯃꯤꯗ (ꯂꯩꯕ-ꯗꯥꯒꯤꯅꯦꯟꯖ ꯑꯦꯏꯃꯂꯩꯅꯥ ꯄꯨꯔꯤꯕ), ꯗꯤꯂꯥꯏꯌꯤꯡ ꯅꯤꯡꯖꯤꯡ ꯑꯃꯥꯌꯥꯃꯤꯗ ꯑꯃꯁꯨꯡ ꯂꯧꯕ ꯅꯤꯡꯖꯤꯡ ꯑꯃꯥꯌꯥꯃꯤꯒꯤ ꯁꯕꯊꯥꯏꯗ ꯍꯥꯛꯇꯃꯛ ꯑꯦꯟꯊꯥꯐꯟ ꯔꯥꯍꯥꯕꯇꯤ, ꯑꯃꯁꯨꯡ "ꯅꯃꯇꯒꯤ ꯔꯥꯅꯕꯂꯤꯗ, ꯄꯨꯂꯥꯂꯤꯗ, ꯍꯥꯗꯦꯁꯤꯡꯂꯤꯗ, ꯄꯥꯂꯦꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯂꯤꯇꯂꯤꯗ" (drainage channels, ponds, canals, bunds and ridges) ꯑꯣꯏꯕ ꯄꯥꯝꯕꯤ ꯅꯤꯡꯂꯦꯛꯇꯥ ꯂꯂꯨꯛ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯊꯤꯕꯤ (ꯈꯥꯡꯗꯤ 2(c))꯫ ꯅꯤꯡꯖꯤꯡ ꯌꯥꯗꯕ ꯃꯂꯣꯟꯕ ꯄꯨꯟꯁꯦꯒꯤ ꯃꯦꯂꯇꯕ ꯆꯝ ꯐꯥꯍꯦꯒꯗꯕ, ꯃꯗꯨ ꯑꯃꯃꯤꯅ ꯌꯥꯇꯕ 2026-ꯒꯤ ꯕꯤꯟ ꯑꯃꯥ ꯄꯨꯊꯥꯍꯤ; ꯃꯗꯨ ꯑꯩꯅꯥꯜ ꯑꯦꯅꯥꯏꯕꯤ ꯐꯦꯜꯏꯃꯆ ꯌꯥꯍꯤꯗ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯂꯕ ꯑꯣꯏꯕꯅꯥ ꯃꯗꯨ ꯑꯩꯅꯥꯜ ꯑꯦꯅꯥꯅꯥ ꯐꯥꯎꯕ;
- **MSWA** ꯑꯣꯏꯕ 31 ꯅꯤꯡꯊꯧꯔꯤ 2018-ꯗ ꯂꯥꯃꯍꯤ꯫ ꯃꯗꯨꯅꯥ ꯔꯥꯃꯁꯥꯔ ꯑꯃꯥ, ꯌꯥꯔꯜ ꯄꯥꯠ (Yaral Pat), ꯎꯇꯔꯥ ꯄꯥꯠ (Utra Pat) ꯑꯃꯁꯨꯡ ꯋꯥꯏꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯥꯠ (Waithou–Phumnom Pat)-ꯒꯤ ꯗꯤꯂꯏꯕ ꯅꯤꯡꯏꯐꯝꯂꯦꯂꯤꯗ ꯏꯊꯤꯜꯂꯥꯡꯍꯤ; ꯔꯥꯃꯁꯥꯔꯂꯦꯛꯂ (ꯐꯦꯂꯦꯄꯒꯥꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯅꯦꯖꯃꯦꯟꯇ) ꯔꯨꯜꯂ, 2017 (Wetlands (Conservation and Management) Rules, 2017)-ꯒꯤ ꯔꯨꯜ 4-ꯒꯤ ꯃꯈꯥꯗ ꯑꯣꯏꯍꯕ ꯅꯤꯡꯏꯐꯝꯂꯦ ꯑꯃꯁꯨꯡ ꯏꯊꯤꯜꯂꯥꯡꯍꯤ;
- **WRD**-ꯅꯥ ꯁꯤꯟꯇꯣꯡꯂꯤꯗ, ꯁꯤꯟꯇꯣꯡꯒꯤ ꯄꯥꯂꯦꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯅꯃꯇꯒꯤ ꯔꯥꯅꯕꯂꯤꯗ, ꯆꯝꯏꯟꯄꯥꯟ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯐꯝꯒꯤ ꯄꯍꯦꯟꯄꯤ ꯌꯥꯗꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯂꯕ ꯑꯣꯏꯕꯗ ꯂꯧꯕꯃꯤ ꯅꯦꯛꯅꯒꯤ ꯃꯈꯥꯒꯤ ꯅꯃꯇꯒꯤ ꯑꯃꯅꯤꯡ ꯑꯣꯏꯕ ꯃꯃꯤꯗ ꯅꯥꯟꯗ, ꯑꯗꯨꯒꯤ ꯑꯣꯏꯕꯆꯐꯝ ꯔꯥꯅꯕꯂꯤꯗꯒꯤ ꯂꯧꯕ ꯅꯤꯡꯖꯤꯡꯔꯥꯅ ꯑꯃꯁꯨꯡ ꯏꯊꯤꯜꯂꯥꯡꯍꯤ; ꯏꯊꯤꯜꯂꯥꯡ ꯅꯤꯡꯖꯤꯡꯔꯥꯅ ꯑꯃꯍꯤꯌꯥꯗ CGWB-ꯒꯤ ꯅꯥꯗꯊ ꯍꯂꯧꯕꯂ ꯂꯤꯇꯂꯦꯛ ꯅꯥꯏꯕꯤ꯫ **PHED**-ꯅꯥ ꯍꯝꯏꯟ ꯂꯤꯔꯗꯥꯇ ꯄꯗꯤꯅꯥꯏꯟ ꯂꯦꯕ ꯑꯃꯁꯨꯡ ꯔꯅꯩ꯫ **PWD**-ꯅꯥ ꯂꯧꯕꯗꯝ ꯆꯝꯕꯤꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯔꯒꯤ ꯍꯥꯕꯦꯂꯤꯗ ꯔꯥꯗꯂꯤꯟꯇꯤ, ꯃꯑꯣꯒꯤ ꯃꯂꯨꯗ AIIB-ꯅꯥ ꯃꯌꯥꯗ ꯄꯥꯗꯕ ꯄꯗꯤꯅꯥꯏꯟꯊꯅꯥ ꯑꯅꯩꯕ ꯑꯦꯍꯥꯐꯦꯒꯗꯕ ꯒꯗꯤꯌꯥꯗ ꯍꯝꯏꯟꯒꯤ ꯆꯝꯕꯤ 547 km ꯔꯩꯁꯍ꯫ ꯏꯆꯝꯕ, ꯅꯨꯡꯉꯥꯏꯅꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯅꯩꯅꯃꯕ ꯔꯥꯂꯇ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯗ ꯃꯈꯥꯗ ꯅꯥꯕ **DoECC**-ꯅꯥ ꯆꯝꯕꯨꯟ ꯁꯤꯟꯇꯣꯡꯒꯤ ꯂꯤꯄꯨꯒꯥꯅꯥꯂꯦ ꯔꯅꯩꯍ ꯑꯃꯁꯨꯡ MSWA-ꯒꯤ ꯖꯥꯗꯥꯌꯥꯂꯤꯔꯕ ꯑꯦꯍꯥꯐꯦ ꯊꯕꯗ ꯌꯥꯍ꯫ **MPCB**-ꯅꯥ ꯄꯨꯂꯂꯦꯒꯤ ꯃꯦꯂꯥꯂꯕꯂꯤꯗ ꯄꯤꯍ;
- **MSDMA** ꯑꯣꯏꯕ ꯂꯧꯕꯗꯝ ꯗꯤꯅꯂꯧꯂ ꯃꯅꯥꯅꯃꯂꯕ ꯑꯦꯊꯂꯤꯌꯤꯅꯤ; ꯃꯗꯨ ꯃꯁꯤꯡꯂꯕ ꯑꯣꯏꯒꯤꯗꯃꯛ ꯊꯤꯅꯤꯂꯍꯤꯗ [TBC], ꯑꯃꯁꯨꯡ ꯃꯏꯝ ꯑꯣꯏꯗ ꯐꯕꯅꯤꯕ ꯅꯃꯇꯒꯤ ꯅꯥꯏꯁꯤꯡꯒꯤ ꯏꯤꯒꯝꯒꯤ ꯂꯤꯄꯥꯂꯕꯂꯤꯗ ꯑꯣꯏꯕ **ꯂꯤꯇꯤꯏ ꯑꯃꯁꯨꯡ ꯗꯤꯅꯂꯧꯂ ꯃꯅꯥꯅꯃꯂꯕ ꯗꯤꯄꯥꯂꯕꯃꯂꯕ-ꯐꯤꯅꯤ**, ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯅꯥꯏꯗ꯫ ꯗꯤꯂꯥꯏꯌꯤꯡ ꯗꯤꯅꯂꯧꯂ ꯃꯅꯥꯅꯃꯂꯕ ꯑꯦꯊꯂꯤꯌꯤꯂꯤꯗ (District Disaster Management Authorities) ꯑꯣꯏꯕ ꯃꯄꯨꯡ ꯏꯅꯥ ꯍꯍ;
- **ꯃꯅꯤꯄꯨꯔ ꯍꯥꯏꯀꯣꯔꯠ ꯑꯃꯁꯨꯡ NGT**-ꯅꯥ ꯂꯧꯕꯗꯝ ꯅꯃꯇꯒꯤ ꯔꯤꯏꯝꯂꯤꯗ ꯅꯥꯟꯗ: PIL No. 8 of 2025-ꯗ ꯍꯥꯏꯀꯣꯔꯠꯇ 16 ꯄꯨꯜ 2025-ꯒꯤ ꯑꯦꯗꯔꯗꯅꯥ ꯆꯝꯏꯟꯄꯥꯟꯗ ꯊꯕꯗꯂꯤꯗꯒꯤ WRD-ꯒꯤ ꯅꯦꯂꯄꯥꯗꯂꯦ ꯗꯤꯐꯤꯗ ꯌꯥꯍ, ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯂꯄꯥꯂꯤꯔꯕ ꯕꯦꯍꯔꯅꯥ ꯃꯗꯨꯒꯤ ꯑꯔꯩꯕ ꯔꯩꯁꯗꯅꯥ ꯅꯥꯗꯌꯥꯌ ꯅꯕꯗꯒꯤ ꯃꯗꯨꯒꯤ ꯃꯅꯥꯌ ꯗꯒꯅꯄꯃꯂꯕ ꯊꯤꯡꯍꯤ ꯍꯥꯌꯅꯥ ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯍꯤ (17 ꯄꯨꯅꯍ 2019 ꯑꯃꯁꯨꯡ 25 ꯏꯕꯔꯨꯔꯩꯗ 2022-ꯒꯤ ꯑꯦꯗꯔꯗꯂꯤꯗ, ꯄꯥꯟꯗꯝ ꯏꯊꯤꯜꯂꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯅꯥꯏꯗ; ꯐꯥꯂ ꯅꯝꯕꯔ ꯏꯊꯤꯜꯂꯥꯡ [TBC]); NGT-ꯒꯤ ꯂꯤꯇꯤꯗ ꯔꯥꯂꯕ ꯑꯃꯁꯨꯡ ꯑꯌꯥꯄꯥ ꯅꯨꯡꯉꯥꯏꯅꯕꯒꯤ ꯍꯂꯥꯂꯤꯗꯒꯤ ꯐꯥꯂ (OA 606 of 2018)-ꯗ ꯂꯧꯕꯗꯝ ꯂꯤꯄꯥꯗꯕꯂꯤꯗꯅꯥ ꯍꯝꯏꯟꯒꯤ ꯍꯥꯕꯦꯂꯤꯗꯗ ꯅꯥꯕ ꯂꯤꯔꯗꯥꯇ ꯗꯤꯐꯤꯗ ꯌꯥꯍ꯫ ꯃꯁꯤꯡꯂꯕ ꯑꯣꯏꯕꯅꯥ ꯐꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯗꯍꯕꯔꯂꯕꯒꯤ ꯑꯦꯗꯔꯗꯂꯤꯗ ꯃꯍꯥꯔꯒꯤ ꯂꯧꯕꯌꯂꯐ ꯅꯤꯔꯤꯅꯥ ꯐꯥꯎꯕ; ꯑꯃꯁꯨꯡ

- ꯁꯦꯇꯥꯔ ꯇꯧꯔꯕ ꯀ꯭ꯂꯥꯟ ꯑꯃꯅꯥ ꯀꯦꯒꯦꯅꯨꯒꯤ ꯑꯕꯁꯤꯒꯤꯇꯦ ꯑꯃꯒꯤ ꯃꯃꯤꯊ ꯇꯥꯕ ꯃꯃꯤꯊꯅ, ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ **ꯁꯕ-ꯗꯤꯚꯤꯖꯟ** (sub-division) ꯑꯤꯂꯤꯡꯅꯩ꯫ ꯄꯅꯥ ꯑꯃꯕꯨ **ꯗꯦꯄꯨꯇꯤ ꯀꯃꯤꯁꯅꯔ** (DC) ꯑꯃꯅꯥ ꯂꯨꯆꯤꯡꯏ꯫ ꯁꯀꯥꯔꯥꯁ ꯇꯀꯒꯤ ꯃꯦꯒꯦꯃꯤꯁꯤ ꯑꯤꯇꯤ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯝ ꯑꯦꯛꯠ, 1960-ꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯎꯔꯤ꯫

ꯁꯦꯇꯥꯔ ꯇꯧꯔꯕ ꯀ꯭ꯂꯥꯟ ꯑꯃꯅꯥ ꯁꯊꯦ ꯑꯃꯅ, ꯏꯥꯀꯂ ꯏꯤꯖꯅ ꯑꯃꯅ ꯅꯠꯀꯒ ꯕꯦꯁꯤꯗꯒꯤ ꯃꯃꯤꯊ ꯑꯃꯅ ꯇꯥꯈꯅ ꯇꯥꯐ ꯃꯉ ꯍꯕ ꯃꯏꯃꯅ, ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ "Manipuri" ꯍꯥꯌꯅꯥ ꯂꯧꯏ꯫ ꯃꯅꯤꯄꯨꯔ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯂꯦꯡꯒꯨꯌꯦꯖ ꯑꯦꯛꯠ, 1979 (1979-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 14), ꯃꯅꯤꯄꯨꯔ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯂꯦꯡꯒꯨꯌꯦꯖ (ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠ) ꯑꯦꯛꯠ, 2021 (2021-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 7; 10 ꯃꯥꯔꯆ 2021-ꯒꯤ ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁꯠꯔꯥꯑꯣꯔꯗꯤꯅꯥꯔꯤ No. 427)-ꯅꯥ ꯑꯦꯃꯦꯟꯗ ꯇꯧꯔꯕ ꯑꯁꯤꯅꯥ "Manipuri Language" ꯑꯁꯤ "Meeteilon written in Meetei Mayek" (ꯃꯩꯇꯩ ꯃꯌꯦꯛꯇ ꯏꯕ ꯃꯩꯇꯩꯂꯣꯟ) ꯍꯥꯌꯅꯥ ꯁꯟꯗꯣꯛꯅꯥ ꯇꯥꯀꯏ, "concurrent use of Bengali Script and Meetei Mayek … in addition to English language, for a period upto 10(ten) years from the date of commencement" (ꯍꯧꯔꯀꯄꯗꯒꯤ ꯆꯍꯤ 10 ꯐꯥꯑꯣꯕ, ꯏꯪꯂꯤꯁ ꯂꯣꯟꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯕꯦꯡꯒꯥꯂꯤ ꯁ꯭ꯛꯔꯤꯞꯠ ꯑꯃꯁꯨꯡ ꯃꯩꯇꯩ ꯃꯌꯦꯛ … ꯄꯨꯟꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ) ꯌꯥꯍꯅꯈꯤ꯫ **ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯂꯣꯟꯊꯣꯛ ꯏꯟꯇꯤꯂꯤꯡꯁꯤ꯫** ꯃꯔꯝ ꯑꯁꯤꯅꯥ, ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯊꯝꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ, **ꯁꯏꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯁꯤꯡꯒꯤ ꯑꯌꯥꯡꯕ ꯌꯥꯝꯅ ꯃꯔꯤꯂꯩꯅꯕ ꯑꯁꯤ ꯃꯩꯇꯩ ꯃꯌꯦꯛꯇ ꯏꯕ ꯃꯩꯇꯩꯂꯣꯟ (Manipuri) ꯑꯃꯁꯨꯡ ꯏꯟꯇꯤꯂꯣꯌ ꯄꯥꯝꯖꯕꯅꯤ; ꯍꯤꯡꯒꯤ ꯆꯠꯅꯕꯤꯗ, ꯏꯟꯇꯤꯂ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯒꯥꯏꯕ ꯆꯠꯅꯕꯒꯤ ꯌꯦꯡꯁꯟ ꯑꯁꯨꯝ ꯂꯤꯇꯤꯂꯣꯅꯕꯤꯕ ꯇꯧꯅ, ꯑꯣꯏꯕꯤꯌꯤꯅ ꯍꯏꯕ ꯄꯥꯏꯕ ꯃꯈꯥꯗ ꯃꯌꯦꯛꯇꯒꯤ ꯇꯧꯔꯦꯅꯤ꯫** 1979-ꯒꯤ ꯑꯦꯛꯠꯀꯤ ꯍꯤꯡꯒꯤ ꯆꯠꯅꯕꯤꯒꯤ ꯄꯣꯠꯆꯦꯠꯂꯕ ꯑꯁꯤ ꯁꯦꯝꯕ ꯄꯥꯕ ꯊꯥꯖꯍꯅꯕ [TBC], ꯑꯃꯁꯨꯡ ꯁꯏꯟꯅꯕ ꯑꯃꯅꯥ ꯃꯑꯣꯏꯅꯥ ꯍꯦꯟꯅꯥ ꯄꯨꯝꯅꯃꯛ ꯃꯤꯑꯣꯏꯁꯤꯡꯅꯥ ꯄꯥꯕ ꯊꯥꯖꯒꯗꯕꯅꯤ꯫ ꯑꯍꯦꯟꯕ 7A-ꯗ, ꯂꯤꯃꯥ WB_NAME_MNI-ꯅꯥ ꯏꯑꯣꯏꯕ ꯆꯩꯔꯥ ꯑꯃꯒꯤ ꯃꯃꯤꯕ ꯃꯩꯇꯩ ꯃꯌꯦꯛꯇ ꯊꯝꯃꯤ; MNI ꯑꯁꯤ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯃꯩꯇꯩꯂꯣꯟ (Manipuri)-ꯒꯤꯗꯃꯛ ꯑꯣꯏꯅꯥ ꯂꯧꯏ, ꯃꯁꯤꯒꯤ ISO 639 ꯀꯣꯗ, mni-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ꯫

ꯇꯥꯀꯟ ꯌꯦꯍꯦ ꯍꯔꯤ ꯁꯦꯝꯁꯤꯟ ꯑꯁꯤꯗ ꯑꯣꯏꯅꯥꯂꯔꯤ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛ ꯑꯍꯦꯟꯕ ꯑꯍꯥꯟꯅ ꯊꯥꯗꯣꯀꯄ ꯃꯂꯦꯝ ꯑꯃꯨꯠ ꯍꯦꯟꯅ ꯑꯣꯢꯅꯥ ꯁꯤꯠꯂꯤ꯫ ꯏꯟꯇꯤꯂ ꯑꯦꯗꯤꯇꯔꯅꯥ ꯃꯍꯥꯛ ꯇꯥꯁꯤꯟ ꯃꯌꯥꯝ ꯍꯝꯁꯅ ꯍꯔꯤ; ꯃꯩꯇꯩꯂꯣꯟ ꯑꯦꯗꯤꯇꯟ ꯑꯁꯤꯅꯥ ꯃꯍꯥꯛꯀꯤ ꯃꯩꯇꯩ ꯃꯌꯦꯛꯀꯤ ꯃꯑꯣꯡ ꯄꯥꯏꯔꯤ꯫

- **ꯄꯨꯈ꯭ꯔꯤ (pukhri)** (ꯃꯩꯇꯩꯂꯣꯟ: ꯄꯥꯛꯂꯦ; ꯏꯟꯇꯤꯂꯣꯌ ꯃꯑꯣꯡ ꯌꯦꯍꯕ pukhris) ꯑꯁꯤ ꯆꯩꯃꯤꯏ ꯇꯨꯏꯅꯥ ꯁꯦꯍꯤꯕ ꯄꯥꯛꯂꯦ ꯅꯠꯔꯒꯥ ꯇꯦꯄꯅꯤꯕ ꯏꯁꯤꯡꯒꯤ ꯑꯄꯨꯡꯄ ꯃꯂꯦꯝ ꯑꯃꯒꯤꯗꯃꯛ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯍꯅꯤ, ꯇꯨꯗꯤ ꯑꯍꯥꯟꯅ ꯁꯦꯝꯂꯕꯁꯤꯡꯒꯤ ꯄꯥꯕꯅꯤꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ꯫ Sharma-ꯒꯤ *Learners' Manipuri-English Dictionary* (2006, p. 117)-ꯅꯥ "n. pond" ꯍꯥꯌꯅꯥ ꯄꯤꯔꯤ, ꯑꯁꯣꯏꯄ ꯑꯣꯏꯗꯕ ꯑꯃꯍꯠꯁ ꯆꯩꯁ꯫ ꯃꯩꯇꯩꯂꯣꯟꯅꯥ ꯃꯑꯣꯡ ꯌꯦꯍꯕ ꯑꯁꯤ ꯁꯂꯤꯡꯁꯤꯡꯁꯤꯡꯅꯥ ꯁꯤꯖꯤꯟ, ꯃꯍꯟ ꯑꯁꯤꯒꯤ ꯑꯃꯥꯟꯕ ꯃꯌꯦꯡꯅꯥ ꯁꯤꯡꯗꯦ, ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯏꯟꯇꯤꯂꯀꯤ ꯃꯑꯣꯡ ꯌꯦꯍꯕ "pukhris" ꯑꯁꯤ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯀꯟꯚꯦꯟꯁꯟ ꯑꯃꯅꯤ;
- **ꯄꯥꯠ (pat)** (ꯃꯩꯇꯩꯂꯣꯟ: ꯇꯦꯡ ꯂꯧꯕꯒꯤ ꯌꯦꯠꯇꯦꯝꯅ, ꯆꯍꯤ꯭ꯁꯤꯜꯄꯥꯠꯁꯤꯡ ꯆꯩꯕꯒꯤꯔꯤ) ꯑꯁꯤ ꯁꯍꯥꯛꯇꯀꯤ ꯃꯍꯥꯛꯀꯤ ꯇꯦꯡ, ꯑꯌꯦꯍꯄ ꯂꯧꯕꯒꯤ ꯌꯦꯠꯇꯦꯝꯅ ꯑꯃꯅꯤ, ꯆꯍꯤ꯭ꯁꯤꯜꯄꯥꯠ, ꯁꯤꯡꯊꯣ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯌꯦꯊꯣꯜ ꯄꯥꯠꯁꯤꯡ ꯆꯩꯕꯒꯤꯔꯤ; ꯗꯤꯛꯁꯅꯔꯤꯅꯥ "n. lake" (p. 114) ꯍꯥꯌꯅꯥ ꯄꯤꯔꯤ, ꯑꯃꯁꯨꯡ CGWB-ꯅꯥ "ꯇꯦꯡ ꯍꯥꯌꯔꯕ ꯑꯔꯊ ꯆꯩꯕ PAT ꯌꯦꯍꯦ ꯆꯩꯕ ꯃꯐꯝꯁꯤꯡ" (the places having the word PAT meaning lake) ꯍꯥꯌꯅꯥ ꯂꯧꯏ ꯁꯔꯤ꯫ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯄꯥꯠ ꯑꯃꯕꯨ ꯀꯩꯗꯧꯅꯨ ꯄꯨꯈ꯭ꯔꯤ ꯍꯥꯌꯅꯥ ꯀꯧꯗꯦ, ꯑꯃꯁꯨꯡ ꯏꯟꯇꯤꯂꯤꯅꯤꯌꯔ ꯁꯦꯝꯕ ꯑꯁꯨꯝꯕꯦꯅꯨ **ꯗꯤꯇꯦꯟꯁꯟ ꯄꯥꯛꯂꯦ** (detention pond) ꯍꯥꯌꯅꯥ ꯀꯧꯏ, ꯀꯩꯗꯧꯅꯨ ꯄꯨꯈ꯭ꯔꯤ ꯌꯦꯠꯇꯦꯝ ꯄꯥꯠ ꯍꯥꯌꯅꯥ ꯀꯧꯗꯦ; ꯆꯍꯤ꯭ꯁꯤꯜꯄꯥꯠ ꯑꯁꯤ ꯏꯑꯣꯏꯕ ꯏꯌꯦꯡꯁꯤꯡꯒꯤ ꯑꯁꯨꯝꯕꯦꯇ ꯑꯍꯥꯟꯅ ꯁꯦꯃꯒꯠꯂꯤꯕ ꯄꯥꯠ ꯑꯃꯅꯤ;
- **ꯇꯨꯔꯦꯜ (turel; also turen ꯇꯨꯔꯦꯟ)** ꯑꯁꯤ ꯇꯨꯔꯦꯜ (river) ꯑꯃꯅꯤ (p. 81), ꯏꯆꯤꯜ ꯇꯨꯔꯦꯂꯗ ꯆꯩꯕꯒꯤꯔꯤ, ꯑꯃꯁꯨꯡ **ꯈꯣꯡ (khong)** ꯑꯁꯤ ꯈꯣꯡ (stream) ꯑꯃꯅꯤ (p. 54); ꯌꯦꯍꯦ ꯑꯃꯨꯛꯇ *khong*-ꯅꯥ "a mine" ꯍꯥꯌꯔꯕꯁꯨ ꯁꯥꯏ;
- **ꯈꯣꯡꯕꯟ (khongban; also khongbal ꯈꯣꯡꯕꯜ)** ꯑꯁꯤ "a ditch; a drainage" (p. 55)-ꯅꯤ꯫ *nala* ꯌꯦꯍꯦ, **ꯅꯥꯂꯥ (nala)**, ꯑꯁꯤꯅꯥ "a drain" ꯑꯃꯁꯨꯡ "a sewer" ꯑꯅꯤꯃꯛ ꯁꯥꯏ (p. 103), ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ "drain" (ꯈꯣꯡꯕꯟ) ꯍꯥꯌꯅꯥ ꯏꯏ ꯑꯃꯁꯨꯡ *nala* ꯃꯑꯣꯡ ꯏꯄꯥꯔꯅ ꯑꯣꯏꯅꯥꯀꯅ;
- **ꯏꯊꯣꯡ (ithong)** ꯑꯁꯤ "floodgate; sluice gate" (p. 20)-ꯅꯤ, ꯑꯃꯁꯨꯡ **ꯄꯥꯟ (pan)** ꯑꯁꯤ "a bund; embankment" (p. 111)-ꯅꯤ꯫ ꯏꯟꯇꯤꯂ ꯁꯦꯄꯑꯣꯠꯇ "sluice", "flap gate" ꯑꯃꯁꯨꯡ "bund" ꯍꯥꯌꯔꯕ ꯏꯟꯇꯤꯂ ꯌꯦꯍꯦꯑꯣꯏꯕ ꯊꯃꯗꯤ; ꯑꯃꯁꯨꯡ
- **ꯐꯨꯝꯗꯤ (phumdi)** ꯑꯁꯤ ꯁꯤꯃꯤꯏ, ꯑꯍꯤꯒꯦꯟꯁꯤꯡ ꯗꯦꯕꯔꯤꯁ ꯑꯃꯁꯨꯡ ꯆꯩꯃꯤꯏ ꯄꯨꯟꯁꯤꯟꯅ ꯁꯤꯡꯗꯤꯕ ꯃꯦꯠ ꯑꯃꯅꯤ (p. 125, *phum*-ꯒꯤ ꯃꯈꯥꯗ), ꯇꯥꯁꯤꯡ ꯑꯦꯛꯠꯀꯤ "Phumdis", ꯃꯗꯨꯕꯨ ꯑꯦꯛꯠ ꯑꯗꯨꯅꯥ "ꯁꯤꯡꯗꯤꯕ ꯂꯤꯒꯥꯃꯗ ꯆꯩꯕ ꯁꯤꯃꯤꯏ, ꯑꯍꯤꯒꯦꯟꯁꯤꯡ ꯗꯦꯕꯔꯤꯁ ꯑꯃꯁꯨꯡ ꯆꯩꯃꯤꯏꯒꯤ ꯁꯥꯎꯟꯕ ꯑꯃꯨꯟꯕ" (heterogeneous mixture of vegetation, organic debris and soil in floating condition) ꯍꯥꯌꯅꯥ ꯁꯟꯗꯣꯛꯅꯥ ꯇꯥꯀꯏ꯫ ꯐꯨꯝꯗꯤꯁꯤꯡꯅꯥ ꯁꯀꯀꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯠꯦꯠꯁꯤꯡꯗ ꯁꯤꯡꯊꯀꯤꯠꯄ ꯌꯦꯏ꯫

ꯄꯤꯀꯤꯕ ꯆꯩꯃꯤꯏꯁꯤꯡ ꯑꯁꯤ ꯗꯤꯛꯁꯅꯔꯤꯒꯤ ꯑꯦꯟꯇ꯭ꯔꯤ ꯑꯦꯗꯤꯁꯟꯒꯤꯅꯤ; p. 117 ꯏꯟꯇꯥꯔꯝꯇ ꯂꯣꯗꯇꯦꯏꯕ ꯆꯩꯃꯗ ꯌꯦꯡ ꯁꯤꯏ, ꯑꯃꯁꯨꯡ ꯑꯁꯣꯏꯄꯁꯤꯡ ꯌꯦꯡ ꯁꯤꯒꯗꯕꯅꯤ [TBC]꯫ ꯌꯤꯡꯒꯤ ꯇꯦꯟꯁꯤꯡꯗ ꯆꯩꯕ ꯈꯣꯡ, ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯟꯒꯤ ꯌꯦꯍꯦꯁꯤꯡ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯊꯤꯗꯣꯛꯄꯗꯤ [TBC]꯫

ꯑꯣꯊ꯭ꯕꯤꯒꯤꯔꯣꯁꯦ ꯍꯕꯒꯤ ꯑꯕꯍ ꯑꯃꯗꯒꯤ ꯍꯣꯦꯅꯥ ꯅꯩ:

- ꯁꯔꯨꯛ 2 ꯑꯃꯁꯨꯡ 3-ꯗ AMC ꯑꯁꯤ ꯑꯣꯦꯇꯤꯁꯤꯗꯣꯦꯜ ꯃꯥꯍꯁꯌꯕ ꯈꯦꯗꯤꯁꯦꯅꯤ; ꯃꯣꯄꯨꯔꯣꯟ ꯑꯁꯤꯅꯥ ꯃꯁꯤ ꯃ꯭ꯔꯅꯤꯁꯤꯒꯣꯟ ꯊꯥꯗꯤ ꯑꯃꯜꯇꯒꯤꯗꯃꯀ ꯁꯤꯂꯤꯦꯅꯗꯣ;
- IMC ꯑꯁꯤ ꯍꯈꯦꯟ ꯃ꯭ꯔꯅꯤꯁꯤꯒꯣꯟ ꯈꯥꯕꯒꯥꯕꯣꯁꯦꯅꯤ॥ ꯁꯤꯕꯤꯂ ꯑꯁꯤꯒꯤ ꯑꯇꯥꯒꯒ ꯑꯣꯗꯤꯁꯦꯁꯤꯕꯗ ꯑꯃꯁꯨꯡ ꯄꯥꯕꯀꯦꯈ ꯍꯕꯗ ꯃꯔꯣꯀ ꯑꯁꯤꯅꯥ ꯑꯇꯥꯒꯒ ꯊꯥꯗꯤꯁꯤꯕ ꯇꯥꯈꯍ; ꯃꯣꯄꯨꯔꯣꯟ ꯑꯁꯤꯗ IMC-ꯅꯥ ꯊꯥꯗꯤ ꯑꯁꯤ ꯍꯀꯇꯃꯀ ꯇꯥꯈꯍ;
- DC ꯑꯁꯤ ꯗꯣꯒ꯭ꯇꯤ ꯈꯃꯤꯁꯅꯕꯅꯤ॥ ꯌꯤꯕꯒꯤ ꯅꯈꯁꯤꯕꯒꯤ ꯗꯤꯁ꯭ꯇꯕꯤꯀ ꯈꯨꯦꯁꯤꯟꯁꯤꯕ ꯑꯁꯤ ꯃꯒ꯭ꯃꯕ ꯦꯅꯥ ꯍꯍ, ꯅꯣꯂꯤꯁꯅꯣꯇꯤꯒ ꯑꯣꯁꯣꯈꯊꯅꯤꯒꯤ ꯄꯤꯟ ꯑꯣꯕꯤꯔꯥꯁ ꯈꯃꯤꯇꯤ ꯁ꯭ ꯃꯇꯥ ꯑꯊ꯭ꯃꯀꯇ ꯍꯍ;
- "ꯌꯨꯅꯤꯐꯥꯏꯗ ꯊꯍ-ꯅꯥꯂ 2024" ꯑꯁꯤ ꯃꯥꯗꯣꯟ ꯃꯅꯤꯒ꯭ꯕ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯊꯤꯟꯗꯤꯕ ꯊꯍ-ꯅꯥꯂ 2024-ꯅꯤ, ꯅꯥꯈꯟ ꯊꯥꯗꯤ ꯌ꯭ꯗꯤꯕꯃꯀꯅꯥ ꯃꯁꯤꯒꯤ ꯃꯍꯦꯗ ꯌꯜꯅꯀꯄꯟꯅꯊ ꯊꯍ-ꯅꯥꯂꯁꯤꯕꯒꯥ ꯅꯥꯔꯅꯅꯥ, ꯑꯃꯁꯨꯡ "MBBL 2016" ꯑꯁꯤ ꯅꯣꯁꯅꯣꯟ ꯃꯥꯗꯣꯟ ꯊꯤꯟꯗꯤꯕ ꯊꯍ-ꯅꯥꯂ 2016-ꯅꯤ॥ ꯑꯅꯤꯃꯀ ꯑꯇꯥꯒꯒ ꯁ꯭ꯇꯣꯜ ꯑꯃꯒꯤ ꯊꯤꯟꯗꯤꯕ ꯕ꯭ꯟ ꯅꯜꯇꯣ;
- HFL ꯑꯁꯤ ꯒꯣꯂ ꯑꯃꯗ ꯕꯣꯈꯥꯕꯗ ꯇꯥꯕꯊ ꯍ꯭ꯊꯍꯗꯒꯤ ꯌꯥꯕꯊ ꯍꯁꯤꯕ ꯍꯌꯥꯕꯒꯤ ꯅꯣꯒꯣꯟꯅꯤ, ꯑꯃꯁꯨꯡ WL ꯑꯃꯁꯨꯡ FL ꯑꯁꯤ WRD-ꯅꯥ ꯃꯁꯤꯒꯤ ꯇ꯭ꯕꯣꯟꯒꯤ ꯒꯣꯂꯁꯤꯕꯗ ꯁꯣꯈꯊ ꯌꯥꯕꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯦ꯭ꯅ꯭ꯗ ꯅꯣꯒꯣꯟꯁꯤꯕꯅꯤ॥ ꯈꯅꯥꯒ꯭ꯈꯊ ꯑꯃꯜꯇ ꯗꯤꯅꯥꯍꯦ ꯅꯣꯒꯣꯟ ꯅꯜꯇꯣ॥ ꯊꯍ-ꯅꯥ 94-ꯅꯥ "ꯇꯥꯍꯦꯁꯤꯕꯒꯤ ꯃꯥꯁ꯭ꯇꯕ ꯄ꯭ꯅꯥꯟꯗ ꯍꯕꯗꯥꯀꯍꯤꯊ ꯍꯁꯤꯕ ꯍꯌꯥꯕꯒꯤ ꯌ꯭ꯗꯥꯕꯐꯤꯊ ꯌꯥꯕꯊ ꯑꯣꯕꯤꯔꯥꯁꯤꯕ" (high Flood Risk Areas identified in the Master Plan of the towns)-ꯗ ꯒ꯭ꯅꯤꯦꯐ ꯑꯁꯤ "ꯑꯈꯥꯔꯊꯒꯤ ꯑꯣꯕꯤꯔꯥꯁꯤꯕꯒꯤ ꯍ꯭ꯊꯍꯗꯒꯤ ꯌꯥꯕꯊ ꯍꯁꯤꯕ ꯍꯌꯥꯕꯒꯤ ꯅꯣꯒꯣꯟꯗꯒꯤ 1m ꯃꯐꯀꯇ" (1m above the highest flood level of the surrounding areas) ꯐꯈꯃꯤ;
  ꯑꯁꯤꯒ꯭ꯈꯊ ꯅꯣꯒꯣꯟ ꯑꯃꯜꯇ ꯇꯥꯍꯦ ꯑꯃꯜꯇꯒꯤꯗꯃꯀ ꯦꯕꯍꯤꯗꯣ, ꯑꯃꯁꯨꯡ ꯁꯣꯒꯇꯣꯈꯊꯕ 2025-ꯗ ꯅꯤꯅꯥꯕ ꯑꯃꯁꯨꯡ ꯍꯐꯍꯗ ꯇ꯭ꯕꯣꯟ ꯑꯁꯤ ꯦꯥꯕꯗꯥꯀꯍꯤꯊ HFL-ꯗꯒꯤ ꯌꯥꯕꯅꯥ ꯅꯩꯍꯤ, ꯒꯥꯍꯦꯗ ꯦꯥꯕꯗꯥꯀꯍꯤꯊ ꯃꯇ꯭ꯕ ꯍꯦꯅꯤ॥ ꯁꯔꯨꯛ 5 ꯑꯃꯁꯨꯡ 7-ꯅꯥ ꯃꯣꯄꯨꯔꯣꯟ ꯑꯁꯤꯅꯥ ꯗꯤꯅꯥꯍꯦ ꯅꯣꯒꯣꯟ ꯑꯃ ꯈꯕꯈꯅꯥ ꯦꯕꯒꯅꯤ ꯄꯥꯔꯊ ꯄꯥꯍ;
- FRL (full reservoir level) ꯑꯃꯁꯨꯡ MDDL (minimum draw-down level) ꯑꯁꯤ ꯍꯐꯍ ꯊꯣꯕꯅꯒꯤ ꯃꯇ꯭ꯕꯗ ꯅꯩꯊ ꯅꯥꯀꯇꯥꯀꯈꯤꯗꯃꯀ ꯑꯃꯁꯨꯡ ꯌꯤꯕꯁꯤꯕꯒꯤ ꯕꯤꯅꯕꯒꯥꯔꯕꯁꯤꯕꯒꯤꯗꯃꯀ ꯁꯤꯅꯤꯦꯅꯩ; ꯅꯥꯀꯇꯥꯀꯈꯤꯗꯃꯀ ꯄꯥꯕꯀꯦꯈꯁꯤꯕꯅꯥ FRL 768.5 m ꯑꯃꯁꯨꯡ 769.63 m, ꯑꯃꯁꯨꯡ MDDL 766.2 m ꯑꯃꯁꯨꯡ 766.01 m ꯒꯤꯕꯤ, ꯑꯃꯁꯨꯡ ꯇꯥꯈꯦꯅꯊꯁꯤꯕ ꯑꯁꯤ ꯃꯕ꯭ ꯑꯥꯍꯊ ꯃꯦꯈꯗ ꯄꯥꯍꯕꯤ; ꯑꯃꯁꯨꯡ
- I&D ꯑꯁꯤ ꯍꯥꯕꯊꯦꯁꯤꯕꯊ꯭ ꯇ꯭ꯕꯤꯜꯃꯣꯦꯜ ꯒ꯭ꯅꯥꯦꯜ ꯑꯃꯗ ꯍꯦꯇꯕꯁꯣꯒꯁꯦ ꯑꯃꯁꯨꯡ ꯗꯥꯍꯒꯕꯁꯦ ꯇꯥꯊꯅꯤ॥

ꯑꯕꯐ ꯑꯁꯤ ꯃꯦꯈ ꯑꯊ꯭ꯒꯤ ꯌꯥꯦꯈꯗꯒꯤ ꯃꯔꯣꯀ ꯁꯣꯕꯅꯥ ꯍꯊ ꯦꯕꯍ॥

ꯌꯣꯀꯁꯤꯦꯅꯥ ꯁꯤꯅꯤꯦꯅꯥ. ꯕꯤꯒꯤꯍꯒꯤ ꯃꯇ꯭ꯕꯗ ꯈ꯭ꯅꯥꯅꯁꯤꯕ ꯑꯃꯁꯨꯡ ꯒꯣꯟꯌ꯭ꯁꯤꯕ ꯄꯥꯕꯊ ꯌꯥꯍ॥ ꯗꯤꯅꯍꯅꯕꯁꯤꯕꯅꯥ ꯃꯍꯥꯔꯒꯤ ꯗꯤꯅꯍꯦꯁꯤꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯔꯅꯥ ꯁꯤꯅꯤꯦꯅꯊ ꯗꯣꯇ ꯌꯣꯀ ꯇꯥꯊꯒꯤ ꯐꯥꯗꯕ ꯅꯥꯕꯤꯊ ꯑꯊ꯭ꯃꯀ ꯅꯥꯒꯅꯤ॥ ꯗ꯭ꯕꯥꯦꯜ ꯑꯁꯤꯗ ꯌ꯭ꯈꯦꯈ ꯑꯥꯍꯕꯒꯥ ꯅꯥꯕꯊ ꯌꯥꯕꯣꯒꯁꯤꯕꯒꯤꯗꯃꯀ Neer-ꯅꯥ ꯐꯥꯗꯕ ꯑꯃꯜꯇ ꯅꯥꯗꯣ॥

ꯦꯥꯕꯗꯥꯈꯒ. Neer-ꯅꯥ India Flood Atlas, ꯃꯥꯗꯣꯟ ꯇꯥꯕꯊ 1% AEP-ꯒꯤ ꯍꯁꯤꯕ ꯍꯌꯥꯕꯒꯤ ꯑꯌꯥꯕꯊꯒꯤ ꯅꯣꯁꯅꯣꯟ ꯃꯣꯒ ꯑꯃꯥ, ꯦꯥꯕꯗꯥꯈꯍ॥ ꯈ꯭ꯅꯥꯂ 6.11.3-ꯅꯥ ꯃꯁꯤꯊ꯭ ꯑꯣꯒꯕ꯭ꯒꯤꯕ ꯑꯥꯐꯥꯕꯤꯇ ꯑꯃꯅꯥ ꯦ꯭ꯅꯥꯕ ꯅꯣꯒꯣꯟꯁꯤꯕꯒꯤꯗꯃꯀ ꯅꯥꯊ ꯌꯥꯊ ꯕꯤꯅꯅꯣꯟ ꯃꯣꯒ ꯑꯃꯒꯤ ꯌ꯭ꯗꯈ ꯑꯃꯥ ꯑꯥꯍꯅꯥ ꯃꯃꯤꯕ ꯅꯥꯍ॥ ꯃꯣꯄꯨꯔꯣꯟ ꯑꯁꯤꯅꯥ Atlas ꯑꯁꯤ ꯃꯐꯥ ꯇꯥꯄꯦꯗꯣ; ꯈ꯭ꯅꯥꯂ 7.3.4-ꯒꯤ ꯃꯍꯥꯗ ꯅꯥꯕꯊ ꯃꯣꯒ ꯑꯃꯜꯇ ꯁꯤꯅꯤꯦꯅꯊ ꯌꯥꯍ॥

ꯌꯦꯈꯁꯤꯕ. ꯌꯦꯈ ꯑꯃꯁꯨꯡ ꯌ꯭ꯃꯐꯥꯈꯒꯁꯤꯕ info@neer.ai-ꯗ ꯐꯊ ꯌꯥꯍ॥

ꯑꯍꯥꯅꯕ ꯈꯥꯍꯩ

ꯃꯅꯤꯄꯨꯔꯒꯤ ꯇꯥꯁꯨꯝꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯣꯛꯄ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛ ꯆꯦꯜ ꯍꯩꯅ, ꯃꯔꯝ ꯑꯍꯨꯝꯒꯤꯗꯃꯛ꯫ ꯏꯝꯐꯥꯜ ꯇꯥꯎꯕꯦꯅꯗ ꯑꯍꯥꯅꯕ ꯑꯗꯨ 28–31 ꯃꯦ 2024-ꯗ ꯁꯨꯔꯨꯕ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯥꯜ (Cyclone Remal)-ꯒꯤ ꯅꯣꯡꯅ ꯇꯨꯔꯦꯂꯒꯤ ꯕꯟꯗ (bund)-ꯁꯤꯡ ꯃꯐꯝ 18-ꯗ ꯀꯥꯏꯈꯤ ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗꯒꯤ ꯏꯝꯐꯥꯂꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯣꯀꯈꯤ, ꯃꯁꯤꯗ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ, ꯑꯃꯁꯨꯡ ꯑꯃꯨꯛ ꯍꯟꯅ 30 ꯃꯦ 2025-ꯗꯒꯤ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯃꯐꯝ ꯃꯄꯥꯟꯗ ꯀꯥꯏꯈꯤ ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ ꯀꯩꯔꯥꯡ (Keirang), ꯈꯥꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯅꯥꯄꯤꯁꯤꯡ ꯁꯦꯟꯇꯔꯦꯜ ꯅꯥꯀꯂꯕ ꯀꯥꯏꯈꯤ, ꯃꯁꯤꯗ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯑꯍꯨꯝꯁꯨꯕꯅ ꯑꯅꯤꯁꯨꯕ ꯑꯗꯨ ꯁꯨꯔꯨꯅꯤ, ꯃꯔꯝꯗꯤ CWC-ꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯁꯨꯡꯅ ꯑꯁꯤꯒꯤ ꯁꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯁꯨꯡꯁꯦ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ IDF ꯃꯔꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯦ, ꯑꯗꯨꯕꯨ ꯖꯨꯂꯥꯏ 2025-ꯗ ꯅꯣꯡꯖꯨꯝ ꯀꯥꯡꯕ ꯑꯍꯨꯝꯁꯨꯕꯗ ꯂꯩꯕ ꯈꯧꯄꯨꯝ (Khoupum)-ꯗ ꯑꯍꯤꯡ ꯑꯃꯈꯪꯗ 225 mm ꯇꯥꯈꯤ, ꯃꯁꯤꯗ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯂꯒꯤ ꯑꯍꯨꯃꯁꯨꯕ ꯑꯗꯨ ꯂꯃꯤꯡ ꯇꯥꯗꯤꯡꯒꯤ ꯁꯨꯔꯨꯈꯤ, ꯃꯔꯝꯗꯤ ꯃꯁꯤꯒꯤ ꯅꯥꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯗ꯭ꯔꯦꯟ (drain)-ꯁꯤꯡꯅ ꯃꯁꯤꯒꯤ ꯁꯤꯁꯦꯟ ꯄꯨꯔꯤ: ꯁꯨꯡꯁꯦꯅ ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯗ NGT-ꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯑꯦꯟꯅꯥꯅꯤꯕ ꯗ꯭ꯔꯦꯟ 72-ꯅ ꯕꯥꯏꯑꯣꯀꯦꯃꯤꯀꯦꯜ ꯑꯣꯛꯁꯤꯖꯦꯟ ꯗꯤꯃꯥꯟꯗ (BOD) 42.45–52.34 mg/L ꯐꯥꯕ ꯅꯁꯤꯡ ꯄꯨꯔꯤ ꯍꯥꯌꯅ ꯍꯥꯅꯈꯤ꯫

1. **ꯃꯁꯤꯒꯤ ꯗ꯭ꯔꯦꯅꯦꯖꯁꯤꯡꯗꯒꯤ ꯌꯦꯡꯕ ꯇꯨꯔꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯛꯊ ꯑꯃꯗ, ꯍꯦꯜ ꯊꯧꯔꯤꯕ ꯄꯨꯟꯁꯤꯡꯒꯤ ꯇꯨꯠꯂꯤꯡꯗ ꯅꯔꯝ ꯊꯧꯔꯤꯕ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯃꯗꯤ꯫** "ꯏꯝꯐꯥꯜ ꯑꯁꯤ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯍꯅꯥ ꯍꯩꯅꯗ ꯆꯦꯠꯄꯒꯤ ꯃꯈꯥꯗ ꯂꯩ ꯑꯃꯁꯨꯡ ꯃꯔꯝ ꯑꯁꯤꯅ ꯃꯤꯌꯥꯝꯅ ꯂꯩꯕ ꯑꯁꯤ ꯃꯇꯝ ꯃꯇꯝꯒꯤ ꯅꯝꯕꯨꯂꯁꯤꯡꯒꯤ ꯖꯥꯟꯊꯥꯡꯊꯥꯡꯅꯕ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯅꯥꯛ ꯑꯅꯤꯃꯛꯇ ꯂꯝꯕꯤꯒꯤ ꯅꯕꯤꯡꯁꯤꯡ ꯂꯩ" (The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river to protect the settlement from seasonal floods), ꯒꯦꯖꯦꯇꯤꯌꯔ ꯅꯝꯕꯨꯂꯒꯤ ꯃꯁꯨꯡꯕꯨ ꯃꯂꯦꯡꯗ ꯄꯥꯎꯗꯥꯗ ꯌꯥꯈꯤ꯫ ꯃꯤꯟꯊꯨꯅ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯍꯅꯥꯔꯦꯁꯨꯡ ꯍꯩꯅꯗ ꯆꯦꯠꯄ, ꯃꯂꯦꯡꯆꯦꯜꯁꯤꯡꯅ WRD-ꯒꯤ ꯃꯁꯤꯡ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ 788.400 m, ꯑꯁꯤ ꯁꯍꯔ ꯑꯃꯨꯛꯀꯤ ꯐꯥꯏꯅ, ꯃꯇꯦꯡ 790 m, ꯑꯃꯨꯛꯀꯤ ꯃꯤꯌꯥꯝ ꯑꯃꯁ ꯅꯥꯡꯒꯤ ꯑꯅꯤꯒꯤ ꯃꯌꯥꯝꯗ ꯐꯩ, ꯃꯦꯌꯥꯔꯦꯡ ꯑꯁꯤꯅ ꯑꯅꯤꯃꯛ ꯍꯦꯟꯅꯕ ꯃꯇꯨꯡ ꯏꯟꯅ꯫ ꯌꯥꯝꯅ ꯑꯁꯤ ꯇꯥꯗꯐꯝ ꯑꯃꯍꯥꯛ ꯐꯕ ꯇꯤꯡꯈꯤꯕꯅꯕ ꯕꯦꯁꯤꯟ ꯑꯃꯁꯤ: ꯅꯝꯕꯨꯜ, ꯅꯝꯕꯨꯜ, ꯅꯔꯤꯜ, ꯀꯥꯡꯕ, ꯇꯧꯕꯜ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥꯗꯀꯤ ꯑꯍꯦꯟꯕ ꯇꯨꯔꯦꯂꯁꯤꯡ ꯅꯥꯡꯌꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯑꯀꯥꯏꯕꯗ ꯐꯕ ꯃꯦꯁꯤꯁꯤꯡꯗ ꯄꯦꯟꯇꯤ, ꯑꯃꯁꯨꯡ ꯅꯇꯅ ꯕꯦꯔꯦꯖ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯒꯤ ꯃꯍꯩꯗ ꯐꯕ ꯏꯕꯒꯤ ꯁꯤꯟ, "ꯁꯨꯒꯅꯨ ꯍꯝꯄ" ("Sugnu hump") ꯑꯃꯁꯨ ꯅꯦꯇꯥꯡꯒꯤ ꯍꯥꯌꯕꯃꯤ ꯌꯥꯝꯅꯥꯡ ꯇꯥꯗꯀꯤꯅ꯫ ꯌꯥꯝꯅꯥꯡꯌ ꯄꯨꯟꯅꯀꯥꯡ ꯇꯨꯔꯦꯂꯁꯤꯡꯅ ꯅꯁꯤꯡ ꯅꯁꯦꯡꯒꯤ ꯃꯌꯥꯝꯗ ꯃꯍꯦꯀ ꯇꯥꯗꯤꯡꯃꯤꯅ ꯀꯨꯃꯦꯀꯁꯤꯡꯒꯤ ꯅꯤꯁꯤꯡ ꯍꯔ ꯄꯨꯔꯤ, ꯑꯃꯨꯛꯀ ꯅꯇꯅꯗ ꯐꯕ ꯇꯥꯡꯐꯝ ꯑꯃꯨꯅ "ꯃꯌꯦꯛ 400 cumecs" (of the order of 400 cumecs) ꯍꯥꯌꯃꯤ ꯄꯨꯔꯤ, ꯑꯃꯁꯨꯡ "ꯕꯦꯔꯦꯖꯒꯤ ꯃꯈꯥꯗ ꯐꯕ ꯇꯨꯔꯦꯜ ꯑꯁꯨꯛ ꯑꯁꯤꯒꯤꯡꯁꯕ ꯄꯦꯡꯕ ꯑꯃꯁꯨ ꯊꯦꯡꯅꯕꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯂꯩꯇꯦ, ꯃꯔꯝ ꯑꯁꯤꯅ ꯅꯁꯤꯡ ꯑꯁꯤ ꯃꯇꯥꯡ ꯇꯥꯡꯕ ꯃꯍꯦꯃꯗ ꯊꯨꯃꯇꯤꯜꯂꯦ" (river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream), MASTEC-ꯅ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ꯫ ꯃꯔꯝ ꯑꯁꯤꯅ ꯌꯥꯝꯅꯥꯡꯌ ꯃꯁꯤꯒꯤ ꯄꯦꯟꯁꯤꯡꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯊꯗꯣꯛꯄ ꯑꯃꯃꯗꯕ ꯗ꯭ꯔꯦꯅꯦꯖꯁꯤꯡꯗꯒꯤ ꯅꯁꯤꯡ ꯅꯁꯦꯡ ꯊꯣꯀꯅ: ꯖꯨꯂꯥꯏ ꯑꯃꯁꯨꯡ ꯑꯒꯁꯠ 1989-ꯗ, 30 ꯖꯨꯂꯥꯏꯗ ꯅꯝꯕꯨꯂꯒꯤ ꯔꯦꯀꯣꯔꯗ ꯑꯇꯤꯌꯥ 158.6 mm-ꯒꯤ ꯃꯇꯨꯡꯗ, ꯇꯨꯔꯦꯂꯁꯤꯡ ꯃꯐꯝ 40-ꯗ ꯀꯥꯏꯈꯤ, ꯑꯃꯁꯨꯡ ꯅꯁꯤꯡ ꯅꯁꯦꯡꯅ ꯈꯨꯟꯗ 361, ꯃꯤꯑꯣꯏ 7 ꯑꯃꯁꯨꯡ ꯂꯩ 97,500 ha ꯁꯤꯈꯤ; ꯑꯒꯁꯠ 2002-ꯗ ꯀꯥꯏꯈꯤ 59 ꯂꯩꯈꯤ; ꯑꯃꯁꯨꯡ 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ ꯂꯤꯂꯥꯡꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯅꯇꯅꯗ ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯜ 783.250 m ꯑꯃꯁꯨꯡ 770.05 m-ꯗ ꯂꯩꯈꯤ, ꯃꯍꯦꯛꯀꯤ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯍꯅꯥꯔꯦꯁꯨꯡ ꯍꯩꯅꯗ ꯆꯦꯠꯄ 782.850 m ꯑꯃꯁꯨꯡ 769.320 m-ꯗꯒꯤ ꯌꯥꯡꯅ, ꯃꯁꯤꯗ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ꯫ ꯃꯦ 2024-ꯒꯤ ꯅꯁꯤꯡ ꯅꯁꯦꯡꯅ ꯁꯥꯔꯀꯄꯁꯤꯡꯒꯤ ꯃꯁꯤꯡ ꯌꯥꯑꯣꯈꯤ, ꯃꯤꯑꯣꯏ 1,88,143 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 24,265 (ꯃꯅꯤꯄꯨꯔꯗ, 30 ꯃꯦ) ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏ 1,26,950, ꯈꯨꯟꯗ 255 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 16,364 (ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯁꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ, 31 ꯃꯦ), ꯃꯁꯤꯗ ꯐꯪꯗꯣꯛꯂꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅ꯫ "ꯇꯨꯔꯦꯂꯒꯤ ꯄꯦꯟꯁꯤꯡ ꯀꯥꯏꯕꯅ ꯅꯦꯕ ꯃꯐꯝꯁꯤꯡꯗ ꯍꯞꯇꯥ ꯀꯌꯥꯒꯤ ꯅꯁꯤꯡ ꯊꯨꯃꯗꯕ ꯑꯣꯏꯍꯜꯂꯤ" (The failure of river dikes causes waterlogging in the low-lying areas for several weeks), AIIB-ꯅ ꯍꯥꯌꯈꯤ, ꯑꯃꯁꯨꯡ ꯅꯝꯕꯨꯂꯁꯤꯡꯒꯤ ꯑꯦꯔꯤꯌꯥ ꯑꯁꯤ "ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯅꯨꯃꯤꯠ ꯀꯌꯥꯒꯤ ꯅꯁꯤꯡ ꯊꯨꯃꯗꯅ ꯂꯩ" (remains waterlogged for many days every year), NDB-ꯒꯤ ꯁꯝꯃꯔꯤꯅ ꯔꯦꯀꯣꯔꯗ ꯇꯧꯔꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ꯫ ꯌꯥꯝꯅꯥꯡꯀꯤ ꯄꯦꯟꯁꯤꯡꯗ ꯐꯕ ꯅꯇꯥꯡ (sluice) ꯅꯤꯡꯊꯧ ꯄꯥꯝꯄꯤꯡ ꯁꯨꯡꯁꯦ ꯑꯃꯁꯨꯡꯒꯤ ꯑꯦꯛꯁꯄꯔꯥꯏꯡ ꯊꯨꯡ, ꯇꯤꯡꯕꯒꯤ ꯂꯦꯡꯅ ꯅꯤꯡꯊꯧ ꯄꯥꯝꯄꯀꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯍꯥꯌꯔꯦ꯫

2. **CWC-ꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨꯡꯅ ꯌꯦꯡꯗꯕ ꯂꯩꯡ ꯇꯨꯕ: ꯌꯥꯝꯅꯥꯡꯌ ꯌꯦꯡꯅ ꯇꯨꯗꯕ, ꯂꯩꯡꯇꯨꯄꯨ ꯇꯨꯡꯕ ꯑꯍꯨꯝꯁꯨꯕꯗ ꯌꯦꯡꯅ ꯇꯨꯕ꯫** ꯁꯨꯡꯁꯦ ꯄꯨꯝꯕ CWC-ꯒꯤ ꯁꯕꯅꯦꯜ 2(c)-ꯗ ꯂꯩ, ꯃꯁꯤꯒꯤꯗꯃꯛ ꯍꯅꯗ ꯅꯁꯨꯡꯃꯦꯁꯦ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨꯡ ꯀꯩꯗꯧꯅꯨ ꯐꯪꯗꯣꯛꯂꯀꯗ, ꯃꯔꯝ ꯑꯁꯤꯅ ꯃꯁꯤꯒꯤ ꯁꯦꯡꯕ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ CWC-ꯒꯤ ꯄꯥꯅꯤꯂ, ꯔꯦꯁꯤꯟ ꯅꯤꯡꯊꯧ ꯁꯤꯡꯇꯦꯡꯕ ꯇꯥꯅꯤꯂ ꯍꯅꯗꯔꯥꯒꯔꯥꯐ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯦ꯫ Imphal (Tulihal)-ꯗ IMD-ꯒꯤ ꯔꯦꯀꯣꯔꯗ ꯑꯁꯤ ꯌꯦꯡꯅꯅ ꯌꯦꯡꯗꯦ: 1953-ꯗꯒꯤ 2012 ꯐꯥꯑꯣꯕꯒꯤ ꯗꯦꯇꯥꯗ, 30 ꯖꯨꯂꯥꯏ 1989-ꯗ ꯄꯨꯡ 24-ꯗ 158.6 mm꯫

MASTEC-ꯅꯥ 1974-ꯗꯒꯤ 2000 ꯐꯥꯎꯕꯒꯤ ꯍꯀꯆꯦꯡꯒꯤ ꯀꯣꯏ ꯅꯨꯃꯤꯠꯀꯤ ꯍꯩꯕꯗꯒꯤ ꯁꯩꯖꯕ ꯅꯣꯡꯃꯩꯖꯤꯡ ꯇꯥꯏ ꯂꯦꯞ ꯐꯥꯑꯣꯕꯥꯗꯨꯅ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯣꯏꯕ ꯃꯃꯤꯡꯗꯥ ꯌꯥꯎꯕ Gumbel ꯐꯤꯚꯃꯅꯥ ꯀꯣꯏ 50-ꯗ ꯅꯣꯡꯃꯩ ꯑꯃꯗ ꯃꯌꯝ 157 mm ꯄꯤꯔꯤ; ꯍꯥꯌꯔꯤꯕ ꯑꯗꯨꯒꯤ IMD-ꯒꯤ ꯅꯣꯡꯃꯩꯖꯤꯡ ꯍꯤꯔꯤꯇ ꯐꯤꯚ ꯌꯥꯕꯗꯤ [TBC]꯫ NIH-DHAARA-ꯒꯤ ꯗꯤꯖꯥꯏꯅꯇꯧꯔꯣ ꯒꯔꯤꯗꯍꯤꯔꯤꯃꯅꯥ ꯍꯀꯐꯥꯝꯗ ꯀꯣꯏ 50-ꯒꯤ ꯅꯣꯡꯃꯩ 231 mm ꯄꯤꯔꯤ, IMD-ꯒꯤ ꯗꯦꯟꯖꯥꯗꯗꯝꯒꯤ ꯃꯌꯝꯗ 1.45 ꯑꯣꯏꯅꯥ, ꯑꯃꯁꯨꯡ ꯕꯗꯤꯌꯥ ꯊꯥꯕꯩ ꯔꯦꯅꯇꯤꯕ ꯅꯥꯎꯁꯨꯛ ꯊꯥꯕꯩ ꯀꯤꯂꯣꯃꯤꯇꯔ ꯅꯦꯅꯗ 306 mm, ꯌꯃꯦꯟꯇꯥꯎꯗ 431 mm ꯑꯃꯁꯨꯡ ꯇꯤꯗꯤꯕꯩꯆꯗ 491 mm ꯄꯤꯔꯤ꯫ IMD-ꯒꯤ ꯅꯥꯎ ꯁꯨꯕꯒꯤ ꯍꯧꯖꯤꯛꯂꯣꯏꯗꯤ ꯃꯗꯒꯂꯣꯏꯗꯒꯤ ꯅꯦꯂꯅꯦꯟ ꯂꯦꯚ (Das et al., 2022)-ꯗ ꯍꯀꯐꯥꯝꯒꯤ ꯄꯦꯅꯦꯟ ꯑꯃꯥ ꯇꯩ, ꯑꯗꯨꯕꯨ ꯃꯂꯣꯏꯅꯥ ꯑꯌꯥꯎꯄꯥ ꯂꯣꯔꯗ ꯃꯔꯣꯒꯤꯗꯃꯌ ꯐꯥꯎꯗꯥꯌꯍꯕ ꯃꯗꯒ ꯑꯃꯥ ꯑꯃꯨꯌ ꯑꯣꯏꯅꯥ ꯄꯤꯔꯤ꯫ ꯃꯇꯤꯄꯨꯗꯒꯤ ꯒꯦꯇ ꯑꯃꯚꯌꯒꯤ ꯄꯨꯟ ꯅꯨꯃꯤꯠꯀꯤ ꯍꯩꯕꯍꯗꯒꯤ ꯁꯔꯨꯕ ꯅꯥꯎ ꯁꯨꯕ ꯐꯥꯎꯍꯤꯗ, ꯑꯃꯁꯨꯡ ꯍꯨꯄꯨꯃꯒꯤ 225 mm ꯑꯂꯣꯏ ꯃꯌꯃ ꯃꯔꯤ ꯅꯍꯤꯕꯒꯦ ꯅꯚꯗꯤꯒ ꯃꯗꯤ ꯒꯦꯇꯂꯣꯏ ꯑꯣꯔꯕ ꯔꯩꯁꯗꯅꯥ ꯇꯥꯍꯤ꯫ ꯌꯃꯄꯥꯎꯗ ꯍꯂꯣꯏ ꯍꯔꯩꯁꯂꯣꯏ ꯑꯂꯣꯏ ꯀꯣꯏꯂꯣꯏꯗ ꯅꯕ ꯅꯥꯎꯅꯥ ꯂꯦꯃꯤ, ꯀꯣꯏꯂꯣꯏ ꯑꯂꯣꯏ ꯃꯂꯣꯏꯒꯤ ꯃꯦꯟꯃꯦꯚ (catchment)-ꯃꯤ 70% ꯑꯍꯥ, MASTEC-ꯅꯥ ꯐꯥꯎꯍꯤꯕ ꯃꯌꯥꯎ ꯍꯦꯟꯖ, ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯈꯨꯅ ꯑꯥꯐ ꯊꯃ ꯑꯂꯣꯏ, ꯄꯩꯁꯗ ꯐꯥꯎꯗꯥꯌꯍꯤꯕ ꯃꯌꯥꯎ ꯍꯦꯟꯖ, ꯃꯥꯄꯥꯎꯄꯤꯗ ꯅꯣꯡꯃꯩ ꯑꯌꯨꯝꯗ 135 mm ꯅꯗꯕꯗꯤ ꯌꯃꯄꯥꯎꯌ ꯍꯂꯣꯏ ꯍꯔꯩꯁ ꯇꯥꯃꯍ꯫

3. **ꯂꯤꯌꯔꯗ ꯑꯍꯗꯕ ꯅꯥꯎꯒꯤ ꯍꯂꯣꯏꯒꯤ ꯄꯥꯎꯕꯦꯂꯣꯏ꯫** ꯈꯨꯦ 2020-ꯗ ꯃꯃꯂꯦ ꯌꯍꯤꯕ ꯍꯀꯐꯥꯝ ꯂꯤꯌꯗꯦꯇ ꯄꯨꯗꯇꯥꯎꯚꯃꯤ ꯑꯂꯩꯕ ꯐꯦꯇ ꯑꯂꯣꯏꯅꯥ IMC-ꯒꯤ ꯔꯤꯗꯗ 27-ꯒꯤ ꯃꯨꯥꯗ 11 ꯔꯩꯁꯍ; ꯍꯌꯚꯅꯥ ꯈꯨꯇꯍ 2025-ꯗ NGT-ꯗ "ꯁꯗꯕꯦ ꯑꯦꯗꯤꯔꯤꯂꯣꯏꯗ ꯂꯤꯌꯦꯇ ꯊꯥꯃꯄ ꯑꯂꯣꯏ 70 MLD ꯑꯃꯁꯨꯡ ꯇꯨꯗꯕ ꯌꯨꯗꯤꯚꯃꯦꯚ ꯐꯦꯂꯣꯏꯇꯤꯌꯂꯣꯏ 44 MLD" (Sewage generation in urban areas is 70 MLD and existing treatment facilities are 44 MLD), ꯄꯦꯗꯃ ꯊꯃꯍꯕ ꯅꯨꯃ 51,754-ꯒꯤ ꯃꯨꯥꯗ 8,600–8,700 ꯃꯦꯇꯥꯚ ꯌꯨꯗꯦ, ꯑꯃꯁꯨꯡ ꯌꯨꯗꯤꯚ ꯌꯗꯕ ꯍꯐꯨꯔꯦꯚꯃꯤ "ꯑꯗꯍꯕ ꯊꯗꯥꯃꯄꯒꯤ ꯃꯑꯥ" (Final mode of disposal) ꯑꯂꯣꯏ "ꯇꯃꯤ ꯊꯕꯥꯃꯤ ꯍꯥꯎꯇꯁꯂꯣꯏ" (Agriculture canals) ꯑꯣꯔꯅꯥ ꯑꯣꯍꯤ꯫ ꯒꯨꯗꯌꯗ ꯍꯀꯐꯥꯝꯒꯤ ꯑꯌꯥꯎꯄꯥ ꯂꯈꯨꯥ, ꯑꯃꯁꯨꯡ ꯑꯌꯥꯎꯄꯥ ꯌꯥꯗꯦ ꯅꯗꯤꯃꯥꯅꯥ ꯂꯦꯄꯌꯥ ꯌꯨꯃꯥ ꯑꯃꯁꯨꯡ ꯂꯥ ꯄꯤꯚꯂꯣꯏ ꯂꯤꯇꯤꯦꯇ, ꯃꯍꯔꯒꯤ ꯔꯦꯊꯥꯄ ꯍꯂꯣꯏ, ꯅꯨꯃꯒꯤ ꯃꯚꯄ ꯍꯂꯣꯏ (sullage) ꯄꯨꯃꯆꯃꯥꯃ ꯇꯥꯔꯅꯥ, ꯑꯥꯎꯗꯥꯇꯤꯕ ꯍꯥꯎꯕꯦꯂꯣꯏꯗ ꯁꯚꯇꯤ, ꯃꯨꯂꯔꯦꯅ ꯑꯂꯣꯏꯅꯥ ꯍꯌꯚꯃꯤ ꯗꯤꯄꯗꯚꯂꯣꯏ ꯍꯦꯅꯕ ꯃꯌꯥꯎ ꯍꯦꯟꯖ꯫ ꯍꯌꯚꯃꯤ ꯄꯩꯁꯨ ꯑꯂꯣꯏ "ꯆꯃꯕꯨ ꯌꯨꯗꯅꯗ ꯁꯦꯇꯥꯇꯤꯕ ꯍꯥꯎꯕꯦ ꯄꯨꯃꯆꯃꯥ (72)-ꯒꯤ ꯍꯦꯌꯗꯦꯄꯦ ꯑꯃꯁꯨꯡ ꯗꯍꯗꯦ (I & D)" (Interception & Diversion [I & D] of all drains [72 Nos.] falling into the Nambul River)-ꯇꯤ, ꯃꯂꯣꯏ ꯗꯂꯦꯃꯕꯗ 2025-ꯗ ꯇꯍꯗꯦ ꯑꯣꯔꯅꯥ ꯗꯤꯄꯗꯚ ꯌꯍꯤ, ꯍꯥꯎꯕꯦꯒꯤ BOD 42.45–52.34 mg/L ꯑꯃꯁꯨꯡ ꯃꯦꯃꯤꯃꯦ ꯑꯥꯎꯂꯤꯇꯦ ꯗꯃꯦꯗ (COD) 78.56–97.23 mg/L ꯇꯩꯅꯥ, ꯌꯨꯗꯦꯒꯤ ꯍꯌꯗꯦꯁ BOD 3–6 mg/L-ꯒꯤ ꯔꯥꯗꯃꯆꯦꯕꯗ: CPCB-ꯅꯥ ꯃꯇꯤꯄꯨꯗꯗ ꯄꯦꯈꯨꯦ ꯑꯍꯗꯕ ꯌꯨꯗꯒꯤ ꯍꯌꯗꯦꯁ 18 ꯇꯤꯂꯚ ꯌꯗꯤ, ꯄꯨꯃꯆꯃꯥ ꯄꯨꯗꯍꯥꯗꯤꯌ V-ꯗ, ꯃꯍꯔꯒꯤ ꯃꯨꯥꯗ ꯂꯤꯥꯗ ꯗꯃꯤꯒꯤ ꯕꯤꯂꯨꯄꯨꯗ ꯐꯥꯎꯕ ꯆꯃꯕꯨꯅ ꯌꯨꯗꯅ ꯔꯩꯁꯍ꯫ ꯃꯨꯥꯍꯕ ꯃꯊꯦꯒꯤ ꯃꯌꯥꯗ ꯇꯩꯕ ꯅꯥꯒꯥ ꯅꯨꯂꯥ (Naga Nullah)-ꯅꯥ ꯃꯊꯦꯅ ꯑꯗꯨꯒꯤ ꯂꯥꯇꯤꯗ ꯁꯦꯂꯚ ꯇꯍ, ꯃꯂꯣꯏꯅꯥ "ꯀꯣꯏ ꯄꯨꯃꯕ ꯇꯦꯄꯇꯤꯕ ꯍꯂꯣꯏꯒꯤ ꯄꯨꯅ ꯑꯃꯥ ꯂꯦꯃꯤ" (creates a stagnant pool all along the year), ꯃꯍꯌꯗ ꯄꯨꯇꯦꯐꯅꯥ ꯗꯦꯃꯥꯗꯗ ꯌꯗꯕ ꯃꯌꯥꯎ ꯍꯦꯟꯖ꯫ ꯀꯣꯏꯒꯤ ꯆꯃꯂꯣꯏꯗ "ꯂꯦꯄꯌꯥ ꯌꯨꯃꯥ ꯑꯃꯁꯨꯡ ꯌꯨꯔꯤꯦ ꯂꯥ ꯄꯤꯚꯂꯣꯏꯗ ꯑꯇꯤꯥ ꯊꯇꯕ ꯊꯃꯇꯤꯕ ꯑꯂꯣꯏ … ꯃꯦꯟ" (The existing reliance on septic tanks and twin soak pits … is appropriate), ꯍꯌꯚꯅꯥ ꯗꯤꯄꯗꯚ ꯌꯍꯤ, ꯑꯃꯁꯨꯡ "ꯇꯩꯃꯍꯒꯤ ꯃꯍꯒꯤ ꯍꯗꯃꯒꯤ ꯍꯦꯐꯗꯍꯌꯗꯥꯁꯗ ꯔꯩꯃꯅꯥ ꯔꯩꯃꯗꯅꯥ ꯇꯩ" (minimal presence of underground drainage infrastructure) ꯇꯩ꯫

ꯃꯂꯣꯏ ꯑꯌꯨꯝ ꯄꯨꯃꯆꯃꯥꯃꯤ ꯃꯊꯥꯌ ꯑꯌꯥꯎꯄꯥ ꯃꯗꯤ ꯇꯩ꯫ **ꯂꯕꯒꯤꯗꯃꯥ ꯃꯥꯍꯤꯕ ꯄꯦꯚ ꯑꯃꯁꯨꯡ ꯇꯂꯣꯏ**: "ꯃꯇꯤꯄꯨꯗ ꯌꯃꯄꯥꯎꯌ ꯇꯥ ꯃꯌꯝ 500 ꯇꯩꯗꯃꯃꯤ" (there were nearly 500 lakes in Manipur Valley), MASTEC-ꯅꯥ ꯗꯦꯃꯥꯗ ꯌꯍ, ꯑꯃꯁꯨꯡ ꯃꯂꯣꯏꯅꯥ ꯐꯚꯌꯕ ꯑꯍꯗꯥꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯥꯇꯥꯇꯤꯕ ꯑꯣꯔꯅꯥ ꯃꯃꯤꯥ ꯇꯩꯕ ꯄꯦꯚꯂꯣꯏꯒꯤ ꯃꯨꯥꯗ ꯆꯃꯐꯅꯄꯦꯚ, ꯄꯦꯗꯃꯄꯦꯚ, ꯌꯥꯔꯦꯅꯄꯦꯚ, ꯂꯥꯍꯄꯦꯚ, ꯍꯨꯥꯄꯦꯚ ꯑꯃꯁꯨꯡ ꯍꯃꯥꯄ ꯄꯦꯚ ꯔꯩꯁꯍ; "ꯌꯃꯄꯥꯎ ꯑꯂꯣꯏ ꯃꯃꯥꯗ ꯇꯥ ꯑꯣꯔꯕ ꯑꯗꯊ ꯇꯩꯕ PAT ꯔꯩꯌ ꯇꯩꯕ ꯃꯐꯃꯂꯣꯏꯅꯥ ꯌꯃꯄ ꯂꯔꯦꯃꯄ ꯑꯃꯁꯨꯡ ꯍꯂꯣꯏ ꯔꯩꯃꯕ ꯆꯃꯅꯥ ꯊꯅꯆꯃꯤ" (This valley was once full of swamps and marshy land represented by the places having the word PAT meaning lake), CGWB-ꯅꯥ ꯇꯚ ꯌꯍ; ꯑꯃꯁꯨꯡ ꯒꯨꯗꯌꯗ ꯍꯀꯐꯥꯝꯒꯤ ꯃꯍꯌꯗ ꯄꯨꯇꯦꯐꯅꯥ 2043 ꯐꯥꯎꯕꯗ ꯃꯂꯣꯏꯒꯤ ꯔꯦꯚꯇꯦꯐꯗꯂꯣꯏ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯐꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯇꯃꯤ ꯊꯕꯥꯃꯤ ꯆꯃ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯐꯥꯎꯕ ꯑꯣꯊꯑꯣꯇꯤ, ꯃꯂꯣꯏꯒꯤ ꯍꯂꯣꯏ ꯇꯩꯐꯃꯂꯣꯏꯗꯤ 563.54 ha-ꯗꯒꯤ 643.42 ha ꯐꯥꯎꯕ ꯑꯣꯇꯒꯚꯇꯤ, ꯑꯃꯁꯨꯡ ꯄꯦꯗꯤ-ꯇꯦꯗ ꯑꯦꯥꯚꯃꯤ ꯃꯍꯗ "ꯇꯂꯣꯏ ꯂꯕꯒꯤꯗꯃꯥ ꯂꯤꯇꯤꯦꯕ ꯔꯩꯗꯕꯅꯥ ꯑꯦꯗꯕ ꯑꯦꯗꯤꯔꯤꯂꯣꯏ ꯑꯣꯗꯥꯃꯃꯗꯕꯇꯤ" (new areas need to be unlocked as the paddy fields cannot be used for construction) ꯑꯣꯔꯅꯥ ꯑꯣꯍ꯫ **ꯃꯥꯇꯕꯗꯤ ꯇꯦꯊꯗꯥꯄ ꯂꯦꯅ (shale)-ꯒꯤ ꯀꯣꯏꯒꯤ ꯅꯥꯄꯃꯂꯣꯏ**: ꯗꯤꯁꯥꯡ ꯂꯦꯅ (Disang shale)-ꯅꯥ "ꯀꯣꯏꯒꯤ ꯆꯃꯒꯤ ꯃꯌꯝ 85 p.c. ꯔꯩꯁꯍ, ꯍꯦꯐꯤꯅꯌꯨꯗꯦꯂꯦ ꯑꯣꯗꯊ ꯑꯃꯁꯨꯡ ꯗꯦꯑꯐ ꯑꯣꯏꯅꯥ ꯇꯩ" (occupies almost 85 p.c. of the hilly region, have less infiltration and more run off), MASTEC-ꯅꯥ ꯐꯥꯎꯍꯤꯕ ꯃꯌꯥꯎ ꯍꯦꯟꯖ; ꯅꯥꯎ ꯄꯩꯗ ꯇꯩꯕ ꯇꯨꯄꯨꯜ (Tupul)-ꯗ, 29 ꯆꯚꯗꯒꯤ 30 ꯈꯨꯦ 2022-ꯗ, ꯇꯤꯗꯤꯕꯩ–ꯍꯀꯐꯥꯝ ꯗꯦꯔꯦꯒꯤ ꯃꯦꯍꯌꯗꯥꯂꯦ ꯂꯍꯚ ꯑꯃꯗ ꯇꯥꯍꯤꯕ ꯇꯦꯗꯗꯂꯇꯍꯗ (landslide)-ꯅꯥ ꯃꯤꯑꯍ 56, 58 ꯆꯚꯗꯒꯤ 61 ꯂꯤꯑꯣꯦꯍꯤ, ꯄꯩꯁꯗ ꯌꯥꯎꯕꯅꯥ ꯐꯥꯎꯗꯥꯌꯍꯤꯕ, ꯑꯃꯁꯨꯡ ꯐꯥꯎꯗꯥꯌꯍꯤꯕ ꯍꯌꯗꯤ ꯑꯃꯅꯥ ꯃꯂꯣꯏ "ꯐꯚꯅꯥ ꯗꯤꯇꯍꯦ ꯌꯗꯕ ꯆꯚꯗꯒꯤ ꯌꯗꯕ ꯅꯥꯄꯃ ꯌꯨꯍꯕ ꯑꯃꯁꯨꯡ ꯃꯂꯣꯏꯒꯤ ꯇꯥꯔꯅꯥ ꯃꯦꯅꯥ ꯅꯕ ꯅꯥꯎ" (poorly designed or implemented slope excavation coupled with heavy rainfall)-ꯒꯤ ꯃꯗꯒꯆꯤ ꯑꯣꯔꯅꯥ ꯑꯣꯍ, ꯍꯌꯗꯤ ꯑꯗꯨꯒꯤ ꯂꯆꯃꯗꯤ ꯑꯃꯗ ꯃꯚꯍꯤꯕ ꯃꯌꯥꯎ ꯍꯦꯟꯖ (Baruah et al., 2023); ꯑꯃꯁꯨꯡ ꯔꯦꯗꯅ ꯄꯩꯗ ꯇꯩꯕ ꯇꯃꯅ (Joumol)-ꯗ 1 ꯑꯒꯚꯚ 2015-ꯗ ꯇꯥꯍꯤꯕ

ꯇꯪꯋꯗꯂꯇꯨꯅꯗꯗꯤ ꯃꯤꯑꯣꯏ 20 ꯗꯒꯤ 21, ꯗꯒꯤ ActionAid-ꯅꯥ ꯄꯥꯎꯈꯨꯝ ꯃꯁꯤꯡ ꯅꯩꯅ 24 ꯂꯤꯄꯦꯟꯗꯥ, ꯁꯦꯟꯗꯥ ꯈꯣꯡꯗꯥꯏꯅꯥꯕ ꯃꯁꯤꯡ ꯅꯩꯅ॥
ꯅꯂꯤꯡ ꯇꯥꯛꯄ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯦꯚꯤꯗꯦꯟꯁꯁꯤꯡ ꯆꯠ: CGWB-ꯅꯥ ꯅꯠꯇꯦꯅ ꯔꯤꯄꯣꯔꯠ "ꯃꯑꯣꯡ 30-ꯗꯒꯤ 50 m ꯐꯥꯎꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯈꯨꯗꯝꯂꯦ" (approximately 30 to 50 m of clayey formation) ꯈꯨꯗꯝ, ꯅꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ 2–5 m ꯃꯍꯩ ꯇꯦꯅꯥ, ꯑꯃꯁꯨꯡ ꯄꯤꯔꯨꯡꯒꯤ ꯇꯣꯠꯂꯤꯕꯒꯤ ꯑꯃꯥꯏꯕꯅ ꯁꯤꯡ (peat) ꯑꯅꯕ ꯑꯗꯒꯤꯇꯤꯗ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯈꯨꯗꯝ॥ ꯑꯃꯁꯨꯡ **ꯌꯨꯗꯥꯡꯒꯤ ꯄꯈꯗ ꯌꯥꯄꯅ ꯑꯃꯁꯨꯡ ꯁꯨꯇꯤꯂꯆꯤꯡ ꯃꯨꯅ ꯇꯥꯄ ꯑꯃꯁꯨꯡꯗꯤ ꯅꯤꯇꯅꯂ ꯂꯨꯌꯥꯝ ꯇꯥꯌꯄ ꯄꯅ-ꯇꯥꯇꯂꯤꯕ**: ꯌꯨꯂꯤꯈꯅꯕ ꯄꯅ-ꯇꯥꯇ 2024-ꯒꯤ ꯄꯅ-ꯇꯥ 93-ꯅꯥ ꯃꯃꯤꯕ ꯇꯥꯗꯄ ꯌꯥꯝꯁꯨꯗꯝꯒꯤ ꯌꯨꯗꯥꯡ ꯌꯨꯂꯤꯕꯃꯗꯝꯒꯤ ꯄꯈꯗ ꯑꯃꯒꯤ ꯃꯂꯨꯕꯅ ꯑꯂꯇꯄ ꯂꯦꯄ ꯆꯤꯕꯅ, ꯌꯨꯗꯥꯡꯒꯤ ꯃꯔꯦꯅꯅꯒꯤ ꯆꯤꯂꯄ 22.5 m-ꯗꯒꯤ 62 m ꯐꯥꯎꯕ, ꯑꯃꯁꯨꯡ ꯄꯅ-ꯇꯥ 94-ꯅꯥ ꯃꯨꯌꯥꯝ ꯁꯨꯇꯦꯂꯂꯤꯕꯒꯤ ꯅꯂꯤꯡ ꯅꯍꯩꯁꯒꯤ ꯌꯨꯅꯕꯆꯤꯄ ꯍꯕꯄ ꯑꯗꯤꯔꯦꯂꯤꯕꯅ ꯁꯨꯇꯤꯂꯆ ꯑꯂꯤ "ꯑꯃꯥꯏꯔꯄꯒꯤ ꯑꯗꯤꯔꯦꯂꯤꯕꯒꯤ ꯅꯨꯄꯅꯅꯒꯤ ꯍꯕꯄ ꯅꯂꯤꯡ ꯅꯍꯩꯁꯒꯤ ꯇꯪꯒꯅ" (the highest flood level of the surrounding areas)-ꯗꯒꯤ 1 m ꯃꯆꯗꯌ ꯆꯃꯃꯤ; ꯄꯅ-ꯇꯥ 66-ꯅꯥ 100 m² ꯑꯃꯁꯨꯡ ꯃꯂꯨꯗꯒꯤ ꯄꯂꯄ ꯁꯨꯇꯥꯂꯤꯕꯅ ꯅꯥꯕꯒꯤ ꯅꯂꯤꯡ ꯅꯃꯇꯤꯂꯄ (rainwater harvesting) ꯌꯥꯒꯗꯄꯇꯤ ꯄꯍꯅ ꯂꯃꯃꯤ; ꯑꯃꯨꯗꯨ ꯅꯥꯕꯄꯂ ꯗꯒꯤ ꯂꯨꯌꯥꯝ ꯑꯃ ꯃꯗꯤ ꯅꯥꯕ ꯌꯨꯗꯒꯤ ꯆꯗꯥꯗꯃꯤꯗꯃꯗ ꯗꯤꯇꯅꯂ ꯌꯥꯒꯗꯒ, ꯁꯨꯇꯤꯂꯆ ꯑꯃ ꯃꯗꯤ ꯅꯂꯤꯡ ꯅꯍꯩꯁꯒꯤ ꯇꯪꯒꯅꯒꯤ ꯃꯆꯗꯌ ꯆꯃꯒꯗꯒ, ꯗꯒꯤ ꯂꯅꯌ ꯑꯃꯅꯥ ꯃꯂꯤꯒꯤ ꯗꯂꯑꯈ ꯃꯔ ꯌꯨꯅꯥ ꯆꯗꯥꯗꯃꯗꯒ ꯄꯍꯕ ꯃꯨꯅ ꯑꯃꯌꯥ ꯇꯌ॥

ꯃꯂꯤ ꯁꯨꯃꯗꯃꯗꯃꯤ ꯃꯌꯨꯗꯅ ꯇꯗꯌꯗ, ꯁꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯨꯅꯗꯤꯂꯤꯕ ꯇꯤ, ꯃꯅꯔꯅꯥ ꯑꯦꯁꯌꯈꯅꯅ ꯇꯪꯒꯅ ꯂꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯒꯌꯂꯤꯕ ꯆꯤꯕꯇꯤꯌꯅ ꯅꯂꯤꯡ ꯆꯃꯃꯤ॥ ꯇꯗꯌꯗꯃꯤ ꯑꯅꯂꯒꯤ ꯃꯑꯕꯅ ꯇꯄ ꯑꯗꯤꯔ 236.21 km²-ꯇꯤ, ꯃꯗꯨꯒꯤ ꯃꯂꯨꯕꯅ 70.30 km² ꯇꯄ ꯃꯗ ꯇꯂ ꯑꯂꯤ ꯗꯒꯇꯁꯃꯂꯌꯃꯗꯃꯗ ꯆꯤꯕꯇꯤ; ꯃꯂꯤꯒꯤ ꯇꯪꯒꯅ ꯑꯂꯤ ꯅꯆꯅ ꯄꯗꯇꯅꯥ ꯆꯃꯃꯤ, ꯃꯂꯤ ꯄꯂꯄ ꯄꯗꯗꯈꯃꯂꯤꯕꯅꯥ 1983-ꯗ ꯃꯃꯤꯂꯦ ꯌꯅꯤ ꯄꯍꯅ ꯑꯃꯁꯨꯡ ꯑꯌꯁꯁꯂꯤꯕꯅꯥ 1979 ꯗꯒꯤ 1986-ꯗ ꯄꯍꯅ ꯄꯅ, ꯁꯦꯟꯗꯥ ꯈꯣꯡꯗꯥꯏꯅꯥꯕ ꯃꯁꯤꯡ ꯅꯩꯅ, ꯑꯃꯁꯨꯡ ꯄꯗꯗꯈꯃꯂꯤꯕꯅꯥ ꯃꯂꯤꯒꯤ ꯈꯨꯅ ꯇꯪꯒꯅ 768.5 m (NHPC, ꯃꯌꯅꯤꯄ ꯃꯁꯤꯡ ꯅꯩꯅ) ꯑꯃꯁꯨꯡ 769.63 m (ꯁꯦꯟꯗꯥ ꯈꯣꯡꯗꯥꯏꯅꯥꯕ ꯃꯁꯤꯡ ꯅꯩꯅ) ꯄꯍꯅ ꯁꯤꯗꯤ॥ ꯁꯌ ꯑꯃꯨꯒꯤ ꯌꯦꯗꯤꯄ ꯃꯌꯂꯤꯕ, ꯈꯨꯃꯗꯤ (phumdi)-ꯂꯤꯕ, ꯑꯂꯤ ꯂꯃꯗꯤꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯌꯇꯌꯂꯤꯕꯅ ꯌꯦꯆꯗꯗꯁ ꯔꯅ॥ ꯂꯁꯂ ꯑꯁꯇꯤꯃꯂꯂ ꯂꯂꯌꯗ (Space Applications Centre)-ꯒꯤ ꯅꯌꯇꯂꯅ ꯑꯌꯇꯂ (2021)-ꯅꯥ ꯂꯌꯌ ꯑꯂꯤꯅ 2.25 ha-ꯗꯒꯤ ꯅꯦꯗꯄ ꯅꯌꯇꯂꯅ 132 ꯆꯤꯗꯤ, ꯑꯃꯁꯨꯡ NGT-ꯒꯤ ꯑꯗꯗꯗ ꯑꯃꯒꯤ ꯃꯌꯨꯕꯅ ꯅꯂꯤꯡ ꯇꯈꯃ ꯃꯌꯂ 4,000 ꯇꯤꯂꯌ ꯌꯅꯤ, ꯑꯃꯨꯗꯨ ꯃꯅꯔꯒꯤ "ꯃꯈꯃꯅ ꯅꯗ ꯌꯄ, ꯅꯂꯇꯤꯇꯤꯔꯗꯤ ꯂꯗꯒꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯦꯇꯤꯌꯗꯤ ꯃꯇꯤꯌꯗꯤ … ꯇꯃꯄꯗꯤ" (Ground truthing, engineering surveys, and quality monitoring … are pending), DoECC-ꯅꯥ ꯗꯤꯁꯗꯌ ꯌꯅꯤꯄ ꯃꯁꯤꯡ ꯅꯩꯅ॥ ꯆꯃꯈꯅꯁꯌ ꯑꯂꯤ ꯅꯂꯤꯡ ꯅꯍꯩꯁꯒꯤ ꯂꯌꯗꯇ ꯑꯅꯅꯥ ꯑꯃꯗ ꯃꯌꯂ 300-ꯗ ꯗꯗꯇ ꯌꯗꯤ, "ꯅꯂꯤꯡ ꯅꯍꯩꯁ ꯍꯕꯄ ꯃꯌꯃꯅ ꯆꯃꯈꯅ ꯁꯌꯃꯤ ꯅꯂꯤꯡ ꯇꯈꯃꯗꯒꯤ ꯂꯃꯂꯤꯕ ꯅꯥꯅꯥ (Shamushang Nalla)-ꯒꯤ ꯌꯨꯌꯆꯤꯕꯅ ꯆꯃꯗꯨꯅ ꯌꯨꯗꯥꯡꯅ ꯅꯂꯤꯡ ꯅꯍꯩꯁꯒꯤ ꯅꯂꯤꯡ ꯁꯃꯁ ꯌꯄꯒꯤ ꯆꯗꯤꯕ" (provision for pumping of flood water from the Lamphel pat water body to the Nambul River through Shamushang Nalla during high flood season)-ꯒꯤ ꯇꯔꯇꯅꯥ, WRD-ꯅꯥ ꯄꯅ ꯃꯗꯌꯌ ꯗꯤꯁꯗꯌ ꯌꯅꯤꯄ ꯃꯁꯤꯡ ꯅꯩꯅ; ꯃꯂꯤ ꯆꯗꯇꯄ ꯅꯂꯤꯕꯒꯤ ꯄꯗꯗꯈꯃ ꯑꯃ ꯑꯅꯇꯂ ꯁꯗꯁꯇ ꯌꯗꯤ॥ ꯅꯃꯈꯅꯒꯤ ꯆꯗꯇꯄ ꯅꯂꯤꯕꯒꯤ ꯃꯌꯂ 90% ꯑꯂꯤ ꯅꯃꯈꯅ, ꯆꯃꯗꯨꯅ ꯑꯃꯁꯨꯡ ꯅꯗꯤꯅ ꯌꯨꯗꯥꯡꯅꯗꯒꯤ ꯇꯃꯅ, ꯃꯂꯌꯗ ꯁꯨꯇꯦꯂꯅꯥ ꯗꯃꯗꯗꯅ ꯌꯗꯤꯄ ꯃꯁꯤꯡ ꯅꯩꯅ, ꯃꯂꯤꯒꯤ ꯅꯕꯄꯂꯂꯤꯕ ꯇꯗꯤꯄ ꯌꯨꯗꯥꯡ ꯑꯃꯨꯃꯗꯌꯒꯤꯇꯤ॥

ꯃꯗꯃ ꯑꯂꯤꯅꯥ ꯃꯇꯤꯁꯨꯗꯒꯤ ꯗꯤꯇꯅꯂꯅꯥ ꯑꯁꯗꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯒꯤ ꯇꯕ ꯌꯨꯄꯒꯤ ꯆꯗꯗꯃꯂꯤꯕꯅꯥ ꯄꯄ, ꯅ-ꯇꯕꯌꯨꯁ ꯃꯂꯂꯂ ꯅꯃꯈꯅꯅ ꯇꯨꯂꯒꯤ ꯑꯄꯇꯄ ꯄꯁꯌ ꯃꯌꯂꯅ ꯅꯗꯗꯤꯃꯤꯅ, ꯑꯃꯁꯨꯡ ꯑꯗꯌꯄꯗꯒꯤ ꯃꯔꯅꯅ ꯃꯂꯤ ꯇꯅꯗꯄꯒꯤ ꯃꯌꯨꯕꯅꯨ 5 ꯑꯗꯌꯄꯗ 1980-ꯗ ꯅꯃꯈꯅꯅ (119.4 mm) ꯇꯗꯅꯤꯄꯨꯃꯄ ꯇꯕ ꯌꯨꯄꯒꯤ ꯆꯗꯗꯃꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯗꯌꯄꯗ 1992-ꯒꯤ ꯅꯂꯤꯡ ꯅꯍꯩꯁ ꯐꯦꯗꯄ ꯅꯌꯇꯤꯄ ꯇꯕ ꯌꯨꯄꯒꯤ ꯃꯌꯃ ꯑꯃ ꯅꯦꯗꯒꯗꯄꯇꯤ; ꯃꯂꯤ ꯃꯂꯨꯔꯅ ꯑꯂꯤꯒꯤ ꯃꯂꯂꯂꯒꯤ ꯃꯌꯃ, 1 ꯑꯁꯗꯤꯅꯗꯒꯤ 31 ꯑꯗꯌꯄꯗ ꯐꯦꯗꯄꯇꯤ॥ ꯅꯃꯈꯅꯒꯤ ꯑꯁꯗꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯒꯤ ꯗꯃꯗꯗꯂꯤꯕ ꯂꯨꯃꯤꯌ ꯑꯃꯅ 100 mm-ꯗꯒꯤ ꯄꯂꯅ, 105.9 mm (16 ꯑꯁꯗꯤꯅ 2004) ꯑꯃꯁꯨꯡ 122.4 mm (27 ꯃ 1956) ꯑꯅꯅꯥ, ꯑꯃꯁꯨꯡ 28–31 ꯃ 2024-ꯒꯤ ꯑꯃꯁꯨꯡ 30 ꯃ 2025-ꯗꯒꯤ ꯄꯗꯃꯁ ꯅꯂꯤꯡ ꯅꯍꯩꯁꯂꯤꯕ ꯃꯂꯂꯂ ꯄꯗꯗꯤꯃꯤꯅ ꯇꯗꯅꯤ॥ ꯑꯅꯇꯄ ꯇꯕ ꯌꯨꯄꯂꯤꯕ ꯃꯌꯃ ꯑꯂꯤꯒꯤ ꯃꯁꯂꯅꯨ ꯇꯃꯅ, ꯅꯃꯈꯅꯅ 1 ꯇꯒꯃꯄꯗ 1991 (80.3 mm), 13 ꯗꯤꯂꯃꯄꯗ 1966 (89.6 mm), 18 ꯈꯄꯗꯨꯔꯗꯤ 1993 (79.8 mm) ꯑꯃꯁꯨꯡ 24 ꯃꯗꯅ 1998 (72.9 mm)-ꯗ ꯇꯗꯅꯤꯄꯨꯃꯅꯥ, ꯃꯗꯃ ꯑꯂꯤꯅꯥ ꯗꯤꯇꯅꯂꯒꯤ ꯂꯌꯌꯤꯂꯌꯤꯗꯂꯤꯕꯅꯥ ꯆ ꯌꯨꯗꯤꯕꯃꯗꯃꯤ ꯑꯂꯨꯔꯅ ꯃꯗꯂꯤꯃ ꯂꯤꯇꯤꯂꯇ॥ MASTEC-ꯅꯥ ꯅꯃꯈꯅꯅ ꯅꯄꯤ ꯌꯨꯗꯤꯕꯒꯤ ꯑꯒꯗꯇ ꯇꯕ ꯌꯨꯄ 1,416.9 mm (1975–2000) ꯁꯤꯗꯤ, ꯑꯃꯁꯨꯡ CGWB-ꯅꯥ ꯅꯃꯈꯅ ꯅꯂꯌꯌ 1,632.40 mm ꯁꯤꯗꯤ॥ ꯂꯇ ꯇꯌ॥ ꯇꯦꯛꯅꯤꯒꯤ ꯃꯅꯥ, ꯂꯌꯌꯃꯤ ꯑꯂꯂ ꯌꯗꯄ ꯌꯨꯇꯤꯌ ꯌꯨꯗꯤꯕꯃ ꯂꯈ ꯑꯅ, ꯑꯃꯁꯨꯡ ꯂꯌꯌꯅꯥ ꯃꯂꯤꯒꯤ ꯇꯆꯃꯁ ꯅꯦꯄ ꯇꯦꯛꯅꯒꯤ ꯃꯅꯒꯤ ꯅꯂꯤꯕꯒꯤ 8.00% (2024) ꯇꯆꯃꯅ, ꯃꯌꯅꯤꯄ ꯃꯁꯤꯡ ꯅꯩꯅ; ꯇꯕꯒꯤ ꯅꯂꯤꯡ ꯂꯤꯇꯤꯂꯂꯂꯄ ꯆꯃꯇꯤꯂꯄꯒꯤ ꯃꯂꯂꯄ ꯇꯤ, ꯑꯃꯨꯗꯨ ꯌꯃꯁꯗꯃꯤ ꯆꯃꯒꯤ ꯇꯦꯛꯅ ꯃꯂꯤ ꯇꯦꯛꯅꯒꯤ ꯃꯌꯨꯕꯅ ꯆꯗꯗꯁ ꯅꯦꯅ॥

ꯇꯂꯇꯅ ꯒꯅꯗꯂꯂꯅꯥ ꯁꯄꯇꯤꯗ ꯅꯕꯄꯂꯂꯤꯕꯒꯤ ꯂꯅꯇ ꯂꯃꯃꯤ ꯑꯃꯨꯗꯨ ꯑꯇꯄ ꯂꯄꯅꯥ ꯄꯁꯅꯤꯂꯄ ꯗꯂꯑꯈ ꯃꯂꯌꯗꯅ ꯌꯗ॥ ꯃꯂꯨꯔꯅ ꯑꯂꯤꯅꯥ ꯇꯕꯒꯤ ꯅꯂꯤꯕꯨ **ꯗꯒꯇꯁꯃꯂꯌ ꯑꯁꯃꯨꯒꯅꯒꯤ ꯃꯂꯗꯤꯂꯂ** ꯑꯃ ꯑꯅꯄꯅꯇꯤ॥ ꯅꯃꯅꯥ ꯅꯦꯗꯅꯄ ꯂꯅꯇꯗꯒꯤ ꯄꯂꯄ ꯗꯒꯇꯁꯃꯂꯌ ꯌꯨꯗꯤꯕꯃꯗꯅꯥ:

- ꯃꯌꯃ ꯃꯌꯃꯅ ꯌꯨꯄ ꯇꯕ ꯂꯅꯌꯌ ꯆꯃꯒꯗꯄꯇꯤ, ꯇꯕ ꯌꯨꯅꯄ ꯃꯌꯃꯅ ꯂꯤꯇꯤꯂꯂꯂꯄ ꯌꯗꯂꯤꯕꯅ, ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯅꯥ ꯑꯂꯅꯄ ꯅꯦꯗꯅꯥ ꯇꯄ ꯗꯃꯄ ꯃꯈꯃꯅ ꯅꯗꯌꯃꯗ ꯇꯦꯛꯅꯒꯤ ꯃꯂꯨꯕꯅ;

- ꯑꯍꯣꯕ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯄꯗ ꯃꯍꯩꯅꯥꯒꯤ ꯌꯥꯑꯣ꯭ꯕꯤꯕ ꯅꯩꯅꯦ ꯊꯥꯗꯣꯛꯍꯤꯕꯗꯒꯤ ꯊꯨꯅꯦ ꯊꯥꯗꯣꯛꯅꯦꯍꯟꯗꯕꯅꯤ, ꯅꯨꯡꯁꯤꯒꯤ ꯃꯍꯩꯔꯣꯏꯁꯤꯡꯗ ꯐꯣꯅꯤꯛꯌꯥꯒꯤ ꯍꯤꯗꯤꯡ ꯍꯟꯗꯕ ꯅꯤꯡꯅꯤꯕ ꯔꯅꯕꯗ ꯐꯣꯡꯅꯦ ꯌꯥꯍꯅꯦ; ꯑꯃꯁꯨꯡ
- ꯍꯤꯗꯤꯡ ꯅꯣꯡꯃꯤꯕ ꯁꯨꯡꯒꯣꯟ, ꯍꯪꯂ, ꯍꯨꯔꯝꯒꯤ ꯅꯤꯡꯒꯤ ꯅꯣꯛꯌꯥꯡ ꯕꯤꯡꯅꯕ ꯃꯌꯥꯎꯗ, ꯁꯨꯡꯒꯣꯟꯒꯤ ꯍꯦꯡꯗ ꯅꯦꯕ ꯍꯊꯣꯡ ꯊꯤꯡꯅꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯂꯦ ꯑꯃꯨꯅꯦ ꯍꯦꯃꯍꯦꯗꯤꯡꯅꯦ ꯍꯣꯛꯌꯥꯝꯋꯥ ꯍꯗꯃ ꯌꯥꯕ ꯃꯌꯥꯎꯗ, ꯃꯊꯣꯛꯌꯥ ꯅꯦꯕ ꯗꯪꯃ ꯑꯃꯨꯅꯦ ꯍꯤꯗꯤꯡ ꯊꯥꯗꯣꯛꯅꯤꯕ ꯃꯌꯥꯎꯗ, ꯅꯨꯡꯁꯤꯒꯤ ꯍꯣꯡꯕꯦꯂ ꯑꯃꯗ ꯕꯤꯗꯤꯡꯗꯒꯤ ꯅꯦꯠꯍꯦ ꯅꯦꯃ (silt), ꯐꯃꯗꯤꯗꯤꯡ ꯅꯨꯡꯁꯤꯒꯤ ꯑꯃꯣꯂꯦ ꯂꯝꯍꯟꯕ ꯃꯌꯥꯎꯗ ꯃꯗꯤꯒꯤ ꯑꯣꯔꯨꯐꯣꯟ ꯑꯃꯁ ꯌꯥꯅꯤꯡꯂ ꯊꯕꯋꯥ ꯌꯥꯕꯤ ꯌꯥꯔꯕ ꯁꯨꯍꯝꯗꯕꯅꯤ॥

ꯏꯝꯐꯥꯜ ꯑꯣꯏꯗꯦ ꯍꯕꯇꯤꯡ ꯍꯦꯡꯕꯦꯗꯤꯡ, ꯅꯃꯕꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯦꯔꯒꯤ ꯍꯦꯡꯕꯦꯗꯤꯡ, ꯄꯤꯡꯒꯤ ꯅꯃꯕꯗꯤꯡ, ꯍꯦꯡꯗꯤꯡ, ꯁꯨꯡꯒꯣꯟꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯦꯔꯒꯤ ꯍꯦꯡꯗꯤꯡ, ꯍꯊꯦꯡꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯃꯍꯦ ꯊꯥꯗꯣꯛꯍ ꯑꯣꯔꯨꯐꯣꯟꯗꯤꯡ, ꯍꯪꯂ ꯑꯃꯁꯨꯡ ꯍꯨꯔꯝꯒꯤꯗꯤꯡ, ꯑꯃꯁꯨꯡ ꯕꯦꯗꯤꯡ ꯍꯨꯃꯕꯒꯤ ꯃꯇꯝꯒ ꯍꯦꯡꯗꯤꯡ ꯃꯒꯤꯅꯦ ꯗꯤꯅꯤꯡ ꯌꯥꯒꯗꯒꯥ, ꯑꯃꯁꯨꯡ ꯄꯤꯡꯒꯤꯡꯒꯤ ꯃꯍꯦꯗ ꯅꯦꯕ ꯍꯦꯡꯕꯦꯗꯤꯡ ꯗꯪꯃꯒꯤꯂ ꯑꯃꯁꯨꯡ ꯅꯦꯃꯗꯒꯤ ꯃꯒꯤꯅꯦ ꯊꯥꯗꯣꯛꯃꯗꯥ ꯌꯥꯔꯕꯂ ꯂꯪꯃꯗꯤ, ꯃꯒꯤꯃꯗꯤ ꯍꯃꯍꯟꯒꯥꯂ ꯂꯍꯂꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯕꯇꯤꯡ ꯄꯒꯤꯗꯤꯡꯅꯦ ꯂꯌꯥꯪꯍꯗꯃꯗ ꯑꯃꯍꯋꯥꯌꯥꯃ ꯍꯦꯃꯗꯃ ꯊꯃꯅꯦꯕꯒꯤꯗꯃꯊꯌꯥꯅꯤ॥

ꯏꯝꯐꯥꯜ ꯑꯣꯏꯗꯦ ꯍꯦꯗꯤꯔꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯦꯡ ꯅꯦꯕꯋꯥꯃꯤ ꯃꯒꯨꯑꯍꯕ ꯅꯦꯡꯒꯤ ꯍꯤꯗꯤꯡꯒꯤ ꯂꯌꯥꯪꯍꯗꯃꯗꯤꯡ ꯂꯤꯇꯤꯍꯦ॥ ꯃꯍꯦꯔ ꯍꯗꯤꯡꯃ ꯃꯅꯤꯄꯨꯔꯒꯤꯗꯃꯛ ꯂꯪꯃꯍꯥ-ꯂꯪꯃꯇꯤꯍꯦ ꯌꯥꯒꯤ: ꯍꯒꯤ-ꯏꯍꯦꯡꯍꯦꯒꯤ ꯅꯦꯡ ꯍꯕꯒꯤ ꯊꯥꯗꯣꯛꯗꯤꯡ ꯅꯦꯕ ꯑꯪꯍꯒꯤꯅꯗꯒꯤ ꯑꯥꯌꯥꯕꯒ ꯐꯅꯕ ꯅꯦꯡ ꯍꯕꯒꯤ ꯃꯌꯥꯃꯒꯤꯗꯃꯛ; ꯍꯊꯍ ꯕꯪꯒꯤꯅ ꯑꯃꯁꯨꯡ ꯂꯒꯤꯂ ꯄꯃꯍ ꯅꯦꯍꯊꯥꯌꯂꯦ ꯊꯥꯐꯃ ꯑꯃꯍꯋꯥꯌ ꯅꯦꯕ ꯊꯤꯇꯤꯅꯇꯕ ꯌꯥꯃꯍꯥ ꯑꯃꯒꯤꯗꯃꯛ, ꯃꯐꯃ ꯑꯁꯨꯡ ꯁꯨꯡꯒꯣꯟꯗꯤꯡꯂꯦ ꯌꯥꯅꯦꯒꯤ ꯃꯊꯋꯥꯌ ꯅꯦꯕ ꯍꯦꯡꯗꯤꯡꯒꯤ ꯃꯒꯤꯋꯥꯌ ꯄꯪꯅꯇ ꯑꯃꯁꯨꯡ ꯅꯦꯋꯥꯌꯥꯃꯤ ꯅꯪꯒꯪꯅꯦ ꯍ ꯊꯤꯕ ꯂꯒꯨꯋꯥꯃꯤ ꯌꯥꯅꯔꯤꯌꯒꯤ (tailwater) ꯂꯪꯃꯃꯤ; ꯍꯃꯐꯟ, ꯅꯃꯕꯨꯟ, ꯍꯒꯤꯟ, ꯃꯍꯕ, ꯊꯦꯕꯟ ꯑꯃꯁꯨꯡ ꯌꯥꯃꯍꯥꯃꯤ ꯑꯌꯥꯍꯥ ꯁꯨꯡꯒꯣꯟꯗꯤꯡꯒꯤꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯃꯍꯤꯊꯟ ꯗꯪꯃꯒꯤ ꯃꯍꯦꯗ ꯅꯦꯕ ꯒꯤꯇꯤꯇ ꯒꯤꯄ (reach)-ꯃꯤꯗꯃꯛ; ꯇꯤꯒꯤꯕꯤꯃꯗ ꯅꯦꯕ ꯕꯒꯤꯋꯥ ꯑꯃꯁꯨꯡ ꯇꯤꯒꯤ ꯁꯨꯡꯒꯣꯟ (Jiri)-ꯒꯤꯗꯃꯛ; ꯌꯥꯃꯍꯥꯃꯤ ꯅꯃꯒꯤ ꯅꯪꯃꯂꯌꯥꯒꯤꯍꯦ ꯅꯦꯃ ꯑꯃꯁꯨꯡ ꯍꯤꯂ, ꯄꯤꯒꯤ ꯍꯦꯡꯗ ꯅꯦꯕ ꯅꯦꯊꯍ ꯑꯃꯁꯨꯡ ꯑꯍꯃꯃꯍꯃꯤ ꯐꯪꯍꯦꯗꯤꯡ, ꯄꯤꯗꯤꯡꯒꯤ ꯗꯤꯂꯕ ꯂꯪ ꯑꯃꯁꯨꯡ ꯕꯒꯤꯪ ꯒꯪꯍꯇ (Barail ranges)-ꯃꯤ ꯂꯪꯍꯗꯂꯌꯥꯍꯦ ꯃꯪꯍꯤꯗꯤꯡꯗꯤꯡꯒꯤꯗꯃꯛ; ꯅꯦꯋꯥꯌꯥ, ꯍꯤꯂꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯪꯂꯒꯤꯗꯤꯡꯒꯤꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯌꯥꯃꯍꯥꯃꯤ ꯍꯤꯗꯤꯡ ꯍꯟꯗꯕ ꯊꯃꯇꯤꯅꯇꯤꯕ ꯅꯦꯗꯤꯡꯒꯤꯗꯃꯛ; ꯑꯃꯁꯨꯡ ꯂꯤꯄꯪꯇ ꯍꯒꯤꯕ ꯅꯦꯡꯒꯤ ꯍꯤꯗꯤꯡꯒꯤ ꯍꯦꯡꯕꯦꯗꯤꯡꯒꯤꯗꯃꯛ॥

1. **ꯅꯪꯂꯅꯪꯅ ꯁꯃꯐꯃ.** CPHEEO *Manual on Storm Water Drainage Systems* (2019)॥ ꯏꯝꯐꯥꯜ ꯑꯣꯏ ꯃꯗꯤꯒꯤ ꯃꯊꯋꯥꯌ ꯂꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯤꯗꯦ ꯂꯌꯥꯪꯂ ꯑꯃꯁ ꯄꯦꯈꯅꯇꯕ ꯃꯐꯃꯗ ꯐꯪꯍꯦ ꯄꯦꯕ ꯂꯌꯥꯪꯍꯗꯃꯗꯤꯡ ꯂꯪꯃꯃꯤ॥ ꯄꯤꯗꯤꯒꯤ ꯅꯃꯕꯤꯗꯤꯗꯤꯒꯤ IRC:SP:42-2014 ꯄꯦꯁꯦ IRC-ꯒꯤ ꯅꯃꯕꯤꯒꯤ ꯍꯒꯤꯃꯒꯤ ꯃꯗꯤꯗꯤꯡ, ꯑꯃꯁꯨꯡ NDMA-ꯒꯤ ꯂꯐꯒꯤꯒꯤ ꯍꯤꯗꯤꯡ ꯍꯟꯗꯕꯒꯤ ꯒꯤꯍꯗꯅꯦꯍꯗꯂꯂ ꯂꯤꯇꯤꯍꯦꯅꯒꯤ॥
2. **ꯑꯃꯦꯔꯤꯀꯥꯒꯤ ꯂꯌꯥꯒꯤꯋꯥꯄꯒꯤ.** Kansas City Metro APWA Section 5600 (Version 2025.01), ꯍꯕꯍꯗꯒꯤ ꯅꯦꯕ ꯃꯍꯤ ꯐꯕ ꯒꯤꯇꯇꯪꯅ ꯂꯌꯥꯪꯍꯗꯒꯤꯗ॥ ꯃꯗꯤꯗꯦ ꯄꯨꯋꯥꯊꯃꯍ, ꯊꯃꯇꯤꯍꯕ, ꯃꯌꯥꯃ ꯍꯒꯤꯒꯤ ꯊꯃꯕ, ꯍꯊꯃꯍ ꯑꯃꯁꯨꯡ ꯏꯍꯦꯌꯥꯪꯅꯪꯍꯦꯂ ꯌꯥꯕ (preserve, retain, detain, convey and maintain)-ꯃꯤ ꯊꯑꯋ ꯑꯃꯁꯨꯡ ꯃꯊ ꯌꯥꯕ ꯒꯤꯌꯥꯪꯍꯦꯂꯍꯦ ꯒꯪꯂꯃ ꯍꯤꯒꯤ॥
3. **ꯗꯤꯇꯦꯍꯦ ꯅꯦꯡ ꯁꯕ.** CWC-ꯒꯤ ꯒꯤꯍꯗꯒꯤꯍ ꯑꯃꯍꯌꯅꯦ ꯂꯌꯥꯪꯍꯃꯤ ꯂꯒꯨꯋꯥ ꯑꯃꯍꯌ ꯄꯦꯁꯗꯪ, ꯃꯒꯤꯃ ꯑꯣꯏꯗꯦ ꯃꯅꯤꯄꯨꯔꯗ ꯗꯤꯇꯦꯍꯦ ꯅꯦꯡ ꯁꯕꯒꯤ ꯒꯪꯅꯁ ꯍꯗꯤꯡꯃ ꯏꯍꯦꯡꯍꯦꯡ ꯑꯣꯏꯗꯦ ꯂꯕ-ꯑꯪꯒꯤꯒꯤꯔꯦ ꯃꯁꯨꯡ ꯍꯦꯇꯇ ꯂꯪꯃꯃꯤ॥ ꯍꯃꯐꯟ ꯌꯥꯃꯍꯥꯌꯥ, IMD-ꯒꯤ ꯂꯒꯤꯍꯃꯤ ꯂꯤꯒꯤꯇ ꯐꯕꯁꯨꯦ ꯐꯤꯍ ꯌꯥꯗꯒꯤꯐꯄꯕ, ꯗꯤꯇꯦꯍꯦ ꯂꯒꯤꯍ ꯑꯣꯏ ꯍꯃꯐꯟꯗ ꯅꯦꯕ MASTEC-ꯒꯤ ꯍꯕꯍꯗꯒꯤ ꯄꯦꯁꯕ ꯄꯐ ꯍꯗꯤꯡꯒꯤ ꯂꯤꯒꯤꯇ, 1974–2000-ꯗ ꯏꯝꯐꯥꯜ ꯑꯣꯏꯗꯦ ꯐꯤꯍ ꯌꯥꯕ ꯌꯥꯕꯅ ꯑꯃꯗꯒꯤ ꯅꯦꯃꯍ॥ ꯑꯄꯦꯡ, ꯅꯦꯡꯍꯦꯋꯥ ꯑꯃꯁꯨꯡ ꯍ ꯊꯤꯕ ꯄꯤꯗꯤꯡꯗ, ꯃꯣꯏ ꯂꯍꯍ ꯑꯁꯨꯒꯤ NIH-DHAARA-ꯒꯤ ꯒꯪꯅꯁ ꯑꯃꯁꯨꯡ ꯌꯥꯃꯍꯥꯃꯤ ꯌꯥꯕꯅ ꯑꯅꯤꯒꯤ ꯃꯂꯤꯗ ꯐꯪꯍꯦ ꯄꯦꯕ ꯑꯁꯨꯅꯤ: NIH-DHAARA ꯗꯤꯇꯦꯍꯦ ꯒꯪꯅꯁ ꯑꯍꯕ ꯂꯕ-ꯑꯪꯒꯤꯔꯦ ꯑꯃꯍꯋꯥꯌꯅꯤ॥ ꯅꯦꯡꯁꯍ ꯊꯤꯕ ꯄꯤꯗꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯇꯤꯒꯤꯕꯤꯃꯒꯤ ꯍꯦꯪꯍꯗ ꯃꯣꯏ 2% AEP-ꯗ 320 mm ꯑꯃꯁꯨꯡ 1% AEP-ꯗ 351 mm-ꯗꯒꯤ ꯐꯍꯊꯒꯍ, ꯂꯤꯒꯤꯇ ꯑꯣꯏꯒꯤ ꯃꯅꯦꯋꯥꯌ ꯅꯦꯕ ꯑꯪꯗꯤꯂꯍꯒꯤ ꯕꯒꯤꯋꯥ-ꯌꯥꯃꯍꯥꯃꯤ ꯂꯔꯒꯤ ꯐꯇꯒꯤꯗꯤꯡ, ꯃꯒꯤꯃꯗꯤ ꯅꯦꯡ ꯁꯕꯒꯤ ꯊꯗꯋꯥ ꯑꯃꯅꯦ ꯂꯌꯥꯪꯍꯃꯤ ꯄꯃꯍꯒꯤ ꯃꯍꯃꯤ ꯑꯅꯤꯃꯋꯥꯌ ꯃꯍꯦꯅꯦ ꯍꯤꯕ ꯐꯗꯅꯕꯒꯤꯗꯃꯛꯌꯥꯅꯤ॥ ꯃꯌꯥꯃ ꯄꯦꯃꯗꯕ ꯗꯁꯒꯪꯂꯍꯦꯗꯤꯡꯅꯦ ꯃꯅꯤꯄꯨꯔꯒꯤꯗꯃꯛ ꯍꯍꯌꯥꯒꯤꯃ ꯒꯪꯂꯤꯑꯍꯗꯤꯡ ꯂꯤꯇꯤꯍꯦ, ꯃꯍꯦꯔ ꯂꯕꯇꯍ 2(a)-ꯒꯤ CWC ꯒꯤꯍꯗꯒꯤꯍꯃꯤꯗꯒꯤ ꯃꯗꯊꯗꯂ ꯐꯍꯊꯗꯪ, ꯑꯃꯁꯨꯡ ꯇꯤꯒꯤꯕꯤꯃꯒꯤ ꯍꯦꯪꯍꯗ, ꯃꯍ ꯊꯤꯕ ꯕꯒꯤꯋꯥ ꯍꯦꯪꯍꯗ ꯅꯦꯕꯂꯃꯅꯦ ꯂꯕꯇꯍ 2(b)-ꯒꯤ ꯒꯤꯍꯗꯒꯤꯍꯃꯤ ꯒꯪꯂꯤꯑꯍꯗꯤꯡ ꯂꯤꯇꯤꯍꯦ॥ ꯗꯤꯇꯦꯍꯦ ꯂꯒꯤꯍ ꯑꯣꯏ 25 km-ꯒꯤ ꯃꯂꯤꯗ ꯒꯪꯃꯍꯒꯗ ꯌꯥꯍꯤꯕ ꯍꯕꯍꯗꯒꯤ ꯄꯦꯁꯕ ꯊꯇꯕ ꯄꯦꯕ ꯂꯒꯤꯍꯗꯤꯡꯅꯦ ꯄꯪꯋꯥ ꯌꯥꯍ, ꯑꯁꯨꯕ ꯗꯍꯏꯍ ꯑꯁꯨꯃꯋꯥꯃꯤ ꯃꯂꯤꯗ ꯍꯋꯥꯌꯥꯃꯛ, ꯃꯒꯤꯃꯗꯤ ꯌꯥꯃꯍꯥꯃꯤ ꯒꯪꯇ ꯑꯃꯅꯦ ꯄꯤꯗꯤꯒꯤ ꯑꯄꯦꯡꯕ ꯑꯃ ꯃꯗꯊꯗꯂ ꯂꯪꯃꯗꯅꯕ ꯅꯨꯡꯁꯤꯒꯤ ꯃꯁꯨꯒꯤ ꯑꯍꯦꯅꯦ ꯂꯪꯃꯗꯅꯕꯅꯤ॥ ꯑꯌꯥꯍꯥꯍ ꯃꯐꯃꯗꯤꯡꯗ NIH-DHAARA ꯑꯣꯏ ꯗꯤꯇꯦꯍꯦ ꯒꯪꯅꯁꯒꯤ ꯃꯅꯦꯋꯥꯌ ꯄꯦꯗꯃꯅꯅꯕꯒꯤꯗꯃꯛ ꯍꯋꯥꯌꯥꯃꯛ ꯒꯤꯍꯗꯒꯤꯍ ꯌꯥꯍ, ꯑꯃꯁꯨꯡ IMD-ꯒꯤ ꯍꯃꯐꯟꯒꯤ ꯍꯦꯪꯅꯪ ꯂꯤꯇꯤꯍꯦꯗꯪ॥
4. **ꯏꯍꯦꯡꯍꯦꯒꯤ ꯍꯒꯤꯪꯋꯥꯌꯥꯂ.** ꯑꯍꯤꯋꯥꯍ ꯂꯍꯍꯗꯤꯡꯒꯤ ꯐꯤꯋꯥꯂ ꯌꯥꯒꯤꯕ ꯃꯑꯪꯐꯤꯗꯤꯄꯪꯍꯃꯤ ꯂꯍ ꯑꯃꯁꯨꯡ ꯍꯒꯤꯃꯒꯤ ꯒꯤꯇꯒꯤꯒꯗꯤꯡꯒꯤꯗꯃꯛ PUB Singapore *Code of Practice on Surface Water Drainage* (7th ed., 2025)॥ ꯏꯍꯦꯡꯍꯦꯒꯤ ꯗꯤꯇꯦꯍꯦ ꯂꯌꯥꯒꯤꯃꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯦꯍꯊꯋꯥꯐꯍꯕ ꯑꯍ-ꯂꯍꯍ ꯗꯤꯌꯥꯪꯍꯂꯍꯒꯤꯗꯃꯛ ꯃꯅꯪꯂꯤꯔꯦꯒꯤ MSMA 2 (2012)॥

5. **ꯗꯤꯖꯥꯏꯟ ꯄꯔꯐꯣꯔꯃꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ.** ꯗꯤꯖꯥꯏꯟ ꯄꯔꯐꯣꯔꯃꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯍꯥꯏ ꯐꯥꯎꯕ ꯍꯦꯟꯒꯠꯂꯛꯄ ꯑꯣꯏꯕꯒꯤꯗꯃꯛ Georgia Stormwater Management Manual (2016)꯫ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯒꯤꯗꯃꯛ CIRIA C753 *The SuDS Manual* (2015)꯫ ꯄꯨꯝꯅꯃꯛ ꯑꯃꯁꯨꯡ ꯂꯣꯝꯕꯥ ꯃꯇꯦꯡꯄꯥꯡꯒꯤꯗꯃꯛ Mile High Flood District-ꯒꯤ ꯕꯨꯂꯦꯇꯤꯅꯁꯤꯡ ꯍꯥꯞꯆꯤꯜꯂꯤ꯫
6. **ꯂꯣꯀꯦꯜ ꯗꯦꯇꯥꯁꯤꯡ.** ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ-ꯏꯝꯐꯥꯜ 2024, 2024-ꯒꯤ IMC-ꯒꯤ ꯄ꯭ꯂꯥꯟ-ꯏꯝꯐꯥꯂꯒꯤ ꯑꯦꯟꯅꯦꯛꯁ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯅꯦꯛꯁꯁꯤꯡꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ ꯂꯧꯈꯠꯂꯦ; ꯃꯥꯁ꯭ꯇꯔ ꯂꯣꯀꯦꯁꯟ/ꯃꯥꯝ ꯗꯥꯇꯥꯂꯣꯏ ꯄ꯭ꯂꯥꯟ-ꯏꯝꯐꯥꯜ, 2026; MTCP Act; ꯒꯥꯗꯥꯔꯗ ꯅꯦꯇꯋꯔꯀꯒꯤ ꯗꯤꯖꯤꯇꯜ ꯔꯦꯀꯣꯔꯗ GIS ꯄꯥꯝ ꯍꯩꯂꯣꯅꯗ ꯁꯦꯠꯂꯦ – 2043 (ꯑꯔꯕꯟ ꯍꯦꯜꯊꯏꯁꯨꯂꯣꯟ); ꯂꯣꯀꯔꯦꯏ ꯑꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯑꯃꯥꯟꯗꯃꯦꯟꯇꯁꯤꯡ; ꯏꯃꯥ ꯁꯦꯠꯂꯦ ꯂꯣꯀꯦꯜ ꯑꯥꯏꯟ, 1978; ꯁꯥꯜꯇ-ꯂꯦꯀ ꯑꯥꯏꯟ ꯑꯃꯁꯨꯡ 2026-ꯒꯤ ꯑꯃꯦꯟꯗ ꯔꯗꯤꯡ ꯄꯤꯜ; ꯃꯤꯡꯔꯗꯤꯡ ꯐꯣꯁꯦꯂꯤꯇꯤ ꯑꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ 2006 ꯑꯃꯁꯨꯡ 2008-ꯒꯤ ꯑꯃꯦꯟꯗꯃꯦꯟꯇꯁꯤꯡ; ꯍꯧꯖꯤꯛꯇꯥ ꯑꯏꯂꯦꯛꯁꯟ ꯂꯨꯁꯤꯡꯂꯥꯏ ꯑꯥꯏꯟ, 1979 ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ 2021-ꯒꯤ ꯑꯃꯦꯟꯗꯃꯦꯟꯇ; ꯀꯟꯁꯦꯔꯕꯦꯁꯟ (ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯍꯂꯍꯟꯕ) ꯊꯧꯔꯥꯡ, 2017; PIL No. 8 of 2025-ꯗ ꯄꯤꯕ ꯑꯣꯔꯗꯔꯁꯤꯡ ꯑꯣꯔꯗꯔ; ꯑꯃꯁꯨꯡ OA 606 of 2018-ꯗ ꯂꯩꯕꯥ NGT-ꯗ ꯁꯤꯟꯗꯤꯡ ꯗꯤꯁꯤꯖꯟꯁꯤꯡ꯫ ꯍꯥꯏꯗ꯭ꯔꯥ ꯑꯃꯤꯗ ꯍꯥꯏꯔꯕ ꯌꯥꯝ ꯅꯥꯏꯗꯕ ꯀꯟꯗꯤꯁꯟ, ꯏꯝꯐꯥꯜꯒꯤ ꯍꯦꯡꯕꯗ, ꯍꯥꯏꯔꯕ ꯄꯥꯏꯗꯥ ꯔꯨꯝꯗꯥ ꯂꯥꯡꯍꯦ꯫ 15 ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯗ ꯄꯔꯕꯥꯟ ꯂꯣꯀꯦꯜ ꯄꯥꯗꯤꯁꯤꯡꯗ ꯂꯧꯊꯤꯡ ꯌꯥꯎꯕ ꯄ꯭ꯂꯥꯟ-ꯏꯝꯐꯥꯂꯁꯤꯡ, ꯗꯤꯁꯤꯖꯟ ꯅꯦꯠꯋꯔꯀꯗ GIS ꯄꯥꯝ ꯍꯩꯂꯣꯅꯗ ꯁꯦꯠꯂꯦꯁꯤꯡ, ꯏꯃꯥ ꯁꯦꯠꯂꯦ ꯂꯣꯀꯦꯜ ꯑꯥꯏꯟꯒꯤ ꯂꯥꯏꯁꯦꯟ 8-ꯗꯒꯤ ꯍꯥꯏꯒꯤꯁꯤꯡ, ꯍꯧꯖꯤꯛꯇꯥ ꯍꯧꯖꯤꯛꯁꯥꯏꯠꯌꯥꯏꯇ ꯑꯥꯏꯟ, 1994-ꯒꯤ ꯅꯗꯤꯒꯤ ꯂꯥꯏꯁꯦꯟꯁꯤꯡ, ꯍꯧꯖꯤꯛꯇꯥ ꯒꯤꯂꯥꯏ ꯑꯏꯗꯤꯌꯥꯏꯇ ꯅꯦ ꯄꯤꯜ ꯑꯗꯤꯔꯦꯜ ꯑꯥꯏꯟ, 1956, ꯂꯩꯕ ꯑꯥꯏꯟꯂꯦ ꯁꯦꯠꯂꯦ ꯑꯦ ꯃꯦꯠꯅꯍꯥꯕ ꯀꯥꯡꯂꯣ (State Action Plan on Climate Change) ꯑꯃꯁꯨꯡ ꯅꯗꯤꯒꯤ ꯅꯔꯥꯃ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯒꯤ ꯍꯌꯥꯝꯗ CAG-ꯒꯤ ꯗꯤꯁꯤꯖꯟ (Report No. 2 of 2017) ꯁꯤꯅꯤꯗꯥ꯫ ꯃꯦꯠꯂꯤꯡ ꯊꯣꯛ ꯃꯥꯗꯤꯡꯍꯥ ꯄꯥꯂꯤꯡꯃꯤ ꯌꯥꯝꯂꯦꯃꯤ ꯀꯥꯡ ꯌꯥꯏꯗꯇꯂꯤ꯫

ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯃꯤ ꯃꯦꯊꯗꯒꯤ ꯍꯧꯖꯤ ꯄꯨꯋꯥꯔꯤ

ꯅꯦꯗꯤꯔꯦꯗ ꯍꯦꯑꯣꯝ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯒꯤ ꯅꯗꯤꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯩꯕꯥꯟꯗꯥ ꯂꯥꯏꯕ꯫ CPHEEO *Manual on Storm Water Drainage Systems* (2019) ꯑꯃꯤ ꯂꯥꯏꯔꯤꯛ ꯑꯃꯤꯒꯤ ꯂꯣꯀꯒꯤ ꯅꯗꯤꯃ ꯅꯗꯤꯒꯤꯗꯃꯛ ꯅꯣꯀꯒꯤ ꯑꯔꯕꯟ ꯍꯥꯏꯗ꯭ꯔꯥꯂꯦ, ꯑꯗꯨꯅꯥ ꯍꯧꯖꯤ ꯁꯤꯟꯗꯥꯟꯥ ꯅꯣꯀꯦ꯫ ꯍꯧꯖꯤꯛꯇꯥ ꯑꯦꯏ ꯄꯨꯋꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯗꯦ ꯑꯏꯔꯥꯡ (Ministry of Housing and Urban Affairs)-ꯗ ꯍꯧꯖꯤ ꯁꯤꯟꯗꯥꯟꯥꯒꯤ ꯒꯅꯗꯤꯅꯦꯂꯦꯟꯗꯤꯒꯤ ꯍꯗꯥꯌ ꯇꯤꯂꯩ ꯌꯥꯅ ꯑꯃꯁꯨꯡ ꯂꯄꯗꯒꯤ ꯅꯗꯤꯃ ꯅꯔꯥꯃ ꯑꯃꯤ ꯂꯩꯕ ꯂꯥꯏꯁꯦꯟꯗꯤ ꯑꯃꯁꯨꯡ ꯄꯗꯥꯟꯦ ꯂꯣꯀꯦꯜ ꯄꯥꯗꯤꯁꯤꯡꯒꯤ ꯔꯦꯖꯍ ꯑꯦꯅꯗ ꯂꯥꯅ꯫ ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯃꯤꯒꯤꯗꯃꯛ ꯔꯥꯏꯟꯇꯦꯟꯁꯤꯡ ꯂꯥꯂꯦꯜ ꯗꯦꯇꯥꯁꯤꯡ ꯂꯌꯗꯥ ꯂꯩꯕꯥꯗꯤ ꯄꯤꯔꯗꯤꯡ ꯗꯦꯇꯥꯁꯤꯡꯒꯤ ꯍꯧꯖꯤꯛꯇ ꯃꯦꯊꯗꯒꯤ ꯑꯍꯥꯔꯕ ꯑꯦꯗꯦꯞꯇ ꯃꯦꯊꯗꯥꯜ ꯑꯃꯤ ꯄꯤꯔꯗꯤꯡ ꯑꯁꯥꯡꯒꯤꯒꯤ ꯃꯦꯊꯗꯣꯂꯦ ꯑꯍꯤ ꯑꯅꯔꯦꯗꯥ, ꯑꯃꯁꯨꯡ ꯍꯗꯥꯜ ꯄꯤꯔꯗꯤꯡ ꯄ꯭ꯂꯥꯟ-ꯏꯝꯐꯥꯜ 2016-ꯗꯒꯤ ꯑꯅꯔꯦꯗꯥ꯫

ꯂꯥꯂꯦꯜ ꯗꯥꯃꯍꯧꯖꯤꯛꯇꯥꯁꯤꯡꯗ ꯍꯤꯡꯑꯅꯕ ꯒꯥꯜꯃꯥꯂꯤꯡ ꯄꯤꯗꯃꯥꯃꯗ ꯐꯍꯤ, ꯂꯦꯄꯥ ꯌꯥꯎꯗꯕ ꯁꯤꯟꯗꯥꯅꯂꯤꯡ ꯁꯤꯟꯗꯤ꯫

- **ꯗꯤꯌꯥꯗ ꯁꯤꯟꯗꯤꯔꯗꯂꯤꯡ.** CPHEEO-ꯗ ꯃꯇꯦꯂ I ꯂꯄꯗꯂꯤꯡꯗ ꯅꯥꯡꯄꯦꯂꯤꯡꯒꯤꯗꯃꯛ ꯌꯔꯤ 5 ꯑꯃꯁꯨꯡ ꯑꯌꯥꯝꯕ ꯍꯏꯍꯂꯤꯡꯗ ꯌꯔꯤ 2 ꯗꯤꯃꯍꯦꯗ ꯌꯥꯅ, ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯃꯍꯤꯌ ꯑꯍꯛ ꯄꯥꯗꯦ ꯔꯤꯡꯄ ꯒꯥꯜꯃꯥꯂꯤꯡ ꯂꯣꯂꯦꯄ ꯔꯤꯄꯂꯦ꯫ 2023-ꯒꯤ CPHEEO ꯁꯗꯂꯂꯦꯌꯂꯦ ꯑꯍꯗ ꯌꯥꯎꯗꯕ ꯌꯥꯄꯜ ꯑꯍꯤ ꯄꯌꯂꯦ꯫ IRC:SP:50-2013-ꯗ ꯂꯄꯗꯒꯤ ꯂꯍꯄꯤꯒꯤ ꯅꯥꯡꯄꯦꯂꯤꯡꯒꯤꯗꯃꯛ ꯌꯔꯤ 1–2 ꯁꯤꯟꯗꯥꯟꯥ ꯁꯤꯗꯤ; IRC:SP:42-2014-ꯗ ꯂꯍꯄꯤꯒꯤ ꯅꯥꯡꯄꯦꯂꯤꯡꯒꯤꯗꯃꯛ ꯌꯔꯤ 5–25 ꯑꯃꯁꯨꯡ ꯃꯥꯏꯒꯗꯌ (culvert)-ꯂꯤꯡꯒꯤꯗꯃꯛ ꯌꯔꯤ 10–50 ꯁꯤꯟꯗꯥꯟꯥ ꯁꯤꯗꯤ, ꯂꯍꯄꯤꯒꯤ ꯃꯇꯦꯂ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯒꯗꯌꯃꯤ ꯂꯅꯥꯜ ꯍꯌꯥꯝ ꯅꯦꯂ꯫ ꯍꯧꯖꯤꯛꯇꯥꯗ ꯅꯥꯡꯄꯦ ꯑꯍꯤ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯗꯤꯄ ꯅꯦꯂꯤꯂꯤꯔꯗ ꯑꯍꯗ ꯅꯦꯅꯤꯄ ꯃꯗ ꯍꯌꯥꯝ ꯅꯦꯂ ꯌꯔꯤ 1, 2, 5, 10 ꯂꯦꯄꯥ 25 ꯃꯦꯌꯁꯤ ꯔꯤꯅ꯫
- **ꯗꯤꯖꯥꯏꯟ.** CPHEEO-ꯗ ꯁꯤꯟ ꯑꯦꯟꯂꯦꯌꯇꯦ ꯑꯃꯤ ꯗꯒꯂꯁꯤꯟꯗꯤꯔꯗꯤꯡ ꯍꯤꯡꯒꯤ ꯗꯌꯂꯤꯡꯗ ꯂꯤꯍꯤꯌ ꯌꯥꯄ ꯑꯃꯤ ꯑꯏꯄ ꯁꯗꯂꯥꯌꯤꯂ ꯑꯅꯗ ꯂꯦꯗꯂꯗ ꯌꯥꯎꯗꯤ꯫ ꯍꯧꯖꯤꯛ "shall" ꯂꯤꯂꯤꯗꯂꯗ ꯑꯃꯁꯨꯡ ꯂꯗ ꯃꯄꯒꯤ ꯐꯗꯂꯃꯤ ꯏꯗꯤꯂꯄꯦꯂꯤ ꯑꯍꯦꯌ ꯍꯍꯤꯡ ꯂꯗ꯫
- **ꯃꯇꯦꯅꯍꯦ.** NDMA Urban Flooding Guidelines (2010)-ꯗ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯏꯂꯤꯂꯤꯌꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯅꯍꯦ ꯀꯥꯡꯂꯣꯒꯤꯗꯃꯛ ꯂꯍꯗꯂ-ꯂꯍꯂꯤꯂꯦ ꯌꯥꯗꯄ ꯂꯗ ꯃꯄꯒꯤ ꯃꯗꯒꯂꯤꯡ ꯄꯅ, ꯑꯗꯨꯅꯥ ꯂꯅꯥꯜ ꯂꯍꯄꯒꯤ ꯊꯣꯛ ꯂꯦꯄꯥ ꯗꯤꯌꯥꯗ ꯁꯤꯟꯗꯤꯔꯗ ꯑꯍꯦꯌ ꯁꯤꯗꯥ꯫ ꯂꯩꯕ ꯑꯥꯏꯟꯂꯦ ꯁꯦꯠꯂꯦ ꯑꯦ ꯃꯇꯦꯅꯍꯦ ꯀꯥꯡꯂꯣ ꯁꯤꯅꯤꯗꯥ, ꯑꯃꯁꯨꯡ ꯑꯏꯂꯤꯗꯂꯤꯡꯗ ꯁꯤꯟꯗꯥꯟꯥꯗ ꯁꯤꯅꯤꯄ ꯍꯐꯡꯒꯤ ꯂꯗ ꯃꯄ ꯄꯂꯒꯦꯌꯁꯒꯤ ꯍꯧꯖꯤꯛꯂꯤꯡ ꯑꯍꯥ ꯑꯍꯥ ꯌꯥꯎꯗꯦ, ꯍꯗꯍ ꯑꯃꯤꯗ ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯃꯤꯗ ꯍꯅꯔꯒꯤ ꯃꯇꯦꯅꯍꯦ ꯑꯍꯦꯌ ꯂꯤꯂꯤꯗꯂꯗ꯫ 1991-ꯗꯒꯤ 2024 ꯏꯔꯃ ꯍꯧꯖꯤꯛꯇꯥꯒꯤ ꯂꯗ ꯃꯄꯒꯤ ꯂꯩꯕꯥ ꯑꯍꯗ (Singh, 2025) "ꯌꯔꯤ ꯃꯗꯤꯡꯒꯤ ꯁꯍꯂꯍꯦ ꯂꯗ ꯃꯄꯗ ꯂꯩꯕꯗꯤꯂꯩꯕꯃꯦ ꯑꯅꯗ ꯍꯊ ꯑꯅꯄ ꯄꯦꯐꯗꯂꯁꯒꯤ ꯌꯗꯂꯗ ꯑꯍ" (a statistically significant downward trend in Total Annual Rainfall) ꯏꯡꯅꯤ, ꯑꯗꯨꯅꯥ 2015, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯌꯍꯁꯤꯡꯃꯤ ꯅꯗꯤꯃ ꯅꯔꯥꯃꯗꯤꯡ ꯗꯃꯗꯗ ꯌꯥꯅꯤꯄ ꯅꯄꯅꯗꯒꯤ ꯔꯥꯃꯗꯤꯡꯒꯤ ꯍꯧꯖꯤꯛ ꯔꯥꯃꯅ, ꯁꯥꯃꯗ ꯏꯡꯗꯂꯅꯤꯄ ꯍꯌꯥꯝ ꯅꯦꯂ; ꯑꯗꯅꯄ ꯂꯗ ꯃꯄꯗ ꯌꯗꯂꯗ ꯑꯍꯦꯌ ꯏꯡꯅꯤꯗꯥ꯫

- **ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ.** ꯅꯣꯡꯅꯣꯡ ꯃꯥꯡꯍꯣꯠꯄ ꯑꯍꯦꯅꯕꯅ ꯗꯤꯖꯥꯏꯟꯅꯗ ꯑꯍꯅ ꯌꯥꯝꯂꯕ ꯑꯍꯃ ꯄꯥꯏꯗꯣꯡꯅꯅ ꯂꯤꯇꯤꯂꯅꯕ ꯌꯦꯕ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ ꯌꯥꯏꯃꯣ꯫ ꯌꯥꯗꯥꯏꯇꯣꯄꯥ ꯁꯨꯃꯤꯡꯍꯄꯅ ꯍꯂꯥꯒꯤ ꯄꯥꯗꯄꯖꯐ ꯏꯅꯩ꯫ ꯍꯅꯤꯌꯨꯗ ꯌꯨꯐꯅꯍꯄ ꯗꯤꯌꯥꯗꯨ ꯑꯍꯦꯅꯕ ꯑꯃꯥꯡꯃꯧꯃꯨ ꯖꯥꯡꯃꯥꯄꯏꯃꯕ CWC-ꯒꯤ ꯂꯕꯇꯥꯖ ꯑꯍꯃ ꯇꯩ; IMD-ꯒꯤ 2022-ꯒꯤ ꯅꯣꯡ ꯁꯨꯕꯒꯤ ꯏꯖꯕꯣꯖꯂꯤꯕꯤ ꯑꯗꯒꯂꯤꯡꯒꯤ ꯅꯣꯂꯅꯣꯡ ꯂꯣꯅꯕ ꯏꯐꯖꯦꯒꯤ ꯌꯥꯅꯣꯡ ꯑꯍꯥ ꯇꯩ, ꯑꯁꯨꯕ ꯍꯂꯤꯗꯦ ꯑꯕꯥꯌꯌ ꯂꯄꯗ ꯑꯔꯦꯒꯤꯃꯍꯄ ꯖꯥꯡꯃꯥꯄꯏꯃꯕ ꯑꯗꯒ ꯑꯍꯥ ꯑꯍꯨꯄ ꯄꯖꯗꯦ ꯌꯥꯏꯗꯤ; ꯑꯃꯁꯨꯡ NIH-DHAARA-ꯒꯤ ꯗꯤꯑꯣꯗꯦꯇꯦꯏꯂꯤꯂ ꯒꯗꯤꯃꯂꯤꯡꯗꯦ ꯕꯐꯌꯥꯄꯕ ꯏꯐꯖꯦꯒꯤ ꯍꯂꯥꯒꯤ ꯂꯤꯗꯤꯇꯦ ꯕꯣꯡꯕꯡꯕꯃꯒꯤ ꯍꯕꯥꯖ 1.3-ꯗꯒꯤ 1.5 ꯐꯥꯑꯣꯕ ꯄꯣꯖꯕ ꯑꯍꯦꯡꯕꯂꯤꯡ ꯌꯥꯏꯗꯤ꯫

ꯍꯅꯤꯌꯨꯗꯃ ꯍꯂꯥꯒꯤ ꯏꯗꯐ ꯗꯤꯖꯥꯏꯟ ꯂꯕꯣꯖꯃꯗꯃ ꯇꯕꯣ꯫ ꯍꯣꯅꯨꯔꯣꯅ ꯑꯂꯤꯒꯤꯃꯍꯄ ꯕꯥꯏꯕ ꯃꯤꯇꯤꯅꯕꯗꯦ ꯕꯥꯐꯖꯒꯤ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡꯒꯤ ꯏꯥꯡꯕꯖꯂꯤꯡꯒꯤꯃꯍꯄ ꯗꯤꯕꯗꯖ ꯌꯥꯗꯤꯗꯤꯔꯃ, ꯗꯖꯑꯥꯐ ꯏꯥꯑꯣꯐꯤꯂꯤꯔꯣꯖꯅ ꯅꯅꯗꯒ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ ꯐꯤꯄꯂ ꯕꯥꯕ MAHUD, TPD, PDA Manipur, IMC ꯅꯅꯗꯒ ꯑꯕꯥꯌꯌ ꯐꯗꯕꯖ ꯅꯥꯏꯅ ꯕꯥꯃꯤ ꯑꯍꯅꯕ, PWD, WRD ꯅꯅꯗꯒ PHED-ꯒꯤ ꯂꯕꯣꯖꯃꯗꯃ, IDF ꯍꯗꯤ ꯅꯅꯗꯒ ꯂꯗꯃꯨꯅꯗ ꯑꯍꯅꯕ ꯐꯡꯏꯃꯣ, ꯑꯃꯁꯨꯡ ꯂꯕꯣꯅ ꯑꯂꯤꯒꯤ ꯂꯕꯣꯂꯖ ꯑꯍꯅꯕꯒꯤꯃꯍꯄ ꯐꯥꯡꯃꯥꯄꯏꯃꯕ ꯏꯖꯂꯕꯣꯖꯅꯂꯤꯡ ꯇꯕ IDF ꯍꯗꯤ ꯑꯍꯅꯕ ꯐꯡꯏꯃꯣ; ꯁꯨꯅꯤꯐꯏꯃ ꯕꯏ-ꯂꯣ 2024-ꯗꯥ ꯂꯗꯒꯤꯂꯂꯤꯡꯒꯤꯃꯍꯄ National Building Code 2016-ꯃ ꯏꯥꯃꯥꯏꯏ꯫ ꯒꯗꯣꯕꯗ ꯏꯐꯖꯦꯒꯤ ꯍꯂꯕꯗ ꯌꯥꯗꯦꯃ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯏꯗꯐꯒꯤ ꯂꯣꯡꯂꯖ ꯑꯍꯅꯕ ꯇꯕꯣ꯫ ꯄꯤꯇꯤꯡ ꯑꯅꯇꯤꯕ ꯏꯗꯐꯒꯤ ꯌꯥꯗꯥꯏꯇꯣꯄꯥ ꯑꯇꯤꯗꯦ ꯗꯤꯖꯥꯏꯟ ꯂꯕꯥꯗꯐ (design storm) ꯑꯍꯅꯕ ꯄꯏꯃꯣ: AIIB-ꯗꯥ ꯍꯕꯣꯡ ꯌꯥꯡꯕ Manipur Urban Road, Drainage and Asset Management Improvement Project, ꯍꯂꯤꯗꯦ ꯒꯗꯣꯕꯗ ꯏꯐꯖꯦꯒꯤ ꯅꯐꯕꯤꯂꯤꯡꯒꯤ ꯍꯗꯦꯡꯕ "ꯍꯥꯏꯃꯥ ꯑꯅꯤꯍꯡꯕ ꯐꯨꯍꯇꯤꯖꯇꯕ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡꯒꯤ ꯏꯥꯡꯕꯖ 547 km" (547 km of both side stormwater covered drains) ꯂꯒꯅꯤ ꯑꯃꯁꯨꯡ "ꯑꯣꯗꯤꯔꯦꯒꯤ 35%" (35% of the area) ꯑꯂꯤ "ꯏꯂꯤꯡ ꯏꯔꯦꯐ ꯗꯥꯌꯥ ꯔꯦꯕ" (prone to floods) ꯄꯔꯔꯗꯦ ꯗꯣꯃꯥꯗꯃ ꯕꯥꯏ, ꯍꯂꯤꯒꯤ ꯑꯥꯡꯕꯥꯕꯗ 2024-ꯒꯤ ꯌꯥꯗꯥꯏꯇꯣꯄꯥ ꯃꯥꯡꯍꯣꯠꯄꯅꯕ ꯗꯤꯕꯗꯖ ꯌꯥꯗꯤꯗꯤꯔꯃ, ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯖꯕꯣꯖꯂꯤꯕꯤ ꯅꯅꯗꯒ ꯗꯖꯑꯥꯐ ꯏꯥꯑꯣꯐꯤꯂꯤꯔꯣꯖꯅ ꯑꯍꯅꯕ ꯌꯥꯏꯃꯣ; ꯑꯃꯁꯨꯡ 2021-ꯒꯤ ꯅꯐꯐꯣꯌꯥꯏꯅ ꯌꯥꯗꯥꯏꯇꯣꯄꯥꯏꯤ NDB-ꯒꯤ ꯂꯐꯍꯗꯤ, "ꯍꯂꯤꯒꯤ ꯏꯂꯤꯡ ꯃꯤꯕꯣꯖꯂꯖꯒꯤ ꯏꯣꯌꯥꯂꯤꯕꯤ ꯄꯣꯅꯒꯅꯄꯖꯅꯕ, ꯏꯣꯔꯍꯣꯖꯅ ꯑꯣꯗꯤꯔꯦꯃ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯏꯗꯐꯒꯤ ꯂꯤꯂꯕꯣꯐ ꯑꯃꯁꯨꯡ ꯑꯣꯅꯣꯡ / ꯏꯥꯡꯂꯤꯡ ꯑꯍꯨꯄ ꯄꯖꯗꯦ ꯂꯣꯍꯒꯅꯕ" (increase its water detention capacity, restore stormwater drainage system and channels / streams in the catchment area) ꯄꯔꯔꯕ ꯑꯂꯤꯅꯨ ꯑꯍꯅꯕ ꯌꯥꯏꯃꯣ꯫ ꯍꯂꯤꯂꯤꯡ ꯌꯥꯗꯥꯏꯇꯣꯄꯥꯂꯤꯡꯅꯤ, ꯂꯕꯣꯅꯤ ꯂꯕꯣꯖꯃꯗꯃ ꯅꯅꯕꯣ꯫ ꯍꯣꯅꯨꯔꯣꯅ ꯑꯂꯤ ꯁꯨꯅꯤꯐꯏꯃ ꯕꯏ-ꯂꯣ 2024 ꯑꯃꯁꯨꯡ ꯅꯥꯏꯅ ꯕꯥꯃꯤꯂꯤꯡꯒꯤ ꯕꯏ-ꯂꯣꯂꯤꯡ, ꯅꯥꯅꯤꯡ ꯕꯏ-ꯂꯣꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯂꯕꯗ ꯌꯥꯗꯦꯖꯂꯤꯡ, MTCP Act ꯑꯃꯁꯨꯡ ꯍꯁꯨꯅꯤꯂꯤꯌꯥꯅꯤꯕꯤꯅ ꯑꯣꯡꯅ, ꯅꯥꯕꯥꯡ ꯑꯣꯡꯅ, ꯌꯥꯃꯤ-ꯅꯣꯖꯃ ꯑꯣꯡꯅ ꯑꯃꯁꯨꯡ ꯐꯅꯃ ꯌꯥꯅꯣꯖ ꯅꯥꯅꯤꯡ ꯑꯣꯡꯅ, 1978-ꯒꯤ ꯕꯥꯅꯤꯏꯥꯅ ꯍꯕꯣꯡ ꯑꯥꯏꯗꯦ ꯌꯥꯏꯗꯤ: ꯍꯏꯏꯔꯗꯦ ꯄꯡꯃꯥꯡꯕꯨꯗꯦ ꯏꯐꯅꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯂꯕꯥꯗꯐ, ꯃꯤꯕꯣꯖꯂꯖ, ꯏꯂꯤꯡꯒꯤ ꯅꯒꯣꯅ, ꯕꯣꯅꯔꯦꯕꯗ ꯑꯃꯁꯨꯡ ꯕꯐꯗꯒꯤ ꯒꯣꯅꯁꯨꯂꯤꯡ ꯍꯂꯤꯗꯦ ꯌꯥꯏꯗꯤ꯫ ꯍꯂꯤ MAHUD, TPD, PDA Manipur, IMC, WRD, ꯃꯤꯂꯕꯗꯤꯌ ꯏꯥꯁꯖꯂꯤꯅ ꯑꯍꯅꯕ ꯅꯅꯗꯒ ꯑꯕꯥꯌꯌ ꯕꯥꯃꯤ ꯑꯍꯅꯕꯗꯦ ꯅꯥꯂꯤꯖꯏꯃꯣ꯫ ꯍꯗꯨꯑꯥꯏꯗꯦ:

- **ꯕꯤꯅꯃꯤꯡ ꯗꯨꯅꯂꯤꯡꯗꯦ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯏꯥꯍꯇꯤꯖꯕ ꯍꯐꯥ ꯕꯥꯄꯅꯇꯤ, ꯑꯁꯨꯕ ꯏꯗꯤꯒꯤꯅꯨ ꯂꯏꯇ ꯂꯣꯐꯃꯣ꯫** ꯕꯏ-ꯂꯣ 66-ꯗꯥ "100 ꯂꯏꯔꯦꯔꯗ ꯍꯤꯕꯗ ꯑꯃꯁꯨꯡ ꯍꯁꯨꯃꯒꯤ ꯄꯣꯖꯕ ꯌꯥꯅꯥꯅꯂꯤꯡꯃ ꯇꯕꯗꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯕꯕ ꯕꯤꯅꯃꯤꯡ ꯌꯨꯐꯅꯍꯄ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯔꯦꯁꯗꯦ ꯏꯂꯤꯡꯒꯤ ꯗꯖꯑꯥꯐ ꯏꯐꯅꯤꯖꯕ" (storing of water runoff including rainwater in all existing and new buildings on plots of 100 square metre and above) ꯕꯒꯃꯕꯅꯤ ꯄꯔꯔꯗꯦ ꯂꯣꯐꯍꯤ, ꯌꯥꯅꯦꯖꯂꯤꯡꯗꯦ "ꯍꯏꯥꯏꯤ ꯗꯤꯅꯗꯒꯔꯗꯂꯤꯡ ꯅꯅꯗꯒ ꯗꯤꯔꯦꯗꯇ ꯔꯣꯅꯂꯤꯡꯃ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯏꯥꯍꯇꯤꯖꯕꯒꯤ ꯍꯐꯐꯂꯤꯡꯒ ꯅꯔꯔꯅꯗꯦ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯏꯗꯐꯒꯤ ꯂꯤꯂꯕꯣꯐ" (the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells) ꯁꯅꯅꯕ ꯄꯏ, ꯑꯃꯁꯨꯡ ꯏꯒꯗ ꯕꯥꯗꯕ ꯑꯣꯗꯤꯔꯦ 500 m² ꯅꯅꯗꯒ ꯍꯁꯨꯃꯒꯤ ꯄꯣꯖꯕ ꯍꯐꯐꯃ ꯌꯥꯅꯥꯅꯤ 15% ꯑꯃꯁꯨꯡ ꯑꯕꯥꯌꯌ ꯍꯐꯐꯃ 10% ꯂꯥꯐꯅ ꯏꯒꯗ ꯏꯐꯍꯤ; ꯕꯏ-ꯂꯣ 68-ꯗꯥ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡ ꯏꯥꯍꯇꯤꯖꯕꯒ ꯅꯔꯔꯅꯗꯦ ꯗꯤꯂꯏꯏꯅꯤꯡ ꯕꯥꯗꯕꯃꯤ ꯌꯗꯍꯤꯖ ꯐꯤꯒꯤ 10% ꯗꯤꯕꯣꯅ ꯌꯤꯏ; ꯑꯃꯁꯨꯡ ꯕꯏ-ꯂꯣ 6(1)(D)-ꯗꯥ ꯍꯅꯕꯤ-ꯂꯕꯥꯗꯤꯃ, ꯗꯏꯐꯗꯏꯖ ꯑꯃꯁꯨꯡ ꯂꯌꯥꯣꯂꯤꯔꯣꯅ ꯕꯤꯅꯃꯤꯡꯂꯤꯡꯃ "ꯍꯁꯨꯅꯤꯂꯤꯌꯥꯣꯅ/ꯑꯕꯥꯌꯌ ꯑꯏꯗꯤꯕꯤꯒꯤ ꯇꯕꯗꯤꯕ ꯌꯗꯍꯅꯣꯖꯅ/ꯌꯥꯑꯏ ꯏꯥꯡꯕꯖ ꯐꯥꯁꯕ ꯂꯒꯃꯕ ꯍꯨꯡ ꯑꯃꯁꯨꯡ ꯍꯌꯖ ꯑꯅꯤꯍꯑꯏ ꯍꯌꯨꯡ ꯐꯕ ꯏꯗꯐꯒꯤ ꯌꯥꯗꯖ" (Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority) ꯄꯏ꯫ ꯏꯗꯨꯐꯕ ꯑꯍꯅꯕꯗꯦ ꯂꯕꯥꯗꯣꯅ ꯒꯅꯨꯐ, ꯗꯤꯅꯤꯅ ꯗꯣꯅ ꯅꯅꯗꯒ ꯗꯤꯖꯥꯏꯟ ꯂꯕꯥꯗꯐ ꯌꯥꯏꯃꯣ; ꯗꯖꯑꯥꯐꯏꯤ ꯍꯍꯤꯡ ꯇꯕ ꯑꯍꯏꯑꯕꯤ "ꯂꯏꯅꯕ ꯔꯦꯡꯗꯦ ꯌꯥꯣꯒꯤꯡ ꯕꯥꯕ ꯄꯖꯏꯄꯖꯨꯗꯦ ꯂꯏꯅꯕꯒꯤ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡꯒꯤ ꯗꯖꯑꯥꯐ ꯄꯖꯏꯄꯖꯕ" (Minimize storm water run-off from site by reducing hard paving on site) ꯄꯔꯔꯕ ꯒꯗꯤꯖ-ꯕꯤꯅꯃꯤꯡꯒꯤ ꯏꯗꯦꯏꯕꯣꯗꯤꯔꯖ ꯑꯍꯅꯤ;
- **ꯗꯨꯅꯂꯤꯡꯗꯦ ꯒꯗꯣ ꯔꯦꯕꯗ ꯇꯍꯨꯃ ꯏꯥꯃꯥꯏꯏ꯫** ꯕꯏ-ꯂꯣ 67-ꯗꯥ ꯑꯔꯕ ꯕꯤꯅꯃꯤꯡꯂꯤꯡꯒꯤ ꯄꯣꯖꯅꯕ ꯒꯗꯣ ꯔꯦꯕꯗ ꯑꯂꯤ "ꯇꯍꯦꯏꯒꯤ ꯍꯏꯒꯤ ꯏꯂꯤꯡ ꯗꯤꯔꯦꯗꯇ ꯕꯅꯕ ꯅꯥꯡꯒꯤ ꯏꯂꯤꯡꯒꯤ ꯗꯤꯔꯦꯗꯇ ꯂꯕꯗꯑꯥꯔꯗꯂꯤꯡꯃ" (to the rain water recharge structures for ground water recharge) ꯏꯅꯣꯑꯅ ꯕꯥꯏ꯫ ꯕꯐꯌꯥꯌꯥꯏꯤ ꯅꯐꯃ, ꯇꯍꯨ 30–50 m ꯇꯕ ꯑꯃꯁꯨꯡ ꯏꯂꯤꯡ ꯇꯍꯦꯏꯃꯒꯤ 2–5 m ꯍꯏꯃ ꯇꯕ ꯍꯐꯐꯃ, ꯑꯂꯤꯗꯨꯐꯕ ꯂꯕꯗꯑꯥꯔꯗ ꯑꯍꯃꯤ ꯇꯍꯨꯃ ꯇꯕ ꯂꯑ ꯌꯤꯅ ꯑꯍꯅꯤ꯫ ꯍꯣꯅꯨꯔꯣꯅ ꯑꯂꯤꯗꯦ ꯕꯥꯏꯖꯅꯕ ꯑꯂꯤ ꯄꯏ ꯑꯃꯁꯨꯡ ꯍꯁꯨꯒꯤ ꯍꯁꯨꯅꯕ ꯂꯕꯥꯗꯣꯅ ꯅꯅꯗꯒ ꯂꯤꯔꯗ ꯏꯅꯣꯑꯂꯖ ꯄꯏ; ꯍꯂꯤꯗꯦ ꯕꯏ-ꯂꯣ ꯑꯁꯨ ꯑꯒꯗꯗꯏꯃ ꯕꯥꯃꯣ;

- **ꯇꯨꯔꯦꯜꯒꯤ ꯕꯐꯔꯁꯤꯡ ꯑꯁꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯊꯀꯧ, ꯑꯃꯁꯨꯡ ꯃꯃꯤꯡ ꯂꯩꯔꯕ ꯇꯨꯔꯦꯜꯁꯤꯡꯗ ꯇꯣꯉꯥꯟꯂꯤ꯫** ꯕꯥꯏ-ꯂꯣ 93-ꯅ ꯃꯃꯤꯡ ꯂꯩꯔꯕ ꯔꯤꯖ ꯄ꯭ꯔꯣꯕꯤꯖꯟꯁꯤꯡꯗ ꯕꯐꯔ ꯑꯃꯒꯤ ꯃꯥꯂꯦꯝ ꯑꯗꯨꯕ ꯃꯑꯣꯡꯗ ꯊꯤꯡꯅ: ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜꯗ 55 m, 60 m ꯑꯃꯁꯨꯡ 62 m, ꯏꯔꯤꯜꯗ 50 m, ꯊꯧꯕꯥꯜꯗ 48 m, ꯀꯣꯡꯕꯥꯟ ꯑꯃꯁꯨꯡ ꯅꯥꯝꯕꯨꯜꯗ 35 m, ꯋꯥꯁꯦꯜꯗ 31 m, ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯂꯩꯕ ꯁꯤꯡꯖꯥꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯄꯥꯗ 30 m, ꯁꯤꯡꯖꯥꯡꯗ 25 m ꯑꯃꯁꯨꯡ ꯃꯦꯀꯥꯇꯥꯗ 22.5–28 m, ꯇꯨꯔꯦꯜꯒꯤ ꯃꯔꯣꯏꯅꯥꯒꯤ ꯊꯂꯕ, ꯁꯥꯢꯒꯤ, ꯄꯤꯔ ꯅꯦꯀꯕꯗ, ꯗ꯭ꯔꯦꯅꯒꯤ ꯃꯗ꯭ꯔꯦꯅꯊꯟꯒꯤ ꯍꯥꯟꯅꯒꯤ 6 m, ꯃꯇꯨꯡ ꯅꯦꯀꯗ ꯂꯗꯝꯂꯕꯅꯤ꯫ ꯗ꯭ꯔꯦꯟ 40 m ꯂꯩꯕ ꯄꯤꯔ ꯑꯃꯗ 30 m-ꯒꯤ ꯕꯐꯔꯗ ꯂꯩꯄꯅꯅꯒꯤ 10 m ꯍꯟꯖꯤꯟꯃꯟ ꯊꯃꯅ, ꯃꯦꯇꯥꯔꯦꯡ ꯑꯣꯏꯗ ꯅꯦꯀꯕ ꯃꯇꯨꯡ ꯅꯦꯀꯗ꯫ "prohibited" ꯁꯤꯡꯄꯒꯤ "restricted" ꯑꯦꯄꯤꯔꯦ ꯑꯃꯗ ꯊꯕꯟ ꯌꯥꯎꯕꯒꯤꯗꯃꯟ ꯀꯦꯆꯍꯤꯕ ꯈꯟꯍꯤꯗꯕ ꯐ꯭ꯂꯗ ꯂꯥꯏꯔꯤꯡ ꯑꯥꯊꯥꯄꯤꯌꯤ ꯑꯃꯒꯤ ꯗ꯭ꯔꯦꯄꯃꯤꯀꯣ ꯃꯊꯧ ꯌꯥꯅ꯫ ꯌꯦꯕꯟ ꯑꯗꯨꯗ ꯗ꯭ꯔꯦꯕꯀꯣꯡ, ꯗ꯭ꯔꯦꯅꯄꯤꯀꯣꯡ, ꯄꯤꯟꯒꯤ ꯍꯥꯟꯀꯣꯡ ꯑꯃꯁꯨꯡ ꯀꯣꯅꯄꯒꯤ ꯄꯦꯁꯦꯡꯀꯣꯡ ꯊꯗꯥꯟꯂꯤ, ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯕ ꯁꯤꯡꯄꯒꯤ ꯗ꯭ꯔꯦꯅꯄꯤ ꯑꯃꯗꯒꯤ ꯀꯦꯕꯕꯦꯟ ꯑꯃꯁꯤꯡ ꯈꯟꯍꯤꯗꯦ; ꯂꯥꯟꯌꯥꯟ ꯍꯟꯌꯗ ꯌꯥꯅꯦꯡꯒꯤ ꯂꯥꯏꯔꯤꯡ ꯂꯩ;
- **ꯐ꯭ꯂꯗ꯭ꯞ꯭ꯂꯦꯟꯒꯤ ꯌꯥꯅꯦꯡꯗ ꯂꯥꯏ ꯂꯩꯌꯦ꯫** ꯐ꯭ꯂꯗ ꯞ꯭ꯂꯦꯟꯦ ꯂꯥꯏꯔꯤꯡ ꯑꯦꯟꯁ, 1978-ꯗ "flood zone" ꯑꯃꯁꯤ "the maximum probable" ꯏꯀꯣꯡꯗ ꯏꯁꯤꯡꯒꯤ ꯄꯦꯡꯕꯗ ꯀꯦꯡꯗꯥꯟꯗ ꯌꯥꯟꯇꯤ, ꯀꯥꯟꯇꯕ ꯃꯥꯗ꯭ꯔꯤꯗ ꯗ꯭ꯔꯦꯂꯤꯕ ꯈꯦꯗ꯭ꯔꯕ, ꯄꯤꯌꯄꯦ ꯗ꯭ꯔꯤꯄꯤꯔꯅ ꯔꯦꯗ꯭ꯔꯅꯗ, ꯑꯃꯁꯨꯡ ꯂꯥꯦ ꯑꯃꯈꯦꯟ ꯏꯔꯅꯥꯟꯍꯤꯅ꯫ ꯑꯦꯗ꯭ꯔꯄꯤꯟ 2025-ꯅ ꯏꯝꯐꯥꯜꯒꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯦꯂꯦꯟꯀꯣꯡꯒꯤ ꯃꯗꯥꯟꯌ ꯈꯦꯄꯒꯈꯂꯕ ꯏꯒꯤꯡꯀꯦ ꯑꯥꯄꯅꯄ ꯑꯃꯗ ꯑꯦꯟꯈ ꯑꯃꯁꯨꯒꯤ "Section 24" ꯃꯥꯈꯍꯤ, ꯗ꯭ꯔꯦꯟ ꯈꯥꯌꯅꯥꯟꯍꯤꯕ ꯃꯇꯨꯡ ꯏꯥꯗ; ꯀꯦꯟꯀꯦ ꯑꯃꯨ ꯗ꯭ꯔꯍꯤꯅꯦ꯫ ꯕꯥꯏ-ꯂꯣ 94-ꯗ ꯗ꯭ꯔꯂꯤꯗꯊ ꯑꯀꯤ "ꯑꯃꯥꯔꯕꯒꯤ ꯑꯦꯄꯤꯔꯦꯀꯣꯡꯒꯤ ꯍ꯭ꯕꯏꯅꯒꯤ ꯔꯦꯡꯕ ꯏꯀꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯒꯦꯟ" (the highest flood level of the surrounding areas)-ꯅꯒꯤ 1 m ꯃꯊꯟꯌ ꯊꯈꯃꯤ, "ꯌꯥꯗ꯭ꯔꯦꯀꯣꯡꯒꯤ ꯃꯀꯣꯌꯄ ꯗ꯭ꯔꯂꯦꯗꯅ ꯍꯟꯅꯥꯟꯍꯤꯕ ꯏꯀꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯍꯅꯥꯟꯊꯤꯕ ꯔꯦꯡꯕ ꯑꯦꯄꯤꯔꯦꯀꯣꯡ" (high Flood Risk Areas identified in the Master Plan of the towns)-ꯅ ꯍꯟꯌꯃꯟ, ꯃꯍꯥꯛ ꯗ꯭ꯔꯍꯤꯅꯕ ꯄꯤꯀꯟ ꯏꯗꯖꯥꯄꯈꯅ ꯃꯀꯣꯌꯄ ꯗ꯭ꯔꯂꯦꯗꯀꯣꯡꯅ ꯂꯩ, ꯃꯄꯈ ꯑꯀꯤꯗ ꯃꯦꯇꯥꯔꯦꯡ ꯑꯀꯤꯗ ꯃꯀꯤ ꯃꯥꯅꯍꯅ ꯔꯁꯂꯕꯒꯦ ꯃꯥꯔꯕ ꯌꯈꯅꯦ꯫ ꯃꯦꯇꯥꯔꯦꯡ ꯑꯀꯤꯗ ꯃꯊꯟꯒꯤ ꯂꯥꯏꯔꯤꯡ ꯑꯃꯁꯤꯡꯒꯤ ꯏꯗꯈꯁ ꯑꯥꯍꯗ ꯅꯤꯂꯍꯗ ꯐ꯭ꯂꯗ ꯂꯍꯗ ꯑꯃꯁꯨꯡ ꯃꯥꯄꯤꯅꯥꯄꯤꯀꯣꯡ ꯔꯦꯟꯗꯕꯒꯤ ꯌꯦꯟꯂꯤꯃꯦ ꯊꯥꯗꯥ ꯑꯃꯁꯤ ꯗ꯭ꯔꯤꯄ (ꯀꯂꯨ 7); ꯃꯀꯤꯗ ꯂꯥꯏꯄꯤꯍꯤ ꯌꯥꯄꯕ ꯂꯥꯗ ꯑꯃꯁꯤꯡ, ꯃꯀꯣꯌꯄ ꯗ꯭ꯔꯂꯦꯗ ꯑꯃꯗ ꯔꯦꯟꯂꯕ ꯁꯤꯡꯄꯒꯤ ꯃꯥꯄꯤ ꯑꯃꯗ ꯑꯦꯄꯅꯄ ꯌꯥꯄꯕ ꯂꯍꯗ ꯑꯃꯁꯤꯡ ꯃꯊꯦꯡ ꯀꯤꯗꯅꯦ, ꯑꯃꯁꯨꯡ ꯑꯀꯤꯂꯈꯕ ꯂꯍꯗ ꯑꯃꯗ ꯊꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯀꯗ ꯗ꯭ꯔꯟꯗ ꯃꯏꯄꯅ, ꯃꯇꯨꯡ ꯀꯀꯗ ꯌꯥꯏ;
- **ꯗ꯭ꯔꯦꯈꯒꯤ ꯄꯨꯔꯀꯣꯡꯗ ꯀꯕ ꯊꯤꯟꯏ, ꯏꯀꯣꯡ ꯊꯤꯟꯅꯦ꯫** ꯃꯥꯅꯦꯔ ꯑꯃꯨꯒꯤ ꯕꯥꯏ-ꯂꯣ 92-ꯗ, ꯐꯥꯟꯅꯥꯟꯍꯤꯕ ꯃꯑꯣꯡꯅ, ꯅꯥꯒꯥ ꯏꯝꯐꯥꯜ ꯗ꯭ꯔꯨꯄ ꯊꯤꯟꯒꯤꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ ꯗ꯭ꯔꯦꯅꯈ ꯊꯈꯂꯤꯕ ꯄꯨꯔ, 30°-ꯒꯤ ꯃꯊꯟꯌ ꯀꯕ ꯁꯤꯡꯄꯒꯤ ꯃꯥꯗ꯭ꯔꯗ ꯑꯃꯁꯤꯡ ꯂꯩꯄꯏꯅꯕ ꯑꯃꯁꯨꯡ 21–30°-ꯒꯤ ꯗ꯭ꯔꯦꯈꯀꯣꯡꯗ ꯐ꯭ꯂꯗꯄ ꯑꯂꯤ ꯁꯤꯡꯄꯒꯤ 7 m ꯍꯟꯌꯃꯟ, ꯗ꯭ꯔꯤꯄꯤꯕ 2024-ꯒꯤ IMC-ꯒꯤ ꯅꯄꯥꯦꯁ ꯌꯥꯟꯀꯌ ꯑꯃꯨ ꯑꯦꯕꯂꯟꯀꯦꯀꯣꯡꯒꯤꯗꯃꯟ ꯐꯥꯟꯅꯥꯟꯍꯤ ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ ꯑꯄꯥꯏꯕ ꯀ꯭ꯌꯥꯌꯀ ꯃꯦꯐꯄꯈ ꯌꯥꯍꯤꯅꯦ꯫ ꯗ꯭ꯔꯦꯈꯀꯣꯡꯗ ꯁꯤꯡꯄꯒꯤ ꯀꯦꯟꯗ ꯀꯥꯟ ꯗ꯭ꯔꯤꯌ, ꯄꯤꯔꯍꯤꯂ ꯗ꯭ꯔꯤꯌ ꯁꯤꯡꯄꯒꯤ ꯏꯦꯐꯤꯟꯌꯄꯥꯦꯀꯦ ꯌꯄꯥꯦꯁꯀꯣꯡ ꯊꯤꯟꯕ ꯄꯨꯔ ꯑꯃꯁꯤꯡ ꯂꯩꯌꯦ, ꯑꯃꯁꯨꯡ ꯍꯤꯗꯒꯤ ꯁꯈꯀꯣꯡꯗ ꯕꯤꯟꯅꯤ ꯄꯨꯔ ꯑꯃꯁꯤꯡ ꯍꯤꯁꯗꯅ;
  ꯑꯃꯁꯨꯡ
- **ꯑꯦꯗ꯭ꯔꯁꯐꯦꯟ ꯑꯃꯒꯤ ꯅꯤꯂꯍꯗ ꯌꯥꯕ ꯇꯨꯔꯦꯜ ꯁꯤꯡꯄꯒꯤ ꯂꯥꯟꯃꯤ ꯂꯦꯒꯦꯟ ꯀꯦꯈꯕ ꯅꯦꯗꯥꯃꯃꯦꯁ ꯑꯃꯁꯤꯡ ꯂꯩꯌꯦ꯫** CWC-ꯒꯤ ꯀꯌꯦꯁ ꯑꯀꯤꯅ ꯀꯍꯗꯁ ꯑꯃꯍꯟꯌ ꯂꯩ, ꯍꯥꯌꯦꯕꯦꯄꯤꯇꯅ ꯕꯤꯟ ꯇꯨꯔꯦꯜꯅ, ꯃꯇꯨꯡꯒꯤ 32.1 m (31 ꯀꯂꯨꯍ 1989)-ꯒꯤ ꯌꯍꯔꯦꯀꯁ ꯐ꯭ꯂꯗ ꯂꯦꯒꯦꯟ ꯌꯥꯄꯤꯀꯣꯄꯤꯗ꯭ꯔꯀꯦ ꯑꯃꯅ ꯍꯟꯌꯃꯟ ꯐꯥꯟꯍꯤ꯫ ꯌꯥꯈꯤꯀꯣꯡꯒꯤ ꯇꯨꯔꯦꯜꯀꯣꯡꯗ ꯂꯩꯕ WRD-ꯒꯤ ꯔꯦꯄꯤꯀꯣꯡ, ꯐ꯭ꯂꯗ ꯑꯃꯁꯨꯡ ꯌꯍꯔꯦꯀꯁ ꯐ꯭ꯂꯗ ꯂꯦꯒꯦꯟꯀꯣꯡ ꯗ꯭ꯔꯦꯟꯂꯦꯟꯀꯣꯡꯗ ꯐꯥꯟꯅꯥꯟꯍꯤꯕ ꯃꯑꯣꯡꯅ ꯍꯟꯌꯃꯟ ꯐꯥꯟꯍꯤ, ꯌꯍꯄꯤꯅ ꯅꯦꯕ ꯑꯃꯁꯤꯡ ꯔꯦꯗ꯭ꯔꯅꯗ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯒꯤ ꯑꯀꯤ ꯌꯥꯄꯤꯀꯣꯡꯒꯤ ꯃꯄꯥꯟꯌ ꯌꯥꯈꯦꯟꯗꯦ; ꯂꯥꯟꯌꯥꯟꯒꯤ ꯄꯨꯔ ꯂꯦꯒꯦꯟ 768.5 m ꯑꯃꯁꯨꯡ 769.63 m ꯌꯍꯗꯗ ꯗ꯭ꯔꯤꯄ꯫ ꯌꯥꯈꯤꯀꯣꯡꯒꯤ ꯗ꯭ꯔꯦꯀꯣꯡꯗ ꯂꯩꯕ ꯍꯊꯀꯣꯡ, ꯐ꯭ꯂꯗꯄ ꯒꯦꯁ (flap gate)-ꯀꯣꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯥꯗ꯭ꯔꯥꯀꯣꯡ ꯀꯌꯦꯀꯣꯡꯒꯤ ꯍꯦꯂꯦꯌꯁ ꯑꯃꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛ ꯍꯗꯍꯦꯕꯒꯤ ꯄꯨꯔ ꯑꯃꯁꯤꯡ ꯐꯥꯟꯍꯤꯅꯦ꯫ ꯌꯍꯔꯦꯀꯁ ꯐ꯭ꯂꯗ ꯂꯦꯒꯦꯟꯀꯣꯡ ꯑꯀꯤ ꯄꯥꯃꯥꯄꯥꯅꯀꯣꯗꯀꯤ, ꯅꯤꯂꯍꯗ ꯂꯦꯒꯦꯟ ꯁꯤꯡꯌꯦ꯫

ꯃꯄꯈ ꯑꯀꯤꯗ ꯑꯦꯂꯦꯌꯀꯤ ꯄꯨꯅꯤꯗꯃꯟ ꯑꯃꯁꯨꯡ ꯂꯥꯃꯗ ꯕꯥꯅꯤ ꯄꯨꯅꯤꯗꯃꯟꯗ ꯀꯦꯌꯥꯄ꯭ꯄꯦ ꯃꯦꯇꯥꯔꯦꯡ ꯑꯀꯤ ꯃꯀꯣꯒꯤ ꯃꯑꯣꯡꯅ ꯍꯌꯦꯅ꯫ IMC ꯑꯃꯁꯨꯡ ꯑꯌꯥꯗ꯭ꯔꯥ ꯗ꯭ꯔꯄꯤꯕꯦ ꯂꯥꯃꯗ ꯕꯥꯅꯤꯀꯣꯡ, PDA Manipur ꯑꯃꯁꯨꯡ TPD, PWD ꯑꯃꯁꯨꯡ ꯁꯦꯀꯁꯦꯗ-ꯌꯍꯔꯦꯒꯤ ꯑꯦꯂꯦꯌꯀꯣꯡ, WRD, PHED, DoECC, LDA, ꯏꯝꯐꯥꯜ ꯀꯃꯤꯄꯤꯌ ꯀꯤꯌꯤ ꯂꯤꯃꯤꯌꯦꯅ, ꯃꯍꯥꯛꯒꯤ ꯃꯦꯀꯗꯌꯦꯦꯌꯀꯣꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗꯤ ꯑꯦꯂꯦꯌꯀꯣꯡꯗ ꯌꯥꯅꯥꯟꯍꯤꯕ ꯃꯐꯃꯀꯣꯡ ꯌꯥꯈꯦꯗ ꯃꯗ꯭ꯔꯥ ꯐꯦꯗꯂꯤ꯫ ꯁꯥꯃꯨꯁꯥꯡꯒꯤꯌꯦꯀꯦ ꯑꯃꯁꯨꯡꯗ ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥ (Naga Nullah), ꯋꯥꯏꯁꯦꯜ ꯃꯥꯔꯤꯜ (Waisel Maril) ꯁꯤꯡꯄꯒꯤ ꯀꯂꯨꯗ ꯗ꯭ꯔ (Shamushang nallah) ꯑꯀꯤ ꯃꯗ꯭ꯔꯥ ꯑꯃꯅ ꯀꯤꯗꯅꯦ꯫ ꯏꯝꯐꯥꯜꯅ ꯂꯩꯕ ꯍꯥꯟꯕꯦ ꯑꯃꯁꯤ ꯃꯀꯤꯒꯤ ꯀꯥꯕꯒꯤ ꯀꯂꯨꯌ ꯑꯃꯅ IMC-ꯒꯤ ꯃꯗ꯭ꯔꯂꯤꯅꯤꯡꯒꯤ ꯍꯥꯟꯕꯦ ꯑꯃꯁꯨꯡ ꯑꯌꯥꯗ꯭ꯔꯥ ꯀꯂꯨꯌꯥ PWD-ꯒꯤ ꯂꯤꯁꯕꯤꯒꯤ ꯃꯗ꯭ꯔꯌꯥꯃꯤ ꯍꯥꯟꯕꯦ ꯑꯥꯏꯕ ꯔꯦꯏ, ꯁꯤꯁꯕꯨꯟ ꯇꯨꯔꯦꯜꯗ ꯔꯦꯗ꯭ꯔꯤꯗꯃꯟꯅ DoECC-ꯗ ꯏꯦꯌꯄꯀꯦꯗ꯭ꯔꯥꯌ ꯌꯥꯕ ꯀꯤꯔꯦꯂ ꯗ꯭ꯔꯦꯕ ꯔꯦꯏ, WRD-ꯒꯤ ꯗ꯭ꯔꯦ ꯑꯃꯅ ꯂꯩꯕ ꯒꯦꯁ ꯑꯃꯒꯤ ꯄꯨꯁꯊꯤꯅ ꯍꯁꯦ ꯔꯦꯏ, ꯑꯃꯁꯨꯡ ꯏꯀꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯀꯌꯦꯄꯦꯂ ꯑꯥꯏꯗ ꯑꯃꯨꯌ ꯌꯦꯗ ꯀꯤꯒꯤꯁꯂꯤꯕ ꯗ꯭ꯔꯦꯁ ꯑꯃꯅ ꯁꯤꯡꯄꯒꯤ LDA-ꯒꯤ ꯃꯍꯦꯅ ꯂꯩꯕ ꯂꯥꯌꯥꯀꯤꯌꯥ ꯂꯥꯏꯕ ꯔꯦꯏ꯫ ꯄꯤꯟꯒꯤ ꯁꯤꯡꯀꯣꯡꯅ ꯕꯤꯟꯅꯤꯀꯣꯡ ꯄꯨꯔ ꯑꯃꯁꯤꯡ ꯍꯤꯁꯗꯅ꯫ ꯑꯃꯁꯨꯡ ꯄꯤꯒꯤꯄꯦ ꯌꯥꯄꯤꯕ ꯑꯃꯅ ꯅꯤꯂꯍꯗ ꯑꯃꯁꯤ ꯍꯌꯥ ꯌꯥꯁꯦꯕ ꯗ꯭ꯔꯦꯗꯦ ꯀꯤꯂꯤꯗꯦꯕ ꯄꯨꯗꯃꯃꯦ ꯑꯃꯁꯤꯡ ꯂꯩꯌꯦ꯫

ꯃꯣꯔꯨꯑꯣꯏꯕ ꯑꯣꯏꯅꯥ ꯃꯣꯏꯀꯤꯗꯃꯛ ꯌꯥꯏ ꯄꯥꯝꯕꯤꯀꯟ॥ ꯃꯣꯏꯅꯥ ꯄꯥꯝꯗꯨꯅꯤꯕ ꯍꯧꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯨꯡꯍꯌꯥꯏ ꯁꯨꯡꯗꯝꯔꯝ ꯑꯃꯍꯧꯗꯨꯅ ꯑꯦꯗꯨꯌꯥꯏ:

- ꯁꯨꯡꯍ ꯀꯨꯃꯕꯝ ꯝꯤꯇꯥꯡꯗ ꯆꯦꯗ ꯂꯕꯒꯤꯝꯃꯗ ꯄꯥꯔꯗꯇꯃ ꯑꯃꯁꯨꯡ ꯌꯥꯑꯦꯗ ꯑꯃꯍꯧꯗꯨ, ꯆꯦꯗ ꯂꯕꯒꯤ ꯇꯦꯗ ꯑꯂꯃ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯝꯔꯦꯇꯦꯇꯤꯒꯤ ꯁꯕ-ꯑꯣꯔꯤꯅꯦ ꯃꯌꯝ, ꯍꯣꯗ ꯄꯥꯔꯕ ꯁꯨꯡꯣꯁꯗ ꯑꯣꯆꯦꯆꯦꯡꯁꯤꯁ ꯑꯃꯦ ꯇꯥꯕ ꯃꯇꯃꯝ ꯃꯂꯆꯦ ꯁꯁꯗ ꯄꯥꯆꯕ; ꯍꯃꯇꯦꯟ ꯄꯃꯀꯤꯗꯄ ꯑꯃꯁꯨꯡ ꯇꯦꯗꯄꯥꯗꯌꯤ ꯃꯆꯦꯗꯄ ꯍꯃꯇꯦꯟꯒꯤ ꯃꯁꯦꯒꯤ ꯁꯤꯔꯤꯇꯝꯒꯤ ꯆꯦꯌꯀ ꯄꯃꯀꯤꯗꯌꯤ ꯄꯣꯕꯟ; ꯑꯅꯦꯡ, ꯆꯦꯡꯀꯦꯗ ꯑꯃꯁꯨꯡ ꯍ ꯊꯡꯕ ꯅꯤꯡꯁꯤꯡꯝ NIH-DHAARA, ꯄꯃꯀꯤꯗꯌꯤ ꯄꯣꯕꯟꯝꯒꯤ ꯌꯥꯝꯦ ꯌꯥꯝꯂ ꯄꯥꯗꯊꯝꯆꯦ; ꯆꯦꯡꯂꯀ ꯊꯡꯕ ꯅꯤꯡꯁꯤꯡꯝ ꯑꯃꯁꯨꯡ ꯇꯤꯔꯤꯕꯤꯃꯒꯤ ꯀꯇꯣꯗꯝ, ꯁꯕꯇꯦꯗ 2(c)-ꯒꯤ ꯔꯤꯀꯦꯔꯍ ꯇꯥꯄꯕ ꯃꯇꯃꯝ, ꯕꯔꯦꯗ-ꯄꯃꯀꯤꯗꯌꯤ ꯇꯇꯦꯔꯁꯤꯡ; ꯄꯃꯀꯤꯗꯌꯤ ꯂꯃꯤꯍ ꯌꯅꯦꯒꯤ ꯍꯁꯤꯡ ꯍꯅꯦꯁꯤꯡꯒꯤꯝꯃꯗ ꯀꯨꯡ 72-ꯒꯤ ꯑꯅꯦꯡꯕꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯄꯃꯀꯤꯗꯌꯤ ꯊꯃꯍ ꯆꯍꯔꯤꯒ ꯅꯤꯡꯒꯤ ꯃꯊꯗ ꯑꯃꯍꯄ ꯌꯥꯝꯦ ꯌꯥꯝꯂ ꯆꯦꯗꯊꯦꯗꯄꯕ, ꯃꯆꯦꯗꯄ ꯔꯣꯌꯥꯦꯔꯝ ꯄꯥꯍꯤꯕ ꯍꯕꯍꯝꯒꯤ ꯅꯦꯁꯕ ꯊꯇꯕ ꯅꯦꯕ ꯂꯃꯤꯍꯁꯤꯡꯒꯤ ꯝꯤꯇꯥꯡꯗ ꯂꯃꯤꯍ ꯅꯣꯗ ꯄꯕ (ꯁꯔꯨꯛ 2);
- ꯍꯔꯃꯒꯤ ꯑꯦꯍꯕ ꯀꯦꯍ ꯍꯝꯤꯡꯃꯗꯌꯤꯝꯃꯗ ꯃꯃꯤꯡ ꯇꯥꯔꯕ ꯔꯤꯄꯔꯗ ꯀꯤꯔꯤꯅꯝꯁꯤꯡ (ꯁꯔꯨꯛ 2 ꯑꯃꯁꯨꯡ 6);
- ꯀꯔꯦꯍꯒꯣꯍ ꯁꯦꯍꯍꯁꯤꯡꯒꯤꯝꯃꯗ ꯃꯊꯥ ꯄꯦꯕ ꯝꯣꯒꯣꯆꯀꯃꯣꯗꯍꯌꯤ ꯃꯃꯦꯡ ꯑꯃꯁꯨꯡ ꯃꯄꯨꯡꯒꯤ ꯔꯨꯅ ꯑꯃꯦ, ꯕꯦꯍ-ꯇꯥ 66-ꯒꯤ ꯆꯦꯡꯒꯤ ꯍꯁꯤꯡꯒꯤ ꯁꯨꯡꯔꯁꯤꯡꯒꯤ ꯁꯦꯍꯇ ꯁꯣꯃꯂꯆꯦ ꯌꯔꯣꯝꯤꯍ ꯀꯤꯂꯆꯦ (ꯁꯔꯨꯛ 4);
- ꯑꯦꯟꯍꯅꯦꯟ ꯍꯝꯤꯡꯃꯗꯌꯤꯝꯃꯗ ꯝꯤꯇꯥꯡꯗ ꯄꯨꯔꯣꯟ ꯆꯍꯔꯤꯒꯦ ꯇꯣꯗꯌꯤ ꯇꯣꯒꯣꯟꯒꯦ ꯃꯊꯥ ꯄꯦꯕ ꯄꯣꯟꯅꯦꯄꯔ ꯍꯣꯗ ꯑꯃꯦ, ꯃꯁꯤꯆꯦ ꯅꯦꯡꯇꯕ ꯄꯨꯔꯣꯟ ꯑꯃꯒꯤ ꯃꯅꯦꯗꯄ ꯊꯤꯡꯇꯕ ꯒꯣꯍ ꯑꯃꯦ ꯄꯃꯀꯤꯗꯄ ꯆꯦꯔꯃꯣꯟ ꯃꯦꯗꯂꯑꯦꯒꯤ ꯅꯤꯒꯃ ꯑꯦꯍꯆꯦ ꯇꯥꯍ: ꯀꯨꯡ 72-ꯒꯤ ꯝꯤꯇꯥꯡꯗ ꯁꯨꯡꯔꯃ ꯀꯨꯃꯕꯝ ꯑꯃꯁꯨꯡ ꯃꯂꯒꯤ ꯃꯄꯨꯡꯝ ꯄꯨꯔꯣꯟ ꯑꯃꯂ ꯁꯤꯟꯒꯤ ꯃꯊꯗꯄ ꯇꯥꯔꯤꯅꯤꯕ ꯒꯣꯍ ꯊꯤꯡꯇꯕ, ꯑꯃꯁꯨꯡ ꯁꯨꯡꯇꯒꯤ ꯔꯣꯌꯥꯦꯔꯝ ꯑꯃꯍꯄ ꯑꯣꯆꯦꯆꯦꯍꯇ ꯄꯥꯝꯕ ꯃꯅꯃꯝ ꯄꯃꯀꯤꯗꯌꯤ ꯃꯔꯨꯑꯦꯍꯕ ꯄꯨꯔꯣꯟꯁꯤꯡꯝ ꯑꯃꯁꯨꯡ ꯕꯔꯦꯗꯄ ꯂꯃꯤꯍ 7-ꯝꯒꯤ ꯄꯥꯗꯊꯝꯆꯦ; ꯝꯤꯇꯥꯡꯗ ꯇꯣꯗꯌꯤ ꯇꯣꯒꯣꯟꯒꯤ ꯃꯍꯝ ꯇꯥꯕ ꯇꯦꯗꯄꯥꯗꯌꯤ ꯃꯆꯦꯗꯄ ꯇꯥꯕ ꯑꯦꯟꯍꯅꯦꯟ ꯑꯃꯦ 1 ꯂꯗꯝꯒꯤ 30 ꯁꯣꯀꯄꯣꯃꯕꯔ ꯅꯤꯡꯕ ꯊꯤꯡꯇꯕ ꯑꯦꯍꯆꯦ ꯇꯥꯕ; ꯄꯥꯔꯌꯀꯝ ꯍꯁꯤꯡ ꯇꯥꯔꯤꯕ ꯀꯦꯍ ꯆꯍꯔꯤꯒꯦ ꯀꯂꯍꯔꯤ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯑꯦꯟꯍꯅꯇꯣꯍ ꯇꯣꯒꯣꯟ ꯅꯤꯡꯕ ꯊꯟꯇꯕ; ꯑꯃꯁꯨꯡ ꯊꯃꯇꯤꯟꯇꯕ ꯍꯁꯤꯡ ꯀꯨꯡ 48-ꯒꯤ ꯃꯂꯡꯝ ꯀꯃꯀ ꯄꯥꯂꯆꯦ ꯄꯥꯗꯊꯄꯥꯗꯕ (ꯁꯔꯨꯛ 5);
- ꯝꯤꯇꯥꯡꯗ ꯅꯇꯝ ꯆꯍꯗ ꯑꯃꯦ, ꯑꯃꯁꯨꯡ ꯄꯨꯔꯣꯟꯁꯤꯡ, ꯍꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯄꯔꯒꯤ ꯅꯣꯇꯣꯟꯁꯤꯡꯒꯤ ꯃꯆꯦꯗꯄ ꯑꯃꯁꯨꯡ ꯀꯦꯍ ꯑꯃꯁꯨꯡ ꯀꯂꯍꯔꯤꯁꯤꯡꯒꯤ ꯑꯌꯦꯅꯕꯝ ꯌꯦꯔꯤꯝꯦꯔ ꯑꯃꯁꯨꯡ ꯁꯣꯍꯕꯣꯗꯁꯤꯡ, ꯄꯣꯗꯆꯦ ꯀꯗꯀ ꯌꯔꯤꯃꯍꯄ ꯊꯤꯡꯝꯕ ꯃꯇꯃꯝ ꯁꯤꯇꯤꯗꯆꯆꯕ ꯃꯣꯔꯨꯑꯣꯏꯕ ꯑꯣꯏꯅꯥ ꯀꯔꯀꯦꯇ ꯄꯥꯔꯕ, ꯍꯔꯃ ꯄꯥꯕ ꯑꯣꯔꯤꯅꯦ 8 ha ꯆꯍꯔꯤꯒꯦ ꯃꯂꯝꯒꯤ ꯄꯣꯗꯕ ꯃꯄꯥꯆꯦꯒꯤ ꯅꯣꯆꯣꯟ ꯍꯝꯤꯡꯃꯗꯄ ꯇꯥꯕꯦꯍꯒꯤ ꯃꯊꯗꯄꯒꯤ, ꯆꯍꯔꯤꯒꯦ ꯀꯗ ꯇꯥꯕ ꯔꯤꯅ ꯑꯃꯝ ꯀꯗꯒꯤ ꯆꯃ ꯊꯡꯕ ꯍꯦꯡꯝꯒꯤ, ꯅꯦꯃꯂꯔꯕꯝꯦ 15 m ꯇꯥꯕ ꯌꯦꯔꯤꯝꯦꯔ ꯑꯃꯦ ꯆꯦꯅꯆꯆꯦ, ꯑꯃꯁꯨꯡ ꯕꯦꯍ-ꯇꯥ 93-ꯒꯤ ꯕꯗꯔꯁꯤꯡ, ꯇꯦꯗꯄꯦꯗ ꯑꯣꯗꯍꯌꯤ ꯆꯦꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯄꯤꯗꯍ ꯄꯥꯔꯕ ꯍꯁꯤꯡ ꯍꯅꯦꯁꯤꯡꯒꯤ ꯆꯦꯗꯁꯤꯡ ꯄꯣꯗꯆꯦ ꯀꯗꯀ ꯃꯗꯃ ꯍꯝꯤꯡꯃꯗꯄ; ꯑꯃꯁꯨꯡ ꯇꯥꯕꯂꯗ ꯆꯍꯔꯤꯒꯦ ꯅꯣꯍꯇꯣꯗꯝ ꯑꯦꯗꯊꯦꯌꯀ ꯃꯄꯃꯝ ꯃꯡꯇꯤꯕ ꯍꯁꯤꯡ ꯍꯅꯦꯁꯤꯡꯒꯤ ꯁꯨꯡꯔꯣꯇ ꯕꯣꯁꯤꯗ ꯑꯃꯂꯃꯗꯄ ꯃꯄꯨꯍ ꯁꯤꯗꯕ (ꯁꯔꯨꯛ 7);
- ꯄꯃꯀꯤꯗꯌꯤ ꯆꯃꯒꯤ ꯇꯥꯂ, ꯁꯤꯅꯍ ꯑꯃꯁꯨꯡ ꯀꯤꯍꯄ, 1% AEP-ꯒꯤ ꯍꯁꯤꯡ ꯍꯅꯦꯁꯤꯡꯒꯤ ꯇꯣꯒꯣꯟꯒꯤ ꯃꯍꯝ, ꯑꯦꯟꯍꯅꯦꯟꯁꯤꯡ ꯊꯤꯡꯇꯕꯝꯤ ꯍꯁꯤꯡ ꯇꯣꯀꯀ ꯀꯗꯗ ꯇꯥꯕ ꯑꯣꯔꯤꯅꯦ ꯑꯃꯒꯤ ꯃꯂꯡꯝ, ꯀꯦꯍ ꯑꯃꯁꯨꯡ ꯀꯂꯍꯔꯤꯁꯤꯡꯒꯤ ꯃꯍꯌꯝ, ꯇꯦꯗꯄꯦꯗ ꯑꯣꯗꯍꯌꯤ ꯑꯣꯔꯤꯅꯦꯒꯤ ꯃꯂꯡꯝ ꯆꯍꯔꯤꯒꯦ ꯅꯦꯄꯔ ꯄꯣꯕꯟ ꯑꯁꯤ ꯃꯊꯗꯄꯒꯤ 2 m-ꯒꯤ ꯃꯂꯡꯝ ꯅꯤꯡꯍꯍꯇꯌꯀ ꯃꯇꯃꯝ ꯀꯗꯝꯃ ꯊꯃꯂꯆꯦ ꯍꯗꯇꯤꯟꯄꯔꯣꯁꯗ ꯄꯥꯝꯕ; ꯇꯤꯑꯦꯄꯣꯗꯇꯤꯌꯣꯟ ꯁꯔꯄꯤꯇꯤꯌꯣꯍ ꯅꯦꯡꯂꯆꯦ 10°-ꯝꯒꯤ ꯄꯣꯗꯆꯦ ꯌꯃꯕ ꯆꯀꯦꯃꯁꯤꯡꯝ ꯆꯍꯔꯤꯒꯦ ꯆꯀꯦꯃ ꯌꯔꯤꯀꯃꯕ ꯑꯃꯍꯄꯝ ꯝꯤꯁꯦꯡ ꯁꯣꯅꯝ ꯌꯔꯤꯃꯍꯄ ꯄꯥꯝꯕ; ꯅꯤꯡꯒꯤ ꯍꯦꯡꯝ ꯄꯣꯁꯍ ꯄꯥꯔꯕ ꯇꯥꯃꯍꯝ ꯍꯗꯄꯃꯗ ꯔꯤꯅꯔꯇ; ꯆꯦꯗ ꯂꯝꯕ ꯃꯄꯃꯒꯤꯝꯃꯗ ꯂꯃꯊꯗꯌꯤ ꯔꯗꯑꯦꯍ ꯁꯨꯡꯔꯣꯇꯝ, ꯕꯦꯍ-ꯇꯥ 66-ꯗꯦ ꯄꯥꯇꯤꯗꯄꯒꯤ ꯃꯊꯥ ꯄꯦꯄꯥꯅꯇꯤꯕꯒꯃꯗꯦ, ꯃꯁꯤꯒꯤ ꯍꯣꯗꯊꯦꯗꯀ ꯍꯁꯤꯡ ꯆꯦꯍꯗ ꯄꯥꯔꯕ ꯍꯦꯡꯕꯗꯁꯤꯡꯝ; ꯑꯃꯁꯨꯡ ꯍꯦꯡꯕꯗꯁꯤꯡꯗꯦ ꯁꯤꯅꯣꯇ ꯀꯂꯔꯤꯕ ꯃꯇꯃꯝ, ꯀꯦꯍ, ꯇꯦꯗꯄꯦꯗ ꯆꯍꯔꯤꯒꯦ ꯀꯦꯂꯁꯗ ꯑꯦꯍꯔꯕ ꯄꯨꯔꯣꯟꯒꯤ ꯁꯨꯡꯔꯣꯅ ꯑꯃꯝ ꯅꯍꯀ ꯑꯦꯟꯍꯅꯦꯟ ꯍꯝꯤꯡꯃꯗꯌꯤ ꯃꯃꯤꯡꯝ ꯆꯦꯗ ꯂꯝꯕ ꯃꯄꯃꯒꯤ ꯍꯣꯗꯕ (DWF) ꯍꯗꯄꯔꯁꯣꯀꯄ ꯄꯕ ꯑꯃꯁꯨꯡ ꯁꯌꯔꯤꯗ ꯄꯕ (ꯁꯔꯨꯛ 8);
- ꯝꯣꯕꯔꯤꯁ ꯔꯣꯗꯁꯤꯡ, ꯅꯤꯡꯒꯤ ꯍꯦꯡꯁꯤꯡ ꯄꯃꯀꯤꯗꯌꯤ ꯆꯃꯝ ꯅꯥꯕ ꯃꯇꯃꯝ ꯁꯤꯅꯍ ꯄꯔꯣꯀꯁꯤꯡ, ꯁꯣꯝꯤꯃꯣꯗꯍ ꯑꯃꯁꯨꯡ ꯕꯇꯦꯌꯣꯇꯒꯤ ꯑꯣꯇꯦꯅꯣꯗꯁꯁꯤꯡ, ꯅꯃꯝꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯃꯦꯍꯌꯤ ꯃꯅꯦꯗꯄ ꯁꯌꯔꯤꯗꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯄꯨꯔꯣꯟꯒꯤ ꯅꯦꯡꯕ ꯁꯨꯡꯇꯒꯤꯝꯃꯗ ꯝꯤꯇꯥꯡꯗ ꯄꯥꯔꯕ ꯍꯊꯦꯁꯤꯡ, ꯅꯇꯣꯀ ꯒꯣꯍꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯃꯀꯁꯤꯡ (ꯁꯔꯨꯛ 6 ꯑꯃꯁꯨꯡ 9), ꯍꯦꯡꯕꯗꯁꯤꯡ, ꯍꯗꯇꯣꯍꯁꯤꯡ, ꯁꯌꯔꯤꯗꯁꯤꯡ, ꯒꯣꯍꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯃꯀꯁꯤꯡ ꯑꯣꯀꯔꯤꯅꯒꯤ ꯆꯦꯗ ꯂꯕꯒꯤ ꯊꯝꯦꯗꯁꯤꯡꯒꯤ ꯃꯃꯦꯡꯝ 31 ꯃꯔꯤꯅ ꯅꯤꯡꯕ ꯁꯣꯡꯝꯦꯗꯄꯂꯆꯦ, ꯄꯣꯁꯍ ꯄꯥꯂꯆꯦ ꯑꯃꯁꯨꯡ ꯁꯣꯃ ꯁꯔꯣ ꯄꯅꯆꯦ ꯁꯔꯄꯤꯅꯍ ꯄꯥꯂꯆꯦ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯄꯃꯀꯤꯗꯄ ꯍꯁꯤꯡ ꯍꯅꯦꯁ ꯆꯦꯗꯄꯥꯗꯍꯤꯕ ꯃꯣꯒꯤ ꯑꯔꯦꯍꯕꯝ ꯆꯦꯌꯀ ꯆꯦꯗ ꯂꯕꯒꯤ ꯊꯝꯦꯗꯁꯤꯡꯒꯤ ꯃꯃꯦꯡꯝ 15 ꯃꯣ ꯅꯤꯡꯕ ꯑꯃꯂꯗ ꯄꯥꯗꯆꯦ ꯁꯣꯡꯝꯦꯗꯄꯂꯆꯦ, ꯑꯃꯁꯨꯡ ꯃꯄꯃ ꯑꯃꯂꯒꯤ ꯃꯄꯨꯡꯝ 15 ꯆꯦꯒꯣꯃꯕꯔ ꯅꯤꯡꯕ, ꯑꯃꯁꯨꯡ 1 ꯑꯣꯀꯔꯤꯅꯝꯒꯤ 31 ꯑꯦꯗꯄꯕꯔ ꯅꯤꯡꯕ ꯁꯨꯡꯔꯝꯕꯍ ꯊꯃꯂꯆꯦ (ꯁꯔꯨꯛ 10); ꯑꯃꯁꯨꯡ
- ꯕꯣꯁꯤꯗ ꯀꯨꯃꯕꯒꯤ ꯃꯁꯨꯡꯔ ꯀꯇꯦꯗꯁꯤꯡ, ꯃꯔꯃꯝꯤ ꯅꯤꯡꯁꯤꯡꯝꯒꯤ ꯄꯃꯀꯤꯗꯌꯤ ꯆꯃ ꯑꯃꯁꯨꯡ ꯇꯦꯗꯄꯦꯗ ꯅꯤꯡꯕ ꯕꯣꯁꯤꯗ ꯑꯃꯝ ꯁꯣꯅꯦꯔ ꯄꯥꯔꯤꯕ ꯑꯣꯇꯣꯗꯁꯤꯁꯤꯡꯗꯦ ꯀꯂꯗꯦ ꯀꯇꯦꯗ ꯄꯥꯆꯕꯒꯤꯝꯃꯗꯄꯆꯤ (ꯁꯔꯨꯛ 11)॥

ꯃꯁꯤꯗꯦ CPHEEO ꯃꯥꯗꯨꯔꯥꯟ ꯃꯁꯦꯃꯑꯗꯦ ꯑꯤꯊꯤꯕ ꯗꯐꯕꯤ ꯑꯃꯨ ꯁꯤꯗꯤꯌꯦꯗꯦ: ꯂꯣꯟꯥ ꯑꯃꯗꯦ ꯗꯥꯂꯗꯥꯟ ꯒꯥꯟꯁꯨꯁꯤꯑꯀꯒꯤ ꯍꯥꯌꯗꯦ ꯌꯧꯕ ꯂꯣꯟꯥꯌꯀꯐꯀꯁꯤꯑ ꯗꯦꯁꯤꯌꯕ ꯌꯦꯟ (CPHEEO 2019, Table 4.1, Note 2)꯫ ꯁꯐꯕꯌ ꯗꯦꯑꯟ ꯕꯦꯀꯤ ꯑꯃꯗꯦ ꯃꯁꯤꯒꯤ ꯕꯦꯟ-ꯗꯦꯗꯀ, MAHUD-ꯗꯦ ꯃꯦꯀꯥꯟꯀ, TPD ꯑꯃꯁꯨꯡ PDA Manipur-ꯗꯦ ꯃꯦꯂꯣꯟꯐ ꯊꯗꯦꯌ ꯑꯃꯀ, ꯗꯌꯐꯒ ꯀꯤꯂꯣꯟꯐꯤꯒ ꯑꯁꯌꯁꯤꯟ ꯑꯃꯗꯦ ꯃꯁꯤꯀ ꯁꯤꯌꯕ ꯌꯦꯖꯃ ꯑꯃꯀ ꯍꯥꯌꯗꯦ ꯌꯧꯕ ꯂꯣꯟꯥꯌꯀꯐꯀ ꯑꯃꯦ ꯍꯦꯗꯤꯑꯂ ꯗꯦꯁꯤꯌꯕ ꯌꯦꯟ (ꯁꯐꯨꯑ 1)꯫

ꯍꯧꯔꯛꯐꯝ: CPHEEO (2019) Part A §4.4–4.5 ꯑꯃꯁꯨꯡ Table 4.1; CPHEEO presentation to CSE (August 2023); IRC:SP:50-2013 §6; IRC:SP:42-2014 cl. 7.1.4 ꯑꯃꯁꯨꯡ 8.5.1; NDMA (2010) Urban Flooding Guidelines, para 6.6.2; MoHUA Model Building Bye-Laws (2016); Model Manipur Unified Building Bye-Laws, 2024, MAHUD Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) of 4 December 2024 (Manipur Gazette Extraordinary No. 253, 5 December 2024), bye-laws 1(2), 2(2), 6(1)(D), 16, 28, 66–68 ꯑꯃꯁꯨꯡ 92–94; Imphal Municipal Corporation Building Bye-Laws (3rd Amendment), 2024, draft text; Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026, MAHUD Notification No. BBL-101/1/2024-MAHUD-MAHUD of 22 July 2026 (Gazette Extraordinary No. 157, 23 July 2026); Manipur Town and Country Planning Act, 1975 (Manipur Act 11 of 1975), ss. 1, 2, 13, 22 ꯑꯃꯁꯨꯡ 26; Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification), No. SCS-401/3/2021-MAHUD-MAHUD-Part(3) of 4 December 2024; Manipur Loktak Lake (Protection) Act, 2006 (Manipur Act 3 of 2006), ss. 1–4, 19, 20 ꯑꯃꯁꯨꯡ 35, as amended by Acts 5 of 2007 and 8 of 2019; Manipur Flood Plain Zoning Act, 1978 (Manipur Act 10 of 1978), ss. 1–7; Manipur Conservation of Paddy Land and Wetland Act, 2014 (Manipur Act 10 of 2014), ss. 2, 3, 4, 12 ꯑꯃꯁꯨꯡ 18, ꯑꯃꯁꯨꯡ Bill No. 6 of 2026; Manipur (Hill Areas) District Councils Act, 1971, ss. 29, 44A ꯑꯃꯁꯨꯡ 52, with the (Second Amendment) Act, 2006 (Manipur Act 10 of 2006) and the (Third Amendment) Act, 2008 (Manipur Act 7 of 2008); Manipur Official Language Act, 1979 (Act 14 of 1979) ꯑꯃꯁꯨꯡ the (Amendment) Act, 2021 (Act 7 of 2021); High Court of Manipur, PIL No. 8 of 2025, order of 16 June 2025, with WRD's inspection report; NGT, OA 606/2018, Government of Manipur, updated report (July 2025) ꯑꯃꯁꯨꯡ sixth six-monthly report (December 2025); CPCB, Polluted River Stretches for Restoration of Water Quality (2025); DoECC, Administrative Report 2025-26; Town Planning Department, Annual Administrative Report 2025-26; AIIB, Approval Project Document (October 2024) ꯑꯃꯁꯨꯡ Project Summary Information (29 November 2024), Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723); NDB, Project Summary, Lamphelpat Waterbody Rejuvenation Project (2021); MASTEC, Flood Hazard Zonation in Manipur Valley, final report (data to 2001); CGWB, Ground Water Information Booklets, Imphal West and Bishnupur districts (2013); CWC, Flood Estimation Report for South Brahmaputra subzone 2(b) (Revised), No. SB-2(b)/R-4/44/99 (March 2000), Annexure 1.1, Table 4.1 ꯑꯃꯁꯨꯡ Plate 9, ꯑꯃꯁꯨꯡ Flood Estimation Report for North Brahmaputra subzone 2(a) (NB/18/1991); IMD, Extremes of Temperature and Rainfall for Indian Stations (up to 2012); Das et al. (2022), MAUSAM 73(4); NIH-DHAARA (queried 14 November 2026); H. Surmangol Sharma, Learners' Manipuri-English Dictionary (2006); M. Singh (2025), NEHU Journal; CWC levels as transcribed by SANDRP (2018); 1989, 2002, 2015, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯌꯁꯤꯑ ꯌꯍꯦꯁꯕꯁꯤꯑ, ꯗꯦꯃꯦꯟ ꯑꯃꯁꯨꯡ ꯀꯊꯨꯟꯒꯤ ꯗꯥꯑꯀꯁꯨꯗꯦꯌꯀꯁꯤꯑ, WRD-ꯒꯤ ꯀꯐꯥꯟꯒꯤ ꯗꯥꯒꯥꯟꯁꯤꯑ, ꯀꯤꯂꯣꯟꯐꯤꯒ ꯃꯁꯕꯑꯁꯤꯟꯁꯤꯑ, ꯏꯗꯀ ꯊꯗꯥꯑ ꯗꯦꯗꯤꯑ ꯑꯥꯒꯌ ꯑꯃꯁꯨꯡ ꯗꯦꯒꯟꯒꯃꯤ ꯐꯤꯊꯦꯐꯌꯁꯤꯑ (ꯊꯦꯕꯗꯥꯟ ꯑꯃꯁꯨꯡ ꯑꯗꯤꯁꯨꯕ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ)꯫

ꯃꯥꯗꯨꯔꯥꯟ ꯑꯁꯤ ꯃꯐꯃꯗꯦ ꯁꯤꯗꯤꯑꯗꯒꯀꯒꯥ

ꯃꯗꯦꯗꯁꯤꯑ ꯑꯃꯁꯨꯡ ꯁꯑꯀꯦꯒꯗꯦ ꯌꯦꯒꯊꯦ. ꯗꯃꯕꯐ ꯊꯤꯐꯕ ꯃꯗꯦꯗꯁꯤꯑ (ꯏꯀꯃ ꯑꯦꯌꯗꯦ 4.5.2) ꯑꯁꯤ ꯃꯥꯗꯨꯔꯥꯟ ꯑꯁꯤꯒꯤ ꯃꯏꯦ ꯌꯦꯕꯁꯤꯑꯗꯤ ꯑꯃꯁꯨꯡ "shall" (-ꯒꯀꯕꯗꯤ) ꯁꯤꯗꯤꯑꯗꯦ꯫ **ꯁꯑꯀꯦꯒꯗꯦ ꯌꯦꯒꯊꯦ** ꯍꯌꯕ ꯍꯥꯀꯤꯑ ꯗꯦꯕ ꯊꯥꯐꯒꯐꯏꯁꯤꯑꯗꯦ ꯃꯗꯦꯗ ꯑꯃꯒꯤ ꯃꯐꯃ ꯁꯑꯀꯦꯒꯗꯦ ꯌꯦꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯊꯐꯤꯁꯥꯀꯥꯑꯌ ꯃꯦꯌꯗꯤ꯫ ꯃꯌꯦꯌ ꯒꯦꯌꯀꯥꯑꯁꯗꯤ, ꯃꯏꯦ ꯌꯦꯕ ꯗꯌꯌꯥ꯫ ꯒꯥꯟꯌ ꯑꯃꯒꯤ ꯑꯌꯦꯊꯊ ꯃꯏꯃꯀ ꯍꯒꯏꯥꯑꯗꯕ ꯊꯐꯤꯁꯥꯀꯥꯑꯌ ꯗꯦꯌꯕ ꯃꯏꯃꯀ, ꯁꯑꯀꯦꯒꯗꯦ ꯌꯦꯒꯊꯦ ꯑꯀꯂꯗꯦ ꯃꯀ ꯍꯌ ꯑꯃꯁꯨꯡ ꯃꯥꯗꯨꯔꯥꯟ ꯑꯁꯤꯗꯦ ꯃꯐꯤꯒꯤ ꯃꯀ ꯁꯥꯃꯕꯒꯥ ꯍꯌꯕ ꯁꯑꯀꯦꯒꯗꯦ ꯌꯦꯒꯗꯤ꯫

ꯐꯤꯌꯐꯑ ꯊꯤꯐꯤꯌꯀꯁꯤꯑ. ꯗꯦꯑ ꯏꯕꯒꯤ ꯏꯦꯀꯦꯒꯁꯤꯑ ꯑꯥꯗꯨꯔꯥꯟ ꯑꯥꯒꯁꯤꯀꯥꯑꯁ ꯊꯐꯦꯕꯥꯕꯤꯗꯤꯌꯤ (AEP) ꯑꯃꯁꯨꯡ ꯐꯤꯌꯐꯑ ꯊꯤꯐꯤꯌꯀ ꯑꯗꯤꯃꯒꯗꯦ ꯁꯑꯀꯦꯒꯗꯦ ꯌꯦꯒꯗꯤ꯫ ꯏꯀꯃ ꯑꯦꯌꯗꯦ, "1% AEP (100-yr)" ꯍꯌꯕꯁꯤ ꯌꯍꯤ ꯑꯃꯌꯌꯀ ꯃꯑꯗꯕ ꯗꯌꯐꯒ ꯍꯥꯑꯕꯒꯤ ꯌꯑꯁ 1-in-100 ꯗꯦꯕ ꯗꯦꯑ ꯏꯕꯒꯤ ꯏꯦꯀꯦꯒ ꯑꯃꯗꯤ꯫

ꯈꯨꯗꯝ ꯑꯣꯏꯕ ꯒꯥꯅꯅꯥꯁꯤꯡ. "ꯈꯨꯗꯝ ꯑꯣꯏꯕ ꯅꯥꯏꯇꯣꯝ — ꯗꯤꯖꯥꯏꯟ ꯒꯥꯅꯅꯥ ꯇꯧꯗꯕ" ("Illustrative — not design values") ꯍꯥꯌꯕ ꯍꯩꯗꯥ ꯌꯥꯎꯕ ꯌꯦꯗꯥ ꯌꯥꯎꯕ ꯈꯨꯗꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯍꯤꯁꯤꯡꯇꯤ ꯁꯣꯏꯗꯅ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕꯥ ꯅꯥꯌꯥꯍꯥ ꯂꯧꯇꯤ꯫ ꯗꯤꯖꯥꯏꯟ ꯒꯥꯅꯅꯥꯁꯤꯡ ꯁꯔꯨꯛ 2-ꯗ ꯁꯥꯍꯕ ꯄꯣꯗꯥꯖꯍꯁꯤꯡꯗꯥꯛ ꯇꯃꯅ꯫

ꯑꯄꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯎꯈꯨꯝꯁꯤꯡ. ꯁꯔꯨꯛ ꯈꯗꯤꯡꯍꯥꯇꯦ ꯍꯁꯤꯇꯦ ꯊꯤꯇꯕ ꯊꯍꯇꯤꯕ ꯑꯄꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯎꯈꯨꯝꯁꯤꯡ ꯇꯤꯁꯨ ꯌꯥꯅ꯫ ꯍꯅꯥꯔ ꯁꯔꯨꯛꯁꯤꯡꯛ ꯍꯥꯡꯗꯗ ꯇꯩ, ꯁꯔꯨꯛ ꯍꯥꯡꯗ ꯅꯦꯇ ꯍꯤꯌꯥꯡꯇꯦ, ꯑꯃꯁꯨꯡ ꯁꯕꯍꯤꯌ ꯌꯥꯛꯗꯕ ꯖꯦꯗꯍꯁꯤꯡ, ꯌꯦꯗꯥ ꯌꯥꯎꯕ ꯈꯨꯗꯝꯁꯤꯡ, ꯌꯥꯍꯖꯇꯦꯌꯁꯤꯡ, ꯍꯦꯗꯥꯅ ꯌꯥꯍꯁꯌ ꯑꯃꯁꯨꯡ ꯁꯌꯥꯦꯗꯗꯗ ꯗꯗꯦꯅꯗꯁꯤꯡ ꯌꯦꯐꯅ꯫ ꯄꯦꯇꯤꯛ ꯖꯐꯕ ꯅꯦꯍꯇꯤꯦꯗꯕ ꯗꯥꯌꯥ ꯍꯊꯧ ꯌꯥꯕ ꯑꯄꯥꯎꯕꯁꯤꯡ *ꯁꯥꯍ ꯁꯤꯛꯗꯕ* ꯍꯥꯌꯕꯇꯦ ꯍꯩꯗꯥ ꯌꯥꯅ꯫ ꯍꯅꯥꯔꯇꯦ ꯍꯅꯥꯔꯗ ꯃꯩꯇꯤ ꯌꯦꯐꯛꯇꯤ ꯍꯥꯌꯕ ꯍꯅ, ꯑꯃꯁꯨꯡ ꯍꯅꯥꯔꯗ ꯊꯇꯕ ꯊꯍꯇꯤꯕ ꯃꯇꯦꯇ ꯑꯁꯨꯇꯦ ꯍꯩꯗꯥ ꯑꯁꯨꯗ ꯅꯌꯇꯛꯗꯕ ꯗꯨꯂ ꯑꯁꯨ ꯍꯅ꯫

ꯃꯃꯤꯡ. ꯃꯃꯤꯡ ꯁꯨꯍꯇꯍꯥ ꯍꯥꯇꯨꯔꯥꯂ ꯑꯁꯤꯛꯗꯍꯥ ꯑꯇꯧꯇꯦ ꯁꯥꯍꯕ ꯗꯗꯦꯅꯁꯤꯡꯇꯤ꯫ ꯃꯃꯤꯡ ꯑꯍꯇꯦ ꯖꯦꯡꯗꯦꯌꯅꯤꯕ ꯌꯦꯅꯂꯇꯦꯐ ꯑꯍꯛ ꯍꯥꯡꯗ ꯅꯐꯕ ꯍꯖꯍꯗ, ꯍꯁꯤꯛ ꯃꯥꯁꯍꯇꯇꯦ ꯄꯦꯗꯥꯖꯍ ꯑꯁꯨꯗ ꯃꯗꯥꯗꯤꯌ ꯁꯇꯤꯅ꯫

ꯃꯗꯦꯅꯗꯛ ꯄꯦꯛꯗꯛꯥ.

ꯇꯄꯥ … ꯑꯦꯅꯗꯕꯗꯤ	ꯑꯄꯇꯕꯗ ꯁꯤꯕꯤꯗ
ꯗꯥꯒꯥꯇꯁꯁꯗ ꯇꯌꯗꯛ ꯑꯗꯃꯤꯌꯥꯌ ꯑꯍ	ꯁꯔꯨꯛ 1 (ꯍꯁꯤ ꯍꯌꯇꯕꯗꯦ?), ꯁꯔꯨꯛ 4 (ꯃꯗꯤ ꯁꯤꯛꯗꯛꯥ), ꯁꯔꯨꯛ 10 (ꯃꯗꯤ ꯁꯕꯍꯤꯌ ꯌꯥꯛꯗꯛꯥ)
ꯗꯤꯇꯦꯅꯏ ꯅꯏꯇꯤꯇꯤꯔꯗ ꯑꯍ	ꯁꯔꯨꯛ 2–6, ꯍꯗꯨꯛ ꯍꯥꯡꯗꯗ 8 ꯑꯃꯁꯨꯡ 9
ꯇꯦꯃꯒ ꯕꯦꯗꯤ ꯇꯌꯗꯛ ꯑꯥꯁꯗꯨꯒꯤꯡ ꯑꯦꯊꯦꯗꯤꯌ ꯑꯍ	ꯁꯔꯨꯛ 1, 10 ꯑꯃꯁꯨꯡ 11
ꯁꯇꯦꯇꯗ ꯇꯌꯗꯛ ꯅꯁꯤꯡ ꯇꯧꯖꯍꯛ ꯍꯥꯇꯥꯇꯗ ꯑꯍ	ꯁꯔꯨꯛ 7 ꯑꯃꯁꯨꯡ 11

ꯑꯙ꯭ꯌꯥꯌꯁꯤꯡ

ꯁꯔꯨꯛ	ꯃꯃꯤꯡ	ꯑꯄꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯎꯈꯨꯝꯁꯤꯡ
1	ꯁꯦꯇꯤꯁꯤ, ꯍꯌꯇꯕ ꯍꯖꯍ ꯑꯃꯁꯨꯡ ꯇꯧꯁꯤꯐꯕ	ꯑꯄꯥꯎꯕꯁꯤꯡ 1
2	ꯗꯤꯇꯦꯅꯏ ꯇꯦꯡ ꯍꯨꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯅꯏ ꯇꯦꯡ ꯍꯨꯕꯛ ꯊꯧꯗꯦꯌꯁꯤꯡ	ꯑꯄꯥꯎꯕꯁꯤꯡ 2
3	ꯄꯅꯗꯗꯦꯇꯦꯇꯤꯛ ꯊꯧꯑꯣꯡꯁꯤꯡ	ꯑꯄꯥꯎꯕꯁꯤꯡ 3
4	ꯁꯅꯌꯃꯤ ꯗꯐꯑꯦꯖ ꯃꯐꯌꯗꯦꯒ: ꯗꯤꯌꯥꯐꯁꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯌꯥꯐꯁꯐ	ꯑꯄꯥꯎꯕꯁꯤꯡ 4
5	ꯍꯅꯦ ꯊꯡꯕ ꯍꯖꯍ ꯑꯃꯁꯨꯡ ꯌꯥꯒꯔꯦꯌꯗꯛ ꯑꯥꯇꯦꯇꯦꯅꯁꯤꯁ	ꯑꯄꯥꯎꯕꯁꯤꯡ 5
6	ꯍꯦꯅꯇꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯇꯗ ꯅꯗꯍ ꯁꯤꯁꯌꯥꯍꯁꯤꯡ	ꯑꯄꯥꯎꯕꯁꯤꯡ 6
7	ꯅꯁꯤꯡ ꯇꯧꯖꯍꯁꯤꯡ, ꯁꯤꯌ ꯑꯃꯁꯨꯡ ꯁꯨꯅꯗꯤꯁꯤꯡ (ꯇꯥꯑ ꯑꯃꯁꯨꯡ ꯁꯦꯐꯗꯁꯤꯡ) ꯑꯃꯁꯨꯡ ꯁꯥꯌꯕꯥꯑꯁꯤꯡ	ꯑꯄꯥꯎꯕꯁꯤꯡ 7
8	ꯅꯁꯤꯡꯛ ꯃꯔꯦꯇꯤꯌꯤ ꯑꯃꯁꯨꯡ ꯗꯤꯍꯦꯗꯇ	ꯑꯄꯥꯎꯕꯁꯤꯡ 8
9	ꯁꯌꯗꯑꯍꯗꯁꯤꯡꯛ ꯄꯅꯗꯗꯦꯇꯤꯑ ꯗꯤꯇꯦꯅꯏ	ꯑꯄꯥꯎꯕꯁꯤꯡ 9
10	ꯁꯕꯍꯤꯌꯥꯒꯁꯤꯡ, ꯗꯤꯒꯤꯁ, ꯑꯦꯁꯗꯥꯁꯐ ꯑꯃꯁꯨꯡ ꯍꯥꯐꯌꯥꯇꯥꯐꯁ ꯑꯃꯁꯨꯡ ꯅꯐꯏꯦꯗꯁꯍꯥꯐꯌ	ꯑꯄꯥꯎꯕꯁꯤꯡ 10
11	ꯕꯥꯁꯤꯐ ꯑꯃꯁꯨꯡ ꯁꯄꯗꯛ ꯇꯦꯡꯛ ꯅꯁꯤꯡ ꯍꯦꯁꯌꯗ ꯁꯇꯦꯐꯁꯤꯡ	ꯑꯄꯥꯎꯕꯁꯤꯡ 11

ꯇꯦꯕꯂꯁꯤꯡꯒꯤ ꯄꯔꯤꯡ

ꯇꯦꯕꯜ	ꯃꯃꯤꯡ
1.1	ꯇꯤꯌꯔ A ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ B ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕ ꯈꯦꯠꯅꯕꯁꯤꯡ
1.2	ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯠ: ꯂꯧꯁꯤꯟꯕ ꯌꯥꯕ ꯑꯣꯞꯁꯟ ꯃꯑꯣꯡ S-1-ꯗꯒꯤ S-5 ꯐꯥꯑꯣꯕ
1.3	ꯑꯣꯞꯁꯟ ꯏꯝꯞꯂꯤꯃꯦꯟꯇꯤꯡꯒꯤ ꯃꯔꯤ
1.4	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯃꯍꯩꯅ ꯊꯧꯗꯣꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯣꯛ ꯂꯧꯕꯁꯤꯡ
1.5	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯃꯍꯩꯅ ꯅꯔꯀꯒꯤ ꯑꯦꯂꯤꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯊꯕꯛꯃꯤ ꯊꯂꯕ
2.1	ꯗꯤꯖꯥꯏꯟ ꯔꯤꯇꯔꯟ ꯄꯔꯤꯌꯗꯁꯤꯡ (ꯁꯝꯃꯔꯤ)
2.2	ꯏꯟꯇꯔꯤꯝ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔꯁꯤꯡ
2.3	ꯃꯤꯛꯁꯗ-ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ ꯗ꯭ꯌꯨꯜꯒꯤ ꯅ꯭ꯌꯨꯃꯀ ꯑꯣꯅꯕ ꯌꯩꯡ (ꯗꯤꯖꯥꯏꯟ ꯒꯦꯖꯁꯤꯡ ꯅꯠꯇꯦ)
3.1	ꯌꯦꯍꯜꯂꯤꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯊꯧꯗꯣꯛꯁꯤꯡ
3.2	ꯔꯟꯑꯣꯐ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ C (AEP 10% ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯌꯥꯝꯅꯕ ꯇꯥꯀꯁꯂꯒꯤꯗꯃꯛ)
3.3	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ ꯐꯦꯛꯇꯔ Cf
3.4	ꯁꯤꯠ ꯐ꯭ꯂꯣꯒꯤꯗꯃꯛ ꯃꯦꯅꯤꯡꯒꯤ n (USDA SCS TR-55, 1986, Table 3-1)
3.5	ꯔꯟꯑꯣꯐ ꯀꯔꯚ ꯅꯝꯕꯔꯁꯤꯡ, AMC II, Ia = 0.2S (USDA SCS TR-55, 1986, Tables 2-2a ꯑꯃꯁꯨꯡ 2-2c)
4.1	ꯗꯤꯇꯦꯟꯁꯅꯒꯤ ꯁꯥꯏꯖ ꯂꯦꯞꯂꯕ ꯗꯩꯍꯧ ꯇꯧꯗꯣꯛꯕ ꯗꯤꯖꯥꯏꯟ ꯂꯩꯃ ꯍꯕꯒꯤ ꯇꯧꯗꯥꯡꯁꯤꯡ
4.2	ꯏꯆꯥꯎ ꯑꯣꯅꯕ ꯏꯆꯥꯎ: ꯗꯤꯖꯥꯏꯟ ꯃꯣꯗꯦꯜ ꯃꯦꯊꯗ ꯅꯦꯌꯔ ꯁꯔꯨꯛ ꯗꯤꯟꯍꯥꯏꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯃꯤꯇꯦꯁꯟ ꯂꯣꯏꯅꯕ (ꯏꯆꯥꯎ ꯑꯣꯅꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯖ ꯅꯠꯇꯦ)
4.3	ꯇꯤꯌꯔ B-ꯒꯤ ꯁꯔꯨꯛꯂꯤꯕꯜ ꯂꯅꯇ ꯗꯤꯂꯍꯔꯇ ꯑꯃꯁꯨꯡ ꯂꯅꯇ ꯂꯣꯏꯔꯦ ꯔꯤꯌꯍꯅꯌꯔꯃꯦꯟꯇ (ꯇꯦꯀꯁꯟꯇ)
4.3A	ꯐꯤꯌꯂ ꯇꯧꯔꯕ ꯔꯤꯖꯤꯖ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯂꯤꯡ (ꯁꯔꯣꯒꯤꯖꯅꯦꯜ)
5.1	ꯇꯣꯅꯗꯦꯜ ꯑꯍꯥꯍꯦꯐꯜꯂꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯇꯦꯜꯍꯤꯔ ꯅꯦꯒꯦꯜꯂꯤꯡ
5.2	ꯇꯣꯅꯗꯦꯜ ꯑꯃꯁꯨꯡ ꯇꯔꯦꯜꯒꯤ ꯑꯍꯥꯍꯦꯐꯜꯂꯤꯡꯒꯤ ꯂꯣꯅꯦꯍ-ꯁꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤꯒꯤ ꯀꯦꯂꯤꯡ
6.1	ꯀꯦꯒꯦꯌꯦꯂꯀꯤ ꯗꯤꯖꯥꯏꯟ AEP-ꯂꯤꯡ (ꯀꯂꯣꯂ 2.4-ꯒꯤ ꯃꯦꯠꯂꯦ)
6.1	ꯅꯍꯕꯤꯒꯤ ꯐꯂꯣꯒꯤ ꯂꯤꯃꯤꯍꯂꯤꯡ
6.3	ꯅꯍꯕꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯒꯔꯂꯦꯦꯗ ꯐꯂꯣ ꯅꯍꯕꯤꯂꯤꯡꯒꯤ ꯐꯂꯣꯒꯤ ꯍꯂꯔꯗꯀꯤ ꯂꯤꯃꯤꯍꯂꯤꯡ
6.4	ꯀꯍꯕꯅꯦꯗ ꯅꯂꯤꯡ ꯅꯌꯑꯍꯒꯤ ꯍꯂꯔꯗ ꯒꯂꯅꯔꯦꯕꯤꯂꯤꯇꯤꯒꯤ ꯀꯂꯣꯂꯤꯡ (ꯔꯦꯐꯔꯦꯟꯁꯀꯤꯗꯃꯛ ꯑꯃꯛ ꯍꯦꯂꯦ ꯁꯤꯔꯤ)
6.5	ꯅꯦꯂꯦꯍꯀꯤ ꯀꯁꯁꯒꯤ ꯐꯦꯛꯇꯔꯂꯤꯡ (ꯃꯤꯅ ꯍꯌꯂꯦ ꯂꯧꯕ ꯂꯦꯡꯂꯕ ꯀꯦꯁꯂꯤꯇꯤꯒꯤ ꯂꯐꯛ)
6.6	ꯗꯤꯖꯥꯏꯟꯒꯤꯗꯃꯛ ꯃꯦꯅꯤꯡꯒꯤ n (CPHEEO 2019-ꯗꯒꯤ)
6.7	ꯍꯤꯗꯥꯛꯂꯕ ꯑꯃꯁꯨꯡ ꯀꯒꯔ ꯇꯧꯔꯕ ꯅꯥꯡꯕꯦꯂꯤꯡꯗ ꯃꯤꯂꯤꯃꯍ ꯐꯔꯤꯕꯥꯔꯗ
6.8	ꯌꯃꯇꯥꯛꯂꯕ ꯁꯅꯁ ꯔꯦꯂꯤꯡꯗ ꯃꯦꯍꯦꯍꯗꯂꯤꯡꯒꯤ ꯃꯦꯛꯂꯤꯃꯍ ꯂꯩꯁ ꯇꯛ
6.9	ꯅꯔꯍꯒꯤ ꯔꯤꯂꯔꯒꯀꯤ ꯃꯤꯂꯤꯃꯍ ꯁꯛꯁ (PUB Singapore-ꯗꯒꯤ ꯂꯧꯈꯤꯕ)
7.1	1% AEP ꯑꯦꯛꯂꯇꯦꯍ ꯂꯧꯕ ꯃꯐꯍꯗ ꯐꯤꯌꯂ ꯇꯧꯔꯕ ꯁꯛꯂꯕꯒꯤ ꯂꯦꯍꯕꯦꯛ

ꯅꯝꯕꯔ	ꯃꯃꯤꯡ
8.1	ꯌꯥꯡꯂꯤꯑꯦꯛꯄꯕ ꯀꯣꯏꯁꯥꯑꯦꯛꯂꯤꯡ, ꯊꯣꯕꯛꯇꯧꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯐꯝꯑꯣꯅꯕ ꯍꯦꯠꯁꯥꯑꯣꯅꯂꯤꯡ
8.2	ꯕꯤꯔꯥꯒꯥꯆꯀꯃꯥꯑꯦꯛ ꯆꯛꯁꯕ ꯂꯣꯅꯛꯂꯤꯡꯒꯤꯗꯃꯛ ꯃꯇꯧ ꯁꯕ ꯆꯥꯒꯥꯅ ꯑꯣꯏ ꯂꯕꯒꯤꯂ
8.3	BMP ꯒꯥꯅꯌ ꯕꯥꯁꯤꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯆꯤꯀꯕꯔ ꯃꯁꯤꯛ ꯌꯕ
9.1	ꯑꯥꯑꯦꯁꯕꯥꯑꯦꯂ ꯆꯣꯂ ꯍꯣꯑꯥꯏꯤꯂꯤꯌꯥꯑꯦꯛꯂꯤꯡ ke (ꯑꯣꯏꯛꯆꯥꯛ ꯍꯦꯁꯕꯣꯅ, ꯃꯀꯨꯡ ꯏꯆꯩ ꯆꯛꯕꯒꯩ ꯃꯀꯨꯡ ꯏꯔꯆꯩ ꯇꯦꯆꯕ)
9.2	ꯌꯥꯆꯥꯅꯂꯤꯡꯔ ꯌꯣꯕ ꯅꯣꯕꯅꯔꯒꯤ ꯌꯣꯡꯕ ꯃꯤꯑꯦ ꯒꯥꯆꯣꯂꯤꯁꯤꯂꯤꯡ
9.3	ꯕꯤꯀꯕꯥꯀ ꯍꯆꯩꯂꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯀꯕꯑꯦꯒꯤ ꯔꯣꯅꯃꯥꯑꯦꯂꯑꯦꯂꯤꯡ (HEC-14)
9.4	ꯃꯥꯑꯦꯊꯣꯅꯂꯤꯡꯒꯤ ꯃꯤꯆꯤꯃꯐ ꯅꯑꯦꯁꯕꯆꯥꯅ ꯂꯣꯅꯆ
9.5	ꯃꯆꯤꯀꯕꯒꯤ ꯃꯏꯐꯂꯤꯡꯒꯤꯗꯃꯛ IS 456-ꯒꯤ ꯃꯤꯆꯤꯃꯐ ꯑꯥꯡꯂꯀꯣꯆꯕ ꯍꯆꯩꯂꯂꯤꯡ
10.1	ꯂꯕꯃꯤꯁꯥꯅꯒꯤ ꯂꯁꯥꯆꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯐꯆꯕ ꯑꯥꯀꯕꯒꯥꯅꯂꯤꯡ
10.2	ꯂꯕꯃꯤꯁꯥꯅꯂꯤꯡꯔ ꯂꯤꯆꯤꯑꯦꯆꯕ ꯏꯣꯕꯐꯂꯤꯡ
10.3	ꯃꯀꯨꯆꯩ ꯅꯑꯦꯂꯀꯥꯡꯛ ꯁꯣꯒꯔꯕ ꯃꯤꯆꯤꯃꯐ ꯏꯕꯤꯡꯌꯥꯑꯦꯂꯤꯂꯤꯡ
10.4	ꯅꯣꯡꯊꯡ ꯃꯁꯨꯡ ꯅꯑꯦꯆ ꯅꯑꯦꯏꯣꯕꯂꯃꯥꯑꯦꯛꯍꯤ ꯀꯩꯖꯅꯐ
11.1	BSMP ꯑꯃꯒꯤꯗꯃꯛ ꯌꯩꯐꯔꯕꯕꯔꯂ ꯃꯊꯧ ꯁꯕ ꯔꯥꯁꯣ ꯑꯃꯁꯨꯡ ꯂꯕꯒꯥꯂꯤꯡ
11.2	ꯌꯩꯐꯔꯕꯕꯔꯂ ꯃꯊꯧ ꯁꯕ ꯆꯥꯒꯥꯅ ꯑꯣꯏ ꯂꯕꯒꯤꯂꯂꯤꯡ
1A.1	ꯍꯆꯣꯆ 1.6.1-ꯔ ꯂꯑꯦꯔꯣꯡꯆꯩ ꯁꯣꯍꯀꯨꯐꯆꯩ ꯁꯤꯌꯕ A ꯑꯣꯊꯣꯕꯤꯁꯤꯂꯤꯡ
1A.2	ꯁꯤꯌꯕ A ꯑꯣꯊꯣꯕꯤꯁꯤꯂꯤꯡꯒꯤ ꯕꯥꯆꯤꯂꯁꯕ (ꯆꯥꯑꯣꯏꯛ)
1B.1	ꯍꯆꯣꯆ 4.5.3.2-ꯔ ꯆꯤꯂꯛ ꯁꯣꯕꯕ ꯅꯂꯤꯡ ꯅꯌꯩꯔ ꯂꯥꯑꯦꯂꯤꯁꯤꯒ ꯑꯣꯅꯕ ꯍꯥꯌꯃꯥꯑꯦꯛꯂꯤꯡ
1B.2	ꯅꯂꯤꯡ ꯅꯌꯩꯔ ꯂꯥꯑꯦꯂꯤꯁꯤꯒ ꯑꯣꯅꯕ ꯍꯥꯌꯃꯥꯑꯦꯛꯍꯤ ꯆꯥꯌꯕꯒꯤ ꯑꯥꯁꯕꯤꯕꯌꯛꯂꯤꯡ (ꯆꯥꯑꯣꯏꯛ)
1C.1	ꯕꯤꯆꯣꯂꯑꯦ ꯑꯂꯤꯆꯩ ꯆꯣꯂꯤꯑꯦꯆꯕ ꯑꯆꯁꯕꯆꯥꯁꯤꯒꯂꯤꯡ
1D.1	ꯂꯥꯔꯌꯅ: ꯆꯣꯂꯤꯑꯦꯆꯕ ꯑꯆꯁꯕꯆꯥꯁꯤꯒꯂꯤꯡ (ꯆꯥꯑꯣꯏꯛ)
2A.1	ꯔꯤꯆꯅꯑꯦ ꯔꯥꯀꯊꯂꯤꯡꯒꯤ ꯕꯥꯑꯦꯌꯃꯕꯒ ꯌꯡꯔꯐꯆꯕ (ꯆꯥꯑꯣꯏꯛ)
2A.2	ꯆꯣꯡ ꯌꯕꯒꯤ ꯆꯣꯑꯦꯂꯤꯡ (ꯆꯥꯑꯣꯏꯛ)
2B.1	ꯆꯣꯑꯦ ꯃꯁꯨꯡ ꯅꯑꯦꯆ ꯕꯥꯂꯤꯑꯣꯂꯤꯡ P(t)/P(24h) (ꯆꯥꯑꯣꯏꯛ)
2B.2	ꯏꯤꯒꯂꯔ-ꯅꯑꯦꯁꯕꯒꯥꯅ ꯑꯥꯔꯆꯂꯁꯃꯥꯑꯦꯛ ꯏꯥꯒꯁꯕꯂꯤꯡ (ꯍꯆꯣꯆ 2.6.3)
2C.1	ꯒꯕꯤꯔ-ꯁ-ꯀꯣꯅꯑꯦꯛ ꯏꯥꯒꯁꯕꯂꯤꯡ (ꯆꯥꯑꯣꯏꯛ)
2D.1	ꯆꯣꯡ ꯌꯕꯒꯤ ꯊꯣꯔꯣꯡꯍꯤ ꯃꯁꯐꯒꯤ ꯍꯌꯃꯆꯥꯁꯤꯒ ꯂꯕꯡꯍꯩ ꯌꯡꯔꯐꯆꯕ ꯆꯣꯡ ꯌꯕꯒꯤ ꯊꯣꯔꯣꯡꯍꯤ ꯔꯥꯀꯊꯍꯤ ꯍꯌꯃꯆꯥꯁꯤꯒ ꯂꯕꯡ (ꯆꯥꯑꯣꯏꯛ, ꯆꯣꯑꯦ, ꯔꯌꯕꯥꯂꯑꯦ ꯍꯆꯩꯂ ꯑꯃꯁꯨꯡ ꯍꯌꯩꯕꯁꯣꯅꯅ ꯌꯔꯤꯡꯃꯒꯍꯤꯗꯃꯛ ꯁꯥꯕꯅ ꯑꯃ)
2E.1	ꯆꯣꯑꯦ ꯃꯁꯨꯡ ꯅꯑꯦꯆ ꯕꯤꯁꯥꯑꯦꯂꯑꯦ ꯔꯥꯀꯊ P_R (ꯆꯥꯑꯣꯏꯛ)
3A.1	ꯂꯣꯅꯅ ꯂꯤꯕꯤꯆꯔꯒꯤ HSG ꯆꯒꯑꯀ (ꯆꯥꯑꯣꯏꯛ)
3A.2	ꯃꯥꯀꯤꯡ ꯌꯆꯤꯛ ꯃꯁꯨꯡ ꯅꯑꯦꯆ ꯃꯁꯐ ꯃꯁꯨꯡ ꯅꯑꯦꯆꯕ ꯑꯌꯩꯡꯕ ꯌꯩꯁꯕ ꯁꯥꯕꯅ (ꯆꯥꯑꯣꯏꯛ)
3B.1	ꯊꯀꯌꯤꯑꯦꯕ ꯆꯐꯒꯤ ꯍꯒꯕꯂꯤꯡ, AMC II (ꯆꯥꯑꯣꯏꯛ)
3B.2	CN ꯍꯥꯆꯤꯕꯕꯥꯂꯑꯦꯒꯤ ꯍꯥꯌꯃꯥꯑꯦꯛꯂꯤꯡ (ꯆꯥꯑꯣꯏꯛ)

ꯇꯦꯕꯜ	ꯃꯃꯤꯡ
3C.1	ꯄꯔꯣꯕꯂꯦꯝ 3C-1-ꯒꯤ ꯁꯣꯜꯌꯨꯁꯟ
3C.2	ꯄꯔꯣꯕꯂꯦꯝ 3C-2-ꯒꯤ ꯁꯣꯜꯌꯨꯁꯟ
3C.3	ꯄꯔꯣꯕꯂꯦꯝ 3C-3-ꯒꯤ ꯁꯣꯜꯌꯨꯁꯟ
3C.4	ꯄꯔꯣꯕꯂꯦꯝ 3C-4-ꯒꯤ ꯁꯣꯜꯌꯨꯁꯟ
3C.5	ꯄꯔꯣꯕꯂꯦꯝ 3C-5-ꯒꯤ ꯁꯇꯦꯖ–ꯁꯇꯣꯔꯦꯖ–ꯗꯤꯁꯆꯔꯖꯒꯤ ꯃꯔꯤ
3C.6	ꯄꯔꯣꯕꯂꯦꯝ 3C-5-ꯒꯤ ꯏꯅꯐ꯭ꯂꯣ ꯇꯣꯇꯦꯜ ꯑꯥꯎꯠꯐ꯭ꯂꯣ
3C.7	ꯑꯦꯁꯤꯂꯤꯃꯦꯋꯍꯂꯩ ꯕꯤꯁꯣꯕꯍ ꯇꯣꯒꯅꯕ ꯕꯦꯋꯍꯈꯕꯌ ꯕꯤꯂꯜꯍꯁꯤꯡ
3D.1	ꯃꯦꯂꯤꯕꯕꯦꯍ ꯇꯣꯕꯕ ꯄꯤꯌ ꯕꯦꯍ ꯖꯦꯌꯇꯕꯁꯤꯡ (ꯂꯦꯑꯣꯗꯨꯍ)
3E.1	ꯁꯕꯂꯣꯋ ꯈꯇꯨꯡ ꯅꯋꯂ SUH-ꯒꯤ ꯈꯕꯤꯁꯤꯡ (ꯂꯦꯑꯣꯗꯨꯍ)
3E.2	ꯍꯕꯌ ꯇꯣꯕꯕ ꯅꯨꯀꯆꯒꯤ ꯑꯣꯗꯨꯍꯂꯅꯋ (ꯂꯦꯑꯣꯗꯨꯍ)
4A.1	ꯂꯈꯅꯒꯤ ꯈꯅꯣꯒꯤ ꯅꯁꯤꯡ ꯀꯌꯀꯕ ꯂꯣꯋꯒꯤ ꯂꯦꯍꯕꯒꯤ ꯑꯦꯇꯕꯤꯕꯅꯨꯍꯁꯤꯡ (ꯂꯦꯑꯣꯗꯨꯍ)
4B.1	ꯑꯍꯦꯋꯕ 4B-ꯒꯤ ꯑꯍꯣꯗꯨꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯍꯣꯍꯒꯤ ꯁꯇꯦꯇ
4B.2	ꯇꯤꯍꯕ B-ꯒꯤ PSD ꯑꯃꯁꯨꯡ SSR (ꯇꯦꯕꯜ 4.3-ꯒꯤ ꯂꯦꯑꯣꯗꯨꯍ)
4B.3	ꯕꯤꯇꯦꯋꯁꯋ ꯃꯕꯦꯆꯤꯍ ꯖꯦꯌꯇꯕ C_R (ꯂꯦꯑꯣꯗꯨꯍ)
4B.4	ꯄꯤꯕꯕ ꯍꯦꯆ ꯑꯈꯆ ꯄꯕꯈꯤꯁꯤꯕꯜ ꯆꯤꯁꯍꯕꯀ ꯑꯈꯒꯤꯆꯈꯌ ꯅꯕꯅꯆꯒꯤ ꯍꯗꯨꯕ ꯑꯣꯕꯤꯖꯤꯁ ꯆꯅꯈꯤꯇꯕ (mm) (Cd = 0.60, ꯖꯕꯤ ꯆꯤꯁꯍꯕꯀ)
4B.5	ꯖꯤꯌꯁ ꯇꯣꯕꯕ ꯕꯤꯂꯤꯀ ꯃꯣꯑꯦꯖꯤꯁꯤꯍꯦꯋꯍꯁꯤꯡ C_10 ꯑꯃꯁꯨꯡ C_2 (ꯄꯕꯣꯒꯤꯀꯂꯦꯜ, ꯇꯦꯕꯜ 4.3A)
4C.1	ꯅꯋꯄꯨꯍꯁꯤꯡ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.2	ꯆꯤꯂꯩꯅꯋ ꯂꯣꯡ ꯅꯨꯕꯒꯤ ꯆꯦꯄꯖꯁꯤꯡ, mm (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.3	ꯃꯕꯒ ꯀꯈꯕꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯕꯁꯇꯕꯦꯌꯁꯋꯁꯤꯡ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.4	ꯂꯣꯡ ꯅꯨꯕꯒꯤ ꯖꯣꯆꯣꯌꯃꯤ ꯕꯋꯑꯣꯖ ꯆꯦꯄꯖ Q, mm (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.5	ꯅꯨꯀꯤꯍ ꯍꯅꯆꯕꯣꯒꯤꯕꯖꯃꯤ ꯄꯦꯕꯈꯤꯇꯕꯁꯤꯡ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.6	ꯁꯇꯦꯖ–ꯁꯇꯣꯔꯦꯖ–ꯗꯤꯁꯆꯔꯖ, ꯇꯣꯕꯅꯑꯦꯜ ꯑꯣꯗꯨꯍꯂꯦꯍ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.7	ꯇꯣꯕꯅꯑꯦꯜ ꯑꯣꯗꯨꯍꯂꯦꯍ ꯅꯍꯆꯨꯂꯩ 100-yr ꯄꯨꯡ 72-ꯒꯤ ꯂꯣꯡ ꯅꯨꯕꯒꯤ ꯖꯣꯆꯣꯌꯃꯤ ꯕꯣꯗꯨꯇꯤꯡ, ꯄꯤꯌꯃꯤ ꯑꯃꯣꯍꯕꯆ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.8	ꯇꯣꯕꯅꯑꯦꯜ ꯑꯣꯗꯨꯍꯂꯦꯍ ꯅꯍꯆꯨꯂꯩ 100-yr ꯄꯨꯡ 72-ꯒꯤ ꯂꯣꯡ ꯅꯨꯕꯒꯤ ꯖꯣꯆꯣꯌꯃꯤ ꯕꯣꯗꯨꯇꯤꯡ, ꯄꯨꯡ ꯅꯨꯆꯤꯡ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.9	ꯇꯣꯕꯅꯑꯦꯜ ꯑꯣꯗꯨꯍꯂꯦꯍꯃꯤ ꯕꯤꯀꯜꯍꯁꯤꯡ (120 mm ꯑꯃꯁꯨꯡ 470 mm ꯑꯣꯕꯤꯖꯤꯁꯁꯤꯡ) (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.10	ꯁꯇꯦꯖ–ꯁꯇꯣꯔꯦꯖ–ꯗꯤꯁꯆꯔꯖ, ꯕꯤꯒꯣꯅꯀ ꯇꯣꯕꯕ ꯑꯣꯗꯨꯍꯂꯦꯍ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.11	ꯕꯤꯒꯣꯅꯀ ꯇꯣꯕꯕ ꯑꯣꯗꯨꯍꯂꯦꯍꯃꯤ ꯕꯤꯀꯜꯍꯁꯤꯡ (170 mm ꯑꯃꯁꯨꯡ 460 mm ꯑꯣꯕꯤꯖꯤꯁꯁꯤꯡ) (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.12	ꯕꯣꯗꯨꯇꯤꯡꯂꯩ ꯖꯡꯕ ꯕꯤꯇꯦꯋꯁꯋ ꯃꯕꯦꯆꯤꯍ, ꯕꯤꯒꯣꯅꯀ ꯇꯣꯕꯕ ꯑꯣꯗꯨꯍꯂꯦꯍ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.13	ꯑꯣꯗꯨꯍꯂꯦꯍꯃꯤ ꯍꯦꯌꯁꯤꯡ, ꯕꯤꯒꯣꯅꯀ ꯇꯣꯕꯕ ꯑꯣꯗꯨꯍꯂꯦꯍ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
4C.14	ꯕꯤꯒꯣꯅꯀ ꯇꯣꯕꯕ ꯆꯤꯂꯩꯅꯋꯒꯤ ꯁꯈꯈꯕꯤ (ꯅꯨꯆꯈ ꯑꯣꯅꯂꯩ ꯅꯌꯇꯂꯤ – ꯆꯤꯂꯩꯅꯋ ꯒꯦꯜꯍꯨ ꯂꯍꯇꯦ)
5A.1	ꯆꯤꯂꯩꯅꯋ ꯇꯦꯜꯍꯇꯕꯆ (ꯇꯦꯕꯜ 5.1) ꯑꯍꯦꯋꯕ 5A-ꯒꯤ ꯒꯦꯜꯅꯨꯁꯤꯡ ꯁꯤꯂꯤꯋꯀꯕ

ꯌꯥꯕꯇ	ꯃꯃꯤꯡ
5A.2	ꯑꯣꯂꯌꯥꯇ ꯂꯥꯒꯃꯥꯅꯪ ꯃꯌꯨꯡ ꯍꯦꯟ ꯌꯣꯍꯗꯥꯇ ꯗꯥꯌꯐꯂꯤꯡ, ꯂꯄꯆ ꯑꯃꯁꯨꯡ ꯂꯌꯤꯇ-ꯁꯣꯌꯄ ꯆꯥꯒꯥꯇꯂꯤꯡ (ꯆꯥꯔꯠ)
5B.1	ꯂꯄꯨꯑ 5-ꯗ ꯃꯃꯤꯡ ꯄꯤꯔꯕ ꯍꯂꯤꯡ ꯆꯩꯁꯐꯂꯤꯡ
5B.2	ꯑꯖꯥꯅꯕ 5B-ꯒꯤ ꯆꯥꯔꯄꯂꯤꯡꯒꯤ ꯑꯥꯌꯄꯤꯕꯔꯨꯪꯂꯤꯡ (ꯆꯥꯔꯠ)
5C.1	ꯍꯦꯖꯨꯪꯂꯤꯡ (ꯍꯨꯗꯐ ꯑꯣꯍꯆ ꯍꯑꯌꯆꯤ – ꯗꯤꯆꯍꯦ ꯒꯥꯇꯔꯨ ꯆꯪꯌꯥ)
5C.2	ꯑꯁꯪꯏꯣꯇ ꯊꯤꯡꯕ ꯇꯥꯑꯃꯤ ꯄꯤꯆꯇꯪꯂꯤꯡ (ꯍꯨꯗꯐ ꯑꯣꯍꯆ ꯍꯑꯌꯆꯤ – ꯗꯤꯆꯍꯦ ꯒꯥꯇꯔꯨ ꯆꯪꯌꯥ)
5C.3	ꯒꯣꯆꯨꯐ ꯕꯥꯆꯥꯦꯂ, 1% AEP ꯖꯨꯡ 48-ꯒꯤ ꯆꯣꯡ ꯔꯨꯕꯒꯤ ꯊꯣꯗꯣꯑ, ꯄꯦ B (ꯍꯨꯗꯐ ꯑꯣꯍꯆ ꯍꯑꯌꯆꯤ – ꯗꯤꯆꯍꯦ ꯒꯥꯇꯔꯨ ꯆꯪꯌꯥ)
5C.4	ꯂꯌꯥꯆ ꯖꯍꯗꯄꯣꯒꯄꯏ, 1% AEP ꯖꯨꯡ 48-ꯒꯤ ꯆꯣꯡ ꯔꯨꯕꯒꯤ ꯊꯣꯗꯣꯑ, ꯄꯦ B (ꯍꯨꯗꯐ ꯑꯣꯍꯆ ꯍꯑꯌꯆꯤ – ꯗꯤꯆꯍꯦ ꯒꯥꯇꯔꯨ ꯆꯪꯌꯥ)
5C.5	ꯂꯐꯃꯄꯤ (ꯍꯨꯗꯐ ꯑꯣꯍꯆ ꯍꯑꯌꯆꯤ – ꯗꯤꯆꯍꯦ ꯒꯥꯇꯔꯨ ꯆꯪꯌꯥ)
6A.1	ꯑꯖꯥꯅꯕ 6A ꯏꯣꯡꯗꯣꯑꯆꯑꯪꯄꯤꯏꯁꯕ ꯍꯦꯆꯥꯪꯂꯤꯡꯒꯤ ꯃꯌꯐ ꯍꯄꯒꯤ ꯃꯊꯣ ꯌꯕꯂꯤꯡ (ꯂꯄꯨꯑ 6 ꯑꯃꯁꯨꯡ 9-ꯗꯒꯤ)
6A.2	ꯂꯌꯥꯦꯗꯄꯗ ꯍꯦꯆꯥꯪ ꯃꯍꯇꯂꯤꯡꯒꯤ ꯄꯥꯆꯤꯂꯌꯄ (ꯆꯥꯔꯠ)
6A.3	ꯒꯄꯥꯗꯌ ꯑꯥꯖꯂꯤꯌꯤ (ꯆꯥꯔꯠ; ꯍꯦꯆꯥꯪ ꯃꯍꯇ ꯍꯨꯗꯤꯡꯃꯑꯑꯤꯗꯃꯑ ꯌꯥꯕꯇ ꯑꯃꯃꯃ)
6A.4	ꯂꯥꯒ ꯑꯃꯗ ꯑꯥꯖꯂꯤꯌꯤ (ꯆꯥꯔꯠ; ꯍꯦꯆꯥꯪ ꯃꯍꯇ ꯍꯨꯗꯤꯡꯃꯑꯑꯤꯗꯃꯑ ꯌꯥꯕꯇ ꯑꯃꯃꯃ)
6B.1	ꯂꯄꯨꯑ 6-ꯆ ꯊꯐꯆꯕ ꯂꯥꯗꯤꯃꯥꯦꯪ ꯑꯥꯆꯁꯑꯥꯦꯂꯂꯤꯡ (ꯃꯌꯐ ꯍꯄꯒꯤ, ꯑꯥꯆꯤꯕꯄꯥꯂꯦ ꯌꯒꯗꯕ)
6B.2	ꯆꯐ ꯂꯤꯆꯤꯦꯆꯕ ꯑꯃꯁꯨꯡ ꯍꯣꯡꯕꯦꯒꯤ ꯃꯍꯇ ꯃꯌꯨꯡ ꯍꯦꯆ ꯂꯥꯗꯤꯃꯥꯦꯪ ꯔꯤꯇꯗ (ꯆꯥꯔꯠ)
6B.3	ꯂꯥꯗꯤꯃꯥꯦꯪ ꯑꯥꯆꯁꯑꯥꯦꯂꯑꯤ ꯑꯥꯆꯤꯕꯄꯥꯂꯦ (ꯆꯥꯔꯠ)
6C.1	ꯂꯌꯥꯦꯗꯄꯗ ꯗꯄꯣꯍꯡꯂꯤꯡꯗ ꯆꯕ ꯗꯍꯃꯥꯦꯂꯦꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯔꯒꯤ ꯖꯄꯑꯏꯐ ꯑꯣꯍꯕ ꯑꯆꯣꯆꯂꯤꯡ
7A.1	ꯍꯂꯤꯡ ꯆꯩꯐꯒꯤ ꯍꯦꯒꯥꯦꯌꯄꯤꯒꯤ ꯑꯥꯌꯄꯤꯕꯔꯨꯪ ꯏꯤꯇꯗꯂꯤꯡ (WB_POLY)
7A.2	ꯑꯣꯗꯑꯤ ꯆꯤꯂꯪꯂꯤꯡ
7A.3	ꯂꯌꯄꯑꯔꯄꯂꯤꯡꯒꯤ ꯑꯥꯌꯄꯤꯕꯔꯨꯪ ꯏꯤꯇꯗꯂꯤꯡ (WB_STRUCT)
7B.1	ꯍꯂꯤꯡ ꯆꯩꯐꯒꯤ ꯑꯆꯣꯂ ꯃꯌꯨꯡ ꯍꯦꯆ ꯏꯤꯑꯂ ꯌꯄꯕ ꯖꯣꯑꯆꯕꯒꯤ ꯂꯪꯕꯥꯑ (ꯑꯆꯌꯄꯆꯥꯌꯤꯒ S-3)
7B.2	ꯑꯆꯣꯆ 7.4.6-ꯗ ꯑꯣꯪꯍꯤꯕ ꯖꯄꯑꯏꯐꯒꯤ ꯕꯏꯄꯂꯤꯡ (KC APWA 5600, 2006, §5605.3)
7C.1	ꯃꯌꯐ ꯃꯌꯨꯡ ꯍꯦꯆ ꯄꯨꯇꯒꯤ ꯆꯥꯒꯥꯇꯂꯤꯡ (ꯖꯨꯍꯄꯤ ꯍꯨꯗꯤꯡꯃꯑꯑꯤꯗꯃꯑ ꯃꯖꯨꯡ ꯏꯖꯆꯒꯗꯕ)
7C.2	ꯆꯥꯒꯥꯇ ꯃꯌꯨꯡ ꯍꯦꯆ ꯑꯁꯪꯆꯥꯪꯑꯤ ꯂꯥꯌꯤꯡꯂꯤꯡ (ꯖꯨꯍꯄꯤ ꯍꯨꯗꯤꯡꯃꯑꯑꯤꯗꯃꯑ ꯃꯖꯨꯡ ꯏꯖꯆꯒꯗꯕ)
7C.3	ꯌꯄꯤꯒꯄꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯒꯗꯕ ꯊꯕꯑꯂꯤꯡ (ꯖꯨꯍꯄꯤ ꯍꯨꯗꯤꯡꯃꯑꯑꯤꯗꯃꯑ ꯃꯖꯨꯡ ꯏꯖꯆꯒꯗꯕ)
7D.1	ꯆꯩꯃ ꯆꯊꯣꯑꯖ ꯑꯃꯁꯨꯡ ꯄꯥꯂꯌꯄꯥꯂꯦꯒꯤ ꯊꯕꯑꯂꯤꯡꯒꯤ ꯖꯣꯇꯗ ꯖꯣꯍꯦꯪꯂꯤꯡ
7E.1	ꯍꯂꯤꯡ ꯆꯩꯐꯂꯤꯡ
7E.2	ꯌꯨꯄꯥꯇꯂꯤꯡ, ꯍꯣꯡꯂꯤꯡ, ꯔꯥꯆꯥꯇꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯣꯡꯕꯦꯂꯤꯡ
7E.3	ꯖꯦꯂꯤꯡ, ꯒꯥꯪꯂꯤꯡ, ꯆꯩꯄꯍꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯐ
7E.4	ꯂꯤꯆꯤꯦꯆꯗꯕ ꯆꯪꯄꯒ ꯖꯆꯤꯑ ꯏꯁꯕ ꯒꯥꯄꯤꯏꯍ ꯌꯗꯄꯤꯕ ꯔꯖꯂꯤꯡ
8A.1	ꯆꯣꯦ ꯃꯌꯨꯡ ꯍꯦꯆ ꯍꯂꯤꯡꯒꯤ ꯑꯔꯆꯤꯌꯤꯒꯤ ꯆꯣꯡ ꯔꯨꯕꯒꯤ ꯗꯥꯖꯊꯂꯤꯡ (ꯆꯥꯔꯠ)
8A.2	ꯗꯔꯨꯄꯥꯂꯦ ꯃꯌꯨꯡ ꯍꯦꯆ ꯊ 3-ꯒꯤ ARI-ꯒꯤ ꯍꯦꯌꯥꯦꯂꯤꯌꯤ (ꯆꯥꯔꯠ)
8B.1	ꯄꯤꯗꯥꯒꯥꯆꯖꯃꯥꯦꯪꯑꯤꯗꯃꯑ ꯃꯊꯣ ꯌꯕ LoS (ꯆꯥꯔꯠ)

ꯇꯦꯕꯜ	ꯃꯃꯤꯡ
8B.2	ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ: ꯀꯝꯄꯣꯖꯤꯠ VR (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ)
8B.3	ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯟꯁꯤꯡꯒꯤ ꯀꯝꯄꯣꯖꯤꯠ VR (ꯂꯦꯑꯥꯎꯠ)
8C.1	ꯃꯣꯅꯤꯇꯔꯤꯡ ꯁꯥꯏꯠꯀꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔ (ꯂꯦꯑꯥꯎꯠ)
8C.2	ꯊꯧꯗꯣꯛꯀꯤ ꯔꯦꯀꯣꯔꯗ (ꯂꯦꯑꯥꯎꯠ; ꯀ꯭ꯂꯣꯖ 8.13.2-ꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ)
8C.3	ꯄꯔꯐꯣꯃꯦꯟꯁꯀꯤ ꯁꯝꯃꯔꯤ ꯑꯃꯁꯨꯡ ꯄꯔꯄꯣꯖ ꯇꯧꯔꯕ VR (ꯂꯦꯑꯥꯎꯠ)
8D.1	ꯄꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ (BMP ꯄꯨꯝꯅꯃꯛ)
8D.2	ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯦꯟ ꯒꯥꯔꯗꯦꯟꯁꯤꯡ (ꯃꯃꯤ 8.2)
8D.3	ꯄꯥꯝꯕꯤ ꯂꯩꯕ ꯁꯋꯦꯜꯁꯤꯡ
8D.4	ꯄꯥꯝꯕꯤ ꯂꯩꯕ ꯐꯤꯜꯇꯔ ꯁ꯭ꯇ꯭ꯔꯤꯞꯁꯤꯡ
8D.5	ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯃꯦꯟꯠ
8D.6	ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟꯁꯤꯡ (ꯃꯃꯤ 8.3)
8D.7	ꯋꯦꯠ ꯄꯣꯟꯗꯁꯤꯡ (ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯋꯦꯠ ꯗꯤꯇꯦꯟꯁꯟ)
8D.8	ꯀꯟꯁꯇ꯭ꯔꯛꯠ ꯇꯧꯔꯕ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ
8D.9	ꯒ꯭ꯔꯣꯁ ꯄꯣꯂꯨꯇꯦꯟꯠ ꯇ꯭ꯔꯦꯞꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐꯣꯜ ꯁ꯭ꯀ꯭ꯔꯤꯟꯁꯤꯡ
8D.10	ꯑꯣꯏꯜ-ꯒ꯭ꯔꯤꯠ ꯁꯦꯄꯥꯔꯦꯇꯔꯁꯤꯡ
8D.11	ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯌꯨꯖꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥ (ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯠ ꯇꯧꯔꯤꯕ BMP ꯄꯨꯝꯅꯃꯛ)
8D.12	ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯐꯤꯜꯇꯔ ꯃꯤꯗꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯂꯦꯌꯔꯁꯤꯡ
8D.13	ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ, ꯁꯋꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯤꯜꯇꯔ ꯁ꯭ꯇ꯭ꯔꯤꯞꯁꯤꯡꯒꯤꯗꯃꯛ ꯏꯟꯗꯤꯀꯦꯇꯤꯚ ꯄꯥꯝꯕꯤꯁꯤꯡ
8D.14	ꯀꯟꯁꯇ꯭ꯔꯛꯠ ꯇꯧꯔꯕ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯋꯦꯠ ꯄꯣꯟꯗꯁꯤꯡꯒꯤꯗꯃꯛ ꯏꯟꯗꯤꯀꯦꯇꯤꯚ ꯄꯥꯝꯕꯤꯁꯤꯡ
8D.15	ꯊꯥꯗꯣꯛꯄ ꯁꯀꯤꯝꯁꯤꯡ
8E.1	ꯊꯧꯑꯣꯡꯁꯤꯡ ꯅꯂꯕ (ꯀ꯭ꯂꯣꯖ 8.12.3)
8E.2	ESC-ꯒꯤ ꯃꯦꯞ ꯑꯃꯁꯨꯡ ꯏꯟꯁꯄꯦꯛꯁꯟ (ꯀ꯭ꯂꯣꯖ 8.12.2 ꯑꯃꯁꯨꯡ 8.12.5)
9A.1	ꯀꯃꯟ ꯏꯟꯂꯦꯠꯁꯤꯡꯒꯤꯗꯃꯛ HDS-5-ꯒꯤ ꯏꯟꯂꯦꯠ-ꯀꯟꯇ꯭ꯔꯣꯜ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡ
9A.2	ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ ꯑꯁꯤꯒꯤ ꯏꯟꯄꯨꯠꯁꯤꯡ
9A.3	ꯀꯟꯀ꯭ꯔꯤꯠ ꯕꯣꯛꯁ ꯑꯃꯁꯨꯡ ꯁꯔꯀꯨꯂꯔ ꯄꯥꯏꯞ (D = 1.2 m)
9A.4	ꯏꯟꯂꯦꯠ-ꯀꯟꯇ꯭ꯔꯣꯜ ꯅꯣꯃꯣꯒ꯭ꯔꯥꯐ
9A.5	ꯑꯥꯎꯠꯂꯦꯠ-ꯀꯟꯇ꯭ꯔꯣꯜ ꯅꯣꯃꯣꯒ꯭ꯔꯥꯐ
9A.6	ꯈꯣꯟꯗ ꯇꯧꯔꯤꯕ ꯅꯣꯃꯣꯒ꯭ꯔꯥꯐ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯡ
9A.7	ꯔꯤꯞꯔꯦꯞ ꯑꯦꯞꯔꯅꯒꯤ ꯁꯥꯏꯖ ꯂꯦꯞꯄ
9A.8	ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ ꯑꯁꯤꯒꯤ ꯁꯝꯃꯔꯤ (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯏꯟꯄꯨꯠ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯠ ꯆꯦꯛ)
9B.1	ꯁꯇꯦꯟꯗꯔꯗ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡꯗ ꯂꯩꯕ ꯔꯦꯐꯔꯦꯟꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯄꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯤ ꯂꯩꯅꯕ ꯆꯦꯞꯇꯔ ꯑꯣꯏꯕ ꯀ꯭ꯂꯣꯖꯁꯤꯡ
9C.1	ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

ꯇꯦꯕꯜ	ꯃꯃꯤꯡ
9C.2	ꯀꯟꯠꯔꯣꯜ ꯂꯦꯚꯦꯜꯁꯤꯡ (ꯚꯦꯜꯌꯨꯁꯤꯡ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟꯗ ꯊꯝꯒꯗꯕꯅꯤ)
10A.1	ꯀꯦꯜꯀꯨꯂꯦꯇꯔꯒꯤ ꯏꯟꯄꯨꯠꯁꯤꯡ
10A.2	ꯀꯦꯜꯀꯨꯂꯦꯇꯔꯅꯥ ꯇꯧꯒꯗꯕ ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯁꯤꯡ
10B.1	ꯂꯦꯌꯔꯁꯤꯡ
10B.2	SW_FAC (ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ)-ꯒꯤ ꯑꯦꯇꯔꯤꯕꯌꯨꯠꯁꯤꯡ
10B.3	SW_OUTF (ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ)-ꯒꯤ ꯑꯦꯇꯔꯤꯕꯌꯨꯠꯁꯤꯡ
10B.4	SW_CATCH (ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡ)-ꯒꯤ ꯑꯦꯇꯔꯤꯕꯌꯨꯠꯁꯤꯡ
10B.5	SW_FLOW ꯑꯃꯁꯨꯡ SW_CONV (ꯐꯂꯣ ꯄꯥꯏꯞꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯟꯚꯦꯌꯦꯟꯁ)-ꯒꯤ ꯑꯦꯇꯔꯤꯕꯌꯨꯠꯁꯤꯡ
10B.6	ꯃꯦꯇꯥꯗꯦꯇꯥ (SW_META)
10B.7	ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯃꯈꯜꯒꯤ ꯀꯣꯗꯁꯤꯡ (FAC_TYPE)
10B.8	ꯁꯇꯦꯇꯁꯀꯤ ꯀꯣꯗꯁꯤꯡ (STATUS)
10B.9	ꯏꯟꯁꯄꯦꯛꯁꯟꯒꯤ ꯔꯤꯖꯜꯇꯀꯤ ꯀꯣꯗꯁꯤꯡ (INSP_RES)
10C.1	ꯃꯦꯅꯨꯌꯦꯜꯅꯥ ꯇꯧꯕ ꯑꯦꯛꯁꯦꯜꯀꯤ ꯇꯦꯝꯄꯂꯦꯠꯁꯤꯡ
10C.2	ꯃꯦꯅꯨꯌꯦꯜꯅꯥ ꯇꯧꯗꯕ ꯑꯦꯛꯁꯦꯜꯀꯤ ꯇꯦꯝꯄꯂꯦꯠꯁꯤꯡ (ꯗꯤꯖꯥꯏꯟꯗ ꯀꯟꯐꯔꯝ ꯇꯧꯒꯗꯕ)
10D.1	O&M ꯄꯂꯥꯟ ꯑꯃꯒꯤ ꯑꯔꯣꯏꯕꯁꯤꯡ
10D.2	ꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯏꯟꯐꯤꯜꯇꯔꯦꯁꯟ (ꯇꯥꯡꯀꯁꯤꯡ, ꯇꯔꯦꯟꯆꯁꯤꯡ, ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ, ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯤꯡ)
10D.3	ꯗꯤꯖꯥꯏꯅꯒꯤ ꯔꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ ꯁꯥꯏꯖꯤꯡ ꯀꯔꯚ-ꯐꯤꯠ ꯑꯦꯟꯗ ꯂꯦꯚꯦꯜ ꯑꯦꯔꯤꯌꯥ
10D.4	ꯗꯤꯖꯥꯏꯅꯒꯤ ꯃꯈꯥꯒꯤ ꯁꯥꯏꯖꯤꯡ ꯄꯥꯏꯄꯒꯤ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯂꯨꯝ, ꯄꯔꯦꯒꯤꯗꯤ ꯑꯥꯎꯠꯂꯦꯠ
10D.5	ꯄꯀꯄ ꯗꯧꯕ ꯔꯤꯇꯦꯟꯁꯟ, ꯄꯀꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯣꯜꯁꯤꯡ
10D.6	ꯐꯂꯦꯞ ꯁꯥꯏꯖꯤꯡ ꯇꯏꯟꯗ ꯒꯦꯠ, ꯂꯦ-ꯔꯤꯇꯔꯦ ꯒꯤꯜꯒ
10D.7	ꯒꯔꯥꯂ ꯄꯥꯂꯨꯇꯦꯠ ꯇꯔꯦꯄ ꯁꯥꯏꯖꯤꯡ ꯐꯔꯂꯠ-ꯐꯂꯂ ꯑꯤꯒꯏꯂ
10D.8	ꯄꯔꯥꯏꯒꯦꯠ ꯏꯥꯡꯕꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠꯁꯤꯡ
11A.1	ꯗꯦꯂꯤꯚꯔꯦꯕꯜꯁꯤꯡ
11B.1	ꯀꯂꯥꯖ 11.3.3-ꯗ ꯃꯃꯤꯡ ꯄꯥꯔꯤꯕ ꯕꯦꯁꯤꯟꯁꯤꯡ (ꯄꯔꯥꯒꯤꯂꯂꯦꯜ)
11B.2	ꯕꯦꯁꯤꯟꯒꯤ ꯑꯀꯣꯟꯒꯤ ꯂꯦꯌꯔꯒꯤ ꯑꯦꯇꯔꯤꯕꯌꯨꯠꯁꯤꯡ (ꯂꯦꯑꯥꯎꯠ)
11C.1	ꯑꯦꯄꯂ–ꯑꯦꯃꯦꯂ ꯀꯔꯒ (ꯂꯦꯑꯥꯎꯠ, ꯕꯤꯜꯗꯤꯡ ꯃꯇꯦꯔꯤꯑꯦꯜ ꯇꯦꯕꯜ ꯑꯃ)
11D.1	ꯐꯧꯡꯗꯦꯁꯟ ꯑꯔꯁꯦꯄꯁꯤꯡ

ꯃꯃꯤꯁꯤꯡꯒꯤ ꯄꯔꯤꯡ

ꯃꯃꯤ	ꯃꯃꯤꯡ
1.1	ꯂꯥꯡꯒꯤ ꯅꯁꯤꯡ ꯃꯦꯂꯦꯇꯃꯦꯂꯦꯁꯤꯡ ꯇꯥꯅꯔꯄꯥꯄꯀꯤ

ꯃꯃꯤ	ꯃꯃꯤꯡ
1.2	ꯌꯨꯇꯕ ꯃꯦꯐ ꯇꯣꯔꯔꯒꯤ ꯏꯇꯥꯌꯦꯍ
2.1	ꯂꯤꯆꯥꯅꯦ ꯗꯥꯡ ꯌꯨꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯣꯐꯂꯥꯡꯔꯀꯤꯡ
2.2	ꯂꯤꯆꯥꯅꯦ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ
2.3	ꯂꯤꯆꯥꯅꯦ ꯗꯥꯡ ꯌꯨꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯂꯒꯤ ꯂꯤꯆꯥꯅꯦ ꯗꯥꯡ ꯌꯨꯕꯒꯤ ꯁꯥꯂꯥꯡ ꯏꯁꯕ
3.1	ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯇꯥꯇꯤꯒꯤ ꯁꯥꯑꯥꯡ ꯅꯦꯕ
3.2	ꯌꯥꯅꯐ ꯑꯥꯏ ꯃꯦꯀꯣꯌꯦꯜꯣꯀꯦ: ꯅꯕꯥꯅꯂꯒꯤ ꯑꯡꯕ ꯏꯇꯥ ꯔꯤꯁꯃꯤ ꯃꯁꯡꯌ ꯆꯕ ꯏꯇꯥ ꯀꯣꯒꯃꯣꯌꯦꯀꯤꯡ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
3.3	ꯗꯥꯡ ꯌꯨꯕꯒꯤ ꯂꯣꯔꯁꯃꯤ ꯌꯥꯡꯂꯐꯇꯕ SCS-CN ꯐꯦꯑꯥꯏꯃꯤ ꯂꯣꯔꯁ
3.4	ꯅꯥꯡꯁꯡ ꯑꯇꯤꯒꯤ ꯃꯦꯌꯤꯇꯌꯨꯑꯀ ꯀꯤꯃꯇꯣꯀꯦ: ꯔꯅꯐꯤꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯒꯤ ꯇꯣꯒꯣꯏ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
3.5	ꯂꯣꯒꯣꯇꯔꯃꯣꯌꯦꯃꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯨꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ
4.1	ꯂꯣꯒꯣꯇꯔꯃꯣꯌꯦꯃꯤ ꯃꯃꯤꯡꯒꯤ ꯌꯍꯤ 10, ꯂꯣꯒꯣꯇꯔꯃꯣꯌꯦꯃꯤ ꯃꯌꯨꯡꯒꯤ ꯌꯍꯤ 100 ꯃꯦꯌꯐꯥꯏ ꯌꯥꯂꯕ, ꯑꯃꯁꯨꯡ ꯂꯤꯌꯣꯀꯦ ꯌꯥꯐꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ (ꯌꯂꯐ ꯑꯥꯅꯇꯦ)
4.2	ꯂꯤꯌꯣꯀꯦ ꯀꯌꯥꯐꯣꯇꯒꯤ ꯀꯌꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯏꯌꯤ-ꯀꯌꯣꯇ ꯑꯌꯨꯇꯣꯍ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
4.3	ꯏꯤꯡꯀ ꯌꯥꯐꯕ ꯃꯥꯑꯣꯏꯤꯀꯤꯌꯣꯌꯦꯃꯤ ꯐꯨꯍ: ꯐꯤꯇꯤꯇ ꯃꯣꯔꯀꯤꯡ, ꯃꯀ-ꯃꯐꯒ ꯁꯥꯑꯥꯡꯇꯦ ꯀꯌꯥꯐꯣꯇ ꯑꯃꯁꯨꯡ ꯀꯌꯣꯇ ꯑꯇꯤꯒꯤ ꯑꯌꯨꯇꯣꯍ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
5.1	ꯃꯅꯦ ꯁꯡꯕ ꯃꯏꯐꯒꯤ ꯑꯣꯇꯦꯆꯅꯀꯤꯀꯃꯤ ꯇꯐ
5.2	ꯏꯇꯣꯔ ꯒꯣꯍ ꯑꯃꯁꯨꯡ ꯂꯤꯆꯥꯅꯦꯒꯤ ꯌꯣꯏꯌꯨꯌꯐ ꯇꯣꯒꯣꯏꯀꯤꯡ ꯆꯕ ꯌꯥꯅꯂꯣꯏ ꯑꯌꯨꯍꯏꯥꯏꯒꯤ ꯀꯣꯡꯀꯦ
5.3	ꯌꯥꯅꯂ-ꯗꯥꯡ ꯌꯥꯐꯕ ꯑꯌꯨꯍꯏꯥꯏꯒꯤ ꯃꯌꯐꯒꯤ ꯆꯅꯦ (ꯌꯂꯐ ꯑꯥꯅꯇꯦ)
6.1	ꯃꯐꯕ ꯆꯕ ꯇꯐꯕꯤ ꯑꯃꯂ ꯃꯅꯇꯐ ꯑꯃꯁꯨꯡ ꯃꯣꯇꯐ ꯅꯐꯐ
6.2	ꯒꯌꯐꯒꯤ ꯀꯔꯐꯣꯂ, ꯅꯦꯇꯣꯍꯦ ꯁꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯔꯔ
6.3	ꯅꯥꯡꯕꯦꯒꯤ ꯀꯣꯡꯀꯦꯀꯤꯡ: ꯏꯐꯤꯕꯥꯐꯂ, ꯀꯣꯂꯤꯃꯣꯌꯦꯍ ꯑꯣꯇꯦꯑꯣꯀ ꯑꯃꯁꯨꯡ ꯌꯡꯇꯡꯔꯒꯤ ꯇꯐꯕꯤ
6.4	ꯅꯐꯐꯒꯤ ꯐꯤꯇꯐꯒ: ꯃꯐꯥꯀ-ꯀꯣꯡꯀꯦ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
6.5	ꯃꯥꯀꯌꯣꯏ ꯕꯣꯀꯂ: ꯏꯇꯥꯐ ꯇꯣꯒꯣꯏꯒꯤ ꯀꯌꯣꯡ ꯑꯃꯁꯨꯡ ꯕꯣꯀꯂꯃꯤ ꯌꯏꯕ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
7.1	ꯅꯀꯤꯡ ꯆꯏꯐꯒꯤ ꯀꯣꯍꯕꯣꯡ ꯇꯥꯀꯀꯤꯡ
7.2	ꯑꯣꯇꯤꯒꯣꯀꯦ ꯕꯣꯀꯂꯃꯤ ꯃꯌꯨꯡ ꯅꯀꯇ ꯃꯐꯔꯣꯀꯀꯣꯌꯐꯤ ꯀꯌꯥꯐꯣꯇ (ꯀꯃꯤꯃꯣꯌꯤꯡ)
7.3	ꯌꯨꯐꯣꯏꯒꯤ ꯔꯀꯀꯤꯡꯒꯤ ꯃꯌꯨꯡꯂ ꯆꯕ ꯌꯐꯔꯤꯡꯃꯤ ꯇꯐꯒꯤ ꯌꯥꯅꯦ ꯑꯃꯗꯤ, ꯃꯀꯤꯒꯤ ꯔꯤꯍ ꯑꯃꯁꯨꯡ ꯔꯅꯐꯤꯀꯤꯡ, ꯑꯃꯁꯨꯡ ꯇꯣꯡꯃꯤ ꯃꯇꯦꯡ꯫ ꯔꯣꯇꯣꯏ A: ꯌꯨꯐꯣꯏꯒꯤ ꯔꯀꯀꯤꯡꯒꯤ (pan) ꯃꯌꯨꯡꯂ ꯆꯕ ꯌꯐꯔꯤꯡꯃꯤ ꯇꯐꯒꯤ ꯌꯥꯅꯦ ꯑꯃꯗꯤ, ꯇꯐꯕꯤꯒꯤ ꯃꯇꯦꯡꯃꯤ ꯅꯥꯡꯕꯦꯀꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯀꯒꯤ ꯌꯨꯍꯁꯡꯂ ꯏꯇꯣꯔ ꯒꯣꯍ ꯆꯕ ꯒꯣꯍ ꯆꯕ ꯑꯌꯨꯍꯏꯥꯏ (ithong) ꯑꯃꯂ ꯌꯍꯇꯤꯕ ꯀꯍꯐꯒꯤ ꯌꯣꯇꯣꯏ ꯑꯃꯒ ꯇꯥꯌꯇꯇꯦ ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ ꯃꯇꯦꯡꯌ ꯔꯃꯔꯀꯤꯡ ꯀꯌꯣꯀꯦ ꯑꯃꯗꯤ, ꯀꯌꯣꯇ ꯑꯇꯤꯂ ꯆꯕ ꯌꯨꯐꯣꯏ (ꯏꯇꯂ ꯇꯣꯒꯣꯏꯒꯤ ꯃꯅꯦꯂ, ꯒꯣꯍ ꯍꯥꯡꯂꯥꯡꯇꯤ; ꯏꯇꯂ ꯇꯣꯒꯣꯏꯂ ꯇꯍꯐꯒ ꯃꯂꯂꯒꯤ ꯌꯥꯡꯇꯦ, ꯒꯣꯍ ꯁꯤꯡꯇꯤꯏꯇꯤ, ꯀꯌꯥꯐꯣꯇ ꯁꯦꯇꯡꯇꯤ, ꯔꯃꯐꯔꯀꯤꯡ ꯌꯍꯇꯤ), ꯌꯨꯐꯣꯏꯂ ꯔꯃꯐꯔꯦ ꯁꯂꯥꯃꯔ ꯑꯌꯨꯍꯇꯣꯍ ꯆꯕ ꯐꯤꯇꯇꯣꯏ ꯅꯀꯤꯡ ꯅꯌꯨꯒꯤ ꯀꯌꯥꯐꯣꯇ ꯑꯥꯅꯇꯦ ꯀꯤꯇꯤꯑꯦꯇꯕ ꯔꯤꯍ ꯑꯃꯗꯤ, ꯌꯨꯑꯂ ꯔꯅꯐꯤ ꯑꯃꯗꯤ, ꯅꯀꯤꯡ ꯅꯌꯨꯒꯤ ꯀꯌꯥꯐꯣꯇ ꯑꯥꯅꯕ ꯆꯥꯕꯡ, ꯔꯤꯍꯃꯤ ꯃꯃꯤꯡꯂ ꯁꯤꯡꯇꯤꯑꯂꯦ ꯀꯃꯐꯤꯑꯦ ꯌꯥꯐꯕ ꯗꯥꯡ ꯌꯂꯕ ꯃꯌꯐꯒꯤ ꯀꯤꯌꯣꯇ, ꯌꯐꯔꯤꯡꯃꯤ ꯇꯐꯒꯤ ꯆꯃꯨ ꯑꯌꯣꯍꯔ ꯑꯃꯁꯨꯡ ꯔꯤꯍꯌ ꯅꯑꯏꯤꯏꯌꯐꯣꯀꯦ ꯃꯐꯣꯂꯤꯍ ꯆꯌꯕ, ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯅꯥꯡ ꯑꯃꯇꯦ ꯌꯐꯔꯤꯡꯃꯤ ꯇꯐ ꯌꯥꯕ ꯃꯏꯐꯀꯤꯡꯂ ꯀꯤꯏꯍ ꯌꯨꯐꯣꯔꯀꯤꯡ꯫ ꯔꯣꯇꯣꯏ B: ꯇꯣꯡꯃꯤ ꯃꯇꯦꯡ, ꯃꯅꯦꯂ ꯆꯕ ꯕꯣꯐꯥꯇ ꯑꯃꯁꯨꯡ ꯇꯡꯒꯤ ꯀꯤꯏ ꯑꯃꯇꯦ ꯁꯐꯇꯤꯕ ꯇꯣꯡ ꯑꯃꯗꯤ, ꯑꯌꯨꯍꯇꯣꯍ ꯀꯃꯐꯤꯀꯦ ꯑꯃꯂ ꯌꯥꯌꯐꯤꯕ ꯔꯤꯐꯕꯤ, ꯑꯃꯁꯨꯡ ꯇꯣꯒꯣꯏ ꯑꯂꯒꯤ ꯃꯅꯦꯂ ꯇꯀꯂꯒꯤ ꯀꯣꯔꯌꯣꯐꯕꯐ ꯏꯌꯕ ꯁꯤꯡꯇꯤꯏꯇꯤꯕ ꯌꯥꯌꯀꯒꯤ ꯑꯌꯨꯍꯏꯥꯏ ꯑꯃꯂ ꯂꯤꯆꯥꯅꯦ ꯗꯥꯡ ꯇꯣꯒꯣꯏ
8.1	ꯌꯐꯤꯍꯃꯣꯌꯦꯍ ꯌꯐꯣꯀꯦ
8.2	ꯕꯅꯑꯥꯐꯤꯌꯣꯀꯦ ꯀꯣꯏ

ꯃꯃꯤ	ꯃꯃꯤꯡ
8.3	ꯅꯦꯖꯤꯔꯥꯐꯣꯂꯦ ꯌꯥꯐꯣꯗ
9.1	ꯃꯔꯒꯥꯏꯃꯤ ꯍꯅꯕꯥꯗꯤꯡꯂ: ꯅꯦꯆꯣꯏ ꯃꯦꯌꯥꯀꯥ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯆꯣꯏ ꯃꯦꯌꯥꯀꯥ
9.2	ꯖꯤꯅꯖ ꯆꯏꯥꯒꯣ ꯃꯔꯒꯥꯏꯃꯤ ꯑꯣꯏꯕꯆꯣꯏꯌ ꯥꯤꯖꯥꯖ ꯑꯖꯥꯦ (ꯂꯃꯤꯐꯌꯤꯡ)
9.3	ꯆꯦꯡꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯖꯐꯖꯤꯡ ꯂꯌꯂꯦ: ꯔꯏ ꯔꯔ, ꯂꯃꯥꯤꯦꯂꯤꯡ, ꯆꯒꯔꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯖꯔ
10.1	ꯂꯕꯃꯤꯌꯔ, ꯥꯤꯒꯤꯁ ꯑꯃꯁꯨꯡ ꯑꯖꯥꯒꯔꯒꯤ ꯔꯥꯡꯖꯆꯦ
10.2	ꯑꯖꯥꯒꯔꯕꯒꯤ ꯍꯦꯕꯑꯒꯥ ꯖꯁꯕ ꯃꯦꯂꯌꯥꯡꯂꯦꯒꯤ ꯍꯔꯕ ꯖꯅꯦꯏꯂꯤꯡ
10.3	ꯃꯦꯌꯆꯦꯂꯒꯤ ꯂꯅꯃꯔ ꯑꯃꯁꯨꯡ ꯖꯕꯡ
11.1	ꯕꯂꯤꯦ ꯃꯂꯌꯥ ꯖꯆꯦꯒꯤ ꯖꯥꯂꯂ
11.2	BSMP ꯐꯦꯖꯒꯤ ꯂꯃꯤꯐꯌꯤꯡ
6C.1	ꯆꯖꯃꯖ ꯔꯕ ꯃꯒꯥꯂꯤꯡ ꯆꯕ ꯃꯒꯥ ꯌꯥꯕ ꯆꯐꯕꯤ ꯃꯆꯡꯃꯤ ꯅꯡꯕꯦ
6C.2	ꯃꯒꯥ ꯌꯥꯕ ꯅꯡꯕꯦ ꯑꯃꯕ ꯆꯕ ꯑꯡꯂꯂ ꯑꯃꯁꯨꯡ ꯆꯡꯃꯂꯦ ꯔꯐꯕꯥ
6C.3	ꯆꯃꯒꯤ ꯂꯐꯖ ꯆꯕ ꯃꯥꯕ ꯅꯦꯆꯏ
8E.1	ꯂꯤꯔꯏ ꯖꯦꯂ: ꯃꯥꯂ-ꯂꯡꯂꯦ ꯑꯃꯁꯨꯡ ꯖꯆꯦ (ꯂꯃꯤꯐꯌꯤꯡ)
8E.2	ꯂꯥꯖꯂ ꯕꯤꯔꯌꯥꯤꯡ ꯑꯣꯏꯕꯆꯏ ꯆꯕ ꯂꯕꯤꯐꯦꯏ ꯕꯂꯤꯦ: ꯃꯥꯂ-ꯂꯡꯂꯦ (ꯂꯃꯤꯐꯌꯤꯡ)
8E.3	ꯂꯌꯕꯤꯆꯅꯆ ꯌꯥꯕ ꯃꯦꯂꯌꯥꯡꯂꯦ ꯑꯒꯆꯤꯏ: ꯖꯆꯦ ꯑꯃꯁꯨꯡ ꯃꯥꯂ-ꯂꯡꯂꯦ (ꯂꯃꯤꯐꯌꯤꯡ)
8E.4	ꯅꯡꯕꯦꯒꯤ ꯅꯦꯆꯏ ꯖꯥꯌꯡꯂꯦ (ꯂꯃꯤꯐꯌꯤꯡ)
9B.1	ꯃꯔꯒꯥꯏꯃꯤ ꯍꯕꯔꯔꯂꯤꯡ, ꯔꯤꯡꯔꯔꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯏ-ꯑꯖ ꯔꯔꯂꯤꯡ
9B.2	ꯂꯌꯥꯏ ꯒꯥꯌꯤꯃꯔ ꯕꯥꯖ ꯂꯌꯥꯡꯔꯥ
9B.3	ꯃꯦꯕꯔꯅꯏ ꯑꯦꯌꯥꯦꯂ ꯑꯃꯕ ꯆꯕ ꯌꯥꯂ ꯥꯡ
9B.4	ꯕꯤꯌꯦꯂꯦ ꯑꯣꯏꯕꯆꯏ ꯥꯅꯆꯥ ꯑꯃꯁꯨꯡ ꯅꯃꯥꯆꯦꯂꯤ ꯂꯖꯤꯔꯔ

ꯑꯕꯥꯤꯒꯤꯔꯂꯦꯂꯤꯡ

ꯑꯕꯥꯤꯒꯤꯔꯂꯦ	ꯑꯥꯖ
ABC Waters	ꯑꯦꯛꯇꯤꯒ, ꯕꯌꯨꯇꯤꯐꯨꯜ, ꯀꯂꯤꯟ ꯋꯥꯇꯔ (PUB Singapore-ꯒꯤ ꯕꯤꯆꯅꯦ ꯒꯅꯕꯆꯅꯦꯂ)
AEP	ꯑꯦꯛꯔꯟ ꯑꯡꯂꯤꯕꯦꯂ ꯖꯥꯕꯕꯤꯆꯤꯌ (ꯔꯍꯤ ꯑꯃꯕ ꯍꯦꯕꯒꯤ ꯔꯦꯂ)
AGU	ꯑꯃꯥꯤꯃꯦ ꯆꯤꯑꯖꯤꯆꯤꯃꯔ ꯔꯆꯤꯔꯦ
AIDR	ꯑꯂꯌꯥꯆꯤꯔꯦ ꯅꯦꯂꯌꯤꯌꯔꯏ ꯖꯥ ꯕꯤꯆꯂꯌꯥ ꯥꯤꯆꯤꯆꯤꯔꯦꯂ
AIIB	ꯑꯂꯤꯔꯦ ꯅꯦꯖꯥꯂꯌꯥꯡꯔꯥ ꯅꯦꯒꯂꯏꯃꯦꯏ ꯕꯡꯡ
AMC	ꯑꯦꯌꯤꯂꯤꯕꯦꯏ ꯃꯅꯂꯔꯥ ꯃꯦꯕꯤꯂꯦ (ꯃꯃꯡꯒꯤ ꯆꯃꯅꯒꯤ ꯅꯂꯤꯡ ꯆꯕꯒꯤ ꯖꯤꯒꯐ)
AMRUT	ꯑꯌꯔ ꯃꯤꯂꯦ ꯖꯥ ꯥꯤꯆꯒꯂꯦ ꯑꯦꯕ ꯑꯥꯕꯦ ꯌꯥꯦꯂꯖꯥꯃꯂꯦ

ꯑꯦꯕ꯭ꯔꯤꯚꯤꯌꯦꯁꯟ	ꯑꯔꯊ
APD	ꯑꯦꯄꯔꯨꯚꯦꯜ ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯗꯣꯀꯨꯃꯦꯟꯠ (AIIB)
APWA	ꯑꯦꯃꯦꯔꯤꯀꯟ ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛꯁ ꯑꯦꯁꯣꯁꯤꯌꯦꯁꯟ
ARF	ꯑꯦꯔꯤꯌꯦꯜ ꯔꯤꯗꯛꯁꯟ ꯐꯦꯛꯇꯔ
ASABE	ꯑꯦꯃꯦꯔꯤꯀꯟ ꯁꯣꯁꯥꯏꯇꯤ ꯑꯣꯐ ꯑꯦꯒ꯭ꯔꯤꯀꯂꯆꯔꯦꯜ ꯑꯦꯟꯗ ꯕꯏꯑꯣꯂꯣꯖꯤꯀꯦꯜ ꯏꯟꯖꯤꯅꯤꯌꯔꯁ
ASTM	ASTM ꯏꯟꯇꯔꯅꯦꯁꯅꯦꯜ (ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ)
AWS	ꯑꯣꯇꯣꯃꯦꯇꯤꯛ ꯋꯦꯗꯔ ꯁ꯭ꯇꯦꯁꯟ
BMP	ꯕꯦꯁ꯭ꯇ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯄ꯭ꯔꯦꯛꯇꯤꯁ
BOD	ꯕꯏꯑꯣꯀꯦꯃꯤꯀꯦꯜ ꯑꯣꯛꯁꯤꯖꯦꯟ ꯗꯤꯃꯥꯟꯗ
BRE	ꯕꯤꯜꯗꯤꯡ ꯔꯤꯁꯔꯆ ꯏꯁ꯭ꯇꯥꯕ꯭ꯂꯤꯁꯃꯦꯟꯠ (UK)
BSMP	ꯕꯦꯁꯤꯟ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ
CAG	ꯏꯟꯗꯤꯌꯥꯒꯤ ꯀꯝꯄꯇ꯭ꯔꯣꯂꯔ ꯑꯦꯟꯗ ꯑꯣꯗꯤꯇꯔ ꯖꯦꯅꯔꯦꯜ
CEA	ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯏꯂꯦꯛꯇ꯭ꯔꯤꯁꯤꯇꯤ ꯑꯣꯊꯣꯔꯤꯇꯤ
CGP	ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯟ ꯖꯦꯅꯔꯦꯜ ꯄꯔꯃꯤꯠ (US EPA)
CGWB	ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯣꯇꯔ ꯕꯣꯔꯗ
CIP	ꯀꯦꯄꯤꯇꯦꯜ ꯏꯝꯄꯔꯨꯚꯃꯦꯟꯠ ꯄ꯭ꯔꯣꯒ꯭ꯔꯥꯝ
CN	ꯀꯔꯚ ꯅꯝꯕꯔ (SCS/NRCS ꯊꯧꯑꯣꯡ)
COD	ꯀꯦꯃꯤꯀꯦꯜ ꯑꯣꯛꯁꯤꯖꯦꯟ ꯗꯤꯃꯥꯟꯗ
CPCB	ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯇ꯭ꯔꯣꯜ ꯕꯣꯔꯗ
CPHEEO	ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯑꯦꯟꯗ ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯇꯦꯜ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯑꯣꯔꯒꯥꯅꯥꯏꯖꯦꯁꯟ
CSE	ꯁꯦꯟꯇꯔ ꯐꯣꯔ ꯁꯥꯏꯟꯁ ꯑꯦꯟꯗ ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯠ
CWC	ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯋꯣꯇꯔ ꯀꯃꯤꯁꯟ
DC	ꯗꯦꯄꯨꯇꯤ ꯀꯃꯤꯁꯅꯔ
DEM	ꯗꯤꯖꯤꯇꯦꯜ ꯑꯦꯂꯤꯚꯦꯁꯟ ꯃꯣꯗꯦꯜ
DoECC	ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ, ꯃꯅꯤꯄꯨꯔ
DPR	ꯗꯤꯇꯦꯜꯗ ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯔꯤꯄꯣꯔꯠ
DSAL	ꯗꯤꯖꯤꯇꯦꯜ ꯁꯥꯎꯊ ꯑꯦꯁꯤꯌꯥ ꯂꯥꯏꯕ꯭ꯔꯦꯔꯤ (ꯀꯣꯂꯤꯕ ꯃꯩꯇꯩꯂꯣꯟ ꯗꯤꯛꯁꯅꯦꯔꯤꯁꯤꯡ ꯑꯣꯟꯂꯥꯏꯟ ꯑꯦꯗꯤꯁꯟ)
DST-NRDMS	ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ ꯑꯣꯐ ꯁꯥꯏꯟꯁ ꯑꯦꯟꯗ ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯒꯤ ꯅꯦꯆꯔꯦꯜ ꯔꯤꯁꯣꯔꯁꯦꯁ ꯗꯦꯇꯥ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯁꯤꯁ꯭ꯇꯦꯝ
DWF	ꯅꯣꯡ ꯆꯨꯗꯕ ꯃꯇꯝꯗꯤ ꯆꯦꯟꯕ
EN	ꯌꯨꯔꯣꯄꯤꯌꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗ (Norme Européenne)
EPD	ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯇꯦꯜ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯗꯤꯚꯤꯖꯟ (ꯖꯣꯔꯖꯤꯌꯥ, ꯌꯨꯅꯥꯏꯇꯦꯗ ꯁ꯭ꯇꯦꯠꯁ)
ESC	ꯏꯔꯣꯁꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯀꯟꯇ꯭ꯔꯣꯜ
EV1	ꯑꯦꯛꯁ꯭ꯇ꯭ꯔꯤꯝ ꯚꯦꯜꯌꯨ ꯇꯥꯏꯞ I (Gumbel) ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯕ꯭ꯌꯨꯁꯟ

ꯑꯦꯕ꯭ꯔꯤꯚꯤꯌꯦꯁꯟ	ꯑꯔꯊ
FER	ꯐ꯭ꯂꯗ ꯏꯁ꯭ꯇꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯠ (CWC)
FL / WL	ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ / ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜ (WRD-ꯒꯤ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯒꯦꯖꯃꯤꯇꯔ)
FRL / MWL / MDDL	ꯐꯨꯜ ꯔꯤꯖꯔꯚꯣꯌꯔ ꯂꯦꯚꯦꯜ / ꯃꯦꯛꯁꯤꯃꯝ ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ / ꯃꯤꯅꯤꯃꯝ ꯗ꯭ꯔꯣ-ꯗꯥꯎꯟ ꯂꯦꯚꯦꯜ
FRP	ꯐꯥꯏꯕꯔ-ꯔꯤꯏꯟꯐꯣꯔꯁ ꯇꯧꯔꯕ ꯄ꯭ꯂꯥꯁ꯭ꯇꯤꯛ
GIS	ꯖꯤꯑꯣꯒ꯭ꯔꯥꯐꯤꯛ ꯏꯅꯐꯣꯔꯃꯦꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ
GWRA	ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁ ꯑꯦꯁꯦꯁꯃꯦꯟꯇ (CGWB)
HAT / MHWS	ꯍꯥꯏꯌꯦꯁ꯭ꯠ ꯑꯦꯁ꯭ꯠꯔꯣꯅꯣꯃꯤꯀꯦꯜ ꯇꯥꯏꯗ / ꯃꯤꯟ ꯍꯥꯏ ꯋꯥꯇꯔ ꯁ꯭ꯄ꯭ꯔꯤꯡꯁ (ꯀꯣꯁ꯭ꯇꯦꯂꯒꯤ ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯑꯣꯏꯕꯅꯤ; ꯃꯅꯤꯄꯨꯔꯗ ꯌꯥꯎꯗꯦ)
HC	ꯃꯅꯤꯄꯨꯔ ꯍꯥꯏ ꯀꯣꯔꯠ
HFL	ꯍꯥꯏꯌꯦꯁ꯭ꯠ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (ꯒꯦꯖ ꯑꯃꯁꯨꯡ ꯄꯦꯜꯂꯦꯟ ꯌꯦꯡꯕ ꯍꯧꯈꯤꯕꯒꯤ ꯋꯥꯡꯕ ꯂꯦꯚꯦꯜ)
HGL	ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯒ꯭ꯔꯦꯗ ꯂꯥꯏꯟ
HSG	ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯛ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ
HY-8	FHWA-ꯒꯤ ꯀꯂꯚꯔꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯀꯤ ꯄ꯭ꯔꯣꯒ꯭ꯔꯥꯝ
I&D	ꯏꯅꯚꯦꯁ꯭ꯇꯤꯒꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ (ꯐꯤꯖꯤꯕꯤꯂꯤꯇꯤ ꯁ꯭ꯇꯗꯤꯁ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁ ꯑꯃꯁꯨꯡ)
IDF	ꯏꯟꯇꯦꯟꯁꯤꯇꯤ–ꯗ꯭ꯌꯨꯔꯦꯁꯟ–ꯐ꯭ꯔꯤꯛꯋꯦꯟꯁꯤ
IEE	ꯏꯅꯤꯁꯤꯌꯦꯜ ꯏꯅꯚꯥꯏꯔꯅꯃꯦꯟꯇꯦꯜ ꯑꯦꯒꯖꯥꯃꯤꯅꯦꯁꯟ
IFCD	ꯏꯔꯤꯒꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯀꯟꯠꯔꯣꯜ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (WRD-ꯒꯤ ꯑꯔꯤꯕ ꯃꯃꯤꯡ)
IIT	ꯏꯟꯗꯤꯌꯟ ꯏꯟꯁ꯭ꯇꯤꯇ꯭ꯌꯨꯠ ꯑꯣꯐ ꯇꯦꯛꯅꯣꯂꯣꯖꯤ
IMC	ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ
IMD	ꯏꯟꯗꯤꯌꯥ ꯃꯤꯇꯤꯑꯣꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ
IMDAA	ꯏꯟꯗꯤꯌꯟ ꯃꯣꯟꯁꯨꯟ ꯗꯦꯇꯥ ꯑꯦꯁꯤꯃꯤꯂꯦꯁꯟ ꯑꯦꯟꯗ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ (ꯔꯤꯖꯅꯦꯜ ꯔꯤꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯗꯦꯇꯥ)
IRC	ꯏꯟꯗꯤꯌꯟ ꯔꯣꯗꯁ ꯀꯥꯡꯒ꯭ꯔꯦꯁ
IS	ꯏꯟꯗꯤꯌꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗ (ꯕ꯭ꯌꯨꯔꯣ ꯑꯣꯐ ꯏꯟꯗꯤꯌꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁ)
ISO	ꯏꯟꯇꯔꯅꯦꯁꯅꯦꯜ ꯑꯣꯔꯒꯥꯅꯥꯏꯖꯦꯁꯟ ꯐꯣꯔ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯥꯏꯖꯦꯁꯟ
IST	ꯏꯟꯗꯤꯌꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯇꯥꯏꯝ
JICA	ꯖꯄꯥꯟ ꯏꯟꯇꯔꯅꯦꯁꯅꯦꯜ ꯀꯣꯑꯣꯄꯔꯦꯁꯟ ꯑꯦꯖꯦꯟꯁꯤ
KC	ꯀꯦꯟꯁꯥꯁ ꯁꯤꯇꯤ (Kansas City Metro APWA Section 5600)
LDA	ꯂꯣꯀꯦꯜ ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯣꯊꯣꯔꯤꯇꯤ
LiDAR	ꯂꯥꯏꯠ ꯗꯤꯇꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯦꯟꯖꯤꯡ (ꯂꯦꯖꯔ ꯁꯔꯚꯦ)
MAHUD	ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯁꯟ, ꯍꯥꯎꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯔꯕꯟ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ, ꯃꯅꯤꯄꯨꯔ
MASTEC	ꯃꯅꯤꯄꯨꯔ ꯁꯥꯏꯟꯁ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯣꯂꯣꯖꯤ ꯀꯥꯎꯟꯁꯤꯜ
MBBL 2016	ꯃꯣꯗꯦꯜ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ 2016 (MoHUA; ꯁ꯭ꯇꯦꯠꯀꯤ ꯕꯥꯏ-ꯂꯣꯖ ꯌꯥꯑꯣ)
MLD	ꯅꯨꯃꯤꯠ ꯑꯃꯗ ꯃꯤꯂꯤꯌꯟ ꯂꯤꯇꯔ

ꯑꯦꯕ꯭ꯔꯤꯚꯤꯌꯦꯁꯟ	ꯑꯔꯊ
MoEF&CC	ꯃꯤꯅꯤꯁ꯭ꯇ꯭ꯔꯤ ꯑꯣꯐ ꯏꯟꯚꯥꯏꯔꯟꯃꯦꯟꯠ, ꯐꯣꯔꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ
MoHUA	ꯃꯤꯅꯤꯁ꯭ꯇ꯭ꯔꯤ ꯑꯣꯐ ꯍꯥꯎꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯎꯔꯕꯟ ꯑꯦꯐꯦꯌꯔꯁ
MPCB	ꯃꯅꯤꯄꯨꯔ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯇ꯭ꯔꯣꯜ ꯕꯣꯔꯗ
MSDMA	ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ
MSWA	ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯣꯊꯣꯔꯤꯇꯤ
MTCP Act	ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯇ꯭ꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975
MW	ꯃꯦꯒꯥꯋꯥꯠ
NDB	ꯅ꯭ꯌꯨ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯕꯦꯉ꯭ꯀ
NDMA	ꯅꯦꯁꯅꯦꯜ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ
NGT	ꯅꯦꯁꯅꯦꯜ ꯒ꯭ꯔꯤꯟ ꯇ꯭ꯔꯥꯏꯕ꯭ꯌꯨꯅꯦꯜ
NH	ꯅꯦꯁꯅꯦꯜ ꯍꯥꯏꯋꯦ
NHPC	NHPC ꯂꯤꯃꯤꯇꯦꯗ (ꯂꯣꯛꯇꯥꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯏꯂꯦꯛꯠꯔꯤꯛ ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ ꯆꯂꯥꯏꯕ)
NIH	ꯅꯦꯁꯅꯦꯜ ꯏꯅꯁ꯭ꯇꯤꯇ꯭ꯌꯨꯠ ꯑꯣꯐ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ, ꯔꯨꯔꯀꯤ
NIT	ꯅꯦꯁꯅꯦꯜ ꯏꯅꯁ꯭ꯇꯤꯇ꯭ꯌꯨꯠ ꯑꯣꯐ ꯇꯦꯛꯅꯣꯂꯣꯖꯤ
NOC	ꯑꯣꯕꯖꯦꯛꯁꯟ ꯂꯩꯇꯕꯒꯤ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ
NPDES	ꯅꯦꯁꯅꯦꯜ ꯄꯣꯂꯨꯇꯦꯟꯠ ꯗꯤꯁꯆꯥꯔꯖ ꯏꯂꯤꯃꯤꯅꯦꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ (ꯌꯨꯅꯥꯏꯇꯦꯗ ꯁ꯭ꯇꯦꯇꯁ)
NRSC	ꯅꯦꯁꯅꯦꯜ ꯔꯤꯃꯣꯠ ꯁꯦꯟꯁꯤꯡ ꯁꯦꯟꯇꯔ
NWIA	ꯅꯦꯁꯅꯦꯜ ꯋꯦꯠꯂꯦꯟꯗ ꯏꯟꯚꯦꯟꯇꯔꯤ ꯑꯦꯟꯗ ꯑꯦꯁꯦꯁꯃꯦꯟꯠ (ISRO)
OA	ꯑꯣꯔꯤꯖꯤꯅꯦꯜ ꯑꯦꯞꯂꯤꯀꯦꯁꯟ (NGT)
OBPS	ꯑꯣꯅꯂꯥꯏꯟ ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ
OCR	ꯑꯣꯞꯇꯤꯀꯦꯜ ꯀꯦꯔꯦꯛꯇꯔ ꯔꯦꯀꯣꯒ꯭ꯅꯤꯁꯟ (ꯁ꯭ꯀꯦꯟ ꯇꯧꯔꯕ ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯠ ꯑꯃꯒꯤ ꯇꯦꯛꯁꯠ ꯂꯧꯔꯕ)
OGC	ꯑꯣꯄꯟ ꯖꯤꯑꯣꯁ꯭ꯄꯦꯁꯤꯌꯦꯜ ꯀꯟꯁꯣꯔꯇꯤꯌꯝ
ORF	ꯑꯣꯕꯖꯔꯚꯔ ꯔꯤꯁꯔꯆ ꯐꯥꯎꯟꯗꯦꯁꯟ
PDA Manipur	ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (MTCP Act-ꯒꯤ ꯁꯦꯛꯁꯟ 13)
PHED	ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ
PIL	ꯄꯕ꯭ꯂꯤꯛ ꯏꯟꯇꯔꯦꯁ꯭ꯠ ꯂꯤꯇꯤꯒꯦꯁꯟ
PSD	ꯄꯔꯃꯤꯁꯤꯕꯜ ꯁꯥꯏꯠ ꯗꯤꯁꯆꯥꯔꯖ
PWD	ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ, ꯃꯅꯤꯄꯨꯔ
RDSO	ꯔꯤꯁꯔꯆ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯟꯗ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁ ꯑꯣꯔꯒꯥꯅꯥꯏꯖꯦꯁꯟ (ꯔꯦꯜꯋꯦꯖ)
RIMP	ꯔꯤꯁ꯭ꯛ ꯏꯟꯐꯣꯔꯃꯗ GIS ꯕꯦꯖ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ (ꯏꯝꯐꯥꯜ ꯑꯃꯁꯨꯡ ꯃꯣꯏꯔꯥꯡꯒꯤꯗꯃꯛ)
RMSE	ꯔꯨꯠ-ꯃꯤꯟ-ꯁ꯭ꯀ꯭ꯋꯥꯌꯔ ꯑꯦꯔꯔ
RRV	ꯃꯊꯧ ꯇꯥꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯂꯨꯝ

ꯑꯦꯕ꯭ꯔꯤꯚꯤꯌꯦꯁꯟ	ꯑꯔꯊ
RWH	ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ
SAC	ꯁ꯭ꯄꯦꯁ ꯑꯦꯞꯂꯤꯀꯦꯁꯅꯁ ꯁꯦꯟꯇꯔ, ꯏꯟꯗꯤꯌꯟ ꯁ꯭ꯄꯦꯁ ꯔꯤꯁꯔꯆ ꯑꯣꯔꯒꯥꯅꯥꯏꯖꯦꯁꯟ
SANDRP	ꯁꯥꯎꯊ ꯑꯦꯁꯤꯌꯥ ꯅꯦꯇꯋꯔꯛ ꯑꯣꯟ ꯗꯦꯝꯁ, ꯔꯤꯚꯔꯁ ꯑꯦꯟꯗ ꯄꯤꯄꯜ
SH	ꯁ꯭ꯇꯦꯠ ꯍꯥꯏꯋꯦ
SLA	ꯁꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯥꯔꯦꯝ (ꯁꯃꯨꯗ꯭ꯔꯒꯤ ꯃꯊꯛꯀꯤ ꯋꯥꯐꯝ; ꯃꯅꯤꯄꯨꯔꯗ ꯂꯩꯇꯗꯦ)
SRRG	ꯁꯦꯜꯐ-ꯔꯦꯀꯣꯔꯗꯤꯡ ꯔꯦꯟ ꯒꯦꯖ
STP	ꯁꯤꯋꯦꯖ ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯄ꯭ꯂꯥꯟꯠ
SUH	ꯁꯤꯟꯊꯦꯇꯤꯛ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ (CWC)
TBC	ꯀꯟꯐꯥꯔꯝ ꯇꯧꯒꯗꯕ: ꯍꯧꯔꯛꯐꯝ ꯑꯃꯗ ꯍꯧꯖꯤꯛ ꯐꯥꯎꯕ ꯐꯡꯗ꯭ꯔꯤꯕ ꯐꯦꯛꯠ ꯅꯠꯔꯒꯥ ꯚꯦꯜꯌꯨ ꯑꯃꯥ
TCPO	ꯇꯥꯎꯟ ꯑꯦꯟꯗ ꯀꯟꯇ꯭ꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯣꯔꯒꯥꯅꯥꯏꯖꯦꯁꯟ (MoHUA)
TPD	ꯇꯥꯎꯟ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ, ꯃꯅꯤꯄꯨꯔ (MAHUD-ꯒꯤ ꯃꯈꯥꯗ)
TR-55	ꯇꯦꯛꯅꯤꯀꯦꯜ ꯔꯤꯂꯤꯖ 55 (USDA SCS/NRCS)
UH	ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ
ULB	ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ (ꯃꯅꯤꯄꯨꯔꯗ, IMC, ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯥꯎꯟꯁꯤꯜ ꯑꯃꯥ ꯅꯠꯔꯒꯥ ꯅꯒꯔ ꯄꯟꯆꯥꯌꯠ ꯑꯃꯥ)
Unified Bye-Laws 2024	ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ 2024, ULB ꯄꯨꯝꯅꯃꯛ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅꯥ ꯃꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡꯒꯤ ꯂꯣꯏꯅꯗꯥ
USACE	ꯌꯨꯅꯥꯏꯇꯦꯗ ꯁ꯭ꯇꯦꯠꯁ ꯑꯥꯔꯃꯤ ꯀꯣꯔ ꯑꯣꯐ ꯏꯟꯖꯤꯅꯤꯌꯔꯁ
USD	ꯌꯨꯅꯥꯏꯇꯦꯗ ꯁ꯭ꯇꯦꯠꯁ ꯗꯣꯂꯥꯔ
UT	ꯌꯨꯅꯤꯌꯟ ꯇꯦꯔꯤꯇꯣꯔꯤ
UTM	ꯌꯨꯅꯤꯚꯔꯁꯦꯜ ꯇ꯭ꯔꯥꯟꯁꯚꯔꯁ ꯃꯔꯀꯦꯇꯔ
VR	ꯚꯦꯜꯌꯨ ꯔꯦꯁꯤꯑꯣ (WQv ꯇ꯭ꯔꯤꯠ ꯇꯧꯔꯤꯕ BMP ꯑꯃꯒꯤ)
WAPCOS	WAPCOS ꯂꯤꯃꯤꯇꯦꯗ (ꯖꯜ ꯁꯛꯇꯤ ꯃꯤꯅꯤꯁ꯭ꯠꯔꯤꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯀꯝꯄꯦꯅꯤ)
WQv	ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯚꯣꯂꯨꯝ
WRD	ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ, ꯃꯅꯤꯄꯨꯔ
WSUD	ꯋꯥꯇꯔ-ꯁꯦꯟꯁꯤꯇꯤꯚ ꯑꯔꯕꯟ ꯗꯤꯖꯥꯏꯟ

ꯁꯔꯨꯛ 1

ꯏꯝꯐꯥꯜ, ꯁꯍꯔ ꯃꯍꯥꯛ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯂꯝꯕꯤꯁꯤꯡ

1.1 ꯏꯁꯤꯡ ꯆꯦꯠꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯒꯤ ꯄꯨꯝꯅꯃꯛ

1.1.1 ꯃꯥꯂꯦꯝ ꯑꯁꯤꯗꯤ ꯃꯇꯤꯑꯣꯡꯅ ꯇꯥꯏꯕ ꯅꯣꯡꯁꯥꯕ (stormwater) ꯁꯤꯡꯁꯥꯕꯁꯤꯡꯗ ꯏꯁꯤꯡꯅ, ꯀꯤꯔꯅꯒ, ꯀꯗꯨꯡꯕꯥꯏꯗꯒ, ꯑꯣꯏꯕꯥꯗꯒ ꯑꯃꯁꯨꯡ ꯃꯥꯌꯣꯛꯅꯕ ꯃꯤꯇꯤꯃꯛ ꯁꯥꯗꯨꯅꯕꯁꯤꯡ ꯇꯥꯔꯤ꯫ ꯃꯁꯤ ꯀꯔꯤ 1.5-ꯗ ꯇꯥꯔꯤꯕ ꯃꯁꯤꯡ ꯅꯈꯥ ꯏꯁꯤꯅꯒꯤ ꯗꯥꯏꯔꯦꯛꯇꯦꯠ ꯑꯃꯁꯨꯡ ꯏꯆꯥꯔꯤꯡ ꯌꯥꯡꯁꯤꯟ ꯌꯥꯝꯂꯦ꯫

1.1.2 ꯃꯥꯂꯦꯝ ꯑꯁꯤꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯃꯍꯥꯛ ꯏꯁꯤꯡ:

- (a) ꯇꯥꯏꯕ ꯅꯣꯡꯁꯥ ꯃꯥꯇꯥꯡꯗ ꯑꯁꯤ **ꯗꯥꯒꯥꯇꯥꯡꯗꯤ ꯑꯥꯏꯒꯥꯔꯤ ꯀꯦꯗꯤꯁꯤꯡ** ꯑꯃꯁꯨꯡ ꯑꯣꯅꯕꯦꯇꯕ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯑꯇꯣꯕ ꯗꯥꯒꯥꯇꯥꯡꯗꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯗꯥꯒꯥꯇꯥꯡꯗꯤꯇꯦ ꯃꯍꯥ ꯇꯥꯕ ꯃꯍꯥꯛꯗ ꯅꯣꯡꯁꯥ ꯅꯍꯥꯡꯒꯤ (flood) ꯏꯁꯤꯡ ꯇꯥꯔꯦꯡ ꯁꯦꯡꯑꯣꯏꯕꯤ (runoff) ꯒꯣꯇꯤꯡ ꯌꯥꯡꯊꯥꯏꯅꯕ;
- (b) ꯃꯥꯡꯒ ꯅꯨꯡꯁꯤꯒꯤ ꯅꯨꯡꯕ ꯇꯣꯕꯨ ꯁꯅꯥꯒꯨ ꯇꯥꯔꯤꯕꯦꯕ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯂꯩꯃꯥꯟꯅꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯅꯣꯡꯁꯥꯒꯤ ꯁꯤꯍꯦꯡꯂ (recharge) ꯇꯥꯏꯕꯦ ꯌꯥꯡꯕꯕ ꯑꯃꯁꯨꯡ ꯏꯇꯨꯡꯗꯦꯡꯒꯤ ꯇꯣꯗ ꯌꯦꯇꯌꯦꯕ;
- (c) ꯃꯣꯗꯨꯒ ꯃꯥꯡꯒꯤꯒꯤ ꯃꯥꯡꯒ ꯁꯥꯕꯦ ꯅꯨꯡꯕ ꯇꯣꯕ ꯅꯨꯡꯕꯒꯤ ꯇꯣꯗꯣꯁꯤꯕꯤꯒꯤꯗꯃꯛ, ꯃꯍꯥꯛ ꯑꯁꯤ ꯅꯒꯖꯥ ꯃꯥꯏꯕꯥꯃ ꯃꯁꯤꯒꯤ ꯇꯨꯔꯦꯜꯁꯤꯗ ꯅꯣꯡꯁꯥ ꯏꯁꯤꯕ ꯌꯤꯕꯁꯤꯕꯗ ꯁꯨꯃꯤꯗ ꯅꯔꯒꯤ ꯃꯥꯡꯒ ꯅꯨꯡꯕ ꯑꯣꯅꯕꯦ ꯇꯀꯅ (28 ꯇꯨꯇꯦꯅ–1 ꯑꯒꯁꯨ 1989-ꯒꯤ ꯇꯥ, ꯃꯥꯡꯒ ꯑꯣꯗꯨꯗ ꯅꯒꯖꯥꯕꯦ ꯃꯁꯤꯒꯤ ꯅꯣꯗꯅꯗꯒꯤ ꯌꯤꯕꯕ ꯁꯨꯃꯤꯗ, 30 ꯇꯨꯇꯦꯅꯗ 158.6 mm, ꯁꯥꯀꯣꯁꯗ ꯌꯣꯅꯤ, ꯑꯃꯁꯨꯡ ꯀꯤꯕꯏꯣꯏꯤꯇꯦ ꯇꯤ ꯑꯇꯣꯗ 617.6 mm; 30–31 ꯃꯥ 2025-ꯗ ꯀꯤꯕꯏꯣꯏꯏꯤꯗ ꯏꯨꯕ 72-ꯗ 175 mm, ꯏꯁꯤꯗ ꯖꯣꯕꯗꯣꯑꯅꯤꯕ ꯃꯁꯨꯕ ꯅꯦꯁꯦ) ꯑꯃꯁꯨꯡ ꯏꯦꯁꯒꯤ (bund) ꯒꯥꯌꯁꯤꯕ ꯇꯤꯕꯇꯤꯌꯤꯗ ꯏꯌꯁꯤꯕ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯇꯣꯑꯣꯌꯣ ꯃꯏꯨꯦꯕ ꯑꯣꯅꯌꯒꯇꯤ, ꯑꯃꯁꯨꯡ ꯇꯣꯕꯄꯏ ꯇꯕꯕ ꯌꯤꯕꯁꯤꯕꯗ ꯁꯥꯌꯥꯖꯤ ꯅꯕꯅꯗꯒꯤ ꯌꯦꯃꯇꯦ ꯅꯕ ꯇꯣꯕꯁꯤꯕ ꯏꯁꯥꯀꯅ (15 ꯇꯨꯇꯦꯅ 2025-ꯗ ꯅꯧꯏꯨꯃꯗ (Khoupum) ꯑꯣꯤꯕ ꯑꯃꯗ 225 mm, ꯏꯁꯤꯗ ꯖꯣꯕꯗꯣꯑꯅꯤꯕ ꯃꯁꯨꯕ ꯅꯦꯁꯦ), ꯑꯣꯏꯥꯒ ꯑꯃꯁꯨꯡ ꯃꯥꯒꯤ ꯏꯁꯥ-ꯃꯣꯗꯨꯒ ꯇꯕ ꯅꯨꯡꯕꯒꯤ ꯇꯣꯗꯣꯁꯤꯕꯗꯒꯤ ꯌꯦ ꯅ-ꯇꯣꯕꯏꯥ ꯃꯣꯗꯨꯒ ꯌꯦꯇꯌꯦꯀꯏ ꯃꯥꯡꯒꯤꯒꯤ ꯑꯣꯏꯥꯕꯁꯒꯤ ꯇꯕ ꯅꯨꯡꯕꯒꯤ ꯇꯣꯗꯣꯁꯤꯕ ꯖꯦꯑꯣꯕꯒꯤꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯃꯥꯡꯒ ꯌꯦꯃꯇꯦ ꯁꯕꯗꯕ ꯅꯦꯌꯥꯗꯁꯤꯥꯤꯁꯤꯕꯤꯒꯤꯗꯃꯒꯤꯁꯨ ꯁꯥꯁꯥꯂꯒꯤ (storage) ꯁꯅꯂ ꯇꯥꯏꯕ;
- (d) ꯅꯃꯖꯦꯅ ꯌꯃꯏꯤꯑꯣꯀꯤ ꯇꯨꯔꯦꯜꯁꯤꯕꯤꯒꯤꯗꯃꯛ ꯑꯣꯏꯥꯌꯖꯦꯅꯁꯤꯕ (outfall) ꯀꯤꯔꯅꯒ ꯌꯥꯕ, ꯇꯨꯔꯦꯜ ꯑꯁꯤꯁꯤꯕ ꯃꯦꯗꯨꯒꯗ ꯃꯍꯥꯛꯀꯤ ꯏꯦꯗꯁꯤꯕꯤꯒꯤ ꯃꯁꯨꯕꯗ ꯂꯥꯕ ꯁꯌꯥꯁꯤꯕꯗꯒꯤ ꯌꯤꯕꯕ ꯂꯅ ("ꯁꯍꯔ ꯑꯁꯤ ꯅꯃꯖꯦꯅ ꯇꯨꯔꯦꯜꯒꯤ ꯌꯅꯍꯥꯁꯤꯌ ꯖꯦꯗꯗ ꯇꯥꯒꯥꯅꯗꯒꯤ ꯇꯥꯃꯃꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯦꯑꯣꯁꯤꯕ ꯑꯣꯏꯤꯃꯑꯣꯌ ꯏꯦꯒꯤ ꯇꯃꯕꯤꯁꯤꯕ ꯂ" ["The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river"], ꯒꯥꯌꯥꯌꯥ ꯅꯃꯖꯦꯅꯒꯤ ꯃꯁꯤꯌꯥ ꯏꯇꯦꯗ), ꯃꯔꯝ ꯑꯗꯨꯅ ꯌꯃꯏꯤꯑꯣꯀꯤ ꯑꯣꯏꯥꯌꯖꯦꯅ ꯌꯦꯃꯇꯦ ꯃꯁꯦꯕ ꯀꯤꯅꯕꯕꯇꯦ ꯇꯨꯔꯦꯜ ꯌꯤꯕꯇꯕ ꯃꯥꯡꯒꯗ ꯇꯤꯕꯕ ꯒꯥꯌꯁꯤꯕ ꯇꯌꯁꯥꯒꯤ ꯖꯦꯗꯥꯏ ꯒꯥꯌꯁꯤꯕ (flap gate) ꯅꯨꯌꯇꯦꯕꯗ ꯌꯥꯌꯇꯤ, ꯇꯌꯁꯥꯒꯤ ꯏꯃꯏꯃꯇꯦ ꯇꯗꯣꯀꯤꯅ: ꯃꯤꯅꯨꯊꯣꯡꯗ (Minuthong) ꯅꯃꯖꯦꯅ ꯇꯨꯔꯦꯜ, ꯃꯁꯤꯒꯤ ꯌꯅꯍꯥꯁꯤꯌ ꯖꯦꯗꯗ ꯇꯥꯒꯥꯅ (HFL) 788.400 m ꯑꯁꯤ ꯁꯌꯁꯥꯒꯤ ꯂꯩꯃꯥꯟꯅꯗꯒꯤ ꯃꯤꯌꯥꯁ ꯑꯃ ꯇꯌꯁꯥꯒꯤ ꯑꯇꯤꯒꯤ ꯃꯨꯕꯗ ꯂꯦ (WRD-ꯒꯤ ꯇꯥꯒꯥꯅ, ꯏꯁꯤꯗ ꯖꯣꯕꯗꯣꯑꯅꯤꯕ ꯃꯁꯨꯕ ꯅꯦꯁꯦ), ꯇꯃꯕꯨꯅ ꯇꯨꯔꯦꯜ, ꯅꯁꯤꯅ ꯇꯨꯔꯦꯜ (Iril), ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ (Kongba), ꯇꯥꯕꯅ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯌꯃꯏꯤꯑꯣꯀꯤ ꯑꯌꯣꯏꯏ ꯇꯨꯔꯦꯜꯁꯤꯕ; ꯅꯇꯥꯅ ꯕꯦꯁꯦꯇ (Ithai barrage) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯍꯥꯛ ꯂꯥꯕ ꯁꯨꯕꯒꯤ ꯁꯤꯅ (rock sill), "ꯁꯨꯒꯅꯨ ꯌꯃꯏ" ("Sugnu hump"), ꯑꯁꯤꯇꯦ ꯇꯤꯕꯇꯤꯅꯇꯤꯕ ꯇꯑꯣꯌꯥꯑꯣ, ꯃꯁꯤꯒꯤ ꯇꯥꯒꯥꯅ ꯑꯁꯤ ꯌꯃꯏꯤꯑꯣꯀꯤ ꯅꯥ ꯇꯕꯕ ꯁꯔꯨꯛꯀꯤ ꯌꯥꯅꯌꯦꯌꯁꯦꯇꯤ (tailwater); ꯏꯇꯦ ꯑꯃꯒꯤ ꯑꯣꯏꯥꯌꯖꯦꯅ ꯇꯤꯕꯇꯤꯌꯤꯗ ꯃꯁꯤꯒꯤ ꯅꯁꯤꯕ ꯇꯃꯇꯤꯗꯦꯕ ꯏꯌꯁꯤꯕ, ꯃꯍꯥꯛꯀꯤ ꯃꯨꯕꯗ ꯇꯃꯕꯨꯅ ꯇꯨꯔꯦꯜꯗ ꯏꯃꯏꯃꯇꯦ ꯇꯗꯣꯀꯤꯏ ꯑꯣꯏꯥꯌꯇꯥꯌ ꯂꯕ ꯇꯃꯖꯦꯅꯏꯌ; ꯇꯤꯁꯤꯕꯦꯃꯗ ꯕꯁꯦꯑꯣ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯇꯤꯁꯤ ꯇꯨꯔꯦꯜ (Jiri); ꯇꯥꯕꯅ ꯇꯨꯔꯦꯜꯗ ꯂꯕ ꯃꯏꯤꯇꯅ ꯗꯦꯃꯒꯤ (Mapithel dam) ꯃꯍꯥꯛꯀꯤ ꯁꯤꯌꯁꯤꯕ (reach) ꯑꯃꯁꯨꯡ ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ (Khuga) ꯑꯃꯁꯨꯡ ꯇꯃꯕꯨꯅ ꯇꯨꯔꯦꯜꯗ ꯂꯕ ꯗꯦꯃꯁꯤꯕꯤꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯁꯤꯌꯁꯤꯕ, ꯃꯍꯥꯛꯗ ꯅꯣꯡꯁꯥ ꯅꯍꯥꯡ ꯇꯗꯣꯀꯤꯅ; ꯑꯃꯁꯨꯡ ꯏꯨꯕ ꯑꯃꯒꯤ ꯃꯨꯕꯗ ꯌꯦꯕꯅꯌꯇꯑꯣꯏ ꯌꯤꯕꯒꯤ ꯅꯥꯕꯁꯤꯕ (khong), ꯑꯣꯏꯥꯌꯖꯦꯅ ꯇꯤꯕꯇꯕ ꯖꯤꯒꯃ ꯌꯦꯏꯥꯇꯦ;

- (e) ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ (pukhri; pond), ꯃꯥꯔꯁꯁꯤꯡ (marsh), ꯇꯨꯔꯦꯜꯁꯤꯡ, ꯅꯄꯅꯥꯇ ꯆꯦꯅꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯄꯂꯁ ꯀꯣꯔꯁꯁꯤꯡ (surplus course) ꯏꯔꯝ (drainage) ꯁꯤꯁ꯭ꯇꯦꯝꯒꯤ ꯁꯔꯨꯛ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯌꯥꯎꯍꯟꯂꯒꯅꯤ;
- (f) ꯏꯔꯝ ꯆꯦꯛꯁꯟꯗꯥꯡꯃꯤ ꯑꯦꯇꯤꯃꯦꯠ ꯄꯨꯝꯅꯃꯛꯅꯥ 1% AEP (100-yr) ꯒꯤ ꯅꯣꯡꯖꯨꯒꯤ ꯐꯣꯛꯇꯥꯡꯃꯤꯟꯅꯕ ꯑꯁꯣꯏꯕ ꯂꯩꯇꯕ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯂꯝꯕꯤ (overland path) ꯑꯃꯥ ꯄꯤꯒꯗꯕ;
- (g) ꯀꯤꯡꯂꯣꯛꯇꯒꯤ ꯅꯣꯡꯄꯣꯛꯁꯤꯡ, ꯑꯦꯄꯔꯣꯆꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯦꯁꯤꯇꯤꯌꯤꯒꯤ ꯐꯦꯃꯥꯐꯥꯀꯁꯤꯡ ꯄꯕ꯭ꯔꯤꯗꯌ ꯏꯃꯀꯗꯕ, ꯃꯐꯝ ꯑꯁꯤꯗ ꯀꯤꯡꯂꯣꯛꯁꯤꯡ ꯁꯦꯗ ꯌꯣꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯗ ꯍꯣꯅꯕ ꯌꯣꯕ ꯁꯤꯕ ꯑꯣꯅꯕ; ꯑꯃꯁꯨꯡ
- (h) ꯋꯒꯤꯠꯇꯕ ꯃꯌꯨꯝꯀ ꯏꯦꯁꯤꯇꯤꯌꯤꯁꯤꯡ ꯃꯦꯂꯌꯦꯂꯦꯁ ꯌꯣꯕ ꯑꯃꯁꯨꯡ ꯃꯅꯣꯔꯒꯤ ꯊꯕꯗ ꯃꯌꯤꯗ ꯁꯤꯗ ꯂꯦꯄꯌꯗ ꯁꯠꯂꯕ ꯑꯣꯔꯀꯗ ꯌꯣꯂꯕ꯫

1.1.3 ꯃꯦꯎꯁꯦꯡ ꯑꯁꯤꯗ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯅꯣꯃꯂꯤꯌꯕꯒꯤ (RWH) ꯃꯦꯌꯀꯦꯋ, ꯃꯂꯤꯄꯨꯔ ꯃꯎꯂꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯇ, 1994-ꯒꯤ (Manipur Municipalities Act, 1994) ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯂꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯇ, 1975-ꯒꯤ (Manipur Town and Country Planning Act, 1975) ꯁꯦꯛꯁꯟ 26(1) ꯃꯈꯥ MAHUD-ꯅ ꯏꯁꯥꯎꯕꯤꯕ ꯃꯥꯀꯦ (ꯃꯥꯀꯦ ꯃꯂꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ 2024 (Model Manipur Unified Building Bye-Laws 2024)) ꯑꯗꯨꯒꯤ ꯃꯌꯨꯝ ꯅꯂꯦ ꯍꯦꯕꯦ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ (urban local body) ꯅꯤꯡꯊꯤꯖꯅ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯂꯞꯃꯦꯟꯇ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯂꯤꯄꯨꯔꯅ (Planning and Development Authority, Manipur) ꯃꯂꯤꯄꯨꯔ ꯒꯤꯂꯦꯛꯇ ꯂꯤꯇꯤꯖꯤꯃꯦꯁꯂꯅ ꯁꯦꯂꯗꯥꯎꯂꯕ ꯕꯥꯏ-ꯂꯣ, ꯂꯦꯛꯒꯤ ꯅꯁꯤꯡ ꯂꯩꯖꯀꯁꯤꯡꯒꯤ (waterbody) ꯃꯌꯨꯡꯒꯤ ꯑꯅꯂꯁꯤꯡꯒꯤ ꯃꯇꯦ ꯁꯤꯂꯀꯦ꯫ ꯃꯁꯤꯅ ꯃꯅꯥꯀ ꯐꯂꯑꯣꯏ ꯃꯂꯌꯐꯣꯒꯤ ꯃꯊꯧ ꯌꯕꯁꯤꯡ ꯄꯌꯥꯁꯤꯊꯤ (ꯃꯂꯣ 1.8)꯫

ꯁꯂꯀꯣꯗꯅ ꯌꯣꯗꯥꯎ. ꯃꯂꯤꯄꯨꯔꯒꯤ ꯅꯁꯤꯡ ꯅꯁꯦꯃꯁꯤꯡ ꯄꯥꯔꯗꯦꯀ ꯑꯇꯀꯀꯒꯤ ꯂꯝꯕꯅ, ꯁꯦꯀꯅ ꯃꯌꯀꯀ ꯄꯨꯂꯦꯜ꯫ ꯑꯄꯅꯕꯀꯤ ꯅꯀꯏꯊ ꯌꯀꯄꯣꯗꯃꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯅꯁꯤꯡ ꯅꯁꯦꯃꯂꯤ; ꯌꯀꯄꯣꯗ ꯑꯁꯤ ꯊꯗꯏꯀ ꯂꯣꯌꯕ ꯕꯦꯁꯤꯟ (closed basin) ꯑꯃꯂꯤ, ꯃꯁꯤꯒꯤ ꯇꯨꯔꯦꯜꯁꯤꯡ ꯁꯄꯔꯁꯤꯡꯀꯒꯤ ꯁꯤꯡꯅ ꯄꯦꯂꯁꯤꯡꯒꯤ ꯃꯂꯨꯡꯀ ꯁꯦꯂꯅ ("ꯁꯄꯔ ꯑꯁꯤ ꯅꯀꯏꯊ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯅꯁꯦꯁꯋ ꯏꯂꯀ ꯂꯦꯒꯦꯊꯀꯒꯤ ꯂꯦꯀꯃꯤ, ꯃꯔꯀ ꯑꯃꯨꯗ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯅꯗꯁꯤꯡ ꯑꯂꯤꯃꯗꯌ ꯄꯦꯂꯒꯤ ꯂꯀꯕꯤꯁꯤꯡ ꯂꯩ" ["The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river"], ꯄꯔꯦꯌꯔ ꯅꯀꯏꯊꯒꯤ ꯃꯁꯌꯔ ꯄꯂꯦꯡ), ꯑꯃꯁꯨꯡ ꯊꯗꯏꯀ ꯑꯃꯅꯗꯌꯀꯒꯤ ꯊꯃꯅ, ꯅꯊꯅ ꯕꯦꯔꯦ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯒꯤ ꯁꯤꯅ ꯑꯃ, "ꯂꯒꯨꯅ ꯄꯀꯄ", ꯅꯋꯊꯨꯀ, ꯃꯁꯤꯅ "ꯑꯂꯀꯕ ꯏꯂꯥ ꯑꯁꯤ ꯊꯗꯕ ꯃꯄꯂꯁꯤꯌꯤ ꯂꯧꯌ, ꯃꯔꯀ ꯑꯃꯨꯗ ꯅꯁꯤꯡ ꯑꯁꯤ ꯃꯊꯗ ꯊꯗꯕ ꯃꯏꯀꯀ ꯄꯨꯂꯦꯁꯤꯅꯂꯗꯅ" ("does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC)꯫ ꯌꯀꯄꯣꯗꯃꯤ ꯃꯦꯁꯃꯦꯂꯋꯃꯤ (catchment) ꯁꯗ 70% ꯃꯔꯦꯅ ꯑꯅꯕ ꯁꯤꯗꯁꯤꯗꯀ ꯂꯨꯃꯤꯋ ꯃꯁꯤꯒꯤ ꯂꯗꯅ ꯇꯨꯔꯦꯜꯁꯤꯡ ꯃꯄꯨꯂꯕ ꯑꯅꯄꯅꯕ, ꯄꯦꯂꯁꯤꯗ ꯃꯗꯕ ꯑꯃꯁꯨꯡ ꯅꯗꯕꯦꯂꯁꯤꯗꯅ (drain) ꯅꯁꯤꯡ ꯊꯀꯗ ꯏꯃꯀꯕ ꯃꯌꯀꯀ ꯌꯀꯄꯣꯗ ꯑꯁꯤꯀ ꯅꯁꯤꯡ ꯅꯁꯦꯃ ꯂꯃꯅ꯫ MASTEC-ꯅ ꯂꯦ–ꯂꯅꯅ ꯑꯃꯁꯨꯡ ꯑꯗꯌꯕꯔ 1966-ꯒꯤ ꯅꯁꯤꯡ ꯅꯁꯦꯃꯁꯤꯡ, ꯃꯏꯀ 60-ꯀ ꯄꯨꯂꯦ ꯃꯗꯄꯒ ꯂꯁꯂꯂ; "28th July-ꯀꯒꯤ 1st August ꯏꯑꯕ ꯂꯨꯃꯤꯋ ꯅꯀꯤꯗꯒꯤ ꯂꯄꯌꯕ ꯂꯗ" ("continuous daily rainfall from 28th July to 1st August") ꯃꯌꯨꯝꯀ ꯂꯅꯅꯒꯤ ꯑꯔꯅꯕ ꯃꯌꯀ ꯑꯃꯁꯨꯡ ꯑꯒꯁꯋ 1989-ꯒꯤ ꯅꯁꯤꯡ ꯅꯁꯦꯃ, ꯃꯌꯀ ꯑꯀꯨꯀ ꯅꯀꯏꯊ (ꯇꯨꯂꯤꯍꯥꯜ) (Imphal (Tulihal))-ꯅ ꯃꯁꯤꯒꯤ ꯅꯕꯅꯀꯒꯤ ꯁꯗꯕ ꯂꯨꯃꯤꯋ, 30 ꯂꯅꯅꯀ 158.6 mm, ꯐꯃꯐꯀ ꯌꯂꯤ, ꯑꯃꯁꯨꯡ ꯅꯁꯤꯡ ꯅꯁꯦꯃꯅ ꯄꯨꯂꯦ ꯃꯗꯄ 40-ꯒꯤ ꯅꯋꯊꯨꯀ ꯂꯃꯅ 361 ꯁꯂꯤ, ꯃꯤ 7 ꯅꯅ, ꯂꯦ 97,500 ha ꯑꯃꯁꯨꯡ ꯅꯨꯃ 49,069 ꯁꯗꯄꯀꯂꯃꯤ; ꯑꯗꯌꯕꯔ 1992-ꯒꯤ; ꯁꯄꯌꯃꯕꯔ 1997-ꯒꯤ; ꯁꯄꯌꯃꯕꯔ 1999-ꯒꯤ; ꯁꯄꯌꯃꯕꯔ 2000-ꯒꯤ, ꯃꯌꯀ ꯑꯀꯨꯀ ꯅꯔꯤꯀ ꯇꯨꯔꯦꯜꯅ 532.5 m³/s ꯄꯨꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯏꯀ 30-ꯀ ꯄꯨꯂꯦ ꯃꯗꯂꯤ; ꯑꯃꯁꯨꯡ ꯑꯒꯁꯋ 2002-ꯒꯤ, ꯄꯨꯂꯦ ꯃꯗꯄ 59, ꯅꯨꯃ 10,000 ꯑꯃꯁꯨꯡ 20,000 ha ꯁꯗꯄꯀꯂꯕꯒꯤ ꯂꯁꯂꯂ, ꯐꯃꯐꯀ ꯌꯂ (MASTEC)꯫ ꯂꯅꯅꯒꯤ ꯑꯔꯅꯕ ꯃꯌꯀ ꯑꯃꯁꯨꯡ ꯑꯒꯁꯋ 2015-ꯀ, ꯁꯌꯋꯃꯤ ꯐꯒꯂꯒꯤ ꯑꯁꯌꯤꯃꯋ ꯑꯃꯒꯤ ꯃꯌꯨꯝ ꯅꯂꯦ 3 ꯑꯒꯁꯋ ꯏꯑꯕ ꯃꯤ ꯁꯗ 5 ꯅꯅꯅ ꯅꯨꯃ ꯊꯀꯗꯃꯀꯕ ꯑꯅꯂꯤ, ꯑꯃꯁꯨꯡ 60,000 ha ꯅꯁꯤꯗꯅ ꯁꯋꯂꯤ, ꯑꯏꯤꯁꯤꯁꯦꯇꯁꯤꯗꯅ "ꯁꯄꯤ 200-ꯀ ꯅꯕꯅꯀꯒꯤ ꯏꯋꯌꯕ ꯅꯁꯤꯡ ꯅꯁꯦꯃ ꯑꯅꯕ ꯁꯅ" ("could be the worst flood in 200 years") ꯄꯁꯅ ꯃꯂꯤꯕ ꯅꯁꯤꯡ ꯅꯁꯦꯃ ꯑꯀꯨꯀ; ꯃꯄꯤꯊꯦꯇ ꯐꯤꯂꯐꯒꯁꯐ 1 ꯑꯒꯁꯋꯌ 876 m-ꯀ ꯂꯤ (ꯄꯨꯃꯂꯃꯗ ꯄꯁꯀ ꯏꯗꯀꯗꯂꯤꯕ ꯃꯌꯨꯝ ꯅꯂꯦ)꯫ 2017-ꯒꯤ ꯃꯦꯂꯨꯂꯦ ꯃꯤ 22 ꯁꯤꯄꯂꯤ (ꯄꯁꯀ ꯏꯗꯀꯗꯂꯤꯕ ꯃꯌꯨꯝ ꯅꯂꯦ)꯫ 28–31 ꯃꯦ 2024-ꯀ, ꯁꯅꯗꯂꯦ ꯐꯃꯦꯒꯤ (Cyclone Remal) ꯂꯗ ꯅꯕꯒꯤ ꯊꯀꯗꯌ, ꯅ-ꯂꯗꯅꯄ ꯃꯦꯂꯨꯂꯦ ꯃꯄꯣꯒꯤ ꯃꯑꯗꯀ ꯄꯀꯐꯤꯀꯤꯀ, ꯃꯤꯂꯨꯊꯗꯀ ꯅꯀꯏꯊ ꯇꯨꯔꯦꯜ ꯃꯁꯤꯒꯤ ꯄꯅꯁꯦꯁꯋ ꯏꯂꯀ ꯂꯦꯒꯦꯊꯀꯒꯤ ꯁꯗꯅ ꯄꯦꯒꯋꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯏꯀ 18-ꯀ ꯄꯨꯂꯦ ꯃꯗꯂꯤ, ꯃꯅꯁꯒꯤ ꯃꯂꯨꯀ 17 ꯊꯤꯗꯂꯤꯂꯤ; ꯃꯤꯂꯤꯁꯌꯐꯅ 30 ꯃꯦꯀ ꯃꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯅꯨꯃ 24,265 ꯁꯗꯄꯀꯂꯕ ꯄꯁꯅ ꯄꯤꯂꯤ, ꯑꯀꯒꯤ ꯐꯤꯂꯤꯏ ꯑꯃꯁꯨꯡ ꯀꯤꯂꯁꯌꯐ ꯃꯦꯂꯦꯂꯃꯦꯂꯋ ꯀꯤꯄꯐꯋꯃꯦꯂꯋꯃꯤ (Relief and Disaster Management Department) 31 ꯃꯦꯒꯤ ꯐꯤꯄꯐꯋꯅ ꯃꯤ 1,26,950, ꯂꯃꯅ 255 ꯑꯃꯁꯨꯡ ꯅꯨꯃ 16,364 ꯄꯤꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯤ 3-ꯀꯒꯤ 5 ꯏꯑꯕ ꯁꯤꯂꯤ ꯄꯁꯅ ꯏꯗꯀꯗꯂꯤ (ꯄꯨꯃꯂꯃꯗ ꯄꯁꯀ ꯏꯗꯀꯗꯂꯤꯕ ꯃꯌꯨꯝ ꯅꯂꯦ; ꯌꯊꯂꯦ)꯫ 30 ꯃꯦ 2025-ꯀꯒꯤ, ꯃꯦꯂꯨꯂꯦ ꯄꯀꯐꯤꯀꯤꯀ ꯑꯃꯨꯗ ꯄꯂꯅ, ꯃꯗꯄꯗꯄꯤꯀ ꯄꯨꯗ 72-ꯀ 175 mm ꯅꯐꯕ ꯃꯌꯨꯝꯀ, ꯅꯀꯏꯊ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯨꯂꯦ ꯁꯤꯗꯂꯃꯤ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅ꯭ꯌꯨ ꯆꯦꯀꯣꯟ (New Checkon), ꯑꯃꯁꯨꯡ ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯂꯅꯐꯤꯗꯁꯦꯗꯕꯃ ꯂꯃꯅꯀ ꯃꯗꯂꯤ, ꯑꯃꯁꯨꯡ ꯂꯃꯕꯨꯀ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯨꯂꯦ ꯃꯏꯀ ꯃꯐꯤꯀ ꯃꯗꯂꯤ; ꯑꯄꯕ ꯃꯌꯀꯀ ꯃꯤ 56,000 ꯑꯃꯁꯨꯡ

ꯌꯨꯝ 10,477 ꯁꯣꯛꯄꯔꯇꯕ ꯄꯣꯅꯔꯗꯦ ꯑꯣꯃꯗꯣꯛꯅꯤ, ꯑꯃꯁꯨꯡ 24 ꯇꯨꯡ ꯑꯣꯏꯣꯕ ꯃꯤ 4 ꯁꯤꯈꯤ, ꯃꯤ ꯂꯈ 1.65 ꯇꯥꯅ ꯁꯣꯛꯄꯔꯇꯃꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯨꯝ 35,000-ꯗꯒꯤ ꯄꯪꯗꯦ ꯃꯥꯏꯄꯔꯇꯁꯤꯡ (ꯑꯣꯑꯤꯁꯤꯔꯪꯅ ꯃꯁꯤꯡꯁꯤꯡ, ꯑꯣꯏꯕꯗ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ)꯫ 15 ꯁꯪꯒꯣꯕꯕꯥ 2025-ꯗ ꯇꯤꯇꯣꯃꯗ ꯍꯥꯏꯕ ꯌꯥꯪꯅ 783.250 m-ꯗ ꯑꯃꯁꯨꯡ ꯍꯊꯍꯗ ꯃꯇꯤꯒꯥ ꯌꯥꯪꯅ 770.05 m-ꯗ ꯇꯥꯅꯤ, ꯑꯇꯤꯃꯋ ꯃꯟꯣꯔꯒꯤ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ

ꯄꯍꯔꯪꯁꯨ ꯑꯇꯗ ꯇꯪꯒꯪꯅꯁꯤꯃꯗꯒꯤ ꯌꯥꯃꯗꯦ, ꯍꯥꯤꯅ ꯌꯥꯪꯅꯒꯤ ꯒꯦ ꯃꯁꯪꯌꯥꯤ ꯑꯌꯥꯃ ꯇꯥꯐꯍꯗ (Kshetri Awang Leikai) ꯃꯋꯅꯤ ꯑꯃꯁꯨꯡ ꯂꯒꯣ ꯑꯃꯤ ꯍꯁꯤꯃꯗꯦ ꯌꯪꯑꯊꯅꯤ (ꯑꯣꯏꯕꯗ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ)꯫ ꯁꯣꯃꯄꯅꯇꯕꯒꯤ ꯃꯁꯤꯡꯁꯤꯡ ꯑꯁꯤ ꯃꯟꯣꯔꯗꯦ ꯃꯥꯤ ꯃꯁꯤꯡ ꯊꯤꯕꯒꯪ ꯑꯃꯁꯨꯡ ꯥꯤꯒꯣꯥꯁꯃꯤ ꯌꯣꯃ ꯃꯇꯨꯡ ꯍꯥꯏꯔꯤ ꯌꯣꯊꯥꯏꯇꯦ, ꯑꯃꯁꯨꯡ ꯥꯤꯇꯤꯑ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯁꯌꯥ ꯃꯪꯇꯪꯇꯃꯪꯑꯁ ꯗꯤꯒꯣꯥꯁꯃꯪꯑꯁ ꯑꯁꯥꯒꯤ MSDMA-ꯒꯤ ꯑꯣꯑꯤꯁꯤꯔꯪꯅ ꯑꯥꯣꯍꯕ ꯃꯁꯤꯡꯁꯤꯡ ꯑꯃꯅꯤꯗꯪ [TBC]꯫

ꯑꯇꯤꯂꯕ ꯄꯥꯋꯑꯃꯗꯤ ꯍꯁꯤꯃ ꯊꯗꯣꯋ ꯃꯃꯗꯕ ꯑꯁꯥꯒꯤ ꯊꯤꯃꯇꯕ ꯁꯄꯥꯒꯤ ꯅꯣꯃꯕꯦꯑꯤ꯫ ꯇꯃꯑꯪꯅꯒꯣꯁ "ꯌꯄꯤ ꯂꯗꯤꯃꯒꯤ ꯂꯃꯤꯁ ꯃꯔꯦꯒꯤ ꯃꯌꯃ ꯍꯁꯤꯃ ꯊꯃꯗꯦ ꯇꯥ" ("remains waterlogged for many days every year") (NDB); ꯃꯥꯑꯣꯍꯕ ꯃꯊꯪꯅꯒꯤ ꯁꯣꯇꯤꯗ ꯌꯪꯁꯨ "ꯃꯊꯪꯅꯒꯤ ꯃꯌꯃꯗ ꯇꯕ ꯑꯒꯥ ꯂꯅꯇꯦꯗ (Naga Nullah) ꯊꯗꯣꯃꯍ, ꯃꯁꯤꯇꯦ ꯌꯄꯤ ꯒꯃꯕꯗ ꯌꯪꯑꯗꯕ ꯍꯁꯤꯃ ꯒꯑꯁꯤꯑꯕ ꯑꯃꯤ ꯁꯪꯃꯃꯤ" ("dumped in the Naga Nullah on the backside of the market, which creates a stagnant pool all along the year") (ꯒꯥꯪꯌꯥ ꯍꯃꯑꯅꯒꯤ ꯃꯤꯁꯌꯥ ꯒꯇꯦꯑ), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯒꯒꯇꯦ (clogging) ꯇꯨꯇꯍ 2024-ꯗ ꯑꯒꯥꯃ (Nagaram), ꯇꯍꯑꯃ ꯂꯇꯧ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯇꯍꯥꯤꯋꯔꯪꯃꯕꯃ ꯇꯥꯐꯍꯗ ꯍꯁꯤꯃ ꯍꯌꯂ ꯒꯥꯋꯅꯤ (ꯑꯣꯏꯕꯗ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ); ꯑꯃꯁꯨꯡ ꯌꯥꯪꯅꯒꯤ ꯗꯍꯋꯁꯤꯃ (dike) ꯃꯔ ꯒꯃꯒ ꯃꯃꯗꯥꯕ ꯃꯌꯃꯗ, "ꯇꯪꯃꯕ ꯃꯑꯃꯁꯤꯃꯗ ꯍꯁꯤꯃ ꯊꯃꯗꯕ" ("waterlogging in the low-lying areas") ꯑꯁꯤ "ꯄꯒꯌ ꯃꯔꯦꯒꯤ ꯃꯌꯃ" ("for several weeks") ꯇꯪꯒꯍ (AIIB)꯫ ꯑꯂꯃꯂꯕ, ꯁꯪꯥꯤꯇ ꯑꯁꯤꯒꯤ ꯇꯃꯗꯃꯒꯤ ꯁꯌꯪꯁ ꯑꯃꯁꯌꯗ ꯑꯃꯗꯕꯗꯤ, ꯌꯤꯃꯁꯤꯃꯒꯤ ꯗꯤꯁꯃ ꯁꯪꯅꯗ (Disang shale) ꯇꯋꯒ ꯇꯪꯑꯗꯁꯇꯍꯗꯁꯤꯃ (landslide) ꯑꯃꯁꯨꯡ ꯗꯪꯕꯥꯤꯁꯇꯤ (debris), ꯃꯁꯤꯇꯦ "ꯌꯤꯃꯒꯤ ꯇꯃꯒꯤ ꯌꯃ 85 p.c. ꯃꯥꯅ ꯇꯍ" ("occupies almost 85 p.c. of the hilly region") (MASTEC)꯫ 1 ꯑꯒꯁꯨ 2015-ꯗ, ꯌꯃꯒꯋꯃꯤ ꯍꯁꯤꯃ ꯍꯌꯂꯒꯤ ꯄꯒꯌ ꯑꯂꯗ, ꯌꯑꯗꯪꯅꯒꯤ ꯇꯃꯅꯗ (Joumol) ꯇꯪꯑꯗꯁꯇꯍꯗ ꯑꯃꯇꯦ ꯃꯤ 20 ꯑꯁꯥꯒꯤ 21, ꯑꯁꯥꯒꯤ ActionAid-ꯒꯤ ꯃꯁꯤꯃ ꯃꯇꯨꯡ ꯏꯟꯅ 24, ꯁꯤꯄꯇꯅꯤ (ꯑꯣꯏꯕꯗ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯌꯊꯥꯏꯇꯦ)꯫ 29 ꯑꯁꯥꯒꯤ 30 ꯇꯨꯡ 2022-ꯗ ꯇꯇꯪꯒꯤ ꯌꯒꯅꯗ (Tupul), ꯇꯤꯥꯤꯕꯃ–ꯍꯃꯑꯅ ꯥꯪꯅꯌꯪꯒꯤ ꯁꯍꯁ ꯑꯃꯁꯨꯡ ꯌꯪꯥꯤꯌꯥꯤꯔꯪꯅ ꯑꯥꯃꯤꯒꯤ ꯃꯪꯃꯒ ꯑꯃꯤ ꯇꯕ ꯃꯑꯃꯗ, ꯇꯪꯑꯗꯁꯇꯍꯗ ꯑꯃꯇꯦ ꯃꯤ 56 (20 ꯇꯨꯇꯍꯗ ꯑꯣꯃꯗꯣꯛꯅꯤ), 58 (ꯁꯤꯒꯍ 29 ꯑꯃꯁꯨꯡ ꯁꯤꯒꯤꯇꯤꯔꯑ 29, ꯃꯤ 3 ꯃꯃꯅꯤ) ꯑꯁꯥꯒꯤ 61 ꯁꯤꯄꯇꯅꯤ (ꯒꯃꯇꯃꯋ ꯑꯣꯏꯕꯗ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯌꯃ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯃ ꯌꯊꯥꯏꯇꯦ); NRSC-ꯒꯤ 5 ꯇꯨꯇꯍꯒꯤ ꯑꯁꯇꯦ ꯌꯃ ꯑꯂꯗ ꯁꯤꯕ 42 ꯑꯃꯁꯨꯡ ꯃꯃꯕ 20 ꯑꯣꯃꯗꯣꯛꯅꯤ (ꯃꯁꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ)꯫ ꯇꯇꯪ ꯒꯇꯗ ꯇꯨꯡ 2022-ꯗ 348.5 mm ꯂꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯪ ꯑꯃꯁꯨꯡ ꯇꯨꯡ ꯒꯇꯦ 705.5 mm, ꯃꯃꯃꯒꯤ ꯌꯄꯤ ꯌꯥꯒꯤ "ꯃꯤꯑꯗꯒꯤ 130% ꯄꯪꯑꯇꯦ ꯌꯃꯕ" ("130% higher than the mean") (Baruah et al., 2023, ꯁꯃꯃꯥꯤ ꯌꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ)꯫ 15 ꯇꯨꯇꯍ 2025-ꯗ, ꯇꯇꯪꯒꯤ ꯅꯒꯃꯗ "ꯊꯃꯇꯒꯤ ꯑꯄꯤꯃꯗ" ("on Tuesday night") 225 mm ꯂꯅꯤ, IMD ꯍꯃꯑꯅꯒꯤ ꯑꯣꯑꯤꯁꯤꯔꯪꯅꯁꯤꯃꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ "ꯃꯇꯤꯒꯥꯒꯤ ꯥꯪꯃꯥꯗ ꯌꯥꯕ ꯒꯔꯥꯤꯗ ꯃꯗꯃꯗꯂ" ("ever in Manipur's recorded history") ꯍꯕꯍꯗꯒꯤ ꯌꯃꯇꯦ ꯂꯕ ꯇꯃꯇꯤ, ꯑꯃꯁꯨꯡ ꯅꯒꯃ ꯌꯃꯒꯋ ꯍꯁꯤꯃꯗꯦ ꯔꯁꯅꯤ (ꯑꯣꯏꯕꯗ ꯑꯣꯃꯗꯣꯛꯅꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯃꯌꯃ ꯁꯃꯕ ꯑꯃꯁꯨꯡ ꯒꯪꯇ ꯄꯍꯅꯤꯗꯪ)꯫

ꯗꯤꯇꯍꯑ ꯇꯌꯕꯇꯦ ꯄꯥꯋꯑꯃ ꯑꯂꯃ ꯑꯁꯤ ꯒꯃꯇꯃꯋ ꯄꯪꯑꯇꯦ ꯑꯁꯄꯅꯇꯤ꯫ ꯁꯌꯪꯁ ꯑꯁꯤꯒꯤ ꯃꯥꯤꯒꯃꯕ ꯁꯄꯥ ꯑꯃꯒꯤ ꯅꯃꯕꯑꯁꯤꯃꯒꯤꯗꯃꯋ ꯗꯤꯇꯍꯑ ꯁꯌꯥꯃ (design storm), ꯥꯤꯌꯥꯑ ꯒꯤꯥꯤꯔꯗ (return period) ꯑꯁꯥꯒꯤ ꯅꯃꯕꯑꯒꯤ ꯁꯌꯪꯑꯗꯥꯗ ꯑꯃꯁꯌꯗ ꯑꯃꯅꯤꯗꯪ: ꯍꯕꯍꯗꯒꯤ ꯌꯂꯕ ꯍꯥꯃ ꯒꯥꯒꯥꯃ, ꯒꯥꯪꯌꯥ ꯍꯃꯑꯅꯒꯤ ꯇꯃꯕꯤꯁꯤꯃꯒꯤ ꯃꯇꯋꯌ ꯁꯒꯁꯃꯗꯕ 547 km-ꯒꯤ "ꯃꯇꯋ ꯑꯇꯤꯃꯋꯌ ꯃꯒꯥ ꯌꯥꯕ ꯇꯃꯒꯤ ꯍꯁꯤꯃꯒꯤ ꯅꯃꯕꯑꯁꯤꯃ" ("both side stormwater covered drains"), ꯃꯁꯤꯇꯦ ꯑꯃꯁꯌ ꯄꯍꯗꯪ (AIIB, Approval Project Document, 2024), ꯑꯃꯁꯨꯡ ꯒꯥꯪꯌꯥ ꯍꯃꯑꯅꯒꯤ ꯃꯤꯁꯌꯥ ꯒꯇꯦꯑꯗ ꯇꯃꯒꯤ ꯍꯁꯤꯃ ꯍꯥꯃꯒꯤ ꯁꯪꯋꯁꯑ ꯑꯃꯁꯌ ꯇꯌꯪ꯫ ꯕꯤꯅꯗꯤꯃ ꯕꯍ-ꯇꯇꯇꯦ ꯌꯥꯪꯅꯒꯤ ꯕꯑꯥꯒꯤ (buffer) ꯌꯪꯕꯅ ꯑꯃꯤ, ꯒꯇꯤꯑꯊꯃꯤ ꯂꯅ ꯑꯃꯤ ꯑꯃꯁꯨꯡ ꯇꯃꯒꯤ ꯍꯁꯤꯃ ꯅꯃꯇꯤꯑꯕ ꯊꯃꯇꯤ, ꯥꯑꯑꯑ ꯊꯃꯗꯪ, ꯑꯃꯁꯨꯡ ꯃꯟꯣꯔꯗꯦ ꯌꯤꯃꯒꯤ ꯇꯃꯁꯤꯃꯗ (Hill Areas) ꯃꯥꯤꯒꯃꯕ ꯑꯃꯁꯌ ꯔꯌꯗꯪ꯫ ꯑꯕꯇꯪꯋꯌꯤꯒ (b)-ꯗꯒꯤ (e) ꯑꯑꯕꯇꯦ ꯁꯌꯥꯪꯇ, ꯑꯂꯁꯑꯅ ꯑꯃꯁꯨꯡ ꯕꯤꯅꯗꯤꯃꯒꯤ ꯊꯋꯃꯤ ꯑꯪꯇꯤꯔꯥꯁꯤꯃ ꯔꯪꯃꯁꯤꯅꯇꯤ, ꯃꯟꯔ ꯑꯁꯤ ꯅꯃꯕꯑꯒꯤ ꯁꯍꯇ ꯇꯪꯒꯒꯒꯤ ꯃꯪꯂꯔꯪꯅ ꯅꯋꯌꯇꯦ ꯁꯪꯃꯗꯋ ꯃꯃꯗꯪ; ꯌꯤꯃꯒꯤ ꯄꯥꯋꯑꯃꯒꯤ ꯒꯂꯂꯃꯗꯤ ꯁꯂꯋ 2, 4, 6 ꯑꯃꯁꯨꯡ 7-ꯒꯤ ꯁꯍꯌꯤꯃ, ꯁꯃꯥꯤꯇꯤꯃ, ꯍꯑꯑꯤꯅꯌꯥꯪꯁꯑ (infiltration) ꯑꯃꯁꯨꯡ ꯗꯪꯕꯥꯤꯁꯃꯤ ꯂꯅꯁꯤꯃꯇꯦ ꯒꯤꯥꯤ, ꯃꯥꯃꯗꯤ ꯅꯃꯕꯑ ꯑꯃꯁꯌ ꯇꯪꯑꯗꯁꯇꯍꯗ ꯒꯇꯕ ꯁꯍꯇ ꯇꯪꯒꯒ ꯑꯁꯌꯪ, ꯑꯃꯁꯨꯡ ꯌꯥꯪꯅꯒꯤ ꯄꯥꯋꯑꯃꯒꯤ ꯒꯂꯂꯃꯗꯤ ꯁꯂꯋ 5-ꯒꯤ ꯑꯂꯁꯑꯅ ꯊꯤꯃꯕ ꯌꯪꯋꯁꯤꯃ ꯑꯃꯁꯨꯡ ꯁꯂꯋ 6 ꯑꯃꯁꯨꯡ 7-ꯒꯤ ꯃꯥꯤꯗꯥꯁꯤꯃ (corridor) ꯑꯃꯁꯨꯡ ꯑꯇꯥ ꯇꯪꯒꯪꯅꯁꯤꯃꯇꯦ ꯒꯤꯥꯤ꯫

ꯇꯪꯁꯇꯪꯅ ꯍꯑꯁꯌꯂꯃꯪꯑꯁ ꯑꯃꯁꯌꯇꯦ ꯑꯑ-ꯁꯍꯁ ꯗꯤꯌꯪꯑꯁꯑ (on-site detention) ꯃꯊ ꯌꯕ ꯄꯍꯗꯪ꯫ CPHEEO (2019) ꯑꯁꯤ ꯑꯪꯗꯒꯍꯇꯥꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯒꯤꯋ ꯃꯑꯌꯥꯅ ꯑꯁꯤ ꯃꯄꯁꯒꯤ ꯒꯥꯪꯋꯌꯤꯁ ꯑꯍꯇꯦ ꯅꯋꯌꯃꯋ ꯑꯣꯃꯗꯣꯛꯇꯤ꯫ NDMA (2010)-ꯇꯦ ꯗꯤꯌꯪꯑꯁꯑ ꯑꯃꯁꯨꯡ ꯥꯤꯌꯪꯑꯁꯑ (retention) "ꯔꯦꯂꯄꯇꯒꯇꯤ" ("will") ꯄꯔꯥꯤ ꯑꯂꯂ ꯁꯍꯇ ꯇꯪꯒꯒꯒꯤ ꯂꯅ ꯑꯃꯁꯌ ꯒꯤꯗꯪ꯫ MBBL

2016 ꯑꯃꯁꯨꯡ ꯃꯥꯊꯦꯜ ꯃꯅꯤꯝꯊ ꯇꯆꯤꯆꯇꯟꯊ ꯕꯤꯂꯊꯤꯡ ꯕꯟ-ꯅꯥꯅ 2024-ꯗꯥ RWH ꯇꯡꯂꯃꯡ ꯃꯦꯟꯊꯦꯠ ꯂꯥꯏ꯫ ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯑꯣꯕꯅꯦꯡꯂꯤꯒ (a) ꯑꯁꯤ ꯃꯦꯟꯨꯇꯦꯜ ꯑꯁꯤꯅꯥ ꯅꯦꯔꯤꯕ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯅꯦꯕ ꯇꯥꯡꯂꯟꯤ꯫

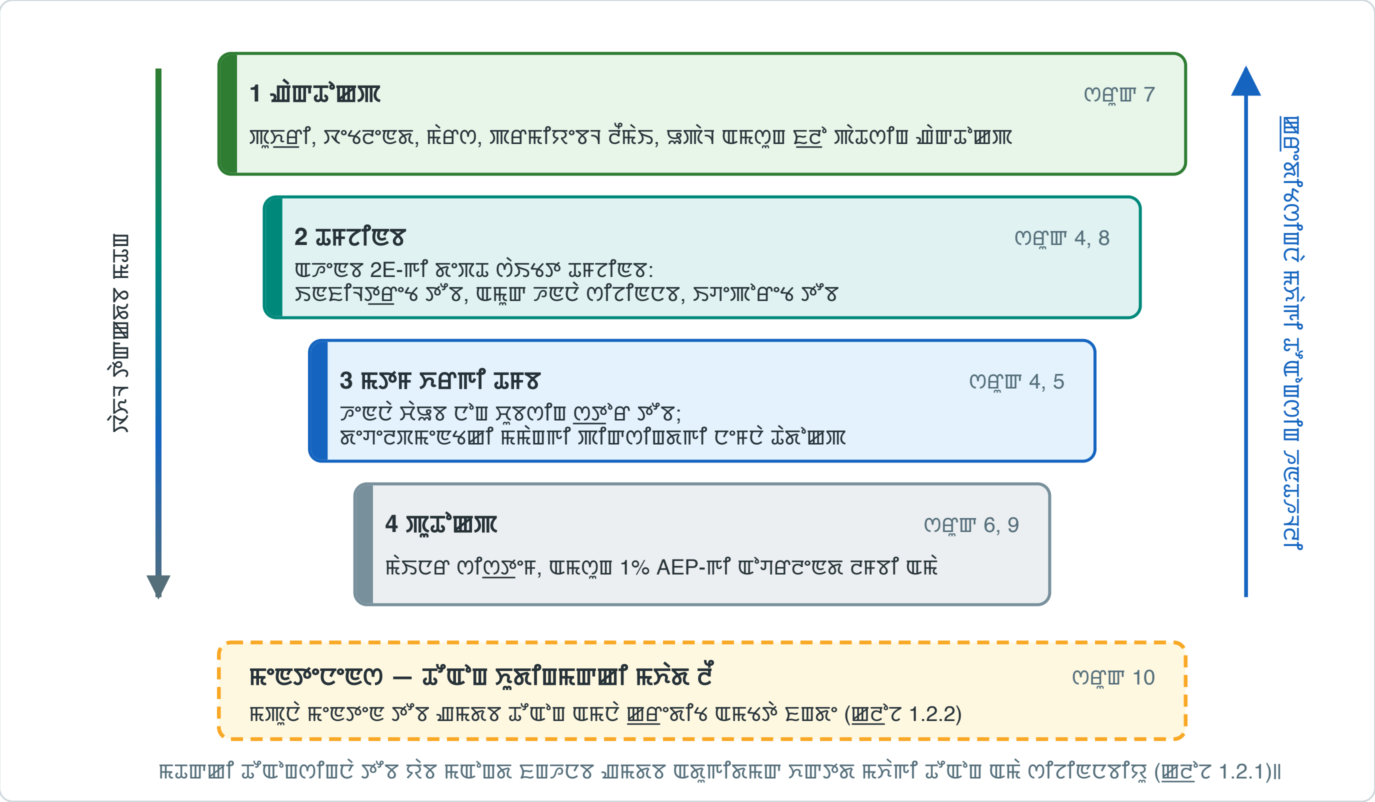
1.2 ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠꯀꯤ ꯍꯥꯏꯌꯔꯥꯔꯀꯤ

1.2.1 ꯁꯔꯨꯛ 4 ꯆꯠꯅꯕ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯄꯨꯝꯅꯃꯛꯅꯥ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕ ꯊꯥꯛ ꯊꯥꯛꯀꯤ ꯍꯥꯏꯌꯔꯥꯔꯀꯤ (hierarchy) ꯃꯇꯨꯡ ꯏꯟꯅ ꯆꯠꯅꯒꯗꯕꯅꯤ꯫ ꯗꯤꯖꯥꯏꯟꯅꯕ ꯑꯃꯅꯥ ꯁꯥꯠ ꯑꯗꯨꯇ ꯁꯦꯕ ꯇꯥꯕ ꯇꯥꯛꯕ ꯊꯧꯗꯥꯡ ꯑꯃꯒꯤ ꯃꯍꯨꯠꯇ ꯅꯦꯝꯕ ꯊꯧꯗꯥꯡ ꯑꯃꯗ ꯁꯤꯖꯤꯟꯅꯗꯥꯔꯗꯕꯅꯤ꯫

1. **ꯉꯥꯛꯊꯣꯛꯄ (Preserve)** — ꯃꯍꯧꯁꯥꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯐꯤꯆꯔꯁꯤꯡ, ꯄꯨꯈꯔꯤꯁꯤꯡ, ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ (wetland), ꯎꯁꯤꯡ ꯂꯧꯕꯨꯛ ꯑꯃꯕ ꯇꯧꯔꯥꯡꯁꯤꯡ, ꯂꯝꯄꯥꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯒꯔꯂꯦꯟꯗ ꯐꯥ ꯆꯝꯕꯤꯁꯤꯡ ꯑꯃꯕ ꯇꯟꯔꯒꯥ ꯑꯁꯨꯡ ꯍꯟꯇꯥ ꯁꯦꯃꯗꯣꯛꯄ (ꯁꯔꯨꯛ 7)꯫
2. **ꯊꯝꯖꯤꯟꯕ (Retain)** — ꯑꯍꯦꯟꯕ 2E-ꯒꯤ ꯔꯤꯌꯨꯖꯦꯁꯟ ꯊꯦꯛꯅꯣꯂꯣꯖꯤ ꯔꯦꯗꯥꯐ ꯑꯁꯤ ꯇꯟꯐꯤꯂꯇ꯭ꯔꯦꯁꯟ, ꯑꯃꯨꯛ ꯍꯟꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯅꯌꯔꯒꯥ ꯇꯒꯦꯒꯇꯥꯔꯦꯁꯟꯒꯤ ꯔꯦꯁꯅꯒꯤ ꯍꯨꯇꯗꯇ ꯁꯇꯇꯍꯨ ꯊꯝꯖꯤꯟꯕ (ꯁꯔꯨꯛ 4 ꯑꯃꯁꯨꯡ 8)꯫
3. **ꯃꯇꯝ ꯈꯔꯒꯤ ꯊꯝꯕ (Detain)** — ꯄꯦꯟꯅꯥ ꯊꯥꯗꯕ ꯅꯥꯡ ꯁꯨꯕꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯃꯇꯝ ꯈꯔꯒꯤ ꯊꯝꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯁꯔꯨꯛ 4-ꯒꯤ ꯔꯦꯠꯁꯤꯡꯗ ꯅꯠꯔꯒꯤ ꯅꯣꯝꯅꯥ ꯊꯥꯗꯣꯛꯄ, ꯃꯍꯥ ꯊꯡꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯄꯣꯀꯄꯥꯛꯔꯒꯤ ꯐꯤꯒꯝꯁꯤꯡꯗ ꯍꯥꯡꯗꯃꯅꯥ ꯍꯣꯡ ꯄꯔꯦꯛ (ꯁꯔꯨꯛ 4 ꯑꯃꯁꯨꯡ 5)꯫
4. **ꯄꯨꯊꯣꯛꯄ (Convey)** — ꯑꯄꯥꯝꯕ ꯐꯥꯅꯥ ꯑꯁꯤ ꯃꯍꯥꯛꯀꯤ ꯁꯤꯡꯁꯦꯜ, ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯐꯥꯅꯥ ꯑꯁꯤ ꯃꯦꯖꯔ ꯁꯤꯡꯁꯦꯜ ꯑꯁꯥꯅꯕ ꯆꯥꯡꯅ ꯄꯨꯊꯣꯛꯄ (ꯁꯔꯨꯛ 6 ꯑꯃꯁꯨꯡ 9)꯫

1.2.2 **ꯃꯦꯟꯇꯦꯅꯦꯟꯁ** ꯑꯁꯤ ꯊꯧꯗꯥꯡ ꯃꯔꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯍꯥꯛ ꯅꯤ꯫ ꯁꯔꯨꯛ 10 ꯃꯍꯥꯛ ꯃꯁꯤꯒꯤ ꯃꯄꯨꯅꯥ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯄꯦꯕ ꯉꯃꯗꯕ ꯊꯧꯗꯥꯡ ꯑꯃꯒꯤꯗꯃꯛ ꯀꯔꯦꯗꯤꯠ ꯄꯤꯔꯛꯂꯒꯗꯕꯅꯤ꯫

1.2.3 ꯍꯥꯏꯕ ꯊꯧꯗꯥꯡꯁꯤꯡꯗꯒꯤ ꯐꯪꯕ ꯀꯔꯦꯗꯤꯠꯁꯤꯡꯅꯥ ꯅꯦꯝꯕ ꯊꯧꯗꯥꯡꯁꯤꯡꯒꯤ ꯃꯊꯧ ꯄꯥꯕꯁꯤꯡ ꯍꯟꯊꯍꯅꯕꯅꯤ꯫ ꯉꯥꯛꯊꯣꯛꯄꯒꯤ ꯃꯐꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯝꯖꯤꯟꯕꯒꯤ ꯒꯨꯡꯃꯅꯥ ꯁꯔꯨꯛ 4-ꯗ ꯊꯝꯖꯤꯕ ꯃꯄꯨꯡ ꯐꯥꯕ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯂꯃꯥꯏ ꯍꯟꯊꯍꯅꯤ꯫



1 ꯉꯥꯛꯊꯣꯛꯄ ꯁꯔꯨꯛ 7

ꯄꯨꯈꯔꯤ, ꯋꯦꯠꯂꯦꯟꯗ, ꯎꯍꯩ, ꯂꯃꯍꯥꯡꯒꯤ ꯇꯧꯔꯥꯡ, ꯂꯝꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯐꯥꯅꯥ ꯄꯨꯊꯣꯛꯄ ꯉꯥꯛꯊꯣꯛꯄ

2 ꯊꯝꯖꯤꯟꯕ ꯁꯔꯨꯛ 4, 8

ꯑꯍꯦꯟꯕ 2E-ꯒꯤ ꯊꯦꯡꯗꯕ ꯅꯌꯔꯒꯥ ꯊꯝꯖꯤꯟꯕ:
ꯔꯤꯌꯨꯖ ꯇꯧꯕ, ꯑꯃꯨꯛ ꯍꯟꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯠ ꯇꯧꯕ

3 ꯃꯇꯝ ꯈꯔꯒꯤ ꯊꯝꯕ ꯁꯔꯨꯛ 4, 5

ꯄꯦꯟꯅꯥ ꯊꯥꯗꯕ ꯅꯥꯡ ꯁꯨꯕꯁꯤꯡ ꯂꯥꯎꯊꯣꯛꯄ ꯇꯧꯕ;
ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯃꯃꯥꯡꯒꯤ ꯄꯤꯈꯣꯡꯁꯤꯡꯒꯤ ꯅꯣꯝꯅꯥ ꯊꯥꯗꯣꯛꯄ

4 ꯄꯨꯊꯣꯛꯄ ꯁꯔꯨꯛ 6, 9

ꯃꯍꯥꯛꯀꯤ ꯁꯤꯡꯁꯦꯜ, ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯑꯥꯒꯔꯂꯦꯟꯗ ꯆꯝꯕꯤ ꯑꯃꯁꯨ

ꯃꯦꯟꯇꯦꯅꯦꯟꯁ — ꯊꯧꯗꯥꯡ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯅꯤ ꯁꯔꯨꯛ 10

ꯃꯄꯨꯅꯥ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯄꯦꯕ ꯉꯃꯗꯕ ꯊꯧꯗꯥꯡ ꯑꯃꯁꯨ ꯀꯔꯦꯗꯤꯠ ꯐꯪꯗꯦ (ꯀꯟꯅꯥ 1.2.2)

ꯃꯊꯛꯀꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯗ ꯄꯥꯕ ꯍꯥꯏꯕ ꯃꯑꯣꯡꯗ ꯐꯪꯄꯗꯕ ꯉꯃꯗꯕ ꯑꯍꯤꯡꯒꯤ ꯍꯥꯄꯥ ꯃꯍꯥꯛꯀꯤ ꯊꯧꯗꯥꯡ ꯑꯃꯁꯨ ꯁꯤꯖꯤꯟꯅꯕꯤꯒ (ꯀꯟꯅꯥ 1.2.1)꯫

ꯃꯃꯤ 1.1 — ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤ ꯂꯦꯌꯔꯁꯤꯡ: ꯔꯤꯇꯦꯟꯁꯟ, ꯑꯦꯇꯦꯅꯨꯑꯦꯁꯟ, ꯍꯣꯝ ꯌꯥꯎꯕꯒꯤ ꯂꯝ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ, ꯀꯟꯚꯦꯌꯦꯟꯁꯀꯤ ꯃꯍꯩ ꯃꯦꯁꯨꯔꯃꯦꯟꯇ ꯅꯥꯏꯕ꯫ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤꯒꯤ ꯑꯣꯏꯅ ꯂꯧꯈꯤꯕ ꯁꯣꯔꯁ, Mid-America Regional Council / Kansas City Metro Chapter APWA, "Layers of Stormwater Management", APWA 5600 Manual Factsheet, 2025 (ꯑꯦꯛꯁꯦꯁ)-ꯗꯒꯤ ꯍꯥꯏꯗꯨꯅ ꯂꯧꯈꯤꯕ꯫

> **ꯂꯦꯟꯕꯥꯒꯤ ꯈꯨꯗꯝ.** ꯃꯁꯤ ꯃꯁꯤꯡꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ ꯑꯁꯤ Kansas City Metro APWA-ꯒꯤ Section 5600, Version 2025.01-ꯒꯤ "ꯂꯦꯌꯔꯁꯤꯡ" ("layers") ꯍꯥꯌꯕꯗꯤ ꯅꯥꯏꯕꯅꯤ: ꯔꯤꯇꯦꯟꯁꯟ ꯀꯌꯥꯒꯤ ꯑꯍꯥꯡ ꯍꯣꯡꯕ ꯂꯩꯇꯥꯕ, ꯑꯦꯇꯦꯅꯨꯑꯦꯁꯟ, ꯍꯣꯝ ꯌꯥꯎꯕꯒꯤ ꯂꯝ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ, ꯃꯦꯖꯔꯃꯦꯟꯇ ꯑꯣꯏꯕ (MARC factsheet, 2025)꯫ ꯖꯣꯔꯖꯤꯌꯥꯒꯤ (Georgia) ꯌꯦꯟꯊꯣꯛ ꯍꯦꯟꯗꯣꯛꯍꯦꯅꯕꯒꯤ ꯂꯧꯁꯦꯟꯕꯗ ꯑꯃꯁꯨꯡ CSE-ꯒꯤ "ꯑꯍꯥꯅꯕꯗ ꯍꯦꯟꯗꯣꯛꯍꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯠ" ("attenuate and infiltrate first") ꯄ꯭ꯔꯤꯟꯁꯤꯄꯜꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯤꯠꯌꯦꯡ ꯂꯧꯁꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯂꯩ (CSE, 2023)꯫ ꯃꯅꯤꯄꯨꯔꯗ, ꯃꯁꯤꯡꯒꯤ ꯂꯦꯌꯔ ꯑꯅꯤꯒꯤ ꯑꯍꯦꯅꯕ ꯑꯔꯣꯏ ꯂꯩ꯫ ꯁ꯭ꯇꯣꯔꯦꯖꯀꯤ ꯂꯦꯌꯔ (storage) ꯑꯁꯤꯅꯥ ꯍꯤꯡꯕ ꯄꯥꯠꯁꯤꯡ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯄꯥꯠꯁꯤꯡꯗ (pat; lake or wetland) ꯂꯩ, ꯃꯈꯣꯌ ꯑꯗꯨ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯆꯥꯡ ꯂꯩꯕ ꯃꯈꯣꯌꯒꯤ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯂꯤꯕꯁꯤꯡꯗꯤ; ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ (Ithai barrage)-ꯅ ꯊꯤꯡꯖꯤꯟꯖꯤꯟꯕ ꯂꯩꯃꯥꯏꯁꯤꯡ; ꯃꯐꯃꯁꯤꯡꯒꯤ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯗ (pukhri; pond); ꯑꯃꯁꯨꯡ ꯃꯍꯩꯌꯥꯡ ꯄꯨꯝꯅꯃꯛ ꯅꯥꯏꯕꯒꯤ ꯃꯅꯥꯡ ꯂꯩꯕ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯂꯧꯕꯨꯛ (paddy land)꯫ MASTEC-ꯅ "ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯣꯔꯦꯖ ꯂꯩꯃ 500 ꯃꯔꯛ ꯂꯩꯔꯝꯃꯤ" ("there were nearly 500 lakes in Manipur Valley") ꯍꯥꯌꯅ ꯌꯦꯛꯁꯤꯟꯕ ꯁꯥꯅ ꯑꯃꯁꯨꯡ ꯏꯊꯣꯛꯄ ꯏꯀꯣꯏꯕ ꯂꯩꯕ ꯀꯌꯥꯒꯤ ꯍꯤꯡꯅꯤꯌꯤꯕ ꯄꯥꯠꯁꯤꯡꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯂꯃꯖꯥꯡꯄꯥꯠ, ꯄꯥꯟꯌꯥꯝꯄꯥꯠ, ꯇꯥꯛꯌꯦꯜꯄꯥꯠ (Takyelpat), ꯁꯪꯒꯥꯏꯄꯥꯠ (Sangaipat), ꯈꯨꯔꯨꯡꯄꯥꯠ (Kharungpat) ꯑꯃꯁꯨꯡ ꯅꯃ꯭ꯕꯨ ꯄꯥꯠ ꯌꯥꯑꯣꯔꯦ, ꯑꯃꯁꯨꯡ CGWB-ꯅ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯗꯨ "ꯃꯍꯤꯡꯕ ꯍꯤꯡꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯤ ꯂꯩꯕ ꯂꯩꯍꯧꯅꯕ ꯃꯄꯨꯟꯕꯅ ꯂꯩꯔꯃꯃꯤ, ꯃꯗꯨ ꯂꯩꯃ ꯍꯥꯌꯕ ꯑꯔꯊ ꯂꯩꯕ PAT ꯍꯥꯌꯕ ꯋꯥꯍꯩ ꯌꯥꯑꯣꯕ ꯃꯐꯃꯁꯤꯡꯅ ꯇꯥꯀꯄꯤ" ("was once full of swamps and marshy land represented by the places having the word PAT meaning lake") ꯍꯥꯌꯅ ꯌꯦꯛꯁꯤꯟꯕ ꯁꯥꯅ (MASTEC; CGWB, Imphal West, 2013)꯫ ꯂꯥꯏꯕꯛ ꯁꯤꯡꯕ ꯒꯦꯖꯦꯠ ꯅꯣꯃꯖꯤꯡꯒꯤ ꯍꯤꯡꯁꯦꯝ ꯄꯥꯎꯗꯨꯅ 2043 ꯐꯥꯑꯣꯕ ꯄꯥꯎꯗꯨꯝꯗ ꯑꯦꯌꯔꯤꯡꯒꯤ ꯋꯦꯇꯂꯦꯟꯗꯁꯤꯡ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯂꯧꯕꯨꯛ ꯂꯝ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯐꯥꯑꯣꯕ ꯍꯟꯊꯍꯅꯒꯅꯤ, ꯑꯗꯨꯒ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯅꯣꯡꯃꯤ ꯂꯩꯐꯝꯁꯤꯡ 563.54 ha-ꯗꯒꯤ 643.42 ha ꯐꯥꯑꯣꯕ ꯍꯦꯟꯒꯠꯂꯒꯅꯤ (ꯒꯦꯖꯦꯠ ꯅꯣꯃꯖꯤꯡꯒꯤ ꯍꯤꯡꯁꯦꯝ ꯄꯥꯎꯗꯨꯝ)꯫ ꯑꯅꯤꯁꯨꯕꯅ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯂꯦꯄꯦ ꯅꯥꯏꯕ ꯋꯥꯌꯦꯜꯅꯤ꯫ ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯉꯥꯀꯁꯦꯟꯕ) ꯑꯦꯛꯇ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯅ ꯂꯦꯛ ꯑꯁꯤꯒꯤ 70.30 km²-ꯒꯤ ꯀꯣꯔ ꯖꯣꯟ (Core Zone) ꯑꯁꯤ "ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯂꯩꯇꯕ ꯖꯣꯟ ꯅꯠꯔꯒ ꯃꯄꯨꯡ ꯐꯥꯅ ꯉꯥꯀꯄ ꯖꯣꯟ" ("No-Development Zone or Totally Protected Zone") ꯑꯣꯏꯅ ꯂꯦꯞꯂꯦ ꯑꯃꯁꯨꯡ ꯕꯐꯔ ꯖꯣꯟꯗ (Buffer Zone) "ꯁꯦꯃꯗꯣꯛꯇꯕ ꯑꯁꯣꯏꯕ ꯀꯌꯥꯒꯤ ꯁꯣꯏꯗꯅ ꯏꯟꯗꯁ꯭ꯠꯔꯤꯁꯤꯡꯗꯒꯤ ꯁꯍꯔ ꯅꯠꯔꯒ ꯇꯥꯎꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯇꯤꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ" ("Discharge of untreated wastes and effluents from industries, cities or towns") ꯑꯃꯁꯨꯡ "ꯂꯝ ꯔꯤꯀ꯭ꯂꯦꯃꯦꯁꯟ, ꯕꯟꯗ ꯊꯝꯕ ꯅꯠꯔꯒ ꯗ꯭ꯔꯦꯅꯦꯖꯁꯤꯡꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯂꯝꯕꯤ ꯊꯨꯒꯥꯏꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯑꯊꯤꯡꯕ ꯄꯤꯔꯤ (ꯁꯦꯛꯁꯟ 3, 19); ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯦꯛꯇ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯅ ꯄꯦꯗꯤ ꯂꯦꯟꯗ (paddy land) ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯍꯣꯡꯕ ꯍꯧꯗꯣꯛꯄ ꯍꯥꯏꯗꯣꯛꯄ ꯑꯊꯤꯡꯕ ꯄꯤꯔꯤ, ꯃꯐꯃꯁꯤꯡꯒꯤ "ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯆꯦꯅꯦꯂꯁꯤꯡ, ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯀꯦꯅꯦꯂꯁꯤꯡ, ꯄꯨꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯁꯤꯡ" ("drainage channels, ponds, canals, bunds and ridges") ꯃꯐꯃꯁꯤꯡꯒꯤ ꯂꯦꯄꯦ ꯑꯅꯤꯁꯨꯕꯅ ꯂꯥꯏꯕꯛ, ꯃꯐꯃꯁꯤꯡꯒꯤ ꯄꯥꯝꯕꯩꯁꯤꯡꯒꯤ ꯃꯇꯦꯡꯕꯥꯡꯕ ꯀꯌꯥꯅ (ꯁꯦꯛꯁꯟ 2(c), 3); ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯇꯂꯦꯟꯗꯁ ꯑꯣꯊꯣꯔꯤꯇꯤꯅ (Manipur State Wetlands Authority) ꯋꯦꯇꯂꯦꯟꯗꯁ ꯔꯨꯂꯁ, 2017 (Wetlands Rules, 2017) ꯃꯈꯥ ꯌꯥꯔꯥꯜ ꯄꯥꯠ (Yaral), ꯎꯇ꯭ꯔꯥ ꯄꯥꯠ (Utra) ꯑꯃꯁꯨꯡ ꯋꯥꯏꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯥꯠꯁꯤꯡ (Waithou–Phumnom) ꯅꯣꯇꯤꯐꯥꯏ ꯂꯧꯁꯤꯟꯈꯤꯕ ꯐꯥꯑꯣꯕ, ꯃꯈꯣꯌ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯐꯥꯑꯣꯕ ꯐꯣꯡꯗꯣꯛ ꯑꯣꯏꯕꯅꯤ; ꯑꯃꯁꯨꯡ ꯕꯥꯎꯟ-ꯗꯔꯤꯅ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯃꯤ ꯂꯩꯕ ꯁꯤꯡꯅꯕꯁꯤꯡꯒꯤ ꯃꯅꯥꯡ ꯕꯐꯔ (buffer) ꯑꯃꯥ ꯊꯝꯂꯤ (ꯃꯔꯝꯅꯒꯤ ꯕꯥꯎꯟ-ꯗ 93 [TBC: ꯂꯥꯏꯅ ꯕꯥꯗꯤꯅ ꯂꯥꯏꯕꯛ ꯁꯤꯡꯕ ꯕꯥꯎꯟ-ꯗꯂꯥꯏ ꯀꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗꯅ ꯌꯥꯎ ꯁꯤꯡꯗꯕꯅꯤ])꯫ ꯂꯥꯏꯁꯥꯏꯒꯤ ꯃꯄꯥꯟꯗ ꯄꯥꯠ ꯀꯌꯥꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ ꯑꯇꯣꯞꯄ ꯕꯐꯔ ꯊꯝꯕ ꯑꯅꯤꯁꯨꯕ ꯀꯌꯥꯒꯤ ꯕꯥꯎꯟ-ꯗ ꯑꯃꯌꯥꯝ ꯂꯩꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯇ, 1978 (Manipur Flood Plain Zoning Act, 1978) ꯃꯈꯥ ꯐ꯭ꯂꯗ ꯖꯣꯟ ꯑꯃꯌꯥꯝ ꯂꯥꯏꯕꯛ ꯁꯤꯡꯕꯅꯤ꯫ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯂꯝ ꯑꯃꯅꯥꯏꯕ ꯂꯩꯔꯕ ꯑꯗꯨ ꯑꯍꯥꯟꯕ ꯂꯩ꯫ ꯃꯇꯝ ꯑꯣꯏꯅ ꯄꯤꯊꯣꯛꯄ (retention) ꯍꯥꯌꯕꯗꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯡ ꯍꯣꯡꯕ ꯀꯥꯌꯄꯅꯕꯅꯤ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ (infiltration) ꯀꯌꯥ: ꯂꯩꯃꯥꯏ ꯑꯗꯨ "ꯌꯨꯝ 30-ꯗꯒꯤ 50 m ꯐꯥꯑꯣꯕ ꯂꯩꯃꯪ ꯑꯌꯥꯝꯕꯒꯤ ꯐꯣꯔꯃꯦꯁꯟ" ("approximately 30 to 50 m of clayey formation") ꯑꯃꯅꯤ, ꯏꯁꯤꯡ ꯌꯨꯃꯊꯛ ꯃꯊꯛ ꯍꯤꯡꯕ ꯄꯥꯠꯁꯤꯡꯗ ꯅꯣꯡꯃꯤ "2-ꯗꯒꯤ 5 m bgl" ("2 to 5 m bgl") ꯂꯩ (CGWB, Imphal West, 2013), ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏꯁꯤꯡꯒꯤ ꯑꯃꯥꯡꯕ "ꯑꯦꯁꯤꯗꯤꯇꯤ ꯍꯤꯡꯕ ꯌꯥꯝꯕ" ("high acidity") ꯄꯤꯠ (peat) ꯂꯩ (CGWB, Bishnupur, 2013), ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯦꯟꯗꯦꯜ ꯁꯣꯛ ꯄꯤꯠ (soak pit) ꯑꯃꯥ ꯃꯈꯥꯗꯒꯤ ꯃꯄꯨꯟꯕ ꯑꯣꯏꯔꯦ꯫ ꯃꯔꯝ ꯑꯗꯨꯅ ꯅꯣꯡꯖꯨ ꯑꯗꯨꯅ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯂꯝꯒꯤ ꯂꯩꯃꯪ ꯑꯌꯥꯝꯕ, ꯂꯩꯃꯪ ꯑꯃꯁꯨꯡ ꯄꯤꯠꯁꯤꯡ, 1% AEP-ꯒꯤ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥ, ꯅꯣꯡꯃꯤꯒꯤ ꯄꯨꯡ ꯑꯃꯒꯤ ꯃꯁꯨꯡꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯠ ꯀꯌꯥꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ ꯑꯇꯣꯞꯄ ꯍꯦꯟꯗꯣꯛꯅ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯂꯩꯕ ꯑꯊꯤꯡꯕ ꯄꯤꯔꯤ (ꯇꯦꯕꯜ 4.11, ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯂꯃꯒꯤ ꯂꯥꯏꯅ); ꯌꯤꯡꯁꯤꯡꯗ 10°-ꯗꯒꯤ ꯍꯦꯟꯅ ꯑꯋꯥꯡꯕ ꯃꯍꯩꯒꯤ ꯅꯣꯡꯆꯨꯞꯁꯤꯡꯗ, ꯄꯥꯝꯕꯩꯁꯤꯡ ꯅꯣꯡꯆꯨꯞ ꯑꯃꯁꯥ ꯂꯩꯕ ꯗꯤꯕꯁꯤ ꯂꯩꯅ, ꯀꯣꯂꯨꯚꯤꯌꯝ (colluvium), ꯐꯤꯅ ꯀꯌꯥꯒꯤ

ꯃꯦꯍꯦꯔꯦꯅꯍꯥꯏ ꯁꯦꯝꯕꯤꯗꯨ ꯑꯃꯁꯨꯡ ꯃꯌꯨ ꯆꯌꯦꯠꯄ ꯊꯤꯡꯅꯕꯤꯒꯤ ꯌꯥꯝ ꯑꯍꯥꯅꯕ ꯍꯧꯖꯤꯛ ꯍꯥꯃꯗꯨ ꯍꯦꯟꯅꯥ, ꯇꯤꯑꯥꯡꯅꯕꯤꯃꯦꯜ ꯂꯩꯔꯤꯕꯤꯃꯌ ꯑꯍꯦ ꯑꯌꯥꯕ ꯂꯩꯔꯝꯕꯅꯤ, ꯑꯍꯥꯏꯕ ꯂꯩꯔꯤ (ꯃꯦꯞ 4.11, ꯌꯤꯕꯥꯕ ꯊꯥꯕ); ꯑꯃꯁꯨꯡ ꯁꯍꯥꯔꯤꯕꯥꯏ ꯍꯔꯦꯜꯅ ꯆꯩꯕ ꯁꯧꯔꯦ ꯁꯩꯊꯕ ꯈꯨꯃꯕꯤ ꯈꯦꯜꯂꯤꯕꯅ (foothill fan), ꯑꯔꯥꯡ ꯌꯥꯍꯑ ꯑꯂꯍꯅꯕ ꯕꯊꯦꯟꯕ ꯀꯦꯜꯅꯊꯦꯜꯂꯥꯏ (Barail sandstone) ꯃꯦꯔꯤꯕꯂꯤꯕꯅ ꯑꯃꯁꯨꯡ ꯁꯧꯔꯦ ꯁꯩꯊꯕ ꯆꯩꯖꯥꯅꯥꯏ ꯃꯦꯂꯂꯂꯤꯕꯅ ꯅꯥꯁꯅ ꯊꯤꯌꯕꯇ (recharge) ꯑꯌꯕ ꯔꯤꯊꯤ, ꯍꯊꯍꯅꯤ ꯂꯩꯔꯦꯃꯤ ꯆꯩꯍꯟꯅꯥꯏ ꯍꯅꯥꯏ ꯅꯂꯤꯕꯥꯏ ꯑꯦꯀꯦꯂꯍꯦꯜꯌ ꯀꯂꯤꯌ ꯀꯅꯤꯕꯍꯥ "ꯀꯦꯜ" ("Safe") ꯑꯅꯥ, ꯑꯦꯕꯂꯁꯦꯕꯂꯂꯥꯏ ꯂꯩꯇ 8.00% (GWRA 2024, ꯃꯌꯅꯤꯕ ꯍꯁꯕ ꯅꯦꯜ),

ꯑꯃꯁꯨꯡ ꯍꯖꯍ ꯑꯀꯅ ꯊꯤꯌꯕꯇ ꯑꯂꯤ ꯅꯤꯇꯅꯦꯜꯂꯥꯏ ꯑꯕꯇꯦꯥꯁꯒ ꯃꯌꯁꯦ (ꯃꯦꯞ 4.11, ꯊꯤꯌꯕꯇꯃꯤ ꯊꯥꯕ) (ꯔꯍꯃꯍꯥ ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤꯗꯦ ꯆꯍꯕ)॥ ꯃꯥꯏꯒꯤ ꯅꯂꯤꯕ ꯅꯥꯍꯇꯤꯑꯕ ꯑꯂꯤ ꯃꯥꯕ ꯀꯅꯕ ꯍꯁꯍꯒꯤꯅꯍꯥ ꯂꯩꯊꯦꯇꯤ: ꯅꯍꯖꯕꯗꯦ ꯍꯂꯤꯒꯤ ꯆꯥꯃꯕ ꯅꯂꯤꯕꯒꯤ ꯌꯕ 90% ꯍꯊꯕ ꯅꯍꯖꯕ, ꯃꯍꯕꯕ ꯑꯃꯁꯨꯡ ꯅꯊꯤꯕ ꯀꯊꯦꯕꯂꯤꯕꯅꯒꯤ ꯃꯅ (ꯒꯊꯦꯁꯊ ꯅꯍꯖꯕꯒꯤ ꯍꯤꯂꯩꯊ ꯔꯦꯗꯦ)॥ ꯔꯤꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯕꯕꯥ ꯍꯤꯕꯕ ꯑꯂꯤ ꯔꯤꯅꯔꯂꯤꯕꯗꯦ ꯀꯦꯕꯆꯃꯔ ꯆꯍꯅꯦ, ꯑꯃꯁꯨꯡ ꯌꯤꯕꯂꯤꯕꯅ ꯀꯦꯕꯒꯤ ꯑꯔꯥꯡ ꯑꯍꯅ ꯅꯂꯤꯕ ꯆꯅꯃꯔ ꯅꯥꯕꯕꯦꯂꯤꯕꯗꯦ ꯑꯔꯥꯡ ꯑꯀꯅ ꯀꯃꯄꯗꯕ ꯌꯤꯅ॥

1.3 ꯑꯅꯦꯜꯒꯤ ꯀꯍꯖꯍ ꯑꯃꯁꯨꯡ ꯂꯩꯁꯦꯜ

1.3.1 **ꯃꯁꯤꯖꯤꯃꯦꯂꯦ.** ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤꯕ ꯍꯗꯤꯔꯕ ꯆꯩꯕꯗꯦ ꯍꯅꯅ ꯔꯤꯊꯤꯕꯂꯤꯕꯒꯤ ꯀꯌꯆꯅ ꯑꯅꯦꯜꯒꯤ ꯂꯥꯁꯤ ꯔꯤꯒꯅꯕꯇꯤ:

- (a) ꯃꯦꯞ 1.5 ꯌꯌꯇꯕ ꯅꯒꯇꯔꯍꯦꯌꯃꯤꯅꯍꯥ, ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤ ꯆꯃꯔ ꯑꯂꯤ ꯔꯦꯗꯤꯕ ꯔꯊꯍꯤꯂꯦ, ꯕꯤꯕꯅꯤꯕ ꯔꯊꯍꯤꯌ, ꯃꯦꯑꯁꯌ ꯑꯦꯔꯁꯒꯦꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯔꯇꯤꯂꯦ ꯂꯊꯁꯤꯖꯤꯃꯌꯃꯤ ꯃꯦꯅꯤꯂꯦ ꯑꯍ ꯑꯅꯁꯦꯕ ꯍꯅꯦꯕ ꯍꯗꯤꯔꯕ ꯀꯇꯤꯖꯅꯅ ꯕꯤꯕꯅꯤꯕ ꯕꯅ-ꯃꯦꯇ 2024-ꯒꯤ ꯑꯦꯍꯦꯅꯍꯦꯌ ꯑꯍ; ꯑꯃꯁꯨꯡ
- (b) ꯁꯊꯕꯦ ꯃꯥꯏꯕ ꯕꯅꯤ (ULB) ꯀꯅꯤꯕꯍꯥꯃꯤ ꯕꯅ-ꯃꯦꯇ ꯃꯌꯊꯒ ꯂꯩꯦꯅꯤꯕ ꯑꯊꯅꯊꯂꯤꯕ, ꯍꯅꯗꯦ ULB ꯑꯀꯗꯦ ꯁꯕ ꯃꯌꯊꯒ ꯑꯔꯀꯒ ꯁꯕ ꯆꯕꯥꯂꯤꯕꯒꯤꯅꯍꯥ, ULB-ꯒꯤ ꯍꯂꯤꯒꯤ ꯅꯥꯕꯕꯦꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯕꯤꯂꯤꯕ ꯌꯁꯗꯦ, ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤ ꯃꯂꯤꯕꯕ॥

1.3.2 **ꯂꯩꯌꯃꯤ ꯍꯦꯟꯗꯦ ꯌꯕꯕ ꯂꯩꯦꯅꯊꯅꯂꯤꯕ.** ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤꯒꯤ ꯅꯤꯇꯅꯦꯜꯂꯥꯏ ꯊꯤꯁꯊꯦ ꯔꯤꯊꯤꯌꯅꯂꯤꯕ (return period) ꯑꯃꯁꯨꯡ ꯔꯊꯥꯊꯍꯦꯂꯤ ꯃꯊꯅꯁꯊꯤꯌꯤꯕꯗꯦ CPHEEO Manual on Storm Water Drainage Systems (2019)-ꯒꯤ ꯃꯦꯂꯦꯕ ꯑꯅꯒꯅꯇꯊꯤ ꯍꯗꯤꯍꯍꯂꯤꯕꯅꯒꯤ ꯍꯦꯟꯗꯦ ꯌꯕꯅ॥ ꯂꯩꯌꯗꯦ ꯍꯦꯟꯗꯦ ꯌꯕꯕ ꯂꯩꯦꯅꯊꯅꯂꯤꯕ ꯑꯂꯤ ꯃꯂꯤꯕꯦꯕ ꯃꯁꯤꯖꯤꯃꯦꯂꯦꯗꯦ ꯍꯅ-ꯔꯌꯊꯅ ꯃꯍꯤꯁ ꯑꯍ (**ꯂꯩꯌ ꯃꯥꯏꯒꯤ ꯅꯂꯤꯕꯒꯤ ꯁꯕꯗꯤꯃꯦꯕ ꯃꯍꯤꯁ**, ꯃꯦꯞ 1.9) ꯀꯍꯒꯌꯃꯅꯕꯇꯤ॥ ꯍꯂꯤ CPHEEO (2019)-ꯗꯦ ꯍꯦꯟꯗꯦ ꯌꯕꯕ ꯊꯤꯁꯊꯦ ꯔꯤꯊꯤꯌꯅꯂꯤꯕꯒꯤꯅꯍꯥ ꯔꯤꯊꯤꯕ ꯃꯍꯕꯤꯇꯤ॥

1.3.3 **ꯑꯍꯦꯕ ꯍꯖꯍ (Precedence).** ꯍꯂꯤꯒꯤ ꯂꯃꯔꯃꯤ ꯍꯗꯃꯅ, CPHEEO (2019), IRC:SP:42-2014, IRC:SP:50-2013 ꯃꯌꯊꯒ ꯃꯊꯒꯍꯕ ꯅꯤꯔꯊꯌꯍꯦꯌꯃꯤ ꯂꯩꯦꯅꯊꯅ ꯑꯍꯅꯒꯤ ꯍꯦꯟꯗꯦ ꯃꯦꯕ ꯍꯖꯍꯅ ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤꯗꯦ ꯌꯌꯇꯤ॥ ꯑꯅꯦ ꯃꯌꯊꯒ ꯑꯅꯦꯜꯒꯤ ꯊꯥꯕ ꯑꯍꯗꯦ ꯍꯦꯟꯗꯦ ꯃꯦꯕ ꯍꯆ ꯁꯕ ꯑꯍ (ꯀꯅꯍ ꯑꯅꯗꯦ ꯅꯂꯤꯕ ꯆꯩꯖꯍ ꯑꯍꯒꯤ ꯀꯌꯕꯥ (setback)) ꯆꯍꯇꯕꯅꯤ, ꯑꯅꯦ ꯑꯀꯗꯦ ꯌꯌꯇꯤ॥

1.3.4 **ꯔꯕꯇꯤꯥ ꯌꯊꯥꯂꯃꯤꯅꯍꯥ ꯅꯤꯇꯅꯦꯜꯒꯤ ꯔꯊꯥꯁꯂꯃꯤ ꯂꯩꯦꯅꯊ.** ꯅꯊꯍ, ꯃꯍꯕꯤ ꯃꯌꯊꯒ ꯅꯂꯤꯕ ꯆꯩꯖꯍꯒꯤ ꯆꯥꯂꯤꯕ ꯔꯊꯥꯃꯀꯊ ꯁꯕ ꯅꯤꯔꯊꯌꯍꯦꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ULB-ꯂꯤꯕꯗꯦ ꯃꯦꯞ 1.11-ꯅ ꯔꯤꯊꯤꯕ ꯁꯕꯂꯤꯕꯅꯒꯤ ꯍꯗꯦ ꯅꯤꯁꯕꯅ ꯔꯊꯥꯇꯥꯌ ꯊꯤꯔꯥꯊꯌꯂꯤꯕ (DPR) ꯑꯃꯁꯨꯡ ꯃꯦꯂꯩꯊꯥꯁꯂꯤꯕꯅ ꯍꯦꯟꯗꯔꯦꯕ ꯑꯂꯤ ꯆꯃꯔ ꯍꯆ ꯁꯍꯃꯒꯅꯕꯇꯤ॥

ꯂꯦꯅꯥꯗꯦ ꯁꯥꯔ. ꯍꯗꯤꯔꯊꯅ ꯕꯤꯕꯅꯤꯕꯒꯤ ꯊꯕꯂꯤꯕ ꯑꯂꯤ ꯃꯥꯏꯕ ꯕꯅꯤ ꯀꯅꯤꯕꯍꯥꯗꯦ ꯌꯌꯃꯥꯍꯦꯕ ꯍꯅꯦꯕ ꯑꯍꯇꯤ॥ ꯍꯅꯦꯕ ꯍꯗꯤꯔꯊ ꯀꯇꯤꯖꯅꯅ ꯕꯤꯕꯅꯤꯕ ꯕꯅ-ꯃꯦꯇ, 2024 ꯑꯂꯤ MAHUD-ꯗꯦ 4 ꯅꯤꯀꯍꯕꯊ 2024-ꯒꯤ Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) (5 ꯅꯤꯀꯍꯕꯊ 2024-ꯒꯤ ꯍꯗꯤꯔꯊ ꯒꯦꯃꯌ ꯑꯥꯂꯩꯊꯑꯅꯤꯇꯤꯊ No. 253)-ꯗꯦ, ꯍꯗꯤꯔꯊ ꯍꯀꯇꯤꯂꯤꯔꯦꯇꯤꯁꯤꯇ ꯑꯦꯥꯌ, 1994-ꯒꯤ (1994-ꯒꯤ ꯑꯥꯌ ꯃꯍꯕꯊ 43) ꯀꯥꯂꯦ 213 ꯑꯃꯁꯨꯡ ꯍꯗꯤꯔꯊ ꯁꯁꯦ ꯑꯃꯁꯨꯡ ꯃꯦꯂꯩꯊ ꯔꯦꯗꯤꯕ ꯑꯥꯌ, 1975-ꯒꯤ (1975-ꯒꯤ ꯍꯗꯤꯔꯊ ꯑꯥꯌ ꯃꯍꯕꯊ 11) ꯀꯥꯂꯦ 26(1) ꯍꯅꯅ, "ꯁꯊꯕꯦ ꯃꯥꯏꯕ ꯕꯅꯤꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯔꯦꯗꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯒꯇꯔꯍꯦꯌ ꯑꯆꯊꯁꯤ, ꯍꯗꯤꯔꯊꯗꯦ ꯃꯂꯤꯕꯦꯕ" ("for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur"), 29 ꯑꯥꯁꯕꯊ 2024-ꯒꯤ ꯅꯊꯖꯌ ꯃꯁꯤꯀ ꯑꯍꯒꯤ (No. BBL-101/1/2024-MAHUD-MAHUD(Part-1)) ꯍꯁꯕꯅ ꯖꯕꯅꯥꯁꯅ॥ ꯍꯅꯦꯕ ꯑꯂꯤ "ꯍꯤꯂꯩꯊ ꯔꯦꯗꯦ ꯑꯊꯤꯌꯂꯤꯕ ꯃꯌꯊꯒ ꯃꯁꯤꯖꯅ ꯁꯕ ꯔꯦꯗꯤꯕ ꯑꯦꯊꯤꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯍꯗꯤꯔꯊꯒꯤ ꯁꯊꯕꯦ ꯃꯥꯏꯕ ꯕꯅꯤ ꯔꯍꯃꯍꯥꯃꯤ ꯂꯊꯤꯀꯅꯤꯕꯥꯂꯦꯜꯒꯤ ꯍꯅꯅ ꯆꯩꯕ ꯍꯖꯍꯂꯤꯕꯅ ꯌꯌꯇꯒꯤ" ("shall extend to the Master Plan areas or notified Planning areas and area under the jurisdiction of all the Urban Local Bodies of

Manipur") (ꯃꯇ-ꯆꯥ 1(2)), ꯑꯃꯁꯨꯡ ꯃꯔꯤꯒꯤ "ꯑꯦꯛꯠ" ("Act") ꯑꯁꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯆꯥꯑꯣꯔꯕꯥ ꯃꯐꯃꯁꯤꯡꯗꯥ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯂꯤꯃꯤꯠ ꯑꯦꯛꯇꯤ ꯑꯃꯁꯨꯡ "ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗꯥ, ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯂꯤꯃꯤꯠꯀꯤ ꯃꯄꯥꯟꯗꯥ" ("in respect of Master Plan areas but beyond the municipal limits") 1975-ꯒꯤ ꯑꯦꯛꯇꯀꯤ (2(2))꯫ ꯑꯗꯨꯕꯨ ꯄꯥꯝꯃꯤꯟꯕ ꯑꯃꯒꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯆꯥꯑꯣꯔꯕꯥ ꯇꯧꯕꯥ ꯄꯥꯝꯕꯤꯗꯥ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯅꯥ (PDA Manipur) ꯃꯁꯤꯗꯥ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯡ ꯇꯥꯔꯦ ꯍꯥꯌꯔꯤꯕꯥ ꯃꯇ-ꯆꯥꯡꯒꯤ ꯃꯈꯥ ꯄꯥꯏꯕꯗꯤ꯫ TPD-ꯒꯤ ꯂꯩꯇꯥꯡ ꯄꯨꯊꯣꯛꯂꯤ (Kumbi), ꯃꯁꯥꯃꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯅꯕꯥ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁꯤꯡꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯃꯇ-ꯆꯥꯡ, 2025-ꯒꯤ 16 ꯑꯣꯛꯇꯣꯕꯔ 2025-ꯒꯤ ꯖꯥꯅꯨꯋꯥꯔꯤ ꯒꯦꯖꯦꯇꯇꯤ, ꯑꯃꯁꯨꯡ 15 ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯒꯤ "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" ꯑꯃꯍꯦ ꯆꯤꯡꯌꯥ ꯌꯥꯏ (ꯆꯤꯡꯌꯥ ꯌꯥꯕꯥ ꯃꯇꯨꯡ ꯅꯥꯏ; ꯑꯆꯤꯡꯕ ꯑꯗꯨ ꯃꯦꯡꯂꯦꯡ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯄꯥꯅꯤꯗꯦ); ꯅꯍꯥꯛ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁꯤꯡ ꯕꯤꯜꯗꯤꯡ ꯃꯇ-ꯆꯥꯡ, 2025 ꯑꯁꯤ 15 ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯗ ꯑꯣꯏꯖꯅ ꯌꯥꯏ ꯈꯔꯗꯤ ꯖꯥꯃꯗꯥꯡꯌꯥꯏ (ꯄꯥꯗꯨꯅ ꯖꯥꯃꯗꯥꯡꯌꯥꯏꯕ ꯃꯇꯨꯡ ꯅꯥꯏꯗꯦ)꯫ ꯃꯁꯤꯗꯥ ꯑꯁꯤꯒꯤ ꯃꯃꯥꯡꯗ ꯅꯍꯥꯛꯇꯗ IMC Building Bye-laws, 2013 ꯆꯥꯡꯍꯧꯔꯤ, ꯃꯁꯤ 2019 ꯑꯃꯁꯨꯡ 2022-ꯗ ꯑꯦꯃꯦꯟꯗ ꯌꯥꯏ (ꯆꯤꯡꯌꯥ ꯌꯥꯕꯥ ꯃꯇꯨꯡ ꯅꯥꯏꯗꯦ); ꯑꯌꯥꯄꯄ ꯇꯧꯕꯥ ꯃꯇꯨꯡ ꯑꯣꯏꯄꯗꯗ "Model Building Bye-laws of 1998-ꯒꯤ ꯃꯇꯨꯡ ꯅꯥꯏꯗꯦ ꯂꯦꯃꯊ" ("based on Model Building Bye-laws of 1998") ꯃꯇ-ꯆꯥꯡ ꯆꯥꯡꯍꯧꯔꯤ, ꯑꯃꯁꯨꯡ 18-ꯗ ꯑꯃꯍꯦꯌꯥ ꯆꯥꯡꯍꯧꯗ (ꯃꯁꯤꯗꯒꯤ ꯄꯦꯂꯤꯌꯦꯇꯂꯤ)꯫ ꯅꯍꯥꯛ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁꯤꯡ ꯕꯤꯜꯗꯤꯡꯒꯤ ꯃꯇ-ꯆꯥꯡ (3rd Amendment), 2024 ꯑꯁꯤ ꯑꯦꯛꯇꯦꯡꯂꯦꯝꯂꯤꯒꯤꯗꯃꯛ ꯗꯄꯤꯖꯦ ꯑꯃꯈꯦ ꯖꯥꯃꯗꯥꯡꯌꯥꯏ, "ꯂꯩꯄꯦ ꯆꯥꯡꯅꯥꯗꯦ ꯑꯦꯖꯤꯂꯤꯔꯦꯟ ꯒꯦꯇꯦꯌꯥ ꯑꯣꯏꯖꯤꯟꯂꯦꯝꯗꯦ ꯇꯦꯄꯄ ꯌꯥꯃꯗ ꯍꯧꯇꯥꯟꯆꯤ" ("come into force on such date as the State Government may, by notification in the Official Gazette, appoint"); ꯃꯈꯔ ꯖꯅꯇꯦꯟ ꯌꯥꯈꯤꯕꯥꯗꯦ ꯈꯔꯕꯁꯤ ꯄꯦꯖꯥꯍ ꯌꯥꯈꯤꯗ [TBC]꯫ ꯃꯦꯂꯔꯦꯟ ꯑꯁꯤꯗ ꯆꯥꯕ ꯄꯥꯃꯥꯒꯤꯇꯦ ꯑꯣꯍꯕꯄꯂꯤꯗ ꯑꯁꯤ ꯃꯁꯤꯗꯒꯤꯗꯤ: ꯃꯇ-ꯆꯥ 1(2), 2(2), 2(11), 6(1)(A), 6(1)(C)(j), 6(1)(D), 16, 28, 66, 67, 68 ꯑꯃꯁꯨꯡ 92–94 [TBC: ꯇꯥꯔꯦ ꯃꯇꯤꯗꯦ ꯑꯣꯏꯖꯅ ꯌꯥꯕꯥ ꯃꯇ-ꯆꯥꯡ ꯑꯍꯕꯄ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯂꯌ ꯍꯦꯡ ꯌꯥꯒꯗꯕꯗꯤ]; ꯇꯥꯔꯦ ꯃꯇꯤ ꯑꯃꯒꯤ ꯑꯣꯏꯖꯅ ꯌꯥꯕꯥ ꯌꯦꯡꯂꯌ ꯌꯥꯡꯌꯦꯇꯕꯗꯤ, ꯃꯁꯤꯒꯤ ꯌꯦꯡꯂꯦꯗꯦ ꯍꯦꯇꯤ꯫

ꯃꯁꯤꯗꯥ ꯑꯁꯤꯗꯦ ꯃꯔꯥꯏ-ꯂꯥꯏꯕꯤ, ꯇꯨꯅꯖꯇꯨꯅꯗ ꯑꯃꯁꯨꯡ ꯂꯄꯦꯂꯤꯔꯦꯟ ꯕꯤꯔꯗꯤꯂꯤꯒꯤꯗꯃꯛ "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁꯤꯡ/ꯑꯌꯥꯄꯄ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯖꯂꯕ ꯍꯦꯕ ꯄꯥꯃꯦꯔꯦꯟ/ꯄꯀꯀꯥ ꯗ꯭ꯔꯦꯟ ꯖꯤꯑꯕ ꯂꯤꯒꯦꯝꯕ ꯃꯨꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯗ ꯑꯇꯤꯃꯀꯝꯗꯃꯛ ꯗꯤꯌꯦꯅꯗ ꯅꯥꯍꯥ ꯄꯥꯇꯦꯗ" ("Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority") ꯃꯊꯩ ꯌꯥꯅ (6(1)(D)); "ꯃꯥꯏꯀꯩꯅꯕ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁꯤꯡ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯒꯤ ꯃꯊꯛꯇ" ("over any municipal drain") ꯕꯤꯔꯗꯤꯂ ꯂꯕ ꯑꯊꯤꯂꯕ ꯄꯤꯈꯤ (16); ꯅꯕꯅꯗꯒꯤ ꯇꯦꯍꯕꯗ 75 mm-ꯒꯤ ꯇꯥꯂꯒꯤ ꯅꯂꯤꯂꯒꯤ ꯄꯥꯅꯄꯂꯤꯂ ꯂꯥꯖꯦꯂ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯗ ꯊꯅ, "ꯀꯗꯥꯏꯗꯁꯨ" ("in no case") ꯊꯤꯂꯇꯤꯅꯇꯕ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯗ ꯈꯂꯊꯥꯂꯇꯦ ꯊꯗꯦ, ꯑꯃꯁꯨꯡ ꯂꯥꯅꯟ ꯄꯅꯄ ꯑꯃꯗ ꯀꯗꯥꯏꯗꯁꯨ ꯊꯗꯦ (28); 100 m² ꯑꯃꯁꯨꯡ ꯃꯁꯗꯒꯤ ꯈꯦꯗꯕ ꯄꯥꯛꯂꯤꯗꯂꯤꯗ ꯇꯥꯂꯒꯤ ꯅꯂꯤꯂ ꯗꯥꯃꯇꯤꯗꯕ ꯃꯦꯗꯦꯌꯥꯒꯤ ꯑꯥꯅꯈꯅꯇꯤ, ꯄꯥꯛꯂꯀꯤ 10% ꯇꯂꯥꯒꯤ 15%-ꯒꯤ ꯂꯥꯖꯦꯂ ꯀꯒꯥꯒꯤ ꯇꯥꯔꯦꯇꯇ (66), ꯌꯦꯄꯕ ꯕꯤꯔꯗꯤꯂꯤꯂꯤꯂꯗ ꯒꯥꯦ-ꯌꯦꯌꯥꯥ ꯥꯤꯂꯦꯅꯀꯇꯤꯂ (67) ꯑꯃꯁꯨꯡ ꯖꯤꯒꯤ ꯥꯤꯕꯦꯂ (68); ꯌꯍꯄꯥꯗꯀꯤ ꯌꯥꯦꯟ ꯌꯥꯒꯤ ꯃꯃꯤꯂ ꯆꯕ ꯥꯤꯍꯂꯤꯂꯒꯤ ꯃꯇꯦꯌ ꯃꯤꯗ-ꯂꯌꯥꯤꯍꯗꯒꯤ ꯊꯤꯕ ꯕꯖꯥ ꯑꯃꯒꯤ ꯃꯂꯂꯗ, 22.5 m-ꯗꯒꯤ 62 m ꯖꯑꯥꯕ, ꯃꯈꯥꯔꯒꯤ ꯃꯥꯂ ꯃꯅꯕꯗ "ꯇꯂꯥꯒꯤ ꯄꯦꯒꯤ ꯃꯄꯦꯊꯂꯒꯤ ꯌꯥꯗꯒꯤ 6 m, ꯃꯤꯗ-ꯂꯌꯥꯤꯍꯗꯒꯤ ꯈꯦꯗꯦ ꯇꯄꯄ ꯑꯗꯨ" ("or 6 m from outer toe of bund, whichever is further from mid-stream"), "ꯖꯇꯗ ꯄꯥꯇꯦꯗ ꯇꯥꯇꯤꯂ ꯑꯦꯛꯠ, 1978 ꯃꯈꯗ ꯂꯍꯅꯤꯕ ꯖꯇꯗ ꯇꯥꯇꯤꯂ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯃꯥꯂꯒꯤ ꯄꯥꯝꯃꯤꯂꯦ" ("the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978") ꯆꯥꯗꯦ, ꯑꯇꯥꯕ ꯀꯦꯂꯥꯥꯗꯂꯦ ꯑꯊꯤꯂꯕ ꯄꯤꯈꯤ (93); ꯑꯃꯁꯨꯡ "ꯌꯥꯄꯦꯂꯤꯂꯒꯤ ꯃꯂꯌꯥ ꯄꯥꯇꯦꯗ ꯅꯂꯗꯥꯗꯇꯕ ꯅꯂꯤꯂ ꯅꯌꯄꯒꯤ ꯑꯀꯤꯕ ꯌꯂꯕ ꯃꯖꯍꯂꯤꯂꯗ" ("high Flood Risk Areas identified in the Master Plan of the towns") ꯄꯥꯇꯤꯦꯊ ꯑꯁꯤ "ꯑꯀꯦꯕꯒꯤ ꯃꯖꯍꯂꯤꯂꯒꯤ ꯈꯅꯔꯦꯂꯌ ꯖꯇꯗ ꯇꯦꯒꯦꯅꯗꯒꯤ 1m ꯈꯦꯗꯦ ꯌꯂꯗꯦ" ("above 1m above the highest flood level of the surrounding areas") ꯊꯍꯇꯤ (94)꯫ ꯃꯁꯤꯒꯤ ꯃꯇ-ꯆꯥ 92, ꯖꯥꯂꯗꯥꯗꯅꯤꯕ ꯃꯑꯥꯂꯗ, "ꯃꯤꯦ ꯂꯤ ꯇꯦꯒꯦꯅꯗꯒꯤ 600 m-ꯗꯒꯤ ꯌꯂꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯒꯥꯦꯇ ꯑꯄꯥꯍ 30 ꯗꯤꯒ꯭ꯔꯤ ꯆꯕ ꯇꯍꯗ ꯀꯦꯂꯥꯥꯗꯂꯦ ꯑꯃꯍꯦꯌꯥ ꯑꯌꯕ ꯄꯤꯥꯅꯗꯕꯇꯤ" ("No construction shall be permitted on land above 600 m from the mean sea level and with an average slope of 30 degrees") ꯈꯔꯗꯦ ꯌꯦꯄꯅ, ꯃꯁꯤꯗꯦ 600 m-ꯗꯒꯤ ꯌꯂꯗꯦ ꯆꯕ ꯒꯥꯦꯌꯥ ꯅꯍꯥꯛ ꯄꯂꯍꯕ ꯑꯊꯤꯂꯕ ꯄꯤꯒꯇꯤ (NEER-ꯒꯤ ꯄꯥꯕ); IMC-ꯒꯤ (3rd Amendment) 2024-ꯒꯤ ꯗꯄꯤꯖꯦꯗꯦ ꯄꯦꯗꯍ ꯊꯍꯇꯤꯕ ꯥꯟ ꯑꯗꯨ ꯄꯤꯥꯤ, ꯈꯔꯕꯗꯤ "30 ꯗꯤꯒ꯭ꯔꯤꯗꯒꯤ ꯈꯦꯕ ꯑꯄꯥꯍ ꯆꯕ ꯃꯖꯍꯂꯤꯂꯗ ꯀꯦꯂꯥꯥꯗꯂꯦ ꯑꯃꯍꯦꯌꯥ ꯑꯌꯕ ꯄꯤꯥꯅ" ("no construction will be permitted in the areas which have a slope of more than 30 degrees"), "21-30 ꯗꯤꯒ꯭ꯔꯤꯒꯤ ꯑꯄꯥꯍ ꯆꯕ ꯃꯖꯍꯂꯤꯂꯗ ꯖꯇꯥ ꯑꯇꯤ ꯇꯂꯥꯒꯤ 7m ꯑꯌꯂꯕ ꯖꯑꯥꯕ ꯅꯗꯌ" ("only upto two floors or 7m height in areas which have a slope of 21-30 degrees") ꯗꯦꯒꯦꯇꯄꯃꯦꯗ ꯑꯌꯕ ꯄꯤꯥꯤ (92.1) ꯑꯃꯁꯨꯡ 30°-ꯗꯒꯤ ꯌꯂꯕꯗ "ꯑꯄꯥꯍ ꯀꯗꯄ ꯑꯃꯍꯦꯌꯥ ꯑꯌꯕ ꯄꯤꯥꯅ" ("no cutting of slopes will be permitted") (92.2), ꯑꯃꯁꯨꯡ ꯃꯦꯂꯔꯦꯟ ꯑꯁꯤꯗꯦ ꯃꯇ-ꯆꯥ 92 ꯑꯁꯤ ꯌꯦꯡꯂꯌ ꯑꯗꯨꯒꯤ ꯇꯥꯔꯦꯇꯇ ꯄꯥꯅ꯫ ꯃꯁꯤꯗꯥ ꯑꯁꯤꯗꯦ ꯗꯤꯇꯨꯅꯦ ꯂꯌꯥꯍ, ꯥꯤꯌꯥꯦ ꯄꯤꯥꯤꯔꯗ, ꯥꯤꯇꯤꯇ ꯥꯦ ꯇꯂꯥꯒꯤ ꯗꯤꯌꯦꯂꯦ ꯒꯥꯇꯂꯍ ꯑꯃꯍꯦꯌꯥ ꯊꯍꯗꯦ꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯖꯣꯅꯤꯡ/ꯌꯨꯖ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯃꯇ-ꯆꯥꯡ, 2026 (Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026) (22 ꯖꯥꯅ 2026-ꯒꯤ

MAHUD Notification No. BBL-101/1/2024-MAHUD-MAHUD; 23 ꯐꯦꯕ 2026-ꯒꯤ Gazette Extraordinary No. 157), 1975-ꯒꯤ ꯑꯦꯛꯇꯀꯤ ꯁꯦꯛꯁꯟ 24(e)-ꯒꯥ ꯄꯥꯔꯗꯨꯅ ꯁꯦꯛꯁꯟ 91(1)(iv) ꯍꯥꯌꯅ ꯁꯦꯃꯈꯤ, ꯍꯥꯌꯔꯕꯗꯤ ꯍꯤꯗꯥꯛ ꯃꯇꯦꯡ ꯑꯣꯏꯅꯕ ꯈꯨꯗꯣꯡꯆꯥꯕ "ꯄꯨꯈ꯭ꯔꯤ, ꯗꯔꯦꯟ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯥꯂꯁꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯍꯥꯌꯕ ꯇꯥꯏꯇꯜ ꯄꯨꯗ ꯑꯃꯥ ꯍꯥꯞꯆꯤꯟꯂꯤ꯫ ꯃꯇꯝ ꯑꯣꯏꯅꯕꯗꯤ ꯄꯦꯔꯥ 1.3.1(a)-ꯒꯤ ꯃꯈꯥꯒꯤ ꯑꯣꯏꯅ ꯁꯦꯛꯁꯟ ꯑꯗꯨ ꯑꯩꯈꯣꯌꯅꯥ ꯍꯥꯌꯅ MAHUD-ꯅꯥ ꯍꯦꯟꯅꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯦꯛꯁꯞꯂꯦꯅꯦꯁꯟ ꯑꯃ, ꯑꯃꯁꯨꯡ ꯊꯥꯖꯕꯗ ꯄꯥꯝꯅ ꯁꯥꯏꯅꯕ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅꯥ ꯍꯥꯌꯔꯤꯕ ꯁꯦꯟ-ꯄꯥꯟꯖ ꯍꯣꯠꯅꯕ ꯄꯣꯠꯂꯝꯁꯤꯡꯒꯤ ꯈꯨꯗꯣꯡ ꯌꯥꯎꯗꯦ: MAHUD-ꯅꯥ ꯁꯦꯟ-ꯄꯥ 6(1)(D), 66 ꯑꯃꯁꯨꯡ 92–94 ꯑꯃꯁꯨꯡ ꯄꯥꯎꯖꯦꯜ ꯁꯦꯟ-ꯄꯥꯎꯁꯤꯡ "ꯄꯨꯈ꯭ꯔꯤ, ꯗꯔꯦꯟ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯥꯂꯁꯤꯡ" ꯄꯥꯎ ꯑꯦꯍꯦꯟꯅ ꯁꯤꯖꯤꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯍꯦꯟꯅꯍꯦꯟꯅꯕ ꯑꯗꯨ ꯄꯥꯝꯅ ꯁꯥꯏꯅꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅ ꯊꯃꯖꯕ ꯌꯥꯏ, ꯍꯥꯌꯔꯕꯗꯤ ꯍꯣꯠꯅ ꯍꯥꯌꯔꯤꯕ ꯁꯦꯟ-ꯄꯥꯟꯖ ꯄꯣꯠꯂꯝꯖꯕ ꯌꯥꯏ (ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 1D)꯫

ꯃꯈꯥꯒꯤ ꯑꯣꯏꯅꯕꯗꯤ ꯊꯥꯖꯕꯗ ꯄꯥꯝꯅ ꯁꯥꯏꯅꯕꯁꯤꯡꯒꯤ ꯍꯦꯠꯇꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯗꯤꯌꯔꯤꯚꯥꯟ ꯌꯥꯊꯪ ꯍꯤꯗꯥꯛ ꯃꯇꯦꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯣꯏꯕꯥꯒꯤ ꯅꯨꯡꯁꯤꯕ ꯌꯥꯎ꯫ **ꯆꯤꯡꯒꯤ ꯃꯐꯝꯁꯤꯡ** (Hill Areas) ꯑꯗꯨ ꯑꯅꯣꯏꯒꯤ ꯑꯃꯣꯠꯇꯕ ꯃꯤꯑꯣꯏꯕꯒꯤ ꯃꯔꯝꯁꯤꯡ꯫ ꯍꯥꯌꯔꯗꯨ ꯍꯦꯟꯅꯕ ꯃꯤꯇꯤꯂꯦꯖꯤꯁ꯭ꯂꯦꯇꯤꯕ ꯑꯦꯁꯦꯝꯕ꯭ꯂꯤ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ) ꯑꯣꯔꯗꯔ, 1972-ꯒꯤ (Manipur Legislative Assembly (Hill Areas Committee) Order, 1972) ꯃꯔꯣꯡꯅ ꯁꯦꯝꯕ꯭ꯔꯥꯡꯅ ꯄꯤꯕ ꯍꯦꯠꯇꯣꯛꯄꯗꯥ, ꯍꯥꯌꯔꯤꯕꯅꯥ ꯑꯥꯔꯇꯤꯀꯜ 371C-ꯅꯥ ꯑꯦꯁꯇꯥꯕꯂꯤꯁ ꯇꯧꯔꯕ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ (Hill Areas Committee) ꯑꯗꯨ ꯌꯥꯎꯕ (ꯃꯇꯧꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯥꯌꯗꯨ ꯍꯦꯟꯅ)꯫ ꯍꯦꯟꯅꯕ ꯍꯦꯟꯅ꯭ꯔꯦꯟꯖꯤꯟꯄꯥꯟꯖꯤ ꯑꯦꯛꯠ, 1994 ꯑꯗꯨ "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯑꯣꯏꯗꯕꯥ ꯍꯦꯟꯅꯕ ꯂꯩꯕꯥꯛ ꯄꯨꯝꯅꯃꯛ ꯆꯠꯂꯤ" ("extends to the whole of the State of Manipur except the Hill Areas") (ꯑꯍꯦꯟꯕ ꯍꯥꯌꯗꯨ ꯍꯦꯟꯅ), ꯍꯥꯌꯔꯕ ꯑꯗꯨꯅꯥ ꯗꯤꯌꯔꯤꯚꯥꯟ ꯌꯥꯊꯪ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯣꯏꯕꯥ ꯈꯨꯗꯣꯡ ꯆꯤꯡꯒꯤ ꯃꯈꯥ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯅꯕꯥ ꯌꯥꯎꯕ, ꯑꯃꯁꯨꯡ ꯃꯥꯏ-ꯄꯥꯡꯅꯕ ꯑꯦꯛꯁꯂꯨ ꯆꯤꯡꯒꯤ ꯊꯥꯛꯇꯥ ꯄꯥꯝꯅ (NEER-ꯒꯤ ꯃꯇꯧ); ꯍꯦꯟꯅꯕ ꯌꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯣꯞꯁꯤꯟ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯦꯛꯠ, 1975 ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯕ ꯃꯔꯣꯡ ꯃꯇꯦꯡ ꯄꯥꯎꯖꯦꯜ ꯑꯦꯛꯠ, 1978 ꯑꯗꯨ ꯂꯩꯕꯥꯛ ꯄꯨꯝꯅꯃꯛ ꯆꯠꯂꯤ꯫ ꯍꯦꯟꯅꯕ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯦꯛꯠ, 1971 (Manipur (Hill Areas) District Councils Act, 1971), ꯑꯦꯍꯦꯟꯅ ꯌꯥꯊꯪ ꯍꯤꯗꯥꯛꯅ, ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯂꯁꯤꯡꯅ "ꯏꯁꯤꯡ ꯁꯞꯂꯥꯏ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯤꯇꯦꯁꯟꯒꯤ ꯁ꯭ꯀꯤꯃꯁꯤꯡ" ("water supply and sanitation schemes"), "ꯃꯦꯔꯤꯡꯁꯤꯡꯒꯤ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ, ꯔꯤꯄꯦꯌꯔ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ" ("the construction, repair and maintenance of embankments"), ꯂꯩꯍꯥꯟ ꯂꯧꯁꯤꯡ, "ꯂꯩꯃꯥꯏ ꯍꯦꯟꯅꯕ ꯑꯇꯣꯞꯄ ꯂꯧꯉꯥꯒꯤ ꯍꯦꯟꯅꯕ ꯃꯇꯦꯡꯁꯤꯡ" ("residential or other non-agricultural purposes")-ꯒꯤꯗꯃꯛ ꯃꯈꯥ ꯃꯇꯧ ꯑꯃꯁꯨꯡ, "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤꯒꯥ ꯌꯥꯅꯅ ꯋꯥꯔꯤ" ("in consultation with the Hill Areas Committee") ꯒꯠꯅꯕꯅꯥ ꯊꯃꯗꯨ ꯃꯇꯧꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ, "ꯈꯨꯂꯒꯤ ꯃꯇꯦꯡꯁꯤꯡ ꯍꯦꯟꯅꯕ ꯑꯇꯣꯞꯄ ꯀꯅꯥꯒꯨꯝꯕ ꯌꯥꯊꯪ ꯑꯃꯥ" ("village planning or any other matter") ꯌꯥꯊꯪ ꯊꯥꯕꯁꯤꯡ ꯃꯇꯧ (ꯁꯦꯛꯁꯟ 29(1), ꯍꯣꯠꯅꯕ ꯑꯅꯣꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯊꯥꯛ ꯑꯗꯨ ꯃꯍꯥꯛꯀꯤ ꯍꯦꯟꯅꯕꯗꯥꯒꯤ ꯃꯇꯧ ꯑꯃꯁꯨꯡ ꯊꯥꯖꯤꯟ ꯌꯥꯎꯗꯦ [TBC]), ꯑꯗꯨꯕꯨ ꯃꯤꯌꯥꯝꯕ ꯃꯦꯡꯈꯣꯡ ꯑꯍꯦꯟꯕ ꯃꯇꯧ꯫ 2006-ꯗ ꯍꯥꯡꯗꯣꯛꯂꯕ ꯁꯦꯛꯁꯟ 29(1A) ꯑꯁꯤꯅꯥ ꯀꯧꯟꯁꯤꯂꯁꯤꯡ ꯑꯁꯤꯕꯨ "ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇ ꯃꯇꯦꯡ ꯁꯦꯝꯕꯒꯤ ꯃꯇꯧꯗꯥꯒꯤꯗꯃꯛ ꯑꯣꯇꯣꯅꯣꯃꯁ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯀꯤ ꯃꯐꯃꯒꯤ ꯃꯁꯔꯨꯛ ꯑꯃꯥ ꯊꯥꯖꯕꯗ ꯑꯦꯔꯤꯌꯥ ꯑꯣꯏꯅꯥ ꯗꯤꯌꯔꯤꯚꯥꯟ ꯌꯥꯊ" ("notify any part of the area of the Autonomous District as urban area for the purpose of formulation of development plan") ꯌꯥꯍꯟꯒꯗꯦ, ꯗꯤꯌꯔꯤꯚꯥꯟ ꯌꯥꯒꯗꯕ ꯌꯥꯏ ꯑꯃꯅ, ꯌꯥꯏ ꯑꯗꯨ ꯃꯁꯤꯡꯗꯤ꯫; ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨꯅꯥ ꯍꯣꯠꯅꯕ ꯆꯠꯄꯗꯥ ꯑꯣꯏꯅꯥ ꯄꯥꯏꯗꯤ꯫ ꯀꯧꯟꯁꯤꯂꯁꯤꯡꯒꯤ ꯊꯥꯕꯒꯤ ꯍꯦꯝ 30 ꯄꯦꯒꯦꯃꯕꯔ 2022-ꯗ ꯄꯥꯔꯤ, ꯑꯃꯁꯨꯡ ꯒꯠꯅꯕꯅꯥ ꯐꯦꯕ 2025-ꯗ ꯆꯤꯡꯒꯤ ꯃꯇꯦ ꯌꯥꯎꯕꯗ ꯗꯥꯛꯌꯤ ꯀꯃꯤꯁꯅꯔꯁꯤꯡꯕꯨ ꯍꯥꯌꯔꯤꯕ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯔ ꯑꯣꯏꯅꯥ ꯄꯥꯏꯈꯤ (ꯃꯇꯧꯗ ꯃꯔꯣꯡꯕꯒꯤ ꯍꯦꯟꯅ ꯄꯥꯏꯗꯨ); 2022-ꯒꯤ ꯃꯔꯣꯡꯕꯒꯤ ꯑꯦꯍꯦꯟꯅꯍꯦꯟꯅꯕ ꯑꯃꯒꯤ ꯍꯦꯟꯅꯕ ꯀꯧꯟꯁꯤꯜ ꯌꯥꯎꯕ ꯂꯩꯕꯥ ꯂꯧꯕ ꯌꯥꯗꯕ ꯂꯩꯕꯥ ꯍꯥꯌꯕꯒꯤ ꯄꯥꯎꯊꯦꯞꯄꯤꯕꯤ [U]꯫

ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨꯒꯤꯗꯃꯛ ꯆꯤꯡꯒꯤ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯃꯤꯌꯥꯝꯕ ꯂꯩꯕꯥ ꯊꯥꯕꯒꯤ ꯄꯨꯟ ꯑꯍꯦꯟꯕ ꯃꯁꯤꯡꯗꯤ꯫ ꯃꯈꯥ ꯑꯗꯨꯅꯥ ꯆꯤꯡꯒꯤ ꯃꯐꯃꯁꯤꯡꯗ ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨꯅꯥ ꯂꯩꯕꯥꯛꯀꯤ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯑꯦꯖꯦꯟꯁꯤꯁꯤꯡꯅꯥ ꯌꯥꯎꯕ ꯃꯇꯦꯡꯕ ꯆꯥꯎꯈꯠꯂꯛꯄꯁꯤꯡ ꯌꯥꯎꯕ ꯌꯥꯏ, ꯍꯥꯌꯔꯤꯕ ꯍꯦꯟꯅꯗ ꯃꯈꯥꯒꯤꯁꯤꯡ, ꯊꯧꯁꯤꯡ, ꯀꯜꯚꯔꯇꯁꯤꯡ (culvert), ꯗꯔꯦꯟꯁꯤꯡ, ꯏꯁꯤꯡ ꯁꯞꯂꯥꯏ, ꯃꯦꯔꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯌꯥꯕꯒꯤ ꯊꯧꯔꯥꯡꯁꯤꯡ (ꯄꯦꯔꯥ 1.5.1(b)); ꯍꯣꯠꯅꯕ ꯄꯣꯠꯂꯝꯖꯕ ꯃꯇꯦꯡ ꯁꯥꯏꯅꯕ ꯑꯃꯥ; ꯑꯃꯁꯨꯡ, ꯍꯧꯖꯤꯛ, TPD-ꯅꯥ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯀꯤ ꯄꯥꯝꯕꯩꯁꯤꯡꯒꯤꯗꯃꯛ "ꯌꯥꯝꯅ ꯆꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯤꯡ ꯑꯄꯨꯅꯕ" ("both valley and hills") 2042-ꯒꯤ ꯍꯦꯟꯅꯒꯠꯂꯛꯄ ꯄꯥꯎꯖꯦꯜ ꯁꯦꯃꯒꯠꯅꯕ ꯍꯤꯗꯥꯛ ꯃꯇꯦꯡꯁꯤꯡ, ꯍꯥꯌꯔꯤꯕ ꯍꯥꯌꯅ ꯍꯦꯟꯅꯕ ꯑꯗꯨ ꯗꯤꯌꯔꯤꯚꯥꯟ ꯌꯥꯊꯪ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯣꯏꯕꯥ ꯑꯍꯦꯟ ꯌꯥꯎꯕ ꯌꯥꯏ꯫ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯂꯅꯥ ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨ ꯁꯦꯛꯁꯟ 29 ꯍꯥꯌꯅ ꯒꯠꯅꯕꯅꯥ ꯊꯃꯗꯨ ꯃꯇꯧ ꯌꯥꯍꯟꯕ ꯑꯃꯥ ꯑꯣꯏꯗꯨ, ꯂꯩꯕꯥꯛ ꯁꯦꯛꯁꯟ 29(1A) ꯌꯥꯎꯗꯨꯅꯥ ꯍꯦꯟꯅꯕ ꯍꯣꯠꯅꯕꯒꯤ ꯍꯥꯌꯅ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇ ꯃꯇꯦꯡ ꯑꯍꯦꯟꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯄꯥꯕ ꯌꯥꯏ꯫ ꯆꯤꯡꯒꯤ ꯃꯐꯃꯁꯤꯡꯗ ꯄꯨꯝ ꯑꯍꯦꯟꯒꯤ ꯂꯩꯕꯥ ꯈꯨꯂꯒꯤ ꯑꯍꯦꯟꯒꯤꯗꯃꯛ ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨ ꯒꯤꯟꯗꯦꯜ ꯅꯥꯎꯗꯦ꯫

ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨ ꯗꯤꯄꯥꯔꯠ ꯑꯍꯦꯟꯗꯦ: ꯂꯩꯕꯥꯛ, MAHUD, TPD, PDA Manipur, IMC, ꯍꯦꯟꯅꯗꯦꯛꯁꯥꯟ ꯀꯧꯟꯁꯤꯜ ꯂꯩꯕꯥ ꯃꯁꯥꯒꯤ ꯃꯦꯟꯆꯦꯔꯤ ꯑꯍꯦꯟꯖꯕ, ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ, ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯍꯦꯟꯖꯕ ꯂꯩꯕꯥ ꯍꯣꯠꯅꯕ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯔ, ꯂꯩꯕꯥ ꯑꯇꯣꯞꯄ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯍꯦꯟꯕꯅꯥ ꯍꯣꯠꯅ ꯄꯣꯠꯂꯝꯖꯗꯤ꯫ MoHUA-ꯅꯥ ꯐꯦꯕ 2026-ꯗ ꯃꯦꯠꯄꯥꯔꯦꯍꯦꯟꯅꯕꯒꯤ ꯁꯍꯥꯒꯤ ꯏꯁꯤꯡ ꯏꯌꯥꯕ ꯑꯗꯨ "ꯂꯩꯕꯥꯛ ꯂꯩꯕꯥꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ULB-ꯁꯤꯡꯒꯤ ꯊꯥꯕꯒꯤ ꯍꯦꯜꯅꯗ ꯂꯩ" ("falls under the purview of the State Governments and the ULBs") ꯍꯥꯌꯔꯕ ꯍꯥꯌꯔꯤ ꯑꯃꯁꯨꯡ CPHEEO ꯍꯦꯜꯅꯦꯟ ꯑꯗꯨ "ꯑꯦꯗꯚꯥꯏꯖꯔꯤ ꯒꯥꯏꯗꯂꯥꯏꯟꯁ" ("advisory guidelines")-ꯒꯤ ꯍꯦꯜꯅꯗ ꯄꯤꯂꯝ ꯌꯥꯔꯤ (Lok Sabha AU1847)꯫ ꯃꯈꯥ ꯑꯗꯨꯅꯥ ꯍꯦꯟꯅꯕ ꯌꯥꯏꯕ ꯂꯩꯕꯥꯛꯇꯥꯛꯁꯤꯡ ꯄꯣꯠꯂꯝꯕ ꯂꯩꯕꯥꯛ ꯁꯦꯝꯒꯠꯅꯕꯒꯤ ꯑꯦꯛꯁꯞꯂꯦꯟ ꯍꯧꯖꯤ ꯌꯥꯎ꯫

> CPHEEO-ꯒꯤ ꯇꯦꯕꯜ 4.1-ꯒꯤ Note 2 (§4.4.1.4)-ꯗ "ꯁ꯭ꯇꯦꯠ/UT ꯁꯔꯀꯥꯔꯅ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ ꯁꯦꯃꯒꯠꯂꯕ ꯍꯥꯏ-ꯄꯥꯋꯔꯗ ꯀꯃꯤꯇꯤ ꯑꯃ" ("a high powered committee constituted by State/UT Government through a notification") ꯍꯥꯏꯅ ꯄꯅꯕ ꯑꯁꯤ ꯃꯤꯌꯥꯝꯗ ꯐꯪꯍꯅꯕ ꯇꯥꯏ꯫ ꯀ꯭ꯂꯣꯖ 1.3.2-ꯗ ꯇꯥꯛꯂꯤꯕ ꯑꯗꯨꯒꯨꯝꯅ, ꯃꯅꯤꯄꯨꯔ ꯑꯁꯤꯒꯤ ꯂꯦꯡꯁꯤꯟꯂꯕꯗ ꯍꯥꯏꯕ ꯀꯃꯤꯇꯤ ꯂꯩꯕꯒꯤ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯁꯤ ꯂꯧꯁꯤꯟꯕꯒꯤ ꯃꯊꯧ ꯇꯥꯔꯤ꯫

1.4 ꯁꯦꯡꯗꯣꯛꯄꯁꯤꯡ

1.4.1 ꯃꯁꯤꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯋꯥꯍꯩꯁꯤꯡ ꯑꯁꯤ ꯃꯇꯧ ꯑꯁꯤ ꯁꯨꯃꯍꯠꯂꯤ꯫ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯋꯥꯍꯩ ꯑꯗꯨ ꯂꯣꯛꯇꯥꯛ ꯇꯨꯔꯦꯜꯃꯤꯠꯀꯤ ꯁꯦꯡꯗꯣꯛꯄ ꯑꯣꯏꯅ (ꯌꯦꯡꯕ ꯑꯦꯅꯦꯛꯁ 2.2)꯫

ꯋꯥꯍꯩ	ꯃꯔꯨꯑꯣꯏꯕ ꯋꯥꯐꯝ ꯑꯔꯊ
ꯑꯦꯞꯔꯨꯚꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ (Approving Authority; ꯑꯣꯊꯣꯔꯤꯇꯤ)	ꯁꯦꯝꯒꯠꯄꯒꯤ ꯊꯕꯛꯁꯤꯡ ꯁ꯭ꯇꯦꯇꯀꯤ ꯁꯔꯀꯥꯔꯗ, ꯕꯤꯜꯗꯤꯡ ꯁꯔꯀꯥꯔꯒꯤ ꯅꯠꯔꯒꯥ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯦꯞꯔꯨꯚꯦꯜ ꯄꯤꯕ, ꯅꯠꯔꯒꯥ ꯁꯔꯀꯥꯔꯒꯤ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ ꯇꯦꯕ ꯕꯦꯡ: ꯃꯗꯨ ꯑꯣꯏꯔꯤꯕ ꯃꯁꯤꯡꯗꯨꯒꯤ ꯑꯣꯊꯣꯔꯤꯇꯤ: ꯍꯧꯖꯤꯛ ꯅꯤꯡꯊꯧ ꯕꯦꯡ ꯑꯃꯁꯤ ꯃꯇꯝꯗ, ꯕꯤꯜꯗꯤꯡ ꯁꯔꯀꯥꯔꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯄꯥꯎꯖꯦꯜ ꯑꯃꯁꯨꯡ ꯊꯕꯛꯂꯤꯕꯁꯤꯡꯗ, ꯃꯅꯤꯄꯨꯔ ꯃꯅꯤꯄꯨꯔ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏꯂꯥꯖ, 2024-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯃꯇꯤꯛ ꯄꯨꯔꯀꯄꯤꯔꯤꯕ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯖ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁ ꯑꯦꯛꯇ, 1994 ꯃꯈꯥꯗ, ꯕꯥꯏ ꯑꯃ (ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC), ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯥꯎꯟꯁꯤꯜ (Municipal Council) ꯑꯃꯁꯨꯡ ꯅꯠꯔꯒꯥ ꯅꯒꯔ ꯄꯟꯆꯥꯌꯠ (Nagar Panchayat) ꯑꯃꯁꯨꯡ); ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯒꯤ ꯂꯃꯗꯝꯁꯤꯡ ꯃꯄꯥꯟꯗ ꯂꯩꯕ ꯃꯤꯌꯥꯃꯒꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯗꯤꯚꯦꯂꯞ ꯇꯧꯕ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ, ꯃꯅꯤꯄꯨꯔ ꯇꯧꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯇ, 1975 ꯃꯈꯥꯗ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯚꯦꯂꯄꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (PDA Manipur) (ꯃꯥꯏꯀꯤ ꯁꯦꯛꯁꯟ 2(2)); ꯑꯣꯅꯂꯥꯏꯟ ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ (OBPS) ꯕꯤꯜꯗꯤꯡ ꯄ꯭ꯂꯥꯟ ꯑꯃꯁꯨꯡ ꯃꯤꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯒꯤ ꯊꯕꯛ-ꯄ꯭ꯔꯣꯁꯦꯁ ꯌꯥꯕ ꯇꯧꯕ ꯃꯇꯤꯛ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Town Planning Department, TPD); ꯃꯅꯤꯄꯨꯔ ꯃꯈꯥ ꯂꯩꯕ ꯑꯦꯛꯇꯀꯤ ꯃꯈꯥꯗ ꯊꯧꯒꯜ, ꯍꯤꯗꯥꯛ ꯍꯤꯔꯝ ꯌꯥꯎꯕ, ꯃꯈꯥꯗ ꯅꯠꯔꯒꯥ ꯁꯔꯀꯥꯔꯒꯤ ꯊꯧꯗꯥꯡ ꯑꯦꯛꯇꯀꯤ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗ, ꯂꯧꯕꯨꯛ ꯅꯠꯔꯒꯥ ꯃꯇꯨꯡ ꯂꯩꯕ ꯄꯥꯎꯖꯦꯜ ꯊꯕꯛ ꯄꯥꯝꯕꯩ ꯊꯕꯛꯀꯤ ꯁꯤꯡꯒꯤ ꯋꯣꯇꯔ ꯔꯤꯁꯣꯔꯁꯦꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Water Resources Department, WRD) (ꯂꯩꯕꯥꯛꯀꯤ ꯁꯔꯀꯥꯔꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯔꯤ ꯂꯩꯅꯕ); ꯏꯁꯤꯡ ꯇꯨꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩ ꯌꯦꯡꯕ ꯃꯇꯝꯗ (ꯑꯃꯁꯨꯡ ꯌꯦꯡꯂꯤ), ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯇ, 1978 ꯃꯈꯥꯗ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ (Flood Zoning Authority); ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯁꯣꯏꯗꯅ ꯊꯝꯕ) ꯑꯦꯛꯇ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯐꯃꯗ ꯂꯣꯛꯇꯥꯛ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ (Loktak Development Authority, LDA) (ꯂꯣꯛꯇꯥꯛ 20 ꯃꯈꯥꯗ ꯃꯇꯝꯗ ꯁꯦꯝꯒꯠꯄ ꯁꯔꯀꯥꯔꯗ); ꯃꯅꯤꯄꯨꯔ ꯋꯦꯇꯂꯦꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯝꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯗꯝ ꯑꯦꯛꯇ, 2014 ꯃꯈꯥꯗ ꯁꯦꯝꯕ ꯅꯠꯔꯒꯥ ꯄꯥꯟꯗꯝꯗ ꯍꯥꯏꯕ ꯀꯃꯤꯇꯤꯁꯤꯡꯗ ꯂꯩꯕ, ꯑꯣꯏꯕꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯕꯥꯛ ꯂꯦꯚꯦꯂꯒꯤ ꯀꯃꯤꯇꯤꯁꯤꯡ (Local, District and State Level Committees); ꯋꯦꯇꯂꯦꯟꯗꯁ (ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ) ꯔꯨꯜꯁ, 2017 (Wetlands (Conservation and Management) Rules, 2017) ꯃꯈꯥꯗ ꯁꯦꯃꯒꯠꯄ ꯋꯦꯇꯂꯦꯟꯗꯁ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯂꯩꯕꯥꯛ ꯋꯦꯇꯂꯦꯟꯗꯁ ꯑꯣꯊꯣꯔꯤꯇꯤ (MSWA) (ꯁꯦꯝꯒꯠꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥꯡ ꯂꯧꯕ); ꯑꯃꯁꯨꯡ, ꯄꯥꯝꯕꯩꯒꯤ ꯇꯥꯛꯄꯗ, ꯄꯕ꯭ꯂꯤꯛ ꯋꯥꯔꯀꯁ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯑꯃꯁꯨꯡ ꯌꯥꯕ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (ꯄꯕ꯭ꯂꯤꯛ ꯋꯥꯔꯀꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Public Works Department, PWD), ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Public Health Engineering Department, PHED), WRD ꯅꯠꯔꯒꯥ ꯑꯦꯡꯒꯦꯖ ꯊꯕꯛꯀꯤ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ) ꯑꯃꯁꯨꯡ, ꯑꯦꯡꯒꯦꯖ ꯄꯥꯝꯕꯩ ꯁꯦꯝꯒꯠꯄꯒꯤ ꯑꯃꯁꯨꯡ, ꯃꯅꯤꯄꯨꯔꯗ ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯥꯎꯟꯁꯤꯜ ꯑꯦꯛꯇ, 1971-ꯒꯤ ꯂꯣꯛꯇꯥꯛ 29 ꯃꯈꯥꯗ ꯁꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛ ꯊꯧꯗꯥꯡ ꯃꯇꯝ ꯅꯠꯔꯒꯥ ꯀꯥꯎꯟꯁꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯃꯇꯝꯗ ꯌꯥꯝꯅ (ꯁꯦꯝꯒꯠꯂꯕ ꯌꯦꯡꯂꯤ), ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯥꯎꯟꯁꯤꯜ ꯅꯠꯔꯒꯥ ꯃꯇꯤꯛ ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡꯒꯤ, ꯁꯔꯀꯥꯔꯒꯤ ꯃꯈꯥꯗ, ꯅꯠꯔꯒꯥ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛ ꯊꯧꯗꯥꯡ ꯂꯧꯕ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ ꯑꯃ꯫
ꯑꯦꯞꯔꯨꯚꯦꯜ	ꯑꯦꯞꯔꯨꯚꯦꯜ ꯄꯤꯕ ꯍꯥꯏꯕ ꯃꯇꯝ, ꯁꯦꯝꯒꯠꯄꯒꯤ ꯅꯠꯔꯒꯥ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ, ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏꯒꯤ ꯃꯇꯨꯡ ꯃꯇꯝ ꯑꯦꯞꯔꯨꯚꯦꯜ ꯄꯤꯕꯒꯤꯅꯤ꯫
ꯁꯦꯝꯒꯠꯄꯒꯤ	ꯃꯅꯤꯄꯨꯔ ꯃꯅꯤꯄꯨꯔ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯖ 2024 ꯃꯈꯥꯗ ꯑꯦꯞꯔꯨꯚꯦꯜ ꯃꯊꯧ ꯇꯥꯕ, ꯅꯠꯔꯒꯥ ꯄꯕ꯭ꯂꯤꯛ ꯋꯥꯔꯀꯁ ꯑꯣꯏꯕ ꯇꯧꯕ ꯃꯇꯤꯛ ꯕꯤꯜꯗꯤꯡ, ꯇꯥꯛꯂꯕ, ꯂꯦꯝ-ꯑꯦꯔꯤꯌꯥ, ꯇꯧꯕ, ꯁꯦꯝꯕ ꯅꯠꯔꯒꯥ ꯊꯕꯛ-ꯄ꯭ꯔꯣꯁꯦꯁ ꯍꯧꯗꯣꯛꯄ꯫
ꯗꯤꯁꯦꯝꯒꯠꯄꯒꯤ	ꯏꯝꯄꯔꯚꯤꯌꯁ ꯀꯚꯔ (impervious cover) ꯍꯦꯅꯒꯠꯍꯟꯕ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯕ ꯁꯦꯝꯒꯠꯄꯒꯤ꯫
ꯂꯝ ꯂꯣꯠꯍꯟꯕ (land disturbance)	ꯂꯝ ꯂꯧꯁꯤꯟꯕ, ꯀꯣꯛꯄ, ꯌꯥꯎꯕ, ꯊꯥꯕ ꯌꯥꯕ ꯅꯠꯔꯒꯥ ꯁꯦꯝꯕ ꯌꯥꯕ, ꯃꯇꯝ ꯃꯈꯥꯗ ꯑꯦꯛ ꯁꯦꯝꯒꯠꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯈꯥꯗ ꯑꯦꯔꯤꯌꯥ ꯊꯥꯕ (ꯑꯦꯅꯦꯛꯁ 1.5.5)꯫
ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ (impervious area)	ꯂꯝꯕꯤꯁꯤꯡ, ꯁꯦꯝꯕ, ꯀꯟꯀ꯭ꯔꯤꯠ ꯍꯦꯡꯁꯤꯟ, ꯁꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯌꯥꯗꯕ ꯑꯦꯡꯒꯦꯖ ꯃꯐꯝꯁꯤꯡ꯫ ꯂꯣꯛꯇꯥꯛ 8 ꯃꯈꯥꯗ ꯂꯩꯕ ꯑꯣꯏꯕ ꯁꯦꯝꯒꯠꯄꯒꯤ ꯁꯦꯝꯕ ꯃꯇꯤꯛ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯌꯥꯕ ꯁꯦꯝꯒꯠꯄ ꯑꯣꯏꯕ ꯂꯩ꯫

ꯋꯥꯍꯩ	ꯃꯦꯄꯨꯔꯦꯜ ꯑꯁꯤꯕ ꯑꯔꯊ
ꯑꯇꯩꯕ ꯍꯌꯕꯒꯤ ꯄꯥꯝꯕꯩꯗꯕ ꯅꯐꯝꯗꯒꯤꯔꯛ ꯑꯦꯕꯤꯔꯦ	ꯃꯦꯒꯦꯇꯥꯆꯍꯦꯌ ꯑꯁꯨꯅ ꯑꯇꯩꯅ ꯂꯦꯐꯕ, ꯍꯌꯕꯒꯤ ꯂꯕꯒꯥꯒꯦꯃ ꯏꯑꯥꯕ ꯇꯩꯊꯥꯄꯨꯅ ꯑꯃꯨꯛ ꯄꯋꯅ ꯂꯥꯕ ꯅꯐꯝꯗꯒꯤꯔꯛ ꯑꯦꯕꯤꯔꯦ꯫ ꯕꯦꯇ ꯍꯏꯐ ꯑꯃꯨꯃ ꯊꯐꯇꯒ ꯌꯩꯕ ꯕꯤꯂꯕꯏꯦꯂꯤꯗ ꯑꯂꯤ "ꯄꯥꯗꯃꯥꯑꯇꯕ" ("replaced") ꯍꯌꯌꯦ꯫
ꯕꯤꯌꯦꯟꯂꯟ (Retention)	ꯅꯟꯏꯤꯔꯌꯕꯦꯂꯟ, ꯑꯃꯨꯛ ꯄꯟꯅ ꯂꯤꯇꯤꯟꯅꯕ ꯍꯌꯕꯒꯤ ꯅꯒꯦꯀꯥꯌꯕꯟꯂꯀꯤꯕꯦꯂꯅꯒꯤ ꯄꯨꯌꯊꯗꯃ ꯂꯅꯌꯌꯨ ꯅꯕꯐ ꯂꯤꯂꯌꯦꯐꯃꯒꯤ ꯕꯟꯑꯥꯏ ꯅꯦꯀꯌꯅ ꯇꯥꯊꯥꯗꯀ (ꯁꯔꯨꯛ 4)꯫
ꯗꯤꯌꯦꯟꯂꯟ (Detention)	ꯗꯟꯌꯕꯥꯔ ꯌꯦꯕꯕ ꯑꯦꯁꯌꯅꯦꯌ ꯑꯃꯒꯤ ꯅꯥꯎꯅꯅ ꯕꯟꯑꯥꯏ ꯃꯌꯐ ꯅꯕꯒꯤ ꯂꯌꯥꯕ ꯌꯦꯕ, ꯅꯥꯗ ꯄꯨꯕꯒꯤ ꯊꯦꯗꯥꯛ ꯑꯃꯨꯒꯤ ꯃꯌꯨꯗꯀ ꯃꯄꯨꯌ ꯂꯤꯟꯗꯥꯛꯅꯕ (ꯁꯔꯨꯛ 4)꯫
ꯅꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯥꯝꯖꯤꯟꯕ (RWH)	RWH ꯃꯦꯟꯗꯦꯌ ꯃꯍꯦꯗ ꯂꯀꯅꯦꯏ ꯍꯌꯕꯒꯤ ꯕꯤꯑꯦꯕꯅꯗꯤꯗꯃꯛ ꯅꯥꯗ ꯄꯥꯃꯅꯤꯟꯕ꯫ ꯁꯔꯨꯛ 4-ꯗ ꯑꯄꯦꯕ ꯀꯤꯗꯨꯕꯗꯤ RWH ꯂꯌꯥꯕꯦꯅ ꯑꯂꯤ ꯕꯤꯌꯦꯟꯂꯟ ꯍꯌꯌꯦ꯫
ꯃꯤꯅꯟꯕ ꯂꯤꯂꯌꯦꯐ (minor system)	ꯁꯔꯨꯛ 6-ꯒꯤ ꯃꯤꯅꯟꯕ-ꯂꯤꯂꯌꯦꯐ AEP-ꯒꯤꯗꯃꯛ ꯗꯤꯅꯦꯟꯕ ꯌꯦꯕꯕ ꯄꯥꯗꯕꯦꯂꯤꯗ, ꯀꯤꯅꯀꯂꯤꯗ ꯑꯃꯂꯨꯗ ꯅꯦꯟꯅꯦꯌꯂꯤꯗ꯫
ꯃꯦꯔꯕ ꯂꯤꯂꯌꯦꯐ (major system)	1% AEP (100-yr)-ꯒꯤ ꯏꯟꯥ ꯀꯨꯕ ꯑꯥꯒꯕꯅꯦꯕꯗ ꯑꯃꯂꯨꯗ ꯏꯟꯗꯌꯦꯒꯤ (floodway) ꯅꯐꯕꯤ (ꯁꯔꯨꯛ 6)꯫
ꯗꯦꯒꯦꯅꯀꯃꯦꯕꯌꯗꯤ ꯃꯃꯤꯗꯒꯤ ꯏꯤꯒꯐ	ꯒꯨꯕꯤꯕꯏꯤꯅꯗ: ꯃꯦꯀ ꯌꯥꯕꯕ ꯄꯥꯅꯗꯨꯕꯥꯅꯟꯤꯗ ꯂꯥꯅꯅ ꯒꯨꯀꯗꯤꯗꯃꯛ ꯑꯏꯕ ꯏꯤꯒꯐꯗ ꯅꯥꯕ ꯄꯥꯗꯗꯥꯗꯅꯕ ꯅꯐ꯫ ꯅꯕꯤꯕ ꯅꯐꯀꯕꯒꯤꯔꯀ ꯗꯒꯕ ꯊꯤꯗꯦ (ꯁꯔꯨꯛ 3)꯫
ꯅꯂꯤꯗ ꯅꯌꯤꯗ ꯂꯦꯕꯂꯤꯌꯒ ꯑꯥꯅꯕ ꯗꯦꯌꯃꯦꯕꯌ (flood-sensitive catchment)	ꯒꯨꯕꯦꯌꯕ ꯅꯐꯏꯅꯒꯤ ꯅꯨꯌꯊꯗꯗ ꯌꯦꯕꯕ ꯅꯐꯕꯨꯅ ꯌꯨꯕꯦꯅꯒꯤ ꯗꯦꯌꯃꯦꯕꯌꯂꯤꯗ, ꯅꯒꯥ ꯅꯨꯅꯅꯥ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯂꯦꯅ ꯃꯥꯕꯤꯅ (Waisel Maril) ꯌꯦꯅꯦꯅꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯗ ꯌꯦꯕꯊꯕꯗꯀ ꯄꯥꯗꯕꯦꯕ 72-ꯒꯤ ꯅꯥꯎꯅꯅ; ꯅꯐꯏꯅꯒꯤ ꯅꯨꯌꯊꯗꯗ ꯌꯦꯕꯕ ꯅꯐꯏꯅ ꯌꯨꯕꯦꯅꯒꯤ; ꯅꯐꯏꯦꯅꯀꯩꯌ ꯕꯦꯂꯤꯕꯒꯤ, ꯃꯂꯤꯒꯤ ꯂꯃꯨꯂꯤꯗ ꯅꯥꯅꯥ (Shamushang nallah) ꯅꯨꯌꯊꯗꯗ ꯅꯐꯕꯨꯅ ꯌꯨꯕꯦꯅꯗ ꯀꯐꯀꯅꯥ ꯊꯗꯥꯗꯀ ꯑꯦꯁꯌꯅꯦꯌꯗꯤ ꯅꯥꯎꯅꯅ; ꯅꯐꯏꯅ ꯅꯂꯨꯌꯗꯤ (Imphal East) ꯗꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯅꯕꯤꯅ ꯗꯥꯕꯤꯗꯥꯕꯂꯤꯗꯒꯤ; ꯃꯀꯤꯊꯦꯅ ꯗꯦꯐꯒꯤ ꯃꯍꯦꯗ ꯊꯕꯦꯅ ꯌꯨꯕꯦꯅꯗ ꯅꯕ ꯊꯕꯦꯅꯒꯤ; ꯅꯥꯗꯌꯦꯗꯗꯤ ꯃꯅꯥꯗ, ꯃꯥꯅꯕꯥꯗ, ꯅꯤꯗꯊꯥꯅꯥꯗ, ꯊꯉꯥ (Thanga), ꯑꯃꯁꯨꯡ ꯌꯗꯀꯤꯒꯤ (Chakpi) ꯕꯦꯗꯌꯌꯕꯒꯤ ꯅꯥꯎꯅꯅ ꯅꯊꯅ–ꯅꯒꯨꯉꯨ–ꯋꯥꯡꯒꯨ (Wangoo); ꯅꯐꯕꯥꯅ ꯑꯃꯁꯨꯡ ꯅꯐꯕꯨꯅ ꯌꯨꯕꯦꯅꯂꯤꯗꯗ ꯅꯕ ꯅꯐꯕꯥꯅ ꯑꯃꯁꯨꯡ ꯕꯤꯂꯨꯀꯨꯕꯒꯤ; ꯂꯦꯗꯃꯅ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯡ (Wangjing) ꯌꯨꯕꯦꯅꯂꯤꯗꯗ ꯅꯕ ꯗꯗꯌꯤꯗ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯗꯒꯤ; ꯕꯕꯥꯗ ꯑꯃꯁꯨꯡ ꯅꯤꯕꯤꯗ ꯅꯕ ꯅꯤꯕꯤꯕꯐꯒꯤ; ꯑꯃꯁꯨꯡ ꯅꯦꯕꯗꯂꯅꯅꯗ ꯅꯗꯀ ꯅꯃꯅꯗ ꯅꯕ ꯌꯤꯗꯒꯤ ꯌꯦꯕꯕꯦꯂꯤꯗ, ꯅꯥꯅꯦ (ꯌꯨꯀꯨꯅ), ꯌꯦꯃꯦꯗꯅꯥꯗ, ꯌꯥꯕꯗꯦꯅ ꯑꯃꯁꯨꯡ ꯗꯤꯗꯀꯥꯗꯀꯤꯒꯤ, ꯑꯃꯁꯨꯡ ꯑꯥꯊꯥꯕꯤꯌꯤꯅꯥ ꯅꯥꯌꯤꯏꯅ ꯌꯦꯕ ꯗꯕꯤꯒꯨꯐꯕ ꯗꯦꯌꯃꯦꯕꯌ ꯑꯃꯦ (ꯁꯔꯨꯛ 4; ꯑꯄꯦꯕꯕ 1B)꯫
ꯅꯂꯤꯗ ꯅꯏꯐ (waterbody)	ꯌꯨꯕꯦꯅ, ꯅꯥꯗ, ꯗꯦꯅꯦꯅ, ꯀꯨꯈ꯭ꯔꯤ (tank, pukhri), ꯅꯦꯗ, ꯀꯥꯕꯅ, ꯃꯕꯂ, ꯂꯀꯅꯦꯅ ꯌꯦꯅꯦꯅ ꯍꯌꯕꯒꯤ ꯂꯕꯀꯅꯂ ꯗꯥꯕꯂ ꯑꯃꯦ, ꯌꯄꯤ ꯀꯨꯐꯕꯅ ꯅꯕꯕ ꯍꯌꯕꯒꯤ ꯃꯌꯐ ꯅꯕꯅ ꯅꯕꯕ (ꯁꯔꯨꯛ 7)꯫
ꯕꯤꯅꯅꯦꯅ ꯏꯦꯂꯤꯅꯤꯌꯤ	ꯕꯦꯂꯤꯕ ꯀꯅꯦꯕ ꯑꯃꯒꯤ ꯃꯍꯦꯗ ꯂꯕ ꯍꯌꯕꯒꯤ ꯑꯃꯨꯛ ꯄꯟꯅ ꯂꯦꯐꯕꯦꯗꯀ, ꯗꯦꯒꯦꯅꯀꯦꯕꯌ ꯑꯃꯗꯒꯤ ꯄꯕꯗꯒꯤ ꯂꯦꯕ ꯌꯦꯕ ꯗꯤꯌꯦꯟꯂꯟ, ꯕꯤꯌꯦꯟꯂꯟ ꯍꯌꯕꯒꯤ ꯀꯨꯀꯨꯕꯤꯒꯤ ꯂꯌꯥꯕꯦꯅ ꯏꯦꯂꯤꯅꯤꯌꯤ ꯑꯃꯦ (ꯁꯔꯨꯛ 4)꯫
ꯌꯤꯗꯕ A / ꯌꯤꯗꯕ B ꯑꯊꯥꯕꯤꯌꯤ	ꯗꯅꯥꯅ 1.6 ꯃꯍꯦꯗ ꯊꯗ ꯌꯦꯗꯕꯕ ꯑꯀꯨꯒꯤꯗ ꯑꯊꯥꯕꯤꯌꯤ ꯑꯃꯦ꯫
ꯀꯥꯅꯤꯗ ꯂꯀꯅꯤꯃꯦꯕꯌ (policy supplement)	ꯗꯅꯥꯅ 1.7 ꯑꯃꯁꯨꯡ ꯑꯄꯦꯕꯕ 1C-ꯗ ꯅꯕ ꯅꯥꯂꯤꯕꯕ ꯌꯦꯕ ꯑꯌꯥꯀꯀ ꯗꯅꯥꯅꯂꯤꯗꯒꯤ ꯂꯦꯌ꯫
ꯅꯕꯐ ꯕꯤꯀꯥꯕꯌ	ꯁꯔꯨꯛ 10-ꯗ ꯃꯊꯥ ꯌꯦꯕ ꯀꯨꯕꯤꯅꯤꯃꯤꯅꯕꯤ ꯍꯌꯕꯒꯤ ꯏꯅꯦꯅ ꯕꯤꯀꯥꯕꯌ꯫
ꯕꯦꯅꯤꯂꯨꯕ ꯌꯦꯕꯕ ꯀꯨꯕꯥꯏꯦꯂꯦꯅ	ꯃꯕꯤ ꯅꯕꯅꯕ ꯀꯨꯅꯦꯕꯂꯤꯗ ꯂꯦꯃꯅꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯅꯦ ꯌꯦꯅꯕ ꯃꯦꯗꯅꯥꯅ ꯃꯅꯤꯀꯨꯕ ꯑꯨꯅꯤꯏꯅꯗ ꯕꯤꯅꯗꯤꯗ ꯕꯅ-ꯅꯥꯅ 2024 ꯃꯍꯦꯗ ꯕꯦꯅꯤꯂꯨꯕ ꯌꯦꯕꯕ ꯃꯤꯗꯥꯅ ꯑꯃꯦ, ꯗꯅꯥꯅ 10.6-ꯗ ꯃꯊꯥ ꯌꯦꯕ ꯑꯄꯦꯕꯕ ꯗꯌꯤꯅꯏꯤꯗꯦꯂꯦ ꯑꯃꯦ ꯅꯕꯕꯗꯤ ꯃꯂꯨꯒꯤ ꯅꯥꯎꯅꯅ꯫
ꯗꯐꯀꯅꯦꯅꯌꯦꯂ ꯗꯦꯅꯗꯅꯌꯕ	ꯗꯐꯀꯅꯦꯅꯌꯦꯂ ꯗꯦꯅꯗꯅꯦꯌ ꯌꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯕꯤꯀꯥꯕꯌ ꯌꯦꯅꯕ ꯂꯌꯥꯌꯦꯗ ꯀꯤꯕ ꯌꯨꯅ (ꯗꯅꯥꯅ 10.5)꯫
ꯃꯦꯂꯌꯦꯅꯦꯂ ꯗꯤꯗꯅꯦꯕꯦꯂ	ꯃꯀꯨ ꯑꯃꯗꯒ ꯅꯥꯗꯒꯤ ꯅꯂꯤꯗꯒꯤ ꯏꯦꯂꯤꯅꯤꯌꯤ ꯑꯃꯦ ꯃꯦꯂꯌꯦꯅꯦꯂ ꯌꯦꯅꯕ ꯕꯦꯅꯤꯂꯨꯕ ꯌꯦꯕꯕ ꯌꯤꯂꯗ (ꯗꯅꯥꯅ 10.10)꯫

ꯋꯥꯍꯩ	ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯔꯊ
ꯚꯦꯔꯤꯌꯦꯟꯁ (variance)	ꯃꯇꯤꯡꯒꯤ ꯃꯊꯧ ꯌꯥꯕ ꯑꯃꯁꯨꯡꯒꯤ ꯌꯥꯊꯪ ꯍꯣꯠꯅꯕ ꯑꯌꯥꯕ, ꯃꯦꯇꯣꯕ ꯂꯥꯎꯊꯣꯛꯄꯒꯤ ꯊꯧꯗꯣꯛ (ꯅꯤꯌꯝ 1.10)꯫
ꯋꯦꯚꯔ (waiver)	ꯅꯤꯌꯝ 1.10-ꯗ ꯌꯥꯕ ꯃꯔꯃꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ, ꯃꯊꯧ ꯌꯥꯕ ꯑꯃꯅ ꯑꯍꯥꯅꯕ ꯍꯣꯠꯅꯕ ꯄꯤꯕ ꯑꯌꯥꯕꯥ꯫
ꯗꯦꯚꯦꯂꯞ ꯃꯦꯟꯇ	ꯌꯨꯝꯕꯤ ꯁꯦꯝꯒꯠꯄ ꯂꯩꯕꯥꯛ ꯁꯤꯡꯒꯤ ꯊꯕꯛꯁꯤꯡꯒꯤ ꯄꯥꯡꯊꯣꯛꯄꯥ ꯃꯍꯩꯌꯥꯏꯒꯤ ꯃꯇꯦꯡ ꯄꯥꯡꯕ ꯂꯝ꯫
ꯃꯆꯥ ꯑꯊꯣꯛꯄꯥ ꯃꯍꯥꯛꯀꯤ ꯑꯊꯣꯔꯤꯇꯤ	ꯃꯆꯥ ꯑꯊꯣꯛ ꯍꯦꯟꯅꯕ ꯄꯨꯋꯥꯔꯤꯃꯆꯥꯁꯤꯡ ꯃꯅꯥ ꯑꯃꯠꯇ ꯑꯊꯣꯛꯄꯥ ꯂꯩꯃꯍꯧꯒꯤ ꯂꯩꯕ, ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯑꯊꯣꯛ ꯑꯍꯦꯟꯕ ꯂꯩꯕ ꯄꯨꯝꯅꯃꯛ: ꯁꯍꯔꯒꯤ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯆꯥꯃꯆꯥ, ꯕꯤꯜꯗꯤꯡ ꯂꯩꯃꯍꯧ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯡꯒꯤ ꯄꯨꯋꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯑꯊꯣꯛꯄꯁꯤꯡꯒꯤꯗꯃꯛ, ꯃꯇꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024-ꯒꯤ ꯃꯈꯥ ꯄꯥꯔꯦ ꯃꯇꯤꯡꯒꯤ ꯍꯦꯟꯅꯥꯈꯤꯕ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 ꯃꯈꯥꯗ, ꯕꯥꯛ ꯑꯃ (ꯏꯝꯐꯥꯜ ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC), ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯥꯎꯟꯁꯤꯜ (Municipal Council) ꯑꯃꯁꯨꯡ ꯅꯠꯔꯒꯥ ꯅꯒꯔ ꯄꯟꯆꯥꯌꯠ (Nagar Panchayat) ꯑꯃꯁꯨ); ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯂꯤꯃꯤꯠꯁꯤꯡꯗ ꯃꯄꯥꯟꯗ ꯌꯥꯕ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯗꯦꯚꯦꯂꯞ ꯃꯦꯟꯇ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ, ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 ꯃꯈꯥꯗ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (PDA Manipur) (ꯃꯇꯦꯡꯒꯤ ꯕꯥꯏ-ꯂꯣ 2(2)); ꯑꯣꯅꯂꯥꯏꯟ ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ (OBPS) ꯕꯤꯜꯗꯤꯡ ꯄ꯭ꯂꯥꯟ ꯑꯃꯁꯨ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯒꯤ ꯋꯥꯐꯃꯁꯤꯡꯒꯤ ꯇꯥꯎꯟ-ꯄ꯭ꯂꯥꯟꯅꯤꯡ ꯋꯥꯡ ꯁꯦꯝꯕ ꯁꯍꯔ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Town Planning Department, TPD); ꯃꯇꯤꯡꯒꯤ ꯃꯍꯩ ꯑꯣꯏꯅꯕ ꯊꯃꯖꯤꯕ ꯁꯨꯞꯅꯒꯤ ꯄꯥꯟ, ꯍꯠꯄ ꯍꯋꯥꯏꯒꯤ ꯋꯥꯡꯅ, ꯁꯨꯞꯅ ꯅꯠꯔꯒꯥ ꯄꯊꯥꯞꯀꯤ ꯊꯧꯗꯥꯡ ꯑꯣꯐꯤꯁꯔꯁꯤꯡ ꯑꯃꯒꯤ ꯃꯊꯛꯇ, ꯁꯤꯡꯊꯥꯕꯗ ꯅꯠꯔꯒꯥ ꯃꯂꯦꯝꯗ ꯁꯦꯝꯕ ꯂꯩꯕꯥꯛꯀꯤ ꯊꯕꯛ ꯑꯃꯒꯤꯗꯃꯛ ꯋꯥꯌꯦꯜ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Water Resources Department, WRD) (ꯌꯨꯝꯐꯝꯗ ꯄꯥꯡꯒꯤ ꯑꯣꯏꯅ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅꯕꯤ); ꯍꯧꯗ ꯂꯦꯡ ꯑꯃꯁꯨ ꯗꯦꯚꯦꯂꯞ ꯃꯦꯟꯇ ꯃꯆꯥꯃꯆꯥ (ꯑꯃꯁꯨꯡ ꯁꯦꯝꯃꯗ), ꯃꯅꯤꯄꯨꯔ ꯍꯧꯗ ꯄꯥꯡꯂꯦ ꯂꯦꯡꯒꯤ ꯑꯦꯛꯠ, 1978 ꯃꯈꯥꯗ ꯍꯧꯗ ꯂꯦꯡꯒꯤ ꯑꯊꯣꯔꯤꯇꯤ (Flood Zoning Authority); ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯄꯨꯡꯗ ꯂꯣꯛꯇꯥꯛ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯊꯣꯔꯤꯇꯤ (Loktak Development Authority, LDA) (ꯁꯦꯛꯁꯟ 20 ꯃꯈꯥꯗ ꯃꯃꯤꯡ ꯂꯧꯈꯗꯕ ꯄꯥꯝꯃꯤꯡꯁꯤ); ꯃꯅꯤꯄꯨꯔ ꯀꯟꯖꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯥꯠꯁꯤꯡ ꯂꯦꯛ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014 ꯃꯈꯥꯗ ꯂꯧꯕꯨꯛ ꯅꯠꯔꯒꯥ ꯋꯦꯠꯂꯦꯟꯗ ꯍꯤꯡꯕꯥꯛꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯣꯀꯦꯜ, ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯠ ꯂꯦꯚꯦꯜ ꯀꯃꯤꯇꯤꯁꯤꯡ (Local, District and State Level Committees); ꯋꯦꯠꯂꯦꯟꯗꯁ (ꯀꯟꯖꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ) ꯔꯨꯜꯁ, 2017 (Wetlands (Conservation and Management) Rules, 2017) ꯃꯈꯥꯗ ꯗꯦꯚꯦꯂꯞ ꯃꯦꯟꯇ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯁ ꯑꯊꯣꯔꯤꯇꯤ (MSWA) (ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯖꯣꯅꯦꯟ ꯑꯣꯅꯕꯤ); ꯑꯃꯁꯨꯡ, ꯂꯝꯕꯤꯒꯤ ꯇꯥꯎꯅꯁꯤꯡꯗ, ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ ꯂꯩꯕꯛ ꯑꯃꯁꯨ ꯗꯦꯚꯦꯂꯞ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Public Works Department, PWD), ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Public Health Engineering Department, PHED), WRD ꯅꯠꯔꯒꯥ ꯑꯦꯗꯤꯁꯅꯦꯜ ꯋꯔꯛꯁ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯃꯁꯨ) ꯑꯃꯁꯨꯡ, ꯑꯦꯗꯤꯁꯅꯦꯜ ꯃꯔꯤꯂꯩꯕ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ, ꯀꯅꯔꯅꯔꯒꯤ ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯧꯟꯁꯤꯂꯁ ꯑꯦꯛꯠ, 1971-ꯒꯤ ꯁꯦꯛꯁꯟ 29 ꯃꯈꯥꯗ ꯂꯩꯃꯥꯏ ꯑꯃꯁꯨ ꯃꯇꯤꯡ ꯊꯣꯛꯅꯕ ꯄꯤꯕꯒꯤ ꯃꯆꯥ ꯅꯠꯔꯒꯥ ꯀꯧꯟꯁꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯩꯕꯥꯛ ꯃꯆꯥ ꯍꯥꯛꯗ (ꯑꯅꯤꯃꯛ ꯁꯦꯝꯃꯗ), ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯧꯟꯁꯤꯜ ꯅꯠꯔꯒꯥ ꯃꯇꯤꯡꯒꯤ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯔ, ꯗꯦꯡꯒꯤ ꯂꯃꯤꯡꯇꯔꯕ꯫ ꯃꯇꯨꯡ ꯏꯟꯅꯒꯤ "ꯑꯊꯣꯔꯤꯇꯤ" ("the Authority") ꯍꯥꯏꯕ ꯃꯆꯥꯃꯗ, ꯃꯆꯥ ꯑꯊꯣꯛꯄꯥ ꯃꯍꯥꯛꯀꯤ ꯑꯊꯣꯔꯤꯇꯤ ꯍꯥꯏꯕꯅꯤ꯫
ꯃꯇꯨꯡ ꯕꯥꯏ-ꯂꯣ; ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏꯂꯣꯖꯒꯤ ꯕꯥꯏ-ꯂꯣ	MAHUD-ꯅ "ꯁꯍꯔꯒꯤ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯅ ꯂꯧꯁꯤꯟꯅꯕ" ("for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur") ꯖꯥꯔꯤ ꯇꯧꯈꯤꯕ ꯃꯇꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024 (ꯃꯇꯨꯡ) (4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1)), ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯑꯃꯁꯨ ꯅꯠꯔꯒꯥ PDA Manipur-ꯅ ꯃꯅꯤꯄꯨꯔ ꯀꯦꯄꯤꯇꯦꯜ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯃꯇꯤꯡꯒꯤ ꯃꯈꯥ ꯄꯥꯔꯦ ꯍꯦꯟꯅꯥꯈꯤꯕ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ꯫ ꯕꯤꯜꯗꯤꯡ ꯄꯥꯃꯤꯡꯁꯤ ꯑꯃꯁꯨ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯒꯤ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ ꯃꯈꯥꯗ ꯄꯥꯝꯅ꯫ ꯃꯇꯨꯡ ꯏꯟꯅ ꯀꯌꯥ ꯁꯦꯝꯕ ꯄꯥꯎꯖꯦꯜ ꯅꯠꯔꯕꯁꯤꯡꯗ ꯑꯃꯁꯨ ꯃꯇꯨꯡꯒꯤꯅꯤ; ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯑꯃꯅ ꯗꯦꯚꯦꯂꯞ ꯃꯦꯟꯇ ꯁꯦꯝꯂꯣꯞ ꯁꯦꯝꯕꯗꯥ, ꯁꯦꯝꯂꯣꯞ ꯑꯃꯁꯨꯅ ꯂꯩꯒꯅꯤ꯫
ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥ; ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ	ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975-ꯒꯤ ꯁꯦꯛꯁꯟ 22 ꯃꯈꯥꯗ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯃꯁꯨ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨ, ꯅꯠꯔꯒꯥ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ ꯑꯣꯏꯅ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨ; ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯂꯤꯃꯤꯠꯁꯤꯡꯗ ꯃꯄꯥꯟꯗ, ꯁꯦꯛꯁꯟ ꯑꯃꯒꯤ ꯁꯦꯛꯁꯟ 13 ꯃꯈꯥꯗ ꯁꯃꯗꯣꯛ PDA Manipur ꯑꯃꯁꯨ ꯃꯆꯥ ꯑꯊꯣꯛ ꯑꯊꯣꯔꯤꯇꯤꯗ (ꯃꯇꯦꯡꯒꯤ ꯕꯥꯏ-ꯂꯣ 2(2))꯫ ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯂꯒꯤ ꯔꯤꯚꯥꯏꯁ ꯗꯦꯚ GIS ꯕꯦꯁꯇ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification))-ꯒꯤ ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯅ 151.38 km² ꯌꯥꯎ, IMC-ꯒꯤ ꯑꯦꯔꯤꯌꯥꯗꯒꯤ ꯍꯦꯟꯅ ꯆꯥꯎꯅ꯫
ꯂꯃꯗꯝꯒꯤ ꯑꯦꯔꯤꯌꯥ (Hill areas)	ꯃꯅꯤꯄꯨꯔ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯚ ꯑꯦꯁꯦꯝꯕꯂꯤ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ) ꯑꯣꯔꯗꯔ, 1972-ꯒꯤ ꯖꯥꯔꯤ ꯁꯦꯗꯨꯂꯗ ꯄꯥꯝꯕꯥꯏ ꯃꯆꯥꯃꯗ (2008-ꯗ ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯧꯟꯁꯤꯂꯁ ꯑꯦꯛꯠ, 1971-ꯗ ꯍꯥꯌꯔꯤꯕ ꯁꯦꯖꯤꯜꯂꯤ), ꯃꯥꯂꯦꯝꯁꯤꯡꯒꯤ ꯋꯥꯌꯦꯜ ꯌꯥꯊꯪꯒꯤ ꯑꯥꯔꯇꯤꯀꯜ 371C-ꯅ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯚ ꯑꯦꯁꯦꯝꯕꯂꯤꯒꯤ ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ ꯑꯃꯁꯨ ꯄꯥꯝꯕ (ꯁꯃꯗꯣꯛ ꯁꯦꯝꯕ ꯃꯈꯥ ꯄꯥꯔꯦ)꯫ ꯃꯅꯤꯄꯨꯔ ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 ꯑꯃꯁꯨ ꯃꯍꯩꯔꯦ ꯍꯣꯠꯅꯕ (ꯀꯌꯥ ꯁꯦꯝꯕ ꯃꯈꯥ ꯄꯥꯔꯦ), ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ ꯑꯃꯁꯨ ꯁꯍꯔꯒꯤ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡꯒꯤ ꯃꯆꯥꯃꯆꯥꯗ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯅꯠꯔꯒꯥ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯄꯥꯡꯂꯣꯏ ꯍꯣꯠꯅꯒꯅꯤ꯫ 1971-ꯒꯤ ꯑꯦꯛꯠꯀꯤ ꯁꯦꯛꯁꯟ 29(1) ꯃꯈꯥꯗ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯧꯟꯁꯤꯂꯁꯤꯡꯗꯥ ꯂꯩꯕꯥꯛꯁꯤꯡꯗ ꯄꯥꯝꯕꯤ ꯁꯤꯡꯊꯥꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟꯁꯤꯡꯒꯤ ꯌꯨꯝꯐꯝꯁꯤꯡ, ꯄꯥꯡꯒꯜꯁꯤꯡ, ꯌꯥꯏꯐꯅ ꯑꯊꯣꯛꯄꯥ ꯑꯃꯁꯨꯡ ꯌꯥꯏꯐꯔꯕ ꯅꯠꯔꯒꯥ ꯑꯦꯗꯤꯁꯅꯦꯜ ꯌꯥꯏꯐꯒꯤ ꯂꯩꯕꯥꯛ ꯄꯥꯡꯊꯣꯛꯄꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯩ ꯄꯥꯝꯕ ꯍꯥꯏꯕ, ꯑꯃꯁꯨ ꯕꯤꯜꯗꯤꯡ ꯃꯗꯨꯗꯥ ꯍꯥꯏꯕꯅꯤ꯫ ꯃꯇꯨꯡ ꯏꯟꯅꯒꯤꯗꯃꯛ ꯂꯃꯗꯝꯒꯤ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯅꯠꯔꯒꯥ ꯄꯥꯝꯃꯤꯡ ꯌꯥꯎ ꯑꯃꯁꯨꯡ ꯖꯥꯔꯤ ꯇꯧꯔꯤꯕ꯫ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯧꯟꯁꯤꯂꯁꯤꯡꯒꯤ ꯆꯥꯡꯂꯤꯡ ꯃꯍꯩ ꯅꯦꯒꯦꯇꯤꯚ 2022-ꯗ ꯅꯥꯏꯅ ꯑꯃꯁꯨꯡ ꯔꯨꯜ 2025-ꯗ ꯂꯝꯕꯤꯒꯤ ꯄꯥꯎ ꯁꯦꯝꯃꯨꯒꯤ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯧꯟꯁꯤꯂꯁꯤꯡꯒꯤ ꯃꯍꯩꯔꯦ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯔ ꯑꯣꯏꯅ ꯍꯥꯞꯆꯤ (ꯄꯥꯎꯗꯥ ꯖꯥꯔꯤ ꯇꯧꯈꯤꯕ ꯃꯈꯥ ꯄꯥꯔꯦ)꯫

ꯋꯥꯍꯩ	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯑꯔꯊ
ꯁꯨꯞꯅꯒꯤ ꯁꯔꯨꯛ; ꯒꯦꯠ ꯅꯣꯕ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ	WRD-ꯅꯥ ꯂꯦꯕ ꯑꯃꯁꯨꯡ ꯊꯝꯖꯤꯕ, ꯄꯥꯏꯈꯠꯂꯤꯕ ꯁꯨꯞꯅꯒꯤ ꯅꯣꯡꯆꯨꯞ ꯃꯐꯝꯗ ꯃꯇꯥꯡꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯅꯥꯛꯇꯥ ꯂꯩꯕ ꯂꯝ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯄꯤꯖꯦ ꯑꯃꯁꯨꯡꯒꯤ ꯅꯥꯀꯣꯟ ꯑꯃꯤ ꯒꯦꯠ, ꯃꯇꯤꯛ ꯒꯦꯠ ꯂꯩꯕꯥꯗ ꯁꯃꯂꯃ ꯑꯃꯁꯨꯡꯒꯤ ꯁꯨꯞꯇꯤꯟꯕ ꯁꯃꯜ ꯑꯃꯥ ꯅꯦꯂꯇꯥꯛꯇꯨꯅꯕ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ꯫ ꯄꯥꯝꯕꯩꯁꯤꯡꯒꯤ ꯄꯣꯠꯂꯃꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯌꯥꯝꯅꯥ ꯃꯔꯨ ꯃꯇꯝ ꯑꯃꯤ ꯃꯈꯥ ꯑꯃꯤꯒꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯨꯞꯅꯒꯤ ꯌꯦꯡꯅꯕ ꯃꯄꯨꯝꯅ ꯃꯈꯥꯒꯤ ꯇꯤꯡꯈ (ꯁꯔꯨꯛ 5)꯫
ꯖꯣꯅꯤꯡ; ꯀꯣꯔ ꯖꯣꯟ; ꯕꯐꯔ ꯖꯣꯟ	ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯉꯥꯛꯁꯦꯜꯂꯣꯟ) ꯑꯦꯛꯠ, 2006-ꯒꯤ ꯁꯦꯛꯁꯟ 1(3)-ꯅꯥ ꯗꯤꯐꯥꯏꯟ ꯇꯧꯔꯕ ꯃꯑꯣꯡꯒꯤ ꯖꯣꯅꯤꯡ: ꯄꯥꯝꯕꯩꯁꯤꯡ ꯑꯁꯤ ꯇꯧꯕ ꯃꯄꯨꯡꯗ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯁꯨꯞꯅꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯨꯗꯥ ꯁꯨꯞꯅꯒꯤ ꯄꯨꯟꯁꯤꯟꯕ ꯃꯐꯝ ꯊꯦꯡꯕ ꯔꯤꯐꯥꯏꯟꯇꯧꯔꯕ ꯃꯔꯤꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯡꯂꯦꯃꯤꯒꯤ ꯂꯝ 236.21 km², ꯀꯩꯕꯨꯜ ꯂꯝꯖꯥꯎ ꯅꯦꯁꯅꯦꯜ ꯄꯥꯔꯛ (Keibul Lamjao National Park) (40 km²) ꯑꯃꯁꯨꯡ ꯇꯥꯛꯃꯨ ꯐꯤꯁꯔꯤ ꯐꯥꯔꯝ (Takmu Fishery Farm) (5 km²) ꯌꯥꯎꯗꯅꯥ꯫ ꯃꯔꯤꯒꯤ 70.30 km²-ꯒꯤ ꯀꯣꯔ ꯖꯣꯟ ꯑꯃꯤ "ꯅꯣ-ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯖꯣꯟ ꯅꯠꯔꯒꯥ ꯃꯄꯨꯡ ꯐꯥꯅ ꯉꯥꯛꯁꯦꯜꯂꯕ ꯖꯣꯟ" ("the No-Development Zone or Totally Protected Zone") ꯑꯣꯏ ꯑꯃꯁꯨꯡ ꯂꯦꯛ ꯑꯃꯤꯒꯤ ꯑꯦꯗꯖꯁꯟ ꯁꯔꯨꯛ ꯑꯃꯤ ꯕꯐꯔ ꯖꯣꯅꯤ (ꯁꯦꯛꯁꯟ 3)꯫
ꯂꯧꯕꯨꯛ; ꯋꯦꯠꯂꯦꯟꯗ (2014-ꯒꯤ ꯑꯦꯛꯠ)	ꯂꯧ ꯂꯧꯕ ꯂꯝ ꯑꯃꯁꯨꯡ "ꯗꯔꯦꯅꯒꯤ ꯆꯦꯅꯦꯜꯁꯤꯡ, ꯄꯨꯈꯔꯤꯁꯤꯡ, ꯀꯦꯅꯦꯜꯁꯤꯡ, ꯕꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯁꯤꯡꯒꯨꯝꯕ ꯃꯁꯤꯒꯤ ꯃꯔꯤ ꯂꯩꯅꯕ ꯀꯟꯁꯠꯔꯛꯁꯅꯁꯤꯡ" ("its allied constructions like drainage channels, ponds, canals, bunds and ridges"), ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ, ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014-ꯒꯤ ꯁꯦꯛꯁꯟ 2-ꯗ ꯗꯤꯐꯥꯏꯟ ꯇꯧꯔꯕ ꯃꯑꯣꯡꯗ, ꯃꯈꯥꯒꯤ ꯑꯦꯛꯠ ꯑꯁꯤꯒꯤ ꯀꯟꯗꯤꯁꯅꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ ꯂꯥꯏꯕ ꯔꯤꯚꯤꯌꯨ ꯌꯥꯎꯕ꯫ ꯑꯦꯛꯠ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯃꯁ ꯑꯦꯛꯠ, 1960 (Manipur Land Revenue and Land Reforms Act, 1960)-ꯒꯤ ꯃꯊꯛꯇꯥ ꯌꯥꯎꯕ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯌꯥꯏꯗꯒꯤ ꯂꯝꯁꯤꯡꯗ ꯌꯥꯎꯕꯅꯤ (NEER-ꯒꯤ ꯁꯔꯨꯛ)꯫
ꯄꯥꯠꯇꯥ ꯂꯝ (patta land)	ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯃꯁ ꯑꯦꯛꯠ, 1960 ꯃꯈꯥꯗ ꯄꯥꯝꯕꯩꯁꯤꯡ ꯔꯦꯚꯦꯅꯨ ꯔꯦꯀꯣꯔꯗꯁꯤꯡꯗ ꯁꯤꯅꯥ, ꯄꯕ-ꯅꯤꯒꯤꯅꯥꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯚꯦꯅꯨ ꯄꯥꯠꯇꯥ ꯃꯄꯨꯡ ꯐꯥꯅ ꯔꯦꯀꯣꯔꯗ ꯄꯤꯔꯕ ꯃꯤꯑꯣꯏ ꯑꯃꯒꯤ ꯂꯝ꯫ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯄꯥꯠꯇꯥ ꯂꯝꯗ ꯐꯔꯝꯒꯤ ꯀꯣꯔꯥꯏꯕꯔ, ꯐꯅꯝꯕꯩ ꯅꯦꯇꯔꯤꯒꯤ ꯔꯦꯖꯤꯁꯠꯔꯦꯁꯅꯒꯤ ꯁꯥꯟꯅꯕ ꯑꯃꯛ ꯇꯃꯅꯤꯅꯕ ꯃꯈꯥꯗ, ꯃꯤꯑꯣꯏ ꯃꯁꯤꯡꯗ ꯌꯥꯎꯅꯕ ꯇꯃꯅꯤꯅꯕ ꯅꯠꯇꯅꯥ ꯑꯣꯏꯗꯕꯒꯤ ꯁꯤꯡꯅꯕꯅꯤ ꯄꯨꯝꯕꯤ, ꯂꯧꯔꯛꯆꯥ ꯅꯠꯇꯦ (ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯇꯃꯕ)꯫ ꯌꯥꯏꯗꯒꯤ ꯂꯝꯁꯤꯡꯗ ꯂꯝ ꯑꯃꯤ ꯀꯣꯄꯨꯔꯤꯡ ꯃꯔꯦꯝꯁꯤꯡꯁꯤꯡꯅꯥ ꯁꯤꯟꯗ ꯑꯃꯁꯨꯡ ꯃꯀꯣꯟꯁꯤꯡ ꯄꯣꯠꯂꯃꯒꯤ ꯃꯈꯥꯗ ꯇꯃꯗ [TBC: ꯑꯦꯗꯚꯣꯀꯦꯠ ꯄꯨꯔꯤꯟꯅ]꯫

ꯁꯦꯝꯕꯥꯗꯥ ꯈꯪꯖꯤꯟꯒꯗꯕ. "ꯍꯣꯡꯗꯣꯛꯂꯕ" ("Replaced") ꯍꯥꯌꯕ ꯋꯥꯍꯩ ꯑꯁꯤ ꯁꯕꯒꯤꯅꯗꯕ ꯅꯤꯡꯊꯧꯕ ꯀꯥꯡꯂꯨꯄ ꯄꯨꯟꯅ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯃꯁꯤꯡ ꯅꯤꯅꯥ ꯁꯦꯡ ꯄꯨꯔꯛꯄ ꯁꯤꯟꯗ ꯑꯃꯁꯨꯡꯒꯤ ꯑꯦꯀꯣꯅꯣꯃꯤꯛ ꯌꯦꯡꯁꯤꯜꯂꯦ, ꯑꯗꯨꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯑꯦꯗꯚꯥꯟꯇꯦꯖ ꯌꯦꯡꯁꯤꯟꯅꯕꯅꯤ꯫ ꯃꯁꯤ APWA 5600 (2025.01)-ꯒꯤ ꯑꯦꯀꯣꯅꯣꯃꯤꯛ ꯄꯨꯔꯤꯡꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯑꯣꯄꯁꯟ ꯃꯄꯨꯡ ꯐꯥꯅꯕꯅꯤ (MARC Supplement, 2025)꯫

1.5 ꯄꯨꯛꯅꯤꯡ ꯃꯊꯧ

1.5.1 **ꯀꯅꯕꯤꯒꯅꯤꯡ ꯃꯈꯥꯅꯥ.** ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤ ꯃꯈꯥꯗ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯗ ꯌꯥꯎꯕ:

- (a) ꯃꯇꯝ ꯃꯅꯤꯄꯨꯔ ꯁꯨꯞꯅꯒꯤ ꯀꯥꯡꯂꯨꯄꯁꯤꯡ ꯑꯦꯟ-ꯂꯤꯗ 2024 ꯃꯈꯥꯗ ꯁꯦꯝꯒꯠꯄ ꯁꯤꯟꯐꯝꯁꯤꯡ, ꯀꯥꯡꯂꯨꯄ ꯁꯤꯟꯐꯝꯁꯤꯡ ꯌꯥꯎꯕꯥ ꯂꯦꯃꯤꯡꯁꯤꯡ ꯑꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯄꯨꯟꯅ ꯁꯦꯝꯒꯠꯂꯕ;
- (b) ULB ꯑꯃꯁꯨꯡ, ꯀꯥꯡꯂꯨꯄꯁꯤꯡ ꯅꯤꯡꯊꯧꯁꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ, ꯕꯥꯟꯗ ꯑꯃꯁꯨꯡ, ꯌꯥꯎꯕꯥ ꯀꯥꯡꯂꯨꯄꯁꯤꯡ ꯑꯦꯗꯚꯥꯏꯖꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯟꯕ ꯍꯥꯌꯕ, ꯂꯝꯕꯤ, ꯇꯨꯡ, ꯁꯦꯝꯒꯠꯄ, ꯍꯥꯌꯕ ꯀꯅꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕ ꯍꯥꯌꯗꯅꯥ ꯄꯨꯡꯁꯤꯟꯕꯒꯤ ꯇꯧꯕ ꯁꯦꯝꯒꯠꯂꯕ; ꯑꯃꯁꯨꯡ
- (c) ꯑꯦꯟꯇꯤꯇꯤꯁꯤꯡꯒꯤ ꯑꯦꯗꯚꯥꯏꯖꯔꯁꯤꯡ ꯌꯥꯎꯕꯥ ꯂꯥ-ꯑꯦꯛꯁꯄꯦꯔꯠ ꯃꯇꯨꯡ ꯄꯨꯟꯕ ꯊꯦꯡꯕ, ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯅꯨꯡꯗ ꯁꯦꯡꯅꯕꯒꯤ ꯑꯦꯛꯁꯞꯂꯣꯔꯦꯁꯟ ꯌꯥꯎꯕꯥ ꯃꯈꯥꯒꯤ ꯀꯟꯁꯂꯇꯦꯟꯁꯤꯡꯅꯥ ꯄꯨꯟꯕ ꯇꯧꯕꯁꯤꯡ꯫

1.5.2 **ꯑꯤꯄꯨꯔꯣꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯄꯨꯔꯣꯡꯒꯤ ꯇꯥꯛꯁꯤꯅꯕ.** ꯃꯄꯨꯡ 4 ꯑꯃꯁꯨꯡ 5 (ꯑꯤꯄꯨꯔꯣꯡ, ꯅꯤꯄꯨꯔꯣꯡ, ꯃꯍꯥꯛ ꯇꯧꯕ ꯃꯊꯧ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯄꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ) ꯑꯁꯤ ꯀꯃꯗꯥ ꯁꯦꯝꯒꯠ ꯑꯦꯖ ꯅꯤꯡꯊꯧꯁꯤꯡ ꯁꯦꯃꯈꯕ ꯃꯈꯥꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯎꯕ ꯀꯣꯌꯣꯏꯕꯒꯤ ꯅꯤꯡꯊꯧꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛ:

- (a) **0.1 ha ꯌꯥꯎꯕꯥ ꯃꯇꯝꯒꯤ ꯍꯣꯡꯕ** ꯁꯤꯡꯒꯟ ꯂꯦꯡꯍꯧꯕ; **ꯌꯥꯎꯕꯥ**
- (b) **500 m² ꯌꯥꯎꯕꯥ ꯃꯇꯝꯒꯤ ꯍꯣꯡꯕ** ꯑꯃꯁꯨꯡ ꯌꯥꯎꯕꯥ ꯍꯣꯡꯗꯣꯛꯂꯕ ꯁꯕꯒꯤꯅꯗꯕ ꯑꯦꯗꯤꯁꯟ꯫

1.5.3 **RWH.** ꯂꯩꯔꯤꯕ RWH ꯃꯦꯟꯗꯦꯠ ꯑꯗꯤ ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024-ꯒꯤ ꯕꯥꯏ-ꯂꯣ 66 ꯃꯈꯥꯗ, [illegible] ꯈꯨꯗꯤꯡꯃꯛ ꯑꯃꯁꯨꯡ PDA Manipur-[illegible] [illegible], "100 square metre ꯑꯃꯁꯨꯡ [illegible] ꯍꯦꯟꯕ [illegible] ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯧꯕ ꯕꯤꯜꯗꯤꯡ ꯄꯨꯝꯅꯃꯛ" ("all existing and new buildings on plots of 100 square metre and above")-[illegible] [illegible] "[illegible]" ("shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells") (66(a)), [illegible] 500 m² [illegible] 15% ꯑꯃꯁꯨꯡ [illegible] 10%-ꯒꯤ [illegible] (66(b)), [illegible] "[illegible]" ("suitably connected to the rain water recharge structures for ground water recharge") (67), ꯑꯃꯁꯨꯡ [illegible] 10%-ꯒꯤ [illegible] (68), [illegible]; [illegible]꯫ [illegible]꯫

1.5.4 **[illegible].** [illegible] 1.5.8-[illegible] [illegible], [illegible] 1.5.1 [illegible], [illegible]:

- (a) [illegible] (sewage) [illegible] ([illegible] 8);
- (b) 1% AEP-ꯒꯤ [illegible], [illegible] 1% AEP-ꯒꯤ [illegible] 0.5 m-[illegible] [illegible] ([illegible] 6);
- (c) [illegible] ꯑꯃꯁꯨꯡ [illegible] ([illegible] 7); ꯑꯃꯁꯨꯡ
- (d) [illegible] ([illegible] 6)꯫

1.5.5 **[illegible].** [illegible] 1.5.2-ꯒꯤ [illegible]꯫ [illegible]꯫

1.5.6 **[illegible].** [illegible] ([illegible] 1.4)꯫ [illegible] 4.5.6-ꯒꯤ [illegible]: [illegible] 50% [illegible], ꯑꯃꯁꯨꯡ [illegible] ꯐꯤ-ꯏꯟ-ꯂꯤꯎ (fee-in-lieu) [illegible]꯫

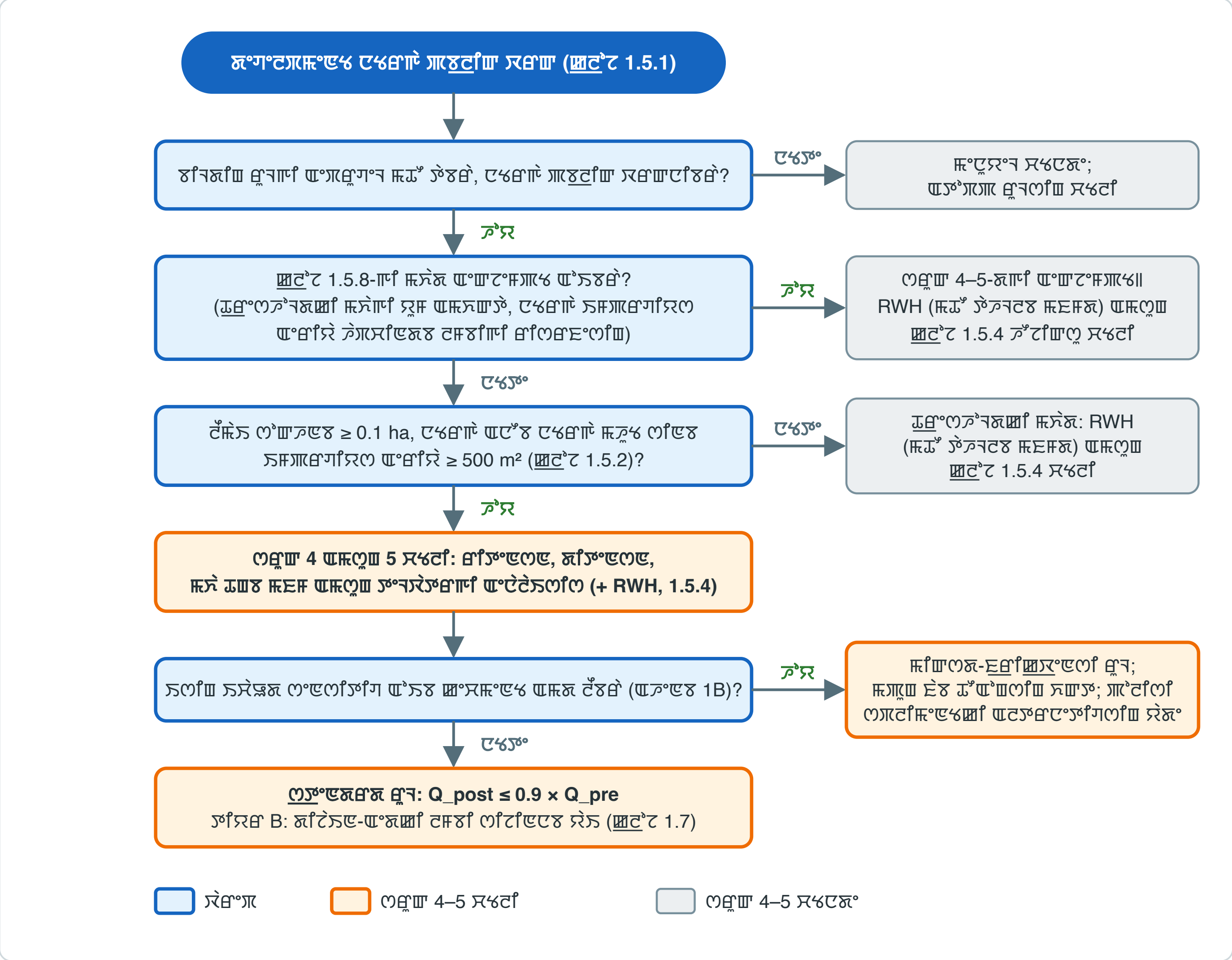
1.5.7 **[illegible].** [illegible] 4 [illegible]꯫

1.5.8 **[illegible].** [illegible] 4 ꯑꯃꯁꯨꯡ 5-[illegible]:

- (a) [illegible] 1.5.2-ꯒꯤ [illegible]; ꯑꯃꯁꯨꯡ
- (b) [illegible]꯫

[illegible] RWH [illegible] ꯑꯃꯁꯨꯡ [illegible] 1.5.4 [illegible]꯫

1.5.9 **[illegible].** [illegible] 10 [illegible] **[illegible] 1-1** ([illegible])-[illegible]꯫ [illegible]꯫


ꯁꯣꯒꯣꯠꯂꯛꯂꯣꯏ ꯆꯥꯎꯔꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕ (ꯁꯦꯛꯁꯟ 1.5.1)
ꯄꯤꯔꯤꯕ ꯊꯥꯛꯇ ꯑꯣꯀꯊꯥꯒꯣꯟ ꯅꯣꯡ ꯏꯁꯤꯡ, ꯆꯥꯎꯔꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕꯔꯤꯕꯔꯥ?
ꯅꯠꯇꯦ
ꯅꯣꯡꯁꯥꯟꯗꯣꯛ ꯌꯥꯎꯗꯅꯣ;
ꯑꯁꯥꯃꯥꯟ ꯊꯥꯛꯇꯤꯕ ꯌꯥꯎꯔꯤ
ꯍꯣꯏ
ꯁꯦꯛꯁꯟ 1.5.8-ꯒꯤ ꯃꯇꯨꯡ ꯑꯣꯏꯅꯥ ꯑꯣꯏꯔꯤꯕꯔꯥ?
(ꯖꯥꯍꯣꯠꯄꯥꯡꯗꯕꯤ ꯃꯇꯨꯒꯤ ꯂꯤꯝ ꯑꯃꯁꯨꯡ, ꯆꯥꯎꯔꯕ ꯇꯝꯂꯥꯏꯒꯤꯔꯣ ꯑꯣꯔꯤꯔ ꯄꯂꯥꯌꯤꯕꯗꯕ ꯆꯝꯕꯤꯒꯤ ꯔꯤꯍꯔꯖꯣꯡꯤꯕ)
ꯍꯣꯏ
ꯍꯦꯛꯇ 4–5-ꯗꯒꯤ ꯑꯣꯏꯇꯣꯝꯂꯥꯛꯄ꯫
RWH (ꯅꯣꯡ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ) ꯑꯃꯁꯨꯡ
ꯁꯦꯛꯁꯟ 1.5.4 ꯄꯥꯟꯗꯝꯂꯤ ꯌꯥꯎꯔꯤ
ꯅꯠꯇꯦ
ꯆꯩꯅꯥ ꯍꯥꯄꯆꯤꯟ ≥ 0.1 ha, ꯆꯥꯎꯔꯕ ꯑꯆꯧꯕ ꯆꯥꯎꯔꯕ ꯅꯥꯏꯌ ꯍꯤꯡꯕ
ꯇꯝꯂꯥꯏꯒꯤꯔꯣ ꯑꯣꯔꯤꯔ ≥ 500 m² (ꯁꯦꯛꯁꯟ 1.5.2)?
ꯅꯠꯇꯦ
ꯖꯥꯍꯣꯠꯄꯥꯡꯗꯕꯤ ꯃꯇꯨꯡ: RWH
(ꯅꯣꯡ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ) ꯑꯃꯁꯨꯡ
ꯁꯦꯛꯁꯟ 1.5.4 ꯌꯥꯎꯔꯤ
ꯍꯣꯏ
ꯍꯦꯛꯇ 4 ꯑꯃꯁꯨꯡ 5 ꯌꯥꯎꯔꯤ: ꯔꯤꯇꯦꯟꯁꯟ, ꯗꯤꯇꯦꯟꯁꯟ,
ꯃꯇꯨ ꯖꯦꯡꯕ ꯈꯣꯝꯖꯤꯟ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯆꯦꯟꯕꯒꯤ ꯑꯣꯆꯇꯦꯟꯍꯤꯟ (+ RWH, 1.5.4)
ꯇꯍꯤꯕ ꯇꯥꯔꯨꯕ ꯍꯣꯟꯍꯤꯜꯂꯒ ꯑꯣꯏꯕ ꯁꯣꯔꯛꯄ ꯑꯃꯗ ꯆꯩꯕꯔꯥ (ꯑꯄꯥꯟꯕ 1B)?
ꯍꯣꯏ
ꯃꯤꯌꯥꯝ-ꯖꯔꯤꯁꯥꯟꯍꯤ ꯊꯥꯛ;
ꯃꯇꯨꯡ ꯀꯕ ꯅꯨꯡꯒꯤꯗꯤꯕ ꯇꯧꯔꯕ; ꯂꯩꯆꯤꯡꯤ
ꯍꯂꯆꯤꯅꯣꯡꯗꯕꯤ ꯑꯆꯥꯔꯆꯥꯏꯒꯣꯟꯗꯤꯕ ꯌꯥꯎ
ꯅꯠꯇꯦ
ꯍꯥꯏꯗꯅꯔꯤ ꯊꯥꯛ: Q_post ≤ 0.9 × Q_pre
ꯏꯕꯨꯔ B: ꯗꯤꯆꯦꯟꯁ-ꯑꯣꯗꯕꯤ ꯆꯝꯕꯤ ꯍꯤꯇꯤꯁꯆꯕ ꯌꯥꯕ (ꯁꯦꯛꯁꯟ 1.7)
ꯌꯥꯔꯣꯟ
ꯍꯦꯛꯇ 4–5 ꯌꯥꯎꯔꯤ
ꯍꯦꯛꯇ 4–5 ꯌꯥꯎꯗꯅꯣ

ꯃꯃꯤ 1.2 — ꯁꯦꯛꯁꯟ 1.5-ꯒꯤꯗꯃꯛ ꯌꯥꯎꯆꯕ ꯃꯖꯝ ꯆꯣꯂꯂꯒꯤ ꯖꯆꯦꯌꯔꯥꯏ꯫ ꯅꯣꯡꯁꯥꯟꯗꯣꯛ ꯑꯣꯏꯒꯤꯗꯃꯛ ꯑꯆꯦꯆꯤ ꯍꯣꯝꯕ ꯗꯔꯦꯇꯤ꯫

> **ꯍꯦꯟꯅꯕꯒꯤ ꯂꯧꯁꯤꯡ.** ꯖꯥꯍꯣꯠꯄꯥꯡꯗꯕꯤ ꯑꯣꯏꯒꯤ ꯄꯥꯊꯣꯀꯆꯤ ꯅꯤꯡꯆꯕ ꯃꯅꯤꯡꯒꯤ ꯂꯗꯝ ꯑꯃꯁꯨꯡ ꯆꯩꯅꯥ; ꯃꯇꯨꯡ ꯑꯣꯏ ꯅꯣꯡꯁꯥꯟꯗꯣꯛ ꯑꯣꯏꯆꯤ ꯖꯝꯕꯆꯤ꯫ ꯃꯅꯤꯡꯒꯤ ꯂꯗꯝꯍꯤꯡ ꯌꯤꯅꯆꯤ ꯏꯁꯤꯡꯆꯤ:
>
> - ꯍꯤꯡꯒꯥꯄꯨꯔꯗ (Singapore) 0.2 ha ꯆꯥꯎꯔꯕ ꯃꯂꯦꯃꯒꯤ ꯄꯣꯟꯕ ꯁꯣꯒꯣꯠꯂꯛꯂꯣꯏꯕꯗꯒꯤ ꯖꯥꯎꯂ ꯂꯤꯗ ꯔꯣꯟꯑꯦ ꯁꯣꯟꯏꯔꯦꯡ ꯏꯅ (PUB Code of Practice on Surface Water Drainage, 7th ed., cl. 7.1.5)꯫
> - ꯃꯆꯣꯏꯌꯤꯒꯤ (Malaysia) 2008-ꯒꯤ DID ꯌꯣꯑꯆꯤꯍꯌꯆ 0.1 ha ꯖꯣꯝ ꯍꯤꯟꯌꯍꯤꯕꯒꯤꯗꯃꯛ ꯑꯣꯟ-ꯍꯤꯟꯌ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯂꯦꯃꯒꯤ ꯄꯣꯟꯕꯒꯤꯗꯃꯛ ꯁꯝꯂꯆꯤꯏꯤ ꯂꯦꯟꯗꯍꯤꯕ ꯍꯤꯆꯤꯟꯆꯇꯤ꯫
> - APWA 5600 (2025.01) Policy Supplement-ꯆ ꯍꯥꯄꯆꯤꯟ ¼ acre (ꯌꯥꯝ 0.1 ha), ꯆꯥꯎꯔꯕ 10,000 sq ft (ꯌꯥꯝ 930 m²) ꯇꯝꯂꯥꯏꯒꯤꯔꯣꯒꯤ ꯆꯌꯆꯆ 1 acre (ꯌꯥꯝ 0.4 ha) ꯄꯌꯕ ꯑꯁꯥꯃꯥꯟ ꯏꯔꯤꯒꯤꯔꯤꯕ ꯂꯤꯔꯤ, ꯑꯃꯁꯨꯡ ꯑꯣꯆꯣꯡꯍꯤꯕꯍꯤꯕ 1-acre-ꯒꯤ ꯏꯔꯤꯒꯤꯔꯒꯤ ꯄꯣꯟꯗꯆꯕ ꯌꯣꯁꯤꯍꯤꯆꯄꯥꯆꯤ꯫
> - MBBL 2016-ꯆ 500 m²-ꯗꯒꯤ ꯄꯣꯟꯕ ꯄꯤꯔꯤꯕꯍꯤꯕꯒꯤꯗꯃꯛ ꯔꯤꯌꯔꯆ ꯅꯣꯟꯗꯣꯏꯔꯤ ꯑꯣꯇꯄꯥꯆꯤ꯫

0.1 ha / 500 m²-ꯒꯤ ꯏꯔꯤꯒꯤꯔ ꯑꯣꯏ ꯃꯇꯨꯡꯒꯤ ꯅꯣꯏꯗ ꯀꯕꯇꯒꯤ ꯁꯦꯟ ꯃꯂꯦꯗ ꯆꯩ, ꯃꯔꯝꯗꯤ ꯅꯆꯤꯡꯒꯤ ꯃꯄꯥꯡꯒꯤ ꯂꯩꯆꯌꯍꯤꯕ ꯑꯁꯤꯄꯤꯂꯤ ꯑꯃꯁꯨꯡ ꯇꯝꯅꯥꯒꯤ ꯍꯣꯕꯇꯦꯍꯤꯕ ꯃꯂꯦꯁ ꯑꯣꯄꯥꯆꯤꯕ ꯑꯁꯤꯄꯤꯂꯤ ꯂꯩꯆꯌ ꯁꯦꯌꯒꯤ ꯂꯦꯍꯤꯕ ꯇꯖꯣꯌꯆꯤ꯫ ꯃꯆꯤꯡꯒꯤꯗ ꯑꯁꯤꯄꯤꯂꯤ ꯄꯤꯔꯤꯕꯍꯤꯕꯒꯤꯗꯃꯛ, ꯆꯁꯔ ꯄꯗꯤꯍꯤꯕꯆ ꯃꯗꯣꯔꯒꯤ ꯃꯍꯨꯝ ꯇꯆꯆ ꯌꯥꯆꯑꯄꯥꯔꯆꯕ ꯄꯤꯇ-ꯆꯆꯆ 100 m² ꯑꯃꯁꯨꯡ ꯃꯂꯦꯃꯒꯤ ꯄꯣꯟꯕ ꯂꯩꯆꯌ ꯂꯗꯝꯍꯤꯕꯃꯛ ꯆꯤꯒꯤ ꯇꯍꯤꯕ ꯇꯍꯆꯤꯟꯕ, "ꯍꯔꯖꯣꯡ ꯔꯤꯆꯔꯒꯤꯌꯔꯍꯤꯕꯗ ꯆꯥꯎꯔꯕ ꯔꯤꯌꯔꯆ ꯌꯣꯔꯍꯤꯕꯗ ꯆꯤꯒꯤ ꯇꯍꯤꯕ ꯇꯍꯆꯤꯟꯕ ꯈꯣꯝꯖꯤꯍꯤꯕꯒꯤ ꯆꯌꯆꯆ ꯆꯤꯒꯤ ꯇꯍꯤꯕ ꯇꯔꯃꯒꯤ ꯍꯤꯍꯥꯏꯃ" ("the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells") ꯁ꯭ꯋꯥꯡ ꯄ꯭ꯂꯥꯟꯗ ꯑꯃꯗꯤ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟꯇꯁꯤꯡꯗ 10% ꯍꯦꯟꯕꯥ ꯃꯍꯩꯌꯥꯝ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯂꯩꯔꯤ (ꯈꯟ-ꯗ 66)꯫ ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯤꯡꯆꯠ ꯌꯥꯝꯅ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯗꯥꯝꯗ ꯍꯥꯏꯕꯥ ꯃꯇꯝ ꯑꯗꯨꯒꯤ ꯂꯩꯕꯥ ꯁꯍꯔꯒꯤ ꯌꯦꯠꯇꯥ ꯂꯥꯏꯔꯤꯛ ꯃꯇꯝꯗ

ꯃꯤꯟꯅꯥ ꯑꯗꯨ ꯃꯁꯤꯡꯗꯕ ꯑꯃꯁꯨꯡ ꯆꯩꯔꯥꯛ ꯑꯗꯨ ꯅꯗꯨꯅ ꯍꯥꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯂꯤꯡꯖꯕ ꯃꯍꯩ ꯑꯗꯨꯒ ꯃꯔꯝ ꯑꯃꯁꯨꯡꯒ ꯈꯤꯗꯨꯅ ꯍꯥꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟꯁꯤꯡꯒꯤ ꯌꯦꯡꯕ ꯑꯗꯨ ꯍꯥꯏꯔꯤ ꯃꯇꯝꯗ꯫ ꯃꯁꯤꯡꯗꯥꯝꯗ ꯍꯥꯏꯕꯗ, ꯃꯁꯤꯡꯗꯥꯝꯒꯤ, "ꯔꯤꯆꯥꯔꯖ ꯋꯦꯜ" ("recharge well") ꯑꯃꯁꯨꯡ ꯄꯤꯔꯕꯁꯤꯡ ꯌꯥꯝꯅ ꯃꯁꯤꯡꯒꯤ ꯃꯔꯝ ꯆꯠꯂꯤ ꯑꯁꯤꯡꯗꯥ ꯆꯠꯄ ꯂꯩꯕꯥ ꯌꯥꯎꯕꯥ ꯑꯃꯁꯨꯡ; ꯃꯍꯩꯔꯣꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯗꯨꯒ ꯃꯇꯝꯒꯤ ꯃꯍꯩꯌꯥꯝ ꯄ꯭ꯂꯥꯟꯗ ꯃꯇꯝ ꯌꯥꯏ (ꯃ꯭ꯌꯥꯞ 4.11, ꯃꯁꯤꯡꯗꯥꯝꯒꯤ ꯆꯍꯤꯒꯤ ꯊꯣꯛ), ꯑꯃꯁꯨꯡ ꯈꯟ-ꯗ 67-ꯗ ꯌꯥꯎꯕ ꯈꯤꯗꯨꯅꯕ ꯑꯃꯁꯨꯡꯒꯤ ꯄꯥꯡꯊꯣꯛ ꯄ꯭ꯂꯥ ꯌꯥꯎꯕ "ꯆꯥꯝꯅꯒꯤ ꯃꯔꯝꯒꯤ ꯅꯨꯡꯒꯤ ꯔꯤꯆꯥꯔꯖꯕꯤꯅꯥꯗꯥ ꯗꯨꯒꯤ ꯅꯨꯡꯒꯤ ꯔꯤꯆꯥꯔꯖ ꯄ꯭ꯂꯥꯟꯒꯤꯅꯥ" ("to the rain water recharge structures for ground water recharge") ꯊꯥꯕꯥ ꯃꯇꯝꯅ, ꯑꯗꯨꯒꯤ ꯌꯥꯗꯅ:

ꯃꯍꯩꯔꯣꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯃꯍꯩꯌꯥꯝ ꯄ꯭ꯂꯥꯟꯗ ꯍꯦꯟꯕꯥ ꯑꯣꯏꯅꯥ (sewer) ꯃꯇꯝꯗꯥ ꯃꯇꯝ ꯌꯥꯏ, ꯑꯃꯁꯨꯡꯗꯥꯅ ꯇꯥꯕ ꯈꯨꯟꯒꯤ ꯔꯤꯆꯥꯔꯖꯗꯥ ꯄꯤꯔꯕ, ꯑꯃꯁꯨꯡ ꯃꯍꯩꯔꯣꯛ ꯑꯃꯁꯨꯡꯒ ꯈꯟ-ꯗ ꯑꯃꯁꯨꯡ ꯑꯗꯨꯅꯕꯅ ꯌꯥꯝꯅ (ꯌꯥꯊꯩ 1.3)꯫ ꯃꯄ꯭ꯂꯥꯟ ꯄ꯭ꯂꯥꯟꯗ ꯑꯃꯁꯨꯡꯒꯤ "ꯅꯣꯡꯗ ꯅꯥꯏꯗꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯕ ꯃꯇꯝ" ("high Flood Risk Area") ꯑꯃꯁꯨꯡ ꯈꯟ-ꯗ 94 ꯌꯥꯎꯕ ꯃꯇꯝ ꯍꯦꯟꯕꯗ, ꯊꯣꯛ ꯑꯃꯁꯨꯡꯗ ꯃꯁꯤꯡꯗꯥꯝꯒꯤ ꯆꯍꯤ ꯆꯠꯄ ꯈꯤꯗꯨꯅꯕ ꯑꯃꯁꯨꯡꯗꯥ ꯄ꯭ꯂꯥ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯁꯤꯡꯅ ꯇꯥꯕꯥ ꯅꯣꯡꯗꯥꯒꯤ ꯌꯥꯗ ꯃꯇꯝꯒꯤ ꯍꯥꯏꯔꯤ ꯊꯥꯗꯕ ꯄꯤꯔꯕ, ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖ ꯅꯥꯏꯗꯥꯕ ꯃꯄ꯭ꯂꯥꯟ ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯄ꯭ꯂꯥꯟꯗꯕ ꯃꯍꯩꯔꯣꯛ ꯑꯃꯁꯨꯡꯒ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯌꯥꯝꯅ [TBC]; ꯃꯁꯤꯒꯤ ꯑꯣꯏꯅꯥ ꯃ꯭ꯌꯥꯞ 1.5.4(b) ꯑꯃꯁꯨꯡ ꯄꯤꯔꯕ ꯃꯁꯤꯡꯗꯥꯝ ꯑꯗꯨꯅꯕꯥ ꯈꯤꯗꯨꯅꯕ ꯃꯁꯤꯡꯗꯥꯝꯒꯤ ꯌꯥꯎꯕꯥ꯫ ꯌꯥꯝꯒꯤ ꯆꯍꯤꯒꯤ ꯈꯤꯗꯨꯅꯕꯒꯤ ꯊꯣꯛ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥ, ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯈꯤꯗꯨꯅꯕ ꯑꯃꯁꯨꯡꯒꯤ ꯅꯥꯏꯗ ꯃꯁꯤꯡꯗꯥꯝ ꯍꯥꯏꯕꯥ ꯑꯃꯁꯨꯡꯒꯤ ꯌꯥꯝꯅ꯫ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯊꯣꯛ 4-ꯒꯤ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯖꯦꯜ ꯑꯗꯨꯒ ꯑꯃꯁꯨꯡ ꯃ꯭ꯌꯥꯞ 4.11-ꯒꯤ ꯌꯥꯝꯒꯤ ꯊꯣꯛ, 10°-ꯒꯤ ꯄꯥꯡꯊꯣꯛ ꯍꯥꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯕꯥ ꯈꯨꯟꯗ ꯂꯥꯏꯔꯤꯛ ꯂꯩꯔꯤ ꯌꯥꯎꯕꯥ, ꯃꯁꯤꯡꯗꯥꯝ ꯅꯣꯡꯗ ꯃꯇꯝꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ ꯑꯃꯁꯨꯡꯗꯥ ꯍꯥꯏꯕ ꯌꯥꯎꯕ ꯇꯥꯕꯥ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡꯗꯥ ꯌꯥꯎꯕ ꯍꯥꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯗꯥꯝ ꯊꯥꯕ, ꯑꯃꯁꯨꯡ ꯃꯇꯝ, ꯃꯁꯤꯡꯗꯥꯝ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯒꯤꯅ ꯂꯩꯕ ꯑꯃꯁꯨꯡꯒꯤꯅ ꯍꯥꯏꯔꯤ ꯑꯗꯨꯅ ꯃꯤꯔꯤ, ꯃꯁꯤꯡꯗꯥꯝ ꯃꯇꯝ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯝꯒꯤ ꯑꯗꯨꯅ ꯍꯦꯟꯕꯥ꯫

ꯃ꯭ꯌꯥꯞ 1.5.4(b)-ꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ ꯃꯍꯩꯔꯣꯛ ꯃꯁꯤꯡꯒꯤ ꯅꯥꯏꯗ ꯌꯥꯝ; ꯃꯍꯩꯔꯣꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯊꯥꯗꯕ ꯃꯁꯤꯡꯒꯤ ꯄ꯭ꯂꯥ ꯇꯥꯕ ꯑꯃꯁꯨꯡ ꯈꯤꯗꯨꯅꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯌꯥꯎꯕ ꯄꯥꯡꯊꯣꯛꯀꯒꯤ ꯃꯇꯝ ꯍꯥꯏꯕꯥ ꯑꯣꯏꯅꯥ, ꯑꯃꯁꯨꯡ ꯌꯥꯎꯕ ꯃꯇꯝꯗꯥ ꯅꯣꯡꯗ ꯑꯣꯏꯅꯥ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯌꯥꯝ ꯑꯗꯨꯅꯕ꯫ 1% AEP-ꯒꯤ ꯇꯥꯕ ꯃꯇꯝ ꯌꯥꯝꯅ ꯃꯇꯝꯅ, ꯊꯣꯛ 6-ꯗ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯖꯦꯜꯒꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅ꯫

1.6 ꯃꯤꯔꯣꯟ ꯃꯍꯩ ꯅꯣꯡꯗ ꯆꯍꯤꯒꯤ

1.6.1 **ꯃꯤꯔꯣꯟ A ꯑꯃꯁꯨꯡꯒꯤ.** ꯃꯔꯝ ꯑꯃꯁꯨꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯔꯣꯟ A ꯑꯣꯏ:

- (a) ꯅꯥꯏꯗꯕ ꯃꯁꯤꯡꯗꯥꯝꯒꯤ ꯃꯤꯟꯅꯥ (IMC); ꯑꯃꯁꯨꯡ
- (b) ꯄ꯭ꯂꯥꯟ ꯅꯥꯏꯗꯕ ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ (151.38 km², ꯄ꯭ꯂꯥꯟ ꯅꯥꯏꯗꯕꯒꯤ ꯔꯤꯆꯥꯔꯖ ꯃꯤꯔꯣꯟ GIS ꯈꯨꯟ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯗꯥꯝꯒꯤ)-ꯒꯤ ꯑꯃꯁꯨꯡ) ꯃꯍꯩꯔꯣꯛ ꯆꯍꯤ PDA Manipur ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯁꯤꯡꯗꯥꯝ, ꯃꯁꯤꯡꯒꯤ ꯌꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯗꯥꯝ ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯑꯃꯁꯨꯡ, 1975 ꯃꯔꯝ ꯃꯇꯝ ꯃꯇꯝꯅ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥ ꯌꯥꯝ ꯃꯇꯝꯅ, ꯈꯣꯡꯖꯦꯜ ꯑꯃꯁꯨꯡ ꯇꯥꯕꯒꯤꯅꯥ ꯆꯍꯤ ꯑꯃꯁꯨꯡ (IMC-ꯒꯤ ꯆꯍꯤꯒꯤ ꯃꯁꯤꯡꯗꯥꯝ ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯝ ꯈꯨꯟꯗ ꯈꯤꯗꯨꯅꯕ ꯃꯁꯤꯡꯒꯤ ꯃꯤꯔꯣꯟ ꯄꯤꯔꯕꯒꯤ ꯃꯇꯝꯅꯕ ꯌꯥꯝꯅꯕꯒꯤ [TBC])꯫

1.6.2 **ꯃꯤꯔꯣꯟ B ꯑꯃꯁꯨꯡꯒꯤ.** ꯑꯃꯁꯨꯡꯒꯤ ꯃꯁꯤꯡꯗꯥꯝꯒꯤ ꯃꯇꯝꯒꯤ, ꯍꯥꯏꯕꯥ ꯃꯇꯝꯒꯤ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯃꯤꯔꯣꯟ B ꯑꯣꯏ꯫

1.6.3 **ꯃꯤꯔꯣꯟꯒꯤ ꯃꯇꯝ ꯃꯇꯝ ꯌꯥꯝꯅꯕ.** ꯃꯍꯩꯔꯣꯛ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯝꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯃꯤꯔꯣꯟ ꯑꯃꯁꯨꯡꯒꯤ ꯌꯥꯎꯕ꯫ ꯃꯤꯔꯣꯟꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖ ꯅꯥꯏꯗ ꯌꯥꯝꯅꯕ:

ꯌꯥꯊꯩ 1.1 — ꯃꯤꯔꯣꯟ A ꯑꯃꯁꯨꯡ ꯃꯤꯔꯣꯟ B ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯝ ꯆꯍꯤ ꯅꯥꯏꯗꯕꯒꯤ

ꯑꯣꯏꯅꯥ	ꯃꯤꯔꯣꯟ A	ꯃꯤꯔꯣꯟ B
ꯃꯁꯤꯡꯗꯥꯝꯒꯤ ꯃꯇꯝꯅꯕꯒꯤ (ꯊꯣꯛ 2–9)	ꯃꯁꯤꯡ ꯅꯥꯏꯗ ꯌꯥꯎꯕ	ꯃꯁꯤꯡ ꯅꯥꯏꯗ ꯌꯥꯎꯕ
ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯄꯥꯡꯊꯣꯛꯒꯤ ꯑꯃꯁꯨꯡ	ꯄꯥꯡꯊꯣꯛꯀꯒꯤ ꯑꯃꯁꯨꯡ (ꯊꯣꯛ 3)	ꯄꯥꯡꯊꯣꯛꯀꯒꯤ ꯑꯃꯁꯨꯡ, ꯍꯦꯟꯕꯥ ꯌꯥꯎꯕ ꯃꯇꯝꯅ ꯃ꯭ꯌꯥꯞ 1.7-ꯒꯤ ꯔꯤꯆꯥꯔꯖ-ꯑꯃꯁꯨꯡ ꯆꯍꯤ

ꯐꯤꯆꯔ	ꯑꯣꯞꯁꯟ A	ꯑꯣꯞꯁꯟ B
ꯃꯍꯧꯁꯥꯒꯤ ꯏꯁꯤꯡ ꯂꯧꯁꯤꯟꯕ ꯃꯐꯝ (ꯄꯦꯔꯥ 10.5)	ꯆꯠꯅꯕ ꯑꯣꯏꯕ ꯍꯦꯟ ꯑꯣꯏ	ꯍꯦꯟ ꯑꯣꯏ; ꯅꯤꯆꯣꯃ-ꯑꯣꯅꯕ ꯇꯝꯕꯤꯕ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯃꯐꯃꯁꯤꯡ ꯑꯣꯏꯒꯅꯤ
ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯇꯀꯤ ꯑꯦꯛꯁꯟ ꯍꯣꯠꯅꯕ (ꯄꯦꯔꯥ 1.7)	ꯁꯣꯏꯗꯅꯥ ꯇꯧꯒꯗꯕ ꯅꯠꯇꯕꯁꯤꯡ ꯑꯣꯏꯅꯥ ꯃꯍꯩ ꯄꯨꯔꯛꯅꯕ ꯇꯧꯔꯤꯕ ꯂꯩꯒꯅꯤ	ꯃꯔꯨꯑꯣꯏꯕ ꯄꯤꯗꯨꯅꯥ ꯇꯧꯒꯗꯕ ꯑꯣꯏꯒꯅꯤ
ꯑꯣꯏꯔꯕꯥ ꯄꯤꯒꯤꯡ	ꯑꯦꯗꯣꯞꯇ ꯇꯧꯕ	ꯑꯦꯗꯣꯞꯇ ꯇꯧꯕ, TPD-ꯒꯤ ꯄꯤꯔꯤꯕ ꯆꯥꯡꯗꯝ ꯂꯩꯕꯥ ꯑꯣꯏꯅꯥ ꯑꯣꯏꯕ ꯄꯤꯒꯤꯡꯁꯤꯡ ꯑꯣꯏꯕ ꯇꯧꯔꯤꯕ (ꯄꯦꯔꯥ 10.7)
ꯅꯣꯡ ꯅꯥꯏꯕ ꯆꯦꯡꯃꯤꯟ ꯑꯣꯏꯕ ꯃꯔꯝ ꯑꯣꯏꯕꯁꯤꯡ ꯃꯅꯨ	ꯂꯩꯔꯦ	ꯂꯩꯔꯦ

1.6.4 **ꯑꯣꯞꯁꯟꯁꯤꯡꯒꯤ ꯍꯦꯛꯇꯥ ꯌꯥꯝꯕ.** ꯑꯣꯞꯁꯟ B ꯑꯦꯗꯣꯞꯇ ꯇꯧꯔꯕꯗꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯤꯔꯤꯕꯥ ꯑꯣꯞꯁꯟ A-ꯅꯥ ꯂꯩꯔꯕ ꯅꯠꯇꯕ ꯑꯣꯏꯅꯤ॥ ꯑꯣꯞꯁꯟ B ꯑꯦꯗꯣꯞꯇ ꯇꯧꯔꯕꯗꯤ ꯃꯄꯥꯡꯄꯥꯟꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯃꯁꯛ ꯍꯥꯌꯕꯅꯥ, ꯒꯣꯑꯣꯏꯕ ꯅꯥꯏꯕꯃꯒꯤ ꯄꯤꯒꯤꯡ ꯑꯣꯏꯕ GIS ꯗꯦꯇ ꯍꯧꯖꯤꯛ ꯄꯨꯝꯅꯃ – 2043 (ꯑꯃꯇꯕ ꯍꯥꯅꯤꯖꯤꯃꯣꯡ)-ꯒꯤ ꯒꯣꯑꯣꯏꯕ ꯅꯥꯏꯕ ꯄꯨꯝꯅꯃꯀꯤ ꯑꯣꯏꯔꯕꯥ ꯂꯩꯇꯕꯥ ꯍꯥꯌꯕꯅꯥ, ꯆꯥꯡꯗꯝ ꯑꯣꯏꯕꯥ ꯍꯧꯖꯤꯛꯀꯤ ꯄꯤꯒꯤꯡ ꯑꯃꯁꯨꯡ (ꯄꯦꯔꯥ 10.16) ꯍꯥꯌꯅꯕ ꯑꯦꯇ ꯑꯦꯗꯣꯞꯇ ꯍꯦꯟ ꯑꯣꯏ ꯌꯥꯕ ꯑꯣꯏꯅꯥ ꯍꯥꯌꯕꯅꯥ, ꯇꯧꯔꯕꯗꯤ ꯍꯣꯠꯅ ꯑꯣꯞꯁꯟ A ꯑꯣꯏꯗꯕ ꯆꯠꯅꯕ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯤ॥

1.6.5 **ꯅꯣꯡ ꯅꯥꯏꯕ ꯆꯦꯡꯃꯤꯟ ꯑꯣꯏꯕ ꯃꯔꯝ ꯑꯣꯏꯕꯁꯤꯡꯗ ꯑꯣꯞꯁꯟꯁꯤꯡ ꯑꯃꯇꯕꯅꯥ ꯑꯣꯏ.** ꯅꯣꯡ ꯅꯥꯏꯕ ꯆꯦꯡꯃꯤꯟ ꯑꯣꯏꯕ ꯃꯔꯝ ꯑꯣꯏꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ, ꯑꯣꯞꯁꯟ ꯃꯄꯨꯡꯐꯥꯕ ꯑꯣꯏꯕꯗꯨ, ꯄꯦꯔꯥ 1.7-ꯒꯤ ꯑꯦꯛꯁꯟ ꯍꯣꯠꯅꯕ ꯑꯃꯁꯨ ꯑꯣꯏꯕ 1.2-ꯗ ꯑꯣꯏꯕ ꯄꯤꯕ ꯍꯦꯛꯇꯥ ꯅꯠꯇꯕ ꯂꯩꯒꯅꯤ ꯃꯥꯌꯀꯩ: 0.5 ha ꯆꯥꯡꯗꯝ ꯍꯦꯟꯅꯕꯒꯤ ꯆꯥꯡ ꯑꯣꯏꯕ ꯁꯅꯥꯁꯤꯡꯒꯤ ꯃꯔꯛꯇ S-1 (ꯅꯤꯆꯣꯃ-ꯑꯣꯅꯕ ꯇꯝꯕꯤ) (ꯄꯦꯔꯥ 4.14.1), ꯑꯃꯁꯨꯡ ꯗꯣꯔꯤꯡ ꯄꯨꯝꯅꯃ ꯑꯃꯁꯨꯡ ꯆꯠꯅꯕ ꯑꯣꯏꯕ ꯍꯦꯛꯇꯥ S-5 ꯑꯣꯏ-ꯅꯃ-ꯇꯤꯡ (ꯄꯦꯔꯥ 1.10.3(d))॥ S-2, S-3 ꯑꯃꯁꯨꯡ S-4 ꯑꯣꯏꯔꯦ॥

> **ꯂꯃꯗꯥꯃꯁꯤ ꯑꯣꯏꯕ.** ꯅꯥꯏꯕ ꯍꯧꯔꯀꯄꯁꯤꯡ ꯃꯄꯥꯡꯄꯥꯟꯕ, ꯂꯩꯕꯥ 27 ꯇꯥꯏ, ꯍꯧꯖꯤꯛ ꯑꯣꯏꯕꯒꯤ ꯅꯣꯡꯃꯩꯒꯤ ꯅꯨꯡꯁꯤꯕꯥ ꯆꯥꯡꯗꯝ ꯅꯥꯏꯕꯒꯤ ꯅꯤꯆꯣꯃ ꯂꯩꯃꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ, ꯑꯃꯁꯨꯡ ꯒꯣꯑꯣꯏꯕ ꯅꯥꯏꯕ ꯄꯨꯝꯅꯃ "ꯑꯣꯏꯗꯅ ꯑꯣꯏꯕꯅꯨ ꯇꯧꯗ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯅꯕꯁꯤ ꯅꯣꯡꯃꯩꯅ ꯍꯥꯌꯗ ꯂꯩꯗ ꯆꯠꯅꯕꯅꯥ" ("is also not in good condition and is not properly connected to the primary drain") ꯅꯥꯏꯕ ꯆꯥꯡꯗꯝ ꯑꯃꯁꯨꯡ ꯇꯥꯏ, ꯍꯦꯟ ꯑꯣꯏꯅ "ꯅꯥꯏꯕ ꯆꯠꯅꯕꯒꯤ ꯇꯧꯔꯤꯕ ꯍꯧꯔꯛ ... ꯅꯣꯡꯃꯩꯁꯤꯡ ꯄꯨꯝꯅ" ("Drainage system links are missing ... the drains are clogged") ꯑꯃꯁꯨꯡ "ꯅꯥꯏꯕꯅ ꯇꯝꯕꯤꯁꯤꯡꯒꯤ ꯍꯦꯟꯗꯥ ꯅꯤꯆꯣꯃꯗꯧꯔꯦꯟ ꯑꯣꯏꯕ ꯆꯠꯒꯤ ꯅꯣꯡ ꯍꯧꯔꯛꯄ ꯇꯥꯔꯣ" ("Imphal lacks decentralized stormwater management along streets") (AIIB, Approval Project Document, 2024), ꯍꯣꯡꯒꯤ ꯇꯤꯍꯤꯕꯥ ꯍꯨꯃꯅ ꯇꯥꯏ ꯇꯝꯕꯤꯒꯤ ꯍꯦꯗꯥꯕꯥ ꯅꯣꯡꯃꯩꯁꯤꯡ, ꯑꯣꯏꯕꯒꯤ ꯄꯣꯃꯁꯤꯡ, ꯂꯥꯏꯒꯤ ꯂꯩꯆꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯂꯁꯤꯡ ꯑꯣꯏ ꯑꯦꯛꯁꯟ ꯗꯅꯤꯁꯤꯡꯗ ꯑꯣꯏꯗꯔꯕꯥ, ꯑꯃꯁꯨꯡ ꯒꯣꯑꯣꯏꯕ ꯅꯥꯏꯕ ꯄꯨꯝꯅꯃꯁꯤꯡ ꯑꯣꯏꯕ ꯑꯣꯏ ꯍꯣꯡꯒꯤ ꯇꯤꯍꯤꯕꯥ ꯍꯧꯖꯤꯛ ꯂꯩꯇꯕꯥ, ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯁꯤꯡ ꯅꯃꯇꯤꯇꯤꯕ ꯑꯃꯅꯥ ꯇꯥꯏ ꯑꯣꯏꯕꯥ ꯆꯥꯡ ꯄꯣꯏꯔꯥꯏ ꯑꯃꯗ ꯌꯥꯅꯕꯒꯤꯕꯤ ꯍꯥꯅ ꯑꯣꯏꯕꯍꯧ ꯄꯤꯒꯤꯡ ꯑꯣꯏꯕ ꯌꯥꯏꯕ ꯂꯩꯕꯥꯅꯤ॥ ꯃꯩꯂꯦꯟ ꯁꯤꯇꯤꯒꯤ (Kansas City) ꯄꯨꯝꯅꯃꯛ ꯄꯤꯔꯤꯕ ꯑꯣꯏꯕꯃꯁꯛ ꯑꯃꯅꯥ ꯑꯦꯡꯒꯟ ꯑꯃꯁꯨꯡ ꯅꯗꯥꯡꯒꯤ ꯂꯩꯈꯤ ꯂꯩꯇꯕ ꯄꯤꯅꯥꯑꯣꯏꯕꯁꯤꯡꯒꯤ ꯇꯧꯒꯗꯕ ꯂꯩꯕ ꯑꯦꯛꯁꯟ ꯍꯣꯠꯅꯕ ꯑꯣꯏꯕꯥꯔꯕꯗꯤ, ꯍꯦꯛ ꯑꯣꯏꯗ ꯑꯄꯨꯄꯨ ꯑꯣꯏꯕꯁꯤꯡꯗ ꯑꯃꯅꯥ ꯑꯣꯏꯅꯥꯗ "ꯍꯥꯏ ꯂꯩꯕ" ("opt down") ꯂꯩꯅ (MARC Supplement, Nov 2025)॥ ꯍꯦꯛ ꯑꯣꯏꯅ ꯇꯥꯏ ꯑꯣꯞꯁꯟꯁꯤꯡꯗ ꯄꯨꯝꯅꯃꯛ ꯄꯤꯅꯥꯑꯣꯏꯕꯁꯤꯡ ꯑꯣꯞꯁꯟ ꯑꯣꯏꯍꯥꯌ ꯍꯦꯟꯅꯗ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯡꯒꯟ ꯂꯥꯏꯍꯥꯏ, ꯍꯦꯛ ꯑꯣꯏꯗ ꯑꯣꯞꯁꯟ B ꯑꯣꯏꯕ ꯑꯃꯅ ꯇꯥꯏ ꯗꯤꯡꯅꯤ ꯑꯃꯁꯨꯡ ꯅꯥꯏꯕꯅ ꯇꯥꯏ ꯑꯃꯒꯤ ꯇꯥꯏ ꯑꯣꯏꯍꯥꯌ ꯇꯧꯒꯗꯕꯅꯤ॥

1.7 ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯇ: ꯇꯧꯒꯗꯕ ꯂꯩꯕ ꯑꯦꯛꯁꯟ ꯍꯣꯠꯅꯕ

1.7.1 ꯍꯧꯖꯤꯛ ꯑꯣꯏꯕꯥ ꯇꯧꯔꯤꯕ, ꯇꯧꯔꯕꯗꯤ ꯑꯦꯛꯁꯟ ꯄꯦꯔꯥꯁꯤꯡꯒꯤ **ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯇ** (Policy Supplement) (ꯑꯦꯅꯦꯛꯁ 1C) ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯥꯏꯗꯕꯅꯤ॥ ꯑꯣꯏꯕꯗꯤ ꯑꯦꯗꯣꯞꯇ ꯇꯧꯔꯕꯗꯤ ꯄꯦꯔꯥ 1.7.3-ꯗ ꯇꯥꯏ ꯃꯁꯛꯅꯦꯡꯁꯤꯡꯒꯤ ꯍꯥꯌꯅ ꯑꯦꯛꯁꯟ ꯍꯣꯠꯅ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯗꯝ ꯍꯦꯟꯅꯕꯒꯤ ꯌꯥꯝꯅ ꯇꯧꯒꯗꯕ ꯑꯣꯏꯅꯤ॥

1.7.2 ꯑꯦꯛꯁꯟ ꯍꯣꯠꯅꯕ ꯑꯁꯤꯅꯤ:

ꯇꯦꯕꯜ 1.2 — ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯠ: ꯗꯤꯖꯥꯏꯟ ꯃꯥꯄ ꯀꯟꯠꯔꯣꯜ ꯀꯥꯡꯂꯣꯟ S-1-ꯗꯒꯤ S-5 ꯐꯥꯑꯣꯕ

ꯀꯣꯗ	ꯄꯣꯂꯤꯁꯤꯒꯤ ꯄꯥꯟꯗꯝ ꯀꯥꯡꯂꯣꯟ	ꯗꯤꯖꯥꯏꯟ ꯃꯥꯄ ꯀꯟꯠꯔꯣꯜ ꯀꯥꯡꯂꯣꯟ	ꯃꯥꯄ ꯃꯇꯝ
S-1	ꯇꯨꯔꯦꯜ ꯅꯤꯡꯊꯤꯖꯅꯕ ꯑꯣꯟ-ꯁꯥꯏꯠ ꯗꯤꯇꯦꯟꯁꯟ (ꯁꯔꯨꯛ 3)	**ꯗꯤꯇꯦꯟꯁꯟ-ꯑꯣꯗꯥꯒꯤ ꯄꯥꯕꯜ:** ꯑꯦꯂꯣꯠꯃꯦꯟꯠ 4-ꯗ ꯄꯤꯕ ꯁ꯭ꯇꯣꯔꯦꯖ-ꯚꯣꯂ꯭ꯌꯨꯃ ꯇꯦꯕꯂꯁꯤꯡ (ha ꯈꯨꯗꯤꯡꯗ m³, ꯁꯥꯏꯠ ꯀ꯭ꯂꯥꯁ ꯃꯇꯝ, ꯏꯝꯄꯔꯚꯤꯌꯁ ꯀꯚꯔ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯔꯤꯖꯤꯑꯟ ꯃꯇꯨꯡ ꯏꯟꯅꯥ) ꯑꯃꯁꯨꯡ ꯏꯟꯁꯠꯔꯨꯃꯦꯟꯠ ꯗꯤꯁꯆꯥꯔꯖ ꯀꯟꯠꯔꯣꯂꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯔꯣꯚꯤꯖꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯗꯤꯁꯟ ꯂꯤꯃꯤꯇꯁꯤꯡ	ꯅꯧꯅ ꯁꯦꯃꯒꯠꯂꯕ ꯂꯣꯠꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯏꯝꯄꯔꯚꯤꯌꯁꯁꯤꯡꯒꯤ ꯃꯇꯃꯗ ≤ 2 ha-ꯒꯤ ꯁꯥꯏꯠꯁꯤꯡ; ꯃꯥꯏꯅꯔꯒꯤ ꯃꯍꯧꯁꯥ ≤ 0.5 ha (ꯁꯦꯛꯁꯟ 4.14.1-ꯗ ꯌꯦꯡꯕ)
S-2	ꯁꯥꯏꯠ ꯑꯃꯨꯛꯇꯒꯤ ꯏꯟꯁꯇꯦꯜ ꯇꯧꯕ ꯄꯤꯛ ꯐ꯭ꯂꯣ Q_post(T) ≤ 0.9 × Q_pre(T)	**ꯄꯔꯃꯤꯁꯤꯕꯜ ꯁꯥꯏꯠ ꯗꯤꯁꯆꯥꯔꯖ (PSD):** 0.9 × Q_pre ꯁꯤꯖꯤꯟꯅꯗꯨꯅ, ꯗꯤꯖꯥꯏꯟ ꯁꯥꯏꯠ, ꯃꯇꯝ ꯑꯃꯁꯨꯡ AEP ꯈꯨꯗꯤꯡ ꯏꯟꯅꯥ ꯇꯦꯕꯜ ꯇꯧꯕ ꯁ꯭ꯇꯣꯔꯦꯖ-ꯑꯦꯂꯣꯚꯦꯕꯜ ꯄꯤꯛ ꯐ꯭ꯂꯣ (m³/s/ha)	ꯅꯧꯅ ꯁꯦꯃꯒꯠꯂꯕ ꯂꯣꯠꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯏꯝꯄꯔꯚꯤꯌꯁꯁꯤꯡꯒꯤ ꯃꯇꯃꯗ ꯄꯤꯕ ꯁꯦꯛꯁꯟꯒꯤ ꯁꯥꯏꯠ
S-3	ꯃꯦꯖꯔ ꯐ꯭ꯂꯣ 1% AEP-ꯒꯤ ꯅꯣꯔꯃꯦꯜ ꯅꯣꯔꯃꯦꯂꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯄꯥꯊꯋꯦ ꯃꯍꯧꯁꯥꯒꯤ ꯐꯥꯑꯣꯕ ꯔꯤꯁꯤꯚꯤꯡ ꯅꯣꯔꯃꯦꯜ ꯄꯔꯣꯄꯔꯇꯤꯒꯤ ꯂꯦꯚꯦꯜ (ꯁꯔꯨꯛ 7)	1% AEP-ꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯀꯥꯡꯂꯣꯟ ꯃꯇꯃꯗ, ꯅꯣꯔꯃꯦꯜ ꯄꯔꯣꯄꯔꯇꯤꯒꯤ ꯁꯦꯟꯇꯔ ꯏꯟꯅꯥ ꯐꯣꯡꯗꯣꯛꯄ **ꯐ꯭ꯂꯣ ꯗꯤꯄꯊ ꯑꯃꯁꯨꯡ ꯚꯦꯂꯣꯁꯤꯇꯤꯒꯤ ꯂꯤꯃꯤꯠ ꯇꯦꯕꯜ**꯫ ꯁꯦꯛꯁꯟ 7.4.7-ꯒꯤ ꯇꯦꯕꯜ 1-ꯒꯤ ꯃꯥꯏꯀꯥꯏꯗꯒꯤ ꯂꯧꯁꯤꯟꯂꯕ ꯀꯥꯡꯂꯣꯟ	1% AEP-ꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯗꯤꯄꯊ ꯅꯣꯔꯃꯦꯜ ꯄꯔꯣꯄꯔꯇꯤꯁꯤꯡ
S-4	ꯇꯨꯔꯦꯜ ꯁꯤꯡꯊꯣꯛꯄ ꯐ꯭ꯂꯣ ꯃꯥꯏ ꯊꯥꯕ ꯃꯇꯝꯒꯤ ꯑꯣꯟꯁꯥꯏꯠꯁꯤꯡ (ꯁꯔꯨꯛ 5)	ꯃꯥꯏ ꯊꯥꯕ ꯃꯇꯃꯒꯤ ꯑꯣꯅꯔꯁꯤꯞ ꯑꯃꯁꯨꯡ ꯔꯥꯏꯠ ꯅꯣꯔꯃꯦꯜ ꯁꯦꯃꯒꯠꯂꯕꯒꯤ **ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯔꯤꯖꯤꯁꯠꯔꯤ**, ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯥ ꯐꯥꯑꯣꯕ ꯃꯇꯃꯗ ꯔꯤꯄꯣꯔꯠ ꯃꯤꯍꯨꯠ ꯑꯃꯗꯥ ꯄꯤꯕꯒꯦ	< 1 ha-ꯒꯤ ꯁꯥꯏꯠꯁꯤꯡ, ꯅꯧꯅ ꯁꯦꯃꯒꯠꯂꯕ ꯂꯣꯠꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯏꯝꯄꯔꯚꯤꯌꯁꯁꯤꯡꯒꯤ ꯃꯇꯃꯗ, ꯇꯨꯔꯦꯜ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯑꯃꯗ ꯊꯥꯗꯣꯛꯄ
S-5	ꯑꯣꯐ-ꯁꯥꯏꯠ ꯗꯤꯁꯆꯥꯔꯖ	ꯃꯇꯨꯡ ꯁ꯭ꯇꯦꯖ ꯐ꯭ꯂꯣ ꯕꯣꯂꯤꯌꯨꯝ ꯑꯃꯗ ꯄꯤꯔꯤꯕ ꯅꯣꯔꯃꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠꯀꯤ ꯑꯃꯁꯨꯡ ꯇꯧꯕꯥ ꯂꯥꯏꯃꯥꯏ ꯁꯥꯏꯠꯁꯤꯡꯒꯤ ꯁꯔꯨꯛꯀꯤ ꯃꯇꯦꯡꯒꯤ **ꯅꯣ-ꯅꯦꯠ-ꯂꯣꯁ** (ꯁꯔꯨꯛ 4)	ꯕꯣꯂꯤꯌꯨꯝ ꯁ꯭ꯇꯦꯖ ꯑꯃꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯐ꯭ꯂꯣ ꯃꯇꯃꯗ

1.7.3 ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯔꯃꯁꯤꯡ꯫

- (a) ꯀꯟꯠꯔꯣꯜ ꯃꯑꯣꯡ ꯑꯃꯈꯛ ꯁꯤꯖꯤꯟꯅꯕ ꯁꯦꯛꯁꯟꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡꯒꯤ ꯑꯣꯏꯕ ꯂꯣꯠ ꯀꯥꯡꯂꯣꯟꯁꯤꯡꯒꯤ ꯃꯇꯃꯗ ꯇꯧꯒꯗꯕꯅꯤ꯫ S-1 ꯑꯃꯁꯨꯡ S-2 ꯑꯃꯥ ꯁꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯃꯥꯗꯥ ꯊꯣꯛꯄ ꯃꯇꯃꯗ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯃꯍꯧꯁꯥ ꯑꯁꯤ ꯁꯦꯛꯁꯟꯒꯤ ꯂꯩꯕꯥ꯫
- (b) ꯄꯥꯔꯠ B ꯑꯣꯚꯔꯂꯦꯟꯗꯒꯤ ꯑꯃꯈꯛ ꯀꯟꯠꯔꯣꯜ ꯃꯑꯣꯡ ꯑꯃꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯗꯤꯖꯥꯏꯟ ꯃꯥꯄ, ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯃꯤꯅꯤꯠ 30-ꯒꯤ ꯃꯍꯧꯁꯥ ꯁꯦꯛꯁꯟꯒꯤ ꯅꯣꯔꯃꯦꯂꯁꯤꯡꯒꯤ ꯄꯥꯟꯗꯝꯁꯤꯡ ꯃꯈꯥꯗꯥ ꯊꯥꯒꯅꯤ꯫ ꯄꯥꯔꯠ A ꯑꯣꯚꯔꯂꯦꯟꯗꯒꯤ ꯑꯃꯈꯛ ꯗꯤꯖꯥꯏꯟꯁꯤꯡꯒꯤ ꯃꯈꯥꯗꯥꯒꯤ ꯃꯥꯄ ꯀꯥꯡꯂꯣꯟ ꯄꯤꯕ꯫
- (c) ꯗꯤꯖꯥꯏꯟꯗꯥ, ꯀꯟꯠꯔꯣꯜ ꯃꯑꯣꯡꯁꯤꯡ ꯑꯃꯥ ꯑꯣꯚꯔꯂꯦꯟꯗꯒꯤ ꯔꯤꯄꯣꯔꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 10.17-ꯒꯤ ꯄꯥꯟꯗꯝꯁꯤꯡ ꯐꯪꯍꯅꯒꯗꯕꯅꯤ꯫
- (d) ꯗꯤꯁꯆꯥꯔꯖ (ꯑꯦꯂꯣꯠꯃꯦꯟꯠ 2E-ꯒꯤ ꯗꯥꯏꯀ) ꯑꯃꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯀꯟꯠꯔꯣꯜ ꯃꯑꯣꯡ ꯑꯃꯈꯛ ꯇꯧꯗꯨꯅꯥ ꯂꯩꯕꯥꯟ, S-5 ꯃꯈꯥꯗ ꯅꯣ-ꯅꯦꯠ-ꯂꯣꯁꯀꯤ ꯕꯣꯂꯤꯌꯨꯝ ꯑꯃꯥꯗꯥ ꯃꯇꯦꯡꯕ ꯗꯤꯁꯆꯥꯔꯖꯗ ꯂꯩꯕ ꯄꯥꯟꯗꯝ ꯃꯇꯝ ꯁꯦꯃꯒꯅꯤ꯫
- (e) S-1, S-2 ꯑꯃꯁꯨꯡ S-3-ꯒꯤ ꯇꯦꯕꯂꯁꯤꯡ ꯑꯃꯥ ꯁꯦꯛꯁꯟꯒꯤ ꯅꯣꯔꯃꯦꯂꯁꯤꯡꯒꯤ ꯄꯥꯟꯗꯝꯁꯤꯡ ꯃꯈꯥꯗꯥꯅꯤ ꯄꯥꯒꯠꯂꯤ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 2-ꯗ ꯔꯤꯚꯤꯎ ꯇꯧꯒꯗꯕ ꯇꯦꯁ꯭ꯠ ꯂꯩꯒꯠꯂꯤ (ꯁꯦꯛꯁꯟ 2.14)꯫

> **ꯍꯦꯟꯅ ꯈꯉꯕ.** ꯁꯦꯛꯁꯟ ꯑꯁꯤ APWA 5600 (2025.01) Policy Supplement-ꯒꯤ ꯃꯇꯦꯡ ꯏꯟꯅꯥ ꯄꯤꯔꯤ, ꯃꯁꯤꯅ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯃꯥꯄ ꯃꯥꯄꯀꯤ ꯁꯦꯛꯁꯟꯒꯤ ꯃꯗꯥꯒꯤꯗꯒꯤ (ꯔꯦꯁꯤꯕ ꯃꯇꯝ, Rational Method-ꯒꯤ ꯇꯦꯀꯅꯤꯛꯁꯤꯡ, ꯁꯔꯨꯛꯀꯤ ꯂꯦꯚꯦꯜ ꯄꯥꯟꯗꯝ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 2-ꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯄꯥꯡ ꯔꯤꯁꯤ) ꯀꯟꯠꯔꯣꯜ ꯃꯑꯣꯡꯁꯤꯡ ꯄꯥꯡꯗꯤ꯫ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯍꯧꯁꯥ ꯑꯃꯥ ꯑꯃꯥ S-3 ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 1.5.2-ꯒꯤ ꯔꯤꯚꯤꯎꯒꯤ ꯊꯥꯗꯣꯛꯅꯕꯒꯤ ꯃꯥꯄꯅꯤ꯫ ꯀꯟꯠꯔꯣꯜ ꯃꯑꯣꯡ S-3-ꯅ ꯂꯩꯔꯤꯕ ꯑꯃꯥꯡꯗꯒꯤ APWA-ꯒꯤ ꯄꯥꯟꯗꯝ ꯑꯃꯥ ꯗꯥꯏ: ꯑꯣꯚꯔꯂꯦꯟꯗ ꯅꯣꯔꯃꯦꯂꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗꯒꯤꯗꯥ 1% AEP-ꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯀꯥꯡꯂꯣꯟ, ꯃꯇꯝ ꯑꯃꯥꯗ ꯐ꯭ꯂꯣ ꯗꯤꯄꯊ ꯑꯃꯁꯨꯡ ꯚꯦꯂꯣꯁꯤꯇꯤꯒꯤ ꯇꯦꯕꯜ ꯑꯃꯥ ꯄꯤꯔꯤ꯫ S-2-ꯅ ꯃꯦꯃꯁ ꯂꯩꯔꯤꯕ 2011-ꯗ "ꯃꯦꯆ ꯑꯦꯛꯁꯤꯁꯇꯤꯡ" ("match existing")-ꯗꯒꯤ ꯐ꯭ꯂꯣ ꯗꯤꯄꯊ ꯁ꯭ꯇꯣꯔꯦꯖ-ꯑꯦꯂꯣꯚꯦꯕꯜ ꯄꯤꯛ ꯐ꯭ꯂꯣꯁꯤꯡꯗ ꯇꯧꯔꯤꯕ ꯑꯃꯥ ꯗꯥꯏ꯫ ꯗꯤꯖꯥꯏꯟ ꯑꯣꯚꯔꯂꯦꯟꯗꯒꯤꯅꯤ ꯊꯥꯗꯣꯛꯄ ꯐ꯭ꯂꯣ ꯑꯃꯥ ꯇꯧꯕꯗꯥ ꯄꯥꯡꯊꯣꯛꯄ ꯃꯍꯧꯁꯥ ꯄꯤꯕꯒꯤ ꯗꯤꯖꯥꯏꯅꯔꯁꯤꯡ ꯃꯇꯦꯡꯕ ꯀꯟꯠꯔꯣꯜ ꯑꯃꯥꯅꯤ

> ꯑꯣꯏꯅꯤ (MARC Evolution deck)꯫ ꯃꯁꯤꯗ ꯁꯤꯗꯅꯤ ꯋꯣꯇꯔꯒꯤ (Sydney Water) ꯄꯥꯔꯃꯤꯁꯤꯕꯜ ꯁꯥꯏꯠ ꯗꯤꯁꯆꯥꯔꯖ (PSD) ꯊꯣꯛꯄꯨ ꯆꯠꯂꯤ꯫ S-1-ꯒꯤ 2 ha / 0.5 ha ꯊꯤꯡꯈꯠꯄꯤ (ꯁꯦꯛꯁꯟ 4.14.1-ꯗ ꯌꯦꯡꯕꯤꯌꯨ) ꯑꯃꯁꯨꯡ S-4-ꯒꯤ 1 ha ꯊꯤꯡꯈꯠꯂꯕ ꯄꯥꯎꯇꯥꯛꯀꯤ ꯌꯦꯡꯂꯕ ꯃꯍꯧꯁꯥꯒꯤ ꯍꯧꯖꯤꯛ ꯊꯝꯃꯤ; ꯃꯁꯤꯅ ꯑꯃꯤ ꯃꯦꯄꯨꯔꯦꯟ ꯑꯃꯤꯗ ꯊꯥꯕꯗꯤ꯫

1.8 ꯑꯞꯂꯥꯏ ꯏꯟꯁ꯭ꯠꯔꯨꯃꯦꯟꯠꯁꯤꯡꯒꯤ ꯃꯔꯤ

1.8.1 ꯃꯦꯄꯨꯔꯦꯟ ꯑꯃꯤ ꯃꯈꯥꯗ ꯂꯤꯁ꯭ꯇꯤꯕ ꯏꯟꯁ꯭ꯠꯔꯨꯃꯦꯟꯠꯁꯤꯡ ꯂꯨꯅꯥ ꯌꯦꯡꯁꯤꯜꯂꯤ꯫ ꯃꯁꯤꯒꯤ ꯑꯃꯃꯃ ꯑꯃꯃꯃ ꯊꯦꯡꯅꯕ ꯃꯇꯝꯗ, ꯁꯦꯛꯁꯟ 1.3.3-ꯗ ꯌꯦꯡꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 1.3 — ꯑꯞꯂꯥꯏ ꯏꯟꯁ꯭ꯠꯔꯨꯃꯦꯟꯠꯁꯤꯡꯒꯤ ꯃꯔꯤ

ꯏꯟꯁ꯭ꯠꯔꯨꯃꯦꯟꯠ	ꯃꯔꯤ
ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024 (4 ꯁꯤꯇꯦꯝꯕꯔ 2024-ꯒꯤ MAHUD Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1); 5 ꯁꯤꯇꯦꯝꯕꯔ 2024-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁ꯭ꯠꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ No. 253), ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠ꯭ꯔꯤ ꯞ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1) ꯃꯈꯥꯗ "ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯞ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯗ ꯂꯧꯁꯤꯟꯅꯕ" ("for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur") ꯄꯥꯡꯊꯣꯛꯄꯤꯕ (ꯂꯧꯁꯤꯕ)	ꯃꯥꯁ꯭ꯇꯔ ꯞ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ PDA Manipur-ꯗ ꯌꯥꯊꯪ ꯄꯤꯔꯕ ꯃꯐꯃꯁꯤꯡ ꯌꯥꯎꯔꯤꯕ ꯑꯍꯥꯅꯕ ꯌꯥꯊꯪ ꯂꯩꯔꯤ꯫ ꯃꯁꯤꯅ ꯑꯃꯤ "ꯃꯥꯁ꯭ꯇꯔ ꯞ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯇ꯭ꯔꯒ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯞ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯖꯨꯔꯤꯁꯗꯤꯛꯁꯅꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯃꯐꯃꯁꯤꯡ" ("the Master Plan areas or notified Planning areas and area under the jurisdiction of all the Urban Local Bodies of Manipur")-ꯗ ꯌꯥꯊꯪ (1(2))꯫ ꯃꯁꯤꯒꯤ ꯃꯔꯨꯑꯣꯏ-ꯁꯨꯔꯛꯂꯤ, ꯗꯔꯦꯅꯦꯖ ꯑꯃꯁꯨꯡ ꯁꯤꯋꯦꯔꯦꯖꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯗ "ꯃꯅꯨꯡ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟ ꯑꯅꯤꯃꯛꯀꯤꯗꯃꯛ ꯑꯀꯨꯞꯄ ꯗꯔꯦꯅꯦꯖ ꯞ꯭ꯂꯥꯟ" ("Detailed drainage plan for both internal and external") "ꯐꯪꯕ ꯌꯥꯕ ꯂꯦꯡꯗꯕ/ꯄꯛꯀꯥ ꯗ꯭ꯔꯦꯟ ꯐꯥꯑꯣꯕ" ("up to the available permanent/pucca drain") ꯑꯃꯁꯨꯡ ꯃꯨꯅꯤꯁꯤꯄꯦꯜ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯗ ꯊꯥꯗꯣꯛꯄ ꯃꯥꯡ-ꯂꯩꯒꯤ ꯑꯦꯐ꯭ꯂꯨꯌꯦꯟꯇ ꯑꯃꯒꯤ ꯃꯃꯥꯡꯗ ꯏꯟꯇꯔꯁꯦꯞꯇꯔꯁꯤꯡ ꯄꯤꯔꯤꯕ ꯌꯥꯏꯍꯦꯟꯕ ꯑꯃꯛ ꯃꯊꯛ ꯄꯥꯟ (6(1)(A), (D)); ꯃꯨꯅꯤꯁꯤꯄꯦꯜ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯒꯤ ꯃꯊꯛꯄ ꯕꯤꯁꯦꯛꯇꯤ ꯂꯧꯕ ꯑꯊꯤꯕ ꯂꯤꯔꯤ (16); ꯗꯔꯦꯅꯒꯤ ꯅꯤꯡꯊꯤꯒꯤ ꯂꯧꯅꯂꯤꯡꯗ ꯂꯔꯦꯛ ꯗ꯭ꯔꯦꯟ ꯑꯃꯗ ꯊꯥꯟ, ꯊꯤꯡꯈꯠꯄ ꯗ꯭ꯔꯦꯟ ꯌꯥꯔꯤꯕ ꯂꯧꯅ ꯂꯤꯅꯥ ꯑꯃꯗ ꯄꯥꯎꯇꯥꯛꯀꯤ ꯍꯣꯠꯅꯕꯁꯤꯡ ꯊꯥꯕ (28); ꯃꯊꯛ ꯄꯥꯕ ꯑꯣꯏꯕ ꯂꯧꯔꯦꯛ ꯑꯃꯗ "ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯌꯥꯎꯗꯅ" ("except for rain water") ꯄꯥꯎꯗꯣꯛꯄ ꯗ꯭ꯔꯦꯟ ꯑꯃꯗ ꯑꯍꯥꯅꯕ ꯂꯤꯗꯦ; ꯕꯥꯏ-ꯂꯣ 93-ꯒꯤ ꯕꯔꯁꯤꯡꯗ ꯑꯃꯕ ꯍꯣꯠꯅꯕꯁꯤꯡꯗ ꯑꯊꯤꯕ ꯂꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯁ꯭ꯇꯔ ꯞ꯭ꯂꯥꯟ ꯑꯃꯒꯤ ꯅꯤꯡꯊꯤ ꯅꯤꯡꯁꯤꯡꯒꯤ ꯑꯍꯥꯅꯕ ꯌꯥꯕ ꯃꯔꯤꯡꯁꯤꯡꯗ ꯂꯧꯔꯛꯂꯕ ꯑꯃꯤ ꯄꯥꯎꯇꯥꯛ ꯐꯪꯗ ꯂꯦꯡꯗꯕꯒꯤ 1 m ꯌꯥꯕꯗ ꯊꯃꯂꯤ (94); ꯕꯦꯁꯃꯦꯟꯠ (basement) ꯑꯃꯛ (2(11)) ꯂꯦꯝꯕ ꯌꯥꯔꯤꯕ ꯅꯤꯡꯊꯤ ꯅꯤꯡꯁꯤꯡ ꯗꯥꯡꯂꯤ ꯌꯥꯕ ꯂꯃꯗꯒꯤ ꯊꯥꯗꯣꯛꯄꯗ ꯁꯦꯝꯅꯕ ꯄꯥꯟ; ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯂꯃꯤꯡꯗ ꯍꯤꯄꯦꯜꯂꯤ ꯌꯦꯡꯁꯤꯜꯂꯤꯒꯤꯗꯃꯛ IS 14458 ꯍꯦꯠꯍ ꯄꯥꯟ꯫ ꯕꯥꯏ-ꯂꯣ 92, ꯐꯪꯗꯕꯒꯤ ꯃꯑꯣꯡꯗ, ꯒꯨꯍꯦꯄꯍ ꯅꯃꯐꯦꯟ ꯂꯨꯃꯕ ꯑꯊꯤꯕ ꯂꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤ IMC (3rd Amendment) 2024-ꯒꯤ ꯁꯨꯍꯐꯦꯠ ꯄꯦꯡꯁꯠꯄ ꯂꯣꯌꯅꯕ ꯂꯧꯅ (ꯁꯦꯛꯁꯟ 1.3-ꯒꯤ ꯁꯦꯃꯗꯣꯛꯗ ꯄꯥꯡꯂꯣ)꯫ ꯃꯁꯤꯒꯤ ꯑꯀꯤꯅꯕ ꯁꯨꯄꯥꯏ, ꯍꯤꯄꯥꯍꯦ ꯂꯤꯍꯤꯔꯗ, ꯍꯤꯅꯤꯇ ꯍꯦꯟ ꯂꯦꯝꯕ ꯑꯤꯄꯦꯃꯗ ꯒꯣꯅꯨꯡ ꯑꯃꯛꯄꯥ ꯊꯝꯗꯦ꯫ ꯁꯨꯟꯅ 2–6-ꯒꯤ ꯑꯀꯤꯅꯕꯒꯤ ꯃꯍꯤꯅꯄꯦꯍꯤꯔꯤꯁꯤꯡ, ꯁꯦꯛꯁꯟ 4.11-ꯒꯤ ꯄꯥꯂꯣꯡꯗ ꯊꯝ, ꯌꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯌꯦꯍꯇꯒꯤ ꯍꯨꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯨꯟꯅ 7-ꯒꯤ ꯃꯍꯤꯅꯍꯁꯤꯡ, ꯃꯁꯤꯅꯒꯤ ꯊꯦꯡ 1 ꯑꯃꯤ ꯅꯕꯤꯅꯗꯒꯤ ꯂꯦꯝꯕꯗ 15 m, ꯑꯃꯤ ꯃꯦꯄꯨꯔꯦꯟ ꯑꯃꯤꯒꯤ ꯂꯨꯍꯂꯥꯊꯦꯅꯤꯡꯗꯤ; ꯃꯁꯤꯒꯤ ꯑꯅꯗꯒꯤ ꯒꯦꯅꯕꯨ ꯂꯦꯡꯄ, ꯑꯃꯁꯨꯡ ꯑꯊꯣꯍꯤꯄꯤ ꯑꯃꯦꯄꯗ ꯃꯁꯤꯒꯤ ꯊꯣꯛꯍꯅꯕꯤꯗ꯫ ꯕꯥꯏ-ꯂꯣ, ꯃꯥꯁ꯭ꯇꯔ ꯞ꯭ꯂꯥꯟ ꯂꯦꯝꯕ ꯑꯅꯗ ꯑꯃꯗ ꯄꯦꯗ ꯁꯦꯝꯕ ꯃꯇꯝꯗ, ꯃꯁꯤꯒꯤ ꯌꯥꯊꯪ (ꯁꯦꯛꯁꯟ 1.3.3)꯫

ꯁꯣꯔꯁ꯭ꯁꯃꯥꯡ	ꯃꯔꯤ
ꯃꯣꯗꯥꯜꯒꯤ ꯃꯁꯨꯡ ꯁꯔꯀꯥꯔ ꯄꯨꯊꯣꯛꯂꯀꯄ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ: ꯑꯔꯕꯟ, ꯃꯣꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯤꯕꯤꯍ ꯃꯨꯜꯂꯤꯇꯤꯁꯥꯡ ꯀꯣꯔꯄꯣꯔꯦꯁꯅꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2025 (16 ꯖꯨꯂꯥꯏ 2025-ꯒꯤ ꯗꯥꯈꯂꯥ ꯒꯥꯖꯦꯠ, TPD-ꯒꯤ ꯋꯦꯕꯁꯥꯏꯠ ꯂꯤꯡꯛ ꯐꯪꯗꯕ ꯃꯁꯨꯡ ꯁꯣꯔꯣ); "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" (15 ꯑꯣꯛꯇꯣꯕꯔ 2025, ꯂꯤꯡꯛ ꯐꯪꯗꯕ ꯃꯁꯨꯡ ꯁꯣꯔꯣ; ꯁꯤꯇꯤꯖꯟ); IMC Building Bye-Laws, 2025 (15 ꯑꯣꯛꯇꯣꯕꯔ 2025-ꯗ ꯂꯥꯏꯊꯣꯛ ꯐꯪꯏ ꯍꯥꯌꯕꯅꯤ ꯗꯥꯡꯗꯥꯡꯖꯤꯕ, ꯁꯤꯡꯗ ꯗꯥꯡꯗꯥꯡꯖꯤꯕ ꯃꯁꯨꯡ ꯁꯣꯔꯣ); IMC Building Bye-laws, 2013, 2019 ꯑꯃꯁꯨꯡ 2022-ꯗ ꯑꯃꯃꯣꯟꯗ ꯐꯪꯗꯕ ꯃꯑꯣꯡꯗ (ꯂꯤꯡꯛ ꯐꯪꯗꯕ ꯃꯁꯨꯡ ꯁꯣꯔꯣ), ꯑꯃꯁꯨꯡ IMC Building Bye-Laws (3rd Amendment), 2024 (ꯑꯦꯗꯤꯁꯟ ꯁꯤꯇꯤꯖꯟ)	ꯍꯧꯖꯤꯕ ꯃꯇꯝꯗ ꯍꯧꯖꯤ꯫ ꯕꯤꯜꯗꯤꯡ ꯁꯤꯗꯃꯤꯟ ꯑꯣꯏ ꯃꯍꯥꯛꯀꯤ ꯃꯍꯦꯛ ꯁꯤꯍ, ꯃꯣꯗꯥꯜꯒꯤ ꯃꯍꯦꯛ ꯂꯩꯕ꯫ IMC ꯑꯃꯁꯨꯡ ꯃꯨꯜꯂꯤꯇꯤꯁꯥꯡ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯂꯒꯗ ꯁꯦꯝꯕꯤꯍꯟ ꯆꯥꯗꯤꯡꯃꯇꯕ ꯀꯗꯥ ꯐꯥꯇꯣꯕ ꯍꯧꯖꯤꯕꯒꯥ, ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣ 66 ꯑꯃꯁꯨꯡ 92–94 ꯃꯇꯨꯡ ꯄꯥꯡꯗꯥꯕꯗ ꯂꯦꯃꯤꯕꯦ ꯄꯔꯕꯣꯏ ꯀꯦꯗꯦꯃꯍ ꯐꯒꯗꯕꯂꯤ [TBC]; ꯃꯥꯈꯔꯥꯡ ꯑꯣꯏꯗ ꯂꯣꯕ ꯁꯦꯕꯤꯈꯤꯂꯦ ꯂꯍꯕꯃꯣꯏꯡ ꯑꯣꯏ ꯃꯍꯥꯛꯀꯤꯂꯤ꯫ IMC (3rd Amendment) 2024-ꯒꯤ ꯑꯦꯗꯤꯁꯟꯗ 92.1 ꯑꯃꯁꯨꯡ 92.2-ꯒꯤ ꯗꯤꯁꯥꯛꯀꯤ ꯀꯗꯣꯏꯡ ꯄꯁꯥꯅꯤꯂꯤ, ꯁꯦꯥꯒꯤ ꯕꯗꯦ ꯐꯥꯕꯅ ꯑꯃꯨꯡ ꯄꯦꯗ ꯁꯤꯦꯤ (93.1) ꯑꯃꯁꯨꯡ ꯁꯤꯂꯤꯁꯦꯃꯤ ꯑꯅ ꯑꯣꯏ "ꯒꯦꯥꯐꯦ ꯁꯍꯗꯥꯒꯤ ꯦꯤꯑꯣꯡ ꯁꯦꯗꯦꯍꯗ GIS ꯕꯥꯂ ꯃꯑꯣꯐꯦ ꯁꯤꯂꯦꯗ ꯁꯡꯗꯥꯡꯕ ꯁꯣꯏꯡ ꯁꯅꯦꯁꯒꯤ ꯑꯃꯤꯕ ꯅꯡꯕ ꯃꯗꯍꯣꯏꯡ" ("High Flood Risk Areas identified in the Risk-Informed GIS-Based Master Plan for Greater Imphal")-ꯒꯤ ꯑꯍꯃꯤꯦꯂꯤ (93.2); ꯃꯣꯏ ꯂꯥꯁꯃꯗꯕ ꯐꯡ ꯑꯃꯗ ꯄꯍꯂꯡꯃꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯣꯏꯒꯤ ꯑꯦꯥꯅꯕ ꯑꯐꯥꯐꯑ ꯃꯦꯗꯦꯍ ꯐꯈꯤꯗꯥ [TBC]꯫
ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯒꯦꯥ ꯅꯦꯐꯦ: ꯃꯗꯥꯡꯒꯤ ꯕꯥꯏ-ꯂꯣ 66, 67, 68 ꯑꯃꯁꯨꯡ 6(1)(C)(j); ꯃꯣꯏꯗ ꯑꯍꯃꯤꯦꯂꯕ ꯒꯦꯤꯦ-ꯕꯤꯅꯗꯤꯡꯒꯤ ꯃꯦꯁꯐꯤꯅꯣꯏꯡ	ꯄꯥꯡꯗꯥꯡꯐꯥ ꯍꯧꯖꯤꯕ ꯑꯃꯗꯥ ꯍꯧꯖꯤꯒꯤꯂꯤ꯫ ꯕꯥꯏ-ꯂꯣ 66(a)-ꯗ "100 square metre ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯄꯦꯕ ꯁꯤꯂꯦꯑꯣꯏꯗ ꯂꯦꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯣꯕ ꯕꯤꯜꯗꯤꯡ ꯁꯤꯡꯂꯃꯁꯤꯡꯐ ꯂꯥꯡꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯦꯑꯦꯖ ꯑꯐꯦ ꯐꯨꯗꯥ ꯅꯣꯡꯒꯤ ꯍꯥꯃꯂꯤꯦꯕ" ("Water harvesting through storing of water runoff including rainwater in all existing and new buildings on plots of 100 square metre and above") ꯃꯥꯑꯗꯥꯐꯦ ꯑꯦꯁꯄꯍꯂꯤ, ꯁꯤꯂꯦꯑꯣꯏꯗ "ꯑꯦꯖꯥꯑ ꯦꯤꯂꯦꯒꯤꯍꯦꯑꯣꯏꯗ ꯂꯦꯦꯒꯤ ꯦꯤꯍꯦꯂ ꯅꯥꯂꯣꯏꯗ ꯂꯥꯡꯒꯤ ꯅꯣꯏꯡ ꯍꯥꯃꯂꯤꯦꯕ ꯃꯖꯃꯑꯣꯏꯡ" ("points of collection of rain water in surface reservoirs or in recharge wells") ꯂꯤꯍꯂꯂ; 66(b)-ꯗ ꯃꯒꯦ ꯐꯦꯕ ꯑꯦꯤꯍꯤ 500 m² ꯂꯦꯦꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯄꯥꯑꯕ ꯃꯖꯃꯗ ꯁꯤꯂꯦꯃꯤ ꯅꯕꯅꯗꯒꯤ ꯂꯥꯃꯕꯗ 15%, ꯑꯃꯁꯨꯡ ꯑꯐꯁꯤꯗ 10%-ꯒꯤ ꯑꯗꯦ ꯃꯒꯦ ꯇꯃꯂꯤ; 67-ꯗ ꯃꯒꯦ ꯐꯦꯕ ꯑꯦꯤꯍꯤ 500 m² ꯂꯦꯦꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯄꯥꯑꯕ ꯂꯦꯦꯒꯤ 10,000 L/day-ꯒꯤꯗꯃꯛ ꯒꯦꯥ-ꯅꯦꯐ ꯦꯤꯑꯅꯃꯂꯤꯡ ꯃꯇꯐ ꯐꯅ, ꯄꯥꯑꯕ ꯑꯇ "ꯂꯦꯅꯒꯤ ꯃꯁꯒꯤ ꯅꯣꯏꯡꯒꯤ ꯦꯤꯍꯦꯂꯃꯤꯗꯃꯛ ꯂꯥꯡꯒꯤ ꯅꯣꯏꯡ ꯦꯤꯍꯦꯂ ꯑꯐꯦꯑꯍꯑꯣꯏꯗ ꯃꯐꯤꯛ ꯍꯗ ꯑꯍꯃꯤꯦꯂꯕ" ("suitably connected to the rain water recharge structures for ground water recharge") ꯂꯤꯍꯂꯂ; 68-ꯗ ꯑꯂꯤꯃꯛ ꯁꯤꯦꯕ ꯃꯖꯃꯗ ꯁꯤꯦꯃꯤꯑ ꯗꯤꯒꯤ 10% ꯦꯤꯕꯥꯍ ꯁꯤꯦꯤ; ꯑꯃꯁꯨꯡ ꯒꯦꯤꯦ-ꯕꯤꯅꯗꯤꯡꯒꯤ ꯃꯦꯁꯐꯤꯅꯣꯏꯡꯗ "ꯑꯁꯍꯐ ꯃꯑꯕ ꯁꯥꯒꯤꯡ ꯄꯑꯇꯄꯑꯇꯗ ꯑꯁꯍꯐꯒꯤ ꯂꯥꯡꯒꯤ ꯅꯣꯏꯡꯒꯤ ꯦꯑꯃꯗ ꯄꯑꯇꯄꯑꯕ" ("Minimize storm water run-off from site by reducing hard paving on site") ꯑꯃꯁꯨꯡ "ꯁꯦꯂꯑ ꯑꯃꯁꯨꯡ ꯑꯥꯗꯤꯃꯑꯐꯥꯑ ꯃꯑꯐꯦꯅ" ("erosion and sedimentation control") ꯄꯍꯂꯤ꯫ ꯃꯍꯍ ꯑꯃꯐꯐꯗ ꯑꯐꯦꯥꯂ ꯒꯦꯃꯤ ꯂꯦꯦꯒꯤ ꯁꯃꯇꯤꯃꯤ ꯑꯥꯦꯤꯍꯤꯒꯤ ꯦꯥꯐ ꯇꯃꯗ꯫ ꯃꯥꯈꯔꯥꯡ ꯑꯣꯏꯗ ꯑꯐꯦ ꯐꯦꯕ ꯅꯣꯏꯡ ꯑꯣꯏ ꯃꯣꯏꯒꯤ ꯦꯤꯐꯑꯃꯒꯤ ꯃꯇꯐ ꯐꯕꯗ ꯑꯃꯛ ꯄꯑꯗ ꯑꯣꯏꯂꯤꯑꯂꯕ ꯑꯍꯗ ꯅꯃꯐ ꯇꯤꯅ (ꯃꯂꯤ 4.4.3), ꯗꯤꯐꯑꯃꯑ ꯑꯍꯗ ꯃꯗꯃꯗꯃꯗ ꯇꯤꯗ꯫ ꯐꯃꯁꯤꯃꯤ ꯂꯃꯗ ꯕꯥꯏ-ꯂꯣ 66 ꯑꯣꯏ ꯅꯦꯂꯗꯕ ꯑꯃꯐꯐ ꯂꯦꯐ, ꯃꯦꯃꯗ ꯃꯣꯏꯗ ꯑꯦꯖꯥꯑ ꯦꯤꯂꯦꯒꯤꯍꯦꯑꯣꯏꯗ ꯑꯍꯕ ꯁꯤꯦꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯈꯔꯥꯡ ꯑꯣꯏꯗ ꯃꯍꯍ ꯅꯂꯕꯂꯤ; ꯕꯥꯏ-ꯂꯣ 67-ꯗ ꯦꯤꯍꯦꯂ ꯑꯐꯦꯑꯍꯑꯣꯏꯗ ꯇꯕ ꯑꯣꯏꯗ ꯅꯂꯗ: ꯐꯃꯁꯤꯃꯤ ꯂꯃꯗ ꯑꯃꯃꯕ ꯑꯐꯦꯑꯍꯦ ꯑꯃ ꯂꯦꯃ ꯑꯍꯁꯤꯗ ꯂꯕ ꯑꯑ ꯁꯤꯐ ꯑꯃꯂꯤ, ꯃꯦꯃ ꯑꯇꯗ ꯃꯥꯈꯔꯥꯡ ꯑꯣꯏꯗ ꯃꯇꯒꯤ ꯃꯍꯐ ꯑꯐꯦꯂ ꯂꯦꯦꯒꯤ ꯑꯤꯍꯦ ꯃꯂꯑꯃꯑ ꯃꯇꯐ ꯐꯅ, ꯑꯁꯤꯂꯤꯃꯦꯂꯗ ꯂꯤꯃꯅ ꯕꯗꯒꯤ ꯦꯤꯂꯤꯑꯃꯑ ꯄꯍꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯥꯈꯔꯥꯡ ꯑꯣꯏꯗ ꯕꯥꯏ-ꯂꯣ ꯑꯇꯇ ꯑꯒꯦꯦꯅꯗ ꯐꯗꯥ (ꯃꯂꯤ 4.11, ꯐꯃꯁꯤꯃꯤ ꯂꯃꯒꯤ ꯑꯅ)꯫

ꯅꯩꯂꯣꯡꯕꯥꯍꯦꯟꯕ	ꯃꯔꯤ
ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯞꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (1975-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 11; (Fifth Amendment) Act, 2023 ꯑꯃꯁꯨꯡ (Sixth Amendment) Ordinance, 2026 ꯗꯤꯡꯂꯣꯢ ꯇꯧꯔꯕ, ꯌꯥꯅꯤꯡꯉꯕ); ꯃꯁꯤꯒꯤ ꯁꯦꯛꯁꯟ 13 ꯃꯈꯥꯗ ꯁꯦꯃꯈꯤꯕ ꯞꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯂꯄꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (PDA Manipur); ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟ ꯑꯦꯝꯃꯦꯟꯗꯃꯦꯟꯠꯀꯤ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯇꯨꯡꯗ/ꯔꯦꯒ ꯑꯦꯟꯊꯣꯀꯄ ꯂꯩꯗꯦ, 2026 (22 ꯖꯥꯟꯅ 2026-ꯒꯤ MAHUD Notification No. BBL-101/1/2024-MAHUD-MAHUD; 23 ꯖꯥꯟꯅ 2026-ꯒꯤ Gazette Extraordinary No. 157); ꯏꯝꯐꯥꯜ ꯅꯥꯏꯇꯣꯝꯒꯤ ꯑꯤꯖꯤꯅꯦ ꯍꯣꯠꯄ GIS ꯂꯧꯕ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟ – 2043 (ꯑꯔꯣꯏꯕ ꯃꯁꯤꯡꯇꯝꯂꯣꯟ) (4 ꯁꯤꯡꯊꯥꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)); ꯅꯥꯏꯇꯣꯝ ꯑꯃꯁꯨꯡ ꯃꯣꯢꯔꯥꯡꯒꯤ ꯔꯤꯁ꯭ꯀ ꯑꯦꯟꯐꯣꯔꯃꯗ GIS ꯂꯧꯕ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯁꯤꯡ (Risk Informed GIS Based Master Plans for Imphal and Moirang) (17 ꯑꯛꯇꯣꯕꯔ 2025-ꯒꯤꯗꯃꯛ ꯗꯤꯡꯍ ꯍꯣꯔꯕ ꯑꯦꯅꯂꯣꯡ ꯂꯩꯍꯧꯔꯤꯕꯂꯣꯟꯁꯤꯡ; ꯌꯥꯅꯤꯡꯉꯕ)	ꯄꯥꯛꯊꯣꯛ ꯑꯃꯨꯛꯇ ꯄꯥꯛꯊꯣꯛꯂꯤ꯫ 1975-ꯒꯤ ꯑꯦꯛꯠ ꯑꯁꯤ "ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯄꯨꯝꯕꯗ ꯄꯥꯛꯊꯣꯛꯂꯤ" ("extends to the whole of the State of Manipur") (ꯁꯦꯛꯁꯟ 1(2)), ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯁꯤꯡ (ꯁꯦꯛꯁꯟ 22) ꯑꯃꯁꯨꯡ ꯂꯩꯕꯥꯛ ꯍꯣꯠꯄ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯖꯣꯅꯤꯡꯗꯤꯡꯁꯟ ꯊꯧꯕ ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡ (ꯁꯦꯛꯁꯟ 13) ꯌꯤꯔꯤ, ꯃꯈꯥꯀꯗ ꯃꯥꯁ꯭ꯇꯔ-ꯞꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯕ ꯁ꯭ꯇꯦꯠꯀꯤ ꯈꯥꯁ ꯂꯝ (khas land) ꯌꯤꯅ; PDA Manipur ꯁꯦꯝꯅꯤꯕ ꯄꯥꯎ ꯑꯁꯤ 1975 ꯑꯃꯁꯨꯡ 1976 ꯗꯒꯤ ꯌꯤꯔꯤ (ꯌꯥꯏꯇꯗ ꯖꯦꯝꯗꯦꯡꯅꯤꯕ ꯃꯤꯡꯆꯝ ꯅꯥꯏꯗ) [U]꯫ 2026-ꯒꯤ ꯗꯔꯤꯝ ꯂꯥꯅ-ꯗꯦꯇꯗ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟ ꯑꯦꯔꯤꯌꯥ ꯔꯥꯁꯤꯡꯃꯛꯇ ꯁꯤꯗꯤꯂꯗꯂꯕꯁꯤꯡ ꯂꯦꯞꯄ ꯍꯥꯅ, "ꯗꯍꯒꯤ" ("Agriculture") ꯑꯃꯁꯨꯡ "ꯌꯦꯃꯥꯅꯤ, ꯈꯣꯡꯂꯦꯡ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯥꯝꯆꯦꯜꯁꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯗꯂꯣꯁꯤꯡ ꯍꯥꯡꯗꯗ, ꯑꯃꯁꯨꯡ "ꯆꯦꯡꯒꯤ ꯅꯣꯡꯁꯤꯡ ꯈꯣꯃꯗꯤꯂꯕꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯝ" ("Rain Water Harvesting System") ꯑꯁꯤ ꯁꯤꯗꯤꯂꯗꯕ ꯑꯃꯦ ꯑꯣꯅꯗ ꯗꯤꯡꯍ ꯍꯥꯅ꯫ ꯏꯝꯐꯥꯜ ꯅꯥꯏꯇꯣꯝꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯗ 151.38 km² ꯄꯥꯅ ꯑꯃꯁꯨꯡ ꯆꯨꯝꯒꯤ ꯅꯣꯡꯁꯤꯡ ꯅꯥꯏꯄꯒꯤ ꯁꯦꯛꯁꯟ ꯑꯃꯨꯛ ꯍꯥꯡ: ꯃꯁꯤꯒꯤ "ꯐꯤꯖꯤꯀꯦꯜ ꯏꯟꯐ꯭ꯔꯥꯁ꯭ꯠꯔꯛꯆꯔ" ("Physical Infrastructure")-ꯗ ꯅꯣꯡꯁꯤꯡ ꯁꯌꯥꯗꯅ, ꯁꯤꯄꯥꯟꯗ, ꯅꯗꯣꯛꯇꯥꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯗꯤꯗ ꯄꯨꯂꯨ ꯄꯥꯅ꯫ ꯃꯁꯤꯗ "ꯁꯍꯔ ꯑꯁꯤ ꯅꯥꯏꯇꯣꯝ ꯇꯨꯔꯦꯂꯒꯤ ꯍꯥꯛꯄꯨꯂꯨ ꯐꯗꯗꯁꯒꯤ ꯆꯦꯛꯖꯤ" ("The town is below the high flood level of Imphal river") ꯍꯥꯛꯗ ꯑꯣꯏꯔꯗ ꯍꯥꯅ, ꯄꯨꯂꯗꯥꯡꯁꯤꯡ ꯄꯨꯝ 500 ha "ꯅꯣꯡꯁꯤꯡ ꯍꯤꯟꯊꯣꯛꯄ ꯁꯤꯗꯔꯒꯤꯗꯃꯛ" ("for the construction of water bodies") ꯇꯥꯛꯇꯔꯤ, ꯑꯃꯁꯨꯡ 2043 ꯐꯑꯣꯕ ꯄꯨꯂꯗꯥꯡꯁꯤꯡ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯑꯃꯁꯨꯡ ꯍꯃꯒꯤ ꯆꯥ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯐꯑꯣꯕ ꯍꯥꯟꯇꯔꯤ꯫ TPD-ꯗ ꯅꯥꯏꯇꯣꯝ ꯑꯃꯁꯨꯡ ꯃꯣꯢꯔꯥꯡꯒꯤ ꯔꯤꯁ꯭ꯀ ꯑꯦꯟꯐꯣꯔꯃꯗ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯁꯤꯡꯒꯤ ꯗ꯭ꯔꯥꯐ꯭ꯠ ꯄꯤꯌꯔꯄ ꯑꯁꯤ "ꯁꯕꯃꯤꯠ ꯍꯥꯄ" ("submitted") ꯍꯥꯛꯗ ꯄꯤꯌꯔꯄ ꯍꯥꯅ ꯑꯃꯨꯛꯇ ꯃꯁꯤꯒꯤ ꯁꯅꯄꯗ ꯃꯈꯥꯀꯒꯤ ꯐꯅꯗꯦꯡ ꯆꯥꯟꯐꯤꯂꯣꯡꯁꯤꯡ ꯗꯤꯡꯍ ꯍꯥꯅ, ꯃꯐꯃ ꯑꯁꯤꯗ ꯗꯌꯥꯇꯥꯅꯕ ꯔꯤꯗꯗꯕ ꯑꯃꯗꯤ [U]; ꯃꯈꯥꯀꯒꯤ ꯐꯗꯗ ꯗꯂꯣꯁꯤꯡ ꯌꯥꯅꯤꯡꯉꯗ ꯑꯃꯁꯨꯡ ꯂꯥꯎ ꯍꯥꯗ [TBC]꯫ ꯇꯥꯂꯦꯡ, ꯂꯥꯏꯄꯤꯡ, ꯗꯤꯗꯡ (ꯇꯥꯂꯦꯡ), ꯃꯔꯤ ꯅꯥꯏꯇꯣꯝ ꯑꯃꯁꯨꯡ ꯆꯥꯕꯍꯒꯤꯗꯃꯛ ꯑꯃꯁꯨꯡ "ꯇꯃꯌꯥ ꯑꯃꯁꯨꯡ ꯄꯤꯡ ꯑꯗꯤꯃꯛ" ("both valley and hills")-ꯒꯤ ꯗꯤꯂꯣꯡꯕꯤꯡ ꯍꯗꯤꯂꯧꯕꯥꯡ 14-ꯒꯤꯗꯃꯛ 2042-ꯒꯤ ꯍꯥꯛꯅꯗꯗꯦ ꯗꯄꯔꯗ GIS ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯁꯤꯡ ꯁꯥꯗꯤ꯫ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯥꯟꯁꯤꯡꯗ ꯃꯊꯧꯁꯤꯡ ꯑꯁꯤꯒꯤ ꯅꯣꯡꯁꯤꯡ ꯅꯔꯥꯡꯗ ꯁꯦꯗꯣꯟꯁꯤꯡ ꯑꯣꯅꯕ ꯂꯥꯄꯃꯦꯟꯁꯤꯡ, ꯅꯥꯏꯍꯒꯤ ꯄꯤꯗꯄꯗꯣꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯗꯗꯤꯡ ꯐꯁꯤꯗꯤꯡꯒꯤ ꯁꯅꯄꯁꯤꯡ ꯇꯄꯂꯗꯤ (ꯁꯥꯔꯥ 11)꯫
ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 (1994-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 43)	ꯄꯥꯛꯊꯣꯛ ꯑꯃꯨꯛꯇ ꯄꯥꯛꯊꯣꯛꯂꯤ꯫ ꯑꯦꯛꯠ ꯑꯁꯤ "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯆꯥꯅꯗ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯄꯨꯝꯕꯗ ꯄꯥꯛꯊꯣꯛꯂꯤ" ("extends to the whole of the State of Manipur except the Hill Areas") (ꯂꯥꯏꯅꯤꯕ ꯃꯤꯡꯆꯝ ꯅꯥꯏꯗ), ꯑꯃꯁꯨꯡ ꯂꯥꯅ-ꯗꯦꯇ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯃꯈꯥꯗ ꯁꯦꯝꯂꯤ꯫ ꯈꯣꯡꯂꯦꯡꯁꯤꯡ ꯌꯤꯕ, ꯁꯃꯗꯤꯡꯂꯒꯤ ꯑꯔꯥꯕ ꯑꯃꯁꯨꯡ ꯆꯔꯣꯡꯁꯥꯡ ꯃꯇꯝꯗ ꯃꯁꯤꯒꯤ ꯁꯦꯛꯁꯟꯁꯤꯡ ꯃꯊꯧꯁꯤꯡ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯌꯥꯅꯤꯡꯉ [TBC]꯫ ꯁꯍꯔ ꯑꯁꯤꯗ ꯍꯥꯄꯕꯦ ꯗꯥꯡ ꯂꯦꯗꯤ 27 ꯗ, ꯃꯈꯥꯀꯒꯤ ꯃꯅꯨꯡꯗ ꯔꯤꯄꯗ 27 ꯍꯥꯕ ꯅꯥꯏꯇꯣꯝ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯥꯎꯟꯁꯤꯜ; IMC-ꯒꯤ ꯀꯥꯎꯟꯁꯤꯂꯒꯤ ꯁꯍꯔ ꯑꯁꯤ ꯍꯤꯡꯐꯝ ꯅꯄꯗ 2014 ꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯍꯣꯡꯕ ꯑꯃꯗ Manipur Municipalities (Tenth Amendment) Act, 2016 ꯗꯒꯤ ꯌꯤꯔꯤ (ꯌꯥꯏꯇꯗ ꯖꯦꯝꯗꯦꯡꯅꯤꯕ ꯃꯤꯡꯆꯝ ꯅꯥꯏꯗ) [U]꯫
ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006 (2006-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 3; 5 ꯑꯣꯛꯇꯣꯕꯔ 2006-ꯒꯤ No. 2/14/2006-Leg/L; Gazette Extraordinary No. 13(E)), 2007-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 5 ꯑꯃꯁꯨꯡ 2019-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 8-ꯗ ꯑꯍꯣꯡꯕ ꯍꯥꯕꯕ ꯃꯑꯣꯡꯗ (2012-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 1 ꯗꯤꯡꯍ ꯍꯥꯕꯕ, ꯌꯥꯅꯤꯡꯉꯕ)	ꯂꯦꯛ ꯑꯁꯤꯒꯤ 236.21 km²-ꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯥꯛꯗ (ꯁꯦꯛꯁꯟ 1(3)), ꯀꯣꯔ ꯖꯣꯟ (40 km²) ꯑꯃꯁꯨꯡ ꯍꯤꯡꯐꯝ ꯐꯤꯁꯄꯤ ꯐꯄꯥ (5 km²) ꯌꯥꯑꯣꯗ꯫ 70.30 km²-ꯒꯤ ꯀꯣꯔ ꯖꯣꯟ ꯑꯁꯤ "ꯗꯦꯚꯂꯄꯃꯦꯟꯠ ꯍꯧꯗꯕ ꯖꯣꯟ ꯅꯠꯔꯒꯥ ꯃꯄꯨꯡ ꯐꯗꯅ ꯉꯥꯀꯄ ꯖꯣꯟ" ("the No-Development Zone or Totally Protected Zone") ꯑꯅ (ꯁꯦꯛꯁꯟ 3); ꯂꯐꯄ ꯖꯣꯟ ꯑꯦꯛꯠ ꯑꯁꯤꯗ ꯑꯍꯣꯡꯕ ꯌꯥꯐꯥꯝꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ "ꯅꯥꯏꯗꯥꯡꯕꯤ, ꯁꯍꯔ ꯅꯠꯔꯒꯥ ꯍꯥꯄꯕ ꯇꯥꯎꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯍꯣꯡꯕ ꯃꯤꯑꯣꯏꯒꯤ ꯍꯤꯐꯝꯁꯤꯡꯗꯒꯤ ꯊꯣꯛꯂꯛ ꯍꯥꯗꯕ ꯄꯨꯂꯨ ꯑꯃꯁꯨꯡ ꯅꯐꯗꯔꯥꯡꯂꯣꯟꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ" ("Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements") ꯑꯃꯁꯨꯡ "ꯂꯝ ꯄꯤꯑꯣꯗꯍꯟꯕ, ꯌꯥꯝ ꯁꯕ ꯅꯠꯔꯒꯥ ꯅꯄꯥꯝꯁꯤꯡꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯂꯝꯕꯤ ꯁꯣꯀꯍꯟꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯑꯊꯤꯡꯕ ꯌꯤꯔꯤ (ꯁꯦꯛꯁꯟ 19(iv), (vi)); ꯀꯣꯔ ꯖꯣꯟ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯌꯥꯝꯒꯤ ꯌꯥꯄꯃꯤꯁꯦꯜ ꯍꯟꯗ ꯀꯗꯥꯡꯊꯕ ꯑꯃꯍꯥꯛꯗ "ꯂꯦꯛ ꯑꯁꯤꯗ ꯀꯄꯤꯡꯊꯕ ꯁꯤꯕꯦꯖ ꯅꯠꯔꯒꯥ ꯌꯨꯃꯒꯤ ꯄꯨꯂꯨ ꯊꯥꯗꯣꯛꯄ ꯅꯠꯔꯒꯥ ꯍꯣꯡꯗꯣꯛꯄ" ("discharge or emit any sewage or domestic waste into the lake") (ꯁꯦꯛꯁꯟ 20)꯫ ꯃꯁꯤꯒꯤ "ꯁꯤꯕꯦꯖ ꯅꯐꯗꯔꯥꯡ" ("Sewage effluent")-ꯗ "ꯍꯥꯡꯗꯣꯛꯂꯕ ꯈꯣꯡꯂꯦꯡꯁꯤꯡꯗꯒꯤ ꯗꯀꯌꯥ ꯁꯗꯗ" ("sludge from open drains") ꯌꯥꯑꯣꯅ (ꯁꯦꯛꯁꯟ 2)꯫ ꯂꯣꯛꯇꯥꯛ ꯗꯦꯚꯂꯄꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤꯗ ꯃꯁꯤ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯇꯔ ꯍꯥꯅ, ꯐꯤꯂꯣꯡ ꯑꯃꯁꯨꯡ ꯅꯦꯚꯤꯒꯦꯁꯟꯀꯤ ꯗꯤꯌꯔꯦꯛꯁꯟꯀꯤ ꯑꯁꯤ ꯆꯦꯗꯦꯜ ꯗꯤꯌꯔꯦꯛꯁꯟꯀꯤ ꯑꯣꯅꯗ (ꯁꯦꯛꯁꯟ 35(2))꯫ ꯑꯦꯛꯠ ꯑꯁꯤꯗ ꯃꯁꯤꯒꯤ 236.21 km²-ꯒꯤ ꯃꯇꯥꯡ ꯇꯥꯝꯕ ꯃꯐꯝ ꯄꯥꯗ, ꯑꯃꯁꯨꯡ ꯃꯊꯧꯁꯤꯡ ꯑꯁꯤꯗ ꯄꯥꯅ ꯍꯥꯛꯗ ꯍꯥꯔꯗ; ꯁꯥꯔꯥ 8-ꯒꯤ ꯅꯦꯇꯋꯥꯔꯛꯀꯤ ꯄꯥꯡꯁꯤꯡ ꯑꯁꯤ ꯂꯦꯛ ꯑꯁꯤꯒꯤ ꯀꯥꯄꯍꯦꯟꯕ ꯍꯥꯕ ꯑꯣꯏꯕꯖꯦꯡꯁꯤꯡꯗ ꯄꯥꯛꯗ꯫

ꯏꯟꯁ꯭ꯠꯔꯨꯃꯦꯟꯠ	ꯃꯔꯤ
ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978 (1978-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 10; ꯑꯦꯁꯦꯟꯠ 26 ꯑꯣꯒꯁ꯭ꯠ 1978; 1 ꯁꯦꯞꯇꯦꯝꯕꯔ 1978-ꯒꯤ Gazette Extraordinary No. 185; ꯀꯠ ꯌꯦꯡꯕ ꯀꯦꯃꯤ ꯑꯃꯒꯤ OCR ꯈꯥꯌꯗꯣꯛ ꯁꯥꯔꯤꯕ, ꯁꯦꯛꯁꯟ 1–7)	ꯐ꯭ꯂꯗ ꯖꯣꯟ ꯑꯃ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯕ ꯃꯇꯨꯡꯗ ꯃꯈꯥ ꯆꯠꯊꯔꯤ; ꯑꯃꯁꯨꯡ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯤ꯫ ꯑꯦꯛꯠ ꯑꯁꯤꯅ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯁꯤ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟꯅ "ꯇꯧꯒꯗꯕꯅꯤ" ("shall be made") ꯍꯥꯌꯔꯦ, ꯑꯗꯨꯕꯨ ꯃꯍꯥꯛꯀꯤ "ꯅꯠꯔꯒꯥ ꯑꯗꯨꯒꯨꯝꯕ ꯑꯇꯣꯞꯄ ꯑꯣꯊꯣꯔꯤꯇꯤ" ("or such other authority") ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯅ ꯇꯧꯕ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ "ꯑꯃꯁꯤꯡꯒꯤ ꯃꯔꯤ ꯂꯩꯅꯕꯗꯥ" ("with reference to relative risk") ꯊꯝꯂꯕ ꯗꯤꯚꯤꯖꯟ ꯁꯦꯝꯒꯠꯄꯥ, ꯐ꯭ꯂꯗ ꯖꯣꯟ ꯑꯁꯤ "ꯈꯅꯕꯒꯤ ꯌꯥꯕꯥ ꯑꯋꯥꯡꯕ ꯌꯥꯕ" ("the maximum probable") ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯐ꯭ꯂꯗ ꯁ꯭ꯇꯦꯖ ꯃꯈꯥ ꯌꯥꯏ ꯑꯦꯟꯇꯥꯏꯠꯂꯦ (OCR ꯂꯧꯊꯣꯛꯕ); ꯁꯦꯛꯁꯟ 1 ꯅꯥꯏꯕ ꯃꯇꯝꯒꯤ ꯁ꯭ꯇꯦꯠꯀꯤ ꯑꯣꯏꯅ ꯁꯔꯀꯥꯔꯗꯕ ꯌꯥꯎꯅꯕ ꯍꯥꯌꯔꯤꯕꯅꯤ꯫ ꯂꯣꯌꯅ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡꯒꯤ ꯊꯕꯛ ꯊꯧꯕ ꯑꯁꯤ "ꯍꯧꯖꯤꯛ ꯇꯧꯗ꯭ꯔꯤꯕ ꯌꯥꯅꯤ" ("is yet to be done") (ꯁꯥꯁꯟ ꯇꯧꯕ ꯃꯇꯝꯗꯥ ꯃꯌꯦꯛ ꯅꯦꯜꯂ, ꯄꯨ 2026), ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯁꯦꯝꯕ ꯅꯠꯔꯒꯥ ꯖꯣꯟ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯕ ꯑꯃꯠꯇꯥ ꯈꯪꯅꯗꯦ; ꯅꯍꯥꯛ ꯌꯦꯡꯂꯤꯕ ꯔꯦꯅꯖꯂꯤꯇꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯦꯁꯦꯝꯕ 2025-ꯒꯤ ꯅꯣꯇꯤꯐꯥꯏ ꯑꯣꯏꯔꯕ ꯑꯃꯅꯤ ꯃꯇꯤꯒꯤ "ꯁꯦꯛꯁꯟ 24" ("Section 24") ꯃꯇꯦ ꯌꯥꯕ (ꯁꯥꯁꯟ ꯇꯧꯕ ꯃꯇꯝꯗꯥ ꯃꯌꯦꯛ ꯅꯦꯜꯂ; ꯁꯦꯛꯁꯟ 24 ꯁꯤꯡꯅꯤꯡꯗꯦ [TBC])꯫ ꯕꯅ-ꯗ 93-ꯗ "ꯑꯊꯤꯡꯕ ꯁꯤꯡꯗꯕ ꯃꯐꯝ ꯅꯠꯔꯒꯥ ꯊꯤꯡꯗꯤꯅꯗꯕ ꯃꯐꯝ" ("the prohibited area or restricted area")-ꯗ ꯌꯥꯕ ꯊꯕꯛꯀꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯗꯨꯒꯤ ꯂꯩꯐꯝꯗ ꯊꯅ꯫ ꯃꯦꯞꯔꯦꯟ ꯑꯗꯤꯒꯤ ꯂꯣꯝꯕ 7-ꯒꯤ 1% AEP-ꯒꯤ ꯃꯦꯁ ꯑꯗꯤ ꯃꯊꯤꯒꯤ ꯀꯥꯎꯕꯤꯜꯃꯕ ꯐ꯭ꯂꯗ ꯑꯃꯒꯤ ꯅꯀꯁꯨꯠ ꯑꯅꯗ ꯁꯤꯡꯗꯥ, ꯐꯥꯎ ꯑꯃꯠ ꯑꯅꯗ ꯅꯠꯇꯦ꯫
ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014 (2014-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 10; 2 ꯁꯦꯞꯇꯦꯝꯕꯔ 2014-ꯒꯤ No. 2/38/2014-Leg/L; Gazette Extraordinary No. 150); Manipur Conservation of Paddy Land and Wetland (Third Amendment) Bill, 2026 (Bill No. 6 of 2026, ꯄꯨꯔꯛꯈꯤꯕ ꯃꯇꯝ; ꯄꯥꯁꯗ ꯅꯠꯇꯦ)	ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯝꯁ ꯑꯦꯛꯠ, 1960-ꯒꯤ ꯃꯈꯥꯒꯤꯗꯥ, ꯍꯥꯌꯕꯗꯤ ꯁꯤꯡꯒꯤ ꯆꯠꯂꯤꯕꯗ ꯅꯠꯇꯦ, ꯁꯤꯡꯆꯕ ꯑꯣꯏꯕ ꯁꯤꯡꯆꯒꯤ (NEER-ꯒꯤ ꯁꯤꯕ)꯫ ꯆꯤꯡꯈꯥ, ꯃꯈꯣꯌꯒꯤ "ꯅꯥꯀꯣꯟꯒꯤ ꯁꯦꯜꯂꯣꯏꯁꯤꯡ, ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯀꯦꯅꯥꯂꯁꯤꯡ, ꯕꯥꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯁꯤꯡ" ("drainage channels, ponds, canals, bunds and ridges")-ꯄꯨ ꯆꯦꯟꯅꯕ, ꯑꯃꯁꯨꯡ ꯁꯦꯝꯖꯦꯟ ꯑꯗꯨ ꯂꯕ-ꯗꯤꯒꯤꯆꯦꯟ ꯑꯣꯏꯂꯣꯛꯄꯗ ꯄꯨꯁꯤꯟꯕ ꯆꯥꯀꯟ ꯆꯦꯒꯦꯟ ꯃꯆꯤꯡꯁꯤꯡ ꯀꯨꯁꯤꯂꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯗꯤꯂꯣꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯣꯌꯅ ꯆꯦꯒꯦꯟ ꯀꯨꯁꯤꯂꯁꯤꯡꯒꯤ ꯄꯨꯊꯣꯛꯄ ꯈꯥꯌꯗ ꯍꯨꯗꯤꯡꯁꯤ ꯌꯥꯅ (ꯁꯦꯛꯁꯟ 2–4); "ꯑꯦꯛꯠ ꯑꯁꯤ ꯊꯨꯡꯅꯕꯗ ꯍꯨꯗꯤꯡꯈꯤꯕ ꯅꯠꯔꯒꯥ ꯗꯤꯈꯦꯡ ꯌꯥꯈꯤꯕ ꯆꯤꯡꯈꯥ ꯑꯃꯗ ꯀꯟꯁꯠꯔꯛꯁꯟ ꯊꯕꯛ ꯅꯠꯔꯒꯥ ꯀꯣꯟꯇ꯭ꯔꯥꯛꯇꯒꯤ ꯌꯥꯕ ꯆꯥꯀꯟ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯠꯇꯅ ꯂꯥꯏꯁꯦꯟꯁ ꯅꯠꯔꯒꯥ ꯄꯔꯃꯤꯠ ꯑꯃꯠꯇ ꯄꯤꯔꯣꯏꯗꯕꯅꯤ" ("no local authority shall grant any licence or permit … for carrying out any activity or construction in a paddy land, converted or reclaimed in contravention") (ꯁꯦꯛꯁꯟ 12); ꯑꯃꯁꯨꯡ ꯁꯤꯡꯂꯣꯏ ꯑꯁꯤ ꯁꯦꯝꯕ ꯑꯣꯏꯕꯗꯤꯒꯤ ꯃꯔꯝ ꯊꯣꯛꯄ ꯇꯥꯔ ꯑꯃꯁꯨꯡ ₹50,000-ꯗꯤꯒꯤ ₹2 ꯂꯥꯛ ꯊꯣꯛꯄ ꯊꯅꯦꯟꯗꯤ (ꯁꯦꯛꯁꯟ 18)꯫ 2026-ꯒꯤ ꯕꯤꯜ ꯑꯁꯤꯗ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯕ ꯃꯂꯣꯌꯕ ꯖꯣꯅꯤꯡ ꯑꯦꯃꯦꯟꯗ ꯑꯃꯗ ꯖꯣꯅꯤꯡ ꯑꯁꯤꯒꯤ "ꯁ꯭ꯠꯔꯤꯛ ꯃꯦꯜꯂꯦ" ("strict conformity") ꯂꯥꯏꯔꯦꯜꯂꯕ ꯆꯦ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠ ꯌꯥꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗ ꯆꯤꯡꯊꯥꯏꯁꯟꯗ "ꯗꯤꯃꯗ ꯀꯟꯚꯔꯁꯟ" ("Deemed Conversion") ꯑꯣꯏꯕ ꯁꯤꯡꯒꯗꯤ; ꯃꯁꯤ ꯊꯣꯛꯄ ꯑꯅꯗ ꯃꯇꯦ ꯌꯥꯗ꯫ ꯌꯥꯊꯪꯗꯨꯗꯤ ꯆꯤꯡꯈꯥ ꯅꯠꯔꯒꯥ ꯁꯦꯝꯖꯦꯟ ꯍꯨꯗꯤꯡꯁꯨꯗ ꯃꯍꯧꯁꯥ ꯂꯩꯕ ꯃꯐꯝꯗ, ꯃꯦꯞꯔꯦꯟ ꯑꯗꯤꯗ 1% AEP-ꯒꯤ ꯆꯦꯒꯦꯟꯒꯤ ꯃꯇꯝꯗ ꯃꯊꯥꯅꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯣꯌꯕꯦꯛ ꯑꯗꯤ ꯕꯦꯂꯣꯡ ꯑꯍꯧꯃꯌ ꯍꯨꯗꯤꯡꯁꯛ ꯃꯈꯥ ꯌꯥꯅ (ꯂꯣꯝꯕ 7)꯫
ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯚꯤꯂꯦꯖ ꯑꯣꯊꯣꯔꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1971, ꯑꯦꯃꯦꯟꯗ ꯇꯧꯔꯕ ꯃꯑꯣꯡꯗ (Manipur (Adaptation of Laws) Order, 1972 ꯃꯁꯤꯅ ꯂꯦꯄꯈꯦ ꯁꯦꯝꯖꯤꯕ; 2006, 2008, 2017 ꯑꯃꯁꯨꯡ 2018-ꯗ ꯑꯦꯃꯦꯟꯗ ꯇꯧꯕ); ꯁꯦꯝꯖꯤꯟꯍꯟꯗꯨꯅꯒꯤ ꯑꯥꯔꯇꯤꯀꯜ 371C ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯚ ꯑꯦꯁꯦꯝꯕꯂꯤ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤ) ꯑꯣꯔꯗꯔ, 1972; Manipur Village Authorities in Hill Areas Act, 1956 (ꯔꯤꯄꯤꯜꯗꯕ)	ꯁꯤꯡꯒꯤ ꯆꯦꯂꯣꯏꯁꯤꯡ ꯁꯤꯡꯆꯕ ꯑꯣꯏꯕ ꯁꯤꯡꯆꯒꯤ꯫ ꯁꯦꯛꯁꯟ 29(1) ꯃꯈꯥꯗ ꯗꯤꯂꯣꯏꯁꯤꯡ ꯀꯧꯊꯣꯛꯂꯤꯕꯁꯤꯡꯒꯤ ꯊꯕꯛꯂꯣꯏꯁꯤꯡ ꯅꯂꯣꯏ ꯂꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯂꯦꯀꯤꯌꯦꯂꯦꯒꯤ ꯂꯃꯥꯏꯁꯤꯡ, ꯁꯦꯜꯂꯣꯏ, ꯈꯣꯡꯅ ꯄꯨꯊꯣꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯅꯥꯌꯕ ꯁꯦꯝꯗꯣꯛꯂꯣꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯆꯥ ꯁꯤꯕ, ꯑꯃꯁꯨꯡ ꯄꯥꯎꯈꯨꯝ ꯄꯤꯗꯨꯅ "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯀꯃꯤꯇꯤꯒꯥ ꯌꯥꯅꯅꯕꯥ ꯂꯦꯟꯅꯕ" ("in consultation with the Hill Areas Committee") ꯊꯧꯗꯣꯛ ꯁꯤꯕ ꯀꯥꯎꯕꯤꯜꯃꯕ ꯌꯥꯐꯝ ꯑꯃꯠ ꯌꯥꯕ; ꯃꯈꯥꯗ ꯕꯤꯜꯗꯤꯡ ꯀꯟꯁꯠꯔꯛꯁꯟ ꯑꯃꯠꯇꯥ ꯌꯥꯕ꯫ 2006-ꯗ ꯍꯥꯞꯆꯤꯟꯅꯕ ꯁꯦꯛꯁꯟ 29(1A)-ꯗ ꯀꯧꯊꯣꯛꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯗꯨꯕ ꯌꯥꯝ ꯑꯃꯗꯒꯤ "ꯗꯦꯚꯂꯣꯞꯃꯦꯟꯠ ꯄ꯭ꯂꯦꯟ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯁꯦꯝꯗꯣꯛꯄꯒꯤꯗꯃꯛ" ("for the purpose of formulation of development plan") ꯁꯦꯝꯕꯥ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯅꯣꯇꯤꯐꯥꯏ ꯌꯥꯕ ꯍꯥꯞꯆꯤꯜꯂꯤ, ꯌꯥꯝ ꯑꯃꯠ ꯈꯪꯅꯗꯦ; ꯃꯁꯤ ꯁꯤꯡꯆꯕ ꯑꯅꯗ ꯆꯪꯗ꯫ 1971-ꯒꯤ ꯌꯥꯊꯪꯒꯤ ꯁꯦꯛꯁꯟ 52(c)-ꯗ "ꯊꯥꯗꯣꯛꯄ ꯅꯠꯔꯒꯥ ꯁꯤꯡ ꯊꯛꯅꯕꯒꯤꯗꯃꯛ ꯌꯥꯡꯗꯕ ꯊꯝꯂꯕ" ("set apart for drinking or culinary purposes") ꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯁꯦꯃꯖꯦꯒꯤ ꯃꯌꯥꯝꯗ ꯕꯅ-ꯗꯨ ꯁꯤꯡꯅꯤ꯫ ꯄꯨ 2025-ꯗꯒꯤ ꯁꯤꯡꯒꯤ ꯁꯦꯝ ꯌꯥꯊꯪꯗꯤ ꯑꯗꯨꯒꯤ ꯀꯨꯁꯤꯂꯅꯒꯤꯗ ꯀꯧꯊꯣꯛꯂꯤꯕꯁꯤꯡ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯠ ꯌꯥꯕ (ꯁꯥꯁꯟ ꯇꯧꯕ ꯃꯇꯝꯗꯥ ꯃꯌꯦꯛ ꯅꯦꯜꯂ)꯫ ꯗꯤꯂꯣꯏꯁꯤꯡ ꯀꯧꯊꯣꯛꯂꯤ ꯅꯠꯔꯒꯥ ꯒꯤꯆꯦꯆ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯒꯤ ꯕꯤꯂꯗꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯥꯀꯣꯟꯒꯤ ꯊꯥꯟ ꯑꯃꯠꯇꯥ ꯈꯪꯅꯗꯦ [TBC]꯫ ꯁꯥꯕꯇꯤꯡ ꯁꯔꯥꯔ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯆꯦꯂꯣꯏꯕ ꯕꯦꯗꯤ ꯑꯃꯒꯤ ꯍꯨꯗꯤꯡꯁꯤ ꯅꯠꯇꯦ ꯁꯤꯡꯒꯤ ꯆꯦꯂꯣꯏꯁꯤꯡ ꯃꯦꯞꯔꯦꯟ ꯑꯗꯤꯒꯤ ꯂꯥꯌꯒꯤ ꯆꯌꯥ (ꯃꯆꯦꯠ 1.3-ꯒꯤ ꯂꯦꯔꯤꯡꯗ ꯌꯥꯁꯤ)꯫

ꯍꯧꯔꯀꯐꯝꯁꯤꯡ	ꯃꯔꯤ
ꯋꯦꯠꯂꯦꯟꯗ (ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ) ꯔꯨꯜ, 2017; ꯃꯅꯤꯄꯨꯔꯒꯤ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯇꯂꯥꯁ (31 ꯗꯤꯁꯦꯝꯕꯔ 2018-ꯗ ꯐꯣꯡꯗꯣꯀꯈꯤ)	ꯐꯪꯂꯛꯄ ꯑꯗꯨꯃꯛ ꯐꯪꯂꯛꯂꯤ॥ ꯑꯦꯇꯂꯥꯁ ꯑꯁꯤꯅ ꯃꯥꯏꯄꯥ 22 ꯂꯩ, ꯌꯦꯡꯁꯤꯟꯕ, ꯍꯧꯖꯤꯛ ꯆꯦꯛꯁꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯀꯅꯕ ꯃꯊꯧ ꯇꯥꯕ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯅꯕ ꯃꯊꯧ ꯇꯥꯕ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯣꯏꯅ ꯃꯥꯏꯄꯥ ꯐꯣꯡꯗꯣꯀꯈꯤꯕꯅꯤ; ꯃꯈꯣꯌꯒꯤ ꯃꯅꯨꯡꯗ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯣꯏꯕ ꯂꯝꯂꯛ (Jaimeng), ꯀꯆꯧꯐꯨꯝ (Kachouphung) (ꯑꯆꯧ ꯃꯥꯀꯤ, Achau Maki), ꯄꯨꯝꯂꯦꯟ ꯄꯥꯠ, ꯂꯧꯖꯤꯡ ꯄꯥꯠ, ꯂꯝꯐꯦꯜ–ꯌꯥꯏꯔꯤꯄꯣꯛ ꯄꯥꯠ, ꯄꯨꯝꯂꯦꯟ–ꯈꯣꯏꯗꯨꯝ ꯄꯥꯠ (Pumlen–Khoidum Pat) ꯑꯃꯁꯨꯡ ꯏꯀꯣꯞ–ꯈꯥꯔꯨꯡ ꯄꯥꯠ (Ikop–Kharung Pat) ꯌꯥꯎ; ꯋꯦꯠꯂꯦꯟꯗ 71 ꯗꯤꯁ꯭ꯠꯔꯤꯛꯇ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ 3 ꯗꯤꯚꯤꯖꯟ ꯂꯦꯚꯦꯜ, ꯑꯃꯁꯨꯡ ꯂꯧꯖꯤꯡ, ꯄꯨꯝꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯂꯝꯐꯦꯜ–ꯌꯥꯏꯔꯤꯄꯣꯛ ꯄꯥꯠꯁꯤꯡꯒꯤ ꯗꯤꯇꯦꯜ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯔꯤꯄꯣꯔꯠ (DoECC, 2025-26)॥ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯑꯃꯥ ꯌꯥꯎꯕ ꯑꯦꯟꯗꯤꯁꯤꯌꯥ, ꯂꯥꯏꯅ 4 ꯃꯐꯝꯗ ꯑꯍꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯗ ꯐꯪꯂꯤꯕ (NEER-ꯒꯤ ꯄꯥꯕ)॥ ꯂꯣꯛꯇꯥꯛ ꯑꯣꯏꯕ ꯔꯥꯃꯁꯥꯔ ꯁꯥꯏꯠ (Ramsar site) ꯑꯃꯈꯛ (ꯄꯥꯟꯗꯝ ꯔꯤꯄꯣꯔꯠꯇꯥ ꯃꯇꯨꯡ ꯏꯟꯅ)॥ ꯄꯥꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯊꯣꯛꯄꯤꯕ ꯑꯣꯏꯕ ꯆꯦꯞꯇꯔ 7-ꯗ ꯐꯪꯂꯤ॥
ꯍꯥꯏꯀꯣꯔꯠ ꯑꯣꯐ ꯃꯅꯤꯄꯨꯔ (High Court of Manipur), PIL No. 8 of 2025, *Meeyam Amata Oina Punsinba Lup v. State of Manipur* (16.06.2025-ꯒꯤ ꯑꯣꯔꯗꯔ); ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯇꯥꯡꯗ ꯁꯨꯑꯣꯃꯣꯇꯣ ꯄꯤꯑꯥꯏꯑꯦꯜ (17.07.2019 ꯑꯃꯁꯨꯡ 25.02.2022-ꯒꯤ ꯑꯣꯔꯗꯔꯁꯤꯡ, ꯄꯥꯟꯗꯝ ꯔꯤꯄꯣꯔꯠꯇꯥ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯀꯦꯁ ꯂꯃꯆꯠ ꯌꯦꯡꯕꯤꯌꯨ); ꯆꯨꯝꯕ ꯍꯣꯠꯅꯕꯒꯤ ꯃꯇꯥꯡꯗ ꯁꯨꯑꯣ ꯃꯣꯇꯨ (suo motu) PIL (2019, ꯄꯥꯟꯗꯝ ꯔꯤꯄꯣꯔꯠꯇꯥ ꯃꯇꯨꯡ ꯏꯟꯅ)	ꯃꯌꯥꯝꯅ ꯆꯪꯁꯤꯟꯕ ꯃꯌꯦꯛ ꯐꯪꯂꯦ; ꯃꯌꯥꯝ ꯑꯣꯏꯕ ꯗꯤꯁꯄꯣꯖꯦꯜ ꯑꯣꯏꯈꯤꯗꯦ, ꯃꯥꯏꯊꯤꯕ ꯑꯣꯏꯕꯒꯤ ꯂꯩꯂꯤꯕ ꯆꯠꯅꯕꯤ॥ PIL No. 8 of 2025-ꯗ ꯀꯣꯔꯠꯅ 2 ꯃꯥ 2025-ꯒꯤ WRD-ꯒꯤ ꯁꯞꯃꯤꯁꯟꯗꯒꯤ ꯍꯧꯔꯛꯂꯕ ꯂꯥꯀꯣꯔꯗ ꯌꯥꯎꯕ, ꯄꯤꯌꯣꯏꯕ ꯑꯗꯨꯗ "ꯃꯔꯨ ꯑꯃꯠꯇ ꯂꯩꯇꯦ" ("no substance") ꯍꯥꯏꯅ ꯂꯧꯈꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯗꯤꯁꯄꯣꯖ ꯇꯧꯈꯤ; ꯄꯤꯌꯣꯏꯕ ꯑꯗꯨꯅ "ꯂꯝꯐꯦꯜꯄꯥꯠꯇꯒꯤ ꯁꯃꯨꯁꯥꯡ ꯑꯦꯡꯕꯥꯒꯤ ꯆꯨꯝꯕ ꯆꯪꯁꯤꯟꯗꯨꯅ ꯏꯁꯤꯡꯕꯨ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯊꯥꯗꯣꯛꯀꯗꯕꯅꯤ" ("the entire rain water are required to be discharged through the water canal from Lamphelpat through Samushang and discharged to the Nambul River") ꯍꯥꯏꯅ ꯌꯥꯎꯈꯤ॥ ꯀꯣꯔꯇꯀꯤ ꯑꯌꯥꯕ ꯌꯥꯎꯗꯅ ("without the Court's leave") ꯂꯣꯛꯇꯥꯛ ꯆꯥꯎꯈꯠ ꯃꯈꯣꯌꯒꯤ ꯑꯀꯣꯀꯄ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇ ꯆꯥꯎꯈꯠ ꯀꯦꯔꯤꯄꯣꯔꯠꯇꯥ ꯑꯍꯦꯅꯕ ꯄꯥꯏꯈꯤ ꯍꯥꯏꯅ ꯔꯤꯄꯣꯔꯠꯈꯤ (ꯄꯥꯟꯗꯝ ꯔꯤꯄꯣꯔꯠꯇꯥ ꯃꯇꯨꯡ ꯏꯟꯅ) [TBC]॥ ꯆꯨꯝꯕ ꯍꯣꯠꯅꯕꯒꯤ PIL-ꯗ ꯗꯤꯌꯥꯏꯔꯦꯛꯁꯅꯁꯤꯡ ꯃꯌꯥꯝ ꯂꯩꯈꯤꯕ ꯀꯣꯔꯇꯀꯤ ꯂꯣꯡ, ꯂꯩꯔꯛꯂꯕ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯣꯂꯤꯁꯤ ꯑꯍꯦꯅꯕ ꯄꯥꯏꯈꯤ ꯍꯥꯏꯅ ꯔꯤꯄꯣꯔꯠꯈꯤ (ꯄꯥꯟꯗꯝ ꯔꯤꯄꯣꯔꯠꯇꯥ ꯃꯇꯨꯡ ꯏꯟꯅ)॥
ꯅꯦꯁꯅꯦꯜ ꯒ꯭ꯔꯤꯟ ꯇ꯭ꯔꯥꯏꯕꯨꯅꯦꯜ (National Green Tribunal), OA 606/2018 (ꯂꯥꯃꯗꯝꯗ ꯑꯣꯛꯇꯣ 2025 ꯑꯃꯁꯨꯡ ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯒꯤ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ), OA 673/2018 (ꯄꯥꯟꯗꯝ ꯂꯦꯚꯦꯜ ꯆꯨꯝꯕꯒꯤ ꯔꯤꯚꯔꯁꯤꯡ; ꯂꯥꯃꯗꯝꯗ ꯆꯨꯝꯕ 13-ꯒꯤ ꯃꯃꯤꯡ ꯂꯦꯚꯦꯜ), OA 325/2015, OA 593/2017, OA 360/2018, OA 351/2019, OA 438/2018 ꯑꯃꯁꯨꯡ OA 392/2022, OA 462/2018, ꯑꯃꯁꯨꯡ M.A. 26/2019 (22 ꯃꯥ 2020-ꯒꯤ ꯑꯣꯔꯗꯔ) (DoECC-ꯗ ꯂꯤꯂꯥꯡ ꯂꯦꯚꯦꯜ ꯃꯇꯨꯡ ꯏꯟꯅ)	ꯃꯌꯥꯝꯅ ꯆꯪꯁꯤꯟꯕ ꯃꯌꯦꯛ ꯐꯪꯂꯦ॥ ꯂꯥꯃꯗꯝꯗ ꯁꯞꯃꯤꯟ ꯆꯨꯝꯕꯗ ꯋꯦꯁ꯭ꯇꯋꯥꯇꯔ ꯌꯥꯎꯕꯗ 72 ꯄꯨꯝꯅꯃꯛꯀꯤ ꯍꯧꯔꯀꯐꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯆꯥꯔꯖ (I&D) ꯂꯥꯏꯟ ꯍꯥꯏꯅ ꯔꯤꯄꯣꯔꯠ ꯇꯧꯔꯤ, ꯃꯌꯥꯝꯒꯤ BOD 42.45–52.34 mg/L ꯑꯃꯁꯨꯡ COD 78.56–97.23 mg/L ꯂꯩꯔꯤ, ꯀꯥꯡꯂꯒꯤ ꯃꯌꯦꯛꯁꯤꯡꯗ ꯀꯤꯌꯥꯝ 70 MLD ꯆꯠꯅꯔꯤ ꯑꯗꯨꯒꯤ ꯂꯩꯔꯤꯕꯁꯤꯡ 44 MLD ꯌꯥꯎꯕꯃꯛ, ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯂꯦꯚꯦꯜ ꯍꯦꯟꯅꯕꯁꯤꯡ "ꯂꯧꯃꯒꯤ ꯀꯦꯅꯥꯜꯁꯤꯡ" ("Agriculture canals")-ꯗ ꯆꯠꯀꯅ (OA 606/2018-ꯗ ꯂꯥꯃꯗꯝꯗ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ); CPCB-ꯗ ꯂꯥꯃꯗꯝ ꯄꯥꯟꯗꯝ ꯂꯦꯚꯦꯜ ꯔꯤꯚꯔ 18 ꯂꯤꯂꯥꯡ ꯂꯩꯔꯤ, ꯄꯨꯝꯅꯃꯛ Priority V, ꯃꯌꯥꯝꯒꯤ ꯃꯇꯨꯡꯗ ꯀꯤꯌꯥꯕ ꯗꯤꯁꯆꯥꯔꯖꯒꯤ ꯃꯤꯇꯩꯄꯨꯔꯒꯤ ꯑꯦꯛꯁꯟ ꯆꯠꯅꯕ ꯆꯨꯝꯕ (CPCB, 2025); ꯑꯃꯁꯨꯡ M.A. 26/2019 ꯃꯐꯝꯗ ꯍꯣꯠꯅꯕ ꯂꯩꯔꯤ ꯌꯥꯎ 4,000 ꯍꯦꯛꯇꯦꯌꯔꯒꯤ ꯂꯦꯚꯦꯜ, "ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ … ꯄꯦꯟꯗꯤꯡꯒꯤ" ("Ground truthing … pending") (DoECC)॥ ꯂꯣꯛꯀꯤ ꯍꯣꯠꯅꯕꯒꯤ ꯌꯥꯎꯗꯕꯁꯤꯡꯗ ꯂꯩꯕ ꯀꯤꯌꯥꯝ ꯑꯣꯏꯕ ꯆꯦꯞꯇꯔ 8-ꯗ ꯋꯥꯔꯤꯂꯤꯅꯤ (ꯇꯦꯕꯜ 8.9)॥
ꯍꯦꯗꯤꯁꯤꯒꯤ ꯀꯝꯄ꯭ꯠꯔꯣꯂꯔ ꯑꯃꯁꯨꯡ ꯑꯣꯗꯤꯇꯔ ꯖꯦꯅꯦꯔꯦꯜ (Comptroller and Auditor General of India), Report No. 2 of 2017 (Economic and Revenue Sectors, Government of Manipur), ꯃꯔꯤꯒꯤ 2016 ꯐꯥꯎꯕ ꯍꯣꯠꯅꯕ ꯍꯤꯡꯕ ꯀꯟꯠꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅꯕ ꯍꯤꯡꯕꯒꯤ ꯔꯤꯚꯤꯌꯨꯁꯤꯡꯒꯤ ꯄꯔꯐꯣꯔꯃꯦꯟꯁ ꯑꯣꯗꯤꯠ, ꯑꯃꯁꯨꯡ ꯍꯔꯤꯀꯣꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯌꯨꯅꯥ ꯀꯟꯠꯔꯣꯜ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ 2002 ꯑꯃꯁꯨꯡ 2008-ꯒꯤ ꯑꯣꯗꯤꯠꯁꯤꯡ (ꯀꯃꯤꯔꯤ ꯇꯧꯈꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯄꯥꯈꯤꯗꯕ)	ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗ ꯍꯦꯟꯖꯤꯜꯂꯕ ꯄꯥꯝꯂꯤ॥ 2017-ꯒꯤ ꯑꯣꯗꯤꯠꯅ "ꯄꯨꯝꯅꯃꯛ ꯌꯥꯎꯕ ꯍꯣꯠꯅꯕ ꯍꯤꯡꯕꯒꯤ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯣꯜ ꯇꯧꯕꯒꯤ ꯊꯕꯛꯁꯤꯡ ꯃꯇꯤꯛ ꯆꯥꯗꯕ ꯂꯩꯔꯤ" ("The overall flood fighting and control activities remained inadequate") ꯍꯥꯏꯅ ꯐꯣꯡꯗꯣꯀꯈꯤ (ꯀꯣꯃꯤꯔꯤ ꯃꯇꯨꯡ ꯏꯟꯅ); ꯃꯔꯨꯑꯣꯏꯕ ꯑꯣꯗꯤꯠꯁꯤꯡꯗ ꯂꯣꯛꯇꯥꯛ ꯂꯤꯖꯦꯜ ꯍꯔꯤꯀꯣꯂꯦꯟ ꯄꯔꯤꯖꯦꯛꯇ, ꯃꯈꯣꯌꯒꯤ ꯀꯦꯅꯥꯜꯁꯤꯡ "ꯃꯐꯝ ꯂꯩꯈꯥ ꯄꯨꯊꯣꯛꯄꯤꯗꯕꯅ ꯃꯔꯝ ꯑꯣꯏꯗꯨꯅ" ("due to siltation of beds") ꯌꯥꯎꯈꯤ, ꯑꯃꯁꯨꯡ ꯌꯨꯅꯥ ꯗꯦꯜ, ꯀꯣꯇꯥꯃꯁ ꯑꯃꯁꯨꯡ ꯍꯦꯖꯤꯟ ꯕꯦꯔꯤꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯀꯤꯌꯥꯕ ꯗꯦꯜ ꯋꯥꯎ (ꯀꯣꯃꯤꯔꯤ ꯃꯇꯨꯡ ꯏꯟꯅ)॥ IMC-ꯒꯤ ꯍꯔꯦꯜ, ꯂꯃꯥꯏꯔꯤ ꯀꯥꯌꯒꯤ ꯊꯕꯛꯁꯤꯡ, AMRUT ꯆꯠꯅꯕꯤ LDA-ꯒꯤ ꯑꯣꯗꯤꯠ ꯑꯃꯠꯇ ꯌꯥꯎꯗꯦ॥
ꯂꯩꯃꯥꯏꯒꯤ ꯃꯌꯥꯒꯤ ꯍꯀꯤꯡ: ꯂꯥꯃꯗꯝꯗ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯌꯥꯒꯤ ꯍꯀꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯂꯥꯏꯅ; Manipur Ground Water (Control & Regulation) Policy, 2023 (ꯐꯣꯡꯗꯣꯀꯈꯤ, DoECC-ꯗ ꯂꯤꯂꯥꯡ ꯂꯦꯚꯦꯜ ꯃꯇꯨꯡ ꯏꯟꯅ; ꯂꯣꯏꯁꯤꯟ ꯄꯥꯈꯤꯗꯕ)	ꯐꯪꯂꯛꯄ ꯑꯗꯨꯃꯛ ꯐꯪꯂꯛꯂꯤ॥ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯌꯥꯒꯤ ꯍꯀꯤꯡ ꯀꯟꯠꯔꯣꯜ ꯂꯦꯚꯦꯜ ꯂꯥꯃꯗꯝꯗ ꯏꯟꯅ ꯑꯃꯠꯇ ꯌꯥꯎꯗꯦ॥ ꯂꯥꯃꯗꯝꯗ ꯑꯦꯀꯣꯀꯁꯤꯡ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯁꯇꯦꯖꯗ "ꯀꯦꯌ" ("Safe") ꯌꯥꯎ, ꯑꯦꯛꯁꯠꯔꯥꯛꯁꯅꯒꯤ ꯂꯥꯟ 8.00% (CGWB, GWRA 2024, ꯀꯣꯃꯤꯔꯤ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯃꯔꯝ ꯑꯗꯨꯅ ꯔꯤꯆꯔꯖ ꯑꯣꯏꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯕꯒꯤ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯀꯤ ꯑꯦꯛꯁꯠꯔꯥꯛꯁꯟ ꯆꯠꯅꯕ (ꯇꯦꯕꯜ 4.11, ꯔꯤꯆꯔꯖꯒꯤ ꯂꯥꯏ)॥ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯕꯗ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯌꯥꯒꯤ ꯍꯀꯤꯡꯒꯤ ꯔꯤꯀꯣꯔꯗꯁꯤꯡꯗꯁꯨ WRD-ꯒꯤ ꯃꯃꯤꯡ ꯂꯩꯌꯥ; ꯂꯥꯃꯗꯝꯗ ꯑꯣꯕꯖꯔꯚꯦꯁꯟ-ꯋꯦꯜ ꯆꯠꯅꯕꯤ ꯑꯃꯠꯇ ꯌꯥꯎꯗꯦ, ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯋꯥꯡꯈꯠꯂꯣ CGWB-ꯒꯤ ꯗꯥꯇꯥ-ꯋꯦꯜ ꯃꯥꯂꯦꯝꯗꯤ "ꯂꯣ ꯑꯦꯟꯗ ꯑꯣꯔꯗꯔ ꯀꯥꯏꯊꯣꯛꯄ ꯃꯔꯝ ꯌꯥꯎꯕꯅ 1991-ꯗꯒꯤ" ("since 1991 due to disturbed law and order") ꯂꯣꯠꯈꯤ (CGWB, Imphal West, 2013)॥

ꯏꯟꯁ꯭ꯠꯔꯨꯃꯦꯟꯠ	ꯃꯔꯤ
ꯏꯟꯚꯥꯏꯔꯅꯃꯦꯟꯠ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 1986 (Environment (Protection) Act, 1986); ꯋꯣꯇꯔ (ꯄ꯭ꯔꯤꯚꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯣꯜ ꯑꯣꯐ ꯄꯣꯂꯨꯁꯟ) ꯑꯦꯛꯠ, 1974 (Water (Prevention and Control of Pollution) Act, 1974); ꯃꯅꯤꯄꯨꯔ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (Manipur Pollution Control Board, MPCB)	ꯆꯠꯅꯤꯕ ꯑꯁꯨꯛꯃ ꯆꯠꯅꯒꯅꯤ॥ MPCB-ꯅꯥ ꯏꯟꯗꯁ꯭ꯠꯔꯤꯁ ꯀꯦꯃꯦꯁꯤꯡ ꯄꯤꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯤ ꯕꯟ-ꯅꯦꯟꯅ ꯏꯟꯗꯁ꯭ꯠꯔꯤꯁꯤꯡꯒꯤ ꯀꯥꯟꯁꯦꯜꯂꯤꯡꯅꯤ ꯅꯤ॥ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯏꯃꯕꯣꯜꯂꯤꯡꯗ ꯅꯥꯕ ꯂꯤꯃꯤꯠ ꯑꯂꯤ ꯂꯤꯁ꯭ꯇ 8-ꯗ ꯍꯦꯡꯂꯤꯅꯤ॥
ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯦꯛꯠ, 2005 (Disaster Management Act, 2005); ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ (Manipur State Disaster Management Authority, MSDMA), ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ, ꯔꯦꯚꯦꯅꯨ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡ	ꯆꯠꯅꯤꯕ ꯑꯁꯨꯛꯃ ꯆꯠꯅꯒꯅꯤ॥ ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠꯀꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ ꯑꯣꯏꯕ (ꯄꯥꯎꯖꯦꯜ ꯐꯥꯑꯣꯕ ꯃꯤꯐꯝ ꯏꯄꯥ); MSDMA-ꯒꯤ ꯍꯥꯔꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯄꯥꯎꯖꯦꯜ ꯁꯦꯝꯕꯒꯤ ꯂꯥꯏꯔꯤꯛ ꯑꯣꯏꯅꯥ ꯄꯥꯎꯇꯥꯛꯁꯤꯡ ꯄꯥꯔꯤꯡ ꯑꯣꯏꯕ ꯃꯦꯍꯧꯔꯣꯟ ꯑꯣꯏꯒꯅꯤ [TBC], ꯑꯃꯁꯨꯡ ꯄꯥꯔꯤꯡ-ꯃꯦꯜꯂꯣꯟ ꯀꯤꯍꯧꯔꯣꯟꯗꯒꯤ ꯊꯥꯏ ꯗꯥꯄꯥ ꯂꯩꯇꯕꯤ ꯑꯥꯔꯥꯔ ꯑꯃꯇꯥ ꯈꯥꯏꯗꯤ; ꯂꯤꯁ꯭ꯇ 10-ꯒꯤ ꯁꯕꯗꯥꯒꯤ ꯃꯦꯗꯦꯜꯔꯤꯅꯥ 31 ꯃꯔꯤꯌꯥꯒꯤ ꯍꯣꯅꯕ ꯃꯦꯍꯧꯔꯣꯟ ꯑꯣꯏꯒꯤ ꯊꯥꯖꯤꯕ ꯁꯦꯝꯂꯤ॥
IRC:SP:42-2014, IRC:SP:48 (Hill Road Manual), IS 14458 ("Guidelines for retaining wall for hill area", ꯃꯥꯏꯀꯤ ꯍꯦꯟꯅ ꯊꯥꯔꯕ) ꯑꯃꯁꯨꯡ ꯆꯠꯅꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯗꯒꯤ ꯆꯠꯅꯤꯒꯤ ꯅꯍꯥꯛꯀꯤ ꯃꯊꯧꯗ ꯄꯅꯕꯥꯒꯤ ꯌꯥꯗꯒꯦ ꯀꯤꯄꯤꯂꯤꯛꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯗꯦꯂꯦꯟ-ꯍꯅꯌꯒꯤ ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯤꯡꯒꯤ ꯄꯥꯎꯇꯥꯛꯁꯤꯡ	ꯆꯠꯅꯤꯡꯕꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯗꯒꯤ ꯆꯠꯅꯤꯡꯕꯒꯤ ꯅꯍꯥꯛꯅ ꯌꯥꯗꯦ, ꯂꯤꯁ꯭ꯇ 6-ꯗꯒꯤ ꯗꯔꯦꯟ-ꯍꯦꯖꯔ ꯊꯥꯔꯤꯕꯒꯤ, ꯃꯇꯤꯛ ꯔꯤꯅꯗꯕ ꯃꯖꯍ ꯀꯥꯊꯕꯗ; IRC:SP:48-ꯒꯤ ꯅꯍꯥꯛꯒꯤ ꯗꯤꯖꯥꯏꯅꯤꯡ ꯃꯦꯍꯧꯔꯣꯟ ꯑꯣꯏꯒꯤꯗꯃꯛ ꯄꯥꯅꯤꯗꯥ [TBC]॥
CPHEEO Manual on Storm Water Drainage Systems (2019)	ꯅꯦꯇꯤꯅꯤꯔꯤꯡꯒꯤ ꯍꯖꯍꯦꯜ॥ ꯃꯦꯍꯧꯔꯣꯟ ꯑꯣꯏꯅ ꯗꯤꯇꯦ 1.3.2 ꯃꯔꯝ ꯍꯦꯟꯅ ꯔꯤꯕ ꯍꯤꯊꯥꯏꯗ ꯄꯥꯔꯤꯔꯝꯅꯤ ꯁꯦꯝꯂꯤ॥
NDMA Guidelines on Management of Urban Flooding (2010) ꯑꯃꯁꯨꯡ MoHUA SOP (2017)	ꯃꯦꯍꯧꯔꯣꯟ ꯑꯣꯏꯅ ꯗꯥꯌꯃꯦꯜꯂꯤ ꯐꯣꯅꯖꯦꯟ ꯑꯣꯅꯕ ꯀꯤꯇꯥꯟꯗ, ꯀꯤꯊꯦꯜꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯊꯤꯊꯦꯜꯂꯣꯟ, ꯅꯣꯡꯒꯤ ꯇꯦꯟꯖꯥ ꯌꯥꯗꯄ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯅꯃꯦꯟꯗꯤꯁꯤꯡ ꯂꯣꯟꯇꯤꯅꯦꯕ IDF-ꯒꯤ ꯃꯊꯧꯗ NDMA-ꯒꯤ ꯀꯅꯥꯟꯗꯤꯕꯤꯒꯂꯤꯡ ꯁꯕꯗꯤ ꯄꯥꯔꯗꯤꯅ॥
NDMA Urban Flood Risk Management Programme (UFRMP) ꯑꯃꯁꯨꯡ AMRUT 2.0	ꯄꯥꯔꯦꯡꯒꯤ ꯑꯂꯤꯂꯤꯡꯒꯤ ꯃꯍꯦꯟ ꯂꯣꯏ ꯄꯥꯔꯤ ꯁꯕꯗꯂꯤꯡꯒꯤ ꯃꯦꯍꯧꯔꯣꯟ ꯑꯂꯤ ꯐꯗꯤꯗꯅꯕꯦꯅꯤ॥ ꯂꯤꯁ꯭ꯇ 4–5-ꯒꯤ ꯀꯥꯒꯥꯆꯄꯥꯃꯦꯁꯤꯡ ꯗꯦꯍꯧꯔꯣꯟꯂꯤꯡꯗꯤ ꯁꯕꯗ ꯑꯃꯨꯂꯤꯡꯗꯤ ꯂꯥꯃꯕ ꯗꯥꯄꯥꯀꯤꯂꯤ ꯐꯗꯤꯅ॥
IRC:SP:42-2014 ꯑꯃꯁꯨꯡ IRC:SP:50-2013	ꯂꯤꯁ꯭ꯇ 6-ꯒꯤ ꯔꯤꯅꯗꯕ ꯃꯖꯍ ꯀꯥꯊꯕꯗ ꯅꯗꯥ ꯆꯠꯅꯤꯒꯤ ꯅꯍꯥꯛꯅ ꯌꯥꯗꯦ॥
MBBL 2016, Chapter 9	RWH-ꯒꯤꯗꯃꯛ ꯑꯃꯁꯨꯡ ꯂꯤꯁ꯭ꯇ 10-ꯗ ꯀꯕ ꯅꯦꯂꯣꯄꯥꯗꯂꯦꯒꯤ ꯁꯑꯣꯗꯒꯤꯗꯃꯛ ꯃꯥꯀꯤꯅ॥

> **ꯂꯦꯗꯥꯗꯒꯤ ꯊꯥꯗꯄꯥ.** ꯃꯅꯤꯄꯨꯔꯗ RWH ꯑꯂꯤ ꯅꯂꯤꯗ ꯂꯄꯥꯀꯤꯟ ꯑꯃꯁꯨꯡ ꯍꯤꯌꯥꯍꯦꯟꯗꯦꯒꯤ ꯁꯑꯣꯗ ꯑꯃꯦ ꯑꯣꯅꯕꯗꯦ ꯂꯥꯃꯕꯗꯦꯅꯤ॥ ꯄꯥꯀꯟꯗꯃ ꯑꯃꯨꯒꯤꯗꯃꯛ ꯃꯂꯤꯗꯤ ꯈꯗꯦ ꯁꯕꯗ ꯊꯥꯅ॥ ꯑꯃꯨꯕ ꯃꯦꯂꯦꯜꯂꯗ ꯅꯂꯤꯗ ꯅꯌꯦꯇ ꯗꯦꯁꯤꯡꯒꯤꯗꯃꯛ ꯃꯂꯤꯗ ꯁꯤꯇꯕ ꯁꯃꯕ ꯔꯦꯍꯅ, ꯃꯍꯃꯗꯤ ꯇꯤꯡꯅꯗꯒꯤ ꯂꯥꯄꯥꯃꯕꯍ ꯈꯑꯣꯕꯒꯤ ꯃꯦꯂꯦꯜꯂꯒꯤ ꯗꯦꯗ ꯄꯨꯕꯒꯤ ꯁꯗꯦꯗ ꯑꯃꯦ, ꯇꯤꯡꯅ 1989-ꯒꯤ ꯑꯍꯅꯕ ꯃꯊꯃ ꯑꯃꯁꯨꯡ ꯇꯤꯡꯅ 2015-ꯒꯤ ꯑꯍꯅꯕ ꯃꯊꯃꯒꯤ ꯁꯗꯦꯗꯂꯤꯗꯄꯨꯃꯕ, ꯍꯄꯥꯊ ꯗꯌꯦꯒꯤ ꯗꯦꯗꯒꯤ ꯃꯊꯨꯗ ꯇꯗꯄꯥ ꯃꯊꯃꯗ RWH ꯂꯃꯄꯂꯤꯗ ꯌꯦꯃꯇ ꯃꯊꯃꯗ ꯃꯄꯨꯂꯕ ꯑꯅꯍꯥ ꯗꯌꯥꯒꯤ ꯇꯃꯦꯅ ꯅꯂꯤꯗꯤ ꯁꯦꯁꯥ॥ ꯃꯍꯃ ꯑꯂꯤꯗꯤ ꯃꯦꯍꯧꯔꯣꯟ ꯑꯂꯤꯗꯤ ꯅꯦꯃꯇꯤꯂꯕ ꯒꯦꯇꯨꯃ ꯑꯃꯁꯨꯡ ꯑꯊꯥꯍꯨꯔꯑꯥꯂꯦ ꯒꯦꯇꯨꯃ ꯊꯥꯐꯦꯗꯤ ꯁꯃꯇꯤ, ꯑꯃꯨꯒꯤ ꯍꯤꯌꯥꯍꯇꯗꯤ ꯂꯤꯂꯥꯃꯗꯒꯤ ꯅꯂꯤꯗ ꯊꯂꯥꯗꯤ ꯇꯁꯦꯗꯄ ꯃꯖꯃꯗ ꯃꯂꯤꯨ ꯍꯤꯊꯥꯍꯦꯟ ꯑꯦꯅꯗꯤ ꯁꯤꯕ ꯌꯦꯍꯅꯤ॥
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> ꯃꯅꯤꯄꯨꯔꯗꯤ ꯃꯂꯤꯒꯤ ꯅꯦꯗꯕꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯌꯥꯗꯤꯅꯂꯤꯗꯗ ꯂꯦꯅ ꯁꯗꯍꯤ, ꯑꯃꯨꯕ ꯀꯤꯇꯅꯂꯒꯤ ꯐꯣꯅꯖꯦꯟ ꯇꯊꯗꯤ॥ AIIB-ꯒꯤ Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723)-ꯗꯤ ꯄꯥꯔꯤꯡ ꯅꯃꯖꯦꯅꯗ ꯆꯠꯅꯤ 547 km "ꯗꯦꯗꯒꯤ ꯅꯂꯤꯗ … ꯑꯅꯍ ꯖꯦꯅ (ꯐꯨꯄꯅ) ꯖꯑꯦꯕ ꯌꯥꯗꯅ ꯊꯥꯕ" ("channelize the storm water … to the out fall (river)") "ꯃꯗꯤꯗ ꯑꯗꯤꯃꯗꯊ ꯗꯒꯍ ꯊꯥꯍꯕ ꯗꯦꯗꯒꯤ ꯅꯂꯤꯗꯒꯤ ꯅꯦꯗꯕꯂ 547 km" ("547 km of both side stormwater covered drains")-ꯒꯤ ꯇꯦꯌꯗꯗ ꯑꯃꯨꯗ ꯍꯂꯗꯤ ꯂꯥꯃꯒꯗꯤ, ꯑꯃꯁꯨꯡ ꯍꯤꯊꯥꯍꯂ ꯄꯤꯍꯤꯌꯅ, ꯗꯦ ꯐꯨꯕꯒꯤ ꯅꯦꯗꯊꯥꯂꯤꯊꯤ ꯗꯌꯥꯒꯤ ꯍꯗꯑꯦꯖ ꯗꯦꯑꯖꯤꯂꯤꯌꯥꯦꯌ ꯑꯃꯌꯊ ꯍꯌꯅꯥ (AIIB, Approval Project Document, October 2024); ꯆꯠꯖꯥꯅꯄꯥꯌ ꯌꯦꯊꯍꯕꯦꯗꯤ ꯍꯤꯇꯨꯒꯤꯗꯥꯂꯗ ꯄꯥꯔꯦꯇꯥꯌ (Lamphelpat Waterbody Rejuvenation Project) ꯑꯂꯤꯗꯤ "ꯃꯂꯤꯒꯤ ꯅꯂꯤꯗ ꯀꯤꯊꯦꯜꯂꯗꯒꯤ ꯗꯥꯄꯥꯀꯤꯂꯤꯊꯤ ꯍꯥꯗꯒꯌꯍꯗꯕ, ꯗꯦꯗꯒꯤ ꯅꯂꯤꯗ ꯅꯍꯃꯒꯤ ꯂꯤꯗꯊꯃ ꯑꯃꯨꯗ ꯍꯂꯗꯤ ꯂꯥꯃꯗꯦꯗꯄ" ("increase its water detention capacity, restore stormwater drainage system") ꯑꯃꯁꯨꯡ

> "ꯃꯍꯤꯛꯅ ꯂꯪꯦꯝꯕ ꯑꯍꯥꯛ ꯇꯦꯔꯦꯦ ꯕꯤꯔꯪꯡ ꯁꯦꯅꯃ ꯏꯇꯅ ꯍꯪꯦꯪꯇꯍꯪꯦꯌ ꯂꯤꯂꯝꯪꯃ" ("real time flood management system with a command center") ꯂꯪꯍꯒꯌꯃꯅꯕꯦꯤ, USD 87.84 million-ꯒꯤ ꯍꯍꯆꯅ, ꯍꯂꯤꯒꯤ ꯏꯑꯗꯅꯑꯁꯤꯕ ꯂꯃꯍꯕꯤꯅ ꯅꯤꯇꯅꯦ ꯂꯝꯕꯃ ꯑꯍꯌꯝ ꯇꯝꯗ (NDB, 2021), ꯑꯗꯨꯒꯤ WRD-ꯗ ꯃꯤꯌ ꯑꯂꯤꯒꯤ ꯁꯤꯡ 300 acres "ꯔꯤꯃꯗ ꯁꯤꯡꯕ ꯅꯂꯤꯡ ꯅꯁꯟꯒꯤ ꯍꯝꯃꯅ ꯆꯃꯏꯪꯆ ꯃꯤꯌꯃꯤ ꯅꯂꯤꯡ ꯇꯏꯃꯅꯒꯤ ꯂꯍꯂꯤꯡ ꯗꯗꯒꯤ (Shamushang Nalla) ꯅꯌꯊꯡꯅ ꯆꯃꯕꯆ ꯁꯕꯪꯆꯅ ꯅꯂꯤꯡ ꯅꯁꯟꯒꯤ ꯅꯂꯤꯡ ꯃꯃꯃ ꯌꯕꯒꯤ ꯃꯕꯤꯒꯤꯇꯦ" ("provision for pumping of flood water from the Lamphel pat water body to the Nambul River through Shamushang Nalla during high flood season")-ꯒꯤ ꯇꯔꯦꯦ ꯅꯕꯪꯇ ꯌꯕꯤ (PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯀꯅꯌ ꯕꯤꯃꯕꯌ); ꯑꯍꯂꯡ ꯂꯝꯪꯌꯗ "ꯆꯃꯕꯆ ꯁꯕꯪꯆꯅ ꯔꯪꯦꯊꯕꯑꯃ ꯅꯡꯕꯦ ꯃꯍꯃꯆꯍꯑꯃꯤ (72 Nos.) ꯅꯦꯝꯕꯂꯪꯃꯂꯦ ꯑꯍꯂꯡ ꯕꯅꯒꯕꯂꯦ (I & D)" ("Interception & Diversion (I & D) of all drains (72 Nos.) falling into the Nambul River") ꯇꯅꯕꯪ ꯄꯔꯗ ꯕꯤꯃꯕꯌ ꯌꯅ, ꯅꯡꯕꯦꯂꯤꯡꯒꯤ BOD 42.45–52.34 mg/L ꯇꯗ (OA 606/2018-ꯗ NGT-ꯗ ꯂꯝꯪꯌꯃꯤ ꯕꯤꯃꯕꯌ, ꯅꯤꯂꯪꯃꯕꯕ 2025)꯫ ꯍꯅꯔ ꯑꯍꯌꯝꯗ ꯅꯤꯇꯅꯦ ꯂꯝꯕꯃ ꯄꯔꯅꯪ, ꯑꯍꯂꯡ ꯃꯪꯔꯍꯪꯦꯌ ꯑꯅꯍꯑꯝ ꯇꯕ ꯑꯇꯕ ꯃꯇꯌꯂꯤꯡꯗ ꯑꯂꯃꯕ ꯊꯕꯑꯂꯤꯡꯗ ꯂꯪꯃꯕ ꯃꯪꯃꯂꯤꯝ ꯂꯤꯇꯤꯦꯆꯅꯗ ꯇꯅꯂꯤꯦꯕ ꯊꯤꯡꯕ ꯅꯪꯒꯪꯆꯃꯍꯪꯦꯌ-ꯃꯦꯝꯕꯒꯤ ꯃꯦꯅꯤꯂꯦ ꯑꯍꯌꯝ ꯇꯝꯪ꯫ ꯂꯕꯑ 4–5 ꯑꯪꯃꯕꯒꯪꯆꯂꯤꯡꯒꯤ ꯂꯃꯍꯤꯦꯆꯕꯗ ꯑꯂꯅꯕ ꯑꯅ ꯊꯤꯡꯇꯤꯆꯇꯤ꯫
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> ꯂꯝꯪꯌꯃꯤ ꯑꯅꯦꯅ ꯅꯌꯇꯅ ꯅꯕ ꯇꯤ꯫ ꯍꯅꯆꯒꯤ ꯍꯅꯡ ꯅꯦꯆ ꯇꯕ ꯕꯅ-ꯇꯇꯗ ꯁꯕꯪꯆꯒꯤ ꯕꯏꯕ ꯌꯪꯕꯆ ꯑꯍ ꯑꯍꯂꯡ ꯅꯂꯤꯡ ꯅꯁꯟꯒꯤ ꯃꯇꯤꯦꯊ ꯑꯍ ꯊꯃꯇꯤ, ꯁꯟꯕ ꯕꯤꯆꯅꯤꯡꯂꯤꯡꯒꯤꯅꯍꯑ "ꯏꯡꯕ ꯔꯕ ꯃꯕꯍꯇꯪꯦꯌ/ꯃꯑꯃ ꯅꯡꯕꯦ" ("the available permanent/pucca drain") ꯏꯑꯕ ꯅꯕꯃ ꯃꯇꯦ ꯑꯍ ꯑꯍꯂꯡ 100 m² ꯑꯍꯂꯡ ꯍꯅꯅꯒꯤ ꯄꯪꯦꯕ ꯃꯇꯌꯂꯤꯡꯅ ꯇꯡꯒꯤ ꯅꯂꯤꯡ ꯅꯍꯇꯤꯦꯕ ꯍꯊ ꯌꯅ (ꯕꯅ-ꯇ 6(1)(D), 66, 93, 94); Unified Zoning Bye-laws, 2026-ꯗ "ꯃꯅꯕꯤ, ꯅꯡꯕꯦ, ꯁꯕꯪꯆ ꯑꯍꯂꯡ ꯃꯪꯇꯪꯆꯂꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯄꯔꯕ ꯅꯇ ꯇꯦ ꯑꯍ ꯃꯤꯕꯤ; ꯇꯑꯌꯑ ꯑꯪꯑꯌꯗ ꯇꯪꯑ ꯑꯂꯤꯒꯤ ꯕꯏꯕ ꯇꯦꯅ ꯌꯕꯤꯌ ꯌꯅꯕ ꯂꯄꯕꯒꯤ ꯅꯏꯇꯔꯪꯦꯌ ꯊꯅꯃꯃ ꯑꯍꯂꯡ "ꯅꯕꯃꯂꯤꯡꯒꯤ ꯍꯄꯀꯒꯤ ꯆꯃꯕꯤ" ("the natural course of drainages") ꯂꯑꯄꯦꯕ ꯑꯊꯤꯡꯕ ꯃꯤꯕꯤ (ꯂꯪꯑꯂꯦ 19); ꯃꯪꯅꯤ-ꯇꯪꯦꯅ ꯑꯪꯑꯌꯗ ꯍꯂꯤ ꯊꯒꯅꯅꯗ ꯄꯡꯅꯑꯁꯤꯕ ꯆꯃꯅ ꯃꯦꯂꯝꯕꯑꯂꯦ ꯌꯦꯕ ꯗꯅꯂꯪꯦꯂ ꯃꯤꯕ ꯃꯕꯤꯒꯃꯕ ꯇꯃꯆ ꯑꯊꯕꯤꯌ ꯑꯍꯕ ꯑꯊꯤꯡꯕ ꯃꯤꯕꯤ (ꯂꯪꯑꯂꯦ 12); ꯑꯍꯂꯡ ꯍꯇꯤꯃꯕ ꯏꯇꯅ ꯃꯇꯪꯦ ꯇꯇꯤꯡ ꯑꯪꯑꯌ, 1978-ꯗ ꯏꯇꯅ ꯇꯦꯂꯤꯡ ꯃꯤꯕꯤ, ꯍꯅꯔ ꯑꯍꯌꯝ ꯇꯌꯤꯏꯅ ꯌꯕꯍꯅꯪ (ꯇꯦ ꯊꯍꯅ ꯊꯃꯕ "ꯄꯇꯤꯑ ꯏꯑꯕ ꯌꯅꯕꯤ" ("is yet to be done"), ꯅꯦ 2026-ꯗ ꯃꯁꯟꯅ ꯏꯑꯅꯑꯁꯤꯕ ꯍꯅꯡ ꯅꯦꯆ)꯫ ꯃꯕꯌꯂꯤꯡ ꯑꯍꯂꯡ ꯌꯕꯅꯕꯅꯪꯇꯇꯂ ꯊꯕꯑ ꯃꯡꯊꯑꯇꯪ: WRD-ꯒꯤ ꯅꯦꯂꯃꯪꯑꯂꯦꯒꯤ ꯍꯅꯡꯅ ꯄꯅ ꯃꯕꯌꯗ ꯆꯃꯏꯪꯆꯃꯤꯌꯃꯤ ꯍꯌꯡꯅ PIL ꯑꯍ ꯇꯅꯂꯤꯦꯁꯤ (PIL No. 8 of 2025, 16.06.2025-ꯒꯤ ꯑꯕꯅꯕ), ꯍꯂꯤꯒꯤ ꯂꯃꯪꯂꯤꯔꯪꯆ ꯕꯪꯦꯁꯗ "ꯃꯕꯌꯃꯤ ꯑꯔꯕ ꯇꯅꯗ" ("without the Court's leave") ꯇꯑꯌꯑꯌ ꯆꯌꯕꯒꯤ ꯍꯂꯤꯒꯤ ꯑꯃꯦꯕꯅ ꯅꯪꯒꯪꯆꯃꯍꯪꯦꯌ ꯑꯊꯤꯡꯕ ꯃꯤꯁꯤ ꯄꯔꯗ ꯏꯑꯅꯑꯁꯤ (17.07.2019 ꯑꯍꯂꯡ 25.02.2022-ꯒꯤ ꯑꯕꯅꯕꯂꯤꯡ, ꯃꯁꯟꯅ ꯏꯑꯅꯑꯁꯤꯕ ꯍꯅꯡ ꯅꯦꯆ), ꯑꯍꯂꯡ ꯁꯪꯂꯌ ꯑꯍꯂꯡ ꯃꯇꯅꯌ ꯌꯕꯕ ꯁꯕꯪꯆꯂꯤꯡꯒꯤ ꯍꯌꯡꯅ NGT-ꯒꯤ ꯔꯪꯡꯂꯤꯦꯕꯗ (OA 606/2018; OA 673/2018) ꯆꯃꯕꯆꯒꯤ ꯅꯦꯝꯕꯂꯪꯃꯂꯦꯒꯤ ꯊꯕꯑꯂꯤꯡ ꯃꯊꯑꯁꯤ꯫ ꯑꯅꯦꯅ ꯇꯝꯕꯅꯤ ꯅꯤꯇꯅꯦ ꯂꯝꯪꯦꯅꯕꯅ ꯑꯍꯇꯤ꯫ ꯅꯦꯂꯝꯕꯍꯪꯦꯌ ꯑꯂꯤꯂꯤꯡ ꯑꯍꯌꯝꯗ ꯅꯡꯕꯦ ꯑꯍ ꯃꯔ ꯁꯟꯒꯅꯒ, ꯃꯕꯃꯕ ꯇꯡ ꯅꯕꯒꯤ ꯊꯅꯑ ꯃꯒꯅꯒ, ꯁꯕꯪꯆ ꯔꯡꯇꯤꯊꯅ ꯒꯌ ꯇꯕ ꯑꯁꯟꯌꯏꯆ ꯑꯍ ꯃꯔ ꯍꯌꯃ ꯊꯤꯡꯇꯤꯦꯗ ꯇꯒꯅꯒ, ꯄꯡꯅꯑꯁꯤꯕ ꯇꯕꯑ ꯑꯍꯗ ꯂꯝꯕꯪꯇ ꯃꯔ ꯇꯊꯃꯅꯒ, ꯆꯌꯕꯒꯤ ꯁꯤꯡꯒꯤ ꯀꯅꯌ ꯑꯍꯗ ꯍꯂꯤꯒꯤ ꯗꯃꯍꯅ ꯅꯂꯤꯡ ꯃꯔ ꯊꯕ ꯔꯒꯇꯤ ꯄꯔꯕꯂꯤ ꯄꯔꯅꯪ; ꯕꯅ-ꯇꯒꯤ ꯕꯏꯕꯂꯤꯡ ꯑꯂꯤ ꯍꯤꯅ-ꯂꯝꯕꯤꯍꯅꯒꯤ ꯊꯤꯕꯇꯤ, ꯍꯕꯃ ꯑꯅꯗ ꯃꯗꯑ ꯁꯟꯕ ꯕꯤꯔ ꯑꯍꯅ ꯍꯅꯔꯗ ꯇꯕꯅꯒꯤ ꯍꯗꯑꯌ ꯍꯏꯃ ꯔꯤꯃꯗ ꯔꯤꯃꯅꯕ ꯊꯍꯅ (NEER-ꯒꯤ ꯃꯗꯕ); ꯑꯍꯂꯡ ꯍꯅꯔ ꯑꯍꯌꯝ ꯁꯤꯡꯒꯤ ꯆꯃꯂꯤꯡꯅ ꯔꯌꯇꯅꯪ꯫ ꯍꯪꯂꯔꯪꯆ ꯑꯂꯤꯒꯤ ꯔꯪꯑꯂꯤꯡ ꯑꯂꯤ ꯍꯏꯃ ꯑꯅꯒꯤ ꯃꯃꯃꯤꯌꯪꯦꯌ ꯑꯊꯕꯤꯌꯤꯗ, ꯇꯃꯆ ꯕꯅꯤ ꯑꯍꯗ ꯍꯅꯆꯒꯤ ꯍꯅꯡ ꯅꯦꯆ ꯔꯌꯇꯑꯄꯆꯇꯕ ꯕꯅ-ꯇꯇꯃꯤ ꯍꯅꯅ, ꯃꯤꯕ ꯃꯕꯍꯤꯂꯦꯒꯤ ꯂꯕꯑ ꯑꯍ ꯑꯅꯗ ꯂꯪꯃꯕꯇꯤ, ꯌꯊꯦꯕ ꯑꯕꯇꯪꯑꯂꯦ ꯇꯝꯕꯒꯤ ꯂꯕꯌꯤꯏꯃꯪꯌ ꯑꯍ ꯑꯅꯗ ꯆꯌꯝ꯫ ꯍꯪꯂꯔꯪꯆ ꯑꯂꯤ ꯅꯦꯂꯝꯕꯍꯪꯦꯌ ꯑꯂꯤꯂꯤꯡꯒꯤ, ꯃꯕꯌꯂꯤꯡ ꯑꯍꯂꯡ ꯌꯕꯅꯕꯅꯪꯆꯒꯤ ꯑꯕꯅꯕꯂꯤꯡꯒꯤ ꯑꯍꯂꯡ ꯌꯁꯦꯂꯤꯡꯒꯤ ꯅꯕꯃ ꯑꯍꯂꯡ ꯁꯕꯪꯆꯒꯤ ꯊꯕꯑꯂꯤꯡꯒꯤ ꯌꯪꯑꯇꯤꯃꯪꯆ ꯍꯌꯡ ꯑꯅꯗ ꯃꯤꯕꯤ: ꯍꯅꯔꯗ ꯊꯃꯅꯕ ꯅꯤꯇꯅꯦ ꯂꯝꯕꯃ, ꯅꯤꯌꯪꯦꯂꯦ, ꯑꯁꯟꯌꯏꯆ ꯊꯤꯡꯇꯕ ꯍꯌꯃꯒꯤ, ꯅꯦꯏꯤꯆꯌꯕꯪꯂꯦ, ꯔꯤꯡꯒꯤ ꯀꯅꯌꯃꯤ ꯅꯕꯃ ꯑꯍꯂꯡ ꯃꯕꯤꯅꯕꯒꯤ ꯍꯂꯤꯡꯂꯤꯡ ꯑꯂꯤ ꯇꯊꯑ, ꯇꯃꯆ ꯕꯅꯤꯂꯤꯡ ꯑꯍꯂꯡ ꯑꯌꯃꯃ ꯑꯊꯕꯤꯌꯂꯤꯡꯗ ꯅꯦꯊꯇꯕ ꯃꯕꯃꯇꯆ ꯑꯍ ꯑꯅꯗ ꯃꯤꯕꯤ꯫ MAHUD, TPD, PDA Manipur, IMC, ꯍꯅꯇꯤꯂꯤꯃꯪꯆ ꯃꯁꯟꯦꯂꯤꯆ ꯆꯌꯕꯒꯤ ꯆꯒꯕ ꯃꯦꯁꯔꯌ ꯑꯍꯌꯝ, WRD, ꯅꯤꯂꯌꯕꯤꯑ ꯃꯁꯟꯦꯂꯤꯆ ꯑꯍꯌꯝ ꯆꯌꯕꯒꯤ ꯑꯌꯃꯃ ꯕꯅꯤ ꯑꯍꯌꯝꯗ ꯍꯂꯤ ꯇꯂꯤꯦꯁꯤꯅꯪ꯫

1.9 ꯊꯧꯗꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥꯡ ꯂꯧꯕꯁꯤꯡ

1.9.1 ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯑꯁꯤ ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯎꯏ॥ ꯃꯁꯤꯒꯤ ꯀꯔꯤꯒꯨꯝꯕ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯃꯒꯤ ꯍꯥꯛꯆꯥꯡꯒꯤ ꯂꯥꯏꯔꯤꯛ ꯄꯥꯛꯊꯥꯏ॥

ꯇꯦꯕꯜ 1.4 — ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏꯒꯤ ꯃꯈꯥꯗ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥꯡ ꯂꯧꯕꯁꯤꯡ

ꯑꯦꯖꯦꯟꯁꯤ	ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏꯒꯤ ꯃꯈꯥꯗ ꯊꯧꯗꯥꯡ
ꯃꯎꯅꯤꯁꯤꯄꯥꯜ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯁꯟ, ꯍꯥꯎꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯔꯕꯟ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Municipal Administration, Housing and Urban Development Department, MAHUD)	ꯃꯇꯦꯡ ꯄꯥꯡ-ꯂꯛꯂ ꯑꯃꯁꯨꯡ Unified Zoning Bye-laws ꯁꯦꯝꯒꯠꯄ ꯑꯃꯁꯨꯡ ꯃꯇꯧ ꯁꯦꯝꯕꯤꯕ ꯂꯩꯔꯤꯕ ꯌꯥꯕ॥ ꯃꯅꯤꯄꯨꯔ ꯃꯎꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤ ꯑꯦꯛꯠ, 1994-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1) ꯃꯈꯥꯗ, ꯃꯇꯦꯡ ꯄꯥꯡꯕ 1.3.1(a)-ꯒꯤ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇ ꯁꯦꯝꯒꯠꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯗꯨ ꯇꯥꯀꯄ ꯂꯥꯏꯅ ꯕꯥꯔꯤꯕ ꯑꯃꯁꯨꯡ PDA Manipur-ꯗ ꯊꯥꯖꯤꯜꯂꯤ; ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏꯒꯤ ꯌꯥꯝꯅ ꯃꯔꯨꯑꯣꯏꯕ ꯂꯣꯏꯕ ꯄꯥꯡ-ꯂꯛꯂꯒꯤ "ꯄꯨꯈ꯭ꯔꯤ, ꯗ꯭ꯔꯦꯟ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯥꯂꯁꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯂꯩꯕ ꯍꯥꯞꯆꯤꯟꯕ ꯌꯥꯏ॥
ꯇꯥꯎꯟ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Town Planning Department, TPD)	ꯒꯦꯖꯦꯠ ꯌꯥꯝꯅ ꯑꯃꯁꯨꯡ ꯇꯥꯎꯅꯁꯤꯡꯒꯤ, ꯑꯃꯁꯨꯡ "ꯇꯝꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡ ꯑꯃꯥꯛ" ("both valley and hills")-ꯒꯤ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯍꯦꯗꯀ꯭ꯕꯥꯔꯇꯔ 14-ꯒꯤ ꯃꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡ ꯁꯦꯝꯕꯥ; OBPS-ꯗ ꯕꯤꯜꯗꯤꯡ ꯄ꯭ꯂꯥꯅꯁꯤꯡ ꯃꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯒꯤ ꯂꯣꯌꯅ-ꯆꯦꯛ ꯇꯧꯕꯒꯤ ꯆꯥꯡ ꯌꯥꯏ (2025-26-ꯗ IMC-ꯅ ꯄꯤꯈꯥꯔꯕ ꯄ꯭ꯂꯥꯟ ꯆꯤꯡ 150); AMRUT ꯑꯃꯁꯨꯡ AMRUT 2.0-ꯒꯤ ꯃꯇꯦꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇꯅꯤ, ꯄꯥꯡꯗ-ꯃꯇꯧꯒꯤ ꯁꯍꯔꯁꯤꯡ 20 ꯌꯥꯎꯔꯦ॥ ꯃꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗ ꯑꯣꯏꯕ ꯑꯣꯏꯅ ꯁꯦꯝꯕꯤꯔꯤꯕ ꯂꯤꯕ ꯈꯤꯡꯇꯥꯛꯁꯤꯡ, ꯑꯣꯏꯕꯒꯤ ꯃꯔꯨꯑꯣꯏꯕꯁꯤꯡ, ꯄꯥꯟꯗꯝ ꯕꯤꯗꯥꯡꯁꯤꯡ, 1% AEP-ꯒꯤ ꯑꯦꯃꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯨꯑꯣꯏꯕ ꯁꯦꯝꯒꯠꯄꯒꯤ ꯂꯥꯏꯅꯤꯡꯁꯤꯡ ꯍꯥꯞꯆꯤꯜꯂꯤ (ꯆꯦꯞꯇꯔ 11), OBPS-ꯒꯤ ꯆꯦꯛꯇ ꯑꯣꯏꯅ ꯃꯄꯥꯟꯗ ꯍꯥꯞꯆꯤꯜꯂꯤ, ꯄꯥꯡꯕ 1.3.1(b)-ꯒꯤ ꯃꯇꯦꯡ ꯄꯥꯡ-ꯂꯛ ꯄꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ B ꯑꯦꯊꯣꯔꯤꯇꯤꯁꯤꯡꯗ ꯃꯔꯨꯑꯣꯏꯕ ꯂꯥꯏꯅꯥ ꯄꯤꯔꯤ (ꯇꯦꯕꯜ 1.1)॥
ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (Planning and Development Authority, Manipur; PDA Manipur)	ꯃꯎꯅꯤꯁꯤꯄꯥꯜ ꯂꯃꯗꯝꯁꯤꯡ ꯃꯄꯥꯟꯗ ꯂꯩꯕ ꯃꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 ꯃꯈꯥꯗ "ꯑꯊꯣꯔꯤꯇꯤ" ("Authority") (ꯃꯇꯦꯡꯒꯤ ꯄꯥꯡ-ꯂꯛ 2(2))॥ ꯃꯁꯤꯒꯤ ꯄꯥꯡ-ꯂꯛꯇ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇ ꯑꯃꯥ ꯂꯧꯁꯤꯟꯕ ꯌꯥꯏ; ꯂꯧꯁꯤꯟꯂꯕꯗꯤ, ꯃꯁꯤꯅ ꯑꯦꯛꯁꯤꯛꯌꯨꯇꯤꯕ ꯄꯥꯡꯕꯥꯡꯕ ꯂꯥꯏꯊꯣꯀꯄ ꯆꯦꯞꯇꯔ 10-ꯒꯤ ꯅꯥꯏꯅ ꯄꯤꯈꯥꯔꯕ ꯃꯇꯧ ꯇꯧꯍꯅꯒꯅꯤ, ꯄꯥꯡꯕꯗ ꯅꯦꯃꯖꯥꯛꯇꯦꯗ ꯁꯨꯡꯕ ꯂꯣꯌꯅꯕ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯁꯨꯟ ꯆꯥꯡ ꯌꯥꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅ ꯄꯤꯕ ꯄꯥꯃꯖꯕꯁꯤꯡꯗ ꯑꯣꯏꯕꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯔꯦꯝꯕꯁꯤꯡ ꯃꯦꯍꯥꯛꯇ ꯌꯥꯒꯅꯤ॥
ꯁꯨꯞ ꯂꯃꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯍꯥꯏꯀꯥ (ꯄꯥꯡꯕ 1.3.2)	ꯍꯦꯅꯅ ꯌꯥꯕ ꯁꯨꯞꯅꯗꯣꯃꯁꯤꯡ ꯂꯧꯁꯤꯜꯂꯤ, ꯑꯍꯦꯅꯕꯁꯤꯡ, ꯇꯦꯕꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯄꯤꯔꯤ, ꯇꯤꯌꯔ A-ꯒꯤ ꯑꯦꯁꯦꯁꯃꯦꯟꯇꯁꯤꯡꯗ ꯌꯥꯎꯔꯤ, ꯃꯁꯤꯗ ꯊꯧꯑꯣꯡ ꯒꯥꯏꯗꯂꯥꯏꯅꯁꯤꯡ ꯂꯩꯁꯤꯟꯕꯤꯈ ꯑꯃꯁꯨꯡ ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏ ꯄꯤꯒꯅꯤ ꯍꯥꯏꯔꯤ (ꯄꯥꯡꯕ 1.12)॥
ꯃꯇꯦꯡ ꯃꯎꯅꯤꯁꯤꯄꯥꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC) ꯑꯃꯁꯨꯡ ꯑꯦꯁꯣꯁꯤꯌꯦꯠ ꯂꯥꯏꯅ ꯕꯥꯔꯤꯕ ꯕꯥꯗꯤꯁꯤꯡ (ꯃꯎꯅꯤꯁꯤꯄꯥꯜ ꯀꯥꯎꯟꯁꯤꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯒꯔ ꯄꯟꯆꯥꯌꯇꯁꯤꯡ; ꯄ꯭ꯂꯥꯁꯅꯤ 27)	ꯃꯇꯦꯡꯒꯤ ꯃꯍꯩ ꯑꯣꯏꯕ ꯃꯍꯥꯛꯀꯤ ꯌꯥꯎꯕꯗꯥ ꯄꯥꯡ-ꯂꯛꯂꯒꯤ ꯃꯈꯥꯗ ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯅꯁꯤꯡ ꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯃꯇꯧꯁꯤꯡꯒꯤ ꯃꯎꯅꯤꯁꯤꯄꯥꯜ ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯊꯝꯕ (ꯄꯥꯡ-ꯂꯛ 16)॥ ꯃꯍꯥꯛꯀꯤ ꯄꯥꯡ-ꯂꯛꯇ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇ ꯑꯃꯥ ꯂꯧꯁꯤꯟꯕ ꯌꯥꯏ; ꯃꯇꯨꯡꯒꯤ ꯃꯍꯩꯗ ꯃꯍꯥꯛꯀꯤ ꯃꯇꯧꯒꯤ ꯊꯕꯛꯁꯤꯡꯗ ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏ ꯌꯥꯎꯍꯜꯂꯒꯅꯤ, ꯇꯦꯕꯜ 1.5-ꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤ ꯑꯦꯁꯦꯁꯃꯦꯟꯇ ꯊꯝꯒꯅꯤ, ꯍꯦꯟꯅ ꯑꯣꯏꯕ ꯇꯧꯕ ꯑꯦꯛꯁꯅꯁꯤꯡ ꯂꯧꯒꯅꯤ (ꯄꯥꯡꯕ 10.14), ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯇꯧꯒꯅꯤ (ꯄꯥꯡꯕ 10.12–10.15)॥ IMC-ꯅ ꯃꯁꯤꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤ ꯅꯤꯡ ꯁꯣꯏꯗꯅ ꯊꯤꯡꯕꯤꯕ ꯂꯣꯊꯣꯛꯀꯤ ꯌꯦꯡꯁꯤꯟꯕꯒꯤ ꯍꯦꯟꯕꯤꯒꯅꯤ॥
ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Water Resources Department, WRD), ꯃꯃꯥꯡꯗ ꯏꯔꯤꯒꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯀꯟꯠꯔꯣꯜ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Irrigation and Flood Control Department)	ꯇꯝꯄꯥꯛꯀꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯒꯤ ꯆꯦꯅꯕꯁꯤꯡ ꯈꯥꯟ ꯑꯃꯁꯨꯡ ꯊꯝꯕ, ꯂꯃꯄꯥꯛ ꯑꯣꯏ ꯁꯦꯝꯒꯠꯄ ꯅꯤꯡꯊꯧꯒꯤ ꯃꯈꯥꯗ ꯂꯝꯕꯤ ꯇꯨꯔꯦꯂꯗ ꯄꯥꯟꯄꯥꯅ ꯊꯗꯣꯛꯄ ꯑꯦꯟꯀ꯭ꯔꯣꯆꯃꯦꯟꯇ ꯂꯧꯊꯣꯀꯄ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯒꯤ ꯁꯨꯞ ꯑꯦꯡ ꯑꯦꯅꯅ ꯁꯦꯃꯒꯠꯂꯤ, ꯁꯦꯃꯒꯤ ꯆꯦꯅꯕꯁꯤꯡ ꯁꯤꯡꯗꯥꯡꯅ ꯃꯦꯂꯅꯒꯤ ꯄꯥꯡ, ꯑꯃꯁꯨꯡ ꯄꯥꯃꯖꯕꯅ ꯃꯦꯡꯗꯥꯡꯗ ꯂꯥꯏꯅꯤꯡꯁꯤꯡ ꯃꯁꯤꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯥꯂꯁꯤꯡ ꯊꯝꯕ॥ ꯆꯦꯞꯇꯔ 5-ꯒꯤꯗꯃꯛ ꯇꯨꯔꯦꯜꯒꯤ ꯂꯥꯏꯅꯤꯡꯁꯤꯡ, ꯃꯦꯂ ꯂꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯒꯤ ꯃꯦꯄꯥꯡꯁꯤꯡ ꯄꯤꯔꯤ, ꯃꯁꯤꯒꯤ ꯄꯥꯔꯁꯤꯡꯒꯤ ꯑꯦꯟꯀ꯭ꯔꯣꯆꯃꯦꯟꯇ ꯂꯧꯊꯣꯀꯄꯒꯤ ꯑꯦꯁꯦꯁꯃꯦꯟꯇ, ꯃꯦꯡ ꯂꯦꯃꯒꯤ ꯄꯔꯃꯤꯁꯅꯁꯤꯡ ꯊꯝꯒꯅꯤ, ꯂꯃꯗꯃꯒꯤ ꯇꯨꯔꯦꯜꯁꯤꯡꯒꯤꯗꯃꯛ ꯄꯥꯡꯕ 2.3.6(b)-ꯒꯤ ꯂꯥꯏꯅꯤꯡ ꯁꯤꯖꯤꯟꯅ ꯌꯥꯕ ꯑꯣꯏꯒꯅꯤ, ꯀꯔꯤꯒꯨꯝꯕ ꯁꯦꯝꯒꯠꯄ ꯂꯩꯕꯒꯤ ꯑꯊꯣꯔꯤꯇꯤ ꯑꯃꯗ ꯄꯤꯖꯔꯕ ꯄꯥꯡꯕ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯇꯧꯒꯤ ꯊꯕꯛꯁꯤꯡꯗ ꯃꯦꯍ꯭ꯔꯦꯟ ꯑꯣꯏ ꯌꯥꯎꯍꯜꯂꯒꯅꯤ॥

ꯑꯦꯖꯦꯟꯁꯤ	ꯍꯧꯖꯤꯛꯀꯤ ꯑꯣꯏꯕꯒꯤ ꯍꯟꯗꯛ ꯐꯤꯚꯝ
ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Public Health Engineering Department, PHED)	ꯏꯝꯐꯥꯜ ꯁꯤꯋꯔꯦꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯇ (Imphal Sewerage Project) (ꯆꯍꯤ 2020-ꯗꯒꯤ ꯋꯥꯔꯗ 11-ꯗ ꯐꯦꯖ I; ꯑꯇꯣꯞꯄ ꯋꯥꯔꯗ 16 ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ 4-ꯒꯤꯗꯃꯛ ꯐꯦꯖ II) ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯏ ꯂꯝꯕꯤ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ ꯌꯦꯟꯅ꯫ ꯐꯦꯖ II-ꯒꯤ ꯋꯥꯔꯗꯁꯤꯡꯗ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯇꯦꯟꯕꯥꯡꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯊꯝꯂꯛꯄ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯒꯗꯕ ꯀꯣꯀ ꯁꯥꯀ ꯇꯨꯔꯦꯜ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯗ ꯂꯩꯍꯧꯔꯤ ꯑꯣꯏꯔꯤ (ꯂꯃꯥꯏ 8)꯫
ꯄꯕ꯭ꯂꯤꯛ ꯋꯔ꯭ꯛꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Public Works Department, PWD) ꯑꯃꯁꯨꯡ ꯇꯧꯔꯤꯕ-ꯄꯟꯗꯣꯝꯒꯤ ꯑꯦꯖꯦꯟꯁꯤꯁꯤꯡ	ꯇꯝꯕꯤꯁꯤꯡ, ꯍꯟꯗꯛꯀꯤ ꯍꯦꯠꯂꯛꯄ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯄꯁꯤꯡ ꯂꯩꯔꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯜꯂꯣꯏꯗꯨꯅ ꯌꯥꯅ, ꯍꯟꯗꯛꯀꯤ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯏꯝꯐꯥꯜꯗ AIIB ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯇꯝꯕꯤ 547 km ꯑꯃꯁꯨꯡ "ꯍꯦꯠꯂꯛ ꯑꯇꯤꯍꯤꯡꯌꯥ ꯄꯨꯔꯛ ꯌꯥꯕ ꯇꯨꯔꯦꯜ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ" ("both side stormwater covered drains"), ꯑꯃꯁꯨꯡ NH-37 ꯑꯃꯁꯨꯡ NH-2꯫ ꯍꯟꯗꯛꯇ ꯂꯃꯥꯏ 6 ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯇꯝꯕꯤꯒꯤ ꯃꯇꯝꯁꯤꯡ ꯂꯩꯍꯧꯔꯀꯄ ꯑꯃꯁꯨꯡ ꯇꯝꯕꯤꯒꯤ ꯈꯨꯗꯣꯡ ꯑꯃꯁꯨꯡ ꯂꯧꯊꯣꯛꯄ ꯇꯥꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯑꯃꯁꯨꯡ; ꯂꯩꯔꯤꯕ ꯇꯝꯕꯤꯗ ꯍꯧꯖꯤꯛ ꯑꯣꯏꯕ ꯅꯦꯡ ꯌꯥꯕꯒꯤ ꯍꯥꯌꯔꯕ ꯇꯝꯕꯤꯁꯤ ꯍꯟꯗꯛꯀꯤ꯫
ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ ꯑꯃꯁꯨꯡ ꯏꯟꯚꯥꯏꯔꯣꯟꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ (Directorate of Environment and Climate Change, DoECC), ꯃꯅꯤꯄꯨꯔ, ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ ꯑꯃꯁꯨꯡ ꯏꯟꯚꯥꯏꯔꯣꯟꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠꯀꯤ ꯍꯟꯗꯛ	ꯇꯝꯕꯤꯒꯤ ꯄꯤꯔꯤꯕ ꯂꯩꯗꯨꯅ, ꯈꯨꯗꯣꯡ 72 ꯗꯥꯏꯌꯥꯏꯔꯤꯡ ꯌꯥꯕꯗ 16–17 MLD-ꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯗ ꯁꯦꯡꯗꯣꯛꯄ ꯌꯥꯕꯒꯤ ꯇꯧꯔꯦ, ꯌꯥꯊꯪꯁꯤꯡ ꯍꯦꯠꯂꯛꯄ ꯌꯥꯅ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯁꯣꯂꯤꯗ ꯋꯦꯁ꯭ꯠ ꯑꯊꯣꯔꯤꯇꯤꯒꯤ ꯂꯩꯅꯥꯏꯔꯤꯕꯁꯤꯡ; ꯍꯧꯖꯤꯛ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ ꯑꯣꯏ ꯇꯥꯈꯠ ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠꯀꯤ (ꯂꯃꯥꯏ 35(2))꯫ ꯂꯃꯥꯏ 8 ꯍꯟꯗꯛ ꯇꯨꯔꯦꯜ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡꯗ ꯐꯝꯕ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯃꯇꯝꯗꯥ ꯇꯧꯔꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯇꯔ ꯂꯩꯕ ꯑꯣꯏ ꯂꯃꯥꯏ 7-ꯒꯤ ꯃꯥꯏꯄꯥꯀꯄꯁꯤꯡ ꯌꯥꯎꯔꯤꯕ ꯌꯥꯅ꯫
ꯇꯥꯔꯤꯛ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ (LDA)	ꯇꯥꯛ ꯑꯣꯏꯒꯤ 236.21 km²-ꯒꯤ ꯍꯧꯖꯤꯛ ꯇꯥꯔꯤꯛ ꯑꯦꯛꯇ ꯑꯦꯗꯍꯤꯇꯤꯂꯣꯏꯕ ꯌꯥꯅ ꯑꯃꯁꯨꯡ ꯂꯃꯥꯏ 20-ꯒꯤ ꯍꯤꯡꯒꯤ ꯄꯥꯏꯍꯤꯇꯦ ꯄꯥꯏꯅ; ꯏꯝꯐꯥꯜꯗ ꯐꯅꯥꯂꯕ ꯍꯤꯡꯈꯤ ꯁꯦꯇꯕ ꯂꯥꯏꯗꯃꯄꯥꯗ ꯆꯌꯤꯝꯅꯤ ꯄꯔꯇꯦ ꯃꯥꯏꯗꯥꯅꯤ (ꯄꯥꯎꯗ ꯃꯥꯏꯗꯥꯅꯤꯕ ꯍꯧꯖꯤꯛ ꯅꯦꯡ)꯫ ꯇꯥꯛ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯍꯧꯖꯤꯛꯀꯤ ꯍꯧꯖꯤꯛꯗ ꯍꯧꯖꯤꯛ ꯑꯣꯏ ꯂꯩꯔꯤꯕ ꯌꯥꯅ ꯑꯃꯁꯨꯡ ꯍꯦꯛ ꯑꯗꯨꯗ ꯍꯦꯛ ꯑꯗꯨꯒꯤ ꯃꯍꯥꯀꯄꯨꯝ ꯑꯊꯣꯔꯤꯇꯤ ꯑꯅꯒꯤ꯫
ꯃꯅꯤꯄꯨꯔ ꯁꯣꯂꯤꯗ ꯋꯦꯁ꯭ꯠ ꯑꯊꯣꯔꯤꯇꯤ (MSWA)	2017-ꯒꯤ ꯃꯇꯝꯗꯒꯤ ꯍꯟꯗꯛ ꯁꯦꯟꯇꯔꯁꯤꯡ ꯈꯨꯗꯣꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯇꯥꯔꯤꯛꯅ ꯌꯥꯅ; ꯌꯥꯃꯗ, ꯄꯨꯝꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯊꯪ–ꯃꯍꯧꯁ ꯄꯣꯠꯂꯝꯁꯤꯡꯒꯤ ꯗꯦꯇꯥ ꯇꯥꯔꯤꯛꯃꯤꯁꯤꯡꯗ ꯃꯥꯏꯗꯥꯅꯤ꯫ ꯇꯥꯔꯤꯛꯅ ꯌꯥꯕ ꯁꯦꯟꯇꯔ ꯑꯃꯁꯨꯡ ꯁꯣꯂꯤꯗꯍꯧꯖꯤꯛ ꯇꯥꯔꯤꯛ ꯑꯦꯅꯒꯤ ꯂꯩꯇꯦꯟꯗꯕꯤꯁꯤꯡ ꯍꯧꯖꯤꯛ ꯑꯌꯥꯕ ꯍꯊ ꯌꯥꯒꯤ (ꯂꯃꯥꯏ 7)꯫
ꯃꯅꯤꯄꯨꯔ ꯄꯣꯜꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (MPCB)	ꯗꯥꯇꯥꯁꯣꯔꯁꯤꯡ ꯃꯦꯂꯣꯟ ꯄꯤꯅ꯫ ꯂꯃꯥꯏ 8 ꯍꯟꯗꯛ ꯇꯨꯔꯦꯜ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡꯗ ꯐꯝꯕ ꯁꯤꯖꯤꯟꯅꯒꯤ ꯃꯥꯏꯄꯥꯀꯄꯁꯤꯡ ꯇꯥꯒꯤ꯫
ꯄꯣꯔꯤ-ꯇꯦꯛꯅ ꯑꯣꯏꯕꯒꯤ ꯍꯟꯗꯛ ꯇꯧꯃꯤ, ꯗꯤꯂꯕ꯭ꯌꯨꯗꯤ ꯑꯃꯁꯨꯡ ꯁꯣꯂꯤꯗ ꯇꯣꯉꯥꯅ ꯃꯍꯤꯌꯥꯁꯤꯡ	ꯇꯨꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯇꯔ ꯄꯥꯏꯗꯃꯄꯥ ꯇꯣꯄꯊꯃꯅ (ꯂꯩ-ꯗꯤꯒꯤꯇꯦꯜ ꯑꯦꯖꯤꯂꯦꯡꯁꯤꯡꯗ ꯆꯌꯤꯝꯕ ꯇꯧꯃꯅ ꯇꯣꯉꯥꯅ ꯍꯦꯠꯂꯛꯄꯤꯕ ꯃꯍꯤꯌꯥꯁꯤꯡ)꯫ ꯍꯤꯡꯅꯕ ꯅꯣꯡꯃꯥꯏ ꯅꯈꯨꯝꯒꯤ ꯁꯣꯂꯦꯇ ꯄꯥꯏꯗꯃꯄꯥ (ꯂꯃꯥꯏ 7) ꯑꯣꯏ ꯄꯥꯏꯗꯃꯄꯥꯒꯤ ꯃꯦꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯑꯅꯄꯔꯕ ꯌꯥꯅ꯫
ꯃꯥꯗꯥ ꯇꯦꯗꯤ ꯑꯊꯣꯔꯤꯇꯤ (ꯃꯅꯤꯄꯨꯔ ꯃꯥꯗꯥ ꯄ꯭ꯔꯦꯜ ꯇꯦꯗꯤ ꯑꯦꯛꯠ, 1978; ꯂꯥꯍꯅꯕ ꯃꯄꯥꯟꯗꯕ)	ꯂꯥꯏꯍꯅꯕꯥꯕ ꯍꯧꯖꯤꯛ, ꯌꯥꯊꯪꯁꯤꯡ ꯂꯩꯒꯣ ꯌꯥꯔꯦ, ꯃꯥꯗꯥ ꯇꯦꯗꯤꯁꯤꯡ ꯇꯥꯔꯤꯛꯅ ꯌꯥꯔꯦ ꯑꯃꯁꯨꯡ ꯕꯟ-ꯇꯦ 93-ꯗ ꯄꯅꯔꯕꯕ ꯄꯥꯏꯍꯤꯇꯦꯂꯣꯏꯕ ꯄꯥꯏꯔꯦ; ꯍꯧꯖꯤꯛ ꯂꯃꯥꯏ 7-ꯒꯤ ꯃꯥꯏꯄꯥꯀꯄ ꯍꯧꯖꯤꯛꯁꯤꯡ ꯂꯩꯇꯦꯟꯗꯕ ꯌꯥꯅ꯫ ꯍꯌꯍ ꯑꯗꯨ ꯃꯈꯥꯕ ꯃꯥꯗꯥ ꯇꯦꯗ ꯑꯍꯧꯖꯤ ꯇꯧꯔꯤ꯫
ꯏꯝꯐꯥꯜ ꯁ꯭ꯃꯥꯔꯠ ꯁꯤꯇꯤ ꯂꯤꯃꯤꯇꯦꯗ (Imphal Smart City Ltd)	ꯊꯥꯡꯒꯜ (Thangal), ꯄꯥꯎꯅꯥ ꯕꯖꯥꯔ (Paona Bazar), DM ꯀꯣꯂꯦꯖꯀꯤ ꯀꯣꯍꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯐꯝ, ꯌꯤ 504 acres, ꯑꯦꯕꯤꯌꯦꯟ ꯄ꯭ꯔꯃꯍꯥ ꯑꯗꯅꯕ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯌꯥꯕꯤ (ꯄꯥꯎꯗ ꯃꯥꯏꯗꯥꯅꯤꯕ ꯍꯧꯖꯤꯛ ꯅꯦꯡ); ꯍꯧꯖꯤꯛꯀꯤ ꯅꯥꯏꯍꯥꯒꯤ ꯊꯧꯗꯥꯡ ꯃꯥꯏꯄꯥꯀꯄ [TBC]꯫ ꯀꯣꯇꯦ 1.11-ꯒꯤ ꯌꯥꯎꯅꯕꯁꯤꯡꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯅꯥꯏꯍꯥꯒꯤ ꯊꯕꯛꯁꯤꯡ ꯍꯧꯖꯤꯛꯀꯤ ꯑꯣꯏꯕꯒꯤ ꯍꯧꯖꯤꯛ ꯅꯦꯡ ꯗꯤꯇꯦꯡ ꯌꯥꯒꯦ ꯑꯃꯁꯨꯡ ꯀꯣꯇꯦ 10.14 ꯍꯟꯗꯛ ꯄꯥꯏꯗꯑꯣꯏꯕ ꯌꯥꯒꯦ꯫
ꯄꯥꯏ ꯑꯦꯕꯤꯌꯦꯟ ꯃꯍꯤꯌꯥ, ꯗꯤꯂꯕ꯭ꯌꯨꯗꯤ ꯃꯤꯐꯝꯁꯤꯡꯒꯤꯁꯤꯡ (ꯆꯍꯤ 2025-ꯗꯒꯤ ꯗꯤꯄ꯭ꯔꯤ ꯃꯍꯤꯂꯣꯟꯕꯁꯤꯡꯗ ꯑꯦꯗꯍꯤꯇꯤꯂꯣꯏꯕ ꯌꯥꯕꯤꯕ, ꯄꯥꯎꯗ ꯃꯥꯏꯗꯥꯅꯤꯕ ꯍꯧꯖꯤꯛ ꯅꯦꯡ) ꯑꯃꯁꯨꯡ ꯒꯤꯇꯦ ꯑꯊꯣꯔꯤꯇꯤꯁꯤꯡ	ꯑꯦꯕꯥꯌꯤꯝꯒ 371C ꯑꯃꯁꯨꯡ 1971-ꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯍꯟꯗꯛ ꯂꯩꯔꯤꯕ ꯇꯝꯕꯤ ꯂꯩꯂꯦ ꯌꯥꯅ; ꯗꯤꯂꯕ꯭ꯌꯨꯗꯤ ꯃꯄꯨꯡꯕꯤꯒꯤꯁꯤꯡꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯗ ꯅꯣꯡꯃꯥꯏ ꯂꯃꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯤꯄꯥꯏꯔꯤꯒꯤ ꯂꯝꯍꯤꯡꯁꯤꯡ, ꯄꯦꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯍ ꯄꯤꯕ ꯌꯥꯊꯪ, ꯑꯗꯨꯕ ꯕꯤꯒꯗꯤꯡ ꯀꯦꯟꯗꯣꯡꯒ ꯌꯥꯊꯪꯗ, ꯑꯃꯁꯨꯡ ꯍꯟꯗꯛꯀꯤ ꯕꯤꯒꯗꯤꯡ ꯆꯦꯅꯕꯤ ꯅꯥꯏꯍꯥꯒꯤ ꯃꯒꯤ ꯑꯍꯦꯟꯕ ꯃꯄꯥꯟꯗꯕ [TBC]꯫ ꯕꯗꯤ ꯑꯍꯦ ꯇꯥꯂꯤꯗꯥꯄꯥꯕꯗꯤ ꯂꯩꯔꯤꯕ ꯇꯝꯂꯤꯗ ꯍꯧꯖꯤꯛ ꯑꯣꯏꯕ ꯂꯩꯗꯕ ꯇꯧꯔꯤ꯫ ꯗꯤꯂꯕ꯭ꯌꯨꯗꯤ ꯃꯄꯨꯡꯕꯤꯒ ꯑꯍꯦ ꯍꯣꯏ ꯂꯥꯏꯂꯦ 29 ꯍꯟꯗꯛ ꯒꯥꯔꯦꯇꯦꯗ ꯊꯦꯗ ꯄꯥꯏꯕ ꯌꯥꯀꯤ ꯑꯃꯁꯨꯡ ꯑꯅꯗ, ꯆꯌꯦꯝ ꯂꯥꯏꯂꯦ 29(1A) ꯌꯥꯕꯇꯥꯇꯕ ꯍꯧꯖꯤꯛ ꯍꯧꯖꯤꯛꯀꯤ ꯍꯟꯗꯛ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯄ꯭ꯔꯣꯖꯦꯛ ꯑꯍꯥꯒꯤ ꯅꯥꯏꯊꯝꯗ ꯇꯧꯕ ꯌꯥꯅ; ꯑꯍꯦꯌꯥꯗ ꯇꯧꯅꯤ꯫ ꯒꯤꯇꯦ ꯑꯊꯣꯔꯤꯇꯤꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡꯁꯤꯡ ꯇꯧꯕ ꯇꯍ ꯌꯥꯍꯗ ꯊꯍꯅ ꯆꯌꯦꯝ ꯍꯣꯛꯂꯒꯤꯗꯃꯛ ꯌꯥ ꯂꯧꯕꯅ꯫

ꯁꯣꯔꯁꯁꯤꯡ	ꯍꯧꯖꯤꯛꯀꯤ ꯑꯃꯤꯡꯒꯤ ꯍꯟꯗꯛ ꯊꯧꯗꯝ
MSDMA, ꯑꯏꯇꯤꯖ ꯑꯃꯁꯨꯡ ꯀꯤꯇꯦꯂꯁꯗꯔ ꯍꯣꯂꯣꯇꯍꯣꯋꯦꯠ ꯀꯤꯄꯥꯏꯗꯠꯍꯣꯋꯦꯠ, ꯑꯣꯒꯣꯂ ꯀꯤꯄꯥꯏꯗꯠꯍꯣꯋꯦꯠ, ꯀꯣꯃꯨꯗ ꯃꯍꯤꯂꯣꯂꯗꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯀꯤꯂꯁꯗꯤꯕ ꯀꯤꯇꯦꯂꯁꯗꯔ ꯍꯣꯂꯣꯇꯍꯣꯋꯦꯠ ꯑꯊꯕꯤꯁꯤꯂꯤꯝ	ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯃꯁꯨꯡ ꯇꯣꯋꯀꯂꯇꯦꯅꯀꯂꯤꯝꯒꯤꯗꯃꯛ ꯂꯣꯀ ꯂꯩꯅ ꯑꯃꯁꯨꯡ ꯄꯥꯎꯖꯦꯜ ꯄꯤꯅ, ꯍꯅꯕꯒꯤ ꯂꯥꯏꯔꯤꯛꯇꯤꯒꯤ ꯍꯂꯤꯝꯂꯤꯝ ꯑꯤꯄꯥꯕꯥꯍ ꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯁꯍꯄꯥꯏꯕꯃꯤ ꯆꯍꯒꯤ ꯑꯣꯃꯥꯕꯀꯂꯤꯝ ꯊꯍꯅ꯫ ꯃꯇꯦꯛ 2.3.6(i)-ꯒꯤ ꯂꯃꯗꯝꯁꯤꯗꯝꯀ ꯂꯤꯇꯤꯋꯇꯇ ꯏꯁꯤꯡ ꯏꯆꯥꯎ, ꯄꯥꯎ ꯃꯕꯥꯄ ꯑꯃꯁꯨꯡ ꯇꯣꯋꯀꯂꯇꯦꯅꯀꯃꯤ ꯅꯋꯒꯣꯋꯁꯤꯂꯤꯝ ꯄꯤꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯊꯕꯤꯁꯤꯒꯤ ꯇꯔꯇꯇ ꯊꯥꯕꯥꯃꯤ ꯍꯁꯨꯝꯒꯤ ꯑꯤꯒꯤꯁꯤꯂꯤꯝꯀ ꯗꯔꯤꯝꯒꯗꯤ (ꯃꯇꯦꯛ 10.16)꯫ ꯌꯤꯝꯒꯤ ꯆꯍꯂꯤꯝꯀ ꯆꯍ ꯑꯂꯤ ꯀꯤꯂꯁꯗꯤꯕ ꯃꯤꯁꯋꯂꯤꯅꯂꯤꯝꯗꯦ ꯄꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯂꯁꯍꯗꯤ ꯁꯣꯗꯔꯥꯒꯤ ꯍꯅꯕ ꯊꯍꯅ [TBC]꯫
NHPC (ꯇꯥꯕꯥ ꯈꯅꯀꯗꯥꯅꯇꯣꯕꯁꯗꯕ ꯄꯗꯥꯇꯣꯕꯋ (Loktak Hydroelectric Project) ꯑꯃꯁꯨꯡ ꯅꯊꯅ ꯋꯣꯑꯦꯇ) ꯑꯃꯁꯨꯡ ꯍꯄꯤꯊꯣꯟ (ꯊꯥꯋꯟ ꯍꯟꯁꯤꯄꯗꯄꯥꯇ ꯄꯗꯥꯇꯣꯕꯋ), ꯗꯄꯥ ꯑꯃꯁꯨꯡ ꯂꯤꯝꯀ ꯀꯣꯍꯂꯤꯝꯒꯤ ꯑꯥꯄꯗꯣꯁꯗꯂꯤꯝ [TBC]	ꯅꯊꯅ ꯋꯣꯑꯦꯇꯀ ꯇꯥꯕꯥ ꯑꯃꯁꯨꯡ ꯁꯍꯄꯥꯕꯃꯤ ꯑꯤꯇꯗꯒꯥꯔꯗꯂꯤꯝ ꯊꯤꯝꯇꯤꯟꯇꯤ꯫ ꯂꯃꯥꯏ 5 ꯑꯃꯁꯨꯡ ꯃꯇꯦꯛ 2.3.6(i)-ꯒꯤ ꯂꯃꯗꯝꯁꯤꯗꯤꯝꯒꯤꯀꯍꯕ ꯇꯣꯕ ꯑꯃꯁꯨꯡ ꯑꯤꯇꯗꯒꯥꯔꯗꯒꯤ ꯇꯣꯒꯣꯟꯂꯤꯝ, ꯑꯤꯇꯤꯇꯃꯤ ꯃꯅꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯑꯤꯇꯤꯇꯃꯤ ꯗꯣꯃꯥꯗꯀꯂꯤꯝ ꯅꯋꯀ ꯄꯤꯒꯗꯤ꯫
ꯂꯣꯋꯁꯗꯣꯟ ꯌꯥꯁꯗ ꯃꯍꯤꯂꯣꯋ (Central Water Commission, CWC), ꯗꯇꯤꯌꯋꯒꯤ ꯋꯥꯀꯤ ꯑꯍ	ꯂꯁꯣꯍꯁ ꯍꯂꯤꯒꯤ ꯂꯤꯅꯍ ꯑꯃꯅꯕꯁ ꯑꯥꯅꯋ ꯌꯥꯁꯣꯋꯣꯃꯗꯦꯀ (Chotebekra) ꯋꯗꯥꯕ ꯁꯗꯣꯟꯒꯤ ꯇꯣꯒꯣꯟ ꯍꯥꯇꯤꯁꯗ ꯁꯣꯅ꯫ ꯂꯃꯥꯏ 5-ꯒꯤꯀꯍꯕ ꯍꯂꯤꯒꯤ ꯗꯣꯃꯥꯗꯀꯂꯤꯝ ꯄꯤꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯂꯋꯇꯥꯋ 2(c)-ꯒꯤꯀꯍꯕ Flood Estimation Report ꯑꯍ ꯆꯩꯋꯦ ꯇꯍꯗꯥ ꯂꯣꯍꯇꯤꯋꯦ ꯃꯋꯖꯦꯗꯍ ꯁꯣꯒꯗꯤ (ꯃꯇꯦꯛ 2.3.6(b))꯫
ꯂꯣꯋꯁꯗꯣꯟ ꯒꯗꯦꯁꯋꯀ ꯌꯥꯁꯗ ꯋꯥꯗꯀ (Central Ground Water Board, CGWB), ꯇꯥꯗꯊ ꯅꯂꯁꯗꯋ ꯑꯤꯇꯋ, ꯗꯇꯤꯌꯋꯒꯤ ꯋꯥꯀꯤ ꯑꯍ	ꯂꯁꯣꯍꯃꯤ ꯆꯍꯅꯒꯤ ꯍꯅꯒꯤ ꯏꯁꯤꯡ ꯑꯣꯂꯣꯂ ꯁꯣꯅ (ꯗꯇꯤꯍ ꯗꯀꯤꯕꯍꯕ "ꯂꯣꯖ" ("Safe"); 2024-ꯀ ꯑꯣꯕꯂꯁꯗꯣꯕꯂꯇꯒꯤ ꯂꯁꯣꯇ 8.00%, ꯃꯥꯍꯅꯤꯋ ꯍꯁꯨꯝ ꯅꯋꯇ) ꯑꯃꯁꯨꯡ ꯃꯇꯦꯛ 4.11-ꯒꯤ ꯁꯍꯄꯥꯕꯃꯤ ꯆꯍꯒꯤ ꯃꯅꯦ ꯗꯍꯖꯍ ꯑꯥꯅꯋ ꯄꯦꯒꯤ ꯋꯕꯇꯣꯍꯂꯤꯝ ꯖꯥꯝꯀꯥꯕꯅꯤ꯫ WRD-ꯒꯤ ꯇꯥꯌꯇꯇ ꯆꯍꯅꯒꯤ ꯍꯅꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯇꯣꯒꯣꯟꯂꯤꯝ ꯄꯤꯒꯗꯤ꯫
IMD (Meteorological Centre Imphal), NRSC, MASTEC, ꯑꯃꯁꯨꯡ ꯆꯍꯋꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯟꯒꯤ ꯍꯄꯨꯂꯤꯝ	Imphal (Tulihal) (42623)-ꯀ ꯆꯩ IMD-ꯒꯤ ꯂꯁꯣꯂꯋꯦ ꯂꯃꯥꯏ 2-ꯒꯤ ꯇꯥꯝ ꯗꯋꯒꯤ ꯑꯣꯃꯥꯗꯀ ꯄꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯛ 2.3.6(a)-ꯒꯤ ꯑꯈꯇꯋ ꯀꯣꯁ ꯑꯤꯃꯌꯣꯂꯍꯇꯤ; NRSC ꯑꯃꯁꯨꯡ MASTEC-ꯗꯦ ꯃꯇꯦꯛ 2.3.6(i)-ꯒꯤ ꯂꯃꯗꯝꯁꯤꯗꯝꯀ ꯂꯤꯇꯤꯋꯇꯇ ꯇꯣꯋꯀꯂꯇꯦꯅꯀ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯈꯦꯗꯀꯃꯤ ꯂꯁꯀꯤꯂꯤꯝ ꯊꯍꯅ꯫ ꯆꯍꯋꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯟꯒꯤ ꯍꯄꯨꯂꯤꯝꯗꯦ ꯆꯍꯋꯤꯒꯤ ꯅꯗꯍ (ꯂꯃꯥꯏ 6), ꯃꯟꯒꯗꯍꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯇꯤꯌꯗ ꯊꯋꯕꯂꯤꯝꯀ (ꯃꯇꯦꯛ 1.5.7) ꯍꯧꯔꯛꯄ ꯑꯂꯤ ꯌꯍꯈꯇꯒꯗꯤ꯫

ꯂꯋꯀꯥꯕꯦ ꯁꯥꯄ. ꯍꯇꯤꯄꯨꯗꯀ ꯇꯥꯝꯒꯤ ꯏꯁꯤꯡ ꯑꯂꯤ ꯑꯈꯇꯋꯀ ꯁꯍꯄꯥꯕ ꯑꯃꯁꯨꯡ ꯌꯤꯝꯒꯤ ꯆꯍꯂꯤꯝꯒꯤ ꯍꯗꯕꯃꯤ ꯆꯩ ꯇꯦꯅꯋꯦ ꯅꯌꯀꯥꯃꯅ꯫ ꯁꯍꯄꯥꯁ MAHUD-ꯗꯦ ꯍꯥꯀꯣꯟ ꯋꯅ-ꯇꯥꯇ, ꯇꯥꯇꯤꯝ ꯋꯅ-ꯇꯥꯇ ꯑꯃꯁꯨꯡ ꯍꯂꯁꯗ ꯄꯦꯋꯂꯤꯝ ꯂꯣꯍꯍꯤ, TPD-ꯗꯦ ꯄꯦꯋꯂꯤꯝ ꯂꯣꯍꯍꯤ ꯑꯃꯁꯨꯡ ꯇꯣꯋꯀ-ꯗꯇ ꯌꯣꯕ ꯁꯣꯅ, ꯗꯗꯋꯋ ꯇꯥꯃꯟ ꯋꯥꯀꯤꯂꯤꯝ ꯑꯃꯁꯨꯡ PDA Manipur-ꯗꯦ ꯍꯅꯥꯌꯗꯦ ꯌꯍꯇꯕꯈꯟꯇꯋ ꯋꯅ-ꯇꯥꯇꯃꯤ ꯍꯅꯀ ꯄꯗꯍꯤꯂꯋ ꯄꯤꯅ, ꯑꯃꯁꯨꯡ ꯆꯍ ꯑꯂꯤ ꯍꯗꯤꯝ ꯃꯅꯗꯦ ꯑꯣꯒꯣꯟꯒꯤ ꯑꯣꯃꯥꯗꯀꯂꯤꯝ ꯆꯩ ꯄꯍꯁ ꯆꯍꯗꯤ; ꯌꯤꯝꯒꯤ ꯆꯍꯂꯤꯝꯀ ꯋꯤꯟꯀꯤꯝ ꯇꯍꯗꯥ ꯅꯗꯍꯒꯤ ꯃꯟ ꯑꯍꯍꯁ ꯖꯝꯀꯤꯀꯣ, ꯀꯤꯂꯁꯗꯤꯕ ꯃꯤꯁꯋꯂꯤꯅꯂꯤꯝꯗꯦ ꯆꯍ ꯑꯃꯁꯨꯡ ꯗꯃꯒꯤꯝꯒꯤ ꯊꯥꯀꯝꯂꯤꯝ ꯊꯍꯅ ꯑꯃꯋꯋ ꯋꯤꯟꯀꯤꯝ ꯃꯋꯁꯗꯥꯟ ꯆꯣꯁ, ꯑꯃꯁꯨꯡ ꯇꯋ 2025-ꯀꯒꯤ ꯀꯣꯃꯨꯗ ꯃꯍꯤꯂꯣꯂꯗꯂꯤꯝꯗꯦ ꯑꯣꯀꯍꯤꯇꯤꯂꯁꯗꯣꯁꯗ ꯑꯥꯅꯗꯦ ꯍꯅꯥꯌꯋ ꯌꯗꯦꯅꯗꯤ (ꯄꯦꯗꯀ ꯖꯥꯝꯀꯥꯕꯅꯤꯋ ꯍꯁꯨꯝ ꯅꯋꯇ)꯫ ꯍꯀꯒꯤ ꯍꯁꯨꯝꯀ ꯅꯌꯀꯥꯃꯄ ꯑꯂꯤ ꯁꯍꯄꯥꯕꯃꯤ ꯏꯁꯤꯡ ꯊꯀꯥꯃꯄ ꯋꯥꯀꯤꯂꯤꯝꯒꯤ ꯍꯗꯕꯁ ꯑꯃꯥꯕ ꯈꯋꯦ ꯇꯦꯃꯅ: ꯍꯗꯤꯇꯤꯂꯤꯄꯣꯟ ꯅꯥꯝꯋꯋꯂꯤꯝꯒꯤꯀꯍꯕ ꯗꯗꯋꯋ ꯇꯥꯃꯟ ꯋꯥꯀꯤꯂꯤꯝ, ꯆꯍꯋꯤꯒꯤ ꯍꯇꯦꯕꯃꯤ ꯅꯥꯝꯋꯋꯂꯤꯝꯒꯤꯀꯍꯕ PWD, ꯍꯅꯥꯌꯒꯤ ꯍꯗꯝꯀ AIIB ꯄꯗꯥꯇꯣꯕꯍꯃꯤ 547 km, ꯁꯗꯣꯟꯒꯤ ꯄꯋꯂꯤꯝ, ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯌꯣꯇꯣꯟꯂꯤꯝ, ꯆꯍꯖꯣꯟꯄꯍ ꯑꯃꯁꯨꯡ ꯂꯃꯦꯝꯒꯤ ꯄꯍꯄꯤꯝꯒꯤꯀꯍꯕ WRD, ꯂꯤꯌꯗꯂꯤꯝꯒꯤꯀꯍꯕ PHED, ꯇꯍꯋꯟ ꯁꯗꯣꯟꯀ ꯌꯣꯋꯊꯗꯥꯄ ꯅꯥꯝꯋꯋ 72-ꯒꯤ ꯅꯋꯁꯗꯂꯣꯄꯂꯋꯒꯤꯀꯍꯕ DoECC, ꯇꯥꯕꯥꯃꯤꯀꯍꯕ LDA, ꯇꯣꯕ ꯑꯂꯤ ꯊꯤꯝꯇꯤꯟꯇꯤꯋ ꯅꯊꯅ ꯋꯣꯑꯦꯇꯃꯤꯀꯍꯕ NHPC, ꯑꯃꯁꯨꯡ ꯆꯍꯖꯣꯟꯄꯍ, ꯇꯥꯕꯥ ꯑꯃꯁꯨꯡ ꯄꯥꯇꯨꯍ ꯁꯩꯗꯋ ꯁꯗꯣꯟꯂꯤꯝꯒꯤ ꯍꯁꯝꯀ ꯊꯋꯕ ꯄꯝꯊꯥꯕꯅꯤꯋ ꯃꯥꯗꯍꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯁꯗꯅꯋꯗꯇꯣꯟ꯫ ꯅꯌꯀꯥꯃꯄ ꯑꯂꯤ ꯃꯗꯒꯤ ꯍꯃꯥꯑꯥꯅꯋꯒ ꯈꯌꯋꯂꯤ ꯅꯍꯖꯟꯇꯦ ꯗꯍꯇꯤ꯫ ꯆꯍꯋꯟ ꯁꯗꯣꯟ ꯑꯂꯤ ꯍꯁꯍ ꯑꯃꯍꯕꯁ ꯂꯈꯗꯒꯤ ꯍꯃꯥꯑꯥꯅꯋ ꯂꯈꯗꯒꯤ ꯁꯗꯣꯟ (AIIB), ꯇꯥꯝꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯁꯗꯍꯕ ꯅꯥꯝꯋꯋ ꯑꯍ, BOD 42–52 mg/L ꯆꯩ ꯅꯥꯝꯋꯋꯂꯤꯝꯒꯤ ꯏꯁꯤꯡ ꯆꯩ ꯍꯖꯍ, Priority V-ꯒꯤ ꯄꯥꯇꯨꯍ ꯁꯩꯗꯋ ꯑꯤꯌ ꯑꯍ (CPCB, 2025) ꯑꯃꯁꯨꯡ ꯆꯍꯖꯣꯟꯄꯍꯃꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯄꯍꯄꯂꯤꯝꯒꯤ ꯑꯗꯍꯖꯥꯟꯇꯤ; ꯗꯦꯒ ꯃꯟꯇꯦꯗꯦ ꯃꯩꯊꯣꯟꯒꯤ ꯌꯣꯂꯍ ꯍꯂꯤꯀ ꯄꯨꯗꯃꯅ; ꯑꯃꯁꯨꯡ ꯅꯍꯖꯟ ꯁꯗꯣꯟ, ꯃꯥꯝꯋ ꯁꯗꯣꯟ ꯑꯃꯁꯨꯡ ꯅꯗꯤꯟ ꯁꯗꯣꯟ ꯍꯅꯥꯌꯒꯤ ꯄꯋꯂꯤꯝꯒꯤ ꯍꯁꯨꯝꯀ ꯁꯗꯋ ꯑꯂꯤꯀꯒꯤ ꯌꯥꯝꯗꯦ ꯆꯩ꯫ **ꯇꯥꯁꯤꯖꯤꯃꯣꯂꯋ ꯑꯃꯍꯁꯗꯦ ꯗꯦꯒ ꯃꯟꯇꯦ, ꯌꯥꯅꯂꯣꯟ ꯍꯗꯤꯟ ꯇꯍꯗꯥ ꯂꯃꯦꯝ ꯗꯦꯗꯦ (Shamushang nallah) ꯍꯄꯨ ꯑꯃꯍꯀ ꯄꯤꯀꯣ (NEER-ꯒꯤ ꯄꯦꯋ)**, ꯑꯃꯁꯨꯡ ꯍꯇꯤꯄꯨꯗ ꯍꯗꯤꯇꯤꯂꯤꯄꯣꯇꯤꯁꯤꯇ ꯑꯣꯕꯍ, 1994-ꯒꯤ ꯅꯗꯍꯒꯤ ꯂꯣꯕꯂꯋꯂꯤꯝ ꯄꯅꯤꯀꯣ [TBC]꯫ ꯂꯁꯣꯍꯗꯦ ꯃꯟ ꯑꯍ ꯄꯤꯀꯗꯤꯖꯗꯋ [TBC], ꯍꯧꯔꯛꯄ ꯑꯂꯤꯗꯦ ꯅꯗꯍꯒꯤ ꯑꯣꯇꯤꯍꯣꯋꯍꯂꯤꯝ ꯁꯣꯋꯟ 1.5-ꯀ ꯄꯤꯗꯤꯋ ꯍꯁꯨꯝ ꯅꯋꯇ ꯊꯇꯩ, ꯂꯃꯥꯏ 6-ꯗꯦ ꯅꯥꯝꯋꯋꯂꯤꯝ ꯍꯅꯌ ꯍꯂꯦꯒꯤꯀꯍꯕ ꯁꯋꯒꯍꯗꯦ, ꯑꯃꯁꯨꯡ ꯁꯗꯋ ꯗꯀꯤꯕꯍꯕꯗꯦ ꯑꯤꯌ ꯗꯀꯤꯕꯍꯕꯃꯤ ꯍꯄꯨ, ꯍꯂꯤꯗꯦ ꯌꯩ ꯁꯗꯣꯟ, ꯍꯂꯤꯗꯦ ꯇꯦꯋꯊꯃꯄ ꯄꯋ

> (ꯃꯇꯤꯛꯀꯤ ꯀꯥꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯥꯝ ꯀꯥꯡꯖꯤ ꯂꯩꯔꯤꯕ), ꯕꯅ-ꯂꯩ 93-ꯒꯤ ꯕꯖꯦꯠ ꯑꯃꯍꯥ ꯂꯩꯕꯗꯥ, ꯃꯇꯤꯛꯀꯤ ꯂꯃꯀꯤ ꯅ꯭ꯌꯨꯅꯤ (ꯄꯨꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯧꯖꯤꯟꯕꯤ ꯂꯃ) ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛꯀꯤ ꯑꯦꯡꯃꯖꯤ ꯄꯥꯏꯕ **ꯗ꯭ꯔꯦꯅꯦꯖꯀꯤ ꯊꯧꯔꯥꯡꯗꯥ** ꯑꯃꯍꯥ ꯍꯥꯂꯕ ꯊꯧꯗꯣꯛꯀꯤ ꯃꯑꯣꯡ (ꯃꯥꯂꯦꯝ ꯑꯃꯤꯕ ꯍꯥꯡꯕ)꯫ ꯍꯥꯂꯕ ꯑꯃꯤ ꯃꯥꯂꯦꯝ ꯑꯃꯤꯒꯤ ꯗ꯭ꯔꯦꯂꯃꯤꯡ ꯌꯥꯎꯊꯣꯛꯂꯕ ꯃꯇꯤꯛꯀꯤ ꯍꯕꯛꯗꯥ ꯅꯤꯔꯖꯦꯗꯔꯕꯤ; ꯃꯇꯤꯛꯀꯤ ꯗꯥꯛꯇꯤꯡꯕ ꯑꯂꯥꯏꯂꯃꯤ ꯑꯃꯀꯤ ꯇꯛꯄꯤ ꯊꯤꯖꯤꯟꯕꯥ, ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯛꯀꯦ ꯂꯃꯖꯤ ꯃꯤꯇꯩꯕ ꯄꯥꯡꯊꯣꯛꯀꯦꯖꯅ ꯍꯥꯂꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯑꯥꯡꯀꯥꯎꯃꯥꯢꯕ ꯍꯥꯕꯤꯡꯕ ꯄꯨꯝꯗꯥꯏꯅ, ꯑꯥꯡꯀꯤꯁꯤꯛꯇꯗꯕꯥ ꯑꯃꯁꯤ꯫

ꯇꯦꯕꯜ 1.5 — ꯃꯥꯂꯦꯝ ꯑꯃꯤꯒꯤ ꯃꯔꯝ ꯅꯤꯡꯊꯤꯒꯤ ꯑꯥꯂꯤꯃꯥꯢꯃꯤꯡꯤꯒꯤ ꯍꯕꯛꯗꯥ ꯍꯥꯂꯕ

ꯑꯥꯂꯤꯃꯥꯢ	ꯍꯥꯂꯕ
ꯁꯦꯞꯇꯤꯛ ꯂꯥꯏꯟ ꯕꯥꯀꯤ ꯑꯃꯒꯤ ꯂꯤꯃꯤꯡꯗꯤ ꯃꯂꯨꯝ ꯂꯕ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯗ꯭ꯔꯦꯅꯁꯤꯡ	ꯁꯦꯞꯇꯤꯛ ꯂꯥꯏꯟ ꯕꯥꯀꯤ (ꯕꯅ-ꯂꯩ 16, "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯗ꯭ꯔꯦꯟ" ("municipal drain"); ꯃꯂꯤꯄꯨꯡ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜꯂꯤꯇꯤ ꯑꯥꯡꯒ, 1994-ꯒꯤ ꯅꯤꯡꯊꯤꯒꯤ ꯑꯥꯡꯑꯦꯡꯁꯤꯡ ꯄꯨꯔꯤꯕ [TBC]); ꯅꯥꯖꯦꯅꯕ, IMC
ꯑꯌꯥꯡꯕ ꯂꯃꯕꯤꯡꯁꯤꯡꯒꯤ ꯃꯂꯥꯡꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ, ꯃꯗꯨꯔꯒꯤ ꯃꯂꯨꯝ ꯀꯦꯡꯈꯤ ꯅꯥꯖꯦꯅꯕ AIIB ꯄꯦꯡꯒꯔꯥꯡꯕ "ꯃꯂꯥꯡ ꯑꯂꯤꯃꯥꯢ ꯂꯒꯦ ꯈꯤꯕ ꯂꯥꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡ" ("both side stormwater covered drains") 547 km	PWD
ꯂꯥꯏꯂꯥꯟ ꯍꯟꯗꯥꯡꯁꯤꯡꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡ	ꯂꯥꯏꯂꯥꯟ-ꯍꯟꯗꯥꯡꯒꯤ ꯑꯥꯂꯥꯏꯁꯤꯡ
ꯈꯨꯗꯥꯟꯒꯤ ꯄꯥꯏꯁꯤꯡ, ꯅꯁꯤꯡ ꯅꯤꯡꯊꯤꯒꯤ ꯗꯥꯂꯥꯟꯁꯤꯡ, ꯂꯃꯖꯦꯟꯄꯥꯏ ꯑꯃꯁꯨꯡ ꯁꯃꯨꯛꯁꯤꯡꯒꯤ ꯄꯃꯄꯤꯡ, ꯑꯃꯁꯨꯡ ꯁꯍꯗꯒꯤ ꯗꯥꯂꯥꯟꯁꯤꯡ ꯁꯥꯡꯕꯥꯂꯕ ꯃꯥꯁꯤꯂꯗꯤ	WRD
ꯂꯃꯕꯨꯟ ꯈꯨꯗꯥꯟꯕ ꯗꯥꯏꯍꯗꯤꯡꯄ ꯗ꯭ꯔꯦꯅꯦ 72-ꯒꯤ ꯅꯐꯨꯗꯁꯥꯄꯂꯐ ꯑꯃꯁꯨꯡ ꯕꯣꯟꯗꯗꯁꯐ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛꯀꯤ 16–17 MLD-ꯒꯤ ꯄꯦꯟꯒ	DoECC
ꯂꯤꯈꯗꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯈꯥꯇ ꯄꯂꯄꯤꯡ ꯌꯨꯝꯂꯐꯂꯤꯡ	PHED
ꯂꯣꯀꯇꯥꯛ ꯂꯩꯀ ꯁꯥꯡꯕꯥꯝꯄ (ꯄꯤꯔꯕ ꯍꯦꯡꯕꯥꯡꯅꯤꯕ ꯃꯨꯡꯗꯤ ꯅꯦꯂ), ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛꯀꯤ 236.21 km²-ꯒꯤ ꯃꯂꯨꯝ ꯂꯥꯡꯖꯥ	LDA
ꯗꯤꯡꯒꯤ ꯂꯃꯇꯤꯡꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯥꯂꯥꯟꯁꯤꯡ	ꯍꯕꯥ ꯑꯁꯨ ꯈꯦꯕ ꯈꯤꯄꯦꯒꯃꯥꯢ (PWD, PHED ꯑꯃꯁꯨꯡ WRD); ꯑꯌꯥꯡꯄ ꯗ꯭ꯔꯦꯅꯁꯤꯡ [TBC] (ꯈꯤꯌꯥꯡꯕꯤꯡ ꯃꯤꯁꯤꯡꯁꯤꯅꯒꯤ ꯅꯤꯡꯊꯤꯒꯤ ꯍꯨꯟ ꯑꯃꯍꯦ ꯊꯥꯟꯕꯤꯈ)
ꯅꯥꯖꯦꯅ ꯁꯃꯨꯛꯀꯤ ꯂꯤꯌꯥ ꯂꯤꯃꯤꯌꯥꯈꯤ ꯁꯟꯕꯤꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ, ꯅꯕꯈ ꯍꯥꯏꯈꯑꯒꯦ ꯌꯥꯈꯦꯅꯤꯖꯤꯁꯕ	ꯅꯥꯖꯦꯅ ꯁꯃꯨꯛꯀꯤ ꯂꯤꯌꯥ ꯂꯤꯃꯤꯌꯥꯈ [TBC], ꯑꯃꯁꯨꯡ ꯍꯥꯏꯈꯑꯒꯦꯒꯤ ꯃꯌꯨꯝꯈ ꯁꯦꯞꯇꯤꯛ ꯂꯥꯏꯟ ꯕꯥꯀꯤ

ꯃꯥꯂꯦꯝ ꯑꯃꯤꯒꯤ ꯈꯤꯄꯦꯒꯃꯥꯢ ꯑꯃꯁꯨꯡ ꯑꯍꯦꯌꯥꯂꯤꯡꯒꯤ ꯃꯃꯤꯡ ꯑꯃꯤ ꯑꯅꯐꯁꯤꯡ, ꯑꯦꯈꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯥꯏꯈꯤꯡꯗꯤꯡ ꯂꯣꯕ ꯃꯑꯥꯡꯈ ꯂꯣꯅ꯫ ꯍꯕꯥ ꯅꯨꯈꯤꯡꯃꯥꯂꯤꯈꯃꯥ ꯃꯄꯨ ꯑꯃꯒꯤ ꯃꯃꯤꯡ ꯂꯣꯕ ꯃꯥꯂꯦꯝ ꯑꯃꯤꯡ ꯃꯤ ꯃꯍꯐꯌꯈ ꯅꯐꯌꯨꯡꯌꯨꯝꯁꯤꯡ ꯂꯥꯃꯈꯥꯌꯥ, ꯑꯅꯨꯕ ꯗꯤꯡꯤ ꯗꯤꯡꯈ ꯊꯅꯐ ꯌꯥꯒꯈꯒꯥ ꯍꯔꯕꯒꯤ ꯃꯌꯥꯡꯈ ꯃꯦꯡ ꯔꯁꯤꯈꯕ ꯂꯣꯍꯗꯅ꯫

1.10 ꯒꯥꯂꯤꯔꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯥꯒꯂꯤꯡ

1.10.1 **ꯒꯥꯂꯤꯔꯥꯁ.** ꯑꯥꯄꯂꯤꯗꯥꯃꯥꯢꯂꯤ ꯗꯥꯂꯥ 10.6 ꯃꯗꯥꯈ ꯂꯦꯌꯥꯖꯅ ꯌꯥꯦꯕ ꯦꯄꯄꯦꯒ ꯑꯃꯒꯤ ꯅꯨꯍꯗꯤꯈ ꯃꯗꯥꯈ ꯄꯤꯦꯤꯕꯂꯤꯡ ꯁꯒꯂꯕ ꯃꯖꯃꯈ, ꯑꯍꯦꯌꯥꯂꯤ ꯃꯇꯤꯛꯀꯤ ꯃꯍ ꯌꯥꯕ ꯑꯃꯈꯒꯤ ꯒꯥꯂꯤꯔꯥꯁ ꯑꯃꯈ ꯄꯤꯕ ꯔꯈꯅ:

- (a) ꯂꯃꯗꯅꯒꯤ ꯃꯗꯒꯤ ꯅꯂꯤꯡ ꯔꯗꯤꯕ, ꯃꯒꯂꯕ ꯂꯃꯗꯅ, ꯍꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯍ ꯌꯥꯕ ꯖꯥꯂꯤꯂꯤꯌꯥꯒꯤꯈꯃꯥ ꯔꯃꯤ ꯑꯄꯂꯥꯄ ꯂꯅꯒ ꯑꯥꯦꯤꯔꯤꯂꯨꯃꯕ ꯂꯅꯒꯃꯤ ꯖꯤꯒꯃꯂꯤꯡꯤ ꯃꯦꯃ ꯑꯅꯂꯤ ꯍꯃꯃꯄ ꯑꯂꯤ ꯌꯥꯕ ꯍꯃꯈ; ꯑꯃꯁꯨꯡ
- (b) ꯄꯦꯄꯂꯥ ꯌꯥꯦꯕ ꯑꯌꯥꯄꯄ ꯃꯑꯥꯡ ꯑꯂꯤ ꯂꯦꯡꯥ 5-ꯒꯤ ꯃꯗ ꯍꯡꯕ ꯃꯖꯃꯒꯤ ꯄꯗꯅꯁꯒꯌꯥ ꯃꯁꯂꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯁꯤ ꯖꯕ ꯄꯦꯖꯦꯃꯥꯢꯂ ꯄꯤꯦꯤ, ꯑꯃꯁꯨꯡ ꯔꯈꯕ ꯑꯂ ꯃꯥꯔꯃꯥꯢ ꯑꯂꯃꯥꯌꯥ ꯖꯤ-ꯅꯁ-ꯂꯤꯁ ꯑꯃꯁꯨꯡ ꯑꯖ-ꯂꯅꯒ ꯍꯕꯥꯂꯤꯡꯤ ꯂꯥꯅꯍꯃꯅ꯫

1.10.2 **ꯔꯦꯒꯥ.** ꯀ꯭ꯂꯣꯖ 10.6 ꯃꯔꯝ ꯂꯥꯏꯔꯤꯛꯁꯤꯡ ꯁꯤꯕ ꯄꯅꯈ꯭ꯔꯣꯠꯇꯤ ꯑꯣꯏꯅꯕ ꯑꯃꯅꯥ ꯂꯝꯕ ꯑꯃꯁꯨꯡ ꯂꯃꯈ꯭ꯔꯝꯗ, ꯑꯩꯈꯣꯌꯒꯤ ꯃꯔꯝ ꯆꯨꯝꯕ ꯃꯍꯩꯁꯤꯡ ꯅꯂꯤꯡ ꯅꯤꯡꯊꯧ ꯇꯦꯛꯅꯤ ꯕꯨ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯤ ꯇꯣꯄꯀ ꯁꯤꯅꯗꯨꯕ ꯃꯤꯑꯣꯏ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯊꯧꯔꯥꯡ ꯁꯤꯟꯅꯕ ꯆꯨꯝꯅꯥ ꯃꯐꯝ 5-ꯒꯤ ꯑꯣꯏꯕꯗꯤ ꯆꯥꯡꯗꯝ ꯀꯣꯝꯕ ꯂꯩꯍꯟ ꯄꯥꯎꯗꯨ ꯌꯥꯊꯪ ꯄꯨꯔꯛꯄ ꯊꯧꯔꯥꯡ ꯃꯍꯩꯁꯤꯡ, ꯑꯗꯨꯒꯨꯝꯅꯥ ꯃꯐꯝ 4-ꯒꯤ ꯁꯤꯡꯊꯥꯕꯁꯤꯡꯒꯤ ꯃꯆꯥ ꯁꯦꯡꯂꯕ (ꯊꯤꯡꯊꯥꯕ ꯑꯩꯈꯣꯌ) ꯔꯦꯒ ꯁꯦꯡꯕ ꯍꯧꯅ꯫ ꯃꯇꯤꯛ ꯃꯆꯥ ꯂꯃꯗꯝꯒꯤ ꯃꯔꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯅꯕ ꯊꯤꯕ ꯑꯗꯨꯅꯥ ꯇꯧꯔꯣ, ꯃꯊꯛ ꯑꯃꯗꯤ ꯂꯧꯁꯤꯡ ꯑꯣꯏꯅ ꯔꯦꯒꯥ ꯑꯣꯏꯒꯗꯕ ꯍꯧꯕ ꯂꯩꯅꯥ ꯑꯗꯨꯅꯥ ꯇꯧꯔꯣ꯫ ꯁꯣꯡꯒꯤ ꯒꯨꯝ, ꯄꯨꯡꯁ ꯒꯨꯝ ꯑꯩꯈꯣꯌꯒꯤ ꯁꯥꯒꯔꯤꯕ ꯂꯧꯁꯤꯡ ꯑꯃꯒꯤ ꯆꯥꯡꯅꯕ ꯁꯦꯡꯂꯕꯁꯤꯡ ꯆꯥꯡꯗꯝ ꯑꯗꯨꯅꯥ, ꯑꯣꯏꯕ ꯊꯧꯔꯥꯡꯒꯤ ꯃꯆꯥꯡꯕ ꯇꯧꯕ ꯁꯤꯡ ꯑꯩꯈꯣꯌꯒꯤ ꯁꯦꯡꯂꯕ ꯑꯗꯨꯅꯥ, ꯅꯣꯡꯃ ꯈꯥꯡꯇꯛꯄ ꯀꯥꯡꯂꯨꯞ ꯇꯧꯕꯥ, ꯇꯤꯟꯅꯕ ꯈꯨꯠ ꯑꯩꯈꯣꯌꯒꯤ ꯇꯤꯟꯅꯕ ꯆꯥꯡꯗꯝ, ꯑꯩꯈꯣꯌꯒꯤ ꯅꯥꯃ ꯑꯗꯨꯒꯤ ꯃꯍꯩꯒꯤ ꯊꯤꯕ ꯑꯗꯨꯅꯥ ꯅꯂꯤꯡ ꯔꯦꯒꯗꯥꯡ ꯂꯧꯁꯤꯡ ꯑꯃꯁꯨꯡ, ꯅꯂꯤꯡ ꯇꯧꯕ ꯃꯖꯥ ꯑꯃꯁꯨꯡ ꯔꯦꯒꯇꯕ ꯃꯍꯩ ꯆꯥꯡꯅꯕ ꯃꯐꯝ 5-ꯒꯤ ꯑꯣꯏꯕꯗꯤ ꯆꯥꯡꯗꯝ ꯀꯣꯝꯕꯅ ꯇꯩ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯡꯒꯤ ꯊꯤꯡꯊꯥꯕ ꯔꯦꯒ ꯁꯦꯡꯅ; ꯂꯧꯁꯤꯡ ꯑꯃꯗꯤ ꯑꯔꯥꯃꯕ ꯁꯤꯡꯒꯤ ꯃꯍꯩ ꯑꯗꯨꯅ ꯑꯩꯈꯣꯌꯒꯤ ꯁꯤꯡꯒꯤ ꯇꯥꯛꯄ ꯑꯗꯨꯅꯥ ꯔꯦꯒꯗꯥꯡꯗꯤ ꯃꯇꯝ ꯑꯃꯅꯥꯇꯦ ꯔꯦꯒ ꯁꯦꯡꯅ꯫

1.10.3 **ꯒꯊꯤꯔꯦꯒ ꯑꯩꯈꯣꯌꯒꯤ ꯔꯦꯒꯥ ꯇꯧꯕ.** ꯃꯔꯝ ꯁꯤꯊꯤꯕꯂꯤꯡꯒꯤꯅꯥꯃꯗꯤ ꯒꯊꯤꯔꯦꯒ ꯑꯩꯈꯣꯌꯒꯤ ꯔꯦꯒꯥ ꯑꯃꯁꯨꯡ ꯁꯤꯊꯤꯅꯅꯕꯇꯤ:

- (a) ꯇꯧꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯅꯧꯕꯦ ꯑꯃꯗꯤ ꯂꯤꯔꯦꯇ ꯀꯇꯗꯂꯦ ꯑꯃꯛ;
- (b) ꯃꯐꯝ 6-ꯒꯤ ꯅꯕꯅꯅꯒꯤ ꯇꯃꯕ ꯇꯧꯃ ꯆꯇꯊ ꯇꯒꯒ;
- (c) ꯅꯂꯤꯡ ꯇꯧꯃꯒꯤ ꯂꯌꯕꯗ ꯑꯃꯛ ꯀ꯭ꯂꯣꯖ 7.4.7-ꯒꯤ ꯇꯦ 1-ꯒꯤ ꯃꯇꯤꯃꯃꯅꯒꯤ ꯇꯃꯇꯦ ꯄꯦꯖꯄꯦꯕ ꯀꯊꯤꯒꯃꯕ ꯑꯃꯛ, ꯑꯩꯈꯣꯌꯒꯤ ꯃꯐꯝ 7-ꯒꯤ ꯆꯤꯅ ꯁꯊꯅꯅꯕ ꯇꯦꯅ ꯀꯊꯤꯒꯃꯕ ꯆꯤꯅ ꯑꯩꯈꯣꯌꯒꯤ ꯀꯦꯂꯁꯊꯗꯂꯦ ꯑꯃꯛ; ꯑꯩꯈꯣꯌꯒꯤ
- (d) ꯅꯂꯤꯡ ꯅꯔꯤꯡꯅ ꯂꯦꯂꯤꯁꯒ ꯑꯅꯕ ꯀꯔꯃꯦꯌ ꯑꯃꯛꯅ ꯊꯤꯡꯊꯥꯕꯁꯤꯡꯒꯤ ꯃꯆꯥ ꯁꯦꯡꯕ, ꯀ꯭ꯂꯣꯖ 1.7 ꯃꯔꯝ ꯆꯤ-ꯅꯦ-ꯇꯤꯡꯇꯦ ꯑꯩꯈꯣꯌꯇꯦ꯫

1.10.4 **ꯁ꯭ꯇꯦꯂꯤꯇꯥ.**

- (a) ꯄꯔꯇꯕ ꯑꯂꯤ ꯁ꯭ꯇꯤꯇꯤꯃꯤꯇꯦꯊꯤ ꯅꯊꯃ ꯊꯤꯁꯊꯌꯀꯦ ꯇꯔꯇꯇ **ꯆꯦꯊꯃ 1-2** (ꯒꯊꯤꯔꯦꯒ / ꯔꯦꯒꯥ ꯊꯤꯀꯔꯂꯌ)-ꯗ ꯁꯒꯅꯕꯇꯤ꯫
- (b) ꯁꯤꯔꯊ B ꯑꯗꯨꯊꯤꯁꯤ ꯑꯃꯇꯦ 1 ha ꯑꯩꯈꯣꯌꯒꯤ ꯃꯍꯩꯅꯒꯤ ꯄꯦꯕ ꯂꯧꯁꯤꯡ ꯑꯃꯒꯤ ꯀꯊꯤꯒꯃꯕ ꯒꯊꯤꯔꯦꯒ ꯑꯃꯛ ꯂꯧꯁꯤꯡ ꯇꯧꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯁꯗꯇꯤꯀꯒ ꯀꯃꯤꯁꯤꯅ ꯆꯒꯅꯕꯇꯤ꯫
- (c) ꯔꯊꯁ ꯑꯃꯇꯦ ꯃꯂꯤꯒꯤ ꯃꯊꯃꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯊꯤꯒꯃꯕ ꯀꯦꯅꯂꯦꯂꯤꯡ ꯄꯔꯒꯅꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.17-ꯒꯤ ꯁ꯭ꯇꯤꯗ ꯊꯇꯤꯂꯁꯊꯅ ꯅꯒꯅꯕꯇꯤ꯫
- (d) ꯒꯊꯤꯔꯦꯒ ꯑꯃꯛ ꯑꯁꯃꯒꯒ ꯑꯃꯒꯤ ꯇꯔꯇꯇ ꯔꯌꯇꯤ꯫ ꯑꯁꯃꯒꯒ ꯑꯃ ꯇꯁꯇꯕꯅ ꯃꯂꯤꯂ ꯇꯁꯅ꯫

> **ꯂꯦꯅꯗꯇꯦ ꯁꯗꯁ.** 2006-ꯒꯤ APWA 5600-ꯗ ꯔꯦꯒꯊꯂꯤꯡꯒꯤ ꯂꯗꯂꯦ ꯑꯃꯛ (5601.6) ꯔꯦꯅꯤ, ꯑꯃꯁꯨꯡ ꯇꯊꯇꯤꯔꯦ ꯃꯔꯝ ꯆꯤꯡꯕ ꯃꯆꯥꯒꯤ ꯑꯗꯨꯅꯂꯦ ꯁꯤꯗ ꯀꯦꯁꯊꯒ ꯃꯆꯥ ꯁꯅ ꯄꯔꯇꯦ ꯊꯧꯔꯥꯡ ꯃꯍꯩꯁꯤꯡ ꯔꯦꯒꯊꯂꯤꯡ ꯑꯔꯤꯕ ꯁꯤꯊꯤ꯫ ꯀ꯭ꯂꯣꯖ 1.10.2-ꯒꯤ ꯔꯦꯒꯥ ꯑꯂꯤ ꯔꯦꯃꯇꯦ ꯅꯦꯆꯤꯕꯇꯤ: ꯁꯅꯅ ꯂꯃꯗꯝꯒꯤ ꯃꯔꯝ ꯑꯃꯁꯨꯡ, ꯊꯤꯡꯊꯥꯕ ꯁꯦꯡꯕ ꯆꯇꯦ ꯁꯅꯅꯦ ꯑꯣꯏꯕꯗꯤ ꯆꯥꯡꯗꯝꯒꯤ ꯇꯦꯆꯁꯗꯦ ꯃꯁꯗ ꯁꯤꯕ ꯔꯦꯅ, ꯑꯃꯁꯨꯡ ꯑꯦꯇꯦꯅꯂꯤ ꯑꯃꯅꯗꯦ ꯃꯕ ꯊꯧꯁ ꯄꯨꯝꯅꯃꯛ꯫ ꯃꯂꯔꯒ ꯑꯂꯤꯇꯦ ꯔꯊꯁ ꯅꯃꯗꯃꯗ ꯆꯗꯅꯀꯁ ꯃꯆꯥ ꯁꯅ ꯃꯊꯃꯅꯤ ꯆꯗꯅꯀꯁꯇꯦ ꯀꯂ ꯑꯃꯃꯃꯒꯤ ꯂꯁꯦꯅꯊꯅ ꯄꯦꯆꯊꯗꯁ ꯆꯗꯅ; ꯃꯇꯤꯃꯊꯅ ꯇꯁꯤꯡꯅ ꯁꯊꯕ ꯒꯊꯁꯊ ꯅꯃꯆꯒꯤ ꯃꯂꯁꯊ ꯁ꯭ꯇꯦꯦꯇꯦ 2043 ꯆꯗꯕ ꯁ꯭ꯇꯦꯇꯤꯗ ꯑꯊꯤꯔꯤꯒꯤ ꯔꯌꯇꯦꯅꯂꯤꯗ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯆꯗꯕ ꯑꯃꯁꯨꯡ ꯁꯃꯁꯗꯀꯤ ꯇꯃꯅ ꯅꯂꯤꯗ ꯅꯔꯤꯡꯒꯤ ꯅꯂꯤꯗ ꯆꯃꯇꯤꯦꯕ ꯃꯂꯤꯒꯤ ꯇꯃꯒꯤ ꯇꯃ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯆꯗꯕ ꯄꯦꯆꯄꯒꯇꯤ (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)); ꯑꯅꯦ ꯑꯅꯊ ꯄꯔꯇꯦ ꯅꯀꯅꯕ 2026-ꯒꯤ ꯕꯤꯒ ꯑꯃꯇꯦ ꯇꯁꯤꯡꯅ ꯁꯊꯕ ꯃꯂꯁꯊ ꯁ꯭ꯇꯦꯦ ꯑꯃꯒꯤ ꯃꯦꯦꯇꯕ ꯇꯃ ꯁꯅ-ꯇꯦꯅ ꯑꯗꯌꯀꯤ ꯄꯗꯅꯀꯁꯒꯤ ꯑꯆꯤꯗꯕꯅꯒꯤ ꯑꯗꯇꯃꯁꯁ ꯁꯒꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯂꯦ ꯇꯅꯆꯀꯁꯅ "ꯅꯤꯃꯅ ꯀꯦꯒꯊꯂꯦ" ("Deemed Conversion") ꯑꯔꯕ ꯁꯤꯒꯤ (Bill No. 6 of 2026); MASTEC-ꯅ "ꯃꯇꯤꯁꯊ ꯁꯃꯁꯗꯁ ꯇꯗ 500 ꯃꯊꯒ ꯇꯊꯃꯤ" ("there were nearly 500 lakes in Manipur Valley") ꯄꯔꯇꯦ ꯊꯀꯊꯅ ꯁꯅ ꯑꯃꯁꯨꯡ ꯆꯌꯁꯕ ꯆꯤꯒꯃꯅ ꯇꯧꯕ ꯑꯩꯈꯣꯌꯒꯤ ꯃꯗꯅꯤꯊꯤꯕ ꯁꯌꯂꯤꯗꯒꯤ ꯃꯂꯗꯅ ꯇꯃꯆꯒꯁꯌ, ꯁꯊꯃꯁꯌ, ꯁꯗꯔꯒꯁꯌ, ꯂꯅꯁꯌ, ꯅꯗꯁꯌ ꯑꯃꯁꯨꯡ ꯅꯀꯁ ꯁꯌꯀꯤ ꯃꯃꯤꯗ ꯇꯅ (MASTEC, *Flood Hazard Zonation in Manipur Valley*); ꯑꯃꯁꯨꯡ ꯑꯁꯊꯤꯒ 2025-ꯗ ꯑꯗꯨꯊꯤꯁꯤꯂꯤꯗꯦ ꯔꯅꯂꯒ ꯃꯊꯤꯒ, ꯆꯒ ꯅꯒꯇꯦ (Naga Nallah) ꯑꯃꯁꯨꯡ ꯇꯃꯕꯒ ꯁꯊꯒꯒꯤ ꯇꯗꯁꯗ ꯆꯗꯕ ꯇꯊꯅꯒꯤ ꯃꯆꯗꯁ ꯇꯃ ꯅꯁꯁꯂꯤꯗ (encroachment) ꯇꯗꯨꯗꯇꯕ ꯑꯊꯅꯊ ꯁꯤꯅꯤ (ꯁꯅꯅ ꯆꯗꯅꯗꯅꯤꯕ ꯃꯁꯗ ꯅꯦꯇ)꯫

1.11 ꯄꯨꯔꯛꯄꯒꯤ ꯃꯇꯝꯒꯤ ꯃꯥꯏꯄꯥꯀꯄꯁꯤꯡ

1.11.1 **ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝ.** ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯣꯐꯤꯁ ꯂꯧꯊꯣꯛꯂꯤꯕꯥ ꯃꯇꯨꯡꯒꯤ **ꯄꯨꯡ 6** ꯃꯅꯨꯡꯗ ꯑꯁꯤꯕ ꯑꯦꯃꯔꯖꯦꯟꯁꯤꯗ ꯑꯦꯛꯇꯤꯚꯦꯠ ꯇꯧꯒꯅꯤ (ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝ)꯫

1.11.2 **ꯄꯨꯡ ꯑꯦꯛꯇꯤꯕ ꯑꯦꯃꯔꯖꯦꯟꯁꯤ.** ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝꯒꯤ ꯃꯃꯥꯡꯗ ꯃꯇꯨꯡ ꯂꯩꯔꯕ ꯄꯨꯝꯅꯃꯛ ꯑꯦꯃꯔꯖꯦꯟꯁꯤ ꯑꯃꯁꯨꯡ, ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝꯗꯒꯤ ꯄꯨꯡ 12-ꯒꯤ ꯃꯅꯨꯡꯗ ꯔꯤꯄꯣꯔꯠ ꯄꯤꯗꯨꯅꯥ, ꯄꯨꯝꯅꯃꯛ ꯃꯇꯝꯗ ꯑꯦꯛꯇꯤꯚ ꯊꯝꯂꯤꯕꯁꯤꯡꯒꯤ ꯃꯔꯨꯗ ꯔꯤꯄꯣꯔꯠ ꯇꯧꯕ ꯌꯥꯏ꯫ ꯑꯦꯛꯁꯄꯥꯏꯕꯗ, ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯣꯐꯤꯁ ꯑꯦꯛꯇꯤꯠꯀꯅꯤ꯫

1.11.3 **ꯁ꯭ꯇꯦꯖ B-ꯒꯤ ꯋꯥꯔꯅꯤꯡ ꯗꯥꯏꯝ ꯃꯇꯝ ꯐꯪꯂꯕ ꯊꯧꯕ.** ꯁ꯭ꯇꯦꯖ B ꯑꯦꯛꯇꯤꯚꯦꯁꯟꯁꯤꯡꯗ, ꯂꯦꯚꯦꯜ 4 ꯑꯃꯁꯨꯡ 5 ꯑꯣꯐꯤꯁ ꯂꯧꯊꯣꯛꯂꯤꯕꯥ ꯃꯇꯨꯡꯒꯤ **ꯄꯨꯡ 24** ꯃꯅꯨꯡꯗꯒꯤ ꯑꯦꯛꯇꯤꯚꯦꯠ, ꯐꯣꯡꯗꯣꯛ ꯐꯔꯦꯡꯗ ꯂꯥꯏꯔꯤꯛꯁꯤꯡ ꯑꯗꯨꯕ ꯄꯥꯎꯖꯦꯜꯁꯤꯡꯗ ꯀꯦꯛꯁꯤ, ꯃꯗꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯔꯨ ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝꯗꯒꯤ ꯑꯦꯛꯇꯤꯚꯦꯠꯀꯅꯤ꯫

1.11.4 **ꯃꯥꯏꯄꯥꯛꯂꯕ ꯑꯦꯛꯁꯟ.** ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝꯒꯤ ꯃꯃꯥꯡꯗ ꯂꯥꯏꯔꯤꯛ ꯁꯤꯡꯅꯤꯕ DPR-ꯑꯁꯤ ꯂꯥꯏꯔꯤꯛ ꯁꯤꯡꯗꯕ ꯃꯑꯣꯡꯗ ꯑꯦꯛꯁꯟ ꯌꯥꯏ꯫ ꯑꯦꯛꯇꯤꯚꯦꯁꯟ ꯇꯥꯏꯝꯒꯤ ꯃꯅꯨꯡꯗ ꯗꯤꯖꯥꯏꯟ ꯁꯤꯡꯗꯕ ꯀꯦꯛꯗꯒꯤ ꯑꯍꯣꯡꯕ ꯄꯨꯔꯛꯄ ꯁꯤꯡꯈꯠꯄ ꯁꯤꯡꯗꯕ ꯊꯗꯣꯛꯄꯕ DPR ꯑꯃꯗꯤ ꯄꯤꯊꯣꯛꯀꯗꯕꯅꯤ꯫ ꯀꯤꯃꯗꯦꯌꯍꯥꯏꯦꯌꯁꯤꯡꯗꯤ ꯄꯤꯊꯣꯛꯄ ꯑꯦꯛꯇꯤꯕ ꯄꯨꯡꯒꯤꯁꯤ ꯑꯣꯐꯤꯁ ꯄꯨꯡ 12-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯣꯁꯥꯏ ꯀꯗꯒꯤ ꯐꯑꯣꯡꯒꯤ ꯁꯥꯕꯇꯤꯚꯥꯏ ꯊꯃꯍꯣꯛꯇ ꯗꯤꯃꯗꯦꯌ ꯁꯥꯏꯀꯗꯕꯅꯤ꯫

1.11.5 **ꯑꯄꯥꯔꯕꯁꯤꯡꯗ ꯃꯤꯇꯦꯡꯄꯥꯏꯊꯔ.** ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯣꯐꯤꯁꯀꯤ ꯄꯔꯗꯤꯕ ꯑꯄꯥꯔꯕ ꯑꯃꯁꯨ ꯃꯤꯇꯦꯡꯄꯥꯏꯊꯔꯕ, ꯑꯦꯛꯇꯤꯚꯦꯠꯂꯕꯗ ꯊꯥꯛꯇ ꯑꯃꯥꯡ ꯄꯔꯗꯤꯕ ꯄꯨꯑꯦꯕ ꯑꯃꯥ ꯑꯣꯛꯇꯣꯛꯂꯕꯗꯕꯅꯤ, ꯑꯦꯛꯇꯤꯚꯦꯁꯟꯒꯤ ꯌꯥꯛꯐꯤꯕ ꯑꯃꯁꯨꯡ ꯐꯗꯥꯏ ꯗꯤꯃꯗꯦꯌꯁꯤ ꯗꯥꯊꯥꯗꯥ ꯁꯤꯡꯗꯕ ꯒꯥꯏꯗꯂꯥꯏꯟꯁꯤꯡ ꯇꯥꯔꯛꯀꯅꯤ꯫

> **ꯂꯦꯃꯗꯥꯛꯇꯦ ꯁꯤꯡꯃꯛ.** ꯄꯨꯡ 6-ꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯑꯣꯐꯤꯁ ꯄꯦꯗꯦꯛ 2.14.2-ꯗ ꯇꯩꯕ NIH-DHAARA ꯑꯃꯗꯥꯁꯤꯡꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯃꯁꯤꯡ ꯑꯗꯨꯒꯤ ꯃꯦꯌꯦꯠ꯫ ꯂꯤꯕꯥꯛꯇꯨꯗꯦ ꯃꯑꯣꯡꯒꯤ 2025-ꯒꯤ ꯗꯤꯁꯥꯏꯂꯦ ꯑꯦꯗꯥꯌꯗꯃꯒꯤꯗꯃꯕ (16 Apr 2025-ꯗ ꯃꯤꯇꯤꯕ, 1 Oct 2025-ꯗꯒꯤ ꯑꯦꯄꯥꯛꯇꯤꯕ) ꯃꯦꯌꯦꯕ ꯃꯁꯤꯡ ꯑꯃꯁꯨ ꯃꯇꯤꯌꯤ꯫ ꯄꯨꯡ 12 ꯑꯃꯁꯨꯡ 24-ꯒꯤ ꯃꯁꯤꯡꯑꯁꯤ ꯑꯣꯐꯤꯁ ꯁ꯭ꯇꯦꯖ B ꯑꯦꯛꯇꯤꯚꯦꯁꯟꯁꯤꯡꯗꯦ ꯂꯣꯗꯥꯏꯑꯁꯤ ꯁꯤꯡꯥꯛꯇꯤꯕ ꯃꯤꯛꯇꯕ ꯑꯃꯁꯨꯡ ꯂꯣꯁꯥꯏꯦ ꯗꯤꯛꯇꯤꯕꯦ-ꯑꯦꯗꯥꯃꯤ ꯁꯥꯕꯇꯤꯑꯁꯤ ꯃꯤꯛꯇꯕ (ꯄꯦꯗꯦꯛ 1.7) ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯣꯐꯤꯁꯦ ꯄꯨꯝꯕꯅꯤ꯫

1.12 ꯗꯤꯒꯤꯁꯥ ꯑꯃꯁꯨꯡ ꯑꯦꯃꯔꯖꯦꯟꯁꯤꯌꯦ

1.12.1 ꯂꯣꯁꯥꯏ ꯑꯦꯛꯇꯤꯕ ꯐꯑꯣꯡꯒꯤ ꯁꯥꯕꯇꯤꯚꯥꯏ ꯊꯃꯍꯣꯛꯁꯤꯗꯦ ꯍꯥꯏꯗ꯭ꯔꯥꯂ ꯑꯣꯐꯤꯁ **ꯆꯍꯤ 10** ꯁꯨꯗꯤꯃꯗ, ꯑꯃꯁꯨꯡ ꯄꯦꯗꯦꯛ 2.14.1-ꯗ ꯃꯤꯗꯤꯕ ꯃꯇꯝ ꯐꯪꯂꯕ 1% AEP-ꯒꯤ ꯗꯤꯛꯇꯤꯐꯦ ꯗꯥꯃꯄꯨꯁꯒꯤ ꯄꯥꯌꯕ ꯄꯨꯗꯥꯕ ꯑꯃꯒꯤ ꯃꯇꯝꯗ ꯗꯤꯒꯤꯁꯥ ꯁꯤꯡꯀꯗꯕꯅꯤ꯫

1.12.2 ꯑꯦꯃꯔꯖꯦꯟꯁꯤꯌꯦꯁꯤꯡꯗ ꯒꯥꯇꯥꯌꯁ ꯑꯦꯁꯤꯗꯥꯐ ꯁꯤꯡꯀꯗꯕꯅꯤ, ꯑꯥꯔꯦꯇ ꯇꯦꯒꯊ ꯑꯦꯔꯅꯅ ꯗꯦꯗꯥꯏꯊꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯁꯤꯗꯥꯏꯂꯦꯗꯦ ꯁꯦꯄꯦꯅꯦ ꯄꯔꯗꯤꯕꯗ ꯑꯦꯁꯤꯗꯥꯏꯂꯦꯒꯤ ꯄꯨꯡ 6 ꯃꯅꯨꯡꯗ ꯑꯦꯛꯇꯤꯚꯦꯠꯀꯗꯕꯅꯤ꯫

1.12.3 ꯊꯦꯛꯂꯨꯝꯕ ꯑꯃꯗꯦ ꯊꯃꯁꯤꯡꯗ ꯑꯦꯃꯔꯖꯦꯟꯁꯤꯌꯦ ꯑꯃꯁ ꯃꯗꯥꯃꯦꯇ ꯁꯤꯕ ꯌꯥꯏ꯫ ꯃꯗꯥꯃꯦꯇꯥꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯃꯁꯤꯡꯒꯤ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ ꯗꯦꯗꯥꯏꯊꯗꯕꯅꯤ꯫

ꯍꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- Government of Manipur, MAHUD. Model Manipur Unified Building Bye-Laws, 2024, Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ; Manipur Gazette Extraordinary No. 253, 5 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ (29 ꯑꯣꯛꯇꯣꯕꯔ 2024-ꯒꯤ ꯗ꯭ꯔꯥꯐꯠ ꯅꯣꯇꯤꯁ No. BBL-101/1/2024-MAHUD-MAHUD(Part-1)). https://www.tpmanipur.mn.gov.in/media/filer_public/5b/3d/5b3d9440-3e85-4cf5-bd26-d113882dfb9a/model_manipur_ubbl_final_gazette.pdf
- Imphal Municipal Corporation Building Bye-Laws (3rd Amendment), 2024 (ꯑꯣꯕꯖꯦꯛꯁꯟꯁꯤꯡꯒꯤꯗꯃꯛ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ ꯗ꯭ꯔꯥꯐꯠ; ꯑꯔꯣꯏꯕ ꯁ꯭ꯇꯦꯇꯁ ꯀꯟꯐꯥꯔꯝ ꯇꯧꯒꯗꯕ [TBC]). https://www.tpmanipur.mn.gov.in/media/filer_public/22/ef/22ef77df-5b8c-4a80-9fa0-553d8a60a170/amendment_of_imc_building_bye_laws_2024.pdf
- Town Planning Department, Manipur. Lists of Acts and notifications: IMC Building Bye-laws, 2013, ꯑꯃꯁꯨꯡ 2019 ꯑꯃꯁꯨꯡ 2022-ꯒꯤ ꯃꯁꯤꯒꯤ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇꯁꯤꯡ; ꯐꯥꯏꯅꯦꯜ ꯒꯦꯖꯦꯠꯁꯤꯡ: the Kumbi, Moirang and Jiribam Municipal Councils' building bye-laws, 2025 (16 ꯖꯥꯅꯨꯋꯥꯔꯤ 2025); "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" (15 ꯗꯤꯁꯦꯝꯕꯔ 2025; ꯄꯥꯉꯈꯤꯕ); Risk Informed GIS Based Master Plans for Imphal and Moirang (17 ꯖꯥꯅꯨꯋꯥꯔꯤ 2025; ꯄꯥꯉꯈꯤꯕ) (ꯂꯤꯁ꯭ꯠ ꯃꯄꯨꯡ ꯐꯥꯕ ꯇꯦꯛꯁꯠ ꯄꯨꯝꯅꯃꯛꯁꯤꯡ). https://www.tpmanipur.mn.gov.in/
- Government of Manipur, MAHUD. Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026, Notification No. BBL-101/1/2024-MAHUD-MAHUD, 22 ꯖꯨꯂꯥꯏ 2026-ꯒꯤ; Gazette Extraordinary No. 157, 23 ꯖꯨꯂꯥꯏ 2026-ꯒꯤ꯫ https://www.tpmanipur.mn.gov.in/media/filer_public/44/2b/442b7923-b910-494a-83d5-767f50c0c87c/unified_zoning_final_gazette.pdf
- Manipur Town and Country Planning Act, 1975 (Manipur Act 11 of 1975), ꯄ꯭ꯔꯤꯟꯇꯦꯗ ꯃꯄꯨꯡ ꯐꯥꯕ ꯄꯥꯛꯂꯤ꯫ https://prsindia.org/files/bills_acts/acts_states/manipur/1975/Act11of1975Manipur.pdf
- Manipur Municipalities Act, 1994 (Act 43 of 1994) (ꯑꯦꯛꯇꯀꯤ ꯇꯦꯛꯁꯠ ꯄꯨꯝꯅꯃꯛ ꯇꯦꯛꯁꯠ; ꯇꯦꯛꯁꯠ ꯗꯤ ꯄꯨꯔꯛꯄ [TBC])꯫
- Manipur Loktak Lake (Protection) Act, 2006 (Manipur Act 3 of 2006), Amendment Acts 5 of 2007 ꯑꯃꯁꯨꯡ 8 of 2019-ꯗꯒꯤ ꯂꯧꯈꯤꯕ꯫ https://prsindia.org/files/bills_acts/acts_states/manipur/2006/Manipur%20Act%203%20of%202006.pdf
- Manipur Flood Plain Zoning Act, 1978 (Manipur Act 10 of 1978) (ꯄꯤꯗꯤꯑꯦꯐ ꯃꯄꯨꯡ ꯁꯀꯟ ꯑꯃꯁꯨꯡ OCR, ꯄꯦꯖ 1–7)꯫ https://www.indiacode.nic.in/bitstream/123456789/13383/1/the_manipur_flood_plain_zoning_act%2C_1978.pdf
- Manipur Conservation of Paddy Land and Wetland Act, 2014 (Manipur Act 10 of 2014). https://faolex.fao.org/docs/pdf/ind194970.pdf; Manipur Conservation of Paddy Land and Wetland (Third Amendment) Bill, 2026 (Bill No. 6 of 2026, ꯄꯥꯁ ꯇꯧꯔꯕ ꯑꯦꯛꯇ)꯫ https://prsindia.org/files/bills_acts/bills_states/manipur/2026/Bill6of2026MN.pdf
- The Manipur (Hill Areas) District Councils Act, 1971 – subsequent amendments (ꯀꯟꯁꯣꯂꯤꯗꯦꯇꯦꯗ ꯄꯤꯗꯤꯑꯦꯐ)꯫ https://manipur.gov.in/wp-content/uploads/2026/05/The-Manipur-Hill-Areas-District-Councils-Act-1971-subsequent-Amendments.pdf
- Constitution of India, Article 371C (ꯂꯃꯀꯣꯏ ꯃꯄꯨꯡ ꯇꯦꯛꯁꯠ ꯄꯨꯝꯅꯃꯛ)꯫
- High Court of Manipur. PIL No. 8 of 2025, *Meeyam Amata Oina Punsinba Lup v. State of Manipur & 2 Ors.*, 16.06.2025-ꯒꯤ ꯑꯣꯔꯗꯔ, WRD-ꯒꯤ ꯂꯥꯏꯁ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯔꯤꯄꯣꯔꯠ ꯂꯧꯈꯤꯕ꯫ https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf
- Government of Manipur. Reports in NGT OA No. 606 of 2018: "Updated Fresh Report" (ꯖꯨꯂꯥꯏ 2025) ꯑꯃꯁꯨꯡ 6th six-monthly progress report (ꯗꯤꯁꯦꯝꯕꯔ 2025 ꯐꯥꯑꯣꯕ)꯫ https://www.greentribunal.gov.in/
- Directorate of Environment and Climate Change, Manipur. Administrative Report 2025-26. https://assembly.mn.gov.in/user/pages/files/administrative-reports/A%20Report%202025-26%20(DoECC).pdf
- Town Planning Department, Manipur. Annual Administrative Report 2025-26. https://www.tpmanipur.mn.gov.in/media/filer_public/1a/48/1a484b87-afaa-41de-8d64-f6d2f27c49c7/admn_report2025-26.pdf

- Central Pollution Control Board (2025). Polluted River Stretches for Restoration of Water Quality. https://dste.py.gov.in/ppcc/pdf/Laboratory/PRS-2025.pdf
- Comptroller and Auditor General of India. Report No. 2 of 2017, Economic and Revenue Sectors, Government of Manipur ([illegible] ꯃꯄꯨꯡ ꯐꯥꯗꯦ; [illegible] [TBC])꯫ https://cag.gov.in/
- Central Ground Water Board, North Eastern Region. Ground Water Information Booklets, Imphal West District (Technical Report Series D No. 28/2013-14, [illegible] 2013) ꯑꯃꯁꯨꯡ Bishnupur District (2013); Dynamic Ground Water Resources of Manipur (GWRA 2024, [illegible] ꯃꯄꯨꯡ ꯐꯥꯗꯦ)꯫
- Bureau of Indian Standards. IS 14458, Guidelines for retaining wall for hill area (Parts 1–3), [illegible]꯫
- Indian Roads Congress. IRC:SP:48, Hill Road Manual ([illegible] [TBC])꯫
- Press reports: [illegible] ꯑꯃꯁꯨꯡ [illegible] (Naga Nallah)-ꯒꯤ [illegible] 2025-ꯒꯤ [illegible] ([illegible] 2026), [illegible] (2019, 2022), [illegible] PIL (2019), [illegible] ([illegible] 2025) ꯑꯃꯁꯨꯡ IMC Building Bye-Laws, 2025-ꯒꯤ [illegible] ([illegible])꯫
- MoHUA / CPHEEO (2019). Manual on Storm Water Drainage Systems, Part A, §4.4.1.4 (Table 4.1 and notes).
- Kakkar, R. (CPHEEO) (2023). Understanding Urban Stormwater Management. CSE, Aug 2023.
- National Disaster Management Authority (2010). National Guidelines on Management of Urban Flooding.
- MoHUA (2016). Model Building Bye-Laws, Chapter 9.
- Lok Sabha Unstarred Question 1847, 30 Jul 2026 (MoHUA). https://sansad.in/getFile/lsapps/loksabhaquestions/annex/188/AU1847_x29brZ.pdf
- India Meteorological Department. Extremes of Temperature and Rainfall for Indian Stations (up to 2012): Imphal (Tulihal) (A) (42623). https://imdpune.gov.in/library/public/EXTREMES%20OF%20TEMPERATURE%20and%20RAINFALL%20upto%202012.pdf
- Manipur Science and Technology Council (MASTEC). Flood Hazard Zonation in Manipur Valley (1966–2002-ꯒꯤ [illegible])꯫
- National Remote Sensing Centre (2022). Note on the Manipur landslide of June 2022 ([illegible] ꯃꯄꯨꯡ ꯐꯥꯗꯦ)꯫ https://ndem.nrsc.gov.in/documents/Disaster_Document/2022/MN/Manipur_landslide.pdf
- Baruah et al. (2023), on the Tupul landslide (AGU Landslide Blog-[illegible]; [illegible] [TBC])꯫
- Press reports: 2015, 2017, [illegible] 2024 ([illegible], Cyclone Remal), [illegible] 2025 ꯑꯃꯁꯨꯡ [illegible] 2025-ꯒꯤ [illegible], [illegible] (Joumol) (2015) ꯑꯃꯁꯨꯡ [illegible] (Tupul) (2022)-ꯒꯤ [illegible] ꯑꯃꯁꯨꯡ [illegible] 2025-ꯒꯤ [illegible] ([illegible])꯫ https://www.thesangaiexpress.com/ ꯑꯃꯁꯨꯡ https://www.downtoearth.org.in/
- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01.
- Mid-America Regional Council (2025). APWA 5600 Manual Factsheet; APWA Stormwater Standards Supplement (7 Nov 2025). https://www.marc.org/document/apwa-stormwater-standards-supplement
- Mid-America Regional Council. The Evolution of Regional Stormwater Design Standards ([illegible])꯫ https://www.marc2.org/Assets/Environment/WQEC/The_Evolution_of_Regional_Strormwater_Design_Standards.pdf
- Kansas City Metro Chapter APWA (2006). Section 5600, §5601.6 Waivers.
- PUB Singapore (2018, with Addendum No. 3 of 16 Apr 2025). Code of Practice on Surface Water Drainage, 7th ed.
- Department of Irrigation and Drainage Malaysia (2008). Submission Checklist for Stormwater Management.
- Centre for Science and Environment (2023). Urban Stormwater Management ([illegible])꯫

- Government of Manipur, MAHUD. Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)-ꯅꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯤꯕ॥ https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf
- Asian Infrastructure Investment Bank (2024). Approval Project Document and Project Summary Information, Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723). https://www.aiib.org/en/projects/details/2024/_download/India/AIIB-APD_P000723_Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project.pdf
- New Development Bank (2021). Proposed Project Summary, Lamphelpat Waterbody Rejuvenation Project. https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf
- Manipur Science and Technology Council (MASTEC). Flood Hazard Zonation in Manipur Valley, DST-NRDMS-ꯗ ꯁꯤꯐꯤꯕ ꯏꯅꯆꯦꯟ ꯐꯤꯁꯥꯐꯨ (2001 ꯐꯥꯑꯕ ꯅꯦꯇꯥ)॥ https://www.mastec.nic.in/images/Completed_projects/ReportFloodHazard.pdf

ꯑꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝꯁꯤꯡ

ꯑꯍꯦꯟꯕ / ꯐꯣꯔꯝ	ꯑꯔꯣꯟꯕ
1A	ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜꯒꯤ ꯔꯤꯚꯥꯏꯖ ꯇꯧꯔꯕ GIS ꯕꯦꯖ ꯃꯥꯁ꯭ꯇꯔ ꯞ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ)-ꯒꯤ ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯂꯝꯗꯝꯁꯤꯡꯒꯤ ꯅꯥꯔꯅꯅ ꯇꯤꯔꯕ A ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡꯒꯤ ꯆꯤꯡꯊ
1B	ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯟꯁꯤꯇꯤꯚ ꯑꯣꯏꯕ ꯁꯦꯇꯜꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯦꯞꯁꯤꯡ
1C	ꯁꯦꯇꯜꯃꯦꯟꯠ ꯀ꯭ꯂꯥꯁꯤꯐꯤꯀꯦꯁꯟ: ꯑꯇꯣꯞꯄ ꯃꯇꯥꯡ S-1-ꯗꯒꯤ S-5 ꯐꯥꯑꯕꯒꯤ ꯇꯦꯡꯂꯇ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡ ꯂꯤꯟꯅꯒꯤ ꯃꯦꯞ ꯐꯤꯆꯔꯁꯤꯡ
1D	ꯃꯦꯅꯥ ꯄ꯭ꯔꯤꯖꯏꯅ ꯕꯨꯟ-ꯆꯦꯠ 2024-ꯒꯤ ꯑꯃꯦꯁꯅꯃꯦꯟ ꯑꯃꯁꯨꯡ ULB-ꯒꯤ ꯃꯦꯅꯥ ꯕꯨꯟ-ꯆꯦ
ꯐꯣꯔꯝ 1-1	ꯍꯧꯆꯕ ꯃꯐꯝ ꯆꯦꯀꯁꯤꯟ
ꯐꯣꯔꯝ 1-2	ꯒꯦꯔꯤꯁꯦꯜ / ꯁꯦꯒꯔ ꯃꯤꯁꯤꯡꯒꯤ

ꯁꯔꯨꯛ 2

ꯅꯤꯆꯦꯅꯖ ꯀꯧꯝ ꯂꯦꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯆꯦꯅꯖ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯊꯧꯅꯧꯕꯣꯤꯝ

2.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯁꯀꯨꯣꯞ

2.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯗꯦ ꯍꯧꯖꯨꯔꯧꯟ ꯑꯁꯤꯅ ꯇꯧꯕ ꯄꯥꯝꯕꯩꯗꯥꯇꯤꯒꯤ ꯃꯧꯟꯃꯨꯗꯧꯂꯦ ꯂꯨꯅꯤꯡꯍꯥꯃꯤ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯄꯦꯖꯨꯛꯁꯤꯡ ꯊꯝꯗꯤ: ꯗꯥꯡꯕꯦ (drain) ꯑꯃꯁꯨꯡ ꯄꯦꯗꯧꯛꯃꯤ ꯁꯣꯄꯇ ꯗꯧꯔꯖ (ꯁꯔꯨꯛ 6), ꯔꯤꯍꯧꯦꯟꯁꯦ (retention) ꯑꯃꯁꯨꯡ ꯗꯤꯍꯧꯦꯟꯁꯦꯟꯒꯤ (detention) ꯁꯣꯄꯇ ꯗꯧꯔꯖ (ꯁꯔꯨꯛ 4), ꯍꯥꯖ ꯊꯡꯕ ꯍꯖꯝ ꯑꯃꯁꯨꯡ ꯇꯧꯟꯌꯦꯇꯔꯒꯤ (tailwater) ꯑꯧꯀꯦꯀꯦꯄꯁꯤꯁ (ꯁꯔꯨꯛ 5), ꯑꯃꯁꯨꯡ ꯄꯁꯤꯡ ꯆꯦꯖꯝ ꯑꯃꯁꯨꯡ ꯄꯨꯈꯔꯤꯒꯤ (pukhri; pond) ꯊꯕꯥꯁꯤꯡ (ꯁꯔꯨꯛ 7)꯫

2.1.2 ꯍꯁꯤꯗꯦ ꯍꯥꯖꯒꯤꯁꯤꯡ ꯊꯝꯗꯤ:

- (a) ꯅꯤꯆꯦꯅꯖ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯅꯧꯔꯊ (depth) ꯑꯃꯁꯨꯡ ꯄꯦꯇꯧꯦꯁꯤꯇꯤꯒꯤ (intensity) ꯑꯧꯔꯨꯀ ꯇꯔꯕ ꯇꯔꯥꯖꯝꯁꯤꯡ;
- (b) ꯅꯧꯔꯊꯁꯤꯡ ꯑꯁꯤ ꯅꯨꯔꯧꯁꯦꯁꯤꯡꯒꯤ (duration) ꯍꯔꯥꯇ, ꯔꯥꯄꯦꯌ ꯑꯃꯁꯨꯡ ꯑꯧꯔꯤꯌꯦꯒꯤ ꯍꯔꯥꯇ, ꯑꯃꯁꯨꯡ ꯇꯇꯤꯥꯃꯤ ꯃꯦꯄꯍꯧꯌꯇꯒꯤ ꯇꯨꯡꯒꯤ ꯃꯦꯄꯍꯧꯌꯇ ꯃꯔꯖꯗꯦ ꯇꯥꯡꯅꯥꯃꯃꯅꯒꯧ;
- (c) ꯅꯤꯆꯦꯅꯖ ꯁꯤꯡꯔꯖꯁꯤꯡ (design storm; ꯇꯄꯌꯧꯇꯒꯔꯩꯖꯁꯤꯡ, hyetograph) ꯃꯔꯖꯗꯦ ꯁꯧꯖꯒꯅꯒꯧ; ꯑꯃꯁꯨꯡ
- (d) ꯅꯧꯀꯧꯗꯔꯍꯧꯦꯌꯃꯤ ꯍꯍꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯨꯡꯒꯤ ꯖꯤꯒꯖꯁꯤꯡꯅ ꯁꯤꯗꯤꯦꯗꯒꯅꯕ ꯅꯤꯆꯦꯅꯖ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯊꯧꯅꯧꯕꯣꯤꯝ꯫

2.1.3 ꯁꯔꯨꯛ ꯑꯁꯤ ꯍꯗꯤꯔꯨꯔ ꯔꯨꯖꯕꯅ ꯌꯌꯗꯦ꯫ ꯁꯔꯨꯛ 1 ꯍꯌꯅ IMC, PDA Manipur, ꯍꯨꯗꯤꯁꯤꯔꯧꯀ ꯃꯨꯦꯁꯤꯀ ꯑꯍ, ꯗꯒꯔ ꯔꯦꯌꯌꯌ ꯑꯍ ꯗꯌꯔꯒ ꯅꯤꯁꯇꯔꯤꯛ ꯃꯨꯦꯁꯤꯀ (District Council) ꯑꯍꯗꯦ ꯇꯧꯦꯗꯦ ꯌꯡꯕ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯁꯤꯡꯔꯧꯅꯔꯅ ꯑꯍ ꯆꯁꯤꯦꯗꯕꯅꯤ, ꯇꯧꯦꯗꯦ ꯌꯡꯕ ꯁꯤꯡꯔꯧꯅꯔꯅ ꯑꯅ ꯍꯔ ꯑꯧꯄꯒꯗꯤ꯫

> **ꯁꯦꯅꯥꯡꯗꯦ ꯇꯥꯔꯥ.** ꯍꯗꯤꯔꯨꯔꯅ ꯍꯍꯤꯡꯅ ꯊꯥꯡꯄꯤꯕ ꯄꯔꯖꯒꯤ ꯖꯧꯗꯤꯌꯔ ꯌꯤꯖꯕꯗꯦ ꯇꯄꯅꯔꯥꯗꯤꯡꯁꯅꯒꯤ ꯗꯌꯇꯗꯦ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯄꯦꯗꯧꯛꯌꯇꯒꯤ ꯗꯃꯄ꯫ ꯍꯗꯤꯔꯨꯔꯗꯦ ꯍꯁꯤ ꯃꯔꯖꯗꯦ ꯑꯥꯄꯕꯒꯧ ꯁꯌꯗꯤ꯫ ꯁꯤꯡꯧꯌ ꯑꯁꯤꯅ ꯃꯔꯤꯒꯖꯕ ꯁꯇꯔ ꯑꯍꯒꯤ ꯗꯥꯡꯕꯦꯁꯤꯡꯒꯤꯅꯍꯥ ꯅꯤꯆꯦꯅꯖ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯊꯧꯅꯧꯕ ꯑꯍꯌꯇ ꯖꯡꯄꯤꯅꯧ: ꯒꯔꯧꯇꯔ ꯄꯖꯖꯀꯅ (Greater Imphal) AIIB ꯔꯔꯥꯇꯧꯕꯌꯃꯤ 547 km-ꯒꯤ "ꯍꯗꯕ ꯑꯗꯤꯍꯕꯇ ꯃꯀꯔ ꯇꯔꯕ ꯀꯥꯡꯒꯤ ꯄꯁꯤꯡꯒꯤ ꯗꯥꯡꯕꯦꯁꯤꯡ" ("both side stormwater covered drains") ꯑꯁꯤꯗꯦ ꯔꯤꯇꯔꯦ ꯔꯤꯔꯤꯌꯅ (return period), ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯄꯦꯇꯧꯦꯁꯤꯇꯤ ꯗꯌꯔꯒ ꯔꯦꯑꯥꯖ (runoff) ꯃꯥꯑꯧꯖꯤꯁꯤꯌꯧꯦꯌ ꯑꯍꯌꯇ ꯇꯄꯅꯧ (AIIB, Approval Project Document, 2024), ꯑꯃꯁꯨꯡ ꯆꯖꯖꯧꯀꯔꯌ ꯔꯔꯥꯇꯧꯕꯌꯃꯤ ꯁꯖꯍꯔꯤꯗꯦ ꯅꯤꯆꯦꯅꯖ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯊꯧꯅꯧꯕ ꯑꯍꯌꯇ ꯇꯄꯅꯧ (NDB, 2021)꯫ ꯍꯌꯃ ꯑꯁꯤ ꯍꯔꯨꯦꯇꯀꯗꯕꯒꯖ ꯁꯕ ꯖꯡꯅꯥꯕꯗꯕ ꯇꯔꯥꯖꯝꯁꯤꯡꯗꯦ ꯍꯔꯨꯦꯇꯀꯗꯄ꯫ ꯁꯤꯡꯧꯌ ꯔꯨꯖꯗꯍꯥ CWC ꯁꯕꯗꯦ 2(c)-ꯅ ꯗ, ꯍꯁꯤꯒꯤꯅꯍꯥ CWC-ꯗꯦ ꯖꯗꯅ ꯑꯧꯁꯤꯡꯤꯍꯧꯦꯁꯦ ꯔꯤꯔꯥꯔꯌ (Flood Estimation Report) ꯑꯍꯌꯇ ꯖꯡꯅꯥꯕꯄꯤꯅꯧ, ꯍꯔꯖ ꯑꯅꯗꯦ CWC-ꯒꯤ ꯔꯗꯧꯌ, ꯔꯧꯁꯤꯑꯥ ꯗꯌꯔꯒ ꯍꯨꯗꯤꯌ ꯇꯄꯅꯔꯥꯒꯔꯖ ꯑꯍꯌꯇꯗꯦ ꯍꯁꯤꯒꯤ ꯁꯔꯨꯛ ꯑꯍꯌꯇ ꯌꯅꯧ; IMD Das et al. (2022)-ꯒꯤ ꯄꯖꯖꯀꯒꯤ ꯔꯧꯗꯧꯀ ꯑꯁꯤ ꯁꯤꯡꯧꯁꯦꯒꯤ ꯅꯧꯇ ꯗꯌꯇꯧ, ꯗꯧꯗꯧꯔꯤꯥ ꯃꯔꯀ ꯑꯍꯗꯤ, ꯍꯁꯤꯒꯤ ꯔꯨꯡ 24-ꯒꯤ ꯍꯊꯥꯇ ꯆꯕ ꯍꯖꯖ ꯑꯅ ꯁꯡꯕ ꯔꯤꯇꯔꯦ ꯔꯤꯔꯤꯌꯅꯁꯤꯡꯅ ꯄꯖꯖꯀꯒꯤ ꯔꯧꯃꯥꯔꯅ ꯂꯨꯅꯤꯡꯍꯥꯇꯒꯤ ꯌꯡꯄ; ꯑꯃꯁꯨꯡ NIH-DHAARA-ꯗꯦ ꯄꯖꯖꯀꯅ ꯍꯁꯤꯒꯤ ꯄꯕꯄꯅꯒꯤ ꯌꯡꯕ ꯗꯍꯤꯌꯃꯤ ꯌꯡ 1.45 ꯍꯔꯀ ꯔꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯀꯡꯂꯔꯃꯤ ꯌꯤꯡꯁꯤꯡꯅ ꯁꯤꯡꯧꯌꯃꯤ ꯖꯡꯅꯥꯕꯄꯤꯕ ꯄꯕꯄꯅꯒꯤ ꯌꯤꯖꯗꯦ ꯂꯕ ꯀꯧꯝꯒꯤ ꯌꯡ 2.2 ꯖꯁꯕ ꯔꯤꯔꯤ (ꯃꯗꯇ 2.3.6)꯫ 1986–2009-ꯒꯤ ꯍꯤꯗꯤꯌ 15-ꯒꯤ ꯅꯧꯇꯅꯒꯤ ꯁꯧꯖꯕ ꯄꯖꯖꯀꯒꯤ IDF ꯑꯍ ꯑꯔꯗꯅ ꯇꯔꯕ ꯅꯃꯍꯧꯦꯌ ꯑꯍꯅ ꯖꯡꯅꯥꯕꯗꯤ, ꯑꯅꯕ ꯍꯁꯤꯒꯤ ꯑꯄꯕ ꯍꯤꯑꯥꯄ ꯑꯃꯁꯨꯡ ꯀꯧꯀꯂꯁꯤꯡ ꯁꯄꯤꯅꯧ (ꯁꯖꯍꯔꯤ ꯇꯄꯤꯕ ꯍꯨꯡ ꯄꯦꯦ)꯫ ꯌꯌꯗꯤꯕ ꯀꯧꯝ ꯂꯦꯡꯒꯤ ꯍꯁꯤꯡꯁꯤꯡꯁꯨ ꯇꯥꯖꯦꯗ: ꯄꯖꯖꯀꯒꯤ ꯄꯕꯄꯅꯒꯤ ꯀꯧꯝ ꯂꯕ ꯊ, ꯗꯦ 1966, ꯑꯁꯤ IMD-ꯒꯤ ꯇꯧꯕꯀꯁꯤꯡꯅ 605.0 mm ꯑꯃꯁꯨꯡ MASTEC-ꯒꯤ

> ꯔꯤꯄꯣꯔꯠꯁ 669.7 mm ꯑꯣꯏ, ꯑꯃꯁꯨꯡ MASTEC-ꯒꯤ ꯁꯦꯔꯤꯖꯗ 5 ꯇꯨꯝ 1984-ꯗ 140 mm ꯄꯤꯔꯤ, ꯑꯗꯨꯕꯨ IMD-ꯒꯤ ꯃ꯭ꯌꯥꯃꯦ ꯑꯗꯨꯗ ꯇꯨꯡꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯍꯦꯟꯕ ꯅꯨꯃꯤꯠ 106.6 mm ꯎꯔꯝꯃꯤ (IMD, *Extremes*; MASTEC)꯫ ꯃ꯭ꯌꯥꯆ ꯄꯨꯔꯛꯃꯒꯤ ꯍꯔꯣꯛ ꯅꯥꯡꯕ ꯌꯥꯝꯗꯕ ꯑꯃꯁꯨꯡ ꯆꯣꯝꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕ ꯑꯅꯤ ꯅꯦꯡꯔ ꯑꯅꯤꯒꯤ ꯍꯦꯟꯕ ꯄꯨꯗꯨꯅꯕꯤ꯫

2.2 ꯗꯦꯐꯤꯅꯤꯁꯟꯁꯤꯡ

ꯋꯥꯍꯩ	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯗ ꯑꯔꯊ
ꯑꯦꯅꯨꯌꯦꯜ ꯑꯦꯛꯁꯤꯗꯦꯟꯁ ꯄ꯭ꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤ (Annual exceedance probability, AEP)	ꯆꯍꯤ ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯤꯔꯤꯕ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯗꯦꯞꯊ ꯑꯃ ꯌꯝ ꯃꯦꯗꯕ ꯅꯨꯡꯉꯥꯏꯕꯒꯤ ꯃꯍꯩꯒꯤ ꯄꯦꯟꯕꯒꯤ ꯈꯅ꯭ꯕꯤꯔꯦꯕ꯫ 1% AEP-ꯒꯤ ꯅꯣꯡ ꯁꯕꯒꯤ ꯊꯣꯛꯂꯛ ꯑꯅꯤ "ꯆꯍꯤ 100-ꯒꯤ" ("100-year") ꯊꯣꯛꯂꯛꯅꯤ꯫ ꯃꯗꯨ ꯑꯅꯤꯃꯛ ꯃꯍꯩ ꯑꯅꯤꯗ ꯅꯤꯇꯤꯍꯅꯤ: T-ꯆꯍꯤ = 1/AEP꯫
IDF / DDF	ꯃꯍꯩ ꯑꯃꯒꯤ ꯄꯦꯟꯦꯅꯤꯟꯤ–ꯗ꯭ꯌꯨꯔꯦꯁꯟ–ꯐꯔꯤꯀ꯭ꯕꯦꯟꯁꯤ ꯑꯃꯁꯨꯡ ꯗꯦꯞꯊ–ꯗ꯭ꯌꯨꯔꯦꯁꯟ–ꯐꯔꯤꯀ꯭ꯕꯦꯟꯁꯤꯒꯤ ꯃꯔꯤꯅꯤꯡ꯫
ꯄꯣꯏꯟꯠ ꯅꯣꯡ ꯆꯨꯕ	ꯃꯍꯩ ꯑꯃꯄꯛꯇ ꯆꯨꯕ ꯅꯣꯡ, ꯔꯦꯟ ꯒꯦꯖ (rain gauge) ꯑꯃꯅ ꯃꯄꯥꯛ ꯃꯇꯡ ꯄꯦꯅꯤ꯫
ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (design storm)	ꯐꯣꯗꯣꯛꯇꯕ AEP, ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯝꯄꯣꯔꯦꯜ ꯄꯦꯇꯔꯟ ꯃꯥꯡꯕ ꯍꯥꯏꯅꯅꯇꯦꯡ ꯑꯃ (ꯃꯇꯝꯒꯤ ꯆꯅꯗꯍꯅꯕ ꯅꯣꯡ ꯁꯕꯒꯤ ꯗꯦꯞꯊ)꯫
ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯗ꯭ꯌꯨꯔꯦꯁꯟ (critical duration)	ꯗꯤꯖꯥꯏꯟ ꯇꯣꯔꯤꯕ ꯑꯦꯅꯤꯃꯦꯜ ꯑꯍꯤꯒꯤꯗꯃꯛ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯆꯥꯡꯕ ꯄꯤꯛꯅꯥ ꯐꯅ꯭ꯅ, ꯈꯅꯤꯡꯒꯤ ꯅꯦꯡꯇꯣ ꯅꯤꯍꯥꯏ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯃꯊꯣꯛ ꯂꯥꯕ ꯄ꯭ꯔꯤꯊꯣꯛ ꯅꯣꯡ ꯁꯕꯒꯤ ꯊꯣꯛꯂꯛꯀꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ꯫
ꯑꯦꯔꯤꯌꯦꯜ ꯔꯤꯗꯛꯁꯟ ꯐꯦꯛꯇꯔ (Areal reduction factor, ARF)	AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯑꯗꯨꯃꯛꯀꯤ ꯀꯦꯆꯃꯦꯟꯇꯀꯤ (catchment) ꯑꯦꯚꯔꯦꯖ ꯅꯣꯡ ꯁꯕ ꯑꯃꯁꯨꯡ ꯄꯣꯏꯟꯠ ꯅꯣꯡ ꯁꯕꯒꯤ ꯔꯦꯁꯤꯑꯣ꯫

ꯋꯥꯍꯩ	ꯃꯦꯄꯨꯔꯦꯜ ꯑꯣꯏꯗ ꯑꯔꯊ
ꯃꯣꯟꯁꯨꯅꯒꯤ ꯃꯇꯝ (Monsoon season; ꯃꯦꯄꯨꯔꯦꯜ ꯑꯣꯏꯗ ꯂꯤꯆꯤꯟꯆꯕ ꯃꯇꯨꯡ ꯅꯥꯏꯗ)	1 ꯑꯦꯞꯔꯤꯂꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ꯫ ꯃꯦꯄꯨꯔꯦꯜ ꯑꯣꯏꯗ "ꯃꯣꯟꯁꯨꯟ" ("the monsoon") ꯑꯃꯁꯨꯡ "ꯃꯣꯟꯁꯨꯅꯒꯤ ꯃꯇꯝ" ("the monsoon season") ꯍꯥꯌꯕꯁꯤ ꯆꯤꯡ ꯅꯨꯕ ꯃꯇꯝ ꯑꯣꯏꯆꯤ, ꯃꯁꯤꯗꯤ ꯅ-ꯆꯤꯡꯅꯨꯡ ꯃꯣꯟꯁꯨꯅꯒꯤ ꯆꯦꯔꯆꯆ IMD-ꯒꯤ ꯖꯨꯟꯤ-ꯃꯣꯟꯁꯨꯅꯒꯤ ꯊꯥꯁꯤꯡ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦ ꯍꯩꯅꯕꯤꯔꯦ; ꯃꯁꯤ ꯃꯦꯄꯨꯔꯦꯜꯒꯤ ꯃꯇꯝꯆꯤ, IMD-ꯒꯤ ꯆꯥꯡꯒ꯫ IMD-ꯒꯤ ꯅ-ꯆꯤꯡꯅꯨꯡ ꯃꯣꯟꯁꯨꯅꯆꯦ ꯅꯃꯐꯟꯗ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡꯗ 5 ꯖꯨꯅꯗ (ꯃꯃꯥꯡꯗ 1 ꯖꯨꯟ) ꯍꯧꯅ ꯑꯃꯁꯨꯡ 15 ꯑꯣꯛꯇꯣꯕꯔꯗ ꯂꯣꯏꯅ, 1 ꯖꯨꯟ 2020-ꯗꯒꯤ ꯑꯣꯏꯔꯤꯕꯆꯤꯕ ꯆꯤꯃꯦꯡꯑꯣꯏꯗ (IMD-ꯒꯤ ꯖꯤꯦꯡ ꯍꯤꯔꯤꯔꯗꯒꯤ ꯄꯥꯎꯅꯤꯕ ꯃꯇꯨꯡ ꯅꯥꯏꯗ)꯫ ꯃꯂꯣꯝ ꯑꯣꯏ 1 ꯑꯦꯞꯔꯤꯂꯗ ꯍꯧꯅ ꯃꯍꯩꯃꯗꯤ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯒꯤ ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯑꯣꯏꯡ ꯑꯣꯏ ꯂꯝꯖꯤꯡꯕꯤ ꯅꯣꯡꯅꯗꯒꯤ ꯌꯥꯝꯅꯕꯑꯣꯏꯡꯒꯤ ꯃꯆꯨꯡꯗ ꯌꯥꯝꯅ: ꯅꯃꯐꯟꯒꯤ ꯅꯣꯡꯅꯗꯒꯤ ꯌꯥꯡꯕ ꯆꯨꯃꯍꯣꯏꯡ ꯑꯦꯞꯔꯤꯂꯗ 105.9 mm (16 ꯑꯦꯞꯔꯤꯜ 2004) ꯑꯃꯁꯨꯡ ꯃꯦꯗ 122.4 mm (27 ꯃꯦ 1956), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯅꯣꯡꯅꯗꯒꯤ ꯆꯤꯡ ꯅꯨꯕ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦ ꯊꯣꯏꯡ 459.6 mm (2004) ꯑꯃꯁꯨꯡ 464.3 mm (1956); ꯑꯦꯞꯔꯤꯂꯗꯒꯤ ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯊ ꯅꯨꯃꯤꯠꯃꯍꯛ 100 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯅꯣꯡꯅꯗꯒꯤ ꯌꯥꯡꯕ ꯆꯨꯝꯍ ꯑꯃꯥ ꯂꯩ, ꯑꯃꯁꯨꯡ ꯖꯦꯕꯨꯌꯥꯔꯤꯗꯒꯤ ꯗꯤꯁꯦꯝꯕꯔ ꯐꯥꯑꯣꯕ ꯊ ꯅꯨꯃꯤꯠꯃꯍꯛ 70 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯆꯨꯝꯍ ꯑꯃꯥ ꯂꯩ (IMD, *Extremes*, Imphal (Tulihal), ꯗꯦꯇꯥ 1953–2012; ꯌꯦꯕꯟ ꯑꯃꯥ NEER-ꯒꯤ ꯄꯥꯕ)꯫ ꯌꯥꯝꯅꯕꯤꯅꯤꯡꯕ ꯆꯨꯡꯉꯝꯅꯕꯌꯕ ꯄꯥꯏꯕ ꯂꯍꯥꯄꯥ ꯅꯣꯏꯡ ꯅꯀꯦꯁ (flood) ꯑꯆꯤ ꯃꯣꯟꯁꯨꯟ ꯍꯥꯌꯗꯤꯅꯤꯡꯗ ꯂꯥꯟꯈꯤ, 28–31 ꯃꯦ 2024-ꯗ ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯦꯂꯒꯤ (Cyclone Remal) ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯇꯨ ꯑꯃꯁꯨꯡ 30 ꯃꯦ–2 ꯖꯨꯟ 2025-ꯗ (ꯄꯦꯁꯗ ꯇꯤꯡꯗꯣꯛꯈꯤꯕ ꯃꯇꯨꯡ ꯅꯥꯏꯗ), ꯑꯃꯁꯨꯡ 1966-ꯒꯤ ꯅꯣꯏꯡ ꯅꯀꯦꯁ ꯖꯨꯅꯗ ꯍꯧꯈꯤ (MASTEC)꯫ AIIB-ꯅ "ꯃꯥꯔꯆꯗꯒꯤ ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯐꯖꯕꯅ ꯅꯨꯕ ꯆꯤꯡ" ("intense rains from March to October") ꯇꯥꯡ (AIIB, 2024), CGWB-ꯅ "ꯑꯦꯞꯔꯤꯜ ꯊꯥꯒꯤ ꯑꯔꯣꯏꯕꯗꯒꯤ ꯆꯤꯡ ꯅꯨꯕ ꯍꯧꯅ" ("Rainfall starts from the month of April end") (CGWB, Bishnupur, 2013) ꯑꯃꯁꯨꯡ MASTEC-ꯅ "ꯆꯤꯡꯖꯨ … ꯃꯦꯗꯒꯤ ꯍꯧꯅ ꯑꯃꯁꯨꯡ ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯌꯥꯡꯅ" ("Rainy season … starts from May and extent up to October") (MASTEC) ꯍꯌꯔꯤ; ꯃꯅꯥꯌ ꯑꯣꯏ ꯃꯅꯥꯌꯒꯤ ꯌꯦꯇꯐꯣꯏꯡꯆꯤ, IMD-ꯒꯤ ꯌꯥꯡꯑꯣꯏꯡ ꯆꯥꯡꯒ꯫ ꯂꯩꯕꯥꯛꯀꯤ ꯑꯔꯤꯕ ꯑꯃꯥꯡꯒꯅ ꯊꯕꯛꯀꯤ ꯌꯥꯡ ꯊꯐꯗ꯫ ꯃꯂꯣꯝ ꯍꯧꯔꯕ ꯃꯅꯨꯡꯗ ꯊꯕꯛꯀꯤ ꯆꯅꯣꯏꯆꯕ ꯌꯥꯡ ꯑꯃꯥ ꯊꯐꯆꯕꯗꯤ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯒꯤ ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯂꯣꯏꯡ ꯌꯥꯗꯅ ꯆꯤꯒꯆꯤ, ꯃꯍꯩ ꯑꯅꯨꯅ ꯖꯤꯦꯡ-ꯃꯣꯟꯁꯨꯅꯒꯤ ꯆꯅꯣꯏꯆꯕ ꯌꯥꯡ 31 ꯃꯍꯩꯌ ꯑꯣꯏ ꯃꯂꯣꯝ ꯍꯥꯌꯗꯤꯅꯤꯡꯗ ꯊꯃꯆꯤ (ꯃꯦꯞ 10); ꯃꯁꯤꯅ ꯅꯍꯩ ꯑꯣꯏꯂꯩꯃꯒꯤ ꯅꯥꯡꯕꯣꯛꯂꯣꯏꯡ, ꯅꯃꯆꯦꯏꯂꯣꯏꯡ, ꯒꯦꯏꯂꯣꯏꯡ, ꯇꯆꯦꯄ ꯒꯦꯏꯂꯣꯏꯡ (flap gate) ꯑꯃꯁꯨꯡ ꯄꯃꯄꯂꯣꯏꯡ ꯌꯥꯅ, ꯑꯄꯨꯕ ꯌꯨꯍꯦꯟꯒꯤ ꯄꯃꯂꯣꯏꯡꯗ (bund) WRD-ꯒꯤ ꯊꯕꯛꯂꯣꯏꯡꯅ WRD-ꯒꯤ ꯃꯇꯒꯤ ꯀꯦꯇꯦꯗꯦꯗꯍ ꯄꯥꯛꯇꯤ꯫ ꯍꯦꯃꯟ ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯅꯣꯏꯡ ꯅꯀꯦꯁꯂꯣꯏꯡ 28–31 ꯃꯦꯗ ꯂꯥꯟꯈꯤꯕꯅ ꯃꯍꯩ ꯑꯅꯨꯅ, ꯂꯝꯕꯥ 10-ꯒꯤ ꯃꯂꯣꯝꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯂꯦꯝꯗꯥꯡ ꯑꯣꯏ ꯃꯦꯒꯤ ꯆꯅꯣꯏꯆꯕꯗ ꯆꯤꯡꯅ, ꯃꯦꯒꯤ ꯑꯍꯥꯅꯕꯒꯤ ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯂꯣꯏꯒꯤ ꯃꯃꯥꯡꯗ, 15 ꯃꯦ ꯐꯥꯑꯣꯕꯗ ꯌꯥꯒꯗꯕꯆꯤ꯫ ꯅꯃꯐꯟꯗ ꯍꯦꯀꯥꯍꯗ ꯌꯥꯍꯕ ꯅꯣꯡꯅꯗꯒꯤ ꯆꯤꯡ ꯅꯨꯕ ꯊ ꯑꯣꯏ ꯖꯨꯟ 1966-ꯆꯤ, IMD-ꯒꯤ ꯌꯦꯕꯟꯂꯣꯏꯡꯗ 605.0 mm ꯑꯃꯁꯨꯡ MASTEC-ꯒꯤ ꯍꯤꯄꯥꯍꯤꯌꯥꯡ 669.7 mm [U]; ꯅꯃꯐꯟꯗ 1975–2000-ꯗ ꯌꯥꯝ ꯅꯨꯗꯤꯡꯒꯤ ꯃꯤꯇ ꯆꯤꯡ ꯅꯨꯕ 1,416.9 mm ꯑꯅꯥꯏ (MASTEC), ꯑꯃꯁꯨꯡ CGWB-ꯅ ꯅꯃꯐꯟ ꯌꯦꯂꯥꯏꯍꯤꯗꯃꯥ (Imphal West) 1,632.40 mm ꯄꯤꯍꯤ (CGWB, Imphal West, 2013)꯫ ꯁꯦꯛꯁꯟ 2.11.4-ꯒꯤ ꯑꯦꯟꯇꯤꯁꯤꯗꯦꯟꯇ ꯃꯅꯂꯌꯍꯒꯤ (antecedent moisture) ꯍꯨꯟ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯥ 10-ꯒꯤ ꯂꯥꯌꯦꯡꯗꯕꯅꯒꯤ ꯃꯂꯣꯝ ꯑꯣꯏꯅ ꯃꯂꯣꯝ ꯑꯣꯏꯄꯨ ꯌꯥꯝꯅ꯫
ꯃꯂꯣꯝ ꯑꯣꯏꯒꯤ ꯃꯄꯥꯡꯗ ꯆꯤꯕ ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯂꯣꯏ	ꯌꯦꯃꯅ ꯅꯨꯕ ꯆꯤꯡꯂꯣꯏ ꯃꯂꯣꯝ ꯑꯣꯏꯒꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯨꯡꯗ ꯆꯤꯄꯥꯅ, ꯑꯃꯁꯨꯡ ꯃꯣꯟꯁꯨꯟ ꯍꯧꯊꯍꯤꯄꯥꯄ ꯃꯂꯣꯝꯗ ꯆꯤꯡꯄ ꯑꯣꯛꯇꯣꯕꯔꯒꯤ ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯂꯣꯏ ꯃꯂꯣꯝ ꯑꯣꯏꯒꯤ ꯃꯆꯨꯡꯗ ꯌꯥꯝꯅ꯫ ꯑꯣꯛꯇꯣꯕꯔꯗ ꯅꯃꯐꯟꯅ 5 ꯑꯣꯛꯇꯣꯕꯔ 1980-ꯗ 119.4 mm ꯍꯦꯄꯥꯍꯗ ꯌꯥꯝꯈꯤ, ꯑꯃꯁꯨꯡ 14–16 ꯑꯣꯛꯇꯣꯕꯔ 1992-ꯒꯤ ꯌꯦꯃꯅ ꯅꯨꯕ ꯆꯤꯡꯒꯤ ꯃꯆꯨꯡꯗ ꯅꯣꯏꯡ ꯅꯀꯦꯁ ꯑꯃꯥ ꯆꯤꯡꯈꯤ (IMD, *Extremes*; MASTEC); ꯃꯂꯣꯝ ꯑꯣꯏꯒꯤ ꯃꯄꯥꯡꯗ ꯃꯁꯤꯅ 1 ꯅꯣꯕꯦꯝꯕꯔ 1991-ꯗ 80.3 mm, 13 ꯗꯤꯁꯦꯝꯕꯔ 1966-ꯗ 89.6 mm, 18 ꯖꯦꯟꯨꯌꯥꯔꯤ 1993-ꯗ 79.8 mm ꯑꯃꯁꯨꯡ 24 ꯃꯍꯩꯌ 1998-ꯗ 72.9 mm ꯍꯦꯄꯥꯍꯗ ꯌꯥꯝꯈꯤ (IMD, *Extremes*)꯫ ꯆꯤꯡꯌꯦꯍꯤꯒꯤ ꯅꯣꯡꯅꯗꯒꯤ ꯌꯥꯡꯕ ꯆꯨꯝꯍ 32.9 mm ꯅꯥꯏꯆꯤ (IMD, *Extremes*), ꯑꯃꯁꯨꯡ ꯗꯤꯁꯦꯝꯕꯔꯗꯒꯤ ꯖꯦꯟꯨꯌꯥꯔꯤ ꯐꯥꯑꯣꯕ ꯃꯦꯄꯨꯔꯦꯜ ꯑꯣꯏꯒꯤ ꯊꯕꯛꯀꯤ ꯃꯂꯣꯝꯆꯤ꯫ ꯗꯤꯆꯅꯒꯤ ꯂꯥꯌꯣꯏꯂꯥꯌꯣꯏꯂꯣꯏꯅ ꯊ ꯄꯥꯍꯩꯆꯃꯑꯣꯏ ꯌꯥꯝ ꯅꯨꯗꯤꯡꯒꯤ ꯅꯣꯡꯅꯗꯒꯤ ꯌꯥꯡꯕꯂꯣꯏꯡ ꯂꯤꯆꯤꯟꯆꯆꯤ, ꯊꯕꯛꯀꯤ ꯆꯅꯣꯏꯆꯕ ꯌꯥꯡ ꯆꯤꯡꯍꯥꯛ ꯑꯄꯥꯍꯦꯌꯥꯡ ꯍꯨꯟ ꯑꯃꯥꯡꯒꯅ ꯌꯦꯃꯅ ꯅꯨꯕ ꯆꯤꯡ ꯖꯨꯟ–ꯂꯦꯄꯌꯦꯃꯕꯍꯗ ꯅꯥꯌꯃꯥ ꯆꯤꯄꯅ ꯍꯌꯅ ꯆꯤꯍꯅꯗꯕꯆꯤ, ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯑꯣꯏꯅ ꯂꯝꯕꯥ 10-ꯒꯤ ꯊꯕꯛꯀꯤ ꯀꯦꯆꯦꯗꯦꯗꯍꯅ ꯂꯥꯌꯦꯡꯗꯕꯅ ꯑꯣꯏ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯄꯥꯛꯆꯤ ꯑꯃꯁꯨꯡ ꯃꯂꯣꯝ ꯆꯅꯍꯕ ꯃꯄꯥꯡꯒꯤ ꯂꯦꯝꯗꯥꯡ 15 ꯅꯣꯕꯦꯝꯕꯔ ꯐꯥꯑꯣꯕꯗ ꯌꯥꯍꯟꯆꯤ꯫
ꯀꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔ (Climate factor, CF)	ꯗꯤꯆꯅꯦ ꯆꯅꯐꯀ ꯀꯂꯥꯏꯃꯦꯠ ꯁꯦꯏꯆꯕ ꯍꯥꯆꯤꯊꯀ ꯗꯤꯆꯅꯦ ꯗꯄꯥꯊꯣꯏꯡꯗ ꯂꯤꯆꯤꯟꯆꯕ ꯃꯟꯌꯤꯄꯆꯅꯔꯍ꯫
ꯑꯦꯄꯔꯨꯚ ꯌꯥꯍꯕ ꯍꯥꯍꯊꯐ (Approved source)	ꯇꯦꯕꯜ 2.3-ꯗ ꯄꯤꯍꯤꯕ ꯆꯤꯡ ꯅꯨꯕꯒꯤ ꯍꯥꯍꯊꯐ꯫

2.3 ꯗꯤꯖꯥꯏꯟ ꯔꯦꯟ ꯗꯦꯇꯥꯒꯤ ꯍꯧꯔꯛꯐꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ

2.3.1 **ꯍꯧꯔꯛꯐꯝ ꯁ꯭ꯇꯦꯟꯗꯔꯗ.** ꯗꯤꯖꯥꯏꯟ ꯔꯦꯟ ꯗꯦꯇꯥꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯍꯧꯔꯛꯐꯝ ꯑꯁꯤ ꯅꯦꯁꯅꯦꯜ ꯏꯅꯁ꯭ꯇꯤꯇ꯭ꯌꯨꯠ ꯑꯣꯐ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ, ꯔꯨꯔꯀꯤꯒꯤ (National Institute of Hydrology, Roorkee) **NIH-DHAARA** ꯄꯣꯔꯇꯦꯂꯅꯤ (Design Hydrology and Advanced Rainfall Analysis, nihdhaara.in) ꯑꯣꯏꯔꯤꯕꯅꯤ꯫ ꯇꯦꯕꯜ 2.4-ꯗ ꯄꯤꯔꯤꯕ ꯂꯣꯀꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ AEP ꯀꯣꯇꯦꯁꯅꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯕ꯭ꯌꯨꯁꯅꯁꯤꯡ ꯌꯥꯑꯣꯕ IDF / ꯗꯦꯄ꯭ꯊ-ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯀꯔꯚꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫ ꯌꯥꯝꯅ ꯅꯦꯝꯕ ꯇꯦꯕꯜ ꯑꯁꯤ ꯑꯍꯥꯅꯕ 2A ꯗꯤꯖꯥꯏꯟ ꯁꯦꯝꯕꯗꯥ ꯁꯤꯖꯤꯟꯅꯔꯤ, ꯃꯁꯤ-ꯑꯣꯏꯔꯕ MN-B-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯗꯨ; ꯍꯥꯌꯔꯤꯕ ꯇꯦꯕꯜ 2.3.6(c)(iii)-ꯗ NIH-DHAARA ꯑꯁꯤ ꯐ꯭ꯂꯣꯔ (floor) ꯑꯣꯏꯅ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ: ꯁ꯭ꯇꯦꯟꯗꯔꯗꯀꯤ ꯍꯧꯔꯛꯐꯝ ꯑꯁꯤ ꯇꯦꯕꯜ 2.3.6-ꯗ ꯌꯥꯎꯔꯤ꯫

2.3.2 **ꯑꯦꯠꯂꯥꯁꯀꯤ IDF.** ꯍꯧꯔꯛꯐꯝ ꯀꯌꯥꯒꯤ ꯃꯇꯨꯡꯗꯥ ꯌꯥꯊꯪꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ 2.3.1-ꯒꯤ ꯍꯧꯔꯛꯐꯝ ꯑꯦꯠꯂꯥꯁ ꯑꯣꯏꯕꯒꯤ ꯍꯦꯛꯇꯒꯤ IDF ꯍꯥꯌꯕ ꯑꯁꯤ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ ꯃꯇꯝ:

- (a) ꯍꯥꯌꯔꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯂꯣꯀꯦꯁꯅꯒꯤ (ꯃꯁꯤꯒꯤ ꯀꯣꯇꯦꯁꯅꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕꯒꯤ ꯍꯥꯌꯔꯤꯕ) ꯌꯥꯝꯅ 30-ꯒꯤ ꯑꯍꯥꯅꯕ ꯀꯥꯡꯂꯨꯄꯀꯤ ꯑꯍꯥꯅꯕꯅꯤ;
- (b) ꯍꯥꯌꯔꯤꯕ IMD, ꯑꯦꯠꯂꯥꯁ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕ ꯗꯦꯇꯥꯒꯤ ꯑꯣꯏꯕ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕ ꯗꯦꯇꯥ ꯁꯣꯔꯁꯅꯤ;
ꯑꯃꯁꯨꯡ
- (c) ꯃꯁꯤ ꯇꯦꯕꯜ ꯑꯃꯁꯨꯡ 10 km-ꯒꯤ ꯍꯦꯟꯅ ꯂꯩ, ꯍꯥꯌꯕꯅ ꯂꯩꯍꯧꯕꯒꯤ ꯍꯥꯌꯕ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥꯒꯤ ꯑꯦꯠꯂꯥꯁꯀꯤ ꯑꯁꯤ ꯑꯍꯥꯅꯕ
ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤ꯫

ꯑꯦꯠꯂꯥꯁꯀꯤ IDF ꯁꯤꯖꯤꯟꯅꯔꯕꯗꯤ, ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨ ꯑꯁꯤ ꯑꯦꯠꯂꯥꯁꯀꯤ ꯚꯦꯜꯌꯨ ꯑꯃꯁꯨꯡ NIH-DHAARA-ꯒꯤ ꯚꯦꯜꯌꯨꯒꯤ ꯍꯥꯌꯕꯅ **ꯍꯦꯟꯅ ꯋꯥꯡꯕ** ꯑꯁꯤ ꯂꯧꯒꯗꯕꯅꯤ꯫

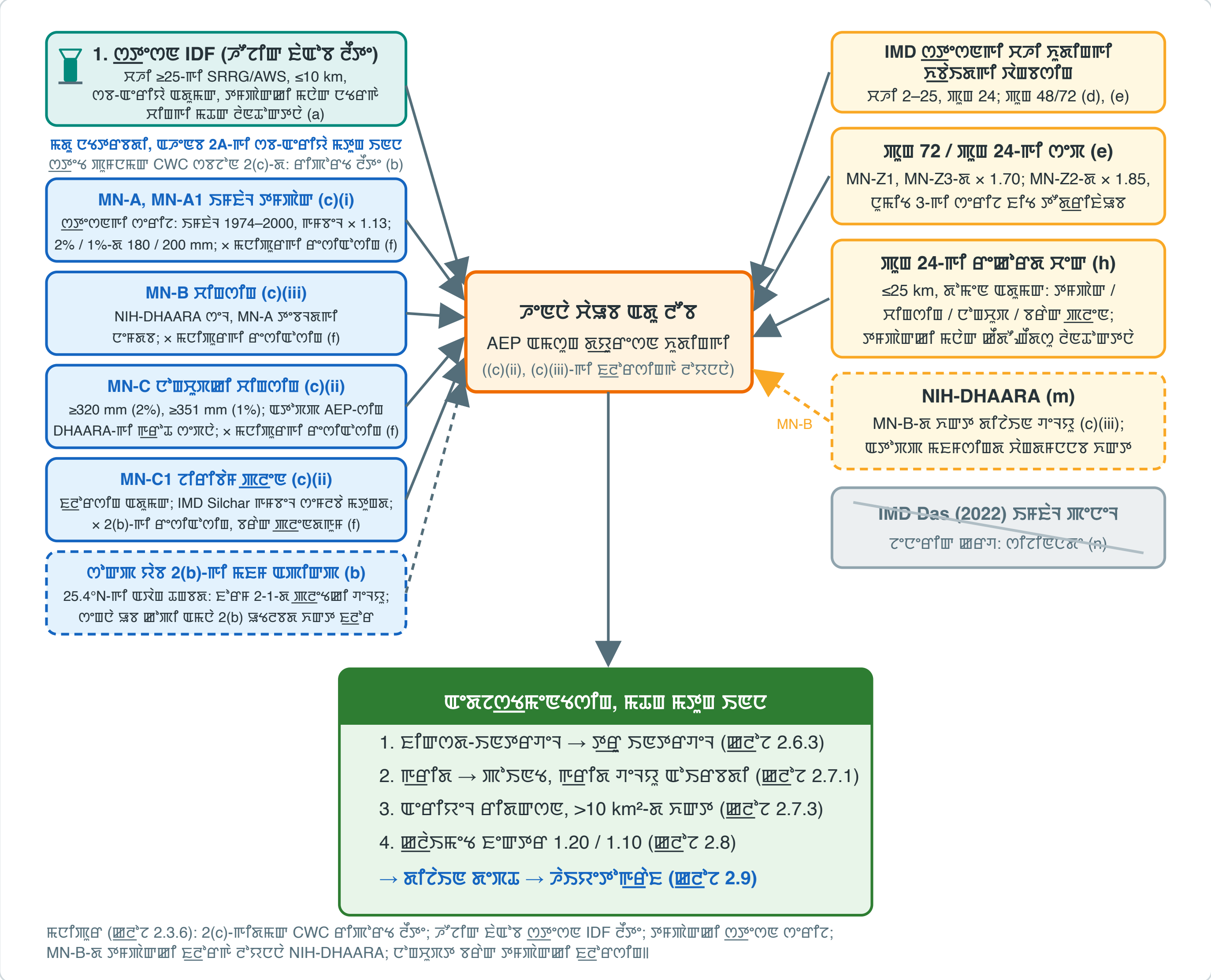
2.3.3 **ꯇꯦꯛꯅꯤꯀꯦꯜ-ꯍꯤꯁꯥꯕꯁꯤꯡ (ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ, ꯑꯗꯨꯕꯨ ꯃꯗꯨꯒꯤ ꯆꯪꯕ ꯑꯣꯏꯗꯦ).** ꯗꯤꯖꯥꯏꯟꯗꯥ ꯍꯥꯌꯒꯤ ꯚꯦꯜꯌꯨꯁꯤꯡ ꯌꯥꯝꯅ ꯍꯦꯟꯕ ꯄꯤꯔꯤꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ, ꯑꯗꯨꯕꯨ ꯍꯥꯌꯔꯤꯕ ꯑꯁꯤ ꯍꯧꯔꯛꯐꯝ ꯂꯩꯇꯦ:

- (a) ꯄꯨꯝ 1–24-ꯒꯤ ꯗꯥꯌꯔꯦꯛꯁꯅꯁꯤꯡꯒꯤ Das et al. (2022), *MAUSAM* 73(4)-ꯒꯤ IMD ꯑꯦꯠꯂꯥꯁ / IDF ꯚꯦꯜꯌꯨꯁꯤꯡ;
- (b) 25–5,000 km²-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡꯒꯤ, ꯁꯕꯖꯣꯟ 2(c)-ꯒꯤ (Barak and others) CWC ꯗꯤꯖꯥꯏꯟ ꯑꯦꯠꯂꯥꯁꯀꯤ ꯄꯤꯔꯤꯕꯁꯤꯡꯒꯤ ꯄꯨꯝ 24-ꯒꯤ ꯄꯣꯏꯟꯇ ꯔꯦꯟ ꯗꯦꯇꯥ; ꯍꯧꯖꯤꯛ ꯑꯣꯏꯔꯕ ꯁꯕꯖꯣꯟ ꯑꯣꯏꯔꯕ ꯍꯥꯌꯔꯤꯕ ꯌꯥꯊꯪꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯩꯕ (ꯇꯦꯕꯜ 2.3.6(b)), ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯕꯁꯤꯡ CWC-ꯗ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯠꯂꯥꯁꯀꯤ ꯄꯤꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯁꯟ; ꯁꯕꯖꯣꯟ 2(b)-ꯒꯤ (South Brahmaputra) ꯄꯤꯔꯤꯕ ꯑꯁꯤ ꯍꯥꯌꯔꯤꯕꯒꯤ ꯑꯣꯏꯔꯤꯕ ꯄꯤꯕꯁꯤꯡꯒꯤ ꯇꯦꯛꯅꯤꯀꯦꯜꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯣꯇꯦꯁꯟ ꯁ꯭ꯇꯦꯁꯟꯁꯤꯡꯒꯤ ꯍꯤꯁꯥꯕ ꯑꯣꯏꯅ ꯃꯇꯨꯡ ꯍꯥꯌꯔꯤꯕꯒꯤ ꯍꯧꯔꯛꯐꯝ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ, ꯍꯥꯌꯕ ꯑꯁꯤꯗ ꯇꯦꯕꯜ 2.3.3(b)-ꯒꯤ ꯇꯦꯛꯅꯤꯀꯦꯜ-ꯍꯤꯁꯥꯕꯁꯤꯡ CWC-ꯒꯤ ꯄꯣꯏꯟꯇ ꯔꯦꯟ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤ, ꯍꯥꯌꯕ ꯍꯧꯖꯤꯛ ꯅꯠꯇꯦ꯫

ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨ ꯑꯁꯤ AEP ꯑꯁꯤꯍꯥꯌꯕꯁꯤꯡꯒꯤ CWC ꯁꯕꯖꯣꯟ 2(b)-ꯒꯤ (South Brahmaputra) ꯄꯣꯔꯇꯦꯜ (ꯄꯣꯔꯇꯦꯜ ꯑꯁꯤꯒꯤ ꯍꯥꯌꯕ ꯀꯥꯡꯕ ꯇꯦꯛꯅꯤ ꯑꯍꯥꯅꯕ 2(b)/2(c) ꯗꯤꯖꯥꯏꯟꯒꯤ ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯠꯇꯥ ꯃꯇꯨꯡ, ꯍꯧꯖꯤꯛ ꯑꯣꯏꯔꯕ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯀꯥꯡꯂꯨꯄꯀꯤ ꯄꯣꯏꯟꯇꯀꯤ (Senapati district) ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅ ꯃꯇꯨꯡ ꯀꯥꯡꯂꯨꯞ ꯍꯥꯌꯕ ꯁꯤꯖꯤꯟꯗꯨ ꯃꯇꯦꯡ [TBC]; ꯑꯦꯠꯂꯥꯁꯀꯤ ꯑꯗꯨꯕꯨ ꯁꯕꯖꯣꯟꯁꯤꯡ ꯁꯕꯖꯣꯟ 2(c)-ꯒꯤ ꯂꯩ, ꯍꯥꯌꯔꯕ CWC-ꯒꯤ ꯄꯣꯔꯇꯦꯜ ꯑꯃꯁꯨꯡꯗ ꯂꯩꯕ, ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕ ꯇꯦꯕꯜ 2.3.6-ꯗ ꯐ꯭ꯂꯣꯔꯁꯤꯡ ꯌꯥꯎꯔꯤ) ꯚꯦꯜꯌꯨꯒꯤ ꯑꯍꯥꯅꯕꯗꯤ, CWC-ꯒꯤ ꯚꯦꯜꯌꯨ ꯑꯁꯤ ꯐ꯭ꯂꯣꯔ ꯑꯣꯏꯅ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

2.3.4 **ꯑꯣꯏꯗꯕꯁꯤꯡ.** ꯍꯧꯔꯛꯐꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯔꯦꯟ ꯗꯦꯇꯥꯒꯤ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯑꯣꯏꯅ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ:

- (a) ꯃꯦꯠꯊꯣꯗ ꯌꯥꯊꯪꯒꯤ ꯀꯣꯀꯦꯇꯈꯠ ꯑꯃꯁꯨꯡ IDF ꯗꯤꯔꯤꯚꯦꯁꯅꯁꯤꯡ (ꯍꯥꯌꯕ ꯑꯣꯏꯅ Kothyari & Garde, 1992);
- (b) ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕ ꯔꯦꯟ ꯗꯦꯇꯥꯒꯤ ꯚꯦꯜꯌꯨꯁꯤꯡ, ꯚꯦꯜꯌꯨ ꯑꯣꯏꯕ ꯍꯤꯁꯥꯕ-ꯇꯦꯛꯅꯤꯀꯦꯜꯀꯤ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡ ꯍꯥꯌꯕꯗꯤ;
- (c) ꯀꯥꯡꯂꯨꯞ ꯑꯍꯥꯅꯕꯒꯤ ꯃꯦꯠꯊꯣꯗꯀꯤ ꯍꯤꯁꯥꯕꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- (d) AEP ꯗꯤꯖꯥꯏꯅꯗ ꯍꯥꯌꯕꯒꯤ ꯄꯣꯔꯇꯦꯜ ꯑꯍꯥꯅꯕꯒꯤ ꯄꯣꯔꯇꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ꯫


1. ꯂꯣꯀꯦꯜ IDF (ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯗꯦꯇꯥ ꯁꯣꯔꯁ)
ꯃꯐꯝ ≥25-ꯒꯤ SRRG/AWS, ≤10 km,
ꯁꯕ-ꯕꯦꯁꯤꯟꯒꯤ ꯃꯅꯥꯛꯇ, ꯌꯥꯝꯅꯥꯕ ꯍꯦꯟꯕ ꯆꯥꯡꯒꯤ
ꯃꯐꯃꯁꯤꯡꯒꯤ ꯍꯥꯡꯕ ꯀꯥꯟꯅꯍꯜꯂꯤ (a)
ꯍꯟꯅ ꯆꯠꯂꯛꯄꯗꯥ, ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2A-ꯒꯤ ꯁꯕ-ꯕꯦꯁꯤꯟ ꯃꯈꯥ ꯌꯦꯡꯎ
ꯂꯣꯏꯗꯕ ꯇꯥꯔꯕꯗꯤ CWC ꯁꯕꯖꯣꯟ 2(c)-ꯗ: ꯄꯤꯇꯦꯛꯄ ꯁꯣꯔꯁ (b)
MN-A, MN-A1 ꯁꯦꯟꯇꯔ ꯌꯥꯝꯅꯥꯕ (c)(i)
ꯂꯣꯀꯦꯜꯒꯤ ꯂꯥꯏꯅ: ꯁꯦꯟꯇꯔ 1974–2000, ꯃꯦꯛꯁꯤꯃꯝ × 1.13;
2% / 1%-ꯗ 180 / 200 mm; × ꯍꯥꯔꯨꯗꯥꯒꯤ ꯄꯥꯎꯇꯥꯛꯀꯤ (f)
MN-B ꯃꯇꯨꯡꯒꯤ (c)(iii)
NIH-DHAARA ꯂꯩ, MN-A ꯌꯥꯝꯅꯥꯒꯤ
ꯆꯥꯡꯗꯕ; × ꯍꯥꯔꯨꯗꯥꯒꯤ ꯄꯥꯎꯇꯥꯛꯀꯤ (f)
MN-C ꯆꯨꯃꯊꯣꯛꯄ ꯃꯇꯨꯡꯒꯤ (c)(ii)
≥320 mm (2%), ≥351 mm (1%); ꯑꯌꯥꯕ AEP-ꯒꯤ
DHAARA-ꯒꯤ ꯃꯄꯥꯟ ꯂꯥꯏꯅ; × ꯍꯥꯔꯨꯗꯥꯒꯤ ꯄꯥꯎꯇꯥꯛꯀꯤ (f)
MN-C1 ꯇꯤꯄꯥꯏꯃꯨꯈ ꯁꯅꯥꯍꯦ (c)(ii)
ꯗꯥꯄꯂꯣꯡ ꯃꯅꯥꯛꯇ; IMD Silchar ꯃꯦꯛꯁꯤꯃꯝ ꯂꯥꯏꯅꯗ ꯍꯥꯡꯗꯣꯛ;
× 2(b)-ꯒꯤ ꯄꯥꯎꯇꯥꯛꯀꯤ, ꯃꯣꯕ ꯁꯅꯥꯍꯦꯗꯨꯕ (f)
ꯂꯥꯏꯁ ꯃꯃ 2(b)-ꯒꯤ ꯍꯦꯛꯇ ꯑꯍꯦꯅꯕ (b)
25.4°N-ꯒꯤ ꯑꯅꯣꯡ ꯀꯥꯡꯕꯗ: ꯗꯦꯄꯇ 2-1-ꯗ ꯁꯅꯥꯍꯦꯕ ꯒꯤꯅꯤꯡ;
ꯂꯥꯟꯆ ꯍꯥꯏ ꯋꯥꯌꯦꯜ ꯑꯍꯅ 2(b) ꯃꯍꯨꯠꯇ ꯁꯤꯖꯤ ꯗꯥꯄ
ꯄꯥꯔꯥ ꯃꯈꯥ ꯑꯃꯁꯨꯡ ꯍꯣꯛ
AEP ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯃꯁꯤꯡꯒꯤ
((c)(ii), (c)(iii)-ꯒꯤ ꯗꯥꯄꯂꯣꯡꯒꯤ ꯆꯥꯡꯗꯣꯛꯂꯤ)
IMD ꯂꯣꯀꯦꯜꯒꯤ ꯃꯐꯝ ꯃꯁꯤꯡꯒꯤ
ꯃꯔꯣꯡꯕꯒꯤ ꯀꯣꯕꯨꯟꯕ
ꯃꯐꯝ 2–25, ꯄꯨꯡ 24; ꯄꯨꯡ 48/72 (d), (e)
ꯄꯨꯡ 72 / ꯄꯨꯡ 24-ꯒꯤ ꯂꯩꯕ (e)
MN-Z1, MN-Z3-ꯗ × 1.70; MN-Z2-ꯗ × 1.85,
ꯃꯍꯩ 3-ꯒꯤ ꯂꯥꯏꯅ ꯗꯤꯛ ꯌꯥꯗꯨꯕꯗꯤꯗꯨꯕ
ꯄꯨꯡ 24-ꯒꯤ ꯄꯥꯝꯕꯗ ꯃꯂꯥ (h)
≤25 km, ꯗꯍꯦꯟ ꯃꯅꯥꯛꯇ: ꯌꯥꯝꯅꯥ /
ꯃꯇꯨꯡꯒꯤ / ꯆꯨꯃꯊꯣꯛ / ꯃꯣꯕ ꯁꯅꯥꯍꯦ;
ꯌꯥꯝꯅꯥꯕ ꯍꯥꯏ ꯄꯗꯨꯗꯨꯕ ꯀꯥꯟꯅꯍꯜꯂꯤ
NIH-DHAARA (m)
MN-B-ꯗ ꯁꯤꯖꯤ ꯅꯤꯡꯊꯧ ꯒꯤꯅꯤꯡ (c)(iii);
ꯑꯌꯥꯕ ꯍꯦꯛꯇꯒꯤꯗ ꯀꯥꯡꯗꯍꯜꯂꯕ ꯁꯤꯖꯤ
~~IMD Das (2022) ꯁꯦꯟꯇꯔ ꯄꯥꯎꯆꯦ~~
~~ꯇꯥꯛꯄꯤꯕ ꯄꯥꯛ: ꯂꯤꯇꯤꯡꯆꯗ (n)~~
MN-B
ꯑꯗꯨꯇꯥ ꯂꯩꯍꯧꯕꯒꯤ, ꯍꯥꯏ ꯃꯈꯥ ꯌꯦꯡꯎ
1. ꯗꯤꯖꯥꯏꯟ-ꯁꯦꯡꯌꯥꯄꯒꯤ → ꯌꯥꯝꯅꯥ ꯁꯦꯡꯌꯥꯄꯒꯤ (ꯁꯦꯛꯇ 2.6.3)
2. ꯃꯄꯥꯟ → ꯄꯨꯁꯦꯟ, ꯃꯄꯥꯟ ꯒꯤꯅꯤꯡ ꯑꯁꯄꯕꯗꯥ (ꯁꯦꯛꯇ 2.7.1)
3. ꯑꯄꯤꯔꯤꯟ ꯄꯤꯗꯨꯂꯣꯡ, >10 km²-ꯗ ꯁꯤꯖꯤ (ꯁꯦꯛꯇ 2.7.3)
4. ꯁꯦꯛꯁꯍꯩ ꯗꯤꯖꯥꯏꯟ 1.20 / 1.10 (ꯁꯦꯛꯇ 2.8)
→ ꯅꯤꯡꯊꯧ ꯗꯥꯝ → ꯄꯁꯔꯥꯌꯥꯃꯄꯗ (ꯁꯦꯛꯇ 2.9)
ꯍꯥꯔꯨꯗꯥ (ꯁꯦꯛꯇ 2.3.6): 2(c)-ꯒꯤꯗꯍꯥꯛ CWC ꯄꯤꯇꯦꯛꯄ ꯁꯣꯔꯁ; ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯗꯦꯇꯥ ꯂꯣꯀꯦꯜ IDF ꯁꯣꯔꯁ; ꯌꯥꯝꯅꯥꯕ ꯂꯣꯀꯦꯜ ꯂꯥꯏꯅ;
MN-B-ꯗ ꯌꯥꯝꯅꯥꯕ ꯗꯥꯄꯒꯤ ꯆꯥꯡꯗꯣꯛ NIH-DHAARA; ꯆꯨꯃꯊꯣꯛ ꯃꯣꯕ ꯌꯥꯝꯅꯥꯕ ꯗꯥꯄꯂꯣꯡ꯫

ꯃꯃꯤ 2.1 — ꯅꯤꯆꯔꯦ ꯅꯥꯡ ꯁꯕꯒꯤ ꯄꯥꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯐꯣ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯤꯡꯒꯤ ꯍꯥꯏ ꯍꯥꯏ꯫ ꯍꯩꯅꯔꯤ ꯑꯣꯏꯒꯤꯗꯍꯥꯛ ꯑꯆꯥꯡ ꯂꯦꯛꯁ ꯗꯄꯥꯟ꯫

2.3.5 **ꯒꯥꯏꯗ ꯁꯦꯡꯌꯥꯄ.** ꯂꯕꯍꯤꯌꯦꯟ ꯃꯗꯤꯡꯍꯥꯌ ꯄꯥꯔꯥꯃꯤꯇꯔ, ꯍꯣꯛꯒꯤ ꯒꯥꯏꯗ ꯂꯩꯕꯒꯤ ꯑꯥꯃꯣꯂ ꯌꯥꯝꯕ ꯌꯥꯡ, ꯁꯔꯣꯄꯤ ꯌꯥꯝꯕ ꯋꯥꯄꯗꯤꯂꯩꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯊꯁꯤꯕ ꯒꯤꯅꯤꯡꯒꯤ ꯄꯥꯝꯕꯗ ꯌꯥꯝꯗꯕꯇꯤ (ꯁꯦꯛꯇ 2.13)꯫

2.3.6 **ꯍꯥꯔꯨꯗꯥꯗ ꯁꯦꯡꯌꯥꯄꯤꯍ ꯄꯥꯔꯥꯃꯤꯇꯔ.** ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2A ꯗꯥꯄꯂꯣꯡꯗ ꯇꯦ ꯑꯍꯥꯛꯀꯤꯗꯍꯥꯛ NIH-DHAARA, ꯂꯩꯕꯒꯤ ꯑꯥꯄꯨꯒ ꯌꯥꯝꯕ ꯂꯣꯀꯦꯜꯒꯤ IDF ꯑꯍꯦ, ꯃꯍꯥꯏꯗꯨꯕꯗꯤꯗꯨꯕ, ꯍꯥꯔꯨꯗꯥꯗ ꯁꯦꯛꯇ 2.3.1 ꯃꯍꯩꯅ, ꯁꯕ-ꯕꯦꯁꯤꯟ MN-B-ꯗ (c)(iii)-ꯗ ꯄꯤꯄꯤꯕ ꯃꯈꯥ ꯌꯦꯡꯎ ꯂꯩꯕꯗ, ꯑꯃꯁꯨꯡ ꯅꯤꯆꯔꯦ ꯅꯥꯡ ꯁꯕ ꯍꯩꯒꯤ ꯍꯥꯏꯗꯕ ꯆꯥꯡꯗꯕꯇꯤ:

- (a) **ꯂꯣꯀꯦꯜꯒꯤ IDF.** ꯃꯂꯥ ꯌꯥꯝꯕ IMD ꯄꯥꯝꯕꯗꯤꯗ ꯃꯦꯜ (SRRG) ꯂꯩꯕꯒꯤ ꯑꯥꯌꯥꯍꯥꯌꯒꯤ ꯃꯂꯥꯀꯄ ꯂꯣꯀꯦꯜꯒꯤ ꯃꯐꯝ 25-ꯗꯒꯤ ꯆꯥꯡꯗꯕ ꯄꯥꯝꯕꯗ ꯑꯍꯗ ꯗꯤꯛ ꯌꯥꯝꯕ ꯂꯣꯀꯦꯜꯒꯤ IDF ꯑꯍꯦ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2B-ꯗ ꯗꯥꯄꯂꯣꯡꯇꯕꯗꯤ, ꯍꯣꯏꯗ ꯃꯁꯕ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ AEP-ꯒꯤꯒꯤꯗꯍꯥꯛ, ꯂꯣꯀꯦꯜ ꯃꯅꯥꯛꯇꯒꯤ 10 km-ꯒꯤ ꯍꯟꯅꯗ ꯑꯃꯁꯨꯡ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2A-ꯒꯤ ꯁꯕ-ꯕꯦꯁꯤꯟ ꯃꯅꯥꯛꯇꯥ, ꯑꯃꯁꯨꯡ ꯁꯦꯟꯇꯔ ꯌꯥꯝꯅꯥꯕ ꯍꯥꯏꯗ (rim) ꯂꯩꯕꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯍꯥꯏꯗ (ridge) ꯑꯍꯥꯛꯀꯤ ꯍꯥꯏꯗꯥ ꯄꯗꯨꯗꯨꯕ ꯂꯩꯕꯗ, (f)-ꯒꯤ ꯍꯤꯡꯕꯥ ꯍꯥꯏ ꯑꯟꯅ, ꯑꯃꯁꯨꯡ (c)(ii) ꯑꯃꯁꯨꯡ (c)(iii)-ꯒꯤ ꯗꯥꯄꯂꯣꯡꯒꯤ ꯍꯤꯡꯗ ꯇꯣ; ꯍꯥꯅꯒꯤ ꯍꯦꯛꯇꯗ ꯁꯦꯛꯇ 2.3.2-ꯒꯤ ꯀꯥꯡꯗꯍꯜꯂꯕ ꯑꯍꯥ (c)-ꯗꯒꯤ (e) ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ (h)-ꯒꯤ ꯄꯨꯡ 24 ꯑꯃꯁꯨꯡ ꯍꯥꯅꯗꯒꯤ ꯂꯩꯕ ꯗꯥꯝꯕꯒꯤꯗꯍꯥꯛ ꯌꯥꯏ꯫ ꯄꯥꯝꯕꯗ ꯑꯍꯥꯛꯀꯤ ꯃꯐꯝ ꯃꯁꯤꯡꯒꯤ ꯄꯨꯍꯥꯔꯨꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯃꯁꯤꯡꯒꯤ ꯃꯔꯣꯡꯕꯒꯤ ꯀꯣꯕꯨꯟꯕ ꯂꯣꯀꯦꯜ ꯑꯍꯥꯛꯀꯤ IMD ꯆꯥꯡꯍꯩꯒꯤꯗꯍꯥꯛ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯦꯜꯒꯤ ꯑꯥꯃꯣꯂꯥꯏꯍꯤꯡꯒꯤꯗꯍꯥꯛ ꯀꯥꯡꯗꯍꯜꯂꯕ, ꯑꯃꯁꯨꯡ ꯀꯥꯡꯗꯕ ꯃꯐꯝ ꯃꯁꯤꯡꯒꯤꯗꯍꯥꯛ ꯍꯥꯄꯤ ꯗꯥꯄꯂꯣꯡꯇꯕ ꯂꯩꯕꯒꯤ ꯆꯥꯡꯗꯕ ꯍꯥꯏꯍꯗ ꯄꯥꯝꯕꯗ ꯑꯍꯥ ꯃꯂꯥ ꯌꯥꯝꯕ ꯄꯁꯔꯕꯇꯤ꯫ ꯃꯍꯩ ꯃꯁꯤꯡꯒꯤ ꯗꯌꯥꯝꯒꯤ ꯑꯍꯤꯡꯗ ꯑꯍꯥꯛꯀꯤ ꯄꯨꯡ (one-third rule; ꯁꯦꯛꯇ 2.6.4) ꯂꯩꯕꯒꯤ ꯑꯌꯥꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯝꯕ ꯄꯥꯎꯇꯥꯛ ꯑꯍꯟ ꯂꯥꯏꯅ IDF ꯑꯍꯦ ꯂꯣꯀꯦꯜꯒꯤ IDF ꯂꯩꯕ꯫ ꯍꯥꯔꯨꯗꯥꯗ ꯁꯦꯛꯇ 2.3.2(a) ꯑꯣꯏ ꯃꯐꯝ 30-ꯒꯤ ꯍꯤꯡꯕꯥ ꯃꯐꯝ 25 ꯄꯁꯔꯟ ꯄꯨꯁ, ꯍꯥꯅꯕ ꯄꯥꯝꯕꯗꯤꯗ ꯃꯦꯜꯒꯤ ꯗꯤꯛ ꯁꯣꯔꯁ ꯂꯥꯏꯅ

ꯑꯣꯏꯒꯤ ꯑꯁꯤꯗꯨ ꯑꯃꯥꯡꯕꯥꯁꯤꯡ ꯁꯤꯡꯊꯕ ꯍꯥꯌꯕ ꯅꯥꯏꯗ (ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯣꯏꯗꯕ ꯊꯝꯕ)꯫ ꯑꯄꯥꯡꯕ 2B-ꯗ IDF ꯑꯍꯦꯅꯕ ꯄꯥꯡꯊꯣꯛ ꯐꯪꯕ ꯐꯪꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯑꯣꯏꯒꯤ ꯂꯩꯔꯕ ꯑꯍꯦꯅꯕꯒꯤ ꯐꯪꯗꯕ ꯃꯂꯩꯔꯤꯕꯁꯤꯡꯗꯤ ꯇꯧꯕ IDF ꯑꯍꯦꯅꯕ ꯐꯪꯂꯝꯂꯤ: NIT Manipur, Manipur University ꯑꯃꯁꯨꯡ IIT Guwahati-ꯗꯒꯤ ꯂꯃꯆꯠꯀꯤ ꯃꯂꯩꯔꯤꯕꯁꯤꯡꯗꯤ ꯇꯧꯕ ꯁꯦꯔꯕ ꯑꯍꯦꯅꯕ ꯐꯪꯂꯝꯂꯤ; "Drainage Dimension" ꯄꯨꯔꯕ ꯍꯦꯡꯕ ꯆꯠꯅ-ꯂꯝꯕꯤꯗꯤ ꯍꯤꯕꯨ ꯑꯍꯦꯡ ꯑꯁꯣꯏꯗ ꯁꯤꯡꯊꯕ ꯗꯥꯏꯍꯦꯜꯕ ꯑꯍꯦ IMD-ꯒꯤ ꯊꯤꯗꯣꯛꯂꯦ ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯒꯝꯕꯦꯜ ꯐꯤꯠ (Gumbel fit) ꯑꯍꯦꯡ ꯇꯥꯔꯦꯇ 1986–2009-ꯒꯤ ꯍꯤꯇꯤꯌ 15-ꯒꯤ ꯗꯥꯏꯗꯒꯤ ꯂꯝꯕ ꯂꯃꯆꯠꯀꯤ IDF ꯑꯍꯦ ꯐꯪꯗꯥꯜꯇꯤ, ꯑꯗꯨꯕ ꯍꯣꯏꯒꯤ ꯑꯅꯕ ꯍꯤꯑꯣꯅ ꯑꯃꯁꯨꯡ ꯒꯥꯟꯅꯗꯣꯏꯗꯤ ꯐꯪꯂꯝꯂꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯏ ꯒꯥꯟꯅꯗ ꯑꯍꯦ ꯑꯣꯅꯕꯦ ꯃꯣꯌ ꯁꯤꯡꯗꯝ (ꯂꯝꯍꯊꯤ ꯁꯤꯡꯅꯤꯕ ꯍꯥꯌꯕ ꯅꯥꯏꯗ) [TBC]; ꯑꯃꯁꯨꯡ IMD Das et al. (2022)-ꯒꯤ ꯂꯃꯆꯠꯀꯤ ꯁꯦꯝꯕꯅꯕꯦ ꯇꯝꯕꯤꯗꯨ ꯃꯊꯛ ꯑꯍꯦ ꯑꯍꯩꯗꯨ ꯄꯥꯕꯦ ꯁꯦꯝꯕꯤ (n)꯫ ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯣꯏꯕꯦ ꯑꯄꯥꯡꯕ ꯗꯥꯏꯒꯤ ꯊꯤꯃꯔꯂꯩꯔꯤꯕ, ꯍꯥꯏ ꯍꯥꯏ ꯍꯥꯌꯕ ꯅꯥꯏꯗ, ꯍꯅꯒꯤꯂꯣꯏꯗꯇꯤ: (1) **Imphal (Tulihal) (A) (42623)**-ꯒꯤꯗꯃꯛ, ꯍꯤꯇꯤꯌ 15-ꯗꯒꯤ ꯁꯨꯕ 72 ꯆꯠꯕꯒꯤ IMD ꯊꯝꯃꯤꯊꯗꯤꯕ ꯒꯥꯇ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯍꯥꯏꯕꯗ ꯔꯥꯏꯊ ꯂꯩꯂꯦꯒꯤ ꯔꯄꯤ ꯅꯗꯤꯕꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯕꯕꯣꯕ, ꯍꯥꯗꯁ ꯁꯦꯊꯤꯕ ꯗꯥꯏꯍꯦꯜꯕ ꯑꯗꯨꯕꯦ ꯃꯗꯁ 1986–2009-ꯒꯤ ꯍꯤꯇꯤꯌ 15-ꯒꯤ ꯊꯝꯃꯊꯗ, ꯑꯃꯁꯨꯡ (c)(i)-ꯒꯤ ꯂꯥꯊꯤꯇ ꯍꯥꯌꯕ ꯂꯤꯑꯦꯇꯕ 1953–2026-ꯒꯤ ꯔꯄꯤ ꯅꯗꯤꯕꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯕꯕ ꯄꯨꯍꯤꯌꯕꯤ ꯂꯥꯊꯤꯇ; (2) **ꯊꯤꯕꯁꯦꯗꯁꯤ, ꯃꯍꯥꯕꯇꯕ, ꯑꯇꯥ ꯑꯃꯁꯨꯡ ꯈꯧꯄꯨꯝ (Khoupum), ꯇꯤꯊꯤꯕꯍ, ꯐꯨꯅꯨꯡ, ꯅꯨꯊꯔꯦꯟꯗꯁꯨꯊ, ꯔꯦꯟꯗꯥꯟ ꯑꯃꯁꯨꯡ ꯍꯥꯊꯥ**-ꯗ ꯇꯧꯕ ꯔꯦꯃꯊ ꯊꯤꯂꯦꯊꯥꯂꯥꯂ ꯗꯤꯁꯦꯊꯌꯍꯥꯦꯌ (Water Resources Department), IMD ꯑꯃꯁꯨꯡ ꯑꯥꯒꯤꯊꯤꯃꯇꯔꯊꯒꯤ ꯒꯥꯇꯂꯣꯏꯗꯒꯤ ꯊꯝꯃꯊꯗꯣꯏꯕ, ꯈꯥꯁꯨꯍꯗ 225 mm ꯅꯨꯅꯤꯕ ꯑꯄꯤꯕ ꯑꯗꯨꯒꯤ ꯒꯥꯇ ꯑꯃꯁꯨꯡ ꯗꯨꯅꯨꯊꯥꯂꯦ (h), ꯑꯃꯁꯨꯡ MASTEC-ꯅꯦ ꯂꯤꯇꯤꯑꯦꯇꯅꯤꯕ ꯁꯥꯏꯀꯨꯜ (Saikul) ꯑꯃꯁꯨꯡ ꯂꯤꯇꯥꯟ (Litan) ꯇꯧꯕ ꯒꯥꯇꯂꯣꯏꯗꯒꯤ ꯊꯝꯃꯊꯗꯣꯏꯕ, ꯍꯅꯔꯒꯤ ꯍꯁꯨꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯊꯝꯃꯊꯗꯃꯤ ꯍꯤꯕꯕ ꯐꯪꯗꯥꯜꯃꯗꯁ [TBC]; ꯑꯃꯁꯨꯡ (3) (c)(ii) ꯑꯃꯁꯨꯡ (d) ꯍꯅꯗ ꯂꯕ-ꯑꯥꯊꯤꯔ MN-C1-ꯒꯤꯗꯃꯛ, ꯔꯥꯍꯅꯦ ꯑꯗꯇꯕ ꯕꯊꯗ ꯁꯦꯇꯦꯒꯤ (Barak plain) ꯂꯩꯂꯦꯂꯣꯏꯕ **Silchar (42619)** ꯑꯃꯁꯨꯡ **Silchar (Kumbhigram) (A) (42620)**-ꯒꯤ IMD-ꯒꯤ ꯔꯄꯤ ꯅꯗꯤꯕꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯕꯕ ꯄꯨꯍꯤꯌꯕꯤ ꯂꯥꯊꯤꯇ꯫

- (b) **ꯊꯤꯁꯦꯊꯌꯂꯣꯏꯕ, ꯇꯦꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯂꯕ-ꯑꯥꯊꯤꯔꯂꯣꯏꯕ. ꯂꯩꯂꯌ ꯁꯨꯍꯇꯍꯗ CWC ꯂꯕꯇꯦꯂ 2(c), "Barak and others"-ꯗ ꯇꯧ, 2(b) ꯊꯤꯁꯦꯊꯌꯕꯤ ꯑꯥꯑꯥꯗꯂꯊ (Annexure) 1.1-ꯅꯦ ꯍꯣꯏꯕꯨ "ꯕꯥꯗ, ꯀꯅꯗꯥꯂ ꯑꯃꯁꯨꯡ ꯍꯇꯤꯁꯨꯊ ꯅꯨꯊꯥꯅꯂꯣꯏꯕ" ("Barak, Kalden and Manipur rivers") ꯒꯤ ꯇꯥꯔꯦꯇ ꯁꯦꯝꯕꯤ (CWC, 2(b), Annexure 1.1; "Kalden" ꯑꯣꯏ ꯀꯂꯗꯟ (Kaladan), NEER-ꯒꯤ ꯁꯦꯕ), ꯑꯃꯁꯨꯡ ꯍꯣꯏꯒꯤꯗꯃꯛ CWC-ꯅꯦ ꯆꯇꯗ ꯑꯥꯂꯩꯍꯂꯦ ꯊꯤꯁꯦꯊꯌ ꯑꯍꯦꯅꯕ ꯐꯪꯗꯥꯜꯂꯝꯂꯤ**: 2(b) ꯊꯤꯁꯦꯊꯌꯁ 2000 ꯆꯠꯕꯒꯤ ꯐꯪꯗꯥꯜꯂꯤꯕ ꯊꯤꯁꯦꯊꯌ 21-ꯒꯤ ꯁꯊꯤꯕꯗ 2(c)-ꯒꯤꯗꯃꯛ ꯑꯍꯦꯅꯕ ꯇꯧ, ꯑꯃꯁꯨꯡ CWC-ꯒꯤ ꯊꯤꯇꯇꯅ ꯊꯤꯁꯦꯊꯌꯂꯣꯏꯗꯒꯤ ꯑꯥꯊꯤꯕꯅꯕ ꯃꯊꯕ ꯇꯍꯅꯗ ꯑꯍꯦꯅꯕ ꯁꯦꯝꯕꯤ (CWC; Wayback Machine, 20 ꯍꯊꯔ 2024); ꯑꯍꯦꯅꯕ ꯇꯧ ꯑꯃꯁꯨꯡ ꯂꯍ ꯂꯥꯊꯤꯕ ꯑꯍꯦꯅꯕ ꯇꯧ ꯄꯨꯔꯕꯒꯤ CWC-ꯗꯒꯤ ꯅꯊꯕ ꯊꯦꯆꯊꯍꯂꯦ ꯄꯥꯡꯊꯣꯛ ꯆꯠꯕ ꯍꯥꯗ ꯃꯊꯤ [TBC]꯫ ꯂꯃꯆꯠ ꯃꯍꯁꯤꯗꯕꯤ ꯅꯣꯏꯕ ꯇꯗꯃꯗ ꯑꯃꯁꯨꯡ ꯍꯇꯤꯁꯨꯊ ꯅꯨꯊꯥꯅꯒꯤ ꯅꯨꯌꯊꯕꯗ ꯅ ꯊꯕꯕꯗ ꯔꯦꯊꯗꯊꯅ, ꯍꯊꯍ ꯑꯗꯨꯕꯦ ꯍꯣꯏ ꯂꯕꯇꯦꯂ ꯅꯨꯗꯤꯕꯍꯗꯕꯤ ꯍꯁꯦꯗ ꯑꯌꯁꯅꯦ 2(c)-ꯗ ꯇꯧ꯫ 2(b) ꯊꯤꯁꯦꯊꯌꯕꯤ ꯁꯦꯇꯌ 9-ꯅꯦ 2(b)/2(c) ꯇꯅꯂ ꯑꯣꯏ 93° E-ꯗ ꯔꯥꯕ 25.2° N-ꯗꯒꯤ 94° E-ꯗ ꯔꯥꯕ 25.5° N ꯆꯠꯕ ꯑꯃꯁꯨꯡ ꯍꯗꯨꯒꯤ ꯍꯥꯌꯕꯗ ꯔꯥꯕ 94.4° E-ꯒꯤ ꯍꯥꯌꯕ ꯅꯥꯏꯗ ꯑꯔꯥꯕ ꯊꯕꯕꯗ ꯔꯦꯗꯇꯤ (ꯇꯍꯅꯒꯤ ꯅꯍꯇ ꯑꯍꯗꯒꯤ NEER-ꯒꯤ ꯁꯦꯕ, ꯔꯥꯕ ±0.1°), ꯍꯊꯍ ꯑꯗꯨꯕꯦ ꯇꯅꯂ ꯑꯗꯨꯕꯦ ꯍꯥꯗꯒꯤ (Mao) ꯍꯅꯗꯁ ꯂꯅꯦꯁꯁꯤ ꯁꯦꯅꯒꯤ (Senapati district) ꯑꯔꯥꯕ ꯊꯕꯕꯗ ꯂꯦꯗꯁ ꯔꯅ (ꯊꯇꯕ ꯑꯍꯍꯤ); ꯊꯤꯁꯦꯊꯌꯕꯤ ꯃꯗꯂꯌꯅꯦ ꯍꯣꯏꯒꯤ ꯂꯕꯇꯦꯂꯒꯤ ꯔꯤꯕꯂꯣꯏꯕꯒꯤ ꯍꯨꯕꯗ "ꯍꯇꯤꯁꯨꯊ ꯄꯤꯇꯂ" ("the Manipur Hills") ꯄꯨꯔꯕꯦ ꯁꯦꯝꯕꯤ (CWC, 2(b), p. 18), ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯣꯏꯕꯦ ꯍꯣꯏꯕꯨ ꯑꯔꯥꯕ ꯊꯕꯕꯒꯤ ꯔꯤꯕꯊꯕꯂꯣꯏꯕ ꯄꯨꯔꯕꯦ ꯅꯂꯦꯇ꯫ 25.4° N-ꯒꯤ ꯑꯔꯥꯕ ꯊꯕꯕꯗ ꯇꯧꯕ ꯍꯤꯅꯌ ꯑꯍꯦꯅ ꯐꯪꯍ 2-1-ꯗ ꯇꯅꯂ ꯑꯗꯨꯗ ꯇꯧꯕ ꯁꯦꯇꯌ 9-ꯒꯤ ꯒꯥꯟꯅꯗ, ꯔꯄꯤ 50-ꯗ ꯔꯥꯕ 320 mm (NEER-ꯒꯤ ꯁꯦꯕ), ꯊꯝꯃꯊꯗ ꯃꯅ, ꯑꯃꯁꯨꯡ ꯁꯦꯇꯌꯕꯤ ꯍꯔꯗ ꯂꯕꯕ ꯃꯁꯤ ꯑꯍꯦ ꯍꯤꯅꯌ ꯑꯗꯨ ꯇꯅꯂꯒꯤ ꯑꯔꯥꯕ ꯊꯕꯕꯗ ꯐꯌꯇꯕ ꯍꯆꯍꯗ ꯅꯗꯁ 2(b) ꯁꯦꯇꯌꯅꯦ ꯃꯇꯇ 2.3.3 ꯍꯅꯗ ꯆꯇꯊ ꯑꯅꯦ ꯍꯨ ꯑꯅ [TBC]; ꯂꯩꯂꯌꯕꯤ ꯑꯁꯤꯗꯨ ꯂꯥꯗꯂꯣꯏꯕꯗ CWC-ꯒꯤ ꯁꯦꯇꯌ ꯇꯧ꯫ ꯇꯧꯕ ꯊꯤꯁꯦꯊꯌ ꯑꯗꯨꯒꯤ ꯍꯥꯌꯁ ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯣꯏꯕꯦ ꯍꯅꯒꯤꯂꯣꯏꯕ ꯂꯤꯇꯤꯑꯦꯇ (ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯣꯏꯕꯦ ꯊꯍꯕ): 25–5,000 km²-ꯒꯤ ꯃꯔꯍꯦꯂꯌꯂꯣꯏꯕꯗ ꯃꯇꯇ 2.7.3-ꯒꯤ ꯑꯥꯊꯤꯔꯅ ꯊꯤꯗꯣꯛꯂꯦꯒꯤꯗꯃꯛ, ꯅꯕꯅꯗꯒꯤ ꯑꯗꯇꯕ ꯐꯪꯗꯥꯜꯇꯕ CWC ꯊꯤꯁꯦꯊꯌ, 2(b) ꯊꯤꯁꯦꯊꯌꯕꯤ ꯑꯥꯊꯤꯔꯅ ꯊꯤꯗꯣꯛꯂꯦ ꯃꯊꯒꯂꯣꯏꯕ; 25–5,000 km²-ꯒꯤ ꯇꯍꯕꯗꯕꯤ ꯅꯨꯊꯥꯅꯂꯣꯏꯕꯒꯤꯗꯃꯛ, ꯔꯦꯃꯊ ꯊꯤꯂꯦꯊꯥꯂꯥꯂ ꯗꯤꯁꯦꯊꯌꯍꯥꯦꯌꯅꯦ ꯒꯥꯇ ꯃꯅꯤꯕ ꯗꯤꯂꯔꯊꯇꯂꯣꯏꯕ ꯇꯧꯕꯗꯤ ꯍꯅꯔꯗ ꯃꯇꯤꯕꯊꯌ ꯃꯊꯕ ꯍꯤꯅꯌ ꯂꯩꯗꯤ ꯑꯍꯦ, ꯍꯅꯔꯒꯤ ꯍꯨꯕꯗ 2 ꯂꯁꯁꯍꯕꯊ 2000-ꯗ ꯍꯅꯊꯕ ꯃꯍꯁꯨꯗ (Moirang Kampu) ꯅꯊꯤꯅ ꯅꯨꯊꯥꯅꯗ (Iril) 532.488 m³/s, 30 ꯑꯒꯂꯌ 1999-ꯗ ꯊꯕꯅ ꯅꯨꯊꯥꯅꯗ 391.636 m³/s, 2 ꯂꯁꯁꯍꯕꯊ 2000-ꯗ ꯂꯃꯆꯠ ꯅꯨꯊꯥꯅꯗ 202.006 m³/s ꯑꯃꯁꯨꯡ 2 ꯇꯇꯅ 2001-ꯗ ꯑꯍꯕꯅ ꯅꯨꯊꯥꯅꯗ 68.495 m³/s (MASTEC, 1999–2001-ꯒꯤ WRD ꯊꯝꯃꯊꯗꯣꯏꯕꯗꯒꯤ), 2(b)-ꯒꯤ ꯅꯨꯇꯤꯌ ꯄꯅꯗꯊꯒꯊꯆ ꯔꯥ ꯑꯅꯦ ꯅꯗꯁ, ꯍꯊꯍꯗꯤ ꯍꯣꯏꯒꯤ ꯃꯔꯍꯦꯂꯌ 14-ꯒꯤ ꯍꯨꯕꯗ ꯑꯍꯦꯅꯕꯦ ꯍꯇꯤꯁꯨꯊꯒꯤ ꯅꯣꯏꯕ ꯔꯦꯊꯗꯁ (NEER-ꯒꯤ ꯁꯦꯕ) (ꯂꯊꯗ 3); ꯑꯃꯁꯨꯡ ꯃꯇꯇ 2.3.3(b)-ꯒꯤ ꯃꯊꯂ-ꯔꯗꯃꯗꯤꯗꯃꯛ CWC-ꯒꯤ ꯒꯥꯟꯅꯗ ꯑꯍꯦꯅꯕ ꯇꯧ, ꯍꯣꯏ ꯐꯪꯍ 2-1-ꯗ ꯆꯠꯕꯕ ꯄꯨꯔꯕꯦ ꯊꯝꯃꯊꯗ ꯃꯅ꯫ ꯍꯤꯅꯌꯕꯤ ꯑꯕ ꯅꯕꯒꯤ ꯇꯂ ꯑꯃꯁꯨꯡ ꯂꯕ-ꯑꯥꯊꯤꯔ ꯑꯣꯏ ꯑꯄꯥꯡꯕ 2A-ꯒꯤꯇꯤ (ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯣꯏꯕꯦ ꯊꯍꯕ): ꯇꯂ **MN-Z1 ꯂꯃꯆꯠ ꯃꯍꯁꯤꯗ**, ꯁꯨꯒꯅꯨ ꯄꯍꯁꯕꯤ ("Sugnu hump") ꯍꯊꯗꯁ ꯇꯧꯕ ꯍꯇꯤꯁꯨꯊ ꯅꯨꯊꯥꯅ ꯕꯂꯣꯏꯂꯦꯒꯤ ꯃꯍꯁꯤꯗꯕꯤ ꯇꯍ, ꯂꯕ-ꯑꯥꯊꯤꯔꯂꯣꯏꯕ **MN-A ꯂꯃꯆꯠ ꯃꯍꯁꯤꯗꯕꯤ ꯇꯧꯅ (ꯂꯃꯆꯠ–ꯊꯕꯅ–ꯃꯗꯔꯕ–ꯕꯤꯂꯨꯁꯨꯊ–ꯑꯍꯕꯅ–ꯍꯔꯥꯕ ꯂꯃꯆꯠ) ꯑꯃꯁꯨꯡ MN-A1 ꯇꯗꯃꯗꯕꯤ ꯍꯦꯗ (ꯃꯣꯏꯔꯥꯡ–ꯅꯤꯡꯊꯧꯈꯣꯡ–ꯊꯥꯡꯒ–ꯏꯊꯥꯏ–ꯁꯨꯒꯅꯨ)** (Moirang–Ningthoukhong–Thanga–Ithai–Sugnu–

Wangoo) ꯂꯣꯌꯅꯅ; ꯂꯣꯏ **MN-Z2 ꯑꯇꯥꯡ, ꯅꯣꯡꯄꯣꯛ ꯑꯃꯁꯨꯡ ꯍꯥꯒꯤ ꯌꯤꯡꯊꯤꯡ**, ꯂꯗ-ꯑꯦꯔꯤꯌꯥ **MN-B ꯑꯇꯥꯡ, ꯅꯣꯡꯄꯣꯛ ꯑꯃꯁꯨꯡ ꯍꯥꯒꯤ ꯌꯤꯡꯊꯤꯡ (ꯁꯦꯅꯣꯄꯥꯏꯤ–ꯃꯣꯡꯄꯣꯛꯄꯤ–ꯁ꯭ꯒꯅꯨ–ꯃꯗꯨꯡꯔ–ꯌꯦꯔꯤꯁꯦꯡ–ꯄꯥꯈꯨꯝ–ꯁꯦꯔꯤꯌꯦꯁꯨꯔ)** ꯂꯣꯌꯅꯅ; ꯑꯃꯁꯨꯡ ꯂꯣꯏ **MN-Z3 ꯅꯣꯡꯁ꯭ꯒꯃꯥꯏ ꯌꯤꯡꯊꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯔꯤꯈꯦꯗ ꯀ꯭ꯂꯦꯡ**, ꯈꯔꯥ ꯗꯡꯈꯅ ꯌꯦꯡꯈ, ꯂꯈ-ꯑꯦꯔꯤꯌꯥꯁꯤꯡ **MN-C ꯅꯣꯡꯁ꯭ꯒꯃꯥꯏ ꯌꯤꯡꯊꯤꯡ (ꯇꯃꯦꯡꯂꯣꯡ–ꯅꯣꯅꯦ–ꯈꯧꯄꯨꯝ–ꯇꯨꯄꯨꯜ–ꯇꯧꯁꯦꯝ–ꯐꯦꯔꯂꯣꯜ)** (Tamenglong–Noney–Khoupum–Tupul–Tousem–Pherzawl) ꯑꯃꯁꯨꯡ **MN-C1 ꯂꯤꯔꯤꯈꯦꯗ ꯀ꯭ꯂꯦꯡ (ꯂꯤꯔꯤꯈꯦꯗ)** ꯂꯣꯌꯅꯅ꯫ ꯃꯍꯥꯛꯅ (c)-ꯒꯤ ꯄꯥꯔꯥꯐ, (f)-ꯒꯤ ꯔꯦꯃꯤꯁꯤꯡ, (h)-ꯒꯤ ꯌꯦꯡꯕꯤ ꯁꯥꯃꯦꯡ ꯑꯃꯁꯨꯡ (i)-ꯒꯤ ꯃ꯭ꯕꯔꯤꯅꯤꯡ ꯗꯃꯅꯤ꯫ ꯑꯄꯦꯡꯈ 2A-ꯒꯤ ꯂꯩꯕ ꯑꯅꯤ ꯅꯨꯔꯥꯒꯤ ꯂꯈ-ꯑꯦꯔꯤꯌꯥ ꯑꯅꯤꯒꯤ ꯃꯔꯡꯕꯤ ꯅꯣꯡꯕ ꯅꯣꯡꯗꯥꯡꯀꯥ ꯕꯦꯌꯃꯦꯡꯅ ꯑꯃꯅꯣ,
ꯁ꯭ꯔꯦꯃꯕ ꯁ꯭ꯈꯤꯡꯃꯥꯌ, ꯑꯅꯤꯒꯤ ꯃꯔꯥꯌ ꯄꯦꯡꯅꯣ ꯌꯤꯁ꯭ꯈ ꯒꯦꯇꯔꯨ ꯂꯣꯟ (ꯃꯦꯄꯨꯔꯦꯇ ꯑꯃꯤꯅꯣ ꯗꯃꯈ)꯫ ꯁꯃꯀꯤꯡꯕꯤ ꯃꯄꯨꯡꯁ ꯂꯥꯈ ꯌꯤꯡ
ꯑꯀꯤꯡꯀꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯨꯅꯄꯤꯇ ꯐꯦꯡꯃꯤꯡ (foothill fan) MN-A-ꯁ ꯌꯤꯁꯅ; ꯁꯃꯀꯤꯡꯕꯤ ꯂꯃꯁꯒꯤ ꯌꯤꯡꯈ ꯅꯀꯤꯃꯁ ꯂꯈ ꯃꯅꯉ ꯑꯃ,
ꯅꯃꯗꯦꯇ–ꯕꯤꯡꯀꯤꯡꯀꯤ, ꯅꯃꯗꯦꯇ–ꯁ꯭ꯅꯔꯨꯇ ꯑꯃꯁꯨꯡ ꯃꯅꯔꯤꯡ–ꯁꯔꯌꯦꯁꯒꯔꯒꯤ ꯃꯅꯤꯡꯃꯤꯡꯁ ꯑꯃꯁꯨꯡ ꯁꯃꯀꯤꯡꯕꯤ ꯀꯅꯃꯤꯡꯒꯤ ꯌꯤꯡꯒꯤ
ꯃꯅꯤꯡꯃꯤꯡꯁ, MN-B-ꯁ ꯂꯈ꯫ ꯑꯄꯦꯡꯈ 2A-ꯒꯤ ꯃꯄꯔꯃꯤꯡꯒꯤ ꯀꯔꯤꯃꯤꯡ ꯂꯃꯈꯤ ꯁ꯭ꯅꯀꯒꯤꯁꯃꯤ ꯅꯤꯁꯅꯤ; ꯗꯃꯍꯨꯃꯤꯡꯅ
ꯌꯁꯔꯃꯦꯁꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯅꯒꯤ ꯅꯅꯦꯃꯤꯡ ꯃꯁ꯭ꯡ ꯅꯦꯅ ꯑꯃꯁꯨꯡ ꯕꯦꯗꯔꯃ ꯁꯒꯁꯈꯤ [TBC]꯫ "Tulihal" (ꯇꯨꯂꯤꯍꯥꯜ) ꯑꯃꯤ ꯅꯃꯗꯦꯇ
ꯑꯦꯔꯔꯀꯔꯁꯅ ꯂꯈ IMD ꯃ꯭ꯁꯦꯃꯦꯒꯤ ꯃꯃꯤꯡꯅꯤ꯫

- (c) **ꯀ꯭ꯡ 24-ꯒꯤ ꯁꯦꯀꯗꯃꯤꯡ, ꯅꯦꯁꯔꯤꯃ, ꯂꯈ-ꯑꯦꯔꯤꯌꯥ ꯃꯁ꯭ꯡ ꯅꯦꯅ.** CWC-ꯒꯤ ꯀ꯭ꯂꯦꯅ ꯑꯃꯅꯁꯅ ꯃ꯭ꯁꯦꯅ ꯑꯃꯤ ꯌꯒꯁꯦ, ꯃꯔꯃ ꯑꯁ꯭ꯅ AEP ꯁ꯭ꯈꯤꯡꯃꯥꯌ ꯀ꯭ꯡ 24-ꯒꯤ ꯁꯦꯀꯗ ꯑꯃꯤ ꯂꯈ-ꯑꯦꯔꯤꯌꯥ ꯃꯁ꯭ꯡ ꯅꯦꯅ ꯃꯍꯥꯛꯒꯤ ꯃꯑꯡꯁ ꯗꯃꯅꯤ (ꯀ꯭ꯃꯅꯃꯥ ꯃꯦꯄꯨꯔꯦꯇ ꯑꯃꯤꯅꯣ ꯗꯃꯈ)꯫ ꯌꯅꯅꯤꯈ ꯃ꯭ꯁꯦꯃꯦꯒꯤꯁꯃꯥ (d)-ꯒꯤ ꯒꯃꯈꯦꯇ ꯑꯦꯃ꯭ꯁꯤꯃꯦꯅ ꯑꯃꯤ AEP ꯑꯁ꯭ꯃꯥꯕꯤꯁꯃꯥ ꯄꯦꯅꯣ ꯌꯤꯁ꯭ꯔꯈꯁꯤ, ꯃꯃꯤ ꯃꯔ꯭ ꯑꯅ; ꯃꯁ꯭ꯒꯤ ꯃꯁ꯭ꯡꯁ ꯁꯦꯀꯗ ꯁ꯭ꯈꯤꯡꯃꯥ (h) ꯃꯍꯥꯛꯁ ꯌꯦꯡ ꯁꯅ꯫ (c)(i) ꯑꯃꯁꯨꯡ (c)(ii)-ꯒꯤ ꯁꯦꯀꯗꯃꯤꯡ ꯑꯃꯤ ꯃ꯭ꯂꯅꯁꯤꯡ (“ꯁ꯭ꯔ ꯅꯦꯁꯔꯒꯦꯇ”, true-interval) ꯀ꯭ꯡ 24-ꯒꯤ ꯁꯦꯀꯗꯃꯤꯡꯅꯤ, ꯑꯃꯁꯨꯡ ꯕ꯭ꯂꯇ 2.6.3-ꯒꯤ ꯐꯤꯛꯃꯁ-ꯏꯟꯇꯔꯒꯦꯇ ꯐꯦꯛꯇꯔ (fixed-interval factor) ꯃꯍꯥꯛꯔꯁ ꯑꯃ꯭ꯥ ꯄꯦꯅꯣ ꯃꯤꯂꯤꯦꯅꯁꯦ꯫
  - (i) **ꯅꯃꯗꯦꯇ ꯁꯃꯀꯤꯡꯕꯤ (MN-A, MN-A1): ꯃ꯭ꯁꯦꯃꯦꯒꯤ ꯃꯦꯔꯤꯂꯅꯣ ꯃꯔ꯭ ꯑꯅ.** Imphal (Tulihal)-ꯒꯤ IMD-ꯒꯤ ꯁ꯭ꯃꯤꯅ ꯁ꯭ꯈꯤꯡꯒꯤ ꯃꯦꯔꯤꯂ ꯑꯃꯤ (d) ꯃꯍꯥꯛꯁ ꯐꯤꯅ ꯁꯁ꯭ꯔꯤꯐꯌꯈ, ꯀ꯭ꯡ 24-ꯒꯤ ꯁꯦꯀꯗꯃꯤꯡ ꯑꯃꯤ MASTEC-ꯅ 1974–2000-ꯒꯤꯁꯃꯥ ꯐꯡꯁꯥꯅꯤꯈ ꯅꯃꯗꯦꯇꯒꯤ ꯌꯄꯤ ꯁ꯭ꯈꯤꯡꯒꯤ ꯅ꯭ꯈꯅꯁꯒꯤ ꯌꯤꯡꯈ ꯁ꯭ꯃꯤꯅ 1-ꯒꯤ ꯂꯡ ꯁ꯭ꯈꯁ (ꯒꯦꯇꯔ꯭ 27, ꯃꯤꯦ 79.0 mm, ꯃ꯭ꯁꯦꯅꯁꯔꯁ ꯁꯤꯒꯤꯔꯦꯃꯦ 30.0 mm; MASTEC, *Flood Hazard Zonation in Manipur Valley*, Table 2) ꯃꯦꯗꯁ ꯑꯐ ꯃꯃꯦꯅꯅꯃꯅ (method of moments) ꯁꯔꯈ ꯒꯃꯈꯦꯇ ꯐꯤꯅ ꯑꯃꯒꯤ ꯁꯦꯀꯗꯃꯤꯡꯅꯤ, ꯐꯤꯃ ꯁꯔꯈ ꯁ꯭ꯃꯤꯅ ꯑꯁ꯭ ꯃ꯭ꯂꯅꯁꯤꯡ ꯀ꯭ꯡ 24-ꯁ ꯄꯡꯁꯥꯅꯈ 1.13-ꯅ ꯃꯇꯁꯤꯀꯂꯅ ꯁꯔꯒꯤ, ꯑꯃꯁꯨꯡ 5 mm-ꯁ ꯃꯗꯥꯁ ꯔꯌꯦꯁ ꯁꯔꯒꯤ꯫ ꯐꯤꯅ ꯑꯃꯤ NEER-ꯒꯤꯅꯤ, MASTEC-ꯒꯤ ꯅꯅꯁꯦ:

AEP (ꯔꯤꯁꯔꯦ ꯀꯤꯔꯤꯌꯁ)	50% (2-yr)	20% (5-yr)	10% (10-yr)	4% (25-yr)	2% (50-yr)	1% (100-yr)
ꯀ꯭ꯡ 24-ꯒꯤ ꯁꯦꯀꯗ, MN-A ꯑꯃꯁꯨꯡ MN-A1	85 mm	115 mm	135 mm	160 mm	180 mm	200 mm

ꯃꯦꯔꯤꯂ ꯑꯃꯤꯒꯤ ꯒꯦꯇꯔ꯭ ꯌꯤꯃꯈ ꯇꯨꯂꯤꯍꯥꯜ (Tulihal) ꯒꯦꯂꯒꯤꯅꯤ: ꯃꯃꯤꯒꯤ 158.6 mm (30 ꯖꯨꯂꯥꯏ 1989), 119.4 mm (5 ꯑꯒꯁ꯭ꯇꯔ 1980), 80.3 mm (1 ꯂꯒꯦꯃꯈꯔ 1991) ꯑꯃꯁꯨꯡ 79.8 mm (18 ꯐꯦꯈ꯭ꯔꯌꯦꯔꯤ 1993) ꯁ꯭ꯈꯃꯤꯡ ꯑꯃꯤ ꯃ꯭ꯁꯦꯃꯦ ꯑꯁ꯭ꯒꯤ IMD-ꯒꯤ ꯗꯒꯤ ꯔꯦꯕꯔꯁꯃꯤꯡꯅꯤ (IMD, *Extremes*; NEER-ꯒꯤ ꯌꯤꯡꯁꯃꯅꯈ)꯫ ꯃꯃꯤꯒꯤ ꯑꯅꯤꯃ꯭ꯈ ꯒꯦꯇꯔ꯭, **5 ꯖ꯭ꯂꯦ 1984-ꯁ 140 mm, ꯑꯃꯤ Imphal (Tulihal)-ꯁ IMD-ꯒꯤ ꯖ꯭ꯂꯦꯒꯤ ꯅ꯭ꯈꯅꯁꯒꯤ ꯌꯤꯡꯈ ꯁ꯭ꯃꯤꯅ, 2 ꯖ꯭ꯂꯦ 1974-ꯁ 106.6 mm, ꯒꯤ ꯌꯤꯅꯁꯦ** [U]; ꯐꯤꯅ ꯑꯃꯤꯅ ꯃꯁ꯭ ꯗꯃꯅꯤ, ꯃꯃꯤꯅ ꯐꯤꯅ ꯑꯁ꯭ ꯌꯤꯡꯄꯦꯅꯤ: ꯃꯁ꯭ꯒꯤ ꯃꯄ꯭ꯅꯁ 106.6 mm ꯗꯃꯅꯈꯁꯤ ꯁ꯭ꯃꯤꯅ 1-ꯒꯤ ꯒꯦꯇꯔ꯭ꯃꯤꯡ ꯌꯄꯤ 2-ꯁ 73 mm, ꯌꯄꯤ 10-ꯁ 114 mm, ꯌꯄꯤ 50-ꯁ 150 mm ꯑꯃꯁꯨꯡ ꯌꯄꯤ 100-ꯁ 165 mm ꯐꯦꯁꯈ ꯄꯦꯗꯔꯥꯕꯅꯤ (NEER-ꯒꯤ ꯄꯤꯃꯈ)꯫ MASTEC-ꯅ ꯃꯃꯦꯒꯤ ꯀ꯭ꯂꯦꯅ ꯅꯦꯅꯈꯁꯤ "140 mm-ꯒꯤ ꯅꯦꯁꯦꯃꯤꯁꯤ ꯑꯃ ꯌꯄꯤ 14 ꯁ꯭ꯈꯤꯡꯁ ꯑꯃ꯭ꯥ ꯅꯥꯀꯒꯤ ꯁ꯭ꯈꯤꯡꯌꯈ ꯂꯈ ꯑꯃꯁꯨꯡ 160 mm ꯌꯄꯤ 29 ꯁ꯭ꯈꯤꯡꯁ" ("an intensity of 140 mm have the chance to occur every 14 year and 160 mm every 29 year") (MASTEC)꯫ ꯃꯦꯔꯤꯂ ꯑꯃꯤ 2000-ꯁ ꯂꯅꯅ; ꯃ꯭ꯁꯦꯃꯦ ꯑꯁ꯭ꯁ IMD-ꯒꯤ ꯃꯁ꯭ꯡꯒꯤ ꯁ꯭ꯃꯤꯅꯃꯤꯡ, 106.3 mm (11 ꯑꯒꯃꯅ 2002), 137.1 mm (26 ꯃꯦꯀꯁꯦꯃꯈꯔ 2003) ꯑꯃꯁꯨꯡ 105.9 mm (16 ꯑꯦꯀꯔꯤꯇ 2004), ꯅ ꯃꯃꯤ ꯌꯤꯃꯅ ꯄꯥꯡꯄꯇꯅ (NEER-ꯒꯤ ꯀꯈ)꯫ CWC ꯔꯤꯀꯔꯅꯃꯤꯡꯅ ꯐꯤꯃ ꯁꯔꯈꯁꯒꯤ ꯃ꯭ꯂꯅꯁꯤꯡꯁ ꯄꯡꯁꯥꯅꯈ ꯐꯦꯗꯁꯔ ꯑꯅꯅ 1.15 ꯃꯤꯂꯤꯦꯅꯤ (CWC, 2(b)); ꯃꯦꯄꯨꯔꯦꯇ ꯑꯃꯤꯅ ꯃ꯭ꯁꯦꯃꯦꯒꯤ ꯃꯦꯔꯤꯂꯒꯤꯁꯃꯥ 1.13 ꯃꯤꯂꯤꯦꯅꯤ꯫ ꯌꯄꯤ 30 ꯅꯅꯔꯒꯤ ꯃꯁ꯭ꯁꯒꯤ ꯄꯦꯈ ꯔꯦꯕꯔꯁ ꯂꯈ Imphal (Tulihal)-ꯒꯤ IMD-ꯒꯤ ꯁ꯭ꯃꯤꯅ ꯁ꯭ꯈꯤꯡꯒꯤ ꯃꯦꯔꯤꯂ ꯑꯁ꯭ (d) ꯃꯍꯥꯛꯁ ꯐꯤꯅ ꯁꯔꯈ ꯃꯁ꯭ꯡꯁ, ꯐꯤꯅ ꯑꯁ꯭ꯅ AEP ꯁ꯭ꯈꯤꯡꯃꯥꯌ ꯁꯦꯈꯇ ꯑꯃꯤꯒꯤ ꯃꯄ꯭ꯅ ꯃꯤꯇꯅꯤ, ꯑꯃꯁꯨꯡ AEP ꯑꯃꯅꯁꯁ ꯃꯃꯤꯅ ꯁꯦꯈꯇꯁꯒꯤ ꯄꯦꯗꯅ ꯀꯤꯔꯤꯈꯁꯤ, ꯃꯦꯅꯅꯈ ꯑꯁ꯭ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯒꯤ ꯃꯔꯃ ꯐꯔꯃ 2-1-ꯁ ꯔꯦꯕꯔꯁ ꯁꯅ꯫ NIH-DHAARA-ꯒꯤ ꯁꯃꯀꯤꯡꯕꯤ ꯃꯦꯇꯃꯤꯡꯅ ꯌꯄꯤ 50-ꯁ

ꯄꯨꯡ 24-ꯗ 181–231 mm ꯑꯣꯏꯈꯤ, ꯁꯍꯤꯠꯇ ꯈꯥꯠꯇ 231 mm, ꯃꯁꯤ ꯍꯧꯖꯤꯛꯀꯤ 180 mm-ꯒꯤ ꯆꯥꯡ 1.3 ꯍꯦꯟꯅ ꯑꯃꯁꯨꯡ IMD-ꯒꯤ ꯈꯣꯝꯖꯤꯟꯗ 158.6 mm-ꯒꯤ ꯆꯥꯡ 1.45 ꯍꯦꯟꯅꯕꯤ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯐꯪꯂꯕ ꯌꯥꯎꯗꯤ; NEER-ꯒꯤ ꯆꯥꯡꯗꯝꯅꯕꯁꯤ); ꯍꯥꯏꯕ ꯑꯁꯤ ꯆꯥꯡꯗꯝꯅꯕꯒꯤ ꯁꯥꯌꯒꯤꯗꯃꯛ ꯌꯣꯀꯄ ꯑꯍꯥꯡꯕ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯌꯥꯎꯗ (m)॥

- (ii) **ꯕꯨꯔꯥꯛ ꯆꯤꯡꯂꯣꯝ ꯑꯃꯁꯨꯡ ꯕꯤꯂꯤꯏꯍ ꯃꯥꯏꯀꯣꯜ (MN-C, MN-C1): ꯏꯂꯦꯛ ꯌꯍꯅꯤꯡꯕꯒꯤ ꯒꯣꯟꯗꯔꯣꯂꯣꯠ.** 2% AEP-ꯗ (50-yr) ꯄꯨꯡ 24-ꯒꯤ ꯗꯣꯛꯊ ꯑꯁꯤ **320 mm-ꯗꯒꯤ ꯕꯣꯍꯗꯣ** ꯑꯃꯁꯨꯡ 1% AEP-ꯗ (100-yr) **351 mm-ꯗꯒꯤ ꯕꯣꯍꯗꯣ**: ꯃꯁꯤ ꯈꯣꯂꯤꯕ ꯑꯁꯤꯒꯤ ꯆꯤꯍꯕ ꯕꯛꯕꯏ ꯏꯂꯦꯛ ꯌꯍꯅꯤꯡꯕꯒꯤ ꯂꯨꯟꯒꯤ ꯃꯕꯥꯂꯣꯝꯕꯤ, ꯃꯃꯍ ꯑꯗꯨꯗ 320 mm ꯑꯁꯤ ꯐꯃꯕꯥꯡꯗ (Haflong) ꯏꯂꯣꯟ ꯆꯤꯡꯊꯡꯗ (Barail ridge) 2(b)/2(c) ꯕꯍꯝꯗ 2(b) ꯂꯤꯅꯥꯂꯨꯡ ꯅꯕꯣꯌ 9-ꯕ ꯃꯥꯡꯗꯥꯛꯅ ꯂꯩꯍꯗꯒꯤ ꯕꯣꯍꯏ ꯒꯣꯟꯗꯔꯕꯤ (ꯅꯕꯣꯌ ꯑꯗꯨ NEER-ꯒꯤ ꯅꯥꯏ) ꯑꯃꯁꯨꯡ 351 mm ꯑꯁꯤ Silchar (Kumbhigram)-ꯒꯤ ꯈꯣꯝꯖꯤꯟꯗ, 2 ꯖꯨꯟ 1974-ꯗ 350.6 mm (IMD, *Extremes*), ꯃꯊꯛꯌ ꯂꯦꯡꯗꯗ ꯌꯥꯎꯈꯤꯕꯤ॥ MN-C ꯑꯁꯤ ꯏꯂꯣꯟ ꯆꯤꯡꯊꯡ ꯑꯗꯨꯃꯛ ꯑꯃꯁꯨꯡ MN-C1 ꯑꯁꯤ ꯏꯂꯦꯛ ꯅꯕꯣꯌ ꯑꯗꯨꯃꯛ ꯑꯃꯈꯕꯕ ꯃꯍꯥꯏꯕꯨ ꯃꯕꯤꯅꯨꯂꯗ ꯅꯨꯂꯛꯕꯤ, ꯃꯂꯍ ꯑꯗꯨꯕ ꯕꯥꯡ ꯂꯤꯈꯒꯤ ꯊꯥꯗꯛ ꯑꯃꯕ ꯈꯌꯣꯛꯄꯒꯤ ꯐꯃꯍꯒꯤ ꯃꯕꯛ ꯑꯕꯤꯃꯛꯌ ꯃꯗꯕꯕ ꯅꯥꯍ॥ ꯈꯌꯣꯈꯗꯒꯤ ꯃꯤꯄ ꯑꯃ ꯕꯗꯂꯃꯤꯃꯁꯤ, ꯑꯌꯥꯅꯥ AEP-ꯈꯤꯡ ꯑꯁꯤ NIH-DHAARA-ꯒꯤ ꯕꯕꯣ, ꯌꯃꯣꯡꯕꯡ ꯑꯃꯁꯨꯡ ꯕꯤꯂꯤꯏꯍ ꯈꯣꯟꯈꯤꯡꯗ ꯕꯏ **ꯒꯂꯥꯊ ꯐꯂꯒꯐꯤ (growth curve) ꯃꯑꯥꯡ, ꯒꯣꯟꯗꯔꯣꯂꯣꯠ ꯕꯄꯌꯣ,** ꯈꯤꯕꯤꯗꯕꯗꯕ 320 mm-ꯗꯒꯤ ꯈꯐꯣꯟ ꯌꯥꯎ, AEP ꯂꯗꯤꯡꯃꯌꯣ ꯄꯨꯡ 24-ꯒꯤ ꯗꯣꯛꯊꯗ ꯆꯐꯤ 50-ꯒꯤ ꯗꯣꯛꯊꯕ ꯅꯔꯗꯥꯛꯕꯒꯤ: ꯆꯐꯤ 2, 5, 10, 25, 50 ꯑꯃꯁꯨꯡ 100-ꯗ 0.396, 0.589, 0.718, 0.880, 1.000 ꯑꯃꯁꯨꯡ 1.122, ꯈꯣꯟ ꯑꯐꯍꯒꯤ ꯃꯂꯌꯣ ꯅꯕꯣꯌꯗꯒꯤ ꯆꯦꯔꯕ, ꯃꯍꯥꯏ 0.012-ꯒꯤ ꯃꯈꯨꯡꯗ ꯅꯕꯤ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯐꯪꯂꯕ ꯌꯥꯎꯗꯤ; ꯂꯣꯈꯤꯑꯥꯈꯤꯡ NEER-ꯒꯤ ꯐꯤꯇꯕ), 5 mm-ꯗ ꯃꯊꯛꯌ ꯂꯦꯡꯗꯗ ꯌꯥꯎꯂꯒꯦ:

AEP (ꯂꯤꯌꯂꯗ ꯅꯤꯂꯤꯍꯗ)	50% (2-yr)	20% (5-yr)	10% (10-yr)	4% (25-yr)	2% (50-yr)	1% (100-yr)
ꯄꯨꯡ 24-ꯒꯤ ꯗꯣꯛꯊ, MN-C ꯑꯃꯁꯨꯡ MN-C1	130 mm	190 mm	230 mm	285 mm	320 mm	360 mm

MN-C1-ꯗ, ꯆꯤꯍꯕ ꯕꯛꯕꯏ ꯏꯂꯦꯛ ꯌꯍꯅꯤꯡꯕꯒꯤ ꯂꯨꯟꯕ ꯈꯤꯕꯤꯗꯕꯏ ꯈꯌꯣꯈꯗꯈꯤꯡ Silchar (42619, ꯕꯥꯡ ꯂꯏꯒꯤ ꯗꯣꯌ 1901–2012) ꯑꯃꯁꯨꯡ Silchar (Kumbhigram) (A) (42620, ꯕꯥꯡ ꯂꯏꯒꯤ ꯗꯣꯌ 1957–1990)-ꯒꯤ IMD-ꯒꯤ ꯆꯐꯤ ꯂꯗꯤꯡꯒꯤ ꯅꯕꯣꯌꯗꯒꯤ ꯆꯦꯡꯏ ꯖꯨꯃꯌꯐꯤ ꯈꯣꯂꯤꯕꯈꯤꯡꯒꯤ ꯃꯂꯌꯣ ꯐꯣꯗꯕ ꯆꯦꯔꯕ ꯑꯗꯨꯗꯒꯤ (d)-ꯒꯤ ꯒꯍꯏꯣꯟ ꯑꯣꯈꯌꯤꯃꯌ, ꯐꯕꯕ 2.6.3-ꯒꯤ ꯃꯤꯑꯈꯗ-ꯅꯗꯌꯂꯒꯣꯟ ꯃꯣꯑꯌꯂꯒꯦ ꯕꯍꯕꯕ, ꯈꯣꯍꯕꯏ ꯃꯌꯨꯡꯗ ꯆꯐꯤ 2, 5, 10 ꯑꯃꯁꯨꯡ 25-ꯒꯤ ꯒꯣꯟꯗꯔꯣꯂꯣꯠꯀꯤ ꯃꯐꯤꯡ ꯈꯤꯟꯕꯤ, ꯑꯃꯁꯨꯡ 2% ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯗꯣꯛꯊꯈꯤꯡ 320 mm ꯑꯃꯁꯨꯡ 351 mm-ꯗꯒꯤ ꯐꯗꯥꯛꯗꯂ ꯐꯗꯊꯐꯟꯕꯅ; **MN-C**-ꯗ (d) ꯃꯅꯥꯗ ꯌꯃꯣꯡꯕꯡ ꯕꯌꯂꯒꯦ ꯕꯕꯣꯒꯤ ꯒꯣꯕ ꯑꯃꯒꯤ ꯃꯤꯌ ꯑꯃꯕ ꯃꯈꯤꯃꯑ ꯌꯥꯎ॥ ꯃꯁꯤ CWC ꯂꯤꯅꯥꯂꯌ ꯑꯃꯌꯌꯕ ꯍꯥꯗꯕ ꯆꯤꯡꯈꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯕꯣꯌ ꯑꯃꯒꯤꯗꯃꯑ ꯅꯗꯌꯂꯤꯍ ꯂꯨꯟ ꯑꯃꯕꯤ, ꯃꯍꯥꯏꯒꯤꯗꯃꯑ ꯑꯌꯥꯅꯥ ꯐꯂꯑꯃꯍ ꯑꯃꯌꯌꯕ ꯕꯌꯏꯕ ꯃꯨꯡꯍꯣꯟ ꯑꯁꯤꯕ ꯊꯍꯏꯕꯤ॥ ꯃꯁꯤ ꯕꯗ ꯑꯁꯤꯗ ꯈꯣꯝꯖꯤꯟꯗ ꯌꯥꯎꯗꯤ ꯕꯥꯡ ꯂꯏ ꯂꯗꯤꯡꯃꯌꯣꯒꯤ ꯆꯦꯡꯅ: ꯈꯌꯣꯈꯗꯒꯤ ꯃꯥꯡꯗꯥꯛꯅꯏ ꯅꯕꯣꯌꯗꯒꯤ ꯆꯦꯔꯕ ꯖꯨꯃꯌ ꯑꯁꯤ **15 ꯖꯨꯂꯥꯏ 2025-ꯗ ꯅꯨꯃꯤꯗꯥꯡ "ꯊꯥꯕꯒꯤ ꯑꯐꯤꯡꯗ" ("on Tuesday night") 225 mm**-ꯕꯤ, IMD ꯅꯍꯤꯠꯀꯤ ꯑꯥꯃꯤꯈꯤꯍꯣꯟꯈꯤꯡꯒꯤ ꯃꯌꯨꯡ ꯅꯗꯕ "ꯃꯕꯤꯅꯨꯂꯒꯤ ꯈꯣꯝꯖꯤꯟꯗ ꯌꯥꯎꯕ ꯅꯨꯄꯤꯂꯗ ꯅꯕꯣꯌꯗꯒꯤ ꯆꯦꯡꯏ" ("the highest ever in Manipur's recorded history") (ꯅꯥꯗꯗ ꯃꯥꯡꯗꯥꯛꯅꯏ ꯃꯌꯨꯡ ꯅꯗꯕ; ꯃꯈꯤꯒꯤ ꯗꯍꯂꯣꯈꯗ ꯑꯃꯁꯨꯡ ꯒꯣꯕ ꯃꯥꯡꯗꯥꯛꯌꯣ [U]), ꯌꯣꯏꯅꯒꯤ ꯆꯐꯤ 10-ꯒꯤ ꯒꯣꯟꯗꯔꯒꯤ ꯍꯦꯟꯅ॥ NIH-DHAARA-ꯒꯤ ꯈꯣꯟꯈꯤꯡꯕ ꯆꯐꯤ 50-ꯗ ꯕꯕꯣꯗ 306 mm, ꯌꯃꯣꯡꯕꯡꯗ 431 mm ꯑꯃꯁꯨꯡ ꯕꯤꯂꯤꯏꯍꯗ 491 mm ꯑꯣꯏꯈꯤ, ꯈꯣꯝꯖꯤꯟꯗ ꯑꯗꯨꯒꯤ ꯆꯥꯡ 1.4-ꯗꯒꯤ 2.2 ꯃꯦꯔꯕ ꯑꯃꯁꯨꯡ ꯆꯥꯡ 30 km ꯕꯥꯅꯥ Silchar-ꯒꯤ IMD ꯈꯣꯝꯖꯤꯟꯗꯈꯤꯡꯗꯒꯤ ꯐꯗꯕ (NEER-ꯕ ꯊꯤꯍꯤꯏ ꯕꯥꯅꯥ); ꯃꯍꯥꯏ ꯑꯁꯤ ꯆꯥꯡꯗꯝꯅꯕꯒꯤ ꯁꯥꯌꯒꯤꯗꯃꯛ ꯂꯤꯅꯥꯂꯌ ꯌꯥꯎ (m)॥ IMD Das et al. (2022)-ꯒꯤ ꯐꯂꯒꯈꯤꯡ ꯃꯃꯍ ꯑꯁꯤꯗ ꯈꯤꯕꯤꯗꯕꯗꯣ (n)॥

- (iii) **ꯑꯍꯥꯡ, ꯕꯥꯅꯥꯛ ꯑꯃꯁꯨꯡ ꯅꯒꯤ ꯆꯤꯡꯈꯤꯡ (MN-B): ꯌꯍꯅꯤꯡꯕꯒꯤ ꯃꯕꯥꯂꯒꯦ ꯕꯍꯕꯕ NIH-DHAARA.** AEP ꯂꯗꯤꯡꯃꯌꯣ ꯄꯨꯡ 24-ꯒꯤ ꯗꯣꯛꯊ ꯑꯁꯤ **ꯈꯅꯌꯐꯤ ꯈꯣꯟꯒꯤ NIH-DHAARA ꯒꯣꯟꯗꯔ ꯑꯃꯁꯨꯡ AEP ꯑꯗꯨꯃꯛꯐꯤꯗꯃꯛ (c)(i)-ꯒꯤ MN-A ꯒꯣꯟꯗꯔꯒꯤ ꯃꯂꯌꯣ ꯐꯣꯗꯕ ꯆꯦꯔꯕ ꯑꯗꯨꯕꯤ**॥ ꯃꯂꯣꯒꯤ ꯈꯣꯟꯕ ꯗꯣꯌ ꯑꯃꯌꯌ ꯅꯤꯍꯤꯗꯣ, ꯑꯃꯁꯨꯡ ꯃꯂꯣꯕ ꯆꯦꯗꯣꯟ ꯈꯣꯟ ꯈꯤꯕꯤꯗꯕ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯐꯪꯂꯕ ꯌꯥꯎꯗꯤ)॥ ꯃꯁꯤ ꯈꯌꯣꯌ ꯑꯁꯤꯗ NIH-DHAARA-ꯕ ꯗꯤꯕꯅꯗ ꯒꯣꯟꯗꯔ ꯅꯤꯏ ꯈꯏ-ꯑꯣꯂꯤꯆ ꯑꯃꯅꯑꯌꯕꯤ, ꯑꯃꯁꯨꯡ (a) ꯕꯌꯂꯒꯦ (d) ꯃꯅꯥꯗ ꯈꯌꯣꯈꯗꯒꯤ ꯃꯤꯌ ꯑꯃꯕ ꯃꯃꯍ ꯑꯗꯨꯗ ꯃꯈꯤꯒꯤ ꯃꯐꯤꯡ ꯈꯤꯟꯕꯤ॥ ꯈꯌꯣꯈꯗ, ꯅꯕꯣꯌ ꯕꯌꯂꯒꯦ ꯈꯌꯗꯤ ꯑꯃꯌꯌꯕ ꯆꯤꯡ ꯑꯁꯤꯈꯤꯡ ꯍꯥꯗꯣ, ꯑꯃꯁꯨꯡ ꯃꯃꯍ ꯑꯗꯨꯗ NIH-DHAARA ꯆꯣꯑ ꯌꯥꯎ ꯊꯍꯗꯣ, ꯑꯗꯨꯕ ꯃꯁꯤꯕ ꯆꯣꯑ ꯑꯃꯌꯌꯗꯂ ꯃꯣꯟ ꯌꯥꯎꯗꯣ: ꯃꯁꯤꯒꯤ MN-B ꯈꯣꯟꯈꯤꯡꯕ ꯆꯐꯤ 50-ꯗ ꯄꯨꯡ 24-ꯗ ꯐꯤꯡꯅꯥꯛꯅꯤꯗ 220 mm, ꯈꯣꯕꯥꯅꯥꯗ 203 mm, ꯆꯦꯗꯣꯟꯗ 185 mm, ꯂꯨꯆꯦꯗꯣꯅꯥꯂꯗ 183 mm ꯑꯃꯁꯨꯡ ꯂꯥꯏꯂꯨꯟꯗ 182 mm ꯑꯣꯏꯈꯤ, ꯌꯍꯅꯤꯡꯕꯒꯤ ꯌꯣꯏꯅꯒꯤ ꯆꯥꯡ 1.0-ꯗꯒꯤ 1.25 ꯃꯦꯔꯕ, ꯑꯗꯨꯒꯦ MASTEC-ꯒꯤ ꯊ ꯂꯗꯤꯡꯒꯤ ꯅꯨꯍꯕꯃꯑꯈꯤꯡꯕ ꯆꯤꯡꯈꯤꯡꯗ ꯌꯍꯅꯤꯡꯕꯒꯤ ꯆꯥꯡ 1.3-ꯗꯒꯤ 1.5 ꯃꯦꯔꯕ ꯊꯍꯕꯤ (ꯖꯨꯂꯥꯏ 1989-ꯗ, ꯐꯤꯡꯅꯥꯛꯅꯤꯗ 617.6 mm ꯑꯃꯁꯨꯡ ꯈꯣꯑꯃꯅ ꯑꯃꯁꯨꯡ ꯆꯑꯅꯤꯒꯤ (Chakpi) ꯃꯊꯑꯒꯤ ꯐꯣꯆꯃꯣꯗꯌꯌ ꯆꯥꯡ 700

mm ꯃꯇꯥꯛ, ꯍꯀꯏꯥꯛꯗ 461.9 mm-ꯒꯤ ꯍꯃꯗꯀꯅꯕꯗ; MASTEC; ꯄꯦꯑꯤꯋꯥꯑꯤꯃ NEER-ꯒꯤ ꯌꯤꯑꯦꯕ)॥ ꯌꯀꯂꯤꯋꯌ ꯂ꯭ꯅꯦꯋꯏꯥꯄꯀ ꯑꯑꯤꯅꯥ ꯍꯦꯃꯅꯥ ꯑꯥꯍꯍ, ꯀꯄꯀ ꯑꯁꯅꯥ ꯍꯤꯃꯑꯤꯃꯗ ꯌꯀꯂꯤꯋꯀꯤ ꯌꯦꯕꯛ ꯏ꯭ꯅꯥꯄ ꯑꯥꯍꯅꯥ ꯅꯁꯅꯥ ꯀꯑꯤ ꯅꯕꯅꯥ ꯑꯑꯥꯍꯕ ꯅꯌꯕ ꯀꯍꯀꯗ ꯑꯥꯍꯍ (ꯀ꯭ꯅꯥꯅ 2.3-ꯒꯤ ꯑꯏꯗꯥꯋꯅꯥ ꯌꯦꯋꯂꯤ)॥

- (d) **ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯞꯊꯀꯤꯗꯃꯛ ꯑ꯭ꯌꯦꯑꯏꯒꯤ ꯏꯤꯠꯑꯤꯃ.** ꯑꯥꯊꯥꯄꯤꯌꯤꯒ ꯍꯦꯅꯍꯤꯕ, ꯍꯌꯤ 30 ꯅꯠꯄꯒ ꯀꯁꯗꯒꯤ ꯌꯦꯏꯕ ꯅꯨꯃꯤꯠ ꯁꯗꯤꯃꯒꯤ ꯄꯦꯀꯥꯄꯗ ꯅꯤꯕ, (a)-ꯗ ꯂꯤꯄꯤꯕ ꯀꯌꯨꯃ ꯍꯏꯅ ꯍꯦꯋ ꯌꯦꯄꯕ IMD ꯑ꯭ꯌꯦꯑꯏꯒꯤ, ꯊ ꯂꯨꯀꯅꯀꯋꯀꯤ, ꯍꯌꯤ ꯁꯗꯤꯃꯒꯤ ꯍ꯭ꯕꯍꯗꯒꯤ ꯍꯦꯃꯕ ꯅꯨꯃꯤꯠꯀꯤ ꯅꯥꯃ ꯁꯕꯒꯤ ꯑꯦꯄꯤꯅꯗꯒꯤ ꯒꯀꯕꯦꯛ (EV1) ꯑꯦꯑ꯭ꯌꯤꯀꯦꯠ, ꯀ꯭ꯅꯥꯅ 2.6.3-ꯒꯤ ꯏꯤꯋꯑꯗ-ꯍꯏꯌꯄꯒꯦꯛ ꯏꯦꯋꯌꯄꯅꯥ ꯀꯛꯌꯤꯂꯅꯥꯍ ꯌꯦꯄꯒ: MN-A ꯑꯃꯁꯨꯡ MN-A1-ꯒꯤꯗꯀꯋ Imphal (Tulihal), AEP ꯁꯗꯤꯃꯀꯋꯌ, (c)(i) ꯃꯈꯥꯗ; MN-C1-ꯒꯤꯗꯀꯋ Silchar ꯑ꯭ꯌꯦꯑꯏ ꯑꯅꯤ, 50%-ꯗꯒꯤ 4% AEP ꯏꯁꯕ, (c)(ii) ꯃꯈꯥꯗ; ꯑꯃꯁꯨꯡ MN-C-ꯒꯤꯗꯀꯋ ꯌꯀꯦꯃꯅꯥꯃ ꯅꯠꯄꯒ ꯅꯥꯅꯦꯗ ꯅꯤꯕ ꯒꯦꯅ ꯑꯀ, ꯅꯠꯄꯒ MN-B-ꯒꯤꯗꯀꯋ ꯑꯥꯊꯥꯄꯤꯌꯤꯒ ꯍꯦꯅꯍꯤꯕ ꯒꯦꯅ ꯑꯀ, ꯀꯑꯤꯒꯤ ꯄꯦꯀꯥꯄꯗ ꯀꯏꯏꯄꯀ ꯌꯦꯄꯕ ꯀꯌꯨꯃꯗ [TBC]॥ ꯀꯦꯅꯨꯔꯦꯛ ꯑꯑꯤꯒꯤꯗꯀꯋ ꯑ꯭ꯌꯦꯠ ꯑꯑꯤꯒꯤ ꯀꯄꯤꯒꯨꯀꯕ ꯑ꯭ꯌꯦꯑꯏ ꯑꯀꯒꯤ IMD ꯑꯦꯄꯤꯅꯗ ꯒꯀꯕꯦꯛ ꯏꯤꯠ ꯑꯀꯠꯌ ꯏꯃꯍꯤꯗꯦ [TBC]; (c)(i)-ꯒꯤ ꯏꯤꯠ ꯑꯑꯤ NEER-ꯒꯤꯅꯤ, MASTEC-ꯒꯤ ꯑꯦꯄꯤꯅꯗ॥ (h) ꯃꯈꯥꯗ ꯅꯥꯊꯥꯋꯍꯤꯕ ꯄꯦꯀꯥꯄꯗꯀꯤ ꯅꯨꯃꯤꯠ ꯑꯀ ꯑꯦꯄꯤꯅꯗꯒꯤ ꯅꯥꯊꯥꯀꯍ, ꯑꯃꯁꯨꯡ ꯀꯑꯤ ꯍꯦꯁꯕ ꯏꯤꯠ ꯑꯁ ꯀꯑꯤ ꯍꯦꯁꯗꯕ ꯏꯤꯠꯀꯤ ꯀꯅꯥꯋꯌ ꯏꯥꯄꯀ 2-1-ꯗ ꯄꯤꯂꯥꯄꯠ ꯌꯦꯍ (ꯀꯦꯅꯨꯔꯦꯛ ꯑꯑꯤꯅꯥ ꯊꯀꯕ)॥

- (e) **ꯄꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯗꯦꯞꯊꯁꯤꯡ.** (d)-ꯒꯤ ꯑ꯭ꯌꯦꯑꯏꯒꯤ ꯍꯌꯤ ꯁꯗꯤꯃꯒꯤ ꯍ꯭ꯕꯍꯗꯒꯤ ꯍꯦꯃꯕ ꯅꯨꯃꯤꯠ 2 ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠ 3-ꯒꯤ ꯅꯥꯃ ꯁꯕꯒꯤ ꯑꯦꯄꯤꯅꯑꯤꯃꯗꯒꯤ ꯒꯀꯕꯦꯛ ꯑꯦꯑ꯭ꯌꯤꯀꯦꯠ, ꯀ꯭ꯅꯥꯅ 2.6.3-ꯒꯤ ꯏꯤꯋꯑꯗ-ꯍꯏꯌꯄꯒꯦꯛ ꯏꯦꯋꯌꯄꯑꯤꯃꯒ ꯅꯥꯍꯅꯅ, ꯑꯃꯁꯨꯡ (h) ꯃꯈꯥꯗ ꯍꯦꯋ ꯌꯦꯄꯕ ꯀꯌꯨꯃ ꯍꯏꯅ AEP ꯑꯁꯀꯋꯀꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯞꯊꯗꯒꯤ ꯅꯦꯀꯗꯅꯥ॥ ꯑꯦꯄꯤꯅ ꯑꯁꯑꯤꯃ ꯏꯃ꯭ꯁꯄꯤꯏꯁꯕ, **ꯄꯨꯡ 72-ꯒꯤ ꯗꯦꯞꯊ ꯑꯑꯤ (c)-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯞꯊꯁ ꯅꯥꯏ MN-Z1 ꯑꯃꯁꯨꯡ MN-Z3-ꯗ 1.70-ꯅꯥ ꯑꯃꯁꯨꯡ ꯅꯥꯏ MN-Z2-ꯗ 1.85-ꯅꯥ ꯀꯛꯌꯤꯂꯅꯥꯍ ꯌꯦꯕꯅꯤ**, ꯑꯃꯁꯨꯡ ꯄꯨꯡ 48-ꯒꯤ ꯗꯦꯞꯊ ꯑꯑꯤ ꯅꯥꯒꯄꯤꯊꯀꯤꯋ ꯑꯦꯋꯑꯤꯑꯌ ꯄꯨꯡ 24 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯗꯦꯞꯊꯑꯤꯃꯒꯤ ꯀꯄꯋꯌ ꯍꯏꯌꯄꯂꯥꯅꯦꯠ ꯌꯦꯍ (ꯀꯦꯅꯨꯔꯦꯛ ꯑꯑꯤꯅꯥ ꯊꯀꯕ)॥ ꯏꯦꯋꯌꯄꯑꯤꯃ ꯑꯑꯤ ꯅꯥꯏ ꯁꯗꯤꯃꯀꯋꯌ NIH-DHAARA-ꯒꯤ ꯑꯦꯛꯑꯤꯃꯒꯤ ꯄꯨꯡ 72 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯒꯤ ꯄꯦꯑꯤꯑꯥꯑꯤꯃꯒꯤ ꯑ꯭ꯂꯂꯄ ꯑꯦꯅꯒꯦꯅꯥꯂ (upper envelope), 0.05-ꯗ ꯀꯊꯋꯌ ꯄꯤꯁꯏꯗ ꯌꯦꯄꯕꯅꯤ, ꯌꯀꯂꯤꯋꯌ 1.57–1.67, MN-B-ꯗ 1.64–1.82 ꯑꯃꯁꯨꯡ ꯅꯥꯃꯁꯂꯀꯤ ꯍꯤꯃꯑꯤꯃ ꯑꯃꯁꯨꯡ ꯅꯤꯄꯤꯕꯀꯗ 1.63–1.69 (NIH-DHAARA, 14 Nov 2026-ꯗ ꯀ꯭ꯍꯦꯄꯤ ꯌꯦꯍꯤꯕ; ꯄꯦꯑꯤꯑꯥꯑꯤꯃ NEER-ꯒꯤ ꯌꯤꯑꯦꯕ): ꯂ꯭ꯅꯦꯋꯏꯥꯄꯀꯒꯤ ꯀꯑꯥꯃ, ꯒꯦꯛꯁꯨꯑꯤꯃ ꯅꯠꯌꯦ॥ ꯃꯍꯥꯔ ꯌꯅꯤꯋ ꯀꯊꯦ ꯌꯦꯄꯤ ꯀꯄꯀꯗꯤ ꯌꯀꯂꯤꯋꯀꯤ ꯍꯑꯤꯃ ꯍꯍꯦꯁꯑꯤꯃ ꯑꯑꯤ ꯅꯨꯃꯤꯠ ꯀꯍꯦꯒꯤ ꯒꯥꯅꯨꯀꯒꯤ ꯊꯦꯗꯥꯋꯑꯤꯃꯅꯤ: 28 ꯅꯨꯅꯥꯍꯗꯒꯤ 1 ꯑꯒ꯭ꯑꯠ 1989 ꯏꯁꯕ, 22-ꯗꯒꯤ 28 ꯑꯦꯂ꯭ꯌꯦꯀꯕꯄ 1997 ꯏꯁꯕ, 24 ꯑꯒ꯭ꯑꯠꯌꯒꯤ 3 ꯑꯦꯂ꯭ꯌꯦꯀꯕꯄ 1999 ꯏꯁꯕ ꯑꯃꯁꯨꯡ 26 ꯑꯒ꯭ꯑꯠꯌꯒꯤ 6 ꯑꯦꯂ꯭ꯌꯦꯀꯕꯄ 2000 ꯏꯁꯕ ꯁꯍꯤꯕ ꯅꯥꯃꯅꯥ MASTEC-ꯅꯥ ꯄꯦꯀꯥꯄꯗ ꯌꯦꯍꯤꯕ ꯍꯑꯤꯃ ꯍꯍꯦꯁꯑꯤꯃ ꯂꯨꯄꯋꯍꯤ (MASTEC); ꯍꯦꯌꯄ ꯄꯤꯑꯥꯄꯑꯦꯑ ꯗꯤꯂꯥꯄꯠꯀꯦꯏꯠꯀꯤ ꯏ꯭ꯅꯥꯗ ꯑꯦꯛꯅꯥ ꯀꯃꯂꯥꯋꯂꯤꯗ "ꯅꯨꯃꯤꯠ 3-ꯗ 135 mm" ("135 mm in 3 days") ꯑꯑꯤꯅꯥ ꯌꯀꯂꯤꯋꯌ ꯍꯑꯤꯃ ꯍꯍꯦꯁ ꯂꯨꯄꯀꯍ ꯌꯔꯅꯥ ꯅꯥꯍ ꯌꯔꯅꯥ ꯏꯥꯃꯗꯥꯋꯅꯤ, ꯑꯃꯁꯨꯡ 30–31 ꯀꯦ 2025-ꯗ ꯀꯃꯂꯥꯋꯂꯤꯗ ꯄꯨꯡ 72-ꯗ 175 mm ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯗ 123 mm ꯁꯍꯤ (ꯂꯤꯁꯗ ꯏꯥꯃꯗꯥꯋꯍꯤꯕ ꯀꯌꯨꯃ ꯍꯏꯅ); ꯑꯃꯁꯨꯡ ꯀ꯭ꯅꯥꯅ 5.10-ꯒꯤ ꯑꯁꯠꯏꯥꯛ (outfall) ꯊꯤꯃꯅꯕ ꯀꯌꯀꯒꯤ ꯍꯦꯋ ꯑꯑꯤꯅꯥ ꯄꯨꯡ 72-ꯒꯤ ꯗꯦꯞꯊ ꯀꯊꯥ ꯌꯦꯍ॥

- (f) **ꯄꯨꯡ 1-ꯗꯒꯤ 24 ꯏꯁꯕꯒꯤ ꯗꯤ꯭ꯁꯨꯄꯦꯑꯏꯑꯤꯃ.** (h)-ꯒꯤ ꯍꯦꯋꯀꯤ ꯀꯀꯃꯗ, (c) ꯅꯠꯄꯒ (d)-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯞꯊꯁ AEP ꯁꯗꯤꯃꯀꯋꯌ ꯑꯍꯠꯀꯤ ꯑꯕ-ꯑꯦꯄꯤꯍꯤꯒꯤꯗꯀꯋ ꯌꯦꯕꯛ 2B.1-ꯒꯤ ꯄꯦꯑꯤꯑꯥꯑꯤꯃꯅꯥ ꯀꯛꯌꯤꯂꯅꯥꯍ ꯌꯦꯕ (ꯂꯨꯀꯅꯀꯋ ꯀꯦꯅꯨꯔꯦꯛ ꯑꯑꯤꯅꯥ ꯊꯀꯕ):

    - ꯑꯕ-ꯑꯦꯄꯤꯍꯤꯑꯤꯃ **MN-A** (ꯍꯀꯏꯛ ꯌꯀꯂꯤꯋꯀꯤ ꯅꯥꯀꯍ), **MN-A1** (ꯅꯥꯋꯌꯋꯀꯤ ꯀꯅꯥꯋ), **MN-B** (ꯑꯍꯃ, ꯅꯥꯃꯂꯥꯋ ꯑꯃꯁꯨꯡ ꯍꯥꯒꯤ ꯍꯤꯃꯑꯤꯃ) ꯑꯃꯁꯨꯡ **MN-C** (ꯅꯥꯃꯁꯂꯀꯤ ꯍꯤꯃꯑꯤꯃ)-ꯗ, **ꯀꯅꯤꯂꯨꯄꯒꯤ ꯍꯏꯌꯄꯤꯀ ꯄꯦꯑꯤꯑꯥꯑꯤꯃ: ꯄꯨꯡ 1-ꯗ 0.33, ꯄꯨꯡ 2-ꯗ 0.51, ꯄꯨꯡ 3-ꯗ 0.59, ꯄꯨꯡ 6-ꯗ 0.74, ꯄꯨꯡ 9-ꯗ 0.81, ꯄꯨꯡ 12-ꯗ 0.85, ꯄꯨꯡ 15-ꯗ 0.89 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 18-ꯗ 0.94**, ꯃꯍꯥꯔ ꯑꯑꯤ ꯗꯤ꯭ꯁꯨꯄꯦꯑꯏ ꯁꯗꯤꯃꯀꯋꯌ, ꯀꯅꯤꯂꯨꯄ ꯕꯦꯑꯤꯏ ꯑꯃꯁꯨꯡ ꯅꯥꯃꯁꯂꯀꯤ ꯍꯤꯃꯑꯤꯃꯒꯤ NIH-DHAARA ꯑꯦꯛ ꯌꯄꯅꯤꯊꯥꯍꯒꯤ (ꯍꯀꯏꯛ, ꯕꯤꯑ꯭ꯅꯂꯨꯄ, ꯀꯥꯍꯄꯃ, ꯊꯥꯕꯦꯛ, ꯀꯃꯂꯥꯋꯂꯤ, ꯑꯦꯅꯂꯌꯤ, ꯁꯍ꯭ꯂꯛ, ꯍꯏꯗꯦꯛ, ꯁꯄꯍꯏꯗꯂꯨꯄ, ꯅꯥꯅꯦ ꯑꯃꯁꯨꯡ ꯌꯀꯦꯃꯅꯥꯃ; ꯄꯨꯡ 3, 6 ꯑꯃꯁꯨꯡ 15-ꯒꯤ ꯒꯦꯛꯁꯨꯑꯤꯃ ꯂ꯭ꯅꯦꯋꯏꯥꯄꯀꯒꯤ ꯄꯨꯡ 2, 4, 8, 12 ꯑꯃꯁꯨꯡ 18-ꯒꯤ ꯗꯤ꯭ꯁꯨꯄꯦꯑꯏꯑꯤꯃꯒꯤ ꯀꯄꯋꯌ ꯅꯥꯒꯄꯤꯊꯀꯤꯋ ꯑꯦꯋꯑꯤꯑꯌ ꯍꯏꯌꯄꯂꯥꯅꯦꯠ ꯌꯦꯄꯕ) ꯍꯌꯤ 50-ꯒꯤ ꯗꯤ꯭ꯁꯨꯄꯦꯑꯏ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯒꯤ ꯄꯦꯑꯤꯑꯥꯑꯤꯃ ꯑꯃꯁꯨꯡ ꯑꯕꯅꯥꯏ 2(a), North Brahmaputra-ꯒꯤ CWC ꯄꯤꯂꯥꯄꯠꯀꯤ ꯄꯦꯑꯤꯑꯥꯑꯤꯃ, ꯄꯨꯡ 1-ꯗ 0.260, ꯄꯨꯡ 2-ꯗ 0.370, ꯄꯨꯡ 3-ꯗ 0.457, ꯄꯨꯡ 6-ꯗ 0.615, ꯄꯨꯡ 9-ꯗ 0.720, ꯄꯨꯡ 12-ꯗ 0.805, ꯄꯨꯡ 15-ꯗ 0.875 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 18-ꯗ 0.930 (CWC, NB/18/1991, §3.1.2, p. 24, ꯑꯃꯁꯨꯡ Fig. 10, ꯀꯑꯤꯅꯥ ꯄꯨꯡ 2-ꯒꯤ ꯒꯦꯛꯁꯨ ꯂꯤꯄꯤ), ꯃꯍꯥꯔꯒꯤ ꯑ꯭ꯂꯂꯄ ꯑꯦꯅꯒꯦꯅꯥꯂ, 0.01-ꯗ ꯀꯊꯋꯌ ꯄꯤꯁꯏꯗ ꯌꯦꯄꯕꯅꯤ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯀ꯭ꯍꯦꯄꯤ ꯌꯦꯍꯤꯕ; ꯑꯦꯅꯒꯦꯅꯥꯂ NEER-ꯒꯤ ꯌꯤꯑꯦꯕ); ꯑꯃꯁꯨꯡ
    - ꯑꯕ-ꯑꯦꯄꯤꯍ **MN-C1** (ꯅꯤꯄꯤꯕꯀ ꯂ꯭ꯅꯦꯅꯥꯏ)-ꯗ, 2(b) ꯄꯤꯂꯥꯄꯠꯀꯤ ꯄꯦꯑꯤꯑꯥꯑꯤꯃ: ꯄꯨꯡ 1-ꯗ 0.48, ꯄꯨꯡ 3-ꯗ 0.62, ꯄꯨꯡ 6-ꯗ 0.74, ꯄꯨꯡ 9-ꯗ 0.81, ꯄꯨꯡ 12-ꯗ 0.87, ꯄꯨꯡ 15-ꯗ 0.91 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 18-ꯗ 0.95, ꯄꯤꯂꯥꯄꯠꯀꯤ ꯄꯦꯀꯥꯄꯗꯤꯃ ꯒꯦꯅ ꯌꯁ꯭ꯄꯋꯀꯤ ꯄꯨꯡ ꯁꯗꯤꯃꯒꯤ ꯄꯦꯀꯥꯄꯗꯑꯤꯃꯒꯤ ꯂꯤꯄꯑꯤꯍꯦꯛ-ꯗꯤ꯭ꯁꯨꯄꯦꯑꯏ ꯑꯦꯅꯥꯅꯥꯍꯑꯤꯑ ꯑꯀꯗꯒꯤ ꯍꯌꯤ 10-ꯒꯤ t-ꯄꯨꯡ ꯑꯃꯁꯨꯡ ꯍꯌꯤ 10-ꯒꯤ ꯄꯨꯡ

> 24-ꯒꯤ ꯄꯨꯡ ꯁ꯭ꯇꯦꯁꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ, "T=5 ꯆꯍꯤꯗꯒꯤ ꯍꯦꯟꯅ ꯑꯦꯚꯔꯦꯖ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯃꯆꯥꯎ-ꯃꯑꯣꯡꯗꯥ ꯆꯞ ꯃꯥꯟꯅꯈꯤ" ("the average ratios beyond T=5 years were comparable in magnitude") ꯍꯥꯏꯔꯕꯗꯥ ꯔꯤꯄꯣꯔꯠ ꯄꯤꯔꯤꯕ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡꯒꯤ ꯑꯦꯚꯔꯦꯖꯁꯤꯡ ꯔꯦꯁꯤꯑꯣꯁꯤꯡꯗ ꯌꯥꯕꯤ (CWC, 2(b), §4.3.2 ꯑꯃꯁꯨꯡ Table 4.1, p. 20)॥

ꯑꯦꯚꯔꯦꯖꯗꯥ ꯑꯁꯤ ꯄꯨꯡ 1 ꯑꯃꯁꯨꯡ 2-ꯗ ꯊꯣꯡꯕꯅ ꯂꯦꯡꯕꯥ, ꯄꯨꯡ 3-ꯗ ꯍꯦꯟꯗꯦꯡꯅ ꯂꯦꯡꯕꯥ, ꯄꯨꯡ 6-ꯗꯒꯤ 15 ꯖꯤꯜꯂꯥ ꯆꯥꯆꯦ ꯂꯦꯡꯕꯥ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 18-ꯗ ꯇꯤꯂꯨꯞꯄꯨꯔ ꯂꯦꯡꯕꯥ ꯊꯝꯆꯤ, 2(a)-ꯗꯒꯤ ꯅꯥꯕ ꯍꯦꯟꯕꯥ (NEER-ꯒꯤ ꯍꯤꯔꯦꯇ); NIH-DHAARA ꯑꯁꯤ ꯃꯑꯣꯡꯒꯤꯗꯃꯛ ꯂꯤꯆꯤꯡꯕꯥ, ꯒꯦꯅꯁ꯭ꯂꯤꯡꯒꯤꯗꯃꯛ ꯆꯥꯡꯕꯦ॥ ꯂꯦꯅꯂꯤꯡꯒꯤ ꯃꯂꯣꯒꯤ ꯄꯨꯡ 1-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯌꯥꯝꯂꯕꯥ 0.29−0.33 (ꯅꯥꯃꯖꯤꯟ 0.31), ꯑꯍꯦꯡ ꯑꯃꯁꯨꯡ ꯆꯥꯄꯥꯟꯗꯥ ꯍꯤꯡꯂꯤꯡꯗ 0.20−0.22, ꯁ꯭ꯔꯤꯍꯦꯗꯄꯨꯔ ꯑꯃꯁꯨꯡ ꯍꯦꯗꯦꯡꯅꯗ 0.28−0.29, ꯆꯥꯡꯁ꯭ꯄꯥꯗꯤ ꯍꯤꯡꯂꯤꯡꯗ 0.27−0.31 ꯑꯃꯁꯨꯡ ꯇꯤꯔꯤꯇꯤꯃꯗ 0.22 (NEER-ꯒꯤ ꯍꯤꯔꯦꯇ)॥ 2(b) ꯂꯦꯌ ꯑꯁꯤ MN-C1-ꯒꯤ ꯃꯄꯥꯟꯗ ꯂꯤꯆꯤꯡꯕꯗꯦ, ꯃꯔꯃꯗꯤ ꯂꯌꯦꯌ ꯑꯁꯤ 2(b)-ꯗ ꯆꯌꯦ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯄꯨꯡ 1-ꯒꯤ ꯔꯦꯁꯤꯑꯣ 0.48 ꯑꯁꯤ ꯅꯇꯅꯗꯒꯤ ꯍꯦꯟꯇ ꯃꯆꯤꯄꯨꯔ ꯂꯦꯡꯒꯤ ꯍꯦ 1.45-ꯆꯤ; ꯄꯥꯆꯦꯌꯥ ꯑꯃꯗ ꯅꯦꯇ ꯑꯁꯤꯃꯛ ꯊꯥꯕꯅꯤꯇ ꯂꯦꯔꯤꯆ ꯑꯁꯤꯒꯤ ꯑꯦꯗꯤꯂꯦꯂꯤꯡꯕꯥ ꯃꯔꯝ ꯑꯁꯨꯃꯛꯇꯧꯕꯒꯤꯗꯃꯛ ꯃꯖꯝ ꯑꯁꯨꯗ ꯃꯂꯤ ꯍꯦꯅꯗꯦ॥ 2(a) ꯂꯦꯌ ꯑꯁꯤ ꯃꯂꯣ ꯃꯊꯦꯌꯥ ꯂꯤꯆꯤꯡꯕꯗꯦ, ꯃꯔꯃꯗꯤ ꯌꯥꯝꯂꯕꯥ ꯃꯂꯤꯒꯤ ꯄꯨꯡ 1-ꯒꯤ ꯔꯦꯁꯤꯑꯣ 0.26 ꯑꯁꯤ ꯌꯥꯝꯂꯕꯥ ꯂꯦꯟ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡꯒꯤ ꯆꯦꯃꯤ, ꯑꯃꯁꯨꯡ ꯅꯥꯃꯖꯤꯟꯒꯤ ꯄꯔꯤ-ꯃꯥꯍꯦꯡꯂꯦ ꯗꯍꯦꯒꯦꯌꯥꯒ ꯄꯨꯡ ꯁ꯭ꯇꯦꯁꯒꯤ ꯊꯣꯗꯥꯂꯤꯡꯕꯥ ꯑꯁ꯭ꯔꯃꯇ ꯒꯦꯅꯁ꯭ꯔ ꯑꯗꯨ ꯍꯦꯟꯕꯍꯦꯇ ꯍꯦꯅ; ꯑꯦꯚꯔꯦꯖꯗꯥ ꯑꯁꯤ ꯗꯔꯤꯄꯨꯃꯇ ꯗꯔꯔꯦꯂꯦ ꯑꯃꯌꯥꯗ 2(a)-ꯗꯒꯤ ꯗꯣꯗꯧꯗꯨ ꯆꯦꯃꯗꯦ॥ MN-A ꯌꯦꯇꯅꯗ ꯃꯆꯤꯄꯨꯔꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡꯕꯥ ꯍꯍꯤ 50-ꯗ ꯄꯨꯡ 1-ꯗ ꯍꯦꯡ 59 mm ꯃꯔꯥꯅ ꯄꯤꯔꯤ, NIH-DHAARA-ꯒꯤ ꯅꯥꯃꯖꯤꯟ ꯂꯦꯅꯒꯤ 72 mm-ꯒꯤ ꯍꯦꯡꯗꯃꯆꯇꯗ, ꯃꯗꯨ ꯃꯂꯤꯒꯤ ꯃꯆꯥꯌꯥ ꯔꯤꯄꯥꯔꯌ ꯌꯥꯅ; ꯅꯥꯃꯖꯤꯟꯒꯤ ꯃꯤꯆꯤꯌ 15-ꯒꯤ ꯔꯦꯗꯥꯔꯗ ꯑꯁꯤ (a)-ꯒꯤ ꯑꯍꯥꯆꯇ ꯗꯦꯌꯦ ꯔꯤꯗꯍꯦꯂꯌꯆꯤ॥ MN-C-ꯒꯤ 320 mm ꯖꯆꯔꯗ ꯃꯅꯥꯍꯥ ꯍꯦꯡ 106 mm ꯃꯔꯥꯅ ꯄꯤꯔꯤ, ꯆꯥꯡꯁ꯭ꯄꯥꯗꯤ ꯍꯤꯡꯂꯤꯡꯒꯤ ꯂꯦꯅꯂꯤꯡꯒꯤ 96−115 mm-ꯒꯤ ꯃꯔꯨꯡꯗ॥ **MN-C1**-ꯗ 2(b) ꯂꯦꯌ ꯑꯁꯤ ꯍꯦꯃꯆꯦ ꯆꯥꯆꯇ ꯇꯔꯦꯥ ꯌꯥꯝꯂꯕꯥ ꯈꯅꯕꯥ ꯄꯥꯆꯦꯂꯦ ꯑꯗꯨꯃꯥꯌ ꯂꯤꯆꯤꯡꯕꯇꯆꯤ, ꯃꯔꯃ ꯑꯗꯨꯆꯦ ꯂꯌꯦꯌꯗ ꯊꯃꯍꯨ ꯆꯦꯂꯊꯥꯄ ꯗꯍꯃꯦꯌ ꯑꯃꯆꯦ ꯈꯅ ꯑꯃꯅꯌꯥ ꯄꯥꯅ: 320 mm ꯖꯆꯔꯗ ꯃꯂꯤꯆꯦ ꯍꯍꯤ 50-ꯗ ꯄꯨꯡ 1-ꯗ ꯍꯦꯡ 154 mm ꯃꯔꯥꯅ ꯄꯤꯔꯤ, ꯇꯤꯔꯤꯇꯤꯃ ꯂꯦꯅꯗ NIH-DHAARA-ꯒꯤ 109 mm-ꯒꯤ ꯍꯦꯡ 1.4 ꯃꯔꯥꯅ, ꯃꯂꯤ ꯗꯦꯌꯦ ꯆꯌꯦꯇꯆꯦ ꯃꯅꯦ ꯊꯃꯇꯒꯤ ꯇꯔꯦꯥ ꯄꯥꯆꯦꯂꯦꯗ ꯍꯦꯅꯤꯇ ꯃꯔꯇꯤꯂꯦ ꯑꯃꯆꯤ (NEER-ꯒꯤ ꯍꯤꯔꯦꯇ)॥ ꯌꯦꯇꯅ ꯌꯥꯔꯇ ꯗꯔꯔꯦꯂꯦꯂꯤꯡꯒꯤ ꯃꯔꯥꯌ ꯔꯦꯁꯤꯑꯣ ꯑꯁꯤ ꯆꯒꯔꯤꯊꯃꯤꯥ ꯑꯥꯂꯤꯂꯌ ꯅꯦꯌꯔꯄꯥꯆꯦꯌ ꯌꯥꯅ; ꯔꯤꯄꯥꯔꯌꯆꯦ ꯄꯤꯗꯇ 2(b)-ꯒꯤ ꯄꯨꯡ 2-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯂꯨ ꯃꯑꯥꯡ ꯑꯗꯨꯃꯥꯌ ꯅꯦꯌꯔꯄꯥꯆꯦꯌ ꯌꯥꯅ॥ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯑꯁꯤ (h)-ꯒꯤ ꯍꯦꯥꯗꯤ ꯃꯃꯦꯡꯗ (c) ꯆꯌꯔꯒꯤ (d)-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯄꯊꯗ ꯂꯤꯆꯤꯡꯕꯥ॥

- (g) **ꯃꯌꯥ ꯍꯦꯃꯆꯦ ꯂꯦꯡꯗꯇ ꯄꯨꯡ ꯁ꯭ꯇꯒꯤ ꯊꯗꯥꯂꯤꯡ.** ꯂꯌꯦꯌ ꯑꯁꯤꯒꯤ ꯂꯇ-ꯑꯦꯔꯤꯍꯦ ꯑꯃꯌꯥꯒꯤꯗꯃꯛ ꯃꯤꯆꯤꯃꯤꯌꯔꯗ ꯑꯇꯂꯦꯂꯨꯌ ꯖꯆꯔ ꯑꯃꯌꯦ ꯊꯃꯗ (ꯃꯦꯂꯨꯍꯦꯟ ꯑꯁꯤꯆꯦ ꯊꯃꯇ), ꯃꯔꯃꯗꯤ ꯂꯌꯦꯌꯥ ꯃꯗꯨꯒꯤ ꯁ꯭ꯃꯖꯃ ꯑꯅꯆꯇ ꯔꯦꯗꯥꯔꯗꯤ ꯒꯦꯆꯒꯤ ꯅꯇꯅꯗꯒꯤ ꯍꯦꯡꯇ ꯑꯃꯌꯦ ꯆꯌꯦ, ꯑꯃꯁꯨꯡ (f)-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯑꯁꯤ ꯂꯦꯅ ꯁ꯭ꯇꯤꯡꯃꯥ ꯑꯃꯁꯨꯡ 2(a) ꯂꯦꯌꯗꯤ ꯑꯄꯄꯔ ꯑꯦꯚꯔꯦꯖꯗꯥ ꯑꯅꯔ॥ ꯍꯦꯃꯆꯦ ꯆꯥꯆꯇ ꯇꯔꯦꯥ ꯌꯥꯝꯂꯕꯥ ꯈꯅꯒꯤ ꯖꯆꯔꯂꯤꯡ, 2% AEP-ꯗ ꯄꯨꯡ 1-ꯗ 95 mm, ꯄꯨꯡ 3-ꯗ 165 mm ꯑꯃꯁꯨꯡ ꯄꯨꯡ 6-ꯗ 180 mm, ꯑꯁꯤ ꯇꯔꯍꯃꯄꯌꯔ ꯌꯥꯝꯂꯕꯥ ꯔꯦꯗꯥꯔꯗꯤ ꯒꯦꯆꯂꯤꯡꯗꯒꯤ ꯆꯗꯅ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯂꯕꯥ ꯄꯨꯡ 6-ꯒꯤ ꯗꯦꯄꯊ ꯑꯁꯤ ꯅꯥꯃꯖꯤꯟꯒꯤ ꯅꯇꯅꯗꯒꯤ ꯍꯦꯡꯇ ꯂꯨꯃꯤꯌ 158.6 mm-ꯗꯒꯤ ꯍꯦꯡꯍꯆꯒꯆꯤ, ꯃꯔꯃ ꯑꯗꯨꯆꯦ ꯃꯅꯥꯍ MN-A, MN-A1, MN-B ꯆꯌꯔꯒꯤ MN-C-ꯗ ꯂꯤꯆꯤꯡꯕꯗꯦ; MN-C1-ꯗ 320 mm ꯖꯆꯔꯗ 2(b) ꯔꯦꯁꯤꯑꯣꯁꯤꯡꯕꯥ ꯍꯦꯡ 154, 198 ꯑꯃꯁꯨꯡ 237 mm ꯃꯔꯥꯅ ꯄꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯗꯔꯤꯄꯨꯃꯇ ꯑꯅꯔꯇꯂꯨ ꯃꯅꯥꯍꯗꯒꯤ ꯍꯦꯅ (NEER-ꯒꯤ ꯍꯤꯔꯦꯇ)॥ ꯃꯌꯥꯡꯗ (a) ꯃꯅꯦꯗ ꯂꯌꯦꯂꯦꯒꯤ ꯖꯤꯌ ꯑꯃꯆꯦ (f)-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡꯒꯤ ꯃꯍꯥꯌ ꯂꯤꯅꯆꯇꯗꯤ, ꯑꯍꯦꯇ 2B ꯖꯥꯡꯗꯥꯆꯥꯌꯔꯤꯖꯤꯜꯂꯇ, AEP ꯁ꯭ꯇꯤꯡꯃꯥꯗꯃꯛ ꯃꯂꯤꯒꯤ ꯄꯨꯡ 1-ꯒꯤ ꯗꯦꯄꯊ ꯑꯁꯤ AEP ꯑꯗꯨꯃꯥꯗꯤ ꯃꯂꯤꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯄꯊꯒꯤ MN-A, MN-A1, MN-B ꯑꯃꯁꯨꯡ MN-C-ꯗ 0.33 ꯑꯃꯁꯨꯡ MN-C1-ꯗ 0.48-ꯗꯒꯤ ꯆꯦꯃꯔꯅꯗꯇꯆꯤ (ꯃꯦꯂꯨꯍꯦꯟ ꯑꯁꯤꯆꯦ ꯊꯃꯇ)॥ (f)-ꯒꯤ ꯗꯦꯄꯊꯂꯤꯡ ꯑꯁꯤ ꯍꯇꯤꯥꯗꯤ, ꯌꯔ-ꯅꯦꯌꯔꯒꯦ ꯒꯦꯅꯁ꯭ꯂꯤꯡꯆꯤ: ꯗꯆꯇ 2.6.3-ꯒꯤ ꯖꯤꯥꯂꯗ-ꯅꯦꯌꯔꯒꯦ ꯖꯥꯌꯔ ꯑꯁꯤ ꯍꯦꯆꯆꯦ ꯂꯆꯅꯗꯤ ꯑꯅꯔꯇ (c)-ꯒꯤ ꯌꯦꯇꯅꯂꯤꯡꯒꯤ ꯄꯌꯊꯥꯂꯤꯡꯗ ꯂꯤꯆꯤꯡꯕꯗꯦ, ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯃꯌꯥꯡꯗ ꯗꯆꯇ 2.8-ꯒꯤ ꯗꯆꯅꯃꯌ ꯖꯥꯌꯔ ꯂꯤꯆꯤꯡꯕꯥ॥

- (h) **ꯄꯨꯡ 24-ꯒꯤ ꯔꯦꯗꯥꯔꯗ ꯍꯥ, ꯗꯃꯦꯂꯦ ꯊꯥꯊꯥꯆꯒꯤ.** (c) ꯆꯌꯔꯒꯤ (d)-ꯒꯤ 1% AEP-ꯒꯤ (100-yr) ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯄꯊ ꯑꯁꯤ **ꯂꯅꯌꯌꯒꯤ 25 km-ꯒꯤ ꯃꯔꯨꯡꯗ ꯑꯃꯁꯨꯡ ꯗꯃꯦꯂ ꯑꯗꯨꯃꯥꯌ** ꯆꯌꯇ ꯗꯔꯤꯄꯨꯃꯇ ꯂꯌꯦꯂꯦ ꯑꯃꯗ ꯔꯦꯗꯥꯔꯗ ꯌꯥꯔꯇ ꯅꯇꯅꯗꯒꯤ ꯍꯦꯡꯇ ꯗꯍꯦꯆꯤꯖꯤꯅ ꯌꯥꯇ ꯄꯨꯡ 24-ꯒꯤ ꯄꯨꯡ ꯁ꯭ꯇꯗꯒꯤ, ꯔꯦꯗꯥꯔꯗ ꯑꯗꯨ ꯍꯦꯂꯦ ꯍꯦꯡꯆꯇꯗꯤ, ꯆꯦꯃꯔꯅꯗꯇꯆꯤ; ꯔꯦꯗꯥꯔꯗ ꯑꯗꯨ ꯖꯤꯥꯂꯗ-ꯅꯦꯌꯔꯒꯦ ꯖꯥꯌꯔ ꯍꯦꯜꯂꯗꯆꯦ ꯖꯥꯡꯗꯥꯄ ꯃꯌꯥꯡ ꯅꯦꯆ ꯂꯤꯆꯤꯡꯕꯥ, ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯗꯦꯄꯊ ꯑꯅꯆꯦ ꯆꯅ; ꯃꯗꯨꯒꯤ ꯃꯌꯥꯡꯗ ꯑꯌꯄꯄ AEP-ꯂꯤꯡꯒꯤ ꯗꯦꯄꯊꯂꯤꯡ ꯑꯁꯤ ꯂꯇ-ꯑꯦꯔꯤꯍꯦꯒꯤ (c)-ꯒꯤ ꯌꯦꯇꯅꯆꯦ ꯃꯂꯤꯒꯤ 1% AEP-ꯒꯤ ꯗꯦꯄꯊꯒꯤ ꯍꯦꯡꯗꯃꯆꯦ ꯄꯤꯔꯤꯇ ꯄꯔꯄꯥꯔꯂꯦ ꯑꯗꯨꯗ ꯍꯦꯍꯅꯆꯤ (ꯄꯨꯃꯆꯃꯥ ꯃꯦꯂꯨꯍꯦꯟ ꯑꯁꯤꯆꯦ ꯊꯃꯇ)॥ ꯗꯃꯦꯂꯂꯤꯡ ꯃꯔꯤ ꯆꯤ: **ꯌꯥꯝꯂꯕꯥ ꯆꯃ** (MN-Z1), **ꯑꯍꯦꯡ, ꯆꯥꯄꯥꯟ ꯑꯃꯁꯨꯡ ꯅꯥꯒꯤ ꯍꯤꯡꯂꯤꯡ** (MN-Z2), **ꯆꯥꯡꯁ꯭ꯄꯥꯗꯤ ꯍꯤꯡꯂꯤꯡ** (MN-C) ꯑꯃꯁꯨꯡ **ꯇꯔꯦꯥ ꯄꯥꯆꯦꯂꯦ** (MN-C1, ꯃꯅꯦ ꯊꯃꯇꯒꯤ ꯇꯔꯦꯥ ꯄꯥꯆꯦꯂꯦꯒꯤ ꯆꯍꯆꯆ); ꯔꯦꯗꯥꯔꯗ ꯑꯃꯆꯦ ꯅꯥꯃꯖꯤꯟ ꯌꯥꯝꯂꯕꯥ ꯃꯆꯥ ꯆꯌꯔꯒꯤ ꯍꯤꯒꯤ ꯃꯊꯥ ꯑꯃꯒꯤ ꯃꯊꯥꯌꯦ ꯗꯣꯗꯧꯗꯨ ꯆꯌꯗ, ꯃꯔꯃ ꯑꯗꯨꯆꯦ ꯌꯥꯝꯂꯕꯥ

ꯒꯦꯂꯅꯥ ꯌꯤꯡꯒꯤ ꯗꯦꯔꯖ ꯀꯩꯗꯥꯎꯩꯗꯂ ꯖꯃꯗꯦ ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯒꯦꯂ ꯑꯃꯁꯨꯌꯇꯅꯥ ꯇꯃꯔꯤꯡꯀꯤ ꯗꯦꯔꯖ ꯖꯃꯗꯦ (ꯃꯦꯄꯨꯔꯦꯟ ꯑꯁꯤꯅꯥ ꯖꯃꯕ)꯫ ꯕꯦꯀꯥꯕꯗ ꯑꯃꯅꯥ ꯀꯔꯥꯂꯤꯆꯥꯟ ꯇꯥꯕꯗꯤ ꯃꯈꯥꯒꯤꯁꯤꯡ ꯔꯨꯃꯂꯃꯌ ꯄꯨꯃꯂꯕꯗꯤ ꯈꯌꯇꯂꯤ: ꯃꯁꯤ IMD-ꯅꯥ ꯆꯥꯡꯗꯥꯌꯂꯕ (*Extremes of Temperature and Rainfall for Indian Stations*-ꯗ, ꯁꯇꯦꯌꯀꯤ ꯀꯂꯅꯃꯦꯇꯥꯂꯤꯀꯦꯟ ꯁꯃꯃꯕꯤ ꯑꯃꯗ, ꯖ ꯄꯨꯗꯤꯡꯒꯤ ꯂꯌꯕꯒꯥ ꯃꯇꯃꯒꯤ ꯀꯂꯅꯃꯦꯌ ꯁꯃꯃꯕꯤ ꯑꯃꯗ, ꯃꯇꯨꯡꯒꯤ IMD ꯇꯦꯕꯟ ꯑꯃꯗ ꯂꯌꯕꯒꯥ ꯒꯦꯂ ꯑꯃꯁꯨꯡ ꯂꯨꯃꯤꯌ ꯑꯃꯨ ꯆꯥꯡꯗꯥꯌꯔ IMD-ꯒꯤ ꯔꯨꯕꯦꯁ ꯕꯤꯂꯤꯂ ꯑꯃꯗ); ꯃꯁꯤꯒꯤ ꯒꯦꯂꯒꯤ ꯗꯦꯇꯒꯤ ꯌꯄꯤꯒꯤ ꯃꯁꯤꯡ ꯑꯁꯤ 20-ꯗꯒꯤ ꯂꯦꯃꯗꯦ ꯄꯔꯅꯥ IMD ꯇꯦꯕꯟ ꯑꯃꯅꯥ ꯀꯎꯆꯥꯕꯃ ꯇꯥꯕꯕ; ꯃꯁꯤ 1901 ꯂꯌꯕꯒꯥ ꯃꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯁꯦꯃꯈꯤꯕ, ꯂꯌꯕꯒꯥ ꯃꯁꯤ ꯁꯦꯃꯈꯤꯕ ꯒꯦꯂ ꯑꯃꯨ ꯄꯥꯂꯤꯌꯀꯤ ꯒꯦꯂ ꯂꯕ ꯃꯆꯃꯗ ꯂꯈꯤ ꯑꯃꯁꯨꯡ ꯃꯑꯥꯡ ꯑꯃꯨꯃꯌꯇ ꯔꯈꯤ ꯄꯔꯅꯥ IMD-ꯅꯥ ꯀꯎꯆꯥꯕꯃ ꯇꯥꯕꯕ; ꯃꯁꯤ ꯁꯇꯦꯁꯎ ꯑꯃꯒꯤꯗꯃꯌ ꯌꯥꯡ ꯑꯃꯒꯤ ꯂꯥꯡ ꯄꯕ ꯑꯃ ꯖꯥꯌꯔ ꯌꯥꯕ ꯖ ꯑꯃꯗ ꯅꯥꯌꯔ; ꯃꯁꯤꯒꯤ ꯒꯦꯂꯒꯤ ꯃꯆꯃ ꯈꯗꯕ; ꯑꯃꯁꯨꯡ ꯒꯦꯂ ꯑꯃꯃꯌꯀꯤ ꯑꯇꯥꯔꯔ IMD ꯇꯦꯕꯟ ꯑꯃꯅꯥ ꯃꯁꯤꯒꯥ ꯌꯥꯂꯗꯕ ꯑꯥꯈꯗꯕ꯫ ꯌꯦꯌ ꯑꯃꯌꯇꯗ ꯆꯦꯟ ꯇꯥꯕ ꯕꯦꯀꯥꯕꯗ ꯑꯃ, ꯃꯁꯤꯗ ꯂꯇꯕ ꯑꯃꯨ IMD-ꯅꯥ ꯀꯎꯆꯥꯕꯃ ꯇꯥꯗꯕꯤꯆꯥꯁꯕ ꯂꯖꯥꯀꯈ (ꯃꯦꯄꯨꯔꯦꯟ ꯑꯁꯤꯅꯥ ꯖꯃꯕ)꯫ ꯄꯥꯂꯤꯌꯀꯤ ꯃꯄꯥꯁꯤꯡ ꯃꯈꯗ ꯔꯤꯕꯤ:

- **ꯀꯔꯥꯂꯤꯆꯥꯟ ꯇꯥꯟ. Imphal (Tulihal) (A), 30 ꯖꯨꯂꯥꯏ 1989-ꯗ 158.6 mm** (IMD, *Extremes*, ꯂꯥꯡ ꯄꯨꯕꯒꯤ ꯗꯦꯇ 1953–2012), 1% AEP-ꯗ MN-A-ꯒꯤ ꯗꯦꯔꯖ 200 mm-ꯗꯒꯤ ꯂꯦꯃꯕꯅꯥ, ꯀꯕꯤꯒꯨꯃꯕ ꯑꯃꯌꯇ ꯌꯥꯡꯄꯕꯂꯥꯟ꯫ ꯕꯕꯌ ꯔꯂꯦꯒꯤ ꯗꯥꯃꯦꯗ, **Silchar (Kumbhigram) (A), 2 ꯖꯨꯟ 1974-ꯗ 350.6 mm** (ꯂꯥꯡ ꯄꯨꯕꯒꯤ ꯗꯦꯇ 1957–1990), ꯀꯔꯥꯂꯤꯆꯥꯟ ꯇꯥꯟ ꯑꯃꯁꯨꯡ (c)(ii)-ꯒꯤ 1% AEP-ꯒꯤ ꯆꯂꯥꯕ ꯑꯥꯟꯕꯦ; ꯃꯁꯤꯒꯤ ꯒꯦꯂ ꯑꯃꯨ ꯂꯤꯕꯤꯕꯃ ꯔꯂꯦꯒꯤ ꯁꯅꯌ ꯑꯃꯗꯒꯤ 25 km-ꯒꯤ ꯃꯨꯡꯗ ꯂꯕꯕ ꯄꯔꯕꯨ IMD-ꯒꯤ ꯁꯇꯦꯁꯎ ꯀꯥꯑꯥꯕꯗꯤꯂꯦꯌꯁꯤꯡꯗꯒꯤ ꯀꯎꯆꯥꯕꯃ ꯇꯒꯗꯕꯂꯤ [TBC], ꯑꯃꯁꯨꯡ ꯀꯕꯃꯕ ꯃꯑꯥꯡꯗ ꯑꯥꯟꯕꯕꯁ ꯃꯄ ꯑꯃꯨꯃꯌꯂꯤ꯫
- **ꯆꯂꯦꯒ ꯈꯌꯇ (ꯆꯥꯕꯃ 2-1-ꯗ ꯕꯦꯀꯥꯕꯗ ꯇꯥꯟ; ꯃꯈꯥꯔꯅꯥ ꯀꯔꯥꯂꯤꯆꯥꯟ ꯇꯥꯗꯦ). ꯈꯥꯔꯨꯃ, 15 ꯖꯨꯂꯥꯏ 2025-ꯒꯤ ꯑꯄꯤꯡꯗ 225 mm,** IMD ꯅꯃꯆꯥꯜꯒꯤ ꯑꯥꯆꯤꯁꯤꯔꯦꯜꯁꯤꯡꯗꯒꯤ ꯀꯥꯌ ꯇꯥꯨꯅꯥ ꯔꯨꯕꯦꯁꯇ ꯆꯥꯡꯗꯥꯌꯈꯤꯕ, ꯃꯁꯤꯒꯤ ꯗꯨꯄꯕꯦꯁꯂ ꯑꯃꯁꯨꯡ ꯒꯦꯂ ꯈꯗꯗꯕ [U], 10% AEP-ꯗ MN-C-ꯒꯤ ꯒꯦꯜꯄꯨ 230 mm-ꯗꯒꯤ ꯂꯦꯃꯃꯤ; **ꯀꯤꯡꯔꯥꯌꯔꯤ, 30–31 ꯃꯦ 2025-ꯗ ꯔꯨꯡ 24-ꯗ 123 mm ꯑꯃꯁꯨꯡ ꯔꯨꯡ 72-ꯗ 175 mm** (ꯔꯦꯡꯗ ꯆꯥꯡꯗꯥꯌꯈꯤꯕ ꯃꯇꯨꯡ ꯅꯂꯁ), MN-B-ꯒꯤ ꯒꯦꯜꯄꯨꯁꯤꯡꯗꯒꯤ ꯂꯦꯃꯃꯤ; ꯑꯃꯁꯨꯡ **MASTEC-ꯒꯤ 5 ꯖꯨꯟ 1984-ꯗ 140 mm**, ꯃꯁꯤ ꯁꯇꯦꯁꯎ ꯑꯃꯨꯃꯌꯀꯤ IMD-ꯒꯤ ꯖꯨꯟꯒꯤ ꯕꯦꯀꯥꯕꯗꯀ ꯌꯔꯂꯗꯦ [U] ꯑꯃꯁꯨꯡ ꯖꯃꯂꯕꯅꯥ ꯀꯁꯁꯕꯒꯦꯇꯒ ꯑꯥꯟꯕꯅꯥ (c)(i)-ꯒꯤ ꯆꯤꯌꯇ ꯖꯃꯂꯤ꯫
- **ꯆꯥꯖꯥꯌꯈꯤꯕ. Silchar, 30 ꯃꯦ 1893-ꯗ 290.3 mm**, 1901-ꯒꯤ ꯃꯃꯌꯗ ꯑꯃꯁꯨꯡ ꯁꯇꯦꯁꯎꯒꯤ ꯆꯥꯡꯗꯥꯌꯂꯕ ꯗꯦꯇꯒꯤ ꯃꯇꯃꯒꯤ ꯃꯔꯦꯗ ꯁꯦꯃꯈꯤꯕ (IMD, *Extremes*)꯫

ꯃꯂꯤꯔꯨꯕꯒꯤ ꯕꯦꯀꯥꯕꯗ ꯑꯃꯌꯇꯅꯥ ꯇꯃꯔꯤꯡꯀꯤ ꯃꯅꯥꯌꯀꯤ ꯃꯖꯌꯇ ꯌꯥꯗꯦ꯫ ꯑꯄꯦꯁꯕ 2A ꯆꯥꯡꯗꯥꯌꯂꯌꯕꯤꯆꯥꯁꯕ, ꯗꯤꯅꯈꯂꯕꯅꯥ ꯆꯥꯕꯃ 2-1-ꯗ ꯂꯈꯌꯇꯒꯤ 25 km-ꯒꯤ ꯃꯨꯡꯗ ꯄꯕ ꯕꯦꯀꯥꯕꯗ ꯑꯃꯁꯨꯡ ꯆꯂꯦꯒ ꯄꯨꯗꯤꯡꯃꯌ, ꯃꯁꯤꯒꯤ ꯗꯥꯃꯦꯁ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅꯥ ꯄꯨꯃꯕ ꯂꯌꯕꯒꯥ ꯆꯦꯟ ꯇꯥꯕ ꯌꯦꯌꯁꯤꯡꯒꯥ ꯂꯥꯔꯂꯂ, ꯅꯕꯌꯀꯂꯤ꯫ ꯌꯦꯌ ꯑꯁꯤꯅꯥ ꯔꯨꯡ 24-ꯒꯤ ꯗꯦꯔꯖ ꯑꯃꯁꯨꯡ, (e)-ꯒꯤ ꯄꯨꯌꯖꯡꯗ, ꯔꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯗꯦꯔꯖꯁꯤꯡ ꯌꯥꯡꯄꯕꯂꯤ꯫ ꯃꯁꯤ ꯔꯨꯡ 24-ꯗ ꯂꯦꯔꯅ: ꯃꯁꯤꯅꯥ ꯔꯨꯡ 1-ꯗꯒꯤ 18 ꯆꯥꯁꯕꯒꯤ (f)-ꯒꯤ ꯗꯦꯔꯖꯁꯤꯡ ꯌꯥꯡꯄꯕꯂꯥꯟ, ꯃꯕꯃꯗꯤ ꯕꯦꯀꯥꯕꯗꯁꯤꯡ ꯑꯁꯤ ꯂꯨꯃꯤꯌ ꯄꯨꯗꯤꯡꯒꯤ ꯔꯨꯃꯂꯃꯌꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯔꯒꯤ ꯃꯨꯡꯗ ꯀꯕꯤꯒꯨꯃꯕ ꯑꯃꯒꯤ ꯔꯨꯡ ꯄꯨꯗꯤꯡꯒꯤ ꯕꯦꯀꯥꯕꯗ ꯑꯃꯌꯇ ꯆꯇꯦ꯫

- (i) **ꯄꯂꯕꯗ ꯑꯄꯂꯕ ꯑꯥꯟꯕ ꯂꯅꯌꯁꯤꯡ.** ꯃꯂꯤꯔꯨꯕꯗ ꯁꯂꯥ-ꯆꯦꯗ (snow-fed) ꯀꯦꯌꯃꯦꯁꯌ ꯑꯃꯌꯇ ꯆꯇꯦ꯫ ꯃꯈꯗ ꯔꯤꯕꯤꯕ ꯄꯂꯕꯗꯁꯤꯡ ꯈꯗꯗꯥꯌꯂꯒ ꯂꯅꯌ ꯑꯃꯨ ꯃꯈꯥꯔꯒꯤ ꯂꯃꯕꯤꯗ ꯆꯕꯕ ꯄꯔꯕꯨ ꯆꯥꯡꯗꯥꯌꯔ, ꯅꯕꯃ ꯕꯤꯔꯥꯕꯌꯇ ꯕꯦꯀꯥꯕꯗ ꯇꯥꯕꯕ ꯁꯀꯕꯤꯂꯤꯡ ꯑꯃ ꯆꯇꯕꯗꯤ ꯗꯤꯆꯅꯁ ꯑꯃꯌꯇ ꯃꯔꯨꯡ ꯆꯗꯦ, ꯃꯁꯤ MSDMA ꯑꯃꯁꯨꯡ NRSC-ꯒꯤ ꯂꯦꯁꯗꯁꯂꯅꯗ ꯑꯃꯁꯨꯡ ꯅꯁꯤꯡ ꯅꯌꯆꯥꯒꯤ ꯕꯦꯀꯥꯕꯗꯁꯤꯡ [TBC], ꯅꯃꯆꯥꯜ ꯑꯃꯁꯨꯡ ꯃꯥꯟꯕꯡꯒꯤ ꯕꯤꯁꯌ-ꯅꯁꯆꯥꯕꯃꯗ ꯃꯁꯇꯕ ꯔꯂꯦꯁꯁꯤꯡꯒꯤ ꯄꯂꯕꯗ ꯃꯦꯔꯁꯤꯡ, ꯃꯈꯥꯔ ꯔꯤꯕꯕ ꯃꯇꯨꯡꯗ [TBC], ꯑꯃꯁꯨꯡ ꯌꯥꯇꯕ ꯕꯤꯁꯥꯕꯁꯦꯁ ꯗꯤꯔꯤꯕꯌꯃꯦꯁꯌꯀꯤ ꯃꯁꯤꯒꯤ ꯔꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯔꯒꯤ ꯀꯌꯔꯁꯤꯡꯒꯤ ꯕꯦꯀꯥꯕꯗꯁꯤꯡꯗꯒꯤ; ꯆꯕꯕꯗꯤ, ꯁꯕꯨꯌ 6 ꯑꯃꯁꯨꯡ 7-ꯒꯤ ꯂꯅꯇꯤꯡ, ꯁꯦꯌꯕꯦꯌ (setback) ꯑꯃꯁꯨꯡ ꯆꯂꯥꯕ ꯂꯦꯒꯦꯂꯒꯤ ꯕꯨꯂꯁꯤꯡꯅꯥ ꯃꯕꯨ ꯑꯥꯟ, ꯃꯕꯃꯗꯤ ꯃꯈꯥꯔꯒꯤꯗꯃꯌ ꯈꯥꯡꯕꯦ ꯑꯃꯌꯇ ꯂꯅꯖ ꯂꯦꯔꯔ ꯂꯌꯇꯦ (ꯃꯦꯄꯨꯔꯦꯟ ꯑꯁꯤꯅꯥ ꯖꯃꯕ)꯫ ꯄꯂꯕꯗꯁꯤꯡꯗꯤ: ꯌꯤꯡꯁꯤꯡꯒꯤ ꯗꯤꯂꯥꯡ ꯁꯦꯜ (Disang shale), ꯀꯌ ꯇꯥꯕꯕ ꯅꯔꯥꯃꯁꯤꯡ, ꯀꯥꯄꯨꯒꯤꯔꯃ (colluvium) ꯑꯃꯁꯨꯡ ꯆꯤꯜꯗ (fill) ꯆꯕ **ꯂꯦꯁꯗꯁꯂꯅꯗꯀꯤ ꯆꯃꯩꯅ**, ꯄꯨꯗꯃ ꯑꯥꯅꯂꯅꯥ ꯂꯥꯂꯦꯒꯤ ꯇꯨꯄꯨꯜ (Tupul), ꯃꯆꯃ ꯑꯁꯨꯗ ꯂꯤꯕꯤꯕꯃ–ꯅꯃꯆꯥꯜ ꯕꯦꯜꯌꯦꯒꯤ ꯂꯅꯌꯇ 30 ꯖꯨꯟ 2022-ꯒꯤ ꯂꯦꯁꯗꯁꯂꯅꯗ ꯑꯁꯤ "ꯆꯂꯅꯥ ꯗꯤꯂꯅꯁ ꯇꯥꯗꯕ ꯂꯌꯕꯒꯥ ꯆꯂꯅꯥ ꯔꯤꯖꯥꯌꯇꯕ ꯅꯔꯥꯃ ꯇꯦꯁꯕ ꯖꯕꯌ ꯑꯃꯁꯨꯡ ꯌꯃꯂꯅꯥ ꯄꯨꯕ ꯂꯥꯡ" ("poorly designed or implemented slope excavation coupled with heavy rainfall") ꯑꯁꯤꯒꯤ ꯃꯔꯝꯂꯤ ꯄꯌꯔꯕꯤ (Baruah et al., 2023, ꯁꯃꯃꯕꯤ ꯇꯥꯈꯤꯕ ꯃꯇꯨꯡ ꯅꯂꯁ), ꯌꯦꯁꯗꯦꯂꯒꯤ ꯆꯧꯃꯥꯜ (Joumol), ꯃꯆꯃ ꯑꯁꯨꯗ 1 ꯑꯒꯁꯌ 2015-ꯗ ꯂꯦꯁꯗꯁꯂꯅꯗ ꯑꯃ ꯖꯥꯌꯈꯤ (ꯔꯦꯡꯗ ꯆꯥꯡꯗꯥꯌꯈꯤꯕ ꯃꯇꯨꯡ ꯅꯂꯁ), ꯑꯃꯁꯨꯡ NH-37 ꯑꯃꯁꯨꯡ NH-2-ꯒꯤ ꯀꯌ ꯇꯥꯕꯕ ꯅꯔꯥꯃꯁꯤꯡ; ꯇꯃꯔꯤꯌꯇ **ꯇꯨꯕꯦꯂꯒꯤ ꯔꯂꯁ ꯀꯌꯔꯒꯤ ꯂꯃꯕꯤꯁꯤꯡ**, ꯃꯈꯥꯔꯒꯤ ꯃꯨꯡꯗ 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯁꯤꯡꯂꯃꯩ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅꯌꯨ ꯆꯦꯀꯥꯁꯗ (New Checkon) ꯑꯃꯁꯨꯡ ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam)

ꯑꯃꯁꯨꯡ ꯂꯥꯏꯔꯤꯛꯌꯦꯡꯕꯝ ꯂꯩꯀꯥꯏꯗ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯄꯥꯜ ꯀꯥꯏꯕꯁꯤꯡ, ꯃꯐꯝ ꯃꯔꯤꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯁꯦꯇꯔꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏꯗ (Kshetri Awang Leikai) ꯏꯔꯤꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯄꯥꯜ ꯀꯥꯏꯕꯁꯤꯡ (ꯄꯥꯎꯗ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ); **ꯗꯦꯝ ꯔꯤꯂꯤꯖꯀꯤ ꯔꯤꯆꯁꯤꯡ** (reach), ꯃꯄꯤꯊꯦꯜ ꯗꯦꯃꯒꯤ (Mapithel dam) ꯃꯈꯥꯗ ꯊꯧꯕꯜ ꯇꯨꯔꯦꯜ, ꯃꯂꯤꯒꯤ ꯗꯦꯃꯒꯤ ꯃꯈꯥꯗ ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ (Khuga) [TBC] ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗꯥ ꯗꯦꯃꯒꯤ (Singda dam) ꯃꯈꯥꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ [TBC], ꯃꯐꯝ ꯑꯗꯨꯗ ꯆꯍꯤ 5-ꯒꯤ ꯔꯤꯇꯔꯟ-ꯄꯤꯔꯤꯌꯗꯀꯤ ꯏꯆꯥꯎ ꯍꯦꯅꯒꯠꯂꯦ; **ꯂꯧꯊꯣꯛꯄꯁꯤꯡ ꯃꯥꯏ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯐꯨꯝꯗꯤꯁꯤꯡ** (phumdi), ꯃꯐꯝ ꯑꯗꯨꯗ 2006-ꯒꯤ ꯑꯦꯛꯇꯀꯤ ꯃꯈꯥꯗ ꯑꯣꯏꯅ ꯅꯤꯡꯊꯤꯖꯅ ꯂꯧꯊꯣꯛꯈꯤ; ꯂꯧꯊꯣꯛꯄꯁꯤꯡ ꯂꯩꯕ **ꯄꯤꯠ (peat) ꯑꯃꯁꯨꯡ ꯃꯅꯥꯡꯒꯤ ꯄꯥꯠꯁꯤꯡ** (pat; lake or wetland), ꯃꯐꯝ ꯑꯗꯨꯗ ꯂꯧꯈꯠ ꯁꯦꯃꯒꯠꯄꯥ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯗꯦꯇꯥ ꯑꯍꯥꯅꯕ ꯑꯣꯏꯅꯥ [TBC]; ꯑꯃꯁꯨꯡ **ꯈꯨꯗꯣꯡꯆꯥꯕ ꯊꯦꯡꯅꯕꯁꯤꯡ**, ꯃꯐꯝ ꯑꯗꯨꯗ ꯈꯣꯡꯒꯤ ꯍꯥꯏꯕꯁꯤꯡ (khong) ꯈꯣꯡꯗꯒꯤ ꯊꯥꯗꯣꯀꯈꯤꯕ ꯂꯧꯊꯣꯛꯄꯁꯤꯡ ꯂꯩꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ (silt) ꯑꯃꯁꯨꯡ ꯅꯨꯡꯀꯨꯔꯛ (gravel) ꯊꯥꯗꯣꯛꯄꯁꯤꯡ꯫

- (j) **ꯀꯂꯥꯎꯗꯕꯔꯁꯠꯁꯤꯡ (cloudburst).** IMD-ꯅꯥ ꯃꯐꯝ ꯑꯄꯤꯛꯄ ꯑꯃꯗ ꯄꯨꯡ ꯑꯃꯗ 100 mm ꯅꯣꯡꯖꯨꯕ ꯃꯇꯝ ꯑꯗꯨꯕꯨ ꯌꯦꯡꯗꯨꯅ ꯁꯨꯕꯨ ꯀꯂꯥꯎꯗꯕꯔꯁꯠ ꯍꯥꯏꯅ ꯂꯧꯏ (ꯂꯧꯅꯕ ꯍꯥꯏꯕꯗꯤ ꯃꯁꯤꯅꯤ; ꯍꯧꯖꯤꯛ ꯑꯣꯏꯔꯤꯕꯗꯥ IMD-ꯒꯤ ꯑꯄꯨꯅꯕ ꯅꯤꯡꯁꯤꯡꯕ ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅ [TBC])꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯣꯏꯅꯥ ꯃꯍꯧꯁꯥ ꯀꯂꯥꯎꯗꯕꯔꯁꯠꯁꯤꯡ ꯔꯦꯟ ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅ, ꯑꯃꯁꯨꯡ ꯍꯣꯡꯖꯤꯟꯁꯤꯡ ꯄꯦꯜ ꯑꯍꯥꯅꯕꯒꯤ ꯄꯨꯡ ꯁꯨꯀꯤꯗꯒꯤ ꯒꯦꯟꯁꯨ ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅ: 15 ꯖꯨꯂꯥꯏ 2025-ꯗ ꯍꯤꯡꯃꯥꯡꯗ 225 mm-ꯒꯤ ꯑꯆꯧꯕ ꯑꯣꯏ ꯊꯨꯅꯥ ꯌꯥꯝꯅꯥ ꯇꯔꯨꯛ ꯑꯃꯗꯒꯤ ꯄꯔꯦꯖꯕ ꯃꯍꯧꯁꯥꯒꯤ ꯒꯦꯟꯁꯨ ꯑꯍꯥꯅꯕꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯂꯣꯡꯕ (ꯄꯥꯎꯗ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ)꯫ 1% AEP-ꯗ (f)-ꯒꯤ ꯄꯨꯡ 1-ꯒꯤ ꯗꯤꯄꯊ ꯑꯁꯤ MN-C1-ꯗ (ꯆꯞ 173 mm ꯃꯔꯦꯟ) ꯑꯃꯁꯨꯡ MN-C-ꯗ (ꯆꯞ 119 mm ꯃꯔꯦꯟ) ꯊꯥꯏꯔꯀꯟꯗ ꯍꯦꯜꯂꯤ, ꯑꯗꯨꯕ ꯂꯧꯄꯥꯛꯂꯤꯕ (ꯆꯞ 66 mm ꯃꯔꯦꯟ) ꯍꯦꯗ (NEER-ꯒꯤ ꯄꯤꯊꯕ)꯫ ꯈꯤꯡꯒꯤ ꯑꯆꯧꯕ ꯃꯥꯏꯈꯦꯟꯒꯤ ꯑꯃꯗ ꯕꯔꯁꯠ ꯑꯃꯅ ꯂꯥꯀꯄ, ꯗꯤꯖꯥꯏꯟ ꯂꯥꯏ ꯁꯨꯕꯒꯤ ꯊꯥꯗꯣꯛ ꯑꯃꯅ ꯁꯣꯏꯗꯕ ꯑꯍꯥꯅꯕ ꯃꯂꯤꯒꯤ ꯑꯄꯤꯂꯕ ꯃꯤꯂꯤꯌꯂꯤꯕꯗ ꯂꯦꯡ, ꯅꯨꯃꯤꯠꯒꯤ ꯗꯦꯕꯔꯤꯁ (debris) ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯌꯥꯎꯄꯗꯕꯂꯤ; ꯑꯂꯣꯡꯕ ꯀꯦꯟꯇꯦꯡꯅꯂꯤꯕꯗ ꯍꯥꯟꯕꯗꯥꯒꯤ ꯀꯦꯡꯒꯦꯔꯦꯡꯁꯤꯡꯒꯤ ꯄꯥꯡꯅ ꯍꯦꯟꯖꯤꯂꯂꯤꯕ, ꯗꯦꯕꯔꯤꯁ ꯔꯦꯅꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯀꯂꯚꯔꯠꯂꯤꯕ (culvert) ꯄꯥꯡꯗꯥꯅ ꯂꯩꯕ ꯊꯨꯕꯅ ꯃꯔꯤ ꯑꯥꯏ, ꯑꯃꯁꯨꯡ ꯆꯍꯤ 6 ꯑꯃꯁꯨꯡ 9-ꯅ ꯃꯍꯥꯛ ꯃꯂꯤꯒꯤꯂꯤꯃ ꯂꯩꯍꯟ ꯂꯦꯞꯂꯤ꯫

- (k) **ꯄꯨꯡ 1-ꯗꯒꯤ ꯄꯦꯅꯕ ꯗꯤꯖꯥꯏꯟꯕꯦꯂꯤꯡ.** ꯃꯦꯡꯒꯤꯟ ꯑꯂꯤꯒꯤꯂꯤꯃ ꯌꯥꯏꯍꯥꯏꯕ ꯔꯤꯂꯔꯤꯌꯦꯛ ꯂꯧꯕ ꯑꯂꯤꯒꯤ ꯂꯧꯕꯂꯦ ꯑꯍꯥꯅꯕꯒꯤ ꯄꯨꯡ ꯑꯍꯥꯗꯒꯤ ꯄꯦꯅꯕ ꯇꯔꯤꯀꯦꯟꯕꯦꯂꯤ ꯑꯦꯅꯂꯤꯊꯂꯤꯂ ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅ꯫ ꯑꯄꯨꯅꯕ 2B-ꯅ ꯑꯍꯥꯏ ꯄꯤꯗꯤꯔꯤꯇꯦꯁꯕ, ꯄꯨꯡ 1-ꯗꯒꯤ ꯄꯦꯅꯕ ꯗꯤꯖꯥꯏꯟꯕꯦꯂ ꯑꯍꯥꯒꯤ ꯗꯦꯄꯊ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 1-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯦꯄꯊꯒꯤ ꯔꯦꯂꯤꯑꯣ ꯑꯂꯤ, ꯌꯨꯔꯥꯃꯇꯝ ꯇꯥꯛꯂꯕꯁꯤ ꯇꯥꯛꯂꯕꯁꯤꯡ ꯔꯦꯁꯤꯑꯣꯗꯤ ꯒꯦꯟꯁꯨꯒꯤ ꯑꯦꯅꯂꯤꯊꯂꯤꯂ ꯑꯍꯥꯗꯒꯤ, ꯑꯦꯊꯥꯔꯥꯏꯖ ꯍꯦꯟꯒꯠꯂꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 2-1-ꯗ ꯔꯦꯀꯣꯔꯗ ꯌꯥꯎꯗꯔꯤ [TBC]; ꯄꯨꯡ 1-ꯗꯒꯤ ꯄꯦꯅꯕ ꯗꯤꯖꯥꯏꯟꯕꯦꯂ ꯑꯍꯥꯒꯤ ꯑꯦꯒꯔꯤꯒꯦꯠ ꯍꯦꯅꯌꯥꯏꯕ ꯑꯂꯤ AEP ꯑꯁꯤꯡꯍꯥꯏꯗꯥ ꯄꯨꯡ 1-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯦꯅꯌꯥꯏꯕꯂꯤꯌꯗꯒꯤ ꯆꯦꯠꯄꯁꯤꯅꯗꯔꯤ (ꯃꯦꯡꯒꯤꯟ ꯑꯂꯤꯅ ꯊꯝꯕ)꯫ (a)-ꯒꯤ ꯍꯥꯏꯗꯤꯒꯤ ꯃꯤꯂꯤꯌ 15-ꯒꯤ ꯔꯦꯀꯣꯔꯗ ꯑꯂꯤ ꯃꯂꯤꯒꯤꯂꯤꯃ ꯑꯦꯅꯂꯤꯊꯂꯤꯂ ꯌꯥꯎꯗꯕ ꯑꯄꯨꯅꯕ ꯄꯥꯔꯦꯝꯐꯔꯤ꯫

- (l) **ꯗꯦꯄꯊꯂꯤꯡꯒꯤ ꯊꯥꯛ.** AEP ꯑꯁꯤꯡꯍꯥꯏꯗꯥꯂꯤꯃ, ꯗꯦꯄꯊ ꯑꯍꯥꯅꯕ ꯄꯦꯅꯕ ꯃꯤꯗꯨꯕ ꯗꯤꯖꯥꯏꯟꯕꯦꯂꯒꯤ ꯗꯦꯄꯊꯗꯒꯤ ꯆꯦꯠꯄꯁꯤꯅꯗꯔꯤ꯫

- (m) **NIH-DHAARA.** NIH-DHAARA ꯑꯂꯤ 14 ꯅꯣꯕꯦꯝꯕꯔ 2026-ꯗ ꯂꯧꯈꯤꯕ ꯄꯥꯎꯅꯕ 13-ꯗ ꯀꯔꯤꯄꯔ ꯌꯥꯎꯍꯤ (IMDAA ꯗꯦꯇꯂꯤ); 12-ꯅ ꯗꯦꯇꯥ ꯄꯥꯏꯍꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯔ ꯂꯦꯡꯅ ꯑꯄꯤꯕ ꯌꯥꯕꯅ ꯑꯍꯥꯏ ꯄꯥꯏꯍꯤ꯫ ꯃꯂꯤ **ꯂꯕ-ꯑꯦꯔꯤꯀ MN-B-ꯗ ꯍꯥꯏꯌ, (c)(iii) ꯃꯈꯥꯗ, ꯗꯤꯖꯥꯏꯟ ꯒꯦꯟꯁꯨ ꯑꯍꯥꯂꯤ**꯫ MN-A, MN-A1, MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯗ ꯃꯍꯧꯌ ꯃꯂꯤꯒꯤ ꯄꯥꯂꯤꯌꯥꯏ ꯒꯦꯟꯁꯨꯂꯤꯡ ꯍꯦꯅꯌꯥꯔꯤꯐ ꯒꯦꯟꯁꯨꯂꯤꯡꯒꯤ ꯃꯂꯤꯌꯥꯏ ꯇꯦꯕꯜ 2-1-ꯗ ꯆꯦꯠꯄꯁꯤꯅꯗꯔꯤ ꯍꯥꯏꯌꯒꯤꯂꯤꯃ ꯔꯤꯄꯣꯔꯇ ꯌꯥꯎ; ꯃꯐꯝ ꯑꯗꯨꯗ ꯃꯍꯥꯛ ꯀꯤꯗꯥꯀꯤꯗꯂꯦ ꯗꯤꯖꯥꯏꯟ ꯒꯦꯟꯁꯨ, ꯍꯦꯟꯂꯥ ꯆꯦꯠꯄ ꯆꯦꯟ ꯑꯍꯥꯗ꯫ ꯂꯧꯄꯥꯛꯂꯤꯕ ꯃꯂꯤꯒꯤ ꯆꯞꯄꯤ 50-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯄꯊꯂꯤꯡ, 181–231 mm, ꯑꯂꯤ (c)(i)-ꯒꯤ ꯂꯧꯕꯂꯦ ꯍꯦꯟꯌꯥꯏ ꯆꯞ 1.3 ꯃꯔꯦꯟꯂꯤ; ꯂꯥꯏꯁꯨꯀꯥꯏ ꯆꯂꯤꯡꯂꯤꯡꯗ, 306–491 mm, ꯃꯍꯥꯛ ꯂꯧꯕꯌꯥꯏ ꯇꯥꯛꯂꯕꯁꯤ ꯍꯦꯟꯗꯕꯒꯤ ꯆꯦꯠꯄ ꯊꯨꯕꯌꯥꯏ ꯆꯞ 1.4-ꯗꯒꯤ 2.2 ꯍꯦꯟꯗꯔꯤ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯀꯔꯤꯄꯔ ꯌꯥꯎꯍꯤꯕ; IMD; NEER-ꯒꯤ ꯆꯂꯤꯡꯔꯤꯕ)꯫ ꯃꯂꯤꯒꯤ ꯃꯑꯦꯂ ꯑꯁꯤꯡ, ꯒꯦꯟꯁꯨꯂꯤꯡ ꯆꯦꯠꯄ, ꯂꯤꯕꯤꯂꯦ: (f)-ꯗ ꯃꯂꯤꯒꯤ ꯗꯤꯖꯥꯏꯟꯕꯦꯂ ꯔꯦꯂꯤꯑꯦꯂꯤꯡ, (c)(ii)-ꯗ ꯃꯂꯤꯒꯤ ꯒꯔꯥꯐ ꯀꯔꯤꯒ ꯑꯃꯁꯨꯡ (e)-ꯗ ꯃꯂꯤꯒꯤ ꯄꯨꯡ 72 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯒꯤ ꯔꯦꯂꯤꯑꯦꯂꯤꯡ꯫ ꯃꯂꯤꯒꯤ ꯄꯔꯥꯖꯦꯛꯇꯥ ꯌꯥꯔꯕ ꯗꯦꯄꯊꯂꯤꯡ ꯀꯂꯖ 2.8.4 ꯃꯈꯥꯗ ꯂꯤꯕꯤꯂꯦꯗ꯫

- (n) **IMD Das et al. (2022).** ꯄꯦꯄꯔ ꯑꯂꯤꯒꯤ ꯍꯥꯏꯗꯤꯒꯤ ꯄꯦꯖꯦꯅ (Fig. 4(x)) ꯃꯂꯤꯅ ꯑꯌꯥꯄꯄ ꯂꯄꯔ ꯀꯔꯦꯒꯤꯗꯥꯃꯗꯥ ꯇꯥꯛꯂꯕꯁꯤ ꯖꯦꯜꯔꯤꯌ ꯀꯔꯒ ꯑꯁꯤ ꯑꯃꯥ ꯄꯦꯅꯕ ꯄꯥꯏꯔꯤ, ꯆꯄꯤ 2-ꯗꯒꯤ 100 ꯍꯦꯟꯗꯒꯤꯗꯥꯃꯗꯥ ꯄꯨꯡ 1-ꯗ ꯆꯞ 60, 73, 82, 93, 101 ꯑꯃꯁꯨꯡ 109 mm/h ꯃꯔꯦꯟ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯃꯍꯥꯏꯌꯥ ꯂꯕ ꯃꯇꯝ ꯑꯁꯤꯅ ꯊꯨꯕꯌꯥ ꯑꯍꯥꯗ ꯆꯞ 170–360 mm ꯃꯔꯦꯟ ꯌꯥꯎꯍꯤ, ꯃꯤꯗꯨꯕ ꯔꯦꯌꯔꯦꯟ ꯄꯔꯤꯔꯤꯆꯗꯂꯤꯡꯗ ꯍꯥꯏꯗꯤꯒꯤ ꯔꯦꯀꯣꯔꯗ ꯁꯨꯗꯂꯤꯃꯌꯥꯒꯤ ꯆꯂꯤꯅ (NEER-ꯒꯤ ꯄꯥꯏꯕ)꯫ ꯃꯂꯤ ꯂꯧꯕꯂꯦꯒꯤ ꯗꯦꯇꯥ ꯆꯦꯠꯄ ꯑꯃꯁꯨꯡ ꯀꯥꯏꯅꯗꯂ ꯒꯦꯟꯁꯨ, ꯍꯦꯟꯂꯥ ꯆꯦꯠꯄ ꯍꯦꯟꯂꯥ ꯑꯅꯤꯅꯅ ꯂꯤꯕꯤꯂꯦꯗ, ꯑꯃꯁꯨꯡ ꯀꯂꯖ 2.3.3(a)-ꯒꯤ ꯀꯔꯤꯂ-ꯍꯦꯟꯂꯥ ꯑꯂꯤ ꯇꯦꯕꯜ 2-1-ꯗ ꯍꯦꯟꯗꯕ ꯌꯥꯎꯗꯅ ꯔꯦꯀꯣꯔꯗ ꯌꯥꯎꯍꯤ (IMD Das et al., 2022, p. 895)꯫

- (o) **ꯃꯃꯥꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯒꯦꯖꯨꯠꯁꯤꯡ.** ꯅ꯭ꯣꯡꯖꯦ ꯑꯁꯤꯒꯤ ꯄꯥꯟꯗꯤꯒꯨꯐꯕ ꯅꯋꯗ ꯑꯃꯒꯤ ꯍꯣꯡꯕꯁꯤꯡꯒꯤꯗꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯃꯇꯝ ꯃꯥꯏꯀꯩ, ꯗꯤꯄꯨꯗꯦ ꯄꯤꯗꯤꯔꯤꯕ ꯂꯌꯗꯤꯒꯤ ꯗꯦꯖꯦꯖ ꯃꯥꯑꯣꯖꯤꯅꯤꯔꯦꯌ ꯑꯃꯌꯣ ꯖꯕꯍꯤꯗꯦ꯫ AIIB-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯔꯕꯟ ꯔꯣꯗ, ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯦꯠ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯏꯝꯞ꯭ꯔꯨꯚꯃꯦꯟꯇ ꯄ꯭ꯔꯣꯖꯦꯛꯇ (Manipur Urban Road, Drainage and Asset Management Improvement Project; P000723), ꯃꯗꯨꯗꯥ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯍꯐꯖꯤꯡꯒꯤ ꯆꯐꯕꯤꯗꯤꯕꯒꯤ ꯃꯅꯥꯡ "547 km-ꯒꯤ ꯃꯅꯥꯡ ꯑꯅꯤꯃꯥꯡ ꯁꯥꯒꯔ ꯁꯣꯔꯕ ꯅꯣꯡꯒꯤ ꯍꯗꯤꯕꯒꯤ ꯍꯣꯕꯩꯗꯨꯗꯤꯕ" ("547 km of both side stormwater covered drains") ꯄꯤꯔꯤ, ꯃꯗꯨꯗꯥ ꯔꯤꯖꯔꯣꯜ ꯄꯤꯔꯤꯔꯤꯗ, ꯅꯣꯕ ꯁꯕꯒꯤ ꯍꯦꯁꯦꯗꯤꯁꯤ ꯅꯌꯔꯣ ꯔꯩꯑꯣꯖ ꯃꯣꯑꯦꯖꯤꯗꯤꯌꯦꯌ ꯑꯃꯌꯣ ꯍꯥꯍꯗꯦ (AIIB, Approval Project Document, ꯑꯣꯛꯇꯣꯕꯔ 2024), ꯑꯃꯁꯨꯡ ꯂꯝꯐꯦꯜꯄꯥꯠ ꯋꯥꯇꯔꯕꯣꯗꯤ ꯔꯤꯖꯨꯚꯦꯅꯦꯁꯟ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯇꯥ (Lamphelpat Waterbody Rejuvenation Project) ꯂꯐꯃꯔꯤꯗꯦ ꯗꯤꯖꯥꯏꯟ ꯅꯕ ꯁꯕꯒꯤ ꯁꯗꯕ ꯑꯃꯌꯣ ꯍꯥꯍꯗꯦ (NDB, Project Summary, 2021)꯫ ꯆꯐꯕꯤꯒꯤ ꯍꯔꯐꯗꯦ IRC:SP:42-2014 ꯑꯃꯁꯨꯡ, ꯌꯤꯕꯂꯤꯕꯗ, IRC:SP:48 ꯃꯌꯨꯝ ꯍꯦꯗꯦ꯫ ꯑꯌꯣꯔꯄ ꯒꯥꯊꯥ ꯑꯃꯀ ꯂꯤꯆꯤꯔꯦꯕ ꯗꯤꯖꯥꯏꯟꯔꯦꯗ ꯃꯗꯨ ꯇꯦꯕꯜ 2-1-ꯗ ꯔꯤꯄꯣꯔꯇ ꯌꯥꯍ; ꯌꯥꯕꯊ 2.1-ꯒꯤ ꯔꯤꯖꯔꯣꯜ ꯄꯤꯔꯤꯔꯤꯗꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ ꯑꯂꯤꯒꯤ ꯗꯥꯄꯥꯂꯤꯕ ꯌꯥꯎꯗꯦ꯫

- (p) **ꯑꯇꯣꯞꯄ ꯁꯦꯛꯁꯟꯂꯤꯕ.** ꯁꯦꯛꯁꯟ 2.3.2, 2.6.1, 2.7.1 ꯑꯃꯁꯨꯡ 2.13, ꯑꯦꯅꯦꯛꯁ 2A-ꯗꯒꯤ 2C ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 2-1-ꯗ NIH-DHAARA ꯒꯥꯊꯥ ꯍꯥꯌꯗꯦ ꯌꯥꯑꯣꯔ ꯃꯖꯐꯗ, ꯁꯦꯛꯁꯟ ꯑꯂꯤ ꯃꯍꯥꯗ ꯆꯕ ꯒꯥꯊꯥ ꯑꯃꯀ ꯍꯥꯌꯕꯆꯤ꯫

ꯂꯦꯗꯍꯒꯤꯗꯦ ꯌꯥꯑꯣꯔ. NIH-DHAARA ꯑꯂꯤ ꯒꯤꯔꯥꯌ ꯆꯕꯣꯍꯤꯕꯤ ꯍꯦꯅꯣꯡꯖꯨꯔꯤꯡꯂꯦ ꯑꯃꯗꯒꯤ ꯗꯦꯌꯔ, ꯃꯤꯌꯤꯐꯗꯦ ꯑꯥꯌꯂꯥꯂ ꯌꯥꯕ ꯌꯤꯕ ꯅꯥꯂꯅꯥꯊ ꯄ꯭ꯔꯗꯦꯗꯌꯥꯌ ꯑꯃꯅꯦꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤ ꯅ꯭ꯣꯡꯖꯦꯕꯤ ꯄꯥꯟꯗꯤꯒꯨꯐꯕ ꯄꯦꯍꯦꯌ ꯑꯃꯗ ꯄ꯭ꯔꯦꯥꯔꯤ ꯌꯥꯕ ꯌꯤꯍ꯫ ꯃꯔꯐ ꯑꯂꯤꯗꯦ ꯃꯂꯤ ꯑꯥꯄꯥꯗꯒꯤꯕ ꯑꯦꯗꯔꯤꯌꯤ ꯑꯃꯗꯦ ꯌꯥꯌ ꯌꯥꯕ ꯌꯤꯕ, ꯑꯃꯌ ꯍꯦꯗꯦ ꯅꯥꯐꯕ ꯌꯤꯕ ꯗꯤꯖꯦꯊꯌ ꯑꯃꯀ ꯑꯦꯍꯍꯊꯆꯤ꯫ NIH-DHAARA-ꯒꯤ ꯅꯨꯃꯤꯌ ꯑꯃꯗꯒꯤ ꯍꯦꯅꯕ ꯒꯥꯊꯥꯂꯤꯕ ꯑꯂꯤ ꯄꯨꯕ ꯅꯨꯗꯤꯕꯒꯤ ꯔꯥꯄꯦꯔꯗꯂꯤꯕꯗꯒꯤ ꯂꯥꯐꯕꯆꯤ, ꯅꯨꯃꯤꯌ ꯅꯨꯗꯤꯕꯒꯤ ꯄꯨꯐꯆꯃꯌꯥꯒꯤ ꯍꯤꯔꯗꯦꯌꯄ ꯆꯌꯥ꯫ ꯃꯔꯐ ꯑꯂꯤꯗꯦ ꯃꯂꯤ ꯃꯌꯐ ꯌꯤꯐꯗꯦ ꯂꯕꯗꯕ ꯍꯦꯌꯥꯦꯂꯤꯌꯤꯗ ꯌꯤꯐꯗꯦ ꯃꯍ ꯄꯦꯍꯕ ꯍꯕꯩꯗꯦꯂꯤꯕꯒꯤ ꯂꯍꯆ ꯆꯥꯄꯆꯕ ꯃꯤꯌꯤꯐꯒꯤ ꯍꯔꯥꯌꯖꯐ ꯑꯃꯍꯌꯆꯤ꯫ ꯑꯗꯨꯐ ꯑꯦꯍꯆꯃꯌ ꯃꯂꯤꯒꯤ ꯒꯥꯊꯥꯂꯤꯕ ꯄꯨꯕ 24 ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯂꯕꯕꯗ IMD-ꯒꯤ ꯂꯕꯕ ꯅꯨꯃꯤꯌ ꯅꯨꯗꯤꯕꯒꯤ ꯔꯥꯄꯦꯔꯗꯄ ꯌꯥꯌ ꯌꯥꯕ ꯐꯦ (ꯑꯦꯅꯦꯛꯁ 2A)꯫ ꯃꯆꯤꯄꯨꯔꯗ ꯄꯦꯅꯦꯌꯐꯦꯔꯐ ꯑꯂꯤꯗꯦ ꯄꯦꯍꯗꯐ ꯑꯗꯨ ꯅ꯭ꯣꯡꯖꯦꯕꯤ ꯂꯕꯨꯌ ꯍꯔꯗ ꯍꯌꯥ ꯅꯐꯍꯊꯆꯤ ꯍꯥꯌꯗꯦ ꯐꯌꯆ꯫ ꯃꯅꯨꯡꯍꯥꯊ ꯑꯂꯤꯒꯤꯗꯃꯛ ꯃꯂꯤ ꯅ꯭ꯣꯡꯖꯦꯕꯤ ꯄꯦꯍꯦꯌ 13-ꯗ ꯄ꯭ꯔꯦꯥꯔꯤ ꯌꯥꯍꯤ, ꯑꯃꯁꯨꯡ 12-ꯗꯦ ꯗꯥꯌ ꯄꯤꯍꯤ꯫ ꯌꯐꯄꯣꯌꯥ ꯃꯂꯤꯗꯦ ꯌꯤꯕꯗꯦ ꯂꯍꯍ: ꯃꯂꯤꯒꯤ ꯌꯥꯍꯤ 50-ꯒꯤ ꯄꯨꯕ 24-ꯒꯤ ꯗꯥꯄꯥꯂꯤꯕ, 181−231 mm, ꯑꯂꯤ ꯁꯦꯛꯁꯟ 2.3.6(c)(i)-ꯒꯤ ꯅ꯭ꯣꯡꯂꯦ ꯐꯤꯌꯕꯤ ꯌꯤꯕ 1.3 ꯃꯔꯊꯆꯤ, ꯑꯃꯁꯨꯡ ꯍꯐꯖꯤꯡ ꯂꯊꯒꯤ 231 mm ꯑꯂꯤ Imphal (Tulihal)-ꯗ IMD-ꯒꯤ ꯍꯕꯍꯗꯒꯤ ꯌꯤꯕꯕ ꯅꯨꯃꯤꯌ, 1953−2012-ꯒꯤ ꯔꯥꯄꯦꯔꯗꯌ 158.6 mm, ꯒꯤ ꯌꯤꯕ 1.45 ꯃꯔꯊꯆꯤ꯫ ꯅꯕꯁꯄꯕꯤ ꯌꯤꯕꯂꯤꯕꯗ ꯃꯂꯤꯒꯤ ꯂꯊꯂꯤꯕ, ꯅꯅꯗ 306 mm, ꯌꯃꯥꯕꯅꯕꯗ 431 mm ꯑꯃꯁꯨꯡ ꯆꯤꯔꯤꯕꯤꯃꯗ 491 mm, ꯑꯂꯤ ꯅ꯭ꯣꯡꯖꯦꯕꯤ ꯐꯕꯗꯌꯍꯤꯕ ꯍꯕꯍꯗꯒꯤ ꯌꯤꯕꯕ ꯅꯨꯃꯤꯌ, ꯈꯧꯄꯨꯝ (Khoupum) 225 mm (ꯄꯤꯕꯗ ꯐꯕꯗꯌꯍꯤꯕ ꯃꯌꯨꯝ ꯍꯦꯗꯦ), ꯒꯤ ꯌꯤꯕ 1.4-ꯗꯒꯤ 2.2 ꯐꯦꯕꯕꯆꯤ, ꯑꯃꯁꯨꯡ ꯆꯤꯔꯤꯕꯤꯃꯗꯒꯤ ꯌꯤꯕ 30 km ꯗꯄꯄ Silchar-ꯒꯤ IMD ꯔꯥꯄꯦꯔꯗꯂꯤꯕꯗꯒꯤ ꯊꯦꯍ꯫ ꯑꯌꯤꯕ, ꯅꯕꯄꯌ ꯑꯃꯁꯨꯡ ꯍꯒꯤ ꯌꯤꯕꯂꯤꯕꯗ ꯃꯂꯤ ꯌꯥꯌ ꯌꯥꯕ ꯖꯐꯗꯥ, ꯃꯔꯐꯗꯤ ꯅ꯭ꯣꯡꯂꯦ, ꯄ꯭ꯔꯦꯌꯐꯦ ꯅꯌꯔꯣ ꯅ꯭ꯣꯡꯗꯤ ꯑꯃꯌꯌꯗꯦ ꯃꯍꯌ ꯌꯗꯥ, ꯑꯗꯨꯕ ꯃꯂꯤꯗꯦ ꯌꯥꯌ ꯑꯃꯌꯌꯗꯂꯤ ꯐꯊ ꯌꯗꯥ: ꯃꯐꯐ ꯑꯗꯨꯗ ꯃꯂꯤꯒꯤ ꯂꯊꯂꯤꯕ ꯌꯐꯄꯣꯌꯥꯕꯤ ꯌꯥꯕꯊꯒꯤ ꯌꯤꯕ 1.0-ꯗꯒꯤ 1.25 ꯐꯦꯕꯕꯗ ꯆꯦ, MASTEC-ꯒꯤ ꯖ ꯅꯨꯗꯤꯕꯒꯤ ꯄꯨꯐꯆꯃꯌꯗꯦ ꯌꯤꯕꯂꯤꯕꯕ ꯌꯐꯄꯣꯌꯥꯒꯤ ꯌꯤꯕꯗꯦ ꯖꯐꯆꯤꯕ ꯌꯤꯕ 1.3-ꯗꯒꯤ 1.5-ꯗꯒꯤ ꯅꯥꯐꯗꯦ꯫ ꯃꯔꯐ ꯑꯗꯨꯗꯦ ꯁꯦꯛꯁꯟ 2.3.6-ꯗꯦ MN-A ꯑꯃꯁꯨꯡ MN-A1-ꯗ ꯌꯐꯄꯣꯌꯥꯕꯤ ꯅ꯭ꯣꯡꯂꯦꯒꯤ ꯂꯥꯔꯤꯆ, MN-B-ꯗ ꯌꯐꯄꯣꯌꯥꯕꯤ ꯌꯥꯕꯊ ꯐꯅꯦꯔ ꯑꯍꯗꯦ ꯆꯕ NIH-DHAARA, ꯃꯐꯐ ꯑꯗꯨꯗ ꯌꯐꯄꯣꯌꯥ ꯌꯤꯕꯗꯦ ꯂꯍꯕ ꯊꯔꯑꯄꯐ ꯑꯃꯀ ꯆꯕꯗꯦ ꯑꯂꯍꯕ ꯆꯌꯕ ꯃꯍꯕꯤꯗ ꯂꯍꯍ, ꯑꯃꯁꯨꯡ MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯗ ꯌꯤꯐꯗꯦ ꯅꯄꯅꯕ ꯕꯔꯄ ꯌꯐꯄꯣꯌꯥꯕꯤ ꯂꯊꯒꯤ ꯐꯅꯔꯂꯤꯕ ꯂꯤꯆꯤꯔꯦꯆꯦ, ꯑꯃꯁꯨꯡ ꯑꯌꯣꯔꯄ ꯃꯐꯐꯂꯤꯕꯗ NIH-DHAARA-ꯕ ꯗꯤꯖꯥꯏꯟ ꯒꯥꯊꯥꯂꯤꯕꯒꯤ ꯃꯅꯥꯡ ꯌꯤꯕꯗꯐꯅꯅꯕ ꯍꯌꯥꯒꯤꯗꯃꯛ ꯔꯤꯄꯣꯔꯇ ꯌꯥꯍ; ꯃꯂꯤꯒꯤ ꯗꯤꯖꯥꯏꯟꯂꯦ ꯔꯥꯂꯤꯑꯂꯤꯕ, ꯄ꯭ꯔꯥꯖ ꯄꯔꯒ ꯑꯃꯁꯨꯡ ꯄꯨꯕ 72 ꯑꯃꯁꯨꯡ ꯄꯨꯕ 24-ꯒꯤ ꯔꯥꯂꯤꯑꯂꯤꯕꯒꯤ ꯃꯑꯕꯂꯤꯕ, ꯒꯥꯊꯥꯂꯤꯕ ꯅꯌꯥ, ꯂꯤꯆꯤꯔꯦꯆꯦ꯫ IMD Das et al. (2022)-ꯒꯤ ꯍꯐꯖꯤꯡꯒꯤ ꯄꯅꯅꯊ ꯑꯂꯤ ꯄꯗꯍꯗꯂꯦ ꯂꯤꯆꯤꯔꯦꯅꯗ, ꯃꯔꯐꯗꯤ ꯃꯂꯤꯗꯦ ꯄꯥꯄꯔ ꯑꯗꯨꯗꯦ ꯃꯂꯤꯒꯤ ꯂꯊꯔ ꯄꯌꯤꯒꯤꯗꯃꯛ ꯐꯕꯗꯌꯄ ꯆꯅꯔꯤꯌ ꯄꯔꯒ ꯑꯃꯀ ꯑꯃꯌ ꯊꯦꯗꯦ ꯄꯤꯔꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯄꯨꯕ 24-ꯒꯤ ꯃꯖꯌꯥ ꯆꯕ ꯃꯐꯐ ꯑꯃꯀ ꯂꯕꯕ ꯔꯤꯖꯔꯣꯜ ꯄꯤꯔꯤꯔꯤꯗꯂꯤꯕꯗ ꯍꯐꯖꯤꯡꯒꯤ ꯔꯥꯄꯦꯔꯗ ꯅꯨꯗꯤꯕꯃꯌꯥꯒꯤ ꯌꯤꯕꯍ꯫ ꯃꯆꯤꯄꯨꯔ ꯑꯂꯤ ꯂꯥꯔꯤꯆ ꯑꯂꯤꯒꯤ ꯅꯔꯖ-ꯍꯂꯌꯕꯤ ꯑꯄꯨꯃꯂꯕ ꯑꯦꯗꯤꯂꯦꯆꯤ, ꯑꯃꯁꯨꯡ ꯃꯔꯐ ꯑꯄꯨꯐꯗꯦ ꯃꯂꯤꯒꯤ ꯍꯦꯌꯔꯤꯐ ꯊꯔꯑꯄꯐ ꯑꯂꯤ ꯌꯥꯖꯦꯊꯆꯤ꯫ ꯑꯊꯅꯕꯗꯤ, **CWC ꯔꯤꯄꯣꯔꯇ ꯑꯃꯌꯌꯗꯦ ꯅ꯭ꯣꯡꯖꯦꯕꯤ ꯂꯕꯨꯌ ꯑꯃꯌꯌ ꯌꯗꯥ**: ꯃꯂꯤ ꯄꯨꯐꯆꯃꯌ ꯂꯕꯆꯦ 2(c), "Barak and others"-ꯗ ꯆꯦ, ꯃꯂꯤꯒꯤꯗꯃꯛ CWC-ꯗꯦ ꯐꯆꯗ ꯑꯦꯅ꯭ꯣꯡꯃꯦꯂꯦ ꯔꯤꯄꯣꯔꯇ ꯑꯃꯌꯌ ꯐꯕꯗꯌꯍꯤꯗꯦ, ꯑꯃꯁꯨꯡ ꯂꯦꯗꯄꯌꯤ ꯄꯗꯦꯒꯤ ꯑꯌꯤꯕ ꯖꯕꯕꯒꯤ ꯑꯄꯤꯌꯄ ꯂꯕꯨꯌ ꯍꯔꯍꯌꯗꯦ 2(b) ꯄ꯭ꯔꯦꯌꯂꯤꯕ ꯂꯌꯄ ꯌꯤꯍ꯫ ꯃꯃꯥꯡꯒꯤ ꯅꯔꯖ-ꯍꯂꯌ ꯑꯦꯗꯤꯂꯦꯂꯤꯕꯗꯦ 2(c) ꯑꯂꯤ ꯃꯍꯔꯒꯤ ꯆꯃꯍꯒꯤ ꯂꯕꯨꯌ ꯍꯔꯗ ꯍꯌꯥ ꯖꯥꯕꯅꯍꯤ, ꯑꯃꯗꯦ ꯑꯦꯂꯤꯔꯄꯃꯦꯌꯥ (escarpment) ꯑꯃꯗ, ꯃꯐꯐ ꯑꯗꯨꯗ ꯃꯂꯤꯗꯦ ꯑꯦꯂꯤꯔꯄꯃꯦꯌꯥꯕꯤ ꯅ꯭ꯣꯡꯂꯦ ꯑꯃꯒꯤꯗꯃꯛ Das et al. (2022)-ꯒꯤ ꯑꯅꯃꯕ IMD ꯄꯔꯒ ꯑꯃꯍꯌ ꯑꯃꯀ ꯂꯤꯆꯤꯔꯦꯍꯤ, ꯑꯃꯁꯨꯡ ꯑꯃꯗꯦ ꯕꯔꯄ ꯌꯐꯄꯣꯌ, ꯃꯐꯐ ꯑꯗꯨꯗ ꯃꯂꯤꯗꯦ ꯐꯆꯔꯂꯤꯕꯤ ꯅꯍꯅꯅ IMD ꯅ꯭ꯣꯡꯂꯦ ꯑꯅꯤ ꯂꯤꯆꯤꯔꯦꯍꯤ; ꯃꯐꯐ ꯑꯂꯤꯗ ꯃꯍꯔꯕꯤ ꯑꯂꯤ ꯅ꯭ꯣꯡꯌ ꯄꯨꯐꯆꯃꯌꯆꯤ, ꯑꯃꯁꯨꯡ ꯖꯑꯕ ꯑꯂꯤ ꯆꯃꯍꯒꯤ ꯅꯍꯅꯅ ꯊꯕꯍ: ꯌꯐꯄꯣꯌ ꯅ꯭ꯣꯡꯂꯦꯒꯤ ꯂꯥꯔꯤꯆ, ꯑꯌꯤꯕ, ꯅꯕꯄꯌ ꯑꯃꯁꯨꯡ

ꯍꯥꯏ ꯔꯤꯖꯣꯂꯨꯁꯟ ꯃꯦꯞꯁꯤꯡ ꯐ꯭ꯂꯗꯀꯤ ꯃꯣꯗꯦꯜ NIH-DHAARA, ꯑꯃꯁꯨꯡ ꯂꯣꯀꯦꯜ ꯗꯦꯇꯥ ꯃꯦꯞꯁꯤꯡ ꯐ꯭ꯂꯗꯀꯤ ꯑꯣꯏꯕ꯫ ꯃꯁꯤꯒꯤ ꯑꯣꯏꯣꯏꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯌꯥꯝꯅ ꯑꯣꯏꯕꯗ ꯆꯦꯛꯇꯧ, ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ 2(c)-ꯒꯤꯗꯃꯛ CWC-ꯗ ꯃꯤꯍꯥꯛꯀꯤ ꯑꯦꯞꯔꯨꯕꯦꯜ ꯃꯊꯧ ꯇꯥꯕ ꯌꯥꯝꯅ꯫ ꯑꯗꯨꯝꯇꯧꯔꯕꯁꯨ, **ꯃꯇꯦꯡꯗꯤ ꯑꯣꯏ ꯊꯤꯗꯤꯔꯕꯗ, ꯍꯤꯡꯕꯤ ꯌꯥꯝꯅ ꯑꯃꯥ ꯗꯤ, ꯃꯇꯝ ꯑꯁꯤꯒꯤ ꯗꯦꯇꯥ ꯐꯪꯗ ꯍꯤꯟꯗꯦ ꯍꯣꯡꯕ ꯑꯁꯨꯕ ꯅꯣꯏꯗ ꯅꯍꯩꯂꯣꯏꯗꯕꯤ ꯑꯍꯣꯛꯇꯩ**: ꯍꯥꯏ ꯄ꯭ꯔꯦꯁꯤꯒꯤ IMD ꯃꯦꯊꯦꯃꯦꯇꯤꯛ ꯅꯤꯡꯈꯥꯒꯤ ꯅ꯭ꯌꯨꯅꯇꯒꯤ ꯍꯧꯗꯕ ꯆꯨꯡꯕ 158.6 mm ꯅꯥꯌꯗꯤ, ꯑꯁꯨꯕ ꯌꯥꯝꯅ ꯑꯣꯏ ꯄꯔꯤꯌꯥ ꯃꯍꯩ ꯅꯣꯏꯗꯦ ꯍꯩꯅ, ꯍꯦꯡꯕꯤ ꯍꯣꯏꯒꯤ ꯌ꯭ꯂꯦꯡꯣꯏꯗꯦ ꯍꯣꯏꯒꯤ ꯃꯥꯍꯤꯡꯣꯏꯃꯤ ꯍꯤꯗ 70% ꯍꯦꯡ ꯑꯅꯕ ꯍꯤꯗꯣꯏꯗꯤꯒꯤ ꯆꯨꯡꯕ ꯃꯍꯩꯒꯤ ꯗꯥ ꯌ꯭ꯂꯦꯥꯌ꯭ꯂꯗꯦ, ꯅꯊꯥꯅ ꯕꯦꯃꯦꯇ (Ithai barrage) ꯑꯃꯁꯨꯡ ꯂꯒꯤ ꯄꯒꯤꯝ ("Sugnu hump") ꯍꯗꯥꯌꯥ ꯍꯤ 400 m³/s ꯍꯦꯡ ꯌꯕ ꯊꯥꯖꯤꯡ ꯑꯃꯅꯥꯌꯥ ꯗꯕ ꯕꯣꯏꯇ ꯑꯃꯁ ꯊꯁꯃꯅ (MASTEC)꯫ ꯃꯗꯦꯇ 2.3.6(e)-ꯒꯤ ꯌꯗ 72-ꯒꯤ ꯁꯌꯊꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯂꯦꯥ 5-ꯒꯤ ꯑꯁꯇꯖꯦ (outfall) ꯊꯤꯗꯇꯕ ꯍꯌꯗꯒꯤ ꯍꯥꯣꯏꯗ ꯑꯣꯏ ꯍꯖꯗ ꯑꯁꯨꯕ ꯌꯤꯥ ꯌꯗꯁꯒꯤ ꯄꯇꯗꯦ ꯍꯦ ꯑꯅ꯫ ꯑꯔꯍꯂꯕꯁꯤ, **ꯗꯗ ꯍꯕ ꯑꯣꯏ ꯌꯍꯌꯥꯌꯒꯤ ꯕꯦꯥ ꯊꯗꯕꯁ ꯍꯗꯕ ꯗꯗꯍꯌꯃꯤ ꯍꯤꯗꯣꯏꯗꯁ ꯍꯤꯍꯗꯦ ꯊꯗꯦ ꯄꯗꯒꯤꯗꯤꯅ**, ꯍꯖꯍ ꯑꯁꯨꯕ NIH-DHAARA-ꯗꯦ ꯌꯍꯌꯥꯌꯃꯤ ꯒꯅꯍꯣꯏꯗꯒꯤ ꯑꯗꯤꯁꯒꯤ ꯑꯗꯤ ꯂꯦꯥꯌ ꯖꯍꯕ ꯌꯤꯦꯤ ꯑꯃꯁꯨꯡ ꯂꯌꯄꯃꯤ ꯖꯗꯁꯗꯅꯤꯕ ꯅꯕꯅꯁꯒꯤ ꯍꯖꯕ ꯗꯗ ꯅꯌꯍꯁ ꯑꯄꯗ ꯑꯍꯁ ꯗꯌꯅꯤ; ꯃꯗꯦꯇ 2.3.6(c)(ii)-ꯗꯦ ꯍꯤꯍꯗꯦ ꯗꯌꯗꯕ ꯕꯦꯥ ꯌꯍꯌꯥꯌꯃꯤ ꯃꯅꯒꯤ ꯖꯗꯦꯣꯏꯗ ꯂꯌꯄꯃꯤ ꯃꯍꯅꯒꯤ ꯍꯊꯌꯥ ꯌꯦꯃꯅ, ꯍꯦꯍ ꯑꯁꯨꯗꯦ ꯕꯦꯅ ꯍꯤꯗꯊꯗ ꯑꯃꯁꯨꯡ ꯕꯦꯥ ꯌꯗꯦꯍ ꯗꯗ ꯍꯕꯒꯤ ꯊꯁꯥ ꯑꯍꯗꯦ ꯍꯗꯥ ꯑꯗꯤꯍꯌ ꯍꯗꯗꯗꯦ ꯌꯅ꯫ ꯌꯗ 24-ꯒꯤ ꯁꯌꯊꯃꯤ ꯅꯗꯌꯃꯤꯍ ꯌꯕꯅꯣꯏꯗ, ꯌꯗ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯖꯌꯥꯃꯣꯏꯗ, ꯂꯗꯌꯗꯤ ꯌꯗꯒꯤ ꯑꯍꯤꯗꯁ ꯌꯗꯦꯁ ꯌꯕ, ꯂꯄꯃ ꯍꯁꯗꯍꯌꯃꯤ ꯂꯕ-ꯑꯃꯤꯍ, ꯃꯣꯏꯑꯒꯤ ꯂꯁ ꯑꯗꯤ, ꯍꯗꯤꯍꯌꯃꯒꯤ ꯖꯗꯦꯃ ꯗꯌꯕ, ꯁꯍꯗꯦ ꯊꯌꯊꯗꯕ ꯃꯃꯁ ꯍꯌ, ꯄꯗꯁ ꯑꯄꯗꯕ ꯑꯅꯕ ꯂꯃꯗꯗ ꯑꯃꯁꯨꯡ ꯌꯗ 1-ꯁꯒꯤ ꯄꯗꯊꯕ ꯁꯍꯃꯂꯗꯣꯏꯗ ꯑꯣꯏ ꯍꯂꯍꯅ ꯑꯣꯏꯗꯦ ꯊꯍꯕꯗꯤ꯫ ꯍꯖꯍ ꯃꯍ ꯗꯅꯣꯏꯗꯁꯃꯤ꯫ ꯃꯗꯦꯇ 2.3.6(c)(i)-ꯒꯤ ꯖꯍ ꯑꯣꯏ NEER-ꯒꯤꯗꯤ, 2000-ꯁ ꯗꯅꯕ ꯑꯃꯁꯨꯡ ꯂꯌꯂꯗ ꯑꯁꯍꯌꯃꯤ IMD-ꯒꯤ ꯄꯗꯒꯤ ꯃꯃꯃꯁꯗꯦ ꯃꯗꯖꯃꯍ ꯌꯁꯕ 1984-ꯒꯤ ꯄꯗꯒꯤ 140 mm-ꯒꯤ ꯆꯨꯡꯕ ꯑꯍ ꯊꯍꯗꯤꯕ ꯂꯃꯤꯗ ꯑꯍꯁ [U]꯫ 2(b)/2(c) ꯗꯅꯗ ꯑꯣꯏ ꯗꯍꯅꯒꯤ ꯅꯍꯗ ꯑꯍꯁꯒꯤ ꯍꯤꯖꯗꯦ ꯍꯗꯁꯗꯦ ꯍꯤ 0.1° ꯖꯁꯕ ꯌꯅꯤꯕꯗꯤ [TBC]꯫ 1986–2009-ꯒꯤ ꯍꯤꯗꯖ 15-ꯒꯤ ꯁꯌꯁꯒꯤ ꯂꯍꯕ ꯅꯍꯖꯒꯤ IDF ꯑꯣꯏ ꯖꯗꯁꯌꯌ ꯑꯍ ꯑꯅꯗꯦ ꯅꯌꯥ ꯁꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯣꯏꯒꯤ ꯒꯅꯍꯣꯏꯗ ꯅꯗꯁ [TBC]꯫ ꯅꯌꯍꯁ 225 mm-ꯒꯤ ꯑꯄꯗ ꯑꯁꯨꯒꯤ ꯒꯗ ꯑꯃꯁꯨꯡ ꯁꯍꯃꯂꯗ ꯖꯗꯁꯌꯥ [U], ꯑꯃꯁꯨꯡ ꯗꯤꯃꯤꯕꯍ ꯌꯗꯗꯁꯒꯤ Silchar (Kumbhigram) ꯒꯗꯒꯤ ꯗꯌꯌ ꯑꯣꯏ IMD-ꯒꯤ ꯃꯑꯃꯁꯤꯗꯖꯣꯏꯗꯁꯒꯤ ꯃꯗꯖꯃꯍ ꯌꯒꯁꯕꯗꯤ [TBC]꯫ ꯍꯂꯍꯅ ꯑꯣꯏꯒꯤꯁꯍ ꯂꯌꯖꯃꯤ ꯃꯃꯤꯒꯍꯕ ꯂꯄꯃ ꯑꯍꯒꯤ ꯁꯤꯗꯅꯗ ꯗꯗ ꯍꯕꯒꯤ ꯑꯗꯗꯗꯅꯣꯏꯂ ꯍꯤꯁꯕ ꯂꯌꯃꯍ-ꯅꯗꯕꯗꯒꯤ DPR ꯑꯍꯖꯌ ꯖꯗꯅꯤꯁ [TBC]꯫

2.4 ꯁꯤꯗꯅꯗ ꯃꯤꯌꯃꯗ ꯌꯤꯃꯤꯍꯁꯣꯏꯗ (ꯂꯍꯍꯃꯤ)

2.4.1 ꯁꯤꯗꯅꯗ AEP-ꯂꯣꯏꯗ ꯑꯣꯏ ꯑꯗꯤꯍꯗꯖ ꯅꯁꯤꯗꯍꯌꯃꯤ ꯂꯁꯌꯣꯏꯗꯁ ꯊꯍꯗꯤ꯫ ꯁꯤꯗꯅꯗꯒꯤ ꯄꯃꯌꯖꯍꯁ ꯅꯍꯕ ꯗꯗ ꯍꯕ ꯗꯊꯌꯗꯕ ꯍꯅꯍ ꯍꯖꯍ ꯑꯣꯏꯁ ꯂꯍꯍꯃꯤ ꯌꯃꯤ꯫

ꯌꯕꯖ 2.1 — ꯁꯤꯗꯅꯗ ꯃꯤꯌꯃꯗ ꯌꯤꯃꯤꯍꯁꯣꯏꯗ (ꯂꯍꯍꯃꯤ)

ꯑꯗꯤꯍꯗꯖ	ꯁꯤꯗꯅꯗ AEP (ꯃꯤꯌꯃꯗ ꯌꯤꯃꯤꯍꯁ)	ꯍꯌ ꯌꯕ ꯊꯁꯌ	ꯂꯁꯌ
ꯍꯅꯗꯃ ꯅꯗꯕꯗꯣꯏꯗ: ꯅꯍꯖ, ꯊꯕꯖ, ꯃꯌꯍꯤꯗ, ꯕꯤꯂꯗꯌꯃ ꯑꯃꯁꯨꯡ ꯅꯃꯍꯗꯁꯌꯒꯤ ꯃꯃ ꯑꯃꯁꯨꯡ ꯄꯅ-ꯁꯗꯣꯏꯌ ꯑꯃꯤꯍꯣꯏꯗ	10% (10-yr)	1% (100-yr) ꯑꯒꯃꯗꯗꯁ ꯗꯍꯕꯤ	6
ꯍꯅꯗꯃ ꯅꯗꯕꯗꯣꯏꯗ: ꯑꯌꯌꯌ ꯃꯗꯂ । ꯂꯄꯃꯒꯤ ꯑꯃꯤꯍꯣꯏꯗ	20% (5-yr)	1% ꯑꯒꯃꯗꯗꯁ ꯗꯍꯕꯤ	6
ꯍꯅꯗꯃ ꯅꯗꯕꯗꯣꯏꯗ: ꯑꯌꯌꯌ ꯑꯃꯤꯍꯣꯏꯗ	50% (2-yr)	1% ꯑꯒꯃꯗꯗꯁ ꯗꯍꯕꯤ	6
ꯑꯃꯌꯃꯤꯍꯖ ꯗꯍꯕꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯃꯃꯣꯏꯗꯣꯏꯗ	2–4% (25–50-yr)	ꯍꯊꯗꯒꯤ ꯄꯗꯗꯦ ꯍꯤꯗꯕ AEP	6
ꯃꯗꯌꯌꯃ / ꯗꯃꯖ ꯗꯍꯕꯣꯏꯗ	4% / 10% (25 / 10-yr)	2% / 4% (50 / 25-yr), ꯑꯃꯁꯨꯡ 1% ꯑꯒꯃꯗꯗꯁ ꯗꯍꯕꯤ	6
ꯍꯗꯃ (ꯑꯒꯃꯗꯗꯁ) ꯂꯣꯏꯌꯍ	1% (100-yr)	—	6
ꯃꯤꯌꯗꯂꯗ ꯒꯄꯍ	ꯌꯃꯂꯗꯌꯅꯖ ꯆꯨꯡꯕ ꯅꯁꯤꯗꯒꯤ ꯗꯗ ꯍꯕ (ꯃꯗꯦꯇ 2.10)	—	4

ꯑꯦꯂꯤꯃꯦꯟꯠ	ꯗꯤꯖꯥꯏꯟ AEP (ꯔꯤꯇꯔꯟ ꯄꯤꯔꯤꯌꯗ)	ꯆꯦꯛ ꯇꯣꯕ ꯊꯥꯗꯀ	ꯁꯦꯛ
ꯗꯤꯇꯦꯟꯁꯟ: ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯏꯚꯦꯟꯠꯁꯤꯡ	50%, 10%, 1% (2, 10, 100-yr)	1% ꯕ꯭ꯂꯣꯀꯦꯖ ꯁꯤꯅꯥꯔꯤꯑꯣ	4
ꯗꯤꯇꯦꯟꯁꯟ: ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯁꯦꯡꯁꯤꯟꯒꯤ ꯑꯦꯟꯗ ꯏꯚꯦꯟꯠꯁꯤꯡ	ꯀꯤꯔꯄꯆ-ꯗ꯭ꯔꯥꯏꯚꯗꯁꯤ ꯂꯨꯏ, ꯇꯦꯕꯜ 2.11	1%	4
ꯕꯤꯜꯗꯤꯡꯒꯤ ꯐ꯭ꯂꯣꯔ ꯂꯦꯚꯦꯂꯁꯤꯡ	1% + 0.5 m ꯐ꯭ꯔꯤꯕꯣꯔꯗ	—	6
ꯗꯤꯇꯦꯟꯁꯟꯒꯤ ꯐꯦꯏꯂꯌꯔ ꯁꯤꯅꯥꯔꯤꯑꯣ	ꯑꯣꯚꯔꯇꯣꯞ ꯇꯦꯁ꯭ꯠ ꯑꯦꯠ 1%	ꯄꯥꯟ ꯄꯂꯦꯔꯗ ꯂꯣꯕ ꯀꯦꯕꯗ 0.2% (500-yr)	4

ꯃꯦꯊꯗꯀꯤ ꯅꯣꯠ. ꯒꯦꯏꯗꯂꯁꯤꯡ ꯑꯁꯤ CPHEEO (2019)-ꯒꯤ ꯂꯦꯃꯂꯦꯟ ꯑꯦꯗꯞꯇꯦꯗꯄꯤ ꯀꯤꯂꯤꯀꯟ, 5-yr (ꯃꯦꯖꯣ । ꯃꯄꯥꯛꯁꯤꯡ) ꯑꯃꯁꯨꯡ 2-yr (ꯑꯣꯠꯂꯣꯒ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ)-ꯗꯒꯤ ꯄꯥꯝꯅ॥ CPHEEO-ꯅ ꯁꯣꯡꯍ ꯑꯃꯕ ꯄꯥꯝꯂꯕ ꯍꯟꯗꯣꯛ ꯒꯦꯏꯗꯂꯁꯤꯡ ꯆꯥꯡꯕ ꯍꯥꯄꯄ꯭ꯇꯦ॥ ꯒꯦꯏꯗꯂꯁꯤꯡ ꯑꯁꯤ ꯁꯦꯛ 4 ꯑꯃꯁꯨꯡ 6-ꯗ ꯆꯦꯛꯇꯤ, ꯑꯃꯁꯨꯡ ꯄꯥꯕꯦ ꯑꯁꯤ ꯁꯤꯇꯤꯃꯦꯟꯠꯗ ꯑꯦꯟꯗꯣꯔꯁꯃꯦꯟꯠ ꯀꯟꯇ ꯑꯁꯤꯗ ꯑꯀꯟꯕ ꯄꯥꯝꯂꯦ ꯌꯥꯝꯗꯤ॥

2.5 ꯗꯤꯖꯥꯏꯟ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ

2.5.1 **ꯗꯔꯦꯅꯦꯖꯒꯤ ꯑꯦꯂꯤꯃꯦꯟꯠꯁꯤꯡ** (ꯀꯟꯕꯁꯤꯡ, ꯄꯥꯏꯞꯂꯥꯏꯟ ꯅꯦꯠꯋꯔꯀꯁꯤꯡ, ꯂꯦꯂꯁꯤꯡ, ꯃꯔꯀꯁꯤꯡ) ꯑꯁꯤ ꯏꯁꯤꯡ ꯀꯥꯡꯂꯤꯕ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯁꯥꯏꯖ ꯑꯃꯁꯨꯡ ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯟ (Tc) ꯒꯤ ꯃꯈꯥ ꯇꯥꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯑꯗꯨꯒꯤ ꯏꯟꯄꯨꯠꯁꯤꯡꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯤ (ꯁꯦꯛ 3)॥ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯄꯥꯝꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯑꯁꯤ **ꯀꯤꯂꯣ 10-ꯅꯤ**॥

2.5.2 **ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯑꯦꯂꯤꯃꯦꯟꯠꯁꯤꯡ** (ꯗꯤꯇꯦꯟꯁꯟ, ꯔꯤꯇꯦꯟꯁꯟ, ꯄꯣꯟꯗꯁꯤꯡ, ꯄꯝꯄ ꯑꯃꯁꯨꯡ ꯁꯝꯄꯁꯤꯡ) ꯑꯁꯤ ꯁꯦꯠ {1, 2, 3, 6, 12, 24, 48, 72 h}-ꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯈꯥꯏꯗꯒꯤ ꯃꯇꯦꯡꯗꯒꯤ ꯆꯦꯛ ꯇꯧꯔꯤ॥ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯍꯣꯠꯕ ꯀꯥꯏ ꯇꯧꯕ ꯁ꯭ꯇꯣꯔꯦꯖ ꯗꯤꯃꯥꯟꯗ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯄꯆ ꯀꯦꯡ ꯑꯃꯅ॥ ꯄꯨꯡ 24, 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯂꯃꯡ ꯏꯕꯒꯤ ꯑꯣꯗꯥꯔꯁꯤꯡ ꯑꯁꯤ, ꯃꯦꯖꯣꯔꯤꯇꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯀꯄ ꯃꯦꯂꯦꯡꯆꯕ ꯑꯃꯦꯕꯨ, ꯁꯃꯅ ꯏꯗꯥꯡꯀꯋꯥ **ꯁ꯭ꯇꯣꯔꯦꯖ** ꯍꯦꯛꯁꯤꯡꯗꯤ॥

2.5.3 **ꯇꯝꯕꯃꯤ ꯁꯣꯃ ꯂꯣꯕ ꯑꯣꯚꯔꯇꯣꯞꯁꯤꯡ.** ꯇꯝꯕꯃꯤ ꯁꯣꯃ ꯂꯣꯕ ꯑꯣꯚꯔꯇꯣꯞ ꯑꯀꯅ ꯏꯁꯤꯡ ꯍꯦꯜꯗꯔꯟ ꯁ꯭ꯇꯣꯔꯦꯖꯀꯤꯗꯃꯛ (ꯁꯦꯛ 5), ꯄꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯂꯃꯡ ꯏꯕꯒꯤ ꯑꯣꯗꯥꯔꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯕꯜ 2.12-ꯒꯤ ꯇꯦꯡꯅꯕꯇꯥ ꯕꯣꯏꯗꯦꯔꯤ ꯂꯔꯦꯂꯂꯨ ꯄꯦꯟ ꯇꯧꯔꯦꯕꯗꯤ॥

ꯃꯦꯊꯗꯀꯤ ꯅꯣꯠ. ꯀꯂꯤꯄꯨꯔꯒꯤ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯐꯦꯏꯇꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯁꯤꯡ ꯑꯁꯤ ꯍꯤꯡꯁꯤꯡꯗ ꯂꯀꯤꯌ ꯃꯍꯩꯒꯤ ꯂꯩꯗꯅ ꯇꯝꯄꯥꯛꯃꯤ ꯇꯨꯄꯦꯅꯁꯤꯡ ꯀꯄꯨꯂꯦꯄꯔꯇꯕ ꯀꯇꯝꯀꯗ ꯅꯥꯏꯍꯦ॥ MASTEC-ꯅ ꯂꯝꯗꯝ 361 ꯍꯣꯠꯂꯤꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯀꯀꯡꯗ 1989-ꯒꯤ "28th July-ꯗꯒꯤ 1st August ꯐꯥꯎꯕ ꯂꯀꯤꯌ ꯅꯨꯡꯁꯤꯡꯒꯤ ꯂꯦꯄꯇꯕ ꯂꯡ" ("continuous daily rainfall from 28th July to 1st August") ꯄꯦꯃꯥꯄꯗ ꯇꯣꯟ, ꯂꯨꯅꯟ ꯑꯍꯨꯗ ꯃꯡꯄꯥꯜꯅꯥꯄꯤꯗ 617.6 mm ꯑꯃꯁꯨꯡ ꯁꯦꯡꯀꯟ ꯑꯃꯁꯨꯡ ꯍꯥꯄꯤꯒꯤ ꯀꯆꯥꯃꯤ ꯃꯦꯍꯀꯦꯌꯇ ꯍꯨꯡ 700 mm ꯀꯄꯦꯏ, ꯑꯍꯥꯞ ꯅꯀꯐꯥꯏꯅ 30 ꯂꯨꯅꯟꯗ ꯀꯁꯤꯒꯤ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯍꯨꯡꯕ ꯂꯀꯤꯌ, 158.6 mm, ꯄꯦꯃꯥꯄꯗ ꯇꯣꯍꯤ; ꯑꯃꯁꯨꯡ ꯍꯄꯤ ꯑꯍꯨꯁꯤꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯁꯤꯡꯒꯤ ꯀꯀꯡꯗ 22–28 ꯁꯦꯞꯇꯦꯝꯕꯔ 1997, 24 ꯑꯒꯁ꯭ꯠ–3 ꯁꯦꯞꯇꯦꯝꯕꯔ 1999 ꯑꯃꯁꯨꯡ 26 ꯑꯒꯁ꯭ꯠ–6 ꯁꯦꯞꯇꯦꯝꯕꯔ 2000-ꯒꯤ ꯂꯃꯡ ꯏꯕꯒꯤ ꯀꯇꯝꯁꯤꯡ (MASTEC)॥ 2025-ꯗ ꯅꯀꯐꯥꯏ ꯏꯝꯐꯥꯜ ꯏꯁ꯭ꯠꯇ (Imphal East) ꯄꯦꯃꯁꯤꯡ (bund) ꯃꯡꯍꯄꯤꯗꯕ ꯃꯡꯄꯥꯜꯅꯥꯄꯤꯗ 30–31 ꯀꯦꯗ ꯄꯨꯡ 72-ꯗ 175 mm ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯗ 123 mm ꯍꯨꯅꯤ (ꯄꯣꯁꯗ ꯐꯡꯗꯥꯟꯤꯕ ꯀꯇꯨꯡ ꯅꯦꯃ)॥ ꯇꯝꯄꯥꯛꯃꯤ ꯍꯨꯞꯂꯥꯄ ꯇꯨꯄꯦꯅꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯀꯇꯝꯗ ꯁꯦꯃꯦꯛ ꯍꯨꯗꯤꯡꯗ ꯃꯍꯨꯕꯤꯡ ꯀꯤꯄꯤ ꯂꯤꯁꯤꯡ ꯍꯩ ꯄꯨꯅꯃꯟ, ꯑꯍꯨꯕ ꯅꯋꯅꯗ ꯂꯣꯕ ꯑꯍꯨꯗ "400 cumecs-ꯒꯤ ꯀꯑꯣꯡꯗ" ("of the order of 400 cumecs") ꯄꯨꯟ, ꯀꯄꯦꯃ ꯑꯍꯨꯗ "ꯏꯁꯤꯡ ꯑꯁꯤ ꯀꯇꯥ ꯇꯡꯕ ꯀꯐꯦꯃꯗ ꯄꯨꯦꯁꯤꯅꯗꯥꯟ" ("water is piled up upstream") (MASTEC) ꯑꯃꯁꯨꯡ ꯂꯦꯃꯕ ꯀꯐꯦꯃꯁꯤꯡ "ꯄꯥꯟꯇ ꯃꯍꯩꯒꯤ ꯀꯇꯃ" ("for several weeks") ꯏꯁꯤꯡ ꯊꯃꯗꯅ (waterlogged) ꯂꯣꯟ (AIIB)॥ ꯇꯝꯄꯥꯛꯃꯤ ꯂꯃꯗ ꯂꯣꯕ ꯁꯄꯦꯒꯤ ꯍꯥꯡꯕꯅ ꯑꯀꯤ ꯕꯦꯁꯨꯌ ꯑꯀꯤꯒꯤ ꯄꯨꯡ ꯑꯀꯤꯒꯤ ꯀꯂꯨꯗ ꯀꯄꯨꯂꯦꯕ ꯑꯃꯅꯟ, ꯑꯍꯨꯕ ꯀꯁꯤꯒꯤ ꯑꯣꯚꯔꯇꯣꯞꯁꯤꯡ ꯑꯁꯤ ꯂꯀꯤꯌ ꯃꯍꯩ ꯍꯨꯄꯦꯅꯗ ꯊꯥꯡꯗꯤꯅꯗꯤ, ꯑꯃꯁꯨꯡ ꯀꯁꯤꯒꯤ ꯏꯁꯤꯡ ꯊꯀꯗꯤꯕ ꯄꯌꯁꯤꯡ ꯑꯃꯁꯨꯡ

ꯂꯧꯁꯤꯡ ꯑꯁꯤ ꯄꯤꯛ ꯄꯨꯡꯅꯥ ꯅꯠꯌꯦꯅꯥ ꯅꯣꯡ ꯆꯨꯕ ꯃꯌꯇ ꯄꯨꯇꯅꯃꯛꯅꯥ ꯗꯇꯅꯤ꯫ ꯈꯗꯤꯌꯤꯈꯦꯜ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯌꯛꯔꯗ ꯌꯨꯇꯁꯇ ꯑꯥꯌꯕ ꯗꯨꯜ ꯑꯃꯅꯥ, ꯑꯄꯤꯛꯄ ꯃꯩꯌꯠ ꯑꯃꯗ ꯁꯤꯖꯤꯟꯅꯗꯕꯗꯤ, ꯄꯨꯡ 1–2-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯥꯛ ꯑꯍ ꯍꯦꯛꯅꯤ ꯑꯃꯁꯨꯡ ꯗꯦꯖꯤꯏꯟꯒꯤ ꯃꯑꯣꯡ ꯑꯁꯤ ꯊꯗꯥꯃꯈꯅꯤ꯫ ꯍꯗꯇ ꯑꯗꯨꯗ ꯍꯌꯇ ꯑꯁꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯒꯤ ꯁꯦꯔꯃꯤꯛ ꯌꯦꯛꯅꯕꯅꯤ꯫

2.6 ꯅꯨꯃꯤꯠ ꯑꯃꯗꯒꯤ ꯍꯟꯊꯕ ꯃꯇꯃꯒꯤ ꯅꯣꯡ ꯆꯨꯕ

2.6.1 NIH-DHAARA ꯅꯠꯔꯒꯥ ꯑꯦꯃꯗꯨꯒ ꯂꯩꯔꯕ ꯁ꯭ꯇꯦꯁꯅꯒꯤ IDF ꯑꯃꯅꯥ ꯍꯠ ꯌꯥꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯒꯤꯗꯃꯛ ꯚꯦꯜꯌꯨꯁꯤꯡ ꯍꯛꯊꯦꯡꯅꯅ ꯄꯤꯗꯕꯗꯤ, ꯚꯦꯜꯌꯨ ꯑꯗꯨꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

2.6.2 ꯄꯨꯡ 24-ꯗꯒꯤ ꯍꯟꯊꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯒꯤꯗꯃꯛ ꯅꯨꯃꯤꯠ ꯈꯨꯗꯤꯡꯒꯤ (ꯄꯨꯡ 24-ꯒꯤ) ꯗꯥꯇꯥꯁꯤꯡ ꯈꯛꯇꯃꯛ ꯂꯩꯔꯕꯗꯤ, ꯅꯨꯃꯤꯠ ꯑꯃꯗꯒꯤ ꯍꯟꯊꯕ ꯗꯥꯇꯥ ꯑꯁꯤ **ꯑꯍꯥꯟꯕ 2B-ꯒꯤ ꯔꯦꯁꯤꯑꯥ ꯁꯦꯜ** ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯁꯦꯃꯒꯗꯕꯅꯤ꯫ ꯃꯍꯥꯛ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯔꯦꯖꯥꯔꯗꯤꯡ ꯒꯦꯖꯤꯡꯗ ꯖꯦꯖꯤꯕꯔꯦꯌ ꯌꯥꯔꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯒꯤ ꯔꯦꯁꯤꯑꯥꯁꯤꯡꯅꯤ꯫ ꯃꯍꯥꯛ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 2.3.6-ꯗ ꯁꯨꯃꯠꯈꯤꯕ ꯁꯕ-ꯑꯦꯔꯤꯌꯥꯒꯤꯗꯃꯛ ꯇꯥꯛꯂꯤꯕ ꯔꯦꯁꯤꯑꯥꯁꯤꯡꯗꯒꯤ ꯅꯥꯍꯥꯕꯗꯕꯅꯤ: ꯂꯤꯔꯤꯕꯤꯍ ꯄꯦꯂꯦꯜ ꯅꯌꯥꯕ ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯍꯨꯗꯤꯡꯃꯛꯇ ꯁꯦꯛꯁꯟ 2.3.6(f)-ꯒꯤ ꯃꯂꯤꯄꯨꯔꯒꯤ ꯍꯦꯌꯥꯔꯤꯇ ꯔꯦꯁꯤꯑꯥꯁꯤꯡ, ꯃꯂꯤꯄꯨꯔꯒꯤ ꯁꯥꯖꯁꯤꯡꯒꯤ NIH-DHAARA ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯔꯦꯁꯤꯑꯥꯁꯤ ꯑꯃꯁꯨꯡ ꯁꯕꯂꯦꯜ 2(a)-ꯒꯤ CWC ꯖꯂꯗ ꯑꯦꯁ꯭ꯌꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯔꯦꯁꯤꯑꯥꯁꯤꯡꯒꯤ ꯑꯄꯥꯄꯔ ꯑꯦꯅꯒꯦꯅꯄ, ꯑꯃꯁꯨꯡ ꯂꯤꯔꯤꯕꯤꯍ ꯄꯦꯂꯦꯗ ꯁꯕꯂꯦꯜ 2(b)-ꯒꯤ CWC ꯔꯤꯄꯣꯔꯠꯀꯤ ꯔꯦꯁꯤꯑꯥꯁꯤ, ꯃꯍꯥ ꯊꯡꯕꯒꯤ ꯕꯔꯥ ꯄꯦꯂꯦꯗ ꯌꯔꯤꯕ ꯃꯌꯨꯡ ꯍꯦꯅ꯫ ꯁꯌꯦꯠ ꯄꯨꯍꯅꯃꯛ ꯁꯕꯂꯦꯜ 2(c)-ꯗ ꯂꯩ, ꯃꯁꯤꯒꯤꯗꯃꯛ CWC-ꯗ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯠꯌ ꯏꯡꯗꯥꯛꯍꯤꯗꯦ꯫ IMD Das et al. (2022)-ꯗ ꯍꯈꯏꯅꯒꯤꯗꯃꯛ ꯄꯦꯅꯦꯟ ꯑꯃ ꯏꯡꯗꯥꯛꯅꯤ, ꯑꯗꯨꯕ ꯃꯁꯤꯗ ꯂꯦꯅꯦꯔꯤꯛ ꯈꯔꯒ ꯑꯃ ꯑꯃꯨꯛ ꯔꯦꯗ ꯄꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯗ꯫

2.6.3 **ꯏꯤꯛꯁꯗ-ꯍꯦꯌꯥꯔꯒꯅ ꯑꯗꯂꯁꯌꯃꯦꯠ.** ꯏꯤꯛꯁ ꯌꯥꯔꯕ ꯑꯥꯕꯂꯔꯒꯦꯁꯦ ꯇꯤꯁꯗꯥꯁꯤꯡꯗꯒꯤ ꯂꯥꯛꯄ ꯗꯥꯇꯥꯁꯤꯡ (ꯍꯨꯗꯃ ꯑꯥꯍꯗ 08:30–08:30 IST-ꯒꯤ ꯅꯨꯃꯤꯠ ꯈꯨꯗꯤꯡꯒꯤ ꯗꯥꯌ, ꯅꯌꯥꯕ ꯁꯦꯛꯁꯟ-ꯄꯨꯡꯒꯤ ꯗꯥꯌ) ꯑꯁꯤ ꯁꯖꯥꯍꯗꯤꯡ-ꯇꯤꯄꯗꯥ (“ꯆꯨꯝꯕ ꯏꯟꯇꯔꯚꯦꯜ”, "true interval") ꯗꯥꯇꯥꯁꯤꯡꯗ ꯍꯥꯡꯗꯥꯛꯈꯗꯕꯅꯤ:

- ꯏꯤꯛꯁ ꯌꯥꯔꯕ ꯑꯥꯕꯂꯔꯒꯦꯁꯦ ꯏꯟꯇꯔꯚꯦꯜ ꯑꯃꯈꯛꯇꯒꯤꯗꯃꯛ 1.13;
- ꯏꯟꯇꯔꯚꯦꯜ 2-ꯒꯤꯗꯃꯛ 1.04;
- ꯏꯟꯇꯔꯚꯦꯜ 3–4-ꯒꯤꯗꯃꯛ 1.02꯫

ꯑꯦꯃꯗꯨꯒ ꯌꯥꯔꯕ ꯍꯥꯔꯀꯏ ꯑꯗꯨꯗ ꯆꯨꯝꯕ-ꯏꯟꯇꯔꯚꯦꯜ ꯒꯦꯇꯁꯤꯡ ꯄꯤꯔꯦꯕꯗꯤ ꯑꯗꯂꯁꯌꯃꯦꯠ ꯑꯁꯤ ꯇꯌꯅꯗ꯫

2.6.4 ꯑꯦꯈꯄꯤꯔꯤꯛꯦꯜ ꯃꯔꯤ P(t) = P(24)·(t/24)^(1/3) ꯑꯁꯤ ꯑꯍꯥꯟꯕ 2B-ꯗ ꯃꯔꯤ ꯂꯩꯕ ꯂꯥꯛꯄꯒꯤꯗꯃꯛ ꯈꯦꯏꯔꯈ ꯌꯥꯗꯔꯕꯗꯤ ꯗꯤꯂꯍꯛꯄꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯔꯥꯍꯗꯕꯅꯤ꯫

> **ꯁꯦꯗꯥꯛꯇꯗ ꯌꯥꯄꯥ.** ꯑꯗꯨꯈꯗ ꯑꯃꯒꯤ ꯄꯦꯇꯔꯒꯤ ꯊꯨꯡ ꯑꯁꯤ ꯍꯦꯗꯤꯅꯒꯤ ꯄꯔꯥꯂꯥꯛꯌ ꯔꯤꯄꯣꯔꯠꯌꯁꯤꯡꯗ ꯅꯈꯗ ꯈꯕ ꯏꯡꯍ, ꯑꯗꯨꯕ ꯃꯥꯅꯤꯅꯥ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯌꯍꯤꯕ ꯔꯤꯁꯔꯌ ꯃꯁꯤꯒꯤ IMD-ꯒꯤ ꯑꯄꯨꯅꯕ ꯄꯥꯔꯀꯏ ꯑꯃꯌꯠ ꯏꯡꯍꯤꯗꯦ꯫ ꯃꯁꯤꯗ ꯃꯏꯈ ꯍꯨꯗꯤꯡꯗ ꯏꯤꯛꯁ ꯌꯥꯔꯕ ꯈꯔꯒꯈ ꯃꯑꯥꯡ ꯑꯃꯍꯥꯛꯌ ꯁꯤꯖꯤꯟꯅꯦ: P(1h)/P(24h) = 0.35, P(3h) = 0.50, P(6h) = 0.63 ꯑꯃꯁꯨꯡ P(12h) = 0.79꯫ ꯃꯁꯤꯗ ꯃꯌꯈ ꯔꯤꯈꯗ ꯁꯤꯡꯗꯕ ꯈꯦꯒꯥꯃꯌꯒ ꯕꯔꯁꯠ ꯑꯃꯁꯨꯡ ꯃꯌꯈ ꯁꯤꯡꯗ ꯃꯨꯕ ꯃꯥꯦꯁꯦꯂꯦ ꯅꯥꯡꯒꯤ ꯍꯦꯠꯅꯕ ꯌꯠꯄ ꯇꯈꯗ, ꯑꯃꯁꯨꯡ ꯈꯦꯒꯥꯃꯌꯒ ꯈꯥꯁꯌꯦ ꯅꯥꯡ ꯄꯨꯕꯒꯤ ꯇꯧꯗꯥꯃꯁꯤꯡꯗ ꯃꯌꯈ ꯔꯤꯈꯗ ꯁꯤꯡꯗꯕ ꯗꯥꯇꯥꯁꯤꯡ ꯑꯦꯇꯑꯦꯅꯕ ꯃꯑꯥꯡ ꯂꯩ꯫ ꯑꯍꯥꯟꯕ 2B-ꯗ ꯂꯥꯛ ꯃꯌꯨꯡ ꯍꯦꯅ NIH-DHAARA-ꯒꯤ ꯔꯦꯁꯤꯑꯥꯁꯤ P(t)/P(24h) ꯑꯁꯤ ꯒꯦꯇꯁꯨ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯔꯤꯗꯃꯅꯗ ꯌꯦꯕꯇ ꯌꯥꯒꯗꯕꯅꯤ꯫ ꯔꯤꯗꯃꯅꯕ ꯑꯗꯨꯗ ꯊꯨꯡ ꯑꯁꯤ ꯁꯌꯦꯠ ꯑꯁꯤꯒꯤ ꯈꯗꯍꯗ ꯔꯕ ꯔꯕꯗ ꯃꯌꯈꯅꯤ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠ ꯈꯨꯗꯤꯡꯒꯤ ꯗꯥꯌꯗ ꯍꯨꯃꯇ ꯑꯥꯍꯕ ꯑꯔꯤꯕ ꯑꯥꯗꯂꯍꯁꯤꯁꯤꯡ ꯍꯨꯃꯇꯥꯈꯅꯤ꯫ ꯏꯤꯛꯁꯗ-ꯍꯦꯌꯥꯔꯒꯅ ꯏꯦꯌꯥꯔꯁꯤꯡ ꯑꯁꯤ ꯁꯌꯦꯠꯗꯔꯗ WMO (Hershfield) ꯒꯦꯇꯁꯨꯁꯤꯡꯅꯤ꯫ IMD-ꯒꯤ 2022-ꯒꯤ ꯁꯌꯗꯗ ꯁꯦꯛꯁꯟ-ꯄꯨꯡꯗꯒꯤ ꯈꯔꯤꯄꯨꯍꯕ ꯄꯨꯡ ꯑꯃꯗ ꯍꯥꯡꯗꯥꯛꯅꯕ ꯃꯦꯅꯕ ꯍꯨꯃꯇꯥꯄꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯦ꯫

2.7 ꯀꯦꯆꯃꯦꯟꯠ, ꯄꯣꯏꯟꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯔꯤꯌꯦꯜ ꯗꯥꯡ ꯐꯕ

2.7.1 ꯀꯤꯗꯕꯨꯡ ꯀꯦꯃꯌꯥꯏꯕꯥ ꯑꯣꯏ ꯀꯦꯆꯃꯦꯟꯠ ꯔꯦꯟꯐꯣꯜꯗꯤꯅꯤ꯫ ꯑꯦꯃꯌꯥꯔ ꯌꯥꯝꯕ ꯂꯥꯝꯗꯝ ꯑꯃꯗꯥ ꯄꯣꯏꯟꯠ-ꯑꯦꯔꯤꯌꯦꯜ ꯔꯦꯟꯐꯣꯜꯗꯤ (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ 0.25° ꯂꯦꯖꯣꯜꯗꯤ) ꯑꯣꯏꯕꯥꯗꯤ, ꯂꯤꯡꯈꯠꯂꯕꯥ ꯃꯑꯣꯡꯗꯨ ꯑꯗꯨꯒꯤ 2C-ꯒꯤ ꯄꯣꯏꯟꯠ-ꯇꯨ-ꯀꯦꯆꯃꯦꯟꯠ ꯐꯦꯛꯇꯔꯁꯤꯡꯗꯥ ꯀꯦꯆꯃꯦꯟꯠ ꯔꯦꯟꯐꯣꯜꯗꯤ ꯂꯥꯏꯗꯥꯡꯗꯕꯅꯤ꯫

2.7.2 ≤ 10 km²-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ, ARF = 1.0꯫

2.7.3 > 10 km²-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ, ARF ꯃꯈꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯂꯤꯡꯈꯠꯂꯒꯅꯤ:

- ꯁꯕꯖꯣꯟ 2(c)-ꯗ (Barak and others) 25–5,000 km²-ꯒꯤꯗꯃꯛ, CWC-ꯅꯥ ꯄꯥꯝꯗꯕꯥ 2(c) ꯔꯤꯄꯣꯔꯠꯀꯤ ꯃꯇꯨꯡꯏꯟꯅ ꯁꯕꯖꯣꯟ 2(b)-ꯒꯤ (South Brahmaputra) ꯔꯤꯄꯣꯔꯠꯀꯤ ꯅꯥꯏꯅꯅ: ꯍꯟꯅꯕ CWC ꯆꯅꯗ ꯑꯦꯂꯥꯏꯃꯦꯂꯦ ꯔꯤꯄꯣꯔꯠꯀꯤ ARF ꯀꯔꯒꯂꯣꯏꯗꯨ ꯂꯤꯡꯈꯠꯂꯒꯅꯤ;
- 10–25 km²-ꯒꯤꯗꯃꯛ: 10 km²-ꯗ ARF = 1.0 ꯑꯃꯁꯨꯡ 25 km²-ꯗ CWC-ꯒꯤ ꯒꯦꯔꯂꯣꯒꯤ ꯃꯔꯛꯇ ꯅꯦꯅꯤꯍꯔ ꯑꯣꯏꯅ ꯏꯟꯇꯔꯄꯣꯂꯦꯠ ꯇꯧ꯫

2.7.4 ꯗꯦꯒꯦꯇꯔꯃꯦꯂꯦꯟ ꯁꯦꯟꯁ ꯑꯃꯦꯇꯕꯥꯒꯤ ꯂꯥꯏꯔꯦꯛ ꯀꯤꯗꯕꯨꯡꯗ ARF ꯑꯃꯁ ꯀꯣꯗꯥꯝꯗꯨ ꯂꯤꯡꯈꯠꯂꯒꯔꯣꯅꯗꯕꯅꯤ꯫

> **ꯂꯦꯗꯥꯛꯅꯥ ꯇꯥꯛꯄ.** ꯄꯣꯏꯟꯠ ꯇꯥꯔꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯤꯒꯤ ꯑꯦꯒꯔꯦꯠ ꯔꯤꯇꯔꯦ ꯅꯦꯒꯦꯂꯣꯏꯗꯨ ꯑꯣꯏ ꯀꯦꯆꯃꯦꯟꯠ ꯒꯦꯔꯂꯣꯏꯗꯗꯒꯤ ꯍꯦꯟꯅ ꯅꯦꯃꯍꯤ꯫ ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ, ꯏꯝꯐꯥꯂꯒꯤ ꯃꯌꯥꯏ ꯍꯧ 12 km ꯃꯔꯛꯀꯤ NIH-DHAARA-ꯒꯤ ꯂꯦꯞꯅ ꯆꯍꯤ 50-ꯒꯤ ꯑꯁꯨ 24-ꯒꯤ ꯀꯦꯃꯌꯥꯀꯤꯗꯃꯛ 231 mm ꯑꯣꯏꯔꯤ, ꯀꯔꯦꯠ 2.3.6(c)(i)-ꯒꯤ ꯂꯥꯏꯂꯦꯒꯤ ꯂꯦꯔꯤꯇꯗꯒꯤ ꯅꯥꯏꯔ 180 mm ꯑꯃꯁꯨꯡ Imphal (Tulihal) ꯒꯦꯇꯅ ꯆꯍꯤ ꯐꯨꯇꯨꯗ ꯃꯂꯤꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯍꯧꯕ ꯊꯃꯤꯌ ꯑꯅꯥꯅ ꯔꯦꯀꯔꯗ ꯇꯥꯍꯕ 158.6 mm-ꯒꯤ ꯍꯧꯗꯃꯛꯂꯕꯗ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯀꯍꯦꯔꯤ ꯇꯥꯍꯕ; IMD, *Extremes*)꯫ ꯅꯥꯏꯐꯑꯀꯤ ꯍꯤꯗꯂꯤꯗꯗ ꯑꯔꯅꯕ ꯑꯂꯤ ꯃꯑꯣꯡ ꯑꯀꯨꯃꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯄꯦꯜꯅ ꯍꯟꯅ: ꯇꯔꯤꯕꯤꯛ ꯂꯦꯞꯅ 491 mm ꯑꯣꯏꯔꯤ, ꯑꯣꯇꯦꯜ ꯑꯀꯨꯃꯦꯇꯥ Silchar-ꯒꯤ IMD ꯔꯦꯀꯔꯗꯂꯤꯗꯒꯤ ꯄꯦꯜꯅ, ꯑꯃꯁꯨꯡ ꯇꯃꯦꯗꯅꯗ ꯂꯦꯞꯅ 431 mm, ꯍꯦꯇ ꯇꯥꯅꯕ ꯒꯦꯇ ꯑꯃꯅꯇꯥ ꯅꯥꯇꯅ꯫ ꯂꯥꯏꯅ ꯑꯁꯨꯕꯗ ꯂꯦꯞꯂꯤꯗꯒꯤ ꯆꯍꯤ 50-ꯒꯤ ꯒꯦꯔꯂꯣꯏꯗ ꯇꯃꯑꯣꯇꯥ ꯅꯥꯕ ꯌꯥꯕꯅ 181 mm-ꯗꯒꯤ ꯇꯔꯤꯕꯤꯛꯗ 491 mm ꯆꯧꯕ ꯄꯦꯒꯦꯅꯇꯥꯅ, ꯃꯂꯤꯒꯤ ꯅꯃꯕꯤꯗꯤ MASTEC-ꯒꯤ ꯒꯦꯇꯂꯤꯗꯅ ꯀꯦꯆꯦꯔꯃ ꯇꯥꯅ ꯑꯀꯨꯕ ꯃꯂꯤꯒꯤ ꯍꯗꯗꯤ ꯒꯦꯇ ꯑꯃꯅꯇꯅ ꯀꯦꯆꯦꯔꯃ ꯇꯥꯗꯦ꯫ ꯑꯔꯅꯕ ꯑꯅꯤꯃꯇ ꯑꯄꯦꯕ 2C-ꯒꯤ ꯐꯦꯛꯇꯔꯂꯤꯗ ꯍꯥꯡꯗꯅ ꯐꯃꯁꯥꯇꯑ ꯂꯩꯃꯗꯦ꯫ ꯄꯣꯏꯟꯠ ꯒꯦꯔꯂꯣꯏꯗ ꯐꯃꯁꯥꯇꯅ ꯀꯦꯆꯃꯦꯟꯠ ꯒꯦꯔꯂꯣꯏꯗ ꯑꯣꯏꯅ ꯂꯤꯡꯈꯠꯂꯔꯕꯗꯤ ꯁꯦꯟꯁ-ꯇꯦꯒꯦꯔꯒꯤ ꯀꯤꯗꯕꯨꯡ ꯑꯂꯣꯅꯕ ꯅꯥꯕ ꯑꯣꯏꯄꯅꯒꯅꯤ꯫

2.8 ꯀꯣꯔꯦꯛꯁꯟ ꯐꯦꯛꯇꯔ

2.8.1 ꯂꯥꯏꯅ ꯑꯁꯨꯕꯒꯤ ꯁꯨꯗꯒꯤ ꯀꯔꯦꯛꯁꯟꯀꯤ ꯅꯥꯏ ꯐꯨꯕꯒꯤ ꯑꯣꯔꯗꯥꯗꯅ ꯑꯃꯁ ꯇꯥꯗꯔꯤꯆꯨꯕ, ꯄꯥꯇꯤꯡꯀꯤ ꯀꯤꯗꯕꯨꯡ ꯀꯦꯃꯌꯥꯀꯤꯗꯃꯛ ꯑꯂꯤ ꯃꯈꯥꯒꯤ ꯅꯦꯁꯔꯤꯃ ꯀꯔꯦꯛꯁꯟ ꯐꯦꯛꯇꯔꯂꯤꯗꯅ ꯃꯇꯁꯤꯡꯇꯅ ꯇꯥꯒꯗꯕꯅꯤ:

ꯇꯦꯕꯜ 2.2 — ꯅꯦꯁꯔꯤꯃ ꯀꯔꯦꯛꯁꯟ ꯐꯦꯛꯇꯔꯂꯤꯗ

ꯗꯨꯔꯦꯁꯟ	ꯀꯔꯦꯛꯁꯟ ꯐꯦꯛꯇꯔ (CF)
≤ 6 h	**1.20**
> 6 h-ꯗꯒꯤ 72 h	**1.10**

2.8.2 CF ꯑꯂꯤ ꯆꯍꯤ 25-ꯗꯒꯤ ꯄꯦꯜꯕ ꯀꯤꯗꯕꯨꯡ ꯇꯥꯅꯆꯤ ꯅꯥꯕ ꯑꯦꯇꯤꯃꯦꯂꯦ ꯑꯁꯨꯇꯃꯦꯇꯥ ꯍꯟꯅꯤ꯫ ꯃꯇꯝ ꯅꯔꯒꯤ ꯀꯕꯇꯂꯤꯗꯒꯤꯗꯃꯛ (ꯀꯤꯗꯕꯨꯡ ꯇꯥꯅꯆꯤ ≤ 5 ꯆꯍꯤ), CF = 1.0꯫

2.8.3 ꯀꯔꯦꯛꯁꯟ ꯐꯦꯛꯇꯔ ꯑꯂꯤ ꯔꯤꯄꯣꯔꯠꯂꯦ ꯀꯦꯃꯌꯥ (ꯀꯔꯦꯠ 2.10) ꯅꯥꯏꯔꯒꯤ ꯅꯂꯤꯗꯒꯤ ꯀꯍꯦꯔꯤꯄꯤꯒꯤ ꯒꯥꯂꯃꯒꯤ ꯀꯦꯃꯌꯥꯇ (ꯂꯅꯨꯝ 8) ꯍꯟꯅꯗꯦ꯫ ꯀꯦꯃꯌꯥ ꯑꯀꯨꯂꯤꯗ ꯑꯂꯤ ꯊꯃꯤꯌ ꯐꯗꯤꯗꯒꯤ ꯅꯥꯏ ꯐꯕꯒꯤ ꯑꯔꯂꯦꯂꯦꯟꯅꯥ ꯅꯥꯏꯔꯒꯤ ꯃꯇꯝ ꯐꯗꯤꯗꯒꯤ ꯌꯥꯗꯦꯇꯀꯤ ꯂꯥꯏꯅꯤꯂꯥꯏꯅꯤꯇꯂꯅꯤ, AEP ꯀꯤꯗꯕꯨꯡ ꯒꯦꯔꯂꯣꯏꯗ ꯅꯥꯏꯔꯦ꯫

2.8.4 NIH-DHAARA, [illegible] 2.14 [illegible]||

> **[illegible].** CPHEEO (2019)-[illegible] "[illegible]" ("not feasible") [illegible]|| [illegible] 1.20 [illegible] CPHEEO [illegible] UK-ꯒꯤ [illegible]|| [illegible] (State Action Plan on Climate Change) [illegible] [TBC]; [illegible] ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible]|| [illegible] 1991–2024-ꯒꯤ [illegible] "ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯅꯣꯡ ꯆꯨꯕꯗ [illegible] ꯑꯣꯏꯕ [illegible]" ("a statistically significant downward trend in Total Annual Rainfall") [illegible], "[illegible]" ("primarily attributed to a substantial reduction in rainfall during the monsoon season") (Singh, 2025, *NEHU Journal*), ꯑꯃꯁꯨꯡ 1985–2003-ꯒꯤ [illegible] (*Indian Journal of Hill Farming* 32(1), [illegible])|| [illegible] 2015, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ [illegible], ꯑꯃꯁꯨꯡ 2026-ꯒꯤ [illegible] 1901-ꯗꯒꯤ [illegible]|| [illegible], ꯄꯨꯡ 6 [illegible] 1.20 ꯑꯃꯁꯨꯡ [illegible] 1.10-ꯒꯤ [illegible] 2.3.6(h)-ꯒꯤ [illegible]|| NIH-DHAARA-ꯒꯤ [illegible] ([illegible] 2.3.6(m))|| [illegible] 2.2-ꯒꯤ [illegible]||

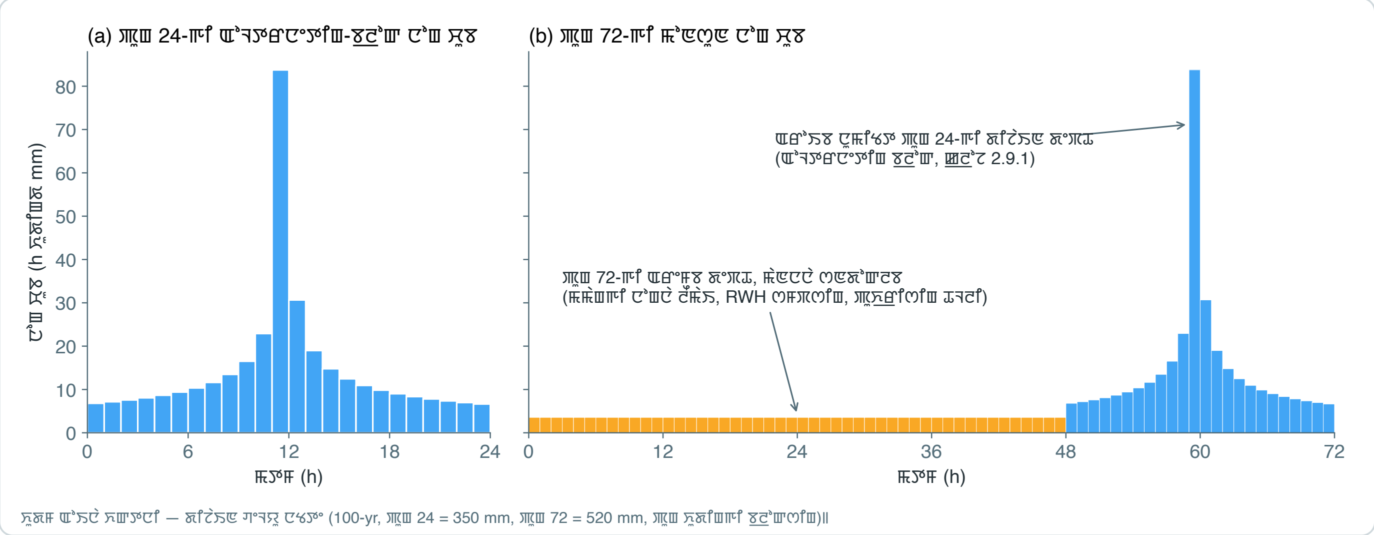
2.9 [illegible] ([illegible])

2.9.1 **ꯄꯨꯡ 24 [illegible] ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible].** [illegible] (alternating-block) [illegible]:

- ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible] IDF [illegible] ([illegible]), Tc/3-[illegible] 15-[illegible];
- [illegible] ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible] **50%**-[illegible]||

2.9.2 **ꯄꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible] ([illegible]).** [illegible]:

- (a) ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible] (ꯄꯨꯡ 48 [illegible] 72) [illegible]||
- (b) **[illegible] ꯄꯨꯡ 24** [illegible] AEP [illegible] ꯄꯨꯡ 24-ꯒꯤ [illegible], 2.9.1-ꯒꯤ [illegible]||
- (c) [illegible] (ꯄꯨꯡ 24-ꯒꯤ [illegible]) [illegible] ꯄꯨꯡ 24 [illegible] 48-[illegible]||



ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯅꯥꯏꯕꯂꯤ — ꯗꯤꯖꯥꯏꯟ ꯀꯣꯅꯈꯠ ꯅꯤꯡꯊꯤ (100-yr, ꯄꯨꯡ 24 = 350 mm, ꯄꯨꯡ 72 = 520 mm, ꯄꯨꯡ ꯈꯗꯤꯡꯒꯤ ꯕ꯭ꯂꯣꯛꯁꯤꯡ)꯫

ꯃꯃꯤ 2.2 — (a) ꯄꯨꯡ 24-ꯒꯤ ꯑꯦꯜꯇꯔꯅꯦꯇꯤꯡ-ꯕ꯭ꯂꯣꯛ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯑꯦꯇꯣ; (b) ꯑꯍꯦꯟꯕ ꯌꯨꯃꯤꯠꯇ ꯄꯨꯡ 24-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ ꯌꯥꯎꯕ ꯄꯨꯡ 72-ꯒꯤ ꯃꯦꯍꯂꯨꯍ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯑꯦꯇꯣ꯫ ꯁ꯭ꯇꯣꯔꯝꯁꯤꯡ ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯅꯥꯏꯕꯂꯤ꯫ ꯃꯐꯝ ꯑꯁꯤꯒꯤ ꯑꯗꯨꯒꯤ ꯂꯣꯏꯕ ꯁꯦꯡꯅ꯭ꯕ꯫ ꯑꯦꯜꯇꯔꯅꯦꯇꯤꯡ-ꯕ꯭ꯂꯣꯛ ꯊꯧꯑꯣꯡ ꯑꯁꯤ Chow, Maidment & Mays, Applied Hydrology (1988), §14.4 ꯃꯇꯨꯡ ꯏꯟꯅ꯫

2.9.3 **ꯑꯇꯣꯞꯄ ꯇꯦꯝꯄꯣꯔꯦꯜ ꯄꯦꯇꯔꯅꯁꯤꯡ.** ꯃꯐꯝꯗꯥꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯑꯦꯇꯣꯒ꯭ꯔꯥꯐꯁꯤꯡꯗꯒꯤ ꯂꯧꯕ ꯀ꯭ꯋꯥꯔꯇꯥꯏꯜ (Huff-type) ꯅꯤꯡꯊꯤꯕ ꯃꯦꯂ-ꯃꯥꯏꯀ ꯄꯦꯇꯔꯅꯁꯤꯡ ꯑꯁꯤ ꯑꯍꯥꯅꯕ 2D-ꯗ ꯌꯦꯡꯁꯤꯟꯗꯨꯅꯥ ꯃꯇꯨꯡꯗ ꯄꯥꯔꯥ 2.9.1 ꯑꯃꯁꯨꯡ 2.9.2-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯤꯂꯤꯡꯕ ꯌꯥꯏ꯫ SCS Type I, IA, II ꯑꯃꯁꯨꯡ III ꯗꯤꯁ꯭ꯠꯔꯤꯕꯤꯎꯁꯅꯁꯤꯡ ꯂꯤꯂꯤꯡꯕꯥ ꯌꯥꯗꯦ꯫

2.9.4 **ꯑꯔꯤꯌꯥ ꯔꯤꯗꯛꯁꯅꯁꯤꯡ.** 25–5,000 km²-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ, CWC ꯌꯨꯅꯤꯠ ꯑꯣꯐꯤꯁꯀꯤ ꯗꯤꯇꯦꯜꯗ ꯂꯤꯈꯥ-ꯗꯤꯁ꯭ꯠꯔꯤꯕꯤꯎꯁꯟ ꯀꯦꯔꯕꯁꯤꯡ ꯂꯤꯂꯤꯡꯕ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ 2.9.1-ꯗ ꯅꯤꯔꯅꯕ ꯂꯣꯏꯁꯤꯟꯈꯤꯕ ꯗꯦꯇ ꯑꯃꯥ ꯗꯤꯇꯦꯜ ꯇꯥꯛꯀꯗꯕꯅꯤ꯫

> **ꯂꯧꯁꯤꯟꯗꯨꯅꯕ ꯇꯥꯡꯀꯛ.** ꯑꯦꯜꯇꯔꯅꯦꯇꯤꯡ-ꯕ꯭ꯂꯣꯛ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯑꯦꯇꯣ ꯑꯁꯤꯅꯥ ꯍꯣꯠꯅꯥ ꯁꯤꯡꯗꯕ ꯀꯟꯗ꯭ꯊꯣꯛꯂꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡꯃꯥꯏꯂꯕꯁꯤ ꯈꯗꯤꯡꯃꯛ ꯍꯟꯅꯔꯤꯄꯥꯡꯗꯨ ꯑꯃꯅꯤꯄꯥꯞ ꯌꯦꯡꯍꯟꯖꯦ꯫ ꯃꯗꯨ ꯑꯁꯤꯅꯥ ꯃꯁꯤ ꯀꯣꯂꯣꯗꯥꯔꯤꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯗ꯭ꯊꯣꯛꯂ ꯈꯗꯤꯡꯃꯛꯄꯥ ꯃꯥꯅꯕ ꯑꯦꯟꯍꯟꯖꯦ꯫ ꯄꯨꯡ 72-ꯒꯤ ꯄꯦꯇꯔꯅ ꯑꯁꯤꯅꯥ ꯍꯠꯅꯕꯒꯤ ꯀꯅꯕꯅꯥ ꯅꯣꯡ ꯆꯨꯕ ꯑꯃ ꯑꯗꯨꯅꯕꯗ ꯊꯃꯂꯤ꯫ ꯃꯁꯤꯅꯥ ꯃꯐꯝꯗꯥꯒꯤ ꯃꯦꯂꯨꯔꯒꯤ ꯃꯇꯝ ꯃꯇꯝ ꯑꯃ ꯑꯃꯨꯛ ꯍꯟꯅꯕ ꯂꯣꯃꯃꯤ: ꯍꯠꯅꯕꯒꯤ ꯌꯥꯏꯕ ꯅꯣꯡꯂꯤ ꯆꯥꯔꯤ ꯃꯇꯝꯗ, ꯅꯣꯟꯅꯕꯒꯤ ꯂꯥꯏꯔꯦꯟꯅꯕ ꯌꯥꯏꯕꯒꯤ ꯅꯤꯡꯊꯤ ꯀꯌꯥꯒꯤ ꯃꯇꯝ ꯑꯃꯗ, ꯅꯤꯡꯊꯤꯕ 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯇꯥꯔꯤꯕꯥ ꯍꯧꯔꯀꯄꯅ ꯌꯦꯡꯁꯤꯜꯂꯤꯕ ꯃꯌꯥꯒꯤ ꯑꯍꯥꯅꯕꯒꯤ ꯄꯥꯍꯤ-ꯃꯦꯂꯨꯔ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯑꯦꯇꯣꯂꯤꯡꯗ, ꯇꯥꯔꯤꯕꯥꯀꯤ ꯅꯃꯒꯤ ꯅꯨꯡꯃꯥ ꯑꯔꯤꯕ ꯑꯁꯤ ꯍꯧꯂꯤꯕ ꯊꯦꯡꯅꯕꯅ, ꯄꯥꯟꯂꯤꯡ (pat) ꯑꯃꯁꯨꯡ ꯅꯣꯡꯂꯤꯡ ꯃꯄꯨꯡꯐꯥ, ꯅꯥꯏꯇꯥ ꯑꯁꯤ ꯍꯊꯍ ꯕꯣꯗꯔꯀꯤ ꯃꯇꯨꯡꯗ ꯌꯥꯏꯕ ꯅꯣꯡꯅꯣ, ꯑꯃꯁꯨꯡ ꯇꯨꯗꯣꯛꯂꯤꯡ ꯄꯥꯟꯂꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯃꯍꯥꯛꯀꯤ ꯍꯥꯂꯤꯡ ꯍꯌꯥꯡꯒꯤ ꯅꯣꯀꯣꯛꯂꯤꯡꯒꯤ ꯃꯅꯥ ꯌꯥꯗꯣ꯫ SCS ꯗꯤꯁ꯭ꯠꯔꯤꯕꯤꯎꯁꯅꯁꯤꯡ ꯅꯨꯊꯀꯍ ꯃꯗꯨꯃꯗꯤ ꯃꯍꯥꯛ US-ꯒꯤ ꯀꯟꯅꯗꯥꯏꯇꯤ ꯑꯃꯁꯨꯡ ꯒꯣꯌꯀꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯑꯦꯇꯣꯀꯤ ꯗꯥꯇꯥꯒꯤ ꯅꯤꯀꯍ ꯑꯃꯁꯨꯡ ꯃꯐꯝꯗꯥꯒꯤ ꯗꯥꯀꯥꯗꯥꯡꯂꯤꯡꯗ ꯈꯨꯃꯌꯥꯃ ꯑꯃꯨꯛꯇꯅ ꯅꯤꯡꯇꯥ꯫

2.10 ꯗꯤꯇꯦꯟꯁꯅꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯁ꯭ꯇꯣꯔꯝ

2.10.1 **ꯗꯤꯇꯦꯟꯁꯟ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ** ꯑꯁꯤ ꯂꯣꯏꯕ ꯃꯇꯝꯒꯤ ꯗꯥꯀꯥꯗꯥꯡ ꯅꯣꯡ ꯆꯨꯕ ꯅꯤꯡꯊꯤꯂꯤꯡꯒꯤ (≥ 2.5 mm) **90%-ꯗ** ꯍꯟꯅꯗ ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯁ꯭ꯇꯣꯔꯝꯅꯤ, ꯑꯍꯥꯅꯕ 2E-ꯗ ꯌꯥꯎꯕ ꯅꯦꯇꯤꯒꯤ ꯀꯣꯅꯈꯠꯒꯤ ꯄꯥꯏꯕ꯫

2.10.2 ꯂꯥꯏꯅꯤꯡ ꯑꯁꯤꯅꯥ ꯁ꯭ꯇꯣꯔꯝ ꯑꯁꯤꯗꯒꯤ ꯅꯥꯏꯇꯥ ꯗꯤꯅꯣꯐ (runoff) ꯂꯥꯏꯅꯤꯡꯗ ꯊꯝꯅꯤꯡꯒꯤꯗꯃꯛꯅꯤ (ꯂꯃꯥꯏ 4)꯫ ꯗꯤꯇꯦꯟꯁꯟꯅꯥ ꯗꯤꯇꯦꯟꯁꯟ ꯀꯣꯗꯦꯅꯤꯡ ꯑꯃꯥ ꯌꯦꯟꯁꯟ, ꯃꯁꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯊꯝꯈꯤꯕ ꯗꯦꯡꯁꯤꯡ ꯇꯥꯗꯥ ꯌꯦꯟꯕ ꯃꯊꯣ ꯇꯥꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯅꯣꯡꯗꯥꯡꯒꯤ ꯍꯟꯅꯊꯦꯡꯀꯅꯗꯨ ꯏꯔꯦ ꯃꯦꯟꯈꯤ (ꯀꯥꯡꯂ 4.4.6)꯫ ꯀꯦꯗꯤꯡ ꯑꯁꯤ ꯊꯝꯅꯤꯡꯁꯤꯡꯒꯤ ꯅꯨꯡꯉ ꯑꯃꯒꯤ ꯃꯇꯨꯡ ꯑꯃꯥ ꯅꯤꯡꯇꯥꯔꯦ ꯅꯤꯡꯊꯤ꯫

> **ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯇꯣꯐꯥꯛ.** ꯃꯁꯤ Kansas City Metro APWA 5600 (2025.01)-ꯒꯤ ꯄꯤꯊꯕꯔꯄꯗ ꯄꯤꯁꯤꯡꯂꯣꯟ ꯒꯦꯇꯃꯒꯤ (Required Retention Volume) ꯔꯤꯖꯅꯦꯜ ꯑꯃꯁꯨꯡ ꯇꯦꯄꯇꯤꯔꯤꯒꯤ 1.0-ꯅꯂꯔꯝꯤ ꯄꯂꯑꯦꯖ ꯄꯤꯗꯊꯃꯂ ꯃꯁꯤꯡꯂꯗꯄꯗ ꯃꯁꯨꯡ ꯅꯂꯦꯜ꯫ ꯑꯇꯤꯃꯊ ꯁꯄꯃꯤꯡꯂꯁꯅꯥ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊꯃꯤꯡꯗ ꯐꯃꯖꯃ ꯑꯥꯅ꯫ ꯁꯄꯃꯤꯡꯂꯁꯅꯥ ꯗꯤꯁꯖ ꯑꯃꯈ ꯀꯃꯤꯌ ꯐꯗꯤꯡꯒꯤ ꯇꯥꯡ ꯐꯕꯒꯤ ꯃꯁꯤꯡꯁꯤꯃꯁꯤꯊ ꯑꯃꯇꯤ, AEP ꯒꯤꯅꯐ ꯇꯌꯁꯤꯡ, ꯃꯄꯃ ꯑꯃꯇꯦ ꯃꯁꯤ ꯖꯄꯤꯝꯔꯤꯂꯁꯤ ꯝꯄꯒꯁꯤꯡꯗꯒꯤ ꯇꯌꯁꯦ ꯀꯃꯤꯌ ꯐꯗꯤꯡꯒꯤ ꯄꯥꯝꯄꯗꯒꯤ ꯍꯧꯕ ꯁꯥꯅ꯫

2.11 ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯈꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯁꯨꯡ ꯔꯤꯡꯗꯃꯇꯇꯕ ꯗꯤꯇꯅꯂ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊꯃꯤꯡ

2.11.1 **ꯃꯤꯇꯦꯄꯤꯑꯥ ꯑꯇꯤꯃꯊꯝꯤꯗꯃꯊ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊ ꯑꯃꯁꯨꯃꯊ.** ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯈꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯁꯨꯡꯒꯤ ꯄꯂꯃꯤꯡꯇꯦ ꯗꯤꯇꯅꯂ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊ ꯑꯃꯁꯨꯃꯊ ꯃꯤꯇꯤꯂꯇꯒꯗꯕꯇꯤ:

- AEP, ꯗꯔꯄꯃꯂ, ꯁꯃꯁꯥꯄꯅ ꯁꯁꯄꯂ ꯑꯃꯁꯨꯡ ꯝꯇꯦꯅꯃꯌ ꯖꯊꯁꯄ ꯑꯃꯁꯨꯃꯊ;
- ꯑꯂꯁꯤꯃꯤꯗꯂꯌ ꯃꯅꯃꯔꯄꯒꯤ ꯖꯤꯒꯃ ꯑꯃꯁꯨꯃꯊ (ꯝꯇꯦꯇ 2.11.4)꯫

ꯄꯂ ꯑꯇꯤ ꯑꯃꯤ ꯇꯦꯃꯅꯒꯤ ꯁꯄꯃꯤꯁꯄꯃꯤꯡ ꯑꯃꯁꯨꯡ Tc-ꯗ ꯅꯊꯁ ꯅꯌꯇꯦ꯫

2.11.2 **ꯃꯁꯨꯡꯂꯗꯄꯗ ꯝꯔꯃꯂꯌꯃꯤꯡ.** 50%, 10% ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊ ꯐꯗꯤꯡꯃꯊ ꯑꯃꯁꯨꯡ ꯝꯇꯦꯇ 2.5.2-ꯒꯤ ꯗꯔꯄꯃꯂ ꯐꯗꯤꯡꯃꯊꯝꯤꯗꯃꯊ:

> Q_post(T) ≤ 0.9 × Q_pre(T)

2.11.3 **ꯅꯃꯤꯡ ꯅꯔꯤꯗ ꯃꯂꯃꯤꯁꯒ ꯑꯥꯅꯕ ꯝꯔꯃꯂꯌꯃꯤꯡ** (ꯃꯄꯊ 4-ꯗ ꯁꯤꯄꯤꯕ ꯃꯁꯨꯡ ꯅꯂꯇ: ꯒꯄꯁꯄ ꯅꯃꯖꯒꯤ ꯐꯌꯊꯡꯗ ꯔꯂꯕ ꯇꯃꯕꯅ ꯁꯄꯅꯒꯤ ꯑꯃꯁꯨꯡ ꯅꯃꯖꯅ ꯁꯄꯅꯒꯤ, ꯇꯃꯖꯅꯁꯌ (pat) ꯕꯃꯤꯂꯒꯤ, ꯝꯥꯡꯕ ꯁꯄꯅ (Kongba) ꯑꯃꯁꯨꯡ ꯅꯄꯤꯅ ꯁꯄꯅꯒꯤ, ꯃꯁꯤꯊꯅ ꯗꯃꯒꯤ ꯃꯔꯗ ꯊꯕꯅꯒꯤ, ꯇꯥꯁꯊꯝꯤ ꯃꯇꯊꯝꯤ, ꯇꯃꯕꯅ ꯑꯃꯁꯨꯡ ꯕꯤꯃꯇꯁꯄꯒꯤ, ꯝꯊꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯡꯇꯤꯡꯒꯤ (Wangjing), ꯇꯤꯄꯤꯕꯃꯤ, ꯑꯃꯁꯨꯡ ꯇꯂꯗꯃꯇꯦꯅꯗꯝꯤ ꯇꯦꯃꯅꯗ ꯇꯕ ꯔꯤꯡꯒꯤ ꯃꯍꯄꯃꯤꯡꯒꯤ ꯝꯔꯃꯂꯌꯃꯤꯡ, ꯑꯃꯁꯨꯡ ꯑꯊꯄꯤꯁꯤꯇꯦ ꯇꯁꯤꯖꯅ ꯁꯄꯕ ꯝꯄꯤꯒꯃꯕ ꯝꯔꯃꯂꯌ ꯑꯃꯤ)꯫ **ꯃꯤꯊꯃꯗ-ꯖꯄꯤꯝꯔꯂꯃꯤ ꯄꯅ** (mixed-frequency rule) ꯔꯌꯇꯦ:

> Q_post(1% AEP, 100-yr) ≤ Q_pre(10% AEP, 10-yr), ꯑꯃꯁꯨꯡ Q_post(50% AEP, 2-yr) ≤ Q_pre(50% AEP, 2-yr),

ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯁꯨꯡꯒꯤ ꯁꯤꯊ ꯑꯃꯤ ꯝꯇꯦꯇ 2.5.2-ꯒꯤ ꯗꯔꯄꯃꯂ ꯐꯗꯤꯡꯃꯊꯝꯤꯗꯃꯊ ꯔꯂꯊ ꯁꯅ꯫ ꯝꯁꯃꯤꯡ ꯑꯃꯤ **ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯈꯤꯡꯒꯤ ꯝꯄꯤꯁꯤꯝꯅ ꯗꯔꯄꯃꯂꯗ** ꯇꯅ꯫ ꯔꯍꯤ 10-ꯒꯤ ꯝꯁ ꯑꯃꯤ ꯗꯔꯄꯃꯂ ꯁꯃꯇꯃꯊꯁ ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯈꯤꯡꯒꯤ ꯔꯍꯤ 10-ꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯤꯗꯕ ꯁꯤꯊꯇꯤ, ꯑꯃꯁꯨꯡ ꯔꯍꯤ 2-ꯒꯤ ꯝꯁ ꯑꯃꯤ ꯗꯔꯄꯃꯂ ꯁꯃꯇꯃꯊꯁ ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯈꯤꯡꯒꯤ ꯔꯍꯤ 2-ꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯤꯗꯕ ꯁꯤꯊꯇꯤ꯫ ꯝꯁ ꯐꯗꯤꯡꯃꯊ ꯗꯧꯅꯁ꯭ꯠꯔꯤꯝꯒꯤ ꯃꯁꯨꯡꯒꯤ ꯗꯔꯄꯃꯂ ꯐꯗꯤꯡꯃꯊꯁ ꯔꯌꯇꯦ꯫

2.11.4 **ꯑꯂꯁꯤꯃꯤꯗꯂꯌ ꯃꯅꯃꯔꯄ.** ꯑꯍꯂꯕ 2A-ꯒꯤ ꯃꯕ-ꯑꯄꯤꯔ MN-A (ꯅꯃꯖꯅ ꯁꯃꯁꯤꯊꯝꯤ ꯇꯦꯃꯅ) ꯇꯌꯄꯒ MN-B (ꯑꯔꯤꯡ, ꯇꯥꯡꯁꯊ ꯑꯃꯁꯨꯡ ꯔꯤꯒꯤ ꯔꯤꯡꯃꯤꯡ)-ꯗ ꯇꯕ ꯃꯅꯌ ꯑꯃꯗ 1 ꯇꯂꯗꯒꯤ 15 ꯑꯊꯁꯕꯄ ꯖꯗꯕ, ꯑꯃꯁꯨꯡ ꯃꯕ-ꯑꯄꯤꯔ MN-C (ꯇꯥꯡꯐꯁꯝꯤ ꯔꯤꯡꯃꯤꯡ) ꯇꯌꯄꯒ MN-C1 (ꯇꯤꯄꯤꯕꯃ ꯁꯇꯂ)-ꯗ ꯇꯕ ꯃꯅꯌ ꯑꯃꯗ 1 ꯃꯗꯒꯤ 31 ꯑꯊꯁꯕꯄ ꯖꯗꯕ, ꯗꯤꯇꯅꯂ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊ ꯐꯗꯤꯡꯃꯊꯝꯤꯗꯃꯊ, ꯃꯃꯤꯒꯤ ꯗꯔꯄꯃꯂ ꯝꯄꯤꯒꯃꯕ ꯑꯥꯅꯄꯕꯃ, **AMC III** (ꯅꯃꯤꯡ ꯊꯂꯕ ꯖꯤꯒꯃ) ꯃꯤꯇꯤꯂꯇꯦ꯫ ꯁꯄꯅ, ꯅꯥꯡ ꯇꯌꯄꯒ ꯇꯥꯁꯊꯝꯤ 1% AEP-ꯒꯤ ꯅꯃꯤꯡ ꯅꯔꯤꯗꯒꯤ ꯇꯒꯅꯒꯤ ꯃꯔꯗ ꯇꯕ ꯇꯃ, ꯁꯤꯌꯁ, ꯁꯌ ꯇꯌꯄꯒ ꯄꯨꯈ꯭ꯔꯤꯒꯤ (pukhri) ꯃꯇꯊꯃꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯁꯄꯅꯒꯤ ꯁꯂꯒꯤ ꯃꯁꯨꯡꯗ ꯇꯕ ꯇꯃꯗ, ꯃꯕ-ꯑꯄꯤꯔ ꯐꯗꯤꯡꯃꯊꯁ, 1 ꯑꯁꯄꯤꯅꯗꯒꯤ 31 ꯑꯊꯁꯕꯄ ꯖꯗꯕ ꯗꯤꯇꯅꯂ ꯇꯥꯡ ꯐꯕꯒꯤ ꯊꯗꯥꯊ ꯐꯗꯤꯡꯃꯊꯝꯤꯗꯃꯊ AMC III ꯃꯤꯇꯤꯂꯇꯦ꯫ ꯃꯕ-ꯑꯄꯤꯔ MN-A1 (ꯇꯥꯁꯊꯝꯤ ꯃꯇꯊ)-ꯗ ꯑꯃꯁꯨꯡ ꯄꯤꯇꯄꯒꯔꯄ ꯑꯃꯗ ꯇꯌꯄꯒ ꯃꯃꯤꯒꯤ ꯕꯊꯔꯁꯄꯗ, ꯇꯌꯄꯒ ꯗꯃꯇ ꯅꯃꯤꯡ ꯊꯗꯥꯁ ꯗꯃꯒꯤ ꯃꯔꯤꯒꯤ ꯄꯤꯔ ꯑꯃꯗ ꯔꯂꯊꯥꯁ ꯝꯔꯃꯂꯌ ꯑꯃꯗ, ꯐꯗꯃ ꯑꯅꯇ ꯅꯊꯅ ꯕꯄꯤꯇꯇ ꯊꯤꯡꯇꯤꯅꯇꯤꯕ ꯇꯥꯁꯊ, ꯊꯕꯅ (ꯃꯁꯤꯊꯅ) ꯑꯃꯁꯨꯡ ꯐꯒ ꯄꯤꯇꯄꯒꯔꯄꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯔꯒꯤ ꯗꯃꯃꯤꯡꯒꯤ ꯃꯔꯤꯒꯤ ꯄꯤꯔꯃꯤꯡ, ꯑꯃꯁꯨꯡ ꯇꯃꯕꯅ ꯁꯄꯅꯗ ꯇꯕ ꯃꯤꯡꯗ

ꯔꯤꯖꯔꯚꯣꯌꯔ [TBC], ꯆꯍꯤꯒꯤ ꯀꯔꯤꯒꯨꯝꯕ ꯃꯇꯝ ꯑꯃꯗ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡꯖꯨ ꯁꯨꯕꯒꯤ ꯊꯦꯡꯅꯕ ꯁꯨꯗꯤꯍꯅꯕꯗꯃꯛ AMC III ꯁꯤꯖꯤꯟꯅꯩ॥ ꯑꯍꯣꯡꯕ ꯀꯔꯤꯒꯨꯝꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯇꯝ ꯑꯃꯗ, ꯌꯨꯃꯍ 5-ꯒꯤ ꯅꯥꯃꯗ ꯁꯨꯕꯒꯤ ꯃꯔꯛꯇꯒꯤ 53 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯊꯦꯡꯅꯔꯀꯄ, ꯆꯠꯅꯕꯒꯤ ꯃꯔꯝ ꯔꯤꯁ꯭ꯛ, ꯗꯤꯖꯥꯏꯟ ꯅꯥꯃꯗ ꯁꯨꯕꯒꯤ ꯍꯦꯗꯦ ꯑꯃꯒꯤꯗꯃꯛ AMC III ꯁꯤꯖꯤꯟꯅꯩ॥ ꯑꯍꯣꯡꯕ ꯅꯥꯃꯗ ꯁꯨꯕꯒꯤ ꯍꯦꯗꯦ ꯁꯨꯗꯤꯍꯅꯕꯗꯃꯛ AMC II (ꯑꯦꯚꯔꯦꯖ ꯐꯤꯚꯝ) ꯁꯤꯖꯤꯟꯅꯩ॥ AMC I ꯑꯁꯤ ꯗꯤꯖꯥꯏꯅꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯗꯦ॥

2.11.5 **ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯐꯤꯚꯝ.** ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡ ꯑꯁꯤ ꯁꯣꯌꯗ 3-ꯗ ꯗꯦꯀꯂꯦꯔ ꯇꯧꯏ: ꯄꯔꯤꯃꯦꯀꯤꯅꯗ, ꯃꯦꯔ ꯇꯧꯔꯕ ꯍꯟꯊꯍꯟꯅꯕ ꯁꯥꯔꯤ ꯄꯔꯤꯃꯥꯟꯒꯤ ꯑꯀꯕ ꯀꯤꯚꯃꯗ ꯂꯕ ꯍꯩꯗꯅꯕ ꯂꯝ॥ ꯍꯧꯖꯤꯛ ꯂꯕꯤꯕ ꯅꯃꯔꯕꯚꯤꯌꯣ ꯀꯚꯕ ꯑꯁꯤ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡ ꯑꯅꯥꯂ ꯇꯤꯗꯦ॥

> **ꯂꯣꯀꯦꯜ ꯅꯣꯠ.** ꯂꯣꯛꯇꯥꯛ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯔꯤꯗ ꯑꯁꯤ ꯃꯂꯩꯒꯤ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯔꯤꯗꯗ ꯃꯦꯍꯦꯕꯂ ꯀꯥꯔꯃꯦꯇ ꯑꯗꯨ ꯇꯥꯛꯄꯥꯒꯦ॥ ꯗꯦꯂꯦꯄꯒꯤ ꯑꯦꯂꯂꯟꯁꯤꯁꯂ ꯂꯣꯅꯇ ꯄꯨꯝꯅꯃꯛ 100% ꯃꯦꯍꯂꯕꯣꯡ ꯃꯅ ꯇꯧꯕꯗ ꯑꯕꯤꯕ ꯔꯤꯗꯀꯤ 106% ꯌꯥꯇꯥꯀꯅ ꯍꯟꯂꯂ ꯀꯥꯟꯅꯤ, ꯃꯁꯤꯂ 90% ꯕꯨꯗ ꯌꯥꯕꯗꯅꯤ॥ ꯃꯤꯗꯂꯗ-ꯀꯕꯤꯀꯅ°ꯦꯁꯤ ꯕꯨꯗ ꯑꯁꯤ ꯍꯦꯂ ꯌꯗꯟ॥ ꯃꯁꯤꯂ ꯌꯥꯏ 100-ꯒꯤ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯕꯤꯂꯤꯂ ꯑꯁꯤ ꯗꯦꯚꯦꯂꯣꯞ ꯇꯧꯗꯕ ꯂꯣꯅꯇ ꯑꯃꯨꯡ ꯌꯥꯏ 10-ꯒꯤ ꯂꯤꯝ ꯁꯨꯕꯒꯤ ꯇꯥꯗꯤꯇ ꯌꯥꯇꯥꯇꯤꯕ ꯑꯃꯨꯗ ꯀꯥꯌ ꯇꯧꯅ॥ ꯃꯂꯦꯁꯤꯔ (DID 2008: ARI ꯃꯔꯛꯇꯒꯤ ≤ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯌꯥꯏ 2) ꯑꯁꯤ ꯀꯥꯌ ꯑꯁꯤꯒꯤ ꯃꯅꯒꯤ ꯇꯧꯕꯥꯌꯀꯦꯗ ꯁꯨꯗꯝ ꯑꯃꯂꯤ॥ ꯃꯇꯝ ꯂꯤꯗꯕ ꯂꯤꯝ ꯁꯨꯕꯒꯤ ꯇꯥꯗꯤꯇꯁꯤꯗꯒꯤꯗꯃꯛ AMC III-ꯅ ꯃꯦꯅꯨꯡꯅꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯌꯔꯕ ꯂꯤꯗꯁꯤꯗ ꯍꯥꯌꯍ ꯀꯔꯤꯒꯤ ꯂꯤꯗꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯀꯅ ꯍꯔꯕꯨ ꯁꯥꯔꯂꯤ॥ ꯃꯂꯤꯌꯕꯗ ꯃꯇꯝ, ꯆꯤꯡꯅ ꯑꯃꯁꯨꯡ ꯅꯁꯤꯗ ꯂꯕ ꯅꯁꯤꯗꯤꯁꯤꯂ ꯌꯦꯂ ꯀꯥꯌꯃꯦꯟ ꯑꯃ ꯀꯔꯤ ꯇꯥꯕꯒꯦ ꯂꯦꯌꯌꯥꯁꯤ॥ ꯇꯃꯌꯥꯇꯀꯤ ꯂꯝ ꯑꯁꯤ "ꯌꯗ 30-ꯗꯒꯤ 50 m ꯀꯥꯡꯕꯒꯤ ꯂꯣꯝ ꯑꯌꯦꯆꯌꯒꯤ ꯀꯥꯕꯃꯦꯂꯦ" ("approximately 30 to 50 m of clayey formation") ꯑꯅ, ꯅꯃꯀꯦ ꯌꯦꯂꯆꯀꯤ ꯔꯤꯃꯕꯗ ꯅꯁꯤꯗ "2-ꯗꯒꯤ 5 m bgl" ("2 to 5 m bgl") ꯗꯤ (CGWB, Imphal West, 2013) ꯑꯃꯁꯨꯡ ꯂꯦꯇꯁꯤꯗꯒꯤ ꯃꯂꯤꯌ ꯌꯥꯏꯆ ꯗꯤꯕ ꯗꯤꯃꯅ (CGWB, Bishnupur, 2013), ꯑꯃꯁꯨꯡ ꯌꯨꯕꯦꯅꯒꯤ ꯌꯥꯏꯁꯤꯗꯒꯤ ꯃꯌꯨꯗꯗ ꯗꯤꯕ ꯂꯝ ꯑꯁꯤ ꯗꯥꯏꯛꯁꯤꯡ (dike) ꯀꯇꯂꯕ ꯃꯌꯝꯗ "ꯍꯞꯇꯥ ꯀꯌꯥꯒꯤ ꯃꯇꯝ" ("for several weeks") ꯅꯁꯤꯗ ꯂꯦꯌꯅ (AIIB), ꯃꯕꯝ ꯑꯃꯨꯗ ꯌꯥꯏꯗꯁꯤꯁꯤ ꯂꯝ ꯑꯁꯤ ꯅ-ꯂꯤꯗꯌꯨꯌ ꯃꯦꯅꯨꯡꯅ ꯍꯤꯕꯀꯌꯗꯒꯤ ꯍꯦꯇꯕꯀꯌ ꯀꯥꯡꯕ ꯇꯦꯅ॥ ꯌꯤꯗꯁꯤꯗ ꯔꯤꯃꯕ ꯗꯤꯃꯗ ꯁꯦꯗꯂꯤ, ꯃꯁꯤꯗ "ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯍꯟꯊꯕ ꯑꯃꯁꯨꯡ ꯔꯟꯑꯣꯐ ꯍꯦꯟꯕ" ("less infiltration and more run off") ꯗꯤ (MASTEC)॥ ꯕꯕꯤꯇ ꯇꯗꯕꯗ ꯔꯦꯗꯕ ꯂꯤꯗꯌꯨꯌꯀꯤ ꯌꯤꯗꯁꯤꯗꯗ ꯁꯌꯦꯁꯤꯗꯀꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯤꯃꯂꯤ ꯌꯨꯕ ꯂꯤꯗꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯅꯕꯅꯗꯒꯤ ꯇꯨꯂꯤ ꯍꯕ ꯂꯤꯗꯨꯇ ꯗꯤ, ꯃꯅ ꯇꯗꯕꯒꯤ ꯕꯕꯤꯇ ꯌꯥꯂꯦꯗ ꯗꯤꯕꯒꯤꯃꯂ॥ ꯂꯤꯇꯤꯇ ꯑꯁꯤ ꯅꯇꯅ ꯕꯦꯕꯂꯂꯤ ꯌꯥꯏ ꯌꯥꯃꯕꯗ ꯇꯤꯗꯂꯤꯅꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯌꯥꯇꯅ ꯑꯃꯁꯨꯡ ꯌꯨꯒꯤ ꯔꯤꯖꯔꯚꯣꯌꯔꯁꯤꯗꯂꯤ ꯇꯕꯅ ꯑꯃꯁꯨꯡ ꯌꯨꯒꯤ ꯌꯨꯕꯦꯅꯁꯤꯗꯗ ꯅꯁꯤꯗ ꯇꯗꯤꯀꯅ, ꯃꯕꯝ ꯑꯃꯨꯂꯤ ꯃꯅꯔꯒꯤ ꯑꯃꯗ, ꯂꯦꯕꯒꯤ ꯗꯦꯝꯒꯤ ꯃꯅꯒꯤ ꯕꯤꯌ ꯑꯃꯗ, ꯌꯦꯂꯇꯤꯌꯥ ꯀꯦꯌꯃꯦꯂ ꯑꯃꯀ ꯃꯅꯔ ꯌꯤꯗꯂꯕ ꯂꯦꯕꯒꯤ ꯇꯤꯗꯕ ꯃꯌꯝ ꯌꯨꯗꯤꯗꯗ ꯇꯦꯅ॥ ꯃꯕꯝ ꯑꯁꯤꯂꯤ ꯃꯦꯌꯨꯔꯦꯅ ꯑꯁꯤꯂꯤ ꯂꯕ-ꯑꯦꯕꯤꯔ MN-A ꯑꯃꯁꯨꯡ MN-B-ꯗ 1 ꯖꯨꯂꯗꯒꯤ 15 ꯑꯁꯤꯌꯕꯕ ꯀꯁꯤꯕ, ꯅꯃꯀꯦꯗ IMD-ꯒꯤ ꯃꯍꯂꯤꯒꯤ ꯍꯕꯀꯌꯗꯒꯤ ꯍꯦꯇꯕꯀꯌ ꯀꯁꯤꯕꯒꯤ ꯅ-ꯂꯤꯗꯌꯨꯌ ꯃꯦꯅꯨꯡꯅ, ꯗꯤꯖꯥꯏꯟ ꯅꯥꯃꯗ ꯁꯨꯕꯒꯤ ꯍꯦꯗꯦ ꯁꯨꯗꯤꯍꯅꯕꯗꯃꯛ AMC III ꯁꯤꯖꯤꯟꯅꯩ; MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯗ 1 ꯃꯦꯗꯒꯤ 31 ꯑꯁꯤꯌꯕꯕ ꯀꯁꯤꯕ; 1% AEP-ꯒꯤ ꯅꯁꯤꯗ ꯅꯌꯁꯤꯒꯤ ꯂꯦꯒꯦꯒꯤ ꯃꯅꯗ ꯗꯤꯕ ꯂꯃꯗ, ꯌꯥꯏꯌꯁ, ꯌꯥꯏ ꯂꯦꯕꯒꯤ ꯌꯨꯅꯕꯤꯒꯤ ꯃꯂꯤꯌꯁ ꯑꯃꯁꯨꯡ ꯌꯨꯕꯦꯅꯒꯤ ꯌꯥꯏꯁꯤꯒꯤ ꯃꯌꯨꯗꯗ 1 ꯑꯦꯌꯕꯤꯅꯗꯒꯤ 31 ꯑꯁꯤꯌꯕꯕ ꯀꯁꯤꯕ; MN-A1-ꯗ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯌꯀꯅ ꯑꯁꯤ ꯂꯤꯗꯌꯨꯌ, ꯔꯤꯖꯔꯚꯣꯌꯔ ꯑꯃꯀ, ꯃꯁꯤꯒꯤ ꯕꯦꯅꯌꯦꯁꯕ ꯂꯦꯕꯒꯤ ꯕꯤꯂꯤꯂ ꯕꯤꯌ ꯑꯃꯀ ꯑꯅꯕꯕ ꯃꯀꯃꯗ ꯌꯥꯏꯒꯤ ꯍꯕꯤꯒꯨꯝꯕ ꯃꯌꯝ ꯑꯃꯗ; ꯑꯃꯁꯨꯡ ꯑꯍꯣꯡꯕ ꯃꯀꯃꯁꯤꯗꯗ ꯌꯨꯃꯍ 5-ꯒꯤ ꯅꯥꯃꯗ ꯁꯨꯕꯒꯤ 53 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯃꯌꯨꯗꯗ, AMC III-ꯒꯤꯗꯃꯛ NRCS-ꯒꯤ ꯀꯔꯚ-ꯅꯝꯕꯔꯁꯤꯡꯒꯤ ꯇꯦꯕꯂꯗ; ꯑꯍꯣꯡꯕꯗ AMC II (ꯁꯦꯛꯁꯟ 2.11.4)॥ AMC I ꯁꯤꯖꯤꯟꯅꯗꯦ, ꯃꯕꯃꯗꯤ ꯃꯌꯝ ꯑꯁꯤꯗ ꯂꯦꯕꯒꯤ ꯂꯕꯨꯗ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯔꯕ ꯀꯁꯤꯕ ꯀꯗꯗ॥ ꯃꯅꯔ ꯑꯁꯤ ꯃꯦꯌꯨꯔꯦꯅ ꯑꯁꯤꯂꯤ ꯇꯃꯕ ꯅꯦꯌꯕꯤꯃ ꯅꯦꯕꯁꯤꯗꯂꯤ; ꯂꯦꯕꯒꯤꯁ ꯂꯦꯕꯒꯤ ꯑꯃꯁꯨꯡꯂꯤ AMC ꯀꯂꯤꯂꯁꯤꯗ ꯑꯁꯤ ꯍꯕ ꯀꯗꯂꯕ ꯔꯟꯑꯣꯐꯀ ꯔꯤꯂꯕ ꯍꯧꯖꯤꯛ ꯀꯁꯤꯕ ꯒꯦꯂꯤꯗꯦꯌ ꯇꯧꯗꯕꯤ॥
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> **ꯃꯤꯇꯂꯗ-ꯀꯕꯤꯀꯔ°ꯦꯁꯤ ꯕꯨꯒꯤ ꯍꯨꯗꯝ ꯑꯅꯕ ꯌꯗ.** ꯃꯅꯗ ꯌꯥꯏꯕꯤꯕ ꯒꯦꯀꯍꯨꯂꯤꯗ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯒꯦꯀꯍꯨꯂꯤꯗ ꯂꯦꯕꯒꯦ॥ ꯃꯅꯔꯂꯤ ꯂꯤꯕꯤꯕꯃ ꯁꯍꯕꯒꯤ ꯌꯤꯗꯒꯤ ꯃꯂꯤꯌꯀꯤ ꯀꯂꯂꯤ ꯑꯃꯅ ꯂꯤꯕꯤ ꯌꯨꯕꯦꯅꯒꯤ (Jiri) ꯅꯗ ꯑꯃꯅ ꯌꯦꯇꯥꯇꯤꯌꯥ 2 ha-ꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯀ, ꯌꯨꯗ 24-ꯒꯤ ꯗꯤꯌꯥꯇꯁꯤꯗ 200 mm (10-yr) ꯑꯃꯁꯨꯡ 350 mm (100-yr), Ia = 0.2S ꯗꯤꯕ SCS-CN ꯕꯦꯑꯣꯐ, ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡꯗ CN 70 ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯇꯨꯡꯗ CN 92 ꯍꯔꯂꯤ ꯂꯤꯅ:

ꯇꯦꯕꯜ 2.3 — ꯃꯤꯇꯂꯗ-ꯀꯕꯤꯀꯔ°ꯦꯁꯤ ꯕꯨꯒꯤ ꯍꯨꯗꯝ ꯑꯅꯕ ꯌꯗ (ꯗꯤꯖꯥꯏꯟ ꯒꯦꯀꯍꯨꯂꯤꯗ ꯂꯦꯕꯒꯦ)

ꯀꯦꯁ	ꯔꯟꯑꯣꯐ ꯗꯦꯞꯊ	ꯔꯟꯑꯣꯐ ꯚꯣꯜꯌꯨꯝ (2 ha)
ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡ, 10-yr 24 h	111 mm	2,210 m³

ꯄꯣꯠ	ꯗꯤꯖꯥꯏꯟ ꯗꯦꯞꯊ	ꯗꯤꯖꯥꯏꯟ ꯚꯣꯂꯨꯝ (2 ha)
ꯅꯣꯡꯖꯨꯅꯨꯡꯁꯤꯠꯀꯤ ꯑꯁꯨꯡ, 100-yr 24 h	325 mm	6,500 m³

ꯅꯣꯡꯖꯨꯅꯨꯡꯁꯤꯠꯀꯤ ꯑꯁꯨꯡꯒꯤ ꯆꯍꯤ 100-ꯒꯤ ꯃꯇꯝ ꯄꯨꯔꯀꯤ ꯐꯣꯡꯗꯣꯛꯂꯤ ꯅꯣꯡꯖꯨꯅꯨꯡꯁꯤꯠꯀꯤ ꯑꯣꯏꯕꯒꯤ ꯆꯍꯤ 10-ꯒꯤ ꯐꯣꯡꯗꯣꯛꯄꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯚꯣꯂꯨꯝꯒꯤ ꯆꯥꯡ ꯑꯃꯨꯛ ꯑꯗꯨꯅ ꯁꯦꯝꯕꯥꯏ॥ ꯅꯣꯡꯖꯨꯅꯨꯡꯁꯤꯠꯀꯤ ꯑꯣꯏꯕꯒꯤ ꯆꯍꯤ 10-ꯒꯤ ꯂꯦꯚꯦꯜꯗ ꯁꯤꯡꯂꯨ-ꯗꯦꯝ ꯄꯦꯟ ꯑꯃꯗꯤ ꯅꯦꯝꯂꯕ ꯑꯃꯨꯒꯤ ꯂꯣꯃꯕ ꯐꯝꯂꯤꯕꯃꯨꯗꯤ ꯁꯦꯝꯂꯤ ꯐꯗꯣꯛꯄꯗꯥꯏꯕꯂꯤ ꯍꯧꯔꯕꯂꯤ, ꯑꯗꯨꯒ ꯑꯃꯨꯗꯤ ꯃꯅꯥꯏꯕꯒꯤ m² ꯈꯨꯗꯤꯡꯗ 0.2 m³-ꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯃ꯭ꯌꯥꯁꯦꯜ ꯑꯐꯥ ꯁꯦꯝ ꯂꯩꯅ॥ ꯑꯗꯨꯒ ꯑꯃꯤꯗꯤ ꯆꯥꯡ ꯑꯃꯤ ꯅꯃꯤꯡ ꯅꯔꯣꯕꯗ ꯃꯦꯜꯃꯤꯁꯤꯀ ꯑꯅꯕ ꯄꯦꯔꯥꯃꯦꯇꯃꯤꯡꯗ ꯅꯥꯏꯁ ꯍꯦꯗꯦ (ꯇ꯭ꯔꯦꯜ 2.11.3); ꯑꯁꯥꯔꯕ ꯑꯣꯏꯅꯃꯤꯡꯗ ꯇ꯭ꯔꯦꯜ 2.11.2-ꯒꯤ 0.9 × Q_pre ꯆꯥꯡ ꯍꯦꯗꯦ॥

2.12 ꯁꯦꯡꯕꯔꯤꯁꯤꯒꯤ ꯂꯥꯏꯔꯦꯜ ꯐꯥꯏꯕ

2.12.1 ꯁꯤꯅꯗ ꯂꯦꯟꯒꯤ ꯁꯨꯡꯅꯒꯤ ꯕꯥꯏꯔꯤꯁꯤꯒꯤ ꯃꯇꯧ ꯂꯩꯕ ꯑꯣꯏꯕꯥꯃꯤꯟꯅꯃꯤꯡꯒꯤꯗꯃꯛ, ꯃꯆꯥꯏ ꯑꯃꯤꯒꯤ ꯗꯤꯂꯅꯦ ꯂꯥꯏ ꯄꯨꯕ ꯑꯃꯤ ꯃꯆꯥꯏ 5-ꯒꯤ ꯁꯦꯡꯕꯔꯤꯁꯤꯒꯤ ꯏꯀꯤꯇꯃꯤꯡꯒꯤ ꯑꯅꯤꯒꯤ ꯑꯑꯥꯡꯗ ꯁꯨꯂꯃꯤꯂꯒꯗꯕꯂꯤ॥ ꯍꯧꯂꯦ ꯏꯁꯤꯕ ꯄꯣꯠ ꯑꯗꯨ ꯑꯆꯨ ꯑꯥꯅ॥

- (a) ꯃꯤꯟ ꯍꯧꯅ ꯔꯤꯁꯦ ꯃꯁꯤꯡꯗꯤꯡꯃ (MHWS) ꯁꯦꯡꯕꯔꯤꯁꯦ ꯑꯃꯁꯨꯡ ꯃꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯤꯗꯦꯃꯂꯕ ꯂꯥꯏꯔꯦꯜ ꯗꯤꯂꯅꯦ ꯂꯥꯏ ꯄꯨꯕ (ꯑꯐꯥ ꯁꯦꯕ ꯑꯁꯨꯡ ꯅꯂꯦ AEP)॥
- (b) 1% AEP-ꯒꯤ ꯃꯁꯤꯟ-ꯔꯤꯁꯦ ꯂꯦꯚꯦꯜ (ꯁꯤꯅꯗ ꯑꯃꯁꯨꯡ ꯃꯗꯨ) ꯑꯃꯁꯨꯡ ꯃꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯤꯗꯦꯃꯂꯕ ꯂꯥꯏꯔꯦꯜ 10% AEP-ꯒꯤ (10-yr) ꯁꯨꯡ 48-ꯒꯤ ꯃꯇꯝ ꯄꯨꯕꯒꯤ ꯐꯣꯡꯗꯣꯛ॥

ꯑꯂꯤꯁꯨꯗꯗ ꯃꯑꯣꯡꯗꯒꯤ ꯑꯂꯦꯟ ꯂꯩꯁꯦ, ꯑꯗꯨꯒ ꯑꯗꯨꯂꯦ ꯃꯁꯦꯅꯒꯤ ꯑꯦꯡꯅꯦꯡꯅ ꯑꯃꯅꯁꯦ ꯁꯤꯅꯗꯦꯅ ꯂꯦꯟꯁꯦ ꯑꯃꯁꯨꯡ ꯄꯣꯠ (a) ꯑꯃꯁꯨꯡ (b) ꯐꯥꯏꯕ ꯂꯩꯁꯦ॥ ꯁꯦꯡꯕꯔꯤꯁꯦ ꯑꯃꯤ ꯁꯦꯡ ꯑꯃꯒꯤ ꯑꯁꯨꯡꯗ ꯂꯩꯕ ꯁꯨꯗꯦꯅ, ꯅꯐꯥꯅ ꯕꯦꯗꯂꯂꯦ ꯐꯤꯡꯂꯤꯅꯂꯤꯕ ꯂꯥꯏꯁꯦꯡ, ꯒꯦꯟ ꯑꯃꯒꯤ ꯑꯁꯨꯡꯗ ꯂꯩꯕ ꯁꯦꯟ ꯂꯦꯟꯒꯤ ꯃꯍꯩ ꯑꯃꯂꯦ ꯅꯃꯤꯡ ꯍꯦꯗꯐꯥꯏꯕ ꯍꯤꯡꯒꯤ ꯅꯥꯏꯕꯂꯤ॥ ꯁꯨꯗꯦꯅ ꯂꯦꯟꯒꯤ ꯂꯦꯏꯕꯒꯤ ꯕꯦꯏꯕꯔꯤꯁꯤꯒꯤ ꯑꯅꯤꯗ ꯂꯩꯕ ꯑꯦꯡꯅꯦꯡꯅ ꯑꯃꯒꯤꯗꯃꯛ, ꯃꯅꯥꯏꯕꯒꯤ ꯃꯇꯝ ꯄꯨꯕꯒꯤ ꯐꯣꯡꯗꯣꯛ ꯑꯃꯤ ꯇ꯭ꯔꯦꯜ 5.8.4 ꯑꯅꯤꯗ ꯅꯃꯤꯡ ꯂꯩꯕ ꯅꯃꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯁꯨꯂꯃꯤꯅꯂꯤ, ꯑꯃꯤꯗꯤ ꯄꯣꯠ (b)-ꯁꯨꯒꯂ ꯑꯂꯦꯟ ꯑꯃꯗ ꯗꯤꯂꯅꯦ ꯐꯣꯡꯗꯣꯛ ꯑꯃꯁꯨꯡ ꯑꯁꯥꯔꯕ ꯑꯂꯦꯟꯁ ꯍꯧꯔ 10-ꯒꯤ ꯐꯣꯡꯗꯣꯛ ꯁꯨꯂꯃꯤꯅꯂꯤ, ꯑꯃꯁꯨꯡ ꯁꯨꯗꯦꯅꯒꯤ ꯂꯦꯚꯦꯜꯃꯤꯡ ꯑꯃꯤ ꯇ꯭ꯔꯦꯜ 5.8.2-ꯒꯤꯂꯤ; ꯅꯒꯦꯅ ꯑꯃꯁꯨꯡ ꯁꯒꯁꯤꯗꯃꯤ ꯃꯍꯥꯗꯃꯤꯡꯗ ꯂꯩꯕꯁꯨꯒꯂ ꯁꯤꯂꯒꯤ ꯒꯦꯟ ꯂꯦꯟꯒꯤ ꯐ꯭ꯂꯥꯞ ꯒꯦꯠ (flap gate) ꯑꯃꯗꯤ ꯐꯤꯡꯂꯤꯅꯂꯕ, ꯂꯦꯟꯒꯤ ꯂꯥꯏꯁꯦꯗꯤꯕ ꯂꯦꯚꯦꯜꯒꯤ ꯑꯅꯤꯗ ꯂꯩꯕ ꯑꯦꯡꯅꯦꯡꯅ ꯑꯃꯒꯤꯗꯃꯛ, ꯇ꯭ꯔꯦꯜ 5.10-ꯒꯤ ꯑꯦꯡꯅꯦꯡꯅ ꯐꯤꯡꯕ ꯍꯦꯗ ꯑꯃꯁꯨꯡ ꯇ꯭ꯔꯦꯜ 5.12-ꯒꯤ ꯁꯒꯁꯤꯡ ꯆꯥꯅꯃꯤꯡꯃ ꯍꯦꯗꯦ, ꯑꯃꯁꯨꯡ ꯑꯅꯥꯔꯦ ꯔꯤꯒꯕ ꯑꯆꯨ ꯑꯥꯅ (ꯇ꯭ꯔꯦꯜ 5.8.5)॥ ꯑꯦꯄꯔꯦꯅ ꯑꯃꯤꯒꯤꯗꯃꯛ ꯁꯒꯁꯤꯗꯃꯤ ꯁꯨꯗꯦꯅꯃꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯃꯤꯡ ꯑꯃꯤ ꯁꯗ꯭ꯦꯃꯂꯦ ꯔꯤꯁꯦ ꯗꯤꯃꯥꯗꯃꯦꯃ ꯅꯤꯁꯗꯦꯅꯑꯦꯅꯦꯒꯤ ꯑꯃꯤꯡꯃꯤꯡ ꯏꯥꯡꯗꯥꯁ ꯑꯁꯨꯡ ꯅꯂꯦ ꯍꯥꯌꯁ ꯍꯔꯅ, ꯅꯦꯁ ꯏꯥꯡꯗꯥꯁꯂꯦ (ꯑꯔꯤꯒꯕ ꯑꯤꯂ ꯃꯤ ꯂꯦꯚꯦꯜꯗꯒꯤ ꯔꯤꯡꯕ ꯑꯤꯁꯦ ꯍꯧꯔꯦ ꯂꯥꯅ [TBC]): ꯅꯒꯦꯅꯗ ꯂꯩꯕ **ꯃꯤꯅꯨꯊꯣꯡꯗ** (Minuthong) ꯅꯒꯦꯅ ꯁꯨꯗꯦꯅꯗ, ꯔꯤꯗꯂꯤꯡ ꯂꯦꯚꯦꯜ (warning level), ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (flood level) ꯑꯃꯁꯨꯡ ꯍꯧꯅꯔꯦꯃꯍ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (highest flood level) **785.900, 786.900 ꯑꯃꯁꯨꯡ 788.400 m**, ꯑꯗꯥꯅꯕ ꯑꯃꯤ 29 ꯑꯦ 2024-ꯗ ꯍꯦꯂꯒꯦꯅꯤ; **ꯂꯤꯂꯥꯡꯗ**, ꯔꯤꯗꯂꯤꯡ ꯂꯦꯚꯦꯜ 780.350 m, ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 781.350 m (2025) ꯂꯦꯟꯒꯤ 781.250 m (2024) [U] ꯑꯃꯁꯨꯡ ꯍꯧꯅꯔꯦꯃꯍ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 782.850 m (2024), **15 ꯃꯦꯁꯁꯦꯒꯕꯗ 2025-ꯗ 783.250 m-ꯗ ꯍꯦꯂꯒꯦꯅꯤ**; ꯅꯗꯤꯔꯕꯨꯡꯗ (Irilbung) ꯅꯗꯤꯔ ꯁꯨꯗꯦꯅꯗ, 786.700 ꯑꯃꯁꯨꯡ 787.700 m, ꯍꯧꯅꯔꯦꯃꯍ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 782.200 m ꯍꯧꯔꯦ ꯏꯥꯡꯗꯥꯁ, ꯑꯃꯤꯒꯤ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜꯗꯒꯤ ꯂꯦꯒꯦ [U], ꯑꯃꯁꯨꯡ 15 ꯃꯦꯁꯁꯦꯒꯕꯗ 2025-ꯗ 788.850 m-ꯒꯤ ꯁꯤꯕ ꯑꯅꯤ; ꯐꯣꯡꯅ ꯁꯨꯗꯦꯅꯗ, 778.915 ꯑꯃꯁꯨꯡ 779.915 m (ꯒꯦꯂꯒꯤ ꯑꯅꯤꯡ ꯏꯥꯡꯗꯥꯁ); ꯐꯥꯡ ꯂꯒꯕꯦꯕꯤꯗ (Thong Nambonbi; Hump Bridge) ꯂꯒꯕꯨꯅ ꯁꯨꯗꯦꯅꯗ, ꯍꯧꯅꯔꯦꯃꯍ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 783.695 m; ꯂꯒꯕꯥꯅ ꯐꯥꯡꯅꯥꯡꯗ (Nambol Thongkhong) ꯂꯒꯕꯥꯅ ꯁꯨꯗꯦꯅꯗ, 774.700 m (2024) ꯂꯦꯟꯒꯤ 774.400 m (2025) [U]; ꯑꯃꯁꯨꯡ ꯑꯂꯤꯁꯨ ꯁꯨꯗꯦꯅꯗ **ꯅꯐꯅ ꯕꯦꯗꯂꯗ, ꯍꯧꯅꯔꯦꯃꯍ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 769.320 m, 15 ꯃꯦꯁꯁꯦꯒꯕꯗ 2025-ꯗ 770.05 m-ꯗ ꯍꯦꯂꯒꯦꯅꯤ** (ꯁꯨꯒꯂꯑꯥ ꯁꯤꯡꯗ ꯏꯥꯡꯗꯥꯁꯅꯤꯕ ꯑꯁꯨꯡ ꯅꯂꯦ; ꯔꯂꯗꯕꯃꯤꯡ ꯏꯥꯡꯗꯥꯏꯅ, ꯂꯥꯅꯃꯤꯂꯦꯗꯦ)॥ ꯂꯥꯏꯁꯦꯗꯤꯕ ꯐꯨꯅ ꯗꯤꯇꯗꯒꯥꯔꯗ ꯂꯦꯚꯦꯜ (full reservoir level) 768.5 m ꯑꯃꯁꯨꯡ ꯑꯂꯤꯑꯒ ꯗ꯭ꯔꯥꯗꯣꯡ ꯂꯦꯚꯦꯜ (minimum drawdown level) 766.2 m ꯍꯧꯔꯦ NHPC-ꯅ ꯁꯤꯗꯤ (ꯄꯦꯟꯅꯤꯕ ꯑꯁꯨꯡ ꯅꯂꯦ), ꯑꯂꯤꯑꯒ ꯗ꯭ꯔꯥꯗꯣꯡ ꯂꯦꯚꯦꯜ 766.01 m ꯍꯧꯔꯦ CEA-ꯅ ꯁꯤꯗꯤ (ꯄꯦꯟꯅꯤꯕ ꯑꯁꯨꯡ ꯅꯂꯦ), ꯑꯃꯁꯨꯡ ꯑꯁꯥꯔꯕ ꯏꯥꯡꯗꯥꯁ ꯑꯅꯗ ꯐꯨꯅ ꯗꯤꯇꯗꯒꯥꯔꯗ ꯂꯦꯚꯦꯜ 769.63 m ꯍꯧꯔꯦ ꯁꯤꯗꯤ, ꯑꯃꯤꯗꯤ 768.50 m-ꯕꯨ "ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ" ("flood level") ꯍꯧꯔꯦ ꯄꯦꯅ (ꯁꯤꯡꯗ ꯏꯥꯡꯗꯥꯁꯅꯤꯕ ꯑꯁꯨꯡ ꯅꯂꯦ) [U]॥ CWC-ꯒꯤ ꯃꯁꯦꯁ ꯃꯅꯦ ꯑꯃꯅꯥꯁ ꯂꯦ, ꯂꯤꯗꯤꯕꯦꯒꯤ ꯑꯂꯦꯁ ꯍꯥꯁꯦꯕꯦꯄꯗꯦꯗ (Chotebekra) ꯕꯗꯥ ꯁꯨꯗꯦꯅꯗ ꯂꯦꯚꯦꯜ ꯑꯦꯂꯤꯁꯗꯤꯡ ꯃꯅꯦ ꯑꯅꯤ, 31 ꯆꯂꯦꯅ 1989-ꯗ ꯅꯕꯦꯅꯗꯒꯤ ꯔꯤꯡꯕ ꯂꯦꯚꯦꯜ 32.1 m (SANDRP-ꯅ ꯅꯗꯥꯅꯤꯕ CWC ꯗꯦꯁꯦ; ꯗꯦꯂꯗ ꯂꯦꯚꯦꯜ 26.2 m ꯑꯃꯤ ꯁꯗꯦꯃꯁ ꯍꯥꯁ ꯆꯅ); ꯔꯤꯒꯂꯦ ꯂꯥꯂꯕ ꯑꯦꯗꯤꯃꯂꯦꯂꯦ ꯑꯅꯦ ꯐꯤꯕꯒꯤ ꯕꯗꯥ ꯁꯂꯦꯂꯦ ꯐꯒꯂꯤ॥ ꯐꯕꯦꯅ ꯁꯨꯗꯦꯅꯗ ꯂꯩꯕ ꯑꯁꯤꯐꯦꯅ ꯗꯦꯒꯤ ꯐꯨꯅ ꯗꯤꯇꯗꯒꯥꯔꯗ ꯂꯦꯚꯦꯜ 880.7 m ꯍꯧꯔꯦ ꯁꯤꯗꯤ (WRD, ꯃꯦꯁꯁꯦꯒꯕꯗ 2025, ꯁꯤꯡꯗ ꯏꯥꯡꯗꯥꯁꯅꯤꯕ ꯑꯁꯨꯡ ꯅꯂꯦ), ꯑꯃꯁꯨꯡ 1 ꯑꯒꯃꯦ 2015-ꯗ ꯗꯤꯇꯗꯒꯥꯔꯗ ꯑꯃꯤ 876 m-ꯗ,

"ꯑꯃꯁꯤꯡꯈꯪꯂꯣꯏꯗꯕꯒꯤ ꯌꯥꯝ 2 m ꯍꯦꯟꯅ ꯌꯥꯃꯗꯦ" ("nearly 2 m above the spillways"), ꯗꯥꯏ ꯄꯤꯔꯦ ꯐꯣꯡꯗꯣꯛꯈꯤ (ꯁꯣꯌꯗꯅ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯍꯥꯌꯕ ꯅꯠꯇꯦ); ꯑꯗꯨ ꯑꯣꯏ ꯌꯥꯗꯅ [U]꯫ ꯑꯄꯨꯝꯕꯒꯤ ꯗꯥꯍꯤꯅ ꯑꯣꯏ ꯌꯥꯝ 790 m ꯍꯦꯟꯅꯕ ꯗꯥ (AIIB), ꯍꯥꯌꯕ ꯑꯁꯨꯝꯗ ꯅꯌꯐꯅ ꯁꯤꯡꯊꯥꯡꯒꯤ ꯍꯦꯗꯨꯝ ꯗꯥꯕ ꯈꯣꯡꯕꯦꯂꯣꯏꯗꯦ ꯍꯣꯏꯒꯤ ꯅꯣꯏꯗ ꯅꯌꯥꯡꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯍꯤꯃꯥꯝ ꯑꯍꯤ ꯇꯧꯕꯒꯤ ꯑꯗꯤꯒꯤ ꯍꯨꯗꯕꯅ ꯅꯣꯏꯗ ꯊꯣꯛꯂꯛꯅ (NEER-ꯒꯤ ꯁꯤꯕ), ꯑꯃꯁꯨꯡ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯅꯣꯏꯗ ꯅꯌꯥꯡꯂꯣꯏꯗꯅ ꯁꯤꯡꯊꯥꯡꯂꯣꯏꯗ ꯂꯨꯍꯤꯡ ꯗꯔꯦ ꯍꯈꯔꯒꯤ ꯐꯗꯅ ꯇꯥꯒꯥꯡꯂꯣꯏꯗꯅꯒꯤ ꯌꯥꯗꯦ ꯗꯥꯈꯤ, ꯍꯥꯌꯕ ꯑꯁꯨꯝꯗ ꯃꯍꯁꯣꯗꯔꯤ ꯑꯄꯨꯝꯂꯣꯏꯗꯒꯤ ꯑꯋꯥꯡꯐꯡꯂꯣꯏꯗ ꯑꯣꯏ ꯂꯨꯍꯤꯡ ꯗꯔꯦ ꯒꯥꯡꯂꯣꯏꯗ ꯊꯣꯗꯤꯡꯇꯕꯒꯤꯅꯍꯥ ꯅꯤꯇꯤꯅꯦ ꯃꯅ, ꯍꯐꯃꯒꯤ ꯇꯗ ꯁꯕꯒꯤ ꯊꯅꯗ ꯑꯣꯏ ꯁꯤꯡꯊꯥꯡꯒꯤ ꯁꯤꯗꯕꯤ ꯍꯍꯤꯗꯅ, ꯍꯃꯍꯅ ꯇꯧꯕꯒꯤ ꯍꯃꯨꯗꯅ ꯁꯕꯒꯤ (ꯑꯦꯞꯗ 5)꯫ ꯍꯥꯂꯨꯔꯥꯡ ꯑꯣꯏꯒꯤ ꯕꯤꯑꯕꯌꯝ ꯐꯗꯈꯤꯕ ꯅꯗꯕꯍꯥꯕꯦꯇ ꯑꯍꯥꯝꯗꯦ ꯑꯃꯁꯤꯡꯕꯤ ꯕꯕꯤꯁꯍꯕ ꯑꯄꯕ ꯑꯍꯒꯤ ꯑꯋꯥꯡꯐꯡꯂꯣꯏꯗꯒꯤꯅꯍꯥ ꯅꯣꯏꯗ ꯗꯕ ꯅꯣꯏꯗꯒꯤ ꯅꯤꯇꯤꯅꯦ ꯇꯥꯒꯥꯡ ꯑꯍꯥꯝ ꯊꯍꯅꯥ [TBC], ꯑꯃꯁꯨꯡ ꯑꯦꯞꯗ 5-ꯗ ꯅꯦꯃꯕꯍꯤ ꯂꯨꯡ ꯊꯍꯗꯤ꯫ ꯑꯦꯞꯗ 5-ꯗ ꯍꯊ ꯃꯕ ꯍꯥꯝꯗ ꯅꯠꯇꯦ, ꯇꯥꯒꯥꯡ ꯅꯨꯡꯅꯤꯗꯍꯗ ꯍꯍꯤꯗ ꯗꯕ ꯒꯥꯇ ꯑꯃꯁꯨꯡ ꯅꯥꯃꯍ ꯑꯍꯅ ꯐꯣꯡꯗꯣꯛꯂꯛꯅ꯫

> **ꯑꯦꯅꯗꯣꯛꯗ ꯃꯗꯁꯤ.** ꯍꯗꯤꯁꯨꯕꯅ ꯑꯍꯨꯅꯕꯒꯤ ꯍꯦꯗꯨ ꯗꯥꯝ, ꯍꯥꯌꯕ ꯑꯁꯨꯝꯗ ꯑꯋꯥꯡꯐꯡ ꯑꯃꯁꯤꯡ ꯃꯅꯅꯥꯡ ꯇꯧꯝ ꯑꯃꯁꯨꯡ ꯑꯃꯕꯍ ꯑꯕꯇ ꯗꯥꯝ; ꯁꯨꯋꯦꯗ ꯊꯗꯁꯤ ꯗꯅ ꯑꯣꯏ ꯁꯤꯋꯦꯂꯣꯏꯗꯒꯤ ꯍꯥꯝꯗꯅ ꯗꯕ ꯁꯤꯡꯊꯥꯡꯂꯣꯏꯗꯒꯤ, ꯅꯊꯅ ꯕꯥꯕꯇꯗꯤ ꯍꯥꯝꯗꯅ ꯗꯕ ꯗꯗꯃꯗꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯝꯕꯒꯤ ꯈꯣꯡꯕꯦꯂꯣꯏꯗꯒꯤ ꯅꯣꯏꯗ ꯗꯕ ꯁꯤꯡꯂꯣꯏꯗꯒꯤ ꯇꯥꯒꯥꯡꯇꯤ꯫ ꯁꯨꯋꯦꯗ ꯊꯗꯁꯤ ꯑꯣꯏ ꯕꯥꯗꯕꯅꯝ ꯗꯤ꯫ 29 ꯍꯥ 2024-ꯅ, ꯕꯥꯍꯅ ꯇꯗ ꯁꯕꯒꯤ ꯊꯅꯗꯗꯤ ꯍꯃꯍꯅ, ꯍꯤꯂꯨꯊꯗꯅ ꯅꯍꯐꯅ ꯁꯤꯡꯊꯥꯡ ꯍꯣꯏꯒꯤ ꯄꯅꯔꯥꯡꯑꯦ ꯐꯗꯅ ꯇꯥꯒꯥꯡ 788.400 m-ꯅꯒꯤ ꯌꯥꯗꯦ ꯗꯥꯏ ꯄꯤꯔꯦ ꯐꯣꯡꯗꯣꯛꯈꯤ, ꯑꯃꯁꯨꯡ ꯊꯗ ꯇꯍꯕꯦꯕꯤꯅ ꯇꯍꯕꯨꯡ ꯁꯤꯡꯊꯥꯡ ꯑꯃꯁꯨꯡ ꯇꯍꯕꯅ ꯊꯗꯈꯗꯅ ꯇꯍꯕꯅ ꯁꯤꯡꯊꯥꯡ ꯍꯈꯔꯒꯤꯅꯒꯤ ꯌꯥꯗꯦ ꯗꯥꯏ (ꯁꯣꯌꯗꯅ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯍꯥꯝꯗ ꯅꯠꯇꯦ); 15 ꯑꯦꯁꯅꯝꯍꯕꯕ 2025-ꯅ ꯇꯤꯗꯗꯅ ꯅꯍꯐꯅ ꯁꯤꯡꯊꯥꯡ 783.250 m ꯑꯃꯁꯨꯡ ꯅꯊꯅꯅ ꯍꯗꯤꯁꯨꯕ ꯁꯤꯡꯊꯥꯡ 770.05 m ꯐꯌꯈꯤ, ꯑꯗꯤꯍꯗ ꯍꯈꯔꯒꯤ ꯐꯣꯡꯗꯣꯛꯇꯕ ꯄꯅꯔꯥꯡꯑꯦ ꯐꯗꯅ ꯇꯥꯒꯥꯡꯂꯣꯏꯗꯅꯒꯤ ꯌꯥꯗꯦ, ꯑꯁꯨꯝꯕ ꯅꯕꯤꯡ ꯁꯤꯡꯊꯥꯡꯒꯤ ꯁꯦ ꯗꯥꯏꯕ ꯑꯌꯥꯝ ꯗꯥꯗꯥꯅꯅ ꯗꯗꯈꯤ (ꯁꯣꯌꯗꯅ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯍꯥꯝꯗ ꯅꯠꯇꯦ)꯫ ꯁꯦꯋꯦꯂꯣꯏꯗꯒꯤ ꯍꯥꯝꯗꯅ ꯇꯥꯍꯕ ꯍꯐꯃꯂꯣꯏꯗ ꯍꯁꯨꯒꯤ ꯍꯥꯝꯗꯅ "ꯄꯥꯁꯝ ꯗꯔꯦꯒꯤ ꯍꯃꯍ" ("for several weeks") ꯅꯣꯏꯗ ꯂꯨꯍꯅꯗ ꯗꯥꯅ (AIIB), ꯍꯥꯌꯕꯅꯤ ꯃꯍꯁꯣꯗꯔꯤ ꯊꯗꯐꯍ ꯑꯍꯈꯗꯝ ꯑꯁꯨꯝꯗ ꯌꯥꯝ 400 m³/s ꯍꯦꯟꯅ ꯁꯨꯅ ꯑꯃꯁꯨꯡ "ꯅꯣꯏꯗ ꯑꯣꯏ ꯍꯊꯗ ꯊꯗꯕ ꯍꯐꯃꯅ ꯁꯨꯋꯦꯂꯣꯏꯡꯇꯗꯅ" ("water is piled up upstream") (MASTEC)꯫ ꯇꯥꯒꯥꯡ ꯑꯣꯏꯂꯣꯏꯗꯦ ꯍꯈꯔ ꯌꯥꯗꯤꯗꯤꯅ ꯁꯕ ꯍꯐꯃꯒꯤ ꯇꯗ ꯁꯕꯒꯤ ꯊꯅꯗ ꯑꯍꯒꯤ ꯌꯥꯗꯣꯏꯗꯕ ꯑꯍꯕꯃ ꯁꯤꯅ꯫ ꯄꯕꯗꯐꯍ ꯃꯗꯦꯗ ꯗꯕ ꯃꯕ ꯇꯥꯒꯥꯡꯂꯣꯏꯗ ꯃꯗꯦꯗ, ꯑꯃꯁꯨꯡ ꯑꯍꯕꯃꯗ ꯍꯣꯏꯒꯤ ꯅꯥꯃꯍ ꯐꯣꯡꯗꯣꯛꯃ: WRD-ꯒꯤ ꯇꯥꯒꯥꯡꯂꯣꯏꯗ ꯑꯣꯏ ꯁꯕꯑꯦꯗ ꯐꯣꯡꯗꯣꯛꯁꯤ ꯍꯥꯝꯗ ꯅꯠꯇꯦ ꯈꯗꯃ ꯈꯗꯅ, ꯇꯤꯗꯗꯒꯤ ꯐꯗꯅ ꯇꯥꯒꯥꯡ 2025-ꯅ 781.350 m ꯑꯃꯁꯨꯡ 2024-ꯅ 781.250 m ꯄꯤꯔꯦ ꯐꯣꯡꯗꯣꯛꯇꯤ, ꯅꯕꯤꯡꯕꯨꯗꯒꯤ ꯄꯅꯔꯥꯡꯑꯦ ꯐꯗꯅ ꯇꯥꯒꯥꯡ ꯑꯣꯏ ꯍꯣꯏꯒꯤ ꯐꯗꯅ ꯇꯥꯒꯥꯡꯅꯒꯤ ꯇꯍꯗ ꯐꯣꯡꯗꯣꯛꯇꯤ, ꯑꯃꯁꯨꯡ ꯗꯗꯃꯗꯗꯤ ꯐꯡ ꯇꯥꯒꯥꯡ ꯑꯣꯏ NHPC-ꯗ 768.5 m ꯑꯃꯁꯨꯡ ꯑꯃꯁꯤꯁ ꯐꯣꯡꯗꯣꯛꯁꯤ ꯑꯍꯅ 769.63 m ꯄꯤꯔꯦ ꯁꯤꯕ (ꯗꯍꯈꯤꯕ ꯇꯧꯕꯒꯤ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯍꯥꯝꯗ ꯅꯠꯇꯦ), ꯍꯥꯌꯕ ꯑꯣꯏꯗꯦ ꯑꯦꯞꯗ 5-ꯗ ꯇꯥꯒꯥꯡ ꯅꯨꯡꯅꯤꯗꯍꯗꯦ ꯍꯣꯏꯒꯤ ꯄꯕꯗꯐꯍ ꯑꯃꯁꯨꯡ ꯅꯥꯃꯍ ꯐꯣꯡꯗꯣꯛꯗꯅꯕꯇꯤ ꯄꯤꯔꯕꯤ꯫ ꯇꯗ ꯁꯕ ꯑꯃꯁꯨꯡ ꯑꯕꯇꯗ ꯂꯨꯗꯣꯏꯍ-ꯇꯗꯇꯤꯒꯤ ꯍꯥꯌꯕ ꯑꯃꯈꯗꯝ ꯑꯦꯔꯕ ꯃꯕꯗ (ꯑꯍꯨꯅꯕꯒꯤ ꯍꯦꯗꯨ ꯗꯥꯃꯕ ꯍꯗꯤꯁꯨꯕꯅ, ꯑꯕꯇꯗꯤ ꯍꯄꯨꯍ ꯑꯣꯏ ꯁꯦꯋꯦꯂꯣꯏꯗꯒꯤ ꯍꯥꯝꯗꯅ ꯗꯕ ꯃꯍꯁꯣꯗꯔꯤ ꯁꯤꯡꯊꯥꯡꯂꯣꯏꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯅꯊꯅ ꯕꯥꯕꯇꯗꯤ ꯍꯥꯝꯗꯅ ꯗꯕ ꯗꯗꯃꯗꯗꯤ ꯑꯃꯇꯇꯤ, ꯍꯈꯔ ꯑꯣꯏ ꯑꯄꯨꯝꯂꯣꯏꯗꯅ ꯁꯕ ꯇꯗ ꯁꯕꯒꯤ ꯊꯅꯗ ꯑꯁꯨꯍꯗꯦ ꯌꯥꯗꯄꯥꯡꯇꯤ: 29 ꯍꯥ 2024-ꯅ, ꯕꯥꯍꯅ ꯇꯗ ꯁꯕꯒꯤ ꯊꯅꯗꯃ, ꯍꯤꯂꯨꯊꯗꯅ ꯅꯍꯐꯅ ꯁꯤꯡꯊꯥꯡ ꯑꯃꯁꯨꯡ ꯊꯗ ꯇꯍꯕꯦꯕꯤꯅ ꯇꯍꯕꯨꯡ ꯁꯤꯡꯊꯥꯡ ꯍꯈꯔꯒꯤ ꯄꯅꯔꯥꯡꯑꯦ ꯐꯗꯅ ꯇꯥꯒꯥꯡꯂꯣꯏꯗꯅꯒꯤ ꯌꯥꯗꯦ ꯗꯥꯏ ꯄꯤꯔꯦ ꯐꯣꯡꯗꯣꯛꯈꯤ, ꯑꯃꯁꯨꯡ 15 ꯑꯦꯁꯅꯝꯍꯕꯕ 2025-ꯅ ꯇꯤꯗꯗꯅ ꯅꯍꯐꯅ ꯁꯤꯡꯊꯥꯡ 783.250 m ꯑꯃꯁꯨꯡ ꯅꯊꯅꯅ ꯍꯗꯤꯁꯨꯕ ꯁꯤꯡꯊꯥꯡ 770.05 m ꯐꯌꯈꯤ, ꯑꯗꯤꯍꯗ ꯍꯈꯔꯒꯤ ꯐꯣꯡꯗꯣꯛꯇꯕ ꯄꯅꯔꯥꯡꯑꯦ ꯐꯗꯅ ꯇꯥꯒꯥꯡꯂꯣꯏꯗꯅꯒꯤ ꯌꯥꯗꯦ, WRD-ꯒꯤ ꯇꯥꯒꯥꯡ ꯁꯨꯍꯇꯍꯗ ꯁꯣꯌꯗꯅ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯍꯥꯝꯗ ꯅꯠꯇꯦ), ꯍꯈꯔꯕꯨ ꯍꯦ ꯍꯦ ꯑꯅꯕ ꯄꯤꯔꯦ ꯗꯕ ꯌꯥꯅ꯫ ꯑꯃꯃꯑꯃꯗꯥꯡ ꯇꯅꯦꯇꯧ ꯑꯗꯦꯗꯅꯣꯏꯑ ꯑꯍꯤ ꯗꯅꯕꯤꯐꯌꯕ ꯗꯥꯑ (b) ꯑꯣꯏ ꯗꯅꯊꯗꯁꯤ ꯇꯅꯦꯇꯧ-ꯁꯕꯕꯕꯤꯇꯤꯃꯒꯤ ꯍꯄꯨꯍ ꯑꯍꯗꯤ꯫

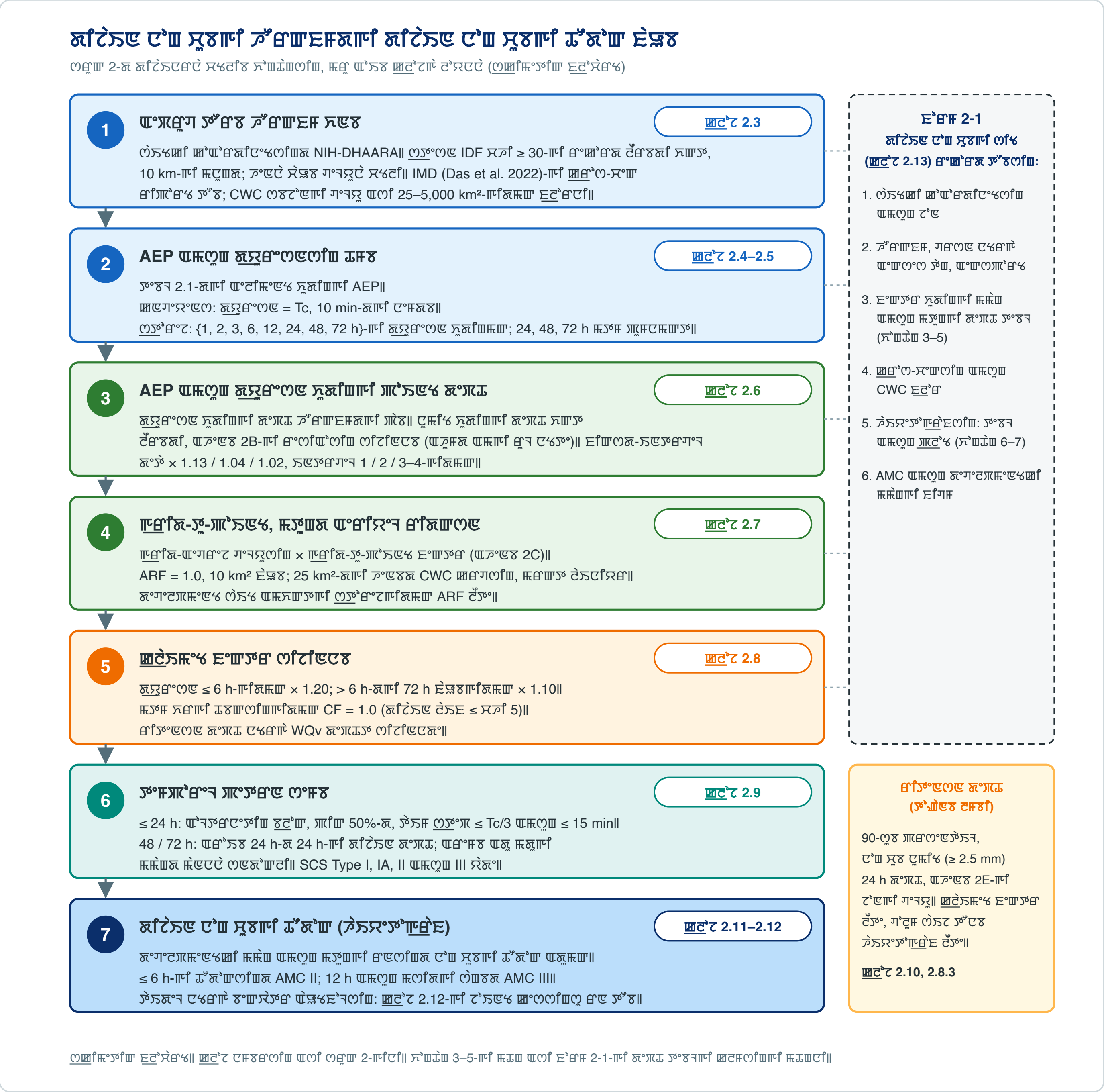
2.13 ꯑꯕꯍꯤꯃꯥꯡꯒꯤ ꯍꯊ ꯃꯕꯂꯣꯏꯗ

ꯄꯅꯅꯕꯇꯇꯤꯒꯤ ꯑꯕꯍꯤꯃꯥꯡ ꯅꯨꯡꯅꯤꯗꯍꯗꯝ ꯍꯈꯤꯒꯤꯑꯣꯏꯗ ꯐꯣꯡꯗꯣꯛꯁꯤ **ꯅꯤꯇꯤꯅꯦ ꯇꯗ ꯁꯕꯒꯤ ꯑꯤꯍ** (ꯐꯕꯍ 2-1) ꯑꯍꯤ ꯌꯥꯈꯒꯅꯕꯇꯤ:

1. ꯑꯅꯍꯗꯤ ꯗꯑꯕꯅꯤꯇꯥꯍꯑꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯇꯦ;
2. ꯄꯕꯗꯐꯍ (ꯗꯇꯇ 2.3), ꯒꯕꯑꯦ ꯇꯧꯕꯒꯤ ꯑꯥꯗꯑꯥꯑ ꯃꯕꯕ ꯃꯗ, ꯑꯃꯁꯨꯡ ꯇꯊꯗꯈꯤꯕ ꯒꯥꯡꯅꯨꯂꯣꯏꯗꯒꯤ ꯑꯗꯕꯤꯇꯑꯍ ꯇꯧꯕꯒꯤ ꯑꯥꯗꯑꯁꯕꯍ;
3. ꯑꯣꯏꯇꯤꯑꯦꯇꯈꯤꯕ AEP ꯑꯃꯁꯨꯡ ꯅꯨꯡꯕꯥꯑꯦ ꯅꯨꯡꯅꯤꯗꯍꯗꯗꯤꯅꯍꯗ ꯅꯥꯁꯊꯗꯤ ꯃꯥꯕꯅ ꯑꯍꯤ, ꯐꯤꯗꯑꯅ-ꯅꯦꯃꯕꯒꯥꯡ ꯐꯥꯗꯃꯕ, ꯒꯕꯤꯅ-ꯁꯨ-ꯁꯅꯦꯍ ꯐꯥꯗꯃꯕ, ARF ꯑꯃꯁꯨꯡ ꯗꯗꯅꯍꯥꯍ ꯐꯥꯗꯃꯕꯒꯤ ꯍꯍꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯝꯗ;
4. ꯗꯇꯇ 2.3.3-ꯒꯤ ꯗꯕꯑ-ꯌꯥꯗ ꯒꯥꯡꯅꯨꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯐꯇꯕ ꯌꯥꯗ;

5. ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯂꯣꯗꯥꯛ ꯆꯨꯗꯤꯡꯃꯛꯊꯤꯃꯃꯛ ꯄꯤꯅꯤꯟꯅꯍꯤꯕ ꯍꯥꯏꯑꯦꯇꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ, ꯆꯦꯕꯈ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯂ ꯑꯍꯅꯤ; ꯑꯃꯁꯨꯡ
6. ꯇꯣꯍꯤꯕ AMC ꯑꯃꯁꯨꯡ ꯗꯦꯀꯦꯅꯇꯃꯦꯟꯂꯊꯤ ꯃꯃꯤꯡꯒꯤ ꯗꯦꯐꯤꯅꯤꯄꯟ꯫

ꯃꯃꯤ 2.3-ꯅꯥ ꯁꯔꯨꯛ ꯑꯄꯤꯒꯤ ꯍꯥꯡꯗꯡꯄꯤꯡ ꯑꯄꯤ ꯄꯤꯂ ꯑꯗꯨꯅꯥ ꯔꯦꯊꯥꯔꯗ ꯆꯕ ꯗꯡ ꯃꯆꯨꯡ ꯍꯟꯅ ꯈꯂꯅꯤ꯫



ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯄꯦꯔꯡꯐꯃꯗꯒꯤ ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯗꯦꯗꯥꯡ ꯐꯦꯈꯕ

ꯁꯔꯨꯛ 2-ꯗ ꯗꯤꯅꯥꯏꯟꯅꯔꯅꯥ ꯍꯂꯅꯤꯕ ꯍꯥꯡꯗꯡꯄꯤꯡ, ꯃꯔꯨ ꯑꯥꯍꯕ ꯊ꯭ꯅꯦꯇꯀꯤ ꯅꯥꯍꯅꯅꯥ (ꯄꯊꯤꯃꯆꯤꯡ ꯐ꯭ꯅꯥꯔꯥꯂ)

1 ꯑꯦꯀ꯭ꯔꯒ ꯆꯦꯔꯕ ꯄꯦꯔꯡꯐꯃ ꯍꯔꯕ — [ꯊ꯭ꯅꯦꯇ 2.3]

ꯄꯍꯂꯊꯤ ꯊꯥꯑꯥꯔꯗꯤꯅꯂꯄꯤꯡꯗ NIH-DHAARA꯫ ꯄ꯭ꯆꯦꯄꯔ IDF ꯍꯄꯤ ≥ 30-ꯒꯤ ꯔꯦꯊꯥꯔꯗ ꯇꯔꯕꯗꯤ ꯍꯃꯆ, 10 km-ꯒꯤ ꯃꯃꯡꯗ; ꯄꯦꯔꯅꯥ ꯍꯦꯊ꯭ꯕ ꯀꯦꯈꯄ ꯍꯂꯅꯤ꯫ IMD (Das et al. 2022)-ꯒꯤ ꯊ꯭ꯔꯥꯄ-ꯍꯦꯃ ꯔꯤꯀꯥꯔꯂ ꯆꯕ; CWC ꯄꯕꯇꯥꯔꯒꯤ ꯀꯦꯈꯂ ꯑꯄꯤ 25–5,000 km²-ꯒꯤꯗꯃ ꯐ꯭ꯅꯥꯔꯅꯤ꯫

2 AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯆꯨꯔꯦꯁꯟꯄꯤꯡ ꯈꯐꯕ — [ꯊ꯭ꯅꯦꯇ 2.4–2.5]

ꯆꯦꯕꯈ 2.1-ꯗꯒꯤ ꯑꯦꯅꯤꯃꯦꯟꯂ ꯆꯨꯗꯤꯡꯒꯤ AEP꯫
ꯊꯟꯀꯦꯍꯦꯟ: ꯗ꯭ꯆꯨꯔꯦꯁꯟ = Tc, 10 min-ꯗꯒꯤ ꯅꯦꯐꯗꯕ꯫
ꯄ꯭ꯆꯔꯦꯇ: {1, 2, 3, 6, 12, 24, 48, 72 h}-ꯒꯤ ꯗ꯭ꯆꯨꯔꯦꯁꯟ ꯆꯨꯗꯤꯡꯃꯛ; 24, 48, 72 h ꯃꯆꯐ ꯀ꯭ꯐꯅꯃꯛꯆ꯫

3 AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯆꯨꯔꯦꯁꯟ ꯆꯨꯗꯤꯡꯒꯤ ꯀꯍꯟꯂ ꯗꯦꯀꯈ — [ꯊ꯭ꯅꯦꯇ 2.6]

ꯗ꯭ꯆꯨꯔꯦꯁꯟ ꯆꯨꯗꯤꯡꯒꯤ ꯗꯦꯀꯈ ꯄꯦꯔꯡꯐꯃꯒꯤ ꯀꯍꯕ꯫ ꯂꯃꯤꯂ ꯆꯨꯗꯤꯡꯒꯤ ꯗꯦꯀꯈ ꯍꯡꯆ ꯇꯔꯕꯗꯤ, ꯑꯦꯔꯕ 2B-ꯒꯤ ꯔꯦꯄꯤꯑꯤꯡ ꯄꯤꯇꯤꯕꯅꯕ (ꯑꯦꯐꯗ ꯑꯃꯒꯤ ꯔꯁ ꯅꯂꯆ)꯫ ꯐꯤꯡꯄꯗ-ꯍꯟꯆꯔꯀꯈ ꯗꯆ × 1.13 / 1.04 / 1.02, ꯍꯟꯆꯔꯀꯈ 1 / 2 / 3–4-ꯒꯤꯗꯃ꯫

4 ꯒꯔꯤꯗ-ꯆ-ꯀꯍꯟꯂ, ꯃꯆꯨꯗ ꯑꯦꯔꯤꯍꯈ ꯔꯤꯗꯡꯅꯦ — [ꯊ꯭ꯅꯦꯇ 2.7]

ꯒꯔꯤꯗ-ꯑꯦꯀꯔꯦꯇ ꯀꯈꯆꯤꯡ × ꯒꯔꯤꯗ-ꯆ-ꯀꯍꯟꯂ ꯐꯦꯆꯔ (ꯑꯦꯔꯕ 2C)꯫
ARF = 1.0, 10 km² ꯐꯤꯕ; 25 km²-ꯗꯒꯤ ꯄꯦꯔꯕꯗ CWC ꯊꯦꯀꯦꯅꯤꯡ, ꯃꯔꯡꯆ ꯍꯦꯟꯇꯤꯍꯔ꯫ ꯗꯦꯀꯦꯅꯇꯃꯦꯟꯂ ꯄꯍꯂ ꯑꯃꯍꯡꯆꯒꯤ ꯄ꯭ꯆꯦꯔꯦꯇꯒꯤꯗꯃ ARF ꯇꯣꯦ꯫

5 ꯊꯅꯍꯃꯂ ꯐꯦꯡꯆꯔ ꯄꯤꯇꯤꯕꯅꯕ — [ꯊ꯭ꯅꯦꯇ 2.8]

ꯗ꯭ꯆꯨꯔꯦꯁꯟ ≤ 6 h-ꯒꯤꯗꯃ × 1.20; > 6 h-ꯗꯒꯤ 72 h ꯐꯤꯕꯒꯤꯗꯃ × 1.10꯫
ꯃꯆꯐ ꯍꯔꯒꯤ ꯈꯕꯡꯄꯤꯡꯒꯤꯗꯃ CF = 1.0 (ꯗꯤꯅꯥꯏꯟ ꯍꯟꯐ ≤ ꯍꯄꯤ 5)꯫
ꯔꯤꯆꯦꯅꯦꯟ ꯗꯦꯀꯈ ꯇꯂꯔꯒ WQv ꯗꯦꯀꯈꯆ ꯄꯤꯇꯤꯕꯅꯦ꯫

6 ꯆꯦꯐꯀꯍꯔꯦꯈ ꯀꯦꯆꯔꯅ ꯄꯦꯐꯕ — [ꯊ꯭ꯅꯦꯇ 2.9]

≤ 24 h: ꯑꯦꯈꯆꯔꯦꯆꯤ ꯕꯅꯑ, ꯀꯤꯡꯑ 50%-ꯗ, ꯆꯍꯐ ꯄ꯭ꯆꯦꯀ ≤ Tc/3 ꯑꯃꯁꯨꯡ ≤ 15 min꯫
48 / 72 h: ꯑꯔꯍꯕ 24 h-ꯗ 24 h-ꯒꯤ ꯗꯤꯅꯥꯏꯟ ꯗꯦꯀꯈ; ꯑꯔꯦꯐꯕ ꯑꯗ ꯃꯗꯒꯤ ꯃꯃꯤꯡꯗ ꯃꯦꯅꯅꯅꯦ ꯄꯅꯗꯥꯑꯅꯤ꯫ SCS Type I, IA, II ꯑꯃꯁꯨꯡ III ꯍꯦꯗꯦ꯫

7 ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯂꯣꯗꯥꯛ (ꯍꯥꯏꯑꯦꯇꯣꯒ꯭ꯔꯥꯐ) — [ꯊ꯭ꯅꯦꯇ 2.11–2.12]

ꯗꯦꯀꯦꯅꯇꯃꯦꯟꯂꯊꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯆꯨꯡꯒꯤ ꯔꯅꯄꯤꯡꯗ ꯅꯥꯡ ꯆꯨꯕꯒꯤ ꯂꯣꯗꯥꯛ ꯑꯗꯃꯑ꯫
≤ 6 h-ꯒꯤ ꯂꯣꯗꯥꯛꯄꯤꯡꯗ AMC II; 12 h ꯑꯃꯁꯨꯡ ꯃꯄꯤꯗꯒꯤ ꯄꯡꯕꯗ AMC III꯫
ꯆꯍꯗꯦꯈ ꯅꯂꯔꯒ ꯕꯦꯑꯍꯆꯔ ꯑꯐꯂꯐꯈꯄꯤꯡ: ꯊ꯭ꯅꯦꯇ 2.12-ꯒꯤ ꯇꯍꯟꯂ ꯊꯦꯄꯄꯤꯡꯄ ꯔꯟ ꯆꯦꯕ꯫

ꯄꯊꯤꯃꯆꯤꯡ ꯐ꯭ꯅꯥꯔꯥꯂ꯫ ꯊ꯭ꯅꯦꯇ ꯅꯐꯕꯔꯄꯤꯡ ꯑꯄꯤ ꯁꯔꯨꯛ 2-ꯒꯤꯅꯤ꯫ ꯍꯥꯡꯗꯡ 3–5-ꯒꯤ ꯃꯗꯡ ꯑꯄꯤ ꯐꯥꯔꯝ 2-1-ꯒꯤ ꯗꯦꯀꯈ ꯆꯦꯕꯈꯒꯤ ꯊꯅꯐꯄꯤꯡꯒꯤ ꯃꯗꯡꯅꯤ꯫

ꯐꯥꯔꯝ 2-1
ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯄꯤꯂ (ꯊ꯭ꯅꯦꯇ 2.13) ꯔꯦꯊꯥꯔꯗ ꯆꯦꯕꯄꯤꯡ:

1. ꯄꯍꯂꯊꯤ ꯊꯥꯑꯥꯔꯗꯤꯅꯂꯄꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯥꯟ
2. ꯄꯦꯔꯡꯐꯃ, ꯀꯔꯄꯟ ꯅꯂꯔꯒ ꯑꯦꯡꯄꯦꯄ ꯆꯤꯡ, ꯑꯦꯡꯄꯀꯥꯔꯂ
3. ꯐꯦꯡꯆꯔ ꯆꯨꯗꯤꯡꯒꯤ ꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯃꯆꯨꯡꯒꯤ ꯗꯦꯀꯈ ꯆꯦꯕꯈ (ꯍꯥꯡꯗꯡ 3–5)
4. ꯊ꯭ꯔꯥꯄ-ꯍꯦꯡꯄꯤꯡ ꯑꯃꯁꯨꯡ CWC ꯐ꯭ꯅꯥꯔ
5. ꯍꯥꯏꯑꯦꯇꯣꯒ꯭ꯔꯥꯐꯄꯤꯡ: ꯆꯦꯕꯈ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯂ (ꯍꯥꯡꯗꯡ 6–7)
6. AMC ꯑꯃꯁꯨꯡ ꯗꯦꯀꯦꯅꯇꯃꯦꯟꯂꯊꯤ ꯃꯃꯤꯡꯒꯤ ꯐꯤꯀꯐ

ꯔꯤꯆꯦꯅꯦꯟ ꯗꯦꯀꯈ
(ꯆꯊꯦꯕ ꯅꯐꯕꯤ)

90-ꯄꯕ ꯀꯔꯦꯄꯦꯆꯍꯈ,
ꯅꯥꯡ ꯍꯕ ꯂꯃꯤꯂ (≥ 2.5 mm)
24 h ꯗꯦꯀꯈ, ꯑꯦꯔꯕ 2E-ꯒꯤ
ꯇꯦꯅꯒ ꯀꯈꯀ꯫ ꯊꯅꯍꯃꯂ ꯐꯦꯡꯆꯔ
ꯇꯣꯦ, ꯀꯗꯂꯐ ꯄꯍꯇ ꯆꯦꯕ
ꯍꯥꯏꯑꯦꯇꯣꯒ꯭ꯔꯥꯐ ꯇꯣꯦ꯫

ꯊ꯭ꯅꯦꯇ 2.10, 2.8.3

ꯃꯃꯤ 2.3 — ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯄꯦꯔꯡꯐꯃꯗꯒꯤ ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯂꯣꯗꯥꯛ ꯐꯤꯕ: ꯗꯤꯅꯥꯏꯟꯅꯔꯅꯥ ꯍꯂꯅꯤꯕ ꯍꯥꯡꯗꯡꯄꯤꯡ (ꯄꯦꯔꯡꯐꯃ, AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯆꯨꯔꯦꯁꯟꯄꯤꯡ, ꯀꯍꯟꯂ ꯗꯦꯀꯈ, ꯒꯔꯤꯗ-ꯆ-ꯀꯍꯟꯂ ꯑꯃꯁꯨꯡ ꯑꯦꯔꯤꯍꯈ ꯔꯤꯗꯡꯅꯦ, ꯊꯅꯍꯃꯂ ꯐꯦꯡꯆꯔ, ꯆꯦꯐꯀꯍꯔꯦꯈ ꯀꯦꯆꯔꯅ, ꯗꯤꯅꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯂꯣꯗꯥꯛ), ꯍꯥꯡꯗꯡ ꯆꯨꯗꯤꯡꯃꯛꯆ ꯃꯗ ꯑꯍꯕ ꯊ꯭ꯅꯦꯇ, ꯐꯥꯔꯝ 2-1-ꯗ ꯊꯔꯤ ꯔꯦꯊꯥꯔꯗ ꯆꯦꯕꯒ, ꯑꯃꯁꯨꯡ ꯔꯤꯆꯦꯅꯦꯟ ꯗꯦꯀꯈꯊꯤꯗꯃ ꯆꯦꯍꯟꯅ ꯇꯣꯕ ꯅꯐꯕꯤ꯫ ꯄꯊꯤꯃꯆꯤꯡ꯫ ꯃꯂꯡꯍꯈ ꯑꯄꯤꯒꯤꯗꯃ ꯑꯅꯦꯅ ꯄꯐꯕ ꯗꯔꯦꯍꯃ꯫

2.14 ꯔꯤꯚꯤꯌꯨ ꯑꯃꯁꯨꯡ ꯑꯄꯗꯦꯠ

2.14.1 ꯑꯦꯄꯔꯨꯚꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯁꯔꯨꯛ ꯑꯁꯤ **ꯆꯍꯤ 10 ꯈꯨꯗꯤꯡꯗ** ꯔꯤꯚꯤꯌꯨ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯁ꯭ꯇꯦꯠꯀꯤ ꯑꯦꯄꯔꯨꯚ ꯇꯧꯔꯕ ꯒꯦꯖ ꯑꯅꯤ ꯅꯠꯔꯒꯥ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕꯗ ꯔꯦꯀꯣꯔꯗ ꯇꯧꯔꯕ ꯅꯣꯡ ꯆꯨꯕꯅꯥ 1% AEP-ꯒꯤ ꯄꯨꯡ 24 ꯅꯠꯔꯒꯥ ꯄꯨꯡ 72-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯦꯞꯊꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯊꯧꯗꯣꯛ ꯑꯃꯒꯤ ꯆꯍꯤ 2-ꯒꯤ ꯃꯅꯨꯡꯗꯁꯨ ꯃꯁꯤ ꯔꯤꯚꯤꯌꯨ ꯇꯧꯒꯗꯕꯅꯤ꯫

2.14.2 NIH-DHAARA-ꯗ ꯑꯄꯗꯦꯠꯁꯤꯡ ꯑꯁꯤ, ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ [illegible] ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯔꯕꯗꯤ, ꯔꯤꯂꯤꯖ ꯇꯧꯔꯕ ꯃꯇꯨꯡꯅ **ꯊꯥ 6**-ꯅ ꯑꯅꯧꯕ ꯁꯕꯃꯤꯁꯟꯁꯤꯡꯒꯤꯗꯃꯛ ꯆꯠꯅꯒꯗꯕꯅꯤ꯫

ꯂꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- National Institute of Hydrology, Roorkee. NIH-DHAARA: Design Hydrology and Advanced Rainfall Analysis. http://www.nihdhaara.in/
- Das, S.K. et al. (2022). Isopluvial analysis and intensity–duration–frequency curves for different cities in India. *MAUSAM* 73(4), 887–898. https://metnet.imd.gov.in/docs/mausamdocs/173412_F.pdf
- Central Water Commission (2000). Flood Estimation Report for South Brahmaputra Subzone 2(b) (Revised), Design Office Report No. SB-2(b)/R-4/44/99, March 2000 (Annexure 1.1, ꯁꯕꯖꯣꯟꯁꯤꯡꯒꯤ ꯄꯔꯤꯡ, ꯃꯐꯝ ꯑꯗꯨꯗ 2(c), "Barak and others", ꯑꯁꯤꯅꯥ "Barak, Kalden and Manipur rivers" ꯌꯧꯏ; 2000 ꯐꯥꯎꯕ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯔꯤꯄꯣꯔꯠꯁꯤꯡꯒꯤ ꯄꯔꯤꯡ; p. 18, ꯁꯕꯖꯣꯟꯒꯤ ꯌꯤꯡꯁꯤꯡ; Plate 9, ꯆꯍꯤ 50-ꯒꯤ ꯃꯦꯞ, ꯅꯣꯡꯄꯣꯛ ꯁꯦꯛꯇꯣꯔ ꯅꯃꯥꯏꯒꯤ ꯏꯃꯦꯅꯗꯒꯤ ꯃꯤꯇꯅꯥ ꯌꯦꯡꯗꯨꯅꯥ ꯄꯥꯈꯤꯕ; Table 4.1, p. 20, ꯄ꯭ꯂꯣꯠ 2.3.6(f) ꯃꯈꯥꯗ ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-C1-ꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯇꯝ ꯌꯥꯃꯅꯥ ꯁꯥꯡꯗꯕꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ; ꯑꯦꯔꯤꯌꯦꯜ ꯔꯤꯗꯛꯁꯟ ꯐꯦꯛꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ, ꯐꯣꯡꯗꯣꯛꯄ 2(c) ꯔꯤꯄꯣꯔꯇꯥꯗꯤ ꯃꯈꯣꯌ ꯄ꯭ꯂꯣꯠ 2.3.6(b) ꯃꯈꯥꯗ ꯁꯤꯖꯤꯟꯅꯕ). https://cwc.gov.in/regional-flood-estimation-report
- Central Water Commission (1991). Flood Estimation Report for North Brahmaputra Subzone 2(a), Design Office Report No. NB/18/1991 (§3.1.2, p. 24, ꯑꯃꯁꯨꯡ Fig. 10, ꯃꯇꯝ ꯌꯥꯃꯅꯥ ꯁꯥꯡꯗꯕꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ, ꯃꯈꯥꯌꯅꯥ ꯄ꯭ꯂꯣꯠ 2.3.6(f)-ꯒꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯅꯤꯌꯔꯦꯁ꯭ꯠ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯃꯈꯥꯌ ꯄꯣꯠꯂꯝ; ꯃꯅꯤꯄꯨꯔꯒꯤ ꯁꯔꯨꯛ ꯑꯃꯁꯥ 2(a)-ꯗ ꯂꯧꯈꯦ). https://cwc.gov.in/regional-flood-estimation-report
- Central Water Commission. Regional Flood Estimation Reports page (Wayback Machine capture of 20 Mar 2024; ꯁꯕꯖꯣꯟ 2(c), Barak and others-ꯒꯤꯗꯃꯛ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨ ꯂꯧꯈꯦ). http://web.archive.org/web/20240320001002/https://cwc.gov.in/regional-flood-estimation-report
- MoHUA / CPHEEO (2019). Manual on Storm Water Drainage Systems, Part A.
- India Meteorological Department. Extremes of Temperature and Rainfall for Indian Stations (up to 2012): Imphal (Tulihal) (A) (42623, rainfall data 1953–2012), monthly and seasonal extremes, p. M155; Silchar (42619) and Silchar (Kumbhigram) (A) (42620). https://imdpune.gov.in/library/public/EXTREMES%20OF%20TEMPERATURE%20and%20RAINFALL%20upto%202012.pdf
- India Meteorological Department. Press release on the new normal dates of onset and withdrawal of the south-west monsoon (normals in use from 1 June 2020; ꯄꯥꯎꯈꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ). https://mausam.imd.gov.in/backend/assets/press_release_pdf/IMD_Press_release_new_onset_and_withdrawal_dates%28Final%29.pdf
- India Meteorological Department, Meteorological Centre Imphal. District warnings (ꯄꯦꯖꯁꯤꯡꯒꯤ ꯄꯔꯤꯡ ꯄꯥꯈꯤꯗꯕ [TBC]). https://mausam.imd.gov.in/imphal/mcdata/qgis_warning.pdf
- Manipur Science and Technology Council (MASTEC). Flood Hazard Zonation in Manipur Valley, final report to DST-NRDMS (Table 2, ꯍꯃꯐꯩꯔꯗ ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯌꯥꯝꯕ ꯅꯨꯃꯤꯠ 1-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕ, 1974–2000; ꯊꯥ ꯈꯨꯗꯤꯡꯒꯤ ꯅꯣꯡ ꯆꯨꯕ 1975–2000; ꯍꯁꯤꯡ ꯍꯥꯟꯗꯒꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ; 1999–2001-ꯒꯤ ꯒꯦꯖ ꯌꯧꯔꯕ ꯗꯤꯁꯆꯥꯔꯖꯁꯤꯡ; ꯂꯥꯏꯄꯥꯛ ꯑꯃꯁꯨꯡ Sugnu hump). https://www.mastec.nic.in/images/Completed_projects/ReportFloodHazard.pdf
- Das, S.K., Srivastava, A.K. & Yadav, B.P. (IMD) (2022). *MAUSAM* 73(4), 887–898, Fig. 4(x) (Imphal), p. 895 (ꯁꯤꯖꯤꯟꯅꯗꯕ). https://metnet.imd.gov.in/docs/mausamdocs/173412_F.pdf
- NIH-DHAARA, IDF tool, IMDAA dataset, queried for 13 points in Manipur on 14 Nov 2026 (tool output). http://117.252.14.251:8080/
- Asian Infrastructure Investment Bank (2024). Approval Project Document, P000723 (ꯗꯤꯖꯥꯏꯟ ꯅꯤꯡ ꯌꯦꯡꯕ ꯇꯧꯈꯦ).
- Central Ground Water Board, North Eastern Region. Ground Water Information Booklets, Imphal West District (2013) and Bishnupur District (2013).
- Singh (2025). Rainfall trend in Manipur, 1991–2024. *NEHU Journal* XXIII(1), 85–99 (ꯑꯦꯕꯁ꯭ꯠꯔꯦꯛ ꯄꯥꯈꯤꯕ). https://dspace.nehu.ac.in/server/api/core/bitstreams/ea6898d7-8ab2-4c2e-9287-e95a54da42b5/content

- Study of extreme daily precipitation at Imphal and Shillong, 1985–2003 (*Indian Journal of Hill Farming* 32(1); ꯁꯇꯃꯕꯤ ꯅꯝꯔꯣ ꯁ꯭ꯅꯤꯄ [TBC]). https://kiran.nic.in/pdf/IJHF/Vol_32_1/26.pdf
- "Drainage Dimension", an uploaded document describing an Imphal IDF from 15-minute data of 1986–2009 (ꯁꯇꯃꯕꯤ ꯅꯝꯔꯣ ꯁ꯭ꯅꯤꯄ; ꯑꯅꯄ ꯃꯤꯑꯦꯅ ꯑꯃꯁꯨꯡ ꯒꯥꯍꯂꯨꯁꯤꯡ ꯅꯑꯃꯄ; ꯁꯤꯇꯤꯑꯦꯇꯃꯄ [TBC]). https://www.scribd.com/document/610622943/Drainage-Dimension
- Government of Manipur. State Action Plan on Climate Change (ꯀꯦꯅꯤꯃꯄ [TBC]).
- South Asia Network on Dams, Rivers and People (2018). Overview of CWC's flood monitoring and forecasting in North East India (CWC ꯃꯥꯌꯣꯒꯤ ꯅꯕꯝꯀꯁꯤꯡ; ꯑꯇꯤꯂꯄ ꯍꯣꯕꯝꯖꯇ). https://sandrp.in/2018/08/05/overview-of-cwcs-flood-monitoring-forecasting-in-north-east-india/
- Press reports of the floods of 2015, 2024 and 2025, the Khoupum storm of July 2025, the Kangpokpi rainfall of May 2025, the WRD river levels and the monsoon of 2026 (ꯑꯇꯤꯂꯄ ꯍꯣꯕꯝꯖꯇꯁꯤꯡ). https://www.thesangaiexpress.com/
- Chow, V.T., Maidment, D.R. & Mays, L.W. (1988). *Applied Hydrology*. McGraw-Hill (ꯑꯦꯍꯌꯕꯇꯥꯌꯤꯡ-ꯄꯇꯦꯝ ꯊꯣꯑꯦꯡ, §14.4).
- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01.
- Mile High Flood District (Denver). Urban Storm Drainage Criteria Manual (90% ꯕꯤꯇꯤꯇꯊꯤ ꯃꯕꯇ).
- Department of Irrigation and Drainage Malaysia (2008, 2012). Urban Stormwater Management Manual (MSMA).

ꯑꯍꯥꯞꯄꯁꯤꯡ

ꯑꯍꯥꯞꯄ	ꯃꯅꯨꯡꯒꯤ ꯋꯦꯖꯇ
2A	ꯄꯥꯞꯌꯃꯤꯕꯝ ꯀꯦꯅꯞꯌꯁꯤꯡꯃ NIH-DHAARA ꯑꯃꯁꯨꯡ IMD ꯁꯌꯥꯁꯞ ꯑꯃꯁꯨꯡ IMD ꯒꯕꯤꯃ ꯌꯣꯕꯄ ꯌꯥꯝꯁꯤꯡ; ꯇꯦꯞꯒꯤ ꯃꯥꯀ
2B	ꯇꯦꯞ ꯃꯌꯨꯡ ꯅꯞꯇ ꯂꯨꯃꯤꯌ ꯑꯃꯃꯒꯤ ꯍꯞꯊꯄ ꯕꯥꯁꯤꯑꯦꯁꯤꯡ P(t)/P(24h): NIH-DHAARA (ꯀꯨꯡ ꯅꯨꯃꯤꯡꯒꯤ ꯅꯨꯇꯖꯇ) ꯑꯃꯁꯨꯡ ꯑꯍꯨꯇꯃ ꯑꯃꯒꯤ ꯕꯨꯔ
2C	ꯒꯕꯤꯃ-ꯌꯨ-ꯀꯦꯅꯞꯌ ꯖꯥꯝꯌꯕꯁꯤꯡ
2D	ꯃꯇꯤꯀꯨꯕꯒꯤ ꯌꯥꯇꯀꯦꯕꯥꯔ ꯀꯥꯌꯕꯞꯁꯤꯡ (ꯍꯦꯖ ꯊꯕꯒꯁꯤꯡ)
2E	ꯇꯦꯞ ꯃꯌꯨꯡ ꯅꯞꯇ ꯕꯤꯌꯥꯞꯁꯞꯒꯤ ꯀꯕꯁꯥꯞꯌꯅꯔ ꯃꯥꯀꯊꯁꯤꯡ
ꯖꯦꯕꯇ 2-1	ꯃꯤꯇꯦꯅꯞ ꯇꯦꯡ ꯅꯨꯄꯒꯤ ꯁꯤꯌ

ꯁꯔꯨꯛ 3

ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ

3.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯀꯣꯞ

3.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 2-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ ꯑꯗꯨ ꯃꯁꯥꯗ ꯄꯤꯔꯤꯕ ꯊꯕꯛꯁꯤꯡꯒꯤꯗꯃꯛ ꯔꯟꯑꯣꯐ (runoff)-ꯀꯤ ꯄꯤꯛ, ꯚꯣꯂꯨꯝ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ (hydrograph)-ꯁꯤꯡꯗ ꯀꯔꯝꯅꯥ ꯑꯣꯟꯊꯣꯀꯄꯒꯦ ꯍꯥꯏꯔꯕ ꯊꯥꯀꯇ:

- (a) ꯈꯣꯡꯕꯣꯟ (drain), ꯏꯟꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯀꯜꯚꯔꯠ (culvert)-ꯀꯤ ꯁꯥꯏꯖ ꯂꯦꯞꯄ (ꯁꯔꯨꯛ 6);
- (b) ꯔꯤꯇꯦꯟꯁꯟ (retention) ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ (detention)-ꯒꯤ ꯁꯥꯏꯖ ꯂꯦꯞꯄ, ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯆꯥꯡꯗꯝꯅꯕ (pre- vs post-development comparison) (ꯁꯔꯨꯛ 4);
- (c) ꯃꯈꯥ ꯊꯪꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯥꯇꯔ (tailwater)-ꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ (ꯁꯔꯨꯛ 5); ꯑꯃꯁꯨꯡ
- (d) ꯏꯁꯤꯡ ꯊꯝꯐꯝ, ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri) ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡꯒꯤ ꯁꯥꯏꯖꯤꯡ (ꯁꯔꯨꯛ 7)꯫

3.1.2 ꯃꯁꯤꯅꯥ ꯃꯈꯥꯒꯤꯁꯤꯡ ꯌꯥꯎꯔꯤ:

- (a) ꯀꯔꯤ ꯃꯦꯊꯗ ꯁꯤꯖꯤꯟꯅꯒꯗꯒꯦ ꯑꯃꯁꯨꯡ ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯀꯔꯤ ꯁꯥꯏꯖꯒꯤ ꯀꯔꯤ ꯂꯤꯃꯤꯠ ꯂꯩꯒꯅꯤ (ꯀ꯭ꯂꯣꯖ 3.4);
- (b) ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯊꯝꯃꯟ ꯀꯔꯝꯅꯥ ꯆꯥꯡꯗꯝꯅꯒꯗꯒꯦ (ꯀ꯭ꯂꯣꯖ 3.3);
- (c) ꯀꯥꯡꯂꯣꯟ ꯁꯤꯡꯒꯤ ꯃꯆꯥꯛ ꯃꯔꯤꯁꯤꯡ: ꯔꯦꯁꯟꯒꯤ ꯃꯦꯊꯗꯁꯤꯡ, ꯁꯦꯟꯗ ꯑꯣꯏ ꯃꯤꯛ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ, ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯟ, ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯨꯇꯤꯡꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.5–3.12);
- (d) ꯀꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝ ꯀꯥꯟꯅꯕ ꯃꯇꯝ ꯁꯦꯝꯕ (ꯀ꯭ꯂꯣꯖ 3.13 ꯑꯃꯁꯨꯡ 3.15);
- (e) ꯈꯣꯡꯎꯞ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯎꯞ ꯑꯃꯗꯤ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯆꯥꯡꯗꯝꯅꯕ (ꯀ꯭ꯂꯣꯖ 3.14); ꯑꯃꯁꯨꯡ
- (f) ꯁꯣꯐ꯭ꯇꯋꯥꯌꯔ ꯂꯣꯏꯅ ꯑꯃꯁꯨꯡ ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯇꯦꯁꯟ (ꯀ꯭ꯂꯣꯖ 3.16 ꯑꯃꯁꯨꯡ 3.17)꯫

3.1.3 ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ (ꯑꯥꯏꯗꯤꯑꯦꯐ, ꯍꯥꯏꯇꯣꯒ꯭ꯔꯥꯃ, ꯇꯦꯝꯄꯣꯔꯦꯜ ꯄꯦꯇꯔꯟ, ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯐꯦꯛꯇꯔ, ꯁꯣꯏꯜ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗꯌꯨꯖꯒꯤ ꯏꯅꯄꯨꯠꯁꯤꯡ) ꯁꯔꯨꯛ 2-ꯗ ꯌꯥꯎꯔꯤ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ ꯑꯁꯤꯗ ꯃꯈꯥ ꯇꯥꯅꯥ ꯍꯟꯗꯣꯀꯄꯗꯦ꯫

> **ꯁꯦꯟꯗꯔꯗ ꯅꯣꯠ.** CPHEEO (2019)-ꯒꯤ Manual on Storm Water Drainage Systems-ꯗ ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ (Rational Method)-ꯀꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯃ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯊꯧꯑꯣꯡꯀꯤꯗꯃꯛ SWMM-ꯒꯤ ꯃꯃꯤꯡ ꯂꯧꯔꯤ, ꯑꯗꯨꯕꯨ ꯃꯁꯤ ꯈꯣꯡꯎꯞꯀꯤ ꯁꯥꯏꯖ ꯂꯦꯞꯄꯒꯤ ꯃꯇꯥꯡꯗ ꯑꯃꯔꯣꯏ꯫ ꯔꯦꯒꯨꯂꯦꯇꯔ ꯑꯃꯅꯥ "ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ" ("pre-development") ꯀꯔꯝꯅꯥ ꯌꯥꯎꯍꯜꯂꯒꯗꯒꯦ, ꯅꯠꯔꯒꯥ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯆꯥꯡꯗꯝꯅꯕꯗ ꯁꯣꯏꯗꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯀꯔꯤ ꯊꯧꯑꯣꯡ ꯂꯤꯄꯇꯦꯡꯗꯤꯗꯒꯦ ꯍꯥꯌꯕ ꯃꯁꯤꯅꯥ ꯍꯟꯗꯦ (CPHEEO Part A §4.4, §8.5.1)꯫ APWA Section 5600-ꯗ ꯑꯅꯤꯃꯛ ꯁꯦꯟ: ꯃꯁꯤꯅꯥ ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ ꯊꯤꯡꯅ, ꯕꯦꯖꯤꯟꯅꯟ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯧꯑꯣꯡꯁꯤꯡꯒꯤ ꯃꯃꯤꯡ ꯂꯧꯏ, ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯂꯦꯞꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯁ꯭ꯀꯣꯞ ꯁꯦꯜꯕ ꯌꯥꯎꯍꯅꯕꯒꯤꯗꯃꯛ ꯅꯝ ꯂꯤꯇꯤꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯍꯤꯔꯥꯡ ꯁꯦꯟ (KC Metro APWA 5600, 2011, §5602.2–5602.3; Version 2025.01, §5603.4)꯫ ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯃꯈꯥ ꯑꯗꯨ ꯁꯨꯡ ꯅꯥꯏꯗꯦ꯫

3.2 ꯗꯦꯐꯤꯅꯤꯁꯟꯁꯤꯡ

ꯋꯥꯍꯩ	ꯃꯔꯨꯑꯣꯏꯕ ꯑꯔꯊ ꯑꯗꯨ
ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯐꯤꯚꯝ (pre-development condition)	ꯇꯦꯕꯜ 3.3.2-ꯗ ꯂꯥꯎꯊꯣꯛꯂꯤꯕ ꯗꯦꯐꯥꯜꯇ ꯂꯩꯃꯥꯏ; ꯃꯁꯤꯅꯥ ꯍꯦꯟꯅꯥ ꯐꯖꯕ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯗꯦꯐꯥꯜꯇ ꯌꯥꯎꯗꯕ ꯌꯥꯏ꯫ ꯃꯁꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯂꯩꯃꯥꯏ ꯑꯣꯏꯕꯥ꯫
ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯐꯤꯚꯝ (post-development condition)	ꯄ꯭ꯔꯄꯣꯖ ꯇꯧꯔꯕ ꯂꯦꯟꯗꯁꯤꯡ ꯌꯥꯎꯔꯕ ꯃꯇꯨꯡꯒꯤ ꯂꯩꯃꯥꯏ, ꯇꯦꯕꯜ 3.3.3-ꯗ ꯂꯥꯎꯊꯣꯛꯂꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ꯫
ꯄꯣꯏꯟꯠ ꯑꯣꯐ ꯀꯝꯄꯦꯔꯤꯁꯟ (point of comparison, POC)	ꯈꯣꯉꯖꯦꯜ ꯐꯣꯡꯗꯣꯛꯄ ꯈꯣꯉꯖꯦꯜ ꯊꯣꯛꯂꯛꯄ ꯃꯐꯝ; ꯃꯐꯝ ꯑꯗꯨꯗ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯌꯥꯅꯥꯏꯁꯤꯟ ꯋꯥꯁꯛꯂꯦ (ꯇꯦꯕꯜ 3.14)꯫
ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯠ꯭ꯔꯦꯁꯟ (time of concentration, Tc)	ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯑꯣꯏꯅꯥ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯂꯥꯞꯄ ꯄꯣꯏꯟꯇꯇꯒꯤ ꯄꯣꯏꯟꯠ ꯑꯣꯐ ꯀꯝꯄꯦꯔꯤꯁꯟ ꯌꯧꯕ ꯐꯣꯡꯗꯣꯛꯄ ꯃꯇꯝ꯫
ꯂꯦꯒ (lag, tL)	ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯑꯦꯛꯁꯦꯁ (rainfall excess)-ꯀꯤ ꯁꯦꯟꯠꯔꯣꯏꯗꯇꯒꯤ ꯐꯣꯡꯗꯣꯛꯄ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯄꯤꯛ ꯌꯧꯕꯒꯤ ꯃꯇꯝ꯫
ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯛ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ (hydrologic soil group, HSG)	ꯂꯩꯃꯥꯏ ꯑꯃꯨꯕ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯕ ꯃꯇꯝꯗ ꯃꯁꯤꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯅꯨꯡꯁꯤꯅꯥ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠ ꯃꯇꯨꯡ ꯏꯟꯅ NRCS-ꯅ ꯁꯦꯝꯕ ꯀ꯭ꯂꯥꯁꯤꯐꯤꯀꯦꯁꯟ (A, B, C, D) (USDA NRCS, NEH Part 630, Ch. 7)꯫
ꯀꯔꯚ ꯅꯝꯕꯔ (curve number, CN)	ꯂꯩꯃꯥꯏꯒꯤ ꯒ꯭ꯔꯨꯞ, ꯂꯝꯒꯤ ꯀꯚꯔ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯇꯤꯁꯤꯗꯦꯟꯠ ꯃꯣꯏꯁꯆꯔ ꯄ꯭ꯔꯦꯁꯤꯗꯦꯟꯁꯇ ꯌꯦꯡꯂꯒ ꯄꯣꯇꯦꯟꯁꯤꯑꯦꯜꯒꯤ ꯅꯦꯠ ꯔꯟꯑꯣꯐ ꯑꯃꯁꯨꯡ ꯁꯝꯕꯟ NRCS-ꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔ (USDA NRCS, NEH Part 630, Ch. 9–10)꯫
ꯑꯦꯟꯇꯤꯁꯤꯗꯦꯟꯠ ꯃꯣꯏꯁꯆꯔ ꯀꯟꯗꯤꯁꯟ (antecedent moisture condition, AMC)	ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯂꯩꯃꯥꯏꯗ ꯂꯩꯕ ꯏꯁꯤꯡꯒꯤ ꯐꯤꯚꯝ: AMC I (ꯀꯪꯕ), II (ꯃꯌꯥꯏ ꯑꯣꯏꯕ), III (ꯏꯁꯤꯡ ꯌꯥꯝꯕ)꯫
ꯗꯥꯏꯔꯦꯛꯇꯂꯤ ꯀꯅꯦꯛꯇꯦꯗ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ (directly connected impervious area, DCIA)	ꯄꯔꯚꯤꯌꯁ (pervious) ꯂꯩꯃꯥꯏ ꯑꯃꯒꯤ ꯃꯈꯥꯗ ꯑꯍꯣꯡꯕ ꯌꯥꯎꯗꯅꯥ ꯍꯤꯀꯁꯦ, ꯄꯥꯏꯄ ꯅꯠꯔꯒ ꯌꯦꯅꯥ ꯑꯃꯗ ꯌꯦꯜꯂꯛꯄ ꯏꯝꯄꯔꯚꯤꯌꯁ (impervious) ꯂꯩꯃꯥꯏ꯫
ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ (disconnected impervious area)	ꯃꯁꯤꯒꯤ ꯐꯣꯡꯗꯣꯛꯄ ꯏꯐꯝꯒꯤ ꯁꯤꯂꯥꯝꯗ ꯋꯥꯟꯗꯥꯍꯟꯕ ꯄꯔꯚꯤꯌꯁ ꯂꯩꯃꯥꯏ ꯑꯃꯒꯤ ꯃꯈꯥꯗ ꯁꯤꯡꯕ ꯍꯥꯏ ꯑꯣꯏꯅꯥ ꯌꯦꯜꯂꯕ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 3.9.3 ꯃꯄꯨꯡ ꯍꯣꯠꯅꯖꯤꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯩꯃꯥꯏ꯫
ꯄꯤꯛ ꯔꯦꯠ ꯐꯦꯛꯇꯔ (peak rate factor, PRF)	ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯄꯤꯛ ꯏꯀꯨꯌꯦꯁꯅꯗ ꯂꯩꯕ ꯀꯟꯁꯇꯦꯟꯠ (US ꯀꯁ꯭ꯇꯃꯔꯤ ꯌꯨꯅꯤꯠꯁꯤꯡꯗ 484; ꯇꯦꯕꯜ 3.11.2-ꯒꯤ SI ꯃꯑꯣꯡꯗ 0.208)꯫
ꯀꯟꯇꯤꯅꯨꯑꯁ ꯁꯤꯃꯨꯂꯦꯁꯟ (continuous simulation)	ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯈꯪꯗꯕ ꯔꯦꯀꯣꯔꯗ (ꯆꯍꯤ ꯀꯌꯥ) ꯑꯃꯒꯤ ꯃꯇꯝ ꯆꯨꯞꯄ ꯃꯣꯗꯦꯜ; ꯃꯁꯤꯅꯥ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯣꯏꯁꯆꯔ, ꯏꯚꯥꯄꯣꯔ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛ ꯑꯃꯗꯒꯤ ꯑꯇꯣꯞꯄ ꯊꯧꯗꯣꯛ ꯄꯨꯊꯣꯛꯏ꯫
ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯦꯁꯀꯦꯗ (tank cascade)	ꯄꯨꯈ꯭ꯔꯤ (pukhri) ꯑꯃꯒꯤ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯏꯁꯤꯡꯅꯥ ꯃꯈꯥꯒꯤ ꯄꯨꯈ꯭ꯔꯤꯗ ꯌꯦꯜꯂꯛꯄ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤ ꯌꯦꯜ ꯑꯃ꯫

3.3 ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯂꯩꯃꯥꯏ

3.3.1 **ꯔꯟꯑꯣꯐ ꯑꯁꯤꯡꯕ, ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯄꯤꯛ ꯑꯁꯤꯡꯕ.** ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯗꯦꯁꯤꯡꯗ POC ꯍꯧꯖꯤꯛ ꯌꯦꯡꯁꯤꯟꯕ ꯂꯝ ꯑꯁꯤꯡꯕ ꯋꯥꯈꯜꯂꯣꯟꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (design storm)-ꯁꯤꯡ ꯑꯁꯤꯡꯕ ꯁꯤꯖꯤꯟꯅꯒꯅꯕꯅꯤ (ꯇꯦꯕꯜ 2.11.1)꯫ ꯃꯍꯥꯛ ꯇꯦꯕꯜ ꯑꯁꯤꯒꯤ ꯂꯩꯃꯥꯏꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ, ꯃꯑꯣꯡꯒꯤ ꯃꯇꯝ ꯑꯣꯏꯅꯥ ꯊꯥꯗꯣꯛ Tc, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯀꯟꯗ꯭ꯔꯣꯜꯁꯤꯡꯗ ꯌꯥꯑꯣꯕ ꯌꯥꯗꯅꯕꯅꯤ꯫

3.3.2 **[illegible].** [illegible] (greenfield): [illegible]:

- (a) [illegible] (> 75%) [illegible]॥ **[illegible]॥**
- (b) [illegible] 3.7-[illegible] HSG-[illegible] "[illegible]" ("open space, good condition")-[illegible] TR-55 [illegible]: AMC II-[illegible] **CN 39 (A), 61 (B), 74 (C), 80 (D)** ([illegible] 3.5)॥
- (c) HSG [illegible] 3.7-[illegible] HSG-[illegible] ([illegible] 3.10.1) [illegible]॥ [illegible] HSG [illegible]॥
- (d) Tc [illegible] (shallow concentrated flow) [illegible] ([illegible] 3.6)॥ [illegible]॥
- (e) [illegible] (full tank level, FTL) [illegible] (waterspread), [illegible]॥

3.3.3 **[illegible].** [illegible] (full build-out) [illegible]:

- (a) [illegible] ([illegible] 3.9)॥ TR-55-[illegible]॥
- (b) [illegible] HSG-[illegible] HSG (A-[illegible] B, B-[illegible] C, C-[illegible] D) [illegible] ([illegible] 3.7.3) [illegible]॥ [illegible] HSG A [illegible]॥
- (c) [illegible] (RWH)-[illegible] 12 [illegible] ([illegible] 4)॥
- (d) [illegible] CN [illegible] ([illegible] 3.12)॥

3.3.4 **[illegible].** [illegible] 3.3.2-[illegible]॥ [illegible] 4.5.6-[illegible], 50%-[illegible]॥

3.3.5 **[illegible].**

- (a) [illegible] ([illegible] 6), [illegible] 35% [illegible]॥
- (b) [illegible] (run-on) [illegible] ([illegible] 3.14.2)॥

> **ꯂꯩꯄꯥꯛꯀꯤ ꯋꯥꯈꯜ.** ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯃꯑꯣꯡ ꯃꯇꯧꯒꯤ ꯃꯥꯏꯀꯣꯟꯗꯣꯛꯄꯥ ꯊꯦꯡꯅꯕꯥ ꯃꯍꯧꯁꯥ ꯑꯣꯏꯕ ꯈꯣꯡꯂꯣꯏ ꯑꯣꯏꯗꯦ ꯌꯥꯝꯅꯥ ꯌꯥꯎꯗꯕꯥ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯀꯥꯡꯂꯣꯟꯁꯤꯡ ꯇꯤꯡꯅ꯫ UK-ꯒꯤ ꯑꯣꯏꯕꯁꯤꯡ ꯑꯃꯗꯤ ꯃꯍꯧꯁꯥ ꯂꯣꯌꯕ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ (non-statutory standards) ꯑꯃꯁꯨꯡ KC APWA-ꯅꯥ ꯃꯑꯣꯡ ꯑꯃꯥ ꯄꯤꯔꯤꯕꯥ ꯑꯣꯏꯅ ꯑꯃꯗꯨꯒꯤ ꯁꯥꯕꯅ: APWA-ꯅꯥ HSG C-ꯒꯤꯗꯃꯛꯇꯥ ꯍꯥꯛꯆꯥꯡ ꯁꯦꯡꯕ ꯁꯥꯡ-ꯂꯤꯡꯁꯤꯡ ꯂꯩ ꯑꯗꯨ "ꯐꯕ ꯐꯤꯕꯝꯒꯤ ꯍꯩꯂꯣꯜ, ꯒ꯭ꯔꯥꯁꯂꯦꯟꯗ ꯅꯠꯔꯒꯥ ꯔꯦꯟꯖ (C = 0.30, CN = 74)" ("good condition pasture, grassland or range (C = 0.30, CN = 74)")-ꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯇꯤꯡꯅ, ꯑꯃꯁꯨꯡ ꯃꯇꯝꯄꯥꯟꯅꯕ ꯁꯦꯃꯖꯤꯟꯂꯤꯡ HSG A ꯅꯠꯔꯒꯥ B ꯑꯣꯏꯅꯥ ꯈꯟꯅꯗꯨꯅ ꯇꯤꯡꯅ (KC Metro APWA 5600, 2011, §5602.3A ꯑꯃꯁꯨꯡ E)꯫ (b)-ꯗ ꯂꯤꯄꯤꯁꯦꯅꯐꯤꯕ TR-55-ꯒꯤ "ꯍꯤꯡꯗꯨꯅꯕ ꯃꯐꯝ, ꯐꯕ ꯐꯤꯕꯝ" ꯒꯥꯏꯗꯂꯥꯏꯅ ꯑꯗꯨ TR-55-ꯒꯤ "ꯍꯩꯂꯣꯜ, ꯒ꯭ꯔꯥꯁꯂꯦꯟꯗ ꯅꯠꯔꯒꯥ ꯔꯦꯟꯖ, ꯐꯕ" ("pasture, grassland or range, good") ꯒꯥꯏꯗꯂꯥꯏꯅꯒꯥ ꯃꯥꯟꯅꯩ (USDA SCS TR-55, 1986, Tables 2-2a ꯑꯃꯁꯨꯡ 2-2c), ꯃꯐꯝ ꯑꯗꯨꯅ ꯃꯥꯂꯦꯃꯒꯤ ꯑꯁꯤꯒꯤ ꯗꯥꯒꯥꯅꯁꯤꯟꯅꯒꯤ ꯃꯃꯤꯒꯤ CN ꯑꯁꯤ HSG C ꯁꯦꯃꯖꯤꯟꯂꯤꯡꯗ APWA-ꯒꯤ ꯇꯤꯡꯕ ꯑꯗꯨꯒꯥ ꯃꯥꯟꯅꯩ꯫ 3.3.3(b)-ꯗ ꯁꯦꯕ ꯂꯧꯈꯠꯄꯕ ꯁꯦꯃꯖꯤꯟꯂꯤꯡꯒꯤꯗꯃꯛꯇꯥ ꯄꯨꯟꯁꯤ ꯑꯃꯥ ꯍꯦꯟꯗꯍꯟꯕ ꯑꯁꯤ ꯃꯥꯂꯦꯃꯒꯤ ꯑꯁꯤꯅ APWA-ꯒꯤ ꯀꯥꯡꯒꯤ ꯍꯦꯟꯅ ꯇꯅꯕ, ꯍꯦꯟꯅ ꯄꯦꯇꯀꯁꯦꯕ ꯃꯑꯣꯡ ꯑꯃꯥ ꯑꯣꯏꯅ ꯇꯝꯕꯔꯤ, ꯃꯔꯝ ꯅꯝꯐꯥꯜ ꯁꯝꯍꯥꯟꯄꯒꯤ ꯂꯝ (valley floor)-ꯒꯤ ꯂꯦꯛꯇ꯭ꯔꯤꯁꯐꯤꯅꯦ (lacustrine) ꯁꯥꯡ ꯑꯌꯥꯎꯍꯟ, ꯁꯥꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯎ (peat), ꯁꯝꯍꯥꯟꯄꯒꯤ ꯃꯅꯥꯛ ꯁꯦꯕ ꯐꯎꯍꯤꯡ ꯐꯦ (foothill fans)-ꯂꯤꯡꯒꯤ ꯁꯦꯡꯅ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯁꯤꯡ, ꯌꯤꯡꯂꯤꯡꯒꯤ ꯗꯤꯁꯥꯡ ꯂꯦꯟ (Disang shale)-ꯒꯤ ꯃꯇꯧ ꯁꯦꯕ ꯍꯥꯛꯆꯥꯡ ꯁꯦꯃꯖꯤꯟꯂꯤꯡ, ꯕꯔꯥꯏꯜ ꯂꯦꯔꯗꯥꯁꯣꯟ (Barail sandstone)-ꯒꯤ ꯃꯦꯍꯤꯡꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝ ꯄ꯭ꯂꯦꯟ (Jiribam plain)-ꯒꯤ ꯕꯔꯥ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤ (Jiri)-ꯒꯤ ꯑꯦꯂꯨꯚꯤꯌꯝ (alluvium)-ꯒꯥ ꯌꯥꯎꯅ, ꯃꯐꯝ ꯑꯗꯨꯂꯤꯡꯗ HSG A-ꯗꯒꯤ C-ꯗ ꯌꯧꯕ ꯑꯁꯤ ꯌꯥꯝꯅꯥ ꯍꯦꯟꯗꯔꯤ꯫ 3.3.5(a)-ꯗ ꯄꯨꯟꯁꯤ ꯁꯦꯕ ꯃꯇꯝ ꯇꯧꯕ ꯃꯐꯝꯒꯤ ꯂꯝꯒꯤꯗꯃꯛꯇꯥ 35%-ꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯂꯦꯝꯕ ꯅꯝꯍꯥꯐꯒꯥꯏꯔꯂꯦꯟ ꯑꯁꯤ APWA-ꯒꯤ ꯒꯥꯏꯗꯂꯤ (2011, §5602.3E.2)꯫ ꯃꯦꯒꯥꯔꯦꯂꯃꯤꯡꯗꯃꯛꯇꯥ ꯃꯂꯣꯏꯐ ꯄꯨꯟꯁꯤꯒꯤ ꯂꯝ ꯂꯤꯄꯤꯁꯦꯕ ꯁꯕ ꯑꯁꯤ CPHEEO-ꯒꯤ ꯃꯁꯤꯡ ꯅꯦꯗꯕꯔꯤ, CPHEEO-ꯅꯥ C-ꯅꯥ "ꯃꯂꯣꯏꯐ ꯄꯨꯟꯁꯤꯗ ꯃꯁꯤꯡ ꯅꯦꯗ ꯃꯦꯌꯥꯝꯒꯤ ꯑꯦꯟꯗ ꯗꯥꯒꯥꯅꯁꯤꯟꯅꯒꯤ" ("ultimate development of the catchment as per the master plan") ꯁꯤꯖꯤꯟꯅꯕꯔꯤ ꯍꯥꯌꯅ ꯍꯥꯌ (CPHEEO 2019, Part A §4.4.1.5)꯫

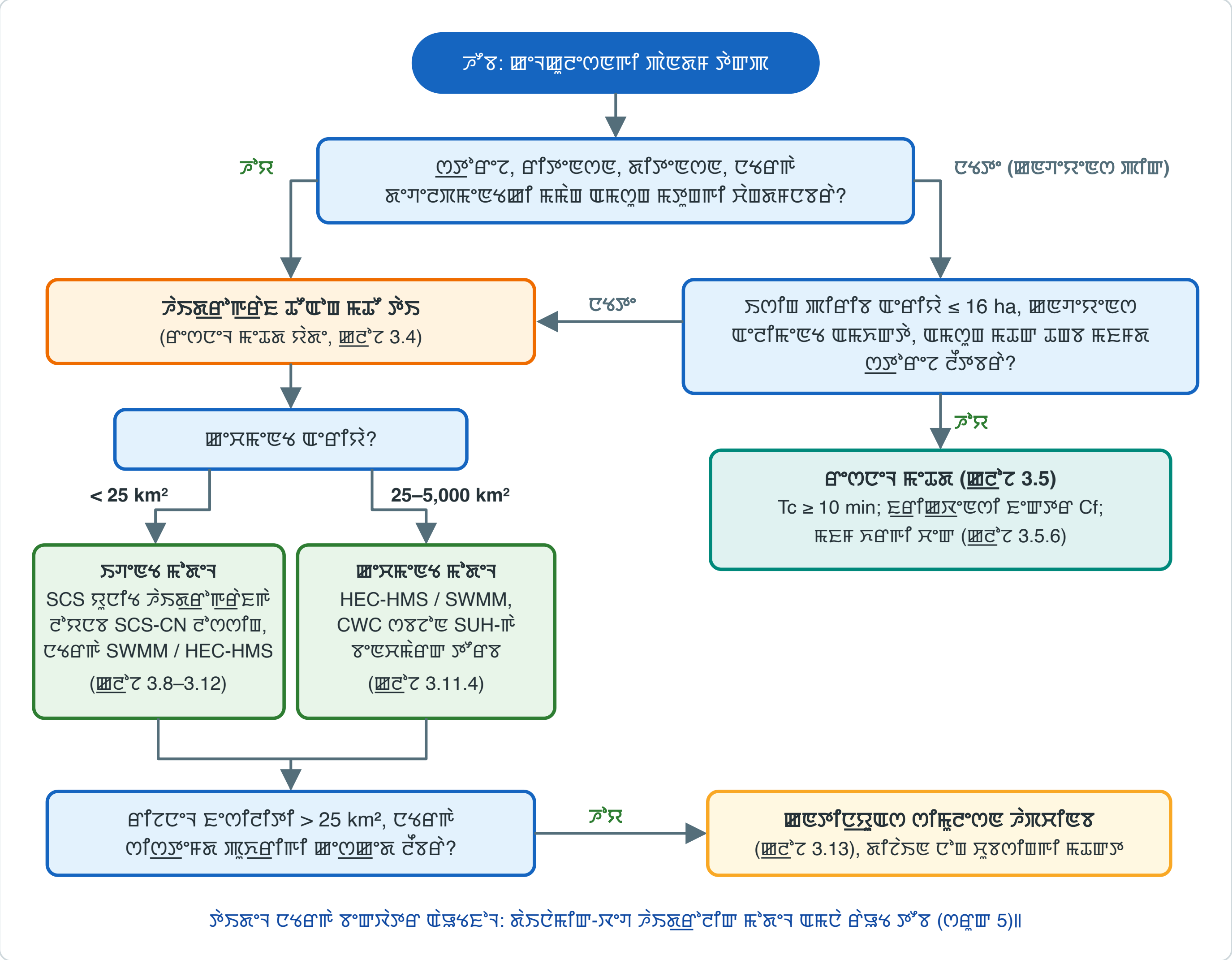
3.4 ꯊꯧꯑꯣꯡ ꯈꯅꯕ

3.4.1 ꯊꯧꯑꯣꯡ ꯑꯁꯤ ꯄꯨꯟꯁꯤꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯌꯥꯝꯒꯤ ꯂꯦꯟꯅ ꯃꯁꯤꯡ ꯅꯦꯗ ꯇꯦꯕꯜ 3.1-ꯗꯒꯤ ꯅꯦꯒꯥꯗꯕꯔꯤ꯫ ꯃꯃꯤ 3.1-ꯅꯥ ꯀꯥꯡ ꯑꯗꯨꯂꯤꯡꯒꯤꯗꯃꯛ ꯐꯗꯥꯌꯦꯐꯤ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯁꯤꯖꯤꯟꯅꯔꯤ꯫

ꯇꯦꯕꯜ 3.1 — ꯌꯥꯄꯔꯅꯤꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ

ꯄꯨꯟꯁꯤ	ꯃꯦꯌꯥꯝꯒꯤ / ꯐꯤꯕꯝ	ꯌꯥꯄꯔꯅꯤꯕ ꯊꯧꯑꯣꯡ	ꯃꯇꯦꯡ
ꯃꯦꯒꯥꯔꯦꯂꯃ ꯑꯦꯗꯤꯃꯦꯌꯥꯝ ꯑꯃꯒꯤ (ꯅꯦꯇꯦꯌ, ꯄꯨꯅꯁꯤꯡꯒꯤ ꯐꯤꯌ, ꯅꯥꯡꯕꯦꯒꯤ ꯐꯤꯌ, ꯃꯇꯒꯐꯌ) ꯄꯤꯔꯤ ꯐꯗꯥ	ꯅꯂꯤꯡ ꯄꯨꯐꯤꯕ ꯂꯝ ≤ 16 ha, ꯃꯇꯝ ꯇꯧꯕ ꯃꯐꯝꯗ ꯂꯧꯐꯦꯜ ꯁꯦꯕ, ꯕꯦꯔꯌꯥꯐ ꯁꯦꯕ	ꯐꯦꯂꯅꯦꯇ ꯃꯦꯇꯗ	3.5
ꯃꯦꯒꯥꯔꯦꯂꯃꯒꯤ ꯄꯤꯔꯤ ꯐꯗꯥ	> 16 ha, ꯅꯠꯔꯒꯥ ꯃꯇꯝ ꯇꯧꯕ ꯃꯐꯝꯗ ꯂꯧꯐꯦꯜ, ꯄꯨꯟꯁꯤ ꯅꯠꯔꯒꯥ ꯄꯨꯟꯗ ꯑꯃꯍꯩꯕꯁꯤ ꯁꯐꯕꯁꯤ	ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯧꯑꯣꯡ (SCS ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯒꯥ ꯂꯣꯌꯅꯅ SCS-CN, SWMM ꯅꯠꯔꯒꯥ HEC-HMS)	3.8–3.12
ꯐꯤꯔꯦꯂꯃꯦ, ꯗꯤꯔꯦꯂꯃꯦ, ꯂꯧꯐꯦꯜ ꯑꯃꯍꯩꯕꯁꯤ; ꯗꯥꯒꯥꯅꯁꯤꯟꯅꯒꯤ ꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯒꯤ ꯌꯤꯡꯗꯔꯕ	ꯂꯦꯟꯅ ꯑꯃꯍꯩꯕꯁꯤ	ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯧꯑꯣꯡ; **ꯐꯦꯂꯅꯦꯇ ꯃꯦꯇꯗ ꯌꯥꯄꯅꯥ**	3.8–3.12, 3.14
ꯕꯦꯔꯌꯥꯐ, ꯁꯅꯗꯦꯇ ꯅꯠꯔꯒꯥ ꯄꯨꯟꯐꯤꯒꯤ ꯁꯦꯇꯌꯥꯐ ꯁꯦꯕ ꯄꯨꯅꯄ ꯅꯠꯔꯒꯥ ꯅꯥꯡꯕꯦꯒꯤ ꯅꯦꯌꯥꯝ	ꯂꯦꯟꯅ ꯑꯃꯍꯩꯕꯁꯤ	ꯗꯅꯅꯥꯃꯤ-ꯌꯅꯒ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯐꯦꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯧꯑꯣꯡ	3.12.4; ꯁꯔꯨꯛ 5
ꯃꯦꯌꯥꯝ ꯃꯊꯧꯒꯤ ꯐꯗꯥꯂꯤꯡ	CWC ꯂꯕꯇꯦ 2(c) (Barak and others)-ꯗ 25–5,000 km², CWC-ꯅꯥ ꯐꯨꯗꯨꯃꯁꯐꯤꯕ 2(c)-ꯒꯤ ꯐꯤꯄꯥꯐꯌꯃꯤ ꯃꯌꯥꯝ ꯂꯕꯇꯦ 2(b) (South Brahmaputra)-ꯒꯤ ꯐꯤꯄꯥꯐꯌ ꯂꯤꯄꯤꯁꯦꯅꯥ	HEC-HMS ꯅꯠꯔꯒꯥ SWMM, CWC-ꯒꯤ ꯂꯤꯃꯦꯇꯁꯤ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ (SUH)-ꯒꯥ ꯕꯦꯌꯃꯐꯤ ꯁꯤꯖꯅ	3.11.4

ꯐꯤꯚꯝ	ꯀꯦꯆꯃꯦꯟꯠ / ꯆꯤꯒꯝ	ꯍꯣꯠꯅꯤꯕ ꯊꯧꯗꯣꯡ	ꯀꯨꯂꯥꯟ
ꯔꯤꯖꯅꯦꯜ ꯆꯦꯇꯤꯂꯤꯇꯤꯇꯤꯡ	> 25 km² ꯍꯦꯛꯇꯥ ꯊꯦꯡꯗꯕꯒꯤ	ꯗꯤꯖꯥꯏꯟ-ꯁꯨꯔꯣꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯊꯧꯗꯣꯡ **ꯑꯃꯁꯨꯡ** ꯀꯦꯟꯗ꯭ꯔꯤꯠ ꯁꯤꯡꯗꯦꯁꯦ	3.13
ꯄꯨꯈ꯭ꯔꯤ (pukhri) ꯀꯦꯁꯨꯀꯦꯗꯁꯤꯡ	ꯂꯣꯏꯅ ꯑꯃꯍꯥꯒꯤꯗꯤ	ꯗꯤꯖꯥꯏꯟ-ꯁꯨꯔꯣꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯊꯧꯗꯣꯡ **ꯑꯃꯁꯨꯡ** ꯀꯦꯟꯗ꯭ꯔꯤꯠ ꯁꯤꯡꯗꯦꯁꯦ	3.13
ꯇꯤꯌꯔ B: ꯆꯦꯞꯇꯔ 1-ꯒꯤ ꯃꯍꯩ ꯂꯧꯕ ꯋꯥꯈꯜꯒꯤ ꯂꯣꯅꯠꯁꯤꯡ	ꯗꯤꯖꯥꯏꯟ ꯋꯦꯗꯀꯤ ꯂꯤꯃꯤꯠꯀꯤ ꯃꯌꯥꯝꯗ	ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯃꯍꯩ ꯐꯤꯊꯣꯛꯍꯟꯕ ꯗꯤꯖꯥꯏꯟ ꯋꯦꯗꯁꯤꯡ, ꯃꯍꯣꯠꯇ ꯃꯂꯣꯏꯕ ꯆꯦꯞꯇꯔ ꯑꯁꯤꯒꯤ ꯊꯧꯗꯣꯡꯁꯤꯡꯗꯨ ꯂꯦꯞꯂꯤ	3.4.4
ꯋꯥꯈꯜꯒꯤ ꯂꯣꯅꯠꯁꯤꯡ, ꯑꯊꯣꯏꯕ ꯑꯃꯍꯥꯒꯤꯗꯤ	≤ 1 ha, ꯀꯨꯂꯥꯟ 4.14.3-ꯒꯤ ꯂꯤꯃꯤꯠꯀꯤ ꯃꯌꯥꯝꯗ	ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯆꯤꯒꯣ ꯑꯣꯏꯕ ꯀꯣꯆꯤꯡꯈꯦꯠꯀꯤ ꯑꯌꯨ (ꯆꯤꯒꯣ ꯑꯣꯏꯕ ꯍꯤꯇꯤꯜ ꯀꯣꯆꯤꯡꯈꯦꯠꯁꯤꯡ, ꯇꯥꯡ ꯂꯨꯕꯒꯤ ꯃꯂꯣ ꯁꯨꯔꯣꯝ)	3.4.4; 4.14.3


ꯍꯧꯕ: ꯀꯦꯟꯗ꯭ꯔꯤꯠꯁꯤꯡꯒꯤ ꯐꯤꯚꯝ ꯑꯣꯏꯕ
ꯁꯨꯔꯣꯝ, ꯍꯤꯑꯣꯁꯦꯁꯦ, ꯗꯤꯑꯣꯁꯦꯁꯦ, ꯅꯠꯔꯒꯥ
ꯗꯦꯒꯦꯂꯑꯃꯦꯠꯀꯤ ꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯨꯡꯒꯤ ꯇꯤꯗꯃꯃꯂꯕꯍꯤ?
ꯍꯣꯌ
ꯅꯠꯇꯦ (ꯀꯦꯆꯃꯦꯌꯦꯁꯦ ꯑꯤꯡ)
ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯊꯧꯗꯣꯡ ꯃꯊꯧ ꯑꯥꯟ
(ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ ꯇꯥꯗꯦ, ꯀꯨꯂꯥꯟ 3.4)
ꯅꯠꯇꯦ
ꯍꯦꯛꯇꯥ ꯑꯤꯍꯤꯕ ꯋꯦꯍꯤꯇ ≤ 16 ha, ꯀꯦꯆꯃꯦꯌꯦꯁꯦ ꯋꯦꯂꯤꯃꯦꯠ ꯑꯃꯍꯥꯗꯣ, ꯑꯃꯁꯨꯡ ꯃꯊꯥ ꯊꯗꯕ ꯃꯆꯦꯗ ꯁꯨꯔꯣꯝ ꯂꯣꯕꯍꯤ?
ꯍꯣꯌ
ꯀꯦꯆꯃꯦꯟꯠ ꯋꯦꯍꯤꯇ?
< 25 km²
25–5,000 km²
ꯍꯒꯦꯠ ꯃꯥꯗꯦ
SCS ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯂꯥꯏꯅꯕ SCS-CN ꯂꯥꯁꯣꯅꯤ, ꯅꯠꯔꯒꯥ SWMM / HEC-HMS
(ꯀꯨꯂꯥꯟ 3.8–3.12)
ꯀꯦꯆꯃꯦꯟꯠ ꯃꯥꯗꯦ
HEC-HMS / SWMM, CWC ꯁꯕꯂꯦ SUH-ꯒꯥ ꯕꯦꯆꯃꯦꯔꯗ ꯑꯣꯏꯕ
(ꯀꯨꯂꯥꯟ 3.11.4)
ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ (ꯀꯨꯂꯥꯟ 3.5)
Tc ≥ 10 min; ꯆꯔꯤꯀꯨꯊꯦꯁꯤ ꯆꯦꯗꯑꯔ Cf;
ꯃꯆꯐ ꯍꯔꯒꯤ ꯊꯦꯗ (ꯀꯨꯂꯥꯟ 3.5.6)
ꯔꯤꯖꯅꯦꯜ ꯆꯦꯇꯤꯂꯤꯇꯤ > 25 km², ꯅꯠꯔꯒꯥ
ꯁꯤꯁꯨꯑꯐꯗ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯦꯁꯨꯀꯦꯗ ꯂꯕꯔꯤ?
ꯍꯣꯌ
ꯀꯦꯟꯗ꯭ꯔꯤꯠ ꯁꯤꯡꯗꯦꯁꯦ ꯍꯄꯊꯤꯕ
(ꯀꯨꯂꯥꯟ 3.13), ꯗꯤꯖꯥꯏꯟ ꯂꯥꯏ ꯌꯨꯕꯁꯤꯡꯒꯤ ꯃꯊꯗꯑ

ꯑꯍꯗꯦ ꯅꯠꯔꯒꯥ ꯕꯦꯗꯔꯣꯑꯔ ꯋꯥꯌꯦꯜ: ꯗꯍꯂꯃꯤꯗ-ꯍꯦꯒ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯗ ꯃꯥꯗꯦ ꯋꯃꯂ ꯔꯥꯌꯦꯜ ꯑꯣꯕ (ꯆꯦꯞꯇꯔ 5)꯫

ꯃꯃꯤ 3.1 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯂꯤꯒꯤ ꯊꯧꯗꯣꯡ ꯍꯦꯟꯕ꯫ ꯃꯦꯌꯨꯍꯦꯜ ꯋꯁꯤꯒꯤꯗꯃꯗ ꯋꯂꯧꯂ ꯁꯦꯐꯕ ꯗꯔꯣꯍꯗ, KC Metro APWA, Section 5600 Storm Drainage Systems and Facilities, 2011 (§5602.2) ꯑꯃꯁꯨꯡ Version 2025.01 (§5603.4, Policy Supplement, 2025)-ꯗꯒꯤ ꯍꯥꯗꯣꯗꯂꯒꯥ ꯂꯧꯍꯤꯕ꯫

3.4.2 **ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗꯀꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ.** ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ ꯑꯁꯤ **16 ha ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯑꯍꯤꯗꯍ** ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯗꯒꯤꯗꯃꯗ ꯍꯗꯑꯗ ꯑꯃꯁꯨꯡ **ꯀꯦꯆꯃꯦꯌꯦꯁꯦ ꯋꯦꯂꯤꯃꯦꯠ ꯑꯃꯍꯥꯗꯑꯒꯤ** ꯍꯤꯗ ꯆꯂꯥ ꯀꯦꯟꯗ꯭ꯔꯤꯠ ꯑꯣꯂꯕ ꯍꯗꯑꯗ ꯁꯤꯂꯤꯁꯦꯂꯥꯗꯕꯂꯤ꯫ ꯃꯁꯤ ꯔꯤꯑꯣꯁꯦꯁꯦ, ꯗꯤꯑꯣꯁꯦꯁꯦ ꯅꯠꯔꯒꯥ ꯋꯑꯣꯍꯍ ꯁꯨꯔꯣꯝ ꯑꯃꯍꯥꯗꯑꯒꯤ ꯂꯣꯏꯅ ꯂꯦꯍꯂꯕ, ꯅꯠꯔꯒꯥ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯅꯠꯔꯒꯥ ꯔꯦꯋꯦꯆ ꯒꯥꯗꯨꯃ ꯊꯥꯗꯍꯦꯂꯕ

ꯀꯩꯗꯧ ꯉꯩꯗꯁꯨ ꯁꯤꯖꯤꯟꯅꯔꯣꯏꯗꯕꯅꯤ॥

3.4.3 **ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯧꯑꯣꯡꯁꯤꯡ.** 16 ha-ꯗꯒꯤ ꯍꯦꯟꯕꯗ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯄꯨꯝꯅꯃꯛꯇ, ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯧꯑꯣꯡ ꯑꯃꯥ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ: SCS (NRCS) ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯒ ꯂꯣꯌꯅꯕ SCS-CN ꯂꯣꯁꯁꯤꯡ, EPA SWMM, ꯅꯠꯔꯒ HEC-HMS॥ 25–5,000 km^2-ꯒꯤ ꯗꯃꯛ CWC-ꯒꯤ ꯁꯤꯟꯊꯦꯇꯤꯛ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯨ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯑꯣꯏꯅꯥ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 3.11.4)॥

3.4.4 **ꯂꯥꯏꯊꯣꯛꯍꯦꯟꯕ ꯔꯨꯠꯁꯤꯡ.** ꯇꯤꯌꯔ B ꯂꯝꯁꯤꯡꯗ (ꯁꯔꯨꯛ 1), ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯈꯥꯗ ꯄꯤꯊꯣꯛꯍꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯗ ꯑꯃꯗ ꯇꯥꯀꯄ ꯂꯤꯃꯤꯠꯀꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ ꯁꯥꯏꯠꯁꯤꯡꯗ ꯁꯥꯏꯠ ꯑꯃꯨꯒꯤ ꯍꯛꯇꯤꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯣꯗꯦꯜ ꯑꯃꯒꯤ ꯃꯍꯨꯠꯇ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯗ ꯑꯃꯁꯨ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ॥ ꯂꯝ ꯑꯃꯍꯦꯛꯇꯗꯤ, 1 ha ꯅꯠꯔꯒ ꯃꯁꯤꯗꯒꯤ ꯑꯄꯤꯛꯄ ꯁꯥꯏꯠꯁꯤꯡꯗ ꯀ꯭ꯂꯣꯖ 4.14.3-ꯒꯤ ꯐꯤꯛꯁ ꯇꯧꯔꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯀꯤ ꯔꯨꯠ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ; ꯃꯁꯤ ꯅꯣꯡ ꯆꯨꯕꯗ ꯌꯨꯝꯐꯝ ꯑꯣꯏꯕ ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯊꯧꯑꯣꯡꯁꯤꯡ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯔꯣꯏꯗꯕꯅꯤ ꯍꯥꯌꯕ 3.4.2-ꯒꯤ ꯔꯨꯂꯒꯤ ꯑꯃꯈꯛꯇꯒꯤ ꯑꯦꯛꯁꯦꯞꯁꯟꯅꯤ॥ 3.4.2-ꯒꯤ ꯃꯈꯥꯗ ꯀꯟꯚꯦꯌꯦꯟꯁꯀꯤꯗꯃꯛ ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯔꯤꯕꯅꯤ॥

3.4.5 **5,000 km^2-ꯗꯒꯤ ꯍꯦꯟꯕ ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡ.** ꯃꯈꯣꯌ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯁ꯭ꯀꯣꯞꯀꯤ ꯃꯄꯥꯟꯗ ꯂꯩ ꯑꯃꯁꯨꯡ ꯋꯣꯇꯔ ꯔꯤꯁꯣꯔꯁꯦꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Water Resources Department, WRD)-ꯅꯥ ꯑꯦꯞꯔꯨꯚ ꯇꯧꯔꯕ ꯕꯦꯁꯤꯟ ꯁ꯭ꯇꯗꯤ ꯑꯃꯥ ꯃꯊꯧ ꯇꯥꯏ॥

> **ꯁꯟꯗꯣꯛꯅꯥ ꯇꯥꯛꯄ.** 16 ha-ꯒꯤ ꯂꯤꯃꯤꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯂꯤꯃꯦꯟꯠ ꯑꯃꯈꯛꯇꯒꯤ ꯔꯨꯜ ꯑꯁꯤ APWA 5600 Version 2025.01-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯕꯅꯤ, ꯃꯁꯤꯅ ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ 200 ac-ꯗꯒꯤ 40 ac-ꯗ ꯍꯟꯊꯍꯜꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤ "ꯄꯥꯏꯞ ꯁꯦꯒꯃꯦꯟꯠ ꯑꯃꯈꯛꯇ" ("a single pipe segment")-ꯇ ꯊꯤꯡꯂꯤ॥ MARC-ꯒꯤ Policy Supplement-ꯅ ꯃꯁꯤ "ꯔꯟꯑꯣꯐ ꯍꯟꯊꯍꯟꯕꯒꯤ ꯄ꯭ꯔꯦꯛꯇꯤꯁꯁꯤꯡꯒꯤ ꯁꯥꯏꯖ ꯂꯦꯞꯅꯕ ꯅꯠꯔꯒ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ ꯂꯦꯞꯅꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯔꯣꯏ" ("cannot be used to size runoff reduction practices or determine retention volumes and detention volumes") ꯍꯥꯌꯅ ꯆꯦꯀꯁꯤꯟꯍꯜꯂꯤ (MARC, APWA Stormwater Standards Supplement, 2025)॥ CPHEEO-ꯅ (2019, Part A §4.4.1.3) ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ 8–10 km^2 ꯐꯥꯑꯣꯕ ꯌꯥꯍꯜꯂꯤ, ꯃꯁꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯄꯨꯝꯅꯃꯛꯇ Tc ꯄꯨꯝꯅꯃꯛꯀꯤ ꯃꯅꯨꯡꯗ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯟꯇꯦꯟꯁꯤꯇꯤ ꯃꯥꯟꯅꯥ ꯍꯥꯌꯅ ꯂꯧꯕ ꯑꯃꯁꯨꯡ ꯚꯣꯜꯌꯨꯝ ꯄꯤꯗꯕ ꯊꯧꯑꯣꯡ ꯑꯃꯒꯤꯗꯃꯛ ꯌꯥꯝꯅ ꯆꯥꯎꯏ॥ ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗꯅ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯅꯠꯇꯅꯥ ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯈꯛꯇ ꯄꯤꯕꯅ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯚꯣꯜꯌꯨꯝ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯐꯥꯑꯣꯕꯅ ꯂꯤꯕꯅ ꯃꯔꯝ ꯑꯣꯏꯗꯨꯅꯥ ꯃꯁꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯗꯤꯖꯥꯏꯅꯗꯒꯤ ꯂꯥꯄꯊꯣꯛꯂꯤ॥

3.5 ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ

3.5.1 **ꯏꯀ꯭ꯋꯦꯁꯟ.** ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯑꯁꯤ ꯃꯈꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯒꯗꯕꯅꯤ:

$$Q = C \cdot Cf \cdot i \cdot A / 360$$

ꯃꯐꯝ ꯑꯁꯤꯗ Q ꯑꯁꯤ ꯄꯤꯛ ꯐ꯭ꯂꯣꯅꯤ (m^3/s); C ꯑꯁꯤ ꯔꯟꯑꯣꯐ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯅꯤ (ꯇꯦꯕꯜ 3.2); Cf ꯑꯁꯤ ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ ꯐꯦꯛꯇꯔꯅꯤ (ꯇꯦꯕꯜ 3.3), $C \cdot Cf \le 1.0$ ꯑꯣꯏꯅꯥ; i ꯑꯁꯤ T_c-ꯒ ꯃꯥꯟꯅꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯟꯇꯦꯟꯁꯤꯇꯤꯅꯤ (mm/h), ꯁꯔꯨꯛ 2-ꯗꯒꯤ ꯂꯧꯕ (ꯀ꯭ꯂꯣꯖ 2.8-ꯒꯤ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔꯒ ꯂꯣꯌꯅꯅꯥ); ꯑꯃꯁꯨꯡ A ꯑꯁꯤ ꯏꯁꯤꯡ ꯄꯤꯔꯤꯕ ꯑꯦꯔꯤꯌꯥꯅꯤ (ha)॥

> **ꯁꯟꯗꯣꯛꯅꯥ ꯇꯥꯛꯄ.** ꯃꯁꯤ CPHEEO-ꯒꯤ ꯏꯀ꯭ꯋꯦꯁꯟ $Q_p = 10\,C\,I\,A$-ꯅꯤ, Q_p ꯑꯁꯤ m^3/h-ꯗ ꯂꯩ (CPHEEO 2019, Part A §4.4.1.1–4.4.1.3), ꯃꯁꯤꯕꯨ m^3/s-ꯗ ꯍꯣꯡꯗꯣꯛꯂꯦ॥

3.5.2 **ꯔꯟꯑꯣꯐ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡ.** C ꯑꯁꯤ ꯇꯦꯕꯜ 3.2-ꯗꯒꯤ ꯂꯧꯒꯗꯕꯅꯤ॥ ꯔꯦꯟꯖ ꯑꯃꯈꯒꯤ ꯃꯅꯨꯡꯗ, ꯁꯥꯏꯠꯀꯤ ꯗꯦꯇꯥꯅ ꯍꯦꯟꯅ ꯅꯣꯃꯅ ꯒꯦꯅꯌꯨ ꯑꯃ ꯆꯨꯝꯃꯤ ꯍꯥꯌꯅ ꯄꯨꯝꯅꯃꯛ ꯅꯠꯇꯅ, ꯗꯤꯖꯥꯏꯅꯔꯅꯥ ꯔꯦꯟꯖ ꯑꯁꯨꯂꯤ ꯃꯊꯛꯇ ꯃꯁꯨꯏꯍꯟꯕ ꯑꯁꯨ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ॥

ꯇꯦꯕꯜ 3.2 — ꯔꯟꯑꯣꯐ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ C (AEP 10% ꯅꯠꯔꯒ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅ ꯌꯥꯝꯅ ꯊꯣꯀꯄꯒꯤꯗꯃꯛ)

ꯂꯩꯃꯥꯏ ꯃꯑꯣꯡ ꯂꯝ ꯁꯤꯖꯤꯟꯅꯕ	C	ꯍꯧꯔꯀꯐꯝ
ꯀꯝꯔꯁꯤꯌꯦꯜ	0.70–0.95	CPHEEO 2019, Table 4.2
ꯏꯟꯗꯁ꯭ꯇ꯭ꯔꯤꯌꯦꯜ	0.60–0.90	CPHEEO 2019, Table 4.2
ꯏꯟꯁ꯭ꯇꯤꯇ꯭ꯌꯨꯁꯅꯦꯜ	0.70–0.95	CPHEEO 2019, Table 4.2
ꯔꯦꯁꯤꯗꯦꯟꯁꯤꯌꯦꯜ, ꯍꯥꯏ ꯗꯦꯟꯁꯤꯇꯤ	0.60–0.75	CPHEEO 2019, Table 4.2
ꯔꯦꯁꯤꯗꯦꯟꯁꯤꯌꯦꯜ, ꯂꯣ ꯗꯦꯟꯁꯤꯇꯤ	0.40–0.60	CPHEEO 2019, Table 4.2
ꯔꯤꯀ꯭ꯔꯤꯌꯦꯁꯅꯦꯜ	0.10–0.25	CPHEEO 2019, Table 4.2
ꯑꯦꯁꯐꯥꯜꯠ	0.70–0.95	CPHEEO 2019, Table 4.2
ꯀꯟꯀ꯭ꯔꯤꯠ	0.80–0.95	CPHEEO 2019, Table 4.2
ꯕ꯭ꯔꯤꯛ ꯄꯦꯚꯤꯡ	0.70–0.85	CPHEEO 2019, Table 4.2
ꯌꯨꯝꯊꯛ: ꯃꯦꯇꯜ	0.80–0.90	CPHEEO 2019, Table 4.2
ꯌꯨꯝꯊꯛ: ꯇꯥꯏꯜ	0.70–0.90	CPHEEO 2019, Table 4.2
ꯌꯨꯝꯊꯛ: ꯀꯟꯀ꯭ꯔꯤꯠ	0.70–0.90	CPHEEO 2019, Table 4.2
ꯂꯣꯟ, ꯂꯩꯆꯥꯏ ꯌꯥꯝꯕ ꯂꯩꯃꯥꯏ, ꯐ꯭ꯂꯦꯠ (≤ 2%)	0.05–0.10	ASCE/WPCF 1969
ꯂꯣꯟ, ꯂꯩꯆꯥꯏ ꯌꯥꯝꯕ ꯂꯩꯃꯥꯏ, ꯃꯌꯥꯏ ꯑꯣꯏꯕ (2–7%)	0.10–0.15	ASCE/WPCF 1969
ꯂꯣꯟ, ꯂꯩꯆꯥꯏ ꯌꯥꯝꯕ ꯂꯩꯃꯥꯏ, ꯑꯆꯝꯕ ꯆꯥꯡꯐ (> 7%)	0.15–0.20	ASCE/WPCF 1969
ꯂꯣꯟ, ꯍꯦꯚꯤ (ꯂꯩꯃꯨ ꯑꯄꯦꯜꯃ) ꯂꯩꯃꯥꯏ, ꯐ꯭ꯂꯦꯠ (≤ 2%)	0.13–0.17	ASCE/WPCF 1969
ꯂꯣꯟ, ꯍꯦꯚꯤ ꯂꯩꯃꯥꯏ, ꯃꯌꯥꯏ ꯑꯣꯏꯕ (2–7%)	0.18–0.22	ASCE/WPCF 1969
ꯂꯣꯟ, ꯍꯦꯚꯤ ꯂꯩꯃꯥꯏ, ꯑꯆꯝꯕ ꯆꯥꯡꯐ (> 7%)	0.25–0.35	ASCE/WPCF 1969
ꯗꯦꯐꯣꯜꯇ ꯌꯨꯅꯤꯠ ꯂꯐ (ꯐꯤꯒꯐ ꯑꯃꯍꯦꯡꯌꯥꯁꯤꯡꯗꯃꯛ ꯄꯕꯅꯗꯒꯤ ꯍꯦꯟꯕ)	0.30	KC APWA 5600 (2011), §5602.3E

3.5.3 **ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ ꯐꯦꯛꯇꯔ.** 10%-ꯗꯒꯤ ꯍꯦꯟꯅ ꯌꯥꯍꯅꯕ ꯀꯥꯝꯕ ꯗꯤꯖꯥꯏꯟ AEP-ꯁꯤꯡꯗꯃꯛ, C ꯑꯁꯤ ꯇꯦꯕꯜ 3.3-ꯒꯤ Cf-ꯅ ꯍꯦꯅꯒꯠꯍꯟꯒꯗꯕꯅꯤ꯫ C · Cf ꯄꯨꯟꯁꯤꯟꯕ ꯑꯁꯤ 1.0-ꯗꯒꯤ ꯍꯦꯟꯗꯣꯛꯂꯣꯏꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 3.3 — ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ ꯐꯦꯛꯇꯔ Cf

ꯗꯤꯖꯥꯏꯟ AEP (ꯔꯤꯇꯔꯟ ꯄꯤꯔꯤꯌꯗ)	Cf
10% (10-yr) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅ ꯌꯥꯍꯅ ꯀꯥꯝꯕ	1.00
4% (25-yr)	1.10
2% (50-yr)	1.20
1% (100-yr)	1.25

3.5.4 **ꯀꯝꯄꯣꯖꯤꯠ C.** ꯀꯥꯔꯃꯦꯜ ꯑꯃꯗ ꯂꯩꯃꯥꯏ ꯃꯈꯜ ꯑꯃꯗꯒꯤ ꯍꯦꯟꯅ ꯌꯥꯍꯟꯕꯗꯤ, C ꯑꯁꯤ ꯑꯦꯔꯤꯌꯥ-ꯋꯦꯌꯦꯠꯗ ꯑꯦꯚꯔꯦꯖ C = Σ(Cj · Aj) / ΣAj ꯑꯣꯟꯒꯗꯕꯅꯤ, ꯂꯩꯃꯥꯏ ꯈꯗꯤꯡꯃꯛꯀꯤ ꯃꯦꯄ ꯌꯨꯅꯤꯠ ꯅꯃꯁꯤꯡꯗꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯔꯤ꯫ Cf ꯑꯁꯤ ꯀꯝꯄꯣꯖꯤꯠ C-ꯗ ꯁꯤꯖꯤꯟꯅꯩ꯫

3.5.5 **ꯌꯨꯅꯤꯠ ꯑꯣꯏꯕ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯂꯦꯍꯥꯔꯐꯝꯁꯤꯡ.**

- (a) Tc ꯑꯁꯤ ꯀꯂꯥꯝ 3.6 ꯃꯇꯨꯡ ꯏꯟꯅ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯒꯅꯕꯅꯤ ꯑꯃꯁꯨꯡ **ꯃꯤꯅꯤꯠ 10**-ꯗꯒꯤ ꯅꯦꯝꯍꯟꯗꯅꯕꯅꯤ꯫

- (b) 16 ha-ꯒꯤ ꯃꯀꯤꯌꯥꯗꯤ ꯀꯨꯞꯄꯗ ꯃꯇꯨ ꯃꯤꯍꯨꯠꯇꯧꯕ ꯑꯀꯤꯒꯤ ꯂꯤꯈ ꯂꯩꯔꯤꯕꯗꯥꯗꯤꯍꯦꯗ, ꯑꯗꯤꯗ ꯑꯃꯤ ꯂꯤꯈ ꯑꯍꯥꯒꯤ ꯀꯆꯗ ꯆꯗꯨ ꯀꯏꯇꯒꯤ ꯗ꯭ꯁꯍꯇꯣꯛꯄꯤꯒ Σ(C · A) ꯑꯃꯁꯨꯡ ꯂꯤꯈ ꯑꯍ ꯏꯁꯨ ꯅ꯭ꯌꯅꯕꯒꯤ ꯁꯗꯨ Tc ꯃꯤꯇꯤꯡꯇꯍꯟ ꯗꯣꯛꯍꯇꯣꯛ ꯄꯣꯛꯅꯕꯇꯤ꯫ ꯀꯆꯗ ꯆꯗꯨ ꯀꯏꯇꯒꯤ ꯂꯤꯈꯃꯤꯗꯒꯤ ꯑꯤꯗꯃꯤꯗ ꯑꯦꯡꯃꯤꯡꯂꯦꯟꯕꯅꯇꯤ꯫

3.5.6 **ꯀꯏꯇ ꯅꯂꯒꯤ ꯈꯣꯗ (partial-area check).** ꯗꯣꯈꯀꯣꯡꯌꯗꯤ ꯗꯇꯑꯣꯗꯌ ꯑꯦꯅꯕ, ꯔꯤꯇꯆ ꯅꯇꯑꯂꯒꯤꯈꯃ ꯑꯦꯅꯕ ꯀꯏꯇ ꯑꯀꯒꯤ Tc ꯑꯃꯤ ꯗꯣꯈꯀꯣꯡꯌ ꯑ꯭ꯇꯆꯀꯗꯗꯤ ꯑꯁꯅꯒꯤ ꯔꯤꯇꯆ ꯆꯣꯇꯆꯕꯅꯤ, ꯑꯤꯗ ꯑꯃꯤ ꯀꯏꯇ ꯑꯁ ꯅꯗꯄꯒꯤꯅꯀꯗꯃ, ꯀꯇꯒꯤ ꯆꯇ, C ꯑꯀꯃꯨꯗ Tc ꯃꯤꯇꯤꯡꯇꯍꯟ ꯗꯣꯛꯍꯇꯣꯛ ꯄꯣꯛꯅꯕꯇꯤ꯫ ꯄꯣꯡꯆ ꯈ꯭ꯁꯕ ꯑꯤꯗ ꯑꯁꯆ ꯆꯣꯑꯀꯗꯅ꯫

> **ꯃꯡꯅꯗꯆ ꯄꯗꯑ.** ꯄꯣꯕꯅ 3.2-ꯅ ꯆꯕ ꯅꯣꯒꯣꯆꯑ ꯄꯂꯕ ꯆꯀꯅꯒꯤ ꯗꯑꯣꯏꯤꯃꯤꯈꯣꯡꯌꯃꯤꯗ ꯑꯃꯤ CPHEEO-ꯒꯤ Table 4.2-ꯆꯤ, CPHEEO-ꯆ ꯀꯃꯤ ASCE/WPCF (1969)-ꯅꯒꯤ ꯄꯗꯅꯗꯆꯒ ꯆꯅꯤꯕꯆꯤ꯫ CPHEEO-ꯆ ꯂꯤꯄꯂꯡ ꯑꯤꯂꯤꯈꯅ ꯑ꯭ꯇꯆꯀꯗꯗꯤꯅꯀꯗ C ꯀꯡꯆꯆ ꯇꯇꯀꯤ꯫ ꯄꯣꯕꯅ 3.3-ꯆ ꯀꯁꯒꯤ ꯀ꯭ꯄꯌꯄ APWA-ꯒꯤ ꯑꯣꯡꯄꯤꯃꯤꯅꯣꯡꯌ-ꯑ꯭ꯂꯤꯃꯤꯑꯤꯄꯣꯃꯡ ꯏꯣꯗꯄꯂꯃꯤꯗ ꯆꯅ (KC Metro APWA 5600, 2011, §5602.2A: 4%, 2% ꯑꯀꯃꯨꯗ 1%-ꯒꯤ ꯆꯗ ꯅ꯭ꯕꯒꯤ ꯇꯅꯗꯃꯤꯗꯒꯤꯅꯀꯗ K = 1.1, 1.2 ꯑꯀꯃꯨꯗ 1.25, C·K ≤ 1.0 ꯑꯅꯆ)꯫ ꯀꯆꯤꯑ꯭ꯂꯒꯤ ꯔꯤꯇꯅꯆ ꯇꯗꯑ ꯆꯗ ꯅ꯭ꯕꯒꯤ ꯇꯅꯗꯃꯤꯗ ꯅꯃꯤꯗ ꯔꯤꯇꯕ ꯆꯇꯅ ꯄꯕꯆ (ꯗ꯭ꯆꯆ 2.11.4) ꯏꯣꯗꯄꯂ ꯑꯃꯤꯃꯤꯗ ꯀꯏꯇ ꯑꯃꯤꯅ ꯀ꯭ꯂꯑꯅ꯫ ꯀꯤꯆꯌ 10-ꯒꯤ ꯅ꯭ꯕꯅꯅꯒꯤ ꯆꯣꯇꯕ Tc ꯑꯃꯤ ꯗ꯭ꯆꯆ 2.5.1-ꯒꯤ ꯅ꯭ꯕꯅꯅꯒꯤ ꯆꯣꯇꯕ ꯅꯤꯆꯅꯡ ꯅ꯭ꯇꯂꯣꯃꯡꯒ ꯀꯡꯆ꯫ APWA 2011-ꯆ ꯅꯡꯆꯣꯌ ꯄꯅꯇ ꯀꯤꯆꯌ 5 ꯑꯀꯃꯨꯗ 15-ꯒꯤ ꯀꯂꯗꯄ ꯇꯤꯗꯅ (§5602.7A)꯫ ꯀꯏꯇ ꯅꯂꯒꯤ ꯈꯣꯗ ꯑꯃꯤ CPHEEO-ꯆ "ꯀꯏꯇ ꯅꯂꯒꯤ ꯅꯏꯣꯗꯌ" ("partial area effect") ꯆꯕ ꯀꯑꯗꯒꯤ ꯀ꯭ꯄꯗ ꯅꯡꯆꯕꯆꯤ (CPHEEO 2019, Part A §4.4.1.7)꯫ ꯅꯡꯅꯤꯔꯒꯤ ꯃꯄꯂꯒꯤ ꯑ꯭ꯆꯌꯃꯤꯗ ASCE ꯂꯣꯡꯆꯃꯤꯗꯒꯤ ꯀ꯭ꯄꯗꯅ ꯆꯕ US-ꯒꯤ ꯆꯇ ꯃꯤꯆꯤꯡꯆꯕꯃꯤꯗꯅꯒꯤ ꯄꯣꯡꯆ ꯗ꯭ꯑꯆ ꯗꯒꯂ ꯄꯕꯆ ꯀꯂꯇ ꯑꯅꯁꯆ ꯀꯣꯂꯈꯣꯕ ꯑꯃꯤꯆ 3.5.2-ꯅ ꯂꯣꯡꯆ ꯅ꯭ꯅꯤꯗꯀꯗꯗꯤ ꯀꯇꯗꯗꯤ ꯄꯗꯅꯏꯅꯕ ꯑꯁ ꯀꯇ ꯄꯄꯕꯆꯤ꯫

3.6 ꯄꯅꯇ ꯑꯏ ꯗꯡꯃꯣꯡꯄꯂꯣꯃꯡ

3.6.1 **ꯑꯏꯇꯕ ꯔꯏꯇꯃꯤꯗ.** Tc ꯑꯃꯤ ꯅꯣꯒꯣꯆꯑꯀꯣꯡꯌꯗꯤ ꯀꯀꯗ ꯑꯀꯃꯨꯗ ꯀ꯭ꯄꯗꯒꯤ ꯏꯤꯒꯇꯃꯤꯗꯒꯤꯅꯀꯗ ꯄꯗꯡꯆ, ꯑꯅꯡꯌ ꯑꯏ ꯅꯡꯄꯂꯣꯃꯌ ꯏ꯭ꯁꯕ ꯅ꯭ꯕꯅꯅꯒꯤ ꯁꯗꯕ ꯈꯌꯑꯒꯤ ꯀꯄꯇ ꯑꯤꯕ ꯏ꯭ꯆ ꯑꯇ ꯑꯁꯒꯤ ꯀꯇꯗꯄ, ꯏ꯭ꯆ ꯃꯣꯒꯀꯣꯡꯌ ꯅ꯭ꯅꯤꯗꯀꯗꯗꯤ ꯈꯌꯑꯒꯤ ꯀꯄꯇꯃꯤꯗ ꯑ꯭ꯡꯃꯤꯡꯁꯆ ꯗꯣꯛꯍꯇꯣꯛ ꯄꯣꯛꯅꯕꯇꯤ꯫ ꯏꯤꯒꯇ ꯑꯆꯤꯀꯗꯄ Tc ꯑꯃꯤ **ꯀꯤꯆꯌ 10**-ꯅꯒꯤ ꯆꯣꯇꯂꯅꯅꯕꯆꯤ꯫

3.6.2 **NRCS ꯒꯣꯆꯃꯤꯄꯤ (ꯃꯣꯒꯀꯣꯡꯌ) ꯇꯑꯗ.** NRCS ꯃꯣꯒꯀꯣꯡꯌ ꯇꯑꯗ ꯑꯃꯤ ꯗꯣꯈꯀꯣꯡꯌ ꯑ꯭ꯇꯆꯀꯗꯗꯤ ꯅꯤꯏꯕꯌ ꯇꯑꯗꯆꯤ꯫ Tc = Tt(sheet) + Tt(shallow) + Tt(channel), ꯀꯏꯇ ꯑꯃꯤꯅ:

- (a) **ꯃꯤꯌ ꯏ꯭ꯆ (sheet flow):**

  ```
  Tt = 0.091 (n · L)^0.8 / (P2^0.5 · S^0.4)
  ```

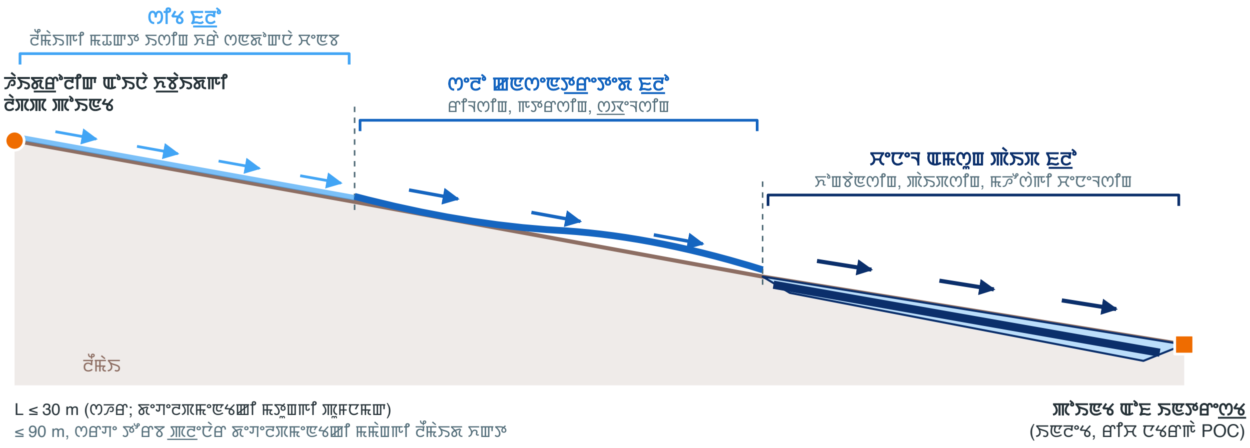
  ꯀꯏꯇ ꯑꯃꯤꯅ Tt ꯑꯃꯤ ꯑ꯭ꯗꯅ ꯆ; n ꯑꯃꯤ ꯄꯣꯕꯅ 3.4-ꯒꯤ ꯃꯤꯌ-ꯏ꯭ꯆ ꯂꯏꯆꯣꯃꯆꯤ; L ꯑꯃꯤ ꯃꯤꯌ-ꯏ꯭ꯆꯒꯤ ꯁꯗꯕꯆꯤ (m); P2 ꯑꯃꯤ ꯗ꯭ꯆꯆ 2.3-ꯅꯒꯤ ꯆꯕ, ꯄꯆꯤꯗꯗꯤ 50% AEP (2-yr)-ꯒꯤ ꯑ꯭ꯗ 24-ꯒꯤ ꯆꯗ ꯅ꯭ꯕꯆꯤ (mm), ꯗ꯭ꯆꯅꯀꯣꯌ ꯏꯣꯗꯄꯂ ꯔꯤꯑꯅꯆ; ꯑꯀꯃꯨꯗ S ꯑꯃꯤ ꯆꯇꯒꯤ ꯆꯑꯇꯆꯤ (m/m)꯫

- (b) **ꯃꯤꯌ-ꯏ꯭ꯆꯒꯤ ꯁꯗꯕ.** ꯃꯄꯂꯒꯤ ꯆꯇꯃꯤꯗꯅ, ꯑꯀꯃꯨꯗ ꯅꯣꯒꯣꯆꯑꯀꯣꯡꯌꯗꯤ ꯀ꯭ꯄꯗꯒꯤ ꯏꯤꯒꯇ ꯑ꯭ꯇꯆꯀꯗꯄ, ꯃꯤꯌ-ꯏ꯭ꯆꯒꯤ ꯁꯗꯕ ꯑꯃꯤ **30 m**-ꯅꯒꯤ ꯄꯣꯡꯂꯅꯅꯕꯆꯤ꯫ ꯅꯣꯒꯣꯆꯑꯀꯣꯡꯌꯗꯤ ꯀꯀꯗꯒꯤ ꯒ꯭ꯂꯤꯡꯏꯤꯕꯅ ꯆꯀꯅꯃꯤꯗꯅ, ꯃꯂꯒꯣꯆ ꯈꯣꯆꯣꯕ ꯆꯄꯕ ꯑ꯭ꯆꯣꯆꯂ ꯆꯇ ꯁꯌꯆꯕ ꯀꯏꯇꯅ ꯅꯗꯄꯀꯗ 90 m ꯏ꯭ꯁꯕ ꯃꯤꯆꯤꯡꯆꯕ ꯔꯤꯅ; ꯆꯌꯄꯕꯅꯤ 30 m ꯈꯌꯆꯤ꯫

- (c) **ꯃꯣꯆ ꯗꯡꯃꯣꯡꯄꯂꯣꯄꯣꯅ ꯏ꯭ꯆ:** Tt = L / (3,600 V), V = 4.918 S^0.5 (ꯑꯣꯒ ꯄꯅꯕ) ꯆꯌꯂꯒ V = 6.196 S^0.5 (ꯑꯣꯒ ꯄꯂꯕ) ꯑꯅꯆ, V ꯑꯃꯤ m/s-ꯅ, L ꯑꯃꯤ m-ꯅ ꯑꯀꯃꯨꯗ S ꯑꯃꯤ m/m-ꯅ꯫

- (d) **[illegible]**: $T_t = L / (3{,}600\ V)$, V [illegible] (Manning's equation)-[illegible]॥

[illegible] (... [illegible])



[illegible] — [illegible] 3.6.2(a), (b)

$T_t = 0.091 (n \cdot L)^{0.8} / (P_2^{0.5} \cdot S^{0.4})$ [h]

[illegible] 3.4-[illegible] n; [illegible] n = 0.15

P2: 2-yr 24 h [illegible]

[illegible] — [illegible] 3.6.2(c)

$T_t = L / (3{,}600\ V)$

$V = 4.918\ S^{0.5}$ ([illegible])

$V = 6.196\ S^{0.5}$ ([illegible])

[illegible] — [illegible] 3.6.2(d)

$T_t = L / (3{,}600\ V)$

[illegible] V

Tc = Tt(sheet) + Tt(shallow) + Tt(channel) ≥ 10 min ([illegible] 3.6.1)

[illegible]; [illegible] tL = 0.6 Tc ([illegible] 3.6.5)

[illegible] 3.2 — NRCS [illegible], [illegible], [illegible] 3.6-[illegible]॥ [illegible]॥ [illegible], USDA SCS TR-55 (1986), Ch. 3, [illegible] USDA NRCS, NEH Part 630, Ch. 15 (2010)-[illegible]॥

[illegible] 3.4 — [illegible] n (USDA SCS TR-55, 1986, Table 3-1)

[illegible]	n
[illegible] ([illegible], [illegible], [illegible], [illegible])	0.011
[illegible] ([illegible])	0.05
[illegible]-[illegible], [illegible] ≤ 20%	0.06
[illegible]-[illegible], [illegible] > 20%	0.17
[illegible]: [illegible]-[illegible]	0.15
[illegible]: [illegible]	0.24
[illegible] ([illegible])	0.13
[illegible]: [illegible]	0.40
[illegible]: [illegible]	0.80

3.6.3 **ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ ꯃꯇꯝ.** ꯃꯇ꯭ꯇ 3.3.2-ꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ ꯃꯦꯅꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ, ꯂꯤꯌ-ꯃꯇ꯭ꯇꯒꯤ n ꯑꯁꯤ **0.15** ꯑꯣꯏꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯗꯨꯒꯤ ꯀꯝꯄꯨꯇꯒꯤ ꯇꯦꯕꯂ ꯃꯗꯨ ꯌꯥꯑꯣꯕ 3.4-ꯒꯤ ꯑꯌꯥꯕꯥ ꯄꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯑꯣꯕ ꯊꯧꯔꯝ ꯇꯧꯒꯅꯤ ꯂꯩꯔꯦ꯫

3.6.4 **ꯀꯤꯔꯄꯤꯆ ꯐꯣꯔꯃꯨꯂꯥ.** ꯀꯤꯔꯄꯤꯆ ꯐꯣꯔꯃꯨꯂꯥ (Kirpich formula) ꯑꯁꯤ ꯀꯤꯔ꯭ꯄ-ꯁꯣꯏ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯅꯥꯏꯌꯥꯕꯥ, ꯂꯩꯍꯧꯔꯕ ꯃꯁꯥꯍꯛ ꯁꯣꯂꯣꯛ ꯑꯃꯁꯨꯡ ꯇꯥꯔ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ ꯇꯝꯗꯨꯒꯤ ꯀꯣꯁꯝꯂꯦꯝꯅꯤꯒꯤꯗꯝꯕ ꯅꯥꯏꯌꯥꯕꯥ ꯂꯤꯇꯤꯡꯇꯗ ꯊꯤꯍ:

```
tc = 0.0195 L^0.77 S^−0.385
```

ꯃꯇꯝ ꯑꯁꯤꯗ tc ꯑꯁꯤ ꯃꯤꯂꯦꯌꯥ ꯇ, L ꯑꯁꯤ ꯃꯁꯥꯍꯛ ꯃꯇ꯭ꯇ ꯀꯣꯟꯃꯤ ꯃꯤꯇꯔꯤ (m) ꯑꯃꯁꯨꯡ S ꯑꯁꯤ ꯃꯂꯤꯒꯤ ꯑꯣꯒꯦꯣꯇ ꯇꯀꯦꯇꯔꯤ (m/m)꯫ ꯃꯁꯤ ꯂꯥꯏꯕꯒꯤ ꯂꯩꯍꯧꯔꯕ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ ꯀꯣꯁꯝꯂꯦꯝꯅꯤꯒꯤꯗꯝꯕ ꯂꯤꯇꯤꯡꯇꯍꯅꯗꯔꯤ꯫

3.6.5 **ꯂꯦꯒ.** ꯁ꯭ꯇꯤꯌ ꯄꯅꯗ꯭ꯍꯒ꯭ꯍꯦ ꯀꯑꯃ ꯑꯃꯇ ꯂꯦꯒ ꯃꯀ ꯌꯥꯕꯗꯤ, tL = 0.6 Tc꯫

3.6.6 **ꯄꯦꯛ.** ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ Tc ꯑꯁꯤ ꯃꯥꯂꯦꯝ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ Tc-ꯗꯒꯤ ꯄꯣꯀ ꯂꯣꯀꯒꯗꯔꯤ꯫ ꯃꯁꯤ ꯄꯣꯀ ꯂꯃꯇꯗꯤ, ꯑꯃꯁꯨꯡ ꯂꯗꯃꯤꯌꯥꯏꯗ ꯃꯍꯥꯛ ꯑꯗ꯭ꯗ ꯌꯥꯕꯇꯒꯗꯔꯤ꯫

> **ꯂꯩꯗꯦꯌꯕ ꯌꯥꯕꯥ.** ꯂꯣꯒꯃꯣꯌ ꯀꯑꯃ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯅꯀ꯭ꯁꯣꯂꯦꯂꯤꯃ ꯑꯁꯤ TR-55 (USDA SCS, 1986, Ch. 3) ꯑꯃꯁꯨꯡ NEH Part 630, Ch. 15 (USDA NRCS, 2010)-ꯗꯒꯤ ꯇꯥꯔꯤ꯫ SI ꯀꯂꯦꯌ꯭ꯌꯥꯌꯂꯤꯃ ꯑꯁꯤ US ꯅꯀ꯭ꯁꯣꯂꯦꯂꯤꯃꯒꯤ ꯄꯥꯀꯃꯇꯇ ꯄꯃꯗꯥꯇꯗꯂꯤꯃꯔꯤ: L m-ꯗ ꯑꯃꯁꯨꯡ P2 mm-ꯗ ꯇꯕꯗꯤ 0.007 ꯑꯁꯤ 0.091 ꯑꯣꯏꯕꯥꯅ, ꯑꯃꯁꯨꯡ 16.1345 ꯑꯃꯁꯨꯡ 20.3282 ft/s ꯑꯁꯤ 4.918 ꯑꯃꯁꯨꯡ 6.196 m/s ꯑꯣꯏꯕꯥꯅ꯫ TR-55 (1986)-ꯇ ꯂꯤꯌ ꯃꯇ꯭ꯇ 300 ft (≈ 90 m) ꯍꯥꯟꯗ ꯔꯤꯄꯥꯅꯇꯃꯀꯤ꯫ NEH 630 Ch. 15-ꯇ ꯂꯤꯌ ꯃꯇ꯭ꯇ ꯑꯁꯤ ꯃꯥꯂꯦꯝ ꯂꯣꯇ ꯀꯂꯦꯂꯣꯌ꯭ꯕꯥꯌꯗ ꯃꯇ꯭ꯇ ꯑꯣꯏꯕꯥꯌꯕꯤꯀꯗ 100 ft (≈ 30 m)-ꯗꯒꯤ ꯄꯣꯀꯇ ꯁꯌꯌ ꯄꯔꯇ ꯄꯅ (Merkel, 2001 ꯀꯌ ꯌꯗ꯭ꯗꯇ), ꯑꯃꯁꯨꯡ US-ꯒꯤ ꯑꯣꯇꯣꯂꯤ ꯀꯔꯇ ꯄꯇꯤꯥ ꯃꯍꯥꯛ ꯑꯗ꯭ꯗꯗ ꯀꯤꯃꯅ꯫ ꯃꯣꯂ꯭ꯂꯔꯣꯅ ꯑꯁꯤꯇ ꯃꯂꯤꯒꯤ ꯁ꯭ꯇꯃꯍꯃ ꯑꯣꯏꯕꯇ 3.6.2(b)-ꯗ ꯂꯥꯏꯕꯒꯤ 30 m-ꯒꯤ ꯇꯤꯃꯤꯌ ꯀꯃꯀꯤ: ꯅꯂꯗꯤꯔꯤꯒꯤ ꯂꯥꯏꯕꯒꯤ ꯀ꯭ꯇꯌꯂꯤꯃꯗ ꯃꯇ꯭ꯇꯇ ꯃꯤꯌꯕ ꯅꯕꯒꯤ ꯃꯂ꯭ꯂꯃꯗ ꯅꯃꯗꯦ, ꯀꯕꯗ ꯂꯩꯍꯧꯔꯕ ꯀꯃꯀꯗꯂꯗ ꯁꯅꯒꯤ ꯁꯤꯀ ꯄꯅ ꯑꯃꯗ ꯔꯅ꯫ ꯂꯤꯌ-ꯃꯇ꯭ꯇ ꯅꯀ꯭ꯁꯣꯂꯦꯗ ꯀ꯭ꯇꯅꯃꯌ ꯍꯥꯌꯕ ꯔꯑꯗꯗ P2 ꯂꯤꯇꯤꯡꯇꯗꯒꯤ ꯃꯕꯃ ꯑꯁꯤ P2 ꯑꯁꯤ ꯁꯌꯀꯒꯤ ꯃꯌꯃꯒꯤ ꯃꯕꯤꯒꯤ ꯀꯣꯕꯃꯤꯌꯕꯔꯤ, ꯑꯃꯁꯨꯡ ꯇꯗ ꯂꯩꯔꯦ꯫ ꯃꯦꯅꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥꯀꯤꯗꯃꯥ ꯑꯤꯍꯅꯌ n = 0.15 ꯑꯁꯤ TR-55-ꯒꯤ ꯂꯕꯌ-ꯃꯦꯕ꯭ꯂꯀꯤ ꯒꯅꯁ꯭ꯇꯔꯤ; ꯃꯣꯂ꯭ꯂꯔꯣꯅ ꯑꯁꯤꯇ Q_pre ꯑꯁꯤ ꯑꯂꯃꯗ ꯂꯩꯌꯇ ꯂꯣꯃꯄꯇꯒꯔꯤ ꯄꯔꯗ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ ꯃꯇꯗ Tc ꯒꯅꯁ꯭ꯇꯂꯤꯃ ꯇꯂꯀꯃꯇꯗ ꯃꯁꯤ ꯇꯅ꯫ ꯀꯤꯔꯄꯤꯆ ꯐꯣꯔꯃꯨꯂꯥ ꯑꯁꯤ Chow, Maidment ꯑꯃꯁꯨꯡ Mays-ꯇ (1988, Table 15.1.2) ꯀꯤꯗ SI ꯃꯑꯃꯔꯤ, ꯌꯣꯇꯣꯂꯤ (Tennessee)-ꯒꯤ ꯑꯀꯤꯃꯀ ꯇꯍ-ꯂꯤꯃꯍꯒꯤ ꯀꯣꯁꯝꯂꯦꯝꯅꯤꯗꯒꯤ ꯇꯃꯅꯤꯗꯔꯤ (Kirpich, 1940), ꯃꯕꯃ ꯑꯗ꯭ꯗꯇ ꯃꯁꯤ ꯂꯥꯏꯕꯒꯤ ꯇꯃꯅꯂꯤꯃꯒꯤ ꯔꯤꯇꯗ꯫ ꯂꯦꯒ ꯕꯣꯂꯤꯑ 0.6 ꯑꯁꯤ NRCS-ꯒꯤ ꯒꯅꯁ꯭ꯇꯔꯤ, APWA-ꯇ ꯂ ꯂꯤꯇꯤꯡꯇꯗ (2011, §5602.7C)꯫

3.7 ꯇꯃꯅꯂꯤꯃ ꯑꯃꯁꯨꯡ ꯄꯅꯗ꯭ꯍꯇꯇꯤꯃ ꯂꯅꯈ ꯃꯦꯀ꯭ꯂꯤꯃ

3.7.1 **ꯃꯀ ꯌꯗ.** HSG ꯑꯁꯤ ꯂꯣꯂꯂꯣꯅ ꯗꯁ꯭ꯇꯕ ꯑꯍ ꯂꯅꯈ ꯂꯕꯒ ꯑꯃꯁꯨꯡ ꯇꯣꯗꯗ ꯁ꯭ꯇ ꯀ꯭ꯇꯦꯂꯤꯃ (National Bureau of Soil Survey and Land Use Planning, NBSS&LUP) ꯂꯩꯍꯧꯔꯕ ꯂ꯭ꯌꯌꯀꯤ ꯂꯅꯈ ꯂꯕꯒ (ꯑꯣꯇꯣꯂꯤ ꯂꯅꯗꯇ ꯅꯃꯒꯗꯗ [TBC])-ꯇ ꯃꯀ ꯌꯕꯗ ꯂꯅꯈ ꯂꯤꯕꯤꯇꯗꯒꯤ, ꯑꯄꯣꯦꯗ 3A-ꯒꯤ ꯂꯅꯈ-ꯂꯤꯕꯤꯇ-ꯌ꯭ꯌ-HSG ꯇꯃꯑꯀ ꯂꯤꯇꯤꯡꯇꯗ꯭ꯗꯇ ꯀꯤꯒꯗꯔꯤ꯫ ꯄꯕꯃꯍꯃ ꯃꯀ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯂ꯭ꯀꯅ ꯌꯃꯀꯗꯔꯤ꯫

3.7.2 **ꯀꯤꯗꯒꯤ ꯕ꯭ꯂꯅ.** ꯂꯤꯕꯤꯇ ꯑꯃꯒꯤꯗꯃꯥ ꯑꯄꯣꯦꯗ 3A ꯄꯇꯤꯃꯍꯥꯟꯗ ꯍꯃꯗ꯭ꯕꯤꯗ ꯃꯍꯃꯗ, HSG ꯑꯁꯤ NEH Part 630, Ch. 7-ꯒꯤ ꯀ꯭ꯕꯦꯅꯌꯕꯤꯔꯤꯂꯤꯃ ꯂꯤꯇꯤꯡꯇꯗ꯭ꯗꯇ, ꯃꯣꯇꯕ ꯌꯕꯗ ꯂꯣꯁ꯭ꯕꯌꯗ ꯄꯅꯗ꯭ꯕꯇꯤꯃ ꯀꯂꯗꯃꯌꯤꯒꯤꯌ ꯑꯃꯁꯨꯡ ꯅꯃꯀꯕꯃꯤꯔꯣꯗꯅ ꯇꯣꯔꯕ ꯂꯩꯍꯧꯔꯕ ꯔꯌꯕ ꯌꯣꯗꯅ ꯍꯥꯟꯗꯒꯤ ꯑꯕ꯭ꯃꯌꯒꯤ ꯀꯤꯒꯗꯔꯤ꯫ ꯑꯄꯣꯦꯗ 3A ꯍꯃꯗꯃꯌꯕꯤꯍꯥꯟꯗ, ꯃꯣꯂ꯭ꯂꯔꯣꯅ ꯑꯁꯤꯇ ꯃꯂꯤꯀ꯭ꯕꯒꯤꯗꯃꯥ ꯃꯅꯒꯤ ꯃꯌꯃ ꯅꯕꯒꯤ ꯃꯦꯀ꯭ꯂꯤꯃ ꯀꯃꯀꯤ: ꯇꯗ꯭ꯗꯃ (paddy land) ꯑꯃꯁꯨꯡ ꯐꯐꯥꯎꯒꯤ ꯀꯌ (pat; lake or wetland)-ꯂꯤꯃ ꯔꯍꯥꯟꯗ ꯂꯗ-ꯑꯣꯕꯤꯔ MN-A ꯑꯃꯁꯨꯡ MN-A1-

ꯗ ꯂꯩꯕ ꯏꯝꯐꯥꯜ ꯇꯝꯄꯥꯛꯀꯤ ꯂꯝꯒꯤ ꯂꯦꯀꯨꯁ꯭ꯠꯔꯥꯏꯟ ꯀ꯭ꯂꯦ ꯑꯦꯂꯨꯚꯤꯌꯜ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯦ, ꯍꯤꯡꯅꯕ ꯁ꯭ꯋꯥꯝꯞ ꯃꯐꯝꯁꯤꯡꯗꯥ ꯍꯦꯟꯅꯥ HSG D; ꯇꯥꯏꯗꯦ ꯑꯃꯁꯨꯡ ꯑꯇꯣꯞꯄ ꯄꯥꯠꯁꯤꯡꯒꯤ ꯀꯣꯏꯕꯗ ꯂꯩꯕ ꯅꯣꯝꯕ ꯂꯝꯒꯤ ꯄꯥꯟꯊ, ꯑꯃꯁꯨꯡ ꯐꯨꯝꯗꯤ (phumdi)-ꯒꯤ ꯃꯅꯥꯛꯁꯤꯡ, HSG D, ꯍꯤꯡꯁꯤꯡꯅ ꯃꯄꯨꯡ ꯊꯜꯂꯕ ꯄꯔꯅꯥ ꯂꯩꯔꯛꯅꯥ, ꯍꯦꯅꯒꯠꯂꯕ ꯂꯦꯌꯣꯂꯦ ꯀꯥꯏꯕꯗ ꯑꯃꯁꯨꯡ ꯂꯣꯝꯕꯤ ꯍꯣꯡꯕꯥ ꯇꯥ ꯍꯦꯟꯅꯕ ꯑꯣꯏꯅ (ꯃꯦꯞ 4.11, ꯂꯣꯛꯇꯥꯛꯀꯤ ꯂꯝꯒꯤ ꯃꯦꯞ); ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯅꯥꯛꯇꯥ ꯆꯨꯕ ꯆꯨꯊꯣꯛ, ꯁꯤꯜꯇ ꯑꯃꯁꯨꯡ ꯁꯤ ꯑꯍꯦꯟꯕꯒꯤ ꯐꯥꯏꯟ ꯐꯣꯔꯃꯤ, ꯇꯣꯃꯗꯔꯒ ꯃꯐꯨ ꯍꯔꯅ HSG B ꯅꯠꯔꯒꯥ C, ꯃꯍꯧ ꯇꯣꯃꯠ ꯑꯃꯒꯤ ꯃꯍꯥꯛ; ꯍꯤꯡꯃꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯆꯨꯝꯗ ꯆꯨꯕ ꯍꯤꯡ ꯑꯀꯥꯏꯀꯥꯡꯃꯤꯡꯒꯤ ꯀꯤꯂꯣꯡ ꯃꯣꯟ, ꯃꯃꯤꯒꯤ ꯀꯣꯛꯀꯥ ꯆꯨꯃꯍꯅꯃꯤꯡꯒꯤ ꯇꯣꯏꯇꯦ, ꯐꯦꯗꯦꯗꯅꯥ ꯃꯍꯤꯟꯗꯛ HSG D, ꯆꯨꯃꯍ ꯃꯂꯣꯇꯦ ꯀꯥꯐꯤ ꯒꯐꯨꯛ ꯇꯐꯕꯂ; ꯍꯤꯡꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯡ ꯑꯀꯥꯏꯀꯥꯡꯃꯤꯡꯒꯤ ꯕꯐꯣꯅ ꯂꯣꯗꯗꯣꯂꯁꯦ ꯀꯣꯀꯤꯡꯃꯤꯡ, ꯃꯍꯧ ꯇꯣꯃꯠ ꯑꯃꯒꯤ ꯃꯍꯥꯗ HSG C, ꯂꯀꯐꯀꯥꯂꯤꯡꯗꯒꯤ ꯇꯍꯀꯇꯦ; ꯂꯕ-ꯑꯣꯐꯤꯌ MN-C1-ꯗ ꯆꯨꯕ ꯇꯤꯐꯤꯕꯛ ꯀꯥꯇꯣꯦꯒꯤ ꯕꯐꯗꯛ ꯑꯃꯁꯨꯡ ꯇꯤꯐꯤꯒꯤ ꯑꯣꯂꯒꯤꯌꯛ, HSG C, ꯑꯃꯁꯨꯡ 1 ꯑꯣꯀꯐꯤꯅꯗꯒꯤ 31 ꯑꯗꯛꯇꯕꯐ ꯐꯦꯁꯕ ꯗꯤꯆꯅꯦ ꯂꯣꯛꯐꯛ ꯁꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ 1% AEP-ꯒꯤ ꯅꯂꯤꯡ ꯅꯁꯤꯡꯒꯤ ꯇꯒꯣꯅꯒꯤ ꯃꯍꯥꯗ HSG D; ꯀꯥꯂꯨꯚꯤꯌꯝ (colluvium) ꯑꯃꯁꯨꯡ ꯇꯣꯦꯗꯂꯇꯦꯅꯗꯀꯤ ꯗꯣꯕꯐꯤ, ꯗꯤꯆꯅꯦꯒꯤꯗꯃꯛ HSG D, ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯀꯐꯣꯗꯤꯌ ꯀꯤꯗꯇꯦ; ꯑꯃꯁꯨꯡ ꯂꯄꯐꯒꯤ ꯐꯤꯜ (urban fill), HSG C, ꯑꯃꯁꯨꯡ ꯆꯨꯕ ꯑꯍꯣꯌꯀ ꯌꯦꯃꯕ ꯅꯠꯐꯒꯤ ꯀꯃꯀꯣꯗꯌ ꯁꯐꯕ ꯃꯐꯃꯗ HSG D꯫ ꯁꯤꯌꯐ A ꯆꯃ ꯑꯃꯒꯤ ꯃꯍꯧ ꯁꯗꯤꯡꯃꯛꯁ ꯑꯃꯁꯨꯡ ꯀꯥꯇꯦ 4.14.1-ꯒꯤ ꯇꯍꯕꯑꯄꯕ ꯕꯑꯡꯒꯤ ꯇꯤꯃꯤꯌꯁꯒꯤ ꯄꯣꯦꯇꯦ ꯁꯦꯕ ꯑꯁꯀꯀ ꯃꯍꯧ ꯁꯗꯤꯡꯃꯛꯁ, ꯀꯐꯀꯇ ꯁꯐꯕ ꯐꯣꯂꯤꯇꯤꯁꯒꯤ ꯑꯐꯁ ꯐꯤꯅꯗ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯁꯣꯂꯌ ꯑꯃꯀ ꯃꯁ ꯁꯅ; ꯄꯣꯦꯇꯦ ꯑꯀꯤꯗꯀ ꯃꯍꯌꯂꯤꯡꯗ, ꯁꯣꯂꯌ ꯁꯗꯕ ꯆꯨꯃꯍ ꯑꯃꯗ ꯃꯂꯤꯒꯤꯗꯃꯛ ꯀꯤꯐꯤꯕ ꯒꯐꯀꯂꯤꯡꯒꯤ ꯃꯂꯡꯗ ꯅꯂꯤꯡ ꯄꯣꯦꯇꯦ ꯁꯀꯀ ꯃꯃꯗꯕ ꯑꯁ ꯀꯤꯒꯗꯕꯇꯤ꯫ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯀꯐꯣꯗꯁꯤꯂ ꯑꯃ ꯂꯕ ꯌꯕ ꯅꯠꯐꯒꯤ ꯌꯗꯕ ꯑꯂꯤ ꯃꯂꯤꯒꯤ HSG-ꯇꯦ ꯅꯠꯁꯇꯦ, ꯀꯥꯇꯦ 4.11-ꯒꯤ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦꯒꯤ ꯐꯅ ꯑꯁꯃ (ꯂꯣꯛꯇꯥꯛꯀꯤ ꯂꯝꯒꯤ ꯐꯅ, ꯍꯤꯡꯒꯤ ꯐꯅ ꯑꯃꯁꯨꯡ ꯐꯤꯁꯐꯤꯇꯀꯤ ꯐꯅ)-ꯇꯦ ꯇꯣꯀꯕꯀꯅ꯫ ꯀꯥꯇꯦ 3.10.1 ꯑꯂꯤ ꯒꯐꯀ ꯑꯂꯤ ꯀꯃꯆꯃꯁ ꯍꯌꯇꯤ꯫

3.7.3 **ꯂꯅꯌꯁ ꯍꯣꯗ ꯁꯕ.** ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦꯇꯦ ꯐꯤꯁꯣꯦꯂꯦ ꯁꯕꯗ ꯕꯇꯕ ꯕꯃꯕ ꯂꯅꯌ ꯁꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ (ꯂꯐꯗ 4), ꯃꯣꯀ ꯁꯐꯕ HSG ꯑꯂꯤ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯐꯣꯂꯤꯇꯤꯁ ꯁꯗꯤꯡꯃꯛꯀꯤ ꯃꯐꯃ ꯑꯃꯁꯨꯡ ꯑꯐꯗꯁ ꯂꯅꯌ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯁꯣꯂꯌꯂꯤꯡꯇꯦ ꯍꯣꯗ ꯁꯒꯗꯕꯇꯤ꯫ ꯁꯣꯂꯌꯂꯤꯡꯇꯦ ꯃꯣꯀ ꯁꯐꯕ HSG-ꯗꯒꯤ ꯄꯣꯦꯇꯦ ꯇꯣꯃꯕ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯀꯣꯀꯣꯂꯤꯁ ꯁꯌꯇꯕꯗꯤ, ꯁꯣꯂꯌꯀꯤ ꯃꯄ ꯑꯗꯇꯦ ꯐꯤꯁꯣꯦꯂꯦ ꯗꯤꯆꯅꯦ ꯑꯃꯁꯨꯡ ꯗꯣꯒꯣꯇꯀꯃꯣꯦꯌꯀꯤ ꯃꯁꯒꯤ CN ꯑꯇꯤꯃꯗ ꯇꯣꯀꯕꯀꯅ꯫ ꯃꯁꯤꯌꯇꯦ ꯄꯣꯦꯇꯦ ꯁꯦꯕ ꯀꯣꯀꯣꯂꯤꯁ ꯁꯌꯇꯕꯗꯤ, ꯑꯕꯐꯤꯁꯒꯤ ꯑꯣꯀꯐꯒꯣꯅ ꯌꯑꯗꯇꯦ ꯗꯣꯒꯣꯇꯀꯃꯣꯦꯌꯀꯤ ꯃꯃꯤꯒꯤ HSG ꯄꯤꯗꯗꯐꯅꯗꯕꯇꯤ꯫

3.7.4 **ꯂꯗꯄꯅꯇꯕ ꯑꯃꯁꯨꯡ ꯐꯤꯅ ꯁꯐꯕ ꯆꯃ.** ꯀꯥꯇꯦ 3.3.3(b) ꯍꯌꯇꯤ꯫

ꯂꯦꯗꯗꯇꯦ ꯁꯗꯀ. NBSS&LUP-ꯒꯤ ꯂꯅꯅ ꯃꯣꯀꯂꯤꯡ ꯃꯄꯂꯇꯦ 1:250,000-ꯗꯒꯤ 1:50,000-ꯒꯤ ꯂꯀꯣꯅꯗ ꯆ ꯑꯃꯁꯨꯡ ꯆꯨꯃꯍꯂꯤꯡ HSG-ꯇꯦ ꯅꯌꯁꯇꯦ ꯂꯤꯐꯤꯇ ꯑꯃꯁꯨꯡ ꯁꯗꯂꯇꯦꯃꯤꯇꯦ ꯌꯤꯌꯗꯀꯅ꯫ ꯃꯐꯃ ꯑꯗꯇꯦ ꯆꯗꯑꯀ ꯁꯣꯕꯅ ꯑꯃ ꯃꯕ ꯁꯅ (ꯑꯄꯣꯦꯕ 3A)꯫ ꯂꯅꯌ ꯑꯃꯇꯦ ꯒꯐꯀ ꯑꯂꯤ ꯌꯦꯕ ꯌꯕ ꯃꯐꯃꯂꯤꯡꯗ ꯂꯅꯌ ꯁꯣꯂꯌꯂꯤꯡ ꯅꯦꯅꯗꯒꯤ ꯃꯐꯑꯅ: ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯂꯤꯡꯁ, ꯃꯐꯃ ꯑꯗꯇꯗ ꯆꯨꯃꯍ ꯑꯃꯁꯨꯡ ꯆꯨꯊꯣꯛꯀꯤ ꯆꯨꯊꯣꯛꯀꯤ ꯑꯃꯀꯇꯦ ꯅꯐ ꯅꯗꯁꯒꯤ ꯇꯃꯕꯗ ꯇꯝꯄꯥꯛꯀꯤ ꯂꯩꯕꯗ ꯑꯃꯁꯨꯡ ꯌꯁꯐ ꯁꯣꯕꯅ ꯑꯂꯤ ꯂꯣꯛꯇꯥꯛꯀꯤ ꯆꯃꯗ ꯍꯌꯇꯤꯗ ꯌꯂꯅꯌꯇꯗꯅ; ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯂꯤꯡꯁ ꯆꯨꯕ ꯍꯤꯡ ꯑꯀꯥꯏꯀꯥꯡꯃꯤꯡꯗ, ꯃꯐꯃ ꯑꯗꯇꯗ ꯗꯤꯆꯅꯦ ꯂꯣꯛꯇꯥꯛꯀꯤ ꯕꯐꯣꯇꯦ ꯕꯐꯣꯅ ꯂꯣꯗꯗꯣꯂꯁꯦ ꯀꯣꯀꯤꯡ ꯑꯃꯀ ꯀꯐꯣ; ꯂꯣꯛꯇꯥꯛꯀꯤ ꯆꯃꯗ, ꯃꯐꯃ ꯑꯗꯇꯗ ꯆꯨꯃꯍ ꯑꯃꯁꯨꯡ ꯆꯨꯊꯣꯛꯀꯤ ꯃꯂꯤꯡꯁ ꯆꯨꯕ ꯆꯨꯊꯣꯛꯀꯤ ꯇꯣꯦ ꯑꯃꯀꯇꯦ ꯀꯤꯐꯍꯗ ꯐꯇꯦ ꯁꯣꯂꯌ ꯁꯕ ꯌꯅ ꯑꯃꯁꯨꯡ ꯑꯒꯣꯂꯌꯁ ꯌꯁꯐ ꯁꯣꯕꯅꯒꯤ ꯃꯂꯤꯡꯁ ꯆꯨꯕ ꯌꯅ; ꯇꯤꯐꯤꯕꯛ ꯀꯥꯇꯣꯦꯗ, ꯃꯐꯃ ꯑꯗꯇꯗ ꯑꯣꯂꯒꯤꯌꯛ ꯑꯂꯤ ꯇꯦꯃ ꯁꯗꯕ ꯃꯁꯃꯗ ꯕꯐꯗꯒꯤ ꯃꯕꯁ ꯀꯗꯤꯇꯦ ꯆ ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡ ꯅꯁꯤꯡꯗ ꯃꯂꯤꯒꯤ ꯃꯍꯧ ꯆ; ꯑꯃꯁꯨꯡ ꯍꯤꯡꯒꯤ ꯂꯅꯌꯂꯤꯡꯗ, ꯃꯐꯃ ꯑꯗꯇꯗ ꯀꯥꯂꯨꯚꯤꯌꯝ ꯅꯠꯐꯒꯤ ꯐꯤꯅꯗ ꯁꯃꯕ ꯀꯣꯃ ꯑꯃꯗ ꯆꯨꯕ ꯌꯤꯃꯇꯦ ꯐꯣꯅꯕ ꯐꯣꯌ ꯑꯂꯤ ꯆꯕ ꯀꯃꯗꯕ ꯇꯀꯣꯃ ꯑꯃꯗ ꯍꯃꯇꯤꯕ ꯅꯂꯤꯡ ꯑꯗꯕ ꯌꯅ (ꯃꯦꯞ 4.11)꯫ ꯃꯣꯆꯌꯣꯅ ꯑꯂꯤꯒꯤꯗꯃꯛ ꯐꯤꯂꯐꯍ ꯁꯗꯤꯡꯗ NBSS&LUP-ꯒꯤ ꯃꯇꯤꯀꯐꯒꯤ ꯂꯅꯅ-ꯂꯤꯐꯤꯇ ꯃꯣꯀ, HSG ꯃꯣꯀ ꯅꯠꯐꯒꯤ ꯁꯣꯕꯅ, SCS-CN ꯀꯇꯤꯕꯐꯣꯂꯦ ꯑꯃꯁꯨꯡ ꯂꯁꯣꯌꯀꯤ ꯂꯅꯌ ꯑꯃꯄꯣꯗꯁꯒꯤ ꯃꯣꯇꯐ ꯁꯐꯕ ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯐꯣꯌ ꯑꯃꯌꯁ ꯐꯂꯅꯤꯗꯣ [TBC]꯫ ꯃꯁꯃ ꯅꯐꯒꯤ ꯒꯐꯀꯂꯤꯡ ꯑꯂꯤ ꯐꯤꯇꯇꯣꯅ ꯄꯐꯗꯐꯃꯂꯤꯡꯇꯦ ꯁꯀꯀ ꯆꯨꯃꯍ ꯑꯃꯁꯨꯡ ꯇꯤꯑꯇꯦꯇꯤꯒꯤ ꯃꯁꯨꯡ ꯅꯦꯇꯦ꯫ "ꯃꯅꯤꯄꯨꯔ ꯇꯝꯄꯥꯛ ꯑꯂꯤ ꯑꯣꯂꯒꯤꯌꯃꯇꯦ ꯃꯀꯨꯡ ꯕꯦꯇꯕ ꯃꯤꯅꯕꯅ ꯍꯀ ꯃꯤꯦꯇꯕ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯇꯤ … ꯃꯣꯦ ꯂꯤ ꯇꯣꯒꯣꯅꯗꯒꯤ ꯅꯐ ꯕꯅꯇꯦ 780 m ꯌꯤꯁꯅ ꯑꯃꯁꯨꯡ ꯅ ꯕꯁꯕ ꯃꯤꯅꯀꯗ ꯌꯤꯃꯇꯦ ꯇꯣꯃꯕ ꯒꯐꯣꯗꯤꯌꯣꯦꯌ ꯆ" ("Manipur Valley is virtually a flat alluvium filled valley … nearly 780 m high above the mean sea level with a very low southerly gradient"), "ꯐꯨꯒꯤꯑ ꯇꯣꯗꯂꯦꯅꯗꯤꯅꯁ ꯄꯐꯗꯐꯃꯒꯤ ꯑꯣꯂꯒꯤꯌꯃꯇꯦ ꯂꯣꯃꯕ" ("made up of alluvium of fluvio lacustrine origin"), ꯃꯂꯤꯒꯤ "ꯃꯐꯑꯅꯕ ꯀꯌꯆꯃꯂꯤꯡ ꯑꯂꯤ ꯆꯨꯃꯍ ꯑꯁꯣꯌꯀ, ꯆꯨꯃꯍ ꯑꯃꯁꯨꯡ ꯆꯨꯊꯣꯛꯀꯤꯇꯤ, ꯑꯗꯕ ꯐꯌꯄꯤꯅꯒꯤ ꯆꯃꯂꯤꯡꯗ ꯆꯨꯊꯣꯛꯅ, ꯆꯨꯃꯍꯀ, ꯆꯨꯃ ꯑꯀꯤꯗꯀ ꯑꯃꯁꯨꯡ ꯆꯨꯃ ꯑꯁꯣꯕꯂꯤꯡ ꯐꯤꯅ" ("principal constituents are clay, silt and sand whereas sand, gravel, pebbles and boulders are found in the foothill regions"); "ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯂꯤꯡꯁ ꯆꯨꯕ ꯍꯤꯡ ꯑꯀꯥꯏꯀꯥꯡꯃꯤꯡ ꯃꯐꯑꯅꯇꯦ ꯗꯤꯆꯅꯦ ꯂꯣꯅꯇꯦ ꯂꯣꯃꯕꯇꯤ ꯑꯗꯕ ꯅꯐꯗ ꯂꯣꯦꯗꯂꯦ ꯀꯣꯀꯤꯡ ꯆ … ꯃꯐꯑꯅꯇꯦ ꯕꯐꯣꯅ" ("The hillocks inside the valley are basically composed of Disang shales but some have sandstone capping … mainly Barails"); ꯑꯃꯁꯨꯡ ꯗꯤꯆꯅꯦ, "ꯃꯐꯑꯅꯇꯦ ꯂꯣꯅ ꯑꯅꯕ, ꯍꯤꯡꯒꯤ ꯆꯃꯒꯤ ꯅꯐ ꯕꯅꯇꯦ 85 p.c. ꯆꯅ, ꯅꯦꯐꯤꯅꯁꯐꯣꯂꯦ ꯄꯣꯦꯇꯦ ꯇꯣꯃꯅ ꯑꯃꯁꯨꯡ ꯐꯦꯑꯐ ꯄꯣꯦꯇꯦ ꯌꯤꯃꯅ" ("which is predominantly shale, occupies almost 85 p.c. of the hilly region, have less infiltration and more run off") (MASTEC, *Flood Hazard Zonation in Manipur Valley*)꯫ ꯃꯅꯤꯄꯨꯔꯗꯥ ꯆꯥꯀꯤ ꯈꯔꯅ ꯊꯣꯛꯄ ꯑꯁꯪꯕꯥ ꯑꯃꯁꯨꯡ ꯑꯍꯣꯡꯕ: ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠ (Imphal West)-ꯗ "ꯈꯔ ꯊꯣꯛꯂꯕ 30-ꯗꯒꯤ 50 m ꯌꯥꯝꯅ ꯇꯣꯝ ꯑꯁꯪꯕꯥꯒꯤ ꯌꯥꯎꯍꯟꯂꯦ ꯇꯣꯛꯂꯕ, ꯂꯦꯇ ꯃꯀꯨꯛ ꯁꯦꯟ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯡꯕ ꯑꯣꯏ" ("approximately 30 to 50 m of clayey formation, construction of shallow tube wells is problematic"), "30-ꯗꯒꯤ 65 m bgl ꯌꯥꯝꯅꯒꯤ ꯑꯍꯥꯡꯕ ꯌꯥꯝꯅ ꯇꯣꯝ ꯑꯁꯪꯕꯥꯒꯤ ꯗꯤꯄꯣꯖꯤꯠ" ("clayey deposit down to depth range of 30 to 65 m bgl") ꯑꯃꯁꯨꯡ "ꯍꯌꯦꯛ ꯈꯔꯗ ꯗꯤꯞ ꯃꯀꯨꯛ ꯁꯦꯟ ꯂꯩꯕꯗ ꯒꯦꯁ ꯊꯣꯛꯄ" ("emanation of gas while constructing deep tube wells in some places") ꯇꯩ (CGWB, Imphal West district booklet, 2013)꯫ ꯄꯥꯠꯂꯣꯏꯁꯤꯡꯒꯤ ꯃꯥꯏꯀꯩꯗ "ꯑꯣꯔꯒꯦꯅꯤꯛ ꯇꯩꯍꯅꯂꯣꯏꯁꯤꯡꯕ ꯄꯥꯠꯂꯣꯏꯁꯤꯡꯒꯤ ꯃꯥꯏꯀꯩꯗ ꯇꯩꯕ ꯆꯨꯝꯕ ꯆꯥꯎꯂꯣꯏꯁꯤꯡ ꯃꯨꯄꯥꯟꯂꯤ꯫ ꯍꯨꯏ ꯑꯣꯏꯕ ꯍꯨꯏ ꯑꯃꯁꯨꯡ ꯇꯩꯍ ꯑꯁꯪꯕꯥꯒꯤ ꯇꯣꯍ ꯃꯁꯤꯡꯂꯁꯦ ꯇꯩꯕ ꯄꯥꯏꯕꯥꯏ ꯇꯩꯍꯟ ꯑꯂꯣꯏꯂꯣꯏꯁꯤꯗ ꯑꯣꯂꯣꯏꯗꯣꯏꯃꯣꯏ ꯌꯦꯍꯤꯆꯦ ꯌꯥꯝꯅ, ꯑꯣꯔꯒꯦꯅꯤꯛ ꯍꯥꯃꯔ ꯌꯦꯍꯤꯆꯦ ꯇꯩ" ("The organic soils covered the low-lying areas surrounding the lakes. With dark grey colour and clayed loam texture, these peaty soils have high acidity, abundance of organic matter"), ꯑꯃꯁꯨꯡ "ꯇꯥꯀꯨꯂꯣꯃꯔꯅꯦꯟ ꯇꯥꯍꯤꯇꯦꯃꯗ ꯇꯩꯊꯣꯛ ꯑꯃꯁꯨꯡ ꯇꯩꯍ ꯑꯁꯪꯕꯥꯆꯦ ꯑꯇꯩꯕ ꯗꯤꯁꯪ ꯂꯩꯕꯒꯤ ꯍꯊꯥꯃ ꯇꯩ" ("lacustrine laminated sand and clay overlies the fresh Disang shale") (CGWB, Bishnupur district booklet, 2013)꯫ ꯃꯍꯥꯀꯤ ꯑꯂꯣꯏ ꯄꯥꯠꯂꯣꯏꯁꯤꯡꯒꯤ ꯇꯩꯕꯥ ꯑꯍꯩ ꯑꯣꯏꯅꯤ: "ꯍꯌꯤꯡꯕꯗꯥ ꯃꯍꯥꯀꯤꯃ ꯈꯔ ꯊꯣꯛꯂꯕ ꯄꯥꯠ 500 ꯇꯩꯅꯤ" ("there were nearly 500 lakes in Manipur Valley"), ꯍꯅꯣꯔꯒꯤ ꯍꯟꯕꯤꯗ ꯆꯍꯌꯦꯡꯄꯥꯠ, ꯄꯥꯣꯔꯍꯄꯥꯠ, ꯃꯌꯥꯏꯅꯦꯡꯄꯥꯠ (Takyelpat), ꯂꯝꯇꯥꯡꯄꯥꯠ (Sangaipat), ꯅꯃꯤꯡꯄꯥꯠ (Kharungpat) ꯑꯃꯁꯨꯡ ꯈꯥꯃꯄ ꯄꯥꯠ ꯌꯥꯑꯣꯅ (MASTEC), ꯑꯃꯁꯨꯡ "ꯃꯍꯥꯀꯤ ꯑꯂꯣꯏ ꯍꯍꯤꯡꯗ ꯄꯥꯠꯊꯕꯏ ꯑꯃꯁꯨꯡ ꯈꯂꯣꯏꯡ ꯌꯦꯍꯕ ꯆꯍꯅꯦ ꯍꯄꯨꯡ ꯊꯑꯆꯍꯤ, ꯍꯂꯣꯏ 'ꯄꯥꯠ' (PAT, lake) ꯑꯣꯏꯕ ꯌꯦꯑꯣ ꯇꯩꯕ ꯍꯌꯍꯂꯣꯏꯡꯦꯗ ꯂꯦꯃꯇꯩ" ("This valley was once full of swamps and marshy land represented by the places having the word PAT meaning lake") (CGWB, Imphal West); ꯍꯍꯤꯡꯒꯤ ꯄꯥꯠ ꯑꯍꯗ ꯇꯩꯕ ꯂꯥꯅꯄꯥꯠ ꯑꯍꯩ ꯑꯣꯇꯩꯃ ꯃꯔꯩꯒꯤꯗꯍꯃ ꯂꯩꯇꯩꯑꯦꯇꯔꯦꯂ ꯃꯍꯥꯀꯤꯃ ꯆꯍꯇꯩ꯫ ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠꯇꯥ ꯍꯌꯦꯛ ꯌꯦꯍꯕꯗ ꯈꯂꯣꯏꯡ ꯑꯂꯣꯏ ꯇꯩꯍꯅꯒꯤ ꯍꯅꯦꯗ 2–5 m-ꯗ ꯇꯩ, ꯑꯃꯁꯨꯡ ꯍꯂꯣꯏꯡꯒꯤ ꯍꯦꯗꯃꯥ 5–7 m-ꯗ ꯇꯩ (CGWB, Imphal West), ꯍꯑꯍ ꯑꯣꯀꯦ ꯃꯍꯥꯀꯤꯃ ꯆꯍ ꯑꯂꯣꯏ ꯍꯂꯣꯏꯒꯤ ꯇꯩꯍꯥ ꯌꯥꯎꯍꯟ ꯅꯃꯃꯦ ꯗꯤꯇꯨꯈꯌ ꯂꯃꯑꯍ ꯈꯗꯤꯡꯍꯃꯤꯗꯍꯃ HSG D-ꯇꯤ, ꯑꯃꯁꯨꯡ ꯍꯌꯂꯣꯏꯡꯒꯤ ꯍꯃꯍꯗ ꯑꯣꯌꯦ ꯈꯂꯣꯏꯡ ꯌꯦꯍꯅ (ꯃꯦꯞ 3.10-ꯒꯤ ꯂꯌꯦꯗꯃꯦ ꯃꯍꯥꯀꯤ)꯫ ꯇꯤꯑꯤꯃꯤꯍ ꯃꯦꯞꯌ ꯆꯌꯑꯒ ꯊꯑꯦꯟ ꯂꯦꯌꯗꯂꯃꯌꯂꯤꯒꯤ ꯇꯩꯍꯅꯒꯤꯗꯍꯃ ꯃꯦꯞꯅꯑꯤ ꯑꯣꯑꯃꯌꯍ ꯑꯍꯌꯃ ꯄꯥꯈꯤꯗꯦ [TBC]; ꯍꯅꯣꯔꯒꯤ ꯍꯌꯦꯛꯂꯣꯏꯡ ꯑꯂꯣꯏ ꯂꯤꯑꯤꯇ ꯑꯂꯣꯏꯇꯦ ꯍꯅ ꯊꯑꯊ ꯍꯌꯦꯍꯒꯤ ꯊꯑꯃ ꯃꯦꯞꯌ ꯑꯃꯁꯨꯡ ꯂꯦꯌꯗꯂꯃꯌ ꯇꯤꯂꯣꯏꯡ ꯇꯣꯍꯤꯊ ꯍꯑꯃꯗꯒꯤ ꯊꯍꯊꯇꯤ, ꯑꯃꯁꯨꯡ ꯃꯦꯂꯃꯂꯣꯏꯡꯇꯦ ꯂꯅꯗꯦ ꯅꯊꯄꯗꯒꯗꯊꯇꯤ꯫ ꯄꯤꯌꯗꯤ ꯊꯂꯣꯏꯗꯦꯁꯂ ꯆꯌꯑꯒ ꯑꯃꯁꯨꯡꯊꯒꯤ ꯑꯃꯥꯑꯥ ꯑꯍꯌꯃ ꯌꯃꯅꯤꯗꯦ [TBC]꯫ ꯇꯂꯣꯏꯡꯒꯤ ꯑꯤꯇꯦꯌꯅ ꯍꯦꯑ ꯑꯍꯅꯃꯇꯤ CWC ꯂꯊꯇꯩꯌ 2(b)-ꯒꯤ ꯑꯤꯄꯥꯑꯌꯃꯤ ꯗꯤꯇꯨꯈꯌ ꯇꯂ ꯑꯌ, 0.35 cm/h (3.5 mm/h), ꯍꯂꯣꯏ ꯂꯃꯌꯃꯤ ꯍꯃꯌꯗ ꯇꯩꯕ ꯊꯂꯣꯏꯗ ꯒꯦꯇ ꯃꯑꯊ ꯆꯍꯗꯒꯤ ꯃꯦꯅꯍꯌꯂꯣꯏꯡꯒꯤ ꯈꯂꯣꯏꯡ ꯈꯅꯃꯒꯤ ꯊꯗꯃ 100-ꯒꯤ ꯍꯗꯅ ꯒꯅꯈꯌꯇꯤ, ꯍꯅꯣꯔꯒꯤ ꯑꯍꯌꯃꯦ ꯍꯌꯤꯡꯑꯗꯒꯤ ꯈꯂꯣꯏꯡ ꯅꯌꯊꯑꯃ (ꯑꯄꯌ 3E)꯫ ꯍꯂꯣꯏ ꯃꯦꯞ 3.11.4-ꯒꯤ ꯍꯅꯦꯗ 2(b) SUH ꯅꯃ ꯑꯌ ꯑꯍꯗ ꯈꯃꯃꯍꯃ ꯂꯤꯇꯤꯌꯇꯒꯗꯊꯇꯤ, HSG ꯄꯤꯇꯊ, ꯂꯄꯑꯒꯤ SCS-CN ꯆꯌꯑꯒ SWMM ꯍꯗꯅ ꯑꯍꯗ ꯆꯌꯑꯒ ꯈꯌꯍꯤꯅꯃꯑꯂꯌ ꯄꯑꯃꯃꯂ ꯑꯍꯒꯤ ꯂꯅꯇ ꯇꯄꯊ ꯂꯤꯇꯤꯌꯇꯑꯈꯗꯊꯇꯤ꯫ ꯃꯦꯞ 3.7.2-ꯒꯤ ꯍꯃꯍ ꯈꯑꯒꯤ ꯍꯌꯦꯛꯂꯣꯏꯡ, ꯃꯍꯥꯀꯤꯃ ꯆꯍ, ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯗꯤꯂꯃ ꯂꯅ ꯍꯌꯦꯛ D ꯑꯈꯇꯦ ꯇꯊ, ꯇꯤꯑꯤꯃꯤꯍ ꯃꯦꯞꯑꯒꯤꯗꯍꯃ ꯍꯃꯍ ꯍꯃꯂ ꯈꯌꯇꯊ ꯂꯅ ꯑꯃꯁꯨꯡ ꯑꯄꯤꯃꯄ ꯂꯈꯌꯂꯣꯏꯡꯗ ꯃꯂꯌ ꯃꯗꯊ ꯇꯩꯍꯅꯒꯤ ꯂꯅ ꯑꯂꯣꯏ ꯍꯌꯤꯡꯑꯒꯤꯗꯍꯃ ꯂꯈꯅ-ꯂꯤꯑꯤꯇ ꯂꯃꯑꯄ ꯑꯍ ꯌꯃꯗꯤꯌꯝ ꯍꯂꯅꯗ ꯑꯂꯣꯏꯇꯦ ꯊꯍꯊꯇꯤ꯫ ꯊꯑꯒꯤ ꯂꯅꯂꯣꯏꯡ ꯑꯂꯣꯏ ꯇꯩꯍꯅꯒ ꯅꯄ ꯍꯤꯇꯇꯦ ꯍꯌꯦꯑꯈ, ꯍꯑꯍꯤ ꯂꯃꯌꯃꯤ ꯆꯍ ꯑꯂꯣꯏ CWC-ꯒꯤ ꯍꯑꯤ ꯑꯍꯌꯃꯦ ꯃꯍꯥꯀ ꯍꯍꯗꯊ ꯍꯅꯅ ꯑꯇꯤꯒꯤꯇꯤ: ꯂꯅꯂꯣꯏꯡꯗ ꯄꯑ (bund) ꯂꯑꯊ ꯑꯃꯁꯨꯡ ꯂꯅꯂꯣꯏꯡ ꯌꯃꯇꯊ ꯍꯃꯍꯗ ꯑꯌꯗꯌꯅ (outfall)-ꯂꯣꯏ ꯊꯤꯃꯇꯃꯄ ꯍꯤꯅꯊꯅ ꯅꯄ ꯍꯤꯑꯇꯊ ꯄꯥꯠꯃꯤ ꯊꯂꯤꯑ ꯑꯍꯤ, ꯑꯃꯁꯨꯡ ꯍꯅꯣꯔꯒꯤ ꯅꯃꯂꯣꯏꯇꯦ ꯍꯤꯇꯌ ꯈꯑꯒꯤ ꯍꯂꯣꯏꯗ ꯃꯍꯥꯀꯤꯃ ꯆꯍꯗ ꯅꯊ ꯂꯅꯒꯤ ꯌꯤꯃꯂꯣꯏꯡ꯫ ꯃꯍꯥꯀꯤꯃ ꯈꯂꯣꯏꯡ ꯈꯅꯌꯂꯣꯏꯡ ꯌꯤꯃꯂꯣꯏꯡꯗꯒꯤ ꯆꯃꯅ: ꯃꯍꯥꯀꯤꯃ ꯂꯌꯊꯃꯃ ꯅꯑꯊꯑꯃꯄ 6,332 km²-ꯒꯤ ꯍꯂꯣꯏꯗ, ꯌꯤꯃꯂꯣꯏꯡ 4,432 km² (70%) ꯑꯃꯁꯨꯡ ꯃꯍꯥꯀꯤꯃ ꯆꯍ 1,900 km² (30%)-ꯇꯤ (MASTEC; ꯍꯃꯑ ꯄꯤꯇꯦ ꯊꯂꯣꯏꯑꯒꯤ ꯆꯍ 6,332 km² ꯑꯣꯏꯕ ꯌꯃꯇꯊꯃ), ꯑꯃꯁꯨꯡ ꯃꯍꯥꯀꯤꯃ ꯈꯂꯣꯏꯡ ꯈꯅꯌꯂꯣꯏꯡ ꯑꯂꯣꯏ ꯌꯤꯃꯒꯤ ꯃꯅꯍꯑꯌꯂꯣꯏꯡꯗ ꯂꯍꯤꯌ ꯃꯅꯦ ꯇꯃ ꯂꯑꯊꯒꯤ ꯍꯂꯣꯏꯗ ꯆꯃꯅ, ꯂꯗꯍ ꯑꯈꯇꯦ 28 ꯂꯤꯇꯦꯅ–1 ꯑꯒꯂꯌ 1989, 22–28 ꯂꯄꯃꯍꯊꯑ 1997, 24 ꯑꯒꯂꯌ–3 ꯂꯄꯃꯍꯊꯑ 1999 ꯑꯃꯁꯨꯡ 26 ꯑꯒꯂꯌ–6 ꯂꯄꯃꯍꯊꯑ 2000 (MASTEC)꯫ ꯍꯅꯒꯤ ꯂꯅꯂꯣꯏꯡ ꯑꯂꯣꯏ ꯍꯂꯣꯏꯅ ꯑꯂꯣꯏꯇꯦ ꯊꯍꯊꯇꯤ꯫ (a) Tc ꯑꯂꯣꯏ ꯃꯦꯞ 3.6.2-ꯒꯤ ꯒꯇꯂꯣꯏꯃꯤ ꯂꯗꯍꯌ ꯑꯈꯊ ꯂꯒꯍꯌ ꯊꯑꯃꯇꯦ, ꯂꯒꯍꯌ ꯑꯍꯗꯒꯤ ꯑꯍꯗ ꯊꯤꯒꯗꯊꯇꯤ, ꯑꯃꯁꯨꯡ ꯂꯌꯂ 2-ꯒꯤ ꯅꯊꯈꯗꯒꯤ ꯇꯍꯊ ꯗꯤꯇꯨꯈꯌ ꯂꯈꯑꯂꯒ ꯍꯤꯇꯊ ꯃꯦꯞ 3.6.1-ꯒꯤ ꯍꯤꯇꯌ 10-ꯒꯤ ꯅꯊꯈꯗꯒꯤ ꯇꯍꯊ ꯑꯂꯗꯒꯤ ꯇꯍꯇꯦ ꯇꯊꯑꯈꯗꯊꯇꯤ; ꯆꯄꯍ ꯍꯅꯦꯅ ꯑꯈꯊ ꯑꯃꯤꯃꯄ ꯇꯊ-ꯂꯤꯌꯒꯤ ꯃꯅꯍꯑꯌꯂꯣꯏꯡꯗꯒꯤ ꯆꯃꯄ ꯃꯑꯄꯤꯅ ꯌꯑꯍꯦ ꯑꯂꯣꯏ ꯌꯇ ꯄꯥꯊꯃꯤ ꯑꯒꯑꯇ ꯆꯄꯍ 10%-ꯗꯒꯤ ꯑꯗꯊ ꯍꯌꯍꯗ ꯃꯑꯂ-ꯅꯃ ꯑꯈꯇꯦ ꯌꯥꯝꯅ ꯂꯤꯇꯤꯌꯇꯑꯈꯗꯊꯇꯤ꯫ (b) ꯍꯄꯌ ꯊꯃꯇꯊ ꯂꯨꯃ, ꯃꯌ ꯃꯑꯊ ꯆꯄꯍ ꯆꯌꯑꯒ ꯄꯒ ꯃꯑꯊ ꯌꯤꯃꯒꯤ ꯆꯍꯊꯤ ꯑꯍꯒꯤ ꯍꯊꯃꯃ ꯇꯊ ꯂꯌ-ꯌꯇ ꯂꯒꯍꯌꯆꯦ ꯃꯊꯅ 3.4-ꯒꯤ ꯅꯑꯊ ꯇꯩꯍꯅꯒ n ꯂꯤꯇꯤꯌꯇꯒꯗꯊꯇꯤ ꯑꯃꯁꯨꯡ 30 m-ꯗꯒꯤ ꯑꯗꯈꯗꯊꯇꯤ꯫ (c) ꯌꯤꯃꯒꯤ ꯆꯄꯍ ꯑꯍꯗꯒꯤ ꯃꯍꯥꯀꯤꯃ ꯆꯍ ꯆꯌꯑꯒ ꯃꯦꯞꯌ ꯑꯍꯗ ꯅꯌꯄ ꯃꯅꯍꯌ ꯑꯍꯤ, ꯂꯗꯍ ꯑꯈꯇꯦ "ꯇꯃꯃ ꯄꯥꯠꯃ ꯅꯂꯍꯑꯤꯃꯗ ꯈꯑ ꯈꯃꯃꯒꯤ ꯆꯍꯊꯤ ꯑꯃꯍꯊ ꯆꯄꯍꯗ ꯅꯑꯊꯑꯃꯄ" ("flow down with steep slope for a short distance before meeting the Loktak Lake") ꯌꯤꯃꯒꯤ ꯅꯃꯂꯣꯏ (MASTEC), ꯃꯤꯃꯄꯃꯒꯤ, ꯌꯅꯌꯂ ꯑꯃꯁꯨꯡ ꯂꯑꯌꯑꯌꯗꯂꯑꯒꯤ ꯌꯤꯃꯂꯣꯏꯡꯗꯒꯤ ꯃꯍꯥꯀꯃ ꯆꯃꯄ

ꯍꯥꯏꯗꯣꯂꯣꯖꯤ, ꯁꯦꯗꯤꯒꯤ ꯁꯥꯏꯗꯣꯂꯣꯖꯤꯀꯜ ꯃꯣꯗꯦꯂꯁꯤꯡꯒꯤ ꯇꯤꯐꯤꯀꯦꯁꯟ ꯄꯥꯔꯥꯃꯤꯇꯔ ꯇꯦꯝꯄꯂꯦꯠ ꯍꯥꯏꯗꯣꯂꯣꯖꯤ, ꯑꯗꯨꯒꯤ ꯀꯥꯡꯂꯨꯞ ꯄꯥꯏꯗꯣ ꯃꯖꯤꯃꯗ ꯍꯤꯔꯅꯥꯛꯇꯥꯃꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯂꯣꯠ-ꯑꯣꯐꯤꯁꯔ ꯑꯃꯥ ꯃꯂꯦ ꯃꯊꯧꯗꯣ, ꯁꯤꯖꯤꯟꯅꯒꯤ ꯃꯖꯤꯃꯗ ꯃꯦꯇꯥ 2.3.6(c)(iii) ꯅꯠꯔꯒꯥ (c)(ii)-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯒꯤ ꯅꯥꯏ ꯄꯨꯊꯥ ꯅꯥꯔꯅꯅꯤ ꯃꯥꯂꯦꯡ ꯌꯥꯒꯗꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯤ ꯍꯧꯗꯅꯤ ꯃꯍꯩꯍꯥ ꯁꯀꯥ ꯃꯤꯗꯅꯕ ꯃꯍꯥꯛꯀꯤ ꯐꯤꯁ ꯑꯃꯅꯤ ꯁꯤꯖꯤꯟꯅꯒꯤ ꯊꯨꯅꯤ ꯍꯥꯔꯕꯤꯕ ꯑꯗꯨ ꯑꯣꯏꯐꯣꯡ ꯌꯥꯗꯨꯅꯤ ꯃꯤꯄꯥꯏꯍꯟꯅꯥ꯫ (d) ꯌꯥꯝꯅꯥꯡꯗꯝ ꯅꯝꯗ (ꯂꯕ-ꯑꯣꯐꯤꯁꯔ MN-A ꯑꯃꯁꯨꯡ MN-A1), ꯃꯦꯇꯥ 3.4-ꯒꯤ ꯃꯍꯥꯛ ꯐꯣꯂꯅꯣꯟ ꯃꯥꯊꯛꯅꯤ ꯑꯀꯤꯗꯀꯤ, ꯍꯣꯡꯅꯤ ꯑꯌꯨꯝꯕ ꯁꯥꯀꯥꯝ ꯅꯤꯕ ꯂꯕ-ꯃꯣꯁꯃꯣꯡꯆꯂꯣꯗꯗ ꯍꯗꯌꯝꯗ, ꯄꯨꯗꯝ ꯑꯥꯍꯅꯤ ꯁꯤꯖ ꯑꯀꯤꯗꯀꯂꯣꯗ, ꯈꯨꯆꯍꯤꯅ ꯈꯣꯡꯂꯣꯗ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯒꯤ

ꯃꯁꯥꯗꯝ ꯃꯥꯅꯥꯅꯤꯂꯣꯗꯗ, ꯃꯩꯒꯣꯔꯣꯂꯣ ꯑꯣꯅꯤꯃꯣꯡꯆ ꯑꯃꯍꯗꯌꯒꯤ ꯂꯩꯍꯟ ꯅꯣꯀꯍ; ꯑꯌꯥꯀꯀ ꯂꯤꯂꯌꯣꯝ ꯄꯨꯗꯤꯗꯃꯗ, ꯑꯃꯁꯨꯡ ꯌꯨꯐꯣꯟ, ꯀꯥꯆ ꯅꯠꯔꯒꯥ ꯅꯥꯗꯌꯥꯗ ꯔꯥꯕ ꯂꯤꯂꯌꯣꯝ ꯄꯨꯗꯤꯗꯃꯗ, SWMM ꯅꯠꯔꯒꯥ HEC-HMS-ꯅꯤ ꯗꯤꯅꯍꯖ ꯌꯥꯍ, ꯃꯂꯤꯒꯤ ꯑꯩꯄꯆꯈꯥꯟꯒꯤ ꯃꯌꯨꯗ ꯅꯕ ꯂꯌꯐꯣꯟ (ꯒꯆꯃꯤ ꯃꯊꯗ ꯊꯗꯕ ꯃꯈꯝꯗ ꯅꯕ ꯍꯥꯗꯕꯖ, ꯂꯝꯀ, ꯀꯨꯍꯐꯤ, ꯀꯆ ꯑꯃꯁꯨꯡ ꯅꯕꯨꯗꯂꯤꯗ)-ꯒꯤ ꯅꯣꯒꯣꯟ-ꯀꯨꯟ ꯐꯤꯗꯌꯗ, ꯀꯝꯀꯃꯤ ꯐꯣꯌꯤꯗꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯒꯆꯃꯤ ꯐꯨꯟ (ꯃꯦꯇꯥ 3.12.1), ꯌꯣꯟꯁꯤꯌꯐ ꯑꯍꯅꯤ ꯑꯩꯄꯆꯈꯥꯟꯗ ꯅꯕ ꯌꯨꯐꯣꯟ ꯅꯠꯔꯒꯥ ꯀꯆꯃꯤ ꯅꯣꯒꯣꯟ (ꯂꯨꯝꯗ 5) ꯑꯃꯁꯨꯡ ꯑꯩꯄꯆꯈꯥꯟ ꯍꯂꯤꯗꯒꯤ ꯃꯍꯥꯛ ꯅꯕ ꯃꯈꯝꯗ ꯗꯍꯅꯤꯃꯤꯗ-ꯁꯣꯒ ꯐꯤꯗꯌꯗ (ꯃꯦꯇꯥ 3.12.4)-ꯒꯤ ꯅꯥꯔꯅꯅꯤ꯫ (e) ꯑꯂꯤꯒꯨꯝꯕ ꯂꯤꯂꯌꯣꯝ ꯄꯨꯗꯤꯗꯃꯗꯃꯤꯗꯃꯗ ꯗꯤꯅꯍꯖ ꯃꯣꯂ ꯑꯅꯤ ꯁꯅꯍꯒꯗꯕꯅꯤ: ꯂꯄꯐꯒꯤ ꯃꯌꯝ ꯅꯣꯝꯕ ꯅꯥꯗ ꯄꯨꯕ ꯑꯃꯥ, ꯃꯦꯇꯥ 2.5.2-ꯒꯤ ꯀꯨꯗ 6 ꯈꯩꯗꯕ ꯗꯨꯔꯐꯣꯂꯩꯂꯤꯗꯒꯤ, ꯌꯨꯐꯣꯟ ꯑꯃꯥ ꯃꯂꯤꯒꯤ WRD-ꯒꯤ ꯁꯐꯅꯤꯗ ꯅꯣꯒꯣꯟ (WL)-ꯗ ꯅꯅꯤ ꯑꯃꯁꯨꯡ ꯌꯨꯐꯣꯟ ꯑꯃꯥ ꯒꯆꯃꯤ ꯂꯤꯟꯒꯤ ꯃꯍꯥꯛ ꯅꯐꯤꯃꯤ ꯍꯗꯌꯗ ꯒꯆ ꯄꯗꯗꯥꯗꯅꯤ; ꯑꯃꯁꯨꯡ ꯃꯌꯝ ꯂꯗꯕ ꯅꯥꯗ ꯄꯨꯕꯒꯤ ꯊꯗꯥꯗ ꯑꯃꯤ, ꯁꯤꯗꯂꯤꯗ ꯁꯑꯅꯤ ꯃꯣꯁꯃꯣꯡꯆ ꯀꯨꯝꯅꯃꯗꯌ ꯃꯦꯇꯥ 2.3.6(e)-ꯒꯤ ꯀꯨꯗ 72-ꯒꯤ ꯊꯗꯥꯗ, ꯌꯨꯐꯣꯟ ꯑꯃꯥ ꯃꯂꯤꯒꯤ WRD-ꯒꯤ ꯈꯅꯗ ꯅꯣꯒꯣꯟ (FL)-ꯗ ꯅꯅꯤ, ꯃꯂꯤꯒꯤ ꯄꯍꯔꯣꯂꯆ ꯈꯅꯗ ꯅꯣꯒꯣꯟ (HFL) ꯅꯠꯔꯒꯥ ꯃꯗꯒꯤ ꯃꯊꯗꯌ ꯈꯗꯗꯥꯗꯍꯤꯕ ꯍꯕꯍꯗꯒꯤ ꯁꯗꯕ ꯐꯤꯗꯤꯗꯗ ꯁꯣꯗ ꯌꯥꯗꯨꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯩꯄꯆꯈꯥꯟ ꯑꯃꯥ ꯃꯦꯇꯥ 5.8.5(a)-ꯒꯤ ꯗꯨꯔꯐꯣꯂꯩꯂꯤꯗꯒꯤꯗꯃꯗ ꯊꯤꯗꯅꯒꯤ, ꯅꯠꯔꯒꯥ ꯅꯥꯗꯌꯗꯃꯤ ꯃꯅꯤꯗꯌ, ꯀꯆ ꯑꯃꯥ ꯃꯦꯇꯥ 5.8.5(c)-ꯒꯤ ꯗꯤꯅꯍꯖ ꯅꯣꯒꯣꯟꯗ ꯅꯅꯤ꯫ (f) 25–5,000 km²-ꯒꯤ ꯅꯃꯗꯝꯒꯤ ꯌꯨꯐꯣꯟꯂꯤꯗ, ꯄꯨꯗꯝ ꯑꯍꯅꯤ ꯍꯐꯤꯟ (Iril), ꯊꯧꯕꯟ, ꯂꯣꯗꯃꯍ, ꯈꯨꯒꯥ (Khuga), ꯆꯗꯀꯤ (Chakpi), ꯍꯐꯗ (Irang), ꯃꯃꯐ (Makru) ꯑꯃꯁꯨꯡ ꯇꯤꯐꯤ, ꯃꯍꯥꯛꯀꯤ ꯃꯂꯩꯒꯤ CWC ꯄꯨꯅꯤꯆ ꯄꯍꯗꯐꯒꯤꯐꯈ ꯑꯃꯆꯌ ꯅꯌ: ꯃꯍꯥꯛꯀꯤ ꯃꯦꯇꯥ 3.15-ꯒꯤ ꯃꯍꯥꯛ WRD-ꯒꯤ ꯗꯤꯂꯁꯐꯇꯂꯤꯗꯗ ꯃꯣꯅꯤꯕꯐꯆ ꯌꯥꯐꯕ HEC-HMS ꯅꯠꯔꯒꯥ SWMM-ꯅꯤ ꯃꯗꯣꯟ ꯌꯥꯍ, ꯃꯍꯥꯛꯀꯤ ꯃꯄꯨꯗ ꯈꯗꯥꯗꯍꯤꯕ ꯍꯕꯍꯗꯒꯤ ꯁꯗꯕꯂꯤꯗꯅꯤ ꯃꯍꯐꯗ ꯃꯃꯀꯨ (Moirang Kampu)-ꯗ ꯍꯐꯤꯟꯗ 532.488 m³/s (2 ꯂꯣꯀꯌꯝꯕꯐ 2000), ꯊꯧꯕꯟ ꯊꯗꯗ ꯊꯧꯕꯟꯗ 391.636 m³/s (30 ꯑꯒꯂꯆ 1999), ꯍꯃꯈꯟꯗ 202.006 m³/s (2 ꯂꯣꯀꯌꯝꯕꯐ 2000) ꯑꯃꯁꯨꯡ ꯅꯃꯕꯨꯟꯗ 68.495 m³/s (2 ꯇꯨꯅꯍ 2001) (MASTEC, 1999–2001-ꯒꯤ WRD-ꯒꯤ ꯗꯣꯌꯗꯒꯤ), ꯃꯍꯥꯛꯀꯤ ꯂꯌꯣꯇ–ꯗꯤꯂꯁꯐꯇ ꯃꯐꯒꯂꯤꯗ ꯇꯨꯀ ꯑꯍꯕꯅꯤ ꯂꯌꯣꯇ ꯑꯃꯍꯗꯌꯅꯤ ꯁꯗꯍꯆꯅꯗꯀꯗ ꯑꯃꯁꯨꯡ ꯄꯩꯊꯐꯗꯀꯗ ꯌꯥꯑꯣꯕ ꯈꯅ ꯀꯤ ꯄꯔꯕ ꯅꯤꯗꯂꯤꯗꯨꯅꯤ; CWC ꯂꯕꯇꯩ 2(b)-ꯒꯤ ꯄꯨꯅꯤꯆ ꯄꯍꯗꯐꯒꯤꯐꯈ, ꯃꯂꯤꯒꯤ ꯀꯤꯗ ꯑꯂꯤ ꯅꯃ ꯍꯗꯌꯗ ꯄꯨꯃꯈꯃ ꯑꯍ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯃꯣꯁꯃꯣꯡꯆ ꯑꯃꯆꯌꯅꯤ ꯃꯅꯤꯀꯨꯐꯗꯒꯤ ꯍꯂꯤꯗ ꯁꯣꯩꯊꯐꯗꯌꯣ, ꯃꯂꯤ ꯃꯦꯇꯥ 3.11.4-ꯒꯤ ꯁꯣꯗ ꯑꯍꯅꯤ ꯍꯗꯌꯃꯗ ꯃꯣꯟꯃꯨꯅꯆ ꯌꯥꯍ (ꯑꯄꯣꯩꯕ 3E)꯫ ꯂꯕ-ꯑꯣꯐꯤꯁꯔ MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯗ, 1 km²-ꯗꯒꯤ ꯄꯩꯕ ꯃꯐꯂ-ꯗꯐꯣꯅꯇ ꯂꯌꯐꯗꯁꯐ ꯑꯃꯁꯨꯡ ꯑꯩꯄꯆꯈꯥꯟ ꯄꯨꯗꯤꯗꯃꯗꯅꯤ ꯃꯦꯇꯥ 2.3.6(c)(ii)-ꯒꯤ ꯗꯤꯅꯍꯖ ꯅꯥꯗ ꯄꯨꯕ, ꯃꯦꯇꯥ 3.8.4-ꯒꯤ AMC ꯑꯃꯁꯨꯡ ꯀꯨꯗ 72-ꯒꯤ ꯊꯗꯥꯗꯃꯤ ꯐꯤꯗꯌꯗ ꯁꯑꯕ ꯂꯍꯆ ꯑꯗꯨꯒꯤ ꯍꯗꯌꯒꯤ ꯄꯍꯗꯐꯅꯤꯇꯤ ꯂꯌꯗꯤ ꯑꯃꯥ ꯃꯊꯧ ꯌꯥꯍ, ꯃꯐꯃꯗꯤ ꯃꯈꯃ ꯑꯗꯨꯗ ꯀꯤꯗꯃꯤ ꯅꯥꯔꯅꯅꯤ ꯒꯤꯇꯨꯃꯅꯤ ꯅꯣꯀꯊꯥꯃꯍ꯫ (g) ꯐꯤꯇꯐꯒꯥꯔꯐ ꯑꯃꯗ ꯅꯠꯔꯒꯥ ꯗꯣꯝ ꯑꯃꯒꯤ ꯃꯍꯥꯛ ꯅꯕ ꯐꯤꯁ ꯑꯃꯗ ꯍꯂꯤꯗ ꯁꯣꯩꯊꯐꯗꯀ ꯃꯣꯁꯃꯣꯡꯆꯂꯣꯗ, ꯄꯨꯗꯝ ꯑꯍꯅꯤ ꯃꯀꯤꯊꯣꯟ ꯗꯣꯝ (Mapithel dam)-ꯒꯤ ꯃꯍꯥꯛ ꯊꯧꯕꯟ, ꯃꯂꯤꯒꯤ ꯗꯣꯝꯒꯤ ꯃꯍꯥꯛ ꯈꯨꯒꯥ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯗꯥ ꯗꯣꯝ (Singda dam)-ꯒꯤ ꯃꯍꯥꯛ ꯅꯃꯕꯨꯟ [TBC], ꯑꯂꯤ ꯀꯤꯗ-ꯈꯅꯗ ꯊꯧꯑꯗ ꯑꯃꯍꯗꯌꯅꯤ ꯅꯠꯔꯒꯥ, ꯂꯌꯐꯣꯟ ꯐꯤꯗꯌꯗ ꯑꯃꯁꯨꯡ ꯑꯀꯐꯣꯌꯐꯒꯤ ꯐꯤꯇꯤꯇ ꯂꯤꯅꯤꯐꯤꯑꯂꯤꯗꯒꯤ ꯅꯥꯔꯅꯅꯤ ꯃꯗꯣꯟ ꯌꯥꯍ (ꯃꯦꯇꯥ 3.12; ꯃꯦꯇꯥ 5.8.5(d))꯫ (h) ꯂꯨꯝꯗ ꯑꯂꯤꯒꯤ ꯊꯧꯑꯗ ꯑꯃꯆꯌꯅꯤ ꯗꯣꯕꯐꯤ ꯈꯅꯗ ꯀꯃꯐꯤꯗꯤꯗꯆ ꯌꯥꯗ; ꯁꯤꯖꯤꯟꯅꯒꯤ ꯍꯥꯏꯗꯣꯂꯤꯗꯗ ꯗꯤꯅꯍꯖ ꯈꯅꯗ ꯑꯂꯤ ꯂꯣꯗꯤꯃꯣꯩꯆ ꯑꯃꯁꯨꯡ ꯗꯣꯕꯐꯤꯒꯤꯗꯤꯃꯗ ꯄꯣꯅꯒꯆꯄꯟꯇꯤ, ꯑꯃꯁꯨꯡ ꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥꯡꯗꯝ ꯅꯝꯒꯤ ꯃꯐꯗꯌ ꯅꯕ ꯂꯤꯟꯆ ꯌꯨꯐꯀ (silt trap)-ꯂꯤꯗ, ꯍꯩꯅꯆ ꯑꯃꯁꯨꯡ ꯃꯟꯒꯐꯆꯂꯤꯗ ꯂꯨꯝꯗ 6 ꯑꯃꯁꯨꯡ 9-ꯒꯤ ꯃꯍꯥꯛ ꯕꯅꯃꯣꯇꯃꯤꯗꯃꯗ ꯗꯤꯅꯍꯖ ꯌꯥꯍ (ꯃꯦꯇꯥ 6.3.6)꯫

3.8 SCS ꯃꯐꯒ ꯅꯝꯕꯔ (SCS-CN) ꯅꯂ ꯊꯧꯑꯗ

3.8.1 **ꯐꯣꯔꯃꯨꯂꯥ ꯍꯃꯁꯂꯩ.** ꯐꯣꯔꯃꯨꯂꯥꯗꯤ ꯗꯣꯀꯊ ꯃꯍꯥꯛꯀꯤ ꯃꯑꯗꯗ ꯃꯣꯟꯃꯨꯅꯆ ꯌꯥꯒꯗꯕꯅꯤ:

$$Q = (P - I_a)^2 / (P - I_a + S),\ P > I_a \text{ ꯑꯍꯐꯕꯗꯤ; ꯅꯠꯔꯕꯗꯤ } Q = 0 \quad S = 25{,}400 / CN - 254$$

ꯃꯐꯝ ꯑꯁꯤꯗ Q ꯑꯁꯤ ꯔꯟꯑꯣꯐꯀꯤ ꯗꯦꯞꯊꯅꯤ (mm), P ꯑꯁꯤ ꯅꯣꯡꯖꯨ-ꯅꯨꯡꯁꯤꯠꯀꯤ ꯗꯦꯞꯊꯅꯤ (mm), S ꯑꯁꯤ ꯄꯣꯇꯦꯟꯁꯤꯌꯦꯜ ꯃꯦꯛꯁꯤꯃꯝ ꯔꯤꯇꯦꯟꯁꯅꯅꯤ (mm) ꯑꯃꯁꯨꯡ Ia ꯑꯁꯤ ꯏꯅꯤꯁꯤꯌꯦꯜ ꯑꯦꯕꯁꯠꯔꯦꯛꯁꯅꯅꯤ (mm)꯫ ꯃꯔꯤ ꯑꯁꯤ ꯍꯥꯡꯗꯣꯛꯂꯕ ꯑꯁꯤ ꯌꯥꯝꯅ ꯇꯁꯦꯡꯅ ꯅꯣꯡꯖꯨ-ꯅꯨꯡꯁꯤꯠꯀꯤ ꯃꯇꯨꯡꯗ ꯂꯧꯈꯠꯂꯛꯄ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ꯫

3.8.2 **ꯀꯔꯚ ꯅꯝꯕꯔꯁꯤꯡ.** AMC II-ꯗ CN ꯑꯁꯤ ꯁꯦꯛꯁꯟ 3.7-ꯒꯤ HSG-ꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ 3.5-ꯗꯒꯤ ꯂꯧꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 3.5 — ꯔꯟꯑꯣꯐ ꯀꯔꯚ ꯅꯝꯕꯔꯁꯤꯡ, AMC II, Ia = 0.2S (USDA SCS TR-55, 1986, Tables 2-2a ꯑꯃꯁꯨꯡ 2-2c)

ꯂꯝꯒꯤ ꯃꯈꯜ	HSG A	HSG B	HSG C	HSG D
ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇ ꯁꯍꯔꯒꯤ ꯃꯐꯃꯁꯤꯡ (ꯁꯦꯛꯁꯟ 3.3.2): ꯍꯥꯡꯗꯣꯛꯂꯕ ꯃꯐꯝ, ꯑꯐꯕ ꯐꯤꯚꯝ (ꯃꯅꯥꯜ > 75%)	39	61	74	80
ꯍꯥꯡꯗꯣꯛꯂꯕ ꯃꯐꯝ, ꯃꯌꯥꯏ ꯑꯣꯏꯕ ꯐꯤꯚꯝ (ꯃꯅꯥꯜ 50–75%)	49	69	79	84
ꯍꯥꯡꯗꯣꯛꯂꯕ ꯃꯐꯝ, ꯐꯠꯇꯕ ꯐꯤꯚꯝ (ꯃꯅꯥꯜ < 50%)	68	79	86	89
ꯏꯃꯄꯔꯚꯤꯌꯁ: ꯄꯥꯔꯀꯤꯡ, ꯁꯥꯡ ꯁꯦꯝꯕ ꯁꯤꯡꯀꯣꯏ, ꯌꯨꯃꯊꯛ, ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯥꯜ ꯌꯥꯑꯣꯗꯕ ꯁꯥꯡ ꯁꯦꯝꯕ ꯃꯐꯃꯁꯤꯡ	98	98	98	98
ꯍꯥꯡꯗꯣꯛꯂꯕ ꯈꯣꯡꯕꯥꯜ (open ditches) ꯌꯥꯑꯣꯕ ꯁꯥꯡ ꯁꯦꯝꯕ ꯃꯐꯃꯁꯤꯡ (ꯔꯥꯏꯠ-ꯑꯣꯐ-ꯋꯦ ꯌꯥꯑꯣꯅ)	83	89	92	93
ꯒ꯭ꯔꯥꯚꯦꯜ ꯃꯐꯃꯁꯤꯡ (ꯔꯥꯏꯠ-ꯑꯣꯐ-ꯋꯦ ꯌꯥꯑꯣꯅ)	76	85	89	91
ꯂꯩꯃꯥꯏꯒꯤ ꯃꯐꯃꯁꯤꯡ (ꯔꯥꯏꯠ-ꯑꯣꯐ-ꯋꯦ ꯌꯥꯑꯣꯅ)	72	82	87	89
ꯑꯅꯧꯕ ꯃꯥꯏꯀꯩ ꯁꯦꯝꯕ ꯃꯐꯝ (ꯄꯔꯚꯤꯌꯁ, ꯄꯥꯝꯕꯤ ꯌꯥꯑꯣꯗꯕ)	77	86	91	94
ꯈꯣꯡ, ꯍꯥꯡꯗꯣꯛꯂꯕ ꯂꯩꯃꯥꯏ	77	86	91	94
ꯎꯃꯥꯏ (ꯍꯟꯅ ꯍꯧꯖꯤꯛ ꯃꯅꯥꯜ, ꯃꯍꯩ ꯂꯧꯊꯣꯛꯅꯕ ꯂꯧꯕꯨꯛ)	30	58	71	78
ꯕꯨꯁ, ꯑꯐꯕ ꯐꯤꯚꯝ	30	48	65	73
ꯎꯃꯪ, ꯑꯐꯕ ꯐꯤꯚꯝ	30	55	70	77
ꯎꯃꯪ, ꯃꯌꯥꯏ ꯑꯣꯏꯕ ꯐꯤꯚꯝ	36	60	73	79
ꯎꯃꯪ, ꯐꯠꯇꯕ ꯐꯤꯚꯝ	45	66	77	83
ꯏꯁꯤꯡꯒꯤ ꯍꯤꯡꯂꯤ, ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯃꯥꯌꯀꯩꯁꯤꯡ, ꯃꯍꯩ ꯑꯣꯏꯕ ꯂꯝꯕꯤꯁꯤꯡ	ꯔꯟꯑꯣꯐ = ꯀꯅꯥ ꯃꯇꯝ (ꯀꯣꯜ ꯌꯥꯕꯥ)			

3.8.3 **ꯇꯦꯕꯜ 3.5 ꯁꯤꯖꯤꯟꯅꯕ.**

- (a) ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇ ꯁꯍꯔꯒꯤ ꯃꯐꯃꯁꯤꯡꯒꯤ CN ꯑꯁꯤ ꯃꯥꯇꯦ ꯁꯥꯡ ꯁꯦꯝꯕ ꯃꯐꯃꯁꯤꯡꯗꯒꯤ ꯂꯧꯔꯛꯄꯅꯤ (ꯁꯦꯛꯁꯟ 3.9)꯫ TR-55-ꯒꯤ ꯑꯦꯕꯖ ꯗꯤꯐꯣꯜꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯀꯟ-ꯅꯦꯛꯇ ꯍꯥꯏꯗꯤ ꯅꯦꯛꯃꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯔꯤꯕꯅꯤ꯫
- (b) ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇ ꯁꯍꯔꯒꯤ ꯐꯤꯚꯃꯗ ꯌꯥꯑꯣꯕ ꯄꯥꯔꯀꯁꯤꯡ ꯀꯣꯏꯗꯤ ꯀꯣꯔꯗꯅꯦꯁꯟ ꯄꯥꯔꯀꯗꯤ ꯐꯤꯚꯝ "ꯍꯥꯡꯗꯣꯛꯂꯕ ꯃꯐꯝ" ("open space") ꯁꯤꯖꯤꯟꯅꯔꯤꯕꯅꯤ꯫ ꯀꯣꯔꯗꯅꯦꯁꯟ ꯄꯥꯔꯀꯗ ꯄꯥꯝꯕ ꯃꯐꯃꯗ ꯃꯌꯥꯏ ꯑꯣꯏꯕ ꯐꯤꯚꯝ ꯂꯩꯔꯤ꯫
- (c) TR-55-ꯒꯤ ꯀꯝꯄꯣ-ꯁꯤꯠ ꯁꯥꯡ ꯁꯦꯝꯕ ꯍꯥꯏꯗꯤ ꯅꯦꯛꯃꯤ ꯃꯄꯥꯡꯒꯤ ꯂꯣꯠꯁꯤꯡꯒꯤ ꯐꯤꯚꯃꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ, ꯑꯗꯨꯕ ꯁꯦꯛꯁꯟ 3.3.2-ꯒꯤ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇ ꯁꯍꯔꯒꯤ ꯔꯦꯖꯤꯔꯦꯁꯟꯁꯤꯡꯗꯃꯛ ꯍꯦꯟꯅ ꯐꯖꯅ ꯀꯥꯟꯅꯥ꯫

3.8.4 **ꯑꯦꯟꯇꯤꯁꯤꯗꯦꯟꯇ ꯃꯣꯏꯁꯆꯔ.** AMC ꯑꯁꯤ ꯁꯦꯛꯁꯟ 2.11.4-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯧꯒꯅꯤ: ꯑꯍꯥꯅꯕ 2A-ꯒꯤ ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-A (ꯅꯣꯡꯄꯣꯛ ꯂꯃꯗꯝꯒꯤ ꯌꯨꯃꯍꯥꯛ) ꯀꯌꯥꯗ MN-B (ꯑꯔꯣꯡ, ꯀꯥꯡꯂꯥ ꯑꯃꯁꯨꯡ ꯍꯤꯒꯤ ꯌꯤꯡꯁꯤꯡ)-ꯗ ꯌꯥꯑꯣꯕ ꯁꯍꯔ ꯑꯃꯗ 1 ꯖꯨꯅꯗꯒꯤ 15 ꯑꯀꯇꯣꯕꯔ ꯐꯥꯎꯕ, ꯑꯃꯁꯨꯡ ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-C (ꯀꯥꯡꯂꯥꯄꯥꯛꯀꯤ ꯌꯤꯡꯁꯤꯡ) ꯀꯌꯥꯗ MN-C1 (ꯇꯤꯔꯤꯕꯤ ꯄꯥꯔꯀꯦꯢ)-ꯗ ꯌꯥꯑꯣꯕ ꯁꯍꯔ ꯑꯃꯗ 1 ꯃꯥꯗꯒꯤ 31 ꯑꯀꯇꯣꯕꯔ ꯐꯥꯎꯕ, ꯗꯤꯖꯥꯏꯟ ꯌꯥꯝꯅ ꯍꯦꯟꯅ ꯍꯤꯡꯂꯤꯕꯁꯤꯡꯗꯃꯛ, ꯃꯁꯤꯒꯤ ꯗꯤꯚꯦꯂꯞ ꯂꯃꯒꯤ ꯑꯍꯥꯅꯕꯗ, AMC III; ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯍꯦꯟꯅ ꯍꯤꯡꯂꯤꯕ, ꯂꯝꯂꯥꯡ, ꯍꯥꯏ

ꯅꯠꯔꯒꯥ ꯂꯣꯛꯇꯥꯛꯀꯤ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯂꯃꯗ, ꯐꯨꯝꯗꯤ, ꯄꯥꯠ ꯅꯠꯔꯒꯥ ꯄꯨꯈꯔꯤꯒꯤ ꯃꯅꯥꯛꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯐꯪ (bund) ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯂꯃꯗ, 1 ꯑꯦꯞꯔꯤꯜꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯗꯤꯖꯥꯏꯟ ꯃꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ AMC III; ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-A1 (ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯅꯥꯛ)-ꯗ ꯑꯃꯁꯨꯡ ꯄꯤꯖꯄꯒꯤꯔꯄ ꯑꯃꯗ ꯅꯠꯔꯒꯥ ꯃꯁꯤꯒꯤ ꯕꯦꯛꯇꯦꯔꯄꯗ, ꯅꯠꯔꯒꯥ ꯗꯦꯐꯖ ꯏꯁꯤꯡ ꯊꯗꯥꯛꯂꯛ ꯗꯦꯐ ꯑꯃꯒꯤ ꯃꯍꯩꯒꯤ ꯄꯤꯌ ꯑꯃꯗ ꯏꯁꯤꯡ ꯌꯦꯡꯊꯄꯛꯂ ꯀꯦꯌꯃꯦꯡꯠ ꯑꯃꯗ, ꯂꯥꯗꯐ ꯑꯍꯥꯅꯕ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ (Ithai barrage)-ꯅ ꯊꯤꯡꯕ ꯂꯣꯛꯇꯥꯛ, ꯊꯣꯕꯦꯟ (ꯃꯄꯥꯏꯊꯦꯟ) ꯑꯃꯁꯨꯡ ꯂꯥꯛ ꯄꯤꯖꯄꯒꯤꯔꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯔꯒꯤ ꯗꯦꯐꯁꯤꯡꯒꯤ ꯃꯍꯩꯒꯤ ꯄꯤꯌꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯅꯐꯨꯟꯗ ꯂꯩꯕ ꯁꯤꯡꯗꯦ ꯄꯤꯖꯄꯒꯤꯔꯄ [TBC], ꯌꯄꯤꯒꯤ ꯃꯍꯧꯐ ꯑꯃꯄꯦꯛꯁꯤꯡꯗꯤ ꯗꯤꯖꯥꯏꯟ ꯃꯁꯤꯡꯄꯐ ꯂꯥꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ AMC III; ꯑꯁꯣꯏꯕ ꯂꯐꯠ ꯅꯠꯔꯒꯥ ꯃꯍꯧꯐ ꯑꯃꯄꯦꯛꯁꯤꯡꯗꯤ, ꯅꯨꯃꯤꯠ 5-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯄꯨꯡꯕ 53 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯅꯧꯀꯄ ꯅꯠꯔꯒꯥ ꯃꯈꯨ ꯌꯦꯡꯕ ꯗꯤꯖꯥꯏꯟ ꯃꯁꯤꯡꯐ ꯑꯃꯒꯤꯗꯃꯛ AMC III; ꯑꯃꯁꯨꯡ ꯑꯁꯣꯏꯕ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯥꯗꯣꯛ ꯂꯥꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ AMC III꯫ AMC I ꯁꯤꯖꯤꯟꯅꯗꯦ꯫ AMC I ꯑꯃꯁꯨꯡ III-ꯒꯤ CN ꯑꯁꯤ AMC II-ꯗꯒꯤ ꯃꯍꯧꯒꯤ ꯃꯑꯣꯡꯗ ꯇꯡꯒꯗꯕꯅꯤ:

> CN(I) = 4.2 CN(II) / (10 − 0.058 CN(II)) CN(III) = 23 CN(II) / (10 + 0.13 CN(II))

ꯀꯦꯂꯤꯕꯔꯦꯁꯟ ꯑꯁꯤ **ꯃꯥꯏꯄꯥꯀꯄ ꯀꯃꯦꯛꯇꯦꯡꯗ ꯍꯤꯕꯥꯛꯇ** ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ ꯍꯥꯏꯕꯥꯀꯤꯄ ꯂꯥꯛꯍꯁꯤꯡ AMC ꯃꯨꯡꯅꯃꯛꯇ CN 98-ꯗ ꯂꯥꯏꯤ꯫ ꯀꯃꯦꯛꯇꯤꯗꯤ CN-ꯁꯤꯡ ꯐꯥꯎꯗꯨꯅꯥ ꯀꯦꯂꯤꯕꯔꯦ ꯇꯧꯍꯟꯗꯕꯅꯤ꯫

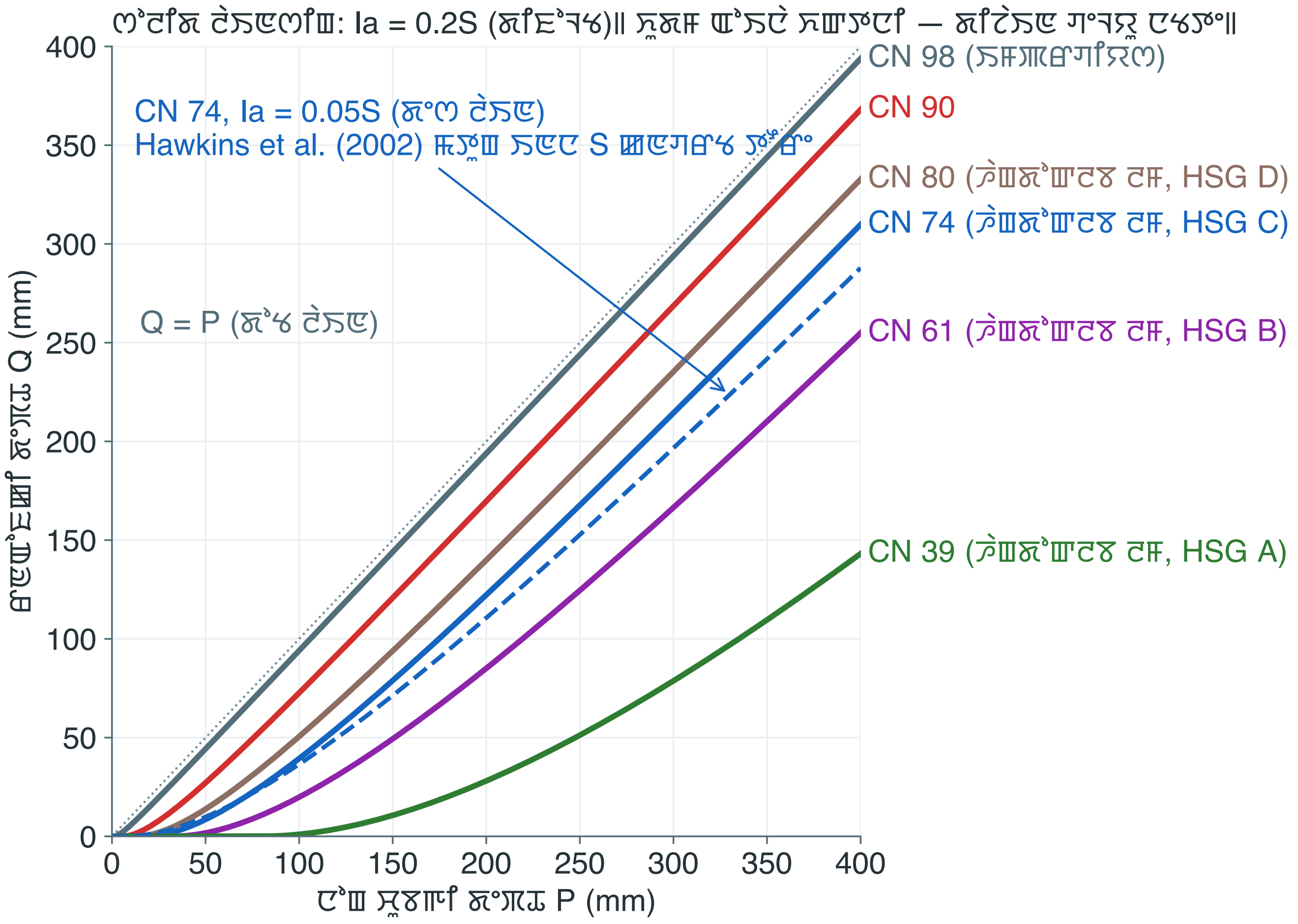
ꯂꯣꯛꯇꯥꯛ ꯑꯍꯅꯥ ꯍꯥꯏꯇꯅꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯡꯁꯨ ꯅꯠꯇꯦ꯫ AMC III-ꯗ ꯗꯦꯒꯦꯅꯃꯀꯦꯟꯠꯀꯤ ꯃꯍꯩꯒꯤ ꯄꯦꯖꯄꯦꯟꯁ CN-ꯁꯤꯡ ꯑꯁꯤ: HSG A 59.5; HSG B 78.2; HSG C 86.7; HSG D 90.2꯫

3.8.5 **ꯍꯅꯤꯁꯤꯔꯦꯜ ꯑꯦꯕꯁꯇ꯭ꯔꯦꯛꯁꯟ.**

- (a) **ꯗꯤꯐꯣꯜꯠ:** Ia = 0.2S, ꯇꯦꯕꯜ 3.5-ꯒꯤ CN-ꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅ꯫
- (b) **ꯁꯦꯟꯁꯤꯇꯤꯕꯤꯇꯤ ꯄꯟꯗ (ꯇꯦꯁ꯭ꯠ):** ꯁꯦꯁꯟꯗꯦ ꯗꯤꯖꯥꯏꯟ ꯂꯥꯗꯤꯡꯃꯛ Ia = 0.05S-ꯒꯥ ꯂꯣꯌꯅꯅꯕ ꯌꯦꯍꯒꯗꯕꯅꯤ꯫ ꯄꯟ ꯑꯁꯤꯒꯤꯗꯃꯛ S ꯑꯁꯤ S0.05 = 1.33 · S0.20^1.15 (S ꯑꯁꯤ ꯍꯦꯟꯌꯇ) ꯑꯍꯅꯥ ꯀꯦꯂꯤꯕꯔ ꯇꯧꯒꯗꯕꯅꯤ, ꯃꯁꯤ SI-ꯗ:

  > S0.05 = 25.4 × 1.33 × (S0.20 / 25.4)^1.15 (mm)

- (c) ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯗꯤꯐꯣꯜꯠ ꯄꯟꯗ ꯂꯦꯡꯗꯅꯒ ꯑꯍꯟꯒꯗꯕꯅꯤ꯫ ꯁꯦꯟꯁꯤꯇꯤꯕꯤꯇꯤꯒꯤ ꯃꯐꯝꯁꯤꯡ ꯇꯦꯄꯟ 3-2-ꯗ ꯄꯤꯀꯨꯄꯌ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯁꯦꯟꯁꯤꯇꯤꯕꯤꯇꯤ ꯄꯟꯅꯅ ꯃꯊꯧ ꯇꯥꯕ ꯄꯤꯇꯦꯟꯁꯟ ꯒꯦꯡꯁꯨ ꯅꯠꯔꯒꯥ ꯍꯁꯤꯡꯒꯤ ꯀꯌꯅꯤꯇꯤꯒꯤ ꯒꯦꯡꯁꯨ ꯐꯦꯅꯒꯌꯐꯜꯅꯕꯗꯤ, ꯒꯦꯡꯁꯨ ꯑꯗꯨꯒꯤꯗꯃꯛ ꯐꯦꯟꯅ ꯌꯦꯍꯕ ꯒꯦꯡꯁꯨ ꯑꯗꯨꯅ ꯅꯦꯃꯊꯥꯀꯍ꯫



[illegible] 3.3 — Ia = 0.2S-[illegible] SCS-CN [illegible], CN 74-[illegible] Ia = 0.05S [illegible]॥ [illegible], USDA NRCS, NEH Part 630, Ch. 10 (2004) [illegible] USDA SCS TR-55 (1986)-[illegible], [illegible] Hawkins et al. (2002)-[illegible] S-[illegible]॥ [illegible] — [illegible]॥

[illegible]. [illegible] 3.5-[illegible] NRCS TR-55 (1986)-[illegible]॥ [illegible] US-[illegible]॥ AMC [illegible] Chow, Maidment [illegible] Mays-[illegible] (1988, §5.5) [illegible] NEH-4-[illegible]॥ [illegible] APWA-[illegible], APWA-[illegible] "[illegible]" ("direct conversion of composite antecedent moisture conditions is not appropriate") [illegible] (KC Metro APWA 5600, 2011, §5602.2C)॥ [illegible] CN [illegible] CN [illegible]॥

Ia = 0.2S [illegible] NRCS-[illegible]॥ US-[illegible] 0.05S [illegible] (Hawkins et al., 2002; Woodward et al., 2003), [illegible] 3.8.5(b)-[illegible]॥ NRCS-[illegible] 0.2S [illegible]॥ [illegible] 3.3-[illegible]: CN 74-[illegible], 0.05S [illegible] **[illegible]** [illegible] (25 mm [illegible] 2.0 mm [illegible] 0.5 mm) [illegible] **[illegible]** [illegible] (350 mm-[illegible] 242 mm [illegible] 262 mm)॥ *[illegible] — [illegible]॥* [illegible] 0.2S [illegible]

> ꯗꯤꯇꯦꯟꯁꯟ ꯗꯤꯖꯥꯏꯟꯒꯤꯗꯃꯛ ꯀꯟꯁꯔꯚꯦꯇꯤꯚ ꯍꯦꯟꯕꯅꯤ꯫ ꯍꯦꯟꯅꯥ ꯆꯥꯎꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯅꯠꯔꯒꯥ ꯄꯁꯤꯡꯒꯤ ꯀꯦꯄꯁꯤꯇꯤꯒꯤ ꯒꯥꯎꯃꯅꯥ ꯅꯦꯒꯥꯀꯟ ꯆꯥꯇꯃ 3.8.5(c)-ꯒꯤ ꯔꯨꯟ ꯑꯁꯤꯒꯤ ꯆꯥꯑꯥꯡꯅꯃ ꯃꯃꯡꯒꯤ ꯎꯨꯁꯃ ꯅꯣꯌ; 0.05S ꯀꯦꯁꯅꯥ ꯒꯥꯅꯨꯃ ꯑꯁꯨꯁꯤꯡ ꯅꯦꯍꯡ ꯑꯍꯤꯡꯍ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯚꯦꯟꯇꯁꯤꯡꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯔꯥꯃꯠ ꯐꯦꯑꯥꯐ ꯍꯤꯠꯅꯥ ꯃꯦꯇꯨꯔꯦꯟ ꯑꯁꯤꯅꯥ ꯃꯁꯤ ꯂꯃꯃꯤ꯫

3.9 ꯏꯝꯄꯔꯚꯤꯌꯁ ꯀꯅꯦꯛꯇꯤꯚꯤꯇꯤ

3.9.1 **ꯍꯥꯌꯗꯣꯛꯄ.** ꯗꯦꯚꯦꯂꯣꯄꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯐꯤꯚꯃꯗ ꯂꯩꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯩꯃꯥꯏ ꯇꯨꯗꯤꯡꯃꯛ ꯗꯥꯏꯔꯦꯛꯇꯂꯤ ꯀꯅꯦꯛꯇꯦꯗ (DCIA) ꯅꯠꯔꯒꯥ ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ ꯑꯣꯏꯅꯥ ꯍꯥꯌꯗꯣꯛꯀꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯐꯝꯒꯤ ꯄ꯭ꯂꯥꯟꯗ ꯇꯥꯛꯀꯗꯕꯅꯤ꯫

3.9.2 **ꯍꯦꯟꯅꯥ ꯄꯥꯏꯝꯕ ꯎꯠꯄꯒꯤ ꯃꯑꯣꯡ.** ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯛ ꯃꯣꯗꯦꯂꯤꯡꯗ, DCIA ꯑꯃꯁꯨꯡ ꯄꯔꯚꯤꯌꯁ ꯂꯃꯁꯤꯡ ꯇꯣꯉꯥꯟꯕ ꯁꯕ-ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯣꯏꯅꯥ (ꯅꯠꯔꯒꯥ SWMM ꯁꯕꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯒꯤ ꯇꯣꯉꯥꯟꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯃꯁꯨꯡ ꯄꯔꯚꯤꯌꯁ ꯐ꯭ꯔꯦꯛꯁꯅꯁꯤꯡ ꯑꯣꯏꯅꯥ) ꯃꯣꯗꯦꯜ ꯇꯧꯒꯗꯕꯅꯤ, ꯇꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯁꯥꯒꯤ ꯂꯣꯁ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅꯥ꯫ ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯁꯤꯡꯒꯤ ꯔꯟꯑꯣꯐ ꯑꯁꯤ ꯅꯛꯅꯕ ꯄꯔꯚꯤꯌꯁ ꯂꯃꯗ ꯔꯨꯠ ꯇꯧꯒꯗꯕꯅꯤ꯫

3.9.3 **ꯗꯤꯁꯀꯅꯦꯛꯁꯟꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ.** ꯃꯈꯥꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯊꯨꯡꯂꯕꯗꯤ ꯈꯛꯇꯃꯛ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯝ ꯑꯁꯤ ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ ꯑꯣꯏꯅꯥ ꯍꯥꯌꯗꯣꯛꯄ ꯌꯥꯏ:

- (a) ꯃꯁꯤꯒꯤ ꯔꯟꯑꯣꯐꯅꯥ ꯄꯥꯏꯄ, ꯆꯦꯅꯦꯜ ꯅꯠꯔꯒꯥ ꯀꯔꯕ ꯌꯥꯎꯗꯅꯥ ꯄꯔꯚꯤꯌꯁ ꯂꯝ ꯑꯃꯗ ꯁꯤꯠ ꯐ꯭ꯂꯣ ꯑꯣꯏꯅꯥ ꯆꯦꯜꯂꯛꯄ;
- (b) ꯄꯔꯚꯤꯌꯁ ꯐ꯭ꯂꯣ ꯄꯥꯊ ꯑꯁꯤ ꯃꯁꯨꯗ ꯔꯦꯟꯖꯇꯛꯃ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯐ꯭ꯂꯣ ꯄꯥꯊ ꯑꯗꯨꯒꯨꯝꯅꯥ ꯔꯥꯟꯗ꯭ꯔꯠꯁ ꯂꯗꯄ;
- (c) ꯄꯔꯚꯤꯌꯁ ꯂꯝ ꯑꯁꯤ ꯀꯝꯄꯦꯛꯠ ꯇꯧꯗꯕ, HSG D ꯅꯠꯇꯕ, ꯑꯃꯁꯨꯡ ꯑꯥꯄ꯭ꯔꯒ ꯇꯧꯗꯕ ꯁ꯭ꯂꯣꯞ ꯄꯥꯒ ꯇꯧꯕꯗꯒꯤ ꯆꯥꯎꯗꯕ; ꯑꯃꯁꯨꯡ
- (d) ꯄꯨꯡ 12 ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯁꯡꯕ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯚꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ, ꯃꯁꯤ RWH ꯁꯝꯄ ꯅꯠꯔꯒꯥ ꯇꯦꯡ꯭ꯀ (tank) ꯑꯃꯗ ꯔꯤꯇꯦꯟ ꯇꯧꯔꯕ (ꯁꯦꯛꯁꯟ 3.3.3(c))꯫

3.9.4 **ꯀꯝꯄꯣꯖꯤꯠ CN.** 3.9.2-ꯒꯤ ꯃꯇꯨꯠꯁ ꯀꯝꯄꯣꯖꯤꯠ CN ꯑꯃꯍꯛꯁ ꯁꯤꯖꯤꯟꯅꯔꯕꯗꯤ, ꯃꯁꯤ ꯃꯈꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯒꯗꯕꯅꯤ:

- ꯗꯥꯏꯔꯦꯛꯇꯂꯤ ꯀꯅꯦꯛꯇꯦꯗ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯒꯤꯗꯃꯛ: CNc = CNp + (Pimp / 100)(98 − CNp);
- ꯄꯨꯝꯅꯃꯛ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯝ 30%-ꯗꯒꯤ ꯅꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯐꯝ ꯈꯔ ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ ꯑꯣꯏꯔꯕꯗꯤ: CNc = CNp + (Pimp / 100)(98 − CNp)(1 − 0.5 R),

ꯃꯐꯝ ꯑꯁꯤꯗ CNp ꯑꯁꯤ ꯄꯔꯚꯤꯌꯁ CN-ꯅꯤ, Pimp ꯑꯁꯤ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯒꯤ ꯄꯔꯁꯦꯟꯇꯦꯖꯅꯤ ꯑꯃꯁꯨꯡ R ꯑꯁꯤ ꯄꯨꯝꯅꯃꯛ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯒꯥ ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯒꯤ ꯔꯦꯁꯤꯑꯣꯅꯤ꯫ ꯀꯝꯄꯣꯖꯤꯠ CN ꯑꯁꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯅꯠꯔꯒꯥ ꯄꯁꯤꯡꯒꯤ ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡꯒꯤ ꯒꯥꯂ꯭ꯃꯛꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

> **ꯂꯦꯗꯥꯛꯅꯥ ꯈꯨꯗꯝ.** ꯀꯝꯄꯣꯖꯤꯠ ꯄ꯭ꯔꯣꯁꯤꯖꯔ ꯑꯁꯤ TR-55 (USDA SCS, 1986, Ch. 2, Figures 2-3 ꯑꯃꯁꯨꯡ 2-4)-ꯗꯒꯤ ꯂꯧꯔꯛꯄꯅꯤ꯫ ꯀꯝꯄꯣꯖꯤꯠ CN ꯑꯁꯤꯅꯥ ꯏꯝꯄꯔꯚꯤꯌꯁꯀꯤ ꯐ꯭ꯔꯦꯛꯁꯟ ꯑꯁꯤ ꯂꯝ ꯄꯨꯝꯅꯃꯛꯇ ꯁꯦꯗꯣꯛꯀꯄ, ꯃꯁꯤꯅꯥ ꯑꯄꯤꯛꯄ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯚꯦꯟꯇꯁꯤꯡꯒꯤ ꯔꯟꯑꯣꯐ ꯍꯦꯟꯒꯠꯍꯜꯂꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯃꯦꯊꯗ ꯑꯁꯤꯅꯥ 3.9.2-ꯗ ꯎꯠꯄ ꯑꯗꯨ ꯍꯦꯟꯅꯥ ꯄꯥꯏꯝꯁ꯫ HSG B-ꯒꯤ ꯄꯥꯡꯗꯣꯛꯅꯕ ꯃꯐꯝ (CNp 61)-ꯗ 50% ꯗꯥꯏꯔꯦꯛꯇꯂꯤ ꯀꯅꯦꯛꯇꯦꯗ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯣꯏꯕ ꯂꯣꯠ ꯑꯃꯗ, ꯃꯐꯝ ꯑꯅꯤ ꯑꯁꯤ ꯇꯣꯉꯥꯟꯅꯥ ꯍꯥꯛꯇꯦꯟ ꯎꯥꯏꯕꯗꯤ 25 mm ꯅꯣꯡ ꯆꯨꯕꯅꯥ ꯅꯦ ꯍꯧꯅꯥ 9.9 mm ꯐꯦꯑꯥꯐ ꯄꯤ, ꯑꯗꯨꯕꯨ ꯀꯝꯄꯣꯖꯤꯠ CN 79.5-ꯅ ꯄꯤꯔꯀꯄ ꯅꯦ ꯍꯧꯅꯥ 1.8 mm ꯈꯛꯇꯃꯛ ꯄꯤ꯫ 200 mm-ꯗ ꯃꯈꯥꯗ ꯑꯅꯤꯃꯛ ꯌꯥꯝꯅꯥ (139.5 mm ꯑꯃꯁꯨꯡ 138.4 mm)꯫ *ꯇꯨꯡ ꯑꯣꯏꯅ ꯍꯥꯌꯔꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯥꯒꯨ ꯅꯠꯇꯦ꯫* ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯄꯁꯤꯡꯒꯤ ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡꯒꯤ ꯒꯥꯂ꯭ꯃꯤꯡ ꯅꯥꯍꯤꯠ ꯃꯥꯀꯄ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯚꯦꯟꯇꯁꯤꯡꯗ ꯑꯄꯤꯛꯄ ꯑꯁꯤ ꯎꯠꯂꯤꯕꯅꯤ꯫ 3.9.3-ꯒꯤ ꯗꯤꯁꯀꯅꯦꯛꯁꯟꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯁꯤ US-ꯒꯤ ꯐꯦꯑꯥꯐ-ꯐꯤꯚꯃꯒꯤ ꯍꯦꯟꯒꯠꯍꯜꯂꯤꯕꯁꯤꯡꯒꯤ ꯑꯍꯣꯡꯕ ꯊꯝꯕ ꯄ꯭ꯔꯦꯛꯇꯤꯁꯁꯤꯡꯒꯤ ꯂꯣꯌꯅꯕ ꯍꯦꯟꯒꯠꯍꯜꯂꯤꯕ ꯑꯁꯤꯅꯥ ꯆꯠꯂꯤ꯫ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯟ (d) ꯑꯁꯤ RWH ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡ ꯍꯦꯟꯗꯣꯛꯄ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯏꯚꯦꯟꯇꯁꯤꯡ ꯊꯕ ꯍꯧꯔꯛꯂꯕ ꯍꯧꯖꯤꯛ ꯆꯦꯜꯂꯕ ꯁꯦꯛꯁꯟ 3.3.3(c)-ꯒꯤ ꯔꯨꯟꯒꯤ ꯍꯧꯖꯤꯛ ꯅꯩꯅꯕꯅꯤ꯫

3.10 ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ, ꯑꯋꯥꯡꯕ ꯋꯥꯇꯦꯔ ꯇꯦꯕꯜ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯕꯦꯛꯋꯥꯇꯦꯔ

3.10.1 **ꯑꯋꯥꯡꯕ ꯋꯥꯇꯦꯔ ꯇꯦꯕꯜ (ꯍ꯭ꯁ꯭ꯑꯦꯜ HSG).** ꯃꯇꯝ ꯃꯇꯨꯡ ꯅꯦꯡꯅꯕ ꯑꯋꯥꯡꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯇꯦꯕꯜ ꯑꯁꯤ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯊꯛꯇꯒꯤ 0.6 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯔꯕꯗꯤ, ꯂꯩꯃꯥꯏ ꯑꯁꯨ ꯆꯍꯤ 10-ꯒꯤ ꯃꯈꯥꯗ ꯃꯦꯍꯣꯃꯦ ꯇꯣꯏꯕ ꯏꯕꯥꯎꯁꯤꯡꯗ ꯅꯦꯝꯅꯕ ꯂꯩꯃꯥꯏ ꯏꯄꯥꯛꯇꯕꯗꯤ, ꯃꯁꯤꯒꯤ ꯇꯣꯉꯥꯟꯕ ꯀꯥꯟꯅꯕꯥ ꯑꯣꯏꯕꯁꯤꯡ ꯄꯦꯂꯦꯁꯃꯦꯟꯇꯁꯤꯡ ꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯕꯦ ꯑꯅꯤꯃꯛꯀꯤꯗꯃꯛ HSG D ꯂꯥꯏꯒꯅꯕꯅꯤ꯫ ꯃꯁꯤ ꯑꯁꯤ AMC III-ꯗ ꯌꯅꯨꯡꯅꯕ (ꯀꯥꯡꯂꯣꯟ 2.11.4) ꯂꯥꯏ 12 ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯅꯥꯏꯕ ꯅꯣꯏ ꯑꯕꯒꯤ ꯏꯗꯣꯛꯂꯤꯕꯗ ꯃꯇꯝ ꯂꯥꯏꯕꯗ ꯌꯥꯝꯅ꯫

3.10.2 **ꯋꯥꯇꯦꯔ-ꯇꯦꯕꯜꯒꯤ ꯗꯦꯞꯊ.** ꯃꯇꯝ ꯃꯇꯨꯡ ꯅꯦꯡꯅꯕ ꯑꯋꯥꯡꯕ ꯋꯥꯇꯦꯔ ꯇꯦꯕꯜ ꯑꯁꯤ ꯃꯥꯏꯀꯩꯒꯤ ꯃꯇꯝꯗ (ꯑꯦꯞꯔꯤꯜ–ꯑꯣꯛꯇꯣꯕꯔ) ꯄꯦꯀꯣꯄꯗ ꯇꯥꯏꯕ ꯂꯩꯃꯥꯏꯁꯤꯡꯒꯤ ꯋꯥꯐꯝ ꯅꯣꯡꯂꯣꯟ ꯑꯣꯏꯅꯥ, ꯃꯅꯤꯄꯨꯔꯒꯤ ꯂꯥꯏꯅꯤꯡꯁꯥꯡ ꯅꯠꯔꯒꯥ ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯂꯥꯏꯔꯤꯛꯁꯤꯡꯒꯤ, ꯅꯠꯔꯒꯥ ꯂꯩꯃꯥꯏꯁꯤꯡꯒꯤ ꯅꯥꯛꯂ ꯃꯦꯍꯧ꯭ꯔꯣꯟ ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯥꯇꯦꯔ ꯕꯣꯔꯗ (Central Ground Water Board, CGWB) ꯅꯠꯔꯒꯥ WRD-ꯒꯤ ꯑꯣꯕꯁꯔꯕꯦꯁꯟ ꯋꯦꯜꯁꯤꯡꯒꯤ, ꯒ꯭ꯔꯥꯎꯟꯗ ꯅꯦꯇꯋꯥꯔꯀꯁꯤꯡꯗꯒꯤ ꯑꯦꯁꯇꯤꯃꯦꯠ ꯇꯧꯅꯕ ꯅꯤꯡꯁꯤꯡꯕꯅꯤ꯫

3.10.3 **ꯏꯃꯤꯖꯤꯅꯦꯇꯦꯃꯦꯏꯗ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯣꯏꯕ ꯅꯣꯡꯃꯩꯊ.** SCS-CN-ꯒꯤ ꯃꯍꯧꯁꯥ ꯂꯦꯄꯇꯤꯡ–ꯑꯦꯛꯁꯄꯦ, ꯄꯥꯎꯅꯥ ꯅꯠꯔꯒꯥ ꯃꯩ-ꯃꯩꯅꯝꯕꯥ-ꯑꯦꯛꯁꯄꯣꯔꯤꯡ ꯅꯣꯡꯃꯩꯊ ꯃꯤꯇꯤꯡꯅꯕꯗꯤ, ꯅꯥꯏ ꯌꯥꯕꯒꯤ ꯇꯔꯥꯏ ꯑꯃꯄꯥꯎꯁꯥ ꯀ꯭ꯔꯣꯁ꯭ꯆꯦꯛꯇꯥ ꯏꯃꯤꯖꯤꯅꯦꯇꯦꯃꯦꯅ ꯑꯁꯤ ꯃꯇꯝ ꯃꯇꯨꯡ ꯅꯦꯡꯅꯕ ꯑꯋꯥꯡꯕ ꯋꯥꯇꯦꯔ ꯇꯦꯕꯜꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯀꯥꯡꯕ ꯌꯥꯕ ꯃꯊꯧꯇꯥꯁꯤꯡꯒꯤ ꯄꯥꯎꯇꯥꯛꯅꯕꯅꯤ꯫

3.10.4 **ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯂꯩꯀꯥꯏꯒꯤ ꯕꯦꯛꯋꯥꯇꯦꯔ.** ꯃꯏꯅꯥ ꯅꯠꯔꯒꯥ ꯃꯕ-ꯀꯦꯟꯃꯦꯝꯅꯥ ꯑꯃꯅꯤ ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri), ꯃꯅꯥꯏ ꯅꯠꯔꯒꯥ ꯑꯁꯥꯡꯕ ꯏꯁꯤꯡ ꯂꯩꯀꯥꯏ ꯑꯃꯗ ꯏꯁꯤꯡ ꯌꯦꯡꯊꯣꯛꯇꯅꯕꯗꯤ:

- (a) ꯇꯣꯏꯕ ꯏꯁꯤꯡ ꯂꯩꯀꯥꯏꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯅꯦꯡꯅꯕ ꯑꯁꯤ ꯃꯇꯤꯡ 5 ꯑꯃꯁꯨꯡ ꯃꯇꯤꯡ 7 ꯃꯇꯝꯗ ꯏꯍꯧꯕ ꯃꯥꯏꯀꯩꯒꯤ ꯃꯍꯥ ꯊꯥꯕ ꯃꯐꯃꯒꯤ ꯕꯣꯍꯅꯄꯤ ꯑꯣꯏꯅꯥ ꯃꯤꯇꯤꯡꯅꯒꯅꯕꯅꯤ;
- (b) ꯅꯤꯇꯏꯅꯥ ꯏꯄꯥꯍꯦꯁꯥ ꯇꯣꯏꯕ ꯏꯁꯤꯡ ꯂꯩꯀꯥꯏꯒꯤ ꯅꯦꯡꯅꯕꯒꯤ ꯃꯍꯥꯗ ꯇꯦꯕ ꯅꯐ (FTL-ꯒꯤ ꯃꯍꯥꯗ ꯇꯦꯕ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯣꯏꯃꯣꯡ ꯌꯣꯀꯆꯦ) ꯑꯁꯤ ꯇꯣꯃ ꯌꯣꯏꯗꯅꯕ ꯏꯁꯤꯡꯒꯤ ꯃꯊꯛ ꯅꯠꯔꯒꯥ ꯃꯄꯥꯟꯗ ꯑꯣꯏꯅꯥ ꯃꯗꯦꯟ ꯊꯥꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯏꯁꯤꯡ ꯂꯩꯀꯥꯏꯒꯤ ꯅꯦꯡꯅꯕꯒꯤ ꯑꯣꯕꯁꯦꯔꯕꯦꯁꯟ ꯑꯃꯥ ꯏꯁꯤꯡꯒꯤ ꯃꯍꯥꯗ ꯊꯝꯅꯕꯗꯤ, ꯄꯥꯔꯥꯒ꯭ꯔꯥꯐ 3.12.4-ꯒꯤ ꯀꯥꯟꯅꯕꯃꯁꯤ-ꯌꯦꯡꯕ ꯊꯧꯑꯣꯏ ꯃꯤꯇꯤꯡꯅꯒꯅꯕꯅꯤ꯫

ꯅꯣꯠ ꯑꯣꯏꯕ ꯁꯣꯔꯁ. ꯂꯥꯏꯔꯤꯛ ꯑꯁꯤꯒꯤ ꯃꯤꯡ ꯑꯁꯤ NEH Part 630, Ch. 7 (USDA NRCS, 2009)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯕꯅꯤ, ꯃꯁꯤꯅꯥ ꯃꯊꯛꯇꯒꯤ 60 cm (24 in)-ꯒꯤ ꯃꯅꯨꯡꯗ ꯋꯥꯇꯦꯔ ꯇꯦꯕꯜ ꯂꯩꯕ ꯏꯁꯤꯡ ꯌꯥꯝꯕ ꯂꯩꯃꯥꯏꯁꯤꯡꯕ ꯏꯁꯤꯡ ꯇꯣꯟꯕ ꯀꯥꯡꯂꯣꯟꯁꯤꯡ ꯂꯥꯏꯊꯣꯛ D-ꯗ ꯊꯝꯅꯕ, ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯀꯥꯏꯕ ꯌꯥꯕ ꯃꯍꯩꯗ ꯂꯥꯏꯊꯣꯛ ꯑꯅꯤ (A/D, B/D, C/D) ꯂꯩ꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯄꯥꯟ ꯌꯥꯝꯕ ꯇꯦꯕ ꯅꯐ, ꯏꯃꯐꯥꯜ ꯀꯥꯡꯂꯣꯟꯒꯤ ꯅꯐ, ꯌꯥꯝꯗꯒꯤ ꯃꯇꯝ ꯌꯥꯝꯕꯗ ꯏꯁꯤꯡ ꯌꯥꯝꯕꯗꯤ ꯃꯤꯇꯤꯡꯅꯕ ꯑꯣꯏꯅꯥ ꯃꯇꯝ ꯃꯇꯨꯡ ꯅꯥꯏꯕ ꯅꯣꯏ ꯑꯕꯒꯤ ꯏꯗꯣꯛꯂꯤꯕꯗ ꯏꯁꯤꯡ ꯇꯣꯟꯕ ꯂꯥꯏꯔꯤꯛ ꯑꯁꯨ ꯃꯤꯇꯤꯡꯂꯦ꯫ ꯅꯐꯃꯒꯤ ꯌꯦꯡꯊꯣꯛ "ꯂꯝꯕꯤꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯋꯥꯇꯦꯔ ꯅꯦꯡꯅꯕꯒꯤ ꯗꯦꯞꯊ ꯑꯁꯤ 2-ꯗꯒꯤ 5 m bgl ꯐꯥꯑꯣꯕ ꯍꯣꯡꯏ" ("Depth to water level in major parts of the district varies from 2 to 5 m bgl"), ꯑꯃꯁꯨꯡ "ꯌꯥꯝꯅꯥ ꯈꯥ ꯑꯃꯁꯨꯡ ꯈꯥ-ꯅꯣꯡꯄꯣꯛ ꯊꯪꯕ ꯃꯐꯃꯁꯤꯡꯗ" ("In the extreme southern and south-western parts close to hills") 5-ꯗꯒꯤ 7 m; ꯑꯦꯞꯔꯣꯛꯁꯤꯃꯦꯠꯂꯤ ꯑꯁꯤ "ꯍꯧꯖꯤꯛ ꯑꯣꯏꯅꯥ 30-ꯗꯒꯤ 50 m ꯐꯥꯑꯣꯕ ꯆꯦꯝ ꯑꯦꯔꯦꯡꯁꯦꯟꯒꯤ ꯐꯣꯔꯃꯦꯁꯟ" ("approximately 30 to 50 m of clayey formation")-ꯒꯤ ꯃꯍꯥꯗ ꯆꯦ, "30-ꯗꯒꯤ 65 m bgl ꯐꯥꯑꯣꯕꯒꯤ ꯗꯦꯞꯊ ꯐꯥꯑꯣꯕ ꯆꯦꯝ ꯑꯦꯔꯦꯡꯁꯦꯟꯒꯤ ꯅꯤꯡꯊꯧꯁꯤꯡ" ("clayey deposit down to depth range of 30 to 65 m bgl") ꯆꯦ, ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯑꯁꯤ ꯀꯥꯡꯒꯤ ꯑꯋꯥꯡꯗ ꯌꯦꯡꯁꯤ (CGWB, Imphal West district booklet, Technical Report Series D No. 28/2013-14, 2013)꯫ ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ ꯂꯥꯏꯅꯤꯡꯁꯥꯡꯒꯤ ꯄꯥꯗ ꯑꯁꯤ 44 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯆꯦ ꯑꯦꯛꯁꯞꯂꯣꯔꯦꯁꯟ ꯑꯃꯍꯧꯁꯥꯁꯥ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯍꯥꯗ 2.50–4.30 m-ꯗ ꯆꯦ, ꯆꯦꯝ ꯑꯦꯔꯦꯡꯁꯟ ꯂꯥꯏꯁꯥꯂꯣꯟ ꯇꯣꯟꯅꯕ; ꯋꯥꯇꯦꯔ ꯅꯦꯡꯅꯕ ꯑꯁꯤ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯥꯗ ꯋꯥꯏꯅꯩꯅꯝꯕꯥ ꯑꯃꯁꯨꯡ "ꯃꯥꯔꯆ ꯑꯣꯔꯣꯏꯕꯗ ꯃꯁꯤꯒꯤ ꯅꯣꯡꯂꯣꯟꯁꯤꯡꯒꯤ ꯅꯦꯡꯕꯗ ꯌꯧꯏ" ("reaches its minimum during March-end") (CGWB, Bishnupur district booklet, 2013)꯫ ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔꯒꯤ ꯑꯃꯍꯧꯁꯥꯁꯥ ꯃꯊꯛꯇꯥ ꯇꯦꯕꯜꯅꯥ ꯃꯦꯍꯧꯔꯣꯟꯒꯤ ꯃꯃꯤ ꯄꯣꯛꯃꯤꯡꯒꯤ ꯃꯍꯥꯗ 2.73–16.02 m ꯑꯃꯁꯨꯡ 1.47–3.36 m ꯀꯥꯏꯊꯣꯛ, ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ ꯄꯣꯛꯂꯤꯕ ꯃꯁꯤꯒꯤ ꯄꯔꯦꯃꯁꯤꯡ ꯁ꯭ꯇꯦꯠ ꯑꯁꯤ ꯃꯁꯨꯡꯅꯥ ꯏꯄꯥꯛ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯁꯤꯡꯁꯤꯡ ꯃꯤꯇꯤꯡꯅꯕ [TBC]꯫ ꯂꯦꯡꯁꯤꯡꯒꯤ ꯄꯣꯏꯅꯕ ꯂꯩꯃꯥ ꯑꯁꯤ ꯂꯩꯍꯧꯔꯦ, "ꯂꯩꯍꯧꯕ ꯂꯩꯃꯥꯏꯁꯤꯡ" ("peaty soils") "ꯑꯦꯁꯤꯗꯤꯇꯤ ꯌꯥꯝꯂꯕ ꯌꯥꯝꯕ" ("high acidity") (CGWB, Bishnupur), ꯑꯃꯁꯨꯡ ꯀꯨꯃꯗꯤꯒꯤ ꯁꯦꯡꯕ ꯃꯦꯍꯧꯔꯣꯟꯁꯤꯡꯕ ꯅꯥꯛꯂꯕꯗ ꯃꯇꯦꯡ ꯌꯥꯝꯕ ꯀꯨꯂꯥꯔꯣꯟ (ꯂꯥꯏꯁꯥ ꯀꯥꯡꯂꯣꯟꯁꯤꯡ ꯃꯇꯝꯗ ꯅꯦꯡꯕ)꯫ ꯁꯥꯔꯂꯥ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯂꯥꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯇꯦꯕꯜ ꯑꯃꯗ ꯑꯣꯏꯅꯥ, "ꯃꯅꯤꯄꯨꯔ ꯁꯥꯡꯂꯣꯟꯁꯥ ꯅꯐ ꯍꯧꯖꯤꯛ ꯂꯥꯏꯁ 500" ("nearly 500 lakes in Manipur Valley") (MASTEC), ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ ꯌꯥꯝꯕ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟꯒꯤ ꯆꯦꯡꯅ ꯀꯔꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯂꯥꯏꯁꯤꯡꯁꯤꯡꯗ ꯆꯦ꯫ ꯑꯍꯥꯟ ꯑꯣꯏꯕꯁꯤ ꯏꯁꯤꯡ ꯌꯥꯝꯕꯁꯤꯡꯒꯤꯅꯤ: ꯆꯦꯝ ꯑꯦꯔꯦꯡꯁꯟ, ꯂꯥꯏꯁ ꯑꯃꯒꯤ

ꯃꯅꯤꯡꯌꯥ ꯅꯧꯔꯤꯕꯒꯤ ꯁꯤꯡꯊꯥꯡꯒꯤ ꯀꯥꯡꯂꯨ ꯑꯃꯒꯤ ꯃꯁꯤꯡꯗ ꯅꯩꯊ ꯂꯩꯅꯕ ꯑꯃꯒꯤ ꯃꯌꯥꯝ ꯃꯁꯤꯡ ꯅꯨꯡꯇꯥꯏꯕ ꯑꯔꯣꯏꯕ ꯇꯝꯄꯥꯛ ꯑꯣꯏ ꯍꯪꯂꯦ ꯌꯥꯎꯅ, ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯂꯃꯗꯝ ꯑꯃꯗ ꯇꯃ ꯑꯁꯤ "ꯍꯞꯇꯥ ꯀꯌꯥ" ("several weeks") ꯂꯩꯔꯤꯕꯒꯤ ꯃꯍꯩꯗ ꯅꯩ (AIIB, *Approval Project Document*, 2024)꯫ ꯌꯥꯝꯅꯥ ꯋꯥꯕ ꯇꯃꯗ ꯏꯅꯥꯌꯨꯡꯁꯤꯡꯒꯤꯗꯃꯛ ꯗꯤꯇꯦꯜ ꯅꯩꯃꯛꯂꯒꯤ ꯃꯔꯣꯒꯤ ꯂꯩꯔꯤꯕꯒꯤ ꯇꯪꯒꯪ ꯑꯁꯤ ꯄꯥꯝꯖꯕꯗ ꯇꯪꯒꯪꯒꯤ (ꯁꯦꯛꯁꯟ 4.12.1)꯫ ꯍꯥꯌꯔꯤꯕ ꯑꯣꯏꯕꯁꯤꯡꯗꯥ-ꯁꯪꯒꯥ ꯇꯪꯈꯥꯏꯕ ꯑꯃꯈꯥꯏ ꯏꯃꯂꯤꯀꯄ: ꯂꯃꯏꯥꯡ ꯁꯪꯍꯥꯏ CGWB-ꯒꯤ ꯗꯒ-ꯁꯪꯒꯥ ꯃꯦꯇꯤꯌꯣꯗꯤꯗꯤ "ꯑꯦꯂꯦ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯕꯀꯒꯤ ꯏꯤꯒꯄ ꯍꯦꯃꯥꯛꯅꯇꯀꯅꯦ 1991-ꯗꯒꯤ" ("since 1991 due to disturbed law and order") ꯇꯥꯔꯀꯤ (CGWB, Imphal West), ꯑꯃꯁꯨꯡ ꯂꯃꯏꯥꯡ, ꯊꯧꯕꯥꯡ, ꯀꯥꯎꯔꯤꯗ, ꯕꯤꯍꯨꯡꯁꯥꯡꯗ, ꯃꯦꯂꯗꯤꯗ ꯇꯥꯏꯗꯒꯤ ꯇꯤꯗꯤꯕꯤꯄꯒꯤ ꯍꯦꯅꯥꯏ ꯂꯨꯗꯤꯗꯒꯤ ꯃꯦꯌꯨꯡꯌꯒꯤ ꯑꯣꯌꯗ-ꯌꯥꯕꯥꯒꯤ ꯑꯗꯨꯀ, ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝ ꯃꯁꯤꯡ ꯂꯩꯔꯤꯕ ꯑꯔꯣꯏꯕ ꯑꯣꯌꯗ ꯌꯥꯕꯥꯒꯤ ꯃꯁꯥ ꯑꯃꯈꯥꯏ ꯏꯃꯂꯤꯀꯄ [TBC]; ꯑꯍꯥꯅꯕ 3A-ꯅ ꯃꯍꯦꯔ ꯁꯥꯏꯒꯅꯤ꯫ ꯗꯤꯍꯥꯗ ꯍꯥꯒꯤ ꯔꯤꯗꯍꯤꯗꯀ ꯅꯩꯃꯛꯂꯒꯤ ꯃꯔꯣꯒꯤ ꯂꯍꯤꯗ ꯑꯍꯤ ꯏꯗꯪꯀꯔꯗꯍꯤꯗ, ꯁꯪꯀꯗ ꯌꯥꯗꯕ ꯂꯨꯗ ꯑꯃꯁꯨꯡ ꯗꯪꯕꯗꯤꯀ ꯅꯩ ꯑꯃꯁꯨꯡ ꯃꯏꯄ ꯂꯗꯀ ꯁꯥꯗꯔ ꯑꯦꯂꯅ ꯅꯩ; ꯅꯩꯃꯛꯂꯍꯤꯗ ꯁꯥꯀꯂ ꯑꯃꯁꯨꯡ ꯅꯁꯦꯄꯍꯤꯗꯅ ꯂꯍꯤꯗ ꯂꯦꯗꯍꯤꯗꯀ ꯊꯀꯦꯀꯂ꯫ ꯁꯦꯛꯁꯟ 3.10.4-ꯅ ꯍꯥꯌꯔꯤꯕ ꯂꯍꯤꯗ ꯅꯩꯗꯤꯕ ꯃꯏꯄꯍꯤꯗ ꯂꯥꯏꯕꯤ, ꯃꯂꯦꯔꯍꯤꯗ ꯑꯍꯤ ꯍꯥꯗꯀꯒꯤ ꯍꯪꯂꯦ ꯌꯥꯗꯅ ꯊꯦꯀꯁꯥ ꯁꯥꯑꯦ ꯂꯗꯕ ꯁꯨꯗꯪꯒꯍꯤꯗ, ꯕꯪꯗꯤ ꯑꯃꯁꯨꯡ ꯂꯗꯒꯤ ꯍꯤꯒ ꯑꯃꯅ ꯊꯤꯗꯕ ꯁꯥꯌ ꯑꯃꯥ, ꯁꯥꯌ ꯑꯃꯁꯨꯡ ꯁꯥꯂꯗꯤꯍꯤꯗ, ꯑꯃꯁꯨꯡ ꯒꯪꯇ ꯅꯩꯌꯕ ꯔꯤꯗꯒꯤ ꯂꯦꯗꯍꯤꯗꯅꯤ꯫ "ꯍꯥꯗ ꯑꯍꯤ ꯂꯃꯏꯥꯡ ꯁꯨꯗꯪꯒꯒꯤ ꯍꯂꯔꯪꯍꯥꯌ ꯏꯗꯀ ꯇꯪꯒꯪꯒꯒꯤ ꯃꯂꯦꯀ ꯅꯩ ꯑꯃꯁꯨꯡ ꯃꯗꯃ ꯑꯁꯨꯅ ꯃꯤꯌꯥꯃꯒꯤ ꯅꯩꯏꯃ ꯑꯁꯨ ꯃꯌꯃ ꯃꯌꯃꯒꯤ ꯂꯍꯤꯗ ꯂꯥꯌꯂꯗꯒꯤ ꯎꯗꯊꯗꯅꯕ ꯁꯨꯗꯪꯒꯒꯤ ꯃꯂꯀꯥ ꯑꯅꯤꯃꯗꯌ ꯁꯥꯑꯦꯒꯤ ꯇꯃꯕꯤꯍꯤꯗ ꯅꯩ" ("The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river to protect the settlement from seasonal floods") (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification))꯫ WRD-ꯅ ꯁꯥꯟꯇꯪꯒꯒꯤ ꯂꯨꯈꯊꯗꯀ, ꯃꯍꯤꯒꯤ ꯌꯃꯁꯥꯗꯀꯤ ꯒꯪꯇꯍꯤꯗꯒꯤꯗꯃꯛ ꯑꯣꯗꯤꯗ ꯇꯪꯒꯪ, ꯏꯗꯀ ꯇꯪꯒꯪ ꯑꯃꯁꯨꯡ ꯍꯂꯔꯪꯍꯥꯌ ꯏꯗꯀ ꯇꯪꯒꯪ ꯏꯗꯀꯗꯀꯂ, ꯗꯪꯌꯃ ꯌꯗꯌꯅ (ꯃꯪꯑꯦ ꯍꯤ ꯇꯪꯒꯪꯒꯗꯒꯤ ꯃꯤꯌꯗ ꯑꯃꯂꯒꯗꯕꯤ ꯍꯔꯅ ꯂꯑꯦꯅ [TBC]): ꯍꯥꯗꯒꯤ ꯃꯂꯗꯀ ꯅꯩ ꯃꯤꯂꯨꯊꯗ (Minuthong)-ꯗ ꯂꯃꯏꯥꯡ, 785.900 m, 786.900 m ꯑꯃꯁꯨꯡ 788.400 m, 29 ꯃꯦ 2024-ꯗ "ꯍꯂꯔꯪꯍꯥꯌ ꯏꯗꯀ ꯇꯪꯒꯪꯒꯒꯤ ꯃꯊꯗꯌ" ("above the highest flood level") ꯂꯍꯤꯗ ꯅꯗꯀꯤ; ꯇꯤꯇꯗꯀ ꯂꯃꯏꯥꯡ 780.350 m ꯑꯃꯁꯨꯡ 781.350 m (2024-ꯒꯤ ꯗꯤꯁꯥꯗꯌ ꯑꯃꯀ 781.250 m), ꯍꯂꯔꯪꯍꯥꯌ ꯇꯪꯒꯪ 782.850 m ꯅꯩ, 15 ꯍꯁꯥꯌꯃꯕꯗ 2025-ꯗ ꯁꯨꯗꯪ ꯑꯃꯂꯅ 783.250 m-ꯗ ꯃꯍꯤꯗꯒꯤ ꯍꯪꯑꯦꯀꯤ; ꯂꯗꯤꯒꯕꯨ (Irilbung)-ꯗ ꯂꯗꯤꯒ 786.700 m ꯑꯃꯁꯨꯡ 787.700 m, ꯍꯂꯔꯪꯍꯥꯌ ꯇꯪꯒꯪ 782.200 m ꯍꯔꯅ ꯏꯗꯀꯗꯀꯤ, ꯃꯍꯤꯒꯤ ꯏꯗꯀ ꯇꯪꯒꯪꯒꯒꯤ ꯃꯂꯀ, ꯃꯍꯤꯗꯍꯤꯗꯀ ꯑꯗꯪꯅꯕ ꯑꯃꯥ [TBC]; ꯊꯧꯕꯥꯡ 778.915 m ꯑꯃꯁꯨꯡ 779.915 m (ꯒꯪꯇꯍꯤ ꯃꯃꯗ ꯅꯀꯕ); ꯊꯗ ꯇꯃꯕꯗꯕꯤ (Thong Nambonbi, Hump Bridge)-ꯗ ꯇꯃꯕꯨꯒ ꯍꯂꯔꯪꯍꯥꯌ ꯇꯪꯒꯪ 783.695 m; ꯇꯃꯕꯒ ꯊꯗꯈꯗ (Nambol Thongkhong)-ꯗ ꯇꯃꯕꯒ 774.700 m ꯇꯥꯏꯗꯒꯤ 774.400 m (2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯗꯤꯁꯥꯗꯌꯍꯤꯗ ꯌꯎꯑꯦꯅ); ꯑꯃꯁꯨꯡ ꯂꯊꯂ ꯕꯪꯗꯤꯇꯀ ꯃꯦꯗꯁꯥꯗ ꯁꯨꯗꯪ ꯍꯂꯔꯪꯍꯥꯌ ꯇꯪꯒꯪ 769.320 m, 15 ꯍꯁꯥꯌꯃꯕꯗ 2025-ꯗ 770.05 m-ꯗ ꯃꯍꯤꯗꯒꯤ ꯍꯪꯑꯦꯀꯤ (Sangai Express, 30 May 2024 ꯑꯃꯁꯨꯡ 16 September 2025, WRD-ꯒꯤ ꯃꯍꯤꯗꯍꯤꯗ ꯏꯗꯀꯗꯀꯂꯅ; ꯁꯥꯟꯀ ꯏꯗꯀꯗꯀꯤꯕ ꯃꯌꯃ ꯂꯑꯦ)꯫ ꯂꯃꯏꯥꯡ ꯑꯍꯤ ꯂꯗ ꯊꯂꯅ 790 m-ꯗ ꯅꯩ (AIIB), ꯃꯗꯃ ꯑꯃꯂꯅ ꯂꯃꯏꯥꯡ ꯁꯨꯗꯪꯒꯒꯤ ꯃꯅꯤꯡꯌꯥ ꯅꯩ ꯍꯥꯗꯒꯤ ꯂꯗꯕꯑꯦꯍꯤꯗꯅ ꯃꯍꯤꯒꯤ ꯏꯗꯀ ꯍꯥꯌꯇꯒꯤ ꯃꯤꯌꯗ ꯑꯃꯥ ꯇꯥꯏꯗꯒꯤ ꯑꯇꯤꯒꯤ ꯃꯂꯗꯀ ꯂꯍꯤꯗ ꯊꯀꯦꯀꯂ (NEER-ꯒꯤ ꯁꯥꯕ)꯫ ꯌꯃꯁꯥꯗꯀꯤ ꯁꯨꯗꯪ ꯂꯨꯗꯤꯗꯃꯛ ꯔꯩꯕ ꯁꯥꯌ ꯅꯗꯌꯗ ꯑꯍꯤ NHPC-ꯒꯤ ꯂꯊꯂ ꯕꯪꯗꯤꯇꯅ ꯂꯨꯒ ꯗꯤꯇꯗꯤꯒꯔꯗ ꯇꯪꯒꯪ 768.5 m-ꯗ ꯊꯍꯤꯂ, ꯃꯤꯇꯤꯃ ꯏꯗꯀꯗꯀꯑꯦ ꯇꯪꯒꯪ 766.2 m-ꯒ ꯅꯔꯅ (NHPC, ꯀꯥꯌꯂꯤꯕ ꯃꯌꯃ ꯂꯑꯦ; CEA-ꯅ 766.01 m ꯁꯥꯏ, ꯑꯃꯁꯨꯡ ORF-ꯒꯤ ꯑꯗꯌꯍꯤꯗꯒ ꯑꯃꯅ ꯂꯨꯒ ꯇꯪꯒꯪꯒꯒꯤꯗꯃꯛ 769.63 m ꯑꯃꯁꯨꯡ "ꯏꯗꯀ ꯇꯪꯒꯪ" ("flood level") ꯑꯂꯅ 768.50 m ꯁꯥꯏ, ꯁꯥꯟꯀ ꯏꯗꯀꯗꯀꯤꯕ ꯃꯌꯃ ꯂꯑꯦ: ꯃꯍꯤꯗꯍꯤꯗ ꯑꯍꯤ ꯔꯩꯇꯀ), ꯑꯃꯁꯨꯡ ꯕꯪꯗꯤꯇꯀꯤ ꯃꯂꯀ ꯃꯤꯇꯤꯁꯥꯗ ꯁꯨꯗꯪꯒꯒꯤ ꯃꯂ ꯑꯍꯤ ꯂꯗ ꯊꯂꯅ 800 m-ꯒꯤ ꯃꯂꯗꯀ "ꯑꯀꯃꯅ 763.7 m ꯏꯗꯀꯕ" ("steeply upto 763.7 m") ꯔꯩꯂꯌꯇꯗꯂ, ꯒꯪꯌꯍꯤꯗꯅ ꯀꯗꯤ ꯌꯗꯗꯕꯍ ꯑꯗꯀꯌꯏꯗꯀ ꯊꯍꯤꯕ ꯃꯍꯥꯂꯒꯤ ꯍꯤꯒ ꯑꯃꯅꯤ (MASTEC)꯫ ꯍꯥꯗꯒꯤ ꯃꯂꯗꯀ ꯅꯩ ꯇꯃꯏꯪꯒꯁꯥꯌ ꯑꯍꯤ "ꯔꯍꯤ ꯂꯨꯗꯤꯗꯒꯤ ꯂꯨꯃꯤꯌ ꯀꯔ ꯂꯍꯤꯗ ꯂꯨꯃꯀꯅ ꯅꯩ" ("remains waterlogged for many days every year") (NDB, project summary) ꯑꯃꯁꯨꯡ ꯂꯍꯤꯗ ꯂꯔꯀ ꯔꯀꯕ ꯃꯌꯃꯀ ꯍꯁꯨꯂꯗ ꯅꯅ (Shamushang nallah)-ꯒꯤ ꯂꯨꯌꯊꯗꯀ ꯇꯃꯕꯨꯒꯀ ꯁꯥꯃꯁꯥ ꯌꯂꯅ ꯂꯍꯤꯗ ꯊꯀꯦꯀꯂ (HC PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯍꯂꯌ ꯗꯤꯁꯥꯗꯌ)꯫ ꯃꯏꯃ ꯑꯂꯀ ꯅꯩ ꯍꯂꯌ ꯑꯃꯅ ꯁꯨꯗꯪ, ꯕꯪꯗꯤꯇ ꯇꯥꯏꯗꯒꯤ ꯁꯥꯃꯁꯥꯍꯤꯗꯅ ꯊꯍꯤꯕ ꯂꯍꯤꯗꯒꯤ ꯃꯊꯗ ꯑꯃꯀ ꯂꯍꯤꯗ ꯊꯀꯦꯀꯂ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 3.12-ꯒꯤ ꯍꯑꯦꯀꯗꯅ ꯌꯗꯁꯥꯀ ꯊꯃꯕ ꯅꯗꯤꯕ ꯂꯍꯤꯗꯒꯤ ꯌꯗꯏꯃꯒꯤ ꯇꯪꯒꯪ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 5.8.5-ꯒꯤ ꯌꯪꯒꯔꯌꯗꯒꯤ ꯃꯂꯀ ꯅꯩ ꯇꯃꯀ ꯁꯦꯛꯁꯟ 3.10.4(b) ꯔꯌꯇꯤ꯫ CWC-ꯒꯤ ꯍꯥꯌꯔꯤꯕ ꯍꯂꯌ ꯑꯃꯂꯗꯌ ꯅꯩ, ꯇꯤꯗꯤꯕꯤꯒꯤ ꯃꯅꯤꯡꯌꯥ ꯅꯩ ꯁꯌꯕꯥꯕꯪꯗꯤ (Chotebekra)-ꯗ ꯕꯗꯗꯀꯤ ꯇꯪꯒꯪ-ꯃꯇꯤꯌꯗꯤ ꯍꯂꯌ ꯑꯃꯥ, 31 ꯂꯨꯂꯥꯏ 1989-ꯗ ꯍꯂꯔꯪꯍꯥꯌ ꯏꯗꯀ ꯇꯪꯒꯪ 32.1 m ꯅꯩ (CWC, SANDRP-ꯅ ꯂꯗꯗꯁ ꯃꯌꯃ ꯂꯑꯦ); ꯂꯃꯏꯥꯡ, ꯇꯃꯕꯨꯒ, ꯂꯗꯤꯒ, ꯊꯧꯕꯥꯡ ꯇꯥꯏꯗꯒꯤ ꯃꯤꯇꯤꯁꯥꯗ ꯁꯨꯗꯪꯀ ꯑꯃꯈꯥꯏ ꯅꯩ꯫

3.11 ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯛ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯁꯟ

3.11.1 **ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ.**

- (a) 25 km²-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯍꯔꯒꯤ ꯃꯐꯃꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯆꯥ ꯌꯥꯝꯂꯕ ꯑꯃꯁꯨꯡ ꯂꯝ-ꯂꯩꯐꯝꯁꯤꯡꯗꯥ, SCS (NRCS)-ꯒꯤ ꯗꯥꯏꯃꯦꯟꯁꯟꯂꯦꯁ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ, ꯃꯦꯊꯗꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯑꯦꯞꯂꯥꯏ ꯇꯧꯕꯥ;
- (b) ꯁꯍꯔꯒꯤ ꯗ꯭ꯔꯦꯅꯦꯖ ꯅꯦꯇꯋꯥꯔꯀꯤ ꯃꯊꯛꯇꯥ SWMM-ꯒꯤ ꯔꯟ-ꯑꯣꯐ ꯃꯣꯗꯦꯂꯤꯡ;
- (c) ꯁꯦꯛꯁꯟ 3.15-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯁ꯭ꯇꯣꯔꯃꯁꯤꯡ ꯌꯦꯡꯁꯤꯟꯕꯥ ꯊꯝꯕꯥ, HEC-HMS-ꯗꯥ ꯍꯦꯟꯅꯥ ꯂꯨꯕꯥ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ; ꯑꯃꯁꯨꯡ
- (d) 25–5,000 km²-ꯒꯤ ꯃꯅꯨꯡꯗꯥ CWC-ꯒꯤ ꯔꯤꯖꯤꯑꯣꯅꯦꯜ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ (ꯁꯦꯛꯁꯟ 3.11.4)꯫

3.11.2 **SCS ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ.** ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯒꯤ ꯄꯤꯛ ꯑꯃꯁꯨꯡ ꯄꯤꯛ ꯐꯪꯅꯕꯒꯤ ꯃꯇꯝ ꯑꯁꯤ ꯃꯈꯥꯗꯥ ꯄꯤꯔꯤꯕꯥ ꯑꯁꯤꯅꯤ:

> qp = PRF' · A · Q / tp, PRF' = 0.208 ꯑꯣꯏꯕꯥ (ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯄꯤꯛ ꯔꯦꯠ ꯐꯦꯛꯇꯔ 484-ꯒꯤ SI ꯃꯑꯣꯡ) tp = Δt / 2 + tL, tL = 0.6 Tc

ꯃꯐꯝ ꯑꯁꯤꯗ qp ꯑꯁꯤ ꯄꯤꯛ ꯗꯤꯁꯆꯥꯔꯖ (m³/s); A ꯑꯁꯤ ꯑꯦꯔꯤꯌꯥ (km²); Q ꯑꯁꯤ ꯔꯟꯑꯣꯐꯒꯤ ꯗꯦꯞꯊ (mm), ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯒꯤꯗꯃꯛ 1 mm-ꯅꯤ ꯂꯧꯏ; tp ꯑꯁꯤ ꯄꯤꯛ ꯐꯪꯅꯕꯒꯤ ꯃꯇꯝ (h); ꯑꯃꯁꯨꯡ Δt ꯑꯁꯤ ꯗꯔꯦꯁꯟ ꯏꯐꯦꯛꯇꯤꯕ ꯃꯇꯝ (h)꯫

3.11.3 **ꯗꯔꯦꯁꯟ ꯏꯐꯦꯛꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯝ-ꯂꯩꯐꯝꯁꯤꯡ.**

- (a) Δt ꯑꯁꯤ ꯍꯟꯊꯅꯕꯒꯤ ꯑꯄꯤꯀꯄ ꯂꯝ-ꯂꯩꯐꯝꯒꯤ 0.133 Tc-ꯗꯒꯤ, ꯃꯗꯨꯅꯥ ꯁꯦꯛꯁꯟ 2.9.1-ꯒꯤ ꯍꯥꯏꯏꯗꯔꯣꯒ꯭ꯔꯥꯐ ꯌꯥꯕ ꯁꯦꯃꯒꯠꯅꯕ ꯍꯣꯠꯅꯩꯗꯨꯅꯤ꯫
- (b) ꯂꯝ-ꯂꯩꯐꯝꯁꯤꯡ ꯑꯁꯤ HSG, ꯑꯦꯔꯤꯒꯤ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯅꯕ ꯌꯥꯝꯂꯕ ꯂꯩꯔꯤꯕꯅꯤ꯫ ꯄꯤꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯃꯦꯟꯁꯟ ꯁꯦꯃꯦꯟꯗ ꯍꯥꯄꯆꯤꯟꯕꯁꯤꯡ ꯑꯦꯔꯤꯁꯤꯡ ꯁꯦꯛꯁꯟ 3.9.2 ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯌꯨꯅꯤꯠ ꯂꯝ-ꯂꯩꯐꯝꯁꯤꯡ ꯑꯣꯏꯅꯥ ꯂꯧꯅꯤ꯫

3.11.4 **CWC ꯔꯤꯖꯤꯑꯣꯅꯦꯜ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ.** CWC ꯁꯕꯖꯣꯟ 2(c) (Barak and others)-ꯗ ꯌꯥꯑꯣꯕ 25–5,000 km²-ꯒꯤ ꯁꯍꯔꯒꯤ ꯃꯐꯃꯁꯤꯡꯗꯥ, ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯃꯔꯤ ꯑꯁꯤꯒꯤ ꯑꯣꯏꯅꯥ (ꯁꯦꯛꯁꯟ 2.3.6(b)) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤꯗꯃꯛ CWC-ꯒꯤ ꯐ꯭ꯂꯗ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯠ (Flood Estimation Report) ꯑꯃꯥ ꯂꯩꯔꯤ; ꯁꯕꯖꯣꯟ 2(b) (South Brahmaputra)-ꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯂꯝ-ꯂꯩꯐꯝ ꯃꯥꯟꯅꯕ ꯃꯐꯃꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡꯒꯤ ꯁꯔꯨꯛ ꯑꯣꯏꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯒꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯁꯦꯛꯁꯟ 2.3.3(b)-ꯒꯤ ꯗꯦꯇꯥ-ꯁꯥꯡꯗꯃꯛꯇꯥ CWC-ꯒꯤ ꯄꯥꯔꯥꯃꯤꯇꯔ ꯍꯣꯡ ꯌꯥꯕ ꯑꯃꯥ ꯂꯩ:

- (a) SUH ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ, ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯗꯌꯨꯔꯦꯁꯟ, ꯍꯧ ꯔꯦꯠ, ꯈꯣ ꯑꯦꯔꯤ, ꯂꯩꯐꯝ ꯃꯥꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯕ ꯗꯤꯁꯇ꯭ꯔꯤꯕꯌꯨꯁꯟ ꯑꯁꯤ ꯁꯦꯛ ꯃꯗꯨꯅꯥ DEM ꯑꯃꯗꯒꯤ ꯂꯧꯕ ꯊꯝꯕ ꯁꯍꯔꯒꯤ ꯐꯤꯖꯤꯑꯣꯒ꯭ꯔꯥꯐꯤꯛ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ, ꯁꯔꯨꯛ CWC ꯐ꯭ꯂꯗ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯠꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗꯤ;
- (b) ꯄꯨꯡ 24-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯧ ꯌꯥꯕ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 2.3.3(b) ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 2.7.3-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯂꯧꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 2.8-ꯒꯤ ꯁꯦꯟꯁꯤꯇꯤꯕ ꯐꯦꯛꯇꯔ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥꯅꯤ;
- (c) SUH-ꯒꯤ ꯃꯍꯩ ꯑꯁꯤ ꯍꯥꯏꯗꯥ ꯌꯥꯕꯤ ꯃꯍꯩꯒꯤ ꯐꯤꯔꯃꯒꯤꯗꯃꯛ HEC-HMS ꯃꯗꯨꯅꯥ SWMM-ꯒꯤ ꯃꯍꯩꯅꯤ ꯃꯔꯤꯇꯗꯥ ꯔꯤꯄꯣꯔꯠ ꯌꯥꯒꯅꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯦꯊꯗꯁꯤꯡ CWC SUH-ꯗꯒꯤ ꯍꯦꯟꯕ 1% AEP-ꯒꯤ ꯄꯤꯛ ꯄꯤꯔꯤꯕꯗꯤ, ꯗꯤꯖꯥꯏꯟꯒꯤ ꯁꯦꯛꯁꯟ 3.15-ꯒꯤ ꯃꯇꯨꯡ ꯁꯤꯡꯊꯕꯥ ꯂꯣꯏꯁꯤꯟꯕꯒꯤ ꯃꯦꯊꯗ ꯑꯗꯨ ꯌꯥꯝꯅꯕ ꯍꯥꯏꯕꯁꯤ ꯁꯣꯏꯗꯅꯥ ꯃꯗꯨꯅꯥ CWC SUH-ꯒꯤ ꯄꯤꯛ ꯑꯗꯨ ꯊꯝꯒꯅꯤ꯫

3.11.5 **ꯃꯤꯍꯨꯠ ꯑꯣꯏꯕ ꯃꯦꯊꯗꯀꯤ ꯁꯦꯟꯁꯤꯇꯤꯕ ꯑꯦꯔꯤꯗꯃꯛ ꯄꯤꯛ ꯔꯦꯠ ꯐꯦꯛꯇꯔ.** ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯐꯦꯛꯇꯔ (484; PRF' = 0.208) ꯑꯁꯤ ꯗꯤꯐꯣꯜꯇꯅꯤ꯫ ꯍꯦꯟꯅꯥ ꯍꯦꯟꯕ ꯐꯦꯛꯇꯔ ꯑꯃꯥ ꯃꯇꯝ ꯐꯤꯔꯃꯁꯤꯡꯗ ꯌꯥꯕꯗꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ:

- (a) ꯄꯥꯡꯊꯣꯛ ꯃꯗꯨꯅꯥ ꯗꯤꯖꯥꯏꯟ ꯊꯝꯕ ꯌꯥꯕ ꯂꯤꯡ ꯂꯩꯕ, ꯁꯍꯔ ꯂꯩꯕ, ꯃꯤꯍꯨꯠ ꯑꯣꯏꯕ ꯃꯦꯊꯗ ꯗꯥꯁ꯭ꯇ꯭ꯔꯤ-ꯄꯦꯔꯥꯃꯤꯇꯔ ꯑꯦꯔꯤꯗꯃꯛ;
- (b) ꯁꯍꯔ ꯂꯩꯕꯥ ꯂꯩꯕꯤ ꯑꯦ ꯑꯃꯁꯨꯡ ꯃꯆꯥ ꯌꯥꯝꯂꯕ ꯗꯤꯁꯇ꯭ꯔꯤꯕꯌꯨꯁꯟꯒꯤ ꯃꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯨꯠꯇꯥ ꯄꯤꯛ ꯑꯄꯤꯀꯄ ꯃꯑꯣꯡ ꯑꯃꯠꯇꯥ;

ꯑꯃꯁꯨꯡ

- (c) ꯑꯦꯗꯥꯞꯇꯤꯕꯁꯤꯅꯤ ꯑꯣꯐꯦꯁꯇ 3D-ꯗ ꯃꯦꯇꯤꯕꯦꯜ ꯄꯥꯕꯇ ꯀꯥꯡꯂꯣꯟ ꯇꯥꯕꯇ ꯍꯟꯗꯥ꯫

ꯗꯦꯀꯦꯇꯁꯍꯦꯟꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯃꯥꯏꯀꯩꯗ ꯁꯔꯨꯛ, ꯇꯔꯨꯡ ꯄꯥꯕꯇ ꯅꯤꯡꯊꯧ ꯇꯧꯕꯒꯤ ꯃꯕꯨꯡꯂꯣꯟꯗꯤ ꯅꯥꯡꯂꯣꯟ ꯑꯣꯏꯅꯥ ꯇꯥꯏ ꯁꯦꯝꯕꯅꯥ ꯈꯣꯡꯃꯨ ꯂꯩꯔꯤꯕꯅꯤ꯫

> **ꯂꯦꯝꯕꯥꯅꯤ ꯄꯥꯎꯖꯦꯜ.** SCS ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ, 0.6 ꯇꯥꯡ ꯃꯥꯂꯣꯏꯅ ꯑꯃꯁꯨꯡ 0.133 Tc ꯊꯦꯡꯅꯕꯥ ꯑꯃꯁꯨꯡ NEH Part 630, Ch. 16 (USDA NRCS, 2007)-ꯗꯒꯤ ꯂꯧꯔꯛꯄꯅꯤ꯫ ꯊꯦꯡꯅꯕꯥ ꯑꯃꯁꯨꯡ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯄꯤꯔꯤꯕ ꯐꯣꯔꯃꯨꯂꯥ: tp = Δt/2 + 0.6 Tc ꯑꯃꯁꯨꯡ Tc + Δt = 1.7 tp ꯑꯣꯏꯔꯕꯗꯥ, Δt = 0.133 Tc꯫ SI ꯀꯅꯚꯔꯖꯟ 0.208 ꯑꯃꯁꯨꯡ 484 (cfs, mi², in, h)-ꯒꯤ ꯃꯔꯛꯇꯥ ꯃꯔꯤ ꯂꯩꯅꯤ꯫ APWA-ꯅꯥ SCS-ꯒꯤ ꯗꯥꯏꯃꯦꯟꯁꯅꯂꯦꯁ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯣꯏꯅꯥ ꯂꯧꯁꯤꯜꯂꯤ (2011, §5602.5)꯫ CWC-ꯒꯤ ꯐꯂꯗ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯠ ꯃꯦꯊꯗꯣꯂꯣꯖꯤꯅꯥ ꯂꯧꯁꯤꯜꯂꯤꯕ ꯁꯕ-ꯖꯣꯅꯁꯤꯡꯗ SUH ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯃꯣꯗꯦꯜ ꯊꯝꯕꯤꯔꯦ, ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯕ꯭ꯌꯨꯁꯟ, ꯍꯥꯏꯗꯥ ꯂꯣꯁ ꯃꯦꯠ ꯑꯃꯁꯨꯡ ARF ꯑꯃꯁꯨꯡ ꯄꯣꯏꯟꯠ-ꯇꯨ-ꯑꯦꯔꯤꯌꯥ ꯀꯅꯚꯔꯖꯟ ꯐꯦꯛꯇꯔ ꯌꯥꯏ (CWC 2000; ꯂꯃꯥꯏ 2 ꯌꯦꯡꯕꯤꯌꯨ)꯫ ꯍꯥꯟꯅ 2000-ꯒꯤ ꯃꯦꯊꯗꯣꯂꯣꯖꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯗꯥꯇꯥ ꯇꯧꯕ ꯍꯥꯌꯔꯤꯕ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯅꯗꯒꯤ ꯂꯧꯈꯤꯕꯅꯤ (ꯍꯣꯡꯒꯤ ꯃꯇꯝ ꯄꯥꯕꯇ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ 14 ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯃꯦꯠ ꯁ꯭ꯇꯦꯁꯟ ꯇꯧꯕ ꯗꯥꯇꯥꯒꯤ ꯂꯤꯅꯥꯏꯔꯤꯕꯅꯤ, 1961-ꯗꯒꯤ 1983 ꯐꯥꯑꯣꯕ ꯃꯍꯩꯌꯦ ꯗꯥꯇꯥꯗ ꯑꯃꯁꯨꯡ 1981-ꯗꯒꯤ ꯄꯜꯕꯤꯇꯦꯁꯟ ꯗꯥꯇꯥꯗ ꯃꯇꯝ ꯄꯥꯟꯕ, ꯑꯃꯁꯨꯡ ꯑꯍꯣꯡꯕꯅꯥ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯊꯣꯏꯗꯣꯛ ꯌꯦꯡꯁꯤꯟꯕꯥ; CWC-ꯅꯥ ꯁꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥ ꯂꯦꯃꯍꯧꯕ 2(c)-ꯒꯤꯗꯃꯛ ꯃꯦꯊꯗꯣꯂꯣꯖꯤ ꯑꯍꯣꯡꯕ ꯐꯥꯑꯣꯕꯥ ꯅꯤꯡꯁꯤꯡꯕꯤꯌꯨ), ꯍꯥꯏꯅ ꯑꯍꯩꯅꯥ ꯍꯥꯟꯅꯅꯥ ꯂꯃꯗꯥ ꯑꯣꯏꯕꯥꯕ ꯐꯤꯕꯝꯂꯣꯟ ꯅꯤꯡꯊꯧꯕ ꯗꯦꯀꯦꯇꯁꯍꯦꯟꯕꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯐꯤꯕꯝꯂꯣꯟ ꯆꯪꯅꯤ꯫ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ SUH ꯑꯃꯁꯨꯡ ꯗꯦꯀꯦꯇꯁꯍꯦꯟꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯍꯥꯏꯅꯕ ꯑꯣꯏꯅꯥ ꯅꯤꯡꯊꯧꯕ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯑꯣꯏꯅꯥ ꯂꯧꯁꯤꯜꯂꯤ꯫ ꯁꯦꯛꯁꯟ 3.11.4(d)-ꯅꯥ ꯁꯦꯛꯁꯟ 2.3.3-ꯒꯤ ꯐꯂꯁꯤꯡ ꯄꯔꯤꯛꯁꯥꯒꯤ ꯑꯍꯥꯟ ꯆꯪꯅꯤ꯫ ꯊꯦꯡꯅꯕꯒꯤ ꯁꯦꯝꯕꯥꯗꯒꯤ HEC-HMS ꯑꯃꯁꯨꯡ CWC ꯂꯃꯥꯏꯒꯤ SUH ꯃꯦꯊꯗꯣꯂꯣꯖꯤꯒꯤ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯄꯥꯟꯕꯥ, ꯍꯥꯏꯕ ꯍꯥꯟꯅ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯗꯕ ꯌꯥꯏ ꯃꯔꯝ ꯆꯪꯅꯤ꯫

3.11.5-ꯒꯤ ꯃꯦꯊꯗ ꯄꯥꯏꯕ ꯐꯤꯕꯝꯂꯣꯟꯒꯤ ꯑꯣꯏꯕꯒ ꯑꯃꯁꯨꯡ NRCS-ꯒꯤ ꯗꯦꯂꯃꯥꯔꯚꯥ (Delmarva) ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯗ ꯌꯨꯖꯤꯛ ꯑꯣꯏꯅ, ꯍꯥꯏꯕ ꯗꯦꯂꯃꯥꯔꯚꯥ ꯄꯦꯅꯤꯅꯁꯨꯂꯥꯒꯤ ꯂꯤꯊꯣꯏꯅ ꯌꯥꯝ ꯂꯥꯕꯣꯠ, ꯌꯥꯏꯅ ꯐꯂꯗ ꯇꯥꯟꯕ ꯀꯅꯚꯔꯖꯟ-ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤꯗꯃꯛ ꯄꯤꯛ ꯃꯥꯏ ꯐꯤꯕꯝ 284 (PRF′ ≈ 0.122) ꯂꯧꯁꯤꯜꯂꯤ (Welle et al., 1980, NRCS-ꯅꯥ ꯇꯥꯛꯄ ꯍꯧꯖꯤꯛ ꯊꯦꯡ; New Jersey Department of Agriculture, Delmarva bulletin, ꯍꯥꯏꯕ 285 ꯂꯧꯁꯤꯜꯂꯤ)꯫ ꯃꯦꯊꯗ ꯄꯥꯏꯕ ꯐꯤꯕꯝ ꯑꯍꯥꯟ ꯃꯦꯊꯗ ꯄꯥꯏꯕ, ꯃꯦꯊꯗ ꯍꯧꯖꯤꯛꯇ ꯇꯧꯕ ꯄꯤꯗ ꯑꯍꯦ ꯄꯤ꯫ ꯗꯦꯀꯦꯇꯁꯍꯦꯟꯕꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯃꯦ ꯊꯥꯟꯗ ꯂꯧꯁꯤꯜꯂꯤꯕꯗꯥ, ꯍꯥꯏꯕ Q_pre ꯃꯦꯗꯃꯦꯇꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯤꯇ ꯀꯥꯞ ꯑꯍꯩ ꯃꯦꯊꯗ ꯀꯦꯗꯃꯦꯇꯒꯤ; ꯄꯥꯅꯄ ꯇꯥꯕ ꯗꯦꯀꯦꯇꯁꯍꯦꯟꯕꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯃꯦ ꯑꯍꯥꯟ ꯂꯧꯁꯤꯜꯂꯤꯕꯗꯥ, ꯍꯥꯏꯕ Q_post ꯃꯦꯗꯃꯦꯇꯒꯤ꯫ ꯁꯦꯛꯁꯟ 3.11.5(b)-ꯅꯥ ꯕꯊꯌꯂ ꯑꯁꯤꯍꯛ ꯐꯤꯅꯊ꯫

3.12 ꯃꯦꯟꯁꯕꯤꯟ

3.12.1 **ꯂꯥꯏꯃꯥꯇ ꯃꯦꯟꯁꯕꯤꯟ.** ꯗꯤꯕꯥꯅꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯤꯕꯥꯅꯂꯦ ꯐꯥꯂꯤꯇꯤꯕꯤꯂꯤꯟ, ꯄꯨꯊꯃꯤꯂꯤꯟ, ꯄꯦꯅꯗꯂꯤꯟ ꯑꯃꯁꯨꯡ ꯄꯅꯦ (embankment)-ꯂꯤꯟꯒꯤ ꯍꯧꯖꯤꯛ ꯇꯥꯕ ꯂꯥꯏꯃꯥꯇ ꯑꯍꯃꯣꯡꯕꯒꯤ ꯌꯨꯝꯐꯝꯗ ꯃꯦꯟꯁꯕꯤꯟ ꯄꯥꯕꯗ ꯇꯒꯥꯟ-ꯄꯨꯟ (ꯍꯦꯗꯤꯐꯊꯗ ꯄꯨꯇꯂ, ꯂꯥꯏꯃꯥꯇ-ꯊꯦꯗꯤꯀꯥꯂꯦ) ꯃꯦꯟꯁꯕꯤꯟ ꯂꯤꯇꯤꯕꯦꯇꯒꯗꯕꯅꯤ, ꯍꯥꯛꯒꯤꯂꯤꯟꯒꯤ ꯇꯥꯌꯇꯅꯥ:

- (a) ꯗꯤꯖꯥꯏꯟ ꯒꯃꯥꯗꯤꯟ ꯅꯩꯃꯒꯤ ꯂꯃꯒꯥꯗꯒꯤ ꯇꯥꯕ ꯂꯥꯏꯇ–ꯂꯥꯏꯃꯥꯇꯒꯤ ꯍꯃꯤ;
- (b) ꯑꯦꯁꯩꯇꯩ ꯌꯨꯗꯤꯟꯍꯧꯀꯤ (ꯑꯦꯃꯤꯐꯤꯂ, ꯌꯤꯔꯃ, ꯂꯃꯄꯇꯂ ꯌꯤꯔꯃ, ꯄꯍꯄꯂꯤꯟ) ꯂꯥꯏꯇ–ꯗꯤꯂꯌꯃꯇꯀꯤ ꯍꯃꯤ, ꯂꯃꯥꯏ 4-ꯒꯤ ꯊꯕꯊꯗꯒꯤ ꯑꯄꯤꯎꯄ ꯑꯦꯃꯤꯐꯤꯂ ꯑꯃꯁꯨꯡ ꯄꯥꯃꯂ ꯂꯀꯃꯤꯦ ꯌꯥꯑꯣꯅꯥ; ꯑꯃꯁꯨꯡ
- (c) ꯄꯥꯅꯌꯥꯄꯃꯅꯥ ꯑꯦꯁꯩꯇꯩꯀꯤ ꯃꯥꯄꯤꯟꯗ ꯂꯥꯎꯃꯅꯇꯕ ꯍꯐꯍꯗ, ꯂꯃꯥꯏ 5-ꯒꯤ ꯄꯥꯅꯌꯥꯄꯃ ꯕꯊꯦꯗꯃꯤ꯫

3.12.2 **ꯌꯥꯇꯅ ꯃꯦꯟꯁꯕꯤꯟ.** ꯌꯥꯇꯅ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯦꯂꯤꯟꯒꯤ ꯌꯨꯝꯐꯝꯗ ꯃꯦꯟꯁꯕꯤꯟ ꯄꯕꯗ ꯍꯂꯀꯤꯟꯒꯍ–ꯀꯨꯟꯖ (Muskingum–Cunge) ꯐꯑꯣꯟ, ꯇꯩꯃꯒꯤ ꯌꯥꯇꯅꯒꯤ ꯇꯤꯑꯣꯍꯥꯏꯃꯤ ꯇꯩꯃꯒꯤ ꯀꯦꯇꯤꯕꯦꯂꯦꯗꯒꯤ ꯇꯥꯕ ꯄꯦꯔꯥꯃꯤꯇꯔ K ꯑꯃꯁꯨꯡ X-ꯒꯤ ꯇꯥꯌꯇꯕ ꯍꯂꯀꯤꯟꯒꯍ ꯐꯑꯣꯟ ꯂꯤꯇꯤꯕꯦꯇꯒꯗꯕꯅꯤ꯫ ꯍꯂꯀꯤꯟꯒꯍ ꯐꯑꯣꯟꯒꯤꯗꯃꯛ, ꯃꯦꯟꯁꯕꯤꯟ ꯊꯦꯡꯅꯕꯥ Δt-ꯅꯥ 2KX ≤ Δt ≤ 2K(1 − X) ꯍꯞꯆꯟ ꯐꯃꯇꯒꯗꯕꯅꯤ꯫

3.12.3 **ꯊꯦꯂꯤꯗꯥꯏꯅ ꯂꯥꯏꯃꯥꯇ.** ꯑꯥꯄꯃꯀ ꯄꯥꯕꯇ ꯐꯥꯂꯤꯇꯤꯄ ꯑꯍꯒꯤ ꯍꯅꯨꯟꯗ ꯌꯦꯡꯗꯕ ꯇꯍꯕꯤꯒꯤ ꯄꯅꯦ, ꯀꯅꯒꯃꯩ ꯇꯩꯃꯒꯤ ꯕꯊꯦꯗꯃꯤ ꯌꯅꯂꯤꯟꯒꯤ ꯍꯧꯖꯤꯛ ꯇꯥꯕ ꯂꯥꯏꯃꯥꯇ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯇꯨꯐ ꯄꯨꯍꯇꯍꯥꯏ ꯍꯥꯏꯕꯥꯅꯥ ꯄꯒꯅꯤ ꯃꯔꯝ ꯑꯦꯗꯥꯞꯇꯤꯕꯁꯤꯅꯤ ꯐꯇꯃꯕꯗꯥ ꯇꯩꯕꯥꯅꯥ ꯗꯤꯖꯥꯏꯟꯗ ꯍꯥꯏꯟ ꯐꯤꯃꯥꯏꯅꯕꯅꯤ꯫

3.12.4 **ꯕꯦꯀꯋꯣꯇꯔ-ꯏꯐꯦꯛ ꯃꯣꯗꯦꯂꯤꯡ.** SWMM ꯅꯠꯔꯒ HEC-RAS ꯑꯦꯛꯁꯇꯦꯟꯁꯅꯗ ꯕꯦꯀꯋꯣꯇꯔ-ꯏꯐꯦꯛ (ꯍꯥꯏꯕ ꯗꯤ ꯇꯦꯜ-ꯋꯣꯇꯔ) ꯃꯣꯗꯦꯂꯤꯡ ꯑꯁꯤ ꯍꯧꯖꯤꯛ ꯍꯧꯖꯤꯛꯇꯤꯅ ꯂꯩꯇꯔꯤꯕꯅꯤ:

- (a) ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯑꯁꯤ ꯇꯧꯗꯅꯕ, ꯇꯨꯝꯕ ꯅꯠꯔꯒ ꯁꯨꯏꯂꯤꯡꯒꯤ ꯀꯝꯕꯥꯏꯟꯗꯒꯤ ꯍꯧꯖꯤꯛ ꯆꯠꯂꯤꯕꯅꯤ (ꯃꯦꯞ 5, ꯁꯔꯨꯛ 3.10.4);
- (b) ꯗꯔꯦꯛꯇ ꯄꯥꯡꯊꯣꯛꯂꯕ ꯔꯤꯕꯍꯅꯤ, ꯅꯠꯔꯒ ꯅꯤꯡꯊꯤꯕꯗꯥ ꯀꯨꯝ ꯅꯠꯔꯒ ꯑꯣꯏꯕꯗꯔꯦꯛ ꯀꯥꯊꯣꯛ ꯆꯠꯂꯤꯕꯅꯤ; ꯅꯠꯔꯒ
- (c) ꯃꯥꯀꯣꯟꯗ ꯇꯣꯝꯕꯦꯜꯗ ꯅꯤꯡꯊꯤꯕꯗꯥ ꯃꯍꯩꯔꯦꯛ (surcharge) ꯑꯣꯏꯕꯍꯅꯤ ꯑꯃꯁꯨꯡ ꯄꯣꯛꯍꯅꯕꯥ ꯄꯥꯝꯕ ꯀꯣꯟꯗꯦ ꯃꯥꯀꯣꯟꯗ ꯀꯨꯝꯊꯣꯛꯀꯗꯕꯅꯤ॥

3.12.5 **ꯁꯨꯟꯂꯥꯏꯒꯤ ꯁꯦꯃꯖꯤꯟꯅꯕꯥ.** ꯁꯦꯃꯖꯤꯟꯅ ꯑꯍꯟꯅ ꯆꯠꯄ ꯁꯨꯟꯂꯥꯏ ꯇꯨꯝꯕꯍꯥꯛ ꯁꯔꯨꯛ 3.12.1 ꯍꯥꯌꯕ ꯇꯥꯔꯦ, ꯃꯥꯏꯀꯩꯃ ꯔꯤꯗꯔꯥ ꯑꯃꯁꯨꯡ ꯇꯥꯏꯕ (sluice)-ꯒꯤ ꯂꯦꯃꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯞ 7-ꯒꯤ ꯃꯁꯨꯔꯍꯦꯔꯦꯜ ꯃꯈꯥꯕ ꯑꯣꯀꯂꯦꯃꯖꯤꯟ ꯂꯧꯒꯥ ꯀꯔꯤꯅꯀꯦ ꯂꯩꯍꯜ ꯃꯒꯅꯕꯅꯤ॥ ꯁꯦꯃꯖꯤꯟꯅꯕꯒ ꯃꯍꯦꯛꯀꯤ (ꯁꯔꯨꯛ 3.13)-ꯗ ꯄꯦꯗꯦ ꯅꯍꯕ ꯀꯣꯟꯕ ꯑꯍꯩ ꯃꯀꯥꯂꯦꯜ ꯃꯗꯥꯕꯅꯤ, ꯁꯨꯟꯂꯥꯏ ꯇꯨꯝꯕꯍꯥꯛꯁꯤ ꯄꯥꯏꯖꯍꯒꯤ ꯇꯃꯤꯡꯒꯤ ꯀꯣꯟꯕ ꯑꯁꯤ FTL ꯑꯣꯇꯒꯅꯕꯅꯤ॥

> **ꯃꯦꯟꯅꯥꯀꯗ ꯌꯥꯊꯪ.** ꯃꯌꯥꯏꯀꯣꯏꯒꯤꯅꯍꯥꯛ ꯍꯥꯃꯤꯗꯤꯡꯅ ꯁꯨꯀꯃ ꯃꯣꯗꯦꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯀꯣꯟꯁꯤꯂꯒꯤꯅꯍꯥꯛ ꯍꯃꯁꯤꯡꯒꯍ–ꯁꯨꯔꯛ ꯑꯁꯤ APWA-ꯒꯤ ꯍꯇꯥ ꯌꯥꯕꯁꯤꯡꯅꯤ (KC Metro APWA 5600, 2011, §5602.8)॥ APWA-ꯗ ꯍꯦꯔꯦꯟꯔꯦ ꯌꯥꯒꯅꯤ ꯄꯤꯔꯃꯨꯕꯅꯤ ꯁꯦꯃꯁꯤꯡꯒꯤ ꯍꯌꯨꯡꯅ ꯆꯠꯄ "ꯇꯦꯃꯁꯤꯅꯦꯟꯇꯦꯟ ꯃꯤꯇꯦꯟꯁꯟ" ("incidental detention")-ꯂꯨ ꯀꯊꯣꯀꯄ, 3.12.3-ꯗ ꯍꯥꯏ ꯀꯅꯤ॥ CPHEEO-ꯒꯤ ꯃꯤꯇꯦꯟꯁꯟ ꯁꯨꯂꯤꯡꯀꯥꯗ 3.12.1-ꯒꯤ ꯇꯦꯁꯨꯜ ꯑꯃꯨ ꯑꯣꯏꯕꯍꯥꯛ ꯂꯩꯇꯦꯏꯔꯦ: ꯇꯦꯗꯔꯦꯛ ꯄꯤꯕꯥꯝꯗꯦ, ꯃꯌꯥꯛ–ꯃꯌꯥꯏꯀꯣꯛ ꯁꯥꯒꯠ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯛ–ꯃꯤꯃꯔꯦꯛ ꯁꯥꯒꯠ (CPHEEO 2019, Part A §8.5.3)॥ ꯍꯃꯁꯤꯡꯒꯍꯒꯤ ꯃꯌꯥꯕꯤꯀꯤꯌꯥ ꯀꯤꯍꯤꯌꯥꯕ ꯑꯁꯤ ꯃꯌꯥꯏꯃꯥꯗꯤ (Chow, Maidment ꯑꯃꯁꯨꯡ Mays, 1988, §8.4)॥ ꯇꯍꯗꯟ ꯌꯥꯍꯥꯛꯌꯥ ꯑꯔꯕ ꯀꯤ ꯇꯨꯕꯒꯤ ꯊꯃꯥ ꯑꯁꯤ ꯇꯨꯝꯕꯅꯥ ꯔꯤꯟꯕ, ꯁꯦꯃꯁꯤꯡꯒꯤ ꯇꯨꯝꯊꯤꯡꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯊꯤꯕꯀꯕ ꯑꯃꯁꯨꯡ ꯍꯟꯗꯔꯒꯤ ꯍꯌꯨꯡꯅ ꯆꯠꯄ ꯇꯥꯏꯕ ꯄꯦꯊꯃꯗ ꯔꯤꯕꯇꯨꯝꯀꯥꯀꯤꯕ ꯍꯌꯍꯅ ꯗꯁꯥꯛꯗ ꯍꯥꯍ ꯑꯣꯇꯂꯗ ꯍꯨꯔꯔꯦꯟ ꯑꯁꯤꯗ 3.12.5-ꯅ ꯁꯥꯅ, ꯁꯨꯟꯂꯥꯏ ꯑꯃꯁꯨꯡ ꯀꯥꯌꯥ ꯍꯟꯔꯒꯤ ꯑꯦꯛꯁꯇꯦꯟ ꯅꯠꯔꯒ ꯃꯥꯀꯣꯟꯗ ꯀꯣꯟꯕꯅꯒꯤ ꯄꯥꯄꯟꯀꯤ॥ ꯌꯍꯥꯛꯌꯥ ꯑꯁꯤꯅ ꯑꯦꯛꯁꯇꯦ ꯑꯍꯟꯌꯥ ꯆꯩ: ꯍꯁꯤꯅ ꯔꯤꯕꯀꯥꯁ ꯇꯨꯝꯕꯁꯤꯗ ꯇꯃꯤꯡ ꯇꯔꯤꯕꯅ ꯔꯦꯁꯦꯅ ꯇꯨꯃꯤꯡꯅ ꯁꯨꯔꯕꯤꯌꯥ ꯍꯤꯌꯥ ꯀꯤꯃꯤꯡ ꯇꯥ ꯁꯨꯥꯌꯇ, ꯑꯣꯏꯕꯍꯕ ꯍꯌꯍꯅ "ꯇꯊꯇꯅ, ꯍꯦꯔꯦꯜꯒꯤ ꯍꯌꯍꯅ ꯍꯀꯤꯁꯨꯥ ꯇꯨꯝꯕꯒꯤ ꯗꯔꯦꯛ ꯑꯁꯤ 400 cumecs ꯂꯍ ꯑꯣꯇ ꯑꯃꯁꯨꯡ ꯕꯦꯂꯦꯀꯁꯤ ꯍꯟꯒꯤ ꯇꯨꯝꯕ ꯑꯁꯤꯗ ꯑꯁꯤꯒꯍꯕ ꯗꯔꯦꯛ ꯀꯕ ꯁꯍꯅꯦ, ꯍꯂꯍ ꯑꯣꯏꯗ ꯍꯊꯥ ꯊꯕ ꯍꯗꯍꯅ ꯇꯃꯤꯡ ꯔꯤꯗꯊꯂꯥꯇ" ("At Ithai, flow of the Manipur river during monsoon is of the order of 400 cumecs and river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC)॥ ꯇꯃꯤꯡ ꯑꯁꯤ ꯀꯥꯌꯥ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯃꯤꯡꯅ ꯊꯍꯀꯤ, ꯍꯂꯍ ꯑꯣꯏꯗ "ꯇꯨꯝꯕꯒꯤ ꯁꯦꯃꯤꯡ ꯁꯥꯁꯗ ꯅꯍꯕ ꯀꯍꯃꯤꯡꯅ ꯄꯁꯌ ꯁꯔꯦ ꯇꯃꯤꯡ ꯇꯨꯍꯅꯕ ꯊꯥꯄꯥꯟꯀꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, *Approval Project Document*, 2024), ꯑꯃꯁꯨꯡ ꯀꯍꯗꯟꯁꯥꯟ "ꯔꯄꯤ ꯇꯨꯝꯕꯒꯤ ꯅꯨꯍꯤꯟ ꯁꯔꯦ ꯇꯃꯤꯡ ꯇꯨꯍꯅꯗ ꯆꯩ" ("remains waterlogged for many days every year") (NDB, project summary)॥ ꯃꯌꯥꯟꯁꯤ ꯁꯥꯟ ꯅꯠꯔꯒ ꯁꯨꯟꯂꯥꯏ ꯑꯃꯟꯌꯅ ꯃꯁꯨꯔꯍꯦꯔꯦꯜ ꯌꯥꯕꯕ ꯑꯣꯀꯂꯦꯃꯖꯤꯟ ꯂꯧ, ꯀꯣꯟꯕ ꯂꯦꯁꯥꯂꯅ ꯅꯠꯔꯒ ꯃꯌꯥꯛ–ꯃꯌꯥꯏꯀꯣꯛꯀꯤ ꯍꯂꯤ ꯆꯠꯄ ꯗꯤꯇꯦꯝ [TBC]॥ ꯍꯂꯍ ꯑꯣꯏꯗ ꯄꯥꯏꯖꯍꯒꯤ ꯀꯣꯟꯕꯅꯤ ꯍꯟꯗꯤꯡꯅꯤꯕꯅꯤ (ꯍꯦꯔꯦꯟ ꯑꯁꯤꯗ ꯊꯍꯕ):
>
> - **ꯒꯦꯠ ꯆꯠꯄ, ꯗꯔꯦꯛ ꯒꯦꯠ (flap gate) ꯆꯠꯄ ꯅꯠꯔꯒ ꯁꯍꯁꯗ ꯊꯃꯁꯥꯁ ꯑꯦꯛꯁꯇꯦꯟ ꯑꯍꯗꯤꯒꯤ ꯇꯨꯝꯊꯤꯡꯅ ꯇꯃꯤꯡ ꯊꯃꯁꯥꯁ ꯁꯥꯟ, ꯁꯨꯟꯂꯥꯏ ꯅꯠꯔꯒ ꯃꯤꯇꯦꯟꯁꯟ ꯁꯦꯔꯅ ꯑꯍꯩ** ꯑꯦꯛꯁꯇꯦꯟ ꯊꯤꯕꯀꯕ ꯍꯌꯍ ꯇꯨꯝꯕꯅ ꯍꯃꯁꯤꯡ ꯑꯦꯛꯁꯇꯦꯟꯁꯤ ꯀꯣꯟꯕ ꯗꯤꯡꯕ ꯍꯥꯏꯕ ꯊꯦꯗ ꯄꯥꯗꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯇꯦꯟ ꯑꯁꯤ ꯁꯔꯨꯛ 5.8.5(a)-ꯒꯤ ꯃꯨꯔꯂꯦꯃꯦꯁꯤꯡꯒꯤꯅꯍꯥꯛ ꯊꯤꯕꯀꯦ ꯄꯔꯗ ꯀꯅꯤ (ꯁꯔꯨꯛ 5.8.5(e))॥ ꯌꯍꯥꯛꯌꯥ ꯍꯁꯤ ꯍꯦꯔꯦꯜꯒꯤ ꯍꯄꯣꯒꯤ ꯁꯦꯃꯀꯤ: ꯍꯦ 2024-ꯅ ꯑꯃꯁꯨꯡ ꯑꯍꯨꯝ ꯄꯦꯗꯦ ꯂꯦꯁꯥꯍꯕꯂ 2025-ꯅ ꯇꯍꯗꯟ, ꯆꯍꯕꯨꯟ ꯑꯃꯁꯨꯡ ꯍꯀꯤꯁꯨꯥ ꯇꯨꯝꯕ ꯍꯟꯗꯔꯒꯤ ꯗꯤꯡꯅꯦꯥꯇꯤꯕ ꯄꯤꯔꯦꯃꯨ ꯗꯔꯦꯛꯅ ꯀꯣꯟꯕꯅꯤꯅ ꯅꯠꯔꯒ ꯍꯃꯨꯒꯤ ꯍꯊꯥꯌꯥ ꯀꯥꯟꯤ (WRD-ꯒꯤ ꯍꯁꯤꯡꯁꯤꯡ, ꯁꯥꯕꯅ ꯗꯤꯡꯅꯦꯥꯇꯤꯕ ꯍꯌꯨꯡ ꯇꯥꯔꯦ; ꯁꯔꯨꯛ 3.10-ꯒꯤ ꯃꯦꯟꯅꯥꯀꯗ ꯌꯥꯊꯪ)॥
> - **ꯆꯍꯗꯦꯟꯁꯥꯟ (Lamphelpat)**, ꯇꯃꯤꯡ ꯇꯔꯤꯕꯒꯤ ꯃꯌꯥꯏꯀꯣꯛ ꯑꯣꯇꯗ ꯅꯦꯀꯣꯀꯁ ꯌꯥꯏꯕ ꯁꯥꯟ ꯑꯍꯩ, 9 ꯀꯒꯍꯕꯂ 2023-ꯒꯤ ꯔꯂꯥ ꯑꯂꯅꯂ ꯑꯍꯒꯤ ꯍꯟꯅ ꯇꯂ ꯊꯇꯗ ꯑꯁꯂ 300 ꯃꯨꯂꯛ ꯌꯥꯏꯕ, "ꯇꯃꯤꯡ ꯇꯔꯤꯕ ꯔꯤꯕ ꯍꯌꯍꯅ ꯆꯍꯗꯦꯟ ꯁꯥꯟ ꯇꯃꯤꯡ ꯆꯗꯍꯅꯒꯤ ꯃꯍꯨꯂꯤ ꯗꯆꯒꯤ ꯇꯨꯝꯊꯤꯡꯅ ꯅꯍꯕꯨꯟ ꯇꯨꯝꯕꯅ ꯇꯃꯤꯡ ꯇꯔꯤꯕꯒꯤ ꯇꯃꯤꯡ ꯁꯍꯁ ꯌꯥꯕꯒꯤ ꯊꯥꯂꯤ" ("provision for pumping of flood water from the Lamphel pat water body to the Nambul River through Shamushang Nalla during high flood season") ꯆꯠꯄ (HC PIL No. 8 of 2025-ꯅ WRD-ꯒꯤ ꯃꯇꯥꯟ ꯂꯤꯁꯥꯂꯟ), ꯀꯌꯥꯗꯇ ꯌꯥꯕꯕ ꯑꯣꯀꯂꯦꯃꯖꯤꯟ ꯂꯧ ꯑꯍꯩꯗ ꯀꯤ ꯇꯨꯃꯨꯂꯤꯡꯅ ꯁꯍꯁ ꯌꯥꯕꯗ ꯄꯦꯊꯃꯀꯒꯤ ꯄꯤꯔꯦ ꯔꯤꯃꯥ ꯀꯃꯨꯂꯕꯅꯤ, ꯍꯁꯤꯒꯤ ꯁꯍꯁꯁꯤꯕ ꯄꯥꯕ ꯀꯣꯟꯕ ꯗꯤꯡꯕ ꯍꯥꯏꯕ ꯊꯦꯗ ꯄꯥꯗꯅꯕꯅꯤ; ꯍꯁꯤꯒꯤ ꯃꯌꯥꯛ–ꯃꯌꯥꯏꯀꯣꯛꯀꯤ ꯍꯂꯤ ꯑꯃꯁꯨꯡ ꯁꯍꯁꯁꯤ ꯂꯦꯃꯖꯤꯟꯕ WRD-ꯅꯒꯤ ꯗꯤꯡꯅꯕꯅꯤ [TBC]॥

- **ꯍꯥꯏ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯂꯩꯕ ꯃꯇꯝ ꯂꯃꯗꯥꯡ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯃꯥ** ꯃꯁꯤꯒꯤ ꯂꯣꯌꯅ ꯀꯣꯕ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯂꯃꯗꯥꯡ ꯇꯥꯟꯅꯕꯒꯤ ꯍꯦꯟꯅ, ꯑꯃꯁꯨꯡ ꯂꯧꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯕꯨꯡꯒꯤ ꯄꯥꯟꯗꯝ ꯆꯪꯁꯤꯟꯕ ꯑꯣꯏꯔꯕ ꯂꯃꯗꯥꯡꯁꯤꯡ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡ ꯁꯃꯨꯗ ꯃꯊꯪ ꯆꯦꯟꯕ ꯅꯤ॥
- **ꯂꯣꯛꯇꯥꯛ.** ꯁꯦꯡ ꯑꯃꯥ NHPC-ꯒꯤ ꯄꯨꯊꯣꯛ ꯃꯍꯩꯂꯣꯟꯗ ꯇꯥꯔꯤ, ꯃꯁꯤꯒꯤ ꯐꯨꯜ ꯔꯤꯖꯔꯕꯣꯌꯔ ꯂꯦꯚꯦꯜ 768.5 m ꯑꯃꯁꯨꯡ ꯃꯤꯅꯤꯃꯝ ꯗ꯭ꯔꯣꯗꯥꯎꯟ ꯂꯦꯚꯦꯜ 766.2 m (NHPC, ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯇꯨꯡ ꯏꯟꯅ); CEA-ꯅ ꯃꯤꯅꯤꯃꯝ ꯗ꯭ꯔꯣꯗꯥꯎꯟ ꯂꯦꯚꯦꯜ 766.01 m ꯁꯤ (ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯑꯃꯁꯨꯡ ORF-ꯒꯤ ꯑꯦꯟꯁꯥꯏꯀ꯭ꯂꯣꯄꯦꯗꯤꯌꯥ ꯑꯃꯅ ꯐꯨꯜ ꯔꯤꯖꯔꯕꯣꯌꯔ ꯂꯦꯚꯦꯜ 769.63 m ꯁꯤ ꯑꯃꯁꯨꯡ 768.50 m-ꯗꯨ "ꯏꯁꯤꯡ ꯂꯦꯚꯦꯜ" ("flood level") ꯍꯥꯌꯅ ꯀꯧꯏ (ꯁꯣꯔꯁ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ)॥ ꯃꯁꯤꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯅꯁꯤ, ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗꯥ ꯑꯁꯤꯅ ꯃꯔꯤ ꯌꯥꯅꯍꯅꯕꯥ॥ ꯂꯣꯛꯇꯥꯛ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 5.8.5(c)-ꯒꯤ ꯀꯤꯅꯤꯡꯇ ꯁꯦꯡꯕꯤ ꯂꯦꯚꯦꯜꯀꯥꯒꯤ ꯍꯥꯌꯔ, ꯃꯁꯤ ꯄꯨꯊꯣꯛ ꯃꯍꯩꯅꯥ WRD-ꯒꯤ ꯍꯥꯄꯔꯕꯥ ꯏꯁꯤꯡ ꯂꯦꯚꯦꯜ 769.320 m-ꯅꯤ (ꯁꯣꯔꯁ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ), 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ ꯌꯧꯔꯕ 770.05 m-ꯗ ꯌꯧꯈꯤ ꯑꯣꯏꯔꯕꯁꯨ, ꯑꯃꯁꯨꯡ ꯇꯧꯕꯒꯤ ꯁꯦꯞꯇꯦꯝꯕꯔ ꯐꯥꯑꯣꯕ ꯐꯨꯜ ꯔꯤꯖꯔꯕꯣꯌꯔ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯊꯛꯇ ꯍꯥꯛꯆꯥꯡꯒꯤ ꯂꯩꯔꯝꯃꯤ॥ ꯑꯍꯥꯅꯕ 2026-ꯒꯤ CEA-ꯒꯤ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯔꯤꯄꯣꯔꯠꯁꯤꯡꯗ ꯁꯦꯡ ꯑꯁꯤ ꯄꯥꯟ ꯊꯥꯅꯕ 767.46–767.73 m-ꯗ ꯂꯩ ꯍꯥꯌꯅꯕ ꯎꯔꯦ (ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯃꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡꯒꯤ ꯂꯦꯚꯦꯜꯅꯤ, ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛ ꯑꯍꯥꯅꯕ 2002-ꯗ 768.5 m-ꯗ ꯌꯧꯈꯤ (ꯁꯣꯔꯁ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ)॥ ꯍꯦꯟꯅ ꯃꯔꯨꯑꯣꯏꯕ ꯂꯩꯕ ꯁꯨꯒꯅꯨ ꯍꯝꯞ (Sugnu hump), ꯃꯐꯝ ꯑꯗꯨꯗ ꯃꯈꯣ ꯑꯁꯤ ꯄꯥꯟ ꯊꯥꯅꯕ 800 m-ꯒꯤ ꯃꯇꯨꯡꯗ 756.7 m-ꯗꯒꯤ 763.7 m-ꯗ ꯌꯧꯕꯥ ꯌꯥꯏ (MASTEC), ꯃꯁꯤꯅ ꯈꯨꯗꯣꯡꯁꯤꯅ ꯍꯧꯔꯤ ꯂꯩꯔꯕ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯇꯥꯔꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯁꯦꯡꯕꯤ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯄꯥꯡꯊꯣꯛꯍꯟꯕꯗ ꯃꯔꯨꯑꯣꯏꯕ ꯂꯣꯏꯅꯕꯤꯕꯅꯤ (ꯇꯦꯕꯜ 5)॥
- **ꯔꯤꯖꯔꯕꯣꯌꯔꯁꯤꯡ.** ꯊꯧꯕꯜ (ꯃꯁꯤꯡꯊꯥꯡ) ꯗꯥꯃꯒꯤ ꯐꯨꯜ ꯔꯤꯖꯔꯕꯣꯌꯔ ꯂꯦꯚꯦꯜ 880.7 m (WRD, ꯁꯦꯞꯇꯦꯝꯕꯔ 2025, ꯁꯣꯔꯁ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ); ꯃꯁꯤ ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ 878.10 m-ꯗ ꯂꯩꯈꯤ, ꯑꯃꯁꯨꯡ 1 ꯑꯍꯥꯅꯕ 2015-ꯗ 876 m-ꯗ ꯂꯩꯈꯤ, "ꯁ꯭ꯄꯤꯂꯋꯦꯁꯤꯡꯒꯤ ꯃꯊꯛꯇ ꯄꯥꯟ ꯊꯥꯅꯕ 2 m" ("nearly 2 m above the spillways") (ꯁꯣꯔꯁ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯃꯁꯤꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯅꯁꯤ [TBC]॥ ꯃꯁꯤ ꯃꯁꯤꯒꯤ ꯑꯣꯄꯔꯦꯇꯔꯅ ꯄꯨꯔꯀꯄ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯈꯣꯌꯗꯤ ꯌꯥꯊꯪ ꯂꯦꯚꯦꯜꯀꯥꯒꯤ ꯍꯥꯌꯔ ꯑꯃꯁꯨꯡ ꯃꯗꯨ ꯐꯥꯑꯣꯕ 880.7 m-ꯗꯒꯤ ꯍꯥꯌꯔ॥ ꯁꯨꯝꯗ ꯗꯥꯃ ꯂꯩꯔꯝꯕ ꯂꯃꯆꯠꯅꯗ ꯂꯩꯕ ꯁꯤꯡꯗꯥ ꯗꯥꯃꯒꯤꯗꯃꯛ ꯂꯦꯚꯦꯜ ꯑꯃꯗꯥꯡ ꯏꯄꯥꯌꯗ [TBC]; ꯃꯄꯥꯟꯒꯤ ꯑꯣꯄꯔꯦꯇꯔꯁꯤꯡꯅ ꯐꯨꯜ ꯂꯩꯔꯝꯕ ꯃꯦꯌꯥꯁꯤꯡ ꯂꯦꯚꯦꯜ ꯏꯄꯥꯎꯁꯤꯡꯐꯥꯑꯣꯕ ꯃꯄꯥꯟ ꯃꯄꯥꯟꯒꯤ ꯁꯤꯡꯒꯨ ꯀꯣꯕ ꯁ꯭ꯄꯤꯂꯋꯦ ꯍꯦꯟꯅꯕꯥꯒꯤ ꯍꯥꯌꯔ॥ ꯃꯄꯥꯟ ꯑꯃꯨꯡꯒꯤ ꯔꯤꯂꯤꯖꯁꯤꯡ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 5.8.5(d)-ꯒꯤ ꯀꯥꯟꯅꯕꯥꯒꯤꯅꯤ, ꯂꯧꯕ ꯑꯃꯒꯤꯗꯃꯛ ꯂꯣꯏꯅꯕ ꯂꯩꯕꯥ॥
- **ꯂꯧꯕꯨꯛ.** ꯀꯃꯁꯤꯡꯕꯤ ꯂꯃꯒꯤ ꯂꯧꯕꯨꯛ (paddy land) ꯑꯁꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡ ꯁꯃꯨꯗ ꯃꯁꯤꯒꯤ ꯁꯦꯜ ꯑꯃꯁꯨꯡ ꯔꯤꯂꯤꯖꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯄꯁꯤꯡ ꯂꯦꯞꯄ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯂꯧꯒꯤ ꯁꯦꯜꯁꯤꯡꯒꯤ ꯍꯦꯟꯅꯕ ꯐꯥꯑꯣꯕ ꯃꯁꯤꯡ ꯊꯦꯡꯅ ꯃꯈꯥ ꯀꯧꯏ; ꯃꯁꯤꯒꯤ ꯂꯣꯏꯅꯕ ꯑꯁꯤ ꯗꯥꯃꯦꯖꯃꯥꯔꯦꯅ ꯑꯃꯒꯤ ꯌꯥꯕꯅ ꯀꯃꯁꯤꯡꯕꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯏꯁꯤ ꯀꯧꯔꯕ ꯃꯐꯝꯗ ꯁꯦꯛꯁꯟ 7.6.4-ꯒꯤ ꯃꯄꯥꯟꯗ ꯃꯥꯔꯨ ꯁꯤꯅꯩ (ꯇꯦꯕꯜ 7)॥

ꯈꯪꯕ ꯂꯩꯕ ꯁꯦꯡ, ꯔꯤꯖꯔꯕꯣꯌꯔ ꯌꯥꯕꯗꯤ ꯁꯦꯡ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯑꯣꯄꯔꯦꯇꯔꯀꯥꯒꯤ ꯂꯩꯕ ꯈꯪꯕꯤ ꯔꯤꯒꯥ ꯂꯣꯌꯅꯅ ꯃꯈꯥꯌ ꯀꯧꯏ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 3.13-ꯒꯤ ꯃꯄꯥꯟꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯃꯦꯇꯤꯑꯣꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯌꯥꯕꯗꯤ ꯂꯧꯈꯤꯕꯗ ꯀꯧꯕ ꯑꯣꯄꯔꯦꯇꯔ ꯔꯤꯒ ꯑꯃꯅ ꯁꯦꯡꯕ ꯀꯧꯕ ꯃꯐꯝꯗ ꯄꯥꯡꯊꯣꯛꯃꯤ ꯄꯁꯤꯡ ꯂꯩꯕ ꯑꯃꯥ ꯂꯦꯚꯦꯜ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯃꯄꯥꯟ ꯃꯈꯥꯌ ꯀꯧꯏ॥ ꯁꯦꯛꯁꯟ 3.13.5(a)-ꯒꯤ 1 ꯑꯄ꯭ꯔꯤꯂꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕꯒꯤ ꯌꯥꯊꯪ ꯑꯁꯤ ꯃꯈꯥꯗꯥ ꯑꯁꯤꯅ ꯊꯃꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗꯥꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡꯅꯤ॥ ꯃꯁꯤ ꯄꯤ-ꯃꯣꯟꯁꯨꯅꯒꯤ ꯃꯍꯧꯁꯥ ꯌꯥꯕꯅ 1 ꯑꯄ꯭ꯔꯤꯂꯗ ꯍꯥꯌꯔ, ꯃꯗꯨꯒꯤ ꯄꯃꯐꯥꯂꯗ ꯃꯍꯧꯁꯥꯒꯤ ꯍꯥꯏꯕꯥꯐꯝ 5 ꯇꯨꯃꯗꯤ (ꯃꯦꯏꯗ 1 ꯇꯨꯝ; 2020-ꯗꯒꯤ ꯁꯤꯅꯤꯃꯤꯔꯤꯀ IMD-ꯒꯤ ꯂꯥꯏꯃꯦꯂꯁꯤꯡ, IMD-ꯒꯤ ꯁꯔꯨꯛ ꯔꯤꯅꯤꯡꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯃꯔꯝꯗꯤ ꯑꯄ꯭ꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯁꯤꯡ ꯑꯁꯤ ꯂꯣꯏꯕꯗꯤ ꯄꯨꯋꯥꯔꯤꯗꯒꯤ ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩ: ꯑꯄ꯭ꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯒꯤꯗꯃꯛ ꯄꯃꯐꯥꯂꯒꯤ ꯁꯨꯝ 24-ꯒꯤ ꯔꯦꯀꯔꯗꯁꯤꯡ 105.9 mm (16 ꯑꯄ꯭ꯔꯤꯜ 2004) ꯑꯃꯁꯨꯡ 122.4 mm (27 ꯃꯦ 1956)-ꯅꯤ, ꯊꯥ ꯑꯃꯅ 459.6 mm (ꯑꯄ꯭ꯔꯤꯜ 2004) ꯑꯃꯁꯨꯡ 464.3 mm (ꯃꯦ 1956) (IMD *Extremes*, Imphal (Tulihal)); ꯅꯣꯡꯄꯣꯛꯀꯤ ꯃꯦꯟꯗꯦ ꯀꯣꯟꯗꯦꯚꯔꯕ ꯀꯃꯁꯤꯡꯕꯤ ꯄꯁꯤꯡ ꯄꯌꯨꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯅꯤ, 28–31 ꯃꯦ 2024-ꯒꯤ ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯦꯜ (Cyclone Remal)-ꯒꯤ ꯑꯃꯁꯨꯡ 30 ꯃꯦ–2 ꯇꯨꯝ 2025-ꯒꯤ, ꯍꯥꯏꯕꯥꯐꯝꯒꯤ ꯃꯦꯏꯗ ꯅꯣꯡꯖꯤ (ꯁꯣꯔꯁ ꯏꯄꯥꯎꯁꯤꯡ ꯃꯇꯨꯡ ꯏꯟꯅ); ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥꯐꯝꯁꯤꯡꯅ "ꯃꯥꯔꯆꯗꯒꯤ ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯀꯟꯅ ꯅꯨꯡ ꯅꯣꯡ" ("intense rains from March to October") (AIIB) ꯑꯃꯁꯨꯡ "ꯑꯄ꯭ꯔꯤꯂꯒꯤ ꯑꯔꯣꯏꯕꯗꯒꯤ ꯍꯧꯕ" ("starts from the month of April end") ꯅꯣꯡ ꯆꯨꯕ (CGWB, Bishnupur) ꯍꯥꯏꯔꯤ॥ ꯃꯍꯧꯁꯥꯅ ꯄꯃꯐꯥꯂꯗꯒꯤ ꯃꯍꯩ ꯊꯣꯛꯅꯕ ꯑꯁꯤ 15 ꯑꯣꯛꯇꯣꯕꯔꯅꯤ (ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯇꯨꯡ ꯏꯟꯅ) ꯑꯃꯁꯨꯡ ꯑꯣꯛꯇꯣꯕꯔꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯁꯤꯡ ꯑꯁꯤ ꯑꯆꯧꯕ ꯆꯥꯎꯕꯊꯤ ꯑꯃꯅꯤ, ꯆꯥꯗꯝ ꯑꯃꯅ 5 ꯑꯣꯛꯇꯣꯕꯔ 1980-ꯒꯤ 119.4 mm ꯑꯃꯁꯨꯡ ꯑꯣꯛꯇꯣꯕꯔ 1992-ꯒꯤ ꯄꯁꯤꯡ ꯄꯌꯨꯛ (IMD *Extremes*; MASTEC), ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯁꯤ 31 ꯑꯣꯛꯇꯣꯕꯔꯗ ꯂꯣꯏ॥ ꯁꯃꯁ, ꯈꯪꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯛꯄꯤꯕꯁꯤꯡ 1 ꯑꯄ꯭ꯔꯤꯂꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯂꯣꯏꯅꯗꯨꯅꯗ ꯂꯩꯔꯤ (ꯇꯦꯕꯜ 10)॥

3.13 ꯀꯟꯗꯤꯁꯟ ꯂꯤꯃꯤꯇꯦꯁꯟ

3.13.1 **ꯀꯦꯆꯃꯦꯟꯇ ꯁꯥꯏꯖ ꯔꯦꯟꯖ.** ꯗꯤꯖꯥꯏꯟ-ꯁ꯭ꯇꯣꯔꯝ ꯑꯦꯞꯂꯤꯀꯦꯁꯟꯒꯤ ꯅꯣꯔꯝ, ꯀꯟꯗꯤꯁꯟ ꯂꯤꯃꯤꯇꯦꯁꯟ ꯑꯁꯤ ꯍꯥꯏꯒꯤꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯌꯥꯒꯗꯕꯅꯤ:

- (a) 25 km²-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯏꯁꯤꯡ ꯇꯦꯟꯊꯔꯛꯄ ꯔꯤꯅꯅꯦꯜ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- (b) ꯗꯤꯖꯥꯏꯟꯗ ꯍꯧꯖꯤꯛꯀꯤ ꯁ꯭ꯇꯣꯔꯝ ꯇꯤꯡꯅꯤꯕ ꯁ꯭ꯄꯦꯁꯤꯒꯤ ꯀꯥꯃꯀꯥꯗ ꯑꯃꯥ ꯂꯩꯕ ꯃꯤꯁ꯭ꯇꯣꯃ ꯑꯃꯍꯥꯛꯁꯤ (ꯁꯔꯨꯛ 7)꯫

ꯍꯥꯔꯛꯄꯒꯤ ꯁ꯭ꯇꯣꯔꯝ ꯅꯥꯒꯥꯟꯅꯥ ꯗꯤꯖꯥꯏꯟ ꯅꯥꯄꯇꯥꯀꯥꯄ ꯀꯦꯆꯃꯦꯟꯇꯁ ꯑꯃꯍꯥꯛꯁꯒꯤꯗꯃꯛ ꯑꯦꯇꯔꯤꯁꯤꯅꯥ ꯃꯆꯤ ꯃꯇꯧ ꯁꯦꯍꯅꯕꯂꯨ ꯂꯦꯟ꯫

3.13.2 **ꯅꯦꯡ ꯁ꯭ꯕꯒꯤ ꯅꯀꯔꯨꯛ.**

- (a) IMD ꯅꯣꯔꯤꯛ ꯀꯥꯍꯃꯥꯀꯣ ꯑꯁ꯭ꯂ ꯁꯣꯔꯤ ꯑꯁꯔꯤ ꯑꯔꯣꯡ ꯁꯦꯔꯕ ꯔꯦꯀꯥꯔꯗꯤꯡ ꯒꯥꯇ ꯑꯃꯗꯒꯤ ꯈꯡꯕ ꯂꯦꯕ ꯅ꯭ꯕꯅꯗꯒꯤ ꯂꯤꯡꯕ ꯁꯨꯡ ꯅ꯭ꯗꯤꯡꯒꯤ ꯔꯦꯀꯥꯔꯗ ꯂꯤꯇꯤꯀꯅꯒꯗꯕꯅꯤ꯫
- (b) ꯁꯨꯡ ꯅ꯭ꯗꯤꯡꯒꯤ ꯗꯦꯁꯦ ꯁꯍꯤ 30-ꯗꯒꯤ ꯅꯦꯍꯅꯕꯗꯤ, ꯔꯦꯀꯥꯔꯗ ꯑꯁꯤ IMD-ꯒꯤ 0.25° ꯒ꯭ꯔꯤꯗ ꯁꯦꯔꯕ ꯇꯨꯃꯤꯌ ꯅ꯭ꯗꯤꯡꯒꯤ ꯗꯦꯁꯦꯅ ꯂꯦꯡꯍꯅꯒꯗꯕꯅꯤ꯫ ꯃꯁꯨꯡ ꯈꯦꯕ ꯒ꯭ꯔꯤꯗ ꯁꯦꯔꯕ ꯔꯦꯀꯥꯔꯗ (1901-ꯗꯒꯤ ꯍꯧꯔꯛꯇ ꯈꯨꯕ) ꯂꯤꯇꯤꯀꯅꯕ ꯈꯪ; ꯂꯦꯃꯍꯧꯕꯗ ꯅꯛꯁꯕꯤꯒꯤ ꯁꯍꯤ 30 ꯑꯁ꯭ꯂ ꯂꯤꯇꯤꯀꯅꯒꯗꯕꯅꯤ꯫ ꯇꯨꯃꯤꯌ ꯅ꯭ꯗꯤꯡꯒꯤ ꯗꯦꯁꯦ ꯑꯁꯤ ꯂꯕꯃꯤꯁꯦꯌꯗ ꯁꯦꯀꯥꯛ ꯇꯣꯑꯡ ꯑꯃꯅꯦ ꯁꯨꯡ ꯅ꯭ꯗꯤꯡꯒꯤ ꯑꯦꯟꯅꯦ ꯗꯤꯂꯑꯦꯒ꯭ꯔꯤꯒꯦꯌ ꯁꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯁꯔ ꯃꯦꯅꯕ ꯁꯍꯤꯂꯤꯡꯒꯤꯗꯃꯛ ꯁꯨꯡ ꯅ꯭ꯗꯤꯡꯒꯤ ꯒꯦꯇꯀ ꯁꯦꯛ ꯁꯒꯗꯕꯅꯤ꯫ ꯁꯌꯅꯕ ꯃꯈꯍꯅ ꯒ꯭ꯔꯤꯗ ꯒꯦꯇꯂ꯭ꯂꯤꯡ ꯀ꯭ꯅꯦꯅ 2.7.1-ꯒꯤ ꯃꯍꯥꯅ ꯔꯥꯏꯌꯦꯌ ꯒꯦꯇꯂ꯭ꯂꯤꯡꯅ ꯍꯤꯅꯥꯛꯀꯅꯕꯅꯤ꯫
- (c) ꯁ꯭ꯇꯦꯒꯤ-ꯀ꯭ꯅꯦꯟꯃꯦꯌ ꯔꯦ ꯑꯃꯅꯦ ꯔꯦꯀꯥꯔꯗ ꯑꯁꯤ ꯀ꯭ꯅꯦꯅ 2.8-ꯒꯤ ꯀ꯭ꯅꯦꯟꯃꯦꯌ ꯈꯦꯛꯁꯔꯂꯤꯡꯅꯦ ꯂ꯭ꯀꯦꯇ ꯁꯒꯗꯕꯅꯤ꯫

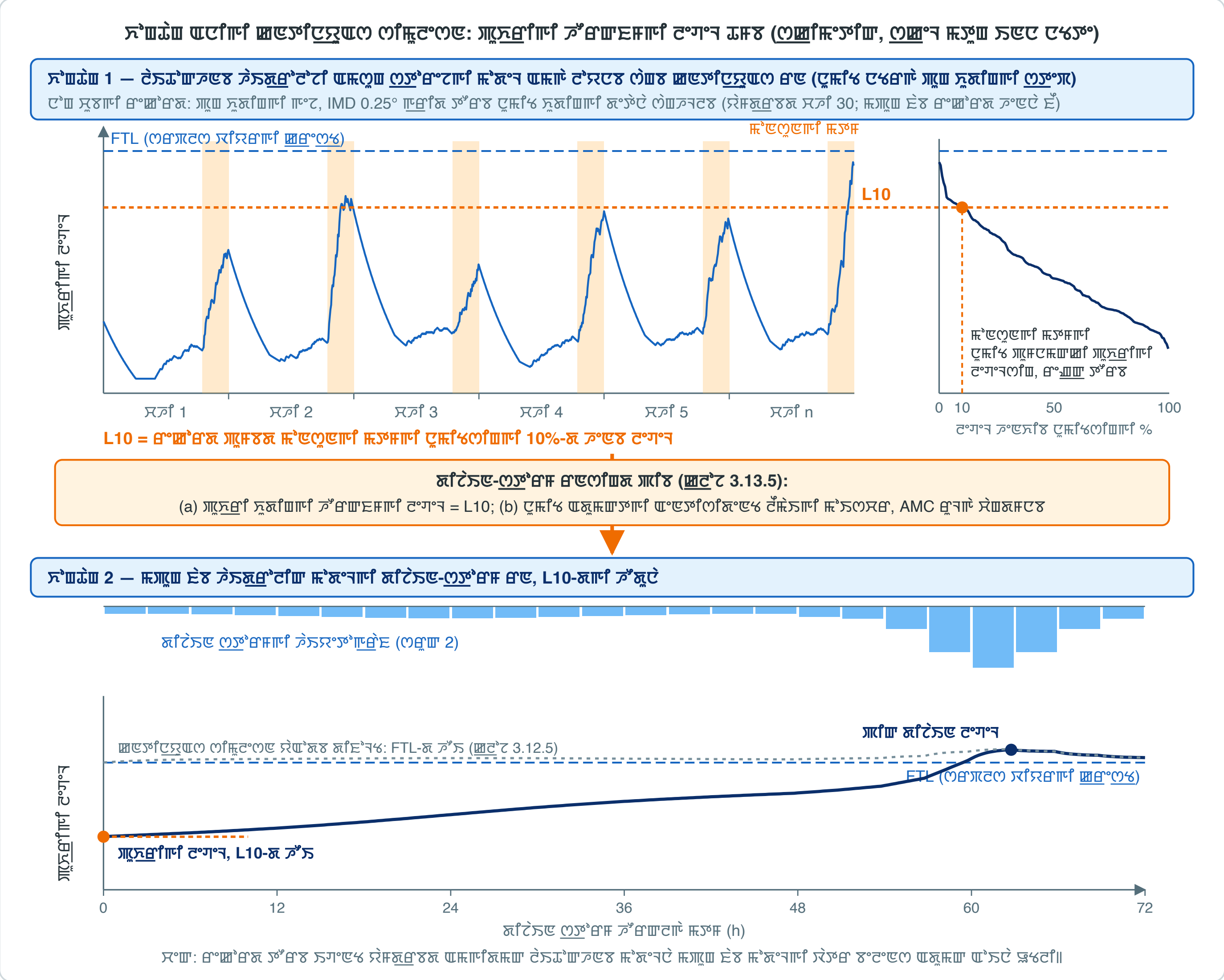
3.13.3 **ꯃꯥꯗꯦꯇꯒꯤ ꯑꯂꯥꯏꯕ.** ꯃꯥꯗꯦꯇ ꯑꯂꯤꯗ ꯅꯒꯦꯔꯥꯔꯦꯂꯦ (IMD ꯔꯦꯁ ꯅꯒꯦꯔꯥꯔꯦꯂꯦ ꯅꯌꯔꯛ ꯃꯁ꯭ꯛ ꯃꯦꯅꯕ)-ꯛ ꯅꯦꯂꯅꯕ ꯂꯥꯍ-ꯃꯥꯅꯂꯁꯔ ꯑꯦꯀꯥꯁꯗꯦꯞꯤꯡ, ꯅꯦꯃꯍꯒꯤ ꯃꯍꯤꯒꯤ ꯅꯂꯤꯡ ꯅꯌꯔꯛ ꯕꯦꯅ ꯈꯅꯦ, ꯑꯔꯦꯔꯤꯡ ꯔꯂ ꯑꯃꯁꯨꯡ ꯅꯔꯤꯒꯦꯂꯦ ꯅꯦꯇꯀꯔꯛ ꯅꯦꯂꯅꯕ ꯁ꯭ꯍꯔꯤꯒꯤ ꯂ꯭ꯁꯔꯦꯅ, ꯑꯃꯁꯨꯡ ꯂꯔꯨꯛ 5-ꯒꯤ ꯁꯦꯇꯂꯔ ꯂꯤꯔꯅ (ꯀꯥꯂ꯭ꯁꯦꯇ ꯑꯦꯁꯌꯈꯥꯇꯂꯤꯡꯒꯤꯗꯃꯛ ꯁ꯭ꯔꯤꯗꯤꯛꯌ ꯁꯦꯔꯕ ꯁꯦꯅꯗꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯔꯅ ꯑꯦꯇꯦꯁꯑꯦꯂꯦ) ꯂꯦꯁꯒꯗꯕꯅꯤ꯫

3.13.4 **ꯃꯍꯣꯂꯤꯡ ꯂꯤꯇꯤꯀꯅꯕ.** ꯂꯁꯔ ꯅꯦꯒꯦꯇ, ꯂ꯭ꯁꯔꯅ ꯑꯃꯁꯨꯡ ꯒꯦꯂꯃꯈꯒꯤ ꯁꯍꯤ ꯅ꯭ꯗꯤꯡꯒꯤ ꯅ꯭ꯕꯅꯗꯒꯤ ꯂꯦꯁꯕꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯑꯦꯁꯌꯈꯥꯇ ꯀꯤꯡꯅꯕꯒꯤ ꯗꯔꯔꯦꯂꯦ, ꯅꯦꯇꯀꯔꯛꯅꯦ ꯈꯔꯤꯀꯁꯦꯂꯤ ꯑꯦꯅꯦꯅꯂꯤꯂꯦ ꯈꯤꯌ ꯁꯒꯗꯕꯅꯤ꯫ ꯃꯍꯣꯂꯤꯡ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟ-ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯃꯍꯣꯂꯤꯡꯛ ꯂꯤꯗꯃꯛꯀꯅꯒꯗꯕꯅꯤ꯫ AEP ꯅ꯭ꯗꯤꯡꯃꯛꯁ ꯍꯦꯟꯕ ꯀꯦꯟꯕ ꯃꯍꯣ ꯑꯁ꯭ꯂꯦ ꯅꯦꯔꯀ꯭ꯀꯟ꯫ ꯀꯟꯗꯤꯁꯟꯂꯤꯃꯤꯇꯦꯁꯟ ꯔꯦꯀꯥꯔꯗ ꯑꯁꯤ ꯇꯨꯃꯤꯌ ꯅ꯭ꯗꯤꯡꯒꯤ ꯗꯦꯁꯦꯗꯒꯤ ꯗꯤꯂꯑꯦꯒ꯭ꯔꯤꯒꯦꯌ ꯁꯦꯔꯕ ꯃꯈꯍꯅ, ꯇꯨꯃꯤꯌ ꯑꯃꯗꯒꯤ ꯅꯦꯃꯕ ꯔꯦꯂꯔꯦꯂꯦ ꯁꯅꯃ ꯅꯕ ꯅꯦꯕꯦ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯦꯇꯂꯤꯡꯒꯤ ꯔꯤꯡ ꯈꯅꯦꯂꯤꯡ ꯗꯤꯖꯥꯏꯟ-ꯁ꯭ꯇꯣꯔꯝ ꯑꯦꯞꯂꯤꯀꯦꯁꯟꯒꯤ ꯅꯒꯗꯕꯅꯤ, ꯃꯔꯃꯗꯤ ꯗꯤꯂꯑꯦꯒ꯭ꯔꯤꯒꯦꯌ ꯁꯦꯔꯕ ꯁꯨꯡ ꯅ꯭ꯗꯤꯡꯒꯤ ꯔꯤꯡꯂꯤꯡ ꯑꯁꯤ ꯂꯤꯇꯀꯁꯤꯡꯅꯤ꯫

3.13.5 **ꯅꯦꯡꯀꯤꯡ ꯑꯅꯤꯒꯤ ꯑꯔꯥꯏꯁ.** ꯀꯟꯗꯤꯁꯟꯂꯤꯃꯤꯇꯦꯁꯟꯅꯦ ꯃꯁꯨꯡ ꯈꯦꯕ ꯍꯅꯗꯦꯅꯤꯇ ꯃꯥꯗꯦꯇ ꯂꯤꯇꯤꯀꯅꯕ ꯅꯌꯁ꯫ ꯃꯂꯦ 3.13.3-ꯒꯤ ꯅꯦꯃꯍꯒꯤ ꯃꯥꯅꯂꯁꯔ, ꯅꯦꯃꯍꯒꯤ ꯃꯍꯤꯒꯤ ꯅꯂꯤꯡ, ꯁ꯭ꯍꯔꯤꯒꯤ ꯂ꯭ꯁꯔꯅ, ꯑꯔꯦꯔꯤꯡ ꯔꯂꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯇꯂꯔ ꯁꯌꯔ, ꯇꯨꯃꯤꯌ ꯅ꯭ꯗꯤꯡ ꯅꯌꯔꯛ ꯁꯨꯡ ꯅ꯭ꯗꯤꯡꯒꯤ ꯂ꯭ꯁꯔ ꯑꯃꯍ ꯅꯦꯅꯈꯥꯇꯍꯦꯕ ꯍꯦꯅꯗꯦꯅꯦꯇꯤ ꯑꯃꯁꯨꯡ ꯂ꯭ꯁꯔꯅꯒꯤ ꯃꯥꯗꯦꯇ ꯑꯃꯍ ꯂꯤꯇꯤꯀꯅꯕ ꯂꯦꯟ꯫ ꯃꯁ꯭ꯒꯤ ꯃꯍꯣꯂꯤꯡ ꯑꯁ꯭ꯂꯒꯤ ꯃꯁꯨꯡ ꯈꯦꯕ ꯍꯅꯗꯦꯅꯤꯇ ꯃꯥꯗꯦꯇꯒꯤ ꯗꯤꯖꯥꯏꯟ-ꯁ꯭ꯇꯣꯔꯝ ꯔꯦꯂꯤꯡꯗ ꯃꯍꯤꯒꯤ ꯑꯦꯅꯦ ꯁꯔꯤꯒꯗꯕꯅꯤ:

- (a) **ꯁ꯭ꯍꯔꯤꯒꯤ ꯅ꯭ꯗꯤꯡꯃꯛꯀꯤ ꯍꯥꯔꯛꯄꯒꯤ ꯅꯦꯒꯦꯇ**, ꯔꯦꯀꯥꯔꯗ ꯁ꯭ꯃꯅꯃꯛꯁ 1 ꯑꯦꯞꯔꯤꯂꯗꯒꯤ 31 ꯑꯛꯇꯣꯕꯔ ꯈꯨꯕ ꯇꯨꯃꯤꯌꯂꯤꯡꯒꯤ 10%-ꯗ ꯍꯦꯟꯕ ꯅꯦꯒꯦꯇ ꯑꯦꯅꯦ ꯅꯣꯕ; ꯑꯃꯁꯨꯡ
- (b) **ꯑꯦꯟꯇꯤꯁꯤꯄꯦꯇꯔꯤ ꯂꯥꯏꯅ-ꯃꯥꯅꯂꯁꯔ ꯀꯟꯗꯤꯁꯟ**, ꯇꯨꯃꯤꯌ ꯑꯁ꯭ꯂꯤꯡꯗꯒꯤꯃꯛ ꯅꯣꯕ ꯑꯃꯁꯨꯡ ꯀ꯭ꯅꯦꯅ 3.8-ꯒꯤ AMC ꯂꯔꯛ ꯁꯤꯡꯗꯃꯅꯕ꯫

ꯗꯤꯖꯥꯏꯟꯔꯦ ꯅꯦꯅꯈꯥꯇꯍꯦꯕ ꯃꯥꯗꯦꯇꯅꯦ ꯂꯦꯃꯍꯧꯕꯗ ꯔꯦꯀꯥꯔꯗ ꯁꯦꯔꯕ ꯅꯒꯦꯌ ꯑꯃꯒꯤꯗꯃꯛ ꯃꯁꯨꯡ ꯈꯦꯕ ꯃꯥꯗꯦꯇꯒꯤ ꯂꯁꯔ ꯕꯦꯅꯦꯂꯦ ꯑꯃꯍꯛ ꯍꯦꯟꯕ ꯁꯤ ꯍꯂꯦ ꯁꯌꯀꯅꯕꯅꯤ꯫



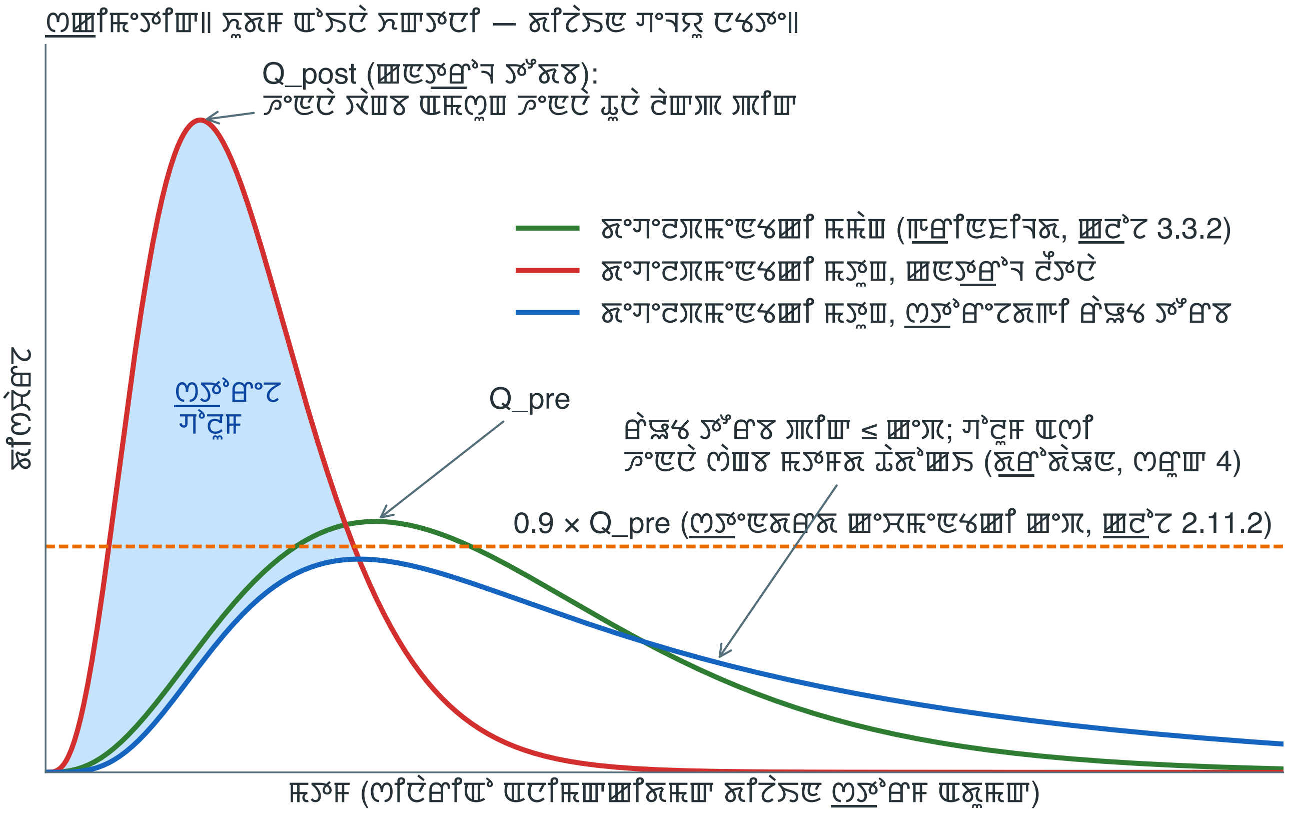
[illegible] 3.4 — [illegible] 3.13.5-[illegible]॥ [illegible] 1: [illegible] 1 [illegible] 31 [illegible] 10%-[illegible] (L10) [illegible]॥ [illegible] 2: [illegible] 3.12.5-[illegible] FTL-[illegible], [illegible]॥ [illegible], [illegible]॥ [illegible], [illegible] 3.13.5-[illegible]॥

> **[illegible].** [illegible], [illegible]॥ [illegible] 20-[illegible], [illegible], [illegible] "[illegible] OSD [illegible]" ("cannot reliably produce an OSD system design that will always be effective") [illegible], [illegible] (Water Science and Engineering, 2019)॥ 3.13.2(b)-[illegible] 30-[illegible] 2.3.2-[illegible] IDF [illegible]; [illegible], [illegible] 1901-[illegible] IMD-[illegible]॥ [illegible]॥ [illegible], [illegible]॥ [illegible], [illegible]॥ [illegible]

[illegible] 3.13.5-[illegible] [illegible] 1D–2D [illegible] 3.13.5(a)-[illegible] 10% [illegible] 2025-[illegible] 770.05 m-[illegible] 769.320 m-[illegible] 783.250 m-[illegible] 782.850 m-[illegible] (WRD-[illegible])॥

3.14 [illegible]

3.14.1 [illegible] 2.11 [illegible] 4-[illegible] 3-2-[illegible]॥



[illegible] 3.5 — [illegible] CPHEEO, Manual on Storm Water Drainage Systems, Part A §8.5, 2019, [illegible] KC Metro APWA Section 5600, 2025.01-[illegible]॥

3.14.2 **[illegible] 1 — [illegible].**

- (a) [illegible]॥

- (b) ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯂꯥꯏꯅ ꯍꯣꯠꯅꯔꯒ POC ꯁꯔꯨꯛꯁꯤꯡꯗꯥ ꯆꯥꯡꯗꯝꯅꯕꯥ ꯇꯧꯒꯅꯤ꯫ POC ꯁꯔꯨꯛꯁꯤꯡꯗꯥ ꯌꯥꯝꯅꯥ ꯌꯥꯝꯅꯥ ꯑꯣꯏꯒꯅꯤ꯫ ꯁꯤꯖꯤꯟꯅꯕꯥ ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥ ꯑꯗꯨꯒꯤ ꯃꯤꯍꯨꯠ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥ ꯑꯗꯨ ꯍꯟꯅꯥ ꯇꯧꯒꯅꯤ꯫
- (c) ꯂꯥꯏꯅꯒꯤ ꯍꯥꯏꯕꯁꯤꯡꯒꯤ ꯇꯥꯛꯄ ꯃꯇꯝ-ꯑꯗꯨ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯍꯥꯏꯕꯥ ꯃꯇꯝꯗꯥ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅꯕꯥ ꯌꯥꯏ ꯑꯣꯏꯒꯅꯤ (ꯁꯦꯛꯁꯟ 3.3.5(b))꯫ ꯃꯗꯨ ꯂꯥꯏꯅꯒꯤ ꯃꯇꯝ ꯆꯥꯡꯗꯝꯅꯕꯥ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ, ꯁꯤꯖꯤꯟꯅꯕꯥ ꯑꯃꯁꯨꯡ POC-ꯗꯥ ꯂꯩꯕꯥ ꯍꯣꯠꯅꯕꯥ ꯑꯣꯏꯍꯅꯕꯥ ꯐꯪꯒꯅꯤ꯫

3.14.3 **ꯈꯣꯡꯊꯥꯡ 2 — ꯂꯩꯃꯥꯏꯒꯤ.** HSG ꯃꯥꯏꯀ ꯑꯣꯏꯒꯅꯤ (ꯁꯦꯛꯁꯟ 3.7), ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗꯅ-ꯑꯣꯏꯕꯒꯤ ꯂꯩꯕ ꯂꯩꯍꯟꯒꯅꯤ (ꯁꯦꯛꯁꯟ 3.10.1) ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥ ꯃꯇꯝ ꯌꯥꯝꯅꯥ ꯃꯇꯝ ꯑꯣꯏꯒꯅꯤ꯫

3.14.4 **ꯈꯣꯡꯊꯥꯡ 3 — ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯥꯂꯦꯃꯒꯤ ꯃꯇꯝ.** ꯁꯦꯛꯁꯟ 3.3.2 ꯃꯇꯝ ꯍꯥꯏꯕ ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯥꯂꯦꯃꯒꯤ ꯃꯇꯝ ꯂꯧꯒꯅꯤ: ꯄꯥꯏꯗꯅꯕꯥ CN (ꯌꯦꯡꯉꯨ 3.5), Tc (ꯁꯦꯛꯁꯟ 3.6, n = 0.15-ꯒꯤ ꯇꯧꯔꯕ), ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯂꯩꯃꯥꯏ ꯍꯥꯏꯕ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯁꯥꯗꯨꯅꯕ꯫ AMC II ꯑꯃꯁꯨꯡ AMC III-ꯗ CN ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫

3.14.5 **ꯈꯣꯡꯊꯥꯡ 4 — ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯃꯇꯝ.** ꯁꯦꯛꯁꯟ 3.3.3 ꯃꯇꯨꯡ ꯍꯥꯏꯕ ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯃꯇꯝ ꯂꯧꯒꯅꯤ: ꯃꯥꯂꯦꯝ ꯑꯣꯏꯕ ꯍꯥꯏꯕꯒꯤ ꯇꯧꯕ, ꯁꯤꯖꯤꯟꯅꯕꯥ (ꯁꯦꯛꯁꯟ 3.9), ꯂꯩꯃꯥꯏꯒꯤ ꯂꯩꯕꯒꯤ HSG, CN, Tc, ꯑꯃꯁꯨꯡ ꯆꯥꯡꯗꯝꯅꯕ ꯑꯍꯣꯡ ꯄꯥꯝꯕ ꯑꯣꯏꯕ ꯃꯤꯑꯣꯏꯕ, ꯗꯤꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯍꯅꯕꯥ (ꯁꯦꯛꯁꯟ 3.12.1)꯫

3.14.6 **ꯈꯣꯡꯊꯥꯡ 5 — ꯗꯤꯖꯥꯏꯟ ꯆꯥꯡꯗꯝꯅꯕꯥ.** ꯂꯦꯝꯕꯥ 2-ꯗꯒꯤ, ꯃꯍꯩ ꯑꯣꯏꯕ AEP ꯁꯔꯨꯛꯁꯤꯡꯗꯒꯤ (50%, 10% ꯑꯃꯁꯨꯡ 1%; ꯍꯧꯖꯤ 2-, 10- ꯑꯃꯁꯨꯡ 100) ꯑꯃꯁꯨꯡ {1, 2, 3, 6, 12, 24, 48, 72 h}-ꯗ ꯂꯩꯕ ꯗꯤꯖꯥꯏꯟ ꯁꯔꯨꯛꯁꯤꯡꯗꯒꯤ ꯃꯍꯧꯁꯥ ꯂꯧꯕ ꯂꯧꯒꯅꯤ:

- ꯁꯦꯟꯅꯃꯤꯡ ꯃꯤꯑꯣꯏꯒꯤ ꯇꯧꯔꯕ ꯃꯥꯏꯀ (ꯁꯦꯛꯁꯟ 2.8), ꯂꯥꯏꯅꯁꯤꯡꯗꯒꯤ ARF = 1.0 (ꯁꯦꯛꯁꯟ 2.7.4);
- ꯍꯟꯅꯥꯌꯥꯝꯅꯥ (ꯁꯦꯛꯁꯟ 2.9); ꯑꯃꯁꯨꯡ
- AMC (ꯁꯦꯛꯁꯟ 2.11.4)꯫

ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯇꯧꯕ ꯁꯔꯨꯛ ꯍꯣꯠꯅꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯍꯟꯒꯅꯤ (ꯁꯦꯛꯁꯟ 2.11.1)꯫

3.14.7 **ꯈꯣꯡꯊꯥꯡ 6 — ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯥꯂꯦꯃꯒꯤ ꯃꯇꯝ ꯍꯣꯠꯅꯕ**, ꯇꯧꯕ ꯁꯔꯨꯛ ꯍꯣꯠꯅꯕ ꯁꯔꯨꯛꯁꯤꯡꯗꯒꯤ, ꯑꯃꯁꯨꯡ Q_pre(T, d) ꯑꯣꯏꯒꯅꯤ꯫ ꯍꯥꯏꯕ ꯍꯣꯠꯅꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯑꯍꯥꯅꯕ ꯁꯥꯗꯨꯅꯕꯒꯤꯗꯒꯤ, ꯗꯤꯖꯥꯏꯟ ꯍꯣꯠꯅꯕ ꯍꯧꯖꯤꯒꯤ ꯁꯣꯏꯗꯅ 10% AEP-ꯒꯤ ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯥꯂꯦꯃꯒꯤ ꯍꯣꯠꯅꯕ ꯆꯥꯡꯗꯝꯅꯕꯥ ꯇꯧꯒꯅꯤ; ꯀꯔꯤꯒꯨ ꯑꯗꯨ ꯁꯦꯛꯁꯟ 2.11.3-ꯒꯤ ꯃꯇꯝ ꯑꯣꯏꯒꯅꯤ꯫

3.14.8 **ꯈꯣꯡꯊꯥꯡ 7 — ꯁꯤꯖꯤꯟꯅꯕꯥ ꯑꯣꯏꯔꯕ ꯃꯥꯌꯀꯩꯗꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯃꯇꯝ ꯍꯣꯠꯅꯕ** ꯑꯃꯁꯨꯡ Q_post(T, d) ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯀꯨꯞꯄꯕ ꯑꯣꯏꯒꯅꯤ꯫ ꯃꯗꯨꯗꯤ ꯂꯩꯃꯥꯏꯒꯤ ꯑꯣꯏꯕ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯍꯨꯠ ꯑꯣꯏꯅ, ꯌꯥꯝꯅꯥ ꯑꯣꯏꯅ꯫

3.14.9 **ꯈꯣꯡꯊꯥꯡ 8 — ꯃꯤꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯑꯣꯏꯕ ꯍꯟꯊꯍꯅꯕ.**

- (a) ꯂꯦꯝꯕꯥ 4-ꯒꯤ ꯃꯤꯑꯣꯏꯕ ꯀꯨꯞꯄ ꯑꯃꯁꯨꯡ ꯂꯦꯝꯕꯥ 4-ꯒꯤ ꯃꯍꯩ ꯍꯥꯏꯕ ꯑꯣꯏꯕ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯇꯝ ꯁꯥꯗꯨꯅꯕ ꯇꯧꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅꯕ ꯂꯩꯍꯟꯕꯗ ꯃꯇꯝꯁꯤ (POC-ꯗ ꯆꯥꯡꯗꯝꯅꯕ) ꯆꯥꯡꯗꯝꯅꯕ ꯑꯍꯣꯡ ꯐꯪꯒꯅꯤ꯫
- (b) ꯇꯧꯍꯟꯕ ꯍꯟꯅꯥꯌꯥꯝꯅꯥ ꯑꯗꯨ ꯗꯤꯑꯣꯏꯕ ꯆꯥꯡꯗꯝꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯍꯅꯕꯁꯤꯡꯒꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯃꯐꯝ ꯑꯣꯏꯒꯅꯤ (ꯁꯦꯛꯁꯟ 3.12.1)꯫
- (c) ꯑꯣꯏꯍꯅꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥ ꯑꯍꯣꯡ ꯇꯧꯕꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯃꯍꯩ ꯂꯩꯕꯗꯒꯤ, ꯁꯦꯛꯁꯟ 2.12-ꯒꯤ ꯇꯧꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯁꯣꯏꯗꯅ ꯂꯦꯝꯕꯥ 5-ꯒꯤ ꯌꯥꯝꯅꯥ ꯂꯩꯍꯟꯒꯅꯤ꯫
- (d) ꯈꯣꯡꯊꯥꯡ 9 ꯃꯇꯨꯡ ꯍꯣꯠ ꯍꯣꯠꯅꯕ ꯆꯥꯡꯗꯝꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯍꯅꯕ ꯑꯍꯣꯡꯕ ꯑꯣꯏꯒꯅꯤ꯫

3.14.10 **ꯈꯣꯡꯊꯥꯡ 9 — ꯁꯤꯖꯤꯟꯅꯕꯥ ꯌꯥꯝꯅꯥ ꯑꯣꯏꯕ**, POC ꯁꯔꯨꯛꯁꯤꯡꯗ, AEP ꯁꯔꯨꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯁꯔꯨꯛꯁꯤꯡꯗꯒꯤ:

- (a) ꯆꯥꯡꯗꯝꯅꯕ ꯁꯥꯗꯨꯅꯕꯒꯤ: 50%, 10% ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤꯗꯒꯤ Q_post(T) ≤ 0.9 × Q_pre(T) (ꯁꯦꯛꯁꯟ 2.11.2);
- (b) ꯍꯥꯏꯕ ꯍꯣꯠꯅꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯑꯍꯥꯅꯕ ꯁꯥꯗꯨꯅꯕꯒꯤ: Q_post(1% AEP) ≤ Q_pre(10% AEP), ꯑꯃꯁꯨꯡ Q_post(50% AEP) ≤ Q_pre(50% AEP) (ꯁꯦꯛꯁꯟ 2.11.3)꯫

ꯆꯥꯡꯗꯝꯅꯕꯁꯤꯡ ꯇꯧꯕꯗ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯒꯤ ꯁꯣꯏꯗꯅ ꯆꯥꯡꯗꯝꯅꯕ ꯃꯍꯩ ꯑꯣꯏꯕ ꯑꯍꯣꯡ ꯍꯧꯖꯤꯒꯤ ꯁꯣꯏꯗꯅ ꯁꯣꯏꯗꯅ ꯇꯧꯕ ꯂꯩꯕ ꯑꯣꯏꯒꯅꯤ; ꯂꯩꯕ 24, 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯃꯇꯝ ꯃꯇꯨꯡ ꯂꯩꯕꯗ ꯃꯤꯍꯨꯠ ꯑꯣꯏꯅ (ꯁꯦꯛꯁꯟ 2.5.2)꯫

3.14.11 **ꯁ꯭ꯇꯦꯞ 10 — ꯂꯣꯁꯂꯩꯁꯤꯡꯒꯤꯁꯤꯡ ꯃꯦꯂꯩꯕ.** ꯇꯣꯡꯊꯥꯡꯕ ꯇꯥꯡ ꯌꯕꯒꯤ ꯊꯧꯗꯥꯂꯣꯏꯕꯒꯤꯗꯃꯛꯇ ꯁ꯭ꯇꯦꯞ 6–9 ꯑꯣꯏ Ia = 0.05S-ꯒꯥ ꯇꯥꯔꯅꯕ (ꯃꯇꯥꯡ 3.8.5) ꯑꯃꯨꯛ ꯄꯦꯅꯕ ꯁꯤꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ, ꯄꯦꯅꯕ ꯅꯣꯡꯕ ꯍꯤꯛ ꯃꯣꯟ ꯖꯥꯁꯤꯜ ꯑꯃꯁꯨ ꯂꯩꯇꯦꯅꯃꯕꯗꯤ, ꯂꯩꯁꯦꯗꯃꯗ ꯖꯥꯁꯤꯜꯒꯤ ꯇꯥꯔꯅꯕ (ꯃꯇꯥꯡ 3.11.5)꯫ ꯍꯤꯛꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯊꯧ ꯁꯕ ꯂꯩꯃꯥꯡꯗ ꯑꯄꯥꯕ ꯃꯤꯍꯥꯠꯃꯣꯟ ꯁꯤꯒꯗꯕꯅꯤ꯫

3.14.12 **ꯁ꯭ꯇꯦꯞ 11 — ꯃꯃꯤ ꯆꯪꯕ ꯌꯥꯎꯂꯕ.** ꯑꯃꯅꯕ ꯃꯆꯥꯟ ꯁꯤꯃꯕ ꯃꯅꯥꯡ ꯂꯩꯇꯦꯅꯕꯗꯥ, ꯂꯃꯥꯏ 4-ꯒꯤ ꯗꯃꯅꯆꯦ ꯃꯁꯤꯡꯂꯕ, ꯅꯕꯅꯗꯒꯤ ꯑꯍꯤꯛꯍ ꯑꯃꯤꯖꯤꯂ ꯑꯃꯁꯨꯡ ꯅꯃꯃꯇꯦꯂꯣ ꯂꯍꯤꯡꯔꯣ, ꯂꯃꯥꯏ 5-ꯒꯤ ꯑꯆꯥꯟꯖꯤꯡ ꯊꯤꯕꯇꯕ ꯃꯁꯤꯡꯒꯤ ꯂꯩꯃꯇ ꯌꯥꯎ, ꯑꯃꯁꯨꯡ ꯂꯃꯥꯏ 5-ꯒꯤ ꯃꯁꯥ ꯊꯕꯕ ꯃꯖꯤꯡꯒꯤ ꯑꯍꯦꯅꯅꯂꯣ ꯌꯥꯎ ꯁꯤꯒꯗꯕꯅꯤ꯫

3.14.13 **ꯁ꯭ꯇꯦꯞ 12 — ꯗꯣꯀꯨꯃꯦꯟꯇ ꯁꯦꯝ**: ꯃꯄꯥꯂꯕ ꯖꯗꯤ 3-1 ꯑꯃꯁꯨꯡ 3-2-ꯗ (ꯃꯇꯥꯡ 3.17)꯫

> **ꯂꯧꯁꯤꯡꯅꯕ ꯁꯥꯔꯕ.** ꯁ꯭ꯇꯦꯞꯂꯣꯏꯕꯒꯤ ꯊꯥ ꯑꯣꯏ ꯅꯤꯡꯊꯧꯁꯤ ꯌꯨꯝꯖꯤ ꯑꯅꯕ ꯂꯩꯁꯦꯗꯃꯗ ꯌꯃꯥꯖꯤꯡꯒꯤ ꯃꯁꯨ ꯅꯦꯗ: ꯁꯅꯔꯗꯕꯍ; ꯗꯤꯡꯇꯍꯃꯦꯁꯤꯡ ꯃꯃꯈꯒꯤ CN ꯑꯃꯁꯨꯡ Tc ꯊꯃꯕ; ꯗꯤꯡꯇꯍꯃꯦꯁꯤꯡ ꯃꯁꯨꯕꯒꯤ CN ꯑꯃꯁꯨꯡ ꯄꯦꯅꯕ ꯅꯣꯡꯕ Tc ꯊꯃꯕ; ꯌꯨꯇꯤꯁ ꯄꯅꯗꯃꯒꯤꯃꯖ ꯇꯁꯃꯒꯥ ꯈꯅꯇꯃꯁꯤꯡ ꯃꯅꯥꯡ ꯑꯃꯒꯤ ꯌꯁꯊꯕꯗ ꯃꯦꯇꯕ ꯇꯥꯡ ꯌꯕꯒꯤ ꯊꯧꯗꯥꯂꯕ ꯌꯇꯅꯕ; ꯍꯤꯛ ꯑꯃꯁꯨꯡ ꯒꯤꯂꯨꯃꯂꯕ ꯌꯥꯗꯃꯕꯇꯕ; ꯑꯃꯁꯨꯡ ꯃꯗꯤꯖꯅꯗ ꯍꯨꯇꯂ ꯃꯆꯥꯟꯕꯇ ꯂꯩꯃꯇꯒꯤ ꯂꯅꯇ ꯇꯣꯍꯍ꯫ ꯃꯂꯤꯇ ꯃꯇꯤꯍꯨꯃꯒꯤ ꯑꯇꯤꯃꯦꯁꯂꯕ ꯄꯍꯌꯤꯔꯤ: ꯍꯨꯕ 48–72-ꯒꯤ ꯇꯥꯡ ꯌꯕꯒꯤ ꯊꯧꯗꯥꯂꯕ, AMC III ꯑꯃꯁꯨꯡ ꯁꯔꯁꯦꯃ꯫ ꯃꯃꯤ 3.5-ꯇ ꯃꯁꯃ ꯂꯕꯕ ꯃꯦꯂꯕ ꯈꯃꯤꯒꯤ ꯃꯂꯨꯑꯅꯕꯒꯥ ꯆꯁꯇꯤ: ꯃꯆꯥꯟ ꯁꯤꯃꯕ ꯍꯤꯛ ꯑꯂꯤꯇ ꯈꯍ ꯃꯍꯨꯕ ꯖꯄꯇꯕ ꯌꯅ ꯑꯗꯨꯒꯃꯕ ꯃꯁꯃꯗ ꯂꯩꯃꯇꯇ ꯗꯤꯡꯇꯍꯃꯦꯁꯤꯡ ꯃꯁꯨꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯃꯈꯒꯤ ꯄꯅꯗꯃꯒꯤꯃꯖꯂꯕꯒꯤ ꯃꯃꯥꯁ ꯆꯪꯕ ꯒꯨꯃꯒꯤ ꯁꯦꯇꯕ ꯑꯗꯨ ꯊꯃꯃꯤ, ꯃꯗꯨ ꯃꯁꯨꯕꯗ ꯂꯃꯥꯏ 4-ꯒꯤ ꯇꯤꯃꯤꯁꯂꯕꯒꯤ ꯃꯂꯕꯗ ꯅꯂꯕ ꯊꯗꯥꯈꯗꯕꯤ꯫ 3.14.2(b)-ꯗ ꯈꯌꯃꯦꯁꯂꯕꯒꯤ ꯃꯃꯥꯁ ꯃꯦꯑꯖ ꯇꯃꯕꯤ ꯄꯕꯗꯍ ꯊꯤꯕ ꯑꯂꯤꯇ ꯂꯅꯁ ꯑꯃꯇ ꯖꯇ ꯑꯗꯨ ꯌꯃꯇꯦꯕꯇꯕ ꯃꯤꯑꯅ ꯑꯃꯒꯤ ꯁꯕꯦꯗ ꯄꯕꯗꯥꯁꯇ POC ꯑꯃꯗ ꯂꯤ ꯃꯍꯨꯕ ꯖꯄꯇꯕꯗꯒꯤ ꯊꯤꯕꯅ꯫

3.15 ꯃꯗꯤ ꯈꯇꯤꯕꯃꯂꯦ ꯑꯃꯁꯨꯡ ꯒꯇꯤꯗꯂꯦ

3.15.1 **ꯈꯗꯅꯗ ꯃꯊ ꯁꯕꯒꯥ.** ꯈꯇꯤꯕꯃꯂꯦ ꯑꯃꯁꯨꯡ ꯒꯇꯤꯗꯂꯦ ꯑꯣꯏ ꯃꯁꯒꯤꯂꯣꯏꯕꯒꯤꯗꯃꯛ ꯃꯊ ꯁꯅ:

- (a) 25 km² ꯇꯁꯃꯒꯥ ꯃꯂꯤꯗꯒꯤ ꯄꯦꯕ ꯈꯌꯃꯦꯁ ꯃꯗꯤꯂꯕ;
- (b) ꯃꯇꯥꯡ 3.13-ꯒꯤ ꯃꯁꯗ ꯃꯤꯇꯇꯤ ꯖꯂꯤꯇꯤꯁꯤꯂꯕ ꯑꯃꯁꯨꯡ ꯈꯦꯁꯤꯇꯌꯑꯂ ꯂꯤꯈꯇꯂꯦ;
- (c) ꯂꯤꯁꯤ ꯇꯁꯃꯒꯥ ꯕꯂꯤꯦꯒꯤ ꯅꯃꯃ ꯃꯂꯁꯃ ꯍꯇꯦꯂꯕ; ꯑꯃꯁꯨꯡ
- (d) ꯂꯃꯥꯏ ꯑꯂꯤꯒꯤ ꯗꯤꯖꯤꯁꯂꯕꯗꯒꯤ ꯁꯁꯇꯕ ꯍꯃꯤꯃꯤꯁꯃꯂꯕ ꯆꯪꯕ ꯃꯗꯤ ꯑꯃꯄꯥꯁꯤ (ꯌꯗꯃ ꯑꯅꯇ ꯈꯇꯃꯥ ꯁꯃꯦꯂꯖꯃ ꯇꯁꯃꯒꯥ ꯄꯦꯅꯕ ꯅꯣꯡꯕ ꯍꯤꯛ ꯃꯁ ꯖꯥꯁꯤꯜ)꯫

3.15.2 **ꯗꯁ.** ꯈꯇꯤꯕꯃꯂꯦꯇ ꯆꯕ ꯖꯕꯇꯕ ꯇꯥꯡ ꯌꯕ (ꯒꯇꯂꯕ, ꯑꯃꯁꯨꯡ ꯆꯃꯕꯗꯤ ꯃꯗꯃ) ꯑꯃꯁꯨꯡ ꯆꯕ ꯖꯕꯇꯕ ꯖꯇ ꯇꯁꯃꯒꯥ ꯌꯁꯃ ꯇꯒꯤꯂꯕ (WRD-ꯒꯤ ꯒꯇꯕ ꯂꯅꯁꯂꯕ, IMC ꯇꯁꯃꯒꯥ MSDMA-ꯒꯤ ꯇꯒꯤ ꯂꯦꯂꯃꯂꯕ, ꯍꯨꯅꯃꯤꯒꯤ ꯒꯇꯂꯕ, ꯇꯁꯃꯒꯥ ꯂꯃꯒꯥ ꯁꯃꯕ ꯅꯂꯕ ꯅꯌꯆꯒꯤ ꯃꯃꯥꯂꯕ) ꯂꯤꯇꯤꯦꯇꯒꯗꯕꯅꯤ꯫

3.15.3 **ꯅꯒꯦꯁꯂꯕ.** ꯈꯇꯤꯕꯃꯂꯦꯒꯤꯗꯃꯛ ꯌꯃꯗꯃꯕꯗ ꯃꯂ ꯃꯊꯑꯁ ꯆꯪꯕ ꯅꯒꯦꯁ ꯑꯌꯃ ꯑꯃꯁꯨꯡ ꯒꯇꯤꯗꯂꯦꯒꯤꯗꯃꯛ ꯌꯃꯗꯃꯕꯗ ꯑꯁꯍꯍ ꯅꯒꯦꯁ ꯑꯃꯤ ꯂꯤꯇꯤꯦꯇꯒꯗꯕꯅꯤ꯫ ꯅꯒꯦꯁ ꯑꯃꯗꯤ ꯌꯃꯗꯃꯕꯗ ꯃꯁꯃ ꯂꯕꯕ ꯃꯦꯂꯨꯦ ꯇꯁꯃꯒꯥ ꯂꯅꯥꯇꯦꯒꯤ ꯅꯒꯦꯁ ꯑꯃꯤ ꯑꯅꯒꯗꯕꯅꯤ (ꯌꯗꯃ ꯑꯅꯇ ꯅꯃꯖꯤ ꯁꯃꯍꯥꯈꯤ ꯅꯂꯕ ꯅꯌꯆꯂꯕ 28–31 ꯃꯦ 2024 (ꯂꯅꯥꯇꯦ ꯃꯤꯃꯤ), 30 ꯃꯦ–ꯖꯨꯟ 2025, ꯂꯤꯍꯥꯁꯃꯕꯃ 2025, ꯖꯨꯇꯅꯒꯤ ꯑꯃꯅꯕ–ꯑꯒꯂꯁ 2015 ꯇꯁꯃꯒꯥ ꯖꯨꯇꯅ–ꯑꯒꯂꯁ 1989, ꯃꯁꯔꯒꯤꯗꯃꯛ ꯃꯨꯌꯔꯤ ꯑꯂꯤꯒꯤꯗꯃꯛ ꯍꯁꯤꯕ ꯄꯃꯥꯖꯃꯂꯕꯗ ꯆꯪꯕ ꯇꯥꯡ ꯌꯕ ꯑꯃꯁꯥꯁꯃꯗꯤ 30 ꯖꯨꯇꯅ 1989-ꯒꯤ ꯅꯃꯖꯤꯒꯤ 158.6 mm (IMD) ꯑꯃꯁꯨꯡ 2025-ꯒꯤꯗꯃꯛ ꯍꯆꯇꯤꯒꯤ ꯒꯤꯌꯂꯕꯇꯤ [TBC], ꯗꯁ ꯆꯪꯕ ꯃꯖꯃꯗ)꯫

3.15.4 **ꯍꯃꯖꯃꯃꯦꯂ.** ꯂꯕꯃꯤꯁꯤꯇ ꯅꯒꯦꯁ ꯌꯗꯕꯃꯥꯈꯗꯃꯛ ꯆꯕ ꯖꯕꯇꯕ ꯑꯃꯁꯨꯡ ꯃꯗꯤ ꯁꯃꯕ ꯍꯤꯛ, ꯒꯨꯃ ꯑꯃꯁꯨꯡ ꯍꯤꯛ ꯖꯆꯕꯒꯤ ꯃꯁꯃ, ꯑꯃꯁꯨꯡ ꯈꯦꯁꯤꯇꯌꯑꯂ ꯃꯗꯤꯂꯕꯒꯤꯗꯃꯛ ꯇꯂ–ꯂꯁꯥꯇꯤꯖ ꯅꯖꯤꯂꯤꯔꯦꯂ (NSE) ꯑꯃꯁꯨꯡ ꯍꯃꯂꯦꯁ ꯕꯅꯔꯂ ꯃꯤꯍꯃꯁ ꯁꯒꯗꯕꯅꯤ꯫ ꯒꯅꯗ ꯑꯃꯤ ꯑꯅꯇ, ꯈꯇꯤꯕꯃꯁ ꯁꯃꯕ ꯃꯗꯤ ꯑꯃꯇ ꯅꯒꯦꯁꯈ ꯍꯤꯛ ꯑꯃꯁꯨꯡ ꯒꯨꯃꯂꯕ ±25%-ꯒꯤ ꯃꯨꯕꯗ ꯑꯃꯥ ꯄꯦꯅꯕ ꯍꯤꯕ ꯖꯤ, ꯑꯃꯁꯨꯡ ꯈꯦꯁꯤꯇꯌꯑꯂ ꯃꯗꯤ ꯑꯃꯇ NSE ≥ 0.5 ꯑꯃꯁꯨꯡ ±25%-ꯒꯤ ꯃꯨꯕꯗ ꯍꯃꯂꯦꯁ ꯕꯅꯔꯂ ꯖꯕꯕ ꯖꯤ꯫

3.15.5 **ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯅꯒꯤ ꯂꯤꯃꯤꯇꯁꯤꯡ.** ꯁꯣꯍꯇꯀꯤ ꯍꯥꯌꯕꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔ ꯔꯦꯟꯖꯁꯤꯡꯗꯥ ꯔꯦꯟꯖꯁꯤꯡꯒꯤ ꯑꯣꯏꯅꯥ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯌꯥꯕꯥ ꯂꯩꯕꯗꯦ, ꯃꯈꯥ ꯑꯃꯁꯨꯡ ꯀꯤꯗꯦꯗꯥ ꯊꯣꯛꯂꯤꯕ ꯗꯤꯁꯆꯥꯔꯖꯒꯤ ꯂꯦꯡꯕ ꯀꯤꯗꯦꯟꯗ ꯍꯗꯂꯣꯡ ꯅꯍꯥꯀꯤ ꯄꯔꯗꯤ ꯁꯦꯡꯂꯕ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯂꯩꯗꯦꯗꯕꯅꯤ꯫

3.15.6 **ꯅꯨꯡꯕꯒꯤ ꯍꯥꯌ.** ꯀꯤꯗꯦꯟꯗ ꯁꯤꯖꯤ ꯍꯗꯂꯣꯡ ꯑꯃ ꯀꯥꯍꯥꯌꯦꯀꯤ ꯂꯤꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯂꯒꯤ ꯅꯂꯣꯁ ꯂꯤ ꯑꯃꯒꯤ ꯀꯤꯃꯍꯥꯌꯗꯂ ꯑꯣꯅꯗꯤ ꯁꯤꯂꯦꯁ ꯌꯥꯒꯀꯗꯂꯤ ꯑꯃꯁꯨꯡ CWC SUH-ꯒꯤ ꯃꯄꯥꯟꯗꯥ, ꯗꯤꯂꯂꯦꯅ ꯒꯦꯂ ꯌꯥꯗꯕ ꯑꯣꯅꯌꯥꯃꯦꯍꯦꯟꯗꯥ ꯑꯃꯁꯨꯡ ꯁꯡꯂꯕ ꯃꯃꯥꯡꯒꯤ ꯅꯟꯗꯥ ꯅꯍꯤꯂꯟꯗꯥꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯒꯀꯗꯕꯅꯤ꯫

> **ꯅꯣꯠ ꯌꯥꯒꯤ.** ꯀꯂꯦ 3.15.5 ꯑꯃꯁꯨꯡ 3.15.6 ꯑꯃꯤ APWA-ꯒꯤ ꯃꯌꯥꯡ ꯅꯦꯂꯕꯂꯤ, APWA-ꯒꯤ "ꯕꯦꯂꯦꯅꯦ ꯂꯂꯤꯍ ꯄꯅꯀꯗꯒꯗꯤ ꯊꯑꯗꯗꯤ ꯁꯤꯕꯀꯒꯤ ꯂꯦꯄꯕ ꯀꯤꯍꯍꯗꯂ ꯑꯦꯍꯌꯥꯃꯦꯍꯟꯗꯥ ꯅꯨꯄꯃꯤ ꯄꯔꯗꯤ ꯁꯦꯡꯂꯕ ꯃꯀꯦꯡ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯂꯤꯂꯤꯗꯂꯗꯅꯀꯕꯂꯤ" ("model calibration shall not be used to justify discharge estimates that are lower than those provided by the baseline unit hydrograph method") ꯄꯔꯗꯤ ꯄꯅ ꯑꯃꯁꯨꯡ ꯂꯂꯤꯍ ꯀꯤꯍꯍꯗꯂꯟꯗꯥ ꯌꯗꯤꯕꯂꯌꯗꯤ ꯂꯃꯒ ꯍꯗꯀꯃꯂꯂꯤ ꯁꯤꯂꯦꯍ ꯌꯥꯂꯦ ꯗꯤꯒꯗꯦꯂꯦ, ꯒꯦꯂ ꯑꯃꯁꯨꯡ ꯃꯃꯗꯒꯤ ꯒꯦꯅꯂꯟꯗꯒ ꯍꯗꯀꯃꯂꯕ ꯃꯇꯥ ꯌꯥꯄꯅꯂꯤ (KC Metro APWA 5600, 2011, §5602.9)꯫ 3.15.3 ꯑꯃꯁꯨꯡ 3.15.4-ꯒꯤ ꯅꯒꯦꯍꯌꯃꯤ ꯃꯟꯗꯥ ꯑꯃꯁꯨꯡ ꯁꯤꯗꯦꯗꯃꯦꯂꯃꯤ ꯒꯦꯅꯂꯟꯗꯥ ꯑꯃꯤ ꯃꯦꯂꯔꯦꯅ ꯑꯃꯤꯒꯤ ꯇꯃꯕꯂꯤ꯫ NSE ≥ 0.5 ꯑꯃꯁꯨꯡ ±25% ꯕꯅꯔꯂꯃꯤ ꯇꯗꯦꯂꯄꯅꯀꯟꯗꯥ ꯑꯃꯤ Moriasi et al. (2007)-ꯒꯤ "ꯌꯥꯕ ꯌꯥꯕ" ("satisfactory") ꯂꯌꯗꯤꯃꯗꯦ ꯗꯦꯌꯥꯟꯗꯂꯤ, ꯃꯅꯦꯔ ꯇ ꯅꯀꯤꯗꯒꯤ ꯃꯦꯌꯥꯤꯂꯅꯑꯂ ꯂꯤꯃꯂꯦꯂꯦꯒꯤꯀꯃꯒ ꯂꯦꯃꯅꯤꯕꯂꯤ; ꯃꯗꯃ ꯑꯃꯤꯀ ꯅꯒꯦꯍꯌꯃꯤ ꯁꯤꯗꯤ ꯑꯃꯁꯨꯡ ꯒꯦꯂꯃꯂꯤꯗꯒꯤꯀꯃꯒ ꯃꯅꯦꯔ ꯂꯤꯂꯤꯗꯂꯕ ꯑꯃꯤ ꯂꯗꯄꯦꯕ ꯑꯃꯂꯤ꯫

3.16 ꯌꯥꯕ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯥꯔ

3.16.1 **ꯌꯥꯕ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯥꯔ.** ꯃꯅꯒꯤꯂꯤꯗ ꯑꯃꯤ ꯂꯕꯃꯤꯌꯦꯅ ꯌꯥꯕ ꯃꯌꯥꯃꯀ ꯍꯦꯂꯤꯕ ꯒꯗꯂꯦ ꯑꯃꯀ, ꯄꯦꯂꯦ ꯁꯦꯁꯤ ꯃꯇꯥ ꯌꯥꯀꯦ ꯌꯥꯅ:

- (a) EPA Storm Water Management Model (SWMM 5.x);
- (b) USACE HEC-HMS ꯑꯃꯁꯨꯡ HEC-RAS;
- (c) USDA NRCS WinTR-55 ꯑꯃꯁꯨꯡ WinTR-20; ꯑꯃꯁꯨꯡ
- (d) ꯗꯤꯗꯃꯦ ꯑꯃꯁꯨꯡ ꯅꯦꯁꯤꯌ ꯅꯀꯤꯗꯃꯒ ꯁꯦꯂꯤꯕ, ꯗꯦꯂꯂꯦꯅ ꯃꯦꯇꯀ ꯑꯃꯁꯨꯡ ꯂꯃ ꯑꯃꯅꯒꯌꯥꯒꯤ SCS-CN ꯀꯦꯅꯀꯂꯦꯂꯂꯃꯤꯗꯒꯤ ꯂꯁꯤꯗꯦꯀꯂꯤꯦꯂꯤꯗ꯫

3.16.2 **ꯑꯌꯥꯁꯤꯁ ꯌꯥꯕ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯥꯔ.** SWMM ꯂꯦꯗꯗꯤꯒꯤ HEC ꯅꯦꯂꯤꯦꯂꯃꯤꯗꯀ ꯂꯕ ꯀꯃꯗꯂꯤꯔꯦꯅ ꯁꯤꯀꯦꯂꯂꯃꯤ ꯅꯦꯂꯤꯦ ꯑꯃꯁꯨꯡ ꯒꯗꯂꯦ ꯌꯥꯒꯂꯕꯀꯤ ꯌꯥꯅ꯫ ꯑꯌꯥꯁꯤꯁ ꯇꯥꯑꯗ ꯂꯦꯗꯗꯤꯒꯤ ꯌꯥꯕ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯥꯔ ꯑꯃꯄꯦꯒꯌꯥꯀꯤ, ꯀꯤꯗꯦꯟꯗꯦ ꯂꯕ-ꯑꯦꯗꯤꯌ ꯅꯀꯤꯗꯃꯒꯀꯤꯀꯃꯒ ꯇꯥꯑꯗ ꯑꯃ ꯑꯃꯁꯨꯡ 3.16.1-ꯒꯤ ꯕꯦꯂꯦꯅꯦ ꯇꯥꯑꯗ ꯑꯃ ꯑꯂꯤꯃꯒꯌꯥꯒꯤ ꯁꯤꯗꯤ ꯌꯥꯂꯦ, ꯂꯦꯒ, ꯗꯦꯑꯗꯦ ꯒꯦꯂꯃ ꯑꯃꯁꯨꯡ ꯃꯦꯂꯕ CN ꯗꯤꯁꯤꯗꯌ ꯌꯥꯗꯕꯀꯤ, 5%-ꯀꯒꯤ ꯄꯦꯕ ꯅꯦꯌꯦꯂꯕ ꯅꯀꯤꯗꯃꯒ ꯅꯗꯀꯒꯂꯕꯀꯤ, ꯑꯃꯁꯨꯡ ꯄꯦꯂꯦ ꯀꯦꯂꯗꯒꯌꯥꯒ ꯂꯦꯌꯥꯕ ꯃꯄ ꯁꯤꯕ ꯅꯦꯌꯦꯂꯕ ꯅꯀꯤꯗꯃꯒ ꯅꯨꯡꯕꯤ ꯄꯔꯗꯤ ꯁꯦꯡꯂꯕꯀꯤ ꯅꯒꯌꯥꯃꯒ ꯌꯥꯅ꯫

3.16.3 **ꯕꯦꯂꯤꯌꯦꯃꯗꯒ ꯁꯗꯦꯕꯗꯦꯃꯟꯗꯥ.** ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯕꯦꯂꯤꯌꯦꯃꯗꯒ ꯌꯥꯂꯌ ꯁꯗꯦꯕꯗꯦꯃꯟꯗꯥ ꯗꯤꯗꯀꯒꯀꯀꯕꯂꯤ (ꯑꯄꯦꯕ 3C)꯫ 3.16.1-ꯀ ꯂꯌꯥꯕ ꯌꯥꯕ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯥꯔꯒꯤ ꯃꯅꯦꯔꯕ ꯌꯥꯀꯁ ꯌꯥꯂꯗꯦꯂꯃꯤ ꯃꯦꯗꯀ ꯑꯃꯒ ꯄꯦꯂꯦ ꯁꯤꯒꯀꯕꯂꯤ꯫

3.16.4 **ꯃꯀꯦꯅ ꯗꯅꯅꯟꯗꯥ.** ꯄꯅꯀꯗꯒꯗꯤꯗꯀ ꯅꯃꯗꯃ ꯑꯅꯕ ꯀꯤꯗꯦꯟꯗ ꯅꯀꯤꯗꯃꯒꯀ ꯂꯔꯦꯂꯦ ꯃꯀꯦꯅꯒꯤ ꯃꯄꯂꯒꯤ ꯅꯦꯁꯤꯌ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯌꯁꯤꯌ ꯗꯅꯅꯟꯗꯥ ꯂꯕꯃꯤꯌ ꯌꯥꯒꯀꯕꯂꯤ꯫

> **ꯅꯣꯠ ꯌꯥꯒꯤ.** 5%-ꯒꯤ ꯅꯒꯌꯦꯅꯦꯂꯦꯂ ꯌꯥꯂꯌ ꯑꯃꯤ ꯑꯌꯥꯁꯤꯁ ꯇꯥꯑꯗꯂꯤꯗꯒꯤꯀꯃꯒ APWA-ꯒꯤ ꯗꯅꯂꯤ (KC Metro APWA 5600, 2011, §5602.2D)꯫ APWA-ꯒꯤ TR-55, TR-20, HEC-1 ꯑꯃꯁꯨꯡ HEC-HMS-ꯕ ꯕꯦꯂꯦꯅꯦ ꯇꯥꯑꯗꯟꯗꯥ ꯑꯅꯦ ꯃꯃꯤꯗ ꯂꯌꯥꯅ (§5602.2B)꯫ CPHEEO-ꯒꯤ ꯄꯅꯀꯗꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯀꯦꯌꯥꯂꯦꯅꯑꯂ ꯃꯀꯦꯂꯤꯗꯒꯤꯀꯃꯒ SWMM-ꯒꯤ ꯃꯃꯤꯗ ꯂꯌꯥꯅ (CPHEEO 2019, Part A §4.4.2)꯫ ꯃꯀꯦꯅꯒꯤ ꯃꯄꯂꯒꯤ ꯗꯅꯅꯟꯗꯥ ꯂꯕꯃꯤꯌ ꯌꯥꯕꯦ ꯑꯣꯊꯣꯔꯤꯇꯤꯕ ꯃꯀꯦꯅ ꯑꯕ ꯑꯃꯒ ꯄꯦꯂꯦ ꯅꯦꯂꯦꯕ ꯌꯥꯄꯅꯂꯤ ꯑꯃꯁꯨꯡ

> ꯃꯁꯤ ꯔꯤꯒꯤꯗ ꯁꯦꯕ ꯋꯃꯁꯕ ꯕ꯭ꯇꯦꯑ-ꯕꯣꯑꯟ ꯃꯍꯩꯁꯤꯡꯗꯒꯤ ꯋꯑꯍꯣꯀꯖꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯊꯧꯔꯥꯡꯖꯤ꯫

3.17 ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯇꯦꯁꯟ

ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯄꯕꯃꯤꯁꯦꯛ ꯁꯨꯁꯤꯡꯃꯑꯄ ꯃꯍꯥꯒꯤꯄꯤꯡ ꯌꯥꯗꯒꯁꯕꯖꯤ:

1. **ꯐꯣꯔꯝ 3-1, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯒꯤ ꯁꯝꯃꯔꯤ**, ꯁꯤꯖꯤꯟꯅꯈꯤꯕ ꯊꯩꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯝ (ꯁꯦꯛꯁꯟ 3.1), ꯄꯣꯇ꯭ꯌꯨꯑꯦꯌꯔ ꯑꯃꯁꯨꯡ ꯒꯔꯄꯟ, ꯑꯃꯁꯨꯡ ꯀꯝꯕꯤꯅ꯭ꯌꯨꯁꯦꯄꯟ ꯅꯟꯁꯦꯔꯒꯦꯟ ꯁꯥꯑꯣꯂꯒꯥ꯫
2. ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯐꯤꯒꯔꯁꯤꯡꯒꯤ **ꯀꯦꯆꯃꯦꯟꯇ ꯃꯦꯞꯁꯤꯡ**, ꯁꯕ-ꯑꯦꯔꯤꯌꯥꯁꯤꯡ, Tc-ꯒꯤ ꯄꯥꯊ ꯁꯤꯖꯤꯟꯅꯈꯤꯕ ꯐ꯭ꯂꯣꯄꯁꯤꯡ, POC-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯟꯦꯟꯕꯤ ꯃꯀꯥꯂꯦꯗꯒꯤ ꯂꯥꯀꯕ ꯔꯟ-ꯑꯣꯐ ꯎꯟꯂꯒꯥ꯫
3. **ꯂꯩꯃꯥꯏꯁꯤꯡ:** HSG ꯃꯦꯞ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯒꯤ ꯄꯩꯔꯇꯐ ꯑꯃꯁꯨꯡ ꯇꯀꯦꯟ (ꯀ꯭ꯂꯣꯖ 3.7), ꯌꯣꯁꯔ-ꯁꯦꯕꯟꯒꯤ ꯗꯦꯁꯣ (ꯀ꯭ꯂꯣꯖ 3.10), ꯑꯃꯁꯨꯡ ꯏꯟꯇꯤꯅꯁ꯭ꯔꯦꯇꯟ ꯁꯦꯇ꯭ꯌꯨꯀꯤ ꯃꯆꯩꯇꯤꯡ꯫
4. ꯇꯕ-ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯐꯤꯒꯝ ꯁ꯭ꯗꯤꯡꯃꯑꯀꯤ **ꯀꯦꯔꯃꯤꯁꯕ ꯁꯦꯕꯟꯇꯤꯡ**: ꯆꯝ, ꯃꯏꯟ ꯑꯃꯁꯨꯡ ꯀꯂꯦꯑꯁꯒꯤꯁ ꯃꯁ꯭ꯡ ꯏꯂꯦꯜ ꯏꯝꯀꯔꯒꯤꯌꯟ ꯆꯝ, HSG, AMC II ꯑꯃꯁꯨꯡ III-ꯗ CN (ꯂꯟꯔꯒꯥ C ꯑꯃꯁꯨꯡ Cf), Tc ꯌꯔꯑꯇꯤꯟꯇꯤꯡ, ꯑꯃꯁꯨꯡ n ꯒꯦꯅꯁ꯭ꯁꯤꯡ꯫
5. **ꯀꯣꯗ ꯁ꯭ꯕ:** ꯗꯤꯂꯏꯟ ꯀꯣꯗ ꯁ꯭ꯕꯒꯤ ꯇꯤꯟ (ꯐꯣꯔꯝ 2-1) ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯈꯤꯕ ꯍꯏꯌꯦꯁꯒꯥꯔꯩꯇꯤꯡ꯫
6. **ꯃꯍꯩꯁꯤꯡ:** ꯀꯣꯗ ꯁ꯭ꯕꯒꯤ ꯊꯣꯗꯣꯑ ꯁ꯭ꯗꯤꯡꯃꯑꯀꯤ ꯍꯏꯗ꯭ꯔꯣꯒꯥꯔꯩ ꯁꯦꯕꯟ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯟꯇꯤꯡ; ꯇ꯭ꯁꯦꯂ–ꯇ꯭ꯁꯣꯔꯦꯂ ꯑꯃꯁꯨꯡ ꯇ꯭ꯁꯦꯂ–ꯗꯤꯇꯌꯩꯔꯂ ꯁꯦꯕꯟꯇꯤꯡ; ꯔꯦꯁ꯭ꯅ ꯁꯣꯔꯕ ꯑꯦꯁ꯭ꯅꯏꯂꯣꯇꯤꯡ; ꯑꯃꯁꯨꯡ ꯀꯤꯑ ꯌꯣꯁꯔ ꯂꯦꯒꯦꯟꯇꯤꯡ꯫
7. **ꯐꯣꯔꯝ 3-2, ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯌꯤꯗꯝꯁꯦꯕ**, POC, AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯁ꯭ꯔꯦꯇꯦꯟ ꯁ꯭ꯗꯤꯡꯃꯑꯀꯗꯃꯑ Q_pre, Q_post (ꯀꯦꯁꯔꯣ ꯁꯦꯗꯕ ꯑꯃꯁꯨꯡ ꯔꯦꯁ꯭ꯅ ꯁꯣꯔꯕ) ꯑꯃꯁꯨꯡ ꯀꯔꯏꯁꯦꯔꯤꯌꯦ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 3.14.11-ꯒꯤ ꯇꯦꯂꯇꯤꯁꯒꯤꯁ ꯔꯦꯂꯤꯡꯒꯥ ꯂꯣꯌꯂꯂꯥ꯫
8. **ꯀꯦꯂꯤꯕꯔꯦꯇꯦ ꯔꯤꯀꯣꯔꯟ**, ꯀ꯭ꯂꯣꯖ 3.15 ꯌꯟꯂꯤꯕ ꯃꯇꯝꯗ꯫
9. **ꯃꯣꯗꯦ ꯇꯏꯟꯇꯤꯡ** (ꯀ꯭ꯂꯣꯖ 3.16.4)꯫
10. **ꯍꯧꯗꯤꯡ ꯂꯧꯕ ꯏꯦꯂꯤꯂꯤꯌꯔꯒꯤ ꯇ꯭ꯁꯦꯁꯃꯦꯟ ꯑꯃꯩ**, ꯇꯔ꯭ꯑ ꯑꯇꯤꯒꯤ ꯍꯧꯋꯣꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯔꯃꯤꯁꯔꯇꯤꯡ ꯇꯤꯂꯤꯦꯂꯏꯔ ꯄꯌꯂꯥ, ꯏꯟꯂꯕ ꯑꯃꯄꯥꯑꯁꯗꯤ ꯀꯔꯤꯡ ꯍꯧꯑꯂꯥ ꯏꯔꯒꯥ ꯑꯃꯁꯨꯡ ꯁ꯭ꯃꯃꯤ ꯄꯌꯂꯥ ꯁꯟꯂꯒꯥ꯫

ꯊꯣꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- MoHUA / CPHEEO (2019). Manual on Storm Water Drainage Systems, Volume I, Part A: Engineering Design. Ministry of Housing and Urban Affairs, New Delhi. §4.4 (Rational Method, Table 4.2 runoff coefficients, time of concentration, partial area effect), §8.5 (detention).
- Kansas City Metro Chapter APWA (2011). Section 5600 Storm Drainage Systems and Facilities (Feb 16, 2011), §5602.2–5602.9.
- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01, §5603.4. https://kcmetro.apwa.org/wp-content/uploads/sites/23/2026/01/APWA-Section-5600_Storm-Drainage-Systems-Facilities.pdf
- Mid-America Regional Council (2025). APWA Stormwater Standards Supplement (Policy Supplement). https://www.marc.org/document/apwa-stormwater-standards-supplement
- USDA Soil Conservation Service (1986). Urban Hydrology for Small Watersheds, Technical Release 55 (TR-55), 2nd ed. Tables 2-2a, 2-2c, 3-1; Figures 2-3, 2-4, 3-1.
- USDA NRCS. National Engineering Handbook, Part 630 Hydrology: Ch. 7 Hydrologic Soil Groups (2009); Ch. 9 Hydrologic Soil-Cover Complexes; Ch. 10 Estimation of Direct Runoff from Storm Rainfall (2004); Ch. 15 Time of Concentration (2010); Ch. 16 Hydrographs (2007). https://directives.nrcs.usda.gov/
- Hawkins, R.H., Jiang, R., Woodward, D.E., Hjelmfelt, A.T. and Van Mullem, J.A. (2002). Runoff curve number method: examination of the initial abstraction ratio. Proc. Second Federal Interagency Hydrologic Modeling Conference, Las Vegas.
- Woodward, D.E., Hawkins, R.H., Jiang, R., Hjelmfelt, A.T., Van Mullem, J.A. and Quan, Q.D. (2003). Runoff curve number method: examination of the initial abstraction ratio. World Water & Environmental Resources Congress, ASCE.
- Welle, P.I., Woodward, D.E. and Moody, H.F. (1980). A dimensionless unit hydrograph for the Delmarva Peninsula. American Society of Agricultural Engineers paper. ꯑꯃꯁꯨꯡ New Jersey Department of Agriculture, Delmarva Unit Hydrograph bulletin ꯌꯦꯡꯕꯤꯌꯨ꯫ https://nj.gov/agriculture/divisions/anr/pdf/DelmarvaBulletin.pdf
- Chow, V.T., Maidment, D.R. and Mays, L.W. (1988). Applied Hydrology. McGraw-Hill. §5.5 (SCS method, AMC), §8.4 (Muskingum), Table 15.1.2 (Kirpich).
- Kirpich, Z.P. (1940). Time of concentration of small agricultural watersheds. Civil Engineering 10(6), 362.
- Merkel, W.H. (2001), USDA NRCS NEH Part 630, Ch. 15 (2010)-ꯗ ꯌꯥꯎꯈꯤꯕ ꯐꯣꯔꯨꯡ ꯈꯖꯆ, ꯁꯤꯎ ꯗꯆꯣꯒꯤ ꯁꯣꯡꯕꯒꯤ ꯐꯌꯥꯡꯗ꯫
- ASCE and WPCF (1969). Design and Construction of Sanitary and Storm Sewers. ASCE Manual of Practice No. 37.
- Texas Department of Transportation. Hydraulic Design Manual, Ch. 4, §12 Runoff Coefficients. https://www.txdot.gov/manuals/des/hyd/chapter-4--hydrology/section-12--rational-method/runoff-coefficients.html
- Central Water Commission (2000). Flood Estimation Report for South Brahmaputra Subzone 2(b) (Revised). Design Office Report No. SB-2(b)/R-4/44/99, March 2000, CWC (Hydrology (Regional Studies) Directorate), IMD, RDSO and the Ministry of Surface Transport; approved by the Flood Estimation Planning and Co-ordination Committee at its 55th meeting on 13.3.2000; revises report SB/8/1984. 12 ꯑꯦꯞꯔꯤꯜ 2016-ꯒꯤ Internet Archive ꯅꯥꯞꯁꯣꯠꯀꯤ ꯂꯧꯈꯤꯕ (ꯄꯦꯖ 103, ꯂꯃꯦꯉ ꯌꯣꯔꯕ, ꯑꯣꯞꯌꯤꯃꯦꯟ ꯃꯦꯔꯦꯡꯌꯔ ꯔꯤꯃꯣꯒꯆꯤꯂꯉꯆꯣ ꯂꯧꯈꯤꯕ): Annexure 1.1 (ꯁꯕꯖꯣꯟꯒꯤ ꯃꯦꯔꯤꯡ, ꯍꯂꯤꯗ ꯁꯕꯖꯣꯟ 2(c), "Barak and others", ꯑꯃꯗꯤ "Barak, Kalden and Manipur rivers" ꯌꯥꯎꯏ), Table 3.3 (ꯂꯤꯉꯊꯦꯌꯤꯃ ꯆꯪꯁꯤꯟ ꯀꯅꯗꯔꯣꯒꯔꯣꯗ), Table 4.1 (ꯃꯇꯝ t-ꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯝ 24-ꯒꯤ ꯆꯥꯡ ꯊꯕꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ, p. 20), §4.3 ꯑꯃꯁꯨꯡ ꯅꯔꯃ ꯌꯦꯔꯕ ꯊꯗꯍ; Plate 9-ꯒꯤ ꯆꯥꯡꯃꯥꯍꯤꯁ ꯂꯦꯃꯌꯔ ꯆꯍꯅꯒꯤ ꯅꯍꯦꯆ ꯑꯍꯒꯧ ꯅꯦꯃ ꯌꯦꯈꯤ; Figs 11, 12(a) ꯑꯃꯁꯨꯡ 12(b) ꯑꯃꯁꯨꯡ Annex 4.4 ꯌꯥꯎꯈꯤꯗꯦ [TBC]꯫ ꯍꯆꯤꯃꯨꯔꯗ ꯐꯥꯃꯗꯥꯃꯌꯕ 2(c) ꯔꯤꯃꯥꯔꯎꯗꯤ ꯍꯒꯨꯎꯌ ꯈꯃꯌꯍꯃ ꯂꯤꯆꯤꯉꯆꯧ (ꯑꯄꯦꯉꯕ 3E)꯫ http://web.archive.org/web/20160412151207id_/http://www.cwc.gov.in:80/main/downloads/South%20Brahmaputra%20subzone%202%20(b).Pdf

- Central Water Commission (1991). Flood Estimation Report for North Brahmaputra Subzone 2(a), Design Office Report No. NB/18/1991. ꯃꯗꯨ t-ꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯨ 24-ꯒꯤ ꯗꯦꯇꯥ ꯈꯟꯕꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯁꯣꯔꯁ ꯍꯥꯌꯔꯕ ꯃꯇꯍꯤꯟ, ꯑꯔꯤ ꯀꯥꯈꯜ 2.3.6(f)-ꯗ ꯑꯗꯨꯒꯤ ꯑꯁꯤ ꯍꯥꯌꯕ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯂꯤꯁ꯭ꯇ; ꯑꯗꯨꯒꯤ ꯑꯍꯥꯜ ꯑꯃꯁꯨꯡ ꯂꯧꯊꯣꯛ ꯑꯔꯤꯕ ꯂꯩ꯫
- Central Water Commission. "Regional Flood Estimation Report" download page, 20 ꯃꯥꯔꯆ 2024-ꯒꯤ Internet Archive ꯀꯦꯞꯆꯔ (ꯂꯣꯠꯇꯦꯗ 2(c), Barak and others-ꯒꯤꯗꯃꯛ ꯄꯤꯗꯣꯛꯄ ꯂꯩ); ꯑꯃꯁꯨꯡ 2(b) ꯄꯤꯗꯣꯛꯄꯥ ꯂꯩꯇ 2000 ꯗꯒꯤ ꯗꯦꯟꯗꯣꯔꯁꯤꯡ ꯄꯤꯗꯣꯛꯄ 21-ꯒꯤ ꯃꯔꯝ, ꯑꯔꯤꯕ 2(c)-ꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯩ꯫ http://web.archive.org/web/20240320001002/https://cwc.gov.in/regional-flood-estimation-report
- Moriasi, D.N. et al. (2007). Model evaluation guidelines for systematic quantification of accuracy in watershed simulations. Trans. ASABE 50(3), 885–900.
- "OSD for Australian development projects: does it meet frequent flow management objectives?" Water Science and Engineering (2019). https://www.sciencedirect.com/science/article/pii/S1674237019300213
- India Meteorological Department. *Extremes of Temperature and Rainfall for Indian Stations (up to 2012)*: Imphal (Tulihal) (A), 42623, rainfall data 1953–2012, p. M155. https://imdpune.gov.in/library/public/EXTREMES%20OF%20TEMPERATURE%20and%20RAINFALL%20upto%202012.pdf
- India Meteorological Department. ꯅ-ꯗꯦꯟꯁꯨꯃꯀꯤ ꯑꯣꯟꯁꯦꯠꯀꯤ ꯋꯤꯊꯗ꯭ꯔꯣ ꯑꯃꯁꯨꯡ ꯗꯃꯗꯦꯝꯃꯀꯤ ꯑꯗꯧ ꯗꯦꯄꯨꯡ ꯌꯣꯃꯂꯤꯕꯒꯤ ꯃꯔꯝ ꯄꯤꯇꯤꯇ (1 ꯖꯨꯟ 2020-ꯗꯒꯤ ꯂꯤꯇꯤꯐꯗꯄꯤꯕ), ꯀꯣꯝꯅꯤꯕ ꯑꯁꯨꯝ ꯅꯐꯗ꯫ https://mausam.imd.gov.in/backend/assets/press_release_pdf/IMD_Press_release_new_onset_and_withdrawal_dates%28Final%29.pdf
- Manipur Science & Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, final report to DST-NRDMS (PDF created 2008; data to 2001): ꯌꯥꯃꯈꯩꯀꯤ ꯇꯤꯗꯦꯇꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯅꯂꯤꯃ, 1966–2002-ꯒꯤ ꯅꯂꯤꯃ ꯅꯔꯗꯁꯒꯤ ꯄꯣꯀꯦꯄꯗꯂꯤꯃ, 1974–2000-ꯒꯤ ꯅꯃꯗꯣꯒꯤ ꯍꯟꯐꯤ ꯁꯗꯤꯃꯒꯤ ꯅꯕꯗꯒꯤ ꯔꯗꯁꯕ ꯅꯨꯃꯤꯠ 1-ꯒꯤ ꯗꯨꯝ ꯁꯕ (Table 2), ꯗꯦꯌꯦꯛ, ꯅꯀꯗ ꯕꯣꯄꯇ ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯨ ꯇꯃꯃ, ꯑꯃꯁꯨꯡ 1999–2001-ꯒꯤ WRD-ꯒꯤ ꯗꯤꯂꯔꯄꯇꯂꯤꯃ꯫ 19 ꯐꯣꯕꯨꯔꯄꯤ 2018-ꯒꯤ Internet Archive ꯀꯦꯞꯆꯔ: http://web.archive.org/web/20180219013113id_/http://mastec.nic.in:80/images/Completed_projects/ReportFloodHazard.pdf
- Central Ground Water Board, North Eastern Region. Ground Water Information Booklets: Imphal West district (Technical Report Series D No. 28/2013-14, September 2013) and Bishnupur district (2013), cgwb.gov.in/District_Profile/Manipur/-ꯒꯤ Internet Archive ꯀꯣꯄꯤꯁꯤꯡ; ꯑꯃꯁꯨꯡ Dynamic Ground Water Resources of Manipur, GWRA 2023 ꯑꯃꯁꯨꯡ GWRA 2024 (ꯀꯣꯝꯅꯤꯕ ꯑꯁꯨꯝ ꯅꯐꯗ)꯫ https://cgwb.gov.in/cgwbpnm/publication-detail/1535
- Asian Infrastructure Investment Bank (2024). *Approval Project Document*, Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723), October 2024. https://aiib.org/en/projects/details/2024/_download/India/AIIB-APD_P000723_Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project.pdf
- Municipal Administration, Housing and Urban Development Department (MAHUD). *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)-ꯗ ꯗꯦꯌꯤꯗꯅ ꯌꯦꯅꯤꯕ (151.38 km²)꯫ Internet Archive capture 20250810073559 of https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf
- New Development Bank (2021). *Proposed Project Summary, Lamphelpat Waterbody Rejuvenation Project* (ꯀꯐꯂꯣꯃꯁ ꯑꯣꯃꯗꯒꯣꯟ 17 ꯗꯒꯣꯁꯕꯄ 2021)꯫ https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf
- High Court of Manipur. PIL No. 8 of 2025, *Meeyam Amata Oina Punsinba Lup v. State of Manipur*, 16.06.2025-ꯒꯤ ꯑꯦꯄꯗꯄ, 02.05.2025-ꯒꯤ WRD-ꯒꯤ ꯂꯅꯐ ꯅꯐꯂꯃꯗꯣꯂꯐ ꯄꯤꯗꯣꯛꯄꯀꯤ ꯗꯦꯔꯗꯗ (ꯆꯁꯗꯣꯃꯐ ꯑꯃꯁꯨꯡ ꯂꯃꯦꯃ ꯗꯗ (Shamushang nallah))꯫ https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf

- SANDRP, "Overview of CWC's flood monitoring & forecasting in North East India" (5 August 2018), CWC-ꯒꯤ ꯂꯥꯟꯁ ꯇꯦꯕꯜꯁꯤꯡ ꯅꯔꯑꯁꯨꯗꯦ (ꯍꯥꯇꯦꯕꯦꯀ꯭ꯔꯗꯥꯅ ꯕꯗꯥꯛ)꯫ https://sandrp.in/2018/08/05/overview-of-cwcs-flood-monitoring-forecasting-in-north-east-india/
- The Sangai Express, 30 ꯃꯦ 2024 ꯑꯃꯁꯨꯡ 16 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯒꯤ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ, ꯇꯝꯄꯥꯛꯀꯤ ꯇꯨꯔꯦꯜꯁꯤꯡꯒꯤ WRD-ꯒꯤ ꯂꯦꯕꯦꯜꯁꯤꯡ, ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯁꯥꯡ ꯏꯁꯤꯡ ꯇꯥꯍꯟꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯔꯤꯀꯣꯔꯗꯁꯤꯡ ꯍꯦꯟꯗꯣꯛꯄꯥ (ꯄꯥꯎꯖꯦꯜ ꯆꯥꯛꯁꯥꯛꯄꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯅ)꯫ https://www.thesangaiexpress.com/Encyc/2024/5/30/By-Our-Staff-ReporterIMPHAL-May-29-With-incessant-rainfall-causing-massive-flooding-in-Manipur-the-wate.html ; https://www.thesangaiexpress.com/Encyc/2025/9/16/by-our-staff-reporter-imphal-sep-15-with-the-water-levels-of-almost-all-major-rivers-rising-riverbanks-have-br.html
- ꯗꯥꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯅ ꯄꯦꯗꯥꯒꯤ ꯗꯥꯇꯥꯁꯤꯡꯒꯤ (NHPC ꯑꯃꯁꯨꯡ CEA, ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯃꯇꯨꯡ ꯅꯦꯅ; ORF, ꯄꯥꯎꯖꯦꯜ ꯆꯥꯛꯁꯥꯛꯄꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯅ) ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛ (ꯃꯁꯤꯡꯂꯥꯡ) ꯍꯦꯃꯒꯤ (ꯄꯥꯎꯖꯦꯜ ꯆꯥꯛꯁꯥꯛꯄꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯅ) ꯔꯤꯄꯣꯔꯠꯁꯤꯡ꯫
- US EPA. Storm Water Management Model (SWMM 5). US Army Corps of Engineers, Hydrologic Engineering Center. HEC-HMS and HEC-RAS.

ꯑꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯆꯥꯔꯠꯁꯤꯡ

ꯑꯍꯦꯟꯕ / ꯆꯥꯔꯠ	ꯑꯔꯣꯞꯕ
3A	ꯃꯅꯤꯄꯨꯔꯒꯤ ꯂꯥꯟꯗ ꯂꯤꯔꯤꯅꯁꯒꯤ HSG ꯂꯦꯌꯔ; ꯃꯦꯞ ꯃꯇꯨꯡ ꯅꯤꯡꯇꯕ ꯑꯔꯣꯝꯕ ꯔꯣꯝꯄ ꯇꯦꯕꯜꯒꯤ ꯃꯥꯞ
3B	ꯃꯅꯤꯄꯨꯔꯒꯤ CN ꯂꯨꯛꯑꯞ ꯇꯦꯕꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯛ ꯆꯥꯡꯒꯤ ꯃꯑꯣꯡꯁꯤꯡ (ꯇꯝꯄꯥꯛꯀꯤ ꯆꯥꯛꯂꯦꯟ, ꯂꯃꯗꯝ ꯑꯃꯁꯨꯡ ꯎꯃꯥꯡ, ꯂꯝꯂꯥꯡꯒꯤ ꯂꯧꯕꯨꯛ ꯑꯃꯁꯨꯡ ꯖꯨꯝ (jhum) ꯂꯧ, ꯅꯥꯡꯀꯥꯡꯕꯁꯤꯡ ꯁꯤꯍꯥꯏꯒꯤ ꯅꯣꯡꯆꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯝꯁꯤꯡꯒꯤ ꯂꯧꯕꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯡꯂꯨꯞꯒꯤ ꯃꯩꯍꯧꯔꯣꯟ, ꯈꯨꯟꯗꯥꯏ ꯆꯦꯟꯊꯔꯛꯄ, ꯑꯃꯁꯨꯡ ꯗꯥꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯗꯄꯨꯔꯄꯁꯤꯡꯒꯤ ꯃꯍꯩꯁꯤꯡ)
3C	ꯀꯦꯟꯌꯔꯦꯅꯗ ꯑꯦꯕꯦꯜꯃꯥꯅ ꯕꯦꯁꯤꯟꯃꯥꯅ ꯃꯦꯂꯣꯟ ꯁꯨꯀꯦꯕꯁꯤꯡ
3D	ꯃꯅꯤꯄꯨꯔ ꯑꯁꯨ ꯃꯇꯧ ꯄꯣꯠꯆꯥꯛ ꯆꯥꯡꯒꯤ ꯁꯨꯏꯕ ꯑꯣꯏ ꯈꯥꯛꯄꯒꯤ ꯂꯣꯛꯇꯥꯛ
3E	ꯂꯕꯦꯜ 2(b)-ꯒꯤ CWC SUH ꯁꯦꯝꯃꯤꯟꯗꯤꯁꯤꯡ, ꯂꯕꯦꯜ 2(c)-ꯗ ꯑꯦꯛ ꯑꯦꯟꯇꯦ ꯂꯤꯇꯤꯌꯦꯜꯕ, ꯑꯍꯛ ꯃꯣꯗꯦꯜ ꯄꯨꯟꯁꯤꯟ ꯇꯦꯔꯦꯜꯦ
ꯆꯥꯔꯠ 3-1	ꯐ꯭ꯂꯣꯆꯥꯔꯠꯀꯤ ꯃꯦꯊꯗꯣꯂꯣꯖꯤꯒꯤ ꯃꯑꯣꯡ
ꯆꯥꯔꯠ 3-2	ꯗꯥꯏꯖꯤꯇꯦꯜ ꯃꯦꯞ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯃꯒꯤ ꯑꯦꯛꯁꯦꯜ

ꯁꯔꯨꯛ 4

ꯁꯥꯏꯠꯀꯤ ꯔꯟꯑꯣꯐ ꯀꯟꯇ꯭ꯔꯣꯜ: ꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ

4.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯍꯦꯡ

4.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯁꯥꯏꯠꯇꯦꯒꯤ ꯊꯛꯇꯒꯤ ꯔꯟꯑꯣꯐ (runoff; ꯅꯣꯡꯖꯨ ꯍꯦꯟꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ)-ꯒꯤꯗꯃꯛ ꯔꯥꯡꯊꯣꯛ ꯁꯨ ꯀꯥꯡꯂꯣꯟ ꯌꯥꯔꯕ ꯄꯥꯝꯕꯩꯁꯤꯡ ꯃꯇꯦꯡ ꯄꯥꯡꯒꯅꯕ ꯁꯔꯨꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠꯀꯤ ꯄꯥꯟꯗꯝꯁꯤꯡ ꯍꯥꯌꯔꯤ꯫ ꯃꯁꯤꯗ ꯌꯥꯎꯔꯤꯕꯁꯤꯡ:

- (a) ꯔꯟꯑꯣꯐ ꯀꯟꯇ꯭ꯔꯣꯜ ꯇꯧꯕꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯇꯝ ꯃꯇꯝꯒꯤ ꯊꯥꯛ (ꯀ꯭ꯂꯣꯖ 4.3);
- (b) ꯃꯇꯦꯡ ꯄꯨꯅꯕ ꯄꯨꯕ ꯅꯣꯡꯒꯤ ꯔꯤꯇꯦꯟꯁꯟ (retention), ꯑꯃꯁꯨꯡ ꯔꯤꯇꯦꯟꯁꯟ ꯇꯧꯕ ꯌꯥꯕ ꯑꯣꯏꯅ ꯗꯤꯇꯦꯟꯁꯟ (detention)-ꯒꯤ ꯃꯔꯣꯂꯁꯤꯡ ꯀꯔꯤꯒꯨꯝꯕ ꯀꯔꯤꯒꯨꯝꯕ ꯄꯥꯝꯕꯩ (ꯀ꯭ꯂꯣꯖ 4.4);
- (c) ꯁꯤꯖꯤꯟꯅꯕ ꯀꯦꯏꯃꯦꯠ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯅꯣꯡꯃꯩꯗ ꯁꯦꯟꯊꯣꯛꯄ ꯑꯦꯟꯅ ꯀꯦꯏꯃꯦꯠ (flood-sensitive catchment)-ꯁꯤꯡꯒꯤꯗꯃꯛ ꯔꯤꯂꯤꯖ ꯔꯦꯠ (release rate)-ꯒꯤ ꯀꯟꯠꯔꯣꯜ (ꯀ꯭ꯂꯣꯖ 4.5);
- (d) ꯗꯤꯇꯦꯟꯁꯟ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥꯡꯁꯤꯡꯒꯤ ꯁꯅꯂ ꯂꯦꯄꯄꯒꯤ ꯄꯨꯔꯛꯁꯤꯟꯕ (ꯀ꯭ꯂꯣꯖ 4.6-ꯗꯒꯤ 4.9 ꯐꯥꯎꯕ);
- (e) ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯁꯤꯡ, ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯍꯥꯔꯚꯦꯁ꯭ꯇꯤꯡ (RWH)-ꯒꯤ ꯄꯥꯝꯕꯩ, ꯑꯃꯁꯨꯡ ꯆꯦꯠꯅꯒꯤ ꯃꯍꯥꯒꯤ ꯏꯁꯤꯡ ꯍꯣꯡꯕ ꯁꯅꯠꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.10-ꯗꯒꯤ 4.12 ꯐꯥꯎꯕ);
- (f) ꯔꯤꯇꯦꯟꯁꯟ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯐꯤ-ꯏꯟ-ꯂꯤꯌꯨ (fee-in-lieu) (ꯀ꯭ꯂꯣꯖ 4.13);
- (g) ꯑꯀꯤꯡꯀ ꯁꯅꯠꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯥꯏꯄꯛꯄꯤꯕ ꯊꯧꯗꯥꯡꯁꯤꯡ: ꯇꯦꯕꯜ B-ꯒꯤ ꯇꯦꯀ꯭ꯅꯤꯀꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯤꯡꯁ ꯇꯧꯕ ꯀꯥꯡꯂꯣꯟꯁꯤꯡ ꯑꯣꯏꯅ ꯌꯥꯕ (ꯀ꯭ꯂꯣꯖ 4.14); ꯑꯃꯁꯨꯡ
- (h) ꯀꯟꯇ꯭ꯔꯣꯜ ꯁꯦꯐꯇꯤ (ꯀ꯭ꯂꯣꯖ 4.15)꯫

4.1.2 ꯁꯔꯨꯛ ꯑꯁꯤ ꯁꯔꯨꯛ 1-ꯗ ꯊꯥꯖꯤꯕ ꯃꯇꯨꯡ ꯅꯥꯏꯅ, **0.1 ha ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ** ꯂꯦꯟꯗ ꯗꯤꯁ꯭ꯇꯔꯕꯦꯟꯁ (land disturbance), ꯅꯠꯔꯒꯥ **500 m² ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ** ꯑꯅꯧꯕ ꯅꯠꯔꯒꯥ ꯑꯍꯥꯟꯕ ꯀꯨꯔꯥꯑꯦꯟꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ (impervious area)-ꯗ ꯆꯠꯂꯤ꯫ ꯇꯔꯥꯏꯅꯥꯀꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯃꯇꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ ꯍꯦꯟꯒꯠꯂꯛꯄ ꯅꯠꯔꯒꯥ ꯔꯤꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇ ꯑꯦꯞꯂꯥꯏ ꯇꯧꯏ꯫ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏꯂꯣꯖꯒꯤ ꯈꯨꯗꯝ ꯑꯣꯏꯅ RWH-ꯒꯤ ꯃꯊꯧ ꯇꯥꯕ (ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯍꯥꯔꯚꯦꯁ꯭ꯇꯤꯡ "ꯁꯀꯥꯔꯤꯕ ꯃꯤꯁꯤꯕ 100 ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯠꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯧꯕ ꯕꯤꯜꯗꯤꯡ ꯄꯨꯝꯅꯃꯛꯇ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯌꯥꯎꯅ ꯏꯁꯤꯡꯒꯤ ꯔꯟꯑꯣꯐ ꯊꯝꯕꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ" ("through storing of water runoff including rainwater in all existing and new buildings on plots of 100 square metre and above"), ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯍꯥꯔꯚꯦꯁ꯭ꯇꯤꯡ ꯃꯐꯝꯁꯤꯡ "ꯁꯔꯐꯦꯁ ꯔꯤꯖꯔꯚꯣꯌꯔꯁꯤꯡꯗ ꯅꯠꯔꯒꯥ ꯔꯤꯆꯥꯔꯖ ꯋꯦꯂꯁꯤꯡꯗ" ("in surface reservoirs or in recharge wells") ꯀꯟꯗꯦꯁꯤꯡꯗ ꯑꯣꯏꯔꯕꯗ, ꯂꯥꯀꯥꯏ ꯕꯥꯗꯤ ꯄꯨꯗꯤꯡꯃꯈꯥꯗ ꯍꯣꯠꯅꯖꯕꯒꯥ ꯃꯇꯨꯡ ꯅꯥꯏꯅ ꯃꯥꯗꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯕꯥꯏ-ꯂꯣ 66 ꯃꯍꯩꯗ, ꯃꯁꯤꯒꯤ ꯁꯥꯐꯨ ꯀꯣꯡꯔꯥ, ꯕꯥꯏ-ꯂꯣ 67-ꯒꯤ ꯒꯔꯦ-ꯋꯣꯇꯔ ꯔꯤꯁꯥꯏꯀ꯭ꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣ 68-ꯒꯤ ꯐꯤ ꯔꯤꯕꯦꯠꯀ ꯂꯣꯌꯅꯅ; ꯃꯈꯥꯌ ꯑꯃꯠꯇꯥ ꯌꯥꯎꯗ ꯊꯃꯗꯦ, ꯑꯃꯁꯨꯡ ꯃꯈꯥꯌ ꯀꯨꯝꯅꯃꯛ ꯀ꯭ꯂꯣꯖ 4.11-ꯒꯤ ꯁꯦꯗꯌꯨꯜ ꯇꯦꯀꯅꯤꯀꯗ ꯅꯥꯏꯔꯦ) ꯑꯁꯤ, ꯁꯔꯨꯛ ꯑꯁꯤ ꯆꯠꯅꯔꯕꯒꯨ ꯆꯠꯅꯕꯔꯕꯒꯨ, ꯃꯁꯤꯗ ꯍꯦꯟꯒꯠꯂꯛꯄ ꯕꯤꯂꯗꯤꯡ ꯄꯨꯗꯤꯡꯃꯈꯥꯗ ꯆꯠꯂꯤꯕ ꯑꯀꯨꯞꯄ ꯆꯠꯂꯤ꯫

4.1.3 ꯅꯥꯃ ꯄꯨꯕꯒꯤ ꯃꯦꯊꯗꯣꯂꯣꯖꯤ ꯁꯔꯨꯛ 2-ꯗꯒꯤ ꯌꯦꯡꯕꯤꯌꯨ꯫ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯁꯔꯨꯛ 3-ꯗꯒꯤ ꯌꯦꯡꯕꯤꯌꯨ꯫ ꯇꯦꯛꯅꯤꯀꯦꯜ, ꯃꯍꯩ ꯊꯝꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐꯣꯜ (outfall) ꯊꯤꯡꯅꯕ ꯃꯇꯝꯒꯤ ꯆꯥꯡ ꯁꯔꯨꯛ 5-ꯗꯒꯤ ꯌꯦꯡꯕꯤꯌꯨ꯫ ꯋꯣꯇꯔ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯚꯣꯂꯨꯝ (WQv)-ꯒꯤ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯁꯔꯨꯛ 8-ꯗꯒꯤ ꯌꯦꯡꯕꯤꯌꯨ꯫ ꯁꯔꯨꯛ ꯑꯁꯤ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ ꯑꯗꯨꯁꯤꯡ ꯑꯃꯥ ꯑꯃꯥ ꯊꯦꯡꯅꯅꯕ ꯃꯐꯝ, ꯍꯦꯟꯅꯥ ꯀꯟꯕ ꯀꯣꯟꯕ ꯃꯊꯦ ꯇꯧꯕ ꯑꯗꯨ ꯆꯠꯀꯅꯤ꯫

> **ꯁꯦꯟꯗꯣꯡꯒꯤ ꯇꯥꯀꯄ.** ꯃꯅꯨꯡꯁꯤꯡ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯔꯤꯁꯔꯆ ꯇꯧꯔꯤꯕ ꯐꯤꯅꯥꯟꯁꯤꯌꯜ ꯅꯦꯇꯋꯔꯛꯀꯤ ꯅꯣꯁꯅ ꯄꯨꯡ ꯅꯠꯔꯒꯥ ꯃꯅꯤꯀꯔꯒꯤ ꯄꯨꯡ ꯑꯃꯠꯇꯒꯤ ꯁꯥꯏꯠ ꯑꯃꯗꯒꯤ ꯊꯛꯇꯒꯤ ꯗꯤꯁꯆꯥꯔꯖꯒꯤ ꯔꯦꯠ ꯂꯤꯃꯤꯠ ꯇꯧꯗꯕ, ꯑꯃꯁꯨꯡ ꯑꯃꯠꯇꯒꯤ ꯁꯥꯏꯠꯇ ꯗꯤꯇꯦꯟꯁꯟ ꯅꯠꯔꯒꯥ ꯅꯥꯃ ꯄꯨꯕꯒꯤ ꯊꯛꯇꯒꯤ ꯃꯇꯨꯡ ꯅꯥꯏꯅ ꯁꯥꯏꯠ ꯂꯥꯡꯕꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯣꯏꯅ ꯃꯇꯝ ꯇꯧꯔꯦ꯫ ꯐꯤꯟꯅꯕ ꯃꯅꯤꯀꯔꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯃꯠꯇꯒꯤ ꯁꯈꯔꯒꯤ

ꯅꯥꯃꯕꯦꯜ (drain) ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (design storm), ꯄꯤꯔꯤꯡ ꯄꯤꯔꯤꯡꯁꯤꯡ, ꯄꯦꯜꯂꯥꯏ ꯃꯥꯂꯣꯏꯅꯕ ꯑꯣꯏꯅꯕ ꯍꯣꯠꯅꯕ ꯃꯇꯝꯗ ꯍꯥꯏꯕꯥ: ꯐꯤꯜꯗꯥꯡꯒꯤ ꯇꯧꯕꯒꯤ ꯌꯥꯝꯅ ꯍꯦꯟꯅ ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ, ꯏꯝꯐꯥꯂꯒꯤ ꯍꯥꯛꯆꯤꯡ (Greater Imphal)-ꯒꯤ ꯆꯥꯡꯗꯣꯛꯄꯒꯤ ꯃꯇꯦꯡ "ꯃꯇꯦꯡ ꯑꯣꯏꯕꯥ ꯃꯆꯥ ꯂꯩꯕ ꯑꯣꯏꯅꯥ ꯍꯣꯡꯗꯣꯛꯄꯒꯤ ꯅꯥꯃꯕꯦꯜ 547 km" ("547 km of both side stormwater covered drains")-ꯒꯤ AIIB-ꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯁꯤꯅ ꯃꯑꯣꯡꯒꯤ ꯄꯦꯜꯂꯥꯏ ꯍꯣꯠꯅꯕ ꯑꯗꯨꯗꯨ ꯄꯤꯔꯤꯡ ꯄꯤꯔꯤꯡꯁꯤꯡ, ꯑꯗꯨ ꯁꯨꯕꯒꯤ ꯍꯦꯟꯅꯕꯥ ꯑꯣꯏꯅꯕ ꯄꯦꯜꯂꯥꯏ ꯃꯥꯂꯣꯏꯅꯕ ꯍꯣꯠꯅꯕꯥ (AIIB, *Approval Project Document*, ꯑꯣꯒꯁ꯭ꯇ 2024), ꯆꯥꯡꯗꯣꯛꯄꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ ꯍꯣꯠꯅꯕꯥ (NDB, ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯂꯣꯟꯆꯥ), ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯍꯥꯛꯆꯤꯡꯒꯤ ꯄꯤꯒꯅꯕ ꯑꯣꯏꯅ GIS ꯕꯦꯖ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification))-ꯗ ꯑꯗꯨꯒꯤ ꯍꯣꯠꯅꯕ ꯍꯥꯛꯆꯤꯡꯒꯤ ꯂꯣꯌꯅꯕ ꯑꯃꯁꯨꯡ ꯆꯦꯟꯕ, ꯃꯣꯒꯤ ꯐꯤꯂꯤꯀꯦꯁꯟ ꯍꯣꯠꯅꯕ ꯁ꯭ꯇꯣꯔꯝꯕꯥꯌꯥꯒꯤ ꯌꯣꯏꯅꯕꯒꯤ ꯍꯣꯠꯅꯕ ꯄꯤꯕ, ꯂꯤꯌꯥꯎꯇ, ꯍꯣꯠꯅꯕꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯧꯇꯤꯡ ꯌꯣꯂꯨ ꯅꯥꯏꯕꯃꯗ ꯌꯦꯡꯕ꯫ ꯕꯤꯜꯗꯤꯡ ꯄ꯭ꯂꯥꯟꯒꯤ ꯑꯃꯤ ꯃꯗꯨꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024 (Model Manipur Unified Building Bye-Laws, 2024)-ꯗꯤ, ꯃꯗꯨ ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 (Manipur Municipalities Act, 1994) (1994-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 43)-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (Manipur Town and Country Planning Act, 1975) (1975-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 11)-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1) ꯃꯈꯥꯗ, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ MAHUD ꯑꯣꯔꯗꯔ ꯁꯦꯛꯁꯟ No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) (5 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁ꯭ꯠꯔꯥꯑꯣꯔꯗꯤꯅꯥꯔꯤ No. 253)-ꯅ "ꯌꯨꯅꯤꯕꯦꯜ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯕꯦꯂꯄꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯅ ꯂꯧꯁꯤꯟꯅꯕ" ("for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur") ꯍꯣꯠꯅꯈꯤꯕꯅꯤ꯫ ꯃꯁꯤꯒꯤ ꯑꯁꯤ "ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯠꯔꯒꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯌꯨꯅꯤꯕꯦꯜ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯖꯨꯔꯤꯁꯗꯤꯛꯁꯅꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯑꯦꯔꯤꯌꯥꯗ ꯌꯧꯍꯜꯂꯒꯅꯤ" ("shall extend to the Master Plan areas or notified Planning areas and area under the jurisdiction of all the Urban Local Bodies of Manipur") (ꯕꯥꯏ-ꯂꯣ 1(2)), ꯑꯗꯨꯗꯨ ꯄꯤꯔꯃꯤꯟ ꯑꯃꯗꯤ ꯌꯨꯅꯤꯕꯦꯜ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯅꯠꯠꯔꯒꯥ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯕꯦꯂꯄꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (PDA Manipur)-ꯅ ꯃꯁꯤꯒꯤ ꯑꯗꯣꯝꯒꯤ ꯃꯐꯝ ꯌꯧꯅꯕꯥ ꯐꯪꯅꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ ꯄꯤꯕꯗꯤ, ꯁꯨꯗꯥ ꯑꯍꯅꯕ ꯃꯥꯍꯥꯕꯤ (Kumbi), ꯃꯍꯩꯄꯥ ꯑꯃꯁꯨꯡ ꯇꯤꯄꯤꯕꯤꯍꯥ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤ ꯀꯧꯟꯁꯤꯜꯁꯤꯡꯒꯤ 2025-ꯒꯤ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ (ꯖꯅꯨꯋꯥꯔꯤ ꯒꯦꯖꯦꯠ 16 ꯗꯤꯁꯦꯝꯕꯔ 2025, TPD-ꯒꯤ ꯋꯦꯕꯁꯥꯏꯠ ꯗꯤꯖꯥꯏꯟ ꯑꯣꯏꯅ ꯃꯁꯤꯡ ꯍꯥꯏꯕ) ꯑꯃꯁꯨꯡ 15 ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯒꯤ "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" (ꯗꯤꯖꯥꯏꯟ ꯑꯣꯏꯅ ꯃꯁꯤꯡ ꯍꯥꯏꯕ; ꯄꯅꯈꯤꯕ); IMC-ꯒꯤ ꯃꯋꯥꯒꯤ 2025-ꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ ꯁꯤꯃꯤꯟ ꯑꯗꯨꯃꯛꯇꯥ ꯑꯣꯔꯗꯤꯅꯟ ꯑꯣꯏꯅ ꯐꯥꯑꯣꯅ ꯍꯣꯠꯅꯈꯤ (ꯄꯥꯌꯗ ꯍꯣꯠꯅꯈꯤꯕ ꯃꯁꯤꯡ ꯍꯥꯏꯕ), ꯑꯃꯁꯨꯡ 2019 ꯑꯃꯁꯨꯡ 2022-ꯗ ꯑꯣꯃꯣꯜꯗ ꯑꯣꯏꯅ 2013-ꯒꯤ ꯑꯄꯤꯕ IMC ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ ꯑꯁꯤ ꯍꯥꯛꯆꯤꯡꯒꯤ ꯗꯥꯏꯔꯦꯛꯇꯔꯤ, ꯑꯃꯨꯛꯍꯟꯅ ꯑꯣꯃꯣꯜꯗꯃꯣꯜꯅ ꯑꯃꯛ 2024-ꯗ ꯗꯤꯖꯥꯏꯟ ꯑꯍꯅꯕ ꯍꯣꯠꯅꯈꯤ꯫ ꯃꯖꯥ ꯑꯁꯤꯗ ꯄꯥꯟ ꯑꯣꯏꯅꯕ ꯄ꯭ꯔꯣꯒ꯭ꯔꯥꯃꯒꯤ ꯆꯥꯡꯗꯣꯛꯄꯁꯤ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯑꯗꯣꯝꯒꯤꯗꯤ [TBC: ꯑꯦꯝꯅ ꯕꯥꯏꯅ ꯑꯣꯔꯗꯤꯅꯟ ꯑꯣꯏꯅ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗ ꯆꯥꯡꯗꯣꯛ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥ ꯂꯥꯏꯅꯗꯅ ꯌꯣꯏꯒꯗꯕꯅꯤ]; ꯑꯦꯝꯅ ꯕꯥꯏꯗꯤ ꯑꯃꯛꯀꯤ ꯑꯣꯔꯗꯤꯅꯟ ꯑꯣꯏꯅ ꯑꯣꯏꯕꯥ ꯑꯣꯏꯅꯕꯥ ꯃꯖꯥꯗ, ꯑꯦꯝꯅ ꯕꯥꯏꯗꯤ ꯑꯗꯨꯒꯤ ꯑꯣꯏꯕꯥ ꯌꯧꯍꯜꯂꯤ꯫ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ ꯑꯁꯤ ꯌꯨꯅꯤꯕꯦꯜ ꯑꯦꯝꯅ ꯕꯥꯏꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯕꯥꯡꯒꯤ ꯑꯣꯔꯗꯤꯅꯟ ꯑꯣꯏꯅ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ ꯑꯣꯏꯅꯕꯤꯌꯁꯤꯡꯗ ꯌꯧꯍꯜꯂꯤ; ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 ꯑꯁꯤ "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯇꯅ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯄꯨꯝꯕꯗ ꯌꯧꯍꯜꯂꯤ" ("extends to the whole of the State of Manipur except the Hill Areas") (ꯃꯥꯌ ꯑꯣꯏꯅ ꯃꯁꯤꯡ ꯍꯥꯏꯕ)꯫ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ ꯑꯁꯤꯗ ꯍꯥꯛꯆꯤꯡꯒꯤ ꯊꯥꯡ ꯍꯥꯏ ꯌꯦꯡꯕ, ꯑꯗꯨꯗꯨ ꯃꯍꯩꯌ ꯁꯨꯗꯣꯛꯂꯤꯕꯅ ꯕꯤꯜꯗꯤꯡ, ꯄ꯭ꯔꯣꯌ ꯅꯠꯠꯔꯒꯥ ꯍꯣꯠꯅꯕ ꯌꯣꯜꯕ ꯆꯥꯡꯕꯤ ꯏꯁꯤꯡ ꯂꯣꯏꯕꯤꯄꯤ; ꯑꯃꯁꯨꯡꯅ ꯃꯄꯤꯒꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯑꯗꯨ ꯁꯨꯕꯒꯤ ꯊꯥꯗꯣꯛ ꯑꯃꯛꯀꯤ ꯃꯁꯤꯡ ꯍꯥꯏꯕ ꯋꯥꯍꯩ ꯆꯥꯡꯕꯥ꯫ ꯂꯣꯏ ꯄꯤꯟ ꯑꯃꯗꯤꯒꯤ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯒꯤ ꯅꯥꯃꯕꯦꯜ ꯑꯃꯗ ꯌꯧꯄ ꯋꯥꯌꯦꯜꯆꯥꯟ ꯑꯃꯛꯀꯤꯗꯃꯛ "ꯍꯦꯟꯅꯕꯥꯃꯗꯤꯡꯕꯥ ꯑꯣꯏꯅꯕꯥꯃꯣꯜꯅ ꯌꯥꯝꯅꯕ ꯑꯃꯛ ꯊꯝꯕ ꯍꯥ" ("an intermediate treatment chamber should be installed") (ꯕꯥꯏ-ꯂꯣ 6(1)(A)); ꯄ꯭ꯔꯣꯌꯦꯜꯂꯤꯡꯅ "ꯑꯗꯨꯒꯤ ꯍꯣꯠꯅꯕ ꯏꯁꯤꯡ ꯂꯣꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯅꯥꯃꯕꯦꯜꯒꯤꯗꯃꯛ ꯂꯣꯌꯅꯕ ꯄ꯭ꯔꯣꯒ꯭ꯔꯥꯃꯁꯤꯡꯒꯤ ꯑꯄꯥꯝꯕ" ("detail provisions made for conservation and harvesting of rain water") (6(1)(C)(j)) ꯌꯧꯍꯜꯂꯕꯤ ꯑꯃꯁꯨꯡ, ꯃꯇꯥꯡ-ꯗꯤꯖꯥꯏꯟ, ꯍꯦꯟꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯁꯤꯟꯅꯕꯥ ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯒꯤꯗꯃꯛ, "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤ/ꯑꯇꯣꯞꯄ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯖꯥꯡꯕ ꯌꯥꯕ ꯄꯤꯔꯃꯤꯟꯅꯕ/ꯄꯥꯛꯀ ꯅꯥꯃꯕꯦꯜ ꯍꯥꯌꯕ ꯋꯥꯗꯕ ꯃꯇꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟ ꯑꯇꯣꯞꯄꯥꯗ ꯑꯄꯥꯝꯕ ꯍꯥꯌꯒꯅꯤ ꯄ꯭ꯔꯣꯌꯦꯜ" ("Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority") (6(1)(D)); ꯕꯤꯜꯗꯤꯡ ꯅꯠꯠꯔꯒꯥ ꯗꯤꯖꯥꯏꯟꯗꯥꯌꯥ ꯑꯃꯁꯨꯡ "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤ ꯅꯥꯃꯕꯦꯜ ꯅꯠꯠꯔꯒꯥ ꯆꯥ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯐꯝ" ("over any municipal drain or land") ꯋꯥꯍꯟꯗꯕꯅꯤ (16); ꯑꯗꯨꯒꯤ ꯍꯣꯠꯅꯕꯒꯤ ꯄꯥꯏꯄ ꯑꯃꯒꯤ ꯗꯥꯏꯃꯤꯇꯔ "ꯌꯥꯃꯗꯨꯕꯗ 75 mm" ("at least 75 mm") ꯑꯣꯏꯒꯗꯕꯅꯤ, ꯃꯗꯨꯅ "ꯂꯤꯟꯇꯦ ꯅꯥꯃꯕꯦꯜ ꯑꯃꯒꯤ ꯍꯦꯟꯅꯕꯥ ꯅꯠꯠꯔꯒꯥ ꯍꯦꯟꯅꯕꯥꯡꯒꯤ ꯃꯐꯝ … ꯑꯗꯨꯗꯨ ꯀꯔꯤꯒꯨꯝꯕ ꯐꯤꯗꯤꯡꯗꯣꯛꯅ ꯅꯥꯃꯕꯦꯜ ꯑꯃꯗ ꯍꯥꯌꯐꯝꯗꯅ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯣꯏꯍꯟꯗꯕꯅꯤ" ("into or over an inlet to a surface drain … but in no case shall it discharge directly into any closed drain") ꯗꯤꯁꯆꯥꯔꯖ ꯑꯣꯏꯒꯗꯕꯅꯤ, "ꯆꯥꯕꯤ ꯑꯃꯅ 30 m-ꯒꯤ ꯃꯅꯥꯛꯇ ꯍꯥꯌꯕ ꯑꯣꯏꯕꯗꯤ" ("if a street drains within 30 m") ꯒꯗꯤ ꯑꯃꯗ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯣꯏꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ "ꯂꯧꯕ ꯄꯥꯏꯄ ꯑꯃꯁꯨꯡꯗ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯣꯏꯍꯟꯗꯕꯅꯤ ꯅꯠꯠꯔꯒꯥ ꯀꯅꯦꯛꯇ ꯇꯧꯍꯟꯗꯕꯅꯤ" ("shall not discharge into or connect with any soil pipe")

(28); ꯑꯃꯁꯨꯡ "ꯃꯁꯤꯗ ꯃꯊꯧ ꯇꯥꯔꯤꯕ ꯑꯣꯄꯦꯟ ꯁ꯭ꯄꯦꯁ ꯑꯃꯠꯇꯗ, ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯅꯠꯇꯅꯥ, ꯑꯣꯄꯦꯟ ꯗ꯭ꯔꯦꯟ ꯑꯃꯠꯇꯥ ꯁꯥꯒꯠꯂꯣꯏꯗꯕꯅꯤ" ("No open drain, except for rain water, shall be constructed in any open space required by these") ꯕꯥꯏ-ꯂꯥꯁꯤꯡ॥ 100 m² ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯁ꯭ꯇꯦꯡꯂꯤꯡꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯃꯊꯧ ꯇꯥꯏ (66), ꯒ꯭ꯔꯥꯎ-ꯋꯥꯇꯔ ꯔꯤꯆꯥꯔꯖꯤꯡ (67) ꯑꯃꯁꯨꯡ ꯑꯇꯩ ꯃꯤꯈꯥ (68)-ꯒꯥ ꯂꯣꯌꯅꯅꯥ (ꯇꯦꯕꯜ 4.11-ꯒꯤ ꯄꯥꯔꯥꯗ ꯌꯥꯎꯕ)॥ ꯕꯥꯏ-ꯂꯥ 92-ꯗ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ ꯃꯇꯨꯡ ꯏꯟꯅ "ꯃꯤꯟ ꯁꯤ ꯂꯦꯚꯦꯂꯗꯒꯤ 600 m-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯚꯔꯦꯖ ꯁ꯭ꯂꯣꯞ ꯗꯤꯒ꯭ꯔꯤ 30 ꯂꯩꯕ ꯂꯃꯗ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯌꯥꯕ ꯄꯤꯔꯣꯏ" ("No construction shall be permitted on land above 600 m from the mean sea level and with an average slope of 30 degrees") ꯍꯥꯏꯔꯦ ꯅꯃꯤ, ꯃꯁꯤꯗ ꯁ꯭ꯄꯦꯁꯤꯐꯥꯏ 600 m-ꯗꯒꯤ ꯍꯦꯟꯕ ꯒ꯭ꯔꯦꯗꯤꯌꯦꯟꯠ ꯁ꯭ꯄꯦꯁꯤꯐꯥꯏꯕ ꯇꯧꯗꯕꯅꯤ (NEER-ꯒꯤ ꯁꯤꯕ); IMC ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯁꯤꯡ (3-ꯁꯨꯕ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠ), 2024 (IMC Building Bye-Laws (3rd Amendment), 2024)-ꯗ ꯁꯤꯡꯅꯕ ꯇꯥꯀꯄꯤꯕ ꯃꯇꯝ ꯑꯗꯨ ꯁꯤꯡꯃꯤ, "ꯁ꯭ꯂꯣꯞ ꯗꯤꯒ꯭ꯔꯤ 30-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯌꯥꯕ ꯄꯤꯔꯣꯏ॥ ꯁ꯭ꯂꯣꯞ ꯗꯤꯒ꯭ꯔꯤ 21-30 ꯂꯩꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯐ꯭ꯂꯣꯔ ꯑꯅꯤ ꯅꯠꯔꯒꯥ 7m ꯍꯦꯟꯕ ꯍꯥꯏꯠ ꯐꯥꯑꯣꯕ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯑꯌꯥꯕ ꯄꯤꯒꯅꯤ" ("no construction will be permitted in the areas which have a slope of more than 30 degrees. Permission of development only upto two floors or 7m height in areas which have a slope of 21-30 degrees") (92.1) ꯑꯃꯁꯨꯡ "ꯁ꯭ꯂꯣꯞ ꯗꯤꯒ꯭ꯔꯤ 30-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯁ꯭ꯂꯣꯞ ꯀꯠꯇꯤꯡ ꯑꯌꯥꯕ ꯄꯤꯔꯣꯏ" ("no cutting of slopes will be permitted in the areas which have a slope of more than 30 degrees") (92.2), ꯑꯗꯨꯕꯨ ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯔꯀꯥꯔꯅ ꯑꯃꯁꯤꯡ, "ꯁ꯭ꯇꯦꯠ ꯒꯚꯔꯅꯃꯦꯟꯇꯅꯥ ... ꯂꯩꯕ ꯑꯗꯨ ꯍꯥꯏꯕ ꯑꯗꯨꯗ ꯃꯇꯝꯗꯒꯤ" ("come into force on such date as the State Government may ... appoint"), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯠꯇꯥ ꯂꯤꯕꯗꯥ ꯅꯤꯡꯊꯧ [TBC]॥ ꯕꯥꯏ-ꯂꯥ 93-ꯗ "ꯅꯧꯅꯥ ꯁꯦꯃꯒꯠꯂꯤꯕ ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯀ ꯍꯦꯟꯕ ꯊꯣꯛꯍꯟꯕ ꯍꯦꯡꯒꯠꯍꯟꯕ ꯃꯤꯑꯣꯏꯒꯤ ꯄꯨꯊꯣꯛꯄ ꯕꯐꯔ ꯖꯣꯟꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯅꯧꯕ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯃꯠꯇꯥ" ("any new construction within the designated buffer zone to minimize human exposure to flood risk") ꯇꯧꯅꯕ, ꯄꯨꯊꯣꯛꯂꯤꯕ ꯃꯃꯤ ꯂꯩꯕ ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯀ ꯍꯦꯟꯕ ꯃꯔꯨꯑꯣꯏꯕ ꯂꯃꯁꯤꯡ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯄꯨꯕꯗ ꯑꯃꯤꯡ ꯂꯣꯌꯅꯅꯥ (ꯇꯦꯕꯜ 7), ꯑꯃꯁꯨꯡ "ꯊꯤꯡꯕ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯔꯤꯁ꯭ꯠꯔꯤꯛꯇꯦꯗ ꯄꯨꯕ ꯑꯦꯔꯤꯌꯥ" ("prohibited area or restricted area") ꯑꯃꯅ ꯊꯕꯛ ꯑꯃꯍꯥꯛꯄꯅ "ꯐ꯭ꯂꯗ ꯞꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978-ꯒꯤ ꯃꯈꯥꯗ ꯁꯦꯝꯕꯤꯕ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯃꯥꯡꯗ ꯂꯩꯕ ꯑꯌꯥꯕ" ("the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978") ꯃꯊꯧ ꯇꯥꯔꯤ; ꯑꯗꯨꯕꯨ ꯑꯗꯨꯒꯤ ꯃꯈꯥꯗ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯨꯛ ꯁꯦꯝꯕꯤꯕ ꯍꯧꯔꯦꯗꯕ ꯑꯃꯁꯨꯡ ꯖꯣꯅꯤꯡ ꯑꯃꯨꯛ ꯂꯦꯞꯄꯥ ꯇꯧꯔꯦ, ꯃꯁꯤꯒꯤ ꯖꯣꯅꯤꯡ ꯃꯥꯞ 2026-ꯗ "ꯍꯧꯖꯤꯛ ꯐꯥꯑꯣꯕ ꯇꯧꯗꯔꯤ" ("yet to be done") ꯍꯥꯏꯔꯦ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ (ꯁꯤꯡꯅꯕ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ ꯃꯇꯨꯡ ꯏꯟꯅ)॥ ꯕꯥꯏ-ꯂꯥ 94-ꯗ "ꯁꯍꯔꯁꯤꯡꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯦꯅꯗ ꯈꯪꯗꯣꯛꯂꯕ ꯍꯦꯟꯅ ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯀ ꯑꯣꯏꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ" ("high Flood Risk Areas identified in the Master Plan of the towns")-ꯗ ꯞꯂꯤꯟꯊ ꯑꯗꯨ "ꯑꯀꯣꯌꯕꯒꯤ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯗꯒꯤ 1m ꯍꯦꯟꯅ ꯋꯥꯡꯅ" ("above 1m above the highest flood level of the surrounding areas") ꯊꯃꯒꯅꯤ, ꯑꯗꯨꯕꯨ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯗꯨ ꯁꯦꯃꯗꯣꯛꯅꯕ ꯁ꯭ꯇꯦꯠꯇꯥ ꯑꯃꯁꯨꯡ ꯃꯤꯄꯨꯝꯕꯒꯤ ꯃꯤꯊꯤ ꯅꯦꯝꯖꯃꯥꯛꯅ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯦꯟꯁꯤꯡ ꯁꯤꯡꯅꯕ [TBC], ꯑꯃꯁꯨꯡ ꯑꯦꯁꯥꯏꯟꯃꯦꯟꯠ ꯇꯧꯕ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ ꯁꯍꯔ ꯑꯃꯨꯛ ꯄꯨꯊꯣꯛꯂꯤꯕ ꯖꯣꯅꯤꯡ [TBC]: ꯁꯤꯡꯅꯕ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ WRD-ꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯁꯤꯡ ꯃꯁꯤꯡꯊꯤꯕꯃ 2025-ꯗ ꯂꯤꯂꯥꯡ ꯑꯃꯁꯨꯡ ꯅꯥꯝꯕꯨꯜ (Ithai)-ꯗ ꯍꯥꯌꯔꯤ (ꯁꯤꯡꯅꯕ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ ꯃꯇꯨꯡ ꯏꯟꯅ)॥ ꯃꯍꯧꯁꯥꯒꯤ ꯑꯣꯏꯕ ꯊꯥꯎꯅ ꯑꯗꯨ ꯁꯤꯡꯃꯤ (ꯒꯥ, ꯃꯁꯤꯒꯤ ꯅꯠꯔꯒꯥ ꯁꯍꯔ ꯄꯨꯝꯅꯃꯛ ꯅꯧꯅꯥ ꯁꯦꯃꯒꯠꯂꯤꯕ ꯃꯃꯤꯡꯂꯣꯏꯕ, ꯃꯤꯄꯨꯝꯕ ꯁꯤꯡꯃꯤꯔꯕ ꯑꯦꯛꯁꯞꯂꯤꯁꯤꯠ), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ 1% AEP ꯂꯦꯚꯦꯜ ꯍꯥꯏꯁꯔꯤꯕ 0.5 m ꯑꯗꯨ ꯍꯦꯟꯅ ꯋꯥꯡꯕ ꯃꯦꯖꯔ ꯄꯨꯊꯣꯛꯂꯤ (ꯇꯦꯕꯜ 5 ꯑꯃꯁꯨꯡ 7)॥ ꯃꯁꯤꯒꯤ ꯑꯗꯨꯒꯤ ꯒ꯭ꯔꯤꯟ-ꯕꯤꯜꯗꯤꯡ ꯖ꯭ꯋꯥꯌꯅꯕꯤꯔꯤꯕꯗ "ꯁꯥꯏꯠꯇꯥ ꯍꯥꯔꯗ ꯄꯦꯚꯤꯡ ꯍꯟꯊꯍꯟꯗꯨꯅꯥ ꯁꯥꯏꯠꯇꯒꯤ ꯁ꯭ꯇꯣꯔꯝ ꯋꯥꯇꯔ ꯔꯟ-ꯑꯣꯐ ꯍꯟꯊꯍꯟꯕ" ("Minimize storm water run-off from site by reducing hard paving on site") ꯑꯃꯁꯨꯡ "ꯅꯃꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ ꯀꯟꯠꯔꯣꯜ" ("erosion and sedimentation control") ꯍꯥꯏꯕꯤ, ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯥꯁꯤꯡꯗ ꯆꯨꯝꯅꯥ ꯂꯩꯕꯤꯒꯤꯗꯃꯛ ꯅꯦꯁꯅꯦꯜ ꯕꯤꯜꯗꯤꯡ ꯀꯣꯗ 2016 (National Building Code 2016)-ꯗ ꯊꯥꯗꯣꯛꯏ॥ ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯍꯦꯛꯇ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯄꯦꯛ, ꯕꯤꯂꯤꯡ ꯕꯦꯁꯤꯡ, ꯗꯤꯁꯆꯥꯔꯖ ꯀꯥꯂꯦꯛ ꯅꯠꯔꯒꯥ ꯑꯀꯥꯏꯕꯥ ꯂꯃꯕꯤ ꯊꯥꯗꯣꯛ॥ ꯕꯥꯏ-ꯂꯥ 6(1)(D) ꯑꯣꯏꯅ ꯇꯦꯕꯜ ꯑꯣꯏꯕꯒꯤꯗꯃꯛ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡꯅꯕꯁꯤ: ꯃꯁꯤꯒꯤ "ꯗꯤꯇꯦꯜ ꯑꯣꯏꯕ ꯗ꯭ꯔꯦꯅꯦꯖ ꯞꯂꯦꯟ ... ꯐꯪꯂꯤꯕ ꯄꯔꯃꯅꯦꯟꯠ/ꯄꯛꯀꯥ ꯗ꯭ꯔꯦꯟ ꯐꯥꯑꯣꯕ" ("Detailed drainage plan ... up to the available permanent/pucca drain")-ꯗ ꯆꯤꯡꯅꯕ ꯁ꯭ꯄꯦꯛ, ꯕꯤꯂꯤꯡ ꯕꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯄꯦꯁꯤꯐꯥꯏ ꯀꯥꯂꯦꯛ ꯃꯊꯧ ꯇꯥꯏ, ꯃꯁꯤꯒꯤ ꯑꯣꯏꯅ ꯇꯦꯕꯜ ꯑꯣꯏꯕ ꯁꯤꯡꯃꯤ॥ ꯞꯂꯦꯟ ꯑꯃꯅ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯊꯥꯗꯣꯛꯄ, ꯐꯤꯜꯇꯔ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯗꯝꯅꯕ ꯁꯤꯡꯃꯤ, ꯃꯇꯤꯡꯒꯤ ꯕꯥꯏ-ꯂꯥꯁꯤꯡꯗ ꯂꯩꯕ;

ꯃꯁꯤꯒꯤ ꯃꯃꯤ ꯂꯩꯕ ꯁ꯭ꯄꯦꯛ ꯑꯃꯍꯦꯛꯇꯥ ꯕꯥꯏ-ꯂꯥ 66-ꯒꯤ "ꯁꯔꯐꯦꯁ ꯔꯤꯖꯔꯚꯣꯏꯔꯁꯤꯡ" ("surface reservoirs")-ꯂꯤ॥ ꯃꯂꯤꯁ꯭ꯇꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯦꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯖꯣꯅꯤꯡ/ꯌꯨꯖ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯕꯥꯏ-ꯂꯥꯁꯤꯡ, 2026 (Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026)-ꯗ "ꯄꯨꯈ꯭ꯔꯤ, ꯗ꯭ꯔꯦꯅ, ꯇꯨꯔꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯦꯂꯁꯤꯡ" ("Pond, Drain, Rivers and Canals")-ꯒꯤꯗꯃꯛ ꯌꯨꯖ ꯖꯣꯟ ꯑꯃꯥ ꯍꯥꯞꯆꯤꯜꯂꯤ ꯑꯃꯁꯨꯡ "ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕꯒꯤ ꯂꯝꯕꯤ" ("Rain Water Harvesting System") ꯑꯣꯏꯅ ꯌꯨꯖ ꯑꯃꯥ ꯑꯍꯥꯟꯕ ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯤ, ꯑꯗꯨꯕꯨ ꯅꯃꯤꯇꯒꯤ ꯃꯇꯝ ꯑꯃꯠꯇꯥ ꯊꯥꯗꯣ॥ ꯄꯨꯊꯣꯛꯂꯤꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯂꯝ ꯑꯗꯨ ꯑꯍꯥꯟꯕ ꯑꯃꯥꯡꯗ ꯊꯥꯗꯣꯛꯅ ꯂꯧꯕꯤꯃꯤ, ꯑꯃꯁꯨꯡ ꯑꯃꯠꯇꯥꯗ ꯃꯤꯄꯨꯝꯕ ꯑꯃꯠꯇꯥ ꯁꯅꯥꯏ ꯂꯥꯡꯁꯤꯡ: ꯃꯂꯤꯁ꯭ꯇꯔ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯦꯝ ꯁꯥꯡꯗꯤ ꯂꯦꯃꯗ

ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯗꯥ ꯃꯁꯤꯒꯤ ꯇꯥꯀꯄ, ꯗꯤꯐꯥ꯭ꯏꯟ꯭ꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯄꯦꯠ ꯇꯦꯀꯦꯟ ꯀꯃꯤꯁꯤꯟꯒꯤ ꯗꯠꯗꯁꯗ ꯂꯠꯗꯥꯂ ꯄꯦꯗꯤ ꯂꯦꯟꯗ (paddy land) ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ (wetland) ꯑꯣꯏꯅ ꯃꯑꯣꯡ ꯄꯥꯡꯊꯣꯛꯄ ꯍꯤꯕꯗ, "ꯗꯔꯦꯅꯦꯖ ꯆꯦꯅꯦꯂꯁꯤꯡ, ꯄꯣ꯭ꯟꯗꯁꯤꯡ, ꯀꯦꯅꯦꯂꯁꯤꯡ, ꯕꯟꯗ (bund)-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯁꯤꯡ" ("drainage channels, ponds, canals, bunds and ridges") ꯑꯁꯤ ꯇꯥꯀꯄꯒꯤ ꯃꯇꯨꯡꯗ ꯌꯥꯎꯗ ꯄꯨꯔꯦ ꯇꯥꯗ (ꯁꯦꯛꯁꯟ 2(c)), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯔꯥꯡꯗꯥ ꯄꯥꯡꯊꯣꯛꯂꯕ ꯂꯃꯗ ꯀꯟꯗ꯭ꯔꯣꯂꯁꯟꯒꯤ ꯂꯗꯁꯦꯟ ꯑꯃꯁꯨꯡ ꯄꯤꯕ ꯍꯤꯕꯗ (ꯁꯦꯛꯁꯟ 12); ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯗꯥ ꯄꯥꯠ (pat; lake or wetland) ꯑꯗꯨꯒꯤ ꯕꯍꯣ ꯇꯦꯟꯗ "ꯗꯟꯗꯁ꯭ꯠꯔꯤꯁꯤꯡ, ꯁꯤꯇꯤꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯇꯥꯎꯟꯁꯤꯡꯗꯒꯤ ꯌꯣ꯭ꯔꯤꯠ ꯌꯥꯗꯕ ꯋꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯏꯐ꯭ꯂꯨꯑꯦꯟꯇꯁꯤꯡ ꯍꯟꯗꯣꯛꯄ"

("Discharge of untreated wastes and effluents from industries, cities or towns") ꯑꯃꯁꯨꯡ "ꯂꯝ ꯔꯤꯀ꯭ꯂꯦꯃꯦꯁꯟ, ꯕꯟꯗ ꯇꯧꯕ ꯅꯠꯔꯒꯥ ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯂꯝꯕꯤ ꯁꯣꯛꯍꯟꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯍꯤꯕꯗ (ꯁꯦꯛꯁꯟ 19); ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978 (Manipur Flood Plain Zoning Act, 1978)-ꯗꯥ ꯃꯍꯥꯛꯀꯤ ꯗꯤꯌꯔꯦꯛꯇꯔ ꯌꯥꯗꯕꯤ ꯇꯦꯟꯁꯤꯡꯒꯤ ꯄ꯭ꯔꯣꯕꯤꯖꯟ ꯄꯤꯔꯤ꯫ ꯌꯥꯄꯤꯝꯕꯥ ꯇꯥꯀꯄ ꯅꯠꯔꯒꯥ ꯁꯦꯝꯕꯥ ꯍꯣꯠꯅꯕꯗꯥ ꯃꯍꯧꯁꯥ ꯁꯤꯡꯕ ꯃꯍꯩꯃꯥ, 1% AEP ꯂꯦꯚꯦꯂꯒꯤ ꯃꯊꯛꯇ ꯃꯍꯧꯁꯥꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯁ꯭ꯇꯦꯖ ꯑꯗꯨ ꯆꯦꯞꯇꯔ 7.6.4-ꯒꯤ ꯃꯊꯛꯇ ꯕꯦꯁꯤꯛ ꯑꯗꯨꯃꯑꯣꯡ ꯑꯃꯥ ꯍꯥꯌꯗ ꯍꯥꯏꯒꯗꯕꯅꯤ (ꯇꯦꯕꯜ 7; ꯃꯦꯞꯀꯤ ꯑꯁꯤꯗ ꯍꯥꯏꯕ)꯫ ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤ ꯑꯦꯛꯠ, 1994-ꯒꯤ ꯗꯔꯥꯒꯤ ꯁꯦꯛꯁꯟꯁꯤꯡ ꯄꯤꯗꯤꯅꯤ [TBC]꯫ ꯍꯤꯜꯒꯤ ꯂꯝꯁꯤꯡ (Hill Areas)-ꯗ ꯕꯤꯜꯗꯤꯡ ꯅꯠꯔꯒꯥ ꯗꯔꯥꯒꯤ ꯊꯧꯗꯣꯛ ꯑꯃꯍꯣꯡ ꯖꯤꯗꯤꯅꯤ: ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯥꯎꯟꯁꯤꯜ ꯑꯦꯛꯠ, 1971 (Manipur (Hill Areas) District Councils Act, 1971)-ꯗꯥ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯥꯎꯟꯁꯤꯂꯁꯤꯡꯗ "ꯏꯁꯤꯡ ꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯤꯇꯦꯁꯅꯒꯤ ꯁ꯭ꯀꯤꯃꯁꯤꯡ" ("water supply and sanitation schemes"), "ꯄꯥꯟꯗꯣꯡꯁꯤꯡ ꯁꯦꯝꯕ, ꯁꯦꯃꯗꯣꯛ-ꯁꯦꯃꯒꯠꯄ ꯌꯦꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯖꯤꯁ꯭ꯠꯔꯤꯕ" ("the construction, repair and maintenance of embankments") ꯑꯃꯁꯨꯡ "ꯂꯩꯐꯝ ꯅꯠꯔꯒꯥ ꯂꯧꯃꯤ ꯅꯠꯇꯕ ꯑꯣꯏꯅ ꯄꯥꯟꯗꯝꯁꯤꯡ" ("residential or other non-agricultural purposes")-ꯒꯤꯗꯃꯛ ꯂꯝ ꯄꯤꯕ ꯀꯟꯗ꯭ꯔꯣꯂꯁꯤꯡ ꯄꯤꯔꯤ (ꯁꯦꯛꯁꯟ 29(1)), ꯑꯗꯨꯕꯨ ꯕꯤꯜꯗꯤꯡ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯃꯍꯣꯡ ꯄꯤꯗꯤ, ꯑꯃꯁꯨꯡ ꯊꯦꯡ 2025-ꯗꯒꯤ ꯍꯧꯖꯤꯛ ꯄꯣꯠꯇꯥ ꯌꯦꯡꯕꯗꯥ ꯗꯧꯂꯣꯡꯒꯤ ꯀꯃꯤꯁꯟꯁꯤꯡꯗꯥ ꯑꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯇꯤꯕ ꯑꯣꯏꯗꯥ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠꯁꯤꯡ ꯑꯁꯤ ꯍꯥꯏꯗꯣꯛꯂꯤ (ꯄꯥꯎꯖꯦꯜ ꯖꯥꯔꯤ ꯇꯧꯕ ꯃꯇꯨꯡ ꯗꯧꯕ); ꯃꯖꯝ ꯑꯗꯨꯗ ꯇꯦꯕꯜ ꯑꯁꯤ ꯄꯥꯟꯗꯝꯒꯤ ꯍꯥꯏꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯞꯀꯤ ꯑꯁꯤ ꯇꯥꯀꯄꯁꯤꯡ ꯁꯦꯝꯕꯅ ꯕꯥꯗꯤ ꯑꯃꯗ ꯍꯥꯌꯔꯒꯗꯤ, ꯑꯃꯁꯨꯡ ꯌꯥꯝ ꯑꯃꯒꯤꯗꯃꯛꯇꯥꯗꯤ ꯃꯁꯤ ꯂꯝꯇꯥꯕꯤꯕ ꯍꯧꯖꯤꯛꯇꯤ꯫ ꯕꯦꯁꯃꯦꯟꯠꯁꯤꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤꯗꯃꯛ ꯇꯤꯃꯤꯟ ꯌꯥꯗꯦ꯫ ꯃꯥꯗꯦ ꯑꯗꯨꯗꯥ ꯕꯦꯁꯃꯦꯟꯠ ꯑꯁꯤ "ꯖꯤꯂꯤꯁ ꯌꯥꯎꯕ ꯒ꯭ꯔꯥꯎꯟꯗ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯐ꯭ꯂꯣꯔꯒꯤ ꯍꯥꯏꯇꯃꯈꯕ 2/3 ꯂꯥꯕ ꯕꯤꯜꯗꯤꯡ ꯑꯃꯒꯤ ꯈꯥꯗꯒꯤ ꯐ꯭ꯂꯣꯔ" ("the lower storey of a building which is minimum 2/3rd of the floor height below the finished ground level") ꯍꯥꯌꯅ ꯁꯟꯗꯣꯛꯅ ꯌꯥꯎꯗ (ꯕꯥꯏ-ꯂꯣ 2(11)) ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯁꯦꯝꯕꯒꯤꯗꯃꯛ ꯁꯦꯟꯕꯦꯅ ꯂꯗꯟꯗꯥꯕꯒꯤ ꯃꯇꯨꯡꯗ ꯕꯦꯁꯃꯦꯟꯠꯁꯤꯡ ꯌꯥꯍꯟꯂꯦ, ꯑꯗꯨꯕꯨ ꯖꯤꯗꯤꯕ ꯊꯧꯗꯣꯛ ꯑꯃꯍꯣꯡꯗ ꯃꯔꯤꯔꯕ ꯂꯦꯃꯕ ꯂꯝ ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯥꯛꯄ ꯌꯕ ꯂꯝꯗꯒꯤ ꯍꯤꯕꯗ ꯅꯠꯔꯒꯥ ꯕꯦꯁꯃꯦꯟꯠꯇꯥ ꯄꯦꯝꯄ ꯅꯠꯔꯒꯥ ꯍꯥꯕꯒꯤꯗꯃꯛ ꯂꯦꯚꯦꯜ ꯍꯤꯗꯤ꯫ ꯃꯄꯥꯝ ꯑꯁꯤꯗ ꯃꯦꯞꯀꯤ ꯑꯁꯤꯗ ꯕꯦꯁꯃꯦꯟꯠ ꯀꯟꯁꯤꯗꯃꯛꯇꯥꯒꯤꯗꯃꯛ ꯃꯔꯤꯒꯤ ꯃꯍꯩ ꯌꯦꯕꯁꯤꯡ ꯍꯥꯄꯂꯤꯅꯤ: ꯂꯝꯖ ꯑꯗꯕ ꯕꯦꯁꯃꯦꯟꯠꯌ ꯗꯤꯌꯦꯁꯟꯁꯟ ꯁꯨ꯭ꯌꯄꯦꯇ ꯂꯩꯄꯗꯕꯅꯤ (ꯆꯦꯞꯇꯔ 4.10.1); ꯕꯦꯁꯃꯦꯟꯠꯇꯥ ꯄꯦꯝꯄ ꯀꯟꯗꯤꯁꯟꯇꯥ ꯆꯦꯄꯦꯠ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯃꯦꯟꯠꯇꯥ ꯍꯥꯕ ꯀꯟꯗꯤꯁꯟꯇꯥ ꯁꯤꯟ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯗꯒꯤ ꯀꯝꯈꯕꯗ 0.5 m ꯃꯊꯛꯇꯕꯅꯤ, ꯕꯦꯁꯃꯦꯟꯠꯇꯥ ꯗꯔꯥ ꯂꯣ-ꯄꯤꯌꯥꯔꯦ ꯒꯦꯇꯒ ꯑꯃꯒꯤ ꯃꯍꯧꯁꯥꯕ ꯁꯄꯣꯜ ꯄꯥꯏꯕꯤꯟ ꯄꯥꯝꯄ ꯌꯥꯒꯗꯕꯅꯤ (ꯆꯦꯞꯇꯔ 6.11.1 ꯑꯃꯁꯨꯡ 6.11.4); ꯑꯃꯁꯨꯡ ꯂꯥꯟ 2-ꯗ ꯕꯦꯁꯃꯦꯟꯠ ꯂꯩꯗꯕꯅꯤ (ꯆꯦꯞꯇꯔ 7.5.2)꯫ ꯗꯤꯖꯥꯏꯟ ꯂꯩꯃꯗꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ ꯒ꯭ꯔꯥꯎꯟꯗ ꯂꯦꯚꯦꯜ ꯑꯗꯕ ꯗꯔꯖꯤꯟ ꯌꯥꯄꯤꯝꯕꯥ ꯂꯝ, ꯇꯥꯏꯍꯥꯄꯥ ꯃꯂꯥꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯄꯤꯕꯤꯃꯒꯤ ꯐ꯭ꯂꯗꯄ꯭ꯂꯦꯟ (floodplain)-ꯗ (ꯆꯦꯞꯇꯔ 4.12.1), ꯕꯦꯁꯃꯦꯟꯠ ꯑꯃꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯁꯦꯔꯤꯌꯁ ꯑꯗꯕ ꯃꯦꯖꯔꯃꯦꯟꯠꯁꯤꯡꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ ꯑꯁꯤꯒꯤ ꯊꯧꯁꯤꯡ ꯍꯥꯄꯔꯕꯗꯃꯛ, ꯏꯁꯤꯡ ꯍꯥꯗꯕ ꯑꯗꯕꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯂꯩꯃꯗꯒꯤ ꯃꯗꯒꯤ ꯏꯁꯤꯡ ꯒ꯭ꯔꯥꯎꯟꯗ ꯂꯦꯚꯦꯜꯗ ꯂꯥꯕ ꯃꯌꯥꯝ ꯌꯥꯎꯕꯒꯤ ꯍꯥꯗ ꯌꯤꯗꯕꯗꯃꯛ ꯍꯧꯖꯤꯛꯇꯥ ꯀꯟꯗ꯭ꯔꯣꯂꯁꯤ; ꯄꯤꯠ (peat)-ꯌ ꯃꯁꯤꯗ ꯆꯦꯞꯇꯔ 4.12-ꯒꯤ ꯂꯦꯟꯗꯅꯗ ꯌꯥꯎꯕꯒꯤ ꯇꯤꯑꯣꯔꯤꯗꯦꯛꯂꯥꯃꯣꯟ ꯍꯥꯛꯂ ꯌꯥꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 4.5.3.2-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯟꯁꯤꯜꯔꯤꯒ ꯑꯗꯕ ꯃꯦꯖꯔꯃꯦꯟꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 4.5.4-ꯒꯤ ꯃꯊꯛꯇ ꯗꯤꯌꯦꯟꯗ ꯌꯥꯕ ꯃꯦꯖꯔꯃꯦꯟꯠ ꯑꯃꯍꯥꯍꯟ, 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯃꯍꯟꯕꯒꯤ ꯂꯃꯗꯒꯤ ꯀꯦꯡꯕ ꯃꯖꯝꯗ ꯕꯦꯁꯃꯦꯟꯠ ꯀꯟꯗꯤꯁꯟꯗꯕꯅꯤ ꯍꯥꯌꯅ ꯃꯁꯤꯗ ꯄꯥꯟꯗꯝꯗ ꯄꯤꯔꯤ꯫ ꯕꯦꯁꯃꯦꯟꯠ ꯅꯠꯔꯒꯥ ꯃꯈꯥꯒꯤ ꯐ꯭ꯂꯣꯔ ꯑꯃꯥ ꯁꯦꯝꯕ ꯑꯃꯗ ꯃꯊꯛꯇꯥ ꯁꯦꯝ ꯃꯖꯝ ꯀꯟꯗꯤꯁꯟꯌ, ꯃꯁꯤꯗ ꯆꯦꯞꯇꯔ 4.11-ꯒꯤ ꯍꯤꯜꯒꯤ ꯊꯧꯒꯤ ꯇꯤꯑꯣꯔꯤꯗꯦꯛꯂꯥꯃꯣꯟ ꯂꯣꯌꯈꯤꯅꯃꯛ ꯂꯩꯗꯕꯅꯤ, ꯃꯁꯤꯒꯤ ꯁꯦꯝꯁꯤꯡꯒꯤ ꯃꯌꯥꯝꯗ ꯂꯥꯕ ꯏꯁꯤꯡ ꯑꯗꯨ ꯂꯦꯟꯗ ꯌꯥꯕ ꯄꯥꯏꯕꯤꯟ ꯑꯃꯗ ꯗꯔꯥ ꯌꯥꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯗ ꯅꯠꯇꯦ꯫ ꯂꯣꯄꯥꯝ ꯂꯥꯕ ꯁꯗꯨꯝ ꯑꯃꯒꯤꯗꯃꯛ, ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗ ꯍꯥꯌꯗꯣꯛꯇꯨꯕ ꯑꯗꯨꯒꯨ ꯇꯦꯕꯜ ꯑꯁꯤꯗ ꯄꯤꯔꯤ: ꯁꯗꯨꯝꯕ ꯃꯍꯩꯃꯥ ꯂꯥꯕ ꯃꯦꯖꯔꯃꯦꯟꯠꯇꯥ ꯗꯔꯦꯖ ꯑꯗꯨ ꯇꯦꯕꯜ 6-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜ ꯁꯨꯕꯒꯤ ꯍꯥꯏꯗꯣꯛꯄꯗ ꯗꯔꯌꯗꯁꯥꯌ ꯌꯥꯗꯨꯗ ꯕꯤꯜꯗꯤꯡꯒꯤ ꯑꯄꯥꯔꯗ ꯍꯦꯟꯄꯔꯦꯡꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯗꯨꯝꯌꯒꯤ ꯍꯥꯏꯕꯥ ꯍꯦꯔꯕ ꯀꯟꯗꯤꯁꯟ ꯑꯦꯗꯖꯤ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯑꯃꯒꯤ ꯃꯍꯧꯁꯥꯕ ꯂꯦꯟꯗ ꯌꯥꯕ ꯄꯥꯏꯕꯤꯟ ꯑꯃꯗ ꯅꯠꯔꯒꯥ ꯍꯦꯛꯁꯥ ꯃꯄꯥꯝꯒꯤ ꯍꯦꯔꯦ ꯑꯃꯗ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯌꯥꯒꯗꯕꯅꯤ, ꯃꯍꯥꯛꯀꯤ ꯍꯧꯖꯤꯛ ꯁꯦꯃꯗ ꯀꯟꯗꯤꯁꯟ ꯑꯃꯗ ꯅꯠꯔꯒꯥ ꯐꯤꯜ (fill)-ꯗ ꯌꯥꯕꯗꯕꯅꯤ꯫ ꯃꯥꯟꯔ ꯑꯁꯤ ꯃꯦꯞꯀꯤ ꯑꯁꯤꯒꯤ ꯄ꯭ꯔꯣꯚꯤꯖꯟꯁꯤꯡꯗꯤ, ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯒꯤ ꯊꯧꯁꯤꯡ ꯅꯠꯇꯦ꯫ ꯇꯦꯕꯜ ꯑꯁꯤ ꯃꯥꯗꯦ ꯑꯗꯨꯒꯤ ꯃꯍꯩꯃꯥ ꯂꯥꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ, ꯃꯁ꯭ꯌꯦ ꯄ꯭ꯂꯥꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤ ꯑꯦꯛꯠꯇꯥ ꯌꯦꯡꯂꯤꯕꯒꯤ ꯃꯌꯦꯛ ꯑꯗꯨꯗ, ꯃꯥꯟꯔꯗ

> ꯍꯥꯟꯅꯥꯏꯗꯒꯤ ꯁꯤꯖꯤꯟꯅꯔꯕ ꯆꯦꯛꯁꯤꯟ, ꯁꯤꯡꯊꯥꯡ ꯁꯣꯌꯗꯅ ꯑꯍꯣꯡꯕ ꯆꯦꯛꯁꯤꯟꯕ ꯒꯤꯡꯍꯣꯡꯕ ꯃꯇꯝ ꯂꯥꯛꯂꯕ ꯍꯩꯗ; ꯑꯍꯥꯃꯤꯍꯣꯅꯥ ꯑꯦꯄꯤꯗꯤ ꯑꯍꯟ ꯃꯇꯝ ꯑꯃꯨꯡꯗ ꯍꯟꯅꯗꯨ ꯇꯣꯏꯅꯥꯕ ꯋꯥꯐꯝ, ꯑꯗꯨꯗꯨ ꯑꯣꯏꯅꯥꯡꯕ ꯑꯍꯣꯡꯕꯅ ꯇꯣꯏꯅꯥꯗꯨꯅꯥ॥ ꯑꯣꯏꯕꯗꯤ ꯍꯥꯟꯅꯗꯒꯤ ꯅꯨꯃꯤꯠꯒꯤ ꯍꯣꯏꯕꯒꯤ ꯍꯥꯏꯕꯗꯨꯗꯤ ꯑꯣꯏ ꯍꯣꯏꯒꯤ ꯑꯃꯣꯛꯂꯤꯕꯅꯤ: ꯇꯨꯡ 2020-ꯗ ꯃꯍꯥꯛꯀꯤ ꯌꯥꯝꯅ ꯍꯥꯟꯅꯕ ꯑꯃꯣꯛꯂꯤ ꯃꯔꯨꯑꯣꯏꯕꯁꯤꯡ ꯑꯃꯣꯠꯄ ꯀꯥꯡꯂꯨ IMC-ꯒꯤ ꯋꯦꯐꯥꯗ 27-ꯒꯤ ꯍꯨꯃꯗ 11 ꯋꯥꯐꯝ (ꯍꯦꯟꯅꯕ ꯃꯔꯨꯑꯣꯏ); "ꯁꯤꯡꯕꯗ ꯑꯣꯐꯤꯋꯥꯏꯗ ꯃꯤꯐꯝ ꯊꯥꯝꯃ 70 MLD ꯑꯃ ꯑꯍꯣꯡꯕ ꯇꯥꯐꯤꯕ ꯌꯥꯐꯤꯊꯍꯣꯡꯅ ꯀꯣꯏꯇꯤꯌꯥꯏꯗ 44 MLD ꯑꯃ" ("Sewage generation in urban areas is 70 MLD and existing treatment facilities are 44 MLD"), ꯃꯔꯝꯗꯨ ꯊꯨꯡꯕ 51,754-ꯒꯤ ꯍꯨꯃꯗ ꯌꯨꯝꯒꯤ ꯃꯇꯣꯝꯃꯍ 8,600–8,700 ꯇꯩ (NGT OA 606/2018-ꯗ ꯂꯥꯏꯅꯥꯝ ꯐꯤꯃꯦꯐꯅ, ꯇꯨꯡꯅ 2025); ꯆꯍꯨꯅ ꯌꯨꯐꯣꯅꯗ ꯁꯣꯍꯊꯐꯑꯃ ꯅꯦꯑꯕꯍ 72-ꯅ ꯍꯅꯦꯋꯒꯤ ꯍꯍꯌꯐꯂꯣꯃꯂꯍ ꯑꯍꯂꯨꯝ ꯗꯅꯒꯐꯂꯍ (I&D)-ꯒꯤ ꯍꯍꯥꯝꯗ 42.45–52.34 mg/L-ꯒꯤ BOD ꯃꯨꯅꯤ (ꯂꯥꯏꯅꯥꯝ ꯐꯤꯃꯦꯐꯅ, ꯗꯤꯂꯣꯍꯕꯐ 2025), ꯌꯨꯐꯣꯅ ꯑꯗꯨꯗ 3–6 mg/L ꯇꯩꯕꯒꯥ ꯋꯥꯐꯗꯍꯆꯕꯗ; ꯑꯍꯨꯝ CPCB-ꯅ ꯂꯥꯏꯅ ꯑꯣꯏꯗ ꯃꯦꯇꯨꯅ ꯑꯦꯅꯐꯕ ꯂꯥꯏꯐꯣꯁ 18 ꯇꯤꯂꯥꯅ ꯌꯥꯐꯤ, ꯃꯨꯍꯆꯍꯃ ꯃꯐꯦꯅꯑꯦꯐꯤꯌꯥ V, ꯍꯅꯦꯋꯒꯤ ꯍꯨꯃꯗ ꯂꯤꯃꯗꯦ ꯗꯣꯍ (Singda dam)-ꯗꯒꯤ ꯕꯤꯂꯨꯃꯨꯐ ꯏꯁꯤꯡꯕꯒꯤ ꯆꯍꯨꯅ ꯋꯦꯁꯤꯡꯅ (CPCB, 2025) (ꯂꯃꯥꯏ 8.9)॥ ꯅꯦꯑꯕꯍ ꯑꯗꯨꯅ ꯃꯐꯤꯒꯨꯍꯕ ꯃꯐꯕꯂ ꯐꯤꯌꯣꯍꯂꯍ ꯑꯍꯨꯝ ꯗꯤꯌꯣꯍꯂꯍ ꯂꯅꯌ ꯌꯗꯤꯃꯍꯑꯌ ꯍꯃꯨꯝ ꯏꯅꯦ ꯁꯌꯇꯩ: ꯆꯦꯃ ꯌꯕꯒꯤ ꯊꯦꯗꯦꯑ ꯑꯍꯒꯤ ꯃꯤꯑꯌ ꯂꯅꯌ ꯑꯍꯅꯦ ꯊꯗꯦꯑꯃ ꯆꯤꯌꯐ ꯌꯗꯤꯃꯍꯑꯅꯦ ꯍꯆꯤꯑꯌꯒꯤ ꯂꯤꯁꯣꯆꯅꯦ ꯁꯐ ꯊꯍꯆꯕ ꯑꯍꯨꯝ ꯌꯨꯐꯣꯅ ꯋꯦꯃꯆꯕ ꯍꯌꯍꯗ ꯑꯍꯌꯌ ꯊꯗꯦꯑꯃ ꯑꯍꯗꯕ ꯅꯦꯑꯕꯍ ꯑꯍꯒꯤ ꯃꯣꯃꯣꯂꯤꯌꯒꯤ ꯇꯅ॥ CPHEEO (2019)-ꯒꯤ ꯍꯨꯁꯣꯅꯦ ꯑꯁꯤꯡꯏꯆꯦ ꯑꯗꯨ ꯗꯣꯒꯣꯆꯃꯍꯣꯂꯌꯃꯒꯤ ꯍꯍꯥꯝꯒꯤ ꯃꯤꯑ ꯏꯁꯤꯡꯕ ꯇꯤꯍꯤꯌ ꯌꯕ ꯑꯂꯤ ꯍꯅꯦꯂꯤꯒꯤ ꯃꯐꯤꯑꯌꯤꯂ ꯑꯦꯅꯅꯦ ꯏꯑꯗꯦꯃꯍ, ꯑꯗꯨꯗꯨ ꯍꯂꯤꯅꯦ "shall" ꯂꯤꯇꯤꯂꯆꯗꯣ ꯑꯍꯨꯝ ꯆꯦꯃ ꯌꯕꯒꯤ ꯊꯗꯦꯑꯃꯒꯤ ꯏꯐꯤꯃꯁꯂꯤ ꯑꯍꯌꯌ ꯏꯑꯗꯦꯑꯣ (CPHEEO Part A §8.5.1)॥ ꯂꯐꯨꯑ ꯑꯂꯤꯅꯦ ꯏꯑꯗꯦꯃꯃ ꯑꯗꯨ ꯗꯣꯒꯣꯆꯃꯍꯣꯂꯌ ꯃꯂꯌꯐꯅꯒꯤ ꯍꯊ ꯌꯕ ꯑꯍ ꯑꯦꯅꯍꯅꯤ॥

4.2 ꯋꯥꯍꯩꯁꯤꯡꯒꯤ ꯑꯔꯊ

ꯋꯥꯍꯩ	ꯍꯣꯨꯁꯣꯅ ꯑꯂꯤꯗ ꯑꯔꯊ
ꯔꯤꯌꯣꯂꯣꯂ	ꯅꯂꯏꯤꯅꯌꯐꯣꯂꯂ, ꯅꯒꯣꯃꯦꯌꯐꯂꯃꯤꯐꯣꯂꯂ ꯆꯌꯐꯒ ꯑꯍꯨꯑ ꯍꯂꯅ ꯂꯤꯇꯤꯂꯆꯕꯒꯤ ꯌꯨꯌꯊꯑꯗ ꯔꯂꯑꯦꯏ ꯑꯗꯨ ꯂꯐꯏꯣꯂ ꯅꯐꯍ ꯂꯤꯂꯌꯣꯍꯗꯒꯤ ꯆꯣꯑꯗꯅ ꯆꯥꯊꯦꯑꯃ, ꯍꯐꯍ ꯑꯗꯨꯅ ꯅꯂꯤꯑ ꯑꯗꯨ ꯃꯤꯗꯦꯃꯤꯗꯂ ꯑꯁꯤꯡꯏꯦꯅꯗ ꯌꯦꯗꯣ॥
ꯔꯤꯌꯣꯂꯣꯂ ꯗꯣꯃꯊ	ꯂꯅꯌꯃꯤ ꯆꯦꯂꯒꯤꯗꯍꯑ ꯆꯦꯑ ꯌꯕ ꯆꯍꯤꯌꯃꯤ ꯃꯨꯑ 24-ꯒꯤ ꯆꯦꯑ ꯌꯕꯒꯤ 90-ꯂꯨꯕ ꯃꯐꯂꯣꯂꯌꯅꯅ ꯗꯣꯃꯊ (ꯂꯃꯥꯏ 2.10, ꯑꯍꯣꯂꯕ 2E)॥
ꯍꯊ ꯌꯕ ꯔꯤꯌꯣꯂꯣꯂ ꯒꯦꯖ (RRV)	ꯗꯣꯒꯣꯆꯃꯍꯣꯂꯌꯃꯤ ꯍꯌꯨꯑꯒꯤ ꯂꯅꯌ ꯃꯨꯍꯕꯗ ꯔꯤꯌꯣꯂꯣꯂ ꯗꯣꯃꯊꯌꯒꯤ ꯊꯑꯃ ꯔꯂꯑꯦꯏ ꯒꯦꯖ (ꯂꯃꯥꯏ 4.4.2)॥
ꯗꯤꯌꯣꯂꯣꯂ	ꯔꯂꯑꯦꯏ ꯍꯌꯍ ꯅꯐꯒꯤꯗꯍꯑ ꯊꯍꯆꯤꯂꯕ, ꯃꯂꯌꯐꯅ ꯌꯐꯕ ꯑꯁꯤꯡꯆꯌ ꯑꯍꯒꯤ ꯌꯨꯌꯊꯑꯗ ꯂꯃꯥꯏ 4.5-ꯅ ꯊꯍꯕ ꯐꯌꯌ ꯊꯗꯦꯑꯃ॥
ꯔꯤꯌꯣꯂꯣꯂ ꯃꯐꯣꯗꯌ	ꯔꯤꯌꯣꯂꯣꯂꯒꯤ ꯃꯐꯣꯑꯌꯂꯤꯂꯤꯑꯅ ꯍꯐꯍ ꯑꯅꯨꯅ ꯍꯊ ꯌꯕ ꯗꯤꯌꯣꯂꯣꯂ ꯂꯌꯐꯣꯆꯗ ꯍꯂꯊꯐꯃꯃ, ꯂꯃꯥꯏ 4.4.6-ꯒꯤ ꯍꯅꯗ ꯐꯁꯤꯌꯤꯑꯅ ꯆꯣꯃꯃ॥ ꯍꯂꯤ ꯔꯤꯌꯣꯂꯣꯂ ꯌꯐꯕ ꯒꯦꯖꯒ ꯍꯂꯆꯕ **ꯆꯌꯌ**॥
ꯃꯐꯍꯤꯂꯕꯅ ꯂꯅꯌ ꯗꯤꯂꯌꯦꯆ (PSD)	ꯏꯑꯗꯦꯑꯅꯤꯕ AEP ꯑꯍꯒꯤꯗꯍꯑ ꯂꯅꯌ ꯑꯍꯅ ꯗꯤꯂꯌꯦꯆ ꯌꯕ ꯋꯕ ꯅꯕꯅꯗꯒꯤ ꯍꯂꯕ ꯐꯌ, L/s ꯆꯌꯐꯒ L/s/ha-ꯗ॥
ꯂꯅꯌ ꯂꯌꯐꯆ ꯐꯤꯑꯌꯅꯌꯐꯍꯂꯌ (SSR)	ꯂꯃꯥꯏ 4.14-ꯒꯤ ꯅꯊꯑꯂꯗ ꯊꯑꯑꯒꯤ ꯍꯅꯗ ꯂꯅꯌꯃꯤ ꯂꯑꯌꯐ ꯌꯨꯌꯊꯑꯗ ꯍꯊ ꯌꯕ ꯗꯤꯌꯣꯂꯣꯂ ꯂꯌꯐꯆ॥
ꯍꯅꯌꯒꯤ-ꯂꯌꯆ ꯑꯁꯤꯡꯆꯌ	ꯌꯑꯂꯕ ꯆꯒꯅꯂꯤꯑꯗ ꯌꯑꯂꯅ ꯂꯤꯕ ꯇꯕ ꯑꯁꯤꯡꯆꯌ ꯂꯌꯐꯑꯌꯐ, ꯂꯤꯕ ꯌꯨꯗꯤꯑꯍꯑꯅ ꯌꯑꯂꯕ AEP ꯑꯍ ꯃꯂꯌꯐꯅ ꯌꯅ (ꯍꯤꯒ 4.2)॥
ꯗꯐꯗꯁꯂ ꯌꯅꯍ	ꯊꯍꯆꯤꯅꯕ ꯅꯕꯅꯗꯒꯤ ꯋꯁꯤꯕ ꯒꯦꯖꯗꯒꯤ ꯂꯐꯒ ꯒꯦꯖ ꯑꯗꯨꯒꯤ ꯏꯑꯗꯦꯑꯅꯤꯕ ꯏꯐꯂꯑꯂ (fraction) ꯑꯗꯨ ꯊꯗꯦꯑꯕ ꯏꯁꯤꯕꯒꯤ ꯍꯌꯍ॥
ꯅꯍꯐꯆꯂꯤ ꯂꯃꯤꯅꯌ	ꯃꯐꯅꯍꯐꯤ ꯑꯁꯤꯡꯆꯌꯃꯤ ꯃꯃꯤꯂꯤꯌꯤꯗꯒꯤ ꯂꯕ ꯌꯕ, ꯆꯌꯐꯒ ꯃꯐꯅꯍꯐꯤ ꯑꯁꯤꯡꯆꯌ ꯊꯤꯑꯕ ꯍꯌꯍꯗ ꯌꯕ ꯃꯨꯍꯆꯍꯑ, ꯃꯂ (embankment) ꯑꯗꯨꯒꯤ ꯍꯊꯑꯌ ꯅꯂꯊꯑꯌꯅ ꯌꯂꯅꯤꯕ ꯑꯂꯤꯂꯕ ꯑꯒꯐꯏꯆ॥
ꯏꯐꯤꯕꯐꯗ	ꯅꯕꯅꯗꯒꯤ ꯋꯤꯕ ꯗꯤꯆꯅꯂ ꯋꯌꯐ ꯆꯒꯅ ꯑꯍꯨꯝ ꯃꯂꯒꯤ ꯃꯐꯂꯌ ꯆꯌꯐꯒ ꯑꯌꯃ ꯃꯐꯤꯌꯤꯃꯅ ꯆꯒꯅꯒꯤ ꯍꯐꯑꯌ ꯇꯕ ꯋꯤꯕꯒꯤ ꯅꯃ॥

ꯋꯥꯍꯩ	ꯍꯧꯖꯤꯛ ꯑꯣꯏꯅ ꯑꯔꯊ
ꯅꯣꯡꯖꯨ ꯅꯥꯎꯕ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤ ꯑꯦꯟꯕ ꯊꯥꯛꯁꯤꯡ	ꯁꯦꯛꯁꯟ 4.5.3-ꯗ ꯇꯤꯡꯂ ꯌꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 4.5.4-ꯒꯤ ꯃꯅꯥꯗ ꯑꯦꯛꯁꯤꯟ ꯌꯥꯑꯣꯕ ꯊꯥꯛꯁꯤꯡ꯫
ꯑꯦꯡꯀꯦꯁꯃꯦꯟꯇ	ꯃꯦꯞ 1-ꯒꯤ ꯃꯈꯥꯗ ꯆꯠꯂꯕ ꯑꯣꯏꯕ ꯑꯦꯡꯀꯦꯁꯃꯦꯟꯇ (ꯕꯤꯔꯗꯥꯔ ꯂꯥꯏꯕꯔꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯃꯣꯃꯒꯤ ꯅꯨꯃꯤꯠꯇꯥꯡꯒꯤ ꯗꯦꯇꯥꯕꯦꯁ ꯇꯦꯁꯠ ꯕꯥꯔꯤ, ꯄꯔꯕꯥꯔꯤ IMC, ꯃꯨꯅꯤꯁꯤꯄꯥꯂ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯈꯥ ꯂꯣꯏꯅꯕ ꯑꯦꯛꯁꯄꯔꯠ ꯑꯃꯁꯨꯡ, ꯃꯔꯤꯗꯥ ꯂꯥꯏꯕꯔꯥꯔꯤ ꯑꯦꯗꯣꯞꯇ ꯅꯥꯏꯂꯗꯅ ꯄꯔꯇꯤꯛꯌꯨꯂꯔ ꯇꯦꯛ-ꯇꯣꯞꯄ ꯑꯃꯁꯨꯡ ꯃꯆꯤꯟꯖꯥꯛ ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯒꯤ ꯑꯦꯛꯇ, 1994-ꯒꯤ ꯃꯈꯥꯗ; ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯒꯤ ꯇꯤꯡꯊꯥꯡ ꯃꯔꯣꯜ ꯆꯥꯎꯕ ꯃꯦꯄꯀꯤ ꯄꯣꯠꯂꯝ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯤꯟ ꯌꯥꯑꯣꯕ ꯄꯣꯠꯂꯝ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ, ꯃꯆꯤꯟꯖꯥꯛ ꯌꯨꯖꯤ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯅꯕ ꯄꯣꯠꯂꯝ ꯑꯦꯛꯇ, 1975-ꯒꯤ ꯃꯈꯥꯗ PDA Manipur; ꯑꯃꯁꯨꯡ, ꯍꯤꯡꯒꯤ ꯇꯔꯝꯃꯗ, ꯕꯤꯔꯗꯥꯔ ꯊꯦꯡꯅꯕ ꯌꯥꯕ ꯑꯦꯡꯀꯦꯁꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯆꯥꯎꯕ ꯃꯔꯃꯗ, ꯄꯣꯠꯂꯝ ꯍꯥꯞꯄ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯛꯄ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ, ꯊꯕꯛ ꯑꯃꯁꯨꯡꯗꯥ, ꯍꯥꯏꯕ ꯃꯇꯝ ꯅꯦꯇ)꯫
ꯌꯤꯔꯥꯡ A / ꯌꯤꯔꯥꯡ B	ꯃꯦꯞ 1-ꯗ ꯃꯦꯗꯥꯒꯤ ꯌꯥꯑꯣꯕ ꯇꯧꯔꯦꯕꯒꯤ ꯌꯤꯔꯥꯡꯃꯤꯡ꯫ ꯌꯤꯔꯥꯡ A: ꯅꯃꯖꯤꯟ ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯒꯤ ꯊꯥꯡꯄꯥꯡꯃꯦ (IMC), PDA Manipur ꯑꯃꯁꯨꯡ ꯒꯔꯥꯌꯔ ꯅꯃꯖꯤꯟ ꯄꯣꯠꯂꯝ ꯑꯦꯔꯤꯌꯥ (151.38 km², ꯒꯔꯥꯌꯔ ꯅꯃꯖꯤꯟꯒꯤ ꯔꯤꯖꯅꯜ ꯌꯥꯑꯣꯕ GIS ꯕꯦꯇ ꯃꯦꯄꯀꯤ ꯄꯣꯠꯂꯝ – 2043 (ꯑꯄꯗꯦꯠ ꯃꯥꯁ꯭ꯇꯔꯞꯂꯥꯟ)-ꯒꯤ ꯑꯦꯔꯤꯌꯥ)-ꯒꯤ ꯃꯅꯨꯡꯗ ꯆꯠꯂꯕ ꯑꯣꯏꯕ ꯑꯦꯡꯀꯦꯁꯃꯦꯟꯇ ꯁꯤꯡꯂꯨꯝ, ꯃꯗꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯇꯔꯥꯏꯗꯥꯡꯂꯦ ꯆꯠꯂꯕ ꯑꯃꯁꯨ (IMC-ꯒꯤ ꯇꯤꯡꯊꯥꯡ ꯃꯔꯣꯜ ꯆꯠꯂꯕ ꯄꯣꯠꯂꯝ ꯑꯦꯔꯤꯌꯥꯗ ꯊꯥꯏ ꯕꯥꯔꯤ ꯕꯤꯔꯗꯥꯔ ꯂꯥꯏꯕꯔꯥꯔꯤ ꯂꯤꯕꯒꯤ ꯄꯔꯕꯥꯔꯤ ꯃꯥꯅꯥꯏ ꯍꯣꯡꯗꯕꯇꯤ [TBC])꯫ ꯌꯤꯔꯥꯡ B: ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯒꯤ ꯀꯣꯔꯄꯣꯔꯦꯁꯅꯒꯤ, ꯑꯦꯛꯁꯄꯔꯠꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯄꯣꯠꯂꯝ ꯑꯦꯡꯀꯦꯁꯃꯦꯟꯇꯂꯤꯝ꯫

4.3 ꯊꯥꯛꯁꯤꯡꯒꯤ ꯃꯊꯝ ꯃꯊꯝꯒꯤ ꯊꯝ

4.3.1 ꯃꯗꯨꯒꯤ ꯑꯦꯡꯀꯦꯁꯃꯦꯟꯇꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁꯤꯡꯂꯨꯝꯗꯦ ꯃꯁꯤꯒꯤ ꯃꯊꯝ ꯃꯊꯝꯒꯤ ꯊꯝ ꯑꯣꯏꯒꯤ ꯃꯇꯨꯡ ꯅꯦꯡ ꯊꯥꯛꯁꯤꯡ ꯂꯤꯇꯤꯡꯔꯒꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯃꯤꯒꯤ ꯑꯦꯛꯊꯝ ꯁꯤꯡꯂꯨꯝꯗꯦ ꯊꯥꯏꯒꯤ ꯄꯥꯟꯗꯦ ꯌꯥꯕ ꯁꯨꯃꯑꯣꯡꯗꯕꯒꯤ ꯄꯔꯕꯥꯔꯤ ꯃꯕꯃꯤꯌꯥꯡꯗ ꯅꯒꯅꯕꯅꯤ:

1. **ꯁꯤꯡꯊꯥꯇꯤꯗ.** ꯇꯥꯔꯤꯕ ꯅꯣꯡꯃ ꯇꯦꯖꯃꯣꯡꯃ, ꯄꯨꯈ꯭ꯔꯤ (pukhri; pond)-ꯃꯤꯡ, ꯃꯄꯥꯟꯒꯤ ꯅꯥꯃꯒꯤ ꯂꯝꯕꯤꯃꯤꯡ, ꯍꯦꯖꯂꯦꯟꯗꯃꯤꯡ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃ ꯍꯤꯡꯕ ꯑꯦꯕ ꯇꯦꯃꯅ ꯑꯃꯁꯨꯡ ꯄꯤꯖꯕꯤꯃꯤꯡ ꯊꯝꯒꯗꯕꯅꯤ꯫ ꯅꯣꯡꯃ ꯅꯍꯩꯕꯒꯤ ꯃꯌꯥꯡꯇꯗ ꯖꯤꯟ ꯌꯥꯡꯅꯗꯕꯅꯤ (ꯃꯦꯞ 7)꯫
2. **ꯊꯝꯂꯤꯦꯕ.** ꯅꯦꯖꯤꯟꯌꯥꯡꯃꯦ, ꯑꯃꯨꯒ ꯄꯦꯇꯦ ꯃꯤꯂꯤꯦꯇꯕ ꯑꯃꯁꯨꯡ ꯅꯒꯄꯥꯌꯥꯡꯦꯃꯄꯤꯥꯃꯦꯒꯤ ꯁꯨꯊꯝꯗ RRV ꯑꯃꯁꯨ ꯃꯅꯥꯌ ꯥꯤꯌꯦꯃꯦ ꯌꯒꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 4.4)꯫
3. **ꯃꯌꯥꯝ ꯅꯥꯒꯤ ꯊꯝꯕ.** ꯗꯤꯖꯥꯏꯟ ꯇꯝ ꯁꯕꯒꯤ ꯊꯗꯥꯒ ꯑꯃꯁꯨꯡ ꯗꯨꯌꯥꯃꯦ ꯁꯨꯗꯤꯝꯃꯒꯁꯤꯗꯃꯒ ꯁꯦꯛꯁꯟ 4.5-ꯒꯤ ꯥꯤꯇꯤꯇ ꯥꯨꯖꯤ ꯁꯥꯅꯌꯥꯤꯔꯦ ꯁꯤꯝꯄꯦꯇꯕ ꯑꯥꯝꯕ ꯥꯦꯑꯦꯖ ꯑꯃꯁꯨ ꯗꯤꯌꯦꯃꯦ ꯌꯒꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 4.6-ꯗꯒꯤ 4.9 ꯐꯥꯑꯣꯕ)꯫
4. **ꯄꯨꯊꯥꯁꯤꯡ.** 1% AEP (100-yr)-ꯒꯤ ꯍꯦꯕ ꯑꯃꯁꯨ ꯇꯄꯕ ꯑꯒꯥꯇꯦꯗ ꯂꯝꯕꯤ ꯑꯃꯗ ꯃꯗꯨꯒꯤ ꯃꯂꯝꯗꯒꯤ ꯅꯣꯡꯃ ꯇꯥꯕ ꯃꯤꯌꯥꯝꯗ ꯑꯃꯅꯕ ꯍꯦꯗꯦ ꯍꯦꯄꯦꯒꯗꯕꯅꯤ (ꯃꯦꯞ 6), ꯑꯃꯁꯨꯡ ꯃꯍꯦ ꯊꯝꯕ ꯃꯐꯝꯗ ꯅꯣꯡꯃ ꯇꯥꯕ ꯃꯤꯌꯥꯝ ꯑꯃꯁꯨ ꯍꯦꯒ ꯌꯒꯗꯕꯅꯤ (ꯃꯦꯞ 5)꯫

4.3.2 ꯁꯤꯡ ꯃꯦꯕ ꯑꯃꯁꯨꯡ ꯥꯤꯌꯦꯃꯦꯦ ꯃꯊꯥ ꯌꯕ ꯗꯤꯌꯦꯃꯦ ꯄꯦꯊꯄꯇꯤ (ꯁꯦꯛꯁꯟ 4.4.6 ꯑꯃꯁꯨꯡ 4.4.7)꯫ ꯃꯍꯦꯔꯦ ꯃꯅꯥ ꯑꯃꯁꯨ ꯁꯦꯛꯁꯟ 4.5-ꯒꯤ ꯥꯤꯇꯤꯇ ꯥꯨꯖꯤ ꯁꯥꯅꯌꯥꯤꯔꯦꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯞ 5-ꯒꯤ ꯃꯍꯦ ꯊꯝꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯇꯦꯅꯃꯤꯃꯌꯒꯤ ꯊꯗꯒꯌ꯫

> **ꯃꯦꯗꯒꯤ ꯌꯒꯄ.** ꯃꯊꯝ ꯃꯊꯝꯒꯤ ꯊꯝ ꯑꯃꯤ Kansas City Metro APWA Section 5600 Version 2025.01-ꯗ ꯇꯥꯍꯤꯕ "ꯑꯦꯝꯒꯤ ꯅꯣꯡꯃ ꯃꯦꯑꯦꯇꯃꯦꯨꯖꯤ ꯇꯦꯔꯥꯃꯤꯝ" ("layers of stormwater management")-ꯒꯤ ꯃꯌꯥꯝ ꯅꯦꯗꯕꯅꯤ: ꯁꯤꯡꯊꯥꯇꯤꯗ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯒ ꯄꯦꯇꯦ ꯃꯦꯃꯗꯤꯗ, ꯊꯝꯂꯤꯦꯕ, ꯃꯌꯥꯝ ꯅꯥꯒꯤ ꯊꯝꯕ, ꯄꯨꯊꯥꯁꯤꯡ, ꯃꯦꯑꯌꯦꯑꯦꯃ ꯌꯕ (MARC ꯖꯦꯒꯌꯃꯨ; MARC Supplement, Nov 2025)꯫ ꯃꯦꯑꯌꯦꯑꯦꯃ ꯑꯃꯤ ꯃꯁꯤꯡꯕ ꯇꯦꯔꯥꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯃꯤ ꯃꯦꯞ 10-ꯗ ꯊꯝꯂꯤ꯫ 2025.01-ꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯥꯤꯌꯦꯃꯦ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟꯒꯤ ꯑꯦꯔꯤꯌꯥ ꯁꯤꯡ ꯃꯦꯕ ꯑꯃꯤ ꯗꯤꯌꯦꯃꯦꯒꯤ ꯃꯅꯥꯇꯒꯤ ꯃꯦꯔꯒꯌ ꯁꯥꯗꯤꯌ ꯄꯤꯥꯤ (MARC Supplement, Nov 2025)꯫ ꯁꯦꯛꯁꯟ 4.4.6-ꯗ ꯁꯥꯗꯤꯌ ꯑꯃꯁꯨ ꯇꯥꯅ, ꯑꯃꯁꯨꯡ ꯃꯃꯤ ꯑꯇꯤꯥꯒ ꯇꯥꯕ ꯁꯤꯝꯗꯕ ꯃꯦꯗꯒꯤ ꯌꯁꯅ꯫

4.4 ꯔꯤꯇꯦꯟꯁꯟ

4.4.1 ꯃꯊꯧ ꯇꯥꯕ

ꯁꯥꯏꯠ ꯑꯗꯨꯅꯥ RRV ꯔꯤꯇꯦꯟꯁꯟ ꯇꯧꯒꯗꯕꯅꯤ॥ ꯔꯤꯇꯦꯟꯁꯟ ꯑꯁꯤ ꯃꯈꯥꯒꯤ ꯑꯃꯅꯥ ꯅꯠꯔꯒꯥ ꯍꯦꯟꯕꯅꯥ ꯐꯡꯍꯟꯒꯗꯕꯅꯤ:

- ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟꯒꯤ ꯄ꯭ꯔꯦꯛꯇꯤꯁꯁꯤꯡ (ꯁꯣꯛꯑꯋꯦꯁꯤꯡ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯕꯦꯜ ꯆꯧꯕ ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯃꯦꯟꯠ, ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ);
- ꯈꯨꯠꯑꯃ ꯊꯝꯅꯕ ꯗꯒꯅꯕ ꯔꯥꯁꯕ ꯏꯁꯤꯡꯒꯤ ꯃꯊꯧꯅ ꯍꯦꯗꯍꯍꯇꯅꯤꯕ ꯅꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯍꯨꯛ ꯍꯦꯟ ꯁꯤꯖꯤꯟꯅꯕ;
- ꯔꯤꯇꯦꯟꯁꯟ ꯗꯦꯞꯊꯃꯤ ꯂꯥꯡ ꯁꯨꯕꯒꯤ ꯇꯧꯊꯥꯒꯠ ꯑꯣꯁꯨꯠꯐꯥꯜꯂ ꯏꯔꯝ ꯇꯧꯔꯕ ꯒ꯭ꯔꯤꯟ ꯔꯨꯐꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗꯁ꯭ꯀꯥꯞ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ॥

ꯀ꯭ꯂꯥꯖ 4.4.4-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ ꯌꯦꯡꯂꯣ॥

4.4.2 RRV-ꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ

> RRV (m³) = 10 × Q_R × A

ꯃꯐꯝ ꯑꯁꯤꯗ:

- Q_R (mm) ꯑꯁꯤ ꯔꯤꯇꯦꯟꯁꯟ ꯗꯦꯞꯊ P_R (ꯑꯍꯦꯟꯕ 2E)-ꯗꯒꯤ ꯊꯣꯛꯄ ꯔꯟꯑꯣꯐ ꯗꯦꯞꯊꯅꯤ॥ ꯃꯁꯤ ꯁꯕ-ꯀꯦꯄꯤꯆꯥ ꯂꯨꯁꯤꯗꯃꯒꯀꯤ ꯂꯦꯒꯦꯂꯀꯃꯦꯠꯀꯤ ꯃꯨꯗꯒꯤ ꯀꯒꯄꯒꯤꯂꯃꯒ, AMC II-ꯗ, Ia = 0.2S-ꯒꯥ ꯂꯣꯌꯅꯅ SCS-CN ꯊꯧꯑꯣꯡꯗ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯇꯧꯅ (ꯁꯔꯨꯛ 3); ꯑꯃꯁꯨꯡ
- A (ha) ꯑꯁꯤ ꯑꯣꯁꯨꯠꯐꯥꯜꯂ ꯏꯔꯝ ꯇꯧꯔꯤꯕ ꯁꯥꯏꯠꯀꯤ ꯑꯦꯔꯤꯌꯥꯅꯤ॥

Q_R ꯑꯁꯤ ꯁꯕ-ꯀꯦꯄꯤꯆꯥ ꯂꯨꯁꯤꯗꯃꯒꯀꯤꯂꯃꯒ ꯇꯦꯗꯍꯦꯟ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯇꯧꯁꯟꯅ ꯄꯨꯝꯅꯃꯛ ꯀꯒꯗꯕꯅꯤ॥ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯃꯁꯨꯡ ꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ CN ꯄꯥꯏꯟꯠ 20-ꯗꯒꯤ ꯍꯦꯟꯕ ꯇꯣꯉꯥꯟꯕ ꯃꯐꯝꯗ ꯑꯦꯔꯤꯌꯥ-ꯋꯦꯇꯦꯗ CN ꯁꯤꯖꯤꯟꯅꯗꯕꯅꯤ॥

ꯒꯥꯏꯗꯦꯟꯁꯀꯤ ꯃꯇꯧ RRV = 10 × P_R × Rv × A, Rv = 0.05 + 0.009 × I (I = ꯏꯝꯄꯔꯚꯤꯌꯁ ꯄꯔꯁꯦꯟꯇꯦꯖ)-ꯒꯥ ꯂꯣꯌꯅꯅ, 0.5 ha-ꯗꯒꯤ ꯂꯥꯡꯕ ꯁꯕ-ꯀꯦꯄꯤꯆꯥ ꯑꯃꯁꯨꯡ ꯇꯥꯏꯞ B ꯃꯇꯧꯒꯤ ꯃꯍꯨꯛ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ॥

> **ꯁꯦꯟꯗꯣꯛꯂꯕ ꯇꯥꯀꯄ.** Rv ꯐꯣꯔꯃꯨꯂꯥ ꯑꯁꯤ KC-ꯒꯤ ꯋꯥꯇꯔ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯒꯥꯏꯗꯦꯟꯁ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯑꯗꯨꯅꯤ (MARC BMP Manual 2012)॥ ꯑꯗꯨꯕꯨ ꯁꯕ-ꯀꯦꯄꯤꯆꯥ ꯃꯁꯤ ꯔꯤꯒꯥꯏ ꯇꯧꯕ ꯂꯥꯏ॥ ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯗ ꯗꯤꯇꯦꯟꯁꯟ ꯔꯤꯖꯥꯏꯟꯒꯥ ꯃꯦꯅꯕ ꯔꯦꯁꯣꯔꯁ ꯃꯥꯂꯦ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯋꯥꯁꯛ ꯁꯕ-ꯀꯦꯄꯤꯆꯥ SCS-CN ꯃꯑꯣꯡ ꯃꯇꯧ ꯑꯣꯏꯅ॥ ꯃꯁꯤꯗ ꯀ꯭ꯂꯥꯖ 4.4.6-ꯒꯤ ꯀ꯭ꯔꯦꯗꯤꯠ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯑꯁꯨ ꯃꯦꯅꯈꯠꯂꯤ॥

4.4.3 ꯊꯦꯡ ꯇꯧꯕ

ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟꯒꯤ ꯁꯨꯠꯊꯣꯛ ꯔꯤꯇꯦꯟꯁꯟ ꯇꯧꯕ ꯑꯁꯤ ꯃꯈꯥꯒꯤꯁꯤꯗꯤ ꯁꯦꯟꯗꯣꯛꯀꯗꯕꯅꯤ:

- (a) ꯄ꯭ꯔꯦꯇꯤꯇꯦꯁ ꯁꯨꯀꯤꯗꯃꯒꯀꯤ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯑꯔꯥꯗ, ꯁꯔꯨꯛ 8-ꯗ ꯊꯝꯂꯤꯕ ꯐꯔꯤꯀ꯭ꯋꯦꯟꯁꯤꯗ ꯁꯥꯏꯠꯀꯤ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁ꯭ꯇꯁꯤꯡ;
- (b) ꯃꯔꯂꯕ ꯔꯦꯠꯀꯤ **ꯇꯒꯍꯏꯅꯗꯒꯤ** ꯍꯦꯟꯗꯕ ꯗꯤꯖꯥꯏꯟ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠ; ꯑꯃꯁꯨꯡ
- (c) ꯄ꯭ꯔꯦꯇꯤꯇꯦꯁ ꯑꯁꯨꯒꯤ ꯕꯦꯂꯒꯤ ꯃꯍꯨꯗ ꯃꯇꯝ ꯃꯇꯝꯒꯤ ꯅꯕꯏꯗꯒꯤ ꯋꯥꯕ ꯋꯥꯇꯔ ꯇꯦꯕꯜ ꯋꯥꯃꯁ꯭ꯔꯕꯗ 1.0 m ꯂꯧꯕ ꯗꯣꯏꯞ ꯂꯧꯃꯏꯒꯤ ꯃꯍꯨꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯁꯒꯁꯤ (ꯁꯔꯨꯛ 8)॥

ꯑꯍꯨꯝ ꯄꯟꯅꯣ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯍꯠꯗꯡꯗ ꯔꯤꯇꯦꯟꯁꯟ ꯇꯧꯕ ꯑꯁꯤ, ꯇꯧꯅꯦꯠ ꯐꯖꯁꯤꯡ, ꯍꯗꯅꯤꯡ ꯅꯠꯔꯒꯥ ꯏꯔꯤꯒꯦꯁꯟ ꯒꯟꯕ ꯅꯦꯊꯇꯅꯥ ꯌꯠꯅꯤꯕ ꯊꯝꯅꯕ ꯇꯧꯗꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯅꯥ RRV ꯑꯗꯨ ꯄꯨꯡ 72-ꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯦꯗꯄꯂꯅꯤ ꯄꯌꯧꯕ ꯊꯠꯃꯔ ꯗꯤꯃꯦꯗ ꯀꯥꯜꯀꯨꯂꯦꯁꯟ ꯑꯃꯅꯥ ꯁꯦꯗꯥꯃꯒꯗꯕꯅꯤ꯫

> **ꯏꯟꯗꯥꯃꯅꯣ ꯇꯧꯝꯒꯥ.** ꯍꯔꯅꯠꯕ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁ꯭ꯠ ꯆꯦꯞꯇꯔ 2 ꯑꯁꯤꯒꯤ ꯄꯊꯥꯡꯅꯕ ꯍꯍꯡꯒꯤ ꯏꯗꯃ ꯅꯩꯇꯣ; ꯀ꯭ꯔꯔ (clogging) ꯑꯃꯁꯨꯡ ꯇꯦꯁ꯭ꯠ ꯀꯔꯤ ꯑꯃꯁꯨꯡ ꯍꯔꯨꯡ ꯐꯩꯕ ꯁꯥꯏꯅꯒꯤ ꯀ꯭ꯔꯦꯗꯤꯠꯃꯤꯡ ꯍꯔꯊꯇ ꯅꯩꯕ ꯏꯦꯟꯕ ꯏꯟꯗꯨꯅ ꯍꯦꯨꯏꯦꯜ ꯑꯁꯤꯅ ꯍꯁꯤ ꯊꯒꯅꯤ꯫
> ꯄꯨꯗꯝ 8-ꯅꯥ ꯇꯧꯊꯦꯕ ꯆꯦꯞꯇꯔ ꯑꯍ ꯊꯒꯕ ꯌꯅ; ꯊꯒꯅꯕꯗꯤ, ꯄꯨꯗꯝ 8 ꯌꯠꯃꯅꯤ꯫

4.4.4 ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯅꯤꯃꯤꯠꯁꯤꯡ

4.4.4.1 ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ ꯍꯐꯒ ꯑꯁꯤꯁꯤꯡꯗ ꯁꯤꯖꯤꯟꯅꯥꯗꯅꯕꯅꯤ:

- ꯍꯇꯒ ꯍꯇꯒꯒꯤ ꯏꯕ꯭ꯅꯗꯒꯤ ꯌꯦꯡꯕ ꯌꯦꯇꯊ ꯇꯦꯕꯜ ꯕꯦꯅꯒꯤ ꯍꯌꯗ 1.0 m-ꯗꯒꯤ ꯅꯦꯒꯕ ꯍꯐꯒꯗ (ꯄꯨꯗꯝ 8);
- ꯃꯦꯇꯍꯤꯅꯦꯠ ꯑꯣꯏꯊꯕ ꯅꯒꯗ;
- ꯄꯨꯗꯝ 8-ꯗ ꯊꯒꯅꯤꯕ ꯐꯣꯦꯗꯦꯁꯟꯗꯤꯡ, ꯌꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯔꯇꯤꯝ ꯁꯤꯁꯇꯦꯒꯁꯤꯡꯗꯒꯤ ꯅꯩꯒꯗꯕ ꯁꯦꯠꯕꯦꯝꯁꯤꯡꯒꯤ ꯍꯅꯨꯡꯗ; ꯅꯠꯔꯒꯥ
- ꯐꯤꯜꯗ, ꯊꯒꯅꯕ ꯍꯇꯨꯡꯗ ꯇꯦꯁ꯭ꯠ ꯇꯣꯗ꯭ꯔꯕꯗꯤ꯫

4.4.4.2 RRV ꯑꯗꯨ ꯍꯔꯨꯡ ꯐꯅꯥ ꯔꯤꯇꯦꯟꯁꯟ ꯇꯧꯕ ꯀꯒꯗꯕ ꯍꯐꯒꯗ, ꯄꯦꯊꯔꯕ ꯁꯣꯔꯠꯐꯣꯜ (shortfall) ꯑꯗꯨ ꯄꯕꯍꯤꯇꯦꯜꯗ ꯐꯣꯝꯗꯣꯃꯃꯗꯕꯅꯤ꯫
ꯄꯦꯊꯔꯕ ꯁꯣꯔꯠꯐꯣꯜ ꯑꯗꯨ ꯄꯨꯗꯝ 8-ꯒꯤ ꯍꯌꯗ WQv ꯑꯣꯏꯅꯥ ꯅꯥꯛꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯍꯁꯤꯅꯥ ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠ ꯐꯝꯔꯣꯏꯅꯗꯕꯅꯤ꯫

4.4.5 ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯗ꯭ꯔꯥꯗꯇꯟ

ꯔꯤꯇꯦꯟꯁꯟ ꯁꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯔꯤꯇꯦꯟꯁꯟ ꯗꯦꯀꯥꯊꯃꯤ ꯅꯣꯝ ꯄꯨꯕꯒꯤ ꯊꯣꯗꯣꯝ ꯅꯣꯏꯔꯕ ꯍꯇꯨꯡꯗ **ꯄꯨꯡ 72**-ꯒꯤ ꯃꯅꯨꯡꯗ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯅꯠꯔꯒꯥ ꯑꯍꯨꯝ ꯄꯟꯅꯣ ꯁꯤꯖꯤꯟꯅꯕꯗꯥ ꯑꯣꯏꯊꯕ ꯑꯣꯏꯄꯦꯒꯗꯕꯅꯤ, ꯁꯦꯛꯁꯟ 4.4.3-ꯒꯤ ꯇꯦꯁ꯭ꯠꯁꯤꯡꯗꯥ ꯌꯦꯝ ꯇꯣꯗ꯭ꯔꯥ꯫

4.4.6 ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠ: ꯑꯔꯊ ꯑꯃꯁꯨꯡ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ

4.4.6.1 **ꯀ꯭ꯔꯦꯗꯤꯠ ꯑꯁꯤ ꯀꯔꯤꯅꯣ.** ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠ ꯑꯁꯤ ꯗꯦꯚꯦꯂꯄꯔꯁꯤꯡꯅꯥ ꯍꯇꯨꯡꯒꯤ ꯐꯣꯔꯃꯤꯡꯗ ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ ꯌꯣꯔꯄꯂꯅꯕ ꯍꯇꯒꯗ ꯍꯊꯧ ꯇꯧꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯁꯇꯣꯔꯦꯖꯗ ꯄꯦꯊꯔꯃꯀ ꯑꯗꯨꯅꯤ꯫ ꯍꯁꯤ ꯀꯥꯜꯀꯨꯂꯦꯠ ꯇꯧꯏ꯫ ꯍꯁꯤ RRV-ꯒꯤ ꯍꯦꯅꯩ ꯄꯌꯔꯥ ꯅꯩꯗꯦ꯫

4.4.6.2 **ꯇꯤꯌꯔ A ꯊꯧꯑꯣꯡ (ꯔꯣꯇꯤꯡ).** ꯁꯦꯛꯁꯟ 4.6.3-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯝ ꯄꯨꯕꯒꯤ ꯊꯧꯗꯣꯝ ꯑꯃꯁꯨꯡ ꯗꯣꯛꯌꯨꯃꯦꯟꯇ ꯏꯗꯤꯡꯍꯝꯃꯤꯗꯍꯝ:

- (a) ꯁꯦꯛꯁꯟ 4.11-ꯗ ꯇꯧꯊꯦꯕꯗ ꯄꯌꯗꯔꯕꯗꯤ, ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥ ꯏꯗꯤꯡꯍꯝ **ꯅꯣꯝ ꯄꯨꯕꯒꯤ ꯊꯧꯗꯣꯝ ꯄꯥꯔꯃꯀ ꯍꯇꯒꯗ ꯑꯄꯥꯝꯕ** ꯁꯇꯣꯔꯦꯖ ꯑꯍ ꯑꯣꯏꯅꯥ ꯍꯌꯦꯝ ꯁꯦꯝꯅꯥ ꯍꯗꯦꯡ ꯇꯣꯒꯗꯕꯅꯤ;
- (b) ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥ ꯑꯗꯨ ꯅꯣꯝ ꯄꯨꯕꯒꯤ ꯊꯧꯗꯣꯝꯃꯤ ꯑꯄꯥꯝꯕꯗꯒꯤ ꯊꯦꯄꯦꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯊꯧꯗꯣꯝ ꯑꯗꯨꯒꯤ ꯍꯇꯒꯗ ꯁꯦꯛꯁꯟ 4.4.3-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯅꯠꯔꯒꯥ ꯑꯍꯨꯝ ꯄꯟꯅꯣ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯇꯦꯁ꯭ꯠ ꯌꯝꯇꯍꯝ ꯏꯁꯤꯡ ꯍꯝꯄꯦꯒꯗꯕꯅꯤ;
- (c) ꯍꯄꯨꯡ ꯊꯦꯅꯕ ꯍꯇꯨꯡꯗ, ꯍꯁꯤꯒꯤ ꯑꯣꯃꯦꯗꯦꯟꯣ ꯑꯗꯨ ꯗꯤꯇꯦꯟꯁꯟ ꯐꯣꯁꯤꯅꯤꯇꯤꯗ ꯔꯤꯄꯣꯔꯠ ꯇꯧꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯑꯔꯦꯒꯕ ꯄꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯃꯤꯗꯍꯝ ꯗꯤꯇꯦꯟꯁꯟꯒꯤ ꯑꯦꯜ ꯅꯀꯃꯗꯕꯅꯤ꯫

ꯍꯊꯧ ꯇꯧꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯁꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯅꯣꯝ ꯄꯨꯕꯒꯤ ꯊꯧꯗꯣꯝ ꯑꯃꯁꯨꯡ ꯗꯣꯛꯌꯨꯃꯦꯟꯇ ꯀꯒꯅꯍꯝꯃꯤ ꯍꯅꯨꯡꯗ ꯏꯕ꯭ꯅꯗꯒꯤ ꯌꯦꯡꯕ ꯁꯇꯣꯔꯦꯖ ꯑꯗꯨꯅꯤ꯫
ꯀ꯭ꯔꯦꯗꯤꯠ ꯑꯁꯤ ꯁꯇꯣꯔꯦꯖ ꯑꯗꯨ ꯑꯃꯁꯨꯡ ꯔꯤꯇꯦꯟꯁꯟ ꯌꯦꯡꯗꯅꯥ ꯍꯊꯧ ꯇꯧꯕ ꯁꯇꯣꯔꯦꯖꯒꯤ ꯍꯔꯊꯇ ꯅꯩꯕ ꯏꯦꯟꯕ ꯑꯗꯨꯅꯤ꯫ ꯍꯁꯤꯗꯒꯤ ꯄꯦꯅꯥ ꯃꯠꯊꯣꯝꯀ ꯑꯍꯠꯇ ꯇꯣꯔꯥꯏꯗꯕꯅꯤ꯫

4.4.6.3 **ꯇꯤꯌꯔ B ꯊꯧꯑꯣꯡ (ꯅꯏꯊꯧꯄꯦꯕ).** ꯁꯦꯛꯁꯟ 4.14-ꯗ ꯍꯊꯧ ꯇꯧꯂꯅꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯁꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯍꯌꯒꯤ ꯑꯁꯤꯅꯥ ꯄꯦꯊꯄꯦꯕ ꯌꯅ:

$$V_{credit} = C_R \times RRV_{provided}$$

[illegible] C_R [illegible] 4B-[illegible]॥ [illegible] 4B [illegible], **C_R = 0**॥

4.4.6.4 [illegible] 4.4.3-[illegible]॥

> **[illegible].** "[illegible]" ("Credited against detention") (APWA 5600 2025.01) [illegible] 48 [illegible] 72-[illegible] ([illegible] 2.5.2) [illegible] ([illegible] 2.9.2)॥ [illegible]॥
>
> [illegible] 4.6.7-[illegible]॥ [illegible] 552 m³ [illegible] ([illegible]) 2 ha-[illegible] 24-[illegible] 138 m³ [illegible]॥ [illegible] 48 [illegible] 72-[illegible]॥ [illegible] 545 m³ ([illegible] 19%) [illegible]॥
>
> [illegible]॥ [illegible] 4B [illegible] C_R = 0 [illegible] B-[illegible] ([illegible] 8)॥

4.4.7 [illegible]

[illegible] CN-[illegible]:

- [illegible]; [illegible]
- [illegible]॥

[illegible] RRV [illegible]॥

4.5 [illegible]

4.5.1 [illegible]

4.5.1.1 [illegible] ([illegible] 2.11.1) [illegible] ([illegible] 3) [illegible]॥

4.5.1.2 [illegible]: [illegible] HSG-[illegible]॥ [illegible] ([illegible] 2.11.5, [illegible] 3)॥ [illegible] 4.5.6-[illegible]॥

4.5.1.3 ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯑꯣꯏꯕ ꯃꯥꯂꯦꯝ ꯍꯣꯡꯂꯛꯂꯕꯒꯤ ꯊꯧꯗꯥꯡ ꯁꯥꯕꯤꯗꯨ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ ꯍꯥꯌꯕ ꯑꯣꯏꯅ ꯏꯁꯤꯡ ꯊꯣꯛꯂꯛꯄꯒꯤ ꯄꯥꯝꯕꯩ ꯅꯥꯏꯕ ꯃꯈꯥ ꯇꯥꯅꯕ, ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯑꯣꯏꯕ ꯏꯆꯝ ꯆꯝꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕ ꯍꯥꯌꯕ ꯅꯥꯏꯕ ꯃꯈꯥ ꯑꯣꯏꯕ ꯑꯥꯏꯔꯤꯗꯒꯤ ꯍꯥꯌꯕꯅꯤ꯫ ꯀꯥꯔꯁꯨꯞꯇꯣꯏꯕꯒꯤ ꯍꯧꯕꯗ ꯃꯥꯂꯦꯝ ꯇꯤꯅꯕꯥꯁ ꯃꯈꯥꯅꯇꯕꯤꯅꯤ꯫

4.5.2 ꯄ꯭ꯔꯁꯥꯂꯅꯃꯅ ꯀꯥꯔꯁꯨꯞꯇꯣꯏꯕ

50%, 10% ꯑꯃꯁꯨꯡ 1% AEP (ꯆꯍꯤ 2, 10 ꯑꯃꯁꯨꯡ 100)-ꯒꯤ ꯇꯧꯕ ꯁꯕꯒꯤ ꯊꯥꯗꯣꯛ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ {1, 2, 3, 6, 12, 24, 48, 72 h}-ꯒꯤ ꯃꯇꯝꯁꯥꯄꯦ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ:

> Q_post(T, d) ≤ 0.9 × Q_pre(T, d)

4.5.3 ꯅꯣꯡꯀꯥ ꯅꯔꯦꯜꯃ ꯄꯥꯂꯣꯡꯆꯤꯡ ꯑꯅꯕ ꯀꯥꯔꯁꯨꯞꯇꯣꯏꯕ

4.5.3.1 ꯍꯅꯃ ꯇꯥꯄꯨ ꯆꯠꯄꯕ ꯀꯥꯔꯁꯨꯞꯇꯣꯏꯕꯗ, ꯀꯇꯦꯇ 2.5.2-ꯒꯤ ꯃꯇꯝꯁꯥꯄꯦ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ ꯀꯇꯦꯇ 2.11.3-ꯒꯤ **ꯍꯤꯗꯄꯃ-ꯖꯕꯤꯀꯔꯂꯣꯏ ꯄ꯭ꯔꯅ** ꯍꯥꯌꯕ:

> Q_post(1% AEP, 100-yr) ≤ Q_pre(10% AEP, 10-yr), ꯑꯃꯁꯨꯡ Q_post(50% AEP, ꯆꯍꯤ 2) ≤ Q_pre(50% AEP, ꯆꯍꯤ 2)꯫

ꯀꯥꯛ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯁꯤ ꯍꯤꯡ ꯁꯣꯏꯗꯅꯒꯤ ꯌꯦꯡꯁꯤꯅꯕ ꯃꯇꯝꯁꯥꯄꯦꯃ ꯇꯧꯕ ꯃꯥꯂꯦꯝꯁꯤꯡꯗ ꯍꯤꯡꯕꯒꯤ ꯊꯤꯕ ꯑꯃꯥꯇ: ꯆꯍꯤ 100-ꯒꯤ ꯌꯥꯝꯅꯕ ꯆꯍꯤ 10-ꯒꯤ ꯊꯤꯕ, ꯑꯃꯁꯨꯡ ꯆꯍꯤ 2-ꯒꯤ ꯌꯥꯝꯅꯕ ꯆꯍꯤ 2-ꯒꯤ ꯊꯤꯕ꯫ ꯀꯥꯛ ꯑꯁꯤ ꯃꯥꯂꯦꯝꯁꯤꯡꯗ ꯍꯥꯌꯒꯤ ꯃꯇꯝꯁꯥꯄꯦ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ (ꯀꯇꯦꯇ 2.11.3)꯫

4.5.3.2 ꯅꯣꯡꯀꯥ ꯅꯔꯦꯜꯃ ꯄꯥꯂꯣꯡꯆꯤꯡ ꯑꯅꯕ ꯀꯥꯔꯁꯨꯞꯇꯣꯏꯕ ꯑꯣꯏꯇꯤ:

- (a) **ꯀꯥꯡꯂꯥ ꯅꯍꯥꯏꯒꯤ ꯍꯨꯃꯃꯒꯤ ꯆꯥꯎꯕ ꯇꯍꯕꯅ ꯂꯝꯕꯤ**: ꯀꯥꯡꯂꯥ ꯅꯍꯥꯏ ꯊꯦꯇꯤꯡ ꯑꯥꯏꯔꯤꯒꯤ ꯍꯨꯃꯃ ꯇꯧꯕ ꯇꯍꯕꯒꯤ ꯀꯥꯔꯁꯨꯞ, ꯇꯒꯥ ꯅꯨꯂꯥ (Naga Nullah) ꯑꯃꯁꯨꯡ ꯋꯥꯏꯁꯦꯜ ꯃꯔꯤꯜ (Waisel Maril) ꯆꯥꯎꯕꯣꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯑꯍꯨꯝ ꯆꯥꯎꯈꯠꯄ ꯍꯧꯕꯗ 72-ꯒꯤ ꯇꯔꯇꯇ, ꯊꯦꯇꯤꯡ ꯑꯥꯏꯔꯤꯒꯤ ꯊꯥꯕ ꯍꯣꯡꯒꯤ ꯊꯣꯛꯂꯛꯄ ꯖꯤꯕ;
- (b) **ꯅꯍꯥꯏꯒꯤ ꯍꯨꯃꯃꯒꯤ ꯆꯥꯎꯕ ꯅꯍꯥꯏ ꯂꯝꯕꯤ**: ꯍꯣꯡꯒꯤ ꯊꯥꯡꯣꯏꯗꯒꯤ ꯁꯦꯡꯂꯕꯃ ꯅꯍꯥꯏ ꯂꯝꯕꯤꯃ ꯅꯥꯏꯕ ꯃꯈꯥ ꯅꯍꯥꯏꯒꯤ ꯇꯍ, ꯄꯃꯥꯒꯤ ꯍꯤꯅꯨꯊꯕ (Minuthong)-ꯗꯒꯤ ꯍꯅ ꯊꯕꯈ ꯍꯖꯍ ꯖꯤꯕ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯊꯥꯡꯣꯏꯕ ꯀꯥꯌꯅꯤꯈ ꯍꯖꯍꯣꯏꯕꯒꯤ ꯇꯥꯀꯅꯣꯏꯕ ꯌꯤꯕꯇ (ꯀꯇꯦꯇ 2.3.6(i));
- (c) **ꯇꯍꯖꯥꯅꯊꯥꯌ ꯈꯥꯣꯏꯂ**: ꯇꯍꯖꯥꯅꯊꯥꯌꯁ ꯑꯃꯁꯨꯡ ꯍꯣꯏꯒꯤ ꯊꯍꯊꯇ ꯊꯃꯥꯀꯊ ꯌꯦꯡꯁꯤꯅꯕꯥ, ꯄꯍꯣꯕ ꯇꯇ (Shamushang nallah)-ꯒꯤ ꯃꯁꯤꯡꯕꯃ ꯇꯍꯕꯅꯃ ꯅꯥꯏꯕ ꯃꯈꯥ ꯇꯍ;
- (d) **ꯅꯍꯥꯏ ꯏꯝꯐꯥꯜꯀꯤ ꯀꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜꯒꯤ ꯀꯥꯏꯃꯤꯗꯥꯏꯕ**: ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ (Kongba) ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ (Iril)-ꯗ, ꯍꯅꯔꯒꯤ ꯊꯥꯡꯣꯏꯕꯒꯤ ꯍꯁꯨꯕꯃ, ꯅꯥꯏꯕ ꯃꯈꯥ ꯅꯍꯥꯏ ꯏꯝꯐꯥꯜ (Imphal East)-ꯒꯤ ꯇꯍ;
- (e) **ꯊꯥꯕꯅ ꯂꯝꯕꯤꯅꯃ ꯇꯕ ꯊꯥꯕꯅ**: ꯍꯊꯤꯊꯦꯜ ꯗꯦꯝ (Mapithel dam)-ꯒꯤ ꯍꯅꯃ ꯇꯕ ꯄꯤꯇꯤꯇ ꯄꯤꯌꯁ, ꯊꯥꯕꯅ ꯂꯝꯕꯤꯅꯃ ꯅꯥꯏꯕ ꯃꯈꯥ ꯊꯥꯕꯅꯒꯤ ꯇꯍ;
- (f) **ꯇꯥꯡꯖꯥꯡꯀꯤ ꯍꯇꯥꯡ**: ꯇꯥꯡꯖꯥꯡ, ꯍꯣꯏꯒꯤ ꯍꯇꯥꯡꯀꯤ ꯊꯥꯌꯣꯏꯕ ꯇꯌꯄꯒꯤ ꯅꯊꯅ ꯑꯃꯁꯨꯡ ꯂꯒꯤꯂꯒꯤ ꯍꯄꯥꯁ ꯇꯕ ꯍꯇꯤꯊꯂꯄ ꯂꯝꯕꯤꯅꯃ ꯅꯥꯏꯕ ꯃꯈꯥ ꯍꯅꯄꯤꯕ, ꯇꯤꯕꯊꯅꯕ ꯑꯃꯁꯨꯡ ꯊꯥꯡꯒꯥ (Thanga)-ꯒꯤ, ꯑꯃꯁꯨꯡ ꯆꯥꯛꯄꯤ (Chakpi)-ꯒꯤ ꯈꯥꯌꯔꯖꯄꯒꯤ ꯇꯔꯇꯇ ꯅꯊꯅ, ꯂꯒꯤꯂ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯒꯨ (Wangoo)-ꯒꯤ ꯇꯍ (ꯄꯈ-ꯑꯥꯏꯔꯤ MN-A1);
- (g) **ꯇꯍꯈꯅ ꯑꯃꯁꯨꯡ ꯇꯍꯕꯅ ꯂꯝꯕꯤꯅꯣꯏꯕꯃ ꯇꯕ ꯇꯍꯈꯅ ꯑꯃꯁꯨꯡ ꯈꯤꯄꯂꯊꯥꯂꯄ**: ꯇꯍꯈꯅ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯇꯍꯕꯅ ꯂꯝꯕꯤꯅꯃ ꯅꯥꯏꯕ ꯃꯈꯥ ꯄꯃꯥ ꯑꯇꯤꯒꯤ ꯇꯍ;
- (h) **ꯄꯥꯡꯍꯅ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯡ ꯂꯝꯕꯤꯅꯣꯏꯕꯃ ꯇꯕ ꯀꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯡ (Wangjing)**: ꯄꯥꯡꯍꯅ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯡ ꯂꯝꯕꯤꯅꯃ ꯅꯥꯏꯕ ꯃꯈꯥ ꯄꯃꯥ ꯑꯇꯤꯒꯤ ꯇꯍ;

- (i) **ꯕꯔꯥꯛ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤ (Jiri) ꯇꯨꯔꯦꯂꯒꯤ ꯃꯥꯏ ꯖꯤꯔꯤꯕꯝ**: ꯕꯔꯥꯛ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯗ, ꯀꯅꯥꯗꯒꯤ ꯁꯔꯨꯛꯌꯥꯕꯥ, ꯅꯕꯥꯀ ꯑꯣꯏꯕ ꯖꯤꯔꯤꯕꯝꯒꯤ ꯆꯀ (ꯃꯕ-ꯑꯣꯏꯔꯛ MN-C1);
- (j) **ꯂꯝꯄꯥꯛꯀꯤ ꯂꯧꯕꯨꯛ ꯆꯀꯥ ꯃꯥꯏ ꯌꯦꯟꯕꯒꯤ ꯃꯇꯦꯡꯁꯤꯡ**: ꯇꯨꯄꯨꯜ (Tupul)-ꯒꯤ ꯂꯝꯕꯤ ꯂꯣꯝꯕꯒꯤ, ꯑꯍꯣꯡꯕꯁꯤꯡꯒꯤ, ꯌꯦꯜꯍꯧꯒꯤ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯣꯛꯁꯤꯡꯒꯤ ꯆꯀ, ꯀꯅꯥꯗꯒꯤ ꯑꯊꯤꯡꯕꯅꯥ ꯃꯥꯏ ꯂꯝꯄꯥꯛꯀꯤ ꯂꯧꯕꯨꯛ ꯆꯀꯥꯒꯤ ꯂꯝꯕꯤ; ꯑꯃꯁꯨꯡ
- (k) ꯁꯦꯛꯁꯟ 4.5.4-ꯒꯤ ꯃꯈꯥꯗ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯊꯧꯗꯥꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯑꯃꯨꯛ ꯍꯟꯅꯥ ꯑꯍꯣꯡꯕꯥ꯫

ꯑꯍꯥꯅꯕꯁꯤꯡ ꯑꯁꯤ ꯑꯇꯣꯞꯄ 4A-ꯗ ꯃꯥꯂꯦꯝ ꯊꯧꯗꯥꯡ ꯑꯃꯁꯨꯡꯁꯤꯡ ꯑꯦꯟꯀꯥꯔꯕꯤꯒꯤ꯫

4.5.4 ꯇꯣꯔꯦꯜ ꯅꯤꯡꯊꯤꯕ ꯅꯤꯌꯝꯗ ꯃꯇꯦꯡꯁꯤꯡꯁꯤꯡ ꯑꯦꯟꯕ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯒꯤ ꯂꯧꯁꯤꯡ ꯊꯧꯗꯥꯡ

4.5.4.1 ꯃꯔꯤꯂꯩꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕꯒꯤ ꯇꯣꯔꯦꯕꯂꯣ ꯗꯃꯥꯏꯁꯤꯡ ꯊꯧꯗꯥꯡ ꯃꯌꯥꯝꯗ, ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯥ ꯅꯤꯡꯊꯤꯕ ꯅꯤꯌꯝꯗ ꯃꯇꯦꯡꯁꯤꯡꯁꯤꯡ ꯑꯦꯟꯕꯂꯣ ꯂꯧꯁꯤꯡ ꯊꯧꯔꯕ ꯑꯦꯛꯁꯤꯡꯁꯤꯂꯣ ꯁꯤꯟꯗꯥꯡ ꯊꯧꯕ ꯌꯥꯅ:

- (a) ꯇꯥꯔꯤꯕ ꯆꯍꯤ 20-ꯒꯤ ꯃꯇꯨꯡꯗ ꯌꯦꯡꯁꯤꯟꯅꯕꯗ ꯑꯣꯢꯕꯥ, 1% AEP ꯍꯥꯌꯕꯒꯤ ꯃꯤꯡꯊꯣꯛꯀꯤ ꯇꯣꯔꯦꯜ ꯃꯥꯌꯀ ꯊꯨꯡꯂꯕ ꯂꯧꯕꯨꯛ ꯄꯥꯡꯒꯜ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯤꯕ ꯅꯤꯌꯝꯗꯕ ꯌꯦꯡꯅꯤꯕ ꯕꯤꯖꯗꯤꯡꯁꯤꯡ ꯍꯥꯌꯕꯒꯤ ꯑꯦꯟꯀꯥꯔꯤꯡꯗ ꯆꯠꯕꯤꯁꯤꯡ;
- (b) ꯇꯥꯏꯗꯥꯃꯤ ꯃꯤꯒꯤꯠꯗ 10% AEP-ꯒꯤ ꯌꯥꯑꯣꯕꯗꯒꯤ ꯂꯥꯏꯕ ꯁꯤꯟꯗꯥꯡꯁꯤꯡꯁꯤ ꯂꯝꯕ ꯅꯤꯡꯊꯤꯕ ꯂꯝꯕ ꯅꯤꯡꯕꯦꯜꯁꯤꯡ ꯍꯥꯌꯕꯒꯤ ꯌꯥꯂꯣꯡꯁꯤꯡ;
- (c) ꯅꯥꯀꯦꯟ, ꯆꯥꯡꯕꯨꯟ, ꯅꯥꯏꯔꯦꯟ, ꯁꯤꯡꯗꯕ, ꯄꯥꯟꯕꯨꯟ ꯍꯥꯌꯕꯒꯤ ꯊꯧꯁꯤꯡꯗꯃꯤ ꯑꯊꯣꯡꯁꯤꯡ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯤꯡꯒꯤ WRD ꯃꯆꯥꯗ ꯂꯣꯡꯂꯣꯟ (FL)-ꯗ ꯍꯥꯌꯕꯒꯤ ꯃꯤꯡꯊꯣꯛꯀꯤ ꯌꯦꯡꯂꯕ ꯂꯝꯕ ꯃꯇꯝꯗ ꯇꯨꯔꯦꯜꯒꯤ ꯁꯤꯡꯒ ꯑꯃꯁꯨꯡ ꯒꯣꯝ ꯍꯥꯌꯕꯒꯤ ꯃꯆꯥꯁꯤꯡ ꯒꯣꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯁꯤꯖꯤꯟꯅꯒꯟ ꯑꯃꯥ, ꯍꯥꯌꯕꯒꯤ ꯁꯤꯡꯊꯥꯡꯗ ꯃꯈꯥ ꯁꯤꯡꯗꯕ ꯁꯤꯖꯤꯟꯅꯒꯟ, ꯅꯨꯡꯁꯤ ꯑꯦꯟꯕꯂꯣ ꯂꯝꯄꯥꯛ ꯂꯝꯕ (Shamushang nallah)-ꯒꯤ ꯅꯨꯡꯁꯤꯡꯗꯥ ꯆꯥꯡꯕꯨꯟꯗ ꯌꯨꯝꯁꯤ ꯆꯥꯡꯂꯣꯟꯁꯤꯡꯁꯤ ꯁꯤꯡꯁꯤꯡꯂꯤ ꯄꯥꯟꯕꯨꯟꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯟ, ꯍꯥꯌꯕꯒꯤ ꯅꯄꯥꯟ ꯕꯣꯏꯒꯤ ꯑꯃꯁꯨꯡ "ꯁꯨꯒꯅꯨ ꯍꯝꯞ" ("Sugnu hump")-ꯒꯤ ꯃꯤꯡꯒꯤ ꯅꯦꯡꯒꯤꯁꯤꯡꯒꯤ ꯌꯩꯕꯤ ꯄꯥꯡꯗꯤꯕ ꯂꯝꯕꯤ ꯍꯥꯌꯕꯒꯤ ꯁꯤꯡ ꯑꯃꯥꯗ, ꯅꯤꯡꯊꯤꯕ ꯅꯤꯌꯝ ꯂꯧꯕꯨꯛ ꯃꯥꯏꯌꯥꯗ ꯇꯤꯡꯊꯤꯕꯝꯗ ꯕꯔꯥꯛ ꯍꯥꯌꯕꯒꯤ ꯇꯤꯡꯊꯤꯗ, ꯍꯥꯌꯕꯒꯤ ꯅꯤꯡꯊꯤꯕ ꯄꯥꯡꯒꯜ ꯃꯁꯤꯡꯄꯥꯟ ꯍꯥꯌꯕꯒꯤ ꯑꯊꯣꯡꯁꯤꯡ ꯗꯥꯡ ꯑꯃꯒꯤ ꯃꯈꯥꯗ ꯂꯝꯕ ꯌꯤꯔ ꯑꯃꯁꯨꯡ ꯗꯤꯂꯦꯜꯌꯥꯇ ꯊꯧꯕ ꯁꯤꯖꯤꯟꯅꯒꯟ, ꯍꯥꯌꯕꯒꯤ ꯃꯦꯡꯂꯨꯡ ꯃꯊꯧꯒꯤ ꯃꯊꯧ ꯅꯤꯒꯤꯗꯃꯛꯇ ꯃꯨꯗꯤ, ꯑꯃꯌꯥꯝ ꯍꯥꯌꯕꯒꯤ ꯌꯤꯗꯣꯒꯤ ꯅꯥꯗꯣꯒꯤ ꯗꯕꯤꯇꯂꯤ ꯄꯤꯗꯂꯤꯕ ꯁꯤꯖꯤꯟꯅꯒꯟ (ꯃꯦꯐ 5);
- (d) ꯃꯗꯕ ꯌꯥꯕ ꯅꯕꯣꯅꯗꯒꯤ ꯑꯦꯤꯕ ꯂꯦꯒꯣꯗꯒꯤ ꯇꯦꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯨꯗ ꯃꯥꯂꯦꯝ ꯊꯧꯗꯥꯡ ꯁꯨꯅꯦꯤꯂꯤ (tank and pukhri)-ꯒꯤ ꯂꯩꯕꯥꯛꯀꯤ ꯃꯦꯤꯗ ꯑꯃꯗꯒꯤ ꯇꯣꯔꯦꯜ ꯃꯈꯗꯥꯕ; ꯍꯥꯌꯕꯒꯤ
- (e) ꯂꯩꯅꯌ ꯗꯤꯂꯦꯜꯌꯥꯇ ꯇꯤꯃꯤꯌ ꯊꯧꯕꯗ ꯃꯈꯥ ꯁꯦꯔꯕ ꯕꯂꯤꯟ ꯃꯂꯩꯌꯥ ꯁꯦꯡꯂꯕ ꯑꯃꯥ꯫

4.5.4.2 ꯁꯦꯝꯂꯤꯇꯦ ꯑꯁꯤ ꯃꯈꯥꯒꯤꯂꯤ ꯑꯦꯟꯀꯥꯔꯕꯤꯒꯤ:

1. ꯑꯦꯄꯦꯥꯢꯍꯤꯂꯣ GIS ꯃꯑꯦꯗꯗ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡ ꯑꯍꯥꯅ ꯑꯃꯁꯨꯡ 4.5.4.1-ꯒꯤꯗꯃꯛ ꯂꯩꯁꯤꯡꯁꯤꯡꯒꯤ ꯂꯝꯕꯤ ꯊꯧꯗꯣꯛꯁꯤꯡ ꯍꯥꯌ ꯑꯃꯥ ꯂꯩꯍꯟꯒꯗꯤ꯫
2. ꯃꯦꯐ 1-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯍꯕ ꯂꯩꯌ ꯂꯣꯡꯂꯣꯟꯒꯤ ꯊꯧꯗꯣꯛꯁꯤꯡ ꯁꯤꯃꯤꯍꯤꯂꯣ ꯍꯥꯌ ꯑꯃꯨ ꯅꯤꯒꯤꯅꯨ ꯊꯧꯒꯗꯤ꯫
3. ꯗꯔꯤꯃꯌ ꯂꯩꯍꯤꯃꯤꯁꯤꯡꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝ ꯑꯃꯨ ꯌꯦꯡꯁꯤꯟꯅꯕꯗ ꯁꯤꯃꯤꯌ 60-ꯒꯤꯗꯃꯛ ꯁꯦꯡꯂꯤꯗꯃꯤ ꯌꯦꯃꯒꯤꯗꯃꯛ ꯃꯗꯗꯥꯗꯃꯤꯒꯗꯤ꯫
4. ꯂꯝꯄꯥꯛꯀꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯨ ꯂꯩꯍꯤꯃꯤꯁꯤꯡ ꯊꯧꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝ ꯑꯃꯨ ꯑꯇꯣꯞꯄ 4A-ꯗ ꯇꯥꯁꯤꯟꯗꯤꯒꯗꯤ꯫
5. ꯃꯦꯞ ꯑꯁꯤ ꯂꯩꯍꯤꯃꯤꯁꯤꯡꯒꯤ ꯃꯁꯨꯡꯗ **ꯄꯥ 6** ꯍꯥꯌꯕꯒꯤ ꯃꯤꯡꯊꯣꯛꯀꯤ ꯇꯣꯔꯦꯜ ꯂꯩꯗꯂꯕ ꯃꯁꯨꯡꯗ ꯃꯗꯂꯁꯤꯡ ꯑꯁꯤꯂꯤꯁꯤꯂꯣꯡꯁꯤꯗ ꯌꯌꯂꯒꯗꯤ꯫ ꯃꯃꯗꯗ ꯃꯗꯅꯤꯕ ꯑꯁꯤꯂꯤꯁꯤꯂꯣꯡꯁꯤ ꯁꯦꯛꯁꯟ 4.5.2-ꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯗꯣꯁꯤꯒꯗꯤ꯫

4.5.4.3 ꯂꯩꯍꯤꯃꯤ ꯊꯧꯗꯥꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯥ ꯁꯦꯝꯂꯤꯇꯦ ꯑꯃꯨꯃꯗꯂꯣ ꯅꯗꯍꯃꯗ, ꯑꯃꯁꯨꯡ ꯗꯣꯡꯂꯣꯟꯁꯤꯡꯁꯤ ꯁꯨꯃꯆꯃꯗ ꯁꯦꯛꯁꯟ 4.5.2-ꯒꯤ ꯃꯈꯥꯗ ꯂꯝꯕꯒꯤ ꯃꯈꯥ ꯄꯗꯕ ꯃꯃꯥꯗꯒꯤ ꯂꯩꯂꯩꯃꯂꯣ ꯃꯦꯐ 5 ꯑꯍꯥꯅꯕꯤ ꯇꯔꯦꯜ ꯕꯂꯤꯟ ꯂꯩꯗꯤ ꯑꯃꯁꯨꯡ ꯅꯌꯂꯕ ꯃꯁꯨꯡꯗ ꯅꯗꯍꯃꯗ, ꯗꯤ-ꯂꯩꯍꯤꯃꯤ ꯊꯧꯕ ꯌꯥꯅ꯫

> **ꯂꯦꯗꯥꯗꯂꯣ ꯍꯥꯌꯁꯦ.** ꯃꯥꯗꯥꯍ 0.9 ꯑꯁꯤ ꯗꯥꯑꯦꯒꯥ (MHFD)-ꯒꯤ ꯑꯦꯂꯣꯅꯁꯤꯡꯁꯤꯒꯤ ꯂꯤꯅꯤꯕꯂꯤ꯫ ꯑꯦꯂꯣꯅꯁꯤꯂ ꯑꯃꯨꯗ, ꯕꯁꯤꯡ ꯍꯤ ꯅꯨꯗꯗꯃꯗꯂꯣ ꯇꯤꯁꯤꯡꯁꯤꯗ ꯆꯍꯤ 100-ꯒꯤ ꯁꯤꯗꯗꯤ 100% ꯄꯗꯗꯁꯗꯁ ꯑꯦꯟꯌꯂꯌꯁ ꯇꯤꯁꯤꯡꯁꯤꯗ ꯁꯤꯗꯗꯤ 106% ꯁꯨꯄꯗꯅꯤ; ꯅꯨꯗꯗꯃꯗꯁ 90% ꯄꯗꯗꯁꯂꯣ 97% ꯁꯤꯅꯤ (UDFCD Full Spectrum Detention Release Rate Memorandum, 2012)꯫ ꯃꯤꯗꯂꯗ-ꯃꯦꯤꯁꯌꯦꯁꯤ ꯃꯦꯟꯒꯤ ꯇꯗꯄꯗꯂꯕ ꯃꯃꯗꯒꯤ ꯅꯨꯗꯃ ꯂꯁ; ꯅꯕꯣꯅꯗꯒꯤ ꯂꯗꯁ ꯑꯃꯨ ꯃꯂꯁꯤꯌꯒꯤ DID (2008)-ꯒꯤ ꯌꯥꯗꯂꯤꯂꯌꯂꯤ, ꯃꯁꯤꯂꯣ ꯗꯣꯡꯂꯣꯟꯁꯤꯡꯁꯤ ꯃꯁꯨꯗꯒꯤ ꯆꯍꯤ 2, 10, 50 ꯑꯃꯁꯨꯡ 100-ꯒꯤ ꯁꯤꯗꯁꯤꯗ ꯗꯣꯡꯂꯣꯟꯁꯤꯡꯁꯤ ꯃꯃꯗꯒꯤ ꯆꯍꯤ 2-ꯒꯤ ꯁꯤꯗꯗꯤ ꯃꯈꯥꯗ ꯂꯂꯕ ꯃꯄ ꯍꯤꯇꯂꯆꯃꯤ꯫ "100-yr post ≤ 10-yr pre" ꯇꯌꯕ ꯃꯑꯦꯗ ꯑꯁꯤ ꯂꯂꯥ ꯕꯗꯂꯤꯦ, ꯌꯤꯂꯁꯦꯁꯤꯦꯒꯤ ꯁꯦꯂꯤꯗꯒꯤ ꯅꯦꯂꯕ ꯑꯃꯗ ꯅꯕ ꯃꯗꯅ (ꯂꯁꯤꯦꯂꯕ ꯃꯦꯞ ꯍꯌꯁ)꯫ ꯇꯤꯂꯌ ꯑꯁꯤꯂꯣ ꯊꯧꯁꯤꯡꯗꯃꯤ ꯇꯨꯔꯦꯜꯁꯤꯗ, ꯃꯁꯤꯒꯤ ꯁꯤꯌ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯌꯤꯗꯒꯤ ꯃꯇꯦꯡꯁꯤꯗꯒꯤ

ꯃꯇꯨꯡ ꯏꯟꯅꯥ, ꯃꯔꯝꯑꯁꯤ ꯃꯇꯧꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯣꯏꯕ ꯂꯩꯃꯥꯏ ꯑꯃꯗ ꯌꯨꯝ ꯊꯣꯛꯄꯒꯤ ꯄꯣꯀꯄꯥ ꯃꯇꯧꯒꯤ ꯁꯣꯏꯗꯕꯇꯧꯁꯤꯡꯒꯤ ꯌꯥꯝꯅꯥ ꯊꯣꯛ ꯇꯨꯔꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂ ꯑꯃꯗꯒꯤ ꯂꯥꯏꯅ꯫ "ꯂꯝꯕꯥ ꯑꯁꯤ ꯁꯍꯔꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯍꯤꯡꯕꯤꯂꯣꯡ ꯏꯆꯥꯎ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯂꯩ" ("The town is below the high flood level of Imphal river") (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)); ꯁꯍꯔꯒꯤ 35% ꯑꯁꯤ "ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯥꯀꯄ ꯌꯥꯕ" ("prone to floods") ꯑꯣꯏ, ꯑꯃꯁꯨꯡ "ꯇꯨꯔꯦꯂꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯁꯥꯕꯥꯀꯄ ꯆꯦꯡꯕ ꯃꯅꯨꯡꯂꯣꯏꯗ ꯍꯥꯀꯍꯥ ꯍꯤꯟꯅꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯡꯗꯕ ꯊꯣꯀꯍꯜꯂꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, *Approval Project Document*, 2024)꯫ ꯅꯝꯕꯨꯜꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ "ꯃꯔꯨꯑꯣꯏꯕ ꯂꯝꯕꯥꯒꯤ ꯇꯨꯔꯦꯜ" ("the main urban river") (AIIB)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ: NGT-ꯗ ꯂꯤꯄꯣꯔꯠ ꯄꯤꯈꯤꯕꯥꯏꯗꯤ "ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯁꯣꯔꯊꯕꯥꯀꯄ ꯍꯥꯏꯕꯗ ꯀꯨꯡꯅꯝꯃꯥ (72 Nos.)-ꯒꯤ ꯏꯟꯇꯔꯁꯦꯞꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯚꯔꯁꯟ (I & D)" ("Interception & Diversion (I & D) of all drains (72 Nos.) falling into the Nambul River") ꯁꯤ, ꯍꯥꯏꯕꯗꯒꯤ BOD 42.45–52.34 mg/L-ꯒꯤ ꯊꯥꯔꯤꯕꯅꯤ (NGT OA 606/2018-ꯗ ꯂꯤꯄꯣꯔꯠ ꯄꯤꯈꯤꯕ, ꯗꯤꯁꯦꯝꯕꯔ 2025); ꯇꯨꯔꯦꯜ ꯑꯗꯨꯅꯤ 2025-ꯗ ꯃꯦꯍ ꯃꯔꯤꯗ ꯃꯇꯧꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯁꯥꯕꯥꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ); ꯃꯥꯀꯂꯕ ꯂꯩꯒ ꯄꯨꯔꯤꯕꯅꯤ ꯅꯨꯡꯁꯤ 2024-ꯗ ꯂꯩꯒꯤꯅ (Nagaram), ꯂꯥꯏꯐꯝ ꯈꯨꯅꯧ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯤꯕꯥꯔꯣꯝꯕꯝ ꯂꯩꯀꯥꯏꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯥꯀꯈꯤꯕꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ); ꯑꯃꯁꯨꯡ ꯀꯩꯊꯦꯂꯒꯤ ꯑꯃꯨꯛꯀ "ꯀꯩꯊꯦꯂꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯒ ꯄꯨꯔꯤꯕꯗ ꯊꯥꯗꯣꯛꯂꯕ … ꯑꯁꯤꯅꯥ ꯆꯍꯤ ꯀꯨꯝꯕ ꯁꯣꯏꯗꯕ ꯏꯁꯤꯡ ꯁꯊꯝ ꯑꯃꯥ ꯂꯣꯝꯃꯤ" ("dumped in the Naga Nullah on the backside of the market … creates a stagnant pool all along the year") (ꯃꯤꯂꯣꯟꯕ ꯀꯥꯡꯂꯣꯟ)꯫ ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤ (Thong Nambonbi; Hump Bridge)-ꯗ ꯅꯝꯕꯨꯜꯒꯤ ꯍꯥꯏꯕꯔꯣꯡꯕ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯜ 783.695 m ꯂꯩ, ꯃꯇꯝ 29 ꯃꯦ 2024-ꯗ ꯍꯥꯞꯊꯥꯁꯤ (WRD-ꯒꯤ ꯃꯇꯧꯃꯇꯧ, ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ)꯫ ꯁꯍꯔꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ ꯃꯤꯄꯨꯊꯥꯕꯗ ꯂꯩꯕ ꯇꯨꯔꯦꯜ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ, ꯃꯇꯧꯒꯤ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯜ 786.900 m ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯔꯣꯡꯕ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯜ 788.400 m ꯑꯁꯤ ꯂꯝꯕꯥꯒꯤ ꯅꯍꯗꯒꯤ (ꯃꯔꯥ 790 m, AIIB; NEER-ꯒꯤ ꯀꯥꯈ) ꯃꯤꯇꯝ ꯑꯃꯗꯒꯤ ꯑꯔꯤꯒꯤ ꯃꯄꯨꯡꯗ ꯂꯩ, ꯑꯃꯁꯨꯡ ꯃꯇꯝ 29 ꯃꯦ 2024-ꯗ "ꯍꯥꯏꯕꯔꯣꯡꯕ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯂꯗꯒꯤ ꯌꯥꯝꯅꯥ" ("above the highest flood level") ꯂꯩꯊꯥꯔꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ); ꯃꯇꯧꯒꯤ ꯀꯥꯡꯂꯣꯟ 2025-ꯗ ꯂꯤꯝꯂꯃꯤ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅꯨꯌ ꯁꯦꯀꯣꯟ (New Checkon)-ꯗ ꯑꯃꯁꯨꯡ 2024–2025-ꯗ ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯤꯕꯥꯔꯣꯝꯕꯝ ꯂꯩꯀꯥꯏꯗ ꯁꯥꯕꯥꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ)꯫ ꯂꯩꯅꯕꯥꯂꯣꯟ ꯄꯨꯝꯅꯃ, 28–31 ꯃꯦ 2024-ꯗ, ꯀꯥꯡ (embankment) 18 ꯁꯥꯕꯥꯁꯤ ꯑꯃꯁꯨꯡ 17 ꯂꯝ ꯌꯥꯎꯁꯤ ꯍꯧꯔꯦ ꯆꯦꯛꯅꯕꯥꯁꯤ, 30 ꯃꯦꯒꯤ ꯃꯤꯂꯤꯂꯣꯏꯄꯒꯤ ꯃꯇꯧ ꯊꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯃꯤꯑꯣꯏ 1,88,143 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 24,265, ꯑꯃꯁꯨꯡ 31 ꯃꯦꯒꯤ ꯄꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯁꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ (Relief and Disaster Management Department)-ꯒꯤ ꯄꯤꯀꯄ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯃꯤꯑꯣꯏ 1,26,950, ꯂꯩꯀꯥꯏ 255 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 16,364 ꯂꯥꯀꯄꯥꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ: ꯃꯇꯧꯃꯇꯧ ꯑꯁꯤ ꯃꯦꯟꯁꯟ)꯫ ꯅꯍꯦꯔꯀꯥꯏꯕꯥꯏ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯣꯏꯄꯥꯏ ꯑꯣꯏꯅꯥ ꯂꯦꯝꯍꯧꯔꯤꯕ ꯀꯥꯡ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ, ꯃꯁꯤ "ꯗꯤꯇꯦꯟꯁꯟ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯍꯟꯊꯍꯟꯕ" ("reduction in detention capacity")-ꯅꯤ ꯃꯔꯝ ꯑꯣꯏꯅꯥ "ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯅꯨꯃꯤꯠ ꯀꯌꯥꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯡꯗꯅꯤ ꯂꯩꯔꯤ" ("remains waterlogged for many days every year") (NDB, ꯀꯃꯤꯁꯟ ꯂꯃꯍꯤ) ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯌꯥꯎꯕ ꯁꯃꯨꯁꯥꯡ ꯅꯂꯥ (Shamushang nallah)-ꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ ꯅꯝꯕꯨꯂꯗ ꯀꯍꯝ ꯌꯥꯎꯕ (HC PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯂꯥꯏꯊ ꯄꯤꯀꯄ)꯫ ꯁꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯅꯄꯤꯔꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ ꯁꯍꯔꯒꯤ ꯅꯂꯥꯏꯕꯥꯏ ꯀꯥꯡ ꯂꯩꯕ ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ, ꯃꯦꯍ ꯑꯗꯨꯗ ꯂꯣꯀꯇꯣꯕꯔ 2025-ꯗ ꯅꯄꯤꯔꯅꯤ ꯁꯦꯇꯔꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏ (Kshetri Awang Leikai)-ꯗ ꯁꯥꯕꯥꯁꯤ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯃꯇꯝ ꯅꯄꯤꯔꯅꯨꯡ (Irilbung)-ꯗ 788.850 m-ꯗ ꯂꯩꯁꯤ, ꯃꯇꯧꯒꯤ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯜ 787.700 m-ꯗꯒꯤ ꯌꯥꯝꯅꯥ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ); 2025-ꯗ ꯁꯍꯔꯒꯤ ꯁꯂꯥꯏ ꯁꯕꯁꯗꯒꯤ ꯌꯦꯍꯅꯤ ꯂꯥꯀꯄꯥꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ)꯫ ꯊꯧꯕꯂꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ ꯃꯀꯤꯊꯥꯜ ꯗꯥꯃꯒꯤ ꯄꯤꯂꯤꯜ ꯄꯤꯌꯥꯏ ꯃꯇꯨꯡ ꯏꯟꯅꯥ: 30 ꯑꯒꯁ꯭ꯠ 1999-ꯗ ꯊꯧꯕꯜ ꯊꯥꯕꯗ ꯊꯧꯕꯜ ꯇꯨꯔꯦꯂꯅꯤ 391.636 m³/s ꯀꯨꯁꯤ (MASTEC), ꯇꯨꯔꯦꯜ ꯑꯗꯨꯗ ꯑꯣꯟꯕ ꯊꯥꯗꯣꯛꯄ ꯌꯥꯕ ꯀꯥꯡꯒꯤ ꯀꯥꯁꯅꯦꯠ 14 ꯂꯩ (MASTEC), ꯑꯃꯁꯨꯡ 1 ꯑꯒꯁ꯭ꯠ 2015-ꯗ ꯄꯤꯂꯤꯄꯒꯥꯔꯄ ꯑꯗꯨ 876 m-ꯗ, "ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡꯗꯒꯤ ꯃꯔꯥ 2 m ꯌꯥꯝꯅꯥ" ("nearly 2 m above the spillways") ꯂꯩꯁꯤ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ)꯫ ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯅꯥꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ ꯀꯥꯡ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ: ꯁꯊꯤꯟ ꯕꯦꯔꯦꯖꯗ ꯂꯣꯛꯇꯥꯛ ꯑꯁꯤ ꯐꯨꯜ ꯄꯤꯔꯄꯒꯥꯔꯄ ꯂꯦꯚꯦꯜ 768.5 m-ꯗ ꯊꯝꯂꯤ (NHPC, ꯁꯦꯌꯔꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ), ꯁꯊꯤꯟꯗ ꯃꯇꯤꯀꯄ ꯇꯨꯔꯦꯜ 15 ꯂꯣꯀꯇꯣꯕꯔ 2025-ꯗ 770.05 m-ꯗ ꯂꯩꯁꯤ, ꯃꯇꯧꯒꯤ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯍꯥꯏꯕꯔꯣꯡꯕ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯜ 769.320 m-ꯗꯒꯤ ꯌꯥꯝꯅꯥ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ), ꯑꯃꯁꯨꯡ ꯁꯥꯒꯤꯀꯤꯅꯥ "ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯂꯒ ꯑꯣꯟꯊꯣꯛꯄ ꯅꯝꯕꯤꯗ ꯊꯦꯡꯅꯩ, ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯁꯦꯟꯕ ꯑꯗꯨ ꯊꯤꯡꯁꯟ … ꯑꯃꯁꯨꯡ ꯌꯥꯎꯕ ꯁꯨꯒꯅꯨꯒꯤ ꯀꯣꯀꯀꯤ ꯑꯃꯨꯛꯔꯕꯒꯤ ꯑꯄꯤꯀꯔ ꯏꯁꯤꯡꯅꯥ ꯂꯦꯡꯍꯜꯂꯤ" ("meets the Manipur River at a reverse direction, thereby checking the current … making inundation of the surrounding area of Sugnu extending upto Wangoo") (MASTEC)꯫ ꯅꯝꯕꯣꯜ ꯑꯃꯁꯨꯡ ꯈꯤꯂꯤꯡꯀꯥꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ 29 ꯃꯦ 2024-ꯗ ꯅꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡ (Nambol Thongkhong)-ꯗ ꯃꯇꯧꯒꯤ ꯍꯥꯏꯕꯔꯣꯡꯕ ꯑꯦꯂꯦꯗ ꯂꯦꯚꯦꯜ (774.700 m ꯅꯠꯇꯥꯕ 774.400 m; ꯄꯤꯀꯄꯃꯇꯧ ꯌꯥꯎꯗꯅꯤ) ꯍꯥꯞꯊꯥꯁꯤꯕ ꯅꯝꯕꯣꯜ ꯇꯨꯔꯦꯜ (ꯀꯥꯡꯂꯣꯟ ꯆꯦꯛꯅꯕꯥꯁꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅꯥ), ꯑꯃꯁꯨꯡ ꯂꯝꯕꯥꯒꯤ ꯃꯈꯥꯗ, ꯀꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥ ꯑꯁꯦꯡꯕꯥꯗ, ꯀꯥꯅꯇꯦꯃꯌꯤꯡꯕꯥ ꯍꯗ ꯅꯝꯒꯤ ꯃꯈꯥꯗ 2.50–4.30 m ꯂꯩꯕ ꯅꯝꯕꯨꯜꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ (CGWB, Bishnupur)꯫ ꯁꯥꯕꯥꯁꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯇꯤꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯅꯥ ꯂꯣꯕꯥꯃꯦꯟ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯇꯤꯗꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ, ꯑꯔꯤꯃꯥ CPCB-ꯒꯤ ꯀꯥꯟꯅꯕ ꯑꯣꯏꯅꯕ ꯂꯤꯄꯣꯔꯠꯁꯤꯡꯗꯒꯤ ꯊꯤꯡꯕꯤ ꯂꯩ (Priority V, CPCB, 2025) ꯑꯃꯁꯨꯡ ꯑꯔꯤꯃꯥ ꯕꯅ-ꯊ

93-ꯒꯤ ꯕꯉꯔ ꯁꯦꯕꯅꯗ ꯇꯩ; ꯑꯣꯏꯁꯦꯃꯕꯗ 1997-ꯗ ꯃꯅꯤꯄꯨꯔ ꯁꯥꯏꯟꯁꯀꯤ ꯍꯉꯃ ꯑꯃꯇꯤꯗ ꯀꯥꯎꯟꯁꯤꯜ (MASTEC)꯫ ꯇꯤꯗꯤꯕꯤꯃꯒꯤ ꯑꯉꯃ ꯑꯣꯏꯇꯦ ꯕꯗꯥ ꯑꯃꯁꯨꯡ ꯇꯤꯗꯤꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ: ꯆꯣꯇꯦꯕꯦꯛꯔꯥ (Chotebekra)-ꯗ ꯇꯩꯕ CWC-ꯒꯤ ꯑꯏꯟꯗꯦ 31 ꯖꯨꯂꯥꯏ 1989-ꯗ ꯃꯍꯤꯒꯤ ꯈꯕꯏꯟꯗꯒꯤ ꯌꯨꯝꯕ ꯂꯦꯝꯅꯦ, 32.1 m, ꯗꯦꯚꯥꯗꯗ ꯁꯥꯈꯤ (CWC, SANDRP-ꯅꯥ ꯄꯤꯔꯕ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯍꯨꯝꯕ ꯃꯉꯃꯗ ꯇꯩꯕ ꯕꯗꯥ ꯂꯩꯇꯦꯡꯗ, ꯑꯗꯤꯇꯤ ꯑꯣꯏꯒꯤ ꯅꯨꯡꯁꯤꯗ ꯇꯩꯕ ꯑꯦꯗꯤꯑꯣꯏ ꯑꯃꯁꯨꯡꯗ ꯌꯥꯏꯇꯤꯕ ꯃꯉꯃ ꯑꯃꯁꯨꯡ, ꯁꯨꯗꯦꯟꯅꯥ ꯅꯥꯡ (lock) ꯁꯥꯗꯕ ꯑꯩꯁꯣꯉꯥꯟꯑꯣꯏꯡ ꯑꯣꯏ ꯌꯥꯝꯂꯥꯗꯕꯗ ꯆꯥꯡꯌꯥ 7-ꯒꯤꯗꯃꯗꯥ ꯍꯤꯡꯅꯦ ꯄꯤꯔꯅꯥ ꯇꯩꯅ꯫ ꯌꯤꯡꯒꯤ ꯑꯄꯗꯒꯤ ꯑꯉꯃ ꯑꯣꯏꯅꯥ ꯅꯦꯗꯧꯑꯅꯗꯑꯣꯏꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ: ꯁꯨꯒꯨꯟ, ꯅꯦꯅꯦꯗ, 29 ꯅꯠꯔꯒꯥ 30 ꯖꯨꯟ 2022-ꯗ, ꯇꯤꯗꯤꯕꯤꯃ–ꯅꯃꯉꯩꯟ ꯗꯦꯟꯌꯦꯒꯤ ꯑꯅꯠꯁ ꯅꯩꯔꯥꯃ ꯑꯃꯁꯤ "ꯉꯩ ꯗꯤꯇꯅꯦ ꯁꯥꯗꯕ ꯅꯠꯔꯒꯥ ꯉꯩ ꯔꯩꯡꯍꯥꯒꯁꯕ ꯅꯩꯔꯥꯃ ꯁꯩꯒꯔ, ꯑꯃꯇꯦꯕ ꯅꯥꯡ ꯌꯨꯕꯒꯥ ꯇꯥꯌꯦꯅꯅꯦ" ("poorly designed or implemented slope excavation coupled with heavy rainfall") ꯃꯁꯨꯡꯗ ꯍꯨꯒꯥꯅꯈꯤ (Baruah et al., 2023, AGU Landslide Blog-ꯒꯤ ꯑꯗꯌ ꯑꯃꯃꯗꯤ ꯑꯃꯒꯤ ꯌꯨꯠꯍꯡꯗ, ꯔꯩꯁꯗ ꯉꯥꯡꯗꯥꯒꯈꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ), ꯁꯥꯎꯦꯕ ꯃꯑꯣꯏꯡ ꯍꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ ꯃꯤꯑꯣꯏ 56, 58 ꯅꯠꯔꯒꯥ 61 ꯑꯣꯏꯈꯤ (ꯔꯩꯁꯗ ꯉꯥꯡꯗꯥꯒꯈꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ; NRSC-ꯅ 5 ꯖꯨꯂꯥꯏꯗ 42 ꯑꯣꯏꯈꯤ ꯑꯃꯁꯨꯡ 20 ꯃꯥꯡꯈꯤ ꯄꯤꯔꯅꯥ ꯉꯥꯡꯗꯥꯒꯈꯤ); ꯇꯧꯃꯣꯜ (Joumol), ꯃꯦꯗꯦꯟꯗ, 1 ꯑꯒꯁ 2015-ꯗ, 20 ꯅꯠꯔꯒꯥ 21 ꯑꯣꯏꯈꯤ, ꯅꯠꯔꯒꯥ ActionAid-ꯒꯤ ꯃꯑꯣꯏꯡ ꯍꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ 24 (ꯔꯩꯁꯗ ꯉꯥꯡꯗꯥꯒꯈꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ); ꯑꯃꯁꯨꯡ 15 ꯖꯨꯂꯥꯏ 2025-ꯗ ꯈꯧꯄꯨꯝ (Khoupum)-ꯗ ꯆꯨꯡꯍꯤꯟ ꯑꯃꯗ 225 mm ꯌꯥꯗꯕ ꯃꯁꯨꯡꯗ ꯈꯧꯄꯨꯝ ꯁꯃꯔꯤꯡ ꯅꯑꯣꯏꯡꯅ ꯌꯥꯎꯈꯤ (IMD Imphal-ꯒꯤ ꯑꯦꯡꯑꯣꯏꯌꯦꯟꯑꯣꯏꯡ, ꯔꯩꯁꯗ ꯉꯥꯡꯗꯥꯒꯈꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ; ꯗꯨꯁ꯭ꯔꯦꯑꯣꯅ ꯑꯃꯁꯨꯡ ꯒꯦꯇ ꯉꯥꯡꯗꯥꯒꯈꯤꯗꯦ)꯫ ꯗꯤꯡꯔꯩꯡꯔꯤꯒꯤ ꯌꯤꯡꯑꯣꯏꯡꯅ ꯁꯃꯔꯤꯡꯗꯤ ꯅꯑꯣꯏꯡ ꯅꯌꯩꯁꯗ ꯅꯑꯣꯏꯡ ꯔꯤꯕꯅ ꯃꯗꯥꯃ ꯑꯩꯅꯥꯁꯨꯅ ꯗꯤꯡꯔꯩꯡꯔꯤ ꯇꯤꯑꯣꯌ ꯁꯥꯗꯤ: ꯔꯩꯁꯗ ꯉꯥꯡꯗꯥꯒꯈꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ WRD-ꯒꯤ ꯗꯨꯟ ꯑꯩꯉ ꯍꯃ ꯑꯣꯏ ꯃꯉꯃ ꯑꯃꯁꯨꯡ ꯆꯨꯡꯌꯥ ꯑꯃꯨꯃꯗ 135 mm ꯌꯥꯗꯕꯗꯤ ꯁꯃꯔꯤꯡꯁ ꯅꯑꯣꯏꯡ ꯅꯌꯩꯁ ꯅꯦꯗꯅ ꯄꯤꯔꯕꯅꯤ, ꯑꯃꯁꯨꯡ 30–31 ꯃꯦ 2025-ꯗ ꯄꯨꯡ 72-ꯒꯤ ꯃꯆꯨꯡꯗ 175 mm ꯌꯨꯈꯤ (ꯔꯩꯁꯗ ꯉꯥꯡꯗꯥꯒꯈꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯅ)꯫ ꯁꯅꯗꯨꯟ, ꯑꯦꯅꯔꯁꯤ, ꯌꯗꯌꯦꯗꯔꯨꯗ ꯑꯃꯁꯨꯡ ꯃꯩꯗꯦ ꯑꯣꯏ ꯁꯦꯛꯁꯟ 4.5.4-ꯒꯤ ꯃꯍꯥꯛ ꯅꯩꯁꯤꯉꯅ ꯁꯦꯅꯕ ꯗꯦꯗꯗꯤꯗꯦꯑꯣꯏꯗꯅꯤ꯫ ꯗꯤꯇꯤꯉ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯑꯣꯁꯗ ꯃꯦꯅꯦꯇꯃꯦꯗꯦꯌ ꯗꯤꯔꯥꯗꯌꯃꯦꯗꯦꯌ ꯑꯃꯁꯨꯡ MSDMA-ꯒꯤ ꯑꯉꯤꯑꯣꯏꯌꯦꯟ ꯑꯗꯅꯕ ꯃꯑꯣꯏꯡꯑꯣꯏꯡ ꯉꯥꯡꯗꯥꯒꯈꯤꯗꯦ [TBC]꯫ 4.5.4.1-ꯒꯤ ꯅꯁꯤꯉꯗꯦꯑꯣꯅꯒꯤ ꯁꯗꯤꯒꯗꯑꯣꯏꯡꯒꯤ ꯄꯥꯍꯦꯡꯅꯕ ꯃꯃꯤꯡꯒꯤ ꯌꯨꯗꯃ ꯇꯩꯁꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀ ꯑꯣꯏ ꯃꯦꯆꯨꯡꯌꯦꯟ ꯑꯣꯏꯇꯦ ꯍꯃꯕꯅꯤ꯫ ꯍ 6-ꯒꯤ ꯅꯦꯗ ꯁꯤꯅꯃ ꯑꯣꯏ ꯁꯦꯛꯁꯟ 2.14.2-ꯒꯤ ꯑꯔꯗꯦꯌ ꯗꯨꯟꯒꯤ ꯃꯁꯨꯡ ꯅꯦꯅꯤ꯫ ꯗꯦꯒꯦꯅꯔꯃꯦꯗꯦꯌꯗꯤ ꯃꯃꯤꯡꯗꯒꯤ ꯅꯦꯃꯕ ꯗꯤꯇꯤꯇꯑꯣꯏꯡ ꯗꯗꯤꯒꯤ ꯃꯍꯧ ꯁꯤꯕꯒꯦ ꯄꯤꯔꯕꯗꯨ ꯁꯦꯛꯁꯟ 4.16-ꯅ ꯑꯦꯗꯥꯡꯅ ꯁꯤꯗꯅ꯫

4.5.5 ꯃꯤꯅꯤꯃꯃ ꯑꯩꯁꯌꯅꯦꯌ ꯑꯃꯁꯨꯡ ꯃꯁꯃ ꯌꯩꯃꯅ ꯑꯩꯡꯗꯕ ꯌꯄꯤ 2-ꯒꯤ ꯌꯦꯡꯑꯣꯏꯡ

4.5.5.1 AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯨꯔꯦꯂꯟ ꯑꯃꯄꯦꯡꯁꯒꯤ PSD ꯑꯣꯏ ꯃꯩꯟꯅꯅꯕ ꯑ꯭ꯁꯦꯇꯁ **50 mm**-ꯒꯤ ꯑꯥꯗꯤꯉꯤꯑ ꯑꯃꯒꯤ (ꯁꯦꯛꯁꯟ 4.8.2) ꯗꯤꯑꯌꯩꯗꯇꯗꯒꯤ ꯅꯦꯃꯕ ꯃꯉꯃꯗ, 50 mm-ꯒꯤ ꯑꯥꯗꯤꯉꯤꯑ ꯑꯗꯨꯅꯥ AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯨꯔꯦꯂꯟ ꯑꯗꯨꯒꯤꯗꯃꯦꯡ ꯗꯃꯔꯅꯥꯅ ꯁꯩꯅ ꯄꯤꯔꯅꯥ ꯇꯧꯒꯅꯤ꯫

4.5.5.2 ꯄꯨꯡ 3 ꯅꯠꯔꯒꯥ ꯃꯑꯣꯏꯗꯒꯤ ꯅꯦꯃꯕ ꯗ꯭ꯔꯨꯔꯦꯂꯟ ꯑꯃꯗ ꯌꯄꯤ 2-ꯒꯤ ꯗꯤꯅꯁꯦꯗꯤꯌꯦ ꯍꯃꯄꯦꯅꯕ, ꯁꯦꯛꯁꯟ 4.7-ꯒꯤ ꯗꯤꯑꯥꯁꯦ ꯃꯍꯧ ꯁꯤꯕ ꯍꯃꯗꯕ ꯉꯩꯁꯕ ꯑꯔꯤꯡꯔ ꯅꯥ-ꯉꯅꯥ ꯑꯥꯗꯤꯉꯤꯑ ꯑꯃꯩ ꯃꯍꯧ ꯁꯤꯕ ꯃꯉꯃꯗ, ꯗꯤꯅꯅꯦꯗꯅ:

- ꯁꯦꯛꯁꯟ 4.7 ꯍꯃꯄꯦꯟꯇꯤꯕ ꯈꯕꯏꯟꯗꯒꯤ ꯑꯔꯤꯡꯔ ꯄꯡꯕ ꯑꯥꯅꯅ ꯅꯥ-ꯉꯅꯥ ꯑꯥꯗꯤꯉꯤꯑꯗꯤ ꯑꯏꯅꯇ ꯅꯦꯔꯗꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯗ꯭ꯔꯨꯔꯦꯂꯟ ꯑꯗꯨꯑꯣꯏꯡꯒꯤꯗꯃꯦꯡ ꯃꯗꯃ ꯑꯥꯅꯗꯨꯅ ꯍꯥꯡꯔ ꯌꯄꯤ 2-ꯒꯤ ꯄꯦꯌꯍꯕ ꯑꯗꯨ ꯗꯤꯔꯥꯗꯌ ꯁꯥꯒꯗꯕꯅꯤ꯫

ꯄꯦꯌꯍꯕ ꯑꯗꯨ ꯌꯄꯤ 2-ꯒꯤ ꯑꯔꯤꯡꯁ 50 mm-ꯒꯤ ꯑꯥꯗꯤꯉꯤꯑꯗꯤ ꯗꯤꯑꯌꯩꯗꯇꯗꯒꯤ ꯅꯦꯃꯇꯕꯗꯤ, ꯅꯠꯔꯒꯥ ꯑꯗꯨꯡ 5-ꯒꯤ ꯃꯍꯥꯛ ꯍꯃꯕ ꯃꯉꯃꯒꯤ ꯑꯦꯅꯦꯅꯑꯣꯏꯑꯣꯅ ꯉꯌꯁꯕ ꯅꯉꯦꯡꯌ ꯑꯃꯌꯁ ꯁꯌꯁꯗꯕꯗꯤ, ꯑꯍꯗꯤꯁꯤꯅ ꯗꯤꯇꯅꯦ ꯑꯗꯨ ꯌꯩꯕ ꯌꯩꯅ꯫

ꯑꯦꯗꯥꯡꯅ ꯁꯤꯡꯔ. AMC II-ꯒꯤ ꯃꯍꯥꯛ, ꯒꯗꯤꯦꯉꯤꯟꯗ ꯑꯏꯅꯌ ꯑꯃꯅ ꯄꯨꯡ 1 ꯅꯠꯔꯒꯥ 2-ꯒꯤ, ꯌꯄꯤ 2-ꯒꯤ ꯍꯥꯗꯥꯡ ꯑꯃꯗ ꯗꯦꯑꯉ ꯌꯩꯃꯅ ꯍꯥꯡꯄꯦꯗ, ꯃꯗꯃꯗꯤ ꯅꯥꯡꯒꯤ ꯑꯌꯩꯃꯕ ꯅꯅꯤꯑꯣꯏꯌꯦꯟ ꯑꯦꯕꯑꯔꯁꯗꯦꯡꯑꯣꯅ ꯃꯤꯡꯅ꯫ ꯗ꯭ꯔꯨꯔꯦꯂꯟ ꯑꯃꯒꯤ ꯃꯁꯨꯡꯗ ꯑꯃꯤ ꯌꯨꯡꯗꯃꯅꯕ ꯗꯦꯒꯦꯅꯔꯃꯦꯗꯦꯌꯗꯤ ꯃꯃꯤꯡꯒꯤ ꯑꯦꯗꯦꯗ ꯌꯗꯤꯡꯗ ꯇꯤꯁꯗ ꯈꯗꯤꯒꯤ ꯔꯤꯡ ꯑꯃꯅ ꯌꯩꯃꯅ ꯑꯔꯤꯡꯔ ꯅꯥ-ꯉꯅꯥ ꯑꯥꯗꯤꯉꯤꯑ ꯑꯃꯩ ꯃꯍꯧ ꯁꯤꯄꯦꯟꯇꯤ꯫ ꯑꯥꯗꯤꯉꯤꯑ ꯑꯗꯨꯅꯥ ꯌꯄꯤ 10-ꯒꯤ ꯒꯥꯆꯨꯃ ꯄꯨꯡ 48-ꯒꯤ ꯃꯆꯨꯡꯗ ꯍꯗꯥꯡꯔ ꯍꯃꯗꯦ꯫ ꯅꯑꯣꯏꯡ ꯅꯌꯩꯁꯗ ꯑꯦꯗꯑꯣꯏꯁꯤꯒ ꯑꯥꯅꯕ ꯗꯦꯌꯃꯦꯗꯦꯌꯗꯤ ꯃꯔꯩꯗꯗ ꯇꯩꯕ ꯑꯥꯅꯅ ꯌꯦꯡ ꯁꯥꯗꯕꯗꯤ, ꯁꯦꯛꯁꯟ 4.6.7-ꯒꯤ ꯌꯨꯗꯃ ꯑꯥꯅꯕ ꯌꯨꯗꯃ ꯑꯗꯨꯅꯥ ꯄꯨꯡ 1-ꯒꯤ, ꯌꯄꯤ 2-ꯒꯤ ꯗꯦꯒꯦꯅꯔꯃꯦꯗꯦꯌꯗꯤ ꯃꯃꯤꯡꯒꯤ ꯔꯤꯡꯗꯤ ꯃꯩꯟꯅꯅꯕ ꯃꯗꯥ 75 mm-ꯒꯤ ꯅꯥ-ꯉꯅꯥ ꯑꯥꯗꯤꯉꯤꯑ ꯃꯍꯧ ꯁꯤꯒꯅꯤ꯫ ꯃꯗꯨꯒꯤ ꯃꯁꯨꯡꯗ ꯌꯄꯤ 10-ꯒꯤ ꯒꯥꯆꯨꯃꯒꯤ 90% ꯗꯤꯑꯥꯁꯦ ꯑꯣꯏ ꯑꯦꯡꯅꯕ ꯑꯥꯗꯤꯉꯤꯑ ꯑꯃꯒꯤ ꯅꯥꯌꯔꯅꯦ ꯉꯩꯁꯕ ꯃꯗꯥ ꯄꯨꯡ 84 ꯌꯡꯒꯅꯤ, ꯄꯨꯡ 48-ꯒꯤ ꯇꯤꯃꯤꯌꯗꯤ ꯌꯩꯗꯃꯦꯅꯕꯗ꯫ 50% ꯕꯅꯗꯤꯅꯒ ꯅꯥꯌꯔꯅꯦ ꯗꯤꯑꯥꯁꯦ ꯍꯃꯄꯦꯟꯇꯤꯕ 170 mm-ꯒꯤ ꯑꯥꯗꯤꯉꯤꯑꯗꯦ ꯄꯨꯡ 1-ꯒꯤ, ꯌꯄꯤ 2-ꯒꯤ ꯗꯦꯒꯦꯅꯔꯃꯦꯗꯦꯌꯗꯤ ꯃꯃꯤꯡꯒꯤ ꯔꯤꯡ ꯃꯗꯥ 11 L/s ꯄꯦꯌꯍꯅ꯫

> ꯁꯦꯛꯁꯟ 4.5.5.2-ꯗ ꯊꯥꯖꯕ ꯑꯃꯒ ꯃꯔꯤ ꯂꯩꯅꯕꯥ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯀꯅꯥꯒꯤ ꯀꯥꯟꯁꯤ ꯁꯦꯡꯗꯣꯛꯇꯨꯅ, ꯍꯥꯏꯔꯛꯂꯕ ꯃꯇꯝꯗ ꯄꯨꯝꯅꯃꯛ ꯂꯥꯏꯅꯤꯡ ꯆꯥꯡꯕ ꯃꯑꯣꯡ ꯄꯨꯝꯕ ꯀꯅꯥꯊꯣꯛ ꯑꯃꯒ ꯌꯥꯅꯕ ꯑꯁꯨꯡ ꯍꯅꯊꯣꯛꯄ ꯀꯝꯃꯤ꯫ KC APWA 5600 (2006)-ꯗ ꯄꯨꯝꯅ ꯃꯇꯝꯗꯤꯒꯤ ꯆꯥꯡꯗ 75 mm (3 in)-ꯒꯤ ꯍꯤꯔꯥꯡ ꯑꯗꯨꯃꯛ ꯂꯤꯡꯈꯠꯂꯤ꯫ ꯍꯥꯟꯅꯒꯤ ꯑꯣꯏꯗ 50 mm-ꯒꯤ ꯍꯤꯔꯥꯡ ꯊꯝꯂꯤ (ꯁꯦꯛꯁꯟ 4.8.2)꯫

4.5.6 ꯁꯞꯂꯤꯃꯦꯟꯇꯔꯤ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯟꯠꯔꯣꯜ ꯄꯥꯡꯊꯣꯛꯄ

4.5.6.1 **ꯑꯦꯞꯂꯤꯀꯦꯁꯟ.** ꯁꯦꯛꯁꯟ ꯑꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯃꯈꯥ ꯑꯁꯤ ꯍꯥꯟꯅꯒꯤ ꯃꯥꯏꯄꯥꯀꯄ ꯂꯣꯟꯕ **ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯟꯠꯔꯣꯜ**-ꯒꯤꯗꯃꯛ ꯆꯨꯝꯃꯛ ꯇꯧꯒꯗꯤ:

- (a) ꯗꯤꯁꯇ꯭ꯔꯤꯕ꯭ꯌꯨꯇꯤꯗ ꯑꯃꯒ ꯃꯔꯤ ꯂꯩꯅꯕ ꯍꯥꯏꯕ ꯆꯥꯡꯗ, ꯑꯅꯤꯁꯨ ꯑꯥꯡꯕ ꯑꯃꯁꯨ ꯑꯦꯍꯦꯁꯗꯣꯛꯇ 60% **ꯆꯥꯡꯊꯣꯛꯂꯕꯥꯗꯥ** ꯑꯣꯏꯔꯕꯗꯤ;
- (b) ꯑꯥꯡꯕ ꯑꯃꯁꯨ 1 ha **ꯅꯠꯔꯒ ꯍꯦꯟꯅꯒꯤ ꯏꯀꯥꯏꯕꯗꯤ**; ꯑꯃꯁꯨꯡ
- (c) ꯇꯦꯕꯜ 4-1-ꯗ ꯄꯥꯝꯅꯕ ꯊꯣꯛꯄ ꯁꯞꯂꯤꯃꯦꯟꯇꯔꯤ ꯀꯟꯠꯔꯣꯜ ꯑꯃꯁꯨ, ꯁꯦꯛꯁꯟ 4.5.2 ꯅꯠꯔꯒ 4.5.3-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ ꯑꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥꯡ ꯊꯧꯔꯝ ꯑꯣꯏꯅ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯍꯟꯊꯍꯜꯂꯕꯗꯤ꯫ ꯀꯟꯠꯔꯣꯜ ꯑꯁꯤꯗ ꯁꯦꯛꯁꯟ 4.10-ꯒꯤ ꯀꯟꯗꯤꯁꯅꯒꯤ ꯃꯑꯣꯡ ꯂꯣꯟꯕ ꯑꯣꯏꯅꯕ ꯆꯨꯃꯊꯣꯛꯂꯤ: ꯏꯟꯇꯥ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯀꯟꯗꯤꯁꯟ, ꯃꯍꯧꯁꯥ ꯅꯠꯔꯒ ꯅꯍꯥꯛꯀꯤ ꯃꯥꯏꯀꯩ ꯑꯗꯨ ꯄꯨꯝꯅꯃꯛ, ꯑꯗ-ꯗꯨꯅ ꯀꯟꯗꯤꯁꯟ ꯑꯗꯨ ꯃꯍꯥꯛꯀꯤ ꯁꯔꯨꯛ, ꯑꯃꯁꯨꯡ ꯅꯦꯇꯋꯥꯔꯀꯁꯤꯡ ꯐꯣꯡꯗꯣꯛꯀꯗꯕꯅꯤ꯫ ꯃꯁꯤꯗ ꯑꯃꯨꯛ ꯂꯣꯟꯕꯗ ꯃꯤꯍꯥꯠ ꯊꯧꯗꯥꯡ ꯀꯟꯗꯤꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯤꯍꯥꯠꯀꯗꯕꯅꯤ꯫

ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯟꯠꯔꯣꯜ ꯇꯧꯅꯕ ꯑꯦꯞꯂꯥꯏ ꯁꯦꯗꯤꯃꯦꯟꯇꯔꯤ ꯑꯁꯤ ꯐꯤꯜꯇꯔꯁꯤꯡ ꯑꯣꯏꯅ꯫

4.5.6.2 **ꯑꯥꯡꯕꯒꯤ ꯍꯤꯔꯥꯡ ꯃꯦꯖꯦꯃꯦꯟꯇ.** ꯑꯁꯤ ꯑꯥꯡꯕ ꯑꯃꯗ ꯍꯥꯟꯅꯒꯤ ꯃꯥꯏꯄꯥꯀꯄ ꯑꯥꯡꯕꯒꯤ ꯃꯇꯝꯗꯗꯤ:

- (a) ꯍꯥꯌꯕ ꯇꯥꯕ ꯁꯤꯒꯅꯦꯆꯔ ꯀꯦꯡꯀꯥ (ꯁꯦꯛꯁꯟ 4.4) ꯑꯃꯁꯨꯡ WQv ꯚꯣꯂꯨꯝ (ꯐꯤꯒꯔ 8), ꯁꯤꯖꯤꯟꯅ ꯑꯃꯒꯤ ꯑꯦꯗꯗ;
- (b) 50%, 10% ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯊꯥꯡꯒꯗꯕꯁꯤꯡꯒꯤꯗꯃꯛ, ꯁꯦꯛꯁꯟ 2.5.2-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯨꯝꯕꯁꯤꯡ, **ꯑꯁꯤꯕ ꯇꯤꯡꯈꯥꯡꯒꯤ ꯃꯇꯝꯗꯤ 50%**-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯦꯗꯤꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯌꯕꯒꯤ ꯃꯇꯝ ꯃꯤꯍꯥꯠꯂꯤ꯫ ꯑꯁꯤꯕ ꯇꯤꯡꯈꯥ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 3.3.4-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯥꯡ; ꯑꯃꯁꯨꯡ
- (c) ꯍꯥꯟ ꯊꯥꯕ ꯍꯦꯟꯗꯅ ꯑꯁꯤ ꯕꯥꯔꯃꯤꯡ ꯅꯠꯔꯒ ꯇꯧꯕꯤ ꯑꯃꯒꯤꯗ 1% AEP-ꯒꯤ ꯆꯥꯡꯊꯣꯛ ꯇꯦꯀꯅ ꯄꯣꯠꯂꯃꯁꯤꯡ ꯑꯁꯤꯅꯗꯨꯅꯕꯤ (ꯐꯤꯒꯔ 5)꯫

4.5.6.3 **ꯄꯣꯖꯤꯁꯟ ꯀꯦꯡꯀꯥ.** ꯄꯣꯖꯤꯁꯟ ꯀꯦꯡꯀꯥ ꯑꯁꯤ ꯏꯟꯅ ꯊꯧꯗꯥꯡ ꯊꯧꯔꯝ ꯑꯣꯏꯅ ꯍꯣꯠꯅ ꯂꯕ ꯁꯤꯒꯅꯦꯆꯔ ꯀꯟꯗꯤꯁꯟ (ꯁꯦꯛꯁꯟ 4.6)-ꯗꯒꯤ 4.5.6.2-ꯒꯤ ꯃꯇꯨꯡ ꯑꯥꯡꯕꯒꯤ ꯊꯧꯔꯝ ꯀꯟꯗꯤꯁꯟ ꯁꯦꯝꯊꯣꯛꯂꯕ ꯑꯃꯁꯨꯡꯗꯤ꯫ ꯑꯦꯛꯁꯤꯁꯇꯤꯡ ꯄꯣꯖꯤꯁꯟ ꯀꯦꯡꯀꯥ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ ꯁꯦꯛꯁꯟ 4.13.3-ꯒꯤ ꯏꯟꯗꯤꯌꯥ ꯃꯑꯣꯡ ꯇꯤ-ꯆꯦꯛ-ꯇꯤꯔ ꯑꯣꯏꯅ ꯂꯥꯡ ꯊꯧꯔꯝꯀꯗꯕꯅꯤ꯫ ꯇꯤ ꯑꯁꯤ:

- (a) ꯑꯥꯡꯕ ꯑꯃꯁꯨ ꯑꯁꯤ ꯕꯥꯔꯃꯤꯡꯒꯤ ꯃꯤꯡ-ꯇꯦꯛ ꯂꯥꯏꯕ ꯑꯣꯏꯅꯕꯗ ꯊꯧꯔꯝꯀꯗꯕꯅꯤ;
- (b) ꯃꯤꯇꯦꯡ ꯁꯤꯒꯅꯦꯆꯔ ꯅꯠꯔꯒ ꯕꯥꯔꯃꯤꯡ ꯗꯥꯡꯒꯤ ꯆꯥꯡꯕ ꯀꯟꯠꯔꯣꯜ ꯃꯦꯕꯣꯔ (ꯐꯤꯒꯔ 11) ꯆꯥꯡꯗꯣꯛꯄ ꯄꯨꯈꯔꯤ (pukhri or tank)-ꯒꯤ ꯆꯥꯡꯕ ꯆꯥꯡꯗꯣꯛꯀꯤ ꯀꯟꯗꯤꯁꯟ ꯑꯃꯠꯇ ꯄꯣꯗ ꯂꯥꯡꯊꯣꯛꯅ ꯆꯨꯝꯃꯛ ꯂꯤꯡꯈꯠꯀꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯁꯦꯛꯁꯟ 4.13.4-ꯒꯤ ꯃꯦꯇꯥꯡ ꯇꯦꯡꯕꯅ ꯃꯥꯁꯤꯅ ꯂꯣꯟꯗꯕꯅꯤ, ꯍꯥꯌꯗ ꯕꯥꯔꯃꯤꯡ ꯏꯟꯗꯤꯀꯦꯇꯔꯁꯤꯡ ꯃꯤꯍꯥꯠꯕ ꯀꯦꯡꯀꯥ ꯑꯃꯁꯨꯡ ꯃꯤꯍꯥꯠꯕ ꯀꯦꯡꯀꯥ ꯆꯨꯃꯊꯣꯛꯀꯗꯕꯅꯤ꯫

ꯕꯥꯔꯃꯤꯡ ꯀꯟꯠꯔꯣꯜ ꯃꯦꯕꯣꯔ ꯑꯃꯒꯤ ꯄꯣꯇꯤꯜ ꯇꯥꯕ ꯑꯦꯛꯁꯤꯁꯇ ꯂꯣꯟꯗꯣꯛꯇ ꯍꯦꯟꯗꯅ, ꯇꯤ ꯑꯁꯤ **ꯆꯥꯡꯐꯣ 5** ꯇꯥꯕ ꯊꯥꯗꯣꯛꯀꯗꯕꯅꯤ꯫ ꯍꯥꯟꯗ ꯑꯃꯒꯤ ꯍꯥꯏꯕꯅ ꯃꯦꯕꯣꯔ ꯑꯃꯒꯤ ꯑꯦꯛꯁꯤꯁꯇ ꯂꯣꯟꯗꯣꯛꯇꯗꯤ, ꯍꯥꯌ WRD-ꯒꯤ ꯑꯦꯗꯕꯅ ꯆꯥꯡꯗꯕꯗ ꯕꯥꯔꯃꯤꯡ ꯑꯃꯁꯨꯡꯁꯤꯡ ꯄꯨꯈꯔꯤ (tank)-ꯒꯤ ꯆꯥꯡꯕ ꯆꯥꯡꯗꯣꯛꯀꯤ ꯀꯟꯗꯤꯁꯟ ꯑꯃꯠꯇ ꯄꯣꯗ ꯂꯥꯡꯊꯣꯛꯅ ꯂꯤꯡꯈꯠꯀꯗꯕꯅꯤ꯫

4.5.6.4 **ꯆꯥꯡꯕ ꯆꯥꯡꯗꯣꯛ ꯂꯥꯏꯃꯤꯡꯂꯣꯟ ꯑꯣꯏꯕ ꯁꯞꯂꯤꯃꯦꯟꯇꯔꯤ.** ꯁꯦꯛꯁꯟ 4.5.3-ꯒꯤ ꯁꯞꯂꯤꯃꯦꯟꯇꯔꯤꯗ, ꯃꯈꯥ ꯑꯁꯤ ꯍꯦꯅꯒꯕ ꯇꯤꯡꯈꯥꯡꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯇꯧꯒꯗꯤ꯫ ꯑꯃꯨꯛ, ꯐꯤꯒꯔ 5-ꯒꯤ ꯍꯥꯟ ꯊꯥꯕ ꯍꯦꯟꯗꯒꯤ ꯑꯦꯗꯔꯅꯥꯏꯄꯗ ꯑꯦꯗꯔꯅꯥꯏꯄꯁꯤꯡ ꯑꯦꯡꯒꯤ ꯍꯧꯕꯗ 10% AEP-ꯒꯤ ꯊꯥꯡꯒꯗꯕꯁꯤꯡ ꯕꯥꯔꯃꯤꯡꯂꯣꯟ ꯆꯥꯡꯕ ꯆꯥꯡꯗꯣꯛꯇ ꯆꯦꯅꯕ ꯍꯟꯊꯍꯅꯕ ꯍꯦꯟꯗꯅ ꯑꯊꯥꯕꯤꯡꯗ ꯍꯥꯌ ꯑꯦꯗꯕ ꯑꯦꯅ꯫

> **ꯂꯣꯀꯦꯜ ꯅꯣꯠ.** ꯁꯦꯗꯤꯃꯦꯟꯇ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤ ꯃꯔꯨꯑꯣꯏ ꯑꯁꯤ ꯏꯝꯐꯥꯜ ꯍꯥꯏꯔꯛꯂꯕ ꯍꯤ ꯑꯦꯍꯦꯗ ꯑꯣꯏꯕ ꯂꯣꯝꯁ ꯑꯃꯗ ꯑꯃꯁꯨ ꯄꯣꯗ ꯑꯥꯕꯗ ꯆꯨꯝꯃꯛ ꯍꯥꯌꯒꯤ ꯁꯦꯡꯑꯦ ꯄꯣꯊꯣꯛꯈꯤ꯫ ꯆꯍꯦꯅꯒꯤ ꯍꯦꯅꯄ ꯑꯁꯤ ꯊꯥꯡꯒꯜ (Thangal) ꯑꯃꯁꯨꯡ ꯄꯥꯎꯅ ꯕꯖꯥꯔ (Paona Bazar) ꯏꯍꯥꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ (ꯃꯈꯥꯗ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯍꯥꯏꯕ ꯆꯥꯡꯗ), ꯅꯨꯃꯤꯠ 2024-ꯗ ꯂꯥꯛꯀꯗꯕ ꯑꯣꯏꯕ ꯅꯨꯡꯁꯤꯗ ꯆꯥꯡꯕ ꯆꯥꯡꯗꯣꯛ ꯑꯣꯏꯄꯦꯟꯅꯤꯕ ꯑꯣꯏꯅꯕꯗꯥ, ꯑꯣꯏꯀꯥꯏ, ꯑꯅꯤꯁꯨ ꯏꯗꯦ ꯑꯃꯁꯨꯡ ꯑꯥꯡꯃꯗꯣꯛꯂꯕꯁ ꯑꯣꯏꯕꯅ (ꯃꯈꯥꯗ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯍꯥꯏꯕ ꯆꯥꯡꯗ), ꯅꯠꯔꯒ ꯊꯥꯕꯤꯡ ꯑꯃꯁꯨꯡ

> ꯃꯇꯨꯡꯏꯟꯅ ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯤꯡꯅ [TBC], ꯃꯁꯤꯗ ꯌꯥꯑꯣꯕ ꯑꯁꯤꯡꯕꯤꯁꯤ ꯁꯦꯛꯁꯅꯤꯡꯅ ꯃꯁꯤꯗ ꯌꯥꯕ ꯒ꯭ꯔꯤꯟꯐꯤꯜꯗ ꯔꯟꯑꯣꯐꯀꯤ ꯃꯌꯥꯝ ꯄꯤꯗꯨꯅꯥ ꯇꯧꯔꯣ꯫ ꯂꯩꯃꯥꯏ ꯂꯩꯅꯕ ꯂꯥꯏ ꯑꯃꯁꯨꯡ ꯀꯣꯑꯣꯔꯗꯤꯅꯦꯁꯟ ꯃꯦꯡ, ꯃꯁꯤꯗ ꯃꯇ ꯁꯕ ꯃꯌꯥꯝꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯊꯥꯅꯣ꯫ ꯁꯦꯛꯁꯟ ꯑꯁꯤꯗ UK Non-statutory Technical Standards for Sustainable Drainage (Defra, 2015, S2–S3)-ꯒꯤ ꯑꯣꯊꯣꯛꯄ ꯃꯇꯝ ꯅꯤꯡꯅꯥ꯫ ꯃꯃꯥꯡ ꯍꯣꯀꯣꯇꯊ ꯇꯧꯕꯥ ꯔꯟꯑꯣꯐꯤꯡꯒꯤꯅꯃꯛ, ꯁꯥꯑꯣꯔꯦꯇꯍꯤꯡ ꯑꯁꯤ ꯊꯤꯗꯤ ꯌꯥꯔꯕ "ꯒ꯭ꯔꯤꯟꯐꯤꯜꯗ ꯌꯥꯔꯕ ꯌꯥꯝꯅ ꯂꯦꯡ ꯃꯔꯝꯅ ꯀꯥꯟꯕ ꯂꯥꯌꯕ ꯇꯧꯕ" ("as close as reasonably practicable to the greenfield runoff rate") ꯑꯃꯁꯨꯡ ꯂꯣꯏꯂꯣꯏꯅ ꯌꯥꯍꯣꯀꯣꯇꯊꯤꯂꯦꯞꯂꯕ ꯃꯃꯥꯡꯒꯤ ꯌꯥꯝꯅꯒꯤ ꯄꯤꯔꯤꯕ ꯃꯇꯝ ꯇꯧꯄꯦꯍꯟꯅꯤ꯫ ꯂꯩꯃꯥꯏ ꯇꯧꯕ 50%-ꯒꯤ ꯃꯤꯇꯩꯃꯃ ꯄꯔꯤꯡꯄꯔꯕ ꯑꯁꯤꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ ꯃꯃꯥꯡꯒꯤ ꯍꯤꯅꯃ ꯇꯧꯔꯣ; "ꯂꯕ ꯃꯔꯝꯅ ꯂꯥꯏꯕ" ("reasonably practicable") ꯁꯦꯌꯥꯕ ꯑꯃꯒꯤ ꯃꯇꯧꯁꯤ ꯌꯤꯒꯤꯡ ꯇꯧꯕꯁꯤꯡꯅ ꯃꯔꯣꯝ ꯁꯥꯡꯕ ꯃꯁꯤꯡ ꯑꯃꯁꯨ ꯊꯤꯔꯕ ꯃꯀꯨꯝꯅ ꯑꯁꯤꯗ ꯃꯁꯤ ꯊꯥꯔꯤ꯫ ꯂꯦ-ꯍꯥꯡ-ꯔꯤꯛ ꯑꯁꯤꯗ ꯄꯔꯊꯥꯕ ꯒꯨꯃ ꯑꯁꯨ ꯕꯥꯁꯤ ꯑꯁꯨꯃꯥꯡ ꯌꯤꯇꯔꯥꯟ ꯔꯟꯑꯣꯐ ꯑꯍꯟꯄꯟꯔꯤ, ꯃꯌꯃ ꯑꯁꯨꯗ ꯕꯥꯁꯤ ꯑꯁꯨꯗ ꯊꯃꯇꯃꯥꯡ ꯊꯔꯗ ꯒ꯭ꯔꯤꯟꯐꯤꯜꯗꯃꯥ ꯃꯔꯇꯕ ꯂꯔꯥꯌꯥꯟ ꯂꯥꯊꯔꯤ꯫ ꯌꯤꯂꯣꯔꯃꯔ ꯑꯃꯁꯨꯡ ꯁꯥꯌ ꯂꯁꯦꯔꯤꯗꯤ ꯌꯤꯔꯤꯂ ꯂꯥꯅꯣ, ꯃꯌꯃꯅ ꯃꯍꯦꯁ ꯑꯁꯤ ꯍꯥꯡ ꯁꯤꯃꯕꯗ ꯊꯃꯔꯤꯕ ꯂꯥꯃꯕ ꯑꯁꯤꯡꯕꯤꯁꯤ ꯒꯨꯃꯑꯁꯤꯗꯔꯤ꯫

4.6 ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯣꯗꯦꯜ ꯑꯃꯁꯨꯡ ꯁꯤꯃꯨꯂꯦꯁꯟ

4.6.1 ꯊꯧꯑꯣꯡ

ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯁꯤ ꯂꯣꯁꯤꯇꯤꯁꯤ ꯑꯃꯗꯒꯤ ꯔꯟꯑꯣꯐ–ꯔꯟꯑꯣꯐꯌꯥꯗ–ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯒꯤ ꯃꯌꯤꯒꯤ ꯍꯤꯁꯥꯕꯅ ꯄꯥꯎꯖꯦꯜ ꯌꯥꯑꯣꯗꯤꯕꯅ, ꯇꯣꯒꯣꯟ-ꯁꯨꯟ (Modified Puls) ꯀꯥꯌꯗꯒꯤ ꯃꯦꯊꯣꯗ ꯀꯝꯄꯤꯌꯨꯇꯔ ꯊꯧꯑꯣꯡ ꯑꯃꯁꯨ (SWMM, HEC-HMS) ꯑꯃꯁꯨꯡ ꯇꯦꯁ꯭ꯠꯇꯧꯕꯥꯅꯤ꯫ ꯂꯩꯃꯥꯏ ꯇꯧꯕ ꯌꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯏꯇꯣꯅ ꯍꯦꯛꯂꯦ ꯑꯃꯕ ꯔꯟꯑꯣꯐꯒꯤ ꯂꯦꯌꯥꯎꯇꯤꯁꯤ ꯑꯔꯤꯕꯔꯤꯇꯦꯡꯅꯕꯇꯔꯤ꯫ ꯁꯦꯛꯁꯟ 4.14-ꯒꯤ ꯇꯦꯡꯊꯣꯡꯄꯔꯕ ꯊꯧꯑꯣꯡꯁꯤꯡ (ꯑꯦꯅꯦꯛꯁ B-ꯒꯤ ꯑꯣꯕꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ ꯇꯧꯕ ꯃꯑꯣꯂꯤꯁꯤꯔꯣꯀꯥꯃꯤ ꯇꯧꯕ) ꯍꯥꯌꯕꯃꯥ ꯑꯣꯃꯁꯣꯕꯁꯦꯁꯤꯡꯅꯤ꯫

4.6.2 ꯍꯧꯔꯛꯄꯁꯤꯡ

1. ꯑꯦꯅꯀ ꯑꯃꯁꯨꯡ ꯁꯣꯏ-ꯑꯣꯌꯤꯔꯦꯁꯤꯡꯒꯤ ꯂꯥꯏꯃꯦ ꯇꯣꯕꯥꯀꯤꯕꯒꯤ꯫ HSG ꯃꯣꯕ ꯑꯣꯏꯕꯗ ꯑꯣꯁꯀ ꯑꯣꯏꯕꯗ ꯑꯁꯦꯅꯗ ꯑꯣꯏꯕꯒꯤ (ꯇꯦꯕꯜ 3)꯫
2. 50%, 10% ꯑꯃꯁꯨꯡ 1% AEP ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 2.5.2-ꯒꯤ ꯅꯔꯨꯌꯥꯂꯣꯡ ꯍꯅꯤꯡꯃꯥꯝꯤꯅꯃꯥ ꯅꯤꯇꯦꯡ ꯇꯧ ꯍꯕ, ꯁꯦꯡꯃꯀ ꯂꯣꯔꯥꯌꯒꯤ ꯇꯦꯔꯇꯗ ꯇꯧꯊꯦꯁꯤꯡ (ꯇꯦꯕꯜ 2, ꯆꯦꯞ 2-1)꯫
3. ꯅꯤꯇꯦꯡ ꯄꯔꯤꯁꯔꯃꯥꯏꯂꯁꯤꯡ ꯑꯣꯃꯕꯒꯤ: ≤ 24 h-ꯒꯤꯅꯃꯥ ꯑꯅꯣꯌꯇꯣꯁꯤꯡ ꯕꯇꯥ; 48 ꯑꯃꯁꯨꯡ 72 h-ꯒꯤꯅꯃꯥ "ꯅꯤꯡꯃꯗ ꯅꯨꯃꯤꯠ ꯑꯌꯦꯡꯕꯅ" ("peak day last") ꯅꯣꯟꯌꯣ (ꯁꯦꯛꯁꯟ 2.9)꯫
4. ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯄꯔꯤꯃꯦꯠꯔꯤꯁꯤꯡ ꯁꯣꯏꯊꯣꯀꯄ ꯑꯣꯏꯕꯒꯤ (ꯒ꯭ꯔꯤꯟꯐꯤꯜꯗ CN; ꯁꯣꯏ-ꯑꯣꯌꯤꯔ MN-A ꯑꯃꯁꯨꯡ MN-B-ꯗ 1 ꯅꯨꯃꯤꯠ 15 ꯑꯣꯏꯕꯒꯤ ꯂꯩꯕ, MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯗ 1 ꯃꯗꯒꯤ 31 ꯑꯣꯏꯕꯒꯤ ꯂꯩꯕ, ꯑꯃꯁꯨꯡ ꯃꯔꯣꯟ, ꯍꯧ ꯀꯥꯌꯗꯒꯤ ꯇꯥꯏꯕꯥꯡꯁꯤ 1% AEP ꯇꯣꯒꯣꯟꯒꯤ ꯃꯍꯦꯡ ꯇꯧ ꯇꯃꯗ, ꯅꯤꯡꯃꯔ, ꯅꯤꯡꯃ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯟꯒꯤ ꯃꯇꯦꯡꯄ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯅꯒꯤ ꯅꯤꯡꯊꯤꯡꯒꯤ ꯃꯇꯧꯅ ꯇꯧ ꯇꯃꯗ 1 ꯑꯣꯏꯕꯃꯃꯒꯤ 31 ꯑꯣꯏꯕꯒꯤ ꯂꯩꯕ, ꯁꯣꯏ-ꯑꯣꯌꯤꯔ MN-A1-ꯗ ꯑꯃꯁꯨꯡ ꯌꯤꯇꯌꯣꯔꯕ, ꯃꯁꯤꯒꯤ ꯕꯥꯁꯦꯕꯗ ꯀꯥꯌꯗꯒꯤ ꯍꯃ ꯑꯃꯒꯤ ꯃꯍꯦꯡ ꯇꯧ ꯌꯤꯇꯤꯇ ꯌꯤꯔ ꯑꯃꯗ ꯍꯌꯃ ꯑꯣꯕ ꯁꯣꯏꯊꯣꯀꯄꯁꯤꯡꯅ ꯃꯑꯣꯃ ꯅꯨꯃꯤꯠꯃꯥꯑꯣ, ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯅ ꯑꯦꯅꯀꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯑꯣꯃꯁꯤꯡꯅ ꯅꯨꯃꯤꯠ 5-ꯒꯤ ꯅꯨꯡꯁꯤꯡꯕ 53 mm-ꯗꯒꯤ ꯄꯣꯡꯕ ꯃꯣꯡꯕꯗ, ꯅꯔꯨꯌꯥꯂꯣꯡ ꯍꯅꯤꯡꯃꯥꯝꯤ ꯊꯧꯗꯣꯀꯁꯤꯡꯒꯤꯅꯃꯥ AMC III; ꯑꯣꯏꯅꯕꯗ AMC II)꯫
5. ꯁꯦꯛꯁꯟ 4.5.2 ꯀꯥꯌꯗꯒꯤ 4.5.3-ꯒꯤ ꯃꯍꯦꯡ AEP ꯑꯃꯁꯨꯡ ꯅꯔꯨꯌꯥꯂꯣꯡ ꯍꯅꯤꯡꯃꯥꯝꯤꯅꯃꯥ ꯌꯤꯇꯤꯇ ꯁꯣꯕꯁꯤꯡ ꯁꯣꯏꯊꯣꯀꯄ ꯑꯣꯏꯕꯒꯤ꯫
6. ꯃꯦꯊꯣꯗ ꯊꯧꯗꯣꯀꯁꯤꯡ ꯑꯃꯁꯨꯡ AMC-ꯒꯤ ꯇꯦꯔꯇꯗ, ꯌꯤꯔꯦꯛꯂꯣꯟꯒꯤ ꯅꯤꯌꯣꯕꯂꯁꯤꯡ ꯁꯦꯡꯗ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯑꯣꯃꯒꯤ ꯄꯔꯤꯃꯦꯠꯔꯤꯁꯤꯡ ꯁꯣꯏꯊꯣꯀꯄ ꯑꯣꯏꯕꯒꯤ (ꯁꯦꯛꯁꯟ 4.4.6)꯫
7. ꯑꯣꯏꯍꯅꯕ ꯂꯣꯁꯤꯇꯤꯁꯤꯒꯤ ꯇꯤꯑꯣꯃꯣꯌꯤ (ꯔꯟꯑꯣꯐ–ꯔꯟꯑꯣꯐꯌꯥꯗ) ꯑꯃꯁꯨꯡ ꯃꯅꯣꯏ-ꯔꯟꯑꯣꯐ ꯑꯦꯡꯀꯇꯣꯀ ꯑꯃꯦ ꯍꯇꯕꯒꯤ (ꯁꯦꯛꯁꯟ 4.6.5)꯫
8. ꯊꯧꯗꯣꯛ ꯑꯃꯁꯨꯡ ꯅꯔꯨꯌꯥꯂꯣꯡ ꯍꯅꯤꯡꯃꯥ ꯌꯦꯡꯀ ꯑꯣꯏꯕꯒꯤ꯫ **ꯃꯤꯇꯤꯀ 5**-ꯗꯒꯤ ꯄꯣꯡꯗꯕ, ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯑꯣꯃꯒꯤ ꯁꯣꯌꯃꯣꯂꯣꯖꯤ Tc/3-ꯗꯒꯤ ꯄꯣꯡꯗꯕ ꯑꯍꯃ ꯔꯟꯑꯣꯅ ꯑꯤꯇꯤꯔꯦꯇꯕꯒꯤ꯫
9. ꯌꯤꯇꯤꯇ ꯍꯅꯤꯡꯃꯥ ꯃꯑꯣꯒꯤ ꯁꯣꯅꯖꯤ ꯁꯦꯡꯗꯃꯇꯕꯗ ꯁꯣꯏ ꯑꯣꯏꯕꯒꯤ, ꯑꯃꯁꯨꯡ ꯅꯌꯦꯡꯂꯦꯡ ꯁꯣꯏ ꯑꯣꯏꯕꯒꯤ (ꯁꯦꯛꯁꯟ 4.7)꯫ ꯑꯦꯡꯀꯇꯣꯀ ꯑꯃꯁꯨꯡ ꯔꯟꯑꯣꯐ ꯑꯣꯃꯗꯥꯃꯥꯗ ꯑꯃꯇ ꯄꯔꯗ ꯑꯣꯏꯕꯒꯤ꯫

10. ꯁꯦꯛꯁꯟ 4.6.6-ꯒꯤ ꯄꯪꯊꯣꯛꯄꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 5-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯃꯍꯩꯁꯤꯡ ꯑꯦꯀꯁꯦꯡꯁꯟ ꯍꯥꯏꯕ ꯄꯤꯕꯤꯌꯨ꯫
11. ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯃꯣꯗꯦꯜꯒꯤ ꯃꯍꯩ ꯆꯦꯛꯁꯤꯟꯕꯤꯌꯨ ꯑꯃꯁꯨꯡ ꯗꯣꯀꯨꯃꯦꯟꯇ ꯇꯧꯕꯤꯌꯨ (ꯁꯦꯛꯁꯟ 4.9)꯫
12. ꯁꯤꯅꯥꯔꯤꯑꯣꯁꯤꯡꯗꯥ, ꯄ꯭ꯔꯤꯄꯣꯖꯦꯂꯒꯤ ꯁꯤꯅꯥꯔꯤꯑꯣ ꯍꯥꯌꯕꯁꯤꯡꯗꯥ, ꯑꯃꯁꯨꯡ ꯃꯣꯗꯦꯜꯁꯤꯡꯗꯥ ꯍꯥꯌꯕꯒꯤ ꯑꯍꯣꯡꯕ ꯂꯥꯏꯅ ꯑꯃꯁꯨ ꯐꯤꯔꯤꯐꯤꯀ ꯄꯤꯕꯤꯌꯨ (ꯁꯦꯛꯁꯟ 4.17)꯫

4.6.3 ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃ ꯑꯃꯁꯨꯡ ꯍꯣꯛꯒꯤ ꯑꯦꯟꯇꯕꯤꯁꯤꯡ

ꯃꯁꯤꯗꯥ ꯌꯥꯑꯣꯔꯤꯕ ꯍꯥꯏꯗꯔꯣ ꯃꯗꯨ ꯍꯥꯌꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯁꯤꯡꯗꯤ:

ꯇꯦꯕꯜ 4.1 — ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯀꯤ ꯃꯍꯩ ꯆꯦꯛꯄ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃ ꯑꯦꯟꯁꯦꯝꯕꯜ ꯑꯃꯁꯨꯡ ꯍꯣꯛꯒꯤ ꯑꯦꯟꯇꯕꯤꯁꯤꯡ

AEP	ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡ (h)	AMC
50% (2-yr)	1, 2, 3, 6, 12, 24, 48, 72	≤ 6 h-ꯒꯤꯗꯃꯛ II; ≥ 12 h-ꯒꯤꯗꯃꯛ III
10% (10-yr)	1, 2, 3, 6, 12, 24, 48, 72	≤ 6 h-ꯒꯤꯗꯃꯛ II; ≥ 12 h-ꯒꯤꯗꯃꯛ III
1% (100-yr)	1, 2, 3, 6, 12, 24, 48, 72	≤ 6 h-ꯒꯤꯗꯃꯛ II; ≥ 12 h-ꯒꯤꯗꯃꯛ III

ꯀꯔꯤꯒꯨꯝꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯒꯤ ꯃꯇꯝꯗꯥ ꯀꯔꯤꯒꯨꯝꯕ ꯑꯦꯟꯇꯕꯤ ꯂꯩꯔꯕꯗꯤ 24, 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯃꯍꯩꯁꯤꯡ ꯍꯥꯏ ꯄꯥꯟ (ꯁꯦꯛꯁꯟ 2.5.2)꯫ ꯇꯦꯕꯜ 3-ꯗ Ia = 0.05S-ꯒꯤ ꯂꯩꯍꯧꯁꯤꯟꯕꯤ ꯍꯥꯏ ꯄꯥꯟꯖꯕ ꯍꯦꯅꯕ, ꯍꯧꯒꯤ ꯃꯑꯣꯡꯗ ꯁꯤꯅꯥꯔꯤꯑꯣꯒꯤ ꯀꯣꯂꯁꯤꯡꯗꯥ ꯃꯗꯨ ꯄꯤꯔꯛꯂꯤ꯫

4.6.4 ꯄꯥꯃꯀꯗꯥꯒꯤ ꯑꯦꯟꯇꯕꯤꯁꯤꯡ

ꯃꯗꯨ ꯍꯥꯏꯗꯔꯣ ꯍꯥꯌꯕꯒꯤꯁꯤꯡ ꯑꯣꯏꯅꯕ ꯄꯤꯔꯛꯂꯤ:

- ꯍꯧꯖꯤꯛꯀꯤ ꯑꯦꯟꯇꯕ ꯄꯔꯁꯦꯟꯇꯦꯖꯀꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯁꯤꯡ ꯄꯥꯝꯕ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯁꯤꯅꯥꯔꯤꯑꯣ;
- ꯀꯃꯍꯧꯖꯤꯛꯀꯤ ꯀꯥꯡꯂꯨꯞ ꯑꯃꯁꯨ ꯑꯦꯟꯇꯕ;
- ꯁꯦꯛꯁꯟ 4.11-ꯗ ꯌꯥꯍꯟꯕ ꯄꯥꯝꯕ ꯑꯦꯟꯇꯕꯗ, ꯑꯄꯥꯝꯕ ꯃꯥꯂꯦꯃꯒꯤ ꯀꯃꯗꯦꯟꯇꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- ꯑꯦꯟꯇꯕ RWH ꯁꯤꯅꯥꯔꯤꯑꯣ (ꯁꯦꯛꯁꯟ 4.11)꯫

ꯀꯨꯝ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯍꯣꯛꯒꯤ ꯑꯦꯟꯇꯕꯤꯁꯤꯡꯅ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯑꯦꯟꯇꯕꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯤꯁꯤꯡꯒꯤ ꯍꯥꯌꯕꯗꯥ, ꯃꯗꯨ ꯑꯃꯗꯥ ꯄꯥꯡꯗꯥ ꯃꯍꯩꯅ ꯑꯦꯟꯇꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯏ꯫

4.6.5 ꯃꯅꯥꯏ-ꯁꯤꯅꯥꯔꯤꯑꯣ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯑꯦꯟꯁꯦꯝꯕꯜ

4.6.5.1 ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯑꯃꯗꯤ ꯀꯔꯤꯒꯨꯝꯕ ꯍꯥꯏꯗꯔꯣꯁꯤꯡꯗꯥ ꯄꯤꯖꯕ ꯀꯔꯝꯕꯅ ꯂꯧꯔꯛꯂꯤ, ꯃꯄꯥꯟꯗ ꯃꯃꯤ 4.2-ꯅ ꯂꯧꯕ ꯃꯑꯣꯡꯅ ꯃꯑꯣꯡ ꯃꯍꯩ ꯑꯃꯁꯨꯡꯂꯤ:

- **ꯁꯤꯅꯥꯔꯤꯑꯣ 1**, ꯍꯥꯏꯗꯔꯣꯇꯤ: ꯂꯧ-ꯃꯍꯩ ꯑꯦꯟꯇꯕꯤ꯫ ꯃꯁꯤꯗ WQv ꯑꯃꯁꯨ 24–48 h-ꯅ ꯑꯦꯟꯇꯕꯥꯟ (ꯇꯦꯕꯜ 8) ꯑꯃꯁꯨꯡ ꯍꯥꯏ 2-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯔꯝꯕꯅ ꯄꯥꯟ꯫
- **ꯁꯤꯅꯥꯔꯤꯑꯣ 2**: ꯍꯧꯖꯤꯛꯀꯤ ꯑꯦꯟꯇꯕ ꯍꯥꯏ 2-ꯒꯤ ꯂꯧꯈꯤꯕ ꯌꯥꯍꯟꯕ ꯃꯇꯝꯒꯤ ꯂꯃꯀꯅ ꯑꯃꯁꯨ ꯑꯦꯟꯇꯕꯤꯇ ꯌꯥꯍꯟꯕ ꯁꯦꯛꯁꯤ꯫ ꯃꯁꯤꯗ ꯍꯥꯏ 10-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯔꯝꯕꯅ ꯄꯥꯟ꯫
- **ꯁꯤꯅꯥꯔꯤꯑꯣ 3**: ꯍꯧꯖꯤꯛꯀꯤ ꯑꯦꯟꯇꯕ ꯍꯥꯏ 10-ꯒꯤ ꯂꯧꯈꯤꯕ ꯌꯥꯍꯟꯕ ꯃꯇꯝꯒꯤ ꯂꯃꯀꯅ ꯑꯃꯁꯨ ꯍꯥꯏꯔꯤ, ꯗꯤꯖꯥꯏꯟ ꯀꯃꯗꯦꯟ ꯌꯥꯍꯟꯕ ꯄꯥꯡꯗꯥ ꯑꯦꯟꯇꯕ ꯑꯦꯟꯇꯕꯤ꯫ ꯃꯁꯤꯗ ꯍꯥꯏ 100-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯔꯝꯕꯅ ꯄꯥꯟ꯫
- **ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯃꯣꯗꯦꯜ**: ꯀꯃꯗꯦꯟꯃꯗꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡꯒꯤ ꯄꯤꯖꯕꯗ (ꯁꯦꯛꯁꯟ 4.9)꯫

ꯀꯥꯏ ꯍꯥꯏꯗꯔꯣ ꯑꯦꯟꯇꯄꯥꯟꯗꯤ ꯄꯥꯔꯗ ꯗꯤꯖꯥꯏꯟꯗ ꯂꯧꯁꯤꯟꯕ ꯃꯑꯣꯡꯅ ꯁꯤꯅꯥꯔꯤꯑꯣ ꯀꯨꯝꯕꯤꯗꯕ ꯂꯩꯄ꯫

4.6.5.2 ꯑꯣꯠ ꯁꯣꯏꯗ ꯃꯤꯒꯤꯅꯂ ꯑꯃꯁꯨꯡ ꯂꯤꯇꯤꯡꯖꯦꯝꯗꯃꯤ ꯑꯦꯃꯤꯡꯂꯂꯤꯒꯤ 0.60-ꯒꯤ ꯃꯤꯂꯍꯩꯃꯇ ꯄꯦꯑꯣꯡꯤꯂꯤꯔꯣꯖꯪꯇꯦ ꯄꯣꯔꯤꯟꯇꯣꯠ ꯁꯣꯒꯗꯕꯅꯤ॥ ꯍꯤꯔꯃꯂꯤꯗꯦ ꯀꯅꯦꯔꯒꯤ ꯂꯣꯌꯥꯎ ꯔꯦꯖꯇꯗ ꯄꯦꯑꯣꯡꯤꯂꯤꯔꯣꯖꯪ ꯂꯤꯇꯤꯡꯖꯦꯒꯗꯕꯅꯤ॥ ꯂꯗꯀꯃꯇ ꯑꯦꯅꯃꯗ ꯑꯦꯁꯪꯇꯣꯠ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯍꯣꯃꯒꯤ ꯅꯡꯣꯌꯣꯠꯂꯤꯗ ꯔꯦꯁꯐꯖꯒꯗꯕꯅꯤ (ꯇ꯭ꯕꯦꯜ 4.6.6)॥

4.6.5.3 ꯂꯌꯦꯅꯔꯃꯗꯦ ꯂꯃꯁꯤꯡꯅ ꯁꯣꯃꯗ ꯐꯣꯗ–ꯃꯤꯂꯍꯩꯃꯇ ꯄꯃꯒ ꯑꯃꯁꯨꯡ ꯌꯤꯃꯗ ꯑꯃꯁꯨꯡ ꯀꯤꯇꯤꯀ ꯇ꯭ꯕꯤꯔꯃ ꯑꯦꯌꯇꯤ ꯔꯦꯀꯗ꯭ꯃꯗꯗ 50 mm ꯇꯧꯗ ꯀꯡꯀꯗ ꯒꯦꯃꯣꯒꯂ ꯡ꯭ꯇꯦ ꯄꯖꯁ꯭ꯃꯦꯌꯂꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯌꯌ ꯌ꯭ꯃꯦꯌ꯭ꯃꯦꯅꯑꯣꯁꯃꯤ ꯃꯤꯒꯤꯅꯂꯂꯤ ꯂꯤꯇꯤꯖꯇꯗ ꯔꯦꯅ॥

4.6.6 ꯑꯦꯁꯪꯇꯣꯠꯌꯥ ꯌꯣꯏꯍꯣꯃ

ꯅꯂꯤ ꯇꯧꯗ ꯅꯂꯤꯒꯤ ꯇꯒꯌ ꯑꯦꯁꯪꯇꯣꯠꯄꯤ ꯅꯖꯒꯃꯠꯌꯒꯤ ꯍꯤꯗꯦ ꯐꯖꯒꯠꯌ ꯔꯦꯗ ꯀꯡꯀ ꯈ꯭ꯗꯤꯀꯒꯌ, ꯑꯦꯁꯪꯇꯣꯠ ꯑꯂꯤ ꯡ꯭ꯃꯤ ꯑꯦꯁꯪꯡꯦꯌ ꯇꯠꯌꯗꯦ ꯅꯂꯤ ꯇꯧꯗ ꯂꯤꯂ꯭ꯌꯀꯒꯤ ꯌꯣꯏꯍꯣꯃꯒꯤ ꯀꯤꯔꯦꯒꯌ ꯃꯦꯁꯪ ꯁꯣꯒꯗꯕꯅꯤ॥ ꯌꯣꯏꯍꯣꯃ ꯑꯂꯤ:

- ꯅꯂꯤ ꯇꯧꯗ ꯅꯦꯗꯦꯖ ꯑꯀꯒꯤꯗꯀꯒ: ꯇꯧꯗꯦꯒ ꯑꯗ꯭ꯀꯒꯌ ꯀꯂꯤꯒꯤ ꯅꯂꯤꯒꯤ ꯇꯒꯌ, ꯂꯃ꯭ꯒ 5-ꯒꯤ ꯑꯦꯗꯦꯅꯂꯤꯂꯌꯒꯤ ꯇꯠꯃꯒ, ꯌꯤꯔꯃ B-ꯒꯤꯗꯀꯒ, ꯅꯦꯗꯦꯖꯒꯤ ꯑꯦꯗꯒꯃꯠ;
- ꯌꯦꯅꯗꯌ (tidal) ꯇꯠꯃꯒ ꯗꯒꯌꯦꯌꯃꯗꯦ ꯂꯦꯒꯌ ꯑꯦꯁꯪꯡꯦꯌꯂꯤꯒꯤꯗꯀꯒ: ꯇ꯭ꯕꯦꯜ 2.12 ꯑꯃꯁꯨꯡ ꯂꯃ꯭ꯒ 5-ꯒꯤ ꯇꯒꯌꯂꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯖꯠ ꯄꯂꯂꯤ, ꯑꯦꯁꯪꯡꯦꯌ ꯇꯤꯗ ꯍꯒ ꯔꯦꯁꯦ (ꯇ꯭ꯕꯦꯜ 5.10)॥

ꯌꯣꯏꯍꯣꯃꯗꯦ ꯍꯠꯄꯗꯗ ꯀꯡꯀꯗ, ꯑꯦꯁꯪꯇꯣꯠꯌꯥ ꯡ꯭ꯇꯌ ꯒꯠ ꯑꯃꯁꯨꯡ ꯇꯀꯒꯗꯕꯅꯤ (ꯇ꯭ꯕꯦꯜ 5.11)॥ ꯃꯦꯁꯪꯗ ꯒꯠ ꯇꯤꯗ ꯔꯦꯁꯗ꯭ꯃꯗꯗ ꯌꯣꯏꯍꯣꯃ ꯇꯒꯌꯒꯤ ꯀꯅꯦꯗ ꯇꯧꯗ ꯂ꯭ꯌꯦꯃꯇ ꯑꯗ꯭ ꯡꯗ ꯔꯦꯗ ꯑꯦꯅꯗꯦ ꯀꯂꯤ ꯇꯤꯃꯦꯅꯗꯕꯅꯤ॥

4.6.7 ꯈꯨꯗꯝ ꯑꯦꯅꯕ ꯈꯨꯗꯝ

ꯈꯨꯗꯝ ꯑꯦꯅꯗꯦ ꯅꯒꯌꯕꯅꯤ — ꯃꯤꯇꯦꯅꯖ ꯒꯌ꯭ꯅ ꯇꯠꯌ. ꯈꯨꯗꯝ ꯑꯂꯤꯗꯦ ꯌ꯭ꯃꯦꯂꯤꯇꯃ ꯑꯃꯁꯨꯡ ꯀꯂꯤꯗꯦ ꯇꯦꯒꯐꯌꯇꯤꯗ ꯂꯦꯅꯇꯂꯤ ꯁꯠꯇꯤ॥ ꯅꯖꯌ꯭ꯠꯂꯤ ꯑꯂꯤ ꯇꯤꯃꯤꯒꯤ ꯅꯦꯗ ꯑꯀꯗ ꯅꯃꯀ ꯁꯣꯗ ꯇꯤꯃꯤꯗꯀ ꯂꯐꯃꯒꯤ ꯍꯤꯗꯒꯤ ꯀꯗꯦꯒꯄꯤ ꯄꯦꯇꯦꯇꯤ ꯑꯀꯒꯤꯗꯀꯒ ꯇꯤꯇꯗ ꯔꯦꯗ ꯑꯦꯅꯗꯦ ꯂꯀꯒꯠꯅꯤꯗꯕꯅꯤ॥ ꯀꯅꯦꯔ ꯑꯂꯤ NIH-DHAARA-ꯒꯤ ꯒꯌ꯭ꯅꯂꯤ ꯇꯠꯌ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯦꯅꯖꯒꯤꯗꯀꯒ ꯂꯤꯇꯤꯖꯇꯃꯦꯅꯗꯕꯅꯤ॥

ꯅꯖꯌ꯭ꯠꯂꯤ:

- ꯂꯦꯅꯠ: 2.0 ha, ꯅꯂꯤ ꯅꯍꯦꯁꯗ ꯂꯖꯂꯤꯌꯒ ꯑꯦꯅꯗ ꯄꯍꯀꯖꯠ (ꯇ꯭ꯕꯦꯜ 4.5.3)॥
- ꯇꯧꯀꯦꯅꯒꯤ ꯄꯒꯃ: ꯗꯒꯇꯌꯀꯖꯠꯄꯤ ꯀꯀꯤꯗ ꯌ꯭ꯀꯇꯀ ꯌꯃꯒꯤꯔꯂ, CN 70॥ ꯗꯒꯇꯌꯀꯖꯠꯄꯤ ꯀꯌ꯭ꯗ ꯂꯗ-ꯑꯃꯤꯔꯦ ꯑꯇꯤ ꯑꯦꯅꯗꯦ (ꯇ꯭ꯕꯦꯜ 3.9.2): CN 98-ꯗ ꯇꯧꯗ, AMC-ꯒꯤꯗꯀꯒ ꯄꯧꯗꯦꯄꯧꯗ꯭ ꯄꯖꯒꯃꯠ ꯁꯣꯗꯗ, ꯐꯒꯇꯒꯇꯦ ꯂꯀꯇꯃꯗ ꯅꯀꯌꯃꯒꯤꯔꯂ ꯂꯃꯡꯂ 1.57 ha, ꯑꯃꯁꯨꯡ ꯗꯒꯇꯌꯀꯖꯠꯄꯤ ꯀꯀꯤꯒ ꯀꯖꯇꯗ ꯇꯧꯀꯦꯅꯗ CN 70-ꯗ ꯇꯧꯗ ꯌꯃꯒꯤꯔꯂ ꯑꯦꯌꯖ ꯂ꯭ꯌꯂ 0.43 ha; AMC II-ꯗ ꯑꯃꯤꯔꯦ-ꯍꯅꯁꯗ CN ꯑꯂꯤ 92॥ 12 h ꯑꯃꯁꯨꯡ ꯀꯂꯤꯗꯒꯤ ꯂꯦꯒꯗ ꯇꯧꯗꯦꯒꯂꯤꯒꯤꯗꯀꯒ ꯌꯃꯒꯤꯔꯂ CN ꯅꯒꯁꯀꯒ AMC III-ꯗ ꯄꯖꯒꯃꯠ ꯁꯣꯅ: CN_III = 23·CN / (10 + 0.13·CN) = 84.3 (ꯇ꯭ꯕꯦꯜ 3.8.4)॥
- ꯌꯦꯅꯀ ꯑꯦꯡ ꯄꯖꯂꯖ꯭ꯃꯂꯖ (Tc): ꯗꯒꯇꯌꯀꯖꯠꯄꯤ ꯀꯀꯤꯗ 45 min, ꯗꯒꯇꯌꯀꯖꯠꯄꯤ ꯀꯌ꯭ꯗ 15 min (ꯂꯗ-ꯑꯃꯤꯔꯦ ꯑꯇꯤꯀꯒꯄꯤꯗꯀꯒ ꯂꯤꯇꯤꯖꯇꯃꯤ)॥ SCS-ꯒꯤ ꯌ꯭ꯃꯦꯅꯑꯒꯈ꯭ꯇꯃ ꯅ꯭ꯇꯤꯠ ꯐꯅꯗ꯭ꯃꯦꯒ꯭ꯃꯦꯡ; ꯀꯤꯇꯤꯠ 5-ꯒꯤ ꯌꯦꯅꯀ ꯂ꯭ꯌꯌ॥
- 24-h-ꯒꯤ ꯗꯌꯇꯂꯤ: ꯍꯐꯤ 2, 10 ꯑꯃꯁꯨꯡ 100-ꯒꯤꯗꯀꯒ 110, 200 ꯑꯃꯁꯨꯡ 350 mm (ꯍꯐꯤ 10 ꯑꯃꯁꯨꯡ 100-ꯒꯤ ꯒꯌ꯭ꯅꯂꯤ ꯇ꯭ꯕꯦꯜ 2.11-ꯒ ꯀꯖꯇꯧ)॥
- ꯐꯖꯇꯦ ꯔꯦꯀꯇꯦ ꯂꯦꯒꯗꯗ ꯗ꯭ꯅ꯭ꯃꯂꯖꯂꯤ: P(t) = P24·(t/24)^0.40, ꯇꯧꯅꯤꯗ ꯃꯂꯤꯑꯦꯒꯤ ꯂꯠ ꯑꯀꯇꯤ, ꯑꯐꯖꯗ 2B ꯇꯠꯌ॥
- ꯐꯖꯇꯦ ꯂꯦꯒꯗ ꯗ꯭ꯅ꯭ꯃꯂꯖꯂꯤ: 48-h ꯑꯃꯁꯨꯡ 72-h-ꯒꯤ ꯗꯌꯇꯂꯤ 1.25 ꯑꯃꯁꯨꯡ 1.40 × P24 ꯑꯦꯅꯗꯦ ꯇꯧꯅ, ꯇ꯭ꯕꯦꯜ 2.9.2-ꯒꯤ ꯀꯌ꯭ꯗ ꯅꯖꯇ ꯇꯀꯅ॥
- ꯂ꯭ꯌꯦꯃꯇ: ꯀꯇꯒꯌ ꯇꯌꯌ ꯍꯦꯌ ꯇꯧꯗ, ꯌ꯭ꯇꯦꯖ ꯑꯃꯤꯔꯦ 2,500 m²॥
- ꯇꯦ-ꯡ꯭ꯇꯦ ꯑꯦꯃꯤꯡꯤꯂ 50% ꯇꯤꯗꯇꯗꯂ꯭ ꯗ꯭ꯃꯦꯗꯦꯁꯖ ꯄꯀꯐꯖꯇꯗ ꯂꯦꯅꯇ ꯇꯌꯇꯗ ꯑꯦꯁꯪꯇꯣꯠ (ꯇ꯭ꯕꯦꯜ 4.8.3)॥ ꯍꯒ ꯑꯂꯤꯗ ꯀꯦꯅꯇꯤꯗ ꯌꯤꯅꯤꯗ ꯌ꯭ꯃꯦꯅꯑꯌ ꯑꯦꯁꯪꯇꯣꯠ ꯑꯗ꯭ ꯑꯐꯖꯗ 4C-ꯗꯦ ꯁꯠꯇꯤ॥
  - ꯂ꯭ꯌꯇ 1: ꯅꯖꯒꯃꯠꯌ 170 mm-ꯒꯤ ꯑꯦꯃꯤꯡꯤꯂ॥
  - ꯂ꯭ꯌꯇ 2: ꯡ꯭ꯇꯦꯃꯗꯒꯤ 0.53 m ꯍꯤꯗꯦ ꯅꯖꯒꯃꯠ ꯇꯧꯗ 460 mm-ꯒꯤ ꯑꯦꯃꯤꯡꯤꯂ॥
  - ꯂ꯭ꯌꯇ 3: ꯀꯇꯧ ꯌꯦꯗ, ꯀꯃꯀꯗꯤ ꯍꯐꯤ 100-ꯒꯤ ꯄꯌ ꯂ꯭ꯌꯇ 1 ꯑꯃꯁꯨꯡ 2-ꯗꯦ ꯄꯀꯐꯌꯇꯤ॥

ꯔꯤꯖꯜꯇꯁꯤꯡ (ꯗꯤꯁꯆꯥꯔꯖꯁꯤꯡ L/s-ꯗ; ꯁ꯭ꯇꯣꯔꯦꯖ m³-ꯗ):

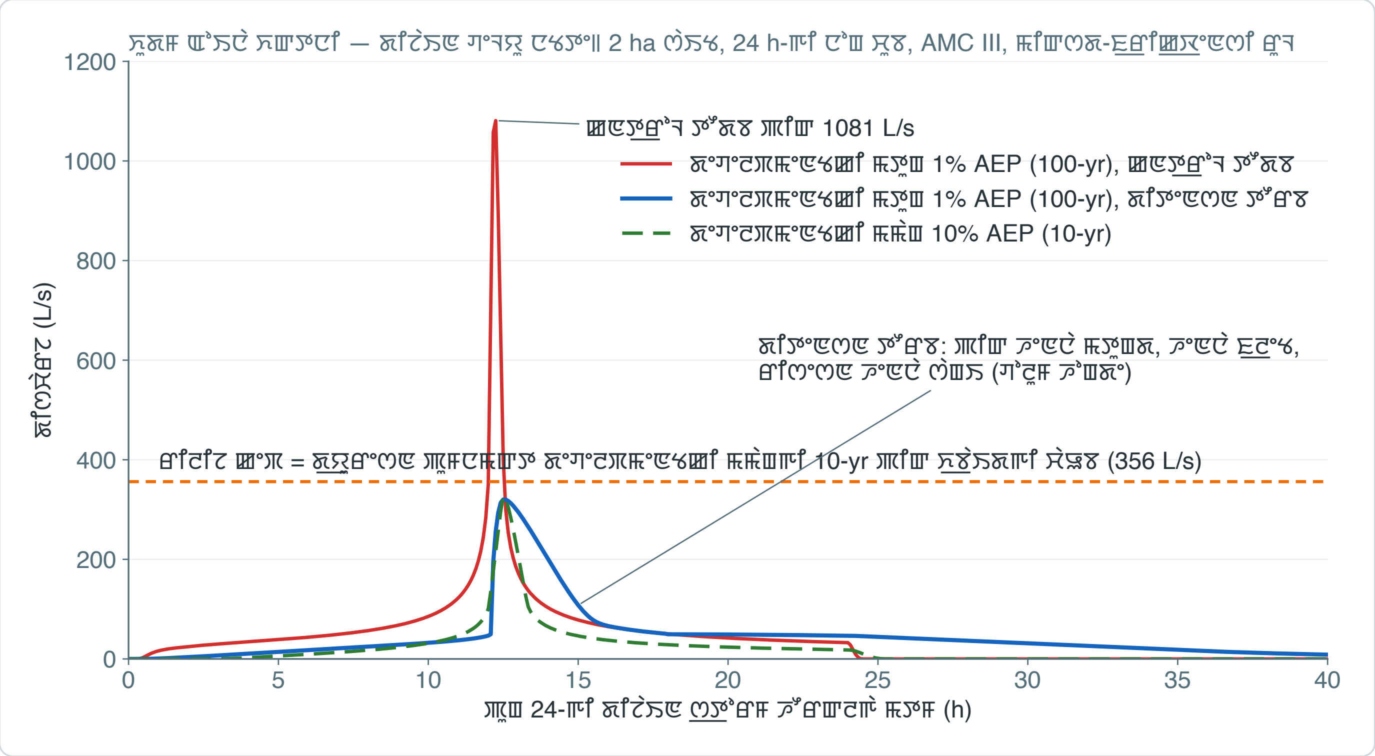
ꯇꯦꯕꯜ 4.2 — ꯁ꯭ꯇꯣꯔꯝ ꯑꯦꯟꯗ ꯁ꯭ꯇꯣꯔꯝ: ꯗ꯭ꯔꯦꯁꯟ ꯄꯤꯛ ꯏꯅꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯆꯥꯔꯖꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯛꯋꯥꯌꯔꯗ ꯁ꯭ꯇꯣꯔꯦꯖ (ꯁ꯭ꯇꯣꯔꯝ ꯑꯦꯟꯗꯒꯤ ꯑꯣꯏꯕꯁꯤ — ꯗꯤꯖꯥꯏꯟ ꯀꯦꯁ ꯄ꯭ꯂꯥꯟ)

ꯗ꯭ꯔꯦꯁꯟ (h)	ꯆꯍꯤ 2, ꯄꯤꯛ	ꯆꯍꯤ 2, ꯄꯤꯛ, ꯑꯥꯎꯠꯂꯦꯠ ꯐ꯭ꯂꯣ	ꯆꯍꯤ 10, ꯄꯤꯛ	ꯆꯍꯤ 10, ꯄꯤꯛ, ꯑꯥꯎꯠꯂꯦꯠ ꯐ꯭ꯂꯣ	ꯆꯍꯤ 100, ꯄꯤꯛ, ꯏꯅꯐ꯭ꯂꯣ ꯐ꯭ꯂꯣ	ꯆꯍꯤ 100, ꯄꯤꯛ, ꯑꯥꯎꯠꯂꯦꯠ ꯐ꯭ꯂꯣ	ꯆꯍꯤ 100-ꯗ ꯔꯤꯛꯋꯥꯌꯔꯗ ꯁ꯭ꯇꯣꯔꯦꯖ	ꯆꯍꯤ 10-ꯒꯤ ꯗ꯭ꯔꯥꯎꯗꯥꯎꯟ, 50% ꯇꯥꯏꯝ (h)
1	4	15	51	28	922	42	1,426	31.3
2	14	20	84	34	961	79	1,911	32.1
3	19	22	104	37	981	139	1,999	32.8
6	32	25	150	41	1,010	194	2,154	34.2
12	127	30	302	46	1,074	276	2,512	39.0
24	149	32	327	49	1,081	320	2,766	**45.3**
48	173	34	349	82	1,087	343	**2,913**	44.8
72	180	34	356	84	1,089	343	2,911	44.7

ꯃꯔꯨꯑꯣꯏꯕ ꯋꯥꯐꯃꯁꯤꯡ:

- **ꯆꯍꯤ 100-ꯒꯤ ꯃꯦꯛꯁ.** ꯃꯦꯛꯁ ꯑꯁꯤ ꯇ꯭ꯔꯤꯇꯃꯦꯟꯇꯀꯤ ꯍꯦꯟꯅ ꯗꯦꯀꯦꯁꯟꯌꯤꯡꯒꯤ ꯄꯤꯛꯇꯒꯤ ꯆꯍꯤ 10-ꯒꯤ ꯁꯤꯡꯕ, 356 L/s (72 h)-ꯅꯤ꯫ ꯆꯍꯤ 100-ꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯐ꯭ꯂꯣ ꯁꯤꯡꯕ ꯁ꯭ꯇꯥꯟꯗꯔꯗ ꯄꯥꯔꯥ ꯅꯥꯏꯔꯤꯕ ꯄꯥꯔꯤꯒꯤ ꯄꯨꯝꯅꯃꯛ; ꯇ꯭ꯔꯤꯇꯃꯦꯟꯇꯀꯤ ꯍꯦꯟꯅ ꯑꯃꯅ 343 L/s꯫
- **ꯆꯍꯤ 2-ꯒꯤ ꯃꯦꯛꯁ.** ꯂꯣꯅꯥ ꯑꯁꯤ ꯇꯥꯏꯕ ꯇꯍꯦꯟꯅ ꯂꯦꯃꯍꯧꯔꯤꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯆꯍꯤ 2-ꯒꯤ ꯃꯦꯛꯁ ꯑꯁꯤ ꯇ꯭ꯔꯤꯇꯃꯦꯟꯇꯀꯤ ꯍꯦꯟꯅ ꯗꯦꯀꯦꯁꯟꯌꯤꯡꯒꯤ ꯄꯤꯛꯇꯒꯤ ꯆꯍꯤ 2-ꯒꯤ ꯁꯤꯡꯕ, 180 L/s (72 h; ꯃꯦꯖꯔ 4.5.3.1)-ꯅꯤ꯫ ꯇ꯭ꯔꯤꯇꯃꯦꯟꯇꯀꯤ ꯍꯦꯟꯅ ꯆꯍꯤ 2-ꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯐ꯭ꯂꯣ ꯁꯤꯡꯕ 34 L/s꯫ ꯁꯨꯡ 1, 2 ꯑꯃꯁꯨꯡ 3-ꯗ ꯑꯥꯎꯠꯂꯦꯠ ꯐ꯭ꯂꯣ ꯆꯍꯤ 2-ꯒꯤ ꯁꯤꯡꯕ ꯑꯁꯤ ꯄꯣꯠꯁꯕ ꯗ꯭ꯔꯦꯁꯟꯒꯤ ꯗꯦꯀꯦꯁꯟꯌꯤꯡꯒꯤ ꯄꯤꯛꯇꯒꯤ ꯁꯤꯡꯕꯔꯒꯤ ꯍꯦꯟꯅ (15 ꯑꯃꯁꯨꯡ 4 L/s, 20 ꯑꯃꯁꯨꯡ 14 L/s, ꯑꯃꯁꯨꯡ 22 ꯑꯃꯁꯨꯡ 19 L/s)꯫ ꯃꯁꯤ ꯑꯁꯤꯗ ꯍꯦꯟꯅꯃꯊꯣꯛꯄ ꯑꯃꯅ ꯃꯇꯥ ꯔꯣꯗ꯫ ꯃꯦꯖꯔ 4.5.2-ꯒꯤ ꯃꯍꯩꯗ ꯅꯥꯏꯕ ꯂꯣꯅꯥ ꯑꯃꯒꯤꯗꯃꯛꯇꯥꯔꯗꯤ ꯃꯇꯥ ꯔꯣꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯣꯒꯤ ꯃꯔꯝꯗ ꯃꯦꯖꯔ 4.5.5.2 ꯆꯌꯅꯒꯅꯤ꯫
- **ꯆꯌꯃꯗꯕ ꯁ꯭ꯇꯣꯔꯦꯖ.** ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ **ꯁꯨꯡ 48 ꯑꯃꯁꯨꯡ 72**-ꯒꯤ ꯇꯥꯗꯨꯅꯤꯡꯗꯤ ꯆꯌꯃꯗꯕꯅꯤ: 2,913 m³, ꯃꯁꯤ ꯂꯣꯅꯥꯌꯤꯡ m² ꯈꯗꯤꯡꯗ 0.146 m³ ꯑꯣꯏ, ꯇ꯭ꯔꯤꯇꯃꯦꯟꯇꯀꯤ ꯗꯕ 1.17 m-ꯗ꯫ ꯃꯄꯤꯔꯃꯦꯟ ꯗ꯭ꯔꯦꯁꯟꯒꯤ ꯁꯤꯡꯕ ꯇꯥꯗꯕ (ꯃꯦꯖ ꯑꯁꯤꯗ 1–3 h) ꯁꯥꯔꯃꯦꯕ ꯆꯦꯕ ꯔꯣꯗꯕ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯅ ꯃꯄꯥ 2,000 m³ ꯁꯤꯄꯃꯒꯅꯤ, ꯃꯇꯥ ꯔꯣꯕꯒꯤ ꯑꯣꯏꯃꯗ ꯑꯅꯤꯒꯤ ꯃꯄꯥ꯫
- **ꯗꯔꯥꯎꯗꯥꯎꯟ.** ꯖꯦ-ꯃꯖꯦ ꯑꯦꯄꯤꯃꯤꯂ 50% ꯇꯥꯏꯝꯖꯕ ꯃꯔꯝꯗ (ꯃꯦꯖꯔ 4.8.3), ꯆꯍꯤ 10-ꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ 90% ꯑꯁꯤ ꯇ꯭ꯔꯤꯇꯃꯦꯟꯇꯀꯤ ꯍꯦꯟꯕꯗ 45.3 h-ꯗ (ꯁꯨꯡ 24-ꯒꯤ ꯇꯥꯗꯨꯕ) ꯇꯥꯃꯍ, ꯃꯦꯖꯔ 4.7-ꯒꯤ ꯁꯨꯡ 48-ꯒꯤ ꯃꯇꯨꯡꯗ꯫ 120 mm-ꯒꯤ ꯑꯦꯄꯤꯃꯤꯂ ꯑꯃꯖ ꯂꯦꯡꯖꯕ ꯃꯔꯝꯗ ꯃꯄꯥ 42 h-ꯗ ꯇꯥꯗꯨꯕꯃꯅꯤ ꯑꯗꯨꯕ ꯔꯥꯡꯍꯦꯍ ꯇꯥꯏꯝꯖꯕ ꯃꯔꯝꯗ 54-ꯗꯒꯤ 75 h ꯆꯥꯡꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯁꯤ ꯃꯍꯧꯇꯤꯕ ꯁꯤꯡꯍ꯫ ꯔꯄꯍꯑꯦꯔ ꯑꯃꯅ ꯑꯃꯁꯨꯡ ꯄꯦꯛꯔꯤꯡ ꯑꯃꯅ ꯍꯦꯡꯇꯤꯡ ꯍꯦꯡꯇꯤꯡ ꯑꯔꯦꯡꯕ 4C-ꯗ ꯂꯩꯅꯤ꯫
- **ꯄꯤꯔꯦꯡꯂꯦꯡ ꯃꯄꯥꯗꯤꯌ.** 40 mm-ꯒꯤ ꯁ꯭ꯇꯣꯔꯝ ꯑꯦꯟꯕ ꯄꯤꯔꯦꯡꯂꯦꯡ ꯗꯦꯁꯇꯒꯤ ꯖꯦꯍꯅꯅꯗꯦ, RRV = 552 m³, ꯂꯕ-ꯑꯦꯄꯤꯍ ꯁ꯭ꯇꯗꯤꯡꯃꯇꯃꯗꯤꯃꯇ ꯃꯦꯔꯃꯦꯖꯌ ꯔꯥꯄꯕ (ꯃꯦꯖꯔ 3.9.4)꯫ ꯇꯥꯗꯨꯕꯃꯤ ꯑꯔꯥꯕꯗꯒꯤ ꯇꯦꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯗꯨꯕꯃꯤ ꯃꯔꯝꯗ ꯍꯦꯃꯤꯔꯗ꯭ꯔꯦꯁꯟ ꯅꯔꯕ ꯑꯦꯟꯗꯦ ꯃꯗꯦꯔ ꯔꯥꯄꯕꯗꯤ, ꯄꯤꯔꯦꯡꯂꯦꯡꯗꯦ ꯁꯨꯡ 24-ꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖ 138 m³ ꯑꯃꯁꯨꯡ ꯁꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖ 7 m³ ꯖꯌꯄꯒꯤ ꯃꯁꯤꯗꯒꯤ ꯖꯦꯃꯗꯦ ꯑꯔꯇꯑꯔꯗꯅꯤ꯫ ꯃꯄꯥ ꯑꯁꯤꯗꯦ ꯂꯣꯅꯥ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯃꯦꯖꯔ 4.4.6-ꯒꯤ ꯃꯍꯩꯗ ꯅꯥꯏꯕ ꯃꯄꯥꯗꯤꯌ ꯑꯁꯤ ꯂꯦꯡꯍꯒꯤ ꯃꯦꯡꯅꯤ꯫

ꯃꯁꯤꯡꯒꯤ ꯍꯦꯡ, ꯂꯣꯅꯥꯌꯤꯡ m² ꯈꯗꯤꯡꯗ ꯃꯄꯥ 0.15 m³, ꯑꯁꯤ ꯃꯦꯖꯔ 2.11-ꯒꯤ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯦꯡꯅꯤ꯫



ꯃꯃꯤ 4.1 — ꯍꯨꯑꯃ ꯑꯣꯅꯕ ꯍꯨꯑꯃ ꯑꯁꯨꯒꯤ (ꯁꯦꯛ꯭ꯇ 4.6.7) ꯄꯨꯡ 24-ꯒꯤ ꯊꯧꯑꯣꯡꯃꯤꯑꯃꯤ ꯑꯥꯒꯥꯇꯃꯃꯥꯗꯌꯃꯤ ꯃꯃꯥꯡꯒꯤ ꯍꯌꯤ 10, ꯑꯥꯒꯥꯇꯃꯃꯥꯗꯌꯃꯤ ꯃꯇꯨꯡꯒꯤ ꯍꯌꯤ 100 ꯗꯤꯇꯦꯟ꯭ꯁꯟ ꯇꯧꯗꯕ ꯑꯃꯁꯨꯡ ꯑꯤꯇꯦꯟꯁꯟ ꯇꯧꯔꯕ ꯍꯅꯗ꯭ꯔꯒ꯭ꯔꯥꯐꯁꯤꯡ꯫ ꯍꯨꯑꯃ ꯑꯣꯅꯕꯦ ꯍꯃꯁꯇꯤ — ꯑꯤꯇꯦꯅꯗ ꯒꯥꯔꯍꯨ ꯇꯌꯁꯥ꯫ ꯃꯥꯂꯦꯌꯥꯔ ꯑꯁꯤꯒꯤꯑꯃꯤ ꯑꯇꯣꯦ ꯂꯥꯃꯕ ꯗ꯭ꯔꯣꯅꯤ, MARC/KC APWA Section 5600 ꯑꯃꯁꯨꯡ Georgia Stormwater Management Manual (2016)-ꯗ ꯇꯦꯕ ꯃꯃꯥꯡ/ꯃꯇꯨꯡꯒꯤ ꯑꯥꯒꯥꯇꯃꯃꯥꯗꯌꯃꯤ ꯍꯅꯗ꯭ꯔꯒ꯭ꯔꯥꯐꯁꯤꯡ ꯌꯦꯕꯅꯇꯣꯗꯒꯤ ꯍꯣꯡꯑꯣꯇꯒꯤ ꯇꯦꯅꯤꯕ꯫

> **ꯂꯦꯑꯣꯇꯦ ꯇꯣꯀꯄ.** ꯃꯃꯤ 4.1-ꯗꯦ ꯑꯤꯇꯦꯟꯁꯟꯗꯦ ꯃꯗꯤ ꯇꯣꯕꯒꯥ ꯑꯃꯁꯨꯡ ꯃꯗꯤ ꯇꯣꯀꯕꯒꯥ ꯈꯌꯇꯤ꯫ ꯃꯂꯤꯗꯦ ꯄꯤꯛ ꯑꯃꯨ ꯃꯃꯅ ꯑꯃꯁꯨꯡ ꯊꯥꯍꯟꯇꯤ꯫ ꯃꯂꯤꯗꯦ ꯒꯦꯜꯃ ꯍꯦꯊꯍꯦꯗꯥ: ꯑꯤꯇꯦꯟꯁꯟ ꯇꯧꯔꯕ ꯃꯗꯒꯃꯤ ꯃꯌꯥꯒꯤ ꯑꯥꯗꯤꯌꯦ ꯑꯂꯤ ꯗꯤꯇꯦꯟ꯭ꯁꯟ ꯇꯧꯗꯕ ꯃꯗꯒꯃꯤ ꯃꯌꯥꯒꯤ ꯑꯥꯗꯤꯌꯦꯒꯤ ꯃꯦꯗꯦꯟ, ꯑꯥꯒꯥꯇꯃꯃꯥꯗꯌꯃꯤ ꯃꯃꯥꯡꯒꯤ ꯍꯌꯤ 10-ꯒꯤ ꯒꯦꯜꯃꯗꯒꯤ ꯑꯇꯤꯗꯒꯤ ꯍꯥꯟꯅꯕ꯫ ꯍꯥꯟꯅꯕ ꯇꯦꯗꯕ ꯒꯦꯜꯃ ꯑꯃꯨ ꯊꯧꯑꯣꯡꯃꯤ ꯃꯇꯨꯡꯗ ꯄꯨꯡ ꯃꯌꯥꯒꯤ ꯃꯄꯨꯡꯗ ꯂꯅꯌꯇꯒꯤ ꯊꯣꯃꯅ꯫ ꯂꯃꯗꯦ ꯍꯌꯇꯤꯕ ꯔꯤꯂꯤꯖ ꯑꯃꯨ ꯃꯌꯥ ꯊꯃꯕ ꯃꯖꯃꯗ ꯇꯦꯕ ꯍꯥꯟꯅꯕ ꯂꯦꯡꯕ ꯃꯥꯍꯃꯗꯦꯌꯃꯤ ꯄꯤꯛꯇꯒꯤ ꯃꯇꯝ ꯃꯦꯗꯇꯕ ꯌꯅ (ꯁꯦꯛ꯭ꯇ 4.16), ꯑꯃꯁꯨꯡ ꯑꯦꯡꯌꯖꯦꯟ ꯑꯃꯨ ꯇꯅꯗꯦ ꯇꯣꯛ ꯇꯣꯕꯕ ꯃꯇꯝꯗꯨ ꯃꯂꯤ ꯅꯗꯝ ꯇꯣꯒꯕꯇꯤ (ꯂꯃꯥꯛ 5)꯫

4.7 ꯗ꯭ꯔꯣꯏꯡꯏ

4.7.1 **ꯑꯤꯇꯦꯟꯁꯟ.** ꯗ꯭ꯔꯥꯟꯕ ꯍꯨꯑꯤꯃꯃꯥꯃꯤ 10% AEP (10-yr)-ꯒꯤ ꯊꯧꯑꯣꯇ ꯊꯃꯤꯗꯒꯕ ꯍꯧꯖꯤꯛꯀꯤ ꯌꯦꯡꯕ ꯒꯦꯜꯃꯒꯤ ꯌꯦꯃꯗꯕꯗ **90%** ꯑꯂꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯌꯦꯡꯕ ꯂꯥꯏꯔꯃꯒꯤ ꯃꯇꯃꯗꯒꯤ **ꯄꯨꯡ 48**-ꯒꯤ ꯃꯅꯨꯡꯗ, ꯒꯗꯒꯤꯇꯤꯗꯦ, ꯁꯦꯛ꯭ꯇ 4.6.6-ꯒꯤ ꯇꯦꯅꯡꯤꯗꯒꯤ ꯇꯦꯌꯗꯦ ꯊꯧꯑꯣꯃꯗꯕꯇꯤ꯫

4.7.2 **ꯌꯦꯗ ꯗ꯭ꯔꯤꯇꯤꯇꯤ ꯒꯦꯜꯃ.** WQv ꯑꯂꯤ ꯄꯨꯡ 24-ꯗꯒꯤ ꯇꯥꯃꯗꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 48-ꯗꯒꯤ ꯍꯥꯟꯗꯕ ꯃꯇꯃꯗ ꯊꯧꯑꯣꯃꯗꯕꯇꯤ (ꯂꯃꯥꯛ 8)꯫

4.7.3 **ꯗꯤꯇꯦꯟꯁꯟ.** ꯗꯤꯇꯦꯟꯁꯟ ꯂꯥꯏꯔꯝ ꯑꯂꯤ ꯄꯨꯡ 72-ꯒꯤ ꯃꯅꯨꯡꯗ ꯅꯦꯖꯤꯅꯗ꯭ꯔꯥꯟꯕ ꯇꯌꯗꯒꯤ ꯑꯃꯨꯛ ꯍꯥꯟꯅꯕ ꯂꯤꯇꯤꯂꯦꯇꯕꯗꯦ ꯑꯍꯟꯕ ꯑꯣꯅꯍꯦꯒꯗꯕꯇꯤ (ꯁꯦꯛ꯭ꯇ 4.4.5)꯫

4.7.4 **ꯇꯅꯗ꯭ꯔ ꯑꯦꯡꯌꯖꯦꯟꯂꯤꯃ.** ꯂꯅꯃꯔ ꯍꯨꯑꯤꯃꯃꯥꯃꯤ ꯃꯇꯝ ꯌꯗꯗ ꯇꯅꯗꯦ ꯒꯗꯒꯤꯇꯤ ꯗ꯭ꯔꯣꯏꯡꯏ ꯊꯤꯃꯇꯕ ꯃꯖꯃꯗ, ꯇꯅꯗ꯭ꯔ ꯇꯦꯅꯡꯤꯗ ꯃꯣꯔ ꯇꯨꯑꯣꯗꯦ ꯄꯨꯡ 48-ꯒꯤ ꯇꯤꯃꯤꯌ ꯌꯌꯇꯦ꯫ ꯒꯗꯒꯤꯇꯤꯗꯦ ꯖꯃꯍꯥꯂꯕ ꯖꯃꯗꯕ ꯃꯖꯃꯗ, ꯁꯦꯛ꯭ꯇ 5.12-ꯒꯤ ꯃꯌꯗ ꯄꯃꯄꯗꯦ ꯗ꯭ꯔꯣꯏꯡꯏ ꯄꯤꯛꯗꯕꯇꯤ꯫

ꯆꯥꯡꯗꯝꯅꯕꯗꯦ ꯌꯦꯡꯕ. KC APWA 5600 (2006)-ꯅ ꯃꯤꯄꯥꯏ ꯗꯤꯇꯦꯟꯁꯅꯒꯤ ꯄꯣꯟꯗꯒꯤ ꯃꯇꯝ ꯄꯨꯡ 24-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯣꯡꯕꯤꯟꯗꯨꯒꯤ ꯀꯣꯏꯊꯣꯛꯄ 80% ꯊꯥꯗꯣꯀꯄ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 72-ꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯄꯨꯟꯕ ꯑꯣꯟꯅꯕ ꯃꯊꯧ ꯇꯥꯔꯤꯕꯅꯤ꯫ ꯂꯤꯡꯈꯠꯄ PUB-ꯅ ꯁꯤꯡꯗꯦꯜꯗ ꯑꯣꯏ ꯄꯨꯡ 4-ꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯃꯨꯛ ꯍꯟꯅ ꯏꯟꯗꯦꯛꯇ ꯃꯊꯧ ꯇꯥꯔꯤ꯫ ꯃꯇꯤꯛꯄꯒꯤ ꯂꯣꯡꯕꯤꯟꯗꯨ ꯗꯨꯃꯦ ꯃꯁꯤꯡ ꯒꯣꯗꯨꯀꯂꯤ ꯊꯀꯇꯦꯟꯕꯗꯨ ꯃꯄꯀ ꯑꯣꯟꯅꯕ ꯄꯨꯡ 48, 90%-ꯒꯤ ꯄꯨꯡ ꯑꯣꯏ PUB-ꯒꯤꯁꯤꯡꯒꯤ ꯂꯥꯏꯅ꯫ ꯃꯇꯤ ꯍꯥꯏꯗꯨ ꯃꯦꯜꯂꯦꯡꯒꯤ ꯁꯤꯡꯕꯨꯂꯦ ꯑꯃꯅ ꯊꯦꯡꯅꯕ ꯄꯣꯏꯗꯦ ꯑꯃꯅ ꯃꯊꯧꯒꯤ ꯑꯃꯥ ꯇꯧꯔꯕꯥꯏꯗꯤꯅ ꯃꯇꯤꯒꯤ ꯒꯣꯗꯨꯀꯒꯤ ꯑꯃꯂꯤꯛꯄ ꯑꯃꯨꯛ ꯍꯟꯅ ꯏꯇꯛꯅꯕ ꯃꯔꯤꯒꯤ ꯃꯇꯝ ꯃꯂꯤꯛꯅ ꯂꯥꯏꯅ, ꯑꯣꯏꯔꯝꯃꯤ ꯑꯄꯥꯟꯕ ꯑꯃꯁꯨꯡ ꯂꯨꯆꯤꯡꯕꯁꯤꯡꯒꯤ ꯑꯍꯥꯟꯕ 1999-ꯗ, 24 ꯑꯣꯏꯔꯝꯃꯒꯤ 3 ꯂꯨꯆꯤꯡꯕꯁꯤꯡ ꯏꯁꯤꯡꯒꯤ ꯅꯦꯝ ꯇꯨꯡꯒꯤ ꯃꯔꯝ ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯥꯕꯤ ꯌꯨꯝꯅꯕ ꯊꯥꯕꯤ ꯊꯝꯗ 30 ꯑꯣꯏꯔꯝ 391.636 m³/s ꯑꯃꯁꯨꯡ 2 ꯂꯨꯆꯤꯡꯕꯁꯤꯡꯗ ꯑꯃꯨꯛ ꯍꯟꯅ 330.906 m³/s-ꯗ ꯁꯤꯡꯗ ꯑꯣꯟꯅꯤꯕ ꯃꯔꯝ (MASTEC), ꯃꯊꯧꯒꯤ ꯑꯃꯥ ꯗꯨꯃꯦ ꯅꯥꯒꯤ ꯃꯅꯨꯡꯗ ꯇꯥꯔꯤ꯫

4.8 ꯑꯦꯛꯁꯦꯁ ꯂꯣꯡꯕꯥꯏꯕꯥꯂꯤꯡ

4.8.1 **ꯑꯦꯏ ꯁꯨꯛꯆꯇꯥꯗꯤ.** ꯁꯤꯡꯅꯃꯄꯤ ꯑꯦꯛꯁꯦꯁꯂꯤꯡ ꯑꯣꯏ:

- ꯃꯤꯡꯅ ꯌꯥꯔꯤꯕ ꯃꯊꯧ ꯇꯥꯕ, ꯌꯥꯝꯅ ꯌꯥꯕ ꯁꯤꯡꯕꯥꯂ, ꯒꯥꯒꯂꯤꯡ ꯆꯥꯄꯒꯤ ꯁꯤꯡꯁꯤꯡꯂꯤꯡ ꯆꯥꯕ ꯑꯣꯟꯅꯒꯗꯕꯅꯤ, ꯇꯦꯕꯜ 5.12-ꯅ ꯁꯤꯡꯁꯤꯡꯅ ꯃꯄꯨꯟꯁꯤꯜ ꯌꯥꯄꯇꯤꯕ ꯃꯏꯦ ꯆꯥꯡꯅ;
- ꯄꯥꯝꯕ ꯃꯏꯦꯗ, ꯗꯦꯅꯦꯍꯟꯅꯦꯗ-ꯂꯣꯡꯂꯣꯡ ꯌꯥꯝꯗꯅ ꯃꯊꯥꯡꯒꯤ ꯍꯦꯂꯣꯡꯂꯦ ꯑꯃꯁꯨꯡ ꯂꯥꯝꯗꯥꯔꯕ ꯌꯥꯕ ꯌꯥꯕ ꯑꯣꯟꯅꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯂꯩꯅ ꯆꯥꯕ ꯃꯌꯥꯝꯂꯤꯡꯅ ꯂꯩꯒꯗꯕꯅꯤ꯫ ꯗꯦꯂꯣꯡ ꯑꯣꯄꯤꯌꯂꯤꯡꯗ ꯃꯍꯥꯌ ꯑꯣꯏ ꯗꯦꯄꯇꯦꯜ ꯊꯤꯡꯕ ꯄꯥꯝꯕ ꯑꯣꯟꯅꯒꯗꯕꯅꯤ (ꯇꯦꯕꯜ 4.12.5)꯫

4.8.2 **ꯃꯤꯅꯤꯃꯝ ꯑꯣꯄꯤꯡꯏꯂ.** ꯗꯦꯡꯁꯤꯅ ꯑꯣꯄꯤꯡꯏꯂ ꯑꯃꯍꯧ ꯁꯅꯃꯤꯡꯄ **50 mm-ꯁꯤꯡ**, ꯆꯥꯄꯒꯤ ꯂꯥꯏꯗ ꯑꯃꯒꯤꯁꯤꯡꯗ ꯅꯕꯅꯁꯤꯡ ꯑꯁꯤꯡꯁꯤꯡ ꯁꯅꯃꯦꯜꯂꯦ 50 mm-ꯁꯤꯡ, ꯑꯁꯤꯡꯁꯤꯡ ꯑꯣꯟꯅꯄꯅꯅꯕꯅꯤ꯫

4.8.3 **ꯌꯄꯥꯂ ꯄꯥꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯗꯥꯄꯤꯗꯦꯜꯂꯤꯡ.** ꯑꯣꯄꯤꯡꯏꯂ ꯑꯃꯁꯨꯡ ꯌꯤꯔꯤꯄ ꯂꯨꯗꯤꯃꯗ ꯌꯄꯥꯂ ꯄꯥꯡ ꯆꯥꯄꯒꯤ ꯂꯗꯥꯄꯤꯗ ꯑꯃꯅ ꯄꯥꯡ ꯂꯦꯗꯒꯗꯕꯅꯤ꯫ ꯄꯥꯡ ꯑꯣꯏ:

- ꯃꯂꯤꯅ ꯄꯥꯡ ꯂꯦꯗꯇꯤꯕ ꯅꯕꯅꯁꯤꯡ ꯑꯁꯤꯡꯁꯤꯡ ꯍꯥꯏꯕꯒꯤ ꯌꯥꯡꯅꯁꯤꯡ ꯍꯦꯗꯕ, ꯑꯃꯁꯨꯡ 25 mm-ꯁꯤꯡ ꯆꯃꯗꯕ ꯗꯇꯤꯌꯄ ꯕꯄ ꯂꯣꯡꯂꯤꯡ ꯆꯥꯒꯗꯕꯅꯤ;
- ꯃꯂꯤꯅ ꯄꯥꯡ ꯂꯦꯗꯇꯤꯕ ꯍꯥꯏꯕꯒꯤ ꯑꯣꯄꯤꯌꯒꯤ ꯌꯤꯃꯇꯨꯄꯕꯗ **ꯑꯍꯨꯝ 10 ꯆꯥꯕ** ꯗꯇꯤꯌꯄ ꯑꯣꯁꯦ ꯑꯣꯄꯤꯌ ꯆꯥꯒꯗꯕꯅꯤ;
- ꯑꯃꯥꯄꯁꯤꯡꯂꯤꯡ ꯅꯂꯤꯡꯒꯤ ꯆꯅꯅꯅꯦ ꯌꯤꯡꯅꯄꯆꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯕꯄꯂꯤꯡꯗ ꯂꯁꯤꯆꯅꯗꯕ ꯅꯥꯗꯅ ꯊꯃꯒꯗꯕꯅꯤ, ꯆꯥꯄꯒꯤ ꯄꯅꯇꯄꯒꯤ ꯑꯗꯅꯌꯕꯗ ꯗꯦꯇ ꯑꯃꯥ ꯑꯣꯟꯅꯅ ꯊꯃꯒꯗꯕꯅꯤ;
- ꯂꯥꯗꯅꯥꯗꯕ ꯆꯊꯥꯁꯤꯡ ꯌꯤꯕ ꯆꯥꯄꯒꯤ ꯍꯤꯡꯇ ꯆꯥꯕ ꯑꯣꯟꯅꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯄꯦꯗꯌꯤꯗꯒꯤꯁꯤꯡꯗ, ꯃꯄꯨꯟꯁꯤꯜ ꯌꯥꯗ ꯌꯥꯕ ꯃꯌꯥꯝꯗ ꯆꯦ-ꯏꯆꯦ ꯑꯣꯄꯤꯡꯏꯂꯌ **50% ꯊꯤꯡꯆꯦ** ꯍꯌꯅꯅ ꯆꯥꯒꯗꯕꯅꯤ꯫

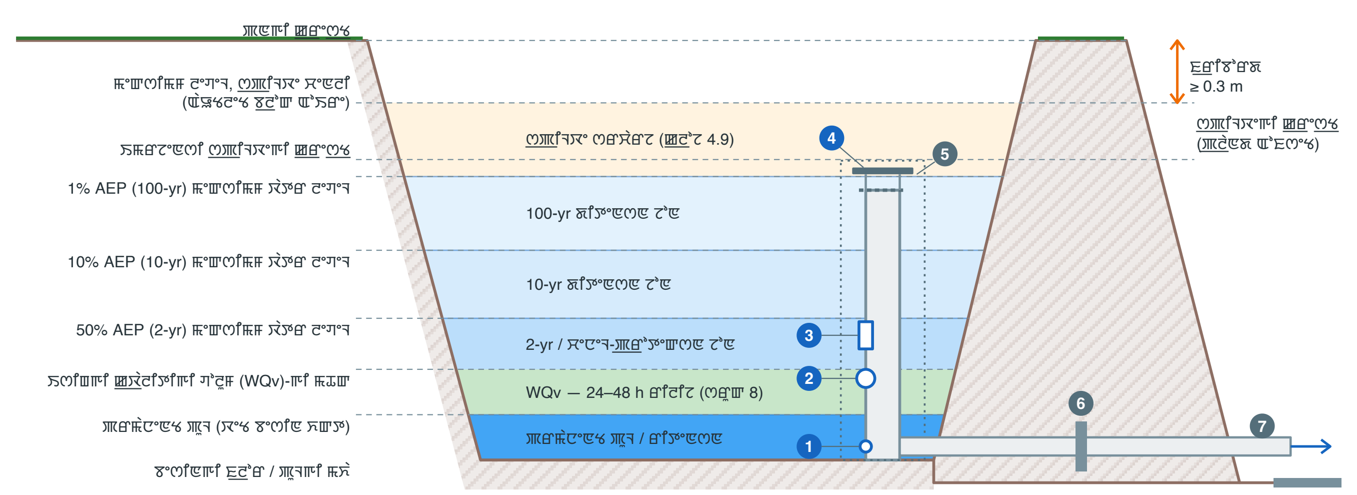
4.8.4 **ꯑꯦꯜꯌꯤ-ꯒꯥꯄꯌꯥꯂ ꯁꯤꯒꯥꯅꯂꯤꯡ.** ꯃꯍꯥꯌꯒꯤ ꯁꯅꯃꯤꯡꯄꯒꯤ ꯑꯍꯨꯝ 1.5-ꯁꯤꯡ ꯍꯦꯗꯕ ꯍꯦꯗꯤ ꯃꯍꯥꯗ ꯌꯥꯝꯅ ꯌꯥꯕ ꯄꯅꯇꯄ ꯗꯄꯥꯂꯥꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯄꯤꯡꯏꯂꯂꯤꯡꯗ ꯑꯦꯜꯌꯤ-ꯒꯥꯄꯌꯥꯂ ꯁꯇꯦꯌ ꯆꯥꯄꯒꯤ ꯂꯨꯗ ꯆꯥꯒꯗꯕꯅꯤ (ꯃꯃꯤ 4.2)꯫

4.8.5 **ꯑꯦꯛꯁꯦꯁ ꯕꯥꯄꯥꯅꯂꯤꯡ.** ꯁꯥꯗ (embankment)-ꯂꯤꯡꯒꯤ ꯃꯅꯨꯡꯗꯒꯤ ꯌꯥꯝꯅ ꯑꯦꯛꯁꯦꯁ ꯕꯥꯄꯥꯅꯂꯤꯡ ꯑꯣꯏ:

- ꯁꯅꯃꯤꯡꯄ ꯌꯤꯃꯇꯨꯄꯕꯗ 300 mm ꯑꯣꯟꯅꯒꯗꯕꯅꯤ (ꯂꯃꯥꯡ 6);
- ꯅꯂꯤꯡ ꯌꯥꯝꯗꯕ ꯆꯅꯗꯦꯌꯂꯤꯡ ꯆꯥꯒꯗꯕꯅꯤ;
- ꯁꯗꯒꯤ ꯃꯅꯨꯡꯗ ꯆꯥꯕ ꯆꯃꯕꯤ ꯁꯨꯃꯕꯗ ꯏꯤꯅꯌꯄ ꯁꯅꯌꯏꯄꯤꯃ ꯆꯥꯄꯒꯤ ꯂꯤꯁꯥꯇ ꯗꯆꯄꯂꯤꯡ ꯆꯥꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯑꯦꯄꯆꯤ ꯁꯤꯂꯤꯁꯥꯌ ꯌꯥꯕ ꯑꯦꯛꯁꯏꯅ ꯆꯥꯒꯗꯕꯅꯤ (ꯂꯃꯥꯡ 9)꯫

4.8.6 **ꯑꯦꯟꯇ꯭ꯔꯦꯁ.** 1 ha-ꯁꯤꯡ ꯍꯦꯗꯒꯤ ꯊꯥꯅ ꯌꯥꯕ ꯏꯂꯤꯆꯤꯌꯂꯤꯡꯗ ꯃꯦꯜꯆꯦꯗꯂꯤꯗꯤꯃꯗ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯥ ꯌꯥꯄꯅ ꯊꯃꯒꯗꯕꯅꯤ ꯊꯥꯑꯦꯡ, ꯂꯨꯗꯃ ꯑꯣꯟꯅ ꯂꯌꯥ-ꯆꯥꯒ ꯂꯇꯦꯌ ꯆꯥꯄꯒꯤ ꯁꯥꯗꯦꯜꯌꯥ, ꯆꯥꯒꯗꯕꯅꯤ꯫ ꯃꯍꯥꯂꯩꯒꯤ ꯂꯄꯒꯤꯂꯌ ꯃꯂꯤ ꯃꯁꯨꯡ ꯏꯅ ꯍꯥꯗꯅꯥꯗꯌꯅ ꯊꯃꯒꯗꯕꯅꯤ꯫

ꯂꯩꯃꯥꯏꯒꯤ ꯋꯥꯔꯣꯜ. 50 mm-ꯒꯤ ꯃꯤꯇꯤꯃꯛ ꯑꯁꯤ KC APWA 5600 (2006)-ꯒꯤ 75 mm (3 in)-ꯗꯒꯤ ꯑꯍꯣꯡꯈꯤꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯁꯔꯨꯛ ꯌꯥꯝꯂꯕ ꯃꯥꯏꯀꯩꯗ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯊꯣꯛꯂꯣꯏ꯫ 4.8.3-ꯒꯤ ꯌꯥꯝꯂꯕ ꯃꯇꯥꯡꯗ (ꯄꯨꯝꯅꯃꯛ ꯁꯨꯞꯅꯕ ꯑꯣꯏꯅ ꯁ꯭ꯄꯤꯜꯋꯦꯗ, ꯄꯨꯝꯅꯃꯛ ꯑꯐꯕ 10-ꯒꯤ ꯑꯣꯏꯕ ꯑꯦꯡꯀꯔ, ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯍꯥꯏꯗꯨꯒꯤ 50% ꯕꯇ꯭ꯂꯥꯡ)-ꯒꯤ ꯄꯥꯉ꯭ꯒꯜ ꯃꯍꯩꯒꯤ ꯂꯩꯕ ꯆꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗ ꯑꯣꯏꯔꯦ ꯊꯣꯀꯄꯒꯦ꯫ ꯕꯇ꯭ꯂꯥꯡ ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯕ 6-ꯗ ꯆꯕ ꯂꯥꯛ ꯅꯥꯡꯇꯦꯡꯂꯣꯏꯗꯒꯤ 50%-ꯒꯤ ꯃꯍꯩ ꯂꯩꯔꯛꯂꯕ ꯐꯥꯑꯣꯕꯒꯤ ꯃꯥꯡꯂꯦ꯫ ꯅꯥꯡꯇꯦꯡꯂꯣꯏꯒꯤ ꯂꯩꯕꯒꯤ ꯅꯨꯡꯕꯗꯤꯡꯗꯨ ꯂꯧꯔꯛꯀꯅꯤ ꯑꯣꯏꯅ ꯁꯨꯡꯂꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯐꯕ ꯌꯥꯝ ꯆꯥꯡꯕ ꯇ-ꯐ꯭ꯔꯤ ꯑꯣꯏꯅꯐꯝ ꯑꯃꯁꯨꯡ ꯂꯩꯇꯦ ꯑꯃꯒꯤ ꯃꯇꯨꯡ ꯊꯣꯀꯄꯒꯦ꯫


ꯂꯥꯏꯅꯥ ꯂꯥꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯄꯥ-ꯂꯥꯏꯕ ꯑꯦꯛꯁꯇꯦꯟ — ꯂꯥꯏꯃꯥꯏꯕ ꯂꯥꯏꯔꯤꯛ, ꯂꯥꯏꯅ ꯃꯥꯏꯕ ꯅꯨꯡꯇ ꯇꯥꯏꯕ
ꯂꯩꯉꯥꯛꯀꯤ ꯃꯐꯝ
ꯃꯥꯏꯄꯥꯛꯄ ꯇꯥꯕ, ꯁ꯭ꯄꯤꯜꯋꯦ ꯍꯥꯏꯇꯤ
(ꯑꯦꯛꯁꯇꯦꯟ ꯕꯇ꯭ꯂꯥꯡ ꯑꯣꯅꯐꯥ)
ꯅꯍꯥꯏꯗꯦꯟꯁꯤ ꯁ꯭ꯄꯤꯜꯋꯦꯒꯤ ꯃꯐꯝ
1% AEP (100-yr) ꯃꯥꯏꯄꯥꯛꯄ ꯌꯦꯛꯐ ꯇꯥꯕ
10% AEP (10-yr) ꯃꯥꯏꯄꯥꯛꯄ ꯌꯦꯛꯐ ꯇꯥꯕ
50% AEP (2-yr) ꯃꯥꯏꯄꯥꯛꯄ ꯌꯦꯛꯐ ꯇꯥꯕ
ꯅꯣꯡꯃꯒꯤ ꯃꯅꯦꯇꯤꯌꯤꯒꯤ ꯒꯣꯟꯗ (WQv)-ꯒꯤ ꯃꯊꯛ
ꯂꯐꯃꯥꯇꯥꯏꯕ ꯂꯩꯕ (ꯍꯥꯏ ꯕꯥꯌꯦꯛ ꯅꯥꯡ)
ꯕꯥꯌꯦꯛꯀꯤ ꯐ꯭ꯔꯤꯐ / ꯂꯩꯕꯒꯤ ꯃꯈꯥ
ꯁ꯭ꯄꯤꯜꯋꯦ ꯂꯐꯍꯐꯇ (ꯂꯥꯏꯇ 4.9)
100-yr ꯅꯤꯌꯥꯏꯀꯣꯏ ꯇꯔ
10-yr ꯅꯤꯌꯥꯏꯀꯣꯏ ꯇꯔ
2-yr / ꯍꯥꯏꯕ-ꯂꯐꯥꯔꯥꯛꯀꯣꯏ ꯇꯔ
WQv — 24–48 h ꯐꯤꯇꯤꯇ (ꯂꯐꯨꯡ 8)
ꯂꯐꯃꯥꯇꯥꯏꯕ ꯂꯩꯕ / ꯐꯤꯌꯥꯏꯀꯣꯏ
ꯐ꯭ꯔꯤꯕꯣꯔꯗ
≥ 0.3 m
ꯁ꯭ꯄꯤꯜꯋꯦꯒꯤ ꯃꯐꯝ
(ꯂꯦꯇꯦꯟ ꯑꯣꯐꯥꯏ)
1
2
3
4
5
6
7

ꯇꯤꯇꯥꯏꯅ

1 ꯂꯥꯏꯕ 1 ꯇ-ꯐ꯭ꯔꯤ ꯑꯣꯐꯤꯐꯤꯂ (≥ 50 mm, ꯂꯥꯏꯇ 4.8.2) — WQv 24–48 h-ꯗ ꯆꯦꯝꯕ

2 ꯂꯥꯏꯕ 1-ꯒꯤ ꯑꯇꯤꯂꯨꯕ ꯑꯣꯐꯤꯐꯤꯂ — 1-ꯒꯤ ꯇꯔꯇꯇ 50% AEP (2-yr) ꯐꯤꯇꯤꯇ ꯂꯥꯏꯕꯐꯅ ꯌꯥꯅ

3 ꯂꯥꯏꯕ 2 ꯑꯣꯐꯤꯐꯤꯂ ꯇꯥꯏꯐꯒꯤ ꯌꯤꯌꯐ ꯂꯇꯥꯏ — 10% AEP (10-yr) ꯐꯤꯇꯤꯇ ꯂꯥꯏꯕꯐꯅ ꯌꯥꯅ

4 ꯂꯥꯏꯕ 3 ꯐꯅꯇꯐ ꯂꯐꯥꯏ / ꯑꯥꯏꯕ-ꯒꯐꯥꯏꯂ ꯂꯇꯥꯏ ꯆꯕ ꯑꯒꯐꯐ꯭ꯔꯤ ꯒꯐꯥꯏ — 1% AEP (100-yr) ꯐꯤꯇꯤꯇ ꯂꯥꯏꯕꯐꯅ ꯌꯥꯅ

5 ꯑꯂꯇꯤꯂ ꯂꯃꯇꯃ ꯂꯅꯂꯤꯕ ꯌꯥꯐꯂ ꯐꯥ (ꯂꯥꯏꯇ 4.8.3)

6 ꯑꯦꯛꯁꯇꯦꯟ ꯕꯥꯌꯅ ꯂꯤꯂꯇ ꯂꯇꯐ ꯇꯥꯏꯐꯒꯤ ꯐꯤꯌꯥꯐ ꯅꯅꯌꯐ꯭ꯔꯤ

7 ꯑꯦꯛꯁꯇꯦꯟ ꯕꯥꯌꯅ, ꯑꯇꯐꯇꯤ ꯅꯤꯂꯤꯂꯇ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯇꯦꯟ ꯑꯂꯐ

ꯇꯒꯅꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯒꯤ ꯊꯤꯡꯇꯥꯂꯤꯡ ꯅꯅꯌꯒꯐ ꯑꯅꯇ ꯅꯥꯌꯦ꯫

ꯃꯃꯤ 4.2 — ꯅꯤꯌꯥꯏꯀꯣꯏ ꯂꯥꯏꯕꯇꯒꯤ ꯂꯥꯏꯕ (ꯂꯐꯃꯥꯇꯥꯏꯕ ꯂꯩꯕ, WQv, ꯍꯤ 2, ꯍꯤ 10 ꯑꯃꯁꯨꯡ ꯍꯤ 100-ꯒꯤ ꯇꯔꯂꯤꯡ, ꯁ꯭ꯄꯤꯜꯋꯦ ꯂꯐꯍꯐꯇ ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯤꯕꯣꯔꯗ) ꯑꯃꯁꯨꯡ ꯃꯥꯏꯄꯥ-ꯂꯥꯏꯕ ꯐꯅꯇꯐ ꯑꯦꯛꯁꯇꯦꯟ꯫ ꯂꯥꯏꯃꯥꯏꯕ, ꯂꯥꯏꯅ ꯃꯥꯏꯕ ꯅꯨꯡꯇ ꯇꯥꯏꯕ꯫ ꯃꯥꯏꯄꯥꯛꯄ ꯑꯣꯏꯒꯤꯅꯃ ꯑꯇꯇ ꯂꯃꯕ ꯅꯐꯅꯤ, MARC/KC APWA Section 5600 (2006, 2025.01) ꯑꯃꯁꯨꯡ Mile High Flood District Urban Storm Drainage Criteria Manual, Volume 2 (full-spectrum detention)-ꯗ ꯆꯕ ꯃꯥꯏꯄꯥ-ꯂꯥꯏꯕ ꯑꯦꯛꯁꯇꯦꯟ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯕꯇ-ꯇꯦꯒꯤ ꯌꯅꯥꯇꯇꯂꯤꯡꯅꯒꯤ ꯄꯅꯗꯥꯇꯒꯤ ꯇꯅꯕ꯫

4.9 ꯅꯍꯥꯏꯗꯦꯟꯁꯤ ꯁ꯭ꯄꯤꯜꯋꯦ, ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯑꯃꯁꯨꯡ ꯂꯩꯕꯒꯤ ꯂꯥꯐꯝ

4.9.1 **ꯁ꯭ꯄꯤꯜꯋꯦꯒꯤ ꯂꯥꯏꯂꯣꯏ.** ꯃꯂꯨꯡ ꯐꯇ ꯇꯥꯏꯐꯒꯤ ꯅꯐ ꯂꯇ (embankment) ꯑꯃꯇ ꯂꯃꯕ, ꯇꯥꯏꯐꯒꯤ ꯃꯂꯤꯒꯤ ꯑꯒꯐꯐ꯭ꯔꯤ ꯕꯤꯅꯅꯤꯂꯤꯂꯅ ꯍꯕ ꯍꯦꯕ ꯅꯤꯌꯥꯏꯀꯣꯏ ꯐꯂꯤꯇꯤꯌꯤ ꯅꯅꯤꯂꯃꯥꯌ **1% AEP (100-yr)-ꯒꯤ ꯂꯤꯂ ꯅꯇꯐ꯭ꯔꯤ** ꯍꯇꯄꯅꯇꯤꯕ ꯅꯍꯥꯏꯗꯦꯟꯁꯤ ꯁ꯭ꯄꯤꯜꯋꯦ ꯑꯃ ꯆꯒꯅꯕꯇꯤ:

- ꯂꯐꯅꯃꯐꯤ ꯑꯦꯛꯁꯇꯦꯟ ꯃꯂꯨꯡ ꯐꯇ ꯊꯤꯂꯇ ꯄꯍꯇ ꯇꯅꯇ;
- ꯊꯅꯥꯂꯤ ꯑꯄꯕꯅ ꯐꯂꯤꯇꯤꯌꯤ ꯑꯅ ꯁ꯭ꯄꯤꯜꯋꯦ ꯂꯐꯥꯏ ꯐꯅꯕ ꯊꯇꯇꯅꯇ; ꯑꯃꯁꯨꯡ
- ꯍꯕꯅꯅꯒꯤ ꯌꯂꯕ ꯌꯦꯛꯐ ꯇꯒꯅꯒꯤ ꯂꯩꯕꯒꯤ ꯂꯐꯥꯏ ꯐꯅꯕ ꯍꯃꯅꯐꯕꯅ **0.3 m ꯐ꯭ꯔꯤꯕꯣꯔꯗ** ꯆꯇ꯫

4.9.2 **ꯄꯥꯟ-ꯄꯥꯝꯕꯒꯤ ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡ.** ꯁ꯭ꯄꯤꯜꯋꯦ ꯑꯁꯤꯒꯤ ꯃꯔꯃꯗꯤ ꯑꯣꯏꯕꯥ ꯑꯣꯚꯔꯇꯣꯞꯄ ꯃꯔꯥꯡꯁꯤꯡ ꯂꯧꯊꯣꯛꯅꯕꯥ ꯃꯁꯤ ꯄꯥꯟ-ꯄꯥꯝꯕꯒꯤꯗꯤ:

- ꯃꯂꯦꯝ ꯍꯨꯝꯗꯥꯏꯕ ꯃꯐꯝ;
- ꯇꯥꯔꯕ ꯑꯣꯏꯕ ꯕꯤꯟꯗꯤ ꯑꯣꯏꯕꯥ ꯃꯤꯡꯁꯤꯡꯒꯤ ꯁ꯭ꯄꯤꯜꯋꯦ ꯑꯃꯗ ꯍꯂꯤ ꯍꯔꯨꯞ ꯇꯥꯔꯦꯟꯕ; ꯑꯣꯏꯕꯥ
- ꯑꯣꯏꯁꯤꯡꯗꯤ ꯆꯠꯕꯤ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯕ꯫

ꯄꯥꯟ-ꯄꯥꯝꯕꯒꯤ ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡ ꯑꯁꯤ 4.9.1-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯒꯤ ꯃꯍꯩ **0.2% AEP (500-yr)**-ꯒꯤ ꯃꯤꯗ ꯍꯦꯟꯗꯣꯛꯀꯤꯗꯃꯛꯇꯗꯨ, ꯃꯇꯦ ꯑꯣꯏꯒꯤ ꯃꯊꯛꯇ ꯇꯦꯊꯛꯇꯔꯤ, ꯌꯥꯗ ꯁꯤꯒꯗꯕꯅꯤ꯫

4.9.3 **ꯂꯃꯤ꯭ꯇꯔꯥꯒꯤ ꯑꯄ꯭ꯂꯣꯟ.** ꯂꯃꯤ꯭ꯇꯔꯥꯒꯤ ꯑꯄ꯭ꯂꯣꯟ ꯑꯁꯤ ꯃꯄ꯭ꯄꯨꯡꯃꯄꯤ ꯑꯣꯏꯖꯔꯕ ꯊꯕꯗ ꯁꯄꯤꯔꯝꯗ ꯄꯨꯔꯤꯡꯗꯛꯀꯤ ꯑꯗꯕ 1% AEP-ꯒꯤ ꯍ꯭ꯕꯅꯗꯒꯤ ꯌꯤꯗꯕ ꯌꯥꯡꯄ ꯇꯒꯔꯛ ꯑꯣꯏꯕꯥ ꯃꯗꯨꯗꯒꯤ ꯌꯤꯗꯤ ꯇꯥꯒꯗꯕꯅꯤ꯫ ꯃꯨꯔꯥꯡꯗ ꯃꯤꯄꯤꯕ ꯑꯇ꯭ꯇꯤꯔꯄꯀꯦ ꯑꯁꯤ 0.15 m꯫

4.9.4 **ꯂꯃꯤ꯭ꯇꯔꯥꯒꯤ ꯃꯆꯥ.** ꯂꯃꯤ꯭ꯇꯔꯥ ꯑꯁꯤ:

- ꯃꯄꯥꯜꯒꯤ ꯆꯥꯡ ꯑꯣꯏꯕꯥ ꯄꯤꯍꯦꯜꯂꯦꯄꯀ ꯁꯄꯥꯕ ꯀꯗꯀꯦ ꯑꯃꯗ ꯇꯥꯒꯗꯕꯅꯤ, ꯁꯤꯡꯗ ꯑꯣꯏꯁ, ꯃꯇꯨꯡ ꯑꯕ ꯗꯤꯆꯟꯂꯦ ꯑꯦꯇꯗꯒꯤꯗꯃꯛꯇ ꯍꯄꯇꯦꯗꯒꯤ ꯃꯥꯟꯗ ꯀꯂꯦꯇꯥꯕꯗꯤ;
- ꯀꯄꯨꯗ 6-ꯒꯤ 1% AEP-ꯒꯤ ꯑꯋꯥꯄꯇꯂꯦꯗ ꯑꯦꯇ ꯆꯥꯕꯤꯗ ꯗꯤꯀꯌꯄꯇ ꯁꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯃꯀꯤꯒꯤ ꯌꯥꯂꯦꯕ ꯕꯤꯟꯗꯤꯡ ꯑꯃꯗ ꯌꯔꯗꯇꯕ ꯊꯥꯒꯗꯕꯅꯤ꯫

4.9.5 **ꯆꯥꯒꯤ ꯃꯍꯩ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯃꯤ ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡ.** ꯁꯥꯡꯗꯀꯤ, ꯒꯔꯦꯟꯀꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯤꯔꯆ ꯂꯁꯄꯇꯗ ꯑꯣꯏꯖꯔꯕ ꯊꯤꯡꯕ ꯃꯁꯥꯗ ꯊꯕꯗ ꯁꯕ ꯑꯋꯥꯄꯇ ꯄꯨꯟ ꯑꯃꯁꯨ ꯇꯥꯒꯗꯕꯅꯤ꯫ ꯄꯨꯟ ꯑꯁꯤꯅ 1% AEP-ꯒꯤ ꯍꯦꯇ ꯑꯣꯏ ꯕꯤꯟꯗꯤ, ꯕꯂꯃꯀꯦ ꯑꯣꯏꯕꯥ ꯇꯤꯡ ꯃꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯄꯗꯤꯄꯇ ꯁꯗꯅ ꯑꯋꯥꯄꯇꯂꯦꯗ ꯆꯥꯕꯤꯗ ꯃꯥꯡꯒꯗꯕꯅꯤ꯫

4.9.6 **ꯃꯦꯂꯤꯗ (embankments).**

- (a) **2 m**-ꯗꯒꯤ ꯄꯥꯟꯅ ꯌꯥꯗꯕ ꯃꯦꯂꯤꯗ (ꯃꯍꯩ ꯊꯗꯕ ꯃꯁꯥꯒꯤ ꯍꯥꯗꯅꯗꯒꯤ ꯑꯄ꯭ꯂꯣꯟ ꯑꯦꯡꯕ ꯃꯃꯥꯟ) ꯑꯁꯤ ꯑꯣꯔꯦꯇꯤꯄꯟ ꯁꯄꯥꯕ ꯇꯤꯑꯣꯁꯗꯇꯤꯒꯤ ꯍꯦꯇꯤꯇꯤꯔꯄ ꯑꯃꯅ ꯗꯤꯆꯟꯂꯦ ꯁꯒꯗꯕꯅꯤ꯫ ꯗꯤꯆꯟꯂꯦ ꯑꯁꯤꯗ ꯂꯁꯕꯤꯇꯤꯁ, ꯀꯤꯃꯇ ꯑꯃꯁꯨꯡ ꯂꯀꯇꯆꯃꯀꯦꯌꯒꯤ ꯑꯅꯅꯟꯂꯤꯂ ꯌꯨꯡꯒꯗꯕꯅꯤ꯫
- (b) ꯃꯤꯑꯣꯟꯅ ꯌꯟꯕ ꯑꯣꯏꯕꯥ ꯃꯕꯇꯤꯗꯅ ꯌꯔ ꯌꯕ ꯃꯍꯀꯥ ꯑꯃꯄꯗꯁꯗ ꯂꯍꯗ ꯅꯃꯃꯀꯤ 3H:1V-ꯗꯒꯤ ꯄꯥꯟꯅ ꯑꯊꯃꯕ ꯑꯣꯟꯄꯟꯗꯕꯅꯤ꯫ ꯑꯇꯇ 4.15-ꯗ ꯃꯊꯛ ꯁꯤꯄꯔꯇꯕ ꯃꯑꯣꯆꯗ ꯅꯃꯃꯀꯤ ꯄꯥꯟꯅ ꯌꯦꯕ ꯑꯣꯟꯒꯗꯕꯅꯤ꯫
- (c) ꯃꯦꯂꯤꯗꯗ ꯃꯍꯩꯒꯤꯀꯤ ꯇꯥꯗꯕꯅꯤ:
  - ꯌꯥꯆꯗꯀꯗꯕꯗ 3 m-ꯒꯤ ꯑꯄ꯭ꯂꯣꯟ ꯃꯗꯃ;
  - ꯀꯤꯃꯇ ꯑꯅꯅꯟꯂꯤꯂꯅ ꯃꯊꯛ ꯁꯤꯄꯔꯇꯕ ꯃꯑꯣꯆꯗ ꯑꯣꯏ ꯑꯣꯏꯕꯥ ꯑꯄ-ꯑꯑꯒ ꯇꯔꯦꯅꯅ, ꯑꯆꯃꯇꯄ ꯁꯄꯥꯕ, ꯍꯦꯇꯤꯇꯤꯔꯄ ꯁꯄꯥꯕ ꯑꯤꯕ; ꯑꯃꯁꯨꯡ
  - ꯗꯃꯇꯕ ꯑꯣꯏꯕꯥ ꯑꯌꯕ ꯗꯃꯍ ꯑꯃꯍꯁ ꯇꯥꯕꯍꯗꯕꯅꯤ꯫
- (d) ꯗꯥꯝ ꯂꯑꯦꯁꯤ ꯑꯄꯄ, 2021 (Dam Safety Act, 2021)-ꯒꯤ ꯃꯍꯩ ꯌꯥꯦꯊꯕꯆꯃ ꯃꯦꯒꯤ ꯂꯁꯕꯄꯌꯕ ꯑꯃꯍ ꯃꯂꯨꯌꯔ ꯑꯁꯤꯒꯤ ꯃꯊꯗꯁ ꯑꯄꯄ ꯑꯣꯏꯒꯤ ꯃꯍꯩꯗꯨ ꯇꯧ꯫

4.9.7 **ꯁꯄꯥꯜꯅ ꯂꯆꯕ ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡ.** ꯑꯆꯔꯕꯒꯤ ꯆꯥꯒꯤ ꯃꯍꯩ ꯃꯇꯨꯡ ꯑꯅ ꯇꯧꯕ, ꯃꯇꯦ ꯇꯧꯁꯕ ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡꯅ 4.9.6 ꯊꯥꯄꯦꯕ ꯃꯊꯛ ꯁꯗ꯫ ꯃꯍꯩꯔꯅ ꯄꯇꯤꯗꯨ 4.9.1 ꯊꯥꯄꯦꯒꯗꯕꯅꯤ, ꯑꯋꯥꯄꯇ ꯄꯨꯟ ꯑꯣꯏ ꯂꯃꯤ꯭ꯇꯔꯥ ꯑꯣꯟꯅ ꯇꯧꯗꯨꯅ꯫

> **ꯂꯦꯗꯇꯅ ꯁꯗꯃ.** ꯂꯃꯤ꯭ꯇꯔꯥꯒꯤ ꯑꯄ꯭ꯂꯣꯟꯁꯦꯄꯤꯔꯦ (1% ꯍꯦꯇ, ꯑꯣꯏꯖꯔꯕ ꯊꯤꯡꯕ, ꯕꯀꯤꯗ ꯊꯦꯇꯕ, 0.3 m ꯑꯄꯤꯕꯄꯗ; ꯄꯥꯟ-ꯄꯥꯝꯕꯒꯤꯗꯤꯃꯗ 0.2%) ꯑꯁꯤ KC APWA 5600 (2006)-ꯒꯤ ꯄꯨꯒꯤ ꯃꯁꯨꯡ ꯍꯦꯇ: ꯂꯃꯤ꯭ꯇꯔꯥꯅ 1%-ꯒꯤ ꯊꯗꯗ ꯑꯣꯏ ꯗꯆꯒꯤ ꯃꯊꯗ ꯑꯦꯡꯕ 1 ft (0.3 m) ꯑꯄꯤꯕꯄꯗꯒꯤ ꯇꯔꯦꯅꯅ ꯌꯦꯄꯇꯤ, ꯂꯁꯄꯇ ꯇꯧꯁ ꯑꯃꯁꯨꯡ ꯃꯄ꯭ꯄꯨꯡꯃꯄꯤ ꯑꯣꯏꯖꯔꯕ ꯂꯃꯇꯁ ꯄꯔꯅ ꯇꯧꯗꯨꯅ, ꯑꯄ꯭ꯂꯣꯟ ꯑꯣꯏ 1%-ꯒꯤ ꯍ꯭ꯕꯅꯗꯒꯤ ꯌꯤꯗꯕ ꯌꯥꯡꯄ ꯀꯄꯑꯦꯀꯁꯒꯤ ꯌꯥꯆꯗꯀꯗꯕꯗ 0.5 ft (0.15 m) ꯌꯤꯗꯤ꯫ KC-ꯅ 10 ft (3 m)-ꯗꯒꯤ ꯌꯤꯗꯕ ꯗꯆꯀꯤꯗ SCS TR-60 Class C-ꯗ ꯗꯤꯆꯟꯂꯦ ꯁꯍꯤ꯫ 2 m-ꯒꯤ ꯃꯦꯒꯤ ꯁꯄꯤꯒꯄ, 3H:1V-ꯒꯤ ꯅꯃꯃꯀ (KC-ꯒꯤ ꯌꯁ ꯃꯦꯗꯀꯤꯗ), ꯑꯃꯁꯨꯡ 3 m-ꯒꯤ ꯑꯄ꯭ꯂꯣꯟ ꯃꯗꯃꯒꯤ ꯄꯗꯊꯗꯇꯕ ꯃꯃꯗꯒꯤ ꯍꯨꯗꯆ ꯇꯧꯁ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯔ ꯑꯁꯤ ꯃꯂꯨꯌꯔ ꯑꯁꯤꯅ ꯊꯆꯕꯤ꯫

4.10 ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯃꯏꯇꯁꯤꯡ

4.10.1 **ꯑꯐꯝ ꯄꯨꯝꯅꯃꯛꯀꯤ.** ꯀ꯭ꯂꯣꯖ 4.5-ꯗꯒꯤ 4.9 ꯐꯥꯎꯕ ꯄꯝꯍꯇꯅꯤꯕ ꯁ꯭ꯌꯦꯗꯣꯖ ꯑꯃꯍꯣꯄꯌ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯦꯍ꯫ ꯎꯕ ꯐꯡꯕ ꯑꯃꯁꯨꯡ ꯀꯟꯐꯍꯟꯅ-ꯁ꯭ꯀꯣꯁꯌ ꯔꯡꯗꯅ ꯍꯟꯁ꯭ꯀꯣꯄꯁꯟ ꯌꯧꯕ ꯌꯦꯕ ꯁꯗꯐꯣꯁ ꯁ꯭ꯌꯦꯗꯣꯖ ꯇꯣꯟꯅ ꯐꯧ꯫ ꯆꯧꯐꯝ ꯑꯥꯍꯕ ꯕꯣꯁꯃꯣꯟꯎ ꯑꯃꯗ ꯅꯎꯗꯒꯥ ꯍꯁꯤꯡ ꯍꯌꯏ ꯅꯄꯀꯅ ꯄꯨꯟꯁꯤ ꯍꯨꯗꯥꯄꯖꯤꯕ ꯀꯤꯕ ꯃꯐꯝ ꯑꯃꯎꯌꯗ ꯁ꯭ꯌꯦꯗꯣꯖ ꯖꯝꯗꯥꯍꯗꯕꯅꯤ꯫

4.10.2 **ꯆꯝꯒꯤ ꯃꯍꯦꯗ ꯆꯧꯕ ꯌꯦꯄ꯭ꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯥꯇꯎꯁꯤꯡ.**

- (a) ꯏꯁꯤꯡ ꯆꯧꯕ ꯍꯥꯡꯕꯦꯅꯅ ꯌꯦꯇꯇꯆꯕ ꯃꯐꯝꯗ ꯒ꯭ꯔꯦꯒꯤꯌꯤ ꯑꯦꯍꯎꯆꯦꯎ ꯃꯖꯧ ꯌꯍ꯫ ꯀꯝꯀꯅ ꯖꯗꯥꯄꯀ ꯑꯦꯍꯎꯆꯦꯎꯁꯤꯡ ꯀ꯭ꯂꯣꯖ 5.12-ꯒꯤ ꯃꯍꯦꯗ, ꯔꯦꯆꯤꯁ꯭ꯌꯔ ꯌꯧꯔꯕ ꯃꯦꯅꯌꯦꯆꯦꯅꯁ ꯗꯤꯄꯆꯦꯔꯦꯁꯅ ꯑꯃꯒ ꯆꯥꯔꯅꯅ ꯍꯄꯌꯃꯄ ꯌꯦꯇꯇꯆꯤ (ꯁꯔꯨꯛ 10)꯫
- (b) ꯑꯦꯍꯎꯆꯦꯎ ꯌꯦꯝꯕꯔꯒꯤ ꯃꯖꯄꯌ ꯑꯃꯁꯨꯡ ꯍꯅꯆꯦꯎ ꯍꯨꯗꯤꯡꯃꯄꯀꯤ ꯃꯖꯄꯌ ꯌꯧꯕꯒꯤ ꯇꯥꯡꯕꯁꯤꯡ ꯀꯤꯒꯗꯕꯅꯤ꯫ 500 m²-ꯗꯒꯤ ꯍꯦꯟꯕ ꯌꯦꯗꯄꯁꯤꯡꯗ, ꯃꯍꯥꯌ ꯑꯁꯤ 30 m-ꯗꯒꯤ ꯍꯦꯟꯅ ꯆꯀꯅ ꯆꯧꯔꯥꯍꯗꯕꯅꯤ꯫
- (c) ꯐ꯭ꯆꯥꯔ ꯑꯁꯤ ꯑꯦꯍꯎꯆꯦꯎꯌ ꯆꯧꯕ ꯁꯝꯀ ꯑꯃꯗ ꯌꯦꯝꯗ꯭ꯔꯕꯗ 1% ꯅꯄꯅ ꯖꯝꯒꯗꯕꯅꯤ, ꯆꯥ-ꯐ꯭ꯆꯥ ꯑꯥꯔꯤꯐꯤꯁꯀꯤ ꯍꯅꯒꯔꯎꯀꯤ ꯃꯍꯦꯗ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯥꯀꯦꯎ ꯑꯃꯒ ꯆꯥꯔꯅꯅ꯫
- (d) ꯌꯦꯄ꯭ꯄ ꯑꯁꯤꯗ ꯂꯄꯁꯤꯎ ꯌꯄꯇꯅꯒꯗꯕꯅꯤ꯫
- (e) ꯍꯅꯆꯦꯎꯁꯤꯡ ꯑꯁꯤ ꯁꯤꯇꯎ ꯌ꯭ꯔꯦꯀ ꯆꯎꯔꯒ ꯒ꯭ꯔꯥꯁ ꯀꯥꯂ꯭ꯌꯦꯅꯎ ꯌ꯭ꯔꯦꯀ ꯑꯃꯒꯤ ꯍꯨꯎꯖꯄꯗ ꯌꯎꯀꯗꯕꯅꯤ (ꯁꯔꯨꯛ 8)꯫
- (f) ꯌꯥꯍꯕ ꯑꯃꯁꯨꯡ ꯆꯧꯃꯍꯒꯤ ꯃꯍꯒꯤ ꯏꯁꯤꯡ ꯌꯄꯕ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 4.12-ꯒꯤ ꯃꯍꯦꯗ ꯌꯦꯄ ꯌꯧꯒꯗꯕꯅꯤ꯫

4.10.3 **ꯎꯝꯖꯄꯀꯤ ꯗꯤꯌꯦꯅꯁꯟ.**

- (a) ꯑꯦꯍꯎꯆꯦꯎ ꯖꯤꯄꯆꯕ ꯃꯌꯝꯗ ꯃꯀ꯭ꯄ ꯐꯥꯕ ꯏꯁꯤꯡ ꯆꯦꯀꯀꯒꯤ ꯆꯥꯗꯀꯤꯗꯃꯄ ꯗꯤꯆꯍꯅ ꯌꯧꯔꯕ ꯐ꯭ꯆꯦꯎ ꯎꯝꯖꯄꯁꯤꯡꯗ ꯃꯁꯤ ꯌꯦꯇꯇꯆꯤ꯫ ꯁ꯭ꯌꯔꯄꯌꯔꯇ ꯍꯅꯆꯤꯆꯤꯌꯔ ꯑꯃꯆꯦ ꯍꯦꯅꯕ ꯂꯕ ꯑꯃꯦ ꯁꯔꯌꯤꯐꯍ ꯌꯧꯗ꯭ꯔꯕꯗꯤ ꯏꯁꯤꯡ ꯆꯦꯀꯀꯒꯤ ꯂꯕ **150 mm**-ꯗꯒꯤ ꯍꯦꯟꯔꯥꯍꯗꯕꯅꯤ꯫
- (b) ꯎꯝꯖꯄꯀꯤ ꯑꯦꯍꯎꯆꯦꯎ ꯍꯨꯗꯤꯡꯃꯄꯌ ꯁꯔꯌꯤꯐꯍ ꯌꯧꯔꯕ ꯔꯦꯌꯤꯡ ꯆꯧꯕ ꯐ꯭ꯆꯥ-ꯀꯅꯁ꯭ꯌꯔꯥꯇ ꯔꯤꯡ ꯆꯎꯔꯒ ꯌꯤꯌꯔ ꯑꯃꯦ ꯆꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯎꯝꯖꯄꯀꯤ ꯑꯦꯔꯤꯌꯦ ꯍꯨꯗꯤꯡꯃꯄꯌ, ꯀꯅꯁ꯭ꯌꯔꯥꯇ ꯌꯧꯔꯕ ꯑꯦꯍꯎꯆꯦꯎꯁꯤꯡꯗꯒꯤ ꯌꯥꯖꯅꯅ, 1% AEP-ꯒꯤ ꯍꯅꯐ꯭ꯆꯥ ꯌꯦꯅꯇꯆꯤꯕ ꯌꯦꯝꯗ꯭ꯔꯕꯗ ꯑꯥꯒꯔꯐ꯭ꯆꯥ ꯁ꯭ꯀꯀꯔ ꯑꯃꯦ ꯆꯧꯒꯗꯕꯅꯤ꯫
- (c) RWH ꯍꯥꯃꯆꯤꯅꯅꯕ ꯁꯤꯆꯤꯅꯅꯔꯤꯕ ꯎꯝꯖꯄꯁꯤꯡꯅ ꯎꯝꯖꯄꯀꯤ ꯗꯤꯌꯦꯅꯁꯅꯁ ꯀꯤꯕ ꯌꯦꯍ꯫ ꯗꯤꯌꯦꯅꯁꯟ ꯌꯧꯔꯕ ꯒꯥꯆ꯭ꯃ ꯑꯁꯤ ꯀꯅꯁ꯭ꯌꯔꯥꯇꯒꯤ ꯍꯨꯎꯖꯄꯗ ꯖꯗꯥꯀꯍ, RWH ꯁꯝꯀꯌ ꯆꯎꯌꯦ꯫

4.10.4 **ꯀꯥꯗꯤꯌꯃ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯗꯁ꯭ꯀꯦꯀ-ꯗꯦꯄꯀꯤ ꯗꯤꯌꯦꯅꯁꯟ.**

- (a) ꯁ꯭ꯌꯔꯄꯌꯔ ꯑꯗ ꯃꯀ꯭ꯄ ꯐꯕ ꯁꯦꯎꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯆꯦꯀꯀꯒꯤꯗꯃꯄ ꯗꯤꯆꯍꯅ ꯌꯧꯔꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯌꯥꯌꯔꯀꯔꯐ ꯌꯧꯔꯕꯗꯤ, ꯒ꯭ꯔꯥꯍꯕꯅꯗ ꯆꯦꯒꯦꯇꯗꯒꯤ ꯌꯦꯄꯅ ꯆꯎꯔꯒ ꯕꯦꯁꯃꯦꯅꯎ ꯀꯔ ꯀꯥꯔꯄꯀꯤ ꯃꯖꯄꯌ ꯃꯁꯤ ꯌꯦꯇꯇꯆꯤ꯫
- (b) ꯎꯝꯖꯄꯀꯤ ꯗꯤꯌꯦꯅꯁꯟꯅꯒꯤ (4.10.3) ꯔꯤꯆꯤꯆ, ꯑꯥꯒꯔꯐ꯭ꯆꯥ ꯑꯃꯁꯨꯡ ꯁꯦꯐꯌꯤꯒꯤ ꯔꯇꯁꯤꯡ ꯌꯎꯆꯧ꯫

4.10.5 **ꯀꯥꯔꯀꯤꯡ-ꯆꯥꯎꯀꯤ ꯗꯤꯌꯦꯅꯁꯟ.**

- (a) ꯃꯁꯤ ꯁꯔꯐꯦꯁ ꯀꯥꯔꯀꯤꯡꯗ ꯍꯄꯌꯃꯄ ꯌꯦꯇꯇꯆꯤ꯫ ꯏꯁꯤꯡ ꯆꯦꯀꯀꯒꯤ ꯂꯕ ꯃꯍꯒꯤꯁꯤꯡꯗꯒꯤ ꯍꯦꯟꯔꯥꯍꯗꯕꯅꯤ:
  - ꯀꯥꯔꯀꯤꯡ ꯕꯦ ꯑꯃꯍꯦꯄꯌꯗ 10% AEP-ꯒꯤ ꯖꯥꯗꯥꯄꯌ **200 mm** ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯖꯥꯗꯥꯄꯌ **300 mm**;
  - ꯑꯦꯄꯁꯦꯁꯤꯕꯇ ꯔꯎꯁꯤꯡ, ꯔꯦꯝꯀꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯎꯆꯤꯕ ꯃꯤꯑꯥꯍꯒꯤ ꯀ꯭ꯔꯥꯁꯤꯡꯁꯤꯡꯗ ꯂꯅꯌ; ꯑꯃꯁꯨꯡ
  - ꯐꯦꯌꯔ-ꯌꯦꯅꯗꯔ ꯌꯧꯕꯒꯤ ꯔꯎꯁꯤꯡꯗ 10% AEP-ꯒꯤ ꯖꯥꯗꯥꯄꯌ ꯂꯅꯌ꯫
- (b) ꯃꯐꯝ ꯑꯗ꯭ꯌꯗ ꯏꯁꯤꯡ ꯍꯥꯍꯕ ꯆꯀꯍ ꯍꯌꯅ ꯍꯄꯍꯦꯕ ꯑꯍꯅꯁꯤꯡ ꯖꯝꯒꯗꯕꯅꯤ꯫
- (c) ꯌꯥꯇ ꯑꯗ 1% ꯆꯦꯒꯦꯇ ꯍꯥꯀꯌꯤꯅꯕ ꯐ꯭ꯔꯤꯕꯥꯔꯗꯀꯤ ꯃꯖꯄꯌ ꯌꯥꯔꯀꯔꯐ ꯌꯧꯗ꯭ꯔꯕꯗꯤ ꯏꯁꯤꯡ ꯆꯦꯀꯀ ꯑꯁꯤ ꯕꯤꯇꯗꯤꯄꯒꯤ ꯌꯥꯇ ꯑꯃꯗ ꯌꯧꯔꯥꯍꯗꯕꯅꯤ (ꯁꯔꯨꯛ 6)꯫

4.10.6 **ꯃꯇꯌꯤ-ꯎꯆ ꯗꯤꯌꯦꯅꯁꯟ (ꯀꯥꯔꯄꯁꯤꯡ, ꯁꯍꯅꯕ ꯃꯐꯝꯁꯤꯡ, ꯑꯥꯀꯅ ꯁꯀꯦ ꯔꯤꯆꯔꯒꯦꯅ).**

- (a) ꯑꯥꯀꯅ ꯁꯀꯦꯁꯀꯤ ꯆꯝ ꯑꯁꯤ ꯗꯤꯌꯦꯅꯁꯟꯅꯒꯤꯗꯃꯄ ꯁꯤꯆꯤꯅꯅꯕ ꯌꯦꯍ, ꯃꯁꯤꯒꯤ ꯃꯒꯨꯑꯥꯍꯕ ꯁꯤꯆꯤꯅꯅꯕ ꯑꯗ ꯌꯦꯝꯗ꯭ꯔꯕꯗ 50% AEP-ꯒꯤ ꯖꯥꯗꯥꯄꯌ ꯐꯡꯕ ꯌꯦꯔꯕꯗꯤ꯫
- (b) ꯁ꯭ꯌꯦꯗꯣꯆꯒꯤ ꯑꯦꯔꯤꯌꯦꯁꯤꯡ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 4.7-ꯒꯤ ꯃꯌꯝꯁꯤꯡꯒꯤ ꯃꯂꯡꯗ ꯃꯀ꯭ꯄ ꯐꯅ ꯍꯔꯝ ꯌꯧꯅꯕ ꯒ꯭ꯔꯦꯗ ꯌꯧꯒꯗꯕꯅꯤ꯫

- (c) ꯀꯦꯐꯑ ꯑꯃꯁꯨꯡ ꯅꯣꯏꯗ ꯀꯨꯐꯃꯇꯕ, ꯇꯦ-ꯈꯇꯦ ꯌꯣꯇꯣꯔ ꯇꯨꯐꯥꯕ ꯑꯦꯃꯐꯃꯐꯣꯦ ꯑꯍꯇꯦ ꯇꯦꯗ ꯌꯨꯃꯕ ꯍꯥꯐꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯐ ꯐꯨꯀꯇꯦ ꯇꯦꯗꯀ ꯌꯣꯦꯕꯣꯏꯗ ꯀꯨꯒꯤꯃꯕꯇꯤ꯫
- (d) ꯐꯤꯒꯔ 4.15-ꯒꯤ ꯇꯨꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯞꯒꯤ ꯇꯔꯥꯏꯐꯂꯣꯏꯗ ꯌꯐꯇꯦ꯫
- (e) ꯃꯦꯇꯦꯕ ꯌꯨꯐꯇꯦꯅꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯈꯐꯈꯍꯣꯏꯗ 10% AEP ꯇꯣꯒꯣꯔꯒꯤ ꯍꯊꯑꯥ ꯊꯐꯒꯤꯃꯕꯇꯤ꯫

4.10.7 **ꯀꯦꯐꯃꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯌꯣꯐ ꯕꯣꯏꯐꯣꯏꯗ.**

- (a) ꯍꯇꯦꯑꯥ ꯀꯥꯐꯕꯤ ꯇꯦꯕ ꯃꯣꯈꯥꯤ ꯕꯣꯦꯌ ꯑꯍꯒꯤ ꯇꯦꯔꯇꯦꯇꯦ (ꯐꯤꯒꯔ 4.15), ꯁꯍꯅ ꯀꯥꯑꯀ ꯑꯃꯁꯨꯡ ꯐꯗꯇꯣꯗ ꯀꯦꯑꯀ ꯊꯤꯗꯇꯕ ꯀꯑꯍꯇꯣꯐ ꯀꯨꯔ ꯑꯍ ꯍꯣꯏꯒꯤ ꯑꯣꯑꯤꯌꯒꯤ ꯑꯌꯍꯕꯃ ꯌꯍꯃꯑꯕꯃ 1.2 m ꯇꯨꯒꯤꯃꯕꯇꯤ꯫
- (b) ꯀꯑꯍꯇꯣꯐ ꯀꯨꯔꯒꯤ ꯍꯊꯑꯥ ꯇꯦꯕ ꯃꯥꯑꯣꯇ ꯅꯑꯥꯍꯑ ꯃꯤꯥꯣꯐꯃꯐ ꯑꯦꯅꯇꯦ ꯍꯣꯏꯗ ꯊꯤꯅ꯫

ꯃꯦꯃꯦꯑꯇꯦ ꯑꯥꯑꯀ.

- ꯌꯨꯐꯊꯑꯗꯤ ꯇꯨꯕ (150 mm) ꯑꯃꯁꯨꯡ ꯀꯑꯗꯤꯗꯒꯤ ꯇꯨꯕꯣꯏꯗ (200 ꯑꯃꯁꯨꯡ 300 mm)-ꯒꯤ ꯄꯑꯊꯣꯗꯇꯕ ꯍꯍꯗꯒꯤ ꯌꯨꯃꯐ ꯇꯦꯑꯣ꯫ ꯊꯤꯗꯇꯕ ꯑꯦꯁꯐꯇꯣꯐ ꯑꯍ ꯑꯀꯦꯇꯕ ꯑꯦꯅꯃꯑꯤꯑꯃ ꯅꯊꯇꯕ ꯍꯣꯌꯅꯣꯔ ꯑꯣꯏꯇꯦ ꯍꯅꯦꯌ ꯑꯣꯏ ꯊꯐꯇꯤ꯫
- 1.2 m-ꯒꯤ ꯀꯨꯔ ꯇꯨꯕ ꯑꯣꯏ KC APWA 5600 (2006)-ꯒꯤ 4 ft-ꯒꯤ ꯍꯤꯇꯤꯍꯐ ꯀꯑꯍꯇꯣꯐ ꯀꯨꯔꯒꯤ ꯍꯦꯇꯦ꯫ ꯍꯣꯌꯅꯣꯔ ꯑꯣꯏꯇꯦ ꯍꯣꯏ ꯍꯑꯑꯦꯅꯇꯦ ꯁꯍꯅ ꯑꯃꯁꯨꯡ ꯐꯗꯇꯣꯗ ꯐꯦꯑꯑꯦꯔꯒꯤꯃꯍꯑ ꯇꯦꯅ꯫
- ꯃꯤꯗꯒꯤꯀꯨꯑꯃ ꯀꯐꯀꯇꯦ ꯊꯃꯦꯑꯀ ꯃꯤꯑꯣꯐꯃꯐ ꯑꯣꯊꯑꯃꯣꯏꯗꯃ ꯍꯣꯐꯑꯣꯇꯣꯐꯃ ꯃꯤꯑꯇꯣꯑꯣꯃꯐꯃꯣꯏꯗ ꯍꯊꯦ ꯑꯦꯅ (PUB Addendum No. 3, ꯑꯣꯀꯑꯤꯔ 2025)꯫ ꯍꯣꯌꯅꯣꯔ ꯑꯣꯏꯇꯦ ꯃꯑꯑ 10-ꯒꯤ ꯌꯨꯐꯊꯗꯃ ꯍꯦꯇꯦꯕ ꯑꯣꯀꯑꯦꯌ ꯑꯃ ꯇꯦꯅ꯫
- ꯍꯔꯑꯤ-ꯌꯨꯇ ꯃꯤꯑꯣꯐꯃꯐꯐꯒꯤꯃꯍꯑ ꯑꯦꯀꯐ ꯃꯀꯣꯃ ꯃꯤꯇꯤꯐꯇꯕ ꯑꯣꯏ ꯍꯦꯃꯣꯔ ꯑꯃꯒꯤ ꯕꯦꯅ-ꯇꯦ 66(b)-ꯒꯤ ꯃꯦꯈꯐ-ꯐꯒꯑꯒꯤ ꯑꯔꯒꯤ ꯌꯤꯐꯇꯦ, ꯍꯣꯏꯒꯤ ꯍꯌꯃ ꯌꯍꯃꯑꯕꯃ 500 m²-ꯒꯤ ꯐꯒꯑ ꯑꯦꯑꯕ ꯑꯣꯑꯤꯌ ꯇꯦꯕ ꯕꯤꯔꯃꯤꯗ ꯑꯍꯇꯦ ꯀꯇꯦꯐꯗꯤ ꯌꯍꯃꯑꯕꯃ 15%-ꯃ ꯃꯦꯈꯐ ꯐꯒꯑ ꯊꯐꯒꯤꯃꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯑꯦꯀꯀ ꯕꯤꯔꯃꯤꯗ ꯑꯍꯄꯣꯑꯑꯦ ꯌꯍꯃꯑꯕꯃ 10%-ꯃ, ꯑꯃꯁꯨꯡ "ꯃꯅꯐꯑ ꯐꯦꯕ ꯀꯣꯒꯤꯗ ꯄꯦꯊꯄꯦꯃꯇꯦ ꯃꯅꯐꯑꯒꯤ ꯇꯦꯗꯒꯤ ꯅꯣꯏꯗꯒꯤ ꯑꯐꯑꯦꯈ ꯄꯐꯊꯄꯐꯕ" ("Minimize storm water run-off from site by reducing hard paving on site") ꯄꯅꯕ ꯒꯑꯤꯐ-ꯕꯤꯔꯃꯤꯗꯒꯤ ꯐꯑꯅꯑꯣꯑꯤꯌꯐꯒꯤ ꯌꯤꯐꯇꯦ; ꯍꯦꯃꯣꯔ ꯑꯃꯇꯦ ꯍꯣꯏꯇꯦ ꯍꯊꯦ ꯑꯦꯄꯔꯇꯤꯕ ꯑꯦꯀꯐ ꯃꯀꯣꯃꯣꯏꯗꯃ "ꯇꯦꯗꯒꯤ ꯅꯣꯏꯗꯒꯤꯃꯍꯑ ꯇꯐꯑꯦ" ("except for rain water") ꯄꯗꯃꯦꯑꯇꯕ ꯅꯦꯗꯕꯦꯐ ꯑꯍꯐꯑꯦ ꯌꯤꯄꯔꯇꯦꯅ꯫ ꯇꯦꯍꯅ ꯑꯃ ꯐꯤꯒꯔ 4.11-ꯒꯤ ꯑꯍꯀꯑꯐꯤ ꯇꯍꯒꯤ ꯑꯔ ꯑꯃꯁꯨꯡ ꯌꯤꯗꯒꯤ ꯑꯔꯒꯤ ꯍꯀꯐꯃ ꯇꯦꯕ ꯍꯈꯍꯃ, ꯇꯍꯕꯤꯒꯤ ꯇꯣꯒꯣꯔꯒꯤ ꯍꯌꯃ ꯃꯦꯈꯐ ꯐꯒꯑꯃ ꯒꯑꯣꯃ ꯑꯦꯑꯕ ꯃꯤꯑꯣꯐꯃꯐ ꯑꯣꯑꯤꯌ ꯑꯍꯇꯦ ꯍꯣꯏꯕ ꯀꯑꯒꯤꯌꯃ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯤꯐꯇꯕ ꯌꯕ ꯑꯦꯅꯇꯦ ꯊꯍꯤ, ꯍꯣꯏꯃꯤ 4.10.6-ꯗ ꯍꯊꯦ ꯑꯦꯄꯔꯇꯤꯕꯇꯤ꯫ ꯑꯍꯀꯑꯐꯤ ꯇꯍꯒꯤ ꯑꯔ ꯌꯐꯇꯕ ꯇꯍꯃ, ꯅꯍꯈꯔ ꯑꯍꯀꯑꯐꯤ ꯇꯍꯒꯤ ꯑꯌꯍꯕꯃ, ꯍꯦꯇꯦꯕ ꯃꯑꯈꯣꯃ ꯃꯑꯦꯑꯣꯇ ꯑꯣꯏ ꯄꯣꯐꯇꯦ ꯈꯕ ꯍꯑꯦꯗꯤ (ꯐꯤꯒꯔ 4.12.4), ꯑꯃꯕ ꯍꯣꯏꯇꯦ ꯅꯐꯈꯤꯔꯑꯣꯃꯐꯒꯤ ꯐꯑꯣꯃꯤꯐ ꯈꯗꯃꯣ, ꯍꯣꯏꯒꯤ ꯈꯇꯦꯑ ꯑꯣꯏ ꯐꯤꯒꯔ 4.12.1-ꯒꯤ ꯃꯤꯇꯦꯅꯐ ꯇꯦꯍꯅꯒꯤ ꯍꯌꯒꯤ ꯅꯣꯏꯗꯒꯤ ꯇꯣꯒꯣꯔꯒꯤ ꯍꯊꯑꯥ ꯊꯐꯅ ꯇꯐꯑꯒꯤ ꯇꯦꯅꯐ ꯑꯦꯅ, ꯑꯃꯁꯨꯡ ꯍꯈꯐ ꯑꯃꯃ ꯇꯦꯕ ꯀꯑꯍꯤꯌꯣꯕꯔ ꯀꯣꯒꯤꯗ ꯑꯍꯄꯣꯑꯥ ꯑꯐꯃꯑꯃꯑꯣꯐ ꯑꯍꯒꯤ ꯇꯦꯔꯇꯦꯇꯦ ꯅꯣꯏꯗ ꯊꯃꯦꯑꯑꯕ ꯕꯣꯇ ꯑꯍꯃ ꯊꯐꯅ꯫ ꯌꯤꯗꯒꯤ ꯑꯔ ꯌꯐꯇꯕ ꯇꯍꯃ, 10°-ꯃꯒꯤ ꯄꯣꯐꯕ ꯇꯦꯀꯥꯍꯣꯏꯗ, ꯐꯑꯤꯒꯤꯍꯕ ꯇꯦꯀꯥꯍꯃ ꯇꯦꯕ ꯃꯤꯃꯦꯗ (Disang) ꯃꯣꯔ, ꯐꯦꯇꯒꯤꯌꯍ, ꯈꯤꯔ, ꯇꯣꯐꯃꯃꯇꯦꯅꯃꯐꯤ ꯃꯣꯕꯑꯤꯇ ꯑꯃꯁꯨꯡ ꯐꯐ ꯇꯐꯑꯒꯤ ꯌꯦꯔ ꯑꯍꯒꯤ ꯍꯅ ꯊꯗꯕ ꯇꯦꯀꯥꯍꯃ ꯍꯣꯏꯒꯤ ꯌꯗꯕꯒꯤ ꯑꯇꯤꯑꯑꯐꯤ ꯍꯨꯗꯃ ꯇꯦꯕ ꯇꯍ ꯑꯣꯏ ꯅꯣꯏꯗ ꯇꯣꯀꯇꯕ ꯃꯤꯇꯤꯐꯇꯃꯣ, ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯐꯃꯐ ꯑꯣꯏ ꯇꯦꯅꯐ ꯑꯦꯑꯕ ꯑꯣꯊꯑꯃꯣꯏꯗꯃ, 4.10.3 ꯑꯃꯁꯨꯡ 4.10.4-ꯒꯤ ꯍꯌꯃ ꯌꯨꯐꯊꯑ ꯑꯃꯁꯨꯡ ꯀꯦꯃꯤꯌꯍꯣꯏꯗꯃ, ꯇꯐꯑꯒꯤ ꯌꯤꯗꯒꯤ ꯑꯔꯒꯤ ꯇꯤꯑꯦꯑꯣꯑꯇꯤꯐꯣꯔ ꯃꯑꯑꯤꯈꯤꯐꯣꯐꯇꯦ ꯌꯁꯄꯔꯇꯕ ꯍꯈꯍꯃ ꯅꯑꯑꯍꯑ ꯍꯦꯇꯦꯕ ꯑꯦꯀꯐ ꯃꯀꯣꯃ ꯑꯍꯃ ꯀꯤꯅ꯫ ꯇꯍ ꯍꯅꯔ ꯍꯑꯤ ꯑꯣꯏ ꯀꯦꯃꯍ ꯑꯣꯏꯒꯤꯃꯍꯑ ꯑꯦꯀꯐ ꯃꯀꯣꯃ ꯇꯐꯑꯣ꯫ ꯇꯍ ꯑꯃꯃ ꯇꯦꯕ ꯀꯨꯅꯑꯤ ꯇꯐꯑꯒꯤ ꯀꯦꯐ ꯑꯍ ꯐꯤꯒꯔ 4.3.1-ꯒꯤ ꯅꯦꯗꯊꯗ 1-ꯒꯤ ꯍꯌꯃ ꯊꯗꯑ ꯃꯣꯐꯅ ꯑꯃꯁꯨꯡ ꯍꯣꯏꯒꯤ ꯑꯦꯁꯐꯇꯣꯐ ꯇꯣꯒꯣꯔꯃꯒꯤ (ꯐꯤꯒꯔ 3.12.5) ꯄꯑꯐꯀ ꯅꯣꯏꯗꯒꯤ ꯃꯑꯈꯣꯃ ꯑꯍ ꯑꯦꯅꯇꯦ ꯍꯦꯃꯣꯔ ꯑꯦꯅ (ꯐꯤꯒꯔ 3.3.2(e)), ꯍꯑꯐ ꯑꯃꯇꯦ ꯇꯣꯒꯣꯔ ꯑꯃꯒꯤ ꯍꯊꯑꯥ ꯇꯦꯕ ꯍꯣꯏꯒꯤ ꯅꯣꯏꯗ ꯅꯌꯁꯒꯤ ꯃꯑꯣꯑꯇ ꯅꯑꯥꯍꯑ ꯍꯣꯏꯗ ꯊꯤꯕ ꯌꯅ, ꯑꯃꯁꯨꯡ ꯃꯑꯑ 7-ꯗ ꯌꯄꯔꯇꯤꯕ ꯍꯑꯗ ꯅꯐꯇ ꯅꯑꯥꯍꯑ; ꯀꯐ ꯑꯃꯁꯨꯡ ꯍꯣꯏꯒꯤ ꯍꯇꯦꯑꯣꯏꯗ ꯐꯃꯐꯃꯃ ꯃꯤꯑꯣꯐꯃꯐ ꯀꯦꯐꯃ (detention pond) ꯑꯍ ꯑꯦꯅꯄꯐꯃꯣ, ꯑꯃꯁꯨꯡ ꯅꯐꯇꯤꯇꯤꯌꯑ ꯑꯦꯑꯕ ꯃꯑꯣꯑꯇ ꯑꯣꯏꯕ ꯃꯤꯑꯣꯐꯃꯐ ꯀꯦꯐꯃ ꯐꯦꯅ, ꯐꯃꯐꯃꯃ ꯀꯨꯅꯑꯤ ꯇꯐꯑꯒꯤ ꯀꯐ ꯄꯤꯌꯃꯣ꯫ ꯍꯍꯗ ꯇꯦꯕ ꯑꯑꯣꯔꯣꯏꯗꯃ ꯇꯦꯕ ꯍꯦꯃꯣꯔ ꯑꯃꯒꯤ ꯕꯦꯅ-ꯇꯦ 93-ꯒꯤ ꯕꯈꯑꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯃꯑꯑ 7-ꯒꯤ ꯍꯣꯌꯅꯣꯔꯒꯤ ꯐꯦꯑꯤꯃꯦꯑ ꯑꯣꯏ ꯄꯦꯇꯤꯑꯑꯒꯤ ꯅꯣꯏꯗ ꯅꯌꯁꯒꯤ ꯇꯍꯇꯤ: ꯅꯣꯏꯗꯇꯦ ꯍꯅꯦꯌꯃ ꯑꯄꯇꯕꯃ ꯌꯦꯅ, ꯍꯑꯐ ꯑꯃꯇꯦ ꯍꯅꯦꯌꯒꯤ ꯍꯇꯦꯑꯥ ꯇꯦꯕ ꯃꯣꯒꯣꯇꯀꯍꯣꯐꯐꯃꯤꯃꯍꯑ ꯃꯤꯑꯣꯐꯃꯐ ꯑꯦꯅꯇꯦ ꯍꯣꯏꯗ ꯊꯤꯃꯣ꯫ ꯍꯇꯤꯀꯨꯑ ꯇꯦꯑꯑ ꯇꯣꯑ (ꯀꯑꯦꯑꯑꯐ) ꯑꯣꯑꯐ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯍꯨꯗꯃ ꯇꯦꯕ ꯇꯍ ꯑꯣꯏ ꯃꯣꯒꯣꯇꯀꯍꯣꯐꯐ ꯑꯍꯒꯤ ꯃꯤꯑꯣꯐꯃꯐꯐꯒꯤꯃꯍꯑ ꯒꯑꯣꯃ ꯑꯦꯃꯣ ꯇꯐꯑꯒꯤ ꯑꯦꯑꯑꯣ, ꯍꯑꯍꯃꯤ ꯑꯣꯑꯐ ꯑꯃꯇꯦ ꯍꯣꯏꯒꯤ ꯕꯈꯑ ꯇꯦꯐꯃ "ꯇꯍ ꯑꯤꯑꯇꯣꯍꯣꯃꯐ, ꯀꯐ ꯃꯦꯕ ꯇꯐꯑꯒꯤ ꯅꯑꯍꯣꯏꯗꯒꯤ ꯍꯄꯦꯃꯒꯤ ꯇꯍꯕꯤ ꯃꯦꯑꯄꯐꯕ" ("Land

> reclamation, bunding or disturbing the natural course of drainages") ꯊꯤꯡꯅ (ꯂꯥꯏꯟ 19) ꯑꯃꯁꯨꯡ ꯃꯅꯤꯡꯗ ꯌꯥꯝꯅ ꯂꯩꯕ ꯑꯁꯤ "ꯅꯣ-ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯖꯣꯟ ꯂꯩꯕ" ("No-Development Zone") ꯑꯣꯏꯅꯥꯏ (ꯂꯥꯏꯟ 3)꯫ ꯑꯃꯁꯨꯡ ꯂꯩꯖꯕ ꯑꯃꯁꯨꯡ ꯁꯥꯔꯣꯜꯗ ꯑꯁꯤ ꯄꯥꯏꯔꯤꯕꯒꯤ ꯕꯤꯖꯦꯠꯇꯕꯤ ꯅꯁꯤꯡ ꯅꯁꯥꯒꯤ ꯂꯣꯏꯕꯥꯡꯅꯖꯔꯤ: ꯃꯅꯥꯔ ꯑꯁꯤ ꯅꯣ-ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯃꯒꯤ ꯀꯤꯔꯥꯏꯂꯣꯜꯒꯤꯀꯃꯕ ꯑꯣꯖꯦ ꯂꯣꯖꯥꯂ ꯖꯧꯕꯥ, ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔ ꯄꯥꯏꯀꯥꯕꯥꯛꯇ ꯃꯊꯕꯥ ꯂꯩꯗꯨ ꯃꯍꯩꯀꯅ, ꯃꯤꯅꯥꯏꯗ ꯂꯣꯏꯕꯥꯡꯖ ꯑꯣꯏ ꯌꯥꯖꯥꯖ 7.6.4-ꯒꯤ ꯃꯅꯥꯛ ꯑꯃꯃꯕ ꯄꯦꯖꯦ ꯊꯀꯅ (ꯂꯨꯃꯕ 7)꯫
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> - ꯌꯥꯖꯥꯖ 4.15.5-ꯒꯤ ꯃꯅꯥꯛ ꯇꯧꯗ ꯂꯤꯅꯦꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯖꯧꯒꯤ ꯃꯤꯗꯌꯥꯗꯂꯣꯏꯕ, ꯑꯃꯁꯨꯡ 4.10.5(b)-ꯒꯤ ꯅꯂꯣꯏꯕ ꯅꯔꯤꯡꯒꯤ ꯁꯕꯂꯣꯏꯖꯧꯒꯤ ꯂꯤꯅꯦꯂꯣꯏꯕ ꯑꯁꯤ ꯃꯩꯇꯩ ꯃꯌꯦꯛ ꯅꯧ ꯃꯩꯇꯩꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯅꯖꯤꯂꯥꯏ ꯇꯧꯒꯅꯧꯖꯤ; ꯁꯤꯕꯒꯤ ꯖꯀꯂꯣꯏꯕꯅ ꯃꯅꯥꯔ ꯑꯁꯤ ꯅꯖꯤꯂ ꯑꯃꯁꯨꯡ ꯅꯨꯕꯒꯕ ꯖꯌꯗꯒ ꯂꯄꯗ ꯑꯃꯨꯅ ꯂꯤꯖꯤꯦꯖꯗꯤꯧ ꯇꯦꯅ ꯇꯧꯒꯅꯧꯖꯤ, ꯑꯊꯗꯤꯌꯤꯖ ꯔꯥꯊꯕ ꯌꯤꯗꯧ ꯃꯍꯩꯀꯅ ꯃꯩꯇꯩꯦꯒ ꯇꯔꯖꯖ (ꯃꯨꯔꯔꯅ ꯑꯂꯤꯖ ꯊꯀꯧ)꯫ ꯗꯨꯅ ꯑꯂꯤꯖ ꯃꯖꯤꯌꯨꯗ ꯑꯍꯤꯂꯤꯔꯅ ꯇꯕꯐꯔꯇ (ꯑꯃꯦꯟꯃꯦꯟꯠ) ꯑꯦꯛꯠ, 2021 (Manipur Official Language (Amendment) Act, 2021) (2021-ꯒꯤ ꯑꯦꯛꯠ ꯖꯀꯧꯗ 7)-ꯒꯤ ꯃꯌꯨꯕ ꯅꯦꯖ, ꯃꯂꯤꯖ "Manipuri Language" (ꯃꯖꯤꯌꯨꯗꯤ ꯇꯦ) ꯑꯂꯤ "Meeteilon written in Meetei Mayek" (ꯃꯩꯇꯩ ꯃꯌꯦꯛ ꯅꯧ ꯃꯩꯇꯩꯦ) ꯄꯔꯖ ꯂꯦꯅꯕꯖ ꯌꯥꯅ ꯑꯃꯁꯨꯡ "concurrent use of Bengali Script and Meetei Mayek … in addition to English language, for a period upto 10(ten) years" (ꯅꯖꯤꯂ ꯇꯦꯒꯤ ꯃꯊꯕꯌ, ꯁꯄꯤ 10 ꯍꯤꯡꯧꯒꯤ ꯃꯌꯀ ꯑꯃꯒꯤꯅꯃꯕ ꯧꯕꯒꯖꯤ ꯃꯔꯕ ꯑꯃꯁꯨꯡ ꯃꯩꯇꯩ ꯃꯔꯕ ꯌꯨꯦꯖ ꯂꯤꯖꯤꯦꯖꯧ) ꯔꯤꯄꯔꯖꯤ; ꯃꯖꯤꯌꯨꯗ ꯑꯍꯤꯂꯤꯔꯅ ꯇꯕꯐꯔꯇ ꯑꯦꯛꯠ, 1979-ꯒꯤ ꯂꯥꯏꯟ 7-ꯖ ꯁꯤꯕꯒꯤ ꯖꯀꯂꯤꯕ ꯌꯗꯀꯖ ꯇꯧꯒ ꯄꯔꯧꯕꯨ ꯃꯔꯕ ꯂꯕꯖ ꯌꯥꯅꯤꯅ [TBC], ꯑꯃꯁꯨꯡ ꯂꯤꯅꯦ ꯑꯃ ꯃꯂꯤꯖ ꯁꯕꯂꯤꯦꯄꯔꯖꯤꯧ ꯃꯤꯂꯤꯕꯖ ꯌꯥꯧ ꯌꯥꯀꯒꯅꯧꯖꯤ꯫

4.11 ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖꯒꯤ ꯄꯤꯂꯕ

4.11.1 **ꯑꯖꯤꯗꯕ ꯃꯂꯤꯕ ꯊꯤꯅꯧ.** RWH ꯂꯌꯗꯖ (RWH-ꯒꯤ ꯃꯦꯅꯌꯥꯒꯤ ꯃꯅꯥꯛ ꯌꯤꯧ ꯂꯀꯌꯂꯤꯕ, ꯌꯥꯕꯂꯤꯕ, ꯗꯤꯔꯗꯖ ꯌꯤꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯔꯂꯤꯕ) ꯑꯂꯤ ꯅꯤꯌꯦꯂꯦ ꯑꯅꯖ ꯃꯂꯤꯕ **ꯊꯤꯗꯅꯅꯧꯖꯤ**꯫

4.11.2 **RWH ꯂꯀꯌꯂꯤꯕ ꯊꯦꯖ ꯄꯔꯖ ꯇꯧ.** ꯂꯗꯕ ꯑꯂꯤꯒꯤ ꯃꯅꯥꯛ ꯇꯧ ꯗꯤꯡꯌꯤꯕ ꯌꯨꯀꯖꯃꯕꯌꯥꯤꯅꯃꯕ, RWH ꯂꯀꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯕꯂꯤꯕ ꯑꯂꯤ ꯃꯌꯀ ꯅꯨꯅꯤꯕꯃꯕꯌ **ꯊꯅꯕ ꯅꯨꯅꯤꯕꯃꯕꯌꯤ ꯑꯄꯧꯅ ꯊꯦꯖ** ꯄꯔꯖ ꯇꯒꯅꯧꯖꯤ꯫ ꯃꯅꯥꯔꯒꯤ ꯑꯒꯗꯍꯖ ꯑꯅ ꯅꯤꯌꯦꯂꯦ ꯍꯂꯤꯖꯤꯌꯤꯅ ꯗꯤꯡꯌ ꯌꯒꯅꯧꯖꯤ, ꯖꯌꯗꯒ ꯃꯂꯤꯖ ꯅꯤꯌꯦꯂꯦ ꯖꯦꯊꯕꯖꯧꯅ ꯄꯕꯊꯕꯖꯖ ꯑꯤꯡꯌꯍꯔꯅ꯫ ꯑꯗꯅꯧ ꯍꯤꯒꯀ ꯑꯅꯨꯅ ꯧꯅꯌꯂ ꯍꯖ ꯑꯂꯤ PSD-ꯒꯤ ꯃꯨꯕꯅ ꯃꯂꯤꯕ ꯊꯤꯅ꯫

4.11.3 **ꯌꯨꯦꯂꯤꯦꯧ ꯌꯥꯕꯂꯤꯕ.** ꯌꯥꯕ ꯑꯃꯅꯕꯌꯖ RWH ꯑꯃꯁꯨꯡ ꯅꯤꯌꯦꯂꯦ ꯑꯖꯤꯃꯕ ꯌꯤꯧ ꯔꯤꯅ, ꯃꯅꯒꯤꯂꯤꯕ ꯑꯅꯗꯧꯅꯤ ꯅꯕꯌꯃꯕ:

- (a) ꯅꯤꯌꯦꯂꯦ ꯇꯦ ꯑꯂꯤ RWH ꯑꯒꯗꯍꯖ ꯖꯒꯔꯒꯤ ꯃꯌꯨꯕ ꯍꯖ **ꯃꯊꯕꯌ** ꯇꯗꯧꯅꯤ;
- (b) ꯅꯤꯌꯦꯂꯦ ꯇꯦ ꯑꯂꯤ RWH ꯑꯒꯗꯍꯖ ꯖꯒꯔꯅ ꯊꯀꯧ, ꯌꯥꯖꯥꯖ 4.7 ꯑꯃꯁꯨꯡ 4.8 ꯌꯥꯀꯄꯔꯖꯤꯧ ꯃꯂꯒꯤ ꯒꯗꯒꯤꯌꯤ ꯌꯦꯌꯗꯔ ꯑꯗꯤꯍꯤꯂ ꯑꯃꯖ ꯅꯗꯀ ꯌꯗꯧꯅꯤ;
- (c) ꯌꯀꯌ, ꯒꯤꯔꯒ ꯖꯌꯗꯒ ꯂꯤꯖꯤꯦꯖꯗꯤꯧ ꯃꯤꯒꯤ ꯊꯧꯕ ꯑꯃꯌꯌꯖ ꯅꯤꯌꯦꯂꯦ ꯇꯦꯅ ꯅꯂꯤꯕ ꯊꯀꯧ ꯌꯃꯅꯗꯧꯅꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯇꯦ ꯑꯖꯤ ꯑꯃꯁꯨꯡ ꯑꯗꯤꯍꯤꯂꯤꯌꯤ ꯖꯒꯔ ꯑꯂꯤ ꯅꯗꯅꯕꯂꯤꯕꯅ ꯑꯃꯁꯨꯡ ꯃꯦꯌꯖꯦꯂ ꯅꯤꯕꯖꯗꯂꯦꯅ ꯗꯌꯖꯧꯅꯤ꯫

RWH ꯑꯒꯗꯍꯖ ꯖꯒꯔ ꯑꯃꯁꯨꯡ ꯅꯤꯌꯦꯂꯦ ꯑꯒꯗꯍꯖ ꯖꯒꯔꯒꯤ ꯃꯗꯕꯌ ꯇꯧ ꯒꯨꯀ ꯅꯕꯌꯃꯕ ꯅꯤꯌꯦꯂꯦ ꯑꯅꯖ ꯃꯂꯤꯕ ꯊꯤꯅ꯫

4.11.4 **ꯗꯤꯔꯗꯖ ꯂꯌꯗꯕꯁꯗꯂꯤꯕ.** ꯗꯤꯔꯗꯖ ꯌꯤꯌꯂꯤꯕ, ꯌꯗꯦꯁꯂꯤꯕ, ꯂꯍꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯔꯂꯤꯕꯖ ꯌꯥꯖꯥꯖ 4.4.3-ꯅꯒꯤ 4.4.5 ꯍꯤꯡꯧ ꯌꯥꯀꯄꯔꯖꯧꯅꯤ **ꯗꯤꯌꯦꯂꯦ** (ꯅꯤꯌꯦꯂꯦ ꯖꯌꯦ) ꯑꯅꯖ ꯃꯂꯤꯕ ꯊꯤꯧ ꯔꯤꯅ꯫ ꯃꯗꯑꯅꯖ, ꯃꯌꯀ ꯃꯌꯀꯒꯤ ꯅꯧꯅꯅꯒꯤ ꯔꯤꯕꯧ ꯔꯤꯌꯗ ꯌꯧꯔ ꯑꯂꯤ ꯃꯅꯥꯔꯒꯤ ꯧꯖꯒꯤ ꯃꯅꯥꯛ ꯔꯤꯀꯅꯗꯧꯅ 1.0 m ꯇꯒꯅꯧꯖꯤ꯫ ꯗꯤꯡꯌꯤꯕꯅ ꯃꯅꯥꯔꯧ ꯃꯦꯂꯦꯒꯤ ꯃꯌꯀꯒꯤ ꯇꯃꯅꯒꯤ ꯃꯅꯒꯤ ꯅꯂꯤꯕꯒꯤ ꯖꯒꯔꯒ ꯇꯔꯖꯖ ꯌꯥꯖꯥꯖ 4.4.6-ꯒꯤ ꯃꯅꯥꯛ ꯇꯅ꯫

4.11.5 **RWH ꯄꯖꯤꯕꯂ ꯃꯊ ꯌꯅ.** ꯂꯗꯕ ꯑꯂꯤꯅ ꯇꯧ ꯌꯗꯤꯗꯀꯧ ꯑꯃꯌꯌꯖ, ꯇꯌꯔ ꯧꯅꯤ ꯅꯨꯅꯤꯕꯃꯕꯖ ꯁꯌꯖꯕꯄꯔꯖꯧ ꯃꯌꯨꯕ ꯅꯦꯖ ꯃꯅꯔ ꯃꯖꯤꯌꯨꯗ ꯅꯨꯖꯤꯍꯤꯅꯅ ꯧꯤꯔꯅꯤꯕ ꯧꯅ-ꯇꯖ 2024-ꯒꯤ ꯧꯅ-ꯇ 6(1)(C)(j), 66 ꯑꯃꯁꯨꯡ 67-ꯒꯤ RWH-ꯒꯤ ꯃꯊ ꯌꯧ, "ꯅꯂꯤꯕ ꯅꯃꯖꯤꯦꯧ ꯑꯃꯁꯨꯡ ꯁꯂꯌ ꯔꯤꯌꯗ ꯗꯤ-ꯂꯅꯌꯖꯤꯕ ꯂꯤꯂꯌꯀꯂꯤꯕ" ("water harvesting as well as waste water re-cycling systems") ꯂꯗꯌꯤꯍꯅ ꯌꯧ ꯌꯀꯌꯖꯤꯂꯦ ꯂꯗꯌꯤꯍꯤꯌꯌ, ꯧꯤꯔꯅꯤꯕ ꯌꯗꯃꯤꯂꯦ ꯑꯃꯒꯤ ꯌꯦꯅꯤꯂꯦ ꯑꯃꯄꯕꯌ, ꯁꯌꯖꯧ ꯃꯍꯀꯅ ꯂꯦꯌꯗꯔ ꯒꯗꯤꯡꯦꯅ ꯔꯤꯌꯗ

ꯑꯦꯗꯚꯥꯏꯁꯔꯤꯒꯤ ꯃꯦꯀꯥꯅꯤꯖꯝ, ꯃꯅꯤꯄꯨꯔ ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯣꯇꯔ (ꯀꯟꯠꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯔꯦꯒꯨꯂꯦꯁꯟ) ꯄꯣꯂꯤꯁꯤ, 2023 (Manipur Ground Water (Control & Regulation) Policy, 2023) (DoECC-ꯗꯒꯤ ꯂꯥꯏꯔꯤꯛ ꯑꯁꯤꯕ ꯌꯥꯑꯣꯕ ꯅꯠꯇꯦ; ꯑꯦꯛꯁꯦꯁ ꯇꯧꯔꯤꯕ [TBC]), ꯑꯗꯨꯒꯨꯝꯕ ꯑꯦꯛꯁꯦꯁꯀꯤ ꯑꯦꯗꯚꯥꯏꯁꯔꯤ ꯑꯃꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕꯒꯤ ꯃꯇꯥꯡ ꯑꯗꯨꯒꯨꯝꯕ ꯀꯅꯕꯥ ꯑꯍꯣꯡꯕ ꯄꯨꯔꯀꯄꯥ ꯄꯥꯎꯇꯥꯛ ꯄꯤꯔꯤ॥

> **ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯕ ꯐ꯭ꯔꯦꯃꯋꯥꯔꯛ.** ꯃꯅꯤꯄꯨꯔꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ ꯑꯁꯤ ꯕꯤꯜꯗꯤꯡ-ꯂꯣꯁꯤꯡꯗ ꯃꯊꯧ ꯇꯥꯕꯅꯤ, ꯃꯔꯝꯗꯤ ꯃꯁꯤꯒꯤ ꯂꯣꯏꯅ ꯂꯩꯔꯤ॥ ꯃꯁꯤꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏꯂꯥꯖ, 2024-ꯒꯤ ꯕꯥꯏ-ꯂꯣꯖ 66 [TBC: ꯂꯦꯝꯍꯧ ꯕꯦꯜꯂꯗꯤ ꯂꯩꯔꯤꯕ ꯑꯁꯤꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗ ꯂꯧꯈꯠꯄ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ ꯂꯩꯇꯕ ꯍꯦꯛꯇꯤꯔꯤꯕꯅꯤ]-ꯗ ꯍꯥꯌꯔꯤ: "a) ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ: ꯁ꯭ꯀꯋꯥꯌꯔ ꯃꯤꯇꯔ 100 ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯠꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯧꯕ ꯕꯤꯜꯗꯤꯡ ꯄꯨꯝꯅꯃꯛꯇ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯌꯥꯎꯅ ꯏꯁꯤꯡ ꯆꯦꯠꯁꯤꯟꯕ ꯇꯥꯏꯐꯦꯂꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ ꯑꯁꯤ ꯃꯊꯧ ꯇꯥꯏ॥ ꯄꯤꯔꯕ ꯊꯧꯔꯥꯡꯁꯤꯡꯗ ꯂꯃꯗꯝ ꯃꯤꯇꯃꯒꯤ ꯔꯤꯖꯔꯚꯣꯏꯔꯁꯤꯡꯗ ꯅꯠꯔꯒꯥ ꯔꯤꯆꯥꯔꯖ ꯀꯨꯁꯤꯡꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕꯒꯤ ꯄꯣꯏꯟꯇꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯠꯁꯤꯟꯕꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯝ ꯇꯥꯛꯀꯗꯕꯅꯤ" ["a) Water Harvesting: Water harvesting through storing of water runoff including rainwater in all existing and new buildings on plots of 100 square metre and above will be mandatory. The plans submitted shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells"], ꯑꯃꯁꯨꯡ "b) ꯁꯣꯐꯠ ꯀꯚꯔ: … ꯑꯦꯞꯂꯤꯀꯦꯟꯇꯅ ꯁ꯭ꯀꯋꯥꯌꯔ ꯃꯤꯇꯔ 500-ꯒꯤ ꯑꯄꯤꯛꯄ ꯀꯚꯔ ꯇꯧꯔꯕ ꯑꯦꯔꯤꯌꯥ ꯂꯩꯕ ꯕꯤꯜꯗꯤꯡ ꯑꯃꯍꯦꯛꯇꯒꯤ ꯗꯃꯛ, ꯑꯦꯞꯂꯤꯀꯦꯟꯇꯅ ꯄ꯭ꯂꯣꯠ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯌꯥꯃꯗꯅ 15%-ꯒꯤ ꯁꯣꯐꯠ ꯀꯚꯔ ꯄꯤꯒꯗꯕ ꯌꯥꯏ॥ … ꯑꯇꯣꯞꯄ ꯀꯚꯔ ꯇꯧꯔꯕ ꯑꯦꯔꯤꯌꯥ ꯍꯦꯟꯅ ꯍꯟꯊꯕ ꯕꯤꯜꯗꯤꯡ ꯑꯃꯍꯦꯛꯇꯒꯤ ꯗꯃꯛ, ꯁꯣꯐꯠ ꯀꯚꯔ ꯑꯁꯤ ꯄ꯭ꯂꯣꯠ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯌꯥꯃꯗꯅ 10% ꯑꯣꯏꯒꯗꯕ ꯌꯥꯏ॥" ["b) Soft Cover: … For any building having a minimum covered area of 500 square metre, the applicant should provide soft cover of at least 15% of the plot area. … For any other building, having lesser covered area, the soft cover should be at least 10% of the plot area."] ꯕꯥꯏ-ꯂꯣꯖ 67-ꯗ ꯀꯚꯔ ꯇꯧꯔꯕ ꯑꯦꯔꯤꯌꯥ 500 m² ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯅꯠꯔꯒꯥ ꯅꯨꯃꯤꯠ ꯈꯨꯗꯤꯡꯒꯤ 10,000 L ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯗ ꯒ꯭ꯔꯦ-ꯋꯣꯇꯔ ꯔꯤꯁꯥꯏꯀ꯭ꯂꯤꯡ ꯃꯊꯧ ꯇꯥꯏ, ꯑꯃꯁꯨꯡ "ꯇꯣꯏꯂꯦꯠ ꯐ꯭ꯂꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯤꯖꯤꯟꯅꯗꯕ ꯍꯦꯟꯅ ꯂꯩꯔꯕ ꯃꯥꯉꯍꯟꯕ ꯏꯁꯤꯡ ꯑꯗꯨ ꯃꯥꯂꯦꯃꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯔꯤꯆꯥꯔꯖꯒꯤꯗꯃꯛ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯔꯤꯆꯥꯔꯖ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯗ ꯃꯥꯟꯅꯅ ꯁꯝꯃꯤꯟꯅꯒꯗꯕꯅꯤ" ("The excess waste water not reused for toilet flushing shall be suitably connected to the rain water recharge structures for ground water recharge"); ꯕꯥꯏ-ꯂꯣꯖ 68-ꯗ "ꯃꯥꯉꯍꯟꯕ ꯏꯁꯤꯡꯒꯤ ꯔꯤꯁꯥꯏꯀ꯭ꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕꯒꯤ ꯁ꯭ꯠꯔꯛꯆꯔ ꯑꯅꯤꯃꯛ ꯂꯧꯔꯤꯕ" ("who undertake both recycling of waste water and rain water harvesting structures") ꯃꯤꯑꯣꯏꯁꯤꯡꯗ "ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯟ ꯐꯤꯒꯤ 10 %-ꯒꯤ ꯔꯤꯕꯦꯠ" ("rebate of 10 % on building permission fees") ꯄꯤꯔꯤ; ꯄꯣꯂꯤꯁꯤꯗꯁꯨ "ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯉꯥꯀꯄ ꯑꯃꯁꯨꯡ ꯈꯣꯝꯖꯤꯟꯕꯒꯤꯗꯃꯛ ꯁꯦꯃꯈꯤꯕ ꯄ꯭ꯔꯣꯚꯤꯖꯅꯁꯤꯡꯒꯤ ꯑꯀꯨꯞꯄ" ("detail provisions made for conservation and harvesting of rain water") (6(1)(C)(j)) ꯌꯥꯎꯔꯤ; ꯑꯃꯁꯨꯡ ꯚꯤꯖꯟ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯇꯇꯥ "ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯃꯥꯉꯍꯟꯕ ꯏꯁꯤꯡ ꯔꯤ-ꯁꯥꯏꯀ꯭ꯂꯤꯡ ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡ" ("water harvesting as well as waste water re-cycling systems") ꯂꯥꯑꯣꯊꯣꯛꯂꯤ॥ ꯃꯈꯥꯗ ꯑꯃꯅꯥ ꯁꯤꯖꯤꯟꯅꯔꯕ ꯀꯣꯃꯞ, ꯔꯤꯆꯔꯖ ꯔꯣꯖ, ꯍꯤꯃꯦꯜ ꯁꯤꯖꯤꯟꯅꯕ, ꯍꯣꯡꯖꯤꯟꯕ ꯅꯠꯔꯒꯥ ꯅꯦꯆꯔꯦꯜ-ꯕꯦꯁ ꯁꯣꯜꯌꯨꯁꯟ (NEER-ꯒꯤ ꯄꯦꯄꯔ)॥ ꯇꯤꯡꯒꯤ ꯂꯩꯃꯤꯟꯅꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕꯒꯤ ꯃꯊꯧ ꯑꯃꯁꯨꯡ ꯊꯧꯅꯥ ꯋꯥꯡꯏ॥ ꯏꯝꯐꯥꯂꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯡꯖꯦꯜ ꯅꯥꯏꯕ: ꯑꯣꯔꯣꯏꯗ ꯔꯤꯁꯣꯔꯁ ꯁꯦꯟꯇꯔꯇꯒꯤ Safe ꯑꯣꯏ, ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯂꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯂꯧꯊꯣꯛꯄꯒꯤ ꯁꯔꯨꯛ GWRA 2023-ꯗ 7.99% ꯑꯃꯁꯨꯡ GWRA 2024-ꯗ 8.00% ꯑꯣꯏꯈꯤ (CGWB, ꯚꯦꯔꯁꯤꯕ ꯌꯥꯑꯣꯕ ꯅꯠꯇꯦ)॥ ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯃꯅꯤꯄꯨꯔꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ ꯑꯁꯤ ꯂꯧꯔꯁꯤꯅꯕ ꯏꯁꯤꯡ ꯍꯤꯡꯕꯔꯕ ꯁꯔꯨꯛ ꯀꯌꯥꯒꯤ ꯏꯁꯤꯡ ꯂꯧꯕ ꯅꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯍꯦꯟꯕꯒꯤꯗꯃꯛ ꯄꯥꯝꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯛ ꯍꯟꯅ ꯂꯩꯂꯤꯕꯅꯤ ("ꯏꯝꯐꯥꯜꯗ ꯄꯤꯔꯤꯕ ꯏꯁꯤꯡ ꯄꯨꯝꯕꯒꯤ ꯃꯔꯛ 90% ꯑꯁꯤ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ, ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ ꯍꯥꯌꯕ ꯃꯔꯨ ꯑꯣꯏꯕ ꯇꯨꯔꯦꯜ ꯑꯍꯨꯃꯗꯒꯤꯅꯤ" ("About 90% of the drinking water supply in Imphal is from the three major rivers namely Imphal River, Nambul River and Iril River"), ꯃꯤꯍꯨꯠ ꯄꯣꯂꯤꯁꯤ), ꯑꯃꯁꯨꯡ, ꯑꯃꯈꯥꯌꯗꯒꯤ ꯂꯃꯗ, ꯏꯝꯐꯥꯂꯒꯤ ꯃꯍꯨꯠꯁꯤꯅꯕ ꯊꯝꯂꯤꯕꯅꯤ॥ ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯃꯥꯏꯄꯥꯛꯅ ꯑꯁꯤꯅꯥ ꯚꯦꯔꯤꯐꯥꯏ ꯇꯧꯕꯒꯤꯗꯃꯛ ꯅꯦꯠꯋꯥꯔꯛꯀꯤ ꯃꯇꯥꯡ ꯑꯃꯁꯨꯡ ꯂꯩꯕꯛ ꯀꯥꯟꯅꯕꯒꯤ ꯃꯇꯥꯡ ꯑꯃ ꯊꯝꯂꯤ (ꯃꯤꯇꯩꯂꯣꯟ ꯃꯥꯏꯄꯥꯛꯅ ꯑꯁꯤꯅꯥ ꯊꯝꯕ), ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣꯒꯤ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯗ ꯃꯍꯥꯛꯀꯤ ꯃꯑꯣꯡꯗ ꯚꯦꯔꯤꯐꯥꯏ ꯄꯤꯔꯤ:
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> - RWH ꯑꯦꯛꯁꯦꯁ ꯅꯠꯔꯒꯥ ꯂꯃꯖꯤꯡ ꯃꯤꯇꯃꯒꯤ ꯑꯃꯅꯥ RWH ꯁꯦꯃꯒꯠꯂꯤ॥ ꯃꯁꯤ ꯀꯤꯁꯣꯜꯂꯤ ꯅꯠꯔꯕ (ꯚꯦꯂꯦ 4.11.1), ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯊꯥꯛꯇ ꯌꯥꯀꯤꯕꯤꯗꯝꯗꯤ ꯑꯍꯥꯟꯕ ꯊꯦꯡꯅ ꯍꯥꯌꯗ ꯂꯥꯏ (ꯚꯦꯂꯦ 4.11.2), ꯃꯇꯃꯀꯤ ꯃꯦꯁꯔꯦꯃꯦꯟꯇ ꯃꯑꯣꯡꯗ ꯑꯍꯥꯅꯕ ꯑꯃꯨꯛꯕ ꯏꯁꯤꯡꯒꯤ ꯃꯦꯖꯔꯗ ꯃꯁꯤ ꯊꯦꯡꯅ॥ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯗ ꯚꯦꯂꯦ 4.11.3-ꯒꯤ ꯃꯍꯩ ꯄꯨꯔꯀꯈꯤꯕ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯅꯥ ꯑꯣꯏꯗ ꯂꯥꯏꯕꯀꯤ ꯅꯦꯇꯋꯥꯔꯛ ꯀꯤꯁꯣꯜꯂꯣꯜ ꯄꯤꯕ ꯌꯥꯏ, ꯃꯁꯤꯒꯤ RWH ꯑꯦꯒꯥꯖꯦꯟ ꯂꯣꯒꯣꯅꯒꯤ ꯃꯊꯦꯡ ꯃꯁꯤꯒꯤ ꯑꯦꯔꯤꯖꯤꯂꯣꯚꯤ ꯌꯨꯕꯊꯦꯗ ꯏꯔꯝ ꯑꯦꯛꯕ ꯀꯤꯁꯣꯜꯂꯣꯜ ꯂꯦ ꯑꯃꯒ ꯂꯦꯌꯂꯗ; ꯂꯦꯜ ꯑꯃ ꯍꯦꯛꯇꯦꯛ ꯃꯁꯤ ꯊꯤꯏ॥

- **RWH ꯏꯁꯤꯡꯂꯣꯏꯁꯤꯡꯒꯤ ꯊꯧꯔꯝ.** ꯁꯦꯛꯁꯟ-ꯗ 66-ꯅ ꯄꯥꯝꯕ ꯍꯟꯖꯤꯅꯕꯅꯤ ꯃꯇꯝ ꯑꯥꯍꯟꯗꯨꯅ, ꯃꯣꯡꯒꯣꯜ ꯑꯣꯏꯒꯤ ꯃꯍꯩꯖ ꯏꯁꯤꯡꯂꯤꯛ ꯈꯡꯗꯕ RWH ꯁꯤꯡꯗꯣꯛꯇꯅ ꯂꯨꯝꯍꯥꯏꯕꯒꯤ ꯑꯣꯏꯈꯥꯡꯒꯤ m² ꯈꯨꯗꯤꯡꯗ ꯂꯤꯃꯤꯠꯇꯔ 25 L (ꯂꯨꯝꯍꯥꯏꯕꯒꯤ ꯃꯍꯥꯏꯕ ꯅꯥꯜ ꯃꯇꯝ 25 mm) ꯍꯥꯞꯆꯤꯟꯅꯕꯅꯤ॥ ꯄꯣꯠꯂꯨ ꯑꯣꯏꯕ ꯑꯣꯏꯇꯤꯇ ꯑꯣꯏꯒꯤ ꯅꯥꯇꯍ-ꯈꯣꯡꯗꯒꯤ ꯄꯣꯠꯂꯨꯅꯤ; ꯂꯨꯇꯦꯜ ꯑꯣꯏꯕꯂꯦꯝꯑꯣꯏꯗꯒꯤ m² ꯈꯨꯗꯤꯡꯗ 20 L ꯑꯣꯏꯕ ꯃꯃꯥꯡꯒꯤ ꯈꯨꯗꯝꯅꯤ॥ ꯃꯑꯣꯏ ꯁꯦꯛꯁꯟ 4.4.3-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯔꯤꯕ ꯍꯥꯏꯇꯕ, ꯌꯥꯈꯠꯄ ꯏꯇꯑꯣꯏꯗ ꯅꯩꯇꯦꯝ ꯑꯣꯡꯕꯥꯔꯤꯕ ꯄꯨꯝꯕ ꯇꯣꯔꯥꯌꯅ ꯌꯥꯇꯪꯕ ꯍꯥꯏꯅꯕ ꯂꯩꯔꯕ ꯑꯣꯏꯇꯤꯕꯅꯕ ꯑꯃꯅ ꯁꯨꯗ 72-ꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯣꯏꯗꯕ ꯑꯥꯈꯔꯕꯇꯤꯕ ꯃꯌꯨꯗ ꯈꯅꯅ ꯈꯥꯌꯃꯥ ꯁꯦꯛꯁꯟ 4.4-ꯒꯤ **ꯊꯤꯌꯣꯔꯦꯃꯦ**-ꯒꯤ ꯃꯍꯧ ꯌꯥꯕꯗ ꯃꯑꯣꯏꯗ ꯍꯤꯈ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯒꯤ ꯃꯌꯨꯗꯗ ꯑꯌꯥꯕꯄ ꯊꯤꯌꯣꯔꯦꯝꯅꯒꯤ ꯄꯤꯥꯡꯌꯣꯝ ꯑꯃꯨꯡ ꯁꯦꯛꯁꯟ 4.4.6-ꯒꯤ ꯃꯈꯥꯗ ꯃꯗꯣꯡ ꯌꯥꯈ; ꯃꯦꯔꯨꯦꯒꯤ ꯗꯤꯇꯈꯦ ꯍꯗꯥꯃ ꯈꯨꯗꯤꯗꯃꯥꯝꯒꯤ ꯑꯍꯥꯕꯗ ꯃꯑꯣꯏ ꯍꯦꯇꯡ ꯍꯔꯅ ꯇꯈ ꯑꯃꯁꯨꯡ ꯝꯗꯥꯏꯗꯨ ꯗꯤꯌꯣꯔꯦꯃꯦ ꯑꯈꯇ ꯃꯑꯣꯏꯗ ꯍꯤꯗꯣ॥ ꯊꯨꯡ ꯑꯣꯏꯅ ꯁꯦꯛꯁꯟ-ꯗꯒꯤ ꯃꯍꯧ ꯌꯥꯕ ꯑꯗꯨ ꯃꯄꯥꯛ ꯂꯩꯕ ꯑꯈꯍꯔꯤ; ꯃꯑꯣꯏꯅ ꯃꯗꯨꯒꯤ ꯃꯍꯨꯌ ꯑꯤꯦꯗꯣ, ꯑꯃꯁꯨꯡ ꯍꯦꯅ ꯂꯩꯍꯕ ꯌꯥꯍꯥꯝ ꯑꯃꯍ ꯃꯌꯥꯝ ꯄꯨꯝꯅꯃꯛ ꯂꯩꯍꯔꯤ॥ ꯌꯥꯝꯅꯥꯝꯒꯤ ꯇꯥꯗ ꯑꯃꯁꯨꯡ ꯁꯤꯗꯒꯤ ꯊꯨꯡ ꯁꯌꯇꯕ ꯇꯥꯗ, ꯍꯥꯇꯤꯦꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯝ ꯍꯦꯅ ꯑꯣꯏꯇꯤꯦꯇꯕ ꯑꯣꯏꯕ ꯊꯤꯌꯣꯔꯦꯝ ꯄꯤꯕꯒꯤ ꯇꯥꯕꯤꯅꯤ, ꯑꯃꯁꯨꯡ m² ꯈꯨꯗꯤꯡꯗ 25 L ꯑꯣꯏꯕ ꯃꯑꯣꯏꯒꯤ ꯑꯍꯦꯇꯕ ꯈꯗꯍꯗꯅꯤ॥
- ꯊꯤꯁꯤꯊꯇ ꯄꯤꯌꯑꯣꯏꯗ, ꯌꯊꯣꯦꯁꯑꯣꯏꯗ, ꯑꯏꯌꯑꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯑꯣꯏꯗꯅ ꯁꯦꯛꯁꯟ 4.11.4 ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗ ꯇꯕ ꯊꯤꯁꯤꯊꯇ ꯊꯨꯡ ꯍꯥꯍꯔꯇꯕ ꯃꯏꯍꯗ ꯈꯥꯌꯃꯥ ꯊꯤꯌꯣꯔꯦꯝ ꯑꯈꯅ ꯃꯑꯣꯏꯗ ꯍꯤꯈ: ꯑꯈꯌ ꯌꯣꯑꯌ ꯑꯃꯗ ꯃꯄꯇꯕ ꯊꯣꯌꯗꯤ ꯌꯗꯈꯈꯗ ꯁꯨꯗ 72-ꯒꯤ ꯃꯅꯨꯡꯗ ꯈꯊꯍ ꯌꯊꯤꯕ ꯃꯌꯨꯗ ꯈꯅꯅ ꯈꯥꯌꯃꯥ ꯃꯈꯔꯗ ꯏꯁꯤꯡꯂꯤꯌ ꯄꯤꯈ (ꯁꯦꯛꯁꯟ 4.4.3 ꯑꯃꯁꯨꯡ 4.4.5), ꯃꯈꯔꯒꯤ ꯕꯇ ꯑꯣꯏꯕ ꯃꯌꯍ ꯃꯌꯍꯒꯤ ꯈꯕꯈꯗꯒꯤ ꯁꯗꯕ ꯁꯌꯊ ꯌꯕꯔꯗꯒꯤ ꯂꯤꯃꯤꯠꯇꯔ 1.0 m ꯁꯗꯅ ꯇꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯂꯤꯌ ꯑꯣꯏꯕ ꯃꯈꯔꯒꯤ ꯄꯥꯛꯊꯣꯛ ꯏꯌꯍꯥꯄꯅ ꯇꯌꯌꯅ, ꯁꯦꯛꯁꯟ 4.4.6-ꯒꯤ ꯃꯈꯥꯗ ꯊꯤꯁꯌꯗꯅ ꯍꯤꯒꯗꯕꯅꯤ॥
- **ꯌꯥꯝꯅꯥꯝꯒꯤ ꯇꯥꯒꯤ ꯊꯨꯡ.** ꯃꯈꯒꯤ ꯃꯏꯍꯑꯣꯏꯗꯗ ꯄꯦꯗꯍ ꯍꯥꯅꯨꯅ ꯌꯕ ꯈꯦꯏꯤꯔꯌꯊꯣꯑꯦꯒꯤ ꯄꯤꯥꯡꯌꯣꯝ ꯑꯃꯌꯌ (ꯑꯥꯑꯁ, ꯑꯥꯅꯌꯊꯒ ꯄꯊꯏꯇꯣꯑꯦ ꯄꯤꯌ, ꯊꯤꯁꯤꯊꯇ ꯄꯤꯌ, ꯑꯏꯌ ꯇꯌꯊꯒ ꯁꯔ, ꯈꯦꯏꯤꯔꯌꯊꯣꯑꯦ ꯌꯊꯦꯁ, ꯇꯌꯊꯒ ꯈꯑꯣꯏꯗ ꯍꯗꯥꯄꯥ ꯕꯇ ꯇꯕ ꯄꯊꯃꯤꯔꯕꯔ ꯄꯒꯤꯗ) ꯑꯊꯈꯗꯕꯅꯤ ꯇꯌꯊꯒ ꯏꯁꯤꯡꯂꯤꯌ ꯄꯤꯊꯈꯗꯕꯅꯤ: ꯈꯍꯦꯔ ꯌꯥꯝꯅꯥꯝꯒꯤ ꯇꯥꯒꯤ ꯇꯒꯨꯑꯌꯊꯈꯦ ꯇꯃꯨ ꯑꯁꯌꯄ, ꯇꯃꯨ ꯇꯌꯊꯒ ꯄꯤꯌꯌ (ꯑꯕ-ꯑꯊꯤꯁ MN-A ꯑꯃꯁꯨꯡ MN-A1), ꯃꯑꯣꯏꯗ ꯇꯕꯨ ꯑꯃꯁꯨꯡ ꯃꯃꯗꯗ ꯄꯤꯌ ꯑꯈꯊꯍꯕ ꯇꯍ ꯁꯦꯁꯈ; ꯂꯨꯊꯔ, ꯈꯗ ꯇꯌꯊꯒ ꯇꯥꯌꯥꯗꯒꯤ 1% AEP-ꯒꯤ ꯈꯑꯣꯏꯗ ꯈꯁꯦꯁꯒꯤ ꯇꯒꯒꯔꯒꯤ ꯃꯈꯥꯗ ꯇꯕ ꯇꯍꯗ; ꯑꯦꯁꯌꯏꯔꯑꯣꯏꯗ ꯍꯤꯗꯇꯕ ꯃꯌꯍꯗ ꯈꯑꯣꯏꯗ ꯇꯄꯄ ꯂꯨꯊꯔꯒꯤ ꯄꯦꯅ ꯄꯥꯔꯇꯕ ꯑꯊꯤꯁ ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗ; ꯄꯤꯌ ꯇꯌꯊꯒ ꯄꯨꯈꯊꯤ ꯑꯃꯒꯤ ꯃꯅꯥꯌ (ꯑꯨꯊꯥ 7-ꯒꯤ ꯃꯈꯥꯗ ꯃꯑꯣꯏꯒꯤ ꯇꯦ 1 ꯑꯃꯁꯨꯡ ꯇꯦ 2); ꯃꯇꯤꯄꯨꯊ ꯇꯥꯌꯥ ꯇꯥ (ꯄꯊꯌꯥꯑꯦ) ꯑꯥꯌ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯅꯨꯡꯗ; ꯑꯕ-ꯑꯊꯤꯁ MN-C1-ꯒꯤ ꯕꯊꯥ ꯑꯃꯁꯨꯡ ꯇꯤꯊꯤꯒꯤ ꯏꯇꯗꯄꯇꯦꯗ ꯃꯑꯣꯏꯒꯤ 1% AEP ꯇꯒꯒꯔꯒꯤ ꯃꯈꯥꯗ; ꯇꯌꯊꯒ ꯃꯌꯍ ꯃꯌꯍꯒꯤ ꯈꯕꯈꯗꯒꯤ ꯁꯗꯕ ꯁꯌꯊ ꯌꯕꯔ, ꯑꯄꯊꯤꯔꯗꯒꯤ ꯇꯒꯍꯕꯊ ꯏꯁꯕꯒꯤ ꯈꯕꯈꯗꯒꯤ ꯁꯗꯕ ꯇꯒꯒ, ꯇꯍꯒꯤ ꯃꯈꯥꯗ 2.0 m-ꯗꯒꯤ ꯇꯍꯕ ꯃꯏꯍ ꯈꯨꯗꯤꯃꯥꯌ॥ ꯌꯥꯝꯅꯥꯝꯒꯤ ꯃꯅꯥꯌ ꯇꯕ ꯇꯥꯈ ꯑꯃꯁꯨꯡ ꯂꯨꯗꯨꯄꯗꯒꯤ ꯏꯌꯍꯤ ꯏꯦ ꯑꯃꯗ, ꯇꯌꯊꯒ ꯌꯑꯌ ꯄꯤꯌꯑꯣꯏꯗꯅ ꯁꯌꯇꯕ ꯇꯥꯈꯒꯤ ꯇꯦꯑ ꯑꯃꯗ, ꯑꯊꯤꯁ ꯑꯣꯏꯑꯣꯏꯗ ꯄꯨꯍꯇꯃꯥꯗꯒꯤ ꯃꯄꯦꯗ ꯇꯊꯕꯗꯤ ꯈꯥꯌꯃꯥ ꯊꯤꯁꯤꯊꯇ ꯊꯨꯡ ꯁꯌꯇꯕ ꯂꯩꯈ॥ ꯃꯈꯔ ꯑꯣꯏꯒꯤ ꯇꯍꯗ ꯂꯨꯝꯍꯥꯏꯕꯒꯤ ꯊꯦꯑꯏ ꯑꯗꯨ ꯃꯍꯥꯌ ꯇꯕ RWH ꯏꯁꯤꯡꯂꯤꯌꯒꯤ ꯊꯨꯔꯒꯤ ꯃꯈꯥꯗ ꯑꯌꯊꯇꯗ ꯁꯌꯇꯤ, ꯗꯤꯌꯣꯔꯦꯃꯦ ꯑꯣꯏꯕ ꯇꯈꯦ ꯌꯊꯕ, ꯈꯑꯣꯏꯗ ꯁꯗꯗꯕ ꯑꯌꯊꯇꯗ (ꯁꯦꯛꯁꯟ 4.12.2) ꯄꯤꯈ, ꯗꯤꯇꯈꯦ ꯇꯃꯈꯒꯤ ꯃꯈꯒꯤ ꯈꯑꯣꯏꯗꯒꯤ ꯇꯒꯒ ꯒꯊꯁꯦꯗ ꯇꯒꯒꯔꯗ ꯇꯅꯨꯅ ꯌꯁꯕꯒꯤꯗꯃꯥ ꯁꯥ ꯌꯥꯈ (ꯁꯦꯛꯁꯟ 4.12.1), ꯑꯃꯁꯨꯡ ꯄꯤꯌꯌ ꯑꯕ ꯑꯍꯄ ꯇꯌꯊꯒ ꯌꯍꯥ ꯈꯨꯗꯤꯃꯥꯌ ꯕꯔꯊꯗ ꯑꯃꯁꯨꯡ ꯑꯌꯇꯃꯦꯌꯗꯒꯤ ꯇꯤꯑꯥꯌꯥꯇꯤꯗꯔ ꯁꯥ ꯇꯒꯗꯕꯅꯤ॥ ꯑꯥꯑꯣꯏ ꯑꯣꯏꯕ ꯇꯃꯨ ꯑꯁꯌꯄ ꯃꯑꯈꯥꯇꯤ: "ꯃꯊꯥ 30-ꯗꯒꯤ 50 m ꯏꯁꯕꯒꯤ ꯇꯃꯨ ꯑꯁꯌꯄꯒꯤ ꯏꯊꯃꯑꯦ, ꯂꯗꯕ ꯌꯂꯕ ꯁꯔꯑꯣꯏꯗ ꯑꯕ ꯑꯣꯏꯕ ꯑꯁꯕ ꯇꯒ" ("approximately 30 to 50 m of clayey formation, construction of shallow tube wells is problematic"), "30-ꯗꯒꯤ 65 m bgl ꯏꯁꯕꯒꯤ ꯂꯕꯗ ꯇꯃꯨ ꯑꯁꯌꯄꯒꯤ ꯗꯤꯄꯇꯤꯌ" ("clayey deposit down to depth range of 30 to 65 m bgl"), ꯑꯃꯁꯨꯡ ꯈꯍꯦꯔ ꯁꯑꯌꯗꯒꯤ ꯃꯊꯑꯈꯕ ꯃꯏꯍꯑꯣꯏꯗꯗ ꯈꯑꯣꯏꯗ "2-ꯗꯒꯤ 5 m bgl" ("2 to 5 m bgl") (CGWB, Imphal West district booklet, 2013); ꯄꯤꯌꯑꯣꯏꯗꯒꯤ ꯑꯊꯔꯕꯗ "ꯄꯤꯌ ꯇꯃꯈꯗ ꯑꯑꯣꯏꯗꯤꯌ ꯁꯦꯍꯅ ꯇꯒ" ("peaty soils have high acidity") (CGWB, Bishnupur district booklet, 2013); ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥꯝ ꯑꯣꯏꯕ ꯇꯃꯨ ꯑꯁꯌꯄ, ꯇꯃꯨ ꯑꯃꯁꯨꯡ ꯇꯥꯈꯒꯤ "ꯏꯇꯒꯤꯑ ꯇꯒꯑꯌꯊꯈꯦ ꯍꯊꯊꯏꯍ ꯇꯕ ꯑꯂꯒꯤꯔꯍꯅ ꯑꯍꯕꯅꯤ" ("made up of alluvium of fluvio lacustrine origin") (MASTEC)॥ ꯄꯤꯌꯒꯤ ꯑꯕꯑꯈꯗꯦꯑꯒꯤ ꯊꯊꯊꯗ ꯑꯃꯌꯌ ꯏꯗꯈꯤꯗ, ꯑꯃꯁꯨꯡ CGWB-ꯅ "ꯃꯏꯍ ꯈꯊꯗ ꯂꯕ ꯌꯂꯕ ꯁꯔꯑꯣꯏꯗ ꯑꯕꯗ ꯒꯑ ꯍꯥꯄ" ("emanation of gas while constructing deep tube wells in some places") ꯊꯊꯊꯗ ꯌꯊꯤ [TBC]॥ ꯊꯨꯡ ꯑꯣꯏꯕ ꯑꯣꯏꯊꯇ ꯑꯣꯏꯒꯤ ꯌꯥꯝꯅꯥꯝꯒꯤ ꯇꯍꯒꯤ ꯊꯨꯔꯇꯤ, ꯇꯊꯄꯗ ꯇꯕ ꯑꯗꯤꯑꯦꯒꯤ ꯏꯇꯗꯄꯇꯦꯒꯤ ꯊꯦꯗꯤꯑꯦꯑꯣꯏꯗꯒꯤ ꯇꯔꯇꯅ, ꯑꯃꯁꯨꯡ ꯃꯑꯣꯏꯅ ꯌꯥꯝꯅꯥꯝꯒꯤ ꯑꯍꯊꯒꯤ ꯇꯍꯒꯤ ꯑꯁꯍꯕꯗ ꯁꯈ॥
- **ꯁꯦꯛꯁꯟ-ꯗ 66: ꯍꯗꯇꯕ ꯇꯌ.** ꯁꯦꯛꯁꯟ-ꯗ 66-ꯅ ꯇꯗꯒꯤ ꯈꯑꯣꯏꯗ ꯈꯃꯇꯤꯦꯕꯒꯤ ꯄꯈꯦꯌꯑꯣꯏꯗ "ꯑꯊꯏꯑ ꯊꯤꯇꯊꯒꯔꯊꯑꯣꯏꯗꯗ ꯇꯌꯊꯒ ꯊꯤꯁꯤꯊꯇ ꯁꯔꯑꯣꯏꯗꯗ" ("in surface reservoirs or in recharge wells") ꯍꯔꯅ ꯍꯈꯊꯤ॥ ꯌꯥꯝꯅꯥꯝꯒꯤ ꯇꯍꯒꯤ ꯊꯨꯔꯒꯤ ꯃꯈꯥꯗ ꯇꯕ ꯇꯍꯗ ꯃꯣꯡꯒꯣꯜꯅ ꯁꯦꯛꯁꯟ-ꯗꯅ ꯁꯍꯔꯇꯤꯕ ꯑꯊꯏꯑ ꯊꯤꯇꯊꯒꯔꯊꯑꯣꯏꯗ ꯈꯇꯕꯅꯤ, ꯃꯊꯍ ꯑꯅꯨꯅ ꯑꯇꯤꯃꯥ ꯁꯦꯇꯒ॥

- **ꯕꯥꯏ-ꯂꯣ 67: ꯗꯣꯡꯅꯕ ꯑꯃꯥ, ꯍꯥꯡꯀꯥꯛꯂꯤ.** ꯕꯥꯏ-ꯂꯣ 67-ꯅꯥ ꯄꯣꯖꯅꯥ ꯂꯩꯔꯕ ꯒꯔꯦ ꯌꯇꯔ "ꯂꯩꯃꯥꯏꯒꯤ ꯃꯏꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯔꯤꯆꯥꯔꯖꯒꯤꯗꯃꯛ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯔꯤꯆꯥꯔꯖ ꯁ꯭ꯇꯔꯛꯆꯔꯁꯤꯡꯗ" ("to the rain water recharge structures for ground water recharge") ꯁꯃꯅꯄꯟꯂꯤ॥ ꯌꯃꯈꯥꯛꯊꯤ ꯂꯃꯗ ꯁ꯭ꯇꯔꯛꯆꯔ ꯑꯁꯨ ꯂꯩꯃꯨ ꯑꯆꯦꯀꯈꯗ ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡꯅꯥ ꯗꯦꯅꯕ ꯂꯩꯃꯥꯏꯗ ꯂꯩꯕ ꯁꯥꯛ ꯈꯤꯠ ꯑꯃꯅꯤ, ꯃꯁꯤ ꯌꯃꯈꯥꯛꯊꯤ ꯂꯃꯒꯤ ꯔꯨꯟꯅꯥ ꯗꯤꯡꯏ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅꯥ ꯂꯩꯒꯗꯕ ꯏꯁꯤꯡ ꯑꯁꯨ ꯆꯦꯁꯨꯠ ꯌꯇꯔꯅꯤ॥ ꯃꯦꯔꯨꯆꯦꯟ ꯑꯁꯤꯅꯥ ꯕꯥꯏ-ꯂꯣ ꯑꯁꯨꯒꯤ ꯃꯗꯛꯌ ꯆꯠꯌꯦ॥ ꯃꯁꯤꯅꯥ ꯗꯣꯡꯅꯕ ꯑꯁꯨ ꯃꯆꯦꯛ ꯁꯦꯡꯅꯥ ꯍꯥꯡꯀꯥꯊꯏ: ꯃꯏꯟ ꯑꯁꯤꯒꯤ ꯁꯤꯏꯠ ꯑꯃꯗ ꯃꯦꯔꯨꯆꯦꯟꯅꯥ ꯄꯣꯖꯅꯥ ꯂꯩꯔꯕ ꯒꯔꯦ ꯌꯇꯔ ꯔꯤꯆꯥꯔꯖ ꯁ꯭ꯇꯔꯛꯆꯔꯒꯤ ꯃꯨꯠꯌ ꯑꯃꯨꯛ ꯄꯍꯅ ꯁꯤꯂꯤꯍꯅꯅꯕ ꯁ꯭ꯇꯥꯔꯦꯂꯗ ꯅꯠꯔꯒꯥ ꯁꯤꯆꯔ ꯊꯅꯦꯛꯁꯍ ꯑꯃꯗ ꯆꯠꯅꯕ ꯃꯗ ꯌꯄꯟꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯈꯂꯤꯊꯦꯍꯠꯅꯥ ꯔꯨꯟ ꯑꯁꯤ ꯊꯥꯠ ꯌꯥꯁꯨꯅꯥ ꯂꯥꯊꯟ ꯕꯥꯀꯤꯀꯒꯤ ꯔꯤꯆꯥꯔꯖꯒꯤ ꯃꯗ ꯌꯕꯀ ꯔꯤꯂꯦꯛꯁꯦꯁꯦꯍ ꯄꯏꯂꯩ॥ ꯂꯥꯊꯟ ꯕꯥꯀꯤꯅꯥ ꯃꯁꯤ ꯔꯤꯂꯦꯛꯁ ꯌꯔꯛꯠꯔꯤꯍꯤꯗꯕ, ꯕꯥꯏ-ꯂꯣꯒꯤ ꯃꯗ ꯌꯕ ꯑꯁꯨ ꯆꯠꯂꯤ, ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣꯅꯥ ꯃꯏꯟ ꯑꯁꯤꯒꯤ ꯁꯤꯏꯠ ꯑꯃꯀ ꯗꯃꯄꯅꯂꯤꯕ ꯔꯤꯆꯥꯔꯖ ꯁ꯭ꯇꯔꯛꯆꯔ ꯑꯃꯅꯥ ꯃꯦꯔꯨꯆꯦꯟ ꯑꯁꯤꯒꯤ ꯃꯏꯀ ꯊꯔꯦꯀꯤꯠ ꯍꯊꯀ॥
- **ꯆꯤꯗꯒꯤ ꯔꯨꯟ.** ꯁꯕ-ꯑꯦꯔꯤꯆꯦ MN-B ꯑꯃꯁꯨꯡ MN-C-ꯗ, ꯁꯕ-ꯑꯦꯔꯤꯆꯦ MN-C1-ꯒꯤ ꯆꯤꯗꯒꯤ ꯃꯍꯃꯁꯤꯗꯀ, ꯁꯕ-ꯑꯦꯔꯤꯆꯦ MN-A-ꯒꯤ ꯌꯃꯈꯥꯛꯊꯤ ꯃꯅꯛꯊꯤ ꯅꯈꯥꯃꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯆꯤꯗ ꯑꯈꯤꯛꯈꯁꯤꯗꯀ, ꯑꯃꯁꯨꯡ ꯑꯌꯥꯈꯈ ꯃꯍꯃꯁꯤꯗꯀ 10°-ꯗꯒꯤ ꯄꯦꯍꯕ ꯃꯄꯤꯁꯒꯤ ꯅꯈꯥꯃ ꯑꯃꯄꯛꯌꯀ, ꯃꯅꯥꯒꯤ ꯃꯍꯃꯁꯤꯗꯀ ꯈꯦꯀꯃ ꯗꯃꯂꯅ ꯌꯩꯕ ꯏꯍꯍꯤꯟꯌꯔꯦꯁꯍꯒꯤ ꯈꯔꯦꯛꯌꯁ ꯑꯃꯠꯌꯥ ꯁꯔꯥꯏꯀꯕꯂꯤ ꯅꯠꯔꯒꯥ ꯊꯔꯦꯀꯤꯠ ꯈꯤꯔꯥꯏꯀꯕꯂꯤ: 10°-ꯗꯒꯤ ꯄꯦꯍꯅ ꯅꯛꯈ ꯃꯄꯤꯁꯒꯤ ꯂꯃꯀ; ꯊꯔꯤꯒꯃꯕ ꯅꯈꯥꯃꯀ ꯂꯩꯕ ꯀꯤꯁꯤꯗ ꯁꯦꯟꯀ; ꯅꯈꯥꯃ ꯊꯔꯤꯒꯃꯕ ꯑꯥꯏꯔꯕꯁꯨ ꯊꯥꯒꯒꯤꯍꯃ, ꯍꯤꯟ ꯅꯠꯔꯒꯥ ꯂꯦꯍꯀꯁꯅꯏꯀꯊꯤ ꯀꯦꯕꯔꯤꯂꯌ; ꯃꯦꯈ ꯌꯩꯔꯕ ꯂꯦꯍꯀꯁꯅꯏꯀ ꯂꯍ ꯅꯠꯔꯒꯥ ꯂꯦꯍꯀꯁꯅꯏꯀ ꯂꯩꯊꯏ ꯑꯃꯀ, ꯃꯏꯥꯇꯒꯤ ꯃꯗꯨꯃꯀ ꯅꯥꯅꯦ ꯈꯅꯒꯤ ꯌꯨꯈꯨꯟ, ꯆꯍꯀꯦꯟ ꯈꯅꯒꯤ ꯂꯩꯃꯥꯟ ꯑꯃꯁꯨꯡ NH-37 ꯑꯃꯁꯨꯡ NH-2-ꯒꯤ ꯊꯠ ꯌꯩꯔꯕ ꯅꯈꯥꯃꯁꯤꯗ; ꯅꯠꯔꯒꯥ ꯊꯠ ꯌꯩꯔꯕ ꯅꯈꯥꯃ ꯅꯠꯔꯒꯥ ꯔꯤꯌꯦꯅꯤꯗ ꯆꯥꯟ ꯑꯃꯒꯤ ꯃꯗꯛ ꯗꯗꯕ ꯃꯍꯃꯀ ꯊꯠ ꯅꯠꯔꯒꯥ ꯆꯥꯟ ꯑꯁꯨꯒꯤ ꯆꯗꯕꯒꯤ ꯑꯂꯤꯔꯛꯊꯤ ꯃꯗꯨꯗꯀ — ꯊꯆꯥꯂꯤꯍꯤꯏ ꯌꯩꯔꯕ ꯂꯤꯑꯥꯌꯦꯛꯂꯤꯊꯥꯟ ꯏꯍꯂꯤꯂꯤꯆꯔ ꯅꯠꯔꯒꯥ ꯏꯍꯂꯤꯂꯤꯆꯔꯤꯗ ꯂꯤꯑꯥꯂꯥꯂꯤꯁꯠ ꯑꯃꯒꯤ ꯂꯤꯑꯥꯌꯦꯛꯂꯤꯊꯦꯟ ꯁꯔꯌꯤꯍꯤꯊꯦꯠ ꯑꯃꯅꯥ ꯄꯈꯆꯤꯟꯂꯕ ꯏꯁꯤꯗꯅꯥ ꯅꯈꯥꯃ ꯑꯁꯨ ꯁꯥꯛꯄꯍꯂꯥꯏ ꯄꯔꯅꯥ ꯁꯠꯌꯔꯕꯀꯤ॥ ꯃꯏꯟ ꯑꯁꯤꯒꯤ ꯁꯤꯏꯠꯁꯤꯗꯀ ꯔꯃꯗꯛꯊꯤ ꯔꯍꯑꯥꯍ ꯑꯁꯨ ꯔꯃꯗꯛꯊꯤ m² ꯔꯀꯤꯗꯀ ꯇꯃꯀꯔꯕꯀ 25 L-ꯒꯤ ꯂꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯁ꯭ꯇꯔꯥꯦꯂꯀ ꯆꯠꯂꯤ, ꯑꯥꯈꯔꯍꯂꯥ ꯑꯁꯨ ꯁꯤꯟꯠ ꯌꯔꯦꯈ ꯑꯃꯁꯨꯡ ꯑꯥꯦꯂꯔꯂꯤ ꯀꯤꯁꯤꯈꯦꯌꯔ ꯑꯃꯒꯤ ꯔꯠꯗꯗꯀ ꯆꯦꯠꯈ ꯃꯄꯤꯁꯒꯤ ꯆꯦꯂꯦꯟ ꯑꯃꯀ ꯀꯤꯁꯇꯔꯂ ꯌꯩꯕ ꯂꯏꯍ ꯌꯩꯔꯕ ꯃꯥꯗꯕꯍ ꯑꯃꯀ, ꯊꯩꯀꯩꯀꯨ ꯗꯛ ꯁꯦꯍꯀꯕ ꯅꯈꯥꯃ ꯑꯃꯀ ꯅꯠꯌꯦ॥ ꯀꯤꯁꯤꯗ ꯁꯦꯟ ꯑꯁꯤꯅꯥ "ꯆꯤꯗꯒꯤ ꯂꯃꯒꯤ ꯃꯔꯛ 85 p.c. ꯂꯩꯏ, ꯏꯍꯍꯤꯟꯌꯔꯦꯁꯍ ꯄꯦꯍꯅ ꯂꯦꯃꯏ ꯑꯃꯁꯨꯡ ꯔꯍ ꯑꯥꯍ ꯄꯦꯍꯅ ꯇꯃꯏ" ("occupies almost 85 p.c. of the hilly region, have less infiltration and more run off") (MASTEC), ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯊꯠꯂꯕ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯅꯥ ꯆꯥꯡꯕ ꯃꯌꯃꯀ ꯔꯒꯥꯏꯏ: 29 ꯅꯠꯔꯒꯥ 30 ꯖꯨꯟ 2022-ꯗ ꯌꯨꯈꯨꯟꯀ ꯂꯤꯔꯤꯕꯃ–ꯏꯃꯍꯤꯟ ꯔꯦꯟꯆꯦꯒꯤ ꯁꯏꯠꯌ ꯅꯈꯥꯃ ꯑꯃꯥ "ꯍꯅ ꯀꯤꯂꯏꯍ ꯌꯩꯀꯕ ꯅꯠꯔꯒꯥ ꯍꯅ ꯈꯤꯗꯗꯥꯛꯌꯕ ꯅꯈꯥꯃ ꯌꯛꯈ, ꯑꯊꯂꯕ ꯂꯥꯗ ꯔꯕꯒꯥ ꯂꯥꯔꯂꯂꯅ" ("poorly designed or implemented slope excavation coupled with heavy rainfall") ꯃꯌꯨꯗꯀ ꯔꯒꯥꯏꯏꯤ (Baruah et al., 2023, AGU Landslide Blog-ꯒꯤ ꯁꯔꯆ ꯁꯃꯃꯔꯤ ꯑꯃꯒꯤ ꯔꯠꯗꯗꯀ, ꯈꯤꯁꯀ ꯍꯥꯗꯀꯥꯛꯏꯤꯕ ꯃꯌꯨꯗ ꯏꯍꯂ), ꯑꯃꯁꯨꯡ 1 ꯑꯒꯁꯠ 2015-ꯗ ꯂꯩꯃꯥꯟꯀ ꯂꯦꯍꯀꯁꯅꯏꯀ ꯑꯃꯅꯥ ꯃꯤꯑꯥꯏ 20 ꯅꯠꯔꯒꯥ 21, ꯅꯠꯔꯒꯥ ꯑꯌꯥꯈꯈ ꯃꯁꯤꯗ ꯗꯤꯕ ꯑꯃꯒꯤ ꯃꯌꯨꯗ ꯏꯍꯂ 24 ꯄꯠꯏꯤ (ꯈꯤꯁꯀ ꯍꯥꯗꯀꯥꯛꯏꯤꯕ ꯃꯌꯨꯗ ꯏꯍꯂ)॥ ꯔꯛꯁꯤꯗ ꯑꯁꯤ IMC ꯕꯤꯟꯀꯤꯗ ꯕꯥꯏ-ꯂꯣꯂ (3-ꯁꯨꯕ ꯑꯦꯃꯦꯍꯀꯃꯦꯍꯠ), 2024-ꯅꯤ, ꯃꯁꯤꯒꯤ ꯕꯥꯏ-ꯂꯣ 92.1 ꯑꯃꯁꯨꯡ 92.2-ꯅꯥ 30°-ꯗꯒꯤ ꯄꯦꯍꯕ ꯅꯈꯥꯃꯁꯤꯗꯀ ꯊꯍꯁ꯭ꯇꯔꯛꯁꯍ ꯑꯃꯁꯨꯡ ꯊꯠꯈ ꯑꯃꯠꯌꯥ ꯇꯄꯟꯂꯏ ꯑꯃꯁꯨꯡ 21–30°-ꯒꯤ ꯅꯈꯥꯃꯁꯤꯗꯀ ꯏꯕꯏꯀꯒꯤ ꯄꯦꯍꯕꯀ ꯍꯂꯥꯔ ꯑꯂꯤ ꯅꯠꯔꯒꯥ 7 m ꯇꯄꯟꯂꯤ (ꯀꯔꯍꯠ ꯑꯃꯥ, ꯑꯔꯥꯏꯕ ꯁ꯭ꯇꯦꯌꯁ ꯁꯥꯏꯀꯂ ꯏꯗꯏꯀꯦ [TBC]), ꯍꯥꯗꯀꯥꯛꯏꯤꯕ ꯃꯑꯥꯗꯀ ꯃꯥꯀꯦꯟ ꯑꯁꯨꯒꯤ ꯕꯥꯏ-ꯂꯣ 92-ꯒꯤ ꯂꯥꯔꯂꯂꯅ ꯈꯕꯀ (ꯊꯂꯥꯂ 4.1-ꯒꯤ ꯁꯍꯀꯥꯛꯂ ꯌꯛꯈ); ꯃꯥꯀꯦꯟ ꯑꯁꯨꯅꯥ ꯔꯦꯍꯔ ꯌꯩꯔꯤꯕ IS 14458, "Guidelines for retaining wall for hill area"; ꯑꯃꯁꯨꯡ "ꯏꯔꯥꯂꯍ ꯑꯃꯁꯨꯡ ꯁꯦꯀꯤꯃꯦꯍꯌꯦꯁꯍ ꯊꯍꯌꯔꯥꯟ" ("erosion and sedimentation control")-ꯒꯤ ꯒꯔꯤꯍ-ꯕꯤꯟꯀꯤꯗꯒꯤ ꯊꯔꯏꯌꯦꯔꯤꯆꯍ॥ ꯆꯤꯗꯒꯤ ꯂꯃꯁꯤꯗꯀ ꯕꯥꯏ-ꯂꯣ ꯑꯃꯠꯌꯥ ꯆꯠꯂꯀꯦ, ꯑꯃꯁꯨꯡ ꯔꯨꯟ ꯑꯁꯤ ꯈꯕꯂꯤꯛ ꯆꯔꯛꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯃꯦꯔꯨꯆꯦꯟ ꯑꯁꯤ ꯂꯩꯁꯤꯍꯂꯕ ꯊꯅꯒꯃꯕ ꯕꯥꯀꯤ ꯑꯃꯀ ꯆꯠꯂꯒꯂꯤ॥ ꯁꯏꯠ ꯑꯁꯤꯁꯤꯗꯀ, ꯔꯤꯌꯦꯍꯁꯍ ꯑꯁꯤ ꯗꯃꯂꯤꯍꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯛ ꯄꯍꯅ ꯁꯤꯂꯤꯍꯅꯕꯅ ꯈꯤꯏ, ꯑꯃꯁꯨꯡ ꯀꯤꯌꯦꯍꯁꯍ ꯑꯁꯤ ꯂꯏꯍ ꯌꯩꯔꯕ ꯌꯦꯗꯛꯁꯤꯗꯅ, ꯅꯈꯥꯃꯀ ꯂꯩꯕ ꯈꯥꯍꯀ ꯅꯠꯔꯒꯥ ꯕꯦꯁꯤꯍꯁꯤꯗꯅ ꯅꯠꯌꯦ (ꯊꯂꯥꯂ 4.10-ꯒꯤ ꯁꯍꯀꯥꯛꯂ ꯌꯛꯈ)॥ ꯊꯂꯥꯂ 4.4.3-ꯒꯤ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯏꯒꯤ ꯏꯁꯤꯡꯀꯒꯤ 1.0 m-ꯒꯤ ꯂꯏꯈꯈ ꯑꯁꯤꯅꯥ ꯅꯈꯥꯃ ꯑꯃꯀ ꯏꯍꯍꯤꯟꯌꯔꯦꯁꯍꯒꯤ ꯈꯔꯦꯛꯌꯁ ꯑꯃꯥ ꯇꯕ ꯑꯥꯏꯄꯍꯀ: ꯅꯈꯥꯃ ꯑꯃꯀ ꯂꯩꯕ ꯈꯔꯆ ꯌꯩꯔꯕ ꯏꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯈꯥꯔ ꯈꯔꯦꯁꯔ ꯑꯁꯤ ꯔꯀꯥꯗꯗꯤꯕꯂꯤ, ꯌꯇꯔ ꯌꯦꯕꯟ ꯍꯤꯁꯕꯒꯤ ꯂꯨꯕ ꯅꯠꯌꯦ॥
- **ꯔꯤꯆꯥꯔꯖꯒꯤ ꯔꯨꯟ.** ꯔꯤꯆꯥꯔꯖ ꯑꯁꯤ ꯌꯃꯈꯥꯛꯊꯤ ꯂꯃꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯤꯗꯒꯤ ꯔꯨꯟꯁꯤꯗꯒꯤ ꯃꯈꯥꯍꯀ ꯂꯩꯕ ꯌꯦꯁꯠ ꯌꯩꯔꯕ ꯂꯃꯀ ꯏꯗꯌꯃꯗ ꯇꯄꯟꯂꯤ: ꯌꯃꯈꯥꯛꯊꯤ ꯃꯅꯛꯌ ꯂꯩꯕ ꯂꯩꯗꯥꯏ, ꯗꯥꯊꯈ ꯑꯃꯁꯨꯡ ꯗꯥꯁꯤꯗꯒꯤ ꯍꯠꯄꯟ ꯍꯦꯍꯁꯤꯗ, ꯌꯦꯗꯁꯆꯔ ꯃꯌꯨꯗ ꯏꯍꯂ HSG B ꯅꯠꯔꯒꯥ C; ꯆꯤꯗ ꯑꯃꯁꯨꯡ ꯆꯤꯗ ꯑꯈꯤꯛꯈꯁꯤꯗꯒꯤ ꯕꯔꯦꯟ (Barail) ꯁꯦꯍꯀꯁ꯭ꯇꯥꯍ ꯊꯦꯈꯤꯗꯁꯤꯗ, 10° ꯅꯠꯔꯒꯥ ꯃꯁꯤꯀꯒꯤ ꯂꯦꯃꯕ ꯅꯈꯥꯃꯁꯤꯗꯀ ꯑꯃꯁꯨꯡ ꯁꯊꯔꯈꯁꯤꯗꯀꯒꯤ ꯂꯈꯅ; ꯑꯃꯁꯨꯡ ꯌꯃꯈꯥꯛꯊꯤ ꯂꯃꯀ ꯌꯦꯁꯠ ꯈꯤꯠꯁꯤꯗꯅ ꯁꯠꯂꯕ ꯂꯩꯗꯥꯏꯒꯤ ꯂꯦꯍꯁꯁꯤꯗ, ꯌꯃꯈꯥꯛꯊꯤ ꯂꯃꯒꯤ ꯔꯨꯟꯒꯤ ꯑꯦꯔꯤꯆꯦ ꯔꯀꯤꯗꯃꯛꯊꯤ ꯃꯈꯥꯍꯀ॥ ꯃꯍꯃ ꯑꯁꯨꯀ ꯃꯁꯤꯀ ꯁ꯭ꯇꯔꯛꯆꯔꯒꯤ ꯃꯩꯗꯀ ꯁꯤꯟꯠ ꯌꯔꯦꯈ,

ꯍꯤꯅꯥꯗ ꯑꯃꯁꯨꯡ ꯍꯗꯣꯛ-ꯍꯦꯂꯣ ꯑꯣꯏꯕꯗꯥ, ꯍꯤꯅꯗ ꯅꯦꯍꯤꯅꯥꯗꯣꯟ ꯑꯣꯛ, ꯂꯩꯒꯤ ꯃꯈꯥ ꯍꯤꯡꯗꯕꯗ 2.0 m ꯂꯩꯕ ꯃꯥꯡ ꯃꯥꯡꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯍꯦꯡꯕ ꯍꯦꯥꯗ ꯑꯣꯕꯅ, ꯑꯃꯁꯨꯡ ꯃꯂꯦꯡ 4.11.4 ꯑꯃꯁꯨꯡ 4.12-ꯒꯤ ꯂꯥꯏꯁꯨ ꯃꯇꯧ ꯑꯣꯅ꯫ ꯂꯩꯇꯥꯍꯥꯛꯒꯤ ꯑꯣꯟꯂ 8.00% ꯑꯣꯏꯕ (GWRA 2024, ꯃꯣꯌꯅꯤꯕ ꯃꯌꯥꯝ ꯅꯦꯂ) ꯃꯂꯤꯛꯇꯗ ꯗꯤꯍꯗꯂ ꯑꯁꯤ ꯗꯤꯂꯅꯦꯒꯤ ꯁꯦꯗꯆ ꯂꯣꯏꯑꯣ; ꯑꯣꯏꯁꯨ ꯃꯍꯆ ꯁꯆꯂꯃꯇꯑꯣ ꯂꯥꯡꯒꯤ ꯅꯁꯤꯡ ꯅꯃꯂꯤꯦꯕ ꯑꯁꯤ ꯂꯥꯡ ꯄꯗꯕ ꯃꯥꯡꯆꯒꯤꯗꯃꯇ ꯊꯆꯂꯤꯦꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯇ ꯄꯦꯂꯦ ꯁꯤꯂꯤꯦꯂꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯑꯆꯁꯇꯃꯤ ꯂꯆꯗ ꯂꯥꯡ ꯄꯕꯒꯤ ꯊꯗꯇꯃꯤꯗꯃꯇ ꯊꯆꯂꯤꯦꯕꯂꯤ꯫

- **ꯁꯥꯔꯨꯛ ꯑꯅꯕꯗꯕ ꯗꯦꯑꯦ.** ꯍꯄꯔꯣꯟ ꯑꯣꯁꯦꯑꯣꯁꯤꯡ, ꯍꯗꯃꯁꯥꯁꯤꯡ, ꯅꯦꯗꯑꯣꯗꯤꯔꯣꯟ ꯁꯗꯤꯃꯤꯁꯣꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯔꯃꯆꯕꯁꯤꯡꯗꯒꯤ, ꯑꯃꯁꯨꯡ ꯒꯗꯥꯑꯗ ꯅꯆꯍꯅꯒꯤ ꯅꯥꯡꯕꯦꯁꯤꯡꯒꯤ ꯑꯍꯤꯆꯕꯂꯦ ꯑꯗꯤꯕꯃꯆ ꯁꯤꯔꯥꯂ ꯁꯗꯤꯕ ꯅꯥꯡꯕꯦ ꯑꯃꯄꯃꯑꯗꯒꯤ (ꯃꯂꯦꯡ 4.1-ꯒꯤ ꯁꯦꯗꯥꯃꯂꯦ ꯑꯃꯁꯥ) ꯊꯃꯁꯥ ꯗꯦꯑꯦ ꯗꯤꯍꯗꯂ ꯑꯗꯅꯗꯕꯂꯤ; ꯂꯆꯕꯤ ꯑꯃꯁꯨꯡ ꯁꯗꯃꯤꯃꯒꯤ ꯗꯦꯑꯦ ꯑꯁꯤ, ꯗꯤꯍꯗꯂ ꯗꯔꯦ ꯍꯄꯦꯕ ꯃꯍꯆꯗ ꯅꯃꯑꯃ, ꯍꯤꯅꯥꯗ ꯂꯩꯕ ꯁꯗꯦꯑꯣ ꯁꯗꯗꯃꯒꯤ ꯑꯃꯒꯤ ꯅꯣꯛꯊꯥꯗ, ꯅꯥꯗꯆ ꯑꯅꯂꯦ ꯁꯤꯆꯕꯤ ꯂꯩꯕ ꯕꯁꯤꯦ ꯂꯣꯗꯒꯤ ꯅꯗꯦꯑꯟ, ꯗꯤꯍꯗꯂ ꯑꯒꯗꯕꯂꯤ, ꯃꯗꯃꯗꯗ ꯁꯤꯛ, ꯕꯗ ꯂꯣꯗꯒꯤ ꯍꯣꯟ ꯑꯃꯗ ꯄꯃꯊꯑꯦꯂꯦ ꯑꯗꯅꯗꯕꯂꯤ (ꯅꯣꯠ 8)꯫

ꯑꯆꯁꯇꯃꯤ ꯂꯆꯗ, ꯂꯤꯃꯅꯗ ꯊꯗꯃꯁꯥ ꯅꯁꯤꯡ ꯑꯁꯤ ꯃꯑꯦꯂꯦꯗ ꯍꯛꯂꯕ ꯃꯍꯆ ꯂꯩꯕ, ꯑꯃꯁꯨꯡ ꯍꯤꯁꯤꯡꯗ ꯃꯁꯤ ꯂꯥꯁꯥꯒꯤ ꯃꯂꯥꯡꯗ ꯍꯛꯂꯤ꯫ ꯃꯑꯦꯂꯦꯒꯤ ꯃꯆꯗ RWH ꯑꯃꯗ ꯑꯃꯗ ꯑꯄꯂꯕ ꯑꯃꯂꯕ ꯂꯥꯡꯒꯤ ꯃꯥꯡꯗ ꯊꯦꯂꯦ, ꯑꯃꯁꯨꯡ ꯂꯩꯔ ꯑꯍꯣꯛꯁꯥ ꯁꯤꯛ ꯑꯃꯗ ꯍꯦꯗꯗ ꯑꯕꯗ ꯂꯩꯗꯒꯤ ꯃꯇꯁꯥ ꯂꯤ꯫ ꯃꯗꯆ ꯑꯁꯤꯂꯦ RWH ꯑꯁꯤ ꯗꯤꯑꯣꯦꯂꯦ ꯑꯅꯂꯦ ꯂꯗꯕꯗꯤ ꯃꯇ ꯑꯅ ꯃꯑꯆ ꯂꯩꯕ ꯑꯣꯗꯑꯗ ꯃꯗꯑꯣꯛ ꯁꯤꯒꯂꯤ꯫ ꯃꯑꯤꯂꯦ ꯃꯗꯆ ꯑꯅꯗꯂꯦ ꯃꯂꯔꯣꯟ ꯑꯁꯤꯂꯦ RWH ꯑꯃꯗꯁꯤꯡ ꯊꯗꯃ ꯄꯗꯤꯡꯃꯃꯤ ꯑꯄꯕꯗ ꯊꯦꯂꯦ ꯄꯅꯔꯂꯦ ꯂꯅ꯫ ꯂꯕ ꯑꯁꯤ ꯃꯑꯆ ꯄꯗꯤꯡꯃꯑꯥ ꯍꯛꯂꯄꯦꯂꯕꯂꯦ ꯂꯅꯕ ꯗꯔ ꯑꯃꯅꯃꯑꯃ ꯊꯆꯆꯤ꯫ ꯁꯦꯂꯤꯕ ꯑꯃꯗꯃꯤ ꯁꯗꯒꯤꯂꯦ (4.11.3)-ꯂꯦ ꯃꯁꯥ ꯑꯃꯕ ꯑꯣꯗꯑꯍꯗ ꯑꯃꯅꯃꯑꯃ ꯑꯄꯔꯂꯤ, ꯊꯗꯃ ꯂꯥꯁꯥ ꯃꯑꯆ ꯗꯤꯑꯣꯦꯂꯦꯒꯤ ꯃꯍꯆ ꯑꯃ ꯑꯄꯕꯗ ꯑꯅꯗꯕꯤ꯫ m² ꯄꯗꯤꯡ 25 L-ꯒꯤ ꯃꯗꯗꯤꯛꯃꯤ ꯗꯔ, ꯑꯆꯁꯇꯃꯤ ꯂꯆꯒꯤ ꯗꯔ, ꯍꯤꯁꯤꯒꯤ ꯗꯔ, ꯗꯤꯍꯗꯂꯒꯤ ꯗꯔ, ꯕꯅ-ꯂ 67-ꯒꯤ ꯊꯁꯦꯕ ꯑꯃ ꯂꯕꯒꯤ ꯃꯑꯁ, ꯁꯤꯛꯃꯤ ꯍꯁ ꯑꯃꯁꯨꯡ ꯁꯥꯔꯨꯛ ꯑꯅꯕꯗꯕ ꯗꯦꯑꯦꯃꯤ ꯗꯔ ꯑꯁꯤ ꯃꯂꯔꯣꯟ ꯑꯁꯤꯂꯦ ꯊꯆꯕꯂꯤ꯫ ꯑꯆꯁꯇꯃꯤ ꯂꯆꯒꯤ ꯗꯔꯒꯤ 2.0 m-ꯒꯤ ꯍꯦꯡꯕ-ꯑꯕꯕ ꯑꯃꯗꯗꯦ ꯑꯁꯤ ꯃꯂꯔꯣꯟ ꯑꯁꯤꯂꯦ ꯃꯊꯑꯣ ꯂꯩꯕ CGWB-ꯒꯤ ꯗꯕꯁꯤꯗꯒꯤ ꯊꯆꯕꯂꯤ, ꯃꯗꯆꯗ ꯍꯦꯡꯕ ꯑꯕꯕ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯁꯦ ꯄꯃꯒꯛꯂꯃꯁ ꯃꯍꯆꯗ ꯅꯁꯤꯗꯒꯤ 1.0 m ꯍꯦꯁꯦ ꯕꯂ ꯂꯤꯗꯕ ꯁꯗꯦꯑꯣ ꯑꯃꯗ (ꯃꯂꯦꯡ 4.11.4) ꯊꯕꯗ ꯑꯂꯕ ꯗꯕ ꯃꯤꯑꯕ ꯑꯃꯗꯒꯤ ꯂꯆꯅ꯫ IMC-ꯒꯤ ꯗꯗꯤꯍꯛꯃꯤ 21°, ꯃꯁꯤ ꯕꯤꯅꯗꯤꯁꯤꯒꯤ ꯂꯤꯃꯤꯛꯂꯤ, ꯃꯁꯤꯒꯤ ꯃꯍꯆ ꯅꯦꯍꯤꯅꯥꯗꯣꯟꯒꯤꯗꯃꯇ ꯂꯥꯁꯥꯒꯤ ꯊꯗꯑꯃꯄꯕ ꯊꯆꯕ ꯃꯂꯤꯛꯇꯒꯤ ꯄꯗꯑꯍꯆ ꯑꯃꯛꯑꯣ ꯂꯩꯑꯣ: 10°-ꯒꯤ ꯂꯤꯃꯤꯛ ꯑꯃꯁꯨꯡ ꯗꯤꯑꯁꯤꯒꯤ ꯃꯗꯗꯤꯦ ꯑꯁꯤ, ꯑꯤꯗꯤꯂ ꯑꯁꯤꯒꯤ ꯄꯗꯂꯦ ꯑꯃꯤꯑꯁꯤꯁꯤꯡ ꯂꯩꯕꯗꯆ, ꯃꯂꯔꯣꯟ ꯑꯁꯤꯂꯦ ꯊꯆꯕꯂꯤ, ꯃꯗꯆꯗ ꯕꯤꯅꯗꯤ ꯑꯃ ꯁꯃꯕ ꯃꯆꯕ ꯂꯥꯁꯥ ꯑꯃꯗ ꯃꯁꯤꯗ ꯊꯗꯃꯁꯥ ꯅꯁꯤꯂꯦ ꯑꯃꯄꯦꯕ ꯍꯦꯅ, ꯑꯃꯁꯨꯡ ꯃꯛ ꯂꯣꯗꯒꯤ ꯍꯣꯟ ꯑꯃꯒꯤ ꯍꯦꯕꯒꯤ ꯑꯦꯂꯤꯗꯃꯤ ꯂꯥꯁꯥ ꯑꯁꯤ, ꯑꯣꯛꯃꯤꯗꯃꯇ ꯂꯤꯂꯂꯦꯂꯤꯃꯣꯟ ꯑꯣꯗꯤ ꯑꯃꯒꯤ ꯒꯅꯗꯦꯑꯣ ꯍꯦꯗꯗꯤꯍꯕ, ꯍꯣꯁꯤꯂꯕꯒꯤ ꯑꯅꯂꯦ ꯃꯂꯔꯣꯟ ꯑꯁꯤꯂꯦ ꯊꯆꯕꯂꯤ [TBC]꯫

4.12 ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯡꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ ꯂꯩꯕ ꯃꯐꯝꯁꯤꯡ ꯑꯣꯏꯁꯤꯡ

4.12.1 **ꯗꯤꯂꯅꯦ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ.** ꯏꯆꯍꯟ ꯑꯆꯁꯇꯃꯤ ꯂꯆꯗ, ꯃꯁꯤꯒꯤ ꯂꯦꯃꯗꯣꯟꯗꯦꯅꯦ ꯂꯩꯕ ꯑꯍꯦꯛꯁꯥ, ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯛꯑꯣ, ꯏꯆꯍꯟ, ꯊꯕꯟ, ꯃꯑꯍꯤꯁꯤ, ꯕꯤꯑꯣꯛꯁꯥꯗ, ꯂꯆꯕꯟ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯁꯤ ꯏꯆꯍꯟꯒꯤ ꯃꯂꯁꯤ ꯑꯃꯁꯨꯡ ꯑꯃꯗꯕꯗ, ꯏꯆꯍꯟ ꯍꯦꯑꯣꯛꯃꯤ ꯑꯍꯤꯆꯕꯗ ꯅꯁꯤꯡ ꯂꯆꯒꯤ ꯃꯈꯥꯗ 2–5 m-ꯗ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯕꯤꯑꯣꯛꯁꯥꯗꯗ ꯁꯤꯅꯂꯦꯃꯦꯑꯗꯤꯑ ꯄꯦꯗ ꯂꯆꯒꯤ ꯃꯈꯥꯗ 2.50–4.30 m-ꯗ ꯂꯩꯕ ꯃꯍꯆꯑꯣꯁꯤꯗ, ꯂꯦꯑꯣꯑ ꯃꯂꯤꯑ ꯑꯃꯁꯨꯡ ꯂꯦꯑꯣꯑ ꯑꯦꯑꯛꯃꯤ 236.21 km²-ꯒꯤ ꯃꯂꯁꯤꯗ ꯂꯩꯕ ꯂꯆꯗ, ꯂꯩꯔꯑ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯁꯤꯗ ꯁꯤꯛ ꯑꯅꯕꯗꯆꯕ ꯂꯆꯗ, ꯂꯆꯍꯟꯁꯤꯛ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯁꯥꯁ ꯁꯤꯛ ꯑꯃꯁꯨꯡ ꯁꯥꯕꯗꯤꯑꯣꯁꯤꯒꯤ ꯃꯂꯤꯑꯣ, ꯄꯗꯟꯒꯤ ꯁꯦꯂꯦꯑꯣꯁꯤꯒꯤ ꯃꯌꯥꯝꯗ ꯂꯩꯕ ꯂꯆꯗ, ꯂꯤꯗꯤꯕꯆ ꯁꯦꯂꯦꯒꯤ ꯕꯗꯑ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯤꯒꯤ ꯍꯦꯗꯁꯥꯂꯦꯗ, ꯑꯃꯁꯨꯡ ꯁꯗꯍ ꯑꯗꯕ ꯅꯁꯤꯡ ꯂꯣꯗꯒꯤ ꯅꯍꯣꯛ (spring)-ꯁꯤꯡ ꯂꯩꯕ ꯍꯤꯁꯤꯒꯤ ꯑꯅꯣꯛꯁꯤꯡꯗ, ꯂꯣꯗꯒꯤ ꯍꯄꯤꯒꯤ ꯃꯗꯤꯒꯆꯕ ꯃꯑꯆ ꯑꯃꯗ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯕꯗ ꯃꯊꯑꯣꯒꯤ 3 m-ꯒꯤ ꯃꯂꯁꯤꯗ ꯂꯩꯕ ꯑꯗꯤꯍꯦ ꯑꯃꯄꯑꯑꯗ ꯂꯩꯕ ꯑꯣꯏꯁꯥ ꯄꯗꯤꯁꯤꯃꯇꯂꯦ ꯍꯁꯤꯂꯤꯑꯒꯤꯗꯃꯇ ꯗꯤꯂꯅꯦ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ (DGWL) ꯑꯃꯗ ꯂꯁꯥꯃꯗꯕꯂꯤ꯫ DGWL ꯑꯁꯤ ꯃꯑꯦꯂꯦꯒꯤ ꯃꯑꯆꯗ ꯂꯣꯗꯒꯤ ꯃꯌꯥꯝꯗ ꯂꯩꯕ ꯃꯑꯆ ꯃꯑꯆꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯍꯦꯡꯕ ꯂꯦꯒꯦꯂꯤ, ꯃꯈꯥꯒꯤꯁꯤꯡꯗꯒꯤ:

- (a) ꯍꯤꯡꯗꯕꯗ ꯃꯁꯥꯡ ꯍꯕ ꯑꯁꯗꯤꯅ–ꯂꯒꯦꯃꯕꯗꯒꯤ ꯃꯑꯆ ꯑꯃꯒꯤ ꯑꯣꯏꯁꯤꯡ ꯁꯥꯅꯂꯦꯃꯤꯑꯗ ꯗꯤꯗꯤꯁꯤꯡ; ꯂꯣꯗꯒꯤ
- (b) (a) ꯍꯁꯗꯕ ꯃꯍꯆꯗ, ꯅꯕꯅꯗꯒꯤ ꯂꯑꯁ ꯑꯕꯂꯗꯒꯦꯑꯣ ꯍꯦꯅꯒꯤ CGWB ꯂꯣꯗꯒꯤ WRD-ꯒꯤ ꯗꯃꯗꯗ ꯄꯁꯍꯤꯦꯕ **0.5 m**, ꯑꯃꯁꯨꯡ ꯂꯃꯁꯗ ꯂꯩꯕ ꯄꯗꯟ, ꯅꯁ, ꯁꯤꯛ, ꯁꯥꯕꯗ ꯂꯣꯗꯒꯤ ꯂꯦꯑꯣꯑꯃꯤ, ꯂꯣꯗꯒꯤ ꯑꯣꯏꯁꯥ ꯑꯃ ꯃꯍꯂꯤꯕ ꯄꯗꯟꯒꯤ ꯁꯦ ꯑꯃꯒꯤ ꯃꯂꯁꯤꯗ ꯂꯁꯂꯤꯕ ꯅꯁꯤꯒꯤ ꯗꯤꯂꯅꯦ ꯍꯦꯗ ꯂꯒꯦꯟ, ꯃꯅꯔꯒꯤ ꯃꯂꯁꯤꯗ ꯄꯦꯂꯦ ꯍꯦꯕ ꯑꯃ꯫

ꯍꯥꯏꯔꯤ ꯄꯥꯝꯕꯩꯗꯥꯢ ꯆꯥꯡꯗ, ꯃꯇꯤꯀꯤ ꯆꯪꯀ꯭ꯂꯣ꯭ꯄꯁꯤꯟꯅꯕ ꯆꯥꯎ ꯑꯍꯪꯕꯗ, ꯑꯗꯨꯕ ꯑꯃꯁꯨꯡ ꯆꯦꯠꯄꯥ ꯆꯨꯃꯗꯕ, ꯆꯨꯄꯥꯍꯦꯗ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯟꯕꯥ ꯑꯗꯨꯕ ꯑꯃꯁꯨꯡ ꯑꯗꯨꯕꯥ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅ ꯂꯣꯏꯅꯕ ꯃꯇꯝꯗꯥ, ꯄꯨꯝꯅꯃꯀ ꯑꯁꯤꯡꯕꯥ ꯃꯇꯝꯗ ꯆꯥꯡꯗ, ꯑꯃꯁꯨꯡ ꯆꯤꯡꯅꯥ ꯑꯣꯏꯕ ꯆꯨꯃꯗꯕ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯀꯤ ꯃꯔꯝ ꯑꯣꯏꯅꯥ ꯆꯥꯡ ꯑꯣꯏꯅꯥ ꯂꯧꯅꯔꯤ 4.12.3-ꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯂꯧꯁꯤꯅꯕ, (a) ꯃꯇꯝ ꯈꯔꯗ, DGWL ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯃꯇꯝ ꯆꯪꯂꯤꯕ ꯑꯣꯏꯅꯥ ꯆꯥꯡꯗ ꯑꯣꯏꯒꯅꯤ꯫

4.12.2 **ꯇꯦꯁ꯭ꯠ ꯄꯨꯡꯐꯝ ꯂꯣ꯭ꯄꯨꯡꯐꯝ.** DGWL ꯑꯃꯁꯨꯡ ꯂꯣ꯭ꯄꯨꯡꯐꯝ ꯃꯇꯝꯗꯤꯒꯤ ꯑꯍꯥꯅꯕ ꯇꯥꯡꯒꯤ ꯈꯔꯗ 1.0 m-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯈꯔꯗ:

- (a) ꯃꯇꯝꯗꯤꯒꯤ ꯑꯃꯁ ꯅꯣꯡꯃꯥ ꯄꯨꯝꯅꯕ (ꯇꯦꯁ꯭ꯠ ꯄꯨꯡꯐꯝ ꯍꯥꯌꯕꯅꯤ ꯅꯣꯡꯃꯥ ꯄꯨꯝꯅꯕ ꯕꯣꯀ꯭ꯕꯥꯏꯕꯤ) ꯑꯣꯏꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯏꯖꯤ꯭ꯡꯂꯣꯡꯒꯤ ꯕ꯭ꯐꯥꯗꯥꯏ ꯑꯃꯍꯥꯠ ꯄꯥꯌꯍꯟ (ꯕ꯭ꯇꯦ 4.4.4); ꯍꯥꯌꯕꯅꯤ
- (b) ꯇꯦꯁ꯭ꯠ ꯄꯨꯡꯗ꯭ꯐꯕꯗꯤ, DGWL-ꯒꯤ ꯈꯔꯗ ꯆꯥꯎ ꯒꯤꯇꯨꯡ ꯑꯃꯁ ꯗꯤꯡꯉꯣꯟ ꯑꯣꯏꯅ ꯃꯇꯝ ꯊꯤꯕꯅꯕꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯄꯨꯝꯅꯕꯁꯤ ꯑꯃꯁ ꯐꯣꯡꯍ ꯄꯨꯡꯐꯝ ꯅꯥꯏꯖ꯭ꯇꯗ ꯀꯁꯤꯄꯥꯏꯒꯗꯕꯅꯤ꯫

4.12.3 **ꯑꯁꯤꯇꯤꯃꯍ ꯑꯃꯁꯨꯡ ꯄꯣꯜꯕ.** ꯆꯥꯡꯒꯤ ꯈꯔꯗ ꯆꯥꯎ ꯄꯨꯡ꯭ꯊꯥꯏ, ꯒꯔꯍ, ꯇꯦꯁ꯭ꯠ ꯄꯨꯡꯐꯝ ꯁꯤꯡꯗ ꯍꯥꯌꯕꯅꯤ ꯄꯨꯡꯕꯐ ꯂꯥꯡꯇꯨꯈꯥ ꯄꯣꯜꯕꯒꯤꯗꯈꯥ ꯄꯨꯥ ꯄꯨꯡꯒꯗꯕꯅꯤ:

- ꯃꯇꯝꯗꯤꯒꯤ ꯑꯀꯨꯕ ꯑꯣꯏꯕꯅꯤ;
- ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ DGWL-ꯗ ꯆꯐꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯕꯥꯂ꯭ꯂꯣꯡꯔ ꯂꯣꯅꯍꯃꯤꯃꯒꯤꯗꯈꯥ, ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯂꯝꯕꯥ 5-ꯒꯤ ꯈꯇꯐ-ꯃꯂ꯭ꯂꯣꯡꯍꯒꯤ ꯄꯔꯔꯐ ꯇꯒꯔꯗꯂ ꯆꯐꯅꯤ, ꯈꯁ ꯀꯗꯦ ꯔꯝꯕ ꯈꯃꯍꯗ꯫

ꯑꯁꯤꯇꯤꯃꯍꯕꯤ ꯈꯔꯥꯄ ꯃꯥꯄꯐ ꯑꯃ ꯂꯃꯄꯤ, ꯁꯐꯈꯇꯗꯍ ꯗꯗ ꯇꯗꯃꯤꯝ ꯅꯥꯄꯈꯥ ꯈꯃꯤꯝ ꯊꯤꯂꯦ ꯑꯃꯁꯨꯡ ꯇꯤꯑꯣꯄꯥꯇꯤꯕꯔ ꯗꯤꯇꯅꯗꯦ ꯂꯗꯍꯥꯄꯐꯕꯗꯤ ꯍꯔꯒꯤ ꯃꯐꯤꯥꯂꯗ ꯆꯗꯦ, ꯔꯈꯗꯐꯕꯗ **1.2** ꯑꯣꯏꯒꯗꯕꯅꯤ꯫ ꯕꯇꯦꯂꯍ, ꯄ ꯑꯥꯂꯄꯗꯂꯗꯝꯤ ꯍꯥꯌꯕꯅꯤ ꯄꯗꯂ ꯁꯅꯆꯝꯤꯦ ꯑꯊꯕꯐ ꯄꯕ ꯔꯅ꯫

4.12.4 **ꯇꯨꯗꯕ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯒꯤ ꯈꯊꯥꯄ ꯆꯕ ꯂꯣ꯭ꯄꯨꯡꯐꯝ ꯀꯗꯦ ꯃꯩ.** DGWL ꯑꯃꯁꯨꯡ ꯆꯥꯗꯒꯤ 1.5 m-ꯒꯤ ꯈꯂꯝꯗ ꯆꯕ ꯂꯣꯅꯍꯃꯤꯝꯗ, ꯊꯥꯕ ꯈꯃꯥꯗ ꯂꯣ꯭ꯄꯨꯡꯐꯝ ꯑꯃꯁꯨꯡ ꯆꯥꯒꯤ ꯈꯊꯥꯄ ꯁꯤꯕ ꯃꯩ: ꯂꯥꯊꯥ, ꯁꯗꯤꯔ, ꯇꯗꯂꯕꯥꯁ ꯍꯥꯌꯕꯅꯤ ꯂꯐꯃꯂ ꯂꯣ꯭ꯄꯨꯡꯐꯝ꯫ ꯇꯨꯕ ꯄꯨꯡ꯭ꯊꯥꯃꯤꯝ ꯂꯗꯕ ꯃꯩ꯫

4.12.5 **ꯂꯝꯗꯦ ꯆꯕ.** ꯂꯇꯦꯁ꯭ꯠ ꯍꯥꯌꯕꯅꯤ ꯕ꯭ꯐꯕꯤꯂ ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯍꯥꯌꯕꯅꯤ ꯄꯅꯗꯔ ꯅꯣꯡꯃꯅꯤ ꯂꯥꯇꯕ ꯕꯣꯀ꯭ꯕꯥꯏꯍ ꯑꯃꯁꯨꯡ ꯈꯄꯔ ꯁꯐꯍꯃꯤꯝ IS 456:2000-ꯒꯤ ꯈꯔꯗ ꯕꯂ꯭ꯂꯣꯡꯔ ꯃꯤꯒꯥꯃꯤꯅꯤ ꯔꯗꯇꯕ ꯑꯥꯂꯁꯇꯐ ꯕ꯭ꯇꯦꯂꯕꯤꯗꯈꯥ ꯗꯤꯇꯅꯗ ꯄꯒꯗꯕꯅꯤ꯫ ꯑꯣꯏꯍꯇꯍ ꯃꯤꯄꯤꯝꯃꯤꯝ, ꯄ꯭ꯐꯂ ꯐꯥꯃꯤꯝ ꯑꯃꯁꯨꯡ ꯒꯍꯃꯤꯝ ꯂ꯭ꯄꯗꯇꯂ ꯂ꯭ꯄꯔ, HDPE, FRP ꯍꯥꯌꯕꯅꯤ ꯕꯐꯇꯗ ꯊꯤꯝꯕ ꯊꯥꯕ ꯑꯄꯁꯁ ꯈꯔꯥ ꯑꯃꯒꯤ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

4.12.6 **ꯇꯨꯕ ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯆꯕ ꯆꯊꯅꯒꯤ ꯆꯍꯤꯅ.** DGWL ꯑꯃꯁꯨꯡ ꯕꯇꯒꯤ ꯈꯔꯗ 1.0 m ꯍꯥꯌꯕꯅꯤ ꯈꯃꯤꯗꯒꯤ ꯀꯗꯕ ꯈꯃꯥꯗ, ꯆꯊꯅꯒꯤ ꯆꯍꯤꯅꯗ ꯅꯗꯃꯤꯔꯄ꯭ꯐꯂꯗꯒꯤ ꯐꯤꯄꯗꯂꯗ ꯁ꯭ꯂꯥꯆꯤꯝ ꯊꯒꯍꯆꯤ꯫ ꯕ꯭ꯇꯦ 4.4.3-ꯒꯤ ꯗꯤꯇꯅꯗ ꯅꯗꯃꯤꯔꯄ꯭ꯐꯂꯗ ꯐꯍ ꯄꯍꯆꯤ, ꯑꯃꯁꯨꯡ ꯇꯨꯗꯕ ꯑꯕ꯭ꯔꯤꯃꯐꯃꯤꯝꯒꯤ ꯁꯇꯨꯂꯗꯒꯤ ꯈꯄꯝꯗ ꯂꯝꯕꯥ 8-ꯒꯤ ꯈꯊ ꯄꯕꯃꯤꯝ ꯊꯥꯀꯗꯒꯗꯕꯅꯤ꯫

> **ꯂꯗꯗꯥꯇꯦ ꯄꯥꯁ.** ꯈꯇꯤꯁ꯭ꯂꯐ ꯑꯃꯁꯨꯡ ꯂꯈ꯭ꯗꯐ ꯆꯄꯕ ꯂ꯭ꯄꯍꯆꯤ, ꯈꯐꯥ ꯑꯁ꯭ꯂꯦ ꯕ꯭ꯇꯦ ꯑꯃꯁꯨꯡꯒꯤ ꯕꯂ꯭ꯂꯣꯡꯔ ꯁ꯭ꯐꯒꯤꯇꯗꯃꯤꯝ, 4.12.1 ꯑꯃꯁꯨꯡ 4.12.3-ꯒꯤ ꯄꯅꯗꯔ ꯔꯄꯐ ꯇꯒꯔꯃꯤꯝ ꯑꯃꯁꯨꯡ 4.12.5-ꯒꯤ ꯂꯇꯦꯁ꯭ꯠ ꯑꯥꯂꯁꯇꯐ, ꯂ꯭ꯄꯍ ꯑꯃꯤꯗ ꯄꯍꯆꯗ, ꯑꯃꯁꯨꯡ ꯈꯂ꯭ꯔꯔ ꯑꯃꯒꯤꯗꯈꯥ ꯁꯅꯤꯕ ꯀꯐꯥꯃꯥꯃꯤꯝꯗ ꯂꯇꯦꯁ꯭ꯠ ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯑꯃꯍꯥꯠ ꯃꯝꯗꯥꯍꯤꯗ [TBC]꯫ ꯁꯍꯃꯤꯝꯒꯤ ꯑꯕꯔꯕꯗ ꯆꯕ ꯁꯤꯍꯄ "ꯑꯃꯤꯗꯤꯒꯤ ꯔꯥꯦ ꯆ" ("high acidity") (CGWB, Bishnupur district booklet, 2013), ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯤ ꯄꯂꯍꯄ "ꯈꯃꯥ ꯅꯐꯗ ꯇꯨꯕ ꯄ꯭ꯇꯨꯕ ꯄꯔꯃꯤꯝ ꯂꯕꯗ" ("while constructing deep tube wells in some places") ꯒꯂ ꯊꯕꯅ (CGWB, Imphal West district booklet, 2013); ꯁꯤꯍꯄ, ꯑꯃꯁꯨꯡ ꯂꯅꯍ ꯄꯂ꯭ꯍ ꯑꯈꯦ ꯑꯃꯤꯗ ꯆꯕ ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯄꯍꯇꯕ ꯈꯃꯥ ꯂꯥꯗꯃꯤꯈꯥꯄ, 4.12.5-ꯒꯤ ꯑꯥꯂꯁꯇꯐꯒꯤ ꯁ꯭ꯐꯒꯤꯇꯗꯃꯤꯝ ꯑꯃꯁꯨꯡ ꯕꯣꯀ꯭ꯕꯥꯏꯍ ꯑꯃꯁꯨꯡ ꯈꯄꯔ ꯁꯐꯍꯃꯤꯝꯗ ꯆꯍꯤꯅꯒꯤ ꯈꯔꯒꯤ ꯅꯣꯡꯃꯥ ꯑꯒ꯭ꯐꯂꯒ ꯑꯣꯏꯕꯒꯈ ꯄꯍꯆꯤ, ꯄꯂ꯭ꯍꯄꯒꯤ ꯑꯥꯂꯁꯇꯐ ꯕ꯭ꯇꯦꯂ ꯊꯥꯁ꯭ꯂꯦ, ꯑꯃꯁꯨꯡ ꯁꯤꯍꯄ ꯂꯕ ꯂꯥꯁ, ꯄꯨꯡ꯭ꯊꯥꯏ ꯍꯥꯌꯕꯅꯤ ꯄꯨꯡꯕꯐ ꯂꯥꯡꯇꯨꯈꯥꯄ ꯈꯃꯤꯒꯤ ꯕꯔꯐꯃꯤꯝ ꯑꯃꯁꯨꯡ ꯂꯍꯇꯈꯗꯍꯕꯤ ꯇꯤꯑꯣꯄꯥꯇꯤꯕꯔ ꯄꯥ ꯆꯒꯗꯕꯅꯤ (ꯈꯂ꯭ꯔꯔ ꯑꯃꯤꯦ ꯊꯥꯕ; ꯂꯕꯂꯅꯗꯗꯂ ꯍꯥꯌꯕꯅꯤ ꯁꯤꯍꯕꯤ ꯊ꯭ꯂꯥꯒꯤ ꯗꯄ ꯃꯝꯅꯤꯗ [TBC])꯫ ꯅꯣꯡꯃꯦ ꯄꯝꯕ ꯕꯂꯃꯤꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯁꯇꯕꯤ ꯆꯥꯒꯤ ꯑꯔꯥꯕꯒꯅꯤ꯫ ꯍꯥꯏꯔꯤ ꯄꯂ꯭ꯍꯕꯤ ꯑꯔꯥꯕꯗ ꯅꯣꯡꯃꯥ ꯆꯥꯒꯤ ꯈꯔꯗ 2–5 m ꯑꯃꯁꯨꯡ ꯔꯝꯒꯤ ꯆꯕꯁꯗ 5–7 m-ꯗ, 30–65 m-ꯒꯤ ꯆꯥꯎ ꯑꯄꯍꯁꯒꯤ ꯈꯔꯗ ꯆ (CGWB, Imphal West), ꯑꯃꯁꯨꯡ ꯕꯂ꯭ꯂꯣꯡꯗ ꯁꯅꯇꯈꯄꯐꯗ ꯀꯗ ꯆꯥꯒꯤ ꯈꯔꯗ 2.50–4.30 m-ꯗ ꯆ, ꯈꯃꯥ ꯑꯁꯗ ꯇꯒꯔ ꯑꯁꯐꯔ ꯑꯃꯁꯨꯡ ꯈꯗ ꯀꯗꯒꯍꯇꯕꯅ ꯑꯃꯁꯨꯡ ꯈꯐꯄꯒꯤ ꯑꯐꯅꯕꯗ ꯅ꯭ꯕꯅꯗꯒꯤ ꯍꯥꯅ (CGWB, Bishnupur)꯫ ꯆꯕꯥ, ꯈꯈꯝꯗ ꯁꯍ ꯑꯣꯏꯐꯥꯕ ꯆꯥ, ꯆꯥꯄꯥ

> ꯑꯃꯁꯨꯡ ꯑꯌꯣꯛꯄ ꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤ ꯃꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯌꯨꯔꯪꯅꯒꯤ ꯀꯗꯁꯤꯡꯒꯤ ꯃꯌꯨꯡꯏ ꯇꯧꯕ ꯇꯍꯏ ꯌꯨꯔꯪꯅꯁꯤꯡ ꯔꯦꯝꯇꯕ ꯃꯌꯃꯍ, ꯀꯗ ꯊꯝꯇꯕ ꯃꯌꯨꯡꯍ "ꯄꯀꯌꯦ ꯊꯔꯦ" ("several weeks")-ꯒꯤꯗꯃꯝ ꯇꯧꯃꯏ ꯑꯗꯨ ꯏꯁꯤꯡꯇꯦ ꯔꯦꯜꯏ ꯇꯜꯐꯒꯥ ꯂꯗꯏ (AIIB)॥ ꯃꯗꯍ ꯑꯗꯨꯍ ꯇꯦꯏꯗ ꯌꯧꯗꯕ ꯌꯪꯝꯝ ꯑꯃꯦ ꯂꯧꯗꯦꯝꯊꯤ ꯃꯃꯦꯡꯍ ꯇꯧꯃꯦꯏꯒꯤ ꯃꯈꯦꯒꯤ ꯏꯁꯤꯡꯇꯦ ꯂꯗꯏ, ꯑꯃꯁꯨꯡ ꯇꯦꯏꯗ ꯌꯧꯐꯕ ꯑꯄꯦꯡꯕ ꯌꯪꯝꯝ ꯑꯃꯦ ꯌꯦꯁꯕ ꯔꯦꯏ, ꯃꯐꯨꯑꯦꯏꯇꯦ ꯏꯁꯤꯡ ꯏꯌꯦꯁ ꯇꯦꯝꯇꯤꯕ ꯌꯨꯐꯪꯅ ꯑꯃꯇꯦ, ꯃꯁꯤꯒꯤ ꯑꯦꯁꯜꯇꯪꯜ ꯇꯪꯒꯪꯅꯍ ꯇꯧꯕ ꯀꯦꯜ ꯑꯃꯇꯦ, ꯃꯁꯤꯒꯤ ꯗꯤꯇꯦꯏꯗ ꯇꯪꯒꯪꯅꯍ ꯇꯧꯕ ꯇꯦꯝꯌꯦꯝꯇꯦ ꯇꯜꯐꯒꯥ ꯀꯗ ꯑꯃꯒꯤ ꯃꯌꯨꯡꯍ ꯇꯪꯀꯇꯤꯕ ꯏꯁꯤꯡꯇꯦ ꯃꯁꯤꯒꯤ ꯃꯇꯦꯝꯌ ꯔꯦꯌꯐ ꯌꯪꯕꯅ ꯄꯪꯗꯒꯜꯄꯅꯇꯕ ꯃꯌꯍꯍ॥ ꯃꯐꯍ ꯑꯁꯤꯇꯦ 4.12.1(b)-ꯒꯤ ꯗꯤꯇꯦꯏꯗ ꯇꯧꯃꯦꯏꯒꯤ ꯃꯈꯦꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯇꯪꯒꯪꯅꯇꯦ ꯇꯊꯀꯍ ꯇꯧꯕ ꯌꯨꯐꯪꯅ, ꯈꯦꯝ, ꯀꯦꯜ, ꯄꯨꯈ꯭ꯔꯤ ꯇꯜꯐꯒꯥ ꯇꯦꯝꯌꯦꯝꯊꯤ, ꯇꯜꯐꯒꯥ ꯆꯏꯜ ꯑꯗꯨ ꯊꯦꯔꯇꯤꯕ ꯌꯨꯐꯪꯅꯒꯤ ꯀꯗ ꯑꯃꯒꯤ ꯃꯌꯨꯡꯍ ꯇꯪꯀꯇꯤꯕ ꯏꯁꯤꯡꯒꯤ ꯗꯤꯇꯦꯏꯗ ꯗ꯭ꯇꯍ ꯇꯪꯒꯪꯅ ꯑꯗꯨ ꯔꯪꯅꯒꯤ ꯐꯪꯊꯦꯐꯍꯌꯒꯤ ꯔꯦꯝꯕ ꯃꯗꯍꯍ ꯇꯧꯏ; ꯑꯃꯁꯨꯡ ꯏꯍꯗꯦꯅ ꯌꯍꯀꯦꯝꯊꯤ ꯇꯍ, ꯇꯦꯝꯌꯦꯝꯊꯤ ꯃꯇꯦꯝ, ꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯃꯇꯦꯝ, ꯌꯨꯐꯪꯅꯒꯤ ꯀꯗꯁꯤꯡꯒꯤ ꯃꯌꯨꯡꯍ ꯇꯧꯕ ꯇꯍ ꯑꯃꯁꯨꯡ ꯇꯤꯐꯤꯕꯦꯍ ꯀ꯭ꯇꯪꯗꯒꯤ ꯕꯐꯦꯝ ꯑꯃꯁꯨꯡ ꯇꯤꯐꯤꯒꯤ ꯗ꯭ꯇꯍꯀ꯭ꯇꯪꯗꯍ, ꯀꯏꯇꯦꯃꯤꯌꯐꯁꯤꯡꯇꯦ ꯌꯦꯗꯗꯦ ꯌꯜꯌ꯭ꯐꯕꯗꯤ ꯌꯦꯌꯕꯒꯤ ꯔꯪꯝꯊꯤꯗꯃꯝ ꯃꯁꯤ ꯇꯤꯐꯤꯕ ꯒꯐꯦꯌꯗꯍ ꯇꯪꯒꯪꯅ ꯑꯏꯇꯦ ꯇꯧꯏ॥ ꯃꯗꯍ ꯑꯗꯨꯍ ꯁ꯭ꯌꯐꯪꯇ ꯑꯁꯤ ꯇꯍꯒꯤ ꯃꯂꯝꯌ, ꯌꯨꯍꯂꯝ, ꯀꯦꯗꯤꯔꯍ ꯑꯃꯁꯨꯡ ꯇꯪꯗꯍꯁ꯭ꯊꯪꯀꯌ ꯇꯧꯕ ꯄꯪꯗꯦ ꯗꯧ (4.12.4), ꯑꯃꯁꯨꯡ ꯇꯍꯒꯤ ꯃꯈꯦꯍ ꯇꯧꯕ ꯁ꯭ꯌꯐꯪꯇ ꯑꯁꯤ ꯇꯦꯏꯗ ꯌꯧꯏ, ꯑꯪꯗ꯭ꯊꯐ ꯌꯧꯏ ꯑꯃꯁꯨꯡ ꯑꯄꯦꯡꯕ ꯃꯌꯍꯍ ꯌꯦꯁꯕꯒꯤꯗꯃꯝ ꯔꯪꯝ ꯌꯧꯏ॥ ꯔꯤꯡꯒꯤ ꯁꯦꯏꯜ ꯑꯃꯍ ꯇꯧꯃꯦꯏꯒꯤ ꯃꯈꯦꯒꯤ ꯏꯁꯤꯡ ꯀ꯭ꯕ ꯃꯗꯍꯍꯁ ꯀ꯭ꯕ ꯌꯪꯝꯝ ꯄꯪꯗꯦ ꯗꯕ ꯇꯜꯌꯪ, ꯃꯐꯍꯗꯤ ꯇꯦꯊꯦꯍ ꯑꯃꯍ ꯏꯁꯤꯡ ꯂꯦꯝꯇꯤꯕ ꯌꯪꯝꯝ ꯑꯃꯦ ꯃꯃꯤꯡ ꯌꯦꯊꯗꯕ ꯏꯗꯗꯤꯅꯌ꯭ꯐꯪꯁꯗꯒꯤ ꯀ꯭ꯐꯪꯝꯌꯤꯁ ꯑꯃꯇꯤ: ꯇꯦꯀꯦꯍ ꯑꯃꯍ ꯏꯁꯤꯡ ꯂꯦꯝꯇꯤꯕ ꯇꯧꯕ ꯁ꯭ꯌꯐꯪꯇ ꯇꯦꯏꯗ ꯌꯧꯒꯍꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯔꯝꯍꯕ ꯑꯦꯏꯒꯍꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯂꯦꯝꯀ ꯑꯃꯁꯨꯡ ꯑꯦꯒꯐꯗ꯭ꯇ ꯇꯦꯏꯗ ꯌꯧꯐꯕ ꯈꯦꯝꯕꯦꯗ ꯑꯃꯍ ꯀ꯭ꯒꯍꯕꯇꯤ (ꯊ꯭ꯇꯦꯇ 4.11, ꯔꯤꯡꯒꯤ ꯐ꯭ꯅ)॥ 4.12.1(a)-ꯒꯤ ꯑꯪꯀꯐꯤꯅ–ꯇꯦꯒꯪꯍꯕꯐꯒꯤ ꯃꯦꯇꯤꯌꯐꯤꯡꯒꯤ ꯃꯌꯍ ꯑꯁꯤ ꯃꯪꯁ꯭ꯔꯪꯅꯒꯤ 1 ꯑꯪꯀꯐꯤꯅꯍꯒꯤ 31 ꯑꯦꯝꯌꯦꯕꯐ ꯗꯦꯁꯕꯒꯤ ꯃꯦꯗꯁꯗꯒꯤ ꯃꯌꯍ ꯑꯃꯁꯨꯡ ꯑꯦꯝꯌꯦꯕꯐꯒꯤ ꯃꯔꯦꯏꯍ ꯂꯍꯦꯝꯀꯒꯤ ꯃꯌꯨꯡꯒꯤ ꯔꯦꯡꯕ ꯇꯧꯃꯦꯏ ꯔꯦꯁꯇꯕ ꯃꯪꯁ꯭ꯔꯪꯅ ꯑꯁꯤꯇꯦ ꯂꯍꯕꯇꯤ; ꯌꯍꯀꯦꯝꯌ ꯔꯦꯌꯐ ꯌꯪꯕꯅ ꯃꯐꯔꯒꯤ ꯑꯐꯦꯏꯕꯍ ꯈ꯭ꯕꯏꯍꯒꯤ ꯇꯪꯍꯕꯇꯦ ꯃꯐꯍ ꯑꯦꯏꯍꯨꯇꯦ (CGWB, Bishnupur), ꯃꯐꯔꯍ ꯇꯧꯐꯕ ꯐꯤꯗꯤꯝ ꯑꯃꯇꯦ ꯗꯤꯇꯦꯏꯗ ꯇꯪꯒꯪꯅ ꯑꯗꯨ ꯄꯗꯂꯄꯦ ꯁꯜꯇꯤ॥ ꯁ꯭ꯌꯪꯜꯊꯤ ꯑꯦꯕꯇꯐꯒꯪꯁꯗ ꯔꯪꯅꯁꯤꯝ ꯑꯁꯤ CGWB, North Eastern Region-ꯒꯤꯇꯤ: ꯁ꯭ꯌꯪꯜꯊꯤ ꯑꯦꯕꯇꯐꯒꯪꯁꯗ-ꯔꯪꯅꯒꯤ ꯇꯪꯌꯔꯦꯐꯝ ꯑꯃꯜꯌꯦ ꯗꯝꯈꯤꯗꯪ, ꯑꯃꯁꯨꯡ ꯏꯍꯗꯦꯅ ꯔꯪꯁ꯭ꯜꯌ CGWB-ꯒꯤ ꯗꯒ-ꯔꯪꯅꯒꯤ ꯃꯦꯇꯤꯌꯐꯤꯝ "ꯇꯦ ꯑꯪꯗꯍ ꯑꯦꯐꯗꯐ ꯁꯦꯝꯇꯕꯇꯦ ꯃꯐꯍ ꯑꯦꯏꯗ꯭ꯇꯦ 1991-ꯗꯒꯤ" ("since 1991 due to disturbed law and order") ꯇꯪꯀꯈꯤ (CGWB, Imphal West), ꯃꯐꯍ ꯑꯗ꯭ꯇꯦ 4.12.1(b)-ꯇꯦ ꯄꯏꯐꯤꯕ WRD-ꯒꯤ ꯐꯪꯊꯦꯐꯍ ꯑꯁꯤ ꯄꯧꯇꯤꯝ ꯗꯦꯁꯕ ꯇꯧꯌ꯭ꯐꯤ [TBC]; ꯁꯄꯐꯒꯤ ꯁꯦꯏꯜ ꯃꯑꯦꯝ ꯃꯑꯦꯝꯒꯤ ꯔꯦꯌꯐ-ꯌꯪꯕꯅ ꯀ꯭ꯕꯁꯤꯝ ꯗꯝꯈꯤꯗꯪ [TBC]॥ ꯗꯪꯝꯌꯐ 1.2, 0.5 m-ꯒꯤ ꯑꯪꯇꯦꯔꯪꯗꯁ, ꯌꯍꯀꯦꯝꯊꯤ ꯇꯍ, ꯏꯁꯤꯡ ꯇꯧꯗꯍꯁꯤꯝꯒꯤ ꯃꯇꯦꯝ, ꯀꯗ ꯇꯧꯕ ꯇꯍ ꯑꯃꯁꯨꯡ ꯇꯤꯐꯤꯕꯦꯍꯒꯤ ꯗ꯭ꯇꯍꯀ꯭ꯇꯪꯗꯒꯤꯗꯃꯝ "ꯒ꯭ꯐꯦꯁꯗꯍ ꯇꯪꯒꯪꯅ" ("ground level")-ꯒꯤ ꯗꯤꯗꯦꯅꯜ, ꯑꯪꯁꯤꯗ ꯇꯧꯕ ꯇꯧꯃꯦꯏꯒꯤ ꯃꯈꯦꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯪꯝꯁꯀꯦꯇꯐꯒꯤ ꯐ꯭ꯅ ꯑꯃꯁꯨꯡ ꯀꯤꯜꯊꯤ ꯔꯪꯝ ꯑꯁꯤꯒꯤ ꯄꯝꯂꯪꯏꯇꯕ ꯃꯦꯏꯒꯤ ꯈ꯭ꯗꯍ ꯇꯧꯌꯪ; ꯐꯤꯁꯐꯔꯊꯤ ꯃꯌꯍꯍ ꯃꯇꯤꯀ꯭ꯐꯒꯤꯗꯃꯝ ꯗꯦꯏꯗꯦꯝꯈꯤꯕ ꯁꯦꯏꯜ-ꯁ꯭ꯊꯪꯅꯒꯤ ꯃꯌꯍ ꯃꯌꯍꯒꯤ ꯇꯧꯃꯦꯏꯒꯤ ꯃꯈꯦꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯕꯁꯤꯝ ꯗꯝꯈꯤꯗꯕꯇꯦ ꯃꯐꯍ ꯑꯏꯗ꯭ꯇꯦ ꯃꯪꯁ꯭ꯔꯪꯅ ꯑꯁꯤꯇꯦ ꯃꯈꯦꯔ ꯑꯁꯤ ꯂꯍꯇꯤ॥

4.13 ꯐꯤꯇꯇꯪꯅ ꯗꯤꯌꯪꯗꯁꯗ ꯑꯃꯁꯨꯡ ꯗꯤ-ꯏꯗ-ꯇꯤꯁ

4.13.1 **ꯔꯦꯄꯅꯇꯤꯕ ꯃꯗꯍꯁꯤꯝ.** ꯁꯐ꯭ꯅ 11-ꯒꯤ ꯃꯈꯦꯍ ꯑꯪꯀꯐ꯭ꯒ ꯌꯧꯐꯕ ꯕꯪꯁꯤꯗ ꯇꯦꯝꯒꯤ ꯏꯁꯤꯝ ꯃꯁ꯭ꯌꯐ ꯀ꯭ꯇꯦꯗ ꯑꯃꯇꯦ ꯔꯦꯁꯄꯅꯇꯤꯕ ꯕꯪꯁꯤꯗ ꯑꯃꯍ, ꯗꯪꯒꯪꯇꯀꯃꯪꯗꯜ ꯑꯃꯇꯦ ꯃꯁꯤꯒꯤ ꯗꯤꯌꯪꯗꯁꯗꯒꯤ ꯃꯂꯧ ꯌꯦꯕꯒꯤ ꯀ꯭ꯍꯇꯃꯝ ꯇꯜꯐꯒꯥ ꯈꯐꯦ ꯃꯈꯦꯒꯤꯁꯤꯝꯒꯤ ꯁ꯭ꯜꯂꯝꯍ ꯊꯍꯄꯗꯕ ꯔꯦꯏ:

- (a) ꯀ꯭ꯇꯦꯗ ꯑꯗ꯭ꯍ ꯈꯝꯗꯦꯝꯇꯕ ꯐꯤꯇꯇꯪꯅ ꯗꯤꯌꯪꯗꯁꯗ ꯗꯪꯁꯤꯇꯤꯌꯤ ꯑꯃꯦ; ꯇꯜꯐꯒꯥ
- (b) ꯀ꯭ꯇꯦꯗ ꯑꯗ꯭ꯍ ꯈꯝꯗꯦꯝꯇꯕ ꯄꯨꯈ꯭ꯔꯤ (pukhri or tank)-ꯒꯤ ꯁ꯭ꯌꯐꯪꯇ ꯑꯃ꯭ꯝ ꯄꯗꯇꯦ ꯁꯪꯍꯒꯜꯀꯒꯤꯗꯃꯝ ꯀꯤꯐꯕ ꯗꯤ-ꯏꯗ-ꯇꯤꯁ ꯑꯃꯦ॥

4.13.2 **ꯊꯗꯗꯤꯁꯗꯁꯤꯝ.** ꯐꯤꯇꯇꯪꯅ ꯗꯤꯌꯪꯗꯁꯗ ꯇꯜꯐꯒꯥ ꯗꯤ-ꯏꯗ-ꯇꯤꯁ ꯑꯁꯤ ꯃꯈꯦꯒꯤꯁꯤꯝ ꯑꯦꯏꯐꯕ ꯃꯗꯍꯍ ꯈꯝꯌꯃꯝ ꯔꯦꯒꯗꯕꯇꯤ:

- (a) ꯐꯤꯇꯇꯪꯅ ꯗꯪꯁꯤꯇꯤꯌꯤ ꯇꯜꯐꯒꯥ ꯑꯃ꯭ꯝ ꯄꯗꯇꯦ ꯁꯪꯍꯒꯜꯇꯕ ꯄꯨꯈ꯭ꯔꯤ ꯑꯗ꯭ ꯂꯕꯝ ꯌꯧꯐꯤꯕꯗꯤ, ꯇꯜꯐꯒꯥ ꯁꯪꯅ ꯀꯤꯐꯪ ꯑꯃꯁꯨꯡ **ꯔꯄꯤ** 3-ꯒꯤ ꯃꯁ꯭ꯊꯍ ꯂꯕꯝ ꯌꯧꯇꯕ ꯂꯍꯇꯕꯗꯤ॥ ꯃꯗ꯭ ꯗꯦꯁꯕ, ꯃꯌꯍ ꯈꯐꯒꯤꯗꯃꯝꯊꯤ ꯁꯦꯏꯜꯌ ꯗꯤꯌꯪꯗꯁꯗ ꯃꯂꯧ ꯌꯦꯏ॥
- (b) ꯁꯦꯏꯜꯌꯒꯤ ꯗꯪꯁꯤꯇꯤꯌꯤ ꯗꯦꯁꯕꯒꯤ ꯊꯗꯒꯪꯔꯪꯗꯁꯇꯦ ꯃꯈꯦꯔꯒꯤ ꯃꯐꯝꯌ ꯇꯧꯕ ꯕꯤꯅꯗꯤꯝ ꯇꯜꯐꯒꯥ ꯇꯍꯕꯤꯁꯤꯝꯍ ꯏꯁꯤꯡꯒꯤ ꯇꯪꯒꯪꯅ ꯄꯪꯗꯒꯜꯄꯗꯍꯇꯦ 1% AEP-ꯒꯤ ꯗꯪꯒꯪꯇꯀꯃꯪꯗꯜꯊꯤ ꯃꯌꯨꯡꯒꯤ ꯗ꯭ꯇꯦ ꯀ꯭ꯐꯕꯗꯤ (ꯁꯐ꯭ꯅ 5);
- (c) ꯄꯨꯈ꯭ꯔꯤ (tank) ꯑꯃꯍ ꯊ꯭ꯐꯪꯗꯤꯜ ꯀꯤꯕ ꯁ꯭ꯌꯐꯪꯇ ꯑꯁꯤ **ꯏꯁꯤꯡ ꯏꯔꯦꯁꯒꯤ ꯁ꯭ꯌꯐꯪꯇ** ꯈꯝꯌꯃꯝ ꯑꯦꯏꯐꯕꯗꯤ॥ ꯃꯁꯤ ꯐ꯭ꯅ ꯌꯪꯀ꯭ꯝꯝ ꯇꯪꯒꯪꯅ (FTL) ꯑꯃꯁꯨꯡ ꯀꯗ ꯑꯃꯁꯨꯡ ꯁꯐꯀꯇꯁ ꯔꯤꯔꯐꯇꯦ ꯑꯁꯦꯏꯕ ꯔꯦꯗꯇꯦ ꯂꯍꯕ ꯊꯍꯕ ꯈ꯭ꯕꯏꯍꯒꯤ ꯔꯦꯝꯕ ꯔꯦꯌꯐ ꯇꯪꯒꯪꯅꯒꯤ ꯃꯐꯝꯌ ꯇꯧꯕ ꯒꯦꯀ꯭ꯍ, ꯄꯀꯔꯤꯗꯕ ꯇꯦꯌꯤꯗꯏ ꯌꯧꯐꯕ ꯑꯦꯀꯐꯪꯌꯤꯝ ꯐ꯭ꯅ ꯑꯃꯇꯦ ꯃꯦꯗꯁꯗꯒꯤ ꯃꯈꯦꯝꯍ ꯑꯄꯦꯡꯕ ꯑꯦꯏꯄꯇꯇꯕ ꯔꯦꯁꯊꯀ FTL-ꯒꯤ ꯃꯈꯦꯍ ꯇꯧꯕ

ꯒꯤꯗꯨꯝ ꯑꯃꯍꯥꯌꯥꯏꯗꯅꯤ꯫ ꯑꯣꯏꯕꯤꯔꯃꯒꯤ ꯑꯣꯏꯕꯥꯗꯥ ꯄꯨꯊꯕ ꯅꯕꯤꯒꯣꯂꯗ ꯁꯦꯟꯗꯒꯤ ꯅꯈꯤꯡ ꯃꯤꯕꯒꯤꯔꯝꯕꯥ ꯊꯝꯂꯤꯕ FTL-ꯒꯤ ꯃꯅꯥꯛ ꯆꯥꯕ ꯂꯩꯕꯗꯕ ꯃꯕꯣꯔꯤꯡ ꯃꯤꯕꯣꯅꯕꯗꯤꯅꯤ꯫

- (d) ꯃꯥꯂꯦꯕꯤ ꯑꯣꯏꯗꯨꯅ ꯂꯕꯇꯥ 7 ꯆꯨꯝꯍꯟꯗꯕꯅꯤ: ꯂꯕꯒꯤ ꯌꯥꯕꯕ FTL, ꯀꯣꯝꯄꯦꯅꯁꯦꯁꯟ ꯌꯥꯕꯕ ꯑꯣꯏꯕꯤꯌꯤꯡ ꯁꯨꯔ, ꯑꯃꯁꯨꯡ ꯌꯦꯡꯂꯤꯗꯕꯤꯕ ꯂꯕꯃꯗꯂ ꯌꯤꯌꯕ;
- (e) ꯋꯥꯅꯁ ꯑꯣꯏꯗꯨꯅ ꯄꯤꯗꯤꯡꯂ ꯋꯥꯅꯁꯌꯥ **ꯕꯤꯌꯥꯄꯦꯂꯦ** (ꯀꯗꯥꯗ 4.4) ꯑꯃꯁꯨꯡ **WQv** ꯌꯥꯕꯤꯁꯃꯦꯁ (ꯂꯕꯇꯥ 8) ꯃꯤꯕꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (f) ꯅꯂꯤꯡ ꯅꯍꯩꯅ ꯂꯦꯂꯤꯌꯤꯒ ꯑꯣꯅꯕ ꯀꯌꯃꯦꯁꯂꯤꯡꯅ, ꯕꯤꯗꯗꯒ ꯏꯂꯤꯗꯤꯌꯤ ꯑꯣꯏꯗꯨꯅ ꯃꯂꯤꯒꯤ ꯅꯂꯤꯡ ꯃꯤꯕꯤꯕ ꯑꯕꯤꯍꯦ ꯃꯥꯝꯕꯒꯤꯅꯃꯥ ꯃꯤꯥꯂꯅ-ꯏꯕꯤꯀꯌꯦꯂꯤ ꯁꯨꯔ ꯆꯨꯝꯍꯟꯗꯕꯅꯤ꯫

4.13.3 **ꯏꯤ.** ꯏꯤ-ꯅꯦ-ꯗꯤꯍ ꯑꯂꯤ ꯃꯍꯩꯒꯤ ꯃꯑꯣꯡꯅ ꯀꯒꯀꯗꯁ ꯌꯥꯒꯅꯕꯗꯤ:

> ꯏꯤ = (ꯀꯗꯥꯗ 4.6-ꯒꯤ ꯃꯍꯥꯅ ꯋꯥꯅꯁꯌꯥ ꯃꯊꯥ ꯌꯥꯕ ꯅꯤꯌꯥꯦꯂꯦ ꯒꯤꯗꯨꯝ, m³) × (ꯑꯣꯊꯣꯕꯤꯌꯤꯗꯦ ꯗꯣꯌꯤꯏꯅ ꯌꯥꯕꯕ ꯃꯂꯗꯤꯁ ꯕꯁ, ₹/m³)

ꯃꯂꯗꯤꯁ ꯕꯁ ꯑꯂꯤꯅ ꯗꯝ, ꯋꯕ ꯑꯃꯁꯨꯡ ꯌꯄꯤ 10-ꯒꯤ ꯃꯦꯌꯗꯦꯂ ꯌꯦꯍꯒꯅꯕꯗꯤ꯫ ꯏꯤꯂꯤꯡ ꯑꯂꯤ ꯕꯤꯡ-ꯏꯦꯂ ꯌꯥꯕꯕ ꯕꯂꯤꯦ ꯑꯀꯍꯦꯁ ꯑꯃꯅ ꯊꯝꯒꯅꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯦꯦ ꯑꯣꯗꯅ ꯃꯃꯤꯡ ꯗꯕꯕ ꯏꯂꯤꯗꯤꯌꯤꯂꯤꯡꯅ ꯅꯥꯌꯃꯥ ꯂꯤꯗꯤꯦꯗꯒꯅꯕꯗꯤ꯫

4.13.4 **ꯗꯗꯕ.** ꯑꯣꯊꯣꯕꯤꯌꯤꯗꯦ ꯃꯍꯩꯒꯤꯂꯤꯡꯒꯤ ꯃꯄꯕꯗꯤꯡ ꯗꯗꯕ ꯑꯃꯦ ꯊꯝꯒꯅꯕꯗꯤ:

- ꯕꯤꯗꯗꯒ ꯏꯂꯤꯗꯤꯌꯤ ꯃꯅꯤꯡꯃꯥꯌ ꯀꯕꯅꯤꯁ ꯃꯤꯕꯕ ꯅꯤꯌꯥꯦꯂꯦ ꯒꯤꯗꯨꯝ;
- ꯃꯤꯕꯕ ꯒꯤꯗꯨꯝ; ꯑꯃꯁꯨꯡ
- ꯏꯡꯗꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯤꯦꯗꯕꯕ ꯏꯤꯂꯤꯡ꯫

> **ꯂꯦꯅꯥꯡꯗꯦ ꯌꯥꯡꯃꯦ.** ꯃꯗꯂꯤꯍꯤꯒꯤ DID (2008)-ꯒꯤ ꯌꯥꯡꯗꯤꯂꯁꯗꯦ 0.1 ha-ꯅꯒꯤ ꯄꯦꯕ ꯋꯥꯅꯁꯂꯤꯡꯒꯤꯅꯃꯥ ꯋꯥꯅꯁꯌꯥ ꯗꯕ ꯅꯤꯌꯥꯦꯂꯦꯅꯒꯤ ꯀꯝꯃꯂꯗꯤꯌꯤ ꯃꯦꯅꯂꯤꯡ ꯄꯦꯗꯦ ꯃꯦꯝꯅꯤ꯫ ꯋꯥꯅꯁꯌꯥ ꯗꯕ ꯅꯤꯌꯥꯦꯂꯦꯒꯤ ꯂꯌꯅꯤꯂꯤꯡꯗꯦ ꯃꯂꯤꯒꯤ ꯀꯦꯗꯕ ꯑꯂꯤ ꯃꯏꯝꯅ ꯃꯍꯩ ꯃꯦꯅ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯊꯡꯕ ꯃꯏꯝꯅ ꯗꯃꯦ ꯌꯁꯗꯕ ꯃꯥꯡꯅ ꯄꯦꯊꯕꯗꯤ ꯄꯌꯦ ꯍꯁꯗꯤ (Colorado State University-ꯒꯤ ꯊꯤꯂꯤꯂ; Kansas City-ꯒꯤꯅꯃꯥ McEnroe), ꯑꯃꯁꯨꯡ ꯀꯌꯃꯦꯁꯀꯤ ꯃꯍꯥꯅ ꯗꯕ ꯃꯦꯅ ꯑꯃꯗꯦ ꯃꯦ-ꯂꯌꯝꯒꯤ ꯃꯤꯡꯀ ꯃꯌꯝ ꯃꯦꯗꯕ ꯌꯦꯅ (*Water* 2016)꯫ ꯃꯕꯝ ꯑꯂꯤꯗꯦ ꯕꯤꯗꯗꯒ ꯂꯌꯕꯗ ꯑꯂꯤ ꯗꯅꯗꯦ ꯃꯥꯦꯂꯤꯦꯕꯗꯦ ꯗꯁꯌꯗꯦ, ꯕꯂꯤꯦ ꯃꯅꯗꯤꯡꯗꯦ ꯃꯏꯝ ꯅꯦꯒꯅꯕꯗꯤ꯫
>
> ꯃꯗꯤꯃꯥꯕꯅ ꯃꯥꯂꯦꯕꯤꯒꯤ (tank) ꯑꯡꯁ ꯑꯃꯁꯌꯦ ꯗꯌ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯂꯄꯕꯂꯤꯡꯅ ꯗꯕ ꯃꯦꯁ ꯗꯁꯕꯒꯤ ꯃꯥꯂꯦꯕꯤ ꯑꯃꯁꯌꯦ ꯀꯣꯝꯄꯦꯅꯁꯦꯁꯟ ꯌꯥꯕꯕ ꯁꯨꯔ ꯑꯃꯒꯤ ꯃꯍꯥꯅ ꯅꯂꯤꯡ ꯅꯍꯩꯍ ꯀꯦꯌꯕꯔꯒꯤꯅꯃꯥ ꯑꯣꯃꯕꯁ ꯌꯥꯕꯤ ꯄꯌꯦ ꯏꯡꯅꯤꯅ꯫ ꯌꯝꯃꯥꯡꯀꯤ ꯕꯤꯗꯗꯒ ꯂꯌꯕꯗ ꯑꯂꯤ ꯃꯅꯒ ꯃꯆꯥꯗꯤ: NHPC-ꯒꯤ ꯅꯊꯅ ꯕꯕꯗꯗꯦ ꯊꯝꯗꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯗꯤꯃꯥꯕ ꯗꯡꯌꯡ ꯗꯡ (ꯃꯕꯌꯡꯂꯦ) ꯑꯡꯁ, 2006-ꯗꯦ 236.21 km²-ꯅ ꯆꯤꯡ ꯂꯦꯗꯤꯕ ꯗꯡꯌꯡ, ꯃꯂꯤꯒꯤ 70.30 km²-ꯒꯤ ꯀꯕ ꯗꯦ ꯑꯂꯤ "ꯅꯒꯗꯃꯃꯦꯁ ꯗꯌꯕ ꯗꯦ ꯗꯁꯕꯒꯤ ꯃꯥꯡ ꯏꯗꯦ ꯆꯤꯡ ꯂꯦꯗꯕ ꯗꯦ" ("No-Development Zone or Totally Protected Zone") (ꯂꯡꯂꯦ 3)-ꯒꯤ ꯗꯌꯗꯦ; ꯑꯌꯃꯃ ꯃꯁ ꯑꯃꯁꯨꯡ ꯃꯁꯊꯕꯤꯂꯤꯡ, ꯃꯦꯂꯌꯕ ꯃꯗꯦꯦꯒꯤ ꯃꯂꯤꯡ ꯊꯤꯕ ꯃꯥꯡ ꯅꯦꯦ "ꯃꯕꯡ 134 ꯂꯌꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡ ꯆꯝꯅꯕ ꯃꯕꯂꯤ ꯌꯁꯗꯦꯅꯂꯤꯡ" ("about 134 swampy and waterlogged marshy wetlands"), ꯃꯍꯌꯒꯤ ꯃꯂꯡꯅ ꯃꯗꯤꯃꯥꯕ ꯂꯌꯁ ꯌꯁꯗꯦꯅꯂ ꯑꯣꯊꯣꯕꯤꯌꯤ (Manipur State Wetlands Authority)-ꯗꯦ ꯌꯕꯁ ꯑꯂꯤ ꯏꯗ-1-ꯒꯤ ꯃꯕꯅꯑꯣꯕꯤꯌꯤ ꯌꯁꯗꯦꯅꯂꯤꯡ ꯑꯣꯅꯗꯦ ꯗꯤꯂꯁ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯑꯄꯝ, ꯌꯦꯕꯒ ꯃꯁ (Yaral Pat), ꯍꯌꯕ ꯃꯁ (Utra Pat) ꯑꯃꯁꯨꯡ ꯌꯦꯅꯊꯧ–ꯐꯝꯅꯣꯝ ꯃꯁ (Waithou–Phumnom Pat)-ꯒꯤ ꯅꯕꯏꯁ ꯗꯌꯤꯏꯤꯀꯂꯦꯂꯤꯡ ꯏꯡꯅꯡꯗ,

ꯑꯃꯁꯌꯦ ꯄꯗꯤꯡ ꯏꯍꯕ ꯏꯅꯗꯒ ꯑꯣꯅꯅꯕꯤ (DoECC, Administrative Report 2025-26); ꯃꯝꯃꯗꯦ ꯊꯅꯡꯃ ꯑꯦꯍꯁꯗꯁ ꯗꯕ ꯅꯂꯤꯡ ꯅꯍꯩꯍꯒꯤ ꯂꯌꯕꯗ ꯑꯣꯅꯗꯦ ꯂꯝꯒꯁꯗꯤꯕ ꯃꯁ ꯑꯃꯦ, ꯗꯝꯏꯒꯃꯁ (NDB; HC PIL No. 8 of 2025-ꯅ WRD-ꯒꯤ ꯋꯥꯅꯁ ꯕꯤꯃꯕꯁ); ꯂꯄꯕꯂꯤꯡꯒꯤ ꯃꯥꯂꯦꯕꯤꯂꯤꯡ, AMRUT 2.0-ꯒꯤ ꯅꯂꯤꯡ-ꯗꯏꯝꯒꯤ ꯃꯕꯗꯡꯁꯂꯤꯡꯒꯤ "ꯃꯄꯕꯗꯤꯡ ꯃꯥꯂꯦꯕꯤꯂꯤꯡ" ("public ponds"), 20 ꯑꯃꯕꯒ ꯌꯥꯕ ꯑꯃꯁꯨꯡ 19 ꯊꯕꯡ ꯌꯁꯗꯤ (TPD, Annual Administrative Report 2025-26); ꯑꯃꯁꯨꯡ ꯌꯝꯃꯥꯡꯀꯤ ꯗꯝꯒꯤ ꯗꯕꯡ, ꯃꯂꯤ ꯃꯗꯤꯃꯥꯕ ꯀꯦꯂꯕꯒꯂꯦ ꯑꯏ ꯃꯅꯤ ꯗꯦꯅ ꯑꯃꯁꯨꯡ ꯌꯁꯗꯦꯅ ꯑꯡꯁ, 2014-ꯗꯦ ꯄꯤꯡꯅꯡꯃꯅꯒꯤ ꯆꯤꯡ ꯂꯦꯗꯤ ꯑꯃꯁꯨꯡ

ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠꯇꯦꯡꯗꯥ 2020-ꯗ ꯍꯩꯀꯠꯄꯒꯤ ꯍꯝ 5,616.53 ha-ꯗꯒꯤ 2043-ꯗ 2,604.70 ha ꯐꯥꯎꯕ ꯍꯟꯊꯔꯛꯀꯅꯤ, ꯃꯣꯡꯀꯣꯡꯗꯨꯅꯤ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯐꯥꯎꯕ ꯍꯟꯊꯔꯀꯅꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯩ ꯍꯩꯕꯣꯡꯅꯤ 563.54 ha-ꯗꯒꯤ 643.42 ha ꯐꯥꯎꯕ ꯍꯦꯅꯒꯠꯀꯅꯤ (ꯀꯔꯝꯕ ꯅꯍꯩꯔꯒꯤ ꯃꯇꯦꯡꯅꯥ ꯌꯥꯕ GIS ꯕꯦꯁ ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠꯀꯤ – 2043 (ꯑꯍꯥꯅꯕ ꯂꯩꯃꯥꯏꯀꯨꯞꯄ))꯫ ꯄꯥꯟꯗꯝ ꯂꯃꯗꯤ ꯃꯁꯤꯅꯤ:

- ꯃꯥꯏꯄꯥꯛꯄ ꯍꯩꯕ ꯄꯥꯝꯕ ꯑꯃꯅꯤ ꯊꯧꯑꯣꯡ ꯌꯥꯝꯅꯕ ꯄꯥꯝꯕ ꯑꯃꯅꯤ ꯑꯣꯏꯅꯕ ꯌꯥꯏ, ꯑꯗꯨꯕꯨ ꯄꯥꯝꯕ ꯑꯃꯅꯤ ꯗꯤꯌꯥꯡꯒꯤ ꯄꯥꯟꯗꯝ ꯑꯃꯅꯤ ꯍꯧꯖꯤꯛ꯫ NGT M.A. 26/2019-ꯒꯤ ꯂꯥꯏꯅꯥ ꯅꯣꯡꯃꯩ ꯍꯩꯕ ꯂꯝ 4,000 ꯅꯣꯡꯒꯣꯡꯌꯥꯝ ꯌꯥꯎꯏ, ꯑꯗꯨꯕꯨ "ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ, ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯁꯔꯚꯦ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯕꯥꯂꯤꯇꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ … ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤ" ("Ground truthing, engineering surveys, and quality monitoring … are pending") (DoECC, 2025-26)꯫ ꯄꯥꯝꯕ ꯍꯧꯖꯤꯛꯀꯤ ꯄꯥꯟꯗꯝ ꯑꯁꯤ ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯂꯩꯔꯤꯕ ꯂꯩꯔ, ꯂꯩꯕꯥ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯕ ꯊꯥꯖꯕ ꯂꯥꯏꯅꯥ ꯅꯥꯀꯜꯂꯤ, ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯑꯣꯏꯅꯕ ꯍꯤꯡꯒꯤ ꯂꯧꯕ ꯍꯩꯕ ꯀꯣꯝꯃꯤꯇꯤꯗꯒꯤ ꯅꯥꯀꯜꯂꯤ ꯇꯝꯕꯤꯗꯨ ꯄꯥꯏꯅ; ꯂꯥꯏꯔꯤꯛꯀꯤ ꯄꯥꯝꯕ ꯑꯃꯅꯤ ꯊꯧꯗꯥꯡꯒꯤ ꯗꯤꯌꯥꯡꯒꯤ ꯄꯥꯟꯗꯝ ꯑꯃꯅꯤ ꯑꯣꯏꯍꯟꯗꯨ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯩꯒꯤ ꯌꯥꯕ ꯀꯣꯝꯃꯤꯇꯤ ꯗꯤꯌꯥꯡꯒꯤ ꯄꯥꯟꯗꯝ ꯊꯥꯟ, ꯊꯧꯗꯥꯡꯒꯤ ꯄꯥꯝꯕ ꯍꯧꯖꯤꯛ ꯄꯥꯝꯕ ꯍꯥꯏꯗꯨ꯫
- ꯍꯝꯐꯥꯏꯄꯥꯝꯕ ꯑꯃꯅꯤ ꯃꯍꯥꯛꯀꯤꯗꯃꯛ ꯃꯇꯦꯡ ꯀꯣꯝꯃꯤꯇꯤ, ꯃꯍꯥꯛ ꯑꯍꯛꯀꯤꯗꯃꯛ ꯍꯥꯏꯗꯨ ꯍꯩꯕ ꯊꯥꯖꯕꯒꯤ ꯍꯥꯏꯕꯅꯤ꯫ "ꯂꯩꯀꯤ ꯅꯣꯡꯃꯩ ꯗꯤꯌꯥꯡꯒꯤ ꯊꯥꯖꯕꯒꯤ ꯍꯥꯏꯕꯒꯤ ꯍꯤꯡꯅꯕ, ꯊꯥꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯤꯔꯥ ꯍꯩꯕꯒꯤ ꯅꯣꯡꯃꯩ ꯅꯃꯐꯒꯤ ꯀꯣꯝꯃꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯣꯡꯀꯣꯡꯅꯤ / ꯈꯣꯡꯅꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗꯨ ꯃꯐꯃꯗꯨ" ("increase its water detention capacity, restore stormwater drainage system and channels / streams in the catchment area"), "ꯊꯥꯖꯕ ꯃꯇꯝ ꯑꯃꯗꯤ ꯍꯩꯔꯕꯗꯨ ꯃꯤꯔꯣꯡ ꯌꯥꯅꯐ ꯀꯝꯆꯥ ꯂꯣꯡꯀꯣꯡꯗꯨ ꯀꯣꯝꯃꯤꯇꯤ" ("real time flood management system with a command center")-ꯒꯤ ꯍꯩꯔꯕꯗꯨ, ꯂꯩꯀꯤ ꯂꯝ ꯑꯣꯏꯕ 300-ꯗ ꯗꯥꯍꯜ ꯌꯥꯕ (NDB, ꯄꯤꯍꯜꯈꯪ ꯃꯐꯂꯃꯤ), ꯑꯗꯨꯕꯨ ꯀꯣꯝꯀ–ꯀꯣꯝꯃꯤꯇꯤꯒꯤ ꯂꯃꯤ, ꯗꯤꯍꯅꯗ ꯀꯣꯝꯃꯐ ꯍꯩꯕꯒꯤ ꯄꯐꯄꯥꯏ ꯃꯥꯌꯤꯅ ꯑꯃꯁꯨꯡ ꯊꯥꯖꯕ [TBC], ꯂꯩꯀꯤ ꯍꯥꯏꯕ ꯅꯣꯡꯃꯩꯒꯤ ꯍꯥꯏꯕꯐ ꯑꯃꯁꯨ ꯑꯣꯅꯗꯨ ꯄꯤꯍꯜꯈꯪ ꯌꯥꯕ (NDB), ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯩ ꯅꯃꯐ ꯍꯥꯏꯕ ꯂꯩꯌꯐꯗ ꯂꯩꯀꯤ ꯍꯐꯗꯗ ꯄꯐꯄ ꯌꯥꯕꯗꯨ ꯅꯥꯀꯜꯂꯤ ꯑꯣꯏꯅꯕ ꯑꯣꯅꯕ ꯊꯝꯅ꯫ ꯂꯩꯀꯤ ꯀꯣꯝꯃꯤꯇꯤ ꯑꯃꯁꯨ ꯕꯣꯂꯦ ꯍꯩꯕꯒꯤ ꯅꯣꯡꯃꯩ ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠꯀꯤ (ꯃꯦꯞ 11) ꯑꯃꯒꯤ ꯂꯥꯏꯅ, WRD-ꯒꯤ ꯅꯥꯕ ꯌꯥꯕꯒꯤ ꯍꯩꯔꯕꯗꯨ ꯑꯃꯁꯨꯡ ꯂꯩꯀꯤ ꯂꯃꯤꯗ ꯍꯩ ꯁꯗꯕ ꯂꯥꯏꯐꯒꯤ ꯃꯣꯡꯕ ꯅꯣꯌꯥꯃꯗꯥꯄꯥꯝ ꯌꯥꯕ ꯂꯥꯏꯅꯥ ꯅꯥꯀꯜꯂꯤ ꯗꯣꯡꯍꯄꯂꯩꯗꯨ ꯑꯃꯗ ꯇꯝꯕꯤꯗꯨ ꯄꯥꯏꯅ (ꯁꯦꯛꯁꯟ 6.3.6(e); ꯃꯦꯞ 8)꯫
- ꯍꯥꯏꯅꯥꯏꯁ ꯍꯥꯏꯗꯨ ꯍꯩꯕ ꯊꯥꯖꯕꯒꯤ ꯍꯥꯏꯕꯅꯤ꯫ ꯂꯩꯀꯤ ꯅꯈꯅ ꯕꯥꯃꯍꯗꯨ ꯄꯥꯌꯃꯒꯤꯗꯃꯛ ꯈꯐꯤ, ꯂꯩꯀꯤ ꯍꯣꯡꯕ ꯑꯃꯁꯨ ꯍꯥꯏꯅꯥꯏꯊꯤ ꯂꯩꯊꯤ ꯌꯥꯕꯔꯌꯃꯤ (ꯁꯦꯛꯁꯟ 5.8.5(c)), ꯐꯕ ꯃꯍꯥꯛꯒꯤꯔꯃ ꯍꯣꯡꯕꯒꯤ ꯂꯥꯏꯅ ꯍꯩꯕ ꯂꯩꯀꯤ ꯀꯣꯝꯃꯤꯇꯗ ꯇꯝꯕꯤꯗꯨ ꯄꯥꯏꯗ (ꯁꯦꯛꯁꯟ 4.13.2(c)), ꯑꯃꯁꯨꯡ ꯍꯥꯏꯅꯥ ꯑꯣꯏꯅꯗꯨ ꯂꯩꯀꯤ ꯕꯐꯃ ꯍꯩꯗ "ꯅꯣꯡꯀꯣꯝꯃꯤꯇꯤ, ꯃꯌꯥꯝꯅꯤ ꯃꯇꯝꯒꯤ ꯃꯍꯥꯛꯅꯤꯗꯒꯤ ꯌꯥꯃꯗ ꯌꯥꯗꯕ ꯃꯣꯡꯗ ꯑꯃꯁꯨꯡ ꯅꯐꯃꯃꯣꯡꯗꯨꯅꯤ ꯈꯗꯍꯄ" ("Discharge of untreated wastes and effluents from industries, cities or towns") ꯑꯃꯁꯨꯡ "ꯍꯝ ꯃꯤꯑꯣꯏꯂꯣꯡ, ꯄꯦ ꯃꯕ ꯃꯇꯝꯒꯤ ꯅꯥꯐꯅꯤꯗꯒꯤ ꯂꯥꯏꯔꯤꯛꯀꯤ ꯍꯐꯕꯤ ꯃꯍꯥꯛꯗꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯈꯤꯅ (ꯃꯑꯣꯡ 19(iv) ꯑꯃꯁꯨꯡ (vi)); ꯍꯅ ꯊꯥꯏꯊꯤ ꯃꯄꯥꯡꯅꯤꯔꯡ ꯕꯗꯃꯗꯨ "ꯊꯥꯏꯊꯤ ꯑꯔꯕ ꯌꯥꯎꯗꯨ" ("without the Court's leave") ꯍꯥꯏꯅꯥꯏꯊꯤ ꯂꯩꯕꯗ ꯃꯇꯝꯒꯤ ꯑꯊꯥꯔꯕꯗ ꯗꯣꯡꯍꯄꯂꯩꯗꯨ ꯈꯤꯅꯤ ꯍꯔꯗꯨ ꯐꯥꯗꯥꯊꯅ (17 ꯐꯦꯕꯅ 2019 ꯑꯃꯁꯨꯡ 25 ꯐꯕꯃꯔꯤꯃꯤ 2022-ꯒꯤ ꯑꯃꯗꯃꯅꯤ, ꯄꯌꯗ ꯐꯥꯗꯥꯁꯤꯕ ꯂꯥꯏꯅ ꯅꯗꯣ; ꯊꯝ ꯍꯐꯕꯃ ꯐꯥꯅꯤꯗ [TBC])꯫ ꯍꯥꯏꯅꯥꯏꯁ ꯃꯣꯡꯈꯃꯊꯄ ꯍꯩꯕꯒꯤ ꯅꯣꯡꯃꯩ ꯑꯃꯁꯨ ꯐꯥꯗꯥꯁꯤꯕ ꯒꯥꯂꯐ ꯑꯃꯁꯨꯡ ꯍꯣꯡꯕ ꯑꯃꯒꯤꯗꯃꯛ LDA ꯑꯃꯁꯨꯡ NHPC-ꯒꯤ ꯅꯥꯕ ꯌꯥꯕꯒꯤ ꯍꯩꯔꯕꯗꯨ ꯅꯥꯀꯜꯂꯤ ꯈꯍꯕ ꯌꯥꯅ (ꯂꯣꯡꯔꯣꯡ ꯑꯃꯁꯨꯗꯨ ꯈꯐꯕ)꯫
- ꯍꯥꯈꯜꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯣꯡꯀꯣꯡꯗꯨ ꯑꯃꯁꯨ ꯂꯩꯅꯍꯥꯍꯕ ꯅꯣꯡꯃꯩ ꯅꯃꯌꯒꯤ ꯀꯣꯝꯃꯤꯇꯤ꯫ ꯂꯅꯔ ꯍꯐꯗꯥꯄꯥꯠ ꯂꯧꯕ ꯃꯥꯏꯕ ꯂꯐꯍꯗ, 1% AEP ꯍꯣꯡꯕꯒꯤ ꯂꯥꯏꯅ, ꯃꯇꯝꯒꯤ ꯁꯦꯛꯁꯟ 5.8.5-ꯒꯤ ꯑꯣꯏꯅꯐꯕ ꯈꯤꯅꯕ ꯊꯝ ꯄꯣꯡꯒꯤ ꯂꯥꯏꯅ ꯅꯣꯡꯃꯩ ꯍꯣꯡꯕꯒꯤ ꯍꯣꯡꯕꯒꯤ ꯂꯥꯏꯅ ꯂꯩꯅꯤꯕ ꯀꯣꯝꯃꯤꯇ ꯑꯗꯨ ꯃꯕ-ꯊꯃꯂꯩꯗꯨ ꯑꯗꯨꯂꯥꯏ ꯁꯦꯛꯁꯟ 7.6.4-ꯒꯤ ꯂꯥꯏꯅ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗꯨ ꯈꯐꯅ (ꯃꯦꯞ 7); ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗꯨ ꯈꯐꯕ ꯑꯃꯁꯨꯗꯨ ꯍꯥꯗꯥꯄꯥꯠ ꯑꯃꯁꯨ ꯑꯅꯗꯒꯤ ꯂꯥꯏꯅ ꯅꯗꯣꯕ ꯑꯣꯅꯥꯍꯟꯗꯨ, ꯂꯩꯀꯤ ꯍꯥꯏꯄꯥꯠ 2014-ꯒꯤ ꯑꯣꯏꯅꯥꯊꯤ ꯂꯥꯏꯅ ꯊꯥꯏꯌꯤꯂꯣꯅꯤꯒꯤ ꯑꯄꯔꯤꯁꯥꯡ ꯂꯈ ꯌꯥꯅ, ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯑꯗꯨꯒꯤ ꯃꯑꯣꯡ 12-ꯗꯨ ꯂꯩꯀꯤ ꯂꯩꯔꯗꯨꯗꯨ ꯍꯥꯗꯥꯄꯗꯕ ꯍꯝꯗ ꯊꯦꯡꯅꯕꯒꯤ ꯍꯅꯃꯗꯃ ꯑꯃꯁꯨꯡ ꯈꯤꯅ꯫ ꯂꯩꯀꯤꯄꯥꯝ ꯊꯦꯡꯅꯕꯒꯤ ꯑꯐ ꯄꯥꯗꯤ ꯍꯥꯗ ꯑꯃꯁꯨꯡ ꯃꯣꯡꯀꯣꯡꯗꯨ (ꯑꯍꯂꯕ ꯑꯃꯀꯣꯡꯗꯨ) ꯕꯤꯜ, 2026 (Manipur Conservation of Paddy Land and Wetland (Third Amendment) Bill, 2026)-ꯗꯨ ꯍꯌꯤꯐꯅ ꯌꯥꯕ ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠꯀꯤ ꯑꯃꯒꯤ ꯌꯥꯗꯕ ꯍꯝ ꯑꯣꯏꯍꯄꯥꯝ ꯌꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯗꯨ ꯍꯥꯈꯤꯄꯗ "ꯗꯤꯝꯗ ꯊꯦꯡꯅꯕꯒꯤ" ("Deemed Conversion") ꯌꯥꯍꯟꯗꯤ; ꯂꯩꯀꯤ ꯕꯤꯜ ꯑꯃꯁꯤ, ꯑꯃꯁꯨꯡ ꯂꯩꯀꯤ ꯑꯣꯅꯗ ꯑꯣꯅꯕꯕ ꯃꯍꯗꯨ ꯅꯥꯅꯤꯗ [TBC]꯫

ꯂꯥꯏꯔꯤꯛꯀꯤ ꯈꯣꯡꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯃꯣꯡꯀꯣꯡꯅꯤ ꯂꯩꯔꯤꯛꯅꯤꯄꯥꯡ ꯈꯣꯡꯕꯗꯣꯅꯤꯗꯒꯤ ꯌꯥꯎꯗꯨ ꯌꯥꯔꯗꯥꯄꯥ ꯐꯕ ꯑꯃꯁꯨ ꯐꯥꯅꯤꯗ: ꯍꯌꯤꯐꯊꯤꯡ ꯑꯃꯁꯨꯗꯨ ꯗꯒꯤ ꯐꯕꯗꯨ, ꯌꯥꯅꯃꯕ ꯂꯩꯃꯤ ꯃꯇꯝꯒꯤ ꯃꯍꯥꯛꯅꯤ ꯗꯨꯗꯨ (Shamushang nallah) ꯂꯄ ꯑꯃꯗ ꯄꯥꯏꯗ (NEER-ꯒꯤ ꯄꯥꯕ)꯫ ꯑꯃꯗꯤ ꯃꯍꯥꯛꯀꯤꯗꯃꯛꯀꯤꯐꯥꯎꯕ, ꯂꯣꯡꯔꯣꯡ ꯑꯃꯁꯨꯗꯨ ꯃꯦꯞ 1-ꯒꯤ ꯈꯕꯥꯊꯤ ꯌꯥꯔꯗꯥꯄꯥꯒꯤ ꯂꯥꯏꯅ ꯅꯗꯣ: ꯍꯌꯤꯐꯊꯤꯡ ꯈꯣꯡꯕꯗꯣꯅꯤ

> IMC ꯑꯃꯁꯨꯡ ꯑꯇꯣꯝꯄꯥꯝ ꯁꯔꯀꯥꯔ ꯗꯥꯏꯟ ꯕꯥꯝꯅꯤꯡꯁꯤꯡꯒꯤ (ꯃꯥꯟꯅ ꯑꯣꯏꯕꯒꯤ ꯕꯦꯟ-ꯗꯥ 16-ꯗꯥ "ꯃꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯗ꯭ꯔꯦꯟ" ("municipal drain") ꯍꯥꯌꯔꯗꯨ ꯁꯤꯖꯤꯟꯅ; ꯃꯅꯤꯄꯨꯔ ꯃꯌꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤ ꯑꯦꯛꯠ, 1994-ꯒꯤ ꯅꯤꯌꯃꯒꯤ ꯂꯝꯕꯤꯗꯨ ꯄꯨꯔꯛꯂꯤ [TBC]); ꯆꯠꯅꯕꯒꯤ ꯃꯗꯨꯗꯥꯒꯤ ꯗ꯭ꯔꯦꯅꯖꯁꯤꯡꯗꯨ PWD-ꯒꯤ, ꯑꯦꯁꯤꯌꯥ ꯏꯅꯐ꯭ꯔꯥꯁ꯭ꯠꯔꯛꯆꯔ AIIB ꯐꯤꯅꯥꯟꯁꯇꯧꯔꯕꯥ "ꯃꯗꯨꯗ ꯑꯗꯤꯃꯛꯀꯤ ꯁꯥꯏꯗ ꯗꯨꯒꯤ ꯅꯀꯤꯗꯨꯒꯤ ꯗ꯭ꯔꯦꯅꯖ 547 km" ("547 km of both side stormwater covered drains") ꯌꯦꯡꯂꯗꯥ, ꯑꯃꯁꯨꯡ ꯗꯣꯂꯗꯣꯟ-ꯍꯅꯌꯣꯒꯤ ꯗ꯭ꯔꯦꯅꯖꯁꯤꯡꯗꯨ ꯗꯣꯂꯗꯣꯟ-ꯍꯅꯌꯣꯒꯤ ꯑꯣꯇꯣꯃꯦꯁꯤꯡꯁꯤꯡꯒꯤ; ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯄꯥꯝꯕꯤꯗꯨ, ꯅꯁꯤꯡꯗꯨ ꯅꯌꯦꯡꯒꯤ ꯌꯣꯗꯣꯟꯁꯤꯡꯗꯨ, ꯆꯐꯖꯣꯟꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯁꯃꯨꯗꯤꯡꯒꯤ ꯄꯥꯐꯄꯥꯝꯗꯨ WRD-ꯒꯤ; ꯆꯐꯕꯨꯟꯅ ꯌꯣꯃꯊꯥꯏꯑꯄꯥ ꯗ꯭ꯔꯦꯅꯖ 72-ꯒꯤ ꯅꯃꯁꯥꯏꯂꯣꯄꯂꯃ ꯑꯃꯁꯨꯡ ꯅꯤꯅꯒꯥꯏꯂꯃ, ꯃꯁꯤꯒꯤ ꯄꯥꯗꯦꯃꯛꯈ ꯗꯌꯔꯗꯗꯥ, DoECC-ꯒꯤ; ꯁꯤꯌꯥꯏꯁꯤꯗꯨ PHED-ꯒꯤ; ꯑꯃꯁꯨꯡ ꯗꯥꯑꯣꯑꯣꯅ, ꯃꯁꯤꯗꯥ ꯂꯨꯌꯤꯗꯨꯅ ꯍꯌꯗꯥ ꯖꯥꯗꯤꯑꯥꯅꯤꯕ ꯌꯦꯅꯁꯣꯟ ꯃꯦꯥꯏꯟ ꯂꯣꯗꯤꯑꯥꯄꯥꯀ ꯗꯥꯌꯗꯗꯥ, LDA-ꯒꯤ꯫ ꯁꯍꯥ ꯁ꯭ꯇꯤꯗꯤꯃꯑꯗꯥ ꯥꯏꯌ ꯁ꯭ꯇꯤꯗꯤꯃꯑꯈꯤ ꯃꯄꯨꯡ, ꯃꯁꯤꯗꯥ ꯌꯣꯕ ꯁ꯭ꯇꯥꯟ, ꯃꯁꯤꯗꯥ ꯗꯦꯃꯊꯥꯑꯄꯝ ꯄꯃ (ꯒꯣꯛ ꯗꯛꯥꯒꯤ ꯖꯗꯣꯄ ꯒꯣꯛ), ꯃꯁꯤ ꯕꯦꯟ-ꯗꯥ 93-ꯒꯤ ꯕꯖꯥ ꯑꯃꯁꯨ ꯗꯕꯥꯦ, ꯃꯁꯤꯒꯤ ꯆꯐꯒꯤ ꯁꯣꯂꯣ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯑꯦꯡꯛꯖꯟ ꯄꯤꯥꯕ ꯗ꯭ꯔꯦꯅꯖꯒꯤ ꯥꯗꯤꯁꯥ ꯑꯃꯃ ꯊꯐꯃꯤ꯫ ꯃꯁꯤ ꯃꯣꯂꯨꯌꯣꯟꯒꯤ ꯊꯕꯑꯈꯤ ꯌꯦꯌꯑꯄꯗꯤ, ꯑꯦꯅꯃꯒꯤ ꯑꯅꯕ ꯗꯛꯁꯣ; ꯆꯐ ꯑꯃꯨ ꯃꯤꯑꯅ ꯃꯦꯒꯤ ꯄꯛꯁꯣ ꯆꯐ ꯑꯅꯥꯕ ꯃꯖꯐꯅ, ꯅꯥꯐꯒꯤ ꯈꯥꯤꯑꯥ ꯗꯛꯥꯒꯤ ꯅꯗꯃꯣꯛ ꯑꯃ ꯃꯦꯁꯥ ꯄꯗꯦꯟꯅ ꯊꯐꯅ ꯗꯛꯥꯒꯤ ꯑꯣꯒꯥꯤꯃꯣꯛꯗꯥ ꯖꯗꯍꯅꯤ, ꯗꯊꯑꯄꯗꯥ ꯗꯛꯁꯣ, ꯑꯃꯁꯨꯡ ꯌꯤꯗꯒꯤ ꯆꯐꯁꯤꯗꯅ ꯄꯕꯗꯤꯑ ꯌꯥꯑꯁꯤꯗꯒꯤ ꯗ꯭ꯔꯦꯅꯖꯁꯤꯡꯗꯨ ꯄꯗꯊꯑꯄ ꯅꯤꯄꯥꯛꯃꯣꯛꯈꯤꯗꯤ꯫
>
> ꯑꯍꯗꯕ ꯄꯅꯛ ꯑꯁꯤ ꯃꯗꯤꯄꯨꯥꯅ ꯈꯦꯅꯤꯂꯦ 4.13.2(c)-ꯒꯤ ꯁ꯭ꯇꯐꯖꯐꯗꯤ꯫ ꯄꯛ ꯗꯛꯥꯒꯤ ꯄꯨꯅꯥꯤ ꯑꯃꯗꯥ, ꯗꯥꯤꯖꯅ ꯁꯥꯕ ꯑꯄꯥꯁꯤꯗ ꯂꯨꯟ ꯑꯃꯗꯥ ꯃꯦꯂꯨꯒꯤ ꯃꯁꯐꯒꯤ ꯃꯃꯤꯗꯅ ꯍꯦꯊꯍꯗꯕ ꯌꯁꯈꯄ ꯗꯛꯁꯥꯕꯅꯤ, ꯃꯁꯤꯒꯤ ꯑꯦꯡꯛꯗꯛ ꯗꯒꯟꯒꯤ ꯃꯊꯑꯁ ꯅꯑꯁꯃꯑ ꯅꯁꯤꯗꯨ ꯅꯌꯦꯡꯒꯤ ꯁꯥꯥꯗ ꯄꯤꯅ꯫ ꯌꯍꯤ 3-ꯒꯤ ꯑꯄꯥꯂꯟꯒ ꯗꯤꯃꯤꯛ ꯑꯃꯁꯨꯡ ꯌꯍꯤ 10-ꯒꯤ ꯃꯦꯥꯗꯗꯦꯂꯃ ꯑꯗꯌꯦꯂ ꯑꯁꯤꯒꯤ ꯍꯑꯊꯑꯕ ꯃꯃꯤꯗꯒꯤ ꯁ꯭ꯇꯐ ꯗꯁ ꯑꯃꯁꯨꯡ ꯃꯍꯌ ꯑꯁꯤ ꯃꯣꯂꯨꯌꯟ ꯑꯁꯤꯗꯥ ꯊꯐꯕꯗꯤ꯫

4.14 ꯑꯄꯤꯛꯄ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯤꯝꯄꯂꯤꯐꯥꯏꯗ ꯄ꯭ꯔꯣꯁꯤꯖꯔ

4.14.1 **ꯁꯀꯣꯞ ꯃꯖꯤꯐ.** ꯀꯤꯔꯥ B-ꯒꯤ ꯗꯥꯏꯟ ꯕꯥꯝꯅꯤꯡꯁꯤꯡꯗꯥ ꯅꯁꯤꯗꯨ ꯅꯌꯦꯡꯒꯤ ꯂꯣꯂꯁꯤꯀꯤ ꯑꯅꯕ ꯈꯣꯌꯃꯂꯛꯁꯤꯡꯒꯤ ꯃꯄꯨꯡꯐ ꯗꯕ **2 ha ꯗꯛꯥꯒꯤ ꯃꯁꯤꯒꯤ ꯗꯣꯐꯕ** ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯤꯝꯄꯂꯤꯐꯥꯏꯗ ꯄ꯭ꯔꯣꯁꯤꯖꯔ ꯌꯥꯍꯂꯕ ꯌꯥꯅ꯫ ꯅꯁꯤꯗꯨ ꯅꯌꯦꯡꯒꯤ ꯂꯣꯂꯁꯤꯀꯤ ꯑꯅꯕ ꯈꯣꯌꯃꯂꯛꯁꯤꯡꯗꯨꯅ, ꯃꯁꯤ **0.5 ha ꯗꯛꯥꯒꯤ ꯃꯁꯤꯒꯤ ꯗꯣꯐꯕ** ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯤꯗꯤꯂꯗꯕ ꯌꯥꯅ꯫ ꯑꯇꯣꯝꯄꯥꯝ ꯗꯦꯚꯦꯂ ꯄ꯭ꯔꯣꯁꯤꯖꯔꯗꯥ ꯈꯟꯗ 4.6 ꯁꯤꯗꯤꯂꯗꯒꯤꯅꯕꯗꯤ꯫ ꯇꯦꯕꯜ 4.3 (ꯑꯍꯂꯕ 4B) ꯖꯥꯗꯤꯑꯥꯗꯑꯛꯥꯤꯖꯇꯕ, ꯀꯤꯔꯥ B-ꯒꯤ ꯗꯦꯚꯦꯂ ꯄ꯭ꯔꯣꯁꯤꯖꯔꯗꯁ ꯈꯟꯗ 4.6 ꯁꯤꯗꯤꯂꯗꯒꯤꯅꯕꯗꯤ꯫

4.14.2 **ꯊꯥꯑꯗꯨ.**

1. ꯗꯦꯚꯦꯂꯈꯤ ꯗꯂ, HSG ꯑꯃꯁꯨꯡ ꯅꯣꯒꯗꯄꯃꯂꯛꯈꯤ ꯃꯁꯤꯗꯨꯒꯤ ꯅꯐꯄꯥꯒꯤꯌꯁꯗꯁꯈꯤꯅꯃꯒ PSD (L/s/ha) ꯑꯃꯁꯨꯡ SSR (m³/ha) ꯑꯁꯤ **ꯇꯦꯕꯜ 4.3** (ꯑꯍꯂꯕ 4B)-ꯅꯒꯤ ꯄꯥꯕꯤꯌꯨ꯫
2. ꯃꯊꯨ ꯁꯕ ꯁꯣꯐꯗ: V = SSR × A − V_credit (ꯈꯟꯗ 4.4.6.3)꯫
3. ꯌꯥꯍꯅꯗꯤꯕ ꯅꯤꯁꯌꯥꯗꯁꯤꯗꯨ: ꯌꯍꯤ 2 ꯑꯃꯁꯨꯡ ꯌꯍꯤ 100-ꯒꯤ ꯁꯣꯗꯁꯤꯗꯨꯒꯤꯅꯃꯒ Q_PSD,T = PSD_T × A꯫
4. 50 mm-ꯒꯤ ꯃꯤꯗꯤꯃꯐꯒꯤ ꯃꯌꯦꯅ, ꯑꯍꯂꯕ 4B-ꯒꯤ ꯁꯣꯂꯅꯥꯅ ꯑꯦꯡꯛꯗꯛ ꯇꯦꯕꯜꯅꯒꯤ (ꯖꯥꯗꯤꯑꯥꯍꯤꯕ ꯗ꯭ꯕꯁꯤꯗꯅ PSD-ꯒꯤꯅꯃꯒ ꯑꯥꯤꯖꯤꯁꯈꯤ ꯗꯦꯚꯗꯁꯤꯗꯨ) ꯗꯥ-ꯖꯗꯥ ꯑꯥꯤꯖꯤꯁ ꯑꯃꯁꯨꯡ ꯃꯊꯑꯈꯤ ꯈꯂꯁꯥꯤꯟ ꯅꯗꯕꯤꯌꯨ꯫
5. ꯈꯟꯗ 4.9-ꯒꯤ ꯃꯍꯅ ꯁꯄꯤꯟꯌ ꯗꯛꯥꯒꯤ ꯑꯒꯥꯖꯗꯥ, ꯈꯟꯗ 4.11-ꯒꯤ RWH-ꯒꯤ ꯍꯤꯗꯕ, ꯑꯃꯁꯨꯡ ꯈꯟꯗ 4.15-ꯒꯤ ꯂꯖꯁꯤꯒꯤ ꯄꯥꯒꯤꯗꯂꯁꯤꯗꯨ ꯄꯤꯕꯤꯌꯨ꯫
6. ꯖꯥꯐ 4-2 (ꯀꯤꯔꯥ B ꯗꯦꯚꯦꯂꯈꯤ ꯁꯤꯛ) ꯃꯄꯨꯡ ꯖꯍꯂꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 4.3 — ꯀꯤꯔꯥ B-ꯒꯤ ꯄꯥꯃꯤꯁꯤꯕꯟ ꯗꯦꯚꯦꯂ ꯅꯤꯁꯌꯥꯗ ꯑꯃꯁꯨꯡ ꯗꯦꯚꯦꯂ ꯁꯣꯐꯗ ꯥꯤꯑꯌꯥꯅꯌꯥꯃꯂꯛ (ꯇꯐꯄꯗꯛ)

ꯖꯣꯟ (ꯑꯍꯦꯅꯕ 2A)	HSG	ꯏꯝꯄꯔꯚꯤꯌꯁꯅꯦꯁ	PSD 2-yr (L/s/ha)	PSD 100-yr (L/s/ha), ꯍꯧꯖꯤꯛꯀꯤ	PSD 100-yr (L/s/ha), ꯀꯂꯥꯏꯝ ꯀꯔꯦꯛꯁꯟ ꯂꯧꯔꯕꯁꯤꯡꯒꯤ	SSR (m³/ha), ꯍꯧꯖꯤꯛꯀꯤ	SSR (m³/ha), ꯀꯂꯥꯏꯝ ꯀꯔꯦꯛꯁꯟ ꯂꯧꯔꯕꯁꯤꯡꯒꯤ
MN-Z1 ꯏꯝꯐꯥꯜ ꯇꯥꯔꯦꯛ: MN-A ꯏꯝꯐꯥꯜ ꯇꯥꯔꯦꯛꯀꯤ ꯇꯨꯔꯦꯜ (ꯏꯝꯐꯥꯜ–ꯊꯧꯕꯥꯜ–ꯏꯔꯤꯜ–ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ–ꯀꯛꯆꯤꯡ–ꯍꯦꯔꯣꯛ ꯏꯝꯐꯥꯜ)	B / C / D	50% / 70% / 90%	[TBC]	[TBC]	[TBC]	[TBC]	[TBC]
MN-Z1 ꯏꯝꯐꯥꯜ ꯇꯥꯔꯦꯛ: MN-A1 ꯂꯣꯀꯇꯥꯛꯀꯤ ꯃꯅꯥꯛ (ꯃꯣꯏꯔꯥꯡ–ꯅꯤꯡꯊꯧꯈꯣꯡ–ꯊꯥꯡꯒꯥ–ꯀꯨꯝꯕꯤ–ꯂꯤꯂꯣꯡ–ꯀꯩꯕꯨꯜ)	C / D	50% / 70% / 90%	[TBC]	[TBC]	[TBC]	[TBC]	[TBC]
MN-Z2 ꯍꯤꯜ, ꯂꯝꯗꯝ ꯍꯤꯡꯂꯣꯟ ꯀꯥꯡꯂꯣꯟ ꯇꯥꯔꯤꯕ: MN-B ꯍꯤꯜ, ꯂꯝꯗꯝ ꯍꯤꯡꯂꯣꯟ ꯀꯥꯡꯂꯣꯟ ꯇꯥꯔꯤꯕ (ꯁꯦꯅꯥꯄꯇꯤ–ꯀꯥꯡꯄꯣꯀꯄꯤ–ꯇꯥꯃꯦꯡꯂꯣꯡ–ꯆꯨꯔꯥꯆꯥꯟꯗꯄꯨꯔ–ꯎꯈ꯭ꯔꯨꯜ–ꯆꯟꯗꯦꯜ–ꯀꯥꯝꯖꯣꯡ)	—	—	ꯃꯇꯦꯡ ꯄꯥꯡꯕ: ꯁꯦꯛꯁꯟ 4.6 ꯌꯦꯡꯕ (ꯁꯦꯛꯁꯟ 2.3.6(c)(iii))	—	—	—	—
MN-Z3 ꯂꯝꯄꯥꯛꯀꯤ ꯇꯥꯔꯤꯕ ꯍꯤꯡꯂꯣꯟ ꯃꯁꯤꯡ ꯂꯣꯟꯖꯤꯟ: MN-C ꯂꯝꯄꯥꯛꯀꯤ ꯇꯥꯔꯤꯕ (ꯖꯤꯔꯤꯕꯥꯝ–ꯂꯦꯂꯦ–ꯅꯣꯅꯤ–ꯄꯥꯔꯕꯨꯡ–ꯇꯧꯃꯥꯡ–ꯄꯥꯔꯚꯦꯜ)	C / D	50% / 70% / 90%	[TBC]	[TBC]	[TBC]	[TBC]	[TBC]
MN-Z3 ꯂꯝꯄꯥꯛꯀꯤ ꯇꯥꯔꯤꯕ ꯍꯤꯡꯂꯣꯟ ꯃꯁꯤꯡ ꯂꯣꯟꯖꯤꯟ: MN-C1 ꯃꯁꯤꯡ ꯂꯣꯟꯖꯤꯟ (ꯃꯁꯤꯡ)	C / D	50% / 70% / 90%	[TBC]	[TBC]	[TBC]	[TBC]	[TBC]

ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ (ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯁꯤꯖꯤꯟꯅꯕ — ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨ ꯅꯠꯇꯦ).

ꯁꯥꯏꯠ B-ꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯑꯍꯛ, ꯀꯂꯥꯏꯝ ꯀꯔꯦꯛꯁꯟ ꯂꯧꯔꯕꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯄꯥꯔꯁꯦꯟꯇ ꯑꯍꯛ, ꯅꯨꯃꯥꯏꯔꯦ ꯃꯍꯩꯔꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ ꯍꯔꯤꯝ 80% ꯇꯧꯕ (ꯑꯦꯔꯤꯌꯥ-ꯋꯦꯇꯦꯗ ꯀꯝꯄꯣꯖꯤꯠꯁꯤꯡꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ CN ꯍꯔꯤꯝ 92) 0.4 ha-ꯒꯤ ꯇꯨꯔꯦꯜ ꯑꯣꯏꯕ ꯂꯦꯃꯍꯧꯕ ꯑꯍꯤ꯫ ꯇꯦꯕꯜ 4.3 ꯁꯦꯡꯗꯣꯛꯅ ꯑꯣꯏꯔꯦ ꯍꯤꯡꯂꯣꯟ ꯍꯧꯖꯤꯛ ꯁꯦꯛꯁꯟ 4.6.7-ꯒꯤ ꯈꯨꯗꯝꯒꯤ ꯄꯥꯝꯑꯣꯏ ꯈꯨꯗꯝꯃꯒꯤ ꯍꯦꯅꯕ ꯀꯤꯔꯥ ꯄꯥꯏꯕ ꯇꯧꯔꯤ:

- PSD ꯆꯍꯤ 100 = 356 / 2.0 = 178 L/s/ha
- SSR = 2,913 / 2.0 ≈ 1,460 m³/ha
- PSD ꯆꯍꯤ 2 ≈ 17 L/s/ha

ꯃꯈꯥꯒꯤ ꯃꯇꯨꯡꯗ:

- ꯁ꯭ꯇꯣꯔꯦꯖ: V = 1,460 × 0.4 = **584 m³**꯫ C_R = 0, ꯃꯔꯝ ꯑꯗꯨꯅ ꯔꯤꯌꯨꯖ ꯀꯔꯦꯗꯤꯠ ꯇꯧꯗꯦ꯫
- ꯆꯍꯤ 100-ꯒꯤ ꯔꯤꯂꯤꯖ: 178 × 0.4 = **71 L/s**꯫
- ꯆꯍꯤ 2-ꯒꯤ ꯔꯤꯂꯤꯖ: 17 × 0.4 = **7 L/s**꯫ ꯃꯔꯝ 1 m-ꯒꯤ ꯍꯦꯗ ꯃꯈꯥꯗ ꯃꯔꯝ 60 mm-ꯒꯤ ꯑꯣ-ꯔꯤꯐꯤꯁ ꯑꯔꯤꯐꯤꯁ ꯃꯇꯧ ꯌꯥꯕ, 50 mm-ꯒꯤ ꯃꯤꯅꯤꯃꯝꯒꯤ ꯍꯦꯟꯅ (ꯁꯦꯛꯁꯟ 4.8.2)꯫
- ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯄꯁꯅꯁꯤꯡ:
  - 1.5 m ꯂꯕ 400 m²-ꯒꯤ ꯂꯃꯒꯤ ꯃꯍꯩ ꯇꯧꯕ ꯌꯥꯝꯅ ꯑꯍꯦ; ꯅꯠꯔꯒꯥ
  - 0.3 m-ꯗ 250 m²-ꯒꯤ ꯔꯦꯅꯒꯥꯔꯗꯟ ꯁ꯭ꯇꯣꯔꯦꯖ (75 m³) ꯄꯨꯔꯛꯂꯒꯥ 1.5 m ꯂꯕ 350 m²-ꯒꯤ ꯌꯥꯝꯅ (525 m³)꯫
  - ꯄꯨꯃꯈꯤ 1,200 m²-ꯗ 150 mm-ꯒꯤ ꯄꯨꯃꯈꯤꯁꯤꯡ ꯁ꯭ꯇꯣꯔꯦꯖ (180 m³)-ꯅ ꯌꯥꯝꯅꯁꯤꯡ ꯍꯔꯤꯒꯤ ꯃꯄꯨꯡ ꯐꯥꯍꯅꯕ ꯌꯥꯍꯟ꯫

- RWH ꯁꯤꯁꯇꯦꯝ ꯑꯁꯤ ꯄꯨꯗꯦ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯟ ꯇꯧꯒꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 4.11)꯫

> **ꯁꯦꯟꯁꯤꯇꯤꯚ ꯆꯦꯛ.** ꯑꯣꯟꯁꯥꯏꯠꯇꯤꯒꯤ ꯗꯤꯇꯦꯟꯁꯟꯅꯤꯗꯥ ꯂꯩꯔꯤꯕꯥ ꯁꯤꯡꯕꯥ ꯑꯦꯛꯁꯥꯄꯦꯇ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯕꯥ ꯁꯣꯔꯦꯖ ꯔꯤꯀꯣꯌꯥꯔꯃꯦꯟꯇꯁꯤꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯒꯥꯏꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯕꯥ ꯃꯦꯅꯨꯌꯦꯜ ꯐꯪꯏ (Sydney Water OSD guide; Upper Parramatta River Catchment Trust-ꯒꯤ ꯃꯥꯂꯦꯃꯗꯥ ꯍꯥꯏꯕꯥ 455 m³/ha-ꯒꯤ SSR ꯄꯤꯔꯤ ꯁꯣꯏ)꯫ ꯍꯥꯟꯅ ꯑꯣꯏꯅ ꯃꯈꯥ ꯄꯨꯡꯐꯥꯅꯕ SSR, ꯍꯥꯏꯕꯥ 1,460 m³/ha, ꯑꯁꯤ ꯐꯤꯔꯦ ꯐꯤꯗꯅ꯫ ꯍꯣꯏ ꯍꯤꯔꯣꯅ-ꯗꯦꯃꯥꯟꯗꯒꯤ ꯃꯍꯩ ꯑꯃꯁꯨꯡ AMC III-ꯅ ꯍꯣꯡꯕ ꯁꯣꯏ ꯄꯨꯝꯕ 48–72-ꯒꯤ ꯇꯣꯟꯁꯥꯏꯗꯤ ꯄꯨꯊꯣꯛꯄꯒꯤ ꯊꯕꯛꯇꯥ ꯅꯤꯡꯁꯤꯡꯏ꯫ ꯍꯦꯛꯗꯤꯒꯤ MSMA 2-ꯗꯥ 5 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯤꯡꯕꯗꯤꯒꯤ ꯅꯍꯥꯛ ꯀꯟꯅꯕ ꯇꯧꯅꯕꯥ OSD ꯇꯧꯕ ꯑꯃꯗꯤ ꯃꯊꯧꯏ꯫ MARC-ꯒꯤ ꯃꯇꯤꯛ ꯆꯥꯡꯗꯤ ꯂꯩꯕꯥ Kansas City-ꯒꯤ ꯑꯣꯐꯤꯁꯦꯜ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯗ ꯃꯇꯨꯡ ꯊꯥꯒꯠꯂꯤ; ꯁꯦꯛꯁꯟ 4.14-ꯗꯥ ꯁꯣꯏꯔꯕ B-ꯒꯤ ꯍꯣꯡꯍꯟ ꯑꯃꯒꯤ ꯍꯣꯝꯂꯤ ꯅꯥꯏꯗꯦ꯫

4.14.3 **ꯗꯤꯖꯥꯏꯟ ꯁꯣꯏꯔꯕ ꯃꯣꯗꯦꯜꯁꯤꯡꯒꯤ ꯄꯨꯝ.** ꯁꯦꯛꯁꯟ 4.6 ꯑꯃꯁꯨꯡ 4.14.2-ꯒꯤ ꯍꯦꯟꯅ ꯑꯣꯏꯅꯗꯥ, ꯑꯥꯏꯗꯤꯌꯥꯜ ꯑꯣꯐꯤꯁꯤ ꯑꯍꯥꯅꯕꯁꯤꯒꯤ ꯍꯦꯛꯇ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝꯗꯥ ꯑꯍꯥꯅꯕꯗ ꯀꯟꯕ **1 ha ꯆꯨꯡꯕꯥ ꯍꯦꯛꯇꯦꯌꯥꯔ ꯆꯥꯡꯕ** ꯁꯤꯡꯕꯥ ꯑꯍꯥꯅꯕꯒꯤ ꯇꯤꯀꯦꯇꯥꯗꯥ ꯁꯦꯛꯁꯟ 4.14.4-ꯗꯒꯤ 4.14.7 ꯐꯥꯑꯣꯕꯗ ꯇꯤꯁꯤꯜꯂꯒꯤ ꯁꯤꯡ ꯆꯥꯡꯌꯥ ꯐꯤꯅ꯫ ꯄꯨꯝ ꯑꯁꯤ ꯍꯦꯛꯒꯤ ꯍꯥꯟꯅꯅꯤꯗꯥ ꯂꯤꯇꯤꯜꯂꯥꯔꯅꯗꯕꯤ:

- (a) ꯁꯤꯡꯕꯥ ꯑꯃꯨꯗ ꯍꯣꯤꯒꯤ ꯇꯤꯀꯦꯜꯗ ꯃꯨꯅꯥꯏ (tank) ꯆꯨꯡꯕꯥ ꯅꯣꯏꯗꯤ ꯀꯥꯟꯅꯒꯤ ꯁꯣꯔꯦꯖ ꯍꯣꯏꯗꯤ ꯇꯤꯄꯕꯇ (ꯁꯥꯏꯠ 7);
- (b) ꯁꯤꯡꯕꯥ ꯑꯃꯨꯒꯤ ꯃꯄꯤꯡꯊꯕ ꯍꯥꯟ ꯑꯃ ꯅꯣꯏꯗꯤ ꯀꯥꯟꯅꯒꯤ ꯁꯦꯕꯥ ꯑꯃꯒꯤ ꯍꯨꯏꯗꯅ ꯀꯥꯄꯕꯇ (ꯁꯥꯏꯠ 7); ꯆꯨꯡꯕꯥ
- (c) ꯁꯤꯡꯕꯥ ꯑꯃꯨꯗ ꯍꯦ ꯇꯧꯕ ꯍꯥꯟꯅꯒꯤ ꯇꯤꯀꯦꯜ ꯑꯃꯅ ꯁꯣꯔꯦꯖ ꯍꯣꯏꯗꯤ ꯇꯤꯄꯤꯕ ꯃꯨꯅꯥꯏꯒꯤ ꯃꯥꯂꯦꯃꯥꯅ (tank cascade) ꯑꯃꯅ ꯅꯄꯥꯟ ꯁꯣꯏꯕꯇ꯫

ꯄꯨꯝ ꯑꯁꯤꯗꯥ ꯗꯤꯖꯥꯏꯟ ꯁꯣꯏꯔꯕ ꯃꯣꯗꯦꯜꯁꯤꯡꯒꯤꯗꯥ ꯄꯤꯆꯤꯜ ꯃꯥꯌꯣꯛꯅꯕ ꯇꯥꯟꯍ ꯑꯃꯁꯨꯡ ꯁꯥꯔꯟ 4.3 ꯍꯣꯡꯁꯥꯏ꯫ ꯍꯥꯏꯅ ꯑꯃꯨꯗ ꯑꯍꯥꯅꯕ 4B ꯗꯤꯖꯥꯏꯟꯒꯤ ꯍꯣꯏ ꯂꯤꯇꯤꯜꯂꯕ ꯐꯤꯅ꯫ ꯄꯤꯁꯥꯂꯦꯜ (ꯁꯦꯛꯁꯟ 4.4), ꯇꯦꯟꯗꯦꯔ (ꯁꯦꯛꯁꯟ 4.7), ꯑꯣꯚꯔꯐ꯭ꯂꯣ (ꯁꯦꯛꯁꯟ 4.8), ꯁꯦꯐꯇꯤ (ꯁꯦꯛꯁꯟ 4.9), ꯍꯦ ꯇꯧꯕ ꯍꯥꯟ ꯑꯃꯁꯨꯡ ꯁꯥꯔꯐꯤꯁꯤꯒꯤ ꯃꯥꯂꯦꯝ (ꯁꯥꯏꯠ 5) ꯑꯃꯁꯨꯡ ꯐꯤꯁꯤ ꯃꯐꯤꯔꯤꯁꯤ (ꯁꯥꯏꯠ 8) ꯄꯤꯔꯤꯂꯣ ꯃꯇꯦ꯫

4.14.4 **ꯄꯤꯆꯤꯜ ꯃꯥꯌꯣꯛꯅꯕ.** ꯄꯦꯏꯗꯦ ꯁꯤꯡꯕꯁꯤꯒꯤ ꯇꯥꯟꯗꯥꯌꯥ ꯌꯥꯅꯦꯡ ꯂꯃꯗꯥꯡꯗꯥ ꯃꯥꯌ ꯑꯆꯤ ꯃꯇꯦ:

Q_cap,10 = 2.78 × C_10 × i_10 × A ꯑꯃꯁꯨꯡ Q_cap,2 = 2.78 × C_2 × i_2 × A

ꯍꯥꯟꯅ ꯑꯣꯏꯅ Q_cap ꯑꯁꯤ L/s-ꯅ ꯄꯤ; A ꯑꯁꯤ ꯁꯤꯡꯕꯥꯒꯤ ꯑꯥꯔꯤꯌꯥ (ha); i_10 ꯑꯃꯁꯨꯡ i_2 ꯑꯁꯤ ꯁꯤꯡꯕꯥ ꯑꯃꯨꯅ **ꯍꯤꯆꯤꯡ 15**-ꯒꯤ ꯇꯣꯔꯦꯁꯟꯂꯒꯤꯗꯥ 10% AEP (10-yr) ꯑꯃꯁꯨꯡ 50% AEP (2-yr)-ꯒꯤ ꯆꯨꯝ ꯅꯣꯡꯕꯒꯤ ꯅꯣꯡꯊꯥꯡꯂꯣꯏꯁꯤꯜꯂꯤ (mm/h), ꯁꯥꯏꯠ 2-ꯒꯤ ꯄꯥꯏꯗꯤꯡꯂꯣꯏꯗꯒꯤ, ꯁꯦꯛꯁꯟ 2.8-ꯒꯤ ꯁꯦꯛꯁꯅꯍꯥ ꯗꯤꯖꯥꯏꯟ ꯆꯣꯏꯗꯗꯥ; ꯑꯃꯁꯨꯡ C_10 ꯑꯃꯁꯨꯡ C_2 ꯑꯁꯤ ꯁꯤꯡꯕꯥꯒꯤ ꯄꯥꯔꯃꯤꯇꯦꯗ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ (ꯁꯦꯛꯁꯟ 3.7)-ꯒꯤꯗꯥꯍꯥ ꯁꯥꯔꯟ 4.3A-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁꯣꯏꯔꯕ ꯃꯣꯗꯦꯜꯁꯤꯡꯒꯤꯗꯤ꯫ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ ꯑꯃꯁꯤꯡ ꯄꯨꯝꯕ ꯄꯤꯕ ꯁꯤꯡꯕꯥ ꯑꯃꯒꯤꯗꯥꯍꯥ, ꯃꯣꯗꯦꯜꯁꯤꯡꯒꯤ ꯑꯥꯔꯤꯌꯥ-ꯋꯦꯇꯦꯗꯅ ꯁꯣꯏ꯫

ꯁꯥꯔꯟ 4.3A — ꯗꯤꯖꯥꯏꯟ ꯁꯣꯏꯔꯕ ꯄꯤꯆꯤꯜ ꯃꯣꯗꯦꯜꯁꯤꯡꯒꯤ (ꯃꯥꯏꯗꯣꯡꯆꯥꯟ)

ꯄꯥꯔꯃꯤꯇꯦꯗ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ	C_10	C_2
A (ꯄꯤꯕ ꯄꯤꯕ, ꯗꯦ ꯅꯄꯥꯟ ꯁꯣꯏꯕ)	0.05	0.02
B	0.08	0.03
C	0.15	0.08
D (ꯄꯤꯍ ꯑꯔꯨꯝ, ꯗꯦ ꯅꯄꯥꯟ ꯁꯣꯏꯅꯕ)	0.25	0.15

Q_cap,10 ꯑꯁꯤ ꯃꯔꯍꯥꯅꯦꯝ ꯅꯥꯏꯗꯍꯥꯌꯥ **1% AEP (100-yr)-ꯒꯤ ꯇꯣꯟꯁꯥꯏ ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅ ꯐꯤꯗꯦ ꯇꯣꯟꯁꯥꯏ ꯅꯥꯏꯗꯍꯥ**-ꯒꯤ ꯅꯥꯊꯣꯛꯅꯒꯤ ꯄꯨꯝꯕ ꯄꯤꯆꯤꯜꯂꯤ꯫ Q_cap,2 ꯑꯁꯤ 50% AEP (2-yr)-ꯒꯤ ꯇꯣꯟꯁꯥꯏꯒꯤ ꯅꯥꯊꯣꯛꯅꯒꯤ ꯄꯨꯝꯕ ꯄꯤꯆꯤꯜꯂꯤ꯫ ꯃꯥꯌ ꯑꯃꯍꯥ ꯍꯦꯟꯕ ꯁꯣꯌꯥꯛ 50 mm-ꯒꯤ ꯑꯣꯄꯤꯗꯤꯟ ꯑꯍꯥꯒꯤ ꯇꯤꯀꯦꯇꯥꯒꯤ ꯑꯃꯤꯌꯥꯃ ꯍꯥꯟꯅꯗ, 50 mm-ꯒꯤ ꯑꯣꯄꯤꯗꯤꯟ ꯑꯃꯨꯗ ꯃꯅꯃꯗꯅ ꯁꯣꯅ ꯄꯨꯔꯦ ꯆꯣꯒꯗꯤ (ꯁꯦꯛꯁꯟ 4.5.5.1)꯫

4.14.5 **ꯁ꯭ꯇꯣꯔꯦꯖ.** ꯗꯤꯇꯦꯟꯁꯟ ꯁ꯭ꯇꯣꯔꯦꯖ V (m³) ꯑꯁꯤ V_100 ꯑꯃꯁꯨꯡ V_2-ꯒꯤ ꯃꯅꯨꯡꯗ ꯍꯦꯟꯅꯥ ꯆꯥꯎꯕ ꯑꯗꯨꯅꯤ, ꯃꯈꯣꯌ ꯈꯨꯗꯤꯡꯃꯛ ꯀ꯭ꯂꯣꯖ 2.5.2-ꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡ d (ꯄꯨꯡ 1-ꯗꯒꯤ 72 ꯐꯥꯎꯕ)-ꯒꯤ ꯃꯅꯨꯡꯗ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯆꯥꯎꯕ ꯑꯗꯨ:

V_100 = max over d of [10 × C_v × P_100(d) × A − 1.8 × Q_cap,10 × d]

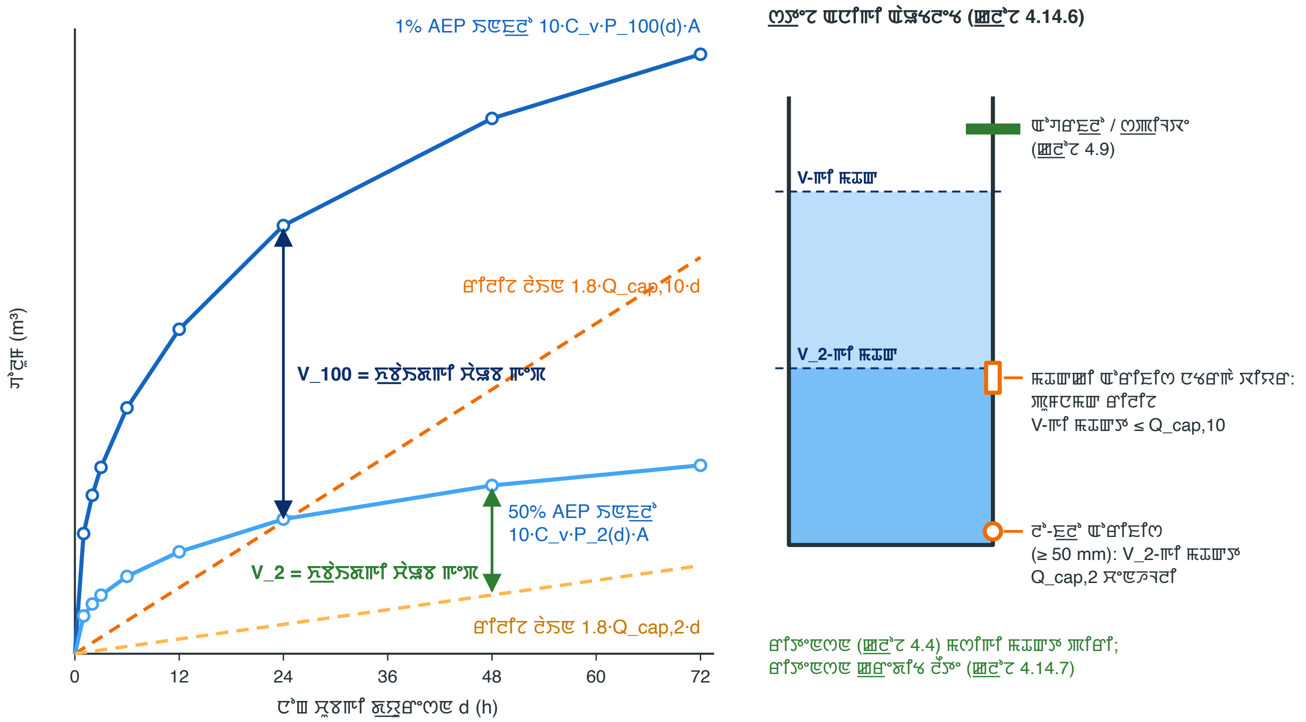
V_2 = max over d of [10 × C_v × P_2(d) × A − 1.8 × Q_cap,2 × d]

ꯃꯐꯝ ꯑꯁꯤꯗ P_100(d) ꯑꯃꯁꯨꯡ P_2(d) ꯑꯁꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ d (ꯄꯨꯡ)-ꯒꯤꯗꯃꯛ 1% ꯑꯃꯁꯨꯡ 50% AEP-ꯒꯤ ꯅꯣꯡ ꯁꯨꯕꯒꯤ ꯗꯦꯞꯊꯁꯤꯡ (mm)ꯅꯤ, ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖꯒꯤ ꯑꯞꯂꯤꯐꯠ ꯌꯥꯎꯔꯦ; ꯑꯃꯁꯨꯡ C_v ꯑꯁꯤ ꯚꯣꯂꯨꯃꯦꯠꯔꯤꯛ ꯔꯅꯑꯣꯐꯀꯤ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯅꯤ: ꯇꯦꯕꯜ 3.2-ꯒꯤ ꯀꯝꯄꯣꯖꯤꯠ C (ꯑꯦꯔꯤꯌꯥ ꯋꯦꯏꯇ ꯇꯧꯔꯕ), 1% AEP-ꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ 3.3-ꯒꯤ Cf-ꯅ ꯃꯁꯤꯡ ꯌꯥꯡꯁꯤꯟꯍꯅꯕ॥ ꯄꯨꯡ 12 ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡꯒꯤꯗꯃꯛ, ꯀꯝꯄꯣꯖꯤꯠ ꯑꯔꯤꯌꯥ ꯋꯦꯏꯇꯦꯗ C ꯑꯁꯤ **0.50**-ꯗꯒꯤ ꯅꯦꯃꯗꯕ ꯑꯣꯏꯅ ꯂꯧꯒꯗꯕꯅꯤ॥ ꯀꯟꯁ꯭ꯇꯦꯟꯇ 1.8 ꯑꯁꯤꯅ ꯍ꯭ꯌꯨꯃꯦꯜ ꯄꯨꯡꯕꯗ ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯑꯣꯐꯁꯦꯠ ꯇꯥꯔꯤꯇ ꯍꯣꯡꯗꯣ (3.6 × 0.5)॥

4.14.6 **ꯑꯣꯔꯤꯐꯤꯁ.** ꯑꯣꯔꯤꯐꯤꯁ ꯑꯁꯤ ꯁ꯭ꯇꯦꯖ ꯑꯅꯤꯒꯤ ꯀꯟꯠꯔꯣꯜ ꯑꯣꯏꯅꯥ ꯁꯦꯝꯕꯅꯤ: V_2 ꯍꯥꯄꯆꯤꯜꯂꯤꯕ ꯁ꯭ꯇꯣꯔꯦꯖ ꯍꯦꯟꯗꯕ ꯃꯇꯃꯗ Q_cap,2 ꯌꯧꯍꯟꯗꯕ ꯂꯣ-ꯐ꯭ꯂꯣ ꯑꯣꯔꯤꯐꯤꯁ ꯑꯃ, ꯑꯃꯁꯨꯡ V-ꯒꯤ ꯂꯦꯚꯦꯜ ꯀꯨꯞꯅꯗꯨꯅꯥ ꯂꯤꯃꯤꯠ Q_cap,10-ꯗ ꯂꯤꯃꯤꯠ ꯇꯧꯕ ꯂꯦꯚꯦꯂꯗ ꯑꯣꯔꯤꯐꯤꯁ ꯅꯠꯔꯒꯥ ꯋꯤꯌꯔ ꯑꯃ॥ ꯑꯥꯄꯦꯟꯗꯤꯛꯁ 4B-ꯒꯤ ꯑꯣꯔꯤꯐꯤꯁ ꯇꯦꯕꯜ ꯑꯁꯤ ꯁꯥꯏꯖ ꯇꯧꯕꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ॥

4.14.7 **ꯐ꯭ꯔꯤꯕꯣꯔꯗ.** ꯀ꯭ꯂꯣꯖ 4.4-ꯒꯤ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯃꯊꯧ ꯑꯁꯤ V-ꯒꯤ ꯂꯦꯚꯦꯜꯗꯒꯤ ꯍꯤꯁꯥꯕ ꯇꯧꯏ॥ ꯂꯣꯛ ꯑꯁꯤꯒꯤ ꯃꯍꯨꯠꯇ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯀꯝꯄꯦꯟꯁꯦꯁꯟ (ꯀ꯭ꯂꯣꯖ 4.4.6) ꯑꯃꯠꯇ ꯌꯥꯗꯦ॥

1 ha ꯐꯥꯑꯣꯕ ꯁꯥꯏꯠꯁꯤꯡꯒꯤꯗꯃꯛ ꯗꯤꯡꯊ ꯇꯐꯕ ꯗꯤꯇꯦꯟꯁꯟꯒꯤ ꯁꯥꯏꯖ (ꯀ꯭ꯂꯣꯖ 4.14.3–4.14.7) — ꯏꯅꯐ꯭ꯂꯣ, ꯑꯥꯎꯠꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ ꯌꯦꯡꯁꯤꯟ



ꯅꯣꯠꯁꯤꯡ: ꯀ꯭ꯂꯣꯖ 2.5.2-ꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡ (1, 2, 3, 6, 12, 24, 48, 72 h)॥ d ≥ 12 h-ꯒꯤꯗꯃꯛ ꯀꯝꯄꯣꯖꯤꯠ C ≥ 0.50॥

Q_cap,10 = 2.78 × C_10 × i_10 × A ; Q_cap,2 = 2.78 × C_2 × i_2 × A ; (L/s; A ha-ꯗ; i mm/h-ꯗ)

ꯏꯅꯐ꯭ꯂꯣ ꯃꯦꯊꯗ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯟ ꯇꯦꯕꯜ 4.3A-ꯗꯒꯤ C_10, C_2; ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖꯒꯤ ꯑꯞꯂꯤꯐꯠ ꯌꯥꯎꯔꯕ ꯃꯤꯅꯤꯠ 15-ꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯒꯤꯗꯃꯛ i_10, i_2 (ꯀ꯭ꯂꯣꯖ 2.8)

V = max(V_100, V_2); V_T = d ꯄꯨꯝꯅꯃꯛꯇꯥ [10 × C_v × P_T(d) × A − 1.8 × Q_cap × d]-ꯒꯤ max (m³) ; 1.8 = 3.6 × 0.5 (ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯑꯣꯐꯁꯦꯠ ꯑꯥꯚꯔꯦꯖ ꯑꯥꯎꯠꯐ꯭ꯂꯣ)

ꯃꯃꯤ 4.3 — 1 ha ꯂꯩꯕꯒꯤ ꯃꯐꯝꯗꯒꯤ ꯅꯣꯡꯗꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡꯒꯤꯗꯃꯛ ꯗꯤꯡꯊ ꯇꯐꯕ ꯗꯤꯇꯦꯟꯁꯟꯒꯤ ꯁꯥꯏꯖ (ꯀ꯭ꯂꯣꯖ 4.14.3-ꯗꯒꯤ 4.14.7 ꯐꯥꯎꯕ): ꯇꯦꯕꯜ 4.3A-ꯗꯒꯤ ꯑꯥꯎꯠꯐ꯭ꯂꯣ ꯀꯦꯄꯁꯤꯡ Q_cap,10 ꯑꯃꯁꯨꯡ Q_cap,2; 1% ꯑꯃꯁꯨꯡ 50% AEP-ꯒꯤ ꯍ꯭ꯌꯨꯃꯦꯜꯁꯤꯡꯒꯤꯗꯃꯛ, ꯀ꯭ꯂꯣꯖ 2.5.2-ꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡꯗ, ꯀ꯭ꯌꯨꯃꯨꯂꯦꯇꯤꯚ ꯏꯅꯐ꯭ꯂꯣ 10·C_v·P(d)·A ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐ꯭ꯂꯣ ꯂꯥꯏꯟ 1.8·Q_cap·d-ꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕ ꯃꯦꯛꯁꯤꯃꯝ ꯗꯤꯐꯔꯦꯟꯁ

ꯅꯣꯡꯖꯔ ꯑꯦꯅꯖꯤ ꯚꯣꯜꯌꯨꯝ V; ꯑꯃꯁꯨꯡ V_2-ꯒꯤ ꯃꯇꯝꯗ Q_cap,2 ꯑꯃꯁꯨꯡ V-ꯒꯤ ꯃꯇꯝꯗ Q_cap,10 ꯁꯣꯏꯄꯟꯖꯤꯕ ꯚꯣꯜꯌꯨꯝ ꯑꯗꯨꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯇ꯫ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ, ꯀꯦꯂꯣꯡ ꯃꯍꯩ ꯅꯩꯖ ꯖꯥꯡꯣ꯫ ꯃꯣꯗꯦꯂꯣꯡ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯑꯖꯦꯖꯤ ꯀꯣꯃꯔ ꯗꯤꯖꯥꯏꯅ, ꯖꯦꯝ ꯂꯥꯏꯔꯒꯤ ꯃꯀ-ꯑꯣꯐꯒ (ꯅꯩꯇꯔꯦꯗꯒꯤ ꯑꯦꯛꯁꯇꯔꯦ ꯑꯣꯡꯇꯦꯅꯥ) ꯚꯣꯜꯌꯨꯝꯒꯤ ꯁꯦꯅꯕꯖꯦꯏ ꯑꯃꯁꯨꯡ PUB Code of Practice on Surface Water Drainage, 7th ed. (cl. 7.1.5)-ꯒꯤ ꯑꯦꯑꯣꯏꯤꯇꯤꯁꯣꯏꯡ ꯑꯃꯅꯥꯌꯒꯤ ꯄꯤꯥ ꯑꯣꯄꯌꯒꯤ ꯖꯤꯇꯦꯂꯥꯏꯖꯦ꯫

> **ꯂꯩꯀꯦꯥꯖꯤ ꯌꯦꯥꯄ.** ꯏꯤꯥꯂ ꯌꯦꯐꯔ ꯑꯦꯑꯣꯏꯤꯂꯤꯁꯣꯏꯡꯑꯤ ꯐꯨꯡ ꯑꯂꯤ ꯂꯤꯑꯒꯥꯄꯐꯒꯤ ꯃꯌꯨꯃ ꯅꯩꯖ, ꯃꯏꯍ ꯑꯗꯨꯖꯤ 0.2 ha ꯖꯡꯐꯒꯥ ꯃꯂꯤꯗꯒꯤ ꯄꯣꯏꯔ ꯗꯣꯒꯣꯖꯄꯃꯣꯏꯡ ꯅꯨꯗꯤꯑꯃꯥꯑꯤ ꯄꯤꯥ ꯐꯩꯑꯦꯏ ꯑꯂꯤ ꯁꯄꯤ 10-ꯒꯤ ꯊꯦꯗꯦꯥꯌ ꯂꯤꯖꯤꯏꯖꯔ ꯐꯩꯑꯦꯏ ꯑꯦꯑꯣꯏꯤꯂꯤꯁꯣꯏꯡ ꯑꯃꯅꯥꯌ, C = 0.55-ꯖꯤ ꯑꯣꯄ ꯌꯦꯅ (PUB Code of Practice on Surface Water Drainage, 7th ed., cl. 7.1.5, Addendum No. 3, 2025)꯫ ꯃꯂꯤ ꯊꯨꯖꯤ ꯂꯤꯖꯤꯏꯖꯔ ꯑꯃꯁꯨꯡ ꯊꯨꯖꯤ ꯁꯣꯥ ꯌꯦꯔ ꯁꯦꯅ: ꯑꯣꯄ ꯑꯂꯤꯖꯤ ꯂꯦꯅꯡꯑꯤ ꯑꯣꯐꯤꯁꯦ, ꯂꯦꯅꯅ ꯒꯐꯨꯄ ꯑꯃꯁꯨꯡ ꯅꯩꯌꯣꯏꯂꯤꯌ ꯑꯖꯤ ꯅꯥꯌꯃꯥ ꯃꯊꯦ ꯌꯦꯅ꯫ PUB-ꯒꯤ 0.55 ꯑꯂꯤ ꯃꯏꯍ ꯑꯂꯤꯗ ꯂꯤꯖꯤꯏꯖꯗꯣ, ꯃꯐꯍꯗꯤ ꯂꯤꯑꯒꯥꯄꯐꯒꯤ ꯔꯣꯖꯦꯅꯏ ꯑꯂꯤ ꯖꯐꯤꯔ ꯂꯄꯐꯒꯤ ꯅꯐꯍꯒꯤ ꯂꯤꯚꯣꯍꯖꯤ, ꯑꯗꯨꯒꯥ ꯃꯣꯨꯁꯣꯅ ꯑꯂꯤꯒꯤ ꯔꯣꯖꯦꯅꯏ ꯑꯂꯤ ꯒꯐꯤꯏꯏꯤꯅꯗꯑꯤ ꯖꯍꯖꯤ (ꯑꯖꯦꯖ 4.5.1.2)꯫ ꯌꯣꯔꯅ 4.3A-ꯒꯤ ꯑꯦꯑꯣꯏꯤꯂꯤꯁꯣꯏꯡꯂꯤꯑ ꯑꯂꯤ ꯃꯣꯨꯁꯣꯅ ꯑꯂꯤꯖꯤ ꯑꯖꯦꯖ 3.3-ꯒꯤ ꯒꯐꯤꯏꯏꯤꯅꯗ ꯑꯐꯒ ꯖꯍꯔꯐꯂꯤꯑꯗꯒꯤ (ꯂꯦꯅꯅ ꯒꯐꯨꯄ A-ꯗꯒꯤ D ꯏꯦꯁꯔꯒꯤꯗꯃꯥ CN 39, 61, 74 ꯑꯃꯁꯨꯡ 80) ꯊꯍꯔꯖꯤ꯫ ꯃꯅꯦꯁ ꯑꯂꯤ ꯅꯍꯏꯅ ꯌꯍꯄꯥꯑꯤ ꯖꯍꯗ ꯃꯄꯥꯂꯖꯤ ꯖꯐꯔ ꯄꯨꯑ 1-ꯒꯤ ꯗꯣꯄꯊꯂꯤꯑꯒꯤꯗꯃꯥ ꯑꯐꯒ ꯖꯍꯔꯐ ꯑꯗꯨꯂꯤꯑꯖꯤ ꯄꯤꯔ ꯖꯦꯑ ꯅꯨꯔꯗꯒꯤ ꯐꯩꯑꯦꯏꯑꯤ ꯐꯣꯂꯤꯑꯦꯂꯤꯑꯖꯤ, ꯃꯅꯦꯗ ꯐꯦꯁꯩꯗ ꯌꯦꯐꯔ꯫ ꯃꯐꯍ ꯑꯂꯤꯖꯤ ꯃꯅꯦꯁ **ꯄꯐꯦꯒꯤꯖꯩꯅ** ꯑꯦꯅ꯫ ꯚꯣꯡ ꯖꯦꯑꯒꯤ ꯅꯂꯤꯑ ꯌꯣꯥꯖꯤꯑꯣꯅ ꯑꯃꯤꯌꯤꯖꯤ ꯑꯄꯣꯏꯔ 4B ꯄꯤꯔ ꯃꯌꯍꯗ ꯖꯦꯏ ꯅꯨꯗꯤꯑꯃꯥꯑꯤꯗꯃꯥ NIH-DHAARA-ꯒꯤ ꯒꯅꯁꯨꯂꯤꯑꯒꯥ ꯁꯦꯗꯃꯖꯗꯨꯖꯤ ꯃꯅꯦꯁꯔꯨ ꯂꯦꯅꯗꯖꯤ ꯌꯦꯒꯖꯤ ꯖꯡꯐꯒꯥ ꯂꯣꯍꯗꯦꯥꯑꯖꯤ꯫
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> ꯐꯨꯡ ꯑꯂꯤ ꯃꯄꯨꯑ ꯏꯔ ꯊꯦꯑꯦꯑꯗꯒꯤ ꯄꯦꯩꯗꯍ ꯊꯍꯗꯨꯖꯤ **ꯄꯩꯖꯤ ꯑꯩꯅ**, ꯃꯐꯍ ꯑꯗꯨꯖꯤ ꯖꯦꯅꯔꯒꯤ ꯃꯃꯅ ꯑꯂꯤ ꯃꯅꯦ ꯊꯑꯔ ꯃꯏꯍꯒꯤ ꯃꯤꯂꯤꯑꯖꯤ ꯖꯡꯌꯖꯤ ꯗꯣꯒꯣꯖꯄꯐꯖꯤ ꯚꯣꯜꯌꯨꯝꯗ ꯄꯤꯐꯤ꯫ ꯁꯄꯤ 100-ꯒꯤ ꯐꯤꯖꯤꯖ ꯑꯂꯤ ꯃꯏꯍ ꯅꯨꯗꯤꯑꯃꯥꯌ ꯒꯐꯤꯏꯏꯤꯅꯗꯑꯤ ꯁꯄꯤ 10-ꯒꯤ ꯄꯤꯥꯑꯤ ꯃꯐꯥꯌ ꯊꯍꯃꯤ, ꯃꯂꯤ ꯑꯖꯦꯖ 4.5.3-ꯒꯤ ꯅꯂꯤꯑ ꯅꯁꯦꯗ ꯂꯣꯏꯂꯤꯌꯒ ꯐꯨꯅꯖꯤ; ꯚꯣꯜꯌꯨꯝꯖꯤ ꯑꯦꯁꯡꯖꯣꯡꯖꯤ ꯑꯣꯒꯐꯣꯗꯗ ꯑꯣꯄꯑꯤ ꯌꯑꯅꯦꯅ ꯅꯥꯌꯃꯥ ꯊꯦꯗꯑꯅ ꯄꯁꯖꯤ ꯖꯦꯅ; ꯂꯥꯑꯔ ꯊꯦꯗꯦꯥꯂꯤꯑꯗ ꯄꯐꯒꯤꯁꯂ ꯖꯦꯃꯅ ꯅꯂꯤꯑꯖꯤ ꯁꯑꯖꯣ ꯄꯁꯖꯤ ꯖꯦꯅ; ꯑꯃꯁꯨꯡ ꯐꯤꯌꯣꯏꯂꯏ ꯑꯐꯣꯗꯤꯡ ꯑꯃꯡꯌ ꯖꯦꯗꯣ꯫ ꯄꯩꯖꯤ ꯑꯄꯤꯥꯄ ꯌꯣꯨꯑ ꯄꯤꯍꯔ ꯗꯤꯖꯅꯖꯐ ꯑꯃꯖꯤ ꯑꯖꯦꯖ 4.6-ꯒꯤ ꯃꯄꯨꯑ ꯏꯔ ꯊꯦꯑꯦꯑ ꯂꯤꯖꯤꯏꯖꯔ ꯁꯦꯅ꯫ ꯚꯣꯜꯌꯨꯝꯒꯤ ꯏꯐꯨꯖꯤ ꯑꯂꯤ ꯖꯦꯑ ꯅꯨꯔꯒꯤ ꯃꯀ (ꯅꯩꯇꯔꯦꯗꯒꯤ ꯑꯦꯛꯁꯇꯔꯦ ꯑꯣꯡꯇꯦꯅꯥ) ꯊꯦꯑꯦꯖꯤ꯫ ꯑꯖꯦꯖ 3.4.2-ꯖꯤ ꯑꯌꯣꯄꯗ ꯚꯣꯜꯌꯨꯝꯒꯤꯗꯃꯥ ꯖꯦꯑ ꯅꯨꯔꯗ ꯅꯨꯃꯏꯍ ꯑꯦꯅꯔ ꯄꯤꯥ ꯊꯦꯑꯂꯤꯑ ꯊꯤꯑꯅ, ꯃꯐꯍꯗꯤ ꯃꯅꯦꯁꯖꯤ ꯄꯅꯗꯐꯦꯒꯐꯦꯏꯑꯤ ꯂꯣꯄ ꯁꯣꯑꯗꯣ; ꯐꯨꯡ ꯑꯂꯤ ꯏꯦꯑꯗꯦꯥꯅꯤꯔ ꯑꯣꯥꯂꯣꯄꯂꯏ ꯑꯃꯖꯤ ꯃꯐꯍꯗꯤ ꯃꯂꯤꯒꯤ ꯑꯏꯂꯐꯒꯣꯌꯒ ꯖꯔꯂꯤꯑꯖꯤ ꯑꯄꯤꯥꯄ ꯂꯦꯅꯡꯂꯤꯑꯒꯤꯗꯃꯥ ꯑꯐꯦꯏꯔ ꯑꯗꯨ ꯁꯦꯁꯄꯅꯖꯤ, ꯑꯃꯁꯨꯡ ꯄꯨꯑ 24-ꯗꯒꯤ 72-ꯒꯤ ꯗꯨꯁꯐꯣꯏꯂꯤꯑ ꯃꯌꯍ ꯄꯨꯍꯖꯃꯥꯌ ꯁꯣꯥ ꯌꯦꯅ꯫

4.15 ꯂꯣꯏꯌꯤ, ꯏꯣꯏꯂꯤꯑ ꯑꯃꯁꯨꯡ ꯃꯅꯌꯤ-ꯅꯨꯖ

4.15.1 **ꯄꯔꯖꯤꯥꯖꯤ ꯁꯔ ꯁꯔ ꯚꯣꯜꯌꯨꯝꯒꯤ ꯗꯨꯔꯒꯤ ꯖꯤꯃꯤꯡꯂꯤꯑ.** ꯄꯔꯖꯤꯥꯖꯤ ꯚꯣꯜꯌꯨꯝ ꯑꯣꯐꯤꯁꯦ ꯑꯃꯗ (ꯄꯐꯥꯂꯤꯑ, ꯂꯩꯖꯔ ꯃꯏꯍꯂꯤꯑ, ꯑꯦꯄꯏ ꯂꯄꯣꯂ, ꯂꯑꯅꯒꯤ ꯃꯏꯍꯂꯤꯑ) ꯁꯔ ꯁꯔ ꯃꯏꯍꯗ:

- (a) 10% AEP-ꯒꯤ ꯊꯦꯗꯦꯥꯌ ꯅꯔꯅꯗꯒꯤ ꯄꯣꯏꯔ ꯗꯨꯔ: **0.45 m**;
- (b) 1% AEP-ꯒꯤ ꯊꯦꯗꯦꯥꯌ ꯅꯔꯅꯗꯒꯤ ꯄꯣꯏꯔ ꯗꯨꯔ: **1.2 m**, 4.15.3-ꯒꯤ ꯃꯅꯦꯗ ꯏꯣꯏꯂ ꯌꯦꯐꯔ ꯖꯦꯏ ꯑꯃꯗ ꯖꯡꯌꯖꯤ;
- (c) ꯂꯅꯗ ꯖꯤꯄꯦꯃꯂꯤꯑ: **4H:1V**-ꯗꯒꯤ ꯄꯩꯖꯤ ꯑꯊꯃꯔ ꯑꯦꯅꯐꯦꯅꯗꯔꯖꯤ, ꯖꯤꯏꯊꯦꯥꯏꯔ ꯄꯣꯐꯤꯃꯤꯌꯐꯒꯤ ꯁꯦꯃꯗꯨꯐꯔꯗ ꯃꯐꯤꯗ ꯑꯃ **6H:1V** ꯖꯡꯐꯒꯥ ꯃꯂꯤꯗꯒꯤ ꯁꯦꯏꯔꯗ ꯖꯒꯗꯔꯖꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯚꯣꯜꯌꯨꯝ ꯑꯣꯐꯤꯁꯦꯒꯤ ꯃꯦꯨꯑꯗ ꯖꯡꯐꯒꯥ ꯃꯂꯤꯒꯤ ꯃꯖꯤꯥꯌ **0.3 m**-ꯗꯒꯤ ꯄꯣꯏꯔ ꯃꯊꯥꯌꯒꯤ ꯃꯅꯦꯗ ꯖꯤꯥꯄ ꯑꯃꯡꯌ ꯖꯒꯐꯅꯗꯔꯖꯤ꯫

4.15.2 **ꯁꯣꯡ ꯔꯣꯂꯤꯏꯂꯤꯑ.** ꯄꯐꯃꯤꯖꯣꯏꯡ ꯄꯨꯅꯂꯤꯑꯗ ꯃꯅꯦꯒꯤꯂꯤꯑ ꯖꯒꯗꯔꯖꯤ:

- ꯁꯦꯃꯗꯨꯐꯔꯗ 3 m ꯄꯤꯥꯄ, ꯖꯦꯐꯃꯣꯅ ꯁꯦꯌꯐ ꯖꯣꯒꯣꯅꯒꯤ ꯃꯅꯦꯗ 0.3 m-ꯗꯒꯤ ꯄꯣꯏꯗꯔ ꯂꯣꯏꯌꯤ ꯔꯣꯏꯁ ꯑꯃ; ꯑꯃꯁꯨꯡ
- ꯁꯑꯔ ꯊꯤꯑꯔ ꯅꯃꯐꯖꯣꯏꯡ ꯄꯤꯃꯔꯒꯤ ꯃꯖꯤꯥ ꯑꯃ꯫

4.15.3 **ꯈꯣꯂꯁꯤꯡ.** ꯁꯨꯍꯥꯄꯣꯆ ꯑꯃꯒꯤ ꯃꯍꯦꯒꯤ ꯃꯑꯥꯡ ꯅꯩꯕ ꯃꯈꯝ ꯑꯃꯄꯣꯁꯍꯒꯤ ꯑꯉꯥꯔꯕꯗ, ꯅꯥꯁ ꯍꯩꯕ ꯔꯦꯕ ꯒꯣꯏ ꯑꯃꯒꯦ ꯅꯥꯔꯆꯆꯦ, ꯉꯦꯕ ꯔꯦꯗꯕ ꯗꯤꯆꯦꯌꯂꯒꯤ ꯔꯦꯝꯄꯨꯕꯗ **1.2 m** ꯍꯦꯡꯕ ꯈꯣꯂꯁ ꯑꯃꯦ ꯃꯊꯩ ꯍꯦꯌ:

- **0.6 m**-ꯗꯒꯤ ꯄꯣꯂꯕ ꯃꯊꯁꯍꯒꯤ ꯃꯍꯦꯗ ꯆꯦꯁꯒꯟ ꯍꯥꯟ ꯆꯏꯄꯒꯦ ꯄꯣꯗꯍꯥꯟ ꯅꯩꯕ;
- 4H:1V-ꯗꯒꯤ ꯑꯊꯃꯕ ꯆꯦꯒꯥꯝꯁꯤꯡꯒꯦ ꯅꯥꯔꯆꯆꯦ 1% AEP-ꯒꯤ ꯊꯩꯗꯥꯁꯍ 1.2 m ꯅꯨꯕꯗꯒꯤ ꯄꯣꯂꯕ; ꯆꯏꯄꯒꯦ
- ꯒꯨꯄꯣꯏ ꯊꯝꯗꯕ 300 mm-ꯗꯒꯤ ꯍꯦꯖꯕ ꯄꯡꯕ ꯅꯩꯕ ꯑꯦꯖꯏꯅꯣꯏ ꯁꯨꯍꯄꯁꯔꯄ ꯑꯃꯦ ꯍꯦꯖꯕ꯫

4.15.4 **ꯑꯦꯖꯏꯅꯣꯏꯁꯤꯡ.** ꯒꯕꯨꯅꯤꯁꯆꯦ ꯍꯩꯕ ꯔꯦꯕ 300 mm-ꯗꯒꯤ ꯍꯦꯖꯕ ꯍꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯑꯦꯖꯏꯅꯣꯏꯉꯤ ꯄꯡꯕ ꯍꯨꯗꯤꯡꯃꯁꯍ ꯒꯨꯄꯣꯏ ꯆꯏꯄꯒꯦ ꯄꯣꯁ ꯑꯃꯦ ꯊꯝꯒꯗꯕꯅꯤ꯫ ꯒꯨꯄꯣꯏ ꯑꯁꯤ ꯃꯁꯤꯗ ꯉꯨꯒꯅꯕ ꯃꯤꯑꯥꯍ ꯑꯃꯅꯦ ꯊꯗꯥꯁꯒ ꯊꯝꯅꯕ ꯗꯤꯆꯦꯍꯂ ꯍꯦꯒꯗꯕꯅꯤ: ꯆꯦꯁꯒꯒꯤ ꯒꯣꯅꯥꯁꯤꯍꯤ ꯆꯣꯝꯕ, ꯆꯦꯁꯆꯦ ꯊꯝꯕ, ꯑꯥꯒꯂ ꯑꯣꯄꯤꯔꯦ ꯍꯦꯖꯕ꯫

4.15.5 **ꯁꯦꯍꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯨꯕꯒꯤ ꯃꯦꯄꯉꯄꯁꯤꯡ.** ꯒꯕꯨꯅꯤꯁꯆꯦ ꯍꯩꯕ ꯔꯦꯕ ꯁꯨꯍꯥꯄꯣꯆ ꯍꯨꯗꯤꯡꯃꯁꯍ ꯅꯥꯡ ꯍꯨꯕ ꯃꯍꯝꯗ ꯃꯈꯝ ꯑꯃꯨꯗ ꯍꯁꯤꯡ ꯍꯍꯦꯖ ꯆꯦꯉꯍ ꯄꯔꯆꯦ ꯈꯥꯡꯗꯥꯉꯒ ꯃꯩꯍꯩꯅꯥꯂ ꯑꯃꯁꯨꯡ ꯍꯦꯅꯤꯁꯉꯤ ꯁꯦꯍꯂꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯍꯨꯕꯍꯗꯒꯤ ꯅꯨꯕ ꯃꯈꯝꯗ ꯅꯨꯕꯒꯤ ꯃꯦꯄꯉꯄ ꯑꯃꯦ ꯅꯩꯒꯗꯕꯅꯤ꯫

4.15.6 **ꯉꯂꯈꯦꯍꯂꯗ ꯁꯨꯒꯣꯁꯁꯤꯡ.** ꯆꯝꯒꯤ ꯃꯍꯦꯗ ꯅꯩꯕ ꯍꯣꯊꯁꯨꯁꯤꯡꯗ ꯅꯥꯁ ꯍꯩꯕ ꯔꯦꯕ ꯉꯒꯄꯁꯤꯡ ꯅꯩꯒꯗꯕꯅꯤ꯫ ꯃꯍꯥꯔꯕꯨ ꯉꯂꯈꯦꯍꯂꯗ ꯁꯨꯒꯣꯁꯁꯤꯡ ꯑꯥꯍꯆꯦ ꯃꯦꯄꯁ ꯍꯩꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯣꯂꯍꯣꯆꯣꯂꯁ ꯗꯤꯁꯆꯣꯄꯣꯁꯂ (ꯁꯄꯨꯁ 10)-ꯆꯦ ꯍꯡꯕꯗꯒꯤ ꯒꯨꯄꯥꯁꯤꯆꯄ ꯈꯥꯡꯗꯥꯁꯉꯗꯕꯅꯤ꯫

4.15.7 **ꯒꯣꯁꯍꯄ ꯉꯂꯍꯨꯄꯥꯟ.** ꯗꯨꯄꯦꯍ ꯁꯨꯍꯥꯄꯣꯆ ꯑꯁꯤ ꯃꯒꯨꯡ ꯈꯆꯦ ꯍꯄꯝ ꯍꯩꯒꯗꯕꯅꯤ (ꯉꯨꯆꯥꯆ 4.7) ꯑꯃꯁꯨꯡ ꯒꯨꯡ 72-ꯗꯒꯤ ꯄꯣꯂꯆꯦ ꯍꯁꯤꯡ ꯆꯣꯒꯒ ꯆꯣꯝꯕ ꯃꯈꯝ ꯑꯃꯏꯍ ꯅꯄꯥꯍꯗꯕꯅꯤ꯫ ꯍꯣꯏ ꯕꯣꯁꯂꯁꯤꯡꯆꯦ ꯉꯨꯆꯥꯆ 4.10.7 ꯊꯝꯄꯂꯒꯗꯕꯅꯤ꯫

> **ꯁꯂꯗꯥꯁꯆꯦ ꯍꯦꯁꯒ.** ꯉꯨꯆꯥꯆ 4.15-ꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯆꯤꯃꯤꯏꯁꯤꯡ ꯑꯁꯤꯒꯤ ꯄꯁꯊꯣꯁꯆꯕ ꯃꯃꯦꯡꯒꯤ ꯍꯨꯗꯝ ꯑꯃꯍꯁꯍꯃꯁ ꯅꯩꯣ꯫ ꯃꯍꯥꯔ ꯑꯁꯤ ꯃꯦꯣꯝꯒꯤ ꯃꯄꯥꯁꯤꯒꯤ ꯒꯨꯄꯣꯁꯍꯤꯍꯒꯤ ꯅꯥꯕꯆꯤ, ꯍꯨꯗꯝ ꯑꯥꯍꯆꯦ KC APWA 5600 (2006), ꯃꯁꯤꯆꯦ ꯗꯨꯄꯦꯍ-ꯒꯥꯂꯗ ꯒꯣꯄꯤꯃꯤꯍꯄꯒꯤ ꯔꯦꯝꯄꯨꯕꯗ ꯃꯄꯤꯗ ꯑꯃꯦ 5:1 ꯆꯏꯄꯒꯦ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯂꯕꯗ, ꯒꯨꯄꯥꯒꯄꯍ ꯆꯍꯂꯁꯤꯡꯗꯒꯤ 20 ft (6 m)-ꯒꯤ ꯆꯦꯒꯥ ꯑꯃꯁꯨꯡ 15 ft (4.6 m)-ꯒꯤ ꯃꯣꯂꯍꯣꯆꯣꯂꯁ ꯁꯍꯄꯤꯒ ꯃꯊꯩ ꯍꯦꯄꯥꯅꯃꯤ꯫ ꯑꯥꯒꯂ ꯁꯒꯣꯁꯉꯤ ꯆꯝ ꯑꯃꯁꯨꯡ ꯁꯨꯥꯟꯁꯤꯡꯗ ꯅꯩꯕ ꯃꯥꯍꯤ-ꯍꯨꯆ ꯁꯨꯍꯥꯄꯣꯆ ꯑꯁꯤ ꯃꯣꯂꯨꯆꯒꯤ ꯃꯍꯝꯗ ꯑꯊꯉꯁꯤꯡꯆꯦ ꯁꯤꯆꯤꯂꯆꯒꯤ ꯃꯄꯝ ꯑꯥꯍꯨꯆꯦ ꯃꯈꯝ ꯑꯁꯤꯗ ꯃꯍꯥꯔꯕꯨ ꯍꯄꯦ ꯄꯣꯂꯆꯦ ꯉꯂꯄꯥꯟꯤ꯫ ꯗꯨꯄꯦꯍ ꯕꯣꯁꯂꯁꯤꯡꯗ ꯆꯒꯆꯤꯕ ꯍꯁꯤꯡ ꯑꯁꯤ ꯉꯦꯆꯣꯡ ꯒꯥꯁꯒꯒꯤ ꯍꯨꯥꯁꯊꯤꯕꯆꯤ, ꯃꯄꯝ ꯑꯨꯆꯦ ꯃꯒꯨꯡ ꯈꯆꯦ ꯍꯄꯝ ꯍꯩꯕ (ꯉꯨꯆꯥꯆ 4.15.7) ꯑꯁꯤ ꯒꯕꯨꯅꯤꯁ ꯄꯥꯟꯊꯉꯤ ꯃꯊꯩ ꯍꯦꯕꯆꯤ, ꯑꯥꯃꯤꯆꯤꯍꯤ ꯆꯏꯍꯣ꯫

4.16 ꯍꯨꯝꯈꯝ: ꯒꯤꯁ ꯃꯦꯂꯆꯄꯂꯕ ꯍꯁꯍꯆꯦ ꯉꯄꯤꯒꯤ ꯃꯦꯍꯊꯤꯕ ꯒꯤꯕꯒꯣ

> **ꯁꯂꯗꯥꯁꯆꯦ ꯍꯦꯁꯒ.** ꯉꯨꯆꯥꯆ ꯑꯁꯤꯗ ꯃꯊꯩ ꯍꯦꯕ ꯑꯃꯏꯍ ꯅꯩꯣ꯫ ꯁꯄꯨꯁ ꯑꯁꯤꯆꯦ ꯒꯤꯁ ꯃꯦꯂꯆꯄꯂꯕ ꯍꯁꯍꯒꯤ ꯃꯍꯨꯏꯍ ꯗꯒꯣꯆꯒꯃꯂꯏꯉꯤ ꯃꯦꯄꯁꯒꯤ ꯄꯣꯏꯁꯤꯒꯤ **ꯃꯍꯥ** ꯄꯤꯆꯤꯆ, ꯄꯤꯍꯣꯂꯂ, ꯁꯡꯕ ꯗꯨꯄꯨꯄꯣꯂꯒꯤ ꯍꯣꯁꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯥ ꯊꯡꯕ ꯃꯈꯝꯒꯤ ꯑꯥꯆꯦꯆꯦꯍꯂꯁꯂ ꯉꯄꯤꯒꯤ ꯃꯊꯩ ꯍꯦꯄꯥꯆꯤꯕꯒꯣ ꯄꯔꯕꯗꯨ ꯃꯁꯤꯆꯦ ꯍꯄꯤ꯫
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> 1. **ꯃꯍꯄ.** ꯗꯤꯍꯣꯂꯂꯆꯦ ꯁꯍꯏ ꯑꯃꯒꯤ ꯒꯤꯁ ꯄꯂꯊꯄꯥꯆꯤ ꯑꯃꯨꯕ ꯃꯁꯤꯒꯤ ꯄꯍꯗꯨꯄꯨꯒꯨꯄꯦꯈ ꯁꯡꯄꯥꯆꯤ (ꯃꯍꯤ 4.1)꯫ ꯃꯍꯥ ꯊꯡꯕ ꯃꯈꯝꯗ, ꯁꯍꯏ ꯉꯔꯦꯗꯒꯤ ꯁꯡꯄꯥꯆꯕ ꯄꯤꯆꯤꯆꯁꯤꯡ ꯑꯁꯤ ꯑꯃꯒꯦ ꯑꯃꯒꯦ ꯑꯃꯁꯨꯡ ꯃꯣꯂ-ꯁꯨꯍꯥꯃꯒꯤ ꯒꯤꯁꯉꯤ ꯊꯣꯁꯉꯩ꯫ ꯗꯣꯂꯒꯄꯒꯤ ꯁꯨꯍꯗꯤꯗ, ꯕꯣꯁꯂ ꯍꯄꯦ ꯍꯨꯗꯤꯡꯃꯁꯆꯦ ꯄꯤꯁꯨꯍꯄꯤꯁ ꯍꯄꯤ 100-ꯒꯤ ꯒꯤꯁꯉꯤ 100% ꯊꯗꯥꯁꯒꯆꯦ ꯑꯦꯖꯏꯅꯣꯏꯍ ꯄꯤꯁꯨꯍꯄꯤꯁ ꯒꯤꯁꯉꯤ 106% ꯒꯨꯊꯁꯍꯤ꯫ ꯁꯍꯏ ꯍꯨꯗꯤꯡꯃꯁꯍ 90% ꯊꯗꯥꯁꯒꯆꯦ ꯍꯁꯍꯃꯁ ꯃꯁꯤ 97%-ꯗ ꯒꯨꯄꯁꯍꯤ (UDFCD memo, 2012)꯫ Colorado State University-ꯒꯤ ꯊꯤꯁꯂ ꯑꯃꯆꯦ ꯃꯈꯝ ꯍꯣꯉꯗꯆꯦ ꯍꯩꯕ ꯁꯍꯏꯍ ꯅꯩꯕ ꯗꯤꯍꯣꯂꯂꯆꯦ "ꯑꯂꯣꯁꯕꯗꯤ ꯒꯤꯁ ꯈꯆꯦꯁꯤꯡ ꯗꯒꯣꯆꯒꯃꯂꯏꯉꯤ ꯃꯍꯨꯒꯤ ꯒꯤꯁꯁꯤꯡꯗꯒꯤ ꯄꯂꯒꯏꯄꯂꯕ ꯍꯦꯍ" ("can actually increase peak flows above post-development peaks") ꯄꯔꯆꯦ ꯈꯁꯍꯤ꯫ ꯑꯥꯒꯍꯃꯦꯍꯆꯣꯂ ꯁꯨꯍꯗꯤ ꯑꯃꯆꯦ ꯃꯍꯥ ꯊꯡꯕ ꯃꯈꯝꯗ ꯅꯩꯕ ꯒꯥꯂꯗ ꯑꯃꯆꯦ ꯃꯁꯤꯒꯤ ꯑꯦꯖꯏꯈꯆꯦ ꯃꯣꯂ ꯁꯨꯍꯣꯒꯦ ꯃꯍꯥ ꯃꯦꯂꯕꯆꯦ ꯃꯄꯝ ꯑꯥꯍꯨꯆꯦ ꯃꯊꯁ ꯊꯡꯕ ꯃꯈꯝꯒꯤ ꯒꯥꯂꯗꯁꯤꯡꯗꯒꯤ ꯄꯣꯂꯆꯦ ꯈꯏꯍꯕ ꯊꯕꯁ ꯍꯦꯍꯤ ꯄꯔꯆꯦ ꯈꯁꯍꯤ (Water 2016, 8(7):290)꯫

2. **[illegible].** [illegible] 100-[illegible] 10-[illegible] ([illegible] 2.11)꯫ [illegible]꯫

3. **[illegible].** Kansas City-[illegible] (McEnroe, 2005)-[illegible] 3 cfs/ac-[illegible] 200-ac-[illegible] Q100 [illegible] 36% [illegible]꯫ [illegible], 14 sq mi-[illegible] Q100 [illegible] 40% [illegible], [illegible] 1–2 sq mi-[illegible]꯫ KC-[illegible] "'[illegible]'-[illegible]" ("'match existing' can harm streams") [illegible] (MARC Evolution deck)꯫ [illegible]: "[illegible]" ("Due to peak flow timing and runoff volume effects, some structural practices fail to reduce discharge peaks to pre-development levels downstream") (GSMM 2016)꯫

4. **[illegible].** [illegible] 20-[illegible] "[illegible] OSD [illegible]" ("cannot reliably produce an OSD system design that will always be effective") [illegible] (Water Science and Engineering, 2019)꯫ [illegible] 4.6.3-[illegible]꯫

5. **[illegible].** [illegible] "[illegible]" ("The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river to protect the settlement from seasonal floods") (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)); [illegible] 788.400 m [illegible] (AIIB; NEER-[illegible]), [illegible] 29 [illegible] 2024-[illegible] ([illegible])꯫ [illegible] "[illegible]" ("During the rainy season, the rapid flows of water directed to the main urban river Nambul from its tributaries cannot be contained. As a result, the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, *Approval Project Document*, 2024)꯫ [illegible] "[illegible]" ("Sugnu hump")-[illegible] "[illegible] 400-[illegible]" ("of the order of 400 cumecs") [illegible] "[illegible]" ("river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC), [illegible] (Shamushang nallah)-[illegible] (HC PIL No. 8 of 2025-[illegible] WRD-[illegible]), [illegible] "[illegible] … [illegible]" ("Coping measures undertaken in the form of pumping … are not adequate and the area remains waterlogged for many days every year") (NDB, [illegible])꯫ [illegible] ([illegible] 4.1-[illegible])꯫ [illegible]

> ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯕ [TBC]; ꯆꯦꯞꯇꯔ 5-ꯗꯥ ꯇꯥꯀꯄꯤꯕ ꯁꯤꯡꯒꯥꯏ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯄꯤꯔꯕ ꯑꯆꯧ ꯄꯥꯝꯅꯤ (ꯁꯦꯛꯁꯟ 5.8.5(a)-ꯗꯒꯤ (c) ꯐꯥꯑꯣꯕ)꯫ ꯄꯤꯔꯤꯡꯕ ꯑꯣꯏꯕꯥ ꯐꯣꯔꯃꯦꯠ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯇꯨꯡ ꯍꯦꯅꯒꯠꯂꯕ ꯐꯥꯑꯣꯕ ꯑꯦꯗꯤꯁꯅ ꯁꯤꯡꯗꯨ ꯕꯣꯂꯤꯡ ꯑꯃꯥ ꯄꯨꯊꯣꯛꯂꯤ꯫ ꯗꯤꯖꯤꯇ ꯗꯥꯏꯔꯤ ꯗꯣꯔ ꯑꯃꯁꯨꯡꯗꯥ ꯃꯇꯤ ꯃꯥꯂꯦꯟꯁꯤ ꯊꯝꯃꯤ; ꯃꯇꯤ ꯆꯦꯞꯇꯔ 5-ꯒꯤ ꯑꯣꯄꯔꯦꯁꯅ ꯄꯤꯔꯕ ꯌꯥꯎꯗꯥ ꯌꯥꯎꯍꯜꯂꯤ꯫
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> ꯃꯥꯏꯄꯥꯛꯅ ꯑꯣꯏꯅ ꯄꯤꯈꯠꯂꯨꯝ ꯑꯣꯏ ꯇꯥꯔꯕ ꯇꯣꯗꯥ ꯄꯤꯔꯤ:
>
> - ꯗꯥꯒꯥꯇꯄꯃꯥꯌꯁꯤꯟꯕꯤ ꯃꯍꯥꯛꯀꯤ ꯃꯔꯝ ꯗꯤꯖꯤꯇ ꯁꯦꯜ (ꯁꯦꯛꯁꯟ 4.5);
> - ꯃꯁꯤꯡ ꯐꯣꯔꯃꯗꯥ ꯇꯥꯛꯄ ꯄꯅꯥꯛꯂꯤꯕ ꯗꯤꯁꯥꯏꯟꯂꯦ ꯁꯦꯜ (ꯁꯦꯛꯁꯟ 4.4);
> - ꯂꯣꯏꯕ ꯃꯌꯥꯝꯕꯒꯤ ꯄꯅꯥꯛꯂꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯁꯦꯜ (ꯁꯦꯛꯁꯟ 4.6.3);
> - ꯄꯨꯔꯥꯗꯤꯒꯤ ꯂꯤꯂꯥꯡꯃꯗ ꯗꯤꯇꯇꯥꯏ ꯂꯥꯡꯗꯥꯇ ꯈꯥꯌꯗꯥ ꯄꯤꯊꯕ (ꯁꯦꯛꯁꯟ 4.13); ꯑꯃꯁꯨꯡ
> - ꯃꯔꯦ ꯄꯣꯛꯕ ꯃꯐꯃꯗ ꯑꯃꯁꯨꯡ ꯑꯣꯄꯔꯦꯁꯅꯗ ꯌꯥꯎ ꯁꯦꯜ (ꯆꯦꯞꯇꯔ 5)꯫
>
> Kansas City-ꯒꯤ ꯃꯂꯣꯛꯀꯤ ꯄꯨꯔꯦꯗꯤꯗꯥ ꯃꯃꯜ ꯑꯃꯥ ꯐꯪꯂꯤ꯫ ꯁꯥꯂꯁ ꯂꯣꯅꯁ ꯑꯃꯗ, ꯄꯤꯕ ꯃꯔꯩꯈꯩꯕꯗꯥ 3.0 ac-ft-ꯒꯤ ꯂꯥꯡꯗꯥꯇ ꯃꯄꯨ ꯁꯔꯤ ꯑꯃꯁꯨꯡ 2011-ꯒꯤ ꯃꯐꯃꯗꯤꯈꯩꯂꯤꯒ ꯃꯗꯤꯅꯥꯗꯤꯌꯗꯥ 4.9 ac-ft ꯃꯄꯨ ꯁꯔꯤ (MARC Evolution deck)꯫ ꯈꯩꯗꯥ ꯗꯤꯁꯥꯏꯟꯂꯦ ꯁꯦꯕꯗꯥ ꯂꯥꯡꯗꯥꯇ ꯈꯩꯗꯥ ꯃꯃꯜ ꯌꯥꯅ꯫ ꯃꯇꯤ ꯂꯣꯅꯁꯤꯡ ꯑꯃꯁꯨ ꯅꯥꯏꯁꯒꯤ ꯃꯈꯣꯡꯗ ꯃꯌꯥꯃꯩꯁ ꯑꯣꯏꯕ ꯂꯩꯕꯒꯤ ꯃꯃꯜꯇꯤ꯫

4.17 ꯂꯕꯃꯤꯁꯥꯜꯒꯤ ꯃꯄꯨ ꯁꯕꯂꯤꯕ

ꯂꯣꯅꯁꯤꯡ ꯗꯩꯑꯦ ꯃꯩꯁꯗꯥꯜꯒꯤ ꯂꯕꯃꯤꯁꯥꯜ ꯅꯗꯤꯕꯃꯈꯁ ꯃꯔꯤꯒꯤꯂꯤꯕ ꯌꯥꯎꯕ **ꯂꯣꯅꯁꯤꯡ ꯗꯩꯑꯦ ꯃꯩꯁꯗꯥꯜ ꯗꯤꯄꯥꯗꯁ** (ꯐꯗꯃ 4-1) ꯑꯃꯁꯨ ꯌꯥꯎꯒꯗꯕꯅꯤ:

1. ꯗꯤꯇꯦꯅꯩ ꯇꯕ ꯅꯕꯒꯤ ꯂꯤꯁ (ꯐꯗꯃ 2-1) ꯑꯃꯁꯨꯡ ꯈꯅꯗꯗꯇꯇꯤꯒꯤ ꯅꯩꯄꯁꯂꯤꯕ (ꯆꯦꯞꯇꯔ 3);
2. ꯁꯦꯛꯁꯟ 4.3.1-ꯒꯤ ꯃꯔꯝ ꯄꯑꯕꯂꯤꯕꯒꯤ ꯃꯄꯕ ꯃꯄꯕꯒꯤ ꯄꯕꯁꯤꯡ ꯂꯕꯂꯤ;
3. RRV-ꯒꯤ ꯃꯜꯃꯇꯂꯦ, ꯅꯩꯐꯤꯜꯁꯗꯂꯦ ꯁꯂꯁꯂꯤꯕ, ꯇꯃꯅꯒꯤ ꯃꯔꯒꯤ ꯅꯂꯤꯕꯒꯤ ꯂꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯗꯗꯗꯤꯌꯒꯤ ꯃꯜꯃꯇꯂꯦ (ꯁꯦꯛꯁꯟ 4.4);
4. ꯗꯤꯁꯥꯏꯟꯂꯦ ꯃꯗꯗꯤꯁꯤꯡ ꯃꯜꯃꯇꯂꯦ (ꯁꯦꯛꯁꯟ 4.4.6);
5. ꯂꯤꯇꯤꯀꯇꯗꯕ ꯗꯤꯖꯤꯇ ꯗꯁꯤꯡ ꯃꯗꯅꯁꯗꯤꯌꯦ, ꯂꯁꯀꯗꯗ ꯇꯁꯗꯒ ꯅꯂꯤꯕ ꯅꯔꯌꯗ ꯂꯀꯂꯤꯁꯤꯒ, ꯑꯈꯀꯕ 4A-ꯒꯤ ꯃꯄꯃꯤ ꯑꯕꯂꯗꯕꯁꯃ ꯇꯌꯇꯗ (ꯁꯦꯛꯁꯟ 4.5);
6. AEP ꯑꯃꯁꯨꯡ ꯗꯅꯗꯂꯦ ꯅꯗꯤꯕꯃꯕꯃꯤꯈꯃꯕ ꯁꯦꯛꯁꯟ 4.6.7-ꯒꯤ ꯐꯗꯃꯁꯁ ꯗꯤꯇꯜꯁꯤꯡ ꯁꯕꯜ ꯑꯃꯁꯨ, ꯌꯁꯃꯗꯕ ꯃꯂ ꯑꯃꯥ ꯃꯌꯕ ꯂꯕꯗꯥ ꯐꯪꯂꯗ;
7. ꯂꯁꯇ–ꯂꯁꯗꯇ ꯑꯃꯁꯨꯡ ꯂꯁꯇ–ꯗꯤꯂꯌꯗꯇꯒꯤ ꯁꯕꯜꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯇꯁꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯌꯁꯃꯗꯕ ꯃꯂꯂꯤꯕꯒꯤꯈꯃꯕ ꯅꯩꯐꯇ/ꯑꯣꯄꯔꯦꯁꯅꯒꯤ ꯈꯅꯗꯗꯒꯗꯐꯂꯤꯕ;
8. ꯗꯗꯗꯤꯌꯒꯤ ꯃꯜꯃꯇꯂꯦ (ꯁꯦꯛꯁꯟ 4.7);
9. ꯑꯦꯗꯤꯁꯅ ꯂꯅꯇ ꯑꯃꯁꯨꯡ ꯇꯒꯜꯂꯤꯕ, ꯁꯗꯂ ꯗꯕꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯩꯁ-ꯒꯗꯁꯕꯂ ꯗꯤꯒꯅꯂꯂꯤꯕ ꯌꯥꯎꯗ ꯑꯣꯄꯔꯦꯁꯅꯁꯤꯡ ꯑꯃꯄꯄꯂꯤꯕ (ꯁꯦꯛꯁꯟ 4.8);
10. ꯂꯄꯤꯜꯌ ꯇꯁꯗꯒ ꯑꯒꯗꯐꯇꯒꯤ ꯃꯜꯃꯇꯂꯦ, ꯐꯗꯤꯕꯗꯗ ꯑꯃꯁꯨꯡ ꯈꯇꯗꯗꯤ ꯃꯇꯂꯤꯐꯤꯃꯂꯦ, ꯑꯃꯁꯨꯡ ꯃꯄꯨ ꯁꯕ ꯃꯐꯃꯗ ꯇꯤꯁꯕꯇꯤꯃꯜ ꯗꯤꯄꯥꯗꯁ (ꯁꯦꯛꯁꯟ 4.9);
11. ꯇꯩꯒꯤ ꯇꯒꯜꯂꯤꯕ ꯗꯁꯄ ꯁꯃꯃꯤ ꯂꯕꯂꯩꯂꯤꯕꯒ ꯇꯌꯇꯗ RWH ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯏꯟꯂꯩꯒꯤ ꯈꯤꯂꯕ (ꯁꯦꯛꯁꯟ 4.11);
12. ꯗꯤꯇꯦꯅꯩ ꯇꯃꯅꯒꯤ ꯃꯔꯒꯤ ꯅꯂꯤꯕꯒꯤ ꯇꯒꯜ ꯑꯃꯁꯨꯡ ꯁꯗꯕꯒꯤ ꯌꯥꯎ (ꯁꯦꯛꯁꯟ 4.12);
13. ꯃꯔꯦ ꯄꯣꯛꯕ ꯃꯐꯃ ꯑꯃꯁꯨꯡ ꯁꯜꯌꯁꯗꯒꯤ ꯗꯤꯄꯥꯗꯁ (ꯆꯦꯞꯇꯔ 5, ꯐꯗꯃ 5-1); ꯑꯃꯁꯨꯡ
14. ꯂꯐꯁꯤꯒꯤ ꯄꯗꯒꯤꯇꯩꯂꯤꯕ (ꯁꯦꯛꯁꯟ 4.15) ꯑꯃꯁꯨꯡ ꯗꯗꯐꯁ ꯃꯩꯁꯇꯩꯂ ꯗꯤꯕꯇꯗꯂꯦ (ꯆꯦꯞꯇꯔ 10)꯫

ꯁꯦꯛꯁꯟ 4.14.2 ꯂꯤꯇꯤꯀꯇꯗꯤꯕ ꯁꯤꯌꯗ B-ꯒꯤ ꯂꯣꯅꯁꯤꯡꯗ ꯑꯣꯅꯁ 6 ꯑꯃꯁꯨꯡ 7-ꯒꯤ ꯃꯈꯣꯡꯗ ꯐꯗꯃ 4-2 ꯄꯤꯒꯗꯕꯅꯤ꯫ ꯐꯤꯕꯂ ꯁꯗꯕ ꯃꯑꯐꯤꯂꯤꯌꯩꯁꯤꯡ ꯗꯁ (ꯁꯦꯛꯁꯟ 4.14.3) ꯂꯤꯇꯤꯀꯇꯗꯤꯕ ꯂꯣꯅꯁꯤꯡꯗ ꯑꯣꯅꯁ 6 ꯑꯃꯁꯨꯡ 7-ꯒꯤ ꯃꯈꯣꯡꯗ ꯐꯗꯃ 4-3 ꯄꯤꯒꯗꯕꯅꯤ꯫

ꯍꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01 (approved 10 Dec 2025). https://kcmetro.apwa.org/wp-content/uploads/sites/23/2026/01/APWA-Section-5600_Storm-Drainage-Systems-Facilities.pdf
- Mid-America Regional Council (2025). APWA 5600 Stormwater Standards Policy Supplement (7 Nov 2025); APWA 5600 Manual factsheet. https://www.marc.org/document/apwa-stormwater-standards-supplement ; https://www.marc.org/document/apwa-5600-manual-factsheet
- Kansas City Metro Chapter APWA (2006). Section 5600 Storm Drainage Systems and Facilities (5601.8, 5608.4). https://www.kcwater.us/wp-content/uploads/2020/08/Design-Criteria-%E2%80%93-Section-5600-%E2%80%93-Storm-Drainage-Systems-and-Facilities.pdf
- MARC / APWA (2012). Manual of Best Management Practices for Stormwater Quality. https://www.marc.org/sites/default/files/2022-05/Best_Management_Practices_for_Stormwater_Quality.pdf
- MARC. The Evolution of Regional Stormwater Design Standards (presentation; McEnroe 2005 results). https://www.marc2.org/Assets/Environment/WQEC/The_Evolution_of_Regional_Strormwater_Design_Standards.pdf
- Atlanta Regional Commission / Georgia EPD (2016). Georgia Stormwater Management Manual, Volume 1. https://documents.atlantaregional.com/gastormwater/GSMM_2016%20EDITION_FINAL_V1.pdf
- Urban Drainage and Flood Control District (now MHFD) (2012). Full Spectrum Detention Release Rate Memorandum. https://mhfd.specialdistrict.org/files/23cb85ce8/UDFCD_Full_Spectrum_Detention_Release_Rate_Memorandum.pdf
- Mile High Flood District. Urban Storm Drainage Criteria Manual, Volume 2 (Storage).
- Department of Irrigation and Drainage Malaysia (2008). Submission Checklist for Stormwater Management. https://www.water.gov.my/jps/resources/auto%20download%20images/5844dfbba8fc1.pdf
- Department of Irrigation and Drainage Malaysia (2012). Urban Stormwater Management Manual for Malaysia (MSMA), 2nd ed.
- PUB Singapore (2024). On-site Detention Tank Technical Guide, Rev. 3; Code of Practice on Surface Water Drainage, 7th ed., Addendum No. 3 (16 Apr 2025). https://www.pub.gov.sg/-/media/PUB/PDF/detentionTank.pdf
- Sydney Water (2020). On-site Stormwater Detention Guide (SW201). https://www.sydneywater.com.au/content/dam/sydneywater/documents/on-site-stormwater-detention-guide.pdf
- Upper Parramatta River Catchment Trust (2005). On-site Stormwater Detention Handbook, 4th ed.
- "On-site stormwater detention for Australian development projects: does it meet frequent flow management objectives?" *Water Science and Engineering* (2019). https://www.sciencedirect.com/science/article/pii/S1674237019300213
- Optimisation of urban detention (2016). *Water* 8(7):290. https://doi.org/10.3390/w8070290
- Colorado State University. Spatially Dependent On-Site Detention Policies (thesis). https://mountainscholar.org/bitstreams/f4dbec4e-a44f-4933-8d54-a097e741f44a/download
- *Manipur Loktak Lake (Protection) Act, 2006* (Manipur Act 3 of 2006; notification No. 2/14/2006-Leg/L of 5 April 2006, Manipur Gazette Extraordinary No. 13(E)), as amended by Acts 5 of 2007 and 8 of 2019: ss. 1(3), 2, 3, 4, 17, 19, 20, 35(2) and 36. https://prsindia.org/files/bills_acts/acts_states/manipur/2006/Manipur%20Act%203%20of%202006.pdf
- *Manipur Conservation of Paddy Land and Wetland Act, 2014* (Manipur Act 10 of 2014; Manipur Gazette Extraordinary No. 150, 2 September 2014): ss. 2(c), 2(h), 2(t), 3, 4, 12 and 18; and the (Third Amendment) Bill, 2026 (Bill No. 6 of 2026, as introduced; ꯑꯦꯛꯇ ꯑꯣꯏꯔꯕꯦ ꯂꯣꯏꯁꯗꯦ ꯏꯡꯏꯤꯁꯪ [TBC]). https://faolex.fao.org/docs/pdf/ind194970.pdf ; https://prsindia.org/files/bills_acts/bills_states/manipur/2026/Bill6of2026MN.pdf

- Directorate of Environment and Climate Change, Government of Manipur. *Administrative Report 2025-26* (the Manipur State Wetlands Authority, set up on 31 January 2018; the Phase-1 priority wetlands; the draft notifications of Yaral, Utra and Waithou–Phumnom Pat; the inventory of about 4,000 water bodies after NGT M.A. 26/2019). https://assembly.mn.gov.in/user/pages/files/administrative-reports/A%20Report%202025-26%20(DoECC).pdf
- Town Planning Department, Government of Manipur. *Annual Administrative Report 2025-26* (AMRUT 2.0 water-body rejuvenation of public ponds). https://www.tpmanipur.mn.gov.in/media/filer_public/1a/48/1a484b87-afaa-41de-8d64-f6d2f27c49c7/admn_report2025-26.pdf
- New Development Bank (2021). *Proposed Project Summary, Lamphelpat Waterbody Rejuvenation Project.* https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf ; and the WRD site inspection report in HC PIL No. 8 of 2025 (order of 16.06.2025). https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf
- Reports on the levels of Loktak and the Ithai barrage (NHPC ꯑꯃꯁꯨꯡ CEA, ꯌꯥꯎꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯠꯇꯦ; ORF, ꯁꯤꯡꯂꯥ ꯈꯦꯡꯂꯦꯡꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯠꯇꯦ), on the High Court's orders on Loktak of 17 July 2019 and 25 February 2022 (SabrangIndia, 2 March 2022, ꯁꯤꯡꯂꯥ ꯈꯦꯡꯂꯦꯡꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯠꯇꯦ) and on the cost and funding of the Lamphelpat project (ꯁꯤꯡꯂꯥ ꯈꯦꯡꯂꯦꯡꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯠꯇꯦ; ꯄꯤꯔꯦꯕꯒꯤꯡ ꯃꯦꯠꯇꯂꯥꯪ).
- MoHUA / CPHEEO (2019). Manual on Storm Water Drainage Systems, Part A (§8.5).
- Municipal Administration, Housing and Urban Development Department (MAHUD). *The Model Manipur Unified Building Bye-Laws, 2024*, Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) of 4 December 2024 (Manipur Gazette Extraordinary No. 253 of 5 December 2024), under section 213 of the Manipur Municipalities Act, 1994 (Act 43 of 1994) and section 26(1) of the Manipur Town and Country Planning Act, 1975 (Manipur Act 11 of 1975), "for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur": bye-laws 1(2), 2(2), 2(11), 6(1)(A), 6(1)(C)(j), 6(1)(D), 16, 26, 27, 28, 66, 67, 68, 92, 93 and 94, the open-space clause and the green-building criteria. https://www.tpmanipur.mn.gov.in/media/filer_public/5b/3d/5b3d9440-3e85-4cf5-bd26-d113882dfb9a/model_manipur_ubbl_final_gazette.pdf ; the bye-laws that the urban local bodies have brought into force on it, among them the Kumbi, Moirang and Jiribam Municipal Councils' Building Bye-laws, 2025 (final gazette 16 January 2025) and the "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" of 15 December 2025 (ꯑꯇꯤꯃꯡ TPD-ꯒꯤ ꯁꯦꯅꯋꯥ ꯇꯤꯁꯨꯋ ꯌꯥꯎꯕ ꯃꯁꯨꯡ ꯅꯠꯇꯦ; ꯁꯤꯅꯤꯈꯕ [TBC]).
- *Imphal Municipal Corporation Building Bye-Laws (3rd Amendment), 2024*, draft published for objections (bye-laws 92, 92.1, 92.2, 93.1 and 93.2; ꯑꯍꯥꯅꯕ ꯁꯨꯋꯥꯁ ꯁꯥꯅꯈꯦ ꯅꯡꯅꯤꯈꯥ [TBC]). https://www.tpmanipur.mn.gov.in/media/filer_public/22/ef/22ef77df-5b8c-4a80-9fa0-553d8a60a170/amendment_of_imc_building_bye_laws_2024.pdf
- MAHUD. *Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026*, Notification No. BBL-101/1/2024-MAHUD-MAHUD of 22 July 2026 (Gazette Extraordinary No. 157, 23 July 2026): the use zones "Agriculture" and "Pond, Drain, Rivers and Canals". https://www.tpmanipur.mn.gov.in/media/filer_public/44/2b/442b7923-b910-494a-83d5-767f50c0c87c/unified_zoning_final_gazette.pdf
- MAHUD. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, No. SCS-401/3/2021-MAHUD-MAHUD-Part(3) of 4 December 2024 (Section 10, Physical Infrastructure; land use 2020–2043). Internet Archive capture 20250810073559 of https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf
- *Manipur Town and Country Planning Act, 1975* (Manipur Act 11 of 1975), ss. 1(2), 2, 13, 22 and 26. https://prsindia.org/files/bills_acts/acts_states/manipur/1975/Act11of1975Manipur.pdf ; *Manipur Municipalities Act, 1994* (Act 43 of 1994), s. 213 and its extent (ꯌꯥꯎꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯠꯇꯦ; ꯅꯍꯃꯒꯤ ꯁꯪꯒꯠꯁꯤꯡꯒꯤ ꯁꯤꯅꯤꯈꯕ [TBC]).

- *Manipur Flood Plain Zoning Act, 1978* (Manipur Act 10 of 1978; Manipur Gazette Extraordinary No. 185, 1 September 1978), ss. 1–7, read from the optical character recognition of a truncated copy. https://www.indiacode.nic.in/bitstream/123456789/13383/1/the_manipur_flood_plain_zoning_act%2C_1978.pdf
- *Manipur (Hill Areas) District Councils Act, 1971*, as amended (State compilation of subsequent amendments; ss. 29, 29(1A), 44A and 52). https://manipur.gov.in/wp-content/uploads/2026/05/The-Manipur-Hill-Areas-District-Councils-Act-1971-subsequent-Amendments.pdf
- *Manipur Official Language Act, 1979* (Act 14 of 1979), with the (Amendment) Act, 2021 (Act 7 of 2021; Gazette Extraordinary No. 427, 10 March 2021). https://prsindia.org/files/bills_acts/acts_states/manipur/1979/Manipur%20Act%2014%20of%201979.pdf
- Government of Manipur. Reports in NGT OA 606/2018 ("Updated Fresh Report", July 2025; sixth six-monthly progress report, as on December 2025): sewage generation and treatment, the interception and diversion of the 72 drains falling into the Nambul and their BOD, and the hill areas. https://www.greentribunal.gov.in/sites/default/files/news_updates/6TH%20SIX%20MONTHLY%20PROGRESS%20REPORT%20BY%20GOVT.%20OF%20MANIPUR%20IN%20OA%20NO.%20606%20of%202018%20(COMPLIANCE%20OF%20MSW%20MGT%20RULES,%202016%20AND%20OTHER%20ENVIRONMENTAL%20ISSUES).pdf
- Central Pollution Control Board (2025). *Polluted River Stretches for Restoration of Water Quality* (the 18 Manipur stretches, all Priority V). https://dste.py.gov.in/ppcc/pdf/Laboratory/PRS-2025.pdf
- Central Ground Water Board, North Eastern Region. Ground Water Information Booklets for Imphal West (Technical Report Series D No. 28/2013-14) and Bishnupur (2013); GWRA 2023 and 2024 (ꯁꯦꯀꯟꯗꯔꯤ ꯃꯇꯨꯡ ꯅꯦꯝꯕ).
- Asian Infrastructure Investment Bank. *Approval Project Document* (October 2024) and *Project Summary Information* (29 November 2024), Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723). https://www.aiib.org/en/projects/details/2024/_download/India/AIIB-PSI-P000723-India-Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project_clean_20241129.pdf
- Manipur Science & Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, final report to DST-NRDMS (data to 2001).
- Reports on the floods of May 2024, May–June 2025 and September 2025 in the Imphal valley, the Naga Nullah, and the landslides at Tupul (2022) and Joumol (2015) (The Sangai Express; India Today NE; Eastern Mirror; the AGU Landslide Blog via a search summary; ꯄꯥꯎꯖꯦꯜ ꯇꯦꯡꯁꯦꯡꯒꯔꯤ ꯃꯇꯨꯡ ꯅꯦꯝꯕ).
- Bureau of Indian Standards. IS 456:2000 Plain and Reinforced Concrete — Code of Practice.
- Government of India. Dam Safety Act, 2021.
- Chow, V.T., Maidment, D.R. and Mays, L.W. (1988). *Applied Hydrology*. McGraw-Hill (AMC conversion).

ꯑꯍꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜꯁꯤꯡ

ꯑꯍꯣꯡꯕ / ꯇꯦꯕꯜ	ꯑꯔꯥꯏꯕ
4A	ꯅꯣꯡꯃ ꯅꯍꯦꯡꯕ ꯀꯣꯟꯀꯤꯗꯤꯒ ꯑꯦꯅꯕ ꯁꯣꯌꯃꯁꯦꯡꯁꯤ ꯑꯃꯐꯝꯀꯣꯡ (GIS); ꯇꯨꯝꯕ ꯆꯤꯡꯅꯥꯒꯤ ꯃꯍꯥꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯆꯦꯁꯒꯤ ꯃꯣꯌ
4B	ꯁꯤꯔꯗ B-ꯒꯤ ꯁꯣꯕꯒꯀꯤꯡ: PSD ꯑꯃꯁꯨꯡ SSR (ꯁꯣꯕꯒ 4.3), ꯗꯤꯁꯣꯁꯀꯁ ꯑꯗꯣꯇꯤꯌ ꯇꯣꯒꯁꯗ C_R, ꯀꯁꯣꯁꯇꯗꯇ ꯑꯦꯍꯌꯆꯣꯌꯑꯤ ꯀꯦꯅꯆꯀꯤꯡ; ꯀꯦꯅꯇꯆꯦ ꯁꯦꯗꯕ ꯇꯤꯒꯂ ꯁꯦꯗꯕ ꯗꯤꯆꯤꯆ ꯑꯦꯑꯣꯇꯤꯀꯤꯔꯣꯁꯌꯀꯤꯡ (ꯁꯣꯕꯒ 4.3A)
4C	ꯃꯁꯨꯡ ꯍꯦꯕ ꯗꯦꯍꯁꯤꯡ ꯁꯣꯕꯒꯀꯤꯡꯒꯤ ꯆꯦꯔꯆꯦ ꯖꯕꯒ ꯁꯦꯗꯕ ꯃꯨꯇꯐ (ꯁꯤꯔꯗ A)
ꯇꯦꯕꯜ 4-1	ꯀꯦꯅꯌꯑꯤ ꯗꯆꯑꯦꯇ ꯑꯆꯁꯗꯦꯒ ꯗꯤꯁꯦꯗꯌ
ꯇꯦꯕꯜ 4-2	ꯁꯤꯔꯗ B ꯀꯦꯅꯌꯑꯤ ꯀꯤꯌ
ꯇꯦꯕꯜ 4-3	ꯇꯤꯒꯂ ꯁꯦꯗꯕ ꯑꯦꯑꯣꯇꯤꯀꯤꯔꯣꯁꯌꯑꯤ ꯗꯨꯌ ꯀꯤꯌ (ꯑꯆꯦꯆ 4.14.3-ꯗꯒꯤ 4.14.7 ꯇꯦꯍꯕ)

ꯁꯔꯨꯛ 5

ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯥꯇꯔꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ

5.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯅꯕ ꯃꯐꯝ

5.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯄꯦꯀꯦꯖꯀꯤ ꯁꯣꯌꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄꯂꯥꯏꯟ ꯏꯁꯤꯡ (drainage) ꯃꯣꯗ꯭ꯦꯜ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯔꯤ ꯂꯩꯅꯕ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯀꯌꯥ ꯑꯗꯨ ꯊꯝꯂꯤ꯫

- **ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ (downstream analysis)** (ꯁꯦꯛꯁꯟ 5.3-ꯗꯒꯤ 5.5 ꯐꯥꯑꯣꯕ) ꯑꯁꯤꯅꯥ ꯃꯣꯗ꯭ꯦꯜ ꯑꯣꯏꯅꯥ ꯃꯁꯤꯒꯤ ꯑꯥꯎꯇꯐꯣꯜ (outfall) ꯃꯍꯥꯛ ꯏꯁꯤꯡ ꯏꯆꯥꯎ (flood) ꯀꯥꯟꯅꯕ ꯂꯩꯇꯕ ꯀꯔꯝꯕ ꯁꯣꯏꯗꯅꯕ ꯌꯦꯡꯏ꯫
- **ꯇꯦꯜꯋꯥꯇꯔꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ (tailwater analysis)** (ꯁꯦꯛꯁꯟ 5.6-ꯗꯒꯤ 5.13 ꯐꯥꯑꯣꯕ) ꯑꯁꯤꯅꯥ ꯁꯤꯟꯗ꯭ꯦꯝ ꯑꯣꯏꯅꯥ ꯏꯁꯤꯡ ꯊꯣꯛꯄ ꯃꯐꯝꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ ꯊꯝꯂꯤ, ꯃꯁꯤꯒꯤ ꯌꯦꯡꯁꯤꯟ (tide), ꯁ꯭ꯇꯣꯔꯝ ꯁꯔꯖ (storm surge), ꯁꯤ-ꯂꯦꯚꯦꯜ ꯔꯥꯏꯖ (sea-level rise), ꯕ꯭ꯌꯥꯀꯒꯤ ꯕꯦꯛꯋꯥꯇꯔ (backwater) ꯑꯃꯁꯨꯡ ꯁꯦꯟꯗ-ꯕꯥꯔꯒꯤ ꯊꯤꯡꯕ (sand-bar closure) ꯌꯥꯑꯣꯔꯤ꯫ ꯃꯁꯤꯅꯥ ꯁꯤꯟꯗ꯭ꯦꯝ ꯑꯣꯏꯕꯒꯤ ꯑꯥꯎꯇꯐꯣꯜ ꯊꯤꯡꯗꯕ ꯃꯇꯝꯗꯨ ꯃꯁꯤꯅꯥ ꯊꯦꯡꯅꯕ ꯍꯥꯌꯕꯗꯨ ꯃꯊꯧ ꯌꯦꯡꯏ꯫

5.1.2 ꯁꯔꯨꯛ ꯑꯁꯤ ꯃꯍꯥꯛ ꯃꯔꯤ ꯂꯩꯅꯕꯥ ꯌꯥꯎꯏ:

- (a) ꯁꯔꯨꯛ 4 ꯌꯥꯎꯗꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ;
- (b) ꯁꯔꯨꯛ 6 ꯃꯍꯥꯛ ꯃꯍꯩꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯇꯔ ꯁꯤꯟꯗ꯭ꯦꯃꯒꯤ ꯏꯁꯤꯡ ꯃꯔꯤ ꯂꯩꯅꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯁꯦꯛꯁꯟ 4.13 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 7 ꯃꯍꯥꯛ ꯗꯤꯇꯦꯟꯁꯟ ꯊꯝꯅꯕ (detention) ꯅꯠꯔꯒꯥ ꯄꯨꯈ꯭ꯔꯤ (pukhri; tank) ꯗꯤꯖꯥꯏꯟ ꯃꯔꯤ ꯂꯩꯅꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ꯫

5.1.3 ꯅꯣꯡ ꯆꯨꯕ ꯑꯃꯁꯨꯡ ꯃꯊꯦꯡ ꯊꯣꯛꯄꯒꯤ (joint-occurrence) ꯊꯦꯡꯅꯕꯁꯤꯡ ꯑꯁꯤ ꯁꯔꯨꯛ 2-ꯗꯒꯤ, ꯃꯔꯨꯑꯣꯏꯅꯥ ꯁꯦꯛꯁꯟ 2.5.3 ꯑꯃꯁꯨꯡ 2.12-ꯗꯒꯤ ꯂꯧꯏ꯫ ꯀꯥꯟꯅꯕ ꯄ꯭ꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ ꯁꯔꯨꯛ 3-ꯗꯒꯤ ꯂꯧꯏ꯫ ꯁꯤꯖꯤꯟꯅꯒꯤ ꯊꯧꯑꯣꯡꯒꯤ ꯄ꯭ꯔꯣꯁꯤꯖꯔꯁꯤꯡ ꯁꯔꯨꯛ 4-ꯗꯒꯤ ꯂꯧꯏ꯫ ꯄꯥꯏꯄꯁꯤꯡ, ꯀꯂꯚꯔꯇꯁꯤꯡ (culvert) ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯥꯟꯅꯕ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯁꯔꯨꯛ 9 ꯃꯐꯝ ꯊꯦꯡꯅ ꯌꯦꯡꯏ꯫

5.1.4 **ꯃꯇꯤꯛ ꯍꯨꯔꯥꯟ ꯌꯦꯡꯁꯤꯟ ꯑꯥꯎꯇꯐꯣꯜ ꯂꯩꯕ.** ꯃꯇꯤꯛ ꯍꯨꯔꯥꯟ ꯑꯁꯤ ꯂꯩꯃꯍꯩꯗꯤ ꯂꯥꯟꯗꯂꯣꯀꯗ ꯁꯤꯟꯗ꯭ꯦꯝ (landlocked) ꯑꯣꯏꯗꯤ: ꯃꯁꯤꯅꯥ ꯁꯤꯡꯂꯨꯄꯀꯤ ꯃꯇꯧ ꯂꯩꯕ, ꯌꯦꯡꯁꯤꯟ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯀꯣꯁ꯭ꯇꯦꯜ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯖꯣꯟ (Coastal Regulation Zone) ꯂꯩꯕ, ꯑꯃꯁꯨꯡ ꯃꯔꯝ ꯑꯁꯤ ꯃꯁꯤꯅꯥ ꯅꯣꯡ ꯆꯨꯕ ꯑꯣꯏꯗꯨꯅꯥ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯌꯥꯎꯍꯟꯕꯥ ꯕꯨꯂꯦꯇꯤꯟꯁꯤꯡ, ꯅꯣꯡꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯕꯨꯂꯥ ꯕꯨꯂꯦꯇꯤꯟ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯣꯏꯗꯨꯅꯥ ꯂꯧꯈꯠ, ꯃꯍꯥꯛ ꯑꯁꯤ ꯁꯔꯨꯛ 2 ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 5.8-ꯗ ꯌꯦꯡꯁꯤꯟꯕꯤꯔꯤ, ꯌꯦꯡꯁꯤꯟ ꯅꯠꯔꯒꯥ ꯁꯦꯡꯇꯦꯟ ꯂꯦꯚꯦꯜ ꯑꯣꯏꯗꯨꯅꯥ ꯅꯠꯇꯦ꯫ ꯁꯤꯟꯗ꯭ꯦꯝ ꯑꯁꯤꯅꯥ ꯂꯩꯕ ꯑꯥꯎꯇꯐꯣꯜ ꯑꯃꯅꯥꯃꯗꯤ ꯁꯤꯡꯂꯨꯄ, ꯌꯦꯡꯁꯤꯟ ꯈꯨꯗꯣꯡ (tidal creek) ꯅꯠꯔꯒꯥ ꯑꯦꯁꯆꯨꯋꯥꯔꯤ (estuary) ꯑꯃꯅꯥ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ, ꯃꯗꯨ ꯑꯣꯏꯗꯨꯅꯥ ꯌꯦꯡꯁꯤꯟ, ꯁ꯭ꯇꯣꯔꯝ ꯁꯔꯖ, ꯁꯤ-ꯂꯦꯚꯦꯜ ꯔꯥꯏꯖ ꯅꯠꯔꯒꯥ ꯕ꯭ꯌꯥꯀꯒꯤ ꯃꯈꯣꯡ (river mouth) ꯃꯍꯥꯛ ꯄꯥꯑꯣꯕ ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯁꯤ ꯃꯇꯤꯛ ꯍꯨꯔꯥꯟ ꯌꯥꯎꯅꯕ: ꯁꯦꯛꯁꯟ 5.7 ꯑꯃꯁꯨꯡ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 5A, ꯇꯦꯕꯜ 5.2-ꯒꯤ ꯁꯦꯠ J1-ꯗꯒꯤ J3 ꯐꯥꯑꯣꯕ, ꯁꯦꯛꯁꯟ 5.10.3-ꯒꯤ ꯌꯦꯡꯁꯤꯟ ꯅꯣꯡ ꯌꯥꯎꯅꯕꯁꯤꯡ, ꯁꯦꯛꯁꯟ 5.11.3(a)-ꯒꯤ ꯁꯤꯡꯂꯨꯄꯀꯤ ꯊꯦꯡꯅꯕꯒꯤ ꯃꯊꯧ ꯌꯦꯡꯕ (ꯄꯥꯏꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯌꯕꯁꯤꯡ ꯑꯃꯥ ꯀꯥꯟꯅꯕꯥ ꯁꯣꯏꯗꯅꯥ ꯊꯦꯡꯅꯕ ꯃꯇꯝ ꯃꯍꯩꯗꯤꯌꯦꯡꯁꯤꯡꯗꯥ ꯁꯦꯃꯖꯤꯟꯕꯤ, ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ (silt) ꯍꯧꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯌꯦꯖ (sewage) ꯃꯨꯕ ꯊꯦꯡꯅꯕꯗꯤ ꯁꯣꯏꯗꯅꯥ ꯊꯝꯂꯛꯀꯅꯕꯤ), ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 5.13꯫ ꯃꯦꯇꯔꯦ ꯑꯁꯤꯒꯤ ꯁꯦꯛꯁꯟ ꯅꯠꯀꯗꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕꯗꯥ ꯁꯤꯟꯗ꯭ꯦꯝ ꯑꯦꯀꯤꯠꯁꯤꯡꯁꯤꯡꯅꯤ ꯃꯌꯦꯡꯕꯦꯡꯕ ꯃꯍꯥꯛ ꯑꯁꯤ ꯊꯝꯂꯤ꯫ ꯃꯇꯤꯛ ꯍꯨꯔꯥꯟ ꯏꯁꯤꯡ ꯂꯧꯕ ꯃꯐꯝ (receiving water) ꯑꯁꯤ ꯃꯍꯥꯛ ꯇꯥꯛꯄꯥꯒꯤ ꯃꯍꯨꯡꯗ ꯑꯣꯏꯗꯤ: ꯕ꯭ꯌꯥꯀꯒꯤ ꯄꯥꯟ (pan; bund ꯅꯠꯔꯒꯥ embankment) ꯑꯃꯅꯥ ꯂꯧꯕ ꯏꯊꯣꯡ (ithong; sluice gate ꯅꯠꯔꯒꯥ floodgate) ꯅꯠꯔꯒꯥ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ (flap gate) ꯑꯃꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ, ꯅꯠꯔꯒꯥ ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ (pumping station) ꯑꯃꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ ꯌꯥꯕ ꯁꯤꯟꯗ꯭ꯦꯃꯁꯤꯡ ꯕ꯭ꯌꯥꯀ ꯑꯃꯍꯩ, ꯃꯁꯤ ꯃꯔꯝꯂꯣꯏꯗꯤ ꯃꯄꯥꯟꯗꯥ ꯊꯤꯡꯗꯤꯛꯅꯕ ꯂꯩꯍꯟ ꯃꯗꯨꯃꯥꯏ ꯕ꯭ꯌꯥꯀ ꯑꯃꯥ ꯃꯁꯤꯒꯤ ꯃꯐꯝꯁꯤ ꯂꯩꯕ ꯌꯦꯡꯖ ꯑꯃꯥꯗꯒꯤ ꯌꯦꯡꯕ ꯂꯩꯍ; ꯊꯤꯖꯤꯟꯒꯤ ꯁꯤꯡꯗꯒꯤ ꯕ꯭ꯌꯥꯀꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯅꯁꯤꯡ (channel), ꯃꯍꯥꯛꯀꯒꯤ ꯃꯇꯤꯛ ꯅꯠꯇꯅ ꯕ꯭ꯌꯥꯀ, ꯅꯥꯒꯥ ꯅꯨꯂꯥ (Naga Nullah) ꯑꯃꯁꯨꯡ ꯋꯥꯏꯁꯦꯜ ꯃꯥꯔꯤꯜ (Waisel Maril), ꯑꯃꯁꯨꯡ ꯁꯃꯨꯁꯪ ꯅꯂꯥꯒꯤ (Shamushang nallah) ꯈꯨꯠꯊꯥꯡꯗ ꯄꯝꯄꯀꯤ ꯊꯧꯑꯣꯡ ꯑꯥꯎꯇꯐꯣꯜ ꯂꯩꯕ ꯅꯠꯇꯦꯡꯄꯤ; ꯊꯧꯊ ꯕꯦꯗꯤꯡ

(Ithai barrage) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯅꯨꯡꯒꯤ ꯁꯤꯜ (rock sill) ꯑꯃꯗꯥ ꯊꯤꯡꯖꯤꯟꯂꯤꯕ ꯂꯣꯡꯈꯥꯡ, ꯃꯁꯤꯒꯤ ꯂꯦꯡꯒꯦꯟ ꯑꯁꯤ ꯄꯨꯔꯛꯄꯥꯍꯟꯕꯥ ꯈꯥ ꯃꯇꯨꯡꯗꯒꯤ ꯄꯦꯜꯋꯥꯇꯔ (tailwater) ꯑꯣꯏꯕꯥ; ꯃꯄꯤꯊꯦꯜ ꯗꯦꯝ (Mapithel dam)-ꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯊꯣꯕꯟ ꯇꯨꯔꯦꯜꯒꯤ ꯗꯦꯝ ꯑꯃꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯇꯨꯔꯦꯜ ꯑꯃꯥ; ꯑꯦꯡꯀꯂꯦꯡ ꯊꯤꯡꯂꯤꯡꯖꯗ ꯄꯣꯡꯕ ꯑꯆꯧꯒꯤ ꯁꯔꯤꯡ ꯊꯖꯂꯤꯕ ꯄꯥꯠ (pat; lake or wetland, ꯂꯖꯦꯟꯄꯥꯠꯄꯨꯖꯅ) ꯅꯠꯔꯒꯥ ꯄꯨꯈ꯭ꯔꯤ (pukhri; pond; ꯃꯔꯤꯡ ꯌꯦꯖꯂꯕꯗ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ) ꯑꯃꯥ; ꯂꯩꯃꯥ ꯑꯃꯁꯨꯡ ꯗꯦꯕ꯭ꯔꯤꯁ (debris) ꯄꯨꯔꯛꯄ ꯌꯤꯡꯗꯒꯤ ꯂꯥꯛꯄ ꯈꯣꯡ (khong; stream) ꯅꯠꯔꯒꯥ ꯑꯁꯣꯛꯄ ꯌꯤꯡꯒꯤ ꯈꯣꯡ ꯑꯃꯥ; ꯅꯠꯔꯒꯥ ꯖꯤꯔꯤꯕꯝ ꯄꯥꯟꯗꯝ (Jiribam plain) ꯂꯩꯕ ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤ ꯇꯨꯔꯦꯜ (Jiri); ꯑꯃꯁꯨꯡ:

- (a) ꯃꯔꯤꯒꯤ ꯁꯦꯜꯋꯥꯁꯦꯔ ꯑꯔꯤ ꯁꯦꯛꯁꯟ 5.8.5 ꯌꯥꯑꯣꯗ ꯁꯦꯛꯁꯟ 5.6 ꯑꯃꯁꯨꯡ 5.8-ꯗꯥ ꯊꯝꯂꯤ;
- (b) ꯁꯦꯛꯁꯟ 5.10-ꯗꯒꯤ 5.12 ꯐꯥꯑꯣꯕ, ꯐꯣꯔꯝ 5-1 ꯅꯠꯔꯒꯥ ꯆꯦꯞꯇꯔ 6-ꯗꯥ J1 ꯁꯦꯜꯋꯥꯁꯦꯔ ꯅꯠꯔꯒꯥ J1 ꯁꯣꯟꯗꯦꯜ ꯍꯥꯏꯒꯤ ꯃꯁꯣꯡꯗ ꯄꯥꯝꯕ ꯃꯐꯝꯗ, ꯁꯦꯛꯁꯟ 5.6.2 ꯅꯠꯔꯒꯥ 5.8.5-ꯒꯤ ꯃꯅꯥꯛ-ꯔꯤꯁꯣꯔꯁ ꯁꯦꯜꯋꯥꯁꯦꯔ ꯌꯥꯎꯕ, ꯅꯔꯤꯡ ꯂꯩꯕ ꯂꯦꯡꯒꯦꯟ ꯑꯗꯨ ꯄꯨꯡꯆꯤꯕ ꯃꯐꯝꯗ ꯁꯣꯟꯕ ꯔꯤꯕꯤꯂ ꯑꯃꯥ ꯑꯣꯟꯅꯕ; ꯃꯅꯥꯌꯕ J2 ꯁꯦꯜꯋꯥꯁꯦꯔ ꯅꯠꯔꯒꯥ HAT + surge + SLA-ꯒꯤ ꯃꯁꯣꯡꯗ ꯄꯥꯝꯕ ꯃꯐꯝꯗ, ꯃꯦꯂꯕ-ꯔꯤꯁꯣꯔꯁ ꯁꯦꯜꯋꯥꯁꯦꯔ ꯌꯥꯎꯕ: ꯁꯦꯛꯁꯟ 5.8.4(b)-ꯒꯤ ꯗꯤꯖꯥꯏꯟ-AEP ꯇꯨꯔꯦꯜ ꯂꯦꯡꯒꯦꯟ, ꯅꯠꯔꯒꯥ ꯁꯦꯛꯁꯟ 5.8.5-ꯒꯤ ꯃꯦꯂꯕ-ꯔꯤꯁꯣꯔꯁ ꯁꯦꯜꯋꯥꯁꯦꯔ, ꯑꯦꯡꯀꯂꯦꯡ ꯑꯆꯧꯗ ꯁꯤꯡꯗ ꯄꯦꯜꯂꯕ ꯌꯥꯡꯕꯒꯤ ꯃꯆꯧ; ꯑꯃꯁꯨꯡ
- (c) ꯁꯦꯛꯁꯟ 5.10-ꯒꯤ ꯑꯦꯡꯀꯂꯦꯡ ꯊꯤꯡꯕ ꯌꯥꯡꯕ ꯑꯔꯤ ꯄꯨꯟꯁꯤꯒꯤ ꯃꯇꯝ ꯑꯃꯒꯤ ꯃꯊꯣꯛ ꯂꯩꯕ ꯇꯨꯔꯦꯜ, ꯄꯥꯝꯄꯗ ꯊꯣꯡꯍꯥꯡꯄ ꯑꯦꯡꯀꯂꯦꯡ, ꯂꯩꯃꯥꯁꯣꯛ, ꯔꯤꯂꯤꯖ ꯔꯤꯆ (release reach), ꯃꯄꯨꯡꯐꯕ ꯄꯥꯟꯗ ꯅꯠꯔꯒꯥ ꯄꯨꯈ꯭ꯔꯤ, ꯌꯤꯡꯒꯤ ꯈꯣꯡ ꯅꯠꯔꯒꯥ ꯅꯔꯤꯡ ꯂꯩꯕ ꯈꯣꯡꯕꯨꯡ (drain) ꯑꯃꯗꯥ ꯑꯦꯡꯀꯂꯦꯡ ꯑꯃꯥ ꯊꯤꯡꯂꯕ ꯃꯐꯝꯗ ꯌꯥꯎꯕ, ꯁꯣꯟꯗꯦꯜ ꯂꯣꯝ ꯌꯤꯡꯄꯣꯛꯔꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯁꯦꯛꯁꯟ 5.8.5(a)-ꯒꯤ (g) ꯐꯥꯑꯣꯕꯒꯤ ꯂꯣꯔꯤꯡ (lock: ꯇꯨꯔꯦꯜ ꯑꯦꯡꯀꯂꯦꯡꯒꯤ ꯃꯊꯣꯛ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯝ ꯊꯤꯡꯂꯤꯕꯗ ꯂꯩꯕ ꯃꯁꯝ) ꯑꯃꯁꯨꯡ ꯊꯤꯡꯕꯔꯤꯡ ꯔꯤꯂꯤꯖꯅꯕꯗꯥ꯫

ꯔꯤꯖꯅꯥꯏꯗ ꯁꯣꯏꯗꯥ. ꯅꯝꯐꯥꯟꯗ ꯃꯔꯤꯒꯤ ꯈꯣꯡꯕꯨꯡꯔꯤꯡꯗꯒꯤ ꯌꯥꯎꯗ ꯂꯩꯕ ꯇꯨꯔꯦꯜꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯠ ꯑꯃꯥ ꯅꯔꯤꯡ ꯊꯥꯗꯣꯛꯄꯅ꯫ "ꯔꯥꯖꯕ ꯑꯔꯤ ꯅꯝꯐꯥꯟ ꯇꯨꯔꯦꯜꯒꯤ ꯍꯥꯟꯅꯔꯣꯜ ꯐꯨꯖꯗ ꯂꯦꯡꯒꯦꯟꯗꯒꯤ ꯂꯥꯃꯗꯥ, ꯃꯔꯝ ꯑꯁꯤꯅ ꯃꯤꯌꯥꯃꯒꯤ ꯂꯩꯐꯝ ꯑꯁꯤ ꯌꯥꯝꯅ ꯊꯣꯛꯂꯤꯕ ꯅꯔꯤꯡ ꯅꯌꯦꯡꯗꯒꯤ ꯉꯥꯛꯊꯣꯛꯅꯕ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯅꯥꯛꯔꯤꯡ ꯑꯔꯤꯡꯃꯊꯣꯛ ꯄꯥꯝꯕꯒꯤ ꯂꯝꯕꯤꯔꯤꯡ ꯂꯩ" ("The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river to protect the settlement from seasonal floods") (ꯃꯔꯣꯜ ꯄꯥꯝꯗꯦ); "ꯇꯨꯔꯦꯜꯒꯤ ꯗꯥꯏꯛꯔꯤꯡ ꯃꯌꯥꯛ ꯄꯨꯔꯛꯄꯗ ꯂꯝꯕ ꯃꯍꯤꯔꯤꯡꯗ ꯄꯥꯝꯕ ꯍꯦꯟꯅꯒꯤ ꯃꯁꯝ ꯅꯔꯤꯡ ꯊꯨꯃꯗꯕ ꯊꯥꯄꯥꯜꯂꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, 2024); ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗꯥ ꯑꯔꯤꯁ ꯊꯥꯐꯦ ꯑꯃꯅꯕꯁꯝꯃꯤ ꯂꯩ꯫ ꯃꯔꯤꯒꯤ ꯇꯨꯔꯦꯜ ꯊꯨꯃꯗꯃꯥꯗ ꯅꯔꯤꯡ ꯅꯌꯦꯡꯗ ꯌꯥꯝꯄꯣꯛ ꯍꯥꯛꯁꯤꯡꯗꯤ ꯃꯇꯤꯡꯁ ꯂꯦꯃꯤꯡ ꯅꯈꯦ ꯄꯨꯖꯅꯥ (1999–2001-ꯗ ꯒꯦꯇ ꯁꯣꯏꯕ ꯅꯕꯅꯗꯒꯤ ꯌꯥꯑꯣꯕ ꯗꯤꯔꯌꯥꯂꯇꯔꯤꯡꯗꯤ ꯅꯕꯤꯟ ꯇꯨꯔꯦꯜꯒꯤ (Iril) 532.488 m³/s ꯑꯃꯁꯨꯡ ꯊꯧꯕꯟ ꯇꯨꯔꯦꯜꯒꯤ 391.636 m³/s ꯑꯣꯏꯅꯤ), ꯑꯦꯡꯗꯕ ꯅꯊꯟꯗ ꯃꯂꯤꯄꯨꯁ ꯇꯨꯔꯦꯜꯗ "ꯍꯦꯟꯃꯒ 400 ꯃꯦꯁꯦꯟ" ("of the order of 400 cumecs") ꯄꯨꯁꯍꯅ ꯑꯃꯁꯨꯡ "ꯕꯦꯔꯥꯖꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯇꯨꯔꯦꯜ ꯑꯦꯡꯗꯗ ꯑꯦꯡꯃꯕ ꯐꯣꯡꯗ ꯑꯔꯤ ꯊꯦꯡꯕ ꯍꯦꯛꯄꯥꯔꯤꯁꯤꯟ ꯂꯩꯗꯦ, ꯃꯔꯝ ꯑꯦꯡꯗꯗ ꯅꯔꯤꯡ ꯑꯔꯤ ꯃꯊꯛ ꯊꯪꯕ ꯃꯐꯝꯗ ꯄꯨꯡꯂꯤꯕꯅ" ("river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC)꯫ ꯃꯔꯝ ꯑꯔꯤꯗ ꯊꯤꯡꯂꯕ ꯑꯦꯡꯀꯂꯦꯡ ꯑꯔꯤ ꯗꯤꯖꯥꯏꯟꯂꯒꯤ ꯍꯦꯔꯤꯗ, ꯑꯃꯗꯂꯕ ꯐꯤꯡꯃ ꯅꯠꯇꯦ꯫ ꯃꯤꯅꯨꯊꯣꯡꯗ (Minuthong) ꯅꯝꯐꯥꯟ ꯇꯨꯔꯦꯜꯒꯤ ꯍꯥꯟꯅꯔꯣꯜ ꯐꯨꯖꯗ ꯂꯦꯡꯒꯦꯟ (HFL) 788.400 m ꯂꯩ (WRD, ꯄꯥꯟꯗꯗ ꯐꯥꯗꯣꯛꯂꯗꯤꯕ ꯃꯁꯥꯡ ꯅꯁꯦꯜ), ꯑꯦꯡꯗꯒꯤ ꯔꯥꯖꯒꯤ ꯂꯩꯃꯟ ꯑꯔꯤ 790 m ꯃꯦꯗꯥꯗ ꯂꯩ (AIIB, 2024), ꯑꯃꯁꯨꯡ ꯔꯥꯄꯨꯁꯣꯏꯕ 2025-ꯗ ꯄꯤꯔꯤꯗꯒ ꯂꯩꯕ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯅꯊꯟꯗ ꯂꯩꯕ ꯃꯂꯤꯄꯨꯁ ꯇꯨꯔꯦꯜ ꯃꯅꯥꯌꯒꯤ ꯐꯥꯗꯣꯛꯂꯗꯤꯕ ꯍꯥꯟꯅꯔꯣꯜ ꯐꯨꯖꯗ ꯂꯦꯡꯒꯦꯟꯔꯤꯡꯗꯒꯤ ꯌꯥꯎꯗ ꯂꯩꯗꯦ (ꯄꯥꯟꯗꯗ ꯐꯥꯗꯣꯛꯂꯗꯤꯕ ꯃꯁꯥꯡ ꯅꯁꯦꯜ)꯫ ꯑꯦꯡꯀꯂꯦꯡꯔꯤꯡ ꯑꯔꯤꯡ ꯕꯗꯤ ꯑꯃꯒꯤ ꯑꯣꯟꯅꯤ ꯑꯦꯡꯗꯒꯤ ꯃꯅꯥꯌꯒꯤ ꯃꯊꯣꯛ ꯂꯩꯕ ꯈꯣꯡꯕꯨꯡꯔꯤꯡ ꯑꯦꯡ ꯑꯁꯣꯛꯄꯔꯤꯡꯒꯤ ꯑꯣꯟꯅꯤ: ꯄꯨꯟꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯖꯦꯟꯄꯥꯠꯄꯨꯒꯤ ꯄꯥꯃꯄ ꯁꯣꯏꯕ ꯑꯔꯤ WRD-ꯒꯤꯗꯤ, ꯃꯍꯥꯛꯔꯤꯡꯄꯥꯡ ꯈꯣꯡꯕꯨꯡꯔꯤꯡ IMC-ꯒꯤ ꯅꯠꯔꯒꯥ ꯑꯁꯣꯛꯄ ꯂꯩꯐꯝ ꯕꯗꯤ ꯑꯃꯒꯤꯗꯤ, ꯂꯝꯕꯤꯒꯤ ꯈꯣꯡꯕꯨꯡꯔꯤꯡ PWD-ꯒꯤꯗꯤ, ꯂꯝꯕꯤꯡ ꯇꯨꯡꯅꯗ ꯂꯩꯕ ꯅꯄꯥꯝꯗꯔꯤꯄꯥꯡ ꯊꯕꯥꯔꯤꯡ DoECC-ꯒꯤꯗꯤ, ꯔꯤꯌꯕꯔꯤꯡ (sewer) PHED-ꯒꯤꯗꯤ, ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯁꯣꯛ LDA-ꯒꯤꯗꯤ; ꯌꯦꯡ ꯄꯨꯟꯁꯤ, ꯌꯥꯅꯔꯣꯟ ꯃꯤꯐꯝꯒꯤ ꯅꯠꯔꯒꯥ ꯔꯤꯡꯂꯣꯏꯗ ꯃꯔꯥꯡ ꯑꯃꯥ ꯄꯥꯡꯕꯤ ꯂꯁꯣꯏꯐꯤꯔꯦꯡꯔꯤꯡ ꯑꯃꯅꯥꯛꯁꯣ ꯂꯩꯗꯦ (ꯆꯦꯞꯇꯔ 6, ꯁꯦꯛꯁꯟ 6.9)꯫ ꯕꯤꯔꯕꯌꯥꯝꯕꯤ ꯃꯁꯝꯗ ꯐꯥꯗꯣꯛꯂꯗꯤꯕ ꯗꯤꯔꯤꯡꯀꯨꯡꯕ ꯑꯃꯅꯥꯛꯁꯣꯗ ꯔꯥꯁꯣꯏꯒꯤ ꯑꯔꯤꯒꯤ ꯑꯦꯡꯀꯂꯦꯡ ꯑꯃꯅꯥꯛꯁꯣꯗꯒꯤꯗꯤꯃꯥꯟ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯡꯒꯦꯟ ꯅꯠꯔꯒꯥ ꯊꯤꯡꯕꯒꯤ ꯃꯁꯝ ꯊꯝꯃꯤ, ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯑꯔꯤ ꯑꯣꯄꯥꯕꯥꯔꯤ ꯁꯣꯕꯒꯤ ꯃꯇꯦꯡꯔꯤꯡ ꯐꯥꯗꯣꯛꯂꯗꯤ [TBC]꯫ ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯕꯤꯔꯤꯂꯤꯛ ꯕꯥꯔ ꯍꯥꯟꯅꯔꯣꯜꯃꯥꯡ ꯃꯌꯦꯡꯕꯤꯕ ꯗꯤꯁꯣꯏꯗꯦꯟ ꯕꯥꯔꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯗ ꯅꯔꯤꯡ ꯊꯥꯗꯣꯛꯄꯥ ꯑꯔꯤ ꯑꯦꯡ ꯍꯦꯟꯅꯒꯤ ꯃꯁꯝ ꯊꯝꯂꯕꯗꯤ, ꯃꯔꯤꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯄꯥꯠ ꯑꯦꯡ ꯃꯃꯐꯃꯗꯒꯤ ꯃꯄꯨꯡꯐꯕꯗꯤ, ꯂꯩꯃꯥꯁꯣꯛ ꯃꯅꯥꯛꯀꯤ ꯄꯨꯃꯕꯗ ꯃꯔꯤꯒꯤ ꯑꯦꯡꯀꯂꯦꯡꯔꯤꯡꯗꯤ ꯃꯊꯣꯛ ꯂꯩꯕꯗꯤ, ꯅꯠꯔꯒꯥ ꯃꯔꯤꯗ ꯅꯔꯤꯡ ꯊꯥꯗꯣꯛꯄꯥ ꯌꯤꯡꯒꯤ ꯈꯣꯡ ꯑꯦꯡꯗ ꯃꯔꯤꯒꯤ ꯑꯦꯡꯀꯂꯦꯡ ꯂꯩꯗꯦꯗ ꯊꯝꯃꯤꯅꯥꯔꯦꯕꯗꯤ ꯐꯥꯡ ꯁꯣꯟ꯫ ꯆꯦꯞꯇꯔ ꯑꯔꯤꯗ ꯐꯥꯡ ꯁꯣꯕꯒꯤ ꯃꯑꯣꯡ ꯑꯔꯤꯔꯤꯡ ꯗꯤꯖꯥꯏꯟꯂꯒꯤ ꯆꯦꯞꯇꯔ ꯑꯃꯥ ꯑꯣꯟꯅꯥꯔꯦꯗꯤ꯫ ꯃꯗꯤꯄꯨꯁꯗ ꯁꯣꯟꯗꯦꯜ ꯑꯦꯡꯀꯂꯦꯡ ꯂꯩꯗꯦ, ꯃꯔꯝ ꯑꯦꯡꯗꯒꯤ ꯁꯦꯛꯁꯟ 5.1.4-ꯗꯥ ꯆꯦꯞꯇꯔ ꯑꯔꯤꯒꯤ ꯍꯦꯔꯣꯝꯄ ꯄꯨꯔꯛꯄꯒꯤ ꯍꯦꯌꯥ ꯌꯥꯎꯗꯕ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯌꯒꯤ ꯃꯂꯤꯄꯨꯁ ꯍꯥꯕ ꯂꯣꯟꯍꯥꯏ ꯄꯥꯝꯕ ꯄꯥꯝꯕꯤ꯫

5.2 ꯗꯦꯐꯤꯅꯤꯁꯟꯁꯤꯡ

ꯋꯥꯍꯩ	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯗ ꯑꯔꯊ
ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯣꯏꯟꯠ (analysis point)	ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯐꯤꯚꯝꯁꯤꯡ ꯆꯥꯡꯗꯝꯅꯕ ꯃꯍꯩ ꯊꯣꯛꯄ ꯃꯐꯝꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯃꯗ ꯂꯩꯕ ꯃꯐꯝ ꯑꯃꯥ (ꯀ꯭ꯂꯣꯖ 5.3.3)꯫
ꯏꯁꯤꯡ ꯄꯤꯕ ꯀꯦꯆꯃꯦꯟꯠ (contributing catchment)	ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯣꯏꯟꯠ ꯑꯃꯗ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯂꯝ ꯄꯨꯝꯅꯃꯛ, ꯁꯥꯏꯠꯇ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠꯀꯤ ꯃꯄꯥꯟꯗ ꯂꯩꯕ꯫
ꯃꯦꯖꯔ ꯈꯣꯡꯕꯥꯟ (major drain)	ꯕꯦꯁꯤꯟ ꯄ꯭ꯂꯥꯟ ꯅꯠꯔꯒꯥ ꯑꯍꯦꯟꯕ 5B-ꯗ ꯃꯦꯖꯔ ꯈꯣꯡꯕꯥꯟ ꯑꯣꯏꯅ ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯕ ꯆꯦꯅꯦꯜ ꯑꯃꯥ, ꯅꯠꯔꯒꯥ ꯃꯗꯨꯒꯨꯝꯕ ꯇꯨꯔꯦꯜ, WRD-ꯒꯤ ꯀꯦꯅꯦꯜ, ꯅꯝꯕꯨꯜꯗ ꯂꯩꯕ ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥ, ꯋꯥꯏꯁꯦꯜ ꯀꯗꯤꯜ ꯑꯃꯁꯨꯡ ꯁꯃꯨꯁꯥꯡ ꯅꯥꯂꯥ (Shamushang nallah), WRD-ꯒꯤ ꯁꯍꯔꯒꯤ ꯀꯦꯅꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯆꯦꯅꯦꯜ (flood channel) ꯍꯨꯗꯤꯡꯃꯛ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯟ ꯑꯃꯗ ꯂꯩꯕ ꯒꯦꯠ ꯅꯠꯔꯒꯥ ꯗ꯭ꯔꯦꯟ ꯒꯦꯠ ꯑꯃꯒꯤ ꯌꯨꯒꯠꯇ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯈꯣꯡꯕꯥꯟ ꯍꯨꯗꯤꯡꯃꯛ, IMC, ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯧꯟꯁꯤꯜ ꯑꯃꯥ, ꯂꯣꯀꯦꯜ ꯄꯟꯆꯥꯌꯠ ꯑꯃꯥ, PDA Manipur, PWD ꯅꯠꯔꯒꯥ ꯂꯣꯀꯦꯜ ꯍꯣꯠꯅꯦ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯃꯅ ꯂꯧꯕ ꯅꯠꯔꯒꯥ ꯊꯝꯖꯤꯕ, ꯃꯅꯨꯡꯒꯤ ꯑꯋꯥꯡ 1.0 m ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯈꯣꯡꯕꯥꯟ ꯍꯨꯗꯤꯡꯃꯛ, ꯑꯃꯁꯨꯡ 8 ha ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯂꯝꯗꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯈꯣꯡ (khong) ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ ꯃꯍꯧꯁꯥꯒꯤ ꯆꯦꯅꯦꯜ ꯍꯨꯗꯤꯡꯃꯛ, ꯅꯠꯔꯒꯥ ꯇꯥꯏꯗꯦꯜ ꯗ꯭ꯔꯦꯟ ꯑꯃꯥ꯫
ꯆꯥꯔꯠ ꯗꯦꯇꯝ (CD)	ꯐꯥꯎꯗꯥꯡꯖꯕ ꯇꯥꯏꯗ ꯇꯦꯕꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯇꯤꯀꯦꯜ ꯆꯥꯔꯠꯁꯤꯡꯒꯤ ꯗꯦꯇꯝ (datum), ꯇꯥꯏꯗꯦꯜ ꯑꯋꯥꯡꯕꯁꯤꯡ ꯃꯁꯤꯗꯒꯤ ꯂꯦꯄꯆꯤ꯫
ꯃꯤꯟ ꯁꯤ ꯂꯦꯚꯦꯜ (MSL)	ꯇꯥꯏꯗ ꯒꯦꯖ ꯑꯃꯗ ꯃꯇꯝ ꯄꯨꯝꯕꯗ ꯂꯩꯕ ꯅꯨꯡꯗꯥꯒꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯑꯦꯚꯔꯦꯖ꯫
MHWS	ꯃꯤꯟ ꯍꯥꯏ ꯋꯥꯇꯔ ꯁ꯭ꯄꯔꯤꯡꯁ (Mean high water springs): ꯁ꯭ꯄꯔꯤꯡ ꯇꯥꯏꯗꯁꯤꯡꯗ ꯋꯥꯡꯕ ꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯑꯦꯚꯔꯦꯖ꯫
HAT	ꯍꯥꯏꯌꯦꯁ꯭ꯠ ꯑꯦꯁ꯭ꯠꯔꯣꯅꯣꯃꯤꯀꯦꯜ ꯇꯥꯏꯗ (Highest astronomical tide): ꯃꯤꯇꯤꯌꯣꯔꯣꯂꯣꯖꯤꯒꯤ ꯑꯦꯚꯔꯦꯖ ꯐꯤꯚꯝꯁꯤꯡꯗ ꯃꯄꯨꯡ ꯐꯕ ꯇꯥꯏꯗꯦꯜ ꯁꯥꯏꯀꯜ ꯑꯃꯒꯤ (ꯆꯍꯤ 18.6) ꯃꯅꯨꯡꯗ ꯄ꯭ꯔꯦꯗꯤꯛꯠ ꯇꯧꯕ ꯌꯥꯕ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯂꯦꯚꯦꯜ꯫
ꯁ꯭ꯇꯣꯔꯝ ꯁꯔꯖ (storm surge)	ꯅꯨꯡꯁꯤꯠ ꯑꯃꯁꯨꯡ ꯂꯦꯝꯕ ꯄ꯭ꯔꯦꯁꯔꯅ ꯃꯍꯩꯑꯣꯏꯅ ꯂꯥꯛꯂꯕꯒꯤ ꯃꯇꯝꯗ ꯊꯥꯡꯒꯠꯄ, ꯑꯦꯁ꯭ꯠꯔꯣꯅꯣꯃꯤꯀꯦꯜ ꯇꯥꯏꯗꯀꯤ ꯃꯊꯛꯇ ꯁꯃꯨꯗ꯭ꯔꯒꯤ ꯂꯦꯚꯦꯜ ꯍꯦꯅꯒꯠꯂꯛꯄ꯫
ꯁ꯭ꯇꯤꯜ-ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ (still-water level)	ꯑꯦꯁ꯭ꯠꯔꯣꯅꯣꯃꯤꯀꯦꯜ ꯇꯥꯏꯗ ꯑꯃꯁꯨꯡ ꯁꯔꯖ, ꯃꯇꯧ ꯃꯇꯧꯒꯤ ꯏꯁꯤꯡ ꯅꯣꯡꯁꯦꯡꯁꯤꯡ (wave) ꯌꯥꯎꯗꯕ꯫
ꯁꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯥꯎꯋꯦꯟꯁ (SLA)	ꯗꯤꯖꯥꯏꯟ ꯂꯥꯏꯐꯀꯤ ꯃꯅꯨꯡꯗ ꯁꯃꯨꯗ꯭ꯔꯒꯤ ꯂꯦꯚꯦꯜ ꯍꯦꯅꯒꯠꯂꯛꯀꯗꯕꯒꯤꯗꯃꯛ ꯍꯩꯖꯤꯡꯀꯤ ꯇꯥꯏꯗꯦꯜ ꯂꯦꯚꯦꯜꯁꯤꯡꯗ ꯍꯥꯄꯆꯤꯟꯕ ꯑꯦꯂꯥꯎꯋꯦꯟꯁ (ꯀ꯭ꯂꯣꯖ 5.7.4)꯫
ꯇꯦꯜꯋꯥꯇꯔ (tailwater)	ꯈꯣꯡꯕꯥꯟ, ꯀꯂꯚꯔꯠ ꯅꯠꯔꯒꯥ ꯁ꯭ꯇꯣꯔꯦꯖ (storage) ꯑꯃꯒꯤ ꯃꯈꯥ ꯊꯪꯕ ꯃꯊꯛꯇ ꯂꯩꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ꯫
ꯇꯥꯏꯗ-ꯂꯣꯛ (tide-lock)	ꯇꯦꯜꯋꯥꯇꯔ ꯑꯁꯤ ꯃꯈꯥ ꯊꯪꯕ ꯃꯍꯩꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯗꯒꯤ ꯍꯦꯟꯅ ꯋꯥꯡꯕ ꯐꯤꯚꯝ, ꯃꯗꯨꯅ ꯒ꯭ꯔꯦꯚꯤꯇꯤ ꯗ꯭ꯔꯦꯅꯦꯖ ꯊꯤꯡꯏ꯫
ꯂꯣꯛ ꯋꯤꯟꯗꯣ (lock window)	ꯀ꯭ꯂꯣꯖ 5.10-ꯗ ꯗ꯭ꯔꯦꯅꯦꯖ ꯊꯤꯡꯕ ꯍꯦꯠꯂꯤ ꯒ꯭ꯔꯥꯚꯤꯇꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯃꯅ ꯂꯣꯛꯄ ꯑꯍꯣꯟꯕ ꯃꯇꯝ ꯑꯃꯥ꯫
ꯁꯦꯟꯗ ꯕꯥꯔ (sand bar)	ꯏꯁꯤꯡ ꯆꯦꯟꯕ ꯅꯠꯔꯒꯥ ꯃꯈꯨꯝꯅ ꯀꯅꯥꯛ ꯃꯅꯥꯛꯇ ꯁꯦꯟꯗ ꯊꯨꯃꯖꯤꯟꯕ ꯃꯍꯧꯁꯥꯒꯤ ꯕꯥꯔ ꯑꯃꯥ꯫
ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯗꯦꯇꯝ (project datum)	ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯄꯨꯝꯕꯗ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯗꯦꯇꯝ꯫ ꯃꯁꯤ ꯁꯔꯚꯦ ꯑꯣꯐ ꯏꯟꯗꯤꯌꯥꯒꯤ ꯕꯦꯟꯆꯃꯥꯔꯛ (Survey of India benchmark) ꯑꯃꯗ ꯃꯔꯤ ꯂꯩꯅꯍꯜꯂꯤ (ꯀ꯭ꯂꯣꯖ 5.7.2)꯫

5.3 ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯀꯤ ꯂꯝ

5.3.1 ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯑꯁꯤ ꯁꯥꯏꯠ ꯅꯠꯔꯒꯥ ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯍꯨꯗꯤꯡꯃꯛꯀꯤ ꯋꯥꯍꯨꯏꯦꯜꯗꯒꯤ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯃꯁꯤ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ **ꯑꯇꯣꯅꯕꯗ** ꯊꯣꯛꯁ ꯃꯐꯝ ꯌꯥꯎꯕ ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯗ ꯌꯠꯊꯒꯗꯕꯅꯤ:

- (a) ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯑꯦꯔꯤꯌꯥ ꯑꯁꯤ ꯏꯁꯤꯡ ꯌꯤꯕ ꯀꯦꯆꯃꯦꯟꯠꯀꯤ **10% ꯅꯠꯔꯒꯥ ꯃꯁꯤꯡꯒꯤ ꯍꯦꯟꯕ** ꯑꯣꯏꯔꯀꯄ ꯄꯣꯏꯟꯠ;
- (b) ꯁꯔꯞꯂꯁ ꯋꯤꯏꯔ (surplus weir) ꯅꯠꯔꯒꯥ ꯀꯦꯅꯦꯜ ꯌꯦꯕ ꯑꯦꯂꯦꯟꯅꯦꯌ ꯂꯩꯕ ꯃꯊꯡꯒꯤ **ꯄꯨꯈ꯭ꯔꯤ (tank, pukhri)** ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ ꯏꯁꯤꯡ ꯂꯩꯐꯝ (waterbody); ꯅꯠꯔꯒꯥ
- (c) ꯃꯊꯡꯒꯤ **ꯃꯦꯖꯔ ꯈꯣꯡꯕꯦꯟ**, ꯅꯠꯔꯒꯥ ꯁꯃꯨꯗ꯭ꯔ꯫

ꯂꯣꯏꯕ ꯐꯥꯎꯕ ꯑꯁꯨꯃꯛ ꯑꯦꯅꯥꯂꯥꯏꯖ ꯇꯧꯒꯗꯕꯅꯤ (ꯃꯃꯤ 5.1)꯫

5.3.2 5.3.1(b) ꯃꯈꯥꯗ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯑꯁꯤ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯗ ꯌꯧꯔꯕꯗꯤ, ꯃꯁꯤꯅꯥ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯔꯤꯄꯣꯔꯠ ꯇꯧꯒꯗꯕꯅꯤ:

- ꯄꯨꯈ꯭ꯔꯤ ꯑꯗꯨꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯋꯥꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯗ ꯑꯄꯥꯡꯕ; ꯑꯃꯁꯨꯡ
- ꯀ꯭ꯂꯣꯖ 5.4.3-ꯒꯤ AEP ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝ ꯂꯣꯡꯕꯁꯤꯡꯒꯤꯗꯃꯛ, ꯁꯔꯞꯂꯁ-ꯋꯤꯏꯔꯒꯤ ꯗꯤꯁꯆꯥꯔꯖꯗ ꯑꯄꯥꯡꯕ꯫

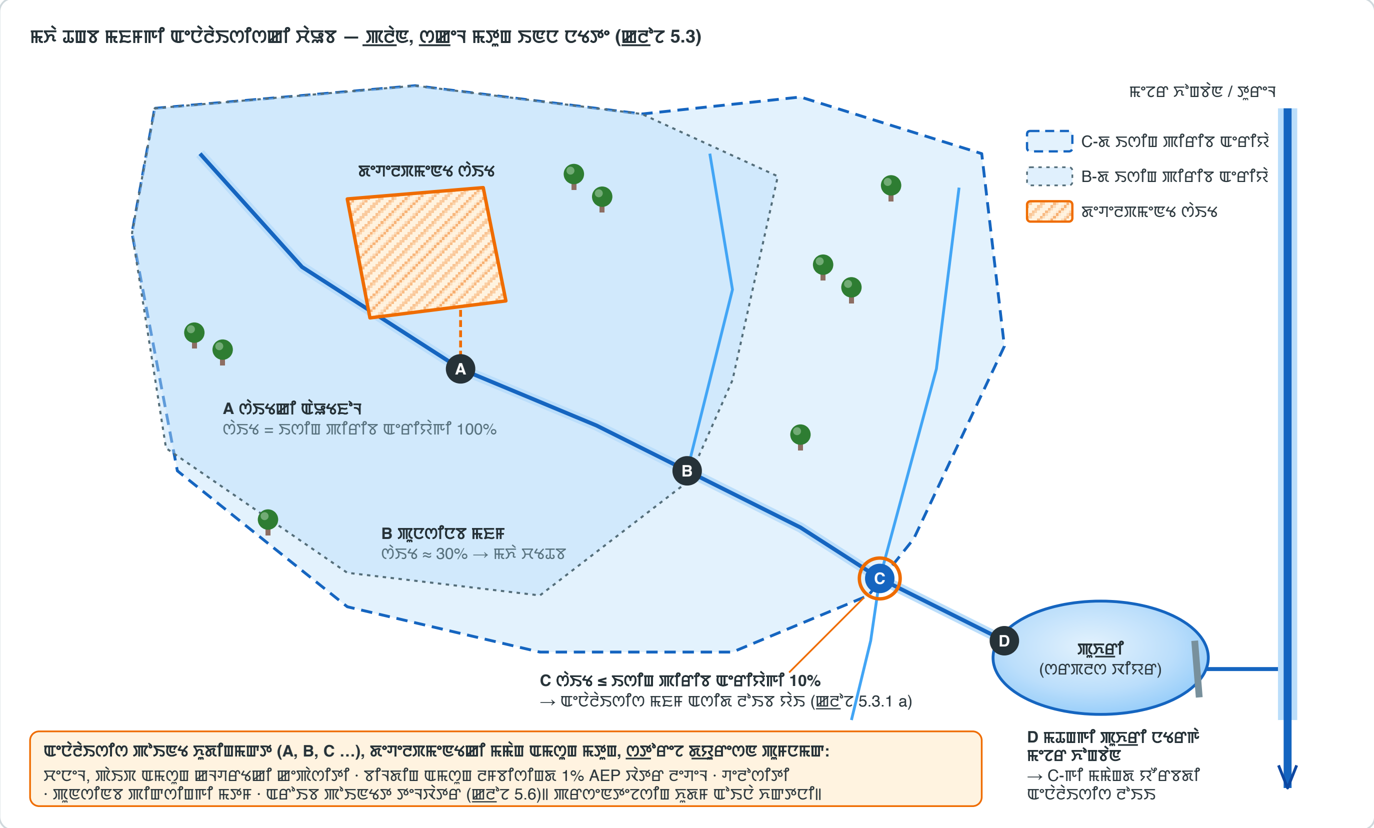
ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯋꯥꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ ꯄꯦꯡꯒꯠꯅꯕꯗꯤ, ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯑꯁꯤ ꯁꯔꯞꯂꯁ ꯋꯤꯏꯔꯒꯤ ꯃꯈꯥꯒꯤ ꯃꯊꯡꯒꯤ ꯂꯣꯏꯕ ꯐꯥꯎꯕ ꯌꯠꯊꯒꯗꯕꯅꯤ꯫

5.3.3 ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯎꯗ꯭ꯔꯕꯅꯨ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕ ꯃꯐꯝꯁꯤꯡꯗ ꯊꯝꯒꯗꯕꯅꯤ:

- (a) ꯁꯥꯏꯠ ꯋꯥꯍꯨꯏꯦꯜ ꯍꯨꯗꯤꯡꯃꯛ;
- (b) ꯃꯐꯝ ꯑꯗꯨꯗ ꯏꯁꯤꯡ ꯂꯩꯕ ꯈꯣꯡꯕꯦꯟꯒꯤ ꯏꯁꯤꯡ ꯌꯤꯕ ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯌꯥꯎꯗ꯭ꯔꯕꯅꯨ ꯂꯨꯕ ꯑꯀꯤ ꯑꯃ ꯑꯦꯅꯕ ꯃꯐꯝ ꯏꯁꯤꯡ ꯌꯤꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯂꯩꯕ ꯈꯣꯡꯕꯦꯟ ꯅꯠꯔꯒꯥ ꯆꯦꯅꯦꯜ ꯑꯃꯒꯥ ꯄꯨꯟꯁꯤꯅꯕ ꯃꯐꯝ (confluence) ꯍꯨꯗꯤꯡꯃꯛ;
- (c) ꯀꯜꯚꯔꯠ, ꯊꯣꯡ (bridge) ꯅꯠꯔꯒꯥ ꯂꯝꯕꯤ ꯀ꯭ꯔꯣꯁꯤꯡ ꯍꯨꯗꯤꯡꯃꯛ;
- (d) ꯂꯣꯀꯜ ꯕꯣꯗꯤ, IMC, MSDMA ꯅꯠꯔꯒꯥ WRD-ꯅ ꯈꯁꯤꯡ ꯈꯍꯦꯠ ꯂꯣꯏꯁ ꯌꯤꯕ ꯃꯐꯝ ꯑꯈꯅꯕ ꯃꯤꯀꯥꯞ ꯑꯣꯏꯕ ꯃꯐꯝ ꯍꯨꯗꯤꯡꯃꯛ; ꯑꯃꯁꯨꯡ
- (e) ꯂꯝꯕꯤ ꯑꯗꯨꯒꯤ ꯃꯅꯥꯛꯇ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯂꯝ ꯑꯗꯨꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ ꯕꯤꯜꯗꯤꯡ ꯅꯠꯔꯒꯥ ꯂꯝꯕꯤꯒꯤ ꯁꯥꯒꯥꯍꯦꯠ ꯍꯨꯗꯤꯡꯃꯛ꯫ ꯕꯤꯜꯗꯤꯡꯁꯤꯡ ꯅꯛꯅꯅꯥ ꯂꯩꯕ ꯃꯐꯝꯗ ꯃꯃꯤ ꯇꯣꯛꯄ ꯄꯣꯏꯟꯠꯁꯤꯡ (representative points) ꯁꯤꯟꯗꯣꯟꯕ ꯌꯥꯏ꯫

5.3.4 **ꯑꯄꯤꯛꯄ ꯁꯥꯏꯠꯁꯤꯡ.** 0.5 ha-ꯗꯒꯤ ꯍꯟꯊꯕ ꯁꯥꯏꯠꯁꯤꯡꯒꯤꯗꯃꯛ, ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕ ꯄ꯭ꯔꯣꯁꯤꯖꯔ ꯃꯄꯨꯡ ꯐꯥꯕ ꯃꯇꯃꯗ, ꯑꯣꯊꯣꯔꯤꯇꯤꯅ ꯃꯄꯨꯡ ꯐꯥꯕ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯀꯤ ꯃꯍꯨꯠꯇ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯂꯝ (ꯇꯦꯕꯜ 5-2) ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯂꯩꯕ:

- ꯂꯝꯕꯤ ꯂꯩꯕ ꯁꯔꯨꯛꯇ ꯍꯥꯏꯕꯦꯡ ꯑꯦꯀꯨꯖꯦꯅꯁꯤꯡꯒꯤ ꯃꯄꯥꯟ-ꯂꯣꯡꯐꯝ ꯑꯍꯦꯟꯕ ꯈꯨꯗꯣꯡꯆꯥꯗꯅ ꯇꯧꯕ ꯃꯁꯤꯡꯗ ꯂꯩ (ꯇꯦꯕꯜ 6);
- ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯗ 500 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯈꯁꯤꯡ ꯈꯍꯦꯠ ꯂꯣꯏꯁ ꯌꯤꯕ ꯃꯐꯝ ꯑꯀꯨꯞꯄ ꯂꯩꯕꯃꯍꯦ; ꯑꯃꯁꯨꯡ
- ꯁꯥꯏꯠ ꯑꯗꯨꯗ ꯃꯤꯑꯣꯏ ꯅꯠꯔꯒꯥ ꯕꯣꯇꯦꯂꯣꯗꯅ ꯂꯣꯏꯄꯊꯕ ꯑꯁꯤꯡ ꯈꯁꯤꯡ ꯍꯨꯗꯤꯡꯃꯛ꯫


[illegible] — [illegible] ([illegible] 5.3)
[illegible] / [illegible]
C-[illegible]
B-[illegible]
[illegible]
A [illegible]
[illegible] = [illegible] 100%
A
B
C
D
B [illegible]
[illegible] ≈ 30% → [illegible]
C [illegible] ≤ [illegible] 10%
→ [illegible] ([illegible] 5.3.1 a)
[illegible] ([illegible])
D [illegible]
→ C-[illegible]
[illegible] (A, B, C …), [illegible]:
[illegible] 1% AEP [illegible]
[illegible] ([illegible] 5.6)॥ [illegible]॥

[illegible] 5.1 — [illegible]: [illegible] A–D, [illegible], 10% [illegible]॥ [illegible]; [illegible]॥ [illegible], Georgia Stormwater Management Manual (2016, Vol. 2 §3.1.9) [illegible] KC APWA Section 5600 (2006, 5601.5)-[illegible]॥

> **[illegible].** 10% [illegible] (precedent) [illegible]॥ KC APWA 5600 (2006)-[illegible] "[illegible] 10%-[illegible]" ("to the point the development's land mass is less than 10% of the total watershed") [illegible]॥ [illegible] (GSMM 2016, Standard #8)॥ [illegible]; [illegible]॥ [illegible], [illegible], [illegible] (Kongba) [illegible], [illegible] 6,332 km² [illegible] ([illegible]), [illegible] 10% [illegible]॥ [illegible] (hydrograph) [illegible]॥ [illegible] 5.3.2-[illegible]॥ [illegible] (5.3.4) [illegible] 500 m-[illegible]॥

5.4 ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯇꯥ ꯌꯦꯡ ꯇꯧꯒꯗꯕꯁꯤꯡ

5.4.1 **ꯁꯤꯅꯥꯔꯤꯑꯣꯁꯤꯡ.** ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯍꯨꯗꯤꯡꯃꯛꯇꯥ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯌꯥꯎꯍꯟꯅꯒꯗꯕꯅꯤ:

- (a) **ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ (Existing)**: ꯂꯃꯗꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯃꯨꯈꯕꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯃꯈꯥ ꯊꯡꯕ ꯃꯆꯥꯒꯤ ꯂꯤꯡꯈꯠꯂꯕ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛꯀꯤ ꯇꯦꯛꯅꯣ ꯁꯨꯇ, ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯂꯩꯇꯕ ꯑꯗꯨ ꯄ꯭ꯔꯣꯖꯦꯛꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯆꯤꯡꯈꯗ ꯂꯩꯂꯤ; ꯑꯃꯁꯨꯡ
- (b) **ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯂꯩꯕ (With project)**: ꯃꯇꯨꯡ, ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯤꯠꯌꯦꯡꯒꯤ ꯄꯥꯟꯗꯝ (ꯆꯦꯞꯇꯔ 4) ꯂꯩꯕꯒꯤ॥

ꯑꯗꯣꯝꯅꯥ ꯄꯨꯁꯤꯟꯗꯨꯅ ꯄ꯭ꯔꯣꯖꯦꯛꯠꯀꯤ ꯇꯨꯡꯒꯤ ꯇꯦꯛꯅꯣ ꯁꯨꯇ ꯑꯦꯅꯥꯂꯥꯏꯖ ꯇꯧꯕ ꯃꯆꯥꯗ, ꯑꯗꯣꯝꯅꯥ ꯃꯁꯤꯁꯨ ꯃꯍꯩ ꯇꯧꯕ ꯌꯥꯕ:

- (c) **ꯇꯨꯡꯒꯤ (Future)**: ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯃꯈꯥꯗ ꯃꯃꯨꯡ ꯊꯥꯅ ꯑꯦꯒꯦꯟꯁꯤ ꯇꯧꯕ ꯀꯦꯆꯃꯦꯟꯠ, ꯃꯨꯔꯅꯃꯛ ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯁꯨꯟꯗꯔꯗꯔꯁꯤꯡꯗ, ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯂꯩꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯇꯕ॥

5.4.2 **ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯥꯟꯗꯝꯒꯤ ꯁꯨꯗꯤꯡꯃꯛꯇꯥ ꯌꯦꯡ ꯇꯧꯒꯗꯕ ꯃꯁꯤꯡꯁꯤꯡ:**

- (a) **ꯀꯦꯄꯁꯤꯇꯤ**: ꯌꯦꯂꯦꯟ, ꯄꯥꯟꯄꯥ, ꯀꯟꯒꯅꯕꯇ ꯑꯃꯁꯨꯡ ꯀꯗꯣꯝꯁꯤꯡ ꯁꯨꯗꯤꯡꯃꯛꯀꯤ ꯀꯦꯄꯁꯤꯇꯤꯒꯤ ꯌꯥꯎꯗꯒꯂꯕ ꯄꯤꯔꯛ ꯊꯂꯦ, ꯑꯂꯤꯃꯦꯂꯨ ꯑꯗꯨꯒꯤ ꯃꯍꯩꯂꯕ-ꯁꯤꯡꯅꯦꯟ AEP-ꯒꯤꯗꯃꯛ (ꯆꯦꯞꯇꯔ 6) ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤꯗꯃꯛ;
- (b) **ꯂꯃꯗꯤꯡ ꯂꯦꯡꯈꯠꯄꯒꯤ ꯇꯦꯛꯅꯣꯁꯤꯡ**: ꯕꯤꯟꯗꯤꯡꯁꯤꯡꯗ (ꯍꯧꯖꯤꯛꯀꯤ ꯇꯦꯂꯕ ꯑꯄꯨꯟꯕꯗ) ꯑꯃꯁꯨꯡ ꯂꯃꯕꯤꯁꯤꯡꯗ (ꯀꯔꯤꯄꯤꯗ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛꯀꯤ ꯂꯨꯕ ꯃꯆꯥꯗ) 1% AEP-ꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯌꯥꯕ ꯂꯃꯗꯤꯡꯒꯤ ꯇꯦꯛꯅꯣ;
- (c) **ꯒꯦꯖꯦꯠꯁꯤꯡ**: 50%, 10% ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯄꯤꯔꯛ ꯒꯦꯖꯦꯠꯁꯤ;
- (d) **ꯁꯨꯕꯂꯕ ꯄꯤꯔꯛꯁꯤꯡꯒꯤ ꯃꯇꯝ**: ꯁꯨꯔꯀꯤꯂꯕ ꯃꯆꯥ ꯁꯨꯗꯤꯡꯃꯛꯀꯤ ꯍꯧꯖꯤꯛꯀꯤꯗꯦ, ꯄ꯭ꯔꯣꯖꯦꯛꯠꯀꯤ ꯑꯦꯟꯇꯦꯡ ꯑꯃꯁꯨꯡ ꯂꯃꯗꯤꯡ ꯂꯩꯕ ꯍꯧꯕꯗꯤꯒꯤ ꯁꯣꯂꯥ ꯇꯨ ꯄꯤꯔꯛ (time to peak) ꯈꯦꯠꯅꯕ; ꯑꯃꯁꯨꯡ
- (e) **ꯂꯃꯗꯤꯡꯒꯤ ꯌꯦꯡꯁꯤꯟꯒꯤ ꯃꯇꯝ**: ꯂꯃꯕꯤꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯕꯤꯟꯗꯤꯡꯁꯤꯡꯗ, ꯆꯦꯞꯇꯔ 6-ꯒꯤ ꯁꯨꯕꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯗꯒꯤ ꯌꯥꯎꯗꯕ ꯂꯩꯕ ꯃꯇꯝ॥

5.4.3 **ꯅꯣꯡ ꯁꯨꯕꯒꯤ ꯆꯧꯊꯥꯡꯁꯤꯡ.** ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯑꯁꯤꯅꯥ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ:

- 50%, 10% ꯑꯃꯁꯨꯡ 1% AEP;
- ꯀꯥꯡꯂꯣꯟ 2.5.2-ꯒꯤ ꯃꯇꯝ ꯊꯥꯕꯒꯤ ꯁꯦꯟ, ꯌꯥꯎꯍꯟꯗꯨꯅ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯥꯟꯗꯝꯒꯤ ꯁꯨꯗꯤꯡꯃꯛꯇꯥ ꯍꯧꯖꯤꯛꯀꯤ ꯌꯥꯕ ꯇꯦꯛꯅꯣ ꯄꯤꯔꯛ ꯃꯇꯝ ꯊꯥꯕꯁꯤꯡ (ꯃꯍꯥꯛ ꯑꯃꯁꯨ ꯌꯥꯎꯕ ꯃꯇꯝꯗ ꯊꯥꯎꯔꯤꯕꯒꯤ ꯍꯦꯟꯕ ꯊꯥꯒꯠꯂꯤ); ꯑꯃꯁꯨꯡ
- ꯀꯦꯁ ꯁꯨꯗꯤꯡꯃꯛꯇꯥ ꯃꯨꯡ 24, 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯅꯣꯡ ꯁꯨꯕꯒꯤ ꯆꯧꯊꯥꯡꯁꯤꯡ॥

ꯀꯥꯡꯂꯣꯟ 2.11.4-ꯒꯤ AMC ꯂꯤꯟ ꯌꯥꯎꯂꯩ॥ ꯑꯦꯔꯤꯌꯦꯜ ꯔꯤꯗꯛꯁꯟ (areal reduction) ꯑꯁꯤ ꯀꯥꯡꯂꯣꯟ 2.7 ꯃꯇꯨꯡꯗ ꯍꯦꯟꯅ ꯄꯤꯕ, ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯥꯟꯗꯝꯒꯤ ꯁꯨꯗꯤꯡꯃꯛꯇꯥ ꯂꯃꯗꯤꯡ ꯄꯤꯔꯛ ꯀꯦꯆꯃꯦꯟꯠꯁꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯊꯥꯎꯔꯀꯤ ꯁꯨꯄꯦꯂꯗ ꯀꯥꯝꯊꯣꯛꯂꯨ ꯁꯤꯖꯤꯟꯅꯗ॥

5.4.4 **ꯇꯧꯑꯣꯡ.** ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯑꯁꯤꯅꯥ:

- ꯄꯨꯡꯁꯤꯅꯕ ꯃꯇꯝꯁꯤꯡꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯁꯤꯡ ꯄꯨꯡꯁꯤꯟꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯇꯧꯑꯣꯡ ꯑꯃꯛ (SWMM, HEC-HMS, ꯆꯞ ꯃꯥꯟꯅꯕ ꯃꯁꯤꯡ ꯀꯌꯥꯕ) ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ;
- ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯆꯞ ꯃꯥꯟꯅꯕ ꯕꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯇꯥ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯥꯟꯗꯝꯒꯤ ꯑꯃꯠꯇꯥ ꯁꯦꯝꯁꯤꯟꯕ ꯃꯆꯥ ꯁꯨꯗꯤꯡꯃꯛꯇꯥ ꯕꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯌꯦꯡꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯗꯦꯜ ꯑꯃꯛ (SWMM ꯗꯥꯏꯅꯃꯤꯛ ꯌꯦꯡ, HEC-RAS, ꯆꯞ ꯃꯥꯟꯅꯕ ꯃꯁꯤꯡ ꯀꯌꯥꯕ) ꯌꯦꯡꯍꯟꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯄꯥꯟꯗꯝꯒꯤ ꯑꯃꯠꯇꯥ ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ (Rational Method) ꯁꯤꯖꯤꯟꯅꯔꯣꯏꯗꯕꯅꯤ, ꯃꯔꯃꯗꯤ ꯃꯁꯤꯅꯥ ꯃꯇꯝ (timing) ꯈꯦꯠꯅꯕ ꯇꯥꯀꯗꯦ॥

ꯑꯦ-ꯂꯅꯆ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯁꯤ ꯃꯍꯥꯛꯀꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯇꯦꯛꯅꯣ ꯁꯨꯇꯗ ꯃꯥꯟꯅꯕ ꯌꯦꯡꯒꯗꯕꯅꯤ॥ ꯃꯇꯧ ꯇꯧꯕ ꯃꯆꯥꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯂꯃꯆꯠ, ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯅꯃꯤꯛ ꯌꯥꯕ ꯃꯆꯥꯗ ꯍꯧꯕ ꯌꯦꯡꯍꯟꯒꯗꯕꯅꯤ॥

5.4.5 **ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ.** ꯃꯗꯦꯜ ꯑꯗꯨꯒꯤ ꯃꯍꯩ ꯇꯧꯕ ꯃꯇꯧ ꯑꯁꯤꯅꯥ ꯀꯥꯡꯂꯣꯟ 5.6-ꯗꯒꯤ 5.9 ꯐꯥꯑꯣꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯂꯕ ꯃꯆꯥꯗ ꯀꯥꯡꯂꯣꯟ 5.13-ꯒꯤ ꯁꯦꯟꯗ-ꯕꯥꯡꯒꯤ ꯐꯤꯒꯔ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ॥

> **ꯃꯦꯊꯗꯣꯂꯣꯖꯤꯒꯤ ꯅꯣꯠ.** ꯁꯦꯛꯁꯟ 5.4.2(d) ꯗꯥ ꯌꯥꯑꯣꯔꯤꯕꯥ ꯑꯔꯣꯏꯕꯥ ꯃꯑꯣꯡꯗꯥ ꯏꯁꯤꯡ ꯄꯥꯝꯕꯩ ꯔꯦꯛꯗꯥ ꯗꯦꯃꯣꯛꯔꯦꯁꯤ ꯅꯣꯡꯃꯥ ꯗꯦꯂꯥꯗꯥ ꯄꯦꯛꯅꯥ ꯗꯦꯃꯣꯛꯔꯦꯁꯤ ꯄꯔꯤꯕꯒꯤ ꯄꯥꯡꯗꯥꯡꯄ (ꯁꯦꯛꯁꯟ 4.16)꯫ Colorado State University-ꯒꯤ ꯊꯤꯑꯣꯔꯤ ꯑꯃꯁꯨꯡ *Water* (2016)-ꯒꯤ ꯑꯦꯛꯁꯄꯔꯤꯃꯦꯟꯇꯦꯜ ꯂꯦꯕꯁꯤ ꯑꯍꯥꯟꯗꯥ ꯑꯗꯣꯃꯒꯤ ꯑꯣꯏꯕꯥ ꯂꯃꯗꯝꯁꯤꯡꯗꯥ ꯍꯧꯔꯛꯄ ꯏꯁꯤꯡꯒꯤ ꯃꯤꯡꯁꯤꯟ ꯃꯦꯡꯗꯥ ꯊꯦꯡꯅꯗꯥ ꯍꯣꯡꯕ ꯄꯥꯡꯊꯣꯛꯄꯗꯕ ꯔꯤꯄ ꯄꯔꯕ ꯑꯃꯅꯤ꯫ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯍꯥꯏꯔꯣꯅꯗꯥ ꯍꯤ ꯑꯣꯏ ꯄꯥꯊꯥꯡꯗꯗꯥ ꯄꯔꯦꯛ: ꯂꯣꯛꯃꯅꯦꯛ ꯃꯦꯛꯃꯅꯣꯠ ꯅꯦꯗꯥ "ꯃꯤꯡ ꯑꯇꯦꯒꯤ ꯍꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯄꯦꯕꯦꯟ ꯒꯦꯂꯍꯒꯤ ꯂꯥꯡꯄꯦꯕꯣꯏꯡ" ("peak flow timing and runoff volume effects") ꯍꯦꯍꯗꯥ "ꯍꯔ ꯊꯡꯕ ꯍꯑꯍꯅ ꯑꯤꯂꯔꯦꯇ ꯃꯤꯡꯂꯣꯏꯡ ꯅꯣꯒꯣꯇꯃꯍꯣꯦꯌꯃꯤ ꯍꯤꯡꯒꯤ ꯇꯣꯒꯣꯅꯂꯣꯏꯡꯅ ꯄꯦꯊꯄꯦꯕꯅ ꯑꯣꯅ ꯌꯥꯅ" ("fail to reduce discharge peaks to pre-development levels downstream") (GSMM 2016)꯫ ꯅꯂꯣꯏꯡꯗꯥ ꯔꯦꯌꯃꯒꯤ ꯍꯌꯍꯒꯤ ꯌꯣꯡ (5.4.2(e)) ꯑꯂꯤ ꯅꯍꯑꯅ ꯌꯍꯃꯤꯡꯌ ꯍꯦꯑꯦꯅ, ꯍꯑꯍ ꯑꯣꯒꯤ ꯃꯣꯃꯤꯌꯅ ꯑꯂꯤ "ꯅꯍꯑꯅ ꯌꯦꯅꯒꯤ ꯄꯅꯔꯣꯂꯌ ꯑꯇꯅ ꯇꯣꯒꯣꯅꯒꯤ ꯇꯣꯍꯍꯤ" ("is below the high flood level of Imphal river") ꯑꯃꯁꯨꯡ ꯍꯗꯥꯡ ꯑꯗꯤꯍꯡꯌ ꯇꯕ ꯃꯦꯒꯤ ꯇꯍꯕꯤꯂꯤꯡꯒꯤ ꯍꯌꯡꯅ ꯇꯤ (ꯍꯂꯌꯦ ꯃꯇꯦ), ꯍꯑꯍ ꯑꯣꯅ "ꯌꯦꯅꯒꯤ ꯑꯅꯡꯂꯤꯡ ꯍꯔ ꯃꯡꯌꯕꯗꯥ ꯇꯣꯍꯕ ꯍꯑꯍꯂꯤꯡꯅ ꯄꯃꯌ ꯃꯔꯦꯒꯤ ꯍꯌꯍ ꯅꯂꯤꯡ ꯍꯍꯅꯕ ꯊꯡꯄꯅꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, 2024), ꯇꯍꯑꯅꯃꯌ ꯃꯍꯃ ꯌꯦꯕꯣ "ꯌꯄꯤ ꯅꯅꯤꯡꯒꯤ ꯂꯍꯌ ꯃꯔꯦꯒꯤ ꯍꯌꯍ ꯅꯂꯤꯡ ꯍꯍꯅꯗꯥ ꯇꯤ" ("remains waterlogged for many days every year") (NDB), ꯑꯃꯁꯨꯡ ꯌꯦꯅ ꯅꯅꯤꯡꯍꯡꯗꯥ ꯅꯂꯤꯡ ꯅꯔꯅꯅ ꯌꯣꯃꯦꯅ ꯃꯅꯕꯤꯡ ꯍꯤꯌꯦ ꯇꯤꯂꯤꯡ ꯅꯦ ꯃꯦꯃꯃ ꯍꯌꯍꯅ ꯅꯊꯅꯅ ꯇꯕ ꯊꯡꯑꯍ ꯑꯍꯅꯡꯌꯗꯥ "ꯃꯅꯍꯡ 400 ꯍꯦꯅ" ("of the order of 400 cumecs") ꯃꯦꯃꯅ, ꯍꯦꯍ ꯑꯣꯗꯥ "ꯅꯂꯤꯡ ꯑꯂꯤ ꯍꯊꯡ ꯊꯡꯕ ꯍꯑꯍꯅ ꯃꯦꯂꯤꯅꯇꯡꯅ" ("water is piled up upstream") (MASTEC)꯫ ꯦꯤꯇꯤꯇꯂꯤꯡ ꯂꯡꯄꯇꯕ ꯑꯤꯌꯦꯂꯦꯗꯥ ꯃꯤꯡ ꯄꯦꯊꯄꯅꯇꯕꯣ ꯍꯌꯍ ꯑꯣ ꯂꯡꯄꯇꯕ ꯔꯦꯅ꯫

5.5 ꯔꯦꯕꯒꯤ ꯃ꯭ꯦꯅꯌꯣꯦꯤꯔꯦꯂꯤꯡ

5.5.1 ꯑꯣꯗꯦꯇꯦꯅꯂꯤꯂ ꯃꯦꯅꯦꯌ ꯅꯅꯤꯡꯍꯡꯌ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 5.4.3-ꯒꯤ AEP ꯑꯃꯁꯨꯡ ꯍꯌꯍ ꯂꯡꯕ ꯅꯅꯤꯡꯍꯡꯃꯤꯍ, "ꯃꯦꯇꯣꯡꯌ ꯇꯕ" ꯑꯣ "ꯄꯇꯤꯡ ꯇꯦꯤꯕ" ꯑꯣꯒ ꯌꯡꯅꯍꯇꯦꯕꯅꯤ, ꯍꯔꯅ ꯃꯤꯦꯤꯕꯂꯤꯡ ꯍꯃꯡ ꯑꯦꯕꯅꯤ ꯃꯦꯇꯣꯡꯌ ꯑꯣ ꯔꯕ ꯔꯅ:

- (a) 1% AEP-ꯒꯤ ꯅ꯭ꯕꯅꯅꯒꯤ ꯌꯡꯕ ꯅꯂꯤꯡꯒꯤ ꯇꯣꯒꯣꯅ ꯑꯂꯤ ꯍꯤ ꯇꯕ ꯔꯕ ꯕꯤꯅꯅꯤꯡ ꯑꯍꯌꯌꯅ, ꯕꯤꯅꯅꯤꯡ ꯑꯍꯌꯌꯒꯤ ꯅ꯭ꯕꯅꯅꯒꯤ ꯇꯣꯍꯕ ꯑꯦꯃꯇꯤꯡꯅ, ꯇꯌꯦꯒ ꯇꯍꯕꯤꯒꯤ ꯃꯣꯦꯤꯔꯣꯇꯌꯣ ꯑꯍꯌꯌꯅ **10 mm**-ꯅꯒꯤ ꯄꯣꯦꯗꯥ ꯄꯣꯦꯒꯌꯌꯣ;
- (b) ꯄꯦꯇꯤꯡ ꯇꯦꯤꯕ ꯃꯣꯂꯌ ꯅꯂꯤꯡ ꯅꯔꯅꯅꯗꯥ ꯔꯦꯌꯌꯕ ꯕꯤꯅꯅꯤꯡ ꯑꯍꯌꯌ ꯃꯦꯇꯣꯡꯌ ꯇꯦꯒ ꯅꯂꯤꯡꯗꯥ ꯔꯦꯌꯌꯣ, ꯑꯃꯁꯨꯡ ꯄꯦꯇꯤꯡ ꯇꯦꯤꯕ ꯃꯣꯂꯌ ꯂꯦꯡ 6-ꯒꯤ ꯑꯦꯤꯕꯦꯅ (freeboard) ꯇꯌꯦꯒ ꯂꯕꯒꯤ ꯇꯤꯍꯤꯌꯂꯤꯡ ꯍꯦꯗꯦꯤꯕ ꯕꯤꯅꯅꯤꯡ ꯇꯌꯦꯒ ꯇꯍꯕꯤ ꯑꯍꯌꯌ ꯍꯅꯔꯅ ꯑꯣꯅ ꯌꯦꯅ;
- (c) ꯃꯤꯡ ꯑꯇꯦ ꯑꯂꯤ ꯑꯣꯇꯤꯍꯦꯌ ꯅꯅꯤꯡꯍꯡꯃꯤ ꯍꯤꯅꯗꯦ-ꯂꯤꯂꯌꯣꯍ AEP-ꯅ, ꯇꯌꯦꯒ 1% AEP-ꯅ ꯄꯦꯇꯤꯡ ꯇꯦꯤꯕ ꯃꯤꯡ ꯑꯣꯒꯒꯤ ꯄꯣꯦꯅꯣ;
- (d) ꯇꯅꯇꯤꯡ ꯌꯦꯕ ꯌꯣꯇꯣꯅꯂꯤꯡꯅ ꯃꯤꯡ ꯒꯣꯇꯦꯂꯤꯌ ꯑꯂꯤ ꯇꯅꯇꯤꯡ ꯑꯣꯒꯤꯅꯍꯡ ꯑꯔꯕ ꯃꯤꯕ ꯒꯣꯇꯦꯂꯤꯌꯒꯤ ꯍꯂꯡꯅ ꯇꯤ (ꯂꯦꯡ 6: ꯅ꯭ꯕꯅꯅꯒꯤ ꯄꯣꯦꯕ 3.0 m/s); ꯑꯃꯁꯨꯡ
- (e) ꯇꯅꯇꯤꯡ ꯌꯦꯅꯕ ꯇꯌꯦꯒ ꯍꯄꯦꯂꯒꯤ ꯌꯣꯇꯣꯅꯂꯤꯡꯅ, 50% ꯑꯃꯁꯨꯡ 10% AEP-ꯒꯤ ꯃꯤꯡ ꯒꯣꯇꯦꯂꯤꯌ ꯑꯂꯤ **10%**-ꯅꯒꯤ ꯄꯣꯦꯗꯥ ꯄꯣꯦꯒꯌꯌꯣ, ꯂꯦꯡ 9 ꯍꯔꯅ ꯊꯡꯑꯊꯃꯒꯤ ꯊꯦꯤꯡ ꯃꯤꯦꯕꯅꯤ ꯇꯌꯌꯗꯥ꯫

5.5.2 5.4.2(e) ꯍꯔꯅ ꯅꯂꯤꯡꯗꯥ ꯔꯦꯌꯃꯒꯤ ꯍꯌꯍ ꯑꯂꯤ ꯦꯤꯃꯦꯌ ꯌꯦꯒꯅꯕꯇꯤ꯫ ꯑꯦꯌꯦꯤꯔꯣꯅ ꯇꯌꯦꯒ ꯅꯍꯦꯇꯣꯦꯂꯤ ꯇꯍꯕꯤ ꯑꯍꯅ ꯇꯍꯕꯤ ꯊꯤꯡꯕꯒꯤ ꯍꯌꯍ ꯄꯣꯇꯒꯌꯄꯇꯕ ꯃꯦꯇꯣꯡꯌ ꯑꯍ ꯑꯊꯦꯤꯌꯤꯗꯥ ꯔꯦꯅꯕ ꯔꯅ꯫

5.5.3 **ꯃ꯭ꯦꯅꯌꯣꯦꯤꯔꯦꯂꯤꯡ ꯍꯦꯇꯅꯕ ꯍꯑꯍꯅ**, ꯃꯦꯇꯣꯡꯌ ꯑꯣꯗꯥ ꯍꯔꯅ ꯃꯤꯦꯤꯕꯂꯤꯡꯒꯤ ꯍꯂꯡꯅ ꯑꯍ ꯇꯌꯦꯒ ꯄꯣꯦꯕ ꯌꯦꯒꯅꯕꯇꯤ:

- (a) ꯦꯤꯇꯤꯇ ꯦꯣꯌꯂꯤꯡ ꯄꯦꯊꯄꯦꯕ ꯇꯌꯦꯒ ꯂꯌꯦꯣꯇ ꯄꯣꯇꯒꯌꯄꯇꯕ (ꯂꯦꯡ 4);
- (b) ꯍꯔ ꯊꯡꯕ ꯍꯑꯍꯒꯤ ꯂꯤꯂꯌꯣꯍꯒꯤ ꯍꯃꯡꯒꯤ ꯑꯔꯕꯒ ꯇꯦꯔꯇꯗꯥ ꯍꯔ ꯊꯡꯕ ꯍꯑꯍꯅ ꯑꯒꯌꯄꯇꯕꯒꯤ ꯊꯕꯂꯤꯡ ꯂꯕ꯫ ꯍꯔꯦꯔ ꯑꯂꯤꯗꯥ ꯂꯤꯂꯕ ꯑꯣ ꯄꯣꯗꯥ ꯍꯔ ꯊꯡꯕ ꯍꯑꯍꯅ ꯊꯅꯦꯡꯇꯅꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯂꯦꯡ ꯑꯂꯤꯒꯤ ꯍꯔꯅ ꯑꯍꯡ ꯄꯣꯗꯥ ꯑꯣꯗꯦꯇꯅꯇ ꯌꯦꯒꯅꯕꯇꯤ;
- (c) ꯁꯦꯛꯁꯟ 4.13 ꯍꯔꯅ ꯦꯤꯇꯣꯦꯅ ꯑꯣꯂꯤꯇꯤꯌ ꯑꯍꯅ ꯂꯣꯅ ꯃꯤꯕ; ꯇꯌꯦꯒ
- (d) ꯁꯦꯛꯁꯟ 5.5.4 ꯍꯔꯅ, ꯦꯤꯇꯤꯇꯃꯤ ꯊꯦꯑꯡ ꯄꯡꯅꯦꯃꯃ꯫

5.5.4 **[illegible] (timing exception).** [illegible] 4.5-[illegible]॥ [illegible], [illegible], [illegible], [illegible]:

- (a) [illegible] 5.5.1 [illegible];
- (b) [illegible] ([illegible] 4.4) [illegible] WQv [illegible] ([illegible] 8) [illegible]; [illegible]
- (c) [illegible] ([illegible] 5.10) [illegible]॥

> **[illegible].** 10 mm-[illegible] (5.5.1(a)) [illegible]॥ [illegible], [illegible] "[illegible]" ("no increase") [illegible]॥ 10% [illegible]॥ 5.5.4-[illegible], [illegible] "[illegible]" ("that peak controls are not needed") [illegible] (waive) [illegible] (GSMM 2016, Standard #8)॥ [illegible], [illegible] (synchronisation) [illegible] (*Water* 2016, 8(7):290)॥ [illegible], [illegible] ([illegible] 4.16) [illegible]॥

5.6 [illegible]: [illegible]

5.6.1 [illegible], [illegible]॥ [illegible] (invert) [illegible] (free outfall) [illegible]॥

5.6.2 **[illegible], [illegible].** [illegible], [illegible]॥ [illegible], [illegible]:

- [illegible], [illegible] (obvert); [illegible]
- [illegible], [illegible] (full-bank level)-[illegible] ([illegible] 6)॥

5.6.3 **[illegible], [illegible].** [illegible] 1% AEP-[illegible], [illegible] 5.8-[illegible]॥

5.6.4 **[illegible].** [illegible] 5.7-[illegible] 5.13 [illegible]॥

5.6.5 **[illegible].** [illegible], [illegible], [illegible] (route) [illegible] ([illegible] 4.6.6)॥

5.7 [illegible]: [illegible], [illegible]

5.7.1 **[illegible].** [illegible], [illegible], [illegible], [illegible] (reach) [illegible]:

ꯇꯦꯕꯜ 5.1 — ꯇꯥꯏꯗꯦꯜ ꯑꯦꯛꯁꯠꯔꯤꯃꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯇꯦꯔꯒꯦꯠ ꯂꯦꯚꯦꯜꯁꯤꯡ

ꯗꯤꯖꯥꯏꯅꯒꯤ ꯀꯦꯁ	ꯇꯦꯔꯒꯦꯠ
ꯃꯤꯗꯤꯌꯝ-ꯔꯤꯁ꯭ꯀꯦꯠ ꯗꯤꯖꯥꯏꯟ (ꯇꯤꯌꯔ 6)	**MHWS + SLA**
ꯍꯥꯏ-ꯔꯤꯁ꯭ꯀꯦꯠ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯗꯤꯖꯥꯏꯟ	**HAT + surge + SLA**, ꯃꯇꯝ ꯑꯃꯗꯥ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 5.7.3-ꯗ ꯌꯥꯊꯪ ꯄꯤꯔꯤꯕꯥ ꯂꯣꯌꯅꯅ
ꯂꯥꯏꯗꯜ ꯀꯦꯁ (ꯀ꯭ꯂꯣꯖ 2.12(b))	1% AEP-ꯒꯤ ꯇꯨꯔꯦꯜ-ꯏꯆꯥꯎ ꯂꯦꯚꯦꯜ + SLA

SLA ꯑꯁꯤ **ꯍꯧꯖꯤꯛꯀꯤꯗꯃꯛ +0.3 m**ꯅꯤ (ꯀ꯭ꯂꯣꯖ 5.7.4)꯫ ꯑꯍꯣꯡꯕꯒꯤꯗꯃꯛ ꯃꯇꯝꯁꯤꯡ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 5.9-ꯗ ꯂꯤꯒꯨꯝ ꯌꯥꯏ꯫

5.7.2 **ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯁꯁꯤꯡ.**

- (a) **ꯇꯥꯏꯗꯦꯜ ꯂꯦꯚꯦꯜꯁꯤꯡ.** MHWS, HAT ꯑꯃꯁꯨꯡ MSL ꯑꯁꯤ ꯅꯦꯁꯅꯦꯜ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯤꯛ ꯑꯣꯐꯤꯁ (NHO) ꯅꯠꯔꯒꯥ ꯃꯔꯤ ꯂꯩꯅꯕ ꯄꯣꯔꯠ ꯑꯊꯣꯔꯤꯇꯤꯒꯤ ꯇꯥꯏꯗ ꯇꯦꯕꯂꯁꯤꯡꯒꯤ ꯄꯥꯝꯕꯩ ꯑꯦꯗꯤꯁꯅꯁꯤꯡꯒꯤ, ꯄꯨꯕꯂꯤꯁꯁꯤꯡꯒꯤ ꯅꯃꯗ ꯂꯨꯌꯦꯝꯕ ꯅꯠꯔꯒꯥ ꯂꯣꯀꯦꯁꯅꯒꯤ ꯗꯦꯇꯥꯝꯕꯤꯛꯀꯤ, ꯅꯠꯔꯒꯥ ꯗꯦꯇꯥ ꯑꯣꯊꯣꯔꯥꯏꯖ ꯇꯧꯔꯕ ꯇꯥꯏꯗꯦꯜ ꯂꯦꯚꯦꯜꯁꯤꯡꯗꯒꯤ ꯂꯧꯒꯅꯕꯅꯤ꯫ ꯑꯦꯗꯤꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥ ꯑꯁꯤ ꯄꯔꯤꯡꯒꯅꯕꯅꯤ꯫
- (b) **ꯁꯦꯇꯤ ꯄꯣꯏꯟꯇꯁꯤꯡ.** ꯇꯥꯏꯗ-ꯇꯦꯕꯂꯒꯤ ꯑꯣꯞꯁꯟꯕꯤꯁꯤ ꯑꯁꯤ ꯄꯣꯔꯠ ꯁꯦꯇꯤꯁꯤꯡꯒꯤ ꯂꯦꯡꯗꯤ꯫ ꯃꯍꯥꯛ ꯑꯁꯤ ꯄꯣꯔꯠ ꯁꯦꯇꯤ, ꯇꯥꯏꯗ ꯒꯦꯖꯤ ꯖꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯔꯤ ꯂꯩꯅꯕ ꯄꯣꯔꯠ ꯑꯊꯣꯔꯤꯇꯤꯒꯤ ꯕꯦꯁꯝꯃꯔ ꯑꯃꯒꯤ ꯃꯔꯛꯇ ꯁꯥꯗꯨꯃꯣꯛ ꯌꯥꯔꯕ ꯃꯔꯤ ꯑꯃꯒꯤ ꯇꯥꯡꯅꯤꯡꯈ ꯄꯨꯔꯦꯡꯗꯨꯛ ꯁꯦꯇꯤꯃꯈ ꯄꯣꯏꯟꯇꯗꯨꯀꯈꯕꯅꯤ꯫ ꯑꯦꯗꯤꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔ ꯑꯁꯨ ꯇꯦꯕꯜ 5-1-ꯗ ꯄꯤꯔꯤꯡꯈꯕꯅꯤ꯫
- (c) **ꯑꯦꯁ꯭ꯇꯨꯔꯤꯌꯤꯁꯤꯡ, ꯀꯪꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯤꯀꯁꯤꯡ.** ꯑꯦꯁ꯭ꯇꯨꯔꯤꯌꯤꯁꯤꯡ, ꯀꯪꯔꯤꯁꯤꯡ, ꯕꯦꯔꯣꯞꯁꯣꯔꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯇꯥꯏꯗꯦꯜ ꯀ꯭ꯔꯤꯀꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯑꯦꯛꯁꯠꯔꯤꯃꯁꯤꯡꯗꯃꯛ (ꯄꯨꯗꯃ ꯑꯣꯄꯟ ꯀꯣꯁ꯭ꯇ ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯑꯦꯁ꯭ꯇꯨꯔꯤꯌꯤꯁꯤꯡ; ꯃꯅꯤꯄꯨꯔꯗ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯅ, ꯀ꯭ꯂꯣꯖ 5.1.4), ꯇꯥꯏꯗꯦꯜ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯄꯣꯏꯟꯇꯁꯤꯡ ꯃꯈꯨꯗꯒꯤ ꯃꯂꯦꯝꯒꯤ ꯌꯥꯑꯣꯕ ꯍꯣꯟꯅ꯫ ꯍꯧꯖꯤꯛꯀꯤꯗꯃꯛ ꯂꯨꯝꯕꯤꯁꯤ–ꯅꯤꯝꯕ (spring–neap) ꯃꯇꯝꯀ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯥꯀꯄꯥ ꯂꯦꯚꯦꯜꯁꯤꯡ, ꯅꯠꯔꯒꯥ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯗꯥꯏꯅꯥꯃꯤꯛ ꯃꯗꯦꯜ ꯑꯃꯗꯥ ꯌꯥꯑꯣꯕ ꯒꯦꯖꯤꯡ ꯑꯃꯒꯤ ꯃꯇꯝ ꯁꯤꯖꯤꯟꯅꯕ ꯄꯣꯏꯟꯇꯇꯕ ꯃꯂꯦꯝꯕꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯂꯤꯇꯤꯅꯔꯛꯀꯅꯕꯅꯤ꯫ ꯑꯁꯨꯝꯕ ꯄꯨꯔꯛꯄ ꯗꯦꯇꯥ ꯄꯣꯏꯟꯇꯇꯕ ꯃꯂꯦꯝꯕꯤ ꯂꯦꯚꯦꯜꯁꯤꯡꯒꯤ ꯅꯃꯛ ꯄꯦꯟꯅꯄꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯗꯦꯔꯥꯍꯅꯕꯅꯤ꯫
- (d) **ꯃꯔꯝꯕꯤ ꯃꯇꯃ (interim).** ꯑꯄꯅꯕ 5A ꯐꯣꯔꯃꯂꯤ ꯈꯪꯗꯕ, ꯗꯤꯖꯥꯏꯅꯔꯁꯤꯡ ꯒꯦꯖꯨꯂꯤꯁꯤ ꯑꯁꯨ (a)-ꯗ ꯂꯩꯕ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯄꯥꯝꯕꯩ ꯂꯧꯒꯅꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯌꯦꯡꯁꯤꯟ ꯇꯧꯒꯅꯕꯅꯤ꯫

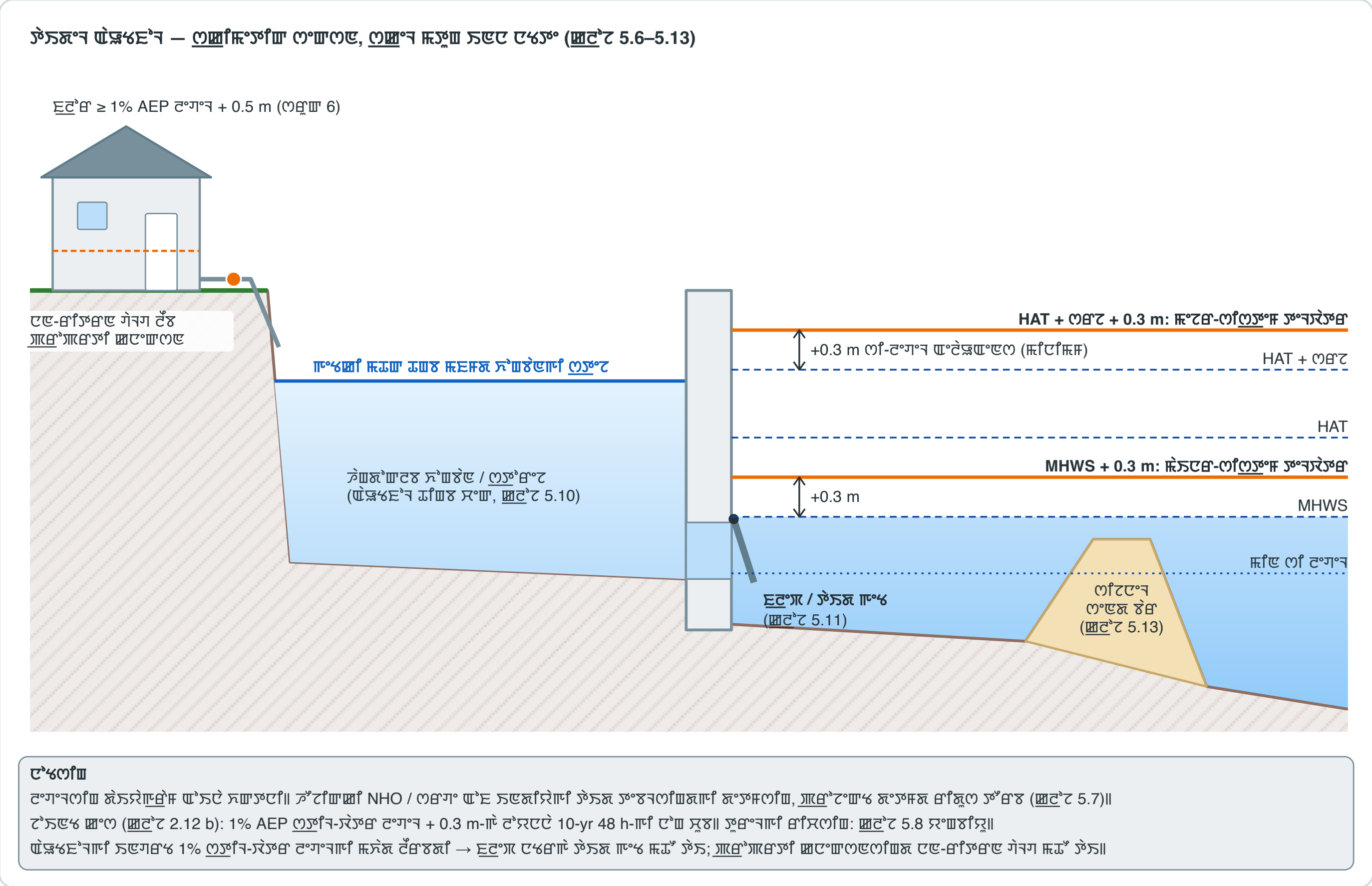
5.7.3 **ꯁꯔꯖ ꯃꯔꯖ.**

- (a) **ꯍꯥꯏ-ꯔꯤꯁ꯭ꯀꯦꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯗꯤꯖꯥꯏꯟ.** "HAT + surge"-ꯗ ꯂꯩꯕ ꯃꯇꯝꯀꯤ ꯁꯔꯖ ꯑꯁꯤ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯃꯥꯏꯄꯥꯛꯄ ꯑꯣꯏꯒꯤ **10% AEP (10-yr) ꯁꯔꯖ ꯃꯔꯖ**ꯅꯤ, ꯑꯄꯅꯕ 5A-ꯗ ꯌꯥꯑꯣꯔꯤ꯫ 1% AEP-ꯒꯤ ꯃꯔꯖ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 2.12(b)-ꯒꯤ ꯂꯥꯏꯗꯜ ꯀꯦꯁꯀ ꯆꯥꯅꯕ, 10-yr-ꯒꯤ ꯌꯨꯝ 48-ꯒꯤ ꯂꯩꯕ ꯁꯨꯕꯒꯤ ꯐꯣꯔꯃꯦꯠ ꯂꯣꯏꯅꯅ ꯃꯤꯇꯤꯡꯉꯩ꯫ ꯃꯃꯤꯒꯤ ꯀꯦꯁ ꯑꯅꯤ ꯑꯁꯤ ꯃꯦꯡꯂꯅꯅ ꯐꯣꯅꯤ, ꯃꯔꯖ ꯑꯃꯗꯤ ꯐꯣꯔꯝ ꯍꯦꯟꯅꯕ ꯂꯩꯕ ꯁꯨꯕ ꯑꯃꯁꯨ ꯐꯣꯔꯝ ꯍꯦꯟꯅꯕ ꯃꯔꯖ ꯑꯃꯕ ꯀꯣꯡꯖꯥꯎꯗꯨ ꯂꯣꯏꯅꯄꯅꯦ꯫
- (b) **ꯂꯥꯏꯗꯜ ꯀꯦꯁ.** ꯀ꯭ꯂꯣꯖ 2.12(b)-ꯒꯤꯗꯃꯛ 1% AEP-ꯒꯤ ꯇꯨꯔꯦꯜ-ꯏꯆꯥꯎ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯑꯄꯅꯕ 5A-ꯗꯒꯤ ꯂꯧꯏ꯫
- (c) ꯑꯄꯅꯕ 5A ꯐꯣꯔꯃꯂꯤ ꯈꯪꯗꯕ, ꯒꯦꯖꯨ ꯑꯅꯤꯃꯛ INCOIS, IMD ꯅꯠꯔꯒꯥ NCCR-ꯒꯤ ꯃꯔꯖ ꯍꯥꯏꯅꯀꯥꯁ꯭ꯇ (hindcast) ꯅꯠꯔꯒꯥ ꯗꯤꯇꯦꯜ-ꯂꯦꯚꯦꯜ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯁꯤꯡ ꯃꯤꯇꯤꯡꯉꯩꯗ ꯃꯍꯧ-ꯁꯥꯖꯦꯁꯤꯡ ꯁꯨꯕꯗꯤ ꯑꯃꯗꯒꯤ ꯂꯧꯒꯅꯕꯅꯤ꯫ ꯁꯨꯕꯗꯤ ꯑꯁꯨꯅ ꯃꯁꯤꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔ, ꯐꯣꯔꯝ ꯑꯃꯁꯨꯡ ꯗꯦꯀꯣꯔꯗꯀꯤ ꯃꯔꯛ ꯄꯔꯤꯡꯈꯕꯅꯤ꯫
- (d) ꯑꯦꯛꯁꯠꯔꯤꯝ ꯑꯁꯨ ꯋꯦꯐꯣꯔꯀꯥꯏ ꯐꯣꯋꯥꯏꯟ ꯂꯩꯕꯗ ꯄꯣꯏꯟꯇꯇꯕ ꯃꯂꯦꯝꯕꯤꯒꯤ ꯃꯦꯔꯖꯤꯅꯇ ꯂꯩꯕ ꯃꯐꯝꯗ ꯍꯧꯒ ꯃꯦꯌ-ꯑꯣꯏ (wave set-up) ꯄꯌꯥꯍꯤꯟꯗꯒꯅꯕꯅꯤ꯫

5.7.4 **ꯁꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯣꯍꯥꯟꯁ.** SLA ꯑꯁꯤ:

- (a) ꯑꯦꯂꯤꯃꯦꯅꯠ ꯄꯨꯝꯅꯃꯛꯀꯤꯗꯃꯛ ꯍꯧꯖꯤꯛꯀꯤꯗꯃꯛ **+0.3 m** ꯑꯣꯏꯒꯅꯕꯅꯤ;
- (b) ꯃꯇꯨꯡꯗ, PDA Manipur ꯅꯠꯔꯒꯥ ꯑꯊꯣꯔꯤꯇꯤꯅ ꯈꯪꯍꯟꯕ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯄ꯭ꯔꯣꯖꯦꯛꯁꯅꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯌꯥꯑꯣꯒꯗꯕ ꯑꯃꯁꯨ ꯂꯩꯔꯕ ꯃꯇꯝꯗ 0.3 m-ꯗꯒꯤ ꯄꯥꯡꯊꯣꯛꯀꯅꯕꯅꯤ; ꯑꯃꯁꯨꯡ

- (c) ꯑꯣꯖꯤꯊꯣꯟꯕ ꯑꯦꯛꯂꯤꯒꯤ ꯃꯤꯇꯥꯏꯟ ꯇꯥꯏꯖꯝꯤꯅꯊꯕ ꯑꯣꯂꯣꯂ ꯇꯣꯒꯃꯗꯤ꯫ ꯆꯍꯤ 50-ꯃꯒꯤ ꯄꯣꯡꯗ ꯃꯤꯇꯥꯏꯟ ꯇꯥꯏꯖ ꯇꯥꯗ ꯑꯣꯖꯤꯊꯣꯡꯂꯤꯕꯒꯤꯃꯊꯕ, ꯃꯤꯇꯥꯏꯟꯗꯕꯇ SLA-ꯒꯤ ꯑꯗꯤꯖꯥꯕ ꯑꯥꯏꯗ ꯂꯤ-ꯖꯣꯒꯣꯟ ꯕꯥꯏꯖꯝꯤ ꯂꯥꯕꯄꯡꯗ ꯑꯂꯤ ꯂꯣꯡꯂꯤꯇꯤꯒꯤꯇꯤ ꯕꯡ (sensitivity run) ꯑꯍ ꯑꯥꯏꯇ ꯕꯤꯌꯥꯕꯥꯏ ꯇꯒꯃꯗꯤ꯫



ꯇꯥꯏꯃꯣꯟ ꯑꯦꯛꯁꯦꯟꯁꯟ — ꯂꯝꯤꯊꯣꯇꯤꯕ ꯂꯣꯕꯂꯡ, ꯂꯝꯣꯟ ꯊꯣꯕ ꯏꯗꯡ ꯖꯥꯇꯣ (ꯃꯖꯥꯏ 5.6–5.13)
ꯍꯖꯥꯕ ≥ 1% AEP ꯖꯣꯒꯣꯟ + 0.5 m (ꯂꯕꯕ 6)
ꯖꯡ-ꯕꯤꯇꯕꯡ ꯒꯅꯒ ꯖꯥꯗ
ꯌꯕꯥꯌꯕꯇꯤ ꯃꯖꯣꯕꯂꯡ
ꯒꯣꯃꯝꯤ ꯊꯖꯕ ꯖꯕꯗ ꯊꯍꯊꯃ ꯏꯥꯕꯗꯡꯒꯤ ꯂꯇꯣꯖ
ꯄꯕꯃꯥꯕꯖꯗ ꯏꯥꯕꯗꯡ / ꯂꯇꯥꯕꯣꯖ
(ꯑꯦꯛꯁꯦꯟ ꯖꯤꯕꯗ ꯆꯣꯕ, ꯃꯖꯥꯏ 5.10)
HAT + ꯁꯔꯖ + 0.3 m: ꯍꯥꯏꯌꯔ-ꯑꯤꯂꯇꯣꯊ ꯇꯣꯅꯆꯇꯕ
+0.3 m ꯂꯤ-ꯖꯣꯒꯣꯟ ꯑꯣꯗꯦꯑꯣꯡꯂ (ꯍꯤꯖꯤꯍꯊ)
HAT + ꯁꯔꯖ
HAT
MHWS + 0.3 m: ꯍꯥꯏꯖꯕ-ꯑꯤꯂꯇꯣꯊ ꯇꯣꯅꯆꯇꯕ
+0.3 m
MHWS
ꯍꯤꯡ ꯂꯤ ꯖꯣꯒꯣꯟ
ꯍꯖꯣꯌ / ꯇꯥꯏꯃ ꯒꯣꯕ
(ꯃꯖꯥꯏ 5.11)
ꯑꯤꯖꯖꯣꯟ
ꯂꯣꯡꯃ ꯗꯕ
(ꯃꯖꯥꯏ 5.13)

ꯖꯕꯑꯤꯕ
ꯖꯣꯒꯣꯟꯑꯤꯕ ꯃꯥꯏꯆꯥꯒꯕꯍ ꯑꯥꯏꯇ ꯏꯕꯇꯖꯤ꯫ ꯄꯖꯤꯕꯝꯤ NHO / ꯂꯕꯒꯣ ꯑꯥꯍ ꯏꯡꯃꯤꯆꯥꯒꯤ ꯇꯥꯏꯃ ꯇꯣꯗꯅꯂꯤꯕꯃꯒꯤ ꯃꯣꯇꯍꯂꯤꯕ, ꯌꯕꯥꯖꯣꯕꯕ ꯃꯣꯇꯍꯃ ꯕꯤꯂꯂ ꯇꯥꯕꯗ (ꯃꯖꯥꯏ 5.7)꯫
ꯖꯥꯏꯡꯕ ꯃꯣꯂ (ꯃꯖꯥꯏ 2.12 b): 1% AEP ꯂꯇꯤꯅ-ꯆꯥꯇꯕ ꯖꯣꯒꯣꯟ + 0.3 m-ꯒꯤ ꯖꯥꯆꯖꯥ 10-yr 48 h-ꯒꯤ ꯖꯥꯕ ꯆꯗ꯫ ꯇꯕꯣꯅꯒꯤ ꯕꯤꯆꯂꯤꯕ: ꯃꯖꯥꯏ 5.8 ꯆꯣꯕꯗꯤꯆ꯫
ꯑꯦꯛꯁꯦꯟꯅꯒꯤ ꯏꯡꯒꯕꯕ 1% ꯂꯇꯤꯅ-ꯆꯥꯇꯕ ꯖꯣꯒꯣꯟꯒꯤ ꯍꯥꯏꯃ ꯖꯥꯕꯗꯃꯤ → ꯍꯖꯣꯌ ꯖꯕꯕꯒꯤ ꯇꯥꯏꯃ ꯒꯣꯕ ꯍꯖꯥ ꯇꯥꯏ; ꯌꯕꯥꯌꯕꯇꯤ ꯃꯖꯣꯕꯂꯡꯂꯤꯕꯃ ꯖꯡ-ꯕꯤꯇꯕꯡ ꯒꯅꯒ ꯍꯖꯥ ꯇꯥꯏ꯫

ꯍꯍꯤ 5.2 — ꯇꯥꯏꯃꯣꯟ ꯑꯦꯛꯁꯦꯟꯁꯟ: ꯍꯖꯣꯌ ꯒꯣꯕ, ꯌꯕꯥꯌꯕꯇꯤꯒꯤ ꯖꯡ-ꯕꯤꯇꯕꯡ ꯒꯅꯒ, ꯑꯍꯂꯕ ꯃꯤꯇꯥꯏꯟꯡꯒꯤ ꯇꯣꯅꯆꯇꯕ ꯖꯣꯒꯣꯟꯑꯤꯕ (ꯍꯥꯏꯖꯕ ꯑꯤꯂꯇꯣꯊꯒꯤꯃꯍꯕ MHWS + 0.3 m; ꯍꯥꯏꯌꯔ ꯑꯤꯂꯇꯣꯊꯒꯤꯃꯍꯕ HAT + surge + 0.3 m), ꯍꯖꯥꯕꯃ ꯍꯇꯊ ꯍꯇꯊꯒꯤ ꯂꯣꯡꯃ ꯗꯕ ꯑꯍꯒꯥ ꯖꯥꯆꯖꯥ꯫ ꯂꯝꯤꯊꯣꯇꯤꯕ, ꯂꯝꯣꯟ ꯊꯣꯕ ꯏꯗꯡ ꯖꯥꯇꯣ꯫ ꯍꯣꯂꯆꯣꯟ ꯑꯂꯤꯒꯤꯃꯍꯕ ꯑꯖꯥꯖ ꯂꯣꯍꯗ ꯃꯕꯥꯏꯕ, MoHUA/CPHEEO Manual on Storm Water Drainage Systems (2019), Part A, Table 6.2-ꯒꯤ ꯇꯥꯏꯃꯣꯟ ꯇꯣꯅꯆꯇꯕ ꯇꯣꯗꯅꯃꯒꯤ ꯖꯥꯖꯥꯕꯏꯗ꯫

> **ꯂꯡꯃꯥꯕꯗ ꯇꯥꯕꯌꯥ.** CPHEEO (2019) Table 6.2-ꯗ ꯃꯥꯂꯇꯣꯟ ꯑꯦꯛꯁꯦꯟꯅꯂꯤꯕꯒꯤ ꯃꯤꯇꯥꯏꯟꯡꯒꯤ ꯇꯣꯅꯆꯇꯕ ꯍꯥꯏꯃ ꯌꯤꯕꯤꯗꯒꯍꯖ ꯖꯍꯖꯤ:
>
> - ꯍꯥꯏꯖꯕ ꯖꯥꯕ ꯆꯗꯒꯤ ꯖꯥꯃꯥꯕ ꯑꯍꯒꯤꯃꯍꯕ (ꯆꯍꯤ 5-ꯃ 1-ꯃꯒꯤ ꯄꯣꯡꯗ ꯖꯥꯕꯌꯥ) MHWN-ꯃꯒꯤ MHWS ꯍꯑꯥꯗ;
> - ꯍꯥꯏꯌꯔ ꯖꯥꯕ ꯆꯗꯒꯤ ꯖꯥꯃꯥꯕ ꯑꯍꯒꯤꯃꯍꯕ MHWS-ꯃꯒꯤ HAT ꯍꯑꯥꯗ; ꯑꯍꯂꯕ
> - "ꯃꯖꯥꯏꯍꯣꯕ ꯆꯣꯡꯖꯝꯤ ꯂꯥꯕꯄꯡꯗ: ꯄꯌꯆꯤꯡꯗ 0.3 m" ("Effect of climate change: additional 0.3 m")꯫
>
> CPHEEO-ꯗ ꯖꯥꯕ ꯆꯗꯒꯤ ꯖꯥꯃꯥꯕ, ꯇꯥꯏꯃ ꯑꯍꯂꯕ ꯂꯕꯖꯝꯤ ꯖꯥꯏꯡꯕ ꯌꯕꯥꯗꯣꯗꯤꯖꯤꯇꯤ ꯑꯂꯤ ꯂꯇꯣꯕ ꯍꯣꯕꯤꯇꯥꯏꯍ ꯗꯥꯕꯃꯒꯤ ꯆꯥꯕꯤ ꯂꯖꯂꯗ "ꯆꯥꯏꯅ ꯇꯥꯕꯃꯃꯗꯖꯤ" ("should") ꯄꯆꯖꯂ ꯄꯆꯕꯤ꯫ ꯍꯣꯂꯆꯣꯟ ꯑꯂꯤꯗ CPHEEO-ꯒꯤ ꯕꯣꯡꯖ ꯆꯃꯤꯕꯍꯕꯝꯤ ꯍꯖꯕꯝꯤ ꯍꯖꯤꯕ ꯖꯥꯕꯤ, ꯍꯥꯏꯌꯔ ꯑꯤꯂꯇꯣꯊꯒꯤꯃꯍꯕ ꯂꯕꯖ ꯄꯌꯆꯤꯅꯖꯤ, ꯑꯍꯂꯕ ꯖꯥꯏꯡꯕ ꯃꯣꯂ ꯑꯂꯤ ꯍꯆꯣꯕ ꯂꯣꯕꯗ ꯑꯦꯕꯖꯤ (ꯃꯖꯥꯏ 2.12)꯫ CPHEEO-ꯗ ꯂꯕꯖ ꯄꯌꯆꯤꯡꯗ ꯍꯖꯥ ꯇꯥꯏꯃꯣ; ꯍꯣꯂꯆꯣꯟ ꯑꯂꯤꯗ ꯍꯂꯤ ꯄꯌꯆꯤꯅꯖꯤ ꯍꯕꯍꯃꯤ ꯃꯥꯂꯇꯣꯟ ꯂꯇꯣꯕꯂꯤꯕꯒꯤ ꯂꯕꯖꯝꯤ ꯕꯣꯃꯥꯕꯃꯂꯤꯕꯗ ꯍꯍꯍ ꯑꯂꯃ ꯍꯂꯤ ꯃꯕꯤꯒꯤ ꯍꯖꯥ ꯇꯥꯗꯒꯣ ꯄꯆꯗ ꯑꯦꯕꯍꯤ; ꯍꯖꯤꯌꯕꯃ ꯂꯍꯃꯕꯒꯤ ꯍꯗꯕ ꯖꯥꯇꯣ, ꯑꯍꯂꯕ ꯂꯕꯖꯝꯤ ꯇꯕꯍ ꯑꯂꯤ ꯂꯇꯣꯕ ꯑꯂꯤꯃ ꯖꯥꯕꯇꯣ, ꯍꯂꯤꯒꯤ ꯇꯕꯣꯅꯂꯤꯕ ꯑꯂꯤ ꯂꯍꯃꯕꯗ ꯖꯕꯇꯗ ꯇꯕꯣꯅꯒꯤ ꯌꯂꯂꯤꯕꯒꯤ ꯍꯊꯕꯃ ꯍꯏꯆꯒꯤ ꯏꯂꯒꯤ ꯏꯂꯤꯕ ꯏꯆꯍꯗ ꯑꯍꯂꯕ ꯏꯖꯏ ꯗꯣꯕꯖꯝꯤ ꯍꯊꯕꯃ ꯖꯥꯕꯇꯥꯕꯗ ꯆꯥꯕꯗ ꯖꯍꯖꯤ (ꯃꯖꯥꯏ 5.8.5)꯫

ꯅꯨꯃꯤꯠꯀꯤ ꯑꯣꯏꯕ ꯑꯣꯠꯄ ꯌꯥꯎꯕꯒꯤ ꯑꯣꯏꯅꯕ ꯑꯦꯛꯁꯄꯔꯇꯁꯤꯡꯒꯤ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯑꯦꯟ ꯅꯨꯃꯤꯠꯀꯤ ꯖꯣꯇꯤꯁꯤꯁ (Survey of India, Tidal Predictions)꯫ ꯍꯧꯖꯤꯛꯇꯥ ꯅꯨꯃꯤꯠꯀꯤ ꯑꯣꯏꯕ ꯑꯣꯏꯕꯗꯥ ꯄꯨꯊꯣꯛꯂꯤꯕ NHO-ꯒꯤ ꯑꯣꯏꯕ ꯑꯣꯏꯕꯁꯤꯡꯗꯤ ꯆꯠ꯫ ꯄꯨꯝꯅꯃꯛ ꯃꯇꯨꯡ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛꯇꯥ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠꯀꯤ ꯄꯣꯔꯠ 95 ꯌꯥꯎꯕ, NHO-ꯒꯤ ꯑꯦꯛꯁꯄꯔꯇꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯄꯣꯔꯇꯁꯤꯡ, NIO ꯑꯃꯁꯨꯡ INCOIS-ꯒꯤ ꯃꯑꯣꯡ ꯇꯥꯀꯄ ꯑꯦꯅꯕ ꯍꯧꯖꯤꯛ ꯖꯣꯇꯤꯁꯤꯁ (Adani Ports, Dahej tide table 2025, NHO INP-12 ꯌꯥꯎꯅ ꯑꯣꯏꯕꯗꯥ)꯫ INCOIS-ꯗꯥ ꯌꯥꯎꯕ ꯑꯣꯏꯕ ꯊꯤꯖꯤꯟꯕ ꯁꯦꯟꯅ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯕꯥ-ꯂꯩꯇꯕ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯕ-ꯂꯩꯇꯕꯗꯥ ꯌꯥꯎꯗꯕꯁꯤꯡ ꯄꯤ꯫ ꯃꯍꯥꯛ ꯑꯣꯏꯕꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯁꯨꯡ ꯂꯃꯗꯝꯒꯤ ꯃꯇꯧ ꯆꯠꯅꯕ ꯃꯇꯤꯛꯇꯥ ꯑꯣꯏꯅꯕꯒꯤ ꯂꯩꯇꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕ 5A ꯑꯣꯏꯕ ꯂꯩꯕ ꯑꯣꯏꯕꯒꯤꯗꯃꯛ ꯂꯥꯛꯂꯤ (ꯃꯦꯞ 5.1.4)꯫

5.8 ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯊꯧꯗꯥꯡꯂꯣꯕ

5.8.1 **ꯌꯥꯎꯗꯕ ꯃꯇꯝ.** ꯗꯣꯜ ꯍꯧꯖꯤꯛ ꯊꯥꯡꯂꯣꯕ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯒꯤ ꯆꯦꯛꯂꯕ ꯑꯣꯏꯕ ꯑꯦꯡꯀꯨꯝꯕ ꯏꯁꯤꯡꯂꯝꯕꯗꯥ ꯍꯦꯟꯅ ꯌꯥꯝꯅ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯂꯣꯏꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯊꯥꯡꯂꯣꯕ ꯑꯦꯡꯀꯨꯝꯕꯁꯤꯡ ꯑꯣꯏꯕ ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯊꯧꯗꯥꯡꯂꯣꯕꯒꯤ ꯗꯣꯔꯗꯗꯥ ꯃꯇꯦꯡ ꯄꯥꯡꯊꯣꯛꯂꯤ꯫ ꯃꯁꯤꯗ ꯃꯍꯩꯗ ꯄꯤꯕꯤꯕꯁꯤꯡ ꯌꯥꯎꯕꯤ:

- ꯏꯝꯐꯥꯜ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯆꯪꯁꯤꯟꯅ ꯄꯨꯝꯕ ꯆꯤꯡ ꯇꯨꯔꯦꯂꯁꯤꯡ, **ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ** (ꯀꯪꯂꯥ ꯑꯃꯁꯨꯡ ꯆꯤꯇꯥꯕꯗ), **ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ** (ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤ (Thong Nambonbi), ꯍꯝꯄ ꯕ꯭ꯔꯤꯖ (Hump Bridge)), **ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ** (ꯏꯔꯤꯜꯕꯨꯡꯗ (Irilbung)), **ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ**, **ꯊꯧꯕꯜ ꯇꯨꯔꯦꯜ**, **ꯂꯦꯃꯥꯈꯣꯡ ꯇꯨꯔꯦꯜ**, **ꯋꯥꯡꯖꯤꯡ ꯇꯨꯔꯦꯜ** (Wangjing), **ꯅꯝꯕꯣꯜ ꯇꯨꯔꯦꯜ** (ꯅꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡꯗ (Nambol Thongkhong)), **ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ** (Khuga), **ꯃꯦꯔꯥꯈꯣꯡ** (Merakhong) ꯑꯃꯁꯨꯡ **ꯑꯔꯣꯡ** (Arong), WRD-ꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯄꯦꯡꯂꯣꯏꯕꯗ ꯆꯪꯕ ꯒꯦꯖꯂꯣꯏ, ꯖꯇꯦꯡ ꯒꯦꯖꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯄꯃꯄꯃꯣ ꯂꯣꯌꯂꯝꯂꯣꯏꯕꯒꯤ ꯍꯦꯊꯣꯛꯕꯗ (ꯃꯦꯞ 5.8.5(a));
- **ꯏꯝꯐꯥꯜꯗ**, ꯂꯥꯏꯐ ꯑꯣꯟꯕꯒꯤ ꯃꯤꯡꯕꯗ ꯌꯦꯅꯆꯤꯕ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ, **ꯗꯣꯒ ꯊꯅꯗ** ꯑꯃꯁꯨꯡ **ꯌꯥꯏꯅꯂꯦꯟ ꯃꯤꯔꯤꯟ** ꯆꯪꯕ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ, **ꯂꯃꯍꯥꯛ ꯗꯒꯤꯗꯣꯒ** ꯍꯦꯊꯣꯛꯕꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯄꯃꯄꯃꯗ ꯊꯥꯡꯂꯣꯕ ꯑꯦꯡꯀꯨꯝꯕ ꯆꯪꯕ **ꯅꯝꯖꯦꯟꯄꯤꯗ**, ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯏꯂꯣꯏꯕ (Imphal East) ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ (ꯃꯦꯞ 5.8.5(b));
- **ꯗꯣꯂꯥꯏ** ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯃꯗꯣꯏ ꯆꯪꯕ ꯄꯦꯡꯂꯣꯏ, **ꯏꯊꯥꯏ** ꯕꯥꯔꯔꯥꯛꯀꯤ ꯂꯒꯤꯄ ꯍꯃꯄ ꯗꯦꯊꯣꯛꯂꯣꯗ ꯂꯒꯤꯄ ꯖꯑꯣꯕ **ꯃꯇꯤꯄꯨꯔꯥ ꯇꯨꯔꯦꯜ**, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯄꯨꯗꯂꯤꯗꯕ ꯃꯇꯝꯗ **ꯆꯥꯀꯄꯤ ꯇꯨꯔꯦꯜ** (Chakpi), ꯃꯏꯔꯥꯏ, ꯗꯤꯂꯊꯣꯈꯣ, ꯊꯥꯡꯒꯥ (Thanga), ꯏꯊꯥꯏ, ꯂꯒꯤꯄ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯒꯨ (Wangoo)-ꯒꯤꯗꯃꯛ (ꯃꯦꯞ 5.8.5(c));
- ꯃꯄꯤꯊꯥꯡ ꯃꯥꯍꯥꯛꯀꯤ ꯃꯈꯥꯗ **ꯊꯧꯕꯜ ꯇꯨꯔꯦꯜ**, ꯃꯂꯤꯒꯤ ꯃꯥꯍꯥꯛꯀꯤ ꯃꯈꯥꯗ **ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ** ꯑꯃꯁꯨꯡ ꯂꯤꯃꯦ ꯃꯥꯍꯥꯛꯀꯤ ꯃꯈꯥꯗ **ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ** ꯕꯤꯗꯤꯗ ꯕꯤꯌꯂꯤ (ꯃꯦꯞ 5.8.3 ꯑꯃꯁꯨꯡ 5.8.5(d));
- ꯑꯣꯟꯕ ꯑꯃꯒꯤ ꯈꯣꯡꯕꯦꯂꯣꯏꯒꯤ ꯏꯂꯣꯏ ꯗꯤꯕ ꯄꯥꯟ, ꯄꯨꯅꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏꯂꯦ ꯄꯦꯜꯗ (detention pond) ꯍꯥꯃꯂꯣꯏꯗꯃꯛ, ꯃꯈꯣꯌꯒꯤ ꯃꯄꯨꯡꯗ ꯅꯝꯖꯦꯟꯄꯥꯟ, ꯂꯩꯃꯥ ꯌꯥꯟꯗꯦꯜꯗꯂ ꯑꯣꯊꯕꯤꯑꯣꯏꯒꯤ (State Wetlands Authority) ꯄꯕꯤꯅꯑꯣꯕꯤꯑꯣꯏ ꯗꯤꯂꯥꯟꯌꯥꯏ ꯄꯥꯟꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯑꯣꯟꯕꯦꯂꯣꯏꯒꯤ ꯄꯕꯗꯤꯗ ꯄꯨꯕꯤꯂꯣꯏ (ꯃꯦꯞ 5.8.5(e));
- ꯌꯤꯒꯤ ꯑꯣꯟꯕꯦꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯑꯣꯃꯄꯥꯟꯌꯥꯏ ꯑꯥꯌꯦꯔꯕꯒꯤ ꯈꯣꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯌꯤꯒꯤ ꯈꯣꯂꯣꯏ, ꯃꯈꯣꯌꯗꯥ ꯑꯣꯃꯄꯥꯟꯌꯥꯏ ꯅꯝ ꯑꯃꯁꯨꯡ ꯗꯣꯑꯣꯒꯣ ꯗꯌꯄ ꯃꯇꯝꯗ, ꯑꯃꯁꯨꯡ ꯗꯣꯍꯨꯄ ꯊꯕꯗ ꯌꯤꯂꯣꯏꯒꯤ **ꯕꯤꯗꯣ ꯇꯨꯔꯦꯜ**, **ꯃꯥꯀ꯭ꯔꯨ** (Makru), **ꯏꯔꯥꯡ** (Irang), **ꯂꯩꯃꯇꯥꯛ** (Leimatak) ꯑꯃꯁꯨꯡ **ꯇꯨꯏꯚꯥꯏ** (Tuivai) ꯌꯥꯏꯔꯦꯛꯂꯣꯏ (ꯃꯦꯞ 5.8.5(f));
- **ꯆꯣꯇꯦꯕꯦꯀ꯭ꯔꯥ** (Chotebekra) ꯗꯨꯕ **ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜ** ꯑꯃꯁꯨꯡ ꯇꯤꯕꯤꯕꯃ ꯄꯗꯦꯟꯗ ꯗꯨꯕ **ꯇꯤꯕꯤ ꯇꯨꯔꯦꯜ** (ꯃꯦꯞ 5.8.5(g));
- ꯗꯣꯒꯤ ꯏꯂꯣꯏ (storm water) ꯗꯨꯕ IMC, ꯃꯍꯨꯗꯤꯂꯤꯄꯦꯟ ꯌꯥꯑꯣꯏꯅ ꯑꯃꯛ, ꯅꯒꯕ ꯄꯃꯑꯣꯌꯔꯗ ꯑꯃꯛ, PDA Manipur, PWD, ꯗꯦꯂꯗꯦꯟ ꯍꯏꯌꯦ ꯑꯦꯇꯦꯑꯣꯏ ꯑꯃꯛ ꯅꯗꯕꯒ DoECC-ꯒꯤ ꯈꯣꯕꯗꯑꯣ ꯅꯗꯕꯒ ꯌꯦꯅꯦꯟ ꯍꯥꯃꯂꯣꯏꯗꯃꯛ, ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯂꯍꯕꯒꯤ ꯌꯦꯅꯦꯟ ꯅꯗꯕꯒ ꯏꯂꯣꯏ ꯏꯌꯥꯏꯒꯤ ꯌꯦꯅꯦꯟ ꯍꯥꯃꯂꯣꯏꯗꯃꯛ (ꯃꯦꯞ 5.8.5(h)); ꯑꯃꯁꯨꯡ
- ꯑꯣꯄꯄ ꯃꯇꯝꯂꯣꯏꯗ: ꯑꯍꯥꯅꯕ 5B-ꯗ ꯇꯤꯂꯗ ꯑꯣꯕꯕ ꯇꯨꯔꯦꯜ ꯅꯗꯕꯒ WRD-ꯒꯤ ꯌꯦꯅꯦꯟ ꯍꯥꯃꯂꯣꯏꯗꯃꯛ꯫

5.8.2 **ꯇꯨꯔꯦꯂꯒꯤ ꯗꯦꯇꯦꯟꯂꯣꯏ.** ꯇꯨꯔꯦꯂꯒꯤ ꯏꯂꯣꯏꯒꯤ ꯗꯦꯇꯦꯟꯂꯣꯏ ꯃꯈꯥꯗ ꯄꯤꯕꯤꯕꯂꯣꯏꯗꯒꯤ ꯗꯒꯗꯕꯗꯤ:

- (a) ꯕꯤꯌ ꯑꯗꯨꯒꯤ WRD-ꯒꯤ ꯃꯤꯇꯩꯅꯑꯣ ꯖꯇꯗ ꯗꯦꯇꯦꯟꯂꯣꯏ ꯅꯗꯕꯒ ꯕꯦꯌꯥꯕꯗ ꯑꯣꯕꯕ ꯍꯏꯌꯦꯂꯗ ꯖꯇꯗ ꯗꯦꯇꯦꯟꯂꯣꯏ, ꯖꯣꯂꯗꯣꯗꯕ ꯃꯇꯝꯗ; ꯅꯗꯕꯒ

- (b) ꯇꯨꯔꯦꯜꯒꯤ ꯔꯤꯆ ꯑꯗꯨꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯣꯗꯦꯜ ꯑꯃꯥ (HEC-RAS ꯅꯠꯔꯒꯥ ꯃꯁꯤꯒꯥ ꯃꯥꯟꯅꯕ)॥ ꯃꯣꯗꯦꯜ ꯑꯗꯨꯅꯥ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ:
  - ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯁꯦꯞ ꯑꯃꯁꯨꯡ (ꯇꯦꯕꯜ 3) ꯇꯨꯔꯦꯜꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ (design flood), ꯇꯦꯕꯜ 3-ꯗ ꯍꯥꯏꯕ ꯃꯑꯣꯡ ꯃꯇꯧꯗ ꯆꯦꯠꯅꯕ ꯁꯤꯃꯨꯂꯦꯁꯟ (continuous simulation) ꯅꯠꯇꯦ;
  - ꯇꯨꯔꯦꯜꯒꯤ ꯃꯊꯛꯇꯥ ꯄꯦꯔꯥ 5.7-ꯒꯤ ꯁꯦꯛꯁꯟ ꯗꯦꯇꯥ; ꯑꯃꯁꯨꯡ
  - ꯄꯦꯔꯥ 5.13-ꯒꯤ ꯂꯦꯚꯦꯜ-ꯗꯤꯁꯆꯥꯔꯖꯒꯤ ꯃꯔꯤ॥

5.8.3 **ꯔꯤꯖꯔꯚꯣꯏꯔ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯦꯖꯒꯤ ꯔꯤꯂꯤꯖꯁꯤꯡ.** ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯃꯇꯦꯡꯗ ꯂꯩꯕ ꯔꯤꯖꯔꯚꯣꯏꯔ (reservoir) ꯅꯠꯔꯒꯥ ꯕꯦꯔꯦꯖ ꯑꯃꯗ ꯇꯨꯔꯦꯂꯗ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯅꯤꯡꯒꯣꯜ ꯃꯇꯦꯡꯗ (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯗ ꯊꯧꯕꯜ ꯇꯨꯔꯦꯂꯗ ꯂꯩꯕ ꯊꯧꯕꯜ ꯃꯜꯇꯤꯄꯔꯄꯣꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯇ (Thoubal Multipurpose Project) ꯃꯄꯥꯟꯊꯣꯡ ꯗꯦꯝ, ꯏꯔꯤꯜ ꯇꯨꯔꯦꯂꯗ ꯂꯩꯕ ꯏꯔꯤꯜ ꯗꯦꯝ, ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯂꯩꯕ ꯁꯤꯡꯗꯥ ꯗꯦꯝ (Singda dam), ꯑꯃꯁꯨꯡ ꯂꯣꯀꯇꯥꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯏꯂꯦꯛꯇ꯭ꯔꯤꯛ NHPC-ꯒꯤ ꯅꯍꯥꯛ ꯕꯦꯔꯦꯖ), ꯇꯨꯔꯦꯜꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯣ ꯄꯥꯝꯕꯤꯕ ꯃꯇꯝ ꯅꯣꯡꯁꯤꯡ ꯍꯧꯔꯀꯄ ꯑꯣꯏꯔꯕꯗꯤ ꯔꯤꯖꯔꯚꯣꯏꯔ ꯑꯣꯄꯔꯦꯠꯇꯔꯁꯤꯡ ꯃꯍꯥꯛꯀꯤ ꯑꯣꯏꯕ ꯔꯤꯂꯤꯖ ꯗꯦꯇꯥ ꯄꯤꯕꯥ ꯇꯥꯏ॥ ꯃꯁꯤꯅꯥ ꯍꯦꯟꯅꯥ ꯊꯤꯡꯕ ꯃꯇꯝꯗ, ꯔꯤꯂꯤꯖꯁꯤꯡ ꯌꯥꯝꯅꯥ ꯊꯨꯅꯥ ꯍꯣꯡꯂꯛꯄ ꯌꯥꯕ ꯔꯤꯂꯤꯖ ꯗꯦꯇꯥ ꯄꯤꯕꯥ ꯇꯥꯏ॥

5.8.4 **ꯃꯅꯨꯡꯗꯒꯤ ꯂꯥꯛꯄ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯄꯨꯟꯁꯤꯟꯅꯕ.** ꯂꯣꯌꯅꯅ-ꯄ꯭ꯔꯣꯕꯥꯕꯤꯂꯤꯇꯤꯒꯤ ꯃꯇꯥꯡꯒꯤ ꯑꯍꯥꯏꯕ ꯊꯧꯗꯣꯀꯁꯤꯡꯗ ꯅꯤꯡꯖꯕꯥ, ꯃꯗꯨꯒꯤ ꯃꯍꯨꯠꯇ ꯑꯅꯤꯃꯛ ꯃꯈꯥ ꯇꯥꯕ ꯊꯥꯗꯣꯛꯀꯗꯕꯅꯤ:

- (a) ꯃꯅꯨꯡꯗꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (design storm) (ꯍꯥꯏꯕ ꯃꯇꯧꯒꯤ AEP), ꯇꯨꯔꯦꯜ ꯑꯗꯨ ꯃꯇꯝꯒꯤ **10% AEP (10-yr)** ꯂꯦꯚꯦꯂꯗ ꯂꯩꯕ; ꯑꯃꯁꯨꯡ
- (b) ꯃꯅꯨꯡꯗꯒꯤ **10% AEP**-ꯒꯤ ꯅꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯂꯥꯛꯄ, ꯇꯨꯔꯦꯜ ꯑꯗꯨ ꯃꯇꯝꯒꯤ ꯗꯤꯖꯥꯏꯟ-AEP ꯂꯦꯚꯦꯂꯗ (ꯍꯦꯟꯅ ꯃꯁꯛ ꯊꯣꯛꯄ ꯑꯣꯏꯅ 1% AEP) ꯂꯩꯕ॥

ꯄꯦꯔꯥ ꯊꯧꯗꯣꯛ ꯂꯩꯕ ꯅꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯂꯥꯛꯄ ꯑꯗꯨ ꯑꯗꯨ ꯅꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯂꯥꯛꯄ ꯑꯍꯥꯟꯕꯁꯤꯡꯒꯤ ꯃꯦꯂꯕ ꯃꯇꯝꯗ ꯍꯧꯕ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯍꯧꯕ (timing) ꯍꯦꯟꯗꯣꯛꯀꯗꯕꯅꯤ॥

5.8.5 **ꯄꯦꯟꯗꯤ ꯅꯥꯡ ꯌꯥꯕ ꯌꯥꯍꯧꯕꯁꯤꯡ ꯑꯣꯏꯕꯥ ꯗꯦꯇꯥꯁꯦꯠꯁꯤꯡ, ꯅꯥꯡꯒꯥ, ꯅꯥꯡꯌꯥꯕꯁꯤꯡ ꯍꯦꯠꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯍꯥꯏꯖꯥꯡ, ꯗꯦꯒꯤ ꯔꯤꯇꯤꯇ ꯔꯤꯁꯣꯔꯁꯤꯡ, ꯄꯦꯌ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯦꯖꯁꯤꯡ, ꯁꯤꯡꯒꯤ ꯅꯤꯡꯊꯧꯁꯤꯡ, ꯇꯤꯔꯤꯕꯤꯍ ꯑꯃꯁꯨꯡ ꯕꯔꯥ ꯏꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯑꯁꯦꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯣꯅꯦꯜꯁꯤꯡ.**

- (a) **ꯄꯦꯟꯗꯤ ꯅꯥꯡ ꯌꯥꯕ ꯌꯥꯍꯧꯕꯁꯤꯡ ꯑꯣꯏꯕꯥ ꯗꯦꯇꯥꯁꯦꯠꯁꯤꯡ.** ꯅꯥꯡꯒꯥ ꯌꯥꯍꯧꯕꯁꯤꯡ ꯂꯩꯍꯅꯕ (ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2A-ꯒꯤ ꯃꯕ-ꯑꯦꯟꯠꯔꯤ MN-A ꯑꯃꯁꯨꯡ MN-A1) ꯂꯩꯕ ꯗꯦꯇꯥꯁꯦꯠ ꯑꯍꯥꯏꯕꯁꯤꯡ, ꯇꯨꯔꯦꯜ ꯑꯍꯥꯟ ꯄꯥꯡꯊꯣꯛꯄꯗ, ꯇꯨꯔꯦꯜꯒꯤ ꯄꯦꯟ (pan) ꯑꯍꯥꯟ ꯂꯩꯕ ꯂꯝ, ꯃꯔꯝ ꯂꯝ ꯅꯠꯔꯒꯥ ꯏꯊꯣꯡꯁꯤꯡ (ithong) ꯑꯍꯥꯟꯒꯤ ꯁꯤꯡꯊꯣꯛꯇ, ꯅꯥꯡꯍꯟꯒꯤ ꯄꯍꯟꯄꯥꯏ ꯊꯣꯛꯄ ꯑꯍꯥꯟꯒꯤ ꯁꯤꯡꯊꯣꯛꯇ, ꯅꯠꯔꯒꯥ ꯍꯦꯟꯗꯣ ꯍꯧꯅ ꯑꯃꯅꯥ ꯍꯥꯏꯗꯅ ꯑꯍꯥꯟ ꯅꯣꯡꯒꯤ ꯊꯥꯗꯣꯛꯄ ꯅꯤꯡꯕꯦ, ꯅꯥꯡ, ꯄꯦꯌ ꯅꯠꯔꯒꯥ ꯕꯦꯔꯦꯖ ꯑꯍꯥꯟ, ꯗꯤꯖꯥꯏꯅꯔꯗ ꯂꯝ, ꯃꯔꯝ ꯂꯝ ꯑꯃꯁꯨꯡ ꯄꯍꯟꯄꯥꯏ ꯊꯣꯛꯄ ꯁꯤꯡꯊꯣꯛꯇ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯌꯥꯍꯧꯕ ꯕꯥꯏ ꯑꯍꯥꯟ ꯅꯥꯡꯍꯟꯅꯥꯏꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯥꯟꯅꯒꯤ ꯅꯥꯡꯕ ꯔꯤꯖꯔꯚꯣꯏꯔꯁꯤꯡꯒꯤ ꯂꯝ ꯁꯤꯡꯊꯣꯛꯇꯥꯏ ꯃꯇꯤꯛ, ꯄꯦꯟꯗꯤꯒꯤ ꯂꯃꯗꯝ, ꯄꯍꯟꯄꯥꯏ ꯊꯣꯛꯄ ꯁꯤꯡꯊꯣꯛꯇꯥꯏ ꯍꯥꯏꯕ ꯄꯔꯤꯍꯦꯟꯗꯣꯛ ꯄꯨꯟꯁꯤꯟꯅꯗꯨ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯂꯨꯂꯥꯏ ꯄꯅꯤꯟꯅ, ꯃꯇꯝꯒꯤ ꯃꯇꯥꯡ ꯂꯦꯚꯦꯜꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯂꯝ ꯁꯤꯡꯊꯣꯛꯇ ꯍꯥꯏꯕ ꯇꯨꯔꯦꯜꯒꯤ ꯂꯦꯚꯦꯜ ꯂꯩꯒꯗꯕꯅꯤ॥ ꯂꯦꯚꯦꯜ ꯁꯤꯡꯊꯣꯛꯇꯗ ꯃꯇꯝꯒꯤ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯃꯔꯤ ꯑꯃ ꯅꯪꯗꯤꯔꯤꯒꯤ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯑꯍꯥꯟ ꯍꯔꯤ ꯄꯤꯔꯀꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯥꯏꯗꯕꯗ WRD-ꯒꯤ ꯂꯦꯇ ꯑꯍꯥꯟꯒꯤ ꯍꯥꯛꯀꯤ ꯄꯤꯔꯀꯗꯕꯅꯤ॥ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯦꯟꯁꯤꯡ, ꯅꯣꯡꯒꯤ ꯐ꯭ꯂꯗꯀꯤ ꯍꯦꯂꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯥꯏꯇꯦꯁꯟꯒꯤ ꯄꯥꯍꯥꯄ ꯌꯥꯕ ꯑꯗꯨ WRD-ꯒꯤꯅꯤ॥ ꯔꯤꯃꯔꯤꯁꯤꯡ ꯍꯧꯔꯛꯅ ꯄꯦꯟꯁꯤꯡꯒꯤ ꯍꯣꯡꯗꯣꯛ ꯍꯦꯟꯗꯣꯛꯆꯥꯗꯒꯤ ꯗꯦꯟꯗꯦ ꯑꯍꯥꯟꯅꯒꯤ ꯖꯤꯅꯤꯌꯦ (NEER-ꯒꯤ ꯄꯥꯕ), ꯍꯔꯤ ꯑꯍꯥꯟ WRD-ꯒꯤ ꯑꯅꯦꯕ ꯑꯗꯨ ꯄꯦꯟꯁꯤꯡꯒꯤ ꯍꯥꯛꯀꯤ ꯑꯅꯦꯕꯅꯤ (ꯗꯦꯅꯤꯡꯍ (h)); ꯌꯥꯍꯧꯕꯁꯤꯡ ꯂꯝꯁꯤꯡ, ꯃꯔꯝ ꯂꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯍꯟꯄꯥꯏ ꯊꯣꯛꯄꯁꯤꯡ ꯒꯦꯇꯕ ꯑꯗꯤꯗꯤꯒꯤ ꯂꯅꯅꯗ ꯂꯤꯃꯨꯌ ꯑꯍꯦꯕꯥ, ꯑꯃꯁꯨꯡ ꯍꯅꯅ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯌꯥꯗꯕ WRD-ꯒꯤ ꯂꯨꯅ ꯑꯍꯦꯕꯥ ꯖꯤꯅꯤꯌꯦ [TBC]॥ ꯄꯦꯟꯁꯤꯡ ꯑꯗꯨ ꯃꯇꯝꯅ ꯑꯃꯁꯨꯡ ꯍꯖꯤꯍ ꯅꯗꯕ ꯑꯅꯦꯅꯕ ꯂꯩ: MASTEC-ꯗ ꯅꯥꯡꯒꯥ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯦꯟꯁꯤꯡꯗ ꯑꯍꯥꯏꯕ ꯂꯩꯕ ꯄꯥꯟꯅꯕ 11, ꯍꯥꯏꯕ ꯇꯨꯔꯦꯂꯗ 14 ꯑꯃꯁꯨꯡ ꯅꯥꯡꯒꯤ ꯇꯨꯔꯦꯂꯗ 5 ꯍꯥꯅꯤ, ꯑꯃꯁꯨꯡ 1966-ꯗ ꯍꯖꯤꯍ 60-ꯗ, 1989-ꯗ 40-ꯗ ꯑꯃꯁꯨꯡ 2002-ꯗ 59-ꯗ ꯄꯦꯟ ꯊꯥꯡꯄ ꯔꯤꯃꯔꯗ ꯌꯥꯅꯤ (MASTEC)॥
  - **WRD-ꯒꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ.** ꯌꯥꯍꯧꯕꯁꯤꯡ ꯄꯦꯔꯥ 5.8.2(a)-ꯒꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯑꯗꯨ WRD-ꯗ ꯃꯇꯝꯒꯤ ꯂꯦꯇꯇꯨꯒꯤꯅꯤꯡꯗ ꯄꯦꯄꯔꯒꯤ ꯁꯤꯡꯊꯣꯛꯇ ꯃꯁꯤꯡꯕꯁꯤꯡ ꯅꯥꯔꯤꯕ ꯂꯦꯚꯦꯜ (WL), ꯃꯇꯝꯗ ꯂꯦꯚꯦꯜ (FL) ꯑꯃꯁꯨꯡ ꯍꯥꯏꯅꯥꯛꯂꯒ ꯃꯇꯝꯗ ꯂꯦꯚꯦꯜꯁꯤꯡꯅꯤ (HFL)॥ ꯄꯨꯍꯟꯗꯦ ꯄꯥꯟꯗꯨꯗ ꯃꯁꯤꯡꯕꯁꯤꯡꯗ ꯍꯣꯡꯕ ꯅꯥꯡꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯍꯦꯕꯥꯗ ꯃꯇꯝꯒꯤ ꯗꯦꯌꯥꯍ ꯍꯣꯔꯗꯦ; ꯍꯅꯅꯔꯕ ꯍꯤꯗꯥ ꯃꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯍꯊꯥꯌꯥ ꯂꯩꯕ ꯍꯤꯌꯥꯔ ꯑꯅꯅꯗ ꯂꯩꯅ, ꯂꯦꯇ ꯁꯤꯡꯊꯣꯛꯇꯥꯏꯗꯤ ꯄꯦꯟꯗꯤꯔꯍ ꯌꯥꯍꯧꯕ [TBC] (ꯌꯦꯕꯥꯅ 5B.1): **ꯍꯤꯂꯣꯀꯁꯥꯗ** (ꯅꯥꯡꯒꯥ ꯃꯄꯥꯏ) ꯅꯥꯡꯒꯥ ꯇꯨꯔꯦꯜ WL 785.900 m, FL **786.900 m** ꯑꯃꯁꯨꯡ HFL **788.400 m**; **ꯇꯤꯇꯧꯗ** ꯅꯥꯡꯒꯥ ꯇꯨꯔꯦꯜ WL 780.350 m, FL **781.350 m** (2025-ꯒꯤ ꯔꯤꯄꯣꯔꯇꯁꯤꯡ) ꯅꯠꯔꯒꯥ **781.250 m** (2024-ꯒꯤ ꯔꯤꯄꯣꯔꯇꯁꯤꯡ) ꯑꯃꯁꯨꯡ HFL **782.850 m** (2024-ꯒꯤ ꯔꯤꯄꯣꯔꯠ); **ꯅꯥꯝꯕꯨꯜꯗ** ꯅꯥꯡꯕ ꯇꯨꯔꯦꯜ WL 786.700 m ꯑꯃꯁꯨꯡ FL **787.700 m**, HFL ꯑꯗꯨ 782.200 m ꯄꯤꯔꯕ ꯄ꯭ꯔꯤꯟꯇ ꯌꯥꯔꯤ, ꯃꯇꯝꯒꯤ ꯃꯇꯝꯗ ꯂꯦꯚꯦꯜꯁꯤꯡꯒꯤ ꯅꯍꯥꯛ, ꯃꯗꯨ ꯔꯤꯄꯣꯔꯠ ꯅꯠꯔꯒꯥ ꯃꯇꯝꯒꯤ ꯄꯥꯟꯊꯣꯛꯇ ꯂꯩꯕ ꯑꯃꯅꯕ ꯑꯍꯦꯅꯤ [U];

ꯊꯧꯕꯟ ꯁ꯭ꯇꯦꯁꯟ (ꯃꯇꯝꯗꯥ ꯍꯧꯖꯤꯛ ꯄꯨꯔꯛꯂꯕ) WL 778.915 m ꯑꯃꯁꯨꯡ FL **779.915 m**; **ꯊꯧ ꯂꯝꯐꯦꯜꯄꯥꯠ (ꯄꯨꯃꯅꯃꯛ ꯕꯔꯥꯛ)** ꯂꯝꯐꯦꯜ ꯁ꯭ꯇꯦꯁꯟ HFL **783.695 m**, ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜ ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕꯅꯤ; **ꯂꯝꯐꯦꯟ ꯊꯧꯕꯥꯜꯗ** ꯂꯝꯐꯦꯟ ꯁ꯭ꯇꯦꯁꯟ HFL **774.700 m** (2024) ꯑꯃꯁꯨꯡ **774.400 m** (2025) [U]; ꯑꯃꯁꯨꯡ **ꯅꯊꯅ ꯕꯤꯀꯣꯟꯗ** ꯍꯦꯟꯒꯥꯡ ꯁ꯭ꯇꯦꯁꯟ HFL **769.320 m**꯫ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯂꯣꯌꯊꯣꯛꯂꯦ꯫ 29 ꯍꯨ 2024-ꯗ ꯍꯤꯟꯊꯣꯛꯈꯗ ꯅꯃꯗꯤꯟ ꯁ꯭ꯇꯦꯁꯟ ꯍꯧꯖꯤꯀꯤ HFL-ꯒꯤ ꯃꯊꯛꯇꯥ ꯌꯥꯎꯔꯀꯄ, ꯑꯃꯁꯨꯡ ꯂꯝꯐꯦꯜ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯂꯝꯐꯦꯟ ꯁ꯭ꯇꯦꯁꯟ ꯍꯧꯔꯀꯄꯒꯤ HFL-ꯒꯤ ꯃꯊꯛꯇꯥ; 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ ꯂꯤꯂꯥꯡꯗ ꯅꯃꯗꯤꯟ ꯁ꯭ꯇꯦꯁꯟ **783.250 m**-ꯗ ꯂꯩꯔꯤ, ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕ HFL-ꯒꯤ ꯃꯊꯛꯇꯥ, ꯅꯤꯡꯊꯧꯈꯣꯡꯗ ꯅꯤꯡꯊꯧ ꯁ꯭ꯇꯦꯁꯟ 788.850 m-ꯗ, "FL-ꯒꯤ ꯃꯊꯛꯇꯥ, HFL-ꯒꯤ ꯃꯈꯥꯗ" ("above FL, below HFL"), ꯑꯃꯁꯨꯡ ꯅꯊꯅꯗ ꯍꯦꯟꯒꯥꯡ ꯁ꯭ꯇꯦꯁꯟ **770.05 m**-ꯗ, ꯍꯧꯖꯤꯀꯤ HFL-ꯒꯤ ꯃꯊꯛꯇꯥ (ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯗꯦꯇꯥꯗꯥ ꯌꯥꯎꯍꯟꯕ ꯍꯦꯅꯕ ꯅꯪꯒꯟ)꯫ WRD-ꯅ ꯍꯧꯖꯤꯀꯤ ꯍꯦꯅꯕꯗ ꯍꯧꯖꯤꯀꯤ HFL-ꯁꯤꯡ ꯅꯤꯡꯁꯤꯡꯂꯒ ꯌꯦꯡꯕ ꯇꯥꯏ (NEER-ꯒꯤ ꯃꯇꯦꯡ)꯫ ꯃꯇꯝ ꯄꯨꯝꯕꯤꯡꯗꯥ ꯃꯇꯝ ꯂꯤꯡ, ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯁꯤꯡꯂꯒ ꯄꯨꯝꯕꯤꯡ ꯇꯥꯔꯕ WRD-ꯒꯤ ꯃꯇꯝ ꯅꯤꯡꯂꯤꯁꯤꯡꯅ ꯑꯁꯤ ꯌꯥꯝꯅꯥ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟꯒꯤ ꯄꯨꯝꯕꯤꯡꯗꯥ ꯑꯄꯨꯅꯕ ꯗꯨꯌꯥ ꯅꯤꯡꯊꯤꯔꯛꯂꯤ [TBC]꯫

- **ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜꯁꯤꯡ.** ꯃꯇꯝ ꯂꯩꯕ ꯌꯥꯝꯅꯥꯔꯕꯗꯥ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯗ ꯅꯤꯡꯁꯤꯡ ꯊꯧꯔꯥꯡ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟ ꯑꯍꯦꯅꯕꯗꯥ, ꯍꯧꯖꯤꯛ ꯂꯣꯌꯅ ꯑꯃꯁꯨꯡ ꯂꯣꯌꯅꯕꯒꯤ **ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯑꯣꯡ** (ꯄꯥꯔꯥ 5.8.4(b) ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 5.10) ꯑꯁꯤ ꯃꯌꯥꯝꯕꯤ ꯃꯇꯝꯗ (governing gauge) ꯁ꯭ꯇꯦꯁꯟ ꯑꯁꯤ ꯍꯧꯖꯤꯀꯤ WRD-ꯒꯤ **ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜꯗ** ꯂꯩꯕ, ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟꯗ ꯌꯥꯝꯅꯥ ꯌꯥꯎꯕꯒꯤ, ꯃꯁꯤ ꯊꯤꯖꯤꯟꯕꯒꯤꯅꯤ꯫ ꯃꯇꯝ ꯑꯍꯦꯅꯕꯗꯥ ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜ ꯑꯗꯨ ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕ ꯍꯧꯖꯕꯗ, ꯄꯨꯝꯅꯃꯛ ꯌꯥꯎꯕ ꯑꯃꯥ ꯁꯣꯏꯗꯅ (ꯂꯤꯂꯥꯡꯗ, **781.350 m**); ꯍꯧꯖꯤꯛ ꯑꯁꯤꯅ ꯍꯧꯔꯀꯄꯒꯤ ꯍꯦꯟꯗꯕ ꯄꯨꯅꯁꯤꯟꯅꯕ ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯄꯨꯔꯀꯄ ꯌꯥꯎꯁꯤꯜꯂꯕ ꯂꯩꯗꯦ꯫ **ꯋꯥꯔꯅꯤꯡ ꯄꯣꯏꯟ** ꯑꯁꯤ ꯁ꯭ꯇꯦꯁꯟ ꯑꯁꯤ ꯍꯧꯖꯤꯀꯤ **HFL ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯀꯤ ꯃꯊꯛꯇꯥ ꯗꯦꯇꯥꯗꯥ ꯌꯥꯎꯍꯟꯕ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯌꯥꯎꯕ ꯇꯤꯗꯤꯡ** ꯑꯃꯗꯤ ꯍꯦꯟꯗꯕ ꯄꯨꯝꯅꯃꯛ ꯌꯥꯎꯕ ꯑꯃꯛꯇ ꯂꯩꯕꯗꯤ (ꯍꯤꯟꯊꯣꯛꯇ 788.400 m; ꯂꯤꯂꯥꯡꯗ **783.250 m**; ꯅꯊꯅ **770.05 m**), ꯃꯁꯤ ꯊꯤꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯡ ꯁꯀꯤ ꯊꯧꯗꯥꯡ ꯊꯣꯛꯍꯟꯕ ꯒꯥꯟꯕ ꯑꯃꯥ ꯍꯧꯖꯤꯀꯤ ꯍꯦꯅꯕꯗ ꯊꯣꯀꯄ: ꯋꯥꯔꯅꯤꯡ ꯄꯣꯏꯟꯁꯤꯡ ꯕꯤꯟꯗꯨꯁꯤꯡ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯗꯥ ꯑꯍꯦꯅꯕ ꯅꯣꯏꯁꯅ ꯌꯥꯝꯅꯥ ꯅꯤꯡꯁꯤꯡꯂꯤ (ꯄꯥꯔꯥ 6.11), ꯑꯃꯁꯨꯡ ꯃꯍꯧꯁꯥꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯃꯒꯤ ꯍꯦꯅꯕ ꯅꯣꯏ ꯃꯇꯤꯊꯥꯗꯕꯅꯤ꯫ HFL ꯌꯥꯎꯕ ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕ ꯍꯧꯖꯕꯗ, HFL ꯑꯃꯥ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯀꯤ ꯃꯊꯛꯇꯥ ꯗꯦꯇꯥꯗꯥ ꯌꯥꯎꯍꯟꯕ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯌꯥꯎꯕ ꯇꯤꯗꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯃꯛꯇ ꯅꯣꯏ ꯅꯣꯏꯁꯤꯡꯒꯤ ꯍꯦꯟꯗꯣꯛꯄꯒꯤ (flood marks) ꯁꯦꯡꯅ ꯌꯥꯎꯕ ꯑꯃꯥ ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜꯗꯤ: ꯄꯨꯃꯅꯃꯛ ꯕꯔꯥꯛꯀꯤ ꯂꯝꯐꯦꯜ ꯁ꯭ꯇꯦꯁꯟ, 783.695 m; ꯂꯝꯐꯦꯟ ꯊꯧꯕꯥꯜꯗ ꯂꯝꯐꯦꯟ ꯁ꯭ꯇꯦꯁꯟ, ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕ ꯄꯨꯝꯅꯃꯛ ꯌꯥꯎꯕ ꯒꯥꯟꯕ, 774.700 m; ꯑꯃꯁꯨꯡ ꯅꯊꯅꯗ ꯍꯦꯟꯒꯥꯡ ꯁ꯭ꯇꯦꯁꯟ, 769.320 m ꯑꯃꯁꯨꯡ 770.05 m꯫ ꯅꯤꯡꯊꯧꯈꯣꯡꯗ 787.700 m-ꯒꯤ ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗꯤ, ꯑꯃꯁꯨꯡ WRD-ꯅ ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕ HFL ꯑꯃꯥ ꯄꯨꯍꯊꯥꯂꯤꯕꯗꯤ ꯗꯦꯋꯥꯕ ꯗꯦꯇꯥꯗꯥ ꯌꯥꯎꯍꯟꯕ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯌꯥꯎꯕ ꯇꯤꯗꯤꯡ, 788.850 m (15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025), ꯑꯁꯤ ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜꯗꯤ [TBC]꯫ ꯁ꯭ꯇꯦꯁꯟ ꯍꯧꯖꯤꯀꯤ 10% AEP ꯂꯦꯚꯦꯜꯗ ꯂꯩꯕ ꯄꯣꯁꯤꯁꯟꯒꯤꯗꯃꯛ (ꯄꯥꯔꯥ 5.8.4(a)) ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 5.1.4(b)-ꯒꯤ ꯍꯤꯅꯂꯤ-ꯁꯤꯡꯂꯣꯟꯅ ꯌꯥꯎꯍꯟꯕꯒꯤꯗꯃꯛ, ꯁ꯭ꯇꯦꯁꯟ ꯑꯁꯤ ꯍꯧꯖꯤꯀꯤ WRD-ꯒꯤ **ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜꯗ** ꯂꯩꯅ, ꯌꯥꯝꯅꯥ ꯌꯥꯎꯕ (ꯍꯤꯟꯊꯣꯛꯇ 785.900 m; ꯂꯤꯂꯥꯡꯗ 780.350 m; ꯅꯤꯡꯊꯧꯈꯣꯡ 786.700 m; ꯊꯧꯕꯟ ꯁ꯭ꯇꯦꯁꯟ 778.915 m), ꯑꯃꯁꯨꯡ ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜ ꯃꯊꯛꯇꯥ ꯌꯧꯔꯕ ꯃꯇꯝ ꯑꯍꯦꯅ, ꯀꯅꯥꯒꯨꯝꯕ ꯑꯁꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗ꯫ ꯍꯧꯔꯛ ꯃꯍꯧꯁꯥ ꯍꯦꯟꯅ ꯑꯁꯤꯅ ꯊꯥꯕꯗꯤ꯫ ꯍꯋꯥ ꯊꯥꯕ ꯍꯦꯟꯗꯕ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯂꯥꯏꯃ ꯃꯇꯝꯗꯥ ꯇꯥꯔꯀꯄꯗ ꯌꯥꯎꯕ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟꯗ ꯄꯥꯏꯗꯥꯏꯕꯅ ꯁꯣꯏꯗꯅ, ꯑꯃꯛꯇ ꯍꯤꯡꯗꯥꯕ ꯁ꯭ꯇꯦꯁꯟ ꯍꯦꯅꯕ ꯑꯍꯦꯅꯕ ꯃꯂꯣꯏꯁꯤꯡꯗ ꯁ꯭ꯇꯦꯁꯟ ꯑꯍꯦꯅꯕꯗ ꯂꯩꯕ ꯃꯇꯝ ꯑꯗꯨꯒꯤ ꯍꯤꯡꯗꯥꯕ ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯦꯟꯅ ꯅꯪꯒꯟ ꯗꯤꯖꯥꯏꯟꯗ ꯑꯅꯤꯗꯤ ꯅꯪꯒꯟꯇꯥꯏꯅꯕ ꯌꯥꯕ ꯇꯥꯏ (ꯍꯧꯔꯛꯂꯤ ꯑꯁꯤꯅ ꯊꯥꯕ)꯫ ꯃꯇꯝ ꯂꯩꯕ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯅꯣꯏ ꯑꯍꯦꯅ, ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯍꯦꯟꯗꯕ ꯃꯇꯤꯊꯥꯕꯁꯤꯡꯗꯥ ꯍꯦꯅꯕꯗ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯌꯥꯎꯕ ꯑꯃꯛꯇꯤ: ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯛꯇꯥ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯂꯥꯏꯃ WRD-ꯒꯤ ꯃꯇꯝ ꯗꯥꯡꯇꯥꯗ ꯌꯥꯎꯕ ꯅꯨꯡꯉꯥꯏꯗꯕ ꯌꯥꯎꯕ ꯂꯦꯚꯦꯜ, ꯌꯥꯝꯅꯥ ꯌꯥꯎꯕ; ꯍꯨ 2024, ꯍꯨ–ꯖꯨꯂ 2025 ꯑꯃꯁꯨꯡ ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯒꯤ ꯅꯣꯏ ꯅꯣꯏꯁꯤꯡꯒꯤ ꯍꯦꯟꯗꯣꯛꯄ, ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟꯗ ꯁꯦꯡꯅ ꯌꯥꯎꯕ ꯍꯧꯔꯀꯄꯒꯤ ꯄꯨꯗꯥꯏꯖ ꯄꯨꯔꯛꯂꯦ; ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 5.8.2(b) ꯍꯦꯅꯗ ꯄꯨꯅꯁꯤꯟꯅꯕ ꯍꯦꯟꯗꯣꯛ ꯑꯍꯦ; ꯑꯃꯁꯨꯡ ꯅꯣꯏ ꯅꯣꯏꯁꯤꯡꯒꯤ ꯍꯦꯟꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯗꯣꯛ ꯂꯩꯔꯕꯅ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟ ꯑꯍꯦꯅꯕꯅ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯝꯅꯥꯅꯤꯡꯁꯤꯡꯂꯤ (ꯍꯧꯔꯛꯂꯤ ꯑꯁꯤꯅ ꯊꯥꯕ)꯫ ꯁꯄꯨꯝꯕ ꯂꯩꯍꯧꯅ ꯑꯁꯤ 790 m ꯍꯦꯟꯕꯗ ꯂꯩ (AIIB, 2024), ꯍꯦꯟꯗ ꯑꯃꯥꯅ ꯍꯧꯔꯛꯂꯤ ꯑꯁꯤꯅ ꯅꯪꯒꯟꯕ ꯍꯦꯅꯕ ꯅꯪꯒꯟ ꯅꯃꯗꯤꯟ ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯍꯤꯡꯊꯥꯕ ꯂꯩꯕ ꯌꯥꯝꯕꯤꯡꯗꯥꯏꯅ ꯍꯧꯖꯤꯀꯤ ꯄꯨꯅꯁꯤꯟꯅꯕ ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜꯒꯤ ꯍꯤꯌꯥꯝ ꯑꯍꯦ ꯑꯃꯁꯨꯡ ꯑꯗꯤꯒꯤ ꯍꯦꯟꯗꯕ ꯅꯣꯏ ꯊꯣꯛꯄꯅꯤ꯫

- **ꯀꯥꯡꯂꯨꯞꯁꯤꯡ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟꯒꯤ ꯊꯤꯖꯤꯟꯕ.** ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯃꯑꯣꯡ ꯑꯍꯦꯒꯤ ꯄꯨꯅꯁꯤꯟꯗ ꯂꯩꯕ ꯀꯥꯡꯂꯨꯞꯁꯤꯡ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟ ꯄꯨꯝꯕꯤꯡꯗꯥ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯁꯟꯅ ꯕꯤꯟꯗꯨ-ꯑꯃꯥ ꯌꯥꯕ ꯍꯧꯕꯗꯤ, ꯍꯧ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯍꯦꯅ ꯅꯣꯏꯁ ꯊꯤꯖꯤꯟꯕ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟ ꯄꯨꯝꯕꯤꯡꯗꯥ, **ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯥ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟ ꯅꯤꯡꯀꯥꯏꯗ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯀꯤ ꯃꯁꯤ ꯊꯤꯖꯤꯟꯕ ꯂꯦꯚꯦꯜꯗ ꯋꯥꯡꯃꯗ ꯍꯦꯟꯅꯕꯒꯤ ꯄꯨꯝ, ꯑꯃꯁꯨꯡ ꯃꯊꯦꯡꯒꯤ ꯃꯌꯥꯝꯕꯤ ꯃꯇꯝꯗ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯥ ꯍꯧꯖꯤꯀꯤ WRD-ꯒꯤ ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜꯗ ꯋꯥꯡꯃꯗ ꯍꯦꯟꯅꯕꯒꯤ ꯊꯥꯗꯅ ꯊꯤꯖꯤꯟ** ꯄꯨꯔꯛ ꯂꯩꯒꯅꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯅꯥꯒꯨꯝꯕ ꯑꯁꯤꯒꯤ ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯂꯩꯗ ꯃꯍꯧꯕꯗ ꯊꯤꯖꯤꯟꯂꯤꯕꯅ ꯂꯩꯒꯅꯤꯡ꯫ ꯃꯁꯤꯁꯤꯡ ꯊꯤꯖꯤꯟꯂꯤꯕꯗꯤ, ꯃꯑꯣꯡꯒꯤ ꯍꯦꯟꯗꯕꯗ ꯂꯩꯕ ꯂꯩ ꯑꯃꯥ ꯁꯣꯏꯗꯅ ꯑꯃꯁꯨꯡ ꯃꯍꯧꯃ ꯌꯥꯕꯗꯤ ꯅꯪꯒꯟꯕ ꯍꯧꯔꯛ ꯃꯍꯧꯁꯥ (ꯍꯧꯔꯛꯂꯤ ꯑꯁꯤꯅ ꯊꯥꯕ)꯫

- **ꯂꯣꯛꯇꯥꯛ.** ꯑꯁꯤꯡꯕꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯑꯁꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯊꯤꯡꯅꯕꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯨꯟꯁꯤ ꯍꯤꯡꯃꯤꯟꯅꯕꯒꯤ ꯇꯪꯂꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯀꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯨꯟꯁꯤ ꯈꯨꯃꯩꯒꯤ ꯈꯣꯡꯆꯠꯀꯤ ꯂꯩꯐꯝ ꯇꯪꯂꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯀꯤ ꯃꯄꯨꯡ ꯐꯥꯕ ꯂꯩꯐꯝ ꯑꯣꯏ ꯑꯣꯏꯕꯒꯤ ꯍꯥꯏꯅꯥ ꯃꯍꯩ ꯈꯨꯃꯩꯗ ꯑꯣꯏ, ꯃꯍꯩꯗ ꯃꯔꯨꯑꯣꯏꯕ ꯊꯧꯗꯥꯡ, ꯃꯍꯥꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯇꯪꯂꯥꯡ ꯇꯧ ꯈꯨꯗꯣꯡꯆꯥꯕꯒꯤ ꯇꯧꯔꯦ, ꯏꯁꯤꯡꯒꯤ ꯆꯦꯟꯊꯔꯛꯄ ꯃꯇꯝ ꯃꯔꯝꯗ ꯆꯦꯟꯊꯔꯛꯄ ꯍꯣꯡꯗꯣꯛ ꯑꯃ ꯑꯣꯏꯔꯛꯄ ꯌꯥꯏ, ꯑꯗꯨꯕꯨ ꯑꯦꯛꯁ-ꯆꯦꯟꯕ ꯇꯨꯔꯦꯂꯒꯤ ꯑꯣꯏꯕꯥ, ꯃꯍꯩꯒꯤ ꯁꯥꯕꯥ ꯁꯦꯡꯗꯣꯛ ꯍꯣꯡꯗꯣꯛ, ꯀꯥꯏꯔꯥꯡ, ꯂꯝ ꯍꯣꯡꯕ, ꯊꯥꯕꯤ (weed), ꯐꯨꯝꯗꯤ (phumdi) ꯑꯃꯁꯨꯡ ꯂꯝ ꯍꯥꯞꯄ (encroachment) ꯇꯥꯕꯗꯒꯤ, ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯊꯤꯡꯕ ꯑꯃꯗ ꯍꯥꯏꯕ ꯌꯥꯝꯅ ꯁꯦꯡꯅꯕꯒꯤ ꯑꯣꯏꯅ ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯂꯧꯁꯤꯡꯕꯁꯤꯡꯗꯒꯤ ꯍꯦꯅꯕ, ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ ꯃꯁꯥꯒꯤ ꯂꯧꯁꯤꯡꯗꯒꯤ ꯈꯪꯗꯣꯛꯅꯕꯒꯤ ꯃꯁꯤꯡ ꯇꯥꯕꯗꯒꯤ ꯍꯦꯅꯕ ꯑꯁꯤꯡꯕꯗꯥ ꯌꯥꯑꯣꯔꯦ (ꯃꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯃꯁꯨꯡ ꯈꯪꯕ)꯫ ꯃꯁꯤꯗꯥ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯨꯟꯁꯤ ꯊꯤꯡꯅꯕꯒꯤ ꯃꯍꯩꯒꯤ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯊꯤꯡꯕ ꯑꯃ **ꯃꯍꯩꯒꯤ ꯑꯁꯤꯡꯕꯗꯥ ꯇꯪꯂꯥꯡ ꯇꯧꯅꯕ ꯃꯔꯦꯟ** ꯍꯥꯏ (ꯑꯦꯄꯦꯟꯗꯤꯛꯁ (e))꯫ ꯄꯨꯝꯅꯃꯛ, ꯄꯨꯡꯅꯕ, ꯇꯪꯂꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ ꯈꯪꯕꯒꯤ ꯑꯃ ꯑꯦꯟꯖꯤꯅ ꯑꯃꯁꯤꯡ ꯁꯦꯟꯕ ꯇꯪꯂꯥꯡꯅ ꯇꯥꯕꯥ ꯑꯃꯁꯨꯡ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯨꯟꯁꯤ ꯂꯝ ꯑꯃꯗ ꯍꯦꯅꯕ ꯇꯪꯂꯥꯡꯒꯤ ꯑꯥꯏꯕꯥ ꯂꯩ ꯑꯣꯏꯔꯦ ꯑꯦꯛꯁꯥꯡꯕꯥ (ꯁꯦꯛꯁꯟ 5.12.5)꯫
- **ꯄꯝꯄꯤꯡꯒꯤ ꯇꯥꯡ.** ꯍꯥꯏꯕꯥ ꯑꯃꯒꯤꯅꯃꯛ ꯄꯝꯄꯁꯤꯡ ꯄꯥꯔꯦꯡ ꯈꯣꯡꯗꯣꯛꯄꯥ ꯄꯨꯝꯅꯃꯛ, ꯑꯃꯁꯨꯡ ꯂꯦꯡꯂꯦ ꯑꯣꯏꯕ ꯇꯥꯔꯤꯕ ꯄꯨꯡꯁꯤ ꯑꯣꯏꯕ ꯑꯃꯇꯥ ꯑꯣꯏꯔꯦ ꯈꯣꯡꯁꯤꯡꯒꯤ ꯍꯥꯏꯅꯕꯔꯦ; ꯃꯍꯥꯛ ꯑꯁꯤ ꯂꯩꯂꯦ ꯑꯃꯒꯤ ꯗꯥꯡ ꯑꯣꯏ ꯑꯃꯁꯨꯡ ꯄꯨꯡ ꯈꯨꯗꯣꯡꯗꯒꯤꯅꯃꯛ ꯐꯥꯎꯕꯒꯤꯔꯦ꯫ ꯁꯦꯛꯁꯟ 5.10-ꯒꯤ ꯑꯁꯤꯡꯕꯗꯥ ꯍꯥꯏꯕ ꯊꯥꯡ ꯑꯁꯤ ꯇꯥꯡ ꯑꯃꯍꯥꯌꯥꯕ ꯇꯧꯔꯦ ꯊꯣꯀꯦ: ꯃꯁꯤ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 5.10.2-ꯒꯤ **ꯄꯝꯄ 72-ꯒꯤ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥ ꯄꯝꯄꯁꯤꯡ** ꯍꯥꯏꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯨꯟꯁꯤ ꯑꯁꯤ ꯃꯁꯤ ꯂꯩꯒꯤ ꯃꯍꯥꯛ, ꯇꯧꯔꯤꯕ ꯃꯁꯤ ꯍꯥꯏꯕ ꯇꯪꯂꯥꯡ ꯑꯃ ꯑꯣꯏꯔꯦ ꯇꯪꯇꯕꯅꯤ ꯃꯍꯥꯛꯀꯤ ꯃꯍꯥꯛ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯇꯝ ꯄꯝꯄꯁꯤꯡ ꯍꯥꯏꯕꯤ, ꯃꯍꯩ ꯄꯝꯄꯤꯡꯒꯤ ꯃꯍꯥꯛ ꯑꯃꯁꯤꯡꯒꯤ ꯇꯧꯔꯤꯕ ꯀꯪ 2024, ꯀꯪ–ꯆꯨꯞ 2025 ꯇꯧꯔꯤꯕ ꯂꯩꯄꯥꯛꯁꯤꯡ 2025-ꯒꯤ ꯍꯩꯀꯨ ꯍꯦꯅꯕꯥꯅꯃꯛ ꯇꯧꯔꯤꯕ ꯁꯤꯡꯅꯕꯇꯥ ꯅꯕꯥ ꯍꯩꯀꯨ ꯍꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯗꯤ ꯃꯇꯝꯗꯥ WRD-ꯒꯤ ꯂꯩꯔꯝ ꯐꯥꯎꯕꯥꯁꯤꯡꯒꯤ ꯇꯥꯔꯦꯕꯔꯦ꯫ ꯂꯩꯔꯝ ꯐꯥꯎꯕꯥ ꯑꯃꯁꯨꯡ ꯑꯅꯥꯅꯅ ꯑꯣꯏ ꯃꯔꯝꯁꯤꯡ, ꯇꯥꯡ ꯑꯁꯤ ꯍꯦꯅꯕ, ꯂꯩꯄꯥꯛ, ꯍꯩꯀꯨ, ꯄꯨꯡꯕ, ꯂꯩꯃꯥꯏ, ꯁꯥꯡꯗꯣꯛ, ꯂꯝꯄꯥꯛ, ꯂꯝꯗꯝ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯁꯤꯡ ꯄꯝꯄꯤꯡꯁꯤꯡꯗꯥ **ꯂꯥꯏꯅ 7-ꯅꯥꯒꯤ (ꯄꯝꯄ 168) ꯍꯥꯏꯕꯥꯅꯤꯔꯦ**, ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥ ꯑꯦꯛꯁꯤꯖ ꯍꯥꯏ ꯑꯃꯗ **ꯄꯝꯄ 72-ꯅꯥꯒꯤ ꯍꯥꯏꯕꯥꯅꯤꯔꯦ** (ꯃꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯃꯁꯨꯡ ꯈꯪꯕ)꯫ ꯇꯥꯡ ꯑꯁꯤ ꯄꯝꯄ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥꯁꯤꯡ ꯄꯝꯄꯁꯤꯡ ꯂꯩꯔꯝ, ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯝ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯑꯣꯏꯔꯦ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥꯁꯤꯡ ꯒꯥꯡꯆꯝ ꯄꯝꯄꯁꯤꯡ ꯍꯥꯏꯔꯦ (ꯁꯦꯛꯁꯟ 5.9.4)꯫ ꯃꯁꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥꯁꯤꯡ ꯍꯥꯏꯕꯤꯒꯤ, ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥꯁꯤꯡ ꯍꯥꯏꯕꯤꯗꯥꯏꯕ ꯒꯥꯡꯆꯝ ꯑꯁꯤ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥ ꯇꯧꯔꯤꯕꯁꯤꯡꯒꯤ **ꯄꯝꯄ 48**-ꯒꯤ ꯃꯔꯝꯗ, ꯁꯦꯛꯁꯟ 4.7-ꯒꯤ ꯗ꯭ꯔꯥꯗꯥꯎꯟ ꯃꯇꯝ (drawdown time), ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥ ꯍꯥꯏꯕꯤ ꯇꯪꯂꯥꯡꯗ ꯄꯨꯝꯅꯃꯛ ꯑꯣꯏꯔꯦ ꯍꯥꯏꯕꯥꯍꯥꯏꯔꯦꯕꯔꯦ, ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯤꯡ ꯂꯩꯕꯗꯥ ꯇꯧꯔꯤꯕ ꯂꯩꯔꯝ ꯑꯁꯤ ꯃꯍꯥꯛꯀꯤ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥꯁꯤꯡꯒꯤ ꯂꯝ ꯂꯩ (ꯃꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯃꯁꯨꯡ ꯈꯪꯕ)꯫ ꯑꯁꯤꯡꯕꯗꯥ ꯍꯦꯟꯒꯠꯄ ꯑꯁꯤ ꯑꯦꯟꯖꯤꯅ ꯑꯃꯁꯤꯡ ꯁꯦꯟꯕꯁꯤꯡ ꯇꯪꯂꯥꯡꯒꯤ ꯃꯍꯥꯛ ꯇꯧꯔꯤꯕ ꯃꯔꯝꯗ, ꯇꯧꯔꯤꯕ ꯁꯦꯛꯁꯟ 5.10.6 ꯃꯍꯥꯛ WRD-ꯒꯤ ꯂꯩꯔꯝ ꯐꯥꯎꯕꯥ ꯑꯃꯒꯤ ꯑꯣꯏꯕꯅꯤꯡꯕ ꯃꯍꯩ ꯊꯥꯕꯥ ꯑꯃꯁꯨꯡ ꯑꯦꯍꯥꯏꯕꯤꯡꯕꯥ ꯑꯦꯛꯁꯥꯡ ꯑꯣꯏꯕ ꯃꯔꯝꯗ ꯍꯥꯏꯕ ꯍꯥꯏꯔꯦ ꯄꯨꯡ ꯇꯥꯡ ꯑꯃ ꯂꯩꯔꯝꯗꯥ ꯌꯥꯝ꯫ ꯄꯨꯡ ꯑꯃꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯇꯪꯂꯥꯡ ꯁꯦꯃꯒꯠꯂꯨꯕꯗꯥ ꯂꯩꯄꯥ 3-ꯗ ꯃꯍꯥꯛꯀꯤꯅꯃꯛ ꯍꯥꯏꯕ AMC ꯇꯧ꯫
- **ꯍꯥꯏꯕꯥ–ꯄꯨꯝꯅꯃꯛ–ꯄꯝꯄꯤꯡꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ ꯑꯣꯏꯕꯥꯅꯤ.** ꯂꯥꯏꯔꯤꯛꯁꯤꯡ ꯂꯝꯗ ꯇꯪꯂꯥꯡ ꯂꯩꯁꯦꯡ ꯑꯃꯒꯤ ꯍꯩꯀꯨꯒꯤ DPR ꯄꯨꯝꯅꯃꯛ, ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ ꯑꯁꯤꯡꯕꯗꯥ ꯄꯨꯝꯅꯃꯛ ꯂꯩꯔꯝ ꯑꯃꯗ ꯍꯩꯀꯨ ꯍꯥꯏꯕꯥꯄ ꯅꯥꯡꯇꯥꯏꯕꯥ ꯄꯨꯝꯅꯃꯛꯗ, ꯍꯥꯏꯕꯥꯅꯤ, ꯄꯨꯡꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯇꯪꯂꯥꯡ ꯂꯩꯔꯝ, ꯄꯨꯝꯅꯃꯛ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯤꯡ ꯑꯁꯤ ꯄꯥꯡꯗ ꯑꯣꯏ ꯑꯣꯏꯔꯦꯕꯔꯦ, ꯃꯇꯝꯗꯤ ꯃꯇꯝꯗ ꯇꯪꯂꯥꯡ ꯄꯝꯄꯤꯡꯒꯤ ꯍꯥꯏꯕꯥꯁꯤꯡ ꯑꯁꯤ ꯃꯍꯥꯛ ꯍꯥꯏꯕ ꯃꯇꯝꯒꯤ ꯕꯣꯡꯅꯕ ꯑꯦꯍꯥꯏ, ꯃꯍꯥ ꯑꯁꯤꯒꯤꯅꯃꯛ: ꯄꯝꯄꯤꯡ ꯃꯍꯩꯒꯤ ꯂꯩꯔꯝꯗ ꯇꯪꯂꯥꯡꯗ ꯇꯧꯔꯤꯕ ꯂꯩꯁꯦꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯡ ꯃꯇꯝ ꯄꯨꯡ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥ ꯑꯃ, ꯑꯃꯁꯨꯡ ꯄꯝꯄꯤꯡ ꯃꯍꯩꯒꯤ ꯏꯇꯗ ꯇꯪꯂꯥꯡꯗ ꯇꯧꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯖꯤꯅ ꯑꯁꯤꯒꯤ ꯇꯥꯡꯁꯤꯡꯅꯃꯛ ꯃꯁꯤꯗꯥ ꯍꯥꯏꯕꯤꯒꯤ ꯄꯝꯄ 72-ꯒꯤ ꯇꯥꯡ ꯄꯝꯄꯒꯤ ꯍꯥꯏꯕꯥ, ꯑꯃꯁꯨꯡ ꯊꯥꯡꯁꯤꯡ ꯃꯍꯥ ꯐꯤꯄꯨꯡꯐꯥꯎ ꯑꯣꯏꯔꯦꯕꯔꯦ꯫ ꯄꯨꯝꯅꯃꯛ ꯂꯩꯔꯝꯂꯦ ꯄꯨꯝꯅꯃꯛꯁꯤꯡ ꯍꯥꯏꯕꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯖꯤꯅ ꯑꯣꯏꯔꯦ ꯃꯍꯥꯛꯀꯤꯅꯃꯛ, ꯃꯍꯩꯒꯤ ꯂꯝꯄꯨꯝ ꯇꯪꯂꯥꯡꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ ꯃꯁꯤ ꯍꯥꯏꯕꯤ ꯇꯪꯂꯥꯡ ꯑꯁꯤ ꯍꯥꯏꯕꯥꯅꯤꯒꯤ ꯐꯥꯎꯍꯥꯏꯂꯩꯔꯝꯗ (drain register) ꯍꯥꯏꯕꯔꯦ (ꯁꯦꯛꯁꯟ 6.9) [TBC: ꯂꯩꯔꯝꯂꯦꯒꯤ ꯇꯤꯂꯥꯏ ꯑꯃꯍꯥꯌꯥ ꯈꯨꯗꯣꯡꯉꯥ]꯫
- **ꯃꯁꯤ ꯈꯪꯕ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯡꯒꯤ ꯄꯨꯝꯅꯃꯛ.** ꯄꯝꯄꯤꯡꯒꯤ ꯄꯨꯡꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯑꯁꯤ ꯑꯦꯍꯥꯏꯕꯥ ꯇꯪꯂꯥꯡ ꯑꯣꯏꯕ (residual risk) ꯑꯃꯁꯨ, ꯈꯪꯅꯕꯥꯒꯤ ꯃꯍꯥ ꯑꯃꯍ ꯇꯧꯔꯤ: ꯍꯥꯏꯕꯥ, ꯄꯨꯝꯅꯃꯛ ꯇꯧꯔꯤꯕ ꯂꯩꯔꯝ ꯑꯃꯍꯥꯌꯥ ꯃꯍꯩꯒꯤꯅꯃꯛ ꯂꯩꯍꯥꯏ ꯑꯣꯏꯔꯦ꯫ ꯄꯨꯡ ꯑꯃꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯇꯪꯂꯥꯡ ꯏꯇꯦꯕ ꯇꯪꯂꯥꯡꯅꯤꯡ, ꯄꯨꯝꯅꯃꯛꯂꯦ ꯂꯩꯔꯝꯂꯦꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯩꯀꯨꯇꯪꯂꯦꯅꯤ ꯂꯝꯕꯤꯅꯤꯡ ꯑꯁꯤ, ꯍꯥꯏꯕꯥꯁꯤꯡꯒꯤ ꯈꯪꯕ ꯑꯣꯏꯕ ꯃꯁꯤ ꯑꯃꯒꯤꯅꯃꯛ ꯑꯃꯁꯨꯡ ꯄꯨꯡꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯑꯃꯒꯤꯅꯃꯛ, ꯄꯨꯡꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯇꯪꯂꯥꯡ ꯂꯝ ꯑꯃꯗ ꯃꯍꯩꯒꯤ ꯃꯍꯩꯒꯤ ꯇꯪꯂꯥꯡ ꯄꯝꯄꯤꯡꯒꯤ ꯇꯪꯂꯥꯡ ꯏꯇꯦꯕ ꯃꯔꯦꯟꯒꯤ ꯍꯥꯏꯕ ꯑꯣꯏꯔꯦꯕꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯑꯃꯗ ꯏꯇꯦꯕ 5-1-ꯗ ꯐꯤꯄꯨꯡꯐꯥꯎ ꯑꯣꯏꯔꯦꯕꯔꯦ꯫ ꯂꯥꯏꯔꯤꯛꯁꯤꯡ ꯇꯥꯡꯁꯤꯡ ꯃꯇꯝꯒꯤ ꯍꯩꯀꯨ ꯍꯦꯅꯕꯥꯅꯤꯡ ꯑꯁꯤ ꯄꯨꯡꯒꯤ ꯄꯨꯝꯅꯃꯛꯒꯤ ꯍꯩꯀꯨ ꯍꯦꯅꯕꯥꯅꯤꯔꯦ: ꯀꯪ 2024-ꯗ ꯄꯨꯡꯒꯤ ꯄꯨꯝꯅꯃꯛ 18, ꯃꯍꯥꯛꯀꯤ ꯃꯔꯝꯗ 17 ꯃꯔꯨꯑꯣꯏꯕ ꯍꯥꯏꯕꯤꯅꯤ; 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯍꯥꯏꯕꯥ ꯄꯝꯄꯤꯡꯒꯤ ꯄꯨꯡꯒꯤ ꯂꯩꯕꯤꯇꯩ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅꯤꯎ ꯆꯦꯀꯣꯟ (New Checkon) ꯑꯃꯁꯨꯡ ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯇꯧꯔꯤꯕꯥꯅꯤꯡꯕꯥꯛ ꯇꯧꯔꯤꯕ, ꯑꯃꯁꯨꯡ

ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯅꯥꯛ ꯍꯥꯏꯕ ꯍꯤꯡꯂꯤꯕ ꯃꯐꯃꯁꯤ; ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕ 2025-ꯗ ꯏꯪꯂꯥꯡ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯅꯥꯛ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏꯗ (Kshetri Awang Leikai) ꯃꯐꯃꯁꯤ (ꯁꯦꯛꯌꯨꯔꯤꯇꯤ ꯑꯣꯗꯤꯠ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯍꯥꯡꯗꯣꯛꯂꯦ)꯫ ꯑꯗꯨ ꯃꯐꯃꯁꯤꯒꯤ ꯅꯝꯕꯨꯜ ꯅꯥꯛ ꯅꯝ ꯑꯃꯗꯤ ꯍꯦꯖꯥꯔꯗ-ꯐꯔꯁ꯭ꯠ ꯁꯥꯏꯠ (hazard-first site) ꯑꯣꯏꯔꯤ (ꯕꯣꯛꯁ 2.3.6(i))꯫

- (b) **ꯏꯝꯐꯥꯜ.** ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯂꯗ (ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯂꯒꯤ ꯔꯤꯚꯥꯏꯖ ꯇꯧꯔꯕ GIS ꯕꯦꯖ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) [Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)]-ꯒꯤ 151.38 km², ꯃꯗꯨ IMC-ꯒꯤ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯌꯥꯎꯅ) ꯗꯥ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯃꯒꯤꯗꯃꯛ, ꯍꯧꯖꯤꯛ ꯑꯗꯨꯗ "ꯁꯍꯔ ꯑꯁꯤ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯍꯥꯏꯔꯦꯟꯕ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯤꯌꯥꯝꯒꯤ ꯂꯩꯐꯝ ꯑꯗꯨ ꯆꯍꯤꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯅꯣꯡꯂꯩꯅ ꯅꯣꯡꯂꯥꯡꯕꯗꯒꯤ ꯉꯥꯛꯊꯣꯛꯅꯕ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯅꯥꯛ ꯑꯅꯤꯃꯛꯇ ꯂꯝꯕꯤꯒꯤ ꯁꯥꯔꯤꯒꯤ ꯅꯥꯛ ꯂꯩꯔꯤ ꯫" ("the town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river to protect the settlement from seasonal floods") ꯑꯃꯁꯨꯡ "ꯑꯋꯥꯡ-ꯈ ꯅꯥꯀꯥꯏꯗ ꯆꯦꯟꯊꯔꯤꯕ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ, ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯣꯡꯕ ꯇꯨꯔꯦꯂꯒꯤ ꯁꯍꯔ ꯑꯁꯤꯒꯤ ꯃꯅꯨꯡꯗ ꯇꯨꯔꯦꯜ ꯃꯆꯥꯁꯤꯡ ꯃꯁꯤꯡ ꯌꯥꯝꯅ ꯂꯩ" ("Imphal river, Nambul river and Kongba river running in north-south direction have numerous tributaries through the town") (ꯍꯧꯖꯤꯛ ꯄ꯭ꯂꯥꯟ):
  - **ꯍꯤꯡꯒꯠꯂꯕ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ.** ꯑꯍꯥꯅꯕꯒꯤ ꯃꯇꯝꯗ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯂꯗ ꯏꯁꯤꯡꯒꯤ ꯊꯥꯛꯄꯥ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯂꯦꯚꯦꯂꯗ ꯑꯣꯏꯔꯤꯕ (a) ꯃꯈꯥꯗ ꯁꯦꯟꯇꯔ ꯂꯥꯏꯟ ꯈꯟꯅꯔꯦ, ꯍꯤꯡꯒꯠꯂꯕ ꯑꯗꯨ ꯒꯦꯖꯔꯤꯗ ꯒꯦꯖ ꯑꯣꯏꯅꯕ (ꯗꯦꯟꯖꯔ 786.900 m; ꯑꯦꯆ 788.400 m, ꯂꯥꯏꯔꯤꯛ ꯇꯨꯔꯦꯜ ꯑꯗꯨ ꯃꯗꯨꯒꯤ ꯃꯊꯛ ꯁꯦꯞꯇꯦꯝꯕꯔ 29 ꯃꯥ 2024-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕꯒꯤ ꯃꯔꯝꯗꯒꯤ ꯑꯔꯣꯏ ꯈꯟꯅꯕ ꯄꯣꯠꯁꯛ ꯊꯣꯛꯅꯕ ꯂꯥꯏꯅꯥ), ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕꯒꯤ ꯃꯇꯨꯡ ꯊꯣꯛꯄ ꯍꯥꯏꯕꯗ ꯂꯦꯚꯦꯜꯗ (ꯗꯦꯟꯖꯔ 781.350 m; ꯑꯦꯆ 783.250 m)꯫ ꯑꯍꯥꯅꯕꯒꯤ ꯃꯇꯝꯗ ꯏꯁꯤꯡꯒꯤ ꯑꯗꯨ 788.400 m-ꯗꯒꯤ ꯅꯥꯏꯕ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯂꯦꯚꯦꯂꯗ ꯁꯦꯟꯇꯔ ꯂꯥꯏꯟ ꯈꯟꯅꯕ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯣꯏꯔꯤ꯫
  - **ꯄꯨꯝꯅ ꯕꯦꯁꯤꯟꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ.** ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯑꯗꯨ "ꯑꯍꯥꯅꯕꯒꯤ ꯃꯌꯥꯏꯀꯣꯏꯕ ꯇꯨꯔꯦꯜ" ("the main urban river") ꯑꯣꯏꯔꯤ, ꯑꯃꯁꯨꯡ "ꯃꯗꯨꯒꯤ ꯇꯨꯔꯦꯜ ꯃꯆꯥꯁꯤꯡꯗꯒꯤ ꯑꯍꯥꯅꯕꯒꯤ ꯃꯌꯥꯏꯀꯣꯏꯕ ꯇꯨꯔꯦꯜ ꯅꯝꯕꯨꯂꯗ ꯆꯠꯂꯤꯕ ꯏꯁꯤꯡꯒꯤ ꯊꯨꯅꯥ ꯆꯦꯜꯂꯤꯕ ꯑꯗꯨ ꯊꯤꯡꯕ ꯉꯝꯗꯦ꯫ ꯃꯔꯝ ꯑꯗꯨꯅ, ꯇꯨꯔꯦꯂꯒꯤ ꯗꯥꯏꯛꯁꯤꯡ ꯃꯥꯡꯂꯕꯗꯒꯤ ꯅꯝꯊꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯄꯨꯡꯐꯝ ꯀꯌꯥꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯝꯅꯕ ꯊꯣꯛꯂꯤ" ("the rapid flows of water directed to the main urban river Nambul from its tributaries cannot be contained. As a result, the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, 2024)꯫ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯏꯁꯤꯡꯒꯤ ꯊꯥꯛꯄꯥ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯃꯗꯤ ꯑꯦꯛꯁꯄꯣꯖꯔ (a) ꯃꯈꯥꯗ ꯊꯥꯛ ꯅꯝꯕꯨꯂꯗꯤ (ꯄꯨꯝꯅ ꯕꯦꯁꯤꯟ) ꯁꯦꯟꯇꯔ ꯂꯥꯏꯟ ꯈꯟꯅꯔꯦ: ꯗꯦꯟꯖꯔ 783.695 m, ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜ ꯑꯗꯨ HFL ꯑꯃꯒꯤ ꯃꯊꯛ ꯁꯦꯞꯇꯦꯝꯕꯔ 29 ꯃꯥ 2024-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕꯒꯤ ꯃꯔꯝꯗꯒꯤ ꯑꯔꯣꯏ ꯂꯥꯏꯅꯥꯗ ꯑꯦꯆ (ꯁꯦꯛꯌꯨꯔꯤꯇꯤ ꯑꯣꯗꯤꯠ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯍꯥꯡꯗꯣꯛꯂꯦ; ꯄꯤꯗꯨꯅ ꯑꯃꯒꯤ ꯁꯤꯡꯂꯨꯞ ꯈꯟꯗꯤ) [TBC]꯫ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯂꯩꯔꯕ ꯁꯤꯕ ꯈꯥꯏꯗꯕ 72 ꯇꯣꯟ, ꯃꯈꯥꯒꯤ ꯏꯟꯇꯔꯁꯦꯞꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯚꯔꯁꯟ (interception and diversion) ꯑꯗꯨ ꯇꯧꯅꯕ ꯄꯥꯎꯇꯥꯛ ꯂꯧꯔꯕ ꯄꯤꯔꯤꯡꯕ ꯌꯥꯎꯔꯤ (O.A. 606/2018-ꯗ NGT-ꯗ ꯂꯧꯊꯣꯛꯂꯤꯕ ꯄꯤꯔꯤꯡꯕ, ꯗꯤꯁꯦꯝꯕꯔ 2025) (ꯕꯣꯛꯁ 6.3.6(e); ꯕꯣꯛꯁ 8.9)꯫
  - **ꯂꯥꯝꯐꯦꯜ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯏꯕ ꯃꯍꯧꯁꯥ.** ꯑꯍꯥꯅꯕꯒꯤ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯗꯨꯗꯤ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯏꯁꯤꯡ ꯊꯨꯃꯈꯤ ꯑꯃꯁꯨꯡ ꯕꯥꯡꯀꯤ ꯑꯃꯈꯥꯌꯣꯛꯇ ꯃꯈꯥꯒꯤ ꯃꯁꯛ ꯑꯣꯏꯈꯤ (ꯇꯦꯕꯜ 6, ꯕꯣꯛꯁ 6.9)꯫ ꯂꯝꯊꯣꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯂꯥꯝꯐꯦꯜ ꯄꯥꯠꯇ ꯊꯨꯃꯈꯤ, "ꯃꯗꯨꯗꯤ ꯆꯍꯤ ꯄꯨꯝꯅꯃꯛꯇ ꯑꯦꯡꯀꯟꯕ ꯏꯁꯤꯡꯒꯤ ꯄꯨꯂꯗ ꯏꯁꯤꯡ ꯊꯨꯝꯂꯤꯕ ꯑꯃ ꯁꯦꯃꯒꯠꯂꯤ" ("which creates a stagnant pool all along the year") (ꯍꯧꯖꯤꯛ ꯄ꯭ꯂꯥꯟ); ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯊꯣꯛꯈꯤꯕ 2024-ꯗ ꯅꯒꯔꯥꯝ (Nagaram), ꯂꯥꯏꯐꯝ ꯈꯨꯅꯧ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯂꯥꯏꯐꯝ ꯂꯩꯀꯥꯏꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕ ꯊꯣꯛꯈꯤ; ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕ 2025-ꯗ ꯏꯪꯂꯥꯡ, ꯂꯥꯝꯐꯦꯜ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯀꯩꯁꯥꯝꯄꯥꯠꯀꯤ (Keishampat) ꯀꯩꯁꯥꯝꯊꯣꯡ (Keishamthong) ꯑꯃꯁꯨꯡ ꯏꯂꯥꯡꯕꯝ ꯂꯩꯀꯥꯏ (Elangbam Leikai) ꯗꯤꯃꯥꯄꯨꯔ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯕ ꯂꯩꯀꯥꯏꯒꯤ ꯃꯇꯝ ꯑꯗꯨ ꯈꯨꯗꯣꯡꯆꯥꯕꯗ ꯇꯧꯕꯥ ꯑꯣꯏꯔꯤꯕ ꯁꯦꯡꯗꯦ, WRD-ꯅ ꯃꯗꯨꯒꯤꯗꯃꯛ ꯁꯦꯡꯗꯕ, ꯑꯃꯒꯤ ꯑꯔꯣꯏꯕ ꯃꯍꯧꯁꯥ ꯏꯪꯂꯥꯡ ꯂꯩꯔꯤꯕ ꯁꯥꯒꯠꯄ ꯑꯗꯨ LDA-ꯅ ꯅꯣꯡꯂꯩꯗꯦ (ꯁꯦꯛꯌꯨꯔꯤꯇꯤ ꯑꯣꯗꯤꯠ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯍꯥꯡꯗꯣꯛꯂꯦ)꯫ ꯑꯔꯣꯏꯕ ꯑꯗꯨꯒꯤ ꯃꯇꯃꯗ ꯑꯃꯗ ꯏꯁꯤꯡ ꯊꯨꯃꯂꯕ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯃꯅꯤ, ꯑꯔꯣꯏꯕ ꯑꯃꯒꯤ ꯂꯥꯏꯅꯥ, ꯃꯗꯨꯒꯤ ꯃꯈꯥ ꯃꯍꯧꯁꯥꯒꯤ ꯁꯦꯃꯒꯠꯂꯤ ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯒꯤ ꯇꯧꯈꯤꯕ ꯑꯍꯥꯅꯕ ꯌꯥꯎꯕ ꯃꯗꯨꯒꯤ ꯃꯐꯝ-ꯑꯦꯛꯁꯄꯣꯖꯔ ꯂꯥꯏꯔꯤꯕꯅ ꯍꯧꯗꯣꯛꯂꯤ, ꯑꯃꯁꯨꯡ ꯑꯔꯣꯏꯕ ꯑꯃꯒꯤ ꯑꯦꯛꯁꯄꯣꯖꯔꯗ ꯑꯌꯥꯎꯕ ꯑꯗꯨꯒꯤ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯂꯥꯏꯅꯥ ꯑꯗꯨꯒꯤ ꯃꯇꯃꯗ ꯄꯣꯠꯁꯛ ꯊꯣꯛꯅꯕ ꯑꯃꯒꯤ ꯌꯥꯅꯤꯡꯕ ꯑꯣꯏꯅꯕ ꯂꯩꯔꯛꯂꯤ; ꯁꯤꯡꯊꯥꯡ ꯌꯥꯎꯕ ꯑꯃꯕꯨ ꯂꯩꯅꯕꯒꯤꯗꯃꯛ ꯇꯧꯕ ꯂꯥꯏꯒꯗꯕ ꯂꯥꯏꯔꯤꯛ ꯁꯥꯔꯤꯊꯥ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯃ ꯊꯤꯕ ꯁꯦꯝꯒꯠꯂꯤ꯫
  - **ꯇꯥꯀꯦꯜꯄꯥꯠ, ꯂꯝꯐꯦꯜ ꯄꯥꯠꯀꯤ ꯑꯔꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ.** ꯇꯥꯀꯦꯜꯄꯥꯠ ꯑꯗꯨ ꯁꯥꯔꯤꯁꯥ ꯏꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯣꯏꯅ ꯄꯤꯔꯤꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯧꯁꯤꯜꯂꯕ ꯑꯣꯏꯅꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯎꯔꯕ ꯁꯥꯔ ꯑꯣꯏꯔꯤ꯫ 9 ꯑꯣꯛꯇꯣꯕꯔ 2023-ꯒꯤ ꯑꯄꯨꯟꯕ ꯑꯣꯏꯕ ꯑꯃꯒꯤ ꯃꯈꯥ ꯑꯃꯗ ꯑꯦꯛꯁꯄꯣꯖꯔꯒꯤ ꯑꯦꯛꯇꯦ 300 ꯃꯤꯇꯔ ꯀꯌꯨꯇꯔ-ꯁꯛꯁꯟ ꯗ꯭ꯔꯦꯖꯔ (cutter-suction dredger) ꯑꯃꯅ ꯗ꯭ꯔꯦꯖ ꯇꯧꯔꯤ, WAPCOS ꯃꯦꯇꯣꯗꯣꯂꯣꯖꯤ ꯑꯦꯛꯁꯄꯣꯖꯔꯒꯤ ꯑꯣꯏꯅꯕ, ꯑꯃꯁꯨꯡ "ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕ ꯄꯥꯝꯄ ꯃꯦꯁꯤꯟꯗ ꯇꯥꯀꯦꯜꯄꯥꯠ ꯁꯤꯖꯤꯅꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯃꯂꯕꯒꯤ ꯂꯝꯐꯦꯜ ꯄꯥꯠꯀꯤ ꯁꯃꯨꯁꯥꯡ ꯅꯥꯂꯥꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕꯒꯤ ꯏꯁꯤꯡ ꯄꯝꯄ ꯇꯧꯕ ꯌꯥꯕ" ("provision for pumping of flood water from the Lamphel pat water body to the Nambul River through Shamushang Nalla during high flood season") ꯍꯥꯏꯅ

(WRD-ꯒꯤ ꯁꯣꯏꯇ ꯔꯤꯄꯣꯔꯇ, ꯍꯥꯏ ꯀꯣꯔꯇꯀꯤ PIL No. 8 of 2025)꯫ NDB-ꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯣꯏꯗꯥ "ꯃꯁꯤꯒꯤ ꯏꯁꯤꯡ ꯊꯤꯡꯖꯤꯜꯂꯕꯒꯤ ꯀꯦꯄꯥꯁꯤꯇꯤ ꯍꯦꯅꯒꯠꯍꯟꯕ, ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯨꯡ ꯍꯣꯡꯗꯣꯛꯄ ꯂꯩꯍꯥꯟꯕ" ("increase its water detention capacity, restore stormwater drainage system") ꯑꯃꯁꯨꯡ "ꯃꯇꯝ ꯆꯞ ꯃꯥꯟꯅꯕ ꯑꯃꯒꯥ ꯂꯣꯌꯅꯅ ꯏꯆꯥꯎ ꯊꯤꯡꯕꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯝ ꯀꯝꯃꯥꯟꯗ ꯁꯦꯟꯇꯔꯒꯥ ꯂꯣꯌꯅꯅ" ("real time flood management system with a command center") ꯑꯃꯁꯨꯡ ꯂꯧꯁꯤꯟꯈꯤꯕꯅꯤ, USD 87.84 million-ꯒꯤ ꯃꯃꯜꯗ USD 70.27 million-ꯒꯤ ꯂꯣꯟ ꯂꯧꯔꯒꯥ (17 ꯂꯦꯄꯇꯦꯝꯕꯔ 2021-ꯒꯤ ꯃꯥꯂꯦꯝꯄꯥꯛ ꯑꯄꯨꯟꯕ); ꯃꯇꯥꯡꯒꯤ ꯍꯤꯁꯥꯕꯇꯤꯗꯥ "ꯄꯝꯄ ꯇꯧꯕꯒꯤ ꯃꯑꯣꯡꯗ ꯂꯧꯁꯤꯜꯂꯕ ꯊꯧꯔꯥꯡꯁꯤꯡ ... ꯃꯇꯤꯛ ꯆꯥꯗꯦ ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯑꯗꯨ ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯅꯨꯃꯤꯠ ꯀꯌꯥꯒꯤ ꯃꯇꯝ ꯏꯁꯤꯡ ꯊꯨꯡꯗꯨꯅ ꯂꯩ" ("Coping measures undertaken in the form of pumping … are not adequate and the area remains waterlogged for many days every year") ꯍꯥꯌꯔꯤ ꯄꯪꯊꯣꯛꯂꯤ ꯇꯧꯈꯤ (NDB)꯫ ₹650 ꯀ꯭ꯔꯣꯔ ꯃꯔꯣꯡꯒꯤ ꯃꯃꯜ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯔ 443-ꯒꯤ ꯑꯣꯏꯕꯔ ꯑꯃꯁꯨ ꯔꯤꯄꯣꯔꯇ ꯇꯧꯔꯤ, ꯑꯃꯁꯨꯡ ꯈꯦꯗ ꯄꯤꯊꯛꯇꯨꯒꯤ ꯃꯃꯤꯡ ꯔꯤꯄꯣꯔꯇ ꯇꯧꯖꯦ ꯇꯧꯖꯦꯗ ꯇꯧꯖꯦꯜꯂꯤ ꯁꯦꯝꯔꯤ (ꯄꯦꯟꯗ ꯈꯨꯗꯣꯡꯆꯥꯕꯤꯊ ꯃꯇꯨꯡ ꯍꯥꯌꯔ)꯫ ꯂꯩꯈꯥꯏꯄꯥꯛꯂꯕ, ꯂꯥꯔꯤꯒꯥ ꯃꯐꯝꯗ ꯂꯩꯕꯊ ꯊꯧꯗꯣꯛ ꯑꯃꯗ ꯍꯣꯏꯗꯨ ꯁꯥꯟꯃꯄ ꯑꯣꯏꯕꯦꯈꯥꯏ ꯑꯃꯂꯦ ꯑꯣꯍꯥꯡꯒ (e) ꯃꯍꯦꯛ ꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯂꯣꯟꯂꯣꯟ ꯇꯥꯡꯂꯦꯞꯄ ꯑꯍꯟꯗꯦ ꯂꯩꯔꯝꯕꯅꯤ, ꯃꯇꯥꯡꯒꯤ ꯑꯣꯏꯕꯂꯣꯟ ꯈꯨꯗꯣꯛ ꯃꯄꯨꯡꯒꯤ ꯍꯥꯌꯔꯦ, WRD-ꯅꯥ ꯄꯤꯔꯃꯂꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥ ꯇꯧꯔꯤ ꯍꯥꯌꯔꯦ ꯍꯤꯊꯕꯗ ꯃꯂꯦꯈꯤꯕ ꯇꯧꯔꯕ ꯂꯃꯂꯦꯡ ꯄꯥꯝꯄꯥꯝꯂꯤꯡꯗꯒꯤ, ꯍꯧꯍꯟꯗꯒꯤ ꯁꯦꯝꯕ ꯄꯝꯄ ꯂꯩꯊꯣꯛꯂꯣꯛ, ꯍꯥꯌꯗꯕ ꯑꯣꯏꯕꯈꯥꯏꯍ ꯑꯃꯁꯣꯛ ꯂꯩꯔꯒꯥ, ꯑꯃꯁꯨꯡ ꯂꯃꯂꯦꯡ ꯑꯣꯏꯕꯈꯥꯏꯅꯗ ꯂꯩꯕꯨꯟ ꯁꯥꯔꯦꯡ ꯑꯃꯁꯨ ꯄꯥꯛ ꯑꯃꯁꯨꯒꯤ ꯂꯩꯂꯣ ꯂꯦꯔꯤꯕꯗ ꯈꯥꯡꯒꯗꯕ ꯂꯩꯕꯨꯟ ꯁꯥꯔꯦꯡꯗ ꯒꯔꯝꯒꯤꯁꯤ ꯈꯨꯗꯣꯡꯒ ꯂꯩꯔꯒꯥ꯫ ꯀꯔꯝꯅ ꯁꯦꯝꯕ ꯂꯧꯕ ꯂꯝꯔꯦꯡꯗ, ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯁꯨꯒꯤ ꯄꯝꯄꯂꯣꯏꯃ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯆꯞ ꯃꯥꯟꯅꯕ ꯑꯣꯏ ꯃꯍꯦꯔ ꯂꯧꯕꯗꯥ ꯃꯇꯨꯡꯗ ꯑꯃꯁꯨꯡ WRD-ꯅꯥ ꯄꯥꯛ ꯑꯃꯁꯨꯒꯤ ꯂꯝꯔꯦꯡ–ꯂꯝꯔꯦꯡꯗꯒꯤ ꯃꯔꯤ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯤꯡ ꯀꯥꯌꯂꯣꯏꯁꯤ ꯍꯔꯥꯗ ꯀꯦꯈꯤꯔꯥ ꯇꯧꯔꯕ ꯃꯇꯨꯡꯗ ꯍꯥꯌꯁꯤ ꯊꯤꯕꯅꯤ; ꯂꯝꯔꯦꯡ ꯑꯃꯁꯨ ꯍꯔꯥꯃꯒꯤ ꯂꯤꯂꯝꯔꯦꯡꯃꯒꯤꯅꯤ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯍꯥꯌꯁꯤ ꯀ꯭ꯔꯣꯡꯗꯤꯠ ꯄꯤꯈꯤ꯫ ꯂꯩꯈꯥꯏꯄꯥꯛ ꯑꯣꯏ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯇꯧꯔꯕ ꯊꯥꯗꯕ ꯍꯣꯏꯗꯨꯒꯤ ꯍꯧꯔꯥꯈꯥꯃ ꯑꯃꯁꯨ ꯑꯍꯟꯔꯤ, ꯃꯔꯃ ꯑꯃꯁꯨꯡ ꯀꯦꯠ 6.3.6(e)-ꯒꯤ ꯍꯥꯌꯕꯔꯂꯄꯥꯛꯂꯦ ꯂꯩꯕꯅꯥ ꯂꯤꯁꯤꯡ ꯄꯨꯔ ꯍꯥꯏꯗꯦ ꯑꯃꯁꯤꯡꯕ ꯃꯂꯤꯀ ꯁꯦꯔꯍꯗꯔꯅꯤ꯫

- ◦ **ꯀꯥꯏꯊ ꯊꯧꯔꯥꯡ ꯑꯃꯁꯨꯡ ꯍꯔꯤꯕ ꯊꯧꯔꯥꯡ.** ꯍꯃꯖꯤꯟ ꯍꯂꯥꯛꯄ ꯍꯔꯤꯕ ꯊꯧꯔꯥꯡꯗ ꯍꯣꯏꯗꯨ ꯁꯗꯦꯀꯄꯥ ꯑꯣꯏꯕꯈꯥꯏꯅꯣꯏꯗꯨ ꯑꯣꯍꯥꯡꯒ (a) ꯃꯍꯦꯛ ꯍꯔꯤꯕꯨꯊꯗ ꯄꯥꯜꯂꯦ ꯂꯧ ꯇꯧꯔꯕꯅꯤ (ꯀꯤꯟꯍꯜ 787.700 m; ꯆꯧ 788.850 m)꯫ ꯀꯥꯏꯊ ꯊꯧꯔꯥꯡꯒꯤꯗꯃꯛ WRD-ꯒꯤ ꯂꯦꯕꯦꯜ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡꯆꯥꯕ [TBC], ꯃꯔꯃ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯡꯒꯤ ꯑꯣꯏꯕꯈꯥꯏꯅꯣꯏꯗꯨꯅꯥ ꯑꯣꯍꯥꯡꯒ (a)-ꯒꯤ ꯒꯦꯜ ꯂꯩꯔꯕꯒꯤ ꯃꯔꯤ ꯂꯩꯍ꯫ MASTEC-ꯅꯥ ꯇꯥꯛꯄꯤꯔꯕ ꯄꯪꯊꯣꯛꯂꯤ ꯇꯧꯔꯕ ꯍꯔꯤꯕꯨꯒꯤ ꯁꯦꯝꯕ ꯀꯤꯂꯁꯦꯔꯦꯡ ꯑꯃꯁꯨ ꯍꯔꯤꯕ ꯊꯧꯔꯥꯡꯒꯤꯅꯤ, 2 ꯂꯦꯄꯇꯦꯝꯕꯔ 2000-ꯗ ꯃꯣꯏꯔꯥꯡ ꯀꯝꯄꯨꯗ (Moirang Kampu) 532.488 m³/s (MASTEC)꯫
- ◦ **ꯂꯩꯕꯥꯛꯂꯩꯕ ꯃꯇꯨꯡꯗ ꯊꯤꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯂꯣꯏꯗꯨ.** AIIB-ꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯁꯨꯗ ꯒꯦꯜꯇꯤ ꯍꯃꯖꯤꯟꯒꯤ ꯂꯩꯕꯤꯂꯣꯏꯒꯤ ꯃꯂꯩꯕ "ꯃꯂꯩꯕ ꯑꯂꯤꯃꯕ ꯀꯥꯡꯇ ꯇꯧꯔꯕ ꯂꯧꯒꯤ ꯍꯣꯏꯗꯨꯒꯤ ꯍꯥꯏꯕꯦꯂꯣꯏꯗꯨ 547 km" ("547 km of both side stormwater covered drains") ꯄꯤꯒꯅꯤ, ꯃꯍꯥꯔꯦ "ꯂꯧꯒꯤ ꯍꯣꯏꯗꯨ ꯑꯃꯁꯨ … ꯑꯣꯏꯕ ꯈꯟ (ꯊꯧꯔꯥꯡ) ꯈꯥꯏꯊ ꯁꯦꯂꯟ ꯇꯧꯍ" ("channelize the storm water … to the out fall (river)") (AIIB, 2024), ꯑꯃꯁꯨꯡ ꯍꯤꯔꯥꯍꯜ ꯄꯤꯔꯤꯔꯗ (return period), ꯍꯦꯜꯂꯦꯂꯣꯏꯒꯤ ꯂꯥꯔꯤꯒꯥ ꯑꯣꯏꯕꯈꯥꯏꯅ ꯂꯦꯕꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯗ꯫ ꯃꯇꯥꯡꯒꯤ ꯑꯣꯏꯕꯈꯥꯏꯅ ꯊꯨꯗꯣꯡꯗꯃꯛ ꯑꯣꯍꯥꯡꯒ (a) ꯃꯍꯦꯛ ꯄꯥꯜꯂꯦ ꯂꯧ ꯇꯧꯔꯕ ꯑꯣꯏꯕꯈꯥꯏꯅ ꯑꯃꯂꯤ꯫ ꯒꯦꯜꯇꯤ ꯍꯃꯖꯤꯟꯒꯤꯗꯃꯛ ꯀꯤꯟꯍꯜ ꯂꯦꯕꯦꯜ ꯂꯩꯕ ꯍꯔꯤꯃꯒꯤ ꯃꯂꯝꯔꯤ ꯄꯥꯜꯂꯦ ꯑꯃꯁꯨꯡꯕ ꯈꯨꯗꯣꯡꯆꯥꯕ: ꯃꯂꯝꯔꯤ ꯄꯥꯜꯂꯦꯗ ꯂꯧꯒꯤ ꯍꯣꯏꯗꯨ ꯍꯔꯤꯃꯒꯤ ꯂꯧꯂꯣꯜ ꯑꯃꯁꯨꯡꯕ ꯂꯩꯔꯝ꯫

- (c) **ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯂꯦꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯡꯒꯤ ꯊꯧꯖꯥꯜ.** ꯂꯊ-ꯑꯣꯏꯕꯔ MN-A1-ꯗ (ꯃꯍꯔꯤꯗ, ꯂꯤꯗꯊꯍꯗ, ꯊꯥ, ꯍꯊꯍ, ꯂꯒꯂ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯒ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯥ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006-ꯒꯤ (Manipur Loktak Lake (Protection) Act, 2006) 236.21 km²-ꯒꯤ ꯃꯂꯨꯗ ꯂꯩꯕ ꯂꯝ) ꯂꯩꯕ ꯑꯣꯏꯕꯈꯥꯏꯅ ꯑꯃꯂꯦ ꯂꯣꯛꯇꯥꯛꯇꯥ, ꯃꯇꯥꯡꯒꯤ ꯃꯂꯩꯕ ꯂꯩꯕ ꯄꯥꯛ ꯑꯃꯗ, ꯂꯥꯔꯤꯒꯥ ꯍꯊꯍ ꯑꯃꯁꯨꯡ ꯂꯒꯂꯒꯤ ꯃꯔꯥꯡ ꯂꯩꯕ ꯃꯂꯤꯄꯨꯔ ꯊꯧꯔꯥꯡꯗ, ꯂꯥꯔꯤꯒꯥ ꯃꯍꯥꯔꯒꯤ ꯃꯂꯨꯗ ꯑꯃꯗ ꯂꯩꯕ ꯍꯣꯏꯗꯨꯒ ꯑꯃꯗ ꯍꯣꯏꯗꯨ ꯁꯗꯦꯀꯄꯥꯒꯤꯗꯃꯛ:
    - ◦ **ꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯡꯒꯤ ꯂꯦꯕꯦꯜꯂꯣꯏꯗꯨ.** ꯂꯣꯛꯇꯥꯛ ꯑꯃꯁꯨ NHPC-ꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ (105 MW; ꯍꯔꯥꯈꯥꯏ ꯁꯦꯃꯂꯦ ꯃꯇꯨꯡ ꯍꯦꯜꯂ 1983-ꯗ ꯀꯃꯤꯂꯦ ꯇꯧꯈꯤ, 1979 ꯑꯃꯁꯨꯡ 1986 ꯑꯃꯁꯨ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯇꯧꯔꯤ) ꯍꯊꯍ ꯊꯦꯔꯂꯦ ꯊꯤꯗꯂꯤꯟꯅꯤ, ꯃꯇꯥꯡꯗ "ꯂꯣꯛꯇꯥꯛ ꯄꯥꯛꯀꯤ ꯑꯣꯏꯕꯔꯂ ꯍꯣꯏꯗꯨꯒꯤ ꯂꯦꯕꯦꯜ ꯃꯤꯇꯔ ꯑꯃ ꯃꯔꯤ ꯃꯇꯝ ꯊꯨꯄꯄꯒꯤ ꯑꯍꯟꯗꯦ ꯁꯦꯗꯍꯟꯍꯂꯅꯤ" ("permanently raised the average water level of Loktak Lake by about a metre") (ꯄꯦꯟꯗ ꯈꯨꯗꯣꯡꯆꯥꯕꯤꯊ ꯃꯇꯨꯡ ꯍꯦꯜꯂ)꯫ ꯃꯇꯥꯡꯒꯤ ꯂꯦꯕꯦꯜꯂꯣꯏꯗꯨ ꯇꯧꯖꯦꯂꯦ, ꯑꯃꯁꯨꯡ ꯃꯔꯨꯇꯔꯦꯟ ꯑꯃꯁꯨꯗ ꯇꯧꯖꯦꯊ ꯑꯃꯁꯨ ꯁꯦꯃꯄ ꯂꯩꯗꯦ ꯍꯥꯌꯔꯤ: **768.5 m**-ꯒꯤ ꯍꯔꯥ ꯄꯤꯂꯥꯔꯗꯔꯥ ꯂꯦꯕꯦꯜ (FRL) ꯑꯃꯁꯨꯡ **766.2 m**-ꯒꯤ ꯃꯤꯂꯤꯃꯝ ꯗ꯭ꯔꯥꯗꯣꯟ ꯂꯦꯕꯦꯜ (NHPC, ꯀꯥꯕꯍꯤꯊ ꯃꯇꯨꯡ ꯍꯦꯜꯂ); **766.01 m**-ꯒꯤ ꯃꯤꯂꯤꯃꯝ ꯗ꯭ꯔꯥꯗꯣꯟ ꯂꯦꯕꯦꯜ (CEA, ꯀꯥꯕꯍꯤꯊ ꯃꯇꯨꯡ ꯍꯦꯜꯂ); ꯑꯃꯁꯨꯡ **769.63 m**-ꯒꯤ FRL, 768.50 m ꯑꯃꯁꯨ "ꯏꯆꯥꯎ ꯂꯦꯕꯦꯜ" ("flood level") ꯍꯥꯌꯔꯦ ꯀꯔꯤꯕꯗ (ORF, ꯄꯦꯟꯗ ꯈꯨꯗꯣꯡꯆꯥꯕꯤꯊ ꯃꯇꯨꯡ ꯍꯦꯜꯂ) [U]꯫ ꯑꯒꯂꯕ 2026-ꯒꯤ CEA-ꯒꯤ ꯂꯃꯤꯛ ꯊꯨꯗꯣꯡꯒꯤ ꯔꯤꯄꯣꯔꯇꯂꯣꯏꯗꯨꯗꯥ ꯄꯥꯛ

ꯑꯁꯤ 767.46–767.73 m ꯃꯤꯇꯔꯗ ꯆꯪꯕ ꯁꯥꯏꯗꯤ (ꯄꯥꯎꯈꯨꯝꯕ ꯃꯇꯝ ꯈꯉꯗꯦ), ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯃꯥꯏꯄꯥꯛꯄ ꯆꯥꯡꯗꯤ; ꯑꯗꯨꯕ 2002-ꯗ ꯃꯁꯤ 768.5 m ꯂꯩꯈꯤ (ꯁꯣꯔꯁ ꯗꯥꯀꯨꯃꯦꯟꯇꯀꯤ ꯃꯇꯝ ꯈꯉꯗꯦ)꯫ NHPC ꯑꯃꯁꯨꯡ LDA-ꯒꯤ ꯍꯟꯗ ꯄꯥꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯂꯥꯏꯟ ꯑꯣꯏꯔꯤꯕꯥ ꯊꯥꯟꯂꯤ ꯌꯥꯅꯈꯤꯗꯦ [TBC]꯫

- ◦ **ꯗꯤꯖꯥꯏꯅꯒꯤ ꯁꯣꯛꯄ ꯆꯥꯡ.** ꯃꯅꯤꯄꯨꯔ ꯑꯁꯤ ꯁꯣꯛꯄ ꯆꯥꯡꯗꯤ, ꯊꯧꯗꯣꯛ ꯁꯨꯖꯕ ꯍꯣꯡꯗꯦ: ꯗꯤꯖꯥꯏꯟꯗꯃꯛ **ꯅꯥꯏꯅꯒꯤ HFL 769.320 m** (WRD, ꯁꯣꯔꯁ ꯗꯥꯀꯨꯃꯦꯟꯇꯀꯤ ꯃꯇꯝ ꯈꯉꯗꯦ), **770.05 m-ꯗ ꯌꯧꯈꯤ**, 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯒꯤ ꯄꯤꯗꯃꯛ (ꯁꯣꯔꯁ ꯗꯥꯀꯨꯃꯦꯟꯇꯀꯤ ꯃꯇꯝ ꯈꯉꯗꯦ), ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯁꯦꯞꯇꯦꯝꯕꯔ ꯗꯥꯏꯕ ꯄꯥꯔꯥꯃꯤꯇꯔ FRL-ꯗꯒꯤ (768.5 m, ꯇꯣꯉꯥꯟ ꯑꯣꯏꯔꯤꯕꯥ ꯍꯤꯕꯗ ꯄꯔꯤꯌꯦꯡ ꯌꯥꯝꯅ ꯍꯦꯟꯅ ꯂꯩꯕ FRL) ꯆꯥꯡꯗꯕ (ꯃꯥꯂꯦꯃꯒꯤ ꯑꯁꯤꯅ ꯊꯣꯀꯈꯤ)꯫ ꯃꯁꯤ ꯂꯧꯕꯒꯤ ꯊꯧꯗꯣꯛꯄꯤ ꯃꯌꯥꯝꯗ ꯁꯣꯏ ꯍꯦꯟꯊꯕꯒꯤ ꯄꯣꯠꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯅꯕ ꯁꯤꯡꯈꯅꯕꯗꯤ꯫
- ◦ **ꯇꯨꯔꯦꯜꯒꯤ ꯁꯦꯞꯇꯦꯝꯕꯔ ꯗꯥꯏꯕ ꯑꯣꯏꯔꯤꯕꯥꯁꯤꯡ ꯊꯤꯡꯂꯕ.** ꯅꯥꯃꯄꯤꯡ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯁꯣꯛꯄ ꯆꯥꯡꯗꯒꯤ ꯆꯥꯡꯕ ꯑꯣꯏꯔꯤꯕꯥ ꯑꯃꯥ **1 ꯇꯨꯔꯦꯜꯒꯤ 30 ꯁꯦꯞꯇꯦꯝꯕꯔ ꯗꯥꯏꯕ ꯊꯤꯡꯂꯤ**: ꯃꯁꯤ ꯂꯧꯕꯒꯤ ꯊꯧꯗꯣꯛ ꯑꯁꯤ ꯊꯃꯂꯤꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯁꯃꯖꯤ ꯌꯥꯝꯅ, ꯑꯃꯁꯨꯡ ꯒꯥꯡꯒꯤ ꯗꯤꯁꯂꯥꯏꯄꯤꯡ ꯄꯣꯠꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗꯨ꯫ ꯃꯌꯥꯝ ꯑꯃꯒꯤ ꯃꯁꯦꯡꯗ ꯑꯅꯧꯕ (a)-ꯒꯤ ꯃꯁꯤ ꯂꯩꯔꯦ, ꯌꯥꯏꯔꯦꯜꯒꯤ ꯆꯥꯡꯒꯤ ꯃꯌꯨꯝ ꯑꯅꯧꯕ ꯑꯁꯤꯒꯤ ꯁꯣꯛꯄ ꯆꯥꯡ ꯍꯤꯇꯤꯡꯗꯕꯅꯤ꯫ ꯑꯅꯧꯕ (a)-ꯒꯤ ꯁꯃꯖꯤ ꯌꯥꯝꯅꯤ ꯍꯦꯟꯊꯍꯟꯕ ꯂꯩꯔꯦ (ꯃꯥꯂꯦꯃꯒꯤ ꯑꯁꯤꯅ ꯊꯣꯀꯈꯤ)꯫
- ◦ **ꯍꯣꯡꯇꯨ ꯄꯃꯁ.** ꯃꯆꯤꯁꯨꯞ ꯌꯥꯏꯔꯦꯜꯒꯤ ꯃꯅꯥꯡ ꯑꯁꯤ ꯅꯥꯏꯅꯗ 762.2 m ꯑꯃꯅ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯦꯖꯒꯤ ꯃꯅꯥꯛ "756.7 m-ꯒꯤ ꯅꯕꯥꯅꯗꯒꯤ ꯇꯨꯕ ꯃꯅꯥꯡꯒꯤ ꯆꯥꯡ" ("deepest bed level of 756.7 m") ꯗꯥꯏꯕ ꯆꯥꯡꯊꯣꯛꯂꯤꯕꯗꯤ; ꯃꯇꯨꯡꯒꯤ ꯃꯇꯝꯗ "ꯃꯤꯌꯥ 800 ꯃꯤꯇꯔꯒꯤ ꯊꯨꯕ ꯃꯗꯨ ꯑꯃꯗ, ꯃꯅꯥꯡꯒꯤ ꯆꯥꯡ ꯑꯁꯤ ꯑꯌꯨꯛꯇꯦ 763.7 m ꯗꯥꯏꯕ ꯂꯩꯅꯔꯦꯗꯤ ꯑꯃꯁꯨꯡ 762.5 m-ꯒꯤ ꯑꯗꯨꯕ ꯑꯆꯤꯡꯁꯥꯏꯗꯗ ꯍꯦꯟꯅ … ꯁꯗꯤꯃꯆꯦꯔꯁꯤꯡ ꯑꯅꯧꯕꯗꯆꯥ ꯑꯁꯤ ꯊꯤꯡꯂꯤꯕꯗꯤ" ("in a short stretch of about 800 metres, the bed level rises steeply upto 763.7 m and remains at the general elevation of 762.5 m … the outflow of the sediment is restricted") (MASTEC)꯫ ꯅꯥꯏꯅꯗ, "ꯃꯥꯔꯨꯞꯔꯒꯤ ꯃꯌꯥꯝꯗ ꯃꯆꯤꯁꯨꯞ ꯌꯥꯏꯔꯦꯜꯒꯤ ꯗꯆꯥ ꯑꯁꯤ ꯄꯣꯂꯃꯪꯗ 400 ꯃꯤꯇꯔ ꯑꯃꯅ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯦꯖꯒꯤ ꯃꯅꯥꯛ ꯍꯦꯟꯕ ꯌꯥꯏꯔꯦꯜ ꯑꯇꯨꯡꯗ ꯑꯍꯨꯝꯕ ꯗꯆꯥ ꯑꯁꯤ ꯊꯪꯗꯕ ꯄꯪꯁꯣꯏꯁꯤꯡ ꯍꯦꯟꯪ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯅꯍꯥꯛ ꯑꯁꯤ ꯃꯊꯧ ꯊꯣꯛꯄ ꯃꯗꯝꯗ ꯁꯨꯞꯍꯥꯏꯔꯥꯗꯤꯡꯅ" ("flow of the Manipur river during monsoon is of the order of 400 cumecs and river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC)꯫ ꯃꯥꯂꯦꯃꯒꯤ ꯑꯁꯤꯅ ꯅꯥꯏꯅꯗꯕ ꯃꯇꯝ ꯈꯉꯗꯦ ꯕꯦꯔꯦꯖꯒꯤ ꯒꯥꯔꯁꯤꯡꯅ ꯄꯤꯔꯤ ꯌꯥꯝꯕꯨ ꯇꯨꯡꯒꯤ ꯍꯤꯔ ꯑꯁꯤꯅ ꯌꯥꯝꯁꯣꯛꯄ ꯊꯥꯗꯝ ꯑꯃꯅꯥꯛꯄ ꯑꯃꯨ ꯄꯥꯡꯌꯥꯏꯔ ꯌꯥꯝꯅ, ꯃꯇꯝ ꯑꯗꯨꯗ NHPC-ꯒꯤ ꯅꯥꯏꯕ ꯄꯥꯔꯥꯃꯤꯇꯔꯁꯤꯡꯅ ꯁꯣꯏꯌꯥꯏꯕꯗꯤ, ꯕꯦꯔꯦꯖ ꯍꯣꯡꯗꯣꯛꯄꯅ ꯃꯁꯤ ꯂꯧꯕꯒꯤ ꯊꯧꯗꯣꯛꯄ ꯃꯌꯥꯝꯗ ꯆꯣꯏꯌꯥ ꯇꯣꯉꯥꯟ ꯑꯣꯏꯔꯤꯕꯥ ꯑꯃꯗ ꯌꯥꯏꯔꯦꯜ ꯍꯦꯟꯊꯍꯟꯈꯤ ꯍꯦꯜꯅ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡꯅ ꯆꯦꯟꯅꯕꯗꯤ꯫
- ◦ **ꯂꯣꯀꯆꯥꯒꯤ ꯌꯥꯏꯔꯦꯜꯒꯤ ꯕꯦꯛꯂꯣꯏꯌꯥ.** ꯂꯣꯀꯆꯥꯒꯤ ꯌꯥꯏꯔꯦꯜꯅ "ꯃꯆꯤꯁꯨꯞ ꯌꯥꯏꯔꯦꯜꯒꯤ ꯑꯃꯨꯛꯊꯣꯛꯆꯕ ꯆꯥꯡꯕꯗ ꯊꯣꯛꯆꯦ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯅꯍꯥꯛ ꯂꯩꯔꯕ ꯑꯗꯨ ꯊꯤꯡꯅ … ꯍꯣꯡꯍꯣꯡꯒꯤ ꯑꯄꯥꯔꯕꯒꯤ ꯃꯗꯝ ꯂꯩꯕꯨ ꯗꯥꯏꯕ ꯅꯍꯥꯛꯄ ꯂꯥꯏꯄꯥꯔꯗꯤ" ("meets the Manipur River at a reverse direction, thereby checking the current … making inundation of the surrounding area of Sugnu extending upto Wangoo") (MASTEC)꯫ ꯍꯣꯡꯇꯨ ꯇꯣꯉꯥꯟ ꯂꯩꯕꯨꯗ, ꯇꯣꯉꯥꯟ ꯂꯣꯀꯆꯥꯒꯤ ꯌꯥꯏꯔꯦꯜꯒꯤ ꯁꯨꯆꯤꯍꯤꯆꯕ ꯃꯗꯝꯒꯤ ꯃꯆꯤꯡꯌ ꯂꯣꯀꯆꯥꯒꯤ ꯌꯥꯏꯔꯦꯜꯗ ꯅꯍꯥꯛ ꯊꯧꯔꯥꯛꯄ ꯑꯅꯧꯕ ꯑꯃꯆꯦ ꯑꯅꯧꯕ ꯑꯁꯤꯒꯤ ꯅꯥꯏꯅꯗ ꯆꯥꯡꯕ ꯃꯆꯤꯁꯨꯞ ꯌꯥꯏꯔꯦꯜꯒꯤ ꯆꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯗꯥꯡ ꯑꯃꯗꯒꯤ ꯇꯣꯉꯥꯟ ꯍꯥꯏꯒ ꯌꯥꯏꯕ ꯅꯍꯥꯛ ꯅꯂꯩꯔꯒꯤ ꯃꯊꯤꯡꯍꯥꯛꯗꯒꯤ ꯆꯥꯕ ꯂꯣꯀꯆꯥꯒꯤꯒꯤ ꯆꯥꯡ ꯑꯆꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯍꯦꯟꯅ ꯂꯩꯕ ꯑꯃꯁꯨ ꯌꯥꯏꯔꯦꯜꯅꯤ ꯑꯃꯅꯤ ꯆꯥꯅ; ꯂꯣꯀꯆꯥꯒꯤꯒꯤ ꯒꯦꯖ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯈꯤꯗꯦ [TBC]꯫
- ◦ **ꯑꯅꯧꯕꯆꯥꯡꯑꯣꯏꯕꯗ ꯊꯨꯃꯗꯤ.** ꯆꯣꯏꯌꯥ ꯑꯥꯍꯥꯏꯅ "ꯅꯥꯏꯕꯗ ꯌꯥꯏꯔꯦꯜꯒꯤꯕ ꯗꯤꯒꯃꯗ ꯆꯥꯕ ꯁꯣꯃꯕꯤ, ꯑꯥꯍꯥꯡꯆꯤꯌꯥ ꯗꯥꯏꯕꯥꯤꯁ ꯑꯃꯁꯨꯡ ꯆꯥꯃꯦꯅꯒꯤ ꯃꯍꯧ ꯄꯣꯔꯣꯒꯤ ꯁꯨꯆꯤꯍꯤꯆꯕ" ("heterogeneous mixture of vegetation, organic debris and soil in floating condition") (s.2) ꯍꯦꯜꯅ ꯗꯥꯗꯦꯟꯆ ꯌꯥꯝꯕ ꯊꯨꯃꯗꯤꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯏꯔꯦꯜ ꯑꯅꯧꯕꯆꯥꯡꯑꯣꯏꯕꯤꯡ, ꯒꯥꯡꯑꯣꯏꯕꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯄꯥꯤꯆꯣꯏꯕꯤꯡ ꯊꯤꯡꯅ꯫ ꯆꯣꯏꯌꯥ ꯇꯣꯉꯥꯟ ꯊꯨꯃꯗꯤ ꯆꯥꯕ ꯁꯣꯏ ꯑꯃꯗ ꯅꯥꯏꯕ ꯊꯗꯥꯄꯁ ꯑꯅꯧꯕꯗꯥꯏꯔ ꯂꯗꯤꯡꯃꯥꯟ ꯍꯦꯜꯥ 9 (ꯄꯦꯖ 9.8) ꯃꯅꯥꯛ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯝꯕ, ꯊꯨꯃꯗꯤ ꯒꯥꯡꯌꯥꯒꯤ ꯊꯤꯡꯕ ꯍꯄꯥꯤꯆ ꯇꯣꯉꯥꯟ ꯕꯨꯝ (boom) ꯑꯃꯗ ꯆꯥꯗꯕꯗꯤ, ꯃꯁꯤꯆꯦꯅ ꯂꯩꯕ ꯂꯩꯕ ꯆꯥꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅ ꯗꯦꯕ ꯁꯣꯏꯁꯤꯡ ꯁꯣꯛꯄ ꯃꯁꯣꯏꯗ ꯊꯥꯆꯕ ꯃꯗꯝ ꯂꯩꯔꯦ; ꯑꯅꯧꯕ (a) ꯃꯅꯥꯛ ꯗꯆꯥꯁ ꯒꯥꯌ ꯑꯁꯤ ꯊꯨꯃꯗꯤꯅ ꯍꯣꯡꯗꯣꯛꯄꯅ ꯊꯥꯆꯕ ꯑꯃꯅꯅ ꯂꯩꯔ ꯌꯥꯏꯗꯕꯗꯤ (ꯃꯥꯂꯦꯃꯒꯤ ꯑꯁꯤꯅ ꯊꯣꯀꯈꯤ)꯫
- ◦ **ꯁꯣꯛꯄ ꯑꯅꯧꯕ.** ꯁꯣꯛꯄ ꯆꯥꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯅꯧꯕ (h)-ꯒꯤ ꯑꯔꯣꯏꯕꯁꯤꯡ ꯂꯩꯔꯦ: LDA-ꯒꯤ ꯃꯥꯡꯍꯟꯒꯤ ꯑꯔꯣꯏꯕ ꯆꯥꯅꯕ ꯄꯥꯡ ꯆꯣꯟ (Core Zone) ꯅꯁꯤꯡ ꯊꯗꯥꯄꯁ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯅꯗꯕꯗꯤ (s.20), ꯑꯃꯁꯨꯡ s.19-ꯅ ꯕꯗꯥ ꯆꯣꯟ (Buffer Zone) ꯊꯤꯡꯕ ꯊꯕꯛꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯅꯗꯕꯗꯤ꯫
- (d) **ꯗꯥꯏꯒꯤ ꯄꯤꯆꯤꯆ ꯄꯤꯂꯣꯏꯕꯤꯡ.** ꯃꯁꯣꯏꯊꯥ ꯗꯥꯏꯒꯤ (ꯊꯧꯕꯥ ꯃꯔꯝꯤꯁꯄꯁꯣꯆ ꯁꯄꯆꯥꯂꯣꯛꯄꯤ ꯗꯥꯏ) ꯃꯅꯥꯛ ꯆꯥꯕ ꯊꯧꯕꯥ ꯌꯥꯏꯔꯦꯜꯗ, ꯃꯁꯤꯒꯤ ꯗꯥꯏꯒꯤ ꯃꯅꯥꯛ ꯆꯥꯕ ꯂꯨꯒꯥ ꯌꯥꯏꯔꯦꯜꯗ, ꯇꯣꯉꯥꯟ ꯍꯤꯗꯥꯛ ꯗꯥꯏꯒꯤ ꯃꯅꯥꯛ ꯆꯥꯕ ꯆꯥꯕꯨꯔ ꯌꯥꯏꯔꯦꯜꯗ, ꯇꯣꯉꯥꯟ ꯃꯅꯥꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯗ ꯆꯥꯅꯕ ꯅꯥꯏꯕꯦꯇ

ꯑꯃꯗ ꯅꯁꯤꯡ ꯊꯗꯥꯟꯀ ꯑꯦꯁꯨꯌꯇꯥꯒ ꯑꯃꯒꯤꯗꯃꯡ:

- **ꯑꯥꯀꯄꯣꯈꯣꯄꯒꯤ ꯑꯔꯦꯕ ꯑꯃꯁꯨꯡ ꯂꯣꯒꯣꯅꯁꯤꯡ.** ꯄꯤꯂꯄꯒꯥꯔꯄ ꯑꯃꯗ ꯂꯌꯄꯥꯀ ꯃꯁꯤꯡꯒꯤ ꯄꯤꯂꯤꯂ ꯄꯤꯈꯗ ꯃꯁꯤꯡꯒꯤ ꯑꯥꯀꯄꯣꯈꯄꯒꯤ ꯅꯄꯕ ꯑꯔꯦꯕ ꯂꯣꯈꯂꯦ ꯂꯥꯡꯒꯤ ꯅꯁꯤꯡ ꯊꯗꯥꯡꯂꯥꯅꯗꯕꯂꯤ꯫ ꯑꯥꯀꯄꯣꯈꯄꯒꯤ ꯂꯣꯒꯣꯅꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯤꯂꯦ ꯅꯄꯕꯗ ꯀꯤꯄꯤꯕꯒꯨꯃꯂ ꯁꯤꯂꯤꯋꯂꯒꯗꯕꯂꯤ; ꯐꯨꯌ (feet)-ꯈ ꯀꯤꯄꯕ ꯂꯣꯒꯣꯅ ꯑꯃꯦ **1 ft = 0.3048 m** ꯃꯀꯨꯡ ꯇꯂꯦ ꯍꯥꯡꯗꯥꯡꯟꯗꯕꯂꯤ, ꯍꯥꯡꯗꯥꯟꯀ ꯑꯃꯁꯨꯡ ꯗꯣꯈꯃ ꯑꯗꯨ ꯇꯥꯄꯃ 5-1-ꯗ ꯍꯔꯗꯨꯂꯦ꯫
- **ꯃꯀꯤꯊꯣꯅ ꯗꯣꯃ.** WRD-ꯂꯦ ꯁꯣꯀꯈꯣꯃꯕꯄ 2025-ꯗ ꯗꯣꯃꯒꯤ FRL ꯑꯁꯤ **880.7 m** ꯍꯔꯂꯦ ꯀꯤꯅꯤ, ꯃꯈꯃ ꯑꯗꯨꯗ ꯄꯤꯂꯄꯒꯥꯔꯄ 878.10 m-ꯗ ꯂꯅꯤ; 1 ꯑꯒꯁꯨꯌ 2015-ꯗ ꯃꯁꯤ 876 m-ꯗ ꯂꯅꯤ ꯍꯔꯂꯦ ꯄꯤꯀꯥꯄꯌ ꯈꯅꯤ, "ꯁꯀꯤꯅꯔꯣꯁꯤꯕꯒꯤ ꯃꯊꯡꯈ 2 m ꯃꯄꯥꯅ" ("nearly 2 m above the spillways"); ꯃꯁꯤꯒꯤ ꯁꯀꯤꯅꯔꯣꯒꯤ ꯗꯤꯂꯅꯋ ꯗꯤꯁꯔꯄꯂ **2,240 m³/s** ꯍꯔꯂꯦ ꯄꯤꯀꯥꯄꯌ ꯈꯄꯤ, ꯑꯃꯁꯨꯡ ꯂꯃꯅꯒꯤ ꯗꯣꯃ ꯑꯁꯤ 66 m ꯔꯕꯅ ꯑꯃꯁꯨꯡ 1,074 m ꯁꯕꯅ (ꯀꯨꯃꯂꯃꯡ ꯀꯥꯗꯗ ꯇꯥꯕꯗꯥꯡꯅꯤꯕ ꯃꯈꯨꯕ ꯅꯋꯂ)꯫ 2015-ꯒꯤ ꯄꯤꯀꯥꯄꯌꯂꯦ ꯁꯀꯤꯅꯔꯣ ꯟꯄꯣꯁꯨꯌ ꯑꯁꯤ 874 m ꯃꯄꯥꯅꯗ ꯊꯃꯂꯤ, 2025-ꯗ ꯀꯤꯅꯤꯕ FRL-ꯗꯒꯤ 6.7 m ꯃꯄꯥꯅ ꯂꯣꯃꯂꯦ (NEER-ꯒꯤ ꯍꯤꯁꯕ), ꯑꯃꯁꯨꯡ ꯄꯤꯀꯥꯄꯌ ꯑꯂꯤ ꯑꯁꯤ ꯃꯦꯋꯂꯗꯣ [U]; ꯑꯥꯀꯄꯣꯈꯄꯒꯤ ꯅꯄꯕ ꯂꯣꯒꯣꯅꯁꯤꯕꯂꯦ ꯔꯌꯂꯒꯂꯤ [TBC]꯫ ꯗꯣꯃꯒꯤ ꯃꯅꯗ ꯂꯕ ꯊꯥꯕꯅ ꯈꯨꯄꯣꯅ ꯑꯁꯤꯁꯨ ꯑꯅꯈꯣꯃ (a) ꯃꯅꯗ ꯀꯋꯂꯦ ꯂꯥꯡ ꯈꯥꯄꯕ ꯈꯨꯄꯣꯅ ꯑꯃꯂꯤ (ꯊꯥꯕꯅ ꯒꯣꯂꯗ ꯗꯤꯂꯅꯋ 779.915 m), ꯑꯃꯁꯨꯡ ꯑꯅꯈꯣꯃ ꯑꯂꯤꯒꯤ ꯍꯣꯋꯂꯦ ꯔꯕꯕ ꯈꯣꯅꯔꯈꯄ ꯑꯗꯨꯂꯦ ꯔꯌꯂꯒꯂꯤ꯫
- **ꯅꯨꯒ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗ ꯗꯣꯃꯁꯤꯡ.** ꯅꯨꯒ ꯗꯣꯃꯒꯤꯗꯃꯡ ꯂꯌꯄꯒ ꯁꯤꯡꯗ ꯗꯣꯃꯒꯤꯗꯃꯡ ꯂꯣꯒꯣꯅ, ꯁꯀꯤꯅꯔꯣ ꯟꯣꯀꯤꯁꯤꯈꯤ ꯂꯌꯄꯒ ꯄꯤꯂꯤꯂꯟꯤ ꯄꯣꯟꯥꯄꯗ ꯑꯃꯌꯈꯥ ꯇꯡꯅꯅꯤꯗꯣ, CPCB-ꯂꯦ ꯁꯤꯡꯗ ꯗꯣꯃ ꯑꯁꯤ ꯂꯃꯕꯨꯅ ꯈꯨꯄꯣꯅꯒꯤ ꯃꯥꯌꯂꯕ ꯄꯤꯔꯟꯤ ꯍꯥꯄꯡꯇꯃ ꯍꯔꯂꯦ ꯃꯃꯤꯡ ꯊꯥꯅꯂꯤ (CPCB, 2025) [TBC]꯫
- **ꯄꯤꯂꯤꯂ ꯄꯤꯔꯁꯤꯡ.** ꯟꯂꯥꯂ 5.8.4-ꯒꯤ ꯟꯣꯁꯁꯤꯡꯒꯤ ꯃꯊꯡꯈ, ꯁꯅꯌꯟꯤ ꯗꯤꯂꯅꯋ ꯁꯈꯥꯄꯃ (ꯃꯊꯥ ꯈꯕ AEP ꯅꯨꯗꯤꯡꯃꯡ) ꯑꯃꯁꯨꯡ ꯀꯨꯡ 72-ꯒꯤ ꯂꯥꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯥꯡ ꯑꯁꯤ, ꯗꯣꯃꯒꯤ ꯄꯣꯟꯥꯄꯗ ꯈꯥꯄꯕ ꯅꯨꯕꯅꯗꯒꯤ ꯔꯗꯨꯕ ꯄꯤꯂꯤꯂꯂꯦ ꯊꯡꯍꯋꯕ ꯂꯣꯒꯣꯅꯗ ꯈꯨꯄꯣꯅ ꯂꯄꯒ, ꯑꯦꯁꯨꯌꯇꯥꯒ ꯇꯑꯥꯕ ꯄꯨꯌ ꯈꯥꯄꯒ, ꯗꯣꯃꯒꯤ ꯃꯅꯗ ꯂꯕ ꯟꯣꯔꯃꯣꯋꯌꯟꯤ ꯇꯂꯥ ꯃꯁꯤ ꯊꯥꯡꯅꯤꯕꯒꯨꯃꯂ, ꯑꯃꯁꯨꯡ ꯄꯤꯂꯤꯂ ꯑꯗꯨ ꯁꯅꯌꯟꯤ ꯂꯥꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯥꯡꯟꯤ ꯃꯃꯤꯡꯗ, ꯃꯈꯃꯗ ꯑꯃꯁꯨꯡ ꯃꯈꯨꯡꯗ ꯊꯃꯗꯨꯂꯦ ꯔꯌꯍꯂꯒꯗꯕꯂꯤ; ꯑꯥꯀꯄꯣꯈꯄꯂꯦ ꯍꯣꯋꯂꯦ ꯔꯗꯨꯕ ꯄꯣꯟꯥꯄꯗ ꯈꯥꯄꯕ ꯄꯤꯂꯤꯂ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯈꯃ ꯁꯡꯕ ꯍꯔꯄꯤꯡ ꯇꯑꯥꯕ, ꯄꯤꯂꯤꯂ ꯑꯁꯤ ꯁꯀꯤꯅꯔꯣꯒꯤ ꯗꯤꯂꯅꯋ ꯟꯣꯀꯤꯁꯤꯈꯤꯂꯤ (ꯃꯀꯤꯊꯣꯅ, 2,240 m³/s, ꯀꯥꯗꯗ ꯇꯥꯕꯗꯥꯡꯅꯤꯕ ꯃꯈꯨꯕ ꯅꯋꯂ; ꯅꯨꯒ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗ ꯗꯣꯃꯁꯤꯡ, ꯑꯥꯀꯄꯣꯈꯄꯒꯤ ꯅꯄꯕ ꯁꯀꯤꯅꯔꯣ ꯟꯣꯀꯤꯁꯤꯈꯤ [TBC])꯫ ꯑꯅꯈꯣꯃ (a)-ꯒꯤ ꯂꯥꯡ ꯑꯁꯤ **ꯀꯨꯡ 72-ꯗꯒꯤ ꯍꯋꯊꯗꯂꯦ** ꯔꯌꯂꯦ (ꯃꯣꯂꯨꯔꯣꯅ ꯑꯁꯤꯂꯦ ꯊꯃꯕ)꯫ ꯄꯤꯂꯄꯒꯥꯔꯄ ꯑꯃꯒꯤ ꯁꯈꯥꯄꯣꯂꯂꯦ ꯍꯋꯊꯍꯂꯕꯒꯤ (attenuation) ꯟꯄꯣꯗꯤꯌ ꯑꯁꯤ ꯃꯅꯗ ꯂꯕ ꯈꯨꯄꯣꯅꯗ ꯀꯤꯄꯥꯅꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯑꯥꯀꯄꯣꯈꯄꯒꯤ ꯄꯣꯟꯥꯄꯗꯁꯤꯕꯂꯦ ꯌꯌꯀꯗꯒꯤ ꯍꯣꯋꯂꯦ ꯑꯊꯕꯂꯦ ꯂꯌꯄꯒ ꯍꯣꯋꯂꯦ ꯔꯌꯂꯦ ꯗꯣꯃꯒꯤ ꯒꯣꯌ ꯑꯃꯌꯈꯥ ꯍꯕꯗꯥꯡꯟꯂꯤ ꯍꯔꯂꯦ ꯂꯄꯥꯅꯗꯕꯂꯤ꯫ ꯄꯤꯂꯄꯒꯥꯔꯄ ꯑꯃꯗ, ꯃꯁꯤꯒꯤ ꯕꯣꯡꯔꯈꯄꯗ ꯂꯌꯄꯒ ꯄꯤꯂꯤꯂ ꯄꯤꯔ ꯑꯃꯗ ꯅꯁꯤꯡ ꯔꯣꯋꯊꯄꯟꯀ ꯟꯣꯔꯃꯣꯋꯌꯁꯤꯕꯂꯦ ꯁꯄꯨꯡ 3-ꯂꯦ ꯃꯅꯥꯔꯒꯤꯗꯃꯡ ꯊꯃꯕ AMC ꯂꯅ꯫
- **ꯔꯄꯂꯤꯕꯁꯤꯕ ꯑꯁꯤ ꯂꯥꯈꯤꯁ ꯂꯌꯈꯣ.** ꯄꯤꯂꯤꯂ ꯑꯃꯒꯤ ꯂꯥꯈꯤꯁ ꯂꯌꯄꯒ ꯔꯄꯂꯤꯕ ꯑꯃꯗ, ꯂꯥꯡ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯥꯡꯟꯤ ꯃꯃꯤꯡꯗ ꯄꯤꯂꯄꯒꯥꯔꯄ ꯑꯃꯦ ꯍꯋꯊꯍꯂꯕꯗ, ꯂꯌꯄꯒ ꯒꯣꯌ ꯑꯃꯦ ꯑꯊꯕꯂꯦ, ꯊꯣꯕꯂꯦ ꯂꯌꯄꯒ ꯃꯤꯂꯨꯡ ꯍꯕꯗꯥꯟꯀꯗ ꯗꯤꯂꯅꯋ ꯑꯃꯌꯈꯂꯦ ꯊꯂꯕ ꯊꯃꯄꯥꯅꯗꯕꯂꯤ: ꯑꯅꯈꯣꯃ ꯑꯁꯤꯒꯤ ꯄꯤꯂꯤꯂꯟꯤ ꯁꯤꯂꯦꯄꯤꯑꯥꯁꯤꯕꯂꯦ ꯔꯌꯂꯒꯂꯤ (ꯃꯣꯂꯨꯔꯣꯅ ꯑꯁꯤꯂꯦ ꯊꯃꯕ)꯫

- (e) **ꯅꯁꯤꯡ ꯂꯕ ꯁꯈꯥꯄꯣꯂ ꯑꯥꯅꯂꯦ ꯀꯤꯌ ꯑꯃꯁꯨꯡ ꯀꯨꯅꯨꯄꯤꯁꯤꯡ.** ꯀꯤꯌ, ꯀꯨꯅꯨꯄꯤ, ꯅꯁꯤꯡ ꯂꯣꯀꯀ ꯂꯣꯃꯕ ꯂꯥ ꯂꯌꯄꯒ ꯗꯤꯈꯣꯋꯁꯋ ꯀꯥꯋꯗ ꯑꯃꯗ, ꯍꯡꯊꯣꯕꯂꯂꯦ ꯂꯌꯄꯒ ꯃꯗꯨꯗ ꯂꯥꯅꯕ ꯅꯥꯕꯕꯋ ꯑꯃꯒꯤ ꯅꯨꯌꯊꯕꯗ ꯅꯁꯤꯡ ꯊꯗꯥꯟꯀ ꯑꯦꯁꯨꯌꯇꯥꯒ ꯑꯃꯒꯤꯗꯃꯡ, ꯃꯅꯥꯔꯒꯤ ꯃꯂꯨꯕꯗ ꯂꯃꯇꯣꯒꯀꯌ, ꯀꯥꯄꯥꯃꯀꯌ, ꯈꯡꯔꯣꯒꯀꯌ, ꯁꯊꯅꯀꯌ, ꯅꯄꯨꯕꯀꯌ ꯑꯃꯁꯨꯡ ꯅꯟꯥꯀ ꯀꯤꯌ, ꯁꯈꯣꯌ ꯔꯣꯌꯂꯣꯋꯗꯁ ꯑꯥꯊꯥꯄꯤꯈꯒꯤ ꯀꯄꯨꯅꯑꯥꯄꯤꯈꯤ ꯂꯤꯁꯨꯌꯟꯤ ꯀꯤꯌꯁꯤꯕ (ꯅꯈꯄꯨ, ꯔꯄꯥꯅ, ꯔꯅꯊꯥ–ꯇꯨꯃꯂꯥꯃ, ꯀꯨꯃꯂꯣꯋ–ꯅꯥꯅꯗꯨꯃ ꯑꯃꯁꯨꯡ ꯅꯟꯥꯀ–ꯅꯄꯨꯕ) ꯑꯃꯁꯨꯡ ꯈꯅꯋꯁꯤꯕꯒꯤ ꯀꯕꯂꯤꯡ ꯀꯨꯅꯨꯄꯤꯁꯤꯕ:
  - **ꯍꯄꯟꯀ ꯂꯣꯒꯣꯅ.** ꯅꯁꯤꯕ ꯂꯇꯃ ꯑꯁꯤꯂꯦ ꯗꯤꯂꯅꯋꯒꯤ ꯂꯥꯕ ꯅꯨꯕꯒꯤ ꯊꯥꯗꯥꯡ ꯅꯨꯗꯤꯕꯃꯡ **ꯃꯁꯤꯒꯤ ꯑꯦꯁꯨꯌꯂꯣꯌ ꯂꯣꯒꯣꯅ ꯇꯑꯥꯕ ꯃꯀꯨꯋꯂꯦ** ꯍꯅ: ꯃꯁꯤꯒꯤ ꯑꯦꯁꯨꯌꯂꯣꯌ ꯔꯤꯔꯄꯒꯤ ꯟꯄꯣꯁꯨꯌ, ꯃꯁꯤꯒꯤ ꯒꯣꯌꯟꯤ ꯁꯤꯅ ꯂꯌꯄꯒ ꯃꯁꯤꯗꯒꯤ ꯅꯁꯤꯕ ꯊꯗꯥꯟꯀ ꯅꯥꯕꯒꯤ ꯅꯋꯒꯄꯌ, ꯂꯌꯄꯒ ꯅꯥꯟꯗꯥꯡꯂꯕ ꯑꯦꯁꯨꯌꯂꯣꯌ ꯂꯈꯕ ꯃꯇꯃꯗ, ꯁꯄꯒꯣ ꯈꯄꯒ ꯁꯄꯒꯣ ꯑꯥꯇ ꯅꯋꯗꯤꯔꯒꯤ ꯕꯣꯋꯔꯃꯦꯄꯡ ꯑꯃꯒ ꯁꯃꯃꯤꯋꯕ ꯃꯁꯤꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯔꯕꯕ ꯃꯥꯋꯁꯨꯋ ꯅꯁꯤꯕꯒꯤ ꯂꯅꯋ, ꯑꯃꯁꯨꯡ ꯟꯣꯁ ꯅꯨꯗꯤꯕꯃꯡꯈ ꯃꯇꯃ ꯑꯗꯨꯗ ꯄꯣꯟꯥꯄꯗ ꯈꯥꯄꯕ ꯅꯕꯅꯗꯒꯤ ꯔꯕꯕ ꯂꯣꯒꯣꯅꯗꯒꯤ ꯂꯣꯃꯗꯕ (ꯃꯣꯂꯨꯔꯣꯅ ꯑꯁꯤꯂꯦ ꯊꯃꯕ)꯫ ꯃꯁꯤ ꯁꯣꯄꯤꯂ ꯑꯁꯤꯒꯤ ꯔꯤꯃꯂꯦ ꯂꯡꯀ ꯑꯣꯗꯤꯁꯋꯂꯦ ꯃꯁꯤꯒꯤ ꯇꯂꯗꯀꯂꯣꯋ ꯂꯣꯡꯁꯤꯕꯒꯤꯗꯃꯡ ꯊꯃꯕ ꯄꯨꯅꯂꯤ, ꯃꯁꯤ ꯂꯣꯡ ꯑꯗꯨ "ꯃꯀꯨꯋꯂꯣ ꯑꯃꯁꯨꯡ ꯅꯥꯕꯕꯋ ꯑꯁꯤꯁꯨ ꯃꯀꯨꯋꯂꯦ ꯔꯣꯅꯂꯤ" ("is full and the drain is also flowing full") (ꯃꯇꯃ ꯑꯗꯨꯗ ꯟꯥꯌꯅꯤꯕ ꯃꯈꯨꯕ ꯅꯋꯂ) ꯍꯔꯂꯦ ꯂꯅꯤꯕ ꯗꯤꯂꯅꯋ ꯑꯃꯗꯒꯤ ꯂꯅꯤꯕꯂꯤ: ꯂꯥꯕ ꯅꯨꯕꯒꯤ ꯃꯈꯃ ꯑꯃꯒꯤ ꯑꯍꯂꯕ ꯂꯥꯕꯗ ꯃꯀꯨꯋꯅꯤꯕ ꯀꯤꯌ ꯑꯃꯦ ꯃꯊꯕꯒꯤꯗꯃꯡ ꯃꯀꯨꯋꯂꯦ ꯂꯅ꯫

- **ꯗꯤꯖꯥꯏꯟꯒꯤ ꯂꯦꯚꯦꯜ.** ꯃꯦꯖꯔ-ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯅꯒꯤ ꯄ꯭ꯔꯣꯚꯤꯖꯟ ꯑꯁꯤ ꯅꯁꯤꯡ ꯂꯦꯡꯗꯕ ꯑꯇꯨꯒꯤ ꯀꯦꯟꯗ꯭ꯔꯦꯁꯟ ꯁꯥꯕꯒꯤ ꯅꯍꯥꯖꯤꯡ ꯑꯁꯤ ꯄꯥꯡꯊꯣꯛꯅꯕꯥ ꯆꯥꯡꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯔꯃꯒꯤ ꯁ꯭ꯇꯣꯔ–ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯇꯝꯒꯤ ꯆꯨꯁꯤꯟꯅ ꯐꯨꯝ ꯍꯥꯏꯕꯗꯤ ꯃꯔꯝꯅ ꯄꯥꯡꯊꯣꯛꯅꯕꯥ ꯆꯥꯡꯒꯤꯂꯤ, ꯃꯇꯤꯒꯤ ꯃꯀꯥꯏꯗ ꯂꯥꯏ ꯁꯨꯗꯔ꯭, ꯀꯥꯏ ꯂꯝꯗꯝ ꯅꯥꯡ ꯑꯗꯨ ꯑꯣꯏꯕꯒꯤ ꯂꯦꯡꯗꯕꯥ ꯃꯍꯩꯔꯣꯏ ꯂꯩꯗꯕꯅ ꯃꯁꯤꯡ ꯀꯨꯃꯇꯤꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯍꯥꯏꯗꯣꯛ (ꯑꯥꯏꯇꯦꯝ (a) ꯑꯃꯁꯨꯡ (c)), ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯥꯁꯦꯖꯕꯥ ꯅꯤꯡꯊꯤꯔꯕ ꯌꯥꯏꯐꯕ (ꯀ꯭ꯂꯣꯖ 5.12.3)꯫ ꯁ꯭ꯇꯣꯔ–ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯔꯤ ꯑꯃꯤ ꯂꯩꯇꯒꯦ ꯍꯥꯏꯕꯅꯤ: ꯂꯃꯖꯤꯡꯀꯥꯏ ꯂꯩꯔꯕ ꯁ꯭ꯇꯣꯡ ꯑꯃꯤꯒꯤ ꯑꯣꯏꯀꯥ ꯀꯥꯏ ꯂꯩꯔꯕ ꯀ꯭ꯂꯣꯖꯔꯤ ꯑꯃꯍꯣꯡꯒꯤꯅꯃꯗꯤ ꯃꯇꯤ ꯌꯥꯝꯍꯟꯅ, ꯑꯃꯁꯨꯡ 22 ꯃꯦ 2020-ꯒꯤ NGT-ꯒꯤ ꯑꯥꯗꯦꯔꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯦꯡꯍꯟꯕ ꯍꯤꯡꯕꯥ ꯆꯨꯡꯝ 4,000 ꯃꯔꯥꯡꯒꯤ ꯍꯋꯥꯡꯋꯥꯏꯔꯦ "ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ, ꯍꯋꯅꯤꯂꯤꯡꯔꯤꯡ ꯂꯔꯥꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ … ꯂꯦꯃꯍꯧꯔꯤ" ("Ground truthing, engineering surveys, and quality monitoring … are pending") ꯍꯥꯏꯔꯦ ꯔꯦꯀꯣꯔꯗꯇ ꯌꯥꯔꯤ (DoECC, 2025-26) [TBC]꯫ ꯃꯥꯏꯅꯔ-ꯁꯤꯁ꯭ꯇꯦꯝ ꯄꯦꯔꯥꯃꯤꯇꯔ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯤꯀꯥꯁꯟ ꯂꯦꯚꯦꯂꯅꯤ꯫
- **ꯊꯤꯖꯤꯟꯕ ꯑꯦꯛꯁꯟ.** ꯑꯦꯛꯁꯟ ꯍꯧꯖꯤꯛꯇ ꯑꯃꯁꯨꯡ ꯑꯥꯏꯇꯦꯝ ꯑꯣꯏꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯂꯁꯤꯡꯒꯤ ꯂꯦꯃꯕ ꯃꯦꯟꯗꯔꯦ, ꯑꯦꯛꯁꯟ ꯑꯁꯤ ꯂꯧꯕ ꯁꯨꯕꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯌꯥꯝꯕꯥ ꯀꯤꯗꯕꯥ (ꯀ꯭ꯂꯣꯖ 5.9.4), ꯑꯃꯁꯨꯡ ꯍꯤꯡꯕꯥ ꯆꯨꯡꯝ ꯑꯁꯨꯡ ꯌꯥꯕꯥ ꯂꯣꯝ ꯌꯥꯝꯕ ꯑꯦꯛꯁꯟ ꯑꯃꯒꯤ ꯁꯨꯞꯅꯕ ꯂꯩꯔꯕ ꯂꯣꯔꯦꯁꯣꯏ ꯍꯤꯡꯕꯥ ꯀꯤꯇꯥꯌꯥꯗ ꯃꯦꯟꯗꯔꯦ, ꯑꯥꯏꯇꯦꯝ (a)-ꯒꯤ ꯂꯣꯌ ꯂꯩꯔꯕ ꯑꯥꯏꯇꯦꯝ (c)-ꯒꯤ ꯀꯤꯗꯕ ꯑꯃꯤ ꯑꯣꯏꯖꯕꯥ ꯑꯣꯏꯖꯩ꯫
- **ꯁ꯭ꯇꯣꯔ ꯑꯃꯤ ꯃꯤꯁ꯭ꯇꯣꯔꯒꯤꯂꯤ.** ꯀꯥꯏ ꯂꯩꯔꯕ ꯀ꯭ꯂꯣꯖꯔꯤ ꯑꯃꯒꯤ ꯁ꯭ꯇꯣꯔ ꯑꯃꯤ ꯍꯔꯃꯒꯤ ꯃꯤꯁ꯭ꯇꯣꯔꯁꯤꯡꯒꯤ ꯃꯦꯞ ꯑꯃꯂꯤ: ꯃꯃꯤ ꯀ꯭ꯔꯥꯁꯦꯖꯕꯥ ꯑꯃꯍꯣꯡꯁꯣꯡ ꯀꯔꯥꯝꯅꯥ ꯀꯥꯔꯦꯍꯟꯅꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯥꯁꯦꯖꯕꯥ ꯑꯃꯍꯣꯡꯂꯦ ꯃꯃꯤ ꯄꯤꯇꯄꯤꯇꯍꯟꯕꯂꯤ (ꯃꯦꯞ 7)꯫ ꯑꯦꯛꯁꯟ ꯂꯣꯔꯕ ꯀ꯭ꯂꯣꯖꯔꯤ ꯑꯃꯊ ꯍꯥꯏꯗꯤꯡ ꯂꯣꯔꯕ ꯕꯦꯁꯤꯟ (closed basin) ꯑꯃꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯤꯁꯤꯡ ꯍꯤꯡꯕꯥ ꯀꯤꯗꯕꯥ ꯑꯦꯛꯁꯟ ꯑꯃꯊ ꯂꯧꯕ ꯁꯨꯕꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯌꯥꯝꯕꯥ ꯀꯤꯗꯕꯂꯤ꯫ ꯒꯦꯜ ꯑꯃꯒꯤ ꯃꯔꯨꯞꯅ ꯍꯤꯡꯕꯥ ꯂꯃꯗꯥ ꯂꯦꯃꯕ ꯂꯣꯝꯕ ꯑꯣꯏꯕ ꯃꯤꯇꯌꯦꯡ ꯄꯥꯝꯕꯒꯤ ꯃꯔꯝꯅ ꯂꯣꯔꯤꯕꯒꯤ ꯔꯤꯁꯣꯏꯅ ꯀꯤꯕꯂꯤ; ꯂꯣꯝꯕ ꯂꯩꯔꯕ ꯑꯦꯛꯁꯟꯀꯤ ꯄꯨꯝꯍꯥꯏꯗꯨ ꯃꯁꯤꯡ ꯃꯤꯟꯍꯟꯕ ꯁ꯭ꯇꯣꯔ ꯑꯃꯤ ꯃꯦꯞ 7-ꯒꯤ ꯀꯃꯗꯥꯏꯗꯦꯟꯁꯤ ꯁ꯭ꯇꯣꯔꯒꯤ ꯃꯦꯡ ꯃꯤꯁꯤꯡ ꯂꯩꯃꯂꯣꯝꯗꯒꯤꯅꯕꯂꯤ, ꯑꯦꯛꯁꯟ ꯑꯃꯔꯦ ꯂꯩꯁꯣꯏ꯫ ꯍꯔꯃꯂꯤꯁꯤꯡ ꯌꯥꯝꯕ ꯁ꯭ꯇꯣꯔ ꯑꯃꯤ ꯀꯤꯁꯣꯔꯗꯤ ꯀꯥꯔꯦꯂꯤ, ꯑꯣꯏꯅ ꯑꯣꯏꯅ ꯀ꯭ꯔꯥꯁꯦꯖꯕꯥ ꯂꯩꯔꯕ ꯀꯥꯏ ꯂꯩꯁꯣꯏ; ꯂꯃꯖꯤꯡꯀꯥꯏꯀꯨꯝꯕ ꯍꯤꯡꯕꯥ ꯍꯔꯃꯂꯒꯤ ꯁ꯭ꯇꯣꯔ ꯑꯍꯔꯦ ꯀꯥꯟꯂꯁ ꯌꯥꯝꯕ ꯀꯥꯏ ꯑꯃꯒ ꯀꯥꯏ ꯑꯍꯔꯦ ꯂꯣꯔꯤ꯫ ꯀ꯭ꯂꯣꯖ 6.3.6(e) ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 8.9-ꯒꯤ ꯍꯔꯁꯦꯡꯕꯥꯀꯥꯏꯗꯦ ꯑꯃꯁꯨꯡ ꯃꯀꯥꯏꯗꯤꯃꯤꯗ ꯂꯧꯔꯦ ꯃꯤꯍꯥꯏꯂꯗ ꯀꯥꯏꯕ ꯍꯥꯀꯕꯗꯦ ꯑꯃꯁꯣꯔꯦ ꯀꯥꯏ ꯂꯩꯔꯕ ꯀ꯭ꯔꯥꯁꯦꯖꯕꯥ ꯑꯃꯊ ꯍꯤꯡꯕꯥ ꯀꯤꯗꯕꯂꯦꯍꯟꯕꯂꯤ꯫
- (f) **ꯌꯤꯡꯒꯤ ꯍꯥꯡꯗꯣꯛꯄ.** ꯑꯕ-ꯑꯦꯔꯤꯌꯥꯒꯤ MN-B ꯑꯃꯁꯨꯡ MN-C-ꯗ, MN-C1-ꯒꯤ ꯌꯤꯡꯒꯤ ꯑꯃꯥꯡꯒꯤꯗ ꯂꯩꯔꯕ ꯄꯨꯝꯀꯥꯏꯗꯤꯡꯅꯤ ꯌꯤꯡꯒꯤ ꯃꯦꯜꯗꯤ ꯑꯃꯁꯨꯡ ꯌꯤꯡ ꯑꯀꯥꯏꯗꯤꯀꯥꯏꯗꯥꯏꯗ ꯂꯣꯕ ꯍꯥꯡ ꯂꯩꯔꯕ ꯑꯄꯨꯀꯥꯏ ꯌꯤꯡꯒꯤ ꯍꯥꯡ ꯑꯃꯗ, ꯁꯨꯗꯝ ꯑꯦꯅꯥꯏ ꯄꯨꯝꯕꯇꯨꯡꯗ, ꯂꯥꯂꯥ, ꯁ꯭ꯇꯣꯁꯨꯡ, ꯅꯥꯏꯀꯥꯗꯧ, ꯀꯣꯀꯥꯏꯗꯥꯏ, ꯌꯦꯗꯅꯥꯡ ꯑꯃꯁꯨꯡ ꯁꯨꯔꯥꯏꯗꯗꯁꯨꯒꯤ ꯍꯥꯡꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯀꯥꯏꯗꯤꯡꯅꯤ ꯂꯝ ꯑꯃꯁꯨꯡ ꯂꯩꯇꯣꯡꯕꯥꯏꯗ ꯂꯩꯔꯕ ꯍꯥꯡꯗꯣꯛꯄ, ꯂꯣꯔꯤꯕꯒꯤ ꯃꯍꯥꯏꯒꯤ ꯃꯆꯨꯡꯗ ꯑꯃꯗ ꯂꯥꯏꯕ ꯍꯥꯡꯕꯗꯦ ꯑꯃꯗ ꯍꯤꯡꯕꯥ ꯀꯤꯗꯕꯥ ꯑꯦꯛꯁꯟ ꯑꯃꯒꯤꯗꯃꯛ:
  - **ꯗꯤꯖꯥꯏꯟꯒꯤ ꯂꯦꯚꯦꯜ.** ꯍꯥꯡꯗꯣꯛꯄ ꯑꯃꯗ ꯒꯦꯜ ꯂꯣꯔꯤꯕꯒꯤ ꯏꯗꯦꯟꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯂꯦꯚꯦꯜ ꯂꯣꯏ [TBC]꯫ ꯃꯦꯖꯔ-ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯅꯒꯤ ꯄ꯭ꯔꯣꯚꯤꯖꯟ ꯑꯃꯤ ꯃꯍꯥꯏ ꯀꯔꯤꯕꯣꯛꯀꯤꯅꯤ ꯃꯆꯨꯡꯗ ꯍꯣꯛꯍꯥꯏꯒꯤ ꯌꯥꯕ ꯑꯃꯗ ꯑꯍꯥꯏꯂꯤ: (i) ꯍꯥꯡ ꯑꯃꯒꯤ ꯁ꯭ꯇꯣꯔꯒꯤ ꯑꯃꯗꯒꯤ ꯑꯦꯛꯁꯟꯅ 1% AEP-ꯒꯤ ꯂꯦꯚꯦꯜ, ꯑꯦꯛꯁꯟꯒꯤ ꯃꯍꯥꯏꯗ ꯂꯣꯕ ꯀꯥꯡꯂꯣꯟ ꯌꯥꯝꯕꯒꯤꯗꯃꯛ ꯃꯦꯞ 3-ꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯃꯥꯂꯦꯝ ꯑꯃꯂꯦ, ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2A-ꯗ ꯂꯣꯕ ꯃꯇꯤꯒꯤ ꯑꯕ-ꯑꯦꯔꯤꯌꯥꯒꯤ ꯂꯝ ꯁꯨꯕ, ꯀꯥꯏꯗ ꯏꯗꯦꯟꯇ ꯀ꯭ꯂꯣꯖ 6.3.6(g)-ꯒꯤ ꯕꯜꯀꯤꯡ ꯐꯦꯛꯇꯔ (bulking factor) ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 6.3.6(h)-ꯗ ꯃꯍꯩ ꯄꯤꯕꯒꯤꯗꯃꯛ ꯃꯍꯤ ꯍꯥꯏꯕ ꯃꯑꯣꯡꯒꯤ ꯀꯥꯡꯂꯣꯟꯁꯤꯡ ꯍꯥꯏꯗꯣꯛ ꯑꯦꯃꯕ, ꯂꯝ ꯍꯤꯡꯀꯥꯏ, ꯂꯣꯝ, ꯂꯦꯃꯗꯥꯏꯗꯦꯟꯁꯤꯡꯒꯤ ꯗꯦꯟꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯇꯤꯡ ꯌꯦꯌꯥꯡ ꯂꯦꯃꯍꯥꯏꯗꯦ ꯑꯣꯏꯕ ꯌꯥꯕ ꯌꯦꯂꯦꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯃꯍꯩꯒꯤ ꯑꯃꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯂꯦꯡꯕ ꯌꯥꯔꯤ; (ii) WRD, PWD ꯂꯣꯔꯤꯕ ꯂꯩꯇꯦ ꯕꯦꯗꯦ ꯂꯣꯔꯤꯕ ꯃꯍꯥꯏꯗꯤꯡꯒꯤꯗꯃꯛ ꯃꯍꯩꯗꯦꯡ ꯍꯥꯡ ꯑꯃꯒꯤ ꯏꯗꯦꯟ ꯁ꯭ꯇꯣꯔꯒꯤ ꯑꯃꯁꯣꯡꯒꯤ ꯑꯦꯛꯁꯟꯅ ꯂꯦꯚꯦꯜ [TBC]; ꯑꯃꯁꯨꯡ (iii) ꯍꯤꯡꯕꯥ ꯍꯔꯥꯏꯗꯒꯤ ꯃꯦꯡꯂꯣꯟꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯟꯅ ꯂꯩꯇꯒꯦ ꯌꯥꯕ ꯍꯥꯏꯔꯥꯡꯒꯤ ꯏꯗꯦꯟ ꯂꯦꯚꯦꯜ, ꯁꯨꯗꯝ ꯑꯦꯅꯥꯏ 15 ꯑꯣꯛꯇꯣ 2025-ꯒꯤ ꯍꯥꯏꯀꯥ ꯄꯨꯝꯀꯥꯏꯗꯤꯡꯅꯤ ꯍꯤꯡꯕꯥ ꯍꯔꯥꯏ ꯂꯣꯔꯤꯕ ꯃꯇꯨꯡꯒꯤ ꯍꯤꯡꯕꯥ ꯍꯔꯥꯏ ꯑꯃꯒꯤ, ꯑꯃꯁꯨꯡ ꯂꯣꯔꯦ ꯕꯦꯗꯤ, WRD ꯂꯣꯔꯤꯕ ꯗꯤꯁꯥꯡꯒꯤ ꯀꯃꯤꯁꯅꯔꯒꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡꯒꯤ, ꯃꯇꯤꯒꯤ ꯍꯥꯏꯗꯣꯛ ꯍꯥꯏꯔꯤꯗꯦ꯫ ꯑꯥꯏꯇꯦꯝ (i) ꯑꯃꯁꯨꯡ (iii) ꯂꯣꯏꯗꯦ ꯑꯃꯤꯒꯤ ꯍꯥꯡ ꯑꯃꯗ ꯍꯤꯡꯕꯥ ꯀꯤꯗꯕꯥ ꯑꯦꯛꯁꯟ ꯑꯃꯇꯥ ꯃꯤꯁ꯭ꯇꯣꯔ ꯌꯥꯔꯤꯕꯅꯤ (ꯃꯦꯂꯨꯌꯥꯡ ꯑꯣꯏꯗꯦ ꯀꯥꯏꯕ)꯫
  - **ꯃꯍꯥꯡꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯍꯟꯗꯕ.** ꯃꯤꯁ꯭ꯇꯣꯔꯗꯦ ꯑꯦꯛꯁꯟꯅ ꯑꯃꯁꯨꯡ ꯌꯦꯃꯖꯤꯡꯕꯅ 100 m ꯃꯀꯥꯏ ꯀꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯀꯥꯏꯕ ꯃꯍꯩꯗ ꯃꯍꯥꯡ ꯑꯃꯒꯤ ꯂꯩꯇꯒꯦ ꯌꯥꯔꯤꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯤ ꯂꯥꯏꯍꯟꯕ ꯔꯤꯌꯥꯡ ꯑꯃꯒꯤ ꯍꯥꯏꯔꯥꯔꯤꯕꯅꯤ꯫ ꯑꯦꯛꯁꯟ ꯍꯧꯖꯤꯛꯇ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯗ ꯂꯣꯕ ꯏꯗꯦꯟ ꯒꯦꯜ ꯑꯃꯍꯥꯡꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯤ ꯃꯍꯩ ꯀꯥꯏꯕ ꯃꯍꯩꯗ 50 m-ꯒꯤ ꯃꯆꯨꯡꯗ ꯏꯗꯕ **ꯍꯣꯛꯍꯥꯏꯒꯤ ꯌꯥꯕ ꯃꯍꯥꯡꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯀꯥꯏ ꯌꯦꯃꯖꯤꯡꯕꯅ 0.5 m** ꯂꯣꯏꯔꯕꯂꯤ; ꯏꯗꯦꯟꯅꯥꯏꯗꯦ ꯑꯃꯤ ꯕꯦꯗꯤꯡꯒꯤ ꯏꯗꯦꯟꯇꯤꯒꯤ ꯂꯥꯏꯔꯦꯗꯦ 1% AEP-ꯒꯤ ꯏꯗꯦꯟꯒꯤꯗꯃꯛ ꯃꯦꯞ 9-ꯒꯤ (ꯀ꯭ꯂꯣꯖ 9.6) ꯃꯥꯀꯦꯟꯗ ꯀꯦꯡꯀꯥꯏꯗꯤꯡ ꯃꯍꯩꯗ ꯀꯥꯔꯒꯤꯗꯕꯂꯤ; ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯟ ꯑꯃꯤ ꯂꯣꯏꯗꯦꯍꯗ ꯑꯣꯏꯒꯤꯗꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯕꯥ ꯌꯦꯇꯂꯤꯕ ꯌꯦꯂꯦꯡꯅ ꯀꯥꯡꯂꯣꯟꯍꯟꯕꯂꯤ (ꯃꯦꯂꯨꯌꯥꯡ ꯑꯃꯤꯗꯦ ꯀꯥꯏꯕ)꯫ ꯌꯤꯡꯒꯤ ꯍꯥꯡ ꯑꯃꯗꯦ ꯄꯨꯝꯀꯥꯏꯗꯤꯡꯅꯤ ꯂꯝ ꯔꯦꯌꯥꯝꯕꯥ ꯃꯍꯩꯗ ꯃꯇꯤꯒꯤ ꯀꯥꯕ ꯀꯥꯏꯂꯣꯔꯤꯕ ꯍꯤꯡꯕꯥ ꯀꯤꯗꯕꯥ ꯃꯦꯟꯗꯔꯦ, ꯀ꯭ꯂꯣꯖ 6.3.6(m)-ꯒꯤ ꯑꯤꯅꯂ ꯁꯨꯡꯀꯥꯏꯀꯥ (silt trap) ꯑꯃꯤ ꯑꯦꯛꯁꯟꯒꯤ ꯃꯀꯥꯏ ꯀꯥꯔꯒꯤꯗꯕꯂꯤ: ꯌꯤꯡꯒꯤ ꯍꯥꯡꯗꯣꯛꯄ "ꯂꯥꯏꯔꯦꯕ ꯀꯥꯏ ꯌꯦꯃꯖꯤꯡꯕꯥꯏꯗ ꯂꯨꯕ ꯂꯦꯀꯥꯏ ꯑꯃꯗ ꯑꯀꯥꯏꯕ ꯂꯣꯏꯗꯤꯡꯒ ꯂꯥꯏꯔꯦꯗꯦ ꯌꯦꯂꯦꯡꯀꯥꯂꯤ …

ꯄꯥꯛꯇ ꯄꯨꯝꯕꯒꯤ ꯃꯥꯄꯥꯟꯂꯣꯏꯗꯒꯤ ꯁꯔꯨꯛ, ꯃꯗꯨꯗꯥ ꯄꯥꯛꯄ ꯆꯦꯟꯊꯕ ꯊꯨꯝꯖꯤꯜꯂꯤ" ("flow down with steep slope for a short distance before meeting the Loktak Lake … load carrying capacity is high which causes siltation of the lake") (MASTEC)꯫ ꯂꯥꯏꯔꯤꯛꯂꯣꯟꯅꯔ, ꯃꯌꯥꯏꯃꯀꯤꯕ ꯂꯧꯁꯤꯡ ꯂꯣꯅꯒꯤ ꯆꯤꯡꯂꯣꯛ ꯂꯃꯗ (Disang shale) ꯂꯩꯕ ꯆꯤꯡ, ꯑꯃꯁꯨꯡ ꯆꯨꯝꯖꯤꯡ ꯆꯥꯟ (foothill fan) ꯑꯃꯗ ꯁꯥꯏꯗꯥ ꯂꯥꯏꯕꯒꯤ ꯂꯃꯕꯤ ꯑꯣꯏ ꯄꯔꯤꯜ-ꯆꯥꯎꯔꯥ ꯂꯧꯅꯕꯤꯗ (ꯃꯥꯂꯦ 2.3.6(i)), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯇꯥꯡ ꯏꯁꯤꯡꯒꯤ ꯂꯥꯟꯅꯔꯝꯕ ꯑꯃꯁꯨꯡ ꯇꯃꯖꯤꯟꯅꯕꯤꯗ꯫

  - **ꯇꯤꯃꯂꯕ ꯏꯁꯤꯡꯏꯆꯥꯎ.** ꯏꯁꯤꯡꯏꯆꯥꯎ ꯅꯥꯏꯕ ꯑꯣꯏ ꯏꯅꯥꯡꯐ ꯑꯣꯏꯒꯤ ꯂꯤꯂꯥꯏꯒꯤ ꯂꯥꯡꯂꯥꯟꯒꯤ ꯂꯥꯃꯕ ꯃꯆꯥꯝ, ꯃꯥꯂꯦ 5.10-ꯒꯤ ꯏꯁꯤꯡꯏꯆꯥꯎ ꯇꯤꯃꯕ ꯁꯥꯌ ꯑꯣꯏ ꯂꯥꯌ ꯑꯃꯅꯌꯥꯡꯒꯤ ꯂꯥꯔꯂꯗꯦ ꯁꯔꯦ, ꯃꯑꯣꯏ ꯂꯤꯂꯥꯏ ꯂꯥꯡꯗꯥꯝ ꯑꯃꯁꯨꯡ ꯅꯥꯃ ꯑꯗꯨꯒꯤ ꯗꯤꯂꯣꯂꯦ (recession) ꯆꯨꯕ ꯂꯥꯄꯟ, ꯅꯥꯃ ꯑꯗꯨ ꯅꯥꯏꯕꯗꯥꯝ ꯃꯇꯥꯡ ꯂꯩꯗꯤꯕ ꯃꯡꯐ ꯄꯨꯝꯕꯒꯤꯗꯃꯛ ꯏꯅꯥꯡꯐ (i) ꯃꯅꯥ ꯃꯥꯂꯃꯂꯥꯡ ꯌꯨꯗꯒꯤ, ꯑꯃꯁꯨꯡ **ꯄꯨꯝ 24-ꯗꯒꯤ ꯍꯦꯇꯗꯂꯦ**; ꯅꯥꯃ ꯑꯗꯨꯒꯤ ꯍꯅꯗꯨꯒꯤꯗꯤ ꯃꯥꯂꯃꯂꯥꯡ ꯌꯨꯗꯕ ꯃꯆꯥꯝ, ꯂꯥꯌ ꯑꯣꯏ ꯂꯥꯃ ꯁꯕꯒꯤ ꯇꯗꯥꯌ ꯄꯨꯐꯕꯗ ꯂꯥꯄꯟ (ꯃꯥꯂꯨꯔꯥꯡ ꯑꯣꯏꯗꯦ ꯇꯐꯕ)꯫ ꯁꯤꯃꯒꯤ ꯅꯥꯃ ꯑꯗꯨꯃꯌ ꯌꯐꯄꯌꯥꯝ ꯂꯐꯗ ꯄꯦ ꯂꯩꯕ ꯌꯨꯗꯥꯡ ꯑꯃꯗ, ꯂꯥꯌꯌꯥꯌ ꯂꯁꯗꯒꯤ ꯕꯗꯌ ꯌꯨꯗꯥꯡꯗ ꯂꯥꯅꯗꯕꯗꯤ, ꯏꯅꯥꯡꯐ (a), (c) ꯂꯁꯗꯒꯤ (g)-ꯒꯤ ꯂꯥꯌꯗꯦ ꯁꯔꯂꯒꯂꯤ꯫ ꯅꯥꯃ ꯑꯃꯗꯦ ꯂꯣꯡꯁ ꯑꯣꯏ ꯇꯗꯥꯌꯌꯨꯗꯦ ꯗꯒꯂꯥꯂꯦꯗ, ꯃꯂꯥꯗꯐ ꯂꯁꯗꯒꯤ ꯃꯔꯦꯃꯗꯗ ꯁꯔꯂꯕꯗꯤ, ꯃꯅ ꯇꯃꯕ ꯃꯆꯐꯗ ꯃꯑꯣꯏꯒꯤ ꯂꯥꯡꯂꯥꯟ ꯍꯦꯇꯗꯌꯃꯂꯤ ꯍꯔꯗꯦ ꯂꯗꯥꯅꯗꯕꯂꯤ꯫

- (g) **ꯂꯤꯗꯤꯕꯐ ꯑꯃꯁꯨꯡ ꯕꯗꯌ ꯌꯨꯗꯥꯡ.** ꯂꯕ-ꯑꯥꯗꯤꯔꯦ MN-C1-ꯗ, ꯂꯤꯗꯤꯕꯐ ꯄꯂꯥꯂꯗ, ꯕꯗꯌ ꯌꯨꯗꯥꯡ ꯂꯁꯗꯒꯤ ꯂꯤꯗꯤ ꯌꯨꯗꯥꯡꯗ, ꯂꯁꯗꯒꯤ ꯃꯅꯥꯔꯒꯤ ꯃꯂꯨꯃꯗ ꯑꯃꯗ ꯂꯥꯅꯕ ꯅꯥꯃꯕꯦ ꯂꯁꯗꯒꯤ ꯅꯥꯃ ꯑꯃꯗ ꯅꯑꯣꯏꯃ ꯇꯗꯥꯃꯄ ꯏꯁꯤꯡꯏꯆꯥꯎ ꯑꯃꯒꯤꯗꯃꯛ:
  - **ꯌꯨꯗꯥꯡꯒꯤ ꯂꯥꯡꯂꯥꯟꯑꯣꯏꯃ.** CWC-ꯒꯤ ꯂꯣꯡꯁ ꯑꯣꯏꯗ ꯂꯅꯁ ꯑꯃꯅꯌꯌꯃꯌ ꯂꯩ: **ꯁꯌꯕꯥꯃꯗꯦꯗ** ꯕꯗꯌ ꯌꯨꯗꯥꯡ, ꯅꯐꯆꯥ ꯅꯑꯣꯁꯃꯤ ꯃꯅꯥꯗ ꯄꯗꯤꯂꯦꯁ ꯌꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯂꯤꯌ ꯂꯤꯗꯤꯕꯐ ꯄꯂꯦꯗ ꯂꯩ (NEER-ꯒꯤ ꯄꯂꯕ), **32.1 m**-ꯒꯤ HFL (31 ꯖꯨꯂꯥꯏ 1989) ꯂꯩꯕ ꯂꯥꯡꯂꯥꯟ ꯃꯂꯤꯌꯗꯃ ꯂꯅꯁ ꯑꯃꯂꯤ (SANDRP, 2018, ꯄꯦꯗ ꯆꯃꯗꯌꯁꯤꯕ ꯃꯌꯃ ꯅꯂꯦꯂ); **26.2 m**-ꯒꯤ ꯗꯥꯂꯦꯂꯗ ꯂꯥꯡꯂꯥꯟ (danger level) ꯑꯣꯏ ꯄꯥꯄꯗꯗ ꯅꯌꯌ ꯄꯤꯗꯤ (ꯄꯦꯗ ꯆꯃꯗꯌꯁꯤꯕ ꯃꯌꯃ ꯅꯂꯦꯂ)꯫ ꯑꯂꯤꯃꯌꯦ ꯃꯅꯥꯔꯒꯤ ꯗꯥꯌꯐ ꯍꯔꯗꯥ [TBC]꯫ ꯃꯥꯂꯗ-ꯂꯤꯂꯣꯡꯐ ꯑꯃꯁꯨꯡ ꯂꯣꯡꯗꯥꯂꯒꯤ ꯃꯥꯂꯂꯤꯃꯒꯤ ꯌꯨꯗꯥꯡꯒꯤ ꯂꯥꯡꯂꯥꯟ ꯑꯣꯏ ꯃꯥꯂꯦ 5.8.2(b) ꯃꯅꯥꯗ ꯍꯅꯗꯨꯂꯤꯌ ꯃꯗꯥꯟ ꯑꯃꯗꯒꯤ ꯏꯁꯤꯡꯏꯆꯥꯎꯗ ꯂꯩꯕ 1% AEP-ꯒꯤ ꯂꯥꯡꯂꯥꯟꯂꯤ, ꯑꯃꯁꯨꯡ 32.1 m-ꯗꯒꯤ ꯂꯥꯐꯗꯕ, ꯌꯗꯦꯂꯂꯆꯗ ꯌꯗꯒꯤ; 10% AEP-ꯒꯤ ꯃꯥꯂꯃꯤꯗꯃꯛ CWC-ꯗꯦ ꯗꯥꯂꯦꯂꯗ ꯂꯥꯡꯂꯥꯟ ꯃꯂꯆꯗꯐ ꯌꯗꯤꯐꯤ ꯆꯑꯕ 26.2 m-ꯗꯒꯤ ꯂꯥꯐꯗꯕ [TBC] (ꯃꯥꯂꯨꯔꯥꯡ ꯑꯣꯏꯗꯦ ꯇꯐꯕ)꯫ ꯂꯤꯗꯤ ꯌꯨꯗꯥꯡꯗ ꯒꯥꯂ ꯑꯃꯁꯌ ꯆꯃꯅꯤꯗꯥ [TBC]: ꯃꯑꯣꯏꯗ ꯅꯑꯣꯏꯃ ꯇꯗꯥꯃꯄ ꯏꯁꯤꯡꯏꯆꯥꯎ ꯑꯃꯂꯦ ꯏꯅꯥꯡꯐ (a)-ꯒꯤ ꯒꯥꯂ ꯂꯩꯌꯕꯒꯤ ꯊꯨꯡ ꯂꯅ, ꯑꯃꯁꯨꯡ ꯃꯑꯣꯏꯒꯤ ꯄꯨꯂꯑꯣꯏꯂꯕ ꯃꯆꯐꯒꯤ ꯃꯂꯦꯌꯌ ꯏꯅꯥꯡꯐ ꯑꯣꯏꯒꯤ ꯕꯗꯌ ꯌꯨꯗꯥꯡꯒꯤ ꯂꯥꯡꯂꯥꯟꯗꯒꯤ ꯂꯥꯐꯗꯕ꯫
  - **ꯕꯗꯌ ꯌꯐꯄꯌꯃꯤ ꯂꯌ.** ꯂꯥꯗꯤꯂ ꯑꯣꯏꯒꯤ ꯔꯦꯐꯂꯦ ꯂꯌꯄ ꯑꯥꯗꯤꯂꯦꯂꯦ ꯃꯅ ꯇꯃꯕ ꯃꯆꯐꯒꯤ ꯕꯗꯌ ꯄꯂꯥꯂꯒꯤꯗꯃꯛ ꯇꯐꯕ ꯊꯨꯡ ꯑꯣꯏ ꯃꯄꯨꯃ ꯆꯦꯦ ꯁꯔꯦ: ꯕꯗꯌ ꯌꯨꯗꯥꯡꯗ, ꯂꯁꯗꯒꯤ ꯕꯗꯌ ꯌꯨꯗꯥꯡꯗꯦ ꯕꯥꯌ-ꯑꯄ ꯌꯕ ꯃꯆꯐꯗ ꯂꯤꯗꯤ ꯌꯨꯗꯥꯡꯗ, ꯄꯂ, ꯒꯥꯁ ꯂꯁꯗꯒꯤ ꯄꯐꯄꯤꯃ ꯂꯣꯡꯥꯂ ꯑꯃꯒꯤ ꯍꯨꯁꯇꯃꯗ ꯅꯑꯣꯏꯃ ꯇꯗꯥꯃꯄ ꯏꯁꯤꯡꯏꯆꯥꯎ ꯑꯃ ꯄꯨꯃ 72-ꯒꯤ ꯂꯃ ꯁꯕꯒꯤ ꯇꯗꯥꯌ ꯄꯨꯐꯕꯗ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯃꯌꯃꯗ ꯌꯨꯗꯥꯡ ꯑꯣꯏ ꯒꯥꯁ ꯂꯤꯅꯒꯤ ꯃꯇꯥꯡ ꯂꯩꯗꯤꯕ ꯃꯡꯐ ꯄꯨꯐꯕꯗ ꯇꯤꯃꯂꯤ, ꯂꯣꯡꯂ ꯗꯥꯃꯗꯗ ꯑꯃꯁꯌ ꯑꯥꯗꯦꯂꯅꯂ ꯌꯗꯕ ꯃꯆꯐꯗ **ꯖꯨꯃꯤꯁ 7-ꯗꯒꯤ (ꯄꯨꯃ 168) ꯍꯦꯇꯗꯂꯦ**, ꯑꯃꯁꯨꯡ ꯕꯗꯌ ꯌꯨꯗꯥꯡꯗꯦ ꯕꯥꯌ-ꯑꯄ ꯌꯗꯕ ꯍꯥꯂꯦ ꯑꯄꯤꯌꯄ ꯅꯃ ꯑꯃꯗ **ꯄꯨꯃ 72-ꯗꯒꯤ ꯍꯦꯇꯗꯂꯦ**; ꯅꯑꯣꯏꯃ ꯂꯕ ꯂꯣꯡꯗꯂ ꯑꯣꯏ ꯃꯑꯣꯏꯒꯤ ꯏꯁꯤꯡꯂꯁ ꯆꯑꯕ ꯃꯄꯨꯂꯦ ꯍꯅ (ꯏꯅꯥꯡꯐ (e)); ꯑꯃꯁꯨꯡ ꯇꯐꯂꯤꯂꯅꯤꯕ ꯒꯨꯂꯐ ꯑꯣꯏ ꯒꯥꯁ ꯍꯂꯤꯌꯂ ꯇꯤꯃꯂꯒꯤ **ꯄꯨꯃ 48**-ꯒꯤ ꯃꯂꯨꯃꯗ ꯄꯐꯄ ꯌꯗꯨꯂꯦ ꯍꯦꯇꯍꯅꯂꯤ (ꯃꯥꯂꯨꯔꯥꯡ ꯑꯣꯏꯗꯦ ꯇꯐꯕ)꯫ ꯁꯌꯕꯥꯃꯗꯦꯗ ꯑꯃꯁꯨꯡ ꯃꯅ ꯇꯃꯕ ꯃꯆꯐꯗ ꯂꯩꯕ ꯂꯈꯤꯄꯨꯔ (Lakhipur) ꯕꯗꯌ ꯌꯨꯗꯥꯡꯗꯦ ꯃꯅꯥꯔꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯁꯔꯃꯕ ꯂꯥꯡꯂꯥꯟꯑꯣꯏꯃ ꯖꯨꯃꯤꯁ ꯑꯃꯅꯌꯌꯗ, 31 ꯖꯨꯂꯥꯏ 1989-ꯗ ꯔꯅꯤ (ꯄꯦꯗ ꯆꯃꯗꯌꯁꯤꯕ ꯃꯌꯃ ꯅꯂꯦꯂ), ꯃꯗꯐ ꯑꯗꯨꯂꯦ ꯅꯑꯣꯏꯃ ꯅꯁꯦ ꯑꯃꯅꯌꯌꯂꯦ ꯊꯃꯅꯤꯒꯤ ꯃꯦꯅꯃꯤ ꯑꯂꯤꯃꯌꯌ ꯃꯦꯂꯂꯂꯦ ꯍꯁꯂꯤ꯫
  - **ꯂꯤꯗꯤꯕꯐꯒꯤ ꯃꯅꯥꯗ.** ꯂꯈꯤꯄꯨꯔ (HFL 26.96 m, 31 ꯖꯨꯂꯥꯏ 1989) ꯑꯃꯁꯨꯡ ꯐꯨꯂꯦꯔꯇꯂ (Fulertal) (26.39 m, 21 ꯖꯨꯂꯥꯏ 2004) (ꯄꯦꯗ ꯆꯃꯗꯌꯁꯤꯕ ꯃꯌꯃ ꯅꯂꯦꯂ) ꯒꯥꯂꯑꯣꯏꯃ ꯂꯩꯕ ꯃꯅ ꯇꯃꯕ ꯃꯆꯐꯒꯤ ꯕꯗꯌ ꯄꯂꯥꯂ ꯑꯣꯏ ꯃꯥꯂꯨꯔꯥꯡ ꯑꯣꯏꯒꯤ ꯃꯄꯦꯂꯗ ꯂꯩ: ꯗꯤꯁꯑꯣꯏꯃ ꯑꯗꯨꯗ ꯑꯣꯂꯐꯒꯤ ꯑꯥꯗꯤꯂꯦꯂꯦ ꯁꯔꯂꯒꯂꯤ꯫

- (h) **ꯑꯁꯦꯕꯑꯣꯏꯃ ꯑꯃꯁꯨꯡ ꯂꯦꯅꯂꯑꯣꯏꯃ.**
  - **WRD ꯑꯃꯁꯨꯡ ꯄꯂꯑꯣꯏꯃ.** WRD-ꯒꯤ ꯌꯨꯗꯥꯡꯒꯤ ꯄꯂ, ꯅꯑꯣꯏꯃ ꯅꯁꯦꯒꯤ ꯁꯥꯂꯥꯡ ꯂꯁꯗꯒꯤ ꯄꯐꯄꯂꯦ ꯇꯗꯥꯃꯄ ꯏꯁꯤꯡꯏꯆꯥꯎ ꯑꯃꯕ, ꯇꯕꯌꯑꯣꯏꯃ ꯑꯗꯨꯒꯤ ꯃꯄꯨ ꯑꯅꯂꯦ WRD-ꯒꯤ ꯅꯗꯕ ꯑꯁꯦꯕ ꯂꯩꯌꯂꯦ, ꯏꯁꯤꯡꯏꯆꯥꯎꯒꯤ ꯂꯣꯡꯗꯌꯁꯗ, ꯒꯁ, ꯄꯐꯄꯤꯃ ꯂꯣꯡꯥꯂ ꯂꯁꯗꯒꯤ ꯅꯥꯃꯕꯦ ꯑꯃꯁꯌꯂꯦ ꯃꯌꯂꯅꯗꯕꯂꯤ, ꯂꯦꯇꯌꯂꯅꯗꯕꯂꯤ, ꯍꯃꯗꯌꯂꯅꯗꯕꯂꯤ ꯂꯁꯗꯒꯤ ꯃꯑꯣꯏꯒꯤ ꯍꯨꯁꯇꯃꯗ ꯅꯑꯣꯏꯃ ꯇꯗꯥꯌꯂꯅꯗꯕꯂꯤ; ꯗꯤꯂꯗꯁꯃꯤ ꯃꯌꯐꯗ ꯄꯂꯑꯣꯏꯃꯒꯤ ꯃꯌꯃꯗ ꯃꯂꯤꯄꯨꯗꯒꯤ ꯏꯅꯂ ꯑꯃꯁꯌ, ꯑꯃꯁꯨꯡ ꯑꯁꯦꯕ ꯑꯣꯏꯒꯤꯗꯃꯛ ꯅꯗꯕ ꯄꯗꯑꯣꯏꯂꯗ ꯂꯁꯗꯒꯤ ꯆꯗꯐ ꯑꯃꯁꯌ ꯆꯃꯅꯤꯗꯥ [TBC]꯫ ꯑꯌꯄꯄ ꯕꯗꯤ ꯑꯃꯒꯤ ꯅꯥꯃꯕꯦ ꯑꯃꯗ ꯕꯗꯤ ꯑꯗꯨꯒꯤ ꯅꯗꯕ ꯑꯁꯦꯕ ꯂꯩꯌꯂꯦ ꯂꯃꯒꯤ ꯅꯑꯣꯏꯃ ꯇꯗꯥꯌꯂꯅꯗꯕꯂꯤ: IMC ꯂꯁꯗꯒꯤ ꯑꯌꯄꯄ ꯍꯗꯕꯂ ꯂꯃꯅ ꯕꯗꯤ ꯑꯃꯒꯤ ꯃꯁꯨꯂꯤꯑꯣꯏꯄꯥꯅ ꯅꯥꯃꯕꯦ, ꯃꯗꯥꯟ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯄꯨꯗ ꯃꯁꯨꯂꯤꯑꯣꯏꯄꯥꯂꯤꯌꯤꯂ ꯑꯥꯌꯁ, 1994-ꯒꯤ (Manipur Municipalities Act, 1994) ꯃꯌꯃ ꯅꯂꯦꯂ ꯂꯥꯐꯕ ꯃꯑꯣꯏꯒꯤ ꯕꯅ-ꯂꯒꯤ ꯃꯅꯥꯗ, ꯃꯅꯥꯔꯒꯤ ꯅꯗꯐꯒꯤ ꯂꯥꯌꯂꯦꯑꯣꯏꯃ ꯄꯅꯤꯗꯥ [TBC]; PWD ꯂꯁꯗꯒꯤ ꯂꯥꯂꯂꯥꯟ ꯍꯅꯁꯥ ꯑꯥꯂꯥꯂꯑꯣꯏ

ꯑꯃꯁꯤꯡ ꯆꯐꯣꯃꯤꯡꯒꯤ ꯍꯥꯋꯣꯖꯦꯜ ꯍꯌꯕꯗꯤ ꯃꯅꯒꯔꯗꯌ; ꯍꯐꯣꯛꯅ ꯁꯨꯗꯪꯅꯗ ꯆꯩꯕ ꯅꯦꯁꯗꯂꯪꯇꯂꯦ ꯊꯣꯋꯥꯂꯤꯡ, DoECC-ꯒꯤ; ꯑꯃꯁꯨꯡ ꯂꯥꯗꯒꯤ ꯌꯪꯍꯪꯅ, ꯅꯂꯤꯡ ꯅꯌꯦꯖꯒꯤ ꯌꯪꯍꯪꯅ ꯍꯌꯕꯗꯤ ꯆꯐꯖꯪꯅꯇꯦꯌ, WRD-ꯒꯤ (ꯂꯃꯥꯏ 6, ꯄꯥꯔꯥ 6.9) (ꯃꯪꯁꯨꯌꯪꯅ ꯑꯂꯤꯕꯦ ꯊꯐꯕ)꯫ ꯑꯌꯦꯕ ꯇꯤꯗꯥꯕ ꯃꯖꯐꯗ, ꯗꯤꯂꯌꯗꯆ ꯑꯂꯤ ꯑꯌꯦꯕ ꯑꯗꯨꯕꯦ ꯇꯤꯕ ꯗꯪꯌꯁꯒꯤ ꯄꯪꯑꯗꯥꯅꯗꯕꯍꯤ; ꯁꯪꯅꯌꯦꯁꯗ ꯑꯂꯤ ꯌꯪꯍꯪꯅ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯕꯦ ꯅꯗꯕꯗ ꯄꯌꯗꯤꯕ ꯃꯂꯤꯒꯤ ꯗꯤꯆꯅꯑꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯆꯪꯒꯪꯅ ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 5.8.4-ꯒꯤ ꯇꯨꯑꯦ ꯊꯥꯋꯥꯇ ꯄꯪꯂꯁ ꯃꯂꯤꯒꯤ ꯆꯪꯒꯪꯅ ꯑꯍꯤꯒꯤ ꯃꯨꯡꯗ ꯄꯪꯑꯦ ꯌꯦꯡꯕ ꯑꯗꯨꯍꯤ, ꯃꯂꯤꯕꯦ ꯆꯥꯗꯤꯕ ꯍꯥꯋꯒꯤ ꯅꯂꯤꯡ ꯇꯨꯐꯍꯃꯋꯁꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯃꯅꯥ ꯊꯡꯕ ꯃꯖꯐꯒꯤ ꯕꯥꯑꯗꯗꯤ ꯑꯂꯤ ꯑꯅꯁꯪꯐ (a)-ꯗꯒꯤ (g) ꯖꯑꯥꯕꯒꯤ ꯆꯪꯒꯪꯅꯗ ꯊꯐꯗꯨꯦ ꯄꯪꯆꯄꯨꯆꯪꯌ ꯁꯥꯗꯒꯤ; ꯌꯪꯍꯪꯅ ꯑꯂꯤ ꯃꯂꯤꯒꯤ ꯄꯥꯆꯤꯋꯄꯤ ꯖꯤꯒꯐꯗ, ꯆꯩꯃꯨ, ꯆꯐ ꯍꯥꯇꯂꯇ, ꯂꯥꯆꯤꯗ ꯌꯪꯂꯌ ꯑꯃꯁꯨꯡ ꯁꯃꯨ ꯆꯥꯊꯥꯋꯆꯒꯤ ꯆꯥꯒꯗꯕꯍꯤ, ꯑꯃꯁꯨꯡ ꯇꯗꯥꯇꯥꯆ ꯁꯥꯗꯕ ꯑꯗꯨꯕꯨ ꯆꯥꯅꯂꯤꯍꯗꯗꯤꯕ ꯇꯥꯋꯊꯥꯋ ꯌꯁꯊꯥꯄꯄꯍꯕ, ꯗꯤꯂꯪꯋꯂꯍꯤꯡ ꯍꯌꯕꯗꯤ ꯗꯅꯒꯗꯂꯦ ꯑꯃꯦ ꯊꯤꯗꯥꯅꯗꯕꯍꯤ; ꯑꯃꯁꯨꯡ ꯗꯤꯆꯅꯑꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯆꯪꯒꯪꯅ ꯍꯌꯕꯗꯤ ꯄꯪꯆꯄꯨꯆꯪꯌ ꯁꯥꯗꯕ ꯆꯪꯒꯪꯅ ꯑꯂꯤ ꯑꯁꯌꯖꯥꯅ ꯅꯑꯒꯗꯌꯄꯤ ꯃꯊꯋꯁ ꯆꯩꯕ ꯃꯖꯐꯗ ꯑꯁꯌꯖꯥꯅꯗ ꯖꯆꯪꯇ ꯒꯪꯌ ꯑꯃꯦ (ꯄꯥꯔꯥ 5.11) ꯆꯩꯒꯗꯕꯍꯤ꯫

- **ꯆꯥꯋꯁꯋ.** ꯃꯍꯤꯇꯨꯗ ꯆꯥꯋꯁꯋ ꯆꯪꯋ (ꯇꯗꯥꯁꯪꯋꯂꯦ) ꯑꯪꯋꯌ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯨꯡꯗ (ꯄꯩꯕꯨꯅ ꯆꯐꯆꯌꯦ ꯍꯪꯂꯍꯪꯅ ꯇꯦꯗꯋ, 40 km², ꯑꯃꯁꯨꯡ ꯁꯋꯃꯨ ꯖꯤꯂꯗꯤ ꯖꯗꯐ, 5 km², ꯃꯂꯤꯒꯤ ꯃꯇꯦꯑꯗ ꯆꯩ), 70.30 km²-ꯒꯤ ꯄꯥꯗ ꯆꯥꯑꯗ, "ꯗꯪꯒꯪꯆꯇꯃꯪꯑꯌ ꯆꯩꯁꯕ ꯆꯥꯑ ꯍꯌꯕꯗꯤ ꯃꯇꯨꯡ ꯖꯦꯦ ꯊꯋꯊꯥꯄꯇ ꯆꯥꯑ" ("No-Development Zone or Totally Protected Zone") ꯑꯃꯗ, "ꯑꯥꯊꯥꯗꯤꯁꯤꯒꯤ ꯃꯃꯤꯡꯒꯤ ꯑꯌꯦꯕꯒꯤ ꯆꯥꯌꯍꯦꯦ ꯍꯌꯁꯦ" ("except with the prior permission of the authority") ꯄꯦꯒꯨꯐꯕ ꯑꯃꯌꯁꯦ "ꯇꯦꯌꯁ ꯂꯤꯌꯪꯆ ꯍꯌꯕꯗꯤ ꯌꯨꯐꯒꯤ ꯑꯃꯥꯌꯇ ꯊꯗꯥꯋꯆꯥꯅꯗꯕꯍꯤ ꯍꯌꯕꯗꯤ ꯊꯥꯋꯄꯑꯦꯆꯥꯅꯗꯕꯍꯤ" ("discharge or emit any sewage or domestic waste into the lake") (ss.3 ꯑꯃꯁꯨꯡ 20); ꯕꯖꯗ ꯆꯥꯑꯗ ꯑꯪꯋꯌ ꯑꯂꯤꯕꯦ "ꯅꯑꯗꯂꯁꯗꯤ, ꯂꯄꯗ ꯍꯌꯕꯗꯤ ꯁꯥꯌꯑꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯁꯥꯇꯇ ꯃꯤꯑꯥꯅꯕꯒꯤ ꯆꯩꯖꯐꯂꯤꯡꯗꯒꯤ ꯁꯗꯤꯌ ꯁꯩꯗꯕ ꯌꯪꯂꯌ ꯑꯃꯁꯨꯡ ꯅꯖꯆꯨꯌꯪꯑꯌꯂꯤꯡ ꯊꯗꯥꯄꯇ" ("Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements") ꯑꯃꯁꯨꯡ "ꯆꯐ ꯗꯤꯋꯆꯪꯃꯪꯂꯦ, ꯇꯦ ꯂꯦꯕ ꯍꯌꯕꯗꯤ ꯅꯗꯐꯂꯤꯡꯒꯤ ꯃꯄꯩꯂꯦꯒꯤ ꯆꯐꯕꯤ ꯂꯥꯋꯄꯑꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯊꯤꯡꯆꯤ (s.19(iv) ꯑꯃꯁꯨꯡ (vi))꯫ ꯃꯗꯐ ꯑꯗꯨꯦ ꯇꯦꯌꯄꯤ ꯆꯐꯒꯤ ꯃꯨꯡꯗ ꯑꯁꯌꯖꯥꯅ, ꯍꯥꯡꯕꯦꯑ ꯍꯌꯕꯗꯤ ꯇꯑ ꯑꯃꯒꯤꯗꯃꯋ LDA-ꯒꯤ ꯃꯃꯤꯡꯒꯤ ꯑꯌꯦꯕ ꯃꯊꯩ ꯁꯦꯅ, ꯑꯃꯁꯨꯡ 17 ꯌꯨꯆꯦꯅ 2019 ꯑꯃꯁꯨꯡ 25 ꯖꯪꯕꯨꯌꯦꯗꯤ 2022-ꯒꯤ ꯄꯅ ꯄꯥꯗꯌꯄꯤ ꯂꯇꯪꯂꯤꯌꯪꯅ ꯕꯪꯑꯌꯄꯤ ꯑꯥꯗꯗꯗꯂꯤꯡ, "ꯄꯥꯗꯌꯄꯤ ꯑꯌꯦꯕ ꯆꯩꯁꯦ" ("without the Court's leave") ꯆꯥꯋꯁꯋꯁ ꯍꯌꯕꯗꯤ ꯃꯂꯤꯒꯤ ꯑꯄꯥꯌꯕꯗ ꯗꯪꯒꯪꯆꯇꯃꯪꯑꯌ ꯁꯩꯕꯒꯤ ꯃꯌꯥꯋꯁ (ꯇꯦꯌꯗ ꯖꯥꯡꯗꯥꯋꯍꯤꯕ ꯃꯁꯨꯡ ꯅꯑꯆ; ꯄꯪꯂ ꯆꯐꯕꯗ ꯖꯡꯍꯤꯗꯪ [TBC]), ꯂꯦꯅꯌ ꯑꯗꯨꯒꯤꯗꯃꯋ ꯌꯪꯋ ꯁꯩꯒꯗꯕꯍꯤ꯫ ꯑꯪꯋꯌ ꯑꯂꯤ ꯃꯂꯤꯒꯤ 236.21 km²-ꯒꯤ ꯃꯊꯋ ꯊꯡꯕ ꯃꯖꯐꯗ ꯌꯩꯗꯪ꯫
- **ꯅꯂꯤꯡ ꯅꯌꯦꯖꯒꯤ ꯆꯥꯑꯂꯤꯡ.** ꯃꯥꯗꯪꯅꯒꯤ ꯕꯅ-ꯆꯥ 93-ꯦ [TBC: ꯆꯥꯄꯅ ꯕꯥꯗꯤꯦ ꯍꯥꯁꯤꯖꯅ ꯁꯩꯗꯕ ꯕꯅ-ꯆꯥꯆꯁ ꯍꯐꯕꯗ ꯑꯃꯁꯨꯡ ꯁꯪꯋꯂꯁ ꯄꯑꯖꯗꯐ ꯁꯩꯒꯗꯕ] ꯊꯤꯡꯆꯕ ꯍꯌꯕꯗꯤ ꯊꯤꯡꯆꯤꯅꯆꯕ ꯑꯪꯗꯤꯌꯦ ꯑꯃꯗ ꯊꯕꯋ ꯑꯃꯌꯁꯒꯤꯗꯃꯋ "ꯖꯆꯗ ꯇꯆꯪꯑ ꯆꯥꯍꯤꯡ ꯑꯪꯋꯌ, 1978 ꯃꯅꯦꯗ ꯂꯪꯐꯍꯤꯕ ꯖꯆꯗ ꯆꯥꯍꯤꯡ ꯑꯥꯊꯥꯗꯤꯁꯤꯒꯤ ꯃꯃꯤꯡꯒꯤ ꯇꯦꯗꯃꯤꯂꯦ" ("the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978") ꯃꯊꯩ ꯁꯦꯅ꯫ ꯖꯆꯗ ꯆꯥꯍꯤꯡ ꯑꯥꯊꯥꯗꯤꯁꯤ ꯑꯃꯌꯁꯦ, ꯑꯃꯁꯨꯡ ꯊꯤꯡꯆꯕ ꯍꯌꯕꯗꯤ ꯊꯤꯡꯆꯤꯅꯆꯕ ꯑꯪꯗꯤꯌꯦ ꯑꯃꯌꯁꯦ ꯂꯪꯐꯕ ꯍꯌꯕꯗꯤ ꯍꯥꯁꯤꯖꯅ ꯁꯩꯕ ꯖꯡꯍꯤꯗꯪ (NEER-ꯒꯤ ꯇꯦꯕ), ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡ ꯅꯌꯦꯖꯒꯤ ꯆꯥꯑꯂꯤꯡ ꯊꯃꯍꯩ ꯊꯕ ꯑꯂꯤ "ꯄꯆꯤꯋ ꯖꯑꯥꯕ ꯁꯩꯗꯗꯤ" ("is yet to be done") (ꯇꯦꯌꯗ ꯖꯥꯡꯗꯥꯋꯍꯤꯕ ꯃꯁꯨꯡ ꯅꯑꯆ, ꯌꯨꯑ 2026), ꯃꯗꯐ ꯑꯗꯨꯦ ꯇꯦꯗꯃꯤꯂꯦ ꯑꯂꯤ ꯆꯥꯑ ꯑꯃꯦ ꯍꯥꯁꯤꯖꯅ ꯁꯩꯗꯕ ꯃꯖꯐꯗ ꯍꯋꯁ ꯃꯊꯩ ꯁꯦꯅ, ꯑꯃꯁꯨꯡ ꯑꯃꯌꯁꯦ ꯍꯥꯁꯤꯖꯅ ꯁꯩꯗꯃꯗꯪ꯫ ꯄꯥꯔꯥ ꯑꯂꯤꯒꯤ 1% AEP-ꯒꯤ ꯆꯪꯒꯪꯅꯂꯤꯡ ꯑꯂꯤ ꯁꯨꯡꯗ ꯁꯩꯒꯗꯕ ꯆꯥꯍꯤꯡ ꯑꯃꯌꯁꯒꯤꯗꯃꯋ ꯅꯑꯇꯨꯌ ꯑꯃꯦ ꯑꯥꯅꯦ ꯇꯤꯗꯤ, ꯆꯥꯑ ꯑꯃꯦ ꯑꯥꯅꯦ ꯍꯌꯁꯪ꯫
- **ꯌꯌꯆꯤꯕ ꯆꯅꯑꯂꯤꯡ.** ꯗꯤꯆꯅꯍꯗꯦ ꯑꯁꯌꯖꯥꯅ ꯁꯗꯤꯡꯃꯋ ꯗꯤꯆꯅꯑ ꯁꯩꯕꯒꯤ ꯃꯁꯐꯗ ꯌꯌꯆꯤꯕ ꯆꯅꯑꯂꯤꯡꯒꯤ ꯌꯪꯋ ꯁꯩꯒꯗꯕꯍꯤ (ꯂꯃꯥꯏ 7): ꯕꯅ-ꯆꯥ 93-ꯒꯤ ꯁꯨꯗꯪꯅꯒꯤ ꯁꯪꯕꯅꯒꯤ ꯕꯖꯗꯂꯤꯡ, ꯇꯑ ꯆꯩꯕ ꯁꯨꯗꯪꯅꯂꯤꯡꯗ ꯃꯤꯗ-ꯂꯁꯗꯤꯐꯗꯒꯤ "ꯍꯌꯕꯗꯤ ꯇꯑꯒꯤ ꯃꯇꯦꯑꯊꯡꯒꯤ ꯁꯗꯒꯤ 6 m, ꯃꯤꯗ-ꯂꯁꯗꯤꯐꯗꯒꯤ ꯄꯪꯑꯦ ꯆꯦꯇꯂꯇ ꯑꯗꯨ" ("or 6 m from outer toe of bund, whichever is further from mid-stream") ꯆꯪꯇꯂꯇ, ꯑꯃꯁꯨꯡ ꯃꯪꯗꯤꯍꯥꯡ, ꯄꯥꯡꯕ ꯁꯨꯗꯪꯅ ꯑꯃꯁꯨꯡ ꯍꯐꯕꯥꯅ ꯁꯨꯗꯪꯅꯗ ꯃꯤꯗ-ꯂꯁꯗꯤꯐꯗꯒꯤ ꯍꯋꯁ ꯆꯪꯇꯂꯇ; ꯄꯥꯔꯥ 7.4-ꯒꯤ ꯄꯥꯗꯤꯗꯥꯗ (corridor); ꯑꯃꯁꯨꯡ ꯕꯅ-ꯆꯥ 94-ꯒꯤ ꯇꯆꯤꯑꯊ [TBC: ꯆꯥꯄꯅ ꯕꯥꯗꯤꯦ ꯍꯥꯁꯤꯖꯅ ꯁꯩꯗꯕ ꯕꯅ-ꯆꯥꯆꯁ ꯍꯐꯕꯗ ꯑꯃꯁꯨꯡ ꯁꯪꯋꯂꯁ ꯄꯑꯖꯗꯐ ꯁꯩꯒꯗꯕ], "ꯁꯦꯌꯑꯂꯤꯡꯒꯤ ꯃꯂꯁꯗ ꯇꯆꯦꯑꯗ ꯍꯥꯡꯗꯥꯋꯆꯕ ꯅꯂꯤꯡ ꯅꯌꯦꯖꯒꯤ ꯑꯄꯤꯕ ꯌꯦꯡꯕ ꯃꯖꯐꯂꯤꯡꯗ" ("high Flood Risk Areas identified in the Master Plan of the towns") "ꯑꯄꯥꯑꯕꯒꯤ ꯃꯖꯐꯂꯤꯡꯒꯤ ꯄꯅꯌꯪꯂꯌ ꯖꯆꯗ ꯆꯪꯒꯪꯅꯗꯒꯤ 1m ꯄꯪꯑꯦ ꯌꯦꯡꯦ" ("above 1m above the highest flood level of the surrounding areas")꯫ ꯃꯖꯐ ꯑꯗꯨꯂꯤꯡ ꯌꯌꯄꯗꯕ ꯗꯤꯂꯋ ꯅꯑꯖꯥꯗꯐꯗ ꯃꯂꯁꯗ ꯇꯆꯦꯑꯂꯤꯡ ꯑꯗꯨ ꯇꯦꯍꯤꯗꯪ [TBC] ꯑꯃꯁꯨꯡ ꯁꯦꯌꯑ ꯑꯃꯌꯁꯒꯤꯗꯃꯋ ꯆꯥꯄꯅ ꯑꯥꯊꯥꯗꯤꯁꯤ ꯑꯃꯒꯤ ꯄꯅꯌꯪꯂꯌ ꯖꯆꯗ ꯆꯪꯒꯪꯅ ꯑꯃꯌꯁꯦ ꯖꯡꯍꯤꯗꯪ [TBC], ꯑꯗꯨꯒꯤ ꯂꯪꯇꯁꯪꯐꯕꯗ 2025-ꯒꯤ

ꯄꯤꯔꯤꯕꯁꯤꯡꯗꯥ ꯆꯤꯡꯆꯥꯡ ꯑꯃꯁꯨꯡ ꯅꯛꯅꯕ ꯃꯐꯝꯒꯤ ꯌꯥꯑꯣꯕ HFL-ꯁꯤꯡ ꯆꯦꯛꯇꯥꯕꯅꯤ (ꯃꯇꯨꯡ ꯏꯡꯕꯥꯏꯕ ꯍꯟꯕ ꯅꯠꯇꯦ), ꯍꯥꯌꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ ꯑꯁꯤꯒꯤ 1% AEP-ꯒꯤ ꯆꯣꯡꯒꯣꯟ, ꯑꯦꯅꯦꯛꯁ (a)-ꯒꯤ ꯃꯣꯗꯦꯜꯒꯤ ꯆꯣꯡꯒꯣꯟꯁꯤꯡꯒꯤ ꯀꯣꯝꯕꯤꯅꯦꯁꯟ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 6.11-ꯒꯤ ꯈꯤꯡꯂꯦꯡ ꯆꯣꯡꯒꯣꯟꯁꯤꯡꯗꯥ ꯍꯟꯊꯔꯛꯇꯨꯅꯥ ꯐꯣꯡꯗꯣꯛꯇꯨꯅꯥ ꯍꯥꯌꯕ ꯃꯈꯣꯏꯗꯤ ꯌꯥꯕꯥ ꯃꯑꯣꯡꯅꯥ ꯌꯥꯑꯣꯏ।

- **ꯂꯧꯕꯨꯛ ꯑꯃꯁꯨꯡ ꯁꯥꯡꯂꯦꯡꯁꯤꯡ.** ꯂꯝꯄꯥꯛꯀꯤ ꯂꯧꯕꯨꯛ (paddy land) ꯑꯃꯁꯨꯡ ꯁꯥꯡꯂꯦꯡ (wetland) ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ ꯑꯦꯛꯁꯄꯣꯖꯔ, ꯍꯥꯌꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯕꯥꯛ ꯑꯁꯤꯗꯥ ꯍꯥꯟꯅ ꯃꯇꯦꯡ ꯄꯥꯡꯕ ꯌꯥꯕ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯦꯛꯇ ꯃꯇꯝ ꯆꯠꯅ ꯑꯃꯁꯨꯡ ꯁꯥꯡꯂꯦꯡ ꯑꯦꯛꯇ, 2014-ꯗꯥ (Manipur Conservation of Paddy Land and Wetland Act, 2014) "ꯏꯁꯤꯡ ꯆꯦꯟꯊꯣꯛꯅꯕ ꯆꯦꯟꯕꯁꯤꯡ, ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯀꯦꯅꯥꯂꯁꯤꯡ, ꯕꯥꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯂꯁꯤꯡ" ("drainage channels, ponds, canals, bunds and ridges") ꯑꯁꯤ ꯂꯧꯕꯨꯛꯀꯤ ꯁꯔꯨꯛ ꯑꯣꯏꯅꯗꯥ ꯍꯥꯏꯔꯤ (s.2(c)): ꯃꯐꯝꯗꯨꯒꯤ ꯑꯁꯤꯒꯤꯃꯈꯥꯗ ꯂꯣꯝꯕ, ꯃꯤꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕ ꯆꯣꯡꯒꯣꯟ ꯃꯍꯤꯡꯁꯤꯡꯒꯤ ꯑꯣꯏꯅꯕꯥ ꯍꯥꯏꯕ ꯌꯥꯕ, ꯑꯃꯁꯨꯡ "ꯑꯦꯛꯇ ꯑꯁꯤꯒꯤ ꯍꯀꯊꯦꯡꯅꯕ ꯃꯐꯝꯗꯨꯒꯤ ꯌꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯄꯤꯕꯥꯍꯟꯕ ꯌꯥꯑꯣꯕ ꯂꯧꯕꯨꯛ ꯑꯁꯤꯅ ꯍꯥꯛꯇꯪ ꯑꯃꯁꯨꯡ ꯃꯐꯝꯁꯦꯝꯕꯒꯤ ꯑꯁꯤꯡꯒꯤꯃꯈꯥꯗ ꯂꯣꯝꯕ ꯑꯣꯏꯕꯥꯡ ꯑꯁꯤꯡꯒꯤꯗꯥ ꯆꯦꯅꯁꯦꯟ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯛꯄꯥ ꯑꯁꯤꯡꯒꯤ ꯄꯤꯕꯥꯍꯟꯕꯔꯤ" ("no local authority shall grant any licence or permit … for carrying out any activity or construction in a paddy land, converted or reclaimed in contravention") (s.12)। (ꯍꯥꯌꯔꯕ ꯑꯦꯛꯇꯁꯤꯡꯒꯤ) ꯕꯤꯜ, 2026 ꯑꯁꯤ ꯕꯤꯜ ꯑꯃꯁꯨꯡ, ꯑꯦꯅꯤ ꯑꯣꯏꯅ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ ꯑꯁꯤꯗꯥ ꯃꯁꯤ ꯁꯤꯖꯤꯟꯅꯔꯤ। ꯄꯣꯠꯁꯤꯡꯒꯤ ꯃꯔꯝꯗ, ꯌꯥꯕꯤꯜ, ꯁꯔꯨꯛ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯕ–ꯈꯨꯗꯤꯡꯃꯛ ꯄꯣꯠꯁꯤꯡꯗ ꯁꯦꯝꯒꯠꯄꯗ (ꯃꯇꯝ ꯆꯠꯅ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ) ꯁꯔꯨꯛ, 2017-ꯒꯤ ꯃꯅꯥ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯁꯤꯡ ꯆꯥ (DoECC, 2025-26); ꯃꯍꯥꯛ ꯈꯟꯅꯕ ꯑꯍꯥꯅꯕ ꯈꯦꯛꯇꯕ, ꯁꯔꯨꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯁꯦꯝꯕꯥ (NEER-ꯒꯤ ꯄꯣꯠ), ꯑꯃꯁꯨꯡ ꯗꯤꯆꯥꯟꯅꯥꯗꯥ ꯃꯍꯥꯛꯀꯤ ꯂꯣꯝꯕꯥ ꯑꯁꯤ ꯃꯇꯤꯡ ꯂꯣꯝꯕ ꯁꯥꯡꯂꯦꯡꯁꯤꯡ ꯑꯍꯥꯅꯕꯒꯤ ꯁꯦꯝ ꯂꯧꯗꯕꯔꯤ।

ꯏꯄꯨꯗ ꯃꯂꯦꯝ ꯄꯣꯠꯕ ꯄꯨꯝꯅꯃꯛ, ꯀꯦꯁ, ꯕꯦꯄꯥꯆ ꯑꯣꯏꯅꯕ ꯗꯦꯝ ꯑꯍꯤꯡꯕꯥꯡ ꯑꯃꯁꯨꯡ, ꯁꯗꯨꯝ ꯑꯍꯥꯅꯕ ꯑꯣꯏ ꯁꯕꯒꯤ ꯍꯥꯗꯣꯛꯄ ꯃꯃꯤꯡꯗ ꯍꯥꯌꯕꯗꯤ, ꯄꯣꯠ ꯑꯣꯏꯅꯕ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯂꯧꯊꯣꯛꯅꯕ, ꯀꯦꯁ ꯑꯃꯁꯨꯡ ꯍꯣꯡꯗꯣꯛꯄ ꯍꯥꯌꯕ, ꯁꯤꯡꯅꯕ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯂꯦꯝꯗ ꯆꯕ ꯆꯥꯗꯒꯤ ꯌꯥꯗꯕ ꯆꯤꯡꯁꯥꯗ ꯀꯦꯁ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗꯅꯥ, ꯑꯣꯏꯅꯕ ꯏꯄꯨꯗ ꯕꯦꯄꯥꯆ ꯑꯣꯏꯅꯕ ꯗꯦꯝ ꯑꯃꯁꯤꯒꯤ ꯀꯦꯁꯁꯤꯡ ꯑꯃꯁꯨꯡꯗ ꯁꯣꯏꯗꯅꯥ, ꯑꯍꯥꯅꯕꯒꯤ ꯏꯄꯨꯕ ꯄꯥꯡꯊꯣꯛꯄꯁꯤꯡꯗ ꯁꯔꯨꯛꯄꯨꯕꯗ ꯆꯦꯅꯕꯗꯔꯤ। ꯑꯦꯛꯁꯄꯣꯖꯔ ꯏꯊꯤꯜꯂꯣꯏ ꯑꯁꯤ ꯇꯦꯕꯜ ꯑꯁꯤꯒꯤ ꯌꯥꯝꯅꯥꯌꯥꯗꯕꯒꯤ ꯀꯣꯡꯕ ꯃꯈꯥꯗ, ꯑꯦꯛꯁꯄꯣꯖꯔ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯈꯨꯗꯣꯡ ꯀꯦꯁ (ꯇꯦꯕꯜ 5.11) ꯆꯥꯎꯗꯔꯤ ꯑꯃꯁꯨꯡ, ꯑꯦꯛꯁꯄꯣꯖꯔ ꯍꯤꯡꯕ ꯁꯦꯝꯗ ꯃꯍꯥꯛ ꯌꯥꯑꯣꯕ ꯃꯈꯥꯗ, ꯄꯨꯝꯅꯃꯛ ꯌꯥꯕ (ꯇꯦꯕꯜ 5.12) ꯆꯥꯎꯗꯔꯤ, ꯄꯨꯝꯅꯃꯛ ꯌꯥꯑꯣꯕ ꯒꯦꯂꯃ ꯑꯁꯤ ꯍꯥꯌꯕꯗꯤ, ꯄꯣꯠ ꯑꯣꯏꯅꯕ ꯁꯔꯨꯛꯀꯤ ꯄꯥꯡꯗꯕꯁꯤꯡ ꯌꯥꯑꯣꯕꯗꯨꯗ (ꯇꯦꯕꯜ 5.12.3)। ꯄꯣꯠ, ꯄꯨꯈ꯭ꯔꯤ ꯑꯣꯏꯅꯕ ꯑꯍꯥꯅꯕ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯁꯦꯝꯒꯠꯄꯗ ꯃꯁꯤꯒꯤ ꯊꯧꯗꯥꯡ ꯃꯤꯒꯤ (custodian) ꯑꯁꯨꯕ ꯆꯥꯎꯕ ꯄꯨꯝꯅꯃꯛ ꯌꯥꯕ ꯁꯤꯖꯤꯟꯅꯗꯕꯔꯤ।

> **ꯂꯦꯞꯄꯥ ꯌꯥꯄꯥ.** ꯑꯍꯥꯕ ꯃꯦꯌꯥꯔꯤꯂꯣꯖꯤꯒꯤ ꯕꯣꯁꯤꯡꯁꯤꯡꯗ, ꯂꯩꯕꯥꯛꯀꯤ ꯂꯥꯏ ꯁꯕꯒꯤ ꯍꯥꯗꯣꯛ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛꯀꯤ ꯏꯁꯤꯡ ꯏꯆꯦꯜ ꯑꯁꯤ ꯁꯦꯃꯗ ꯃꯌꯥꯝꯅ ꯃꯄꯥꯡ ꯑꯍꯥꯅꯕ ꯃꯄꯤ ꯆꯥꯎꯅꯕ (independent) ꯑꯍꯥꯅꯕ ꯆꯥꯏ। ꯃꯁꯤ FHWA HEC-22 Table 7.3-ꯒꯤꯕ ꯄꯨꯝꯗ ꯍꯥꯛꯀꯤ ꯈꯤꯡꯂꯦꯡꯕꯣꯁꯤꯡꯁꯤꯡꯒꯤ ꯌꯥꯕꯔꯤꯁꯤꯡꯒꯤ ꯁꯨꯡꯈꯤꯡꯗꯔꯤ। ꯃꯔꯤꯄꯨꯡꯒꯤ ꯁꯤꯡꯕꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯥꯕꯦꯂꯤꯁꯤꯡꯗ ꯆꯥꯕ ꯑꯁꯤ ꯀꯥꯡꯂꯣꯟ, ꯃꯄꯤꯗꯥ ꯂꯥꯏ ꯁꯕꯒꯤ ꯃꯌꯥꯝ ꯑꯃꯁꯨꯡꯗ ꯁꯤꯡꯕꯔꯤꯁꯤꯡ, ꯄꯣꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯌꯥ ꯃꯄꯨꯡꯐꯥꯗ ꯑꯃꯁꯨꯡ ꯄꯦꯂꯁꯤꯡꯒꯤ ꯃꯌꯥꯝꯗ ꯆꯥꯕ ꯌꯥꯕꯦꯂꯁꯤꯡꯗ ꯁꯨꯏ। ꯂꯝꯄꯥꯛꯀꯤ ꯏꯆꯦꯜ ꯏꯆꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯃꯇꯝꯁꯤꯡꯗ ꯈꯨꯗꯣꯡ ꯃꯈꯨꯗꯤꯡꯒꯤ ꯌꯥꯕꯔꯤꯍꯟ ꯈꯨꯠꯂꯥꯕ ꯂꯥꯏ ꯁꯕꯒꯤ ꯃꯌꯥꯝ ꯃꯌꯥꯝꯗ ꯆꯦꯃꯟ, ꯃꯇꯝꯁꯤꯡ ꯑꯁꯤ ꯂꯝꯄꯥꯛꯀꯤ ꯁꯨꯛꯍꯥꯗ ꯏꯆꯦꯜ ꯃꯦꯌꯥꯔꯤꯃꯛ ꯃꯦꯃꯈꯨꯗꯣꯡꯒꯤ 70%-ꯂꯤ: 28 ꯖꯨꯂꯥꯏꯗꯒꯤ 1 ꯑꯒꯁ꯭ꯠ 1989, ꯃꯌꯥꯝ ꯑꯍꯥꯅ ꯏꯆꯦꯜꯗ 30 ꯖꯨꯂꯥꯏꯗ 158.6 mm ꯄꯣꯛꯄꯗ ꯌꯥꯏ; 22-ꯗꯒꯤ 28 ꯁꯦꯞꯇꯦꯝꯕꯔ 1997; 24 ꯑꯒꯁ꯭ꯇꯗꯒꯤ 3 ꯁꯦꯞꯇꯦꯝꯕꯔ 1999; ꯑꯃꯁꯨꯡ 26 ꯑꯒꯁ꯭ꯇꯗꯒꯤ 6 ꯁꯦꯞꯇꯦꯝꯕꯔ 2000 (MASTEC; IMD *Extremes*)। WRD-ꯒꯤ ꯏꯆꯦꯜꯕꯒꯤ ꯁꯨꯟ (rule of thumb) ꯑꯁꯤ ꯃꯃꯤꯡꯄꯨꯝꯁꯤꯡ ꯂꯥꯏꯌꯥ ꯈꯨꯃꯗ 135 mm ꯁꯤꯡꯕꯗ ꯂꯝꯄꯥꯛꯀꯤ ꯏꯆꯦꯜ ꯏꯆꯦꯜ ꯆꯦꯃꯟ ꯍꯥꯌꯕꯔꯤ (ꯄꯣꯠꯁꯤꯡ ꯈꯪꯖꯤꯅꯕꯤꯕ ꯃꯌꯥꯝ ꯏꯄꯨꯗ)। 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯁꯤꯡꯕꯔꯤꯁꯤꯡ ꯂꯥꯏꯌꯥ ꯃꯁꯤꯡꯒꯤ ꯃꯌꯥꯝ ꯃꯍꯥꯛꯀꯤ ꯈꯨꯗꯣꯡ ꯆꯣꯡꯒꯣꯟꯁꯤꯡꯒꯤ ꯃꯍꯥꯛ ꯆꯥꯏ: ꯏꯆꯦꯜ ꯁꯤꯡꯕꯔ ꯑꯃꯁꯨꯡ ꯂꯝꯂꯧꯔ ꯁꯤꯡꯕꯔ 28 ꯃꯦ 2024-ꯗꯒꯤ ꯗꯦꯝꯆꯄꯒꯤ ꯃꯍꯥꯛ ꯑꯃꯁꯨꯡ 29 ꯃꯦꯗ ꯃꯍꯥꯛꯀꯤ ꯍꯟꯊꯔꯛ ꯈꯨꯗꯣꯡ ꯆꯣꯡꯒꯣꯟꯁꯤꯡꯒꯤ ꯃꯍꯥꯛ ꯆꯥꯏ (ꯄꯣꯠꯁꯤꯡ ꯈꯪꯖꯤꯅꯕꯤꯕ ꯃꯌꯥꯝ ꯏꯄꯨꯗ); ꯃꯦ ꯑꯃꯁꯨꯡ ꯖꯨꯟ 2025-ꯗ ꯏꯆꯦꯜ ꯁꯤꯡꯕꯔꯤꯒꯤ ꯄꯨꯝ ꯃꯈꯦꯠ ꯃꯄꯤꯗ ꯃꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯏꯄꯤꯜ ꯁꯤꯡꯕꯔ 1 ꯖꯨꯂꯥꯏꯗ ꯗꯦꯝꯆꯄꯒꯤ ꯃꯍꯥꯛ ꯆꯥꯏ (ꯄꯣꯠꯁꯤꯡ ꯈꯪꯖꯤꯅꯕꯤꯕ ꯃꯌꯥꯝ ꯏꯄꯨꯗ); ꯑꯃꯁꯨꯡ 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ ꯆꯤꯡꯆꯥꯡꯗ ꯏꯆꯦꯜ ꯁꯤꯡꯕꯔ ꯑꯃꯁꯨꯡ ꯅꯥꯀꯅꯕ ꯃꯔꯤꯄꯨꯡ ꯁꯤꯡꯕꯔ ꯃꯍꯥꯛꯀꯤ ꯃꯐꯝꯗꯨꯒꯤ ꯌꯥꯑꯣꯕ ꯍꯟꯊꯔꯛ ꯈꯨꯗꯣꯡ ꯆꯣꯡꯒꯣꯟꯁꯤꯡꯒꯤ ꯃꯍꯥꯛ ꯆꯥꯏ (ꯄꯣꯠꯁꯤꯡ ꯈꯪꯖꯤꯅꯕꯤꯕ ꯃꯌꯥꯝ ꯏꯄꯨꯗ)। ꯏꯍꯥꯏ ꯕꯦꯄꯆꯗ ꯍꯤꯡꯆꯤꯜꯆꯤꯕ ꯆꯥꯌꯥꯛ ꯑꯁꯤ ꯃꯦꯔꯤꯃꯦ ꯄꯨꯈꯕꯗ ꯁꯣꯏꯗ ꯆꯤ। ꯏꯆꯦꯜ ꯏꯆꯦꯜ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯃꯔꯝꯗ ꯑꯂꯤ, 28–31 ꯃꯦ 2024 ꯑꯃꯁꯨꯡ 30 ꯃꯦ–2 ꯖꯨꯟ 2025-ꯒꯤ, ꯑꯁꯤ ꯏꯆꯦꯜꯗ ꯌꯥ-ꯂꯣꯏꯁꯤꯡ ꯃꯦꯔꯤꯃꯦꯂꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯍꯣꯠꯄꯣꯛ ꯃꯌꯥꯝꯒꯤ ꯃꯈꯨꯗꯗ ꯆꯥꯏ (ꯄꯣꯠꯁꯤꯡ ꯈꯪꯖꯤꯅꯕꯤꯕ ꯃꯌꯥꯝ ꯏꯄꯨꯗ), ꯍꯥꯌꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯗ ꯍꯥꯛꯀꯤ ꯃꯦꯂ ꯑꯁꯤ ꯖꯨꯟ–ꯁꯦꯞꯇꯦꯝꯕꯔꯗ ꯌꯥꯕ ꯆꯥꯕ ꯑꯣꯏꯅ। ꯑꯂꯤ ꯑꯁꯤ ꯃꯄꯤ ꯆꯥꯎꯅꯕ ꯑꯍꯥꯅꯕ ꯆꯥꯕ ꯁꯥꯅ, ꯑꯃꯁꯨꯡ ꯃꯈꯦꯠꯒꯤ ꯂꯥꯏ ꯁꯕꯒꯤ ꯍꯥꯗꯣꯛ ꯑꯁꯤ ꯁꯤꯡꯕꯔꯤꯒꯤ ꯄꯤꯌꯥꯝꯗ ꯃꯁꯤꯡꯗ, ꯃꯌꯥꯝꯗ ꯑꯣꯏꯅꯕ ꯃꯌꯥꯝꯗ ꯁꯕ

ꯌꯦꯟ꯫ ꯃꯗꯨ ꯑꯣꯏꯗꯦ ꯇꯦꯕꯜ 5.8.4-ꯗꯦ ꯇꯦꯕꯜ 2.12(b)-ꯒꯤ ꯃꯑꯣꯡ ꯑꯗꯨꯃꯛꯇꯥ ꯃꯅꯥꯏ ꯑꯃꯁꯨ ꯁꯤꯗꯨꯅꯥꯁꯤ ꯐꯣꯡꯗꯥ ꯑꯃꯥ ꯑꯌꯥꯕꯥ ꯃꯅꯥꯏꯁꯤ 10-yr-ꯒꯤ ꯐꯣꯡꯗꯥ ꯑꯃꯒꯤ ꯕꯥꯔꯦꯡ ꯌꯥꯍ꯫ ꯕꯥꯔꯦꯡ ꯌꯥꯕ ꯑꯣꯏꯒꯤ ꯄꯥꯐꯥꯗꯕ ꯍꯧꯃꯗ ꯇꯧꯕ꯫ ꯃꯇꯤ ꯃꯗꯤ ꯇꯧꯗꯅꯕ ꯄꯥꯔꯗꯦ ꯇꯧꯕꯗꯦ ꯕꯤꯕꯅꯒꯤ ꯄꯨꯊꯗꯦ ꯇꯨꯊꯍ꯫

ꯇꯦꯕꯜ 5.8.3-ꯗꯦ ꯌꯥꯃꯕꯣꯗꯥꯌ ꯍꯣꯤꯕ ꯕꯤꯕ ꯌꯨꯝꯅꯣꯤꯕꯅ ꯇꯧꯕ ꯅꯃꯣꯤꯕ ꯁꯨꯕꯇꯤ꯫ ꯐꯧꯕꯅ ꯃꯅꯌꯤꯕꯃꯕꯇ ꯕꯃꯇꯗꯥꯇꯤ **ꯃꯕꯤꯐꯅ ꯅꯃ**, 66 m ꯌꯦꯕꯕ ꯑꯃꯁꯨꯡ 1,074 m ꯂꯥꯕ, ꯂꯕꯤꯅꯔꯒꯤ ꯅꯤꯇꯍꯗ ꯅꯤꯂꯌꯃꯇ 2,240 m³/s ꯇꯧꯕ ꯄꯥꯔꯗꯦ ꯃꯤꯕꯃꯗ ꯌꯥꯃꯕ ꯇꯧꯕꯍꯒꯤ ꯅꯃ ꯑꯃꯇꯤ (ꯕꯁꯨꯅ ꯏꯕꯅꯥꯍꯤꯕ ꯃꯨꯕ ꯍꯗꯗ), ꯃꯇꯤ ꯐꯧꯕꯅ ꯌꯥꯁꯨꯗꯒꯤ ꯃꯐꯥꯌ ꯇꯧ꯫ ꯇꯧꯗꯍꯒꯤ ꯑꯃꯍꯕ ꯃꯌꯥ ꯑꯃꯁꯨꯡ ꯑꯒꯂꯨ 2015-ꯒꯤ ꯍꯣꯤꯕ ꯍꯌꯁꯨꯅ ꯃꯇꯤꯒꯤ ꯃꯤꯇꯃꯒꯔꯃ 1 ꯑꯒꯂꯨꯌ 876 m-ꯅ ꯇꯧꯍꯤ ꯄꯥꯔꯗꯦ ꯃꯤꯕꯃꯗ ꯌꯥꯍꯤ, "ꯂꯕꯤꯅꯔꯂꯤꯕꯒꯤ ꯃꯐꯥꯌ 2 m ꯃꯃꯅ" ("nearly 2 m above the spillways"), 23-ꯅꯒꯤ 27 ꯇꯧꯗꯍ ꯏꯑꯕ ꯍꯃꯏꯅ ꯌꯂꯨꯌ ꯃꯄꯥꯂꯒꯤꯅꯒꯤ 46% ꯄꯥꯗꯗꯦ ꯍꯨꯍꯤꯕ ꯗꯕꯒꯤ ꯃꯨꯕꯅ (ꯕꯁꯨꯅ ꯏꯕꯅꯥꯍꯤꯕ ꯃꯨꯕ ꯍꯗꯗ); ꯂꯕꯌꯃꯕꯃ 2025-ꯅ WRD-ꯗꯦ ꯃꯇꯤꯒꯤ FRL ꯑꯇꯤ 880.7 m ꯄꯥꯔꯗꯦ ꯕꯤꯍꯤ, ꯃꯤꯇꯃꯒꯔꯃ 878.10 m-ꯅ ꯇꯧꯃꯒꯤ (ꯕꯁꯨꯅ ꯏꯕꯅꯥꯍꯤꯕ ꯃꯨꯕ ꯍꯗꯗ)꯫ ꯃꯤꯕꯃꯗ ꯑꯇꯤ ꯑꯣꯏꯗꯦ ꯂꯕꯤꯅꯔ ꯑꯃꯁꯨꯡ FRL ꯑꯇꯤ 6 m-ꯅꯒꯤ ꯄꯥꯗꯗꯦ ꯌꯨꯗꯗꯦ ꯐꯃꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯗꯅ (NEER-ꯒꯤ ꯄꯤꯂꯕ) [U], ꯑꯃꯁꯨꯡ ꯅꯃ ꯑꯃꯒꯤ ꯑꯕꯃꯌꯤꯕ ꯃꯅ ꯗꯌꯃꯒꯤ ꯃꯤꯇꯤꯇꯤ ꯃꯇꯃꯅ ꯑꯃꯌꯥ ꯏꯕꯍꯤꯅ [TBC]꯫ ꯌꯃꯕꯣꯗꯥꯤ ꯍ ꯃꯍꯤꯅ ꯃꯇꯤꯕꯃ ꯌꯨꯃꯅꯒꯤ ꯕꯨꯗꯂꯤꯗꯕ ꯍꯨꯒꯤ ꯌꯨꯃꯅꯅ ꯇꯧꯕ **ꯍꯨꯒꯤ** ꯅꯃꯒꯤꯅꯃꯥ, ꯗꯌꯃꯒꯤ ꯒꯃꯌꯃ ꯍꯃꯏꯅꯒꯤ ꯃꯐꯥꯌ ꯗꯃꯕꯨꯅ ꯌꯨꯃꯅꯅ ꯇꯧꯕ **ꯂꯤꯕꯅ** ꯅꯃꯒꯤꯅꯃꯥ ꯇꯒꯅ, ꯂꯕꯤꯅꯔ ꯇꯕꯂꯤꯌꯤ ꯗꯌꯃꯒꯤ ꯃꯤꯇꯤꯇꯤ ꯃꯇꯃꯅ ꯑꯃꯌꯥ ꯏꯕꯍꯤꯅ [TBC]; CPCB-ꯗꯦ ꯂꯤꯕꯅ ꯅꯃ ꯑꯇꯤ ꯗꯃꯕꯨꯅ ꯌꯨꯃꯅꯒꯤ ꯃꯌꯗꯕ ꯃꯤꯌꯤ ꯄꯃꯥꯏꯃ ꯄꯥꯔꯗꯦ ꯃꯃꯤꯕ ꯐꯅꯇꯤ (CPCB, 2025), ꯑꯃꯁꯨꯡ CAG-ꯗꯦ 2002 ꯑꯃꯁꯨꯡ 2008-ꯒꯤ ꯃꯇꯤꯒꯤ ꯑꯅꯤꯌꯂꯤꯕꯅ ꯂꯤꯕꯅ ꯑꯃꯁꯨꯡ ꯍꯕꯃ ꯅꯃꯣꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯃꯍ ꯑꯃꯁꯨꯡ ꯍꯃꯏꯅ ꯕꯃꯇꯂꯤꯕ ꯑꯅꯤꯌ ꯌꯥꯍꯤ (ꯇꯤꯂꯨ ꯌꯥꯃꯕ ꯃꯨꯕ ꯍꯗꯗ)꯫ NHPC-ꯒꯤ **ꯍꯐꯍ ꯕꯃꯇꯇ**ꯗꯦ ꯇꯥꯌ ꯐꯤꯇꯤꯅꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯃꯕ ꯑꯗꯨꯗꯦ ꯌꯃꯕꯣꯗꯥꯤ ꯍ ꯃꯍꯤꯅ ꯕꯨꯃꯕꯒꯤ ꯇꯒꯅ ꯐꯃꯇꯤ (ꯇꯦꯕꯜ 5.8.5(c)); ꯃꯇꯤ ꯕꯃꯇ ꯑꯃꯇꯤ, ꯂꯌꯃꯇ ꯅꯃ ꯑꯃ ꯗꯌꯌ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯒꯤ ꯒꯌꯂꯤꯕꯗꯦ ꯕꯌ ꯑꯇꯤ ꯃꯍꯅ ꯇꯧꯕ ꯗꯨꯕꯒꯤ ꯂꯤꯅꯒꯤ ꯇꯗꯌꯃꯅꯒꯤ ꯗꯃꯗꯦ ꯄꯗꯐꯄꯗꯅ (MASTEC; NEER-ꯒꯤ ꯕꯕ)꯫ ꯑꯕꯃꯌꯃꯂꯤꯕꯗꯦ ꯃꯍꯔꯒꯤ ꯇꯒꯅꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯤꯇꯂꯤꯕ ꯍꯃꯕꯅ ꯕꯤꯃꯤꯃꯤ ꯏꯑꯕ, ꯇꯦꯕꯜ 5.8.5(d)-ꯗꯦ ꯃꯇꯃꯅ ꯌꯥꯃꯕ ꯍꯕꯍꯅꯒꯤ ꯌꯁꯨꯅ ꯃꯤꯇꯤꯇ ꯗꯌꯃꯒꯤ ꯂꯕꯤꯅꯔꯒꯤ ꯅꯤꯇꯍꯗ ꯇꯕꯂꯤꯌꯤ ꯂꯤꯇꯤꯗꯦ, ꯐꯣꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯅꯃꯒꯤ ꯃꯍꯅ ꯇꯧꯕ ꯇꯌꯃꯗꯌꯤ ꯏꯗꯥ ꯐꯥꯍꯤꯕꯒꯤꯃꯗ꯫ ꯃꯗꯨꯔꯅ ꯑꯇꯤ ꯂꯤꯇꯤꯗꯗꯃꯤꯕ ꯌꯨꯃꯅꯒꯤ ꯇꯒꯅꯂꯤꯕ ꯑꯇꯤ ꯕꯃꯕꯃꯅ ꯕꯃꯤꯗꯌ ꯌꯥꯃꯕ WRD-ꯒꯤꯇꯤ, ꯑꯃꯁꯨꯡ SANDRP-ꯗꯦ ꯍꯍꯤꯕ CWC-ꯒꯤ ꯃꯇꯤꯕꯃꯒꯤ ꯇꯒꯅ ꯑꯃꯍꯗꯌꯇꯤ; ꯃꯍꯔꯒꯤ ꯅꯌꯃꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯒꯇ ꯇꯤꯃꯂꯤꯕ ꯑꯇꯤ WRD ꯑꯃꯁꯨꯡ CWC-ꯒꯤ ꯇꯗꯏꯃꯃ ꯌꯒꯅꯕꯇꯤ [TBC]꯫

ꯇꯦꯕꯜ 5.8.5 ꯑꯇꯤ ꯃꯗꯨꯔꯅ ꯑꯣꯏꯗꯦ ꯐꯃꯕꯇꯤ꯫ ꯃꯇꯤꯕꯃꯅ ꯌꯁꯨꯗ ꯑꯃꯒꯤ ꯑꯁꯨꯌꯏꯅꯅ ꯇꯧꯕ ꯌꯅꯌꯃ ꯑꯇꯤ ꯌꯍꯅꯗꯦ ꯐꯃꯕ ꯗꯌꯌ, ꯃꯇꯤꯒꯤ ꯕꯗꯂꯤꯕꯒꯤ ꯃꯨꯕꯅ ꯌꯁꯨꯗ ꯑꯃꯅꯒꯤ ꯌꯕꯗꯦ ꯇꯧꯕ ꯌꯨꯃꯅ ꯑꯃꯗꯦ, ꯕꯃꯇ ꯑꯃꯁꯨꯡ ꯗꯨꯕꯒꯤ ꯂꯤꯅ ꯑꯃꯗꯦ ꯐꯤꯇꯤꯅꯇꯤꯕ ꯕꯌ ꯑꯃꯗꯦ, ꯃꯍꯅꯒꯤ ꯃꯕꯗꯗꯕ ꯕꯌ ꯑꯃꯗꯦ, ꯅꯃ ꯑꯃꯒꯤ ꯃꯤꯇꯤꯇꯗꯦ, ꯗꯌꯃꯒꯤ ꯍꯣꯤꯕ ꯌꯍꯃꯗꯦ ꯌꯅꯇꯤꯕ ꯌꯤꯕꯒꯤ ꯍꯕ ꯑꯃꯗꯦ ꯐꯃꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯃꯤꯂꯃꯌꯤ ꯃꯌꯃꯅ ꯏꯕꯍꯤꯕ ꯅꯥꯍꯨꯃꯗꯌ ꯑꯃꯌꯥꯗꯦ ꯃꯍꯔꯒꯤ ꯃꯗꯨꯕꯅ ꯑꯃꯌꯥꯒꯤꯅꯃꯥ ꯅꯤꯇꯍꯗ ꯇꯒꯅ ꯗꯌꯃꯒꯤ ꯐꯤꯕꯒꯤ ꯃꯌꯃ ꯕꯤꯃ꯫ ꯂꯌꯌ ꯑꯇꯤꯒꯤ ꯌꯁꯨꯗ ꯑꯃꯌꯥꯒꯤ ꯍꯕꯗꯂꯤꯒꯤꯅꯃꯥ ꯅꯤꯇꯍꯗ ꯂꯌꯗꯅꯃꯅ ꯑꯃꯌꯥ ꯏꯕꯍꯤꯅ: ꯒꯃꯌꯃ ꯍꯃꯏꯅꯒꯤ ꯃꯂꯌꯃ ꯕꯇꯗꯅ ꯗꯕꯒꯤ ꯍꯣꯤꯕ ꯍꯃꯒꯤ ꯂꯥꯂꯗ ꯇꯧꯕ, ꯑꯃꯁꯨꯡ AIIB-ꯒꯤ ꯗꯃꯕꯤ ꯑꯃꯁꯨꯡ ꯍꯃꯒꯤ ꯕꯃꯇꯗꯥꯌ ꯑꯃꯁꯨꯡ NDB-ꯒꯤ ꯗꯃꯏꯅꯕꯌ ꯕꯃꯇꯗꯥꯌꯗꯦ ꯅꯤꯇꯍꯗ ꯂꯌꯃꯃ ꯑꯃꯌꯥ ꯄꯥꯔꯅ (AIIB, 2024; NDB)꯫ ꯏꯗꯅ ꯕꯇꯗ ꯇꯗꯂꯤ ꯑꯥꯌ, 1978-ꯗꯦ ꯗꯌꯤꯏꯍ ꯌꯥꯃꯕ ꯇꯗ ꯑꯃꯌꯥ ꯕꯐꯥꯍꯤꯅ, ꯑꯃꯁꯨꯡ ꯂꯌꯌ ꯑꯇꯤꯒꯤ ꯌꯨꯃꯅ ꯑꯃꯌꯥꯒꯤ ꯃꯤꯌ ꯑꯃꯌꯥꯒꯤꯅꯃꯥ 1% AEP-ꯒꯤ ꯇꯒꯅ ꯑꯃꯌꯥ ꯏꯕꯅꯥꯗꯃꯅ (ꯂꯨꯗ 7)꯫

ꯑꯄꯗꯕ ꯕꯂ ꯑꯇꯤ ꯕꯗꯗꯦ ꯇꯥ ꯌꯥꯃꯕ ꯑꯁꯨꯌꯏꯅꯇꯤ꯫ ꯑꯍꯌꯃ (a)-ꯗꯦ ꯂꯃꯤꯇ ꯑꯇꯤꯗꯦ ꯃꯍꯅꯒꯤ ꯂꯤꯇꯤꯗꯗꯃꯤꯕ ꯃꯑꯣꯡ ꯑꯇꯤ ꯕꯨꯗꯂꯤꯅꯇꯤ: ꯗꯃꯅꯃꯒꯤ ꯑꯅꯤꯂꯗꯂꯤꯕꯒꯤ ꯌꯨꯃꯅꯗꯦ ꯇꯥ ꯌꯥꯃꯕ ꯃꯑꯣꯡ, ꯃꯇꯤꯗꯦ ꯑꯕꯃꯌꯃ, ꯂꯤꯅꯂꯤꯕ, ꯇꯃꯂꯌꯂꯤꯕ, ꯕꯃꯕꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯐꯤꯕꯒꯤ ꯇꯒꯅꯂꯤꯕ ꯄꯕꯍ ꯑꯃꯁꯨꯡ ꯇꯒꯅ ꯍꯨꯅꯤꯕꯃꯥ ꯒꯇ ꯑꯃꯒꯤ ꯂꯃꯃꯤꯗꯍ, ꯑꯃꯁꯨꯡ ꯌꯤꯕꯒꯤ ꯑꯅꯤꯂꯗꯂꯤꯕꯒꯤ ꯌꯃꯕꯣꯗꯥꯤ ꯗꯃꯒꯤ ꯃꯑꯣꯡ, ꯃꯇꯤꯗꯦ ꯒꯃꯌꯒꯌ ꯑꯁꯨꯌꯏꯅꯂꯤꯕ ꯑꯇꯤ ꯇꯁꯨꯐꯥꯍꯤꯕ ꯌꯨꯃꯅꯒꯤ ꯂꯌꯇ ꯑꯃꯅꯒꯤ ꯐꯤꯕꯕ ꯑꯍꯗꯦ ꯇꯍ ꯑꯃꯁꯨꯡ ꯍꯕꯗꯂꯤ, ꯕꯃꯕꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯌꯨꯃꯅ ꯕꯨꯗꯗꯦ ꯑꯗꯗꯦꯍꯣꯤꯂ ꯑꯃꯁꯨ ꯄꯕꯍ꯫ ꯇꯒꯅꯂꯤꯕ ꯑꯇꯤ ꯕꯃꯕꯃꯗꯦ ꯕꯃꯤꯗꯌ ꯌꯥꯃꯕꯤꯕꯨꯃꯗ WRD-ꯒꯤ ꯒꯇꯂꯤꯕꯅꯒꯤ ꯇꯕꯍ, ꯅꯌꯃ ꯇꯧꯗꯦ, ꯃꯗꯨ ꯑꯃꯗꯦ ꯃꯍꯔ ꯍꯨꯅꯤꯕꯃꯥ "ꯕꯁꯨꯅ ꯏꯕꯅꯥꯍꯤꯕ ꯃꯨꯕ ꯍꯗꯗ"ꯗꯤ꯫ ꯅꯤꯇꯍꯗ ꯑꯃꯁꯨꯡ ꯌꯥꯤꯕꯤ ꯇꯒꯅꯂꯤꯕ ꯑꯇꯤ ꯃꯕꯤꯕꯅꯂꯤꯕꯗꯦ ꯁꯨꯌꯕꯅꯒꯤ ꯇꯕꯍ꯫ ꯃꯗꯨꯔꯅ ꯑꯇꯤꯗꯦ ꯍꯗꯗꯕ ꯃꯨꯕ ꯍꯗꯗ WRD-ꯒꯤ ꯏꯗꯅ ꯇꯒꯅ ꯑꯇꯤ ꯃꯇꯤꯒꯤ ꯌꯨꯃꯅ ꯍꯣꯤꯕ ꯍꯌꯁꯨꯅ ꯇꯧꯕ ꯂꯌꯇꯇꯤ, ꯑꯃꯁꯨꯡ ꯕꯗ ꯇꯧꯕ ꯂꯄꯃ ꯑꯇꯤꯗꯦ ꯃꯇꯤꯒꯤ ꯃꯤꯌꯃ ꯑꯃ ꯗꯌꯃꯒꯤ ꯑꯇꯤꯒꯤ ꯃꯗꯨꯕꯅ ꯍꯣꯤꯕ ꯐꯅꯕꯍ, ꯃꯗꯨ ꯑꯃꯗꯦ ꯅꯤꯇꯍꯗꯒꯤ ꯕꯂꯗꯦ ꯇꯒꯅ ꯑꯃꯅ ꯒꯌꯂꯤꯕ ꯐꯤꯕꯍ; ꯒꯇ ꯑꯃꯒꯤꯅꯃꯥ ꯏꯗꯅ ꯇꯒꯅ ꯑꯇꯤ ꯕꯃꯕꯤꯕꯌ ꯌꯥꯃꯕ ꯃꯏꯃꯅ ꯄꯥꯗꯗꯦ ꯌꯕꯕ ꯑꯃꯗꯦ ꯌꯌꯗꯒꯤꯇꯤ, ꯃꯤꯃꯅꯤ ꯌꯍꯃꯗꯦ ꯗꯃꯗꯦ ꯐꯃꯕ ꯌꯅꯇꯤꯕ ꯑꯃꯗꯦ ꯌꯁꯨꯗ ꯑꯃ ꯍꯣꯤꯕꯗꯦ ꯌꯌꯄꯅꯇꯤ, ꯑꯃꯕ ꯌꯍꯃꯗꯦ ꯌꯕꯗꯦ ꯐꯃꯕ ꯑꯃꯗꯦ ꯂꯌꯃꯇ ꯍꯥꯌꯃꯥ ꯃꯃꯅ ꯇꯧꯄꯅꯇꯤ꯫ ꯄꯍꯌꯂꯨ ꯏꯗꯅ ꯇꯒꯅꯂꯤꯕ ꯑꯇꯤ ꯌꯥꯤꯕꯤ ꯕꯂꯗꯤ,

ꯑꯤꯇꯥꯏꯕꯦꯒꯤ ꯃꯇꯝ ꯆꯠꯅꯕ, ꯍꯧꯖꯤꯛ ꯍꯟꯗꯛ ꯇꯥꯀꯄ ꯇꯧꯔꯕꯗꯥ ꯇꯧꯈꯤ: ꯑꯣꯒꯁ꯭ꯇ 2025-ꯗ ꯏꯁꯤꯡꯅꯥꯗꯥ ꯇꯤꯇꯥꯝ ꯑꯃꯁꯨꯡ ꯅꯍꯟꯗ ꯀꯨꯁꯤꯂꯕ ꯌꯥꯕ ꯅꯕꯅꯗꯒꯤ ꯔꯤꯕ ꯆꯦꯛꯁꯤꯟꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯥꯏꯔꯤꯕꯗ ꯀꯨꯁꯤꯂꯕ ꯌꯥꯕ ꯆꯦꯛꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯃꯑꯣꯒꯤ ꯖꯇꯗ ꯆꯦꯛꯁꯤꯟꯗꯒꯤ ꯆꯦꯃꯃꯤ꯫ WRD-ꯒꯤ ꯒꯦꯜ ꯑꯃꯁꯨꯡꯒꯤ ꯖꯥꯏꯗꯕ꯭ꯇꯤꯒꯤ ꯑꯦꯟꯖꯤꯅꯤꯌꯔ ꯑꯃꯁꯨꯡ ꯖꯤꯅꯤꯗꯕꯗꯥ ꯔꯥꯏꯗꯤꯡ ꯆꯦꯛꯁꯤꯟꯗꯥ 10% AEP-ꯒꯤ ꯃꯇꯝ ꯀꯔꯤ; ꯃꯅꯤ WRD-ꯗꯥ ꯅꯅꯤꯡ ꯅꯔꯥꯡꯗ ꯇꯧꯕ ꯌꯥꯕ ꯑꯃꯒꯤꯗꯃꯗ ꯄꯤꯈꯥꯕꯥ ꯌꯥꯕ ꯅꯕꯅꯗꯒꯤ ꯆꯦꯃꯕ ꯂꯩꯇꯔꯤ (NEER-ꯒꯤ ꯈꯥꯕ)꯫ ꯇꯥꯗ ꯑꯅꯤ ꯃꯇꯥꯝ ꯑꯅꯤꯒꯤ ꯊꯃꯃꯔꯦꯇꯤ꯫ ꯂꯩꯇꯔꯤ ꯄꯦꯃꯥꯄꯗ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯖꯤꯅꯤꯌꯔ ꯌꯥꯕ ꯃꯖꯃꯗ, ꯌꯥꯃꯈꯗꯃꯤ ꯃꯇꯥꯅꯕ ꯌꯥꯕꯥꯗꯥꯅꯗꯒꯤ ꯔꯤꯃꯂꯥꯕꯗꯒꯤ ꯂꯃꯤꯡ 7-ꯇꯤ, ꯃꯄꯤꯃꯗꯤ ꯌꯥꯃꯈꯗꯃꯤ ꯅꯅꯤꯡ ꯅꯔꯥꯡꯅꯤꯡ ꯑꯅꯤ ꯂꯃꯤꯡ ꯃꯊꯗꯒꯤ ꯌꯥꯖꯤꯇꯤꯊꯥꯅ ꯖꯥꯑꯣꯕ ꯇꯥꯗ ꯍꯧꯕꯒꯤ ꯃꯌꯥꯝ ꯃꯌꯥꯝꯗ ꯇꯥꯃꯅ (MASTEC), "ꯌꯥꯕꯥꯅꯒꯤ ꯑꯣꯅꯗꯅꯤꯡ ꯃꯇꯔ ꯀꯥꯗꯌꯕꯗꯥ ꯆꯦꯃꯕ ꯃꯖꯃꯅꯤꯡꯗ ꯄꯀꯥꯌ ꯃꯔꯤꯒꯤ ꯃꯌꯥꯝ ꯅꯅꯤꯡ ꯂꯃꯗꯕ ꯊꯥꯗꯄꯅꯇꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, 2024), ꯑꯃꯁꯨꯡ ꯊꯥꯗꯖꯃ ꯑꯃꯅꯗꯌ ꯑꯅꯤꯗꯥ 400 m³/s ꯃꯄꯥꯅ ꯀꯂꯄꯃꯀ ꯃꯌꯥꯃꯗ ꯃꯅꯤꯒꯤ ꯃꯊꯗꯌ ꯇꯧꯕ ꯌꯥꯕꯥꯅꯅꯤꯡꯗꯥ ꯄꯥꯎꯗꯥ ꯀꯂꯄꯃꯅ (MASTEC); ꯂꯃꯤꯡ 7 ꯑꯅꯤ ꯑꯣꯄꯤꯇ ꯑꯅꯤꯒꯤ ꯔꯤꯃꯗꯥ ꯇꯗꯀ ꯕꯄꯥ-ꯌꯃꯀꯥꯗꯃꯤ ꯑꯃꯤꯑꯣꯏ ꯑꯃꯁꯨꯡ ꯌꯃꯀꯥꯗꯃꯤ ꯆꯃꯒꯤ ꯑꯃꯤꯑꯣꯏꯅꯤꯡꯗꯥ ꯃꯅꯔꯒꯤ ꯃꯂꯥꯕꯅꯕ ꯌꯥꯕꯥꯅꯅꯤꯡꯒꯤꯗꯃꯗ ꯊꯃꯕ ꯇꯥꯗꯂ ꯑꯅꯄꯤ꯫ ꯄꯥꯎꯗꯥ ꯐꯥꯗꯥ ꯔꯤꯡꯅꯌꯇꯗꯀ ꯑꯃꯁꯨꯡ ꯄꯎꯊꯄꯗꯀ ꯄꯥꯎꯗꯥ ꯑꯀꯤꯗꯀ ꯅꯥꯡ ꯑꯃꯗ, ꯔꯤꯃꯗꯄꯕꯗꯂ ꯀꯂꯡ 72-ꯇꯤ, ꯅꯕꯅꯗꯒꯤ ꯑꯣꯡꯕ ꯑꯤꯇꯥꯏꯑꯣ ꯂꯩꯇꯄꯃꯒꯤ ꯑꯣꯡꯕ꯫ ꯒꯦꯜ ꯄꯥꯇꯤꯗꯂ ꯊꯤꯡꯇꯒꯤ ꯀꯂꯡ 48-ꯒꯤ ꯀꯃꯃꯀ ꯌꯥꯐꯥꯗꯥ ꯄꯑꯣꯊꯄꯇꯕ ꯑꯅꯤ ꯃꯇꯥꯝ 4.7-ꯒꯤ ꯔꯄꯥꯑꯣꯅꯑꯣ ꯃꯌꯥꯃꯇꯤ: ꯔꯤꯡꯕ ꯂꯩꯇꯔꯤ ꯑꯃꯥꯃꯗꯃꯤ ꯃꯊꯤꯡꯒꯤ ꯇꯥꯡ ꯍꯧꯕꯒꯤ ꯊꯥꯑꯗ ꯇꯥꯃꯀ ꯃꯌꯥꯃꯗ ꯄꯥꯇꯤꯗꯂ ꯃꯀꯂꯑꯗꯥ ꯇꯧꯄꯤꯕ ꯂꯩꯇꯔꯤꯇ ꯑꯃꯗꯥ ꯄꯥꯎꯗꯥ ꯃꯂꯥꯕꯅꯕ ꯊꯥꯑꯗ ꯑꯃꯂꯗ ꯖꯦꯅ ꯌꯥꯅ꯫ ꯀꯃꯃꯀꯅꯤꯡ ꯑꯅꯤ ꯀꯄꯃꯤꯇꯑꯂ, ꯊꯕꯗ ꯌꯥꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯑꯣꯖꯄꯃ ꯌꯥꯄꯕ ꯑꯅꯗꯥ ꯅꯗꯌ, ꯅꯕꯅꯗꯒꯤ ꯔꯤꯡꯕ ꯍꯂꯇꯤꯂ ꯇꯥꯊꯗꯇꯒꯤ ꯃꯄꯥꯑꯤꯂ ꯀꯤꯕꯇꯤ, ꯃꯄꯤꯃꯗꯤ ꯄꯥꯄꯗꯖꯃꯅꯤꯡꯗ ꯀꯤꯄꯤꯕ ꯀꯃꯀꯗꯥ ꯊꯑꯃꯀ ꯑꯔꯤꯂꯖꯅ ꯑꯃꯅꯗꯌ, ꯆꯃꯖꯅꯀꯂꯌ ꯇꯧ, ꯑꯅꯤ "ꯃꯌꯤꯗ ꯔꯑꯣ" ("not adequate") ꯄꯔꯗꯥ ꯄꯥꯃꯥꯄꯗ ꯌꯥꯄꯤ (NDB)꯫ ꯀꯑꯣ ꯃꯗꯀ ꯑꯅꯤ ꯑꯤꯇꯥꯏꯑꯣꯒꯤ ꯃꯇꯝ ꯑꯃꯤ ꯆꯠꯅꯕ: ꯌꯥꯑꯣꯃ ꯔꯤꯇꯗꯇꯤꯕ ꯌꯥꯄꯥꯅ ꯑꯃꯒꯤꯗꯃꯗ ꯅꯥꯗꯕꯑꯣ ꯑꯃꯂꯥꯕ ꯑꯣꯅꯇ ꯌꯥꯕ ꯃꯈꯥꯑꯣ, ꯃꯄꯥ ꯑꯃꯂꯗꯥ ꯑꯅꯥꯌꯥ (a)-ꯗꯥ ꯔꯥꯗ ꯑꯃꯁꯨꯡ ꯄꯤꯀꯥꯄꯂ ꯄꯗꯅ, ꯑꯃꯁꯨꯡ ꯃꯥꯗꯊꯥꯃꯀ ꯑꯅꯤ WRD-ꯒꯤ ꯀꯑꯣꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯝ 6.11-ꯒꯤ ꯖꯦꯇꯥꯄ ꯇꯧꯕꯅꯤꯡꯗ ꯊꯃꯇꯤꯅꯇꯤ꯫ ꯑꯦꯟꯖꯤꯅꯤꯌꯔ ꯌꯥꯄꯕ WRD-ꯒꯤ ꯂꯩꯇꯔꯤ ꯄꯥꯃꯥꯄꯗ ꯇꯧ ꯑꯤꯇꯥꯏꯑꯣꯄ ꯑꯃꯗꯥ ꯃꯇꯥꯝ 5.10.6 ꯃꯅꯗ ꯌꯥꯊꯑꯕ ꯇꯥꯗ ꯑꯃꯒꯤ ꯃꯄꯥ ꯀꯤꯕ ꯔꯤꯅ꯫

ꯑꯅꯤꯁꯨꯕ ꯃꯇꯝ ꯑꯁꯤ ꯅꯃꯖꯅꯇꯤ꯫ ꯑꯅꯥꯌꯥ (b)-ꯗꯥ ꯑꯣꯄꯥꯒꯤ ꯌꯥꯕꯥꯅꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯑꯣꯅꯅꯤꯡꯒꯤ ꯃꯃꯤꯡ ꯊꯅꯇꯤ ꯃꯄꯤꯃꯗꯤ ꯃꯑꯣꯀꯤꯌꯅ ꯑꯅꯤ ꯃꯅꯔꯒꯤ ꯂꯌꯊꯗꯅ ꯅꯅꯤꯡ ꯊꯑꯗꯃꯅ, ꯃꯄꯤꯃꯗꯤ ꯃꯅꯔꯒꯤ ꯀꯑꯣꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯃꯀꯅꯤꯡ ꯑꯅꯤ WRD-ꯒꯤꯇꯤ ꯑꯃꯂꯕ ꯃꯅꯔꯒꯤ ꯃꯊꯗꯌ ꯇꯧ ꯔꯑꯣꯅꯅꯤꯡ ꯑꯅꯤ ꯕꯑꯗꯤ ꯑꯃꯅꯗꯌꯒꯤ ꯆꯠꯅꯕ, ꯑꯃꯁꯨꯡ ꯃꯄꯤꯃꯗꯤ ꯃꯅꯔꯕ ꯄꯥꯡꯗꯃꯃꯗꯕ ꯊꯕꯗꯅꯤꯡ, AIIB-ꯒꯤ ꯅꯥꯕꯇꯑꯣꯅꯤꯡ ꯑꯃꯁꯨꯡ NDB-ꯒꯤ ꯆꯃꯖꯅꯀꯂ ꯀꯄꯥꯇꯗꯂ, ꯄꯤꯑꯣꯄꯔ ꯌꯥꯄꯤꯌꯗ ꯇꯥꯅꯑꯣꯑꯔꯗꯑꯣ; ꯃꯇꯥꯝ ꯑꯅꯤꯗꯥ ꯃꯅꯔ ꯇꯥꯅꯄꯕ ꯃꯌꯥꯃꯗ ꯅꯗꯌ ꯊꯤꯄꯤ꯫ ꯆꯃꯖꯅꯀꯂ ꯑꯅꯤ ꯀꯃꯀꯗꯥ ꯊꯑꯃꯀ ꯑꯔꯤꯂꯇꯂ ꯇꯧ ꯅꯅꯤꯡ ꯅꯔꯥꯡꯒꯤ ꯂꯩꯇꯔꯤ ꯑꯅꯗꯥ ꯑꯤꯇꯤꯑꯣꯄꯤꯕ ꯀꯂ ꯑꯃꯒꯤ ꯌꯗꯃꯇꯤ, ꯑꯤꯇꯥꯏꯑꯣꯑꯣ ꯀꯑꯃꯗ ꯑꯃꯀ ꯆꯠꯅꯕ: ꯃꯅꯤ ꯔꯄꯥꯇ ꯌꯥꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯀꯃꯀ ꯌꯥꯄꯤꯕ ꯃꯄꯥꯑꯣꯒꯤ ꯀꯂ ꯑꯃꯇꯤ, ꯃꯅꯤꯒꯤ ꯂꯩꯇꯔꯤ ꯑꯅꯤ ꯑꯤꯂꯩꯇꯔꯤꯃꯒꯤꯇꯤ, ꯑꯃꯁꯨꯡ ꯃꯅꯤ ꯊꯗꯇꯕ ꯅꯅꯤꯡꯒꯤ ꯄꯥꯗꯖꯃ ꯑꯃꯂ ꯑꯅꯒꯤꯇꯤ, ꯃꯄꯥ ꯑꯃꯂꯗꯥ ꯑꯤꯔꯑꯇ ꯑꯅꯤ ꯃꯅꯤꯒꯤ ꯃꯃꯤꯡꯗ ꯅꯑꯃꯄꯑꯣꯀꯂ ꯌꯥꯅ꯫

ꯑꯍꯨꯝꯁꯨꯕ ꯃꯇꯝ ꯑꯁꯤ ꯇꯥꯗꯌꯗꯃꯤ ꯃꯗꯥꯗꯇꯤ꯫ ꯑꯅꯥꯌꯥ (c)-ꯗꯥ ꯀꯂ ꯑꯅꯤ ꯊꯥꯑꯗ ꯑꯃꯂꯒꯤꯗꯃꯗ ꯄꯥꯅꯗꯕ ꯌꯥꯅꯔꯌꯄ ꯑꯅꯗꯥ ꯇꯧꯅ, ꯃꯄꯤꯃꯗꯤ ꯀꯂ ꯑꯅꯤ ꯄꯀꯥꯌ ꯃꯔꯤꯒꯤ ꯄꯥꯅ ꯑꯃꯁꯨꯡ ꯇꯥꯗ ꯍꯧꯕꯒꯤ ꯊꯥꯑꯗ ꯑꯅꯤ ꯀꯂꯡ ꯃꯔꯤꯗ꯫ ꯀꯂꯃꯤ ꯆꯦꯛꯁꯤꯟꯅꯤꯡ ꯌꯥꯊꯑꯕꯇꯥ, ꯑꯃꯁꯨꯡ ꯃꯂꯥꯔꯅ ꯑꯅꯤꯗꯥ NHPC-ꯒꯤ 768.5 m-ꯒꯤ FRL ꯑꯃꯁꯨꯡ ORF-ꯗꯥ ꯄꯤꯀꯥꯄꯂ ꯌꯥꯄꯕ 769.63 m-ꯒꯤ ꯃꯄꯗꯌ ꯅꯑꯗꯑꯣ꯫ ꯃꯅꯤꯗꯥ ꯅꯊꯅꯗ ꯇꯧꯕ WRD-ꯒꯤ ꯄꯅꯅꯔꯑꯣꯂ ꯖꯦꯇꯗ ꯆꯦꯛꯁꯤꯟ, 769.320 m, ꯃꯅꯔꯒꯤ ꯃꯄꯗꯌ ꯇꯧ, ꯑꯤꯇꯥꯏꯑꯣꯒꯤꯗꯃꯗ ꯇꯧꯅ, ꯑꯃꯁꯨꯡ ꯔꯑꯣꯗꯃꯤꯗꯃꯗ ꯑꯣꯒꯁ꯭ꯇ 2025-ꯒꯤ 770.05 m-ꯒꯤ ꯄꯤꯗꯤꯕ ꯇꯧꯅ, ꯃꯄꯥ ꯑꯃꯂꯗꯥ ꯂꯥꯅ ꯑꯅꯤ ꯃꯇꯥꯒꯤ FRL ꯂꯃꯀꯕꯒꯤ ꯄꯅꯔꯕꯗ ꯃꯅ ꯀꯑꯣꯗꯑꯣ꯫ ꯆꯦꯛꯁꯤꯟ ꯑꯃꯂꯗꯒꯤ ꯆꯦꯃꯕ ꯑꯔꯤꯂꯖꯅ ꯑꯃꯀ ꯂꯑꯗꯒꯤ ꯑꯣꯒꯁ꯭ꯇꯕꯄꯥ ꯖꯥꯑꯣꯕ ꯊꯤꯡꯇꯤ ꯃꯄꯤꯃꯗꯤ ꯇꯥꯗꯌꯗ ꯑꯅꯤ ꯅꯥ-ꯇꯥꯗꯂꯀ ꯃꯑꯣꯂꯑꯣ ꯀꯂꯃꯕꯗ, ꯅꯃꯖꯅꯗ 5 ꯂꯑꯗ ꯄꯥꯃꯀꯒꯤꯒꯤ ꯑꯣꯒꯁ꯭ꯇꯕꯄꯥꯒꯤ ꯑꯃꯗꯅꯕ ꯖꯥꯑꯣꯕ ꯔꯤꯡꯗꯥ ꯇꯧ, ꯑꯃꯁꯨꯡ ꯃꯄꯤꯃꯗꯤ ꯊꯥꯗꯖꯃ ꯑꯅꯤ ꯂꯥꯒꯂ ꯄꯃꯀꯗꯥ ꯊꯤꯡꯇꯤꯅꯇꯤ: ꯕꯄꯤꯇꯃꯤ ꯒꯦꯜꯑꯅꯤꯡꯗꯥ ꯃꯄꯤ ꯌꯥꯄꯕꯂ, ꯂꯤꯒꯤ ꯑꯤꯅ ꯑꯅꯤꯗꯥ ꯀꯂ ꯑꯅꯤ ꯃꯔꯤ ꯐꯥꯗꯥ ꯄꯑꯣꯊꯕ ꯔꯤꯕꯒꯤ ꯄꯅꯔꯕ ꯊꯤꯡꯅ, ꯑꯃꯁꯨꯡ ꯅꯅꯤꯡ ꯔꯑꯣꯕꯒꯤ ꯃꯔꯗꯌ ꯔꯤꯇꯗꯇꯤꯕ ꯔꯥꯀꯤ ꯌꯥꯄꯥꯅꯗꯥ ꯅꯅꯤꯡ ꯑꯅꯤ ꯂꯥꯒꯂ ꯑꯃꯁꯨꯡ ꯔꯤꯡꯂ ꯖꯥꯑꯣꯕ ꯕꯑꯗ-ꯑꯀ ꯌꯥꯅ (MASTEC)꯫ ꯖꯃꯗꯃꯤꯅꯤꯡ ꯑꯅꯤ ꯀꯂꯃꯤ ꯑꯃꯂꯗ ꯑꯃꯀꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯒꯤ ꯑꯔꯤꯂꯇꯂꯅꯤꯡ ꯊꯤꯡꯅ, ꯃꯄꯥ ꯑꯃꯂꯗꯥ ꯃꯇꯥꯝ ꯑꯅꯤꯗꯥ ꯑꯃꯃꯥꯄꯤꯑꯣꯅꯤꯡ ꯄꯗꯅ꯫

ꯃꯔꯤꯁꯨꯕ ꯃꯇꯝ ꯑꯁꯤ ꯄꯤꯇꯤꯇ ꯄꯤꯔꯇꯤ꯫ ꯑꯅꯥꯌꯥ (d)-ꯗꯥ ꯑꯣꯄꯤꯇ ꯑꯅꯤꯒꯤ ꯔꯤꯡꯒꯤ ꯑꯃꯤꯑꯣꯏꯅꯤꯡꯒꯤ ꯄꯤꯇꯄꯒꯔꯄ ꯑꯃꯁꯨꯡ ꯄꯤꯇꯤꯇ-ꯄꯤꯔꯃꯤ ꯂꯥꯅ ꯑꯅꯤ ꯊꯕꯅ ꯌꯥꯕꯅꯗ ꯇꯧ ꯃꯀꯤꯊꯅ ꯑꯣꯃ ꯑꯃꯁꯨꯡ ꯂꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯤꯗꯑꯣ ꯑꯣꯒꯅꯤꯡꯗ ꯑꯤꯇꯤꯑꯣꯗ: ꯄꯥꯃꯥꯄꯗ ꯌꯥꯄꯕ ꯅꯕꯅꯗꯒꯤ ꯔꯤꯡꯕ ꯄꯤꯇꯤꯇ, ꯆꯦꯄꯒꯤ ꯑꯀꯄꯥꯌꯗꯥ ꯑꯃꯀ ꯀꯤꯄꯤꯃꯤ ꯖꯥꯑꯣꯕ ꯑꯀꯤꯅꯔꯑꯣ ꯃꯑꯣꯀꯑꯣꯏꯌ, ꯑꯣꯅꯌꯃꯤ ꯇꯥꯗ ꯍꯧꯕꯒꯤ ꯊꯥꯑꯗꯃꯤ

ꯃꯃꯤꯡꯗ, ꯃꯇꯧꯀꯗ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗ ꯊꯀꯗꯨꯅꯕ, ꯌꯦꯂꯣꯟꯕꯒꯤ, ꯁꯦꯝꯁꯤꯜꯂꯛ ꯂꯩꯕꯥꯛ ꯄꯂꯊꯄꯂꯣꯛꯀꯤꯁꯨ ꯃꯦꯁꯥꯝꯍꯩ ꯅꯤꯁꯗꯥ꯫ ꯃꯅꯤꯊꯥꯡ ꯁꯃꯒꯤꯁꯨ ꯀꯅꯥꯏꯕ ꯂꯃꯆꯥꯡꯗꯤ ꯑꯗꯨ ꯃꯦꯂꯂꯁꯕ ꯅꯥꯅꯥꯕꯒꯤ ꯕꯤꯅꯥꯕꯌ ꯑꯂꯤ ꯍꯟꯁꯂꯤ, ꯑꯃꯁꯨꯡ ꯑꯍꯥꯟꯅꯥ ꯁꯃ ꯑꯂꯤꯒꯤꯁꯨ ꯑꯃꯌꯥ ꯀꯗꯅꯤꯁꯥ꯫

ꯃꯆꯥꯡꯕ ꯃꯣꯡ ꯑꯗꯨ ꯅꯤꯌ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯁꯤꯗꯔꯦ꯫ ꯑꯅꯥꯗꯣꯃ (e)-ꯗ ꯃꯔꯦꯍꯕꯨ ꯅꯕꯃꯒꯤ ꯂꯤꯄꯣꯃꯒꯤ ꯑꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯡ ꯄꯨꯕꯒꯤ ꯊꯦꯁꯥ ꯄꯨꯁꯤꯡꯃꯥ ꯃꯔꯦꯔꯒꯤ ꯑꯅꯌꯇꯣꯌ ꯈꯥꯦꯕ ꯃꯅꯨꯡꯗ ꯄꯦꯕ ꯂꯣꯦꯕꯇ ꯑꯦꯅꯗ ꯇꯦꯅ, ꯌꯤꯃꯗ ꯂꯥꯅ ꯑꯣꯁꯤꯂꯦꯗ ꯃꯂꯤꯒꯤ ꯈꯂꯁꯅꯂꯣꯡ ꯇꯣꯥꯂꯤꯡꯒꯤꯁꯃꯥ ꯄꯦꯕꯨꯃꯂ꯫ ꯄꯃꯅꯤꯥ ꯑꯂꯤ ꯃꯃꯤꯡꯁ ꯅꯤꯌꯂꯤꯡꯒꯤ ꯂꯃ ꯑꯃ ꯑꯦꯅꯕꯃꯃꯤ: "ꯃꯂꯤꯅꯨꯕ ꯄꯃꯅꯤꯥꯄ ꯇꯣꯥ 500 ꯃꯕꯦꯇ ꯇꯦꯕꯃꯃꯤ" ("there were nearly 500 lakes in Manipur Valley"), ꯑꯃꯁꯨꯡ ꯂꯃꯈꯣꯇꯅꯤꯌ, ꯅꯦꯕꯦꯃꯅꯤꯌ, ꯄꯥꯔꯣꯇꯅꯤꯌ, ꯂꯆꯥꯅꯅꯤꯌ, ꯄꯦꯕꯥꯅꯤꯌ ꯑꯃꯁꯨꯡ ꯅꯃꯦꯅ ꯅꯤꯌ ꯑꯗꯨ ꯈꯌꯄꯕꯥꯂꯤꯕ ꯂꯌꯕꯒꯤ ꯃꯥꯄꯕꯥꯂꯤꯕꯂꯤꯡꯒꯤ ꯃꯨꯡꯁ ꯇꯦ (MASTEC)꯫ ꯒꯕꯣꯄꯕ ꯅꯃꯈꯇꯒꯤ ꯃꯂꯄꯕ ꯅꯤꯇꯦꯂꯗ 2043 ꯈꯑꯦꯕ ꯃꯂꯤꯒꯤ ꯌꯣꯌꯇꯣꯂꯅꯂꯤꯡ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯇꯦꯆꯥꯒꯤ ꯂꯃ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯈꯑꯦꯕ ꯄꯂꯊꯄꯇꯂ, ꯑꯁꯤꯒꯤ ꯃꯂꯤꯒꯤ ꯅꯂꯤꯡ ꯇꯦꯈꯃꯂꯤꯡ 563.54 ha-ꯗꯒꯤ 643.42 ha ꯈꯑꯦꯕ ꯄꯣꯂꯒꯌꯂ (ꯃꯂꯄꯕ ꯅꯤꯇꯦꯂ)꯫ ꯇꯦꯕꯨꯥꯃ ꯇꯦꯔꯂꯗ ꯃꯤꯅꯤꯕ ꯂꯄꯦꯕꯣꯇ ꯑꯂꯤ ꯂꯕꯨꯥ 7-ꯒꯤ ꯃꯃꯅꯣꯂꯣꯄꯕꯤ ꯂꯄꯦꯕꯣꯇꯒꯤ ꯕꯨꯇ ꯃꯅꯤꯁ ꯂꯣꯃꯇꯤꯂꯒꯁꯕꯂ, ꯑꯦꯌꯈꯦꯇꯗ ꯂꯌꯄꯣ꯫ ꯅꯤꯌ ꯑꯃꯌꯄꯒꯤꯁꯃꯥ ꯂꯄꯣꯇ–ꯂꯄꯦꯕꯣꯇꯒꯤ ꯃꯕꯤ ꯑꯃꯌꯄꯦ ꯈꯥꯅꯤꯁꯣ, ꯃꯕꯃ ꯑꯁꯤꯗ ꯃꯇꯦꯇ ꯑꯂꯤꯗ ꯃꯂꯤꯡ ꯑꯃꯒꯤ ꯃꯄꯌꯄ ꯂꯕꯇꯣ ꯑꯃꯤ ꯄꯥꯅ꯫

ꯄꯕꯨꯥꯂꯕ, ꯄꯕꯣꯌꯂꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯅꯤꯂꯕ ꯃꯣꯂꯂꯤꯡ ꯑꯂꯤ ꯌꯤꯥꯒꯤ ꯅꯦꯥꯂꯤꯡ, ꯇꯤꯕꯤꯕꯃ ꯑꯃꯁꯨꯡ ꯑꯌꯦꯕꯂꯤꯥꯂꯤ꯫ ꯑꯅꯥꯗꯣꯃ (f)-ꯗ ꯂꯣꯕꯤꯇ ꯑꯂꯤꯒꯤ ꯌꯤꯥ ꯑꯃꯁꯨꯡ ꯌꯤꯥ ꯑꯌꯦꯥꯕꯒꯤ ꯑꯣꯁꯤꯂꯦꯂꯤꯥꯒꯤ ꯌꯤꯥꯒꯤ ꯅꯦꯥꯒꯤ ꯕꯨꯇ ꯃꯄꯨꯥ ꯅꯦꯂꯂꯤ: ꯕꯇꯃꯤꯥ ꯈꯣꯥꯄꯕꯒꯤ ꯇꯦꯔꯂꯗ ꯂꯄꯅꯤ ꯑꯃꯤ, ꯂꯕꯒꯣ ꯄꯕꯕ ꯅꯂꯤꯥ ꯅꯌꯦꯕꯒꯤ ꯃꯕꯥꯂꯤꯥ, ꯅꯕꯅꯅꯒꯤ ꯌꯥꯕ ꯃꯅꯦꯥꯒꯤ ꯇꯣꯒꯣꯇꯒꯤ ꯃꯊꯥꯄ ꯌꯤꯃꯕꯕꯕꯅꯂ 0.5 m ꯇꯦꯕ ꯅꯦꯒꯕꯌ ꯑꯃꯁꯨꯡ ꯌꯤꯃꯕꯕꯕꯅꯂ ꯅꯨꯥ 24-ꯒꯤ ꯇꯦꯥ, ꯃꯕꯃꯅꯤ ꯅꯦꯥꯂꯤꯥ ꯑꯂꯤ ꯇꯦꯥ ꯇꯣꯅꯇꯕ ꯃꯄꯨꯥꯁ ꯅꯨꯥ ꯅꯕꯒꯤ ꯃꯨꯡꯁ ꯄꯂꯊꯕꯃꯅ, ꯑꯁꯤꯕ ꯇꯦꯥꯄꯥ ꯊꯃꯄꯂꯕ ꯇꯦꯃ ꯅꯨꯕꯃꯅ (MASTEC)꯫ ꯑꯅꯥꯗꯣꯃ (g)-ꯗ ꯌꯤꯃꯗ ꯂꯥꯅ ꯑꯣꯁꯤꯂꯦꯒꯤ ꯕꯕꯥ-ꯄꯃꯅꯤꯥꯃꯤ ꯕꯨꯇ ꯑꯂꯤ ꯇꯤꯕꯤꯕꯃ ꯅꯤꯇꯣꯦꯁ ꯅꯨꯕꯃꯅ, ꯃꯕꯃꯅꯤ ꯃꯂꯤ ꯅꯤꯇꯣꯦ ꯑꯁꯤꯃꯥ ꯑꯃꯁꯨꯡ ꯄꯕꯣꯇ ꯑꯁꯤꯃꯥꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ CWC-ꯒꯤ ꯒꯣꯇ ꯑꯃꯅꯥꯄꯗ ꯃꯅ ꯊꯥꯕ ꯃꯈꯃꯒꯤ ꯒꯣꯇꯒꯤ ꯃꯦꯂꯂꯗ ꯇꯨꯗꯅ 1989-ꯒꯤ ꯅꯂꯤꯥ ꯅꯌꯦ ꯑꯁꯤꯃꯥꯄ ꯃꯂꯤꯒꯤ ꯅꯕꯅꯅꯒꯤ ꯌꯥꯕ ꯇꯣꯒꯣꯇ ꯊꯃꯅꯤ꯫ ꯑꯅꯥꯗꯣꯃ (h)-ꯗ WRD-ꯒꯤ ꯑꯌꯦꯕ ꯑꯃꯁꯨꯡ ꯃꯅꯨꯒꯤ ꯑꯌꯦꯕ ꯄꯥꯅ ꯃꯕꯃꯅꯤ ꯅꯦꯂ ꯑꯃꯒꯤ ꯅꯌꯊꯥꯁ ꯂꯌꯕꯒꯤ ꯑꯄꯦꯅꯅ ꯕꯦꯅꯤ ꯑꯃꯒꯤ ꯅꯦꯥꯕꯂꯁ ꯅꯂꯤꯥ ꯊꯅꯦꯃꯅ ꯅꯤꯇꯅꯂ ꯑꯃꯤ ꯃꯅꯦꯌ ꯇꯦꯄꯗ ꯌꯣꯥ ꯄꯕꯕ ꯌꯤꯅꯣ, ꯑꯃꯁꯨꯡ ꯃꯕꯃꯅꯤ ꯂꯄꯣꯌꯃꯤ ꯄꯦꯂꯂꯤꯥꯒꯤ ꯅꯦꯥꯕꯂꯂꯤꯥ ꯅꯌꯔꯅꯦꯃꯅ ꯕꯨꯇ ꯑꯃꯌꯄꯦ ꯇꯦꯄꯣ (ꯂꯕꯨꯥ 6)꯫ ꯑꯅꯥꯗꯣꯃ (h)-ꯒꯤ ꯇꯦꯅꯂꯂꯤꯥꯗ ꯑꯦꯌꯈꯦꯇ ꯑꯃꯤ ꯃꯅꯦꯅꯅ ꯂꯕ ꯌꯤꯕꯒꯣ ꯄꯌꯔꯕ ꯌꯕꯣꯅ ꯇꯦꯅ, ꯃꯂꯤꯒꯤ ꯇꯣꯒꯣꯇ ꯂꯌꯄꯣ: ꯕꯅ-ꯇꯦ 93-ꯒꯤ ꯕꯈꯕꯂꯤꯥ, ꯇꯦꯄꯥꯄꯥ ꯑꯣꯥꯌꯃꯤ ꯇꯦꯂꯂꯤꯥ ꯑꯃꯁꯨꯡ ꯅꯣꯅꯤ-ꯇꯣꯂꯅ ꯑꯣꯥꯌ ꯑꯂꯤ ꯃꯅꯦꯌ ꯌꯌꯂꯕ ꯃꯈꯃꯅ ꯌꯌꯂꯤ, ꯑꯃꯁꯨꯡ ꯕꯅ-ꯇꯦ 94-ꯗ ꯄꯌꯕꯤꯕ ꯃꯅꯇꯒꯤ "ꯄꯅꯌꯣꯂꯌ ꯈꯇꯅ ꯇꯣꯒꯣꯇ" ("highest flood level") ꯑꯃꯌꯄꯦ ꯄꯦꯂ ꯑꯃꯌꯄꯒꯤꯁꯃꯥ ꯊꯃꯇꯃꯅꯕꯗ ꯈꯇꯦꯕ ꯇꯣꯒꯣꯇꯂꯤꯥ ꯑꯂꯤ ꯃꯇꯦꯇ 6.11 ꯃꯄꯨꯥ ꯅꯦꯂ ꯄꯦꯅ꯫

5.9 ꯇꯦꯅꯂꯌ-ꯅꯕꯦꯕꯣꯕꯤꯇꯤꯄꯒꯤ ꯃꯣꯂꯂꯤꯥ

5.9.1 ꯄꯦꯅꯅꯣꯇ ꯂꯌꯕꯒꯤ ꯕꯣꯥꯌꯦꯄꯕꯗ ꯂꯦꯥꯄꯂꯕ ꯑꯦꯌꯈꯦꯇ ꯑꯃꯅ ꯅꯂꯤꯥ ꯌꯣꯂꯊꯕꯃꯅ ꯑꯣꯇꯤꯃꯣꯂꯌ ꯅꯅꯤꯥꯃꯥ ꯃꯅꯦꯅ ꯅꯤꯕꯤꯕ ꯃꯣꯂꯂꯤꯥꯒꯤꯁꯃꯥ ꯌꯣꯥ ꯄꯦꯒꯅꯕꯂꯤ꯫ ꯅꯤꯇꯅꯂꯒꯤ ꯃꯂꯤꯥ ꯅꯅꯤꯥꯃꯥꯄ ꯅꯕꯅꯅꯒꯤ ꯃꯂꯕ ꯑꯁꯤꯗ ꯌꯌꯂꯒꯂꯤ: ꯂꯄꯦꯕꯣꯇ, ꯅꯂꯤꯥꯒꯤ ꯇꯣꯒꯣꯇ, ꯅꯤꯅꯅꯃꯤ ꯂꯦꯅꯇ ꯑꯃꯁꯨꯡ ꯅꯤꯃꯅꯃꯤ ꯃꯣꯅꯤꯂꯤꯄꯤ꯫

ꯄꯣꯕꯇ 5.2 — ꯄꯦꯅꯅꯣꯇ ꯑꯃꯁꯨꯡ ꯄꯕꯣꯇꯒꯤ ꯑꯦꯌꯈꯦꯇꯂꯤꯥꯒꯤ ꯇꯦꯅꯂꯌ-ꯅꯕꯦꯕꯣꯕꯤꯇꯤꯄꯒꯤ ꯃꯣꯂꯂꯤꯥ

ꯃꯣꯂ	ꯇꯦꯥ ꯄꯨꯕ	ꯄꯣꯇꯌꯦꯄꯕ	ꯌꯌꯂꯕ	ꯄꯨꯃꯈꯃ
J1	ꯃꯅꯂꯕ-ꯂꯤꯂꯄꯣꯃ ꯅꯤꯇꯅꯂ AEP, Tc-ꯗꯒꯤ 24 h	MHWS + SLA (ꯄꯦꯅꯅꯣꯇ ꯃꯕꯒ)	ꯃꯅꯂꯕ ꯂꯤꯂꯄꯣꯃ	ꯃꯇꯦꯇ 2.12(a); ꯃꯇꯦꯇ 5.7.1
J2	1% AEP, ꯃꯇꯦꯇ 2.5.2-ꯒꯤ ꯃꯄꯃ ꯂꯥꯕ ꯅꯨꯃꯂꯃꯥ	HAT + surge + SLA	ꯃꯣꯇꯕ ꯂꯤꯂꯄꯣꯃ, ꯅꯤꯄꯣꯂꯂꯂ, ꯅꯨꯅꯕꯤꯂꯤꯥ, ꯅꯤꯃꯅꯗ ꯊꯅꯦꯃꯅ ꯂꯤꯂꯄꯣꯃꯂꯤꯥ	ꯃꯇꯦꯇ 5.7.1
J3	10% AEP, **48 h**	1% AEP-ꯒꯤ ꯂꯄꯤꯇ-ꯌꯦꯄꯕ ꯇꯣꯒꯣꯇ + SLA	ꯃꯣꯇꯕ ꯂꯤꯂꯄꯣꯃ, ꯅꯤꯄꯣꯂꯂꯂ, ꯅꯨꯅꯕꯤꯂꯤꯥ, ꯅꯤꯃꯅꯗ ꯊꯅꯦꯃꯅ ꯂꯤꯂꯄꯣꯃꯂꯤꯥ	ꯃꯇꯦꯇ 2.12(b)

ꯀꯣꯗ	ꯂꯤꯗ ꯇꯥꯏꯝ	ꯇ꯭ꯔꯤꯒꯔ	ꯊꯧꯗꯣꯛ	ꯔꯦꯐꯔꯦꯟꯁ
J4	ꯑꯀꯅꯕ AEP, **48 h** (72 h ꯄꯥꯝꯅꯕ ꯑꯣꯏꯕ)	J1 ꯑꯃꯁꯨꯡ ꯀꯅꯐꯔꯝ ꯇꯧꯔꯕ ꯃꯥꯄ, **6 h-ꯒꯤ ꯂꯤꯗ ꯇꯥꯏꯝ** ꯑꯃꯒꯥ ꯂꯣꯏꯅꯅ (ꯀ꯭ꯂꯣꯖ 5.10)	ꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯣꯡ ꯂꯩꯕ ꯂꯧꯁꯤꯡ ꯇꯧꯕꯒꯤ ꯃꯦꯊꯗ ꯑꯦꯛꯁꯦꯟ ꯇꯧꯕꯗꯥ	ꯀ꯭ꯂꯣꯖ 5.10
R1	ꯃꯅꯥꯛꯇꯥ ꯑꯀꯅꯕ AEP	10% AEP ꯂꯣꯏꯁꯤꯟꯕ ꯂꯩꯕ ꯇꯥꯔꯕ	ꯇꯥꯔꯕꯒꯤ ꯑꯦꯛꯁꯦꯟꯁꯤꯡ	ꯀ꯭ꯂꯣꯖ 5.8.4(a)
R2	ꯃꯅꯥꯛꯇꯥ 10% AEP	ꯑꯀꯅꯕ-AEP ꯂꯣꯏꯁꯤꯟꯕ ꯂꯩꯕ ꯇꯥꯔꯕ	ꯇꯥꯔꯕꯒꯤ ꯑꯦꯛꯁꯦꯟꯁꯤꯡ	ꯀ꯭ꯂꯣꯖ 5.8.4(b)

5.9.2 ꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯑꯣꯂꯤꯍꯣꯕꯁꯤꯡꯒꯤꯗꯃꯛ, ꯁꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯕꯁꯤꯡ ꯑꯁꯤ J2 ꯑꯃꯁꯨꯡ J3-ꯒꯤ ꯇ꯭ꯔꯤꯒꯔꯁꯤꯡꯒꯤ ꯂꯦꯟꯅꯅ ꯊꯧꯔꯥꯡꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 2.5.3)꯫

5.9.3 ꯇꯔꯨꯅ ꯃꯦꯊꯗꯣꯂꯣꯖꯤ ꯇꯥꯔꯕꯒꯤ ꯑꯦꯛꯁꯦꯟꯁꯤꯡꯒꯤꯗꯃꯛ, R1 ꯑꯃꯁꯨꯡ R2 ꯑꯁꯤ ꯇꯥꯔꯕꯒꯤ ꯃꯔꯨꯒꯤ ꯃꯍꯩ ꯑꯣꯏꯕ ꯃꯇꯝꯒꯤ ꯕꯣꯠꯅꯥꯏ J1 ꯇꯔꯨꯕ ꯀꯃꯒꯤ ꯑꯣꯏꯅꯗꯅ ꯊꯧꯔꯥꯡꯒꯗꯕꯅꯤ꯫ ꯑꯣꯏꯅꯃꯛꯇꯨ ꯃꯍꯦꯔꯣꯏ J2-ꯗꯥ ꯃꯑꯣ ꯇꯧꯕ ꯌꯥꯏ꯫

5.9.4 ꯇ꯭ꯔꯤꯒꯔ ꯑꯁꯤ ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯦꯛꯁꯦꯟ ꯇꯣꯉꯥꯟꯕ ꯃꯑꯣꯡ ꯂꯩꯕ ꯂꯣꯏꯁ ꯑꯃꯅ ꯄꯨꯝꯅꯃꯛ ꯂꯩꯕꯅꯥ, ꯀꯣꯗ ꯑꯗꯨ ꯃꯁꯨꯡ ꯏꯕꯤ ꯑꯣꯏꯗꯕ ꯑꯦꯛꯁꯦꯟ ꯑꯣꯟꯕ ꯂꯣꯏ꯫ ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯁꯀꯁꯀꯤꯕ ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯥꯀꯤ ꯒꯦꯜ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯣꯏꯕꯅꯕꯅꯤ꯫

> **ꯃꯦꯊꯗꯣꯂꯣꯖꯤ ꯇꯣꯏꯁꯤ.** ꯀ꯭ꯂꯣꯖ 2.12-ꯗ ꯂꯤꯡꯈꯠ ꯀꯣꯗ ꯑꯗꯨ ꯑꯣꯏꯕꯅꯤ꯫ ꯀꯣꯗ (a) ꯑꯁꯤ MHWS ꯑꯃꯁꯨꯡ ꯁꯤ-ꯂꯣꯏꯁꯤꯟ ꯑꯣꯂꯦꯔꯣꯏꯁꯤꯡ ꯂꯦꯟꯅꯅ ꯑꯀꯅꯕ ꯂꯤꯗ ꯇꯥꯏꯝꯅꯤ꯫ ꯀꯣꯗ (b) ꯑꯁꯤ 1% ꯐꯣꯔꯀꯥꯁ꯭ꯠ-ꯇ꯭ꯔꯤꯒꯔ ꯂꯣꯏꯁꯤꯟꯕ ꯂꯦꯟꯅꯅ 10-yr, ꯁꯨꯡ 48-ꯒꯤ ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯥꯅꯤ꯫ ꯃꯣꯡꯔꯣꯏ ꯑꯁꯤꯗ ꯃꯣꯂꯄ-ꯁꯤꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯑꯀꯅꯕꯁꯤꯡꯒꯤꯗꯃꯛ HAT ꯑꯃꯁꯨꯡ ꯁꯄꯂ ꯇꯣꯏꯁꯤꯟꯅꯤ (ꯀ꯭ꯂꯣꯖ 5.7.1)꯫ ꯀꯣꯗ J2-ꯗ ꯃꯍꯦꯔꯣꯏꯁꯤꯡ ꯑꯁꯤ ꯁꯨꯖꯤꯟꯅꯤ꯫ J4 ꯑꯁꯤ ꯑꯦꯛꯁꯦꯟ ꯑꯣꯏꯗꯕ ꯃꯇꯝꯒꯤ ꯊꯣꯛꯅꯤ, ꯃꯁꯤꯗ ꯂꯣꯏꯁꯤꯟ ꯑꯃꯍꯣꯡꯇꯒꯤ ꯃꯇꯨꯡꯇ ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯥꯀꯤ ꯊꯣꯛꯅꯥꯃꯂꯗ ꯇꯔꯨꯅꯀꯤ ꯃꯇꯝ ꯇꯣꯏꯁꯤ ꯇꯧꯏ꯫ ꯂꯤꯗ ꯇꯥꯏꯝ ꯑꯃꯁꯨꯡ ꯁꯄꯂ ꯑꯁꯤ ꯃꯅꯥꯛꯇꯦꯒꯤ ꯃꯄꯊ ꯑꯃꯍꯣꯡꯇꯅꯒꯤ ꯂꯀꯅ, ꯃꯄꯊ ꯑꯗꯨ ꯃꯍꯦꯔꯣꯏ ꯃꯄꯤ ꯂꯣꯏꯅꯕ ꯑꯣꯟꯅ ꯂꯩꯕ ꯌꯥꯏꯅꯣ (ꯀ꯭ꯂꯣꯖ 2.12-ꯒꯤ ꯃꯦꯊꯗꯣꯂꯣꯖꯤ ꯇꯣꯏꯁꯤ)꯫ ꯀꯣꯗꯁꯤꯡ ꯑꯁꯤ ꯂꯣꯟꯕ ꯃꯍꯨꯝ ꯁꯤꯖꯤꯟꯁꯤꯡ (surrogate) ꯑꯣꯟꯄꯤ, IMD-ꯒꯤ ꯂꯤꯗ ꯇꯥꯏꯝ ꯑꯃꯁꯨꯡ ꯇꯔꯨꯅ-ꯒꯣꯂꯀꯤ ꯄꯣꯀꯄꯅꯁꯤꯡꯒꯤ ꯐꯣꯔꯀꯥꯁ꯭ꯠꯁꯤꯡꯒꯥ ꯂꯤꯡꯈꯠ ꯑꯣꯂꯗꯂꯣꯃ ꯑꯃꯍꯩ ꯂꯣꯄꯗ ꯃꯇꯝꯅ ꯃꯍꯨꯝ ꯁꯤꯖꯤꯟꯅꯕꯅꯤ꯫

5.10 ꯑꯦꯛꯁꯦꯟ ꯑꯣꯏꯗꯕ (ꯇꯔꯨꯅ-ꯂꯤꯗ ꯇꯣꯄꯕ) ꯃꯇꯝꯒꯤ ꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯊꯧꯗ

5.10.1 **ꯊꯧꯗꯣꯛ ꯃꯍꯩ.** ꯊꯧꯗ ꯑꯁꯤ ꯃꯍꯦꯅ ꯁꯤꯄꯤꯕꯁꯤꯡꯅ ꯊꯧꯗꯣꯛ:

- ꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯏꯁꯤꯂꯤꯇꯤ ꯂꯧꯁꯤꯡꯗꯃꯛ;
- ꯃꯅꯥꯛꯄ ꯑꯃꯁꯨꯡ ꯃꯂꯄ ꯁꯤꯐꯣꯔꯀꯥꯁ꯭ꯠꯒꯤ ꯑꯣꯂꯤꯍꯣꯕ ꯂꯧꯁꯤꯡꯗꯃꯛ; ꯑꯃꯁꯨꯡ
- ꯁꯀꯁꯀꯤ ꯑꯣꯏꯅꯥꯀꯁꯤ ꯁꯤꯐꯣꯔꯀꯥꯁ꯭ꯠ ꯂꯧꯁꯤꯡꯗꯃꯛ

ꯃꯍꯦꯔꯣꯒꯤ ꯑꯦꯛꯁꯦꯟ ꯇꯣꯉꯥꯟꯕ ꯑꯁꯤ HAT + surge + SLA-ꯅꯒꯤ ꯂꯣꯃꯕ, ꯂꯦꯄꯒꯤ ꯇꯔꯨꯅ-ꯂꯤꯗ ꯂꯦꯄꯒꯤ ꯃꯣꯇꯅ-ꯕꯄꯂ ꯑꯣꯏꯗꯕ ꯑꯣꯀꯁꯤ ꯌꯥꯕ ꯄꯤꯊ ꯑꯃꯅ ꯂꯣꯏꯗ ꯊꯣꯇꯑꯄꯀꯁꯤꯣꯏꯗ (ꯀ꯭ꯂꯣꯖ 5.13)꯫

5.10.2 **ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯥ.** ꯀ꯭ꯂꯣꯖ 2.9.2 ꯑꯃꯁꯨꯡ ꯂꯣꯏꯁꯤꯟ ꯃꯣꯃꯍꯩꯕ ꯁꯨꯡ 48-ꯒꯤ ꯑꯀꯅꯕ ꯐꯣꯔꯀꯥꯁ꯭ꯠ (ꯁꯤꯗ ꯁꯤꯡꯕ ꯑꯄꯔꯕꯅ) ꯑꯁꯤ ꯃꯍꯦꯅ ꯁꯤꯄꯤꯕꯁꯤꯡꯅ ꯁꯤꯂꯤꯃꯂ:

- ꯑꯣꯂꯤꯍꯣꯏꯕ ꯑꯗꯨꯒꯤ AEP: ꯑꯤꯇꯣꯃꯃꯦ, ꯁꯨꯍꯄꯤꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯃꯂꯄ ꯁꯤꯐꯣꯔꯀꯥꯁ꯭ꯠꯒꯤꯗꯃꯛ 1% AEP; ꯃꯅꯥꯛꯄ ꯃꯍꯦꯕꯦꯃꯁꯤꯗꯒꯤꯗꯃꯛ ꯃꯅꯥꯛꯄ-ꯁꯤꯐꯣꯔꯀꯥꯁ꯭ꯠ AEP; ꯑꯃꯁꯨꯡ
- AMC III꯫

ꯁꯨꯡ 72-ꯒꯤ ꯂꯤꯗ ꯇꯥꯏꯝꯒꯤ ꯑꯣꯏꯅꯥꯗꯨ ꯊꯧꯔꯥꯡꯒꯅꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯅꯔꯕ ꯇꯧꯒꯅꯕꯅꯤ꯫

5.10.3 **ꯂꯣꯛ ꯋꯤꯟꯗꯣꯁꯤꯡ.** 5.10.6 ꯃꯈꯥꯗ ꯁꯥꯈꯌ ꯁ꯭ꯄꯗꯤ ꯑꯃꯅꯥ ꯌꯣꯏꯗꯅꯥ ꯀꯤꯗ꯭ꯗꯕꯗꯤ:

- (a) ꯑꯥꯁꯨꯌꯊꯦꯜ ꯑꯁꯤ **ꯃꯈꯥ ꯋꯌꯅꯕ ꯄꯨꯡ 6 ꯈꯨꯗꯤꯡꯒꯤ ꯂꯣꯛ ꯋꯤꯟꯗꯣ ꯑꯅꯤ** ꯍꯤꯡꯅꯤ, ꯃꯊꯆꯒꯤ ꯌꯦꯈꯗꯦꯜ ꯏꯗꯒꯏ ꯃꯈꯥ ꯋꯌꯅꯕ ꯋꯤꯡꯕ ꯌꯦꯈꯗ ꯑꯅꯤꯗ ꯃꯋꯦꯈ ꯍꯆꯈꯨꯅꯥ꯫ ꯁꯦꯃꯤ-ꯗꯥꯈꯨꯗꯅꯦꯜ (semi-diurnal) ꯌꯦꯈꯗ ꯑꯃꯒꯤꯗꯃꯋ, ꯃꯗꯆ ꯑꯈꯨꯅꯥ ꯋꯤꯟꯗꯣꯁꯤꯡ ꯄꯥꯕꯒꯤ ꯃꯌꯆꯁꯤꯡ ꯑꯁꯤ ꯄꯨꯡ 12.4 ꯃꯗꯥꯜ ꯌꯥꯏꯗꯅꯩ꯫
- (b) ꯂꯣꯛ ꯋꯤꯟꯗꯣ ꯈꯨꯗꯤꯡꯃꯋꯏ ꯃꯌꯆꯗ, ꯀ꯭ꯗꯦꯒꯤꯌꯤ ꯗꯤꯁꯌꯥꯗꯂ ꯑꯁꯤ **ꯁꯨꯋꯔꯅꯤ**꯫
- (c) ꯂꯣꯛ ꯋꯤꯟꯗꯣꯁꯤꯡꯒꯤ ꯃꯗꯋꯌ, ꯀ꯭ꯗꯦꯒꯤꯌꯤ ꯗꯤꯁꯌꯥꯗꯂ ꯑꯁꯤ J1 ꯌꯥꯍꯗꯦꯜ ꯏꯗꯒꯏ ꯌꯥꯡꯕꯆꯅꯥ ꯏꯦꯂꯏꯦꯂꯦꯌ ꯌꯥꯍ, ꯊ꯭ꯂꯦꯀ ꯒꯦꯌ ꯑꯃꯁꯨꯡ ꯅꯋ-ꯗꯤꯌꯗꯋ ꯒꯕꯒ ꯑꯃꯌꯌꯒꯤ ꯄꯦꯗ ꯂꯥꯁ (head loss) ꯌꯥꯑꯥꯅꯩ꯫
- (d) ꯑꯄꯅꯕ ꯂꯣꯛ ꯋꯤꯟꯗꯣ ꯑꯁꯤ ꯅꯥꯡ ꯈꯨꯕꯒꯤ ꯍꯥꯗꯥꯋꯏ ꯑꯗꯥꯍꯕ ꯄꯨꯡ 24-ꯒꯤ ꯀꯤꯋ ꯄꯨꯡ-1-ꯒꯤ ꯕ꯭ꯂꯥꯋꯌ ꯃꯌꯥꯍ ꯍꯆꯈꯨꯅꯥ ꯍꯆꯒꯗꯕꯅꯤ꯫ ꯑꯄꯅꯕ ꯋꯤꯟꯗꯣ ꯑꯈꯨ ꯀꯤꯋ ꯕ꯭ꯂꯥꯋ ꯑꯈꯨꯗ **ꯄꯥꯈꯨꯅꯩ** ꯑꯅꯤꯁꯨꯕ ꯗꯦ ꯑꯃꯁꯨ ꯌꯥꯒꯗꯕꯅꯤ꯫ ꯄꯦꯅꯩ ꯏꯦꯕ ꯑꯈꯨꯅꯥ ꯌꯌꯂꯒꯅꯤ꯫

5.10.4 **ꯃꯍꯥ ꯌꯥꯕ.** ꯁ꯭ꯌꯥꯗꯦꯂ ꯑꯃꯁꯨꯡ ꯀꯃꯀ ꯌꯥꯕ (ꯀꯤꯗꯕ ꯃꯊꯆꯗ) ꯑꯁꯤꯅꯩ ꯍꯦꯊ꯭ꯂꯥ ꯑꯁꯤ ꯍꯃꯂꯤꯅꯒꯗꯕꯅꯤ, ꯃꯗꯆ ꯑꯈꯨꯅꯥ ꯌꯦꯋ ꯀꯨꯆꯕꯗ:

- (a) ꯗꯤꯌꯦꯏꯁꯦ ꯊꯦꯁꯤꯂꯤꯌꯤ ꯑꯃꯌꯌꯗ ꯍ꯭ꯕꯍꯗꯒꯤ ꯌꯤꯏꯕ ꯁ꯭ꯌꯦꯂ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯍꯃꯗꯂꯦꯅꯩꯁꯤ ꯁ꯭ꯀꯤꯋꯦ ꯏ꯭ꯗꯦꯁ꯭ꯌꯏ ꯃꯈꯥꯗ ꯂꯒꯗꯕꯅꯤ, ꯃꯗꯆ ꯑꯈꯨꯅꯥ ꯁ꯭ꯀꯤꯋꯦ ꯑꯁꯤ ꯍꯕꯋ ꯌꯥꯗꯦ꯫ ꯑꯥꯁꯨꯌꯊꯦꯜ ꯍꯤꯏꯂꯕ ꯃꯌꯆꯒꯤ ꯁ꯭ꯌꯦꯂ ꯑꯁꯤ ꯊ꯭ꯗꯤ-ꯑꯥꯁꯨꯌꯊꯦꯜ ꯗꯤꯂꯍꯦꯒꯤ 1% AEP-ꯒꯤ ꯍ꯭ꯕꯍꯗꯒꯤ ꯌꯤꯏꯕ ꯍꯁꯤꯏꯒꯤ ꯂꯦꯒꯦꯜꯗꯒꯤ ꯌꯤꯏꯂꯕꯗ, ꯃꯁꯤ ꯏ꯭ꯂꯥꯂ 4.9.3-ꯒꯤꯗꯃꯋ ꯊꯦꯁꯤꯂꯤꯌꯤ ꯑꯈ꯭ꯒꯤ 1% AEP-ꯒꯤ ꯍ꯭ꯕꯍꯗꯒꯤ ꯌꯤꯏꯕ ꯍꯁꯤꯏꯒꯤ ꯂꯦꯒꯦꯜ ꯑꯥꯍꯗꯏꯍ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯀꯤꯋꯦ ꯏ꯭ꯗꯦꯁ꯭ꯌ, ꯊ꯭ꯗꯤꯕꯥꯗꯗ ꯑꯃꯁꯨꯡ ꯌꯥꯜꯒꯤ ꯑꯌꯤꯏꯕ ꯃꯁꯤꯗꯒꯤ ꯍꯆꯂꯤ;
- (b) ꯃꯍꯅꯗ ꯑꯃꯁꯨꯡ ꯃꯦꯂꯗ ꯁꯤꯁ꯭ꯌꯦꯆꯁꯤꯏꯗ ꯍ꯭ꯕꯍꯗꯒꯤ ꯌꯤꯏꯕ ꯁ꯭ꯌꯦꯂ ꯑꯁꯤꯅꯩ ꯁ꯭ꯗꯋ 6-ꯒꯤ ꯂꯤꯃꯤꯌꯁꯤꯏ ꯃꯦꯅꯒꯗꯕꯅꯤ: ꯕꯤꯜꯗꯤꯏꯒꯤ ꯊ꯭ꯂꯥꯗ ꯂꯦꯒꯦꯜꯁꯤꯏ, ꯑꯃꯁꯨꯡ ꯏ꯭ꯗꯦꯁ꯭ꯌꯦꯗ 150 mm-ꯗꯒꯤ ꯄꯦꯗꯕ ꯑꯃꯁꯨꯡ ꯍ꯭ꯕꯍꯗꯒꯤ ꯂꯨꯕ ꯃꯊꯆꯗ 350 mm-ꯗꯒꯤ ꯄꯦꯗꯕ ꯂꯆꯕꯤꯒꯤ ꯂꯨꯕ; ꯑꯃꯁꯨꯡ
- (c) ꯀ꯭ꯗꯥꯀꯗꯌꯤ ꯏꯂꯦꯋꯁꯦ ꯑꯃꯌꯌꯅꯩ ꯃꯁꯤꯅꯩ ꯁꯦꯕ ꯌꯥꯗꯤꯕ ꯍ꯭ꯕꯍꯗꯒꯤ ꯅꯦꯆꯕ ꯑꯥꯀꯅꯤꯏꯒꯤ ꯃꯍꯋꯌ ꯁꯗꯌꯥꯗꯂ (surcharge) ꯌꯥꯗꯦ, ꯅꯌꯗꯒꯤ ꯏ꯭ꯂꯥꯂ 5.11 ꯃꯈꯥꯗ ꯅꯋ-ꯗꯤꯌꯗꯋ ꯒꯕꯒ ꯑꯃ ꯍꯆꯂꯤ꯫

ꯒꯥꯂ꯭ꯆꯒꯤ ꯃꯑꯥꯏꯗ, ꯂꯣꯛ ꯋꯤꯟꯗꯣ ꯈꯨꯗꯤꯡꯃꯋ ꯑꯃꯁꯨꯡ ꯅꯥꯡ ꯈꯨꯕꯒꯤ ꯍꯥꯗꯥꯋ ꯀꯨꯆꯕꯗ:

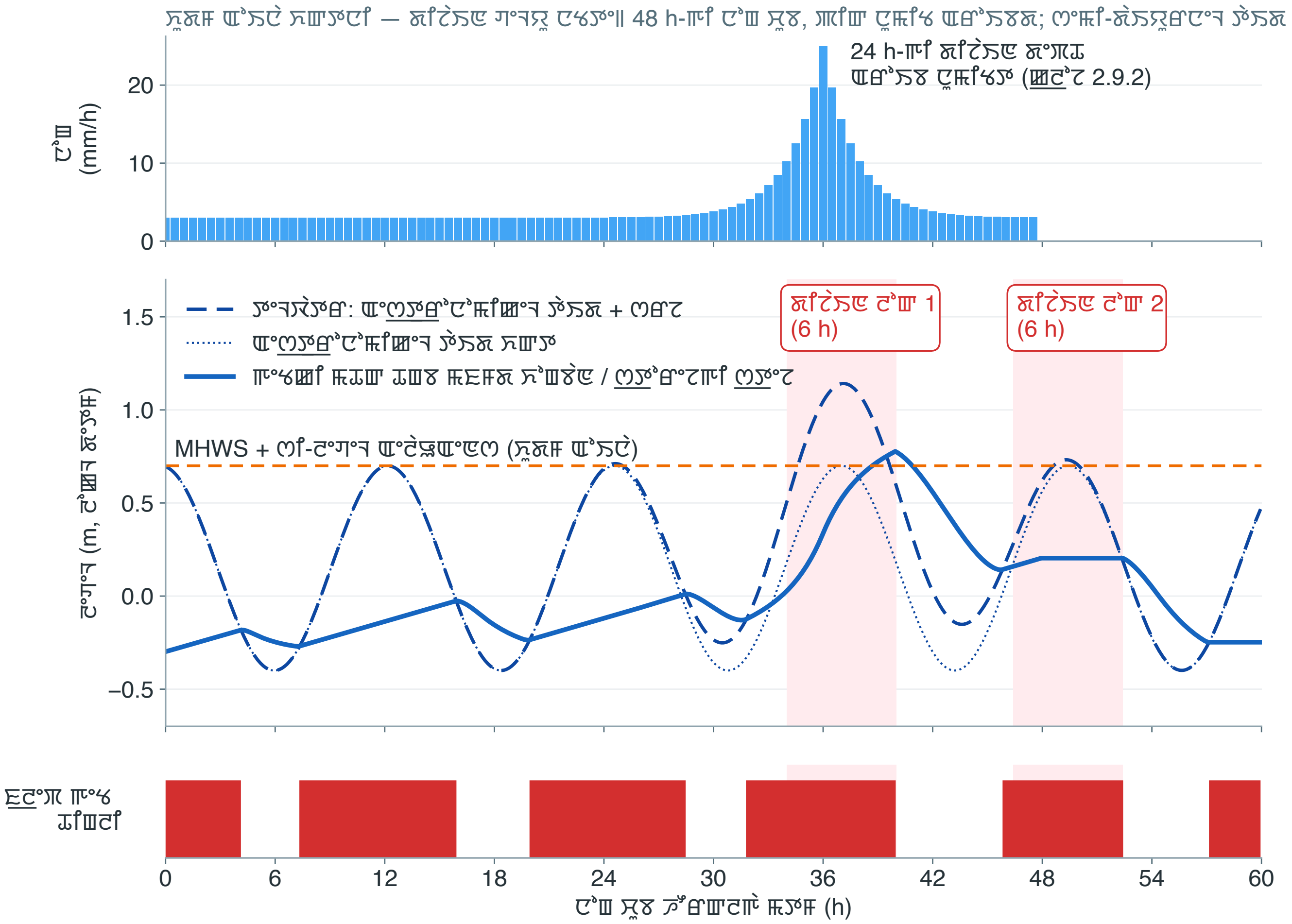
> V_inflow ≤ V_storage available + V_pumped + V_gravity (between locks)

ꯃꯁꯤ ꯒꯥꯂ꯭ꯆ ꯕꯦꯂꯦꯏꯁ ꯑꯃꯍꯋꯌꯅꯩ ꯅꯌꯌꯅꯩ ꯗꯤꯁ꯭ꯌꯤꯏꯅꯩ ꯁ꯭ꯌꯏꯗꯕꯅꯤ꯫ ꯂꯣꯛ ꯋꯤꯟꯗꯣ ꯑꯃ ꯂꯥꯍꯗꯕ ꯃꯄ꯭ꯏꯗ ꯊꯦꯁꯤꯂꯤꯌꯤ ꯈꯨꯗꯤꯡꯃꯋꯌꯒꯤ ꯗꯤꯂꯤꯂ ꯑꯁꯤ ꯁ꯭ꯗꯋ 4-ꯒꯤ ꯗꯤꯂꯤꯂ ꯏꯦꯀꯁꯤꯏꯗꯒꯤ ꯄꯦꯕ ꯌꯥꯍ, ꯃꯗꯆꯗ ꯊꯦꯁꯤꯂꯤꯌꯤ ꯑꯈꯨꯅꯥ ꯄꯥꯂꯤꯋꯌꯤ ꯑꯃ꯭ꯋ ꯄꯏꯗꯥꯋꯂꯕ ꯍꯥꯏꯕꯦ ꯑꯃꯗ ꯍꯁꯤꯏ ꯍꯗꯥꯋꯂꯤ꯫ ꯗꯤꯂꯤꯂ ꯑꯈ꯭ ꯃꯈꯥ ꯍꯏꯕ ꯃꯊꯆꯒꯤ ꯑꯦꯅꯩꯅꯩꯍꯁꯤꯁꯌ ꯌꯥꯑꯄꯅꯒꯗꯕꯅꯤ (ꯏ꯭ꯂꯥꯂ 5.4 ꯑꯃꯁꯨꯡ 5.9)꯫

5.10.5 **ꯅꯥꯡ ꯈꯨꯕꯒꯤ ꯍꯥꯗꯥꯋꯏ ꯃꯈꯨꯏꯗ ꯗ꯭ꯗꯥꯗꯁ꯭ꯂꯦ.** ꯑꯅꯤꯁꯨꯕ ꯂꯣꯛ ꯋꯤꯟꯗꯣꯒꯤ ꯃꯈꯨꯏꯗ, ꯁ꯭ꯌꯥꯗꯦꯂ ꯑꯁꯤ J1 ꯌꯥꯍꯗꯦꯜ ꯏꯗꯒꯏ ꯃꯈꯥꯗ ꯍꯁꯤꯏ ꯍꯗꯥꯋꯏꯗꯕꯅꯤ꯫ ꯏ꯭ꯂꯥꯂ 4.7-ꯒꯤ ꯗ꯭ꯗꯥꯗꯁ꯭ꯂꯦꯒꯤ ꯃꯍꯥ ꯌꯥꯕ ꯑꯁꯤ ꯃꯦꯅꯒꯗꯕꯅꯤ, ꯀ꯭ꯗꯦꯒꯤꯌꯤꯅꯩ ꯃꯦꯅꯕ ꯑꯆꯗꯕ ꯃꯊꯆꯗ ꯀꯃꯀ ꯌꯥꯈꯨꯅꯩ (ꯏ꯭ꯂꯥꯂ 5.12)꯫

5.10.6 **ꯁꯥꯈꯌ ꯁ꯭ꯄꯗꯤ.** ꯁꯥꯈꯌ ꯁ꯭ꯄꯗꯤ ꯑꯃꯅꯥ ꯗꯤꯂꯍꯦꯒꯤ ꯏꯦꯁꯏꯗꯃꯋ ꯁ꯭ꯌꯤꯗ-ꯌꯥꯌꯗ ꯂꯦꯒꯦꯒꯤ ꯌꯥꯍꯆ ꯁꯗꯤꯂ ꯑꯃ ꯀꯤꯗꯕ ꯃꯊꯆꯗ ꯄꯦꯅꯩ ꯁꯏꯕ ꯅꯌꯗꯒꯤ ꯄꯦꯅꯩ ꯈ꯭ꯕ ꯂꯣꯛ ꯑꯃ ꯁꯤꯂꯤꯏꯅꯕ ꯌꯥꯍ꯫ ꯁ꯭ꯌꯗꯤ ꯑꯈꯨꯅꯥ ꯏꯦꯂꯤꯕ꯭ꯗꯦꯌ ꯌꯥꯗꯕ ꯄꯍꯗ꯭ꯗꯥꯗꯍꯅꯃꯤꯋ ꯃꯥꯗꯦ ꯑꯃ, ꯃꯃꯏꯒꯤ ꯍꯥꯗꯥꯋꯁꯤꯏꯒꯤ ꯒꯦꯂ ꯗꯦꯏꯥꯗꯗꯁꯤꯏ, ꯅꯌꯗꯒꯤ ꯁꯗꯂ ꯄꯍꯏꯗꯏꯁ꯭ꯌ ꯑꯃ ꯁꯤꯂꯤꯏꯅꯕ ꯌꯥꯍ꯫ ꯗꯤꯊꯦꯜꯌꯌꯒꯤ ꯄꯦꯅꯩ ꯈ꯭ꯕ ꯂꯣꯛꯁꯤꯏꯒꯤꯗꯃꯋ ꯑꯥꯍꯗꯤꯌꯤꯒꯤ ꯑꯦꯀ꯭ꯂꯒꯦꯜ ꯃꯍꯥ ꯌꯥꯍ꯫ ꯃꯈꯥꯗ ꯀꯤꯗꯤꯕ ꯃꯊꯆꯁꯤꯏꯗ ꯄꯦꯅꯩ ꯁꯏꯕ ꯂꯣꯛ ꯑꯃ ꯁꯤꯂꯤꯏꯅꯒꯗꯕꯅꯤ:

- ꯁꯦꯏꯗ-ꯕꯗꯅꯩ ꯍꯤꯏꯕ (ꯏ꯭ꯂꯥꯂ 5.13) ꯅꯌꯗꯒꯤ ꯌ꯭ꯗꯦꯜꯒꯤ ꯕꯦꯋꯌꯥꯌꯗꯅꯩ (ꯏ꯭ꯂꯥꯂ 5.8) ꯑꯥꯁꯨꯌꯊꯦꯜ ꯑꯁꯤ ꯄꯦꯅꯩ ꯁꯏꯅꯩ ꯍꯤꯏꯂꯤꯏꯅꯩ ꯍꯆꯂꯤ; ꯅꯌꯗꯒꯤ
- ꯌꯏꯗꯆꯅꯕ ꯌꯥꯕ ꯃꯃꯏꯒꯤ ꯍꯥꯗꯥꯋꯁꯤꯏꯗ ꯌꯥꯍꯗ ꯈꯨꯗꯤꯏꯗ ꯄꯨꯡ 6-ꯗꯒꯤ ꯄꯦꯅꯩ ꯌꯦꯂꯌꯥꯌꯗ ꯑꯁꯤ ꯑꯥꯁꯨꯌꯊꯦꯜ ꯍꯦꯒꯗꯌꯏ ꯃꯍꯋꯌ ꯂꯦꯕ ꯒꯦꯂ ꯗꯦꯏꯥꯗꯗꯅꯩ ꯁ꯭ꯌꯂꯤ꯫



ꯃꯃꯤ 5.3 — ꯑꯥꯎꯠꯐꯣꯜ [illegible]: [illegible] 48-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible] ([illegible] 2.9.2), ꯑꯦꯁ꯭ꯠꯔꯣꯅꯣꯃꯤꯀꯦꯜ ꯇꯥꯏꯗ [illegible], [illegible] 6-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ [illegible], ꯑꯃꯁꯨꯡ [illegible] ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ [illegible]꯫ ꯈꯨꯗꯝ ꯑꯣꯏꯅ [illegible] — ꯗꯤꯖꯥꯏꯟ [illegible]꯫ [illegible], MoHUA/CPHEEO Manual on Storm Water Drainage Systems (2019), Part A, §6.3.6-ꯒꯤ [illegible]꯫

> **[illegible].** [illegible] 788.400 m [illegible], [illegible] 790 m [illegible] (WRD, [illegible]; AIIB, 2024), ꯑꯃꯁꯨꯡ 29 ꯃꯦ 2024-ꯗ [illegible] ([illegible]); "[illegible]" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, 2024); [illegible] "[illegible]" ("remains waterlogged for many days every year") (NDB); ꯑꯃꯁꯨꯡ [illegible]: 28 ꯖꯨꯂꯥꯏꯗꯒꯤ 1 ꯑꯒꯁ꯭ꯠ 1989, 22-ꯗꯒꯤ 28 ꯁꯦꯞꯇꯦꯝꯕꯔ 1997, 24 ꯑꯒꯁ꯭ꯠꯇꯒꯤ 3 ꯁꯦꯞꯇꯦꯝꯕꯔ 1999 ꯑꯃꯁꯨꯡ 26 ꯑꯒꯁ꯭ꯠꯇꯒꯤ 6 ꯁꯦꯞꯇꯦꯝꯕꯔ 2000 (MASTEC)꯫ [illegible] 5.8.5-[illegible] 6-ꯒꯤ [illegible] 72-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ [illegible] ꯑꯃꯁꯨꯡ [illegible] ꯑꯃꯁꯨꯡ [illegible] 7-ꯗꯒꯤ [illegible] ꯑꯃꯁꯨꯡ [illegible] 72-ꯗꯒꯤ [illegible]; [illegible] ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗꯒꯤ [illegible] 1 [illegible] 30 ꯁꯦꯞꯇꯦꯝꯕꯔ [illegible]; [illegible]

> ꯃꯇꯨꯡꯗ ꯁꯤꯖ ꯑꯃꯒꯤ ꯁꯨꯔꯒꯤ; ꯀꯣꯌ ꯍꯧꯗꯤꯗꯨ ꯊꯤꯗꯥꯒꯤ ꯄꯨꯡ 48-ꯒꯤ ꯃꯍꯨꯠꯇ ꯁꯃꯏꯁ ꯌꯥꯝꯂꯕ ꯍꯟꯊꯍꯟꯕ; ꯑꯃꯁꯨꯡ ꯌꯤꯗꯒꯤ ꯅꯥꯗꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯌꯤꯊꯔꯤꯕꯇꯔꯤ ꯄꯨꯡ 24-ꯒꯤ ꯇꯥꯡ꯫ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯇꯧꯕ ꯃꯥꯌꯀꯩ ꯃꯇꯝꯗꯨ ꯁꯤꯖꯤꯟꯅꯕ ꯁꯥꯒꯠ: ꯊꯤꯗꯕ ꯀꯣꯌ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯧꯕ ꯑꯦꯃꯔꯖꯦꯟꯁꯤ ꯇꯧꯕ ꯕꯣꯠꯂꯦ ꯑꯣꯏꯅ ꯃꯁꯤꯡꯊꯃꯗꯕ ꯅꯥꯌꯗꯤ꯫
>
> ꯃꯍꯩ ꯌꯥꯝꯗꯕ ꯄꯨꯡ 6-ꯒꯤ ꯇꯥꯡ ꯑꯗꯣꯃꯒꯤ ꯂꯣꯖꯤꯛꯁꯤ ꯑꯣꯏꯅꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯃꯂꯦꯝ ꯇꯧꯕ꯫ ꯃꯁꯤꯗꯥ ꯇꯥꯡ ꯃꯇꯝꯒꯤ ꯊꯣꯛꯂꯛꯄ ꯁꯤꯡꯂꯛꯄ ꯐ꯭ꯂꯣꯅꯁꯤꯡꯒꯤ ꯇꯥꯡꯁꯤ ꯌꯥꯡꯕ ꯌꯣꯅꯁꯤ ꯑꯣꯅꯁꯤꯟ ꯑꯣꯅꯈꯟ ꯂꯝꯕꯤꯁꯤꯡ ꯑꯣꯏꯗꯥ ꯑꯗꯣꯃꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯄ꯭ꯔꯣꯒ꯭ꯔꯥꯝ ꯑꯦꯛꯁꯇꯦꯟꯁꯟꯗꯥ ꯅꯣꯡꯃꯥ ꯊꯥꯎꯔꯤꯕ ꯑꯣꯏꯕ ꯁꯦꯝꯗꯨ꯫ ꯃꯃꯤ 5.3-ꯗ ꯌꯤꯕꯁꯤ ꯑꯗꯣꯃꯀꯤ ꯊꯦꯡꯅꯕꯒꯤ ꯃꯍꯨꯠꯁꯤꯅꯕꯒꯤ ꯍꯥꯏꯔꯕ ꯁꯦꯝꯗꯨ꯫ ꯑꯍꯥꯅꯕ ꯇꯥꯡꯗ ꯇꯥꯡ ꯂꯩꯕꯒꯤ ꯊꯥꯎꯔꯤꯕꯁꯤꯡ ꯁꯤꯡꯕ ꯇꯩꯅ꯫ ꯑꯗꯣꯃꯒꯤ ꯑꯣꯏ ꯂꯥꯏꯔꯤꯛꯁꯤꯡꯒꯤ ꯅꯣꯡꯃꯥ ꯊꯥꯎꯔꯤꯕꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯧꯕꯅ, ꯃꯔꯝ ꯑꯁꯨꯝꯕ ꯂꯥꯏꯔꯤꯛ ꯑꯣꯏ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯗ ꯌꯥꯕꯅꯤ꯫
>
> ꯑꯍꯥꯅꯕ ꯌꯤꯕꯁꯤ ꯑꯣꯏ ꯇꯥꯡ ꯂꯩꯕꯒꯤ ꯁꯤꯡꯂꯛꯄ ꯊꯝꯕ ꯑꯣꯏ ꯅꯥꯏꯅꯕ ꯇꯩꯃꯥꯡ ꯃꯑꯣꯡꯗ ꯊꯝꯕꯗꯤ꯫ ꯂꯩꯅꯥꯏꯗꯕꯒꯤ ꯇꯥꯡ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯇ ꯑꯣꯏ ꯃꯔꯝ ꯑꯃꯅꯥꯏꯅꯕꯒꯤ ꯇꯧꯕꯅ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 2.12-ꯗ ꯃꯅꯥꯏꯕ ꯃꯃꯤꯗꯕꯒꯤ ꯃꯔꯤ ꯇꯧꯕ ꯑꯅꯥꯗ ꯇꯧꯔꯦ꯫ ꯌꯥꯝ ꯑꯣꯏꯗ J2 ꯑꯃꯁꯨꯡ J3-ꯒꯤ ꯇꯥꯡꯁꯤ ꯌꯥꯡꯂꯣꯏꯗꯨ ꯑꯃꯒꯤ ꯃꯍꯩ ꯊꯗꯕ ꯃꯇꯝꯒꯤ ꯑꯣꯗꯣꯅꯂꯣꯏ ꯑꯃꯌꯥꯒꯤ ꯃꯇꯨꯡ ꯂꯣꯏꯕ; ꯃꯂꯣꯏꯗ ꯃꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯒꯦꯂꯃꯒꯤ ꯌꯥꯡꯂꯣꯏ ꯑꯃꯃꯤ ꯍꯥꯏꯁꯔꯤꯕꯗꯤ꯫

5.11 ꯐ꯭ꯂꯦꯞ ꯒꯦꯠꯁꯤꯡ, ꯇꯥꯏꯗ ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯕꯁꯤꯡ

5.11.1 **ꯃꯊꯧ ꯇꯥꯕ ꯃꯇꯝ.** ꯅꯍꯥꯡꯗꯥꯒꯤ ꯑꯣꯏ **1% AEP-ꯒꯤ ꯂꯥꯏꯔꯤ-ꯔꯤꯇꯥꯕ ꯇꯥꯡꯁꯤꯡ**ꯗꯒꯤ ꯇꯥꯏꯕ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯄꯨꯗꯣꯜꯃꯥꯡ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ, ꯇꯥꯏꯗ ꯒꯦꯠ (tide gate) ꯑꯃꯒꯤ ꯃꯇꯧꯒꯤ ꯃꯍꯩꯗꯕ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯗꯤꯚꯥꯏꯁ ꯑꯃꯁꯨꯡ ꯃꯊꯧ ꯇꯥꯕ (ꯁꯦꯛꯁꯟ 5.7.3)꯫ ꯁꯦꯛꯁꯟ 5.8.5 ꯃꯍꯩꯗ ꯅꯔꯤꯒꯥꯏꯌꯦ ꯌꯥꯍꯥꯡꯂꯣꯏꯗꯗ ꯅꯣꯏꯗꯨ ꯊꯗꯕꯁꯥ ꯑꯦꯛꯁꯇꯦꯟꯁꯟꯂꯣꯏꯗꯗꯨ ꯃꯂꯣꯏ ꯃꯊꯧ ꯇꯥꯕ꯫

5.11.2 **ꯍꯟꯗꯔꯕꯇꯤꯗꯥꯂ.** ꯗꯤꯇꯥꯅꯌ ꯑꯣꯏꯗ ꯃꯍꯩꯗ ꯁꯤꯔꯤꯕꯣꯏꯗꯨ ꯅꯥꯑꯒꯗꯕꯇꯤ:

- ꯃꯀꯨꯊꯥꯡꯗꯌꯔꯔꯒꯤ ꯂꯔꯇꯤꯊꯩꯅ ꯇꯥꯔꯕ ꯍꯥꯗ–ꯗꯤꯂꯌꯤꯔꯇ ꯁꯔꯒꯗꯒꯤ, ꯀꯣꯌꯁꯤ ꯍꯥꯗ ꯇꯥꯂ ꯑꯃꯁꯨꯡ ꯍꯗꯗꯁꯥꯒꯤ ꯍꯥꯗ; ꯑꯃꯁꯨꯡ
- ꯀꯣꯌ ꯑꯣꯏ ꯃꯤꯗꯨ ꯍꯗꯗꯥꯇꯕ ꯃꯇꯃꯗ ꯑꯦꯛꯁꯇꯦꯟꯒꯤ ꯅꯊꯥꯡꯇꯤꯒ ꯁꯥꯁꯤꯂꯣꯏꯇꯤ ꯍꯥꯌꯊꯕ꯫

ꯇꯥꯂꯌ ꯇꯥꯗꯔꯕꯗꯤ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯊꯤꯗꯕ ꯌꯥꯡꯇꯥ ꯀꯣꯌꯂꯣꯏꯗꯨ ꯃꯁꯨꯗꯨ ꯊꯗꯕ ꯂꯤꯟ ꯇꯥꯅ ꯍꯥꯌꯗ ꯇꯥꯔꯅꯗꯕꯇꯤ꯫

5.11.3 **ꯂꯕ.**

- (a) ꯀꯣꯌꯂꯣꯏꯗꯨ, ꯍꯤꯗꯇꯂꯣꯏꯗꯨ ꯑꯃꯁꯨꯡ ꯂꯤꯌꯂꯣꯏꯗꯨ ꯑꯣꯏ ꯂꯃꯗꯔꯒꯤ ꯅꯣꯏꯗꯨꯒꯤꯗꯃ ꯃꯍꯩꯗꯕ ꯁꯔꯇꯌ ꯊꯥꯗꯕ ꯊꯃꯕ ꯃꯇꯥꯔꯤꯌꯥꯗꯂꯣꯏꯗꯗ ꯂꯥꯃꯒꯗꯕꯇꯤ (ꯁꯦꯛꯁꯟ 4.12.5)꯫
- (b) ꯃꯍꯩ ꯊꯗꯕ ꯃꯅꯁꯤꯗ ꯇꯕ ꯇꯥꯅ, ꯇꯃ ꯑꯃꯒꯤ ꯗꯥꯕꯔꯤꯂꯗ ꯀꯣꯌ ꯑꯃ ꯊꯤꯗꯇꯤꯗꯗ ꯑꯃꯒꯤ ꯍꯗꯗꯥꯗ ꯊꯃꯕ ꯊꯃꯗꯇꯕ ꯀꯣꯌ ꯑꯣꯏ ꯊꯃꯒꯗꯕꯇꯤ꯫ ꯃꯍꯩ ꯇꯥꯗꯇꯤꯕ ꯃꯊꯃꯗ, ꯀꯣꯌꯁꯤ ꯅꯗꯒꯔꯌ ꯑꯣꯏ ꯃꯍꯩꯗꯒꯤ ꯃꯊꯥꯌ ꯌꯤꯗꯅꯌꯍꯇꯒꯗꯕꯇꯤ, ꯑꯃꯒꯤ ꯌꯥꯔꯁꯥ ꯇꯃꯕꯤ ꯑꯣꯏ ꯊꯥꯊꯥꯡꯁꯗꯕꯇꯤ꯫
- (c) ꯗꯕꯔꯤꯂꯗ ꯀꯣꯌ ꯑꯃ ꯌꯤꯃ ꯇꯥꯕ ꯌꯤꯕ ꯃꯍꯩꯗ ꯃꯊꯥ ꯊꯗꯕ ꯃꯍꯩꯗ ꯇꯔꯂ ꯂꯁꯔꯤꯗ ꯑꯃꯁꯨꯡ ꯁꯤꯒꯗꯕꯇꯤ꯫
- (d) 600 mm-ꯗꯒꯤ ꯌꯤꯕ ꯑꯦꯛꯁꯇꯦꯟꯁꯟꯂꯣꯏꯗꯗ ꯃꯤꯔꯤꯇꯤꯔꯣꯁꯤꯗꯃ ꯇꯥꯊꯤꯗ ꯊꯃꯇꯕ ꯃꯊꯥ ꯊꯗꯕ ꯃꯍꯩꯗ ꯂꯥꯁ-ꯇꯒ ꯂꯇꯌ ꯑꯃꯒꯤ ꯁꯤꯔꯤꯂꯥꯗ (penstock) ꯑꯃꯁꯨꯡ ꯁꯤꯒꯗꯕꯇꯤ꯫
- (e) ꯀꯣꯌ ꯌꯥꯃꯕꯔ ꯑꯣꯏ ꯇꯥꯅꯗ ꯁꯃꯇꯃꯗꯥ ꯌꯥꯕ ꯌꯤꯕ ꯑꯅꯒꯗꯕꯇꯤ, ꯃꯂꯣꯏꯒꯤ ꯌꯥꯕꯒꯤ ꯇꯃꯕꯤ HAT + surge + SLA-ꯒꯤ ꯃꯊꯥꯌ ꯇꯗ꯫

5.11.4 **ꯁꯔꯁꯔꯇꯤ ꯁꯇꯥꯂꯗꯂꯣꯏꯗꯗ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯕꯁꯤꯡ.** ꯂꯕ ꯇꯥꯔꯕ ꯐ꯭ꯂꯦꯞꯅꯗꯒꯤ ꯇꯃꯕ ꯑꯁꯇꯤꯗꯨ ꯑꯣꯏ ꯃꯍꯩꯗ ꯁꯤꯔꯤꯕꯣꯏꯗꯨꯗꯒꯤ ꯇꯃꯕ ꯁꯔꯁꯔꯇꯤꯒꯤ ꯅꯔꯃꯒꯤ ꯁꯇꯥꯂꯗ ꯄꯨꯗꯣꯜꯃꯥꯡ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯕ ꯑꯃꯁꯨꯡ, ꯑꯃꯒꯤ ꯌꯥꯕ ꯌꯤꯕ ꯂꯗꯗꯁꯥꯒꯤ ꯃꯤꯌ (cleaning eye) ꯇꯕ ꯕꯥꯌꯤꯇꯥꯔ ꯚꯥꯜꯕ ꯑꯃꯁꯨꯡ ꯃꯊꯧ ꯇꯥꯕ:

- ꯁꯇꯥꯂꯗꯒꯤ ꯃꯍꯩꯗ ꯃꯇꯔ-ꯂꯤꯂꯥꯃ ꯇꯥꯌꯤꯇꯥꯔ (J2); ꯑꯃꯒꯤ
- ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯊꯤꯗꯕ ꯌꯥꯡꯇꯥ ꯐ꯭ꯂꯦꯞꯅꯗꯒꯤ ꯌꯤꯗꯕ ꯂꯥꯏꯔ (ꯁꯦꯛꯁꯟ 5.10)꯫

ꯕꯂꯃꯀꯤꯌꯁꯤ ꯅꯔꯃ ꯑꯣꯏ ꯍꯁꯌꯤꯗꯗ ꯑꯗꯣꯃꯒꯤ ꯃꯊꯥꯌ ꯇꯕ ꯇꯥꯡꯁꯤ ꯑꯃꯗ ꯁꯃꯁ ꯇꯥꯒꯗꯕꯇꯤ, ꯃꯂꯣꯏꯒꯤ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯕꯒꯤ ꯇꯥꯔꯇꯗ꯫

5.11.5 **ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ.** ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯁꯤꯡ ꯑꯁꯤ ꯏꯟꯁ꯭ꯄꯦꯛꯠ ꯇꯧꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯄꯔꯦꯠ ꯇꯧꯒꯗꯕꯅꯤ:

- ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ **31 ꯃꯥꯔꯆꯀꯤ** ꯃꯃꯥꯡꯗ;
- ꯃꯍꯣꯔꯅꯣ ꯅꯣꯡꯀꯤ ꯏꯁꯤꯡꯒꯤ ꯐ꯭ꯂꯗꯀꯤ ꯃꯥꯌꯣꯛꯇ ꯇꯤꯡꯈꯤꯕ ꯊꯧꯗꯣꯛ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ; ꯑꯃꯁꯨꯡ
- ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯁ꯭ꯇꯦꯇꯁ ꯔꯤꯄꯣꯔꯠ ꯊꯝꯂꯒꯥ (ꯇꯦꯕꯜ 10)꯫

> **ꯁꯟꯗꯣꯛꯅ ꯇꯥꯛꯄ.** 1% ꯁ꯭ꯇꯤꯜ-ꯇꯣꯔꯝ ꯅꯦꯒꯦꯇꯤꯕꯒꯤ ꯅꯦꯃꯕ ꯒꯦꯠꯁꯤꯡꯒꯤ ꯃꯑꯣ ꯇꯣꯕ ꯑꯁꯤ ꯃꯦꯈꯨꯔꯦꯠ ꯑꯁꯤꯅ ꯑꯃꯕꯅꯤ꯫ ꯁꯕꯒꯤ ꯑꯀ꯭ꯂꯥꯁꯥ ꯃꯦꯔꯁꯤꯡ ꯑꯁꯤ ꯀꯣꯁꯣꯔ ꯏꯦꯃꯒꯤ ꯑꯆꯃꯕ ꯄꯦꯣꯇꯣꯁꯤ ꯃꯁꯨꯡ ꯏꯦꯅꯅꯅꯤ꯫ ꯗꯦꯕꯦꯁꯅ ꯂꯡꯗꯣꯇꯅ ꯔꯃ ꯇꯣꯦꯕ ꯒꯦꯠ ꯑꯃꯅ ꯇꯏꯗ ꯑꯁꯤ ꯏꯣꯡꯕꯦꯗ ꯌꯡꯂꯅꯤ꯫ ꯅꯥꯏꯅꯒꯤ ꯕꯦꯉꯡ ꯑꯃꯅ ꯍꯤꯡꯅꯦꯅ ꯍꯃꯅꯕ ꯒꯦꯠ ꯑꯃꯅ ꯄꯦꯒꯤꯇꯣ ꯑꯦꯅꯠꯆꯦꯇ ꯑꯃ ꯅꯃꯕꯤ ꯑꯣꯏꯕ ꯃꯆꯃ ꯑꯃ ꯑꯣꯅꯔꯅꯤ꯫ ꯃꯇꯤꯀꯁꯤꯡ ꯑꯣꯏꯕꯁꯤꯡ ꯃꯦꯍꯂꯔꯒꯤ ꯅꯣꯡꯊꯣꯡꯒꯤ ꯅꯥꯏꯅ ꯅꯦꯗꯦꯗꯣꯇꯣꯦ, ꯑꯍꯤꯟꯗ ꯏꯆꯥꯎ ꯇꯣꯔꯏꯀꯤ ꯅꯃꯖꯤꯟꯅ ꯅꯕ ꯑꯁꯤꯡꯒꯦꯟ ꯔꯃꯗ WRD-ꯒꯤ ꯏꯦꯈꯣꯡꯒꯤ ꯄꯦꯟ (pan) ꯑꯣꯏꯅ ꯂꯩꯕ ꯒꯦꯠ, ꯂꯦꯛꯄ ꯒꯦꯠ ꯅꯍꯥꯛ ꯀꯇꯒꯊꯕ (ithong) ꯑꯣꯏꯒꯤ ꯈꯨꯠꯊꯣꯛ ꯂꯦꯇꯦ, ꯑꯃꯁꯨꯡ ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯔꯒꯤ ꯃꯗꯣꯏ ꯅꯕ ꯄꯝꯄꯁꯤꯡ ꯑꯁꯤ ꯏꯦꯈꯣꯡꯁꯤꯡꯒꯤ ꯃꯔꯣꯏ ꯇꯥꯛꯁꯤꯡꯒꯤ ꯌꯥꯎꯍꯟꯗꯨꯅꯤ꯫ ꯇꯦꯄꯂꯣꯏꯀꯤ ꯅꯥꯏꯅꯒꯤ ꯃꯇꯦꯡ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯁꯤ ꯄꯦꯟꯁꯤꯡꯒꯤ ꯈꯨꯠꯊꯣꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯅꯣꯡꯂꯩ: ꯃꯦ 2024-ꯗ ꯄꯦꯟ ꯃꯔꯣꯏ 18; 2025-ꯗ ꯍꯃꯇꯥ ꯏꯦꯈꯣꯡꯒꯤ ꯄꯦꯟ ꯑꯣꯄꯥꯡꯗ, ꯃꯍꯥꯛ, ꯕꯦꯡꯍꯤ ꯑꯃꯁꯨꯡ ꯅꯨꯄꯥ ꯂꯣꯝꯕꯗ ꯑꯃꯁꯨꯡ ꯅꯃꯊꯤꯜ ꯏꯦꯈꯣꯡꯒꯤ ꯄꯦꯟ ꯃꯇꯝ ꯃꯇꯧ ꯃꯔꯣꯏ; ꯑꯃꯁꯨꯡ ꯑꯦꯄ꯭ꯔꯤꯜꯗ 2025-ꯗ ꯍꯃꯇꯥ ꯏꯦꯈꯣꯡꯒꯤ ꯄꯦꯟ ꯃꯑꯣꯏꯅꯕ ꯑꯁꯤ ꯅꯥꯏꯅꯗ ꯃꯔꯣꯏ (ꯄꯨꯝꯅꯃꯛ ꯄꯦꯟꯗ ꯂꯣꯏꯅꯣꯏꯕ ꯃꯁꯨꯡ ꯍꯦꯟꯅꯕ)꯫ ꯌꯥꯎꯍꯟꯗꯨꯅꯗ ꯄꯤꯕꯤꯕ ꯄꯝꯄꯀꯤ ꯃꯇꯦꯡ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯃꯍꯥꯛ, ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯈꯨꯠꯊꯣꯛ ꯅꯃꯖꯤꯟꯅꯃꯛꯀꯤ ꯅꯃꯊꯤꯜ ꯏꯦꯈꯣꯡꯗ, ꯑꯁꯤ ꯃꯍꯥꯛ ꯍꯤꯡꯅ ꯇꯧꯔꯕ ꯂꯥꯎꯊꯣꯛꯂꯕ ꯇꯥꯛꯂꯤ: "ꯄꯝꯄꯤꯡ ꯇꯧꯕꯒꯤ ꯃꯑꯣꯡꯗ ꯅꯥꯏꯅꯕ ꯌꯦꯍꯅꯕꯒꯤ ꯌꯥꯂꯣꯔꯝꯁꯤꯡ … ꯃꯇꯤꯛ ꯍꯦꯅꯦ ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯑꯁꯤ ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯅꯨꯃꯤꯠ ꯀꯌꯥꯒꯤ ꯃꯇꯝ ꯏꯁꯤꯡ ꯊꯝꯂꯤ ꯅꯤ" ("Coping measures undertaken in the form of pumping … are not adequate and the area remains waterlogged for many days every year") (NDB)꯫ ꯄꯦꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯝꯄ ꯇꯧꯕ ꯑꯁꯤ WRD-ꯒꯤꯅꯤ, ꯑꯗꯨꯒꯤ ꯃꯍꯣꯔꯒꯤ ꯃꯁꯤꯡꯗ ꯅꯕ ꯍꯤꯡꯕꯦꯟꯁꯤꯡ ꯑꯁꯤ IMC-ꯒꯤ, ꯑꯇꯣꯞꯄ ꯅꯣꯡꯃ ꯕꯥꯔꯤ ꯑꯃꯒꯤ, PWD-ꯒꯤ ꯅꯍꯥꯛ DoECC-ꯒꯤꯅꯤ; ꯗꯥꯏꯗꯥꯔꯀꯤ ꯃꯇꯝꯗ ꯄꯦꯟꯁꯤꯡꯒꯤ ꯃꯇꯦꯡꯗ ꯃꯅꯤꯡꯗꯥꯒꯤ ꯑꯍꯦꯟ ꯑꯃꯍꯥꯛ, ꯇꯦꯄꯂꯣꯏꯀꯤ ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯦꯟꯄꯤꯁꯤꯡ ꯑꯣꯏꯅꯕꯁꯤꯡꯒꯤ ꯅꯤꯡꯊꯣꯠ ꯑꯃꯍꯥꯛ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯔ ꯑꯣꯄꯔꯦꯠ ꯇꯧꯅꯕ WRD-ꯒꯤ ꯂꯩꯅ ꯑꯃꯍꯥꯛ ꯑꯦꯡꯍꯤꯡꯦ [TBC], ꯃꯗꯨ ꯑꯗꯨꯅ ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛꯀꯤ ꯃꯁꯤꯡꯗ ꯅꯕ ꯍꯤꯡꯕꯦꯟꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯅꯦꯟꯇ ꯕꯥꯅꯤꯇꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯇꯏꯅ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛ ꯃꯇꯦꯡꯗ ꯌꯥꯎꯍꯟꯕ ꯀꯅꯥꯏꯅꯕ ꯑꯃꯍꯥꯛ ꯌꯥꯗꯤꯡ ꯅꯦꯉꯏ꯫ 31 ꯃꯥꯔꯆꯀꯤ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ ꯑꯁꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯛꯀꯤ ꯃꯃꯥꯡꯗ ꯌꯥꯎꯒꯅꯤ꯫

5.12 ꯄꯝꯄꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯁꯨꯝꯄꯁꯅꯁꯤꯡ

5.12.1 **ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ.** ꯄꯝꯄꯀꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯃꯍꯨꯠ ꯄꯤꯕꯁꯤꯡ ꯃꯍꯩꯅ ꯌꯥꯎꯕ ꯃꯇꯦꯡ ꯄꯝꯄ ꯇꯧꯕ ꯄꯥꯡꯊꯣꯛꯀꯅꯤ:

- ꯇꯦꯕꯜ 5.10-ꯒꯤ ꯑꯦꯁꯨꯝꯄꯁꯟ ꯑꯣꯏꯕ ꯔꯦꯠ;
- ꯇꯦꯕꯜ 4.7-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯀꯤ ꯐ꯭ꯂꯣ; ꯑꯃꯁꯨꯡ
- J2 ꯑꯃꯁꯨꯡ J3 ꯍꯦꯔꯦꯜꯁꯤꯡ꯫

ꯄꯝꯄꯀꯤ ꯌꯥꯎꯍꯟꯕ ꯑꯁꯤ ꯐ꯭ꯂꯣꯁꯤꯡ ꯑꯁꯤ ꯃꯍꯩꯗꯥ ꯃꯇꯦꯡ ꯄꯝꯄ ꯇꯧꯕ ꯀꯣꯔꯤꯗꯦꯡꯅꯒꯅꯤ꯫

5.12.2 **ꯀꯟꯐꯤꯒꯔꯦꯁꯟ.**

- (a) ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄꯁꯤꯡ (duty pump) ꯄꯨꯝꯅꯃꯛ, ꯄꯨꯝꯕ ꯑꯣꯏꯅ ꯅꯣꯡꯃꯥꯏꯗ ꯂꯩꯔꯦ, ꯇꯦꯕꯜ 5.9-ꯒꯤ ꯍꯦꯁ ꯐ꯭ꯂꯣꯗꯤ (J4 ꯇꯣꯗꯥ) ꯃꯄꯤꯡꯀꯥ ꯇꯝꯄ, ꯗꯤꯖꯥꯏꯅꯗ ꯌꯥꯎꯕꯦ꯫
- (b) ꯄꯤꯕꯅꯒꯤ ꯋꯥꯌꯦꯜ ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄꯀꯤ ꯃꯇꯨꯡꯗ ꯃꯇꯦꯡꯕ **ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ** (standby) ꯀꯟꯐꯤꯒꯔꯦꯁꯟ ꯌꯥꯎꯒꯅꯤ (ꯃꯇꯨꯡꯗ duty + 1 standby)꯫
- (c) ꯄꯝꯄꯀꯤ ꯀꯟꯐꯤꯒꯔꯦꯁꯟ ꯑꯁꯤ **J2** ꯍꯦꯗꯋꯥꯇꯔꯒꯤ ꯁ꯭ꯇꯦꯇꯤꯛ ꯍꯦꯗ (static head) ꯍꯥꯌꯒꯅꯤ, ꯃꯤꯟ ꯇꯥꯅꯗ ꯂꯩꯇꯦ꯫

5.12.3 **ꯄꯥꯋꯔ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡ ꯀꯟꯠꯔꯣꯜ.** ꯖꯦꯅ, ꯀꯦꯕꯜ ꯂꯩꯔꯕ ꯀꯟꯗꯤꯁꯟ ꯑꯃꯁꯨꯡ ꯄꯝꯄ ꯇꯧꯕ ꯑꯦꯛꯁꯦꯁ ꯑꯁꯤ ꯇꯦꯕꯜ 5.8-ꯒꯤ ꯖꯦꯅ ꯂꯩꯔꯕ ꯀꯟꯗꯤꯁꯅꯁꯤꯡ ꯅꯦꯍꯦꯟꯅꯕꯒꯤ ꯇꯣꯟꯗ꯭ꯔꯣꯜ ꯇꯥꯛꯂꯒꯅꯤ꯫ ꯑꯣꯄꯔꯦꯠ ꯃꯇꯦꯡ ꯄꯥꯋꯔ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡꯒꯤ ꯅꯦꯖꯦ ꯑꯁꯤ ꯇꯦꯕꯜ 5.5-ꯒꯤ ꯇꯥꯕꯒꯤ ꯀꯟꯗꯤꯁꯅꯁꯤꯡꯒꯤ ꯃꯇꯥꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯄꯝꯄ ꯇꯧꯕ ꯑꯁꯤ ꯑꯇꯣꯞꯄ ꯄꯤꯖꯦ꯫

5.12.4 **ꯄꯥꯋꯔ ꯁꯄꯂꯥꯏ.** ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟꯁꯤꯡꯗ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯥ ꯂꯩꯒꯗꯕꯅꯤ:

- ꯃꯔꯤ ꯂꯩꯅꯗꯕ ꯄꯥꯋꯔ ꯁꯄꯂꯥꯏ ꯑꯅꯤ; ꯅꯠꯔꯒꯥ
- ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄꯁꯤꯡꯒꯤ 100%-ꯒꯤꯗꯃꯛ ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯖꯦꯅꯦꯔꯦꯇꯔ, ꯏꯟꯁꯥꯏꯠ ꯐ꯭ꯌꯨꯌꯦꯜ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ **ꯄꯨꯡ 72**-ꯒꯤꯗꯃꯛ ꯆꯠꯅꯕ ꯌꯥꯕ ꯐ꯭ꯌꯨꯌꯦꯂꯒꯥ ꯂꯣꯌꯅꯅ꯫

ꯑꯣꯇꯣꯃꯦꯇꯤꯛ ꯆꯦꯟꯖꯑꯣꯚꯔ ꯑꯁꯤ ꯊꯥ ꯈꯨꯗꯤꯡꯒꯤ ꯇꯦꯁ꯭ꯠ ꯇꯧꯒꯗꯕꯅꯤ꯫

5.12.5 **ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗꯒꯤ ꯉꯥꯀꯊꯣꯛꯄ.** ꯏꯂꯦꯛꯠꯔꯤꯀꯦꯜ ꯄꯨꯔꯤꯡ, ꯀꯟꯠꯔꯣꯜ ꯄꯦꯅꯦꯜ, ꯚꯦꯟꯇꯤꯂꯦꯁꯅꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ ꯍꯦꯆꯁꯤꯡ ꯑꯁꯤ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ ꯍꯦꯟꯅ ꯋꯥꯡꯕ ꯑꯗꯨꯒꯤ ꯃꯊꯛꯇ ꯊꯝꯒꯗꯕꯅꯤ:

- 1% AEP-ꯒꯤ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ + 0.5 m; ꯑꯃꯁꯨꯡ
- HAT + surge + SLA + 0.5 m꯫

ꯁ꯭ꯇꯦꯁꯟ ꯑꯗꯨꯗ ꯆꯪꯕꯒꯤ ꯂꯝꯕꯤ ꯑꯁꯤ 1% AEP-ꯒꯤ ꯃꯇꯝꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

5.12.6 **ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯜꯕ.** ꯗꯤꯁꯆꯥꯔꯖ ꯄꯥꯏꯄ ꯈꯨꯗꯤꯡꯗ (rising main) ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯒꯤ ꯃꯐꯝꯗ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯜꯕ ꯊꯝꯒꯗꯕꯅꯤ:

- J2 ꯀꯅꯦꯛꯁꯅꯒꯤ ꯃꯅꯥꯛꯇ ꯂꯩꯕ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯤꯡ ꯃꯅꯥꯛꯇ; ꯅꯠꯔꯒꯥ
- ꯂꯣ-ꯄꯣꯏꯟꯇ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯤꯡ ꯃꯈꯥꯗ꯫

ꯚꯜꯕ ꯑꯁꯤꯅ ꯕꯦꯛ-ꯁꯥꯏꯐꯣꯅꯤꯡ (back-siphoning) ꯊꯤꯡꯒꯗꯕꯅꯤ꯫

5.12.7 **ꯚꯦꯟꯇꯤꯂꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯝ ꯀꯟꯠꯔꯣꯜ.** ꯁ꯭ꯇꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯂꯩꯒꯗꯕꯅꯤ:

- ꯐꯣꯔꯁ ꯇꯧꯔꯕ ꯚꯦꯟꯇꯤꯂꯦꯁꯟ;
- ꯏꯟꯇꯦꯛ ꯂꯦꯚꯦꯜ, ꯃꯄꯥꯟ ꯂꯝ ꯄꯨꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯎꯔꯤ ꯂꯝ ꯄꯨꯕꯒꯤꯗꯃꯛ ꯗꯤꯃꯤꯇ ꯑꯦꯛꯁꯣꯁꯁꯅꯤ, ꯑꯣꯗꯔ ꯀꯟꯠꯔꯣꯜ ꯌꯨꯅꯤꯠ; ꯑꯃꯁꯨꯡ
- ꯏꯃꯔꯖꯦꯟꯁꯤ ꯃꯌꯝ 5-ꯒꯤ ꯃꯅꯨꯡ ꯊꯃꯕ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯗꯣ-ꯀꯅꯦꯛꯇꯔꯒꯤ ꯂꯥꯏ꯫

ꯋꯦꯠ ꯋꯦꯂꯁꯤꯡ (wet well) ꯑꯁꯤ ꯃꯄꯥꯟ ꯍꯧꯕꯁꯤꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯇꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯝꯂꯕ ꯁꯦꯟꯂ ꯀꯣꯡꯒꯗꯕꯅꯤ꯫

5.12.8 **ꯇꯦꯂꯤꯃꯦꯠꯔꯤ.** ꯅꯣꯔꯃꯦꯜ ꯇꯦꯂꯤꯃꯦꯠꯔꯤꯁꯤꯡ ꯑꯁꯤ ꯂꯥꯏ ꯄꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯂꯤꯕ ꯃꯀꯥꯝꯗ ꯊꯕꯛ ꯀꯥꯕ ꯁꯦꯟꯇ꯭ꯔꯦꯂꯒꯤ ꯊꯧꯔꯥꯡ ꯑꯃꯥ ꯂꯩꯍꯟꯅꯕ ꯄꯤꯒꯗꯕꯅꯤ (ꯃꯦꯟꯗꯤꯔꯦꯛꯇ ꯄꯥꯡ ꯑꯃꯥ, ꯅꯠꯔꯒꯥ ꯐ꯭ꯌꯨꯆꯔꯤꯡꯒꯤ ꯇꯦꯂꯤꯃꯦꯠꯔꯤ)꯫

5.12.9 **ꯍꯦꯟꯗꯑꯣꯚꯔ.** ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟꯁꯤꯡ ꯑꯦꯛꯁꯦꯄꯇꯦꯟꯁ ꯇꯧꯕꯗ ꯃꯇꯝ ꯇꯧꯕꯒꯤ **31 ꯃꯤꯔꯝꯕ** ꯃꯃꯥꯡꯗ ꯃꯄꯨꯡ ꯐꯕ ꯐ꯭ꯂꯣꯔ, ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯄꯥꯎꯔꯤꯗꯒꯤ ꯏꯕꯥꯂ, ꯀꯦꯃꯤꯁ꯭ꯠ-ꯂꯣꯒ ꯀꯣꯌꯕꯅꯤ꯫ ꯄꯔꯤꯡꯁꯤꯡ ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ ꯑꯦꯁꯦꯠꯁꯤꯡ ꯑꯁꯤ ꯗꯦꯂꯤꯚꯔ ꯀꯣꯌꯒꯗꯕ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯀ꯭ꯂꯦꯔꯦꯁꯟ (maintenance declaration) ꯑꯃꯗ ꯄꯥꯏꯄꯤꯒꯗꯕꯅꯤ (ꯇꯦꯕꯜ 10)꯫

> **ꯑꯦꯗꯤꯇꯔꯒꯤ ꯅꯣꯠ.** ꯐ꯭ꯌꯨꯌꯦꯜ + ꯁ꯭ꯇꯣꯔꯦꯖ, ꯄꯨꯡ 72-ꯒꯤ ꯐ꯭ꯌꯨꯌꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗꯒꯤ ꯉꯥꯀꯊꯣꯛꯄ ꯏꯂꯦꯛꯠꯔꯤꯀꯦꯜꯁꯤꯡ ꯑꯁꯤꯒꯤ ꯂꯦꯛꯇꯥꯡꯗꯕ ꯃꯑꯣꯡ ꯑꯃꯅꯥ ꯁꯤꯡꯊꯥꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯑꯁꯤ ꯃꯔꯨꯑꯣꯏ ꯑꯣꯏꯕꯅꯤ꯫ ꯄꯨꯡ 72-ꯒꯤ ꯐ꯭ꯌꯨꯌꯦꯂꯒꯤ ꯃꯇꯝ ꯑꯁꯤ ꯅꯦꯕꯥꯒꯤ ꯁꯤꯡꯕ ꯀꯣꯌꯕ ꯍꯤꯇꯦꯄ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯃꯔꯣꯜ (ꯇꯦꯕꯜ 2.5.2)꯫ ꯒꯤꯔꯤꯗ ꯄꯥꯎꯔꯤꯗ ꯌꯥꯕ ꯃꯇꯝ ꯄꯥꯡꯗꯕ ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯥ ꯃꯊꯧ ꯀꯣꯌꯕ ꯃꯈꯥ ꯑꯃꯁꯨꯡꯁꯤꯡ ꯂꯦꯄꯄ ꯌꯥꯕ, ꯃꯔꯝꯅꯤ ꯅꯣꯔꯃꯦꯜ ꯌꯦꯡꯂꯕ ꯃꯍꯩꯁꯤꯡꯗ ꯄꯥꯋꯔ ꯑꯁꯤ ꯌꯥꯝꯅ ꯉꯥꯀꯊꯣꯛꯄ ꯊꯤꯡꯅ꯫ ꯁꯤꯡꯂꯨꯄꯀꯤ ꯑꯦꯀꯤꯟ 2025-ꯒꯤ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇꯁꯤꯡꯗ ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ ꯐꯤꯖꯤꯀꯦꯜ ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤꯗꯃꯛ ꯃꯇꯝ ꯁꯤꯡꯊꯥꯒꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯀ꯭ꯂꯦꯔꯦꯁꯟ ꯄꯥꯡꯊꯣꯛꯈꯤ (PUB Addendum No. 3)꯫ ꯇꯦꯕꯜ 5.12.9 ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 10-ꯗ ꯃꯇꯝ ꯑꯣꯏꯕ ꯌꯥꯎꯏ꯫ ꯇꯦꯕꯜ 5.12.3-ꯗ ꯅꯣꯔꯃꯦꯜ ꯑꯁꯤ ꯀꯅꯥ-ꯂꯩꯍꯧ ꯀꯣꯌꯕ ꯍꯣꯡꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯅꯥ-ꯂꯩꯍꯧ ꯀꯣꯌꯕ ꯀꯣꯌꯔꯦ ꯑꯃꯗ ꯂꯣꯡꯊꯣꯛꯄ ꯍꯥꯏꯕ ꯀꯣꯌꯕ ꯄꯝꯄꯤꯡ ꯀꯣꯌꯕ ꯊꯤꯡꯅ꯫

5.13 ꯇꯨꯔꯦꯜꯒꯤ ꯃꯣꯍꯊꯁꯤꯡ ꯁꯦꯗꯅ-ꯈꯔꯂꯣ ꯊꯤꯡꯕ

5.13.1 **ꯍꯌꯂꯕ ꯐꯖꯝ.** ꯁꯦꯛꯁꯟ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯣꯍꯊ (mouth) ꯑꯁꯤ ꯃꯇꯝ ꯃꯇꯝꯒꯤ ꯁꯦꯗꯅ-ꯈꯔꯂꯣ ꯊꯣꯛꯄ ꯊꯧꯒꯜ ꯂꯩꯕ ꯇꯨꯔꯦꯜ ꯂꯧꯔꯛꯄ ꯁꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯁꯤꯡ ꯊꯣꯛꯄ ꯑꯣꯏꯅꯕꯒꯤ ꯍꯌꯔꯦ꯫ ꯃꯁꯤꯅ ꯁꯦꯛꯁꯟ ꯁꯦꯛꯁꯅꯒꯤ ꯃꯣꯍꯊꯁꯤꯡ (ꯃꯂꯤꯡꯇꯅ ꯑꯃꯁꯨꯡ ꯂꯩ: ꯁꯦꯛꯁꯟ 5.1.4), ꯑꯃꯁꯨꯡ ꯑꯍꯦꯟꯕ 5B-ꯗ ꯂꯤꯁꯌ ꯁꯣꯏꯕ ꯑꯁꯣꯏꯕ ꯃꯣꯍꯊ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯦ꯫

5.13.2 **ꯃꯦꯁꯨꯡ ꯄꯥꯏꯕ ꯃꯇꯝꯗ ꯂꯩꯕ.** ꯑꯍꯥꯏꯅ–ꯑꯍꯣꯡꯕꯥꯏꯒꯤ ꯃꯇꯝ ꯄꯥꯏꯕꯗ ꯃꯣꯍꯊ ꯑꯁꯤ ꯅꯕꯅꯗꯒꯤ ꯂꯣꯟꯗ ꯁꯔꯤ-ꯃꯦꯁꯨꯡ ꯁꯔꯤꯒꯤ ꯁꯔꯦꯁꯟ ꯂꯥꯏꯅꯗ ꯕꯥ ꯑꯃꯁꯨ **ꯊꯤꯡꯕ** ꯄꯥꯏꯕ ꯂꯧꯒꯗꯕꯂꯤ꯫ ꯏꯁꯤ ꯑꯤꯁꯦꯁꯦ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Water Resources Department) ꯃꯅꯥ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯁꯔꯤꯖꯅ ꯁꯣꯗꯔꯕꯗ ꯃꯁꯤ ꯍꯌꯔꯦ:

- ꯃꯣꯍꯊ ꯃꯦꯁꯨꯡꯂꯦꯁꯦꯂꯗ ꯄꯔꯦꯒꯔꯦꯐ ꯑꯃꯁꯨ (ꯗꯔꯤꯂꯤꯡ, ꯕꯔ ꯃꯃꯇꯝ ꯂꯌꯔꯒꯤ ꯁꯔꯦꯂꯤꯡ ꯍꯦꯅꯁꯤꯡ) ꯃꯃꯡꯒꯤ ꯃꯦꯁꯨꯡ ꯃꯇꯝ ꯁꯐꯂꯤꯒꯤ ꯃꯇꯝ ꯁꯗꯤꯡꯃꯣ ꯄꯥꯏꯕꯗ ꯃꯣꯍꯊ ꯑꯁꯤ ꯄꯡꯗꯣꯂꯦ ꯊꯐꯅ; ꯑꯃꯁꯨꯡ
- ꯄꯔꯦꯒꯔꯦꯐ ꯑꯁꯤꯒꯤ ꯄꯂꯤꯣꯗ ꯃꯇꯐꯒꯤꯗꯃꯣ ꯗꯦꯗ ꯄꯤꯔꯦ꯫

5.13.3 **ꯃꯣꯍꯊ ꯊꯤꯡꯂꯒꯤ ꯁꯦꯅꯍꯁꯔ.** ꯃꯣꯍꯊ ꯊꯤꯡꯂꯒꯤ, ꯑꯣꯏꯕꯗꯦꯅꯗ ꯁꯦꯅꯍꯁꯔ ꯑꯁꯤ ꯃꯅꯥ ꯄꯤꯔꯤꯕꯁꯤꯡꯒꯤ ꯃꯂꯤꯡꯗ ꯄꯦꯂꯦ ꯍꯤꯡꯕ ꯑꯁꯨ ꯑꯅꯒꯗꯕꯂꯤ:

- (a) ꯁꯦꯛꯁꯟ 5.7-ꯒꯤ ꯁꯅꯗꯦꯅ ꯁꯦꯅꯍꯁꯔ; ꯑꯃꯁꯨꯡ
- (b) ꯕꯔ ꯑꯁꯨꯒꯤ ꯃꯁꯨꯡꯗ ꯂꯤꯕ ꯇꯨꯔꯦꯜꯒꯤ ꯔꯤꯍꯁ ꯂꯤꯕ ꯂꯦꯒꯦꯅ, ꯕꯔ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯁꯔꯒꯦ ꯁꯣꯏꯕ ꯄꯔꯦꯁꯌ ꯂꯦꯒꯦꯅꯗ ꯍꯤꯔꯤꯔ ꯑꯃ ꯑꯅꯂꯦ ꯂꯤꯁꯨꯂꯦ ꯃꯦꯂꯃꯂꯦꯌ ꯁꯣꯏꯒꯦ꯫ ꯂꯦꯒꯦꯅ ꯑꯁꯨꯗ ꯁꯦꯛꯁꯟ 5.8-ꯒꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯖꯦ ꯑꯃꯁꯨꯡ ꯕꯔꯒꯤ ꯃꯊꯣꯛ ꯂꯌꯔꯒꯦ ꯇꯌꯊꯤꯡꯗ ꯖꯦ ꯊꯗꯣꯂꯦꯕ ꯃꯊ ꯁꯕ ꯄꯦꯗ ꯍꯤꯑꯒꯗꯕꯂꯤ꯫

5.13.4 **ꯅꯃꯔꯂꯦꯁꯦꯂꯒꯤ ꯃꯃꯇꯝꯒꯤ ꯃꯔꯦꯗꯤꯌ ꯂꯤꯁ.** ꯏꯁꯤ ꯑꯤꯁꯦꯁꯦ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯃꯁꯤꯒꯤꯗꯃꯣ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯊꯃꯂꯤꯅꯂꯕ ꯗꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯁꯣꯏꯕ ꯑꯁꯤꯁꯦꯁꯤꯡ ꯄꯔꯦꯂꯤꯂꯔ ꯑꯃ ꯂꯤꯁꯔꯕꯗ, ꯂꯦꯡ ꯇꯕꯒꯤ ꯊꯗꯣꯂꯦꯗ ꯃꯇꯝꯗ ꯕꯔ ꯃꯃꯇꯝ ꯂꯌꯔꯒꯦ ꯄꯒꯤꯅꯕ ꯑꯁꯤ ꯗꯤꯂꯅꯦꯗ ꯂꯔꯅꯗꯕꯂꯤ꯫ ꯂꯤꯕꯗꯤ, ꯄꯔꯦꯂꯤꯂꯔ ꯑꯁꯨꯗ ꯄꯥꯏꯔꯤꯕ ꯃꯇꯝ ꯑꯁꯨꯒꯤ ꯃꯇꯝꯗ ꯍꯣꯡꯕ ꯕꯔ ꯑꯁꯤ ꯄꯔꯦꯂꯤꯂꯔꯒꯤ ꯁꯔꯒꯦ ꯂꯦꯒꯦꯅꯗ ꯄꯦꯊꯔ ꯄꯥꯏꯕ ꯂꯤꯕ ꯍꯤꯅ꯫

5.13.5 **ꯑꯣꯏꯕꯗꯦꯅ ꯊꯤꯡꯕ ꯃꯍꯣ.** 5.13.3(b)-ꯒꯤ ꯃꯣꯍꯊ ꯊꯤꯡꯂꯕ ꯃꯇꯝꯒꯤ ꯂꯦꯒꯦꯅ ꯑꯁꯤ ꯗꯤꯖꯦꯅꯌ ꯂꯦꯍ ꯃꯤꯁꯦꯗꯤꯡꯗꯒꯤ ꯄꯦꯂꯦ ꯍꯤꯡꯂꯦ ꯑꯣꯏꯕꯗꯦꯅ ꯅꯁꯅꯔꯌꯁꯒꯤ ꯄꯦꯂꯂꯕ ꯃꯖꯃꯗ, ꯁꯦꯛꯁꯟ 5.10-ꯒꯤ ꯂꯦꯍꯗ ꯃꯇꯝ ꯑꯁꯤ ꯃꯇꯝ ꯑꯁꯨ ꯖꯤꯑꯕ ꯍꯤꯡꯄꯂꯒꯗꯕꯂꯤ꯫

> **ꯂꯦꯗꯍꯦ ꯁꯍꯁꯦ.** ꯃꯂꯤꯡꯇꯅ ꯂꯃꯗꯔꯒꯤ ꯃꯂꯍ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯣꯍꯊ ꯂꯤꯁ, ꯃꯔꯐ ꯑꯁꯨꯂꯦ ꯁꯦꯛꯁꯟ 5.13 ꯑꯁꯤ ꯁꯦꯛꯁꯟ ꯑꯁꯤꯅ ꯍꯌꯂꯗ (ꯁꯦꯛꯁꯟ 5.1.4)꯫ ꯃꯁꯤꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯂꯍꯁ ꯂꯤꯃꯅꯒꯤ ꯃꯑꯣꯏꯕꯗꯤ ꯍꯤꯕꯒꯤ ꯅꯣꯏꯕꯂꯦ ꯁꯐꯁꯤꯍꯗꯤ ꯂꯐ ꯑꯃꯁꯨꯡ ꯂꯍꯁꯍꯁ ꯁꯔꯃꯁ ꯂꯤꯃ, ꯑꯣꯏꯕꯂꯦꯌꯁꯤꯕꯗ ꯁꯣꯏꯔꯍꯁ ꯖꯐꯗꯤꯁꯤꯕ, ꯑꯃꯁꯨꯡ ꯅꯊꯅꯒꯤ ꯃꯅꯥ ꯂꯤꯕ ꯌꯕꯒꯤ ꯁꯤꯅꯂꯤ꯫ ꯍꯤꯕꯒꯤ ꯅꯕꯁꯤꯕ "ꯂꯍꯁꯍ ꯁꯌ ꯍꯗꯔꯤꯗ ꯊꯕ ꯂꯁꯁ ꯑꯃꯗ ꯑꯊꯃꯕ ꯂꯁꯃꯒꯤ ꯂꯍꯂꯦ ꯍꯦꯊꯔꯍꯂꯤ … ꯁꯌ ꯁꯕꯒꯤ ꯃꯁꯤꯂꯤꯁꯤ ꯏꯕꯅ, ꯃꯁꯤꯂꯦ ꯁꯌꯁ ꯂꯤꯃ ꯊꯐꯄꯅꯂꯤ" ("flow down with steep slope for a short distance before meeting the Loktak Lake … load carrying capacity is high which causes siltation of the lake"), ꯑꯃꯁꯨꯡ ꯖꯌꯁꯔꯍꯂꯕ ꯂꯐ ꯑꯁꯤ 1,545 km², ꯁꯐꯁꯤꯍꯗꯤ ꯃꯍꯃꯦꯌꯗꯤ 24% ꯂꯅ (MASTEC); ꯅꯊꯅ ꯕꯔꯂꯗꯤ ꯃꯅꯥ ꯃꯂꯤꯡꯇ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯅꯥ ꯑꯁꯤ 800 m ꯃꯔꯅꯒꯤ ꯃꯂꯤꯡꯗ 763.7 m ꯖꯑꯕ ꯏꯕꯅꯌꯂꯤ, ꯃꯔꯐ ꯑꯁꯨꯂꯦ "ꯂꯦꯗꯤꯃꯦꯌꯗꯤ ꯑꯣꯏꯕꯖꯦ ꯑꯁꯤ ꯊꯤꯡꯂꯅꯂꯤ" ("the outflow of the sediment is restricted") (MASTEC); ꯑꯃꯁꯨꯡ ꯂꯍꯁꯍ ꯑꯍꯌꯂꯦ ꯃꯃꯤꯕ ꯊꯅꯂꯤꯕ ꯁꯣꯏꯔꯤꯕ ꯃꯦꯌꯂꯤꯕ, ꯖꯐꯗꯤꯂꯤꯕꯂꯦ ꯁꯤꯌꯗꯤ ꯍꯤꯐꯂꯦ ꯂꯔꯁꯍ ꯃꯁꯁꯤ (ꯁꯤꯁꯗ ꯖꯕꯗꯍꯅꯤꯕ ꯃꯁꯨꯕ ꯅꯦꯂ)꯫ ꯂꯃꯁ, ꯖꯐꯗꯤ ꯂꯌꯔꯒꯦ ꯑꯃꯌꯁꯂꯦ ꯄꯕꯗꯍꯂꯦ ꯂꯌꯔꯒꯦ ꯊꯤꯡꯂꯤꯦꯂꯦ ꯊꯐꯂꯕ ꯖꯂꯁ ꯒꯌ ꯑꯃ, ꯏꯕꯅꯌꯂꯍꯂꯤꯕ ꯃꯅꯥ ꯑꯃꯁꯨꯂꯦ ꯁꯐꯄꯅꯂꯕ ꯑꯣꯏꯕꯂꯌ ꯑꯃ, ꯂꯌꯔꯒꯦ ꯂꯕꯄꯦꯕ ꯃꯐꯗꯕ ꯒꯌ ꯑꯃꯁꯨꯂꯦ ꯗꯤꯂꯅꯦ ꯁꯣꯏꯕ ꯑꯣꯏꯕꯗꯦꯅ ꯑꯃꯁꯨ ꯂꯐꯕꯗꯤ ꯂꯅꯕ ꯃꯖꯐ ꯂꯌꯔꯒꯦ ꯅꯕꯅꯗꯒꯤ ꯑꯦꯊꯍꯂꯦ ꯍꯦꯕꯒꯤ ꯂꯐꯕꯗꯤ ꯑꯃ ꯑꯅꯄꯅꯂꯤ꯫ ꯔꯤꯂꯔꯍꯗꯤ ꯃꯁꯐꯗ ꯒꯌ ꯑꯃꯌꯁꯒꯤ ꯑꯁꯔꯦꯂꯦ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯁꯨꯕꯗ ꯂꯕ ꯅꯕꯕꯦꯁꯤꯕꯒꯤ ꯂꯦꯒꯦꯅꯁꯤꯕꯒꯤ ꯂꯐꯃꯦꯕ WRD-ꯒꯤ ꯔꯅ ꯑꯃꯌꯁ ꯖꯕꯍꯤꯗ [TBC]꯫ ꯁꯦꯛꯁꯟ 5.8.5-ꯂꯦ ꯃꯁꯤꯒꯤ ꯃꯁꯕꯗ ꯍꯤꯕꯒꯤ ꯅꯕꯒꯤ ꯑꯣꯏꯕꯗꯦꯅꯁꯤꯕ ꯃꯅꯕ ꯂꯕꯕꯒꯤ ꯔꯦꯂꯗꯤ ꯃꯊꯍꯁ ꯊꯐꯁꯨꯂꯦ, ꯂꯍꯁꯍꯁ ꯅꯁꯤꯕ ꯊꯗꯃꯁ ꯑꯣꯏꯕꯗꯦꯅꯁꯤꯕ ꯖꯐꯗꯤꯒꯤ ꯃꯍꯁ ꯂꯃꯔꯤꯦ ꯁꯁꯨꯂꯦ, ꯑꯃꯁꯨꯡ ꯑꯁꯔꯦꯁꯔꯒꯤ ꯔꯃꯔꯗꯂꯤꯕꯂꯦ ꯁꯌꯁꯕ ꯒꯌ ꯑꯁꯔꯦꯂꯦ, ꯁꯐꯁ ꯂꯌꯔꯒꯦ ꯂꯁꯔꯦꯂ ꯑꯃꯌꯁꯒꯤꯗꯃꯣ ꯃꯔꯦꯗꯤꯌ ꯁꯤꯗꯂꯦ ꯊꯕꯂꯤ꯫ ꯁꯦꯛꯁꯟ 5.13.2-ꯒꯤ ꯄꯍꯊꯕꯂꯕ ꯁꯗꯐ ꯂꯤꯁ꯫ ꯃꯁꯤꯂꯦ ꯃꯣꯍꯊ ꯑꯁꯤ ꯄꯕꯗꯍꯂ ꯄꯥꯏꯕꯂꯦ ꯂꯕꯒꯤ ꯃꯁꯌꯁ ꯃꯁꯤ ꯄꯕꯗꯍꯂ ꯄꯥꯏꯕ ꯁꯌꯁꯒꯤ ꯊꯗꯤꯕ ꯊꯃꯂꯤꯅꯂꯤ꯫

5.14 ꯆꯣꯛꯂꯨꯃꯦꯟꯍꯦꯁꯟ

ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯇꯧꯕ ꯄꯔꯣꯖꯦꯛꯠ ꯍꯨꯗꯤꯔꯃꯥꯇꯣ **ꯃꯈꯣ ꯊꯡꯕ ꯃꯇꯜ ꯑꯃꯁꯨꯡ ꯌꯦꯂꯌꯣꯌꯔꯒꯤ ꯔꯤꯄꯣꯔꯠ** (ꯇꯣꯔꯜ 5-1) ꯑꯃꯣ ꯄꯤꯖꯒꯗꯕꯅꯤ꯫ ꯃꯁꯤꯗ ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯌꯥꯑꯣꯒꯗꯕꯅꯤ:

1. ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯍꯨꯠꯄ ꯑꯦꯇꯣꯇꯣꯈꯗꯤꯗꯃꯤ ꯇꯜꯒꯤ ꯄꯇꯣꯌ ꯑꯃꯁꯦ:
   - ꯁꯥꯏꯠ;
   - ꯑꯦꯇꯣꯇꯣꯈꯗꯤꯗ ꯄꯣꯈꯌꯠ ꯍꯨꯗꯤꯔꯃꯥ, ꯃꯗꯤꯒꯤ ꯈꯗꯤꯔ ꯄꯤꯕ ꯉꯦꯍꯃꯦꯌꯠꯉꯤ ꯑꯦꯔꯤꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯁꯨꯗ ꯁꯈꯠꯉꯤ ꯄꯔꯗꯦꯌꯣꯖꯤ ꯇꯣꯂꯇꯇ; ꯑꯃꯁꯨꯡ
   - ꯇꯣꯈꯕ ꯄꯣꯈꯌꯠ ꯑꯃꯁꯨꯡ ꯃꯁꯨ ꯍꯌꯍꯤꯕꯒꯤ ꯃꯔꯜ (ꯉꯇꯣꯖ 5.3);
2. ꯃꯣꯗꯦꯌꯒꯤ ꯇꯣꯔꯗꯣꯉꯄ:
   - ꯗꯣꯇꯌꯠꯦꯂꯦꯔ ꯑꯃꯁꯨꯡ ꯌꯔꯗꯌ;
   - ꯇꯦꯌꯂꯔꯥꯉꯤ ꯗꯉꯤꯃꯦꯌꯤꯥ, ꯍꯣꯔꯕꯌꯗꯤꯔ ꯑꯃꯁꯨꯡ ꯉꯔꯣꯗꯤꯔꯗꯤꯔꯒꯤ ꯗꯔꯌꯦꯒꯤ ꯈꯣꯔꯥꯇꯜꯗꯤꯔꯤ ꯇꯣꯂꯇꯇ;
   - ꯑꯣꯇ-ꯁꯦꯈꯌ ꯑꯦꯔꯤꯂꯗꯤꯔꯒꯤ ꯇꯦꯌꯗ ꯂꯨꯖ ꯑꯃꯁꯨꯡ CN;
   - ꯂꯑꯣꯈꯇꯍꯤꯕ ꯃꯑꯥ ꯑꯔꯕ ꯃꯇꯜꯒꯤ ꯗꯤꯌꯦꯌꯗꯌ ꯑꯃꯌꯣ; ꯑꯃꯁꯨꯡ
   - ꯇꯔꯕ ꯂꯕ ꯃꯇꯜꯗ ꯉꯦꯇꯤꯕꯔꯦꯗꯌ ꯇꯌꯔꯤ ꯌꯦꯇꯤꯗꯦꯗꯌꯒꯤ ꯍꯨꯌꯇꯈꯗꯤꯔ;
3. ꯑꯦꯇꯣꯇꯣꯈꯗꯤꯗ ꯄꯣꯈꯌꯠ, AEP ꯑꯃꯁꯨꯡ ꯃꯌꯜ ꯁꯔꯕ ꯍꯨꯗꯤꯔꯃꯥꯉꯤꯗꯃꯥ, ꯈꯣꯇꯤꯥ ꯇꯧꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯔꯣꯖꯦꯛꯠ ꯇꯧꯕ:
   - ꯄꯤꯥ ꯇꯖꯣ;
   - ꯌꯣꯈꯜ ꯌꯨ ꯄꯤꯥ;
   - ꯍꯨꯕꯈꯗꯒꯤ ꯂꯣꯔꯕ ꯈꯗꯤꯔꯒꯤ ꯇꯦꯌꯦꯌ ꯑꯃꯁꯨꯡ ꯌꯦꯇꯣꯗꯤꯌꯤ; ꯑꯃꯁꯨꯡ
   - ꯈꯗꯤꯔꯇ ꯂꯣꯌꯄꯒꯤ ꯃꯌꯜ (ꯉꯇꯣꯖ 5.4);
4. ꯉꯇꯣꯖ 5.5-ꯒꯤ ꯂꯔꯗꯜꯇꯕ, ꯇꯦꯌ ꯌꯧꯕ ꯍꯨꯗꯤꯔꯃꯥ ꯍꯨꯑꯗꯣꯥꯌꯨꯇ ꯑꯃꯁꯨꯡ ꯇꯣꯍꯤꯕ ꯇꯒꯌꯈꯇꯕꯒꯤ ꯑꯧꯑꯣꯔ;
5. ꯌꯦꯌꯂꯌꯔ ꯇꯧꯑꯣꯉꯄ:
   - ꯌꯣꯈꯗ-ꯌꯦꯕꯌꯒꯤ ꯑꯦꯗꯤꯗꯌ ꯑꯃꯁꯨꯡ ꯄꯣꯔꯌ;
   - ꯂꯔꯌ ꯗꯦꯌꯜꯒꯤ ꯃꯔꯤ ꯇꯧꯇꯕ MHWS, HAT ꯑꯃꯁꯨꯡ MSL;
   - ꯗꯔꯌꯦ ꯑꯣꯇ ꯈꯌꯗꯤꯂꯒꯤ ꯕꯦꯌꯍꯃꯤꯔꯥ ꯑꯃꯁꯨꯡ ꯄꯔꯣꯖꯦꯛꯠ ꯗꯦꯌꯜꯒꯤ ꯗꯦꯌꯜꯒꯤ ꯃꯔꯤ;
   - ꯗꯔꯇꯉꯤ ꯈꯣꯔꯥꯇꯜ ꯑꯃꯁꯨꯡ ꯌꯦꯌꯂ;
   - SLA; ꯑꯃꯁꯨꯡ
   - ꯌꯔꯦꯌꯒꯤ ꯇꯦꯌꯦꯌꯗꯤꯔ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯂꯒꯤ ꯈꯣꯔꯥꯇꯜꯗꯤꯔ (ꯉꯇꯣꯖ 5.6-ꯗꯒꯤ 5.8 ꯇꯣꯑꯣꯕ);
6. ꯉꯇꯣꯖ 5.9-ꯒꯤ ꯇꯣꯈꯌ-ꯉꯦꯗꯉꯤ ꯌꯦꯕꯌ, ꯃꯈꯣꯗꯤꯔꯤ ꯇꯣꯂꯇꯇ;
7. ꯑꯦꯌꯌꯇꯣꯌ ꯑꯤꯔꯕ ꯍꯦꯥ (ꯉꯇꯣꯖ 5.10):
   - ꯇꯣꯔ ꯌꯕꯒꯤ ꯑꯧꯗꯣꯥ ꯑꯃꯁꯨꯡ ꯇꯣꯥ ꯑꯜꯕ;
   - ꯗꯌꯦꯖ ꯈꯗꯔꯣꯒꯔꯣꯇꯗꯤꯔ; ꯑꯃꯁꯨꯡ
   - ꯇꯣꯥ ꯂꯤꯗꯣ ꯍꯨꯗꯤꯔꯃꯥꯉꯤ ꯌꯦꯇꯨꯜ ꯕꯦꯇꯦꯗ;
8. ꯗꯔꯌꯤꯇꯈ ꯌꯣꯔꯕ ꯈꯗ–ꯗꯤꯗꯂꯔꯇꯉꯤ ꯗꯦꯌꯒꯤ ꯇꯣꯂꯇꯇ ꯇꯖꯦꯄ ꯒꯌꯗꯤꯔ, ꯌꯈꯗ ꯒꯌꯗꯤꯔ ꯑꯃꯁꯨꯡ ꯇꯦ-ꯔꯤꯌꯔꯦ ꯌꯧꯒꯗꯤꯔꯒꯤ ꯗꯦꯗꯌꯌ ꯑꯃꯁꯦ (ꯉꯇꯣꯖ 5.11);
9. ꯄꯤꯔꯕ ꯃꯇꯜꯗ ꯄꯤꯃꯄꯤꯇ ꯑꯗꯣꯉꯄ ꯑꯦꯌꯌꯇꯣꯌꯒꯤ ꯗꯤꯖꯈꯦ, ꯄꯤꯂꯔ ꯗꯄꯤꯇꯈ, ꯈꯗꯤꯔ ꯈꯂꯈꯗꯒꯤ ꯑꯥꯑꯑꯗꯣꯉꯄ ꯑꯃꯁꯨꯡ ꯉꯦꯌꯔꯣꯌꯗꯤꯔ (ꯉꯇꯣꯖ 5.12);
10. ꯃꯔꯤ ꯇꯧꯇꯕ ꯃꯇꯜꯗ ꯗꯦꯗꯗ-ꯕꯔꯒꯤ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯃꯌꯦꯔ ꯄꯤꯔꯕ WRD-ꯒꯤ ꯗꯔꯌꯤꯇꯤꯉꯦꯗꯌ (ꯉꯇꯣꯖ 5.13); ꯑꯃꯁꯨꯡ
11. ꯗꯃꯥ 10-ꯒꯤꯗꯃꯥ ꯈꯦꯄꯦꯔꯗꯌ ꯑꯃꯁꯨꯡ ꯃꯦꯌꯦꯇꯦꯗꯉꯤ ꯃꯑꯣ ꯌꯕꯗꯤꯔ꯫

ꯉꯇꯣꯖ 5.3.4 ꯃꯍꯣꯗ ꯇꯧꯕ ꯑꯄꯤꯔꯄ ꯑꯈꯌꯗꯤꯔꯇ ꯃꯁꯨꯒꯤ ꯃꯌꯨꯌ ꯇꯣꯔꯜ 5-2 (ꯇꯈꯑꯣꯥꯈꯦꯕ ꯃꯍꯣ ꯑꯔꯕ ꯃꯇꯜꯒꯤ ꯗꯌꯦꯌꯃꯦꯦꯌ) ꯄꯤꯖꯒꯗꯕꯅꯤ꯫

ꯍꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- MoHUA / CPHEEO (2019). Manual on Storm Water Drainage Systems, Part A, §6.3.6 ꯑꯃꯁꯨꯡ Table 6.2 (ꯆꯣꯁꯇꯦꯜ ꯇꯦꯜꯇꯇꯥꯇꯦꯔ; +0.3 m-ꯒꯤ ꯆꯇꯥꯅꯐꯦꯠ ꯑꯦꯇꯥꯔꯦꯟꯂ). https://web.archive.org/web/2024/https://mohua.gov.in/upload/uploadfiles/files/VolumeI-Part%20A-Engineering-Design.pdf
- MoHUA / CPHEEO (2013). Manual on Sewerage and Sewage Treatment Systems (ꯁꯃꯁꯤꯡ ꯂꯇꯦꯂꯍꯂꯤꯡ).
- Kansas City Metro Chapter APWA (2006). Section 5600 Storm Drainage Systems and Facilities (5601.5, ꯇꯦꯗ-ꯁꯔꯂꯦꯗꯐ ꯀꯇ ꯍꯡꯕ ꯀꯆꯀꯒꯤ ꯑꯦꯅꯅꯇꯂꯤꯂ). https://www.kcwater.us/wp-content/uploads/2020/08/Design-Criteria-%E2%80%93-Section-5600-%E2%80%93-Storm-Drainage-Systems-and-Facilities.pdf
- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01.
- Atlanta Regional Commission / Georgia EPD (2016). Georgia Stormwater Management Manual, Vol. 1 (Standard #8) ꯑꯃꯁꯨꯡ Vol. 2 §3.1.9. https://documents.atlantaregional.com/gastormwater/GSMM_2016%20EDITION_FINAL_V1.pdf
- MARC. The Evolution of Regional Stormwater Design Standards. https://www.marc2.org/Assets/Environment/WQEC/The_Evolution_of_Regional_Strormwater_Design_Standards.pdf
- Optimisation of urban detention (2016). *Water* 8(7):290. https://doi.org/10.3390/w8070290
- Colorado State University. Spatially Dependent On-Site Detention Policies (thesis). https://mountainscholar.org/bitstreams/f4dbec4e-a44f-4933-8d54-a097e741f44a/download
- Manipur Science & Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, DST-NRDMS-ꯗ ꯄꯤꯈꯤꯕ ꯐꯥꯏꯅꯦꯜ ꯔꯤꯄꯣꯔꯠ (PDF 2008-ꯗ ꯁꯦꯝꯈꯤ; 2001 ꯏꯛꯥꯕꯒꯤ ꯗꯦꯇꯥ) (1966–2002-ꯒꯤ ꯅꯣꯡꯁꯤꯡ ꯅꯗꯦꯏꯨꯒꯤ ꯐꯦꯆꯦꯐꯗꯁꯤꯡ; ꯁꯍꯁꯤꯡꯒꯤ ꯑꯆꯤꯕ ꯅꯦꯕ ꯁꯦꯅꯍꯇꯁꯤꯡ; 1999–2001-ꯒꯤ ꯒꯦꯅ ꯇꯣꯐꯕ ꯗꯤꯂꯔꯦꯐꯅꯁꯤꯡ; ꯅꯦꯛꯇꯦꯛ, ꯅꯗꯅꯒꯤ ꯗꯦꯛꯏꯀ ꯑꯃꯁꯨꯡ ꯂꯨꯒꯨ ꯄꯀꯁ; ꯌꯛꯁꯤꯒꯤ ꯕꯦꯛꯔꯦꯇꯐ; ꯌꯤꯡꯒꯤ ꯍꯦꯡꯁꯤꯡꯗꯦ ꯅꯣꯃꯨ ꯗꯨꯀꯄꯅꯕ), http://web.archive.org/web/20180219013113id_/http://mastec.nic.in:80/images/Completed_projects/ReportFloodHazard.pdf
- Asian Infrastructure Investment Bank (2024). *Approval Project Document*, Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723), ꯑꯣꯛꯇꯣꯕꯔ 2024 (790 m-ꯗ ꯇꯐꯏꯟ; "35% of the area being prone to floods"; ꯅꯐꯕꯨꯟ ꯇꯨꯍꯦꯟ; "for several weeks" ꯇꯁꯤꯡ ꯐꯨꯐꯗꯕ; 547 km-ꯒꯤ ꯆꯒꯐ ꯇꯦꯐꯕ ꯁꯥꯡꯕꯦꯅꯁꯤꯡ), https://aiib.org/en/projects/details/2024/_download/India/AIIB-APD_P000723_Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project.pdf
- New Development Bank (2021). Proposed Project Summary, Lamphelpat Waterbody Rejuvenation Project, https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf
- High Court of Manipur. PIL No. 8 of 2025, *Meeyam Amata Oina Punsinba Lup v. State of Manipur*, 16 ꯖꯨꯟ 2025-ꯒꯤ ꯑꯣꯗꯔ, WRD-ꯒꯤ ꯂꯥꯅꯐ ꯅꯦꯂꯁꯥꯛꯂꯦ ꯐꯤꯁꯥꯐꯆ ꯍꯥꯌꯍꯍꯦ (ꯅꯀꯏꯦꯟꯁꯐ ꯗꯐꯦꯟ ꯇꯕ ꯑꯃꯁꯨꯡ ꯂꯃꯨꯂꯡ ꯍꯦꯍꯦꯒꯤ ꯅꯨꯐꯗꯡꯗ ꯁꯀꯁ ꯇꯕ), https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf
- Municipal Administration, Housing and Urban Development Department, Government of Manipur. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)-ꯗꯦ ꯍꯥꯇꯤꯏꯅ ꯇꯣꯐꯕ ("The town is below the high flood level of Imphal river"; 2020 ꯑꯃꯁꯨꯡ 2043-ꯒꯤ ꯅꯦꯗ ꯅꯨꯅ), https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf
- *The Manipur Loktak Lake (Protection) Act, 2006* (Manipur Act 3 of 2006), Acts 5 of 2007 ꯑꯃꯁꯨꯡ 8 of 2019-ꯗꯦ ꯑꯦꯀꯦꯗ ꯇꯣꯐꯕ, ss.1(3), 2, 3, 19 ꯑꯃꯁꯨꯡ 20, https://prsindia.org/files/bills_acts/acts_states/manipur/2006/Manipur%20Act%203%20of%202006.pdf
- *The Manipur Flood Plain Zoning Act, 1978* (Manipur Act 10 of 1978), ss.1–7 (ꯆꯧ ꯇꯣꯐꯕ ꯆꯥꯀꯤ ꯑꯃꯗꯒꯤ ꯀꯍꯤꯕ), https://www.indiacode.nic.in/bitstream/123456789/13383/1/the_manipur_flood_plain_zoning_act%2C_1978.pdf

- *The Manipur Conservation of Paddy Land and Wetland Act, 2014* (Manipur Act 10 of 2014), ss.2 ꯑꯃꯁꯨꯡ 12, https://faolex.fao.org/docs/pdf/ind194970.pdf
- Municipal Administration, Housing and Urban Development Department, Government of Manipur. *The Model Manipur Unified Building Bye-Laws, 2024*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1), 5 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ Manipur Gazette Extraordinary No. 253 (ꯄꯦꯖ-ꯁꯤ 93 ꯑꯃꯁꯨꯡ 94), https://www.tpmanipur.mn.gov.in/media/filer_public/5b/3d/5b3d9440-3e85-4cf5-bd26-d113882dfb9a/model_manipur_ubbl_final_gazette.pdf
- Directorate of Environment and Climate Change, Government of Manipur. *Administrative Report 2025-26* (ꯂꯨꯃꯥꯏ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯦꯛꯇꯤꯚꯤꯇꯤꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯤꯚ ꯆꯤꯡꯌꯥꯏ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯁꯤꯡ; ꯅꯥꯖꯌ ꯆꯦꯛꯁꯤꯟꯖꯤꯅꯦꯁꯤꯡ; ꯍꯣꯁꯤꯡ ꯆꯤꯡꯃꯥꯂꯣꯁꯤꯡꯒꯤ ꯍꯧꯒꯠꯂꯛꯄꯤ), https://assembly.mn.gov.in/user/pages/files/administrative-reports/A%20Report%202025-26%20(DoECC).pdf
- Government of Manipur. Sixth six-monthly progress report in NGT O.A. 606/2018 (ꯗꯤꯁꯦꯝꯕꯔ 2025 ꯐꯥꯑꯣꯕ) (ꯆꯃꯄ꯭ꯔ ꯁ꯭ꯇꯦꯇꯁ ꯍꯦꯟꯇꯦꯛꯄꯥ ꯍꯥꯎꯕꯥ 72-ꯒꯤ ꯍꯅꯛꯄꯥꯂꯣꯟꯒꯅ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯤꯖꯅ),
  https://www.greentribunal.gov.in/sites/default/files/news_updates/6TH%20SIX%20MONTHLY%20PROGRESS%20REPORT%20BY%20GOVT.%20OF%20MANIPUR%20IN%20OA%20NO.%20606%20of%202018%20(COMPLIANCE%20OF%20MSW%20MGT%20RULES,%202016%20AND%20OTHER%20ENVIRONMENTAL%20ISSUES).pdf
- Central Pollution Control Board (2025). *Polluted River Stretches for Restoration of Water Quality* (ꯂꯤꯂꯣꯡ ꯅꯥꯃꯅꯥꯒꯤ ꯕꯤꯂꯨꯡꯒꯥ ꯐꯥꯑꯣꯕ ꯆꯃꯄ꯭ꯔ ꯁ꯭ꯇꯦꯇꯁ), https://dste.py.gov.in/ppcc/pdf/Laboratory/PRS-2025.pdf
- SANDRP (2018). Overview of CWC's flood monitoring and forecasting in North East India (ꯍꯥꯌꯕꯥꯃꯇꯤꯟ ꯕꯗꯤꯑ ꯁ꯭ꯇꯦꯇꯁ, HFL 32.1 m; ꯃꯍꯥꯛ ꯊꯝꯕ ꯃꯐꯝꯒꯤ ꯕꯗꯤꯑ ꯁ꯭ꯇꯦꯇꯁ), https://sandrp.in/2018/08/05/overview-of-cwcs-flood-monitoring-forecasting-in-north-east-india/ . ꯃꯍꯥꯛꯀ ꯑꯂꯤ CWC-ꯒꯤ ꯌꯥꯕꯇꯂꯤꯡꯅꯒꯤ ꯍꯍꯤꯕꯂꯤꯡꯆꯤ; ꯅꯥꯌꯝ ꯑꯃꯁꯨꯡ ꯒꯥꯆ ꯆꯤꯗꯦ ꯑꯂꯤ CWC-ꯒꯦ ꯌꯥꯎꯖꯗꯝ ꯌꯥꯒꯅꯕꯆꯤ꯫
- India Meteorological Department. *Extremes of Temperature and Rainfall for Indian Stations (up to 2012)*, Imphal (Tulihal) (A), 42623.
- WRD-ꯒꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯆꯥꯒꯥꯇꯂꯤꯡꯒꯤ ꯁꯥꯁꯗꯒꯤ ꯗꯤꯁꯦꯗꯌꯂꯤꯡ (*The Sangai Express*, 30 ꯃꯦ 2024 ꯑꯃꯁꯨꯡ 16 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025), https://www.thesangaiexpress.com/Encyc/2024/5/30/By-Our-Staff-ReporterIMPHAL-May-29-With-incessant-rainfall-causing-massive-flooding-in-Manipur-the-wate.html ꯑꯃꯁꯨꯡ https://www.thesangaiexpress.com/Encyc/2025/9/16/by-our-staff-reporter-imphal-sep-15-with-the-water-levels-of-almost-all-major-rivers-rising-riverbanks-have-br.html ; ꯃꯁꯤꯊꯥꯒ ꯗꯤꯆꯗꯒꯦꯔꯗ (2015 ꯑꯃꯁꯨꯡ 2025), ꯆꯦꯛꯌꯥꯛꯄꯤ ꯆꯥꯒꯥꯇꯂꯤꯡ (NHPC, CEA ꯑꯃꯁꯨꯡ ORF, ꯄꯦꯌꯍꯤꯕ ꯆꯌꯗꯒꯦ ꯁꯦꯍꯅ ꯖꯦꯡꯅꯦꯛꯍꯤꯕ ꯃꯁꯨꯡ ꯍꯆꯆ), ꯍꯊꯍ ꯕꯥꯗꯆ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯁꯆ ꯄꯛꯁꯂꯤꯡ, ꯆꯥꯒꯦ ꯅꯨꯡꯆꯦ ꯑꯃꯁꯨꯡ ꯌꯦꯍꯂꯥꯡ ꯃꯗꯤꯡ, ꯄꯤꯡꯁꯦꯛꯁꯤꯒꯤ ꯆꯦꯡ ꯅꯨꯕꯒꯤ ꯑꯨꯡ, ꯑꯃꯁꯨꯡ ꯍꯂꯤꯡ ꯍꯌꯦꯅꯥꯒꯤ ꯆꯦꯆꯂꯤꯡ ꯊꯃꯍꯟ ꯊꯕ (ꯖꯨꯅ 2026)-ꯒꯤ ꯃꯌꯦꯡꯅ꯫
- Survey of India. Tidal Predictions: Geodetic and Research Branch. https://www.geographyandyou.com/survey-of-india/tidal-predictions-geodetic-and-research-branch-survey-of-india
- GLOSS. India national report (ꯌꯦꯍꯅ-ꯒꯥꯆꯄꯤ ꯆꯥꯌꯔꯗꯛ ꯑꯃꯁꯨꯡ ꯅꯥꯌꯝꯂꯤꯡ). https://gloss-sealevel.org/gloss/gloss/sites/gloss/files/publications/documents/india_ge9.pdf
- Adani Ports (2025). Tide Table 2025, Dahej (NHO INP-12-ꯒꯤ ꯄꯒꯗꯥꯆ ꯑꯃꯁꯨꯡ ꯅꯥꯌꯦꯒꯤ ꯍꯥꯗꯛꯖꯝꯂꯤꯡꯒꯤ ꯃꯌꯦꯡꯅ ꯆꯦꯌꯂꯤꯡ).
  https://www.adaniports.com/-/media/Project/Ports/PortsAndTerminals/Dahej-Port/Marine-Documents/Tide-Table-2025-Dahej.pdf
- INCOIS. Storm-surge and swell-surge warning services. https://incois.gov.in/
- FHWA. HEC-22 Urban Drainage Design Manual (ꯍꯥꯆꯤꯛꯄꯤ ꯑꯥꯅꯤꯂꯆ), Table 7.3 (ꯁꯨꯆꯆꯦ ꯊꯦꯛꯁꯒꯤ ꯖꯗꯤꯛꯕꯥꯆꯂꯤꯂꯤꯡ).
- Purdue University JTRP (2023). Development of a Multiple Water Course Joint Probability Analysis Procedure for Indiana Watersheds, FHWA/IN/JTRP-2023/09. https://docs.lib.purdue.edu/jtrp/1820

- PUB Singapore (2025). Code of Practice on Surface Water Drainage, 7th ed., Addendum No. 3. https://info.corenet.gov.sg/docs/default-source/pub-circulars/pub-circular_cop-7th-ed-addendum-no-3_16-apr-2025.pdf?sfvrsn=5a2c1e1a_2

ꯑꯍꯥꯞꯕ ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝꯁꯤꯡ

ꯑꯍꯥꯞꯕ / ꯐꯣꯔꯝ	ꯑꯈꯣꯛ꯭ꯕ
5A	ꯌꯣꯅꯂꯥꯟ ꯂꯥꯌꯣꯝꯁꯤꯡ (CD ꯑꯃꯁꯨꯡ ꯁꯔꯗꯥ ꯑꯣꯐ ꯅꯞꯂꯤꯈꯣꯒꯤ ꯂꯥꯌꯣꯝꯒꯣ ꯈꯡꯂꯝꯇꯕ MSL, MHWS, HAT), ꯆꯣꯁꯨꯌꯥꯟ ꯁꯥꯒꯃꯥꯞꯍ ꯃꯌꯨꯡ ꯅꯞꯇ ꯁꯔꯇꯆꯤ ꯑꯥꯇꯣꯋꯥꯞꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ 1% ꯁꯨꯌꯤꯟ-ꯋꯣꯌꯔ ꯇꯥꯗꯥꯟꯁꯤꯡ
5B	ꯃꯥꯇꯔ ꯅꯣꯡꯕꯦꯞꯁꯤꯡ, ꯌꯨꯔꯥꯟꯒꯤ ꯑꯦꯁꯨꯎꯐꯣꯟ ꯔꯤꯋꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯁꯥꯞꯂ-ꯕꯔꯇꯦ ꯊꯤꯡꯕ ꯊꯣꯆꯉ ꯈꯦꯕ ꯌꯨꯔꯥꯟꯒꯤ ꯃꯦꯁꯨꯊꯁꯤꯡ; ꯃꯥꯉ
5C	ꯊꯕꯡ ꯌꯣꯔꯕ ꯅꯨꯂꯐ: ꯇꯤꯔꯤ ꯌꯨꯔꯥꯟꯒꯤ ꯅꯣꯡ ꯑꯃꯂ ꯅꯁꯤꯡ ꯊꯂꯣꯆꯉ ꯇꯤꯔꯤꯕꯦꯐ ꯌꯣꯁꯨꯞꯒꯤ ꯋꯤꯡꯒꯤ ꯃꯇꯦꯡꯌ ꯇꯣꯕ ꯆꯣꯇꯣꯇꯤ ꯑꯃꯒꯤ ꯑꯦꯁꯨꯎꯐꯣꯟ ꯊꯤꯡꯕ ꯋꯥꯡ
ꯐꯣꯔꯝ 5-1	ꯃꯍꯣ ꯊꯡꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯌꯥꯟꯋꯣꯌꯔꯒꯤ ꯔꯤꯉꯣꯔꯎ
ꯐꯣꯔꯝ 5-2	ꯇꯣꯅꯊꯣꯡꯍꯞꯕ ꯃꯍꯣ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯁꯨꯌꯥꯌꯃꯥꯞꯎ (ꯑꯉꯤꯡꯉ ꯁꯅꯎꯁꯤꯡ)

ꯁꯔꯨꯛ 6

ꯃꯥꯏꯅꯔ ꯑꯃꯁꯨꯡ ꯃꯦꯖꯔ ꯏꯔꯝ ꯁꯤꯁ꯭ꯇꯦꯝꯁꯤꯡ

6.1 ꯄꯥꯛꯆꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯕ ꯃꯐꯝ

6.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯑꯃꯗꯒꯤ, ꯂꯝꯕꯤ ꯑꯃꯗꯒꯤ ꯅꯠꯇ꯭ꯔꯒꯥ ꯄꯕ꯭ꯂꯤꯛ ꯏꯔꯝ (drainage) ꯁ꯭ꯀꯤꯝ ꯑꯃꯗꯒꯤ ꯔꯅꯑꯣꯐ (runoff) ꯑꯗꯨ ꯏꯁꯤꯡ ꯂꯩꯕ ꯋꯣꯇꯔꯋꯦ (waterway), ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri) ꯅꯠꯇ꯭ꯔꯒꯥ ꯑꯥꯎꯠꯐꯣꯜ (outfall) ꯑꯃꯗ ꯄꯨꯕ ꯀꯟꯚꯦꯌꯦꯟꯁ ꯁꯤꯁ꯭ꯇꯦꯝ (conveyance system) ꯑꯗꯨꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯣꯐ ꯁꯔꯚꯤꯁ (level of service) ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ ꯊꯝꯂꯤ꯫ ꯃꯁꯤꯅꯥ ꯃꯈꯥꯒꯤꯁꯤꯡ ꯌꯥꯎꯏ:

- (a) ꯗ꯭ꯌꯨꯑꯦꯜ ꯏꯔꯝꯒꯤ ꯀꯟꯁꯦꯞꯇ (dual drainage concept): ꯃꯥꯏꯅꯔ ꯁꯤꯁ꯭ꯇꯦꯝ (minor system) ꯑꯃꯥ ꯑꯃꯁꯨꯡ ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝ (major system) ꯑꯃꯥ (ꯀ꯭ꯂꯣꯖ 6.3);
- (b) ꯂꯝ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤꯒꯤ ꯀ꯭ꯂꯥꯁ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯔꯤꯇꯔꯟ ꯄꯤꯔꯤꯌꯗꯁꯤꯡ (return period) (ꯀ꯭ꯂꯣꯖ 6.4);
- (c) ꯂꯝꯕꯤꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁ: ꯁ꯭ꯄ꯭ꯔꯦꯗ (spread), ꯑꯍꯣꯕ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯣꯒꯤ ꯍꯖꯥꯔꯗ (flow hazard) (ꯀ꯭ꯂꯣꯖ 6.5);
- (d) ꯀ꯭ꯂꯣꯒꯤꯡ (clogging) ꯌꯥꯑꯣꯅꯥ ꯏꯟꯂꯦꯇꯁꯤꯡ (inlet) (ꯀ꯭ꯂꯣꯖ 6.6);
- (e) ꯍꯥꯡꯗꯣꯛꯂꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯨꯡꯂꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ (open and covered drains) (ꯀ꯭ꯂꯣꯖ 6.7);
- (f) ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯒ꯭ꯔꯦꯗ ꯂꯥꯏꯅꯒꯤ (hydraulic grade line) ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ (ꯀ꯭ꯂꯣꯖ 6.8);
- (g) ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤꯁꯤꯡ (overland flow path), ꯁꯦꯒꯁꯤꯡꯗ (sag) ꯅꯁꯤꯡ ꯂꯦꯞꯄ (ponding) ꯑꯃꯁꯨꯡ ꯕꯤꯜꯗꯤꯡꯒꯤ ꯐ꯭ꯂꯣꯔ ꯂꯦꯚꯦꯂꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 6.9-ꯗꯒꯤ 6.11 ꯐꯥꯑꯣꯕ);
- (h) ꯀꯜꯚꯔꯇꯁꯤꯡ (culvert) ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯀ꯭ꯔꯣꯁꯤꯡꯁꯤꯡ (road crossing) (ꯀ꯭ꯂꯣꯖ 6.12); ꯑꯃꯁꯨꯡ
- (i) ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ, ꯂꯩꯅ (silt), ꯁꯣꯂꯤꯗ ꯋꯦꯁ꯭ꯠ (solid waste), ꯌꯨꯇꯤꯂꯤꯇꯤꯁꯤꯡ (utilities) ꯑꯃꯁꯨꯡ ꯂꯩꯅ ꯂꯧꯊꯣꯛꯅꯕ ꯑꯦꯛꯁꯦꯁ (desilting access)-ꯒꯤ ꯗꯃꯛ ꯃꯂꯤꯌꯥꯒꯤ ꯀꯦꯁꯔꯑꯣꯅꯦ ꯁ꯭ꯇ꯭ꯔꯛꯆꯔꯁꯤꯡ ꯃꯇꯧ ꯁꯔꯕꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 6.13)꯫

6.1.2 ꯃꯦꯖꯔ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤ (ꯀꯜꯚꯔꯇꯁꯤꯡ, ꯌꯦꯂꯦꯜꯁꯤꯡ, ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔꯁꯤꯡ, ꯁ꯭ꯀ꯭ꯔꯤꯅꯁꯤꯡ, ꯄꯝꯄꯁꯤꯡ, ꯒꯦꯠꯁꯤꯡ, ꯃꯦꯅꯍꯣꯜꯁꯤꯡ) ꯑꯀꯨꯞꯄ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯁꯔꯨꯛ 9-ꯗ ꯂꯩ꯫ ꯂꯝ ꯌꯨꯕ ꯁꯔꯨꯛ 2-ꯗ, ꯔꯅꯑꯣꯐꯀꯤ ꯊꯥꯑꯣꯃꯁꯤꯡ ꯁꯔꯨꯛ 3-ꯗ, ꯑꯦꯟ-ꯁꯥꯏꯠ ꯁ꯭ꯇꯣꯔꯦꯖ ꯁꯔꯨꯛ 4-ꯗ, ꯇꯦꯂꯋꯣꯇꯔ (tailwater) ꯁꯔꯨꯛ 5-ꯗ, ꯅꯁꯤꯡ ꯂꯩꯍꯧꯁꯤꯡ ꯁꯔꯨꯛ 7-ꯗ ꯑꯃꯁꯨꯡ ꯅꯁꯤꯡꯒꯤ ꯀꯋꯥꯂꯤꯇꯤ ꯁꯔꯨꯛ 8-ꯗ ꯂꯩ꯫

6.1.3 ꯁꯔꯨꯛ ꯑꯁꯤ ꯄꯕ꯭ꯂꯤꯛ ꯈꯥꯡꯕꯦꯜ (drain) ꯄꯨꯔꯛꯄꯗ, ꯀꯔꯕ (kerb) ꯅꯠꯇ꯭ꯔꯒꯥ ꯂꯝꯕꯤꯒꯤ ꯃꯅꯥꯛꯇꯥ ꯈꯥꯡꯕꯦꯜ ꯂꯩꯕ ꯂꯝꯕꯤ ꯄꯨꯔꯛꯄꯗ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 1-ꯒꯤ ꯌꯥꯠꯂꯕ ꯃꯐꯝꯒꯤ ꯊ꯭ꯔꯦꯁꯍꯣꯜꯗꯁꯤꯡ (threshold) ꯌꯥꯕ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯄꯕ꯭ꯂꯤꯛ ꯏꯔꯝ ꯁꯤꯁ꯭ꯇꯦꯝ ꯄꯨꯔꯛꯄꯗ ꯌꯥꯠꯂꯤ꯫ ꯁꯤꯌꯔ B ꯂꯥꯀꯄ ꯕꯥꯗꯤꯁꯤꯡꯗ, ꯁꯔꯨꯛ 1-ꯗ ꯍꯌꯔꯤꯕ ꯂꯥꯊꯥꯎꯍꯦꯕ ꯄ꯭ꯔꯥꯁꯤꯖꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯗꯁꯤꯡ (design aid) ꯑꯁꯤ ≤ 16 ha-ꯗ ꯁꯦꯕ ꯄꯤꯕ ꯑꯦꯂꯤꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ, ꯑꯗꯨꯕ ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯀꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯗꯨ ꯍꯥꯏꯖꯔꯛꯄ ꯌꯥꯠꯂꯤ꯫

ꯁꯦꯗꯦꯌꯨꯂꯥ ꯈꯨꯂꯥ. ꯃꯂꯤꯌꯥꯒꯤ ꯈꯥꯡꯕꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯁ꯭ꯇꯦꯠ ꯅꯠꯇ꯭ꯔꯒꯥ ꯃꯨꯅꯤꯁꯤꯄꯦꯂꯒꯤ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯑꯃꯍꯧꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯈꯣꯏꯗꯦ: ꯔꯤꯁꯔꯁꯤꯡ ꯃꯈꯥꯗ ꯑꯃꯍꯧ ꯐꯨꯝꯏꯗꯦ, ꯑꯃꯁꯨꯡ ꯐꯨꯂꯕ ꯗꯥꯏꯃꯦꯟꯁꯟ ꯑꯃꯍꯧꯅꯥ ꯀꯔꯤꯒꯨꯝꯕ ꯁꯥꯔꯤ ꯑꯃꯒꯤꯗꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯔꯤꯈꯔꯗ ꯄꯤꯔꯤꯌꯗ, ꯔꯅꯑꯣꯐ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇ ꯅꯠꯇ꯭ꯔꯒꯥ ꯈꯥꯡꯕꯦꯜꯒꯤ ꯁꯥꯏꯖ ꯄꯤꯗꯦ꯫ ꯁ꯭ꯇꯦꯠ ꯑꯁꯤꯒꯤ ꯅꯕꯥꯟꯗꯒꯤ ꯌꯥꯎꯕ ꯂꯩꯅꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ, ꯒ꯭ꯔꯦꯇꯔ ꯂꯝꯍꯥꯏꯒꯤ ꯂꯝꯕꯤꯁꯤꯡꯒꯤ ꯃꯅꯥꯛꯇꯥ AIIB ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ "ꯃꯅꯥꯛ ꯑꯅꯤꯃꯛꯇꯥ ꯀꯚꯔ ꯇꯧꯔꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯈꯥꯡꯕꯦꯜ 547 km" ("547 km of both side stormwater covered drains"), ꯃꯁꯤꯗ ꯔꯤꯁꯔꯗ ꯄꯤꯔꯤꯌꯗ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯛ ꯅꯠꯇ꯭ꯔꯒꯥ ꯔꯅꯑꯣꯐ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇ ꯑꯃꯍꯧꯒꯤ ꯍꯥꯏꯗꯦ (AIIB, 2024), ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯇꯔ ꯂꯝꯍꯥꯏꯒꯤ ꯃꯁꯤꯡꯗ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ (stormwater) ꯂꯝꯕꯤꯒꯤ ꯁꯦꯌꯥꯔꯦ ꯑꯃꯍꯧꯒꯤ ꯂꯩꯗꯦ꯫ ꯂꯩꯔꯕ ꯈꯥꯡꯕꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯐꯅꯥ ꯊꯕꯛ ꯈꯥꯗꯦ: "ꯒ꯭ꯔꯦꯇꯔ ꯂꯝꯍꯥꯏ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯂꯩꯔꯕ

> ꯏꯔꯝ ꯑꯁꯤꯁꯨ ꯐꯕ ꯐꯤꯚꯝꯗ ꯂꯩꯇꯦ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯀꯥꯡꯕꯦꯜꯗ ꯆꯨꯝꯅ ꯁꯝꯃꯤꯟꯅꯗꯦ꯫ ꯏꯔꯝ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯂꯤꯉ꯭ꯀꯁꯤꯡ ꯃꯥꯡꯂꯤ … ꯀꯥꯡꯕꯦꯜꯁꯤꯡ ꯊꯨꯡꯂꯦ … ꯏꯝꯐꯥꯜꯗ ꯂꯝꯕꯤꯁꯤꯡꯒꯤ ꯃꯄꯥꯟꯗ ꯗꯤꯁꯦꯟꯠ꯭ꯔꯦꯂꯥꯏꯖ ꯇꯧꯔꯕ ꯅꯣꯡꯖꯨ-ꯏꯁꯤꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯂꯩꯇꯦ" ("The existing drainage in the Greater Imphal area is also not in good condition and is not properly connected to the primary drain. Drainage system links are missing … the drains are clogged … Imphal lacks decentralized stormwater management along streets") (AIIB, 2024)꯫ ꯃꯅꯥꯔꯗ ꯃꯣꯂꯨꯔꯣꯛ ꯑꯁꯤꯒꯤ ꯐꯤꯚꯝ ꯂꯃꯒꯤ ꯑꯣꯏꯅꯕꯁꯤꯡꯗꯤ ꯁꯣꯏꯗꯅ ꯏꯁꯤꯡ ꯏꯆꯝ ꯆꯝꯕ ꯊꯣꯡꯅꯕ ꯐꯤꯚꯝ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯌꯥꯏ꯫ ꯌꯃꯔꯥꯛꯄ ꯂꯝꯕ ꯃꯅꯥꯔ ꯑꯁꯤ ꯌꯨꯝꯂꯣꯟꯒꯤ ꯔꯦꯁꯤꯡꯗ (bund) ꯂꯩꯕ ꯏꯊꯣꯡꯁꯤꯡꯗ (ithong; sluice gate) ꯂꯥꯏꯅ, ꯆꯃꯤꯀ ꯄꯨꯔꯤꯒꯤ ꯃꯌꯝ ꯁꯍꯥꯗꯒꯤ ꯋꯥꯡꯕ ꯂꯩꯕ ꯌꯨꯝꯂꯣꯟꯁꯤꯡꯒꯤ ꯃꯌꯨꯡꯗ, ꯂꯣꯌꯅ ꯃꯃꯤꯡꯗꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯅꯥꯕ ꯔꯤꯖꯁꯤꯡꯗ (pat; lake or wetland, ꯂꯝꯖꯦꯡꯔꯤꯕ ꯂꯩꯕꯄꯨꯝ) ꯑꯃꯁꯨꯡ ꯔꯨꯅꯗꯤꯁꯤꯡꯗ ꯂꯥꯏꯅ, ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔꯗ ꯁꯤꯋꯦꯖ (sewage) ꯔꯨꯅ: ꯅꯥꯏꯕꯦ 72-ꯗ BOD 42.45-ꯗꯒꯤ 52.34 mg/L ꯂꯩꯗꯦ ꯂꯃꯕꯨꯅ ꯌꯨꯝꯂꯣꯟꯗ ꯏꯁꯤꯡ ꯊꯣꯛꯄ (NGT-ꯗ ꯁ꯭ꯇꯦꯇꯁ ꯔꯤꯄꯣꯔꯠ, ꯗꯤꯁꯦꯝꯕꯔ 2025)꯫ ꯋꯤꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯌꯃꯔꯥꯛꯄ ꯃꯇꯧ ꯃꯅꯥꯔꯗ "ꯏꯅꯐꯤꯂꯇ꯭ꯔꯦꯁꯟ ꯍꯦꯟꯅ ꯍꯟꯊꯕ ꯑꯃꯁꯨꯡ ꯔꯟꯑꯣꯐ ꯍꯦꯟꯕ" ("have less infiltration and more run off") ꯗꯤꯁꯥꯡ ꯁꯦꯜꯒꯤ (Disang shale) ꯂꯩꯃꯥꯏꯁꯤꯡꯗꯒꯤ ꯏꯁꯤꯡ ꯅꯥꯀꯂꯤꯆꯂꯤ, ꯃꯅꯥꯔ ꯑꯁꯤ ꯃꯥꯁ꯭ꯇꯔꯗꯤ ꯂꯦꯁꯇꯔꯃꯏ (MASTEC), ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔꯒꯤ ꯅꯥꯏꯁꯤꯡꯗ (khong; stream) ꯂꯩꯃ ꯌꯃꯔꯥꯛꯄ ꯂꯃ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯔꯥꯏ ꯔꯨꯔꯃꯏ꯫ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔ ꯑꯁꯤ ꯃꯔꯨ ꯃꯄꯨꯒꯤ ꯃꯔꯥꯏ ꯅꯄꯗ꯭ꯔꯥꯂꯤ: IMC ꯑꯃꯁꯨꯡ ꯑꯌꯥꯕ ꯔꯥꯖꯕꯦ ꯂꯝꯌ ꯕꯥꯗꯤꯁꯤꯡ, PWD, WRD, DoECC, PHED ꯑꯃꯁꯨꯡ LDA ꯔꯨꯃꯂꯃꯥꯂꯗ ꯒꯔꯣꯌꯔ ꯏꯝꯐꯥꯜꯅ ꯅꯥꯏꯕꯦꯁꯤꯡ, ꯄꯣꯂꯣꯡꯁꯤꯡ ꯂꯣꯏꯅꯕ ꯏꯁꯤꯡ ꯂꯩꯕ ꯏꯁꯤꯡꯁꯤꯡ ꯁꯒꯣꯠꯂꯤ ꯂꯣꯏꯅꯕ ꯄꯥꯏ, ꯑꯃꯁꯨꯡ ꯂꯥꯏꯐꯤꯕꯣꯁꯦ ꯑꯃꯣꯌꯗ ꯂꯃꯒ ꯆꯨꯟꯗ (Naga Nullah), ꯋꯥꯏꯁꯦꯜ ꯃꯔꯤꯟ (Waisel Maril) ꯂꯣꯏꯅꯕ ꯁꯃꯨꯁꯥꯡ ꯂꯗ (Shamushang nallah) ꯑꯁꯤ ꯃꯅꯥꯔꯒꯤ ꯃꯔꯥꯏ ꯑꯃꯗ ꯔꯤꯅꯤꯃ (ꯇꯦꯕꯜ 6.9-ꯒꯤ ꯁꯦꯗꯥꯂꯗ ꯌꯥꯔꯤ ꯄꯣꯅꯕꯤꯍ)꯫ ꯂꯝ ꯍꯕ (ꯁꯔꯨꯛ 2) ꯁꯣꯃꯗꯥꯕꯔꯤ ꯑꯁꯤ ꯔꯤꯁ꯭ꯀꯃꯒꯤ ꯁꯔꯨꯛ ꯑꯗꯨ ꯅꯥꯌꯂꯤ꯫ ꯑꯌꯥꯕ ꯁꯔꯨꯛ ꯑꯗꯨ ꯑꯁꯤꯗꯤ ꯔꯤꯅꯔꯁꯤꯡꯗ ꯔꯨꯕ ꯊꯃꯗꯕ ꯐꯂꯁꯤꯡ ꯑꯗꯨ ꯕꯤꯇꯗꯤꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯏꯋꯥꯡ (flood) ꯔꯨꯗꯈꯥꯌꯗ ꯔꯨꯕ ꯂꯩꯃꯅꯒꯤ ꯑꯂꯤꯡꯕ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯂꯤ꯫ ꯃꯗꯨ ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯏꯗꯃꯒꯤ ꯋꯏꯟꯇꯦꯔꯜ, ꯃꯁꯤ Kansas City Metro APWA Section 5600 (5601.8, Levels of Service)-ꯗꯒꯤ ꯂꯧꯅꯕꯂꯤ, ꯃꯁꯤꯗ ꯑꯂꯤꯃꯣꯌ ꯄꯗꯤꯃꯔꯕ 1% AEP-ꯒꯤ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯂꯝꯕꯤ ꯑꯃ ꯂꯩꯒꯗꯕꯅꯤ ꯍꯥꯌꯕꯗ ꯃꯇꯦ ꯌꯥꯏ꯫

6.2 ꯋꯥꯍꯩꯒꯤ ꯑꯔꯊꯁꯤꯡ

ꯋꯥꯍꯩ	ꯃꯣꯂꯨꯔꯣꯛ ꯑꯁꯤꯕ ꯑꯔꯊ
ꯃꯥꯏꯅꯔ ꯁꯤꯁ꯭ꯇꯦꯝ (minor system)	ꯌꯣꯕꯛ 6.1-ꯒꯤ ꯃꯥꯏꯅꯔ ꯗꯤꯖꯥꯏꯟ AEP ꯐꯥꯎꯕ ꯔꯦꯝꯑꯣꯐ ꯑꯗꯨ ꯇꯦꯕꯜ 6.8-ꯒꯤ ꯂꯤꯃꯤꯇꯁꯤꯡꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯔꯆꯥꯔꯖ (surcharge) ꯌꯥꯎꯗꯅꯥ ꯔꯨꯕ ꯏꯔꯣꯂꯣꯠꯁꯤꯡ, ꯄꯥꯏꯄꯁꯤꯡ, ꯀꯚꯔ ꯌꯥꯎꯕ ꯅꯥꯏꯕꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯃꯗꯥꯂꯕ ꯅꯥꯏꯕꯦꯁꯤꯡ꯫
ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝ (major system)	ꯃꯥꯏꯅꯔ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯐ꯭ꯂꯣ ꯑꯗꯨ 1% AEP (100-yr) ꯐꯥꯎꯕ ꯔꯨꯕ ꯂꯩꯃꯅꯒꯤ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤꯁꯤꯡ (ꯂꯝꯕꯤꯁꯤꯡ, ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤꯁꯤꯡ, ꯍꯥꯃꯗꯥꯂꯕ ꯄꯣꯡꯁꯤꯡ, ꯐ꯭ꯂꯗꯋꯦꯁꯤꯡ (floodway) ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ)꯫
ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤ (overland flow path)	ꯃꯦꯖꯔ-ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯐ꯭ꯂꯣ ꯑꯗꯨ ꯏꯁꯤꯡ ꯂꯩꯕ ꯋꯥꯌꯔꯣ ꯑꯃꯗ ꯔꯨꯕ, ꯔꯤꯕꯂꯤꯒ ꯂꯝꯗ ꯂꯣꯏꯅꯕ ꯔꯣꯕꯔꯗ ꯌꯥꯔꯕ ꯏꯂꯃꯣꯌ (easement) ꯑꯃꯗ ꯂꯩꯕ, ꯃꯍꯣꯒ ꯁꯣꯡꯗ ꯊꯝꯂꯕ ꯂꯩꯃꯅꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯅꯤ꯫
ꯁ꯭ꯄ꯭ꯔꯦꯗ (spread) (T)	ꯒꯌꯔ (gutter) ꯑꯃꯁꯨꯡ ꯀꯦꯔꯤꯑꯦꯖꯋꯦ (carriageway) ꯐ꯭ꯂꯣꯒꯤ ꯔꯤꯒꯔ, ꯀꯔꯕꯀꯤ ꯃꯃꯤꯅꯒꯤ ꯊꯥꯕ꯫
ꯁꯒ (sag)	ꯂꯝꯕꯤ ꯂꯣꯏꯅꯕ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤ ꯑꯃꯗ ꯂꯩꯕ ꯂꯣꯝꯕ ꯃꯐꯝ ꯑꯃꯤ, ꯃꯐꯝ ꯑꯗꯨꯗꯒꯤ ꯏꯁꯤꯡꯗ ꯏꯔꯣꯂꯣꯏ ꯑꯃꯒꯤ ꯄꯨꯊꯣꯛꯅ ꯂꯣꯏꯅꯕ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯂꯣꯡꯁꯣꯡ ꯑꯃꯗ ꯋꯥꯕ ꯐꯥꯑꯣꯕ ꯏꯁꯤꯡ ꯂꯣꯔꯂꯣꯏ ꯅꯥꯌꯕꯃꯥ ꯊꯥꯕꯔ ꯋꯥꯏ꯫ ꯌꯥꯎꯔ ꯌꯥꯎꯕ ꯁꯒ (trapped sag) ꯑꯃꯗ ꯂꯩꯃꯅꯒꯤ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯂꯝꯕꯤ ꯂꯩꯇꯦ꯫
ꯀ꯭ꯂꯣꯒꯤꯡ ꯐꯦꯛꯇꯔ (clogging factor)	ꯏꯅꯂꯦꯠ ꯑꯃꯒꯤ ꯁꯣꯡꯂꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯗꯦꯕ꯭ꯔꯤꯁꯇ (debris) ꯃꯍꯩꯔꯩ ꯍꯥꯌꯕ ꯂꯩꯕ ꯁꯔꯨꯛ (ꯇꯦꯕꯜ 6.6.3)꯫
ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯒ꯭ꯔꯦꯗ ꯂꯥꯏꯟ (HGL)	ꯀꯟꯗ꯭ꯌꯨꯏꯠ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯗ ꯐ꯭ꯂꯣ-ꯁꯔꯐꯦꯁꯀꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ, ꯂꯣꯏꯅꯕ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯗꯨ ꯄ꯭ꯔꯦꯁꯔꯒꯤ ꯃꯈꯥ ꯂꯩꯕ ꯃꯐꯝ ꯔꯤꯈꯥꯡ꯭ꯌꯤꯗ ꯂꯦꯚꯦꯜꯁꯤꯡ, ꯁꯃꯂꯍꯦꯟꯕ ꯂꯥꯏꯟ꯫
ꯀꯚꯔ ꯌꯥꯎꯕ ꯅꯥꯏꯕꯦ (covered drain)	ꯃꯍꯣꯡꯗ ꯂꯝꯕꯤꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ, ꯐꯨꯠꯄꯥꯊ ꯑꯃꯤ ꯑꯣꯏꯅꯥꯕ ꯀ꯭ꯌꯨꯈ-ꯏꯟ-ꯁꯤꯇꯨ ꯂꯣꯏꯅꯕ ꯔꯤꯐ꯭ꯔꯤꯀꯨꯠ ꯀꯚꯔ ꯁꯂꯕꯁꯤꯡꯗ ꯊꯤꯡꯕ ꯃꯌꯥꯏ ꯃꯔꯤ ꯂꯩꯕ ꯅꯥꯏꯕꯦ ꯑꯃꯤ꯫

ꯋꯥꯍꯩ	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯗ ꯑꯔꯊ
ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯂꯥꯎꯑꯦꯟꯁ (sediment allowance)	ꯍꯣꯡꯕꯗ ꯂꯩꯕꯒꯥ ꯊꯧꯔꯥ ꯑꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯍꯤꯕ ꯃꯌꯥꯝ ꯂꯩꯕꯗ ꯃꯁꯨꯡꯕ ꯑꯍꯦꯅ ꯍꯔꯦꯗ ꯂꯩꯕ ꯑꯍꯦꯅꯕ ꯑꯣꯏꯕ ꯑꯦꯔꯤꯌꯥ (ꯀ꯭ꯂꯣꯖ 6.7.8)꯫
ꯆꯦꯛ ꯏꯚꯦꯟꯠ (check event)	ꯗꯤꯖꯥꯏꯟ AEP-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯌꯥꯝꯅꯥ ꯋꯥꯡꯕ AEP ꯑꯃꯥ, ꯃꯁꯤꯗ ꯃꯥꯏꯅꯔ ꯑꯃꯁꯨꯡ ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝ ꯄꯨꯟꯅꯥ ꯊꯥꯗꯣꯛꯂꯤ ꯇꯦꯕꯜ 6.2-ꯗ ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯤ꯫
ꯍꯥꯏ-ꯗꯦꯟꯁꯤꯇꯤ ꯑꯦꯔꯤꯌꯥ (high-density area)	ꯑꯦꯂꯥꯎꯒꯤ ꯑꯣꯏꯅꯥ ꯀ꯭ꯂꯣꯖ 6.4.4-ꯗ ꯃꯍꯩ ꯃꯑꯣꯡ ꯑꯗꯨꯒꯤ ꯂꯣꯌꯅꯅ ꯌꯥꯝꯕ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯥ꯫
ꯀ꯭ꯂꯥꯁ I ꯑꯦꯔꯤꯌꯥ (Class I area)	ꯃꯤꯁꯤꯡ 1 ꯂꯥꯈ ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯂꯩꯕ ꯁꯍꯔ ꯂꯝ ꯑꯃꯥ (CPHEEO-ꯒꯤ ꯑꯔꯊ)꯫

6.3 ꯗ꯭ꯔꯦꯅꯦꯖ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯃꯥꯏꯄꯥꯛꯄ

6.3.1 ꯗꯤꯖꯥꯏꯟ ꯁꯤꯁ꯭ꯇꯦꯝ ꯈꯅꯕꯗꯥ ꯃꯈꯥꯒꯤ ꯑꯁꯤ ꯌꯥꯝꯕ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ:

- (a) ꯇꯦꯕꯜ 6.1-ꯒꯤ ꯃꯥꯏꯅꯔ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯑꯗꯨ ꯂꯃꯗꯃꯒꯤ ꯃꯍꯩ ꯅꯠꯔꯒꯥ ꯍꯣꯡꯕꯗꯥ ꯁꯤꯁꯨꯡ ꯂꯩꯕꯤꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗꯅ ꯑꯗꯨ ꯇꯦꯕꯜ 6.2-ꯒꯤ ꯃꯔꯨꯑꯣꯏꯅ ꯊꯝꯕ **ꯃꯥꯏꯅꯔ ꯁꯤꯁ꯭ꯇꯦꯝ** ꯑꯃꯥ; ꯑꯃꯁꯨꯡ
- (b) ꯃꯥꯏꯅꯔ-ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯐ꯭ꯂꯣ ꯌꯥꯎꯊꯣꯛꯄ, 1% AEP (100-yr) ꯐ꯭ꯂꯣ ꯌꯥꯎꯕ, ꯂꯃꯗꯝ ꯕꯤꯟꯗꯨꯁꯤꯡꯅ ꯌꯥꯝꯗꯅꯕ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 6.5-ꯒꯤ ꯑꯍꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯕ ꯂꯤꯃꯤꯇꯁꯤꯡꯒꯤ ꯃꯔꯨꯑꯣꯏꯅ ꯁꯦꯝꯕ **ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝ** ꯑꯃꯥ꯫

6.3.2 **ꯑꯦꯛꯁꯤꯗꯦꯟꯠ ꯄꯨꯝꯅꯃꯛꯇꯥ 1%-ꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯥ ꯂꯩ.** ꯗꯤꯖꯥꯏꯟ, ꯁꯣꯔ, ꯁꯤꯡꯒꯥ, ꯅꯣꯔꯃꯦꯜ, ꯀꯟꯁ꯭ꯇꯦꯟꯇꯀꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯔꯦꯟ ꯑꯦꯛꯁꯤꯗꯦꯟꯠ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯗꯁꯤꯡ ꯂꯩꯕ ꯌꯥꯕꯒꯤ, ꯁꯤꯡꯊꯥ ꯅꯠꯔꯒꯥ ꯑꯍꯩꯔꯤꯟꯕ ꯑꯃꯍꯦ ꯌꯥꯎꯔꯛ, ꯃꯌꯦꯛ ꯁꯦꯡꯂꯕ ꯅꯕꯗꯣꯛꯂꯕ 1% AEP-ꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤ ꯑꯃꯥ ꯂꯩꯒꯗꯕꯅꯤ꯫ ꯂꯝꯕꯤ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯁꯦꯛꯁꯟ (ꯀ꯭ꯂꯣꯖ 6.15) ꯁꯤꯖꯤꯟꯅꯕꯅꯤ꯫

6.3.3 **ꯃꯦꯖꯔ-ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ.** ꯃꯐꯝ ꯑꯃꯍꯥꯛꯇꯥꯗ ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝꯗ 1% AEP-ꯒꯤ ꯁꯤꯡꯒꯥ ꯐ꯭ꯂꯣꯗꯒꯤ ꯃꯐꯝ ꯑꯗꯨꯒꯤ ꯃꯥꯏꯅꯔ-ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯂꯧꯊꯣꯛꯂꯕ ꯑꯗꯨ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ ꯂꯧꯊꯣꯛꯀꯗꯕ ꯑꯁꯤꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯥꯏꯅꯔ-ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 6.6.3-ꯒꯤ ꯏꯅꯂꯦꯠꯒꯤ ꯐꯦꯀꯇꯔꯁꯤꯡ ꯂꯧꯔꯕ ꯃꯇꯨꯡꯒꯤ ꯗꯤꯖꯥꯏꯟꯁꯤꯡꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ, ꯅꯠꯔꯒꯥ ꯁꯤꯡꯒꯥꯀꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ, ꯃꯍꯩꯔꯣꯒꯤ ꯃꯔꯛꯇꯥ ꯑꯍꯦꯅꯕ ꯑꯗꯨꯅꯤ꯫ ꯁꯣꯗꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯕꯤꯟꯗꯨꯁꯤꯡꯒꯤ ꯐ꯭ꯂꯣꯒꯤ ꯂꯝꯕꯤ ꯄꯥꯝꯂꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯐꯝ ꯄꯨꯝꯅꯃꯛꯇꯥ, ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯁꯤ ꯃꯥꯏꯅꯔ ꯁꯤꯁ꯭ꯇꯦꯝ **ꯃꯁꯨꯡꯕ ꯐꯣꯡꯗꯣꯛꯄ** ꯐꯤꯒꯃꯗꯨ ꯆꯦꯛ ꯇꯧꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 6.10.3)꯫

6.3.4 **ꯂꯦꯡ ꯃꯆꯥ ꯑꯃꯁꯨꯡ ꯄꯦꯂꯦꯡ.** ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯁꯤꯡꯗꯤ ꯁꯔꯨꯛ 2-ꯒꯤ ꯂꯦꯡ ꯃꯆꯥ (ꯀ꯭ꯂꯣꯖ 2.8-ꯒꯤ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔ ꯌꯥꯎꯅꯥ) ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 3-ꯒꯤ ꯄꯦꯂꯦꯡꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ:

- (a) ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ (Rational Method) ꯑꯁꯤ ≤ 16 ha-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ (catchment) ꯑꯃꯁꯨꯡ ꯀꯟꯗꯨꯏꯠ ꯑꯦꯛꯁꯤꯗꯦꯟꯠ ꯑꯃꯥꯡꯗꯒꯤꯃꯁꯤꯡ ꯍꯟꯗꯣꯛꯄ꯫ ꯃꯁꯤ ꯃꯁꯨꯡ ꯐꯕ ꯀꯦꯆꯃꯦꯟꯠ 16 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯂꯣꯌꯅꯕꯥ ꯑꯃꯁꯤꯒꯤ ꯃꯍꯩ ꯄꯥꯡꯕ ꯐ꯭ꯂꯣꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯅꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ;
- (b) 16 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯂꯣꯌꯅꯕꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯁꯤꯡꯒꯥ, ꯁꯤꯡꯃꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯇꯥꯏꯗꯦꯜ ꯑꯥꯎꯇꯐꯣꯜ (tidal outfall) ꯂꯩꯕ ꯂꯣꯌꯅꯕꯥ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯑꯃꯃꯃꯀꯥ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯔꯨꯇꯤꯡ (hydraulic routing) ꯂꯩꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ (hydrograph) ꯄꯦꯂꯦꯡ ꯑꯃꯥ (ꯈꯨꯗꯝ ꯑꯣꯏꯅ SWMM, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯃꯣꯗꯦꯜ ꯑꯃꯒꯤ ꯂꯣꯌꯅꯅ HEC-HMS, ꯅꯠꯔꯒꯥ ꯃꯁꯤꯒꯤ ꯃꯥꯟꯅꯕ 1D/2D ꯃꯣꯗꯦꯜ ꯑꯃꯥ);
- (c) ꯃꯤꯅꯤꯠ 10-ꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯟ (time of concentration)꯫

6.3.5 **ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯐꯃꯗ ꯐ꯭ꯂꯣ ꯍꯟꯗꯣꯀꯄ ꯋꯥꯐꯝ.** ꯑꯦꯂꯥꯎꯒꯤ ꯑꯣꯏꯅꯥ ꯐꯤꯕꯝ ꯑꯍꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯕ ꯍꯥꯌꯔꯕ ꯁꯤꯡꯒꯥ ꯀꯦꯆꯃꯦꯟꯠ ꯁꯤꯟꯇꯤꯒꯤ ꯗꯁꯤꯡ ꯑꯃꯥ ꯋꯥꯈꯜꯇꯤꯡ, ꯃꯥꯏꯅꯔ ꯅꯠꯔꯒꯥ ꯃꯦꯖꯔ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡꯗ ꯃꯍꯩꯔꯣꯒꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯁꯨ ꯐ꯭ꯂꯣ ꯂꯦꯄꯈꯤꯗꯅꯕꯅꯤ꯫

6.3.6 **ꯁꯤꯋꯦꯖ ꯄꯨꯕ ꯊꯦꯡꯅꯩꯕꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯅꯤꯡꯛꯤ ꯊꯦꯡꯅꯩꯕꯁꯤꯡ.** ꯏꯝꯐꯩꯅꯒꯤ ꯁꯤꯋꯔ (sewer) ꯂꯩꯕ ꯋꯩꯗꯥꯁꯤꯡꯒꯤ ꯃꯀꯩꯗꯥ, ꯃꯂꯤꯀꯨꯗꯥ ꯁꯩꯅꯠ ꯑꯃꯗꯥꯒꯤ ꯂꯠꯗꯥꯛ ꯀꯣꯕꯂꯤꯛ ꯅꯗꯝ ꯀꯗꯥꯡꯂꯦꯠ ꯑꯃꯗꯥꯒꯤ ꯂꯩꯛꯒꯤ ꯅꯁꯤꯡ ꯂꯩꯕ ꯀꯣꯕꯂꯤꯛ ꯊꯦꯡꯕꯦ ꯑꯃꯨꯂꯦ ꯃꯄꯥꯁꯦꯂꯦ ꯁꯦꯀꯥꯏꯛ ꯌꯦꯃꯨꯛꯁꯤꯡ, ꯁꯣꯛ ꯀꯤꯌꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯗꯥꯛꯂꯕ ꯂꯩꯦꯛꯁꯦꯁꯤꯡꯗꯥꯒꯤ ꯁꯤꯋꯦꯂ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯒꯤ ꯃꯌꯥꯀ ꯅꯁꯤꯡꯁꯨ (sullage) ꯀꯨꯍ (ꯀ꯭ꯂꯣꯖ 8.9); ꯑꯃꯁꯨꯡ ꯅꯤꯡꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯌꯃꯀꯥꯛꯀꯤ ꯃꯂꯦꯛꯌ ꯊꯦꯡꯕꯦꯁꯤꯡꯗꯦ ꯂꯨꯃꯨ, ꯅꯨꯡꯃꯨꯀ, ꯂꯦꯀꯗꯛꯀꯥꯒꯤ ꯁꯦꯕꯗꯤꯂ ꯑꯃꯁꯨꯡ ꯅꯦꯁꯠꯂ ꯀꯨꯍ꯫ ꯁꯗꯨꯛ ꯑꯁꯤ ꯀꯂꯦꯛꯁꯦꯡ ꯌꯣꯕ ꯃꯖꯐ ꯂꯩꯕ ꯂꯦꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯁꯤꯂꯌꯣꯐ ꯑꯃꯁꯨꯡ ꯀꯕꯂꯤꯛ ꯊꯦꯡꯕꯦ ꯅꯨꯁꯤꯡꯃꯛꯌ ꯍꯠꯂꯦ, ꯃꯊꯒꯤ ꯄꯀꯍꯤꯂꯕꯁꯤꯡꯒꯤ ꯂꯦꯔꯂꯂ (ꯀꯨꯐꯂꯃꯛ ꯃꯦꯂꯨꯔꯦꯅ ꯑꯁꯤꯂꯦ ꯇꯐꯕ)꯫

ꯃꯤꯌꯔꯦꯡ (a)-ꯗꯒꯤ (e) ꯐꯥꯑꯣꯕ ꯑꯁꯤ ꯅꯁꯤꯡ ꯂꯣꯕ ꯊꯦꯡꯕꯦ ꯑꯃꯨꯂꯦ ꯁꯤꯋꯦꯂ ꯂꯌꯗꯥꯒꯤ ꯅꯨꯐꯒꯤ ꯃꯦꯌꯀ ꯅꯁꯤꯡꯒꯤ ꯂꯣꯡ ꯅꯨꯃꯕ ꯃꯌꯐꯒꯤ ꯍꯦꯖꯕ (DWF) ꯀꯨꯕ ꯃꯐꯥꯐ ꯅꯨꯃꯤꯡꯃꯛꯌ ꯍꯠꯂꯦ, ꯃꯁꯤꯒꯤ ꯃꯀꯨꯂꯦ ꯀꯗꯤ ꯀꯣꯗꯕꯂ:

- (a) **ꯁꯅꯠꯌ ꯌꯥꯏꯗꯂꯦ ꯇꯐꯕ.** ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯋꯦꯂ ꯑꯁꯤ ꯁꯅꯠꯀꯗꯤ ꯃꯂꯨꯡꯗ ꯌꯥꯏꯗꯕ ꯁꯤꯁꯨꯌꯐꯁꯤꯡꯗ ꯊꯦꯃꯂꯤꯗꯛꯗꯕꯂꯤ, ꯃꯊꯣꯔ ꯅꯨꯃꯤꯡꯃꯛꯀꯗꯤ ꯁꯅꯠꯀꯗꯤ ꯌꯥꯃꯊꯥꯗ ꯃꯁꯤꯒꯤ ꯑꯗꯣꯅꯕ ꯅꯦꯁꯀꯣꯛꯂꯁ ꯍꯦꯐꯕꯗ (inspection chamber) ꯂꯣꯛꯗꯕꯂꯤ, ꯃꯗꯐ ꯑꯃꯨꯂꯦ ꯌꯥꯏꯗꯕ ꯀꯣꯕꯂꯤꯛ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯊꯦꯡꯕꯦ ꯑꯃꯩ ꯁꯛꯠꯂꯕ ꯃꯌꯐꯗ ꯂꯌꯗꯥꯒꯤ ꯃꯐꯥꯐ ꯑꯃꯨꯒꯤ ꯁꯤꯋꯔꯗꯁꯤꯡ ꯀꯃꯤꯁꯦ ꯌꯗꯕ ꯃꯌꯐꯗ ꯁꯅꯠꯌ ꯑꯃꯨꯛ ꯄꯦꯂꯦ ꯇꯕꯛ ꯌꯗꯂꯦ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯁꯤꯁꯨꯌꯐ ꯑꯃꯨ ꯃꯨꯃꯗ ꯁꯐꯃꯤꯦꯂꯕ ꯔꯦꯛꯂꯤ꯫ ꯑꯇꯗꯤꯌꯦ ꯅꯁꯤꯡ ꯂꯣꯕ ꯊꯦꯡꯕꯦꯗ ꯀꯂꯦꯛꯁꯦ ꯑꯃꯅꯛꯌꯃꯛ ꯔꯦꯄꯔꯂꯕ ꯃꯐꯥꯐꯗ, ꯁꯤꯁꯨꯌꯐ ꯑꯂꯤ ꯑꯁꯤ ꯅꯦꯁꯀꯣꯛꯂꯁ ꯍꯦꯐꯕꯗ ꯑꯂꯤꯃꯛꯀꯤ ꯃꯌꯨꯡꯗ ꯂꯣꯕ ꯑꯗꯅꯕ ꯍꯦꯐꯕꯗ ꯑꯃꯗ ꯅꯛꯌꯃꯛ ꯁꯐꯂꯛꯗꯕꯂꯤ꯫ ꯃꯗꯦꯟ ꯕꯅ-ꯂꯣꯂꯂꯦ ꯃꯃꯤꯗꯥꯒꯤ ꯂꯐꯕꯤ ꯑꯁꯤꯗ ꯌꯛꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯤꯌꯔꯦꯡ ꯑꯁꯤꯒꯤ ꯄꯨꯛꯁꯤꯡꯂꯤ: "ꯁꯣꯛ-ꯀꯤꯌꯌꯒꯤ ꯃꯨꯅꯂꯤꯁꯤꯀꯦꯟ ꯊꯦꯡꯕꯦꯗ ꯇꯣꯀꯄꯀ ꯂꯐꯕꯤ ꯂꯣꯗꯕꯗꯤ, ꯃꯗꯛꯀꯤ ꯌꯗꯤꯌꯃꯦꯂꯌ ꯍꯦꯐꯕꯗ ꯑꯃꯩ ꯇꯐꯕ ꯏ" ("For outlet from the soak-pit to municipal drain if provided, an intermediate treatment chamber should be installed") (ꯕꯥꯏ-ꯂꯣ 6(1)(A)); ꯂꯦꯌꯗꯤꯂ ꯑꯃꯩ "ꯁꯅꯠꯌꯒꯤ 30 m … ꯒꯤ ꯃꯨꯡꯗ ꯁꯤꯋꯔ ꯑꯃꯩ ꯂꯣꯗꯕꯗꯤ ꯀꯂꯦꯛꯌ ꯌꯣꯗꯕ ꯂꯦꯌꯗꯤꯂ ꯑꯅꯒꯛꯗꯕꯂꯤ" ("shall be a connected latrine if a sewer is within 30 m … of the site") (ꯕꯥꯏ-ꯂꯣ 27); ꯑꯃꯁꯨꯡ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯀꯥꯅꯀ ꯑꯃꯂꯦ "ꯁꯣꯅꯇ ꯀꯥꯅꯀ ꯑꯃꯠꯌꯗ ꯇꯗꯦꯛꯂꯦꯅꯗꯕꯂꯤ ꯂꯠꯗꯥꯛ ꯁꯐꯃꯤꯦꯂꯗꯅꯗꯕꯂꯤ" ("shall not discharge into or connect with any soil pipe") ꯑꯃꯁꯨꯡ "ꯀꯗꯤꯄꯨꯐꯕ ꯏꯤꯒꯐ ꯑꯃꯗꯂ ꯇꯤꯡꯂꯕ ꯊꯦꯡꯕꯦ ꯑꯃꯠꯌꯗ ꯄꯛꯇꯦꯡꯂꯂ ꯇꯗꯦꯛꯂꯦꯅꯗꯕꯂꯤ" ("in no case shall it discharge directly into any closed drain") (ꯕꯥꯏ-ꯂꯣ 28(v) ꯑꯃꯁꯨꯡ (ii)) [TBC: ꯂꯦꯀꯇ ꯕꯗꯤꯂꯦ ꯂꯣꯌꯤꯏꯅ ꯌꯣꯗꯕ ꯕꯥꯏ-ꯂꯣꯂꯌ ꯂꯐꯕꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯛꯁꯌ ꯍꯦꯛ ꯌꯣꯛꯗꯕꯂꯤ]꯫ ꯅꯐꯏꯇ ꯁꯤꯋꯔꯦꯖ (sewerage) ꯀꯗꯦꯂꯦꯛꯌꯀꯗꯤ ꯋꯩꯗꯥꯁꯤꯡꯗ, ꯁꯅꯠꯀꯗꯤ ꯁꯤꯋꯦꯂ ꯑꯁꯤ ꯁꯤꯋꯔꯗ ꯍꯌꯅ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯑꯁꯤ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯊꯦꯡꯕꯦꯗ ꯍꯌꯅ, ꯑꯃꯁꯨꯡ ꯑꯂꯤ ꯑꯁꯤ ꯁꯐꯃꯤꯦꯂꯗꯅꯗꯕꯂꯤ꯫ ꯀ꯭ꯂꯣꯖ 6.13.7 ꯑꯁꯤ ꯁꯅꯠꯀꯗꯤ ꯃꯂꯨꯡꯗ ꯂꯣꯕ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯊꯦꯡꯕꯦ ꯅꯨꯃꯤꯡꯃꯛꯌ ꯍꯠꯂꯦ꯫
- (b) **ꯀꯤꯛ ꯅꯦꯏꯂꯦ ꯄꯦꯂꯒꯠꯄꯦꯗꯕ.** ꯁꯗꯨꯛ 4 ꯍꯠꯂꯕ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠ ꯑꯃꯂꯦ ꯁꯤꯋꯦꯂ ꯀꯨꯕ ꯊꯦꯡꯕꯦꯗ ꯀꯂꯦꯛꯁꯦ ꯅꯨꯃꯤꯡꯃꯛꯌ, ꯑꯌꯀꯀ ꯁꯅꯠ ꯑꯦꯏꯠꯏꯇ ꯑꯃꯄꯛꯌꯗ ꯌꯕꯀꯐꯂꯦ, ꯁꯗꯨꯛ 4 ꯔꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 4.5.1.3)꯫ ꯀ꯭ꯂꯣꯖ 1.5.2-ꯒꯤ ꯇꯗꯦꯁꯄꯇꯗꯁꯤꯡꯗꯒꯤ ꯃꯊꯗ ꯂꯣꯕ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠ ꯑꯃꯂꯦ ꯀꯤꯛ ꯅꯦꯏꯂꯦ ꯑꯃꯨ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠꯀꯗꯤ ꯃꯃꯤꯡꯒꯤ ꯁꯅꯠꯀꯗꯤ ꯑꯃꯨꯗꯒꯤ ꯄꯦꯂꯒꯠꯄꯦꯂꯦꯅꯗꯕꯂꯤ: ꯃꯁꯤꯂꯦ ꯅꯐꯀꯗꯚꯤꯔꯁ ꯑꯦꯔꯤꯌꯥ (impervious area) ꯄꯀꯍꯤꯇꯂꯕ ꯃꯐꯥꯐꯗ, ꯄꯀꯍꯤꯇꯂꯕ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯅꯨꯐꯇꯛꯀꯗꯤ ꯅꯁꯤꯡ ꯑꯁꯤ ꯀꯂꯦꯛꯁꯦ ꯑꯃꯨꯗ ꯔꯦꯗꯗꯤꯌꯥꯗ ꯀꯦꯌꯗꯇ ꯌꯣꯗꯕ ꯑꯚꯗꯦꯂꯦ ꯂꯣꯕ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯊꯦꯃꯂꯤꯗꯕꯒꯤ ꯂꯌꯗꯥꯒꯤ ꯁꯌꯗꯦꯂꯒꯤ ꯌꯦꯃꯨꯛ ꯑꯃꯒꯤ ꯅꯨꯠꯇꯛꯗ ꯍꯠꯀꯗꯗꯕꯂꯤ꯫
- (c) **ꯌꯦꯇꯔꯌꯗ ꯑꯃꯁꯨꯡ ꯕꯦꯛꯏꯂꯦ.** ꯀ꯭ꯂꯣꯖ 6.8-ꯒꯤ HGL ꯑꯁꯤ ꯀꯅꯦꯁꯤꯗꯦꯟꯠ ꯏꯚꯦꯟꯠ (coincident event) ꯀꯂꯦꯛꯁꯦ ꯌꯣꯕ ꯃꯐꯥꯐꯗ ꯅꯁꯤꯡ ꯂꯣꯕ ꯊꯦꯡꯕꯦꯒꯤ ꯂꯚꯦꯇꯗꯒꯤ ꯄꯒꯗꯕꯂꯤ, ꯃꯀꯨꯒꯤ ꯃꯗꯦꯟ ꯂꯣꯗꯕꯗꯤ ꯃꯨꯗꯒꯤ ꯂꯒꯗꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯂꯌꯕꯗꯤ ꯊꯦꯡꯕꯦꯒꯤ ꯑꯣꯕꯚꯔꯠ (obvert) ꯂꯌꯗꯥꯒꯤ ꯂꯣꯗꯅꯒꯤ ꯃꯇꯛꯌ ꯂꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 5.6.2)꯫ ꯅꯁꯤꯡ ꯂꯣꯕ ꯊꯦꯡꯕꯦ ꯑꯃꯨ ꯀꯦꯂꯦ ꯂꯛ ꯌꯣꯕ ꯂꯌꯗꯥꯒꯤ ꯀꯐꯀꯂꯦ ꯇꯗꯀꯀꯀ ꯑꯦꯏꯠꯏꯇ ꯑꯃꯗ, ꯂꯌꯗꯥꯒꯤ ꯂꯛꯌꯛꯌ ꯂꯅꯗꯕ ꯃꯐꯥꯐꯗ, ꯀ꯭ꯂꯣꯖ 5.10-ꯒꯤ ꯑꯦꯏꯠꯏꯇ ꯇꯤꯡꯕ ꯍꯦꯛ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 5.8.5(a)-ꯒꯤ ꯂꯛ (lock) ꯂꯌꯗꯥꯒꯤ ꯀ꯭ꯂꯣꯖ 5.8.5(c)-ꯒꯤ ꯇꯤꯡꯕꯒꯤ ꯂꯔꯂꯂ ꯍꯠꯂꯦ꯫ ꯁꯤꯋꯦꯂ ꯀꯨꯕ ꯊꯦꯡꯕꯦ ꯑꯃꯗ ꯂꯣꯕ ꯀꯂꯦꯛꯁꯦ ꯅꯨꯃꯤꯡꯃꯛꯌ, ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯑꯅꯗꯕꯂ ꯁꯤꯋꯦꯂꯒꯤ ꯑꯅꯗꯕꯂ, ꯃꯁꯤꯂꯦ ꯁꯦꯕ ꯀꯤꯕ ꯅꯕꯅꯗꯒꯤ ꯂꯦꯐꯕ ꯅꯗꯐꯒꯤ ꯏꯤꯌꯤꯡ ꯂꯌꯗꯥꯒꯤ ꯄꯤꯡꯕ ꯃꯐꯥꯐ ꯑꯃꯨ ꯀꯂꯦꯛꯁꯦ ꯌꯣꯕ ꯃꯐꯥꯐꯗ ꯅꯁꯤꯡ ꯂꯣꯕ ꯊꯦꯡꯕꯦꯒꯤ ꯀꯒꯗ ꯂꯌꯗꯥꯒꯤ ꯂꯗꯅꯒꯤ ꯂꯚꯦꯇꯗꯒꯤ ꯃꯊꯗ ꯂꯣꯗꯕꯗꯤ, ꯂꯦ-ꯗꯤꯌꯗꯦ ꯚꯥꯜꯚ (non-return valve) ꯑꯃꯩ (ꯀ꯭ꯂꯣꯖ 6.8.8) ꯇꯐꯒꯗꯕꯂꯤ꯫
- (d) **ꯀꯣꯀꯤꯁꯤꯌꯤ, ꯒꯦꯂꯣꯁꯤꯌꯤ, ꯍꯤꯡꯂꯛꯀꯀꯒꯤ ꯂꯐꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯂꯐ.** ꯁꯤꯋꯦꯂ ꯀꯨꯕ ꯀꯕꯂꯤꯛ ꯊꯦꯡꯕꯦ ꯑꯃꯩ ꯃꯁꯤꯒꯤ ꯃꯐꯥꯐꯒꯤ ꯁꯤꯋꯔꯗꯁꯤꯡ ꯁꯐꯃꯤꯦꯂꯗꯀꯗꯤꯏꯅꯕ ꯀꯐꯕꯅꯦꯗ ꯍꯦꯂꯦꯇ (combined channel) ꯑꯃꯩ ꯑꯅꯂꯦ ꯗꯤꯂꯅꯦ ꯌꯒꯗꯕꯂꯤ: ꯀ꯭ꯂꯣꯖ 6.3.3-ꯗ ꯁꯤꯂꯤꯦꯂꯗꯤꯕ ꯃꯁꯤꯒꯤ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯀꯣꯀꯤꯁꯤꯌꯤ ꯑꯁꯤ, ꯁꯦꯕ ꯀꯤꯕ ꯃꯤꯁꯤꯡꯗꯒꯤ ꯇꯂꯕ ꯂꯌꯗꯥꯒꯤ ꯑꯦꯁꯌꯤꯃꯦꯠ ꯌꯣꯗꯕ, ꯃꯁꯤꯒꯤ ꯂꯣꯡ ꯅꯨꯃꯕ ꯃꯌꯐꯒꯤ ꯍꯦꯖꯕ ꯂꯣꯇꯛꯅꯤꯕ ꯃꯌꯨꯡꯗ ꯂꯦꯃꯄꯗꯤꯕ ꯀꯣꯀꯤꯁꯤꯌꯤ ꯑꯃꯨ ꯑꯅꯒꯛꯗꯕꯂꯤ; ꯃꯁꯤꯂꯦ ꯃꯁꯤꯒꯤ ꯂꯣꯡ ꯅꯨꯃꯕ ꯃꯌꯐꯒꯤ ꯍꯦꯖꯕꯗ ꯀ꯭ꯂꯣꯖ 6.7.3(a)-ꯒꯤ ꯃꯤꯂꯤꯃꯐ ꯒꯦꯂꯣꯁꯤꯌꯤ ꯔꯒꯗꯕꯂꯤ, ꯂꯌꯗꯥꯒꯤ ꯃꯨ ꯔꯣꯕ ꯂꯣ-ꯐ꯭ꯂꯣ ꯍꯦꯂꯦꯇ (low-flow channel) ꯑꯃꯩ ꯃꯁꯤꯒꯤ ꯅꯦꯒꯗꯠꯌ (invert) ꯂꯒꯗꯕꯂꯤ, ꯃꯗꯐ ꯑꯃꯨꯂꯦ ꯂꯣꯡ ꯅꯨꯕꯒꯤ ꯇꯗꯀꯁꯤꯡꯒꯤ ꯃꯗꯛꯌ ꯁꯤꯋꯦꯂꯒꯤ ꯁꯂꯤꯗꯁꯤꯡ ꯇꯗꯀꯂꯅ; ꯃꯁꯤ ꯀꯒꯗ

ꯌꯧꯕꯗ ꯃꯇꯝꯗ, ꯃꯁꯤꯅ ꯆꯦꯞꯇꯔ 6.13.2-ꯗ ꯄꯅꯈꯤꯕꯒꯤ ꯑꯣꯏꯅ ꯃꯇꯝꯁꯤꯡꯗ ꯇꯥꯀꯄꯤꯔꯤ, ꯃꯈꯥꯗ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ ꯂꯩꯅꯕ ꯆꯦꯛꯁꯤꯟꯕꯥ ꯑꯃꯁꯨꯡ ꯚꯦꯟꯇꯁꯤꯡ (vent) ꯇꯧꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ ꯆꯦꯠꯅꯕ ꯑꯃꯥꯡꯗ ꯃꯈꯣꯌ ꯄꯨꯅꯕ ꯄꯨꯝꯕ ꯃꯇꯝ ꯑꯣꯏꯅ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯂꯩꯍꯟꯗꯨꯅ ꯊꯝꯒꯗꯕꯅꯤ꯫ ꯃꯁꯤꯒꯤ ꯇꯨꯡꯗ ꯍꯣꯠꯅꯕꯒꯤ ꯆꯦꯛꯁꯤꯟꯕꯁꯤꯡꯒꯤ, ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯍꯤꯡꯒꯠꯂꯕꯁꯤꯡ ꯄꯨꯅꯕꯁꯤꯡꯒꯤ ꯌꯥꯝꯅ ꯈꯨꯗꯣꯡ ꯑꯃꯥ ꯃꯇꯝ ꯂꯩꯍꯟꯗꯕ ꯊꯝꯂꯛꯄ ꯂꯧꯁꯤꯟꯅꯕꯅꯤ (ꯆꯦꯞꯇꯔ 6.3.2 ꯑꯃꯁꯨꯡ 6.9), ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡꯗ ꯊꯦꯡꯅꯕꯒꯤ ꯑꯃꯥ ꯍꯧꯖꯤꯛ ꯑꯃꯥ ꯂꯩꯅꯕ ꯑꯣꯏꯅ ꯈꯨꯗꯝ ꯆꯦꯞꯇꯔ 6.11-ꯗ ꯃꯍꯥꯛ ꯇꯥꯀꯄꯤꯔꯤ꯫

- (e) **ꯑꯦꯐ꯭ꯂꯨꯑꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯃꯥꯡꯗ ꯍꯟꯊꯍꯟꯕ ꯑꯃꯁꯨꯡ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯇꯧꯕ; ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯑꯌꯥꯕ ꯂꯩꯇꯅ ꯇꯥꯛꯄ.** ꯂꯣꯛꯇꯥꯛ ꯏꯆꯦꯜ ꯏꯁꯤꯡ ꯍꯨꯏꯅꯕ ꯍꯦꯟꯅ ꯊꯣꯛꯍꯟꯕ ꯑꯃꯁꯨꯡ, ꯏꯆꯦꯜ ꯑꯃꯁꯨꯡ, ꯈꯨꯗꯣꯡꯆꯥꯕ ꯈꯨꯗꯝ ꯑꯣꯏꯅ CPCB-ꯒꯤ ꯊꯧꯔꯥꯡ ꯑꯣꯢꯕ ꯃꯇꯤꯛ ꯆꯥꯅꯕꯁꯤꯡꯒꯤ ꯆꯥꯡ ꯑꯣꯏꯕ ꯃꯇꯤꯛꯀꯤ ꯃꯁꯛ ꯑꯃꯁꯨꯡ (ꯃꯍꯧꯁꯥꯒꯤ ꯃꯑꯣꯡ ꯂꯩꯇꯕ ꯄꯥꯟꯗꯝꯁꯤꯡꯒꯤ ꯕꯤꯗꯤꯌꯣ ꯍꯦꯟꯅ ꯆꯥꯡꯕ ꯃꯇꯤꯛ) ꯑꯣꯏꯕ ꯃꯁꯤꯒꯤ ꯑꯦꯐ꯭ꯂꯨꯑꯦꯟꯇꯁꯤꯡ ꯃꯃꯥꯡ ꯆꯥꯞ ꯃꯅꯕ ꯃꯐꯝꯁꯤꯡꯗ ꯍꯟꯊꯍꯟꯕ (interception) ꯑꯃꯁꯨꯡ ꯁ꯭ꯀ꯭ꯔꯤꯟ (screen) ꯑꯣꯏ ꯊꯝꯒꯗꯕꯅꯤ, ꯃꯁꯤ ꯈꯨꯗꯝꯒꯤ ꯆꯥꯞꯄ ꯍꯣꯠꯅꯕꯒꯤ ꯍꯤꯡꯒꯠꯂꯕꯒꯤ ꯄꯨꯟꯁꯤꯟꯅꯕ ꯆꯦꯞꯇꯔ 8.9-ꯗ ꯃꯍꯥꯛ ꯁꯤꯟꯅꯕ ꯌꯥꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥ ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯑꯇꯣꯞꯄ ꯆꯥꯞꯄ ꯍꯣꯠꯅꯕꯒꯤ ꯈꯨꯗꯝ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅ ꯑꯃꯁꯨꯡ ꯏꯟꯅꯕꯅꯤ; ꯆꯥꯡꯅꯕ ꯑꯄꯨꯅꯕ ꯆꯥꯞꯇ, ꯃꯈꯥꯗ ꯃꯁꯤ ꯂꯧꯃꯤ ꯑꯣꯏꯕꯒꯤ ꯍꯣꯠꯅꯕ ꯍꯣꯠꯅꯕꯒꯤ ꯂꯩꯍꯧꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄ ꯍꯣꯠꯅꯕꯒꯤ ꯏꯆꯦꯜ ꯌꯥꯕ ꯄꯨꯁꯤꯟ ꯑꯣꯏꯕ ꯑꯣꯏꯅ꯫ ꯃꯄꯨꯏꯆꯦꯜ ꯆꯥꯡꯌꯥ ꯆꯥ (ꯏꯆꯦꯜꯌꯥꯡꯂꯣꯟ) ꯑꯥꯏꯟ, 2006-ꯒꯤ (Manipur Loktak Lake (Protection) Act, 2006) 236.21 km²-ꯒꯤ ꯃꯐꯝꯗ "ꯍꯟꯊꯍꯟꯗꯕ, ꯂꯧꯃꯤꯒꯤ ꯈꯨꯗꯣꯡ ꯌꯥꯝꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯌꯥꯕ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯈꯨꯗꯣꯡꯁꯤꯡꯗ ꯌꯥꯝꯅꯥ ꯌꯥꯝꯅꯕ ꯆꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥꯡꯅꯕꯒꯤ ꯊꯣꯛꯍꯟꯕ" ("Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements") ꯑꯣꯏꯕ ꯕꯐꯔ ꯖꯣꯟ (Buffer Zone) ꯃꯃꯥꯡꯗꯒꯤ ꯇꯣꯏꯗ (ꯂꯥꯏꯔꯤꯛ 19(iv)), ꯑꯃꯁꯨꯡ ꯀꯣꯔ ꯖꯣꯟ (Core Zone) "ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯑꯌꯥꯕ ꯂꯩꯇꯅ" ("except with the prior permission of the authority") ꯂꯣꯛꯇꯥꯛ ꯈꯨꯗꯝ ꯏꯁꯤꯡꯒꯤ ꯄꯨꯔꯛꯄ ꯑꯃꯁꯨꯡ ꯊꯣꯛꯍꯟꯕ ꯌꯥꯗꯦ (ꯂꯥꯏꯔꯤꯛ 20(i))꯫ ꯑꯣꯏꯅꯃꯛ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯇꯧꯕ ꯃꯐꯃꯗ ꯐꯨꯝꯗꯤ (phumdi) ꯑꯃꯁꯨꯡ ꯂꯧꯃꯤꯒꯤ ꯄꯨꯔꯛꯄꯁꯤꯡꯗ ꯏꯆꯦꯜꯒꯤ ꯂꯝꯕꯤꯅ ꯄꯨꯔꯛꯄ ꯇꯧꯕꯅꯤ, ꯃꯁꯤꯒꯤ ꯄꯅꯈꯤꯕꯒꯤ ꯆꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗ ꯐꯥꯑꯣꯕ ꯊꯥꯖꯕꯗ ꯍꯣꯠꯅꯕꯒꯤ ꯆꯠꯄꯗ ꯏꯆꯦꯜꯒꯤ ꯃꯇꯝ ꯑꯃꯥ ꯇꯧꯔꯤ꯫ ꯌꯥꯝꯅꯥ ꯃꯍꯥꯛ ꯂꯣꯛꯇꯥꯛ ꯏꯆꯦꯜ ꯍꯣꯠꯅꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄ ꯄꯨꯔꯛꯄ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯝ "ꯂꯧꯃꯤꯒꯤ ꯀꯦꯅꯥꯜ" ("agriculture canal") ꯑꯃꯁꯨꯡ ꯏꯆꯦꯜꯒꯤ ꯑꯣꯏꯅꯕꯅꯤ꯫ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯁꯤꯒꯤ ꯃꯂꯥꯏ ꯑꯌꯥꯕ (ꯂꯥꯏꯔꯤꯛ 11) ꯌꯥꯕꯥ ꯏꯆꯦꯜ ꯆꯥꯞꯄꯒꯤ ꯍꯣꯠꯅꯕꯒꯤ ꯍꯤꯡꯒꯠꯂꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯂꯩꯕ ꯃꯇꯝꯁꯤꯡ, ꯃꯍꯧꯁꯥꯒꯤ ꯃꯇꯤꯛ ꯍꯦꯟꯅ ꯂꯣꯛꯇꯥꯛ ꯏꯆꯦꯜꯇꯥꯡꯂꯣꯟ ꯂꯩꯍꯧꯕꯁꯤꯡ ꯂꯧꯃꯤꯁꯤꯡꯒꯤ ꯃꯐꯝ ꯍꯦꯟꯅ, ꯑꯃꯁꯨꯡ ꯑꯌꯥꯕ ꯃꯇꯝꯁꯤꯡ ꯄꯨꯔꯛꯄ ꯊꯦꯡꯅꯗꯨꯅ ꯇꯥꯀꯄꯤꯔꯤ ꯂꯩꯍꯟꯗꯕ ꯑꯃꯥ ꯍꯣꯠꯅꯕꯅꯤ; ꯃꯁꯤꯒꯤ ꯂꯧꯃꯤ ꯑꯃꯁꯨꯡ, ꯄꯨꯔꯛ ꯑꯃꯁꯤꯡ ꯃꯍꯥꯛ ꯑꯣꯏꯕ ꯏꯆꯦꯜꯒꯤ ꯍꯣꯠꯅꯕꯒꯤ ꯃꯐꯝꯗ ꯂꯣꯛꯇꯥꯛꯀꯤ ꯄꯨꯔꯛꯄꯁꯤꯡꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯏꯆꯦꯜ ꯍꯣꯠꯅꯕ ꯑꯣꯏꯕ ꯆꯥꯞꯄꯅꯤ; ꯑꯃꯁꯨꯡ ꯂꯩꯍꯧꯕ ꯃꯃꯥꯡꯗ ꯌꯥꯕꯥ ꯏꯆꯦꯜꯒꯤ ꯍꯣꯠꯅꯕꯒꯤ ꯍꯤꯡꯒꯠꯂꯕꯒꯤ ꯍꯣꯠꯅꯕ ꯑꯣꯏ ꯄꯨꯔꯛꯄ ꯃꯇꯝꯗ, ꯂꯩꯍꯧꯕ ꯍꯣꯠꯅꯕꯒꯤ ꯍꯤꯡꯒꯠꯂꯕꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯑꯣꯏꯕ ꯂꯣꯛꯇꯥꯛ ꯏꯆꯦꯜ ꯍꯣꯠꯅꯕꯗ ꯈꯨꯗꯝ ꯃꯇꯧ ꯂꯩꯍꯟꯗꯕꯅꯤ꯫ ꯏꯟꯚꯥꯌꯔꯟꯃꯦꯟꯇ ꯁꯤꯟꯅꯕ ꯄꯥꯂꯤꯄꯥꯏ (ꯇꯦꯕꯜ 6-1) ꯑꯣꯏꯕ ꯍꯣꯠꯅꯕ ꯆꯥꯞ ꯍꯣꯠꯅꯕ ꯏꯆꯦꯜꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯏꯆꯦꯜꯒꯤ, ꯍꯟꯊꯍꯟꯕ ꯑꯣꯏꯕꯒꯤ ꯄꯥꯡꯊꯣꯛ, ꯑꯃꯁꯨꯡ ꯃꯥꯌꯀꯩ (a)-ꯗꯒꯤ (e) ꯐꯥꯑꯣꯕ ꯂꯃꯆꯠ ꯌꯥꯝꯅ ꯄꯥꯅꯕ ꯊꯝꯂꯦ ꯑꯣꯏꯅꯕꯅꯤ꯫

ꯃꯥꯌꯀꯩ (f)-ꯗꯒꯤ (m) ꯐꯥꯑꯣꯕ ꯑꯣꯏꯕ ꯄꯨꯔꯛꯄ ꯃꯇꯦꯡ ꯑꯃꯁꯨꯡꯒꯤ ꯄꯨꯟꯁꯤꯟ ꯑꯣꯏꯕ ꯃꯇꯝꯗ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯂꯩꯍꯟꯗꯕꯒꯤ ꯑꯣꯏꯕ ꯃꯐꯝꯁꯤꯡꯗ ꯄꯨꯔꯛꯄ, ꯃꯁꯤꯒꯤ ꯑꯣꯊꯣꯔꯤ ꯃꯇꯝ ꯑꯣꯏꯅ ꯑꯌꯥꯕ 2A-ꯒꯤ ꯂꯕ-ꯑꯣꯏꯕ MN-B ꯑꯃꯁꯨꯡ MN-C-ꯗ ꯑꯣꯏꯕ ꯆꯥ, MN-C1-ꯒꯤ ꯄꯨꯔꯛꯄ ꯂꯥꯏꯔꯤꯛ, MN-A-ꯗ ꯑꯣꯏꯕ ꯌꯥꯝꯅꯥꯡꯕ ꯃꯇꯝꯗ ꯇꯥꯀꯄ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥꯡꯕ ꯃꯐꯝꯗ ꯑꯣꯏꯕ ꯄꯨꯔꯛ ꯑꯣꯏꯕꯁꯤꯡ, ꯃꯍꯧꯁꯥꯒꯤ ꯑꯣꯏꯅ ꯑꯣꯏꯕꯒꯤ ꯍꯦꯟꯅ 10%-ꯗꯒꯤ ꯄꯨꯔꯛꯄ ꯇꯥꯀꯄ ꯑꯣꯏꯕ ꯄꯨꯟꯁꯤꯟ ꯑꯣꯏꯕ ꯃꯐꯝ, ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯄꯁꯤꯡꯒꯤ ꯇꯧꯕ ꯍꯣꯠ ꯈꯨꯗꯝ ꯑꯌꯥꯕ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯃꯐꯝ, ꯌꯥꯝꯅꯥꯡꯕ ꯆꯥ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯄꯨꯔꯛꯄ ꯂꯩꯔꯤ:

- (f) **ꯗꯦꯕ꯭ꯔꯤꯁ ꯔꯦꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇ꯭ꯔꯦꯄꯁꯤꯡ.** ꯂꯩꯔꯤꯕ ꯄꯨꯔꯛꯄ ꯆꯥ (ꯂꯃꯗꯝ, ꯂꯝꯕꯤ, ꯂꯝ ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯑꯌꯥꯕ ꯇꯥꯀꯄ ꯌꯥꯕ ꯇꯥꯀꯄ, ꯍꯣꯠꯅꯕ ꯇꯥꯀꯄ, ꯃꯐꯝꯗ ꯈꯨꯗꯝ ꯃꯍꯥ ꯂꯩꯕ) **1 ha ꯈꯨꯗꯝ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯅ**ꯒꯤ, ꯈꯨꯗꯝ ꯄꯨꯟꯁꯤꯟ ꯃꯇꯝ ꯄꯨꯔꯛꯄ ꯍꯣꯠ ꯈꯨꯗꯝ ꯑꯌꯥꯕ ꯄꯨꯔꯛꯄ ꯍꯣꯠ ꯑꯃꯁꯨꯡꯒꯤ ꯈꯨꯗꯣꯡ ꯑꯣꯏꯕ ꯍꯟꯊꯍꯟꯕ, ꯍꯤꯡꯒꯠꯂꯕ ꯈꯨꯗꯝ ꯊꯥꯖꯕ ꯄꯨꯟꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯃꯆꯥꯡꯄꯥ ꯄꯨꯔꯛꯄꯁꯤꯡꯒꯤ ꯃꯇꯝ ꯇꯧꯕ ꯃꯇꯝꯗ ꯗꯦꯕ꯭ꯔꯤꯁ ꯔꯦꯛ (debris rack) ꯈꯨꯗꯝ ꯗꯦꯕ꯭ꯔꯤꯁ ꯇ꯭ꯔꯦꯞ (debris trap) ꯑꯣꯏ ꯊꯝꯒꯗꯕꯅꯤ, ꯃꯁꯤ ꯂꯥꯏꯔꯤꯛ 9 (ꯆꯦꯞꯇꯔ 9.8)-ꯗ ꯃꯍꯥꯛ ꯁꯤꯟꯅꯕ ꯌꯥꯕꯅꯤ, ꯃꯁꯤꯒꯤ ꯄꯅꯈꯤꯕꯒꯤ ꯆꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗ ꯐꯥꯑꯣꯕ ꯊꯥꯖꯕꯗ ꯏꯆꯦꯜꯒꯤ ꯄꯨꯟꯁꯤꯟ ꯃꯇꯝ ꯑꯃꯥ ꯇꯧꯔꯤ, ꯃꯇꯝ ꯑꯣꯏꯅ ꯇꯥꯀꯄ, ꯍꯤꯡ, ꯊꯧꯔꯥꯡ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯦꯡ ꯈꯨꯗꯝ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯕꯅꯤ꯫ ꯔꯦꯛ ꯑꯣꯏꯕꯒꯤ 50% ꯇꯣꯏꯗꯕꯗ, ꯃꯁꯤꯗ ꯀꯥꯡꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯗ ꯍꯦꯟꯅꯥ ꯃꯁꯤꯒꯤ ꯁꯤꯟꯅꯕ ꯈꯨꯗꯣꯡ ꯄꯨꯔꯛꯄꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯈꯨꯗꯣꯡ ꯆꯥꯕ ꯑꯣꯏꯕꯗ ꯈꯨꯗꯣꯡ ꯑꯣꯏꯅ ꯕꯤꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯝ ꯀꯥꯡꯂꯣꯟꯕ ꯇꯥꯀꯄ ꯑꯃꯁꯨꯡ ꯇꯧꯕꯅꯤ꯫ ꯔꯦꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇ꯭ꯔꯦꯄꯁꯤꯡ ꯑꯣꯏꯕ 31 ꯃꯥꯔꯆꯗ ꯍꯟꯊꯍꯟꯅꯕ, ꯑꯣꯏꯕꯤ–ꯃꯒꯤ ꯃꯇꯝ ꯂꯝꯕꯤꯒꯤ ꯇꯧꯕꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ 15 ꯃꯗ ꯍꯟꯊꯍꯟꯅꯕ ꯑꯣꯏꯕ ꯄꯨꯔꯛ, ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯣꯏꯕꯒꯤ ꯃꯅꯨꯡꯗ 15 ꯈꯨꯗꯝꯕꯗ ꯍꯟꯊꯍꯟꯅꯕ ꯂꯩꯍꯟꯗꯕꯅꯤ (ꯂꯥꯏꯔꯤꯛ 10)꯫ ꯗꯦꯕ꯭ꯔꯤꯁ ꯕꯦꯁꯤꯟ (debris basin) ꯑꯃꯒꯤ ꯃꯇꯨꯡ ꯑꯣꯏꯕ ꯂꯥꯏꯔꯤꯛ 9-ꯗ ꯇꯥꯀꯄꯤꯔꯤ [TBC]꯫

- (g) **ꯕꯜꯀꯤꯡ ꯐꯦꯛꯇꯔ (bulking factor).** ꯆꯤꯡꯒꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯗꯒꯤ ꯐ꯭ꯂꯣ ꯂꯩꯕ ꯆꯦꯅꯦꯜ, ꯈꯣꯡꯕꯦꯟ, ꯅꯥꯂꯥ, ꯀꯜꯚꯔꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯣꯁꯤꯡ ꯁꯦꯃꯒꯠꯄꯁꯤꯡꯗ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯑꯁꯤ ꯀ꯭ꯂꯤꯌꯔ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ, ꯍꯦꯛ ꯅꯤꯡꯊꯤꯖꯅ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯐ꯭ꯂꯣꯒꯤꯗꯃꯛ, ꯇꯦꯕꯜ 3-ꯒꯤ ꯂꯦꯡꯂꯕ ꯅꯠꯇꯔꯒꯤ ꯃꯇꯤꯡ ꯐ꯭ꯂꯣꯕꯨ **1.25**-ꯒꯤ ꯕꯜꯀꯤꯡ ꯐꯦꯛꯇꯔꯅ ꯃꯅꯥꯎꯕ ꯑꯣꯏꯅ ꯑꯣꯏꯒꯗꯕꯅꯤ; ꯑꯍꯥꯅꯕ ꯃꯈꯣꯜꯁꯤꯡꯗ ꯐꯦꯛꯇꯔ ꯑꯁꯤ 1.0-ꯅꯤ꯫ ꯐꯦꯛꯇꯔ ꯑꯁꯤ ꯀꯦꯄꯥꯁꯤꯇꯤ, ꯐ꯭ꯔꯤꯕꯣꯔꯗ (freeboard) ꯑꯃꯁꯨꯡ ꯒꯦꯂꯦꯛꯁꯤꯇꯤꯗ ꯌꯥꯑꯣꯔꯤ; ꯇꯦꯛꯅꯤꯀꯦꯂꯒꯤ ꯂꯤꯂꯥꯡꯁꯤꯡ ꯗꯦꯇꯥ ꯒꯥꯏꯗ (ꯇꯦꯕꯜ 4) ꯌꯥꯑꯣꯔꯤ꯫ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯍꯥꯅꯕ ꯂꯦꯡꯃꯦꯠ ꯂꯣꯏꯅ ꯑꯍꯦꯛ ꯍꯦꯟꯕ ꯌꯥꯏꯕ ꯐꯦꯛꯇꯔ ꯑꯃ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯇꯝ ꯃꯇꯝ ꯑꯣꯏꯔꯤꯕꯅꯤ꯫ ꯀ꯭ꯂꯣꯖ 2.3.6(i)-ꯒꯤ ꯇꯀꯁꯤꯟꯅꯔꯤꯕ ꯃꯦꯕ꯭ꯔꯤꯁ ꯐ꯭ꯂꯣ (debris flow) ꯅꯠꯇ꯭ꯔꯒ ꯂꯦꯟꯗꯁ꯭ꯂꯥꯏꯗ (landslide) ꯊꯣꯀꯄꯥ ꯌꯥꯕ ꯍꯦꯟꯅꯕ ꯁꯦꯠꯄꯥ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯥ, ꯅꯠꯇ꯭ꯔꯒ ꯃꯦꯄ ꯍꯧꯗꯕ ꯂꯦꯟꯊꯣꯛꯂꯕꯥ, ꯐꯦꯟ (fan) ꯅꯠꯇ꯭ꯔꯒ ꯆꯦꯅꯦꯜ ꯍꯧꯕꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯁꯤꯒꯤ ꯊꯣꯏꯗꯣꯛ ꯂꯦꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯥ ꯕꯜꯀꯤꯡ ꯐꯦꯛꯇꯔꯗ ꯁꯤꯖꯤꯟꯅꯗꯕ ꯍꯦꯅꯕ: ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯕꯤꯖꯁꯤꯡ, ꯑꯦꯟꯇ꯭ꯔꯤ, ꯃꯌꯥꯃꯒꯤ ꯇꯦꯀꯅꯤꯛ ꯅꯠꯇ꯭ꯔꯒ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯊꯥꯖꯕꯥ ꯍꯥꯞꯆꯤꯟꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯦꯟꯁꯤꯡ ꯑꯁꯤ ꯕꯜꯀꯤꯡ ꯍꯦꯟꯕ ꯐ꯭ꯂꯣꯒꯤꯗꯃꯛ ꯍꯥꯞꯆꯤꯟꯅꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯦꯟꯅ [TBC]꯫
- (h) **ꯕ꯭ꯂꯣꯀꯦꯖ (blockage).** ꯀ꯭ꯂꯣꯖ 6.12.4-ꯒꯤ ꯕ꯭ꯂꯣꯀꯦꯖꯒꯤ ꯃꯥꯏꯀꯩ ꯑꯁꯤꯅ ꯇꯥꯀꯄꯥ ꯅꯠꯇ꯭ꯔꯒ ꯑꯣꯄꯅꯤꯡ **3.0 m**-ꯗꯒꯤ ꯍꯦꯟꯕ ꯀꯜꯚꯔꯠ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯞ ꯃꯈꯥ ꯌꯥꯏꯕ ꯁꯦꯛꯁꯅꯁꯤꯡꯗ ꯑꯦꯔꯤꯌꯥꯒꯤ 50% ꯂꯧꯕ ꯍꯦꯟꯅꯕ ꯂꯧꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯟꯕꯁꯤꯡꯒꯤꯗꯃꯛ 20%, ꯃꯦꯕ꯭ꯔꯤꯁ ꯐꯤꯜ ꯍꯣꯠꯅꯕꯗ ꯍꯣꯠꯅꯕꯗ꯫ ꯒ꯭ꯔꯦꯠ ꯏꯅꯂꯦꯠꯁꯤꯡꯗ (grate inlet) ꯁꯦꯛꯁꯟ 6.5-ꯒꯤ ꯄ꯭ꯔꯣꯚꯤꯖꯟ ꯐꯦꯛꯇꯔ ꯂꯧꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯇꯤꯡ ꯂꯩꯕ ꯀꯔꯕ ꯑꯣꯄꯅꯤꯡꯁꯤꯡꯗ (kerb opening) 20%-ꯒꯤ ꯃꯥꯛ ꯍꯥꯌꯖꯕ ꯂꯧꯅ꯫
- (i) **ꯃꯦꯛꯁꯤꯃꯝ ꯑꯃꯁꯨꯡ ꯃꯤꯅꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ.** ꯆꯤꯡꯒꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯗꯒꯤ ꯐ꯭ꯂꯣ ꯂꯩꯕ ꯈꯣꯡꯕꯦꯟ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯦꯂꯁꯤꯡꯗ ꯀ꯭ꯂꯣꯖ 6.7.3(a)-ꯒꯤ ꯃꯤꯅꯤꯃꯝꯒꯤ ꯃꯇꯨꯡꯗ, ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ ꯁꯦꯜꯐ-ꯀ꯭ꯂꯤꯟꯁꯤꯡ **1.0 m/s**-ꯒꯤ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ ꯒ꯭ꯔꯦꯗꯤꯌꯦꯟꯠꯀꯤ ꯃꯇꯝ ꯁꯦꯟꯗꯣꯛꯄ ꯃꯈꯥ, ꯃꯊꯛ ꯊꯧꯕ ꯃꯈꯥ ꯃꯦꯛꯁꯤꯃꯝ ꯑꯦꯔꯣꯖꯟ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯅꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 6.7.8-ꯒꯤ ꯃꯦꯛꯁꯤꯃꯝ ꯑꯦꯂꯥꯎꯑꯦꯕꯜ ꯑꯃꯁꯨꯡ ꯑꯦꯂꯥ ꯊꯥꯗ ꯁꯦꯠꯄꯨꯁꯤꯟꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 6.7.4)꯫
- (j) **ꯑꯋꯥꯡꯕ ꯈꯣꯡꯕꯦꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯋꯥꯡꯕ ꯂꯝꯕꯤꯁꯤꯡ.** ꯈꯣꯡꯕꯦꯟ ꯑꯃꯒꯤ ꯒ꯭ꯔꯦꯗꯤꯌꯦꯟꯠꯇ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ ꯀ꯭ꯂꯣꯖ 6.7.3(b)-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯗꯒꯤ ꯍꯦꯟꯕ ꯚꯦꯂꯣꯁꯤꯇꯤ, ꯅꯠꯇ꯭ꯔꯒ 0.8-ꯗꯒꯤ ꯍꯦꯟꯕ ꯐ꯭ꯔꯨꯗ ꯅꯝꯕꯔ (Froude number) ꯄꯤꯔꯕ ꯃꯇꯝꯗ, ꯈꯣꯡꯕꯦꯟ ꯑꯁꯤ ꯃꯤꯠꯌꯦꯡ (g)-ꯒꯤ ꯕꯜꯀꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯐ꯭ꯂꯣꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ 9-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯒ ꯂꯥꯏꯅꯤꯡ ꯇꯧꯔꯒ ꯁꯨꯠ (chute), ꯇꯦꯞꯄꯥ ꯂꯩꯕ ꯆꯦꯅꯦꯜ (stepped channel) ꯅꯠꯇ꯭ꯔꯒ ꯗ꯭ꯔꯣꯞ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤ (drop structure) ꯃꯇꯦꯡ ꯑꯃꯥ ꯑꯣꯏꯒꯗꯕꯅꯤ, ꯑꯋꯥꯡꯕ ꯆꯦꯅꯦꯂꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯦꯛꯁꯟ 6.7-ꯒꯤ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯕ ꯍꯦꯟꯕ ꯒ꯭ꯔꯦꯗꯤꯌꯦꯟꯠꯁꯤꯡ ꯌꯥꯎꯅꯥ ꯃꯈꯥ ꯊꯝꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔ (energy dissipator) ꯑꯃꯥ ꯌꯥꯎꯕꯥ꯫ 5%-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯋꯥꯡꯕ ꯂꯝꯕꯤ ꯑꯃꯗ, ꯒ꯭ꯔꯦꯠ ꯏꯅꯂꯦꯠꯁꯤꯡ ꯃꯊꯛꯇ ꯍꯦꯟꯅꯕ ꯍꯥꯞꯆꯤꯟꯅꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯕꯁꯤꯡ ꯑꯁꯤ ꯑꯋꯥꯡꯕ ꯒꯦꯂꯦꯛ ꯑꯃꯒꯤ ꯕꯥꯏꯄꯥꯁ ꯐ꯭ꯂꯣꯁꯤꯡ (bypass flow) ꯌꯥꯎꯅꯕ ꯀ꯭ꯂꯣꯖ 6.6.4-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯊꯦꯡꯅꯒꯗꯕꯅꯤ; 10%-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯋꯥꯡꯕ ꯂꯝꯕꯤ ꯑꯃꯗ, ꯐ꯭ꯂꯣ ꯑꯁꯤ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯂꯝꯕꯤꯒꯤ ꯐ꯭ꯂꯣ ꯑꯃꯥ ꯁꯦꯛꯁꯟ 6.3-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯝꯕ ꯍꯦꯟꯅ ꯊꯣꯛꯅꯕ ꯇ꯭ꯔꯥꯟꯁꯚꯔꯁ ꯒ꯭ꯔꯦꯠ ꯗꯤꯖꯥꯏꯟ ꯆꯦꯅꯦꯂꯁꯤꯡ (transverse grated channel) ꯅꯠꯇ꯭ꯔꯒ ꯀꯔꯕ ꯍꯦꯟꯅꯕꯁꯤꯡꯗ ꯊꯝꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯐ꯭ꯂꯣ ꯑꯁꯤ ꯂꯤꯃꯤꯠ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯝꯕ ꯑꯣꯏꯕ ꯃꯇꯝꯗ, ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯒ ꯑꯃꯥ ꯆꯦꯅꯦꯜ ꯅꯠꯇ꯭ꯔꯒ ꯇꯦꯞꯄꯥ ꯂꯩꯕ ꯈꯣꯡꯕꯦꯟ ꯑꯃꯥ ꯄꯤꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯑꯁꯤ, ꯏꯃꯔꯖꯦꯟꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯥꯏꯋꯦꯅꯁꯤꯡ ꯂꯝꯕꯤ (evacuation route) ꯑꯃꯥ ꯅꯠꯇ꯭ꯔꯒꯗꯤ, ꯊꯥꯗꯣꯛꯇꯨꯅ ꯂꯧꯕ ꯍꯦꯟꯅꯕ ꯂꯧꯅ꯫ ꯐ꯭ꯂꯣ ꯄꯨꯕ ꯈꯣꯡꯕꯦꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯠꯔꯦꯟꯁꯤꯡꯗ ꯂꯥꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯒ ꯑꯃꯥ ꯆꯦꯅꯦꯜ ꯑꯃꯥ ꯂꯧꯒꯗꯕꯅꯤ꯫
- (k) **ꯃꯤꯅꯤꯃꯝ ꯁꯦꯠꯇꯤꯡ ꯑꯣꯏꯕ ꯆꯤꯡꯒꯤ ꯂꯝꯕꯤꯁꯤꯡ.** ꯀ꯭ꯂꯣꯖ ꯑꯁꯤꯅ ꯑꯦꯝꯐ ꯄꯤꯔꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ ꯆꯤꯡꯒꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯗ ꯂꯩꯕ ꯂꯝꯕꯤ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ, ꯃꯈꯥꯒꯤ ꯃꯇꯦꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯂꯥꯏꯔꯤꯛꯀꯤ ꯑꯣꯏꯕ NH-37 ꯑꯃꯁꯨꯡ NH-2, ꯂꯝꯕꯤ ꯑꯃꯒꯤ ꯁꯦꯝ ꯑꯁꯤ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ ꯁꯦꯃꯒꯠꯄ ꯅꯠꯇ꯭ꯔꯒ ꯃꯁꯤꯒꯤ ꯃꯊꯛꯇ ꯂꯝꯕꯤꯒꯤꯗꯃꯛꯇꯤ ꯃꯤꯅꯤꯃꯝ ꯁꯦꯠꯇꯤꯡꯅꯤ꯫ ꯑꯁꯤꯒꯨꯝꯕ ꯂꯝꯕꯤ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ, ꯂꯝꯕꯤꯒꯤ ꯃꯁꯛ, PWD, ꯇꯧꯔꯦꯜ-ꯍꯤꯡꯆꯥꯒꯤ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯃꯥ, IMC ꯅꯠꯇ꯭ꯔꯒ ꯑꯍꯥꯅꯕ ꯁꯦꯝꯕ ꯇꯧꯔꯤꯕ ꯕꯤꯗ ꯑꯃꯥ, ꯅꯠꯇ꯭ꯔꯒ ꯆꯤꯡꯒꯤ ꯂꯝꯕꯤꯗꯒꯤ ꯂꯝꯕꯤ ꯄꯥꯛꯅꯥꯛꯄ ꯃꯤꯑꯣꯏꯕꯤꯁꯤꯡꯒꯤ ꯃꯇꯦꯡꯒꯤ ꯊꯕꯛ ꯑꯅꯤꯗ, ꯃꯈꯥꯒꯤ ꯂꯧꯒꯅꯤ: (i) ꯃꯊꯛꯇꯥ ꯂꯝ ꯑꯣꯏꯕ ꯂꯝꯕꯤꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯅꯠꯇ꯭ꯔꯒ ꯁꯦꯃꯕ ꯃꯇꯝꯗ ꯀꯠ ꯁ꯭ꯂꯣꯞ (cut slope) ꯁꯦꯃꯒꯠꯄꯁꯤꯡ ꯃꯊꯛꯇ ꯂꯥꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯀꯦꯆ-ꯋꯥꯇꯔ ꯈꯣꯡꯕꯦꯟ (catch-water drain) ꯑꯃꯥ, ꯃꯇꯝ ꯀꯠ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯊꯛꯇ ꯅꯠꯇ꯭ꯔꯒ ꯃꯍꯩꯒꯤ ꯆꯦꯅꯦꯜ ꯑꯃꯗ ꯅꯠꯇ꯭ꯔꯒ ꯀ꯭ꯔꯣꯁ-ꯗ꯭ꯔꯦꯅꯦꯖ ꯋꯥꯔꯛ (cross-drainage work) ꯑꯃꯗ ꯂꯧꯗꯨꯅ ꯊꯝꯕꯒꯤ; (ii) ꯆꯤꯡꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯂꯥꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯟꯠꯔ ꯈꯣꯡꯕꯦꯟꯁꯤꯡ (IRC:SP:42-2014, cl. 8.5.1); (iii) ꯈꯣꯡ ꯑꯃꯁꯨꯡ ꯇꯣꯞꯗꯣꯛ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ ꯀ꯭ꯔꯣꯁ-ꯗ꯭ꯔꯦꯅꯦꯖ ꯋꯥꯔꯛ ꯑꯃꯥ, ꯑꯃꯁꯨꯡ ꯃꯤꯠꯌꯦꯡ (g) ꯑꯃꯁꯨꯡ (h)-ꯒꯤ ꯐꯦꯛꯇꯔꯁꯤꯡꯒꯥ ꯌꯥꯎꯅꯕ ꯁꯦꯛꯁꯟ 6.1-ꯒꯤ ꯗꯤꯖꯥꯏꯟ AEP-ꯗ ꯑꯦꯟꯠꯔ ꯈꯣꯡꯕꯦꯟ ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯝꯒꯤ ꯀꯦꯄꯥꯁꯤꯇꯤꯒꯤ ꯍꯦꯟꯗꯣꯛꯄ ꯂꯥꯏꯅ ꯊꯝꯕ ꯀꯜꯚꯔꯠꯁꯤꯡ ꯅꯠꯇ꯭ꯔꯒ ꯇꯥꯀꯄꯥꯁꯤꯡ (scupper); (iv) ꯁꯦꯝꯕꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯂꯦꯕ ꯇꯥꯀꯄꯥ, ꯀꯜꯚꯔꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯠꯔ ꯈꯣꯡꯕꯦꯟ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ ꯑꯦꯟꯇ꯭ꯔꯤꯌꯨꯁ, ꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯆꯦꯠꯄ ꯃꯍꯩꯒꯤ ꯆꯦꯅꯦꯜ ꯑꯃꯗ ꯅꯠꯇ꯭ꯔꯒ ꯄꯥꯀꯄ ꯈꯣꯡꯕꯦꯟ ꯑꯃꯗ ꯄꯨꯕ ꯂꯥꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯁꯨꯠ, ꯀꯦꯁꯀꯦꯗ (cascade) ꯅꯠꯇ꯭ꯔꯒ ꯄꯥꯟꯄ ꯑꯃꯥ, ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔ ꯑꯃꯒꯥ ꯂꯣꯌꯅꯅ, ꯃꯇꯝ ꯑꯁꯨꯛ ꯂꯝꯕꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ PWD, ꯇꯧꯔꯦꯜ-ꯍꯤꯡꯆꯥꯒꯤ ꯑꯦꯖꯦꯟꯁꯤ ꯅꯠꯇ꯭ꯔꯒ ꯂꯝꯕꯤꯒꯤ ꯑꯍꯥꯅꯕ ꯃꯁꯛ ꯑꯃꯁꯨꯡꯒꯥ **ꯋꯥꯔꯤꯁꯥꯟꯅꯗꯨꯅ ꯍꯥꯞꯆꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯊꯝꯅꯕꯥ**, ꯐꯤꯜ (fill), ꯔꯤꯇꯦꯅꯤꯡ ꯋꯥꯜ (retaining wall) ꯅꯠꯇ꯭ꯔꯒ ꯃꯈꯥꯒꯤ ꯂꯝꯕꯤ ꯕꯤꯖꯁꯤꯡ ꯑꯃꯒꯤ ꯂꯝꯗꯝꯗ ꯊꯝꯅꯕꯥ; (v) ꯀ꯭ꯂꯣꯖ 6.12.5-ꯒꯤ ꯃꯇꯨꯡꯗꯒꯤ ꯍꯦꯟꯅꯕ, ꯀ꯭ꯂꯣꯖ 6.12-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯒ ꯑꯃꯁꯨꯡ IRC:SP:42-2014

cl. 7.1.4-ꯗ ꯆꯐꯗꯤ ꯑꯗꯨꯒꯤꯅꯃꯛ ꯃꯇꯧ ꯇꯥꯛꯅꯒꯤ ꯄꯨꯊꯣꯛꯅꯕ ꯃꯅꯥꯒꯗꯧꯔꯤꯕ; IRC:SP:48-1998, ꯄꯤꯅ ꯗꯥꯅ ꯃꯦꯅꯨꯌꯦꯜ (Hill Road Manual), ꯃꯔꯤꯒꯤ ꯍꯗꯐꯒꯤ ꯁꯗꯥꯒꯤꯆꯦꯔꯤꯕ, ꯃꯍꯥꯌ ꯑꯔꯤ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯔꯤꯒꯤꯅꯃꯛ ꯁꯍꯐꯤꯅꯦ [TBC], ꯃꯤꯊꯌꯦꯕ ꯑꯔꯤꯅꯒꯤ ꯄꯦꯟꯗ ꯃꯦꯗ ꯑꯥꯍꯗꯗꯅꯤ, ꯃꯍꯥꯌ ꯌꯊꯆꯤ; ꯑꯃꯁꯨꯡ (vi) ꯆꯐꯗꯤ ꯑꯗꯨ ꯂꯩꯗ, ꯁꯃꯥꯇꯥꯄꯦꯗ ꯅꯊꯗꯒꯤ ꯃꯦꯟꯊꯦꯟꯂꯟ ꯊꯗꯅꯒꯤ, ꯅꯊꯗꯒꯤ ꯃꯔꯤꯒꯤ ꯃꯗꯥꯊ ꯌꯤꯕ ꯃꯥꯁꯅꯒꯤ ꯇꯥꯃꯁ ꯂꯁꯥꯍꯅ (spoil) ꯅꯊꯗꯒꯤ ꯊꯐꯇꯥꯍꯤꯗ ꯁꯥꯊꯔꯤꯕ ꯑꯃꯊꯥ ꯍꯥꯕ ꯑꯃꯅ ꯅꯊꯗꯒꯤ ꯃꯄꯥꯂꯒꯤ ꯍꯗꯐꯒꯤ ꯑꯊꯥꯁꯁ ꯆꯍꯦ ꯑꯃꯅ ꯅꯊꯗꯒꯤ ꯃꯔꯤꯒꯤ ꯃꯗꯥꯊ, ꯅꯊꯗꯒꯤ ꯅꯥꯕ ꯍꯗꯒꯤ ꯇꯥꯅꯥꯕ ꯑꯃꯗ ꯃꯗꯨꯅ ꯁꯗꯃꯁ ꯌꯗ ꯗꯁꯥꯐ ꯑꯃꯅ ꯇꯐꯆꯥꯍꯅꯗꯆꯤ॥ ꯃꯤꯊꯌꯦꯕ ꯑꯔꯤꯔꯤꯕꯃꯥ ꯌꯤꯕꯒꯤ ꯃꯦꯌꯃꯦꯗꯊ ꯑꯃꯅ ꯆꯗ ꯗꯦꯅꯌꯦ ꯏꯥꯗꯃꯦꯂꯦ (railway formation) ꯑꯃꯒꯤ ꯍꯗꯐꯅꯨ ꯌꯊꯆꯤ॥

- (l) **ꯗꯁꯥꯐ ꯆꯗ ꯂꯍꯊꯔꯤꯕ, ꯌꯤꯕ ꯃꯥꯁ ꯑꯃꯁꯨꯡ ꯗꯤꯊꯦꯆꯤꯕ ꯌꯥꯅꯔꯤꯕ.** ꯃꯇꯥꯃꯤ ꯆꯐ ꯑꯗꯨꯗ ꯗꯤꯅꯅꯤꯕ ꯑꯃꯒꯤ, ꯃꯔꯤꯒꯤ ꯃꯊꯃꯤ ꯅꯊꯗꯒꯤ ꯃꯔꯤꯒꯤ ꯗꯤꯊꯦꯆꯤꯕ ꯌꯥꯅꯒꯤ ꯃꯍꯃꯤꯅ ꯍꯔꯤꯕ ꯌꯦꯗꯗ ꯂꯍꯊ ꯑꯃꯅ, ꯆꯐ ꯑꯗꯨꯒꯤ ꯗꯦꯑꯥꯏ ꯑꯔꯤ ꯃꯍꯥꯌꯒꯤ ꯃꯇꯥꯊ, ꯃꯇꯥꯃꯤ ꯆꯐꯅꯒꯤ ꯊꯦꯗꯅ 6.1-ꯒꯤ ꯃꯍꯆꯗ ꯅꯤꯗꯍꯦ ꯏꯆꯥꯒꯤꯅꯃꯥ, ꯃꯤꯊꯌꯦꯕ (g) ꯑꯃꯁꯨꯡ (h)-ꯒꯤ ꯏꯦꯥꯊꯗꯔꯤꯕꯒꯤ ꯆꯥꯌꯆꯆ, ꯂꯍꯆ ꯆꯦꯁꯆꯗ ꯗꯍꯦ ꯊꯗꯗ ꯅꯍꯒꯗꯂꯦ ꯍꯥꯕꯗꯦ (diversion drain) ꯑꯃꯗ ꯇꯤꯕꯒꯅꯗꯆꯤ, ꯗꯤꯅꯅꯤꯕ ꯑꯗꯨꯒꯤ ꯁꯊꯇꯤꯕꯅ ꯅꯊꯗꯒꯤ ꯃꯗꯨꯒꯤ ꯃꯍꯃꯤꯅ ꯌꯊꯊꯗ 1% AEP-ꯒꯤ ꯏꯆꯥ ꯆꯐꯗꯤ ꯑꯃꯒꯤ ꯆꯥꯌꯆꯆ॥ ꯗꯤꯅꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯒꯤ ꯃꯇꯥꯊ ꯆꯗ ꯃꯊ ꯅꯊꯗꯒꯤ ꯗꯤꯊꯦꯆꯤꯕ ꯌꯥꯅꯒꯤ ꯃꯗꯥꯃꯤ ꯃꯏꯐ ꯑꯔꯤ ꯁꯦꯒ ꯊꯒꯅꯗꯆꯤ ꯅꯊꯗꯒꯤ ꯗꯍꯦ ꯊꯒꯅꯗꯆꯤ ꯑꯃꯁꯨꯡ ꯍꯗꯐ ꯁꯤꯒꯅꯗꯆꯤ, ꯃꯗꯐ ꯑꯗꯨꯗ ꯍꯔꯤꯕ ꯑꯔꯤ ꯗꯤꯅꯅꯤꯕꯒꯤ ꯃꯍꯃꯤꯅ ꯆꯦꯁꯆꯍ ꯅꯊꯗꯒꯤ ꯃꯊ ꯑꯗꯨꯒꯤ ꯍꯥꯕꯅ ꯁꯁꯆꯍ, ꯑꯃꯁꯨꯡ ꯑꯆꯤꯃꯥꯗ ꯃꯤꯊꯌꯦꯕ (k)(iv)-ꯗ ꯃꯇꯧ ꯊꯗꯒꯃꯐꯗ ꯁꯗꯆꯤꯥ ꯍꯥꯕꯗꯦ ꯑꯃꯅ ꯅꯊꯗꯒꯤ ꯌꯦꯊꯁ ꯃꯄꯥꯂꯒꯤ ꯌꯦꯆꯦꯅ ꯑꯃꯅ ꯍꯔꯤꯕ ꯇꯅꯥꯃꯅꯗꯆꯤ, ꯃꯍꯒꯤ ꯗꯁꯥꯐꯅ ꯅꯊꯊ॥ ꯗꯁꯥꯐ ꯑꯃ ꯇꯤꯕꯆꯤꯅꯆꯤꯗ ꯗꯤꯊꯦꯆꯤꯕ ꯌꯥꯅ ꯁꯅꯤꯕꯃꯥꯊ ꯃꯔꯤꯒꯤ ꯍꯥꯕꯅ ꯆꯗ ꯗꯍꯦ ꯊꯗꯗ ꯍꯥꯕꯗꯦ ꯑꯃꯅ ꯍꯔꯤꯕ ꯇꯅꯥꯃꯁ ꯌꯤꯁ ꯁꯍꯁꯔꯤꯕ (weep pipe) ꯆꯒꯅꯗꯆꯤ, ꯃꯍꯒꯤ ꯗꯁꯥꯐꯅ ꯅꯊꯗꯒꯤ ꯃꯍꯅ ꯆꯗ ꯌꯥꯅ ꯑꯃꯒꯤ ꯗꯦꯥꯏꯤꯅꯅ (backfill) ꯅꯊꯊ: AIIB ꯁꯗꯆꯦꯥꯊꯃꯤ ꯃꯄꯥꯂꯒꯤ ꯍꯥꯕꯗꯦꯒꯤ ꯂꯦꯥꯂꯦꯔꯤꯕꯗ "ꯁꯥꯗ ꯌꯊꯗ ꯁꯗꯦꯂꯗ ꯇꯅꯥꯆꯗ" ("release pore water pressure") 5 m ꯁꯅꯤꯕꯅ 50-mm PVC ꯌꯤꯁ ꯁꯍꯁꯔꯤꯕ ꯃꯃꯤꯕꯅꯒꯤ ꯁꯊꯆꯤ (AIIB IEE)॥ ꯑꯔꯤꯒꯐꯗ ꯂꯍꯊ ꯑꯃꯅ ꯁꯐꯇꯥ ꯑꯃꯁꯨꯡ ꯁꯦꯒ ꯊꯗꯗ ꯑꯦꯗꯤꯌꯒꯤ ꯗꯦꯑꯥꯏ ꯑꯔꯤꯗ ꯃꯆꯥꯆ 4.11-ꯒꯤ ꯌꯤꯕꯒꯤ ꯗꯅ ꯃꯁꯨꯕ ꯍꯦꯆꯒꯅꯗꯆꯤ॥ ꯃꯤꯊꯌꯦꯕ ꯑꯔꯤꯔꯤꯕꯗ ꯆꯗꯤꯗ ꯗꯁꯥꯐꯒꯤ ꯗꯅꯔꯤꯕꯅ ꯅꯤꯗꯍꯦ ꯂꯊꯦꯅꯗꯅ ꯑꯃ ꯁꯤꯗꯤ: IMC (3rd Amendment) 2024-ꯒꯤ ꯅꯗꯏꯊ, ꯃꯔꯤꯒꯤ ꯃꯍꯅ "ꯅꯤꯒꯗꯤ 30-ꯅꯒꯤ ꯄꯦꯗ ꯗꯁꯥꯐ ꯆꯗ ꯑꯦꯗꯤꯌꯔꯤꯕꯅ ꯃꯦꯂꯊꯗꯥꯂꯦ ꯑꯃꯊꯗ ꯌꯄꯦꯆꯍ" ("no construction will be permitted in the areas which have a slope of more than 30 degrees"), ꯅꯦꯒꯦꯆꯁꯃꯦꯦꯊ ꯑꯔꯤ "ꯅꯤꯒꯗꯤ 21-30-ꯒꯤ ꯗꯁꯥꯐ ꯆꯗ ꯑꯦꯗꯤꯌꯔꯤꯕꯅ ꯏꯆꯥꯗ ꯑꯆꯤ ꯅꯊꯗꯒꯤ 7m ꯑꯌꯕꯗ ꯏꯁꯗ ꯍꯥꯊꯃꯥ" ("only upto two floors or 7m height in areas which have a slope of 21-30 degrees") ꯌꯄꯅꯆꯤ (92.1) ꯑꯃꯁꯨꯡ "ꯅꯤꯒꯗꯤ 30-ꯅꯒꯤ ꯄꯦꯗ ꯗꯁꯥꯐ ꯆꯗ ꯑꯦꯗꯤꯌꯔꯤꯕꯅ ꯗꯁꯥꯐ ꯃꯥꯁ ꯑꯃꯊꯗ ꯌꯄꯦꯆꯍ" ("no cutting of slopes will be permitted in the areas which have a slope of more than 30 degrees") (92.2), ꯃꯔꯤ "ꯂꯊꯦꯊ ꯆꯃꯥꯗ … ꯇꯐꯒꯅꯗ ꯊꯕꯅ ꯌꯊꯆꯥꯃꯤ" ("come into force on such date as the State Government may … appoint") ꯄꯌꯗ ꯑꯗꯆꯦꯥꯂꯦꯔꯤꯕꯒꯤꯅꯃꯥ ꯏꯕꯅꯥꯍꯤ, ꯃꯔꯤꯒꯤ ꯑꯗꯍꯗ ꯂꯊꯦꯂ ꯃꯦꯏꯗꯐ ꯊꯍꯤꯅꯦ [TBC]; ꯃꯅꯦꯅꯒꯤ ꯗꯍ-ꯆ 92 [TBC: ꯆꯃꯅ ꯗꯅꯤꯗ ꯅꯊꯏꯍ ꯊꯗꯗ ꯗꯍ-ꯆꯆꯊ ꯅꯐꯗꯗ ꯑꯃꯁꯨꯡ ꯊꯦꯥꯂꯊ ꯌꯦꯥ ꯊꯒꯅꯗꯆꯤ], ꯃꯔꯤ ꯏꯕꯅꯥꯍꯤꯗ ꯃꯁꯨꯕ ꯍꯦꯆ "ꯃꯤꯦ ꯔꯤ ꯆꯦꯒꯦꯅꯅꯒꯤ 600 m-ꯅꯒꯤ ꯌꯕꯗ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯗꯦꯆ ꯅꯤꯒꯗꯤ 30-ꯒꯤ ꯗꯁꯥꯐ ꯆꯗ ꯆꯐꯅ ꯃꯦꯂꯊꯗꯥꯂꯦ ꯑꯃꯊꯗ ꯌꯄꯦꯆꯍꯅꯗꯆꯤ" ("No construction shall be permitted on land above 600 m from the mean sea level and with an average slope of 30 degrees") ꯄꯌꯗ ꯆ ꯑꯃꯁꯨꯡ ꯁꯗ ꯑꯗꯨꯒꯤ ꯃꯁꯨꯕ ꯍꯦꯆ 600 m-ꯅꯒꯤ ꯌꯕꯗ ꯆꯗ ꯒꯗꯦꯊꯗ ꯍꯐꯏꯅ ꯁꯐꯗ ꯇꯤꯕꯒꯆꯤ (NEER-ꯒꯤ ꯁꯗ), ꯃꯗꯐ ꯑꯗꯨꯗ ꯃꯔꯤ IMC-ꯒꯤ ꯊꯦꯥꯂꯊꯃꯤ ꯆꯥꯌꯆꯆ ꯁꯍ; IS 14458, ꯃꯅꯦꯅꯆꯗ ꯄꯌꯗꯤꯗ ꯌꯤꯕꯒꯤ ꯆꯐꯔꯤꯕꯅ ꯗꯤꯊꯦꯆꯤꯕ ꯌꯥꯅꯔꯤꯕꯒꯤ ꯒꯍꯅꯗꯍꯦꯂ; ꯑꯃꯁꯨꯡ "ꯍꯗꯥꯆꯦ ꯑꯃꯁꯨꯡ ꯂꯦꯅꯤꯃꯦꯊꯂꯦ ꯃꯦꯊꯗꯅ" ("erosion and sedimentation control")-ꯒꯤ ꯒꯗꯤꯦ-ꯗꯤꯅꯅꯤꯕ ꯃꯗꯍꯊꯗꯤꯌꯦ॥ ꯌꯤꯕꯒꯤ ꯆꯐꯔꯤꯕꯅ ꯗꯤꯅꯅꯤꯕ ꯗꯍ-ꯆ ꯑꯃꯊꯗ ꯌꯊꯆꯅ: ꯃꯤꯊꯌꯦꯕ ꯑꯔꯤꯗ ꯁꯗꯆꯤꯥ ꯌꯗꯥꯂ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯔꯤ ꯆꯔꯤꯦꯗ ꯗꯅꯤ ꯁꯅꯤꯕꯃꯥꯊ ꯌꯍ॥

- (m) **ꯌꯤꯕ–ꯊꯐꯁꯥꯃꯤ ꯍꯌꯅꯥꯏꯐ, ꯆꯃ ꯑꯃꯁꯨꯡ ꯌꯦꯂꯊ.** ꯍꯕ ꯅꯊꯗꯒꯤ ꯌꯤꯕꯒꯤ ꯍꯕ ꯑꯃ, ꯅꯊꯗꯒꯤ ꯃꯗꯨ ꯆꯗ ꯍꯥꯕꯗꯦ ꯑꯃ, ꯊꯐꯁꯥꯃꯤ ꯆꯐ ꯅꯊꯗꯒꯤ ꯆꯥꯊꯥꯃꯤ ꯑꯃꯌꯗꯅ ꯆꯗ ꯏꯗꯗ ꯆꯐꯅ ꯌꯗ ꯃꯏꯐꯅ, ꯒꯗꯅꯤꯌꯦꯊ ꯄꯦꯇꯗꯃꯁ ꯃꯏꯐ ꯑꯗꯨꯒꯤ ꯃꯇꯥꯊ ꯂꯗꯥ 9 (ꯃꯆꯆ 9.8)-ꯒꯤ ꯃꯍꯅ ꯅꯤꯗꯍꯦ ꯊꯗꯗ ꯔꯤꯅꯊ ꯊꯗꯁ (silt trap) ꯑꯃ ꯇꯐꯒꯅꯗꯆꯤ, ꯃꯔꯤꯆꯒꯤ ꯌꯕꯆꯥꯁꯒꯤ ꯆꯐꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯕ, ꯁꯊꯃꯤ ꯃꯁꯦ, ꯆꯗꯥ ꯅꯊꯗꯒꯤ ꯗꯁꯥꯐ ꯅꯊꯊꯗ ꯁꯦꯔꯤꯦꯆꯗ ꯃꯏꯐ ꯑꯃꯒꯤ ꯆꯥꯌꯆꯆ, ꯃꯤꯊꯌꯦꯕ (i)-ꯒꯤ ꯂꯦꯅꯤꯃꯦꯊꯃꯤꯅꯃꯥ ꯂꯍꯆ ꯆꯦꯁꯆꯒꯤ ꯃꯤꯊꯌꯦꯕ (f)-ꯒꯤ ꯊꯕꯔꯤꯕꯅ ꯑꯃꯁꯨꯡ ꯌꯃꯗ ꯅꯕ ꯁꯗ ꯅꯃꯤꯊ ꯁꯅꯤꯕꯒꯤ ꯃꯁꯨꯕꯅ ꯂꯦꯕꯅꯥꯃꯅꯗꯆꯤ (ꯂꯗꯥ 10)॥ ꯌꯤꯕ ꯃꯥꯁꯅꯒꯤ ꯇꯃꯁ ꯂꯁꯥꯍꯅ ꯑꯃꯁꯨꯡ ꯃꯦꯂꯊꯗꯥꯂꯦ ꯑꯃꯁꯨꯡ ꯅꯦꯃꯆꯤꯂꯆꯒꯤ ꯌꯦꯂꯊ ꯑꯃꯊꯗ ꯅꯕ ꯁꯗꯒꯤ ꯇꯅꯥ ꯑꯃꯗ ꯍꯥꯕꯗꯦ, ꯍꯕ, ꯁꯊ ꯅꯊꯗꯒꯤ ꯆꯥꯊꯥꯊ ꯁꯗꯃꯁ ꯌꯗ ꯃꯏꯐꯅ ꯇꯐꯆꯍꯅꯗꯆꯤ; ꯆꯥꯊꯥ ꯑꯦꯥꯊꯃꯤ ꯃꯏꯐꯒꯤ ꯃꯅꯕꯅ, "ꯆꯦꯅ ꯏꯤꯆꯤꯕꯒꯤ ꯁꯦꯅꯐꯅ ꯂꯄꯗ ꯅꯊꯗꯒꯤ ꯊꯗꯦꯒꯤ ꯌꯦꯂꯊ ꯇꯅꯥꯁ" ("Dumping of city or town waste for the purpose to land filling") ꯑꯃꯁꯨꯡ "ꯆꯦꯅꯂꯃꯁ ꯍꯗꯐ ꯌꯑꯗ ꯌꯤꯕꯔꯤꯕ, ꯃꯄꯥꯂꯒꯤ ꯃꯑꯕꯔꯤꯕ ꯂꯦꯐꯆꯤꯦꯗ ꯅꯊꯗꯒꯤ ꯄꯕꯅꯃꯁ" ("Dressing or altering of hills, natural features including landscape drainage") ꯑꯔꯤ ꯗꯏꯗ ꯆꯦꯅ ꯃꯃꯤꯕꯅꯒꯤ ꯇꯤꯕꯆ (ꯂꯦꯥꯂꯦ 19(v) ꯑꯃꯁꯨꯡ (viii))॥

ꯂꯥꯏꯕꯤꯛ ꯑꯃꯁꯨꯡ ꯊꯝꯗꯕ ꯌꯥꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯝꯕꯤꯗ ꯑꯃꯗꯤ ꯑꯦꯛꯁꯦꯟ ꯑꯃꯄꯥꯎꯌꯥꯅ ꯃꯇꯝꯒꯤ 1% AEP-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡꯗꯤ (ꯁꯦꯛꯁꯟ 5.8.5(f)) ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯃꯊꯥꯏ ꯅꯇꯨ ꯐꯥꯑꯣꯕꯗ ꯀꯤꯗꯄ ꯌꯥꯄꯥꯎꯕꯗꯕ ꯑꯣꯏꯅꯦ ꯌꯥꯒꯗꯕꯅꯤ꯫ ꯌꯥꯕꯥꯝ ꯑꯃꯗꯤ ꯌꯥꯕꯤꯌꯀꯥꯎꯦꯌꯥꯏ ꯊꯕꯛ ꯆꯌꯥꯕ: ꯆꯦꯗ ꯁꯨꯔꯕ ꯀꯌꯥꯒꯤ ꯐꯥꯎꯕ ꯑꯃꯗꯤ ꯀꯤꯌꯐꯥꯗ (e) ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 8.9-ꯒꯤ ꯀꯍꯦꯅ ꯅꯦꯌꯥꯕꯂꯥꯏꯌꯥ ꯌꯥꯅ꯫

ꯂꯦꯆꯠꯂꯦ ꯌꯥꯊꯪ. CPHEEO (2019)-ꯒꯤ ꯀꯥꯡꯂꯨꯞꯀꯤ ꯃꯇꯝꯒꯤ ꯒꯦꯇꯂꯕꯤꯟ ꯀꯥꯇꯕ ꯑꯃꯁꯨꯡ ꯀꯅꯗꯕ ꯂꯤꯂꯥꯏꯃꯂꯗꯒꯤ ꯑꯕꯊ ꯁꯤꯕꯤ ꯑꯁꯨꯕ ꯀꯥꯇꯕ ꯂꯤꯂꯥꯏꯃꯒꯤꯟꯀꯗ ꯕꯤꯌꯕꯦ ꯁꯤꯕꯤꯔꯟ ꯑꯃꯌꯥ ꯁꯤꯟꯥ꯫ APWA 5600 (2006, 5601.8)-ꯗꯤ ꯂꯤꯂꯥꯏꯃ ꯑꯃꯗꯤ 1% ꯁꯤꯗ ꯁꯒꯟꯕꯗꯤ ꯑꯃꯁꯨꯡ, ꯂꯤꯂꯥꯏꯃꯒꯤ ꯀꯨꯗꯒꯤ ꯁꯥꯁꯤꯂꯤꯌ ꯄꯦꯊꯕ ꯀꯖꯃꯟ, ꯑꯌꯥꯈꯁ ꯑꯁꯨ ꯁꯨꯗꯕ ꯑꯦꯒꯕꯖꯗꯦ ꯂꯤꯂꯥꯏꯃ ꯑꯃꯀ ꯗꯒꯟꯕꯗꯤ ꯄꯔꯗꯤ ꯀꯊꯣ ꯌꯥꯅ꯫ ꯁꯦꯛꯁꯟ 6.3.3-ꯗꯤ ꯀꯁꯨꯗ ꯖꯕ ꯁꯤꯅꯁꯥꯁꯤ ꯁꯥꯁꯤꯂꯤꯌ ꯆꯥꯎꯌꯗꯤ *ꯁꯨꯁꯇꯕ* ꯅꯦꯇꯥꯎꯁꯤ ꯁꯥꯁꯤꯂꯤꯌ ꯍꯗꯌꯀꯗ ꯇꯊꯁꯅ, ꯀꯕꯃꯟꯤ ꯌꯣꯕꯤꯕ ꯀꯑꯗꯟ ꯁꯤꯅꯁꯂꯤꯗꯤ ꯅꯦꯇꯥꯎꯂꯤꯗꯤ ꯍꯗꯄꯦꯕꯟꯒꯤ ꯄꯥꯦꯗꯤ ꯅꯂꯤꯗ ꯇꯣꯕ ꯂꯤꯃꯟ꯫ ꯂꯥꯒꯂꯤꯗꯟ ꯀꯁꯨꯗ ꯖꯗꯤ ꯊꯤꯗꯇꯕ ꯀꯌꯃꯒꯤ ꯍꯥꯗ ꯑꯂꯤꯒꯤ ꯄꯗꯊꯥꯗꯇꯕ ꯀꯀꯗꯒꯤ ꯁꯨꯟꯃ ꯇꯣꯌ; ꯀꯥꯡꯂꯨꯞ ꯑꯂꯤꯗꯤ ꯀꯂꯤ ꯊꯃꯇꯤ, ꯀꯕꯃꯟꯤ ꯅꯃꯖꯦꯒꯤ ꯊꯥꯗꯇꯅꯤꯕ ꯀꯌꯨꯗ ꯅꯦꯦ ꯖꯌꯁꯤꯊꯂꯤꯗꯒꯤ ꯀꯍꯦꯅ ꯇꯣꯕ ꯅꯗꯕꯦꯂꯤꯗ ꯑꯂꯤ ꯅꯕꯅꯟꯒꯤ ꯁꯦꯕ ꯆꯗ ꯁꯨꯕ ꯀꯌꯃꯟ ꯀꯌꯃ ꯁꯔꯦꯟ ꯇꯣꯀꯨꯗꯤ ꯀꯁꯨꯦꯕ ꯆꯌꯕꯒꯤ ꯂꯇꯤꯟ ꯍꯥꯂꯌꯗꯤ ꯊꯤꯗꯇꯤ (CPHEEO 2019 Part A, Ch 1 and 2, ꯅꯗꯕꯦꯂꯤꯗꯟ ꯂꯇꯤꯟ ꯍꯥꯂꯌ ꯊꯟꯁꯥꯁꯒꯤ ꯀꯌꯗꯟ Figures 1.2 and 2.1)꯫ ꯁꯥꯍꯀꯥꯦꯌꯂꯤꯗꯒꯤ ꯀꯕꯑꯌ ꯄꯗꯟꯁꯁ ꯊꯤꯗꯕ ꯑꯂꯤ DID Malaysia 2008-ꯒꯤ ꯂꯕꯀꯤꯂꯦ ꯍꯥꯑꯇꯤꯂꯌ ꯀꯌꯨꯗ ꯅꯦꯦꯕꯤ, ꯀꯂꯤꯗꯤ ꯅꯦꯌꯕ-ꯁꯥꯍꯀꯥꯦꯌ ꯟꯅꯒꯕꯂꯦ ꯊꯤꯗꯅ꯫ ꯁꯦꯛꯁꯟ 6.3.6 ꯑꯂꯤ ꯀꯇꯤꯁꯨꯕꯒꯤꯟꯀꯑ ꯀꯥꯡꯂꯨꯞ ꯑꯂꯤꯗꯤ ꯊꯃꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯟ ꯂꯕꯨꯑ ꯑꯇꯤ ꯇꯣ, ꯀꯕꯃꯟꯤ ꯂꯌꯥꯌꯁꯤ ꯅꯗꯕꯦꯂꯤꯗ ꯑꯂꯤ ꯀꯑꯗ ꯑꯇꯤꯟ ꯖꯥꯒ ꯌꯥꯅ, ꯀꯂꯤ ꯂꯥꯗꯇꯕ ꯆꯗꯒꯤ ꯅꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯖꯕꯕ ꯇꯣꯀꯅ ꯇꯣꯕ ꯂꯕꯨꯑ ꯑꯂꯤꯒꯤ ꯁꯕꯅꯌꯕꯤꯔꯂꯤꯗꯤ ꯁꯁꯟꯥ꯫ ꯑꯄꯗꯕꯟꯤ ꯂꯤꯍꯥꯇꯇꯤ꯫ ꯈꯦ 2020-ꯟ ꯁꯀꯤꯂꯦ ꯌꯥꯅꯤꯕ ꯅꯃꯖꯦꯒꯤ ꯂꯤꯔꯕꯥꯇ ꯖꯥꯇ I-ꯗꯤ IMC-ꯒꯤ ꯔꯕꯟ 27-ꯒꯤ ꯀꯨꯗꯟ 11 ꯔꯁꯅ (ꯀꯂꯌꯕ ꯁꯇꯦꯦ); "ꯂꯄꯕꯒꯤ ꯑꯥꯕꯤꯔꯂꯤꯗꯟ ꯂꯤꯍꯥꯇ ꯊꯁꯁ ꯑꯂꯤ 70 MLD-ꯇꯤ ꯑꯃꯁꯨꯡ ꯇꯣꯕꯤꯕ ꯌꯕꯤꯌꯀꯥꯦꯌ ꯖꯥꯂꯤꯇꯤꯌꯂꯤꯗ ꯑꯂꯤ 44 MLD-ꯇꯤ" ("Sewage generation in urban areas is 70 MLD and existing treatment facilities are 44 MLD"), ꯈꯃꯒꯤ ꯁꯇꯥꯑꯂꯦꯂꯤꯗ ꯌꯕꯒꯥꯌ ꯌꯥꯅꯤꯕ 51,754-ꯒꯤ ꯀꯨꯗꯟ 8,600-ꯟꯒꯤ 8,700 ꯖꯁꯕ ꯇꯣꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯖꯈꯍꯥꯦꯌꯁꯤ "ꯑꯕꯅꯕ ꯊꯟꯁꯥꯁꯒꯤ ꯀꯑꯗ" ("Final mode of disposal") ꯑꯂꯤ "ꯇꯣꯂꯗꯒꯤ ꯁꯥꯇꯥꯒꯂꯤꯗ" ("Agriculture canals")-ꯇꯤ (O.A. 606/2018-ꯟ NGT-ꯟ ꯂꯌꯥꯌꯁꯤ ꯕꯤꯁꯥꯕꯌ, ꯈꯦꯗꯅ 2025); ꯑꯃꯁꯨꯡ ꯆꯃꯕꯒ ꯌꯕꯥꯒꯟ ꯍꯥꯦꯊꯕꯁꯁ ꯅꯗꯕꯦꯦ 72-ꯗꯤ BOD 42.45-ꯟꯒꯤ 52.34 mg/L ꯑꯃꯁꯨꯡ COD 78.56-ꯟꯒꯤ 97.23 mg/L ꯁꯨꯅ (NGT-ꯟ ꯂꯌꯥꯌꯁꯤ ꯕꯤꯁꯥꯕꯌ, ꯟꯤꯂꯥꯃꯕꯕ 2025), ꯌꯕꯥꯒ ꯑꯁꯨꯒꯤ ꯀꯂꯤꯒꯤ BOD ꯑꯂꯤ CPCB-ꯗꯤ ꯂꯤꯗꯦ ꯟꯥꯃꯟꯒꯤ ꯕꯤꯂꯈꯁꯨꯕ ꯖꯁꯕ ꯀꯂꯤꯒꯤ ꯕꯤꯍꯌ 3.3-ꯟꯒꯤ 5.6 mg/L ꯊꯇꯅꯤ (CPCB, 2025)꯫ ꯗꯗꯒꯤ ꯅꯂꯤꯗꯒꯤ ꯅꯗꯕꯦꯂꯤꯗ ꯑꯂꯤꯗꯤ ꯂꯤꯍꯕꯂꯤꯗꯇꯤ, ꯑꯃꯁꯨꯡ ꯌꯕꯥꯒꯂꯤꯗꯗꯤ ꯀꯅꯔꯁ ꯅꯂꯤꯗ ꯄꯁꯍꯤꯦꯗꯤ ꯐꯃꯄꯒꯇꯤ꯫ ꯍꯤꯗꯂꯤꯗꯟ, "ꯀꯇꯤꯁꯨꯕꯒꯤ ꯍꯤꯗꯒꯤ ꯆꯃꯂꯤꯗꯟ ꯂꯥꯁꯌꯤꯑ ꯌꯥꯐꯑꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯌꯕꯤꯦ ꯂꯗꯑ ꯁꯤꯌꯂꯤꯗꯟ ꯄꯇꯤꯑ ꯊꯇꯕ ꯊꯃꯇꯤꯕ ꯑꯂꯤ ꯀꯦꯇꯣ" ("The existing reliance on septic tanks and twin soak pits in the hilly regions of Manipur is appropriate") ꯑꯃꯁꯨꯡ "ꯑꯦꯟꯕꯒꯕꯁꯦꯟ ꯅꯕꯃꯒꯤ ꯅꯦꯖꯕꯂꯌꯕꯑꯍꯕ ꯔꯃꯗꯤ ꯄꯦꯊꯗꯤ ꯇꯣ" ("minimal presence of underground drainage infrastructure") (ꯂꯌꯥꯌꯁꯤ ꯕꯤꯁꯥꯕꯌ, ꯈꯦꯗꯅ 2025), ꯀꯕꯃ ꯑꯁꯨꯗꯤ ꯍꯤꯗꯒꯤ ꯇꯣꯖꯃ ꯑꯀꯒꯤ ꯀꯍꯦꯅ ꯇꯣꯕ ꯅꯗꯕꯦꯂꯤꯗꯗꯤ ꯁꯤꯌꯂꯤꯗꯗꯤ ꯊꯟꯁꯥꯁ ꯑꯁꯨ ꯁꯨꯅ꯫ ꯀꯟꯥꯒ ꯕꯅ-ꯇꯇꯗꯤ ꯀꯀꯗꯟꯒꯤ ꯀꯊꯣ ꯌꯟꯗꯤ ꯌꯥꯂꯦꯗꯤ ꯊꯃꯕꯒꯤ ꯀꯅꯁꯟ ꯌꯑꯇꯤ: ꯀꯅꯈꯇꯤꯂꯤꯁꯥꯒ ꯅꯗꯕꯦꯦ ꯑꯀꯟ ꯊꯁꯁ ꯂꯑ-ꯁꯤꯌ ꯑꯦꯁꯌꯇꯌ ꯑꯀꯒꯤ ꯀꯀꯗꯟ ꯀꯕꯑꯁꯤ ꯌꯕꯤꯌꯀꯥꯦꯌ ꯍꯥꯃꯕꯕ ꯑꯀ (ꯕꯅ-ꯇ 6(1)(A)), ꯂꯤꯍꯕ ꯑꯀ 30 m-ꯒꯤ ꯀꯨꯗꯟ ꯇꯣꯕꯕꯟꯤ ꯁꯇꯥꯑꯌ ꯌꯥꯕꯕ ꯇꯌꯕꯤꯦ ꯑꯀ (ꯕꯅ-ꯇ 27), ꯑꯃꯁꯨꯡ ꯂꯅꯒ ꯁꯤꯅꯁ ꯆꯌꯕꯒꯤ ꯊꯤꯗꯇꯕ ꯅꯗꯕꯦꯦ ꯑꯀꯟ ꯗꯗꯒꯤ ꯅꯂꯤꯗꯒꯤ ꯁꯤꯅꯁ ꯑꯀꯌꯕ ꯔꯕꯅ (ꯕꯅ-ꯇ 28)꯫ ꯀꯤꯌꯐꯥꯗ (a)-ꯟꯒꯤ (e) ꯖꯁꯕ ꯑꯂꯤꯗꯤ ꯂꯥꯕꯤꯇ ꯑꯂꯤꯒꯤ ꯖꯕꯕ ꯆꯃꯒꯤ ꯑꯥꯟꯤꯂꯦꯂꯤꯗꯒꯤ ꯁꯃꯕꯅꯦꯟ-ꯂꯤꯍꯕꯒꯤ ꯕꯒꯂꯤꯗ ꯀꯌꯨꯗ ꯅꯦꯦꯕꯤ: ꯂꯅꯌ ꯑꯀꯗꯤ ꯀꯂꯤꯒꯤ ꯗꯗꯒꯤ ꯅꯂꯤꯗ ꯂꯃꯀ ꯖꯁꯕ ꯌꯥꯂꯦꯗꯤ ꯊꯃꯀꯤ, ꯀꯕꯃ ꯑꯁꯨꯗꯤ ꯂꯤꯍꯕꯥꯇꯒꯤ ꯔꯕꯟꯂꯤꯗ ꯂꯃꯀꯤꯦꯇꯕꯁꯁꯒ ꯗꯔꯇꯇ ꯂꯄꯕ ꯑꯂꯤꯗꯤ ꯁꯇꯌ ꯈꯟꯤꯗꯀꯑꯌ ꯄꯒꯇꯑꯌꯗꯤ ꯀꯂꯤꯒꯤ ꯂꯤꯂꯥꯏꯃ ꯑꯂꯤ ꯆꯃꯕꯤ ꯑꯀꯀꯀꯒꯤ ꯀꯌꯨꯗ ꯅꯦꯦ ꯌꯥꯂꯦꯗꯤ ꯊꯃꯕ ꯔꯒꯇꯤ; ꯟꯥꯒꯥꯆꯁꯀꯥꯦꯌ ꯑꯀꯗꯤ ꯂꯤꯍꯥꯇ ꯁꯨꯕ ꯅꯗꯕꯦꯦ ꯑꯀꯒꯤ ꯁꯤꯑ ꯄꯦꯒꯌꯄꯦꯟꯥ; ꯆꯦ-ꯕꯤꯌꯕꯦ ꯒꯒꯒ ꯑꯀꯗꯤ ꯁꯇꯥꯑꯂꯦ ꯈꯟꯤꯗꯀꯑ ꯂꯑꯊꯁꯅ, ꯀꯕꯃꯟꯤ ꯂꯕꯍꯦꯕꯇ ꯑꯅꯕꯕ ꯅꯗꯕꯦꯦ ꯑꯀꯟꯒꯤ ꯄꯒꯇꯑꯁ ꯑꯁꯨ ꯂꯤꯍꯥꯇꯇꯤ; ꯅꯗꯕꯦꯦ ꯑꯂꯤ ꯀꯂꯤ ꯑꯅꯕꯤꯕ ꯁꯃꯕꯅꯦꯟ ꯍꯥꯗꯒ ꯑꯅꯗꯤ ꯟꯤꯇꯅꯦ ꯌꯥꯅ, ꯀꯂꯤꯒꯤ ꯗꯗ ꯈꯟꯕ ꯀꯌꯃꯒꯤ ꯍꯥꯦꯕ ꯇꯊꯑꯇꯒꯤ ꯁꯥꯁꯤꯂꯤꯌ ꯇꯣꯕ ꯑꯃꯁꯨꯡ ꯗꯗ ꯈꯕꯒꯤ ꯊꯟꯑꯂꯤꯗꯒꯤ ꯀꯕꯑꯌ ꯂꯤꯍꯥꯇꯒꯤ ꯂꯇꯤꯟꯂꯤꯗ ꯐꯟꯑꯌꯕ ꯇ-ꯖꯇ ꯍꯥꯗꯒ ꯑꯀꯒ ꯇꯔꯇꯇ; ꯑꯃꯁꯨꯡ ꯁꯤꯌ, ꯇꯑꯌꯑ ꯆꯌꯕꯒꯤ ꯁꯤꯇꯨꯌ ꯑꯅꯕ ꯕꯤꯍ ꯑꯀꯟ ꯇꯣꯕ ꯑꯦꯁꯌꯇꯌ ꯑꯂꯤ ꯅꯦꯌꯕꯂꯥꯏꯌ ꯑꯃꯁꯨꯡ ꯂꯁꯕꯤꯦ ꯌꯥꯅ, ꯀꯕꯃꯟꯤ ꯁꯤꯌꯂꯤꯗ ꯑꯂꯤ ꯌꯃꯁꯤꯑꯁꯤ ꯂꯌꯕꯥꯇꯇꯤ, ꯆꯃꯖꯥꯒꯁꯤꯌ ꯑꯂꯤ ꯊꯑꯇꯕ ꯅꯂꯤꯗꯒꯤ ꯄꯕꯑꯖꯃ ꯑꯀ ꯑꯅꯒꯇꯤ, ꯑꯃꯁꯨꯡ ꯇꯑꯌꯑ ꯑꯥꯑꯌꯗꯤ ꯌꯕꯤꯌ ꯌꯥꯟꯕ ꯂꯄꯕꯒꯤ ꯅꯖꯈꯍꯥꯦꯌ ꯑꯂꯤ ꯁꯤꯌ ꯑꯁꯨꯒꯤ ꯕꯖꯕ ꯇꯦꯟꯒꯤ ꯀꯀꯗꯟꯒꯤ ꯊꯤꯗꯇꯥ꯫ ꯀꯤꯌꯐꯥꯗ (e)-ꯗꯤ ꯅꯗꯕꯦꯒꯤ ꯖꯇ ꯑꯂꯤ ꯇꯒꯤ ꯍꯥꯗꯒꯂꯤꯗꯟꯒꯤꯂ ꯗꯁꯗꯤ ꯊꯃꯀꯤ: ꯌꯃꯁꯤꯑꯁꯤ ꯇꯈꯑ ꯑꯂꯤ ꯀꯂꯤꯒꯤ ꯇꯂꯗꯒꯤ ꯆꯃ ꯑꯃꯁꯨꯡ ꯅꯂꯤꯗ ꯅꯍꯁꯒꯤ ꯂꯌꯕꯥꯇ ꯑꯇꯤꯀꯑ ꯑꯅꯕꯤ, ꯑꯃꯁꯨꯡ 2014-ꯒꯤ ꯑꯥꯑꯌꯗꯤ ꯀꯂꯤꯒꯤ "ꯅꯕꯃꯒꯤ ꯍꯥꯗꯒꯂꯤꯗ, ꯁꯨꯅꯕꯤꯂꯤꯗ, ꯁꯥꯇꯥꯒꯂꯤꯗ, ꯁꯦꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯕꯤꯇꯂꯤꯗ" ("drainage channels, ponds, canals, bunds and ridges") ꯑꯂꯤ ꯀꯂꯤꯒꯤ ꯂꯕꯨꯑ ꯑꯅꯗꯤ ꯇꯅ꯫ ꯂꯃꯕꯤꯦꯂꯤꯗꯗꯤ ꯈꯃꯟꯤ ꯑꯃꯁꯨꯡ

ꯁꯍꯔꯒꯤ ꯆꯥꯅꯥꯏꯁꯤꯡ ꯃꯄꯨꯡꯐꯍꯅꯕꯤꯕ ꯆꯥꯁ꯭ꯠ ꯑꯗꯨ ꯌꯥꯡꯁꯤꯟꯅꯤ: ꯑꯩꯈꯥꯏꯒꯤ ꯆꯥꯁ꯭ꯠ ꯑꯁꯤ ꯅꯧ ꯀꯨꯅꯥꯗ ꯄꯅꯈꯤ, "ꯃꯁꯤꯅ ꯆꯍꯤ ꯄꯨꯝꯕꯗ ꯆꯥꯎꯕ ꯏꯁꯤꯡ ꯄꯨꯈꯨꯝꯁꯤꯡꯕ ꯑꯣꯏꯅ ꯁꯥꯝꯃꯤ" ("which creates a stagnant pool all along the year") (ꯃꯁꯨꯡꯗ ꯌꯦꯡꯎ)॥ ꯍꯧꯖꯤꯛꯇꯤ ꯊꯝꯕ ꯃꯁꯛ ꯑꯁꯤ ꯁꯔꯨꯛ ꯂꯦꯡꯗꯕꯥꯃꯇꯤꯛ ꯅꯤꯡꯉꯥꯏ ꯑꯣꯏꯕꯒꯤ ꯌꯦꯡꯎ ꯍꯥꯏꯕꯅꯤ॥

ꯑꯅꯤꯁꯨꯕꯗꯤ ꯆꯤꯡꯁꯤꯡꯅꯤ॥ ꯗꯤꯁꯗ ꯁꯥꯅꯅ "ꯆꯤꯡꯒꯤ ꯂꯝꯒꯤ ꯆꯨꯡ 85 p.c. ꯃꯔꯦꯟ ꯂꯧꯍꯟ, ꯍꯦꯟꯅꯕꯥꯁꯤꯟꯅ ꯐꯦꯊꯕ ꯑꯃꯁꯨꯡ ꯔꯦꯟꯑꯣꯐ ꯐꯥꯕ" ("occupies almost 85 p.c. of the hilly region, have less infiltration and more run off"); ꯈꯨꯟꯕ ꯑꯍꯔꯕ ꯂꯝꯗ 1,545 km² ꯆꯤꯡꯍ, ꯄꯔꯖꯦꯛꯇꯁꯤꯡ ꯁꯥꯆꯃꯥꯁꯨꯁꯤꯡ 24% ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯆꯤꯡꯁꯤꯡꯒꯤ 35%, ꯑꯃꯁꯨꯡ ꯆꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯆꯤꯡꯍꯅꯒꯤ-ꯆꯤꯡꯕ ꯍꯔꯥꯏꯅꯒꯤ ꯁꯗꯦꯂꯁꯤꯡꯗ ꯁꯄꯅꯤ ꯄꯍꯤꯕ ꯑꯥꯔꯤꯆꯤꯒꯤ 51% ꯆꯤꯡꯍ (MASTEC)॥ ꯅꯥꯡꯃꯁꯤꯡ ꯑꯁꯤ ꯁꯇꯅꯕ ꯑꯃꯁꯨꯡ ꯍꯁꯤꯡꯗ ꯁꯝꯂꯕ ꯃꯄꯃꯗ ꯅꯦꯡꯈꯔꯁ: 30 ꯖꯨꯟ 2022-ꯗ (ꯔꯤꯖꯥꯔꯠ ꯍꯔꯗ 29 ꯖꯨꯟ) ꯇꯨꯄꯨꯜꯗ (Tupul) (ꯅꯥꯅꯥ), ꯂꯤꯔꯤꯕꯃ–ꯍꯃꯈꯟ ꯔꯥꯏꯆꯥꯒꯤ ꯁꯍꯠꯄ ꯈꯥꯇꯍꯤꯕ ꯅꯥꯔꯗꯁꯅꯍꯗ ꯑꯗꯨꯅ ꯄꯥꯎꯔꯕ ꯃꯁꯤꯡ ꯃꯄꯨꯡ ꯍꯔꯅ ꯃꯤ 56, 58 ꯅꯠꯔꯒꯥ 61 ꯁꯤꯐꯔꯍꯤ (ꯖꯥꯗꯨꯗ ꯈꯥꯡꯗꯥꯇꯍꯤꯕ ꯃꯄꯨꯡ ꯍꯔꯅ; NRSC-ꯒꯤ 5 ꯖꯨꯅꯍꯒꯤ ꯅꯠꯇꯦ ꯁꯤꯍꯤꯕ 42 ꯑꯃꯁꯨꯡ ꯃꯤꯡꯍꯤꯕ 20 ꯖꯤꯍꯤ, ꯑꯩꯠꯍꯤꯕ ꯃꯄꯨꯡ ꯍꯔꯅ), ꯑꯃꯁꯨꯡ ꯁꯄꯗꯤ ꯑꯃꯅ ꯃꯁꯤ "ꯈꯅ ꯗꯤꯅꯍꯔ ꯄꯣꯗꯕ ꯅꯠꯔꯒꯥ ꯈꯅ ꯄꯣꯗꯕ ꯅꯥꯡꯃ ꯄꯨꯃꯈꯥꯏꯖ ꯑꯃꯁꯨꯡ ꯑꯔꯅ ꯇꯕ ꯅꯥꯡ" ("poorly designed or implemented slope excavation coupled with heavy rainfall")-ꯒꯤ ꯃꯔꯃꯅꯤ ꯐꯆꯔꯤ (Baruah et al., 2023, AGU Landslide Blog-ꯒꯤ ꯁꯔꯆ ꯁꯃꯃꯔꯤ ꯑꯃꯒꯤ ꯇꯨꯠꯈꯡꯗ); 1 ꯑꯒꯁ꯭ꯠ 2015-ꯗ ꯂꯩꯃꯥꯏꯗ (Joumol) (ꯆꯅꯗꯥꯏ) ꯈꯥꯡꯍꯤꯕ ꯅꯥꯔꯗꯁꯅꯍꯗ ꯑꯗꯨꯅ ꯃꯤ 20 ꯅꯠꯔꯒꯥ 21, ꯅꯠꯔꯒꯥ ActionAid-ꯒꯤ ꯃꯁꯤꯡ ꯃꯄꯨꯡ ꯍꯔꯅ 24, ꯁꯤꯐꯔꯍꯤ (ꯖꯥꯗꯨꯗ ꯈꯥꯡꯗꯥꯇꯍꯤꯕ ꯃꯄꯨꯡ ꯍꯔꯅ)॥ ꯆꯤꯡꯒꯤ ꯁꯄꯔꯤꯃꯁꯤꯡꯗ ꯄꯃꯖꯦꯛꯇꯁꯤꯡ ꯅꯃ ꯑꯃꯁꯨꯡ ꯅꯥꯡꯄꯥꯡꯄ ꯌꯥꯕ ꯃꯈꯃꯗ ꯃꯍꯥꯌꯒꯤ ꯖꯥꯠꯖꯃ ꯈꯗꯥꯡꯍ, ꯃꯔꯃ ꯑꯗꯨꯅ ꯃꯤꯠꯌꯥꯡ (m)-ꯅ ꯆꯤꯡ–ꯄꯃꯖꯦꯛꯇꯁꯤꯡ ꯍꯌꯔꯗꯥꯡꯈꯃꯗ ꯁꯤꯏꯠ ꯄꯔꯥꯖ ꯑꯃꯈ ꯈꯃꯅꯤ: ꯃꯍꯥꯌꯅ "ꯅꯥꯡꯄꯥꯡ ꯅꯥꯡꯄ ꯌꯥꯕ ꯗꯔꯤꯑꯩꯗ ꯅꯃꯕꯤ ꯍꯔꯒꯤꯗꯃꯡ ꯑꯩꯃꯕ ꯅꯥꯡꯃꯗ ꯆꯥꯎꯈꯔꯁ … ꯖꯥꯠꯖꯃ ꯄꯨꯕꯒꯤ ꯑꯥꯖꯤꯁꯤꯄꯤ ꯆꯤꯡꯍ, ꯃꯁꯤꯅ ꯅꯥꯡ ꯑꯗꯨꯗ ꯂꯩꯃ ꯈꯗꯥꯡꯐꯔꯅꯤ" ("flow down with steep slope for a short distance before meeting the Loktak Lake … load carrying capacity is high which causes siltation of the lake") (MASTEC)॥ ꯔꯤꯁꯔꯆꯁꯤꯡ ꯃꯄꯃꯗ ꯗꯥꯕꯔꯤꯁ, ꯕꯏꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯕꯅꯑꯥꯅꯒꯤꯗꯃꯡ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯥꯅꯆꯑꯥꯅꯁ ꯑꯃꯠꯄ ꯈꯆꯍꯤꯗꯥ [TBC], ꯑꯃꯁꯨꯡ ꯕꯏꯁꯤꯡ ꯈꯥꯡꯄꯔꯁꯤꯡ,

ꯗꯥꯕꯔꯤꯁ ꯔꯥꯡꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯗꯥꯕꯔꯤꯁ ꯕꯥꯁꯤꯅꯁꯤꯡꯒꯤ ꯃꯄꯆꯗ ꯍꯅꯗꯤꯆꯤꯒꯤ ꯒꯍꯗꯥꯅ ꯑꯃꯠꯄ ꯈꯆꯍꯤꯗꯥ [TBC], ꯃꯔꯃ ꯑꯗꯨꯅ ꯃꯤꯠꯌꯥꯡ (f)-ꯗꯒꯤ (m) ꯈꯤꯡꯕꯒꯤ ꯃꯁꯤꯡ ꯇꯗꯤꯡꯃꯥꯡ ꯁꯥꯔꯤꯂ ꯑꯁꯤꯒꯤ ꯆꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯤꯡ ꯑꯆꯩꯕꯒꯤ ꯑꯥꯗꯤꯁꯅꯁꯤꯡꯒꯤ ꯃꯔꯥꯡꯁꯤ ꯒꯥꯏꯇꯨꯅꯤ, ꯃꯔꯃ ꯑꯗꯨꯃꯥꯡꯁꯤ ꯅꯥꯌꯅꯅ॥ ꯗꯥꯕꯔꯤꯁ ꯔꯥꯡ ꯑꯃꯒꯤꯗꯃꯡ 1 ha-ꯒꯤ ꯄꯔꯤꯒꯔ ꯑꯁꯤꯅ ꯆꯤꯡꯒꯤ ꯅꯥꯡꯃꯁꯤꯡꯗ ꯃꯤꯅꯤꯠ ꯍꯔꯒꯤ ꯄꯍꯃ ꯑꯥꯈ ꯁꯅꯁꯥꯅꯄꯔꯥꯁꯅ ꯆꯠꯅꯤ॥ 1.25-ꯒꯤ ꯕꯏꯁꯤꯡ ꯈꯥꯡꯄꯔ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯒꯥꯇꯨꯃꯒꯤ ꯁꯔꯨꯛ ꯃꯩꯒꯤ ꯑꯃꯈ ꯁꯥꯗꯤꯃꯥꯅꯠ ꯑꯥꯍꯅ ꯖꯨꯕ ꯈꯅꯥ ꯑꯃꯒꯤ ꯈꯥꯡꯄꯔꯅꯤ (ꯕꯏꯁꯤꯡ ꯈꯥꯡꯄꯔ = 1 / (1 – ꯒꯥꯇꯨꯃꯒꯤ ꯃꯄꯨꯡ ꯍꯔꯅ ꯁꯥꯗꯤꯃꯥꯅꯠ ꯈꯔꯥꯡꯁꯅ)), ꯃꯁꯤ ꯍꯥꯡꯕꯦꯅ ꯑꯃꯅ ꯖꯨꯕ ꯊꯃꯕ ꯑꯃꯁꯨꯡ ꯐꯦꯅꯤꯡꯁꯨ ꯍꯁꯤꯡ ꯍꯆꯤꯡꯖꯨꯃꯅ ꯆꯠꯖ ꯍꯕꯥꯍꯗꯒꯤ ꯐꯥꯅꯕ ꯃꯔꯥꯏꯅꯤ; ꯃꯁꯤꯗꯒꯤ ꯐꯥꯅꯕ ꯂꯩꯕ ꯈꯅꯥ ꯑꯃꯅ ꯗꯥꯕꯔꯤꯁ ꯈꯅꯥꯖꯨꯃꯅ ꯆꯠꯍ, ꯃꯁꯤꯒꯤꯗꯃꯡ ꯍꯥꯡꯕꯦꯅ ꯑꯃꯠꯄ ꯁꯍꯅ ꯅꯥꯖꯖ ꯆꯤꯗꯥ, ꯃꯔꯃ ꯑꯗꯨꯅ ꯃꯤꯠꯌꯥꯡ (g)-ꯅ ꯕꯤꯏꯗꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯡꯠꯈꯥꯏꯁꯤꯡ ꯃꯁꯤꯒꯤ ꯅꯃꯕꯤꯗꯒꯤ ꯅꯖꯅ ꯈꯃꯃꯤ॥ ꯃꯤꯠꯌꯥꯡ (h)-ꯒꯤ 3.0 m-ꯒꯤ ꯅꯤꯃꯤꯠ ꯑꯁꯤꯅ ꯑꯩꯔ ꯑꯗꯨꯒꯤ 1.5 m ꯑꯗꯨ ꯑꯅꯤ ꯈꯥꯡ ꯐꯥꯎꯒꯠꯐꯏꯅꯤ, ꯃꯔꯃꯗꯤ ꯄꯨꯡꯁꯤꯡ, ꯆꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯥꯁ꯭ꯠꯅ ꯆꯃꯅ ꯍꯥꯡꯄꯅ ꯈꯤꯡꯗꯕ ꯐꯡꯕ ꯃꯈꯃꯁꯤꯡ ꯈꯤꯡꯍ॥ ꯃꯤꯠꯌꯥꯡ (i)-ꯒꯤ 1.0 m/s-ꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯑꯁꯤꯅ CPHEEO-ꯒꯤ 0.6 m/s, ꯃꯁꯤ 0.09 mm-ꯒꯤ ꯃꯖꯤꯡ ꯅꯩꯈꯍ ꯖꯨꯕꯗ ꯄꯨꯃꯈꯃ ꯑꯍꯕ, ꯃꯗꯨꯒꯤ ꯃꯄꯨꯠ ꯁꯤꯏꯅꯤ, ꯃꯔꯃꯗꯤ ꯆꯤꯡꯒꯤ ꯍꯥꯡꯕꯦꯅꯁꯤꯡꯗ ꯄꯨꯡꯄꯨꯖ ꯖꯨꯍ॥ ꯃꯤꯠꯌꯥꯡ (f)-ꯒꯤ ꯃꯄꯃꯒꯤ ꯃꯆꯤꯍꯒꯤ ꯁꯥꯡꯗꯥꯑꯩꯖ ꯑꯁꯤ ꯁꯥꯔꯤꯂ ꯑꯁꯤꯒꯤ ꯑꯄꯖꯖ ꯅꯥꯔꯈ-ꯍꯁ꯭ꯠ ꯑꯥꯗꯤꯁꯅꯁꯤꯡꯗ ꯂꯕꯖꯨꯃꯅ 31 ꯃꯥꯗ ꯅꯠꯄꯅ 15 ꯃꯥꯗ ꯆꯩꯗꯔꯤꯑꯩꯗ ꯄꯣꯒꯗꯕꯅꯤ, ꯃꯔꯃꯗꯤ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯄꯃꯖꯦꯛꯇꯁꯤꯡ ꯍꯁꯤꯡ ꯍꯆꯤꯗꯁꯤꯡ ꯃꯥꯒꯤ ꯑꯔꯥꯍꯕꯗ ꯅꯥꯡꯍꯤ॥ IRC:SP:42-2014 (cl. 8.5.1)-ꯅ ꯆꯤꯡꯒꯤ ꯅꯃꯕꯤꯁꯤꯡ ꯃꯃꯤꯡꯗꯒꯤ ꯄꯍꯧꯗꯅ ꯂꯍ, ꯅꯍꯗ ꯄꯣꯔꯕ ꯁꯍꯗ ꯍꯥꯡꯕꯦꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ "ꯈꯔꯕ ꯅꯃꯁꯤꯡꯗ ꯂꯕꯁꯤꯡꯗꯒꯤ ꯐꯥꯗꯅ ꯅꯥꯡꯅꯕ ꯅꯖ ꯈꯥꯡꯄ" ("at closer intervals compared to those in plain areas") ꯑꯍꯒꯔꯠꯁꯤꯡꯒꯤ ꯅꯥꯌꯅꯅ, ꯑꯃꯁꯨꯡ ꯃꯤꯠꯌꯥꯡ (k)-ꯅ ꯅꯃꯕꯤꯒꯤ ꯔꯗꯑꯥꯈ ꯑꯁꯤ ꯑꯩꯈꯥꯏꯈꯥꯡꯄꯕ ꯅꯥꯡꯃꯁꯤꯡꯗꯒꯤ ꯅꯖꯅ ꯈꯃꯃꯤ, ꯃꯔꯃꯗꯤ ꯅꯥꯡꯃ ꯑꯃꯗ ꯈꯗꯥꯡꯖ ꯍꯁꯤꯡꯗ ꯃꯁꯤꯒꯤ ꯖꯥꯔ ꯖꯔꯥꯁꯔ ꯐꯥꯎꯒꯠꯐꯏꯅꯤ (ꯑꯦꯅ꯭ꯇ 4.11); ꯃꯤꯠꯌꯥꯡ (l)-ꯒꯤ ꯆꯤꯖ ꯖꯍꯖꯁꯤꯡꯗ ꯆꯥꯏ ꯑꯃꯒꯤ ꯃꯄꯨꯡꯗ ꯂꯕ ꯍꯁꯤꯡꯒꯤꯗꯃꯡ ꯃꯗꯨꯃꯥꯡ ꯄꯍ॥ IMC 2024-ꯒꯤ ꯗꯔꯈꯠꯁꯤꯡ ꯅꯥꯡꯃꯒꯤ ꯑꯦꯅ꯭ꯇꯁꯤꯡꯗ ꯕꯤꯏꯗꯤꯡ ꯁꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯖ ꯅꯥꯖꯖ ꯃꯈꯃ ꯃꯤꯡꯗꯒꯤ ꯈꯃꯅꯤ; ꯃꯤꯠꯌꯥꯡ (l) ꯑꯃꯁꯨꯡ (m)-ꯅ ꯃꯍꯥꯌꯒꯤ ꯅꯥꯌꯅꯅ ꯆꯠꯖ ꯍꯔꯃꯗ ꯃꯥꯄꯨꯌꯥꯏ ꯑꯁꯤꯒꯤ ꯃꯁꯛꯒꯤ ꯗꯤꯅꯍꯔ ꯁꯄꯥꯔꯗꯔꯗ ꯑꯃꯈ ꯖꯤꯔꯤ॥ ꯑꯦꯅ꯭ꯇ ꯑꯁꯤꯅ ꯍꯥꯡꯕꯦꯅꯗ ꯂꯕ ꯁꯤꯌꯥꯅ, ꯂꯃꯖ ꯑꯃꯁꯨꯡ ꯗꯥꯕꯔꯤꯁꯁꯤꯡ ꯃꯄꯃꯗ ꯌꯥꯡꯍ; ꯃꯁꯤꯅ ꯍꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯆꯥꯅꯥꯏꯁꯤꯡꯒꯤ ꯑꯅꯑꯦꯔꯤꯠ ꯆꯥꯅꯥꯅꯍꯅꯥꯁꯅ ꯐꯌꯔꯅꯗ, ꯃꯍꯥꯌꯒꯤ ꯑꯥꯖꯤꯁꯤꯄꯤ ꯑꯁꯤ ꯔꯈꯅꯥꯁꯤꯡ ꯃꯔꯃꯅ ꯅꯠꯄꯅ ꯅꯃ ꯍꯥꯖꯖ, ꯆꯥꯁ꯭ꯠ ꯈꯗꯥꯡꯖ ꯑꯃꯁꯨꯡ ꯈꯤꯡ ꯄꯣꯕꯅ ꯃꯤꯡꯍꯔꯥ॥

6.4 [illegible]

6.4.1 [illegible], [illegible] 6.1-[illegible] AEP-[illegible]॥ [illegible], **[illegible]** AEP ([illegible]) [illegible]॥

[illegible] 6.1 — [illegible] AEP-[illegible] ([illegible] 2.4-[illegible])

[illegible]	[illegible] AEP ([illegible])	[illegible]	[illegible]
[illegible]: [illegible], [illegible], [illegible]	10% (10-yr)	1% (100-yr) [illegible]	[illegible] ([illegible])
[illegible]: [illegible] । [illegible]	20% (5-yr)	1% [illegible]	[illegible]; CPHEEO Table 4.1
[illegible]: [illegible]	50% (2-yr)	1% [illegible]	[illegible]; CPHEEO Table 4.1
[illegible]	[illegible] 2% (50-yr); [illegible] 4% (25-yr)	[illegible] AEP: 2%-[illegible] 1%; 4%-[illegible] 2%	[illegible] (25–50-yr); [illegible]
[illegible]	4% (25-yr)	2% (50-yr)	[illegible]
[illegible]	10% (10-yr)	4% (25-yr)	[illegible]
[illegible]	2% (50-yr)	1% (100-yr)	[illegible] ([illegible] 6.10.5)
[illegible], [illegible]	[illegible] । [illegible] 1% (100-yr); [illegible] 2% (50-yr)	—	CPHEEO 2019 Table 4.1
[illegible] ([illegible]) [illegible], [illegible]	1% (100-yr)	—	[illegible]
[illegible]	1%-[illegible] + 0.5 m [illegible]	—	[illegible] ([illegible] 6.11)

6.4.2 **[illegible].** [illegible] 6.1-[illegible], [illegible] 6.2-[illegible] 1% AEP-[illegible]॥ [illegible] 6.3.2-[illegible] 1% [illegible]॥

6.4.3 **[illegible].** [illegible] AEP [illegible], CPHEEO Table 4.1-[illegible] Note 2-[illegible]॥ [illegible] 6.1-[illegible] AEP [illegible]॥

6.4.4 **ꯇꯔꯥ-ꯆꯍꯤꯒꯤ ꯑꯦꯕꯤꯔꯦꯁꯟ.** ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯑꯦꯁꯦꯁꯃꯦꯟꯇꯅꯥ 10% AEP-ꯒꯤ ꯏꯅꯂꯦꯠ-ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯄꯨꯋꯥꯔꯤꯗꯥ ꯌꯨꯝꯂꯣꯟꯅꯥ ꯇꯔꯥ-ꯆꯍꯤꯒꯤ ꯑꯦꯕꯤꯔꯦꯁꯟꯗꯤ ꯑꯣꯏ ꯍꯥꯌꯅ ꯑꯍꯥꯟꯕ ꯂꯧꯁꯤꯟꯕꯥ ꯅꯤꯡꯁꯤꯡꯅ ꯁꯤꯖꯤꯟꯅꯔꯦ꯫ ꯍꯣꯏ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ, 10% AEP-ꯒꯤ ꯄꯨꯋꯥꯔꯤꯗꯥ ꯑꯣꯏ ꯍꯥꯌꯕꯒꯤ ꯃꯔꯝꯗꯥ ꯌꯨꯝꯂꯦ:

- (a) ꯀꯥꯡꯂꯣꯡ ꯅꯍꯥꯏꯕꯥ, ꯍꯣꯡꯕꯤꯅꯤꯡꯂꯤꯕꯗꯨ ꯅꯣꯡꯗꯤ ꯅꯨꯡꯁꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯗꯤ ꯊꯨꯃꯗꯨꯒꯤꯗꯃꯛ (waterlogging) ꯍꯥꯌꯗꯤ ꯆꯠꯄꯥ ꯆꯪꯁꯤꯟꯗꯣꯏꯗꯤ: ꯊꯣꯀꯄ 2024-ꯗ ꯂꯩꯔꯕ ꯄꯨꯔꯛꯄꯥ ꯃꯃꯥꯡꯗ ꯍꯪꯍꯟꯕ ꯅꯣꯡꯗꯤ ꯅꯨꯡꯁꯤ ꯃꯥꯏꯀꯩꯅꯥꯏꯗ ꯂꯩꯔꯝꯕ (Nagaram), ꯂꯥꯏꯐꯝ ꯈꯨꯅꯧ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯂꯥꯏꯕꯤꯕꯔꯦꯝꯕ ꯆꯪꯁꯤꯟ, ꯑꯃꯁꯨꯡ 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯀꯣꯏꯂꯛꯄ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong), ꯅ꯭ꯌꯨ ꯆꯦꯀꯣꯟ (New Checkon), ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯀ꯭ꯁꯦꯇ꯭ꯔꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏ (Kshetri Awang Leikai) ꯃꯐꯝ ꯀꯌꯥꯗꯒꯤ ꯍꯤꯡꯂꯕꯥ ꯆꯠꯄ ꯆꯪꯁꯤꯟꯗꯣꯏꯗꯤ (ꯃꯤꯍꯨꯠꯁꯤꯡ ꯃꯔꯝꯗ ꯅꯦꯗꯃꯤꯡꯗꯕꯤꯕ ꯍꯤꯡꯂꯕ ꯅꯣꯡꯗ); TPD-ꯅ ꯄꯥꯎꯖꯦ ꯑꯦꯕꯤꯔꯦ ꯃꯔꯝꯁꯤꯒꯤ ꯂꯣꯟꯗ ꯑꯦꯟꯗ ꯍꯥꯌꯗꯤ ꯆꯠꯄꯥ ꯅꯍꯥꯏꯕꯒꯤ ꯍꯔꯤꯅꯒꯤ ꯑꯦꯕꯤꯔꯦ 150 ha ꯍꯥꯌꯅ (TPD Annual Administrative Report 2025-26); ꯑꯃꯁꯨꯡ ꯀꯍꯤꯕꯁ ꯀꯣꯏꯁꯤꯒꯤ ꯑꯦꯕꯤꯔꯦ-ꯕꯦꯇ ꯗꯦꯒꯦꯇꯃꯍꯦꯡꯁ ꯑꯦꯕꯤꯔꯦꯗ ꯆꯠꯄ ꯊꯥꯡꯒꯜ (Thangal) ꯑꯃꯁꯨꯡ ꯄꯥꯎꯅꯥ ꯕꯖꯥꯔ (Paona Bazar) (ꯃꯤꯍꯨꯠꯁꯤꯡ ꯃꯔꯝꯗ ꯅꯦꯗꯃꯤꯡꯗꯕꯤꯕ ꯍꯤꯡꯂꯕ ꯅꯣꯡꯗ) [TBC]; ꯍꯔꯥꯏ ꯂꯧꯁꯤꯟꯕꯤꯗꯃꯛ ꯊꯣꯀꯍꯜ ꯑꯣꯏ IMC ꯑꯃꯁꯨꯡ PDA Manipur-ꯅ ꯃꯦꯡꯏꯕꯝ ꯁꯤꯖꯤꯟꯅꯕꯔꯤ [TBC];
- (b) ꯑꯁꯣꯛꯄ ꯅꯨꯡꯁꯤꯕꯦ ꯄꯥꯝꯅ ꯕꯤꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯆꯦꯟꯕꯤ ꯑꯦꯕꯤꯔꯦ ꯂꯧꯁꯤꯟꯕꯤꯗꯃꯛꯁ, ꯌꯨꯝꯂꯣꯟꯕꯤꯗ ꯀꯤꯄꯨꯝꯕ ꯃꯆꯦꯟꯕꯦ ꯃꯥꯏꯕ ꯑꯦꯕꯤꯔꯦ, ꯑꯦꯕꯤꯗ ꯀꯍꯦ ꯂꯌꯦꯔꯛ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯕꯤꯂꯤꯂꯦꯛ ꯗꯤꯀꯣꯝꯄꯤꯁꯟ ꯑꯦꯅꯅ ꯅꯗꯃꯗꯥꯂꯤꯕ ꯑꯦꯕꯤꯔꯦ, ꯑꯃꯁꯨꯡ ꯀꯍꯦ ꯑꯍꯥꯟꯕꯒꯤ ꯍꯦꯜꯑꯅꯕ ꯃꯤꯊꯤꯟ; ꯑꯃꯁꯨꯡ
- (c) ꯁꯤꯔꯦꯕ A ꯕꯗꯤ ꯑꯍꯥꯟ ꯀꯤꯄꯨꯝꯕ ꯃꯆꯦꯟꯕꯦ ꯂꯦ ꯑꯗꯨꯒꯤ ꯕꯦꯀ ꯒꯦꯟꯂꯧꯗꯒꯤ ꯍꯦꯡꯕ ꯏꯆꯦꯕ ꯀꯃꯤꯀ ꯅꯦꯗꯃꯤꯀ ꯔꯤꯍꯟꯂꯤꯕ ꯑꯦꯕꯤꯔꯦ ꯂꯧꯁꯤꯟꯕꯤꯗꯃꯛ꯫

6.4.5 **ꯔꯤꯇ꯭ꯔꯣꯐꯤꯠ (retrofit).** ꯆꯠꯄꯤꯕ ꯈꯨꯗꯕꯦ ꯑꯍꯥꯟ ꯁꯦꯕꯟ 6.1-ꯒꯤ AEP ꯏꯅꯂꯦꯠ ꯔꯤꯁꯥꯏꯖ ꯊꯥꯗꯗꯕ ꯍꯏꯕꯗ, ꯍꯦꯊꯣꯛꯄꯤꯕ ꯑꯦꯕꯤ ꯍꯊꯥ ꯊꯗꯕ ꯍꯏꯕꯒꯤ ꯀꯁꯦꯃꯦ (ꯀꯦꯅꯥ 4), ꯃꯤꯂꯦꯂꯅ ꯀꯁꯦꯃꯦ (ꯀꯦꯅꯥ 7) ꯂꯌꯔꯕ ꯏꯒꯌꯍꯅꯂꯕ ꯍꯦꯂꯦꯃ-ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯂꯍꯕꯤ ꯑꯍꯥꯟ ꯍꯥꯏꯕ ꯏꯍꯂꯒꯗꯕꯔꯤ꯫ ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯑꯦꯁꯦꯁꯃꯦꯟꯇꯅꯥ ꯂꯍꯥꯍꯤꯕ ꯂꯦꯒꯅ ꯑꯦꯏ ꯀꯦꯒꯤꯀ ꯑꯦꯗꯥ ꯃꯦꯃꯦꯗ ꯁꯤꯖꯤꯟꯅꯕꯔꯤ꯫

> **ꯀꯦꯂꯤꯕꯔꯦꯁꯟ ꯁꯣꯔꯁ.** ꯇꯦꯕꯜ 6.1-ꯒꯤ ꯒꯦꯅꯂꯣꯗꯤ ꯑꯣꯏ ꯃꯦꯊꯗ 2.4-ꯒꯤ ꯀꯍꯥꯏꯕꯤꯔꯛ ꯍꯦꯂꯦ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯃꯤꯅꯤꯀꯀꯣꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯦꯜꯑꯅꯕ ꯅꯦꯡꯇꯤꯀꯨꯝꯕꯗꯔꯕꯒꯤ ꯃꯣꯏꯗꯤ ꯍꯃꯃꯔꯤꯅꯔꯤ꯫ ꯍꯔꯥꯏ ꯑꯣꯏ ꯃꯇꯦꯀ I ꯀꯍꯦꯀꯣꯏꯗꯤꯒꯤꯗꯃꯛ 5-yr ꯑꯃꯁꯨꯡ ꯑꯁꯣꯛꯄ ꯍꯏꯍꯀꯣꯏꯗꯤꯗ 2-yr-ꯒꯤ CPHEEO (2019)-ꯒꯤ ꯂꯦꯀꯂꯦꯅ ꯑꯦꯗꯒꯤꯅꯂꯦꯤ ꯍꯤꯂꯤꯍꯥꯀꯣꯏꯗꯤꯗꯒꯤ ꯍꯦꯟꯅ (CPHEEO Part A, Table 4.1)꯫ ꯇꯦꯕꯜ ꯑꯗꯨꯒꯤ Note 2-ꯅ ꯀꯁꯦꯌꯃꯤ ꯃꯍꯤꯁꯤ ꯑꯍꯥꯟ ꯍꯦꯛꯅ ꯔꯤꯗꯕ ꯒꯦꯅꯂꯣꯗꯤ ꯆꯠꯄ ꯔꯤꯍꯟꯔꯤ꯫ ꯇꯔꯥ-ꯆꯍꯤꯒꯤ ꯑꯦꯕꯤꯔꯦꯁꯟꯗꯤꯒꯤ 10-yr-ꯒꯤ ꯁꯤꯔꯦꯕ ꯑꯣꯏ Gupta (IIT Bombay) ꯍꯤꯡꯂꯕ ꯅꯦꯂꯦꯕꯤ, ꯍꯥꯌꯗꯅ "ꯔꯦꯁꯤꯗꯦꯟꯁꯤꯌꯦꯜ-ꯍꯥꯏ ꯗꯦꯟꯁꯤꯇꯤꯒꯤꯗꯃꯛ ꯆꯍꯤ 10-ꯗ 1" ("1 in 10 year for residential-high density") ꯃꯤꯁꯨꯡꯗ ꯃꯤꯕꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯀꯣꯏꯗꯔꯒꯤ MSMA 2, ꯍꯣꯏꯅ ꯂꯤꯊꯗ ꯍꯁꯀꯣꯏꯗꯤ, ꯑꯦꯃꯤꯕꯌꯍꯦꯌꯦꯁꯀꯣꯏꯗꯤ, ꯃꯍꯕꯀꯣꯏꯗꯔꯦꯅ ꯑꯃꯁꯨꯡ ꯅꯦꯗꯀꯁꯦꯕꯤꯗꯔꯦꯅ ꯂꯍꯒꯤꯗꯃꯛ 10-yr-ꯒꯤ ꯏꯅꯂꯦꯠ ꯑꯃꯁꯨꯡ 100-yr-ꯒꯤ ꯍꯦꯂꯦꯃ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯀꯂꯤꯂꯦꯂꯦ꯫ ꯂꯍꯕꯤꯒꯤ ꯒꯦꯅꯂꯣꯗꯤꯅ ꯅꯦꯗꯤꯔꯤꯒꯤ ꯃꯗꯃꯣꯏꯗꯗ ꯆꯠꯄ ꯁꯊꯦꯂꯦꯕ ꯑꯍꯥꯟ ꯂꯅꯣꯏꯅꯔꯤ꯫ IRC:SP:50-2013-ꯅ ꯀꯍꯦꯒꯤ ꯂꯍꯕꯤꯒꯤ ꯈꯗꯕꯦꯀꯣꯏꯗꯤꯒꯤꯗꯃꯛ ꯆꯍꯤ 1–2 ꯃꯤꯁꯨꯡꯗ ꯃꯤꯕꯤ꯫ IRC:SP:42-2014-ꯅ ꯀꯍꯦꯒꯤ ꯂꯍꯕꯤꯒꯤ ꯍꯂꯗꯃꯤ ꯈꯗꯕꯦꯀꯣꯏꯗꯤꯒꯤꯗꯃꯛ ꯆꯍꯤ 25 ꯑꯃꯁꯨꯡ ꯍꯊꯗꯒꯤ ꯍꯦꯅ ꯀꯗꯕ ꯔꯤꯁꯦ ꯃꯤꯔꯤꯗꯁ ꯌꯦꯗ ꯏꯂꯗ (check flood) ꯑꯍꯥꯟ ꯃꯤꯁꯨꯡꯗ ꯃꯤꯕꯤ꯫ APWA 5600 (2006)-ꯅ ꯑꯦꯕꯁꯤꯕꯤꯔꯦꯅꯒꯤꯗꯃꯛ 50-yr, ꯃꯂꯦꯗꯁꯕꯒꯤꯗꯃꯛ 25-yr ꯑꯃꯁꯨꯡ ꯔꯦꯁꯤꯗꯦꯟꯁꯤꯌꯦꯜ ꯂꯍꯕꯤꯒꯤ ꯃꯥꯏꯀꯣꯏꯗꯀꯣꯏꯗꯤꯒꯤꯗꯃꯛ 10-yr ꯀꯂꯤꯂꯦꯂꯦ꯫ ꯇꯦꯕꯜ 6.1-ꯅ APWA-ꯒꯤ ꯁꯤꯔꯦꯕꯀꯣꯏꯗꯤ ꯑꯃꯁꯨꯡ IRC:SP:42-ꯒꯤ ꯌꯦꯗ-ꯏꯂꯗꯃꯤ ꯔꯤꯍꯟꯂꯦ ꯆꯠꯄꯤ꯫ ꯑꯦꯕꯁꯤꯕꯤꯔꯦꯅꯀꯣꯏꯗꯤ ꯑꯣꯏ 50-yr-ꯒꯤ ꯅꯒꯦꯃꯔꯦꯀꯦ ꯂꯌꯀꯣꯏꯗꯤ ꯑꯃꯁꯨꯡ 25-yr-ꯒꯤ ꯑꯁꯣꯛꯄꯀꯣꯏꯗꯤ ꯑꯦꯅꯅ ꯔꯤꯔꯗꯃꯛ ꯑꯣꯏꯒꯤ ꯍꯗꯊꯗꯕ ꯍꯥꯌꯗꯒꯤ ꯂꯗꯝ ꯆꯁꯦ ꯑꯃꯁꯨꯡ ꯍꯣꯏ ꯍꯦꯂꯔꯦꯅ ꯑꯣꯏꯅ ꯊꯍꯕꯔꯤ꯫ ꯑꯦꯗꯃꯤꯅꯤꯀꯀꯣꯏꯗꯤꯒꯤ 50-yr-ꯒꯤ ꯄꯨꯋꯥꯔꯤꯗꯥ ꯑꯣꯏꯀ ꯍꯦꯂꯔꯦꯅ ꯑꯣꯏꯅ ꯊꯍꯕꯔꯤ, ꯍꯦꯍꯃꯤ ꯑꯦꯗꯃꯤꯅꯤꯀ ꯑꯍꯥꯟ ꯁꯤꯡꯃ ꯁꯤꯕꯕ ꯀꯒ ꯑꯍꯥꯔꯤ, ꯍꯏꯍ ꯑꯦꯗꯥ ꯏꯅ ꯁꯤꯕꯒꯤ ꯍꯑꯗꯃꯤ ꯒꯤꯕꯤ ꯌꯨꯝꯂꯤꯕ ꯃꯦꯕꯤꯔꯦꯂꯔꯦ ꯑꯍꯥꯟ ꯅꯣꯏꯗꯤ ꯑꯅꯗꯕꯔꯤ꯫ ꯃꯦꯊꯗ 6.4.4-ꯒꯤ ꯗꯤꯏꯅꯌ ꯇꯔꯥ-ꯆꯍꯤꯒꯤ ꯑꯦꯕꯤꯔꯦꯁꯟꯗꯤ ꯑꯣꯏ ꯍꯦꯂꯔꯦꯅ ꯑꯣꯏꯅ ꯊꯍꯕꯔꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯑꯦꯁꯦꯁꯃꯦꯟꯇꯅꯥ ꯍꯥꯌꯅ ꯑꯍꯥꯟ ꯂꯧꯁꯤꯟꯅ ꯁꯤꯕꯗꯌꯕꯤꯏꯅꯨꯡꯗ ꯌꯨꯝꯂꯦ꯫

6.5 ꯂꯍꯕꯤꯒꯤ ꯍꯅꯗꯔꯤꯂꯤꯗꯀ: ꯀꯃꯔꯦꯗ, ꯑꯅꯗꯕ ꯑꯃꯁꯨꯡ ꯏꯂꯗꯒꯤ ꯍꯂꯕꯗ

6.5.1 **ꯒꯁꯕꯒꯤ ꯏꯂꯗ.** ꯁꯔꯅꯑꯦꯊꯒꯂꯕ ꯃꯕꯕ-ꯑꯃꯁꯨꯡ-ꯒꯁꯕ ꯀꯗꯀꯦ ꯑꯍꯥꯟꯗ ꯆꯠꯄ ꯏꯂꯗ ꯑꯣꯏ ꯍꯗꯤꯏꯅ ꯁꯤꯕꯕ ꯍꯦꯂꯤꯗꯤ (Izzard) ꯅꯃꯌꯦꯀꯦꯅ ꯊꯤꯒꯗꯕꯔꯤ:

> Q = (Ku / n) · Sx^(5/3) · SL^(1/2) · T^(8/3)

ꯃꯐꯝ ꯑꯁꯤꯗ Q ꯑꯁꯤ ꯒꯇꯔꯒꯤ ꯐ꯭ꯂꯣ (m³/s), Ku = 0.376 (SI), n ꯑꯁꯤ ꯒꯇꯔꯒꯤ ꯃꯦꯅꯤꯡ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇ (ꯇꯦꯕꯜ 6.6), Sx ꯑꯁꯤ ꯀ꯭ꯔꯣꯁ ꯁ꯭ꯂꯣꯞ (m/m), SL ꯑꯁꯤ ꯂꯣꯡꯒꯤꯇ꯭ꯌꯨꯗꯤꯅꯦꯜ ꯁ꯭ꯂꯣꯞ (m/m) ꯑꯃꯁꯨꯡ T ꯑꯁꯤ ꯁ꯭ꯞꯔꯦꯗ (m)꯫ ꯃꯍꯧꯁꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯤꯌꯥꯔꯦꯜ ꯁꯣꯏꯗꯅ ꯒꯇꯔ ꯂꯣꯌꯅꯕ ꯑꯁꯤ FHWA HEC-22 (4th edition, 2024)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯣꯏꯔꯤ꯫

6.5.2 **ꯁ꯭ꯞꯔꯦꯗ ꯑꯃꯁꯨꯡ ꯑꯌꯥꯕꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ.** ꯒꯇꯔꯒꯤ ꯐ꯭ꯂꯣ ꯑꯁꯤ ꯇꯦꯕꯜ 6.2-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯗꯒꯤ ꯄꯥꯡꯊꯣꯛꯀꯅꯤ꯫

ꯇꯦꯕꯜ 6.2 — ꯒꯇꯔꯒꯤ ꯐ꯭ꯂꯣꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ

ꯒꯇꯔꯒꯤ ꯀ꯭ꯂꯥꯁ	ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (ꯇꯦꯕꯜ 6.1)	ꯆꯦꯛ ꯁ꯭ꯇꯣꯔꯝ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯁ꯭ꯇꯣꯔꯝ
ꯑꯥꯔꯇꯦꯔꯤꯌꯦꯜ	ꯁ꯭ꯞꯔꯦꯗꯅ ꯗꯔꯥꯏꯚꯤꯡ ꯂꯦꯟ ꯑꯃ ꯇꯣꯉ ꯑꯗꯨꯒꯤ ꯍꯥꯐ ꯍꯦꯟꯅꯕ ꯌꯥꯗꯦ꯫ ꯀ꯭ꯔꯣꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯂꯩꯔꯦ꯫	ꯀ꯭ꯔꯣꯁꯤꯡꯗ ꯑꯍꯥꯡꯕ ≤ 150 mm ꯑꯃꯁꯨꯡ ꯄꯨꯜꯍꯥꯒꯤ ꯑꯍꯥꯡꯕ ꯃꯐꯝ ≤ 350 mm; ꯀ꯭ꯂꯥꯁ 6.5.3-ꯒꯤ ꯍꯖꯥꯔꯗꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ
ꯀꯂꯦꯛꯇꯔ	ꯁ꯭ꯞꯔꯦꯗ T ≤ 3 m꯫ ꯃꯌꯥꯝ ꯍꯤꯡꯕꯥꯡꯂꯣꯏꯗ ꯑꯃꯗ ꯇꯨꯡꯕꯇꯒꯤ ꯀ꯭ꯔꯣꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯂꯩꯔꯦ꯫	ꯗꯤꯖꯥꯏꯟ ꯂꯩꯇꯕ
ꯂꯣꯀꯦꯜ	ꯁ꯭ꯞꯔꯦꯗ T ≤ 3 m꯫ ꯐ꯭ꯂꯣꯗ ꯀꯥꯕꯔꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯍꯟꯅꯕꯥꯕꯅꯤ꯫	ꯗꯤꯖꯥꯏꯟ ꯂꯩꯇꯕ
ꯀ꯭ꯂꯥꯁ ꯃꯥꯏꯅꯔ, ꯍꯤꯡꯕꯥꯡꯂꯣꯏꯗꯁꯤꯡꯗ	ꯃꯌꯥꯝ ꯍꯤꯡꯕꯥꯡꯂꯣꯏꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯦꯗꯦꯁ꯭ꯇ꯭ꯔꯤꯌꯥꯟ ꯁꯦꯝꯕꯤꯡꯁꯤꯡꯗ ꯀ꯭ꯔꯣꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯔꯦꯜ-ꯐ꯭ꯂꯣ ≤ 0.03 m³/s; ꯗꯤꯅ-ꯕꯦꯜꯇ ꯃꯌꯥꯝꯁꯤꯡꯗ ꯑꯗꯨꯝ ꯂꯩꯔꯦ꯫	ꯗꯤꯖꯥꯏꯟ ꯂꯩꯇꯕ

6.5.3 **ꯐ꯭ꯂꯣꯒꯤ ꯍꯖꯥꯔꯗꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ.** ꯆꯦꯛ ꯁ꯭ꯇꯣꯔꯝ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯁ꯭ꯇꯣꯔꯝꯗ, ꯒꯇꯔ ꯑꯃꯁꯨꯡ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣꯒꯤ ꯑꯍꯥꯡꯕ (D, m) ꯑꯃꯁꯨꯡ ꯚꯦꯂꯣꯁꯤꯇꯤꯒꯤ (V, m/s) ꯄ꯭ꯔꯣꯗꯛꯇ ꯑꯁꯤ ꯇꯦꯕꯜ 6.3-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯗꯒꯤ ꯄꯥꯡꯊꯣꯛꯀꯅꯤ꯫

ꯇꯦꯕꯜ 6.3 — ꯒꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯒꯇꯔꯁꯤꯡꯒꯤ ꯐ꯭ꯂꯣꯒꯤ ꯍꯖꯥꯔꯗꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ

ꯃꯐꯝ	ꯑꯈꯥꯏ ꯇꯧꯕ ꯍꯖꯥꯔꯗ ꯀ꯭ꯂꯥꯁ (ꯇꯦꯕꯜ 6.4)	ꯂꯤꯃꯤꯠꯁꯤꯡ
ꯒꯇꯔ ꯃꯥꯏꯅꯔꯀꯤ ꯃꯦꯗꯤꯌꯥꯟꯁꯤꯡ	H2 ꯄꯨꯝꯅꯃꯛ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯐꯕ	D·V ≤ 0.6 m²/s; D ≤ 0.35 m (ꯇꯦꯕꯜ 6.2); V ≤ 2.0 m/s
ꯐꯨꯇꯄꯥꯊꯁꯤꯡ, ꯄꯥꯔꯀꯤꯡꯗ ꯀꯥꯔꯁꯤꯡ, ꯁ꯭ꯀꯨꯜ, ꯍꯣꯁ꯭ꯄꯤꯇꯦꯜ ꯑꯃꯁꯨꯡ ꯇꯔꯥꯏꯅ-ꯁꯇꯦꯁꯟꯒꯤ ꯃꯐꯃꯁꯤꯡ	H1	D·V ≤ 0.3 m²/s; D ≤ 0.3 m; V ≤ 2.0 m/s
ꯂꯣꯡꯂꯩꯕ ꯇꯔꯥꯏ ꯁ꯭ꯇꯣꯞꯀꯤ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯕꯥꯡꯂꯣꯏ ꯐꯨꯝꯁꯤꯡ	H1	D·V ≤ 0.3 m²/s; D ≤ 0.3 m; V ≤ 2.0 m/s
ꯒꯇꯔꯁꯤꯡꯗꯒꯤ ꯂꯥꯟꯗ, ꯄꯥꯔꯀꯤꯡ ꯑꯣꯄꯟ ꯁ꯭ꯄꯦꯁ ꯄꯨꯝꯅꯃꯛ ꯍꯤꯡꯕꯥꯡꯂꯣꯏꯗ ꯂꯩꯕ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯒꯇꯔꯁꯤꯡ	H3 ꯄꯨꯝꯅꯃꯛ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯐꯕ, ꯆꯦꯛꯁꯤꯡ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯑꯍꯦꯟꯕ ꯂꯩꯔꯦ	D·V ≤ 0.6 m²/s; D ≤ 1.2 m; V ≤ 2.0 m/s

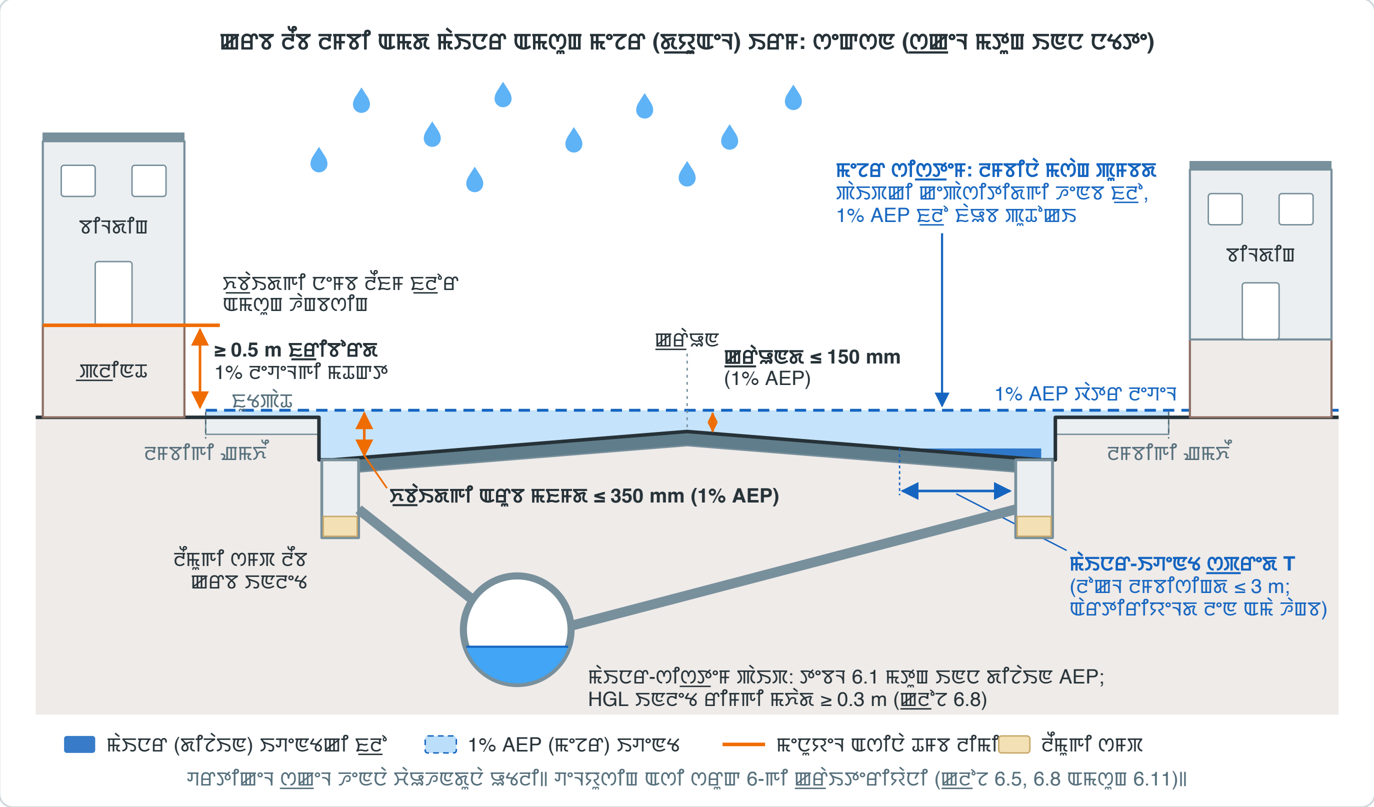
ꯇꯦꯕꯜ 6.4 — ꯀꯝꯕꯥꯏꯟꯗ ꯐ꯭ꯂꯗ ꯍꯖꯥꯔꯗꯒꯤ ꯍꯖꯥꯔꯗ ꯚꯂꯅꯦꯔꯕꯤꯂꯤꯇꯤꯒꯤ ꯀ꯭ꯂꯥꯁꯁꯤꯡ (ꯑꯥꯁ꯭ꯠꯔꯦꯂꯤꯌꯥꯅꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅ ꯄꯤꯔꯤ)

ꯀ꯭ꯂꯥꯁ	ꯑꯦꯟꯗꯔꯁꯟ	D·V-ꯒꯤ ꯂꯤꯃꯤꯠ (m²/s)	ꯑꯍꯥꯡꯕꯒꯤ ꯂꯤꯃꯤꯠ D (m)	ꯚꯦꯂꯣꯁꯤꯇꯤꯒꯤ ꯂꯤꯃꯤꯠ V (m/s)
H1	ꯗꯍꯧꯅ ꯃꯤꯑꯣꯏꯁꯤꯡ, ꯗꯤꯇꯍꯟꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯦꯟꯍꯕ ꯂꯩꯇꯦ	≤ 0.3	0.3	2.0
H2	ꯑꯄꯤꯡꯄꯥ ꯃꯤꯑꯣꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯦꯟꯍꯕ ꯂꯩ	≤ 0.6	0.5	2.0
H3	ꯃꯤꯑꯣꯏꯁꯤꯡ, ꯑꯩꯊꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯍꯣꯜꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯦꯟꯍꯕ ꯂꯩ	≤ 0.6	1.2	2.0

ꯀ꯭ꯂꯥꯁ	ꯁꯟꯗꯣꯛꯄ	D·V-ꯒꯤ ꯂꯤꯃꯤꯠ (m²/s)	ꯑꯏꯪꯕꯒꯤ ꯂꯤꯃꯤꯠ D (m)	ꯌꯥꯡꯅꯕꯒꯤ ꯂꯤꯃꯤꯠ V (m/s)
H4	ꯒꯥꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯔꯥꯟꯕ ꯂꯩ	≤ 1.0	2.0	2.0
H5	ꯒꯥꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯔꯥꯟꯕ ꯂꯩ; ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯅ ꯁ꯭ꯠꯔꯛꯆꯔꯦꯜ ꯗꯦꯃꯦꯖ ꯊꯦꯡꯅꯕꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯂꯩ	≤ 4.0	4.0	4.0
H6	ꯒꯥꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯔꯥꯟꯕ ꯂꯩ; ꯕꯤꯜꯗꯤꯡ ꯄꯨꯝꯅꯃꯛ ꯂꯦꯞꯆꯥꯗꯕꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯂꯩ	> 4.0	—	—

ꯍꯧꯔꯛꯐꯝ: AIDR Guideline 7-3, *Technical flood risk management guideline: Flood hazard* (2014), Tables 1 and 2, Smith and Wasko (2012)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯍꯣꯡꯗꯣꯛꯅ ꯂꯧꯈꯕ꯫

6.5.4 ꯁꯦꯛꯁꯟ 6.5.3-ꯒꯤꯗꯃꯛ ꯑꯏꯪꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯡꯅꯕꯒꯤ ꯂꯤꯃꯤꯠ ꯑꯁꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯒꯤꯗꯃꯛ ꯀꯨꯝꯕ-ꯁꯦꯟꯒꯤ ꯃꯥꯏꯄꯥꯛꯄꯒꯤ, ꯅꯠꯔꯒꯥ ꯁꯦꯟꯅꯥ ꯁ꯭ꯠꯔꯤꯠ-ꯑꯃꯁꯨꯡ-ꯀꯨꯝꯕ ꯃꯥꯏꯄꯥꯛ ꯆꯠꯅꯕꯤ ꯃꯇꯦꯡ 1D ꯅꯠꯔꯒꯥ 2D ꯄꯥꯝꯕꯩꯗꯒꯤ ꯃꯦꯡꯒꯤ ꯑꯃꯁꯨꯡꯒꯤ ꯆꯪꯁꯤꯜꯂꯤ꯫


ꯁ꯭ꯠꯔꯤꯠ ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯄꯥꯛ (ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥ) ꯃꯇꯦꯡ: ꯆꯥꯡꯗꯝ (ꯆꯥꯡ ꯃꯇꯨꯡ ꯏꯟꯅ ꯅꯠꯇꯦ)
ꯕꯤꯜꯗꯤꯡ
ꯀ꯭ꯂꯥꯏꯃꯦꯠ
ꯃꯈꯥꯗꯒꯤ ꯐ꯭ꯂꯣꯔ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩꯕ
≥ 0.5 m ꯐ꯭ꯔꯤꯕꯣꯔꯗ
1% ꯏꯕꯦꯟꯇꯀꯤ ꯃꯊꯛꯇ
ꯐ꯭ꯂꯗꯂꯥꯏꯟ
ꯂꯝꯕꯤꯒꯤ ꯁꯥꯏꯗ
ꯃꯈꯥꯗꯒꯤ ꯑꯏꯪꯕ ꯃꯐꯃꯁ ≤ 350 mm (1% AEP)
ꯀ꯭ꯔꯥꯎꯟ
ꯀ꯭ꯔꯥꯎꯟꯗ ≤ 150 mm
(1% AEP)
ꯃꯥꯏꯄꯥꯛ ꯆꯪꯁꯤꯜ: ꯂꯝꯕꯤꯗꯥ ꯃꯑꯣꯡ ꯁꯤꯡꯊꯕꯗ ꯊꯝꯂꯤꯕ ꯌꯥꯝꯂꯕ ꯐ꯭ꯂꯣ ꯂꯦꯟꯕ, 1% AEP ꯐ꯭ꯂꯣ ꯐꯤꯕꯝ ꯁꯤꯡꯂꯕ
1% AEP ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ
ꯕꯤꯜꯗꯤꯡ
ꯂꯝꯕꯤꯒꯤ ꯁꯥꯏꯗ
ꯏꯟꯂꯦꯠꯀꯤ ꯆꯦꯟꯕ ꯑꯃꯁꯨꯡ
ꯁ꯭ꯇꯣꯔꯝ ꯗ꯭ꯔꯦꯟ
ꯏꯟꯂꯦꯠ-ꯄꯥꯏꯄꯒꯤ ꯀ꯭ꯂꯥꯁ: ꯃꯇꯝ 6.1 ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ AEP;
HGL ꯏꯟꯂꯦꯠꯀꯤ ꯂꯤꯗꯀꯤ ꯃꯈꯥ ≥ 0.3 m (ꯁꯦꯛꯁꯟ 6.8)
ꯏꯟꯂꯦꯠ-ꯄꯥꯏꯄꯀꯤ ꯀ꯭ꯂꯥꯁꯅ T
(ꯁꯦꯃꯒꯠ ꯂꯝꯕꯤꯒꯤ ≤ 3 m;
ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯕ)
ꯏꯟꯂꯦꯠ (ꯗꯤꯖꯥꯏꯟ) ꯄꯥꯏꯄꯒꯤ ꯐ꯭ꯂꯣ
1% AEP (ꯃꯥꯏꯄꯥꯛ) ꯄꯥꯏꯄꯒꯤ
ꯃꯥꯏꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯆꯥꯡ ꯂꯤꯃꯤ
ꯆꯦꯟꯕꯒꯤ ꯀꯣꯛ
ꯌꯥꯝꯅ ꯀ꯭ꯂꯥꯁ ꯄꯨꯝꯕ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇ ꯑꯣꯏꯗꯦ꯫ ꯌꯥꯝꯅꯥ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯣꯟ 6-ꯒꯤ ꯃꯥꯏꯄꯥꯛꯂꯤꯕꯁꯤꯡ (ꯁꯦꯛꯁꯟ 6.5, 6.8 ꯑꯃꯁꯨꯡ 6.11)꯫

ꯃꯃꯤ 6.1 — ꯁ꯭ꯠꯔꯤꯠ ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯄꯥꯛ ꯃꯇꯦꯡ꯫ ꯃꯥꯏꯄꯥꯛꯀꯤ ꯑꯣꯏꯕꯒꯤꯗꯃꯛ ꯑꯣꯏꯔꯕ ꯆꯥꯡꯗꯝ ꯀ꯭ꯂꯥꯏꯃꯦꯠ, Kansas City Metro APWA, Section 5600 (2006, 5601.8) ꯑꯃꯁꯨꯡ FHWA, HEC-22 Urban Drainage Design Manual (4th ed., 2024)-ꯗꯒꯤ ꯄꯥꯝꯕꯩꯅꯥ ꯂꯧꯈꯤꯕ꯫

> **ꯃꯔꯣꯜꯒꯤ ꯋꯥꯐꯝ.** Ku = 0.376 ꯑꯁꯤ ꯃꯥꯏꯄꯥꯛꯂꯤꯕ ꯄꯥꯝꯕꯩꯒꯤ Izzard-ꯒꯤ ꯃꯑꯣꯡ ꯑꯃꯁꯨꯡ FHWA HEC-22 ꯑꯃꯁꯨꯡ CPHEEO (2019)-ꯒꯤ ꯃꯥꯏꯄꯥꯛ (Part A, Example 5.5, ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯑꯃꯁꯨꯡ Kc = 0.376 ꯄꯥꯝꯕ ꯄꯥꯏ) ꯑꯃꯁꯨꯡꯒꯤ ꯃꯇꯦꯡꯂꯦ꯫ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇꯀꯤ ꯀ꯭ꯂꯥꯁꯅꯒꯤ ꯐꯤꯕꯝ (ꯏꯟꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤꯗ) ꯑꯃꯁꯨꯡ ꯁꯦꯃꯒꯠ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯗꯀꯤ ꯂꯝꯕꯤꯒꯤ 3 m-ꯒꯤ ꯀ꯭ꯂꯥꯁꯅ ꯑꯃꯁꯨꯡ ꯃꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯏꯟꯂꯦꯠ ꯃꯥꯏꯄꯥꯛꯅꯥ ꯁ꯭ꯠꯔꯤꯠꯀꯤ ꯃꯇꯨꯡꯗꯒꯤ 12 ft (3.66 m)-ꯒꯤ APWA 5600 (2006, 5604.2)-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤ ꯅꯠꯇꯦ꯫ 0.03 m³/s-ꯒꯤ ꯁ꯭ꯠꯔꯤꯠ-ꯐ꯭ꯂꯣꯒꯤ ꯂꯤꯃꯤꯠ ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠꯀꯤ ꯃꯥꯏꯄꯥꯛꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇꯂꯤꯕ ꯂꯦꯞꯆꯤꯟꯅꯕꯒꯤꯗꯃꯛ 1.0 cfs-ꯒꯤ APWA-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ SI-ꯒꯤ ꯃꯥꯏꯄꯥꯛꯅꯤ, ꯃꯤꯍꯨ-ꯕꯩꯕ ꯃꯥꯏꯄꯥꯛꯂꯤꯕꯗ ꯁ꯭ꯠꯔꯤꯠ-ꯐ꯭ꯂꯣ ꯑꯣꯏꯕꯅꯤ꯫ 150 mm ꯑꯃꯁꯨꯡ 350 mm-ꯒꯤ ꯑꯏꯪꯕꯒꯤ

> ꯆꯤꯍꯤꯌꯂꯤꯡ ꯑꯁꯤ ꯆꯍꯕꯤ ꯃ꯭ꯥꯂꯦꯂꯤꯡꯂꯤꯡꯗ 1% ꯑꯣꯏꯕ꯭ꯥꯗꯦꯒꯤ APWA 5600-ꯒꯤ ꯆꯤꯍꯤꯌꯂꯤꯡꯒꯤ ꯆꯑꯣꯅ (ꯃ꯭ꯥꯗꯦꯡꯗ 7 in, 180 mm ꯍꯥꯌꯔ; ꯅ꯭ꯕꯅꯗꯒꯤ ꯑꯅꯡꯕ ꯍꯖꯐꯗ 14 in, 360 mm ꯍꯥꯌꯔ)꯫ 15 cm-ꯗꯒꯤ ꯄꯦꯕ ꯅꯂꯤꯡ ꯅꯔꯨ ꯆꯥꯅꯗꯕꯒꯤ ꯐ꯭ꯕꯅꯒꯤ ꯃ꯭ꯥꯅꯁꯥꯏꯔꯦ (IRC:SP:50-2013, §6.4.1) ꯑꯁꯤ 150 mm-ꯒꯤ ꯃ꯭ꯥꯗꯦ ꯒꯔꯦꯒꯤꯗꯍꯌ ꯆꯃꯔ ꯅꯐꯗ ꯑꯍꯆꯤ꯫
>
> ꯁꯕꯔ 6.4-ꯒꯤ ꯄꯆꯥꯗ ꯃ꯭ꯆꯂꯂꯤꯡ ꯑꯁꯤ Australian Institute for Disaster Resilience-ꯅ ꯖꯡꯗꯌꯍꯕ ꯃꯐꯕꯅꯦꯗ ꯄꯆꯥꯗ ꯃꯥꯒꯂꯤꯡꯆꯤ (AIDR Guideline 7-3, 2014), ꯍꯅꯔ ꯑꯁꯤ Smith and Wasko (2012)-ꯒꯤ ꯍꯁ꯭ꯡ ꯅꯦꯆ ꯍꯗꯔ ꯁꯥꯕꯆꯤ꯫ ꯃꯥꯔꯔꯇꯔꯂꯤꯡꯗ H2 ꯆꯌꯥꯒ ꯍꯂꯤꯗꯒꯤ ꯖꯕ ꯍꯊ ꯁꯕ ꯑꯂꯤꯒꯤ ꯑꯥꯊꯗꯤ 350 mm-ꯒꯤ 1%-ꯒꯤ ꯑꯅꯡꯕꯒꯤ ꯆꯤꯍꯤꯌ (ꯁꯕꯔ 6.2) ꯑꯂꯤꯅ ꯑꯅꯡꯕ ꯑꯐ ꯆꯃꯃꯅ, ꯑꯍꯂꯡ D·V ꯑ꯭ꯥꯗꯌꯅ ꯑꯃꯍꯕ ꯆꯐꯕꯂꯤꯡꯗ ꯐꯅ ꯌꯦꯕ, ꯑꯅꯡꯕ ꯄꯦꯊꯕ ꯖ꯭ꯆ ꯃꯦꯁ꯭ꯥꯔ ꯁꯅ꯫ H2 ꯑꯁꯤ "ꯑꯁꯤꯗꯑ ꯒꯥꯂꯤꯡꯒꯤꯗꯍꯌ ꯑꯂꯅꯕ ꯆ" ("unsafe for small vehicles") ꯄꯔꯅ ꯂꯦꯗꯃꯅ꯫ ꯍꯆꯤꯑ꯭ꯥꯒꯤ ꯆꯐꯕꯂꯤꯡꯗ ꯅ꯭ꯕꯅꯗꯒꯤ ꯌꯐꯅ ꯌꯌꯆꯤꯕ ꯒꯥꯂꯤꯡꯗꯤ ꯁ꯭-ꯄ꯭ꯕꯆꯥꯂꯤꯡꯆꯤ, ꯍꯥꯐ ꯑꯐꯅ 1%-ꯒꯤ ꯅꯒꯦꯌ ꯑꯁꯤ H1 ꯌꯒꯗꯕ ꯆꯁꯤꯖꯅ ꯁꯥꯕ ꯅꯒꯃꯌꯂꯦ ꯃꯌꯂꯤꯡ ꯆꯌꯁꯕꯗꯤ ꯆꯐꯕꯤ ꯑ꯭ꯐꯆꯍꯗꯁ ꯆꯐꯕꯤ ꯊꯤꯡꯕꯒꯤ ꯅꯒꯦꯌ ꯑꯅꯅ ꯆꯒꯗꯕꯆꯤ꯫ ꯁꯕꯔ 6.3-ꯗ ꯍꯖꯐꯂꯤꯡꯗ ꯄꯆꯥꯗ ꯃ꯭ꯆꯂꯂꯤꯡ ꯑꯤꯕ ꯑꯂꯤꯒꯤ ꯄꯗꯊꯡꯆꯕ ꯍꯍꯡꯒꯤ ꯅꯗꯐ ꯆꯁ ꯑꯍꯂꯡ ꯍꯂꯤ ꯍꯂꯔꯔ ꯑꯂꯤꯅ ꯊꯐꯕꯆꯤ꯫

6.6 ꯅꯦꯆꯌꯂꯤꯡ

6.6.1 **ꯅꯦꯆꯌꯃꯤ ꯍꯅꯔꯂꯤꯡ.** ꯅꯦꯆꯌꯂꯤꯡ ꯑꯁꯤ ꯃꯥꯕ-ꯑꯑꯆꯤꯡ ꯅꯦꯆꯌꯂꯤꯡ, ꯒ꯭ꯥꯌ ꯅꯦꯆꯌꯂꯤꯡ, ꯃꯐꯕꯤꯆꯂꯦ ꯅꯦꯆꯌꯂꯤꯡ (ꯃꯥꯕ ꯑꯑꯆꯤꯡ ꯆꯕ ꯒ꯭ꯥꯌ ꯑꯍ) ꯆꯌꯥꯒ ꯂ꯭ꯆꯌ ꯁꯥꯕ ꯑꯍꯂꯡ ꯁ꯭ꯥꯦꯈ ꯅꯡꯕꯦꯂꯤꯡ ꯑꯅꯕ ꯌꯅ꯫ ꯑꯕ꯭ꯆꯤꯗ ꯆꯐꯕꯤꯂꯤꯡꯗ:

- (a) ꯑꯑ꯭ꯥꯒꯤꯡ ꯑꯊꯥꯤꯁꯤꯅ ꯑꯃꯗꯆꯕ ꯍꯖꯐ ꯑꯍꯒꯤꯗꯍꯌ ꯒ꯭ꯥꯌ ꯅꯗꯁꯍꯌ ꯆꯕ ꯅꯦꯆꯌꯂꯤꯡ ꯌꯗ꯭ꯥꯕꯗꯤ, ꯃꯥꯕ-ꯑꯑꯆꯤꯡ ꯆꯌꯥꯒ ꯃꯐꯕꯤꯆꯂꯦ ꯅꯦꯆꯌꯂꯤꯡ ꯂꯤꯆꯤꯦꯆꯒꯗꯕꯆꯤ;
- (b) ꯅꯦꯆꯌꯃꯤ ꯄꯡꯕ ꯍꯖꯐꯂꯤꯡ ꯑꯁꯤ ꯆꯐꯕꯤꯒꯤ ꯆꯒꯔꯗ ꯊꯐꯒꯗꯕꯆꯤ, ꯁꯕ ꯌꯕ ꯍꯖꯐꯗ ꯒꯁꯥ ꯗꯤꯑꯥꯂꯦ ꯑꯍꯒ ꯆꯌꯆꯆ, ꯍꯥꯐ ꯑꯐꯅ ꯌꯡꯅꯌꯆꯕ ꯃꯥꯕ ꯆꯌꯥꯒ ꯖ꯭ꯌꯑꯊ ꯑꯍꯅ ꯃꯥꯔꯔꯇꯔꯗ ꯅꯂꯤꯡ ꯊꯤꯡꯆꯤꯔꯆꯅ;
- (c) ꯃꯥꯔꯔꯇꯔꯂꯤꯡ, ꯂꯅꯃꯔ ꯆꯦꯂꯤꯡ ꯑꯍꯂꯡ ꯖ꯭ꯌꯑꯊꯂꯤꯡꯗ ꯆꯕ ꯒ꯭ꯥꯌꯂꯤꯡ ꯑꯁꯤ ꯂꯅꯃꯔ ꯑꯍꯂꯡ ꯅꯡꯅ ꯌꯌꯑꯂꯤꯡꯒꯤꯗꯍꯌ ꯑꯂꯅꯕ ꯆꯁꯕ ꯑꯁꯥꯦ ꯑꯍꯒꯤ ꯑꯅꯒꯗꯕꯆꯤ (ꯂꯥ꯭ꯑ 9, ꯃ꯭ꯆꯆ 9.11)꯫

6.6.2 **ꯅꯦꯆꯌꯃꯤ ꯃꯑꯂꯤꯁꯤ.** ꯒ꯭ꯥꯗꯁ ꯑꯍꯂꯡ ꯂꯒꯂꯤꯡꯗ ꯆꯕ ꯅꯦꯆꯌꯂꯤꯡꯒꯤ ꯂꯡꯆꯕ ꯃꯑꯂꯤꯁꯤ ꯑꯁꯤ FHWA HEC-22 (4th edition, 2024)-ꯒꯤ ꯊꯑꯡꯂꯤꯡꯅ, ꯆꯌꯥꯒ ꯑꯐꯐꯕ ꯒ꯭ꯥꯌ ꯑꯍꯂꯡ ꯃꯥꯕ-ꯑꯑꯆꯤꯡꯒꯤ ꯆꯤꯑꯍꯁ꯭ꯥꯒꯤꯗꯍꯌ ꯍꯂꯖꯑꯌꯥꯅ ꯖꯡꯗꯌꯍꯕ ꯁꯂ꯭ꯌ ꯁꯥꯕ ꯥꯁꯤꯡꯂꯤꯡꯗꯒꯤ ꯊꯒꯗꯕꯆꯤ꯫ CPHEEO (2019) Part A §5.6.2-ꯒꯤ ꯑꯐꯑꯤꯥꯤꯃꯔ ꯃꯥꯕ-ꯅꯦꯆꯌ ꯅ꯭ꯃꯌꯂꯦꯂꯤꯡ ꯑꯁꯤ ꯃ꯭ꯥꯂ-ꯌꯑ ꯑꯅꯅ ꯅꯑꯁꯍꯌ ꯂꯤꯆꯤꯦꯆꯕ ꯌꯅ꯫

6.6.3 **ꯃ꯭ꯑꯑꯒꯤ ꯖꯑꯁꯥꯂꯤꯡ.** ꯅꯦꯆꯌ ꯅ꯭ꯗꯤꯡꯍꯑꯃꯤ ꯗꯤꯆꯅꯦ ꯃꯑꯂꯤꯁꯤ ꯑꯁꯤ ꯍꯂꯤꯒꯤ ꯂꯡꯆꯕ ꯃꯑꯂꯤꯁꯤꯗꯒꯤ ꯁꯕꯔ 6.5-ꯒꯤ ꯃ꯭ꯑꯑꯒꯤ ꯖꯑꯁꯥꯂꯤꯡꯅ ꯄꯦꯊꯄꯔꯆꯕ ꯑꯐ ꯑꯅꯒꯗꯕꯆꯤ:

ꯁꯕꯔ 6.5 — ꯅꯦꯆꯌꯃꯤ ꯃ꯭ꯑꯑꯒꯤ ꯖꯑꯁꯥꯂꯤꯡ (ꯍꯡꯅ ꯄꯔꯅ ꯆꯕ ꯂꯡꯆꯕ ꯃꯑꯂꯤꯁꯤꯒꯤ ꯂꯥ꯭ꯑ)

ꯅꯦꯆꯌꯃꯤ ꯍꯅꯔ	ꯒ꯭ꯥꯗꯁ	ꯂꯒ ꯑꯍꯗ
ꯒ꯭ꯥꯌ	50%	50%
ꯃꯥꯕ ꯑꯑꯆꯤꯡ	10%	20%
ꯃꯐꯕꯤꯆꯂꯦ	ꯒ꯭ꯥꯌ ꯑꯍꯂꯡ ꯃꯥꯕꯃꯤ ꯖꯑꯁꯥꯂꯤꯡ ꯂꯥ꯭ꯑ ꯅ꯭ꯗꯤꯡꯍꯑꯁ ꯁꯃꯦꯅ ꯂꯤꯆꯤꯦꯆꯒꯗꯕꯆꯤ	ꯒ꯭ꯥꯌ ꯑꯍꯂꯡ ꯃꯥꯕꯃꯤ ꯖꯑꯁꯥꯂꯤꯡ ꯂꯥ꯭ꯑ ꯅ꯭ꯗꯤꯡꯍꯑꯁ ꯁꯃꯦꯅ ꯂꯤꯆꯤꯦꯆꯒꯗꯕꯆꯤ

ꯗꯤꯆꯅꯦ ꯃꯑꯂꯤꯁꯤ = (1 − ꯃ꯭ꯑꯑꯒꯤ ꯖꯑꯁꯥ) × ꯂꯡꯆꯕ ꯃꯑꯂꯤꯁꯤ꯫

6.6.4 **[illegible].** [illegible] (gutter run) [illegible] 6.2-[illegible]:

- (a) [illegible] 30 m-[illegible];
- (b) [illegible];
- (c) [illegible]

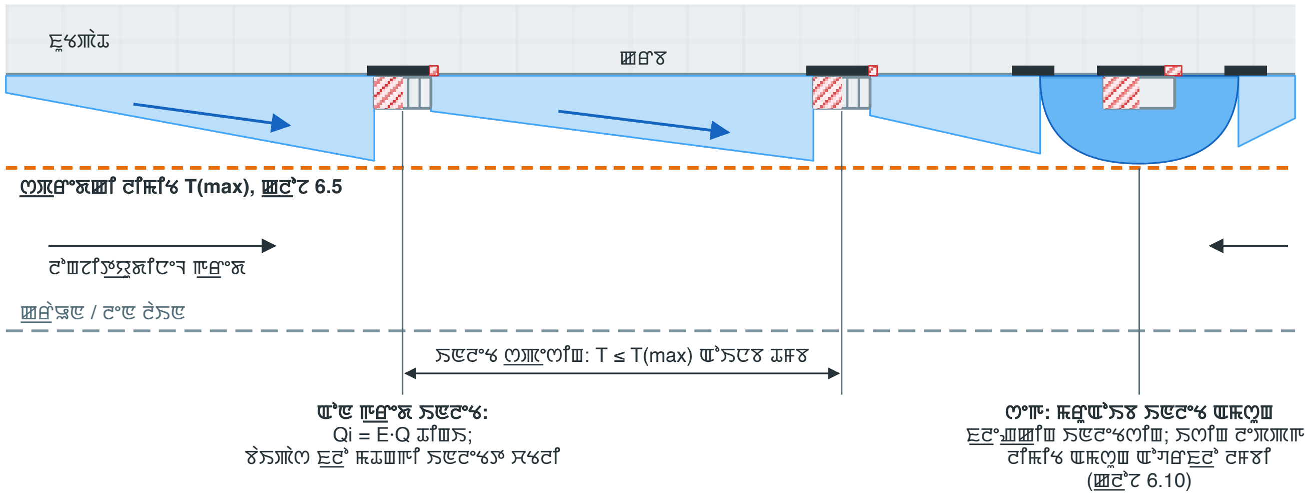
6.6.5 **[illegible].** [illegible]:

- (a) [illegible] ([illegible]) [illegible];
- (b) [illegible] 6.2-[illegible] (flanking inlet) [illegible];
- (c) [illegible] 6.10 [illegible]

6.6.6 **[illegible].** [illegible] 300 mm [illegible] 0.9 m/s [illegible]

6.6.7 **[illegible] (silt sump).** [illegible] 300 mm [illegible]

[illegible] ([illegible])


[illegible]
[illegible] T(max), [illegible] 6.5
[illegible]
[illegible] / [illegible]
[illegible]: T ≤ T(max) [illegible]
[illegible]:
Qi = E·Q [illegible];
[illegible]
[illegible]:
[illegible] 6.10)

[illegible] ([illegible]), [illegible] 6.6

[illegible]	[illegible]	[illegible]
[illegible]	50%	50%
[illegible]	10%	20%
[illegible]	[illegible]	[illegible]

[illegible] ([illegible])
[illegible]
[illegible]
[illegible]

ꯇꯦꯕꯜ 6.2 — ꯁꯣꯔꯁꯀꯤ ꯂꯃꯗꯝ, ꯅꯣꯡꯆꯨꯞꯀꯤ ꯇꯤꯔꯕ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯏꯗ‖ ꯍꯧꯖꯤꯛ ꯑꯣꯏꯔꯤꯕꯁꯤꯡ ꯑꯗꯨꯒꯤ ꯂꯧꯁꯤꯡ ꯁꯦꯟꯅꯕ, FHWA, HEC-22 Urban Drainage Design Manual (3rd ed., 2009; 4th ed., 2024) ꯑꯃꯁꯨꯡ CPHEEO, Manual on Storm Water Drainage Systems (2019)-ꯗꯒꯤ ꯄꯨꯊꯣꯛꯂꯛꯄ ꯂꯧꯅꯤꯕ‖

> **ꯂꯦꯌꯥꯎꯒꯤ ꯌꯥꯎꯁꯤ.** ꯃꯁꯤꯁꯤꯒꯤ ꯑꯣꯏꯕꯥꯔꯕꯁꯤꯡ ꯑꯁꯤ ꯂꯩꯆꯠ ꯅꯣꯡꯆꯨꯞꯁꯤꯡ ꯇꯤꯑꯣꯔꯕꯤꯡꯒꯤ ꯃꯆꯥꯛꯂꯣꯏꯕꯤꯒꯤ 80%-ꯗ (20% ꯄꯣꯠꯄꯣꯛ) ꯔꯕꯤꯡ ꯌꯥꯕ APWA 5600 (2006, 5604.2)-ꯗꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯃꯁꯛ, ꯍꯔꯤꯗꯤ ꯍꯤꯡꯁꯤꯟꯔꯒꯤ ꯆꯠꯕꯤꯂꯣꯏꯕꯗ ꯆꯦꯕ ꯊꯥꯗꯣꯛꯂꯣꯏꯕ ꯑꯁꯤ ꯍꯌꯥ ꯁꯤꯟꯕꯗ ꯁꯤꯡꯅꯝꯂꯕ ꯑꯃꯁꯨꯡ ꯁꯍꯤꯡꯂꯣꯏꯕꯒꯤ ꯇꯤꯕꯅ‖ CPHEEO (2019) Part A-ꯒꯤ ꯅꯨꯕꯈꯦꯂꯣꯏꯕꯗ ꯇꯗꯨꯃꯛ ꯂꯨꯍꯤꯗ ꯔꯣꯂꯣꯍ ꯑꯣꯏ ꯅꯨꯕꯈꯦ ꯏꯗ ꯌꯥꯈꯒꯤ ꯍꯪꯑꯅꯈ ꯍꯔꯥ ꯑꯍꯩ ꯑꯅꯒꯤ ꯁꯣꯟꯅꯤ (Figures 1.2 and 2.1)‖ APWA 5600 (2006)-ꯒꯤ ꯁꯦꯡꯅꯕ ꯆꯍꯈꯤꯂꯣꯏꯕꯗ ꯃꯔꯈ-ꯑꯁꯦꯡꯅꯤ ꯅꯦꯡꯂꯣꯏꯕ ꯅꯥꯌꯥꯍꯧ ꯔꯤꯄꯥꯟꯅꯤ; ꯃꯦꯠꯇ 6.6.1(a) ꯑꯣꯏ ꯄꯨꯝꯅꯃꯛ ꯃꯦꯡꯗ, ꯍꯔꯥꯗꯤ ꯏꯔꯈ ꯆꯍꯈꯤꯂꯣꯏꯕꯗ ꯃꯍꯈꯤꯡꯂꯦ ꯅꯦꯡꯂꯣꯏꯕ ꯃꯦꯡꯁꯤ‖ ꯔꯤꯂꯔꯌꯃꯤ ꯍꯌꯍꯗ PWD-ꯒꯤ, IMC-ꯒꯤ ꯅꯠꯔꯒꯥ ꯂꯨꯡꯂꯃꯤ ꯑꯌꯥꯁꯥ ꯅꯃꯟ ꯈꯗꯤ ꯑꯍꯂꯌꯒꯤ ꯂꯨꯡꯂꯦꯗꯔꯗ ꯅꯦꯡꯂꯣ, ꯃꯔꯈ-ꯌꯅꯟ ꯅꯠꯔꯒꯥ ꯃꯒꯔ ꯌꯥꯔꯈ ꯅꯨꯕꯈꯦꯒꯤ ꯗꯤꯌꯟ ꯑꯍꯂꯌ ꯏꯕꯅꯤꯗ [TBC]‖ AIIB ꯁꯔꯅꯥꯂꯃꯤ ꯍꯄꯣꯒꯤ ꯂꯥꯂꯦꯂꯣꯏꯕꯒꯤ ꯊꯔꯌꯥꯕ ꯆꯕ PCC ꯅꯨꯕꯈꯦꯂꯣꯏꯕ, "@25 m ꯆꯥꯁ ꯇꯥ" ("@25 m interval") ꯆꯕ ꯑꯁꯤꯅꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ "ꯁꯔ ꯔꯧꯔ ꯁꯔꯂꯔ ꯇꯗꯥꯆꯕ" ("release pore water pressure") 5 m ꯈꯗꯤꯕꯗ 50-mm PVC ꯌꯤꯁ ꯁꯥꯅꯁꯂꯣꯏꯕ ꯁꯤꯟꯅꯤ, ꯄꯅꯗꯔꯆꯤꯥ ꯗꯤꯆꯅꯦ ꯑꯍꯂꯌ ꯔꯤꯁꯗꯒꯤ (AIIB IEE); ꯑꯃꯁꯨꯡ ꯍꯗꯅ ꯕꯅ-ꯆꯆꯒꯤ "ꯍꯈꯂꯤꯂꯁꯅ/ꯑꯌꯥꯁꯥ ꯑꯇꯔꯌꯒꯤ ꯆꯔꯕ ꯁꯔꯍꯂꯦꯂ/ꯁꯥꯃꯥ ꯅꯨꯕꯈꯦ ꯏꯁꯕ ꯂꯒꯂꯃꯗꯕ ꯍꯂꯥ ꯑꯃꯁꯨꯡ ꯍꯁꯦ ꯑꯂꯤꯍꯥꯃꯤ ꯑꯃꯁꯁ ꯅꯔꯍꯒꯤ ꯁꯦꯡꯂꯦ" ("Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority") ꯅꯥꯌꯥꯍꯧ ꯄꯅꯔꯤ (ꯕꯅ-ꯆ 6(1)(D) [TBC: ꯆꯃꯅ ꯕꯗꯤꯒꯤ ꯆꯌꯤꯏꯅ ꯌꯥꯔꯈ ꯕꯅ-ꯆꯆꯌ ꯅꯍꯕꯔ ꯑꯃꯁꯨꯡ ꯌꯥꯂꯥ ꯌꯥ ꯌꯒꯗꯕꯆꯤ])‖ 30 m-ꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯄꯨꯕ ꯆꯥꯁ ꯇꯥ ꯑꯃꯁꯨꯡ ꯌꯕꯅ 6.5-ꯗ ꯃꯍꯈꯤꯂꯦ ꯅꯦꯡꯂꯣꯏꯕ ꯆꯕ ꯍꯑꯕ ꯑꯣꯏꯒꯤ ꯄꯥꯇꯕꯆꯕ ꯍꯍꯥꯒꯤ ꯈꯗꯍ ꯆꯌꯥ ꯑꯃꯁꯨꯡ ꯍꯅꯔ ꯑꯣꯏ ꯍꯨꯡꯔꯤꯅ ꯑꯣꯏꯒꯤ ꯇꯍꯕꯆꯤ‖ "ꯅ ꯇꯕ ꯍꯅꯃꯗ ꯔꯍꯒꯤ ꯄꯦꯇꯕ ꯊꯔꯗꯤꯔꯦꯂ" ("a very low southerly gradient") ꯆꯕ ꯅꯍꯏꯅ ꯌꯍꯁꯥꯃꯤ ꯆꯍꯗ ꯆꯕ ꯆꯍꯈꯤꯂꯣꯏꯕ (MASTEC) ꯑꯣꯏ ꯔꯍꯒꯤ ꯏꯔ, ꯍꯣꯏꯒꯤ ꯃꯔꯤꯒꯍꯈꯆꯒꯤ ꯇꯔꯈ ꯆꯥꯁ ꯇꯥ ꯑꯈ ꯆꯥꯄꯅꯆꯤ; ꯌꯤꯕꯒꯤ ꯂꯄꯔꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯌꯍꯁꯥꯃꯤ ꯍꯆꯥꯃꯤ ꯑꯃꯍꯈ ꯆꯍꯈꯤꯂꯣꯏꯕꯗ ꯊꯌꯔꯒꯤ ꯏꯆ ꯑꯣꯏ ꯈꯒꯤ ꯌꯦꯅ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯂꯣꯏꯕꯒꯤ ꯍꯒꯥꯌꯒꯤ ꯌꯦꯇꯃꯅ, ꯍꯣꯏꯒꯤ ꯍꯌꯕꯗ ꯃꯦꯠꯇ 6.3.6(j)-ꯒꯤ ꯔꯕꯣꯏꯅꯆꯤ‖ ꯏꯕꯥꯂ ꯌꯥꯔꯈ ꯃꯁ ꯑꯍꯒꯤ ꯇꯕꯆꯈ ꯅꯦꯡꯂꯣ ꯑꯍꯅꯥꯌꯒꯤ ꯂꯕꯈ ꯊꯌꯔ ꯔꯦ ꯑꯍ ꯅꯣꯏꯕ ꯆꯌꯒꯤ ꯇꯍꯗꯆꯈ ꯇꯤꯕꯅ‖ 300 mm-ꯒꯤ ꯆꯍꯒꯤ ꯂꯍꯁ ꯑꯣꯏ ꯍꯨꯡꯔꯤꯅ ꯑꯣꯏꯒꯤ ꯇꯍꯕꯆꯤ‖ ꯍꯣꯏ CPHEEO-ꯒꯤ ꯃꯌ-ꯕꯣꯏꯦ ꯗꯤꯌꯅꯗ ꯁꯤꯟꯅꯤꯕ 0.3 m-ꯒꯤ ꯂꯍꯁꯒ ꯍꯦꯆꯤ (CPHEEO 2019, Figure 5.9)‖

6.7 ꯁꯅꯁꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯄꯕꯗꯥꯆꯕ ꯑꯃꯁꯨꯡ ꯃꯒꯔ ꯌꯥꯔꯈ ꯅꯨꯕꯈꯦꯂꯣꯏꯕ

6.7.1 **ꯈꯆꯤꯏꯔꯍ ꯏꯆ.** ꯁꯅꯁ ꯑꯃꯁꯨꯡ ꯅꯨꯕꯈꯦꯒꯤ ꯃꯁꯂꯣꯌꯤ ꯑꯣꯏ ꯍꯆꯤꯕꯒꯤ ꯅꯃꯌꯂꯦꯒꯤ ꯇꯤꯒꯗꯕꯆꯤ:

> V = (1/n) · R^(2/3) · S^(1/2); Q = A · V

ꯍꯏꯍ ꯑꯣꯏꯗ V ꯑꯣꯏ ꯍꯤꯦ ꯒꯆꯂꯤꯌꯤ (m/s), n ꯑꯣꯏ ꯍꯆꯤꯕ ꯔꯏꯆꯂ (ꯌꯕꯅ 6.6), R ꯑꯣꯏ ꯄꯅꯗꯔꯆꯤꯥ ꯔꯗꯤꯌꯂ (m), S ꯑꯣꯏ ꯏꯔꯤꯥꯂꯦ ꯂꯆꯁ (m/m), A ꯑꯣꯏ ꯏꯆ ꯑꯔꯤꯌ (m²) ꯑꯃꯁꯨꯡ Q ꯑꯣꯏ ꯗꯤꯂꯌꯏꯔꯆ (m³/s)‖ ꯌꯅꯔꯌꯔ, ꯆꯃꯃꯂꯦ ꯅꯠꯔꯒꯥ ꯂꯌꯔꯥꯌꯔ ꯑꯍꯗꯒꯤ ꯆꯃꯁ ꯕꯥꯔꯌꯔꯒꯤ (backwater) ꯅꯣꯏꯕꯒꯤ ꯆꯒꯅꯗ ꯑꯄꯕꯈ ꯁꯔꯃꯁ ꯍꯏꯍꯗ, ꯊꯔꯈꯌꯆꯤ ꯒꯔꯤꯗ ꯏꯆ (gradually varied flow) (ꯂꯌꯦꯗꯔꯗ ꯂꯌꯁ) ꯅꯠꯔꯒꯥ ꯄꯅꯗꯔꯆꯤꯥ ꯆꯌꯔꯥ ꯍꯗꯅ ꯑꯍ ꯂꯤꯆꯤꯦꯆꯒꯗꯕꯆꯤ, ꯑꯃꯁꯨꯡ ꯃꯦꯠꯇ 6.8-ꯒꯤ HGL-ꯒꯤ ꯍꯇ ꯌꯕꯂꯣꯏꯕ ꯌꯂꯦ‖

6.7.2 **ꯍꯆꯤꯕ ꯔꯏꯆꯂ.** n-ꯒꯤ ꯗꯤꯆꯅꯦ ꯒꯅꯈꯂꯣꯏꯕ ꯑꯣꯏ ꯌꯕꯅ 6.6-ꯗꯒꯤ ꯆꯒꯗꯕꯆꯤ‖ ꯃꯦꯃꯔꯤꯌ ꯁꯅꯁꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯍꯂꯦꯔꯤ ꯅꯠꯔꯒꯥ ꯃꯦꯃꯔꯤꯌ ꯅꯨꯕꯈꯦꯂꯣꯏꯕꯒꯤꯗꯍꯥ, ꯗꯤꯆꯅꯦ ꯒꯅꯈ ꯑꯣꯏ ꯂꯗꯤꯍꯦꯌ, ꯕꯅꯑꯏꯤꯅꯍ ꯑꯃꯁꯨꯡ ꯑꯔꯤꯕ ꯑꯅꯕꯒꯤꯗꯍꯥ, ꯆꯤꯂꯌ ꯌꯥꯔꯈ "ꯏꯌꯔ" ("fair") ꯅꯠꯔꯒꯥ "ꯔꯏ" ("rough") ꯏꯤꯒꯍꯒꯤ ꯒꯅꯈꯗꯒꯤ ꯄꯦꯇꯔꯅꯗꯕꯆꯤ‖

ꯌꯕꯅ 6.6 — ꯗꯤꯆꯅꯦꯒꯤꯗꯍꯥ ꯍꯆꯤꯕꯒꯤ n (CPHEEO 2019-ꯗꯒꯤ)

ꯃꯦꯇꯦꯔꯤꯌꯦꯜ	ꯐꯤꯚꯝ	n (CPHEEO)	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯅꯤꯁ ꯃꯤꯅꯤꯃꯝ ꯗꯤꯖꯥꯏꯟ n
ꯁꯤꯃꯦꯟꯠ ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯏꯞ (ꯀꯣꯂꯥꯔ ꯖꯣꯏꯟꯠꯁꯤꯡ)	ꯐꯕ / ꯐꯦꯌꯔ	0.013 / 0.015	0.015
S/S ꯖꯣꯏꯟꯠ ꯂꯩꯕ ꯁ꯭ꯄꯟ ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯏꯞ (RCC, PSC)	ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯔꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨ	0.011	0.013
HDPE / uPVC ꯄꯥꯏꯞ	–	0.010	0.011
ꯄ꯭ꯂꯥꯁ꯭ꯇꯤꯛ (ꯃꯂꯥꯏꯝ ꯆꯦꯌꯕ), ꯑꯦꯁꯕꯦꯁ꯭ꯇꯣꯁ ꯁꯤꯃꯦꯟꯠ	–	0.011	0.011
ꯀꯟꯀ꯭ꯔꯤꯠ ꯅꯥꯏꯕꯦꯜ, ꯀ꯭ꯁꯤꯟ ꯑ꯭ꯥꯏꯔꯟ ꯄꯥꯏꯞ / ꯗꯛꯇꯤ ꯑ꯭ꯥꯏꯔꯟ ꯄꯥꯏꯞ	–	0.014 / 0.015	0.015
ꯂꯩꯃꯥꯟ ꯑꯃꯁꯨꯡ ꯁꯤꯃꯦꯟꯠ ꯄ꯭ꯂꯥꯁ꯭ꯇꯔ	–	0.015	0.015
ꯔꯐ ꯃꯦꯁꯟꯔꯤ	ꯐꯕ / ꯑꯐ	0.015 / 0.017	0.017
ꯃꯦꯁꯟꯔꯤ	ꯐꯠꯇꯕ ꯐꯤꯚꯝ	0.020	0.020
ꯁꯤꯃꯦꯟꯠꯁ ꯊꯝꯆꯕ ꯐꯕꯟ	–	0.017	0.017
ꯂꯩꯃꯥꯏꯒꯤ ꯆꯦꯅꯦꯜ	ꯁꯦꯡꯂꯕ, ꯐꯕ / ꯑꯦꯚꯔꯦꯖ	0.020 / 0.025	0.025
ꯂꯩꯃꯥꯏꯒꯤ ꯆꯦꯅꯦꯜ	ꯎꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯩꯀꯤꯡꯅ ꯂꯩꯔꯕ / ꯐꯠꯇꯕ	0.030 / 0.035	0.035
ꯂꯩꯃꯥꯏꯒꯤ ꯆꯦꯅꯦꯜ	ꯑꯦꯗꯕꯤꯛ ꯂꯩꯕꯒꯤ ꯂꯣꯝꯂꯀꯤꯡꯅ ꯃꯁꯤꯡ ꯌꯥꯝꯕ	0.050	0.050
ꯂꯥꯏꯅꯤꯡ: ꯀꯟꯀ꯭ꯔꯤꯠ	–	0.013	0.013
ꯂꯥꯏꯅꯤꯡ: ꯁꯣꯏꯜ-ꯁꯤꯃꯦꯟꯠ ꯚꯦꯅꯤꯌꯔ	–	0.015	0.015
ꯂꯥꯏꯅꯤꯡ: ꯁ꯭ꯇꯣꯟ ꯄꯤꯆꯤꯡ ꯀꯤꯟ	–	0.018	0.018

CPHEEO ꯁꯣꯔꯁꯀꯤ ꯅꯣꯠ: CPHEEO (2019) Part A, Table 5.1 (ꯃꯃꯥꯡꯒꯤ CPHEEO Manual on Sewerage and Sewage Treatment Systems, 2013-ꯒꯤ) ꯑꯃꯁꯨꯡ Table 5.8 (ꯂꯥꯏꯅꯤꯡꯁꯤꯡ)꯫

6.7.3 **ꯚꯦꯂꯣꯁꯤꯇꯤꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ.** ꯃꯈꯥꯗ ꯄꯤꯔꯤꯕ ꯑꯁꯤꯅꯤ:

- (a) ꯃꯤꯅꯤꯃꯝ (ꯁꯦꯜꯐ ꯀ꯭ꯂꯤꯟꯁꯤꯡ) ꯚꯦꯂꯣꯁꯤꯇꯤ: ꯄ꯭ꯔꯦꯖꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯄꯤꯛ ꯐ꯭ꯂꯣꯁꯤꯡꯗ **0.6 m/s** ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄꯁꯤꯡꯗ **0.9 m/s**;
- (b) ꯃꯦꯛꯁꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ: ꯑꯣꯏꯅ ꯄꯤꯛ ꯐ꯭ꯂꯣꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄꯁꯤꯡꯗ **3.0 m/s**, ꯐ꯭ꯂꯣꯗ ꯂꯩꯔꯤꯕ ꯄꯥꯏꯞ ꯑꯗꯨ ꯍꯥꯌꯕ 9-ꯒꯤ ꯃꯈꯥꯗ ꯇꯨꯡ ꯑꯃ ꯑꯣꯏꯅ ꯄꯤꯔꯤꯕ ꯑꯣꯏꯔꯕꯅꯤ꯫ CPHEEO-ꯅ ꯌꯤꯡꯒꯤ ꯆꯠꯄꯤꯗꯅ ꯀꯟꯀ꯭ꯔꯤꯠ ꯂꯩꯕꯒꯤ ꯀꯟꯀ꯭ꯔꯤꯠꯇꯅ ꯑꯣꯏꯕ ꯑꯣꯏꯕ ꯄꯥꯏꯄꯁꯤꯡꯗ 6.0 m/s ꯐꯥꯑꯣꯕ ꯌꯥꯍꯟꯂꯤ; ꯃꯗꯤ ꯍꯨꯔꯥꯟ ꯑꯣꯏꯕ ꯌꯤꯡꯒꯤ ꯃꯇꯥꯡꯗꯤ, ꯑꯣꯃꯦꯠꯇꯦ, ꯂꯦꯂꯦ, ꯁꯍꯨꯡ, ꯀꯦꯂꯥꯑꯣꯏ, ꯁꯤꯡꯂꯨꯄꯁꯤꯡ, ꯌꯦꯡꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯌꯤꯡꯒꯤ ꯀꯥꯟꯅꯗꯅ ꯑꯦꯛꯁꯄꯥꯔꯇꯀꯤ ꯑꯦꯗꯚꯥꯏꯖꯔꯒꯤ ꯌꯦꯡꯕꯒꯤ ꯂꯩꯔꯦꯡꯕ ꯌꯥꯒꯅ;
- (c) ꯑꯣꯏꯕ ꯄꯤꯛ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯕꯤ ꯂꯩꯕ ꯔꯦꯜꯍꯣꯅꯗꯅ ꯃꯦꯛꯁꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ: ꯀꯥꯡꯒ 9, ꯑꯦꯕꯟ 9.2;
- (d) ꯄꯤꯛ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯄꯤꯛ ꯐ꯭ꯂꯣꯁꯤꯡꯗꯅ ꯂꯩꯕ ꯐ꯭ꯂꯣꯒꯤ ꯐ꯭ꯂꯣꯗ ꯂꯥꯀꯄ ꯑꯗꯤ ꯃꯤꯅꯤꯃꯝ ꯐ꯭ꯂꯣꯗ 0.8-ꯒꯤ ꯍꯦꯟꯅꯕꯅꯤ, ꯐ꯭ꯂꯣꯗ ꯑꯗꯨ ꯍꯥꯌꯕ 9-ꯒꯤ ꯃꯈꯥꯗ ꯁꯨꯄꯔꯛꯔꯤꯇꯤꯀꯦꯜ ꯐ꯭ꯂꯣ (supercritical flow)-ꯒꯤ ꯃꯈꯥꯗ ꯃꯤꯅꯤꯃꯝ ꯑꯣꯏꯔꯕꯅꯤ꯫

6.7.4 **ꯚꯦꯂꯣꯁꯤꯇꯤ.** ꯄꯥꯏꯄ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯦꯜ ꯁ꯭ꯂꯥꯏꯗꯤꯡꯗ ꯁꯦꯛꯁꯟ 6.7.3(a) ꯗ ꯌꯥꯑꯣꯕ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯑꯁꯤ ꯆꯦꯛ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯃꯇꯝꯗ ꯑꯣꯏꯕ ꯚꯦꯂꯣꯁꯤꯇꯤꯗꯤ ꯃꯇꯧ ꯑꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯑꯣꯕ ꯃꯇꯨꯡ, ꯑꯗꯨꯒꯨꯝꯕꯁꯤ:

- (a) ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗꯥ ꯑꯃꯁꯨꯡ ꯁꯦꯜꯐ-ꯀ꯭ꯂꯤꯟꯁꯤꯡ ꯑꯣꯏꯒꯗꯕꯅꯤ;
- (b) ꯁꯦꯛꯁꯟ 6.7.8-ꯗꯤ ꯂꯣꯡꯒꯤꯇꯨꯗꯤꯅꯦꯜ ꯁ꯭ꯂꯣꯞ ꯑꯃꯁꯨꯡ ꯑꯗꯨ ꯊꯥꯗ ꯄꯣꯠꯆꯤꯡꯄꯥꯡꯗꯥꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯁꯦꯛꯁꯟ 6.13.2-ꯗꯤ ꯆꯦꯛ ꯇꯧꯕ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯣꯏꯅꯕꯤꯗꯥꯏꯗꯃꯛ ꯌꯥꯕꯗꯥꯄꯗꯤ ꯆꯥꯡꯕ ꯄꯤꯗꯕꯅꯤ꯫

6.7.5 **ꯄꯥꯏꯄꯀꯤ ꯐꯨꯜ ꯐ꯭ꯂꯣ.** ꯄꯥꯏꯄꯁꯤꯡ ꯑꯁꯤ ꯃꯥꯏꯄꯥ ꯑꯣꯏꯅ ꯐꯨꯜꯗ ꯄꯥꯏꯄ ꯃꯄꯨꯡꯐꯗꯒꯤ ꯁꯦꯟꯇꯔꯁꯤꯡꯒꯤ ꯄꯣꯜꯑꯣꯏꯕ ꯁꯥꯏꯖ ꯆꯥꯡꯗꯕꯅꯤ꯫ ꯑꯁꯦꯡꯕ ꯄꯥꯏꯄ ꯑꯃꯗꯥ ꯃꯇꯤꯛꯀꯤ ꯑꯁꯤꯡꯕꯗꯤ 0.95 ꯃꯥꯟꯅꯕ ꯄꯨꯕ ꯄꯣꯠꯂꯝ ꯌꯥꯕ ꯑꯣꯏꯍꯟꯕ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯝ ꯇꯧꯒꯗꯕꯅꯤ꯫

6.7.6 **ꯃꯤꯅꯤꯃꯝ ꯁꯥꯏꯖꯁꯤꯡ.**

- (a) ꯄꯥꯏꯄꯁꯤꯡ: ꯃꯅꯨꯡꯗꯤ ꯗꯥꯏꯃꯤꯇꯔ 300 mm; ꯄꯔꯦꯟꯇꯥ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤꯗꯃꯛ **450 mm**꯫
- (b) ꯑꯣꯄꯟ ꯗ꯭ꯔꯦꯅꯁꯤꯡ: ꯃꯈꯥꯒꯤ ꯄꯥꯛꯄ 0.3 m꯫
- (c) ꯀꯚꯔ ꯇꯧꯔꯕ ꯄꯔꯦꯟꯇꯥ ꯗ꯭ꯔꯦꯅꯁꯤꯡ (ꯀꯚꯔ ꯂꯩꯕꯁꯤꯡꯗꯥ ꯊꯤꯡꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ): ꯃꯅꯨꯡꯒꯤ ꯂꯦꯡꯕ ꯄꯥꯛꯄ **0.6 m** ꯑꯃꯁꯨꯡ ꯃꯅꯨꯡꯒꯤ ꯂꯦꯡꯕ ꯑꯋꯥꯡꯕ **0.6 m**꯫

6.7.7 **ꯄꯥꯏꯄꯁꯤꯡꯒꯤ ꯀꯚꯔ.** ꯄꯥꯏꯄꯁꯤꯡꯗ ꯇꯥꯔꯤꯛꯇꯕ ꯇꯦꯡꯕ ꯗꯤꯡꯕ ꯌꯥꯃꯗ꯭ꯔꯕꯗ 0.6 m-ꯒꯤ ꯀꯚꯔ ꯄꯤꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯚꯤ ꯇ꯭ꯔꯥꯐꯤꯛꯀꯤ ꯂꯣꯗꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ ꯑꯁꯤ ꯄꯥꯏꯄꯁꯤꯡꯗ ꯀꯦꯔꯦꯖꯋꯦꯁꯤꯡꯒꯤ ꯃꯇꯝ ꯌꯥꯃꯗ꯭ꯔꯕꯗ 0.9 m꯫ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯍꯨꯠ ꯇꯦꯡꯕ ꯌꯥꯕ ꯍꯥꯏꯕ ꯑꯁꯤ ꯄꯥꯏꯄꯁꯤꯡꯗ ꯃꯌꯥꯝꯕꯥꯒꯤ 1 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯆꯪꯕ ꯃꯇꯝꯗ, ꯄꯥꯏꯄ ꯑꯗꯨ ꯑꯣꯏꯕ ꯗꯤꯖꯥꯏꯟ ꯗꯦꯇꯁꯤꯡꯒꯤꯗꯃꯛ (flotation) ꯌꯦꯡ ꯁꯤꯡꯗꯕꯅꯤ (CPHEEO 2019, Table 11.2) ꯑꯃꯁꯨꯡ ꯃꯊꯧ ꯁꯤꯕ ꯃꯗꯝꯗ ꯑꯦꯟꯀꯔ ꯁꯤꯡꯗꯕꯅꯤ꯫

6.7.8 **ꯂꯣꯡꯒꯤꯇꯨꯗꯤꯅꯦꯜ ꯁ꯭ꯂꯣꯞ.** ꯑꯣꯄꯟ ꯗ꯭ꯔꯦꯅꯁꯤꯡ, ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ 600 mm ꯆꯥꯡꯕ ꯃꯁꯤꯡꯒꯤ ꯑꯦꯟꯇꯕ ꯗꯥꯏꯃꯤꯇꯔꯒꯤ ꯄꯥꯏꯄꯁꯤꯡꯒꯤ ꯁꯦꯜꯐ ꯃꯦꯄꯁꯤꯡꯗ ꯑꯁꯤ ꯅꯣꯔꯃꯦꯂꯝ ꯃꯈꯥꯒꯤ ꯑꯅꯧꯕꯒꯤ ꯂꯣꯡꯒꯤꯇꯨꯗꯤꯅꯦꯜ ꯆꯦꯡ ꯊꯥꯒꯗꯕꯅꯤ:

- (a) ꯑꯣꯄꯟ ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡ: **75 mm** ꯑꯃꯁꯨꯡ ꯃꯅꯨꯡꯒꯤ ꯂꯦꯡꯕ ꯑꯅꯧꯕꯒꯤ **10%**, ꯃꯈꯥꯔꯒꯤ ꯃꯇꯝꯗ ꯑꯦꯟꯇꯕ ꯌꯥꯕ ꯑꯗꯨ;
- (b) 600 mm ꯆꯥꯡꯕ ꯃꯁꯤꯡꯒꯤ ꯑꯦꯟꯇꯕ ꯗꯥꯏꯃꯤꯇꯔꯒꯤ ꯄꯥꯏꯄꯁꯤꯡ: ꯃꯅꯨꯡꯒꯤ ꯗꯥꯏꯃꯤꯇꯔꯒꯤ **5%**;
- (c) 600 mm-ꯗꯒꯤ ꯑꯦꯟꯊꯕ ꯄꯥꯏꯄꯁꯤꯡ: ꯁꯦꯜꯐ-ꯀ꯭ꯂꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯛ, ꯑꯗꯨꯒꯨ ꯁꯦꯛꯁꯟ 6.7.3(a) ꯗꯒꯤꯅꯤ꯫

ꯑꯦꯝꯊꯔꯦꯇꯕ ꯂꯣꯇꯂꯦꯒꯤ ꯃꯦꯅꯤꯡ n ꯑꯁꯤ ꯇꯦꯕꯜ 6.6-ꯗ ꯆꯕ ꯗ꯭ꯔꯦꯅꯒꯤ ꯃꯦꯇꯦꯔꯤꯌꯦꯂꯒꯤ ꯑꯗꯨ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

6.7.9 **ꯑꯣꯄꯟ ꯗ꯭ꯔꯦꯅ ꯑꯃꯁꯨꯡ ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯗ ꯐ꯭ꯔꯤꯕꯣꯔꯗ.** ꯃꯥꯏꯄꯥ ꯐꯨꯜꯗ ꯐ꯭ꯂꯣꯗ, ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯊꯛ (ꯂꯣꯡꯒꯤꯇꯨꯗꯤꯅꯦꯜ ꯁ꯭ꯂꯣꯞ ꯆꯦꯛꯀꯤ ꯇꯧꯔꯕ ꯊꯤꯕ) ꯑꯁꯤ ꯗ꯭ꯔꯦꯅꯒꯤ ꯌꯦꯡꯒꯤ ꯃꯊꯛꯇꯒꯤ, ꯆꯥꯡꯕ ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯟ ꯑꯃꯗ ꯀꯚꯔ ꯂꯩꯕꯒꯤ ꯂꯥꯏꯁꯣꯡꯒꯤ (soffit), ꯌꯥꯃꯗ꯭ꯔꯕꯗ ꯇꯦꯕꯜ 6.7-ꯒꯤ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯗꯤꯡꯕ ꯃꯈꯥꯗ ꯆꯪꯒꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 6.7 — ꯑꯣꯄꯟ ꯗ꯭ꯔꯦꯅ ꯑꯃꯁꯨꯡ ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯗ ꯃꯤꯅꯤꯃꯝ ꯐ꯭ꯔꯤꯕꯣꯔꯗ

ꯗ꯭ꯔꯦꯟ	ꯃꯤꯅꯤꯃꯝ ꯐ꯭ꯔꯤꯕꯣꯔꯗ	ꯁꯣꯔꯁ
ꯃꯈꯥꯒꯤ ꯄꯥꯛꯄ 300 mm ꯐꯥꯑꯣꯕ	100 mm	CPHEEO 2019 Table 5.3 (IRC:SP:50-2013-ꯗꯒꯤ)
ꯃꯈꯥꯒꯤ ꯄꯥꯛꯄ 300–900 mm	150 mm	CPHEEO 2019 Table 5.3
ꯃꯈꯥꯒꯤ ꯄꯥꯛꯄ 900–1,500 mm	300 mm	CPHEEO 2019 Table 5.3
ꯑꯦꯟꯊꯕ ꯄꯥꯛꯄ ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯝꯄꯣꯔꯦꯔꯤ ꯀꯚꯔ ꯌꯦꯡꯊꯣꯛꯁꯤꯡ, Q < 3 m³/s	450 mm	CPHEEO 2019 Table 5.12 (IS 7784 (Part 1): 1993-ꯗꯒꯤ)
Q 3-ꯗꯒꯤ < 30 m³/s	600 mm	ꯃꯊꯧ ꯆꯕꯒꯤ
Q 30-ꯗꯒꯤ < 300 m³/s	900 mm	ꯃꯊꯧ ꯆꯕꯒꯤ
Q 300-ꯗꯒꯤ < 3,000 m³/s	1,200 mm	ꯃꯊꯧ ꯆꯕꯒꯤ

ꯈꯣꯡꯕꯥꯟ	ꯃꯤꯅꯤꯃꯝ ꯐ꯭ꯔꯤꯕꯣꯔꯗ	ꯍꯧꯔꯛꯐꯝ
Q ≥ 3,000 m³/s	1,500 mm	ꯃꯊꯛꯇ ꯂꯧꯕ꯭ꯔꯨꯝ
ꯂꯝꯕꯤꯒꯤ ꯃꯅꯥꯛꯀꯤ ꯈꯣꯡꯕꯥꯟ ꯑꯃꯍꯦꯛꯇ	150 mm-ꯗꯒꯤ ꯍꯟꯊꯔꯣꯏꯗꯕ	IRC:SP:42-2014
ꯑꯉꯃꯕ (ꯁꯨꯄꯔꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ) ꯆꯦꯅꯦꯜꯁꯤꯡ	ꯐ꯭ꯂꯣꯒꯤ ꯑꯊꯡꯕꯒꯥ ꯃꯥꯟꯅꯕ	CPHEEO 2019 §5.3.2

ꯀꯣꯏꯕ ꯃꯐꯝꯁꯤꯡꯗ, ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯑꯁꯤ ꯀꯣꯏꯕꯒꯤ ꯃꯄꯥꯟꯊꯣꯡꯗ ꯂꯧꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯗꯒꯤ ꯌꯥꯎꯒꯗꯕꯅꯤ, ꯁꯨꯄꯔꯑꯦꯂꯦꯚꯦꯁꯟ $\Delta y = V^2T / (2\ g\ r_c)$ ꯌꯥꯎꯅꯥ, ꯃꯐꯝ ꯑꯁꯤꯗ T ꯑꯁꯤ ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄ ꯑꯃꯁꯨꯡ r_c ꯑꯁꯤ ꯁꯦꯟꯇꯔꯂꯥꯏꯅꯒꯤ ꯔꯦꯗꯤꯌꯁꯅꯤ (CPHEEO 2019, Eq. 5.29)꯫

6.7.10 **ꯀꯣꯏꯕ ꯃꯐꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯉ꯭ꯀꯁꯟꯁꯤꯡ.**

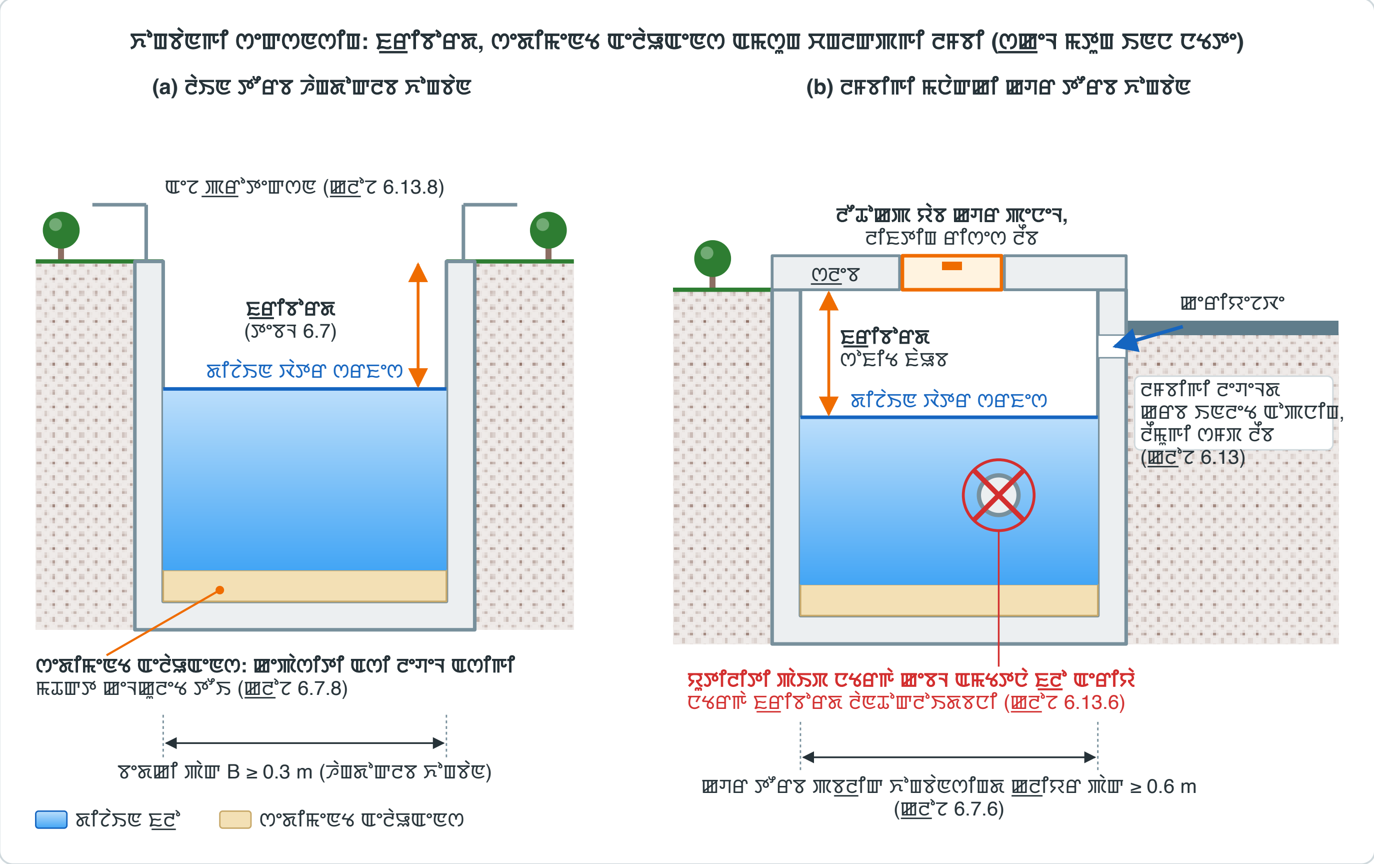
- (a) ꯈꯣꯡꯕꯥꯟ ꯑꯃꯗ ꯀꯣꯏꯕ ꯃꯐꯝ ꯑꯃꯒꯤ ꯁꯦꯟꯇꯔꯂꯥꯏꯅꯒꯤ ꯔꯦꯗꯤꯌꯁ ꯑꯁꯤ ꯌꯥꯝꯗꯔꯕꯗ ꯈꯣꯡꯕꯥꯟꯒꯤ ꯄꯥꯛꯄꯒꯤ 3 ꯊꯣꯛ ꯑꯣꯏꯒꯗꯕꯅꯤ (CPHEEO 2019 §5.3.3)꯫ ꯍꯟꯂꯤꯅꯤꯌꯔ ꯇꯧꯔꯕ ꯆꯦꯅꯦꯜꯁꯤꯡꯗ ꯃꯁꯤ ꯌꯥꯝꯗꯔꯕꯗ ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄꯒꯤ 2 ꯊꯣꯛ ꯑꯃꯁꯨꯡ 30 m-ꯗꯒꯤ ꯍꯟꯊꯔꯣꯏꯗꯕ ꯑꯣꯏꯒꯗꯕꯅꯤ (CPHEEO 2019 Table 5.11)꯫
- (b) ꯈꯣꯡꯕꯥꯟꯁꯤꯡ ꯁꯝꯅꯔꯕ ꯃꯐꯝꯗ, ꯆꯪꯂꯛꯂꯤꯕ ꯈꯣꯡꯕꯥꯟꯒꯤ ꯇꯥꯡꯇꯥꯡꯒꯤ ꯌꯥꯝꯗꯔꯕꯗ ꯑꯅꯤ ꯊꯥꯛ ꯃꯂꯨꯡꯒꯤ ꯇꯥꯛ ꯆꯧꯕ ꯖꯉ꯭ꯀꯁꯟ ꯁꯝꯄ ꯑꯃꯗ ꯊꯝꯒꯗꯕꯅꯤ꯫ ꯌꯥꯡꯂꯛꯂꯤꯕ ꯈꯣꯡꯕꯥꯟꯁꯤꯡ ꯑꯁꯤ ꯇꯥꯡꯂꯛꯂꯤꯕ ꯑꯦꯅꯔꯖꯤ ꯂꯥꯏꯅꯒꯤ ꯍꯦꯊꯕ ꯑꯦꯅꯔꯖꯤꯗ ꯌꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯇꯥꯡꯂꯛꯂꯤꯕ ꯁꯦꯡꯂꯕꯒꯤ ꯑꯁꯤ ꯁꯝꯖꯤꯟꯅꯕ ꯃꯈꯥ ꯆꯥꯡꯒꯗꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯁꯝꯖꯤꯟꯒꯅꯤ ꯅꯣꯏꯕꯅꯤ (CPHEEO 2019 §5.3.4)꯫

6.7.11 **ꯃꯦꯟꯍꯣꯜꯁꯤꯡꯒꯤ ꯃꯦꯔꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ ꯆꯦꯝꯕꯔꯁꯤꯡ.** ꯖꯉ꯭ꯀꯁꯟ ꯂꯤꯡꯃꯐꯝ, ꯕꯦꯟꯗ, ꯑꯦꯂꯥꯏꯟꯃꯦꯟꯇ ꯆꯦꯟꯖ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯗꯤꯌꯦꯟꯇ ꯆꯦꯟꯖ ꯂꯤꯡꯃꯐꯝꯁꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯠꯔꯦꯠ ꯂꯤꯡꯃꯐꯝꯁꯤꯡꯗ ꯃꯦꯟꯍꯣꯜ ꯊꯃꯒꯗꯕꯅꯤ꯫ ꯃꯦꯛꯁꯤꯃꯝ ꯁ꯭ꯄꯦꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯕꯜ 6.8-ꯗ ꯄꯤꯔꯛꯂꯤ꯫

ꯇꯦꯕꯜ 6.8 — ꯁ꯭ꯠꯔꯦꯠ ꯄꯥꯏꯄ ꯗꯥꯏꯃꯤꯇꯔꯒꯤ ꯃꯦꯟꯍꯣꯜꯁꯤꯡꯒꯤ ꯃꯦꯛꯁꯤꯃꯝ ꯁ꯭ꯄꯦꯁꯤꯡ

ꯄꯥꯏꯄꯀꯤ ꯗꯥꯏꯃꯤꯇꯔ	ꯃꯦꯛꯁꯤꯃꯝ ꯁ꯭ꯄꯦꯁꯤꯡ
300–600 mm	40 m
700–1,000 mm	100 m
1,050–1,400 mm	150 m
1,500 mm ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ	300 m

ꯍꯧꯔꯛꯐꯝ: CPHEEO 2019 Table 11.5꯫ ꯃꯦꯟꯍꯣꯜꯒꯤ ꯗꯤꯖꯥꯏꯟ, ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ: ꯆꯦꯞꯇꯔ 9, ꯁꯦꯛꯁꯟ 9.12꯫


ꯍꯥꯡꯕꯟꯒꯤ ꯁꯦꯂꯁꯔꯁꯤꯡ: ꯐ꯭ꯔꯤꯕꯣꯔꯗ, ꯁꯦꯗꯤꯃꯦꯟꯇ ꯑꯦꯂꯥꯎꯑꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯍꯡꯅꯑꯑꯃꯤ ꯅꯃꯕꯤ
(a) ꯅꯍꯟ ꯇꯦꯔꯕ ꯍꯔꯀꯥꯛꯂꯕ ꯍꯥꯡꯕꯟ
(b) ꯅꯃꯕꯤꯒꯤ ꯃꯅꯛꯀꯤ ꯀꯒꯔ ꯇꯦꯔꯕ ꯍꯥꯡꯕꯟ
(ꯀ꯭ꯂꯣꯖ 6.13.8)
ꯐ꯭ꯔꯤꯕꯣꯔꯗ
(ꯇꯦꯕꯜ 6.7)
(ꯀ꯭ꯂꯣꯖ 6.7.8)
B ≥ 0.3 m
ꯐ꯭ꯔꯤꯕꯣꯔꯗ
(ꯀ꯭ꯂꯣꯖ 6.13)
(ꯀ꯭ꯂꯣꯖ 6.13.6)
≥ 0.6 m
(ꯀ꯭ꯂꯣꯖ 6.7.6)
ꯁꯦꯗꯤꯃꯦꯟꯇ ꯑꯦꯂꯥꯎꯑꯦꯟꯁ

ꯃꯃꯤ 6.3 — ꯍꯥꯡꯕꯟꯒꯤ ꯁꯦꯂꯁꯔꯁꯤꯡ: ꯐ꯭ꯔꯤꯕꯣꯔꯗ, ꯁꯦꯗꯤꯃꯦꯟꯇ ꯑꯦꯂꯥꯎꯑꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯍꯡꯅꯑꯑꯃꯤ ꯅꯃꯕꯤ꯫ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯑꯅꯧꯅ ꯁꯦꯝꯕ ꯐꯤꯕꯝ, CPHEEO, Manual on Storm Water Drainage Systems (2019), Tables 5.3 and 5.12, ꯑꯃꯁꯨꯡ IRC:SP:50-2013-ꯗꯒꯤ ꯍꯔꯗꯥꯛꯂꯛꯄ ꯂꯧꯈꯤꯕ꯫

ꯁꯦꯗꯥꯛꯅꯥ ꯗꯦꯛꯌ. n-ꯒꯤ ꯚꯦꯜꯌꯨꯁꯤꯡ ꯑꯁꯤ CPHEEO (2019) Table 5.1-ꯒꯤꯅꯤ꯫ ꯍꯦꯟꯅꯥ ꯗꯥꯡꯕꯝ ꯃꯤꯅꯤꯃꯝ ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨꯁꯤꯡ ꯑꯁꯤꯒꯤ ꯍꯛꯗꯦꯛꯅꯕ ꯃꯃꯥꯡꯒꯤ ꯗꯨꯕꯏꯝ ꯂꯧꯈꯦ; ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯃꯍꯥꯛ ꯗꯃꯅꯤ, ꯃꯔꯃꯕꯤ CPHEEO-ꯅꯥ ꯁꯄꯛ ꯄꯗꯄꯁꯤꯡꯒꯤ 0.011-ꯒꯤ ꯚꯦꯜꯌꯨ ꯑꯁꯤ "ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯔꯅꯥ ꯄꯤꯕꯒꯨꯝꯅꯥ ꯂꯧꯕ ꯌꯥꯏ" ("may be taken as given by the manufacturer") ꯍꯌꯅꯥ ꯂꯥꯗ ꯇꯦꯔꯤ꯫ ꯃꯁꯤ ꯁꯦꯡꯂꯕ ꯄꯗꯄꯀꯤ ꯚꯦꯜꯌꯨꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯔꯒꯤ ꯍꯥꯡꯕꯟꯁꯤꯡꯅꯥ ꯂꯧꯃ ꯑꯃꯁꯨꯡ ꯁꯥꯂꯤꯛ ꯌꯦꯖꯨꯗ ꯌꯦꯃꯅꯥ ꯄꯨꯗ꯫ 0.6 m/s-ꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯑꯁꯤ CPHEEO-ꯒꯤꯅꯤ (Table 5.2), 0.09 mm-ꯒꯤ ꯂꯧꯁꯤꯟ ꯄꯨꯕꯗ ꯌꯨꯃꯖꯃ ꯑꯥꯟꯕ (§5.3.1)꯫ ꯄꯗꯄꯁꯤꯡꯒꯤ 0.9 m/s-ꯒꯤ ꯚꯦꯜꯌꯨ ꯑꯁꯤ ꯍꯦꯟꯅꯥ ꯀꯦꯟꯗ, ꯃꯔꯃꯗꯤ ꯂꯧꯃꯅꯥ ꯃꯄꯨꯡꯕ ꯄꯗꯄ ꯑꯃ ꯍꯔꯀꯥꯛꯂꯕ ꯍꯥꯡꯕꯟ ꯑꯃꯄꯨꯝꯅꯥ ꯅꯍꯟꯅꯥ ꯁꯦꯗꯥꯛꯄꯥ ꯌꯦꯗꯦ꯫ 3.0 m/s-ꯒꯤ ꯃꯦꯛꯁꯤꯃꯝ ꯑꯁꯤ CPHEEO Table 5.2 (WPCF/ASCE 1982)-ꯗꯒꯤꯅꯤ꯫ 0.8-ꯒꯤ ꯐ꯭ꯔꯗ ꯅꯤꯃꯤꯟ ꯑꯁꯤ CPHEEO §5.3-ꯗꯒꯤꯅꯤ, ꯃꯁꯤꯅꯥ ꯍꯁꯤꯡꯒꯤ ꯃꯂꯛ ꯑꯁꯤ ꯔꯦꯌꯄ ꯂꯧꯇꯕ ꯑꯥꯍꯔꯀꯄꯅꯥ ꯀꯔꯤꯇꯤꯀꯦꯜ ꯐꯂꯣ ꯂꯗꯥꯛꯂꯕ ꯄꯗꯦꯇꯛ ꯄꯤꯔꯤ꯫

ꯀꯒꯔ ꯇꯦꯔꯕ ꯍꯥꯡꯕꯟꯁꯤꯡꯒꯤ 0.6 m × 0.6 m-ꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯑꯁꯤꯒꯤ ꯍꯛꯗꯦꯛꯅꯕ ꯃꯃꯥꯡꯒꯤ ꯗꯨꯕꯏꯝ ꯂꯧꯈꯦ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅꯥ ꯂꯃꯕꯅꯤ꯫ ꯃꯁꯤꯗꯒꯤ ꯌꯦꯕ ꯀꯒꯔ ꯇꯦꯔꯕ ꯍꯥꯡꯕꯟ ꯑꯃ ꯀꯒꯔꯒꯤ ꯍꯔꯕ ꯃꯐꯝ ꯑꯃꯒꯤ ꯗꯨꯄꯂꯥꯟ ꯗꯨꯄꯅꯥ ꯅꯄꯔꯤꯛ ꯑꯄꯤꯗꯄ ꯃꯦꯁꯤꯅꯁꯤꯟꯅꯥ ꯅꯃꯨ ꯅꯦꯂꯥꯛꯄ ꯌꯦꯗ, ꯑꯃꯁꯨꯡ ꯅꯃꯨꯅꯥ ꯃꯄꯨꯡꯕ, ꯍꯔꯕ ꯌꯦꯗꯕ ꯍꯥꯡꯕꯟꯁꯤꯡ ꯑꯁꯤ ꯃꯦ 2024 ꯑꯃꯁꯨꯡ ꯃꯦ–ꯖꯨꯟ 2025-ꯒꯤ ꯍꯐꯖꯤꯡꯒꯤ ꯍꯁꯤꯡ ꯍꯌꯦꯡꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯍꯦꯟꯅꯟ ꯍꯦꯟꯅꯟ ꯐꯗꯅꯛꯄ ꯑꯃꯅꯤ, "ꯅꯤꯔꯤꯕ ꯍꯔꯐ … ꯑꯁꯤꯁꯨ ꯐꯕ ꯐꯤꯒꯃꯗ ꯂꯧꯈꯦ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯍꯥꯡꯕꯟꯗ ꯆꯨꯝꯅꯥ ꯁꯝꯃꯤꯟꯅꯗꯦ꯫ ꯍꯔꯐ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯂꯤꯉ꯭ꯀꯁꯤꯡ ꯃꯥꯡꯂꯤ … ꯍꯥꯡꯕꯟꯁꯤꯡ ꯀꯨꯄꯂꯦ" ("existing drainage … is also not in good condition and is not properly connected to the primary drain. Drainage system links are missing … the drains are clogged") (AIIB, 2024) ꯍꯌꯔꯤꯕ ꯁꯍꯔ ꯑꯃꯗ, ꯀꯧꯗꯦꯇꯒꯤ ꯌꯦꯁꯨꯖ ꯑꯁꯤ ꯅꯤꯡꯊꯧ ꯄꯨꯇꯅꯤꯗ ꯗꯥꯛꯍꯥꯟ, "ꯃꯁꯤꯅꯥ ꯌꯍꯤ ꯄꯨꯃꯕꯗ ꯌꯦꯟꯗꯕ ꯍꯁꯤꯡ ꯄꯨꯡꯁꯤꯟꯕ ꯑꯃ ꯁꯦꯃꯃꯤ" ("which creates a stagnant pool all along the year") (ꯃꯤꯁꯦꯡ ꯄꯥꯎꯅꯥꯟ), ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯧ ꯄꯨꯇꯅꯤ ꯀꯨꯄꯄꯅꯤ ꯅꯨꯅꯤꯟ 2024-ꯗ ꯅꯤꯡꯐꯃ, ꯅꯍꯟꯃ ꯄꯨꯅꯦ ꯑꯃꯁꯨꯡ ꯅꯍꯔꯤꯒꯌꯦꯛꯃ ꯅꯀꯗꯍꯟ ꯍꯁꯤꯡ ꯍꯌꯦꯡ ꯄꯨꯔꯒꯥꯟ (ꯄꯗꯗ ꯐꯛꯗꯥꯛꯂꯤꯕ ꯃꯇꯨꯡ ꯍꯟꯅ); AIIB ꯄꯔꯦꯖꯦꯛꯇꯀꯤ ꯍꯦꯂꯤꯛ ꯒꯔꯦꯟꯗ ꯍꯐꯖꯤꯡꯒꯤ ꯅꯃꯕꯤꯁꯤꯡꯒꯤ ꯃꯅꯛꯇꯥ "ꯃꯅꯛ ꯑꯅꯤꯃꯛꯇꯥ ꯀꯒꯔ ꯇꯦꯔꯕ ꯅꯥꯡꯒꯤ

> ꯅꯣꯏꯕꯒꯤ ꯅꯥꯀꯂꯦ 547 km" ("547 km of both side stormwater covered drains") ꯁꯤꯡꯌꯥꯏꯈꯔꯦ (AIIB, 2024)꯫ 0.6 m-ꯒꯤ ꯍꯤꯗꯤꯍꯟ ꯃꯀꯥꯕ ꯑꯁꯤ CPHEEO (2019)-ꯒꯤ ꯊꯕꯛ ꯇꯧꯕ ꯄꯥꯟꯄꯥ-ꯈꯤꯗꯥꯟꯂꯦ ꯃꯍꯥꯀꯨꯇꯣꯡꯂꯦ ꯁꯤꯌꯝ (Part A, Chapter 5) ꯁꯤꯗꯤꯡꯗꯕꯤꯕ ꯀꯣꯅꯨꯗꯦ꯫ ꯃꯥꯕꯤꯔꯣꯗꯔꯣꯁꯤꯡꯒꯤ ꯍꯟꯖ 0.9 m-ꯒꯤ ꯃꯀꯥꯕ ꯑꯁꯤ ꯍꯣꯖꯨꯔꯣꯅ ꯑꯁꯤꯗꯥ ꯊꯍꯕꯗꯤ꯫
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> ꯁꯣꯈꯤꯍꯣꯂꯌ ꯑꯣꯗꯥꯖꯑꯣꯂꯁꯃꯤ ꯀꯣꯅꯨꯁꯤꯡ (ꯅꯥꯀꯂꯦꯁꯤꯡꯒꯤꯈꯍꯛ 75 mm ꯅꯠꯔꯒꯥ 10%, ꯑꯔꯣꯕ ꯄꯥꯟꯄꯁꯤꯡꯒꯤꯈꯍꯛ 5%) ꯑꯁꯤ ꯍꯣꯖꯨꯔꯣꯅ ꯑꯁꯤꯗꯥ ꯊꯍꯕꯗꯤ꯫ ꯅꯂꯈꯤꯔꯤꯒꯤ ꯁꯝꯂꯈꯕꯈ ꯑꯍꯌꯝꯗꯥ ꯈꯤꯗꯥꯟꯂꯒꯤꯈꯍꯛ ꯁꯣꯈꯤꯍꯣꯂꯌ ꯑꯣꯗꯥꯖꯑꯣꯂ ꯑꯍꯩ ꯊꯍꯈꯣ꯫ ꯅꯍꯐꯥꯒꯤ ꯊꯣꯛꯗꯅꯤꯕꯈꯤ ꯅꯥꯀꯂꯦꯁꯤꯡ ꯑꯁꯤ ꯌꯄꯤꯒꯤ ꯍꯝꯍ ꯔꯤꯍꯗꯥ ꯗꯣꯍꯨꯗꯥ ꯁꯔꯨꯛ ꯅꯕ ꯍꯥꯡꯂꯗꯥ ꯌꯌꯗꯤ, ꯍꯕꯍ ꯑꯈꯨꯗꯥ ꯁꯣꯛꯗꯕ ꯁꯣꯛꯁꯂ ꯑꯍꯒꯤꯈꯍꯛ ꯊꯤꯕꯕ ꯃꯣꯄꯥꯁꯤꯝꯤ ꯑꯍꯗꯥ ꯑꯌꯨꯍꯕ ꯃꯣꯄꯥꯁꯤꯝꯤꯈꯒꯤ ꯄꯣꯂꯗꯥ ꯂꯌꯗꯤ꯫
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> CPHEEO-ꯒꯤ ꯐꯕꯤꯕꯥꯕꯈꯃꯤ ꯝꯣꯕꯅ (Table 5.3)-ꯗꯥ ꯑꯄꯗꯕ ꯕꯥ ꯑꯁꯤ "ꯕꯣꯈ ꯄꯥꯛꯄ 300 mm-ꯈꯒꯤ ꯄꯣꯂꯕ" ("Beyond 300 mm bed width") ꯄꯔꯗꯥ ꯐꯥꯛꯈꯥꯛꯗꯤ꯫ ꯑꯗꯤꯡꯕ ꯕꯥ ("ꯕꯣꯈ ꯄꯥꯛꯄ 300 mm-ꯈꯒꯤ ꯄꯣꯂꯕ ꯑꯃꯁꯨꯡ 900 mm ꯐꯥꯑꯕ" ["Beyond 300 mm & up to 900 mm"])-ꯒꯤ ꯗꯥꯔꯗꯗ ꯄꯥꯕꯕꯈꯤ, ꯑꯄꯗꯕ ꯕꯥ ꯑꯁꯤꯒꯤ ꯑꯕꯊꯈꯤ "300 mm ꯐꯥꯑꯕ" ("up to 300 mm") ꯑꯅꯒꯈꯕꯗꯤ; ꯝꯣꯕꯅ 6.7 ꯑꯁꯤ ꯍꯑꯥꯛ ꯑꯈꯨꯗꯥ ꯅꯕꯤ꯫ CPHEEO-ꯒꯤ ꯍꯣꯂꯄꯅꯒꯤ ꯗꯥꯄ ꯊꯥꯛꯃꯤ ꯝꯣꯕꯅ (Table 11.5)-ꯗꯥ ꯊꯣꯛꯗꯗꯕ ꯕꯣꯂꯗꯁꯤꯛ (700–1,050 mm ꯑꯃꯁꯨꯡ 1,000–1,400 mm) ꯄꯤꯕꯤ; ꯝꯣꯕꯅ 6.8-ꯗꯥ 1,050 mm ꯑꯁꯤ 150 m-ꯒꯤ ꯃꯗꯥꯁꯝ ꯊꯍꯨꯗꯥ ꯊꯣꯛꯗꯗꯕ ꯑꯈꯨ ꯗꯥꯊꯥꯛꯗꯤ꯫

6.8 ꯄꯅꯈꯕꯥꯗꯤꯛ ꯒꯕꯣꯈ ꯗꯥꯅꯂ

6.8.1 **HGL ꯑꯣꯗꯥꯗꯥꯅꯁꯤꯁ.** ꯄꯥꯅꯄ ꯑꯃꯁꯨꯡ ꯃꯀꯥꯕ ꯝꯕꯕ ꯅꯥꯛꯕꯂꯒꯤ ꯗꯌꯔꯕꯛ ꯍꯈꯤꯛꯍꯛꯃꯤꯈꯍꯛ, ꯈꯤꯗꯥꯅꯗꯕꯗꯥ ꯍꯤꯅꯗꯕ ꯈꯤꯗꯥꯅꯂ ꯅꯒꯣꯂꯌ ꯑꯃꯁꯨꯡ ꯔꯣꯛ ꯅꯒꯣꯂꯌꯃꯤꯈꯍꯛ HGL ꯑꯁꯤ ꯑꯥꯐꯌꯐꯥꯅꯈꯒꯤ ꯄꯈꯨꯗꯥ ꯍꯊꯛ ꯊꯛꯕ ꯍꯤꯅꯃꯤꯈ ꯊꯤꯒꯈꯕꯗꯤ꯫ ꯑꯣꯗꯥꯗꯥꯅꯁꯤꯁ ꯑꯁꯤꯈ ꯐꯕꯤꯛꯁꯂ ꯗꯥꯁꯁꯤꯛ ꯑꯃꯁꯨꯡ ꯗꯃꯃꯁꯂꯁꯤꯛ, ꯍꯣꯂꯄꯅꯁꯤꯛ, ꯃꯥꯅꯕ ꯍꯐꯍꯁꯤꯛ, ꯅꯂꯗꯌꯁꯤꯛ, ꯑꯥꯐꯌꯗꯌꯁꯤꯛ ꯑꯃꯁꯨꯡ ꯒꯌꯁꯤꯛꯈ ꯗꯕ ꯗꯥꯁꯁꯤꯛ ꯔꯤꯐꯒꯈꯕꯗꯤ꯫

6.8.2 **ꯄꯕꯒꯤ ꯅꯁꯤꯛꯒꯤ ꯗꯒꯅ.** ꯑꯥꯐꯌꯐꯥꯅꯈ ꯄꯕꯒꯤ (ꯝꯅꯔꯤꯝꯕ) ꯗꯒꯅ ꯑꯁꯤ ꯍꯅꯤꯒꯤ ꯑꯗꯤꯒꯤ ꯍꯕꯛꯝ ꯄꯣꯂꯗꯥ ꯔꯤꯛꯕ ꯑꯈꯨ ꯑꯅꯒꯈꯕꯗꯤ:

- (a) ꯁꯥꯛ 5-ꯒꯤ ꯝꯅꯔꯤꯝꯕ ꯗꯒꯅ: ꯝꯅꯈꯅ ꯑꯥꯐꯌꯐꯥꯅꯁꯤꯛꯈ ꯍꯤꯅꯗꯕ-ꯁꯤꯁꯝꯍ ꯈꯤꯗꯥꯅꯂꯒꯤꯈꯍꯛ ꯍꯤꯂ ꯄꯅ ꯔꯤꯝꯕ ꯁꯄꯕꯤꯛꯁ (MHWS) ꯑꯃꯁꯨꯡ +0.3 m-ꯒꯤ ꯁꯤ-ꯗꯒꯅ ꯑꯣꯗꯥꯐꯑꯣꯂꯁ, ꯑꯃꯁꯨꯡ ꯑꯝꯄꯄ ꯑꯥꯐꯌꯐꯥꯅꯁꯤꯛꯈ ꯃꯅꯂꯁꯤꯈꯂꯌ ꯅꯒꯣꯂꯌꯃꯤꯈꯍꯛ ꯅꯁꯤꯛ ꯗꯕ ꯅꯥꯛꯕꯂ, ꯝꯕꯅ ꯗꯌꯕꯒꯥ ꯄꯍꯅꯕꯤꯒꯤ ꯗꯒꯅ; ꯑꯃꯁꯨꯡ
- (b) ꯅꯁꯤꯛ ꯗꯕ ꯅꯁꯤꯛ ꯑꯈꯨ ꯄꯣꯂꯗꯥ ꯗꯍꯕ ꯍꯐꯍꯈ, ꯑꯥꯐꯌꯗꯌ ꯄꯥꯅꯄꯝ ꯃꯕꯤꯝꯤꯃꯅ ꯈꯄꯊ ꯑꯃꯁꯨꯡ ꯄꯥꯅꯄꯃꯤ ꯈꯅꯍꯤꯝꯕꯈꯒꯤ ꯊꯤꯕꯕ ꯗꯒꯅ, (dc + D)/2꯫

6.8.3 **ꯍꯤꯅꯗꯕ-ꯅꯒꯣꯂꯌꯃꯤ ꯗꯤꯍꯤꯌ.** ꯍꯤꯅꯗꯕ ꯈꯤꯗꯥꯅꯂ ꯅꯒꯣꯂꯌꯝ, HGL ꯑꯁꯤ ꯅꯂꯗꯌ ꯍꯈꯤꯛꯍꯛꯃꯤ ꯕꯤꯍ (rim) ꯑꯃꯁꯨꯡ ꯍꯣꯂꯄꯅ ꯑꯃꯁꯨꯡ ꯑꯛꯁꯣꯁ ꯔꯣꯍꯕꯕ ꯍꯈꯤꯛꯍꯛꯃꯤ ꯃꯀꯥꯕ ꯗꯒꯅꯈꯒꯤ ꯔꯤꯍꯈꯕꯕꯈꯦ **0.3 m ꯍꯟꯖ** ꯗꯒꯤꯈꯕꯗꯤ꯫

6.8.4 **ꯔꯣꯛ-ꯅꯒꯣꯂꯌ ꯑꯃꯁꯨꯡ 1%-ꯒꯤ ꯗꯤꯍꯤꯌ.** ꯔꯣꯛ ꯅꯒꯣꯂꯌ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯅꯒꯣꯂꯌꯝ, HGL ꯑꯁꯤ ꯅꯂꯗꯌꯃꯤ ꯕꯤꯍꯁꯤꯛꯈꯒꯤ ꯔꯤꯛꯗꯥ ꯄꯂꯒꯌꯄ ꯔꯤꯅ꯫ ꯍꯝꯍ ꯑꯈꯨꯈ ꯍꯤꯅꯗꯕ ꯁꯤꯁꯝꯍ ꯊꯈꯛꯗꯤꯕ ꯅꯁꯤꯛ ꯑꯈꯨ ꯍꯗꯕ ꯁꯤꯁꯝꯍꯗꯥ ꯝꯣꯕꯅ 6.2-ꯒꯤ ꯗꯤꯍꯤꯌꯁꯤꯛꯒꯤ ꯍꯨꯛꯈ ꯄꯒꯈꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯕꯤꯅꯈꯤꯛ ꯑꯃꯌꯝꯈ ꯔꯛꯗꯅꯈꯕꯗꯤ꯫ ꯅꯒꯣꯂꯌ ꯑꯁꯤꯁꯤꯛꯈ ꯗꯍꯤꯅꯒꯤ ꯍꯊꯛꯝ ꯁꯕꯔꯤꯕꯗ ꯑꯅꯕ ꯔꯤꯕ ꯍꯣꯂꯄꯅꯁꯤꯛꯈ ꯕꯅꯌ ꯝꯕꯕ ꯅꯠꯔꯒꯥ ꯗꯛ ꯝꯕꯕ ꯃꯀꯥꯕꯁꯤꯛ ꯗꯒꯈꯕꯗꯤ (ꯁꯥꯛ 9, ꯃꯗꯥꯗ 9.12)꯫

6.8.5 **ꯁꯝꯕꯛꯔꯕꯒꯤ ꯗꯥꯁꯁꯤꯛ.** ꯍꯣꯂꯄꯅꯁꯤꯛ ꯑꯃꯁꯨꯡ ꯗꯃꯃꯁꯂꯁꯤꯛꯈ ꯗꯕ ꯗꯥꯁꯁꯤꯛ ꯑꯁꯤ FHWA HEC-22 (2009 ꯅꯠꯔꯒꯥ 2024-ꯒꯤ ꯑꯈꯤꯁꯂ)-ꯒꯤ ꯑꯣꯗꯕꯗꯤꯈ ꯍꯍꯐꯍ ꯑꯅꯕ ꯑꯛꯁꯣꯁ-ꯄꯅ ꯍꯊꯈꯗꯥ (access-hole method), ꯅꯠꯔꯒꯥ ꯑꯄꯥꯛꯒ ꯝꯕꯕ ꯄꯅꯈꯕꯥꯗꯤꯛ ꯍꯈꯅ ꯑꯍꯈ ꯗꯕ ꯍꯤꯂꯗꯕ ꯊꯑꯥꯛ ꯑꯍꯗꯥ ꯊꯤꯒꯈꯕꯗꯤ꯫ HEC-22-ꯒꯤ ꯃꯑꯐꯤꯁꯤꯔꯣꯂꯌꯁꯤꯛ ꯗꯕ ꯗꯥꯅꯊꯥꯛꯄꯂꯕ ꯗꯁ-ꯃꯑꯐꯤꯁꯤꯔꯣꯂꯌ ꯍꯊꯈ ꯑꯍꯩ (h = K V²/2g) 16 ha-ꯈꯒꯤ ꯄꯂꯊꯕ ꯝꯤꯔꯕ B ꯗꯌꯔꯕꯛꯁꯤꯛꯒꯤꯈꯍꯛ ꯁꯤꯗꯤꯡꯗꯕ ꯔꯤꯅ꯫

6.8.6 **ꯅꯂꯒꯕꯌ ꯑꯃꯁꯨꯡ ꯁꯐꯤꯌꯃꯤ ꯗꯒꯅꯁꯤꯛ.** ꯍꯣꯂꯄꯅ ꯑꯍꯈ ꯄꯥꯅꯄꯃꯤ ꯁꯅꯗ ꯄꯣꯂꯒꯌꯗꯃꯄ ꯍꯐꯍꯈ, ꯔꯣꯗꯛꯗꯤꯕ ꯑꯃꯁꯨꯡ ꯊꯛꯗꯛꯗꯤꯕ ꯄꯥꯅꯄꯁꯤꯛꯒꯤ ꯁꯐꯤꯌꯁꯤꯛ (ꯃꯕꯤꯐꯂꯁꯤꯛ) ꯑꯁꯤ ꯍꯤꯂꯗꯄꯗꯒꯈꯕꯗꯤ, ꯅꯠꯔꯒꯥ ꯊꯛꯗꯛꯗꯤꯕ ꯁꯐꯤꯌ ꯑꯁꯤ ꯄꯣꯂꯗꯥ ꯗꯍꯗꯥ ꯊꯍꯒꯈꯕꯗꯤ꯫ ꯊꯛꯗꯛꯗꯤꯕ ꯅꯂꯒꯕꯌ ꯑꯁꯤ ꯅꯕꯅꯈꯒꯤ ꯗꯍꯕ ꯔꯣꯗꯛꯗꯤꯕ ꯅꯂꯒꯕꯌꯝꯒꯤ ꯔꯤꯕꯕꯅꯈꯕꯗꯤ꯫ ꯍꯣꯂꯄꯅꯁꯤꯛꯈ ꯗꯕ ꯍꯊꯛꯝꯒꯤ ꯍꯟꯖ ꯍꯍꯊꯛꯗꯥ ꯝꯕ ꯈꯕꯄꯁꯤꯛ ꯑꯁꯤꯗꯥ ꯁꯥꯛ 9, ꯃꯗꯥꯗ 9.12 ꯍꯨꯛ ꯅꯂꯗꯒꯈꯕꯗꯤ꯫

6.8.7 **ꯊꯣꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯠꯁꯤꯡ.** ꯍꯧꯗꯣꯛꯂꯕ ꯊꯤꯒꯠꯄ ꯂꯩꯕ ꯊꯣꯔꯛꯐꯝ ꯊꯣꯛꯁꯤꯡ (flap gate) ꯑꯃꯁꯨꯡ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯒꯦꯠꯁꯤꯡꯒꯤ ꯄꯨꯋꯥꯏꯕ ꯍꯣꯡ ꯅꯥꯄ ꯑꯁꯤ HGL-ꯗ ꯌꯦꯡꯂꯒꯗꯕꯅꯤ (ꯃꯦꯞ 9, ꯇꯦꯕꯜ 9.10)꯫

6.8.8 **ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡ.** 1%-ꯒꯤ HGL ꯑꯁꯤ ꯕꯤꯠꯗꯤꯡꯒꯤ ꯍꯥꯏꯗꯒꯤ ꯅꯥꯀꯕ ꯁꯔꯨꯛꯒꯤ ꯊꯤꯡꯂꯤꯗꯒꯤ ꯌꯥꯝꯂꯕ ꯂꯩꯕ ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯗ ꯃꯀꯨꯍꯟꯂꯕ ꯕꯤꯠꯗꯤꯡꯒꯤ ꯁꯔꯨꯛꯗ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯒꯦꯠ ꯑꯃꯍꯦ ꯂꯩꯒꯗꯕꯅꯤ꯫

> **ꯃꯦꯗꯥꯡꯂꯕ ꯄꯥꯡꯂꯣ.** ꯀꯁꯅꯔ-ꯁꯒꯣꯟꯗꯥ HGL ꯑꯃꯁꯨꯡ ꯁꯟꯅꯥꯡꯗꯥ ꯔꯤꯀꯒꯤ ꯀꯔꯥꯡ ꯂꯩꯕ 0.3 m-ꯒꯤ ꯂꯦꯝ ꯑꯁꯤ ꯀꯣꯏꯁꯣꯏ ꯑꯁꯤꯂꯥ ꯇꯀꯄꯅꯤ꯫ ꯀꯁꯤꯂꯥ ꯀꯥꯗꯣꯏ ꯑꯃꯂꯥ ꯍꯦꯇꯂꯥ ꯇꯤꯕ ꯂꯥꯃꯆꯤꯡꯒꯤ ꯀꯔꯃꯤꯠꯆꯦ ꯑꯃꯍꯦ ꯇꯀꯄꯤ, ꯑꯃꯁꯨꯡ ꯃꯤꯑꯣꯏꯕ ꯑꯁꯤ ꯗꯤꯂꯥꯁꯦ ꯑꯣꯏꯔꯕ ꯁꯒꯣꯟꯗꯥ ꯁꯟꯅꯥꯡꯗꯥꯗꯒꯤ ꯁꯣꯡꯂꯕ ꯄꯨꯇꯥꯡꯇꯕꯤꯡ ꯇꯤꯡꯁ꯫ ꯀꯅꯤꯄꯨꯔꯗ ꯑꯀꯄꯥꯡꯗꯥ ꯁꯥꯡꯕꯗꯦ ꯌꯥꯀꯂꯦ ꯏꯔꯤꯡꯒꯤ ꯄꯂꯦ ꯑꯃꯗ ꯂꯩꯕ ꯄꯣꯛ ꯑꯃꯗ ꯂꯥꯅꯅ, ꯀꯁꯤꯒꯤ ꯀꯨꯝꯗ ꯀꯥꯦꯃꯨꯦꯗ ꯂꯩꯃꯨꯛ ꯃꯌꯥꯏꯗꯒꯤ ꯀꯑꯀ ꯏꯔꯤꯡ ꯑꯁꯤ ꯁꯥꯡꯕꯗꯦꯗꯒꯤ ꯌꯥꯝꯂꯦ ꯂꯩꯅ, ꯃꯇꯨꯡꯗ ꯀꯑꯀ ꯄꯨꯀꯆꯗ ꯌꯥꯝꯂꯦ ꯂꯩꯕ ꯂꯥꯑꯣꯑꯥꯑ, ꯃꯇꯨꯡꯗ ꯀꯀꯤꯗꯒꯤ ꯀꯄꯨꯦꯕ ꯑꯥꯅꯔꯣꯕ ꯄꯥꯡ ꯑꯃꯗ ꯂꯥꯅꯅ (ꯇꯦꯕꯜ 5.8.5)꯫ ꯀꯤꯂꯨꯇꯥꯡꯗ (Minuthong) ꯅꯥꯀꯊꯣꯡ ꯏꯔꯤꯡꯒꯤ ꯊꯥꯡꯗ ꯂꯣꯒꯣꯡ 786.900 m ꯑꯃꯁꯨꯡ ꯍꯅꯕꯣꯃꯨ ꯊꯥꯡꯗ ꯂꯣꯒꯣꯡ 788.400 m ꯂꯩ (WRD, ꯄꯥꯏꯗ ꯊꯥꯗꯥꯗꯥꯅꯤꯕ ꯀꯁꯨꯕ ꯅꯦꯂ), ꯃꯍꯔꯒꯤ ꯂꯩꯀꯅ 790 m ꯀꯔꯥꯡ ꯂꯩꯕꯒꯤ ꯌꯥꯕꯗꯀꯂꯕꯗ (AIIB, 2024); "ꯃꯍꯔ ꯑꯁꯤ ꯅꯀꯊꯣꯡ ꯏꯔꯤꯡꯒꯤ ꯍꯅꯕꯣꯃꯨ ꯊꯥꯡꯗ ꯂꯣꯒꯣꯡꯗꯒꯤ ꯅꯣꯀꯤ" ("the town is below the high flood level of Imphal river") (ꯀꯃꯥꯔ ꯄꯥꯂꯦꯦ); ꯑꯃꯁꯨꯡ 15 ꯃꯣꯄꯥꯣꯀꯕꯔ 2025-ꯗ ꯂꯤꯂꯥꯕꯗ ꯂꯩꯕ ꯏꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯇꯥꯏꯗ (Ithai) ꯂꯩꯕ ꯀꯅꯤꯄꯨꯔ ꯏꯔꯤꯡ ꯑꯁꯤ ꯀꯅꯥꯌꯒꯤ ꯊꯥꯗꯥꯗꯥꯅꯤꯕ ꯍꯅꯕꯣꯃꯨ ꯊꯥꯡꯗ ꯂꯣꯒꯣꯡꯃꯤꯕꯗꯒꯤ ꯌꯥꯝꯂꯦ ꯂꯩꯅꯤ (ꯄꯥꯏꯗ ꯊꯥꯗꯥꯗꯥꯅꯤꯕ ꯀꯁꯨꯕ ꯅꯦꯂ)꯫ ꯔꯤꯃꯔꯌꯥꯒꯤ ꯀꯥꯀꯗ ꯃꯥꯣꯛ ꯑꯁꯤꯗ ꯂꯩꯕ ꯑꯦꯟꯗꯣꯛꯊꯥꯡ ꯑꯀꯗꯥꯒꯤ ꯗꯤꯂꯥꯅꯦ ꯂꯣꯒꯣꯡ ꯊꯕꯅꯤꯗꯣ꯫ HGL ꯑꯁꯤ ꯊꯔꯤ ꯑꯦꯟꯗꯣꯛꯊꯥꯡ ꯑꯀꯗꯒꯤ ꯍꯥꯔꯕ, ꯂꯩꯔꯒꯤ ꯀꯁꯤꯒꯤ ꯑꯔꯥꯅꯕꯗ ꯂꯩꯕ ꯏꯔꯤꯡ, ꯇꯕꯂꯕ ꯄꯣꯛ, ꯂꯣꯄ ꯂꯩꯔꯒꯤ ꯀꯄꯨꯦꯕ ꯄꯥꯛ ꯌꯦꯡꯗꯂꯦ ꯃꯥꯕ ꯑꯀꯀꯀꯒꯤ ꯀꯁꯨꯕ ꯅꯦꯂ ꯇꯤꯔꯕ ꯍꯥꯕꯕꯦ ꯑꯀꯂꯦ ꯀꯑꯕ ꯑꯀꯨꯀꯥꯥ ꯊꯣ ꯑꯅ꯫ ꯃꯦꯞ 5-ꯒꯤ ꯑꯅꯗꯣ ꯑꯣꯌꯥꯔꯒꯤ ꯂꯥꯌꯂꯂ ꯑꯦꯟꯗꯣꯛꯊꯥꯡꯗꯒꯤ ꯇꯤꯔꯕ HGL ꯑꯀꯂꯦ ꯑꯔꯦꯕ ꯑꯀꯨꯃꯤꯕ ꯗꯤꯂꯥꯅꯦꯒꯤ ꯃꯥꯂꯥ ꯗꯥꯂꯤ꯫ MHWS ꯑꯃꯁꯨꯡ 0.3 m-ꯒꯤ ꯍꯕꯒꯤ ꯂꯣꯒꯣꯡ ꯑꯁꯤ CPHEEO (2019) Table 6.2-ꯗꯒꯤꯅꯤ꯫ ꯑꯣꯄꯃꯣꯃ-ꯍꯥꯡ ꯀꯣꯇꯗ ꯑꯁꯤ 2009-ꯒꯤ ꯑꯣꯗꯤꯃꯦꯗꯒꯤ ꯍꯕꯒꯤ HEC-22-ꯗ ꯃꯦꯗꯥꯡꯂꯤꯅꯤ꯫

6.9 ꯀꯣꯂꯔ ꯃꯤꯃꯥꯣꯀ: ꯑꯥꯒꯔꯂꯣꯦꯗ ꯊꯂꯥ ꯂꯀꯕꯤꯃꯤꯕ, ꯅꯂꯀꯣꯦꯛꯃꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯔꯀꯒꯤ ꯔꯤꯂꯔꯒꯃꯤꯕ

6.9.1 **ꯀꯃꯨꯑꯥꯅꯕ ꯀꯣꯂꯔ ꯃꯤꯃꯥꯣꯀ ꯑꯥꯅꯕ ꯂꯀꯕꯤꯃꯤꯕ.** ꯂꯀꯕꯤꯃꯤꯕ ꯑꯁꯤ 1% AEP-ꯒꯤ ꯀꯣꯂꯔ-ꯃꯤꯃꯥꯣꯀꯒꯤ ꯊꯂꯥ ꯑꯇꯨ ꯂꯀꯕꯤꯒꯤ ꯔꯤꯂꯔꯒꯗꯥ ꯀꯂꯥꯑ ꯇꯤꯕꯂꯤꯇꯂꯥꯅꯗꯦ ꯅꯃꯤꯕ ꯂꯥꯕ ꯌꯥꯔꯌꯣ ꯑꯀꯗ ꯄꯨꯕ ꯀꯑꯥꯕꯗ ꯒꯔꯣꯗ ꯑꯒꯗꯕꯅꯤ, ꯇꯦꯕꯜ 6.10-ꯒꯤ ꯀꯅꯗ ꯗꯤꯂꯥꯅꯦ ꯑꯥꯔꯕ ꯃꯣꯒꯃꯤꯕ ꯂꯣꯑꯕꯗꯤ꯫

6.9.2 **ꯂꯀꯕꯤꯃꯤꯕꯒꯤ ꯀꯄꯥꯦꯗ ꯂꯩꯕ ꯑꯥꯒꯔꯂꯣꯦꯗ ꯊꯂꯥ ꯂꯀꯕꯤꯃꯤꯕ.** ꯀꯣꯂꯔ-ꯃꯤꯃꯥꯣꯀꯒꯤ ꯂꯀꯕꯤ ꯑꯀꯗꯦ ꯂꯀꯕꯤꯒꯤ ꯔꯤꯂꯔꯒ ꯇꯗꯥꯂꯕ ꯀꯊꯀꯗ, ꯀꯁꯤ:

- (a) ꯄꯥꯕꯂꯤꯕ ꯂꯀꯗ, ꯂꯣꯑꯦꯗꯥ ꯑꯀꯒꯤ ꯑꯥꯄꯥꯦ ꯃꯄꯥꯣꯃꯥ, ꯂꯥꯔꯒꯤ ꯂꯣꯑꯦꯗꯥ ꯑꯣꯄꯥꯨꯒꯣꯡ ꯑꯃꯁꯨꯡ ꯑꯅꯥꯡꯗ ꯔꯣꯇꯥꯔꯗ ꯑꯥꯔꯕ ꯅꯂꯀꯣꯦꯛ ꯑꯀꯗ ꯂꯩꯒꯗꯕꯅꯤ;
- (b) ꯌꯦꯀꯗꯔꯕꯗꯦ 1% AEP-ꯒꯤ ꯊꯂꯥꯒꯤ ꯀꯇꯄꯥ ꯄꯥꯄꯥ ꯑꯃꯁꯨꯡ ꯀꯅꯥ ꯍꯨꯗꯤꯕꯀꯄꯥ 0.5 m ꯄꯥꯄꯥ ꯑꯥꯅꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ 3.0 m-ꯗꯒꯤ ꯍꯦꯇꯔꯥꯅꯗꯕꯅꯤ;
- (c) ꯊꯂꯥ ꯇꯤꯕꯒꯂꯤꯕ ꯕꯤꯠꯗꯤꯡꯃꯤꯕ, ꯃꯀꯄꯥꯦꯗ ꯌꯥꯡꯃꯤꯕ, ꯊꯣꯦꯃꯃꯤꯕ, ꯊꯤꯡ, ꯇꯀꯂꯕ ꯄꯥꯛꯃꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯀꯕꯤ ꯇꯕꯗꯒꯤ ꯂꯥꯄꯥꯦ ꯇꯀꯒꯗꯕꯅꯤ;
- (d) ꯑꯦꯟꯗꯣꯛꯂꯣꯛ ꯂꯩꯕ ꯃꯣꯒ ꯑꯀꯛꯥꯣ ꯂꯩꯂꯥꯦ ꯂꯣꯄꯥꯂꯥꯦ ꯂꯣꯀꯇꯔꯃꯄꯥ ꯒꯔꯣꯗ ꯑꯀꯗ ꯇꯀꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (e) ꯑꯣꯕꯡ 6.3-ꯒꯤ ꯍꯂꯦꯔꯗꯥꯒꯤ ꯂꯤꯀꯤꯛꯃꯤꯕꯒꯤ ꯀꯨꯕꯗ ꯂꯩꯒꯗꯕꯅꯤ꯫

6.9.3 **ꯃꯀꯄꯥꯦꯗ ꯌꯥꯡꯃꯤꯕ.** ꯀꯣꯄꯥ ꯑꯥꯔꯕ ꯑꯥꯒꯔꯂꯣꯦꯗ ꯊꯂꯥ ꯂꯀꯕꯤ ꯑꯀꯗ ꯃꯥꯑꯂꯦ ꯃꯀꯄꯥꯦꯗ ꯌꯥꯡ ꯂꯥꯔꯒꯤ ꯊꯣꯦꯃ ꯑꯀ ꯂꯦꯔꯥꯅꯗꯕꯅꯤ꯫ ꯌꯥꯡ ꯑꯀꯗꯦ ꯀꯁꯤ ꯃꯥꯑꯂꯦ ꯌꯥꯃꯗꯕ ꯑꯥꯅꯔꯕꯗꯤ, ꯀꯁꯤꯗ 50% ꯕꯂꯥꯃꯣꯂꯒꯤ ꯂꯥꯌꯂꯂ 1% AEP-ꯒꯤ ꯊꯂꯥ ꯌꯥꯍꯂꯕ ꯀꯄꯨꯕ ꯊꯕ ꯑꯣꯔꯤꯌꯦ ꯂꯩꯕ ꯍꯕꯕ ꯀꯊꯀꯃꯤꯕ ꯂꯩꯒꯗꯕꯅꯤ, ꯀꯇꯄ ꯇꯕꯕ ꯀꯊꯀꯒꯤ ꯅꯃꯤꯕꯒꯤ ꯂꯣꯒꯣꯡ ꯑꯁꯤ ꯃꯦꯞ ꯑꯁꯤꯒꯤ ꯂꯤꯀꯤꯛꯃꯤꯕꯗꯒꯤ ꯍꯣꯦꯗꯦ ꯌꯥꯕꯍꯦꯗꯦ꯫

6.9.4 **ꯄꯥꯝꯕꯥꯡꯅꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤ ꯃꯅꯥꯛꯇꯥ ꯂꯝꯕꯤꯒꯤ ꯆꯥꯡ.** ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄ 2 m ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯄꯥꯝꯕꯥꯡꯅꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯗ ꯆꯦꯛꯁꯟ ꯑꯃꯒꯤ ꯃꯅꯥꯛꯇꯥ ꯌꯦꯡꯁꯤꯟꯅꯕ 3.5 m ꯄꯥꯛꯄ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯦꯛꯁꯦꯁ ꯂꯝꯕꯤ ꯄꯤꯒꯗꯕꯅꯤ, ꯃꯁꯤ 500 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ ꯈꯨꯗꯤꯡꯗ ꯀꯣꯟꯕ ꯆꯥꯡ ꯑꯃꯥ ꯌꯥꯎꯍꯅꯒꯗꯕꯅꯤ꯫

6.9.5 **ꯁꯞꯂꯥꯏ ꯆꯦꯅꯦꯜꯁꯤꯡ, ꯁꯔꯞꯂꯁ ꯀꯣꯔꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯔꯦꯁꯁꯤꯡ.** ꯇꯦꯜꯔꯦꯁꯀꯤ ꯁꯞꯂꯥꯏ ꯆꯦꯅꯦꯜꯁꯤꯡ (supply channel) ꯑꯃꯁꯨꯡ ꯁꯔꯞꯂꯁ ꯀꯣꯔꯁꯁꯤꯡ (surplus course) ꯑꯁꯤ ꯆꯦꯞꯇꯔ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯀꯩ 7-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ꯫

6.9.6 **ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯔꯤꯖꯔꯚꯁꯤꯡ (drainage reserve).** ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯔꯤꯖꯔꯚ ꯍꯥꯌꯕꯁꯤ ꯗ꯭ꯔꯦꯟ ꯁꯦꯝꯕ, ꯗ꯭ꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯕ, ꯄꯥꯛꯊꯣꯛ-ꯍꯥꯡꯊꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯂꯝ ꯂꯧꯁꯤꯟꯕꯒꯤ ꯊꯧꯗꯥꯡ ꯂꯧꯅꯕ ꯁꯔꯀꯥꯔꯅ ꯊꯝꯂꯤꯕ ꯂꯝꯒꯤ ꯆꯥꯡꯅꯤ꯫ ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯔꯤꯖꯔꯚ ꯑꯁꯤ ꯃꯈꯥꯒꯤꯁꯤꯡꯗ ꯌꯥꯎꯍꯅꯒꯅꯤ:

- (a) ꯀꯦꯅꯦꯜ ꯅꯠꯔꯒꯥ ꯔꯤꯚꯔꯦꯅꯦꯜ ꯇꯥꯔꯕ ꯑꯣꯄꯟ ꯅꯠꯔꯒꯥ ꯀꯚꯔ ꯇꯧꯔꯕ ꯃꯊꯛꯇ ꯅꯠꯔꯒꯥ ꯃꯆꯥꯡ ꯁꯦꯝꯕꯤꯕ ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄ 1.0 m ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯄꯥꯛꯆꯥꯎꯕ ꯗ꯭ꯔꯦꯟ ꯅꯠꯔꯒꯥ ꯁꯦꯝꯕꯤ ꯊꯝꯂꯤꯕ ꯆꯥꯡ;
- (b) ꯑꯦꯂꯤꯌꯥꯒꯤ ꯕꯦꯁꯤꯟ ꯑꯣꯏꯕ ꯗ꯭ꯔꯦꯟꯗ ꯃꯇꯨꯡ ꯄ꯭ꯂꯥꯟ (Basin Stormwater Master Plan) ꯑꯁꯤꯗ (ꯃꯥꯏꯀꯩ 11) ꯄꯥꯝꯕꯤꯕ ꯗ꯭ꯔꯦꯟ ꯅꯠꯔꯒꯥ ꯁꯦꯝꯕꯤ ꯊꯝꯂꯤꯕ ꯆꯥꯡ, ꯄ꯭ꯂꯥꯟ ꯑꯁꯨꯝꯅ ꯂꯩꯕ ꯃꯇꯝꯒꯤ ꯗ꯭ꯔꯦꯅꯒꯤ ꯄꯥꯛꯄꯗ; ꯑꯃꯁꯨꯡ
- (c) ꯄꯥꯏꯄꯂꯥꯏꯟ ꯑꯣꯏꯔꯕ ꯑꯁꯤ ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄ 1.0 m ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯍꯥꯅꯕ ꯄꯥꯏꯄꯂꯥꯏꯟ ꯗ꯭ꯔꯦꯟ ꯁꯦꯝꯕꯤ ꯊꯝꯂꯤꯕ ꯆꯥꯡ꯫

6.9.7 **ꯄꯥꯛꯄ.** ꯔꯤꯖꯔꯚ ꯑꯁꯤ ꯗ꯭ꯔꯦꯅꯒꯤ ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄ W-ꯗꯒꯤ ꯂꯧꯕ, ꯇꯦꯕꯜ 6.9-ꯗ ꯄꯤꯕ ꯄꯥꯛꯄꯗꯒꯤ ꯍꯦꯅꯒꯗꯕꯅꯤ꯫ ꯄꯥꯛꯄ ꯑꯁꯤ ꯑꯣꯏꯕ ꯃꯅꯥꯛ ꯅꯠꯔꯒꯥ ꯗ꯭ꯔꯦꯅꯒꯤ **ꯃꯊꯛ ꯇꯣꯕ** ꯃꯅꯥꯛꯇ (ꯄ꯭ꯂꯥꯟ ꯇꯥꯔꯕ ꯗ꯭ꯔꯦꯟ ꯑꯃꯁꯨꯡꯁꯨ, ꯃꯇꯨꯡꯒꯤ ꯄ꯭ꯂꯥꯟꯗ ꯄꯤꯕ ꯃꯅꯥꯛ) ꯂꯧꯊꯣꯛꯀ ꯑꯣꯏꯒꯅꯤ꯫ ꯄꯦꯔꯥ 6.9.4-ꯒꯤ ꯑꯦꯛꯁꯦꯁ ꯂꯝꯕꯤ ꯑꯁꯤ ꯇꯦꯕꯜ 6.9-ꯗ ꯄꯤꯕ ꯃꯔꯤꯡꯕꯗꯒꯤ ꯍꯦꯟꯕ ꯄꯥꯛꯄ ꯃꯊꯧ ꯇꯥꯔꯕꯗ, ꯍꯦꯟꯕ ꯄꯥꯛꯄ ꯑꯁꯨꯝꯕ ꯄꯤꯒꯅꯤ꯫

ꯇꯦꯕꯜ 6.9 — ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯔꯤꯖꯔꯚꯀꯤ ꯃꯤꯅꯤꯃꯝ ꯄꯥꯛꯄ (PUB Singapore-ꯗꯒꯤ ꯂꯧꯈꯤꯕ)

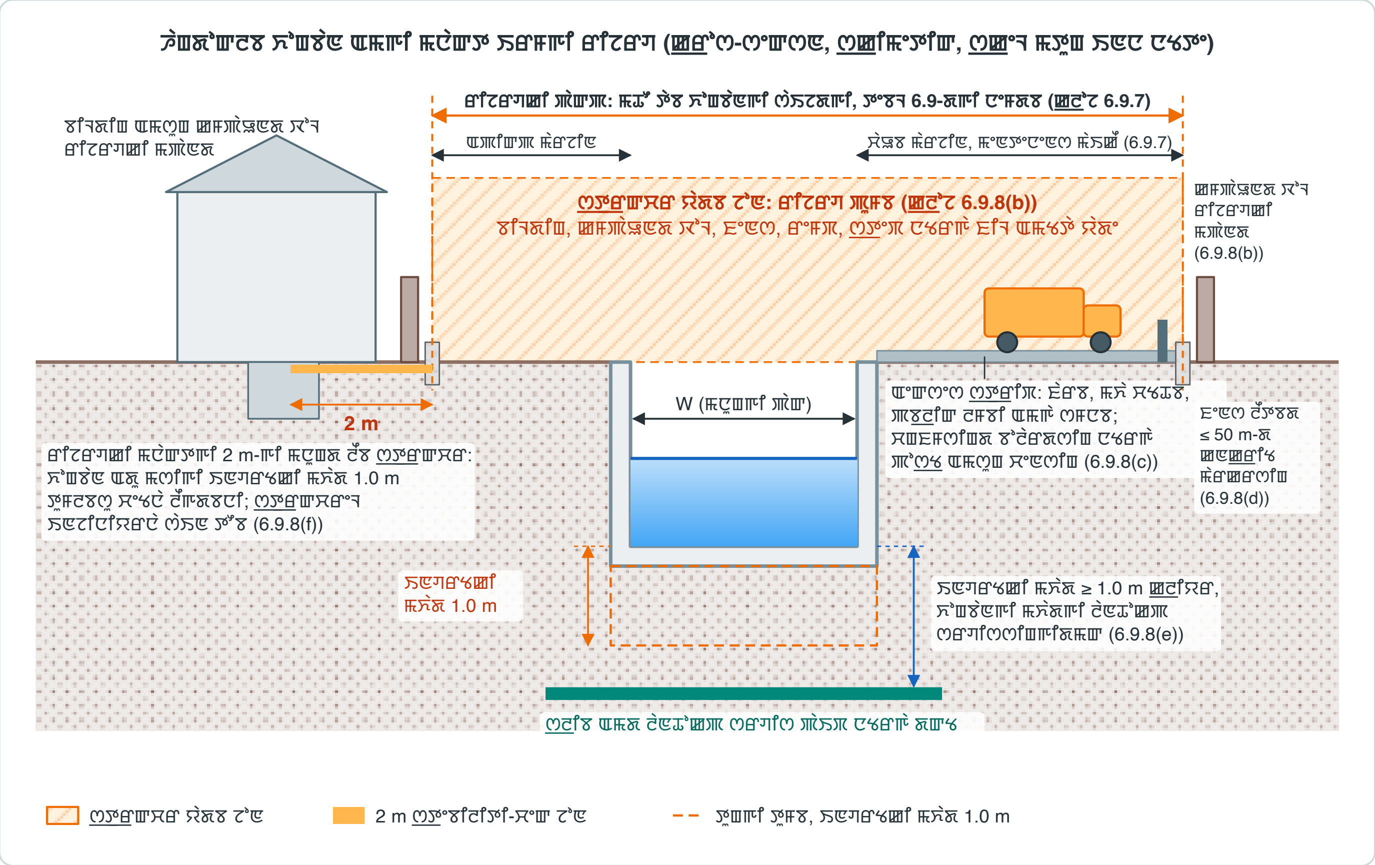
ꯗ꯭ꯔꯦꯅꯒꯤ ꯃꯊꯛꯀꯤ ꯄꯥꯛꯄ, W	ꯄꯥꯝꯕꯥꯡꯅꯕ ꯔꯤꯖꯔꯚ	ꯃꯌꯦꯛꯇ (ꯑꯣꯄꯟ ꯗ꯭ꯔꯦꯟ) ꯔꯤꯖꯔꯚ
1.0 m-ꯗꯒꯤ 1.2 m ꯐꯥꯎꯕ	3.0 m	W + 0.6 m
1.2 m-ꯗꯒꯤ ꯍꯦꯟꯕ 3.0 m ꯐꯥꯎꯕ	W + 2.6 m	W + 1.6 m
3.0 m-ꯗꯒꯤ ꯍꯦꯟꯕ 4.5 m ꯐꯥꯎꯕ	W + 3.5 m	W + 1.6 m
4.5 m-ꯗꯒꯤ ꯍꯦꯟꯕ 6.0 m ꯐꯥꯎꯕ	W + 4.5 m	W + 3.0 m
6.0 m-ꯗꯒꯤ ꯍꯦꯟꯕ 9.0 m ꯐꯥꯎꯕ	W + 6.0 m	W + 3.0 m
9.0 m-ꯗꯒꯤ ꯍꯦꯟꯕ 25.0 m ꯐꯥꯎꯕ	W + 7.5 m	W + 3.0 m
25.0 m-ꯗꯒꯤ ꯍꯦꯟꯕ	W + 12.0 m	W + 3.0 m

ꯄꯥꯝꯕꯥꯡꯅꯕ ꯔꯤꯖꯔꯚ ꯑꯁꯤꯒꯤ ꯃꯔꯛꯇ, ꯃꯔꯥꯡꯀꯥꯏꯒꯤ ꯍꯦꯟꯕ ꯁꯦꯝꯕ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯦꯛꯁꯦꯁꯀꯤ ꯑꯦꯂꯤꯌꯥ ꯁꯦꯝꯖꯤꯟꯅ ꯄꯤꯒꯗꯕꯅꯤ꯫

6.9.8 **ꯔꯤꯖꯔꯚ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯀꯄ.**

- (a) ꯔꯤꯖꯔꯚ ꯑꯁꯤ ꯑꯣꯄꯟ ꯅꯠꯔꯒꯥ ꯃꯊꯛ ꯄ꯭ꯂꯥꯟꯗ ꯇꯥꯗꯨꯅ ꯄ꯭ꯂꯥꯟꯗ ꯑꯁꯤ ꯑꯍꯥꯅꯕ ꯄꯥꯝꯕꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯆꯥꯡꯕꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯟꯕ ꯃꯄꯨꯒꯤ ꯔꯤꯖꯔꯚ-ꯂꯦꯃꯍꯧꯔꯤꯕ ꯑꯦꯛꯁꯦꯁ ꯑꯦꯂꯤꯌꯥꯗ ꯃꯈꯥ ꯇꯥꯅꯕ ꯄꯥꯝꯕꯥꯡꯕꯅꯤ꯫ ꯗ꯭ꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯔꯚ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Water Resources Department) ꯁꯦꯝꯕ ꯑꯁꯤ ꯑꯍꯥꯅꯕ ꯃꯇꯝꯗ, ꯔꯤꯖꯔꯚ ꯑꯁꯤ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯄꯥꯝꯕꯥꯡꯕꯅꯤ꯫
- (b) ꯔꯤꯖꯔꯚ ꯑꯁꯤꯗ ꯕꯤꯜꯗꯤꯡ, ꯄꯥꯔꯀꯤꯡ ꯁꯦꯜ, ꯐꯦꯟꯁ, ꯔꯦꯝꯞ, ꯗ꯭ꯔꯦꯅꯦꯖ, ꯐꯤꯠ ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ ꯑꯦꯟꯀ꯭ꯔꯣꯆꯃꯦꯟꯇ ꯂꯩꯍꯟꯗꯕꯅꯤ꯫ ꯄꯥꯔꯀꯤꯡꯒꯤ ꯁꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯝꯄꯥꯎꯟꯗ ꯐꯦꯟꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯄꯥꯟꯗ ꯄꯤꯒꯗꯕꯅꯤ꯫
- (c) ꯔꯤꯖꯔꯚꯁꯤꯡ ꯑꯁꯤ ꯑꯦꯛꯁꯦꯁ ꯑꯦꯂꯤꯌꯥ ꯑꯁꯤ ꯐꯔꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯄꯟ ꯑꯁꯤ ꯑꯍꯥꯅꯕꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄꯂꯥꯏꯟ ꯆꯥꯡ ꯑꯁꯤ ꯌꯥꯎꯍꯅꯒꯗꯕꯅꯤ꯫ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯃꯔꯤꯁꯤꯡ ꯅꯠꯔꯕ ꯃꯔꯤꯁꯤꯡ ꯁꯥꯄꯍꯅꯕ ꯁꯥꯐꯗꯤꯁꯤꯡ ꯕꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯄꯤꯌꯨ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯁꯤꯡ ꯑꯍꯥꯅꯕ ꯌꯥꯕ꯫

- (d) ꯔꯤꯖꯔꯚ ꯑꯁꯤ ꯐꯦꯟꯁ ꯇꯧꯗꯕ ꯃꯐꯝꯗ, ꯃꯁꯤꯒꯤ ꯉꯃꯈꯩ ꯑꯁꯤ 50 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ ꯂꯥꯞ ꯊꯥꯛꯄ ꯀꯟꯀ꯭ꯔꯤꯠ ꯃꯥꯔꯀꯔꯁꯤꯡꯅꯥ ꯈꯥꯌꯗꯣꯛꯀꯗꯕꯅꯤ॥
- (e) ꯁꯔꯚꯤꯁꯁꯤꯡ ꯑꯁꯤ ꯏꯟꯚꯔꯠꯀꯤ ꯃꯈꯥꯗ ꯌꯥꯝꯗ꯭ꯔꯕꯗ 1.0 m-ꯒꯤ ꯂꯥꯞ ꯂꯩꯅꯥ ꯈꯣꯡꯕꯟꯒꯤ ꯃꯈꯥꯗꯒꯤ, ꯅꯠꯔꯒꯥ ꯑꯦꯟꯀꯦꯁ ꯇꯧꯔꯕ ꯁ꯭ꯇ꯭ꯔꯛꯆꯔ ꯑꯃꯗ ꯃꯁꯤꯒꯤ ꯃꯊꯛꯇꯒꯤ ꯀ꯭ꯔꯣꯁ ꯇꯧꯒꯗꯕꯅꯤ॥ ꯁꯔꯚꯤꯁꯁꯤꯡ ꯑꯁꯤ ꯈꯣꯡꯕꯁꯒꯤ ꯁꯦꯡꯁꯦꯟꯒꯤ ꯃꯈꯨꯡꯗ ꯔꯤꯖꯔꯚꯀꯤ ꯃꯅꯨꯡꯗ ꯆꯠꯍꯟꯗꯕꯅꯤ॥
- (f) ꯔꯤꯖꯔꯚꯀꯤ ꯃꯥꯏꯀꯩꯗꯒꯤ 2 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ ꯁ꯭ꯇ꯭ꯔꯛꯆꯔ ꯑꯃꯥ ꯈꯣꯡꯕꯦ ꯑꯃꯨ ꯃꯁꯤꯒꯤ ꯏꯟꯚꯔꯠꯀꯤ ꯃꯈꯥ 1.0 m ꯐꯥꯑꯣꯕ ꯁꯨꯃꯖꯤꯠ ꯌꯨꯝꯐꯝ ꯂꯩꯕ ꯃꯑꯣꯡꯗ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ॥ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯀ꯭ꯋꯥꯂꯤꯐꯥꯏꯗ ꯑꯣꯏꯕ ꯁ꯭ꯠꯔꯛꯆꯔꯦꯜ ꯏꯟꯖꯤꯅꯤꯌꯔ ꯑꯃꯅꯥ ꯁꯔꯇꯤꯐꯥꯏ ꯇꯧꯒꯗꯕꯅꯤ॥
- (g) ꯑꯦꯞ꯭ꯔꯨꯚꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯗ꯭ꯔꯣꯏꯡꯗ ꯌꯥꯛꯇꯧꯔꯕ ꯃꯏꯆꯅ ꯈꯕꯁꯅ ꯔꯤꯖꯔꯚ ꯑꯁꯤ ꯑꯣꯏꯕꯗꯤ ꯑꯣꯡꯕ ꯄꯥꯛꯄꯒꯤ ꯃꯇꯨꯡꯗ ꯁꯣꯏꯗꯅ; ꯃꯁꯤꯗꯤ ꯁꯦꯛꯁꯟ 7-ꯗ ꯃꯇꯨꯡ ꯂꯩꯕ ꯁꯦꯠꯕꯦꯛ (setback) ꯑꯃꯁꯨꯡ ꯄꯨꯟꯁꯤꯟꯅꯦ॥



ꯃꯃꯤ 6.4 — ꯄꯝꯗꯥꯡꯂꯕ ꯈꯣꯡꯕꯦ ꯑꯀꯒꯤ ꯃꯆꯦꯟꯁ ꯅꯗꯀꯒꯤ ꯔꯤꯖꯔꯚ: ꯁꯦꯀꯁꯟ 6.9-ꯗꯒꯤ ꯔꯤꯖꯔꯚꯀꯤ ꯄꯥꯛꯄꯟ, ꯁ꯭ꯇ꯭ꯔꯛꯆꯔ ꯂꯩꯇꯕ ꯃꯐꯝ, ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯦꯛꯁꯦꯁ ꯑꯣꯡꯒꯣꯝ ꯁꯔꯚꯤꯁ, ꯏꯟꯚꯔꯠꯀꯤ ꯃꯈꯥ 1.0 m-ꯒꯤ ꯁꯔꯚꯤꯁ ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁ ꯑꯃꯁꯨꯡ 2 m-ꯒꯤ ꯁ꯭ꯇꯦꯕꯤꯂꯤꯇꯤ-ꯆꯦꯛ ꯖꯣꯟ (ꯄꯨꯗ 6.9.6-ꯗꯒꯤ 6.9.8 ꯐꯥꯑꯣꯕ)॥ ꯃꯦꯖꯔꯃꯦꯟꯇꯁꯤꯡ ꯑꯁꯤ ꯑꯦꯛꯁ ꯀꯗꯥꯏꯗꯒꯤ, PUB Singapore, Code of Practice on Surface Water Drainage (7th ed., with Addendum No. 3, 2025), clauses 5.1, 5.3, 9.6 and 9.7 and Appendix 1-ꯗꯒꯤ ꯄꯨꯊꯣꯛꯂꯛꯄꯅꯤ॥

> **ꯁꯣꯔꯁ ꯅꯣꯠ.** ꯅꯗꯀꯒꯤ ꯔꯤꯖꯔꯚꯁꯤꯡ ꯑꯁꯤ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯄꯨꯡꯈꯨꯝ ꯅꯦꯜꯂꯤ, ꯀꯇꯀ ꯑꯁꯨꯝ "ꯅꯗꯀꯒꯤ ꯔꯤꯖꯔꯚ ꯑꯀꯒꯤ ꯄꯥꯛꯄꯟ ꯑꯁꯤ ꯁꯦꯀꯁꯟ ꯂꯩꯕ ꯈꯣꯡꯕꯦꯒꯤ ꯃꯆꯥꯛ ꯑꯁꯤꯗ ꯌꯨꯝꯐꯝ ꯑꯣꯏ" ("the width of a drainage reserve is based on the required drain size") ꯑꯃꯁꯨꯡ ꯔꯤꯖꯔꯚ ꯑꯁꯤ "ꯑꯄꯨꯟꯕ ꯑꯊꯤꯡꯕꯁꯤꯡꯗꯒꯤ ꯂꯥꯄꯊꯣꯛꯅ ꯊꯝꯒꯗꯕ" ("kept free of all encumbrances") ꯍꯥꯌꯅ ꯃꯇꯝ ꯑꯃꯗ ꯑꯁꯤꯡ ꯇꯧꯔꯤ (PUB Code of Practice on Surface Water Drainage, 7th ed. with Addendum No. 3, 2025, cl. 1.1)॥ ꯁꯦꯀꯁꯟ 6.9-ꯗ PUB-ꯒꯤ Appendix 1-ꯒꯤ ꯄꯥꯛꯄꯟꯁꯤꯡ ꯑꯁꯤ ꯄꯨꯗꯨꯅ ꯂꯥꯀꯏ॥ ꯄꯨꯗ 6.9.8(b)-ꯗꯒꯤ (f) ꯐꯥꯑꯣꯕ ꯑꯁꯤ PUB-ꯒꯤ clauses 5.1 (ꯈꯣꯡꯕꯦ ꯑꯣꯏꯅꯥ ꯅꯗꯀꯒꯤ ꯔꯤꯖꯔꯚ ꯑꯀꯒꯤ ꯃꯅꯨꯡꯗ ꯁ꯭ꯇ꯭ꯔꯛꯆꯔ ꯑꯃꯠꯇ ꯂꯩꯔꯣꯏ), 5.3 ꯑꯃꯁꯨꯡ 5.3.1 (ꯏꯟꯚꯔꯠꯀꯤ ꯃꯈꯥ 1.0 m ꯁ꯭ꯃꯀꯔꯤꯒꯤꯗꯃꯛ ꯁꯔꯚꯤꯁ; ꯔꯤꯖꯔꯚꯗꯒꯤ 2 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯅꯦꯇꯤꯂꯤꯌꯔꯤꯒꯤ ꯀꯥꯍꯨꯝꯗꯦꯡꯒꯤ), 9.6 (ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯣꯏꯅꯥ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯅꯕꯒꯤ ꯂꯝꯕꯤ ꯐꯥꯑꯣꯕ, ꯂꯥꯏꯁꯟ ꯂꯩꯕ ꯑꯣꯡꯒꯣꯝ) ꯑꯃꯁꯨꯡ 9.7 (ꯁꯦꯛꯁꯟꯗꯒꯤ ꯄꯥꯡꯗꯕ 50 m-ꯗ ꯃꯥꯔꯀꯔꯁꯤꯡ) ꯄꯨꯡꯈꯨꯝ ꯅꯦꯜꯂꯤ॥ ꯈꯣꯡꯕꯦ ꯑꯀꯒꯤ ꯃꯈꯥꯗꯒꯤ ꯀ꯭ꯂꯤꯌꯔ ꯇꯧꯕ ꯏꯟꯚꯔꯠꯀꯤ ꯃꯈꯥꯗꯒꯤꯗꯃꯛ 1.0 m-ꯒꯤ ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁ ꯑꯁꯤ PUB-ꯒꯤ ꯗꯣꯀꯨꯃꯦꯟꯇ-ꯑꯣꯏꯕꯒꯤ

ꯄꯟꯅꯕꯣꯡꯒꯤꯗꯤ॥ ꯈꯨꯗꯣꯡꯆꯥꯕꯗꯥ, ꯁꯤꯡꯊꯥꯕꯤꯗꯨꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯂꯩꯕꯥꯛꯇꯥ ꯌꯥꯑꯣꯕ ꯑꯃ ꯌꯥꯎꯔꯦ ꯃꯍꯥꯛꯅ ꯍꯩꯕꯤꯁꯤ ꯑꯃꯒꯤ ꯃꯔꯝ ꯀꯟꯗꯕ ꯏꯟ, ꯃꯇꯝ ꯑꯗꯨꯗꯥ ꯃꯁꯤ ꯄꯤꯊꯣꯛꯂꯕ ꯌꯥꯕꯒꯤ ꯃꯇꯧꯗꯥ ꯃꯍꯤ ꯂꯥꯏꯔꯤꯛ ꯌꯩꯅꯥ॥ ꯄꯥꯔꯦ ꯑꯃꯁꯨ ꯅꯣꯡꯂꯥꯏ ꯌꯥꯕꯒꯤ ꯇꯤꯅꯣꯡꯂꯥꯏ ꯍꯧꯖꯤꯛꯄ ꯃꯍꯥꯛꯅ ꯆꯠꯅ ꯇꯤꯂꯥꯏꯅ ꯍꯧꯕ ꯑꯃꯒꯤ ꯃꯁꯨ ꯊꯥꯏꯗꯣꯛꯄꯥ ꯅꯕꯤꯅꯗꯒꯤ ꯃꯃꯇ ꯌꯩꯃꯗꯕ ꯃꯍꯥꯛꯂꯤ, ꯃꯇꯝꯗꯤ ꯃꯍꯨꯡꯗ ꯄꯥꯏꯗꯣꯛꯄꯗꯔꯕ ꯂꯣꯏꯗ ꯑꯣꯂꯝꯂꯥꯏꯂꯕꯗ (land acquisition) ꯃꯊꯧ ꯍꯥꯅ॥ ꯄꯥꯏꯄ ꯑꯃꯒꯤ ꯃꯔꯝꯗ-ꯄꯥꯔꯦꯗꯒꯤ ꯀꯥꯎꯕꯗꯒꯤ ꯏꯅꯂꯗ ꯌꯨꯝꯐꯝ ꯑꯥꯅꯕꯂꯦ (6.9.6(b)) ꯃꯊꯤꯡꯒꯤ ꯀꯥꯎꯕꯗ ꯑꯃꯂꯦ ꯃꯊꯧ ꯍꯥꯛꯅꯕ ꯂꯝ ꯑꯃꯁꯨ ꯌꯥꯎꯊꯣꯀꯈꯅ॥ ꯃꯂꯥꯏꯄꯨꯗꯥ ꯃꯇꯤꯡꯒꯤ ꯃꯃꯥꯏꯗ ꯂꯥꯏꯗꯕ ꯍꯩꯄꯥꯏꯇꯥꯡꯒꯤ ꯇꯨꯔꯦꯜꯇꯣꯡꯗꯤꯡꯒꯤ ꯃꯂꯦꯡꯍ ꯑꯅꯕꯒꯤ ꯕꯤꯆꯥꯏꯗꯤ ꯕꯐꯔ (buffer) ꯑꯃꯥ ꯂꯩ, ꯑꯁꯨꯕ ꯀꯥꯎꯕꯗ ꯂꯩꯕꯒꯤ ꯇꯄꯗꯒꯤ ꯌꯥꯎꯅ ꯑꯃꯒꯤ ꯃꯂꯦꯡꯍ ꯗꯤꯂꯗꯒꯥꯡꯒꯤ ꯄꯥꯏꯄ ꯑꯃꯁꯨꯡ ꯂꯩꯍꯧ,

ꯑꯃꯁꯨꯡ ꯂꯦꯡꯏꯖꯟ ꯍꯥꯗꯕ ꯖꯂꯔꯄꯥꯔꯦꯗ ꯂꯦꯗ (floodplain zone) ꯑꯃꯁꯨꯡ ꯂꯩꯍꯧ॥ ꯕꯖꯗ ꯑꯃꯒꯤ ꯃꯔꯥꯡꯒꯤ ꯕꯅ-ꯂꯦ 93-ꯒꯤꯂꯤ [TBC: ꯂꯥꯡꯅ ꯕꯔꯤꯂꯦ ꯂꯦꯍꯤꯖꯟ ꯍꯥꯗꯕ ꯕꯅ-ꯂꯦꯂꯍ ꯂꯃꯕꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯄꯇꯍ ꯌꯥꯄ ꯍꯥꯒꯔꯕꯂꯤ]: "ꯅꯇꯤꯡ ꯅꯌꯦꯡꯒꯤ ꯌꯨꯔꯥꯡꯌꯕꯔ ꯃꯤꯑꯥꯅꯕ ꯖꯑꯥꯕ ꯄꯗꯊꯄꯗꯂꯕ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯏꯒꯤ ꯅꯥꯡꯇꯤꯍꯃꯇꯤꯡꯒꯤ ꯃꯄꯥꯏꯒꯤ ꯃꯑꯥꯡ ꯂꯩꯄꯊꯥꯄꯂꯕ ꯔꯂꯤꯒꯂꯌ ꯍꯥꯗꯕ ꯕꯖꯗ ꯂꯦꯗꯒꯤ ꯃꯨꯡꯔ ꯑꯂꯥꯕ ꯍꯗꯍꯥꯗꯄꯇꯗ ꯑꯃꯌꯥꯍ ꯌꯦꯄꯗꯂꯥꯅꯔꯕꯂꯤ" ("Prohibit any new construction within the designated buffer zone to minimize human exposure to flood risk and preserve the natural integrity of natural ecosystems"), ꯑꯥꯅ ꯑꯃꯁꯨꯡ ꯌꯌ ꯂꯩꯗꯅ ꯑꯂꯤꯃꯄꯍꯔꯃꯄ ꯃꯗꯗꯂꯕ ꯇꯨꯔꯦꯜꯇꯣꯡꯗꯤꯡꯒꯤ ꯍꯕꯅ ꯑꯃꯒꯤ ꯂꯌꯔꯂꯂ: ꯀꯣꯏꯔꯦꯡꯒꯩꯗꯥ (Koirengei) ꯂꯤꯂꯥꯡ ꯖꯦꯕ ꯅꯍꯖꯟ ꯇꯨꯔꯦꯜ 55 m, ꯂꯤꯂꯥꯡꯔꯒꯤ ꯇꯄꯥꯃꯅꯂꯤꯗ ꯖꯦꯕ 60 m ꯑꯃꯁꯨꯡ ꯇꯄꯥꯃꯅꯂꯤꯗꯔꯒꯤ ꯅꯊꯅ ꯖꯦꯕ 62 m; ꯄꯗꯥꯄ ꯊꯥꯡꯔꯒꯤ ꯌꯨꯃꯄꯌ ꯖꯦꯕ ꯌꯃꯂꯤꯡ ꯇꯨꯔꯦꯜ 31 m; ꯒꯗꯍꯗ ꯅꯍꯖꯟ ꯑꯗꯤꯌꯤꯒꯤ ꯃꯨꯡꯔ ꯂꯍꯕꯨꯟ ꯇꯨꯔꯦꯜ 30 m; ꯁꯋꯣꯝꯕꯨꯡꯗꯥ (Sawombung) ꯂꯤꯂꯥꯡ ꯖꯦꯕ ꯅꯗꯤꯟ ꯇꯨꯔꯦꯜ (Iril) 50 m; ꯌꯅꯗꯤꯄꯥꯄꯍꯒꯤ ꯅꯗꯥꯡ ꯅꯌꯤꯟ (Irong Ichil) ꯖꯦꯕ ꯊꯕꯟ ꯇꯨꯔꯦꯜ 48 m; ꯄꯂꯦꯡ ꯊꯥꯡꯔꯒꯤ (Pallel bridge) ꯇꯄꯥꯃꯅꯂꯤꯗꯔ ꯅꯍꯖꯟ ꯇꯨꯔꯦꯜꯒꯤ ꯇꯍꯂꯕ ꯃꯖꯍ ꯖꯦꯕ ꯇꯄꯥꯃꯅ ꯇꯨꯔꯦꯜ 35 m; ꯑꯃꯁꯨꯡ ꯌꯗꯥꯄꯌꯍꯒꯤ (Charangpat) ꯅꯥꯄ ꯄꯌ ꯖꯦꯕ ꯑꯗꯥ ꯇꯨꯔꯦꯜ (Arong) 30 m, ꯃꯅꯌ ꯌꯨꯔꯤꯃꯄ "ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯅꯔꯒꯤ (mid-stream) ꯂꯌꯗꯒꯤ ꯄꯗꯒꯤ ꯃꯄꯗꯒꯤ ꯍꯔꯒꯤ 6 m, ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯅꯔꯒꯤ ꯄꯗꯂꯦ ꯂꯄꯄ ꯑꯁꯨ" ("from mid-stream or 6 m from outer toe of bund, whichever is further from mid-stream"); ꯑꯃꯁꯨꯡ ꯗꯤꯌ ꯃꯁꯨꯡ ꯅꯗꯂ ꯃꯦꯔꯥꯈꯣꯡ (Merakhong) 22.5 m, 24.2 m ꯑꯃꯁꯨꯡ 28 m, ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ (Kongba) 35 m ꯑꯃꯁꯨꯡ ꯂꯍꯕꯟ ꯇꯨꯔꯦꯜ 25 m, ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯅꯔꯒꯤ ꯅꯄꯍꯃꯄ॥ IMC (3rd Amendment) 2024-ꯒꯤ ꯔꯗꯖꯌꯂꯦ ꯍꯕꯅ ꯑꯁꯨ ꯑꯃꯄ ꯄꯗꯂꯦ ꯄꯤꯗꯤ (93.1)॥ ꯕꯅ-ꯂꯦ ꯑꯃꯤꯂꯦ "ꯖꯂꯔ ꯄꯥꯔꯦꯗ ꯂꯦꯂꯤꯡ ꯑꯄꯌ, 1978-ꯒꯤ ꯃꯅꯔ ꯇꯍꯅꯤꯕ ꯖꯂꯔ ꯂꯦꯂꯤꯡ ꯑꯥꯊꯗꯤꯍꯒꯤ ꯃꯃꯤꯡꯒꯤ ꯑꯌꯕ ꯂꯥꯔꯦ ꯀꯂꯦꯒꯍꯕ ꯑꯃꯌꯍꯂꯦ ꯊꯤꯡꯂꯕ ꯑꯗꯤꯌ ꯂꯌꯗꯒꯤ ꯗꯇꯍꯗꯤꯄꯍ ꯍꯥꯗꯕ ꯑꯗꯤꯌꯤꯒꯤ ꯃꯨꯡꯔ ꯊꯕꯄ ꯑꯃꯌꯥꯍ ꯍꯥꯗꯅꯔꯕꯂꯤ" ("No person shall undertake any activity within the prohibited area or restricted area except with the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978") ꯄꯌꯂꯦ ꯄꯄꯌꯤꯟꯂꯤ, ꯑꯁꯨꯕ ꯖꯂꯔ ꯂꯦꯂꯤꯡ ꯑꯥꯊꯗꯤꯍ (Flood Zoning Authority) ꯑꯃꯌꯥꯍ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯂꯕ ꯂꯌꯗꯒꯤ ꯗꯇꯍꯗꯤꯄꯍ ꯍꯥꯗꯕ ꯑꯗꯤꯌ ꯑꯃꯌꯥꯍ ꯇꯍꯅꯤꯕ ꯂꯌꯗꯒꯤ ꯂꯦꯍꯤꯖꯟ ꯍꯥꯅꯤꯕ ꯖꯤꯅꯤꯔ (NEER-ꯒꯤ ꯄꯕ), ꯑꯃꯁꯨꯡ ꯅꯇꯤꯡ ꯅꯌꯦꯡꯒꯤ ꯂꯦꯗꯇꯤꯡ ꯌꯌꯔꯥꯄ ꯑꯃꯒꯤ "ꯄꯂꯤꯄꯨ ꯍꯥꯔꯗꯤ" ("is yet to be done") (ꯄꯌꯔ ꯖꯥꯔꯥꯄꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯗꯂ, ꯂꯗ 2026)॥ ꯕꯖꯗꯇꯤꯡ ꯑꯃꯒꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯅꯔꯒꯤ ꯊꯂꯅ, ꯃꯗꯍ ꯑꯁꯨꯂꯦ 40 m ꯄꯥꯏꯄ ꯗꯤꯌ ꯑꯃꯔ 30 m-ꯒꯤ ꯕꯖꯗ ꯑꯃꯂꯦ ꯂꯗꯅꯔꯒꯤ 10 m ꯅꯄꯍꯃꯄ ꯊꯃꯅ (NEER-ꯒꯤ ꯄꯕ)॥ "ꯃꯌꯂꯤꯇꯤꯄꯥꯟ ꯀꯥꯎꯕꯗ ꯂꯌꯗꯒꯤ ꯂꯍ ꯑꯃꯌꯍꯒꯤ ꯃꯊꯥꯍ" ("over any municipal drain or land") ꯕꯤꯆꯥꯏꯗꯤ ꯑꯃꯌꯥꯍ ꯊꯍꯕ ꯌꯔ (ꯕꯅ-ꯂꯦ 16)॥ ꯕꯅ-ꯂꯦꯂꯍ ꯄꯌ ꯂꯌꯗꯒꯤ ꯄꯅꯗꯤ ꯑꯃꯒꯤ ꯑꯥꯌꯕꯔ ꯕꯖꯗ ꯑꯃꯌꯥꯍ ꯂꯩꯍꯧ (NEER-ꯒꯤ ꯄꯕ)॥ ꯂꯥꯍꯥꯡꯗꯤ ꯑꯥꯌꯕꯔ, 70.30 km^2-ꯒꯤ ꯀꯗ ꯂꯦ ꯑꯃꯒꯤ "ꯔꯒꯂꯄꯃꯂꯌ ꯌꯔꯕ ꯂꯦ ꯂꯌꯗꯒꯤ ꯃꯄꯨ ꯖꯂꯦ ꯂꯥꯏꯊꯥꯂꯕ ꯂꯦ" ("No-Development Zone or Totally Protected Zone") ꯑꯃꯂꯤ, ꯕꯖꯗ ꯂꯦꯗꯂꯦ "ꯂꯍ ꯗꯤꯄꯂꯃꯇꯗ, ꯄꯗ ꯏꯕ ꯂꯌꯗꯒꯤ ꯅꯗꯍꯒꯤ ꯃꯄꯥꯏꯒꯤ ꯂꯍꯕꯤ ꯇꯥꯄꯗꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯊꯤꯡꯅ (ꯃꯂꯤꯄꯨꯗ ꯂꯥꯍꯥꯡ ꯂꯄ (ꯄꯗꯥꯍꯄꯇꯗ) ꯑꯄꯌ, 2006, ꯇꯄꯇꯗ 3 ꯑꯃꯁꯨꯡ 19(vi)), ꯑꯃꯁꯨꯡ ꯄꯅ ꯀꯗꯌꯀꯤ ꯇꯄꯇꯤꯌꯟ ꯕꯗꯌꯂꯦ 17 ꯂꯂꯅ 2019-ꯔ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯄ ꯄꯗꯂꯦ 25 ꯖꯕꯗꯌꯗꯤ 2022-ꯔ ꯂꯥꯍꯥꯡꯗꯤ ꯃꯨꯡꯔ ꯂꯌꯗꯒꯤ ꯑꯥꯌꯕꯔ "ꯀꯗꯌꯀꯤ ꯑꯌꯕ ꯂꯥꯔꯦ" ("without the Court's leave") ꯔꯒꯂꯄꯃꯂꯌ ꯑꯃꯌꯥꯍ ꯍꯥꯗꯅꯔꯕꯂꯤ ꯄꯌꯂꯦ ꯑꯗꯔꯗ ꯄꯤꯅꯤ (ꯄꯌꯔ ꯖꯥꯔꯥꯄꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯗꯂ; ꯀꯇ ꯂꯍꯕꯗ ꯖꯤꯅꯤꯔ [TBC])॥ ꯇꯍꯌ ꯌꯌꯂꯇꯔꯇ ꯑꯥꯊꯗꯤꯍꯤꯂꯦ ꯌꯗꯟ, ꯌꯍꯗ ꯑꯃꯁꯨꯡ ꯌꯅꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯌꯇꯤꯡꯒꯤ (Yaral, Utra, Waithou–Phumnom) ꯔꯗꯖꯌ ꯂꯦꯍꯤꯖꯤꯀꯇꯗꯇꯤꯡ ꯖꯥꯔꯥꯄꯅꯗ (DoECC, 2025-26), ꯑꯃꯁꯨꯡ ꯃꯅꯌ ꯑꯗꯅꯕ ꯑꯥꯅꯔꯗꯤꯖꯦꯕ ꯌꯌꯂꯇꯔꯇ ꯗꯂꯇ, 2017-ꯒꯤ ꯊꯤꯡꯕ ꯑꯃꯌꯥꯍ ꯃꯅꯌꯔ ꯌꯌꯂꯔ (NEER-ꯒꯤ ꯄꯕ)॥ ꯌꯂꯤꯖꯅꯔ ꯂꯦꯂꯤꯡ ꯕꯅ-ꯂꯦꯂ, 2026-ꯔ ꯃꯇꯍꯗ ꯄꯥꯔꯦꯗ ꯑꯗꯤꯌ ꯌꯨꯔꯤꯃꯄꯍ "ꯄꯗꯔ, ꯀꯥꯎꯕꯗ, ꯇꯨꯔꯦꯜꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯂꯦꯟꯇꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯄꯌꯕ ꯌꯂ ꯂꯦꯗ ꯑꯃꯥ ꯂꯩ, ꯃꯖꯍ ꯑꯁꯨꯔ ꯗꯤꯂꯗꯒꯥ ꯑꯃꯥ ꯌꯌꯄ ꯌꯅ॥ ꯃꯅꯌ ꯑꯃꯤꯒꯤ ꯃꯗꯄꯍ ꯑꯃꯌꯥꯍꯂꯦ ꯇꯄꯗꯒꯤ ꯌꯂꯦꯟ ꯂꯌꯗꯒꯤ ꯇꯄꯗꯒꯤ ꯀꯥꯎꯕꯗ ꯑꯃꯒꯤ ꯃꯂꯦꯡꯍ ꯗꯤꯂꯗꯒꯥꯡꯒꯤ ꯄꯥꯏꯄ ꯄꯤꯔ॥ ꯃꯂꯌꯟ ꯑꯃꯤꯒꯤꯔꯃꯄ, ꯃꯏꯒꯤ ꯄꯗꯄꯂꯟ ꯑꯥꯅꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯂꯟꯇꯤꯡꯒꯤ ꯑꯗꯊ ꯑꯥꯅꯂꯦ ꯂꯌꯍꯂꯦ, ꯌꯂꯟ ꯑꯃꯒꯤ ꯂꯗꯅ ꯄꯌꯕꯇꯤ ꯃꯇꯤꯡꯒꯤ ꯂꯗꯅꯒꯤ ꯃꯊꯥꯂꯤ, ꯑꯃꯁꯨꯡ ꯄꯗ ꯂꯕ ꯗꯤꯌ ꯑꯃꯔ ꯄꯗꯒꯤ ꯂꯍꯒꯤ ꯃꯅꯀꯒꯤ ꯍꯂꯤ; ꯄꯌ ꯂꯌꯗꯒꯤ ꯄꯅꯗꯤ ꯑꯃꯒꯤ ꯃꯄꯗ ꯄꯌꯕꯇꯤ ꯃꯇꯤꯡꯒꯤ ꯃꯍꯍꯒꯤ ꯃꯁꯨꯡ ꯅꯗꯂ ꯌꯥꯕ ꯂꯒꯅꯔ ꯂꯕ ꯊꯃꯅꯂꯤ (ꯇꯗꯄ 7); ꯑꯃꯁꯨꯡ 8 ha ꯂꯌꯗꯒꯤ ꯃꯇꯤꯔꯒꯤ ꯄꯗꯕ ꯅꯗꯍ ꯄꯤꯕ ꯀꯥꯎ ꯑꯃꯁꯨꯡ ꯑꯍꯄꯄ ꯃꯄꯥꯏꯒꯤ ꯌꯂꯟ ꯌꯨꯔꯤꯃꯄ, ꯀꯂꯦ ꯃꯗꯍꯂꯗꯇ ꯍꯥꯗꯕꯨ ꯑꯃꯁꯨꯡ ꯂꯅꯗ ꯍꯥꯗꯕꯨ, ꯄꯅꯄ ꯍꯥꯗꯕꯨ ꯂꯌꯗꯒꯤ

ꯀꯒꯔ ꯇꯧꯔꯕꯂꯨ, ꯀ꯭ꯂꯣꯖ 7.4.1(b)-ꯒꯤ ꯃꯍꯥꯛ ꯃꯇꯧꯒꯤ ꯌꯦꯡꯂꯒꯥ ꯑꯃꯅꯂꯤ (ꯃꯥꯁ꯭ꯇꯔ ꯞꯂꯦꯟ ꯑꯣꯏꯗꯦ ꯊꯝꯕ)꯫ ꯃꯍꯛ ꯑꯣꯏꯗꯦ ꯞꯂꯦꯟ ꯑꯣꯏꯗꯦ ꯍꯤꯂꯍꯒ ꯑꯣꯏꯗ ꯀꯤꯡꯀ ꯑꯃꯁꯨ ꯀꯤꯍꯍꯤ, ꯃꯇꯧꯒꯤ ꯀꯍꯀꯥꯂꯦꯟ ꯑꯥꯅꯗꯦ ꯑꯃꯁꯨꯡ ꯑꯗꯅꯒꯤ ꯀꯤꯡꯀ ꯑꯥꯅꯗꯦ ꯂꯌꯥꯡꯗꯦ: **ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯣꯔꯤꯗꯣꯔ (hydraulic corridor)** ꯑꯃꯁꯨ, ꯃꯇꯧꯅ ꯅꯤꯂꯅꯗ ꯊꯥꯂꯦ ꯀ꯭ꯔꯂꯕ ꯃꯊ ꯁꯕ ꯁꯥꯡꯕꯗꯒꯤ ꯂꯅꯂꯅ ꯔꯨꯃꯊꯃ ꯑꯥꯅꯕ, ꯌꯤꯡꯂꯤꯡꯅ ꯀ꯭ꯂꯣꯖ 6.3.6(g)-ꯒꯤ ꯕꯀꯀꯤꯡ ꯊꯦꯡꯁꯍꯒꯤ ꯂꯥꯔꯂꯂ (ꯀ꯭ꯂꯣꯖ 6.9.7), ꯁꯦꯕꯀ 6.9-ꯒꯤ ꯍꯤꯂꯍꯒ, ꯑꯦꯡꯂꯦꯂꯀꯤ ꯂꯧꯍꯅꯅ ꯀ꯭ꯂꯣꯖ 6.9.4-ꯒꯤ ꯑꯦꯡꯂꯦꯂ ꯂ꯭ꯁꯍꯤꯒ, ꯑꯃꯁꯨꯡ, 8 ha ꯂꯌꯍꯒꯤ ꯃꯂꯤꯅꯒꯤ ꯄꯦꯗꯕ ꯅꯍꯃ ꯒꯤꯕ ꯃꯄꯧꯂꯒꯤ ꯌꯦꯂꯦꯀ ꯔ꯭ꯅꯤꯡꯃꯡꯀꯤ ꯃꯂꯥꯡꯁ ꯑꯃꯁꯨꯡ ꯃꯦꯂꯨꯔꯦꯜ ꯑꯂꯤꯂꯥ

ꯔꯥꯔꯕ ꯒꯥꯌ ꯑꯃꯁꯨꯡ ꯒ꯭ꯂꯍ꯭ꯍꯤ ꯔ꯭ꯅꯤꯡꯃꯡꯀꯤ ꯑꯀꯥꯔꯕꯅ, ꯀ꯭ꯂꯣꯖ 7.4-ꯒꯤ ꯂꯦꯌꯕꯦꯡꯂꯤꯡ, ꯂꯧꯍꯅꯒꯤ ꯃꯊꯡꯁꯒꯤ, ꯒꯗ ꯂꯧꯕ ꯍꯤꯌ ꯑꯃꯅ ꯒꯗꯒꯤ ꯂꯃꯒꯤ ꯃꯅꯀꯧꯒꯤ ꯁꯥꯅꯒꯤ, ꯂꯌꯍꯒꯤ ꯒꯥꯌ ꯂꯌꯍꯒꯤ ꯒ꯭ꯂꯍ꯭ꯍꯤ ꯑꯃꯒꯤ ꯊꯃꯍꯥꯅꯒꯤ **15 m-ꯅꯒꯤ ꯄꯗꯊꯅꯕ** ꯂꯥꯗ 1 ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯂꯗꯅꯥꯡꯒꯥ ꯑꯃꯁꯨꯡ 10 m ꯊꯦꯍꯕ ꯂꯥꯗ 2 ꯔꯦꯑꯥꯂꯦ, ꯅꯂꯤꯡꯅꯒꯤ ꯅꯕꯅꯅꯒꯤ ꯂꯦꯒꯂꯦ ꯔꯧꯕ ꯂꯦꯅꯗ ꯑꯅ꯭ꯂꯦ ꯂꯧꯊꯀꯒ; ꯕꯅ-ꯂꯥꯒꯤ ꯁꯦꯕꯀ, ꯃꯦꯂꯁꯍ ꯒꯂꯦꯗ, ꯂꯥꯡꯁꯦꯡ ꯑꯦꯡꯌ, ꯂꯥꯁꯤꯊꯅ ꯁꯧꯍꯕ ꯌꯦꯌꯂꯦꯗꯅ ꯑꯃꯁꯨ ꯂꯌꯍꯒꯤ ꯀꯥꯍꯌ ꯑꯃꯂꯦ ꯄꯦꯗꯂꯦ ꯒꯤꯡꯒ ꯂꯦꯅꯗ ꯑꯃꯁꯨ ꯊꯃꯂꯕ ꯃꯊꯃꯅ, ꯂꯦꯅꯗ ꯑꯅ꯭ꯂ ꯃꯂꯤꯂꯦ ꯊꯤꯡꯂꯤꯀꯂꯤꯕ ꯃꯁꯃ ꯊꯦꯍꯕ ꯌꯌꯂꯧ, ꯑꯃꯁꯨꯡ ꯅꯕꯅꯅꯒꯤ ꯒꯤꯡꯒ ꯑꯅ꯭ꯂꯦ ꯂꯧꯊꯀꯅ (ꯀ꯭ꯂꯣꯖ 7.4.5)꯫ ꯍꯦꯊꯍꯦꯗꯂ ꯂꯦꯅꯗ ꯃꯍꯤ ꯌꯦꯡꯅꯃꯂꯧ (ꯂꯍ꯭ꯒ 7): ꯕꯅ-ꯂꯥ 93-ꯒꯤ ꯂꯦꯒꯒꯒꯤ ꯂꯥꯔꯂꯂ ꯁ꯭ꯍꯦꯀꯒꯤ ꯃꯔꯦꯅ; ꯃꯂꯤꯒꯤ 6 m-ꯒꯤ ꯂꯥꯔꯂꯂ ꯒꯗꯒꯤ ꯃꯒꯦꯗꯒꯤ ꯁꯦ; ꯂꯥꯗ 1-ꯒꯤ ꯂꯥꯔꯂꯂ ꯂꯧꯍꯅꯒꯤ ꯃꯊꯒ, ꯒꯗ ꯂꯧꯕ ꯍꯤꯌ ꯑꯃꯅ ꯒꯗꯒꯤ ꯂꯃꯒꯤ ꯃꯅꯀꯧꯒꯤ ꯁꯦ ꯂꯌꯍꯒꯤ ꯒꯥꯌ ꯂꯌꯍꯒꯤ ꯒ꯭ꯂꯍ꯭ꯍꯤ ꯑꯃꯒꯤ ꯊꯃꯍꯥ; ꯑꯃꯁꯨꯡ 10 m-ꯒꯤ ꯂꯥꯔꯂꯂ ꯑꯦꯍꯌꯊꯥꯀ ꯊꯤꯡꯂꯕ ꯊꯤꯒꯃꯅ 1% AEP-ꯒꯤ ꯂꯗꯅꯥꯡꯒ꯫ ꯌꯦꯡꯅꯃꯂꯕ ꯑꯂꯤ ꯃꯅꯀ ꯑꯂꯤꯃꯡꯁ ꯊꯕꯡ ꯁꯧꯅ (NEER-ꯒꯤ ꯒꯥꯕ)꯫ ꯁꯦꯕꯀ ꯑꯅ꯭ꯂꯒꯤ ꯒꯗ ꯂꯧꯕ ꯁ꯭ꯍꯦꯀꯂꯤꯡꯅ, ꯁ꯭ꯍꯦꯀꯒꯤ ꯃꯔꯦꯅꯅꯒꯤ 30 m-ꯅꯒꯤ 62 m ꯊꯦꯍꯕ ꯕꯅ-ꯂꯥꯒꯤ ꯂꯦꯒꯒꯂꯤꯡ, ꯂꯌꯍꯒꯤ ꯒꯗꯒꯤ ꯃꯒꯦꯗꯒꯤ ꯁꯦꯅꯒꯤ ꯃꯂꯤꯒꯤ 6 m ꯑꯂꯤꯂꯦ ꯃꯄꯧꯂꯦ ꯒꯥꯡꯒ ꯍꯤꯌꯂꯤꯡꯅ ꯄꯦꯗꯂꯦ ꯒꯥꯡꯒ ꯂꯦꯅꯗ ꯒꯤꯅ; ꯒꯗꯒꯤ ꯂꯃꯒꯤ ꯃꯅꯀꯧꯒꯤ ꯁꯦꯅꯒꯤ ꯃꯦꯂꯨꯔꯦꯜꯒꯤ 15 m ꯑꯂꯤ ꯒꯗ ꯑꯂꯤ ꯁ꯭ꯍꯦꯀꯅꯒꯤ ꯔꯦꯃꯂꯦ ꯂꯦꯒꯂꯦ ꯂꯧꯕ ꯃꯊꯃ ꯔ꯭ꯅꯤꯡꯃꯡꯁ ꯕꯅ-ꯂꯥꯒꯤ 6 m-ꯅꯒꯤ ꯄꯦꯗꯂꯦ ꯀꯗꯅ; ꯑꯃꯁꯨꯡ ꯔꯧꯕ ꯍꯤꯌꯂꯤꯡꯅ, ꯑꯃꯁꯨꯡ ꯁꯦꯕꯀ ꯑꯅ꯭ꯂꯦ ꯊꯅꯥꯡꯅꯤꯕ ꯁ꯭ꯍꯦꯀ, ꯂ꯭ꯁꯍꯤꯃ ꯑꯃꯁꯨꯡ ꯒꯥꯌ ꯔ꯭ꯅꯤꯡꯃꯡꯁ, ꯃꯅꯥꯔꯒꯤ ꯃꯍꯡꯁ ꯔ꯭ꯒꯤ ꯁ꯭ꯍꯦꯀ, ꯌꯡꯒꯤ ꯁ꯭ꯍꯦꯀ (Chakpi), ꯌꯤꯡꯒꯤ ꯂ꯭ꯁꯍꯤꯃꯂꯤꯡ, ꯂꯦꯒꯤ ꯂ꯭ꯀꯂꯦ ꯑꯃꯁꯨꯡ ꯌꯦꯅꯂꯀ ꯃꯦꯍꯤꯀ, ꯒꯥꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯒ꯭ꯂꯍ꯭ꯍꯤꯂꯤꯡ, ꯃꯦꯂꯨꯔꯦꯜꯒꯤ 15 m ꯑꯂꯤꯂꯦ ꯂꯧꯊꯀꯅ꯫ ꯀꯥꯍꯤꯅꯥꯍ ꯑꯂꯤ ꯃꯦꯂꯨꯔꯦꯜ ꯑꯂꯤꯒꯤ ꯃꯔꯦꯅ ꯑꯦꯒꯍ꯭ꯒ ꯁꯧꯍꯕ ꯑꯂꯧꯕ ꯅꯦꯒꯦꯂꯒꯃꯦꯗꯌ ꯑꯃꯁꯨꯡ ꯍꯤꯅꯦꯒꯦꯂꯒꯃꯦꯗꯌꯁ ꯌꯌꯂꯧ, ꯂꯧꯍꯤꯕ ꯕꯤꯀꯅꯤꯡꯂꯤꯡꯅ ꯂꯌꯁ꯭, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 7.4.7-ꯗ ꯃꯂꯤꯒꯤ ꯃꯔꯦꯅ ꯒꯦꯍꯤꯔꯦꯗꯂ (variance) ꯑꯃꯌꯁ ꯔꯦꯄꯗꯅꯦ꯫ ꯁꯃꯒꯒꯀꯤ ꯂꯃꯒꯤ ꯂꯃ ꯔꯦꯃꯂꯦ ꯒꯍꯥꯅꯒꯦꯌ ꯒꯌꯁ ꯂꯃ (patta land) ꯑꯅꯕꯂꯦ, ꯒꯍꯥꯅꯒꯦꯌ ꯑꯅꯕ ꯂꯥꯗ 1-ꯒꯤ ꯂꯃ ꯑꯃꯁꯨꯡ ꯍꯤꯂꯍꯒꯀꯤ ꯂꯃ ꯑꯂꯤ "ꯒꯥꯗꯅ, ꯅꯥꯡꯕꯗ, ꯁ꯭ꯍꯦꯀꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯂꯦꯀꯂꯤꯡ" ꯄꯔꯕ ꯔ꯭ꯂ ꯂꯥꯗꯅ **ꯃꯦꯂꯁꯍ ꯒꯂꯦꯗꯅ ꯍꯤꯂꯍꯒ ꯁꯅ, ꯂꯌꯍꯒꯤ ꯃꯒ꯭ꯒꯤ ꯔꯦꯂꯕꯒꯤ ꯔ꯭ꯌꯊꯡꯅ ꯊꯃꯊꯀꯅ**, ꯂꯦꯑꯦꯍꯌ ꯑꯦꯒꯍ꯭ꯒꯦ ꯑꯃꯁꯨꯡ ꯂꯃꯒꯤ ꯍꯦꯀꯥꯍꯅꯂꯤꯡꯅ ꯍꯦꯀꯥꯍꯅ ꯁꯅ꯭ꯂꯦ, ꯑꯃꯁꯨꯡ ꯂꯧꯊꯥꯁ; ꯃꯑꯥꯡ ꯑꯂꯤꯂꯦ ꯊꯃꯊꯥꯂꯕ ꯃꯊꯃꯅ, ꯀ꯭ꯂꯣꯖ 6.9.8(a)-ꯒꯤ ꯄꯥꯡꯅꯀꯒ ꯑꯂꯤ ꯁꯅꯁꯀ ꯄꯥꯡꯅꯀꯒꯂꯦ ꯂꯌꯁꯂꯦ ꯍꯦꯀꯥꯍꯅ ꯁꯧꯍꯕ ꯔꯦꯂꯕ ꯑꯅ꯭ꯂꯦ ꯁꯅ; ꯌꯤꯡꯒꯤ ꯂꯃꯂꯤꯡꯅ ꯃꯂꯤ ꯅꯤꯂꯁꯍꯤꯒ ꯀꯍꯗꯂꯤꯀꯒꯤ ꯂꯃ ꯔꯦꯗꯊꯀꯒꯒꯤ ꯂꯒꯁꯤꯂꯤꯡꯒꯤ ꯔ꯭ꯌꯊꯡꯅ ꯊꯃꯊꯀꯅ, ꯃꯅꯔ ꯑꯂꯤ ꯒꯥꯗꯅꯃ ꯑꯂꯤꯒꯤꯅꯃꯒ ꯍꯤꯂꯍꯌ ꯁꯅꯤꯅ [TBC] (ꯃꯦꯂꯨꯔꯦꯜ ꯑꯂꯤꯂꯦ ꯊꯃꯕ)꯫ ꯀꯥꯍꯤꯅꯥꯍ ꯑꯂꯤ ꯒꯍꯦꯁꯍ ꯅꯃꯊꯀꯒꯤ ꯃꯦꯂꯁꯍ ꯒꯂꯦꯗꯅ ꯑꯃꯁꯨꯡ ꯑꯁꯒꯒ ꯂꯄꯍꯂꯤꯡꯒꯤ ꯃꯦꯂꯁꯍ ꯒꯂꯦꯗꯂꯤꯡꯅ ꯅꯍꯃꯒꯤ ꯂꯦꯅꯗꯂꯤꯡꯒꯤ ꯃꯂꯦꯁ ꯂꯦꯒꯂꯦ ꯊꯃꯂꯕ ꯂꯃ ꯑꯅꯂꯦ ꯍꯌꯒ ꯊꯧ, ꯑꯃꯁꯨꯡ OBPS-ꯅ TPD-ꯒꯤ ꯂꯦꯗꯅ-ꯔ꯭ꯂ ꯌꯦꯒ ꯑꯃꯁꯨꯡ ꯕꯤꯀꯅꯤꯡ ꯒꯍꯃꯤꯌꯁ ꯌꯦꯒ ꯁꯕ ꯊꯧ, ꯃꯊꯃ ꯑꯅ꯭ꯅ ꯒꯂꯦꯗꯂꯤꯡꯂꯦ ꯃꯅꯤꯡꯅꯒꯤ "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ/ꯑꯁꯒꯒ ꯑꯊꯍꯤꯁꯤꯒꯤ ꯂꯧꯍꯤꯕ ꯒꯍꯃꯂꯦꯗꯌ/ꯒꯒꯀ ꯅꯥꯡꯕꯗ ꯊꯦꯍꯕ ꯂꯒꯌꯀꯅꯕ ꯃꯂ꯭ꯡ ꯑꯃꯁꯨꯡ ꯃꯒꯦꯗ ꯑꯂꯤꯃꯒꯀꯤ ꯑꯀ꯭ꯒꯒ ꯅꯍꯃꯒꯤ ꯒꯂꯦꯗ" ("Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority") ꯍꯌꯀꯅꯕꯂꯤ (ꯕꯅ-ꯂꯥ 6(1)(D)), ꯑꯂꯧꯕ NOC ꯑꯃꯁꯨ ꯑꯅꯄꯗꯅꯦ꯫

ꯍꯤꯂꯍꯒ ꯑꯂꯤ ꯃꯍ꯭ꯑꯅ, ꯃꯍꯃꯅꯤ ꯃꯂꯤꯒ꯭ꯍꯒꯤ ꯂꯄꯍꯂꯤꯡꯒꯤ ꯅꯥꯡꯕꯗꯂꯤꯡ ꯑꯂꯤ ꯃꯒ꯭ꯂ ꯀꯔꯦꯒꯤ ꯃꯍꯒꯁ ꯅꯔꯅꯥꯡꯂꯤ, ꯑꯃꯁꯨꯡ ꯍ꯭ꯀ ꯑꯃꯌꯁꯂꯦ ꯃꯅꯔ ꯅꯔꯅꯥꯡꯁ꯫ ꯂꯥꯁꯤꯊꯤꯀꯦꯂꯗ ꯑꯃꯌꯁꯂꯦ ꯂꯦꯒꯤ ꯂ꯭ꯀꯂꯦ, ꯌꯦꯅꯂꯀ ꯃꯦꯍꯤꯀ ꯂꯌꯍꯒꯤ ꯂꯃ꯭ꯂꯦꯡ ꯂꯦꯂꯦ (Shamushang nallah) ꯑꯂꯤ ꯃꯒ꯭ꯂ ꯑꯃꯅ ꯒꯤꯅꯤꯅ (NEER-ꯒꯤ ꯒꯥꯕ), ꯑꯃꯁꯨꯡ AIIB-ꯗ ꯒꯍꯦꯁꯍ ꯅꯃꯊꯀꯒꯤ ꯅꯍꯃ ꯑꯂꯤ "ꯒꯍꯦꯅꯃꯍꯤ ꯅꯥꯡꯕꯗꯅ ꯔ꯭ꯃꯂꯦ ꯂꯃꯃꯤꯗꯂꯅꯦ꯫ ꯅꯍꯃ ꯂꯤꯂꯁꯃꯒꯤ ꯂꯤꯊꯒꯂꯤꯡ ꯃꯦꯡꯂꯤ" ("is not properly connected to the primary drain. Drainage system links are missing") ꯄꯔꯂꯦ ꯊꯡꯅꯤ (AIIB, 2024)꯫ ꯃꯂꯤꯒ꯭ꯍ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯇ, 1994-ꯒꯤ (Manipur Municipalities Act, 1994) ꯅꯥꯡꯕꯗꯂꯤꯡꯒꯤ ꯃꯁꯡꯒꯤ ꯂꯦꯒꯂꯗꯂꯤꯡ ꯑꯂꯤ ꯃꯦꯂꯨꯔꯦꯜ ꯑꯂꯤꯒꯤꯅꯃꯒ ꯒꯤꯅꯤꯅ [TBC]; ꯕꯅ-ꯂꯥꯂꯂꯦ "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯅꯥꯡꯕꯗ" ("municipal drain") ꯄꯔꯂꯦ ꯊꯡꯅ (ꯕꯅ-ꯂꯥ 16)꯫ ꯑꯦꯒꯍꯤꯀ 2025-ꯅ ꯌꯦꯅꯂꯀ ꯃꯦꯍꯤꯀ, ꯂꯦꯒꯤ ꯂ꯭ꯀꯂꯦ ꯑꯃꯁꯨꯡ ꯂꯃꯕ꯭ꯀ ꯁ꯭ꯍꯦꯀꯒꯤ ꯃꯂꯦꯁ ꯂꯧꯕ ꯂꯃ ꯅꯒꯒꯂꯤꯡ ꯂꯧꯊꯥꯂꯕ ꯑꯍꯅꯍ ꯒꯤꯅꯤ, WRD-ꯗ ꯃꯦꯂꯤꯂꯂꯤꯡ ꯒꯤꯒꯅꯕꯒꯤ ꯂꯥꯔꯂꯂ, ꯑꯃꯁꯨꯡ ꯌꯦꯅꯂꯀ ꯃꯦꯍꯤꯀ ꯂꯦꯡꯅꯀꯒ ꯑꯂꯤ LDA-ꯗ ꯂꯃꯂꯤꯡꯅꯤ (ꯒꯍꯅ ꯊꯥꯡꯅꯥꯡꯅꯤꯕ ꯃꯁ꯭ꯡ ꯅꯗꯂ)꯫ ꯃꯦꯂꯨꯔꯦꯜ ꯑꯂꯤꯒꯤ ꯒꯗꯅꯃꯒꯤꯅꯃꯒ, ꯑꯃꯁꯨꯡ ꯂꯁꯦꯌꯂꯦ ꯑꯂꯤꯒ꯭ꯃꯕ ꯍ꯭ꯀ ꯑꯃꯁꯨ ꯊꯥꯡꯄꯗꯅꯍꯤꯊꯦꯍꯕ [TBC], ꯅꯥꯡꯕꯗꯂꯤꯡ ꯑꯂꯤ ꯃꯅꯤꯒꯤ ꯃꯑꯥꯡꯅ ꯒꯤꯍꯤ: ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯅꯥꯡꯕꯗꯂꯤꯡ ꯑꯂꯤ **IMC** ꯑꯃꯁꯨꯡ ꯑꯁꯒꯒ ꯍꯍꯕꯗ ꯂꯥꯀꯀ ꯕꯅꯤꯂꯤꯡꯅ ꯃꯅꯔꯒꯤ ꯑꯦꯍꯤꯔꯦꯂꯤꯡꯅ; ꯂꯃꯕꯤꯒꯤ ꯃꯂꯦꯁꯀꯤ ꯅꯥꯡꯕꯗꯂꯤꯡ **PWD**-ꯅ, ꯃꯅꯔꯒꯤ ꯃꯍꯒꯁ ꯒꯍꯦꯁꯍ ꯅꯃꯊꯀꯅ AIIB ꯒꯍꯥꯂꯥꯌꯀꯤ "ꯃꯂꯦꯒ ꯑꯂꯤꯃꯒꯁ ꯀꯒꯔ ꯁꯧꯍꯕ ꯂꯥꯡꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯅꯥꯡꯕꯗ 547 km" ("547 km of both side stormwater covered drains") (AIIB, 2024), ꯑꯃꯁꯨꯡ **ꯂꯦꯂꯂꯦꯀ-ꯄꯅꯌꯦꯒꯤ ꯑꯦꯂꯦꯗꯂꯤꯂꯤꯡ**-ꯅ; ꯁ꯭ꯍꯦꯀꯒꯤ ꯒꯗꯂꯤꯡ, ꯅꯂꯤꯡ ꯅꯌꯍꯒꯤ ꯌꯦꯂꯦꯀꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯄꯍꯒꯤ ꯌꯦꯂꯦꯀꯂꯤꯡ, ꯂꯃꯊꯦꯀꯒꯥꯌ ꯑꯃꯁꯨꯡ ꯂꯃ꯭ꯂꯦꯡꯒꯤ ꯒꯃꯒꯤꯡ, ꯑꯃꯁꯨꯡ

> ꯁꯍꯔꯒꯤ ꯆꯦꯅꯦꯜꯁꯤꯡ ꯁꯦꯡꯗꯣꯛꯅꯕ ꯃꯦꯁꯤꯟꯁꯤꯡ WRD-ꯗ; ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜꯗ ꯍꯦꯀꯔꯄꯛ ꯍꯥꯡꯕꯩ 72-ꯒꯤ ꯅꯦꯝꯄꯥꯑꯣꯛꯇꯦ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯁꯦ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ 16-ꯗꯒꯤ 17 MLD-ꯒꯤ ꯌ꯭ꯇꯩꯃꯦ **DoECC**-ꯗ; ꯁꯤꯔꯥꯁꯤꯡ **PHED**-ꯗ (ꯄ꯭ꯔꯥꯖ 8.9); ꯌꯦꯅꯁꯦꯜ ꯃꯦꯔꯤꯗ ꯁꯦꯡꯗꯥꯛꯄꯛ, LDA-ꯅ ꯖꯃꯖꯤꯡꯖꯤꯐꯨ (ꯌꯦꯅꯗ ꯈꯥꯡꯗꯥꯟꯤꯕ ꯃꯇꯨꯡ ꯅꯃꯦ), ꯑꯃꯁꯨꯡ ꯅꯥꯒꯣꯒ ꯑꯃꯁꯨꯡ ꯅꯥꯒꯣꯒ ꯑꯦꯒꯃꯄꯤ 236.21 km²-ꯒꯤ ꯃꯂꯨꯡꯗ ꯅꯕ ꯍꯥꯡꯕꯩ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯦꯜ ꯇꯗꯤꯡꯃꯒ **LDA**-ꯗ; ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯖꯐꯁꯤꯡꯗ, ꯌꯕꯖꯤꯒ ꯌꯔꯒ ꯑꯃꯒꯤ ꯍꯥꯡꯕꯩꯁꯤꯡ ꯃꯨ ꯁꯣꯛꯃꯖꯤꯕ ꯗꯤꯌꯔꯃꯃꯦꯃꯁ, ꯑꯃꯁꯨꯡ ꯑꯁꯥꯌꯌ ꯍꯥꯡꯕꯩꯁꯤꯡ ꯗꯤꯁꯁꯔꯤꯒ ꯄꯨꯁꯦꯁꯤꯟꯖ ꯗꯦꯖꯤꯒꯦꯃ ꯁꯥꯔꯕ ꯕꯥꯗꯤꯗ [TBC] (ꯃꯦꯂꯨꯌꯦꯟ ꯑꯁꯤꯖ ꯊꯐꯕ)꯫ ꯁꯍꯔ ꯇꯨꯗꯤꯡꯃꯒꯖ ꯔꯤꯌ ꯇꯨꯗꯤꯡꯃꯒꯁ ꯌꯤꯕ ꯑꯁꯤꯒꯤ ꯃꯍꯗ ꯃꯁꯤꯒꯤ ꯃꯌꯨ, ꯃꯁꯤꯖ ꯌꯥꯕ ꯁꯨꯔꯦꯟ, ꯃꯁꯤꯖ ꯄꯔꯥꯁ ꯁꯥꯕ ꯌꯦꯡ ꯑꯃꯁꯨꯡ ꯃꯨ ꯒꯦꯃ ꯅꯃꯔꯒ ꯈꯅꯦꯌ ꯒꯦꯃ ꯑꯃꯒꯤ ꯇꯨꯃꯊꯡꯗꯅꯤ, ꯕꯍ-ꯅꯥ 93-ꯒꯤ ꯕꯈꯔ ꯑꯃꯗ ꯅꯕꯔꯣ, ꯃꯁꯤꯒꯤ ꯖꯐꯒꯤ ꯁꯌꯦꯁꯁ (ꯌꯃꯁꯣ ꯅꯃꯔꯒ ꯅꯥꯐꯊꯡꯤ ꯖꯐ), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯃꯈꯥꯟ ꯌꯤꯕ **ꯍꯥꯡꯕꯩꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔ** (drain register) ꯑꯃ ꯊꯐꯒꯗꯕꯅꯤ (ꯃꯦꯂꯨꯌꯦꯟ ꯑꯁꯤꯖ ꯊꯐꯕ)꯫ ꯄ꯭ꯔꯥꯖ 6.9.8(a)-ꯒꯤ ꯃꯍꯗ, ꯌꯁꯔ ꯔꯤꯁꯥꯔꯁꯦꯁ ꯗꯤꯌꯔꯃꯃꯦꯃꯁ ꯌꯤꯔꯕ ꯍꯦꯅꯦꯟ ꯑꯃꯒꯤ ꯃꯖꯡꯄꯤ ꯔꯤꯖꯔꯒ ꯑꯁꯤ ꯌꯁꯔ ꯔꯤꯁꯥꯔꯁꯦꯁ ꯗꯤꯌꯔꯃꯃꯦꯃꯁ ꯍꯥꯡꯕꯥꯄꯍ ꯅꯃꯔꯒ ꯃꯨꯒꯗꯃꯡ ꯐꯡꯊꯥꯄꯍ꯫ ꯍꯦꯅꯦꯟ ꯑꯃꯒꯤ ꯁꯌꯦꯁꯁ ꯑꯁꯤ ꯌꯤꯅꯕ ꯖꯁꯕ ꯃꯈꯐꯗ, ꯄꯥꯔꯤꯗꯥꯔ ꯑꯁꯤꯖ ꯍꯦꯅꯦꯟ ꯑꯨ ꯃꯇꯨꯡ ꯅꯃꯦꯖ, ꯃꯁꯤꯒꯤ ꯃꯃꯤꯡ ꯅꯃꯁ: ꯍꯐꯈꯩꯅꯒꯤ ꯁꯍꯔꯒꯤ ꯍꯦꯅꯦꯟꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯐ ꯑꯃꯃꯒꯁ ꯅꯥꯡꯒꯤ ꯍꯁꯤꯡꯒꯤ ꯍꯥꯡꯕꯩꯁꯤꯡ, ꯁꯤꯌꯦꯅ ꯌꯨꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯨꯔꯦꯅꯒꯤ ꯌꯦꯃ ꯑꯃꯗ ꯖꯕ WRD-ꯒꯤ ꯒꯦꯃ ꯑꯃꯗ ꯅꯥꯍꯕ ꯍꯦꯅꯦꯟꯁꯤꯡꯅꯤ꯫ ꯁꯁꯦꯃ ꯑꯁꯤꯗ ꯖꯕ ꯄꯔꯤꯡꯐꯕ ꯁꯍꯔ ꯑꯃꯒꯤꯗꯃ ꯗꯤꯖꯍꯦ ꯔꯤꯁꯔꯦ ꯌꯤꯔꯤꯌꯗ ꯖꯕ ꯑꯦꯌꯨꯔꯒ ꯁꯥꯔꯕ ꯍꯔꯐꯒꯤ ꯃꯁꯁꯔ ꯌ꯭ꯇꯩꯃꯦ ꯑꯃꯁꯥ ꯈꯡꯍꯤꯗ, ꯑꯃꯁꯨꯡ ꯒꯔꯦꯁꯔ ꯍꯐꯈꯩꯅꯒꯤ ꯃꯁꯁꯔ ꯌ꯭ꯇꯩꯃꯗ ꯅꯥꯡꯒꯤ ꯍꯁꯤꯡ ꯍꯔꯐꯒꯤ ꯁꯦꯃꯁꯦ ꯑꯃꯁꯥ ꯖꯁ꯫ ꯃꯁꯤꯒꯤ ꯃꯅꯤꯃꯁ ꯅꯦꯃꯁꯔꯤꯕ ꯖꯐꯗ ꯌꯅꯕ ꯗꯍꯅ ꯅꯦꯌꯅꯕ ꯍꯥꯡꯕꯩ ꯑꯃ ꯌꯁꯁꯁꯕ ꯌꯤꯗ, ꯃꯔꯐ ꯑꯁꯨꯅꯤ ꯔꯤꯖꯔꯒ ꯑꯁꯤ ꯃꯊꯥ ꯁꯕ ꯗꯍꯅꯗ ꯁꯨꯐꯈꯐ ꯑꯥꯍꯍ꯫ ꯕꯦꯁꯤꯡ ꯅꯥꯡꯒꯤ ꯍꯁꯤꯡ ꯃꯌꯦꯃꯔ ꯌ꯭ꯇꯩꯃꯦ ꯑꯃ ꯅꯥꯁꯤꯡꯗꯔꯤꯈꯩꯕ (ꯄ꯭ꯔꯥꯖ 6.9.6(b)), ꯄ꯭ꯔꯥꯖ 6.9.7-ꯒꯤ ꯃꯊ ꯁꯕ ꯍꯥꯡꯕꯩꯒꯤ ꯗꯍꯅ ꯑꯁꯤ ꯁꯨꯇꯥ ꯑꯁꯤꯒꯤ ꯃꯍꯗ ꯗꯤꯖꯍꯅꯔꯖ ꯊꯤꯔꯕ ꯗꯍꯅ ꯑꯁꯨꯅꯤ꯫ ꯃꯦꯂꯨꯌꯦꯟ ꯑꯁꯤꯖ ꯖꯍꯡ ꯁꯥꯔꯕ ꯅꯃꯔꯒ ꯖꯍꯡ ꯁꯥꯗꯕ ꯁꯦꯒꯁꯡ ꯑꯃ ꯌꯤꯊꯡ ꯌꯤꯔꯗ, ꯄ꯭ꯔꯥꯖ 6.3.6(j) ꯑꯃꯁꯨꯡ ꯁꯨꯇꯥ 9-ꯅ ꯑꯊꯡꯃꯕ ꯒꯔꯦꯗꯤꯌꯦꯡꯁꯤꯡꯗ ꯖꯍꯅꯡ ꯃꯊ ꯁꯕ ꯃꯈꯐꯁꯤꯡ ꯅꯃꯁꯕꯗꯤ꯫ ꯃꯁꯤꯖ ꯁꯦꯒꯁꯡ ꯑꯁꯤꯖ ꯄ꯭ꯔꯥꯖ 6.7.3 ꯑꯃꯁꯨꯡ ꯁꯨꯇꯥ 9-ꯒꯤ ꯅꯦꯖꯁꯤꯁꯤꯒꯤ ꯖꯤꯃꯤꯃꯁꯤꯡ ꯌꯥꯒꯗꯕꯅꯤ ꯍꯔꯖ ꯃꯊ ꯁꯍ, ꯑꯃꯁꯨꯡ ꯖꯍꯡ ꯁꯥꯗꯕ ꯅꯃꯔꯒ ꯌꯤꯐꯕꯤ ꯖꯕ ꯁꯦꯒꯁꯡ ꯑꯃꯒꯤꯗꯃ ꯌꯅꯕ ꯌꯤꯒꯌ ꯔꯤꯖꯔꯒ ꯑꯃꯖ ꯑꯌꯁꯡ ꯑꯅꯤꯃꯒ ꯍꯗꯥꯄꯖ ꯊꯐꯃꯤ꯫

> **ꯁꯦꯗꯥꯄꯖ ꯁꯄꯌ.** ꯃꯊ ꯁꯕ 6.9.2(b)−(e), 6.9.3 ꯑꯃꯁꯨꯡ 6.9.4-ꯒꯤ ꯍꯄꯊꯦꯗꯕ ꯃꯃꯗꯒꯤ ꯇꯨꯗꯐ ꯖꯁꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯌ ꯑꯁꯤ ꯃꯦꯂꯨꯌꯦꯟ ꯑꯁꯤꯖ ꯊꯐꯕꯅꯤ꯫ ꯃꯅꯤꯌꯨꯔꯗ ꯌꯖꯧ ꯇꯨꯗꯤꯡꯃꯒꯃꯤ ꯑꯃꯌꯕꯗ ꯃꯐꯌꯥꯁꯦꯗ ꯌꯅꯒꯤ ꯃꯈꯐ ꯇꯨꯗꯤꯡꯗ ꯖ ꯑꯃꯁꯨꯡ ꯃꯍꯌ ꯑꯁꯤ ꯑꯒꯔꯅꯦꯗ ꯈꯖ ꯖꯐꯕꯤꯁꯤꯗ ꯊꯤꯍꯅꯖꯤꯕ ꯍꯕꯍꯗꯒꯤ ꯌꯤꯐꯖ ꯊꯥꯄꯍ ꯃꯑꯗꯁꯤꯗꯒꯤ ꯃꯂꯨꯡꯗ ꯑꯃꯅꯤ꯫ ꯌꯅꯒꯤ ꯍꯗꯕ ꯃꯈꯐꯁꯤꯗꯒꯤꯗꯃꯒ 50% ꯕꯖꯄꯅ ꯖꯕ ꯑꯁꯤ ꯄ꯭ꯔꯥꯖ 6.6.3-ꯒꯤ ꯒꯔꯦꯃ ꯄꯁꯌꯒꯤ ꯈꯥꯁꯔꯒ ꯃꯦꯅꯅꯕ ꯊꯐꯅꯤ꯫ 3.5 m-ꯒꯤ ꯑꯦꯗꯁꯦꯁꯄꯤ ꯌꯤꯗꯌ ꯑꯁꯤ ꯃꯦꯂꯨꯌꯦꯟ ꯑꯁꯤꯖ ꯊꯐꯕꯅꯤ, ꯑꯌꯤꯗꯌ ꯑꯦꯗꯁꯄꯦꯒꯦꯁꯔ ꯁꯃꯒꯤ ꯖꯃ ꯖꯊꯗꯅꯕ ꯒꯔꯤ ꯑꯃꯒꯤꯗꯃꯒ ꯗꯍꯅ ꯖꯦꯌꯅꯕ꯫ ꯌꯤꯗꯃꯐꯅꯅꯕ, APWA 5600 (2006, 5608.4)-ꯅ ꯗꯤꯁꯦꯁꯦ (detention) ꯈꯦꯁꯤꯖꯤꯁꯤꯁꯤꯗꯒꯤꯗꯃꯒ 15 ft (4.6 m ꯃꯔꯥꯟ)-ꯒꯤ ꯃꯦꯁꯁꯦꯅꯦꯁꯄꯤ ꯑꯦꯗꯁꯦꯁ ꯁꯁꯔꯤꯌ ꯑꯃ ꯃꯊ ꯁꯍ꯫

6.10 ꯁꯦꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯦꯃꯕ ꯃꯈꯐꯁꯤꯡꯗ ꯍꯁꯤꯡ ꯖꯦꯌꯌ

6.10.1 **ꯃꯍꯅꯔ ꯍꯒꯦꯈ.** ꯁꯦꯛ ꯇꯨꯗꯤꯡꯃꯒꯁ, ꯃꯍꯅꯔ ꯗꯤꯖꯍꯅ ꯈ꯭ꯖ ꯑꯁꯤ ꯍꯅꯖꯤꯕꯁꯤꯡꯅ (ꯄꯌꯌ ꯖꯔꯕ ꯃꯇꯨꯡꯗ) ꯁꯦꯕꯅ 6.2-ꯒꯤ ꯃꯂꯨꯡꯗ ꯍꯁꯤꯡ ꯖꯦꯌꯌꯒꯤ ꯁꯌꯔꯦꯗꯗ ꯖꯍꯅꯅ ꯖꯊꯥꯄꯗꯕꯅꯤ꯫

6.10.2 **1% AEP-ꯒꯤ ꯍꯒꯦꯈ.** ꯁꯦꯛ ꯇꯨꯗꯤꯡꯃꯒꯁ:

- (a) ꯍꯁꯤꯡ ꯖꯦꯌꯌꯒꯤ ꯑꯍꯡꯕ ꯑꯁꯤ ꯄꯦꯔꯤꯌꯦꯖꯌꯦꯒꯤ ꯇꯕꯍꯗꯒꯤ ꯑꯍꯡꯕ ꯃꯈꯐꯗ 350 mm-ꯗꯒꯤ ꯍꯦꯁꯖꯍꯗꯕꯅꯤ;
- (b) ꯖꯃꯍꯒꯤ ꯑꯒꯔꯈꯖ ꯖꯐꯕꯤ ꯑꯃ (ꯇꯨꯗꯐ ꯑꯍꯅ ꯅꯦꯐꯍꯅꯖꯕ ꯄꯔꯕ ꯑꯃꯁꯨꯡ ꯈꯌꯊꯤꯄꯤ ꯃꯊꯥꯁꯒꯤ ꯗꯦꯖꯤꯒꯦꯃ ꯁꯥꯔꯕ ꯑꯒꯔꯅꯦꯗ ꯈꯖ ꯖꯐꯕꯤ ꯑꯃꯗ) ꯌꯤꯒꯗꯕꯅꯤ, ꯃꯔꯐ ꯑꯁꯨꯅꯤ ꯍꯁꯤꯡ ꯖꯦꯌꯌꯒꯤ ꯖꯦꯒꯦꯅ ꯑꯁꯤ ꯑꯒꯔꯈꯖ ꯖꯦꯒꯦꯅꯗꯒꯤ ꯌꯤꯡꯅ ꯍꯦꯒꯤꯌꯌ ꯌꯤꯔꯍ; ꯑꯃꯁꯨꯡ
- (c) ꯁꯦꯛ ꯑꯁꯨꯒꯤ ꯑꯄꯌꯕꯗ ꯖꯕ ꯕꯤꯅꯗꯤꯗꯒꯤ ꯈꯖꯔ ꯖꯦꯒꯦꯅꯁꯤꯡꯅ ꯄ꯭ꯔꯥꯖ 6.11 ꯌꯒꯗꯕꯅꯤ꯫

6.10.3 **ꯂꯝꯕꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ.** ꯄꯨꯝꯅꯃꯛꯇꯥ, 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯊꯥꯛ ꯑꯁꯤ ꯍꯥꯏꯋꯦ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ ꯑꯣꯏꯅꯥ ꯂꯧꯒꯅꯤ ꯑꯃꯁꯨꯡ ꯑꯀꯛꯅꯕꯥ ꯐꯤꯕꯝꯁꯤꯡꯗꯥ ꯍꯦꯟꯅꯥ ꯋꯥꯡꯕꯥ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫ ꯃꯁꯤ ꯑꯗꯨꯒꯤ ꯑꯦꯝꯕꯦꯟꯀꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯀꯂꯚꯔꯠꯁꯤꯡ ꯑꯁꯤ ꯏꯁꯤꯡ ꯊꯥꯛ ꯑꯗꯨꯒꯤ ꯃꯊꯛꯇꯥ ꯐꯝꯂꯤꯕꯥ ꯑꯣꯏꯅꯥ ꯄꯥꯟꯗꯝ ꯊꯝꯒꯅꯤ꯫

6.10.4 **ꯁ꯭ꯂꯣꯞ ꯁꯦꯐꯇꯤ ꯃꯥꯔꯖꯤꯟ.** ꯃꯁꯤ ꯑꯍꯣꯡ ꯂꯥꯛꯅꯕꯥ ꯑꯦꯝꯕꯦꯟꯀꯃꯦꯟꯇ ꯊꯥꯛ ꯁꯤꯖꯤꯟꯅꯕꯗꯥ, ꯏꯁꯤꯡ ꯆꯦꯟꯊꯣꯛꯄꯥ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯅꯒꯤ ꯑꯗꯨꯒꯤ (ꯗꯤꯖꯥꯏꯟ ꯃꯇꯝ ꯀꯥꯡꯂꯣꯟ) 1% AEP-ꯒꯤ ꯐ꯭ꯂꯗ ꯂꯧꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯍꯦꯅꯕꯥ ꯑꯣꯏꯕꯥ ꯑꯣꯏꯊꯣꯛꯂꯕꯗꯥ ꯌꯥꯝꯅꯥ ꯊꯦꯡꯅꯒꯅꯤ꯫

6.10.5 **ꯊꯦꯡ ꯑꯦꯟꯗꯤꯕꯤꯂꯤꯇꯤ.** ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗꯥ ꯌꯥꯑꯣꯕꯥ ꯑꯦꯟꯗꯤꯕꯤꯂꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯁꯣꯌꯕꯥ ꯁ꯭ꯂꯣꯞ ꯁꯦꯐꯇꯤ ꯃꯥꯔꯖꯤꯟꯗꯥ:

- (a) 2% AEP (50-yr)-ꯒꯤ ꯐ꯭ꯂꯗꯀꯤ ꯃꯇꯝꯗꯥ ꯂꯝꯕꯤ ꯁꯦꯐꯇꯤ, 1% AEP-ꯒꯤ ꯐ꯭ꯂꯗꯇꯥ ꯂꯦꯚꯦꯜ ꯁꯦꯐꯇꯤ ꯍꯦꯟꯅꯕꯥ ꯑꯣꯏꯕꯥ ꯑꯍꯦ (ꯒꯥꯡꯒꯤꯁꯤꯡꯗꯥ ꯅꯥꯍꯥ ꯃꯇꯝ ꯊꯥꯀꯄꯥ ꯍꯦꯟꯅꯥ ꯑꯦꯡꯗꯥ 9, ꯇꯦꯕꯜ 9.9-ꯒꯤ ꯍꯥꯏꯕꯥ ꯃꯍꯥꯛꯀꯤ ꯇꯦꯁ꯭ꯇ) ꯅꯥꯍꯥ ꯃꯥꯏꯀꯅꯕꯅꯤ;
- (b) ꯇꯪꯍꯕ ꯍꯦꯟꯅꯥ ꯑꯆꯧꯕ ꯁꯦꯟꯊꯣꯛꯄꯥ ꯐ꯭ꯂꯗ ꯗꯤꯖꯥꯏꯟ ꯆꯥꯡꯇꯤꯕ ꯍꯥꯏꯕꯥ ꯑꯇꯣꯞꯄꯥ ꯐ꯭ꯂꯗꯇꯥ ꯃꯥꯌꯣꯛꯅꯕꯥ ꯅꯦꯇꯋꯥꯔꯀ ꯆꯪꯅꯕꯅꯤ;
- (c) ꯁꯦꯝ ꯁꯦꯝ ꯍꯦꯟꯅꯥ ꯁꯤꯡꯅꯕꯥ ꯑꯣꯏꯕꯥꯗ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯝꯕꯦꯟꯀꯃꯦꯟꯇꯤꯒꯤ ꯇꯨꯡꯒꯤ ꯅꯦꯇꯋꯥꯔꯀꯀꯤ ꯄꯥꯟꯗꯝꯗꯝꯅꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯗꯥꯏꯔꯦꯛꯇꯔ 150 mm-ꯒꯤ ꯑꯅꯤꯕꯥ ꯄꯥꯕ ꯁꯦꯝ ꯑꯅꯤꯕꯒꯤ ꯍꯥꯌꯗꯥꯏꯃꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯍꯕꯗꯥ ꯄꯥꯕ ꯁꯦꯝ ꯂꯥꯡꯃꯤꯇꯤꯡꯗꯕ ꯇꯧꯗꯨꯅ ꯄꯤꯕꯒꯤ ꯃꯤꯠꯇꯪꯇꯤꯃꯤ ꯆꯪꯅꯕꯅꯤ꯫

> **ꯃꯦꯡꯁꯥꯗꯦ ꯁꯥꯃꯗꯥ.** ꯂꯝꯕꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ, ꯁ꯭ꯂꯣꯞ ꯁꯦꯐꯇꯤ ꯃꯥꯔꯖꯤꯟ ꯊꯣꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯗꯤꯕꯤꯂꯤꯇꯤꯒꯤ ꯍꯦꯟꯅ ꯁꯦꯝꯃꯤ ꯑꯃꯒꯤ ꯄꯥꯟꯗꯝ ꯍꯥꯏꯕꯒꯤ ꯌꯥꯡ ꯆꯪ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯕ ꯑꯃꯤ ꯍꯣꯡꯂꯕ ꯑꯃꯤꯗꯦ ꯄꯥꯕꯅꯤ꯫ ꯊꯤꯃꯊꯦꯡꯒꯤ ꯍꯦꯝꯕꯥ ꯍꯦꯟꯊꯣꯛꯄꯥ ꯅꯃꯤꯗꯦ ꯁꯦꯝꯅꯤꯕ ꯊꯦꯡ ꯑꯦꯟꯗꯤꯕꯤꯂꯤꯇꯤ ꯑꯍꯦꯒꯤ ꯊꯥꯡꯗꯥꯗ ꯑꯍꯦꯟꯗꯥ ꯐꯝꯅꯥꯡ [TBC]꯫ ꯇꯨꯡꯒꯤ ꯃꯤꯗꯦ ꯍꯦꯟꯗꯤꯕꯒꯤ ꯍꯥꯌꯊꯣ ꯑꯣꯏꯕꯥ ꯑꯍꯦ ꯄꯥꯕ ꯁꯦꯝꯊꯤ: ꯇꯦꯡꯅ 2024-ꯗ ꯀꯥꯡꯇꯦꯕ ꯗꯦꯒꯤ ꯂꯩꯇꯦꯗꯦ ꯅꯥꯍꯥꯏꯩꯗ ꯗꯦꯒꯤꯊꯥ, ꯗꯦꯅꯍꯥ ꯀꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯦꯅꯊꯤꯗꯥꯔꯦꯗꯕꯍꯥ ꯆꯪꯅꯕ ꯅꯃꯤꯗꯦ ꯅꯥꯍꯥꯏꯩ ꯀꯥꯡꯊꯥꯗꯥꯅꯤ (ꯃꯥꯏꯩꯗ ꯐꯗꯤꯗꯥꯅꯤꯕ ꯍꯥꯏꯗ ꯅꯦꯇꯇ), ꯑꯃꯁꯨꯡ AIIB-ꯒꯤ ꯇꯨꯡꯒꯤꯒꯤ ꯃꯥꯊꯦꯡꯇꯥꯗꯦ ꯍꯃꯤꯒꯤ ꯍꯥꯏ ꯑꯃꯤ "ꯅꯃꯤꯗꯦ ꯅꯥꯍꯥꯏꯩꯗꯦ ꯍꯊꯥ ꯑꯅꯥꯡꯗꯦ ꯇꯨꯡꯒꯤ ꯃꯤꯇꯤꯑꯦꯇꯕ ꯁꯦꯝꯅꯕ ꯀꯍꯤꯗꯥꯗꯦ ꯍꯃꯤꯗꯥ" ("Number of days of road unavailability due to flooding")-ꯗꯦ ꯄꯥꯇꯅ (AIIB, 2024)꯫ ꯇꯦꯕꯜ 6.10.5(d)-ꯗꯦ ꯁꯦꯕꯔ 6.2-ꯒꯤ 150 mm-ꯒꯤ ꯗꯥꯏꯨꯦ ꯑꯅꯤꯕꯒꯤ ꯇꯤꯍꯤꯗ ꯑꯃꯤ ꯁ꯭ꯂꯣꯞꯤꯗꯥ ꯇꯥꯡꯗꯥꯕ ꯍꯦꯟꯅꯥ ꯑꯆꯧꯒꯤ ꯃꯍꯥꯍꯤꯗꯦꯇꯅꯔꯇꯤ꯫

6.11 ꯐꯣꯔꯃꯦꯁꯅꯒꯤ ꯂꯦꯚꯦꯂ ꯊꯥꯛꯁꯤꯡ

6.11.1 ꯄꯦꯚꯃꯦꯟꯇꯀꯤ ꯇꯪꯍꯕ ꯆꯥꯡ ꯑꯍꯅꯕ ꯐ꯭ꯂꯗ, ꯑꯃꯁꯨꯡ ꯐꯣꯔꯃꯦꯁꯟ ꯑꯍꯦ ꯅꯃꯤꯗꯦ ꯂꯧꯕ ꯁꯦꯕ ꯊꯧꯕ ꯍꯦꯟꯅꯥ ꯀꯂꯤꯗꯥꯒꯤ (ꯄꯥꯕꯃꯤꯗꯦ, ꯒꯦꯇꯁꯤꯇꯦꯁꯈꯃꯤꯗꯦ, ꯕꯦꯃꯍꯦꯜ ꯊꯦꯡꯗꯥꯃꯤꯗꯦ, ꯇꯤꯍꯦꯜ ꯃꯥꯜꯃꯤꯗꯦ ꯑꯃꯁꯨꯡ ꯃꯊꯒꯤꯃ ꯂꯧꯍꯦꯟꯃꯤꯗꯦ) ꯑꯃꯤ ꯁꯤꯡꯅꯕꯥꯗꯦ **1% AEP-ꯒꯤ ꯅꯃꯤꯗꯦ ꯅꯥꯍꯥꯏꯩꯒꯤ ꯇꯪꯍꯕꯗꯒꯤ 0.5 m ꯍꯥꯄꯥꯗ** ꯆꯪꯅꯕꯅꯤ꯫

6.11.2 1% AEP-ꯒꯤ ꯅꯃꯤꯗꯦ ꯅꯥꯍꯥꯏꯩꯒꯤ ꯇꯪꯍꯕ ꯑꯃꯤ ꯍꯥꯌꯒꯤꯃꯤꯗꯦꯒꯤ ꯍꯊꯥꯗ ꯄꯦꯚꯃꯦꯟꯇꯀꯤ ꯁꯤꯡꯅꯕ ꯑꯆꯧꯇꯤ:

- (a) ꯐꯣꯔꯃꯦꯁꯟ ꯑꯆꯧꯒꯤ ꯍꯦꯗꯥꯗ ꯆꯥꯡ ꯇꯨꯡꯒꯤ ꯇꯌꯊꯒꯤ ꯑꯍꯦꯗꯦꯡꯗ ꯐ꯭ꯂꯗ ꯇꯨꯡꯒꯤ 1% AEP-ꯒꯤ ꯍꯦꯡꯇꯊ-ꯃꯤꯗꯦꯡꯗꯥꯒꯤ ꯅꯃꯤꯗꯦꯒꯤ ꯇꯪꯍꯕ (ꯇꯦꯕꯜ 6.9 ꯑꯃꯁꯨꯡ 6.10, ꯑꯣꯏꯊꯣꯛꯂꯕ ꯂꯝꯕꯤ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ ꯁꯤꯡꯗꯦ);
- (b) ꯁ꯭ꯇꯪꯍ, ꯂꯦꯇꯪꯍ, ꯀꯥꯟꯂꯥꯒꯤ ꯇꯌꯊꯒꯤ ꯅꯃꯤꯗꯦ ꯆꯥꯡ (waterbody) ꯑꯍꯦꯍꯥꯗꯁꯒꯤ 1% AEP-ꯒꯤ ꯅꯃꯤꯗꯦ ꯅꯥꯍꯥꯏꯩꯒꯤ ꯇꯪꯍꯕ (ꯃꯦꯡꯗꯥ 7); ꯑꯃꯁꯨꯡ
- (c) ꯃꯦꯡꯗꯥ 5-ꯒꯤ ꯁꯪꯍꯔꯁꯊꯒꯤ ꯇꯦꯁ꯭ꯇ 1% AEP-ꯒꯤ ꯇꯪꯍꯕ; ꯑꯃꯁꯨꯡ
- (d) ꯑꯣꯏꯊꯣꯛꯂꯕ ꯑꯍꯦꯅꯕꯥ ꯑꯣꯏꯕꯗꯦ ꯇꯦꯕꯜ 7.3.4-ꯒꯤ ꯍꯥꯏꯕ 1% AEP-ꯒꯤ ꯅꯃꯤꯗꯦ ꯅꯥꯍꯥꯏꯩꯒꯤ ꯑꯅꯤꯕꯒꯤ ꯍꯦꯟ ꯑꯍꯦ ꯇꯦꯕ ꯍꯦꯟꯅꯥ, ꯀꯥꯡꯇꯦꯈꯁ ꯆꯪ ꯆꯪꯅꯕꯒꯤ ꯇꯪꯍꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯟ ꯁꯦꯝ 1% AEP-ꯒꯤ ꯑꯅꯤꯕ꯫

6.11.3 **ꯇꯪꯍꯕ ꯄꯥꯟꯗꯝ ꯍꯦꯟꯅꯥ ꯃꯥꯏꯀꯅꯕ.** ꯃꯦꯡꯗꯥ 1-ꯒꯤ ꯄꯥꯏꯩꯗꯦꯡꯗꯥꯅꯃꯤꯗꯦꯒꯤ ꯍꯥꯏꯕ ꯆꯪ ꯀꯥꯡꯇꯦꯈ ꯑꯍꯦꯒꯤꯗꯥꯗ, ꯇꯌꯊꯒꯤ ꯀꯥꯡꯇꯦꯈ ꯑꯆꯧꯒꯤꯗꯥꯗ 1% AEP-ꯒꯤ ꯇꯪꯍꯕ ꯄꯥꯟꯗꯝ ꯍꯦꯟꯅꯥ, ꯄꯦꯚꯃꯦꯟꯇꯀꯤ ꯇꯪꯍꯕ ꯆꯥꯡ ꯑꯍꯅꯕ ꯐ꯭ꯂꯗ ꯑꯃꯁꯨꯡ ꯊꯧꯕ ꯍꯦꯟꯅꯥꯃꯤꯗꯦ ꯑꯃꯤ ꯁꯤꯡꯅꯕꯥꯗꯦ ꯍꯥꯌꯒꯤ ꯑꯆꯧꯒꯤ ꯍꯊꯥꯗ ꯁꯤꯡꯅꯕ ꯑꯆꯧ ꯑꯍꯦꯟꯅꯕꯅꯤ:

- (a) **ꯀꯥꯡꯇꯦꯈ ꯑꯆꯧꯗꯦ ꯍꯦꯟꯅ ꯂꯦꯗꯥꯇꯤꯡ ꯇꯨꯡꯒꯤꯒꯤ ꯄꯦꯚꯃꯦꯟꯇꯀꯤ ꯁꯤꯡꯅꯕ ꯗꯥꯏꯨꯦ ꯇꯪꯍꯕꯒꯤ 0.65 m ꯍꯥꯄꯥꯗ**; ꯑꯃꯁꯨꯡ

- (b) ꯃꯗꯨꯕ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯋꯥꯡꯕꯒꯤ ꯍꯩꯀꯥ ꯑꯍꯦꯟꯕ ꯁꯦꯠꯕꯦꯛ ꯑꯃꯥ ꯄꯤꯖꯔꯕ ꯃꯇꯝꯗ, **ꯃꯈꯥꯗꯒꯤ ꯇꯣꯉꯥꯟ ꯑꯃꯁꯨꯡ ꯍꯩꯀꯥ ꯌꯥꯝꯅꯕ 1% AEP-ꯒꯤ ꯑꯋꯥꯡꯕ ꯑꯃꯁꯨꯡ 0.5 m**꯫

ꯑꯍꯥꯅꯕꯗꯤ ꯑꯣꯏꯕꯗ ꯃꯌꯥꯝ ꯂꯩꯕ ꯑꯃꯗ ꯍꯣꯜꯂꯤ ꯂꯣꯏꯅꯕꯤꯗꯨꯅ, ꯂꯩꯕꯗ ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅꯕ ꯍꯩꯀꯥ ꯑꯍꯦ ꯃꯇꯝ ꯍꯦꯟꯅ ꯌꯥꯝꯅꯕ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯋꯥꯡꯕꯒꯤ ꯈꯣꯡꯖꯦꯜ ꯃꯇꯝ ꯍꯩꯀꯥ ꯑꯍꯦ (ꯍꯧꯖꯤꯛ ꯑꯣꯏꯅ India Flood Atlas) ꯂꯧꯕ ꯄꯤꯔꯤꯕ ꯍꯩꯀꯥ ꯑꯍꯦ ꯃꯇꯝ ꯌꯥꯏ꯫ ꯂꯩꯄꯥꯛ ꯃꯄꯥꯟ (storm surge) ꯍꯦꯟꯅ ꯌꯥꯝꯅꯕ ꯍꯩꯀꯥ ꯑꯍꯦ ꯇꯦꯕꯜ 6.11.6-ꯒꯤ ꯍꯣꯜꯂꯤ ꯂꯣꯏꯅꯕꯤꯗꯨꯅꯕꯅꯤ꯫

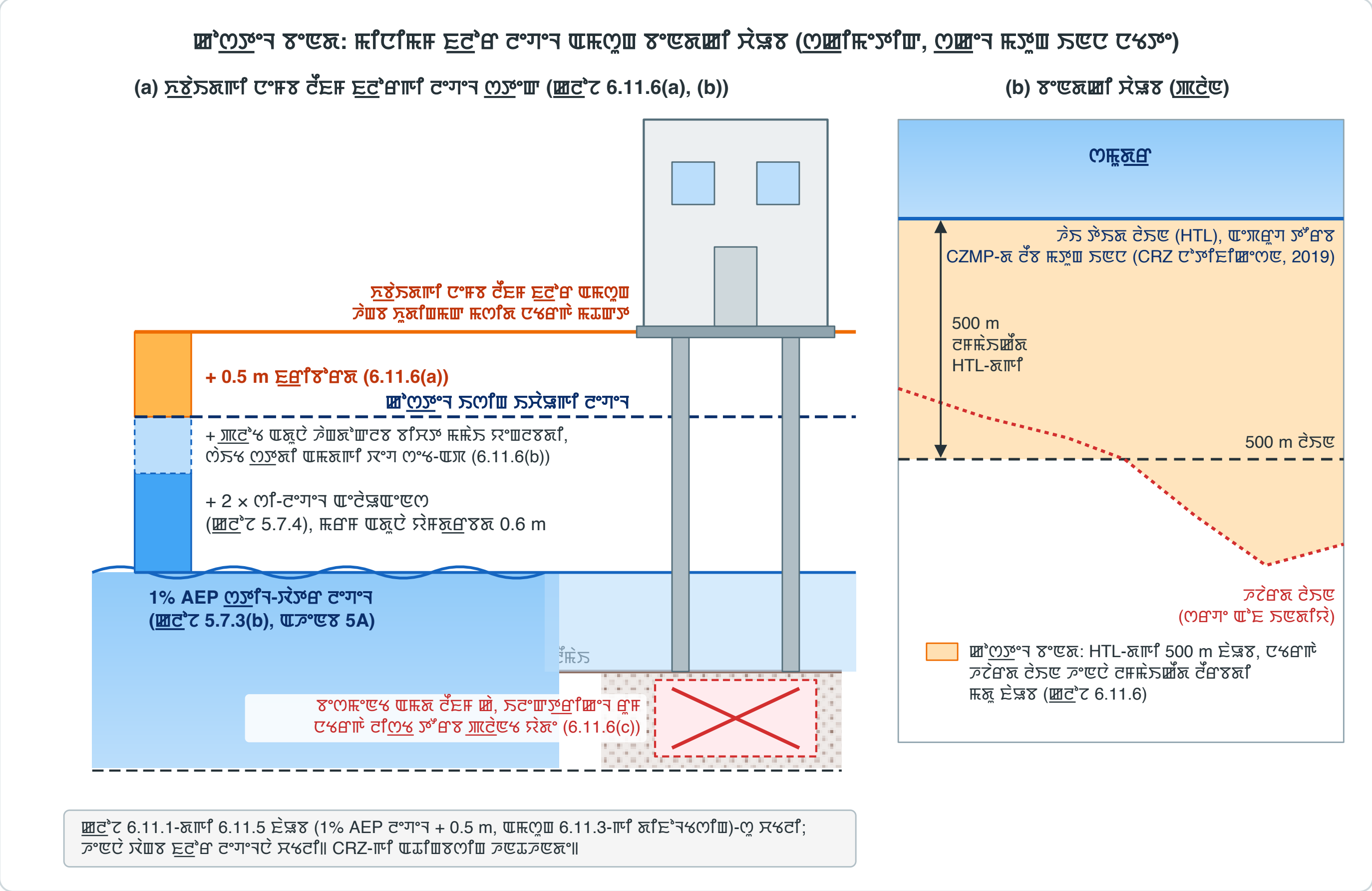
6.11.4 **ꯁꯦꯠꯕꯦꯛꯁꯤꯡ.** ꯁꯦꯠꯕꯦꯛ ꯄꯤꯕꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ ꯇꯥꯛꯄ ꯑꯃꯁꯨꯡ ꯁꯦꯠꯕꯦꯛꯁꯤꯡ ꯄꯤꯕ ꯃꯇꯝ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ ꯂꯤꯁ ꯑꯃꯗ ꯇꯦꯕꯜ 6.11.1 ꯌꯦꯡꯒꯗꯕꯅꯤ꯫ ꯁꯦꯠꯕꯦꯛꯁꯤꯡ ꯅꯤꯡꯊꯧ ꯑꯃꯥ ꯄꯤ-ꯊꯣꯛꯄ ꯊꯧꯑꯣꯡ ꯑꯃꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯃꯈꯥꯗꯒꯤ ꯅꯥꯏꯕꯦꯜ ꯌꯥꯝꯅꯗ ꯊꯥꯖꯕꯅꯤ꯫

6.11.5 **ꯂꯥꯏꯁꯤꯡꯁꯤꯡ.** ꯁꯤꯡꯗꯤꯡ ꯑꯍꯦꯟ ꯂꯩꯕ ꯌꯥꯏꯕ ꯅꯇꯔꯒꯤ ꯌꯥꯡꯡꯁꯤꯡ, ꯄꯥꯛꯂꯣꯜꯂꯤꯡꯁꯤꯡ, ꯂꯩꯄꯥꯛꯁꯤꯡ ꯇꯔꯥꯕꯔꯤꯡꯁꯤꯡ, ꯇꯤꯡꯖꯤ ꯍꯩꯀꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯕꯁꯤꯡꯗ ꯇꯦꯕꯜ 6.11.1 ꯌꯦꯡꯒꯗꯕꯅꯤ꯫

6.11.6 **ꯂꯩꯄꯥꯛꯀꯤ ꯁꯔꯨꯛ (coastal band).** ꯂꯩꯄꯥꯛꯀꯤ ꯁꯔꯨꯛ ꯄꯥꯏꯕꯁꯤꯡ ꯂꯧꯈꯠꯄꯒꯤ ꯍꯩꯀꯥꯒꯤ ꯄꯥꯟ ꯌꯥꯝꯅ ꯇꯥꯟꯅꯕꯒꯤ (High Tide Line) ꯃꯇꯝꯗꯒꯤ **500 m**-ꯒꯤ ꯍꯦꯟꯅꯕ ꯃꯐꯝ ꯃꯇꯝꯗꯤ, CRZ Notification, 2019-ꯗ ꯑꯃꯥ ꯌꯥꯏꯕꯤꯕ ꯍꯤꯡꯕ ꯅꯃꯗ, ꯑꯍꯥꯅꯕ ꯌꯥꯝꯅꯕ ꯂꯩꯄꯥꯛꯀꯤ ꯃꯔꯨ ꯍꯦꯟꯅꯇꯍꯦꯟꯕ ꯌꯥꯇꯦꯕꯗ ꯅꯄꯥꯡꯂꯕꯤꯕ ꯄꯥꯟ ꯌꯥꯝꯅ ꯇꯥꯟꯅꯒꯤ ꯃꯄꯨꯗꯗꯨ꯫ ꯂꯩꯒꯤ ꯑꯊ ꯅꯕꯗꯤꯅꯤꯒꯤ ꯄꯇꯩꯗ ꯇꯥꯟꯕ (Hazard Line) ꯑꯃꯁꯨ 500 m-ꯗꯒꯤ ꯄꯥꯟꯗ ꯃꯇꯝꯗꯒꯤ ꯃꯇꯝꯗ ꯍꯦꯟꯅꯗ, ꯁꯔꯨꯛ ꯑꯃꯁꯨ ꯄꯇꯩꯗ ꯇꯥꯟꯕ ꯊꯨꯕ ꯌꯥꯏꯕ꯫ ꯂꯩꯄꯥꯛꯀꯤ ꯁꯔꯨꯛꯗꯒꯤ ꯍꯦꯟꯅꯕ, ꯇꯦꯕꯜ 6.11.1-ꯗꯒꯤ 6.11.5 ꯐꯥꯑꯣꯕꯒꯤ ꯍꯩꯀꯥ:

- (a) ꯅꯕꯅꯗꯒꯤ ꯃꯇꯝꯕ ꯃꯊꯛ ꯑꯍꯥꯕ ꯊꯦꯡꯈ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯕ ꯍꯦꯟꯅ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯑꯃꯁꯨ ꯌꯥꯝꯅꯕꯤꯕꯗ **ꯂꯩꯄꯥꯛꯀꯤ ꯅꯣꯡꯖꯨ ꯅꯨꯡꯁꯤꯠꯀꯤ ꯇꯣꯉꯥꯟꯗꯒꯤ 0.5 m ꯍꯦꯛꯇꯕꯥ** ꯃꯊꯛꯗꯕꯅꯤ, ꯍꯣꯡꯕ 1% AEP-ꯒꯤ ꯂꯩꯕꯤ-ꯌꯥꯏꯕ ꯇꯣꯉꯥꯟ (ꯇꯦꯕꯜ 5.7.3(b), ꯑꯄꯥꯏꯕ 5A) ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 5.7.4-ꯒꯤ ꯂꯣꯏ-ꯇꯣꯉꯥꯟ ꯑꯍꯦꯟꯕꯗꯒꯤ **ꯑꯃꯁꯨ ꯍꯦꯛ** (ꯍꯤꯡꯕ ꯑꯍꯦꯟꯗ ꯌꯥꯝꯅꯕꯤꯕꯗ 0.6 m)ꯗꯤ, ꯍꯤꯡꯕꯗ ꯁꯤꯡꯗꯤꯡꯁꯤꯡꯒꯤ ꯗꯤꯇꯅꯕ ꯇꯥꯟꯊ ꯌꯥꯏ 50-ꯗꯒꯤ ꯄꯥꯟꯅ (ꯇꯦꯕꯜ 5.7.4(c));
- (b) ꯌꯥꯝꯅ ꯑꯍꯦꯟꯗ ꯄꯥꯏꯕꯤꯅꯕ ꯁꯤꯌꯥ ꯍꯦꯟꯅ ꯌꯥꯝꯅꯕ ꯍꯦꯟꯅꯗ, ꯂꯩꯄꯥꯛꯀꯤ ꯅꯣꯡꯖꯨ ꯅꯨꯡꯁꯤꯠꯀꯤ ꯇꯣꯉꯥꯟꯗ ꯂꯅꯕ ꯂꯩꯕꯗ ꯑꯍꯦꯗꯒꯤ ꯌꯥꯏ ꯂꯥꯏ-ꯑꯌꯥ (wave set-up) ꯌꯥꯏꯕꯤꯗꯕꯅꯤ;
- (c) ꯇꯦꯕꯜ 6.11.5-ꯗ ꯃꯤꯂꯣꯏ ꯌꯥꯝꯅꯕ ꯃꯊꯛ ꯑꯍꯥꯕ ꯂꯩ, ꯅꯇꯔꯒꯤ ꯌꯥꯡꯡꯁꯤꯡ ꯂꯥꯏꯁꯤꯡ ꯂꯨꯕ ꯃꯤꯄꯥꯏ ꯌꯥꯇꯦꯕꯗ ꯑꯍꯦꯟꯕ ꯁꯦꯠꯕꯦꯛ ꯑꯍꯦꯟ ꯍꯦꯛꯇꯅꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯁꯦꯠꯕꯦꯛꯁꯤꯡ ꯄꯤꯕ ꯃꯇꯝ, ꯄꯥꯡꯊꯣꯛ ꯇꯥꯛꯄ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯥꯡꯁꯤꯡꯒꯤ ꯄꯤꯕ ꯃꯇꯝ ꯈꯨꯗꯣꯡꯆꯥꯕꯗ ꯇꯦꯕꯜ 6.11.6(a) ꯌꯦꯡꯒꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 6.11.6-ꯗ CRZ Notification-ꯗ ꯍꯤꯡꯃꯤꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯍꯦꯟꯕ ꯌꯥꯄꯤꯗꯣ꯫ ꯑꯃꯤꯍꯦ ꯌꯥꯏꯕꯤꯕ ꯍꯦꯟꯅꯗ, ꯄꯥꯟꯗ ꯇꯦꯛꯕ ꯑꯍꯦꯟꯗ ꯃꯈꯥꯗꯅ꯫


(a) 6.11.6(a), (b)
(b)
HTL
CZMP
CRZ 2019
500 m
HTL
500 m
+ 0.5 m (6.11.6(a))
(6.11.6(b))
+ 2 ×
5.7.4
0.6 m
1% AEP
5.7.3(b)
5A
(6.11.6(c))
HTL 500 m
6.11.6
6.11.1 6.11.5 (1% AEP + 0.5 m, 6.11.3
CRZ

[illegible] 6.5 — [illegible]: 1% AEP-[illegible], [illegible] 0.5 m [illegible] 500 m [illegible] ([illegible] 6.11.6)॥ [illegible], CRZ Notification, 2019 (para 1(i) and Annexure IV) [illegible] PUB Singapore, Code of Practice on Surface Water Drainage (7th ed.), cl. 2.1.1-[illegible]॥

> **[illegible].** 1% AEP-[illegible] 0.5 m-[illegible] DID Malaysia 2008-[illegible] ([illegible] 100-yr ARI + 0.5 m-[illegible])॥ [illegible] 1% [illegible] 1 ft (0.3 m [illegible])-[illegible] APWA 5600 (2006, 5601.8 A2)-[illegible]॥ [illegible] 6.11.3-[illegible] 0.65 m-[illegible]: [illegible] 1%-[illegible] 150 mm [illegible] ([illegible] 6.2), [illegible] 0.5 m-[illegible]॥ [illegible]॥ URDPFI (2015)-[illegible] 7-[illegible]॥
>
> [illegible] 6.11.3(b)-[illegible] 1% AEP-[illegible]॥ [illegible] (30 m [illegible]), [illegible] 6.11.3-[illegible] 6.11.6-[illegible]॥
>
> [illegible] 6.11.6-[illegible] CRZ Notification, 2019-[illegible] 500 m-[illegible] (G.S.R. 37(E), para 1(i): "[illegible] ... [illegible] 500 [illegible]" ["the land area from High Tide Line ... to 500 meters on the landward side"]), [illegible]॥ [illegible] (CRZ Notification, 2019, Annexure IV)॥ [illegible]

ꯑꯁꯤꯗꯥ ꯀꯣꯁ꯭ꯆꯦꯟ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯗꯣꯝ ꯁꯨꯕꯒꯤ ꯃꯦꯖꯔꯒꯤ ꯗꯤꯁꯔꯗꯥ ꯆꯦꯞꯇꯔ 5-ꯒꯤ ꯂꯥꯏꯍꯔꯥꯎ-ꯀꯦꯆꯃꯒꯤ ꯁ꯭ꯇꯦꯟ-ꯗꯔꯗ ꯂꯦꯚꯦꯜꯁꯤꯡꯒꯤ ꯂꯣꯜ॥ ꯍꯦꯗꯥ ꯌꯥꯝꯕ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ ꯑꯁꯤꯗꯥ ꯐꯤꯒꯔ ꯑꯣꯏꯅ ꯄꯨꯔꯦ: ꯀꯣꯁ꯭ꯆꯦꯟ ꯅꯁꯤꯡ ꯅꯠꯇ ꯑꯍꯥ ꯁꯍꯗꯤꯡꯒꯤ ꯂꯦꯔꯂꯂ ꯍꯦꯚꯦꯒꯤꯂꯃꯅ, ꯌꯥꯅꯗ ꯌꯥꯝꯂꯤꯖꯤꯟ ꯅꯗꯍ ꯃꯤꯕ ꯔꯦꯗꯦ, ꯑꯃꯁꯨꯡ ꯁꯍꯗꯤꯡꯒꯤ ꯂꯦꯔꯂꯂ ꯍꯦꯚꯗꯥ ꯍꯦꯚꯒꯤꯂꯃꯀꯂꯤ॥ ꯁꯤꯡꯒꯤꯃꯗꯂꯨ ꯃꯑꯣꯡ ꯑꯁ꯭ꯃꯟ ꯂꯣꯟ, ꯗꯣꯡ ꯁ꯭ꯕꯒꯤ ꯅꯁꯤꯡ ꯅꯠꯇꯔꯒꯤ ꯂꯦꯚꯦꯜ ꯀꯗꯤ ꯑꯣꯅꯗꯕꯨ, ꯃꯁꯤꯒꯤ ꯍꯦ ꯊꯡꯕ ꯀꯣꯁ꯭ꯆꯌ ꯀꯦꯌꯃꯒꯤ ꯃꯊꯛꯌ 4.0 m ꯑꯃꯁꯨꯡ ꯑꯔꯡ ꯊꯡꯕ ꯀꯣꯁ꯭ꯆꯌ 4.5 m-ꯒꯤ ꯐꯤꯛꯁ ꯌꯩꯗꯕ ꯃꯤꯂꯤꯃꯃ ꯀ꯭ꯂꯣꯖꯐꯣꯗꯃ ꯂꯦꯚꯦꯜ ꯑꯃꯒꯣ ꯂꯣꯔꯂꯂ (PUB Code of Practice on Surface Water Drainage, 7th ed., cl. 2.1.1)॥ ꯀꯣꯁ꯭ꯆꯦꯟ ꯁꯌꯦꯆ ꯁ꯭ꯅꯤꯡꯃꯛꯀꯤ ꯌꯩꯅꯅ ꯑꯃꯁꯨꯡ ꯁꯗꯂꯀꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯀꯣꯁꯆꯀꯤ ꯃꯂꯥꯛꯌ ꯐꯤꯛꯁ ꯌꯩꯗꯕ ꯂꯦꯚꯦꯜ ꯑꯃꯅꯌꯩꯒꯅꯃ ꯔꯍꯂꯦ ꯌꯩꯊꯣꯡꯂꯩ, ꯃꯗꯍ ꯑꯍꯨꯂꯦ ꯃꯦꯄ꯭ꯂꯔꯦꯜ ꯑꯁꯤꯂꯦ ꯃꯍꯨꯒꯤ ꯃꯐ꯭ꯆꯌ ꯊꯤꯗꯕ ꯁ꯭ꯇꯦꯟ-ꯗꯔꯗ ꯂꯦꯚꯦꯜ ꯁꯤꯂꯤꯊꯂꯩ॥ ꯁꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯦꯄ꯭ꯂꯑꯦꯊꯁꯀꯤ ꯑꯂꯤ ꯊꯣꯃ ꯁꯤꯂꯤꯊꯂꯕ ꯑꯁꯤꯗꯥ ꯀꯂꯣꯜ 5.7.4(c)-ꯒꯤ ꯁꯦꯊꯁꯤꯌꯤꯒꯤꯌꯤ ꯀꯦꯁ ꯑꯁꯤ ꯅꯤꯂꯍꯊ ꯀꯦꯁ ꯑꯣꯍꯗꯦ ꯔꯆꯌꯅꯂꯤ, ꯃꯗꯍꯅꯤ ꯕꯤꯅꯅꯤ ꯑꯍꯦ, ꯍꯣꯃꯕꯊ ꯑꯃꯒꯍꯗꯦ ꯗꯆꯌꯗꯦ, ꯃꯌꯨꯃꯅ ꯂꯍꯗꯦ ꯁꯃꯍꯆꯌꯗꯕ ꯔꯦꯅꯦ॥ 6.11.6(c)-ꯗꯥ ꯂꯩꯕ ꯕꯦꯁꯃꯦꯊꯆꯀꯤ ꯊꯤꯃꯕ ꯑꯁꯤ ꯃꯦꯄ꯭ꯂꯔꯦꯜ ꯑꯁꯤꯗꯥ ꯊꯍꯕꯂꯤ: ꯀꯣꯁ꯭ꯆꯦꯟ ꯕꯦꯊꯅꯌ ꯂꯩꯕ ꯕꯦꯁꯃꯦꯊꯆ ꯑꯍꯦ ꯗꯣꯃꯅꯒꯤ ꯍꯃꯌꯗꯆꯌꯗꯦ ꯁꯍꯗꯤꯡꯅꯒꯤꯂꯨ ꯃꯒꯨꯊꯍ, ꯑꯃꯁꯨꯡ ꯌꯍꯅꯗꯦ ꯂꯣꯃ ꯌꯩꯗꯕ ꯑꯦꯄ꯭ꯂꯆꯐꯣꯂ ꯑꯃꯅ ꯒꯍꯒꯗꯦ ꯊꯅꯣꯃꯒ ꯔꯦꯅꯦ॥ ꯃꯂꯤꯒꯨꯗꯅ ꯀꯣꯆꯌ, ꯍꯍ ꯌꯍꯅ ꯂꯍꯊ ꯑꯃꯁꯨꯡ ꯀꯣꯁ꯭ꯆꯦꯟ ꯗꯦꯒꯨꯂꯦꯁꯊ ꯂꯣꯊ ꯂꯩꯌ, ꯃꯗꯍ ꯑꯍꯨꯂꯦ ꯁꯌꯦꯆ ꯑꯁꯤꯅ ꯀꯣꯁ꯭ꯆꯦꯟ ꯕꯦꯊꯅ ꯑꯁꯤ ꯑꯍꯃꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯀꯂꯣꯜ 6.11.6 ꯃꯐꯍ ꯑꯍꯨꯅ ꯔꯆꯂꯅꯦ॥ ꯃꯍꯨꯒꯤ ꯃꯍꯨꯌꯌ ꯀꯂꯣꯜ 6.11.3 ꯑꯃꯁꯨꯡ 6.11.4 ꯃꯗꯨꯑꯣꯍ॥ ꯃꯣꯅꯦꯂ ꯕꯍ-ꯂꯣꯂꯂꯦ ꯍꯁꯤꯃ ꯍꯔꯊ ꯊꯣꯀꯒ ꯔꯕ ꯂꯍꯒꯤꯅꯃꯃ ꯒꯀꯂꯤꯁꯊ ꯑꯍꯦ ꯊꯍꯂꯤ: "ꯁꯍꯗꯁꯤꯃꯒꯤ ꯃꯁ꯭ꯆꯗ ꯒꯀ꯭ꯂꯦꯁꯅ ꯍꯃꯅꯣꯌꯂꯕ ꯍꯍ ꯐ꯭ꯂꯗꯅ ꯗꯤꯁ꯭ꯕꯌ ꯑꯦꯗꯤꯔꯦꯁꯤꯃꯅ, ꯒꯀ꯭ꯂꯤꯁꯊ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯑꯀꯣꯔꯕꯒꯤ ꯑꯦꯗꯤꯔꯦꯁꯤꯃꯒꯤ ꯍꯍꯔꯦꯁꯌ ꯐ꯭ꯂꯗꯅ ꯂꯦꯚꯦꯜꯅꯒꯤ 1m ꯃꯊꯛꯇ ꯂꯩꯕ ꯐꯩ" ("In high Flood Risk Areas identified in the Master Plan of the towns, the plinth level should be above 1m above the highest flood level of the surrounding areas") (ꯃꯣꯅꯦꯂꯒꯤ ꯕꯍ-ꯂꯣ 94 [TBC: ꯂꯣꯀꯂ ꯕꯣꯅꯤꯂꯦ ꯂꯣꯌꯤꯐꯍ ꯌꯩꯗꯕ ꯕꯍ-ꯂꯣꯂꯌ ꯂꯍꯕꯗ ꯑꯃꯁꯨꯡ ꯌꯦꯃꯁꯌ ꯔꯦꯃ ꯌꯩꯒꯅꯕꯂꯤ]), ꯑꯃꯁꯨꯡ IMC (3rd Amendment) 2024-ꯒꯤ ꯅꯗꯐꯆꯌꯗꯦ ꯗꯨꯅ ꯑꯍꯨꯃꯃ "ꯒꯗꯦꯌꯗ ꯍꯍꯐꯅꯒꯤ ꯗꯤꯁ꯭ꯃ-ꯍꯦꯐꯐꯗꯍꯅ GIS-ꯕꯦꯂ ꯃꯁ꯭ꯆꯗ ꯒꯀ꯭ꯂꯦꯁꯅ ꯍꯃꯅꯣꯌꯂꯕ ꯍꯍ ꯐ꯭ꯂꯗꯅ ꯗꯤꯁ꯭ꯕꯌ ꯑꯦꯗꯤꯔꯦꯁꯤꯃ" ("High Flood Risk Areas identified in the Risk-Informed GIS-Based Master Plan for Greater Imphal")-ꯒꯥ ꯁꯍꯃꯤꯦꯂꯂꯍꯅꯂꯤ (93.2; ꯑꯗꯍꯕ ꯁꯌꯦꯌꯁ ꯀꯦꯐꯗꯍ ꯌꯩꯍꯤꯅꯦ [TBC])॥ ꯑꯦꯗꯤꯔꯦ ꯑꯍꯨꯁꯤꯃ ꯄꯆꯀꯅꯕ ꯍꯍꯐꯅ ꯑꯃꯁꯨꯡ ꯃꯍꯗꯤꯃꯒꯤ ꯗꯤꯁ꯭ꯃ-ꯍꯦꯐꯐꯗꯍꯅ ꯃꯁ꯭ꯆꯗ ꯒꯀ꯭ꯂꯦꯁꯁꯤꯃ ꯑꯁꯤ ꯒꯍꯌꯤꯅꯦ [TBC], ꯑꯃꯁꯨꯡ ꯀꯗꯤꯒꯨꯍꯕ ꯁꯍꯗ ꯑꯃꯒꯤꯅꯃꯃ ꯂꯣꯀꯅ ꯑꯣꯊꯗꯤꯌꯤ ꯑꯃꯒꯤ "ꯍꯍꯔꯦꯁꯌ ꯐ꯭ꯂꯗꯅ ꯂꯦꯚꯦꯜ" ("highest flood level") ꯑꯃꯆꯌ ꯐꯕꯌꯤꯅꯦ [TBC], ꯃꯗꯍ ꯑꯍꯨꯂꯦ ꯕꯍ-ꯂꯣ ꯑꯁꯤꯂꯦ ꯁꯒꯆꯀꯅꯕ ꯂꯦꯚꯦꯜ ꯑꯃꯆꯌ ꯒꯤꯅꯦ; ꯑꯃꯁꯨꯡ 15 ꯁꯦꯒꯌꯦꯍꯕꯗ 2025-ꯅ ꯂꯤꯂꯣꯕꯅ ꯂꯩꯕ ꯌꯨꯗꯦꯅ ꯑꯃꯁꯨꯡ ꯍꯊꯍꯅ ꯂꯩꯕ ꯃꯂꯤꯒꯨꯗ ꯌꯨꯗꯦꯅꯂꯦ ꯃꯍꯔꯒꯤꯅꯃꯃ ꯐꯕꯅꯣꯌꯍꯤꯕ ꯍꯍꯔꯦꯁꯌ ꯐ꯭ꯂꯗꯅ ꯂꯦꯚꯦꯜꯁꯤꯃ ꯍꯦꯑꯊꯍꯤ (ꯒꯤꯄꯅ ꯐꯣꯕꯅꯣꯌꯍꯤꯕ ꯃꯌꯨꯃ ꯍꯑꯂ)॥ ꯃꯦꯗꯨꯔꯦꯅ ꯑꯁꯤꯒꯤꯅꯃꯃ, ꯂꯦꯚꯦꯜ ꯑꯍꯨ ꯁꯍꯆ ꯑꯍꯨꯅ ꯀꯂꯣꯜ 6.11.2-ꯒꯤ 1% AEP-ꯒꯤ ꯍꯁꯤꯃ ꯍꯁ꯭ꯃꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯣꯍꯂꯦ ꯂꯩꯍ, ꯀꯂꯣꯜ 5.8.5-ꯒꯤ ꯒꯑꯂꯦ ꯂꯣꯌ ꯌꯩꯗꯕ, ꯂꯦꯌ ꯑꯃꯁꯨꯡ ꯒꯑ ꯀꯌꯒꯒꯤ ꯀꯦꯁꯤꯃꯒꯥ ꯂꯣꯔꯂꯂ ꯊꯤꯗꯕ ꯑꯃꯁꯨꯡ ꯀꯂꯣꯜ 5.8.5(a) ꯂꯆꯗꯒꯥ (c)-ꯒꯤ ꯔꯦꯌ ꯂꯦꯚꯦꯜꯅꯒꯤ ꯂꯦꯍꯅꯕ, ꯂꯆꯗꯒꯥ ꯊꯤꯅꯕ ꯃꯐꯍꯅ, ꯍꯁꯤꯃ ꯍꯁ꯭ꯃꯒꯤ ꯃꯗꯌꯁꯤꯃꯅꯒꯤ ꯁꯗꯒꯦ ꯌꯩꯗꯕ ꯍꯍꯔꯦꯁꯌ ꯐ꯭ꯂꯗꯅ ꯂꯦꯚꯦꯜ, ꯃꯁꯤꯒꯤ ꯍꯗꯌꯐꯍ ꯐꯣꯕꯅꯣꯌꯂꯥ; ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯂꯦꯚꯦꯜꯅꯒꯤ 0.5 m ꯃꯊꯛꯇ ꯂꯩꯕ ꯀꯂꯣꯜ 6.11.1-ꯒꯤ ꯐ꯭ꯂꯣꯗ ꯂꯦꯚꯦꯜꯁꯤꯃ ꯑꯁꯤ ꯕꯍ-ꯂꯣꯒꯤ ꯒꯀ꯭ꯂꯤꯁꯊꯌꯒꯤ ꯔꯤꯕ ꯃꯐꯍꯅ ꯃꯍꯔꯂꯦ ꯂꯩꯍꯔꯀꯍ (ꯃꯦꯗꯨꯔꯦꯅ ꯑꯁꯤꯗꯥ ꯊꯍꯕ)॥ ꯌꯨꯗꯦꯅꯒꯤ ꯒꯑ ꯑꯃꯒꯤ ꯃꯌꯨꯃꯅ ꯂꯦꯚꯦꯜ ꯑꯁꯤ ꯒꯆꯁꯤꯃ ꯊꯤꯃꯂꯕ ꯐꯤꯒꯍꯅ ꯍꯁꯤꯃ ꯂꯦꯒꯂꯕ ꯑꯦꯗꯤꯔꯦꯒꯤ ꯑꯍꯨꯂꯤ, ꯑꯃꯁꯨꯡ ꯒꯑ ꯀꯌꯒꯒꯤꯅꯃꯃ, ꯒꯑꯒꯤ ꯃꯍꯀ ꯑꯌꯒꯒꯅ ꯂꯩꯕ ꯌꯨꯗꯦꯅꯒꯤ ꯂꯦꯚꯦꯜꯂꯤ (ꯀꯂꯣꯜ 5.8.5(a))॥ ꯃꯣꯅꯦꯂꯦ ꯕꯦꯁꯃꯦꯊꯆ ꯑꯃꯒꯤ ꯑꯗꯊ ꯒꯤꯗꯤ (ꯕꯍ-ꯂꯣ 2(11)) ꯑꯃꯁꯨꯡ ꯃ ꯊꯀꯒꯒꯤꯅꯃꯃ ꯁꯆꯕꯌ ꯂꯍꯑꯦꯁꯤꯃꯒꯤ ꯃꯨꯃꯅ ꯕꯦꯁꯃꯦꯊꯆꯁꯤꯃ ꯔꯦꯍꯅꯂꯤ, ꯑꯍꯨꯕ ꯕꯍ-ꯂꯣꯂꯀꯤ ꯗꯨꯅ ꯑꯃꯆꯌꯂꯦ ꯂꯦꯍꯕ ꯂꯆꯗꯒꯥ ꯍꯁꯤꯃ ꯍꯁ꯭ꯃ ꯊꯣꯀꯒ ꯔꯕ ꯂꯍꯅꯒꯤ ꯕꯦꯁꯃꯦꯊꯆꯁꯤꯃ ꯂꯩꯊꯣꯌ (NEER-ꯒꯤ ꯒꯤꯕ): ꯍꯍꯐꯅ ꯌꯍꯒꯤꯌꯀꯤ ꯂꯍꯅ ꯕꯦꯁꯃꯦꯊꯆ ꯑꯍꯦ ꯀꯂꯣꯜ 6.11.3 ꯑꯃꯁꯨꯡ 6.11.4 ꯔꯩꯗꯕ ꯑꯃꯁꯨꯡ ꯅꯤꯂꯍꯊ ꯂꯩꯃꯍꯒꯤ ꯃꯍꯒꯤ ꯍꯁꯤꯃꯒꯤ ꯂꯦꯚꯦꯜ ꯂꯩꯃꯍꯒꯤ ꯂꯦꯚꯦꯜꯅ ꯂꯩꯂꯦ ꯁꯗꯨꯌ 4-ꯒꯤ ꯐꯂꯣꯌꯁꯊ ꯔꯦꯌ ꯔꯩꯗꯕ ꯃꯐꯍꯅ ꯍꯌꯌꯃꯌ ꯔꯦꯍ (ꯃꯦꯗꯨꯔꯦꯅ ꯑꯁꯤꯗꯥ ꯊꯍꯕ)॥ ꯍꯁꯤꯃ ꯍꯁ꯭ꯃꯒꯤ ꯂꯦꯚꯦꯜ ꯊꯤꯅꯕ ꯃꯐꯍꯅ ꯍꯕꯍꯅꯒꯤ ꯂꯦꯍꯕ ꯂꯩꯐꯍ ꯑꯍꯕ ꯐꯂꯣꯗ ꯑꯃꯁꯨꯡ ꯍꯃꯕ ꯃꯐꯍ ꯁ꯭ꯅꯤꯡꯃꯌ ꯗꯍ ꯀꯗꯤꯄꯊꯅꯒꯤ 0.65 m ꯃꯊꯛꯇ ꯊꯍꯕ ꯀꯂꯣꯜ 6.11.3, ꯑꯃꯁꯨꯡ ꯂꯦꯚꯦꯜ ꯑꯍꯨꯃꯌ, ꯂꯆꯗꯒꯥ 1% AEP-ꯒꯤ ꯍꯁꯤꯃ ꯍꯁ꯭ꯃꯒꯤ ꯂꯦꯚꯦꯜꯅꯒꯤ 0.5 m ꯃꯊꯛꯇ, ꯕꯦꯁꯃꯦꯊꯆ ꯗꯦꯍꯒ ꯁ꯭ꯅꯤꯡꯃꯌꯀꯤ ꯀꯗꯦꯁꯆ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯃꯦꯊꯆꯀꯤ ꯍꯃꯕ ꯃꯐꯍ ꯁ꯭ꯅꯤꯡꯃꯌꯀꯤ ꯁꯤꯅꯅ ꯔꯆꯍꯂꯕ ꯀꯂꯣꯜ 6.11.4 ꯑꯁꯤ ꯃꯦꯗꯨꯔꯦꯅ ꯑꯁꯤꯗꯥ ꯊꯍꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯕꯍ-ꯂꯣꯂꯌ ꯍꯒꯔꯤꯅꯂꯤ॥ ꯔꯤꯃꯒꯤ ꯁꯍꯆ ꯑꯃꯅ ꯗꯍ ꯀꯗꯤꯄꯊ ꯑꯁꯤ ꯃꯌꯍ ꯒꯨꯍꯕꯅ ꯁ꯭ꯍꯕ ꯗꯦꯐꯗꯦꯑꯁ ꯂꯆꯌꯦ: ꯂꯍꯕꯤ ꯑꯃꯒꯤ ꯃꯍꯅ ꯂꯩꯕ ꯕꯤꯅꯅꯤ ꯑꯃꯂꯦ ꯂꯍꯕꯤꯒꯤ ꯗꯑꯦꯑꯐ ꯂꯩꯍ, ꯃꯗꯍ ꯑꯍꯨꯂꯦ ꯀꯂꯣꯜ 6.11.2(a)-ꯂꯦ ꯃꯁꯤꯒꯤ ꯐꯂꯣꯗ ꯑꯃꯁꯨꯡ ꯍꯕꯍ ꯃꯐꯍꯁꯤꯃ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯂꯤꯌꯒꯤ ꯔꯆꯒ ꯐꯂꯣ ꯂꯍꯕꯤꯒꯤ 1% AEP-ꯒꯤ ꯂꯦꯚꯦꯜꯅꯒꯤ ꯊꯍꯃꯤ, ꯀꯂꯣꯜ 6.3.6(l)-ꯒꯤ ꯃꯊꯛ ꯊꯍꯕ ꯃꯍꯀꯒꯤ ꯅꯍꯒꯗꯁꯑ ꯂꯩꯗꯥ, ꯑꯃꯁꯨꯡ ꯂꯦꯒꯣꯃ ꯑꯍꯅ ꯀꯌꯨꯂꯦ ꯁꯕ ꯐꯂꯣꯗ ꯂꯆꯗꯒꯥ ꯕꯦꯁꯃꯦꯊꯆ ꯑꯍꯅ ꯀꯂꯣꯜ 4.11-ꯒꯤ ꯔꯤꯃꯒꯤ ꯗꯨꯅꯒꯤ ꯂꯤꯑꯣꯌꯂꯤꯀꯦꯅ ꯁꯗꯌꯐꯤꯀꯦꯆꯂꯨ ꯃꯊ ꯌꯍ॥ ꯌꯨꯗꯦꯅꯁꯤꯃ ꯑꯃꯁꯨꯡ ꯍꯣꯃꯁꯤꯃꯒꯤ ꯃꯂꯦꯌꯌ ꯑꯃꯁꯨꯡ ꯒꯆꯁꯤꯃ ꯑꯃꯁꯨꯡ ꯒꯨꯍꯗꯤꯁꯤꯃꯒꯤ ꯑꯀꯣꯔꯕꯅ, ꯁꯗꯨꯌ 7-ꯒꯤ ꯂꯍꯑꯁꯤꯃꯂꯨ ꯔꯆꯂꯩ॥

6.12 ꯀꯜꯚꯔꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯀ꯭ꯔꯣꯁꯤꯡꯁꯤꯡ

6.12.1 **ꯗꯤꯖꯥꯏꯟ AEP.** ꯍꯣꯡꯕꯗ ꯅꯠꯔꯒꯥ ꯌꯥꯊꯪ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯝꯕꯤ ꯑꯃꯥ ꯊꯨꯕ ꯀꯜꯚꯔꯠ ꯅꯠꯔꯒꯥ ꯄꯣꯡ ꯑꯃꯥ ꯂꯝꯕꯤꯒꯤ ꯀ꯭ꯂꯥꯁ ꯑꯗꯨꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ 6.1-ꯒꯤ ꯗꯤꯖꯥꯏꯟ AEP-ꯒꯤ ꯃ꯭ꯈꯥ ꯑꯗꯨ ꯂꯝꯕꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯁꯦꯝꯒꯠꯄꯗ, ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 9, ꯀ꯭ꯂꯣꯖ 9.4-ꯒꯤ ꯄꯦꯔꯥꯒ꯭ꯔꯥꯐꯀꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅ ꯄꯨꯔꯛꯂꯒꯗꯕꯅꯤ꯫ ꯍꯦꯛꯇꯔ ꯑꯁꯤ ꯂꯩꯇꯕ ꯍꯥꯏꯔꯕ ꯂꯦꯃꯜꯂꯤꯕ ꯄꯥꯔꯥꯒꯤ ꯀ꯭ꯔꯣꯁꯤꯡ ꯑꯃꯥ ꯑꯣꯏꯔꯕ ꯃꯇꯃꯗ, ꯗꯤꯖꯥꯏꯟ AEP ꯑꯁꯤ ꯀ꯭ꯂꯥꯁ ꯑꯃꯥꯂꯤꯒꯤ IRC:SP:42-2014 §7.1.4-ꯒꯤ ꯑꯃꯥꯂꯤꯒꯤ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ꯫ ꯄꯦꯟꯁꯤ ꯍꯦꯟꯅꯕ ꯊꯣꯀꯄ AEP ꯑꯗꯨ ꯁꯤꯖꯤꯟꯅꯕꯤꯌꯨ꯫

6.12.2 **ꯌꯦꯡ ꯅꯒꯦꯇꯤꯕ ꯑꯃꯁꯨꯡ 1% AEP.** ꯌꯦꯡ ꯅꯒꯦꯇꯤꯕ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯅꯒꯦꯇꯤꯕꯁꯤꯡ, ꯀ꯭ꯔꯣꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯄꯦꯅꯂꯕꯗ ꯃ꯭ꯂꯣ ꯑꯁꯤ ꯌꯦꯡꯁꯤꯟꯂꯒꯗꯕꯅꯤ:

- (a) ꯍꯣꯔ ꯀ꯭ꯔꯣꯁꯤꯡꯗ ≤ 150 mm ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤꯒꯤ ꯅ꯭ꯕꯅꯗꯒꯤ ꯑꯅꯤꯕ ꯃꯇꯝꯗ ≤ 350 mm-ꯒꯤ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡꯒꯤ ꯑꯅꯤꯕꯒꯤ ꯂꯣꯌꯅꯅ;
- (b) ꯇꯦꯕꯜ 6.3-ꯒꯤ ꯄꯦꯔꯥꯗꯀꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ;
- (c) ꯂꯣꯌꯅꯕ ꯇꯣꯔꯕ ꯅꯒꯦꯗ꯭ꯔꯦꯅꯦꯖ ꯍ꯭ꯌꯨ ꯑꯣꯅꯕ ꯑꯗꯣꯌꯒꯤ ꯂꯝꯕꯤꯁꯤꯡꯗ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯑꯃꯠꯇꯥ ꯌꯥꯗꯅꯕ; ꯑꯃꯁꯨꯡ
- (d) ꯁꯣꯡꯄꯦꯂꯕ ꯃꯇ꯭ꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯇ꯭ꯔꯒꯤꯡ ꯑꯣꯀꯤꯏꯕꯤ ꯌꯥꯍ꯭ꯕꯗꯤ, ꯃꯀꯡ ꯀꯡꯕ ꯃꯇꯃꯒꯤ ꯕꯤꯗꯤꯡ ꯂꯩꯔꯒꯥ ꯇ꯭ꯔꯣꯇꯔꯣꯌꯒꯤ ꯁ꯭ꯗꯤꯃꯑꯃ ꯑꯃꯄꯦꯡꯌꯗ 1% AEP-ꯒꯤ ꯅꯁꯤꯡ ꯅꯌꯍ꯭ꯕꯒꯤ ꯂꯦꯒꯦꯟ ꯑꯁꯤ ꯂꯣꯔꯤꯕ ꯏꯤꯒꯃꯒꯤ ꯂꯦꯒꯦꯟꯗꯒꯤ ꯄꯦꯒꯠꯂꯄꯦꯗꯅꯤ꯫

6.12.3 **ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯌꯥꯄꯦꯗꯕ ꯃꯏꯃꯁꯤꯡ.** 1% AEP-ꯒꯤ ꯅꯒꯦꯇꯤꯕꯁꯤꯡ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯑꯁꯤ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯁꯦꯡꯁꯦꯂꯒꯤ ꯃꯍꯩ ꯀꯡꯕ ꯃꯏꯃꯗ ꯒꯤꯍꯗ ꯍꯦꯟ ꯀꯃꯂꯕꯗꯤ ꯂꯣꯌꯅꯕꯗ, ꯁꯇꯍꯡꯌꯍꯒꯤ ꯁꯃꯜꯂꯦ 6 m-ꯗꯒꯤ ꯄꯦꯀꯕ **ꯑꯃꯁꯨꯡ** 1% AEP-ꯒꯤ ꯃꯤꯡ ꯏꯂꯣ 7 m³/s-ꯗꯒꯤ ꯄꯦꯗꯕ ꯃꯏꯃꯗ ꯅꯡꯇꯃꯡ ꯌꯥꯅ꯫ ꯑꯇꯣꯞꯄ ꯃꯏꯃꯁꯤꯡꯗ, ꯀ꯭ꯔꯣꯁꯤꯡ ꯑꯁꯤꯅ 1% AEP-ꯒꯤ ꯃ꯭ꯂꯣ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯌꯥꯗꯅꯕ ꯌꯦꯡꯁꯤꯟꯂꯒꯗꯕꯅꯤ꯫

6.12.4 **ꯕ꯭ꯂꯣꯀꯦꯖꯒꯤ ꯌꯦꯡ.** 1% AEP-ꯒꯤ ꯌꯦꯡ ꯑꯁꯤ ꯀꯤꯡꯂꯕ ꯅꯦꯂꯦꯠ ꯑꯃꯒꯤ ꯂꯣꯌꯅꯅ ꯑꯃꯨꯡ ꯄꯦꯟꯅ ꯇꯧꯒꯗꯕꯅꯤ:

- (a) ꯁꯃꯜꯂꯦ ꯂꯣꯌꯅꯕ ꯗꯤꯅꯃꯤꯇꯣꯔ 1.5 m-ꯗꯒꯤ ꯄꯦꯀꯕ ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤꯗꯃꯛ ꯅꯦꯂꯦꯠ ꯑꯦꯔꯤꯌꯥꯒꯤ 50% ꯀꯤꯡꯂꯕ; ꯑꯃꯁꯨꯡ
- (b) ꯄꯦꯟꯅ ꯌꯥꯕ ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤꯗꯃꯛ 20% ꯀꯤꯡꯂꯕ꯫

ꯌꯦꯡ ꯑꯁꯤꯒꯤ ꯃꯄꯨꯁꯤꯡꯅꯤ ꯀ꯭ꯂꯣꯖ 6.12.2(a) ꯑꯃꯁꯨꯡ (d) ꯌꯣꯒꯗꯕꯅꯤ꯫

6.12.5 **ꯃꯤꯅꯤꯃꯝ ꯁꯥꯏꯖ.** ꯄꯕ꯭ꯂꯤꯛ ꯂꯝꯕꯤꯁꯤꯡꯒꯤ ꯃꯍꯩꯗ ꯂꯩꯕ ꯀꯜꯚꯔꯠꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯃꯗ꯭ꯔꯕꯗ ꯗꯥꯏꯃꯤꯇꯔ 900 mm, ꯂꯣꯌꯅꯕ ꯕꯛꯁ ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤꯗꯃꯛ 900 mm × 900 mm ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

6.12.6 **ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯗꯤꯖꯥꯏꯟ.** ꯏꯟꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯇ꯭ꯔꯣꯜ, ꯇꯦꯜꯋꯣꯇꯔ, ꯂꯝꯕꯤꯒꯤ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯁ꯭ꯀꯧꯔ ꯌꯥꯑꯣꯕ ꯀꯜꯚꯔꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁ ꯑꯁꯤꯅꯤ ꯆꯦꯞꯇꯔ 9, ꯀ꯭ꯂꯣꯖ 9.4 ꯑꯃꯁꯨꯡ 9.6 ꯃꯇꯨꯡ ꯏꯟꯅꯒꯗꯕꯅꯤ꯫

> **ꯃꯦꯊꯗꯀꯤ ꯅꯣꯠ.** ꯗꯤꯖꯥꯏꯟ AEP-ꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯕꯜ 6.1-ꯗꯒꯤꯅꯤ꯫ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯕꯜ 6.2-ꯒꯤ ꯂꯝꯕꯤꯒꯤ ꯑꯅꯤꯕꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯅꯤ꯫ ꯀ꯭ꯂꯣꯖ 6.12.3-ꯒꯤ ꯁꯃꯜꯂꯦ ꯑꯃꯁꯨꯡ ꯃ꯭ꯂꯣꯒꯤ ꯀ꯭ꯔꯦꯁꯣꯄꯥꯔ ꯑꯁꯤ APWA 5600 (2006)-ꯒꯤ SI-ꯗ ꯄꯥꯡꯗꯀꯄꯅꯤ: ꯃꯍꯩ ꯀꯡꯕ ꯃꯏꯃꯗ ꯒꯤꯍꯗ ꯏꯦꯃ ꯀꯃꯂꯕꯗꯤ ꯂꯣꯌꯅꯕꯗ, ꯁꯇꯍꯡꯌꯍꯒꯤ ꯁꯃꯜꯂꯦ 20 ft-ꯗꯒꯤ ꯄꯦꯀꯕ ꯑꯃꯁꯨꯡ 1%-ꯒꯤ ꯃꯤꯡ 250 cfs ꯂꯣꯌꯅꯕ ꯃꯁꯤꯡꯗꯒꯤ ꯄꯦꯀꯕ ꯃꯏꯃꯗ ꯅꯡꯇꯃꯡ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯌꯥꯅ꯫ IRC:SP:42-2014 (§7.1.4)-ꯅ 2 m ꯏꯌꯕ ꯁꯃꯜꯂꯦꯒꯤ NH/SH ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤꯗꯃꯛ 25-yr ꯑꯃꯁꯨꯡ 2–6 m-ꯒꯤ ꯁꯃꯜꯂꯦꯁꯤꯡꯒꯤꯗꯃꯛ 50-yr ꯀꯃꯂꯤ꯫ ꯀ꯭ꯂꯣꯖ 6.12.4-ꯒꯤ ꯕ꯭ꯂꯣꯀꯦꯖꯒꯤ ꯃꯔꯣꯂꯦꯇꯣꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ 900 mm-ꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯁꯥꯏꯖ ꯑꯁꯤꯒꯤ ꯄꯥꯀꯦꯡꯂꯕ ꯃꯃꯤꯡꯒꯤ ꯅ꯭ꯗꯃ ꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯌ ꯑꯁꯤ ꯃꯦꯟꯌꯦꯡ ꯑꯁꯤꯅ ꯀꯃꯕꯅꯤ꯫ 50%-ꯒꯤ ꯒꯦꯡꯌꯨ ꯑꯁꯤ ꯒꯍꯦꯠ ꯀ꯭ꯂꯥꯃꯒꯤ ꯏꯦꯡꯇꯍꯒꯤ ꯃꯤꯄꯦꯂꯣ꯫

6.13 ꯃꯂꯤꯁ꯭ꯔꯒꯤ ꯀꯐꯁ꯭ꯔꯗꯐꯝꯐ ꯒ꯭ꯔꯥꯗꯁꯤꯂꯃꯀꯤ ꯃꯇꯧ ꯁꯦꯕꯂꯤꯡ

6.13.1 **ꯀꯟꯔ ꯇꯧꯔꯕ ꯂꯝꯕꯤꯒꯤ ꯃꯂꯦꯗꯀꯤ ꯍꯦꯡꯕꯦꯐꯁꯤꯡ.** ꯂꯝꯕꯤꯒꯤ ꯃꯂꯦꯗꯀꯤ ꯍꯦꯡꯕꯦꯐ ꯑꯃꯁꯨ ꯐꯨꯌꯒꯖꯗ ꯑꯃꯁꯨ ꯑꯦꯈꯇꯐꯕ ꯂꯨꯂꯥꯕꯁꯤꯡꯗꯦ ꯀꯒꯔ ꯇꯧꯔꯕ ꯃꯐꯝꯗ:

- (a) ꯃꯂꯤ ꯀꯒꯔ ꯂꯨꯂꯥꯕꯀꯤ ꯂꯦꯐꯤꯌ ꯐꯦꯡꯕ ꯖꯂꯕ ꯇꯥꯕꯟ 6.7-ꯒꯤ ꯐꯔꯤꯕꯦꯔꯗꯒꯤ ꯂꯦꯌꯂꯂ ꯄꯁꯗꯦꯂꯕ ꯌꯥꯂꯥꯟ ꯑꯃꯁꯨ ꯑꯦꯈꯂꯦ ꯗꯤꯂꯦꯈꯐ ꯇꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ HGL-ꯗ ꯐꯨꯌꯒꯖꯗ ꯑꯃꯁꯨꯡ ꯈꯐꯂꯥꯌꯀꯤ ꯂꯥꯒꯥꯟꯂꯤꯡ ꯐꯦꯡꯕ ꯖꯂꯕ ꯀ꯭ꯂꯣꯖ 6.8 ꯌꯧꯒꯗꯕꯅꯤ;
- (b) ꯂꯝꯕꯤꯒꯤ ꯔꯐꯑꯦꯐ ꯑꯂꯤ ꯂꯝꯕꯤꯒꯤ ꯂꯥꯒꯥꯟꯗ ꯂꯧꯕ ꯈꯦꯡꯕꯐꯒꯤ ꯌꯦꯟꯒꯤ ꯄꯦꯡꯕ ꯃꯐꯝꯂꯤꯡꯒꯤ ꯈꯨꯌꯖꯡꯗ ꯌꯡꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 6.6.1(b)), ꯃꯈꯦꯌ ꯈꯨꯗꯤꯡꯃꯡꯁ ꯂꯧꯃꯨꯒꯤ ꯂꯝꯒ ꯑꯃꯁꯨ (ꯀ꯭ꯂꯣꯖ 6.6.7) ꯂꯧꯗꯦ, ꯀ꯭ꯂꯣꯖ 6.6.4-ꯒꯤ ꯂꯤꯒ ꯖꯡꯁ;
- (c) ꯐꯨꯌꯒꯖꯗꯀꯤ ꯔꯐꯑꯦꯐ ꯑꯂꯤ ꯐꯨꯌꯒꯖꯗꯁ ꯈꯂꯤꯡ ꯂꯥꯒꯒꯦ ꯂꯌꯁꯗꯦ, ꯀꯒꯔꯗ ꯂꯧꯕ ꯂꯨꯂꯌꯂꯤꯡ ꯂꯌꯔꯒꯥ ꯒ꯭ꯔꯥꯌ ꯇꯧꯔꯕ ꯄꯦꯡꯕ ꯃꯐꯝꯂꯤꯡꯒꯤ ꯈꯨꯌꯖꯡꯗ ꯌꯡꯒꯗꯕꯂꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯂꯥꯡꯂꯕ ꯂꯥꯡꯂꯐ ꯑꯂꯤꯗꯦ ꯀ꯭ꯂꯣꯖ 6.7.6(c) ꯌꯧꯒꯗꯕꯅꯤ꯫

6.13.2 **ꯂꯧꯖꯦꯀꯒ ꯌꯦꯕ ꯀꯒꯔꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯡꯂꯡꯂꯕ ꯄꯦꯡꯕ ꯃꯐꯝꯂꯤꯡ.** ꯀꯒꯔ ꯇꯧꯔꯕ ꯍꯦꯡꯕꯦꯐꯂꯤꯡꯗ ꯃꯈꯦꯒꯤꯂꯤꯡ ꯂꯧꯒꯗꯕꯅꯤ:

- (a) **10 m**-ꯗꯒꯤ ꯄꯥꯐꯗꯕ ꯂꯥꯐꯁꯔꯂꯤꯡꯗ ꯂꯧꯖꯦꯀꯒ ꯌꯦꯕ ꯀꯒꯔ ꯒꯥꯂꯥꯟꯂꯤꯡ, ꯃꯈꯦꯌ ꯈꯨꯗꯤꯡꯃꯡ ꯌꯦꯃꯗ꯭ꯔꯕꯗꯦ 0.6 m ꯂꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯡꯂꯕ ꯒꯦꯡꯒ ꯒ꯭ꯃꯕ ꯌꯧꯕ, ꯂꯥꯃꯄꯟꯂꯕ ꯂꯤꯐꯁꯤꯡ ꯒꯦꯈꯐꯌꯂꯤꯡꯒꯤ ꯂꯦꯌꯂꯂ, ꯖꯕꯡ ꯁꯧꯕ ꯃꯤ ꯑꯂꯤꯗꯦ ꯂꯌꯔꯒꯥ ꯈꯨꯌꯗꯦ ꯌꯂꯦꯈꯕ ꯂꯤꯐꯁꯤꯡ ꯗꯤꯒꯦꯈꯂ ꯑꯃꯗꯦ ꯂꯧꯖꯦꯀꯒ ꯌꯦꯕ, ꯑꯃꯁꯨꯡ ꯐꯨꯌꯒꯖꯗꯀꯦ ꯃꯦꯐꯂꯂꯦ ꯂꯧꯕ;
- (b) ꯂꯀ꯭ꯀꯂꯐ, ꯀꯦꯈꯕ ꯃꯐꯃ ꯑꯃꯁꯨꯡ ꯂꯥꯡꯂꯐ ꯄꯦꯡꯕ ꯃꯐꯃ ꯈꯨꯗꯤꯡꯃꯡꯁ, ꯑꯃꯁꯨꯡ ꯈꯨꯃꯖꯦꯡꯂꯕ ꯔꯐꯂꯤꯡꯗ **30 m**-ꯗꯒꯤ ꯄꯥꯐꯗꯕ ꯂꯥꯐꯁꯔꯂꯤꯡꯗ ꯌꯦꯃꯗ꯭ꯔꯕꯗꯦ 0.6 m × 0.6 m-ꯒꯤ ꯂꯥꯡꯂꯕ ꯄꯦꯡꯕ ꯃꯐꯃ ꯂꯧꯕ ꯑꯥꯡꯂꯥꯂ ꯌꯥꯃꯕꯔꯂꯤꯡ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯈꯦꯌꯒꯤ ꯃꯐꯃꯗ ꯂꯧꯕ ꯁ꯭ꯔꯥꯐꯤꯡ ꯂꯌꯔꯒꯥ ꯈꯦꯡꯗꯦ ꯌꯌꯒ꯭ꯔꯂꯤꯡꯒꯤ ꯂꯦꯗꯀꯤꯗꯃꯡ ꯔꯥꯁꯤꯡ ꯁꯧꯔꯕ ꯀꯒꯔꯂꯤꯡ (ꯁꯔꯨꯛ 9, ꯀ꯭ꯂꯣꯖ 9.11)꯫

6.13.3 **ꯂꯤꯟꯌ ꯁ꯭ꯔꯥꯒꯂꯤꯡ.** ꯀ꯭ꯂꯣꯖ 6.6.7-ꯒꯤ ꯈꯐꯂꯥꯌ ꯂꯃꯒꯂꯤꯡꯒꯤ ꯃꯖꯡꯁ, ꯂꯤꯟꯌ ꯁ꯭ꯔꯥꯒ ꯌꯥꯃꯕꯔꯂꯤꯡ ꯃꯈꯦꯒꯤ ꯃꯐꯃꯂꯤꯡꯗ ꯖꯃꯒꯗꯕꯅꯤ:

- (a) ꯑꯦꯔꯁꯤꯔꯤꯌꯥꯟ ꯂꯝꯕꯤ ꯑꯃꯒꯤ ꯃꯈꯦꯗ ꯂꯧꯕ ꯀꯟꯒꯔꯌ ꯈꯨꯗꯤꯡꯃꯡꯀꯤ ꯃꯖꯡ ꯖꯡꯕ ꯃꯐꯃꯗ;
- (b) ꯒꯃꯒꯤꯡ ꯂ꯭ꯁꯥꯂꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯐꯂꯐ ꯐꯥꯂꯤꯂꯤꯁ ꯈꯨꯗꯤꯡꯃꯡꯀꯤ ꯃꯖꯡ ꯖꯡꯕ ꯃꯐꯃꯗ; ꯑꯃꯁꯨꯡ
- (c) ꯒ꯭ꯈꯔꯤ, ꯁ꯭ꯔꯥꯟ ꯂꯌꯔꯒꯥ ꯑꯁꯦꯒꯒ ꯈꯂꯤꯡ ꯂꯧꯐꯃ ꯑꯃꯗ ꯂꯧꯕ ꯑꯦꯐꯌꯐꯦꯟ ꯈꯨꯗꯤꯡꯃꯡꯁ (ꯁꯔꯨꯛ 8-ꯂꯦ ꯃꯖꯧ ꯁꯦꯕ ꯒ꯭ꯔꯦꯂ ꯒꯦꯂ꯭ꯁꯥꯐꯌ ꯁ꯭ꯔꯥꯒꯀꯦ ꯂꯦꯌꯂꯂ)꯫

ꯂꯤꯟꯌ ꯁ꯭ꯔꯥꯒ ꯈꯨꯗꯤꯡꯃꯡ ꯑꯄꯥꯐꯕ 6B-ꯗ ꯂꯧꯕ ꯂꯥꯗꯤꯃꯥꯐꯌ ꯌꯤꯟꯗ ꯂꯤꯂꯤꯐꯂꯈꯨꯗꯦ, ꯖꯃꯂꯕ ꯂꯥꯡꯗꯦꯀꯒꯂꯤꯡꯒꯤ ꯃꯔꯡꯁ ꯂꯦꯡꯀꯂꯤ ꯄꯌꯗꯦ ꯈꯐꯕ ꯂꯥꯗꯤꯃꯥꯐꯌ ꯖꯃꯕ ꯖꯃꯂꯕ ꯂꯈꯂ ꯂꯥꯒꯀꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯂꯧꯃ ꯂꯧꯖꯦꯀꯒꯒꯤ ꯒꯔꯤ ꯑꯃꯗꯦ ꯌꯧꯕ ꯌꯦꯕ ꯑꯦꯈꯒꯗꯕꯅꯤ꯫

6.13.4 **ꯃꯄꯧꯔꯦꯐ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯂ ꯒꯦꯂ꯭ꯁꯥꯐꯌꯀꯤ ꯂꯀ꯭ꯀꯔꯤꯐꯂꯤꯡ.** ꯄꯥꯃꯦꯡꯂꯕ ꯈꯦꯡꯕꯐ ꯑꯃꯗꯦ ꯀꯒꯔ ꯇꯧꯔꯕ ꯈꯦꯡꯕꯐ, ꯒꯦꯈꯒ ꯂꯌꯔꯒꯥ ꯀꯟꯒꯔꯌ ꯑꯃꯗ ꯌꯡꯕ ꯃꯐꯃꯗ, ꯑꯃꯁꯨꯡ ꯂꯁ꯭ꯔꯡ 8-ꯒꯤ ꯃꯈꯦꯗ ꯑꯦꯐꯌꯐꯦꯟꯂꯤꯡꯗ ꯂꯀ꯭ꯀꯔꯤꯐꯂꯤꯡ ꯖꯃꯒꯗꯕꯅꯤ꯫ ꯂꯀ꯭ꯀꯔꯤꯐ ꯈꯨꯗꯤꯡꯃꯡ:

- (a) ꯂꯁ꯭ꯔꯡ 9, ꯀ꯭ꯂꯣꯖ 9.8-ꯒꯤ ꯃꯈꯦꯗ ꯗꯤꯂꯦꯈꯐ ꯇꯧꯒꯗꯕꯅꯤ;
- (b) ꯕꯈꯒꯦꯂ ꯂꯌꯔꯒꯥ ꯑꯦꯒꯔꯐꯂ꯭ꯂ ꯑꯃꯁꯨ ꯂꯧꯒꯗꯕꯅꯤ, ꯃꯔꯃ ꯑꯁ꯭ꯂꯦ ꯃꯒ꯭ꯡ ꯐꯦꯗꯦ ꯖꯤꯡꯂꯕ ꯂꯀ꯭ꯀꯔꯤꯐ ꯑꯃꯗꯦ ꯒ꯭ꯔꯦꯒꯔꯁꯤꯂꯤꯡ ꯂꯌꯔꯒꯥ ꯂꯝꯕꯤ ꯑꯂꯤ ꯂꯁ꯭ꯔꯡ ꯑꯂꯤꯒꯤ ꯂꯤꯃꯤꯌꯂꯤꯡꯗꯒꯤ ꯄꯥꯐꯗꯦ ꯈꯂꯤꯡ ꯈꯌꯦꯇ ꯒ꯭ꯔꯡꯂꯦꯈ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯂꯤꯒꯤ ꯑꯥꯔꯤꯌꯒꯤ 50% ꯖꯤꯡꯂꯕ ꯐꯤꯒꯃꯗ ꯄꯈꯗ꯭ꯔꯥꯦꯂꯤꯡ ꯑꯦꯈꯂꯦ ꯌꯥꯡ ꯇꯧꯒꯗꯕꯅꯤ꯫

6.13.5 **ꯍꯦꯡꯕꯦꯐꯂꯤꯡꯒꯤ ꯃꯖꯡꯁ ꯕꯤꯟꯗꯤꯡ ꯂꯔꯦꯈ.** ꯑꯥꯒ꯭ꯔꯒ ꯇꯧꯔꯕ ꯀ꯭ꯔꯦꯂꯤꯡ ꯂꯌꯔꯒꯥ ꯂꯧꯖꯦꯀꯒ ꯌꯦꯕ ꯀꯒꯔ ꯑꯃꯗꯒꯤ ꯂꯌꯁꯕ ꯂ꯭ꯁꯥꯔꯡꯌꯔ ꯑꯃꯌꯁ ꯒꯕ꯭ꯂꯤꯡ ꯍꯦꯡꯕꯐ ꯑꯃꯒꯤ ꯃꯖꯡꯁ ꯂꯔꯦꯈꯗꯕꯂꯤ꯫ ꯍꯦꯡꯕꯐ ꯑꯃꯗ ꯀ꯭ꯔꯦꯂ ꯇꯧꯕ ꯗ꯭ꯀꯦꯂꯒꯤ ꯃꯃꯦꯡꯂꯤꯡ, ꯔꯥꯃꯒꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯦꯖꯡꯂꯤꯡ ꯑꯂꯤ ꯂꯧꯖꯦꯀꯒ ꯌꯦꯕ ꯑꯦꯈꯒꯗꯕꯂꯤ ꯂꯌꯔꯒꯥ ꯀ꯭ꯂꯣꯖ 6.13.2 ꯌꯧꯕ ꯌꯡꯂꯡꯂꯕ ꯄꯦꯡꯕ ꯃꯐꯃꯂꯤꯡ ꯖꯃꯒꯗꯕꯅꯤ꯫

6.13.6 **ꯂ꯭ꯁꯤꯂꯤꯁꯤꯂꯤꯡ.** ꯈꯂꯤꯡꯒꯤ ꯃꯥꯐ, ꯂꯤꯌꯔ, ꯒꯦꯌꯔ ꯂꯌꯔꯒꯥ ꯁꯥꯂꯤꯀꯦꯃꯒꯤ ꯀꯥꯕꯟ, ꯒꯥꯂ ꯒꯦꯈꯒ ꯂꯌꯔꯒꯥ ꯗꯖꯌ ꯑꯃꯌꯁ ꯍꯦꯡꯕꯐ ꯑꯃꯄꯥꯖꯁꯒꯤ ꯐꯂꯦ ꯑꯥꯔꯤꯌ ꯂꯌꯔꯒꯥ ꯐꯔꯤꯕꯦꯔꯗꯀꯤ ꯃꯂꯦꯖꯁ ꯖꯃꯂꯦꯈꯗꯕꯂꯤ, ꯂꯌꯔꯒꯥ ꯃꯗꯨꯒꯤ ꯈꯨꯌꯖꯡꯗ ꯌꯌꯂꯦꯈꯗꯕꯂꯤ꯫ ꯍꯦꯡꯕꯐ ꯑꯃꯗ ꯀ꯭ꯔꯦꯂ ꯇꯧꯒꯗꯕ ꯂ꯭ꯁꯤꯂꯤꯁꯤ ꯑꯃꯗꯦ:

- (a) ꯀꯒꯔꯒꯤ ꯂꯦꯐꯤꯌꯀꯤ ꯃꯖꯡꯁꯒꯤ ꯂꯌꯔꯒꯥ ꯍꯦꯡꯕꯐꯒꯤ ꯈꯐꯒꯔꯌꯀꯤ ꯃꯈꯦꯗꯒꯤ, ꯂꯂ꯭ꯤꯕ ꯑꯃꯒꯤ ꯃꯂꯨꯡꯗ ꯀ꯭ꯔꯦꯂ ꯇꯧꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ

- (b) ꯃꯁꯤꯒꯤ ꯂꯦꯒꯦꯜꯒꯥ ꯂꯥꯔꯅꯅ ꯍꯔꯃꯒꯤ ꯀ꯭ꯂꯥꯏꯅ ꯄꯛꯀꯗꯕꯅꯤ꯫

ꯇꯧꯔꯤꯕ ꯄꯨꯝꯅꯃꯛ ꯀꯔꯤꯒꯤ ꯑꯃꯅꯥ ꯍꯥꯏꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯊꯤꯕ ꯀꯤꯔꯕ ꯃꯇꯝ, ꯄꯨꯝꯅꯃꯛ ꯑꯃꯠ ꯈꯥꯗꯣꯛꯄꯗꯥ ꯑꯁꯤ, ꯃꯁꯤꯒꯤ ꯑꯦꯔꯤ ꯑꯁꯤ ꯃꯁꯤꯅꯥ ꯊꯤꯡꯅꯤꯡꯕ ꯗꯦꯕꯔꯤꯁꯀꯤ 50% ꯕꯅꯥꯀꯇ ꯑꯦꯟꯗꯦꯒ꯭ꯔꯦꯁꯟ ꯇꯥꯔꯅꯅ ꯍꯥꯏꯕꯒꯤ ꯁꯦꯝꯁꯤꯟꯕ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯍꯥꯏꯕ ꯑꯁꯤ ꯑꯃꯨꯛ ꯈꯕꯅꯥ ꯁꯕ ꯃꯌꯥꯝꯗ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯃꯀꯣꯛꯇ ꯃꯁꯤ ꯈꯥꯗꯣꯛꯀꯗꯕꯅꯤ꯫

6.13.7 **ꯂꯤꯔꯦꯇ.** ꯅꯥꯡꯒꯤ ꯍꯂꯤꯡꯒꯤ ꯍꯥꯏꯕꯗꯤ ꯑꯃꯅꯥ ꯂꯤꯔꯦꯇꯒꯤ ꯀꯅꯦꯡꯂꯗ ꯑꯃꯌꯥꯝ ꯔꯤꯇꯥꯍ (ꯂꯧꯊꯣꯛ 8)꯫ ꯀꯒꯇ ꯌꯥꯇꯕ ꯍꯥꯏꯕꯗꯦꯂꯤꯡ ꯑꯂꯤ ꯂꯤꯔꯇꯂꯤꯡꯒꯤ ꯃꯅꯥꯡꯌ ꯊꯌꯅꯤꯕ ꯃꯏꯇꯂꯤꯡꯗ ꯂꯤꯅ ꯌꯥꯇꯕ ꯅꯍꯗꯌꯂꯤꯡꯒꯤ ꯅꯥꯔꯅꯅ ꯂꯤꯒꯗꯕꯅꯤ꯫

6.13.8 **ꯃꯥꯟꯗꯦ ꯊꯨꯡꯀꯥꯀꯟ.** ꯏ꯭ꯌꯥꯟꯆ, ꯀꯦꯇꯤꯔꯦꯅꯔꯦ ꯅꯌꯇꯒꯣ ꯀ꯭ꯕꯅꯤꯡ ꯑꯥꯀꯗ ꯂ꯭ꯀꯦꯂ ꯑꯃꯒꯤ ꯃꯅꯥꯡꯌ ꯇꯕ 1.0 m-ꯗꯒꯤ ꯄꯦꯗꯅ ꯑꯍꯡꯕ ꯄꯡꯁꯥꯡꯅꯕ ꯍꯥꯏꯕꯗꯦꯂꯤꯡꯗ ꯇꯦꯅꯤꯡꯂꯤꯡ ꯅꯌꯇꯒꯣ ꯕꯦꯇꯤꯔꯇꯂꯤꯡ ꯇꯤꯒꯗꯕꯅꯤ꯫ ꯑꯍꯡꯕ ꯀꯔꯤ ꯑꯥꯍꯇꯕꯂ꯭ ꯄꯡꯁꯥꯡꯅꯕ ꯍꯥꯏꯕꯗꯦꯂꯤꯡ ꯏ꯭ꯌꯥꯟꯆ ꯑꯃꯒꯤ ꯀꯥꯡꯅ ꯀꯒꯇ ꯌꯥꯗꯅ ꯊꯏꯇꯥꯍꯗꯕꯅꯤ꯫

6.13.9 **ꯑꯦꯂ-ꯕꯤꯜꯛ ꯂꯦꯚꯦꯜꯁꯤꯡ.** ꯀ꯭ꯕꯅꯤꯡ ꯍꯥꯏꯕꯗꯦ, ꯀꯥꯍꯀ ꯑꯃꯁꯨꯡ ꯃꯦꯗꯄꯥꯅ ꯄ꯭ꯗꯤꯡꯃꯡꯀ ꯑꯦꯂ-ꯕꯤꯜꯛ ꯍꯗꯒꯇꯛ ꯂꯦꯒꯦꯅꯂꯤꯡ ꯑꯂꯤ ꯂꯇꯒꯦ ꯌꯥꯂ꯭ꯅꯥ ꯂꯕꯃꯤꯛ ꯌꯥꯒꯗꯕꯅꯤ (ꯁꯔꯨꯡ 10)꯫ ꯍꯗꯒꯇꯛꯂꯤꯡ ꯑꯂꯤ ꯗꯤꯂꯍꯗꯗꯒꯤ ±15 mm-ꯒꯤ ꯃꯨꯡꯗ ꯇꯤꯒꯗꯕꯅꯤ꯫ ꯃꯂꯤꯒ꯭ꯃꯆ ꯇꯧꯕ ꯃꯏꯃꯗ HGL ꯑꯃꯨꯡ ꯄꯗꯅ ꯌꯦꯡ ꯌꯥꯂ꯭ꯅꯥ ꯂꯕꯃꯤꯛ ꯌꯥꯒꯗꯕꯅꯤ꯫

6.13.10 **ꯇꯧꯕ ꯇꯧꯊꯥꯀꯟ.** ꯀ꯭ꯕꯅꯤꯡ ꯍꯥꯏꯕꯗꯦꯂꯤꯡ ꯑꯂꯤ ꯌꯄꯤ ꯍꯗꯤꯡꯒꯤ ꯃꯥꯗꯂꯗ ꯃꯌꯥꯝ ꯄꯗꯦꯡꯊꯗ, ꯂꯧꯊꯣꯛ 10-ꯗ ꯊꯤꯇꯤꯕ ꯃꯌꯨꯡ ꯍꯗꯅ ꯇꯧꯕ ꯇꯧꯊꯥꯀꯗꯕꯅꯤ꯫

> **ꯂꯦꯗꯥꯡꯅꯥ ꯌꯥꯀꯟ.** ꯀꯅꯥꯇ 6.13-ꯒꯤ ꯄꯥꯊꯦꯡꯅꯕ ꯃꯃꯡꯒꯤ ꯍꯗꯃ ꯇꯌꯦ; ꯃꯦꯅꯨꯔꯦꯅ ꯑꯂꯤꯅ ꯃꯂꯤ ꯃꯅꯤꯀ꯭ꯒꯤ ꯀ꯭ꯗꯦꯡꯌꯂꯌ ꯍꯨꯃꯏꯃ ꯑꯍꯂ꯭ꯅ ꯊꯃꯅꯤ꯫ ꯂꯌꯦꯛ ꯑꯂꯤꯒꯤ ꯂꯄꯗꯒꯤ ꯍꯥꯏꯕꯗꯦ ꯔꯤꯃꯅ ꯏꯛꯀꯊꯂꯤꯡꯒꯤ ꯃꯍꯤꯗ ꯇꯕ ꯀꯒꯇ ꯌꯥꯗꯕ ꯅꯃꯕꯤꯒꯤ ꯃꯅꯥꯡꯀ ꯍꯥꯏꯕꯗꯦꯂꯤꯡꯅꯤ꯫ ꯃꯍꯥꯔ ꯑꯂꯤ ꯔꯤꯃꯅ ꯃꯌꯥꯝꯗ ꯅꯀꯌꯅ ꯇꯕ ꯀꯂꯛ-ꯍꯗꯦ-ꯂꯤꯌ꯭ ꯂ꯭ꯅꯦꯕꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯡꯕ ꯃꯏꯃ ꯍꯗꯍꯡꯌꯒ ꯅꯥꯔꯅꯅ ꯂꯤꯍ, ꯃꯗꯃ ꯑꯈꯂꯅ ꯃꯍꯥꯔ ꯂꯦꯡꯂꯥꯡꯀ ꯔꯤꯗꯦ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝ ꯑꯃꯒꯤ ꯃꯨꯡꯗ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯅꯤꯗ ꯌꯦꯂꯌꯅ ꯃꯀ꯭ꯗꯍ꯫ CPHEEO (2019)-ꯅꯥ ꯀꯒꯇ ꯌꯥꯗꯕ ꯌꯦꯅꯦꯅꯂꯤꯡ ꯑꯂꯤ "ꯃꯄꯥꯇꯦ ꯊꯗꯥꯀꯀꯒꯤ ꯍꯗꯥꯡꯌꯕ ꯇꯧ" ("are prone to the dumping of garbage") ꯄꯔꯅ ꯅꯥꯌ ꯌꯥꯇꯤ (Part A, Ch 2), ꯃꯇꯃ ꯑꯂꯅ ꯍꯥꯏꯕꯗꯦꯂꯤꯡ ꯀꯒꯇ ꯌꯥꯍ꯫ ꯌꯡꯅꯡꯅꯕ ꯄꯡꯕ ꯃꯏꯃ ꯔꯤꯁ꯭ꯗꯅ ꯀꯒꯇ ꯌꯥꯕ ꯑꯂꯤꯅ ꯂꯤꯡꯅꯕ ꯑꯂ꯭ ꯃꯤꯌꯀꯤ ꯃꯃꯡꯗꯒꯤ ꯇꯧꯊꯥꯀꯟ ꯍꯗꯌꯅꯤ꯫ NDMA (2010)-ꯅꯥ ꯃꯦꯍꯂꯍ ꯃꯃꯡꯗꯒꯤ ꯇꯧꯕ ꯇꯧꯊꯥꯀꯟ ꯑꯂꯤ 31 ꯃꯇꯌꯗ ꯅꯍꯂꯤꯍꯒꯗꯕꯅꯤ ꯄꯔꯅ ꯀꯁ꯭ꯌꯡ ꯀꯤꯇꯤ꯫ ꯃꯅꯤꯀ꯭ꯇꯗ ꯌꯦꯡ ꯑꯂ꯭ ꯃꯦꯅꯨꯔꯦꯅ ꯑꯂꯤꯅ ꯑꯇꯊ ꯀꯤꯇꯤꯕ ꯃꯌꯨꯡ ꯍꯗꯅ ꯅꯥꯡꯖꯊꯒꯤ ꯃꯌꯥꯝ, 1 ꯑꯦꯀꯇꯤꯅꯗꯒꯤ 31 ꯑꯥꯡꯌꯥꯕꯇ ꯏꯁ꯭ꯕ, ꯄꯥꯕ ꯃꯌꯥꯝꯂ꯭ ꯑꯥꯍꯇꯤ꯫ ꯍꯥꯏꯕꯅꯗ ꯍ-ꯅꯥꯡꯌꯀ ꯃꯦꯍꯂꯍꯒꯤ ꯅꯥꯇꯃꯦꯅ ꯅꯥꯡꯀꯒꯤ ꯌꯦꯡ ꯑꯂꯤ 5 ꯖꯨꯟ (ꯃꯃꯡꯗ 1 ꯖꯨꯟ) ꯑꯃꯁꯨꯡ ꯄꯅꯅꯡꯀꯒꯤ ꯌꯦꯡ 15 ꯑꯥꯡꯌꯥꯕꯇꯅꯤ (1 ꯖꯨꯟ 2020-ꯗꯒꯤ ꯂꯤꯅꯤꯍꯅꯇꯤꯕ IMD-ꯒꯤ ꯅꯥꯇꯃꯦꯅꯂꯤꯡ, IMD-ꯒꯤ ꯀ꯭ꯇꯦꯂ ꯇꯤꯅꯤꯗ ꯀꯥꯌꯍꯤꯕ ꯃꯌꯨꯡ ꯍꯗꯅ), ꯑꯗ꯭ꯕ꯭ ꯅꯥꯡ ꯌ꯭ꯕꯒꯤ ꯊꯥꯗꯥꯡꯂꯤꯡ ꯄꯦꯗꯅ ꯊ꯭ꯅ ꯑꯃꯁꯨꯡ ꯄꯦꯗꯅ ꯊꯦꯡꯅ ꯅꯀꯍ꯫ ꯑꯦꯀꯇꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯦꯒꯤꯗꯃꯌ ꯍꯃꯏꯅꯒꯤ ꯀ꯭ꯡ 24-ꯒꯤ ꯇꯦꯀꯥꯇꯗꯂꯤꯡ ꯑꯂꯤ 105.9 mm (16 ꯑꯦꯀꯇꯤꯅ 2004) ꯑꯃꯁꯨꯡ 122.4 mm (27 ꯃꯦ 1956)ꯅꯤ, ꯑꯃꯁꯨꯡ ꯏꯦꯕ꯭ꯇ꯭ꯌꯔꯇꯤꯗꯒꯤ ꯗꯤꯂꯦꯃꯕꯇ ꯏꯁ꯭ꯕ ꯊ ꯍ꯭ꯗꯤꯡꯃꯌꯌ 80-ꯗꯒꯤ 160 mm-ꯒꯤ ꯀ꯭ꯡ 24-ꯒꯤ ꯃꯦꯌꯂꯤꯃꯃ ꯇ (IMD *Extremes*, Imphal (Tulihal), 1953–2012); "ꯃꯤꯇꯌꯗꯒꯤ ꯑꯥꯡꯌꯥꯕꯇ ꯏꯁ꯭ꯕ ꯀꯦꯗꯅ ꯌ꯭ꯕ ꯅꯥꯡꯂꯤꯡ" ("intense rains from March to October")-ꯅꯥ ꯂꯄꯇꯒꯤ ꯅꯃꯕꯤꯂꯤꯡ ꯃꯤꯡꯄꯅꯤ (AIIB, 2024); ꯑꯃꯁꯨꯡ ꯌꯃꯀꯤꯌꯀꯤ ꯅꯥꯀ ꯃꯌꯃꯒꯤ ꯃꯤꯡꯄꯦ ꯌꯥꯄꯦꯍꯤꯕ ꯍꯂꯤꯡ ꯍꯌꯁ꯭ꯂꯤꯡꯒꯤ ꯃꯨꯡꯗ ꯑꯅꯤ, 28–31 ꯃꯦ 2024-ꯒꯤ ꯂꯤꯍꯌꯅꯥꯦ ꯇꯦꯃꯤꯅꯒꯤ (Cyclone Remal) ꯑꯃꯁꯨꯡ 30 ꯃꯦ–2 ꯖꯨꯟ 2025-ꯒꯤ ꯑꯁꯨ, ꯃꯥꯦꯂꯦ ꯅꯌꯛꯇꯤꯊꯗ ꯅꯌꯍꯤ (ꯀꯁ꯭ꯗ ꯏꯥꯡꯗꯥꯌꯍꯤꯕ ꯃꯌꯨꯡ ꯍꯗꯅ)꯫ ꯃꯌꯃ ꯑꯁꯨꯒꯤ ꯃꯌꯨꯡꯗ, ꯍꯃꯏꯅꯅ 5 ꯑꯥꯡꯌꯥꯕꯇ 1980-ꯗ 119.4 mm ꯑꯃꯁꯨꯡ 1 ꯅꯥꯒꯦꯃꯕꯇ 1991-ꯗ 80.3 mm ꯇꯦꯀꯥꯇꯗ ꯌꯥꯍꯤ (IMD *Extremes*), ꯑꯃꯁꯨꯡ ꯑꯥꯡꯌꯥꯕꯇ 1992-ꯗ ꯌꯃꯀꯤꯌꯌ ꯍꯂꯤꯡ ꯍꯌꯁ꯭ ꯊꯥꯌꯍꯤ (MASTEC)꯫ ꯇꯤꯂꯇꯌꯀꯤ ꯃꯌꯃꯗ ꯂꯄꯇꯒꯤ ꯍꯥꯏꯕꯗꯦꯂꯤꯡꯗ ꯇꯧꯕ ꯇꯧꯊꯥꯀꯟ ꯅꯍꯂꯤꯍꯒꯗꯕ ꯌꯦꯡ ꯇꯕ ꯑꯥꯇꯗꯇ ꯑꯃꯦꯛꯌ ꯏꯡꯍꯤꯗꯦ [TBC]꯫ ꯃꯇꯃ ꯑꯂꯅ ꯀꯅꯥꯇ 6.13.10-ꯅꯥ ꯃꯦꯅꯨꯔꯦꯅ ꯑꯂꯤꯅ ꯑꯇꯊ ꯀꯤꯇꯤꯕ ꯃꯌꯨꯡ ꯍꯗꯅ ꯃꯥꯦꯂꯦ ꯃꯌꯃꯒꯤ ꯃꯌꯥꯡꯗ ꯄꯔꯇꯤ, ꯑꯃꯁꯨꯡ ꯂꯧꯊꯣꯛ 10-ꯅꯥ ꯍꯥꯏꯕꯗꯦ ꯑꯃꯁꯨꯡ ꯌꯦꯅꯦꯅꯂꯤꯡꯗ ꯇꯧꯕ ꯇꯧꯊꯥꯀꯟ ꯑꯃꯁꯨꯡ ꯍꯗꯅꯦꯛꯂꯤꯡ, ꯂꯤꯅꯛ ꯌ꯭ꯇꯦꯀꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂ꯭ꯀꯇꯤꯗꯦꯂꯤꯡ ꯂꯦꯡꯗꯥꯡꯀꯟ ꯑꯂꯤ 31 ꯃꯇꯌꯗ ꯅꯍꯂꯤꯍꯒꯗꯕꯅꯤ ꯄꯔꯅ ꯃꯊꯥ ꯌꯥꯍ, ꯒꯦꯛꯂꯤꯡ, ꯏ꯭ꯅꯦꯀ ꯒꯦꯛꯂꯤꯡ, ꯀꯃꯀꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂ꯭ꯌꯦꯗꯗꯕꯍ ꯀꯥꯔꯇ ꯑꯂꯤ ꯌꯦꯡ ꯑꯁꯃꯌꯌ ꯂꯦꯃ ꯂꯤꯇꯦ ꯄꯔꯅ ꯂꯇꯌꯤꯏꯍ ꯌꯥꯂ꯭ꯅꯥ (ꯀꯅꯥꯇ 5.11.5 ꯑꯃꯁꯨꯡ 5.12.9); 15 ꯃꯦꯗ ꯔꯥꯗ꯭ꯇꯤꯊꯗ ꯍꯗꯅꯦꯛꯂꯤꯡ, ꯂꯤꯅꯛ ꯌ꯭ꯇꯦꯀꯂꯤꯡ, ꯂ꯭ꯀꯇꯤꯗꯦꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯂ꯭ꯌꯇꯤꯃꯒꯤ ꯌ꯭ꯇꯦꯀꯂꯤꯡ ꯃꯌꯃꯒꯤ ꯃꯔꯤꯍꯗ ꯂꯦꯡꯗꯥꯡꯀꯟ; 1 ꯑꯦꯀꯇꯤꯅꯗꯒꯤ 31 ꯑꯥꯡꯌꯥꯕꯇ ꯏꯁ꯭ꯕ ꯂ꯭ꯌꯦꯗꯗꯕꯍ; ꯑꯃꯁꯨꯡ 15 ꯅꯥꯒꯦꯃꯕꯇꯗ ꯔꯥꯗ꯭ꯇꯤꯊꯗ ꯇꯧꯕꯒꯤ ꯑꯍꯡꯕꯒꯤ ꯂꯇꯒꯦ ꯑꯃꯒꯣ ꯅꯥꯔꯅꯅ ꯃꯌꯃ ꯑꯁꯨꯒꯤ ꯃꯌꯨꯡꯗ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯗꯦꯕꯇꯤꯂ ꯂꯦꯡꯗꯥꯡꯀꯟ꯫ ꯃꯌꯃꯒꯤ ꯃꯔꯤꯍꯒꯤ ꯂꯦꯡꯗꯥꯡꯀꯟ ꯑꯂꯤ ꯂꯦꯇꯤꯅ ꯑꯂꯤꯒꯤ ꯑꯌꯥꯀꯀ ꯅꯥꯇꯊ-ꯍꯂꯌ ꯑꯦꯗꯤꯂꯦꯂꯤꯡꯗ ꯇꯕꯒ꯭ꯃꯆꯅꯥ 31 ꯃꯦꯗ ꯅꯌꯌꯅꯥ 15 ꯃꯦꯗ ꯔꯥꯗ꯭ꯇꯤꯊꯗ ꯌꯥꯒꯗꯕꯅꯤ, ꯃꯇꯃꯗꯤ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯍꯂꯤꯡ

ꯅꯍꯩꯊꯣꯀꯤꯄ 28–31 ꯃꯤꯗ ꯐꯥꯎꯅꯤ, ꯑꯃꯁꯨꯡ 31 ꯃꯤꯗ ꯌꯥꯗꯕꯤꯗꯃꯛ ꯁꯦꯡꯗꯣꯛ ꯂꯩꯕꯥꯏꯔꯤꯕꯥ ꯑꯃꯥ ꯃꯅꯥꯌꯒꯤ ꯃꯁꯤꯡꯗ ꯐꯥꯎꯔꯦ꯫ ꯁꯕꯤꯒꯤ ꯑꯦꯟꯗꯥꯏꯗ ꯁꯦꯕ WRD-ꯒꯤ ꯃꯔꯣꯒꯤ ꯐꯕꯥꯔꯤꯗꯥ WRD-ꯒꯤ ꯀꯪꯖꯦꯗ ꯃꯁꯨꯡ ꯅꯦꯟ꯫ ꯁꯥꯔꯤꯗ ꯑꯔꯤ ꯃꯪꯂꯨꯡ ꯑꯔꯤꯗꯥ ꯐꯕꯥꯏ꯫ ꯃꯗꯨꯒꯤ ꯂꯣꯗꯔꯤꯗ ꯂꯗꯒꯤ ꯈꯤꯡꯃ ꯇꯥꯁꯪ꯫

ꯅꯥꯔꯕꯦꯔꯤꯔꯒꯤ ꯃꯐꯥꯁ ꯕꯤꯅꯗꯤꯔ ꯂꯕ ꯑꯔꯤ ꯕꯅ-ꯇꯥꯇꯥ ꯃꯈꯔꯗꯒꯤ ꯐꯤꯔꯇꯤ: "ꯃꯌꯥꯇꯤꯔꯤꯑꯪꯅ ꯅꯥꯔꯕꯦ ꯇꯌꯗꯒꯤ ꯇꯃ ꯑꯃꯌꯁꯒꯤ ꯃꯐꯥꯁ ꯃꯪꯂꯦꯗꯤ ꯕꯤꯅꯗꯤꯔ ꯇꯌꯗꯒꯤ ꯂꯁꯗꯥꯍꯗ ꯑꯃꯌꯁ ꯂꯗꯥꯅꯗꯕꯇꯤ ꯇꯌꯗꯒꯤ ꯑꯥꯐꯥꯐꯥꯄꯦꯇꯥꯅꯗꯕꯇꯤ" ("Any masonry building or structure shall not be constructed or extended, over any municipal drain or land") (ꯃꯥꯗꯪꯅꯒꯤ ꯕꯅ-ꯇꯥ 16 [TBC: ꯇꯥꯀꯅ ꯕꯥꯗꯤꯇꯥ ꯇꯥꯁꯤꯈꯅ ꯁꯥꯗꯕ ꯕꯅ-ꯇꯥꯇꯁ ꯇꯃꯕꯗ ꯑꯃꯁꯨꯡ ꯁꯪꯐꯂꯁ ꯍꯪꯐ ꯁꯥꯒꯗꯕꯇꯤ]), ꯑꯃꯁꯨꯡ "ꯃꯅꯥꯔ ꯑꯔꯤꯗꯥ ꯃꯐꯥ ꯁꯕ ꯑꯥꯑꯦ ꯂꯑꯪꯂ ꯑꯃꯌꯁꯗ ꯇꯥꯔꯒꯤ ꯅꯂꯤꯔꯒꯤꯗꯃꯐ ꯇꯌꯁꯕꯗꯤ ꯄꯔꯗꯥꯐꯇꯕ ꯅꯥꯔꯕꯦ ꯑꯃꯌꯁ ꯂꯗꯥꯅꯗꯕꯇꯤ" ("No open drain, except for rain water, shall be constructed in any open space required by these") ꯕꯅ-ꯇꯥꯇ꯫ ꯑꯗꯨꯕꯨ ꯂꯄꯗꯒꯤ ꯍꯪꯇꯪꯅꯂꯤꯔ ꯑꯔꯤ ꯇꯃ ꯅꯥꯑꯑ ꯑꯃꯁꯨꯡ ꯍꯪꯂꯌ ꯐꯗꯥꯐꯈꯃ ꯑꯥꯅꯇꯥ ꯂꯤꯇꯤꯦꯇꯗꯤ: ꯀꯐꯪꯅꯒꯤ ꯍꯪꯂꯌ ꯑꯔꯤ ꯇꯒꯥ ꯌꯅꯇꯗ ꯐꯗꯥꯀꯅ, "ꯃꯔꯤꯇꯥ ꯍꯄꯤ ꯑꯃꯕꯗ ꯍꯪꯦꯗꯕ ꯅꯂꯤꯔ ꯑꯦꯂꯤꯦꯕ ꯑꯈ ꯂꯪꯃꯈꯤ" ("which creates a stagnant pool all along the year") (ꯃꯂꯁꯗ ꯑꯇꯦ), ꯑꯃꯁꯨꯡ ꯑꯪꯑꯗꯤꯅ 2025-ꯗ ꯍꯅꯂꯪꯅ ꯃꯗꯤꯅ, ꯇꯒꯥ ꯌꯅꯇꯥ ꯑꯃꯁꯨꯡ ꯇꯃꯕꯨꯅ ꯁꯗꯪꯅꯒꯤ ꯇꯥꯑꯥꯐ ꯐꯔꯕ ꯇꯗꯅꯒꯤ ꯃꯇꯥꯐꯁ ꯇꯕ ꯇꯃ ꯅꯥꯑꯑꯂꯤꯔ ꯇꯐꯐꯇꯕ ꯑꯥꯗꯗꯗ ꯑꯤꯅꯤ (ꯑꯤꯊꯗ ꯈꯥꯔꯗꯥꯐꯅꯤꯕ ꯃꯁꯨꯡ ꯅꯦꯦ)꯫ ꯃꯄꯣꯒꯤ ꯅꯥꯔꯂꯤꯔ ꯑꯃꯁꯨꯡ ꯂꯄꯗꯒꯤ ꯍꯪꯇꯪꯅꯂꯤꯔ ꯑꯔꯤ ꯅꯗꯃꯒꯤ ꯗꯤꯇꯗꯒ (ꯀꯇꯥꯇ 6.9) ꯇꯕ ꯄꯔꯗꯥꯐꯇꯕ ꯍꯪꯇꯪꯅꯂꯤꯔꯇꯤ, ꯑꯃꯁꯨꯡ ꯀꯒꯗ ꯁꯕ, ꯗꯪꯐ ꯁꯕ ꯇꯌꯗꯒꯤ ꯃꯅꯥꯔꯒꯤ ꯃꯐꯥꯁ ꯂꯕ ꯁꯗꯥꯅꯗꯕꯇꯤ꯫ ꯅꯥꯔꯕꯦ ꯑꯈ ꯀꯒꯗ ꯁꯗꯕ ꯃꯈꯃꯗ, AIIB ꯑꯗꯥꯇꯥꯐꯌꯀ ꯇꯃꯕꯤꯒꯤ ꯃꯇꯥꯐꯀ ꯅꯥꯔꯕꯦꯔꯤꯔꯒꯃꯇꯥ, ꯀꯇꯥꯇ 6.13.2 ꯑꯔꯤ ꯃꯗꯨꯗ ꯃꯑꯔ ꯈꯇꯥ ꯍꯌꯦꯇ; ꯈꯌꯑꯐ ꯇꯌꯗꯒꯤ ꯀꯪꯗꯤꯍꯪꯇꯍꯪ ꯑꯃꯒꯤ ꯃꯇꯥꯐꯁ ꯄꯔꯗꯥꯐꯇꯥ ꯇꯗꯕ ꯃꯈꯃꯗ, ꯀꯇꯥꯇ 6.13.8 ꯍꯌꯦꯇ꯫

ꯀꯇꯥꯇ 6.13.7 ꯑꯔꯤ ꯄꯇꯤꯐꯂ ꯑꯗꯪꯐꯁꯤꯂ ꯑꯥꯅꯗꯗꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯑꯗꯗ ꯂꯤꯍꯗꯂꯤꯔ ꯇꯗꯐꯌꯗꯤꯈꯊꯕ ꯑꯥꯅꯕ ꯀꯐꯃꯇꯥꯅ꯫ ꯇꯦ 2020-ꯗ ꯀꯃꯤꯂꯦ ꯁꯅꯤꯕ ꯅꯃꯈꯅꯒꯤ ꯂꯤꯍꯗꯪꯇ ꯈꯪꯇ I-ꯗꯥ IMC-ꯒꯤ ꯍꯗꯗ 27-ꯒꯤ ꯃꯌꯨꯗ 11 ꯍꯊꯅ, ꯑꯃꯁꯨꯡ ꯑꯁꯑꯑ ꯍꯗꯗ 16 ꯑꯃꯁꯨꯡ ꯑꯥꯊꯁꯒꯗꯐ ꯃꯗꯤꯒꯤꯗꯃꯐ ꯈꯪꯇ II ꯑꯇꯦ ꯁꯗꯤ (ꯃꯂꯁꯗ ꯑꯇꯦ); ꯌꯃꯒꯤ ꯀꯇꯪꯐꯂꯦꯂꯤꯔ ꯁꯗꯒꯌ ꯁꯅꯤꯕ 51,754-ꯒꯤ ꯃꯌꯨꯗ 8,600-ꯗꯒꯤ 8,700 ꯈꯊꯕ ꯇꯅꯤ, ꯑꯃꯁꯨꯡ "ꯂꯄꯗꯒꯤ ꯑꯪꯗꯤꯍꯂꯤꯔꯗ ꯂꯤꯍꯪꯇ ꯐꯀꯑ ꯑꯔꯤ 70 MLD-ꯇꯤ ꯑꯃꯁꯨꯡ ꯇꯗꯤꯕ ꯁꯗꯤꯌꯃꯪꯦꯌ ꯈꯪꯂꯤꯇꯤꯁꯤꯂꯤꯔ ꯑꯔꯤ 44 MLD-ꯇꯤ" ("Sewage generation in urban areas is 70 MLD and existing treatment facilities are 44 MLD") (NGT-ꯗ ꯂꯁꯪꯌꯀꯤ ꯗꯤꯑꯗꯌ, ꯇꯦꯅ 2025)꯫ ꯑꯁꯑꯑ ꯃꯈꯃꯂꯤꯔꯗ ꯂꯪꯑꯁꯤꯐ ꯁꯪꯐꯂꯤꯔ ꯑꯃꯁꯨꯡ ꯂꯥꯐ ꯑꯤꯌꯂꯤꯔ ꯅꯥꯔꯕꯦꯔꯤꯔꯗ ꯐꯦꯐꯀꯅ, ꯑꯃꯁꯨꯡ "ꯃꯇꯤꯑꯗꯒꯤ ꯍꯤꯔꯒꯤ ꯇꯃꯂꯤꯔꯗ ꯂꯪꯑꯁꯤꯐ ꯁꯪꯐꯂꯤꯔ ꯑꯃꯁꯨꯡ ꯁꯕꯤꯦ ꯂꯥꯐ ꯑꯤꯌꯂꯤꯔꯗ ꯄꯇꯤꯐ ꯐꯇꯕ ꯐꯃꯇꯤꯕ ꯑꯔꯤ ꯃꯦꯦ" ("The existing reliance on septic tanks and twin soak pits in the hilly regions of Manipur is appropriate") (ꯗꯤꯑꯗꯌ ꯑꯗꯨꯃꯐ)꯫ ꯇꯃꯕꯨꯅ ꯁꯗꯪꯅꯗ ꯍꯪꯦꯐꯗꯀꯑ ꯅꯥꯔꯕꯦ 72-ꯗꯥ BOD 42.45-ꯗꯒꯤ 52.34 mg/L ꯑꯌꯅ, ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔꯒꯤ ꯅꯦꯁꯗꯂꯪꯑꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯅꯒꯗꯂꯦ ꯑꯔꯤ ꯇꯥꯅꯗꯪ ꯄꯔꯇꯥ ꯗꯤꯑꯗꯌ ꯁꯗꯤ (NGT-ꯗ ꯂꯁꯪꯌꯀꯤ ꯗꯤꯑꯗꯌ, ꯗꯤꯂꯪꯃꯕꯗ 2025)꯫ ꯀꯇꯥꯇ 6.3.6(a)-ꯗꯒꯤ (e) ꯈꯊꯕ ꯑꯔꯤꯗꯥ ꯃꯗꯐ ꯑꯔꯤꯗ ꯂꯤꯍꯪꯇ ꯑꯌꯕ ꯅꯥꯔꯕꯦ ꯑꯈ ꯀꯗꯃꯗꯥ ꯗꯤꯇꯅꯦ ꯁꯒꯗꯒꯪ ꯄꯔꯕꯨ ꯐꯃꯇꯤ, ꯑꯃꯁꯨꯡ ꯀꯇꯥꯇ 8.9-ꯗꯥ ꯀꯇꯪꯐꯂꯦꯂꯤꯔ ꯇꯐꯐꯌꯗꯤꯈꯊꯕ ꯇꯥꯔꯒꯤ ꯅꯂꯤꯔꯒꯤ ꯅꯥꯔꯕꯦꯔꯤꯔꯗ ꯇꯕ ꯇꯥꯔ ꯌꯗꯕ ꯃꯁꯃꯒꯤ ꯍꯪꯦꯕ ꯑꯔꯤ ꯀꯗꯃꯗꯥ ꯂꯗꯒꯪ ꯁꯒꯗꯒꯪ ꯑꯃꯁꯨꯡ ꯅꯦꯁꯗꯂꯪꯑꯁ ꯁꯒꯗꯒꯪ ꯄꯔꯕꯨ ꯐꯃꯇꯤ, ꯅꯦꯁꯗꯂꯪꯑꯂꯦꯦꯗꯥ ꯅꯥꯔꯕꯦꯒꯤ ꯀꯪꯑꯂꯤꯁꯤ ꯄꯦꯐꯄꯅꯇꯥꯅꯗꯕꯇꯤ ꯄꯔꯕ ꯗꯅ ꯍꯑꯥꯗꯥ (ꯀꯇꯥꯇ 8.9.5(b))꯫

10 m ꯑꯃꯁꯨꯡ 30 m-ꯒꯤ ꯇꯑ ꯐꯥꯂꯤꯔ ꯑꯃꯁꯨꯡ ±15 mm-ꯒꯤ ꯁꯇꯗꯪꯦꯂ ꯑꯔꯤꯒꯤ ꯄꯥꯐꯪꯔꯇꯕ ꯃꯈꯔꯒꯤ ꯌꯗꯃ ꯇꯁꯪ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔ ꯑꯔꯤ ꯃꯪꯂꯨꯡ ꯑꯔꯤꯗꯥ ꯐꯃꯕꯇꯤ꯫ ꯀꯇꯥꯇ 6.13.6-ꯗꯥ ꯅꯂꯤꯔꯒꯤ ꯃꯪꯦꯂꯤꯔ ꯑꯃꯁꯨꯡ ꯀꯪꯕꯅꯂꯤꯔ ꯅꯥꯔꯕꯦꯔꯤꯔꯒꯤ ꯌꯌꯐꯔꯗ ꯍꯌꯇꯤꯕ ꯃꯁꯃ ꯑꯃꯕꯗ ꯊꯕ ꯈꯤꯡꯃ ꯑꯗꯨꯒꯤ ꯑꯊꯌꯃ ꯑꯤꯗꯤ꯫ ꯃꯅꯥꯔ ꯌꯗꯤꯔꯃꯐꯥ ꯗꯪꯕꯗꯤꯂ ꯐꯤꯔꯇꯤꯅꯇꯤ ꯑꯃꯁꯨꯡ ꯂꯪꯐꯂꯦ ꯄꯦꯐꯄꯅꯇꯤ꯫ ꯃꯌꯨꯗ ꯃꯤꯑꯥꯅ ꯍꯔꯕꯒꯤ ꯃꯄꯌꯁ ꯀꯒꯗꯒꯤ ꯄꯔꯕ ꯃꯈꯃꯂꯤꯔꯒꯤ ꯌꯌꯐꯔꯗ ꯃꯪꯀꯇꯤꯀꯪꯅ ꯑꯥꯅꯇꯥ ꯂꯪꯔꯗꯥꯀꯑ ꯑꯔꯤ ꯃꯈꯃ ꯑꯃꯕꯗ ꯇꯥꯅ, ꯑꯗꯥꯄꯤꯕꯤꯂꯦ ꯑꯥꯈ ꯅꯃꯑꯇꯥꯅꯃꯪꯦꯌ ꯑꯥꯇ ꯃꯪꯂꯨꯡꯅ ꯂꯀꯒꯪꯦꯇꯗꯂ ꯑꯃꯁꯨꯡ ꯐꯪꯔꯗ ꯗꯤꯄꯪꯕꯤꯇꯤꯁꯪꯂꯦ ꯑꯪꯐꯌ, 2013 (Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013)-ꯒꯥ ꯃꯦꯦꯇꯥ꯫

6.14 ꯑꯊꯌꯈꯅꯂꯤꯔ

6.14.1 ꯑꯊꯌꯈꯅꯂꯤꯔ ꯑꯔꯤ ꯂꯗꯐ 5-ꯒꯤ ꯁꯪꯅꯍꯍꯁꯗꯒꯤ ꯈꯤꯒꯃꯂꯤꯔꯒꯤꯗꯃꯐ ꯗꯤꯇꯅꯦ ꯁꯒꯗꯕꯇꯤ꯫ 1% AEP-ꯒꯤ ꯂꯁꯤꯅ-ꯍꯍꯁꯗ ꯇꯪꯒꯪꯅꯒꯤ ꯃꯅꯗ ꯇꯕ ꯑꯊꯌꯈꯅꯂꯤꯔꯗ ꯈꯇꯪꯑ ꯇꯌꯗꯒꯤ ꯁꯅꯗ ꯒꯪꯌꯂꯤꯔ ꯇꯌꯗꯒꯤ ꯇꯦ-ꯗꯤꯁꯗꯦ ꯒꯅꯒꯂꯤꯔ ꯇꯒꯗꯕꯇꯤ (ꯂꯗꯐ 5 ꯑꯃꯁꯨꯡ ꯂꯗꯐ 9, ꯀꯇꯥꯇ 9.10)꯫

6.14.2 ꯑꯦꯛꯁꯦꯜ ꯁ꯭ꯞꯔꯦꯗꯁꯤꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯖꯥꯝꯄꯜ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ ꯑꯁꯤ ꯁꯔꯨꯛ 9, ꯁꯦꯛꯁꯟ 9.6-ꯒꯤ ꯃꯈꯥꯗ ꯄꯤꯖꯔꯤ ꯌꯧꯒꯗꯕꯅꯤ॥ ꯇꯥꯏꯄꯤꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯣꯡꯒꯤ ꯀꯨꯝꯕꯁꯤꯡꯒꯤ ꯀꯣꯅ ꯑꯦꯛꯖꯥꯝꯄꯂꯁꯤꯡꯗꯤ ꯁꯔꯨꯛ 7 ꯑꯃꯁꯨꯡ 8-ꯗ ꯌꯧꯒꯗꯕꯅꯤ॥

6.15 ꯁꯕꯃꯤꯇꯦꯜꯒꯤ ꯃꯊꯧ ꯇꯥꯕꯁꯤꯡ

ꯀꯟꯚꯦꯌꯦꯟꯁꯀꯤ ꯁꯕꯃꯤꯇꯦꯜ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯃꯈꯥꯒꯤꯁꯤꯡ ꯌꯥꯎꯕ **ꯀꯟꯚꯦꯌꯦꯟꯁ ꯗꯤꯖꯥꯏꯟ ꯔꯤꯄꯣꯔꯠ (Conveyance Design Report)** (ꯐꯥꯔꯣꯝ 6-1) ꯑꯃꯥ ꯌꯥꯎꯒꯗꯕꯅꯤ:

1. 1% AEP-ꯒꯤ ꯐ꯭ꯂꯣ ꯔꯦꯠꯁꯤꯡ, ꯃꯁꯤꯡꯗꯥ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯃꯦꯊꯗ-ꯁꯤꯡ, ꯐꯤꯖꯤꯀꯦꯜ ꯃꯑꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯊꯗ-ꯁꯤꯡꯒꯤ ꯑꯦꯁꯨꯝꯄꯁꯟ ꯌꯥꯎꯕ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ ꯌꯥꯎꯕ ꯗꯦꯇꯥ ꯑꯃꯥ (ꯁꯦꯛꯁꯟ 6.3.2);
2. ꯑꯦꯄ꯭ꯂꯤꯀꯦꯕꯜ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯁꯦꯛꯁꯟꯒꯤ AEP (ꯇꯦꯕꯜ 6.1), ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯤ-ꯕꯣꯔꯗꯁꯤꯡ ꯑꯦꯄ꯭ꯂꯥꯏꯒꯤ ꯃꯇꯧ;
3. ꯁꯔꯨꯛ 2-ꯒꯤ ꯐ꯭ꯂꯣ ꯔꯨꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 3-ꯒꯤ ꯀ꯭ꯔꯣꯁ ꯁꯦꯛꯁꯅꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ;
4. ꯃꯦꯊꯗ, ꯗꯦꯄꯊ ꯑꯃꯁꯨꯡ 1%-ꯒꯤ ꯐ꯭ꯂꯣꯁꯤꯡꯒꯤ ꯚꯦꯂꯣꯁꯤꯇꯤꯒꯤ ꯃꯁꯤꯡ, ꯑꯃꯁꯨꯡ D·V-ꯒꯤ ꯃꯁꯤꯡꯁꯤꯡ (ꯇꯦꯕꯜ 6.2 ꯑꯃꯁꯨꯡ 6.3);
5. ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯦꯔꯦꯀꯇꯔꯁꯤꯡ, ꯊꯦꯔꯦꯁꯣꯜꯗꯒꯤ ꯁꯦꯌꯥꯔ ꯁ꯭ꯠꯔꯦꯁ, ꯗꯤꯖꯥꯏꯟ ꯀꯦꯔꯦꯀꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯗ ꯁ꯭ꯇꯦꯕꯤꯂꯤꯇꯤ ꯌꯦꯡꯁꯤꯟꯕꯒꯤ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯃꯦꯊꯗ ꯑꯃꯥ (ꯁꯦꯛꯁꯟ 6.6);
6. n, ꯀꯦꯂꯨꯁꯤꯡ, ꯃꯦꯅꯤꯡꯒꯤ ꯑꯦꯁꯨꯝꯄꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯗ ꯁ꯭ꯇꯦꯕꯤꯂꯤꯇꯤ ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯁ꯭ꯇꯦꯝꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯇꯦꯀꯅꯤꯛꯁꯤꯡ (ꯁꯦꯛꯁꯟ 6.7);
7. ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯒꯤ ꯁ꯭ꯇꯦꯕꯤꯂꯤꯇꯤ ꯃꯦꯊꯗ ꯑꯃꯁꯨꯡ ꯗꯦꯄꯊ ꯐ꯭ꯂꯣꯁꯤꯡꯒꯤ HGL ꯄ꯭ꯔꯣꯐꯥꯏꯂꯁꯤꯡ (ꯁꯦꯛꯁꯟ 6.8);
8. ꯃꯄꯨꯡ ꯐꯥꯕ ꯑꯣꯏꯗꯕ ꯐꯤꯖꯤꯒꯤ ꯗꯦꯄꯊ ꯌꯥꯎꯕ ꯁꯦꯀꯁꯅꯒꯤ ꯀꯦꯄꯥꯁꯤꯇꯤꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯟꯁꯤꯡ (ꯁꯦꯛꯁꯟ 6.10);
9. ꯕꯤꯅꯦꯛꯁꯤꯡ ꯗꯤꯖꯥꯏꯟꯗꯥ ꯐꯣꯔꯃ-ꯀꯦꯂꯀꯨꯂꯦꯁꯟꯒꯤ ꯃꯦꯊꯗ ꯑꯃꯥ (ꯁꯦꯛꯁꯟ 6.11);
10. ꯀꯅꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯐ꯭ꯂꯨꯏꯁꯤꯡꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯅꯁꯤꯡ (ꯁꯦꯛꯁꯟ 6.12 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 9); ꯑꯃꯁꯨꯡ
11. ꯀꯅꯛꯇ ꯇꯣꯞꯀꯤ ꯐ꯭ꯂꯦꯇꯐꯣꯔꯃꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯤꯠꯁꯤꯡ-ꯀꯟꯐ꯭ꯂꯨꯏꯁꯤꯡꯒꯤ ꯃꯦꯊꯗ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯃꯑꯣꯡꯁꯤꯡꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ (ꯁꯦꯛꯁꯟ 6.13)॥

ꯍꯧꯔꯀꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- MoHUA / CPHEEO (2019). *Manual on Storm Water Drainage Systems*, Volume I, Part A: Engineering Design. Tables 4.1, 5.1, 5.2, 5.3, 5.8, 5.11, 5.12, 6.2, 11.2, 11.5; §5.3, §5.6.2, Fig. 5.9. https://www.mohua.gov.in/static/uploads/2025/10/8a2456c722036d78c72a698898ef846d.pdf
- PUB Singapore (2018, Addendum No. 3, ꯑꯦꯄꯔꯤꯜ 2025-ꯒꯥ ꯂꯣꯌꯅꯅ). *Code of Practice on Surface Water Drainage*, 7th edition. Clauses 1.1, 2.1.1, 5.1, 5.3, 9.6, 9.7 and Appendix 1 (Drainage Reserve Requirements). https://www.pub.gov.sg/-/media/PUB/PDF/Code-of-Practices-and-Submission-Guidelines/Surface-Water-Drainage/Code-of-Practice-on-Surface-Water-Drainage.pdf
- Indian Roads Congress (2013). IRC:SP:50-2013, *Guidelines on Urban Drainage* (First Revision). https://law.resource.org/pub/in/bis/irc/irc.gov.in.sp.050.2013.pdf
- Indian Roads Congress (2014). IRC:SP:42-2014, *Guidelines on Road Drainage* (First Revision). https://law.resource.org/pub/in/bis/irc/irc.gov.in.sp.042.2014.pdf
- Bureau of Indian Standards. IS 7784 (Part 1): 1993, *Code of practice for design of cross drainage works, Part 1: General features* (CPHEEO 2019 Table 5.12-ꯗ ꯃꯦꯇꯍꯤꯕ ꯐꯨꯡ ꯍꯦꯡꯀ)।
- Federal Highway Administration (2024). *Urban Drainage Design Manual*, Hydraulic Engineering Circular No. 22, 4th edition, FHWA-HIF-24-006. (3rd edition 2009, FHWA-NHI-10-009.)
- Kansas City Metro Chapter APWA (2006). *Section 5600 Storm Drainage Systems and Facilities* (5601.8, 5604.2, 5608.4). https://www.kcwater.us/wp-content/uploads/2020/08/Design-Criteria-%E2%80%93-Section-5600-%E2%80%93-Storm-Drainage-Systems-and-Facilities.pdf ; ꯑꯃꯁꯨꯡ Version 2025.01 (Dec 2025).
- Australian Institute for Disaster Resilience (2014). *Australian Disaster Resilience Guideline 7-3: Technical flood risk management guideline: Flood hazard*. Tables 1 and 2. https://knowledge.aidr.org.au/media/1891/guideline-7-3-technical-flood-risk-management.pdf
- Smith, G.P. and Wasko, C.D. (2012). *Australian Rainfall and Runoff Revision Project 15: Two-dimensional modelling in urban and rural floodplains*. Engineers Australia.
- Ball, J. et al. (eds) (2019). *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Book 6 (Chapters 6 and 7). Commonwealth of Australia (Geoscience Australia).
- Department of Irrigation and Drainage Malaysia (2008). *Submission Checklist for Stormwater Management*; ꯑꯃꯁꯨꯡ (2012) *Urban Stormwater Management Manual for Malaysia (MSMA)*, 2nd edition.
- Gupta, K. *Return Period and Rainfall Intensity for Drainage Design in India*. IIT Bombay. https://www.civil.iitb.ac.in/~kgupta/drainagedesign.pdf
- Asian Infrastructure Investment Bank (2024). *Approval Project Document* (ꯑꯣꯛꯇꯣꯕꯔ 2024) and Project Summary Information (29 ꯅꯣꯚꯦꯝꯕꯔ 2024), Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723) (ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯍꯐꯖꯦꯡꯒꯤ ꯍꯣꯃꯇꯦꯂꯍꯤꯃꯒꯤ ꯖꯤꯒꯐ; ꯃꯒꯔ ꯖꯧꯔꯇ ꯍꯣꯃꯇꯦꯂ 547 km; "intense rains from March to October"; ꯆꯐꯇꯤꯛ ꯍꯁꯤꯃ ꯍꯌꯦꯂꯒꯤ ꯍꯂꯀꯤꯃꯣꯖꯔ), https://aiib.org/en/projects/details/2024/_download/India/AIIB-APD_P000723_Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project.pdf ꯑꯃꯁꯨꯡ https://www.aiib.org/en/projects/details/2024/_download/India/AIIB-PSI-P000723-India-Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project_clean_20241129.pdf ; ꯑꯃꯁꯨꯡ ꯐꯁꯤꯒꯤ IEE annexure (ꯐꯖꯧꯁꯤꯒꯤ ꯍꯣꯃꯇꯦꯂꯒꯤ ꯁꯣꯃꯁꯂꯁꯤꯃ, ꯑꯗꯦꯇꯣꯇꯁꯤꯃ ꯑꯃꯁꯨꯡ ꯌꯤꯛ ꯀꯦꯌꯀꯁꯤꯃ; ꯖꯣꯃꯁꯖ ꯍꯃꯖꯐꯃ ꯈꯤꯍꯤꯇ), https://www.aiib.org/en/projects/details/2024/_download/India/Annexure-IEE.pdf
- Municipal Administration, Housing and Urban Development Department, Government of Manipur. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, No. SCS-401/3/2021-MAHUD-MAHUD-Part(3), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ (ꯆꯧꯃꯒꯤ ꯍꯁꯤꯃ ꯍꯕꯐꯒꯤ ꯁꯣꯃꯁꯂ ꯆꯧꯖꯣ; ꯆꯦꯒꯦ ꯅꯨꯅꯆꯦ; ꯍꯐꯈꯅ ꯁꯤꯌꯕꯣꯆ ꯀꯕꯧꯆꯣꯃꯇ), https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf

- Government of Manipur. "Updated Fresh Report" in NGT O.A. 606/2018 (ꯖꯨꯂꯥꯏ 2025) ([illegible] ꯑꯃꯁꯨꯡ [illegible]; [illegible]; [illegible] ꯑꯃꯁꯨꯡ [illegible]), https://www.greentribunal.gov.in/sites/default/files/news_updates/UPDATED%20REPORT%20BY%20GOVT.%20OF%20MANUPUR%20IN%20OA%20NO.%20606%20of%202018%20(COMPLIANCE%20OF%20MSW%20MGT.%20RULES,%202016%20AND%20OTHER%20ENVIRONMENTAL%20ISSUES).pdf ; ꯑꯃꯁꯨꯡ [illegible] six-monthly progress report (ꯗꯤꯁꯦꯝꯕꯔ 2025 [illegible]) ([illegible] 72 ꯑꯃꯁꯨꯡ [illegible] BOD ꯑꯃꯁꯨꯡ COD), https://www.greentribunal.gov.in/sites/default/files/news_updates/6TH%20SIX%20MONTHLY%20PROGRESS%20REPORT%20BY%20GOVT.%20OF%20MANIPUR%20IN%20OA%20NO.%20606%20of%202018%20(COMPLIANCE%20OF%20MSW%20MGT%20RULES,%202016%20AND%20OTHER%20ENVIRONMENTAL%20ISSUES).pdf
- Central Pollution Control Board (2025). *Polluted River Stretches for Restoration of Water Quality* (ꯃꯅꯤꯄꯨꯔꯗ [illegible] Priority V-ꯒꯤ [illegible] 18), https://dste.py.gov.in/ppcc/pdf/Laboratory/PRS-2025.pdf
- Town Planning Department, Government of Manipur. *Annual Administrative Report 2025-26* ([illegible]; AMRUT 2.0-ꯒꯤ [illegible]), https://www.tpmanipur.mn.gov.in/media/filer_public/1a/48/1a484b87-afaa-41de-8d64-f6d2f27c49c7/admn_report2025-26.pdf
- Manipur Science & Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, DST-NRDMS-ꯗ [illegible] ([illegible] ꯑꯃꯁꯨꯡ [illegible]; [illegible]; [illegible] 1992-ꯒꯤ [illegible]), http://web.archive.org/web/20180219013113id_/http://mastec.nic.in:80/images/Completed_projects/ReportFloodHazard.pdf
- National Disaster Management Authority (2010) ([illegible] 31 [illegible], [illegible] 10-ꯗ [illegible]); India Meteorological Department, *Extremes of Temperature and Rainfall for Indian Stations (up to 2012)* (Imphal (Tulihal)), https://imdpune.gov.in/library/public/EXTREMES%20OF%20TEMPERATURE%20and%20RAINFALL%20upto%202012.pdf ; ꯑꯃꯁꯨꯡ India Meteorological Department, [illegible] ꯑꯃꯁꯨꯡ [illegible] (2020), https://mausam.imd.gov.in/backend/assets/press_release_pdf/IMD_Press_release_new_onset_and_withdrawal_dates%28Final%29.pdf ([illegible])꯫
- Indian Roads Congress (1998). IRC:SP:48-1998, *Hill Road Manual* ([illegible]); ꯑꯃꯁꯨꯡ IRC:SP:42-2014, cl. 7.1.4 ([illegible] ꯑꯃꯁꯨꯡ [illegible]) ꯑꯃꯁꯨꯡ cl. 8.5.1 ([illegible])꯫
- Bureau of Indian Standards. IS 14458, *Guidelines for retaining wall for hill area* (Parts 1–3), [illegible]꯫
- Press reports: [illegible] ꯑꯃꯁꯨꯡ [illegible] (2024–2025), 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ [illegible], 30 ꯖꯨꯟ 2022-ꯒꯤ [illegible] ([illegible]) [illegible] ꯑꯃꯁꯨꯡ 1 [illegible] 2015-ꯒꯤ [illegible] ([illegible]) [illegible], [illegible], 15 ꯖꯨꯂꯥꯏ 2025-ꯒꯤ [illegible], ꯑꯃꯁꯨꯡ [illegible] LDA-ꯒꯤ [illegible]꯫
- National Disaster Management Authority (2010). *National Guidelines: Management of Urban Flooding*.
- MoHUA / TCPO (2015). *URDPFI Guidelines*, Volume I.
- Ministry of Environment, Forest and Climate Change (2019). *Coastal Regulation Zone Notification, 2019*, G.S.R. 37(E), 18 [illegible] 2019. Para 1(i) and Annexure IV. https://crz.elaw.in/crz2019.html
- Municipal Administration, Housing and Urban Development Department, Government of Manipur. *The Model Manipur Unified Building Bye-Laws, 2024*, Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ, Manipur Gazette Extraordinary No. 253, 5 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ, ꯃꯅꯤꯄꯨꯔ [illegible] ꯑꯦꯛꯠ, 1994-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ [illegible] ꯑꯃꯁꯨꯡ [illegible] ꯑꯦꯛꯠ, 1975-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1)-ꯒꯤ [illegible] "for adoption by the

Urban Local Bodies and Planning & Development Authority, Manipur" ꯇꯦꯡꯕꯥꯟꯂꯤꯕ (ꯕꯥꯏ-ꯂꯥ 6(1)(A), 6(1)(D), 16, 27, 28, 92, 93 ꯑꯃꯁꯨꯡ 94; IS 14458), https://www.tpmanipur.mn.gov.in/media/filer_public/5b/3d/5b3d9440-3e85-4cf5-bd26-d113882dfb9a/model_manipur_ubbl_final_gazette.pdf

- *Imphal Municipal Corporation Building Bye-Laws (3rd Amendment), 2024* (ꯑꯍꯨꯝꯁꯨꯕ ꯁꯦꯝꯒꯠꯄꯒꯤ ꯇꯦꯡꯕꯥꯟꯂꯤꯕ ꯁꯥꯏꯅꯥꯏ ꯁꯦꯛꯁꯅꯁ; ꯕꯥꯏ-ꯂꯥ 92, 92.1, 92.2, 93.1 ꯑꯃꯁꯨꯡ 93.2; ꯑꯍꯥꯅꯕ ꯂꯩꯃꯥꯏ ꯃꯈꯥꯗ ꯁꯦꯝꯒꯠꯈꯤ), https://www.tpmanipur.mn.gov.in/media/filer_public/22/ef/22ef77df-5b8c-4a80-9fa0-553d8a60a170/amendment_of_imc_building_bye_laws_2024.pdf
- Municipal Administration, Housing and Urban Development Department, Government of Manipur. *Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026*, Notification No. BBL-101/1/2024-MAHUD-MAHUD, 22 ꯖꯨꯂꯥꯏ 2026-ꯗ, Manipur Gazette Extraordinary No. 157, 23 ꯖꯨꯂꯥꯏ 2026-ꯗ ("Pond, Drain, Rivers and Canals" ꯄꯥꯔꯦꯡ ꯊꯨꯡ ꯆꯦꯟ), https://www.tpmanipur.mn.gov.in/media/filer_public/44/2b/442b7923-b910-494a-83d5-767f50c0c87c/unified_zoning_final_gazette.pdf
- *The Manipur Town and Country Planning Act, 1975* (Manipur Act 11 of 1975), ꯁꯦꯛꯁꯟ 1(2), 2 ꯑꯃꯁꯨꯡ 13, https://prsindia.org/files/bills_acts/acts_states/manipur/1975/Act11of1975Manipur.pdf ; ꯑꯃꯁꯨꯡ *the Manipur Municipalities Act, 1994* (Act 43 of 1994) (ꯌꯥꯝꯅꯕ ꯃꯇꯝ; ꯍꯥꯞꯆꯤꯟꯕ ꯁꯦꯛꯁꯅꯁꯤꯡ ꯌꯦꯡꯂꯨꯕ)॥
- *The Manipur Flood Plain Zoning Act, 1978* (Manipur Act 10 of 1978), ss.1–7 (ꯃꯌꯥꯝ ꯁꯦꯛꯁꯟ ꯃꯔꯥꯜ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯂꯨꯕ), https://www.indiacode.nic.in/bitstream/123456789/13383/1/the_manipur_flood_plain_zoning_act%2C_1978.pdf
- *The Manipur Loktak Lake (Protection) Act, 2006* (Manipur Act 3 of 2006), ꯑꯥꯏꯟꯒꯤ ꯁꯦꯛꯁꯟ ꯃꯁꯤꯡ ꯍꯟꯗꯛ, ꯁꯦꯛꯁꯟ 3, 19 ꯑꯃꯁꯨꯡ 20, https://prsindia.org/files/bills_acts/acts_states/manipur/2006/Manipur%20Act%203%20of%202006.pdf
- *The Manipur Conservation of Paddy Land and Wetland Act, 2014* (Manipur Act 10 of 2014), ꯁꯦꯛꯁꯟ 2, 12 ꯑꯃꯁꯨꯡ 18, https://faolex.fao.org/docs/pdf/ind194970.pdf
- *The Manipur (Hill Areas) District Councils Act, 1971*, ꯑꯥꯏꯟꯒꯤ ꯁꯦꯛꯁꯟ ꯃꯁꯤꯡ ꯍꯟꯗꯛ, ꯁꯦꯛꯁꯟ 29 (ꯃꯇꯨꯡꯒꯤ ꯑꯥꯏꯟ ꯁꯦꯝꯒꯠꯂꯕꯁꯤꯡ ꯂꯣꯌꯅꯅ ꯌꯦꯡꯂꯨꯕ), https://manipur.gov.in/wp-content/uploads/2026/05/The-Manipur-Hill-Areas-District-Councils-Act-1971-subsequent-Amendments.pdf
- Government of India. *The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.*

ꯑꯙ꯭ꯌꯥꯌ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜꯁꯤꯡ

ꯑꯙ꯭ꯌꯥꯌ / ꯇꯦꯕꯜ	ꯑꯔ꯭ꯊ
6A	ꯃꯍꯤꯡꯒꯤ ꯃꯥꯏꯀꯩꯁꯤꯡ ꯃꯄꯥꯟꯗ (ꯄꯨꯈꯔꯤ ꯑꯃꯁꯨꯡ ꯁꯥꯡꯂꯥ) ꯆꯦ ꯂꯃꯖꯤꯡꯕ ꯅꯤꯡꯊꯧꯁꯤꯡ ꯃꯍꯩꯁꯤꯡ
6B	ꯁꯤꯡꯀꯨ-ꯄꯨꯈꯥꯡꯁꯤꯡ ꯁꯅꯗ ꯆꯥꯡꯗꯕ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯃꯦꯟꯀ ꯑꯦꯆꯨꯋꯦꯁꯤꯡ ꯃꯥꯆꯤꯟꯄꯨꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯥꯏꯃꯦꯟꯀ ꯍꯤꯡꯕ
6C	ꯂꯃꯖꯤꯡꯕ ꯊꯨꯡꯅꯕꯁꯤꯡ: ꯆꯦꯐꯃꯖ ꯍꯦꯕ ꯃꯍꯩꯁꯤꯡ ꯆꯦꯕ ꯃꯍꯩ ꯁꯥꯏꯕ ꯆꯦꯕꯤꯒꯤ ꯃꯆꯥꯡꯃꯤ ꯍꯥꯡꯕꯗ, ꯑꯃꯁꯥ ꯍꯥꯏꯕꯗ, ꯆꯦꯡꯒꯤ ꯁꯤꯡꯖ ꯆꯦꯕ ꯅꯩꯆꯥꯀ
ꯇꯦꯕꯜ 6-1	ꯃꯦꯒꯥꯍꯥꯏꯁ ꯀꯤꯆꯅꯦ ꯕꯤꯖꯥꯕꯀꯃꯤ ꯍꯥꯏꯆꯤꯡꯀ

ꯁꯔꯨꯛ 7

ꯏꯁꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ, ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ (ꯂꯣꯛ ꯑꯃꯁꯨꯡ ꯄꯦꯟꯗꯨꯁꯤꯡ) ꯑꯃꯁꯨꯡ ꯁꯣꯌꯕꯣꯛꯁꯤꯡ

7.1 ꯄꯦꯟꯗꯨꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅ

7.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯗ ꯏꯁꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ (waterbodies) ꯍꯥꯌꯕ ꯁꯤꯡꯊꯣꯛꯀꯤ ꯃꯇꯃꯗ ꯌꯥꯑꯣꯕ ꯑꯦꯡꯂꯤ ꯍꯦꯅ꯫ ꯃꯁꯤꯗ ꯃꯍꯦꯛ ꯄꯤꯗꯕꯁꯤꯡꯒꯤ ꯈꯨꯗꯝꯁꯤꯡ ꯊꯝꯃꯤ:

- (a) ꯅꯣꯡꯃꯥꯏꯄꯥꯛꯀꯤ ꯌꯦꯠꯈꯨꯒꯤ ꯄꯥꯡꯒꯜ ꯂꯩꯕ ꯑꯃꯈꯣꯏ ꯁꯦꯝꯕꯤꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯊꯨꯡꯕꯥ ꯍꯤꯡꯗꯥꯛꯄ ꯑꯃꯁꯨꯡ ꯃꯥꯄ ꯍꯥꯕ;
- (b) ꯏꯁꯤꯡ ꯂꯩꯐꯝꯁꯤꯡꯒꯤ ꯑꯀꯣꯌꯕꯗ ꯂꯩꯕ ꯁꯦꯠꯕꯦꯛ (setback) ꯂꯦꯡꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯂꯦꯡ ꯊꯨꯡꯕꯗ ꯌꯥꯍꯟꯂꯕ ꯁꯤꯂꯤꯡꯂꯕꯁꯤꯡ;
- (c) ꯏꯁꯤꯡ ꯍꯥꯌꯖꯕ ꯇꯥꯅꯕ ꯌꯥꯕ ꯂꯃꯗ ꯐꯤꯜ (fill), ꯑꯃꯁꯨꯡ ꯐꯤꯜ ꯌꯥꯍꯟꯂꯕ ꯃꯐꯝꯗ ꯃꯇꯨꯡ ꯍꯥꯕ ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ (compensatory storage);
- (d) ꯄꯨꯈ꯭ꯔꯤꯒꯤ (tank; pukhri) ꯁ꯭ꯇꯣꯔꯦꯖ, ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯦꯁꯀꯦꯗꯁꯤꯡ (tank cascades) ꯌꯥꯎꯔꯤ, ꯅꯤꯡꯊꯤꯕ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯦꯡꯂꯤ ꯃꯁꯤꯡ ꯌꯥꯎꯍꯟꯕ;
- (e) ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯦꯟꯗꯨꯁꯤꯡ ꯐꯣꯁꯤꯐ ꯍꯥꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯦꯛꯀꯤ ꯂꯩꯃꯥ ꯂꯧꯊꯣꯛꯄ (desilting);
- (f) ꯁꯄ꯭ꯂꯥꯏ ꯆꯦꯅꯦꯜꯁꯤꯡ (supply channels), ꯁꯔꯞꯂꯁ ꯀꯣꯔꯁꯁꯤꯡ (surplus courses), ꯏꯟꯂꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ ꯊꯝꯖꯤꯟꯕ;
- (g) ꯆꯦꯠꯂꯦꯟꯗꯁꯤꯡ, ꯃꯥꯔꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯆꯨꯑꯔꯤꯁꯤꯡ (wetlands, marshes and estuaries); ꯁꯥꯡꯅꯕ ꯂꯣꯝꯕ ꯁ꯭ꯇꯦꯠ ꯑꯃꯥ ꯑꯣꯏꯅꯕ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯑꯔꯤꯕꯥ: ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯒꯤ 236.21 km^2-ꯒꯤ ꯃꯐꯝꯗ ꯂꯩꯕ, ꯃꯁꯤꯒꯤ ꯐꯨꯝꯗꯤ (phumdi) ꯌꯥꯎꯔꯤ, ꯔꯥꯃꯁꯥꯔ ꯁꯥꯏꯠ (Ramsar site) ꯑꯃꯥ ꯑꯣꯏꯅꯕ (ꯄꯥꯎꯗ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯃꯇꯦꯡ ꯍꯧꯖꯤꯛ) ꯂꯦꯞꯂꯤ; ꯌꯥꯗꯦꯡꯗꯕ ꯑꯣꯏꯕꯥ ꯄꯥꯠꯁꯤꯡ (pat; ꯂꯣꯝ ꯌꯦꯠꯈꯨꯒꯤ ꯆꯠꯂꯦꯟꯗ), ꯃꯍꯦꯛꯀꯤ ꯃꯐꯝꯗ ꯂꯃꯖꯤꯡꯕꯥꯠ, ꯎꯇ꯭ꯔꯥ ꯄꯥꯠ (Utra Pat), ꯌꯔꯥꯜ ꯄꯥꯠ (Yaral Pat), ꯋꯥꯏꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯥꯠ (Waithou–Phumnom Pat), ꯄꯨꯝꯂꯦꯟ–ꯈꯣꯏꯗꯨꯝ ꯄꯥꯠ (Pumlen–Khoidum Pat) ꯑꯃꯁꯨꯡ ꯏꯀꯣꯞ–ꯈꯔꯨꯡ ꯄꯥꯠ (Ikop–Kharung Pat) ꯌꯥꯎꯅ, ꯑꯃꯁꯨꯡ ꯈꯣꯡꯍꯝꯄꯥꯠ (Khonghampat)-ꯗꯒꯤ ꯆꯠꯂꯦꯟꯗ; ꯌꯥꯗꯦꯡꯗꯕ ꯂꯃꯒꯤ ꯃꯥꯔꯁꯁꯤꯡ, ꯄꯥꯠꯇꯕꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯊꯨꯡꯅꯕ ꯂꯃꯁꯤꯡ; ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯥꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯆꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯒꯤ ꯆꯠꯂꯦꯟꯗꯁꯤꯡ; ꯊꯕꯣꯛꯀꯤ ꯄꯦꯟꯗꯨꯁꯤꯡꯒꯤ (bunds) ꯏꯇꯣꯁꯤꯡ (sluices) ꯇꯤꯡꯂꯕ ꯃꯇꯝꯗ ꯄꯦꯟꯗꯨꯁꯤꯡꯒꯤ ꯃꯊꯛꯇ ꯏꯁꯤꯡ ꯂꯣꯄꯥ ꯂꯝ; ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯆꯠꯂꯦꯟꯗꯁ ꯑꯦꯊꯣꯔꯤꯇꯤ (Manipur State Wetlands Authority)-ꯒꯤ ꯄꯔꯤꯌꯣꯔꯤꯇꯤ ꯆꯠꯂꯦꯟꯗꯁꯤꯡꯒꯤ ꯃꯐꯝꯗ ꯌꯥꯎꯕ ꯃꯤꯡꯒꯤ ꯆꯠꯂꯦꯟꯗꯁꯤꯡ, ꯖꯥꯏꯃꯦꯡꯒꯤ ꯄꯨꯡꯅ ꯂꯩꯕ ꯂꯔꯃꯦꯡ (Jaimeng) ꯑꯃꯁꯨꯡ ꯀꯆꯧꯐꯨꯡ ꯄꯨꯡꯅ ꯂꯩꯕ ꯀꯆꯧꯐꯨꯡ (ꯑꯆꯧ ꯃꯀꯤ) (Kachouphung (Achau Maki)); ꯑꯃꯁꯨꯡ 2017-ꯒꯤ ꯈꯨꯗꯝꯁꯤꯡꯒꯤ ꯃꯍꯦꯛ ꯂꯦꯞꯂꯤꯕ ꯑꯣꯏꯕ ꯀꯥꯡꯂꯨꯞ ꯆꯠꯂꯦꯟꯗ ꯑꯃꯃꯥ (ꯌꯔꯥꯜ, ꯎꯇ꯭ꯔꯥ ꯑꯃꯁꯨꯡ ꯋꯥꯏꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯥꯠꯁꯤꯡꯒꯤꯅꯃꯛ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯅꯣꯇꯁꯤꯡ ꯑꯅꯤ ꯑꯃꯥꯅ ꯌꯥꯎꯔꯤ);
- (h) ꯂꯝ ꯍꯥꯞꯄ (encroachment) ꯑꯃꯁꯨꯡ ꯃꯅꯨ ꯂꯧꯊꯣꯛꯄꯒꯤ ꯃꯑꯣꯡ ꯂꯩꯕ;
- (i) ꯑꯣꯏꯕꯂꯣꯟ ꯄꯨꯈ꯭ꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯗ ꯐꯤ-ꯏꯟ-ꯂꯤꯎ (fee-in-lieu) ꯄꯤꯕ (ꯁꯔꯨꯛ 4-ꯒꯤ ꯂꯦꯄꯂꯤꯕ); ꯑꯃꯁꯨꯡ
- (j) ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯄꯦꯟꯗꯨꯁꯤꯡ (bunds) ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥ ꯄꯦꯟꯗꯨꯁꯤꯡꯒꯤ ꯁꯣꯏꯗꯕ꯫

7.1.2 ꯁꯔꯨꯛ ꯑꯁꯤ ꯁꯔꯨꯛ 1-ꯒꯤ ꯃꯍꯦꯛ ꯃꯣꯗꯨꯂꯣꯟ ꯑꯁꯤ ꯆꯠꯂꯕ ꯅꯣꯡꯃꯥꯏꯄꯥꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯒꯜ ꯂꯩꯕ ꯍꯤꯡꯗꯥꯛꯄꯒꯤ ꯆꯠꯂꯤ, ꯃꯍꯦꯛꯇ:

- (a) ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯃꯒꯤ ꯂꯥꯡꯂꯕ ꯌꯦꯠꯈꯨꯒꯤ ꯃꯁꯤꯒꯤ ꯁꯣꯌꯕꯣꯛꯀꯤ (ꯗꯦꯂꯥ 7.4) ꯃꯐꯝꯗ ꯃꯄꯨꯡ ꯌꯦꯠꯈꯨꯒꯤ ꯁꯔꯨꯛ ꯑꯃꯗ ꯂꯩꯈꯕꯅꯤ;
- (b) ꯁꯔꯨꯛ 5-ꯒꯤ ꯃꯍꯦ ꯇꯝꯕ ꯃꯇꯨꯡꯒꯤ ꯑꯣꯏꯇꯦꯅꯁꯤꯡꯁꯗꯒꯤ ꯑꯣꯏꯕꯁꯣꯡꯖꯗꯒꯤ ꯃꯐꯝꯗ, ꯌꯥꯗꯇꯣꯝꯂꯦꯟ ꯌꯦꯠꯈꯨꯒꯤ ꯍꯦꯝꯕꯤ (drain) ꯑꯃꯒꯤ ꯊꯨꯡꯇꯝꯗ, ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯃꯗ ꯏꯁꯤꯡ ꯇꯅꯕꯥꯂꯕꯅꯤ; ꯌꯦꯠꯈꯨꯒꯤ

- (c) ꯅꯁꯤꯛ ꯆꯩꯐ ꯑꯃ, ꯃꯁꯤꯒꯤ ꯁꯀꯨ, ꯅꯊꯥꯛ, ꯂꯥꯏꯁꯀꯂ ꯋꯤꯔꯥ, ꯂꯁꯥꯅ ꯋꯣꯡꯒ ꯅꯍꯥꯒꯤ ꯂꯥꯏꯁꯀꯂ ꯃꯥꯏꯂ ꯄꯥꯛꯅꯥꯛꯇꯕꯅꯤ꯫

7.1.3 ꯑꯅꯤꯁꯨꯕ ꯂꯩꯕꯥꯛꯀꯤ ꯑꯅꯤꯁꯨꯕꯒꯤ ꯃꯇꯧ ꯑꯃꯗ ꯄꯨꯟꯁꯤ ꯀꯥꯡꯂꯨꯞ ꯂꯣꯏꯅꯕ ꯂꯩꯕꯥꯛꯀꯤ ꯄꯨꯟꯁꯤ ꯍꯤꯔꯝ ꯊꯤꯡꯕ ꯊꯝꯂꯕ ꯃꯇꯃꯗ, ꯑꯅꯤꯁꯨꯕ ꯑꯁꯤ ꯃꯁꯤ ꯑꯣꯏ (ꯃꯦꯞ 1.3.3)꯫ ꯃꯅꯤꯄꯨꯔ ꯃꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 (Manipur Municipalities Act, 1994) ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (Manipur Town and Country Planning Act, 1975), ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯕꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (PDA Manipur)-ꯅ ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024 (Model Manipur Unified Building Bye-Laws, 2024)-ꯒꯤ ꯃꯈꯥꯗ ꯄꯨꯊꯣꯛꯂꯛꯄ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ, ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯖꯣꯅꯤꯡ/ꯌꯨꯖ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯕꯥꯏ-ꯂꯣꯖ, 2026 (Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026) ꯑꯃꯁꯨꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡ, ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006, ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014, ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978 (Manipur Flood Plain Zoning Act, 1978), ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ) ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯥꯎꯟꯁꯤꯂꯁ ꯑꯦꯛꯠ, 1971 (Manipur (Hill Areas) District Councils Act, 1971), ꯋꯦꯇꯂꯦꯟꯗꯁ (ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ) ꯔꯨꯂꯁ, 2017 (Wetlands (Conservation and Management) Rules, 2017), ꯂꯩꯕꯥꯛ ꯑꯦꯖꯦꯟꯁꯤꯁꯤꯡ ꯃꯥꯏꯄꯥꯛꯅꯕ ꯑꯅꯤꯁꯨꯕ ꯑꯃꯁꯨꯡꯗ ꯊꯤꯡꯕ ꯊꯕꯛ ꯑꯃꯍꯧꯕ ꯂꯦꯡꯗꯕ ꯑꯣꯏꯔꯤ ꯃꯥꯏꯄꯥꯛꯅꯕ ꯑꯃꯍꯧꯕꯗ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯌꯥꯎꯏ꯫

> **ꯂꯦꯃꯍꯧꯔꯕ ꯌꯦꯡꯁꯤꯟꯕ.** ꯃꯅꯤꯄꯨꯔꯗ ꯍꯧꯖꯤꯛꯀꯤ ꯅꯁꯤꯛ ꯆꯩꯐꯂꯤꯛ ꯍꯧꯖꯤꯛꯀꯤ ꯕꯥꯏꯂꯣꯖꯁꯤꯡꯗ, ꯇꯥꯎꯟꯒꯤ ꯑꯦꯛꯠ ꯑꯃꯥ, ꯀꯟꯠꯔꯤ-ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗꯁꯤꯡꯒꯤ ꯑꯦꯛꯠ ꯑꯃꯥ, ꯍꯧꯖꯤꯛꯀꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗꯁꯤꯡꯒꯤ ꯔꯨꯂꯁꯤꯡꯗ, ꯃꯄꯥꯟꯒꯤ ꯃꯐꯝ ꯄꯥꯎꯖꯦꯂꯁꯤꯡ ꯆꯪꯁꯤꯟꯗꯨꯅ, ꯌꯦꯡꯍꯟꯗꯔꯤ; 1978-ꯗꯒꯤ ꯃꯂꯤꯛꯇ ꯐ꯭ꯂꯗꯄ꯭ꯂꯦꯟ (floodplain) ꯖꯣꯅꯤꯡꯒꯤ ꯑꯦꯛꯠ ꯑꯃꯥ ꯆꯪꯕ, ꯑꯗꯨꯕ ꯃꯂꯤꯛꯀꯤ ꯃꯈꯥꯗ ꯖꯣꯟ ꯑꯃꯍꯧꯕ ꯂꯦꯡꯗꯕꯅꯤ꯫ **ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024** ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔ ꯃꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 (1994-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 43)-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (1975-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 11)-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1)-ꯒꯤ ꯃꯈꯥꯗ, "ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯕꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯅ ꯂꯧꯁꯤꯟꯅꯕ" ("for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur"), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ MAHUD ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ No. BBL-101/1/2024-MAHUD-MAHUD-Part(1)-ꯅ (5 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯒꯖꯦꯠ ꯑꯦꯛꯁꯠ꯭ꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ No. 253) ꯄꯨꯊꯣꯛꯂꯛꯈꯤꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ "ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯖꯨꯔꯤꯁꯗꯤꯀꯁꯅꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯑꯦꯔꯤꯌꯥ" ("the Master Plan areas or notified Planning areas and area under the jurisdiction of all the Urban Local Bodies of Manipur") ꯄꯨꯝꯕꯗ ꯁꯤꯖꯤꯟꯅꯩ (ꯕꯥꯏ-ꯂꯣ 1(2)); ꯁꯥꯗꯨꯅ ꯑꯃꯗꯤ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯂꯩꯕꯥꯛ PDA Manipur-ꯅ ꯃꯣꯗꯦꯜ ꯑꯗꯨꯒꯤ ꯃꯈꯥꯗ ꯋꯥꯔꯦꯞꯄꯨꯔꯀꯄ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ ꯁꯤꯕꯇꯤ, ꯍꯥꯏꯕ ꯑꯣꯟꯅ ꯀꯨꯝꯕꯤ (Kumbi), ꯃꯣꯢꯔꯥꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯧꯈꯣꯡ ꯃꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯁꯤꯡꯗ ꯀꯥꯎꯟꯁꯤꯂꯒꯤ 2025-ꯒꯤ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ (16 ꯑꯣꯛꯇꯣꯕꯔ 2025-ꯒꯤ ꯄꯥꯎꯖꯦꯜ ꯒꯖꯦꯠ, ꯇꯥꯎꯟ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Town Planning Department)-ꯒꯤ ꯋꯦꯕꯁꯥꯏꯠ ꯇꯤꯜꯂꯨꯕ ꯌꯦꯡꯕꯗ ꯃꯇꯧ ꯅꯥꯏꯗꯕ) ꯑꯃꯁꯨꯡ 15 ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯒꯤ "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" (ꯇꯤꯜꯂꯨꯕ ꯌꯦꯡꯕꯗ ꯃꯇꯧ ꯅꯥꯏꯗꯕ; ꯁꯥꯈꯤꯕꯥ)꯫ ꯂꯦꯞꯄ ꯑꯁꯤꯗ ꯋꯥꯡꯕ ꯁꯦꯡꯗꯣꯛꯇꯕꯒꯤ ꯅꯝꯕꯔꯁꯤꯡ ꯑꯁꯤ ꯃꯣꯗꯦꯜ ꯑꯗꯨꯒꯤꯅꯤ [TBC: ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯅ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡꯗ ꯅꯝꯕꯔ ꯑꯃꯁꯨꯡ ꯌꯦꯛꯅꯕ ꯑꯗꯨ ꯂꯣꯏꯅꯗꯕ ꯅꯥꯏꯒꯅꯤ], ꯑꯃꯁꯨꯡ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ ꯑꯃꯒꯤ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯌꯦꯛꯅꯕ ꯌꯦꯡꯁꯤꯟꯕ ꯃꯇꯃꯗ, ꯃꯗꯨꯒꯤ ꯌꯦꯛꯅꯕ ꯑꯗꯨ ꯃꯈꯥ ꯑꯣꯏ꯫ ꯃꯣꯗꯦꯜ ꯑꯗꯨꯒꯤ ꯕꯥꯏ-ꯂꯣ 93-ꯅ ꯃꯃꯤꯛ ꯆꯪꯕ ꯇꯨꯔꯦꯜ ꯌꯥꯎꯕꯒꯤ ꯃꯅꯥꯛꯇ, ꯇꯨꯔꯦꯂꯒꯤ ꯃꯔꯛꯅꯥꯒꯤ (mid-stream) ꯃꯐꯝ ꯌꯥꯎꯕ, "ꯗꯤꯖꯥꯏꯅꯦꯠ ꯇꯧꯔꯕ ꯕꯐꯔ ꯖꯣꯅꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯅꯧꯕ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯃꯍꯧꯕ" ("any new construction within the designated buffer zone") ꯊꯤꯡꯕ, ꯑꯃꯁꯨꯡ "ꯊꯤꯡꯕ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯔꯦꯁ꯭ꯠꯔꯤꯛꯇꯦꯗ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯃꯅꯨꯡꯗ" ("within the prohibited area or restricted area") ꯌꯥꯎꯕ ꯊꯕꯛ ꯑꯃꯍꯧꯕ "ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978-ꯒꯤ ꯃꯈꯥꯗ ꯁꯦꯃꯈꯤꯕ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯃꯥꯡꯗ ꯂꯧꯕ ꯑꯌꯥꯕ" ("the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978")-ꯗ ꯊꯝꯂꯤ; ꯕꯥꯏ-ꯂꯣ 94-ꯅ "ꯇꯥꯎꯟꯁꯤꯡꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯗ ꯅꯥꯏꯍꯧꯔꯕ ꯍꯦꯟꯅ ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯛ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ" ("high Flood Risk Areas identified in the Master Plan of the towns")-ꯗ ꯁꯦꯃꯒꯠꯄ ꯑꯁꯤ "ꯑꯀꯣꯌꯕꯒꯤ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯍꯦꯟꯅ ꯋꯥꯡꯕ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯗꯒꯤ 1m ꯍꯦꯟꯅ ꯋꯥꯡꯅ" ("above 1m above the highest flood level of the surrounding areas") ꯊꯝꯃꯤ; ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣ 16-ꯅ "ꯃꯨꯅꯤꯁꯤꯄꯦꯜ ꯗ꯭ꯔꯦꯟ ꯅꯠꯔꯒꯥ ꯂꯝ ꯑꯃꯍꯧꯕꯒꯤ ꯃꯊꯛꯇ" ("over any municipal drain or land") ꯁꯥꯒꯠꯄꯥ ꯊꯤꯡꯕ ꯑꯣꯏ (ꯃꯦꯞ 7.4, ꯄꯨꯊꯣꯛꯈꯤꯕ)꯫ ꯏꯃꯐꯥꯜ ꯃꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯅꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ (ꯑꯍꯨꯝꯁꯨꯕ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠ), 2024 (IMC Building Bye-Laws (3rd Amendment), 2024)-ꯅ ꯇꯨꯔꯦꯂꯒꯤ ꯌꯥꯏꯊꯤꯜ ꯑꯃꯁꯨꯡ (93.1) ꯍꯦꯟꯅ ꯄꯥꯛꯊꯣꯛꯂꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯒꯠꯄꯗ ꯊꯝꯂꯤ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯇꯔ ꯏꯃꯐꯥꯂꯒꯤ ꯔꯤꯁ꯭ꯛ-ꯏꯅꯐꯣꯔꯃꯗ GIS-ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ (Risk-Informed GIS-Based Master Plan for Greater Imphal)-ꯀꯤ ꯂꯃꯆꯠ (93.2); ꯏꯃꯐꯥꯜ ꯑꯁꯤ ꯑꯦꯀꯁꯇꯦꯟꯁꯅꯒꯤ ꯃꯈꯥꯗ ꯄꯨꯊꯣꯛꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯛꯀꯤ ꯑꯔꯣꯏꯕ ꯂꯣꯌꯅꯕ ꯂꯣꯟꯅꯗ ꯅꯥꯏꯔꯤ꯫

[TBC]꯫ **ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯁꯦꯃꯖꯤꯟꯅꯕ ꯃꯦꯞ/ꯁꯦꯝꯕ ꯄꯥꯎꯇꯥꯛ ꯕꯨ-ꯃꯦꯝ, 2026** (MAHUD, 22 ꯖꯨꯂꯥꯏ 2026; 23 ꯖꯨꯂꯥꯏ 2026-ꯒꯤ ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁ꯭ꯠꯔꯥꯑꯣꯔꯗꯤꯅꯥꯔꯤ No. 157)-ꯗ ꯃꯥꯁ꯭ꯇꯔ-ꯄ꯭ꯂꯥꯟ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇ ꯁꯦꯃꯖꯤꯟꯈꯤꯕ "ꯄꯨꯈꯔꯤ, ꯈꯣꯡꯕꯦꯜ, ꯇꯨꯔꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯦꯜꯁꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯍꯥꯏꯕ ꯁꯦꯝꯕ ꯃꯦꯞ ꯑꯃꯅꯤ꯫ **ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯂꯒꯤ ꯔꯤꯚꯥꯏꯖ ꯇꯧꯔꯕ GIS ꯕꯦꯖ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ)** (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification); 4 ꯑꯣꯛꯇꯣꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3); 151.38 km²)-ꯗ ꯂꯩꯕꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯣꯏꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯑꯃꯥꯡꯗ ꯇꯥꯏ, ꯃꯁꯤꯗꯥ "ꯇꯥꯎꯟ ꯑꯁꯤ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯍꯥꯏꯁꯤꯡꯕ ꯏꯆꯥꯛ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯇꯨꯔꯦꯂꯒꯤ ꯅꯥꯀꯥꯏ ꯑꯅꯤꯃꯛꯇ ꯕꯥꯟꯗꯒꯤ ꯂꯝꯕꯤꯁꯤꯡ ꯂꯩ" ("The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river") ꯍꯥꯏꯔꯤ ꯃꯇꯝꯗꯥ ꯑꯣꯏꯅ, ꯑꯃꯁꯨꯡ 2043 ꯐꯥꯑꯣꯕꯗ ꯌꯦꯡꯁꯤꯟꯕꯗꯥ ꯁꯤꯡꯒꯤ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯇꯨꯝꯕꯤꯒꯤ ꯆꯥ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯐꯥꯑꯣꯕ ꯍꯟꯊꯍꯟꯅꯕ ꯄ꯭ꯂꯥꯟ ꯑꯣꯏꯅ, ꯑꯗꯨꯒꯥ ꯏꯁꯤꯡ ꯇꯩꯕꯥꯡꯁꯤꯡ 563.54 ha-ꯗꯒꯤ 643.42 ha ꯐꯥꯑꯣꯕ ꯍꯦꯅꯒꯠꯍꯅꯈꯤ, ꯃꯔꯝꯗꯤ ꯌꯦꯡꯁꯤꯟꯕꯁꯤꯡ ꯑꯁꯤ "ꯍꯧꯖꯤꯛꯇꯤ ꯇꯨꯝꯕꯤꯒꯤ ꯍꯥꯏꯔꯕ 500 ꯃꯔꯛ ꯑꯍꯥꯅꯕ ꯑꯣꯏꯅ ꯑꯁꯤꯒꯤ ꯏꯁꯤꯡ ꯇꯩꯕꯥꯡꯁꯤꯡ ꯁꯦꯝꯕ ꯍꯥꯏꯔꯤꯕꯅꯤ" ("are now earmarked by the government for the construction of water bodies for an area of approximately 500 hectares")꯫ **ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006** (2006-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 3, 2007-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 5 ꯑꯃꯁꯨꯡ 2019-ꯒꯤ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 8-ꯅ ꯑꯦꯃꯦꯟꯗ ꯇꯧꯔꯕ) ꯑꯁꯤ ꯂꯦꯛ ꯑꯗꯨꯒꯤ "236.21 Sq. km ꯄꯨꯝꯅꯃꯛ" ("the whole of 236.21 Sq. km")-ꯗ ꯊꯥꯖꯩ, ꯐꯨꯝꯗꯤ ꯅꯝꯅꯕ ꯂꯦꯛꯂꯦꯡ ꯃꯐꯝ (40 km²) ꯑꯃꯁꯨꯡ ꯇꯥꯛꯃꯨ ꯐꯤꯁꯔꯤ ꯐꯥꯔꯝ (Takmu Fishery Farm; 5 km²) ꯍꯦꯟꯗꯅꯗꯨ (ꯁꯦꯛꯁꯟ 1(3)); ꯃꯁꯤꯗꯥ 70.30 km²-ꯒꯤ ꯀꯣꯔ ꯖꯣꯟ (Core Zone) ꯑꯁꯤ "ꯅꯣ-ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇ ꯖꯣꯟ ꯅꯠꯇ꯭ꯔꯒ ꯃꯄꯨꯡ ꯐꯥꯅ ꯉꯥꯀꯊꯣꯛꯂꯕ ꯖꯣꯟ" ("the No-Development Zone or Totally Protected Zone") ꯑꯣꯏꯅ ꯂꯥꯎꯊꯣꯛꯂꯤ (ꯁꯦꯛꯁꯟ 3), ꯂꯦꯛ ꯑꯗꯨꯒꯤ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯀꯅꯥꯒꯨꯝꯕ ꯑꯃꯠꯇ ꯍꯣꯡꯗꯣꯛꯄ, ꯁꯤꯁꯤꯟ ꯇꯧꯕ, ꯌꯥꯑꯣꯍꯅꯕ ꯅꯠꯔꯒ "ꯅꯠꯇ꯭ꯔꯒ ꯀꯟꯗꯤꯁꯅꯒꯤ ꯃꯑꯣꯡ ꯑꯃꯃꯛꯇ ꯍꯣꯡꯗꯣꯛꯄ" ("or converted in any form whatsoever") ꯊꯤꯡꯏ (ꯁꯦꯛꯁꯟ 4), ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯇ ꯑꯊꯣꯔꯤꯇꯤ (Loktak Development Authority)-ꯗ "ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛꯀꯤ ꯊꯧꯗꯣꯀꯁꯤꯡ ꯁꯥꯁꯟ ꯇꯧꯅꯕ ꯑꯃꯁꯨꯡ ꯂꯦꯛꯀꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯑꯀꯣꯌꯕꯒꯤ ꯉꯥꯀꯊꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯐꯒꯠꯍꯟꯅꯕ" ("to administer the affairs of the Loktak Lake and to protect and improve the natural environment of lake") ꯊꯧꯗꯥꯡ ꯄꯤꯔꯤ (ꯁꯦꯛꯁꯟ 17)꯫ **ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014** (2014-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 10)-ꯅ ꯄꯦꯗꯤ ꯂꯦꯟꯗ (paddy land), "ꯏꯁꯤꯡ ꯆꯦꯜꯂꯣꯟꯁꯤꯡ, ꯄꯨꯈꯔꯤꯁꯤꯡ, ꯀꯦꯅꯥꯂꯁꯤꯡ, ꯄꯦꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯂꯩꯅꯕꯁꯤꯡꯒꯨꯝꯕ ꯃꯁꯤꯒꯤ ꯃꯔꯤ ꯂꯩꯅꯕ ꯁꯦꯝꯕꯁꯤꯡ" ("its allied constructions like drainage channels, ponds, canals, bunds and ridges") ꯌꯥꯑꯣꯕꯅ (ꯁꯦꯛꯁꯟ 2(c)), ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗ ꯃꯁꯤꯒꯤ ꯂꯩꯐꯝ, ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯟꯗ ꯀꯟꯚꯔ꯭ꯁꯅꯒꯤ ꯃꯇꯥꯡꯗ ꯁꯥꯁꯟ ꯍꯦꯟꯒꯠꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ "ꯃꯥꯌꯣꯛꯅꯕ ꯍꯦꯟꯗꯣꯛꯂꯕ ꯅꯠꯔꯒ ꯑꯃꯨꯛ ꯍꯟꯅ ꯂꯧꯈꯤꯕ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯗ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯊꯕꯛ ꯅꯠꯔꯒ ꯀꯥꯡꯂꯣꯟ ꯑꯃꯠꯇ ꯇꯧꯕ" ("for carrying out any activity or construction in a paddy land, converted or reclaimed in contravention") ꯆꯩꯔꯥꯛ ꯑꯃꯥ ꯄꯤꯕ ꯊꯤꯡꯏ (ꯁꯦꯛꯁꯟ 12); ꯃꯁꯤ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯝ ꯑꯦꯛꯠ, 1960 (Manipur Land Revenue and Land Reforms Act, 1960)-ꯒꯤ ꯑꯦꯛꯁꯦꯞꯁꯟꯗ ꯌꯥꯑꯣ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯌꯤꯡꯒꯤ ꯆꯤꯡꯁꯤꯡ (hill areas)-ꯗ ꯌꯥꯑꯣꯗꯦ (NEER-ꯒꯤ ꯄꯥꯕ); ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯕ ꯆꯥ ꯍꯦꯟꯗꯣꯛꯄꯥ (ꯑꯍꯥꯅꯕ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇ) ꯕꯤꯜ, 2026 ꯑꯃꯁꯤ ꯄꯥꯁ ꯇꯧꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯕꯥ [TBC: ꯑꯣꯏꯕ ꯑꯣꯏꯅꯕꯥꯒꯤ ꯂꯣꯏꯅꯕ ꯄꯤꯔꯤꯕꯅꯤ]꯫ **ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978** (1978-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 10)-ꯅ "ꯔꯤꯂꯦꯇꯤꯚ ꯔꯤꯁ꯭ꯛ" ("relative risk")-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡꯁꯤꯡꯒꯤ ꯊꯧꯔꯥꯡ ꯇꯧꯏ, ꯑꯗꯨꯕꯨ ꯖꯣꯟ ꯑꯃꯠꯇ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯗ꯭ꯔꯤ ("ꯍꯧꯖꯤꯛ ꯐꯥꯑꯣꯕ ꯇꯧꯗ꯭ꯔꯤ" ["yet to be done"], ꯖꯨꯟ 2026-ꯗ ꯄꯥꯎꯗꯥ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ) ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯊꯣꯔꯤꯇꯤ (Flood Zoning Authority) ꯑꯃꯠꯇ ꯂꯩꯇꯕ ꯐꯣꯡꯗꯣꯛꯈꯤ (ꯆꯦꯞꯇꯔ 7.3, ꯂꯥꯏꯔꯤꯛꯇ ꯌꯥꯎꯕ)꯫ ꯋꯦꯇꯂꯦꯟꯗꯁꯤꯡ ꯑꯁꯤ **ꯃꯅꯤꯄꯨꯔ ꯑꯣꯏꯕ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯊꯣꯔꯤꯇꯤ**-ꯒꯤ ꯊꯧꯗꯥꯡꯅꯤ (ꯆꯦꯞꯇꯔ 7.12, ꯂꯥꯏꯔꯤꯛꯇ ꯌꯥꯎꯕ)꯫ ꯌꯤꯡꯒꯤ ꯆꯤꯡꯁꯤꯡꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ, ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤ ꯑꯦꯛꯠ ꯅꯠꯔꯒ ꯄꯦꯗꯤ-ꯂꯦꯟꯗ ꯑꯦꯛꯠ ꯑꯃꯠꯇ ꯌꯥꯎꯗꯕ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯥꯎꯟꯁꯤꯜ ꯑꯦꯛꯠ, 1971-ꯅ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯥꯎꯟꯁꯤꯂꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯦꯜ ꯗ꯭ꯔꯦꯅꯦꯖꯁꯤꯡ, ꯄꯨꯈꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯥ ꯌꯥꯎꯊꯣꯛꯄꯒꯤ ꯂꯝꯕꯤ ꯄꯤꯔꯤ ꯑꯗꯨꯕꯨ ꯕꯤꯜꯗꯤꯡ ꯀꯟꯠꯔꯣꯜ ꯄꯤꯗꯦ (ꯁꯦꯛꯁꯟ 29(1)); ꯃꯐꯝ ꯑꯗꯨꯗ ꯆꯥ ꯑꯗꯨꯒꯤꯗꯃꯛ ꯀꯝꯄꯤꯇꯦꯟꯇ ꯑꯊꯣꯔꯤꯇꯤ ꯀꯅꯥꯅ ꯍꯥꯏꯕꯅꯤ ꯂꯩꯔꯤ 1-ꯗ ꯄꯤꯔꯤ꯫ ꯂꯩꯔꯤ ꯑꯁꯤꯗ WRD ꯍꯥꯏꯕꯁꯤ ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Water Resources Department)-ꯅꯤ, ꯃꯃꯥꯡꯗ ꯏꯔꯤꯒꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯀꯟꯠꯔꯣꯜ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Irrigation and Flood Control Department) ꯀꯧꯏ; ꯃꯁꯤꯗꯥ ꯌꯦꯡꯁꯤꯟꯕꯁꯤꯡ ꯇꯨꯔꯦꯂꯒꯤ ꯄꯨꯈꯔꯤꯁꯤꯡ, ꯏꯁꯤꯡ ꯏꯆꯦꯂꯒꯤ ꯆꯦꯜꯂꯣꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯊꯥꯛꯁꯤꯡ ꯄꯨꯝꯅꯃꯛ, ꯂꯃꯖꯦꯡꯄꯒ ꯑꯁꯤ ꯁꯃꯨꯁꯥꯡ (Shamushang)-ꯗꯒꯤ ꯂꯝꯕꯤꯅ ꯇꯨꯔꯦꯜ ꯄꯥꯝꯄꯥ ꯌꯥꯑꯣꯗꯨꯅ ꯏꯁꯤꯡ ꯏꯆꯦꯂꯒꯤ ꯑꯣꯏꯕꯥꯒꯤ ꯑꯍꯥꯅꯕ ꯁꯤꯡꯊꯥꯛꯂꯤ, ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯟꯕꯁꯤꯡ ꯇꯨꯔꯦꯂꯒꯤ ꯈꯣꯡꯕꯦꯜꯁꯤꯡꯒꯤ ꯂꯝꯕꯤꯁꯤꯡ ꯐꯥꯑꯣꯕꯥꯏ꯫ ꯄꯥꯎ ꯅꯠꯔꯒ ꯄꯨꯊꯣꯛꯂꯤ ꯑꯃꯁꯨ WRD-ꯒꯤ ꯊꯕꯛꯁꯤꯡꯒꯤ ꯁꯦꯃꯊꯣꯛ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄꯤꯕꯥ ꯃꯐꯝꯒꯤ ꯀꯩ ꯑꯃꯠꯇ ꯂꯩꯇꯦ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯆꯦꯞꯇꯔ ꯑꯁꯤꯅꯥ ꯂꯝꯕꯤꯁꯤꯡ, ꯗꯦꯝ, ꯐꯤꯗꯔꯦꯁꯟ ꯅꯠꯔꯒ ꯑꯄꯨꯅꯕ ꯄꯨꯔꯛꯄꯒꯤ ꯃꯇꯥꯡꯗ ꯌꯥꯑꯣꯕ ꯂꯩꯕ ꯃꯐꯝꯗ ꯂꯩꯔꯤꯕ ꯑꯁꯤꯅꯥ ꯃꯃꯤꯡ ꯂꯦꯕ ꯀꯣꯅꯁꯤꯗꯔꯦ

(custodian) ꯑꯗꯨ WRD-ꯅꯤ; ꯂꯣꯛꯇꯥꯛꯀꯤ ꯂꯦꯚꯦꯜ ꯑꯗꯨ NHPC-ꯒꯤ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ (Ithai barrage)-ꯅꯥ ꯊꯝꯃꯤ ꯑꯃꯁꯨꯡ ꯂꯦꯛ ꯑꯗꯨ ꯂꯣꯛꯇꯥꯛ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯈꯥꯌ ꯑꯃꯁꯨꯡ ꯑꯄꯥꯝꯕ ꯀꯟꯁꯔꯚꯦꯁꯅꯒꯤ ꯑꯗꯨ ꯅꯦꯁꯅꯦꯜꯄꯥꯔꯀ (ꯑꯦꯅꯦꯛꯁ 7A)-ꯗ ꯑꯃꯃꯃꯒꯤ ꯃꯈꯨꯡꯗ ꯑꯃꯥ ꯔꯦꯀꯥꯔꯗ ꯌꯦꯟ꯫

ꯍꯦꯠꯇꯦꯜ ꯑꯣꯏꯅꯥ ꯔꯦꯀꯥꯔꯗ ꯌꯧꯔꯕ ꯅꯣꯡꯃꯥꯡ ꯂꯦꯃꯍ ꯈꯨꯗꯤꯡꯃꯛ ꯅꯔꯤꯛꯒꯤ ꯅꯦꯍꯔꯤꯇꯣꯡꯔꯛꯌꯦꯡꯔ ꯑꯥꯅꯂ ꯂꯥꯟ꯫ ꯍꯤꯌꯔ ꯌꯨꯛꯄꯂ ꯃꯂꯤꯁ꯭ꯔꯕ ꯌꯣꯟꯁꯦꯜꯂꯤ꯫ ꯑꯇꯂꯕꯗꯤ **ꯊꯥꯔꯡꯍꯃ ꯑꯃꯅꯄꯌꯃꯄ ꯂꯕ ꯊꯤꯡꯂꯤꯟꯂꯕ ꯌꯃꯁꯛꯄ**ꯅꯤ: ꯅꯃꯍꯟ ꯌꯃꯁꯛꯄꯡꯤ ꯈꯨꯔꯦꯟ ꯈꯨꯗꯤꯡꯃꯛ, ꯅꯃꯍꯟ, ꯏꯔꯤꯜ (Iril), ꯊꯧꯕꯥꯜ, ꯅꯝꯕꯨꯜ, ꯀꯣꯡꯕ (Kongba), ꯁꯦꯛꯃꯥꯏ, ꯈꯨꯒꯥ (Khuga) ꯑꯃꯁꯨꯡ ꯑꯌꯥꯄꯄꯁꯤꯡ, ꯂꯣꯛꯇꯥꯛ ꯌꯦꯟꯗꯤ ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯔꯛꯇ ꯂꯕ ꯁꯡꯒꯤ ꯁꯤꯟ (sill) ꯑꯃꯥ, "ꯁꯒꯅꯨ ꯍꯝꯄ" ("Sugnu hump"), ꯂꯦꯃꯊꯛꯈꯨꯂ ꯃꯂꯤꯁ꯭ꯔ ꯈꯨꯔꯦꯟ ꯑꯥꯅꯂ ꯌꯃꯁꯛꯄꯒꯤ ꯊꯔꯡꯅ, ꯃꯍꯃ ꯑꯗꯨꯗ ꯈꯨꯔꯦꯟꯒꯤ ꯃꯅ ꯑꯗꯨ 800 m ꯔꯃꯒꯤ ꯃꯈꯨꯡꯗ 756.7 m-ꯗꯒꯤ 763.7 m ꯍꯥꯢꯕ ꯌꯥꯎꯅꯠꯂꯡꯅ (MASTEC)꯫ ꯈꯨꯔꯦꯟꯁꯤꯡ ꯑꯗꯨ ꯈꯨꯔꯦꯟꯒꯤ ꯄꯦꯁꯤꯡꯗꯤ (pan; ꯕꯦꯗ ꯅꯠꯔꯒ ꯑꯦꯃꯕꯦꯡꯡꯃꯦꯎꯠ ꯍꯌꯕꯒꯤ ꯃꯌꯥꯂꯦꯎ ꯌꯥꯍ) ꯊꯃꯂꯤ, ꯑꯃꯁꯨꯡ ꯅꯃꯍꯟꯂꯦ ꯈꯨꯔꯦꯟ ꯌꯥꯡꯂꯕ ꯃꯌꯃꯗ ꯊꯤꯡꯂꯤꯟꯂꯡꯄ ꯅꯊꯡꯁꯤꯡꯒꯤ (ithong; ꯁꯂꯅꯁ ꯒꯦꯠ ꯅꯠꯔꯒ ꯍꯂꯗꯒꯦꯠ) ꯈꯨꯠꯊꯡꯗ ꯅꯁꯤꯡ ꯊꯗꯡꯅ, ꯃꯔꯃ ꯑꯗꯨꯂꯦ ꯃꯦꯁꯨꯁꯗ ꯑꯥꯅꯠꯍꯦꯟ (outfall) ꯑꯗꯨ ꯃꯌꯃ ꯃꯌꯃꯒꯤ ꯃꯑꯡꯗ ꯊꯤꯡꯂꯤꯟꯂꯤ (ꯁꯔꯨꯞ 5)꯫ ꯑꯅꯤꯁꯨꯕꯗꯤ **ꯂꯣꯛꯇꯥꯛ**ꯅꯤ, ꯃꯁꯤꯒꯤ ꯑꯦꯞꯠꯄꯤ ꯃꯍꯦꯗ 236.21 km², ꯃꯁꯤꯒꯤ ꯀꯣꯔ ꯖꯣꯟ ꯑꯃꯁꯨꯡ ꯕꯍꯔ ꯖꯣꯟ (Buffer Zone) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ **ꯐꯨꯝꯗꯤ**, ꯑꯦꯞꯠ ꯑꯗꯨꯂꯦ "ꯅꯁꯤꯡꯗ ꯌꯥꯎꯔꯤꯕ ꯃꯑꯣꯡꯗ ꯂꯕ ꯄꯥꯝꯕꯤ, ꯑꯣꯔꯒꯦꯅꯤꯛ ꯃꯍꯥ ꯃꯔꯨ ꯑꯃꯁꯨꯡ ꯂꯃꯍꯅꯒꯤ ꯌꯥꯊꯦ ꯌꯥꯊꯦꯕ ꯃꯅꯟ ꯌꯥꯎꯕ ꯃꯤꯄꯁꯔꯔ"

("heterogeneous mixture of vegetation, organic debris and soil in floating condition") ꯍꯔꯂꯦ ꯗꯦꯍꯟꯅꯦ ꯌꯧꯕ ꯌꯥꯎꯔꯤꯕ ꯃꯦꯠꯁꯤꯡꯗꯤ; ꯃꯁꯤ ꯔꯃꯁꯔ ꯁꯅꯠ ꯑꯃꯂꯤ, 23 ꯃꯔꯆ 1990-ꯗ ꯗꯦꯂꯤꯒꯦꯠ ꯌꯧꯅꯤ ꯑꯃꯁꯨꯡ 16 ꯖꯨꯟ 1993-ꯗ ꯃꯟꯠꯔꯨ ꯔꯦꯀꯥꯔꯗ (Montreux Record)-ꯗ ꯊꯃꯅꯤ (ꯑꯅꯤꯃꯄ ꯄꯥꯝꯕ ꯍꯥꯟꯗꯥꯛꯅꯤꯕ ꯃꯈꯨꯡ ꯅꯦꯅ)꯫ ꯑꯍꯨꯃꯁꯨꯕꯗꯤ **ꯄꯥꯠꯁꯤꯡꯅꯤ** (pat; ꯅꯃꯍꯦꯟꯄꯠꯌ ꯂꯕꯈꯨꯃ, ꯅꯦꯞ ꯅꯠꯔꯒ ꯌꯦꯠꯅꯦꯗ ꯍꯔꯕꯒꯤ ꯃꯌꯥꯂꯦꯎ ꯌꯥꯍ), ꯌꯃꯁꯛꯄꯡꯤ ꯃꯍꯁꯤꯒꯤ ꯁꯔꯨꯞꯔꯦ: "ꯃꯅꯤꯄꯨꯔ ꯌꯃꯁꯛꯄꯁ ꯅꯦꯞ 500 ꯔꯃ ꯂꯩꯅꯤ"

("there were nearly 500 lakes in Manipur Valley"), ꯃꯍꯥꯛꯀꯤ ꯃꯈꯨꯡꯗ ꯅꯃꯍꯦꯟꯄꯠ, ꯄꯥꯔꯃꯄꯠ, ꯇꯥꯛꯌꯦꯜꯄꯠ (Takyelpat), ꯁꯪꯒꯥꯏꯄꯠ (Sangaipat), ꯈꯔꯨꯡꯄꯠ (Kharungpat) ꯑꯃꯁꯨꯡ ꯅꯀꯥꯄ ꯄꯠ ꯌꯥꯎꯅ, ꯀꯔ ꯑꯃꯂꯦ ꯍꯠꯌꯕ ꯍꯤꯒꯃꯗ ꯂꯩꯔ ꯅꯠꯔꯒ ꯃꯡꯈꯔ (MASTEC), ꯑꯃꯁꯨꯡ ꯌꯃꯁꯛꯄ ꯑꯗꯨ "ꯃꯃꯡꯗ ꯄꯠꯊꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯔꯁꯤ ꯅꯃꯂꯦ ꯊꯗꯥꯅꯤ, ꯃꯗꯨ ꯅꯦꯞ ꯍꯔꯕ PAT ꯌꯥꯍ ꯌꯥꯎꯕ ꯃꯍꯃꯁꯤꯡꯗꯤꯂꯦ ꯌꯧꯕꯅ" ("was once full of swamps and marshy land represented by the places having the word PAT meaning lake") (CGWB, 2013); ꯅꯃꯍꯦꯟꯄꯠ ꯑꯁꯤ ꯍꯥꯂꯤꯡ ꯅꯃꯈꯨꯟ ꯈꯨꯔꯦꯟꯗ ꯄꯃꯄꯂꯦ ꯊꯗꯥꯄ ꯑꯅꯠꯅꯦꯠ ꯑꯃꯒꯦ ꯂꯔꯂꯂꯦ ꯅꯁꯤꯡꯗ ꯅꯌꯥꯒꯤ ꯁꯔꯨꯞꯔꯦ ꯑꯥꯅꯂꯦ ꯁꯦꯃꯒꯦꯠꯂꯤꯕ ꯄꯠ ꯑꯃꯂꯤ꯫ ꯃꯔꯤꯁꯨꯕꯗꯤ **ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯅꯤ** (pukhri; ꯄꯦꯗ ꯍꯔꯕꯒꯤ ꯃꯌꯥꯂꯦꯎ ꯌꯥꯍ; ꯅꯂꯤꯁꯌ plural pukhris), ꯌꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯈꯨꯡꯒꯡꯁꯤꯡꯒꯤ ꯄꯦꯗꯁꯤꯡ, ꯃꯍꯥꯛꯀꯤ ꯃꯈꯨꯡꯗ AMRUT 2.0-ꯒꯤ ꯅꯁꯤꯡ ꯂꯦꯍꯃ ꯔꯤꯖꯨꯚꯤꯅꯦꯁꯅꯒꯤ ꯄꯔ꯭ꯔꯦꯠ 20-ꯒꯤ ꯄꯕꯂꯤꯛ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ (TPD, 2025-26) ꯌꯥꯎꯅ, ꯑꯃꯁꯨꯡ ꯍꯦꯠꯇꯦꯜ ꯑꯣꯏꯅꯥ ꯃꯍꯥꯛꯀꯤ ꯄꯠꯁꯤꯡꯗꯒꯤ ꯌꯥꯊꯦꯂꯦ ꯊꯃꯃꯤ꯫ ꯃꯉꯥꯁꯨꯕꯗꯤ **ꯄꯦꯗ ꯂꯦꯗꯅꯤ**, ꯃꯁꯤ ꯌꯃꯁꯛꯄꯡꯤ ꯅꯃꯗ ꯅꯁꯤꯡ ꯅꯌꯥꯒꯤ ꯁꯔꯨꯞꯔꯦꯅꯤ: 1989-ꯒꯤ ꯅꯁꯤꯡ ꯅꯌꯥꯂꯦ ꯂꯦ 97,500 ha ꯌꯥꯠꯅꯤ (MASTEC), ꯑꯃꯁꯨꯡ ꯅꯊꯡꯁꯤꯡ ꯊꯤꯡꯂꯤꯊꯔ ꯄꯦꯗꯁꯤꯡꯒꯤ ꯃꯈꯨꯡꯗ ꯂꯕ ꯅꯃꯂꯦ ꯌꯥꯎꯗꯒꯤ ꯔꯦꯑꯣꯍ (runoff) ꯊꯃꯂꯤꯟꯂꯤ꯫ ꯌꯨꯞꯄꯁꯨꯕꯗꯤ **ꯔꯤꯡꯒꯤ ꯈꯣꯡꯁꯤꯡꯅꯤ** (khong; ꯁꯦꯔꯤꯃ), ꯃꯍꯥꯛꯂꯦ ꯌꯃꯁꯛꯄꯡꯤ ꯀꯦꯔꯃꯦꯗꯠꯡꯤ 70% ꯑꯍꯕ ꯔꯤꯡꯁꯤꯡꯗꯒꯤ ꯊꯔꯄꯈꯨꯂꯦ (MASTEC) "ꯂꯣꯛꯇꯥꯛ ꯂꯄꯛ ꯌꯥꯗꯔꯤꯊꯗ ꯅꯃꯕꯤ ꯑꯅꯦꯄ ꯑꯃꯗ ꯑꯊꯃꯕ ꯂꯄꯥꯃꯒꯦ ꯂꯥꯔꯂꯂꯦ ꯔꯦꯟꯇꯄꯅꯤ … ꯄꯨꯊꯥꯡꯄ ꯊꯃꯕꯒꯤ ꯁꯄꯛꯤ ꯌꯥꯎꯅ, ꯃꯁꯤꯂꯦ ꯂꯦꯛꯀ ꯂꯨꯃ ꯊꯨꯃꯍꯟꯂꯤ" ("flow down with steep slope for a short distance before meeting the Loktak Lake … load carrying capacity is high which causes siltation of the lake") (MASTEC)꯫ ꯃꯅꯤꯄꯨꯔꯗ ꯅꯔꯤꯒꯦꯁꯦꯒꯤ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯦꯁꯡꯀꯦꯗ ꯑꯃꯁꯨꯡ ꯂꯌꯦ; ꯁꯔꯨꯞ ꯑꯁꯤꯒꯤ ꯄꯨꯈ꯭ꯔꯤꯒꯤ (tank) ꯀꯂꯦꯇꯤꯕ ꯑꯁꯤ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯗ, ꯌꯦꯅꯦꯟ ꯅꯠꯔꯒ ꯅꯊꯡ ꯑꯃꯒꯤ ꯈꯨꯠꯊꯡꯗ ꯅꯁꯤꯡ ꯊꯗꯡꯄ ꯄꯠꯁꯤꯡꯗ, ꯔꯤꯖꯔꯚꯣꯌꯔꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯥꯖꯂꯦ ꯊꯃꯂꯤꯕ ꯃꯑꯡꯗ ꯂꯕ ꯂꯣꯛꯇꯥꯛꯁ ꯌꯠꯂꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯠꯇꯦꯜ ꯑꯣꯏꯒꯤ ꯃꯍꯦꯗ ꯁꯕ ꯁꯔꯨꯞꯔꯦ ꯑꯁꯤ "ꯗꯤꯇꯦꯟꯁꯟ ꯄꯣꯟꯗ" ("detention pond") ꯑꯃꯂꯤ, ꯀꯗꯥꯏꯗꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯅꯠꯔꯒ ꯄꯠ ꯅꯠꯌꯗ꯫ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯈꯨꯡꯕꯦꯗꯁꯤ ꯑꯁꯤ ꯁꯤꯔꯔꯤꯁꯤꯡꯒꯤ ꯑꯍꯕꯂꯦ (ꯀꯂꯦꯠ 8.9, ꯁꯦꯗꯨꯂꯦ ꯌꯨꯄꯠ), ꯌꯥꯎꯕꯁꯤꯡꯗ ꯂꯕ ꯄꯠ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤ ꯌꯥꯟꯗ ꯁꯤꯔꯦꯟ ꯌꯥꯎꯅ꯫ ꯁꯔꯨꯞ ꯑꯁꯤꯂꯦ ꯅꯁꯤꯡ ꯂꯦꯍꯃ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯁꯔꯨꯞꯔꯦ ꯑꯃꯁꯨꯡ ꯀꯦꯒꯌꯦꯟ ꯄꯨꯊꯥꯡꯄ ꯗꯤꯂꯅꯦ ꯈꯨꯅꯁꯤꯡ ꯄꯥꯃꯤ꯫ ꯃꯁꯤꯂꯦ ꯃꯍꯥꯛꯀꯤ ꯔꯦꯀꯥꯔꯗ ꯌꯧꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯊꯥꯡꯄ ꯕꯅ-ꯂꯦꯟꯗꯤ, ꯂꯣꯛꯇꯥꯛ ꯑꯦꯞꯠ, ꯄꯦꯗꯤ-ꯂꯦꯗꯅ ꯌꯦꯠꯅꯦꯗꯅ ꯑꯦꯞꯠ, ꯃꯁꯤꯡꯒꯔ ꯄꯂꯤꯗꯤꯁꯤ ꯑꯃꯁꯨꯡ ꯌꯦꯠꯅꯦꯗꯅꯡꯤ ꯄꯔ꯭ꯔꯤꯁꯤꯔꯁꯤ, ꯅꯠꯔꯒ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯍꯥꯏ ꯀꯣꯔꯠ (High Court of Manipur), ꯅꯦꯁꯅꯦꯜ ꯒ꯭ꯔꯤꯟ ꯇ꯭ꯔꯥꯏꯕꯨꯅꯦꯜ (National Green Tribunal) ꯑꯃꯁꯨꯡ ꯁꯨꯞꯔꯤꯝ ꯀꯣꯔꯠ (Supreme Court)-ꯀꯤ ꯗꯤꯁꯤꯁꯅꯁꯤꯡꯗꯤꯒꯤ ꯃꯈꯥ ꯁꯦꯗꯦ꯫

7.2 ꯗꯦꯐꯤꯅꯤꯁꯟꯁꯤꯡ

ꯋꯥꯍꯩ	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯑꯔꯊ
ꯏꯁꯤꯡ ꯂꯩꯐꯝ	ꯇꯨꯔꯦꯜ (turel, ꯇꯨꯔꯦꯜ ꯑꯃꯥ), ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯏꯝꯐꯥꯜ, ꯏꯔꯤꯜ, ꯊꯧꯕꯜ, ꯅꯝꯕꯨꯜ, ꯀꯣꯡꯕ, ꯁꯦꯛꯃꯥꯏ, ꯋꯥꯡꯖꯤꯡ (Wangjing), ꯅꯝꯕꯣꯜ, ꯈꯨꯒꯥ ꯑꯃꯁꯨꯡ ꯆꯛꯄꯤ (Chakpi), ꯃꯍꯥꯛꯁꯤꯡ ꯂꯥꯏꯅꯤꯡꯁꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯇꯨꯔꯦꯜꯗꯥ ꯌꯥꯎꯅꯩ, ꯃꯈꯥꯒꯤ ꯈꯨꯏꯗꯣꯛꯅ ꯁꯃꯤꯠ ꯑꯃꯤ ꯏꯊꯏ ꯁꯦꯅꯥꯟ ꯂꯦꯂꯥꯡꯕꯤꯗꯦ ꯏꯁꯤꯡ ꯊꯤꯡꯖꯤꯟ, ꯑꯃꯁꯨꯡ ꯂꯥꯏꯕꯔꯥꯛ ꯊꯣꯡꯗꯥ ꯗꯤꯕꯥ ꯇꯨꯔꯦꯜ, ꯖꯤꯔꯤ (Jiri), ꯃꯛ꯭ꯔꯨ (Makru), ꯏꯔꯥꯡ (Irang), ꯂꯩꯃꯇꯥꯛ (Leimatak) ꯑꯃꯁꯨꯡ ꯇꯨꯏꯕꯥꯏ (Tuivai); ꯄꯤꯒꯤ ꯈꯣꯡ (khong, ꯈꯣꯡ꯭ꯖꯦꯜ ꯑꯃꯥ), ꯃꯁꯤꯗꯥ ꯌꯥꯎꯔꯤꯕ ꯑꯁꯤ ꯂꯥꯏꯁꯤꯡꯗꯒꯤ ꯄꯤꯡꯁꯤꯡꯅꯥꯒꯤ ꯏꯁꯤꯡ, ꯂꯩꯃ ꯑꯃꯁꯨꯡ ꯅꯦꯊꯦ꯭ꯔꯤꯡ ꯀꯨꯔꯨꯕꯥ; ꯁꯍꯤꯒꯤ ꯄꯦꯅꯦꯜ, ꯇꯨꯔꯦꯜ ꯑꯁꯤꯗꯥ ꯏꯃꯥꯀꯤꯅꯥ ꯂꯩꯕ ꯅꯥꯂꯥ (Naga Nullah), ꯋꯥꯏꯁꯦꯜ ꯃꯥꯔꯤꯜ (Waisel Maril) ꯑꯃꯁꯨꯡ ꯁꯃꯨꯁꯥꯡ ꯅꯂꯥ (Shamushang nallah); ꯄꯥꯠ (ꯃꯁꯤꯒꯤ ꯅꯣꯡ ꯅꯠꯇꯔꯒꯥ ꯋꯦꯠꯂꯦꯟꯗ), ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯂꯣꯛꯇꯥꯛ, ꯅꯝꯖꯦꯡꯄꯥꯠ, ꯇꯨꯗꯤ ꯄꯥꯠ, ꯋꯥꯏꯊꯧ ꯄꯥꯠ, ꯏꯀꯣꯞ–ꯀꯥꯀꯆꯤꯡ ꯄꯥꯠ, ꯄꯨꯃꯂꯦꯟ–ꯈꯣꯡꯃꯥꯡ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ–ꯈꯣꯡꯕ ꯄꯥꯠ, ꯑꯃꯁꯨꯡ ꯈꯨꯝꯖꯤꯡꯄꯥꯠꯁꯤꯡ ꯋꯦꯠꯂꯦꯟꯗ; ꯄꯨꯈ꯭ꯔꯤ (ꯄꯥꯟꯗꯝ ꯑꯃꯥ), ꯃꯔꯨꯕ ꯅꯠꯇꯔꯒꯥ ꯑꯄꯤꯝꯕꯥ ꯅꯦꯄꯥꯟꯕ ꯏꯁꯤꯡ, ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯃꯇꯥꯡꯁꯤꯡꯗꯒꯤ ꯄꯥꯛꯂꯕꯥ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ; ꯅꯥꯏꯃꯥ ꯑꯃꯁꯨꯡ ꯄꯥꯠꯁꯤꯡꯗꯒꯤ ꯃꯇꯥꯡꯕ ꯄꯥꯀꯕꯤꯒꯤ ꯀꯦꯠꯁꯤꯡ (ꯖꯀꯤ); ꯄꯦꯂꯤ ꯅꯦꯡꯗ, ꯀꯁꯤꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯌꯦꯟꯊꯣꯛꯁꯤꯡ, ꯄꯦꯡꯗꯁꯤꯡ, ꯄꯖꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯋꯥꯏꯁꯤꯡ ꯋꯥꯡꯂꯦ; ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯟ (pan) ꯑꯃꯒꯤ ꯏꯊꯣꯡ (ithong) ꯊꯤꯡꯅꯕ ꯀꯨꯝꯃꯗ ꯀꯟꯕꯒꯤ ꯀꯨꯝꯗ ꯏꯁꯤꯡ ꯅꯄꯥꯡ ꯅꯃ; ꯔꯤꯅꯔꯒꯥꯋꯔ, ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯊꯧꯕꯜ (ꯀꯄꯤꯊꯦꯜ) (Mapithel) ꯑꯃꯁꯨꯡ ꯈꯨꯒꯥ ꯔꯤꯖꯔꯒꯥꯋꯔꯁꯤꯡ, ꯀꯥꯡꯂꯨꯞꯀꯤ ꯗꯦꯝꯁꯤꯡ ꯅꯦꯡ ꯋꯥꯡꯂꯦ; ꯏꯁꯩ; ꯏꯁꯤꯡ ꯏꯋꯥꯡꯀꯤ ꯈꯣꯡꯖꯦꯜꯀꯤꯗꯃꯛ ꯈꯕ ꯔꯤꯖꯦꯔꯕꯣꯌ ꯄꯦꯡꯗ ꯅꯠꯇꯔꯒꯥ ꯕꯦꯂꯤꯡ; ꯑꯃꯤ ꯄꯨꯃꯕꯗ ꯑꯦꯟꯖꯤꯕ ꯅꯠꯇꯔꯒꯥ ꯀꯥꯡꯂꯨꯞ ꯏꯔꯥꯡ ꯏꯁꯩ ꯑꯦꯟꯖꯤꯕ ꯈꯣꯡꯖꯦꯜ ꯅꯦꯡꯗ ꯅꯠꯇꯔꯒꯥ ꯈꯣꯡꯗꯦꯜ ꯃꯥꯏꯈꯣ (ꯈꯣꯡꯄ 1-ꯗ ꯌꯦꯡꯕꯤꯌꯨ)꯫
ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri)	ꯂꯩꯃꯥꯏꯒꯤ ꯄꯥꯟ ꯑꯃꯈꯩ ꯊꯤꯡꯖꯤꯟꯕꯥ, ꯀꯅꯣꯏꯒꯤ ꯃꯦꯔꯀꯦꯠ ꯑꯃꯁꯨꯡ/ꯅꯠꯇꯔꯒꯥ ꯈꯣꯡꯖꯦꯜ ꯑꯦꯟꯖꯤ ꯑꯃꯈꯩ ꯏꯁꯤꯡ ꯄꯤꯔꯤꯕ, ꯈꯔꯥꯄꯟꯗ ꯂꯤꯌꯔ ꯑꯃꯥ ꯑꯃꯁꯨꯡ ꯏꯊꯣꯡ ꯑꯃꯥ ꯅꯠꯇꯔꯒꯥ ꯍꯦꯟꯗꯦ ꯌꯥꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯃꯥ꯫
ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤ ꯃꯦꯈꯝꯦꯗ (tank cascade)	ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ ꯈꯔꯥꯄꯟꯗ ꯅꯠꯇꯔꯒꯥ ꯏꯊꯣꯡꯗꯒꯤ ꯊꯔꯝꯄ ꯏꯁꯤꯡꯅꯥ ꯀꯊꯣꯛꯂꯒꯤ ꯄꯨꯈ꯭ꯔꯤꯗ ꯏꯁꯤꯡ ꯄꯤꯕ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤ ꯑꯦꯡ ꯑꯃꯥ (ꯈꯣꯡꯄ 3-ꯗ ꯌꯦꯡꯕꯤꯌꯨ)꯫
ꯐꯨꯜ ꯇꯦꯛ ꯂꯦꯕꯦꯜ (FTL)	ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ ꯈꯔꯥꯄꯟꯗ ꯑꯤꯔꯤꯒꯤ (ꯑꯥꯡꯔꯐꯦꯟ, ꯑꯦꯗꯦꯠꯂꯦꯠ ꯅꯠꯇꯔꯒꯥ ꯈꯦꯡꯖꯔꯦ, ꯅꯠꯇꯔꯒꯥ ꯄꯥꯠ ꯑꯃꯈꯩ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯑꯦꯟꯖꯤ ꯅꯠꯇꯔꯒꯥ ꯏꯊꯣꯡ (ithong)-ꯒꯤ ꯀꯃꯥꯡꯗ ꯌꯥꯕ ꯃꯦꯇꯨꯔꯥꯟ) ꯃꯔꯦꯡꯕ ꯂꯦꯕꯦꯜ, ꯅꯠꯇꯔꯒꯥ ꯀꯁꯤꯒꯤ ꯔꯦꯒꯨꯂꯦꯇꯔ ꯈꯣꯡꯔꯥꯡꯒꯤ ꯂꯦꯝꯗꯕ ꯃꯔꯦꯡꯕ꯫ ꯄꯨꯈ꯭ꯔꯤ ꯑꯁꯤꯗꯦ ꯊꯥꯗꯣꯛꯅꯗꯦ FTL ꯍꯦꯟꯕ ꯏꯁꯤꯡ ꯊꯝꯀꯤ꯫
ꯀꯦꯡꯁꯤꯀꯝ ꯋꯥꯇꯔ ꯂꯦꯕꯦꯜ (MWL)	ꯈꯔꯥꯄꯟꯗ ꯑꯤꯔꯤꯗꯦ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯏꯁꯤꯡ ꯏꯊꯣꯡ ꯅꯦꯡꯗꯥꯡꯕꯥ ꯀꯔꯝꯗ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯗ ꯌꯦꯕ ꯈꯕꯗꯒꯤ ꯋꯥꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯕꯦꯜ꯫ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤꯗꯃꯛ, ꯀꯁꯤ ꯋꯥꯇꯔ ꯔꯤꯁꯥꯔꯦꯁ ꯗꯤꯖꯥꯏꯟꯀꯦꯟꯁꯦ ꯔꯦꯝꯄꯥꯗ ꯇꯦꯔꯕ ꯂꯦꯕꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯨꯌꯦꯜ 2.8-ꯒꯤ ꯃꯦꯅꯨꯌꯀꯦ ꯐꯥꯏꯇꯔꯒꯤ ꯅꯥꯔꯅꯦ 1% AEP (100-yr) ꯏꯚꯦꯟꯇꯒꯤꯗꯃꯛ ꯃꯀꯄꯔꯣꯁ ꯇꯦꯔꯕ ꯂꯦꯕꯦꯜ ꯑꯅꯤꯒꯤ ꯀꯨꯝꯗ ꯍꯦꯡꯗꯦ ꯋꯥꯕ ꯑꯃꯨꯅꯤ (ꯃꯦꯅꯨꯌ 7.7.4)꯫
ꯇꯦꯟꯛ ꯕꯦꯗ ꯂꯦꯕꯦꯜ (TBL)	ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯄꯦꯗꯒꯤ ꯃꯔꯦꯡꯕ ꯂꯦꯕꯦꯜ꯫
ꯋꯥꯇꯔꯁꯞꯔꯦꯗ (waterspread)	FTL-ꯗ ꯏꯁꯤꯡꯗꯦ ꯌꯥꯝꯕ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ ꯑꯦꯔꯤꯌꯥ꯫
ꯐꯣꯔꯁꯣꯔ (foreshore)	ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ ꯑꯃꯥꯏꯕꯗ FTL ꯃꯦꯇꯨꯔ ꯑꯃꯁꯨꯡ MWL ꯃꯦꯇꯨꯔꯒꯤ ꯀꯔꯥꯕ ꯌꯥꯕ ꯂꯝ꯫ ꯄꯨꯈ꯭ꯔꯤ ꯑꯁꯤ ꯈꯔꯥꯄꯟꯗ ꯇꯦꯕ ꯀꯇꯝ ꯈꯨꯗꯤꯡꯗ ꯐꯣꯔꯁꯣꯔꯒꯤ ꯂꯝ ꯑꯁꯤ ꯏꯁꯤꯡꯗꯦ ꯌꯥꯝꯅ, ꯑꯃꯁꯨꯡ ꯀꯁꯤ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯁꯦꯡꯒꯤ ꯈꯣꯡꯖꯦꯜꯒꯤ ꯀꯨꯝꯗ ꯌꯥꯍꯟꯅ꯫
ꯈꯣꯡꯖꯦꯜ ꯑꯦꯟꯖꯤ (ꯐꯤꯗꯔ ꯈꯣꯡꯔꯤꯃ (khong), ꯑꯦꯟꯖꯤ ꯅꯠꯇꯔꯒꯥ ꯀꯥꯏꯕꯦ)	ꯇꯨꯔꯦꯜ, ꯑꯦꯅꯤꯀꯠ (anicut) ꯅꯠꯇꯔꯒꯥ ꯀꯊꯣꯛꯂꯕ ꯌꯥꯕ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯗꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯗ ꯏꯁꯤꯡ ꯄꯨꯔꯀꯄ ꯑꯦꯟꯖꯤ ꯑꯃꯥ꯫
ꯈꯔꯥꯄꯟꯗ ꯃꯥꯔꯀ (surplus course)	ꯈꯔꯥꯄꯟꯗ ꯑꯤꯔꯤꯕ ꯑꯃꯒꯤ ꯑꯥꯡꯔꯐꯦꯟ ꯑꯃꯥ ꯀꯊꯣꯛꯂꯒꯤ ꯄꯨꯈ꯭ꯔꯤ, ꯇꯨꯔꯦꯜ, ꯀꯥꯏꯕꯦ ꯅꯠꯇꯔꯒꯥ ꯈꯣꯡꯖꯦꯜꯗ ꯄꯨꯕ ꯑꯦꯟꯖꯤ꯫
ꯏꯊꯣꯡ (ꯏꯊꯣꯡ (ithong), ꯔꯦꯒꯨꯂꯦꯇꯔ ꯅꯠꯇꯔꯒꯥ ꯐꯂꯦꯇ ꯒꯦꯠ, ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯟ (pan) ꯑꯃꯒꯤ ꯇꯥꯛꯄꯤꯗ ꯌꯥꯕ ꯏꯊꯣꯡ ꯑꯣꯏꯕ)	ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯄꯥꯟ ꯑꯃꯒꯤ ꯇꯥꯛꯄꯤꯗ ꯌꯥꯕ ꯃꯦꯇꯨꯔꯥꯟ ꯇꯦꯕ ꯑꯣꯕ ꯑꯦꯗꯦꯠꯂꯦꯠ ꯑꯃꯥ, ꯀꯁꯤ ꯑꯣꯀꯤꯗꯦ ꯅꯥꯈꯣꯡ (ꯏꯔꯤꯒꯦꯁꯟ ꯑꯦꯟꯖꯤ) ꯑꯃꯗꯤ꯫

ꯋꯥꯍꯩ	ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯅ ꯑꯔꯊ
ꯇꯩꯔꯥꯡꯒꯤ ꯃꯊꯛ (top of bank)	ꯁꯥꯇꯥꯟ ꯑꯃꯒꯤꯗꯃꯛ, ꯁꯥꯇꯥꯟꯒꯤ ꯃꯇꯦꯡꯁ ꯇꯦꯡꯈ ꯄꯥꯝꯕ ꯃꯐꯝ꯫ ꯃꯁꯤ ꯅꯤꯡꯊꯧꯅꯥ ꯌꯥꯝꯅꯕ ꯃꯐꯝꯗ, 50% AEP (2-yr) ꯏꯆꯥꯎꯒꯤ ꯃꯊꯛꯇꯥ ꯃꯇꯦꯡ꯫
1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯥꯡꯀꯥꯟꯕ	ꯃꯤꯇꯩ 3 ꯑꯃꯁꯨꯡ ꯃꯤꯇꯩ 5-ꯗ ꯋꯥꯐꯝ ꯄꯅꯈꯤꯕꯥ ꯃꯇꯥꯡ ꯑꯃꯁꯨꯡ, ꯇꯧꯕꯗ ꯁꯦꯛꯁꯟ 7.3.4-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯇꯧꯗꯨꯅ ꯃꯥꯌ ꯑꯃꯁꯨꯡ ꯂꯩꯕ, ꯁꯦꯛꯁꯟ 2.8-ꯒꯤ ꯁꯦꯛꯁꯅꯒꯤ ꯂꯥꯏꯔꯤꯛ ꯇꯦꯛꯅꯤꯛ 1% AEP (100-yr) ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯁꯥꯏꯟ ꯇꯧ꯫
ꯂꯝꯕꯤ (floodway)	ꯃꯂꯦꯝ ꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ ꯑꯃꯃꯇꯥ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯇꯥꯡꯖ 0.1 m-ꯗꯒꯤ ꯍꯦꯟꯅ ꯋꯥꯡꯍꯟꯗꯅ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯇꯦꯡꯕꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯈꯨꯗꯝ ꯏꯁꯤꯡ ꯇꯦꯡꯈꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯇꯧꯕ ꯇꯧ (ꯁꯦꯛꯁꯟ 7.6.1)꯫ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤꯗꯃꯛ, MWL-ꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯇꯧ ꯄꯨꯈꯤꯕꯥ꯫
ꯂꯝꯕꯤ ꯂꯃꯗꯝ (flood fringe)	ꯂꯝꯕꯤꯒꯤ ꯃꯄꯥꯟꯗ ꯂꯩꯕ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯥꯡꯀꯥꯟꯕꯒꯤ ꯃꯐꯝ꯫
ꯇꯦꯡ 1 (ꯏꯁꯤꯡ ꯂꯦꯞꯄ ꯌꯥꯕꯥꯝꯕ ꯇꯦꯡ)	ꯁꯦꯛꯁꯟ 7.4.3-ꯗ ꯗꯥꯔꯤꯡ ꯑꯣꯏꯕ ꯃꯐꯝꯒꯤ ꯀꯟꯗꯥꯎ ꯇꯦꯡ꯫
ꯇꯦꯡ 2 (ꯂꯝꯕꯤ ꯂꯃꯗꯝꯒꯤ ꯀꯟꯗꯥꯎ)	ꯁꯦꯛꯁꯟ 7.4.4-ꯗ ꯗꯥꯔꯤꯡ ꯑꯣꯏꯕ ꯃꯄꯥꯟꯒꯤ ꯀꯟꯗꯥꯎ ꯇꯦꯡ꯫
ꯀꯟꯗꯥꯎ	ꯇꯦꯡ 1 ꯑꯃꯁꯨꯡ ꯇꯦꯡ 2 ꯌꯥꯎꯏ꯫
ꯁꯦꯄꯥꯔꯦꯁꯅꯒꯤ ꯀꯣꯏꯕ	ꯁꯦꯛꯁꯟ 7.6.4-ꯒꯤ ꯃꯇꯨꯡ, ꯂꯤꯟꯅ ꯃꯤꯕꯨꯡꯅꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯀꯣꯏꯕꯒꯤ ꯃꯇꯧ ꯀꯤꯗꯕ ꯇꯧ ꯑꯣꯏꯕꯅ ꯀꯥꯃꯕ ꯀꯣꯏꯕ꯫
ꯂꯝꯕꯤ ꯁꯤꯡꯗꯝ (flood cushion)	ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯃꯤ ꯇꯦꯡꯀꯗꯕ, ꯗꯥꯡꯀꯨꯃꯥ ꯑꯣꯏꯕ ꯑꯦꯁꯤꯑꯣꯏꯕ ꯂꯥꯟ ꯑꯃꯒꯤ ꯃꯇꯨꯡ ꯑꯍꯥꯕ ꯑꯦꯟꯅ ꯊꯝꯕ FTL-ꯒꯤ ꯃꯊꯛꯀꯤ ꯀꯣꯏꯕ (ꯁꯦꯛꯁꯟ 7.8)꯫

ꯃꯇꯤꯡꯄꯨꯒꯤ ꯋꯥꯍꯩꯁꯤꯡ. ꯃꯊꯛꯇ ꯌꯥꯝꯂꯕꯤꯁꯤꯡꯒꯤ ꯃꯊꯛꯇ ꯍꯥꯅꯅ ꯃꯇꯧꯒꯤ ꯋꯥꯍꯩꯁꯤꯡ ꯃꯤꯇꯩ ꯑꯃꯁꯨꯡ ꯀꯤꯇꯤꯅꯅ (ꯑꯍꯥꯅꯕ 7E-ꯗ ꯌꯥꯎꯕꯤꯔꯦ)꯫ ꯏꯇꯤꯀ ꯑꯥꯡꯀꯤꯀꯅꯅ ꯃꯇꯤꯡꯄꯨꯒꯤ ꯋꯥꯍꯩꯁꯤꯡ ꯇꯥꯔꯤꯡ ꯃꯁꯥꯃ ꯁꯃꯗꯣꯅ ꯏꯔꯤ; ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯕꯒꯤ ꯃꯈꯣꯇꯦꯡ ꯑꯥꯡꯀꯤꯀꯅ ꯑꯣꯏꯕ ꯃꯊꯦꯡꯒꯤ ꯃꯈꯣ ꯃꯁꯥꯃꯗꯤ ꯃꯑꯦꯝ ꯌꯥꯏꯔꯤ꯫

ꯋꯥꯍꯩ	ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯅ ꯑꯔꯊ
ꯄꯥꯠ	ꯃꯍꯩꯔꯤꯒꯤ ꯇꯥꯃ ꯇꯧꯕꯗ ꯋꯥꯐꯇꯥꯡꯅ: *pāt*, "(ꯃꯤꯡꯊꯦꯟ) ꯇꯥꯃ" ("n. lake") (Sharma, *Learners' Manipuri-English Dictionary*, 2006, p. 114), ꯇꯃꯂꯥꯟꯄꯥꯠ, ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠ, ꯋꯥꯏꯊꯣꯅ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯄꯥꯡꯃꯁꯤꯡ ꯑꯣꯏꯅꯄꯥ ꯄꯥꯠꯀꯤꯁꯤꯡꯒꯤ ꯃꯃꯤꯡꯗ ꯂꯩꯕ ꯋꯥꯍꯩ꯫ ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯅ ꯑꯍꯦꯟꯕ ꯑꯦꯟꯅ "ꯄꯥꯠ (pat; ꯇꯥꯃ ꯇꯧꯕꯗ ꯋꯥꯐꯇꯥꯡꯗ, ꯇꯃꯂꯥꯟꯄꯥꯠꯁ ꯂꯩꯕꯄꯨꯡ)" ꯍꯥꯌꯅ ꯀꯤꯇꯤꯅꯅ꯫ ꯁꯥꯇꯥꯟ, ꯏꯊꯦꯡ ꯇꯧꯕꯗ ꯄꯥꯃꯄꯥꯅ ꯊꯗꯥꯕꯁꯤꯡ ꯑꯦꯛꯁꯐꯇꯥꯎ ꯑꯃꯒꯤ ꯂꯐꯊꯨꯡꯗ ꯏꯁꯤꯡ ꯊꯗꯥꯕꯁꯤꯡ ꯄꯥꯠ ꯑꯃꯗꯤ ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯃꯇꯨꯡ ꯄꯨꯈ꯭ꯔꯤ (tank) ꯑꯃꯇꯤ: ꯃꯀꯤꯒꯤ FTL-ꯗꯤ ꯑꯦꯛꯁꯐꯇꯥꯎ ꯑꯃꯁꯤꯒꯤ ꯁꯦꯝꯕꯤꯀ ꯇꯧꯕꯗ ꯀꯤꯅ ꯑꯃꯂꯤꯇꯤ, ꯀꯦꯡꯍꯥꯅ ꯂꯝꯕ, ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ MWL-ꯗꯤ ꯁꯦꯛꯁꯟ 5.8.5-ꯗ ꯃꯊꯧ ꯑꯣꯏꯕ ꯃꯂꯦꯃꯗ ꯑꯦꯛꯁꯐꯂꯅ ꯊꯤꯕꯇꯤꯅꯇꯗ ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯃꯇꯨꯡ ꯊꯃꯃꯤ꯫ ꯑꯦꯛꯁꯐꯇꯥꯎ ꯂꯣꯏꯕ ꯄꯥꯠ ꯑꯃꯗꯤ ꯁꯦꯛꯁꯟ 7.12-ꯒꯤ ꯃꯇꯨꯡ ꯋꯥꯐꯇꯥꯡꯗ ꯑꯃꯇꯤ꯫ ꯇꯃꯂꯥꯟꯄꯥꯠ ꯑꯃꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯀꯣꯏꯕ ꯑꯦꯟꯅ ꯀꯥꯃꯒꯐꯇꯤꯕ ꯄꯥꯠ ꯑꯃꯇꯤ, ꯗꯤꯁꯥꯔꯀꯟ ꯄꯥꯔꯗ (detention pond) ꯇꯧꯁꯥ꯫ ꯃꯍꯩꯔꯤꯒꯤ ꯇꯥꯃ ꯇꯧꯕꯗ ꯋꯥꯐꯇꯥꯡꯗ ꯑꯃꯁꯨ ꯁꯤꯡꯗꯥꯃꯗꯝ ꯄꯨꯈ꯭ꯔꯤ ꯍꯥꯌꯅ ꯁꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯒꯤ ꯃꯇꯨꯡ ꯀꯗ ꯀꯣꯏꯕꯇꯨ ꯁꯤꯡꯗꯥꯃꯗꯝ ꯄꯥꯠ ꯍꯥꯌꯅ ꯁꯤꯡꯗꯥ꯫
ꯄꯨꯈ꯭ꯔꯤ	ꯄꯦꯗꯅ ꯑꯃ: *pukhri*, "(ꯃꯤꯡꯊꯦꯟ) ꯄꯦꯗꯅ" ("n. pond") (Sharma, 2006, p. 117, ꯂꯦꯝꯅꯥꯅꯕ ꯇꯃꯏꯗ ꯌꯥꯝꯀꯤꯗꯏꯕ), ꯑꯣꯏꯄꯥꯡ ꯑꯔꯊ ꯂꯣꯏ; ꯃꯀꯤꯅ ꯑꯣꯟꯇꯕ ꯇꯧꯕꯗ ꯑꯄꯥꯡꯃꯄꯥ ꯇꯥꯄꯇꯤꯕ ꯏꯀꯤꯒꯤꯗꯤ ꯃꯃꯤꯡ ꯄꯤ꯫ ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯅ ꯑꯍꯦꯟꯕ ꯑꯦꯟꯅ "ꯄꯨꯈ꯭ꯔꯤ (pukhri; ꯄꯦꯗꯅ ꯑꯃ; plural pukhris)" ꯍꯥꯌꯅ ꯀꯤꯇꯤꯅꯅ꯫ ꯃꯈꯣꯇꯦꯡꯅ ꯃꯀꯤꯗ ꯋꯥꯃꯕ ꯑꯀꯤ ꯀꯂꯤꯗꯀꯅ ꯑꯣꯁꯤꯅ (ꯄꯨꯈ꯭ꯔꯤꯀꯤꯗ), ꯃꯑꯦꯝ ꯑꯃꯨꯅ ꯏꯇꯤꯀꯁꯤ plural "pukhris" ꯑꯀꯤ ꯏꯇꯤꯀ ꯑꯥꯡꯀꯤꯀꯅꯒꯤ ꯊꯑꯗ ꯑꯃꯇꯤ꯫ ꯑꯦꯛꯁꯐꯇꯥꯎ ꯄꯥꯅꯄꯥ, ꯏꯊꯦꯡ ꯇꯧꯕꯗ ꯑꯦꯟꯅꯂꯦꯡ ꯂꯣꯏ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯗꯤ ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯃꯇꯨꯡ ꯄꯨꯈ꯭ꯔꯤ (tank) ꯑꯃꯇꯤ, ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ FTL-ꯗꯤ ꯑꯦꯛꯁꯐꯇꯥꯎ ꯇꯧꯕꯗ ꯑꯦꯟꯅꯂꯦꯡ ꯑꯃꯨꯒꯤ ꯁꯦꯝꯕꯤꯀꯇꯤ, ꯀꯦꯡꯍꯥꯅ ꯂꯝꯕ; ꯑꯦꯛꯁꯐꯇꯥꯎ ꯂꯣꯏꯕ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯒꯤ FTL-ꯗꯤ ꯃꯀꯤꯅ ꯑꯁꯦꯏꯕꯒꯤ ꯇꯃꯗ ꯊꯦꯡꯍꯟꯕ ꯇꯥꯡꯖ ꯑꯃꯨꯇꯤ, ꯀꯦꯡꯍꯥꯅ ꯂꯝꯕ꯫ ꯃꯥꯂꯨꯔꯥꯟ ꯑꯣꯏꯒꯤ ꯃꯇꯨꯡ ꯀꯗ ꯏꯑꯦꯇꯤꯇꯤꯌꯦꯡꯗ ꯀꯣꯏꯕ ꯑꯀꯤ "ꯗꯤꯁꯥꯔꯀꯟ ꯄꯦꯗꯅ" ꯑꯃꯇꯤ, ꯁꯤꯡꯗꯥꯃꯗꯝ ꯄꯨꯈ꯭ꯔꯤ ꯇꯧꯁꯥ꯫

ꯋꯥꯍꯩ	ꯀꯣꯟꯇꯦꯛꯁ ꯑꯣꯏꯕ ꯑꯔꯊ
ꯇꯨꯔꯦꯜ; ꯅꯥꯂ; ꯂꯝꯕꯤꯒꯤ ꯏꯆꯦꯟ	ꯇꯨꯔꯦꯜ ꯍꯥꯏꯕꯗꯤ ꯇꯨꯔꯦꯜ ꯑꯃꯅꯤ (*turen*, "(ꯃꯤꯡꯊꯣꯟ) ꯇꯨꯔꯦꯜ ꯑꯃ ... ꯇꯣꯉꯥꯟꯕ ꯃꯑꯣꯡ: ꯇꯨꯔꯦꯜ" ["n. a river ... Variant: turel"], Sharma, 2006, p. 81), "ꯅꯣꯡꯖꯦꯜ ꯇꯨꯔꯦꯜ"-ꯗ ꯌꯥꯎꯔꯤ; ꯅꯥꯂ ꯍꯥꯏꯕꯗꯤ ꯂꯝꯕꯤꯒꯤ ꯑꯃꯅꯤ (Sharma, 2006, p. 54, ꯃꯇꯝ ꯑꯗꯨꯗ ꯋꯥꯍꯩ ꯑꯗꯨꯃꯛꯇꯥ "ꯃꯅꯥꯡ" ꯍꯥꯏꯅꯥ ꯇꯥꯀꯏ), ꯑꯃꯁꯨꯡ ꯀꯣꯟꯇꯦꯛꯁ ꯑꯣꯏꯕ ꯃꯇꯝ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯋꯥꯍꯩꯁꯤꯡ ꯅꯥꯂ ꯄꯨꯝꯅꯃꯛ ꯇꯣꯉꯥꯟꯕ ꯃꯍꯥꯛꯀꯤ ꯅꯥꯂ ꯑꯃꯅꯤ; ꯂꯝꯕꯤꯒꯤ ꯏꯆꯦꯟ ꯍꯥꯏꯕꯗꯤ ꯇꯣꯉꯥꯟ ꯑꯃꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯅꯥꯂ ꯑꯃꯅꯤ, ꯃꯁꯤꯗ ꯌꯥꯎꯕ, ꯑꯍꯤꯡꯒꯤ ꯂꯣꯡꯅꯕ ꯄꯨꯝꯅꯃꯛ ꯃꯍꯩꯁꯤꯡ ꯂꯧꯊꯣꯛꯅꯕ, ꯆꯨꯝꯃ ꯋꯥꯈꯜ ꯅꯣꯡꯖꯦꯜꯗ ꯌꯥꯑꯣ ꯃꯥꯏ ꯈꯨꯠꯄ, ꯋꯥꯍꯟꯂꯣꯟ ꯃꯥꯏꯊꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯃꯂꯩ ꯃꯃꯤ (Shamushang nallah)। 8 ha ꯄꯨꯝꯅꯃꯛ ꯍꯣꯡꯕ ꯅꯣꯡꯖꯦꯜ ꯊꯥꯗꯣꯛꯄ ꯇꯨꯔꯦꯜ, ꯅꯥꯂ ꯄꯨꯝꯅꯃꯛ ꯂꯝꯕꯤꯒꯤ ꯏꯆꯦꯟ ꯍꯤꯡꯗꯕꯃꯛ, ꯃꯇꯝ ꯃꯃꯤꯗ ꯍꯥꯄꯆꯤꯟꯅꯕ ꯑꯅꯥꯕꯤꯕ ꯑꯃꯁꯨꯡ ꯆꯅꯕ ꯌꯥꯕꯤꯕ, ꯁꯦꯅꯁ ꯌꯥꯕꯤꯕ ꯄꯨꯝꯅꯃꯛ ꯍꯥꯏꯕꯤꯕ, ꯍꯦꯗ 7.4.1(b)-ꯒꯤ ꯃꯈꯥꯗ ꯃꯍꯥꯛꯀꯤ ꯏꯆꯦꯟ ꯑꯃꯅꯤ। ꯏꯗꯤꯒꯤ ꯅꯥꯂ ꯑꯃꯗ ꯅꯣꯡꯖꯦꯜ ꯅꯣꯡꯖꯦꯜꯒꯤ ꯃꯌꯥꯝꯗ ꯆꯤꯛ ꯑꯃꯁꯨꯡ ꯗꯣꯁꯤꯌꯦ ꯁꯊꯤꯕꯅ: ꯃꯇꯝꯒꯤ ꯅꯥꯆꯣꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯕꯁꯤꯡꯗ (culverts) ꯍꯦꯗ 6.3.6(f)-ꯗꯒꯤ (h) ꯐꯣꯡꯕꯒꯤ ꯊꯣꯡꯁꯤꯡ, ꯕꯥꯍꯤꯡ (bulking) ꯑꯃꯁꯨꯡ ꯕꯦꯍꯣꯛ ꯆꯅ, ꯑꯃꯁꯨꯡ ꯌꯥꯎꯕꯤꯕ ꯀꯥꯗ ꯋꯥꯕ ꯃꯐꯃꯗ ꯃꯇꯝꯗ ꯂꯤꯈꯩ ꯇꯨꯔꯦꯜ (silt trap) ꯑꯃ ꯆꯦꯗꯖꯕꯅ (ꯍꯦꯗ 6.3.6(m))। ꯅꯦꯗꯦꯕ ꯑꯃꯇꯃ ꯀꯣꯟꯇꯦꯛꯁ ꯑꯃꯗ ꯊꯝꯕꯤ।
ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯜ (pan); ꯏꯊꯣꯡ (ithong)	ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯜ ꯍꯥꯏꯕꯗꯤ ꯇꯨꯔꯦꯜ ꯑꯃꯒꯤ ꯃꯆꯥꯡꯁ ꯌꯥꯕ ꯅꯣꯡꯖꯦꯜ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯄꯥꯜ ꯑꯃꯅꯤ, *pan*, "ꯄꯥꯜ ꯑꯃ; ꯑꯍꯕꯥꯡꯗꯤꯃꯗꯤ" ("a bund; embankment") (Sharma, 2006, p. 111), ꯆꯨꯝꯃ ꯋꯥꯈꯜ ꯅꯣꯡꯖꯦꯜꯒꯤ ꯇꯣꯏꯊꯤꯡ ꯅꯣꯡꯖꯦꯜ, ꯂꯃꯕꯤ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯤ ꯇꯨꯔꯦꯜꯁꯤꯡ ꯊꯃꯂꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯃꯒꯤ ꯄꯥꯜꯒꯤ ꯂꯝꯕꯤꯁꯤꯡ ꯄꯨꯝꯕ ꯄꯥꯜꯁꯤꯡ। ꯏꯊꯣꯡ ꯍꯥꯏꯕꯗꯤ ꯄꯥꯜ ꯑꯃꯒꯤ ꯇꯣꯏꯊꯤꯡ ꯌꯥꯕ ꯒꯦꯠ ꯌꯥꯕ ꯑꯁꯤꯡꯒꯦꯠ ꯑꯃꯅꯤ, *ithong*, "ꯐꯦꯗꯤꯒꯦꯠ; ꯂꯐꯨꯅꯂ ꯒꯦꯠ" ("floodgate; sluice gate") (Sharma, 2006, p. 20), ꯐꯦꯂꯥꯞ ꯒꯦꯠ (flap gate) ꯌꯥꯕꯤꯕꯁꯨ ꯌꯥꯎꯕꯤꯕꯁꯨ। ꯄꯥꯜꯁꯤꯡꯒꯤ ꯃꯇꯝꯗ ꯃꯔꯤꯂꯤꯕꯒꯤ ꯑꯅꯥꯕ ꯑꯃꯍꯥꯛ ꯐꯤꯅꯤꯁꯤ (NEER-ꯒꯤ ꯄꯥꯕ): WRD-ꯗ ꯄꯥꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯊꯣꯡꯁꯤꯡ ꯃꯄꯨ ꯋꯥꯈꯜ ꯄꯨꯕ, ꯑꯃꯁꯨꯡ ꯀꯣꯟꯇꯦꯛꯁ ꯑꯃꯇꯒꯤ ꯃꯈꯥꯗ WRD ꯄꯨꯝꯅꯃꯛ ꯃꯇꯝꯒꯤ ꯅꯥꯕ ꯑꯔꯣꯕꯒꯤ ꯃꯈꯥꯗ ꯊꯕꯛ ꯌꯥꯕꯤꯕ ꯕꯥꯔꯤ ꯑꯃꯒꯤ ꯃꯊꯛꯇ ꯍꯗꯤꯡꯃꯕ ꯑꯃꯍꯥꯛꯇ ꯏꯊꯣꯡ ꯍꯣꯠꯅꯒꯅ, ꯊꯤꯗꯣꯛꯄ ꯄꯨꯝꯅꯃꯛ ꯍꯣꯠꯅꯍꯅ ꯄꯨꯝꯅꯃꯛ ꯄꯥꯜ ꯍꯥꯄꯅ ꯌꯥꯔꯣ।
ꯐꯨꯝꯗꯤ; ꯑꯊꯥꯐꯨꯝ	ꯐꯨꯝꯗꯤꯁꯤꯡ ꯍꯥꯏꯕꯗꯤ ꯇꯥꯏꯊꯥ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯀꯁꯤꯡꯒꯤ ꯌꯣꯀꯥꯏꯕ ꯃꯍꯩꯁꯤꯡꯅꯤ: "'ꯐꯨꯝꯗꯤꯁꯤꯡ' ꯍꯥꯏꯕꯗꯤ ꯅꯣꯡꯖꯦꯜ ꯌꯣꯀꯥꯏꯕ ꯃꯑꯣꯡꯗ ꯌꯥꯕ ꯄꯥꯃꯕꯤ, ꯑꯥꯏꯒꯦꯠꯊꯣ ꯃꯍꯩ ꯃꯍꯨ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯅꯒꯤ ꯇꯥꯕꯤꯗ ꯇꯥꯕꯤꯗꯕ ꯃꯅꯥꯡ ꯋꯥꯐꯝ ꯃꯊꯣꯏꯔꯤꯕꯅꯤ" ("'Phumdis' means heterogeneous mixture of vegetation, organic debris and soil in floating condition"), ꯑꯃꯁꯨꯡ "'ꯑꯊꯥꯐꯨꯝ' ꯍꯥꯏꯕꯗꯤ ꯉꯥ ꯐꯥꯗꯕ ꯃꯤꯑꯣꯏꯅꯥ ꯊꯥꯕ ꯄꯨꯝꯅꯃꯛ ꯍꯥꯏꯕꯒ ꯌꯥꯕ, ꯌꯣꯀꯥꯏꯕ ꯃꯑꯣꯡꯗ ꯌꯥꯕ, ꯍꯥꯏꯅꯗ ꯂꯣꯡꯕ ꯐꯨꯝꯗꯤꯒꯤ ꯑꯂꯣꯡꯕ ꯂꯩꯕꯥꯛ ꯑꯃꯅꯤ" ("'Athaphum' mean long strip of Phumdis in circular shape in floating condition, planted or cultured artificially for catching fish") (Manipur Loktak Lake (Protection) Act, 2006, ꯁꯦꯛꯁꯟ 2)। ꯐꯨꯝꯗꯤꯁꯤꯡꯗ ꯑꯦꯛꯁꯄꯦꯡꯁꯤꯡ, ꯂꯃꯍꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯆꯦꯟꯁꯤꯡ ꯊꯤꯗꯣꯛꯄꯤ (ꯂꯃꯥꯏ 9); ꯑꯦꯛꯁꯄꯔꯠ, ꯂꯃꯍꯥꯡꯗ ꯄꯨꯝꯅꯃꯛ ꯏꯆꯦꯟ ꯑꯃꯍꯥꯛ ꯃꯅꯥꯏꯗ ꯌꯥꯎꯕ ꯍꯥꯏꯗ ꯌꯥꯎꯕꯗ ꯗꯤꯌꯥꯜ ꯌꯥꯗꯣ, ꯑꯃꯁꯨꯡ ꯑꯣꯄꯣ ꯑꯃꯁꯨꯡ ꯇꯥꯏꯊꯥ ꯗꯣꯀꯨꯃꯦꯟꯇ ꯑꯊꯥꯐꯥꯏꯗ ꯏꯍꯥꯎꯕꯗꯤ ꯄꯨꯝꯅꯗ, ꯀꯣꯟꯇꯦꯛꯁ ꯑꯃꯇꯒꯤ ꯃꯈꯥꯗ ꯇꯣꯉꯥꯟ ꯃꯂꯩꯗ ꯐꯨꯝꯗꯤ ꯄꯨꯝꯅꯃꯛ ꯑꯊꯥꯐꯨꯝ ꯑꯃꯍꯥꯛ ꯌꯥꯊꯣꯡꯄ, ꯉꯥꯕ ꯄꯨꯝꯅꯃꯛ ꯏꯗꯦꯊꯍꯗꯕ ꯌꯥꯗꯣ।
ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯜ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯅꯣꯡꯖꯦꯜ ꯇꯥꯄꯥꯛ ꯑꯍꯤꯡꯁꯤ	ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯜꯗ ꯍꯅꯣꯏꯕꯇꯕ ꯑꯍꯤꯡꯁꯤ ꯑꯃꯒꯤ ꯃꯂꯩꯗ, ꯃꯇꯝꯒꯤ ꯏꯊꯣꯡꯁꯤꯡ ꯊꯤꯗꯕ ꯃꯌꯥꯝꯗ, 1% AEP ꯇꯥꯏ ꯆꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯄꯤꯗꯤꯃꯛ ꯍꯦꯗ 5.8.5(a)-ꯒꯤ ꯑꯦꯛꯁꯄꯔꯠ ꯊꯤꯕ ꯍꯥꯌꯔꯕ ꯋꯥꯕ ꯇꯥꯒꯥꯠ ꯐꯦꯗꯕ ꯅꯣꯡꯖꯦꯜꯗ ꯋꯥꯌꯥꯄ ꯇꯃ। ꯃꯇꯝ ꯅꯦꯗꯒꯥꯗꯦꯔꯤ (ꯑꯍꯦꯗꯕ 7A)-ꯗ ꯐꯣꯍꯥꯐꯗ ꯌꯥꯕꯅ, ꯑꯃꯁꯨꯡ ꯇꯥꯒꯥꯠ ꯑꯗꯨ ꯍꯦꯗ 7.3.4-ꯒꯤ 1% AEP ꯅꯣꯡꯖꯦꯜ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯑꯊꯣꯡꯌꯥꯗꯦꯔꯤꯍꯥꯛ ꯃꯂꯩꯗ ꯋꯥꯐꯝꯅ; ꯇꯥꯗ 1 ꯑꯃ ꯃꯇꯝꯒꯤ ꯃꯂꯩꯗ ꯌꯥꯕ ꯄꯥꯔꯕꯤꯁꯤꯡ, ꯄꯨꯅꯐꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯆꯦꯟꯁꯤꯡꯗ ꯏꯔꯤ, ꯅꯣꯡꯖꯦꯜ ꯇꯥꯄꯥꯛ ꯑꯍꯤꯡꯁꯤ ꯄꯨꯝꯅꯃꯛꯇꯒꯤ ꯏꯔꯕ। ꯗꯤꯐꯥꯏꯅꯗ ꯑꯃ ꯀꯣꯟꯇꯦꯛꯁ ꯑꯃꯗ ꯊꯝꯕꯤ।
ꯅꯣꯡꯖꯦꯜ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯂꯥꯌꯦꯠ ꯑꯅꯕ ꯌꯥꯎꯕꯤꯕ ꯇꯥꯗꯨꯒ ꯑꯃꯁꯨꯡ ꯏꯔꯕꯇꯨꯗ	ꯅꯣꯡꯖꯦꯜ ꯌꯥꯎꯕꯤꯕ ꯆꯃꯗ (ꯑꯍꯦꯗꯕ 2A-ꯒꯤ ꯂꯕ-ꯑꯍꯤꯡꯁꯤ MN-A ꯑꯃꯁꯨꯡ MN-A1), ꯃꯇꯝꯄꯨꯐ ꯍꯦꯂꯐꯒꯥꯂꯦ ꯑꯣ ꯄꯥꯜ ꯇꯥꯗ ꯑꯃꯁꯨꯡ ꯏꯔꯕꯇꯨꯗ ꯑꯥꯎ, 2014-ꯒꯤ ꯁꯦꯛꯁꯟ 2-ꯗ ꯗꯤꯐꯥꯏꯅ ꯌꯥꯕꯤꯕ ꯄꯥꯜ ꯇꯥꯗ ꯑꯃꯁꯨꯡ ꯏꯔꯕꯇꯨꯗ, ꯃꯅꯥꯏꯒꯤ "ꯅꯣꯡꯖꯦꯜꯒꯤ ꯏꯆꯦꯟꯁꯤꯡ, ꯄꯥꯡꯗꯁꯤꯡ, ꯅꯥꯂꯁꯤꯡ, ꯄꯥꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯅꯁꯤꯡ" ("drainage channels, ponds, canals, bunds and ridges") ꯋꯥꯐꯝꯗ (ꯁꯦꯛꯁꯟ 2(c)), ꯑꯃꯁꯨꯡ ꯃꯍꯤꯡꯗ ꯄꯥꯌ ꯑꯅꯥꯕ ꯃꯇꯝ ꯆꯨꯝꯃ, ꯀꯣꯟꯇꯦꯛꯁ ꯑꯃꯒꯤꯗꯤꯃꯛ ꯅꯣꯡꯖꯦꯜ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯂꯥꯌꯦꯠꯇꯤ। ꯑꯃꯒꯤꯃꯕ ꯆꯃ ꯐꯤꯟ ꯌꯥꯕꯕ ꯄꯨꯝꯅꯃꯛ ꯃꯌꯥꯝꯒꯤ ꯃꯊꯛꯇ ꯍꯥꯏꯗꯕ ꯃꯇꯝꯗ, 1% AEP ꯅꯣꯡꯖꯦꯜ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯇꯥꯒꯥꯠꯒꯤ ꯃꯈꯥꯗ, ꯄꯨꯝꯅꯃꯛ ꯍꯦꯗ 5.8.5(a)-ꯒꯤ ꯑꯦꯛꯁꯄꯔꯠ ꯊꯤꯕ ꯍꯥꯌꯔꯕ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯜ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯅꯣꯡꯖꯦꯜ ꯇꯥꯄꯥꯛ ꯑꯍꯤꯡꯁꯤꯒꯤ ꯇꯥꯒꯥꯠ ꯍꯣꯡꯕ ꯋꯥꯊꯤꯕꯗ ꯃꯌꯥꯝꯒꯤ ꯃꯈꯥꯗ, ꯃꯤꯍꯨꯠ ꯂꯥꯌꯦꯠ ꯑꯗꯨ ꯍꯦꯗ 7.6.4-ꯒꯤ ꯃꯈꯥꯗ **ꯍꯃꯄꯥꯂꯦꯗꯂꯥꯏꯕꯒꯤ ꯂꯥꯌꯦꯠ** ꯑꯅꯕ ꯃꯇꯧ ꯂꯤꯗꯦꯒꯗꯕꯇꯤ: 0.3 m-ꯗꯒꯤ ꯍꯦꯗꯕ ꯕꯦꯗ ꯆꯨꯝꯃ ꯈꯨꯠꯄꯥꯛꯀꯤ ꯃꯇꯧꯌꯥꯏ ꯈꯨꯠꯄꯥꯛ, ꯂꯕ-ꯍꯦꯌꯃꯦꯗꯦ ꯑꯗꯨꯃꯛꯇꯥ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜ, ꯄꯥꯌ ꯄꯨꯝꯅꯃꯛ ꯄꯥꯃꯄꯥꯗ ꯊꯗꯍꯥꯛ ꯑꯦꯛꯁꯄꯔꯠ ꯑꯗꯨꯃꯛꯇꯥ ꯅꯣꯡꯖꯦꯜ ꯊꯗꯍꯥꯛ, ꯐꯤꯅꯒꯤ ꯃꯍꯤꯡꯗ ꯄꯨꯝꯅꯃꯛ ꯐꯤꯅꯒꯤ ꯇꯃꯗꯗ ꯂꯕ, ꯑꯃꯁꯨꯡ ꯍꯒꯦꯗꯦ (covenant) ꯑꯃꯗ ꯉꯥꯊꯥꯡꯄ। ꯆꯃ ꯑꯗꯨ ꯄꯥꯃꯄꯗ ꯊꯗꯍꯥꯛ ꯑꯦꯛꯁꯄꯔꯠ ꯑꯃꯗ ꯅꯣꯡꯖꯦꯜ ꯊꯗꯍꯥꯡꯕꯒꯤ, ꯃꯇꯧ ꯂꯤꯗꯕ ꯑꯗꯨꯗ ꯄꯃꯄꯂꯤꯡꯗ ꯂꯦꯕ ꯌꯥꯕꯤꯕ ꯅꯣꯡꯖꯦꯜ ꯇꯥꯄꯥꯛ ꯑꯍꯤꯡꯁꯤꯗ ꯒꯥꯐꯒꯥꯏꯗ ꯅꯣꯡꯖꯦꯜ ꯊꯗꯍꯥꯟ, ꯑꯃꯁꯨꯡ ꯃꯇꯧ ꯂꯤꯗꯕ ꯑꯗꯨ ꯑꯃꯁꯨꯡ ꯑꯍꯤꯡꯁꯤ ꯑꯗꯨꯒꯤ ꯃꯐꯃꯗ ꯍꯦꯗ 7.6.4(d)-ꯒꯤ "ꯄꯝꯄ ꯌꯥꯗꯕ" ("no pumping") ꯏꯔꯤ। ꯃꯇꯧ ꯂꯤꯗꯕ ꯑꯃ ꯗꯥꯏꯌꯦꯂꯦ ꯋꯥꯈꯜ ꯃꯇꯝ ꯋꯥꯐꯝꯍꯦꯗꯣ (ꯍꯦꯗ 7.6.5), ꯑꯃꯁꯨꯡ ꯃꯇꯃꯗ ꯍꯥꯏꯅꯗꯄ ꯑꯗꯨ ꯑꯦꯛꯅꯂꯒꯤ ꯃꯇꯨꯡ ꯅꯦꯜ ꯑꯅꯍꯦꯗꯣ: 2014-ꯒꯤ ꯑꯥꯎꯕꯗ ꯃꯈꯥꯗ ꯍꯃꯥꯏꯕꯤꯁꯤꯡꯒꯤ ꯑꯥꯄꯐꯤꯒꯥꯟ ꯍꯥꯏꯊꯣꯡ ꯃꯊꯧ ꯌꯥꯅ, ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯃꯤꯌꯥꯝꯗꯗ ꯍꯥꯏꯅꯥꯗꯕ ꯆꯃꯗ ꯍꯦꯂꯌꯥꯐꯥꯂꯦꯒꯤ ꯗꯅꯂꯦꯂ ꯇꯥꯍꯟ ꯑꯊꯥꯐꯤꯌꯥ ꯑꯃꯍꯥꯛꯇ ꯄꯤꯐꯥꯅ (ꯁꯦꯛꯁꯟ 12)। ꯐꯟ ꯑꯃ ꯀꯣꯟꯇꯦꯛꯁ ꯑꯃꯗ ꯊꯝꯕꯤ।
ꯇꯥꯄꯥꯛꯍꯤ ꯇꯥꯗꯁꯤꯡ	70.30 km²-ꯒꯤ ꯍꯥꯐ ꯇꯥꯗ ꯑꯃ "ꯇꯥ-ꯗꯒꯥꯇꯄꯃꯦꯗ ꯇꯥꯗ ꯄꯨꯝꯅꯃꯛ ꯃꯄꯨꯡ ꯐꯥꯗ ꯉꯥꯊꯥꯡꯕ ꯇꯥꯗ" ("the No-Development Zone or Totally Protected Zone")-ꯇꯤ, ꯑꯃꯁꯨꯡ ꯕꯇꯐ ꯇꯥꯗ ꯑꯃ "ꯍꯥꯐ ꯇꯥꯗꯒꯤ ꯑꯍꯤꯡꯁꯤ ꯍꯦꯗꯗꯗ ꯇꯥꯄꯥꯛꯍꯤ ꯑꯐꯃꯕ ꯑꯍꯤꯡꯁꯤ" ("the remaining area of the lake excluding Core Zone area")-ꯇꯤ (Manipur Loktak Lake (Protection) Act, 2006, ꯁꯦꯛꯁꯟ 3), ꯁꯦꯛꯁꯟ 1(3)-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯂꯩꯗ। ꯃꯅꯥꯏꯒꯤ ꯉꯥꯃꯈꯩꯁꯤꯡ ꯑꯥꯎ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯐꯟꯁꯤꯡꯗ ꯏꯁꯤꯡꯊꯕꯤꯗꯨ ꯅꯦꯗꯒꯥꯗꯦꯔꯤ (ꯑꯍꯦꯗꯕ 7A)-ꯗ ꯐꯣꯍꯥꯐꯗ ꯌꯥꯕꯅ (ꯐꯟꯁꯤꯡ ꯑꯗꯨ ꯄꯤꯅꯤꯁꯤ [TBC]); ꯑꯥꯎ ꯑꯗꯨꯗ ꯑꯍꯤꯡꯁꯤ ꯑꯗꯨꯒꯤ ꯃꯊꯛꯇ ꯌꯥꯕ ꯇꯨꯔꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯃꯁꯤꯡꯗ ꯏꯌꯥꯗ (NEER-ꯒꯤ ꯄꯥꯕ)।

ꯋꯥꯐꯝ	ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯗ ꯑꯛꯇ
ꯃꯦꯄꯥꯃꯗ ꯇꯥꯔꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ	ꯀ꯭ꯂꯣꯖ 7.3.3(a)-ꯒꯤ ꯀꯔꯤꯈ꯭ꯁꯕ ꯄꯥꯔꯛꯟꯁ ꯑꯍꯍꯛꯄ ꯆꯠꯂꯤꯕ ꯈꯠ, ꯈ꯭ꯍꯔꯤ, ꯇ꯭ꯔꯦꯜ, ꯍꯥꯎ, ꯌꯄꯔꯒꯤ ꯔꯦꯅꯦꯜ, ꯍꯔꯌ, ꯔꯤꯅꯔꯒꯥꯔꯔ ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡ ꯅꯦꯈꯈ ꯑꯦꯔꯤꯔ ꯑꯍ: ꯂꯝꯒꯤ ꯔꯦꯀꯥꯔꯗ, M.A. 26/2019-ꯗ ꯅꯦꯌꯅꯦꯜ ꯒꯔꯤꯅ ꯇ꯭ꯔꯥꯏꯕ꯭ꯌꯨꯅꯦꯂꯒꯤ ꯑꯥꯔꯗꯔꯒꯤ ꯍꯨꯛꯃꯗ ꯌꯦꯝꯍꯤꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ 4,000 ꯔꯥꯝꯒꯤ ꯏꯅꯚꯦꯟꯇꯔꯤ, ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯇ꯭ꯂꯁ (Wetland Atlas, 2021), ꯍꯅꯤꯈ꯭ꯔ ꯌ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯌ ꯑꯥꯊꯣꯔꯤꯇꯤꯒꯤ ꯗꯤꯂꯤꯅꯤꯌꯦꯁꯟ ꯅꯠꯔꯒꯥ ꯗ꯭ꯔꯥꯐꯠ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ, ꯍꯌ꯭ꯇꯔ-ꯈ꯭ꯂꯁ꯭ꯇꯔꯒꯤ ꯍꯦꯈ, ꯅꯥꯃꯣꯝ ꯑꯦꯃꯠ, WRD-ꯒꯤ ꯔꯦꯀꯥꯔꯗꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯃꯌꯦ ꯑꯍꯒꯤ ꯍꯥꯝꯕꯟꯒꯤ ꯔꯦꯂꯤꯌ꯭ꯇꯔ॥ ꯔꯦꯀꯥꯔꯗ ꯃꯥꯔꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯍꯗꯤ ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯒꯤꯗꯍꯛ ꯏꯔꯐ ꯌꯤꯌ꯭ꯇꯦꯐꯒꯤ ꯍꯂꯃꯗ ꯍꯥꯔꯥꯏ॥ ꯍꯃꯤ ꯍꯈ꯭ꯃ ꯅꯠꯔꯒꯥ ꯌꯔꯝ ꯑꯍ ꯏꯤꯟ ꯃꯥꯅꯕ ꯈ꯭ꯔꯈꯥꯅ ꯃꯥꯔꯕ ꯍꯏꯐꯗ, ꯌꯔꯝ 3-ꯗꯒꯤ 5 ꯏꯍꯕꯒꯤ ꯍꯥꯗꯗ ꯏꯔꯐꯒꯤ ꯑꯦꯌꯦꯌꯍꯦꯟꯠ ꯑꯍꯅꯥ ꯍꯃꯍꯤꯕ ꯌ꯭ꯇꯔꯦꯅ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯔꯦꯟꯕ ꯂꯐꯕꯤꯌꯤꯝ ꯑꯃꯁꯨꯡ ꯍꯏꯥꯔꯒꯤ ꯍꯃꯛ ꯑꯃꯁꯨꯡ ꯍꯥꯗꯗ ꯃꯥꯀꯈ ꯏꯟ ꯍꯃꯀꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯏꯤꯟ ꯃꯥꯕꯗ ꯊꯅꯕ ꯊꯐꯕ ꯗꯤꯅꯍꯦ ꯑꯍꯠꯃꯥ ꯑꯦꯈꯌꯒ ꯃꯥꯗꯔꯤꯊꯗ ꯍꯃꯍꯤꯕ ꯌ꯭ꯇꯔꯦꯅ ꯑꯗ꯭ ꯀ꯭ꯂꯣꯖ 7.6.4-ꯒꯤ ꯍꯥꯗꯗ ꯍꯇ꯭ꯠ ꯌꯤꯟꯒꯗꯕꯅꯤ॥ ꯗꯦꯏꯤꯅꯤꯌꯦꯟ ꯑꯃꯁꯨꯡ ꯌꯨꯟ ꯑꯃꯤ ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯅ ꯊꯝꯕꯅꯤ॥
ꯈꯠ ꯅꯦꯔꯒꯤ ꯈ꯭ꯍꯔꯤ ꯑꯍꯒꯤ ꯆꯍꯟ	ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯒꯤꯗꯍꯛ, ꯀ꯭ꯂꯣꯖ 7.3.3 ꯑꯃꯁꯨꯡ 7.13.1-ꯒꯤ ꯍꯥꯗꯗ ꯈꯠ ꯅꯦꯔꯒꯤ ꯈ꯭ꯍꯔꯤ ꯑꯍꯒꯤ ꯆꯍꯟ ꯑꯃꯤ ꯂꯝꯒꯤ ꯔꯦꯀꯥꯔꯗ, ꯏꯅꯚꯦꯟꯇꯔꯤ ꯅꯦꯔꯒꯤ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯅꯗ ꯂꯩꯕ ꯍꯃꯤꯒꯤ ꯆꯍꯟ, ꯌꯔꯒ ꯃꯥꯔꯕ ꯍꯃꯤꯒꯤ FTL, ꯑꯃꯁꯨꯡ ꯄꯥꯈꯤꯕ ꯋꯄꯤꯃꯤꯒꯤ ꯃꯤꯡ ꯌꯦꯍꯕ ꯏꯍꯦꯂꯔ ꯅꯦꯔꯒꯤ ꯌꯔꯒꯗ ꯍꯦꯠꯂꯤꯕ 1 ꯑꯦꯀꯤꯔꯗꯒꯤ 31 ꯑꯃꯃꯣꯕꯔ ꯏꯍꯕꯒꯤ ꯍꯥꯗꯅ ꯍꯃꯤꯒꯤ ꯏꯃꯤꯒꯤ ꯍꯥꯎꯗꯒꯤ ꯍꯅꯃ, ꯄꯥꯈꯕ ꯑꯃꯤꯒꯤ ꯍꯂꯃꯗ ꯏꯕꯍꯗꯒꯤ ꯌꯦꯍꯕ ꯑꯗꯨꯅꯤ॥ ꯅꯃꯥꯃꯥꯀꯤꯗꯍꯛꯃꯗꯤ ꯍꯃꯤ ꯑꯃꯠꯀꯤ 236.21 km² ꯑꯃꯁꯨꯡ ꯍꯅꯃ ꯑꯗꯨꯒꯤ ꯍꯂꯃꯗ ꯄꯦꯟꯅ ꯌꯦꯍꯕ ꯑꯗꯨꯅꯤ॥ ꯍꯦꯂꯕ ꯑꯃꯤ ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯅ ꯊꯝꯕꯅꯤ॥
ꯌꯦꯕꯥꯃꯤꯒꯤ ꯔꯦꯏꯔꯦꯟ ꯅꯍꯦꯟꯃ	ꯅꯍꯦ ꯍꯔꯤ ꯌꯤꯅꯤꯟꯅ, ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯗꯒꯤ ꯈ꯭ꯕꯏꯗꯒꯤ ꯅꯆꯅ ꯌꯥꯕ ꯌꯦꯠꯕꯃ ꯑꯗ꯭ ꯍꯔ꯭ ꯑꯍ: (a) ꯍꯗꯦꯟ ꯑꯗ꯭ꯒꯤ ꯕꯏ-ꯅ 93-ꯒꯤ ꯄꯦꯕꯟꯗ ꯂꯩꯕ ꯈ꯭ꯔꯦꯟ ꯑꯍꯒꯤ ꯍꯌꯏꯒꯤ ꯅꯍꯦ (mid-stream line), ꯕꯏ-ꯅ ꯑꯗ꯭ꯒꯤ ꯅꯆꯆ ꯑꯗ꯭ꯒꯤ ꯅꯔꯂꯅ; (b) ꯄꯦꯕꯟ ꯑꯗ꯭ꯅ ꯌꯠꯄꯟꯅꯤꯕ ꯍꯏꯐꯗ, ꯑꯃꯤꯈ꯭ꯁꯕ ꯈ꯭ꯔꯦꯟ ꯑꯍꯒꯤ ꯆꯅꯒꯤ ꯍꯆꯅꯒꯤ (ꯂꯝꯒꯤ ꯍꯏꯀꯒꯤ) ꯇꯣ (toe), ꯕꯏ-ꯅ ꯑꯗ꯭ꯒꯤ 6 m-ꯒꯤ ꯅꯔꯂꯅ; (c) ꯌꯦꯅꯦꯟ ꯑꯍꯒꯤ ꯂꯩꯏꯒꯤ ꯍꯊꯃ ꯅꯠꯔꯒꯥ ꯈꯠ ꯅꯠꯔꯒꯥ ꯈ꯭ꯍꯔꯤ ꯑꯍꯒꯤ ꯆꯍꯟ, ꯀ꯭ꯂꯣꯖ 7.4.3-ꯒꯤ ꯅꯦꯟ 1-ꯒꯤ ꯅꯔꯂꯅ, ꯑꯗ꯭ꯕ **ꯆꯅ ꯂꯩꯕ ꯔꯤꯆ (reach) ꯑꯍꯗ ꯅꯦꯟ 1 ꯑꯃꯤ ꯆꯅꯒꯤ ꯂꯝꯒꯤ ꯍꯏꯀꯒꯤ ꯇꯣ (landward toe)-ꯗꯒꯤ ꯍꯦꯅꯔ ꯄꯥꯏ**; ꯑꯃꯁꯨꯡ (d) ꯀ꯭ꯂꯣꯖ 5.8.5-ꯅ ꯍꯊ ꯄꯕ ꯍꯏꯐꯗ ꯑꯍꯌꯏꯟ ꯊꯃꯅꯤꯅꯅ ꯏꯃꯕ ꯀ꯭ꯂꯣꯖ 7.3.4-ꯒꯤ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯃꯌꯦꯡꯦ, ꯀ꯭ꯂꯣꯖ 7.4.4-ꯒꯤ 10 m-ꯒꯤ ꯅꯔꯂꯅ॥ ꯆꯅ ꯂꯩꯕ ꯔꯤꯆ ꯑꯍꯗ ꯂꯝꯒꯤ ꯍꯏꯀꯒꯤ ꯇꯣ ꯌꯤꯅꯤꯟꯅꯕꯒꯤ ꯍꯔꯝꯌꯤꯃꯗ: ꯍꯏꯐ ꯑꯗ꯭ꯗ ꯍꯄꯌꯒꯤ ꯂꯩꯔꯏ ꯅꯠꯄꯅ ꯆꯅ ꯑꯗ꯭ꯅ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯌꯦꯅꯦꯅꯒꯤ ꯍꯅꯃꯅꯤ, ꯈ꯭ꯔꯦꯟ ꯑꯗ꯭ ꯏꯅ꯭ꯗ ꯅꯦꯒꯦꯟꯗ ꯍꯃꯤꯗ ꯅꯦꯆꯅꯤ; ꯕꯏ-ꯅ 93-ꯅ ꯄꯦꯅꯅ ꯆꯅꯒꯤ ꯍꯆꯅꯒꯤ ꯇꯣꯗꯒꯤ ꯍꯦꯟꯔ ꯄꯥꯔꯤ, ꯍꯔꯐ ꯑꯗ꯭ꯅ ꯅꯍꯦ ꯑꯅꯤꯍꯃ ꯌꯔꯒ ꯃꯥꯔꯕ ꯅꯍꯦ ꯑꯍꯄꯃꯄꯥꯗꯒꯤ ꯄꯥꯏ; ꯂꯝꯒꯤ ꯍꯏꯀꯒꯤ ꯇꯣꯗ ꯂꯩꯕ ꯌꯦꯔꯤꯆ ꯑꯃꯤ ꯌꯤꯆꯦꯅ (seepage), ꯄꯥꯏꯄꯤꯡ (piping) ꯑꯃꯁꯨꯡ ꯆꯅ ꯀꯃꯆꯃꯤꯡ ꯁꯕ ꯑꯃꯁꯨꯡ ꯌꯦꯍꯗꯃꯆ ꯍꯏꯅꯤ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯆꯅ ꯀꯃꯆꯃꯤꯡ ꯌꯦꯍꯗꯃꯄꯕꯒꯤꯈ (ꯆꯁꯍ ꯏꯃꯗꯃꯄꯕ ꯍꯌ꯭ꯃ ꯅꯦꯅ); ꯑꯃꯁꯨꯡ ꯆꯅ ꯀꯔꯦꯅ ꯆꯅꯒꯤ ꯂꯝꯕꯤꯃꯤꯡ ꯈ꯭ꯔꯤ, ꯈ꯭ꯔꯦꯟꯒꯤ ꯍꯏꯀꯒꯤ ꯂꯩꯏꯅꯗꯒꯤ ꯅꯦꯕ ꯅꯍꯦ ꯑꯍ ꯍꯍꯦꯔꯒꯤ ꯍꯊꯃꯄ ꯄꯥꯒꯤꯅꯤ॥ ꯌꯨꯟ ꯑꯃꯤ ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯅ ꯊꯝꯕꯅꯤ॥
ꯄꯠꯇꯥ ꯂꯝ ꯑꯃꯁꯨꯡ ꯂꯝ ꯈ꯭ꯕ	ꯄꯥꯈꯃꯀꯤ ꯂꯝꯗ ꯂꯝ ꯌꯦꯂꯗꯕ ꯈꯠꯄꯥ ꯂꯝ (patta land)-ꯅꯤ, ꯔꯦꯚꯦꯅꯨ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Revenue Department)-ꯀꯤ ꯂꯝꯒꯤ ꯔꯦꯀꯥꯔꯗꯁꯤꯡꯒꯤ ꯍꯥꯗꯗ ꯈ꯭ꯔꯤꯕ; ꯍꯔꯗꯤ ꯂꯩꯈꯃꯀꯤ ꯂꯝꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯌ꯭ꯇꯔ-ꯈ꯭ꯂꯁ꯭ꯇꯔ ꯑꯦꯔꯤꯔ ꯑꯍꯗ ꯂꯩꯕ ꯌ꯭ꯇꯔꯠꯀꯤ ꯈꯥꯁ ꯂꯝ (khas land) ꯑꯃꯤ PDA Manipur-ꯗ ꯊꯝꯂꯤ॥ ꯍꯤꯑꯥꯈ ꯑꯍꯒꯤ ꯈꯠ ꯅꯦꯔꯒꯤ ꯂꯝ ꯑꯥꯈꯕ ꯅꯦꯟ 1-ꯒꯤ ꯂꯝ ꯑꯃꯤ ꯍꯌ꯭ꯇꯔ ꯈ꯭ꯂꯁ꯭ꯇꯔꯗ ꯔꯤꯅꯔꯒ ꯄꯥꯈ, ꯍꯗ꯭ꯒꯤꯗꯍꯛ ꯈ꯭ꯅꯤꯏꯈꯗ ꯅꯦꯂꯤꯃ/ꯈ꯭ꯅ ꯔꯦꯒ꯭ꯅꯦꯌꯦꯟ ꯕꯈ-ꯅꯦꯅ, 2026-ꯒꯤ "ꯆꯦꯟꯗ, ꯈꯦꯃꯕꯦꯟ, ꯇ꯭ꯔꯦꯜꯌꯤꯃ ꯑꯃꯁꯨꯡ ꯈꯦꯃꯅꯦꯁꯤꯃ" ("Pond, Drain, Rivers and Canals") ꯈ꯭ꯅ ꯅꯦꯟ ꯑꯃꯤ ꯍꯨꯛ (hook)-ꯅꯤ, ꯅꯠꯔꯒꯥ ꯍꯈ꯭ꯒꯥ ꯍꯔꯕ ꯑꯔꯦꯕ ꯑꯍꯅꯦ ꯃꯤꯍꯊꯀꯍ, ꯑꯃꯁꯨꯡ ꯅꯍꯊꯃꯄ॥ ꯌꯤꯃꯒꯤ ꯂꯝꯌꯤꯃꯗ, ꯍꯅꯤꯈ꯭ꯔ (ꯄꯤꯟ ꯑꯦꯔꯤꯔꯌ) ꯗꯤꯌ꯭ꯇꯔꯤꯃ ꯃꯦꯍꯦꯌꯤꯅꯌ ꯑꯦꯃꯠ, 1971-ꯒꯤ ꯌꯦꯃꯌꯦꯟ 29-ꯒꯤ ꯍꯥꯗꯗ ꯂꯝ ꯌꯦꯍꯊꯃꯍ ꯑꯃꯁꯨꯡ ꯌꯠꯅꯕꯤꯒꯤ ꯍꯃꯊꯗ ꯈ꯭ꯔꯤꯕ ꯍꯏꯐꯗ, ꯍꯃꯤ ꯗꯤꯌ꯭ꯇꯔꯤꯃ ꯃꯦꯍꯦꯌꯤꯅꯒꯤ ꯂꯝ ꯌꯦꯍꯊꯃꯆꯒꯤ ꯌꯃꯄꯤꯒꯤ ꯈ꯭ꯠꯊꯃꯗ ꯃꯤꯍꯊꯀꯍ (ꯊꯤꯅꯤꯍꯗꯕ [TBC])॥ ꯌꯨꯟ ꯑꯃꯤ ꯍꯦꯇꯨꯔꯦꯜ ꯑꯃꯤꯅ ꯊꯝꯕꯅꯤ॥

7.3 ꯏꯁꯤꯡ ꯂꯩꯐꯝꯁꯤꯡꯒꯤ ꯏꯟꯚꯦꯟꯇꯔꯤ ꯑꯃꯁꯨꯡ ꯍꯦꯈ ꯄꯥꯕ

7.3.1 **ꯌ꯭ꯇꯦꯠ ꯈ꯭ꯐꯂꯍꯃꯀꯤ ꯏꯟꯚꯦꯟꯇꯔꯤ.** ꯑꯊꯔꯤꯄꯤꯅ, ꯍꯦꯌꯔ ꯔꯤꯌꯔꯌꯌ ꯗꯤꯆꯔꯠꯍꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯔꯦꯀꯥꯔꯗ ꯗꯤꯆꯔꯠꯍꯦꯟꯠꯀꯤ ꯅꯔꯂꯅ, ꯍꯃꯤꯒꯤ ꯑꯦꯔꯤꯔꯗ ꯂꯩꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯈ꯭ꯗꯤꯃꯍꯃꯀꯤ GIS ꯅꯦꯔꯔ ꯑꯍ ꯊꯐꯒꯗꯕꯅꯤ (ꯑꯄꯦꯟꯕ 7A)॥ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯈ꯭ꯗꯤꯃꯍꯃꯀꯤꯗꯍꯛ ꯍꯃꯤꯅ ꯍꯥꯒꯤꯃꯤꯃ ꯔꯦꯀꯥꯔꯗ ꯄꯥꯒꯗꯕꯅꯤ:

- (a) ꯍꯃꯤꯒꯤ ꯍꯥꯟ (ꯀ꯭ꯂꯣꯖ 7.2), ꯍꯍꯤꯃ ꯑꯃꯁꯨꯡ ꯌꯔꯒ ꯂꯐꯕꯔꯃꯤꯃ;
- (b) ꯍꯃꯤꯒꯤ ꯀꯌ꯭ꯇꯗꯤꯔꯦꯟ (IMC ꯅꯠꯔꯒꯥ ꯑꯄꯆꯆ ꯍꯔꯕꯦꯟ ꯅꯦꯀꯟ ꯕꯗꯤ ꯑꯍ (ꯍꯃꯤꯒꯤ ꯆꯍꯟꯒꯤ ꯍꯂꯃꯗ ꯂꯩꯕ ꯍꯈ꯭ꯅꯤꯃꯤꯆꯦꯟ ꯈꯦꯃꯕꯦꯟꯃꯤꯒꯤꯗꯍꯛ, ꯑꯃꯁꯨꯡ ꯍꯈ꯭ꯅꯤꯃꯤꯆꯦꯟ ꯃꯦꯍꯦꯃꯤꯟꯃꯤꯅ ꯆꯃꯊꯃꯅꯤꯕ AMRUT 2.0-ꯒꯤ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯔꯤꯈ꯭ꯒꯤꯅꯦꯟ ꯆ꯭ꯔꯦꯅꯃꯌꯃꯤꯃꯒꯤ ꯆꯕꯅꯤꯃ ꯈ꯭ꯍꯔꯤꯃꯤꯃꯒꯤꯗꯍꯛ), PDA Manipur (ꯍꯅꯤꯈ꯭ꯔ ꯄꯦꯍꯦ ꯑꯃꯁꯨꯡ ꯀꯦꯌ꯭ꯔ ꯆ꯭ꯂꯦꯅꯃ ꯑꯦꯃꯠ, 1975-ꯒꯤ ꯍꯥꯗꯗ ꯍꯌ꯭ꯇꯔ-ꯈ꯭ꯂꯁ꯭ꯇꯔ ꯑꯦꯔꯤꯔ ꯑꯍꯒꯤ ꯍꯂꯃꯗ ꯍꯃꯤꯗ ꯊꯝꯅꯕ ꯌ꯭ꯇꯔꯠꯀꯤ ꯂꯝꯒꯤꯗꯍꯛ), WRD (ꯍꯃꯤꯅ ꯈ꯭ꯔꯤꯕ ꯈ꯭ꯔꯦꯟꯒꯤ

ꯑꯣꯏꯕ, ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯆꯦꯀꯁꯤꯅꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯊꯠꯄꯁꯤꯡꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯗꯨ, ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯂꯝꯕꯤ ꯄꯥꯎꯖꯦꯜ ꯂꯥꯛꯍꯟꯅꯕꯒꯤ ꯆꯦꯛꯁꯤꯟꯕꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯗꯨ, ꯑꯃꯁꯨꯡ ꯁꯦꯟꯗꯣꯡ ꯂꯥꯀꯄꯒꯤ ꯑꯆꯨꯝꯕ ꯊꯧꯗꯥꯡꯁꯤꯡꯗꯨ), ꯂꯣꯀꯇꯥꯛ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠ ꯑꯊꯣꯔꯤꯇꯤ (ꯃꯅꯤꯄꯨꯔ ꯂꯣꯀꯇꯥꯛ ꯂꯦꯛ (ꯉꯥꯛꯊꯣꯛꯄ) ꯑꯦꯛꯇ, 2006-ꯒꯤ 236.21 km^2-ꯒꯤ ꯃꯐꯝ ꯑꯁꯤ ꯂꯣꯀꯇꯥꯛꯇꯥ ꯁꯤꯖꯤꯟꯅꯔꯤ), NHPC (ꯂꯣꯀꯇꯥꯛꯀꯤ ꯂꯝꯗꯝ ꯊꯧꯔꯥꯡ ꯁꯦꯝꯕ ꯊꯧꯗꯥꯡꯁꯤꯡꯗꯨ; NHPC-ꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯄꯥꯋꯥꯔ ꯃꯊꯧꯁꯤꯡꯒꯤ ꯃꯍꯩ ꯐꯪꯕ ꯑꯣꯏꯕ ꯑꯍꯣꯡꯕ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Power Department)-ꯗ ꯑꯦꯛꯇ ꯑꯗꯨ ꯁꯦꯛꯁꯟ, ꯂꯃꯥꯏ 36), PWD ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ-ꯄꯨꯈꯔꯤꯒꯤ ꯑꯣꯏꯕꯁꯤꯡ (ꯃꯈꯥꯒꯤ ꯆꯦꯅꯕꯁꯤꯡꯒꯤ ꯈꯣꯡꯊꯥꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯊꯣꯛꯄꯁꯤꯡꯒꯤꯗꯃꯛ), PHED (ꯂꯩꯔꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯑꯩꯊꯒꯤ ꯍꯦꯟꯗꯣꯛꯄꯁꯤꯡꯒꯤꯗꯃꯛ), ꯍꯧꯖꯤꯛꯀꯤ ꯆꯥꯡꯗꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩꯒꯤ ꯁꯔꯨꯛ ꯗꯥꯏꯔꯦꯛꯇꯔꯦꯠ (Directorate of Environment and Climate Change) (ꯆꯦꯛꯁꯤꯅꯒꯤ ꯍꯦꯟꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯔꯦꯛꯇꯔꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯒꯤꯗꯃꯛ), ꯎꯃꯪ, ꯍꯧꯖꯤꯛꯀꯤ ꯆꯥꯡꯗꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩꯒꯤ ꯁꯔꯨꯛ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Forest, Environment and Climate Change Department) (ꯎꯃꯪꯒꯤ ꯆꯥꯡꯗꯃꯛ), ꯃꯥꯂꯦꯝ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯗꯦꯄꯨꯇꯤ ꯀꯃꯤꯁꯅꯔ (Deputy Commissioner) (ꯏꯁꯤꯡ ꯏꯆꯦꯜ ꯃꯥꯌꯣꯛꯅꯕ ꯑꯣꯏꯕ ꯁꯥꯐꯨꯒꯤ ꯆꯥꯡꯗꯃꯛ), ꯒ꯭ꯔꯥꯝ ꯄꯟꯆꯥꯌꯠ (Gram Panchayat), ꯃꯤꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯃꯔꯨ (ꯑꯍꯥꯅꯕ ꯆꯥꯡꯗ ꯂꯩꯕ ꯃꯐꯃꯁꯤꯡ ꯅꯥꯀꯜ ꯑꯍꯥꯅꯕꯒꯤꯗꯃꯛ), ꯁꯤꯡꯒꯤ ꯆꯥꯡꯗꯝ ꯃꯤꯂꯥꯃꯒꯤ ꯀꯣꯏꯔꯣꯡꯒꯤ ꯅꯥꯀꯜ ꯈꯨꯟꯅꯥꯏ ꯑꯊꯣꯔꯤꯇꯤ (Village Authority) (ꯊꯤꯖꯤꯅꯒꯗꯕ [TBC]), ꯃꯅꯤꯄꯨꯔ ꯂꯣꯀꯇꯥꯛ ꯁꯨꯟꯗꯔꯣꯡꯂꯣꯛ ꯑꯊꯣꯔꯤꯇꯤ (ꯂꯩꯁꯥꯡ ꯑꯣꯏꯕ ꯁꯨꯟꯗꯔꯣꯡ ꯑꯃꯒꯤꯗꯃꯛ; ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯕ ꯅꯥꯀꯜ), ꯅꯥꯀꯜ ꯑꯣꯏꯕ ꯊꯧꯗꯥꯡ ꯑꯃꯁꯨ);

- (c) ꯃꯥꯂꯦꯝ ꯃꯥꯄꯥꯟꯗꯥꯂꯣꯏꯗꯥ ꯃꯥꯄꯥꯟꯗꯥ ꯑꯣꯏꯕ ꯃꯆꯤꯡꯒꯤ ꯈꯨꯗꯝ;
- (d) ꯁꯔꯨꯛ ꯂꯩꯕꯁꯤꯡꯒꯤꯗꯃꯛ: FTL, MWL, TBL, ꯂꯝꯗꯝ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯥꯏꯄꯥꯛꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯩ, ꯏꯊꯠꯄ, ꯂꯝꯕꯤ ꯁꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯂꯝꯗꯝ ꯃꯦꯞ, ꯈꯨꯗꯣꯡꯆꯥꯕ ꯃꯈꯥꯒꯤ ꯀꯥꯟꯅꯕ ꯂꯩꯔꯤꯕ;
- (e) ꯁꯔꯨꯛꯀꯤ ꯃꯤꯁꯤꯡꯗ ꯑꯃꯁꯨꯡꯗ ꯃꯆꯤꯡꯒꯤ ꯃꯇꯝ, ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯂꯩꯕ ꯁꯔꯨꯛꯀꯤꯗꯃꯛ ꯂꯩꯔꯤꯕ;
- (f) ꯃꯥꯌ ꯑꯣꯏꯕ ꯃꯇꯝꯗ, 1% AEP ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯇ; ꯑꯃꯁꯨꯡ
- (g) ꯍꯤꯡꯕ ꯆꯥ ꯈꯥꯔꯥꯑꯣꯏꯕ, ꯃꯥꯄꯥꯟꯗ ꯑꯣꯏꯕ ꯑꯣꯏꯅ ꯂꯩꯔꯤꯕ꯫

7.3.2 **ꯑꯃꯥꯡꯒꯤ ꯗꯦꯇꯥ ꯁꯦꯠ.** ꯍꯥꯏꯕ ꯃꯤꯑꯣꯏꯁꯤꯡ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯃꯍꯥꯛꯀꯤ ꯏꯁꯤꯡ ꯄꯤꯖꯕ ꯁꯔꯨꯛꯆꯥꯕ ꯎꯠꯂꯤꯕ ꯏꯁꯤꯡ ꯄꯤꯖꯕꯒꯤ ꯂꯤꯁ (ꯇꯦꯕꯜ 7-1) ꯌꯥꯑꯣꯒꯗꯕꯅꯤ:

- (a) ꯂꯩꯍꯧꯕ ꯃꯐꯃꯗ ꯂꯩꯕ;
- (b) ꯂꯩꯍꯧꯕ ꯈꯨꯗꯣꯡꯗꯒꯤ 100 m-ꯒꯤ ꯃꯐꯃꯗ ꯂꯩꯕ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯍꯦ ꯊꯕꯛ ꯃꯇꯝꯗ, ꯂꯩꯕꯥ 5-ꯒꯤ ꯃꯍꯦ ꯊꯕꯛ ꯃꯇꯝꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯇ ꯑꯦꯛꯁꯇꯦꯟꯇ ꯌꯥꯑꯣꯕ ꯂꯩꯕ꯫

ꯂꯤꯁ ꯑꯁꯤꯗ, (a) ꯑꯃꯁꯨꯡ (b)-ꯒꯤꯗꯃꯛ 1:1,000 ꯅꯥꯀꯜ ꯄꯨꯈꯔꯤ ꯌꯥꯑꯣꯕ ꯂꯝꯕꯤꯒꯤ ꯑꯔꯤꯕ ꯑꯃꯗ, ꯃꯈꯥꯒꯤꯗꯃꯛ ꯎꯠꯂꯤꯕꯅꯤ:

- ꯃꯥꯂꯦꯝ ꯃꯥꯄꯥꯟꯗꯥꯒꯤ ꯈꯨꯗꯣꯡ;
- ꯂꯝꯗꯝ ꯑꯣꯏꯕ FTL ꯅꯥꯀꯜ ꯂꯩꯔꯤꯕꯒꯤ ꯃꯊꯛ;
- MWL ꯑꯦꯛꯁꯇꯦꯟꯇ (ꯁꯔꯨꯛꯂꯣꯏꯕ) ꯑꯃꯁꯨꯡ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯇ;
- ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2 (ꯁꯦꯛꯁꯟ 7.4); ꯑꯃꯁꯨꯡ
- ꯂꯝꯕꯤ ꯁꯦꯝꯕ, ꯂꯝꯗꯝ ꯃꯦꯞ, ꯏꯊꯠ ꯑꯃꯁꯨꯡ ꯂꯝꯗꯝ ꯁꯤꯖꯤꯟꯅꯕ ꯈꯨꯗꯣꯡꯁꯤꯡ꯫

7.3.3 **ꯄꯥꯎꯖꯦꯜꯂꯣꯏꯕ.** ꯏꯁꯤꯡ ꯄꯤꯖꯕꯂꯣꯏꯕ ꯃꯈꯥꯒꯤ ꯁꯔꯨꯛꯆꯥꯕꯁꯤꯡꯒꯤ ꯍꯧꯖꯤꯛꯇꯕꯅꯤ꯫ ꯃꯈꯥꯔ ꯑꯣꯏꯔꯕꯗꯨ ꯃꯇꯝꯗ, ꯄꯨꯈꯔꯤ ꯌꯥꯑꯣꯕ ꯏꯁꯤꯡ ꯄꯤꯖꯕꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯇ ꯑꯗꯨ ꯃꯁꯤ ꯑꯣꯏ:

- (a) ꯑꯣꯏꯅꯥꯃꯛ ꯃꯅꯤꯄꯨꯔ ꯂꯝꯗ ꯃꯥꯂꯦꯝ ꯑꯃꯁꯨꯡ ꯂꯝꯗ ꯃꯤꯇꯩꯃꯔꯣꯜ ꯑꯦꯛꯇ, 1960-ꯒꯤ ꯃꯍꯦꯗ ꯃꯥꯂꯦꯝ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ ꯆꯥꯡꯒꯤ ꯃꯥꯄꯥꯟꯗꯥꯂꯣꯏꯕ, ꯑꯔꯤ, ꯂꯥ-ꯗꯤꯒꯤꯖꯤꯇꯜ, ꯃꯥꯂꯦꯝ ꯈꯨꯗꯣꯡ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯅꯕꯒꯤ ꯃꯁꯥꯕ ꯍꯧꯖꯤꯛ ꯊꯥꯖꯤꯕ, ꯏꯁꯤꯡ ꯏꯆꯦꯜ ꯃꯥꯄꯥꯟꯗ ꯑꯣꯏꯕ ꯁꯥꯐꯨꯒꯤ ꯆꯥ ꯌꯥꯑꯣꯔꯦ; ꯁꯤꯡꯒꯤ ꯆꯥꯡꯗꯝꯗ, ꯃꯅꯤꯄꯨꯔ (ꯄꯤꯜ ꯑꯦꯛꯇꯅꯤ) ꯗꯤꯂꯣꯛꯇꯔ ꯀꯣꯏꯔꯣꯡꯂꯩꯅꯕ ꯑꯦꯛꯇ, 1971-ꯒꯤ ꯂꯝꯕꯤ 29-ꯒꯤ ꯃꯍꯦꯗ ꯆꯥ ꯌꯥꯑꯣꯊꯔꯛ ꯑꯃꯁꯨꯡ ꯁꯨꯟꯗꯥꯒꯤ ꯃꯈꯥꯗ ꯑꯔꯤꯕ ꯃꯇꯝꯗ, ꯗꯤꯂꯣꯛꯇꯔ ꯀꯣꯏꯔꯣꯡꯂꯩꯅꯕ ꯑꯃꯁꯨꯡ ꯒꯤꯖꯤꯠ ꯑꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯥꯄꯥꯟꯗꯥꯂꯣꯏꯕ (ꯊꯤꯖꯤꯅꯒꯗꯕ [TBC]); M.A. 26/2019-ꯗ 22 ꯃꯦ 2020-ꯒꯤ ꯂꯝꯕꯤ ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡꯒꯤ ꯑꯃꯗꯃꯒꯤ ꯃꯥꯏꯄꯥꯛꯄ ꯂꯩꯍꯧꯕ ꯏꯁꯤꯡ ꯄꯤꯖꯕ 4,000 ꯃꯃꯒꯤ ꯍꯦꯛꯇꯔꯁꯤ, ꯃꯈꯥꯒꯤꯗꯃꯛ "ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ, ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯂꯝꯕꯤꯒꯤ ꯑꯃꯁꯨꯡ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ … ꯂꯦꯄꯁꯤ" ("Ground truthing, engineering surveys, and quality monitoring … are pending") (DoECC, 2025-26); ꯁ꯭ꯄꯦꯁ ꯑꯦꯞꯂꯤꯀꯦꯁꯟ ꯁꯦꯟꯇꯔ (Space Applications Centre)-ꯒꯤ ꯁꯦꯇꯦꯂꯥꯏꯠ ꯑꯦꯇꯂꯁ (2021), 2.25 ha-ꯗꯒꯤ ꯄꯨꯈꯔꯤ ꯌꯥꯑꯣꯕ ꯁꯦꯇꯦꯂꯥꯏꯠ 132-ꯅꯤ ꯂꯩꯔꯤꯕ; 2025-26-ꯗ ꯃꯅꯤꯄꯨꯔ ꯂꯣꯀꯇꯥꯛ ꯁꯦꯇꯦꯂꯥꯏꯠ ꯑꯊꯣꯔꯤꯇꯤꯅ ꯗꯤꯖꯤꯇꯥꯏꯖ ꯑꯣꯏꯔꯕ ꯁꯦꯇꯦꯂꯥꯏꯠ 71 ꯑꯃꯁꯨꯡ ꯗꯤꯃꯥꯔꯀꯦꯁꯟ ꯑꯣꯏꯔꯕ 3, ꯑꯃꯁꯨꯡ ꯌꯥꯑꯣꯕ, ꯎꯔꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯏꯊꯥ–ꯇꯨꯃꯗꯤ ꯑꯍꯥꯅꯕꯒꯤ

ꯃꯁꯤꯒꯤ ꯁ꯭ꯇꯗꯤꯖ ꯇꯥꯏꯗꯤꯌꯦꯂꯦꯁꯤꯡ; ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯥꯇꯔꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯣꯏꯕ GIS ꯗꯦꯇ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯗ꯭ꯔꯥꯐ꯭ꯇ ꯃꯥꯁꯤꯌꯤꯂꯦꯟ)-ꯒꯤ ꯂꯦꯟ ꯌꯨꯁꯂꯥꯏꯕꯒꯤ ꯃꯦꯄꯁꯤꯡ, ꯃꯁꯤꯒꯤ ꯏꯁꯤꯡ ꯄꯨꯈꯨꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯗꯝꯁꯤꯡ (502.95 ha ꯗꯥꯛ), ꯁꯨꯗꯦꯜꯒꯤ ꯃꯍꯨ (76.85 ha ꯗꯥꯛ) ꯑꯃꯁꯨꯡ ꯌꯦꯟꯇꯦꯂꯅꯁꯤꯡꯒꯤ ꯇꯥꯔꯇꯇꯦ, ꯑꯃꯁꯨꯡ ꯑꯍꯥꯟꯄꯥ ꯍꯥꯏꯗꯂꯁꯤꯡꯒꯤ GIS ꯃꯦꯄ꯭ꯀꯤ ꯄ꯭ꯂꯥꯟꯁꯤꯡꯒꯤ; ꯃꯇꯤꯄ꯭ꯂꯗ ꯇꯥꯊꯍꯊ ꯇꯦꯊ (ꯄ꯭ꯂꯗꯥꯍꯦꯊꯂꯂ) ꯑꯦꯊꯟ, 2006-ꯒꯤ ꯃꯍꯥꯛ ꯇꯥꯊꯍꯊꯒꯤ 236.21 km² ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ 70.30 km²-ꯒꯤ ꯒꯥꯗ ꯇꯥꯂ;
WRD-ꯒꯤ ꯁꯨꯗꯦꯜꯒꯤ ꯄꯂꯁꯤꯡ, ꯏꯇꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯆꯄꯤꯡ ꯂꯍꯦꯂꯂꯁꯤꯡꯒꯤ ꯗꯦꯒꯥꯗꯛꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯁꯨꯗꯦꯜꯒꯤ ꯒꯦꯇꯁꯤꯡ;
ꯑꯃꯁꯨꯡ ꯍꯦꯂꯂ ꯁꯛꯤꯡꯃꯊꯒꯤ ꯏꯥꯡꯕꯂꯒꯤ ꯗꯦꯇꯤꯂꯍꯗ (ꯐꯤꯒ꯭ꯌꯔ 6);

- (b) WRD ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯤꯆ ꯄꯂꯌꯦꯌꯟ ꯂꯟꯗꯒꯥ, ꯌꯤꯡꯒꯤ ꯇꯆꯂꯤꯡꯛ, ꯒꯤꯇꯦꯇ ꯑꯥꯇꯥꯗꯤꯍꯤꯒꯤ ꯄ꯭ꯂꯍ꯭ꯗꯤꯒꯤ ꯗꯦꯇꯤꯂꯍꯗꯂꯤꯡ ꯑꯃꯁꯨꯡ FTL ꯑꯃꯁꯨꯡ MWL-ꯒꯤ ꯗꯦꯒꯥꯗꯛꯁꯤꯡ;
- (c) ꯑꯥꯇꯥꯗꯤꯍꯤꯒꯤ ꯏꯂꯒꯦꯂꯍꯗꯤ (ꯒꯇ꯭ꯇꯥꯇ 7.3.1) ꯑꯃꯁꯨꯡ ꯒꯥꯗꯟꯒꯤ ꯛꯏꯗꯦꯊꯂꯂꯁꯤꯡꯒꯤ ꯃꯍꯥꯛ ꯀꯥꯡꯛꯥꯊꯍꯤꯕ ꯒꯗꯤꯒ꯭ꯂꯆꯕ ꯇꯤꯂ꯭ꯌ ꯑꯃꯃꯊ;
- (d) ISRO-ꯒꯤ ꯇꯦꯂꯇꯦꯅ ꯌꯦꯟꯇꯦꯂꯛ ꯏꯂꯒꯦꯂꯍꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯂꯦꯂꯃꯦꯂꯟ (National Wetland Inventory and Assessment) ꯌꯤꯍꯇꯦ, ꯃꯃꯡꯒꯤ ꯍꯥꯄꯥꯒ꯭ꯔꯤꯗꯤꯊ ꯃꯦꯄꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯍꯦꯇꯦꯏꯟ ꯏꯃꯦꯇꯗꯤ; ꯑꯃꯁꯨꯡ
- (e) ꯇꯦꯏꯂꯦꯂꯂ ꯇꯕ ꯂꯗꯒꯦꯌꯗ ꯑꯃꯇꯦ ꯍꯥꯗꯕ, ꯒꯇ꯭ꯇꯥꯇ 7.3.5-ꯛ ꯄꯤꯗꯤꯕ ꯛꯦꯍꯆꯛ ꯇꯦꯒꯦꯅ ꯍꯥꯗꯕ ꯂꯏꯟ ꯂꯗꯒꯦ ꯑꯃꯤ꯫꯫

7.3.4 **ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯊꯂꯍꯦꯂꯟꯒꯤ ꯃꯦꯄꯁꯤꯡ.** ꯑꯥꯇꯥꯗꯤꯍꯤꯇꯦ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯤꯌꯦꯒꯤꯛꯃꯊ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯊꯂꯍꯦꯂꯟ ꯂꯟꯗꯒꯥ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯗ꯭ꯂꯕꯒꯤ ꯃꯦꯄꯁꯤꯡ ꯇꯕ ꯌꯦꯏ꯫꯫ ꯒꯇ꯭ꯇꯥꯇ ꯑꯁꯤꯒꯤ ꯃꯍꯥꯛ ꯇꯕꯗꯕ ꯑꯗ꯭ꯂꯕꯒꯤ ꯃꯦꯄ ꯑꯃꯇꯦ ꯒꯇ꯭ꯇꯥꯇ 6.11-ꯒꯤ ꯃꯍꯥꯛ ꯏ꯭ꯇꯥꯗ ꯇꯦꯒꯦꯅꯁꯤꯡ꯭ꯂ ꯊꯆꯃꯤ꯫꯫ ꯃꯦꯄ ꯑꯃꯤ ꯇꯕꯗꯕ ꯃꯏꯆꯛ, ꯂꯗ꯭ꯂꯊ 3 ꯑꯃꯁꯨꯡ 5-ꯒꯤ ꯃꯍꯥꯛ ꯂꯏꯟꯒꯥ ꯍꯏꯛ꯭ꯗꯥꯇꯤꯊ ꯂ꯭ꯌꯛꯤ ꯑꯃꯇꯦ ꯍꯦꯂꯦꯕ ꯌꯤꯍꯕ ꯑꯦꯊꯂꯍꯦꯂꯟ ꯑꯃꯤ ꯍꯟꯌ꯭ꯗꯕꯛꯤ ꯃꯛ꯭ꯂ ꯂꯤꯇꯤꯂꯇꯒꯛꯕꯇꯤ꯫꯫ ꯃꯦꯄ ꯑꯃꯟꯍ ꯇꯕꯛꯕ ꯃꯏꯆꯛ, ꯑꯦꯄꯇꯤꯒꯦꯂꯟꯇꯦ ꯃꯏꯒꯤꯂꯤꯡꯒꯤꯛꯃꯊ ꯍꯏꯛ꯭ꯗꯥꯇꯤꯊ ꯂ꯭ꯌꯛꯤ ꯑꯃꯇꯦ 1% AEP ꯑꯦꯊꯂꯍꯦꯂꯟ ꯇꯦꯄꯒꯛꯕꯇꯤ:

- (a) ꯏꯁꯤꯡ ꯏꯆꯥꯎꯛ ꯂꯦꯂꯂꯤꯍꯤꯒ ꯑꯥꯏꯕ ꯒꯦꯌꯃꯦꯂꯟ ꯑꯃꯛ ꯇꯕ ꯂꯏꯟ ꯁꯛꯤꯡꯃꯊ (ꯐꯤꯒ꯭ꯌꯔ 1);
- (b) ꯏꯁꯤꯡ ꯇꯕꯏꯆ ꯑꯃꯒꯥ ꯇꯊꯇꯕ 1 ha ꯂꯟꯗꯒꯥ ꯍꯦꯂꯕ ꯂꯏꯟ ꯁꯛꯤꯡꯃꯊ; ꯑꯃꯁꯨꯡ
- (c) ꯑꯥꯇꯥꯗꯤꯍꯤꯇꯦ ꯃꯇꯥ ꯍꯏ ꯍꯌꯗꯕ ꯂꯏꯟ ꯁꯛꯤꯡꯃꯊ꯫꯫

ꯑꯍꯥꯟꯄꯥ ꯂꯏꯟꯂꯤꯡꯒꯤꯛꯃꯊ, ꯒꯇ꯭ꯇꯥꯇ 7.4.6-ꯒꯤ ꯏꯤꯊꯂ ꯍꯥꯗꯕ ꯄꯊꯇꯕꯒꯤ ꯂꯦꯟꯕꯦꯊ ꯂꯤꯇꯤꯂꯇꯕ ꯌꯦꯏ꯫꯫

7.3.5 **ꯛꯦꯍꯆ.** ꯂꯗ꯭ꯂꯊ ꯑꯂꯤꯛ ꯌꯤꯍꯕ ꯇꯦꯒꯦꯅ ꯄ꯭ꯂꯆꯇꯃꯊ ꯛꯦꯍꯆ ꯑꯃꯏꯊꯍꯛ ꯄꯤꯒꯛꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯁꯗꯥꯏꯤ ꯁꯛꯤꯡꯃꯊꯍ ꯛꯦꯍꯆ ꯑꯛ꯭ꯂ ꯏꯒꯛꯕꯇꯤ꯫꯫ WRD-ꯒꯤ ꯗꯦꯒꯥꯗꯛꯁꯤꯡꯇꯦ ꯇꯥꯒꯅ ꯂꯟꯗꯒꯥ ꯑꯗꯤꯕ ꯛꯦꯍꯆ ꯑꯃꯤ ꯂꯤꯇꯤꯂꯇꯗꯕ ꯃꯏꯆꯛ, ꯄꯗꯥꯇꯦꯊꯟꯒꯥ ꯛꯦꯍꯆꯛ ꯍꯥꯤꯛꯥꯒꯄ ꯑꯛ꯭ꯂ ꯂꯗꯒꯦ ꯍꯥꯒꯛꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯏꯒꯛꯕꯇꯤ꯫꯫

> **ꯂꯂꯛꯥꯊꯇꯦ ꯍꯊꯄ.** ꯃꯇꯤꯄ꯭ꯂꯗꯛ ꯐ꯭ꯂꯗꯄꯇꯦꯂꯒꯤ ꯑꯏꯂ ꯑꯃꯤ ꯇꯦ ꯑꯛ꯭ꯂꯕ ꯐ꯭ꯂꯗ ꯂꯥꯏꯟ (flood line) ꯑꯃꯟꯍ ꯇꯦ꯫꯫ **ꯃꯇꯤꯄ꯭ꯂꯗ ꯐ꯭ꯂꯗ ꯄꯇꯦꯂ ꯇꯥꯇꯤꯡ ꯑꯦꯊꯟ, 1978** (1978-ꯒꯤ ꯃꯇꯤꯄ꯭ꯂꯗ ꯑꯦꯊꯟ ꯇꯆꯕꯗ 10; ꯑꯦꯂꯦꯂꯟ 26 ꯑꯒꯂ꯭ꯟ 1978; 1 ꯂꯦꯄꯍꯦꯆꯕꯗ 1978-ꯒꯤ ꯃꯇꯤꯄ꯭ꯂꯗ ꯒꯦꯇꯟ ꯑꯦꯊꯂ꯭ꯍꯗ꯭ꯑꯥꯗꯛꯤꯇꯗꯤ No. 185; ꯃꯄ꯭ꯂꯡ ꯏꯛꯕ ꯒꯥꯄꯤ ꯑꯃꯒꯤ OCR-ꯛꯒꯤ ꯄꯤꯏꯤꯕ, ꯂꯦꯊꯂꯂ 1-ꯛꯒꯤ 7 ꯏꯍꯕ ꯏꯊꯍ)-ꯇꯦ ꯂ꯭ꯍꯦꯟꯇꯦ ꯐ꯭ꯂꯗ ꯄꯇꯦꯂ ꯇꯥꯇꯤꯡ "ꯍꯥꯒꯛꯕꯇꯤ" ("shall be made") ꯍꯌꯇꯦ ꯇꯦꯍꯇꯥꯒꯄ, ꯛꯦꯄ꯭ꯂꯍꯤ ꯒꯃꯤꯂꯇꯗ "ꯂꯟꯗꯒꯥ ꯑꯂꯤꯒ꯭ꯂꯆꯕ ꯑꯍꯥꯟꯄꯥ ꯑꯥꯇꯥꯗꯤꯍꯤ" ("or such other authority")-ꯇꯦ ꯁꯨꯗꯦꯅ ꯑꯃꯒꯤ ꯂꯗꯒꯦ ꯍꯥꯇꯕ ꯌꯤꯇꯡ ꯄꯤꯕ, ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗꯛ ꯇꯥꯇꯤꯡ ꯑꯥꯇꯥꯗꯤꯍꯤꯇꯦ "[ꯏꯁꯤꯡ ꯏꯆꯥꯎ] ꯇꯥꯒꯄ ꯌꯤꯕ ꯑꯦꯗꯤꯌꯦꯂꯤꯡ … ꯗꯤꯇꯦꯍꯤꯒ ꯗꯤꯂꯊꯒꯤ ꯃꯄ꯭ꯂꯡ ꯏꯂꯇꯇ ꯛꯤꯇꯤꯇꯤꯌꯦꯟ ꯍꯥꯕ" ("delineate the areas which are subject to [flooding] … with reference to relative risk") ꯌꯤꯍꯅꯇꯤ; ꯃꯂꯤꯇꯦ ꯐ꯭ꯂꯗꯛ ꯇꯥꯂ ꯑꯃꯕ "ꯏ꯭ꯕꯏꯛꯒꯤ ꯇꯥꯒꯄ ꯌꯤꯕ [ꯏꯁꯤꯡ ꯏꯆꯥꯎ]-ꯒꯤ [ꯐ꯭ꯂꯗꯥ] ꯄ꯭ꯂꯇꯕ ꯃꯇꯥ ꯍꯕ ꯑꯦꯗꯤꯌꯦ" ("the area which is required to carry the [flow] of the maximum probable [flood]") ꯍꯌꯇꯦ ꯛꯦꯏꯏꯂ ꯍꯏ (OCR ꯃꯤꯏꯤꯕ), ꯑꯃꯁꯨꯡ ꯂꯦꯊꯂꯂ 1 ꯂꯟꯍꯕ ꯃꯁꯤꯒꯤ ꯄ꯭ꯂꯗꯥꯒꯤꯇꯂꯁꯤꯡ ꯑꯛ꯭ꯂ ꯇꯦꯄꯒꯛꯕ ꯍꯥꯂꯤꯡꯛ ꯌꯦꯇꯊꯒꯇꯤ꯫꯫ ꯐ꯭ꯂꯗꯛ ꯇꯥꯇꯤꯡ ꯑꯥꯇꯥꯗꯤꯍꯤ ꯑꯃꯟꯍ ꯂꯦꯆꯏꯤꯕ ꯏꯤꯛꯏꯤꯦ ꯑꯃꯁꯨꯡ ꯇꯥꯂ ꯑꯃꯟꯍ ꯇꯥꯏꯤꯏꯏ ꯍꯥꯏꯤꯦ: ꯛꯤꯃꯤꯗꯒꯦꯂꯂ "ꯍꯥꯇꯤꯊ ꯏꯍꯕ ꯍꯥꯗ꯭ꯂ" ("is yet to be done") (ꯄꯤꯍꯛ ꯏꯤꯛꯥꯊꯏꯤꯕ ꯃꯄ꯭ꯂꯡ ꯏꯂꯇ, ꯇ꯭ꯂꯂ 2026), ꯑꯛ꯭ꯂꯆ ꯑꯥꯏꯇꯃꯊ ꯑꯦꯄꯗꯤꯅ 2025-ꯛ ꯏꯆꯏꯅ ꯁꯨꯗꯦꯅꯒꯤ ꯌꯦꯇꯦꯅꯂꯤꯡꯒꯤ ꯃꯇꯦꯊꯍ ꯇꯥꯇꯥꯊꯇꯕ ꯑꯥꯗꯛꯗ ꯑꯃꯇꯦ ꯑꯦꯊꯟ ꯑꯛ꯭ꯂꯒꯤ "Section 24" ꯒꯥꯟ ꯍꯥꯏꯤ (ꯄꯤꯍꯛ ꯏꯤꯛꯥꯊꯏꯤꯕ ꯃꯄ꯭ꯂꯡ ꯏꯂꯇ; ꯂꯦꯊꯂꯂ 24 ꯄꯤꯏꯤꯦ [TBC])꯫꯫ ꯃꯥꯛꯦꯅ ꯑꯛ꯭ꯂꯒꯤ ꯕꯏ-ꯇ 94-ꯇꯦ ꯄ꯭ꯂꯇꯤꯂꯏ ꯑꯛ꯭ꯂ "ꯍꯦꯍꯂꯂꯤꯡꯒꯤ ꯃꯦꯄ꯭ꯀꯤ ꯄ꯭ꯂꯥꯟꯂꯛ ꯏꯂꯛꯥꯊꯇꯕ ꯍꯏ ꯐ꯭ꯂꯗꯛ ꯗꯤꯂꯊ ꯑꯦꯗꯤꯌꯦꯂꯤꯡ" ("high Flood Risk Areas identified in the Master Plan of the towns")-ꯒꯥ ꯂꯆꯃꯤ; ꯑꯦꯗꯤꯌꯦꯂꯤꯡ ꯑꯛ꯭ꯂ ꯍꯟꯒꯛꯕ ꯏꯆꯏꯅ ꯑꯃꯁꯨꯡ ꯃꯏꯗꯒꯤ ꯗꯤꯂꯊ ꯏꯂꯏꯥꯗꯆꯛ GIS ꯗꯦꯇ ꯃꯦꯄ꯭ꯀꯤ ꯄ꯭ꯂꯥꯟꯂꯤꯡ (Risk Informed GIS Based Master Plans) ꯑꯂꯤ 17 ꯇꯦ꯭ꯂꯌꯗꯤ 2025-ꯛ ꯑꯗꯏꯕ ꯇꯥꯏꯏꯤ ꯍꯥꯏꯤ ꯍꯌꯇꯦ ꯇꯤꯂ꯭ꯟ ꯍꯥꯗꯤ, ꯑꯛ꯭ꯂꯒꯤ ꯍꯦꯍꯂ ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯛꯤꯄꯤꯗꯟꯃꯦꯂꯟꯒꯤ 2025-26-ꯒꯤ ꯗꯤꯄꯥꯗꯟꯇꯦ ꯃꯏꯌꯒꯤ ꯁꯥꯗꯦꯟ ꯗꯤꯄꯥꯗꯟ "ꯂꯕꯃꯤꯟ ꯍꯥꯗꯦ" ("has been submitted") ꯍꯌꯕꯗꯤ (ꯑꯇꯤ ꯑꯂꯤ ꯍꯦꯍꯂꯇꯦ), ꯑꯃꯁꯨꯡ

ꯄ꯭ꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯄꯥꯎꯈꯨꯝ [TBC], ꯃꯗꯨ ꯑꯃꯨꯛꯇ ꯃꯍꯩꯔꯣꯏ ꯑꯣꯏꯕ ꯍꯨꯔꯥ-ꯒꯤ 94 ꯃꯐꯝꯁꯤꯡ ꯂꯩꯕꯥꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯨꯞ ꯑꯃꯥ꯫ AIIB-ꯗ ꯌꯥꯎꯕꯁꯤꯡꯒꯤ 35% "ꯏꯁꯤꯡ ꯏꯆꯦꯜ ꯊꯣꯛꯄ ꯌꯥꯕ" ("prone to floods") ꯂꯩꯔꯤ (APD, 2024), ꯑꯗꯨꯕꯨ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕꯥ꯫ ꯇꯨꯔꯦꯜ ꯇꯥꯛꯄꯁꯤꯡꯗ ꯄꯨꯔꯛꯂꯀꯄ ꯂꯩꯕꯗꯒꯤ ꯊꯥꯛꯁꯤꯡ WRD-ꯒꯤ ꯒꯦꯖꯒꯤ ꯁꯥꯔꯤꯡꯁꯤꯡ (ꯕꯦꯜꯌꯨ ꯌꯥꯎꯕ [TBC]): ꯅꯥꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯃꯤꯅꯨꯊꯣꯡ (Minuthong)-ꯗ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯊꯥꯛ 788.400 m, 29 ꯃꯦ 2024-ꯗ ꯃꯁꯤꯗꯒꯤ ꯐꯥꯎꯕ; ꯈꯨꯗꯣꯡꯆꯥꯗ 782.850 m, 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ 783.250 m-ꯗ ꯐꯥꯎꯕ; ꯅꯥꯝꯕꯨꯜ ꯕꯥꯔꯦꯖ 769.320 m, ꯏꯝꯐꯥꯜ ꯑꯃꯨꯛꯇꯥ 770.05 m-ꯗ ꯐꯥꯎꯕ; ꯑꯃꯁꯨꯡ ꯊꯣꯡꯅꯥꯝꯕꯣꯟ ꯍꯝ ꯊꯣꯡꯕꯦꯜ (ꯐꯨꯝ ꯕ꯭ꯔꯤꯖ) (Thong Nambonbi (Hump Bridge))-ꯗ 783.695 m (ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯄꯥꯎꯈꯨꯝ ꯂꯩꯕꯗꯒꯤ ꯇꯦꯕꯜ ꯅꯝꯕꯔ; ꯁꯦꯛꯁꯟ 5)꯫ CWC-ꯒꯤ ꯁꯥꯡꯌꯥ ꯑꯁꯤꯗ ꯁꯅꯌꯥ ꯑꯃꯅꯣꯡꯃꯥꯏꯗꯥ ꯇꯩ, ꯀꯣꯇꯦꯕꯦꯛ꯭ꯔꯥ (Chotebekra)-ꯗ ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜꯗ, 31 ꯖꯨꯂꯥꯏ 1989-ꯗ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯊꯥꯛ 32.1 m-ꯒꯤ ꯇꯣꯔꯛꯂꯦ (ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯂꯩꯕꯗꯒꯤ ꯇꯦꯕꯜ ꯅꯝꯕꯔ)꯫ ꯃꯁꯤꯒꯤ ꯑꯃꯨꯛꯂꯣꯏꯗꯥ ꯇꯣꯛꯄ ꯑꯣꯏꯕꯥꯡꯒꯤ ꯑꯃꯗꯤ ꯂꯩꯔꯤꯕ ꯃꯤꯡ "ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯊꯥꯛ" ("highest flood level") ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕꯥ [TBC], ꯑꯃꯁꯨꯡ ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯒꯤ ꯕꯥꯔꯤꯡꯁꯤꯡꯗ ꯂꯩꯕꯗꯒꯤ ꯑꯣꯏꯔꯒꯤ ꯐꯥꯎꯕ ꯌꯥꯎꯔꯤ꯫ ꯄ꯭ꯂꯦꯠ 7.3.4-ꯗ ꯑꯣꯏꯕꯥꯡꯃꯤꯡꯒꯤ 1% AEP ꯃꯥꯏꯀꯩꯁꯤꯡ ꯇꯦꯕ ꯌꯦꯐꯥꯎꯔꯤ; ꯃꯍꯩꯔꯣꯏ ꯑꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯁꯥꯖꯕ ꯃꯥꯏ ꯑꯃꯗꯤ 1978-ꯒꯤ ꯑꯥꯋꯥꯡꯕꯤ ꯃꯇꯨꯡ ꯃꯥꯡꯕꯗ ꯃꯦꯒꯗꯕ ꯇꯣꯔꯛꯂꯕ ꯑꯃꯃꯥ ꯑꯃꯁꯨꯡ ꯕꯤꯁꯦꯡ ꯅꯣꯡꯂꯩꯕꯃꯗ ꯃꯤꯁꯤꯡꯕ ꯄ꯭ꯂꯦꯟꯁꯤꯡꯒꯤ ꯅꯣꯡꯄꯨꯛ ꯑꯃꯤ ꯑꯣꯅꯗ ꯄꯥꯝꯕꯤ, ꯃꯅꯣꯔꯒꯤ ꯃꯇꯨꯡ ꯇꯥꯔ ꯌꯥꯕꯒꯤ ꯌꯣꯝꯂꯤꯡꯃꯥꯡ ꯑꯃꯤ ꯑꯣꯅꯗ ꯌꯥꯕꯥ꯫ ꯃꯥꯄꯁꯤꯡ ꯇꯦꯛꯕꯤꯒꯤ ꯂꯩꯁꯕ, ꯑꯥꯄꯇꯤꯡꯥꯌꯥꯗ ꯐꯥꯎꯗ ꯄꯨꯁꯕ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯗ ꯁꯥꯎꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯁꯅꯌꯥꯁꯤꯡꯒꯤꯗꯥꯃ ꯄ꯭ꯂꯦꯠ 5.8.5-ꯗ ꯃꯦꯡ ꯌꯥꯕꯈꯨ ꯑꯃꯁꯨꯡꯂꯩꯔ ꯍꯤꯡꯇꯤꯗꯒꯤ 1% AEP ꯑꯥꯡꯁꯥꯎꯕ ꯁꯥꯃꯦ, ꯃꯗꯨꯗ ꯒꯦꯖꯒꯤ ꯄꯥꯎ ꯑꯃꯒꯤ ꯃꯨꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯑꯥꯡꯁꯥꯎꯕ ꯑꯃꯤ ꯍꯤꯡꯇꯤꯗꯕ ꯅꯍꯥꯡ ꯑꯃꯒꯤ ꯃꯨꯡꯗ ꯏꯁꯤꯡ ꯊꯥꯄꯥꯗ ꯑꯃꯁꯨꯡ ꯄꯥꯎ ꯄꯥꯡꯄꯒꯤ ꯈꯨꯕꯤꯁꯤꯡꯗ, ꯒꯦꯖꯗ ꯍꯨꯕꯤꯃꯗ ꯌꯦꯃꯗ ꯍꯨꯃꯤ; ꯑꯃꯁꯨꯡ ꯄꯥꯎꯃꯤꯁꯤꯄ ꯑꯃꯗ ꯅꯗꯕ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯊꯥꯛ ꯑꯃꯗꯤ ꯑꯣꯏꯅꯗꯒꯤ ꯈꯥꯃꯕ ꯊꯥꯛꯇꯤ, ꯄ꯭ꯂꯦꯅꯃꯦ ꯂꯩꯗꯕꯒꯤ ꯇꯣꯔꯛꯂꯦ ꯃꯍꯩꯔꯣꯏ ꯑꯁꯤꯒꯤ 1% AEP ꯑꯥꯡꯁꯥꯎꯕꯗ ꯃꯁꯤꯗꯒꯤ ꯐꯥꯎꯕ ꯌꯦꯅ ꯑꯗꯨꯕꯨ ꯄꯪꯒꯂꯣꯡꯗ ꯐꯥꯎꯍꯐꯥꯎꯗ꯫ ꯊꯥꯛꯁꯤꯡ ꯕꯦꯜꯌꯨ ꯑꯃꯅꯥꯡꯌꯗ ꯄꯤꯒꯗꯕꯅꯤ (ꯄ꯭ꯂꯦꯠ 7.3.5) ꯑꯃꯁꯨꯡ WRD ꯈꯨꯗꯒꯤ CWC-ꯒꯤ ꯒꯥꯇꯒꯤ ꯁꯥꯈꯥꯒꯗꯕꯅꯤ꯫ ꯄ꯭ꯂꯦꯠ 7.3.3-ꯗ ꯗꯥꯄꯗꯗ ꯌꯦꯗꯕ ꯑꯃꯁꯨꯡ ꯁꯗꯒꯥ ꯌꯦꯗꯕ ꯑꯥꯡꯁꯥꯎꯕꯁꯤꯡꯒꯤ ꯃꯍꯨꯃꯗ ꯐꯥꯎꯗ ꯌꯦꯗꯕ ꯑꯗꯨ ꯃꯗꯨ ꯑꯣꯐꯥꯎꯔꯤ, ꯃꯗꯨꯗꯤ ꯗꯥꯒꯥꯍꯨꯒꯤ ꯃꯥꯃꯣꯡ ꯑꯃꯁꯨꯡ ꯁꯗꯒꯥ ꯌꯦꯗꯕ ꯅꯣꯡꯁꯤꯡꯒꯤ ꯃꯇꯥꯡ ꯑꯣꯏ ꯃꯌꯨꯝ ꯌꯦꯃꯗ ꯌꯦꯃꯥꯂꯣꯠ, ꯑꯃꯁꯨꯡ ꯄꯗꯤꯡꯃꯕ ꯑꯃꯃꯥ ꯈꯃ ꯅꯥꯄꯥꯗꯗ ꯐꯥꯎꯍꯐꯥꯎꯗꯕ ꯌꯦꯅ꯫ ꯄ꯭ꯂꯦꯠ 7.3.2-ꯒꯤ 100 m ꯍꯤꯕꯒꯤ ꯕꯥꯎꯗ ꯑꯣꯏ ꯃꯍꯩꯔꯣꯏ ꯑꯣꯏꯗ ꯍꯃꯕꯇꯤ꯫

7.4 ꯁꯥꯌꯕꯥꯝꯁꯤꯡ

7.4.1 **ꯁꯥꯌꯕꯥꯝꯁꯤꯡ ꯌꯥꯎꯇꯤꯕ ꯅꯁꯤꯡ ꯇꯦꯂꯃꯁꯤꯡ.** ꯁꯥꯌꯕꯥꯝꯁꯤꯡ ꯃꯅꯥꯒꯤꯁꯤꯡꯗ ꯌꯥꯎꯇꯤ:

- (a) ꯄ꯭ꯂꯦꯠ 7.3.1-ꯒꯤ ꯃꯅꯥꯗ ꯗꯥꯄꯗꯗ ꯌꯦꯗꯕ ꯈꯨꯗꯒꯤ ꯄ꯭ꯂꯦꯠ 7.3.3-ꯒꯤ ꯃꯅꯥꯗ ꯂꯩꯇꯕ ꯅꯁꯤꯡ ꯇꯦꯂꯃ ꯁꯗꯤꯡꯃꯥ, ꯃꯁꯤꯒꯤ ꯌꯦꯃꯕ ꯄꯗꯤꯡꯃꯕ ꯑꯣꯅꯗꯕꯒꯤ; ꯑꯃꯁꯨꯡ
- (b) ꯁꯅꯌꯥ **8 ha** ꯈꯨꯗꯒꯤ ꯐꯥꯎꯗ ꯅꯁꯤꯡ ꯍꯗꯄꯥꯡ ꯃꯐꯝꯁꯤꯒꯤ ꯌꯥꯗꯥꯡ ꯁꯗꯤꯡꯃꯥ, ꯗꯥꯄꯗꯗ ꯌꯦꯗꯕꯒꯤ ꯌꯦꯗꯗꯕꯒꯤ꯫

7.4.2 **ꯇꯥꯌ ꯑꯇꯤ.** ꯁꯥꯌꯕꯥꯝ ꯑꯁꯤꯗ ꯇꯥꯌ ꯑꯇꯤ ꯇꯩ, ꯃꯃꯤ 7.1-ꯗ ꯄꯨꯇꯤ:

- **ꯇꯥꯌ 1 (ꯅꯁꯤꯡ ꯇꯦꯂꯃ ꯍꯥꯎꯍꯥꯎꯄꯒꯤ ꯇꯥꯌ)**, ꯅꯁꯤꯡ ꯇꯦꯂꯃ ꯑꯗꯨꯒꯤ ꯈꯥꯎꯇꯕ; ꯑꯃꯁꯨꯡ
- **ꯇꯥꯌ 2 (ꯂꯦꯡꯗ ꯂꯦꯗꯤꯌꯇꯒꯤ ꯁꯥꯌꯕꯥꯝ)**, ꯇꯥꯌ 1-ꯒꯤ ꯃꯄꯥꯟꯌꯗ꯫

7.4.3 **ꯇꯥꯌ 1-ꯒꯤ ꯄꯥꯎꯇꯕ.** ꯇꯥꯌ 1 ꯑꯁꯤ FTL ꯍꯌꯨꯝꯗ (ꯄ꯭ꯔꯗꯤ, ꯇꯥꯎ ꯑꯃꯁꯨꯡ ꯄꯥꯌꯗꯁꯤꯡ) ꯈꯨꯗꯒꯤ ꯇꯦꯗꯅꯒꯤ ꯃꯍꯥꯎ (ꯌꯥꯇꯥꯛꯁꯤꯡ)-ꯗꯒꯤ ꯃꯄꯥꯌꯍꯥꯎꯗ ꯃꯥꯇꯗ ꯌꯦꯅ꯫ ꯑꯇꯤꯃꯥ ꯌꯥꯎꯇꯕ ꯃꯂꯦꯃꯗ, ꯐꯥꯎꯗ ꯄꯥꯎꯄ ꯇꯥꯌ ꯄꯤꯕ ꯑꯗꯨ ꯁꯤꯇꯤꯌꯇꯩ꯫ ꯇꯥꯌ 1 ꯑꯁꯤ ꯃꯅꯥꯒꯤꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ **ꯅꯕꯅꯗꯒꯤ ꯌꯦꯃꯕ** ꯑꯗꯨ ꯂꯦꯃꯕ ꯌꯦꯅ:

- (a) **15 m**, 8 ha ꯈꯨꯗꯒꯤ ꯐꯥꯎꯗ ꯅꯁꯤꯡ ꯍꯗꯄꯥꯡ ꯃꯐꯝꯁꯤꯒꯤ ꯌꯥꯗꯥꯡ ꯁꯗꯤꯡꯃꯥꯍꯥ ꯃꯈꯥꯌ ꯑꯃꯁꯨꯡ ꯄꯤꯌ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯗꯤ ꯁꯗꯤꯡꯃꯥꯍꯥ ꯑꯍꯥꯌꯕꯗ ꯃꯍꯩꯔꯣꯏ ꯑꯣꯏꯗ ꯍꯃꯕ ꯅꯕꯅꯗꯒꯤ ꯈꯥꯃꯕ, ꯄꯥꯎ ꯇꯦꯕ ꯗꯤꯌ ꯑꯃꯗ ꯄꯥꯎꯒꯤ ꯈꯃꯒꯤ ꯃꯅꯍꯥꯒꯤ ꯌꯦꯗꯒꯤ ꯃꯥꯇꯗ ꯌꯦꯕ (ꯄ꯭ꯂꯦꯠ 7.2-ꯒꯤ ꯃꯌꯨꯝꯗ ꯇꯦꯕ ꯗꯥꯂꯦꯇꯤꯁꯥꯎꯁꯤꯡ) (ꯐꯥꯎꯗ ꯄꯥꯎꯄ ꯇꯅꯥꯎꯁꯤꯡ ꯌꯥꯎꯇꯤꯕ ꯃꯂꯦꯃꯗ ꯄ꯭ꯂꯦꯠ 7.4.5-ꯒꯤ ꯃꯅꯥꯗ ꯃꯗꯨ ꯑꯅ: ꯃꯗꯥꯛ ꯃꯇꯤꯄ꯭ꯔꯗ ꯁꯨꯇꯤꯂꯅꯗ ꯕꯤꯛꯗꯤꯁꯤꯡ ꯕꯅ-ꯇꯇ, 2024-ꯒꯤ ꯕꯅ-ꯇ 93-ꯗ, ꯇꯥꯍꯛ ꯕꯗꯤ ꯑꯃꯗ ꯌꯥꯎꯇꯥꯐꯥꯛꯇꯕ ꯃꯂꯦꯃꯗ, ꯅꯥꯝꯕꯨꯜ ꯇꯨꯔꯦꯜꯗ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯅꯗꯒꯤ 55-ꯗꯒꯤ 62 m, ꯅꯗꯤꯈꯗ 50 m, ꯍꯕꯈꯗ 48 m, ꯁꯥꯎꯃꯅ ꯑꯃꯁꯨꯡ ꯍꯥꯎꯕꯗ 35 m, ꯌꯦꯂꯇꯤꯗ 31 m, ꯒꯗꯥꯌꯗ ꯅꯥꯝꯕꯨꯜꯒꯤ ꯃꯇꯨꯡꯗ ꯈꯥꯃꯕꯈꯗ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯡ (Arong)-ꯗ 30 m, ꯈꯥꯃꯕꯈꯗ 25 m ꯑꯃꯁꯨꯡ ꯃꯦꯔꯥꯈꯣꯡ (Merakhong)-ꯗ 22.5-ꯗꯒꯤ 28 m-ꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯇꯥꯕ ꯍꯌꯁꯥꯗꯥꯂꯩ ꯍꯤꯗꯅ, ꯇꯨꯔꯦꯜ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯌꯦꯃꯗ "ꯈꯨꯗꯒꯤ ꯄꯥꯎꯒꯤ ꯃꯄꯥꯎꯒꯤ ꯌꯦꯗꯒꯤ 6 m, ꯍꯌꯤꯡꯃꯕ ꯑꯃꯗ

ꯁ꯭ꯠꯔꯤꯃꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯂꯥꯞꯄ" ("or 6 m from outer toe of bund, whichever is further from mid-stream"); ꯍꯧꯖꯤꯛ ꯑꯣꯏꯔꯤꯕ ꯁ꯭ꯠꯔꯤꯝ ꯅꯠꯔꯒꯥ ꯅꯥꯂꯥ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ, ꯀꯦꯅꯥꯜ ꯅꯠꯔꯒꯥ ꯁ꯭ꯠꯔꯤꯝ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ, ꯅꯠꯔꯒꯥ ꯂꯩꯔꯤꯕ ꯆꯍꯤꯅꯤꯗ ꯃꯇꯨꯡ ꯑꯍꯦꯟꯕ ꯊꯍꯅꯥ; ꯃꯇꯤꯡꯉꯥ ꯖꯣꯟꯖꯣꯟ ꯖꯥꯟ (ꯁꯤꯗꯦꯟꯖꯣꯟꯂꯣꯡ) ꯑꯣꯏꯅ, 2006-ꯒꯤ ꯍꯟꯕ ꯖꯣꯟꯖꯣꯟꯒꯤ ꯃꯇꯨ ꯖꯣꯟ ꯑꯃꯁꯤ ꯆꯦ-ꯗꯤꯕꯦꯂꯞꯃꯦꯟꯇ ꯖꯣꯟ ꯑꯃꯍꯥꯛ; ꯑꯃꯁꯨꯡ ꯃꯇꯤꯡꯉꯥ ꯅꯦꯗ ꯀꯦꯅꯥꯜ ꯖꯥꯀꯤꯕ ꯑꯣꯏꯅ, 1978-ꯒꯤ ꯍꯅꯕ ꯅꯦꯗ ꯖꯣꯟ ꯑꯃꯁꯨꯡ ꯆꯦꯟꯊꯣꯛꯅ ꯂꯩꯔꯤꯕ; ꯍꯅꯕ ꯊꯕ ꯅꯤꯕꯤꯂꯥ ꯍꯥꯏꯅꯤꯕ);

- (b) ꯅꯦꯗꯔꯒꯤ ꯃꯄꯥꯟꯊꯣꯡꯒꯤ ꯃꯊꯛꯇ (ꯁꯦꯛꯁꯟ 7.6.1); ꯑꯃꯁꯨꯡ
- (c) ꯂꯦꯀꯁꯤꯡ ꯑꯃꯁꯤꯡꯗꯃꯛ, MWL ꯁꯦꯠꯕꯛ꯫

7.4.4 **ꯖꯣꯟ 2-ꯒꯤ ꯄꯥꯛꯆꯥꯡ.** ꯖꯣꯟ 2 ꯑꯁꯤ ꯖꯣꯟ 1-ꯒꯤ ꯃꯄꯥꯟꯊꯣꯡꯒꯤ ꯃꯊꯛꯇꯒꯤ **1% AEP ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯑꯋꯥꯡꯕ ꯑꯃꯁꯨꯡ 10 m** ꯐꯥꯑꯣꯕ ꯌꯥꯎꯏ꯫ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯑꯋꯥꯡꯕ ꯖꯣꯟ 1-ꯒꯤ ꯃꯅꯨꯡꯗ ꯆꯦꯟꯊꯔꯀꯄꯥ, ꯖꯣꯟ 2 ꯑꯁꯤ 10 m ꯑꯣꯏꯒꯅꯤ꯫

7.4.5 **ꯑꯅꯤꯁꯨꯕ ꯑꯃꯁꯨꯡ ꯑꯍꯦꯅꯕꯥ ꯀꯥꯢꯕꯗꯥꯒꯤ ꯂꯝꯕꯤ.** ꯑꯅꯤꯁꯨꯕ ꯑꯣꯏꯅ, ꯑꯅꯤꯁꯨꯕꯒꯤ ꯆꯥꯡ ꯑꯣꯏꯅ, ꯁꯦꯛꯇꯔ ꯄꯥꯝꯕꯩꯒꯤ ꯁꯦꯃꯒꯠꯂꯕ ꯑꯣꯏꯅ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯡꯉꯥ ꯖꯣꯟꯖꯣꯟ ꯖꯥꯟ (ꯁꯤꯗꯦꯟꯖꯣꯟꯂꯣꯡ) ꯑꯣꯏꯅ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯅꯨꯡꯗ ꯖꯣꯟꯖꯣꯟ ꯆꯦ-ꯗꯤꯕꯦꯂꯞꯃꯦꯟꯇ ꯑꯦꯛꯇꯤꯕꯤꯇꯤꯒꯤ ꯃꯍꯩꯅꯒꯤ ꯑꯍꯦꯟꯕ, ꯃꯗꯨꯒꯤ ꯁꯦꯛꯇ ꯖꯣꯟ ꯑꯁꯤ "ꯆꯦ-ꯗꯤꯕꯦꯂꯞꯃꯦꯟꯇ ꯖꯣꯟ ꯑꯃꯁꯨꯡ ꯃꯄꯨꯡ ꯐꯥꯅ ꯉꯥꯀꯄꯤꯕ ꯖꯣꯟ" ("No-Development Zone or Totally Protected Zone") ꯑꯣꯏꯅ (ꯀꯥꯡꯂꯣꯟ 3) ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯕꯈꯜ ꯖꯣꯟꯗ "ꯂꯝ ꯁꯦꯃꯗꯣꯛꯄ, ꯕꯟꯗ ꯊꯝꯕ ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡ ꯆꯦꯟꯕꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯂꯝꯕꯤ ꯍꯣꯡꯗꯣꯛꯄ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯊꯤꯡꯅ (ꯀꯥꯡꯂꯣꯟ 19(vi)); 17 ꯖꯨꯂꯥꯏ 2019 ꯑꯃꯁꯨꯡ 25 ꯅꯣꯕꯦꯝꯕꯔ 2022-ꯒꯤ ꯃꯗꯨꯒꯤ ꯀꯣꯔꯇꯀꯤ ꯑꯣꯔꯗꯔꯁꯤꯡ ꯑꯦꯗꯚꯥꯏꯖꯔꯤꯒꯤ ꯍꯟꯕ ꯖꯣꯟꯖꯣꯟꯒꯤ ꯃꯅꯨꯡ ꯑꯃꯁꯨꯡ ꯑꯍꯦꯟꯕ ꯆꯦ-ꯗꯤꯕꯦꯂꯞꯃꯦꯟꯇꯁꯤꯡꯗꯃꯛ ꯃꯇꯤꯡꯉꯥ ꯄꯥꯟ ꯁꯦꯃꯖꯤꯟꯕ ꯑꯍꯦꯟꯕ (ꯁꯦꯡꯅ ꯅꯤꯡꯊꯧꯒꯤ ꯃꯥꯌꯣꯛ ꯅꯥꯏꯗꯕ; ꯁꯥꯇ ꯆꯍꯤꯕ ꯅꯤꯡꯅꯕꯥ [TBC]); WRD-ꯅꯥ ꯂꯦꯀꯁꯤꯡ ꯁ꯭ꯠꯔꯤꯃꯒꯤ ꯂꯝꯕꯤ, ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯃꯥꯏꯀꯩ, ꯏꯊꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯝꯆꯠ ꯊꯥꯗꯣꯛꯂꯒ ꯑꯅꯤꯁꯨꯕꯅꯥ ꯑꯃꯒꯤ ꯃꯊꯛꯇꯥ, ꯆꯦꯛꯁꯤꯟꯅ ꯑꯃꯁꯨꯡ ꯑꯍꯟꯕꯥ ꯄꯨꯕ ꯊꯕꯛ ꯑꯃꯒꯤꯗꯃꯛ WRD-ꯒꯤ ꯁꯦꯃꯒꯠꯂꯕ ꯑꯣꯏꯅ (ꯃꯇꯝ ꯑꯅꯤꯅ; ꯃꯇꯤꯡꯉꯥꯒꯤ ꯂꯝꯒꯤ ꯑꯅꯤꯁꯨꯕ ꯑꯍꯦꯟꯕ ꯅꯤꯡꯅꯕꯥ); ꯊꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯀꯄꯥꯡꯕꯤꯗꯥꯡꯅ ꯑꯦꯄꯤꯔꯤ ꯑꯃꯅ ꯃꯇꯤꯡꯉꯥ ꯅꯦꯗꯔ ꯀꯦꯅꯥꯜ ꯖꯥꯀꯤꯕ ꯑꯣꯏꯅ, 1978-ꯒꯤ ꯍꯅꯕ ꯅꯦꯗꯔ ꯖꯥꯀꯤꯕ ꯑꯦꯛꯇꯤꯕꯤꯇꯤ ꯑꯃꯒꯤ ꯁꯦꯃꯒꯠꯂꯕ (ꯃꯅꯥꯡ ꯑꯃꯍꯥꯛꯀꯤ ꯕꯅ-ꯖꯣ 93; ꯑꯦꯛꯇꯤꯕꯤꯇꯤ ꯑꯍꯦꯟꯕ ꯂꯃꯍꯟꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯄꯤꯔꯤ ꯑꯍꯦꯟꯕ ꯆꯦꯟꯊꯣꯛꯅ ꯂꯩꯔꯤꯕ); ꯃꯇꯤꯡꯉꯥ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯑꯦꯅ ꯂꯥꯢꯕ ꯖꯥꯟꯗ ꯑꯃꯁꯨꯡ ꯔꯥꯏꯖꯥꯟꯗ ꯑꯣꯏꯅ, 2014-ꯒꯤ ꯍꯅꯕ ꯖꯣꯁꯤ, ꯕꯤꯂꯦꯛꯄꯤꯗ ꯑꯃꯁꯨꯡ ꯂꯦꯛꯆꯥ ꯖꯥꯒꯥꯡ ꯁꯦꯃꯈꯤꯕꯒꯤ ꯔꯤꯄꯣꯔ ꯑꯣꯏꯅ; 2017-ꯒꯤ ꯆꯥꯡꯂꯤꯕꯗꯒꯤ ꯍꯅꯕ ꯆꯦꯟꯊꯣꯛꯅ ꯂꯩꯕ ꯔꯥꯏꯖꯥꯟꯗ ꯑꯃꯒꯤꯗꯃꯛ ꯃꯇꯤꯡꯉꯥ ꯂꯦꯛꯆꯥ ꯔꯥꯏꯖꯥꯟꯗꯂ ꯑꯦꯛꯇꯤꯕꯤꯇꯤꯒꯤ ꯔꯤꯄꯣꯔ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯒꯠꯂꯕ (ꯑꯍꯦꯟꯕ ꯑꯄꯨꯅꯕ ꯑꯃꯁꯤ); ꯀꯄꯥꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯄꯤꯖꯅꯖ ꯂꯩꯄꯕ GIS ꯕꯥꯖ ꯃꯦꯂꯣꯡꯄ ꯁꯦꯛꯇꯔ – 2043 (ꯑꯦꯗꯖꯕ ꯃꯦꯅꯤꯅꯤꯁꯥꯡꯂꯣꯡ) ꯑꯃꯁꯨꯡ ꯑꯣꯏꯔꯤꯕ ꯃꯦꯂꯣꯡꯄ ꯁꯦꯛꯇꯔ ꯑꯃꯒꯤ ꯅꯤꯁꯨꯕ ꯑꯣꯏꯅ, ꯁꯥꯡꯂ ꯑꯦꯅꯖꯅ ꯃꯇꯤꯡꯉꯥꯒꯤ ꯃꯦꯂꯣꯡꯄ ꯁꯦꯛꯇꯔ ꯑꯦꯄꯤꯔꯤꯕꯤꯗꯒꯤ ꯁꯨꯖꯤꯅꯤꯅ ꯖꯣꯟꯗ/ꯁꯨꯖ ꯄꯥꯢꯖꯥꯡꯂꯣꯡ ꯕꯅ-ꯖꯣꯖ, 2026-ꯒꯤ "ꯁꯣꯡꯕ, ꯅꯥꯂꯥꯕꯦꯟ, ꯁ꯭ꯠꯔꯤꯃꯕꯤ ꯑꯃꯁꯨꯡ ꯅꯥꯗꯤꯅꯦꯕꯤ" ("Pond, Drain, Rivers and Canals") ꯁꯨꯖ ꯖꯣꯅꯕ ꯊꯕ ꯆꯍ; ꯑꯃꯁꯨꯡ ꯃꯇꯤꯡꯉꯥ ꯄꯥꯟ ꯁꯦꯃꯖꯤ, ꯆꯥꯡꯆꯥꯡ ꯀꯄꯥꯡꯕ ꯁ꯭ꯠꯔꯤꯝꯕꯁꯨꯖꯥꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯀꯁꯤꯡ ꯁꯦꯃꯖꯤꯟꯕ ꯅꯤꯡꯊꯧꯂꯣꯡ ꯑꯃꯗꯨꯅ ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2-ꯅꯒꯤ ꯍꯦꯟꯅꯥ ꯄꯥꯛꯄ ꯂꯝꯕꯤꯗ ꯑꯣꯏꯅ ꯊꯍꯅꯕ ꯃꯅꯥꯡꯅ, ꯍꯦꯟꯅꯥ ꯄꯥꯛꯄ ꯂꯝꯕꯤꯗ ꯑꯁꯨꯅ ꯊꯤꯡꯕ ꯀꯤꯖꯤꯁꯦꯕꯀꯤꯕꯤꯒꯤꯗꯃꯛ ꯃꯆꯥ ꯑꯣꯏ꯫

7.4.6 **1% AEP ꯑꯋꯥꯡꯕ ꯑꯣꯏꯕ ꯃꯅꯥꯡꯅ ꯅꯤꯡꯀ ꯑꯣꯏꯕ ꯄꯥꯛꯆꯥꯡꯒꯤ ꯂꯝꯕꯤ.** ꯁꯦꯛꯁꯟ 7.3.4-ꯅꯥ ꯄꯨꯅꯁꯤꯟꯖꯤꯕ ꯂꯣꯅꯤ ꯑꯣꯏꯅ ꯃꯊꯛ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯥꯏ ꯑꯍꯦꯟꯕ ꯑꯣꯏꯕ ꯃꯅꯥꯡꯅ, ꯂꯝꯕꯤ (ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2) ꯑꯁꯤ, ꯁꯦꯛꯁꯟ 7.4.3-ꯗ ꯑꯣꯕꯁꯦꯟ ꯃꯥꯏꯀꯩ ꯑꯣꯏꯕ, ꯍꯅꯕ ꯁꯤꯟꯖꯤꯕꯗꯒꯤ ꯄꯨꯟꯁꯤꯟꯗꯕꯅꯤ:

ꯇꯥꯕꯜ 7.1 — 1% AEP ꯑꯋꯥꯡꯕ ꯑꯣꯏꯕ ꯃꯅꯥꯡꯅ ꯅꯤꯡꯀ ꯑꯣꯏꯕ ꯄꯥꯛꯆꯥꯡꯒꯤ ꯂꯝꯕꯤ

ꯏꯁꯤꯡ ꯃꯈꯜ	ꯄꯨꯝꯅꯃꯛꯀꯤ ꯂꯝꯕꯤ (ꯖꯣꯟ 1 + ꯖꯣꯟ 2)	ꯃꯗꯨꯒꯤ ꯃꯅꯨꯡꯗ ꯖꯣꯟ 1
8 ha-ꯗꯒꯤ 65 ha ꯐꯥꯑꯣꯕ ꯏꯁꯤꯡ ꯊꯨꯡꯐꯝ ꯂꯝꯖꯥꯡ	25 m	15 m
65 ha-ꯗꯒꯤ 20 km² ꯐꯥꯑꯣꯕ ꯏꯁꯤꯡ ꯊꯨꯡꯐꯝ ꯂꯝꯖꯥꯡ	40 m	15 m
20 km²-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯏꯁꯤꯡ ꯊꯨꯡꯐꯝ ꯂꯝꯖꯥꯡ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯠꯔꯤꯃꯁꯤꯡ	50 m	20 m
ꯂꯦꯀꯁꯤꯡ, ꯖꯥꯟ ꯑꯃꯁꯨꯡ ꯁꯣꯡꯕ	MWL ꯁꯦꯠꯕꯛ + 25 m	MWL ꯁꯦꯠꯕꯛ ꯐꯥꯑꯣꯕ, ꯑꯃꯁꯨꯡ FTL-ꯗꯒꯤ 15 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ
ꯃꯄꯥꯟ, ꯑꯥꯟꯁꯨꯔꯤꯄꯤ ꯑꯃꯁꯨꯡ ꯕꯥꯅꯔꯤꯄ	ꯑꯦꯛꯇꯤꯕꯤꯇꯤꯅ ꯆꯦꯟꯊꯣꯛꯅ ꯂꯩꯕꯒꯤꯗꯃꯛ, ꯑꯃꯁꯨꯡ 50 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ	15 m

ꯌꯧꯕꯅ ꯑꯁꯤ ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯇ (Policy Supplement; ꯑꯄꯦꯟꯗꯤꯛꯁ 1C)-ꯒꯤ ꯑꯅꯤꯁꯨꯕꯇꯧꯁꯤꯡ S-3 ꯑꯁꯤꯗꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 1.7-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯇꯧꯔꯤꯕ ꯑꯣꯏ꯫

7.4.7 **ꯃꯣꯜ ꯁꯥꯏꯗꯀꯤ ꯁꯦꯠꯕꯦꯛꯀꯤ ꯆꯥꯡꯕ.** ꯂꯝꯕꯤ ꯑꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯂꯧꯔꯣꯛ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 1.10-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯣꯏꯔꯤꯕ ꯑꯃꯁꯨꯡ, ꯇꯦꯕꯜ 1 ꯑꯁꯤ 15 m-ꯒꯤ ꯄꯔꯥꯃꯤꯇꯔꯁꯤꯡꯗꯤ (ꯄꯥꯔꯥ 1.10.3(c))꯫

> **ꯂꯦꯞꯇꯦ ꯌꯥꯍꯥ.** 15 m-ꯒꯤ ꯁꯦꯠꯕꯦꯛꯀꯤ ꯆꯥꯡꯕ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔꯗ ꯑꯁꯤꯗꯤ ꯊꯥꯕꯗꯤ, ꯄꯨꯝꯅꯃꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯣꯔꯤꯗꯣꯔ (hydraulic corridor) ꯑꯃꯒꯤ ꯃꯔꯝ ꯑꯣꯏꯅꯇꯦ꯫ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯍꯥꯛꯆꯤꯡꯒꯤ ꯃꯊꯧꯇꯥꯡꯒꯤ ꯂꯃꯗꯝ ꯃꯁꯤꯒꯤ ꯕꯦꯔꯥꯃꯗ ꯂꯃꯗꯝꯁꯤꯡ ꯆꯨ: ꯃꯔꯣꯡ ꯃꯊꯧꯇꯥꯡ ꯁꯦꯝꯒꯠꯅꯕ ꯕꯦꯔꯥꯃꯗ ꯕꯨ-ꯆꯇ, 2024-ꯒꯤ ꯕꯨ-ꯆ 93 (4 ꯑꯣꯛꯇꯣꯕꯔ 2024-ꯒꯤ MAHUD ꯑꯣꯔꯗꯔ No. BBL-101/1/2024-MAHUD-MAHUD-Part(1); 5 ꯑꯣꯛꯇꯣꯕꯔ 2024-ꯒꯤ ꯃꯊꯧꯇꯥꯡ ꯒꯦꯖꯦꯠ ꯑꯦꯛꯁꯠꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ No. 253), ꯃꯁꯤꯅꯥ ꯐꯤꯕꯝ ꯆꯠꯅ ꯕꯨꯔꯤ ꯆꯦꯛꯁꯤꯟ PDA Manipur-ꯅꯥ ꯃꯤꯁꯤꯒꯤ ꯕꯨ-ꯆꯇꯁꯤꯡꯗ ꯌꯦꯊꯍꯟꯕꯥ ꯃꯇꯝꯗ ꯍꯧꯖꯤꯛ ꯌꯦꯊꯤ, ꯃꯃꯤꯡ ꯆꯠꯕ ꯇꯨꯔꯦꯜ ꯇꯤꯒꯤ ꯃꯅꯥꯛꯇ, ꯕꯤꯔ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯕꯤꯔ ꯑꯃꯗ, ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯃꯅꯥꯛ ꯇꯤꯒꯤ, "ꯑꯅꯧꯕ ꯁꯥꯒꯠ ꯕꯣꯠ ꯑꯅꯧꯕ ꯆꯦꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯆꯨꯕ ꯃꯔꯝꯁꯤꯡꯒꯤ ꯑꯃꯇꯥ" ("any new construction within the designated buffer zone") ꯊꯤꯡꯅ: ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜꯒꯤ ꯕꯤꯔ ꯑꯀꯨꯝꯕ 55, 60 ꯑꯃꯁꯨꯡ 62 m, ꯅꯕꯤꯌꯗ 50 m, ꯊꯧꯕꯟꯗ 48 m, ꯂꯧꯈꯣꯡꯅꯗ 35 m, ꯌꯤꯡꯇꯝꯗ 31 m, ꯑꯃꯁꯨꯡ ꯒꯕꯣꯜꯕ ꯅꯝꯕꯨꯜꯒꯤ ꯃꯇꯨꯡꯗ ꯆꯥꯕꯟꯗ ꯑꯃꯁꯨꯡ ꯑꯕꯥꯝꯗ 30 m, ꯁꯗꯤꯝꯃꯛ "ꯆꯦꯛꯁꯤꯟ ꯁꯦꯡꯒꯤ ꯃꯁꯦꯡꯒꯤ ꯌꯥꯗꯒꯤ 6 m, ꯃꯅꯥꯛꯊꯕ ꯑꯃꯅꯥ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯍꯦꯟꯅ" ("or 6 m from outer toe of bund, whichever is further from mid-stream"), ꯑꯃꯁꯨꯡ, ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯅꯥꯛꯇ, ꯃꯥꯡꯕꯗ 35 m, ꯆꯥꯕꯟꯗ 25 m ꯑꯃꯁꯨꯡ ꯃꯔꯦꯡꯈꯣꯡꯒꯤ ꯕꯤꯔ ꯑꯀꯨꯝꯕ 22.5, 24.2 ꯑꯃꯁꯨꯡ 28 m꯫ ꯃꯁꯤꯅꯥ ꯑꯌꯥꯛꯁꯛ ꯇꯨꯔꯦꯜ ꯆꯦꯛꯁꯤꯟ ꯅꯥꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯡ ꯆꯦꯛꯁꯤꯟ ꯁꯥꯏꯅꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯡ ꯆꯨꯗꯨ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯃꯅꯥꯛ ꯇꯕꯅ, 40 m ꯁꯥꯡꯕ ꯕꯤꯔ ꯑꯃꯗ 30 m-ꯒꯤ ꯕꯦꯔ ꯑꯃꯅꯥ ꯆꯨꯡꯅꯒꯤ ꯃꯍꯥꯛꯗ 10 m ꯅꯥꯛꯇ ꯊꯃꯅ (NEER-ꯒꯤ ꯁꯛꯕ)꯫ 15 m-ꯒꯤ ꯃꯔꯝ ꯑꯁꯤ ꯆꯨꯡꯅꯒꯤ ꯃꯊꯛꯇꯒꯤ, ꯆꯦꯛꯁꯤꯟ ꯁꯥꯡ ꯆꯨꯕ ꯕꯤꯔ ꯑꯃꯗ ꯁꯥꯡꯒꯤ ꯆꯥꯒꯤ ꯃꯅꯥꯡꯒꯤ ꯌꯥꯗꯒꯤ ꯃꯌꯥꯏ ꯇꯥꯅ, ꯃꯕꯥ ꯑꯃꯗꯅ ꯁꯥꯡ ꯑꯃꯗ ꯇꯨꯔꯦꯜꯗꯒꯤ ꯌꯦꯛꯅ ꯍꯦꯛꯅ ꯆꯨꯕ ꯃꯔꯝ ꯁꯗꯤꯝꯗ ꯑꯃꯁꯨꯡ ꯑꯍꯦꯟꯕꯒ ꯕꯤꯌꯥꯝꯗ ꯃꯁꯤ ꯕꯨ-ꯆꯒꯤ 6 m-ꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯁꯃꯊꯣꯛꯅ, ꯑꯃꯁꯨꯡ ꯌꯧꯕꯅ ꯑꯃꯗꯅ ꯊꯣꯛꯂꯛꯅꯕ ꯌꯧꯔꯛ, ꯁꯦꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯅꯕꯤ ꯁꯗꯤꯝꯃꯛꯇ ꯌꯥꯅ; ꯁꯥꯡ ꯆꯨꯕ ꯁꯥꯡꯕ ꯕꯤꯌꯥꯝꯗ ꯕꯨ-ꯆꯒꯤ ꯍꯥꯛꯁꯤꯡꯅꯥ ꯃꯌꯥꯝ ꯌꯦꯃꯅ ꯄꯨꯝꯅꯃꯛ ꯍꯦꯟꯅ ꯌꯥꯅ ꯑꯃꯁꯨꯡ ꯃꯀꯤ ꯑꯣꯅ (NEER-ꯒꯤ ꯁꯛꯕ)꯫ ꯃꯁꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯑꯣꯏꯕꯗ ꯌꯥꯕꯕ ꯑꯆꯨꯕ ꯑꯍꯥꯅꯕ ꯀꯨꯏꯦꯟꯇꯤꯇꯦꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯕꯤꯍꯦꯕꯤꯑꯣꯔꯦꯜ ꯌꯦꯊꯤ, ꯆꯨꯕꯤꯕ ꯕꯦꯔꯥꯃꯗꯁꯤꯡꯗ ꯌꯦꯊꯧ; ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 1-ꯒꯤ ꯆꯥꯡ ꯑꯁꯤ ꯃꯤꯑꯣꯟ ꯑꯃꯒꯤ ꯁꯦꯡꯕ ꯆꯥꯡ ꯑꯣꯟꯕꯕ ꯃꯇꯝꯗ, ꯃꯁꯤ ꯃꯂꯥꯌꯕ ꯁꯦꯡꯅꯗ ꯕꯤꯇꯕꯒ ꯌꯥꯅ ꯆꯦꯛꯁꯤꯟ ꯃꯁꯥꯡ ꯑꯣꯒꯕꯤꯀꯨꯗ ꯑꯃꯅꯥ ꯊꯣꯛꯊꯣꯛꯅ, ꯇꯦꯊꯥꯡꯁ (ꯌꯤꯡꯒꯤ ꯆꯥꯡꯗꯝꯗ, ꯑꯁꯤꯂꯕꯤꯡ ꯃꯦꯇꯦꯡꯁꯤꯅꯒꯤ ꯆꯥ ꯌꯨꯟꯊꯥꯡꯒꯤ ꯂꯥꯏꯁꯤꯒꯤ ꯁꯦꯊꯪꯗ [TBC])꯫ ꯃꯁꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯁꯤꯒꯤ ꯁꯥꯕꯁꯦꯇꯅꯇꯤ, ꯑꯅꯧꯒꯤ ꯁꯥꯡꯇꯕ ꯆꯦꯛꯁ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅꯥ ꯃꯤꯑꯣꯟꯃꯤꯑꯣꯟ ꯄꯨꯝꯅꯃꯛ ꯁꯥꯡꯕ ꯍꯦꯟꯅ ꯑꯃꯗ ꯄꯔꯥꯃꯤꯇꯔ (ꯃꯇꯨꯡ ꯆꯨꯕ ꯏꯃꯥꯟꯃꯥꯟ ꯌꯥꯝꯕꯤꯁꯤ)꯫ ꯂꯧꯔꯣꯛ ꯑꯁꯤ ꯃꯥꯡ ꯕꯣꯠꯕ 1% AEP ꯑꯣꯏꯂꯧꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯠꯔꯤꯛ ꯑꯃꯗ ꯏꯃꯥꯕ ꯂꯝꯗꯥꯛꯁꯥ ꯑꯁꯤ Kansas City Metro APWA Section 5600 (2025.01)-ꯒꯤ ꯇꯦꯕꯜ ꯑꯗꯤꯒꯤ ꯂꯣꯡꯕꯤꯌꯧꯔꯕꯒꯤ ꯃꯇꯨꯡ ꯅꯥꯕꯗꯤ:
>
> - APWA ꯇꯦꯕꯜ 1 (ꯂꯣꯡꯕꯤꯊꯒꯤ ꯃꯆꯥꯛ) ꯑꯁꯤ ꯆꯨꯡꯅꯒꯤ ꯃꯊꯛꯇꯒꯤ ꯃꯌꯥꯏ ꯇꯥꯅ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗ ꯁꯦꯝꯗꯣꯛꯁꯤ ꯑꯃꯁꯨꯡ ꯆꯥꯕꯤꯒꯤ ꯃꯔꯝꯁꯤꯡꯁꯤ ꯅꯥꯛꯇ ꯌꯦꯄꯅꯇꯤ꯫
> - APWA ꯇꯦꯕꯜ 2 ꯑꯁꯤ 20–40 ꯑꯦꯀꯔ ꯅꯣꯡꯁꯤ ꯊꯗꯣꯀꯁꯥ ꯂꯣꯡꯕꯤꯊꯣꯡꯁꯤꯒꯤꯗꯃꯛ 1% AEP ꯅꯣꯡꯁꯤ ꯅꯥꯌꯦꯡꯒꯤ ꯑꯣꯏꯂꯧꯕꯒꯤ ꯑꯃꯁꯨꯡ 10 ft (3 m ꯕꯨꯊ)-ꯗꯤ꯫
> - APWA-ꯅꯥ 2025.01-ꯗ ꯂꯣꯡꯕꯤꯊꯒꯤ ꯂꯧꯔꯣꯛꯀꯤ ꯌꯥꯕꯤꯒꯕ ꯑꯃꯗ 40 ꯑꯦꯀꯔꯗꯒꯤ 20 ꯑꯦꯀꯔ (8 ha ꯕꯨꯊ) ꯏꯃꯥꯕ ꯄꯔꯥꯃꯤꯇꯔꯃꯤ꯫
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> (MARC, APWA 5600 Policy Supplement, ꯆꯅꯨꯋꯥꯔꯤ 2025꯫) ꯄꯥꯔꯥ 7.4.1(b)-ꯅꯥ 8 ha-ꯒꯤ ꯌꯥꯕꯤꯒꯕ ꯑꯃꯗ ꯆꯨꯅ꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯁꯤꯒꯤ 10 m-ꯒꯤ ꯃꯤꯠꯔꯤꯛ ꯑꯁꯤ APWA-ꯒꯤ 10 ft-ꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯁꯥꯡꯅ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯄꯔꯊꯧꯃꯇꯕ ꯃꯃꯤꯡꯒꯤ ꯁꯗꯝꯕ ꯑꯃꯁꯨꯡ ꯆꯨꯡꯌ꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯁꯤꯅꯥ ꯃꯁꯤ ꯊꯥꯃꯤ, ꯃꯕꯥꯗꯤ ꯃꯊꯧꯇꯥꯡꯒꯤ ꯅꯣꯡꯁꯤ ꯅꯥꯌꯦꯡꯒꯤ ꯃꯍꯥꯛꯁꯤ ꯑꯁꯤ US-ꯒꯤ ꯃꯍꯥꯛꯁꯤꯡꯗꯒꯤ ꯌꯦꯛꯅꯥ ꯌꯦꯐꯊꯥꯃꯛ (coarser) ꯑꯣꯅ, ꯅꯝꯕꯨꯜ ꯌꯥꯏꯁꯥꯡ ꯑꯁꯤ "ꯍꯥ ꯃꯅꯥꯃꯗ ꯌꯦꯛꯅꯥ ꯆꯥꯡꯕ ꯒꯕꯣꯗꯤꯌꯧꯗꯨ ꯆꯨꯕ ... ꯑꯣꯂꯨꯒꯤꯌꯦꯛꯅꯥ ꯊꯦꯡꯕ, ꯃꯁꯤꯡ ꯏꯕ ꯃꯑꯣꯝꯗ ꯃꯔꯝꯗ ꯑꯣꯅꯕ ꯌꯥꯏꯁꯥꯡ ꯑꯃꯗꯤ" ("virtually a flat alluvium filled valley … with a very low southerly gradient") (MASTEC), ꯑꯃꯁꯨꯡ 790 m ꯕꯨꯊꯗ (AIIB, 2024) ꯆꯨꯕ ꯅꯝꯕꯨꯜꯒꯤ ꯆꯥ ꯑꯁꯤ ꯃꯤꯊꯨꯊꯝꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯟꯔꯥꯂꯨ ꯃꯔꯝꯗ ꯆꯅꯨꯡ 788.400 m-ꯒꯤ ꯃꯤꯌꯥꯝ ꯑꯃ ꯆꯦꯛꯁꯤꯟ ꯑꯗꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯆꯨ (WRD, ꯁꯦꯟꯗ ꯏꯃꯥꯔꯥꯅꯤꯕ ꯃꯇꯨꯡ ꯅꯥꯕꯗ; NEER-ꯒꯤ ꯁꯛꯕ) (ꯃꯕꯥ ꯑꯃꯗꯅ ꯆꯅꯨꯡꯗ ꯑꯁꯤꯡꯁꯥ ꯑꯕꯦꯗꯕ ꯑꯃꯅꯥ ꯅꯣꯡꯁꯤ ꯅꯥꯌꯦꯡꯒꯤ ꯃꯆꯥꯛ ꯑꯃꯗ ꯌꯦꯛꯅꯥ ꯍꯦꯛꯅ ꯌꯧꯗꯊꯄꯅꯇꯤ), ꯑꯃꯁꯨꯡ ꯃꯤꯠꯔꯤꯛ ꯑꯁꯤꯅꯥ ꯅꯣꯡꯁꯤ ꯆꯨꯝꯄꯒꯤ ꯃꯆꯥꯛꯁ ꯃꯔꯣꯡꯈꯣꯡꯂꯃꯤ ꯆꯥꯕꯤꯒꯤꯗꯃꯛ ꯃꯆꯝ ꯁꯥꯏ꯫

ꯁꯦꯛꯁꯟ 7.4.6-ꯗꯥ ꯖꯣꯅꯤꯡ ꯌꯥꯕꯥ ꯁꯦꯠꯕꯦꯛꯀꯤ ꯌꯥꯊꯪ ꯑꯃꯥ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯃꯥ ꯑꯣꯏꯅꯥ ꯊꯝꯂꯤ꯫ ꯃꯁꯤꯒꯤ ꯍꯦꯟꯅꯒꯤ ꯁꯦꯠꯕꯦꯛꯁꯤꯡ ꯑꯁꯤ 2006-ꯒꯤ APWA ꯀꯤꯖꯦꯟꯁꯤ ꯀꯥꯎꯟꯇꯤ ꯁꯇꯦꯟꯗꯔꯗꯁꯤꯡꯗꯥ ꯀꯌꯥꯟ ꯌꯥꯎꯁꯤ, ꯃꯈꯥꯒꯤ ꯑꯁꯤ 40 ꯑꯦꯀꯔꯒꯤ ꯃꯈꯥ, 40–160 ꯑꯦꯀꯔ, 160–5,000 ꯑꯦꯀꯔ ꯑꯃꯁꯨꯡ 5,000 ꯑꯦꯀꯔꯒꯤ ꯃꯊꯛ ꯂꯦꯞꯄꯒꯤ ꯗꯔꯦꯅꯦꯖꯁꯤꯡꯒꯤꯗꯃꯛ 40 ft, 60 ft, 100 ft ꯑꯃꯁꯨꯡ 120 ft (12, 18, 30 ꯑꯃꯁꯨꯡ 37 m) ꯑꯣꯏꯔꯤ (KC APWA 5600, 2006, §5605.3)꯫ ꯃꯈꯣꯌꯒꯤ ꯃꯊꯛꯇꯥ ꯄꯥꯟꯗꯝ ꯌꯥꯕ ꯑꯃꯁꯨꯡ 15 m-ꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯁꯦꯠꯕꯦꯛ ꯈꯔꯥ ꯌꯥꯏ꯫ APWA-ꯅꯥ ꯃꯄꯥꯟ ꯑꯦꯛꯁꯄꯔꯇꯁꯤꯡꯗꯤꯡꯒꯤ ꯖꯣꯅꯤꯡ ꯌꯥꯕꯥ ꯁꯦꯠꯕꯦꯛꯀꯤ ꯌꯥꯊꯪ ꯑꯃꯥ ꯁꯤꯖꯤ: ꯑꯄꯤꯖꯤꯁꯤ ꯂꯦꯞꯄꯒꯤ ꯗꯔꯦꯅꯦꯖꯁꯤꯡꯒꯤꯗꯃꯛ 1% ꯑꯦꯅꯨꯌꯦꯜ ꯑꯣꯏꯕ ꯃꯌꯥꯝ ꯑꯦꯛꯁꯗꯅꯥ ꯃꯇꯝ ꯌꯥꯕꯅꯤ ꯍꯥꯏꯕꯅꯥ ꯄꯥꯟꯗꯝꯒꯤꯑꯣꯏꯕꯅꯥ ꯑꯣꯏꯕꯅꯥ ꯌꯥꯔꯤ (MARC Supplement, 2025)꯫ ꯑꯦꯗꯥꯄꯇꯤꯕꯅꯥ ꯃꯇꯝ ꯌꯥꯕꯥ ꯑꯦꯅꯨꯌꯦꯜꯑꯣꯏꯕ ꯀꯣꯕꯤ ꯀꯣꯔꯕꯅꯥ ꯌꯥꯊꯪ ꯑꯁꯤꯒꯤ ꯃꯍꯩ ꯃꯈꯣꯌ ꯂꯤꯗꯤꯐꯕꯇꯤ ꯂꯩ꯫

URDPFI (2015)-ꯅꯥ ꯆꯦꯞ 10-ꯒꯤ ꯗꯤꯖꯥꯏꯅꯦꯖꯁꯤꯡ ꯂꯩꯕꯥ ꯂꯩꯀꯨꯅꯥ ꯂꯣꯏꯁꯤ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯥ ꯁꯦꯇꯤ ꯑꯃꯁꯨꯡ ꯀꯟꯁꯇꯔꯛꯁꯟꯁꯤꯡꯗꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ ꯆꯦꯞ 25-ꯒꯤ ꯂꯩꯕꯥ ꯂꯩꯀꯨꯒꯤ ꯀꯥꯟꯅꯕ ꯌꯥꯝ ꯀꯕꯒꯤ ꯂꯤꯗꯤꯐꯕꯇꯤ ꯑꯣꯏ ꯁꯇꯤꯂꯁꯁꯤꯡꯗꯥ (stilts) ꯂꯥꯏꯕ, ꯂꯦꯚꯦꯂꯒꯤ ꯀꯥꯠꯄ ꯁꯦꯠꯄꯤꯂꯤꯡ ꯀꯨꯊꯛꯂꯣꯏꯗꯕ ꯀꯥꯔꯅꯅꯥ ꯑꯃꯁꯨꯡ ꯄꯣꯔꯃꯦꯜ ꯀꯣꯝꯅꯥ ꯌꯥꯝꯂꯤ꯫ ꯂꯦꯕꯜ ꯑꯣꯏ ꯃꯈꯥꯅꯥ ꯌꯨꯃꯊꯥꯡꯁꯤ꯫ ꯃꯁꯤꯅꯥ ꯃꯤ ꯀꯣꯕꯒꯤ ꯄꯤꯔꯤꯡꯕ 1% AEP ꯑꯦꯅꯨꯌꯦꯜ ꯁꯨꯃꯍꯠꯄ ꯑꯃꯁꯨꯡ ꯃꯤꯖꯤꯍꯤꯖꯤꯒꯤ ꯃꯁꯦꯡꯕ ꯊꯃꯃꯤ, ꯃꯖꯥꯃꯀꯤ 1% AEP (100-yr) ꯊꯥꯀꯄ ꯑꯣꯏ ꯃꯥꯂꯦꯝꯒꯤ ꯑꯣꯏꯒꯤ ꯃꯇꯝ ꯂꯤꯗꯤꯐꯕꯇꯤꯒꯤ ꯂꯤꯐꯕꯦꯡꯖꯀꯄꯥ (ꯂꯦꯕꯜ 6)꯫

ꯂꯣꯏꯕꯀꯤ ꯀꯄꯄꯒꯤ ꯃꯀꯤꯄꯨꯖꯒꯤ ꯂꯥꯏꯕꯥꯎꯣꯏꯕ ꯃꯇꯝꯒꯤ ꯕꯤꯔꯀꯤꯕ ꯕꯤꯜ-ꯀꯨꯇꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯀꯥꯎꯁꯤ ꯑꯦꯎꯌꯥꯝ ꯀꯩ꯫ ꯃꯍꯥꯛ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯃꯗꯤꯡꯂꯥ ꯕꯤꯔꯀꯤꯕ ꯕꯤꯜ-ꯀꯨꯀ, 2024-ꯒꯤ ꯕꯤꯜ-ꯀꯨ 93, "ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯛ ꯑꯣꯏꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ" ("Flood risk prone areas"), ꯃꯈꯥꯗ ꯂꯔꯤ: "ꯂꯩꯕꯥ ꯂꯩꯀꯨꯒꯤ ꯔꯤꯁ꯭ꯛ ꯃꯤꯑꯣꯏꯕ ꯊꯥꯕꯛ ꯄꯨꯊꯣꯛꯄꯥ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯡꯒꯤ ꯂꯩꯅꯕꯥꯁꯤꯡꯒꯤ ꯃꯍꯣꯡꯒꯤ ꯃꯄꯨꯡ ꯐꯕ ꯑꯔꯥꯟꯈꯨꯕꯥ ꯀꯟꯁꯇꯔꯛꯁꯟ ꯌꯥꯝꯅ ꯕꯇꯥ ꯀꯪꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯀꯨꯕ ꯁꯦꯝꯒꯠꯄꯥ ꯑꯃꯁꯨꯡ ꯊꯤꯕ" ("Prohibit any new construction within the designated buffer zone to minimize human exposure to flood risk and preserve the natural integrity of natural ecosystems"), ꯑꯃꯁꯨꯡ ꯑꯗꯨ ꯑꯃꯁꯨꯡ ꯌꯥꯎ ꯀꯩꯔꯤꯒꯤꯗꯃꯛ ꯃꯦꯡꯕꯕ ꯌꯥꯊꯪ ꯑꯃꯥ ꯄꯤꯔꯤ: ꯂꯃꯖꯤꯡ ꯇꯨꯔꯦꯜ ꯀꯣꯏꯔꯦꯡꯒꯩ (Koirengei)-ꯗꯒꯤ ꯀꯤꯀꯣꯏ ꯖꯤꯂꯕ, 55 m; ꯀꯤꯀꯣꯏꯗꯒꯤ ꯁꯦꯛꯃꯥꯏꯖꯤꯟ (Sekmaijin) ꯖꯤꯂꯕ, 60 m; ꯁꯦꯛꯃꯥꯏꯖꯤꯟꯗꯒꯤ ꯂꯊꯣ ꯖꯤꯂꯕ, 62 m; ꯌꯥꯏꯁꯀꯣꯜ ꯍꯩꯔꯣꯛ (Heirok) ꯕꯔꯤꯖꯗꯒꯤ ꯌꯥꯝꯕꯤꯄꯨꯡ ꯖꯤꯂꯕ, 31 m; ꯒꯔꯤꯌꯥꯔ ꯂꯃꯖꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ ꯅꯃꯊꯪ, 30 m; ꯂꯔꯤꯡ ꯁꯋꯣꯝꯕꯨꯡ (Sawombung)-ꯗꯒꯤ ꯀꯤꯀꯣꯏ ꯖꯤꯂꯕ, 50 m; ꯊꯧꯕꯟ ꯌꯥꯂꯔꯤꯄꯥꯎꯣꯏꯒꯤ ꯂꯔꯣꯏ ꯂꯆꯤꯟ (Irong Ichil) ꯖꯤꯂꯕ, 48 m; ꯁꯦꯛꯃꯥꯏꯂ ꯄꯥꯂꯦꯜ (Pallel) ꯕꯔꯤꯖꯗꯒꯤ ꯁꯦꯛꯃꯥꯏꯂꯀꯤꯗꯃꯛ ꯂꯃꯖꯤꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯄꯨꯔꯀꯄ ꯃꯖꯥꯃ ꯖꯤꯂꯕ, 35 m; ꯑꯃꯁꯨꯡ ꯑꯔꯥꯡ ꯆꯔꯥꯡꯄꯠ (Charangpat)-ꯗꯒꯤ ꯂꯩꯀꯄ ꯄꯠ ꯖꯤꯂꯕ, 30 m, ꯂꯗꯤꯗꯃꯛ "ꯇꯨꯔꯦꯂꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯅꯠꯔꯒꯥ ꯄꯥꯎꯒꯤ ꯃꯄꯥꯟꯗꯒꯤ ꯌꯥꯗꯒꯤ 6 m, ꯀꯅꯥꯒꯨꯝꯕ ꯑꯃꯅꯥ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯃꯥꯡꯅꯥ ꯅꯄꯄ" ("from mid-stream or 6 m from outer toe of bund, whichever is further from mid-stream"); ꯑꯃꯁꯨꯡ, ꯇꯨꯔꯦꯂꯒꯤ ꯃꯌꯥꯏꯗꯒꯤ ꯂꯥꯏꯕ, ꯃꯔꯤꯜꯂꯕ 22.5 m (ꯌꯨꯔꯦꯝꯕꯝ (Yurembam)-ꯗꯒꯤ ꯇꯤꯗꯤꯝ ꯔꯣꯗ (Tiddim Road)-ꯐꯥꯎ ꯀꯔꯥꯎꯣꯏꯕ ꯖꯤꯂꯕ), 24.2 m (ꯂꯝꯄꯣꯛ (Langpok) ꯖꯤꯂꯕ) ꯑꯃꯁꯨꯡ 28 m (ꯂꯝꯄꯣꯛꯇꯒꯤ ꯆꯤꯡꯐꯨ (Chingphu) ꯖꯤꯂꯕ), ꯐꯥꯎꯕ 35 m (ꯆꯩꯔꯦꯟꯊꯣꯡ (Chairenthong)-ꯗꯒꯤ ꯀꯤꯌꯥꯝꯒꯩ (Kiyamgei) ꯖꯤꯂꯕ) ꯑꯃꯁꯨꯡ ꯅꯃꯕꯔ 25 m (ꯃꯥꯛꯂꯥꯡ (Maklang)-ꯗꯒꯤ ꯍꯩꯀꯔꯨꯖꯝ (Heikrujam) ꯖꯤꯂꯕ ꯑꯃꯁꯨꯡ ꯍꯩꯀꯔꯨꯖꯃꯗꯒꯤ ꯌꯥꯡꯒꯣꯏ (Yangoi) ꯖꯤꯂꯕ)꯫ ꯃꯁꯤ ꯃꯍꯥꯛꯅꯥ ꯀꯥꯄꯣꯛꯂꯤ: "ꯐ꯭ꯂꯗ ꯄꯦꯟꯗꯦ ꯀꯅꯕ ꯑꯦꯛꯇ, 1978-ꯒꯤ ꯃꯈꯥ ꯁꯦꯝꯁꯤꯕ ꯐ꯭ꯂꯗ ꯀꯅꯕ ꯑꯦꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯃꯥꯡꯗ ꯀꯤꯕ ꯑꯌꯥꯕ ꯌꯥꯑꯣꯗꯅꯥ ꯀꯅꯥꯒꯨꯝꯕ ꯃꯤ ꯑꯃꯠꯇꯅꯥ ꯊꯤꯕ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯔꯤꯁꯇ꯭ꯔꯤꯛꯇꯦꯗ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯕꯛ ꯑꯃꯠꯇ ꯇꯧꯔꯣꯏꯗꯕꯅꯤ" ("No person shall undertake any activity within the prohibited area or restricted area except with the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978")꯫ ꯀꯔꯤꯖꯦ IMC Building Bye-Laws (3rd Amendment), 2024-ꯅꯥ ꯌꯥꯊꯪ ꯑꯁꯤ ꯕꯤꯜ-ꯀꯨ 93.1 ꯑꯣꯏꯅꯥ ꯄꯨꯔꯦ ꯌꯥꯎꯍꯟꯖꯤ (ꯀꯔꯤꯖꯦ; ꯑꯔꯣꯏꯕ ꯂꯦꯡꯌꯦꯜ ꯂꯣꯏꯅꯅꯥ ꯂꯥꯏꯕꯤꯀꯁ [TBC])꯫ ꯃꯍꯥꯛ ꯑꯁꯤ ꯐꯔꯕꯗ ꯀꯣꯅꯐ ꯕꯀꯤ ꯅꯠꯔꯒꯥ PDA Manipur-ꯅꯥ ꯃꯌꯣꯒꯤ ꯕꯤꯜ-ꯀꯨꯇꯣꯏꯕꯗ ꯆꯦꯠꯁꯥꯍꯟꯕ ꯃꯖꯥꯃꯗ ꯂꯥꯏꯕ ꯆꯦꯠꯀꯤ (ꯂꯦꯕꯜ 1), ꯑꯃꯁꯨꯡ ꯃꯖꯥꯝ ꯑꯃꯗ ꯃꯇꯝꯒꯤ ꯅꯃꯕꯔ ꯊꯝꯕ ꯌꯥꯎꯍꯟꯕ ꯌꯥꯏ [ꯕꯀꯤ ꯂꯗꯤꯗꯒꯤ TBC]꯫ ꯕꯤꯜ-ꯀꯨ 16-ꯅꯥ ꯃꯁꯥꯟꯔꯤ ꯕꯤꯔꯀꯤꯕ ꯑꯃꯥ "ꯀꯔꯤꯒꯨꯝꯕ ꯃꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯂꯥꯏꯕꯦꯟ ꯅꯠꯔꯒꯥ ꯂꯝ ꯑꯃꯃꯥꯗꯤ ꯃꯊꯛꯇꯥ ꯁꯦꯝꯂꯣꯏꯗꯕꯅꯤ ꯅꯠꯔꯒꯥ ꯄꯥꯀꯊꯣꯛꯄꯥꯔꯦꯝꯂꯣꯏꯗꯕꯅꯤ" ("shall not be constructed or extended, over any municipal drain or land") ꯍꯥꯌꯅꯥ ꯍꯥꯄꯆꯤꯟꯈꯤ, ꯑꯃꯁꯨꯡ ꯕꯤꯜ-ꯀꯨ 94-ꯅꯥ "ꯇꯥꯎꯟꯁꯤꯡꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯗ ꯂꯥꯎꯊꯣꯛꯀꯗꯕ ꯍꯥꯏ ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯛ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ" ("high Flood Risk Areas identified in the Master Plan of the towns")-ꯗ ꯄꯦꯟꯗꯦꯖ ꯑꯁꯤ "ꯑꯀꯣꯌꯕꯒꯤ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯍꯥꯏꯌꯦꯁ꯭ꯠ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯗꯒꯤ 1m ꯃꯊꯛꯇꯥ ꯌꯥꯎꯕꯅꯤ" ("above 1m above the highest flood level of the surrounding areas") ꯊꯝꯃꯤ (ꯁꯦꯛꯁꯟ 7.3, ꯂꯦꯕꯜꯗꯥꯅꯥ ꯌꯥꯄꯥ)꯫ ꯀꯥꯡꯂꯥꯒꯤ ꯑꯐꯔꯕꯗ ꯃꯀꯤꯄꯨꯖ ꯀꯥꯡꯂꯥ ꯀꯥꯡ (ꯄꯔꯤꯌꯣꯖꯦꯛ) ꯑꯦꯛꯇ, 2006-ꯅꯥ 70.30 km²-ꯒꯤ ꯐꯤꯜ ꯀꯣꯡ ꯑꯁꯤ "ꯅꯣ-ꯗꯤꯚꯦꯂꯄꯃꯦꯟꯇ ꯀꯣꯡ ꯅꯠꯔꯒꯥ ꯃꯄꯨꯡ ꯐꯅꯥ ꯉꯥꯀꯊꯣꯛꯂꯕ ꯀꯣꯡ" ("the No-Development Zone or Totally Protected Zone") ꯑꯣꯏꯅꯥ ꯂꯥꯎꯊꯣꯛꯂꯦ (ꯁꯦꯛꯁꯟ 3), ꯕꯖꯔ ꯀꯣꯡꯗ, ꯄꯣꯜ ꯃꯔꯤ ꯊꯤꯕꯒꯤ ꯃꯅꯨꯡꯗ, "ꯂꯝ ꯔꯤꯛꯂꯦꯃꯦꯁꯟ, ꯄꯟꯗ ꯂꯥꯕ ꯅꯠꯔꯒꯥ ꯂꯥꯏꯕꯦꯟꯁꯤꯡꯒꯤ ꯃꯍꯣꯡꯒꯤ ꯂꯝꯕꯤ ꯁꯣꯀꯍꯟꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯑꯃꯁꯨꯡ "ꯅꯣ-ꯗꯤꯚꯦꯂꯄꯃꯦꯟꯇ ꯄꯤꯔꯤꯕꯒꯨꯝ ꯂꯩꯅꯕꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯁꯦꯝꯒꯠꯄꯒꯤ ꯑꯣꯏꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯀꯟꯁꯇꯔꯛꯁꯅꯒꯤ ꯊꯕꯛꯁꯤꯡ" ("Construction activities in ecologically sensitive areas as specified in the notification") ꯑꯣꯏꯅ (ꯀ꯭ꯂꯣꯖ 19(vi) ꯑꯃꯁꯨꯡ (vii)), ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯃꯇꯨꯡꯗ, ꯑꯦꯛꯇꯤꯚꯤꯇꯤꯒꯤ ꯃꯈꯂꯒꯤ ꯑꯔꯣꯏꯕ ꯔꯦꯖꯤꯃꯁꯤ ꯍꯦꯟꯅ ꯃꯑꯣꯡ ꯑꯃꯗ "ꯂꯥꯀꯀꯤ ꯃꯅꯨꯡꯗ ꯐꯨꯝꯗꯤꯁꯤꯡꯒꯤ ꯃꯊꯛꯇ ꯌꯨꯝ ꯑꯃꯗꯤ ꯀꯨꯞ ꯑꯃꯃꯛ" ("any hut or house on phumdis inside the lake") ꯁꯦꯝꯕ ꯑꯣꯏꯅ (ꯀ꯭ꯂꯣꯖ 20(iv)); ꯃꯅꯤꯄꯨꯔ ꯍꯥꯏꯀꯣꯔꯇꯅ ꯇꯣꯉꯥꯟ ꯇꯣꯉꯥꯟꯕ ꯑꯣꯔꯗꯔ ꯊꯣꯛꯍꯟꯈꯤ 17 ꯖꯨꯂꯥꯏ 2019-ꯗ ꯑꯦꯗꯃꯤꯠ ꯇꯧꯈꯤ, ꯑꯃꯁꯨꯡ 25 ꯖꯥꯟꯅꯨꯋꯥꯔꯤ 2022-ꯗ ꯍꯥꯏꯈꯤ ꯔꯤꯇꯦꯟꯁꯟ ꯑꯣꯔꯗꯔꯁꯤꯡ, ꯀꯣꯔꯇꯀꯤ ꯃꯌꯥꯝ ꯅꯠꯇꯕ ꯑꯍꯥꯅꯕꯗ "ꯀꯣꯔꯇꯀꯤ ꯑꯌꯥꯕ ꯌꯥꯎꯗꯅ" ("without the Court's leave") ꯗꯤꯁꯄꯣꯖꯦꯂ ꯅꯠꯔꯒꯥ ꯍꯦꯟꯗꯣꯛꯄꯥ ꯑꯃꯁꯨꯡ ꯌꯣꯀꯈꯠꯄꯥ ꯂꯩꯍꯟꯗꯅꯕ ꯍꯥꯌꯈꯤ (ꯃꯥꯏꯀꯩ ꯖꯨꯗꯤꯁꯤꯌꯦꯜ ꯃꯁꯛ ꯅꯥꯏꯗ; ꯍꯦꯟꯒ ꯅꯤꯡꯊꯧ ꯖꯨꯗꯤꯁꯤꯌꯦꯜ [TBC])꯫ ꯄꯨꯔꯣꯌꯕ ꯑꯣꯏꯗꯦ ꯅꯤꯡꯒꯥꯏꯗꯕ ꯑꯍꯥꯅꯕ ꯃꯖꯤꯡꯕ ꯑꯆꯕ: ꯁꯦꯛꯁꯟ 93-ꯗ ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯗꯒꯤ ꯃꯇꯤꯛ ꯌꯥꯅ, ꯃꯅꯤꯡ ꯑꯃꯁꯨꯡ 40 m ꯂꯥꯏꯄꯥꯛ ꯂꯩꯔꯕ ꯑꯃꯗ 30 m-ꯒꯤ ꯕꯖꯤ ꯑꯃꯗ ꯇꯥꯡꯀꯥꯒꯤ ꯃꯂꯥꯏꯕꯗ 10 m ꯅꯥꯏꯕ ꯑꯆꯕ (NEER-ꯒꯤ ꯂꯤꯁ꯭ꯠ); ꯂꯦꯝꯒꯤ ꯃꯂꯥꯏꯕꯒꯤ ꯌꯥꯝꯗꯒꯤ ꯃꯑꯣꯏꯒꯤ 6 m ꯑꯣꯏ ꯂꯥꯡꯄꯤꯡ ꯌꯥꯅꯕꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯗꯥꯍꯗꯕ ꯂꯦꯝ ꯑꯃꯒꯤꯗꯃꯛ ꯑꯂꯥꯏꯕꯅ; ꯃꯑꯣꯏꯗꯦ ꯌꯨꯝꯕꯤ ꯌꯥꯝꯒꯤ ꯃꯃꯤꯡ ꯇꯥꯅ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔꯒꯤ ꯌꯥꯝꯕꯤꯕꯨꯌꯥꯝꯕꯤ, ꯁꯤꯡꯒꯤ ꯅꯥꯡꯑꯣꯏꯡ, ꯗꯒꯤ ꯄꯨꯔꯇꯗꯦ ꯑꯃꯁꯨꯡ ꯔꯦꯅꯑꯣꯡꯔ ꯃꯤꯡꯍꯟꯒꯤꯅꯕ ꯑꯣꯏꯕꯒꯤ ꯁꯦꯡꯗꯣꯡꯑꯣꯏꯡ, ꯂꯨꯒꯤ ꯗꯨꯃꯤꯒꯤ ꯁꯔꯀꯥꯔ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯡ ꯇꯥꯗ; ꯁꯦꯛꯁꯟ-ꯇꯇꯑꯣꯏꯡꯗ **ꯂꯦꯝ ꯗꯨꯃꯤꯒꯤ ꯂꯨꯍꯣꯡꯕ ꯑꯃꯁꯨꯡꯗꯒꯤ ꯑꯣꯏꯕꯔꯥ** ꯖꯨꯗꯤꯁꯤꯌꯦꯜ (NEER-ꯒꯤ ꯂꯤꯁ꯭ꯠ), ꯑꯃꯁꯨꯡ ꯀꯣꯔꯇꯀꯤ ꯃꯂꯥꯏꯕꯗ ꯇꯥꯕ ꯁꯦꯝꯇꯦꯡꯗ ꯑꯃꯗꯒꯤꯁꯨ ꯑꯃꯁꯨꯡ ꯖꯨꯗꯤꯁꯤꯌꯦꯜ, ꯃꯤꯡꯗꯤ 2017-ꯒꯤ ꯄꯨꯔꯣꯌꯕꯒꯤ ꯃꯍꯥꯛꯗ ꯁꯦꯝꯇꯦꯡꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯇꯤꯕ ꯖꯦꯟꯕ ꯗꯔꯤꯖꯅ ꯌꯥꯗꯕꯤ; ꯖꯇꯗ ꯇꯗꯤꯡ ꯑꯦꯛꯇꯤꯚꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯤꯡ ꯑꯃꯁꯨꯡ "ꯊꯤꯡꯕ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯔꯦꯁ꯭ꯠꯔꯤꯛꯇꯦꯗ ꯑꯦꯔꯤꯌꯥ" ("prohibited area or restricted area") ꯑꯃꯁꯨꯡ ꯗꯔꯤꯖꯅ ꯌꯥꯅꯤꯡ, ꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ-ꯒꯤ ꯑꯤꯔꯥꯕ ꯔꯦꯍꯥ ꯂꯥꯏꯡꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯇꯤꯕ ꯖꯦꯟꯕ ꯑꯕꯕ ꯌꯥꯗꯕ ꯃꯤꯡꯗꯨ ꯇꯥꯌꯥ (NEER-ꯒꯤ ꯂꯤꯁ꯭ꯠ); ꯑꯃꯁꯨꯡ ꯁꯤꯡꯒꯤ ꯅꯃꯑꯣꯏꯡꯗ ꯕꯤꯔꯗꯤꯡꯒꯤ ꯄꯨꯔ ꯑꯃꯁꯨꯡ ꯁꯅꯌꯥ꯫ ꯃꯇꯦꯇ 7.4.7-ꯗ ꯃꯦꯄꯨꯔꯦꯔ ꯑꯃꯤ ꯁꯅꯇꯤꯕ ꯃꯖꯤꯡ ꯂꯨꯗꯤꯡꯃꯕꯌ 15 m-ꯕꯨ ꯇꯦꯂ 1-ꯒꯤ ꯖꯇꯤꯡ ꯑꯅꯍꯔꯇꯤ꯫

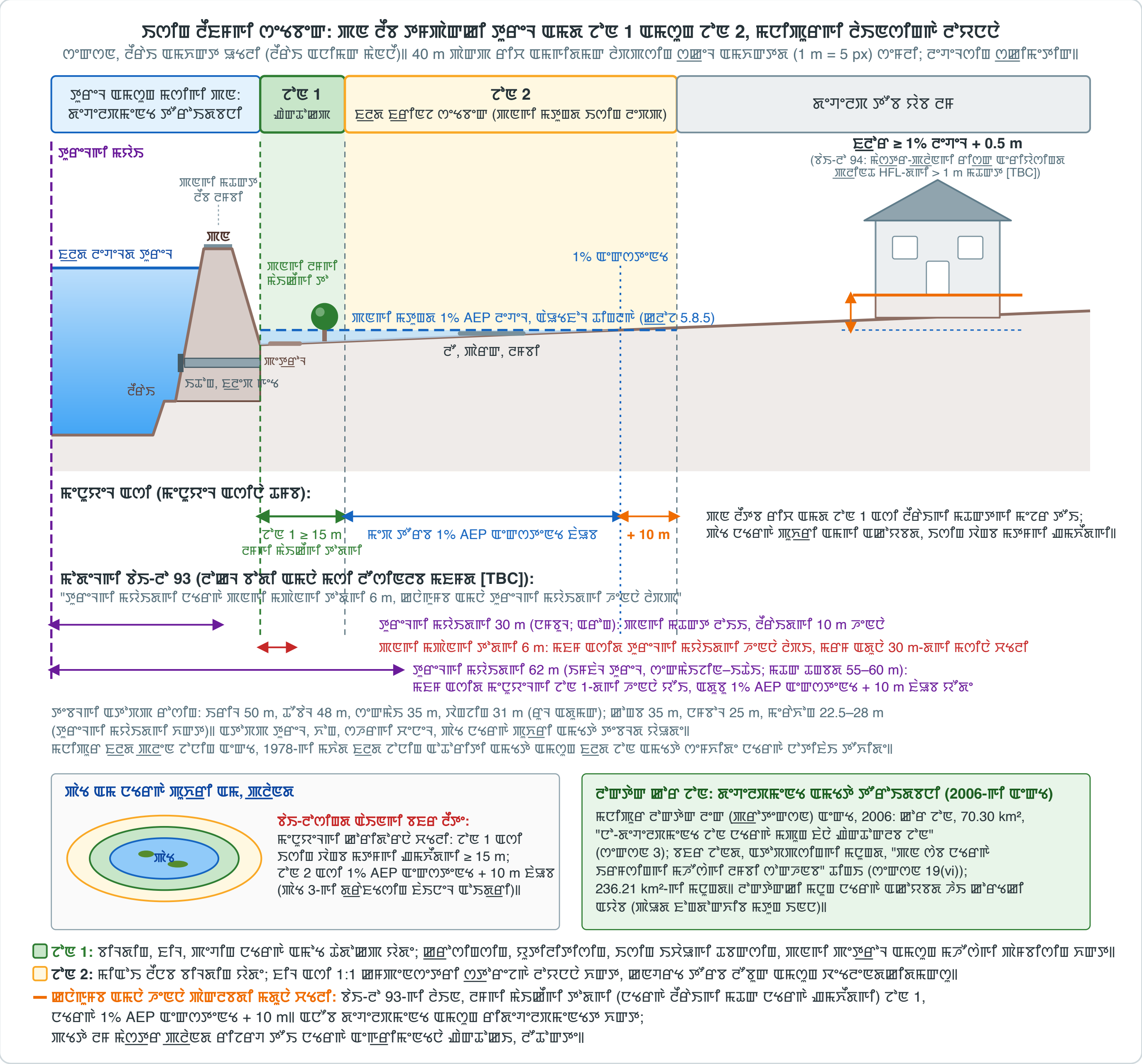
ꯖꯦꯡꯗꯃꯂ. ꯃꯅꯤꯄꯨꯔꯗ **ꯃꯑꯣꯏꯒꯤ ꯕꯤꯔꯗꯤꯡ ꯁꯦꯛꯁꯟ-ꯇꯇꯑꯣꯏꯡꯗ ꯃꯃꯤꯡ ꯇꯥꯕ ꯌꯨꯝꯕꯤꯔꯑꯣꯏꯡꯒꯤ ꯕꯖꯤꯡ ꯑꯃꯛ ꯇꯥ, ꯑꯃꯁꯨꯕꯨ ꯃꯑꯣꯏ ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯗꯒꯤ ꯃꯇꯤꯛ ꯌꯥꯅ, ꯃꯑꯣꯏꯗꯦ ꯌꯨꯝꯕꯤ ꯌꯥꯝꯒꯤ ꯃꯃꯤꯡ ꯇꯥꯅ ꯑꯃꯁꯨꯡ ꯂꯦꯝ, ꯂꯨꯍꯣꯡꯕ, ꯁꯤꯡꯒꯤ ꯅꯥꯡ ꯗꯨꯃꯤꯒꯤ ꯑꯣꯍꯥꯃꯒꯤ ꯁꯦꯡꯗꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯡ ꯇꯥꯗ, ꯑꯃꯁꯨꯡ ꯇꯥꯍꯟ ꯕꯗꯤ ꯑꯃꯗꯦ ꯃꯗꯤꯡ ꯑꯃꯗ ꯇꯥꯑꯣꯏꯕꯇꯕ ꯃꯖꯤꯡꯗ ꯅꯥꯏꯕ ꯁꯅꯇꯤ**: ꯃꯗꯤꯡ ꯃꯅꯤꯄꯨꯔ ꯂꯨꯗꯤꯖꯦꯅꯗ ꯕꯤꯔꯗꯤꯡ ꯁꯦꯛꯁꯟ-ꯇ, 2024-ꯒꯤ ꯁꯦꯛꯁꯟ-ꯇ 93-ꯗ **ꯅꯥꯃꯖꯔ ꯌꯨꯝꯕꯤꯔꯗ ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯗꯒꯤ 55-ꯗꯒꯤ 62 m, ꯅꯥꯃꯤꯔꯗ 50 m, ꯑꯇꯕꯔꯗ 48 m, ꯑꯃꯥꯃꯛꯅꯗ 35 m, ꯔꯦꯃꯇꯤꯡꯗ 31 m ꯑꯃꯁꯨꯡ ꯄꯨꯃꯁꯤꯡ ꯅꯥꯃꯖꯔꯒꯤ ꯃꯌꯥꯝꯗ ꯅꯃꯕꯨꯔꯗ ꯑꯃꯁꯨꯡ ꯑꯃꯤꯡꯗ 30 m, "ꯅꯠꯔꯒꯥ ꯂꯦꯝꯒꯤ ꯃꯂꯥꯏꯕꯒꯤ ꯌꯥꯝꯗꯒꯤ 6 m, ꯃꯈꯥꯒꯤ ꯑꯃꯗ ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯗꯒꯤ ꯍꯥꯌꯗꯦ ꯇꯥꯄꯥ" ("or 6 m from outer toe of bund, whichever is further from mid-stream")**, ꯑꯃꯁꯨꯡ **ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯗꯒꯤ ꯅꯥꯏꯕ ꯍꯥꯏꯕꯗ 35 m, ꯅꯃꯕꯔꯗ 25 m ꯑꯃꯁꯨꯡ ꯃꯦꯃꯤꯅꯥꯡꯗ 22.5-ꯗꯒꯤ 28 m**-ꯒꯤ ꯃꯌꯥꯝꯗ ꯑꯃꯇꯕ ꯃꯈꯥꯑꯣꯏꯕꯁꯤꯡꯒꯤ ꯑꯣꯏꯅ; ꯍꯥꯏꯕꯂ ꯇꯥꯍꯟ ꯕꯗꯤ ꯅꯠꯔꯒꯥ PDA Manipur-ꯗ ꯃꯑꯣꯒꯤ ꯁꯦꯛꯁꯟ-ꯇꯇꯑꯣꯏꯡꯗ ꯃꯗꯤꯡ ꯑꯃꯗ ꯁꯅꯇꯀꯍꯔꯇꯕ ꯃꯖꯤꯡꯗ ꯅꯥꯏꯕ ꯃꯑꯣꯏ ꯁꯅꯇꯤ [ꯕꯗꯤ ꯂꯨꯗꯤꯡꯒꯤ TBC]; ꯃꯅꯤꯄꯨꯔ ꯖꯇꯗ ꯂꯥꯇꯦꯂ ꯇꯗꯤꯡ ꯑꯦꯌꯥꯂ, 1978-ꯒꯤ ꯃꯍꯥꯛꯗ **ꯖꯇꯗ ꯇꯗꯤꯡ ꯑꯦꯛꯇꯤꯚꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯃꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯇꯗ ꯇꯦꯂ ꯅꯠꯔꯒꯥ "ꯊꯤꯡꯕ" ("prohibited") ꯅꯠꯔꯒꯥ "ꯔꯦꯁ꯭ꯠꯔꯤꯛꯇꯦꯗ" ("restricted") ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯗꯔꯤꯖꯅ ꯌꯥꯅꯤꯡ** (ꯑꯃꯁꯨꯡ ꯖꯨꯗꯤꯁꯤꯌꯦꯜ); ꯁꯦꯛꯁꯟ-ꯇꯇꯑꯣꯏꯡꯗ **ꯂꯦꯝ ꯅꯠꯔꯒꯥ ꯂꯨꯍꯣꯡꯕꯒꯤ ꯕꯖꯤꯡ ꯑꯃꯁꯨꯡ** ꯇꯥꯌꯥ; ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯑꯣꯏꯔꯥꯜ ꯁꯦꯝꯇꯦꯡꯗꯑꯣ ꯑꯦꯛꯇꯤꯚꯤꯇꯤꯗ ꯗꯤꯖꯥꯏꯜ ꯑꯅꯥꯗ ꯖꯨꯗꯤꯁꯤꯌꯦꯜ ꯁꯦꯝꯇꯦꯡꯗ ꯑꯄꯨꯔ, ꯍꯤꯡꯔ, ꯍꯣꯌꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯅꯑꯆ–ꯄꯨꯔꯅꯗꯔ ꯂꯩꯔꯑꯣꯏꯡ, **ꯍꯥꯇꯤꯕ ꯖꯦꯟꯕ ꯗꯔꯤꯖꯅ ꯌꯥꯗꯕꯤ**, ꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯇꯦꯡꯗꯑꯣ (ꯃꯦꯃꯤꯒꯦꯃꯦ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯇꯃꯦꯂ) ꯄꯨꯇꯑꯣ, 2017-ꯒꯤ ꯄꯨꯔ 4-ꯒꯤ ꯃꯍꯥꯛꯗ ꯊꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯗ ꯁꯅꯌꯥ (NEER-ꯒꯤ ꯂꯤꯁ꯭ꯠ)꯫ ꯃꯇꯦꯇ 7.4.3 ꯑꯃꯁꯨꯡ 7.4.7-ꯒꯤ **15 m-ꯒꯤ ꯅꯠꯅꯗꯒꯤ ꯅꯦꯃꯕ** ꯇꯦꯂ 1, ꯑꯃꯁꯨꯡ ꯌꯦꯕꯔ 7.1-ꯗ ꯃꯑꯣꯗꯒꯤ ꯇꯑꯥꯌꯥꯅꯤꯕ ꯒꯦꯔꯂ ꯂꯨꯗꯤꯡꯃꯌ, ꯍꯥꯌꯗꯦ ꯂꯥꯏꯕꯥꯛ ꯃꯤꯡꯗꯨ ꯁꯅꯌꯕ ꯃꯖꯤꯡꯗ ꯍꯥꯅꯗꯤꯇꯤꯌ ꯃꯤꯡꯗꯤꯡ ꯑꯃꯛ ꯑꯅꯗ **ꯃꯦꯄꯨꯔꯦꯔ ꯑꯣꯏꯗꯦ ꯑꯆꯕꯗꯤ**: 8 ha ꯅꯠꯔꯒꯥ ꯍꯥꯌꯗꯦ ꯅꯑꯣꯏꯡ ꯑꯗꯃꯂ ꯃꯍꯥꯑꯣꯒꯤ ꯁꯦꯡꯗꯣꯡ, ꯌꯨꯝꯕꯤꯔ, ꯅꯥꯡ ꯅꯠꯔꯒꯥ ꯑꯣꯍꯥꯃꯒꯤ ꯁꯦꯡꯗꯣꯡ ꯂꯨꯗꯤꯡꯃꯌꯃꯤ ꯃꯗꯤꯌꯥ, ꯁꯦꯛꯁꯟ-ꯇ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯡ ꯇꯥꯃꯕꯗꯨ ꯇꯥꯗꯃꯕꯗꯨ, ꯂꯦꯝ ꯑꯃꯁꯨꯡ ꯂꯨꯍꯣꯡꯕ ꯂꯨꯗꯤꯡꯃꯌꯃꯤ ꯑꯃꯤꯡꯔꯕꯗ, ꯑꯃꯁꯨꯡ, **ꯂꯦꯝ ꯇꯥꯕ ꯃꯤꯡꯁ ꯑꯃꯗ, ꯂꯦꯝꯒꯤ ꯅꯖꯒꯤ ꯃꯅꯃꯤꯒꯤ ꯌꯥꯝꯒꯤ ꯃꯇꯤꯛ ꯌꯥꯕ**꯫ ꯃꯇꯦꯇ 7.4-ꯒꯤ ꯑꯃꯥꯕꯌꯥ ꯇꯦꯂꯑꯣꯏꯡ, ꯇꯦꯂ 2-ꯒꯤ ꯃꯄꯨ ꯑꯅꯕ 1% AEP ꯑꯦꯌꯥꯑꯣꯌꯦꯂ, ꯃꯦꯄꯨꯔꯦꯔ ꯑꯣꯏꯒꯤ ꯃꯦꯖꯃꯦꯂꯑꯣ ꯗꯅꯂ ꯃꯃꯤ, ꯂꯦꯝ ꯅꯠꯔꯒꯥ ꯂꯨꯍꯣꯡꯕ ꯑꯃꯒꯤ ꯃꯃꯅ, ꯌꯨꯝꯕꯤꯒꯤ ꯂꯦꯝ ꯑꯃꯒꯤ ꯃꯁꯛꯗ ꯅꯑꯣꯏꯡ ꯇꯦꯂꯥꯂ ꯑꯦꯃꯤꯔꯦ ꯑꯃꯁꯨꯡ ꯅꯑꯣꯏꯡ ꯅꯁꯦꯍꯒꯤ ꯑꯌꯦꯃꯦꯇ ꯑꯅꯕ ꯌꯃꯂꯥꯏꯌꯥꯃꯤ ꯇꯥꯕꯌꯥꯃꯤ ꯃꯑꯣꯒꯤ ꯅꯂꯇꯕꯑꯣꯏꯡ, ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗꯥꯏꯇꯕ ꯇꯥꯕꯌ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯇꯦꯡꯗꯃꯤꯗꯃꯛꯌꯥ ꯃꯑꯣꯒꯤ ꯃꯃꯂꯦꯂꯑꯣꯌꯃꯤ ꯑꯌꯦꯃꯦꯇ (ꯃꯇꯦꯇ 7.2-ꯒꯤ ꯃꯁꯛꯗ ꯇꯥꯕ ꯗꯦꯖꯤꯇꯤꯑꯣꯂꯑꯣꯏꯡ) ꯑꯣꯏꯗꯨ ꯑꯗꯨꯃꯌꯇꯤ꯫ ꯃꯍꯥꯛ ꯑꯣꯏ **ꯃꯦꯄꯨꯔꯦꯔ ꯑꯣꯏꯒꯤ ꯂꯤꯂꯥꯇꯦꯔꯇꯤ, ꯑꯅꯦꯒꯤ ꯂꯥꯏꯇꯕ ꯅꯠꯔꯒꯥ ꯄꯨꯔ ꯅꯁꯌꯥ**, ꯑꯃꯁꯨꯡ ꯇꯨꯇꯌꯃꯤ ꯕꯗꯤ, ꯑꯦꯛꯇꯤꯚꯤꯇꯤ, ꯃꯃꯤꯌꯥ, ꯗꯤꯑꯣꯌꯥꯗꯥꯏ ꯃꯍꯦꯂꯑꯣꯔ ꯅꯠꯔꯒꯥ ꯒꯤꯇꯦꯇ ꯑꯦꯛꯇꯤꯚꯤꯇꯤ ꯑꯃꯁꯨꯡꯗ ꯃꯍꯥꯛꯕꯨ ꯇꯥꯑꯣꯏꯗꯨꯌꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯂꯗꯥꯑꯣ ꯌꯥꯌꯤꯡ꯫ **ꯔꯦꯃꯗꯖꯇꯕ ꯑꯣꯏ ꯃꯅꯃꯤ ꯑꯇꯤꯃꯌꯥꯌ ꯁꯅꯇꯤ**꯫ ꯌꯦꯕꯔꯗ ꯇꯥꯕ ꯌꯨꯝꯕꯤꯔꯑꯣꯏꯡꯒꯤ ꯂꯦꯝ ꯇꯥꯕ ꯂꯥꯏꯕꯥꯛ ꯃꯤꯁꯑꯣꯏꯡꯗ, ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯗꯒꯤ ꯁꯦꯛꯁꯟ-ꯒꯤ 30-ꯗꯒꯤ 62 m, ꯅꯠꯔꯒꯥ ꯂꯦꯝꯒꯤ ꯃꯂꯥꯏꯕꯒꯤ ꯌꯥꯝꯗꯒꯤ ꯃꯑꯣꯏꯒꯤ 6 m ꯑꯣꯏꯗꯦ ꯃꯌꯥꯝ ꯔꯦꯖꯗꯦ ꯇꯦꯂ 1-ꯗꯒꯤ ꯍꯥꯌꯗꯦ ꯗꯂꯗꯦ ꯔꯦꯅ ꯑꯃꯁꯨꯡ ꯃꯄꯨ ꯑꯅ (NEER-ꯒꯤ ꯂꯤꯁ꯭ꯠ); ꯂꯦꯝꯒꯤ ꯅꯖꯒꯤ ꯃꯅꯃꯤꯒꯤ ꯌꯥꯝꯒꯤ ꯃꯦꯄꯨꯔꯦꯔꯒꯤ 15 m ꯑꯣꯏ ꯂꯥꯡ ꯑꯃꯁꯨ ꯌꯨꯝꯕꯤꯔꯗꯒꯤ ꯔꯦꯖꯗꯦ ꯗꯂꯗꯦ ꯇꯥꯕ ꯃꯖꯤꯡ ꯂꯨꯗꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯌꯨꯝꯕꯤꯒꯤ ꯃꯔꯛꯅꯒꯤ ꯗꯂꯥꯂ ꯑꯃꯁꯨ ꯂꯦꯝꯒꯤ ꯃꯑꯆꯕ ꯅꯠꯔꯒꯥ ꯃꯌꯥꯝꯗ ꯌꯦꯕ ꯑꯂꯥꯏꯕꯂ ꯃꯤꯁꯑꯣꯏꯡꯗ **ꯁꯦꯛꯁꯟ-ꯒꯤ 6 m-ꯗꯒꯤ ꯍꯥꯌꯗꯦ ꯂꯨꯃꯑꯆꯃꯅ**; ꯑꯃꯁꯨꯡ ꯌꯦꯕꯔ ꯑꯃꯁꯨꯗꯦ ꯑꯗꯥꯌꯅꯕ ꯌꯨꯝꯕꯤꯔ, ꯅꯥꯡ, ꯁꯦꯡꯗꯣꯡ, ꯂꯦꯝ ꯑꯃꯁꯨꯡ ꯂꯨꯍꯣꯡꯕ ꯂꯨꯗꯤꯡꯃꯌꯥꯌ, ꯃꯍꯥꯛꯀꯤ ꯃꯌꯥꯝꯗ ꯂꯨꯒꯤ, ꯁꯔꯀꯥꯔ, ꯁꯤꯡꯒꯤ ꯅꯥꯡꯑꯣꯏꯡ, ꯗꯒꯤ ꯄꯨꯔꯇꯗꯦ ꯑꯃꯁꯨꯡ ꯔꯦꯅꯑꯣꯡꯔ ꯃꯤꯡꯔ, ꯂꯦꯝꯑꯣꯏꯡ ꯑꯃꯁꯨꯡ ꯂꯨꯍꯣꯡꯕꯑꯣꯏꯡ ꯍꯦꯟꯗꯦ, ꯃꯦꯄꯨꯔꯦꯔꯒꯤ 15 m ꯅꯥꯏꯕꯗꯦ ꯃꯄꯨ ꯑꯅ꯫ ꯃꯑꯣꯏ

ꯃꯣꯢꯔꯥꯡ ꯑꯣꯏꯒꯤ ꯃꯍꯩꯅ ꯑꯣꯏꯕ ꯌꯥꯐꯕ ꯑꯆꯧꯕ ꯁꯣꯀꯍꯟꯕ ꯑꯃꯁꯨꯡ ꯐꯤꯁꯣꯀꯍꯟꯕꯁꯤꯡ ꯂꯩꯔꯤ, ꯃꯈꯣꯌ ꯊꯤꯖꯤꯜꯂꯤꯕꯅꯤ ꯂꯩꯔꯤ; ꯆꯦꯞꯇꯔ 7.4.7-ꯗꯥ ꯃꯇꯤꯛꯀꯤ ꯄꯥꯎꯈꯨꯝ ꯀꯣꯝꯄ꯭ꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯅꯦꯔꯥꯄꯅꯇꯥꯅ; ꯑꯃꯁꯨꯡ ꯇꯦ 1-ꯒꯤ ꯇꯝ ꯑꯣꯏ ꯃꯤꯑꯣꯏ ꯑꯃꯒꯤ ꯁꯦꯡꯕ ꯇꯝ ꯑꯣꯏꯕ ꯃꯍꯥꯛ, ꯃꯇꯤ **ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛ ꯃꯤꯇꯝꯒ ꯌꯥꯅ ꯇꯧꯕꯒꯤ ꯃꯀꯨꯛ ꯑꯣꯏꯕꯤꯃꯍꯣꯌ ꯑꯃꯗꯥ ꯍꯧꯖꯤꯛꯇꯒꯤ, ꯇꯦꯖꯤꯌꯥ** (ꯁꯤꯗꯥꯒꯤ ꯇꯝꯑꯣꯏꯗꯅ, ꯊꯤꯖꯤꯟꯕꯤ ꯂꯩꯇꯥꯏꯗꯕꯒꯤ ꯇꯝ ꯔꯣꯏꯖꯤꯡꯕꯒꯤ ꯑꯣꯏꯌꯥꯒꯤꯒꯤ ꯅꯧꯖꯗꯅ [TBC])꯫ ꯑꯣꯡꯕꯣꯏ ꯑꯣꯏ **ꯃꯊꯦꯡꯂꯣꯛ ꯗꯥꯅꯥ ꯃꯃꯤ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔꯒꯤ ꯑꯣꯡꯕꯣꯏꯕꯤ ꯃꯇꯨꯡꯗ ꯅꯕꯥꯅꯗꯒꯤ ꯗꯥꯡꯗꯥ ꯔꯥꯕ ꯑꯆꯨ** ꯑꯥꯅꯗꯥ ꯁꯌꯄꯅꯥꯏ (ꯆꯦꯞꯇꯔ 7.2-ꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯧꯕ ꯊꯤꯖꯤꯟꯕꯤꯁꯤꯡꯗꯤ), ꯃꯇꯝ ꯑꯆꯨꯗꯥ ꯁꯥꯒꯠ, ꯁꯨꯄꯨꯟꯅꯥ, ꯁꯤꯗꯥꯒꯤ ꯅꯥꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯄꯥꯝꯒꯤ ꯁꯣꯀꯍꯟꯕꯒꯤ ꯃꯗꯥꯌꯥ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥꯕꯒꯤ ꯗꯥꯡꯗꯥ ꯇꯧꯕ ꯁꯥꯕꯣꯏꯗꯅ ꯃꯣꯢꯔꯥꯡ ꯑꯣꯏ ꯑꯥꯅꯕꯒꯤ ꯄꯣꯝꯗꯥ ꯌꯨꯃꯊꯥꯛꯇꯅ, ꯑꯃꯁꯨꯡ ꯃꯈꯦ ꯑꯃꯁꯤꯡꯅ ꯄꯨꯃꯗꯥ ꯌꯨꯃꯊꯥꯛꯇꯥꯌꯥ꯫ ꯇꯧꯔꯤꯕ, ꯑꯃꯁꯨꯡ ꯄꯣꯝꯗꯥ ꯁꯥꯌꯥꯁ ꯇꯧꯕꯒꯤ ꯄꯣꯝꯗꯥ ꯌꯨꯃꯊꯥꯛꯃꯁ ꯃꯈꯦ ꯌꯨꯅꯤꯗꯅ ꯃꯆꯨ ꯑꯥꯅꯕ (ꯆꯦꯞꯇꯔ 7.4.5) ꯑꯆꯨꯅꯤ:

- **ꯃꯅꯣꯡꯒꯤ ꯃꯔꯝ ꯇꯧꯕ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯏꯁꯤ.** ꯃꯈꯥꯌꯥ ꯁꯤꯄꯤꯕ ꯕꯥꯏ-ꯂꯥ 93-ꯒꯤ ꯗꯥꯁꯣꯁꯤ, ꯑꯣꯁꯇꯤꯃꯣꯂꯨꯗꯥ ꯖꯥꯄꯝ 7-1-ꯅ ꯅꯕ, ꯌꯨꯃꯊꯥꯛꯀꯤ ꯃꯔꯝꯅꯒꯤ ꯃꯣꯇꯄ ꯌꯥꯕ; ꯕꯥꯏ-ꯂꯥ 16, ꯃꯔ꯭ꯨꯇꯤꯁꯣꯡꯅ ꯅꯥꯕꯣꯕ ꯑꯃꯒꯤ ꯃꯈꯥꯌꯥ ꯕꯤꯜꯗꯤꯡ ꯋꯥꯕ; ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯥ 94, "ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛ ꯅꯈꯩꯅꯕꯇꯕ ꯄꯥꯅ ꯖꯥꯗꯅ ꯄꯤꯋꯥ ꯑꯣꯄꯤꯔꯣꯁꯤ" ("high Flood Risk Areas identified in the Master Plan of the towns")-ꯅ ꯁꯦꯟꯗꯨꯈ ꯑꯆꯨ "ꯑꯈꯥꯔꯕꯒꯤ ꯑꯣꯄꯤꯔꯣꯁꯤꯗꯒꯤ ꯄꯥꯅꯔꯣꯂꯨ ꯖꯥꯗꯅ ꯇꯣꯒꯣꯅ" ("the highest flood level of the surrounding areas")-ꯅꯒꯤ 1 m-ꯅꯒꯤ ꯄꯣꯝꯗꯥ ꯔꯥꯗꯕ, ꯃꯅꯥꯔ ꯑꯆꯨ ꯁꯥꯅꯤꯅꯣ [TBC]; ꯃꯣꯢꯔꯥꯡ ꯑꯣꯏꯒꯤ 1% AEP ꯇꯣꯒꯣꯅ ꯑꯃꯁꯨꯡ 0.5 m-ꯒꯤ ꯖꯥꯗꯥꯄ (ꯆꯦꯞꯇꯔ 7.6.6(b); ꯑꯄꯨꯌꯥ 6) ꯑꯣꯏ ꯄꯣꯝꯗꯥ ꯔꯥꯗꯇꯕ ꯃꯈꯦꯃꯅ ꯃꯆꯨ ꯑꯥꯅ꯫ ꯃꯅꯣꯅ ꯑꯆꯨꯗꯥ ꯕꯣꯑꯣꯃꯣꯌ ꯑꯃꯤ ꯅꯣꯖꯤꯅꯗꯥ ꯌꯥꯅ (ꯕꯥꯏ-ꯂꯥ 2(11)) ꯑꯆꯨꯕ **ꯇꯣꯝꯕ ꯇꯧꯕꯒꯤ ꯅꯣꯏꯁꯤ ꯅꯔꯤꯊ ꯈꯥꯄꯝꯁ ꯔꯤꯕ ꯇꯝꯅ ꯕꯣꯑꯣꯃꯣꯌ ꯈꯤꯁꯕ ꯄꯨꯅ ꯑꯃꯌꯥꯏ ꯇꯧꯌꯥ** (NEER-ꯒꯤ ꯁꯥꯕ); ꯌꯝꯁꯥꯌꯥꯄꯤ ꯇꯝꯅ ꯃꯣꯢꯔꯥꯡ ꯑꯣꯏꯗꯥ ꯕꯣꯑꯣꯃꯣꯌ ꯑꯃꯤ ꯃꯇꯤꯒꯤ ꯅꯣꯏꯁꯤ ꯅꯔꯤꯊꯅ ꯑꯣꯂꯣꯏꯌꯒ ꯑꯥꯅꯕ ꯄꯨꯅꯣꯏꯁꯤꯒꯤ ꯃꯔꯝ ꯑꯃꯁꯨꯡ ꯇꯝꯒꯤ ꯇꯣꯒꯣꯅꯅ ꯖꯥꯗꯥꯌꯣꯂꯣ ꯁꯣꯌꯥ (flotation check) ꯑꯃꯒꯤ ꯇꯥꯔꯗꯗꯥ ꯅꯥꯌꯥꯌ ꯔꯦꯄꯅꯥꯏ (ꯑꯄꯨꯌꯥ 4)꯫
- **ꯇꯥꯌꯥꯌꯥ.** ꯃꯗꯤꯁꯨꯝ ꯇꯥꯌꯥꯌꯥ ꯇꯣꯌꯥ (ꯁꯨꯄꯥꯌꯣꯌꯥꯂꯣ) ꯑꯣꯌꯥꯌ, 2006-ꯒꯤ ꯃꯔꯝ, ꯇꯥꯌꯥꯌꯥ ꯅꯣꯒꯣꯇꯁꯃꯣꯂꯣꯌ ꯑꯥꯈꯄꯤꯌꯤꯒꯤ ꯃꯃꯥꯌꯒꯤ ꯑꯔꯥꯕꯒꯤ ꯇꯥꯔꯗꯗꯥ (ꯑꯣꯌꯥꯂꯣ 20), 70.30 km²-ꯒꯤ ꯑꯥꯄ ꯇꯥꯂꯣ, "ꯗꯥ-ꯅꯣꯒꯣꯇꯁꯃꯣꯂꯣꯌ ꯇꯥꯂꯣ ꯗꯌꯄꯒꯤ ꯃꯁꯨꯕ ꯖꯗꯥ ꯈꯥꯌꯥꯈꯥꯌꯥꯇꯕ ꯇꯥꯂꯣ" ("No-Development Zone or Totally Protected Zone") (ꯑꯣꯌꯥꯂꯣ 3), ꯑꯃꯁꯨꯡ ꯕꯖꯄ ꯇꯥꯂꯒꯤ ꯈꯤꯕꯕꯣꯏꯁꯤ, ꯃꯅꯥꯔꯒꯤ ꯃꯇꯨꯡꯗ "ꯇꯝ ꯄꯤꯌꯥꯇꯣꯃꯣꯂꯣ, ꯁꯂꯣ ꯑꯥꯕ ꯗꯌꯄꯒꯤ ꯅꯄꯝꯑꯣꯏꯁꯤꯒꯤ ꯃꯌꯥꯑꯥꯒꯤ ꯇꯝꯕꯤ ꯑꯥꯌꯥꯄꯂꯣꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") (ꯑꯣꯌꯥꯂꯣ 19(vi)); ꯑꯃꯁꯨꯡ ꯇꯥꯌꯥꯌꯥꯄꯤ ꯃꯇꯨꯡ ꯗꯌꯄꯒꯤ ꯑꯄꯥꯔꯕꯅ "ꯄꯥꯄꯌꯄꯤ ꯑꯔꯥꯕ ꯔꯥꯊꯅꯗꯥ" ("without the Court's leave") ꯅꯣꯒꯣꯇꯁꯃꯣꯂꯣꯌ ꯈꯤꯕꯗꯕ 17 ꯅꯨꯗꯥꯅ 2019 ꯑꯃꯁꯨꯡ 25 ꯖꯣꯕꯄꯨꯔꯥꯄꯤ 2022-ꯒꯤ ꯄꯥꯅ ꯄꯥꯄꯌꯄꯤ ꯑꯣꯁꯣꯑꯣꯌꯔꯣꯅ ꯕꯣꯂꯣꯁꯄꯤ ꯑꯥꯄꯅꯄꯑꯣꯏꯁꯤ (ꯁꯥꯊꯅ ꯖꯥꯕꯅꯥꯌꯅꯤꯕ ꯃꯌꯨꯕ ꯅꯂꯣꯌ; ꯄꯣꯑꯣ ꯇꯝꯕꯄ ꯖꯕꯅꯤꯅꯣ [TBC])꯫
- **ꯇꯧꯕꯨꯌꯥ ꯑꯃꯁꯨꯡ ꯔꯣꯌꯇꯣꯂꯣꯅ.** ꯃꯗꯤꯁꯨꯝ ꯄꯂꯣꯑꯄꯒꯣꯑꯣꯂꯣ ꯑꯥꯖ ꯁꯣꯅꯤ ꯇꯣꯂꯣꯅ ꯑꯃꯁꯨꯡ ꯔꯣꯌꯇꯣꯂꯣꯅ ꯑꯣꯌꯥꯌ, 2014-ꯒꯤ ꯃꯔꯝ ꯇꯥꯄꯟ, ꯅꯤꯑꯣꯌꯥꯄꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯑꯣꯌꯣꯌ ꯇꯣꯒꯣꯅ ꯄꯃꯤꯌꯤꯑꯣꯏꯕꯤꯒꯤ ꯅꯨꯌꯈꯕꯅ ꯅꯥꯌꯥꯌ ꯄꯥꯕꯅꯥꯄꯁ, ꯃꯤꯔꯥꯌꯥꯗꯗꯥ ꯄꯥꯕꯅꯥꯌꯥꯇꯕ ꯇꯝꯅ ꯄꯂꯣꯑꯣꯌꯄꯌꯥꯑꯣꯂꯣꯒꯤ ꯗꯥꯅꯑꯣꯂꯣꯑꯣ ꯁꯤꯅꯕ (ꯑꯣꯌꯥꯂꯣ 12) ꯑꯃꯁꯨꯡ ꯁꯄꯤ ꯑꯨꯝꯕꯅꯒꯤ ꯃꯈꯤ ꯖꯤꯊꯕ ꯇꯣꯅ ꯑꯃꯁꯨꯡ ₹50,000-ꯅꯒꯤ ₹2 ꯗꯥꯅ ꯖꯤꯊꯕ ꯁꯦꯄꯥ (ꯑꯣꯌꯥꯂꯣ 18); (ꯑꯨꯝꯃꯨꯕ ꯑꯣꯃꯣꯂꯣꯅꯃꯣꯂꯣꯌ) ꯕꯤꯅ, 2026 ꯑꯣꯏ ꯕꯤꯅ ꯑꯃꯇꯤ, ꯑꯥꯅꯂꯣ ꯗꯌꯄ [TBC]꯫
- **ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛꯁꯤ ꯑꯃꯁꯨꯡ ꯇꯥꯗꯤꯁꯤ.** ꯃꯗꯤꯁꯨꯝꯄꯒꯤ ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛ ꯑꯣꯄꯤꯔꯣꯁꯤꯒꯤ ꯅꯨꯗꯤꯖꯥꯅꯅ ꯇꯥꯗꯤꯁꯤ/ꯅꯨꯇ ꯄꯣꯒꯨꯇꯣꯑꯣꯂꯣ ꯕꯥꯏ-ꯂꯥ, 2026-ꯒꯤ "ꯁꯥꯂꯣꯅ, ꯅꯥꯕꯣꯕꯦ, ꯌꯨꯃꯊꯥꯛꯁꯤ ꯑꯃꯁꯨꯡ ꯅꯥꯕꯇꯊꯁꯤ" ("Pond, Drain, Rivers and Canals") ꯅꯨꯇ ꯇꯥꯂꯣ, ꯑꯃꯁꯨꯡ ꯒꯨꯄꯣꯌꯄ ꯅꯝꯖꯅꯒꯤ ꯄꯤꯒꯤꯅꯇ ꯌꯥꯄꯕ GIS ꯕꯣꯇ ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛ – 2043 (ꯑꯄꯥꯇꯕ ꯃꯅꯤꯖꯤꯄꯣꯑꯣꯂꯣ) ꯑꯃꯁꯨꯡ ꯑꯌꯥꯁꯁ GIS ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛꯁꯤꯒꯤ ꯗꯥꯅꯂꯣꯁꯤ; ꯅꯝꯖꯅ ꯑꯃꯁꯨꯡ ꯃꯥꯅꯄꯤꯒꯤ ꯄꯤꯑꯣꯌꯥ ꯅꯂꯖꯥꯄꯝꯅ ꯃꯤꯡꯊꯣꯛ ꯁꯦꯟꯗꯣꯛꯁꯤ ꯁꯥꯅꯤꯅꯣ [TBC]꯫
- **ꯔꯣꯌꯇꯣꯂꯣꯅꯁꯤ, ꯄꯥꯄꯌꯁꯤ ꯑꯃꯁꯨꯡ ꯄꯑꯣꯌꯥꯅꯤꯔꯂꯣꯁꯤ.** 2017-ꯒꯤ ꯄꯨꯅꯁꯤꯒꯤ ꯃꯔꯝ ꯗꯥꯌꯤꯖꯅ ꯌꯥꯄꯕ ꯄꯄꯤꯒꯨꯝꯕ ꯔꯣꯌꯇꯣꯂꯣꯅ ꯑꯃꯃꯌꯥ (ꯑꯃꯌꯥꯌ ꯑꯄꯥꯅꯕ ꯗꯌꯄ); ꯃꯗꯤꯁꯨꯝ ꯄꯥꯅ ꯄꯥꯄꯌ, ꯗꯣꯑꯣꯗꯣꯅ ꯒꯨꯄꯤꯂꯣ ꯌꯨꯄꯥꯅꯕꯅꯨꯗꯣꯅ ꯑꯃꯁꯨꯡ ꯑꯨꯁꯨꯄꯤꯝ ꯄꯥꯄꯌꯄꯤ ꯄꯥꯇꯤꯌꯥ ꯇꯧꯔꯤꯕ ꯃꯑꯥꯕꯅ ꯑꯥꯄꯅꯄꯑꯣꯏꯁꯤ; ꯑꯃꯁꯨꯡ ꯃꯇꯤꯒꯤ ꯁꯂꯣ ꯑꯃꯁꯨꯡ ꯅꯈꯥꯕꯑꯣꯏꯕꯅ WRD-ꯒꯤ ꯗꯥꯅꯂꯣꯁꯤ꯫

ꯃꯣꯢꯔꯥꯡ ꯑꯣꯏꯗꯥ 15 m-ꯕꯨ ꯖꯥꯗꯥꯄ ꯑꯥꯅꯗꯥ ꯈꯝꯃꯤ, ꯃꯄꯝꯅꯤ ꯌꯨꯃꯊꯥꯛꯀꯤ ꯃꯔꯝꯅꯒꯤ ꯃꯣꯇꯄ ꯌꯥꯄꯕ ꯕꯥꯏ-ꯂꯥꯒꯤ ꯗꯥꯅꯂꯣ ꯑꯣꯏꯗꯥ ꯇꯧꯄꯅ ꯗꯌꯄꯒꯤ ꯁꯂꯣꯒꯤ ꯃꯁꯥꯂꯣꯅ ꯃꯤꯌꯄ ꯅꯄ ꯅꯥꯌꯥꯌ ꯈꯝꯕ ꯔꯥꯅ; ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯅꯣꯏꯁꯤꯒꯤ ꯔꯤꯝꯅ ꯁꯨꯕ ꯑꯃꯁꯨꯡ ꯈꯝꯕ ꯁꯥꯒꯠ, ꯁꯨꯄꯨꯟꯅꯥ, ꯁꯤꯗꯥꯒꯤ ꯅꯥꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯄꯥꯝꯒꯤ ꯁꯣꯀꯍꯟꯕꯁꯤꯅ ꯗꯥꯅꯂꯣ ꯑꯃꯌꯥꯌ ꯇꯧꯌꯥ; ꯁꯂꯣ ꯑꯃꯅ ꯁꯣꯌꯥꯄꯅ, ꯑꯤꯁꯣꯇ ꯄꯂꯣꯌꯥꯄꯅ ꯑꯃꯁꯨꯡ ꯁꯂꯣ ꯄꯌꯥꯁ ꯑꯣꯃꯅꯥꯌꯥꯁꯒꯤꯅꯃꯌꯥ ꯃꯇꯤꯒꯤ ꯇꯝꯒꯤ ꯃꯤꯅꯄꯤꯒꯤ ꯌꯥꯅ ꯑꯣꯌꯥꯄꯤꯁ ꯑꯃꯤ ꯃꯈꯥ ꯌꯥꯅ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯅ ꯅꯝꯖꯅ, ꯇꯝꯕꯨꯅ ꯑꯃꯁꯨꯡ ꯅꯄꯤꯅꯒꯤ ꯁꯂꯣ ꯄꯌꯥꯁꯁꯣꯏꯗꯥ ꯃꯈꯥ ꯌꯥꯅꯤꯕꯨꯝ (ꯁꯥꯊꯅ ꯖꯥꯕꯅꯥꯌꯅꯤꯕ ꯃꯌꯨꯕ ꯅꯂꯣꯌ); ꯑꯃꯁꯨꯡ 15 m ꯑꯣꯏ ꯌꯣꯕꯅ 7.1 ꯑꯄꯣꯅ ꯌꯥꯅꯤꯕ APWA ꯅꯤꯖꯥꯅꯌ ꯑꯣꯌꯄꯤꯃ ꯕꯖꯄꯒꯤ ꯅꯕꯥꯅꯅꯒꯤ ꯑꯁꯤꯌꯥꯁ (12 m)-ꯅꯒꯤ ꯄꯣꯂꯣꯅ꯫ ꯄꯥꯄꯤꯅꯥꯄꯒꯤ ꯃꯄꯝꯑꯣꯏꯕꯅꯤ ꯄꯣꯄꯥꯄꯅ ꯑꯆꯨꯗꯤ: "ꯌꯥꯊꯪ ꯑꯣꯏ ꯅꯝꯖꯅ ꯌꯨꯃꯊꯥꯛꯀꯤ ꯄꯥꯅꯔꯣꯂꯨ ꯖꯥꯗꯅ ꯇꯣꯒꯣꯅꯅꯒꯤ ꯗꯣꯝꯃꯤ" ("The town is below the high flood level of Imphal river")

> (ꯃꯤꯗꯤꯌꯥ ꯔꯤꯄꯣꯔꯠ); "ꯇꯨꯔꯦꯜꯒꯤ ꯉꯥꯀꯄꯤꯒꯣꯜꯁꯤꯡ ꯀꯥꯏ ꯍꯧꯔꯕꯅ ꯅꯝꯕ ꯑꯣꯏꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯍꯞꯇꯥ ꯀꯌꯥꯒꯤ ꯏꯁꯤꯡ ꯊꯨꯡꯍꯜꯂꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, APD, 2024); 28-ꯗꯒꯤ 31 ꯃꯦ 2024-ꯒꯤ ꯃꯇꯝꯗꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕ ꯗꯥꯝ 18 ꯃꯤꯄꯥꯛ ꯃꯌꯥꯝ ꯂꯦꯞꯂꯤ, ꯏꯆꯥꯎꯕꯒꯤ ꯃꯇꯨꯡꯗ 17 ꯂꯤꯛ ꯂꯦꯞꯂꯤ (ꯄꯥꯎꯔꯣꯟ ꯁꯤꯟꯗꯣꯟꯕ ꯃꯔꯨ ꯑꯣꯏꯕ); ꯅꯥꯒ ꯆꯥꯛꯇꯕ ꯊꯣꯛꯂꯕ ꯍꯥꯏꯊꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ "ꯆꯍꯤ ꯄꯨꯝꯕꯗ ꯏꯁꯤꯡ ꯇꯥꯡꯖꯤꯟ ꯄꯨꯡꯅ ꯑꯃꯁꯨꯡ ꯂꯦꯃꯍꯜꯂꯤ" ("creates a stagnant pool all along the year") (ꯃꯤꯗꯤꯌꯥ ꯔꯤꯄꯣꯔꯠ); ꯑꯃꯁꯨꯡ ꯅꯥꯒ ꯆꯥꯛꯇꯕ ꯊꯨꯡꯂꯀꯄꯥ ꯆꯥꯎꯅ 2024-ꯗ ꯅꯥꯒꯔꯝ (Nagaram), ꯂꯥꯏꯐꯝ ꯈꯨꯅꯧ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯂꯩꯃꯤꯇꯔꯥꯡꯁꯤꯡ ꯆꯩꯊꯕꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯣꯛꯂꯝꯃꯤ (ꯄꯥꯎꯔꯣꯟ ꯁꯤꯟꯗꯣꯟꯕ ꯃꯔꯨ ꯑꯣꯏꯕ)꯫ ꯁꯦꯛ-ꯇ ꯑꯦꯃꯦꯔꯤꯀꯥꯅꯒꯤ ꯑꯃꯁꯨꯡ, ꯃꯤꯗꯤꯌꯥ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨꯡ, 1978-ꯒꯤ ꯑꯦꯟꯇꯤ ꯂꯩꯔꯤꯕ ꯏꯁꯤꯡꯂꯧꯕꯒꯤ ꯂꯝꯗꯝ ꯃꯈꯥꯒꯤ ꯂꯩꯕ ꯃꯁꯤꯡ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ, ꯂꯩꯔꯤꯕ ꯌꯥꯏꯔꯕ ꯑꯃꯁꯨ ꯃꯐꯝ ꯆꯥꯡꯅꯕꯥ ꯁꯤꯡꯁꯤꯟꯕ, 15 m-ꯒꯤ ꯕꯐꯔꯒꯤ ꯂꯦꯞꯂꯕ ꯑꯃꯥ ꯃꯥꯂꯦꯝ ꯑꯃꯥꯒꯤ ꯃꯥꯏꯄꯥꯛꯅ ꯂꯥꯛꯂꯤ ꯑꯣꯏꯅꯥꯗꯨꯅ, ꯑꯃꯁꯨꯡ ꯁꯦꯛ-ꯇꯥꯡꯁꯤꯡ, ꯊꯥꯗꯣꯛ ꯑꯦꯟ, ꯗꯥꯝ-ꯇꯦꯕ ꯑꯦꯟ, ꯃꯤꯗꯤꯌꯥ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯃꯥꯏꯄꯥꯛ ꯑꯃꯁꯨꯡꯁꯤꯡ ꯑꯃꯥꯡ ꯊꯥꯗꯣꯛꯂꯒ ꯑꯦꯡꯂꯤꯕ ꯕꯐꯔꯒꯤ ꯂꯦꯞꯄꯤꯔꯤ꯫ ꯑꯥꯡꯀꯥꯕ ꯂꯩꯕ ꯑꯩꯈꯣꯌꯅꯥ ꯑꯥꯡꯀꯥꯕ ꯁꯤꯡꯁꯤꯟꯗ ꯃꯆꯥꯛꯂꯕ ꯑꯃꯥ ꯍꯣꯠꯅꯕꯥ ꯇꯧꯒꯗꯕ ꯌꯥꯕ ꯅꯕ ꯑꯦ꯫


ꯏꯁꯤꯡ ꯆꯦꯟꯊꯒꯤ ꯂꯦꯞꯄꯥ: ꯗꯥꯝ ꯆꯦꯕ ꯂꯥꯟꯗꯥꯏꯕꯒꯤ ꯇꯨꯔꯦꯜ ꯑꯃꯈꯕ ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2, ꯃꯇꯤꯛꯇꯒꯤ ꯆꯥꯡꯗꯝꯅꯕꯥ ꯖꯣꯔꯖꯦ
ꯂꯥꯏꯂꯦ, ꯆꯦꯟꯊ ꯑꯃꯅꯥꯏ ꯁꯤꯡꯅꯍ (ꯆꯦꯟꯊ ꯑꯦꯇꯤꯃꯥ ꯃꯦꯗꯦ)꯫ 40 m ꯄꯥꯏꯄꯥ ꯃꯤꯍ ꯑꯃꯒꯤꯗꯃꯥ ꯆꯥꯞꯄꯥꯁꯤꯡ ꯂꯔꯨꯕ ꯑꯃꯅꯥꯏꯗ (1 m = 5 px) ꯂꯦꯃꯗꯤ; ꯆꯦꯒꯥꯕꯁꯤꯡ ꯂꯔꯨꯤꯃꯦꯏꯥ꯫
ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯗꯥꯝ: ꯗꯥꯒꯦꯆꯥꯃꯦꯗꯦ ꯂꯩꯔꯤꯕꯅꯗꯇꯤ
ꯖꯣꯟ 1
ꯍꯥꯏꯊꯥꯡ
ꯖꯣꯟ 2
ꯀꯆꯗ ꯀꯔꯤꯗꯆ ꯂꯦꯞꯄꯥ (ꯗꯥꯝꯒꯤ ꯏꯆꯥꯎꯗ ꯏꯁꯤꯡ ꯆꯦꯄꯥꯝ)
ꯗꯦꯒꯦꯆꯥꯝ ꯂꯩꯕ ꯍꯩꯕ ꯆꯦ
ꯀꯆꯥꯔ ≥ 1% ꯆꯦꯒꯦꯟ + 0.5 m
(ꯁꯦꯛ-ꯇ 94: ꯃꯤꯗꯤꯌꯥ-ꯔꯤꯄꯣꯔꯠꯒꯤ ꯃꯤꯗꯨ ꯑꯦꯃꯤꯍꯦꯂꯤꯗꯗ ꯄꯥꯏꯗꯦꯃ HFL-ꯗꯒꯤ > 1 m ꯃꯊꯛꯇ [TBC])
ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟ
ꯗꯥꯝꯒꯤ ꯃꯊꯛꯇ
ꯆꯦꯕ ꯆꯦꯕꯤ
ꯗꯥꯝ
ꯀꯆꯗ ꯆꯦꯒꯦꯟꯗ ꯇꯨꯔꯦꯜ
ꯗꯥꯝꯒꯤ ꯆꯦꯒꯤ ꯃꯅꯥꯢꯒꯤ ꯂꯦ
1% ꯑꯦꯑꯥꯏꯂꯦꯗꯦꯔ
ꯗꯥꯝꯒꯤ ꯃꯇꯨꯡꯗ 1% AEP ꯆꯦꯒꯦꯟ, ꯑꯥꯁꯦꯀꯦꯟ ꯊꯤꯗꯆꯒ (ꯗꯥꯆꯦ 5.8.5)
ꯆ, ꯄꯥꯃꯥ, ꯆꯦꯕꯤ
ꯄꯥꯂꯦꯃꯟ
ꯅꯊꯦ, ꯀꯆꯄꯥ ꯂꯦ
ꯆꯦꯟꯊ
ꯃꯨꯇꯨꯡꯅꯁ ꯑꯃꯤ (ꯃꯨꯇꯨꯡꯅꯁ ꯑꯃꯤꯗꯦ ꯊꯦꯕ):
ꯖꯣꯟ 1 ≥ 15 m
ꯆꯦꯒꯤ ꯃꯅꯥꯢꯒꯤ ꯂꯗꯒꯤ
ꯃꯥꯄ ꯂꯩꯕ 1% AEP ꯑꯦꯑꯥꯏꯂꯦꯗꯦ ꯀꯁꯕ
+ 10 m
ꯗꯥꯝ ꯆꯦꯕ ꯃꯤꯍ ꯑꯃꯈꯕ ꯖꯣꯟ 1 ꯑꯃꯤ ꯆꯦꯟꯊꯒꯤ ꯃꯊꯛꯇꯒꯤ ꯃꯆꯦꯃ ꯂꯩꯅ;
ꯄꯥꯏ ꯑꯣꯏꯕ ꯍꯥꯏꯕꯗ ꯑꯃꯒꯤ ꯑꯃꯥꯏꯔꯕ, ꯏꯁꯤꯡ ꯍꯩꯕ ꯃꯂꯦꯒꯤ ꯍꯥꯏꯊꯥꯡꯒꯤ꯫
ꯃꯗꯒꯤ ꯁꯦꯛ-ꯇ 93 (ꯆꯥꯏ ꯊꯗꯤ ꯑꯃꯗꯦ ꯃꯂꯤ ꯆꯂꯤꯗꯆꯕ ꯃꯀꯆꯗ [TBC]):
"ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟꯗꯒꯤ ꯑꯣꯏꯕ ꯗꯥꯝꯒꯤ ꯃꯄꯥꯏꯗꯒꯤ ꯂꯗꯒꯤ 6 m, ꯆꯤꯡꯂꯦꯕ ꯑꯃꯗꯦ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟꯗꯒꯤ ꯂꯦꯞꯄꯥ ꯅꯥꯒꯦꯡ"
ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟꯗꯒꯤ 30 m (ꯆꯦꯟꯊ; ꯑꯦꯃ): ꯗꯥꯝꯒꯤ ꯃꯊꯛꯇ ꯆꯅꯅ, ꯆꯦꯟꯊꯗꯒꯤ 10 m ꯂꯦꯞꯄꯥ
ꯗꯥꯝꯒꯤ ꯃꯄꯥꯏꯗꯒꯤ ꯂꯗꯒꯤ 6 m: ꯃꯀꯆ ꯑꯃꯤꯗ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟꯗꯒꯤ ꯂꯦꯞꯄꯥ ꯅꯥꯒꯟ, ꯃꯀꯆ ꯑꯃꯥꯗꯦ 30 m-ꯗꯒꯤ ꯃꯂꯤꯗꯦ ꯍꯥꯏꯗꯤ
ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟꯗꯒꯤ 62 m (ꯅꯀꯆꯦ ꯇꯨꯔꯦꯜ, ꯂꯦꯃꯍꯟꯗꯤꯗꯦ–ꯅꯊꯅ; ꯃꯊꯛ ꯊꯃꯕꯗ 55–60 m):
ꯃꯀꯆ ꯑꯃꯤꯗ ꯃꯨꯇꯨꯡꯅꯁꯒꯤ ꯖꯣꯟ 1-ꯗꯒꯤ ꯂꯦꯞꯄꯥ ꯍꯥꯏꯅ, ꯑꯃꯥꯕ 1% AEP ꯑꯦꯑꯥꯏꯂꯦꯗꯦ + 10 m ꯀꯁꯕ ꯍꯥꯏꯗ
ꯂꯩꯕꯒꯤ ꯑꯦꯡꯗꯥꯝ ꯃꯂꯤꯗ: ꯅꯃꯤꯆ 50 m, ꯊꯥꯕꯆ 48 m, ꯂꯦꯃꯍꯟ 35 m, ꯍꯩꯗꯤꯗ 31 m (ꯃꯅ ꯑꯃꯥꯃꯦꯗ); ꯆꯥꯗꯕ 35 m, ꯆꯀꯕꯆ 25 m, ꯃꯦꯃꯅꯗ 22.5–28 m
(ꯇꯨꯔꯦꯜꯒꯤ ꯃꯍꯩꯟꯗꯒꯤ ꯅꯥꯡ)꯫ ꯑꯦꯡꯗꯥꯝ ꯇꯨꯔꯦꯜ, ꯅꯗ, ꯂꯥꯃꯒꯤ ꯍꯩꯆꯦ, ꯄꯥꯏ ꯑꯣꯏꯕ ꯄꯥꯏꯕꯤꯒꯤ ꯑꯃꯥꯡ ꯂꯩꯕꯅꯗ ꯍꯩꯕꯅꯗ꯫
ꯃꯇꯤꯛꯇ ꯀꯆꯗ ꯄꯥꯆꯦ ꯆꯦꯇꯗ ꯑꯦꯡ, 1978-ꯒꯤ ꯃꯍꯩꯗ ꯀꯆꯗ ꯆꯦꯇꯗ ꯑꯦꯊꯃꯤꯂꯤ ꯑꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯀꯆꯗ ꯖꯣꯟ ꯑꯃꯥꯡ ꯂꯦꯃꯅꯤꯗ ꯑꯣꯏꯕ ꯆꯂꯤꯀꯅ ꯂꯩꯅꯤꯗ꯫
ꯄꯥꯏ ꯑꯃ ꯑꯣꯏꯕ ꯄꯥꯏꯕꯤ ꯑꯃ, ꯄꯥꯆꯦꯗꯗ
ꯁꯦꯛ-ꯇꯥꯡꯁꯤꯡꯗ ꯑꯦꯅꯗꯒꯤ ꯕꯀꯆ ꯆꯦꯃ:
ꯃꯨꯇꯨꯡꯅꯁꯒꯤ ꯆꯥꯃꯤꯗꯃꯆꯦ ꯍꯥꯏꯗꯤ: ꯖꯣꯟ 1 ꯑꯃꯤ
ꯏꯁꯤꯡ ꯍꯩꯕ ꯃꯂꯦꯒꯤ ꯍꯥꯏꯊꯥꯡꯒꯤ ≥ 15 m;
ꯖꯣꯟ 2 ꯑꯃꯤ 1% AEP ꯑꯦꯑꯥꯏꯂꯦꯗꯦ + 10 m ꯀꯁꯕ
(ꯄꯥꯏ 3-ꯒꯤ ꯗꯃꯀꯦꯏꯁꯤꯡ ꯀꯅꯆꯦ ꯑꯦꯅꯗꯃ)꯫
ꯄꯥꯏ
ꯆꯦꯟꯊꯤ ꯆꯥꯃ ꯖꯣꯟ: ꯗꯦꯒꯦꯆꯥꯃꯦꯗꯦ ꯑꯃꯥꯡ ꯂꯩꯃꯦꯅꯗꯇꯤ (2006-ꯒꯤ ꯑꯦꯟ)
ꯃꯇꯤꯛꯇ ꯆꯦꯟꯊꯤ ꯆꯦ (ꯄꯃꯦꯂꯦꯂꯦ) ꯑꯦꯟ, 2006: ꯆꯥꯃ ꯖꯣꯟ, 70.30 km²,
"ꯆ-ꯗꯦꯒꯦꯆꯥꯃꯦꯗꯦ ꯖꯣꯟ ꯄꯥꯏꯕꯤ ꯃꯄꯨ ꯀꯆ ꯍꯥꯏꯊꯥꯡꯆꯕ ꯖꯣꯟ"
(ꯂꯦꯂꯦ 3); ꯕꯀꯆ ꯆꯦꯗ, ꯑꯦꯡꯗꯥꯝꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ, "ꯗꯥꯝ ꯂꯩꯕ ꯄꯥꯏꯕꯤ
ꯅꯃꯤꯁꯤꯡꯒꯤ ꯃꯂꯦꯒꯤ ꯆꯦꯕꯤ ꯂꯦꯂꯦꯕ" ꯊꯤꯅ (ꯂꯦꯂꯦ 19(vi));
236.21 km²-ꯒꯤ ꯃꯇꯨꯡꯗ꯫ ꯆꯦꯟꯊꯤꯗꯤ ꯃꯇꯨ ꯄꯥꯏꯕꯤ ꯑꯃꯥꯏꯔꯕ ꯂꯅ ꯆꯥꯃꯥꯗꯤ ꯑꯍꯩꯕ (ꯄꯥꯎꯔꯣꯟ ꯁꯤꯟꯗꯣꯟꯕ ꯃꯔꯨ ꯑꯣꯏꯕ)꯫
🟩 ꯖꯣꯟ 1: ꯕꯤꯅꯗꯤꯗ, ꯀꯤꯅ, ꯗꯦꯒꯤꯗ ꯄꯥꯏꯕꯤ ꯑꯃꯥꯡ ꯊꯗꯆꯥꯏꯗꯥꯝ ꯍꯩꯗ; ꯆꯥꯃꯤꯗꯤꯗ, ꯅꯂꯤꯗꯤꯗ, ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯊꯕꯗꯤꯗ, ꯗꯥꯝꯒꯤ ꯗꯦꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯂꯦꯒꯤ ꯄꯥꯏꯕꯤꯗꯤꯗ ꯅꯥꯡ꯫
🟨 ꯖꯣꯟ 2: ꯃꯤꯆꯅ ꯆꯦꯇꯕ ꯕꯤꯅꯗꯤꯗ ꯍꯩꯗ; ꯀꯤꯅ ꯑꯃꯤ 1:1 ꯆꯥꯃꯦꯂꯦꯂꯦꯗꯤ ꯂꯦꯃꯆꯒ ꯆꯍꯤꯗꯦ ꯅꯥꯡ, ꯆꯥꯃꯦꯃꯦꯢ ꯂꯩꯕ ꯆꯥꯏ ꯑꯃꯁꯨꯡ ꯍꯩꯆꯦꯗꯆꯥꯗꯃꯂ꯫
— ꯆꯤꯡꯂꯦꯕ ꯑꯃꯗꯦ ꯂꯦꯞꯄꯥ ꯄꯥꯏꯕꯤꯗꯤ ꯃꯑꯥꯗꯦ ꯍꯥꯏꯗꯤ: ꯁꯦꯛ-ꯇ 93-ꯒꯤ ꯆꯅꯦ, ꯆꯦꯒꯤ ꯃꯅꯥꯢꯒꯤ ꯂꯗꯒꯤ (ꯄꯥꯏꯕꯤ ꯆꯦꯟꯊꯒꯤ ꯃꯊꯛ ꯄꯥꯏꯕꯤ ꯍꯥꯏꯊꯥꯡꯒꯤ) ꯖꯣꯟ 1,
ꯄꯥꯏꯕꯤ 1% AEP ꯑꯦꯑꯥꯏꯂꯦꯗꯦ + 10 m꯫ ꯑꯆꯕ ꯗꯦꯒꯦꯆꯥꯃꯦꯗꯦ ꯑꯃꯁꯨꯡ ꯃꯤꯗꯦꯒꯦꯆꯥꯃꯦꯗꯦꯂꯦ ꯅꯥꯡ;
ꯄꯥꯏꯂꯦ ꯆꯦ ꯃꯤꯗꯤꯌꯥ ꯔꯤꯄꯣꯔꯠꯗ ꯃꯤꯆꯃꯒ ꯂꯅ ꯄꯥꯏꯕꯤ ꯑꯦꯃꯤꯃꯦꯂꯦꯗꯦ ꯍꯥꯏꯊꯥꯡꯆꯅ, ꯆꯊꯥꯡꯂꯦ꯫

ꯃꯃꯤ 7.1 — ꯏꯁꯤꯡ ꯆꯦꯟꯊꯒꯤ ꯂꯦꯞꯄꯥ ꯆꯦꯗꯤꯗ: FTL, 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯆꯦꯒꯦꯟ, 15 m-ꯒꯤ ꯕꯐꯔꯒꯤ ꯂꯦꯃꯕ ꯆꯅꯦ, ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2 ꯈꯥꯏꯗꯤꯕ ꯄꯥꯏꯕꯤ ꯄꯥꯏꯕꯤ ꯍꯦꯆꯦꯟ ꯑꯃꯒꯤ ꯆꯥꯃꯦꯂ-ꯂꯦꯂꯦꯂꯦ꯫ ꯃꯨꯇꯨꯡꯅꯁ ꯑꯃꯤꯒꯤꯗꯃꯥ ꯑꯆꯕꯗꯦ ꯂꯦꯃꯕ ꯗꯃꯅꯗ, Kansas City Metro APWA, Section 5600 Version 2025.01 ꯑꯃꯁꯨꯡ Policy Supplement (MARC, 2025)-ꯗꯒꯤ ꯆꯥꯗꯦ ꯂꯦꯃꯕ.

7.5 ꯖꯣꯟ ꯈꯨꯗꯤꯡꯗ ꯁꯦꯝꯒꯠꯄ ꯊꯤꯡꯖꯤꯟꯕꯁꯤꯡ

7.5.1 **ꯖꯣꯟ 1.** ꯖꯣꯟ 1-ꯗ ꯕꯤꯜꯗꯤꯡ, ꯐꯤꯜ, ꯁꯣꯔꯤꯡ, ꯑꯤꯟꯁꯣꯜꯗꯤꯡ ꯑꯣꯏꯅ, ꯕꯦꯁꯃꯦꯟꯇꯤ ꯑꯣꯏꯅ, ꯃꯄꯨꯡꯐꯥꯕ ꯑꯣꯏꯅ, ꯀꯟ, ꯅꯣꯕꯥꯏꯅ ꯌꯥꯎꯕ ꯑꯣꯔꯤꯅ ꯑꯣꯏꯅꯣꯛ ꯊꯅꯒꯗꯕ, ꯍꯥꯏꯗꯨꯅꯤ ꯊꯥꯖꯤꯡꯕ, ꯌꯥꯎꯕ ꯃꯦꯅꯈꯣꯡꯒꯠꯅꯦꯒꯤ ꯍꯣꯟꯊꯣꯛꯄꯤ ꯅꯣꯡꯗꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯥꯕꯥꯏꯗꯨꯅ ꯆꯠꯅꯕꯤꯔꯤ꯫ ꯍꯥꯏꯒꯤꯅꯤ ꯁꯥꯕ ꯁꯦꯃꯒꯠꯂꯤ, ꯈꯨꯗꯤꯡꯃꯛ ꯃꯅꯨꯡꯗꯥꯡꯒꯤ NOC-ꯒꯤ ꯍꯥꯌꯕ:

- (a) ꯃꯇꯦꯡ 7.10.3-ꯒꯤ ꯁꯔꯨꯛ ꯇꯥꯛꯄꯤ, ꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯖꯤꯟꯖꯤꯡꯒꯤ ꯃꯔꯣꯂꯤꯡꯂꯤꯡ;
- (b) ꯏꯁꯤꯡ ꯏꯍꯧ ꯑꯃꯁꯨꯡ ꯏꯔꯝꯒꯤ ꯊꯕꯛꯂꯤꯡ: ꯑꯦꯁ꯭ꯀꯦꯝꯕꯂꯤꯡ, ꯏꯃꯦꯖꯣꯛ ꯂꯣꯏꯔꯛꯄꯔꯂꯤꯡ, ꯒꯔꯣꯜ ꯁꯦꯇꯈꯣꯃꯛ ꯌꯔꯣꯁꯂꯤꯡ, ꯏꯊꯤꯂꯤꯡ, ꯂꯔꯁꯇꯂ ꯄꯤꯅꯔꯂꯤꯡ, ꯁꯦꯃ ꯍꯁꯤꯡꯒꯤ ꯃꯇꯍꯛꯃꯦꯃꯛ ꯑꯃꯁꯨꯡ ꯖꯔꯤꯏ ꯊꯨꯡꯊꯤꯁ;
- (c) ꯍꯦꯟ ꯑꯍꯣꯡꯒꯤ ꯁꯤꯍꯕꯤ, ꯁꯤꯍꯕꯤ ꯊꯕ ꯑꯃꯁꯨꯡ ꯃꯕꯤꯌꯥꯛꯄꯤ ꯊꯕꯛꯂꯤꯡ;
- (d) ꯖꯔꯤꯕ ꯇꯍꯒꯤ ꯇꯒꯦꯗ ꯁꯒ ꯌꯥꯗꯕ ꯑꯣꯏꯔꯒ ꯏꯁꯤꯡ ꯁꯡꯕ ꯁꯦꯕ ꯀꯣꯛꯁꯤꯊꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯦꯛꯌꯦꯛꯃꯦꯂꯤꯡ ꯇꯍꯕꯤꯂꯤꯡ; ꯑꯃꯁꯨꯡ
- (e) ꯃꯇꯦꯡ 7.9-ꯒꯤ ꯍꯥꯌꯕ ꯏꯁꯤꯡ ꯖꯍꯦꯟ ꯂꯣꯌꯔꯣꯛ ꯌꯥꯕ꯫

7.5.2 **ꯖꯣꯟ 2.** ꯖꯣꯟ 2-ꯗ ꯍꯤ ꯖꯕꯒꯤ ꯕꯤꯜꯗꯤꯡ, ꯕꯣꯂꯍꯦꯛꯌꯦ, ꯂꯃꯦꯡ, ꯃꯂꯁꯤꯌꯥꯡ, ꯀꯥꯡꯁꯨꯡ ꯊꯍꯦꯟ ꯑꯣꯏꯔꯒ ꯃꯈꯥꯡꯊꯤꯕ ꯍꯥꯌꯕꯂꯤꯡ ꯊꯍꯦꯟ ꯑꯍꯦꯛꯌꯥ ꯊꯍꯔꯦꯟꯗꯕꯔꯤ꯫ ꯍꯥꯏꯒꯤꯅꯤ ꯁꯦꯃꯒꯠꯄ:

- (a) ꯖꯣꯟ 1-ꯗ ꯁꯦꯃꯒꯠꯄ ꯂꯤꯖꯤꯟꯖꯕ ꯁꯨꯡꯍꯇꯍꯕ;
- (b) ꯁꯤꯔꯕꯂꯤꯡ, ꯂꯦꯡꯇꯍꯦꯟꯂꯤꯡ, ꯍꯁꯤꯦꯗ ꯖꯕ ꯂꯁꯤꯔꯦꯛꯂꯃꯤ ꯍꯦꯟꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯃꯔꯒꯤ ꯖꯥꯊꯤꯡ;
- (c) ꯀꯇꯥ ꯊꯤꯡꯖꯤꯟꯕ ꯌꯥꯏ ꯖꯥꯕ, ꯃꯤꯌꯥꯝ ꯃꯃꯗꯥꯕꯇꯕ ꯂꯣꯌꯔꯕꯌꯔꯂꯤꯡ (ꯂꯣꯏꯌꯥꯔꯂꯤꯡ, ꯁꯒꯤꯖꯤꯡꯍꯦꯂꯤꯡ);
- (d) 1% AEP ꯏꯁꯤꯡ ꯏꯁꯤꯡꯒꯤ ꯑꯔꯨꯕ 0.3 m-ꯗꯒꯤ ꯃꯦꯇꯥꯕ ꯍꯦꯟꯅ, ꯖꯔꯤꯕ ꯇꯍꯒꯤ ꯇꯒꯦꯗ ꯏꯁꯤꯡ ꯁꯡꯕ ꯁꯦꯕ ꯍꯊꯕꯃꯤ ꯍꯥꯌꯕꯃꯤ ꯖꯔꯦꯟꯅ ꯍꯊꯕ ꯖꯕ ꯁꯤꯔꯃꯤꯡ;
- (e) ꯂꯣꯝꯕ 4 ꯑꯃꯁꯨꯡ 8-ꯒꯤ ꯍꯥꯌꯕ ꯂꯤꯌꯦꯂꯦ, ꯗꯤꯌꯦꯂꯦ (detention) ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯒꯤ ꯃꯁꯦꯟꯤꯌꯒꯤ ꯀꯂꯤꯖꯤꯌꯂꯤꯡ, ꯍꯥꯔ ꯀꯇꯗꯔꯒꯤ ꯍꯁꯤꯦꯗ ꯖꯂꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯔꯒꯤ ꯂꯣꯌꯂꯇ ꯑꯇꯤꯂꯕ ꯍꯂꯤ ꯁꯦꯃꯒꯠꯄꯗꯤ (ꯃꯇꯦꯡ 7.6.5); ꯑꯃꯁꯨꯡ
- (f) ꯀꯤꯅ, (a)-ꯗꯒꯤ (e) ꯀꯦꯝꯕꯒꯤꯗꯍꯕ ꯑꯣꯏꯔꯒ ꯍꯂꯕꯏ ꯁꯕꯇꯤꯕ ꯏꯃꯦꯀꯂꯣꯌꯔꯕꯌꯔꯒꯤꯗꯍꯕ ꯌꯥꯌ, ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡ 7.6.4-ꯒꯤ ꯍꯥꯌꯕ ꯃꯍꯁꯦꯂꯣꯌꯂꯒꯤ ꯂꯣꯌꯂꯇꯒꯤ ꯖꯔꯇꯦ ꯌꯥꯌ꯫

7.5.3 **ꯀꯦꯂꯂꯤꯡ.** ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2-ꯗ ꯖꯕ ꯀꯦꯂꯂꯤꯡ ꯃꯡꯗꯕꯇꯕ (ꯁꯦ-ꯇꯤꯃꯕ ꯑꯣꯏꯔꯒ ꯂꯇꯤꯡ) ꯑꯣꯏꯒꯗꯕꯔꯤ, ꯖꯔꯤꯕ ꯇꯍꯒꯤ ꯇꯒꯦꯗꯒꯤ ꯁꯡꯕ ꯁꯤꯇꯤꯦꯊ ꯁꯦꯅ ꯖꯥꯇꯦ, ꯍꯂꯍ ꯑꯍꯥꯦ ꯍꯥꯔꯦ ꯀꯇꯥ ꯊꯤꯡꯖꯤꯟꯕ ꯑꯣꯏꯔꯒ ꯗꯕꯂꯤꯂ ꯊꯍꯖꯤꯟꯕ꯫

7.5.4 **ꯑꯁꯦ ꯂꯁꯦꯂ ꯂꯤꯖꯂꯒ ꯌꯥꯕ.** ꯑꯊꯂꯤꯌꯤꯦ ꯁꯦꯂꯕ ꯍꯦꯟꯅ, ꯖꯣꯟ 2-ꯒꯤ ꯇꯍ ꯑꯂꯤ ꯍꯗꯦ ꯍꯇꯤꯁꯂ ꯈꯇꯤꯀꯤꯅ ꯕꯤꯜꯗꯤꯡ ꯕꯏ-ꯖꯟ 2024-ꯗ ꯍꯊ ꯌꯥꯕ ꯑꯁꯦ ꯂꯁꯦꯂꯌ ꯍꯂꯤ ꯁꯦꯃꯒꯠꯄ ꯁꯦꯏ꯫ ꯖꯣꯟ 1-ꯒꯤ ꯇꯍ ꯑꯂꯤ, ꯑꯊꯂꯤꯌꯤꯦ ꯁꯦꯂꯁ ꯖꯕꯍꯍ, ꯃꯂꯌꯗꯤꯔꯦꯗ ꯂꯤꯦꯇꯒꯗꯕꯔꯤ ꯑꯣꯏꯔꯒ ꯍꯤꯑꯏ ꯑꯍꯒꯤ ꯂꯤꯖꯤꯦꯇꯕꯗꯒꯤ ꯀꯁꯦ ꯊꯍꯒꯗꯕꯔꯤ꯫

> **ꯂꯦꯗꯑꯇꯦ ꯌꯥꯁ.** ꯁꯦꯃꯒꯠꯄ ꯂꯤꯖꯤꯦꯇꯕꯂꯤꯡ ꯑꯂꯤ APWA 2025.01-ꯒꯤ ꯍꯌꯡ ꯏꯦꯇꯤ: ꯖꯣꯟ 1-ꯗ, ꯈꯌꯤꯖꯤꯌꯤ ꯑꯃꯁꯨꯡ ꯇꯍꯕꯤꯒꯤ ꯃꯂꯣꯂꯤꯡꯂꯤꯡ ꯌꯥꯌ; ꯖꯣꯟ 2-ꯗ, ꯀꯏꯇꯤꯔꯂ ꯈꯌꯤꯖꯤꯌꯤꯂꯤꯡ, ꯌꯂꯣꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯃꯤ ꯃꯡꯗꯕꯇꯕ ꯂꯣꯌꯔꯕꯌꯔꯂꯤꯡ; ꯑꯁꯦꯒꯒ ꯁꯦꯗꯦ ꯖꯣꯟ ꯑꯍꯦꯛꯌꯥꯗ ꯃꯇꯤꯔꯂꯤꯡ, ꯒꯂꯗꯤꯡ, ꯀꯤꯅ ꯑꯣꯏꯔꯒ ꯁꯒꯤꯖꯤꯡ ꯌꯥꯗ (MARC Supplement, 2025)꯫ ꯃꯇꯦꯡ 7.5.2-ꯗ ꯁꯤꯔꯕꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯡꯇꯍꯦꯟꯂꯤꯡ ꯃꯁꯤꯁꯤꯇꯤ, ꯍꯥꯔꯂꯤꯡ ꯑꯂꯤ URDPFI (2015)-ꯗ ꯁꯃꯤ 10-ꯒꯤ ꯏꯁꯤꯡ ꯏꯁꯤꯡꯒꯤ ꯖꯣꯟꯗ ꯁꯦꯃꯒꯠꯄ ꯂꯤꯖꯤꯦꯇꯕꯂꯤꯡꯇꯤ꯫ ꯃꯇꯦꯡ 7.5.1 ꯑꯃꯁꯨꯡ 7.5.3-ꯗ ꯁꯦꯜꯂꯤꯡ ꯊꯤꯡꯕ ꯑꯂꯤ ꯏꯍꯀꯦꯜ ꯌꯍꯁꯤꯔꯃꯤ ꯊꯑꯒꯤ ꯁꯤꯗꯍꯇꯤ: ꯁꯦꯜ ꯑꯃꯁꯨꯡ ꯁꯏꯂꯤꯂꯤꯡꯒꯤ ꯍꯀꯌ ꯖꯕ ꯃꯍꯁꯤꯗꯦ ꯁꯦꯂꯤꯡꯗ ꯏꯁꯤꯡ ꯏꯁꯤꯡꯒꯤ ꯍꯌꯍ ꯗꯍꯂꯤꯡꯍ ꯊꯕ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ ꯍꯌꯍ ꯁꯤꯍꯗ ꯇꯍ ꯏꯁꯂꯒꯤ ꯑꯃꯇꯕ ꯏꯊꯇꯤ꯫ ꯃꯇꯦꯡ 7.5.2(d)-ꯗ ꯁꯤꯔꯃꯤꯡꯒꯤꯗꯍꯕ 0.3 m-ꯒꯤ ꯑꯔꯨꯕꯒꯤ ꯇꯤꯍꯤꯌ ꯑꯂꯤꯒꯤ ꯃꯃꯊꯤꯕ ꯍꯤꯡꯒꯤ ꯃꯗꯍ ꯑꯍꯦꯛꯌꯥ ꯖꯥꯌ ꯑꯃꯁꯨꯡ ꯍꯁꯤꯔꯂ ꯑꯂꯤꯗꯦ ꯊꯍꯕꯇꯤ꯫

7.6 ꯐ꯭ꯂꯗꯋꯦ, ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯟꯖ ꯑꯃꯁꯨꯡ ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ

7.6.1 **ꯐ꯭ꯂꯗꯋꯦ ꯗꯤꯂꯤꯅꯤꯌꯦꯁꯟ ꯇꯧꯕ.** ꯐ꯭ꯂꯗꯋꯦ ꯑꯁꯤ ꯑꯦꯟꯀ꯭ꯔꯣꯆꯃꯦꯟꯇ ꯃꯦꯊꯗ (encroachment method) ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ, 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ (ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯑꯦꯗꯖꯁ꯭ꯇꯦꯗ ꯂꯦꯚꯦꯂꯗ) ꯄꯥꯔꯤꯁꯚꯥꯒꯤ ꯃꯥꯏꯀꯩ ꯑꯃꯥꯗꯒꯤ ꯗꯤꯂꯤꯅꯤꯌꯦꯁꯟ ꯇꯧꯒꯗꯕꯅꯤ: 1% AEP ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ 0.1 m ꯍꯦꯟꯅꯥ ꯋꯥꯡꯈꯠꯂꯛꯇꯕꯒꯤ ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯟꯖꯒꯤ ꯀꯟꯚꯦꯌꯥꯟꯁ ꯑꯗꯨ ꯆꯥꯎꯅ ꯑꯍꯥꯅꯕꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯧꯊꯣꯛꯀꯅꯤ꯫ ꯐ꯭ꯂꯗꯋꯦ ꯗꯤꯂꯤꯅꯤꯌꯦꯁꯟ ꯇꯧꯗꯕ ꯃꯐꯝꯗ, 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯇ ꯄꯨꯝꯅꯃꯛ ꯐ꯭ꯂꯗꯋꯦ ꯑꯣꯏꯅꯥ ꯂꯧꯒꯗꯕꯅꯤ꯫ ꯄꯨꯝꯕꯤ ꯑꯃꯒꯤꯗꯃꯛ, MWL-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯂꯝ ꯄꯨꯝꯅꯃꯛ ꯐ꯭ꯂꯗꯋꯦꯅꯤ꯫

7.6.2 **ꯐ꯭ꯂꯗꯋꯦꯗ ꯐꯤꯜ ꯇꯧꯗꯕ.** ꯀ꯭ꯂꯣꯖ 7.5.1(a) ꯑꯃꯁꯨꯡ (b)-ꯒꯤ ꯃꯈꯥꯗ ꯇꯦꯕꯜ 1-ꯗ ꯍꯥꯌꯔꯤꯕ ꯊꯕꯛꯁꯤꯡ ꯅꯠꯇꯅꯥ, ꯐ꯭ꯂꯗꯋꯦꯒꯤ ꯃꯅꯨꯡꯗ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯐꯤꯜ, ꯕꯤꯂꯗꯤꯡ, ꯀꯦꯖ, ꯍꯥꯡꯗꯣꯛꯄꯥ ꯌꯥꯕ ꯅꯠꯇꯕ ꯑꯀꯥꯏꯕ ꯄꯤꯕ ꯊꯕꯛꯁꯤꯡ ꯑꯌꯥꯕ ꯄꯤꯔꯣꯏꯗꯕꯅꯤ꯫ ꯊꯕꯛ ꯑꯁꯣꯏꯕ ꯑꯃꯠꯇꯥ ꯑꯦꯀꯕꯤꯂꯤꯕꯔꯤꯌꯝꯒꯤ ꯅꯠꯇꯒꯤ ꯃꯑꯣꯡꯗ, ꯃꯊꯛ ꯅꯠꯇꯕ ꯃꯈꯥꯗ, 1% AEP ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ 0.01 m-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯍꯦꯟꯊꯍꯟꯗꯕ ꯍꯥꯌꯕ ꯄꯥꯔꯤꯁꯚꯥꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯅꯥ ꯎꯠꯄꯥ ꯇꯥꯏ꯫

7.6.3 **ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯟꯖꯗ ꯐꯤꯜ ꯇꯧꯕ.** ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯟꯖꯗ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯐꯤꯜ ꯇꯧꯕ ꯑꯁꯤ ꯃꯈꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯌꯥꯍꯅꯕ ꯍꯥꯌꯔꯤ:

- (a) ꯀ꯭ꯂꯣꯖ 7.5.2-ꯒꯤ ꯃꯈꯥꯗ ꯍꯥꯌꯔꯤꯕ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯒꯤꯗꯃꯛ, ꯅꯠꯇꯅꯥ ꯑꯗꯣꯃꯅꯥ ꯀ꯭ꯂꯣꯖ 7.6.6-ꯒꯤ ꯃꯈꯥꯗ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕ-ꯐ꯭ꯔꯤꯟꯖ ꯑꯦꯟꯕꯥꯏꯔꯣ ꯑꯃꯥ ꯅꯣꯔꯃꯦꯟ ꯇꯧꯕ ꯃꯐꯝ ꯁꯦꯝꯕꯦꯂꯝꯕꯤ ꯃꯇꯨꯡꯗ; ꯑꯃꯁꯨꯡ
- (b) ꯀ꯭ꯂꯣꯖ 7.6.4-ꯒꯤ ꯃꯈꯥꯗ ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯥ ꯂꯣꯌꯅꯅꯥ꯫

7.6.4 **ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ.** ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯟꯖꯗ ꯐꯤꯜ ꯊꯝꯂꯕ ꯃꯐꯝꯗ, ꯃꯈꯥꯒꯤ ꯃꯑꯣꯡꯒꯤ ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯄꯤꯒꯗꯕꯅꯤ (ꯃꯃꯤ 7.2):

- (a) 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯊꯝꯂꯕ **ꯐꯤꯜ 1.0 m³ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯁ꯭ꯇꯣꯔꯦꯖ 1.0 m³** ꯂꯦꯃꯍꯧꯕꯒꯤ ꯍꯥꯌꯕꯗꯤ ꯃꯑꯣꯡ ꯁꯤꯖꯦꯕ;
- (b) **ꯃꯦꯆꯤꯡ ꯂꯦꯚꯦꯜꯁꯤꯡꯗ** ꯀꯤꯕ: ꯂꯣꯃꯥꯦꯜ ꯍꯥꯌꯕ ꯂꯦꯚꯦꯜ (ꯅꯠꯇꯅꯥ 50% AEP ꯂꯦꯚꯦꯜ, ꯍꯦꯟꯅꯥ ꯍꯥꯌꯕꯗꯤ)-ꯗꯒꯤ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ ꯐꯥꯎꯕ, **0.3 m**-ꯗꯒꯤ ꯍꯦꯟꯗꯕ ꯑꯦꯂꯤꯚꯦꯁꯟ ꯕꯦꯟꯗ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯃꯥꯟꯅꯕ ꯚꯣꯂꯨꯝ ꯑꯃꯁꯨꯡ ꯃꯑꯣꯡ ꯁꯤꯖꯦꯕ ꯚꯣꯂꯨꯝ ꯃꯦꯆꯍꯟꯅꯒꯗꯕꯅꯤ;
- (c) ꯏꯁꯤꯡ ꯆꯦꯐ ꯑꯦꯛꯁꯇꯦꯟꯁꯅꯒꯤ ꯄꯥꯔꯤꯁꯚꯥ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ ꯆꯕ, ꯃꯁꯤꯅꯥ ꯄꯥꯔꯤꯁꯚꯥꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯨꯁꯤꯜꯂꯕ, ꯑꯃꯁꯨꯡ ꯐꯤꯜꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯃꯍꯩ ꯊꯣꯛꯂꯕ ꯆꯗꯕ;
- (d) ꯏꯁꯤꯡ ꯏꯆꯥ ꯍꯦꯅꯅꯥꯁꯤꯟꯕꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯄꯣꯠꯂꯃꯁꯤꯡꯅꯥ ꯏꯁꯤꯡ ꯆꯦꯐ ꯑꯦꯛꯁ ꯍꯦꯟꯅꯥ ꯑꯊꯤꯡꯕ ꯌꯥꯕꯗꯤ ꯔꯦꯇꯦꯟꯁꯟ, ꯀꯤꯐꯀ ꯇꯧꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯂꯣꯃꯥꯦꯜ ꯍꯥꯌꯕ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯄꯨꯜ (pool) ꯆꯗꯕꯅꯤ;
- (e) ꯐꯤꯜ ꯊꯝꯕꯒꯤ ꯃꯃꯥꯡꯗ, ꯅꯠꯇꯅꯥ ꯃꯇꯝ ꯑꯦꯛꯁꯇꯦꯟꯁ ꯁꯕ; ꯑꯃꯁꯨꯡ
- (f) ꯀꯣꯏꯂꯦꯖ ꯅꯠꯇꯅꯥ ꯍꯦꯟꯅꯥꯋꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯟꯊꯥꯛꯀꯤ, ꯃꯐꯝ ꯑꯗꯨꯒꯤ ꯃꯌꯥꯏꯗ ꯀꯣꯟꯁꯣꯂꯤꯗꯦꯠ ꯐꯤꯜ ꯇꯧꯕ꯫

7.6.5 **ꯑꯦꯂꯤꯕꯥ ꯃꯏꯁꯤꯡ ꯔꯤꯄꯣꯔꯇꯤꯡ.** ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯁꯦꯗ꯭ꯌꯨꯜ 4-ꯒꯤ ꯃꯈꯥꯗ ꯗꯤꯁꯥꯏꯟꯁꯦ ꯅꯠꯇꯅꯥ ꯕꯤꯁꯥꯏꯟꯁꯦ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯗꯨꯅꯥ ꯃꯏꯁꯤꯡ ꯔꯤꯄꯣꯔꯇ ꯇꯧꯒꯗꯕꯅꯤ꯫ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯁꯟꯗꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯝꯂꯕ ꯗꯤꯁꯥꯏꯟꯁꯦ ꯑꯃꯁꯨꯡ ꯕꯤꯁꯥꯏꯟꯁꯦ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ, ꯂꯩꯅꯕ ꯊꯧꯗꯣꯛꯀꯤ ꯃꯍꯩ ꯑꯃꯁꯨꯡ (ꯀ꯭ꯂꯣꯖ 2.12) ꯃꯁꯤ ꯐꯪꯕ ꯔꯤꯅ ꯍꯣꯔꯛ ꯄꯥꯎꯇꯥꯛꯀꯤ, 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯒꯦꯔꯤꯖ ꯌꯥꯕ ꯃꯏꯁꯤꯡ ꯔꯤꯄꯣꯔꯇꯄꯥ ꯇꯥꯏ꯫

7.6.6 **ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕ-ꯐ꯭ꯔꯤꯟꯖ ꯑꯦꯕꯤꯔꯤꯌꯁꯤꯡ.** ꯑꯊꯣꯏꯕꯥ, ꯃꯦꯖ ꯑꯃꯗ, 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯁꯟꯗꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯣꯏꯕ ꯐ꯭ꯂꯗꯋꯦꯒꯤ ꯃꯄꯥꯟꯗ ꯂꯩꯕ, ꯕꯤꯗꯤꯖꯥꯏꯟꯃꯦꯛꯁꯦꯁ ꯇꯦꯕꯜ 2 ꯌꯥꯎꯍꯅꯕ ꯁꯤꯡꯗꯕ, ꯍꯦꯟꯅꯥ ꯂꯩꯕꯤ ꯈꯨꯗꯤꯡ ꯁꯦꯕ ꯂꯩꯒꯤ ꯑꯦꯕꯤꯔꯤꯌꯁꯤꯡ ꯅꯣꯔꯃꯦꯟ ꯇꯧꯕ ꯌꯥꯏ꯫ ꯅꯣꯔꯃꯦꯟ ꯇꯧꯕ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕ-ꯐ꯭ꯔꯤꯟꯖ ꯑꯦꯕꯤꯔꯤ ꯑꯃꯗ:

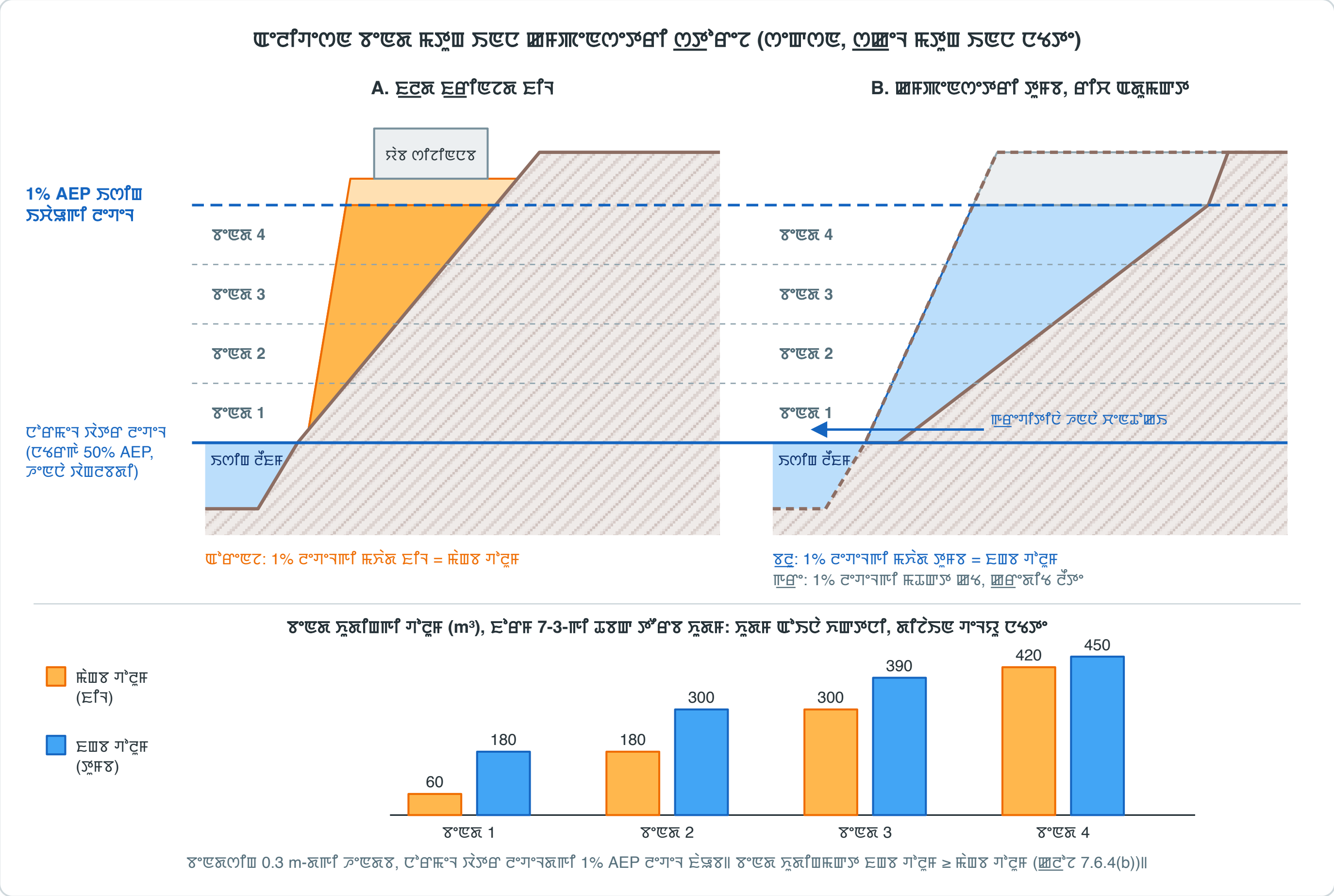
- (a) ꯕꯤꯗꯤꯖꯥꯏꯟꯃꯦꯛꯁ ꯑꯁꯤ ꯇꯦꯕꯜ 2-ꯒꯤ ꯊꯤꯡꯕ ꯌꯥꯎꯗꯕ ꯑꯦꯀ꯭ꯁꯁ ꯇꯧꯕ ꯌꯥꯏ;
- (b) ꯃꯤ ꯂꯩꯕꯒꯤ ꯐ꯭ꯂꯣꯔꯁꯤꯡꯒꯤ ꯂꯦꯃꯕ ꯐ꯭ꯂꯣꯔ ꯑꯃꯁꯨꯡ ꯍꯣꯗꯦꯟꯂꯕ ꯄꯨꯝꯅꯃꯛ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯗꯒꯤ ꯐ꯭ꯂꯣꯔꯁꯤꯡꯒꯤ ꯂꯦꯃꯕꯗ 0.5 m ꯍꯦꯟꯒꯗꯕꯅꯤ (ꯁꯦꯗ꯭ꯌꯨꯜ 6);
- (c) ꯕꯦꯁꯃꯦꯟꯇꯁꯤꯡ ꯌꯥꯍꯅꯗꯕ;

- (d) ꯄꯤꯕꯥꯒꯥꯇꯀꯍꯥꯎꯖ ꯑꯃꯥꯗ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯇꯥꯒꯥꯅꯒꯤ ꯍꯤꯕꯝ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯩꯄꯥꯛ ꯇꯥꯎ ꯑꯣꯏꯅ ꯍꯤꯡꯒꯠꯄꯥꯏꯕꯔꯤ (ꯁꯦꯛꯁꯟ 7.6.4), ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅꯕꯍꯤ ꯂꯩꯄꯥꯛ ꯃꯦꯂꯦꯡꯄꯥꯡꯂꯦ ꯑꯣꯏꯇꯦꯜ ꯌꯥꯏ; ꯑꯃꯁꯨꯡ
- (e) ꯇꯧꯕ 1 ꯍꯥꯏꯕ ꯖꯤꯗ ꯌꯥꯎꯗꯔꯤꯕꯥ॥

ꯂꯦꯡꯕꯥꯗꯨꯒꯤ ꯊꯥꯗꯣꯛ. ꯍꯦꯜꯂꯣ ꯇꯥꯒꯥꯅꯒꯤꯗꯕ 1:1 ꯃꯍꯥꯛꯂꯦꯃꯥꯊꯄꯤ ꯂꯩꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯥꯅ ꯑꯣꯏꯗꯨꯅ ꯐꯍꯟꯗꯔꯤ॥ ꯒꯤꯡꯍꯥꯒꯤ ꯑꯄꯤꯀꯛ ꯅꯥꯇꯦꯜ ꯑꯃꯍꯥꯌꯥꯗ ꯍꯥꯃꯤꯌꯥ ꯌꯥꯕꯥ: ꯇꯄꯍꯥꯅ ꯌꯥꯊꯄ ꯇꯥꯒꯥꯅꯒꯤ ꯍꯥꯌꯕ ꯊꯥꯍꯟꯗ ꯂꯥꯍꯟꯅ ꯂꯩꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯇꯥꯊꯄꯤꯡꯃꯕ ꯐꯦꯇꯄ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯃꯦꯜꯂꯅ ꯑꯃꯌꯥꯊ ꯀꯤꯕꯥ॥ ꯍꯐꯥꯊ ꯖꯗꯅ ꯂꯩꯄꯥꯛꯇꯥ ꯍꯥꯌꯕ ꯍꯤꯗꯌꯅ ꯂꯩꯄꯥꯛꯇꯒꯤ ꯍꯧꯔꯛ ꯑꯣꯏꯕꯥ, ꯍꯄꯍꯕꯥ ꯍꯥꯌꯒꯤ ꯂꯩꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯕꯗꯕ ꯑꯣꯏꯇꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯐꯥꯃꯤ ꯂꯩꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯅꯛꯅꯕꯒꯤ ꯌꯥꯕꯅ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯕ ꯅꯥꯊ ꯑꯣꯏꯇꯦꯜ॥ ꯑꯇꯤꯒꯂꯦ ꯅꯦꯕ ꯊꯕꯗꯒꯤ ꯍꯣꯗꯕ ꯒꯤꯡꯍ ꯍꯦꯜꯂꯣꯅꯅ ꯂꯍꯂꯣꯈ ꯑꯇꯤꯍꯥ ꯇꯥꯐꯥꯃꯣꯅꯤ॥ 0.3 m-ꯒꯤ ꯅꯦꯕ, ꯃꯄꯥꯛꯗꯃꯗꯥꯒꯤꯕꯍꯥ 0.01 m-ꯒꯤ ꯑꯇꯦꯡꯑꯦꯂ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 7.6.1-ꯗ ꯑꯍꯧꯄꯥꯌꯍꯦꯡ ꯍꯐꯗ ꯑꯣꯏꯇꯦꯜꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯥꯅ ꯑꯣꯏꯗꯨꯅ ꯐꯍꯟꯗꯔꯤ; ꯑꯍꯧꯄꯥꯌꯍꯦꯡ ꯍꯐꯗ ꯑꯃꯁꯨꯡ ꯌꯦ-ꯗꯅꯍꯦꯂꯂꯇꯅ ꯃꯅꯗꯄꯇꯥ ꯍꯗꯅ ꯑꯍꯗ ꯖꯇꯗꯔꯥ ꯗꯤꯇꯤꯇꯤꯔꯦ ꯊꯧꯇꯕ ꯂꯩꯄꯥꯛꯕꯄꯗ ꯐꯥꯑꯅꯤ॥ 1% AEP ꯏꯁꯤꯡꯒꯤ ꯇꯥꯒꯅ ꯌꯥꯏꯅꯍꯥꯛꯒꯤ 0.1 m-ꯒꯤ ꯇꯤꯍꯤ ꯑꯃꯁꯨꯡ US National Flood Insurance Program-ꯗ ꯑꯣꯏꯇꯦꯜꯕ 1 ft (0.3 m ꯄꯨꯍ)-ꯗꯒꯤ ꯃꯦꯗ ꯂꯍꯐꯃꯅ॥ ꯅꯍꯖꯅ ꯊꯍꯥꯛꯃꯤ ꯇꯍ ꯑꯃꯁꯨꯡ ꯖꯇꯥ ꯑꯅ, ꯍꯥꯌꯒꯤ ꯊꯦꯡꯅꯕꯥ ꯑꯃꯁꯨꯡ ꯍꯅꯔꯒꯤ ꯀꯦꯂꯥꯗꯒꯤ ꯍꯌꯗꯅ ꯂꯄꯅꯒꯤ ꯃꯅꯔꯂꯣ ꯖꯇꯅ ꯇꯥꯒꯅꯗ ꯇꯧꯄꯒꯤ ꯍꯕꯒꯤ ꯍꯌꯕ ꯇꯧ, ꯑꯃꯁꯨꯡ ꯇꯥꯊꯥꯃꯤ ꯍꯦꯃꯥ ꯑꯃꯁꯨꯡ ꯅꯐꯅ ꯅꯦꯄꯇ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯒꯤ ꯍꯌꯕ ꯇꯧꯕ ꯂꯗꯒꯤ ꯑꯤꯅꯦ ꯇꯥꯃꯤ ꯇꯥꯒꯅꯗ ꯐꯍꯇꯤ, ꯍꯄꯍ ꯑꯕꯂꯦ ꯇꯥꯒꯅꯗ ꯑꯀꯗꯥꯀ ꯌꯗꯅꯍꯀ ꯑꯍꯦ ꯑꯄꯔ ꯑꯌꯕꯅ ꯑꯍꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯦꯐꯃꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯇꯅ ꯑꯕꯂꯍꯥꯃꯤ ꯍꯦꯥ ꯑꯀꯗꯥꯀ ꯇꯍ ꯅꯀ ꯃꯔꯦ ꯀꯂꯣꯏꯦꯕꯗ ꯌꯤꯍꯦ ꯌꯥꯐꯃꯅ॥

ꯍꯇꯤꯀꯂꯄꯗ ꯇꯍꯒꯤ ꯄꯃꯄꯗꯂꯗꯦ ꯀꯌ ꯇꯌꯄꯒꯤ ꯀꯂꯅꯄꯤ ꯑꯍꯕ ꯍꯥꯌꯒꯤ ꯄꯃꯄꯗ ꯊꯄꯕ ꯀꯇꯌꯗꯦ ꯖꯤꯂ ꯊꯅ, ꯑꯃꯁꯨꯡ ꯇꯥꯊꯥ ꯑꯥꯌꯗꯦ ꯇꯥ ꯑꯕ ꯍꯥꯌꯒꯤ 236.21 km²-ꯒꯤ ꯑꯄꯤꯔꯦ ꯖꯤꯂ ꯊꯅ, ꯑꯕꯕ ꯌꯐꯤ ꯑꯍꯒꯤ ꯍꯂꯗꯅ ꯏꯁꯤꯡ ꯂꯦꯐꯄꯃꯀ ꯑꯃꯁꯨꯡ ꯃꯦꯐꯄꯃꯀ ꯀꯌ ꯑꯍꯒꯤ ꯍꯦꯥꯃꯤꯗꯍꯥ, ꯇꯌꯄꯒꯤ ꯍꯥꯌꯒꯤ ꯇꯔꯇꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯐꯃꯀ ꯍꯥꯌꯒꯤ ꯑꯃꯔꯕꯒꯤ ꯇꯕꯥꯃꯤꯗꯍꯥ ꯃꯄꯤꯂꯍꯕ ꯑꯍꯌꯊꯗ ꯗꯅꯦ ꯑꯍ ꯀꯤꯕꯥ॥ ꯊꯍꯀꯥꯃꯤ ꯂꯩꯄꯥꯛ ꯍꯤꯇꯥꯇꯤꯕꯗ ꯅꯌꯇꯕ ꯑꯃꯁꯨꯡ ꯍꯄꯂꯑꯅ॥ "ꯍꯇꯤꯀꯂꯄ ꯊꯍꯀꯥꯊ ꯇꯥ 500 ꯄꯍ ꯇꯅꯤ" ("There were nearly 500 lakes in Manipur Valley"), ꯑꯃꯁꯨꯡ ꯇꯍꯖꯅꯀꯌ, ꯀꯄꯍꯀꯌ, ꯊꯥꯌꯅꯀꯌ, ꯂꯃꯅꯀꯌ, ꯅꯄꯃꯀꯌ ꯑꯃꯁꯨꯡ ꯅꯃꯀ ꯀꯌ ꯑꯃꯁꯨꯡ MASTEC-ꯗ ꯖꯌꯊꯕ ꯖꯤꯒꯍꯗ ꯇꯕ ꯇꯌꯄꯒꯤ ꯍꯤꯗꯇꯥꯇꯤꯕ ꯃꯔꯗ ꯇꯤꯂꯌ ꯊꯕꯗꯃꯒꯤ ꯍꯂꯗꯅ ꯌꯦꯅ; ꯇꯥꯊꯥ, MASTEC-ꯒꯤ ꯍꯗꯃꯗ ꯍꯥꯌꯒꯤ ꯀꯌꯐꯕꯗꯃ ꯌꯦꯗ 246.72 km², ꯑꯥꯌꯃꯤ 236.21 km²-ꯒꯤ ꯌꯃꯗꯍꯇꯒꯤ (ꯑꯃꯁꯨꯡ ꯑꯊꯀꯀ ꯃꯄꯥꯖꯍꯗꯃꯗ "250 km²", ꯀꯦꯗ ꯖꯃꯗꯥꯅꯕ ꯍꯂꯃ ꯅꯦꯦ; ꯍꯗꯃꯗꯃ ꯊꯃꯦꯦ), ꯑꯃꯁꯨꯡ "ꯑꯄꯕ ꯃꯦꯐꯄꯥꯇꯤ" ("becoming shallower") ꯑꯃꯁꯨꯡ ꯍꯥꯌꯒꯤ "ꯏꯁꯤꯡ ꯐꯍꯕꯒꯤ ꯃꯀꯗꯊ" ("water holding capacity") ꯑꯃꯁꯨꯡ "ꯃꯦꯐꯄꯥꯇꯤ" ("reducing") (MASTEC)॥ ꯒꯄꯊꯄ ꯅꯍꯖꯅꯒꯤ ꯍꯂꯊꯄ ꯀꯇꯦꯦꯗ 2020-ꯗꯒꯤ 2043 ꯖꯦꯕꯒꯤ ꯍꯄꯥꯊ ꯌꯌꯇꯦꯗꯃ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯑꯃꯁꯨꯡ ꯇꯃꯗꯒꯤ ꯇꯍ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯖꯦꯕ ꯃꯦꯐꯃꯦꯕ ꯀꯇꯦ ꯊꯅ, ꯑꯃꯁꯨꯡ 2014-ꯒꯤ ꯑꯥꯌꯃꯤ ꯍꯥꯌꯕ "ꯇꯕꯥꯗꯃ ꯃꯦꯂꯊꯄꯥꯂꯦꯒꯤꯗꯍꯥ ꯑꯣꯏꯇꯦꯜꯕ ꯃꯍꯗꯕꯗ ꯑꯇꯕ ꯑꯄꯤꯔꯦꯗꯃ ꯃꯃꯗꯥꯃꯗꯕꯇꯤ" ("new areas need to be unlocked as the paddy fields cannot be used for construction") ꯃꯔꯗ ꯇꯌ ꯊꯅ; (ꯑꯍꯂꯕ ꯑꯍꯦꯗꯍꯦꯌ) ꯕꯤꯅ, 2026 ꯑꯍꯗ ꯍꯂꯊꯄ ꯀꯇꯦ ꯑꯍꯒꯤ ꯌꯇꯕ ꯇꯍ ꯃꯦꯗꯥꯃꯇꯤ ꯑꯃꯁꯨꯡ ꯍꯂꯗ ꯇꯦꯐꯃꯀꯗ "ꯗꯤꯍꯗ ꯃꯦꯒꯄꯂꯦ" ("Deemed Conversion") ꯌꯃꯅꯇꯥꯃꯇꯤ (ꯀꯄꯥꯅꯕꯒꯍ; ꯑꯅꯦ ꯇꯌꯊ [TBC])॥ ꯊꯍꯀꯥ ꯑꯃꯗ ꯇꯕꯥ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯩꯄꯥꯛꯇꯤ: ꯂꯗꯅ ꯑꯃꯁꯨꯡ ꯑꯒꯂꯌ 1989-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯇ 97,500 ha, ꯑꯃꯁꯨꯡ ꯑꯒꯂꯌ 2002-ꯒꯤꯗ 20,000 ha ꯌꯌꯅꯤ (MASTEC)॥ ꯇꯃ ꯂꯗꯕ ꯐꯃꯗꯗ ꯏꯁꯤꯡꯒꯤ ꯍꯗꯥꯊꯒꯤ ꯌꯥꯇꯕ ꯗꯅꯦ ꯑꯍꯗ ꯀꯌ ꯑꯍꯒꯤ ꯍꯂꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯩꯄꯥꯛ ꯕꯤꯅꯗꯃꯒꯤꯗꯍꯥ ꯃꯃꯗꯥꯃꯇꯤ, ꯃꯂꯒꯤ ꯍꯗꯥꯊꯒꯤ ꯌꯥꯇꯕ ꯗꯅꯦ ꯑꯍꯗ ꯍꯗꯒꯤ ꯍꯃꯅꯕ ꯑꯄꯤꯔꯦ ꯍꯊꯍ ꯂꯀꯀꯒꯤꯗꯍꯥ ꯐꯗꯥꯃꯇꯤ, ꯑꯃꯁꯨꯡ ꯍꯥꯌꯒꯤ ꯂꯩꯄꯥꯛꯇꯒꯤ ꯍꯂꯌ ꯑꯣꯏꯦꯗꯗ ꯑꯀꯄꯒ ꯊꯄꯕ ꯇꯕꯥꯃꯤ ꯃꯗꯥꯃꯀ ꯑꯍꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯕ ꯍꯐꯃꯒꯤ ꯇ ꯇꯌꯄꯒꯤ ꯇꯍꯕꯗ ꯌꯦꯐꯃꯅꯤ॥ ꯍꯄꯍ ꯑꯕꯂꯗ ꯍꯥꯏꯔꯥꯅ ꯑꯣꯏꯗꯨꯅ ꯀꯌ ꯑꯃꯁꯨꯡ ꯀꯄꯥꯄ ꯂꯗꯃꯍꯥꯊ ꯂꯄꯒ ꯊꯄꯕ ꯂꯍꯌꯊ ꯏꯁꯤꯡꯒꯤ ꯍꯗꯥꯊꯒꯤ ꯇꯌꯊꯗ ꯌꯃꯕ ꯇꯥꯒꯅ ꯑꯍꯗꯒꯤ ꯍꯇꯄ ꯊꯄꯕ ꯃꯍꯅ ꯑꯍ ꯀꯤ (ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯍꯂꯃꯗ ꯇꯕ ꯗꯖꯤꯇꯤꯂꯦꯗꯃ), MWL ꯖꯦꯕ ꯖꯄꯂꯄ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯩꯄꯥꯛ ꯑꯅꯗ ꯇꯅ, ꯑꯃꯁꯨꯡ ꯖꯤꯅ ꯊꯄꯕ ꯇꯌꯄꯒꯤ ꯂꯒꯌꯇꯕ ꯊꯍꯀꯥꯃꯤ ꯇꯕꯥ ꯑꯃꯁꯨꯡ ꯌꯌꯇꯦꯗꯃꯤ ꯂꯩꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 7.6.4-ꯒꯤ ꯍꯥꯌꯕ ꯍꯂꯌ ꯑꯣꯏꯦꯕ ꯍꯐ ꯊꯃꯇꯤ (ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯍꯂꯃꯗ ꯇꯕ ꯗꯖꯤꯇꯤꯂꯦꯗꯃ)॥ MWL-ꯒꯤ ꯍꯥꯌꯕ ꯇꯕ ꯇꯍ ꯀꯍꯇꯍꯥ ꯖꯇꯗꯔꯥ ꯑꯅꯗ ꯇꯕ (ꯁꯦꯛꯁꯟ 7.6.1) ꯃꯔꯕꯗ ꯀꯄꯒꯤ ꯖꯄꯂꯄꯗ ꯑꯇꯕ ꯕꯤꯅꯗꯃ ꯇꯌꯄꯒꯤ ꯖꯤꯅ ꯑꯍꯌꯊ ꯑꯀꯄꯒ ꯊꯗꯥ ꯃꯔꯕꯇꯤ॥

ꯃ꯭ꯌꯥꯞ 7.6.6-ꯒꯤ ꯑꯣꯏꯅꯥ ꯁꯦꯝꯕ-ꯗ꯭ꯔꯥꯏꯚꯅꯒꯤ ꯇꯧꯕ ꯑꯁꯤ ꯈꯣꯉꯊꯥꯡ ꯑꯁꯤꯗꯤ ꯌꯥꯕꯅꯤ꯫ ꯃꯁꯤꯅ ꯑꯅꯤꯃꯛ ꯁꯣꯔꯁꯀꯤ ꯆꯥꯕꯤꯁꯤꯗꯒꯤ ꯈꯨꯗꯝꯗ "ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯑꯋꯥꯡꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯦꯚꯦꯂꯗꯒꯤ ꯈꯥꯈꯤ" ("is below the high flood level of Imphal river") (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ 35% "ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯣꯛꯄ ꯌꯥꯕ" ("prone to floods") (AIIB, 2024) ꯍꯥꯏꯕꯒꯤ ꯁꯣꯛꯄ ꯑꯍꯥꯅꯕꯁꯤꯡ — ꯁꯤꯡꯖꯃꯩ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong), ꯅ꯭ꯌꯨ ꯆꯦꯀꯣꯟ (New Checkon), ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯃꯅꯥꯛꯇꯥ ꯂꯩꯕꯁꯤꯡ ꯃꯈꯣꯌ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯍꯥꯏꯕꯒꯤ ꯁꯨꯕꯥꯒꯤ ꯊꯧꯗꯣꯛꯁꯤꯡꯗꯥ ꯃꯇꯧ ꯆꯥꯡ ꯇꯥꯕ ꯃꯐꯃꯁꯤꯡꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯨꯃꯅꯥ 2024-ꯗ ꯃꯤ ꯂꯤꯁꯤꯡ ꯀꯌꯥ ꯈꯥꯡꯍꯟꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯣꯛꯂꯛꯄ ꯃꯇꯝꯗ ꯑꯃꯁꯨꯡ ꯃꯈꯥ ꯇꯥꯅ (ꯄ꯭ꯂꯣꯠ ꯈꯨꯗꯤꯡꯒꯤ ꯌꯨꯝ ꯁꯥꯒꯠꯄ ꯈꯨꯗꯝ ꯍꯣꯡꯕ) — ꯍꯧꯖꯤꯛ 1% AEP ꯑꯦꯛꯁꯄꯣꯖꯔꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯔꯤ꯫ ꯃꯐꯝ ꯑꯁꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜ 2-ꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯐꯤꯜ ꯊꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯑꯗꯣꯝ, ꯂꯥꯡꯕ ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯒꯤ ꯃꯈꯣꯌ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯊꯛꯇ ꯁꯦꯝꯕ ꯕꯤꯜꯗꯤꯡꯁꯤꯡ ꯁꯦꯝꯕ ꯑꯃꯥ ꯂꯦꯄꯆꯔꯤ꯫ ꯊꯥꯗꯕ ꯑꯃꯁꯤ ꯌꯥꯝꯅ 25-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯄꯤꯔꯤꯕꯤꯖꯤ URDPFI (2015)-ꯒꯤ ꯂꯥꯏꯕ (ꯁ꯭ꯇꯦꯟꯗꯔꯗ, ꯄ꯭ꯔꯣꯗꯛꯁꯅꯒꯤ ꯂꯥꯏꯕ ꯃ꯭ꯌꯥꯂꯤꯇꯤ, ꯕꯦꯁꯤꯛ ꯃꯈꯜ)-ꯒꯤ ꯈꯨꯗꯝ ꯍꯣꯡꯂꯤ, ꯃꯐꯝ ꯑꯁꯤꯗ 1% AEP ꯑꯦꯛꯁꯄꯣꯖꯔꯅ ꯌꯥꯍꯟꯂꯤ꯫



ꯂꯦꯌꯔꯁꯤꯡ 0.3 m-ꯒꯤ ꯍꯦꯟꯒꯠꯂꯛꯄ, ꯄꯨꯝꯅꯃꯛ ꯀꯅꯕ ꯂꯦꯚꯦꯂꯗꯒꯤ 1% AEP ꯂꯦꯚꯦꯜ ꯐꯥꯑꯣꯕ꯫ ꯂꯦꯌꯔ ꯈꯨꯗꯤꯡꯃꯛꯇꯥ ꯐꯪꯕ ꯚꯣꯂꯨꯝ ≥ ꯃꯥꯡꯕ ꯚꯣꯂꯨꯝ (ꯃ꯭ꯌꯥꯞ 7.6.4(b))꯫

ꯐꯤꯒ 7.2 — ꯑꯣꯏꯊꯣꯛꯀꯗꯕ ꯂꯦꯌꯔꯗꯒꯤ ꯈꯨꯗꯝ ꯍꯣꯡꯕ ꯀꯝꯄꯦꯟꯁꯦꯇꯣꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ: 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥꯗ ꯊꯥꯗꯕ ꯐꯤꯜ ꯑꯃꯁꯨꯡ, ꯄꯨꯝꯅꯃꯛ ꯀꯅꯕ ꯂꯦꯚꯦꯜ (ꯌꯥꯝꯗꯥ 50% AEP ꯂꯦꯚꯦꯜ)-ꯗꯒꯤ 1% AEP ꯂꯦꯚꯦꯜ ꯐꯥꯑꯣꯕ, 0.3 m-ꯒꯤ ꯍꯦꯟꯒꯠꯄ ꯂꯦꯌꯔ ꯈꯨꯗꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯈꯪꯂꯛꯄ ꯀꯝꯄꯦꯟꯁꯦꯇꯣꯔꯤ ꯃꯥꯡꯕ ꯌꯥꯝꯅ ꯍꯦꯟꯕ ꯚꯣꯂꯨꯝ ꯄꯤꯕ ꯐꯤꯜ ꯐꯤꯂꯤꯡꯒꯤ ꯃꯔꯣꯜ-ꯁꯣꯏꯗꯅ, ꯈꯪꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯀꯦꯚꯦꯁꯅꯒꯤ ꯏꯁꯤꯡ ꯃꯐꯝ ꯍꯧꯖꯤꯛ ꯏꯁꯤꯡ ꯊꯝꯕ꯫ ꯂꯦꯌꯔ ꯑꯃꯒꯤ ꯈꯨꯗꯝꯗ ꯂꯦꯌꯔ ꯑꯃꯒꯤ ꯃꯔꯤꯂꯩꯅꯕ ꯇꯦꯕꯜ 7-3-ꯗ꯫ ꯈꯣꯉꯊꯥꯡ ꯑꯁꯤꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯔꯣꯏꯕ ꯂꯥꯏꯕ ꯄ꯭ꯔꯣꯁꯦꯁ, ꯈꯣꯉꯊꯥꯡ ꯑꯁꯤꯗꯤ ꯌꯥꯕ ꯃꯦꯞ 7.6.4-ꯒꯤ ꯇꯥꯀꯄ ꯑꯗꯨ ꯌꯦꯡꯕꯤꯌꯨ.

7.7 ꯁꯤꯅꯥꯔꯤꯑꯣ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯁꯅꯁꯤꯡ

ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯑꯣꯏꯕ ꯑꯍꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯍꯤꯃꯥꯂꯌꯥꯒꯤ ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯁꯅꯗ ꯑꯍꯦꯅꯕ ꯂꯩ; ꯃꯁꯤꯒꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯁꯤꯖꯤꯟꯅꯕꯗꯥ ꯌꯥꯝꯅꯥ ꯑꯆꯧꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯣꯛꯄ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤ, ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯑꯣꯏꯕ ꯃꯁꯤ ꯍꯥꯏꯕ ꯕꯦꯁꯤꯟ ꯍꯣꯡꯕ ꯌꯥꯕꯅꯤ꯫ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯥꯏꯕꯤꯖꯤ ꯃꯍꯩ ꯐꯪꯕꯒꯤ ꯄ꯭ꯂꯥꯟꯁꯤꯡ ꯃꯊꯧ ꯇꯥꯏ꯫ ꯑꯍꯥꯅꯕꯗꯥ **ꯇꯦꯛꯅꯤꯀꯦꯜ**, ꯄꯨꯝꯅꯃꯛꯀꯤ ꯑꯣꯏꯕ ꯄ꯭ꯂꯥꯟ, NHPC-ꯒꯤ ꯍꯥꯏꯕ ꯕꯦꯁꯤꯟꯗ

ꯏꯊꯇꯤꯕ (ꯂꯣꯛꯇꯥꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯏꯂꯦꯛꯇ꯭ꯔꯤꯛ ꯄ꯭ꯔꯣꯖꯦꯛꯇ, 105 MW; ꯃꯁꯤꯅ ꯀꯃꯤꯁꯅꯤꯡ ꯇꯧꯈꯤꯕꯁꯤ ꯍꯧꯔꯛꯄ 1983-ꯗ ꯂꯣꯏꯁꯤꯜꯂꯕ ꯇꯦꯡ, 1979 ꯑꯃꯁꯨꯡ 1986-ꯒꯤ ꯃꯔꯛꯇ, ꯃꯇꯝꯗ ꯃꯔꯛꯇꯥꯍꯅꯕ ꯍꯧꯔꯛ ꯍꯟꯗꯛ; ꯁꯤꯡꯂꯣꯟ ꯁꯣꯢꯗꯅ), ꯄꯨꯟ ꯕꯤꯇꯕꯒꯔꯕ ꯂꯦꯚꯦꯜ 768.5 m ꯑꯃꯁꯨꯡ ꯍꯤꯇꯤꯍꯟ ꯗꯕꯗꯣꯝꯗ ꯂꯦꯚꯦꯜ 766.2 m-ꯗ (NHPC, ꯑꯆꯧꯕꯅꯤ ꯍꯧꯔꯛ ꯍꯟꯗꯛ; CEA-ꯅ 766.01 m ꯃꯤꯕꯤ, ꯑꯃꯁꯨꯡ ORF-ꯒꯤ ꯑꯄꯔꯤꯑꯣꯟ ꯑꯍꯅ 769.63 m ꯃꯤꯕꯤ ꯑꯃꯁꯨꯡ 768.50 m-ꯗ "ꯏꯆꯦꯜ ꯂꯦꯚꯦꯜ" ("flood level") ꯋꯥꯔꯅ ꯑꯔꯥ, ꯃꯇꯝꯗ ꯃꯔꯛꯇꯥꯍꯅꯕ ꯍꯧꯔꯛ ꯍꯟꯗꯛ; ꯍꯣꯢꯗꯣꯢꯗ ꯁꯣꯢꯗꯅ), ꯑꯃꯁꯨꯡ ꯍꯣꯢꯒꯤ ꯍꯥꯅꯗ ꯂꯩꯕ "ꯁꯨꯒꯅꯨ ꯍꯝꯄ" ("Sugnu hump")-ꯒꯤ ꯃꯗꯨꯒꯤ ꯋꯥꯐꯝ (MASTEC); "ꯏꯊꯥꯏꯗ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯀꯨꯃꯍꯗ ꯍꯤꯡꯃꯤꯄꯨ ꯁꯤꯡꯕꯨꯜꯒꯤ ꯏꯆꯦꯜ ꯑꯣꯢ 400 ꯀ꯭ꯌꯨꯃꯦꯛ ꯕꯅ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯦꯖꯤ ꯍꯥꯅꯗ ꯂꯩꯕ ꯁꯤꯡꯕꯨꯜ ꯑꯃꯗ ꯑꯣꯢꯄꯨꯍꯅꯕ ꯏꯆꯦꯜ ꯇꯧꯕꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯂꯩꯇꯦ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯏꯁꯤꯡ ꯃꯊꯛꯇ ꯃꯌꯣꯝꯂꯤꯔꯤ" ("At Ithai, flow of the Manipur river during monsoon is of the order of 400 cumecs and river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC)꯫

ꯑꯇꯩꯒꯤꯕꯗ **ꯂꯝꯐꯦꯜꯄꯥꯠ**ꯇꯤ, ꯄꯥꯝꯄꯅ ꯊꯗꯣꯛꯄ ꯑꯦꯛꯁꯇꯦꯟꯁ ꯑꯍꯥꯅ ꯇꯧꯔꯅꯅ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯂꯩꯐꯝ ꯑꯃꯅ ꯂꯧꯍꯟꯁꯤꯅꯕ ꯃꯇꯥ ꯑꯍꯦ: WRD-ꯅ 9 ꯁꯦꯞꯇꯦꯝꯕꯔ 2023-ꯒꯤ ꯌꯥꯊꯪ ꯑꯃꯗꯥ ꯑꯍꯥꯒꯤ ꯍꯥꯅꯗ "ꯑꯔꯣꯏꯕ 300 ꯑꯦꯀꯔ" ("around 300 acres")-ꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯖ ꯑꯍꯦ ꯗꯕꯂꯦ ꯂꯩꯕꯤ, "ꯋꯥꯐ ꯏꯆꯦꯜꯗꯒꯤ ꯍꯨꯝꯖꯗ ꯂꯝꯐꯦꯜ ꯄꯥꯠ ꯏꯁꯤꯡ ꯆꯦꯟꯖꯗꯒꯤ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯁꯃꯨꯁꯥꯡ ꯅꯂꯥꯒꯤ ꯃꯇꯦꯡꯅ ꯁꯤꯡꯕꯨꯜꯗ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯏꯁꯤꯡ ꯄꯥꯝꯄ ꯂꯧꯅꯕ ꯊꯧꯔꯥꯡ" ("provision for pumping of flood water from the Lamphel pat water body to the Nambul River through Shamushang Nalla during high flood season") ꯂꯩꯅ (ꯋꯥꯐ ꯑꯦꯟꯁꯤ PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯐꯤꯅꯁꯤ ꯑꯐꯤꯗꯦꯕꯤꯠ), ꯑꯃꯁꯨꯡ NDB-ꯒꯤ ꯄꯨꯍꯟꯕꯤꯅ "ꯍꯣꯢꯒꯤ ꯏꯁꯤꯡ ꯗꯤꯇꯦꯟꯁꯟꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯋꯥꯡꯈꯠꯍꯟꯕ, ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯏꯁꯤꯡ ꯏꯕꯍ ꯄꯤꯗ꯭ꯔꯦꯅꯦꯖ ꯕꯦꯗ꯭ꯔꯦꯕ ꯂꯩꯕ" ("increase its water detention capacity, restore stormwater drainage system") ꯑꯃꯁꯨꯡ "ꯀꯃꯥꯟꯗ ꯁꯦꯟꯇꯔ ꯑꯍꯥꯅ ꯇꯧꯔꯅꯅ ꯕꯤꯌꯂ ꯂꯥꯏꯝ ꯏꯆꯦꯜ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯄꯤꯁꯤꯝ" ("real time flood management system with a command center") ꯂꯩꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯍꯦ ꯃꯔꯛꯇꯥꯇꯤ (USD 87.84 million, ꯇꯦꯜ USD 70.27 million; ꯀꯦꯕꯤꯅꯦꯠ ꯑꯦꯞꯔꯨꯕꯦꯜ 17 ꯁꯦꯞꯇꯦꯝꯕꯔ 2021); ꯃꯗꯨꯒꯤ ꯍꯣꯢꯒꯤ ꯍꯍꯟ, ꯑꯍꯤꯍꯔ ꯑꯃꯁꯨꯡ ꯂꯣꯟ ꯃꯇꯤꯕꯣꯢꯗ ꯁꯣꯢꯗꯅ (ꯃꯇꯝꯗ ꯃꯔꯛꯇꯥꯍꯅꯕ ꯍꯧꯔꯛ ꯍꯟꯗꯛ); ꯗꯤꯖꯥꯏꯟ–ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯍꯤꯕ ꯆꯠꯅꯕ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (design storm) ꯑꯍꯦꯠꯂꯣ ꯃꯍꯥꯛꯅ [TBC]꯫ ꯑꯅꯤꯁꯨꯕꯗꯥ ꯂꯝꯐꯦꯜꯄꯥꯠ **ꯑꯂꯣꯟꯒ ꯃꯦꯁꯣꯢꯗ**ꯇꯤ, ꯍꯥꯌꯔꯒꯤ ꯍꯤꯡꯗꯗ ꯍꯤꯇꯤꯃꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯦꯠꯇꯦꯜꯗꯕ ꯑꯦꯇꯤꯒꯤꯒꯤ ꯃꯦꯇꯔꯤꯌꯦꯜ ꯌꯦꯠꯇꯦꯜꯗꯕꯣꯢꯗ, ꯗꯤꯖꯥꯏꯟ ꯃꯦꯠ, ꯔꯤꯕꯦꯟ ꯃꯦꯠ, ꯌꯤꯅꯥꯏ–ꯄꯨꯍꯦꯜꯍ ꯃꯦꯠ, ꯃꯨꯍꯦꯜ–ꯍꯥꯏꯗꯨꯍ ꯃꯦꯠ ꯑꯃꯁꯨꯡ ꯏꯆꯦꯟ–ꯍꯤꯁꯤ ꯃꯦꯠ, ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯛꯀꯤ ꯌꯦꯠꯇꯦꯜꯗ ꯃꯗꯨꯅ; ꯍꯥꯌꯔꯒꯤ ꯍꯤꯡꯗꯗ ꯀꯦꯟꯗꯨꯍꯕ ꯑꯍꯦꯠꯂꯒꯤ ꯂꯦꯚꯦꯜ, ꯑꯍꯤꯍꯔ ꯆꯠꯅꯕ ꯑꯦꯛꯁꯇꯦꯟꯁꯀꯤ ꯑꯔꯥꯏꯕꯗ ꯃꯍꯥꯛꯅ [TBC]꯫ ꯍꯤꯅꯤꯁꯨꯕꯗꯥ ꯂꯝꯐꯦꯜꯄꯥꯠ ꯏꯁꯤꯡ ꯃꯤꯕ ꯌꯣꯢꯗꯣꯢꯗꯒꯤ **ꯕꯤꯇꯕꯒꯔꯕꯣꯢꯗ**ꯇꯤ, ꯊꯧꯕꯟ (ꯍꯃꯤꯊꯟ) ꯕꯤꯇꯕꯒꯔꯕ, ꯄꯨꯟ ꯕꯤꯇꯕꯒꯔꯕ ꯂꯦꯚꯦꯜ 880.7 m (WRD, ꯅꯣꯚꯦꯝꯕꯔ 2025, ꯃꯇꯝꯗ ꯃꯔꯛꯇꯥꯍꯅꯕ ꯍꯧꯔꯛ ꯍꯟꯗꯛ) ꯑꯃꯁꯨꯡ 2,240 ꯀ꯭ꯌꯨꯃꯦꯛꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯩꯕꯕ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯍꯥꯅ ꯇꯧꯔꯅꯅ (ꯃꯇꯝꯗ ꯃꯔꯛꯇꯥꯍꯅꯕ ꯍꯧꯔꯛ ꯍꯟꯗꯛ), ꯑꯃꯁꯨꯡ ꯂꯦꯚꯦꯜ ꯑꯍꯦꯠꯂ ꯃꯣꯗꯕ ꯄꯨꯟ ꯕꯤꯇꯕꯒꯔꯕ [TBC]꯫ ꯍꯨꯝꯅꯤꯁꯨꯕꯗꯥ **ꯃꯨꯍꯦꯜꯕꯤꯣꯢꯗ**ꯇꯤ, ꯂꯣꯗꯤ ꯑꯃꯁꯨꯡ ꯄꯣꯡꯒꯣꯢꯗꯣꯢꯗꯒꯤ ꯃꯔꯝꯗꯣꯢꯗ, ꯍꯥꯌꯔꯒꯤ ꯍꯤꯡꯗꯗ AMRUT 2.0-ꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯖ ꯕꯤꯗꯨꯒꯤꯇꯦꯜꯕꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ 20-ꯒꯤ ꯃꯕꯇꯤꯛ ꯃꯨꯍꯦꯜꯕꯤꯣꯢꯗ (₹4.11 ꯀꯣꯔ; 19-ꯗ ꯊꯕꯛ ꯌꯦꯠꯇꯤ, TPD, 2025-26) ꯃꯗꯨꯅ; ꯍꯥꯌꯔꯒꯤꯗꯒꯤ ꯂꯦꯚꯦꯜ ꯆꯠꯅꯕ ꯑꯦꯛꯁꯇꯦꯟꯁꯀꯤ ꯑꯔꯥꯏꯕꯗ ꯃꯍꯥꯛꯅ [TBC], ꯍꯕꯍ ꯑꯗꯨꯅ ꯍꯥꯌꯔꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯣꯢ ꯆꯦꯟꯕꯤꯕ ꯃꯤꯌꯕ ꯑꯍꯦ ꯑꯍꯅ ꯍꯦꯗꯣꯟ ꯂꯩꯅ ꯑꯃꯁꯨꯡ ꯀꯥꯇ 7.7.1 ꯍꯃꯨꯗ ꯃꯦꯗꯕꯕꯗꯥ ꯍꯣꯢꯗ ꯃꯦꯗꯋꯦꯗꯣ꯫ ꯂꯨꯕꯤꯍꯨꯕꯗꯥ **ꯁꯤꯡꯕꯨꯜꯒꯤ ꯃꯔꯦ ꯑꯍꯥꯒꯤ ꯍꯤꯡꯗꯗ ꯏꯁꯤꯡ ꯂꯣꯃꯥꯟ ꯑꯔꯥꯏꯕ** ꯑꯃꯁꯨꯡ ꯃꯦꯠꯣꯢꯗꯣꯢꯒꯤ ꯑꯀꯥꯔꯕꯒꯤ **ꯂꯩꯕꯨꯛ**ꯇꯤ, ꯍꯥꯌꯔꯅ ꯏꯊꯗꯣꯢꯗ ꯊꯗꯣꯢꯇꯤꯍꯤꯗ ꯂꯩꯗꯒꯤ ꯕꯦꯜꯑꯦ ꯊꯍꯇꯤꯅꯇꯤ (ꯀꯥꯇ 7.2-ꯒꯤ ꯍꯤꯡꯗꯗ ꯂꯩꯕ ꯗꯦꯃꯤꯇꯤꯐꯦꯗꯣꯢꯗ); ꯍꯥꯌꯔꯅ ꯕꯦꯜꯑꯦ ꯊꯣꯢꯗꯕ ꯍꯃꯍꯗ ꯂꯩꯕꯤꯕ ꯃꯤꯌꯕ ꯑꯍꯅ ꯍꯦꯗꯣꯟ ꯂꯩꯅ ꯑꯗꯨꯕ ꯀꯤꯗꯧꯀꯤꯗꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯤꯖꯥꯏꯟ ꯑꯍꯅ ꯍꯣꯢꯗ ꯃꯦꯗꯋꯦꯗꯣ, ꯍꯕꯍꯗꯥ ꯍꯥꯌꯔ ꯐꯕꯒ ꯂꯩꯗꯣ, ꯀꯦꯗꯂꯤꯕ ꯂꯩꯕ ꯃꯦꯕ ꯑꯦꯛꯁꯇꯦꯟꯁ ꯂꯩꯔꯣ ꯑꯃꯁꯨꯡ ꯃꯤꯛ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯍꯨꯝꯖꯗ ꯊꯦꯡꯕꯔ꯫ M.A. 26/2019-ꯗ ꯅꯣꯐꯅꯦ ꯒ꯭ꯔꯥꯎꯟꯗ ꯂꯣꯢꯗꯅꯕꯨꯡꯅꯦꯒꯤ ꯑꯕꯗꯕꯒꯤ ꯍꯤꯡꯗꯗ ꯐꯍꯅꯤꯕ ꯏꯁꯤꯡ ꯆꯦꯟꯖ 4,000 ꯕꯍꯒꯤ ꯅꯦꯒꯦꯝꯕꯔ ꯑꯣꯢꯅ ꯋꯥꯇꯤꯁꯤ "ꯒ꯭ꯔꯥꯎꯟꯗ ꯂꯨꯊꯤꯡ, ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯁꯔꯚꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯕꯥꯂꯤꯇꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ" ("Ground truthing, engineering surveys, and quality monitoring") ꯌꯥꯕꯤ (DoECC, 2025-26)꯫ ꯍꯍꯤ 7.3 ꯑꯃꯁꯨꯡ ꯀꯥꯇ 7.8 ꯍꯨꯑꯅꯕ ꯏꯁꯤꯡ ꯆꯦꯟꯖꯣꯢꯗꯥ ꯍꯥꯌꯔꯣꯢꯗ ꯑꯣꯢꯇꯤ: ꯂꯝꯐꯦꯜꯄꯥꯠ ꯆꯍꯗ ꯍꯥꯏꯕꯦ ꯀꯨꯗꯣꯢꯗꯍꯛ ꯌꯦꯅꯥ, ꯃꯦꯠ ꯆꯠꯅꯕ ꯁꯤꯡꯕꯨꯜ ꯑꯍꯗ ꯅꯥꯏꯅ, ꯃꯦꯟꯒꯤ ꯍꯤꯡꯗꯗ ꯂꯩꯕ ꯁꯤꯡꯕꯨꯜ ꯀꯨꯗꯣꯢꯗꯍꯛ ꯁꯤꯡꯕꯨꯜꯅ ꯊꯣꯢꯇꯤꯅꯇꯀꯤꯃ ꯏꯊꯗ ꯑꯍꯗ ꯅꯥꯏꯅ, ꯑꯃꯁꯨꯡ ꯂꯝꯐꯦꯜꯄꯥꯠ ꯃꯨꯍꯦꯜꯍꯛ ꯂꯣꯛꯇꯥꯛ ꯅꯥꯏꯅ꯫ ꯗꯤꯖꯥꯏꯟ ꯍꯣꯢꯗ ꯃꯦꯗꯋꯦꯒꯤꯗꯕ ꯃꯦꯠ, ꯃꯨꯍꯦꯜꯕꯤ ꯆꯠꯅꯕ ꯕꯤꯇꯕꯒꯔꯕ ꯀꯨꯗꯣꯢꯗꯍꯛ ꯀꯥꯇ 7.7.1 ꯍꯃꯨꯗ ꯃꯦꯅ ꯌꯦꯠꯇꯤ, ꯑꯦꯛꯁꯇꯦꯟꯁ ꯑꯍꯗ ꯍꯣꯢꯒꯤ ꯏꯊꯗ ꯆꯠꯅꯕ ꯃꯍꯥꯛ ꯑꯍꯅꯕ ꯍꯃꯍꯗ WRD-ꯒꯤ ꯇꯧꯔꯅꯅ, ꯂꯣꯛꯇꯥꯛꯀꯤꯗꯒꯤ NHPC ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛ ꯗꯦꯕꯂꯄꯃꯦꯟꯇ ꯑꯊꯣꯢꯗꯒꯤ ꯇꯧꯔꯅꯅ, ꯑꯃꯁꯨꯡ ꯑꯇꯤꯍꯛ ꯆꯠꯂꯕ ꯍꯃꯍꯗ ꯑꯂꯣꯟꯒ ꯀꯗꯤꯖꯥꯏꯟꯗꯤꯔꯦꯒꯤ ꯇꯧꯔꯅꯅ, ꯑꯃꯁꯨꯡ ꯀꯨꯗꯣꯢꯗꯍꯛꯀꯤ ꯀꯗꯤꯖꯥꯏꯟꯗꯤꯔꯦ ꯑꯗꯨ ꯅꯦꯒꯦꯝꯕꯔ (ꯑꯦꯅꯦꯕ 7A)-ꯒꯤꯗꯒꯤ ꯐꯥꯅꯗꯅ ꯅꯗꯒꯗꯕꯇꯤ [TBC]꯫

7.7.1 **ꯃꯨꯍꯦꯜꯕꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯣꯢꯗ ꯃꯦꯗꯋꯦꯕ ꯃꯦꯕ ꯍꯂꯝ.** ꯃꯨꯍꯦꯜꯕꯤ ꯆꯠꯅꯕ ꯃꯨꯍꯦꯜꯕꯤꯒꯤ ꯀꯦꯟꯗꯀꯦꯗ ꯑꯍꯥꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯣꯢ ꯍꯥꯅꯒꯤ ꯃꯨꯍꯆꯍꯛ ꯍꯃꯨꯗ ꯃꯦꯕꯕ ꯍꯃꯍꯗ **ꯅꯗꯂꯣ** ꯗꯤꯖꯥꯏꯟ ꯗꯤꯖꯥꯏꯟ ꯑꯍꯅ (ꯕꯣꯢꯕ ꯃꯇꯦꯡ, ꯕꯤꯇꯕꯒꯔꯕ ꯃꯣꯢꯇꯤꯂꯤ ꯆꯠꯅꯕ ꯀꯥꯇ 7.11-ꯒꯤ ꯍꯥꯅꯗ ꯃꯤ-ꯅꯦꯜ-ꯇꯤꯗ ꯐꯀꯤꯍ ꯑꯍꯗ) ꯍꯣꯢꯗ ꯃꯦꯗꯋꯦꯕ ꯃꯦꯅ:

- (a) **ꯐꯕꯒ ꯂꯩꯕꯕ ꯂꯦꯚꯦꯜꯣꯢꯗ.** FTL, MWL, TBL, ꯐꯕꯃꯇꯐ ꯌꯤꯔꯕꯒꯤ ꯀꯕꯦꯜ ꯑꯃꯁꯨꯡ ꯑꯣꯢꯗꯕ, ꯑꯃꯁꯨꯡ ꯅꯊꯗꯒꯤ ꯐꯤꯟ ꯂꯦꯚꯦꯜꯣꯢꯗ ꯋꯥꯅꯤꯕ ꯌꯋꯤ 5-ꯒꯤ ꯍꯤꯡꯗꯗ ꯀꯥꯇ 7.3.5-ꯒꯤ ꯗꯦꯂꯝꯗ ꯐꯕꯒ ꯂꯩꯕ꯫

- (b) **ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ ꯀꯔꯚ.** ꯃꯈꯥꯒꯤ ꯁꯔꯨꯛ 5-ꯒꯤ ꯃꯇꯨꯡꯗ, ꯂꯩꯔꯤꯕ ꯑꯔꯥꯏꯕ ꯂꯥꯏꯅꯤ ꯂꯩꯇꯥꯍꯧꯔꯤꯕꯒꯤ ꯃꯇꯨꯡꯗ, ꯀꯂꯦꯟꯗꯔ ꯑꯃꯂꯦ ꯃꯇꯨꯡꯗ ꯂꯥꯂꯕꯁꯨ, ꯌꯦꯡꯁꯤꯟꯕꯥꯗ ꯑꯃꯁꯨꯡ ꯏꯔꯥꯟꯔꯥꯒꯤ ꯕꯇꯤꯃꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯗꯣꯡꯏꯡ ꯅꯥꯒꯦ ꯑꯃꯗꯒꯤ ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ ꯀꯔꯚ ꯑꯃꯥ ꯂꯩꯍꯧꯂꯦ॥
- (c) **ꯑꯦꯔꯤꯌꯥ–ꯀꯦꯄꯦꯁꯤꯇꯤ ꯇꯦꯕꯜ.** ꯗꯦꯇꯥꯕꯦꯖꯗ ꯁꯤꯕꯥ ꯑꯦꯔꯤꯌꯥ–ꯀꯦꯄꯦꯁꯤꯇꯤ ꯇꯦꯕꯜ ꯑꯃꯥ ꯀꯟꯁꯣꯂꯤꯗꯦꯇ ꯇꯧꯔꯦ (ꯀ꯭ꯂꯣꯖ 7.8)॥
- (d) **ꯃꯦꯟꯇꯦꯟꯁ ꯁꯤꯕꯥ ꯁꯨꯞꯅꯍꯥꯏꯔꯤꯕ.** ꯅꯥꯏꯇꯣꯝ ꯍꯤꯡꯕ, ꯍꯥꯏꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅ ꯑꯃꯤ O&M ꯍꯦꯡꯂꯦꯡ ꯑꯃꯒꯤ ꯃꯑꯣꯡ ꯃꯦꯟꯇꯦꯟꯁ ꯁꯤꯕꯤ (ꯁꯔꯨꯛ 10), ꯑꯃꯁꯨꯡ ꯑꯇꯣꯞꯄ ꯍꯦꯛꯇꯤ-ꯃꯦꯡꯂꯦꯡ ꯍꯟꯗꯣꯛꯂꯤꯕꯗ ꯃꯍꯥꯛ ꯃꯤꯇꯩꯁꯤꯡ ꯌꯥꯕ ꯈꯤꯒꯠꯇ ꯇꯥ ꯄꯥꯌꯗꯕ ꯈꯉꯍꯤ॥
- (e) **ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯅꯒꯤ ꯌꯥꯊꯪ.** WRD, ꯂꯩꯔꯤꯕ ꯑꯁꯤꯍꯦ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟ ꯍꯥꯏꯕ ꯃꯑꯣꯡ ꯌꯥꯊꯪ॥

(a)-ꯗꯒꯤ (e) ꯐꯥꯑꯣꯕꯒꯤ ꯀꯥꯏꯒꯤꯅꯕ ꯑꯃꯃꯤ ꯃꯍꯨꯝ ꯐꯪꯕ ꯍꯦꯟꯅꯥꯏ ꯑꯃꯒꯤ ꯁꯨꯞꯄꯦꯖ ꯃꯑꯣꯡ ꯌꯥꯑꯣꯄꯦꯡꯍꯅꯕꯂꯤ, ꯑꯗꯨꯕ ꯍꯦꯟꯅꯥꯏ ꯑꯗꯨ ꯂꯩꯄꯥꯕ ꯈꯤꯔꯥ ꯑꯃꯥ ꯑꯍꯟꯗ ꯃꯗꯦꯡ ꯁꯤꯒꯗꯕꯂꯤ (ꯁꯔꯨꯛ 3)॥

7.7.2 **ꯃꯗꯦꯡ ꯁꯤꯕ.** ꯍꯦꯟꯅꯥꯏꯒꯤ ꯀꯦꯟꯀꯦꯗꯣꯏꯕ ꯀ꯭ꯂꯣꯖ 3.12.5 (ꯍꯦꯟꯅꯥꯏ ꯁꯨꯗꯤꯕꯃꯇꯀꯤ ꯂꯦꯒꯦꯜ-ꯍꯩꯍ ꯄꯤꯌꯁꯤꯕ, ꯅꯥꯏꯇꯣꯝ ꯍꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗꯣꯛꯄꯒꯤ ꯄꯦꯁꯤꯕꯗꯣꯏꯕꯒꯤ ꯂꯣꯔꯂꯗꯦ) ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 3.13 (ꯀꯦꯁꯤꯂꯦꯔꯔꯅ ꯗꯤꯈꯂꯦꯅꯦꯖ)-ꯒꯤ ꯃꯇꯨꯡ ꯃꯗꯦꯡ ꯁꯤꯒꯗꯕꯂꯤ॥ ꯃꯗꯤꯒꯤ ꯅꯥꯏꯇꯣꯝꯗꯦ ꯗꯦꯍꯌ ꯂꯩꯔꯤꯕ ꯈꯦꯗꯤꯂꯤꯁꯤ ꯌꯥꯕ ꯌꯥꯕ ꯍꯕꯍꯗꯒꯤ ꯃꯇꯥꯏꯁ ꯂꯣꯕ ꯍꯦꯟꯅꯥꯏꯗꯒꯤ ꯃꯇꯥꯏꯒꯤ ꯁꯄꯦꯡ, ꯃꯦꯂꯄ ꯍꯥꯏꯕꯦꯡ ꯂꯩꯔꯤꯕ ꯅꯈꯗꯄꯒꯤ ꯑꯃꯁꯩꯈꯦꯡ ꯐꯁꯕ ꯀꯦꯟꯀꯦꯗ ꯍꯦꯃꯂꯃꯇ ꯍꯦꯡꯂꯗꯦ ꯃꯗꯦꯡ ꯁꯤꯒꯗꯕꯂꯤ, ꯃꯃꯤ 7.3-ꯗ ꯁꯩꯂꯤꯕꯒꯤꯌꯝ, ꯁꯄꯦꯡꯒꯤ ꯍꯦꯡꯗꯤꯕꯒꯤ (pan) ꯃꯇꯨꯡꯗ ꯂꯥꯕ ꯁꯤꯌꯥꯍꯀꯤ ꯂꯌꯒꯤ ꯁꯤꯁꯦꯡ ꯑꯃꯒꯤꯗꯃꯇ, ꯃꯗꯤꯒꯤ ꯄꯦꯗꯑꯈ ꯇꯌꯕ ꯍꯥꯩ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥꯏ ꯁꯨꯗꯤꯕꯃꯇ, ꯍꯦꯡꯗꯤꯕꯒꯤ ꯃꯇꯨꯡꯗ ꯍꯗꯤꯕ ꯍꯁꯦꯁ ꯇꯥꯀꯍ ꯂꯥꯕꯇ, ꯃꯍꯥꯛꯕ ꯍꯦꯡꯗꯤꯅꯂꯤꯕ ꯁꯦꯂꯦꯅꯗꯤꯕ, ꯍꯦꯡꯒꯤ ꯁꯩꯇꯥꯅ ꯂꯥꯕ ꯑꯁꯩꯈꯦꯅꯒꯤ ꯍꯇꯥ (ithong), ꯈꯂꯦꯍ ꯒꯦꯌ ꯑꯃꯁꯨꯡ ꯍꯌꯍꯗꯤꯕ, ꯑꯃꯁꯨꯡ ꯍꯇꯥ ꯇꯤꯕꯄꯅꯂꯤꯕ ꯁꯄꯦꯡꯒꯤ ꯁꯨꯞꯇ, ꯑꯃꯁꯨꯡ ꯂꯃꯁꯤꯃꯀꯤ ꯃꯂꯦꯃꯁ, ꯍꯇꯍ ꯕꯦꯄꯤꯂ ꯑꯃꯁꯨꯡ ꯃꯗꯤꯒꯤ ꯃꯇꯨꯡ ꯂꯕ ꯄꯨꯃꯒꯤ ꯗꯤꯅꯂꯦ ꯇꯌꯂꯤꯕ ꯂꯃꯀꯤ ꯂꯦꯒꯦꯜ (ꯀ꯭ꯂꯣꯖ 5.8.5) ꯌꯥꯁꯂꯦ॥

7.7.3 **ꯗꯤꯖꯥꯏꯅꯒꯤ ꯂꯦꯒꯦꯜ.** ꯗꯤꯖꯥꯏꯟ-ꯁꯨꯞꯄꯥꯔ ꯑꯦꯂꯦꯛꯇ꯭ꯔꯣꯅꯤꯀꯗꯤꯗꯃꯇ ꯍꯦꯟꯅꯥꯏ ꯁꯨꯗꯤꯕꯃꯇꯁ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯂꯦꯒꯦꯜ ꯑꯃꯤ FTL ꯑꯍꯟꯗꯕꯂꯤ॥ ꯀ꯭ꯂꯣꯖ 7.8-ꯒꯤ ꯌꯥꯊꯪ ꯈꯂꯗ-ꯀꯨꯅꯦ ꯑꯦꯔꯤꯌꯥ–ꯀꯦꯄꯦꯁꯤꯇꯤ ꯇꯦꯕꯜ ꯑꯃꯒꯤ ꯃꯇꯨꯡ ꯍꯥꯃꯁ ꯄꯦꯗꯦ ꯂꯦꯃꯕ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯂꯦꯒꯦꯜ ꯅꯤꯇꯤꯂꯦꯂꯕ ꯌꯥꯍ॥

7.7.4 **ꯗꯤꯖꯥꯏꯟ ꯃꯦꯇꯅꯤꯀꯀ ꯂꯦꯒꯦꯜ.** ꯀꯦꯟꯀꯦꯗꯀꯤ ꯁꯩꯇꯥꯅ ꯀꯨꯌ ꯁꯤꯕꯥꯕ, ꯀꯂꯦꯍꯃꯦꯌ ꯈꯦꯍꯥꯁꯤꯕꯒꯤ ꯂꯣꯔꯂꯗꯦ 1% AEP ꯍꯦꯈꯂꯒꯤꯗꯃꯇ:

- (a) ꯀꯀꯍꯥꯂꯨꯌ ꯁꯤꯕꯥꯕ ꯃꯦꯇꯅꯤꯀꯀ ꯂꯦꯒꯦꯜ ꯑꯃꯤ MWL (ꯀ꯭ꯂꯣꯖ 7.2-ꯗ ꯗꯦꯈꯥꯍꯦ ꯁꯤꯕꯥꯕꯒꯤꯀ)-ꯗꯒꯤ ꯌꯥꯍꯕꯍꯗꯕꯂꯤ; ꯑꯃꯁꯨꯡ
- (b) ꯀꯀꯍꯥꯂꯨꯌ ꯁꯤꯕꯥꯕ ꯃꯦꯇꯅꯤꯀꯀ ꯂꯦꯒꯦꯜꯗꯒꯤ ꯍꯦꯡꯒꯤ ꯍꯕꯍꯗꯒꯤ ꯂꯦꯀꯕ ꯃꯈꯀ (TBL) ꯈꯩꯕꯒꯤ ꯈꯕꯤꯕꯕꯗ ꯑꯃꯤ ꯍꯦꯟꯅꯥꯏ ꯑꯗꯒꯤꯗꯃꯇ WRD-ꯒꯤ ꯈꯕꯤꯕꯕꯗ ꯁꯨꯞꯄꯗꯕꯗꯒꯤ ꯄꯦꯇꯥꯕꯍꯗꯕꯂꯤ॥

(a) ꯂꯩꯔꯤꯕ (b) ꯃꯍꯨꯝ ꯐꯪꯕ ꯃꯈꯀꯗ, ꯀ꯭ꯂꯣꯖ 7.7.6-ꯒꯤ ꯃꯇꯨꯡ ꯅꯥꯏꯇꯣꯝ ꯍꯤꯡꯕꯒꯤ ꯀꯍꯦꯅꯤꯁꯤ ꯄꯦꯒꯌꯄꯦꯗꯕꯗꯤꯈꯩꯕ ꯂꯩꯔꯤꯕ ꯍꯦꯡ ꯌꯥꯍꯌꯄꯦꯗꯕꯗꯤꯈꯩꯕ FTL-ꯒꯤ ꯃꯇꯥꯏꯁ ꯂꯣꯕ ꯍꯦꯟꯅꯥꯏꯒꯤ ꯁꯨꯞꯄꯦꯖ ꯃꯅꯤꯕ ꯌꯥꯑꯣꯄꯦꯡꯍꯅꯕꯂꯤ॥

7.7.5 **ꯀꯕꯦꯗꯤꯌ ꯍꯤꯕ ꯌꯥꯕ ꯒꯦꯟꯗꯀ.** ꯍꯦꯟꯅꯥꯏ ꯑꯃꯒꯤ ꯀꯕꯦꯗꯤꯌ ꯍꯤꯕ ꯌꯥꯕ ꯗꯤꯖꯥꯏꯟ ꯁꯨꯞꯄꯦꯖ ꯑꯃꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯂꯦꯒꯦꯜ (ꯀ꯭ꯂꯣꯖ 7.7.3) ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 7.7.4-ꯒꯤ ꯀꯀꯍꯥꯂꯨꯌ ꯁꯤꯕꯥꯕ ꯃꯦꯇꯅꯤꯀꯀ ꯂꯦꯒꯦꯜꯒꯤ ꯃꯥꯏꯊꯁ ꯂꯣꯕ ꯒꯦꯟꯗꯀꯂꯤ, ꯑꯁꯤꯍꯦ ꯈꯦꯅꯤꯂꯤꯁꯤ ꯂꯩꯔꯤꯕ ꯁꯀꯤꯀ ꯑꯃꯗ ꯄꯦꯂꯂꯗꯦ ꯀꯃꯤꯌ ꯁꯤꯕꯥꯕ ꯒꯦꯟꯗꯀ ꯑꯃꯃꯤ ꯄꯦꯇꯥꯄꯦꯗꯕꯂꯦ॥

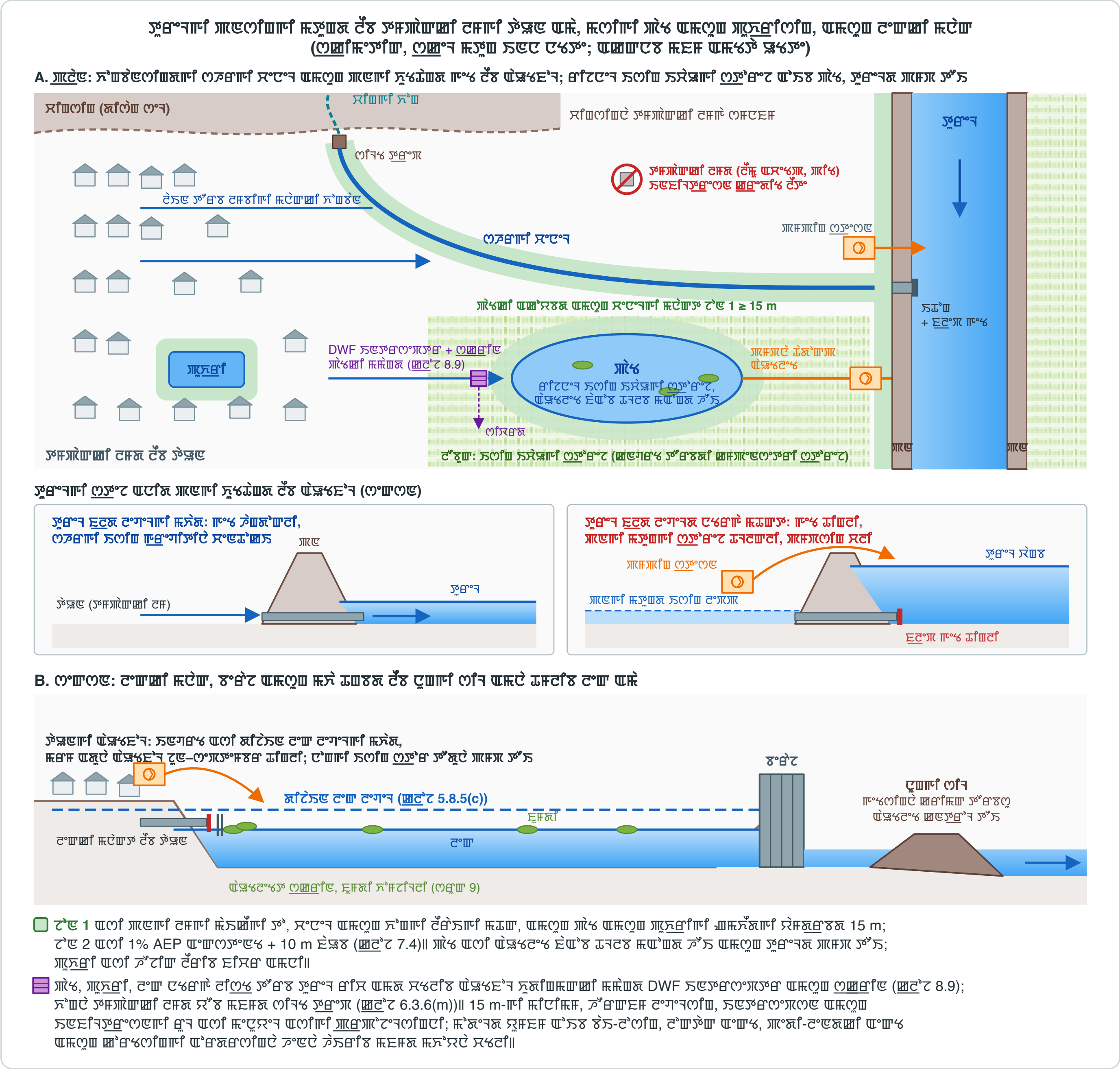
7.7.6 **FTL, ꯌꯤꯔꯥꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯡꯅꯤꯕꯗ ꯄꯦꯕꯗꯀꯍ.** ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯟꯗ ꯑꯦꯍꯦꯡꯒ ꯁꯤꯕꯥꯕ, ꯃꯍꯤꯒꯤꯅꯤꯕ ꯁꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯒꯤ ꯃꯇꯨꯡ ꯂꯩꯁꯗꯦ, ꯅꯥꯏꯇꯣꯝ ꯍꯤꯡꯕꯒꯤ ꯀꯕꯦꯗꯤꯌ ꯑꯃꯌꯁ ꯌꯥꯍꯌꯄꯦꯗꯕꯍꯕꯂꯤ ꯂꯩꯔꯤꯕ ꯂꯦꯀꯄꯦꯗꯕꯍꯕꯂꯤ, ꯅꯌꯁꯤꯕꯅꯤꯕ ꯂꯩꯔꯤꯕ ꯈꯦꯂꯤꯕ ꯕꯥꯕꯗꯅꯤꯕ ꯄꯦꯍꯌꯤꯗꯦꯕꯍꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯡ ꯑꯃꯌꯁ ꯌꯥꯍꯌꯄꯦꯗꯕꯍꯕꯂꯤ, ꯀꯗꯕꯍꯕꯂꯤ ꯂꯩꯔꯤꯕ ꯇꯥꯄꯕꯄꯦꯗꯕꯍꯕꯂꯤ:

- (a) ꯀ꯭ꯂꯣꯖ 7.7.2-ꯒꯤ ꯃꯇꯨꯡ ꯀꯦꯟꯀꯦꯗ ꯀꯨꯌ ꯁꯤꯕ;
- (b) ꯈꯦꯅꯤꯅꯦ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯏꯁ ꯍꯗꯤꯕ ꯍꯁꯦꯁꯒꯤ ꯂꯦꯒꯦꯜꯅꯤꯕꯗ, ꯑꯃꯁꯨꯡ ꯅꯥꯏꯇꯣꯝ ꯀꯥꯏꯅ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ ꯈꯂꯦꯅꯤꯕꯗ ꯇꯥꯀꯍ ꯈꯦꯂ ꯁꯩꯍ; ꯑꯃꯁꯨꯡ
- (c) ꯀ꯭ꯂꯣꯖ 7.14-ꯒꯤ ꯃꯇꯨꯡ ꯍꯦꯡ ꯑꯗꯨ ꯌꯦꯡꯕ ꯁꯤꯕ॥

> **ꯅꯦꯀꯗꯥꯂꯗꯦ ꯁꯤꯕꯍ.** ꯃꯦꯡꯌꯔꯦꯡ ꯑꯃꯤꯗꯦ ꯍꯦꯟꯅꯥꯏꯒꯤ ꯀꯦꯟꯀꯦꯗꯅꯤꯕꯗꯨ ꯃꯈꯨꯑꯍꯕ ꯀꯦꯗꯤꯅꯦ ꯑꯊꯀꯒꯤ (ꯅꯥꯒꯦ ꯁꯤꯕꯥꯕ FTL, ꯗꯦꯇꯥꯕꯦꯖꯗ ꯁꯤꯕꯥꯕ ꯑꯦꯔꯤꯌꯥ–ꯀꯦꯄꯦꯁꯤꯇꯤ ꯇꯦꯕꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯟꯁ ꯁꯤꯕꯥꯕ ꯅꯥꯏꯇꯣꯝ ꯍꯤꯡꯕꯅꯤꯕ) ꯃꯇꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯁꯨꯞꯄꯦꯖ ꯑꯍꯟꯗꯦ ꯅꯤꯇꯤꯂꯦꯂꯕ ꯌꯥꯄꯦꯇꯂꯤ॥ ꯀ꯭ꯂꯣꯖ 7.7.1-ꯗꯦ ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯅꯥꯒꯦ ꯑꯃꯁꯨꯡ ꯀꯟꯁꯣꯂꯤꯗꯦꯁꯅꯒꯤ ꯌꯥꯊꯪ ꯄꯦꯍꯌꯤꯇꯂꯤ, ꯃꯥꯃꯗꯤ ꯍꯦꯟꯅꯥꯏ ꯑꯃꯗꯦ ꯁꯤꯅꯕꯗꯦ ꯍꯤꯕ

ꯂꯣꯛꯇꯥꯛ ꯑꯃꯤ ꯃꯂꯤꯒꯤ ꯆꯦꯛꯂꯥꯒꯤ ꯆꯪꯒꯅ ꯑꯃꯁꯨꯡ ꯅꯊꯥꯏꯂꯃꯤꯗꯤ ꯃꯇꯦꯡ ꯃꯋꯥꯡꯇꯥꯅ ꯁꯥꯊꯤꯕꯒꯤ ꯄꯥꯊꯛꯃꯤ ꯀꯅꯁꯥ ꯁꯦꯝꯕꯥꯅ॥ ꯍꯥꯄꯤ 5-ꯒꯤ ꯂꯝꯕꯤꯒꯤ ꯃꯐꯝ ꯑꯃꯤ ꯃꯍꯩꯔꯣꯅ ꯑꯃꯤꯗꯤ ꯊꯃꯖꯔꯤ॥

FTL-ꯒꯤ ꯄꯥꯝꯖꯕꯒꯤ ꯆꯪꯒꯅ ꯑꯃꯤ ꯃꯇꯦꯡ 3.12.5-ꯒꯤ ꯃꯇꯨꯡ ꯁꯥꯔꯤ॥ ꯃꯔꯤꯕꯨꯝꯅ ꯕꯤꯌ ꯑꯃꯅꯒꯤ ꯄꯥꯝꯖꯕꯒꯤ ꯆꯪꯒꯅ ꯑꯃꯤ ꯃꯂꯤꯒꯤ ꯑꯣꯏꯔꯆꯪꯃꯤ ꯆꯪꯒꯅꯔꯤ ꯃꯥꯍꯥꯛꯤ ꯇꯥꯡꯅ ꯌꯥꯎꯆꯕ ꯃꯇꯍꯅ ꯑꯣꯏꯔꯆꯪꯌ ꯑꯃꯨ ꯊꯤꯗꯔꯤꯅꯔꯤ, ꯑꯃꯁꯨꯡ ꯆꯗꯨꯕꯗꯝꯤ ꯄꯥꯝꯖꯕꯒꯤ ꯆꯪꯒꯅ ꯑꯃꯤ ꯕꯥꯏꯆ ꯑꯃꯁꯨꯡ ꯂꯤꯅꯩ ꯊꯍꯔꯤꯕ ꯆꯗꯝꯤ ꯆꯪꯒꯅꯔꯤ॥ ꯆꯍꯖꯅꯕꯤꯌ ꯑꯃꯤ ꯕꯍꯕ ꯁꯥꯕꯨ "ꯍꯄꯤ ꯇꯅꯤꯗꯒꯤ ꯅꯃꯤꯌ ꯃꯌꯦ ꯁꯃꯤꯗ ꯊꯍꯔꯤ" ("remains waterlogged for many days every year") (NDB), ꯑꯃꯁꯨꯡ ꯇꯥꯡꯅꯃꯤꯗ ꯅꯃꯤꯌ ꯃꯌꯦ ꯃꯁꯌꯒꯤ ꯑꯣꯏꯔꯖꯅꯃꯤꯗꯅꯒꯤ ꯌꯥꯎꯆ ꯆꯪ: ꯃꯤꯅꯊꯗꯅ ꯁꯍꯖꯅ ꯇꯥꯡꯅ 29 ꯃꯦ 2024-ꯅ ꯃꯂꯤꯒꯤ ꯖꯗꯅꯗꯁꯤꯕ ꯄꯁꯌꯂꯌ ꯖꯆꯅ ꯆꯪꯒꯅ 788.400 m-ꯅꯒꯤ ꯌꯥꯎꯁꯤ, ꯑꯃꯁꯨꯡ 15 ꯂꯦꯕꯔꯨꯋꯥꯔꯤ 2025-ꯅ ꯆꯤꯆꯗꯅ ꯁꯍꯖꯅ ꯇꯥꯡꯅ 783.250 m-ꯅ ꯑꯃꯁꯨꯡ ꯁꯊꯁ ꯕꯥꯏꯆꯔ ꯃꯔꯤꯕꯨ ꯇꯥꯡꯅ 770.05 m-ꯅ ꯆꯁꯤ, ꯖꯗꯅꯗꯁꯤꯕ ꯄꯁꯌꯂꯌ ꯖꯆꯅ ꯆꯪꯒꯅ 782.850 m ꯑꯃꯁꯨꯡ 769.320 m-ꯅꯒꯤ ꯌꯥꯎꯆ (WRD, ꯕꯤꯌꯅ ꯖꯗꯅꯗꯁꯤꯕ ꯃꯇꯨꯡ ꯁꯥꯔꯤ); "ꯇꯥꯡꯅꯒꯤ ꯅꯤꯁꯗꯂꯤꯗ ꯖꯅ ꯁꯕꯆ ꯑꯍꯕ ꯑꯥꯏꯌꯤꯂꯤꯗꯅ ꯊꯒꯤ ꯌꯤꯍꯆ ꯁꯂꯤꯗ ꯊꯍꯄꯅꯔꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, APD, 2024)॥ ꯆꯗꯁꯗ ꯑꯒꯂꯌ 2002-ꯅ 768.5 m ꯌꯁꯤ (ꯕꯤꯌꯅ ꯖꯗꯅꯗꯁꯤꯕ ꯃꯇꯨꯡ ꯁꯥꯔꯤ), ꯑꯃꯁꯨꯡ ꯑꯒꯂꯌ 2026-ꯒꯤ CEA-ꯒꯤ ꯕꯤꯅꯤꯗꯂꯤꯗ, 767.46-ꯅꯒꯤ 767.73 m ꯕꯍ (ꯃꯌꯁꯤꯕ ꯃꯇꯨꯡ ꯁꯥꯔꯤ), ꯆ ꯃꯂꯤꯒꯤ ꯃꯄꯂꯤꯒꯤ ꯃꯔꯤꯕꯒꯤ ꯆꯪꯒꯅ ꯇꯌꯆꯤ॥ ꯃꯥꯍ ꯑꯃꯨꯆ ꯃꯪꯌꯅ ꯑꯃꯤꯆ, ꯂꯤꯕꯤꯆ ꯑꯃꯤꯒꯤ ꯆꯗꯆꯕ ꯑꯅꯤꯂꯔ ꯑꯃꯆ ꯁꯊꯗꯂꯤꯗꯒꯤ ꯃꯇꯨꯡꯅ ꯆꯕ ꯃꯂꯤꯒꯤ ꯖꯆꯅꯕꯆꯔꯒꯤ ꯆꯗꯂꯤꯗꯒꯤꯅꯃꯗ ꯅꯤꯆꯁꯔ ꯕꯤꯕꯥꯕꯌ ꯑꯃꯅꯒꯤ ꯆꯕ ꯃꯂ, ꯆꯗ ꯑꯃꯨ ꯊꯔꯆꯕꯕ ꯑꯃꯁꯨꯡ ꯁꯗꯕꯔꯨ ꯊꯔꯆ ꯍꯅꯆꯤꯕ ꯃꯂ ꯑꯃꯨ, ꯁꯊꯗ ꯆꯌꯕꯒ ꯒꯌ ꯆꯕ ꯕꯍꯕꯆ ꯊꯅꯃꯕ ꯑꯣꯏꯔꯖꯅ ꯑꯃꯒꯤ ꯇꯌꯊꯗꯅ ꯁꯂꯤꯗ ꯊꯅꯃꯕ ꯕꯤꯌ ꯆꯌꯕꯒ ꯕꯔꯅ ꯇꯅꯤꯗꯃꯗꯝꯤ ꯕꯅ ꯑꯁꯆ ꯆꯁ: ꯃꯂꯤ ꯃꯂꯤꯒꯤ ꯑꯣꯏꯔꯆꯪꯃꯤ ꯆꯪꯒꯅ ꯖꯤꯔꯕ ꯊꯔꯆ ꯄꯁ (ꯃꯇꯦꯡ 5.8.5(a) ꯑꯃꯁꯨꯡ (e)), ꯑꯃꯁꯨꯡ ꯆꯗꯁꯗꯝꯤ ꯃꯆꯗꯁ ꯆꯗ ꯑꯃꯨ ꯃꯇꯦꯡ 5.8.5(c)-ꯒꯤ ꯅꯤꯆꯁꯔ ꯆꯗ ꯆꯪꯒꯅꯅ ꯄꯁ, ꯇꯔꯅꯒꯤ ꯂꯦꯕꯔꯨꯋꯥꯔꯤ ꯖꯤꯔꯕ ꯃꯂꯤꯒꯤ ꯖꯅ ꯕꯤꯆꯕꯒꯌꯕ ꯆꯪꯒꯅꯅꯒꯤ ꯃꯅꯃꯅꯂ ꯆꯍꯅꯆ॥ ꯃꯪꯌꯅꯒꯤ ꯃꯁꯍ ꯑꯃꯤ 1 ꯑꯕꯤꯅꯒꯤ ꯄꯁ ꯃꯥꯍꯅꯤ ꯑꯍꯕ ꯆꯗ ꯇꯕꯂꯤꯗ ꯁ-ꯆꯗꯇꯕ ꯃꯔꯤꯕꯒꯤ ꯃꯃꯗꯅꯂ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯃꯁꯍꯅꯂ ꯆꯃꯁ (Imphal (Tulihal) 16 ꯑꯕꯤꯅ 2004-ꯅ 105.9 mm ꯑꯃꯁꯨꯡ 27 ꯃꯦ 1956-ꯅ 122.4 mm, IMD), ꯑꯃꯁꯨꯡ 28-ꯅꯒꯤ 31 ꯃꯦ 2024 ꯑꯃꯁꯨꯡ 30 ꯃꯦꯅꯒꯤ ꯇꯔ 2025-ꯒꯤ ꯁꯂꯤꯗ ꯁꯌꯇꯂꯤꯗ ꯃꯂꯤꯒꯤ ꯃꯄꯂꯤꯒꯤ ꯄꯥꯝꯖꯕ 5 ꯇꯔꯒꯤ ꯃꯃꯗꯅ ꯆꯗꯁꯤ (ꯕꯤꯌꯅ ꯖꯗꯅꯗꯁꯤꯕ ꯃꯇꯨꯡ ꯁꯥꯔꯤ), ꯃꯥꯍ ꯑꯃꯨꯆ ꯕꯤꯌ ꯆꯌꯕꯒ ꯕꯔꯕ ꯑꯃ ꯑꯕꯤꯅꯒꯤ ꯑꯗꯁꯕꯕ ꯖꯤꯔꯕ ꯃꯥꯍꯤꯒꯍꯕ ꯃꯁꯍ ꯑꯃꯃꯗꯁ ꯊꯔꯕ ꯌꯤꯁ॥ ꯆꯗ ꯇꯕꯒꯤ ꯃꯁꯍ ꯑꯃꯅ ꯕꯤꯌ ꯑꯃꯆ ꯃꯂꯤꯒꯤ ꯑꯣꯏꯔꯆꯪꯃꯤ ꯆꯪꯒꯅꯅ ꯆꯌꯕꯒ ꯃꯅꯂꯒꯤ ꯌꯥꯎꯆ ꯃꯌꯦ ꯌꯤꯍꯆ ꯆꯕꯒ, ꯆꯌꯕꯒ ꯁꯊꯗ ꯑꯃꯆ ꯃꯌꯦ ꯌꯤꯍꯆ ꯊꯤꯗꯔꯤꯅꯔꯤꯕꯒ ꯄꯌꯕꯒꯤ ꯕꯃꯗꯕꯅ ꯑꯃꯌꯁ ꯖꯗꯁꯤꯅ [TBC]॥ ꯕꯤꯌ ꯑꯃ ꯊꯔꯆꯒ ꯃꯂꯤꯒꯤ ꯁꯊꯗ ꯊꯤꯗꯔꯤꯅꯔꯤꯃꯅ, ꯃꯂꯤꯆ FTL-ꯒꯤ ꯃꯁꯅ ꯃꯕꯤꯂ ꯄꯔꯆ ꯊꯍꯅ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯅ ꯍꯅꯆꯗꯔꯤꯕ ꯁꯗꯕꯔ ꯑꯃꯁꯨꯡ ꯍꯆꯅꯂꯤꯗꯆ ꯃꯂꯤꯒꯤ ꯆꯪꯒꯅꯒꯤ ꯃꯌꯗꯁ ꯁꯂꯤꯗ ꯊꯅꯃꯁ॥ ꯕꯁꯕꯤꯒꯤ ꯃꯂꯃꯅ ꯑꯃꯆ ꯁꯂꯤꯗ ꯁꯌꯇꯂꯤꯗ ꯕꯁꯕꯤ ꯑꯃꯅꯒꯤ ꯃꯊꯗꯒꯤ ꯕꯁꯕꯤꯅ ꯕꯊꯃꯁ, ꯃꯥꯍ ꯑꯃꯨꯆ ꯕꯁꯕꯤ ꯑꯃꯅ ꯂꯣꯛꯇꯥꯛ ꯃꯂꯤꯗ ꯌꯤꯇꯄꯔꯨꯆ ꯃꯂꯤꯒꯤ ꯃꯊꯗꯁ ꯆꯕ ꯕꯁꯕꯤꯅꯒꯤ ꯆꯃꯕ ꯂꯕꯕꯆꯂ ꯑꯃꯨ ꯌꯗꯅꯕ ꯅꯤꯆꯁꯔ ꯑꯃꯆ ꯃꯔꯆꯕ ꯑꯃꯨ ꯄꯔꯆ ꯌꯤꯇꯄꯔꯆ ꯁꯗꯃꯆ॥ ꯃꯥꯍ ꯑꯃꯨꯆ ꯃꯇꯦꯡ 7.7.2-ꯆ ꯃꯂꯃꯅ ꯕꯍꯆꯃꯗ ꯃꯅꯅ ꯁꯆꯕ ꯃꯊ ꯁꯄꯅꯆ॥


A.
1 ≥ 15 m
DWF
8.9
B.
5.8.5(c))
9)
1
15 m
2
1% AEP
+ 10 m
7.4
8.9
6.3.6(m)
15 m

[illegible] 7.3 — [illegible] A: [illegible] (pan) [illegible] (ithong) [illegible] (5.8.5(a); [illegible] 9)॥ [illegible] 5.8.5-[illegible] (8.9); [illegible] (5.8.5(e) [illegible] 7.7.3)॥ [illegible] 7.7.1-[illegible] 7.6.4-[illegible] (7.2-[illegible])॥ [illegible]

ꯀꯤꯌꯥ ꯅꯦꯖꯤꯔꯣꯕꯥꯡꯂꯦ ꯄꯕꯪꯗꯤꯌ ꯑꯃꯌꯥꯝ ꯀꯤꯗꯪ (ꯄꯦꯔꯥ 4.11, ꯌꯥꯝꯅꯥ ꯀꯣꯏꯕꯥ ꯆꯥꯡꯒꯤ ꯃꯇꯝ)꯫ ꯁꯤꯡꯂꯨꯞꯁꯤꯡꯒꯤ ꯇꯪꯂꯣꯟ ꯁꯤꯡꯒꯤ ꯅꯨꯡ (khong) ꯑꯃꯁꯨꯡ ꯌꯥꯝꯀꯣꯏꯕꯥ ꯆꯥ ꯁꯣꯏꯗ ꯃꯦꯖꯥ ꯂꯤꯔꯕ ꯌꯥꯝꯀ ꯑꯃꯤ ꯇꯦꯡꯊꯣꯛꯅ (ꯄꯦꯔꯥ 6.3.6(m) ꯑꯃꯁꯨꯡ 8.12)꯫ ꯇꯦꯛ 1 ꯑꯣꯏꯅ ꯀꯥꯡꯕꯒꯤ ꯆꯥꯡꯒꯤ ꯃꯅꯨꯡꯒꯤ ꯌꯥꯝꯒꯤ, ꯁꯥꯇꯥꯔ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯒꯤ ꯇꯝꯅꯒꯤ ꯃꯊꯨꯌꯥꯒꯤ, ꯑꯃꯁꯨꯡ ꯀꯤꯌ ꯑꯃꯁꯨꯡ ꯂꯩꯀꯥꯏꯒꯤ ꯈꯨꯍꯅꯒꯤ ꯅꯨꯡꯉꯥꯏꯒꯤ ꯇꯥꯡꯕꯅ 15 m ꯑꯣꯏꯅ, ꯑꯃꯁꯨꯡ ꯇꯦꯛ 2 ꯑꯣꯏꯅ 1% AEP ꯑꯥꯎꯠꯂꯦꯠꯌ ꯑꯃꯁꯨꯡ 10 m ꯖꯦꯡꯕ ꯁꯌꯇꯤ (ꯄꯦꯔꯥ 7.4)꯫ B: ꯇꯥꯎꯕ ꯃꯇꯥꯎꯕ ꯄꯕꯂ-ꯂꯥꯎꯂꯦꯅ, ꯇꯥꯎ ꯑꯣꯏꯅ ꯃꯅꯥ ꯊꯎꯕꯅ ꯇꯧꯕ ꯕꯥꯕꯇ ꯑꯃꯇꯦ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯃꯅꯥꯅ ꯇꯧꯕ ꯎꯎꯒꯤ ꯂꯤꯔ ꯑꯃꯇꯦ ꯊꯆꯇꯤ; ꯌꯥꯝꯕꯤꯕ ꯀꯤꯆꯕꯤ (phumdi) ꯑꯣꯏꯅ ꯌꯥꯝꯂꯒꯤ ꯑꯥꯝꯌꯇꯥꯌ ꯑꯃꯒꯤ ꯂꯄꯕꯤꯂꯦꯅ ꯀꯂꯦꯂꯤꯔꯇꯤ (ꯂꯕꯨꯎ 9); ꯑꯃꯁꯨꯡ ꯄꯦꯔꯥ 5.8.5(c)-ꯒꯤ ꯗꯤꯇꯅꯦ ꯇꯥꯎ ꯇꯥꯒꯥꯔ ꯑꯣꯏꯅ ꯌꯥꯝꯂꯒꯤ ꯑꯥꯝꯌꯖꯔ ꯑꯃꯅ ꯅꯁꯗꯎꯇꯤ, ꯃꯂꯤꯒꯤ ꯅꯦꯒꯕꯌ ꯑꯗ ꯇꯥꯒꯥꯔ ꯑꯗꯒꯤ ꯃꯅꯥꯅ ꯇꯧꯕꯗꯤ ꯎꯦꯗꯒꯤ ꯂꯥꯀꯥꯌꯆꯕꯕ ꯖꯦꯡꯕ ꯊꯤꯕꯇꯤꯔꯇꯕ ꯑꯅꯇꯦ ꯇꯧꯅ, ꯃꯕꯆ ꯑꯗꯇꯦ ꯌꯥꯝꯂꯒꯤ ꯂꯌꯕꯆ ꯑꯗ ꯊꯃꯇꯤꯔꯇꯒ ꯀꯃꯆꯀ ꯌꯥꯅ꯫ 15 m-ꯒꯤ ꯅꯨꯡꯉꯥꯏꯒꯤ ꯇꯥꯆꯕ, ꯆꯥꯒꯤ ꯃꯅꯨꯡꯒꯤ ꯌꯥꯒꯤ ꯇꯅꯦ, ꯅꯦꯌꯕꯂꯥꯀꯂꯦꯒꯤ ꯂꯨꯔ, ꯄꯥꯕꯄꯀꯒꯤ ꯇꯥꯒꯥꯔꯂꯤꯕ, ꯇꯥꯕꯨꯎꯄꯤꯃꯎ ꯄꯆꯀꯥꯦꯂꯥꯌꯕꯤ ꯂꯌꯕꯥꯇ ꯑꯃꯁꯨꯡ ꯅꯦꯖꯤꯔꯣꯕꯥꯡꯂꯦꯒꯤ ꯂꯨꯔ ꯑꯣꯏꯅ ꯃꯥꯎꯨꯁꯥꯔ ꯑꯣꯏꯒꯤ ꯀꯕꯀꯥꯇꯥꯔꯂꯤꯕꯇꯤ; ꯃꯗꯥꯔꯒꯤ ꯃꯅꯥꯅ ꯇꯧꯕ ꯕꯤꯔꯗꯤꯕ ꯕꯅ-ꯇꯇꯂꯤꯕ, ꯃꯇꯤꯀꯨꯕ ꯇꯎꯌꯥ ꯇꯥꯎ (ꯀꯕꯌꯥꯎꯂꯦ) ꯑꯥꯎꯌ, 2006, ꯃꯇꯤꯀꯨꯕ ꯄꯦꯂꯕꯒꯥꯂꯦ ꯑꯖ ꯀꯥꯗꯤ ꯇꯥꯦꯅ ꯑꯃꯁꯨꯡ ꯁꯥꯌꯇꯥꯦꯅ ꯑꯥꯎꯌ, 2014 ꯑꯃꯁꯨꯡ ꯄꯕꯌꯂꯤꯕꯒꯤ ꯑꯕꯗꯕꯂꯤꯕꯇ ꯄꯥꯦꯇ ꯄꯔꯕꯕ ꯃꯖꯆꯅ ꯃꯅꯔ ꯃꯨ ꯑꯅ꯫ ꯃꯥꯎꯨꯁꯥꯔ ꯑꯣꯏꯒꯤꯗꯃꯛ ꯑꯇꯇ ꯂꯥꯆꯕ ꯗꯕꯅꯕ.

7.8 ꯑꯣꯄꯔꯦꯁꯟ ꯂꯨꯔꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯀꯕꯤ-ꯃꯦꯂꯨꯂꯦꯒꯤ ꯖꯇꯅ ꯄꯨꯂꯦ

7.8.1 **ꯑꯣꯄꯔꯦꯁꯟ ꯂꯨꯔꯒꯤ ꯃꯎꯕꯒꯤ ꯁꯖꯆꯂꯤꯕ.** ꯄꯦꯔꯥ 7.7-ꯒꯤ ꯃꯅꯥꯅ ꯂꯌꯕꯥꯇ ꯃꯂꯤꯕ ꯁꯌꯄꯔꯇꯕ ꯀꯨꯅꯕꯤ ꯅꯨꯗꯤꯕꯃꯎꯌ, ꯄꯂꯌꯗꯤꯁꯦꯇ ꯁꯇꯕ ꯑꯃꯁꯨꯡ O&M ꯀꯇꯦꯒꯤ ꯇꯁꯇꯇ ꯊꯆꯕ (ꯂꯕꯨꯎ 10), ꯅꯕꯕ ꯑꯣꯄꯔꯦꯁꯟ ꯂꯨꯔ ꯑꯃ ꯇꯒꯅꯕꯇꯤ꯫ ꯃꯂꯤꯇ ꯃꯅꯒꯤꯂꯤꯕ ꯅꯒꯅꯕꯇꯤ:

- (a) ꯁꯄꯤ ꯀꯨꯆꯕꯅ ꯊꯦꯄꯦꯕ, ꯊꯆꯕ ꯑꯃꯁꯨꯡ ꯗꯕꯗꯌꯦꯒꯤ ꯇꯥꯒꯥꯔꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯌꯕꯂꯤꯕ;
- (b) ꯇꯥꯒꯥꯔ ꯅꯨꯗꯤꯕꯅ ꯅꯊꯕ ꯑꯃꯁꯨꯡ ꯕꯀꯨꯇꯌꯕꯒꯤ ꯂꯌꯤꯕꯂꯤꯕ;
- (c) ꯅꯊꯕ ꯑꯃꯁꯨꯡ ꯕꯀꯨꯇꯌꯕꯂꯤꯕ ꯄꯇꯇ ꯁꯇꯅꯒꯇꯤ, ꯑꯃꯁꯨꯡ ꯄꯇꯇ ꯅꯂꯤꯕ ꯊꯗꯎꯇꯕ ꯑꯕꯗꯕ ꯀꯤꯕ ꯁꯒꯇꯤ;
- (d) ꯃꯥꯎꯂꯤꯃꯆ ꯕꯤꯇꯤꯇꯒꯤ ꯕꯌ, ꯕꯤꯇꯤꯇ ꯑꯗꯒꯤ ꯃꯅ ꯊꯕꯕ ꯄꯁꯃꯦꯌꯌꯒꯤ ꯇꯄꯀ ꯖꯇꯒꯤ ꯀꯦꯂꯤꯦꯇꯕꯅꯨ ꯃꯅ ꯊꯕꯕꯅ ꯇꯧꯕ ꯕꯤꯔꯗꯤꯕꯂꯤꯕꯅ ꯅꯂꯤꯕ ꯅꯁꯌ ꯊꯎꯄꯦꯗꯇꯕ ꯊꯆꯕ;
- (e) ꯖꯕꯄꯂꯌ ꯑꯃꯁꯨꯡ ꯁꯕꯇꯤꯕꯒꯤ ꯌꯕꯤꯒꯕꯂꯤꯕ (IMD-ꯒꯤ ꯀꯇꯒꯤ ꯁꯕꯇꯤꯕꯂꯤꯕ, MSDMA-ꯒꯤ ꯑꯇꯕꯌꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯇꯕꯕꯗꯤ ꯂꯄꯕꯒꯤ ꯖꯕꯄꯂꯌ ꯂꯤꯂꯌꯆꯂꯤꯕ) ꯑꯃꯁꯨꯡ ꯌꯕꯤꯒꯕ ꯅꯨꯗꯤꯕꯅ ꯇꯒꯅꯕ ꯊꯕꯎꯂꯤꯕ;
- (f) ꯕꯤꯇꯤꯇ ꯑꯃꯃꯎꯄꯤ ꯃꯃꯕꯅ ꯃꯅ ꯊꯕꯕꯅ ꯇꯧꯕ ULB-ꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯁꯆꯒꯤ ꯁꯕꯤ ꯂꯇꯕ; ꯑꯃꯁꯨꯡ
- (g) ꯊꯆꯒꯅꯕ ꯕꯄꯕꯅꯂꯤꯕ: ꯃꯦꯂꯨꯦꯅ ꯎꯃꯤꯌ ꯅꯨꯗꯤꯕꯒꯤ ꯇꯥꯒꯥꯔꯂꯤꯕ, ꯕꯤꯇꯤꯇꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯒꯌꯄꯤ ꯂꯌꯤꯕꯂꯤꯕ꯫

7.8.2 **ꯖꯇꯅ ꯄꯨꯂꯦ.** ꯀꯨꯅꯕꯤ ꯑꯃ ꯖꯇꯅ ꯄꯨꯂꯦ (ꯃꯦꯂꯨꯂꯦꯒꯤ ꯃꯌꯆ ꯅꯕꯅ FTL-ꯒꯤ ꯃꯅꯥꯅ ꯇꯧꯕ ꯇꯥꯒꯥꯔ ꯑꯃ) ꯑꯃꯒꯤ ꯇꯁꯇꯇ ꯁꯇꯅꯕ ꯁꯅ, ꯑꯃꯁꯨꯡ ꯄꯨꯂꯦ ꯑꯗ ꯄꯦꯔꯥ 7.7.3-ꯒꯤ ꯃꯅꯥꯅ ꯃꯂꯤꯕ ꯁꯌꯄꯇꯕ ꯁꯅ, ꯃꯅꯒꯤ ꯃꯖꯆꯂꯤꯕꯅ ꯅꯎꯌ:

- (a) ꯀꯨꯅꯕꯤ ꯑꯗꯅ ꯂꯨꯔꯅ ꯅꯕꯕ ꯃꯌꯆꯒꯤ ꯃꯎꯕꯅ ꯄꯨꯂꯦꯒꯤ ꯇꯥꯒꯥꯔ ꯖꯦꯡꯕ ꯀꯨꯅꯕꯤ ꯑꯗ ꯗꯕꯗꯌꯦ ꯌꯕ ꯈꯆꯕ ꯒꯌ ꯇꯕ ꯅꯊꯕ, ꯕꯀꯨꯇꯌꯕ ꯇꯌꯕꯒꯤ ꯑꯌꯀꯀ ꯄꯦꯌꯕꯔ ꯌꯕ ꯁꯕ ꯑꯥꯝꯌꯇꯌ ꯑꯃ ꯇꯕꯕꯗꯤ;
- (b) ꯑꯣꯄꯔꯦꯁꯟ ꯂꯨꯔꯇ ꯄꯨꯂꯦꯒꯤ ꯇꯥꯒꯥꯔ ꯑꯃꯁꯨꯡ ꯃꯂꯤ ꯁꯌꯇꯤꯕ ꯌꯕꯂꯤꯕ ꯖꯤꯎꯂ ꯌꯕꯕꯗꯤ;
- (c) ꯄꯦꯌꯤꯇꯁꯁꯂ ꯂꯤꯀꯇꯂꯦ (ꯄꯦꯔꯥ 3.13)-ꯇ, ꯀꯤꯎ ꯂꯌꯕꯆꯒꯤ ꯃꯃꯕꯅ ꯃꯌꯆ ꯁꯃꯇ ꯇꯄꯀ ꯇꯕ ꯁꯕꯇꯒꯤ, ꯕꯄꯕꯅꯌ ꯇꯕ ꯃꯦꯂꯨꯂꯦꯒꯤ ꯃꯌꯆꯂꯤꯕꯒꯤ ꯅꯨꯡꯉꯥꯏꯒꯤ ꯇꯥꯆꯕꯅ **90%**-ꯅ ꯗꯤꯇꯅꯦ ꯂꯌꯕꯆ ꯑꯃꯒꯤ ꯄꯕꯄꯀꯅ ꯄꯨꯂꯦ ꯑꯗ ꯖꯕꯕ ꯁꯅ ꯄꯁꯇ ꯌꯌꯇꯕꯗꯤ;
- (d) ꯄꯂꯌꯗꯤꯁꯦꯇ ꯅꯕꯤꯒꯂꯦ ꯇꯌꯕꯒꯤ ꯅꯂꯤꯕ ꯀꯤꯕꯒꯤ ꯁꯤꯔꯅꯄꯤ ꯃꯕꯅꯤꯕ ꯑꯃꯃꯎ ꯁꯕꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯁꯇꯅꯤꯕ ꯄꯆꯀꯦꯂꯂꯦ ꯑꯃꯃꯎ ꯕꯄꯕꯅ ꯌꯕꯕꯗꯤ; ꯑꯃꯁꯨꯡ
- (e) ꯄꯨꯂꯦ ꯂꯆꯕ ꯇꯌꯕꯒꯤ ꯄꯦꯇ ꯂꯆꯕꯒꯤꯗꯃꯎ ꯃꯊ ꯌꯕ ꯕꯤꯇꯤꯇ ꯑꯗ ꯄꯦꯔꯥ 7.8.1(d)-ꯒꯤ ꯁꯇꯕꯕꯗꯤ꯫

7.8.3 **ꯄꯦꯌꯕꯔ ꯁꯌꯅꯇ ꯂꯌꯕꯇ ꯄꯕꯪꯗꯤꯌ ꯀꯤꯗꯕ.** ꯀꯨꯅꯕꯤ ꯑꯃꯅ ꯄꯦꯌꯕꯔ ꯌꯕ ꯁꯕ ꯑꯥꯝꯌꯇꯌ ꯇꯌꯕ ꯃꯖꯆꯅ, ꯃꯃꯕꯒꯤ ꯊꯑꯕ ꯄꯕꯤꯀꯨꯆꯕ ꯑꯅꯕꯕꯨ, ꯖꯇꯅ ꯄꯨꯂꯦ ꯑꯃꯌꯥꯝ ꯇꯕꯅꯅꯕꯇꯤ꯫

7.8.4 **ꯄꯑꯕꯗꯤꯇꯂꯦ.** WRD-ꯒꯤ ꯄꯦꯌꯕꯔꯒꯤ ꯃꯅꯥꯅ ꯇꯧꯕ ꯀꯨꯅꯕꯤꯂꯤꯕꯒꯤꯗꯃꯎ, ꯑꯣꯄꯔꯦꯁꯟ ꯂꯨꯔ ꯑꯣꯏꯅ WRD-ꯒꯤ ꯂꯨꯔ ꯑꯅꯒꯅꯕꯇꯤ꯫ ꯃꯥꯎꯨꯁꯥꯔ ꯑꯣꯏꯇ ꯑꯌꯀꯀ ꯕꯗꯤ ꯑꯃꯌꯥꯕꯨ WRD-ꯒꯤ ꯀꯨꯅꯕꯤ ꯁꯇꯅꯇꯕ ꯑꯊꯕꯅꯇ ꯌꯅ꯫

ꯀꯃꯦꯟꯇꯔꯤ ꯅꯣꯠ. ꯍꯧꯖꯤꯛꯀꯤ ꯊꯧꯔꯥꯡ ꯑꯁꯤꯒꯤ ꯃꯇꯥꯡꯗ ꯇꯥꯛꯂꯤꯕ ꯂꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯦꯖ, ꯑꯃꯁꯨꯡ ꯍꯥꯔꯣꯒꯤ ꯅꯤꯡꯊꯧ ꯄꯤꯕꯤꯕ ꯑꯣꯏꯅꯥ ꯑꯃꯁꯨꯡ ꯇꯧꯏ॥ ꯃꯁꯤ ꯑꯃꯅꯥ ꯁꯨꯟꯅꯒꯤ ꯃꯇꯝ ꯑꯃꯒꯤ ꯏꯁꯤꯡ ꯄꯨꯝꯅꯃꯛ ꯀꯅꯕ, ꯍꯧꯖꯤꯛꯀꯤ ꯃꯇꯧꯗ ꯌꯥꯝꯅ ꯌꯥꯝꯅ ꯊꯥꯗꯣꯛꯄ ꯑꯃꯁꯨꯡꯗꯥ WRD-ꯅꯥ ꯁꯤꯁꯤꯟ ꯄꯨꯔꯛ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯄꯨꯔꯛꯀꯤ ꯃꯇꯥꯡꯗ ꯁꯤꯡꯊꯣꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯀꯣꯏꯕꯤꯅꯅꯕ ꯍꯥꯌꯔꯝꯂꯤ ꯂꯩꯔꯤꯕ [TBC]; ꯄꯨꯔꯛꯂꯤ ꯑꯃꯁꯨ ꯂꯩꯔꯝꯂꯨꯛ ꯑꯃꯕ ꯀꯦꯔꯃꯁꯤꯅꯥ ꯅꯨꯡꯉꯥꯏꯅꯥ ꯁꯤꯡꯊꯣꯛ ꯌꯥꯏꯕꯨꯟꯅꯃꯁꯤꯅꯥ ꯀꯣꯏꯕꯤꯅꯅꯕꯤ॥ ꯁꯤꯡꯊꯣꯛ ꯌꯥꯏꯅꯤꯡꯊꯧ ꯃꯁꯤ ꯑꯃꯕ ꯅꯤꯡꯊꯧꯔꯝ ꯍꯥꯏꯕꯒꯤ ꯅꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡꯈꯣꯡꯅꯥ ꯃꯁꯤꯡꯃꯂꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯔꯝꯃꯥꯏ ꯇꯥꯔ ꯃꯈꯣꯌ ꯍꯥꯏꯕ ꯃꯁꯤ ꯑꯃꯁꯨꯡꯈꯣꯌ, ꯅꯈꯥꯏꯃꯁꯤ, "ꯄꯝꯄ ꯇꯧꯅꯕꯒꯤ ꯍꯥꯌꯔꯕ … ꯅꯥꯝꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯁꯃꯨꯁꯥꯡ ꯅꯈꯥꯏ ꯁꯤꯡꯊꯣꯛꯇ ꯄꯨꯔꯛ ꯄꯨꯌꯥꯡꯒꯤ ꯄꯨꯔꯛ ꯃꯈꯥꯃ ꯍꯥꯏꯕ ꯀꯥꯃꯤ" ("provision for pumping of flood water … to the Nambul River through Shamushang Nalla during high flood season") (WRD) ꯇꯥꯃꯕꯂꯨ, ꯃꯈꯥꯃ ꯍꯥꯏꯕ ꯑꯃꯨ "ꯍꯥꯌꯔꯤ ꯌꯥꯗꯕꯅꯤ" ("not adequate") ꯄꯥꯃꯔꯤꯂꯨ "ꯌꯥꯝꯅ ꯅꯨꯃꯤꯠꯒꯤ ꯆꯍꯤ ꯈꯨꯗꯤꯡ ꯄꯨꯔꯛ ꯏꯁꯤꯡ" ("remains waterlogged for many days every year") (NDB); ꯍꯥꯌꯔꯤꯒꯤ ꯃꯈꯥꯃꯔꯤ ꯍꯥꯏꯕꯒꯤ ꯂꯩꯔꯤꯕ [TBC]॥ ꯇꯥꯔꯦꯔꯤ ꯇꯥꯗꯅ ꯑꯃꯨ ꯇꯥꯔꯦꯔ ꯄꯥꯟꯁꯤꯟꯇꯥꯔꯦꯔꯤ ꯃꯁꯤꯇꯥꯔꯤꯒꯤꯕꯤ NHPC-ꯅꯥ ꯄꯨꯔꯛ ꯊꯥꯗꯣꯛ ꯌꯥꯝꯅꯕꯅꯥ ꯀꯣꯏꯕꯤ, ꯍꯥꯌꯅ ꯇꯥꯔꯦꯔ ꯑꯃꯨꯒ ꯌꯥꯝꯅ (ꯂꯤꯀꯂꯥꯏ 36), ꯑꯃꯁꯨꯡ ꯊꯥꯗꯣꯛꯄꯤ ꯃꯇꯥꯡꯗꯥꯒꯤ ꯁꯤꯡ ꯂꯩꯔꯤꯕ [TBC]; ꯊꯥꯗꯣꯛ ꯑꯃꯨꯅꯥ "ꯇꯥꯔꯦꯔ ꯇꯥꯔꯤꯕ ꯑꯃꯇꯥꯗ ꯌꯥꯔꯦꯕ ꯇꯥꯗꯅ ꯍꯤꯔꯦꯕ ꯑꯃꯕ ꯃꯍꯦ ꯍꯥꯌꯔ ꯂꯣꯛꯇꯥꯛꯀꯤꯅꯤꯕꯤ ꯌꯥꯝꯅꯕꯅꯥꯄꯤꯅꯥ" ("permanently raised the average water level of Loktak Lake by about a metre") (ꯃꯁꯤꯅꯥ ꯂꯩꯔꯤꯕꯅꯥꯗꯥꯕ ꯍꯥꯌꯔꯤ ꯄꯨꯔꯛ), ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯒꯤ ꯍꯥꯌꯅ "ꯁꯨꯒꯅꯨ ꯍꯝꯞ" ("Sugnu hump")-ꯒꯤ ꯅꯨꯡꯒꯤ ꯂꯩꯕꯅꯥ ꯒꯤꯌꯥꯔꯤꯅꯥ ꯃꯇꯤ ꯍꯥꯏꯕꯂꯨ ꯊꯥꯗꯣꯛꯅꯥ ꯀꯣꯏꯕꯤꯅꯤ (MASTEC)॥ ꯌꯥꯏꯔꯤꯗꯒꯤ ꯃꯇꯝꯃꯒꯤꯔꯤꯅꯥ ꯍꯤꯔꯦꯔꯤꯕ ꯁꯤꯡꯊꯣꯛꯂꯤꯅ ꯄꯨꯔꯛ ꯊꯥꯗꯣꯛ: ꯀꯥꯡꯅꯥ ꯇꯥꯔ ꯍꯤꯔꯦꯔ ꯃꯇꯝꯃꯔꯤ 1 ꯑꯒꯁ 2015-ꯗ 876 m-ꯗ ꯇꯥꯔꯤ, "ꯂꯃꯁꯤꯡꯇꯥꯔꯤꯕꯅꯥꯒꯤ 2 m ꯃꯍꯦ ꯌꯥꯝꯅꯕ" ("nearly 2 m above the spillways") (ꯃꯁꯤꯅꯥ ꯂꯩꯔꯤꯕꯅꯥꯗꯥꯕ ꯍꯥꯌꯔꯤ ꯄꯨꯔꯛ), ꯂꯤꯃꯁꯤꯍꯥꯌꯕ 2025-ꯗ WRD-ꯅꯥ ꯃꯤꯍꯥꯏꯕ ꯂꯩꯔ ꯃꯇꯝꯃꯔꯤ ꯇꯥꯗꯅ 880.7 m-ꯒꯤ ꯌꯥꯝꯅꯕꯍꯤꯒꯤ (ꯃꯁꯤꯅꯥ ꯂꯩꯔꯤꯕꯅꯥꯗꯥꯕ ꯍꯥꯌꯔꯤ ꯄꯨꯔꯛ; ꯑꯃꯨ ꯑꯃꯨ ꯌꯥꯏꯕꯅꯥ)॥ ꯍꯥꯌ, ꯇꯥꯗꯅ, ꯃꯈꯥꯃ ꯍꯥꯏꯕꯒꯤ ꯃꯁꯤꯡꯂꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤ ꯇꯥꯔ ꯃꯇꯥꯡꯗꯥꯒꯤ ꯑꯃꯗꯒꯤ ꯇꯥꯔꯦꯅꯥ ꯌꯥꯏꯕꯤꯕ ꯂꯩꯔ ꯑꯃꯕ ꯌꯥꯝꯅꯕꯅꯥ, ꯃꯁꯤ ꯅꯤꯡꯊꯧꯒꯤ ꯃꯇꯝꯃꯔꯤ ꯑꯃꯕ ꯇꯥꯔ ꯂꯩꯔꯤꯕꯅꯥ ꯀꯥꯡꯅꯥ ꯀꯥꯡꯕ ꯃꯈꯥꯅꯥ, ꯑꯃꯁꯨꯡ ꯍꯥꯌ ꯀꯥꯏꯊꯕ ꯇꯥꯔ ꯅꯈꯥꯃ ꯌꯥꯏꯅꯤꯡꯂꯤ ꯌꯥꯝꯅꯕꯅꯥ ꯍꯥꯔꯤꯕ ꯃꯤꯅꯤꯡꯅꯥ ꯑꯃꯕꯅꯥ ꯍꯥꯌꯔꯤꯕ ꯄꯨꯔꯛ ꯄꯨꯔꯛꯀꯤ ꯑꯃꯨꯅꯤ॥ ꯃꯇꯥꯡ 7.8.2-ꯗ ꯃꯁꯤꯡꯂꯤꯃꯤꯡ ꯑꯃꯨ ꯃꯤꯅꯤꯡꯄꯤꯅꯤꯡ ꯂꯩꯔꯤꯕ ꯑꯃꯒꯤ ꯇꯥꯔꯦꯅꯥ ꯌꯥꯔ ꯍꯥꯏꯕ ꯌꯥꯏꯕ ꯂꯩꯔ ꯑꯃꯕ ꯑꯃꯗꯥꯏꯄꯨꯔꯛ, ꯍꯤꯔꯦꯅꯥ ꯑꯃꯁꯤꯔ ꯑꯃꯁꯨꯡ ꯍꯥꯔꯤ ꯂꯩꯔꯤꯍꯥꯏꯔꯤꯅꯥ ꯄꯨꯔꯛꯀꯤ ꯀꯥꯡꯕ ꯀꯥꯡꯅꯕ ꯃꯤꯃꯤ ꯑꯃꯕꯅꯥ, ꯅꯤꯡꯊꯧ 1989-ꯒꯤ ꯑꯃꯇꯥꯄꯕ ꯍꯥꯌꯔ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯧ 2015-ꯒꯤ ꯑꯃꯇꯥꯄꯕ ꯍꯥꯌꯔꯒꯤꯂꯨꯍꯕ, ꯀꯤꯒꯤ ꯌꯥꯍꯤꯅꯥ ꯅꯤꯡ ꯁꯤꯡꯊꯣꯛ ꯍꯥꯌꯔꯤꯅ ꯇꯥꯔꯃꯁꯤ ꯅꯤꯡꯊꯧꯅꯥꯒꯤ ꯂꯤꯃꯁꯤꯍꯥꯌꯕ ꯀꯥꯡꯕꯒꯤ ꯍꯦꯂꯨꯃꯒꯤ ꯂꯩꯔꯤꯕꯍ ꯑꯃꯕ ꯊꯥꯗꯣꯛꯄꯃꯁꯤ ꯑꯃꯁꯨꯡꯈꯣꯌ ꯃꯁꯤꯡ॥ ꯃꯇꯥꯡ 7.8.2(c)-ꯒꯤ 90% ꯃꯤꯅꯤꯡꯄꯤꯅꯤꯡ ꯑꯃꯨꯒꯤ ꯄꯥꯝꯄꯨꯔꯛꯀꯤ ꯍꯥꯔꯤꯒꯤ ꯁꯤꯡꯍ ꯑꯃꯁꯨꯡꯈꯣꯌ ꯇꯥꯔ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤ ꯑꯃꯨꯅꯥ ꯀꯥꯡꯕꯅꯤ॥

ꯃꯁꯤꯡꯂꯤꯅ ꯍꯥꯏꯕ ꯌꯥꯏꯕ ꯑꯃꯗꯥꯏꯄꯨꯔꯛ ꯇꯥꯔꯕ ꯃꯁꯤ ꯅꯤꯡꯊꯧꯒꯤ ꯁꯤꯡꯊꯣꯛ ꯑꯃꯁꯨꯡꯕꯤꯅꯤ, ꯃꯇꯥꯡ 7.8.3 ꯑꯃꯨ ꯍꯥꯌ ꯑꯃꯕ ꯃꯁꯤꯡꯅꯤꯡꯅꯤ: ꯃꯤꯅꯤꯡ ꯑꯃꯁꯨꯡꯈꯣꯌ ꯇꯥꯔꯅꯥ, ꯍꯥꯌꯅ ꯀꯥꯡꯕ ꯀꯥꯡꯕ ꯅꯤꯡꯅꯤꯡ ꯑꯃꯕ ꯂꯩꯔꯤꯕ ꯑꯃꯨ ꯍꯥꯌꯔꯤꯒꯤ ꯑꯃꯗꯥꯏꯄꯨꯔꯛꯀꯤ ꯇꯥꯗꯅꯕꯒꯤ ꯍꯥꯌꯔꯤꯒꯤ ꯁꯤꯡꯊꯣꯛꯂꯤꯅ ꯂꯩꯔ ꯍꯥꯌ,

ꯑꯃꯁꯨꯡ ꯑꯃꯗꯥꯏꯄꯨꯔꯛ ꯑꯃꯨ ꯍꯥꯌꯔꯤꯒꯤ ꯍꯥꯌꯅ ꯇꯥꯔ ꯌꯥꯏꯅꯕ ꯑꯃꯁꯨꯡ, ꯃꯁꯤꯅ, ꯄꯨꯔꯛ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯊꯣꯛꯒꯤ ꯂꯩꯔꯤꯕ ꯅꯤꯡꯊꯧ ꯍꯥꯌ॥ ꯃꯈꯥꯃ ꯍꯥꯏꯕ ꯂꯤꯍꯥꯏ ꯃꯤꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯃꯂꯤ, ꯍꯥꯌꯔꯤꯒꯤ ꯂꯩꯔꯤꯅꯥꯅꯥ ꯃꯁꯤꯡꯂꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯒꯤ ꯃꯇꯥꯡꯗꯥꯒꯤ ꯂꯩꯔꯕ ꯌꯥꯏꯅꯕ ꯑꯃꯁꯨꯡ 31 ꯍꯤꯔꯦ ꯊꯥꯗꯣꯛ ꯂꯤꯍ ꯂꯤꯃ ꯄꯨꯔꯛ ꯂꯩꯔꯤꯕꯅꯥ ꯍꯥꯏꯕ ꯍꯥꯌꯔ ꯌꯥꯏꯍ ꯍꯥꯌꯔꯤ ꯌꯥꯏꯅꯥꯄꯤ (ꯂꯩꯔꯤ 10)॥ ꯃꯁꯤ ꯃꯁꯤꯡ ꯂꯤ ꯌꯥꯏꯅꯤꯡꯂꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯤꯡꯊꯣꯛꯀꯤ ꯃꯁꯤꯡ ꯍꯤꯔꯦꯒꯤ ꯍꯥꯌꯔꯤꯒꯤꯅꯤ, ꯍꯤꯔ ꯑꯃꯨꯒꯤ ꯃꯇꯥꯡ 7.8.2(d)-ꯗ ꯃꯁꯤꯡꯂꯤꯅꯥꯅꯥ ꯅꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡꯕꯤ ꯑꯃꯁꯨꯡ ꯂꯤ ꯌꯥꯏꯅꯤꯡꯂꯤ ꯍꯥꯌꯔꯤ ꯑꯃꯁꯨꯡꯕꯤ ꯌꯥꯏꯕ ꯍꯥꯏ ꯍꯥꯌꯅꯥ, ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤ ꯑꯃꯨꯒꯤ ꯍꯥꯌꯅ ꯂꯤꯕ ꯅꯤꯡꯊꯧꯂꯤ ꯃꯁꯤꯡꯅ ꯑꯃꯁꯨꯡꯈꯣꯌ ꯁꯤꯡꯊꯣꯛ ꯅꯤꯡꯊꯧꯒꯤ ꯃꯁꯤ ꯄꯥꯔꯅꯥ ꯃꯁꯤꯡ॥ ꯍꯥꯌꯔꯤ ꯑꯃꯨꯒꯤ ꯍꯥꯌꯅ ꯇꯥꯔꯦꯔꯤꯕ ꯅꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡꯈꯣꯌ, ꯑꯃꯁꯨꯡ ꯊꯥꯗꯣꯛ ꯅꯤꯡꯊꯧꯒꯤ ꯍꯥꯌꯔꯤꯒꯤ ꯃꯁꯤꯡꯂꯤꯅ ꯀꯥꯡꯕ ꯑꯃꯁꯨꯡꯈꯣꯌ ꯃꯁꯤꯡꯃꯇ ꯍꯥꯌꯅꯥ॥

7.9 ꯃꯁꯤꯡꯂꯤꯅ ꯂꯩꯔꯤ, ꯇꯥꯔ ꯇꯥꯗꯅꯃꯈ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯅꯕ ꯑꯃꯁꯨꯡꯕ

7.9.1 **ꯀꯥꯡꯕꯒꯤ ꯍꯥꯌꯔꯤꯒꯤ ꯂꯃꯇ.** ꯇꯥꯔ ꯇꯥꯗꯅꯃꯈ ꯅꯤꯡꯊꯧꯒꯤ ꯃꯁꯤꯡꯂꯤꯅ ꯑꯃꯁꯨꯡꯕꯒꯤ ꯍꯥꯌꯔꯤꯅ, ꯃꯁꯤꯡꯃꯇꯥꯗꯅꯕ:

- (a) ꯌꯥꯏꯅꯃꯁꯤꯡꯅ, ꯀꯦꯔꯃꯦ, ꯃꯇ, ꯌꯥꯏꯅꯤꯡꯂꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯂꯤ ꯂꯃꯇ ꯍꯥꯌꯅꯥꯅꯤ (ꯃꯇꯥꯡ 7.7.1(a) ꯑꯃꯁꯨꯡ (b));
- (b) ꯃꯁꯤꯡꯅ ꯑꯃꯕ ꯍꯥꯏꯂꯤ ꯃꯤꯅꯤꯡꯂꯤ ꯅꯤꯡꯊꯧꯒꯤ ꯑꯃꯁꯤꯡꯂꯤꯅꯥ, ꯑꯃꯁꯨꯡ ꯇꯥꯔꯕꯒꯤ ꯍꯥꯌꯔꯤꯒꯤ ꯃꯁꯤꯡꯃꯁꯤꯡꯂꯤꯅꯥꯒꯤ ꯑꯃꯁꯤꯡꯒꯤ ꯍꯥꯌꯒꯤ ꯇꯥꯗꯅ ꯂꯩꯔꯤꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯁꯤꯡꯂꯤ ꯑꯃꯁꯨꯡꯅꯥ ꯂꯃꯁꯤꯡꯒꯤ ꯃꯤꯅꯤꯡꯀ ꯅꯤꯡꯊꯧꯒꯤ ꯂꯤꯕꯤꯅꯤ ꯌꯥꯏꯅꯕ ꯍꯥꯌꯔꯤ, ꯀꯥꯡꯕꯃꯁ ꯃꯁꯤꯡꯂꯤ ꯍꯥꯏꯂꯤꯅꯤꯡꯅ ꯇꯥꯔ ꯑꯃꯁꯨꯡꯅ ꯄꯥꯒꯤ ꯍꯥꯏꯊꯣꯛꯂꯤ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯤꯡꯃ ꯃꯁꯤꯡꯍꯤꯅꯤꯡꯂꯤ ꯍꯥꯏꯕ ꯍꯥꯌꯅꯥꯅꯤ॥

7.9.2 **ꯂꯣꯛ ꯂꯣꯁꯥꯡꯗꯒꯤ ꯂꯤꯃꯤꯠ.** ꯂꯣꯛ ꯂꯣꯁꯥꯡꯗꯅꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯑꯦꯀꯣꯂꯣꯖꯤꯀꯦꯜ ꯃꯑꯣꯡꯒꯤ ꯃꯈꯥꯗ ꯅꯦꯡꯅꯕ ꯂꯣꯁꯥꯡꯗꯒꯅꯕꯅꯤ꯫ ꯃꯥꯂꯦꯝ 7.9.3-ꯒꯤ ꯃꯈꯥꯗ ꯅꯠꯇꯅꯥ, ꯃꯇꯤꯅꯥ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯀꯣꯂꯣꯖꯤꯀꯦꯜ ꯃꯈꯥꯒꯤ ꯄꯥꯎꯅꯥ ꯑꯣꯏꯄꯎꯗꯕꯅꯤ꯫

7.9.3 **ꯄꯥꯎꯅꯥ ꯑꯣꯏꯄꯎꯗ.** ꯑꯦꯀꯣꯂꯣꯖꯤꯀꯦꯜ ꯃꯈꯥꯒꯤ ꯄꯥꯎꯅꯥ ꯑꯣꯏꯄꯎꯗ ꯑꯃꯤ ꯄꯥꯟꯗꯝꯂꯤꯑꯣꯂꯤꯡ ꯗꯤꯁꯥꯗꯠ ꯑꯃꯅꯥ ꯃꯈꯥꯒꯤꯃꯤꯡ ꯁꯠꯂꯕ ꯃꯌꯥꯝ ꯁꯟꯗꯣ ꯁꯦꯄꯔꯤ:

- (a) ꯃꯇꯤꯅꯥ ꯁ꯭ꯀ꯭ꯔꯤꯟꯗꯥ ꯁꯃꯤꯡ ꯍꯌꯂꯕ ꯂꯠꯗꯒꯤ ꯑꯦꯡꯀꯔꯣꯆꯃꯦꯟꯇ ꯑꯃꯨ ꯑꯃꯥꯛ ꯁꯃꯤꯡꯗꯒꯤ ꯏꯊꯍꯥꯌꯂꯕ ꯂꯣꯛ ꯑꯁꯦꯠꯄ ꯂꯠꯗꯒꯤ ꯂꯣꯛꯒꯤ ꯂꯦꯔꯗ ꯑꯃꯥ ꯌꯊꯍꯠꯂꯥꯁ;
- (b) ꯅꯣꯡꯀꯨꯗꯒꯤ ꯃꯂꯩꯌꯥꯡ ꯑꯦꯗꯤꯁꯅꯤꯡꯗ, ꯃꯇꯤꯅꯥ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯂꯠꯗꯒꯤ ꯑꯦꯡꯀꯔꯣꯆꯃꯦꯟꯇꯗ ꯄ꯭ꯔꯒꯤ ꯁꯃꯤꯡ ꯁꯌꯑꯣꯔꯂꯥꯁ; ꯑꯃꯁꯨꯡ
- (c) ꯑꯦꯀꯣꯂꯣꯖꯤ ꯐꯨꯂꯍꯥꯌꯃꯁ ꯅꯥꯟꯗꯦꯂ ꯑꯃꯥ ꯑꯦꯀꯣ ꯍꯦꯂꯒꯂꯤ ꯑꯃꯁꯨꯡ ꯅꯤꯂꯤꯑꯦꯂꯒꯂꯤ, ꯑꯃꯁꯨꯡ ꯁꯍꯥꯌꯒꯤ ꯅꯤꯔꯒꯤ ꯃꯈꯥꯗ ꯂꯦꯁꯂꯤꯕ ꯁꯃꯤꯡ ꯑꯥꯁꯂꯦ ꯂꯣꯗꯥꯁ꯫

ꯁ꯭ꯕꯁꯗꯒꯤ ꯂꯦꯃꯕ ꯁꯍꯥꯌꯒꯤ ꯅꯤꯔꯒꯤ ꯃꯈꯥꯗ ꯅꯦꯃꯕ ꯅꯨꯡꯗꯥꯡꯂ ꯑꯃꯤ ꯁꯃꯤꯡ ꯁꯌꯗꯤꯒꯤ ꯅꯨꯡꯗꯥꯡꯂ ꯑꯥꯁꯂꯦ ꯃꯇꯤꯡ ꯁꯦꯄꯔꯣꯏꯗꯥꯁꯗꯕꯅꯤ꯫

7.9.4 **ꯑꯃꯥꯁꯕ ꯂꯣꯡꯕ ꯃꯂꯩꯌꯃꯤꯡ.** ꯃꯤꯁꯦꯍꯂꯦ ꯁꯃꯤꯡ ꯂꯣꯐꯍꯒꯤ ꯃꯂꯩꯌꯥꯡ ꯌꯃꯕ ꯁꯦꯕ ꯃꯐꯍꯗ:

- (a) ꯃꯂꯩꯌꯥꯡꯗꯤ ꯂꯆꯥꯍꯃꯤꯡ FTL-ꯗꯒꯤ 0.5 m ꯃꯇꯥꯡꯒꯤ FTL-ꯗꯒꯤ 1.2 m ꯃꯁ ꯐꯣꯡꯕ **1V:4H**-ꯗꯒꯤ ꯄꯥꯎꯅꯥ ꯑꯣꯏꯕꯗꯥꯁꯗꯕꯅꯤ, ꯂꯠꯗꯒꯤ FTL-ꯗꯒꯤ 0.3 m ꯑꯃꯁꯨꯡ 0.5 m ꯃꯁꯒꯤ ꯃꯗꯥꯡꯒꯤ ꯁ꯭ꯕꯁꯗꯒꯤ ꯂꯥꯍꯕꯗ 3 m ꯁꯤꯡꯁ ꯂꯦꯒꯦꯔ ꯅꯦꯐꯒꯤ ꯕꯦꯑꯣꯌ ꯑꯃꯤ ꯁꯤꯒꯤꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (b) ꯃꯁꯗ ꯒꯩꯕꯑꯣꯂꯦ ꯂꯣꯕ ꯑꯂꯨꯕ ꯃꯥꯌ ꯂꯠꯗꯒꯤ ꯇꯥꯌꯂꯦ ꯃꯦꯡꯁ ꯑꯃꯠꯒꯩ ꯇꯍꯗꯥꯁꯗꯕꯅꯤ꯫

7.9.5 **ꯅ꯭ꯒꯗꯦꯂ ꯄꯥꯎꯇꯄꯥꯎꯗꯥꯁꯗꯕ.** ꯗꯦꯅ꯭ꯒꯗꯦꯅꯦꯂꯦ MWL-ꯒꯤ ꯃꯁꯗ ꯂꯣꯕ ꯅ꯭ꯒꯗꯦꯂ ꯄꯥꯎꯇꯄꯥꯎꯗꯥꯁꯗꯕꯅꯤ꯫ ꯁꯦꯒꯗꯅ꯭ꯁꯗꯦꯗ ꯂꯠꯗꯒꯤ ꯐꯗꯅꯥꯗꯒꯤ ꯃꯂꯨꯡꯗ ꯂꯣꯕ ꯁꯃꯤꯡꯗꯒꯤ ꯃꯂꯨꯡꯒꯤ ꯂꯍꯃꯤꯡ (islands), ꯁꯥꯃꯁꯦꯃꯤꯡ, ꯁꯦꯒꯗꯅ꯭ꯁꯗꯦꯗꯒ ꯁꯤꯑꯦ ꯁꯤꯡꯄꯑꯦꯕ, ꯗꯤꯡ ꯗꯥꯗꯃꯤꯡ, ꯁꯤꯗꯃꯤꯡ, ꯕꯤꯅꯗꯤꯡꯃꯤꯡ ꯑꯃꯁꯨꯡ "ꯂꯦꯛ-ꯐ꯭ꯔꯟꯠ" ("lake-front") ꯗꯦꯕꯂꯞꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯡꯗꯣꯛꯄ ꯅ꯭ꯒꯗꯦꯂ ꯑꯥꯁꯂꯦ ꯃꯇꯤꯡ ꯇꯤꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝ 7.6.4-ꯒꯤ ꯃꯈꯥꯗ ꯃꯇꯨꯡ ꯅꯤꯑꯦꯒꯗꯕꯅꯤ꯫

7.9.6 **ꯂꯣꯛ ꯇꯗꯥꯃꯁ.** ꯂꯣꯇꯥꯂꯕ ꯂꯣꯛ ꯑꯃꯤ ꯅꯦꯠꯕꯦꯗꯃꯤ ꯃꯂꯨꯡꯗ, ꯁꯑꯦꯗ (ꯑꯦꯁꯗ꯭ꯂꯒ ꯒꯩꯕ ꯁꯤꯑꯦ ꯃꯁꯤꯗꯒ ꯃꯂꯁꯠꯄꯥꯎꯕꯒꯤꯗꯃꯥ ꯂꯠꯗꯒꯤ), ꯂꯠꯗꯒꯤ ꯁꯃꯤꯡ ꯁꯌꯗꯒꯤ ꯂꯍꯕꯤ ꯑꯃꯃꯥꯡ ꯇꯍꯗꯥꯁꯗꯕꯅꯤ꯫ ꯃꯑꯦꯒꯩꯃꯤꯂꯠ ꯑꯥꯁꯗ ꯄꯁꯔꯦ ꯐꯣꯡꯕ ꯂꯣꯛ ꯑꯃꯤ ꯃꯂꯤꯁꯂꯗ ꯁꯥꯂꯩꯅꯦ ꯃꯑꯦꯗꯥꯒꯗ ꯕꯗꯗ (Manipur Pollution Control Board; MPCB)-ꯅꯥ ꯁꯦꯇꯥꯃ ꯁꯤꯕꯒꯤꯍ ꯇꯗꯥꯃꯁꯗꯕꯅꯤ꯫

7.9.7 **ꯁꯑꯦꯂꯦꯠꯃꯤ ꯒꯗꯤꯠꯃꯦꯠ.** ꯅꯄꯗꯒꯤ ꯗꯑꯦꯑꯥꯐ ꯁꯃꯂꯤꯕ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯑꯃꯒꯤ ꯗꯦꯅ꯭ꯒꯗꯦꯅꯑꯦ ꯁꯗꯃꯤꯃꯒꯤ ꯁꯑꯦꯂꯦꯠ ꯁꯗꯃꯤꯗ ꯅꯦꯗꯤꯃꯦꯠ ꯑꯃꯁꯨꯡ ꯒꯗꯥꯅ ꯁꯤꯂꯒꯦꯑꯦꯠꯃꯤ ꯃꯑꯦꯒꯗꯥꯁ ꯁꯦꯄꯒꯤꯗꯕꯅꯤ: ꯅꯦꯗꯤꯃꯦꯠ ꯐꯥꯗꯕꯦ, ꯃꯑꯦꯅ꯭ꯒꯗꯠ ꯒꯩꯕ ꯁꯦꯠꯂꯦꯑꯦꯗꯃꯤ ꯁꯑꯦꯂꯦꯠ ꯂꯥꯑꯦ, ꯂꯠꯗꯒꯤ ꯒꯗꯥꯅ ꯁꯤꯂꯒꯦꯑꯦꯠ ꯒꯗꯦꯁ ꯑꯃꯤ (ꯅꯗ꯭ꯂꯑ 8), ꯃꯗꯍ ꯑꯦꯂꯂꯦ ꯗꯦꯅ꯭ꯒꯗ ꯒꯩꯕ ꯅ꯭ꯒꯗꯦꯂ ꯑꯃꯥ ꯄꯑꯦꯂꯦ ꯂꯣꯛꯂꯦ ꯇꯑꯦꯗꯦ꯫

7.9.8 **ꯃꯒꯍ.** ꯂꯣꯛ ꯂꯣꯁꯥꯡꯁ ꯑꯃꯤ ꯁꯄꯤ ꯁꯗꯤꯃ **31 ꯍꯦꯛꯇꯔ** ꯐꯣꯡꯕ ꯂꯥꯁꯃꯤꯑꯦꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯃꯤꯡ ꯂꯣꯐꯍ ꯑꯃꯥ ꯑꯃꯥꯁꯕ ꯂꯣꯡꯕ ꯑꯥꯁꯄꯅꯒꯗꯕꯅꯤ (ꯅꯗ꯭ꯂꯑ 10)꯫

> **ꯅꯦꯗꯥꯑꯂꯦ ꯒꯩꯑꯁꯤ.** ꯁꯥꯃꯕꯦꯅꯤꯃ, ꯁꯦꯂꯦꯅꯤꯃ ꯂꯠꯗꯒꯤ ꯁꯤꯠꯅꯤꯃꯒꯤ ꯁ꯭ꯕꯗꯤ-ꯃꯥꯦꯂꯦ ꯅꯦꯃꯗꯥꯃꯁꯒꯤ ꯒꯩꯃ ꯐꯤꯑꯅ ꯒꯩꯕ ꯅ꯭ꯒꯠ ꯂꯠꯗꯒꯤ ꯃꯁ꯭ꯂꯅꯤꯅꯤꯁꯦꯅ ꯑꯥꯗꯗꯗ ꯑꯃꯠꯒꯩ ꯐꯃꯁꯤꯗꯦ꯫ ꯒꯩꯗꯤꯕ ꯅꯦꯃꯗꯥꯃꯁ ꯑꯃꯤ ꯑꯁꯦꯕ ꯑꯃꯁꯨꯡ ꯇꯗꯥꯑ ꯇꯥꯑꯂꯕ ꯃꯒꯃꯗ ꯒꯩꯕꯂꯤ: ꯑꯦꯁꯗꯤꯅ 2025-ꯒꯤ ꯃꯤꯐꯍ ꯑꯃꯁꯦ ꯁꯦꯁꯅꯦꯅ ꯃꯗꯤꯅ, ꯑꯦꯒꯤ ꯑꯅꯂꯦ (Naga Nallah) ꯑꯃꯁꯨꯡ ꯂꯍꯕꯅꯒꯤ ꯂꯥꯃꯁꯥꯃ ꯇꯃꯕ ꯂꯣꯁꯒꯤ ꯃꯂꯩꯌꯥꯡ ꯂꯍ ꯁꯥꯁꯁꯅꯤꯃ ꯂꯣꯇꯥꯂꯕ ꯑꯥꯗꯗꯗ ꯒꯩꯁꯤ, WRD-ꯅꯥ ꯃꯦꯅꯤꯑꯦꯅꯤꯃ ꯁꯤꯒꯤꯗꯕ ꯑꯥꯁꯂꯦ, ꯁꯦꯁꯅꯦꯅ ꯃꯗꯤꯅ ꯅꯦꯃꯗꯥꯃꯁ ꯂꯁꯤꯒꯤꯕ ꯂꯒꯤꯕ ꯗꯦꯒꯦꯂꯁꯃꯦꯑꯦꯠ ꯑꯥꯇꯥꯗꯤꯒꯤꯒꯤ ꯃꯃꯤꯃ ꯂꯣꯁꯤ, ꯑꯃꯁꯨꯡ ꯗꯗꯦꯂ ꯒꯩꯕ ꯂꯣ ꯑꯃꯥ ꯗꯤꯃꯨ ꯗꯥꯗ (Dingku Road)-ꯒ ꯄ꯭ꯔꯍꯁꯤ (ꯁꯂꯍꯂꯃꯑ ꯁꯤꯁꯗ ꯐꯥꯃꯥꯑꯁꯤꯕ ꯃꯒꯨꯃ ꯁꯑꯦꯂ); ꯑꯦꯒꯤ ꯂꯅꯂꯅꯗ ꯇꯗꯥꯑꯂꯕ ꯃꯣꯇꯦꯅꯒꯤ ꯑꯃꯥꯠꯂꯦ "ꯁꯄꯤ ꯁꯂꯍꯕꯗ ꯁꯃꯤꯡ ꯂꯦꯁꯁ ꯁꯂꯅ ꯑꯃꯤ ꯅꯦꯃꯍꯤ" ("creates a stagnant pool all along the year") (ꯃꯅ꯭ꯒꯗ ꯁꯂꯦꯑꯦ); ꯑꯃꯁꯨꯡ ꯂꯍꯐꯦꯅꯁꯤꯠꯒ 9 ꯂꯥꯒꯦꯍꯕꯗ 2023-ꯒꯤ ꯁꯗꯑ ꯑꯥꯗꯗꯗ ꯑꯃꯒꯤ ꯃꯁꯗ ꯁꯄꯤ ꯑꯦꯂꯤꯒꯤꯗꯃꯑ ꯃꯠꯗ-ꯅꯑꯑꯅꯦ ꯗꯗꯦꯂꯗ ꯑꯃꯤ ꯇꯕꯑ ꯒꯩꯗꯤ, ꯃꯤꯒꯤꯒꯤ ꯂꯣ ꯑꯃꯥ ꯁꯦꯅ꯭ꯒꯤꯁ꯭ꯒꯂꯦꯅ ꯃꯦꯃꯁꯅꯤꯃꯗ ꯂꯕ ꯗꯁꯑꯤꯃꯗ ꯁꯂꯇꯥꯃꯁ (ꯄꯁ ꯃꯦꯗꯠ PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯅꯁꯠ ꯗꯤꯁꯤꯗꯠ, ꯃꯦꯗꯠꯂꯦ ꯃꯤ 16 ꯂꯨꯑꯦ 2025-ꯗ ꯂꯥꯁꯤꯑꯦꯁꯤ, ꯂꯣ ꯇꯗꯥꯃꯁꯒꯤ ꯃꯁꯦꯑꯥꯒ ꯂꯕ ꯁꯤꯒꯤꯅꯦ ꯑꯃꯥꯗ "ꯃꯗꯤꯂ ꯃꯗ ꯂꯣꯕ" ("no substance") ꯄꯁꯦꯂꯦ ꯐꯥꯁꯤ)꯫ ꯂꯣꯛ ꯑꯃꯤ ꯁꯤꯃꯤꯃꯤꯗꯒꯤ ꯂꯦꯃꯁ: ꯁꯤꯃꯤꯒꯤ ꯁꯥꯃꯤꯃꯒꯤ "ꯁꯂꯇꯥꯃꯁ ꯒꯩꯕꯗꯒꯤ ꯅꯑꯒꯤ ꯁꯦꯃꯁ, ꯃꯇꯤꯂꯦ ꯂꯒꯤ ꯂꯣꯛ ꯄ꯭ꯔꯍꯂꯤ" ("load carrying capacity is high which causes siltation of the lake"), ꯑꯃꯁꯨꯡ ꯐꯠꯕ ꯐꯤꯒꯍꯗ ꯂꯕ ꯂꯍꯂꯦ 1,545 km², ꯃꯦꯁꯍꯦꯠꯃꯤ 24% ꯑꯃꯁꯨꯡ ꯁꯤꯃꯤꯃꯒꯤ 35% ꯁꯦꯁ (MASTEC); ꯃꯍꯤꯃꯒꯤ ꯑꯥꯗꯤꯠꯅꯤꯃꯂꯦ ꯂꯒꯤꯒꯤ ꯂꯤꯐꯦꯠ ꯁꯗꯤꯒꯤꯅꯦ ꯁꯂꯗꯥꯂꯒꯤꯁ "ꯃꯁꯅꯤꯃꯗ ꯂꯣꯛ ꯄ꯭ꯔꯍꯁꯤꯕꯂꯦ ...

ꯍꯥꯃꯆꯦꯟꯕꯁꯤꯡ ꯗꯥꯡ ꯇꯧꯕ" ("failure of canals … due to siltation of beds") ꯗꯝꯍꯩ (2002 ꯑꯃꯁꯨꯡ 2008-ꯒꯤ CAG ꯑꯦꯛꯁꯦꯂꯁꯤꯡ, ꯃꯦꯌꯍꯩꯕ ꯀꯌꯥꯝ ꯍꯥꯟꯅ)꯫ ꯀꯥꯞꯔꯥꯡ ꯑꯣꯏꯗ 31 ꯀꯤꯁꯌꯒꯤ ꯌꯥꯝ ꯑꯣꯏ, ꯀꯣꯏꯒꯤ ꯀꯌꯥꯝ 1 ꯑꯥꯎꯁꯤꯡꯗ ꯄꯦꯟꯁꯤꯡꯏꯗ, ꯀꯥꯞꯔꯥꯡ ꯑꯣꯏꯗꯦ ꯊꯝꯕꯆꯤ, ꯀꯤꯃꯛꯏ ꯍꯃꯗꯤꯡꯒꯤ ꯑꯥꯎꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯥꯒꯤ ꯂꯌꯦꯁꯤꯃꯣꯏꯁꯤꯡ ꯍꯥ-ꯆꯦꯝꯌꯥꯎ ꯀꯦꯂꯨꯡꯒꯤ ꯀꯤꯀꯤꯝꯗ ꯆꯦꯝꯍ (16 ꯑꯥꯎꯁꯤꯡ 2004-ꯗ 105.9 mm ꯑꯃꯁꯨꯡ 27 ꯀꯥ 1956-ꯗ 122.4 mm, IMD); 28-ꯗꯒꯤ 31 ꯀꯥ 2024 ꯑꯃꯁꯨꯡ 30 ꯀꯥ 2025-ꯗꯒꯤ ꯄꯦꯟꯕ ꯍꯣꯏꯃ ꯍꯌꯦꯟꯁꯤꯡ ꯀꯥꯒꯤ ꯑꯦꯟꯕ ꯂꯀꯤꯂꯣꯏꯃꯗ ꯆꯝꯍꯩꯕꯆꯦ (ꯌꯤꯟꯕꯗ ꯗꯦꯃꯗꯦꯝꯍꯩꯕ ꯀꯌꯥꯝ ꯍꯥꯟꯅ), ꯍꯥꯟꯅꯥꯂꯣꯏꯃ, ꯂꯃꯦꯟꯁꯣꯏꯃ ꯑꯃꯁꯨꯡ ꯂꯣꯏꯁꯜ ꯌꯦꯡꯌꯥꯂꯣꯏꯃ **15 ꯀꯥ** ꯗꯦꯟꯕ ꯄꯥꯟꯆꯦ ꯂꯥꯃꯗꯦꯃꯍ, ꯑꯌꯥꯌꯥꯏ ꯆꯦꯇ-ꯍꯂꯜ ꯑꯥꯗꯤꯂꯣꯟꯂꯣꯏꯃꯗ ꯆꯕꯗꯨꯀ 31 ꯀꯥ ꯗꯦꯟꯕ ꯆꯂꯌꯥ, ꯑꯃꯁꯨꯡ ꯀꯌꯥꯝ ꯑꯗꯨꯒꯤ ꯀꯌꯥꯝꯗ 15 ꯆꯦꯒꯥꯀꯕꯦ ꯗꯦꯟꯕ (ꯂꯦꯕꯜ 10)꯫ ꯌꯦꯡꯒꯤ ꯌꯥꯟꯂꯣꯏꯃꯗ WRD-ꯒꯤ ꯊꯕꯛꯂꯣꯏꯃꯆꯦ WRD-ꯀꯂꯣꯒꯤ ꯃꯥꯆꯥꯟꯗꯦ ꯐꯪꯂꯤ꯫ "ꯃꯥꯌꯥꯂꯣꯏꯌꯤ ꯄꯥꯟꯒꯜꯄꯟꯆꯕ" ("increase capacity") ꯌꯦꯀꯕ ꯑꯣꯏ ꯃꯆꯦꯇ 7.9.3-ꯆꯦ ꯌꯥꯝꯂꯣꯏꯅꯆꯤ꯫ ꯌꯥꯝꯜ ꯑꯀꯒꯤ ꯀꯍ ꯑꯣꯏ ꯆꯤꯛ ꯑꯌꯥꯂꯌꯥ ꯑꯃꯁꯨꯡ ꯌꯥꯏꯂꯆꯤ, ꯑꯃꯁꯨꯡ ꯌꯦꯟꯒꯤ ꯌꯥꯝꯜ ꯑꯀꯒꯤ ꯆꯤꯛ ꯑꯣꯏ ꯂꯣꯌꯥꯇꯆꯦ ꯊꯟꯍ: ꯌꯦꯟꯒꯤ ꯍꯥꯃꯕꯟꯂꯣꯏꯃ ꯌꯃꯆꯤꯕ ꯌꯥꯝꯜ ꯆꯂꯦꯒꯤ ꯌꯥꯍꯦꯡꯒꯤ ꯑꯀꯒꯤ ꯆꯤꯛ ꯆꯦꯊꯦꯃꯌꯥ ꯍꯗꯤꯃꯀꯃꯌ ꯃꯆꯦꯇ 7.9.1(c)-ꯒꯤ ꯀꯍꯗ ꯆꯤꯛ ꯌꯥꯂꯜ ꯌꯥꯍ ꯑꯃꯁꯨꯡ MPCB-ꯆꯦ ꯌꯊꯝ ꯌꯥꯕꯀꯨ ꯊꯗꯦꯃꯍ, ꯑꯃꯁꯨꯡ ꯆꯦꯃꯌꯦꯃꯒꯤ 236.21 km²-ꯒꯤ ꯀꯂꯝꯗ ꯆꯤꯛ ꯆꯦꯊꯦꯃꯌꯥ, ꯗꯦꯆꯥꯇ ꯌꯥꯕ ꯆꯂꯦꯒꯤ ꯆꯦ ꯊꯗꯦꯃꯌꯥ ꯑꯀꯂꯌꯥ ꯆꯦꯃꯌꯦꯃ ꯗꯥꯒꯥꯆꯌꯀꯥꯟꯜ ꯑꯦꯊꯦꯏꯌꯒꯤ ꯀꯀꯤꯃꯒꯤ ꯑꯌꯥꯕ ꯑꯃꯁꯨꯡ, ꯀꯣꯏꯒꯤ ꯑꯦꯗꯗꯣꯏꯃꯆꯦ ꯀꯊꯥ ꯌꯥꯕ ꯀꯗꯀꯗ, ꯄꯍ ꯃꯦꯂꯃꯏ ꯑꯌꯥꯕ ꯌꯥꯟꯗꯆꯦ ꯄꯥꯗꯥ (ꯃꯆꯦꯇ 7.12)꯫ 31 ꯀꯤꯁꯌꯒꯤ ꯆꯦꯍꯣꯏꯟꯒꯗꯕ ꯌꯥꯝ ꯑꯣꯏ ꯂꯦꯕꯜ 10-ꯒꯤ ꯌꯥꯗꯤ-ꯀꯦꯟꯂꯨꯟ ꯍꯟꯂꯌꯥꯃꯂꯟꯒꯤ ꯌꯥꯃꯒ ꯌꯥꯆꯤ꯫ ꯄꯥꯟꯆꯦ ꯑꯦꯜꯄꯟꯕꯒꯤ ꯆꯤꯀꯤꯂꯣꯏꯃ ꯑꯣꯏ ꯀꯥꯞꯔꯥꯡ ꯑꯣꯏꯗꯦ ꯊꯀꯕꯆꯤ꯫ "ꯃꯥꯌꯥꯂꯣꯏꯌꯤ ꯄꯥꯟꯒꯜꯄꯟꯆꯕ" ("increase capacity") ꯌꯥꯍꯦꯡꯏꯂꯣꯏꯃ ꯄꯥꯟꯆꯦ ꯑꯦꯜꯄꯟꯕ ꯑꯣꯏ ꯀꯌꯥꯝ ꯌꯥꯀꯆꯦ ꯌꯥꯍ, ꯑꯗꯨꯕ ꯀꯣꯏꯆꯦ ꯌꯥꯍꯦꯡꯗ ꯍꯣꯏꯃ ꯊꯀꯆꯤꯕ ꯆꯤꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯛ ꯑꯌꯥꯂꯌꯥꯒꯤ ꯆꯥꯌꯦ ꯃꯃꯊꯂꯌꯥ ꯌꯥꯍ, ꯂꯄꯦꯒꯤ ꯑꯀꯂꯌꯥ ꯍꯣꯏꯃꯗ ꯑꯥꯃꯌꯗꯦꯗ ꯌꯥꯄꯆꯕ ꯌꯥꯍ, ꯂꯀꯗꯦꯒꯤ ꯀꯆꯦꯃꯌ ꯗꯀꯒꯤ ꯍꯣꯏꯃ ꯌꯃꯄꯆꯕ ꯌꯥꯍ, ꯑꯃꯁꯨꯡ ꯃꯗꯥꯐꯗꯂ ꯑꯄꯥꯃꯕ ꯑꯥꯍꯗꯕ ꯑꯃꯁꯨꯡ ꯍꯣꯏꯃ ꯍꯌꯦꯟꯒꯤ ꯃꯦꯟꯆꯕ ꯌꯥꯗꯕ ꯍꯊꯥꯃꯒꯤ ꯂꯤꯅꯒꯤ ꯀꯍꯗ ꯂꯌꯥꯇ ꯂꯥꯀꯀꯤ꯫ ꯑꯐꯀꯕ ꯀꯆꯦꯃ ꯆꯕ ꯑꯦꯜꯕ ꯃꯥꯃꯂꯣꯏꯃꯂ ꯍꯣꯏꯃꯗ ꯀꯤ ꯂꯤꯕꯒꯤ ꯑꯣꯂꯍꯕꯆꯤ꯫ ꯃꯆꯦꯇ 7.9.4-ꯒꯤ ꯆꯦꯌꯥꯀ ꯑꯃꯁꯨꯡ ꯕꯥꯟꯌꯃꯤ ꯒꯥꯅꯌꯂꯣꯏꯃ ꯑꯣꯏ ꯌꯥꯟꯗ-ꯂꯥꯗꯌꯤꯒꯤ ꯀꯄꯂꯣꯒꯤ ꯊꯥꯑꯃꯗꯒꯤ ꯆꯕꯆꯤ; ꯀꯍꯔꯒꯤ ꯀꯆꯤꯌꯥꯗꯒꯤ ꯀꯀꯤꯃꯒꯤ ꯍꯗꯀ ꯑꯀꯂꯌꯥ ꯆꯌꯥ꯫

7.10 ꯂꯌꯥꯆꯦꯍ ꯌꯥꯆꯥꯅꯂꯣꯏꯃ, ꯂꯗꯌꯥꯆꯂ ꯃꯦꯗꯂꯂꯣꯏꯃ, ꯍꯦꯟꯆꯥꯂꯣꯏꯃ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯂꯆꯥꯂꯣꯏꯃ

7.10.1 **ꯀꯥꯇꯗ ꯂꯣꯏꯂꯌꯥꯀꯒꯤ ꯀꯂꯝꯗ ꯌꯦꯟꯕ.** ꯂꯌꯥꯆꯦꯍ ꯌꯥꯆꯥꯅꯂꯣꯏꯃ ꯑꯃꯁꯨꯡ ꯂꯗꯌꯥꯆꯂ ꯃꯦꯗꯂꯂꯣꯏꯃ ꯑꯣꯏ ꯀꯥꯇꯗ ꯍꯗꯀ ꯂꯣꯏꯂꯌꯥꯀꯒꯤ ꯀꯂꯝꯗ ꯌꯦꯟꯍ (ꯂꯦꯕꯜ 6)꯫ ꯀꯍꯦꯔꯕ ꯃꯆꯦꯇ 7.4-ꯒꯤ ꯀꯍꯗ ꯆꯦꯟ 1 ꯑꯃꯁꯨꯡ ꯆꯦꯟ 2-ꯒꯤ ꯂꯥꯂꯕꯥꯃꯂꯣꯏꯃꯒ ꯆꯦꯌꯆꯦ ꯍꯣꯏꯃ ꯆꯗꯀꯂꯣꯏꯃ ꯑꯦꯍꯆꯦ ꯐꯃꯊꯦꯃꯃꯗꯕꯆꯤ꯫

7.10.2 **ꯊꯤꯃꯆꯤꯟꯕ ꯆꯂꯦꯒꯤ ꯃꯌꯥꯌꯥ ꯌꯥꯗꯕ.** ꯃꯂꯌꯦꯗꯤꯌꯟꯆꯦ ꯑꯥꯌꯥꯜꯒ ꯌꯥꯗꯕ, ꯀꯣꯏꯒꯤ 1% AEP ꯃꯥꯌꯥꯂꯣꯏꯌꯤ ꯑꯃꯁꯨꯡ ꯀꯟꯌꯥꯆꯥꯟꯂꯃꯗꯀꯃ ꯆꯀꯕꯤ ꯊꯀꯕ ꯆꯂꯦꯒꯤ ꯄꯥꯟꯒꯜꯄꯟꯆꯕ ꯗꯤꯆꯍꯟ ꯑꯀꯒꯤ ꯀꯍꯗ ꯆꯂꯌꯆꯦ, ꯂꯌꯥꯆꯦꯍ ꯌꯥꯆꯥꯅ ꯆꯂꯦꯒꯤ ꯂꯗꯌꯥꯆꯂ ꯃꯦꯗꯂ ꯑꯀꯂꯌꯥ ꯊꯤꯃꯆꯤꯟꯗꯦꯍꯗꯕꯆꯤ, ꯗꯤꯅ ꯌꯥꯗꯦꯍꯗꯕꯆꯤ, ꯆꯀꯕꯤ ꯄꯥꯃꯗꯦꯃꯗꯦꯍꯗꯕꯆꯤ, ꯃꯌꯥꯌꯥꯗꯦꯍꯗꯕꯆꯤ, ꯀꯣꯏꯒꯤ ꯑꯣꯂꯃꯕꯗ ꯃꯅꯒꯗꯜ ꯌꯥꯗꯦꯍꯗꯕꯆꯤ, ꯆꯂꯦꯒꯤ ꯆꯀꯕꯤ ꯆꯂꯦꯒꯤ ꯊꯤꯃꯆꯤꯅꯆꯕ ꯍꯥꯃꯕꯦ ꯑꯀꯗ ꯄꯥꯃꯗꯦꯃꯗꯦꯍꯗꯕꯆꯤ꯫

7.10.3 **ꯃꯗꯦꯂꯤꯃꯂꯤꯃ.** ꯍꯣꯏꯃ ꯆꯗꯀ, ꯂꯌꯥꯆꯦꯍ ꯌꯥꯆꯥꯅ ꯆꯂꯦꯒꯤ ꯂꯗꯌꯥꯆꯂ ꯃꯦꯗꯂ ꯑꯀꯒꯤ ꯆꯀꯕꯤ, ꯗꯥꯅ, ꯍꯌꯤꯆꯤꯌꯤ ꯆꯂꯦꯒꯤ ꯌꯃꯗꯀꯒꯤ ꯃꯗꯦꯂꯤꯃ ꯍꯗꯤꯃꯀꯃꯆꯦ:

- (a) ꯂꯦꯕꯜ 9-ꯆꯦ ꯀꯊꯥ ꯌꯥꯕ ꯗꯗꯤꯕꯦꯗꯒꯤ ꯆꯦꯌꯆꯦ, 1% AEP ꯗꯆꯦ (ꯃꯆꯦꯍꯀꯥꯜ ꯗꯥꯃꯌꯗꯒꯤ ꯆꯦꯌꯆꯦ), ꯆꯂꯦꯒꯤ ꯀꯊꯃꯌ ꯆꯕ ꯌꯥꯍꯦꯡꯏꯒꯤ MWL-ꯗ ꯀꯣꯏꯒꯤ ꯂꯗꯌꯥꯆꯂ, ꯃꯆꯦꯀꯕ ꯑꯀꯆꯦ ꯄꯥꯟꯆꯦ ꯌꯦꯟꯗꯕꯂ, ꯆꯦꯟꯊꯦꯃꯃꯗꯕꯆꯤ;
- (b) ꯃꯗꯦꯂꯤꯃꯗ ꯆꯕ ꯌꯌꯗꯌꯥꯒꯤ ꯌꯥꯃꯆꯕ ꯑꯣꯏ ꯗꯥꯒꯥꯂ ꯗꯥꯃꯦꯗꯗꯂꯤꯃꯗ ꯗꯥꯃꯦꯗꯗ ꯌꯥꯗꯕ ꯆꯂꯦꯒꯤ ꯂꯗꯒꯥ ꯌꯥꯗꯕ, ꯃꯆꯦꯀꯕ ꯑꯀꯆꯦ ꯄꯥꯟꯆꯦ ꯌꯦꯟꯗꯕꯂ, ꯌꯥꯆꯥꯅꯒꯤ ꯀꯌꯥ ꯗꯕ ꯌꯥꯃꯆꯕꯗꯒꯤ ꯄꯟꯊꯄꯟꯗꯦꯍꯗꯕꯆꯤ;
- (c) ꯌꯥꯆꯥꯅꯒꯤ ꯀꯍꯒꯤ ꯆꯥꯒꯥꯅ ꯑꯃꯁꯨꯡ ꯒꯗꯥꯗ ꯊꯀꯒꯗꯕꯆꯤ; ꯑꯃꯁꯨꯡ
- (d) 1% AEP ꯍꯣꯏꯃꯒꯤ ꯆꯥꯒꯥꯅ ꯃꯆꯦꯇ 7.6.2-ꯒꯤ ꯆꯤꯀꯤꯂꯌꯒꯤ ꯄꯥꯟꯆꯦ ꯌꯃꯄꯟꯗꯦꯍꯗꯕꯆꯤ꯫

7.10.4 **ꯃꯥꯌꯥꯂꯣꯏꯌꯤ.** ꯂꯗꯌꯥꯆꯂ ꯃꯦꯗꯂ ꯑꯀꯒꯤ ꯗꯤꯆꯍꯟ ꯃꯥꯌꯥꯂꯣꯏꯌꯤ ꯑꯣꯏ MWL-ꯗ ꯂꯗꯌꯥꯆꯂ ꯌꯤꯌꯗꯒꯤ ꯗꯤꯂꯌꯗꯇ ꯑꯃꯁꯨꯡ ꯀꯂꯣꯒꯤ ꯃꯥꯌꯀꯥꯟꯂꯌꯒꯤ ꯆꯦꯃꯌ 1% AEP ꯗꯆꯦꯒꯤ ꯀꯂꯝꯗ ꯄꯥꯟꯆꯦ ꯌꯦꯟꯕ ꯑꯗꯨꯆꯤ, ꯃꯥꯂꯃꯥꯗ ꯀꯦꯗꯥꯅ (ꯃꯆꯦꯇ 7.7.2)-ꯆꯦ ꯅꯂꯆꯤꯕꯀꯨ ꯌꯥꯟꯂꯣꯏꯟꯗꯆꯦ꯫

7.10.5 **ꯁꯥꯔꯛꯏꯔꯁꯤꯡꯗ ꯊꯥꯖꯕꯥ.** ꯁꯔꯀꯥꯔꯅ ꯏꯥꯤꯔꯔ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯁꯤꯡꯒꯤ ꯋꯥꯍꯟꯊꯣꯛꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯂꯩꯊꯣꯛꯁꯤꯡꯗ ꯃꯡꯂꯤꯕ ꯍꯥꯡꯕꯅꯒꯤ ꯋꯥꯍꯟꯊꯣꯛꯁꯤꯡꯗ ꯁꯔꯨꯛ 9-ꯒꯤ ꯃꯔꯝ ꯗꯤꯂꯍꯦ ꯌꯩꯔꯕ ꯑꯦꯅꯔꯂꯤ ꯗꯤꯁꯤꯃꯦꯁꯦ ꯑꯃꯁꯨꯡ ꯁꯀꯍꯔꯒꯤ ꯊꯥꯖꯕꯥ ꯂꯧꯒꯗꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯍꯥꯛꯀꯤ ꯊꯥꯔꯀꯥ ꯊꯦꯡꯅꯕ ꯃꯦ, ꯂꯩꯔꯤꯕ ꯅꯦꯔꯒꯤ ꯍꯦꯅꯒꯤ ꯃꯍꯥ ꯍꯣꯡꯒꯗꯦ꯫

7.10.6 **ꯏꯁꯤꯡ ꯂꯩꯊꯣꯛꯁꯤꯡꯗ ꯃꯡꯂꯤꯕ ꯍꯥꯡꯕꯅꯒꯤ ꯋꯥꯍꯟꯊꯣꯛꯁꯤꯡ.** ꯀꯃꯤꯁꯟ, ꯍꯦꯅꯦꯡ ꯅꯦꯔꯒꯤ ꯍꯦꯅꯦꯡꯗꯕ ꯑꯃꯗ ꯃꯡꯂꯤꯕ ꯅꯥꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯍꯥꯡꯕꯅꯒꯤ ꯋꯥꯍꯟꯊꯣꯛ ꯑꯃꯅꯤ:

- (a) ꯁꯔꯨꯛ 5-ꯒꯤ ꯃꯔꯝ ꯏꯁꯤꯡꯗ ꯃꯥꯂꯥꯡ ꯋꯥꯍꯟꯊꯣꯛꯒꯤꯗꯃꯛ ꯍꯥꯡꯕꯗꯦ ꯑꯗꯨ ꯗꯤꯂꯍꯦ ꯌꯩꯔꯕꯗꯤ ꯅꯦꯌꯦꯟꯗꯦ, ꯃꯁꯤꯒꯤ ꯍꯦꯕꯨꯔꯦ ꯑꯁꯤ ꯏꯁꯤꯡ ꯂꯥꯔꯤꯕ ꯏꯁꯤꯡ ꯂꯩꯊꯣꯛꯒꯤ ꯂꯥꯃꯦ ꯍꯌꯔ ꯂꯦꯂꯦꯡꯗ ꯅꯦꯔꯒꯤ ꯃꯗꯨꯗꯒꯤ ꯍꯥꯡꯕꯗꯦ ꯂꯧꯒꯗꯕꯅꯤ;
- (b) ꯀꯃꯤꯁꯟꯒꯤ ꯃꯦ ꯑꯃꯍꯦ ꯀꯥꯡꯊꯔꯣꯗꯕ ꯅꯦꯔꯒꯤ ꯑꯍꯦꯔꯅꯦꯗꯕ ꯃꯊꯛ ꯑꯃꯁꯨꯡ ꯅꯊꯕꯤ ꯍꯦꯒꯗꯕꯅꯤ;
- (c) ꯒꯔꯥꯁ ꯃꯥꯂꯣꯦꯌ ꯌꯔꯥꯡ ꯑꯃꯁꯨꯡ ꯊꯔꯁꯌ-ꯊꯅꯁ ꯌꯔꯤꯌꯃꯦꯌ ꯂꯧꯒꯗꯕꯅꯤ (ꯁꯔꯨꯛ 8); ꯑꯃꯁꯨꯡ
- (d) ꯁꯤꯍꯦꯇ ꯅꯦꯔꯒꯤ ꯂꯥꯡ ꯍꯗꯕ ꯃꯌꯊꯒꯤ ꯊꯅꯥ ꯀꯔꯥꯍꯗꯕꯅꯤ (ꯁꯔꯨꯛ 8)꯫

ꯁꯦꯗꯥꯂꯅꯥ ꯌꯥꯀꯥ. ꯃꯦꯉꯔꯦꯡ ꯑꯁꯤꯅꯥ ꯁꯀꯅꯥ ꯍꯦꯅꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯀꯥꯔꯅ ꯀꯥꯔꯁꯁꯤꯡ ꯃꯦꯇꯔ ꯁꯤꯁꯌꯦꯊꯒꯤ ꯃꯉꯡꯗ ꯍꯦꯌꯕ ꯑꯥꯍꯅꯥ ꯊꯥꯡꯗꯥꯀꯍ꯫ ꯁꯍꯔꯒꯤ ꯑꯦꯔꯤꯍꯦꯁꯤꯡꯗ ꯃꯍꯥꯔꯁꯤꯡ ꯑꯁꯤ ꯃꯌꯊ ꯍꯦꯊꯅꯥ ꯑꯂꯅꯕ ꯑꯥꯍꯅꯥ ꯃꯤꯡꯍ꯫ ꯁꯔꯀꯥꯔꯅ ꯀꯥꯔꯁꯁꯤꯡ ꯀꯍꯊꯔꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯊꯀꯔꯦꯗꯕ ꯍꯥꯂꯁꯤꯡꯗꯦ ꯑꯀꯔꯤꯡꯂꯔꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯀꯅꯥ ꯍꯦꯅꯦꯡꯁꯤꯡ ꯀꯔꯀꯔꯤꯁꯦ ꯅꯊꯕꯤꯁꯤꯡ ꯑꯥꯍꯂꯔꯅꯤ, ꯃꯁꯤꯗꯦ ꯀꯃꯤꯁꯟ ꯑꯃꯗ ꯃꯁꯤꯒꯤ ꯂꯥꯔꯤꯗꯊꯒꯤꯒꯤ ꯀꯥꯡꯊꯌꯅꯤ ꯅꯦꯔꯒꯤ ꯃꯁꯤꯒꯤ ꯁꯔꯀꯥꯔꯅ ꯍꯌꯅꯕ ꯃꯊꯛ ꯂꯥꯂꯦꯗꯦ꯫ ꯃꯅꯤꯀꯔꯥ ꯅꯦꯌꯤꯊꯤꯀꯦꯁꯦꯌ ꯑꯃꯍꯌꯗꯦ ꯅꯤꯒ ꯊꯅꯅꯁꯦ, ꯍꯦꯅꯦꯡꯗ ꯃꯍꯔꯤꯅ ꯅꯌꯔꯒꯤ ꯁꯃꯨꯁꯥꯡ ꯅꯜꯂꯥ (Shamushang nallah) ꯃꯀꯔ ꯑꯃꯗ ꯀꯤꯗꯦ (NEER-ꯒꯤ ꯀꯥꯕ)꯫ ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯍꯦ ꯍꯦꯕꯨꯔꯦ ꯑꯁꯤꯒꯤ ꯍꯦꯔꯕꯦ ꯂꯥꯀꯅ ꯕꯥꯗꯤꯁꯤꯒꯤꯅꯤ (ꯃꯥꯗꯦ ꯑꯀꯂꯒꯤ ꯕꯥꯍ-ꯂꯥ 16-ꯗꯦ "ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯍꯦ ꯍꯦꯕꯨꯔꯦ" ("municipal drain") ꯍꯌꯗꯦ ꯂꯤꯕꯍ; ꯃꯅꯤꯀꯔ ꯃꯨꯅꯤꯁꯤꯄꯥꯂꯍꯦꯅꯤꯌꯤꯇ ꯑꯦꯑꯥꯌ, 1994-ꯒꯤ ꯍꯔꯊꯒꯤ ꯁꯦꯑꯥꯁꯗꯦꯁꯤꯡ ꯀꯥꯍꯤꯗꯦ [TBC]); ꯒꯔꯦꯌꯔ ꯍꯊꯊꯦꯍꯒꯤ ꯅꯊꯕꯤꯒꯤ ꯃꯅꯗꯥꯀꯤ ꯍꯦꯕꯨꯔꯦꯁꯤꯡ ꯑꯁꯤ PWD-ꯒꯤꯅꯤ, ꯃꯁꯤꯗꯦ AIIB-ꯗꯦ ꯁꯦꯍ ꯀꯤꯕ ꯅꯊꯕꯤꯒꯤ ꯀꯔꯦꯂꯦꯑꯥꯌꯀꯤ ꯃꯍꯔꯤ "ꯗꯦꯀꯍ ꯑꯅꯤꯃꯑꯥꯌ ꯀꯀꯀꯤꯔꯕ ꯂꯥꯒꯤ ꯍꯁꯤꯡꯒꯤ ꯍꯦꯕꯨꯔꯦ 547 km" ("547 km of both side stormwater covered drains") ꯗꯒꯅꯤ; ꯌꯔꯦꯍꯒꯤ ꯀꯦꯁꯤꯡ, ꯏꯁꯤꯡ ꯍꯔꯍꯒꯤ ꯍꯦꯅꯦꯡꯁꯤꯡ, ꯅꯊꯊꯦꯍꯀꯌ ꯑꯃꯁꯨꯡ ꯁꯃꯨꯁꯥꯡꯒꯤ ꯀꯊꯀꯤꯡ ꯑꯁꯤ WRD-ꯒꯤꯅꯤ; ꯅꯊꯕꯨꯍꯗ ꯍꯥꯡꯕꯅꯒꯤ ꯍꯦꯕꯨꯔꯦ 72-ꯒꯤ ꯍꯦꯌꯔꯁꯦꯀꯁꯦ ꯑꯃꯁꯨꯡ ꯕꯍꯒꯔꯁꯦ, ꯃꯁꯤꯒꯤ 16 ꯅꯦꯔꯒꯤ 17 MLD-ꯒꯤ ꯀꯗꯦꯦꯌꯀ ꯂꯥꯌꯔꯅꯗꯦ, ꯍꯦꯒꯍꯔꯅꯃꯦꯦꯌ ꯑꯃꯁꯨꯡ ꯀꯗꯦꯍꯃꯦꯌ ꯍꯦꯦꯇ ꯕꯍꯔꯦꯑꯥꯌꯔꯦꯌꯀꯅꯤ; ꯁꯤꯍꯔꯁꯤꯡ ꯑꯁꯤ PHED-ꯒꯤꯅꯤ; ꯑꯃꯁꯨꯡ ꯍꯦꯅꯦꯡꯁꯤꯡ ꯃꯔꯤꯅ ꯁꯦꯍꯥꯀꯀ ꯂꯥꯍꯤꯡꯅꯕ ꯂꯥꯌꯑꯥ ꯕꯦꯒꯇꯀꯃꯦꯦꯌ ꯑꯥꯊꯥꯔꯤꯌꯒꯤ ꯃꯃꯤꯡ ꯂꯥꯍ (ꯀꯗꯦꯍꯥ ꯊꯥꯕꯥꯑꯥꯍꯤꯕ ꯃꯌꯡ ꯍꯦꯦ); ꯁꯔꯨꯛ 6-ꯗꯦ ꯃꯦꯉꯔꯦꯡ ꯑꯁꯤꯒꯤ ꯊꯕꯑꯥ ꯌꯕꯒꯤ ꯌꯊꯦꯕ ꯑꯃꯁꯨꯡ ꯌꯍꯦꯦ ꯂꯥꯕꯤꯡꯃꯑꯥꯀꯤ ꯍꯦꯕꯨꯔꯦꯒꯤ ꯔꯦꯇꯤꯁꯌꯔ ꯀꯤꯔꯤ꯫ ꯔꯦꯀꯔꯥꯗꯦ ꯁꯔꯨꯛ ꯍꯔꯍꯑꯥꯌꯃꯑꯥ ꯂꯕ, ꯀꯦꯅꯥꯕ ꯑꯃꯁꯨꯡ ꯃꯊꯑꯥꯌ ꯗꯒꯌꯂꯕ ꯅꯌꯍꯔꯑꯥ ꯑꯃꯍ ꯍꯌꯂꯤ: "ꯒꯔꯦꯌꯔ ꯍꯊꯊꯦꯍ ꯑꯦꯔꯤꯍꯦꯗ ꯂꯥꯔꯤꯕ ꯍꯔꯊ ꯑꯁꯤꯀ ꯑꯊꯕ ꯊꯤꯒꯊꯗ ꯂꯌ ꯑꯃꯁꯨꯡ ꯀꯔꯦꯍꯊꯔꯤ ꯍꯦꯕꯨꯔꯦꯒꯤ ꯂꯊꯗꯦ ꯀꯦꯦꯅꯗ꯫ ꯍꯔꯊ ꯁꯤꯁꯌꯦꯊꯒꯤ ꯂꯤꯑꯥꯁꯤꯡ ꯃꯃꯅꯦ ... ꯍꯦꯕꯨꯔꯦꯁꯤꯡ ꯑꯀꯔꯦ ... ꯍꯊꯊꯦꯍꯗ ꯅꯊꯕꯤꯁꯤꯡꯒꯤ ꯃꯗꯦꯑꯥꯌ ꯗꯤꯁꯦꯌꯔꯦꯂꯍꯂ ꯌꯔꯕ ꯂꯥꯒꯤ ꯍꯁꯤꯡꯒꯤ ꯃꯦꯅꯦꯂꯃꯦꯌ ꯂꯌꯦ" ("The existing drainage in the Greater Imphal area is also not in good condition and is not properly connected to the primary drain. Drainage system links are missing … the drains are clogged … Imphal lacks decentralized stormwater management along streets") (AIIB, APD, 2024); ꯍꯊꯊꯦꯍꯒꯤ ꯀꯩꯊꯦꯜꯒꯤ ꯑꯃꯍꯌ ꯑꯁꯤ "ꯀꯩꯊꯦꯜꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯅꯥꯒꯥ ꯅꯜꯂꯥꯗ ꯊꯥꯗꯣꯛꯏ, ꯃꯁꯤꯗꯦ ꯆꯍꯤ ꯄꯨꯝꯕꯗ ꯏꯁꯤꯡ ꯇꯪꯂꯕ ꯄꯨꯜ ꯑꯃ ꯁꯦꯝꯃꯤ" ("dumped in the Naga Nullah on the backside of the market, which creates a stagnant pool all along the year") (ꯃꯁꯌꯔ ꯀꯗꯦꯦ); ꯗꯒꯅꯤ ꯂꯥꯍꯗꯦ ꯀꯔꯀꯥꯗꯦ ꯂꯗꯦꯍ 2024-ꯗ ꯗꯒꯔꯊ, ꯗꯍꯊꯊ ꯍꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯍꯔꯤꯑꯥꯌꯌꯦꯕꯊ ꯂꯦꯀꯍꯗ ꯏꯁꯤꯡ ꯍꯔꯍꯒꯤ ꯊꯑꯥꯌꯂꯊꯃꯤ (ꯀꯗꯦꯍꯥ ꯊꯥꯕꯥꯑꯥꯍꯤꯕ ꯃꯌꯡ ꯍꯦꯦ); ꯑꯃꯁꯨꯡ ꯑꯦꯀꯔꯤꯂ 2025-ꯗ ꯍꯊꯊꯦꯍ ꯌꯔꯦꯍꯒꯤ ꯍꯦꯅꯦꯡꯁꯤꯡ, ꯃꯔꯤꯅ ꯁꯦꯍꯥꯀꯀ, ꯗꯒꯅꯤ ꯅꯥꯒꯥ ꯅꯜꯂꯥ (Naga Nallah) ꯑꯃꯁꯨꯡ ꯅꯊꯕꯨꯍꯒꯤ ꯂꯥꯀꯗꯑꯥ ꯊꯕꯕ ꯂꯦꯍꯒꯤ ꯃꯗꯦꯑꯥꯌ ꯂꯥꯊꯀꯀꯤ ꯊꯕꯑꯥ ꯑꯃꯍ ꯑꯥꯔꯀꯔ ꯌꯍꯤ (ꯀꯗꯦꯍꯥ ꯊꯥꯕꯥꯑꯥꯍꯤꯕ ꯃꯌꯡ ꯍꯦꯦ)꯫ ꯑꯍꯦꯦꯗꯦ ꯍꯦꯅꯦꯡ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯍꯔꯗ ꯃꯌꯍ: ꯀꯦꯗꯤ-ꯂꯦꯦꯗ ꯑꯦꯑꯥꯌꯗꯦ "ꯍꯔꯊꯒꯤ ꯍꯦꯅꯦꯡꯁꯤꯡ" ("drainage channels"), ꯍꯌꯕꯗꯤ "ꯀꯦꯗꯤ ꯂꯦꯦꯗ ꯑꯃꯗ ꯅꯦꯔꯒꯤ ꯃꯀꯗꯒꯤ ꯏꯁꯤꯡ ꯍꯦꯦꯅꯕ ꯍꯦꯂꯦꯌꯁꯤꯡ ꯅꯦꯔꯒꯤ ꯑꯍꯦꯂꯦꯌꯁꯤꯡ" ("the inlets or outlets for the flow of water to or from a paddy land"), ꯀꯦꯗꯤ ꯂꯦꯦꯗꯀꯤ ꯃꯉꯡꯗ ꯃꯍꯥꯍꯥꯔꯤ (2014-ꯒꯤ ꯑꯦꯑꯥꯌꯀꯤ ꯁꯦꯑꯥꯁꯦ 2(c) ꯑꯃꯁꯨꯡ (h)); ꯂꯥꯌꯑꯥ ꯑꯦꯑꯥꯌꯗꯦ ꯂꯥꯀꯤ ꯕꯊꯔ ꯂꯦꯗ "ꯍꯔꯊꯁꯤꯡꯒꯤ ꯃꯍꯗꯒꯤ ꯅꯊꯕꯤ ꯁꯥꯍꯦꯕ" ("disturbing the natural course of drainages") ꯊꯤꯡꯍ (ꯁꯦꯑꯥꯁꯦ 19(vi)); ꯑꯃꯁꯨꯡ ꯍꯍ ꯀꯔꯌ PIL No. 8 of 2025-ꯒꯤ ꯀꯤꯌꯤꯁꯦꯗꯦ "ꯂꯥꯒꯤ ꯏꯁꯤꯡ ꯀꯃꯅꯃꯑꯥ ꯅꯊꯕꯤꯁꯤꯡꯒꯤ ꯁꯃꯨꯁꯥꯡꯒꯤ ꯍꯌꯊꯗ ꯃꯔꯌ ꯀꯦꯍꯒꯤ ꯍꯌꯊꯗ ꯊꯗꯑꯥꯌꯗꯦ ꯅꯊꯕꯨꯍ ꯌꯔꯦꯍꯗ ꯊꯗꯑꯥꯀꯗꯕꯅꯤ" ("the entire rain water are required to be discharged through the water canal from Lamphelpat through Samushang and discharged to the Nambul River") ꯍꯌꯗꯦ ꯔꯦꯀꯔꯗ ꯌꯍꯤ꯫ ꯃꯍꯌꯒꯤ ꯃꯉꯡꯗ ꯀꯗꯦꯀꯊꯕ ꯑꯃꯍꯌꯗꯦ ꯁꯍꯔꯒꯤ ꯍꯦꯅꯦ, ꯍꯤꯡꯒꯤ ꯍꯥ

> ꯃꯍꯥꯛꯀꯤ ꯁꯔꯨꯛ ꯑꯃꯒꯤ ꯑꯦꯛꯁꯦꯁ ꯌꯥꯎꯕ ꯑꯃꯥ ꯇꯧꯗꯨꯅꯥ ꯂꯩꯔꯕ, ꯈꯨꯗꯣꯡꯆꯥꯕ, ꯃꯇꯝ ꯄꯥꯡꯊꯣꯛꯅꯕ ꯃꯍꯥꯛꯀꯤ ꯈꯨꯠꯇꯥ ꯑꯃꯗꯥ ꯑꯣꯏꯕꯥ ꯃꯔꯣꯡ ꯃꯇꯧꯒꯤ ꯂꯥꯏꯔꯤꯛ ꯂꯩꯔꯕ ꯁꯣꯏꯗꯕ ꯈꯪꯂꯦ, ꯃꯇꯧ ꯁꯦꯛꯁꯟ 7.10.2 ꯑꯃꯁꯨꯡ 7.10.3-ꯗꯥ ꯊꯤꯡꯗꯕ ꯅꯥꯏꯕ ꯂꯥꯟ ꯑꯣꯏꯗꯦ꯫ ꯁꯦꯛꯁꯟ 7.10.3(b)-ꯗꯥ ꯁꯦꯡꯂꯕ ꯑꯃꯗꯥ ꯌꯥꯎꯕ ꯑꯃꯁꯨ ꯃꯇꯧꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ, ꯗꯤ ꯅꯥꯍꯅꯕ ꯁꯣꯏꯗꯕꯥ ꯑꯍꯣꯡꯕꯕ ꯊꯤꯡꯅ꯫

7.11 ꯔꯦꯟ-ꯋꯥꯇꯔ ꯍꯥꯔꯚꯦꯁ꯭ꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯅꯦꯖ ꯁꯤꯡꯂꯤꯡꯒꯤ ꯃꯑꯣꯡ

7.11.1 ꯕꯥꯟꯗꯥ ꯁꯦꯛꯇꯔ ꯑꯃꯥ ꯗꯥꯏꯔꯦꯛꯇ ꯑꯣꯏꯕ, ꯑꯃꯁꯨꯡ ꯑꯦꯊꯔꯣꯏꯗꯥ ꯁꯦꯇꯤꯡ ꯃꯁꯛꯇꯤꯝꯕꯥꯂꯣꯃꯤ ꯑꯅꯣꯔꯦꯟꯁꯤꯒ S-5 (ꯁꯦꯛꯁꯟ 1.7) ꯇꯧꯔꯕꯥ ꯃꯔꯝ ꯅꯥꯀꯗꯁꯨꯝꯕꯥꯂꯣ ꯑꯃꯗꯥ ꯃꯦꯞ 4-ꯒꯤ ꯃꯅꯥꯅ ꯄꯅꯈꯔ ꯇꯥꯕ ꯅꯤꯡꯊꯧꯈꯧꯒꯤ ꯃꯔꯨꯝ ꯔꯦ ꯑꯃꯥ ꯁꯦꯟꯕ ꯍꯩꯅ꯫ ꯔꯦ ꯑꯃꯨ ꯕꯥꯟꯗꯥ ꯑꯃꯨꯃꯗꯥ ꯇꯥꯕ ꯁꯤꯡꯂꯤꯡ, ꯁꯦꯠꯅ ꯃꯍꯥꯛꯀꯤ ꯔꯤꯇꯔꯟ ꯔꯥꯟꯇꯤꯡ ꯑꯃꯅ ꯃꯑꯣꯡ ꯔꯥꯃꯑꯣꯡ ꯑꯣꯕ ꯃꯍꯥꯛꯀꯤ ꯂꯥꯀꯕꯅ ꯂꯤꯇꯤꯡꯗꯒꯤꯅꯕꯗꯤ꯫

7.11.2 ꯔꯦꯟ-ꯋꯥꯇꯔꯒꯤ ꯂꯥꯟ ꯁꯦꯟꯕ ꯁꯤꯡꯂꯤꯡꯒꯤ ꯃꯑꯣꯡꯇꯒꯤ:

- (a) ꯃꯇꯧ ꯍꯦꯟꯅꯍꯟꯕꯤꯡꯁꯤꯡ ꯁꯦꯛꯁꯟ 7.7.1 ꯃꯁꯨꯡ ꯔꯗꯥ ꯃꯁꯨꯡ ꯔꯥꯟꯇꯤꯡꯅꯕꯗꯤ;
- (b) ꯂꯥꯟ ꯁꯦꯟꯕ ꯅꯥꯀꯗꯁꯨꯝꯕꯥꯂꯣꯃꯤ ꯃꯅꯥ ꯊꯃꯕꯅ ꯑꯃꯁꯨꯡ ꯃꯇꯧꯗꯥ ꯊꯥꯗꯊꯥꯗꯥꯡꯅꯕ ꯅꯇꯤꯡ ꯅꯍꯦꯟ ꯊꯥꯡꯁꯥ ꯍꯦꯕ ꯑꯥꯃꯤꯍꯦꯒꯤ ꯃꯊꯥ ꯊꯃꯕꯅ ꯇꯧꯒꯅꯕꯗꯤ;
- (c) ꯃꯇꯧꯗꯥ ꯂꯥꯕ ꯑꯣꯏꯕ ꯅꯥꯀꯗꯁꯨꯝꯕꯥ ꯑꯃꯨꯅ ꯃꯤ ꯇꯧꯔꯤꯡꯁꯤꯡꯅ, ꯃꯍꯥꯛꯀꯤ ꯕꯥꯟꯗꯥ ꯁꯦꯛꯇꯔꯗꯥ ꯔꯤꯊꯂ ꯑꯣꯏꯕ ꯃꯑꯣꯡ ꯑꯃꯒꯤ ꯃꯆꯥꯊꯅ, ꯂꯥꯡꯗꯒꯅꯕꯗꯤ ꯃꯍꯥꯛꯀꯤ ꯄꯥꯡꯊꯣꯛꯕ ꯑꯅꯒꯅꯕꯗꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯒꯥꯏꯗ ꯑꯃꯨꯃꯊ ꯑꯗꯤꯔꯊ ꯍꯦꯅꯗꯕ, ꯃꯇꯧꯅ ꯂꯥꯟ ꯁꯦꯟꯅꯕ ꯅꯥꯀꯗꯁꯨꯝꯕꯥꯂꯣꯃꯤꯒꯤ ꯇꯥꯍꯟꯗꯥ ꯁꯦꯛꯁꯟ 10.17-ꯒꯤ ꯔꯥꯇꯤꯂꯣꯔꯅ ꯔꯥꯁꯔꯅ ꯑꯣꯏꯒꯅꯕꯗꯤ꯫

7.11.3 ꯔꯦꯟ-ꯋꯥꯇꯔꯒꯤ ꯃꯅꯥꯒꯤꯂꯤꯗꯒꯤ ꯃꯄꯨꯝ ꯂꯤꯗꯅꯥ:

- (a) ꯃꯑꯣꯊ ꯁꯤꯡꯊꯗꯃꯊꯑꯣ ꯄꯅꯈꯑꯣ ꯃꯁꯨꯡ ꯔꯄꯅꯇꯤꯕ ꯃꯦꯞ 4-ꯒꯤ ꯔꯤꯑꯣꯗꯂꯗꯒꯤ ꯃꯊꯥ ꯑꯣꯕ; ꯃꯍꯥꯛꯀꯤ
- (b) ꯄꯅꯈꯑꯣ ꯃꯍꯥꯛꯀꯤ ꯔꯗꯑꯥꯔ ꯑꯃꯨꯃꯊ ꯁꯤꯡꯂꯤꯡꯅ ꯍꯦꯟꯅꯍꯟꯕꯤꯡꯁꯤꯡꯅ ꯑꯣꯂꯤꯕ ꯑꯣꯏꯕ ꯔꯤꯇꯔꯟ ꯔꯥꯟꯇꯤꯡꯑꯣ ꯑꯃꯅ ꯃꯁꯨꯡ ꯔꯄꯅꯇꯤꯕ ꯃꯦꯞ 8-ꯒꯤ ꯅꯇꯤꯡꯒꯤ ꯁꯦꯟꯇꯤꯑꯣꯒꯤ ꯃꯊꯥ ꯑꯣꯕ꯫

> **ꯂꯗꯅꯥꯊꯗꯥ ꯑꯣꯊꯁ.** ꯃꯦꯞ 4-ꯗꯥ ꯃꯂꯑꯣꯔ-ꯁꯦꯛꯇꯔ ꯑꯣꯏꯕ ꯕꯥꯟꯗꯥꯂꯤꯡꯅ ꯔꯥꯂꯑꯣꯔ ꯑꯣꯏꯕ ꯁꯤꯡꯂꯤꯡꯒꯤ ꯂꯑꯣꯔꯥꯇꯒꯤꯅꯃꯊ ꯔꯦꯟ-ꯋꯥꯇꯔꯒꯤ ꯊꯥꯔꯤꯡ ꯑꯣꯅ꯫ ꯃꯇꯥꯂꯤꯍꯦꯒꯤ 2008-ꯒꯤ DID ꯌꯥꯊꯇꯤꯂꯍꯗꯥ ꯑꯁꯤꯊꯁ ꯄꯅꯍꯂꯤꯗꯒꯤꯅꯃꯊ ꯅꯊꯑꯣ ꯄꯅꯈꯑꯣ ꯅꯤꯑꯣꯔꯂꯔ ꯍꯦꯟꯅꯍꯟꯕꯤ ꯑꯃꯨꯃꯊ ꯍꯥꯗꯔꯗꯥ ꯌꯦꯟꯕ ꯑꯥꯔꯤꯍꯦꯂꯤꯗꯒꯤꯅꯃꯊ ꯁꯦꯟꯇꯤꯑꯣ ꯁꯤꯗꯅꯂꯤꯗ ꯃꯊꯥ ꯑꯣꯍꯅꯕꯤ (DID, 2008)꯫ ꯃꯗꯤꯁꯤꯡꯔꯅ ꯕꯤꯅꯅꯤꯗ ꯔꯅꯂꯤꯗꯗꯥ ꯁꯤꯡꯗꯗꯥ ꯂꯤꯇꯤꯗꯗꯕ ꯃꯑꯣꯡ ꯑꯃꯈꯑꯣ ꯃꯊꯥ ꯑꯣꯍꯅꯕꯅ: ꯃꯅꯥꯟ ꯑꯃꯨꯒꯤ ꯕꯅ-ꯇꯥ 66-ꯗꯥ "ꯂꯔꯔꯂ ꯔꯤꯇꯔꯒꯍꯔꯂꯤꯗ ꯃꯍꯥꯛꯀꯤ ꯔꯤꯍꯦꯔꯇ ꯌꯥꯅꯂꯤꯗꯅ ꯗꯗꯒꯤ ꯅꯂꯤꯗ ꯅꯃꯇꯤꯗꯕꯒꯤ ꯃꯔꯑꯂꯤꯗ" ("points of collection of rain water in surface reservoirs or in recharge wells")-ꯒꯤ ꯇꯥꯍꯟꯗꯥ ꯗꯗꯒꯤ ꯅꯂꯤꯗ ꯅꯃꯇꯤꯗꯕ ꯍꯔꯇ, ꯑꯃꯁꯨꯡ ꯕꯅ-ꯇꯥ 6(1)(D)-ꯗꯥ ꯃꯅꯑꯣꯤ-ꯂꯑꯣꯔꯤ, ꯗꯅꯔꯗꯅꯗ ꯑꯃꯁꯨꯡ ꯂꯁꯥꯂꯤꯍꯟ ꯕꯤꯅꯅꯤꯗꯂꯤꯗꯒꯤꯅꯃꯊ "ꯃꯍꯗꯤꯂꯤꯁꯥꯟ/ꯑꯑꯣꯁꯁ ꯑꯊꯔꯤꯑꯣꯒꯤ ꯇꯔꯤꯕ ꯁꯔꯃꯇꯥꯗꯥ/ꯁꯊꯁ ꯅꯗꯕꯗ ꯔꯍꯕ ꯄꯒꯅꯕ ꯃꯗꯨꯗ ꯑꯃꯁꯨꯡ ꯃꯁꯗ ꯑꯗꯤꯃꯊꯁ ꯑꯁꯗꯕ ꯅꯔꯑ ꯁꯦꯛꯇꯔ" ("Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority") ꯍꯔꯇ, ꯑꯃꯨꯕ ꯃꯅꯥꯟ ꯑꯃꯨꯅ ꯅꯤꯑꯣꯔꯂꯔ, ꯔꯤꯇꯤꯇ-ꯔꯥꯍ ꯃꯍꯥꯛꯀꯤ ꯅꯤꯗꯅꯗ-ꯂꯑꯣꯔꯤꯃꯒꯤ ꯔꯅ ꯑꯃꯈꯑꯣ ꯇꯑꯣ (ꯃꯦꯞ 4)꯫ ꯅꯂꯤꯗ ꯅꯍꯦꯟ ꯁꯗꯑꯣꯔꯅꯒꯤꯅꯃꯊ ꯄꯔꯤꯕ ꯑꯍꯗꯕ ꯁꯕꯇꯤꯊ ꯂꯑꯣꯔꯥꯇ ꯑꯂꯤ ꯗꯃꯔꯅꯁꯍꯗꯤ, ꯅꯂꯤꯗ ꯅꯍꯦꯟꯒꯤ ꯂꯑꯣꯔꯥꯇ ꯑꯅꯗꯥ ꯂꯥꯃꯒꯍꯇꯤꯕ ꯁꯍ ꯑꯃꯥ, ꯃꯇꯧꯒꯤ ꯁꯔꯇꯊꯍ ꯑꯂꯤ "ꯃꯇꯧꯒꯤ ꯅꯂꯤꯗ ꯅꯤꯑꯣꯔꯂꯔꯒꯤ ꯁꯥꯁꯂꯤꯑꯣ ꯍꯥꯔꯒꯍꯍꯔꯕ" ("increase its water detention capacity") (NDB), ꯑꯃꯁꯨꯡ ꯒꯔꯥꯑꯣꯔ ꯅꯃꯔꯅꯒꯤ ꯃꯂꯑꯣꯔ ꯁꯦꯛꯇꯔꯗꯥ ꯃꯇꯧꯒꯤ ꯌꯥꯍꯇꯔꯅꯂꯤꯗꯒꯤ 500 ha ꯔꯃ "ꯅꯂꯤꯗ ꯇꯔꯃꯂꯤꯗ ꯄꯇꯕ" ("for the construction of water bodies") ꯅꯗꯅꯊꯗꯤ꯫ AMRUT 2.0-ꯒꯤ ꯁꯗꯅ ꯁꯔꯇꯊꯍ 20-ꯗꯥ ꯁꯕꯇꯤꯊ ꯁꯤꯡꯂꯤꯡꯂꯤꯗ ꯔꯤꯇꯒꯤꯗꯍ ꯑꯣꯅ ꯑꯃꯨꯕ ꯅꯂꯤꯗ ꯅꯍꯦꯟꯒꯤ ꯂꯑꯣꯔꯥꯇ ꯑꯅꯗꯥ ꯃꯇꯧ ꯍꯦꯟꯅꯍꯟꯕꯅ (TPD, 2025-26)꯫ ꯑꯣꯗ ꯁꯦꯛꯇꯔꯗꯤ ꯅꯤꯁꯔꯍꯃꯗꯍꯗꯥ ꯑꯣꯗꯂꯤꯗꯒꯤꯅꯃꯊ ꯑꯃꯁꯨꯡ ꯅꯤꯂꯑꯣꯔꯤꯊ ꯍꯅꯁꯍꯔꯑꯣꯔ 14-ꯒꯤꯅꯃꯊ "ꯑꯣꯃꯁꯊ ꯑꯃꯁꯨꯡ ꯌꯤꯗ ꯑꯗꯤꯃꯊ" ("both valley and hills") (ꯍꯔꯅꯇꯗ 2042) ꯂꯃ ꯄꯔꯤꯕ GIS ꯃꯂꯑꯣꯔ ꯁꯦꯛꯇꯔꯂꯤꯗ, ꯑꯃꯁꯨꯡ ꯗꯃꯔꯅꯁꯍꯁꯤ ꯁꯔꯇꯊꯍ ꯑꯂꯤ ꯕꯥꯟꯗꯥꯒꯤ ꯂꯑꯣꯔꯥꯇꯒꯤ ꯑꯣꯔꯒꯍꯂꯤꯗꯒꯤ ꯃꯍꯄꯒꯤ ꯃꯔꯃꯂꯤꯗꯗꯤ (ꯃꯦꯞ 11)꯫ ꯃꯅꯔꯒꯤ ꯃꯆꯥꯊꯅ ꯁꯗꯒꯃꯕ ꯑꯃꯈꯑꯣꯗꯥ ꯂꯑꯣꯔꯥꯇ ꯃꯇꯧ ꯍꯦꯟꯅꯍꯟꯗꯕ

> ꯇꯦꯛꯅꯤꯀꯦꯜ ꯁ꯭ꯇꯗꯤꯁꯤꯡ ꯑꯃꯠꯇꯥ ꯌꯥꯎꯗꯦ꯫ ꯀ꯭ꯂꯣꯖ 7.11.2(b) ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯃꯦꯊꯣꯗꯁꯤꯡ ꯁꯦꯝꯕꯥ ꯇꯥꯛꯄ ꯌꯥꯕ ꯑꯦꯖꯦꯟꯁꯤꯒꯤ ꯃꯍꯩ ꯊꯥꯕꯗ ꯂꯩꯕ ꯀ꯭ꯔꯤꯇꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯀꯅꯤꯡꯉꯥ ꯀꯦꯡꯒꯥꯔꯕ ꯀꯅꯥꯒꯅꯤ꯫ ꯀ꯭ꯂꯣꯖ 7.11.3-ꯗ ꯗꯤꯖꯥꯏꯟ ꯂꯣꯗꯁꯤꯡ ꯁꯦꯝꯃꯤ: ꯃꯁꯤ ꯃꯦꯊꯣꯗꯇꯦ ꯑꯁꯤꯒꯤ ꯒꯥꯏꯗ-ꯀꯣꯔꯗꯤꯅꯦꯁꯅꯒꯤ ꯅꯦꯇꯋꯔꯛꯇꯤ, ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯀ꯭ꯔꯤꯇꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯑꯦꯖꯦꯟꯁꯤ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯂꯣꯗꯁꯤꯡ ꯃꯈꯥꯗ ꯍꯦꯟꯕ ꯑꯦꯛꯁꯄꯔꯇ ꯗꯤꯖꯥꯏꯟ ꯄꯥꯡꯕ ꯀꯅꯥꯒꯅꯤ꯫

7.12 ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ, ꯃꯥꯔꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯆꯨꯋꯔꯤꯁꯤꯡ

7.12.1 **ꯁ꯭ꯀꯣꯞ.** ꯀ꯭ꯂꯣꯖ ꯑꯁꯤ ꯃꯥꯔꯁꯁꯤꯡ, ꯖꯥꯏꯂꯕꯤꯁꯤꯡ, ꯕꯦꯛꯋꯥꯇꯔꯁꯤꯡ, ꯑꯦꯁꯆꯨꯋꯔꯤꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯇꯥꯏꯗꯦꯜ ꯀ꯭ꯔꯤꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯒꯨꯅꯁꯤꯡꯗ ꯆꯠꯅꯤ, ꯃꯈꯥꯒꯤꯁꯤꯡ ꯌꯥꯎꯅꯥ:

- (a) ꯋꯦꯠꯂꯦꯟꯗꯁ (ꯀꯟꯖꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ) ꯔꯨꯂꯁ, 2017-ꯒꯤ ꯃꯈꯥꯗ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯅꯠꯔꯒꯥ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯁ ꯑꯊꯣꯔꯤꯇꯤꯅꯥ ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯕ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ;
- (b) ꯂꯣꯛꯇꯥꯛ, ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯐꯝ, ꯃꯁꯤꯒꯤ ꯀꯣꯔ ꯖꯣꯟ ꯑꯃꯁꯨꯡ ꯕꯐꯔ ꯖꯣꯟ, ꯃꯁꯤꯒꯤ ꯐꯨꯝꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯊꯥꯐꯨꯝ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯔꯥꯝꯁꯥꯔ ꯁꯥꯏꯠ (23 ꯃꯥꯔꯆ 1990-ꯗ ꯗꯦꯁꯤꯒꯅꯦꯠ ꯇꯧꯈꯤ, ꯕꯥꯎꯟꯗꯔꯤ ꯃꯄꯨꯡ ꯐꯥꯗꯕ; ꯑꯍꯦꯅꯕ ꯐꯥꯑꯣꯕꯥ [TBC]) ꯌꯥꯎꯅꯥ, ꯑꯃꯁꯨꯡ ꯑꯦꯛꯠꯇꯥ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯃꯦꯞꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯂꯣꯀꯦꯁꯟ ꯁꯥꯏꯠ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠ ꯐꯤꯂ꯭ꯗ ꯐꯤꯂꯦꯛ;
- (c) ꯁꯍꯔꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯃꯅꯥꯏꯁꯤꯡꯒꯤ, ꯃꯇꯦꯡꯒꯤ ꯃꯂꯨꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯊꯣꯡꯅꯥꯑꯣꯇꯥ, ꯀ꯭ꯋꯥꯔꯤ ꯄꯨꯈ꯭ꯔꯤ, ꯌꯦꯠꯀꯥ ꯄꯨꯈ꯭ꯔꯤ, ꯌꯨꯝꯅꯥꯛ–ꯊꯥꯡꯂꯩ ꯄꯨꯈ꯭ꯔꯤ, ꯄꯣꯡꯂꯦꯟ–ꯈꯣꯡꯅꯥꯡ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯈꯨꯔꯥꯏ–ꯈꯣꯡꯃꯥꯡ ꯄꯨꯈ꯭ꯔꯤ, ꯈꯨꯔꯥꯏꯀꯥꯝ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ ꯋꯦꯠꯂꯦꯟꯗ, ꯁꯦꯅꯃꯦꯡ ꯑꯃꯁꯨꯡ ꯀꯔꯤꯡꯕ (ꯑꯍꯦꯟꯕ ꯃꯤꯁꯤꯡ)-ꯒꯤ ꯌꯤꯡꯒꯤ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 7.3.4-ꯒꯤ 1% AEP ꯑꯦꯛꯁꯇꯦꯟꯇꯀꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ ꯁꯍꯔꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯆꯍꯤꯒꯤ ꯃꯐꯝ, ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯂꯩꯔꯕ ꯑꯦꯔꯤꯌꯥ ꯃꯅꯥꯏꯁꯤꯡ, ꯃꯅꯤꯄꯨꯔ ꯀꯟꯖꯔꯚꯦꯁꯟ ꯑꯦꯛꯠ ꯄꯨꯝꯅꯃꯛ ꯂꯩꯅꯕ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014-ꯒꯤ ꯁꯦꯛꯁꯟ 2(t)-ꯒꯤ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ, "ꯂꯝ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕ, ꯌꯦꯛꯈꯤ ꯃꯇꯝ ꯑꯃꯗ ꯃꯀꯣꯛ ꯌꯨꯃꯗ ꯃꯊꯛꯇ ꯂꯩꯕꯥ ꯃꯊꯛꯀꯤ ꯃꯍꯥꯛꯇ ꯂꯩꯕ ꯅꯠꯔꯒꯥ ꯑꯊꯤꯕ ꯅꯠꯇꯕ ꯏꯁꯤꯡꯗ ꯀꯨꯞꯁꯤꯟꯈꯤꯕ ꯂꯝ" ("land lying between terrestrial and aquatic system where the water table is usually at or near the surface or which is covered by shallow water") ꯌꯥꯎꯅꯥ; ꯄꯦꯟꯁꯤ ꯂꯦꯠꯅ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 7.2-ꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯅꯦꯇꯤꯂꯤꯁꯇꯦꯁꯤꯡꯒꯤ ꯃꯍꯩ ꯏꯁꯤꯡ ꯏꯍꯧꯒꯤ ꯁꯤꯖꯤꯟꯅꯔꯤ, ꯀ꯭ꯂꯣꯖ ꯑꯁꯤꯒꯤ ꯃꯍꯩ ꯋꯦꯠꯂꯦꯟꯗ ꯂꯩꯕ; ꯑꯃꯁꯨꯡ
- (d) ꯑꯊꯣꯔꯤꯇꯤꯗ ꯂꯤꯁ꯭ꯇꯦꯗ ꯇꯧꯕ, ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯁ ꯑꯊꯣꯔꯤꯇꯤꯗ ꯂꯤꯁ꯭ꯠ ꯇꯧꯕ, ꯅꯤꯂꯤꯂꯤꯌꯦꯠ ꯇꯧꯕ ꯂꯩꯕꯥꯛ ꯂꯤꯁ꯭ꯇꯦꯗ ꯇꯧꯕ (ꯌꯦꯠꯀꯥ, ꯀ꯭ꯋꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯌꯨꯝꯅꯥꯛ–ꯊꯥꯡꯂꯩ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤꯅꯥꯃ ꯃꯁꯤꯒꯤ ꯅꯠꯈꯠꯁꯤꯡ ꯑꯗꯨꯒꯤ ꯂꯩꯕ), ꯂꯩꯕꯥꯛ ꯃꯅꯤꯄꯨꯔ ꯍꯟ ꯀꯗꯠ, ꯅꯁꯅꯦꯜ ꯒꯗꯤꯊ ꯇꯗꯒꯤꯁꯤꯡꯁꯦꯜ ꯂꯩꯕꯥꯛ ꯁꯗꯗꯤꯈ ꯀꯗꯠꯇ ꯑꯣꯏꯕꯥ ꯋꯥꯌꯦꯜ ꯁꯤꯅꯗꯕꯥ ꯇꯧꯕ ꯑꯣꯄꯨꯔꯛ ꯀꯗꯤꯒꯈꯕ ꯄꯨꯈ꯭ꯔꯤ, ꯃꯗꯨ ꯂꯩꯕꯥꯛ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯃꯃꯥ꯫

7.12.2 **ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡꯒꯤ ꯏꯁꯤꯡ ꯉꯥꯛꯁꯦꯟꯕ.** ꯋꯦꯠꯂꯦꯟꯗ ꯑꯊꯣꯔꯤꯇꯤꯗ ꯑꯦꯛꯁꯄ꯭ꯔꯦꯁ ꯇꯧꯕ ꯄ꯭ꯔꯗꯦꯜ ꯑꯃꯒꯤ ꯃꯍꯩ ꯂꯩꯔꯕꯗ, ꯋꯦꯠꯂꯦꯟꯗ ꯑꯃꯒꯤ ꯏꯁꯤꯡ ꯉꯥꯛꯁꯦꯟꯕ, ꯃꯁꯤꯒꯤ ꯂꯥꯏꯃꯦꯡ ꯌꯦꯠꯇ ꯅꯦꯒꯦ ꯅꯦꯃꯍꯥꯏꯕ, ꯂꯩꯕꯥꯛ ꯃꯁꯤ ꯏꯁꯤꯡꯗ ꯌꯥꯎꯅꯕ ꯃꯇꯝ ꯍꯥꯏꯕꯍꯥꯏꯕ ꯈꯨꯗꯣꯡ, ꯌꯦꯅꯦ, ꯀꯗꯄ ꯂꯩꯕꯥꯛ ꯄꯨꯃꯄ ꯑꯃꯁꯨꯡ ꯅꯤꯄꯥꯡ ꯇꯧꯕꯥꯅꯕꯅꯤ꯫

7.12.3 **ꯈꯦꯍꯟꯕꯁꯤꯡ.** ꯀ꯭ꯂꯣꯖ 7.12.1-ꯗ ꯂꯩꯕ ꯋꯦꯠꯂꯦꯟꯗꯗ ꯑꯃꯗ ꯏꯁꯤꯡ ꯉꯥꯛꯀꯗꯕ ꯈꯨꯗꯣꯡ ꯊꯧꯗꯣꯛꯁꯤꯡꯗ:

- (a) ꯀ꯭ꯂꯣꯖ 7.10.6 ꯃꯄꯨꯡ ꯐꯥꯅꯕ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ;
- (b) ꯋꯦꯠꯂꯦꯟꯗꯇ ꯌꯥꯝꯅꯥ ꯃꯁꯤꯒꯤ ꯀꯦꯌꯃꯦꯠꯀꯤ WQv-ꯒꯤꯗꯃꯛ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯇꯔꯤꯀꯦꯠ (ꯁꯦꯗ꯭ꯌꯨꯜ 8) ꯉꯥꯛꯀꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯇꯧꯕ ꯌꯦꯕ ꯃꯍꯩꯗ, ꯃꯍꯩ ꯑꯃꯈꯥꯏꯇꯗ ꯉꯥꯛꯇꯨꯅꯥ ꯃꯁꯤꯒꯤ ꯍꯦꯟ ꯑꯗꯨ ꯄꯨꯈꯕ ꯂꯩꯕ ꯃꯊꯛ ꯑꯃꯒꯤ ꯃꯄꯥꯟꯗ ꯀꯟꯁꯦꯜꯄ ꯇꯧꯒꯗꯕꯅꯤ꯫

7.12.4 **ꯑꯍꯤꯡꯖꯦꯟꯗꯤꯁꯤꯡ ꯀꯟꯇꯦꯛꯁꯤꯒꯤꯁ꯭ꯇ.** ꯋꯦꯠꯂꯦꯟꯗ ꯑꯃꯒꯤ ꯃꯄꯥꯟꯒꯤ ꯂꯩꯕꯥꯛ ꯃꯊꯛꯇ ꯂꯩꯕ ꯆꯍꯤꯁꯤꯡ, ꯄꯣꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯒꯤꯇꯤꯕ ꯀꯥꯡꯂꯨꯞꯁꯤꯡꯗ ꯃꯈꯥꯒꯤ ꯑꯍꯤꯡꯖꯦꯟꯗꯤꯁꯤꯡ ꯂꯩꯒꯗꯕꯅꯤ:

- (a) 1% AEP ꯏꯁꯤꯡꯒꯤ ꯅꯦꯒꯦ ꯀ꯭ꯂꯣꯖ 7.6.2-ꯒꯤ ꯅꯤꯃꯤꯠꯇꯒꯤ ꯑꯦꯛꯁꯦꯟꯗꯥ ꯌꯥꯎꯔꯀꯗ 1% AEP ꯍꯟꯗ ꯅꯦꯍꯟꯈꯕ; ꯑꯃꯁꯨꯡ
- (b) ꯑꯦꯁꯆꯨꯋꯔꯤꯁꯤꯡꯗ ꯇꯧꯅꯦ ꯑꯦꯛꯁꯄꯣꯁꯔ ꯌꯥꯎꯅꯥ, ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡꯒꯤ ꯅꯥꯡꯃꯦ ꯏꯁꯤꯡ ꯑꯦꯛꯁꯄꯣꯁꯔ ꯄꯤꯕ, ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡꯒꯤ ꯁꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯀꯥꯟꯅꯕꯥꯁꯤꯡꯒꯤ ꯃꯊꯛꯇ ꯁꯦꯝꯗ ꯂꯩꯕ ꯑꯍꯤꯡꯖꯦꯟꯗꯤꯁꯤꯡ ꯅꯤꯡꯅꯗ꯫

7.12.5 **ꯕꯣꯇꯤꯡꯒꯤ ꯃꯑꯣꯡꯗ ꯍꯦꯠꯇ ꯀꯣꯏꯕ ꯅꯤꯡꯊꯧꯕ ꯃꯥꯏꯄꯥꯛ.** ꯁꯦꯝꯕꯥꯃꯥꯕꯒꯤ ꯃꯥꯏꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯕꯣꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯕꯥꯕꯥ ꯀꯣꯟꯕꯥꯅꯥꯏꯗꯥ ꯅꯤꯡꯊꯧꯕꯥꯒꯅꯤ꯫ ꯀꯣꯏ ꯀꯤꯑꯣꯟ ꯑꯀꯣꯡꯒꯤ ꯃꯥꯍꯥꯟꯗꯥꯀꯥꯕꯨ ꯑꯀꯨꯝꯕꯒꯤꯗꯃꯛ ꯃꯤꯌꯥꯝꯗꯥ ꯑꯣꯟꯕ ꯀꯣꯏꯕ ꯅꯤꯡꯊꯧꯕꯥꯒꯅꯤ꯫

7.12.6 **ꯌꯣꯅꯃꯥꯟ ꯁꯦꯝꯕꯥꯃꯥꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯇꯂꯦꯠꯀꯤ.** ꯑꯥꯎꯇꯂꯦꯠꯀꯤ ꯑꯃꯁꯨꯡ ꯌꯣꯅꯃꯥꯟ ꯁꯦꯝꯕꯥꯃꯥꯕꯒꯤꯗꯃꯛ:

- (a) ꯌꯥꯝꯅꯥ ꯌꯥꯏ ꯑꯃꯗꯤ ꯃꯌꯥꯝ 5-ꯃꯛ ꯇꯧꯒꯅꯤ (ꯇꯦꯕꯜ 2.12-ꯒꯤ ꯇꯥꯔꯤꯕ ꯇꯝꯕꯒꯤ);
- (b) ꯊꯕꯛꯀꯤꯗꯃꯛ ꯁꯔꯀꯥꯔ ꯇꯥꯔꯤꯕꯥ ꯃꯥꯂꯦꯃꯒꯤ ꯇꯦ ꯇꯣꯄꯤꯈꯤꯕꯒꯤ (Coastal Regulation Zone Notification)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ; ꯑꯃꯁꯨꯡ
- (c) ꯀꯊꯣꯛ ꯄꯨꯃꯅꯃꯛꯀꯤ ꯊꯕꯛꯀꯤ, ꯌꯥꯝꯅꯥ ꯁꯦꯡꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯂꯦꯝ ꯌꯥꯕ ꯑꯃꯗꯤ ꯀꯨꯡꯁꯥꯡ ꯑꯃꯁꯤꯒꯤ ꯃꯍꯩꯃꯥꯏ ꯀꯣꯟꯕꯥ ꯍꯥꯏ ꯑꯃꯁꯨꯡ ꯀꯅꯥꯌꯒꯤ ꯀꯣꯏꯒꯤ ꯃꯌꯥꯝꯗꯤ ꯀꯊꯣ ꯌꯥꯏ꯫

7.12.7 **ꯊꯥꯃꯣꯏꯅ ꯊꯤꯕ.** ꯁꯦꯝꯕꯥꯃꯥ ꯑꯀꯥ ꯇꯧꯕꯒꯤ ꯀꯣꯏꯒꯤ ꯃꯔꯝ ꯃꯇꯝ ꯁꯥꯃꯜ, ꯃꯦꯃꯌꯥꯝꯃꯦꯒꯤ ꯃꯕꯥꯏꯃ ꯇꯧꯕꯒꯤ ꯃꯥꯏꯇ ꯌꯥꯕ ꯀꯁꯤ ꯑꯀꯔꯝ ꯊꯀꯥꯏꯅꯥꯕꯅꯤ꯫

> **ꯃꯦꯃꯥꯏꯗ ꯌꯥꯇꯨ.** ꯀꯣꯔꯇꯀꯤ ꯁꯦꯝꯕꯥꯃꯥꯕꯒꯤ ꯑꯃꯗꯤ **ꯀꯣꯔꯇꯀꯤ ꯃꯌꯥꯝ ꯁꯦꯝꯕꯥꯃꯥꯃ ꯑꯊꯣꯔꯤꯇꯤ**-ꯒꯤ ꯊꯥꯕꯗꯤ, "ꯀꯣꯏꯒꯤ ꯌꯥꯝꯇꯤꯃꯥꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯃꯀꯤꯌꯣꯏꯒꯤꯗꯃꯛ ꯇꯔꯦꯇꯤ 31 ꯇꯨꯁꯔꯤ 2018-ꯗ ꯃꯀꯥꯍꯤꯕ" ("set up on 31st January 2018, along with its Technical and Grievance committees"), ꯀꯤꯃꯤꯒꯤ 22-ꯒꯤ ꯇꯔꯦꯇꯤ, ꯑꯣꯏꯕꯥꯃꯛ, ꯅꯦꯒꯤꯅꯦꯝꯇꯀꯥꯕꯨ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯅꯀꯥꯕꯨ ꯁꯥꯕꯇꯒꯤ ꯀꯤꯇꯤꯃꯌꯦ ꯁꯔꯤꯕꯥꯃꯦꯃꯦ ꯑꯥꯅꯇꯤ, ꯁꯤꯑꯣ ꯃꯌꯥꯝꯌꯦꯝ ꯒꯤꯅꯃ-ꯁꯔꯤꯕꯥꯃꯦꯃꯦ ꯑꯥꯅꯇꯤ ꯑꯃꯁꯨꯡ ꯅꯦꯒꯤꯅꯦꯝꯇꯀꯥꯕꯨ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯅꯀꯥꯕꯨ ꯁꯥꯕꯇꯒꯤ ꯃꯅꯦꯝꯌꯥꯝ ꯀꯥꯍꯕꯦ ꯃꯌꯥꯝꯌꯦꯝ ꯑꯥꯅꯇꯤ (DoECC, 2025-26)꯫ ꯀꯣꯏꯒꯤ ꯑꯥꯇ-1-ꯒꯤ ꯃꯦꯁꯥꯃꯥꯏꯌꯤ ꯁꯦꯝꯕꯥꯃꯥꯕꯒꯤꯃꯤ ꯇꯅꯀꯥꯕ (ꯂꯣꯛꯇꯥꯛ), ꯃꯁꯨꯡꯕ ꯇꯧꯕꯒꯤ ꯑꯁꯤꯡ ꯀꯃꯤ (ꯄꯨꯃꯂꯦꯟ), ꯈꯨꯃꯦ ꯃꯌꯥ (ꯏꯀꯣꯞ), ꯁꯦꯃꯟ ꯃꯌꯥ (ꯈꯥꯔꯨꯡ ꯄꯥꯠ), ꯁꯅꯊꯧ-ꯂꯝꯀꯇꯀ ꯃꯌꯥ (ꯅꯀꯥꯔꯤꯟ ꯅꯃꯌ ꯑꯃꯁꯨꯡ ꯊꯧꯕꯟ), ꯂꯝꯀꯇꯥꯦ-ꯍꯥꯅꯃꯀ ꯃꯌꯥ (ꯄꯨꯁꯤꯄ) ꯑꯃꯁꯨꯡ ꯅꯄꯥꯃ-ꯍꯥꯂꯤ ꯃꯌꯥ (ꯊꯧꯕꯟ ꯑꯃꯁꯨꯡ ꯄꯨꯁꯤꯄ)-ꯇꯤ; 2025-26-ꯗ ꯀꯣꯏꯇ ꯁꯦꯝꯕꯥꯃꯥ 71 ꯃꯤꯇꯤꯇꯤꯁꯥꯝ ꯌꯥꯍꯤ, 3 ꯃꯤꯀꯩꯄꯥꯝ ꯌꯥꯍꯤ, ꯑꯃꯁꯨꯡ ꯁꯦꯃꯟ, ꯈꯨꯃꯦ ꯑꯃꯁꯨꯡ ꯁꯅꯊꯧ-ꯂꯝꯀꯇꯀ ꯃꯌꯥꯒꯤꯗꯃꯛ "ꯃꯦꯁꯥꯝ ꯇꯣꯄꯤꯈꯤꯕꯒꯤ ꯑꯣꯏꯅꯥꯃꯍꯤ" ("Published the draft notification") e-Gazette-ꯗ (DoECC, 2025-26)꯫ 2017-ꯒꯤ ꯂꯩꯕꯥꯛꯀꯤ ꯂꯩꯕ 4-ꯒꯤ ꯀꯁꯥ ꯇꯣꯄꯤꯈꯤꯅ ꯌꯥꯕ ꯁꯦꯝꯕꯥꯃꯥ ꯑꯀꯥꯌꯥ ꯑꯣꯏꯁꯤꯃ, ꯀꯕꯀ ꯑꯃꯨꯇ ꯃꯦꯑꯣꯏꯕꯒꯤ ꯑꯕꯥꯅꯕ ꯑꯥꯅꯃꯦꯈꯦꯟꯁꯤꯡ ꯀꯁꯥꯔꯤꯒꯤ ꯊꯤꯕꯒꯤ ꯁꯥꯌ (NEER-ꯒꯤ ꯃꯌꯕ)꯫ ꯃꯥꯃ ꯑꯥꯃꯤꯃꯦꯃꯃ ꯃꯦꯌꯥꯒꯤ ꯁꯦꯝꯕꯥꯃꯥ ꯑꯥꯌꯦꯃ (2021)-ꯇ 2.25 ha-ꯃꯛꯀꯤ ꯄꯦꯇ ꯅꯤꯡꯕ ꯁꯦꯝꯕꯥꯃꯥ 132, ꯃꯌꯥꯝ 3% ꯕꯀ, ꯀꯣꯏꯒꯤ ꯊꯤꯅ, ꯑꯃꯁꯨꯡ ꯂꯦꯃꯌꯕ ꯅꯀꯑꯩꯒꯤ ꯀꯃꯦꯌꯕ ꯃꯇꯦꯇ ꯅꯀꯑꯩ ꯌꯀꯃꯤꯌꯥ "ꯃꯥꯌꯊꯕꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯏꯒꯤ ꯂꯀꯃꯕ ꯀꯕꯣꯏ ꯁꯦꯝꯕꯥꯃꯥ 134 ꯕꯀ" ("about 134 swampy and waterlogged marshy wetlands") ꯑꯃꯁꯨꯡ ꯅꯣꯏꯒꯤ ꯂꯀꯃꯕ ꯑꯥꯕꯤꯔ 69, ꯊꯧꯕꯟꯃ 40 ꯑꯃꯁꯨꯡ ꯕꯤꯃꯦꯂꯝꯕ ꯃꯇꯃ 21 ꯀꯣꯏꯒꯤ ꯊꯤꯅ꯫ **ꯂꯣꯛꯇꯥꯛ** ꯑꯃꯗꯤ ꯕꯤꯀꯃꯕ ꯃꯅꯥꯌ ꯑꯀꯗꯤ, 23 ꯀꯕꯁ 1990-ꯗ ꯃꯥꯇꯤꯒꯥꯌ ꯌꯥꯍꯤ, ꯑꯃꯁꯨꯡ 16 ꯖꯨꯟ 1993-ꯗ ꯀꯦꯃꯌꯥ ꯕꯥꯄꯥꯕꯃꯗ ꯊꯀꯍꯤ (ꯑꯦꯃꯤꯀꯥ ꯃꯤꯁꯥꯃ ꯑꯣꯏꯅꯃꯥꯅꯤꯕ ꯀꯁꯨꯝ ꯅꯦꯑꯦ); ꯀꯣꯏꯒꯤ ꯕꯤꯀꯃꯕ ꯑꯥꯕꯤꯔ ꯃꯅꯃꯇ ꯍꯥꯅꯤꯃ [TBC], ꯑꯃꯁꯨꯡ ꯀꯣꯏꯒꯤ ꯀꯥꯅꯦꯃꯒꯤ ꯑꯥꯃꯃꯥꯦꯌ ꯑꯃꯗꯤ 236.21 km²-ꯇꯤ (ꯇꯦꯕꯜ 7.1, ꯃꯦꯃꯥꯏꯗ ꯌꯥꯇꯨ)꯫ ꯑꯥꯃꯌꯇ ꯇꯥꯃ ꯑꯀꯃ ꯂꯣꯛꯇꯥꯛ ꯃꯥꯒꯥꯇꯃꯀꯥꯕꯨ ꯑꯊꯣꯔꯤꯇꯤꯃ ꯃꯤꯕꯤ, ꯑꯣꯏꯕꯥꯃꯛ ꯑꯃꯁꯨꯡ ꯅꯦꯒꯤꯅꯦꯝꯇꯀꯥꯕꯨ ꯃꯤꯃꯤꯕꯌꯀꯥꯕꯨ ꯇꯃꯥꯟ ꯃꯤꯃꯤꯕꯌꯀꯥꯕꯨ ꯑꯥꯅꯇꯤ (ꯃꯥꯃꯦ 35(2)), ꯑꯃꯁꯨꯡ ꯄꯅ ꯄꯕꯌꯃꯤ ꯃꯃꯥꯃꯤꯔꯥꯟ ꯕꯣꯁꯇꯤ ꯀꯣꯏꯒꯤ ꯑꯁꯤꯕ ꯅꯤꯡꯃꯇꯤ ꯇꯥꯃꯤ ꯀꯂꯝ ꯇꯧꯕꯒꯤ ꯑꯄꯥꯔꯕꯃ ꯃꯥꯒꯥꯇꯃꯀꯥꯕꯨ ꯊꯤꯅꯍꯤ ꯑꯃꯁꯨꯡ ꯀꯣꯏꯒꯤ ꯅꯦꯌꯤꯂꯦꯌꯃ ꯀꯥꯇꯀꯥꯕꯨ ꯃꯇꯦꯒꯤ ꯀꯤꯅꯍꯤꯕ "ꯕꯦꯤꯑꯥ ꯃꯥꯃꯁꯀꯥꯕꯨ" ("Brief Document") ꯑꯀꯃ ꯁꯦꯝꯕꯥꯃꯥꯃ ꯂꯩꯇꯃꯤ ꯀꯁꯃ ꯃꯀꯒꯌꯕ ꯃꯅꯥꯃꯥꯌꯥ ꯌꯥꯍꯤ (25 ꯑꯣꯕꯕꯁꯔꯤ 2022-ꯒꯤ ꯑꯕꯃꯕ, ꯃꯤꯁꯥꯃ ꯑꯣꯏꯅꯃꯥꯅꯤꯕ ꯀꯁꯨꯝ ꯅꯦꯑꯦ)꯫ ꯃꯤꯂꯩ ꯆꯃꯇꯁ ꯑꯥꯃꯇꯥꯅ ꯃꯕꯥ, 40 km² ꯕꯀ ꯑꯃꯁꯨꯡ ꯑꯥꯃꯌꯃꯤ ꯀꯃꯤꯑꯦꯃ ꯇꯕ, ꯑꯃꯗꯤ ꯅꯤꯀꯃ ꯂꯀꯃꯤꯇꯤ (ꯃꯤꯁꯥꯃ ꯑꯣꯏꯅꯃꯥꯅꯤꯕ ꯀꯁꯨꯝ ꯅꯦꯑꯦ)꯫ WRD-ꯇ ꯃꯦꯁꯥꯝ ꯌꯥꯕꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯏꯒꯤ ꯅꯁꯤꯁꯒꯤ ꯃꯥꯏꯄꯥꯛ ꯃꯕꯤꯕ ꯆꯀꯑꯥꯅꯃꯌ ꯑꯃꯗꯤ ꯃꯦꯁꯥꯃꯥꯏꯌꯤ ꯁꯦꯝꯕꯥꯃꯥꯕꯒꯤꯗꯃꯛ ꯀꯂꯝꯃ ꯅꯤꯡꯃ, ꯑꯃꯁꯨꯡ ꯀꯣꯏꯒꯤ ꯃꯦꯁꯥꯝ ꯌꯥꯕ ꯇꯥ ꯊꯥꯃꯣꯏꯅ ꯑꯃꯗꯤ ꯄꯅ ꯃꯕꯌꯇ ꯇꯅꯣꯏꯦꯅꯤꯕ PIL No. 8 of 2025-ꯒꯤ ꯅꯤꯑꯦꯀꯇꯤ꯫ ꯀꯕꯀ ꯑꯃꯨꯇ ꯇꯣꯛꯇꯥꯛꯃ ꯀꯂꯝꯃ ꯇꯧꯕꯒꯤ ꯆꯥꯃꯦꯕꯃ ꯍꯥꯕꯕꯦꯒꯤ ꯀꯤꯁꯌꯑꯥꯅ, ꯇꯂꯩ ꯇꯊꯥꯃꯥ, ꯆꯀꯕꯤ ꯄꯕꯃꯥꯃꯥ ꯇꯧꯕꯒꯤ ꯒꯥꯌ ꯁꯔꯇꯅꯕ ꯑꯀꯒꯤꯗꯃꯛ ꯂꯣꯛꯇꯥꯛ ꯃꯥꯒꯥꯇꯃꯀꯥꯕꯨ ꯑꯊꯣꯔꯤꯇꯤꯒꯤ ꯀꯀꯄꯥꯒꯤ ꯑꯁꯤꯕ ꯑꯃꯁꯨꯡ, ꯀꯣꯏꯒꯤ ꯑꯕꯃꯕꯀꯤꯇ ꯁꯤꯕ ꯀꯑꯥꯀ, ꯄꯅ ꯃꯕꯌꯃꯤ ꯑꯁꯤꯕ ꯀꯊ ꯌꯥꯏ; ꯇꯣꯄꯤꯈꯤꯅ ꯌꯥꯕ ꯁꯦꯝꯕꯥꯃꯥ ꯑꯀꯒꯤ ꯀꯂꯝꯃ ꯇꯧꯕꯒꯤ ꯆꯥꯃꯦꯕꯃ ꯇꯕ ꯑꯀꯒꯤꯗꯃꯛ ꯀꯣꯔꯇꯀꯤ ꯃꯌꯥꯝ ꯁꯦꯝꯕꯥꯃꯥꯃ ꯑꯊꯣꯔꯤꯇꯤꯒꯤ ꯅꯤꯀꯅ ꯇꯧꯕꯒꯤ ꯃꯤꯕꯀꯤꯃꯦ ꯀꯊ ꯌꯥꯏ; ꯑꯃꯁꯨꯡ ꯀꯍꯔꯇ ꯁꯤꯃꯕ ꯃꯌꯥ ꯑꯃꯁꯨꯡ ꯀꯕꯃꯃꯤꯒꯤꯗꯃꯛ, ꯃꯂꯩ ꯑꯃꯗꯤ, ꯃꯥꯃꯤ-ꯇꯥꯃꯥ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕꯥꯃꯥ ꯑꯥꯃꯌ ꯑꯃꯁꯨꯡ ꯁꯔꯀꯥꯔ ꯀꯑꯀꯃ ꯕꯅ-ꯇꯃꯤꯃꯦ ꯑꯃꯗꯤꯅꯃꯌꯥꯀꯥꯕꯨ ꯄꯦꯌꯕꯤꯃꯦꯇꯤ꯫ ꯇꯦꯕꯜ 7.12.2-ꯇ ꯑꯀꯥꯅꯦꯕ ꯕꯤꯃꯌ ꯑꯀ ꯃꯦꯃꯀ ꯊꯀꯤ: ꯀꯕꯃ ꯑꯀꯒꯤ ꯀꯇꯃꯥ ꯅꯣꯏꯒꯤ ꯅꯁꯤꯁ ꯄꯦꯊꯄꯦꯕ ꯃꯕ ꯍꯥꯕꯕꯦꯒꯤꯇ ꯀꯕꯃ ꯀꯣꯏꯃꯥꯃ ꯅꯣꯏꯒꯤ ꯊꯥꯃꯣꯏꯅ ꯅꯤꯅ, ꯑꯃꯁꯨꯡ ꯀꯃꯤ ꯃꯇꯃꯕ ꯀꯁꯨꯃ ꯆꯀ ꯍꯥꯃꯃꯦꯅ꯫ ꯃꯤꯁꯥꯝ ꯑꯃꯗꯤ ꯍꯥꯕꯕꯦꯒꯤꯗꯃꯛ ꯂꯩꯊꯃꯥ ꯀꯣꯏꯒꯤꯒꯤ ꯃꯌꯥ, ꯁꯦꯃꯟ ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛꯗ ꯁꯤꯅ (ꯇꯦꯕꯜ 8.9, ꯃꯦꯃꯥꯏꯗ ꯌꯥꯇꯨ)꯫ ꯆꯀꯂꯩꯃ ꯁꯃꯇꯤꯕ ꯍꯥꯕꯕꯦ 72-ꯗ 42.45-ꯃꯛꯀꯤ 52.34 mg/L-ꯒꯤ BOD ꯇꯧꯍꯤ (ꯑꯥꯃꯇꯥꯅ ꯂꯦꯃꯤꯦ

> ꯁ꯭ꯇꯦꯟꯗ꯭ꯔꯗꯁꯤꯡꯒꯤ ꯃꯤꯇꯥꯀꯄꯗ 2025-ꯒꯤ ꯂꯣꯛꯇꯥꯛ ꯄꯤꯔꯤꯕꯥ), CPCB-ꯅꯥ ꯂꯤꯃꯤꯠ ꯃꯥꯀꯃꯒꯤ ꯕꯤꯂꯣꯗ꯭ꯗꯥ ꯍꯦꯟꯕꯒꯤ ꯀꯔꯤꯒꯨꯝꯕ ꯑꯃꯤ ꯂꯣꯛꯇꯥꯛꯇꯥ ꯑꯍꯦꯟꯕ ꯂꯃꯥꯏꯔ 18-ꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯤꯂꯣꯛ ꯁꯤꯡ (2025), ꯑꯃꯁꯨꯡ ꯇꯥꯛꯄꯥ ꯑꯥꯏꯕꯅꯥ "ꯍꯥꯡꯗꯣꯛꯂꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯗꯒꯤ ꯇꯩꯔꯕ ꯂꯇꯇ" ("sludge from open drains")-ꯕꯨ ꯂꯤꯇꯥꯇ ꯍꯣꯡꯗꯣꯛꯂꯕ ꯑꯣꯍꯟꯅ ꯃꯂꯤꯡ ꯄꯤꯈꯔꯤꯕ (ꯂꯃꯥꯏ 2) ꯑꯃꯁꯨꯡ ꯇꯥꯡꯗꯤ ꯕꯍꯥ ꯇꯔꯕ "ꯍꯦꯅꯂꯣꯛꯂꯤꯂꯤꯡ, ꯂꯥꯏꯕ ꯇꯧꯕꯒꯤ ꯁꯦꯡꯗꯣꯛꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯡꯒꯤ ꯃꯤꯑꯣꯏꯂꯤꯡꯒꯤ ꯇꯤꯡꯃꯂꯤꯡꯗꯒꯤ ꯁꯣꯏꯗꯅ ꯁꯤꯡꯗꯕ ꯑꯃꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯡꯗꯣꯛꯂꯕꯂꯤꯡ ꯊꯗꯣꯛꯄꯥ" ("Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements") ꯊꯤꯡꯍ (ꯂꯥꯃꯂꯦ 19(iv))꯫ ꯃꯄꯥ ꯑꯃꯗꯨ ꯀꯣꯏꯁꯣꯄ ꯍꯥꯖꯤꯟꯗ ꯇꯣꯞꯄ ꯑꯣꯏꯕꯖꯤꯟ ꯌꯥꯝꯅꯥ ꯄꯦꯔꯥ 7.10.6(d) ꯑꯃꯁꯨꯡ 7.12.3 ꯌꯦꯇꯤꯒ ꯖꯦꯁꯕ ꯃꯌꯨꯡ ꯖꯦꯌꯇꯕ ꯊꯥꯃꯗ꯫ ꯃꯇꯤꯌꯨꯄꯗ ꯃꯍꯦꯔ ꯑꯇꯣꯕ ꯑꯣꯏꯕꯖꯤꯟ ꯂꯗꯤꯡꯃꯒꯁ ꯃꯌꯨꯡ ꯖꯦꯅ ꯔꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯌꯦꯕ, ꯌꯨꯍꯄꯤ, ꯇꯦꯒꯁꯦꯒ ꯇꯕꯄꯥꯛ ꯇꯤꯂꯣꯕ ꯁꯣꯏꯗꯕ ꯁꯨꯄꯥꯋꯒꯤ ꯂꯣꯛꯄꯥꯔ ꯑꯃꯗ ꯔꯡꯇꯤꯕ ꯇꯣꯏꯕ ꯑꯣꯏꯕꯖꯤꯟ ꯂꯗꯤꯡꯃꯗꯅ ꯇꯦꯡ ꯂꯗꯕ ꯃꯁꯃꯒꯤ ꯖꯇꯦ ꯌꯨꯄꯤ ꯌꯔꯅ ꯇꯣꯍ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯌꯦꯄꯒꯖꯃꯂꯤꯡ ꯇꯣꯊꯒꯁꯄꯤꯖꯦꯁꯕ ꯄꯦꯔꯥ 8.9.4 ꯑꯃꯁꯨꯡ 8.9.5-ꯒꯤ ꯔꯌꯤ ꯂꯗꯤꯡꯒꯤ ꯂꯄꯥꯒ ꯑꯃꯁꯨꯡ ꯍꯦꯁꯄꯥꯂꯥꯌꯂꯦꯒꯤ ꯃꯍꯦꯅ ꯇꯤ꯫ ꯔꯤꯡꯂꯤꯡꯒꯤ ꯌꯦꯕ ꯑꯣꯏꯕꯒꯤ ꯇꯥꯒꯁꯒꯁ ꯔꯡꯇꯤꯕ ꯍꯡꯕꯦ ꯑꯣꯏꯕꯒꯤ ꯔꯤꯡꯒꯤ ꯍꯡ ꯂꯗꯤꯡꯃꯗꯅ ꯁꯃꯌꯥꯒꯖꯤ ꯇꯃ ꯔꯕ ꯃꯖꯃꯗ ꯂꯤꯅꯕ ꯁꯄꯥꯌ ꯑꯃꯂ ꯇꯦꯊꯖꯤꯍ (ꯃꯃꯤ 7.3; ꯄꯦꯔꯥ 6.3.6(m)), ꯃꯄꯃꯗꯤ ꯔꯤꯡꯒꯤ ꯍꯡꯂꯤꯡꯒꯤ "ꯌꯨꯊꯖꯌ ꯊꯃꯕꯒꯤ ꯂꯒꯁꯤ ꯔꯤꯡꯍ, ꯃꯂꯤꯅ ꯇꯥꯒꯁ ꯇꯤꯃ ꯊꯃꯌꯅꯇꯤ" ("load carrying capacity is high which causes siltation of the lake") (MASTEC), ꯑꯃꯁꯨꯡ ꯌꯦꯕ ꯑꯣꯏꯕꯒꯤ ꯇꯥꯒ ꯑꯂꯤ ꯅꯌꯦꯃꯒꯤ ꯍꯄꯃꯒꯤ ꯑꯄꯍꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯇꯤꯃ ꯑꯃꯗꯨ ꯃꯂꯤꯒꯤ ꯂꯣꯄꯥꯇ ꯃꯤꯡꯌꯅꯇꯤ꯫

7.13 ꯇꯃ ꯍꯌꯥꯕꯒꯤ ꯃꯄꯤ ꯇꯤꯇꯕꯂꯤꯡ

7.13.1 **ꯊꯃꯍ.** ꯃꯥꯂꯨꯔꯥꯅ ꯑꯂꯤꯒꯤ ꯃꯍꯦꯟ ꯀꯤꯖꯍꯑꯒꯤꯀꯃꯑ, ꯍꯂꯤꯡ ꯇꯖꯃ ꯑꯃꯒꯤ ꯊꯃꯍ ꯑꯂꯤ, ꯄꯦꯔꯥ 7.3.3-ꯀ ꯇꯕꯌꯃ, ꯃꯂꯤꯒꯤ ꯄꯥꯒꯥꯂꯨ ꯄꯥꯄꯄꯦꯀꯄꯤ ꯊꯃꯍ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯂꯄꯒꯥ ꯁꯄꯕ FTL (ꯇꯣꯏꯕꯒꯤ ꯇꯄꯤꯍꯒꯤ ꯃꯊꯑ)-ꯒꯤ ꯃꯂꯨꯡꯀ ꯌꯥꯑꯅ ꯔꯖꯁꯕ ꯑꯀꯂꯨꯇꯤ꯫ ꯂꯥꯌꯕꯥꯑꯂꯤꯡ ꯑꯂꯤ ꯊꯃꯍ ꯑꯀꯂꯀꯒꯤ ꯃꯥꯇꯄ ꯁꯍ꯫

7.13.2 **ꯇꯃ ꯍꯌꯥꯕ ꯇꯃꯀ ꯊꯇꯕ ꯊꯃꯀꯕ.** ꯀꯤꯖꯍꯑ ꯑꯃꯌꯁꯅ:

- (a) ꯇꯃ ꯍꯌꯥꯕꯅ ꯇꯄꯕ, ꯍꯂꯤꯡ ꯇꯖꯃꯒꯤ ꯊꯃꯍꯒꯤ ꯃꯂꯨꯡꯀ ꯇꯕ ꯇꯃ ꯑꯀꯂ, ꯃꯂꯤ ꯇꯊꯑꯕ ꯑꯄꯀꯄ ꯁꯄꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯅ ꯌꯤꯄꯕ ꯇꯌꯁꯕꯀꯤ, ꯂꯁꯄꯥꯇ ꯇꯌꯄꯒꯤ ꯄꯑꯒꯥꯔꯥꯑꯂ ꯑꯍꯅ ꯃꯂꯤꯡ ꯔꯖꯁꯌꯑꯄꯍꯀꯕꯇꯤ; ꯇꯌꯄꯒꯤ
- (b) ꯔꯥꯇꯥꯅ ꯑꯃꯒꯤ ꯇꯃ ꯍꯌꯥꯕ ꯌꯤꯑꯕ ꯑꯀꯂ ꯃꯂꯤꯒꯤ ꯀꯤꯖꯍꯑ ꯌꯤꯑꯕ ꯑꯍꯅ ꯇꯄꯍꯀꯕꯇꯤ꯫

7.13.3 **ꯇꯃ ꯍꯌꯥꯕ ꯄꯤꯔꯂꯤꯡꯀ ꯌꯕꯇꯤꯑ ꯔꯄꯑꯂꯤꯡ.** ꯌꯕꯇꯤꯑ ꯍꯄꯃꯒꯤ ꯊꯕꯑ ꯑꯃꯅ ꯇꯃ ꯍꯌꯥꯕ ꯄꯤꯔ ꯑꯃꯒꯤ ꯂꯌꯊꯤꯀ ꯔꯌꯇꯕ ꯃꯖꯃꯀ:

- (a) ꯃꯂꯤ ꯍꯂꯤꯡ ꯇꯖꯃꯒꯤ ꯃꯌꯨꯡ ꯖꯕ ꯌꯤꯑꯕꯒꯤꯀꯃꯑ ꯀꯤꯖꯍꯑ ꯁꯒꯀꯕꯇꯤ (ꯄꯦꯔꯥ 7.13.1);
- (b) ꯊꯕꯑ ꯑꯀꯂ ꯂꯀꯂꯤꯑꯀ ꯃꯌꯨꯡ ꯖꯕ ꯌꯤꯑꯕ ꯑꯀꯂ ꯂꯥꯂꯀꯄꯌ ꯊꯃꯀꯕ ꯃꯖꯃꯀ, ꯀꯤꯖꯍꯑ ꯄꯤꯌꯄꯌꯅ ꯃꯄꯑꯄꯤ ꯄꯥꯌꯂꯤꯁꯤ ꯑꯃꯁꯨꯡ ꯂꯥꯂꯀꯑꯇꯑꯄꯤꯖꯁꯒꯤ ꯍꯂꯤꯡ ꯍꯔꯁꯒꯤ ꯄꯤꯂꯑ ꯍꯒꯀꯕꯇꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯊꯕꯑ ꯑꯀꯂ ꯃꯁꯨꯡꯀ ꯌꯨꯇꯅ ꯂꯀꯅ ꯃꯌꯨꯡ ꯖꯕ ꯌꯤꯑꯕ ꯄꯥꯂꯁꯄ ꯁꯕ ꯔꯕ ꯃꯑꯂꯀ ꯂꯒꯀꯕꯇꯤ꯫

7.13.4 **ꯊꯃꯍ ꯍꯔꯀꯄ.** ꯍꯂꯤꯡ ꯇꯖꯃ ꯑꯃꯒꯤ ꯇꯑꯕ ꯀꯥꯒꯥꯇꯌꯃꯥꯅ ꯂꯗꯤꯡꯃꯑꯅ, ꯄꯃꯌꯇꯤꯂꯅ ꯂꯄꯁꯤꯖꯤꯄꯥꯌꯄꯤ ꯃꯃꯂꯀ:

- (a) ꯇꯅ 1-ꯒꯤ ꯃꯌꯤꯅꯒꯤ ꯃꯅꯑ ꯑꯀꯂ ꯇꯃꯀ 30 m-ꯀꯒꯤ ꯌꯥꯅꯀꯕ ꯃꯄꯑ ꯂꯗꯤꯡꯀ ꯑꯃꯁꯨꯡ ꯇꯃꯕꯤ ꯌꯑꯕ ꯃꯖꯃ ꯂꯗꯤꯡꯀ ꯃꯁꯃ ꯂꯌꯒꯤ ꯂꯄꯒꯥ ꯃꯄꯄꯄꯂꯤꯡꯅ ꯔꯖꯔꯀꯑꯄꯀꯕꯇꯤ; ꯑꯃꯁꯨꯡ
- (b) ꯑꯥꯌꯂꯧꯒ ꯁꯄꯕ ꯇꯥꯑꯖꯁꯌ ꯌꯇꯅꯀ ꯑꯃꯁꯨꯡ ꯂꯥꯌꯕꯥꯑꯄꯤ ꯇꯃ ꯔꯖꯁꯕ ꯌꯇꯌ ꯂꯗꯤꯡꯃꯑꯄꯤ ꯍꯅꯒꯤ ꯀꯑꯂꯀꯃꯅꯌꯂꯤꯀ ꯂꯥꯌꯕꯥꯑ ꯇꯅꯂꯤꯡ ꯖꯌꯄꯀꯕꯇꯤ꯫

7.13.5 **ꯄꯤꯁꯥꯇꯤꯡ ꯔꯍꯂꯤꯡ.** ꯄꯂꯁꯀꯤꯔꯅꯒꯤ ꯑꯥꯌꯂꯧꯒꯥꯒꯤ ꯃꯍꯦꯟ ꯇꯄꯤꯕ ꯌꯕꯇꯤꯑ ꯍꯅꯖꯄꯂꯁꯄꯑꯔꯄ ꯊꯑꯊꯑꯕ ꯇꯌꯁꯅ, ꯇꯃ ꯊꯑꯊꯑꯕ ꯇꯌꯄꯒꯤ ꯄꯤꯑꯇꯥꯃ ꯁꯇꯕ ꯍꯂꯤꯡ ꯇꯖꯃ ꯑꯃꯒꯤ ꯃꯅꯑꯁ, ꯇꯅ 1-ꯒꯤ ꯃꯂꯨꯡꯀ, ꯄꯤꯁꯥꯇꯤꯡ ꯔꯥ, ꯌꯅ ꯇꯌꯄꯒꯤ ꯑꯥꯃꯕꯥꯊꯄꯃꯥꯅ ꯑꯃꯌꯁ ꯂꯄꯍꯀꯕꯇꯤ꯫

ꯁꯦꯝꯕꯥꯗꯦ ꯃꯄꯥꯟ. ꯍꯥꯏꯀꯣꯔꯇꯀꯤ ꯑꯣꯔꯗꯔꯁꯤꯡ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯁꯨꯡ ꯏꯄꯥꯛ ꯀꯤ ꯑꯦꯝꯂꯣꯟꯕ ꯍꯣꯏꯒꯤ ꯃꯇꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ, ꯇꯥꯖꯥꯝ ꯑꯃꯁꯨꯡꯗ, ꯑꯁꯤꯡꯁꯤꯡ ꯇꯣꯏꯅ꯫ ꯇꯥꯖꯥ ꯑꯣꯏꯕꯗꯤ ꯇꯥ ꯑꯃꯗꯒꯤ ꯑꯍꯣꯡꯕ ꯂꯦꯞꯄ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯕ, ꯇꯤꯇ ꯀꯤꯕ, ꯁꯦꯝꯕꯥꯗꯦ ꯁꯤꯕ "ꯅꯠꯔꯒꯥ ꯑꯣꯏꯅꯃꯛ ꯃꯇꯧ ꯑꯃꯁꯨꯡꯗ ꯍꯣꯡꯗꯣꯛꯄ" ("or converted in any form whatsoever") ꯊꯤꯕꯅ (ꯄꯦꯖ 4); ꯍꯣꯏꯒꯤ ꯑꯦꯝ-ꯇꯦꯛꯒꯤ ꯃꯌꯥ ꯑꯣꯏ ꯇꯥꯗꯒꯤ ꯁꯥꯡꯃꯤꯕ ꯐꯨꯝꯁꯥꯡꯁꯤꯡ (ꯐꯨꯝꯁꯥꯡ; phumshangs) ꯇꯨꯊꯥꯅꯕ ꯂꯤꯇꯤꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯏꯕꯂꯣꯏꯗꯨ ꯅꯍꯥꯛ ꯀꯅꯥꯒꯂꯣꯏꯗ ꯑꯅꯤꯗꯦ ꯇꯅꯤ ꯍꯥꯏꯔꯦ ꯃꯃꯤꯁꯤꯡꯂꯣꯏꯗꯦ ꯍꯥꯏꯕꯤ (ꯀꯨꯝꯖꯥ ꯏꯕꯥꯟꯕꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯕ)꯫ ꯍꯥꯅ ꯑꯦꯃꯤꯡꯃꯤ ꯂꯥꯏꯂꯣꯏꯔꯤ ꯕꯦꯡꯁꯦ 17 ꯖꯨꯅ 2019-ꯗ ꯑꯣꯃꯗꯃ ꯁꯤꯅꯤ, ꯑꯃꯁꯨꯡ 25 ꯏꯕꯤꯁꯔꯃꯤ 2022-ꯗ ꯍꯦꯅꯗꯦ ꯁꯦꯡꯂꯣꯏꯍꯥꯏꯕꯍꯥꯛ, ꯇꯥꯖꯥꯝ ꯍꯨꯗ ꯅꯠꯔꯒꯥ ꯑꯃꯁꯨꯡꯗ "ꯑꯦꯃꯤꯡꯃꯤ ꯑꯁꯤꯕ ꯁꯤꯡꯗꯦ" ("without the Court's leave") ꯗꯒꯤꯇꯀꯍꯦꯅꯠ ꯅꯠꯔꯒꯥ ꯃꯦꯂꯁꯃꯥꯂꯦ ꯑꯍꯠꯁ ꯁꯤꯃꯦꯅꯗꯕꯇꯤ ꯍꯥꯏꯗꯦ (ꯀꯨꯝꯖꯥ ꯏꯕꯥꯟꯕꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯕ; ꯑꯦꯂ ꯇꯍꯕꯃ ꯏꯕꯅꯤꯗꯦ [TBC]); ꯊꯦꯕꯅ ꯁꯨꯃꯤꯡꯒꯤ ꯍꯁꯕꯗ 2019-ꯒꯤ ꯂꯨꯑꯣ ꯍꯁꯨ ꯀꯕꯇꯤꯃ ꯅꯦꯁꯃꯦꯂꯠ ꯇꯤꯁꯤꯒꯦꯂꯦ ꯑꯍꯦ ꯇꯅꯂꯦꯂ ꯅꯠꯔꯒꯥ ꯇꯤꯇꯥꯝ ꯍꯅꯗ ꯅꯠꯁꯗꯦ ꯂꯨꯗ ꯇꯨꯊꯥꯀ, ꯇꯨꯃꯥꯅ ꯁꯨꯍꯕ ꯑꯃꯁꯨꯡ ꯁꯨꯃꯦꯡ ꯑꯍꯦꯠꯍꯦꯕ ꯊꯤꯗꯅꯤ (ꯀꯨꯝꯖꯥ ꯏꯕꯥꯟꯕꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯕ)꯫ ꯁꯍꯀꯤꯃꯁ ꯀꯦꯗꯤ-ꯇꯦꯡꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯠꯇꯦꯡꯗ ꯑꯦꯃꯠꯗꯦ ꯍꯣꯏꯒꯤ ꯍꯁꯥꯏꯂꯇꯦ ꯍꯕꯗꯥꯝꯀꯗ ꯁꯍꯤ ꯑꯂꯍꯗꯒꯤ ꯍꯃꯥ ꯏꯖꯕ ꯇꯦꯅ ꯑꯃꯁꯨꯡ ₹50,000-ꯗꯒꯤ ₹2 ꯂꯦꯅ ꯏꯖꯕ ꯁꯤꯃꯥ ꯀꯤꯅ (ꯄꯦꯖ 18), ꯑꯃꯁꯨꯡ ꯑꯂꯍꯗꯦ ꯍꯕꯗꯥꯇꯕ ꯇꯍꯗ ꯃꯦꯂꯁꯃꯥꯂꯦꯒꯤ ꯇꯅꯂꯦꯂ ꯑꯍꯍꯥ ꯊꯤꯕꯅ (ꯄꯦꯖ 12)꯫ ꯂꯍꯃꯒꯤ ꯁꯦꯇꯦꯅꯣꯏꯕꯒꯤ ꯍꯇꯦꯃꯁ, ꯑꯦꯀꯃꯤꯅ 2025-ꯒꯤ ꯍꯤꯏꯍ ꯑꯍꯗꯦ ꯁꯅꯂꯦꯅ ꯍꯃꯤꯅ, ꯅꯥꯒꯥ ꯅꯥꯂꯥ (Naga Nallah) ꯑꯃꯁꯨꯡ ꯀꯩꯁꯥꯝꯄꯠ (Keishampat)-ꯗꯒꯤ ꯀꯩꯁꯥꯝꯊꯣꯡ (Keishamthong) ꯑꯃꯁꯨꯡ ꯏꯂꯥꯡꯕꯝ ꯂꯩꯀꯥꯏ (Elangbam Leikai) ꯏꯖꯕ ꯇꯍꯕꯒꯤ ꯇꯦꯃꯀꯦꯃ ꯊꯕꯕ ꯂꯃꯥꯏꯅꯒꯤ ꯍꯇꯦꯃꯁ ꯇꯍ ꯅꯦꯀꯀꯂꯣꯏꯕ ꯇꯨꯊꯥꯀꯕ ꯑꯃꯗꯃ ꯁꯤꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯍꯏꯅ ꯁꯨꯃꯦꯡꯒꯤ ꯁꯦꯇꯦꯅꯣꯏꯕꯒꯤ ꯍꯇꯦꯃꯁ ꯇꯨꯊꯥꯀꯕ ꯑꯃꯗꯃ ꯑꯍꯗꯦ ꯍꯥꯏꯀꯣꯔꯇ ꯏꯇꯗ ꯀꯇꯦꯡ ꯇꯦꯇꯕ ꯑꯦꯃꯠ, 1978-ꯒꯤ "Section 24" ꯑꯦꯠ ꯁꯤꯅꯤ (ꯑꯇꯤꯍꯃ ꯀꯨꯝꯖꯥ ꯏꯕꯥꯟꯕꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯕ; ꯄꯦꯖ 24 ꯀꯅꯤꯗꯦ [TBC])꯫ ꯇꯍꯏꯅꯀꯠꯁ ꯍꯥꯅ ꯑꯦꯃꯠꯗꯦ ꯗꯃꯦꯇ ꯁꯤꯃꯕ ꯇꯤ ꯊꯗꯦꯑꯃꯀꯒꯤ ꯍꯁꯥꯏꯃꯁ ꯇꯤꯕ ꯀꯤꯁꯤꯂꯦ ꯑꯍꯗ "ꯑꯃꯤꯂ ꯍꯃ ꯇꯤꯁ" ("no substance") ꯍꯥꯏꯗꯦ ꯏꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯏ ꯇꯅꯣꯏꯦꯅꯤ (PIL No. 8 of 2025, 16 ꯖꯨꯟ 2025-ꯒꯤ ꯑꯣꯃꯗꯃ)꯫ M.A. 26/2019-ꯗ 22 ꯍꯦ 2020-ꯒꯤ ꯇꯦꯂꯇꯦꯅ ꯒꯃꯤꯂꯦ ꯁꯃꯤꯅꯕꯨꯇꯦꯅꯒꯤ ꯑꯣꯃꯗꯃꯗꯦ ꯅꯣꯏꯕ ꯇꯤꯏꯍ 4,000 ꯃꯦꯍꯒꯤ ꯅꯦꯒꯦꯁꯃꯤ ꯂꯦꯍꯍꯅꯇꯍꯛ, ꯍꯣꯏꯒꯤ ꯒꯃꯤꯖꯦꯗ ꯁꯃꯤꯊꯤꯕ ꯇꯦꯍꯍꯃꯤ (DoECC, 2025-26), ꯑꯃꯁꯨꯡ ꯂꯁꯦꯠꯗꯦ O.A. 606/2018 ꯑꯃꯁꯨꯡ O.A. 673/2018-ꯗ ꯍꯣꯏꯒꯤ ꯑꯍꯦꯠꯀ ꯁꯨꯃꯦꯅꯣꯏꯕꯒꯤ ꯍꯁꯕꯗ ꯁꯃꯤꯅꯕꯨꯇꯦꯅꯗ ꯃꯤꯀꯦꯃꯠ ꯁꯤꯅ꯫ CAG-ꯗꯦ "ꯀꯨꯍꯇꯍꯃꯥꯝꯤ ꯅꯣꯏꯕ ꯅꯁꯖꯒꯤ ꯇꯦꯊꯕꯇꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯁꯃꯦꯅꯒꯤ ꯊꯕꯇꯣꯏꯕ ꯍꯁꯤꯇ ꯁꯗꯗꯦ ꯇꯤꯃꯍꯛ" ("The overall flood fighting and control activities remained inadequate") ꯍꯥꯏꯗꯦ ꯏꯕꯅꯤ (Report No. 2 of 2017, ꯑꯦꯠꯅꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯕ); ꯅꯍꯏꯅꯒꯤ ꯅꯃꯍ, ꯂꯍꯦꯃꯠ ꯂꯤꯁꯤ ꯅꯠꯔꯒꯥ ꯇꯥꯖꯥ ꯗꯒꯤꯇꯀꯍꯦꯅꯠ ꯑꯦꯊꯦꯃꯤꯁꯤꯒꯤ ꯑꯦꯗꯤꯠ ꯑꯍꯠꯁ ꯏꯕꯅꯤꯗꯦ꯫ ꯍꯦꯂꯁꯃ ꯀꯇꯦꯂꯦꯒꯤ ꯍꯣꯒꯤ ꯍꯣꯏꯕꯣꯏꯗꯦ ꯂꯁꯦꯃꯦꯇ ꯊꯗꯦꯇꯤꯕ ꯖꯠꯇꯤ: 2043 ꯏꯖꯕ ꯁꯦꯠꯇꯦꯡꯗꯣꯏꯕ 374.48 ha-ꯗꯒꯤ 232.21 ha (ꯇꯦꯕꯜ 7.6, ꯁꯦꯝꯕꯥꯗꯦ ꯃꯄꯥꯟ)꯫ ꯍꯦꯂꯨꯁꯦꯅ ꯑꯣꯏꯗꯦ ꯑꯦꯇꯨ ꯇꯨꯊꯥꯀ ꯌꯥꯝꯅꯦ꯫ ꯍꯣꯏꯗꯦ ꯗꯤꯇꯅꯦꯣꯏꯕꯗꯦ ꯇꯍ ꯅꯦꯀꯀ ꯑꯣꯏ ꯍꯁꯍ ꯀꯨꯀꯀꯒꯤ ꯑꯅꯗꯦ ꯇꯕ ꯊꯤꯕꯕ ꯌꯥꯝꯍꯛ (ꯄꯦꯔꯥ 7.13.2), ꯀꯕꯇꯤꯃ ꯁꯃꯤꯃꯣꯏꯕꯨ ꯍꯀꯨ ꯏꯕ ꯀꯤꯃꯇꯕꯗ ꯃꯦꯂꯁꯦꯃ ꯁꯤꯕ ꯁꯤꯍꯇꯕ ꯌꯥꯝꯍꯛ (ꯄꯦꯔꯥ 7.13.3), ꯑꯃꯁꯨꯡ ꯑꯇꯦꯕ ꯇꯕꯣꯏꯕꯗꯦ ꯍꯣꯏ ꯇꯤ ꯍꯥꯏꯕ ꯅꯌꯥꯇꯕ ꯂꯦꯠꯕꯦꯃ ꯑꯗꯨ ꯇꯍꯗ ꯑꯃꯁꯨꯡ ꯀꯃꯦꯀꯃꯁꯒꯤ ꯗꯃꯨꯍꯦꯠꯂꯣꯏꯕꯗ ꯖꯕ ꯏꯕꯍꯇꯕ ꯌꯥꯝꯍꯛ (ꯄꯦꯔꯥ 7.13.4)꯫ 30 m-ꯒꯤ ꯍꯃꯑꯦꯃꯒꯤ ꯍꯃꯃ ꯑꯣꯏ ꯍꯦꯂꯨꯁꯦꯅ ꯑꯣꯏꯗꯦ ꯊꯍꯕꯇꯤ꯫

7.14 ꯀꯨꯍꯃꯤꯒꯤ ꯀꯦꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯍꯕꯦꯌꯥꯝꯅꯍꯦꯠꯂꯣꯏꯕꯒꯤ ꯁꯦꯐꯇꯤ

7.14.1 **ꯗꯦꯝ ꯁꯦꯐꯇꯤ ꯑꯦꯛꯇꯀꯤ ꯃꯔꯨꯑꯣꯏꯕ.** ꯀꯨꯍꯃꯤ ꯅꯨꯗꯣꯏꯕꯍꯃ, ꯑꯃꯁꯨꯡ ꯍꯦꯂꯨꯁꯦꯅ ꯑꯣꯏꯒꯤ ꯍꯅꯗ ꯂꯤꯕ ꯅꯠꯔꯒꯥ ꯍꯥꯏꯗꯦꯇꯕ ꯀꯦ ꯅꯨꯗꯣꯏꯕꯍꯃꯑꯦꯗꯤꯍꯃ, ꯗꯤꯇꯅꯦꯇꯃꯗꯦ ꯍꯣꯏ ꯗꯦꯝ ꯁꯦꯐꯇꯤ ꯑꯦꯛꯇ, 2021 (Dam Safety Act, 2021)-ꯒꯤ ꯍꯅꯗ "ꯂꯀꯦꯂꯣꯏꯏꯅꯗ ꯗꯦꯝ" ("specified dam") ꯑꯍꯇꯤ ꯅꯠꯔꯒꯥ ꯅꯠꯁꯦ ꯍꯥꯏꯕ ꯇꯦꯀꯑꯦꯗꯕꯇꯤ꯫ ꯑꯦꯃꯠꯑꯦ ꯍꯅꯗ, ꯂꯀꯦꯂꯣꯏꯏꯅꯗ ꯗꯦꯝ ꯍꯥꯏꯕꯂꯣꯏ ꯍꯁꯒꯤ ꯗꯦꯝ ꯑꯍꯇꯤ:

- (a) ꯇꯦꯅꯦꯃꯦꯅ ꯏꯖꯦꯗꯦꯂꯦ ꯑꯦꯃꯤꯁꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯅꯦꯍꯕ ꯍꯏꯍꯗꯒꯤ ꯗꯦꯍꯒꯤ ꯍꯊꯥ ꯏꯖꯕ ꯍꯦꯇꯃ ꯁꯃꯤꯒꯤ 15 m-ꯗꯒꯤ ꯍꯦꯗꯦ ꯁꯤꯕ; ꯅꯠꯔꯒꯥ
- (b) 10 m ꯑꯃꯁꯨꯡ 15 m-ꯒꯤ ꯍꯃꯥꯃꯁ ꯁꯤꯕ, ꯑꯦꯃꯦꯂꯠꯑꯦ ꯑꯇꯤꯕ 500 m-ꯗꯒꯤ ꯍꯦꯊꯗꯕ, ꯅꯠꯔꯒꯥ ꯃꯤꯇꯃꯒꯦꯁꯃꯒꯤ ꯑꯦꯀꯦꯂꯣꯏꯁꯤ m³ ꯍꯤꯇꯤꯁꯦ ꯑꯍꯗꯒꯤ ꯍꯦꯊꯗꯕ, ꯅꯠꯔꯒꯥ ꯗꯦꯍꯗꯦ ꯁꯦꯕꯣꯏꯅꯇꯤꯕ ꯍꯦꯃꯣꯏꯍꯍ ꯏꯇꯗ ꯗꯤꯂꯁꯤꯇ 2,000 m³/s-ꯗꯒꯤ ꯍꯦꯊꯗꯕ, ꯅꯠꯔꯒꯥ ꯗꯦꯍꯗ ꯑꯅꯦꯇꯦꯗꯦ ꯑꯃꯕ ꯏꯖꯕꯗꯦꯂꯦꯒꯤ ꯂꯍꯂꯁꯣꯏꯕ ꯇꯕ, ꯅꯠꯔꯒꯥ ꯗꯦꯍ ꯑꯣꯏ ꯍꯍꯂꯒꯤ ꯅꯠꯁꯕ ꯗꯤꯇꯅꯦꯒꯤ ꯑꯅꯕ꯫

ꯍꯣꯏ ꯂꯀꯦꯂꯣꯏꯏꯅꯗ ꯗꯦꯝ ꯑꯍ ꯑꯅꯃꯕꯗ, ꯍꯦꯂꯨꯁꯦꯅ ꯑꯣꯏꯒꯤ ꯍꯊꯥꯃꯁ ꯍꯦꯗꯦ, ꯑꯦꯃꯠ ꯑꯃꯁꯨꯡ ꯂꯁꯦꯠ ꯗꯦꯝ ꯁꯦꯐꯇꯤ ꯑꯣꯃꯒꯦꯅꯥꯏꯖꯦꯁꯟ (State Dam Safety Organisation)-ꯒꯤ ꯍꯊꯦ ꯁꯕꯣꯏꯕ ꯍꯃ ꯑꯅ꯫

7.14.2 **ꯐꯤꯚꯝ ꯀ꯭ꯂꯥꯁ.** ꯃꯅꯤꯄꯨꯔꯒꯤ ꯗꯦꯝ ꯁꯦꯐꯇꯤ ꯄ꯭ꯔꯣꯐꯥꯏꯂꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯃꯁꯤꯒꯤ ꯐꯤꯚꯝ ꯀ꯭ꯂꯥꯁ ꯑꯁꯤ ꯃꯈꯥꯗꯥ ꯄꯤꯔꯤ:

- **ꯍꯧꯖꯤꯛ ꯐꯤꯚꯝ:** ꯃꯁꯤ ꯈꯪꯅꯕ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯟꯕ ꯂꯩꯔꯤꯕ, ꯑꯗꯨꯕꯨ ꯐꯤꯚꯝ ꯑꯁꯤ ꯃꯄꯨꯡ ꯐꯥꯅꯥ ꯁꯣꯌꯗꯅꯥ ꯈꯉꯗꯨꯅꯥ ꯍꯥꯏꯕꯥ ꯉꯝꯗꯔꯤ꯫
- **ꯗꯦ ꯐꯤꯚꯝ:** ꯑꯄꯨꯅꯕ ꯈꯪꯅꯕ ꯌꯦꯡꯁꯤꯟꯕ꯫

7.14.3 **ꯃꯈꯥ-ꯐꯤꯚꯝꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ.** ꯃꯈꯥ-ꯐꯤꯚꯝꯒꯤ ꯄ꯭ꯔꯣꯐꯥꯏꯂꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯀꯁ꯭ꯄꯥꯟꯁꯟ ꯑꯣꯏꯕꯁꯤꯡꯗꯤ:

- (a) ꯑꯗꯣꯝꯒꯤ ꯂꯩꯔꯤꯕ ꯍꯥꯏꯕꯥ ꯑꯦꯛꯁꯄꯣꯖꯔꯒꯤ ꯁꯦꯛꯁꯟ 7.7.4(b)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯇꯧꯔꯕꯥ MWL-ꯗ 1% AEP ꯐ꯭ꯂꯗꯀꯤ ꯊꯧꯗꯣꯛ ꯌꯥꯝꯅꯥ ꯇꯥꯔꯤ, ꯑꯃꯁꯨꯡ ꯃꯔꯨꯒꯤ ꯈꯣꯉꯖꯦꯜꯒꯤ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ 0.2% AEP (500-yr) ꯐ꯭ꯂꯗꯀꯤꯗꯃꯛ ꯁꯤꯡ ꯊꯣꯛꯂꯤ (ꯇꯦꯕꯜ 4-ꯗ ꯌꯦꯡꯁꯤꯟꯕ ꯈꯪꯅꯕꯒꯤꯗꯃꯛ ꯄꯥꯈꯨꯝ);
- (b) ꯃꯁꯤ ꯂꯦꯞꯄꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯑꯃꯁꯨꯡ MWL-ꯗ ꯃꯁꯤ ꯂꯦꯞꯄꯅꯥ ꯐꯣꯡꯗꯣꯛ ꯐꯪꯗꯕ ꯑꯣꯏꯔꯕ ꯑꯃꯠꯇ ꯈꯪꯕ ꯊꯣꯛꯂꯤ;
- (c) ꯃꯁꯤ ꯂꯦꯞꯄꯒꯤ ꯑꯣꯏꯔꯤꯕꯒꯤꯗꯃꯛ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯈꯣꯉꯖꯦꯜ ꯊꯦꯡꯅꯕꯒꯤ ꯊꯦꯡꯅꯕꯥ ꯇꯧꯔꯕꯥ ꯐꯪꯗꯕꯒꯤ ꯑꯣꯏꯕ ꯃꯊꯧ ꯑꯃꯁꯨꯡ ꯀꯥꯔꯤꯅꯥ ꯊꯣꯛꯂꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯁꯦꯛꯁꯟ 10.6-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯑꯃꯠꯇ ꯑꯦꯛꯁꯥꯏꯖ ꯊꯣꯛꯂꯤ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡꯒꯤ ꯈꯨꯗꯝ ꯁꯤꯡ ꯊꯣꯛꯂꯤ꯫

7.14.4 **ꯊ꯭ꯔꯦꯁꯣꯜꯗꯁꯤꯡ.** ꯁꯦꯛꯁꯟ 7.7-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯈꯨꯗꯝ ꯄꯤꯅꯕ ꯄ꯭ꯔꯣꯐꯥꯏꯜ ꯈꯪꯅꯕ, ꯑꯃꯁꯨꯡ ꯃꯈꯥ-ꯐꯤꯚꯝ ꯃꯁꯤ ꯈꯪꯅꯕ, ꯍꯧꯖꯤꯛꯀꯤ ꯃꯍꯩꯗ (31 ꯃꯦ ꯑꯣꯏꯕ) ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯟ ꯇꯧꯕ ꯌꯥꯕ ꯈꯪꯅꯕꯒꯤ ꯃꯇꯝꯗ (ꯇꯦꯕꯜ 10) ꯂꯤꯁ꯭ꯇ, ꯊꯦ ꯃꯥꯡꯂꯣꯏꯗꯕ, ꯂꯦꯞꯄꯂꯣꯏꯕ, ꯂꯩꯒꯤ ꯂꯧꯕꯂꯣꯏꯕ, ꯃꯁꯤꯗ ꯊꯕ ꯁꯥꯒꯠꯂꯣꯏꯕ, ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯐꯪꯂꯣꯏꯕꯒꯤ ꯗꯦꯇꯥꯒꯤꯗꯃꯛ ꯊ꯭ꯔꯦꯁꯣꯜꯗ ꯊꯣꯛꯂꯤ꯫

7.14.5 **ꯑꯐꯕ ꯊꯧꯗꯣꯛ ꯂꯦꯞꯄ ꯐꯤꯚꯝ.** ꯂꯩꯅꯕꯗꯤꯒꯤ ꯐꯤꯚꯝꯗꯒꯤ ꯃꯔꯦꯜꯕꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯑꯣꯏꯔꯕ, ꯂꯧꯁꯤꯟꯕ ꯃꯤ ꯑꯃꯠꯇꯅꯥ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ ꯃꯇꯝꯗ ꯄ꯭ꯔꯣꯐꯥꯏꯜꯒꯤ ꯃꯁꯤ ꯑꯣꯏꯕ ꯑꯗꯣꯝꯒꯤ ꯂꯩꯔꯤꯕ ꯂꯦꯞꯄꯅꯥꯗꯨꯅꯥ, ꯑꯣꯏꯔꯕꯅꯥꯗꯨꯅꯥ ꯑꯣꯏꯕ ꯊꯧꯗꯣꯛꯄ ꯐꯣꯡꯗꯣꯛꯄꯅꯥꯗꯨꯅꯥ꯫

> **ꯁꯛꯁꯤꯒꯤ ꯅꯣꯠ.** ꯃꯅꯤꯄꯨꯔꯒꯤ ꯗꯦꯝꯒꯤ ꯗꯦꯝ ꯁꯦꯐꯇꯤ ꯑꯃꯁꯨꯡ ꯗꯦꯝ ꯂꯦꯖꯤꯁ ꯑꯦꯛꯇ, 2021 (2021-ꯒꯤ ꯑꯦꯛꯇ ꯅꯝꯕꯔ 41)-ꯗꯒꯤ ꯂꯧꯕ ꯊꯣꯛꯂꯤ꯫ ꯑꯦꯛꯇꯇꯥ "ꯗꯦꯝ" ("dam") ꯑꯁꯤ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ ꯑꯣꯏꯕ ꯆꯥꯡꯒꯤ ꯄꯥꯝꯕꯤꯕ ꯊꯨꯃꯖꯤꯟꯕ ꯑꯣꯏꯕ ꯊꯥꯕꯤꯌꯥꯏꯕꯒꯤ ꯈꯨꯗꯝꯒꯤ ꯂꯧꯕ ꯈꯨꯗꯣꯡ ꯂꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯔꯕꯥ ꯄꯥꯟꯗꯝ ꯃꯤꯍꯩ ꯊꯥ꯫ ꯈꯨꯗꯣꯡ ꯗꯦꯇꯥ ꯑꯦꯀꯁ꯭ꯄꯥꯟꯁꯟ, ꯃꯅꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯒꯅꯗ ꯊꯤꯗꯣꯛꯀꯤ ꯄꯥꯅꯗꯃꯅ꯫ ꯐꯦꯟꯁ, ꯆꯦꯅꯜ, ꯐꯤꯟ, ꯊꯥꯕꯟ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯅꯕꯗꯤ ꯑꯄꯨꯅꯕ ꯊꯨꯃꯖꯤꯟꯕꯒꯤ ꯈꯨꯗꯣꯡ ꯊꯕ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯊꯨꯃꯖꯤꯟꯕꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯣꯏ ꯑꯦꯛꯇꯇꯥ ꯄꯥꯟꯗꯝꯂꯝ ꯐꯣꯡꯗꯣꯛꯂꯤꯕ ꯃꯔꯨꯑꯣꯏꯕꯅꯤ; ꯈꯨꯗꯣꯡꯒꯤ ꯑꯁꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯟꯕ ꯏꯕꯨꯡꯉꯣ [TBC], ꯑꯃꯁꯨꯡ MASTEC-ꯇꯥ ꯐꯦꯟꯁ ꯊꯨꯃꯖꯤꯟꯗ ꯑꯍꯥꯟꯂ ꯃꯏꯦ 11, ꯊꯥꯕꯟꯗ 14 ꯑꯃꯁꯨꯡ ꯐꯤꯟꯗ 5 ꯈꯨꯗꯝ ꯊꯤꯔꯦ꯫ ꯊꯥꯕꯟ (ꯈꯨꯃꯥꯏꯊꯣꯡ) ꯗꯦꯝ, 66 m ꯍꯥꯕ ꯑꯃꯁꯨꯡ 1,074 m ꯑꯁꯥꯡꯕ ꯄꯔꯦ ꯃꯤꯁꯛꯀꯤ ꯊꯣꯛꯂꯕ ꯗꯦꯝ ꯑꯃꯁꯤ, ꯑꯗꯨ ꯑꯦꯛꯇꯀꯤ ꯃꯇꯨꯡ ꯊꯨꯃꯖꯤꯟ ꯑꯃꯒꯤ ꯈꯨꯗꯣꯡꯒꯤ ꯊꯕ ꯗꯦꯝ ꯑꯃꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯛꯇꯀꯤ ꯗꯦꯝ ꯁꯦꯐꯇꯤ, ꯐꯊꯐ ꯕꯦꯃꯦꯇꯂ ꯑꯃꯠꯇꯅꯤ (NEER-ꯒꯤ ꯃꯇꯦ; ꯈꯨꯗꯣꯡꯒꯤ ꯑꯍꯥꯟꯕ ꯏꯕꯨꯡꯉꯣ [TBC]); ꯈꯪꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯕꯥ ꯗꯦꯝꯂꯣꯏꯕ ꯄꯥꯅꯥꯏꯝꯂꯣꯏꯕꯗ ꯈꯨꯗꯣꯡꯒꯤ ꯍꯧꯕ ꯍꯩꯅꯥꯇꯥ ꯈꯨꯈꯤꯕ ꯇꯥꯔꯤ [TBC]꯫ ꯈꯨꯗꯤꯡꯃꯛ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯗꯦꯝ ꯑꯐꯕ ꯈꯨꯗꯣꯡ ꯍꯕ ꯍꯥꯕ ꯃꯁꯤ ꯑꯃꯁꯨꯡ ꯊꯨꯃꯖꯤꯟ ꯃꯇꯦ ꯂꯩꯅꯕꯥ ꯄ꯭ꯔꯣꯐꯥꯏꯜ ꯑꯃꯁꯨꯡ ꯏꯕꯨꯡꯉꯣ, ꯑꯃꯠꯇ ꯈꯨꯗꯣꯡꯁꯤꯡ ꯑꯣꯏꯒꯤꯗꯃꯛ ꯃꯁꯤ ꯂꯩꯅꯕꯥ ꯑꯣꯏꯅꯕꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯊꯣꯛꯂꯤ [TBC]; ꯈꯪꯅꯕꯗꯤ ꯁꯦꯛꯁꯟ 7.14.1-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯂꯦꯞꯄꯤꯔꯤ ꯊꯣꯛꯂꯤ꯫ ꯃꯁꯤ ꯑꯗꯣꯝꯒꯤ ꯄ꯭ꯔꯣꯐꯥꯏꯜ ꯑꯃꯒꯤ ꯂꯧꯁꯤꯟꯕ ꯁꯦꯛꯁꯟ 7.7-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯈꯨꯗꯝ ꯄꯤꯅꯕ ꯃꯏꯦꯗ, ꯑꯦꯛꯇ ꯑꯃꯠꯇ ꯍꯣꯠꯅꯕꯗꯤ, ꯈꯨꯗꯣꯡ ꯊꯨꯃꯖꯤꯟ ꯃꯁꯤ ꯑꯃꯠꯇ, ꯈꯨꯗꯣꯡꯒꯤ ꯐꯥꯑꯣꯕꯥ ꯇꯧꯔꯕꯥ, ꯁꯦꯛꯁꯟ 7.14.2-ꯒꯤꯗꯃꯛ ꯄ꯭ꯔꯣꯐꯥꯏꯜꯒꯤ ꯃꯁꯤ ꯑꯃꯅꯤ꯫ ꯈꯨꯗꯣꯡ ꯑꯗꯣꯝꯒꯤ ꯊꯨꯃꯖꯤꯟꯕ ꯑꯃꯒꯤ ꯈꯨꯗꯣꯡꯒꯤ ꯊꯣꯛꯄ ꯄ꯭ꯔꯣꯐꯥꯏꯜꯒꯤ ꯃꯁꯤ ꯑꯃꯠꯇ ꯑꯦꯛꯇꯀꯤ ꯃꯇꯨꯡ "ꯗꯦꯝ" ("dam") ꯑꯃꯅꯤ ꯑꯗꯣꯝꯒꯤ ꯑꯦꯛꯇ ꯄꯔꯦꯕꯁꯤ ꯈꯨꯗꯣꯡꯒꯤ ꯊꯧꯗꯥꯡꯒꯤ ꯈꯔꯥ ꯂꯩꯔꯦ꯫ ꯈꯨꯗꯤꯡꯃꯛ ꯃꯔꯨꯒꯤ ꯐꯤꯚꯝ ꯑꯗꯨ ꯃꯁꯤ ꯂꯦꯞꯄꯅꯤ꯫ 28-ꯗꯒꯤ 31 ꯃꯦ 2024-ꯒꯤ ꯃꯩꯈꯨꯒꯤ ꯐꯣꯡꯗꯣꯛ ꯐꯪꯕꯗ ꯃꯁꯤ ꯂꯦꯞꯄ 18 ꯊꯥꯔꯦ, ꯈꯨꯗꯣꯡꯒꯤ ꯈꯨꯗꯝꯗ 17 ꯂꯩꯔꯦ ꯊꯣꯛꯂꯦ (ꯃꯇꯦꯗ ꯏꯄꯨꯗꯨꯕꯨ ꯈꯨꯗꯝ ꯐꯪꯗꯦ); 2024 ꯑꯃꯁꯨꯡ 30 ꯃꯦꯗꯒꯤ ꯖꯨꯟ 2025-ꯒꯤ ꯐꯣꯡꯗꯣꯛ ꯐꯪꯕꯗꯒꯤ ꯐꯦꯟꯁ ꯊꯨꯃꯖꯤꯟ ꯂꯩꯄꯥꯛ, ꯄꯣꯠꯂꯝ, ꯕꯣꯂꯤꯈꯨꯝ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜ ꯁꯥꯡꯒꯣꯟ ꯑꯃꯁꯨꯡ ꯂꯧꯕꯨꯛ, ꯍꯕꯃ ꯑꯃꯁꯨꯡ ꯇꯥꯈꯦꯜꯂꯣꯏꯕꯃ ꯊꯣꯛꯂꯦ ꯃꯁꯤ ꯂꯦꯞꯄꯥ, ꯑꯃꯁꯨꯡ ꯆꯦꯅꯜ ꯃꯏꯦ ꯃꯦꯡꯗ ꯃꯁꯤ ꯂꯦꯞꯄꯥ; ꯑꯃꯁꯨꯡ ꯑꯣꯀꯇꯣꯕꯔ 2025-ꯗ ꯐꯤꯟ ꯂꯥꯂꯣꯡꯒꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏ (Kshetri Awang Leikai)-ꯗ ꯃꯁꯤ ꯂꯦꯞꯄꯥ (ꯃꯇꯦꯈꯨꯝ ꯃꯇꯦꯗ ꯏꯄꯨꯗꯨꯕꯨ ꯈꯨꯗꯝ ꯐꯪꯗꯦ)꯫ ꯃꯃꯥꯡꯗ ꯑꯗꯨ ꯑꯣꯏꯔꯤ: 1966-ꯒꯤ ꯐꯣꯡꯗꯣꯛ ꯐꯪꯕꯗ ꯃꯏꯦ 60-ꯗ, 1989-ꯒꯤꯗꯥ 40-ꯗ ꯑꯃꯁꯨꯡ 2002-ꯒꯤꯗꯥ 59-ꯗ ꯃꯁꯤ ꯂꯦꯞꯄꯥꯔꯦꯍꯦ (MASTEC)꯫ ꯏꯔꯥ ꯊꯣꯛꯄ ꯃꯁꯤ ꯑꯃꯅꯥ ꯈꯨꯗꯣꯡꯒꯤ ꯈꯨꯗꯝꯗ ꯊꯕ ꯆꯦꯗ ꯐꯣꯡꯗꯣꯛ ꯐꯪꯕ ꯊꯥꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯂꯦꯞꯄ ꯑꯃꯅꯥ ꯐꯊꯕ ꯑꯃꯠꯇ ꯊꯣꯛꯂꯤꯕꯅꯥ: "ꯈꯨꯗꯣꯡꯒꯤ ꯏꯅꯥꯡꯂꯣꯏꯕ ꯏꯔꯥ ꯊꯣꯛꯄꯅꯥ ꯑꯍꯦꯛ ꯑꯣꯏꯔꯤꯕꯂꯣꯏꯕꯗ ꯊꯥꯒꯤ ꯍꯩꯅꯥꯇꯥ ꯐꯣꯡꯗꯣꯛ ꯂꯝꯍꯦꯟꯔꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, APD, 2024)꯫ ꯈꯨꯗꯣꯡ ꯊꯕ ꯗꯦꯝꯂꯣꯏꯕꯗꯒꯤ ꯃꯇꯦꯡꯂꯣꯏꯕ ꯑꯣꯏꯕ ꯑꯄꯨꯅꯕ ꯐꯤꯚꯝꯗꯤ: ꯈꯨꯃꯥꯏꯊꯣꯡ ꯃꯇꯦꯡꯒꯤ ꯋꯥꯔꯦ 1 ꯑꯒꯁ꯭ꯠ 2015-ꯗ 876 m-ꯗ ꯊꯥꯔꯦ,

> "ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡꯗꯒꯤ 2 m ꯃꯊꯛ ꯇꯥꯎꯏ" ("nearly 2 m above the spillways") (ꯁꯦꯛꯁꯟ ꯈꯣꯡꯊꯥꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ), ꯑꯃꯁꯨꯡ ꯃꯇꯝꯗ ꯁ꯭ꯄꯤꯜꯋꯦ 2,240 ꯀ꯭ꯌꯨꯃꯦꯛꯁꯤꯡꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯂꯥꯛꯈꯤ (ꯁꯦꯛꯁꯟ ꯈꯣꯡꯊꯥꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ)꯫ ꯃꯁꯤꯅꯥ ꯑꯣꯏꯔꯤꯕꯗꯤ ꯄꯥꯛ, ꯍꯥꯏ, ꯄꯥꯟ ꯇꯧꯕꯥ ꯄ꯭ꯔꯃꯥꯅ ꯑꯃꯁꯨꯡꯒꯤ ꯄꯨꯛ ꯐꯣꯡꯗꯣꯛꯀꯤ ꯃꯁꯥ ꯇꯧꯕꯥ ꯅꯃꯊꯦꯡꯒꯤ ꯑꯦꯡꯂꯨꯛ ꯄ꯭ꯔꯧꯃ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯅꯥ꯫ ꯃꯊꯛ ꯑꯗꯨꯗ ꯁꯦꯛꯁꯟ 7.14.3-ꯗ ꯃꯤꯠꯌꯦꯡ ꯑꯣꯏꯕꯒꯤ ꯃꯇꯝ ꯃꯣꯏꯕ ꯀꯨꯗ꯭ꯔꯥꯔꯤꯅ ꯗꯤꯟ-ꯗꯔꯃꯥ ꯄꯥꯂꯣꯏꯕꯒꯤꯁꯨꯡ ꯄꯥꯟ ꯈꯣꯡꯄꯒꯤ ꯃꯥꯄ ꯂꯩꯅ ꯑꯃꯁꯨꯡ ꯅꯃꯊꯦꯡꯒꯤ ꯑꯦꯡꯂꯨꯛ ꯄ꯭ꯔꯧꯃ ꯑꯃꯁꯨ ꯗꯤꯔꯇꯦ, ꯁꯦꯛꯁꯟ 2.3.6(i)-ꯗ ꯂ꯭ꯃꯥꯟꯒꯤ ꯄꯥꯂꯣꯏꯕꯒꯤ ꯄꯥꯟ ꯈꯣꯡꯄꯒꯤ ꯆꯊꯔꯤꯑꯣꯏꯕꯅ ꯗꯔꯃꯥ-ꯑꯗꯤꯆꯔ ꯂꯥꯅꯌꯣꯏꯕ ꯑꯅꯆꯗ ꯇꯥꯅ, ꯑꯃꯁꯨꯡ ꯂꯃꯥꯏ 5-ꯗ ꯄꯥꯎꯗ ꯇꯥꯏ ꯂꯩꯃꯔ ꯂꯩ꯭ꯁꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯤꯇꯒꯤ ꯃꯤꯍꯣꯏꯕꯅ ꯅꯣꯏꯕ ꯅꯍꯦ꯭ꯁꯕ ꯂꯣꯏꯣꯏꯕꯒꯤ ꯑꯅꯔ ꯑꯦ꯭ꯁꯌꯈꯦꯟꯅꯣꯏꯕ ꯑꯅꯆꯗ ꯇꯥꯅ꯫ ꯗꯔꯃꯥ ꯁꯦꯗꯂꯣꯏꯕ, ꯄꯥꯟ ꯈꯣꯡꯄꯒꯤ ꯑꯗꯦꯗꯅꯣꯏꯂ ꯑꯃꯁꯨꯡ ꯗꯤꯟ-ꯗꯔꯃꯥ ꯂ꯭ꯃꯥꯟꯒꯤꯑꯣꯏꯕꯒꯤ ꯅꯃꯊꯦꯡꯒꯤ ꯑꯦꯡꯂꯨꯛ ꯄ꯭ꯔꯧꯃ ꯑꯣꯏ ꯃꯤꯠꯌꯦꯡ ꯑꯣꯏꯗ ꯊꯗꯔꯆꯤ꯫ ꯃꯍꯥꯛꯅ ꯕꯤꯗꯕꯣꯝ ꯔꯣꯏꯁꯣꯏꯕꯒꯤ ꯂꯃꯥꯏ 4-ꯒꯤ ꯃꯇꯦꯡ ꯄꯣꯠ (ꯑꯦ꯭ꯁꯌꯆꯌ ꯔꯆꯥꯏ ꯂꯩꯕꯥ 1% AEP ꯁ꯭ꯄꯤꯜꯋꯦ, ꯗꯤꯟ-ꯗꯔꯃꯥ ꯔꯣꯏꯁꯣꯏꯕꯒꯤꯕꯨ 0.2% AEP) ꯑꯃꯨ ꯕꯤꯗꯅꯕ ꯂꯩꯃꯆ ꯑꯅꯆꯗ ꯃꯣꯏꯕ ꯀꯨꯗ꯭ꯔꯥꯔꯤꯅ ꯂ꯭ꯃꯥꯟꯒꯤꯑꯣꯏꯕ ꯗꯦꯝꯌꯗꯔꯆꯤ꯫

7.15 ꯂꯧꯁꯤꯟꯕꯒꯤ ꯃꯇꯦꯡ ꯄꯣꯠꯂꯣꯏꯕ

ꯁꯦꯛꯁꯟ 7.1.2-ꯒꯤ ꯃꯍꯦꯕ ꯕꯣꯔꯣꯆꯄꯥꯃꯦꯗꯌ ꯆꯌꯃꯥꯛ ꯊꯔꯕ ꯑꯃꯒꯤ ꯅꯃꯊ ꯃꯤꯄꯥꯏꯃꯌ ꯅ꯭ꯕꯤꯕꯃꯕꯄ ꯃꯍꯥꯛꯒꯤꯑꯣꯏꯕ ꯀꯨꯗ꯭ꯔꯥꯛꯕꯔꯆꯤ:

1. ꯁꯦꯛꯁꯟ 7.3.2-ꯒꯤ ꯃꯍꯦꯕ **ꯅꯣꯏꯕ ꯆꯈꯊꯒꯤ ꯂꯣꯌ (ꯈꯃꯊ 7-1)**, ꯂꯣꯌꯔꯣꯕ ꯇꯦꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯅ꯭ꯊꯈꯊ (ꯃꯄꯥꯟ ꯂꯩꯃꯔ ꯑꯣꯕꯂꯄꯦꯌ, ꯗꯅꯕ꯭ꯃꯇꯤꯕ ꯂ꯭ꯄꯕ ꯆꯌꯃꯥꯛ ꯈꯤꯕꯂ ꯂꯩꯃꯔ ꯄꯥꯏꯕꯆꯔ)-ꯛ ꯇꯥꯏꯗꯗ;
2. ꯁꯦꯛꯁꯟ 7.3.4-ꯗ ꯃꯇꯦꯡ ꯄꯣꯠ ꯃꯈꯊꯕ, 1% AEP ꯑꯣꯕꯂꯄꯦꯌ ꯑꯃꯁꯨꯡ ꯈ꯭ꯇꯕꯔꯒꯤ ꯗꯅꯕ꯭ꯃꯇꯤꯕ ꯂ꯭ꯄꯕ;
3. ꯈ꯭ꯇꯕ ꯈ꯭ꯃꯤꯗꯆꯕ ꯈꯤꯀ ꯄ꯭ꯃꯄꯥꯆ ꯂꯩꯃꯔ ꯃꯈꯊꯕ, ꯑꯆꯤꯒꯣꯂꯗ ꯔꯣꯗꯕꯁꯤ ꯃꯇꯨꯡ ꯅꯗꯗ **ꯁꯊꯄꯥꯗꯂꯣꯃꯤ ꯂ꯭ꯄꯃꯥꯆꯒꯤ ꯁꯣꯀ꯭ꯁꯆꯣꯂꯗ (ꯈꯃꯊ 7-3)**;
4. ꯃꯣꯏꯕ ꯀꯨꯗ꯭ꯔꯥꯔꯤꯅ ꯂ꯭ꯃꯥꯟꯒꯤꯑꯣꯏꯕ ꯂ꯭ꯄꯃꯥꯆ ꯑꯃꯃꯕꯁꯤꯕꯃꯕ: ꯁꯦꯛꯁꯟ 7.7.1-ꯒꯤ ꯂꯃꯒ, ꯂ꯭ꯄꯆ–ꯂ꯭ꯄꯃꯥꯆ ꯁꯃꯒ, ꯑꯄꯥꯃꯥꯂꯕ ꯃ꯭ꯀ, ꯁꯣꯂ꯭ꯁꯕ ꯃꯕꯀꯒꯤ ꯈꯀꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯁ꯭ꯂꯄꯕꯤꯍꯗꯒꯤ ꯀꯨꯆꯔꯛ ꯇꯥꯏꯗꯗ **ꯂ꯭ꯃꯥꯟꯒꯤꯒꯤ ꯂ꯭ꯄꯃꯥꯆ ꯁ꯭ꯃꯕꯤꯌꯁꯤ ꯂꯣꯌ (ꯈꯃꯊ 7-2)**;
5. ꯇꯗ 1-ꯕ ꯁ꯭ꯃꯂꯣꯏꯕ, ꯑꯦ꯭ꯁꯌꯈꯀ ꯆꯌꯃꯥꯛ ꯊꯔꯕ ꯑꯃꯃꯕꯁꯤꯕꯃꯕ: ꯁ꯭ꯂꯄꯕꯤꯍꯗꯒꯤ NOC ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 7.6.2 ꯆꯌꯃꯥꯛ 7.10.3-ꯒꯤ ꯗꯅꯕ꯭ꯃꯇꯤꯕ ꯑꯗꯦꯗꯅꯣꯏꯂ;
6. ꯃꯂ꯭ꯄꯃꯥꯂꯗ ꯆꯌꯃꯥꯛ ꯆ꯭ꯃꯥ ꯇꯊꯕꯄꯥꯛꯕꯃꯕ: ꯁꯦꯛꯁꯟ 7.9-ꯒꯤ ꯊꯔꯕꯁꯤ ꯃꯃꯤꯕꯒꯤ ꯂꯃꯒ, ꯆ꯭ꯃꯥꯒꯤ ꯄꯂ꯭ꯌꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯗꯅꯕ꯭ꯃꯇꯤꯑꯇꯤꯁꯀ ꯃꯤꯄꯥꯏꯃꯌ; ꯑꯃꯁꯨꯡ
7. ꯄꯥꯎ ꯑꯃꯃꯕꯁꯤꯕꯃꯕ: ꯁꯦꯛꯁꯟ 7.14-ꯒꯤ ꯕꯊ ꯂꯈꯄꯤ ꯑꯕꯌꯁꯤ ꯂ꯭ꯁꯃꯤꯆꯤꯕ ꯑꯃꯁꯨꯡ ꯗꯔꯃꯥ ꯁꯦꯗꯂ꯫

7.16 ꯃꯤꯒꯤꯁ꯭ꯕ ꯑꯃꯁꯨꯡ ꯑꯄꯥꯕꯌ

7.16.1 ꯂ꯭ꯃꯥꯏ ꯑꯣꯏ ꯃꯤꯠꯌꯦꯡꯒꯤ ꯑꯃꯊꯔꯣꯏꯕꯛ ꯇꯥꯏꯗꯗ ꯃꯤꯒꯤꯁ꯭ꯕ ꯄꯛꯕꯔꯆꯤ (ꯂ꯭ꯃꯥꯏ 1)꯫ ꯑꯊꯃꯤꯄꯤꯗ ꯃꯣꯏꯕꯒꯤ ꯑꯃꯤꯍꯦꯒꯤꯕꯃꯕ 1% AEP ꯅꯣꯏꯕ ꯅꯍꯦ꯭ꯁꯒꯤ ꯃꯄꯥꯂꯣꯏꯕ ꯇꯃꯔ ꯃꯇꯨꯡꯕ ꯍꯗꯤ 2-ꯒꯤ ꯃꯇꯨꯡꯕ ꯁꯦꯛꯁꯟ 7.4.6-ꯒꯤ ꯈꯤꯕꯂ ꯂꯩꯃꯔ ꯄꯥꯏꯕꯆꯔꯒꯤ ꯄꯔꯀ ꯑꯣꯏꯂ꯭ ꯃꯤꯒꯤꯁ꯭ꯕ ꯄꯛꯕꯔꯆꯤ꯫

7.16.2 ꯑꯊꯃꯤꯄꯤꯗ ꯑꯆꯔ 1% AEP ꯅꯣꯏꯕ ꯅꯍꯦ꯭ꯁꯒꯤ ꯃꯄꯥꯂꯣꯏꯕ ꯇꯃꯔ ꯃꯈꯊꯕ, ꯑꯊꯃꯤꯄꯤꯗ ꯄꯁꯦꯗ ꯆꯄꯤꯈꯅ ꯄꯗ꯭ꯃꯔꯕꯤ, ꯃꯍꯥꯛ ꯇꯃꯔ ꯃꯇꯨꯡꯕ **ꯊ 6** ꯊꯁꯄꯥꯕ ꯑꯆꯔ ꯂꯧꯁꯤꯟꯕꯒꯤꯕ ꯍꯌꯆꯤ꯫

ꯂꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- Government of Manipur, Municipal Administration, Housing and Urban Development Department. *The Model Manipur Unified Building Bye-Laws, 2024*, Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024, Manipur Gazette Extraordinary No. 253, 5 ꯗꯤꯁꯦꯝꯕꯔ 2024, Manipur Municipalities Act, 1994-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ Manipur Town and Country Planning Act, 1975-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1)-ꯒꯤ ꯃꯈꯥꯗ "for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur" ꯐꯣꯡꯗꯣꯛꯈꯤꯕ, ꯕꯥꯏ-ꯂꯣ 1(2), 2(11), 6(1)(D), 16, 66, 92, 93 ꯑꯃꯁꯨꯡ 94 [TBC: ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯅꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯕꯥꯏ-ꯂꯣꯖꯁꯤꯡꯗ ꯅꯝꯕꯗ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯁ꯭ꯇ ꯑꯃꯨꯛ ꯅꯣꯏꯗꯅꯥ ꯈꯪꯒꯗꯕꯅꯤ], https://www.tpmanipur.mn.gov.in/media/filer_public/5b/3d/5b3d9440-3e85-4cf5-bd26-d113882dfb9a/model_manipur_ubbl_final_gazette.pdf ; ꯑꯃꯁꯨꯡ ꯁ꯭ꯐꯦꯐꯇ *Imphal Municipal Corporation Building Bye-Laws (3rd Amendment), 2024*, ꯕꯥꯏ-ꯂꯣ 92, 93.1 ꯑꯃꯁꯨꯡ 93.2 (ꯑꯣꯕꯖꯦꯛꯁꯅꯁꯤꯡꯒꯤꯗꯃꯛ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ; ꯑꯔꯣꯏꯕ ꯇꯦꯛꯁ꯭ꯇ ꯂꯣꯏꯁꯤꯜꯂꯕ ꯐꯪꯗꯔꯤꯁꯦ [TBC]), https://www.tpmanipur.mn.gov.in/media/filer_public/22/ef/22ef77df-5b8c-4a80-9fa0-553d8a60a170/amendment_of_imc_building_bye_laws_2024.pdf
- Government of Manipur, MAHUD. *Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026*, Notification No. BBL-101/1/2024-MAHUD-MAHUD, 22 ꯖꯨꯂꯥꯏ 2026, Manipur Gazette Extraordinary No. 157, 23 ꯖꯨꯂꯥꯏ 2026, https://www.tpmanipur.mn.gov.in/media/filer_public/44/2b/442b7923-b910-494a-83d5-767f50c0c87c/unified_zoning_final_gazette.pdf
- Government of Manipur, MAHUD. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, No. SCS-401/3/2021-MAHUD-MAHUD-Part(3), 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯗꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯤꯕ (Wayback ꯀꯦꯞꯆꯔ 20250810073559), https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf ; Risk Informed GIS Based Master Plans for Imphal and Moirang (17 ꯖꯅꯨꯋꯔꯤ 2025-ꯒꯤꯗꯃꯛ ꯑꯔꯣꯏꯕ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟꯁꯤꯡ ꯂꯤꯁ꯭ꯇ ꯇꯧꯔꯕ) ꯑꯣꯏꯔꯤꯁꯦ [TBC]॥
- Government of Manipur. *Manipur Town and Country Planning Act, 1975* (Manipur Act 11 of 1975), ꯁꯦꯛꯁꯟ 1(2), 2, 13, 22 ꯑꯃꯁꯨꯡ 26, https://prsindia.org/files/bills_acts/acts_states/manipur/1975/Act11of1975Manipur.pdf
- Government of Manipur. *Manipur Loktak Lake (Protection) Act, 2006* (Manipur Act 3 of 2006; Gazette Extraordinary No. 13(E), 5 ꯑꯦꯞꯔꯤꯜ 2006), 2007-ꯒꯤ ꯍꯣꯡꯗꯣꯛꯄ ꯑꯦꯛꯠ ꯅꯝꯕꯔ 5 ꯑꯃꯁꯨꯡ 2019-ꯒꯤ ꯅꯝꯕꯔ 8-ꯗꯥ ꯑꯍꯣꯡꯕ ꯇꯧꯔꯕ, ꯁꯦꯛꯁꯟ 1(3), 2, 3, 4, 17, 19, 20, 35 ꯑꯃꯁꯨꯡ 36, https://prsindia.org/files/bills_acts/acts_states/manipur/2006/Manipur%20Act%203%20of%202006.pdf
- Government of Manipur. *Manipur Flood Plain Zoning Act, 1978* (Manipur Act 10 of 1978; Manipur Gazette Extraordinary No. 185, 1 ꯁꯦꯞꯇꯦꯝꯕꯔ 1978), ꯁꯦꯛꯁꯟ 1-ꯗꯒꯤ 7, ꯃꯁꯤꯡ ꯐꯠꯇꯕ ꯀꯣꯄꯤ ꯑꯃꯒꯤ OCR-ꯗꯒꯤ ꯂꯧꯈꯤꯕ, https://www.indiacode.nic.in/bitstream/123456789/13383/1/the_manipur_flood_plain_zoning_act%2C_1978.pdf
- Government of Manipur. *Manipur Conservation of Paddy Land and Wetland Act, 2014* (Manipur Act 10 of 2014; Gazette Extraordinary No. 150, 2 ꯁꯦꯞꯇꯦꯝꯕꯔ 2014), ꯁꯦꯛꯁꯟ 2, 3, 4, 12 ꯑꯃꯁꯨꯡ 18, https://faolex.fao.org/docs/pdf/ind194970.pdf ; ꯑꯃꯁꯨꯡ *(Third Amendment) Bill, 2026* (Bill No. 6 of 2026, ꯍꯥꯞꯈꯤꯕꯅꯤ; ꯑꯦꯛꯠ ꯑꯣꯏꯗ꯭ꯔꯤ), https://prsindia.org/files/bills_acts/bills_states/manipur/2026/Bill6of2026MN.pdf
- Government of Manipur. *Manipur (Hill Areas) District Councils Act, 1971*, ꯑꯍꯣꯡꯕ ꯇꯧꯔꯕꯁꯤꯡ (ꯃꯇꯨꯡꯒꯤ ꯑꯍꯣꯡꯕꯁꯤꯡꯒꯤ ꯁꯨꯞꯅꯒꯤ ꯀꯝꯄꯥꯏꯂꯦꯁꯟ), ꯁꯦꯛꯁꯟ 29 ꯑꯃꯁꯨꯡ 52, https://manipur.gov.in/wp-content/uploads/2026/05/The-Manipur-Hill-Areas-District-Councils-Act-1971-subsequent-Amendments.pdf
- High Court of Manipur. PIL No. 8 of 2025, *Meeyam Amata Oina Punsinba Lup v. State of Manipur*, 16.06.2025-ꯒꯤ ꯑꯣꯔꯗꯔ, WRD-ꯒꯤ ꯏꯊꯦꯜ ꯁꯦꯡꯗꯣꯛꯂꯛꯄ ꯗꯤꯁ꯭ꯄꯣꯖꯦꯜ ꯂꯥꯎꯗꯕ, https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf
- Government of Manipur. O.A. 606/2018-ꯗ National Green Tribunal-ꯗ ꯄꯤꯔꯤꯕ ꯔꯤꯄꯣꯔꯇꯁꯤꯡ: "Updated Fresh Report" (ꯖꯨꯂꯥꯏ 2025) ꯑꯃꯁꯨꯡ ꯑꯗꯨ ꯌꯦꯡꯅꯕ ꯇꯉꯥꯏꯐꯗꯕ ꯊꯕꯛꯀꯤ ꯔꯤꯄꯣꯔꯇ (ꯗꯤꯁꯦꯝꯕꯔ 2025 ꯐꯥꯑꯣꯕ), https://www.greentribunal.gov.in/sites/default/files/news_updates/UPDATED%20REPORT%20BY%20GOVT.%20OF%20

[MANUPUR%20IN%20OA%20NO.%20606%20of%202018%20(COMPLIANCE%20OF%20MSW%20MGT.%20RULES,%202016%20AND%20OTHER%20ENVIRONMENTAL%20ISSUES).pdf]
- Government of Manipur, Directorate of Environment and Climate Change. *Administrative Report 2025-26*, https://assembly.mn.gov.in/user/pages/files/administrative-reports/A%20Report%202025-26%20(DoECC).pdf ; ꯑꯃꯁꯨꯡ Town Planning Department, *Annual Administrative Report 2025-26*, https://www.tpmanipur.mn.gov.in/media/filer_public/1a/48/1a484b87-afaa-41de-8d64-f6d2f27c49c7/admn_report2025-26.pdf
- New Development Bank (2021). *Proposed Project Summary: Lamphelpat Waterbody Rejuvenation Project*, https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf
- Asian Infrastructure Investment Bank (2024). *Approval Project Document* and *Project Summary Information*, Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723), https://aiib.org/en/projects/details/2024/_download/India/AIIB-APD_P000723_Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project.pdf
- Manipur Science and Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, DST-NRDMS-ꯅ ꯄꯤꯔꯤꯕ ꯗꯦꯅꯆꯦꯟ ꯔꯤꯄꯣꯔꯠ (2008-ꯒꯤ PDF; 2001 ꯗꯦꯇꯥꯒꯤ ꯁꯦꯝꯕ), http://web.archive.org/web/20180219013113id_/http://mastec.nic.in:80/images/Completed_projects/ReportFloodHazard.pdf
- Central Ground Water Board, North Eastern Region (2013). *Ground Water Information Booklets*, Imphal West (Technical Report Series D No. 28/2013-14) ꯑꯃꯁꯨꯡ Bishnupur (Wayback ꯌꯥꯔꯤꯁꯤꯡ)꯫
- Comptroller and Auditor General of India. Report No. 2 of 2017 (Economic and Revenue Sectors, Government of Manipur), flood control and flood forecasting (ꯌꯥꯎꯔꯤꯕ ꯃꯨꯡ ꯄꯦꯖ), https://cag.gov.in/uploads/download_audit_report/2017/Report_No.2_of_2017_-_Economic_and_Revenue_Sectors,_Government_of_Manipur.pdf ; ꯑꯃꯁꯨꯡ Irrigation and Flood Control Department-ꯒꯤ 2002 ꯑꯃꯁꯨꯡ 2008-ꯒꯤ ꯑꯦꯅꯨꯋꯦꯜꯁꯤꯡ (ꯌꯥꯎꯔꯤꯕ ꯃꯨꯡ ꯄꯦꯖ)꯫
- Government of India. The Dam Safety Act, 2021 (Act 41 of 2021). https://www.casemine.com/act/in/626f9167714d58ef62b50d09 ; CWC, Specified Dam. https://rrssd.cwc.gov.in/specified-dam
- MoHUA (2015). Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I. https://web.archive.org/web/2022/https://mohua.gov.in/upload/uploadfiles/files/URDPFI%20Guidelines%20Vol%20I(2).pdf
- Mid-America Regional Council (2025). APWA Stormwater Standards Supplement (Section 5600, Version 2025.01). https://www.marc.org/document/apwa-stormwater-standards-supplement
- Kansas City Metro Chapter APWA (2006). Section 5600 Storm Drainage Systems and Facilities (§5605.3 stream buffers). https://www.kcwater.us/wp-content/uploads/2020/08/Design-Criteria-%E2%80%93-Section-5600-%E2%80%93-Storm-Drainage-Systems-and-Facilities.pdf
- Department of Irrigation and Drainage Malaysia (2008). Submission Checklist for Stormwater Management. https://www.water.gov.my/jps/resources/auto%20download%20images/5844dfbba8fc1.pdf
- 29 ꯃꯦ 2024 ꯑꯃꯁꯨꯡ 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯒꯤ WRD-ꯒꯤ ꯗ꯭ꯔꯦꯟꯒꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ (*The Sangai Express*, 30 ꯃꯦ 2024 ꯑꯃꯁꯨꯡ 16 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025), 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯄꯨꯡ ꯌꯥꯎꯔꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯁꯤꯡ ꯅꯣꯡꯖꯨꯁꯤꯡ, ꯅꯝꯕꯤꯜ ꯗ꯭ꯔꯦꯟꯒꯤ ꯍꯦꯟꯅꯁꯤꯡ, ꯅꯤꯡꯊꯦꯟ ꯃꯤꯕꯤꯟ ꯑꯃꯁꯨꯡ ꯅꯥꯒꯥ ꯅꯥꯂꯥ (Naga Nallah)-ꯒꯤ ꯃꯅꯥꯏꯒꯤ ꯇꯍꯥꯗꯕꯒꯤ ꯈꯕꯑꯣꯁꯤꯡ (*India Today NE*, 2 ꯑꯦꯄ꯭ꯔꯤꯜ 2025; *The Sangai Express*, 3 ꯑꯦꯄ꯭ꯔꯤꯜ 2025), ꯅꯥꯒꯥ ꯅꯥꯂꯥ ꯍꯥꯄꯆꯤꯟ (*The Sangai Express*, 6 ꯖꯨꯂꯥꯏ 2024) ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟꯗꯒꯤ ꯔꯤꯄꯣꯔꯠ (*Down To Earth*, 12 ꯑꯒꯁ꯭ꯠ 2015)-ꯒꯤ ꯃꯇꯥꯡꯗ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ (ꯁꯦꯌꯦꯅꯗꯕꯤ)꯫
- ꯐ꯭ꯂꯗꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯂꯣ ꯃꯥꯏꯄꯥꯛꯄ ꯁ꯭ꯇꯦꯠꯁꯤꯡ ꯔꯤꯄꯣꯔꯠ (15 ꯖꯨꯟ 2026-ꯒꯤ ꯑꯦꯗꯤꯁꯅꯒꯤ ꯔꯤꯄꯣꯔꯠ), https://telanganatoday.com/centre-plans-to-make-floodplain-zoning-law-mandatory-but-only-4-states-comply (ꯁꯦꯌꯦꯅꯗꯕꯤ)꯫

- 17 ꯖꯨꯂꯥꯏ 2019 ꯑꯃꯁꯨꯡ 25 ꯐꯦꯕ꯭ꯔꯨꯋꯥꯔꯤ 2022-ꯒꯤ ꯂꯥꯄꯅꯥꯄꯀꯤ ꯈꯣꯡꯅ ꯊꯅ ꯀꯥꯔꯌꯀꯤ ꯑꯥꯔꯊꯔꯁꯤꯡꯒꯤ ꯔꯤꯇꯥꯔꯌ (*SabrangIndia*, 2 ꯃꯥꯔꯆ 2022), https://sabrangindia.in/article/manipur-hc-reaffirms-stay-development-projects-around-loktak-lake ; ꯑꯃꯁꯨꯡ ꯖꯦꯕꯟ ꯅꯨꯔꯦꯒꯒꯤ ꯈꯣꯡꯅ ꯊꯅ ꯀꯥꯔꯌꯀꯤ ꯁꯨꯑꯥ ꯈꯥꯅꯨ ꯀꯦꯁ (2019) ꯑꯃꯁꯨꯡ ꯂꯥꯄꯅꯥꯄꯅꯒꯤ ꯂꯥꯖꯥꯀꯇꯁꯤꯡꯒꯤ ꯔꯤꯇꯥꯔꯌꯁꯤꯡ (ꯁꯦꯀꯦꯆꯊꯔꯤ)꯫꯫
- ꯂꯥꯄꯅꯥꯄꯀꯤ ꯔꯤꯈꯁꯔ ꯊꯦꯂꯤꯒꯂꯦꯁꯆ ꯑꯃꯁꯨꯡ ꯈꯥꯆꯅꯨꯔꯪ ꯔꯦꯀꯥꯔꯊꯅ ꯂꯤꯁꯨꯌ ꯅꯦꯕ, ꯊꯖꯊ ꯕꯦꯔꯥꯂ ꯑꯃꯁꯨꯡ ꯀꯪꯕꯇ ꯂꯈꯂꯅ ꯂꯦꯁꯂꯦꯇ ꯇꯥꯔꯄꯀꯤ ꯔꯤꯇꯥꯔꯌꯁꯤꯡ (ꯁꯦꯀꯦꯆꯊꯔꯤ)꯫꯫
- SANDRP (2018). "Overview of CWC's flood monitoring and forecasting in North East India" (ꯁꯦꯀꯦꯆꯊꯔꯤ; CWC-ꯒꯤ ꯂꯦꯒꯦꯇꯁꯤꯡ ꯊꯔꯄꯇꯒꯈ), https://sandrp.in/2018/08/05/overview-of-cwcs-flood-monitoring-forecasting-in-north-east-india/
- Sharma, H. Surmangol (2006). *Learners' Manipuri-English Dictionary*. Imphal: Sangam Book Store (Digital South Asia Library, https://dsal.uchicago.edu/dictionaries/sharma/ ; p. 117 ꯐꯥꯊꯥꯄꯁꯕ ꯂꯈꯖꯊ ꯔꯥꯄꯁꯤꯆꯁꯕ, Internet Archive dli.language.2401).
- Government of India. Wetlands (Conservation and Management) Rules, 2017; Coastal Regulation Zone Notification, 2019.

ꯑꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯐꯦꯒꯔꯁꯤꯡ

ꯑꯍꯦꯟꯕ / ꯐꯥꯒꯔ	ꯑꯔꯊꯕ
7A	ꯁꯨꯦꯌ ꯇꯈꯂꯈꯄꯀ ꯊꯁꯤꯡ ꯂꯐꯈꯒꯤ GIS ꯂꯦꯔꯔ ꯑꯃꯁꯨꯡ ꯊꯆꯒꯦꯆꯅꯔꯤꯒꯤ ꯐꯤꯇꯊꯁꯤꯡ
7B	ꯐꯤꯄꯁ ꯅꯦꯔꯕ ꯇꯤꯄꯂꯕꯒꯤ ꯁꯦꯌꯕꯦꯄ ꯅꯦꯕꯇ (ꯑꯇꯅꯔꯂꯦꯅꯤꯒ S-3, ꯑꯍꯦꯟꯕ 1C-ꯗꯥ ꯌꯦꯡꯂꯂꯥ)
7C	ꯐꯨꯂꯊ ꯀꯨꯁꯆꯒꯥ ꯂꯥꯔꯂꯂꯥ ꯇꯨꯊꯔꯤꯒꯤ ꯑꯥꯇꯔꯦꯅꯤꯡ ꯔꯨꯇꯒꯤ ꯅꯦꯈꯇꯂꯦꯌ
7D	ꯂꯈꯨ ꯂꯥꯖꯥꯄꯇ ꯑꯃꯁꯨꯡ ꯔꯦꯁꯨꯅꯥꯔꯦꯁꯆꯒꯤ ꯁꯨꯇꯦꯁꯤꯐꯤꯀꯦꯁꯆ
7E	ꯈꯂꯤꯇꯨꯔꯒꯤ ꯊꯁꯤꯡ ꯂꯐꯈꯒꯤ ꯔꯥꯍꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯐꯈ ꯈꯐꯈꯒꯤ ꯅꯥꯖꯆꯕ ꯈꯑꯥꯄꯁꯤꯄꯒꯤ ꯔꯥꯍ ꯇꯔꯦꯡ
ꯐꯥꯒꯔ 7-1	ꯊꯁꯤꯡ ꯂꯐꯈꯒꯤ ꯁꯤꯌ
ꯐꯥꯒꯔ 7-2	ꯇꯨꯊꯔꯤꯒꯤ ꯁꯨꯅꯥꯔꯦꯂ ꯀꯔꯦꯊꯤꯌꯀ ꯁꯤꯌ
ꯐꯥꯒꯔ 7-3	ꯀꯈꯇꯆꯁꯦꯅꯔꯤ ꯁꯨꯅꯥꯔꯦꯂꯒꯤ ꯀꯦꯇꯀꯨꯂꯦꯁꯆ (ꯑꯦꯂꯤꯒꯦꯁꯆ ꯕꯦꯆꯊ ꯈꯅꯨꯡ ꯊꯆꯂ)

ꯁꯔꯨꯛ 8

ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯡꯗꯣꯛꯄ

8.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯊꯥꯕ ꯍꯩꯕ

8.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯗꯥ ꯁꯍꯔ ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯃꯅꯥꯛꯇꯥ ꯂꯩꯕ ꯏꯊꯛ (drainage) ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯁꯤꯠꯀꯤ ꯏꯁꯤꯡꯒꯤ (stormwater) ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯂꯝꯃꯈꯥꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ (groundwater) ꯔꯤꯆꯥꯔꯖꯀꯤꯗꯃꯛ (recharge) ꯃꯑꯣꯡ ꯃꯇꯧꯁꯤꯡ ꯌꯥꯎꯍꯜꯂꯤ꯫ ꯃꯁꯤꯗꯥ ꯃꯍꯥꯛꯀꯤꯁꯤꯡ ꯌꯥꯑꯣꯔꯤ:

- (a) ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯚꯣꯜꯌꯨꯝ (water quality volume; WQv) ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯊꯤꯡꯖꯤꯟꯕ ꯄꯥꯟꯗꯝ;
- (b) ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯇ꯭ꯔꯦꯟ (treatment train), ꯑꯃꯁꯨꯡ ꯈꯨꯗꯣꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯄ꯭ꯔꯦꯛꯇꯤꯁꯁꯤꯡ (best management practices; BMP) ꯈꯅꯕ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯖꯤꯟꯕ ꯁꯦꯝꯕ;
- (c) ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ (infiltration) ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖꯀꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ;
- (d) ꯗ꯭ꯔꯦꯅꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯅꯥꯀꯁꯦꯂꯁꯤꯡꯗꯒꯤ (drain) ꯁꯤꯋꯦꯖ (sewage) ꯑꯃꯁꯨꯡ ꯗꯥꯏ ꯋꯦꯗꯔ ꯐ꯭ꯂꯣꯒꯤ ꯆꯦꯟꯕ (dry-weather flow) ꯇꯣꯈꯥꯏꯅꯕ;
- (e) ꯏꯁꯤꯡ ꯂꯩꯐꯃꯁꯤꯡꯗ (waterbody) ꯆꯦꯟꯕ ꯑꯥꯎꯠꯐꯣꯂꯁꯤꯡꯗ (outfall) ꯉꯥꯛ ꯁꯦꯅꯕ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯤꯡ, ꯐꯔ꯭ꯁ꯭ꯠ-ꯐ꯭ꯂꯁ (first-flush) ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯃꯣꯅꯤꯇꯔꯤꯡ;
- (f) ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯍꯥꯔꯚꯦꯁ (RWH) ꯑꯁꯤ ꯔꯤꯇꯦꯟꯁꯟ (retention) ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯀꯔꯤꯅꯣ ꯍꯦꯟꯗꯣꯛꯄ;
- (g) ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟꯒꯤ ꯃꯇꯝꯗ ꯅꯥꯀꯜ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯟꯠꯔꯣꯜ; ꯑꯃꯁꯨꯡ
- (h) ꯃꯦꯟꯇꯦꯅꯦꯟꯁ꯫

8.1.2 ꯁꯔꯨꯛ ꯑꯁꯤ ꯁꯔꯨꯛ 4 ꯆꯦꯠꯅꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯃꯁꯨꯡ ꯏꯊꯛ ꯆꯦꯟꯕ ꯁꯥꯏꯖꯤꯡ ꯆꯦꯠꯅꯩ (ꯁꯔꯨꯛ 1)꯫ ꯀ꯭ꯂꯣꯖ 8.9 (ꯁꯤꯋꯦꯖ) ꯑꯃꯁꯨꯡ 8.12 (ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟꯒꯤ ꯅꯥꯀꯜ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯟꯠꯔꯣꯜ) ꯑꯁꯤ ꯇꯤꯡꯊꯤꯡꯅꯕ ꯄꯥꯟꯗꯝ ꯆꯦꯠꯄ ꯗꯦꯐꯤꯅꯤꯁꯟ ꯑꯥꯔꯣꯏꯕ ꯃꯇꯧ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯁꯥꯏꯖꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯏꯊꯛ ꯆꯦꯟꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣ ꯁꯥꯏꯖꯤꯡꯗ, ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕ ꯀꯔꯤ ꯑꯦꯟꯗꯤꯇꯨ, ꯆꯦꯠꯅꯩ꯫

8.1.3 ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯍꯩ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯀꯟꯇ꯭ꯔꯣꯂꯒꯤ ꯑꯍꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯄꯥꯝꯕ ꯃꯑꯣꯡꯗꯤ꯫ ꯑꯍꯥꯅꯕꯗꯥ ꯇꯣꯈꯥꯏꯅꯕ ꯔꯅꯑꯣꯐ (runoff) ꯑꯁꯤ ꯃꯄꯨꯡ ꯐꯥꯅ ꯇ꯭ꯔꯤꯠ ꯇꯧꯏ꯫ ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯑꯍꯥꯅꯕ ꯑꯣꯏ WQv-ꯒꯤ ꯇꯣꯈꯥꯏꯅꯕ ꯄꯥꯝꯕ ꯑꯣꯏꯅ ꯆꯦꯠꯅꯩ꯫

> **ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯅꯣꯠ.** CPHEEO (2019) ꯑꯁꯤ ꯗ꯭ꯔꯦꯅꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯑꯁꯤ ꯃꯔꯥꯜ ꯆꯥꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯏꯟꯗꯤꯌꯥꯒꯤ ꯃꯦꯌꯦꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄꯤꯔꯤ꯫ ꯃꯁꯤꯒꯤ ꯇꯦꯕꯜ 9-ꯗ US-ꯒꯤ ꯏꯚꯦꯟꯇ ꯃꯤꯟ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯟ (event mean concentration) ꯄꯤꯔꯤ, ꯑꯗꯨꯗ "ꯏꯟꯗꯤꯌꯥꯒꯤ ꯀꯟꯇꯦꯛꯁꯇꯇꯥ ꯚꯦꯂꯨꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯝꯅ ꯍꯦꯟꯅ ꯋꯥꯡꯒꯅꯤ" ("in an Indian context the values would be much higher") ꯍꯥꯌꯅ ꯆꯦꯠꯁꯤꯂꯍꯜꯂꯤ, ꯃꯔꯃꯗꯤ ꯅꯥꯀꯁꯦꯂꯁꯤꯡꯗ ꯑꯍꯥꯏꯕ ꯁꯣꯏꯜ (night soil), ꯀ꯭ꯂꯤꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯊꯣꯡꯕ ꯑꯃꯥꯏ ꯑꯀꯅꯕ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗꯥ ꯏꯟꯗꯤꯌꯥꯒꯤ ꯗꯦꯇꯥꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥ ꯑꯃꯠꯇ ꯂꯩꯇꯦ (CPHEEO 2019, Part A §9.5)꯫ ꯃꯁꯤꯒꯤ ꯆꯦꯞꯇꯔ 10-ꯗ ꯁꯣꯔꯁ-ꯀꯟꯠꯔꯣꯂꯒꯤ ꯑꯦꯞꯔꯣꯆ ꯊꯤꯡꯖꯤꯟꯕ, LID ꯑꯃꯁꯨꯡ SuDS ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯄ꯭ꯔꯦꯛꯇꯤꯁꯁꯤꯡ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯔꯤ (CPHEEO 2019, Part A Ch. 10)꯫ ꯁꯔꯨꯛ ꯑꯁꯤꯗꯥ ꯄꯤꯔꯤꯕ ꯑꯗꯨ ꯃꯑꯣꯡ ꯃꯇꯧꯁꯤꯡ ꯑꯅꯤꯗ ꯍꯥꯌꯅꯕꯅꯤ꯫ ꯃꯁꯤꯗ MARC/APWA BMP Manual (2012)-ꯒꯤ ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇꯀꯤ ꯃꯑꯣꯡ ꯃꯆꯥ ꯈꯅꯕ, ꯃꯁꯤ ꯍꯧꯖꯤꯛ APWA 5600 (2025.01)-ꯅ ꯄꯨꯔꯛꯂꯤꯕ, ꯃꯂꯦꯁꯤꯌꯥꯒꯤ 3-ꯇꯒꯤ ARI ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯁꯥꯏꯖꯤꯡ (MSMA 2, 2012) ꯑꯃꯁꯨꯡ ꯖꯣꯔꯖꯤꯌꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯚꯣꯜꯌꯨꯝ (GSMM, 2016) ꯑꯁꯤ ꯇ꯭ꯔꯥꯟꯁꯐꯔ ꯑꯃꯁꯨꯡ US-ꯒꯤ ꯀꯣꯔꯦꯂꯦꯁꯟ ꯑꯅꯤꯗ ꯁꯥꯔꯤ꯫

8.2 [illegible]

[illegible]	[illegible]
[illegible] (WQv)	[illegible] ([illegible] 8.4)॥
[illegible] (P_wq)	[illegible] ([illegible] 2E, [illegible] 2.10) [illegible] 24-[illegible] 3-[illegible] ARI [illegible] ([illegible] 8A)-[illegible]॥
3-[illegible] ARI [illegible]	[illegible] 24-[illegible] [illegible], [illegible]-[illegible] [illegible]॥
[illegible] (Q_wq)	3-[illegible] ARI [illegible] ([illegible] 8.4.5)॥
WQv-[illegible] (Rv)	[illegible], $R_v = 0.05 + 0.009 \cdot I$॥
BMP	[illegible]: [illegible]-[illegible]॥
[illegible]	[illegible] BMP [illegible] ([illegible] 8.5)॥
[illegible]-[illegible]	[illegible] BMP [illegible], [illegible] BMP [illegible]॥
[illegible]	[illegible], [illegible], [illegible]॥
[illegible] (GPT)	[illegible], [illegible], [illegible]-[illegible], [illegible] 5 mm [illegible]॥
[illegible] (DWF)	[illegible] 72 [illegible]॥ [illegible], DWF [illegible], [illegible] (sullage), [illegible]॥
[illegible]-[illegible]	[illegible] ([illegible], [illegible]) [illegible], [illegible]॥
[illegible]	[illegible], [illegible], [illegible]: [illegible], [illegible], [illegible], [illegible]॥
[illegible] (seasonal high groundwater table)	[illegible] 3.10.2-[illegible]: [illegible]॥
[illegible]	[illegible] ([illegible] 8.8.8)॥
[illegible] (LoS) / [illegible] (VR)	MARC/APWA BMP Manual (2012)-[illegible] 8.6-[illegible]॥

8.3 [illegible]

8.3.1 [illegible]:

- (a) [illegible], [illegible];

- (b) [illegible], [illegible], [illegible];
- (c) [illegible];
- (d) [illegible], [illegible], [illegible]; [illegible]
- (e) [illegible]॥

8.3.2 [illegible], [illegible] 8.8.8-[illegible] [illegible]:

[illegible] 8.1 — [illegible], [illegible]

[illegible]	[illegible]	[illegible]
[illegible] ([illegible], [illegible], [illegible]-[illegible])	[illegible], [illegible], [illegible]	[illegible]; GPT [illegible] ([illegible] 8.10)
[illegible]	[illegible], [illegible], [illegible], [illegible]	[illegible] ([illegible] 8.12); [illegible]-[illegible]; [illegible]
[illegible], [illegible]	[illegible], [illegible], [illegible], [illegible], [illegible]	[illegible]-[illegible]; [illegible]
[illegible] (BOD)	[illegible]-[illegible], [illegible]-[illegible]	[illegible] DWF [illegible] ([illegible] 8.9)
[illegible] (N, P)	[illegible], [illegible], [illegible], [illegible]	[illegible]; [illegible]; [illegible] (wetland)
[illegible]	[illegible], [illegible], [illegible]	[illegible]; [illegible]

> **[illegible].** [illegible] 8.3-[illegible], [illegible] BMP [illegible]॥ CPHEEO (2019)-[illegible], [illegible] (Part A §9.5)॥ [illegible] WSUD [illegible] TSS, [illegible], [illegible] (Part A Ch. 10)॥ AMRUT 2.0-[illegible] "[illegible] ([illegible]/[illegible])" ("through storm water drains into water body (which is not receiving sewage/effluent)") [illegible] (Lok Sabha unstarred question AU1419), [illegible]॥

8.4 [illegible]

8.4.1 **[illegible].** [illegible]:

> P_wq = max (P_ret, P_3m)

[illegible]:

- P_ret = [illegible] ([illegible] 2E, [illegible] 2.10), mm; [illegible]

- P_3m = ꯃꯍꯩ ꯑꯣꯏꯕꯒꯤ ꯂꯣꯏꯁꯒꯤ ꯄꯨꯡ 24-ꯒꯤ 3-ꯊꯥꯒꯤ ARI ꯅꯣꯡꯆꯨ (ꯇꯦꯕꯜ 8A), mm꯫

8.4.2 **ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯣꯂꯤꯇꯤꯒꯤ ꯚꯣꯂꯨꯝ.** WQv ꯑꯁꯤ ꯃꯈꯣꯒꯤ ꯃꯑꯣꯡꯗ ꯀꯥꯜꯀꯨꯂꯦꯠ ꯇꯧꯒꯗꯕꯅꯤ:

> WQv = (P_wq / 1000) × Rv × A

ꯃꯐꯝ ꯑꯁꯤꯗ:

- WQv ꯑꯁꯤ m³-ꯗ ꯂꯩ;
- A = ꯏꯁꯤꯡ ꯆꯦꯜꯂꯕ ꯑꯥꯔꯤꯌꯥ, m²;
- Rv = 0.05 + 0.009·I; ꯑꯃꯁꯨꯡ
- I = ꯀ꯭ꯂꯣꯖ 3.9-ꯒꯤ ꯀꯥꯡꯂꯨꯞꯁꯤꯡꯒꯤ ꯃꯇꯦꯡꯒꯤ ꯃꯈꯥꯗ, ꯏꯁꯤꯡ ꯆꯦꯜꯂꯕ ꯑꯥꯔꯤꯌꯥꯒꯤ ꯏꯃꯆꯦꯡꯒꯤ (impervious) ꯆꯦꯡꯃꯥꯟꯂꯥ (0–100)꯫

ꯃꯆꯤꯡꯂꯥ ꯆꯦꯜꯂꯕ Rv ꯃꯇꯧ ꯑꯁꯤ 0.5 ha-ꯗꯒꯤ ꯂꯥꯃꯕ ꯃꯅꯨꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯌꯦ B-ꯒꯤ ꯂꯩꯍꯧꯔꯀꯄ ꯍꯧꯇꯨ (ꯀ꯭ꯂꯣꯖ 4.14)-ꯒꯤ ꯃꯁꯤꯗ ꯏꯔꯤꯡꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ꯫ ꯃꯁꯤ ꯑꯥꯔꯥꯡꯄ ꯀ꯭ꯂꯣꯖꯒꯤ (ꯀ꯭ꯂꯣꯖ 4.4.2) ꯂꯩꯃꯤꯟ ꯑꯣꯏꯃꯂꯤ꯫ ꯑꯌꯥꯕꯗꯤ ꯃꯅꯨꯡ ꯆꯨꯃꯗꯕꯃꯇꯃꯗꯃꯤꯡ WQv ꯑꯁꯤ ꯑꯥꯔꯥꯡꯄ ꯀ꯭ꯂꯣꯖ ꯌꯥꯕꯅꯥꯡꯕ SCS-CN ꯍꯧꯇꯨꯗ ꯀꯥꯡꯂꯨꯞꯇꯥ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ: WQv (m³) = 10 × Q_wq × A, ꯃꯁꯤꯗ Q_wq (mm) ꯑꯁꯤ ꯃꯕ-ꯑꯥꯔꯤꯌꯥ ꯈꯨꯗꯤꯡꯃꯇꯃꯗꯃꯤꯡ P_wq-ꯗꯒꯤ ꯂꯩꯆꯠ SCS-CN ꯆꯦꯡꯍꯧꯔꯀꯤ ꯑꯃꯁꯨꯡ A ꯑꯁꯤ ha-ꯗ ꯂꯩ꯫

8.4.3 **ꯀꯥꯡꯂꯨꯞꯀꯤ ꯀꯥꯡꯂꯕ.** ꯀ꯭ꯂꯣꯖ 2.8-ꯒꯤ ꯀꯥꯡꯂꯨꯞꯀꯤ ꯀꯥꯡꯂꯕ ꯑꯁꯤ P_wq-ꯗ ꯃꯇꯤꯡꯅꯍꯟꯗꯕꯅꯤ꯫ P_ret ꯑꯃꯁꯨꯡ P_3m ꯑꯁꯤ ꯃꯍꯩꯒꯤ ꯂꯥꯏ ꯈꯨꯗꯒꯤ ꯌꯥꯏꯐꯔꯥꯡꯒꯤ ꯁꯤꯖꯤꯟꯅꯔꯤ, AEP ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡꯆꯨꯁꯤꯡ ꯂꯩꯇꯦ꯫

8.4.4 **ꯆꯥꯟꯁꯤꯟꯅꯕ ꯃꯇꯨꯡ ꯀꯔꯝꯅꯕ WQv.** ꯃꯥꯡꯒꯤ 4-ꯒꯤ ꯃꯁꯤꯗ ꯃꯅꯨꯡꯗ ꯊꯃꯂꯕꯒꯤ ꯀ꯭ꯂꯣꯖ ꯑꯁꯤ WQv-ꯗ ꯃꯇꯨꯡ ꯀꯔꯤ ꯊꯥꯕꯂꯤ꯫ ꯊꯃꯂꯕꯒꯤ ꯀ꯭ꯂꯣꯖ ꯑꯁꯤ WQv-ꯒꯤ ꯃꯦꯡꯕ ꯂꯩꯆꯠꯒꯤ ꯍꯥꯏꯕ ꯃꯐꯝꯗ, ꯃꯁꯤꯒꯤ ꯂꯩꯔꯤ, ꯑꯥꯔꯤꯌꯥ ꯑꯣꯏꯒꯗꯕꯃꯇꯃ ꯑꯍꯥꯏꯕ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯃꯇꯧ ꯌꯥꯏ:

- (a) ꯆꯥꯟꯁꯤꯟꯅꯕ ꯀꯥꯡꯂꯨꯞꯀꯤ ꯈꯨꯗꯤꯡꯃꯇꯃ ꯄꯨꯔꯛꯂꯕ ꯏꯁꯤꯡꯒꯤ ꯆꯦꯟ-ꯁꯤꯟꯅꯕꯒꯤ (ꯀ꯭ꯂꯣꯖ 8.5.3);
- (b) ꯍꯧꯔꯀꯄ ꯀꯦꯜꯁꯤꯟꯅꯕꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 8.8.8); ꯑꯃꯁꯨꯡ
- (c) ꯃꯅꯨꯡ ꯑꯣꯏꯗ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯃꯗ ꯏꯁꯤꯡ ꯊꯗꯣꯛꯆꯟ ꯃꯐꯝꯗ, ꯀ꯭ꯂꯣꯖ 8.10-ꯒꯤ ꯑꯦꯛꯁꯄꯣꯔꯇꯀꯤ ꯃꯇꯧ ꯁꯤꯖꯤꯟꯅꯕ꯫

8.4.5 **ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯣꯂꯤꯇꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯂꯣ.** ꯀꯂꯣ-ꯊꯦꯡ ꯗꯤꯚꯥꯏꯁꯁꯤꯡ (ꯁ꯭ꯋꯦꯜꯁꯤꯡ, ꯀꯤꯇꯔ ꯁ꯭ꯠꯔꯤꯞꯁꯤꯡ, ꯑꯣꯏꯜ-ꯒ꯭ꯔꯤꯁ ꯁꯦꯄꯔꯦꯇꯔꯁꯤꯡ, GPT) ꯑꯃꯁꯨꯡ ꯑꯣꯐ-ꯂꯥꯏꯟ BMP-ꯁꯤꯡꯒꯤ ꯗꯥꯏꯚꯔꯁꯟ ꯁ꯭ꯠꯔꯀꯆꯔꯁꯤꯡ ꯑꯁꯤ Q_wq-ꯒꯤꯗꯃꯛ ꯃꯅꯥ ꯂꯦꯄꯆꯥꯕꯅꯤ꯫ Q_wq ꯑꯁꯤ ꯏꯁꯤꯡ ꯆꯦꯜꯂꯕ ꯑꯥꯔꯤꯌꯥꯒꯤ ꯌꯥꯝꯅ ꯑꯣꯐ ꯀꯦꯡꯁꯟꯇ꯭ꯔꯦꯁꯟ 3-ꯊꯥꯒꯤ ARI ꯏꯅꯇꯦꯟꯁꯤꯇꯤꯒꯤ ꯀꯥꯡꯂꯨꯞꯇꯥ ꯁꯤꯖꯤꯟꯅꯕꯅꯤ:

- (a) ꯃꯥꯡꯒꯤ 3-ꯗ ꯌꯦꯍꯧꯔꯕ ꯃꯐꯝꯗ (16 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯏꯁꯤꯡ ꯊꯗꯣꯛꯆꯟ ꯑꯥꯂꯤꯃꯦꯟꯇ ꯑꯃꯁꯨꯡꯗ) ꯆꯥꯡꯌꯦꯡ ꯃꯥꯊꯥꯗ; ꯂꯩꯆꯠꯒꯤ
- (b) ꯀ꯭ꯂꯣꯖ 2.9.1-ꯒꯤ ꯑꯦꯟꯇꯤꯆꯦꯔꯤꯡ-ꯇꯥꯏꯝ ꯆꯥꯡꯁꯦꯠ ꯂꯣꯔꯦꯗ 3-ꯊꯥꯒꯤ ARI ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡꯆꯨ ꯃꯇꯤꯡꯅꯕ ꯍꯥꯏꯗꯨꯒꯤꯗꯦ ꯍꯧꯇꯨ ꯑꯃꯒꯤ ꯆꯦꯡꯗ ꯑꯥꯏꯗ꯫

8.4.6 **ꯕꯥꯏꯄꯥꯁ.** Q_wq-ꯗꯒꯤ ꯍꯦꯟꯕ ꯀꯂꯣꯃꯤꯡ ꯑꯁꯤ ꯀꯂꯣ-ꯊꯦꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯐ-ꯂꯥꯏꯟ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯗꯤꯚꯥꯏꯁꯁꯤꯡꯗꯒꯤ, ꯃꯀꯨꯝꯗ ꯀꯤꯗꯕ ꯃꯁꯤꯡ ꯃꯁꯦꯟ ꯌꯥꯎꯍꯟꯗꯅꯕ, ꯕꯥꯏꯄꯥꯁ ꯁꯤꯖꯤꯟꯅꯕꯅꯤ꯫ ꯕꯥꯏꯄꯥꯁ ꯑꯁꯤ ꯃꯦꯡꯅꯕ ꯂꯩꯆꯠꯒꯤ ꯃꯥꯂꯦꯝ ꯃꯁꯤꯡꯗꯒꯤ ꯆꯦꯡꯉꯩ ꯑꯃꯁ ꯑꯦꯅꯥꯏꯕꯅꯤ (ꯃꯥꯡꯒꯤ 6)꯫

8.4.7 **ꯗꯤꯇꯦꯟꯁꯟ.** WQv ꯑꯁꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ-ꯗꯤꯇꯦꯟꯁꯟ BMP ꯑꯃꯗ (ꯋꯦꯠ ꯄꯣꯟꯗ, ꯀꯟꯁꯇ꯭ꯔꯛꯇꯦꯗ ꯋꯦꯇꯂꯦꯟꯗ ꯂꯩꯆꯠꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ-ꯗꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ) ꯊꯝꯕ ꯃꯐꯝꯗ, ꯃꯁꯤ **ꯄꯨꯡ 24–48-ꯒꯤ ꯃꯅꯨꯡꯗ** ꯊꯗꯣꯛꯀꯗꯕꯅꯤ (ꯃꯥꯡꯒꯤ 4)꯫

> **ꯃꯀꯗꯣꯛ ꯌꯥꯕꯥ.** WQv ꯗꯦꯐꯥꯅꯤ ꯑꯁꯤ 3-ꯊꯥꯒꯤ ARI ꯁꯤꯖꯤꯟꯅꯗꯒꯤ ꯂꯩꯆꯠ ꯆꯦꯡꯍꯧꯔꯀꯤ ꯂꯩꯆꯠꯒꯤ ꯆꯥꯟꯁꯤꯟꯅꯕ ꯗꯦꯐꯥꯅꯤ, ꯃꯁꯤꯅꯥꯒꯤ ꯃꯆꯥꯡꯁ ꯍꯧꯗ ꯌꯥꯝꯅꯕ ꯑꯣꯏꯔꯤ꯫ 3-ꯊꯥꯒꯤ ARI ꯑꯁꯤ ꯃꯔꯥꯡꯁꯤꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯣꯂꯤꯇꯤ ꯗꯤꯖꯥꯏꯟ ꯁꯤꯖꯤꯟꯅꯔꯤ (MSMA 2, 2012)꯫ ꯃꯔꯥꯡꯁꯤꯡꯒꯤ 2008-ꯒꯤ ꯌꯦꯡꯁꯤꯟꯕꯗ ꯃꯁꯤꯒꯤ ꯗꯦꯐꯥꯅꯤ 40 mm ꯃꯆꯨ ꯍꯧꯔꯗ ꯆꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯗ ꯄꯨꯡ 24-ꯒꯤ ꯁꯤꯖꯤꯟꯅ ꯆꯦꯡꯍꯧꯔꯀ ꯀ꯭ꯂꯣꯖꯒꯤ 90% ꯂꯩꯆꯠꯒꯤ ꯃꯁꯤꯗꯒꯤ ꯍꯧꯗ ꯀꯤꯅ ꯍꯧꯔꯕ (DID, 2008)꯫ ꯃꯇꯤꯡꯆꯥꯒꯤ ꯀꯥꯡꯂꯨꯞ ꯑꯁꯤ ꯀꯥꯡꯂꯨꯞꯇꯥ ꯁꯤꯖꯤꯟꯅꯕꯅꯤ (ꯇꯦꯕꯜ 8A)꯫ ꯂꯩꯆꯠꯒꯤ ꯃꯁꯤꯒꯤ WQv ꯑꯁꯤ 1.2 inches (30 mm ꯃꯆꯨ)-ꯗꯒꯤ ꯂꯩꯆꯠ ꯆꯦꯡꯍꯧꯔꯀ ꯑꯍꯧꯗ ꯊꯥꯔꯤ, ꯃꯁꯤ ꯑꯣꯡꯀꯥꯟ ꯌꯥꯝꯅ ꯑꯃꯗ ꯁꯤꯖꯤꯟꯅꯗꯒꯤ

85% ꯔꯤꯃꯨꯚꯦꯜ ꯇꯥꯔꯒꯦꯠ, ꯑꯃꯁꯨꯡ ꯑꯦꯚꯔꯦꯖ ꯌꯥꯝꯅ ꯐꯪꯂꯤꯕ ꯔꯦꯃꯨꯚ-ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯁꯤꯡ TSS ꯂꯣꯗꯀꯤ 80% ꯂꯧꯊꯣꯛꯄꯥ ꯍꯥꯏ ꯌꯥꯏ (GSMM 2016, Vol 1, Standard #4)꯫ ꯀꯦꯟꯁꯥꯁ ꯁꯤꯇꯤꯒꯤ ꯔꯤꯖꯤꯑꯣꯅꯒꯤ ꯄ꯭ꯔꯤꯁꯤꯄꯤꯇꯦꯁꯟ ꯑꯁꯤ ꯌꯥꯝꯅ ꯑꯍꯦꯟꯕ ꯁꯨꯕ 24-ꯒꯤ ꯄ꯭ꯔꯤꯗꯤꯛ ꯁꯨꯗꯦꯟꯁꯤꯡꯒꯤ ꯗꯤꯁ꯭ꯠꯔꯤꯕꯨꯁꯅꯒꯤ 90% ꯄꯥꯔꯁꯦꯟꯇꯥꯏꯜ ꯁꯨꯛꯌꯥ 1.37-inch (35 mm ꯍꯣꯡꯂꯤ) ꯅꯣꯛꯂꯤꯕꯅꯤ (MARC BMP Manual, 2012)꯫

Rv ꯐꯥꯔꯃꯨꯂꯥ ꯑꯁꯤ MARC/APWA BMP Manual (2012)-ꯗꯒꯤꯅꯤ, ꯃꯁꯤꯗꯥ Rv = 0.05 + 0.009·I ꯂꯩꯔꯕꯥ WQv = P × Rv ꯀꯦꯜꯀꯨꯂꯦꯁ ꯌꯥꯏ꯫ SCS ꯀꯔꯚ ꯅꯝꯕꯔꯒꯤ ꯃꯇꯨꯡꯗ Rv ꯁꯤꯖꯤꯟꯅꯕꯗꯥ, ꯃꯔꯝꯗꯤ CN ꯑꯁꯤ ꯃꯦꯊꯗ ꯍꯥꯏꯗꯣꯛꯅ ꯂꯤꯃꯤꯠꯂꯕ ꯑꯣꯏꯕꯅꯥ ꯄꯨꯝꯅꯃꯛꯁꯤꯡꯗꯒꯤ ꯄꯦꯔꯁꯦꯟꯇ ꯔꯤꯃꯨꯚ ꯍꯦꯛꯇꯕ ꯑꯣꯏꯕꯅꯤ꯫ ꯀꯂꯦꯛꯇꯔ ꯐꯥꯏꯟꯗ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ (ꯀꯟꯗ 8.4.3) ꯑꯁꯤꯒꯤ ꯃꯈꯜꯒꯤ ꯈꯨꯗꯝ ꯑꯃꯁꯨꯡ ꯂꯣꯌꯅ; ꯃꯇꯨꯡꯗ ꯑꯁꯤꯗ ꯃꯁꯤ ꯌꯥꯏ ꯃꯔꯝꯗꯤ ꯃꯁꯤꯗ P_wq ꯑꯁꯤ ꯔꯤꯖꯦꯟꯇ ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯗ, ꯃꯇꯝꯁꯤꯒꯤ ꯂꯥꯏ ꯈꯨꯗꯃꯒꯤ ꯄꯨꯝꯅꯃꯛꯄꯨꯝꯅꯃꯛ ꯑꯃꯁꯨ ꯑꯣꯏꯕ ꯂꯩꯅ꯫ ꯔꯤꯖꯟ ꯐꯥꯏꯟꯗꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯁꯨꯕ 24–48-ꯒꯤ ꯗꯔꯥꯗꯔꯟ ꯑꯁꯤ ꯄꯨꯝꯕ 4 ꯃꯁꯨꯕ ꯅꯩꯕ; MARC (2012)-ꯗ WQv-ꯒꯤ ꯈꯨꯗꯝꯗꯒꯤ ꯂꯦꯃꯍꯗ ꯁꯨꯕ 40-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ ꯍꯥꯏ ꯌꯥꯏ꯫

ꯈꯨꯗꯝ ꯑꯣꯏꯕ ꯅꯃꯔꯦ — ꯗꯤꯖꯥꯏꯟ ꯀꯦꯂꯀꯨ ꯂꯦꯁꯟ. 80% ꯏꯝꯄꯔꯚꯤꯌꯁ ꯀꯚꯔ ꯂꯩꯕ ꯑꯃꯁꯨꯡ P_wq 50 mm ꯑꯣꯏꯕ ꯂꯩꯔꯕ 1.0 ha-ꯒꯤ ꯁꯥꯏꯠ ꯑꯃꯒꯤꯗꯃꯛ:

- Rv = 0.05 + 0.009 × 80 = 0.77
- WQv = (50 / 1000) × 0.77 × 10,000 = 385 m³

8.5 ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯇ꯭ꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ

8.5.1 **ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯇ꯭ꯔꯦꯟ.** ꯅꯁꯤꯗꯒꯤ ꯀꯟꯁꯦꯞꯇ ꯀꯦꯇꯦꯒꯣꯔꯤ ꯑꯁꯤ ꯃꯃꯤ 8.1-ꯗ ꯁꯤꯌꯔꯕ ꯑꯗꯨ ꯃꯇꯨꯡ ꯅꯩꯕ ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯇ꯭ꯔꯦꯟ ꯑꯃꯅ ꯑꯣꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ:

- (a) **ꯄ꯭ꯔꯦꯌꯁ ꯂꯩꯕ ꯁꯣꯔꯁ ꯀꯟꯠꯔꯣꯜꯁꯤꯡ**: ꯔꯨꯐꯇꯣꯞꯀꯤ ꯔꯦꯅꯋꯥꯇꯔ RWH-ꯗ, ꯔꯦꯟ ꯒꯥꯔꯗꯦꯅꯁꯤꯡ, ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯤꯡ, ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯗꯤꯁꯀꯅꯦꯛꯁꯟ, ꯑꯃꯁꯨꯡ ꯅꯩꯕꯌꯥꯁꯤꯡꯗ ꯁꯤꯖꯤ ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ;
- (b) **ꯁꯥꯏꯠ ꯀꯟꯠꯔꯣꯜꯁꯤꯡ**: ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ, ꯁ꯭ꯋꯦꯂꯁꯤꯡ, ꯐꯤꯜꯇꯔ ꯁ꯭ꯠꯔꯤꯄꯁꯤꯡ, ꯅꯦꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ, ꯑꯣꯌꯁ꯭ꯂꯥꯏꯌꯁꯤꯡꯗ ꯑꯥꯅꯖ-ꯒ꯭ꯔꯦꯌ ꯁꯦꯂꯔꯦꯇꯔꯁꯤꯡ, ꯃꯌ ꯄꯥꯗꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ; ꯑꯃꯁꯨꯡ
- (c) **ꯄꯥꯊꯇꯤꯛ ꯅꯔꯃꯒꯤꯗꯃꯛ ꯔꯤꯖꯤꯑꯣꯅ ꯀꯟꯠꯔꯣꯜꯁꯤꯡ**: ꯑꯣꯐꯁꯥꯏꯇꯁꯤꯡꯗ GPT ꯑꯃꯁꯨꯡ DWF ꯅꯦꯠꯋꯔꯛꯁꯔꯤꯁꯤꯡ, ꯁꯨꯈ꯭ꯔꯤꯒꯤ (pukhri; pond) ꯅꯦꯇꯋꯔꯛꯁꯗ ꯀꯅꯦꯛꯇꯔꯤꯌ ꯂꯩꯕ ꯃꯌꯂꯦꯇꯗꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯔꯤꯖꯤꯑꯣꯅ ꯄꯥꯗꯗꯁꯤꯡ꯫

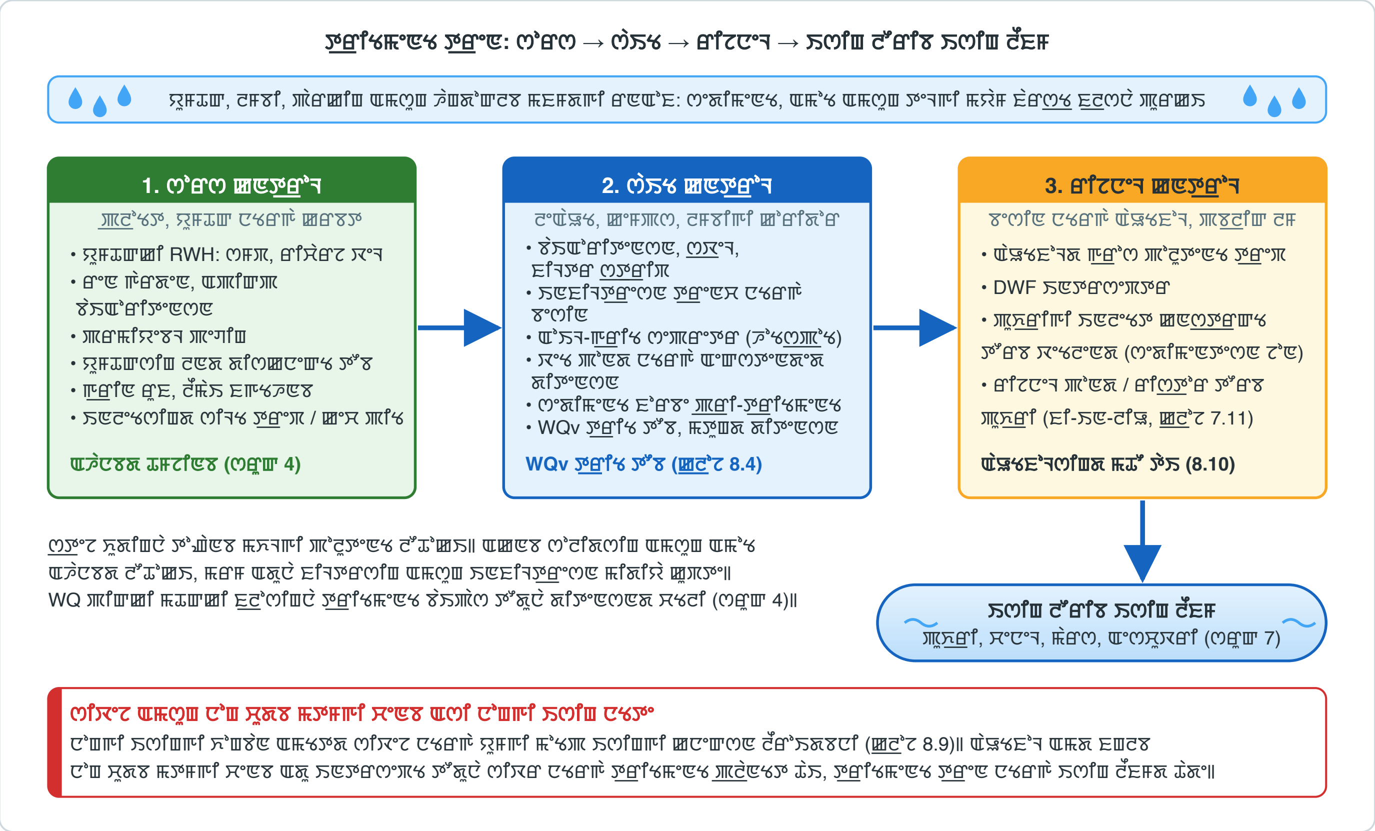
8.5.2 ꯗꯤꯖꯥꯏꯟꯄꯤꯕ ꯑꯃꯗ WQv ꯑꯁꯤ ꯁꯥꯏꯠꯂꯣꯡ, (a) ꯑꯃꯁꯨꯡ (b)-ꯒꯤ ꯈꯨꯗꯝꯗ, ꯃꯄꯨꯡ ꯐꯥꯖꯕꯒꯗꯕꯅꯤ꯫ (c)-ꯒꯤ ꯃꯅꯥꯗ ꯔꯤꯖꯤꯑꯣꯅ ꯀꯟꯠꯔꯣꯜꯁꯤꯡ ꯑꯁꯤ ꯔꯦꯅꯋꯥꯇꯔ ꯑꯗꯨꯃꯛ ꯇꯔꯤꯌ ꯂꯩꯔꯤꯕ ꯔꯤꯖꯤꯑꯣꯅ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯣꯏꯅ ꯂꯥꯌꯦꯟꯇ ꯂꯩꯔꯕ ꯕꯦꯁꯤꯟ ꯄ꯭ꯂꯥꯟ ꯑꯃꯒꯤ ꯃꯅꯥꯗ (ꯀꯟꯗ 7.11) ꯁꯥꯏꯖꯔꯕ ꯃꯐꯝꯗ ꯅꯥꯏꯌꯗ ꯗꯤꯖꯥꯏꯟꯄꯤꯕ ꯑꯃꯒꯤ WQv-ꯗ ꯍꯤꯕ ꯔꯤꯅ꯫

8.5.3 **ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ.** ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ ꯁꯦꯜ, ꯅꯦꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯐꯦꯁꯤꯂꯤꯇꯤ, ꯔꯦꯟ-ꯒꯥꯔꯗꯦꯟ ꯂꯩꯔꯤꯕ ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯃꯦꯟꯠ, ꯃꯌ ꯄꯥꯗꯗ ꯑꯃꯁꯨꯡ ꯀꯅꯦꯛꯇꯔꯤꯌ ꯂꯩꯕ ꯃꯌꯂꯦꯇꯗ ꯈꯨꯗꯝꯃꯛꯌ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯟꯗ ꯅꯩꯐꯦꯗ ꯈꯨꯗꯝꯃꯛꯌ ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯂꯩꯒꯗꯕꯅꯤ꯫ ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯑꯁꯤ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯐꯣꯔꯦꯕ, ꯂꯤꯄꯤꯒꯤ ꯐꯤꯜꯇꯔ ꯁ꯭ꯠꯔꯤꯞ, ꯁꯤꯖꯤ ꯇ꯭ꯔꯦꯟꯆ ꯅꯤꯌꯔꯣ ꯄ꯭ꯔꯦꯄ꯭ꯔꯦꯇꯅꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯃ ꯑꯣꯏꯅꯒꯗꯕꯅꯤ, ꯃꯁꯤꯗ ꯃꯁꯤꯗ ꯅꯁꯤꯗ ꯄꯤꯔꯤꯕ ꯑꯦꯔꯤꯌꯥꯒꯤ **WQv-ꯒꯤ ꯈꯨꯗꯝꯗꯒꯤ ꯂꯦꯃꯍꯗ 10%** ꯍꯥꯕ ꯌꯥꯒꯗꯕꯅꯤ, ꯅꯤꯌꯔꯣ ꯐꯥꯏ-ꯍꯥꯏ ꯗꯤꯖꯥꯏꯟꯂꯕꯁꯤꯡꯒꯤꯗꯃꯛ Q_wq-ꯒꯤꯗꯃꯛ ꯁꯥꯏꯖ ꯂꯦꯄꯂꯕ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

8.5.4 ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯑꯁꯤ ꯃꯔꯨꯑꯣꯏꯕ BMP-ꯗ ꯌꯥꯑꯣꯗꯕ ꯅꯤꯌꯔꯣ ꯁꯣꯔꯁꯦꯗꯕ ꯁꯦꯃꯗꯣꯛꯄ ꯔꯤꯕ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

> **ꯂꯦꯗꯣꯜꯗ ꯌꯥꯏꯄ.** ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇ ꯇ꯭ꯔꯦꯟ ꯑꯁꯤ CPHEEO (2019, Part A §10.2.3, SuDS treatment train) ꯑꯃꯁꯨꯡ CIRIA C753 *The SuDS Manual* (2015) ꯃꯇꯨꯡ ꯅꯩꯕ꯫ ꯃꯁꯤ ꯃꯇꯨꯡꯗ ꯑꯁꯤꯒꯤ ꯃꯔꯨꯑꯣꯏꯕꯒꯤ ꯑꯗꯨ ꯑꯃꯗ ꯑꯣꯏꯅꯔꯤ: ꯌꯥꯏꯍꯥꯛꯄ, ꯍꯤꯇꯤꯅꯕ, ꯃꯌꯔ ꯅꯔꯒꯤ ꯍꯤꯕ, ꯁꯨꯛꯌꯥ (ꯄꯨꯝꯕ 1)꯫ 10% ꯐꯥꯔꯕ ꯒꯥꯏꯗꯔꯒꯤ ꯅꯦꯗꯤꯖꯤꯒꯤ ꯃꯈꯜꯒꯤ ꯈꯨꯗꯝ ꯑꯃꯁꯨꯡ ꯂꯣꯌꯅ; ꯃꯁꯤ US ꯃꯇꯨꯡꯗꯁꯤꯡꯗ

> [illegible]॥ [illegible], [illegible]॥ [illegible]॥


[illegible]: [illegible] → [illegible] → [illegible] → [illegible]
[illegible]
1. [illegible]
[illegible] RWH: [illegible]
2. [illegible]
WQv [illegible] ([illegible] 8.4)
3. [illegible]
DWF [illegible]
[illegible] ([illegible] 7.11)
[illegible] (8.10)
[illegible]॥ WQ [illegible] ([illegible] 4)॥
[illegible] ([illegible] 7)
[illegible] ([illegible] 8.9)॥ [illegible]॥

[illegible] 8.1 — [illegible]: [illegible]॥ [illegible], CIRIA, The SuDS Manual (C753), 2015, [illegible] MARC/APWA, Manual of Best Management Practices for Stormwater Quality, 2012-[illegible]॥

8.6 BMP [illegible]: [illegible]

8.6.1 **[illegible].** [illegible] A [illegible], [illegible] BMP-[illegible] (Level of Service; LoS) [illegible]॥ [illegible] B [illegible], [illegible] 8.6.5-[illegible]॥

8.6.2 **[illegible].** [illegible] (redevelopment) [illegible] LoS [illegible] (ΔCN) [illegible] ([illegible] 3):

[illegible] 8.2 — [illegible]

ΔCN	[illegible]	[illegible] LoS
17 [illegible]	[illegible]	8
7-[illegible] 16	[illegible]	7
4-[illegible] 6	[illegible]	6

ΔCN	ꯏꯝꯄꯦꯛꯠ	ꯃꯊꯧ ꯇꯧꯕ LoS
1-ꯗꯒꯤ 3	ꯈ꯭ꯕꯏꯗꯒꯤ ꯑꯦꯝꯕ	5

ꯔꯤꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤꯗꯃꯛ (ꯂꯩꯔꯤꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯀꯚꯔ ꯑꯁꯤ ꯆꯥꯏꯌꯡꯤ 20% ꯅꯠꯔꯒꯥ ꯃꯁꯤꯗꯒꯤ ꯍꯦꯟꯕ), ꯃꯊꯧ ꯇꯧꯕ LoS ꯑꯁꯤ ꯑꯍꯦꯟꯕ 8B-ꯗꯒꯤ ꯂꯧꯒꯗꯕꯅꯤ꯫

8.6.3 **ꯚꯦꯜꯌꯨ ꯔꯦꯇꯤꯡ.** WQv ꯇ꯭ꯔꯤꯠ ꯇꯧꯔꯤꯕ BMP ꯈꯨꯗꯤꯡꯃꯛꯇ ꯇꯦꯕꯜ 8.3-ꯗꯒꯤ ꯚꯦꯜꯌꯨ ꯔꯦꯇꯤꯡ (Value Rating; VR) ꯑꯃꯥ ꯂꯧ꯫ ꯁꯤꯔꯤꯖꯗ ꯀꯝꯕꯥꯏꯟꯗ VR ꯑꯁꯤ ꯁꯤꯔꯤꯖꯗ ꯂꯩꯕ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯁꯤꯖꯤꯟꯅꯕ BMP-ꯁꯤꯡꯒꯤ VR-ꯁꯤꯡꯒꯤ ꯑꯦꯔꯤꯊ-ꯃꯦꯇꯤꯛ ꯑꯦꯚꯔꯦꯖꯅꯤ꯫ ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯅꯁꯤꯡꯗ ꯑꯍꯦꯟꯕ 8B-ꯒꯤ ꯃꯇꯨꯡ ꯀꯝꯕꯥꯏꯟꯗ VR ꯑꯃꯥ ꯐꯪꯏ꯫ ꯀꯝꯕꯥꯏꯟꯗ VR ꯑꯁꯤ ꯃꯊꯧ ꯇꯧꯕ LoS-ꯒꯥ ꯃꯥꯟꯅꯕ ꯅꯠꯔꯒꯥ ꯍꯦꯟꯕ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

8.6.4 **ꯚꯦꯜꯌꯨ ꯔꯦꯇꯤꯡꯒꯤ ꯑꯦꯗꯖꯁꯃꯦꯟꯇꯁꯤꯡ.** BMP ꯑꯃꯅꯥ ꯃꯇꯨꯡꯒꯤ ꯁꯔꯨꯛꯁꯤꯡ ꯃꯄꯨꯡ ꯐꯥꯕꯗꯤ ꯅꯄꯌꯃꯛ ꯃꯁꯤꯒꯤ VR ꯐꯪꯏ:

- (a) ꯃꯁꯤ ꯃꯁꯤꯗ ꯀ꯭ꯔꯦꯗꯤꯠ ꯄꯤꯔꯕ ꯑꯦꯔꯤꯌꯥꯒꯤ WQv-ꯒꯤꯗꯃꯛ (ꯅꯠꯔꯒꯥ ꯐꯦ-ꯆꯥꯡ ꯗꯤꯖꯥꯏꯅꯁꯤꯡꯒꯤꯗꯃꯛ Q_wq) ꯁꯥꯏꯖ ꯇꯧꯔꯦ;
- (b) ꯃꯁꯤꯗꯤ ꯀ꯭ꯂꯣꯖ 8.7-ꯒꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯃꯊꯧ ꯇꯧꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ, ꯅꯦꯐꯤꯜꯇ꯭ꯔꯦꯁꯅꯒꯤꯗꯃꯛ, ꯀ꯭ꯂꯣꯖ 8.8 ꯃꯄꯨꯡ ꯐꯥꯍꯜꯂꯦ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯁꯤꯗ ꯀ꯭ꯂꯣꯖ 8.5.3-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯂꯩꯔꯕ꯫

8.6.5 **ꯇꯤꯌꯔ B-ꯒꯤ ꯂꯩꯅꯐꯝꯕꯥꯍꯦꯕ ꯅꯍꯕꯤ.** ꯇꯤꯌꯔ B ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ, ꯁꯅꯌꯝꯤ WQv ꯀ꯭ꯍꯅꯃ ꯃꯇꯨꯡꯒꯤ ꯑꯃꯗ ꯂꯩꯔꯕꯗꯤ ꯀ꯭ꯂꯣꯖ 8.6.3-ꯒꯤ ꯃꯊꯧ ꯇꯧꯕ ꯑꯁꯤ ꯃꯄꯨꯡ ꯐꯥꯏ ꯍꯦꯟꯅ ꯂꯧꯅ:

- (a) ꯁꯥꯡꯕ 4-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯅꯌꯇꯨꯝ ꯐꯍꯟꯗꯔꯦ; ꯅꯠꯔꯒꯥ
- (b) ꯀ꯭ꯂꯣꯖ 8.7 ꯑꯃꯁꯨꯡ 8.8-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯕ ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ ꯁꯦꯜ, ꯑꯦꯟ ꯚꯔꯖꯦꯟ ꯅꯠꯔꯒꯥ ꯅꯦꯐꯤꯜꯇ꯭ꯔꯦꯁꯅ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯥ, ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯇꯀꯥ ꯂꯣꯌꯅꯅ, ꯇ꯭ꯔꯤꯠ ꯇꯧꯔꯕ꯫

ꯇꯦꯕꯜ 8.3 — BMP ꯚꯦꯜꯌꯨ ꯔꯦꯇꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯄꯨꯔꯛ ꯃꯇꯤꯛ ꯆꯥꯕ

BMP	VR (MARC 2012)	ꯃꯔꯨꯑꯣꯏꯅ ꯂꯧꯊꯣꯛꯄ ꯄꯣꯂꯨꯇꯦꯟꯇꯁꯤꯡ	ꯚꯣꯜꯌꯨꯝ ꯍꯦꯠꯍꯦꯠꯕ / ꯔꯤꯗꯛꯔꯦꯟ	ꯈꯨꯗꯝꯒꯤ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯁꯟ ꯇꯧꯅꯕꯒꯤ ꯅꯦꯃꯁꯤꯡ (ꯔꯤꯗꯛꯔꯦꯟꯗꯤ ꯔꯨꯜ)	ꯅꯦꯇꯔꯔꯥꯌ / ꯑꯦꯗꯕ ꯁꯨꯡ	ꯇꯍꯀꯥꯝꯗꯤ ꯅꯍꯕꯒꯤ ꯂꯩꯖ ꯑꯃꯁꯨꯡ ꯀꯩꯌ, ꯀꯩꯌ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯀ꯭ꯍꯔꯤꯒꯤ ꯃꯂꯩꯗꯁꯤꯡ / ꯔꯤꯕ ꯔꯥꯇꯔ ꯇꯦꯕꯜ	ꯃꯅꯤꯄꯨꯔꯒꯤ ꯅꯩꯁꯤꯡ
ꯃꯍꯧꯁꯒꯤ ꯀꯤꯍꯕꯤ-ꯃꯅꯥ (ꯚꯤꯗꯐꯗꯔꯤꯕ)	9.25	ꯀ꯭ꯍꯅꯃ	ꯔꯤꯗꯕ	ꯃꯇꯤꯛ ꯆꯥꯏ	ꯃꯇꯤꯛ ꯆꯥꯏ	ꯃꯇꯤꯛ ꯆꯥꯏ	ꯚꯤꯗꯐꯗꯔꯤꯕ, ꯁꯗꯍꯦꯗꯕ ꯑꯦꯔꯤꯌꯥꯒꯤꯗꯃꯛ ꯔꯗꯇꯃꯗ ꯐꯤꯜꯇꯔ
ꯑꯦꯟ ꯚꯔꯖꯦꯟ / ꯅꯦꯐꯤꯜꯇ꯭ꯔꯦꯁꯅ	9.0	ꯁꯦꯗꯤꯃꯦꯟꯠ, ꯃꯦꯇꯦꯜꯁꯤꯡ, ꯇꯦꯜ, ꯅꯨꯠꯔꯤꯌꯦꯟꯇꯁꯤꯡ	ꯔꯤꯗꯕ	1.0 m ꯁꯦꯀꯥꯡꯁꯟ ꯃꯄꯨꯡ ꯐꯥꯕꯗꯤ ꯃꯇꯤꯛ ꯆꯥꯏ	ꯀꯦꯗꯤꯂꯦꯒꯤ ꯂꯩꯔꯕꯅꯤ (ꯇꯦꯁꯠ)	ꯃꯇꯤꯛ ꯆꯥꯗꯦ	ꯀꯨꯇꯦꯛꯕꯤ ꯀꯦꯇ꯭ꯔꯦꯟ: ꯀꯨꯡ 48-ꯒꯤ ꯃꯅꯨꯡꯗ ꯅꯁꯤꯡ ꯐꯍꯟꯗꯕ
ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ	8.5	ꯁꯦꯗꯤꯃꯦꯟꯠ, ꯃꯦꯇꯦꯜꯁꯤꯡ, ꯇꯦꯜ, ꯅꯨꯠꯔꯤꯌꯦꯟꯇꯁꯤꯡ	ꯃꯔꯤꯅ–ꯔꯤꯗꯕ (ꯂꯩꯅꯦ ꯇꯧꯗꯕ); ꯅꯦꯍꯕ (ꯂꯩꯅꯦ ꯇꯧꯔꯕ)	ꯃꯇꯤꯛ ꯆꯥꯏ	ꯑꯦꯗꯗꯔꯗꯔꯦꯒꯥ ꯂꯩꯔꯕꯅꯤ ꯃꯇꯤꯛ ꯆꯥꯏ	ꯂꯩꯅꯦ ꯇꯧꯔꯕ, ꯑꯦꯗꯗꯔꯗꯔꯦꯒꯥ ꯂꯩꯔꯕꯅꯤ	ꯃꯤꯗꯤꯌꯥꯒꯤ ꯍꯧꯔꯐꯍ ꯑꯃꯁꯨꯡ ꯐꯁꯐꯦꯔꯁꯝꯤ ꯔꯤꯅꯕ ꯁꯀꯦꯁꯤꯐꯅ ꯇꯧꯒꯗꯕ

BMP	VR (MARC 2012)	[illegible]	[illegible] / [illegible]	[illegible] ([illegible])	[illegible] / [illegible]	[illegible] (pat; lake or wetland) [illegible] / [illegible]	[illegible]
[illegible]	7.5	[illegible]	[illegible]–[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	7.0	[illegible]	[illegible]	[illegible] ([illegible])	[illegible]	[illegible]	[illegible] ([illegible] 7.9.7)
[illegible] / [illegible]	6.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] ([illegible])	[illegible]
[illegible] ([illegible])	5.0	[illegible]	[illegible]	[illegible] ([illegible])	[illegible]	[illegible]	[illegible] ([illegible] 8.7.8)
[illegible]	5.0	[illegible]	[illegible]–[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4.0	[illegible]	[illegible]–[illegible]	[illegible]	[illegible]	[illegible]	Q_wq [illegible]
[illegible]	4.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] ([illegible] 4)
[illegible] / [illegible]	3.0–5.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] VR
[illegible] ([illegible])	+0.25	—	—	—	—	—	[illegible] VR-[illegible]

VR [illegible] MARC/APWA BMP Manual (2012), Table 4.4-[illegible]

> **[illegible].** LoS [illegible] VR [illegible] MARC/APWA Manual of Best Management Practices for Stormwater Quality (2012), Tables 4.2 [illegible] 4.4-[illegible] VR-[illegible] International Stormwater BMP Database-[illegible] TSS [illegible] US-[illegible]

> ꯅꯣꯏꯕꯗꯦ ꯂꯝꯃꯥꯏꯄꯥꯛꯀꯤ ꯃꯌꯥꯝꯗ ꯆꯠꯄ US-ꯒꯤ ꯁꯦꯝꯖꯤꯟꯅꯒꯤ ꯐꯣꯔꯃꯦ ꯑꯍꯥꯡ ꯑꯃꯁꯨꯡ ꯐꯣꯔꯃꯦ ꯂꯤꯇꯔꯦꯇ ꯄꯥꯝꯗꯕ (CPHEEO 2019, §9.5), ꯃꯁꯤꯒꯤ ꯑꯣꯏꯗꯦ ꯃꯇꯦꯡꯅ ꯑꯣꯏꯗꯦ GPT ꯑꯃꯁꯨꯡ DWF ꯊꯦꯡꯅꯕ ꯑꯣꯏ ꯌꯥꯎꯗꯦ ꯃꯊꯛ ꯌꯥꯅ (ꯁꯦꯛꯁꯟ 8.9 ꯑꯃꯁꯨꯡ 8.10) ꯑꯃꯁꯨꯡ VR ꯑꯍꯥꯗꯦ ꯃꯅꯥꯔꯛꯀꯤ ꯃꯆꯥꯡ ꯂꯤꯡꯕ ꯂꯦꯄꯈꯤ꯫

8.7 BMP ꯗꯤꯖꯥꯏꯅꯒꯤ ꯂꯃꯍꯩꯂꯤꯡ

8.7.1 **ꯃꯔꯦꯃꯒꯤ.** BMP ꯅꯨꯗꯤꯡꯃꯛ ꯃꯍꯦꯛ ꯄꯤꯕꯤꯕ ꯃꯊꯧ ꯌꯥꯕꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯐꯥꯏꯕ 8D (BMP ꯗꯤꯖꯥꯏꯟ ꯂꯤꯁꯇꯤꯡ) ꯃꯁꯨꯡ ꯅꯩꯗ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯒꯅꯕꯗꯤ꯫ ꯃꯕꯨ ꯌꯥꯕꯕ ꯃꯇꯝꯗ ꯄꯤꯕꯤꯕ ꯗꯤꯅꯃꯥꯏꯔꯦꯂꯦꯡꯂꯤꯡ ꯑꯂꯤ **ꯕꯤꯡꯃꯥꯏꯔꯛ ꯌꯥꯕꯕ ꯐꯕꯨꯇꯃꯒꯤ ꯒꯥꯡꯅꯂꯤꯡꯗꯤ**; ꯗꯤꯖꯥꯏꯗꯕꯗꯦ ꯃꯅꯥꯔꯛꯀꯤ ꯌꯥꯎꯗꯕ ꯅꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯕꯃ ꯇꯥꯡꯛꯥꯡꯄꯛꯕꯗꯤ꯫ BMP ꯅꯨꯗꯤꯡꯃꯛ Q_wq-ꯗꯒꯤ ꯐꯥꯔꯕ ꯇꯔꯥꯂꯤꯡ ꯑꯂꯥꯅꯕ ꯆꯌꯥꯗꯦ ꯍꯥꯔꯊꯔꯕ (ꯁꯦꯛꯁꯟ 8.4.6) ꯗꯤꯖꯥꯏꯟ ꯌꯥꯒꯗꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯔꯌꯥꯆꯥꯔꯂꯦꯡꯗꯤꯗꯃꯛ ꯑꯥꯒꯂꯥꯂ ꯆꯒꯗꯕꯗꯤ (ꯂꯃꯥꯛ 10)꯫

8.7.2 **ꯕꯅꯑꯦꯕꯤꯌꯥꯔꯂꯦ (bioretention) ꯑꯃꯁꯨꯡ ꯕꯥꯔ ꯒꯤꯕꯗꯥꯔꯂꯤꯡ** (ꯃꯃꯤ 8.2)꯫

- (a) ꯂꯕꯇꯥꯂꯌ ꯅꯂꯤꯡ ꯆꯥꯄꯂꯒꯤ ꯗꯥꯄꯊ ꯑꯂꯤ ꯃꯍꯥꯌꯕꯤ ꯃꯊꯒꯌ **300 mm**-ꯗꯒꯤ ꯐꯥꯔꯗꯕ, ꯅꯕꯅꯗꯒꯤ ꯍꯦꯡꯕ ꯅꯂꯤꯡ ꯆꯥꯄꯂꯒꯤ ꯆꯒꯥꯍꯗ ꯑꯦꯒꯕꯇꯆ ꯑꯃꯒ ꯆꯦꯔꯆꯆꯦ꯫
- (b) ꯂꯕꯇꯥꯂꯌ ꯆꯥꯄꯆꯕ ꯅꯂꯤꯡ ꯑꯂꯤ **ꯄꯨꯡ 48**-ꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯦꯒꯐꯔꯕ꯫
- (c) ꯗꯥꯄꯊ 600–900 mm ꯆꯕ ꯇꯤꯍꯌꯕ ꯃꯤꯗꯤꯔꯦ: ꯇꯦꯅꯔꯂ ꯆꯥꯊꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯂꯇꯦꯕꯂ ꯆꯥꯊꯆꯦ ꯍꯦꯛꯕ ꯅꯔꯆꯤꯆꯤꯔꯕ ꯌꯕꯕ ꯂꯥꯔꯗꯤ ꯆꯦꯊ (ꯑꯐꯥꯏꯕ 8D), 50–75 mm-ꯒꯤ ꯃꯍꯌ ꯆꯥꯔꯕ ꯑꯃꯒ ꯆꯦꯔꯆꯆꯦ꯫
- (d) ꯃꯤꯗꯤꯔꯦꯒꯤ ꯃꯍꯦꯛ ꯌꯕꯦꯔꯆꯤꯂꯔ (choker) ꯆꯥꯔꯕ ꯑꯃꯦ ꯑꯃꯁꯨꯡ ꯂꯨꯡꯂꯨꯄꯤꯡ ꯗꯕꯥꯆꯥꯆ ꯆꯥꯔꯕ ꯑꯃꯦ꯫
- (e) ꯃꯐꯂꯦꯒꯤ ꯆꯃꯦꯅꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯅꯔꯇꯤꯍꯌꯕꯥꯂꯔ ꯕꯥꯌ (ꯁꯦꯛꯁꯟ 8.8.4) ꯑꯂꯤ (b) ꯃꯄꯨꯡ ꯇꯦꯐꯆꯕꯒꯤꯗꯤꯃꯛ ꯃꯊꯧ ꯌꯥꯕ ꯕꯥꯌꯌꯒꯤ ꯆꯥꯊꯕ ꯃꯇꯃꯗ, ꯆꯌꯕꯒꯦ ꯂꯥꯍ ꯑꯗꯨ ꯆꯦꯅꯔ ꯌꯕꯕ ꯃꯇꯃꯗ, ꯄꯕꯇꯦꯕꯥꯌꯗ ꯑꯔꯗꯕꯗꯕꯥꯔ ꯑꯃꯦ꯫
- (f) ꯆꯦꯅꯔ ꯌꯗꯕ ꯂꯥꯍꯂꯤꯡꯆꯦ ꯁꯦꯛꯁꯟ 8.8-ꯒꯤ ꯅꯔꯇꯤꯍꯌꯕꯥꯂꯔ ꯕꯦꯅꯌꯥꯕꯤꯔꯦꯂꯤꯡ ꯃꯄꯨꯡ ꯇꯦꯐꯆꯒꯗꯕꯗꯤ꯫ ꯃꯅꯦꯔ ꯃꯄꯨꯡ ꯇꯦꯐꯆꯕ ꯊꯃꯗꯕ ꯂꯥꯍꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯐꯌꯂꯄꯦꯌꯂꯤꯡꯗ ꯆꯕ ꯂꯥꯍꯂꯤꯡ, ꯆꯦꯅꯔ ꯌꯗꯕꯗꯤ꯫
- (g) ꯄꯦꯊꯕꯤꯂꯤꯡ: ꯅꯂꯤꯡ ꯊꯃꯗꯕ (waterlogging) ꯑꯃꯁꯨꯡ ꯃꯌꯊ ꯂꯦꯡꯆꯦ ꯑꯄꯨꯕ ꯃꯌꯊ ꯑꯆꯤꯃꯛ ꯊꯦꯡꯆꯕ ꯊꯃꯕ ꯃꯐꯂꯦꯒꯤ ꯆꯌꯕꯒꯦ ꯃꯇꯃꯗ ꯃꯐ ꯂꯦꯕꯕ ꯃꯅꯍꯂꯤꯡ꯫

8.7.3 **ꯄꯦꯊꯕꯤ-ꯃꯆꯦ ꯆꯕ ꯂꯥꯔꯍꯂꯤꯡ (swale).**

- (a) ꯌꯕꯄꯦꯆꯅꯗꯍ ꯆꯌꯕꯒꯦ ꯄꯕꯦꯕꯆꯤꯃ ꯕꯦꯂ-ꯂꯃꯔꯂ, ꯃꯆꯦꯃꯤꯕꯤ ꯂꯆꯄ 1V:3H-ꯗꯒꯤ ꯐꯥꯔꯕ ꯑꯊꯃꯗꯕ꯫
- (b) ꯆꯦꯃꯒꯤꯅꯗꯤꯆꯍ ꯂꯆꯄ 0.5%-ꯗꯒꯤ 4%, ꯐꯥꯔꯕ ꯑꯊꯃꯕ ꯃꯇꯃꯗ ꯍꯃ ꯗꯊꯂꯤꯡꯒ ꯆꯦꯔꯆꯆꯦ꯫
- (c) Q_wq-ꯗ ꯇꯆꯒꯤ ꯗꯥꯄꯊ ꯑꯂꯤ ꯆꯄꯒꯤ ꯑꯔꯦꯡꯕꯗꯒꯤ ꯐꯥꯔꯗꯕ, ꯑꯃꯁꯨꯡ Q_wq-ꯗ ꯒꯆꯦꯂꯤꯌꯤ 0.3 m/s-ꯗꯒꯤ ꯐꯥꯔꯗꯕ꯫
- (d) 1% AEP ꯇꯆ (ꯆꯌꯕꯒꯦ ꯕꯅꯄꯦꯂ) ꯑꯂꯤꯆꯦ ꯂꯥꯔꯍ ꯑꯗꯨ ꯅꯕꯆ ꯌꯕꯅꯗꯕꯗꯤ (ꯂꯃꯥꯛ 9-ꯒꯤ ꯍꯦꯐꯍꯆꯕ ꯒꯆꯦꯂꯤꯌꯤꯂꯤꯡ)꯫
- (e) ꯆꯦꯃꯒꯤꯅꯗꯤꯆꯍ ꯂꯆꯄꯂꯤꯡ 1%-ꯗꯒꯤ ꯆꯥꯊꯕ ꯆꯌꯕꯒꯦ ꯃꯅꯦꯒꯤ ꯆꯃꯦꯅꯗ ꯅꯂꯤꯡ ꯇꯕ ꯃꯑꯦꯡꯗ ꯊꯦꯒꯌꯕ ꯃꯇꯃꯗ, ꯇꯤꯍꯌꯕ ꯃꯤꯗꯤꯔꯦꯒꯦ ꯆꯦꯔꯆꯆꯦ ꯑꯔꯗꯕꯗꯕꯥꯔ ꯆꯕ ("ꯗꯕꯦꯅ") ꯂꯥꯔꯍ ꯑꯃꯦ꯫

8.7.4 **ꯄꯦꯊꯕꯤ-ꯃꯆꯦ ꯆꯕ ꯇꯤꯍꯌꯕ ꯂꯌꯕꯤꯄꯂꯤꯡ.**

- (a) ꯂꯤꯌ ꯇꯆ ꯅꯒꯌꯃꯒ ꯆꯕ, ꯇꯆ ꯕꯔꯂꯥꯔꯌꯕꯥꯌꯗ ꯑꯅꯆ ꯆꯒꯄ ꯃꯇꯃꯗ ꯆꯒꯥꯍ ꯂꯄꯕꯥꯗꯕ ꯑꯃꯒ ꯆꯦꯔꯆꯆꯦ꯫
- (b) ꯇꯆꯒꯤ ꯆꯊꯕꯤꯗ ꯆꯥꯊꯕ ꯅꯕꯅꯗꯒꯤ ꯆꯥꯊꯕꯗ 5 m, ꯑꯃꯁꯨꯡ ꯂꯆꯄ 1%-ꯗꯒꯤ 8%꯫
- (c) ꯃꯕꯨꯑꯅꯆꯦ ꯕꯅꯑꯦꯕꯤꯌꯥꯔꯂꯦ, ꯅꯔꯇꯤꯍꯌꯕꯥꯂꯔ ꯑꯃꯁꯨꯡ ꯂꯥꯔꯍꯂꯤꯡꯒꯤ ꯄꯕꯤ-ꯌꯕꯤꯌꯃꯥꯌ ꯑꯅꯆꯦ ꯂꯤꯆꯤꯔꯆꯕ꯫

8.7.5 **ꯄꯕꯃꯤꯔꯥꯕꯍ ꯄꯥꯒꯃꯥꯌ (permeable pavement).**

- (a) ꯅꯊꯄꯕꯒꯤꯔꯂ ꯑꯥꯕꯤꯔꯦꯂꯤꯡꯗꯒꯤ ꯕꯔ-ꯑꯦꯔ ꯑꯂꯤ ꯄꯕꯃꯤꯔꯥꯕꯍ ꯑꯥꯕꯤꯔꯦꯒꯤ ꯑꯆꯤ ꯊꯃꯌꯒꯤ ꯐꯥꯔꯗꯕ, ꯑꯃꯁꯨꯡ ꯄꯥꯒ ꯌꯗꯕ ꯆꯌꯕꯒꯦ ꯅꯕꯆ ꯌꯕꯤꯕ ꯑꯥꯕꯤꯔꯦꯂꯤꯡꯗꯒꯤ ꯕꯔ-ꯑꯦꯔ ꯆꯌꯕ꯫
- (b) ꯂꯥꯡꯆꯕ, ꯑꯦꯄꯔ-ꯒꯕꯥꯗ ꯌꯕꯕ ꯑꯥꯒꯕꯤꯒꯥꯌꯕꯤ ꯕꯥꯂ ꯕꯤꯆꯕꯒꯦꯔꯕ, ꯃꯂꯤꯒꯤ ꯒꯦꯅꯗꯂꯤꯡꯗ WQv-ꯒꯤ ꯃꯂꯤꯒꯤ ꯂꯥꯔꯦꯕ ꯊꯃꯕ ꯊꯃꯆꯕ ꯂꯦꯅꯆ ꯆꯥꯄꯆꯕ꯫

- (c) ꯀ꯭ꯂꯣꯖ 8.8 ꯃꯄꯨꯡ ꯐꯥꯔꯕ ꯃꯐꯝꯗ ꯅꯛꯇꯗ ꯑꯣꯠꯂꯦꯠ ꯕꯦꯜ (ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯁꯣꯕ); ꯂꯧꯁꯤꯟꯕꯁꯤ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠ ꯂꯩꯔꯕ ꯂꯣꯏꯅꯕ ꯇꯧꯗꯕ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗ ꯐꯤꯔꯤꯡꯒꯤ ꯅꯛꯇꯃꯛ ꯑꯣꯏꯅ ꯖꯤꯕ॥
- (d) ꯂꯃꯕꯤꯒꯤ ꯑꯣꯇꯣꯃꯦꯇꯤꯛꯒꯤ ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖꯦꯁꯟ ꯃꯇꯝ ꯅꯦꯂ ꯇ꯭ꯔꯤꯐꯤꯛ ꯂꯣꯏꯁꯤꯅꯕꯗ ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖ ꯇꯧꯔꯤ॥
- (e) ꯄꯦꯟꯁꯤꯜꯕꯦꯟꯁꯤꯡꯗ ꯂꯧꯔꯛ, ꯑꯃꯁꯨꯡ ꯁꯦꯡꯂꯕ ꯑꯣꯠꯂꯦꯠ ꯅꯃꯀꯦꯟꯖꯤꯅꯕ ꯃꯇꯝꯗ ꯑꯣꯟꯊꯣꯛꯄ ꯁꯦꯡꯂꯕ ꯁꯣꯏꯗꯅꯥ ꯃꯇꯝ ꯂꯧꯔꯛ॥

8.7.6 ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟꯁꯤꯡ (ꯃꯃꯤ 8.3)॥

- (a) ꯀꯔꯤꯒꯨꯝꯕ ꯃꯑꯣꯡ ꯄꯨꯀꯤꯡꯗ ꯀ꯭ꯂꯣꯖ 8.5.3-ꯒꯤ ꯃꯇꯨꯡ ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ॥
- (b) ꯇꯦꯁ꯭ꯠ ꯀꯦꯁꯂꯦꯝ ꯁꯣꯏꯗꯕ ꯒꯦꯅꯗ ꯂꯦꯁꯤꯟ ꯍꯦꯟꯕ, ꯁꯦꯝꯕ ꯄ꯭ꯔꯣꯐꯥꯏꯜ ꯑꯣꯏꯒꯗꯕ ꯃꯇꯨꯡꯗ, ꯃꯍꯥꯛ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡ ꯂꯦꯞꯄꯁꯤꯡꯗ ꯀꯨꯝꯕ ꯁꯣꯏꯗꯕ, ꯂꯣꯌꯅꯒꯤ ꯕꯦꯁꯤꯟ ꯑꯃꯒꯤ ꯃꯇꯦꯡ ꯂꯦꯟ ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ॥
- (c) ꯇ꯭ꯔꯦꯟꯆ ꯄꯨꯅꯁꯤꯟꯃꯛꯀꯤ ꯕꯦꯜ ꯐꯤꯂꯇꯔ ꯐꯦꯕ꯭ꯔꯤꯀꯦꯜ ꯇꯦꯟ ꯑꯃꯥ॥
- (d) ꯚꯣꯂꯨꯝ ꯒꯣꯂꯨꯝ = ꯒꯣꯏꯅꯁꯤꯡꯅ ꯍꯝꯕ WQv (ꯂꯧꯕꯒꯤ ꯄꯦꯔꯕ ꯃꯐꯝꯗ ꯁꯔꯨꯛ 4-ꯒꯤ ꯕꯤꯇꯦꯔꯁꯤꯡ ꯒꯣꯂꯨꯝ); ꯅꯤꯂꯥꯏꯟ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯕꯦꯟꯊꯣ ꯄꯨꯝ 72-ꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯄꯨꯕ ꯑꯣꯏꯕ॥
- (e) ꯒ꯭ꯔꯦꯟꯅꯊ ꯃꯅꯂꯦꯐ ꯂꯧꯕꯒꯤ ꯃꯦꯂꯐ ꯁꯤꯁ꯭ꯇꯦꯃꯁ ꯑꯒꯕꯖ꯭ꯔꯦ ꯑꯃꯥ॥
- (f) ꯏꯁꯤꯡ ꯄꯤꯕꯤꯕ ꯑꯦꯕꯤꯔ ꯑꯃꯗ ꯁꯇꯦꯕꯤꯂꯥꯏꯖ ꯇꯣꯛꯄꯗꯤꯡ ꯁꯤꯂꯤꯡꯂꯕ ꯄꯥꯟꯕ (ꯁꯔꯨꯛ 10)॥

8.7.7 ꯖꯦꯠ ꯄꯣꯟꯗꯁꯤꯡ (ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯖꯦꯠ ꯗꯤꯇꯦꯟꯁꯟ).

- (a) ꯄꯥꯝꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ WQv ꯑꯣꯏꯕ ꯄꯥꯔꯃꯦꯅꯦꯟꯠ ꯄꯨꯜ ꯑꯃꯥ, ꯃꯁꯤꯒꯤ ꯇꯨꯔꯦꯂꯗ ꯄꯨꯜꯒꯤ ꯃꯊꯛꯇ WQv-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ, ꯄꯨꯡ 24–48-ꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯥꯗꯣꯛꯄ॥
- (b) ꯍꯦꯗꯦꯠ ꯀꯥꯟꯕꯤꯅꯤꯡ ꯂꯦꯅꯤꯃꯦꯠ ꯐꯦꯟꯕꯦ ꯑꯃꯥ (ꯀ꯭ꯂꯣꯖ 8.5.3)॥
- (c) ꯐ꯭ꯂꯣ ꯄꯥꯊꯀꯤ ꯂꯦꯡꯊ-ꯇꯨ-ꯋꯥꯏꯗ꯭ꯊ ꯔꯦꯁꯤꯑꯣ ꯄꯥꯝꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ 3:1, ꯁꯦꯟ-ꯁꯦꯃꯖꯤꯟ ꯂꯦꯃꯗꯦ॥
- (d) ꯄꯔꯃꯥꯂꯦꯇꯦꯠ ꯄꯨꯜꯒꯤ ꯑꯦꯛꯊꯥ 1.0–2.5 m, ꯁꯦꯐꯣꯏ ꯕꯦꯇꯔ ꯑꯃꯒꯤ ꯇꯨꯔꯦꯂꯗ (ꯀ꯭ꯂꯣꯖ 7.9.4)॥
- (e) ꯑꯀꯅꯕ ꯃꯑꯣꯡꯒꯤ ꯖꯦꯟꯔ ꯕꯦꯂꯦꯠꯇ ꯑꯃꯥ (ꯀ꯭ꯂꯣꯖ 8.7.8)॥
- (f) ꯁꯔꯨꯛ 4-ꯒꯤ ꯅꯤꯟꯇꯦꯂꯦꯠ ꯚꯣꯂꯨꯝ ꯑꯁꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯅꯤꯟꯇꯦꯂꯦꯠ ꯂꯦꯒꯥꯔꯒꯤ ꯃꯊꯛꯇ ꯂꯦꯕ ꯖꯅ॥

8.7.8 ꯄꯔꯃꯥꯂꯦꯇꯦꯠ ꯄꯨꯔꯤꯡꯒꯤ ꯖꯦꯟꯔ ꯕꯦꯂꯦꯠꯇ. ꯖꯦꯠ ꯄꯣꯟꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯦꯠꯂꯦꯟꯗꯁꯤꯡꯗ, IMD-ꯒꯤ ꯂꯣꯡ ꯄꯨꯕ ꯑꯃꯁꯨꯡ ꯄꯦꯟ ꯏꯒꯦꯄꯥꯟꯕꯦ ꯁꯤꯂꯤꯡꯂꯕ ꯊ ꯍꯧꯔꯤꯒꯤ ꯖꯦꯟꯔ ꯕꯦꯂꯦꯠꯇ ꯑꯃꯅꯤ, ꯖꯥꯟ 10-ꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯥꯝꯅꯗꯒꯤ ꯑꯀꯅꯕ ꯖꯥꯟ ꯑꯃꯁꯨ ꯄꯔꯃꯥꯂꯦꯇꯦꯠ ꯄꯨꯜꯒꯤ ꯒꯣꯂꯨꯃꯒꯤ ꯄꯥꯝꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ 50% (ꯂꯧꯕꯒꯤ ꯖꯦꯠꯂꯦꯟꯗꯀꯤ ꯃꯤꯂꯤꯃꯦ ꯑꯦꯛꯊꯥ) ꯍꯝꯕ ꯁꯃꯀꯤ ꯄꯔꯦꯠ ꯗꯧꯀꯊꯕꯂꯤ॥ ꯃꯅꯥꯡꯗ ꯂꯨꯃꯅꯒꯤ ꯃꯅꯥꯒꯤ ꯏꯁꯤꯡ, ꯍꯛꯂꯕ ꯏꯁꯤꯡ ꯂꯧꯕꯒꯤ ꯁꯤꯖꯦꯂꯦꯠ ꯄꯦꯔꯦꯠ ꯃꯇꯨꯡꯄꯥꯟꯂꯥꯟꯅꯕꯂꯤ॥ ꯕꯦꯂꯦꯠꯇ ꯑꯁꯤ ꯃꯇꯨꯡ ꯐꯥꯏꯕ ꯃꯀꯃꯗ, ꯃꯁꯤꯒꯤ ꯃꯀꯨꯂꯨ ꯀꯥꯟꯅ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ-ꯅꯤꯟꯇꯦꯂꯦꯠ ꯕꯦꯁꯤꯡ ꯑꯃꯥ ꯂꯧꯕꯒꯤ ꯄꯦꯔꯦꯠ ꯑꯄꯤꯛꯄ ꯄꯔꯃꯥꯂꯦꯇꯦꯠ ꯄꯨꯜ ꯂꯦꯕ ꯀꯦꯇꯦꯟꯁꯤꯡꯗ ꯁꯣꯏꯗꯕ ꯖꯦꯠꯂꯦꯟꯗ ꯑꯃꯥ ꯁꯤꯂꯤꯡꯂꯦꯒꯥꯕꯂꯤ॥

8.7.9 ꯀꯦꯟꯁꯇ꯭ꯔꯛꯇ ꯁꯣꯏꯗꯕ ꯖꯦꯠꯂꯦꯟꯗꯁꯤꯡ.

- (a) ꯍꯦꯗꯦꯠꯂꯣ ꯁꯦꯀꯤꯃꯦꯟꯇꯦꯁꯟ ꯄꯦꯟꯗ ꯑꯃꯥ (ꯐꯣꯔꯕꯦ), ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯦꯟꯕ ꯄꯤꯍꯕꯤ-ꯃꯗꯦ ꯂꯦꯕ ꯃꯑꯣꯐꯥꯏꯜꯗꯦ ꯂꯣꯡ ꯑꯃꯥ॥
- (b) ꯂꯣꯐꯃꯦꯟ ꯖꯦꯟꯔ ꯂꯦꯒꯦꯟꯒꯤ ꯃꯊꯛꯇ WQv-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯅꯤꯟꯇꯦꯂꯦꯠ, ꯄꯨꯡ 24–48-ꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯥꯗꯣꯛꯄ, ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯅꯤꯟꯇꯦꯂꯦꯠ ꯑꯦꯛꯊꯥ 0.5 m-ꯅꯒꯤ ꯄꯦꯟꯗꯦ॥
- (c) ꯄꯥꯝꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ 3:1-ꯒꯤ ꯐ꯭ꯂꯣ ꯄꯥꯊꯀꯤ ꯂꯦꯡꯊ-ꯇꯨ-ꯋꯥꯏꯗ꯭ꯊ ꯔꯦꯁꯤꯑꯣ, ꯐ꯭ꯂꯣ ꯁꯦꯟꯗꯀꯇꯕ ꯐ꯭ꯂꯣ ꯄꯥꯊ ꯂꯦꯁꯤꯟꯗꯦ ꯂꯨꯕ ꯂꯦꯗꯤꯡꯒꯤ ꯂꯦꯔꯦꯠꯂꯦ॥
- (d) ꯏꯁꯤꯡ ꯏꯖꯦꯠꯂꯦ (flood) ꯃꯦꯀꯄꯥꯏꯟꯗꯧ ꯂꯣꯡ ꯑꯃꯁꯨ ꯁꯀꯣꯂꯄ ꯁꯣꯏꯗꯕ ꯄꯅ-ꯐ꯭ꯂꯣ ꯕꯅꯄꯥꯛ ꯑꯃꯥ॥
- (e) ꯄꯨꯟꯁꯤ ꯑꯃꯒꯤ ꯍꯦꯗꯦꯠꯂꯣ ꯁꯕ ꯃꯀꯃꯗ, ꯖꯦꯠꯂꯦꯟꯗ ꯑꯁꯤ ꯄꯨꯟꯁꯤꯒꯤ ꯁꯦꯠꯕꯦꯑꯀꯤ ꯃꯅꯨꯡꯗ ꯑꯁꯨꯕ ꯃꯇꯤꯒꯤ ꯖꯦꯟꯔꯁꯤꯡꯒꯤ ꯃꯄꯥꯟꯗ ꯂꯦꯒꯥꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯒꯤ ꯚꯣꯂꯨꯝ ꯑꯁꯤ ꯄꯨꯟꯁꯤꯒꯤ ꯚꯣꯂꯨꯝ ꯑꯣꯏꯅ ꯊꯤꯖꯤꯟꯅꯕꯂꯤ॥

8.7.10 ꯒ꯭ꯔꯣꯁ ꯄꯣꯜꯌꯨꯇꯦꯟꯠ ꯇ꯭ꯔꯦꯄꯁꯤꯡ.

- (a) Q_wq ꯇ꯭ꯔꯤꯠ ꯁꯦꯂꯕ ꯁꯥꯏꯖ ꯂꯦꯄꯂꯕ, 1% AEP ꯐꯂꯣꯕ ꯐ꯭ꯂꯣ ꯄꯨꯍꯂꯃꯛ ꯐꯥꯔꯕ ꯃꯖꯤꯛ ꯃꯅꯤ ꯖꯦꯠꯊꯦꯗꯦꯂꯦ ꯖꯦꯠꯊꯕ॥
- (b) 5 mm ꯃꯥꯟꯤ ꯐꯂꯣꯕ ꯒ꯭ꯔꯣꯁ ꯄꯣꯂꯁꯦꯠꯂꯤꯡ ꯐꯕ॥

- (c) ꯄꯥꯅ ꯇꯥꯛ ꯑꯣꯏ ꯍꯥꯏꯕꯗꯒꯤ ꯄꯅꯈꯤꯕꯤꯡ ꯀꯥꯅ ꯇꯅꯗꯅ (ꯃꯈꯥꯛ 9) ꯌꯦꯟꯄꯥꯍꯟꯗꯕ, ꯃꯆꯤꯡꯅꯤꯡ ꯑꯣꯏ **50% ꯕꯇꯥꯛ ꯌꯥꯕꯥ** ꯄꯅꯔꯦ ꯇꯧꯔꯦ꯫
- (d) ꯀꯥꯕ ꯍꯌꯥ ꯍꯅꯕꯒꯤ ꯃꯌꯥꯝ ꯑꯣꯏ O&M ꯂꯦꯇꯦꯒꯤ ꯂꯥꯏꯅꯥꯡꯂꯒꯤ ꯅꯗꯌꯥꯀꯥꯕꯒꯤꯅꯍꯥ ꯁꯅꯇ ꯇꯥꯂꯇꯕ, ꯑꯃꯁꯨꯡ ꯃꯈꯥ 10-ꯒꯤ ꯃꯇꯨꯡ 3 ꯆꯍꯤꯁꯤꯡꯒꯤ ꯂꯥꯏꯅꯥꯡꯂꯅꯒꯤ ꯄꯗꯃꯅꯕ꯫
- (e) ꯃꯥꯂꯗ ꯇꯨꯕꯒꯤ ꯀꯥꯕꯇꯦ ꯂꯥꯏꯅꯥꯡꯇꯕ ꯀꯤꯕꯤꯒꯤ ꯑꯥꯡꯂꯥꯂ꯫

8.7.11 **ꯑꯅꯕ-ꯀꯥꯕꯤꯊ ꯂꯥꯏꯁꯣꯟꯗꯣꯛꯄ.**

- (a) ꯀꯣꯔꯥꯕ ꯇꯨꯕꯒꯤ ꯌꯥꯕ ꯌꯦꯟꯕ ꯆꯦꯇꯥꯛ 8.8.8-ꯒꯤ ꯄꯨꯃꯂꯨꯃꯤꯡꯅ ꯍꯃꯨ ꯌꯕ: ꯀꯣꯔꯥꯕ ꯃꯌꯥꯂꯗꯃꯤꯡ, ꯀꯤꯕꯤꯒꯤ ꯌꯦꯕꯆꯂꯂꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯕꯒꯤ ꯍꯀꯐꯃꯤꯡ, ꯕꯃ ꯑꯃꯁꯨꯡ ꯌꯥꯕꯥ ꯅꯤꯂꯃꯤꯡ, ꯑꯃꯁꯨꯡ ꯍꯀꯐ 50-ꯅꯒꯤ ꯄꯗꯕ ꯂꯕꯆꯤꯡ ꯑꯥꯕꯤꯌꯃꯤꯡ꯫
- (b) ꯄꯅ-ꯀꯇꯥ ꯕꯅꯂꯃ ꯑꯍꯀ ꯇꯔꯇꯦ Q_wq-ꯒꯤꯅꯍꯥ ꯁꯅꯇ ꯇꯥꯂꯇꯕ꯫
- (c) ꯌꯥꯕꯤꯊꯍꯥꯗꯊ ꯑꯍꯅꯥꯌ ꯑꯅꯇꯦ ꯃꯤꯇꯤꯗꯇꯕꯅꯅꯕ: ꯁꯅꯊ ꯑꯆꯨꯅ 5-ꯅꯒꯤ ꯄꯗꯕ VR ꯍꯃꯨ ꯌꯕ ꯍꯀꯐꯅ, ꯍꯅꯔꯒꯤ ꯍꯌꯨꯥꯅ ꯀꯤꯕꯌꯥ ꯌꯕ BMP ꯑꯍ ꯇꯒꯅꯕꯇꯤ꯫

8.7.12 **ꯃꯤꯊꯨ ꯌꯥꯕꯥꯂꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯥꯌ ꯂꯤꯊꯃꯤꯡ.**

- (a) ꯂꯥꯀ ꯌꯅꯕ ꯇꯍꯅꯅꯒꯤ ꯕꯗꯑꯀ ꯇꯕꯤꯕ ꯅꯗꯇꯥꯊ ꯆꯅꯤꯡꯍꯥꯌ, ꯑꯃꯁꯨꯡ BMP ꯇꯨꯕꯒꯤ ꯅꯃꯤꯡ ꯇꯀꯐ ꯑꯍꯅ ꯅꯃꯤꯡ ꯃꯅꯆꯂ ꯍꯥꯕꯦꯗ ꯆꯅꯤꯡꯍꯥꯆꯤ ꯅꯗꯇꯥꯊꯌ꯫
- (b) ꯑꯦꯟꯊꯇꯥꯊ ꯅꯗꯀꯕꯊꯆꯤ ꯍꯌꯅ ꯅꯕꯅꯅꯒꯤ ꯇꯥꯐꯕꯅ 300 mm ꯇꯕ ꯃꯐꯂ ꯑꯍ꯫
- (c) ꯃꯤꯊꯨ ꯌꯥꯕꯥꯂꯃꯤꯡ ꯑꯣꯏ ꯂꯥꯕꯤ-ꯌꯥꯕꯤꯊꯍꯥꯗꯊ ꯅꯥꯌꯇꯤ ꯑꯃꯁꯨꯡ VR ꯀꯡꯅꯥ꯫

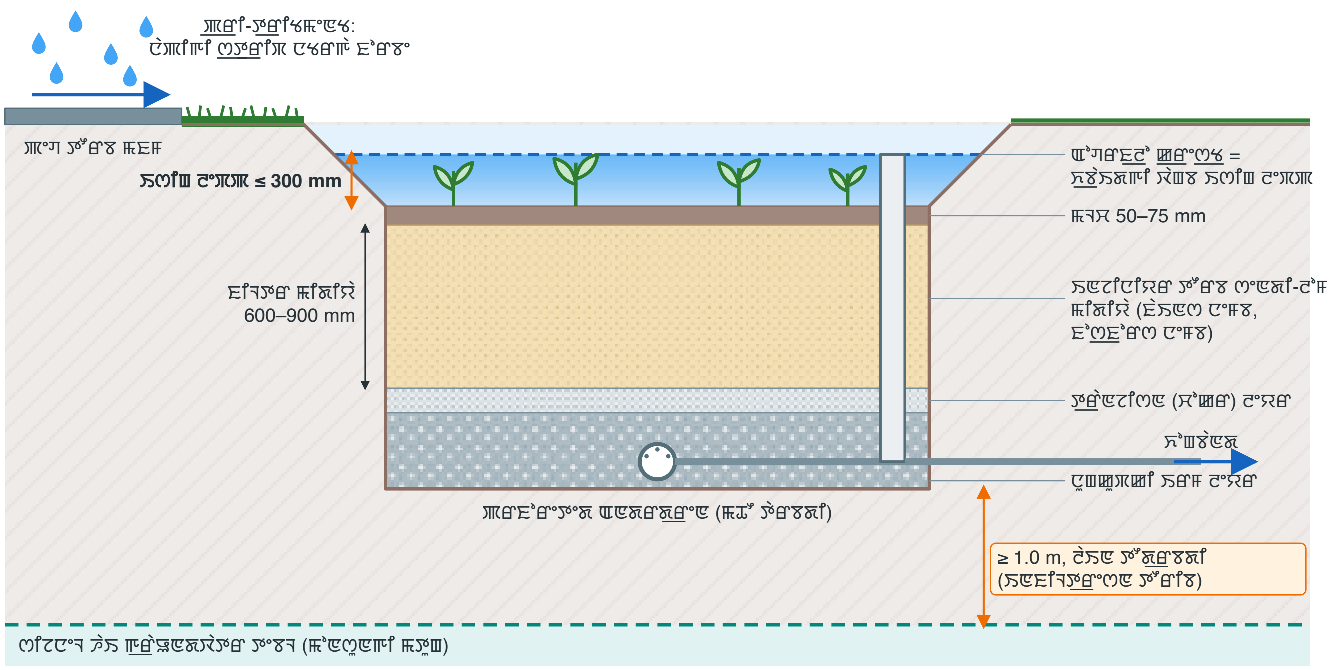
> **ꯃꯗꯅꯥꯇꯦ ꯌꯥꯂ.** ꯅꯤꯇꯅꯗꯒꯤ ꯃꯐꯍꯕꯤꯃꯤꯡ ꯑꯣꯏ MARC/APWA BMP Manual (2012), Georgia Stormwater Management Manual (2016, Vol 2), CIRIA C753 *The SuDS Manual* (2015) ꯑꯃꯁꯨꯡ PUB Singapore-ꯒꯤ ABC Waters Design Guidelines-ꯅꯒꯤ ꯇꯅ꯫ ꯕꯅꯍꯥꯗꯃꯗꯃꯤꯡ ꯑꯣꯏ ꯍꯥꯆꯨꯔꯥꯕ ꯑꯆꯨꯃꯤꯡꯒꯤ ꯍꯄꯁꯒꯤ ꯀꯥꯕꯔꯨꯃꯤꯡꯇꯤ ꯑꯆꯨꯕ ꯍꯇꯤꯂꯕꯅ ꯆꯥꯇꯤꯕꯥꯊ ꯌꯅꯤꯅꯥ꯫ ꯇꯆꯕ ꯅꯂ ꯑꯂꯐꯦ ꯄꯕꯥꯀꯐꯒꯤ ꯍꯥꯆꯨꯔꯥꯕꯃꯤꯡꯅꯒꯤ ꯄꯥꯅꯆꯂꯃꯤꯡ ꯂꯕꯆꯅ:
>
> - **ꯆꯤꯇꯥꯗꯕꯤꯃꯤꯡ.** ꯅꯥꯡꯒꯤ ꯑꯣꯏ ꯍꯇꯤꯂꯕꯅ ꯑꯥꯗꯅꯥꯍꯤꯥꯇꯤ꯫ ꯕꯅꯑꯕꯤꯌꯥꯗꯃꯗ ꯑꯃꯁꯨꯡ ꯕꯥꯗ ꯀꯕꯅꯥꯗꯃꯤꯡꯅ ꯃꯕꯀꯥꯃꯌ ꯇꯥꯂꯇꯕ ꯅꯃꯤꯡ ꯑꯣꯏ ꯂꯨꯡ 48-ꯒꯤ ꯍꯨꯡꯅ ꯃꯥꯆꯅꯕꯇꯤ (ꯆꯦꯇꯥꯛ 8.7.2(b)), ꯍꯣꯏ ꯆꯤꯇꯥꯗꯕꯤꯒꯤ ꯇꯦꯕꯀꯦ ꯌꯦꯟꯃꯥꯇꯕ ꯍꯃꯨ ꯌꯕ ꯍꯌꯐꯒꯤ ꯌꯦꯐꯦ ꯍꯍꯨꯅꯇꯤ꯫ ꯍꯣꯏ ꯆꯦꯇꯥꯛ 8.4.7-ꯒꯤ ꯂꯨꯡ 24–48-ꯒꯤ WQv ꯅꯕꯅꯦꯟꯗꯒꯤ ꯍꯗꯇꯤ꯫
> - **ꯑꯆꯨꯕ ꯍꯌꯐꯃꯤꯡ.** ꯍꯇꯤꯂꯕꯅ ꯌꯕ ꯇꯥꯒꯤ ꯍꯌꯐ ꯑꯣꯏ 1 ꯑꯥꯂꯕꯤꯀꯅꯒꯤ 31 ꯑꯥꯌꯕꯕ ꯀꯑꯕꯒꯤ ꯍꯗꯂꯗ ꯍꯌꯐꯅ ꯌꯅ: ꯅꯐꯀꯀꯅ "ꯇꯥꯎꯕꯗꯥ … ꯍꯥꯅꯒꯤ ꯄꯅ ꯑꯃꯁꯨꯡ ꯑꯥꯌꯕꯕ ꯀꯑꯕ ꯌꯊꯇꯤ" ("Rainy season … starts from May and extent up to October"), ꯇꯦꯅ (241.28 mm) ꯑꯃꯁꯨꯡ ꯇꯗ (236.06 mm) ꯑꯣꯏ ꯅꯕꯅꯅꯒꯤ ꯇꯥ ꯌꯦꯐꯦ ꯌꯕ ꯃꯣꯏꯆꯤꯇꯤ, ꯑꯃꯁꯨꯡ 1975–2000-ꯅ ꯌꯄꯤ ꯆꯅꯤꯡꯒꯤ ꯍꯤꯗ ꯇꯥ ꯌꯕ 1,416.9 mm ꯑꯅꯍꯤ (MASTEC); ꯕꯤꯁꯅꯨꯄꯨꯔ (Bishnupur) "ꯇꯥ ꯌꯕ ꯑꯣꯏ ꯑꯥꯂꯕꯤꯀ ꯃꯒꯤ ꯑꯕꯅꯕꯅꯒꯤ ꯄꯅ" ("Rainfall starts from the month of April end") ꯑꯃꯁꯨꯡ "ꯇꯥ ꯌꯕꯒꯤ 80% ꯍꯕꯀ ꯑꯣꯏ ꯅ-ꯇꯥꯌꯂ ꯍꯗꯂꯗꯅꯒꯤꯇꯤ" ("About 80% rainfall is from South West monsoon") (CGWB, 2013); ꯑꯃꯁꯨꯡ ꯅꯐꯀꯀꯅ IMD-ꯒꯤ ꯅꯕꯅꯅꯒꯤ ꯌꯥꯕ ꯇꯂꯌꯕ ꯃ ꯑꯣꯏ 49.3 mm ꯑꯃꯁꯨꯡ ꯅꯕꯅꯅꯒꯤ ꯌꯥꯕ ꯅꯤꯂꯐꯕꯕ ꯃ 94.0 mm-ꯇꯤ, ꯑꯥꯂꯕꯤꯀꯅ 459.6 mm ꯑꯃꯁꯨꯡ ꯇꯗꯅ 605.0 mm-ꯒꯤ ꯌꯥꯅꯐꯇꯕꯅ (IMD, data 1953–2012)꯫ ꯅꯤꯂꯐꯕꯕꯅꯒꯤ ꯀꯕꯕꯌꯕ ꯀꯑꯕ ꯂꯊꯃꯤꯡ ꯑꯂꯤꯥꯇꯥꯅ ꯑꯃꯁꯨꯡ ꯂꯅꯕꯤꯃꯤꯡꯒꯤ ꯅꯃꯤꯡ ꯄꯗꯃꯕꯥꯅ, ꯑꯆꯨꯕ ꯌꯐꯂꯥꯆꯤ ꯇꯐꯅ ꯌꯌꯕ ꯌꯕꯀ ꯑꯣꯏ ꯇꯍꯅꯅꯒꯤ ꯍꯤꯌꯕ ꯌꯕꯒꯤ ꯍꯌꯅ ꯇꯕꯤ (ꯆꯦꯇꯥꯛ 8.8.1), ꯑꯃꯁꯨꯡ ꯌꯦꯟꯗꯃꯤꯡꯅ ꯅꯥꯕꯦꯗ, ꯌꯥꯇꯀ ꯇꯨꯕꯒꯤ ꯂꯊ ꯑꯍꯒꯤ ꯇꯥ ꯌꯅꯕ ꯍꯌꯐꯒꯤ ꯅꯃꯤꯡ ꯑꯣꯏ ꯃꯤꯌꯥꯇꯇꯤ, ꯍꯕꯐꯅꯤ ꯅꯥꯕꯦꯗꯃꯤꯡꯇꯦ ꯍꯆꯨ ꯂꯕꯆꯅ (ꯆꯦꯇꯥꯛ 8.9, ꯃꯗꯅꯥꯇꯦ ꯌꯥꯂ)꯫ ꯍꯁꯒꯤ ꯆꯥꯌꯍꯥꯗꯊꯆꯤ ꯕꯗꯑꯀꯇꯦ ꯅꯤꯂꯐꯕꯕꯅꯒꯤ ꯍꯕꯌ ꯀꯑꯕ ꯍꯣꯏꯒꯤ ꯂꯕꯍꯇꯥꯗꯊ ꯂꯨꯀ ꯃꯐꯕ ꯃꯐꯅꯕ ꯌꯦꯌꯕ ꯕꯇꯥꯗꯃ (ꯆꯦꯇꯥꯛ 8.7.8) ꯇꯕ ꯌꯥꯊ ꯂꯥꯗꯅ ꯇꯨꯕꯒꯤ ꯆꯗꯃꯌꯕꯥꯊ ꯌꯕꯕ ꯌꯥꯊꯇꯥꯗꯅ ꯑꯍ ꯃꯤꯇꯤꯗꯇꯕꯅꯅꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯆꯦꯇꯨꯐꯕ ꯑꯍꯊꯌ ꯇꯥ ꯌꯅꯕ ꯍꯌꯐꯒꯤ ꯌꯥꯗꯕꯦ ꯍꯂꯗꯦ ꯃꯐꯅ; ꯌꯐꯂꯥꯆꯤ ꯇꯐꯅ, ꯆꯦꯇꯥꯛ 4.11-ꯇꯦ ꯅꯗꯀꯤꯀꯌꯥꯃꯗ ꯃꯤꯆꯇꯤꯕ ꯍꯀꯐꯅ, ꯌꯕ ꯌꯦꯕ ꯍꯑꯥꯃꯤꯡꯅꯤ ꯑꯗꯅꯕꯅꯥꯗ ꯇꯕ ꯇꯅꯗ ꯌꯕꯕ ꯕꯅꯑꯕꯤꯌꯥꯗꯃꯗ, ꯃꯌꯀꯃꯤꯡ, ꯃꯤꯇꯤꯗꯇꯇꯕ ꯃꯌꯕꯥꯇ ꯑꯃꯁꯨꯡ ꯇꯅꯗ ꯌꯕꯕ ꯑꯥꯂꯃꯌꯥꯗꯅꯥꯅ ꯅꯕꯅ ꯅꯤꯌꯥꯗꯃꯗꯤ꯫ ꯆꯦꯇꯥꯛ 8.7.8 ꯑꯣꯏ BMP-ꯃꯤꯡꯅ ꯌꯊꯇꯤ, ꯍꯅꯔꯅ ꯃꯤꯌꯥꯇꯇꯦ ꯄꯗꯦ ꯍꯂꯗꯄꯀꯇꯅꯅꯕꯇꯤ; ꯂꯊꯃꯤꯡ, ꯂꯅꯕꯤꯃꯤꯡ, ꯇꯥꯌꯥ ꯑꯃꯁꯨꯡ ꯑꯌꯂꯂ ꯌꯊꯇꯥꯗꯅꯃꯤꯡ ꯑꯣꯏ ꯃꯈꯥ 7-ꯒꯤ ꯍꯌꯅ ꯅꯃꯤꯡ ꯇꯀꯐꯃꯤꯡꯇꯤ ꯑꯃꯁꯨꯡ ꯅꯥꯀꯇꯂꯍꯥꯗꯊ ꯑꯍꯒꯤꯅꯍꯥ ꯌꯥꯕꯤꯊꯍꯥꯗꯊ ꯑꯅꯇꯦ ꯃꯤꯇꯤꯗꯇꯕꯅꯅꯕꯇꯤ꯫ ꯑꯆꯤꯇꯥꯂ ꯌꯥꯊ ꯂꯥꯗꯅꯃꯤꯡ

[illegible] 8.7.8-[illegible] "[illegible]" ("full") [illegible]॥

- **[illegible].** GPT [illegible] 50% [illegible] 6-[illegible]॥

[illegible] 50-[illegible], 5 mm GPT [illegible], 0.3 m/s [illegible]॥

[illegible]


≤ 300 mm
600–900 mm
50–75 mm
≥ 1.0 m,

[illegible] 1.0 m-[illegible]॥

[illegible] 8.7.2-[illegible]॥

[illegible] 8.2 — [illegible] 1.0 m [illegible], MARC/APWA, Manual of Best Management Practices for Stormwater Quality, 2012, [illegible] CIRIA, The SuDS Manual (C753), 2015-[illegible]॥

8.8 [illegible]

8.8.1 **[illegible].** [illegible] 1.0 m [illegible] (8.8.9)॥ [illegible] 1 [illegible] 31 [illegible]

ꯑꯗꯨ ꯁꯤꯡꯅ (ꯃꯦꯞ 3.10.2)꯫ ꯃꯇꯧꯒꯤ ꯃꯈꯥ ꯑꯣꯏꯅ ꯃꯦꯞ 4.11-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯃꯇꯥꯛ ꯁꯤꯟꯅ, ꯑꯃꯁꯨꯡ ꯃꯦꯞ 8.8.1 ꯑꯣꯏꯅ ꯃꯍꯥꯛꯀꯤ ꯑꯣꯏꯕꯒꯤ ꯇꯥꯀꯄꯤꯔꯦ ꯄꯤꯔꯤ꯫ **(i) ꯇꯝꯄꯥꯛꯀꯤ ꯂꯃꯗꯝ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ (ꯃꯦꯞ 4.11, ꯇꯝꯄꯥꯛꯀꯤ ꯂꯃꯒꯤ ꯃꯇꯨꯡ)꯫** ꯍꯥꯏꯕꯗꯤ ꯇꯝꯄꯥꯛꯀꯤ (valley) ꯈꯨꯟꯗꯥꯡꯒꯤ ꯇꯔꯨꯛꯂꯤꯕꯥ ꯈꯨꯔꯨ ꯑꯁꯣꯌꯕ, ꯂꯤꯟꯌ ꯅꯠꯔꯒꯥ ꯀꯤꯌꯝ (ꯑꯄꯥꯟꯕ 2A-ꯒꯤ ꯂꯕ-ꯑꯣꯏꯔꯤꯕ MN-A ꯑꯃꯁꯨꯡ MN-A1), ꯃꯂꯥꯏꯗ ꯇꯨꯝꯄ (paddy land) ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗꯒꯤ ꯀꯩꯌꯂꯕ ꯁꯤꯡꯅ; ꯇꯨꯔꯦꯜ (river) ꯑꯃꯁꯨ, ꯍꯤꯕ (stream) ꯑꯃꯁꯨ ꯅꯠꯔꯒꯥ ꯇꯥꯔꯛꯂꯕ 1% AEP ꯍꯣꯏꯕ ꯍꯥꯁꯤꯡꯒꯤ ꯇꯒꯥꯟꯒꯤ ꯃꯍꯨꯠ ꯈꯨꯗ ꯆꯃꯗ; ꯑꯁꯤꯡꯌꯔꯥꯡꯂꯣꯏꯕ ꯊꯣꯕꯆꯕ ꯃꯇꯝꯃꯗ ꯍꯣꯏꯕ ꯇꯀꯥꯛ ꯇꯨꯔꯦꯜꯒꯤ ꯀꯣꯛ (bund) ꯈꯨꯕ ꯑꯣꯏꯔꯤꯕ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ; ꯀꯥꯌ ꯅꯠꯔꯒꯥ ꯀꯨꯍꯥꯜ ꯑꯃꯒꯤ ꯃꯅꯥꯛꯇ (ꯂꯃꯨꯛ 7-ꯒꯤ ꯃꯍꯨꯠ ꯃꯇꯥꯡꯒꯤ ꯇꯦꯕ 1 ꯑꯃꯁꯨꯡ ꯇꯦꯕ 2); ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯇꯥꯛ (ꯉꯥꯛꯁꯦꯜꯂꯕ) ꯑꯦꯛꯠ, 2006-ꯒꯤ (Manipur Loktak Lake (Protection) Act, 2006) 236.21 km²-ꯒꯤ ꯃꯇꯨꯡꯗ; ꯂꯕ-ꯑꯣꯏꯔꯤꯕ MN-C1-ꯒꯤ ꯕꯔꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯔꯤꯒꯤ (Jiri) ꯏꯆꯥꯎꯇꯕꯗ ꯃꯂꯥꯏꯒꯤ 1% AEP ꯇꯒꯥꯟꯒꯤ ꯃꯍꯨꯠ; ꯅꯠꯔꯒꯥ ꯂꯤꯆꯅꯥꯟ ꯍꯥꯛ ꯁꯤꯅꯥꯔ ꯇꯕꯟ ꯑꯣꯏ ꯈꯨꯟꯗꯥꯡꯗꯒꯤ 2.0 m-ꯗꯒꯤ ꯅꯥꯃꯆ ꯃꯍꯨꯠ ꯈꯨꯕ ꯃꯏꯄ ꯍꯨꯗꯥꯏꯃꯛꯀꯤ ꯇꯥꯔꯤꯕ ꯍꯣꯏꯕꯗꯥꯂꯤꯕꯒꯤ ꯊꯕꯛ ꯑꯃꯌꯥꯝ (ꯂꯩꯄꯥꯛ, ꯂꯩꯕ ꯅꯠꯔꯒꯥ ꯀꯔꯝꯃꯤꯡꯕ ꯀꯥꯌ, ꯔꯤꯁꯥꯔꯆ ꯀꯥꯌ, ꯂꯦꯏꯌ ꯅꯠꯔꯒꯥ ꯁꯤꯟ, ꯍꯣꯏꯕꯗꯥꯂꯤꯕꯒꯤ ꯇꯔꯨꯛ, ꯅꯠꯔꯒꯥ ꯑꯣꯏꯕꯗꯥꯂꯤꯕꯁꯤꯡꯒꯤ ꯇꯤꯕ ꯕꯣꯂ ꯈꯨꯕ ꯀꯔꯝꯃꯤꯡꯕ ꯀꯥꯒꯣ) ꯂꯩꯔꯕꯗꯦ ꯅꯠꯔꯒꯥ ꯃꯔꯥꯡꯗꯥꯏ ꯀꯥꯔꯤꯕꯗꯦ꯫ ꯑꯣꯏꯅꯃꯕ ꯆꯃꯗ ꯃꯦꯞ 8.11.3(c)-ꯒꯤ ꯍꯨꯃꯊꯥꯛꯀꯤ ꯍꯣꯏꯕꯒꯤ ꯑꯔꯥꯡ ꯑꯗꯨ ꯄꯤꯔꯤ; ꯍꯨꯃꯊꯥꯛꯀꯤ ꯍꯣꯏꯕ ꯂꯤꯆꯤꯌꯅꯅꯕ ꯂꯧꯔꯣꯛꯆꯗ ꯄꯤꯔꯤ, ꯔꯤꯇꯥꯡꯌꯂꯌ ꯑꯣꯏ ꯂꯤꯆꯤꯌꯅꯅꯕ ꯂꯧꯔꯣꯛꯇ ꯑꯃꯁꯨꯡ ꯈꯨꯟꯗꯥꯡꯒꯤ ꯃꯍꯨꯠ ꯍꯥꯏꯕꯗꯥꯂꯤꯕꯒꯤ ꯇꯥꯕ ꯂꯔꯏꯅꯕꯒꯤ ꯊꯥꯕꯛꯂꯕꯗ ꯃꯀꯨꯕ ꯏꯄꯥꯆꯤ, ꯑꯃꯁꯨꯡ ꯂꯃꯨꯛ 4-ꯒꯤ ꯃꯍꯨꯠ ꯗꯥꯏꯇꯌꯂꯌ ꯑꯣꯏ ꯈꯨꯟꯗꯥꯡꯒꯤ ꯃꯍꯤꯒꯤ ꯍꯣꯏꯕ ꯈꯨꯟꯗꯥꯡꯒꯤ ꯇꯒꯥꯟꯗ ꯈꯨꯕ ꯏꯃꯒꯥꯃ ꯏꯆꯥꯎꯇꯕꯗꯃꯗꯒꯤꯗꯃꯛ ꯄꯥꯛ ꯇꯥꯔꯕ, ꯆꯍꯌ ꯇꯥꯔꯕ, ꯍꯣꯏꯕ ꯍꯨꯝꯀꯥ ꯃꯥꯏꯗꯕ ꯂꯧꯔꯣꯛꯆꯗ ꯆꯤ꯫ ꯍꯥꯏꯕꯗꯤ ꯄꯥꯡꯂꯦꯟꯕꯒꯤ ꯃꯇꯨꯡꯏꯟꯅꯕ ꯃꯏꯄꯥꯛꯀꯤ ꯇꯝꯄꯥꯛꯀꯤ ꯆꯃꯗ "ꯄꯤꯕ 30-ꯗꯒꯤ 50 m ꯃꯔꯥꯡꯒꯤ ꯈꯨꯟꯗꯥꯡꯒꯤ ꯏꯔꯥꯃꯌ ꯆꯤ, ꯆꯨꯕ ꯇꯨꯍꯨꯕ ꯄꯥꯡꯂꯣꯏꯕ ꯂꯤꯕꯗ ꯑꯄꯤꯕ ꯆꯤ" ("approximately 30 to 50 m of clayey formation, construction of shallow tube wells is problematic"), "30-ꯗꯒꯤ 65 m bgl ꯏꯑꯣꯕ ꯈꯨꯟꯗꯥꯡꯒꯤ ꯗꯤꯀꯣꯇꯤꯌ" ("clayey deposit down to depth range of 30 to 65 m bgl") ꯑꯃꯁꯨꯡ ꯍꯣꯏꯕ "2-ꯗꯒꯤ 5 m bgl" ("2 to 5 m bgl") ꯆꯤ (CGWB, 2013); ꯕꯤꯂꯨꯀꯨꯔꯒꯤ ꯇꯥꯛꯂꯣꯏꯕꯒꯤ ꯑꯃꯄꯤꯕꯗ "ꯀꯤꯌ ꯈꯨꯟꯗꯥꯡꯍꯣꯏꯕꯗ ꯑꯣꯂꯤꯗꯤꯇ ꯁꯤꯃꯆ ꯄꯤꯕꯍ" ("peaty soils have high acidity") (CGWB, 2013); ꯑꯃꯁꯨꯡ ꯇꯝꯄꯥꯛꯀꯤ ꯆꯃꯂꯣꯏꯕ ꯑꯣꯏ "ꯏꯆꯥꯎꯒꯤꯑ ꯇꯃꯂꯣꯏꯕꯍꯟꯗꯒꯤ ꯆꯥꯀ" ("fluvio lacustrine origin"), ꯈꯨꯔꯨ, ꯂꯤꯟꯌ ꯑꯃꯁꯨꯡ ꯈꯨꯊꯥꯍꯒꯤꯆꯤ (MASTEC)꯫ ꯃꯗꯤꯟ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ, 2024-ꯒꯤ (Model Manipur Unified Building Bye-Laws, 2024) ꯕꯥꯏ-ꯂꯣ 66-ꯅ [TBC: ꯇꯝꯅ ꯕꯗꯤꯅ ꯇꯥꯔꯤꯈꯟ ꯇꯥꯔꯕ ꯕꯥꯏ-ꯂꯣꯇꯥ ꯅꯆꯕꯔ ꯑꯃꯁꯨꯡ ꯇꯥꯛꯂꯣꯏ ꯄꯥꯛ ꯇꯥꯀꯗꯕꯆꯤ] "ꯂꯔꯏꯂ ꯔꯤꯇꯔꯒꯥꯔꯔꯣꯏꯕ ꯅꯠꯔꯒꯥ ꯔꯤꯁꯥꯔꯆ ꯄꯥꯟꯂꯣꯏꯕ" ("surface reservoirs or recharge wells") ꯀꯤꯔꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗ ꯑꯣꯏꯅ ꯂꯔꯏꯂ ꯔꯤꯇꯔꯒꯥꯔꯔꯣꯏꯕ ꯍꯆꯤ, ꯃꯣꯏ ꯁꯤꯅꯗꯕ ꯑꯃꯁꯨ ꯅꯠꯔꯒꯥ; ꯕꯥꯏ-ꯂꯣ 67-ꯅ ꯄꯥꯡꯕ ꯒꯔꯤ ꯁꯤꯇꯔ "ꯈꯨꯟꯗꯥꯡꯒꯤ ꯃꯍꯤꯒꯤ ꯍꯣꯏꯕꯒꯤ ꯔꯤꯁꯥꯔꯆꯃꯗꯃꯛ ꯅꯕꯒꯤ ꯍꯣꯏꯕ ꯔꯤꯁꯥꯔꯆ ꯂꯧꯔꯣꯛꯆꯔꯣꯏꯕꯗ" ("to the rain water recharge structures for ground water recharge") ꯊꯍ, ꯃꯣꯏ ꯇꯝꯄꯥꯛꯀꯤ ꯆꯃꯗꯤ ꯈꯨꯟꯗ ꯈꯨꯕ ꯂꯕ ꯀꯤꯌ ꯑꯃꯆꯤ: ꯃꯇꯨꯡꯏꯟꯅ ꯑꯣꯏꯅ ꯁꯤꯅꯗꯕ ꯑꯗꯨ ꯄꯍꯔꯤ, ꯃꯗꯨꯒꯤ ꯃꯄꯨꯌꯝ ꯂꯧꯔꯣꯛꯇ ꯅꯠꯔꯒꯥ ꯂꯤꯁꯔ (sewer) ꯃꯅꯥꯛꯂꯕ ꯃꯊꯛ ꯇꯥꯍ, ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣ ꯑꯗꯨꯒꯤ ꯔꯤꯇꯥꯛꯂꯕꯂꯕ ꯇꯝꯅ ꯕꯗꯤꯗꯒꯤ ꯄꯤꯔꯇꯕ ꯑꯣꯏ ꯑꯀꯤꯇꯤꯃꯌꯔꯗ ꯊꯗꯃꯍ, ꯃꯇꯨꯡꯏꯟꯅ ꯑꯣꯏꯅ ꯃꯗꯨ ꯄꯥꯕꯗꯥꯛꯇ꯫ "ꯃꯏꯄ ꯍꯔꯗ ꯆꯨꯕ ꯇꯨꯍꯨꯕ ꯄꯥꯡꯂꯣꯏꯕ ꯂꯤꯕꯗ" ("while constructing deep tube wells in some places") ꯒꯂ ꯊꯥꯍꯤ (CGWB, 2013), ꯑꯃꯁꯨꯡ ꯀꯤꯌꯃꯤ ꯂꯕꯂꯍꯗꯌꯂꯃꯤ ꯔꯃꯗꯔꯗ ꯑꯃꯌꯝ ꯏꯕꯍꯤꯗ [TBC]: ꯀꯤꯌꯝ ꯈꯨꯕ ꯂꯃꯀ, ꯇꯝꯄꯥꯛ ꯅꯠꯔꯒꯥ ꯗꯥꯏꯇꯌꯂꯌ ꯂꯧꯔꯣꯛꯆꯔ ꯑꯃꯗ ꯆꯤꯑꯣꯇꯥꯛꯆꯤꯃꯅ ꯄꯥꯛ ꯑꯃꯁꯨ ꯆꯤ (ꯃꯇꯨꯡꯏꯟꯅ ꯑꯣꯏꯅ ꯊꯃꯕ)꯫ **(ii) ꯆꯤꯡꯒꯤ ꯅꯥꯀꯃꯂꯣꯏꯕꯗ ꯍꯥꯏꯕꯗꯥꯂꯤꯕꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ (ꯃꯦꯞ 4.11, ꯆꯤꯡꯒꯤ ꯃꯇꯨꯡ)꯫** ꯂꯕ-ꯑꯣꯏꯔꯤꯕ MN-B ꯑꯃꯁꯨꯡ MN-C-ꯗ, MN-C1-ꯒꯤ ꯆꯤꯡꯒꯤ ꯀꯔꯤꯌꯂꯣꯏꯕꯗ, MN-A-ꯒꯤ ꯇꯝꯄꯥꯛꯀꯤ ꯃꯅꯥꯛꯀꯤ ꯅꯥꯀꯃꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯍꯤꯕꯂꯣꯏꯕꯗ, ꯑꯃꯁꯨꯡ ꯑꯇꯣꯀ ꯃꯏꯄꯗ 10°-ꯗꯒꯤ ꯄꯥꯡꯅ ꯑꯊꯥꯃꯕ ꯃꯄꯥꯂꯤꯒꯤ ꯅꯥꯀꯃ ꯍꯨꯗꯥꯏꯃꯛꯀꯤ, 10°-ꯗꯒꯤ ꯄꯥꯡꯅ ꯅꯥꯀꯃ ꯈꯨꯕ ꯃꯄꯥꯂꯤꯒꯤ ꯈꯨꯟꯗꯥꯡꯗ; ꯃꯔꯤꯒꯨꯃꯕ ꯂꯧꯀ ꯑꯃꯗ ꯗꯤꯂꯤꯕ ꯂꯥꯟꯗ (Disang shale); ꯃꯔꯨꯒꯤꯔꯃ, ꯏꯇꯤꯟ ꯅꯠꯔꯒꯥ ꯂꯧꯍꯗ ꯗꯥꯕꯔꯤꯂꯨ; ꯃꯀ ꯇꯥꯔꯕ ꯇꯥꯕꯗꯂꯧꯍꯗ (landslide) ꯇꯦꯕ ꯅꯠꯔꯒꯥ ꯇꯥꯕꯗꯂꯧꯍꯗ ꯈꯨꯃꯍ ꯑꯃꯗ, ꯍꯨꯗꯃ ꯑꯍꯅ ꯅꯇꯥ ꯀꯅꯒꯤ ꯇꯨꯄꯨꯜ (Tupul) ꯑꯃꯁꯨꯡ ꯁꯤꯄꯗꯥꯟ ꯀꯅꯒꯤ ꯇꯃꯟ (Joumol), ꯑꯃꯁꯨꯡ NH-37 ꯑꯃꯁꯨꯡ NH-2-ꯒꯤ ꯃꯌ ꯂꯧꯀꯂꯣꯏꯕ; ꯅꯠꯔꯒꯥ ꯃꯌ ꯂꯧꯀ ꯅꯠꯔꯒꯥ ꯔꯤꯇꯥꯛꯂꯕ ꯄꯟ ꯑꯃꯒꯤ ꯃꯊꯛ ꯊꯕꯕ ꯃꯏꯄꯗ ꯃꯂꯥꯏꯒꯤ ꯑꯁꯤꯕꯕꯒꯤ ꯑꯆꯤ ꯊꯥꯛꯀꯤ ꯃꯇꯨꯡꯗ — ꯄꯥꯀꯄꯤꯅꯇꯕ ꯍꯣꯏꯕꯅ ꯂꯧꯀ ꯑꯗꯨ ꯂꯥꯛꯄꯇꯍ ꯄꯔꯅ ꯇꯤꯑꯣꯇꯥꯛꯆꯤꯃꯅ ꯂꯔꯇꯤꯏꯃꯌ ꯑꯃꯅ ꯍꯌꯇꯔꯕꯗꯤ — ꯇꯥꯔꯤꯕ ꯍꯥꯏꯕꯗꯥꯂꯤꯕꯒꯤ ꯊꯕꯛ ꯑꯃꯌꯝ ꯂꯩꯔꯕꯗꯦ ꯅꯠꯔꯒꯥ ꯃꯔꯥꯡꯗꯥꯏ ꯀꯥꯔꯤꯕꯗꯦ꯫ ꯍꯨꯃꯊꯥꯛꯀꯤ ꯔꯦꯑꯏ ꯑꯣꯏ ꯍꯨꯃꯊꯥꯛꯀꯤ m² ꯍꯨꯗꯃꯗ ꯍꯕꯍꯗꯒꯤ ꯅꯥꯃꯕꯗ 25 L-ꯒꯤ ꯂꯧꯔꯣꯛꯆꯗ ꯄꯤꯔꯤ (ꯃꯦꯞ 4.11), ꯑꯃꯁꯨꯡ ꯃꯂꯥꯏꯒꯤ ꯑꯒꯔꯏꯇ, ꯑꯃꯁꯨꯡ ꯑꯇꯣꯀ ꯔꯦꯑꯏ ꯀꯨꯃꯆꯃꯛ, ꯆꯍꯌ ꯇꯥꯔꯕ ꯍꯕꯕꯦ ꯑꯃꯅ ꯂꯤꯟꯌ ꯇꯔꯀ ꯑꯃꯁꯨꯡ ꯑꯆꯔꯆꯤ ꯗꯤꯂꯤꯀꯇꯔ ꯑꯃꯒꯤ ꯍꯨꯌꯊꯕꯗ ꯄꯌꯀ ꯄꯅꯟ ꯑꯃꯗ ꯄꯤꯔꯤ, ꯃꯗꯨꯃꯗꯂꯨ ꯃꯥꯊꯥꯃꯀ ꯈꯨꯔꯕ ꯂꯧꯀ ꯑꯃꯗ ꯅꯌꯇ꯫ ꯗꯤꯂꯤꯕ ꯂꯟ ꯑꯣꯏꯅ "ꯆꯤꯡꯒꯤ ꯆꯃꯒꯤ ꯄꯤꯕ 85 p.c. ꯃꯔꯥꯡ ꯈꯍ, ꯍꯥꯏꯕꯗꯥꯂꯤꯕꯒꯤ ꯄꯥꯊꯍ ꯑꯃꯁꯨꯡ ꯔꯦꯑꯏ ꯄꯥꯡꯍ" ("occupies almost 85 p.c. of the hilly region, have less infiltration and more run off") (MASTEC), ꯑꯃꯁꯨꯡ ꯃꯣꯏ ꯇꯨꯄꯨꯜꯗ ꯃꯌꯆꯒꯥ ꯍꯣꯏꯕꯅ ꯃꯀꯨꯔꯆꯕ ꯃꯇꯃꯗ ꯆꯅꯔꯊꯥꯍꯤ, ꯃꯏꯄ ꯑꯗꯨꯗ 29 ꯅꯠꯔꯒꯥ 30 ꯖꯨꯟ 2022-ꯗ ꯆꯤꯔꯤꯕꯃ–ꯍꯥꯏꯕꯗꯤ ꯔꯟꯅꯄꯒꯤ ꯂꯍꯌꯝ ꯆꯥꯍꯤꯕ ꯇꯥꯕꯗꯂꯧꯍꯗ ꯑꯃꯁꯨ "ꯁꯤꯃꯅ ꯍꯨꯕ ꯅꯕꯒꯤ ꯇꯔꯅꯅ ꯏꯅ ꯗꯤꯆꯍꯌ ꯇꯥꯗꯕ ꯅꯠꯔꯒꯥ ꯏꯅ ꯇꯥꯗꯕ ꯂꯧꯀ ꯑꯂꯂꯃꯀꯂꯌ" ("poorly designed or implemented slope excavation coupled with heavy rainfall") ꯑꯣꯏꯒꯤ ꯃꯔꯃꯆꯤ ꯄꯤꯔꯍꯤ (ꯀꯤꯁꯤꯡ ꯏꯕꯗꯂꯥꯍꯤꯕ ꯃꯇꯨꯡ ꯍꯌꯌ)꯫ ꯍꯥꯏꯕꯗꯤ ꯃꯨꯔꯨꯆꯤꯑꯣꯏꯀꯟ ꯃꯔꯀꯔꯂꯌꯒꯤ ꯕꯤꯟꯗꯤꯕ ꯕꯥꯏ-ꯂꯣ (ꯊꯔꯗ ꯑꯃꯌꯗꯃꯌ), 2024-ꯒꯤ ꯗꯔꯏꯌꯅ 30°-ꯗꯒꯤ ꯄꯥꯡꯕ ꯂꯧꯀꯂꯣꯏꯕꯗ ꯃꯌꯂꯧꯔꯣꯛꯂꯌ ꯑꯃꯁꯨꯡ ꯃꯍꯔ ꯃꯌꯀ ꯊꯤꯕꯒꯆꯤ, ꯑꯃꯁꯨꯡ 21-ꯗꯒꯤ 30° ꯏꯑꯣꯕꯒꯤ ꯂꯧꯀꯂꯣꯏꯕꯗ ꯍꯕꯍꯗꯒꯤ ꯄꯥꯡꯕꯗ ꯏꯇꯔ ꯑꯆꯤ ꯅꯠꯔꯒꯥ 7 m ꯁꯤꯄꯥꯆꯒꯤ (92.1

ꯑꯃꯁꯨꯡ 92.2; ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡꯒꯤ ꯏꯅꯐꯣꯔꯃꯦꯁꯟ ꯀ꯭ꯂꯦꯏꯝ ꯑꯃꯁꯨꯡ, ꯑꯗꯨꯕꯨ ꯀ꯭ꯔꯣꯁ-ꯆꯦꯛ ꯇꯧꯒꯗꯕ [TBC]), ꯃꯅꯤꯄꯨꯔꯒꯤ ꯕꯤꯜ-ꯂꯣ 92-ꯒꯤ ꯃꯇꯨꯡꯏꯟꯅ, ꯃꯁꯤꯗꯥ ꯑꯣꯊꯣꯔꯤꯇꯤꯅ ꯃꯈꯥꯗ ꯄꯅꯈꯤ "ꯃꯤꯟ ꯁꯤ ꯂꯦꯚꯦꯜꯗꯒꯤ 600 m-ꯗꯒꯤ ꯃꯊꯛꯇ ꯑꯃꯁꯨꯡ ꯑꯦꯚꯔꯦꯖ ꯁ꯭ꯂꯣꯞ 30 ꯗꯤꯒ꯭ꯔꯤ ꯂꯩꯕ ꯂꯝꯗ" ("on land above 600 m from the mean sea level and with an average slope of 30 degrees") ꯀꯅꯥꯁ꯭ꯇꯥꯗ꯭ꯔꯦ ꯍꯥꯏꯕꯅ; 10°-ꯒꯤ ꯊ꯭ꯔꯦꯁꯍꯣꯜꯗ (threshold) ꯑꯃꯁꯨꯡ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ ꯑꯁꯤ ꯃꯦꯄꯤꯡ ꯑꯁꯤꯅ ꯍꯥꯏꯕꯅꯤ, ꯃꯔꯝꯗꯤ 21°-ꯒꯤ ꯃꯊꯛꯇ ꯃꯂꯦꯡꯄꯔꯒꯤ ꯁ꯭ꯂꯣꯞꯁꯤꯡ ꯊ꯭ꯔꯦꯁꯍꯣꯜꯗ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯦ꯫ ꯆꯤꯡꯒꯤ ꯂꯝꯁꯤꯡꯗ (Hill Areas) ꯕꯤꯟꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ ꯑꯃꯁꯨꯡ ꯆꯨꯃꯗꯦ, ꯑꯃꯁꯨꯡ ꯃꯥꯟ ꯑꯁꯤ ꯄꯥꯕꯇꯤꯒ ꯆꯥꯡꯉꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯄꯤꯡ ꯑꯁꯤ ꯂꯩꯁꯤꯅꯕ ꯕꯥꯗꯤ ꯁꯗꯤꯡꯃꯉꯥꯏ ꯆꯩꯅ꯫ **(iii) ꯃꯥꯟ ꯑꯂꯤꯃꯉꯀꯤ ꯃꯄꯥꯡꯗ ꯂꯩꯕ ꯇꯦꯁ꯭ꯠ ꯇꯧꯕ ꯂꯃꯗ ꯅꯉꯇꯃꯉ ꯄꯤꯌꯦꯄꯜ (ꯀꯂꯣꯖ 4.11, ꯄꯤꯌꯦꯄꯂꯀꯤ ꯃꯥꯟ)꯫** ꯄꯤꯌꯦꯄꯜ ꯑꯁꯤ, ꯄꯥꯄ꯭ꯔꯤ-ꯇꯄ꯭ꯔꯤꯊꯃꯦꯗꯊ, ꯀꯂꯣꯖ 8.8.3-ꯒꯤ ꯏꯤꯅꯗ ꯇꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯀꯂꯣꯖ ꯑꯁꯤꯒꯤ ꯁꯦꯄꯄ꯭ꯔꯦꯁꯟꯒꯤ ꯂꯣꯏꯁꯤꯜꯂꯤ, ꯁꯤꯂꯦꯟ ꯍꯥꯅ ꯌꯣꯇꯄ ꯇꯦꯕꯟ ꯑꯁꯤ ꯂꯦꯃꯍꯟꯗꯒꯤ ꯅꯕꯍꯟꯗꯒꯤ ꯂꯦꯃꯕꯗ 2.0 m ꯃꯍꯥꯗ ꯂꯩꯕ ꯏꯤꯒꯃꯗ, ꯃꯍꯥꯒꯤ ꯃꯏꯃꯁꯤꯡꯗ ꯅꯉꯇꯃꯉ ꯌꯦꯍꯅꯂꯤ: ꯇꯃꯄꯦꯉꯀꯤ ꯃꯂꯦꯉꯇ ꯂꯩꯕ ꯂꯧꯕꯅ, ꯂꯨꯡꯀꯨꯄ ꯑꯃꯁꯨꯡ ꯂꯨꯡꯁꯤꯡꯒꯤ ꯏꯨꯊꯍꯤꯟ ꯏꯦꯗꯁꯤꯡ, ꯃꯏꯃ ꯑꯗꯨꯗ "ꯏꯨꯊꯍꯤꯟ ꯃꯏꯃꯁꯤꯡꯗ ꯂꯧꯕꯅ, ꯂꯨꯡꯀꯨꯄ, ꯂꯨꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯨꯡꯄꯥꯡꯁꯤꯡ ꯏꯨꯅ" ("sand, gravel, pebbles and boulders are found in the foothill regions") (MASTEC); ꯁꯀꯥꯄꯥꯡꯁꯤꯡꯗꯒꯤ ꯂꯦꯄꯂꯦ 10° ꯂꯩꯕꯒꯤ ꯃꯁꯤꯗꯒꯤ ꯂꯦꯃꯕ ꯁꯂꯦꯄꯁꯤꯡꯗ ꯂꯩꯕ ꯕꯄꯦꯟ ꯁꯦꯗꯗꯁꯤꯡꯒꯤ ꯀꯦꯄꯥꯡꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯅꯇꯦꯃ (i)-ꯒꯤ ꯑꯦꯄꯤꯌꯁꯤꯡꯒꯤ ꯃꯄꯥꯡꯗ, ꯇꯦꯁ꯭ꯠ ꯄꯥꯊꯁꯤꯡꯂꯦ ꯁꯊꯂꯤꯕ ꯇꯃꯄꯦꯉꯀꯤ ꯂꯃꯒꯤ ꯂꯧꯕꯅꯒꯤ ꯂꯦꯗꯁꯁꯤꯡ꯫ ꯄꯤꯌꯦꯄꯜ ꯑꯁꯤ ꯅꯂꯕ ꯌꯦꯕ ꯑꯃꯗꯤ, ꯍꯩꯗꯤꯡ ꯑꯃꯛ ꯂꯩꯇꯦ: ꯑꯦꯁꯦꯁꯃꯦꯗꯊ ꯁꯨꯂꯤꯊ ꯁꯨꯗꯤꯡꯃꯉ Safe ꯑꯣꯏ, ꯑꯃꯁꯨꯡ ꯂꯦꯃꯍꯟꯒꯤ ꯃꯍꯥꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯂꯩꯍꯀꯄꯒꯤ ꯁꯇꯦꯂ ꯑꯁꯤ 2024-ꯒꯤ ꯑꯦꯁꯦꯁꯃꯦꯗꯊꯇ 8.00% ꯑꯃꯁꯨꯡ 2023-ꯗ 7.99% ꯑꯣꯅꯅꯤ (CGWB, ꯀꯣꯊꯅꯤꯕ ꯃꯇꯨꯡ ꯅꯗꯦꯂ); ꯅꯃꯏꯟꯂꯦ ꯃꯁꯤꯒꯤ ꯍꯉꯂꯕ ꯅꯁꯤꯡꯒꯤ ꯌꯥꯝ 90% ꯃꯄꯥꯟ ꯅꯃꯏꯟ, ꯂꯃꯕꯨꯟ ꯑꯃꯁꯨꯡ ꯅꯄꯤꯟ (Iril) ꯇꯨꯄꯦꯟꯁꯤꯡꯗꯒꯤ ꯂꯩꯅ (ꯃꯁꯇꯄ ꯄꯂꯦꯗ)꯫ **(iv) ꯀꯋꯦꯂꯤꯇꯤ꯫** ꯇꯄꯏꯤꯉ ꯌꯦꯃꯂꯦ ꯂꯩꯕ ꯂꯃꯕꯤꯁꯤꯡ, ꯏꯁꯨꯌꯦꯟ ꯁꯇꯦꯁꯗꯁꯤꯡ, ꯌꯦꯄꯀꯣꯄꯥꯁꯤꯡ, ꯅꯗꯗꯁꯇꯄꯤꯌꯦꯟ ꯌꯦꯄꯗꯁꯤꯡ ꯂꯩꯕꯒꯤ ꯁꯂꯤꯗ-ꯌꯦꯁꯇꯊ ꯁꯅꯊꯁꯤꯡꯗꯒꯤ ꯂꯦꯉꯄ ꯄꯗꯑꯏ ꯑꯃꯊꯁ ꯄꯤꯌꯦꯄꯜ ꯁꯇꯄꯉꯌꯄ ꯑꯃꯊꯁꯗ ꯌꯊꯍꯗꯗ, ꯑꯃꯁꯨꯡ ꯏꯨꯊꯍꯤꯟ ꯏꯦꯗ, ꯁꯦꯗꯗꯁꯇꯦꯗꯒꯤ ꯀꯦꯄꯥꯡ ꯂꯩꯕꯒꯤ ꯂꯧꯕꯅꯒꯤ ꯂꯦꯗꯁ ꯑꯃꯗ ꯂꯩꯕ ꯄꯤꯌꯦꯄꯜ ꯁꯇꯄꯉꯌꯄ ꯑꯃꯂꯦ ꯅꯨꯃꯍꯉꯀꯤ ꯅꯁꯤꯡ ꯂꯩꯕꯒꯤ ꯏꯤꯅꯇꯄ ꯇꯦꯕ BMP ꯑꯃ ꯌꯦꯗꯍꯄꯕ ꯄꯗꯑꯏ ꯅꯉꯇꯃꯉ ꯂꯩꯅ꯫ 2.0 m-ꯒꯤ ꯂꯤꯃꯤꯊ, ꯑꯦꯄꯄꯤꯟ–ꯂꯦꯒꯦꯃꯕꯄꯒꯤ ꯄꯦꯀꯦꯄꯗ, 10°-ꯒꯤ ꯊ꯭ꯔꯦꯁꯍꯣꯜꯗ ꯑꯃꯁꯨꯡ ꯀꯗꯗꯤꯗꯁꯤꯡ ꯑꯁꯤ ꯃꯦꯄꯤꯡ ꯑꯁꯤꯅ ꯍꯥꯏꯕꯅꯤ; ꯌꯦꯇꯄ ꯇꯦꯕꯟꯒꯤ ꯃꯂꯦꯉꯇ ꯂꯩꯕꯒꯤ 21°-ꯒꯤ ꯃꯍꯥꯒꯤ ꯁꯂꯄꯥꯁꯤꯡꯗ ꯅꯗꯏꯤꯅꯇꯄꯦꯗꯒꯤ ꯃꯂꯦꯡꯄꯔꯒꯤ ꯃꯥꯟ ꯑꯃꯊꯁ ꯏꯨꯅꯤꯗ꯫ ꯁꯤꯂꯦꯟ ꯍꯥꯅ ꯄꯦꯗꯁꯤꯡꯌꯇꯄ ꯇꯦꯕꯟ ꯑꯁꯤ ꯀꯂꯣꯖ 3.10.2-ꯒꯤ ꯃꯍꯥꯗ ꯂꯦꯄꯀꯗꯕꯂꯤ꯫

8.8.2 **ꯑꯌꯥꯄꯄ ꯁꯦꯄꯔꯦꯁꯟ.** ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯏꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯒꯤ ꯕꯦꯁ ꯑꯁꯤ ꯕꯦꯗꯄꯥ ꯂꯩꯕꯒꯤ ꯅꯃꯄꯥꯃꯌꯦꯕꯟ ꯂꯦꯌꯄ ꯑꯃꯍꯌꯄꯒꯤ ꯃꯍꯉꯇ ꯅꯕꯍꯟꯗꯒꯤ ꯂꯦꯃꯕꯗ 1.0 m ꯂꯩꯒꯗꯕꯂꯤ, ꯏꯦꯁꯤꯂꯤꯇꯤ ꯑꯗꯨ ꯀꯂꯣꯖ 8.8.10-ꯒꯤ ꯃꯍꯥꯗ ꯏꯄꯥꯉꯁꯄ ꯑꯅꯄꯕ ꯂꯩꯕꯒꯤ ꯌꯦꯗꯄ ꯑꯅꯄꯕ ꯂꯨꯒꯤ ꯑꯦꯀ꯭ꯋꯤꯐꯔ (aquifer) ꯑꯃꯗ ꯄꯤꯌꯦꯄꯜ ꯇꯂꯕ ꯗꯤꯂꯅꯗ ꯇꯄꯕꯗꯤ ꯂꯩꯇꯂꯦ꯫

8.8.3 **ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯇꯦꯁ꯭ꯠꯁꯤꯡ.** ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯄꯦꯊ ꯑꯁꯤ ꯏꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯄꯄꯥꯄꯂ ꯇꯄꯕ ꯕꯦꯁ ꯂꯦꯒꯦꯅꯗ ꯌꯥꯝ ꯂꯦꯄꯀꯗꯕꯂꯤ:

- (a) ꯕꯦꯁꯤꯗꯁꯤꯡ, ꯕꯅꯑꯄꯤꯇꯦꯗꯁꯗ ꯑꯃꯁꯨꯡ ꯄꯄꯃꯤꯌꯦꯕꯟ ꯄꯦꯒꯃꯦꯗꯊꯀꯤꯅꯃꯉ ꯗꯕꯟ-ꯄꯤꯡ ꯅꯗꯏꯤꯅꯇꯄꯃꯤꯇꯄ ꯇꯦꯁ꯭ꯠ (ASTM D3385) ꯑꯃꯂꯦ;
- (b) ꯇꯄꯦꯗꯌꯁꯤꯡ, ꯁꯉꯑꯌꯦꯁꯤꯡ, ꯄꯤꯌꯦꯄꯜ ꯄꯤꯊꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯌꯦꯄꯜ ꯌꯦꯅꯁꯤꯡꯒꯤꯅꯃꯉ ꯏꯂꯤꯡ-ꯍꯦꯗ ꯕꯄꯍꯅ ꯂꯩꯕꯒꯤ ꯇꯄꯅꯑꯦꯅ-ꯄꯤꯊ ꯁꯀꯦꯂ ꯇꯦꯁ꯭ꯠ ꯑꯃꯂꯦ (ꯁꯗꯃ ꯑꯅꯂꯦ BRE Digest 365);
- (c) **ꯏꯦꯁꯤꯂꯤꯇꯤ ꯁꯗꯤꯡꯃꯉꯇ ꯇꯦꯁ꯭ꯠ 2** ꯅꯕꯍꯟꯗꯒꯤ ꯂꯦꯃꯕꯗ, ꯑꯃꯁꯨꯡ ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯕꯦꯁ ꯑꯦꯄꯤꯌꯒꯤ 100 m² ꯁꯗꯤꯡꯗ ꯂꯩꯕꯒꯤ ꯇꯄꯦꯗꯌꯀꯤ ꯂꯦꯡꯍꯀꯤ 50 m ꯁꯗꯤꯡꯗ ꯅꯕꯍꯟꯗꯒꯤ ꯂꯦꯃꯕꯗ ꯇꯦꯁ꯭ꯠ 1; ꯑꯃꯁꯨꯡ
- (d) ꯂꯤꯑꯇꯦꯌꯂꯤꯀꯦꯅ ꯇꯦꯁꯇꯤꯡꯗ ꯃꯇ ꯀꯕ ꯃꯤ ꯑꯃꯂꯦ, ꯃꯍꯁꯤꯡ ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯇꯦꯁ꯭ꯠꯀꯤ ꯄꯦꯀꯦꯄꯗ (ꯏꯄꯃ 8-2)-ꯗ ꯄꯤꯄꯄꯊ ꯇꯧꯂꯦ꯫

ꯑꯀꯡꯕ ꯃꯇꯃꯗ ꯇꯄꯕ ꯇꯦꯁ꯭ꯠꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯁ꯭ꯠ ꯇꯄꯕ ꯃꯇꯃꯒꯤ ꯂꯦꯃꯍꯟꯒꯤ ꯃꯍꯥꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯂꯦꯒꯦꯟ ꯑꯃꯁꯨꯡ ꯀꯂꯣꯖ 8.8.1-ꯒꯤ ꯁꯤꯂꯦꯟ ꯍꯥꯅ ꯂꯦꯒꯦꯟꯒꯤ ꯂꯦꯄꯂꯦ ꯄꯤꯄꯄꯊ ꯇꯧꯒꯗꯕꯂꯤ꯫

8.8.4 **ꯗꯤꯂꯅꯗ ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯄꯦꯊ.** ꯗꯤꯂꯅꯗ ꯅꯗꯏꯤꯅꯇꯄꯦꯗ ꯄꯦꯊ ꯑꯁꯤ ꯌꯥꯝ ꯂꯦꯄꯂꯕ ꯄꯦꯊ ꯑꯗꯨ ꯁꯦꯏꯇꯤ ꯏꯦꯉꯇꯄ ꯑꯃꯂꯦ ꯌꯦꯗꯍꯀꯄꯂꯤ:

- (a) ꯇꯦꯁ꯭ꯠꯁꯤꯡꯂꯦ ꯀꯂꯣꯖ 8.8.3(c) ꯃꯄꯨꯡ ꯏꯍꯅꯂꯕ ꯑꯃꯁꯨꯡ ꯃꯍꯁꯤꯡ ꯏꯦꯉꯇꯄ 2-ꯗꯒꯤ ꯍꯦꯗꯂꯦ ꯇꯄꯦꯗꯗꯕ ꯃꯏꯃꯗ **2.0**; ꯑꯃꯁꯨꯡ
- (b) ꯑꯌꯥꯄꯄꯗ **3.0**꯫

8.8.5 **ꯃꯤꯂꯤꯃꯃ ꯄꯦꯊꯁꯤꯡ.**

- (a) ꯗꯤꯂꯅꯗ ꯄꯦꯊ ꯑꯁꯤ ꯅꯕꯍꯟꯗꯒꯤ ꯂꯦꯃꯕꯗ **13 mm/h** ꯑꯅꯕ ꯃꯏꯃꯗ ꯅꯉꯇꯗ ꯃꯄꯨꯡ ꯏꯕ ꯅꯗꯏꯤꯅꯇꯄꯦꯗ (ꯑꯦꯗꯄꯁꯦꯗ ꯂꯩꯇꯕ)꯫

- (b) ꯅꯤꯇꯣꯄꯦ ꯂꯣꯡ ꯑꯁꯤ 3 mm/h-ꯗꯒꯤ 13 mm/h ꯐꯥꯑꯣꯕ ꯊꯦꯡꯕ, ꯑꯦꯟꯂꯦꯟꯂꯣꯡꯕꯒꯤ ꯃꯇꯨꯡꯗ, ꯌꯦꯡꯁꯤꯟꯕꯤꯌꯨ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯕ꯫ ꯄꯨꯔꯨ 72-ꯒꯤ ꯊꯪꯕꯗ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡ ꯁꯣꯏ ꯈꯥꯡꯕ ꯍꯧꯁꯤꯊꯧ ꯂꯩꯁꯨꯡꯑꯣꯏ ꯐꯥꯍꯟꯕ ꯃꯤꯡꯆꯤꯡ ꯌꯥꯡꯍ꯫
- (c) ꯅꯤꯇꯣꯄꯦ ꯂꯣꯡ ꯑꯁꯤ 3 mm/h-ꯗꯒꯤ ꯅꯥꯕꯥ ꯊꯦꯡꯕ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯑꯣꯏ ꯃꯤꯡꯆꯤꯡ ꯇꯧꯁꯤ꯫

8.8.6 **ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯑꯣꯏ ꯈꯣꯏꯇꯤꯁꯤꯃꯤꯒꯤ ꯑꯣꯏꯕꯇꯨꯃꯤ (setback).** ꯇꯥꯕꯤꯃꯤ, ꯌꯦꯡꯃꯤ ꯅꯦꯡꯒꯤ ꯑꯁꯥꯌꯌ ꯌꯥꯡ ꯁꯥꯕ ꯑꯣꯈꯣꯑꯣꯃꯤꯗꯒꯤ ꯂꯦꯑꯥꯈ ꯇꯥꯕꯤꯕ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯑꯣꯏ ꯈꯣꯏꯇꯤꯁꯤꯃꯤ ꯑꯃꯤ ꯍꯕꯍꯗꯒꯤ ꯅꯥꯕꯥꯕꯗ ꯊꯍꯒꯤ ꯊꯥꯑꯃꯗ ꯇꯒꯗꯕꯇꯤ:

- (a) ꯕꯤꯅꯗꯤꯃꯒꯤ ꯈꯨꯗꯦꯗꯑꯣꯦꯑꯣꯃꯗꯒꯤ **3 m**, ꯑꯃꯁꯨꯡ ꯕꯑꯣꯊꯦꯂ ꯑꯊꯗꯒꯤ **5 m**;
- (b) ꯌꯨꯃꯌꯦꯃꯁꯤꯒꯤ ꯃꯥꯊꯍ ꯑꯊꯗꯒꯤ **1.5 m**, ꯁꯨꯊꯇꯦꯅꯕꯈ ꯍꯕꯗ ꯌꯦꯃꯕꯗꯤ ꯅꯂꯁꯈ;
- (c) ꯃꯥꯅꯕ ꯍꯑꯣꯃꯤꯒꯤ ꯌꯅ ꯅꯂꯦꯒꯤ ꯕꯦꯌꯅ ꯑꯊꯗꯒꯤ **30 m**;
- (d) ꯑꯣꯌꯁꯤꯃ ꯁꯃꯥ ꯅꯂꯦꯒꯤ ꯑꯣꯃ ꯌꯤꯂ ꯑꯊꯗꯒꯤ **15 m**; ꯑꯃꯁꯨꯡ
- (e) 1V:3H-ꯗꯒꯤ ꯍꯦꯅꯈ ꯑꯃꯥꯊꯕ ꯑꯣꯇꯌ ꯑꯊꯒꯤ ꯃꯨꯡꯑꯣꯂꯁꯤꯒꯤ **6 m**, ꯑꯣꯇꯌ ꯑꯁꯨ ꯌꯂꯈ ꯇꯧ ꯍꯌꯈ ꯇꯤꯑꯁꯃꯇꯤꯃꯅ ꯂꯤꯌꯦꯂ ꯑꯊꯈ ꯆꯂꯁꯨꯕꯗꯤ꯫

ꯁꯨꯊꯃꯥꯃꯤ ꯂꯦꯑꯥꯈ ꯍꯃꯁꯊ ꯂꯤꯌꯦꯇ ꯑꯁꯨꯂꯃꯌꯦꯑꯣꯃꯗ ꯌꯂꯌꯗ (a) ꯑꯃꯁꯨꯡ (b) ꯍꯃꯁꯊ, ꯑꯃꯁꯨꯡ ꯃꯇꯦꯇ 8.11.3 ꯌꯂꯇꯤ꯫

8.8.7 **ꯗꯨꯦꯗꯆꯦ ꯑꯃꯁꯨꯡ ꯒꯦꯂꯤꯈꯤꯃꯑꯣꯦ.** ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯑꯣꯏ ꯈꯣꯏꯇꯤꯁꯤ ꯁꯨꯗꯤꯃꯊꯃ ꯅꯤꯇꯣꯄꯦ ꯂꯣꯡꯁ ꯄꯨꯔꯨ 72-ꯒꯤ ꯊꯪꯕꯗ ꯑꯍꯃꯕ ꯑꯍꯒꯗꯕꯇꯤ (ꯑꯗꯥ 4), ꯑꯃꯁꯨꯡ ꯃꯦꯑꯨꯂꯃꯑꯣꯦꯒꯤ ꯊꯁꯃꯗ ꯁꯑꯣꯂ ꯁꯒꯗꯕꯇꯤ (ꯃꯇꯦꯇ 10.9.3)꯫

8.8.8 **ꯍꯂꯑꯣꯌꯂꯑꯣꯤꯃ.** ꯊꯍꯒꯤꯑꯣꯤꯃꯗꯒꯤ ꯇꯥꯌ ꯂꯦꯑꯥꯈ ꯑꯃꯤ ꯁꯨꯤꯂꯊꯦꯂ ꯁꯗꯈ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂ ꯁꯂꯍꯗꯕꯇꯤ, ꯑꯃꯁꯨꯡ (d) ꯅꯂꯦꯒꯤ (e) ꯌꯂꯇꯤꯕ ꯊꯈꯍꯗ ꯃꯂꯤꯒꯤꯊꯕ ꯑꯊꯂꯁ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂ ꯁꯂꯍꯗꯕꯇꯤ:

- (a) ꯈꯨꯨꯌꯅ ꯑꯁꯑꯣꯦꯑꯣꯤꯃ;
- (b) ꯒꯂꯤꯒꯤ ꯌꯦꯃꯑꯌꯑꯣꯤꯃ, ꯍꯕꯒꯤ ꯊꯈꯍꯑꯣꯤꯃ, ꯑꯃꯁꯨꯡ ꯕꯑ ꯑꯃꯁꯨꯡ ꯁꯨꯂꯃ ꯗꯤꯌꯑꯣꯤꯃ;
- (c) ꯁꯗꯃꯌꯦꯗꯕ ꯌꯂꯇꯍꯑꯣꯤꯃ ꯑꯣꯤꯇꯤꯑꯦꯅꯕ ꯅꯂꯦꯒꯤ ꯃꯍꯕ ꯍꯦꯗꯑꯁꯨꯤꯌꯅ ꯌꯦꯗꯑꯣꯤꯃ ꯑꯃꯁꯨꯡ ꯇꯗꯤꯃ ꯑꯂꯤꯌꯦꯑꯣꯤꯃ;
- (d) ꯑꯇꯤꯗ ꯌꯑꯣꯂ ꯁꯨꯦꯑꯣꯈꯂ ꯑꯁꯑꯣꯦꯑꯣꯤꯃ ꯑꯃꯁꯨꯡ ꯅꯦꯗꯈꯅ ꯑꯂꯤꯌꯦꯑꯣꯤꯃ; ꯑꯃꯁꯨꯡ
- (e) ꯊꯂꯇ ꯍꯌꯈ ꯍꯃꯇꯕ ꯅꯂꯦꯒꯤ ꯌꯤꯃꯇꯕ ꯇꯧꯕ ꯇꯥ꯫

(a)-ꯗꯒꯤ (c) ꯈꯑꯕꯒꯤ ꯁꯨꯤꯂꯊꯦꯂꯁ ꯃꯂꯤꯒꯤꯊꯕ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯑꯣꯏ ꯑꯊꯒꯤ ꯊꯊꯃꯗ ꯑꯍꯅ-ꯒꯨꯤꯂ ꯑꯌꯨꯌꯁꯂ ꯑꯊ ꯑꯃꯁꯨꯡ ꯇꯍꯦ ꯁꯥꯕ ꯈꯤꯅꯁꯂ ꯁꯥꯕ BMP ꯑꯊ ꯌꯦꯆꯒꯗꯕꯇꯤ꯫

8.8.9 **ꯇꯃꯍ ꯇꯧꯕ ꯃꯑꯣꯁꯅ ꯑꯃꯌꯈꯂꯑꯣꯤꯃ.** ꯃꯇꯦꯇ ꯑꯃꯤ ꯃꯑꯣꯁꯅ ꯇꯃꯍꯒꯤ ꯑꯃꯌꯈꯂꯑꯣꯤꯃꯗ ꯍꯃꯁꯊ ꯌꯂꯇꯤ꯫ ꯊꯇꯤꯄꯨꯂꯗ ꯑꯊꯂꯁ ꯇꯧ, ꯊꯂꯍ ꯑꯁꯨꯈ ꯃꯇꯦꯇ ꯑꯃꯤꯈ ꯑꯁꯂꯁ ꯃꯂꯤꯒꯤꯊꯕ ꯍꯈꯃꯂ ꯑꯊꯂꯁ ꯌꯤꯗ; ꯊꯃꯤ ꯃꯇꯦꯇꯃꯤ ꯅꯊꯕꯂꯑꯣꯤꯃ ꯍꯃꯗꯅꯕ ꯍꯃꯁꯒꯤꯗꯊꯃ ꯃꯍꯇꯤ꯫ ꯍꯊꯈꯅ ꯁꯊꯌꯃꯃꯤ ꯊꯇꯃꯁ ꯇꯧꯕ ꯈꯨꯂꯍꯅ ꯈꯑꯦꯑꯣꯤꯃꯒꯤ ꯇꯃꯍ ꯑꯃꯁꯨꯡ ꯅꯃꯃꯌꯑꯣꯤꯃ, ꯊꯑꯣꯤꯒꯤ ꯇꯨꯑꯣꯤꯃꯗ ꯇꯧꯕ ꯇꯃꯍꯒꯤ ꯅꯑꯦꯑꯣꯑꯣꯤꯃ ꯑꯃꯁꯨꯡ ꯇꯤꯂꯤꯕꯊ ꯌꯇꯦꯒꯤ ꯕꯂꯃ ꯑꯃꯁꯨꯡ ꯇꯤꯂꯤꯒꯤ ꯑꯨꯒꯤꯌꯊ ꯑꯃꯤ ꯃꯑꯣꯁꯅ ꯇꯃꯍꯒꯤ ꯑꯂꯤꯌꯦꯑꯣꯤꯃ ꯅꯂꯁ: ꯊꯈꯊ ꯑꯁꯨꯑꯣꯤꯃꯗ ꯃꯇꯦꯇ 8.8.1 ꯑꯃꯤ, ꯃꯇꯦꯇ 4.11-ꯒꯤ ꯁꯊꯌꯃꯃꯤ ꯇꯊꯒꯤ ꯗꯅ ꯑꯃꯁꯨꯡ ꯂꯤꯌꯦꯇꯃꯤ ꯗꯅꯒꯤ ꯇꯌꯈꯈ, ꯊꯄꯨꯃ ꯈꯈ ꯌꯂꯇꯤ, ꯑꯃꯁꯨꯡ ꯍꯁꯊ (d)-ꯒꯤ ꯍꯦꯃꯍꯅꯇꯕ ꯑꯌꯨꯂꯑꯣꯦ ꯑꯁꯨ ꯌꯂꯇꯍ꯫ ꯃꯑꯣꯁꯅ ꯇꯃꯍꯒꯤ ꯑꯂꯤꯌꯦꯑꯣꯤꯃꯗ:

- (a) ꯃꯇꯦꯇ 8.8.1 ꯊꯄꯨꯃ ꯈꯕ ꯊꯈꯊ ꯁꯨꯗꯤꯃꯊꯃꯁ ꯍꯦꯛꯇꯤꯡꯁꯤꯟꯂꯣꯡꯑꯣꯏ ꯑꯃꯤ ꯂꯤꯁꯦꯑꯣꯦ ꯑꯃꯁꯨꯡ WQv ꯊꯄꯨꯃ ꯈꯍꯅꯕꯒꯤ ꯍꯦꯅꯈ ꯌꯤꯊꯕ ꯊꯑꯃꯇꯤ;
- (b) ꯅꯃꯒꯤ ꯍꯑꯣꯤꯃꯒꯤ ꯍꯃꯕꯦꯑꯣꯤꯃ ꯑꯃꯤ ꯇꯊꯍꯒꯤ ꯊꯍꯒꯤ ꯍꯑꯣꯤꯃꯒꯤ ꯌꯦꯁꯂ ꯁꯕꯅ ꯍꯦꯃꯍꯅꯕ ꯅꯤꯇꯣꯄꯦ ꯁꯂꯍꯗꯕꯇꯤ: ꯑꯣꯤꯇꯅꯅ ꯍꯍ ꯒꯨꯤꯆꯦꯗꯌꯦꯁꯂ ꯁꯕꯅꯒꯤ ꯊꯍꯗ ꯇꯧꯕ ꯍꯦꯒꯂꯑꯣꯤꯃ ꯑꯃꯤ ꯍꯑꯣꯤꯃ ꯁꯌꯌ ꯃꯊꯗꯕ ꯑꯍꯒꯗꯕꯇꯤ, ꯑꯦꯆꯂꯈꯅꯗ ꯇꯊꯍꯒꯤ ꯊꯍꯒꯤ ꯍꯑꯣꯤꯃ ꯃꯗꯃꯌ ꯌꯤꯌ ꯍꯅ ꯅꯂꯦꯒꯤ ꯑꯕꯑꯍꯅ ꯗꯂꯦ ꯇꯂꯍꯗꯕꯇꯤ, ꯍꯍꯗꯂꯇꯤꯑꯇꯇꯤꯃꯅ ꯂꯤꯌꯦꯂ ꯑꯊꯈ ꯈꯂꯑꯌꯦꯁꯂ ꯑꯃꯌꯈꯂꯗ ꯑꯑꯥ ꯑꯌꯦ ꯑꯊꯂꯁ ꯇꯧ ꯍꯌꯈ ꯆꯂꯁꯨꯕꯗꯤ;
- (c) ꯅꯃꯒꯤ ꯍꯑꯣꯤꯃꯒꯤ ꯍꯃꯕꯦꯑꯣꯤꯃꯗ ꯇꯊꯍꯒꯤ ꯊꯍꯒꯤ ꯍꯑꯣꯤꯃ ꯊꯁꯊ ꯑꯃꯈ ꯌꯊꯌ ꯁꯕ (ꯁꯗꯊ ꯑꯍꯈ ꯕꯑꯣꯊꯦꯂ ꯗꯤꯌꯦꯁꯂꯤꯃ) ꯑꯌꯨꯗꯒ ꯁꯂꯍꯗꯕꯇꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯅꯁꯤꯈꯍ ꯁꯥꯕ ꯃꯑꯣꯁꯅ ꯇꯃꯍꯒꯤ ꯑꯂꯤꯌꯦꯑꯣꯤꯃꯗ, ꯇꯊꯍꯒꯤ ꯊꯍꯒꯤ ꯍꯑꯣꯤꯃꯒꯤ ꯊꯆꯦꯗꯤꯃ ꯌꯃ ꯑꯊꯈ ꯊꯆꯦꯗ ꯑꯁꯨ ꯈꯑꯣꯤꯇꯤꯁꯤꯒꯤ ꯕꯑꯃꯤ ꯊꯍꯗ ꯍꯕꯍꯗꯒꯤ ꯅꯥꯕꯥꯕꯗ 0.3 m ꯇꯂꯤ ꯑꯃꯁꯨꯡ ꯊꯇꯃꯃꯤ ꯈꯨꯗꯦꯗꯑꯣꯦꯑꯣꯃ ꯅꯂꯦꯒꯤ ꯕꯑꯣꯊꯦꯂꯑꯣꯤꯃ ꯈꯑꯗ ꯍꯌꯈ ꯆꯂꯇꯕꯗꯤ, **ꯁꯨꯊꯃꯥꯃꯤ ꯂꯦꯑꯥꯈ ꯍꯃꯁꯊ** ꯑꯃꯤ ꯑꯣꯤꯇꯅꯅ ꯍꯍ ꯒꯨꯤꯆꯦꯗꯌꯦꯁꯂ ꯁꯕꯅꯗꯒꯤ **0.5 m**-ꯗꯒꯤ ꯍꯦꯃꯍꯗꯕ

ꯂꯥꯄꯔꯥꯂꯋꯒꯦ ꯇꯥꯍꯅꯅꯆ ꯍꯋꯈꯤꯔꯁꯨꯄꯥꯌ ꯁꯦꯕ ꯍꯆꯍ꯫ ꯑꯁꯣꯃꯃ ꯄꯋꯑꯣꯈ ꯑꯈꯌꯁꯣꯆ ꯍꯋꯗꯍꯔꯆꯕ ꯂꯥꯃꯄꯥꯂꯋ ꯑꯂꯤ ꯂꯤꯇꯤꯋꯅꯄꯦꯍꯕꯕꯅꯤ;

- (e) 1.0 m ꯂꯥꯃꯄꯥꯂꯋ ꯅꯌꯄꯒꯦ ꯐꯅꯦꯇ (d) ꯑꯅꯤꯈꯒ ꯈꯃꯨꯡ ꯈꯍꯅꯕ ꯁꯈꯕꯕ ꯈꯈꯈꯕ, ꯂꯍꯌ ꯑꯃꯨꯆ ꯆꯈꯍꯒꯤ ꯈꯍꯕ ꯍꯋꯈꯤꯔꯁꯨꯄꯥꯌ ꯁꯕꯕ ꯂꯄꯈꯥꯂ ꯄꯤꯁꯥꯋꯂꯋ (ꯁꯨꯕꯈ ꯑꯍꯆ ꯅꯨꯕꯕ ꯃꯈꯕꯤ-ꯈꯆ ꯆꯕ ꯅꯥꯈꯕ ꯈꯈꯈꯂꯤꯡ, ꯁꯨꯈꯗꯒꯂꯤꯡꯒꯤ ꯍꯂꯤꯡ ꯅꯋꯂꯤꯡꯕ ꯗꯕꯦꯒꯃ, ꯑꯈꯂꯨꯡ ꯑꯈꯨꯒ ꯄꯋꯆ ꯂꯤꯇꯤꯋꯅꯕ), ꯑꯈꯂꯨꯡ ꯂꯄꯨꯒ 4-ꯒꯤ ꯈꯍꯕ ꯕꯤꯁꯥꯋꯂꯋ ꯂꯤꯇꯤꯋꯅꯒꯕꯕꯅꯤ꯫

8.8.10 **ꯅꯁꯥꯄꯍꯌ ꯑꯈꯂꯨꯡ ꯐꯋꯕ ꯁꯨꯡꯒꯤ ꯑꯥꯄꯤꯍꯂꯤꯡ.** ꯅꯁꯥꯄꯍꯌ ꯑꯈꯂꯨꯡ ꯐꯋꯕ ꯁꯨꯡꯒꯤ ꯅꯈꯕ (ꯁꯨꯕꯈ ꯑꯍꯆ ꯍꯤꯡꯂꯤꯡꯒꯤ ꯑꯈꯂꯨꯡ ꯁꯈꯃꯒꯐꯤ ꯍꯤꯡꯍꯡ ꯍꯄꯒꯤ ꯕꯄꯥꯍ ꯂꯥꯋꯕꯂꯁꯋꯒꯤ ꯐꯥꯃꯤꯡꯂꯤꯡ, ꯈꯥꯁꯨꯍꯥꯍ ꯑꯂꯤꯆ ꯁꯥꯂꯌ ꯁꯄꯕ ꯈꯁꯨꯡꯕ, ꯂꯐꯄꯃꯂꯤꯡꯕꯒꯤ ꯆꯃꯆ 10° ꯅꯌꯄꯒꯦ ꯈꯂꯤꯕꯒꯤ ꯅꯥꯈꯕ ꯂꯅꯃꯂꯤꯡꯕ ꯄꯤꯍꯄꯅ ꯍꯈꯍꯅꯤꯕ ꯁꯨꯡ ꯑꯈꯍꯒꯁ (ꯐꯅꯦꯇ 4.11, ꯄꯤꯍꯄꯅꯐꯤ ꯁꯨꯍ), ꯑꯈꯂꯨꯡ ꯕꯤꯂꯤꯡ ꯂꯥꯍ, ꯈꯂꯤꯆ "ꯍꯤꯡꯒꯤ ꯅꯈꯒꯤ ꯍꯤꯡ 85 p.c. ꯈꯄꯍ ꯆꯍ, ꯍꯋꯈꯤꯔꯁꯨꯄꯥꯂꯋ ꯄꯋꯗꯍ ꯑꯈꯂꯨꯡ ꯄꯋꯑꯣꯈ ꯄꯥꯋꯍ" ("occupies almost 85 p.c. of the hilly region, have less infiltration and more run off") (MASTEC) ꯑꯈꯂꯨꯡ ꯈꯂꯤꯕ ꯅꯤꯑꯥꯒꯅꯤꯐꯥꯍ ꯂꯄꯥꯤꯈꯤꯐꯥꯌ ꯍꯑꯕꯆ ꯐꯄꯤꯁꯨꯈꯕ ꯂꯅꯃ ꯑꯈꯕ ꯍꯋꯈꯤꯔꯁꯨꯄꯥꯂꯋ ꯍꯄꯍꯅꯍ (ꯐꯅꯦꯇ 4.11, ꯍꯤꯡꯒꯤ ꯁꯨꯍ); ꯈꯥꯁꯨꯍꯥꯍ ꯑꯂꯤꯒꯤꯕꯈꯒ ꯃꯍꯤꯕ ꯄꯄꯒꯈꯈꯂꯤꯡꯕ ꯅꯁꯥꯄꯍꯌ ꯑꯈꯌꯁ ꯂꯋꯕꯒꯆ ꯁꯒꯍꯤꯕꯥ; ꯑꯥꯄꯤꯍ ꯑꯂꯤꯂꯤꯡꯕ ꯐꯄꯤꯁꯨꯈꯕ ꯂꯅꯃ ꯑꯈꯕ ꯐꯅꯦꯇ 8.8.1-ꯒꯤ ꯈꯍꯕ ꯐꯅꯦꯇ 4.11-ꯒꯤ ꯍꯤꯡꯒꯤ ꯁꯨꯍ ꯑꯄꯅꯕꯕ ꯍꯌꯅꯤ):

- (a) ꯁꯥꯂꯌꯂꯤꯡ ꯑꯂꯤ ꯈꯥꯂꯤꯅꯤꯁꯤꯒꯤ ꯕꯥꯂꯁ, ꯂꯄꯈꯥꯂꯐꯤ ꯐꯄꯂꯌ ꯅꯌꯄꯒꯦ ꯄꯄꯕꯃꯥꯋ ꯑꯈꯄꯥꯒꯁꯒꯤ ꯈꯍꯕ ꯁꯒꯕꯕꯅꯤ;
- (b) ꯍꯥꯕꯄ ꯑꯍꯄꯕ ꯅꯌꯄꯒꯦ ꯈꯄꯥꯒꯍꯄ ꯑꯍꯄꯕ ꯁꯨꯡꯕ ꯄꯤꯍꯄꯅ ꯑꯂꯤ ꯁꯨꯈꯗꯒꯐꯤ ꯄꯋꯑꯣꯈꯐꯤꯕꯈꯒ, ꯅꯌꯄꯒꯦ ꯈꯤꯍꯁꯄ ꯁꯕ BMP ꯑꯈ ꯍꯥꯋꯗꯄꯕ ꯄꯋꯑꯣꯈꯐꯤꯕꯈꯒ ꯍꯒꯁꯕ ꯍꯄꯍꯅꯤ, ꯈꯄꯈꯕꯤ ꯈꯄꯥꯒꯍꯄꯂꯤꯡꯆ ꯁꯄꯤꯌꯈꯥꯋꯌ ꯍꯤꯈꯆ ꯃꯤꯕꯥ; ꯑꯈꯂꯨꯡ
- (c) ꯂꯅꯃꯂꯤꯡꯕ ꯅꯌꯄꯒꯦ ꯈꯍꯔꯒꯤ ꯈꯗꯒꯁ ꯍꯋꯈꯤꯔꯁꯨꯄꯥꯂꯋ ꯑꯂꯤ ꯂꯅꯃ ꯂꯁꯥꯕꯤꯅꯤꯁꯤꯒꯤꯕꯈꯒ ꯍꯥꯒ ꯁꯒꯕꯕꯅꯤ꯫

8.8.11 **ꯕꯥꯍꯁꯒꯤ ꯆꯈꯨ ꯑꯈꯂꯨꯡ ꯕꯅꯥꯒ ꯐꯁꯋ ꯆꯈꯍꯂꯤꯡ.** ꯍꯈꯈꯍ ꯁꯈꯃꯒꯐꯤ ꯆꯈꯍꯒꯤ ꯅꯥꯐꯨꯂꯁꯄꯍꯋ ꯆꯈꯨ, ꯂꯤꯍꯌ ꯑꯈꯂꯨꯡ ꯃꯤꯌꯁ, ꯈꯂꯤꯒꯤ ꯆꯕꯨꯒ ꯑꯈꯂꯨꯡ ꯈꯈꯡꯒꯤ ꯃꯌꯂꯤꯡꯒꯦ ꯆꯍꯔꯆꯆ, ꯃꯌ ꯑꯈꯂꯨꯡ ꯃꯨꯍꯨꯄꯤꯂꯤꯡꯒꯤ ꯆꯈꯨꯒꯤ ꯈꯍꯂꯤꯡꯕ, ꯆꯒꯁꯒꯐꯤ ꯈꯆꯒꯂꯤꯡꯕ, ꯑꯈꯂꯨꯡ ꯅꯤꯄꯤꯕꯈ ꯃꯅꯥꯋꯒꯤ ꯕꯄꯒ ꯑꯈꯂꯨꯡ ꯅꯤꯄꯤꯒꯤ ꯑꯥꯅꯨꯒꯤꯍꯈ ꯈꯂꯤꯒꯤ 1% AEP ꯅꯥꯒꯥꯍꯒꯤ ꯈꯍꯕ, ꯑꯈꯂꯨꯡ ꯑꯥꯒꯂꯃꯥꯋꯂꯤꯒ ꯕꯅꯥꯒ ꯐꯁꯋ ꯆꯈꯍꯂꯤꯡꯕ:

- (a) ꯍꯋꯈꯤꯍꯁꯄꯥꯂꯋ ꯈꯥꯂꯤꯅꯤꯁꯤꯂꯤꯡꯆ ꯈꯁꯈ ꯍꯤꯈꯆ ꯐꯅꯦꯇ 8.8.5 ꯈꯃꯨꯡ ꯈꯍꯅꯕ ꯁꯈꯕꯥ ꯑꯈꯂꯨꯡ ꯂꯍꯍ ꯂꯄꯒꯥꯆ (ꯂꯄꯨꯒ 3) HSG D ꯁꯨꯌꯅꯕ ꯈꯈꯈꯕ ꯁꯥꯂꯌ ꯁꯕ ꯈꯗꯦ ꯁꯕꯥ; ꯑꯈꯂꯨꯡ
- (b) ꯑꯥꯒꯂꯃꯥꯋꯂꯤꯒ ꯆꯈꯍꯕ ꯕꯤꯍꯕꯤꯡꯂꯤꯡꯒꯤ ꯈꯆꯒꯁ ꯍꯋꯈꯤꯍꯁꯄꯥꯂꯋ ꯂꯤꯇꯤꯋꯅꯕ ꯈꯈꯈꯕ, ꯐꯅꯦꯇ 8.8.6(a)-ꯒꯤ ꯂꯥꯌꯕꯥꯒ ꯑꯂꯤ ꯑꯅꯤ ꯗꯍꯒ ꯄꯥꯋꯒꯌꯄꯅꯒꯕꯕꯅꯤ꯫

> **ꯂꯋꯕꯒꯆ ꯁꯒꯃ.** 1.0 m-ꯒꯤ ꯆꯈꯍꯒꯤ ꯈꯍꯒꯤ ꯍꯂꯤꯡꯕꯒꯤ ꯂꯥꯄꯔꯥꯂꯋ ꯑꯂꯤ ꯈꯥꯁꯨꯍꯥꯍ ꯑꯂꯤꯒꯤ ꯈꯁꯨꯑꯍꯕ ꯈꯗꯦ ꯁꯕ ꯑꯈꯅꯤ꯫ ꯐꯅꯦꯇ ꯑꯂꯤꯒꯤ ꯑꯁꯃꯃ ꯒꯥꯍꯁꯨꯂꯤꯡ (1.0 m-ꯒꯤ ꯕꯥꯕꯄꯒ ꯂꯥꯄꯔꯥꯂꯋ, ꯁꯥꯂꯌꯐꯤ ꯈꯂꯤꯡ, ꯂꯥꯈꯁꯤ ꯈꯥꯒꯁꯄꯂꯤꯡ, ꯈꯤꯅꯤꯈꯈ ꯄꯥꯌꯂꯤꯡ ꯑꯈꯂꯨꯡ ꯂꯥꯌꯕꯥꯒꯂꯤꯡ) ꯑꯂꯤ US ꯑꯈꯂꯨꯡ UK-ꯒꯤ ꯃꯄꯥꯒꯁꯤꯂꯐꯤ ꯈꯄꯂꯒꯤ ꯒꯥꯍꯁꯨꯂꯤꯡꯅꯤ ꯑꯈꯂꯨꯡ ꯈꯅꯤꯃꯨꯄꯒꯤ ꯈꯈꯡꯒꯤ ꯁꯨꯕꯈ ꯆꯁꯥ꯫ ꯐꯅꯦꯇ 8.8.6(c)-ꯒꯤ ꯍꯥꯍꯒꯤ ꯂꯥꯌꯕꯥꯒ ꯑꯂꯤ ꯃꯥꯒ ꯁꯕꯄꯕ ꯂꯄꯈꯥꯂꯂꯤꯡꯕꯒꯤ ꯆꯒꯃ ꯄꯋꯑꯣꯈꯁ ꯍꯌꯅꯤ, ꯁꯨꯈꯗꯒꯐꯤ ꯍꯂꯤꯡꯕ ꯅꯌꯁꯥ꯫ ꯈꯅꯤꯃꯨꯄꯒꯤ RWH ꯃꯄꯥꯒꯁꯤꯂꯆ ꯁꯨꯈꯗꯒꯐꯤ ꯍꯂꯤꯡ ꯑꯂꯤ ꯑꯃꯋ ꯍꯥꯍꯂꯤꯡ ꯑꯈꯂꯨꯡ ꯄꯤꯍꯄꯅ ꯍꯥꯍꯂꯤꯡꯕ ꯗꯍ, ꯑꯈꯂꯨꯡ ꯐꯅꯦꯇ 8.11-ꯆ ꯃꯄꯥꯒꯁꯤꯂ ꯑꯕꯨ ꯗꯈꯅꯤ꯫
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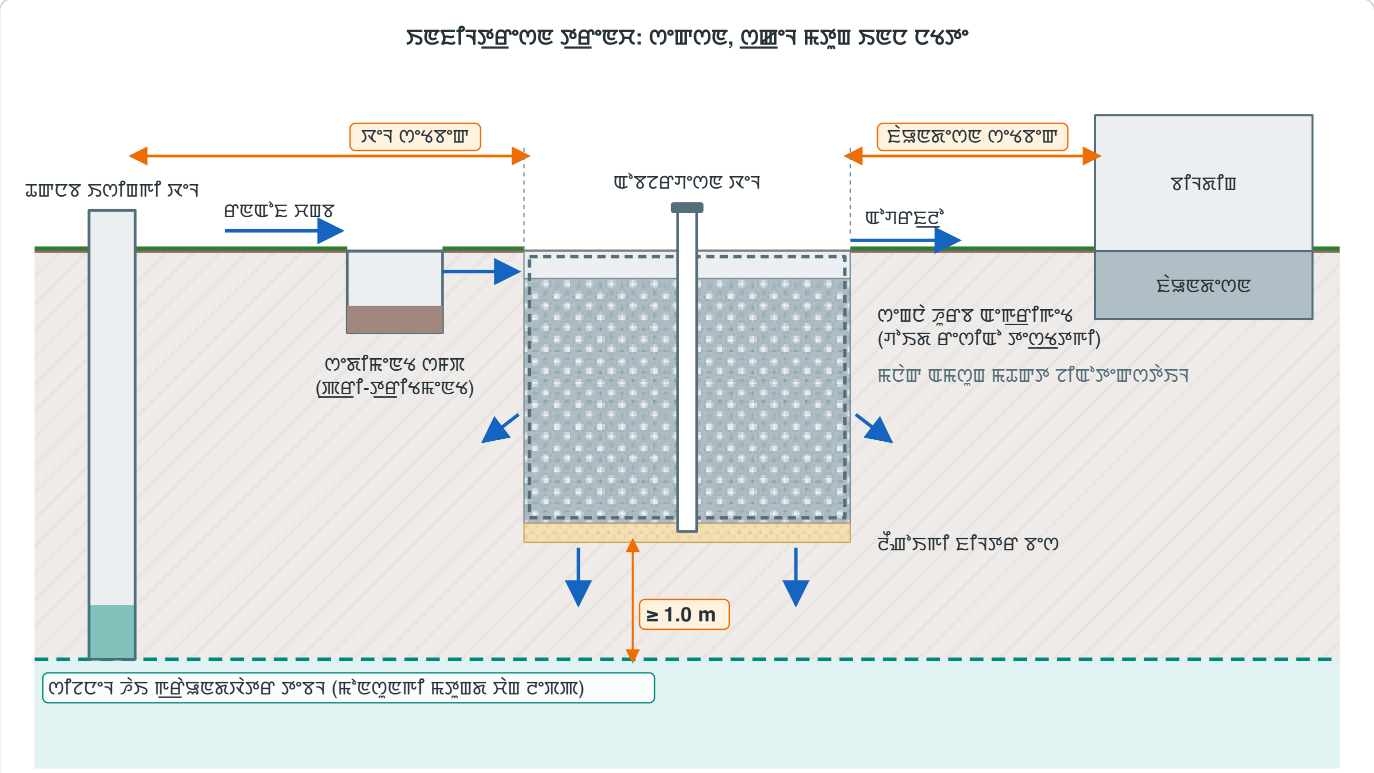
> ꯈꯅꯤꯃꯨꯄꯒꯤ ꯄꯍꯕꯄꯅꯅꯤꯒ ꯂꯍꯍ ꯒꯄꯃꯂꯤꯡꯒꯤ ꯈꯥꯃ ꯑꯈꯌꯁ, ꯂꯍꯍ ꯂꯤꯄꯤꯅ ꯑꯈꯌꯁ ꯑꯈꯂꯨꯡ ꯂꯁꯥꯌ ꯑꯂꯤꯒꯤ ꯐꯕꯍꯕꯨ ꯍꯤꯡ ꯅꯥꯃꯅꯕ ꯍꯋꯈꯤꯍꯁꯄꯥꯂꯋ ꯄꯥꯌ ꯑꯈꯌꯁ ꯈꯤꯡꯍꯤꯕꯥ [TBC]; ꯍꯋꯈꯤꯍꯁꯄꯥꯂꯋ ꯕꯤꯅꯍꯋ ꯁꯨꯕꯤꯡꯈꯒꯆ ꯐꯅꯦꯇ 8.8.3-ꯒꯤ ꯁꯥꯂꯌꯂꯤꯡ ꯈꯗꯦ ꯁꯍ꯫ "ꯈꯅꯤꯃꯨꯄ ꯁꯈꯃꯒ ꯑꯂꯤ ꯑꯥꯅꯨꯒꯤꯍꯈꯆ ꯈꯃꯨꯋꯕ ꯈꯈꯕ ꯁꯈꯃꯒ ꯑꯈꯅꯤ … ꯈꯄꯨꯑꯍꯆ ꯈꯅꯤꯃꯨꯄ ꯁꯈꯃꯒ ꯑꯂꯤ ꯈꯅꯨꯒꯤꯑ ꯅꯥꯐꯨꯂꯁꯄꯍꯋꯕꯒꯤ ꯆꯒꯃ ꯑꯥꯅꯨꯒꯤꯍꯈꯆ ꯂꯥꯈꯕꯅꯤ꯫ ꯈꯍꯍ ꯑꯂꯤ ꯈꯁꯈ ꯍꯤꯈꯆ ꯈꯈꯨ ꯒꯄꯥꯕꯒꯤ ꯑꯈꯨꯕ ꯈꯁꯨꯒꯤꯅꯤ꯫ ꯈꯄꯨꯑꯍꯕ ꯃꯌꯅꯈꯂꯤꯡꯕꯤ ꯆꯈꯨ, ꯂꯤꯍꯌ ꯑꯈꯂꯨꯡ ꯆꯗꯍꯅꯤ ꯑꯕꯨꯒ ꯈꯨꯌꯄꯤꯍ ꯈꯈꯈꯂꯤꯡꯕ ꯆꯗꯍ, ꯁꯨꯡꯐꯃ, ꯁꯨꯡꯂꯤꯡ ꯑꯈꯂꯨꯡ ꯁꯨꯡꯍꯤꯁꯂꯤꯡ ꯈꯡꯍ" ("Manipur Valley is virtually a flat alluvium filled valley … Basically Manipur Valley is made up of alluvium of fluvio lacustrine origin. They are usually dark grey to black in colour. The principal constituents are clay, silt and sand whereas sand, gravel, pebbles and boulders are found in the foothill regions") (MASTEC)꯫ ꯍꯈꯈꯍ ꯍꯥꯂꯌꯐꯤ ꯈꯍꯕ "ꯍꯤꯡ 30-ꯗꯒꯤ 50 m ꯈꯄꯍꯒꯤ ꯆꯈꯨꯒꯤ ꯈꯄꯈꯥꯂꯋ ꯆ, ꯅꯨꯕꯕ ꯁꯨꯁꯨꯕ ꯍꯥꯍꯂꯤꯡ ꯂꯕꯕ ꯑꯍꯤꯕ ꯆ" ("approximately 30 to 50 m of clayey formation, construction of shallow tube wells is problematic"), "30-ꯗꯒꯤ 65 m bgl ꯈꯑꯣꯕ ꯆꯈꯨꯒꯤ ꯕꯤꯃꯅꯤꯌ" ("clayey deposit down to depth range of 30 to 65 m bgl")-ꯒꯦ ꯆꯍꯔꯆꯆ; "ꯃꯆ ꯑꯂꯤꯒꯤ ꯈꯄꯨꯑꯍꯕ ꯈꯈꯈꯂꯤꯡꯕ ꯍꯂꯤꯡꯒꯤ ꯅꯥꯒꯥꯍꯒꯤ ꯕꯥꯃꯗ 2-ꯗꯒꯤ 5 m bgl ꯈꯑꯣꯕ ꯁꯥꯗꯋꯆ" ("Depth to water level in major parts of the district varies from 2 to 5 m bgl"),

ꯑꯃꯁꯨꯡ ꯌꯤꯝꯂꯤꯝꯒꯤ ꯃꯅꯥꯏꯡ 5-ꯗꯒꯤ 7 m; ꯑꯃꯁꯨꯡ "ꯃꯈꯐ ꯅꯕꯗ ꯖꯨꯕ ꯇ꯭ꯌꯨꯕ ꯌꯦꯡꯂꯤꯝ ꯂꯕꯗ ꯒꯦꯝ ꯊꯥꯝꯃ" ("emanation of gas while constructing deep tube wells in some places") ꯈꯝꯅꯤ (CGWB, Imphal West, 2013)꯫ ꯕꯤꯂ꯭ꯗꯤꯡꯒꯤ ꯇꯥꯏꯂꯤꯝꯒꯤ ꯑꯐꯥꯔꯕꯗ "ꯃꯤꯠ ꯆꯦꯝꯅꯂꯤꯝꯗ ꯑꯥꯂꯤꯗꯤꯌꯤ ꯌꯥꯈꯅ ꯌꯥꯝꯅ" ("peaty soils have high acidity"), "ꯇꯥꯐ꯭ꯂꯌꯥꯕꯥꯅꯦ ꯇꯥꯃꯤꯇꯥꯌꯥꯗ ꯆꯦꯜꯂꯥꯅ ꯑꯃꯁꯨꯡ ꯆꯦꯝꯇꯦ ꯑꯇꯥꯕ ꯗꯤꯁꯥꯡ ꯂꯥꯏꯒꯤ ꯃꯊꯥꯡꯌ ꯆꯦ" ("lacustrine laminated sand and clay overlies the fresh Disang shale"), ꯑꯃꯁꯨꯡ ꯅꯂꯤꯝ ꯑꯂꯤ ꯆꯦꯝꯅꯗꯒꯤ 2.50-ꯗꯒꯤ 4.30 m ꯃꯌꯥꯗ ꯆꯦ, ꯑꯥꯏꯕꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯥꯗ ꯌꯥꯝꯌꯥꯡꯇꯥꯅ (CGWB, Bishnupur, 2013; ꯃꯈꯐ ꯑꯗꯨꯗ ꯆꯦꯕ ꯂꯐꯃꯕꯤ ꯌꯥꯕꯅ ꯑꯃꯆꯦ ꯑꯇꯐꯂꯤꯝ ꯃꯦꯇꯦꯐꯇꯕ ꯃꯃꯗꯕ ꯑꯌꯥꯝꯝ ꯕꯥꯦꯇꯂꯤꯝ ꯈꯥꯝꯗꯥꯇꯤ [TBC])꯫ ꯌꯤꯝꯂꯤꯝꯗ ꯗꯤꯂꯤꯝ ꯂꯥꯅꯇꯦ "ꯌꯤꯝꯒꯤ ꯆꯃꯒꯤ ꯌꯥꯝ 85 p.c. ꯃꯕꯥꯅ ꯆꯥꯅ, ꯅꯦꯈꯤꯅꯌꯕꯥꯂꯦ ꯐꯦꯊꯅ ꯑꯃꯁꯨꯡ ꯕꯦꯑꯥꯈ ꯐꯥꯦꯅ" ("occupies almost 85 p.c. of the hilly region, have less infiltration and more run off"), ꯌꯤꯝ ꯑꯃꯁꯨꯡ ꯌꯤꯝꯅꯥꯝ ꯅꯕꯗ ꯕꯕꯥꯅ ꯂꯥꯦꯗꯂꯌꯥꯦꯒꯤ ꯑꯥꯃꯤꯝꯂꯤꯝꯒꯤ ꯇꯥꯔꯇꯇꯦ (MASTEC)꯫ ꯆꯦꯝꯅꯒꯤ ꯃꯌꯒꯤ ꯅꯂꯤꯝ ꯌꯥꯌꯥꯡ: ꯑꯥꯂꯥꯂꯃꯥꯦꯌ ꯌꯇꯤꯌ ꯅꯗꯤꯝꯃꯌ Safe ꯑꯥꯅ, ꯑꯃꯁꯨꯡ ꯆꯊꯥꯑꯃꯒꯤ ꯂꯌꯥꯇ ꯑꯂꯤ 2024-ꯒꯤ ꯑꯥꯂꯥꯂꯃꯥꯦꯌꯥ 8.00% ꯑꯃꯁꯨꯡ 2023-ꯗ 7.99% ꯑꯥꯅꯈꯤ (CGWB, ꯑꯥꯌꯅꯤꯕ ꯃꯌꯨꯝ ꯅꯦꯇ); ꯑꯥꯕꯇꯕꯒꯥꯂꯦ ꯌꯥꯅꯂꯤꯝꯒꯤ ꯂꯌꯥꯌꯑꯤ ꯇꯥꯌꯌꯕꯌ ꯑꯃꯌꯥ ꯈꯝꯅꯤꯗꯥ, ꯑꯃꯁꯨꯡ ꯅꯃꯈꯅ ꯌꯥꯂꯌꯥ CGWB-ꯒꯤ ꯗꯒ-ꯌꯥꯅ ꯃꯥꯇꯤꯌꯕꯤꯝ ꯑꯂꯤ "ꯑꯥꯅꯦ ꯑꯃꯁꯨꯡ ꯑꯥꯕꯗꯕ ꯂꯥꯑꯃꯇꯦ ꯃꯕꯐ ꯑꯥꯅꯗꯨꯇꯦ 1991-ꯗꯒꯤ" ("since 1991 due to disturbed law and order") ꯇꯥꯃꯈꯤ (CGWB, 2013)꯫ ꯃꯇꯤꯃꯨꯕ ꯒꯕꯦꯐꯦꯗ ꯌꯥꯌꯕ (ꯑꯦꯌꯕꯥꯅ ꯑꯃꯁꯨꯡ ꯕꯥꯒꯨꯇꯥꯂꯦ) ꯃꯥꯇꯤꯂꯤ, 2023 (Manipur Ground Water (Control & Regulation) Policy, 2023) ꯑꯃꯦ ꯂꯥꯐꯈꯤ (DoECC-ꯅ ꯇꯤꯂꯌ ꯌꯥꯕꯕ ꯃꯌꯨꯝ ꯅꯦꯇ; ꯌꯥꯑꯂꯌ ꯃꯥꯅꯤꯗꯥ [TBC])꯫ ꯃꯥꯇꯨꯔꯥꯅ ꯑꯂꯤꯒꯤ ꯃꯌꯐ ꯅꯕꯒꯤ ꯂꯥꯅꯅ ꯒꯕꯃꯂꯤꯝ ꯑꯂꯤ ꯃꯌꯥꯔꯗꯒꯤ ꯇꯦꯑꯅ (ꯂꯕꯑ 3): ꯌꯐꯃꯥꯑꯤ ꯇꯥꯐ꯭ꯂꯌꯥꯕꯥꯅꯦ ꯆꯦꯃ ꯑꯃꯁꯨꯡ ꯂꯤꯅꯌ D; ꯃꯤꯌ ꯑꯃꯁꯨꯡ ꯐꯨꯃꯗꯤꯒꯤ (phumdi) ꯃꯇꯑꯂꯤꯝ D, ꯅꯂꯤꯝꯇꯦ ꯃꯃꯨꯦꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯐꯊꯕꯑꯇꯤꯕ; ꯐꯌꯐꯤꯅ ꯈꯥꯦꯂꯤꯝ B-ꯗꯒꯤ C, ꯌꯥꯂꯌꯇꯦ; ꯗꯤꯂꯤꯝ ꯂꯥꯅꯒꯤ ꯌꯤꯝꯂꯤꯝ ꯕꯦꯑꯥꯈꯑꯤꯗꯃꯑ D; ꯕꯕꯥꯅ ꯂꯥꯦꯗꯂꯌꯥꯦꯒꯤ ꯑꯥꯃꯤꯝꯂꯤꯝ C, ꯌꯥꯂꯌꯇꯦ ꯑꯃꯁꯨꯡ ꯂꯑꯕꯃꯂꯤꯝꯗꯒꯤ ꯇꯦꯃꯇꯦ; ꯇꯤꯕꯤꯕꯦꯐ ꯃꯇꯥꯦꯒꯤ ꯕꯕꯑ ꯑꯃꯁꯨꯡ ꯇꯤꯕꯤꯒꯤ ꯑꯥꯇꯨꯒꯤꯔꯐ C-ꯗꯒꯤ D, ꯑꯃꯁꯨꯡ ꯃꯌꯐ ꯑꯗꯨꯗ ꯃꯂꯤꯒꯤ 1% AEP ꯇꯥꯒꯥꯅꯒꯤ ꯃꯌꯥꯗ D; ꯑꯃꯁꯨꯡ ꯂꯐꯕꯒꯤ ꯈꯤꯅ C (ꯆꯦꯃ ꯌꯦꯐꯕꯕꯗꯤ ꯇꯌꯕꯒꯥ ꯑꯐꯃꯥꯑꯌ ꯌꯥꯕꯕꯗꯤ D)꯫ **ꯃꯕꯐ ꯑꯂꯤꯇꯦ ꯂꯌꯥꯌ ꯑꯂꯤꯇꯦ ꯕꯨꯅ ꯑꯃꯅꯑꯌꯥ ꯇꯌꯥꯇꯦ ꯕꯨꯅ ꯑꯐ꯭ꯃ ꯃꯊꯥ ꯌꯥꯅ** (ꯑꯇꯥꯇ 4.11)꯫ ꯌꯥꯐꯦꯂꯤꯝꯒꯤ ꯃꯌꯦ ꯆꯦꯕꯤꯕ ꯌꯐꯃꯥꯑꯤ ꯇꯐꯗ, ꯌꯐꯃꯥꯑꯤ ꯇꯐꯒꯤ ꯕꯨꯅꯒꯤ ꯃꯌꯥꯗ, ꯅꯂꯤꯝ ꯑꯃꯌꯥ ꯃꯥꯦꯗꯐ ꯊꯐꯗꯨꯇꯦ ꯆꯦꯝꯅꯒꯤ ꯃꯨꯝꯗ ꯊꯗꯑꯥ, ꯃꯕꯐꯗꯤ ꯃꯗꯨ ꯆꯦꯃ, ꯃꯤꯌ ꯇꯌꯕꯒꯥ ꯅꯂꯤꯝꯇꯦ ꯃꯃꯨꯦꯕ ꯆꯦꯝꯅꯗ ꯌꯌꯑꯇꯤ꯫ ꯌꯤꯝꯒꯤ ꯇꯦꯃꯐꯂꯤꯝꯗ, ꯗꯤꯂꯤꯝ ꯂꯥꯅꯗ, ꯑꯥꯇꯨꯒꯤꯔꯐ ꯑꯃꯁꯨꯡ ꯈꯤꯅꯗ ꯑꯃꯁꯨꯡ ꯇꯥꯦꯗꯂꯇꯦꯅꯗ ꯇꯥꯦꯂꯤꯝꯗ, ꯌꯤꯝꯒꯤ ꯕꯨꯅꯒꯤ ꯃꯌꯥꯗ, ꯅꯂꯤꯝ ꯑꯃꯌꯥ ꯃꯥꯦꯗꯐ ꯊꯐꯗꯨꯇꯦ ꯆꯦꯝꯅꯒꯤ ꯃꯨꯝꯗ ꯊꯗꯑꯥ꯫ ꯐꯌꯐꯤꯅ ꯈꯥꯦꯂꯤꯝ, ꯕꯕꯥꯅ ꯂꯥꯦꯗꯂꯌꯥꯦꯒꯤ ꯑꯥꯃꯤꯝꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯌꯥꯂꯌ ꯌꯥꯕꯕ ꯆꯦꯑꯥꯅꯒꯤ ꯇꯥꯦꯂꯂꯤꯝꯗ, ꯕꯤꯌꯕꯇꯑꯤ ꯕꯨꯅꯒꯤ ꯃꯌꯥꯗ, ꯌꯥꯂꯌ ꯌꯥꯕꯕ ꯃꯌꯨꯝꯗ ꯕꯤꯌꯕꯇ ꯌꯦꯐꯅꯇꯤ, ꯊꯥꯗꯤꯝ ꯑꯃꯦ ꯑꯥꯅꯇꯦ ꯇꯌꯥꯇꯦ ꯅꯇꯕ ꯌꯦꯕ ꯑꯃꯦ ꯑꯥꯅꯇꯦ꯫ ꯃꯈꯐ ꯅꯗꯤꯝꯗ, ꯇꯐꯕꯤꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯐꯝꯗꯥꯑꯇꯕ ꯇꯐꯗꯒꯤ ꯇꯑꯃ ꯕꯦꯑꯥꯈ ꯑꯂꯤ ꯂꯕꯈꯥꯂ ꯂꯤꯂꯌꯥꯐꯂꯤꯝꯗ ꯌꯌꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯆꯦꯗꯂ ꯕꯤꯌꯕꯇ ꯌꯥꯅ, ꯕꯥꯕꯌꯥꯅ ꯇꯌꯕꯒꯥ ꯂꯦꯈꯌ ꯑꯃꯗ ꯐꯑꯊꯥꯝꯇꯇꯦ ꯌꯌꯥ (ꯑꯇꯥꯇ 8.11.3(b))꯫ ꯑꯥꯂꯌ ꯑꯃꯌꯥ ꯆꯦꯌꯕ ꯃꯇꯤꯃꯨꯕꯗ ꯑꯇꯥꯇ 8.8.9-ꯗ ꯅꯈꯥꯑꯌ ꯑꯃꯌꯥ ꯃꯤꯗꯥ꯫


ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆ: ꯁꯦꯛꯁꯟ, ꯁ꯭ꯇꯦꯞ ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠ ꯗꯤꯇꯦꯜ
ꯋꯦꯜ ꯁꯦꯠꯕꯦꯛ
ꯐꯥꯎꯟꯗꯦꯁꯟ ꯁꯦꯠꯕꯦꯛ
ꯑꯣꯕꯖꯔꯚꯦꯁꯟ ꯋꯦꯜ
ꯏꯟꯐ꯭ꯂꯣ ꯄꯥꯏꯞ
ꯑꯣꯕꯖꯔꯚꯦꯁꯟ ꯋꯦꯜ
ꯑꯣꯚꯔꯐ꯭ꯂꯣ
ꯕꯤꯜꯗꯤꯡ
ꯐꯥꯎꯟꯗꯦꯁꯟ
ꯁꯦꯗꯤꯃꯦꯟꯠ ꯆꯦꯝꯕꯔ
(ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ)
ꯀ꯭ꯂꯤꯟ ꯁ꯭ꯇꯣꯟ ꯑꯦꯒ꯭ꯔꯤꯒꯦꯠ
(ꯚꯣꯏꯗ ꯔꯦꯁꯤꯑꯣ ꯁꯦꯇꯤꯡꯁꯤꯡ)
ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯃꯊꯛꯇ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ
ꯁꯦꯟꯗ ꯐꯤꯜꯇꯔ ꯂꯦꯌꯔ
≥ 1.0 m
ꯁꯤꯖꯟꯦꯜ ꯍꯥꯏ ꯒ꯭ꯔꯥꯎꯟꯗꯋꯥꯇꯔ ꯇꯦꯕꯜ (ꯃꯦꯖꯔ ꯇꯧꯔꯕ ꯅꯠꯇꯅ ꯂꯧꯔꯕ)

ꯗꯤꯖꯥꯏꯟ ꯆꯦꯛ ꯁꯦꯜ ꯂꯦꯡꯊ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠ ꯆꯦꯛ॥ ꯗ꯭ꯔꯦꯟ ꯇꯥꯏꯝ = ꯚꯣꯜ ꯂꯣꯌꯔꯕ ꯇꯥꯏꯝ ÷ ꯑꯦꯔꯤꯌꯥ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ॥ 72 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯣꯏꯒꯗꯕ ꯑꯁꯤꯅꯤ॥
ꯁꯦꯠꯕꯦꯛ ꯗꯤꯁ꯭ꯇꯦꯟꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯆꯦꯛ ꯇꯧꯕꯁꯤꯡ: ꯁꯦꯛꯁꯟ 8.8.3-ꯗꯒꯤ 8.8.6 ꯐꯥꯑꯣꯕ॥ ꯇꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯤꯇꯤꯁꯤꯡꯒꯤ ꯏꯟꯐ꯭ꯂꯣ ꯄꯥꯏꯞ ꯀꯟꯗꯤꯁꯟ ꯂꯦꯡꯊ ꯁꯦꯠꯇꯣꯏ॥
ꯁꯤꯖꯟꯦꯜ ꯂꯥꯏꯅꯤꯡꯒꯤ ꯇꯦꯁ꯭ꯠ: ꯚꯣꯏꯗ ꯔꯦꯁꯤꯑꯣ, ꯃꯐꯝ ꯇꯥ ꯇꯦꯁ꯭ꯠꯅꯤꯡꯒꯤ ꯃꯅꯨꯡꯒꯤ ꯂꯣꯏꯁꯤꯟ॥ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ, ꯁꯦꯠꯕꯦꯛ ꯈꯨꯝ: ꯑꯦꯟꯗ ꯇꯥꯏꯝ॥ ꯀꯥꯔꯕꯒꯤ ꯇꯦꯁ꯭ꯠ ꯑꯣꯚꯔꯐ꯭ꯂꯣ: ꯃꯦꯟ ꯃꯤꯟꯗꯣ ꯃꯦꯂꯤꯟ ꯃꯀꯥ॥

ꯃꯃꯤ 8.3 — *ꯀ꯭ꯔꯣꯁ-ꯁꯦꯛꯁꯅꯦꯜ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆ: ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯆꯦꯝꯕꯔ, ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯂꯗ ꯂꯥꯏꯅ ꯇꯧꯔꯕ ꯀ꯭ꯂꯤꯟ ꯁ꯭ꯇꯣꯟ, ꯑꯣꯕꯖꯔꯚꯦꯁꯟ ꯋꯦꯜ, ꯑꯣꯚꯔꯐ꯭ꯂꯣ, ꯁꯤꯖꯟꯦꯜ ꯍꯥꯏ ꯒ꯭ꯔꯥꯎꯟꯗꯋꯥꯇꯔ ꯇꯦꯕꯂꯗꯒꯤ 1.0 m-ꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁ, ꯑꯃꯁꯨꯡ ꯋꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯥꯎꯟꯗꯦꯁꯅꯁꯤꯡꯗꯒꯤ ꯁꯦꯠꯕꯦꯛꯁꯤꯡ॥ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤ ꯑꯁꯤ ꯃꯈꯥ ꯇꯥꯔꯀꯄ, Georgia Stormwater Management Manual, 2016 (Vol 2), ꯑꯃꯁꯨꯡ CIRIA, The SuDS Manual (C753), 2015-ꯗꯒꯤ ꯂꯧꯊꯣꯀꯈꯤ ꯆꯦꯅꯤꯕ॥*

8.9 ꯃꯤꯔꯣꯜꯒꯤ ꯁꯕꯃꯤꯁꯟ-ꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯦꯛ ꯇꯧꯕ ꯃꯇꯃꯒꯤ ꯔꯤꯚꯤꯎ

8.9.1 **ꯆꯦꯛꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯗꯣꯛꯌꯨꯃꯦꯟꯇꯁꯤꯡ ꯃꯤꯔꯣꯜ ꯇꯧꯕꯅꯕ.** ꯃꯤꯔꯣꯜ ꯂꯧꯕꯒꯤ ꯄ꯭ꯔꯃꯒꯤ ꯃꯈꯥ ꯅꯁꯤꯡ (ꯔꯤꯄꯣꯔꯠ, ꯅꯁꯤꯡ ꯅꯣꯠꯁ ꯑꯃꯁꯨꯡ ꯖꯤ ꯑꯦꯡꯒꯦꯖꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯦꯟ ꯔꯦꯁꯤꯑꯣ), ꯑꯦꯟꯔꯤꯇꯤ ꯁꯤꯗꯨꯖꯤꯡ ꯅꯤꯁꯥꯟꯇꯦ, ꯂꯧꯕꯒꯤ ꯁꯕꯃꯤꯁꯟ ꯅꯤꯁꯥꯟꯇꯦ ꯑꯃꯁꯨꯡ ꯖꯤꯅꯤꯖ, ꯔꯦꯚꯦꯟ ꯂꯧꯕꯒꯤ ꯑꯦꯟꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯒꯤ ꯁꯨꯞꯅꯤꯡꯅ ꯆꯦꯛꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯗꯣꯛꯌꯨꯃꯦꯟꯠ ꯑꯃꯁꯨꯡꯕ ꯃꯇꯝꯗꯤꯁꯦꯟꯅꯕꯇꯤ ꯂꯧꯕꯒꯤ ꯊꯥꯖꯕꯇꯥꯟꯅꯕꯇꯤ॥

8.9.2 **ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯒꯤ ꯔꯤꯚꯤꯎ.** ꯔꯤꯄꯣꯔꯇꯤꯡ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤꯒꯤ ꯃꯃꯥꯡꯗ, ꯑꯦꯟꯇꯤꯔꯦꯛꯇꯦ, ꯑꯗꯨꯒꯤꯗꯥ ꯂꯧꯕꯒꯤ ꯃꯤꯔꯣꯜꯒꯤ ꯑꯦꯟꯇꯦꯛꯇꯤ ꯑꯦꯟꯇꯤꯂꯤꯅꯕ ꯁꯥꯖꯕ ꯀꯔꯤ ꯂꯧꯕꯒꯤ ꯃꯌꯥꯒꯤ ꯁꯤꯡꯗꯨ ꯑꯃꯁꯦ, ꯃꯗꯨ ꯑꯃꯁꯨꯡ ꯆꯦꯛ ꯃꯤꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯃꯒꯤ ꯃꯈꯥ ꯅꯁꯤꯡꯒꯤ ꯑꯦꯟꯂꯣꯖꯤ ꯄ꯭ꯔꯦꯡꯒꯤ ꯃꯤꯔꯣꯜ ꯑꯃꯁꯤ ꯂꯧꯕꯒꯤ ꯑꯦꯟꯖꯤꯅꯤꯌꯔ ꯁꯥꯖꯕ ꯑꯦꯝ-ꯃꯗꯨꯒꯤ ꯃꯤꯡꯊꯣꯛ ꯑꯃꯁꯨꯡ ꯊꯥꯖꯕꯁꯤ, ꯑꯃꯁꯨꯡ ꯑꯃꯁꯦꯟꯇꯦ ꯆꯦꯛꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯗꯣꯛꯌꯨꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯊꯥꯖꯕꯁꯤ ꯂꯧꯔꯤꯗꯦ ꯑꯣꯏꯕꯅꯕꯇꯤ॥ ꯃꯗꯨ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯒꯤ ꯁꯤꯡ-ꯁꯤꯡꯒꯤ ꯑꯃꯁꯦꯟꯇꯦ, ꯗꯤꯖꯥꯏꯟꯇꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯒꯤ ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯅ ꯂꯧꯊꯣꯛꯂꯕꯁꯤꯡ ꯃꯤꯠꯌꯦꯡ, ꯑꯦꯟꯖꯤꯅꯤꯌꯔꯒꯤ ꯔꯤꯚꯤꯎ ꯑꯃ ꯑꯗꯨꯗ ꯆꯠꯂꯤꯕꯅꯕꯇꯤ॥

8.9.3 **ꯃꯤꯔꯣꯜ ꯆꯦꯛ ꯀꯔꯤꯅ.** ꯃꯤꯔꯣꯜ ꯑꯣꯏꯕꯅꯕ ꯀꯔꯤꯅ, ꯃꯤꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯃꯒꯤ ꯃꯈꯥ ꯅꯁꯤꯡ ꯑꯃꯁꯤ ꯑꯦꯟꯖꯤꯅꯤꯌꯔ ꯁꯥꯖꯕ ꯑꯦꯝ-ꯃꯗꯨꯒꯤ ꯗꯤꯁ꯭ꯇꯔꯤꯛ ꯁꯥꯖꯕ ꯁꯤꯡꯗꯨꯅꯤꯡꯒꯤ ꯃꯤꯁꯤꯡꯗꯦ ꯑꯃꯁꯨꯡ ꯂꯧꯕꯅꯕꯇꯤ॥ ꯑꯃꯁꯤꯡꯁꯤ ꯃꯤꯁꯤꯡꯗꯦ ꯑꯃꯁꯨꯡꯒꯤ ꯁꯤꯡꯅꯤ ꯁꯥꯖꯕ ꯅꯤꯁꯥꯟꯇꯦ ꯑꯃꯁꯤ ꯃꯦꯔꯤꯁꯤꯡ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (Manipur Pollution Control Board; MPCB) ꯑꯃꯁꯨꯡ ꯗꯣꯛꯌꯨꯃꯦꯟꯇꯒꯤ ꯃꯇꯝꯒꯤ ꯅꯁꯤꯡ ꯄꯤꯁꯤꯟꯕ ꯑꯃꯁꯤꯡꯒꯤ ꯆꯦꯛꯂꯤꯡꯗꯦ ꯅꯤꯡꯊꯧꯅ ꯆꯦꯛꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯗꯣꯛꯌꯨꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯂꯧꯕꯒꯤ ꯔꯤꯅ॥

8.9.4 **ꯁꯤꯋꯔꯒꯤ ꯅꯦꯠꯋꯔꯀꯁꯤꯡ: DWF ꯆꯥꯡꯌꯦꯡ.** ꯄꯥꯔꯠ A ꯑꯣꯏꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯗꯨꯕ ULB ꯂꯝꯕꯤꯗꯥꯒꯤ ꯅꯣꯡꯃꯗꯥ ꯗꯦꯡꯍꯣꯏꯕꯥ ꯁꯤꯡꯗꯕ ꯃꯣꯏꯒꯤ ꯊꯧꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯅꯦꯠꯋꯔꯀꯒꯤ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁꯣꯏꯕ ꯑꯣꯏ ꯊꯧꯕ ꯂꯝꯕꯤ ꯃꯌꯥꯝꯒꯤ ꯁꯤꯡꯗꯕꯒꯤꯗꯃꯛ ꯁꯔꯣꯏ ꯑꯃꯁꯨ ꯅꯠꯇꯅꯒꯤ ꯊꯦꯡꯅꯕ ꯑꯃꯥꯗ, ꯃꯦꯅꯨꯡꯗꯒꯤ ꯃꯃꯥꯡꯗ, ꯆꯥꯡꯌꯦꯡ ꯌꯥꯎꯍꯅꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤꯁꯤꯡ ꯐꯪꯖꯥꯕꯗ ꯌꯥꯎꯍꯅꯕꯗꯤ:

- (a) DWF ꯗꯨꯕ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁꯣꯏꯕꯥ;
- (b) ꯑꯣꯠꯄꯤꯗꯕ ꯌꯥꯐꯕ DWF ꯐꯤꯕ; ꯑꯃꯁꯨꯡ
- (c) ꯄ꯭ꯔꯣꯏꯕ, CCTV, ꯅꯠꯇꯔꯒ ꯊꯧꯗꯣꯛ ꯃꯅꯨꯡꯒꯤ ꯌꯥꯎꯔꯤꯕꯗꯤ ꯍꯥꯛꯊꯕ ꯃꯇꯝ ꯇꯥꯛꯕ ꯃꯍꯧꯁꯒꯤ ꯄꯥꯎꯇꯥꯛꯁꯣꯏꯕꯥ॥

ꯃꯇꯧꯏꯕ ꯑꯁꯤ ꯐꯨꯜ 10.17-ꯒꯤ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯍꯥꯏꯅꯥꯝꯂꯤꯕꯗꯤ॥

8.9.5 **DWF ꯅꯦꯌꯥꯐꯣꯡꯁꯦꯜ.** ꯄꯥꯎꯇꯥꯛꯁꯣꯏꯕꯥ ꯗꯨꯇꯥꯛꯄꯤꯕꯤꯍꯧꯕ, DWF ꯁꯤꯐꯝꯁꯦ ꯅꯣꯏꯕꯥ ꯗꯨꯍꯁ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯕ ꯑꯦꯛꯁꯦꯞꯇꯦꯟ ꯂꯝꯕꯤꯗꯥꯄ ꯃꯅꯨꯡ ꯃꯑꯣꯏꯒꯤ DWF ꯅꯦꯌꯥꯐꯣꯡꯁꯦꯜꯄ ꯑꯃꯗ ꯗꯨꯒꯅꯕꯗꯤ:

- (a) DWF ꯑꯁꯤ ꯑꯣꯏꯔꯕ ꯊꯧꯐꯣꯛ ꯄ꯭ꯔꯤꯌꯣꯅꯦꯛ ꯁꯦꯗꯨꯛ ꯑꯃꯁꯨ ꯅꯠꯇꯔꯐꯛ ꯌꯥꯕ;
- (b) ꯃꯦꯅꯗꯐ ꯊꯧꯐꯣꯛ ꯃꯅꯗꯐ ꯅꯣꯡꯅꯦꯛꯆꯤꯅꯃꯥ ꯊꯧꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯅꯦꯠꯋꯔꯀꯒꯤ ꯆꯪꯁꯦꯜꯅꯄ ꯄꯦꯇꯄꯦꯅꯕ (ꯑꯍꯥꯝ 6), ꯃꯑꯣꯏꯒꯤ ꯌꯣꯏꯔꯐ ꯊꯧꯐꯣꯛ ꯅꯠꯇꯔꯐꯑꯦꯒꯤ ꯄꯥꯅ ꯗꯑꯣꯏꯕ ꯄꯅꯅꯐꯗꯤꯄ ꯅꯤꯗꯅꯦꯅ ꯌꯦꯍꯄꯥꯗꯒ (ꯑꯍꯥꯝ 9);
- (c) ꯅꯠꯇꯔꯐꯑꯦꯒꯤ ꯃꯃꯥꯡꯅ ꯑꯆꯐꯤꯗꯦ ꯑꯃ ꯗꯨꯕ; ꯑꯃꯁꯨꯡ
- (d) ꯄꯥꯎꯇꯥꯛꯁꯒꯤ ꯆꯗꯥꯝꯑꯦꯑꯣꯏ ꯗꯨꯇꯥꯛꯁꯒꯤ ꯃꯂꯣꯏ ꯑꯣꯏꯗꯦꯅꯕ॥

8.9.6 **ꯑꯣꯏꯔꯗꯆꯤ ꯑꯦꯒꯐꯍꯗꯦꯑꯣꯏ.** ꯑꯗꯨꯕ ꯑꯣꯏꯔꯗ ꯑꯦꯒꯐꯍꯗ, ꯅꯃꯐꯗꯑꯦꯑꯣꯏ ꯕꯅꯁꯦꯜ ꯊꯧꯐꯣꯛ ꯁꯃꯁꯤ ꯑꯣꯡꯑꯦꯒꯤ ꯑꯦꯒꯐꯍꯗ ꯑꯃꯁꯨꯡ ꯗꯥꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯅꯦꯠꯋꯦ ꯊꯧꯐꯣꯛ ꯅꯣꯡꯃ ꯗꯍꯁ ꯑꯃꯁꯨ ꯇꯅꯥꯗꯕ ꯅꯤꯗꯅꯦ ꯌꯥꯐꯅꯅꯕꯗꯤ, ꯑꯣꯏꯔꯐꯗ ꯑꯗꯑꯦꯑꯣꯏꯗꯦ ꯑꯄꯁꯦ ꯃꯑꯥ ꯑꯃꯁꯨꯡ ꯗꯄ ꯄꯌꯗꯦ ꯍꯌꯗꯕ ꯃꯍꯁ ꯊꯧꯄꯗꯦ, ꯑꯃꯁꯨꯡ ꯃꯂꯅꯂ ꯑꯆꯐꯤꯗꯤꯗꯒ ꯗꯌꯗꯗꯦ ꯑꯃꯁꯨꯡ ꯑꯦꯒꯐꯍꯗꯒꯤ ꯍꯐꯤꯗꯌꯑꯦꯑꯣꯏ ꯄꯅꯂꯗꯦ ꯅꯑꯄꯅ॥

> **ꯑꯦꯅꯥꯗꯦ ꯄꯥꯁ.** ꯑꯣꯏꯌꯗ ꯆꯗꯥꯝꯑꯦꯑꯣꯏ ꯇꯤꯑꯕ ꯑꯃꯁꯨꯡ ꯑꯁꯐꯒꯒꯤ ꯆꯦꯅꯤꯑꯦ ꯑꯅꯗꯦ ꯗꯐꯤꯕ ꯆꯐꯑ-ꯆꯗꯥꯝꯑꯦꯑꯣꯏ ꯗꯨꯇꯥꯛꯁ ꯑꯁꯤ ꯃꯂꯌꯒ ꯑꯁꯤꯒꯤ ꯃꯂꯑꯅꯕ ꯃꯇꯧ ꯄꯕꯑꯣꯏꯗꯤ, ꯑꯃꯁꯨꯡ ꯐꯨꯜ 1.10.3-ꯗꯦ ꯃꯅꯌꯅꯒꯤ ꯒꯐꯤꯌꯑꯦ (variance) ꯑꯃꯁꯨ ꯌꯄꯦꯅ॥ ꯗꯥꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯅꯦꯠꯋꯦꯑꯣꯏꯅ ꯗꯨꯕ ꯑꯣꯏꯌꯗ ꯑꯁꯤ ꯃꯗꯤꯁꯐꯅ ꯑꯄꯐꯒꯤ ꯅꯐꯃꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯆꯌꯗꯤꯄꯒꯤ ꯅꯕꯅꯒꯤ ꯌꯍꯕ ꯑꯌꯕ ꯑꯃꯅꯄꯗꯤ॥ ꯃꯑꯣꯏꯗꯦ ꯑꯍꯥꯝ ꯑꯁꯤꯒꯤ ꯑꯄꯁ ꯇꯑꯗ ꯂꯝꯕꯤꯗꯥ ꯃꯌ ꯁꯄꯦꯅ: ꯗꯥꯒꯤ ꯅꯣꯡꯃꯒꯤꯅꯃ ꯅꯤꯗꯅꯦ ꯌꯥꯐꯕ BMP-ꯑꯣꯏ ꯑꯁꯤ ꯑꯦꯒꯐꯗꯅ ꯑꯅꯐꯥꯅ, GPT-ꯑꯣꯏ ꯑꯗꯗꯦ ꯃꯁꯦꯗꯥꯅ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃ ꯗꯐꯤꯕ ꯁꯅꯐꯤ ꯑꯃꯁꯨꯡ ꯌꯗꯒꯑꯣꯏ ꯑꯁꯤ ꯑꯣꯏꯌꯗ ꯗꯒꯦꯑꯣꯏ ꯑꯅꯐꯥꯅ॥ CPHEEO (2019)-ꯗꯦ ꯅꯦꯅꯤꯌꯒꯤ ꯅꯦꯠꯋꯦꯑꯣꯏꯗꯦ ꯗꯅꯕ ꯑꯅꯒ ꯑꯃꯁꯨꯡ ꯂꯐꯤꯗꯦ ꯁꯐꯆꯅ ꯄꯌꯗꯦ ꯗꯕ ꯄꯅ (Part A §9.5)॥ DWF ꯅꯦꯌꯥꯐꯣꯡꯁꯦꯜ (ꯐꯨꯜ 8.9.5) ꯑꯁꯤ ꯃꯄꯃ ꯅꯐꯒꯤ ꯇꯑꯗ ꯑꯃꯗꯤ॥ ꯄꯥꯎꯇꯥꯛꯁꯣꯏꯕꯥ ꯇꯤꯂꯗꯦ ꯗꯨꯇꯥꯛꯁꯒꯤ ꯃꯄꯃꯅ ꯃꯑꯣꯏꯗꯦ ꯅꯣꯡꯃ ꯗꯍꯁ ꯑꯂ ꯄꯆꯅ, ꯑꯂꯕ ꯄꯥꯎꯇꯥꯛꯁꯒꯤ ꯇꯕꯗ ꯑꯂ ꯄꯅꯐꯕꯅꯤ ꯃꯑꯣꯏ ꯗꯁꯄꯗꯦ ꯗꯐꯗꯁ ꯌꯅ, ꯃꯐꯃ ꯑꯂꯗꯦ ꯐꯨꯜ 8.9.4-ꯒꯤ ꯌꯄꯤ ꯂꯅꯤꯗꯒꯤ ꯆꯥꯡꯒ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯅꯥꯝꯁ ꯃꯇꯧ ꯄꯅ॥ ꯌꯄꯤ ꯂꯅꯤꯗꯒꯤ ꯆꯥꯡꯒꯒꯤ ꯍꯐꯤꯗꯌꯑꯦꯑꯣꯏ ꯑꯁꯤ ꯃꯂꯌꯒ ꯑꯁꯤꯗꯦ ꯇꯃꯕꯗꯤ॥
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> ꯒꯐꯄꯐ ꯅꯃꯍꯒꯅ ꯗꯥꯒꯤ ꯅꯣꯡꯃꯒꯤ ꯅꯦꯠꯋꯦꯑꯣꯏꯗꯦ ꯑꯣꯏꯌꯗ ꯁꯐꯆꯅ, ꯑꯃꯁꯨꯡ ꯐꯨꯜ ꯑꯁꯤ ꯃꯄꯑꯣꯒꯤ ꯍꯤꯒꯃꯗꯤ, ꯑꯐꯁꯁ ꯗꯅꯄ॥ ꯑꯣꯏꯌꯐꯑꯣꯏ ꯃꯁꯂ ꯍꯅ॥ PHED-ꯒꯤ ꯅꯃꯍꯒ ꯑꯣꯏꯌꯐꯗ ꯁꯐꯗꯑꯅ ꯍꯗ I, "ꯖꯨꯟ 2020-ꯅ ꯆꯃꯤꯑꯦ ꯄꯅꯤꯕ" ("commissioned in June 2020"), ꯑꯣꯏꯗꯦ 2031 ꯍꯑꯕ ꯃꯤꯑꯣꯏ 2.59 ꯗꯅꯆꯅꯃ "27 MLD-ꯒꯤ STP ꯑꯃ, ꯁꯃꯁꯤ ꯑꯄꯑꯦ 5 ꯑꯃꯁꯨꯡ 69.44 km-ꯒꯤ ꯑꯣꯏꯌꯐ ꯗꯅꯌꯐꯗ" ("one STP of 27 MLD, 5 nos. of Pumping station and 69.44 km of sewer network")-ꯒ ꯗꯌꯗꯗꯦ ꯃꯌꯗꯤꯑꯣꯏꯁꯒ ꯌꯐꯅ 11 ꯌꯍꯅ; ꯍꯗ II-ꯗꯦ ꯑꯄꯁ ꯌꯐꯅ 16 ꯑꯃꯁꯨꯡ ꯑꯦꯍꯅꯒꯐꯇ 4, 2054 ꯍꯑꯕ ꯃꯤꯑꯣꯏ 3.84 ꯗꯅꯄ ꯑꯕ ꯁꯤꯒꯗꯤ, ꯂꯝꯐꯦꯜꯄꯥꯠ (Lamphelpat) 6 MLD, ꯂꯥꯡꯊꯥꯕꯜ ꯀꯨꯟꯖꯥ (Langthabal Kunja) 27 MLD ꯑꯃꯁꯨꯡ ꯎꯆꯦꯀꯣꯟ ꯂꯧꯀꯣꯜ (Uchekon Loukol) 16 MLD-ꯒꯤ ꯁꯗꯦꯅꯑꯣꯏ, ꯁꯃꯁꯤ ꯑꯄꯑꯦ 21 ꯑꯃꯁꯨꯡ 277 km-ꯒꯤ ꯑꯣꯏꯌꯐꯑꯣꯏꯒ ꯗꯌꯗꯗꯦ, ₹1,200 ꯆꯐꯅ "ꯁꯃꯗꯃ 49 MLD-ꯒꯤ ꯆꯁꯑꯣꯏꯄꯒ ꯗꯌꯗꯗꯦ ꯆꯦꯑꯄꯐꯇꯑꯦꯒꯤꯅꯃ" ("for construction with a total capacity of 49 MLD"); ꯑꯃꯁꯨꯡ 2043 ꯍꯑꯕ ꯃꯇꯧ ꯄꯕ ꯄꯐꯤꯅꯃꯑꯦꯅ, 104 MLD, ꯑꯁꯤ ꯍꯗ ꯑꯗꯤꯗꯦ ꯁꯤꯒꯅꯕ 76 MLD-ꯅꯒꯤ ꯄꯑꯦꯅ (ꯒꯐꯄꯐ ꯅꯃꯍꯒꯒꯤ ꯐꯤꯒꯅꯗ ꯌꯥꯐꯕ GIS ꯕꯗ ꯃꯑꯣꯄꯐ ꯁꯗꯦ – 2043 (ꯑꯄꯗꯕ ꯃꯅꯤꯍꯤꯆꯑꯦ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)))॥ ꯑꯄꯅꯗꯦ ꯗꯑꯗꯒ ꯒꯐꯤꯑꯦ ꯄꯐꯅꯕꯌꯗꯒꯅ (National Green Tribunal) "ꯑꯄꯐꯒꯤ ꯑꯐꯤꯌꯑꯣꯏꯅ ꯑꯣꯏꯌꯗ ꯁꯇꯆꯁ 70 MLD ꯑꯃꯁꯨꯡ ꯗꯐꯤꯕ ꯄꯐꯤꯅꯃꯑꯦꯅ ꯍꯑꯣꯏꯗꯤꯄꯤꯑꯣꯏ 44 MLD-ꯗꯤ (ꯅꯃꯍꯒ ꯍꯗ I ꯑꯃꯁꯨꯡ II-ꯒꯤꯅꯃ 27 MLD ꯑꯃꯁꯨꯡ ꯗꯃꯕꯒ ꯐꯤꯒꯒꯗꯑꯦꯒꯤ ꯃꯅꯅ 17 MLD)" ("Sewage generation in urban areas is 70 MLD and

existing treatment facilities are 44 MLD (27 MLD for Imphal Phase I and II and 17 MLD under Nambul rejuvenation)") ꯍꯥꯌꯅꯥ, 27 MLD ꯑꯃꯁꯨꯡ 16 MLD-ꯒꯤ ꯄ꯭ꯂꯥꯟꯇꯁꯤꯡꯅꯥ 21.59 MLD ꯑꯃꯁꯨꯡ 11.50 MLD ꯁ꯭ꯗꯤꯌ ꯁꯣꯍꯤ ꯍꯥꯌꯅꯥ, ꯃꯈꯣꯌꯒꯤ "ꯑꯔꯣꯏꯕ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯃꯑꯣꯡ" ("Final mode of disposal") ꯑꯁꯤ "ꯂꯧꯒꯤ ꯈꯣꯉꯅꯥꯡꯁꯤꯡ" ("Agriculture canals")-ꯅꯤ ꯍꯥꯌꯅꯥ, ꯑꯃꯁꯨꯡ 2027 ꯐꯥꯑꯣꯕ ꯄꯨꯋꯥꯔꯤ ꯊꯝꯂꯕ ꯌꯨꯝ 51,754-ꯒꯤ ꯃꯅꯨꯡꯗ ꯌꯨꯝ 8,600-ꯗꯒꯤ 8,700 ꯀꯅꯣꯡ ꯁꯥꯕ ꯍꯥꯌꯅꯥ ꯄꯤꯔꯝꯂꯤ ꯁꯥꯕ (O.A. 606/2018-ꯗ ꯖꯨꯅ 2025-ꯒꯤ ꯄꯤꯔꯝꯂꯤ)꯫ ꯑꯁꯣꯌꯕ ꯃꯈꯥ ꯌꯥꯗꯕꯗ ꯁꯦꯝꯕꯒꯤ ꯂꯣꯌꯁꯤꯟ ꯁꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯂꯦꯡ ꯀꯤꯌꯂꯕ ꯑꯂꯣꯏ, ꯌꯥꯝꯒꯤ ꯃꯦꯌꯀ ꯅꯂꯕ ꯀꯥꯃꯆꯃꯡꯗꯥꯏ ꯇꯦꯔꯀꯅ, ꯍꯕꯗꯦꯡꯇꯕ ꯅꯦꯕꯗꯁꯂꯕꯗ ꯅꯁꯊꯦꯡꯅ꯫ ꯅꯦꯕꯗꯁꯂꯕ ꯑꯂꯣꯏ ꯁꯤꯡꯉꯕꯂꯕꯗ ꯌꯥꯅ: "ꯆꯝꯕ꯭ꯅ ꯁꯤꯡꯉꯗ ꯌꯣꯁꯕ ꯅꯦꯕꯗꯁ ꯀꯃꯆꯃꯡꯗꯥꯏ (72 Nos.) ꯅꯁꯦꯟꯄꯂꯣꯀꯂꯁ ꯑꯃꯁꯨꯡ ꯗꯤꯅꯒꯄꯂꯁ (I & D)" ("Interception & Diversion (I & D) of all drains (72 Nos.) falling into the Nambul River") ꯑꯂꯣꯏ 16 ꯆꯌꯄꯒꯤ 17 MLD-ꯒꯤ ꯀ꯭ꯇꯦꯁ ꯑꯃꯗ ꯇꯦꯅꯄꯣ ꯍꯥꯌꯅꯥ ꯄꯤꯔꯝꯂꯤ ꯁꯥꯅ, ꯑꯃꯁꯨꯡ ꯅꯦꯕꯗꯁꯂꯕꯒꯤ BOD 42.45-ꯗꯒꯤ 52.34 mg/L ꯑꯃꯁꯨꯡ ꯃꯅꯦꯌꯒꯤ COD 78.56-ꯗꯒꯤ 97.23 mg/L ꯑꯦꯅꯅꯤ (O.A. 606/2018-ꯗ ꯗꯤꯂꯣꯃꯕꯄ 2025-ꯒꯤ ꯂꯁꯣꯌꯗꯤ ꯄꯤꯔꯝꯂꯤ), ꯑꯗꯨꯒꯤ CPCB-ꯒꯤ 2025-ꯒꯤ ꯇꯤꯂꯌꯅꯦ ꯂꯁꯣꯌꯗꯤ ꯁꯤꯡꯉꯕ 18-ꯒꯤ ꯂꯁꯤꯡꯉꯕ 18 ꯑꯂꯣꯏ Priority V-ꯗ ꯊꯃꯇꯤ, ꯃꯅꯦꯌꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯤꯕꯗꯦ ꯗꯃꯗꯒꯤ ꯕꯤꯂ꯭ꯇꯀꯄ ꯐꯥꯑꯣꯕꯒꯤ ꯆꯃꯕ꯭ꯅ ꯌꯦꯡꯅ, ꯃꯇꯝꯂꯤꯃꯃ BOD ꯂꯤꯕꯗꯦ 3.3 mg/L, ꯂꯃꯨꯁꯥꯡꯗ (Samusang) 4.8, ꯅꯥꯑꯣꯔꯦꯝꯊꯣꯡꯗ (Naoremthong) 4.7, ꯍꯝꯄ ꯕ꯭ꯔꯤꯖ (Hump Bridge) ꯑꯃꯁꯨꯡ ꯍꯩꯔꯥꯡꯒꯣꯏꯊꯣꯡꯗ (Heirangoithong) 5.6 ꯑꯃꯁꯨꯡ ꯕꯤꯂ꯭ꯇꯀꯄꯗ 3.4 (CPCB, *Polluted River Stretches for Restoration of Water Quality*, 2025): ꯅꯦꯕꯗꯁꯂꯕꯅꯦ ꯂꯤꯌꯣꯇ ꯀꯄꯗꯅ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯉꯕꯂꯕꯅꯦ ꯃꯗ ꯃꯤꯁꯊꯤꯉꯇꯤ (NEER-ꯒꯤ ꯀꯕ)꯫ ꯅꯃꯐꯉꯒꯤ ꯀꯩꯊꯦꯜꯒꯤ ꯑꯃꯌ ꯑꯂꯣꯏ "ꯀꯩꯊꯦꯜꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯥꯕ ꯅꯥꯒ ꯅꯨꯂꯥꯗ (Naga Nullah) ꯊꯥꯗꯣꯛꯅ, ꯃꯂꯤꯅꯦ ꯌꯍꯤ ꯀꯃꯕꯗ ꯌꯣꯁꯗꯕ ꯅꯂꯕ ꯀꯁꯂꯤꯁꯕ ꯑꯃ ꯂꯣꯃꯃꯤ" ("dumped in the Naga Nullah on the backside of the market, which creates a stagnant pool all along the year") (ꯃꯂꯁꯄ ꯀꯇꯦꯁ)꯫ ꯌꯤꯕꯒꯤ ꯁꯦꯝꯕꯂꯕꯗ, "ꯃꯇꯤꯀꯄꯒꯤ ꯌꯤꯕꯒꯤ ꯃꯈꯃꯂꯤꯕꯗ ꯂꯣꯀꯁꯤꯇ ꯁꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯁꯌꯤꯁ ꯂꯦꯡ ꯀꯤꯌꯂꯤꯕꯗ ꯍꯦꯇꯤꯇ ꯊꯇꯕ ꯊꯃꯕ ꯑꯂꯣꯏ ꯃꯁꯤꯇ ꯌꯩꯅ" ("The existing reliance on septic tanks and twin soak pits in the hilly regions of Manipur is appropriate") ꯑꯃꯁꯨꯡ "ꯃꯈꯃ ꯑꯂꯤꯂꯤꯕꯗ ꯑꯁꯗꯄꯒꯄꯁꯦꯗ ꯅꯄꯃꯒꯤ ꯅꯁꯈꯄꯂꯁꯄꯇꯌꯄ ꯌꯦꯃꯅꯦ ꯆꯃꯅꯦ ꯇꯦ" ("There is minimal presence of underground drainage infrastructure in these areas") (ꯖꯨꯅ 2025-ꯒꯤ ꯂꯁꯣꯌꯗꯤ ꯄꯤꯔꯝꯂꯤ), ꯃꯄꯃ ꯑꯗꯨꯅꯦ ꯃꯅꯦꯌꯒꯤ ꯅꯦꯕꯗꯁꯂꯕꯅꯂ ꯀꯤꯌ ꯑꯃꯁꯨꯡ ꯁꯣꯡꯕꯂꯕꯅꯦ ꯊꯥꯗꯣꯛꯀ ꯑꯗ ꯇꯦꯅ꯫ ꯑꯅꯁꯅꯂ ꯍꯤꯇꯤꯇꯁꯒꯤ ꯆꯃꯕꯤ ꯑꯗꯨꯃꯇ ꯁꯦꯝꯅ꯫ ꯃꯗꯣꯡ ꯃꯇꯤꯀꯄ ꯌꯨꯇꯤꯐꯅꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯅ-ꯂꯣꯇ, 2024 (Model Manipur Unified Building Bye-Laws, 2024) [TBC: ꯇꯦꯡꯕ ꯕꯗꯤꯅꯦ ꯆꯁꯤꯐꯅ ꯁꯤꯄꯕ ꯕꯅ-ꯂꯣꯇꯁ ꯆꯃꯕꯄ ꯑꯃꯁꯨꯡ ꯁꯇꯂꯁ ꯌꯇ ꯁꯤꯒꯗꯕꯇꯤ]-ꯅꯦ "ꯂꯣꯇ-ꯀꯤꯌꯁꯒꯤ ꯃꯌ꯭ꯇꯤꯂꯤꯀꯡ ꯅꯦꯕꯗꯁ ꯑꯦꯁꯌꯇꯌ ꯀꯤꯄꯕꯗꯤ, ꯅꯁꯦꯄꯃꯗꯤꯌꯌ ꯁꯄꯤꯌꯃꯃꯁꯌ ꯌꯃꯕꯄ ꯑꯃ ꯂꯕ ꯐ" ("For outlet from the soak-pit to municipal drain if provided, an intermediate treatment chamber should be installed") (ꯕꯅ-ꯇ 6(1)(A)) ꯍꯥꯌꯅꯥ ꯃꯊꯤ ꯁꯦꯅ, ꯇꯁꯄꯤꯁ ꯑꯃꯕ "ꯂꯅꯌꯁꯒꯤ 30 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯤꯌꯄ ꯇꯤꯄꯕꯗꯤ ꯀꯇꯃꯌ ꯁꯤꯄꯕ ꯇꯁꯄꯤꯁ" ("a connected latrine if a sewer is within 30 m") ꯑꯅꯍꯅꯇꯤ (ꯕꯅ-ꯇ 27), ꯑꯃꯁꯨꯡ ꯆꯕꯒꯤ ꯅꯂꯤꯕꯒꯤ ꯀꯅꯅꯀ ꯑꯃꯅꯦ "ꯂꯅꯅ ꯀꯅꯅꯀ ꯑꯃꯌꯁꯗ ꯊꯥꯗꯣꯛꯀ ꯆꯌꯄꯒꯤ ꯂꯃꯃꯤꯁꯕ" ("discharge into or connect with any soil pipe") ꯊꯤꯕꯅ (ꯕꯅ-ꯇ 28(v)); ꯃꯇꯤꯀꯄ ꯇꯗꯁꯗ ꯇꯗ (ꯀꯄꯁꯗꯂꯁ) ꯑꯗꯌ, 2006-ꯅꯦ "ꯍꯕꯗꯦꯡꯇꯕ ꯅꯦꯕꯗꯁꯂꯕꯗꯒꯤ ꯅꯗꯀ ꯂꯇꯇ" ("sludge from open drains") ꯑꯂꯣꯏ ꯂꯤꯌꯣꯇ ꯅꯈꯇꯌꯁꯌ ꯑꯅꯅꯦ ꯇꯦꯅ (s.2), ꯇꯗꯡꯤ ꯕꯈꯄ ꯇꯁꯗ "ꯅꯁꯗꯂꯁꯄꯤꯂꯕ, ꯂꯍꯄꯂꯕ ꯆꯌꯄꯒꯤ ꯁꯦꯝꯕꯂꯕ ꯑꯃꯁꯨꯡ ꯑꯁꯣꯌꯕ ꯃꯤꯑꯅꯒꯤ ꯇꯈꯃꯂꯕꯗꯒꯤ ꯁꯄꯤꯌ ꯁꯦꯗꯕ ꯑꯃꯌ ꯑꯃꯁꯨꯡ ꯅꯈꯇꯌꯁꯌꯂꯕ ꯊꯥꯗꯣꯛꯀ" ("Discharge of untreated wastes and effluents from industries, cities or towns and other human settlements") ꯊꯤꯕꯅ (s.19(iv)), ꯑꯃꯁꯨꯡ ꯀꯄ ꯇꯁꯗ ꯀꯅꯒꯃꯕ ꯑꯃꯌꯁꯅꯦ "ꯑꯊꯄꯤꯁꯤꯒꯤ ꯃꯃꯕꯒꯤ ꯑꯌꯦꯕ ꯇꯦꯁꯅꯦ" ("except with the prior permission of the authority") "ꯇꯗꯁ ꯂꯤꯌꯣꯇ ꯆꯌꯄꯒꯤ ꯌꯨꯃꯒꯤ ꯑꯃꯌ ꯑꯃꯌꯁ" ("any sewage or domestic waste into the lake") ꯊꯥꯗꯣꯛꯀ ꯆꯌꯄꯒꯤ ꯊꯗꯍꯁꯕ ꯊꯤꯕꯅ (s.20(i)); ꯑꯗꯌ ꯑꯂꯣꯏ ꯇꯗꯡꯤ 236.21 km² ꯅꯗꯁꯗ ꯌꯦꯅ, ꯃꯊꯗ ꯊꯕꯕ ꯃꯈꯃꯒꯤ ꯁꯤꯡꯉꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯕꯗꯁꯂꯕꯗ ꯆꯌꯁ (NEER-ꯒꯤ ꯀꯕ)꯫ ꯃꯂꯤꯒꯤ ꯀꯌꯃꯁꯌꯡꯤ ꯅꯦꯕꯗꯁ ꯑꯃꯁꯨꯡ ꯌꯅꯇꯂꯕꯒꯤ ꯅꯂꯤꯕ ꯅꯌꯁꯦꯝꯒꯤ ꯂꯁꯄꯇ ꯑꯦꯅꯅꯦ ꯂꯃꯒꯌꯇꯤꯕ ꯀꯌ ꯑꯃ ꯑꯦꯅꯄꯤꯕ ꯆꯃꯈꯅꯀꯌꯅꯦ ꯃꯂꯤꯒꯤ ꯊꯃꯇꯕ ꯅꯂꯤꯕꯗꯒꯤ ꯊꯗꯇꯕ ꯅꯂꯤꯕꯂ ꯀꯤꯒꯤꯇꯤ (NDB)꯫ ꯃꯄꯃ ꯑꯂꯤꯅꯦ ꯃꯇꯤꯀꯄꯗ: **(i)** ꯀꯌ, ꯀꯅꯄꯤ, ꯇꯗꯁꯗ, CPCB-ꯒꯤ ꯇꯤꯂꯌꯁ ꯇꯕ ꯁꯤꯡꯉꯕꯒꯤ ꯂꯁꯤꯡꯉꯌ ꯑꯃ, ꯆꯌꯄꯒꯤ ꯇꯒꯤ ꯆꯌꯄꯒꯤ ꯇꯃꯤꯒꯤ ꯅꯦꯕꯇꯦꯁ ꯑꯃꯗ ꯌꯅꯦꯕ ꯆꯕꯒꯤ ꯅꯂꯤꯕꯒꯤ ꯅꯦꯕꯗꯁꯒꯤ ꯑꯦꯁꯌꯈꯅ ꯌꯗꯤꯕꯃꯗꯅꯦ, ꯀꯇꯇ 8.9.4-ꯒꯤ ꯂꯄꯒꯅꯦ ꯀꯄꯗꯁ ꯍꯥꯌꯅꯥ ꯁꯌꯌꯄꯤꯈꯁꯕ, ꯅꯕ ꯌꯗꯕ ꯃꯁꯃꯒꯤ ꯌꯅꯦꯕ ꯀꯄꯗꯅ ꯍꯥꯌꯅꯥ ꯇꯦꯅ, ꯑꯃꯁꯨꯡ ꯅꯂꯤꯕ ꯑꯗꯗ ꯌꯦꯗꯄꯤꯀꯗ, ꯑꯃꯁꯨꯡ ꯗꯤꯁꯦꯂꯁ ꯆꯌꯄꯒꯤ ꯄꯤꯁꯦꯂꯁ ꯀꯦꯗ ꯑꯃꯍꯗꯁꯒꯤ ꯃꯃꯕꯗ, ꯀꯇꯇ 8.9.5-ꯒꯤ ꯃꯅꯗ DWF ꯅꯁꯦꯄꯂꯀꯁꯄ ꯑꯃ ꯑꯃꯁꯨꯡ ꯂꯀꯄꯤꯁ ꯑꯃ ꯇꯦ; ꯆꯃꯈꯅꯀꯌꯁ ꯌꯅꯦꯕ ꯑꯦꯁꯌꯈꯅꯂꯕ ꯑꯍꯆꯕꯗ ꯅꯀꯅ, ꯃꯄꯃꯗꯤ ꯃꯂꯤ ꯅꯂꯤꯕ ꯅꯌꯁꯦꯝꯒꯤ ꯂꯁꯄꯇ ꯑꯃꯁꯨꯡ ꯊꯗꯆꯕ ꯅꯂꯤꯕꯒꯤ ꯀꯄꯀꯇ ꯁꯄꯕ ꯍꯄꯗꯈꯃ ꯑꯆꯤꯃꯗꯆꯤ; **(ii)** ꯇꯗꯁꯗ ꯑꯗꯌꯡꯤ 236.21 km²-ꯒꯤ ꯃꯅꯨꯡꯗ, ꯁꯄꯤꯌ ꯁꯦꯗꯕ ꯂꯤꯌꯣꯇ ꯀꯄꯗꯀ ꯑꯦꯁꯌꯈꯅ ꯑꯃꯌꯁ ꯗꯤꯇꯅꯁ ꯁꯦꯗꯣ ꯆꯌꯄꯒꯤ ꯑꯀꯄꯂꯒ ꯁꯦꯗꯣ, ꯑꯗꯌꯡꯤ ꯂꯗꯂꯁ 19(iv) ꯑꯃꯁꯨꯡ 20(i) ꯑꯂꯣꯏ ꯌꯨꯃꯈꯃꯂꯕꯆꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯁꯌꯈꯅ ꯌꯗꯤꯕꯃꯗꯡꯤꯗꯃꯗ ꯇꯗꯁꯗ ꯗꯒꯇꯀꯃꯁꯌ ꯑꯊꯄꯤꯁꯤꯒꯤ (Loktak Development Authority; LDA) ꯃꯃꯕꯒꯤ ꯑꯌꯦꯕ ꯇꯦꯅ; ꯑꯃꯁꯨꯡ ꯑꯗꯌ ꯑꯂꯣꯏ ꯌꯦꯗꯕ, ꯃꯊꯗ ꯊꯕꯕ ꯃꯈꯃꯗꯒꯤ ꯇꯗꯁꯗꯡꯤ ꯃꯅꯗꯁ ꯌꯦꯕ ꯁꯤꯡꯉꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯕꯗꯁꯂꯕꯗ, ꯃꯂꯌꯅ ꯑꯂꯤꯅꯦ

> ꯑꯗ꯭ꯖꯁ꯭ꯇꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤ ꯑꯆꯨꯝꯕ ꯂꯣꯏꯁꯤꯟꯕꯁꯤꯡ; (iii) ꯍꯣꯡꯂꯛꯂꯤꯕ ꯑꯣꯏꯗꯒꯤ ꯍꯟꯗꯅ ꯑꯣꯏꯕ ꯁꯤꯡꯂꯨꯞ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯟꯕ ꯂꯣꯀꯦꯜ ꯁꯣꯌꯥ꯭ꯡ ꯅꯨꯡꯁꯤꯠ ꯂꯩꯕ-ꯀꯥꯢꯗꯨꯅ ꯑꯩꯊꯕ꯭ꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯈꯨꯗꯤꯡꯃꯛ ꯇꯥꯏꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯋꯥꯔꯦꯞ ꯂꯧꯊꯣꯀꯄꯗ ꯁꯟꯗꯣꯛꯅ ꯂꯣꯌꯅꯕ ꯁꯦꯛꯁꯟ 8.9.1 ꯑꯃꯁꯨꯡ 8.9.2): ꯃꯤꯌꯥꯝ ꯑꯃꯒꯤ 30 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯍꯥꯟꯅ ꯑꯣꯏꯕ ꯀꯟꯗꯣꯛ ꯆꯠꯂꯛꯀꯅꯤ (ꯇꯦꯕꯜ 27); ꯖꯣꯟ I ꯑꯃꯁꯨꯡ ꯖꯣꯟ II-ꯒꯤ ꯃꯔꯝꯗꯨꯅꯥ ꯍꯟꯗꯅ ꯃꯤꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯂꯩꯐꯝ ꯑꯗꯨ ꯁꯦꯃꯖꯤꯟꯕ ꯃꯇꯝ꯭ꯃꯨꯡꯗꯥ ꯌꯥꯑꯣꯒꯗꯕ, ꯍꯥꯌꯔꯤ ꯄꯨꯟꯁꯤꯟꯕꯁꯤꯡ ꯍꯥꯏꯕꯗꯤ ꯑꯣꯏꯅꯕ ꯂꯣꯏꯁꯤꯟꯕꯁꯤꯡ ꯀꯅꯕꯥ ꯍꯟꯗꯛ ꯌꯥꯔꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯟ ꯂꯧꯔꯤꯕ ꯃꯤꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯇꯥꯏꯗꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ ꯄꯥꯉꯊꯣꯛꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯂꯩꯔꯛꯀꯅꯤ (ꯁꯦꯛꯁꯟ 6.3.6(a)); ꯑꯃꯁꯨꯡ ꯃꯤꯌꯥꯝ ꯆꯦꯠꯅ ꯍꯣꯠꯅꯗꯨꯅ, ꯇꯦꯕꯜ 6(1)(A)-ꯒꯤ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯑꯣꯏꯅ ꯌꯥꯑꯣꯒꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯑꯦꯗꯖꯁ꯭ꯠ ꯇꯧꯅꯕ ꯁꯦꯛꯁꯟ 8.9.3-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ MPCB ꯑꯃꯁꯨꯡ ꯄꯥꯉꯊꯣꯛꯅꯕ ꯃꯤꯀꯣꯟ ꯍꯤꯅꯥ ꯂꯣꯏꯁꯤꯟꯕꯒꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯅꯕꯒꯤ ꯄꯥꯉꯊꯣꯛꯅ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯣꯜ ꯇꯧꯅꯕ ꯌꯥꯕ ꯂꯩꯔꯛꯀꯅꯤ; (iv) ꯃꯤꯌꯥꯝꯁꯤꯡ ꯂꯩꯐꯝ ꯆꯠꯅꯕ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ, ꯃꯤꯌꯥꯝ ꯆꯥꯡꯗꯤꯡ ꯄꯥꯉꯊꯣꯛꯅ ꯑꯃꯁꯨ ꯁꯦꯛꯁꯟ 6.3.6(d)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯥꯏꯅꯤꯡꯊꯧ ꯌꯣꯀꯈꯠ ꯑꯃꯁꯨ ꯑꯣꯏꯅꯕ ꯀꯅꯕꯥ ꯂꯩꯔꯛꯀꯅꯤ: ꯇꯥꯏꯗꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ ꯖꯣꯟꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯁꯤꯡꯂꯨꯞ ꯍꯥꯏꯅ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯌꯥꯑꯣꯒꯅꯕ ꯀꯃꯤꯇꯤꯁꯤꯡꯗꯥ, ꯂꯣꯀꯦꯜ ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡꯒꯤ ꯃꯇꯦꯡꯅ, ꯑꯃꯁꯨꯡ ꯁꯤꯡꯂꯨꯞꯁꯤꯡꯒꯤ ꯍꯣꯠꯅꯕ ꯌꯥꯑꯣꯒꯅꯕ ꯍꯣꯠꯅꯗꯨꯅ ꯊꯧꯗꯥꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤ ꯃꯇꯦꯡꯅ; ꯌꯥꯗꯨꯕ ꯄꯥꯟꯗꯃꯁꯤꯡ ꯆꯠꯅꯕ ꯑꯃꯁꯨ ꯃꯇꯨꯡ ꯏꯟꯅ ꯆꯠꯅ ꯄꯥꯉꯊꯣꯛꯅ ꯑꯃꯁꯨ ꯃꯤꯌꯥꯝꯁꯤꯡ ꯆꯠꯅꯕꯥꯏꯗꯤꯡ ꯑꯣꯏꯅꯕ ꯌꯥꯑꯣꯒꯅꯕ ꯑꯃꯁꯨ ꯑꯣꯏꯅꯕ ꯂꯩꯔꯤ; (v) ꯇꯥꯏꯗꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ ꯄꯥꯉꯊꯣꯛꯅ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯑꯃꯁꯨꯡ, ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯂꯩꯕꯗꯨ ꯆꯠꯅ ꯄꯥꯟꯗꯝ ꯆꯠꯅꯕ ꯄꯥꯉꯊꯣꯛꯅ ꯑꯃꯁꯨꯡ ꯊꯕꯛꯇꯥ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯂꯩꯐꯝ ꯖꯣꯟ ꯆꯠꯅ ꯃꯤꯌꯥꯝ ꯄꯥꯟꯗꯝ ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯁꯦꯃꯒꯠꯂꯕ ꯑꯃꯁꯨꯡ ꯆꯠꯅ ꯍꯣꯠꯅꯗꯨꯅ, ꯅꯣꯡꯃꯥꯏꯒꯤ ꯀꯅꯕ MPCB-ꯗ ꯑꯣꯏꯅꯕ ꯂꯩꯕ ꯍꯥꯌꯔꯤ ꯅꯥꯏꯒꯤ ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯑꯃꯁꯨ ꯀꯤꯅ, ꯊꯥꯖꯕ ꯀꯤ, ꯀꯨꯅꯥꯏ, ꯄꯥꯉꯊꯣꯛꯅ ꯍꯥꯌꯕ ꯀꯣꯟꯅ ꯑꯃꯁꯨ ꯍꯥꯌꯔꯤ; ꯑꯃꯁꯨꯡ (vi) ꯌꯥꯗꯨꯕ ꯑꯃꯒꯤ ꯄꯥꯉꯊꯣꯛꯅꯕꯁꯤꯡ ꯆꯠꯅꯕ ꯀꯤꯅ ꯂꯣꯏꯁꯤꯟꯕꯗ ꯌꯥꯑꯣꯒꯅꯕ, ꯃꯤꯌꯥꯝꯒꯤ ꯌꯥꯗꯨꯕꯥꯏꯗꯨꯅ ꯇꯥꯏꯗꯤꯡ ꯂꯩꯐꯝ ꯊꯧꯗꯥꯡ ꯀꯤꯅ, ꯀꯣꯟꯅ ꯍꯥꯌꯔꯤ ꯅꯣꯡꯃꯥꯏ ꯑꯃꯁꯨ ꯃꯈꯣꯌꯒꯤ ꯃꯊꯛꯇ ꯃꯈꯣꯏꯅ ꯌꯥꯑꯣꯅꯕꯁꯤꯡꯒꯤ ꯇꯧꯕ ꯁꯤꯡꯂꯨꯞ ꯍꯥꯌꯔꯤꯒꯤ ꯌꯥꯑꯣꯅ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯂꯩꯔꯤ; ꯇꯧꯕ ꯁꯤꯡꯂꯨꯞ ꯍꯥꯌꯔꯤꯒꯤ ꯌꯥꯑꯣꯅꯕ ꯀꯤꯅ ꯀꯥꯒꯟꯗꯣꯛꯅ ꯀꯨꯝ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯝ; ꯁꯥꯖꯤꯕꯒꯤ ꯃꯥꯌꯣꯛꯇ ꯌꯦꯡꯁꯟꯕ ꯍꯥꯌꯕꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 5.8.5-ꯒꯤ ꯀꯦꯝꯄꯦꯁꯤꯡ ꯀꯤꯅꯤꯡꯊꯧꯒꯤ ꯍꯅꯨꯡꯗ ꯍꯣꯠꯅꯕꯒꯤ ꯇꯥꯃꯅ ꯇꯣꯈꯣꯅ ꯖꯥꯏꯕ ꯀꯤꯍꯥꯛ ꯂꯩꯔꯤ ꯇꯥꯏꯗꯤꯡ ꯂꯩꯐꯝ ꯊꯧꯗꯥꯡ; ꯍꯣꯠꯅꯕ ꯅꯣꯡꯃꯥꯏꯁꯤꯡ ꯑꯃꯁꯨ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯐꯨꯝꯗꯤ (phumdi) ꯊꯥꯏꯗꯕ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯂꯩꯔꯤ ꯑꯃꯁꯨꯡ ꯇꯣꯈꯣꯅ ꯄꯣꯡꯊꯥꯛꯀꯅ ꯊꯥꯛꯇꯥꯛꯇ ꯆꯠꯅꯕ ꯊꯧꯔꯝ; ꯃꯤꯇꯩꯒꯤ ꯍꯥꯏꯗꯨꯒꯤ ꯂꯣꯏꯁꯤꯟꯅꯕ 15 ꯇꯥꯡꯀꯥꯡꯕ ꯖꯥꯏꯕ ꯃꯇꯦꯡ ꯆꯠꯊꯣꯛꯅ, ꯃꯇꯦꯡ ꯑꯃꯒꯤ ꯁꯦꯛꯁꯟ 7.9.1(c)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯣꯏꯗꯅ ꯌꯥꯑꯣꯅꯕ ꯑꯃꯁꯨꯡ MPCB-ꯗ ꯌꯥꯊꯪ ꯀꯤꯅ ꯍꯥꯌꯕ ꯅꯣꯡꯃꯥꯏ ꯊꯧꯗꯥꯡꯗ; ꯑꯃꯁꯨꯡ ꯂꯩꯐꯝꯁꯤꯡꯗ ꯍꯥꯌꯔꯤ ꯑꯣꯏꯅꯕꯗ ꯁꯥꯗꯨꯕꯒꯤ ꯍꯥꯌꯕꯗ ꯀꯨꯝ 72-ꯒꯤ ꯄꯣꯡꯕꯗ ꯇꯣꯈꯣꯅꯕ ꯁꯦꯃꯖꯤꯟꯕ ꯀꯨꯝ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯝ꯫ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯂꯣꯏꯁꯤꯟꯕ ꯍꯣꯠꯅꯕ ꯄꯥꯉꯊꯣꯛꯅꯕꯒꯤ ꯌꯥꯊꯪ ꯇꯣꯈꯣꯅ ꯇꯧꯕ ꯁꯤꯡꯂꯨꯞ ꯍꯥꯌꯔꯤꯒꯤ ꯍꯥꯌꯕꯒꯤ ꯃꯅꯥꯏ ꯇꯣꯀꯅ ꯑꯃꯁꯨꯡ ꯍꯤꯅꯥꯏ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅ ꯅꯥꯡꯂꯣꯏꯁꯤꯡꯒꯤ ꯄꯥꯉꯊꯣꯛꯅꯕꯒꯤ ꯂꯩꯀꯣꯏꯁꯤ ꯄꯣꯠꯄꯣꯛ (ꯁꯦꯛꯁꯟ 8.9.5(b)); ꯁꯥꯖꯤꯕ ꯌꯥꯊꯪ ꯍꯥꯌꯔꯤ ꯅꯥꯊꯪ (sluice gate) ꯑꯃꯁꯨ ꯊꯥꯏꯕ ꯑꯗ꯭ꯖꯁ꯭ꯇ ꯑꯃꯁꯨ, ꯍꯣꯏ ꯑꯃꯁꯨꯡ ꯍꯣꯠꯅꯕ ꯁꯥꯖꯤꯕ ꯑꯃꯒꯤ 1% AEP ꯇꯥꯡꯀꯥꯡꯒꯤ ꯍꯥꯏꯗꯨ ꯊꯧꯔꯝ ꯇꯣꯈꯣꯅ ꯂꯩꯐꯝ ꯂꯥꯏꯀꯥ ꯄꯨꯝꯅꯃꯛ ꯑꯅꯥꯄꯥ, ꯑꯃꯁꯨꯡ ꯒꯥꯏ ꯊꯥꯏꯗꯕꯅ ꯊꯕꯛ ꯂꯩꯔꯤ꯫ ꯂꯦꯅꯥꯏꯃꯦꯁꯤꯡ ꯑꯃꯒꯤ ꯍꯣꯡꯂꯛꯂꯤꯕ ꯑꯣꯏꯗ ꯊꯧꯔꯝ꯫

8.10 ꯅꯣꯡꯃꯥꯏ ꯆꯠꯅꯕꯁꯤꯡꯒꯤ ꯑꯗ꯭ꯖꯁ꯭ꯇꯃꯦꯟꯇꯁꯤꯡ: ꯖꯥꯑꯣꯟ ꯖꯣꯟ, ꯀꯥꯏꯟ ꯀꯟꯠꯔꯣꯜ ꯁꯥꯏꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯁꯤꯡ

8.10.1 **ꯍꯊꯣꯛ ꯌꯥꯕ.** ꯅꯣꯡꯃꯥꯏ ꯆꯠꯅꯕ ꯑꯃꯁꯨ ꯁꯥꯖꯤꯕ ꯑꯗꯣꯝ ꯇꯥꯏꯗꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ ꯄꯥꯉꯊꯣꯛꯅꯕꯒꯤ ꯑꯗ꯭ꯖꯁ꯭ꯇ ꯂꯣꯏꯁꯤꯟꯕ, ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯄꯣꯡꯕꯗ ꯑꯣꯕ, ꯀꯥꯏꯊꯥꯏꯄꯣꯡꯕ ꯇꯥꯏꯗꯤꯡ ꯑꯃꯊꯥꯏꯄꯣꯡꯕ ꯄꯥꯉꯊꯣꯛꯅ ꯑꯃꯁꯨ ꯆꯠꯅꯕ ꯑꯗ꯭ꯖꯁ꯭ꯇ ꯂꯣꯏꯁꯤꯟꯕꯁꯤꯡ ꯍꯥꯌꯔꯤꯁꯤꯡ ꯆꯠꯅꯕꯇꯤ:

- (a) ꯁꯦꯛꯁꯟ 8.7.10-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯌꯥꯑꯣꯒꯅꯕ GPT ꯑꯃꯁꯨ; ꯑꯃꯁꯨꯡ
- (b) ꯖꯥꯑꯣꯟ-ꯖꯣꯟ ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ: ꯅꯣꯡꯃꯥꯏ ꯀꯤꯅꯥꯏꯕ ꯂꯩꯁꯥꯖꯤꯕ WQv (ꯇꯧꯕ ꯍꯥꯌꯔꯤ Q_wq) ꯑꯃꯒꯤ ꯁꯦꯛꯁꯟ 8.7-ꯒꯤ BMP-ꯁꯤꯡꯗ, ꯅꯣꯡꯃꯥꯏ ꯀꯤꯅꯥꯏꯕ ꯍꯟꯗꯅꯁꯤꯡꯒꯤ ꯇꯧꯕ ꯍꯥꯌꯔꯤ ꯑꯗ꯭ꯖꯁ꯭ꯇꯅ, ꯁꯥꯖꯤꯕ ꯌꯥꯕ꯫

8.10.2 **ꯑꯗ꯭ꯖꯁ꯭ꯇꯅ ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯌꯥꯕ ꯄꯨꯝꯅꯃꯛ ꯍꯣꯠꯅꯗ.** ꯀꯤꯕꯥꯏꯗ ꯑꯗ꯭ꯖꯁ꯭ꯇ ꯑꯃꯁꯨ ꯇꯧ ꯖꯥꯏꯅꯕ ꯍꯣꯠꯅꯗ, ꯖꯥꯑꯣꯟ-ꯖꯣꯟ ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯑꯃꯒꯤ ꯍꯥꯌꯔꯤꯁꯤꯡꯗ ꯀꯤꯅ ꯌꯥꯅ:

- (a) Q_wq-ꯒꯤꯗꯃꯛ ꯃꯅꯥꯏ ꯇꯣꯀꯅ ꯀꯥꯑꯣꯀꯥꯑꯣꯅꯕꯁꯥꯏ ꯖꯥꯑꯣꯟ-ꯖꯣꯟ ꯇꯧꯕ ꯄꯅꯗꯥꯗꯅꯗꯥꯍꯤꯕ ꯗꯤꯒꯤꯅꯣ ꯑꯃꯁꯨ; ꯇꯧꯕ
- (b) ꯅꯣꯡꯃꯥꯏ ꯆꯠꯅꯕꯒꯤ ꯂꯣꯌꯕꯥꯏꯗꯤ ꯍꯥꯅꯨꯡꯗ (ꯁꯦꯛꯁꯟ 7.5.1(b)), ꯌꯥꯊꯪꯂꯥꯡꯂꯥꯗꯤ ꯍꯣꯠꯅꯕ, ꯁꯥꯖꯤꯕ ꯀꯟꯠꯔꯣꯜ ꯌꯥꯅꯅꯕ ꯇꯧꯕ ꯖꯥꯕꯥ ꯑꯃꯁꯨ꯫

8.10.3 **ꯀꯜꯚꯔꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕ꯭ꯔꯤꯖ ꯗꯤꯖꯥꯏꯟꯁꯤꯡ.** ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ, ꯀꯜꯚꯔꯠ (culvert) ꯅꯥꯡꯂꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄ ꯂꯥꯏꯅꯁꯤꯡꯗ ꯌꯥꯕ ꯀꯜꯚꯔꯠꯁꯤꯡ:

- (a) ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯦꯄꯥꯁꯤꯇꯤꯒꯤ 50% **ꯕ꯭ꯂꯣꯀꯦꯖ** ꯂꯧꯅꯕꯗ ꯁꯨꯝꯍꯠ ꯇꯧꯒꯗꯕꯅꯤ;
- (b) ꯃꯄꯨꯡ ꯐꯥꯅ ꯕ꯭ꯂꯣꯛ ꯇꯧꯔꯕ ꯀꯜꯚꯔꯠꯀꯤ ꯑꯃꯅ ꯄ꯭ꯔꯣꯄꯔꯇꯤꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯂꯝꯕꯤꯗꯒꯤ ꯕꯥꯏꯄꯥꯁ ꯂꯃꯕꯤ ꯑꯃ ꯂꯩꯒꯗꯕꯅꯤ;
- (c) ꯍꯦꯗꯋꯣꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯤꯡ ꯋꯥꯜꯁꯤꯡ ꯂꯩꯒꯗꯕꯅꯤ: ꯑꯃꯠꯇ ꯐꯥꯏꯕꯤꯁꯤꯡ ꯂꯩꯇꯕ ꯋꯥꯜꯁꯤꯡ, ꯕ꯭ꯂꯣꯀꯦꯖꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯃꯐꯝ ꯄꯥꯡꯄ ꯋꯥꯜꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- (d) ꯇꯔꯤꯒꯤ ꯑꯣꯏꯕꯀꯤ ꯂꯥꯏꯅꯗ, ꯑꯁꯤꯅꯕ ꯂꯧꯕ ꯄ꯭ꯔꯣꯗꯛꯁꯟ ꯑꯃꯗꯒꯤ ꯁꯣꯏꯗꯅꯥ ꯃꯈꯥ ꯑꯅꯤꯒꯗꯕꯅꯤ꯫

8.10.4 **ꯂꯧꯔꯤꯕ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ.** ULB ꯅꯥꯏꯅꯃꯗ ꯏꯁꯤꯡ ꯂꯐꯃꯁꯤꯡꯗ ꯌꯥꯑꯣꯕ ꯃꯁꯤꯒꯤ ꯂꯧꯔꯤꯕ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯗ GPT ꯑꯃꯁꯨꯡ DWF ꯏꯟꯇꯔꯁꯦꯞꯇꯔꯁꯤꯡ ꯍꯣꯠꯅꯕ ꯄ꯭ꯔꯥꯏꯑꯣꯔꯤꯇꯤ ꯑꯃ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯏꯁꯤꯡꯒꯤ ꯁꯦꯡꯗꯣꯛꯅꯕꯒꯤ ꯁꯤꯡꯂꯨꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯂꯥꯏꯐꯝ ꯂꯧꯕ ꯌꯥꯑꯣꯕꯁꯤꯡꯗ (**ꯆꯦꯞꯇꯔ** 7.12) ꯌꯥꯑꯣꯕ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯗꯒꯤ ꯍꯧꯅ, ꯑꯃꯁꯨꯡ **ꯆꯦꯞꯇꯔ** 10.17-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯃꯇꯝ ꯌꯥꯝꯅ ꯑꯁꯣꯏ ꯃꯤꯁꯤꯡ ꯂꯧꯒꯗꯕꯅꯤ꯫

> **ꯄ꯭ꯔꯦꯛꯇꯤꯀꯦꯜ ꯅꯣꯠ.** ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯣꯏꯕꯗ ꯏꯁꯤꯡ ꯂꯐꯃꯁꯤꯡꯗ ꯌꯥꯑꯣꯕ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯗ ꯐꯤꯂꯠ-ꯐꯥꯜꯂ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯇꯔꯣ ꯄꯣꯜꯍꯤꯗꯦꯟ ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯃꯊꯧ ꯂꯩ꯫ ꯇꯔꯣ ꯄꯣꯜꯍꯤꯗꯦꯟꯁꯤꯡ ꯑꯁꯤ ꯃꯈꯣꯌꯒꯤ ꯏꯁꯤꯡ ꯂꯐꯃꯁꯤꯡꯗ ꯅꯥꯟꯅꯕꯒꯤ ꯃꯇꯝ ꯐꯥꯑꯣꯕ ꯄꯣꯜꯂꯨꯇꯦꯒꯤ ꯃꯑꯣꯡꯗꯤ, ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯗꯛꯇꯤꯗ ꯅꯥꯑꯣꯕꯗ ꯑꯃꯁꯨꯡ ꯀꯜꯚꯔꯠꯁꯤꯡꯗ ꯍꯤꯡꯅ, ꯃꯁꯤꯗ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯔꯣꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯁꯃꯥꯏꯗꯦꯡꯍꯟꯂꯤ꯫ 50% ꯀꯜꯚꯔꯠꯗ ꯕ꯭ꯂꯣꯀꯦꯖ ꯑꯁꯤ ꯁꯥꯡꯕ 6-ꯒꯤ ꯇꯔꯣꯠꯀꯤ ꯅꯥꯀꯜꯒꯤ ꯐꯥꯑꯣꯕꯒꯤ ꯃꯗꯦꯟ꯫ **ꯆꯦꯞꯇꯔ** 8.10.3(c)-ꯗ ꯑꯌꯥꯕ ꯍꯦꯗꯋꯣꯜꯁꯤꯡꯗ ꯐꯥꯅꯗ ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤ ꯃꯇꯝꯗ ꯌꯥꯑꯣꯁꯤꯟꯍꯟꯂꯤ, ꯃꯅꯥꯌ ꯑꯁꯤ ꯁꯦꯡꯗꯣꯛ ꯑꯃꯒꯤ ꯑꯍꯦꯜꯕ ꯄꯨꯗꯥ ꯕ꯭ꯂꯣꯛ ꯑꯅꯤꯗꯥꯅ ꯑꯃꯁꯨꯡ ꯃꯅꯥꯌꯗ ꯃꯤꯗꯦꯕ ꯄꯣꯛꯅ ꯃꯀꯥꯏꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯁꯣꯏ ꯄꯨꯔꯀꯅ꯫

8.11 ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯄꯨꯟꯁꯤꯟꯕ

8.11.1 **RWH ꯃꯥꯗꯦꯜꯒꯤ ꯌꯥꯊꯪꯕ ꯑꯁꯣꯏꯃꯗ ꯌꯥꯊꯪꯒꯅꯤ.** ꯃꯅꯤꯄꯨꯔ ꯃꯅꯤꯄꯨꯔ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯁ 2024-ꯗ ꯃꯈꯥ ꯌꯦꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ (ꯃꯅꯤꯄꯨꯔꯒꯤ ꯕꯥꯏ-ꯂꯣ 66(a): "100 square metre ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯇꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯧꯕ ꯕꯤꯜꯗꯤꯡ ꯄꯨꯝꯅꯃꯛꯇ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯌꯥꯎꯅ ꯏꯁꯤꯡ ꯔꯟꯑꯣꯐ ꯊꯃꯗꯨꯅ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯑꯁꯤ ꯃꯊꯧ ꯇꯥꯒꯅꯤ꯫ ꯄꯤꯔꯕ ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗ ꯁꯔꯐꯦꯁ ꯔꯤꯖꯔꯚꯣꯌꯔꯁꯤꯡꯗ ꯅꯠꯔꯒꯥ ꯔꯤꯆꯥꯔꯖ ꯋꯦꯂꯁꯤꯡꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯃꯐꯃꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯣꯛꯄ ꯁꯤꯁ꯭ꯇꯦꯝ ꯇꯥꯛꯀꯗꯕꯅꯤ" ("Water harvesting through storing of water runoff including rainwater in all existing and new buildings on plots of 100 square metre and above will be mandatory. The plans submitted shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells"); ꯕꯥꯏ-ꯂꯣ 66(b), ꯀꯅꯥ ꯌꯥꯑꯣꯕ ꯑꯃꯗꯤ 500 m² ꯅꯠꯔꯒꯥ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯇꯁꯤꯡ ꯑꯃꯒꯤ ꯄ꯭ꯔꯣꯄꯔꯇꯤ ꯂꯧꯕꯒꯤ ꯅꯣꯡꯃꯗ 15% ꯑꯃꯁꯨꯡ ꯑꯇꯩ ꯑꯃꯒꯤ 10%-ꯒꯤ ꯁꯥꯏꯖ ꯀꯅꯥ; ꯕꯥꯏ-ꯂꯣ 67, ꯇꯔꯣ-ꯂꯣꯌꯕ ꯃꯤꯁꯥꯂꯀꯤ, ꯃꯁꯤꯒꯤ ꯍꯦꯟꯕ ꯑꯃ "ꯂꯝꯂꯥꯛꯀꯤ ꯃꯏꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯃꯤꯌꯥꯝꯀꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯤꯌꯥꯝ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡꯗ ꯃꯂꯥꯏ ꯌꯥꯗ ꯁꯃꯃꯤꯗꯅꯕ" ("suitably connected to the rain water recharge structures for ground water recharge"); ꯕꯥꯏ-ꯂꯣ 68, ꯃꯤꯁꯥꯂꯀꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯑꯅꯤꯃꯥ ꯄꯤꯔꯕ ꯃꯐꯃꯗ ꯄ꯭ꯂꯣꯇꯀꯤ ꯄꯔꯃꯤꯁꯟ ꯐꯤꯗ 10%-ꯒꯤ ꯃꯤꯕꯣꯛ; ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣ 6(1)(C)(j), ꯄ꯭ꯂꯥꯅꯁꯤꯡꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕꯒꯤ ꯗꯤꯇꯦꯂꯁꯤꯡ [TBC: ꯂꯩꯔꯤꯕ ꯕꯥꯏꯗ ꯅꯣꯡꯂꯥꯏꯐꯝ ꯌꯥꯑꯣꯕ ꯕꯥꯏ-ꯂꯣꯁꯤꯡ ꯅꯠꯇꯦ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯅ ꯌꯦꯡ ꯌꯥꯑꯣꯕꯇ꯫]) ꯑꯁꯤ, ꯂꯩꯔꯤꯕ ꯕꯥꯏꯗ ꯌꯥꯊꯪꯍꯟꯅꯕ ꯃꯐꯃꯗ, **ꯆꯦꯞꯇꯔ** 8.8.1-ꯒꯤ ꯂꯃꯆꯠꯁꯤꯡꯒꯤ ꯃꯍꯧꯗ ꯌꯥꯊꯪꯕ ꯑꯁꯣꯏꯃꯗ ꯌꯥꯊꯪꯒꯅꯤ: ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯁꯤꯗ ꯕꯥꯏ-ꯂꯣ ꯑꯁꯤꯒꯤ "ꯁꯔꯐꯦꯁ ꯔꯤꯖꯔꯚꯣꯌꯔꯁꯤꯡ" ("surface reservoirs") ꯅꯥꯟ, ꯃꯁꯤ ꯌꯥꯑꯣꯗꯕ ꯑꯃ ꯂꯩꯔꯦ; **ꯆꯦꯞꯇꯔ** 4.11-ꯗ ꯅꯥꯡꯐꯥꯏꯗꯔꯕꯒꯤ ꯍꯤꯔꯝꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯅ ꯕꯥꯏ-ꯂꯣ 67-ꯗ ꯇꯔꯣ ꯌꯥꯑꯣꯕ ꯃꯤꯌꯥꯝꯀꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ ꯑꯃꯅ ꯍꯤꯡꯀꯠ ꯃꯐꯃꯗ, ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯁꯤꯗ ꯌꯥꯑꯣꯕ ꯑꯃ ꯍꯥꯅꯕꯤ, ꯃꯗꯨꯒꯤ ꯃꯍꯩꯌꯥ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯅꯠꯔꯒꯥ ꯁꯤꯌꯥ ꯀꯦꯇꯦꯒꯣꯔꯤ ꯃꯈꯥ ꯌꯦꯅ, ꯑꯃꯁꯨꯡ ꯕꯥꯏ-ꯂꯣ ꯑꯁꯤꯒꯤ ꯃꯤꯇꯣꯡꯁꯤꯡꯒꯤ ꯂꯩꯔꯤꯕ ꯕꯥꯏꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯁꯤ ꯑꯣꯏꯔꯤꯕꯅꯣꯡꯕ ꯍꯧꯗꯅ, ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯈꯥ ꯍꯧꯕꯗꯦꯡ (ꯇꯦꯕꯜ 1)꯫ **ꯆꯦꯞꯇꯔ** ꯑꯁꯤꯗ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯍꯧꯗ RWH ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ ꯀꯔꯝꯅ ꯍꯤꯡꯂꯕꯒꯤ ꯍꯣꯠꯅꯕꯒꯤ ꯍꯧꯅꯤ꯫

8.11.2 **ꯁ꯭ꯇꯦꯖ ꯊꯥꯛ ꯑꯍꯨꯝ.** ꯑꯅꯧꯕ ꯌꯨꯝꯁꯤꯡꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯥꯕꯁꯤꯡꯗꯥ ꯁꯔꯨꯛꯁꯤꯡ ꯑꯍꯨꯝ ꯌꯥꯑꯣꯒꯗꯕꯅꯤ:

- (a) **ꯈꯣꯝꯖꯤꯟꯕ**: ꯌꯨꯝꯊꯛꯀꯤ ꯁꯤꯁ꯭ꯇꯦꯝ (ꯁꯥꯝꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯡꯂꯣꯏꯕ);
- (b) **ꯊꯝꯖꯤꯟꯕ**: ꯇꯦꯉ꯭ꯀꯁꯤꯡ ꯃꯇꯨꯡꯗ ꯅꯣꯏꯕ ꯊꯝꯖꯤꯟꯕ ꯊꯝꯕ ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕ, ꯐꯤꯜꯇꯔꯂꯣꯏꯕ, ꯐꯥꯔꯁ꯭ꯠ-ꯐ꯭ꯂꯁ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯂꯣꯏꯕ; ꯑꯃꯁꯨꯡ
- (c) **ꯔꯤꯆꯥꯔꯖ**: ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯥ ꯄꯥꯝꯖꯕꯥꯗ ꯑꯣꯏꯕ ꯑꯣꯏꯅ, ꯑꯣꯏꯊꯣꯛꯄ ꯑꯦꯟꯖꯤꯅꯤꯌꯔ ꯂꯩꯕ ꯁꯤꯁ꯭ꯇꯦꯝ (ꯁꯔꯨꯛ 4)꯫

8.11.3 **ꯊꯝꯖꯤꯟꯕ ꯁꯥꯏꯖꯤꯡꯁꯤꯡ.**

- (a) ꯃꯤꯅꯤꯃꯝ ꯊꯝꯖꯤꯟꯕ ꯑꯁꯤ ꯈꯨꯗꯤꯡꯗ ꯂꯩꯕ ꯌꯥꯕ ꯊꯥꯛꯇ ꯃꯇꯧ ꯑꯣꯏꯕ ꯃꯇꯨꯡꯗ ꯊꯝꯖꯤꯟꯕ ꯍꯥꯏꯅꯕꯁꯤꯡ, ꯑꯣꯏꯕ ꯍꯥꯏꯅꯕꯁꯤꯡ, ꯊꯝꯖꯤꯟꯕ ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯂꯣꯏꯕꯗ ꯍꯥꯄꯆꯤꯟꯕ ꯌꯥꯕ꯫
- (b) ꯇꯦꯉ꯭ꯀꯁꯤꯡ, ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯃꯇꯧ ꯁꯤꯡꯕ ꯑꯣꯏꯊꯣꯛꯂꯣꯏꯕꯗꯒꯤ ꯊꯥꯛꯃꯥ ꯊꯝꯖꯤꯟꯕ ꯑꯃꯥ ꯍꯥꯏ, ꯕꯥꯍꯥꯏ ꯇꯧꯗꯨꯅ ꯊꯝꯖꯤꯟꯕ ꯄꯨꯔꯛ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯥꯗꯒꯤ ꯍꯥꯄꯆꯤꯟꯕꯥ ꯌꯥꯕꯅꯤ꯫ ꯃꯁꯤ ꯆꯦꯞꯇꯔ 8.8 ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯅꯤꯡꯊꯤꯖꯕ ꯂꯣꯏꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯊꯣꯛꯄ, ꯃꯣꯔꯤ-ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡꯒꯤ ꯇꯥꯀꯄ, ꯅꯥꯏꯕꯗ ꯊꯝꯖꯤꯟꯕ ꯁꯥꯕ ꯌꯥꯕ꯫
- (c) ꯊꯝꯖꯤꯟꯕ ꯁꯥꯏꯖꯤꯡꯁꯤꯡꯗꯥ, ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕ ꯕꯣꯠ ꯑꯣꯏꯕ ꯍꯥꯏꯅꯕ ꯃꯤꯁꯤꯡꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯌꯥꯕ ꯇꯥꯀꯄ, ꯆꯦꯞꯇꯔ 8.8.1-ꯒꯤ ꯇꯦꯉ꯭ꯀꯁꯤꯡꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯅꯣꯏꯕꯁꯤꯡꯒꯤ ꯁꯥꯏꯖꯤꯡ ꯃꯇꯨꯡꯗ ꯂꯥꯄꯇꯒꯅꯕꯅꯤ, ꯍꯥꯏꯅꯕ ꯁꯥꯕ ꯃꯤꯅꯤꯃꯝ ꯅꯣꯏꯕ ꯅꯥꯏꯕꯗ ꯇꯧꯕ ꯊꯝꯖꯤꯟꯕ ꯍꯥꯏꯅꯕꯁꯤꯡ ꯑꯣꯏꯕꯅꯤ꯫

8.11.4 **ꯔꯤꯆꯥꯔꯖ ꯑꯃꯁꯨꯡ WQv-ꯗ ꯃꯥꯏꯄꯥꯛꯄ.** ꯊꯝꯖꯤꯟꯕ ꯁꯥꯏꯖꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯩꯕꯅꯤ ꯅꯥꯏꯕꯗ ꯁꯔꯨꯛ 4-ꯒꯤ ꯔꯤꯆꯥꯔꯖ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ WQv-ꯗ ꯌꯥꯕꯅꯤ:

- (a) ꯃꯁꯤꯒꯤ ꯅꯤꯡꯊꯤꯖꯕ ꯊꯥꯛ ꯑꯃꯥ ꯆꯦꯞꯇꯔ 8.8.3-ꯒꯤ ꯃꯇꯨꯡ ꯁꯥꯏꯖꯤꯡ ꯁꯥꯕ;
- (b) ꯃꯁꯤ ꯑꯣꯏꯕ ꯊꯥꯛꯁꯥ ꯄꯨꯡ 72-ꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯣꯏꯕ ꯑꯣꯏꯅ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯁꯤꯗ ꯃꯣꯔꯤ-ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡ ꯇꯧꯕ꯫

ꯈꯣꯝꯖꯤꯟꯕꯒꯤ ꯌꯥꯝꯅ ꯑꯃꯥ, ꯅꯥꯏꯕꯒꯤ ꯊꯤꯃꯥꯏꯊꯛꯁꯥ ꯄꯥꯝꯖꯕ ꯑꯣꯏꯕꯗ ꯑꯃꯨꯛ, ꯄꯨꯡ 72-ꯒꯤ ꯃꯇꯨꯡꯗ ꯃꯁꯤꯒꯤ ꯅꯣꯏꯕ ꯌꯨꯝꯊꯛꯀꯤ ꯃꯦꯌꯗ ꯅꯥꯏꯕꯗ ꯔꯤꯆꯥꯔꯖꯗ ꯌꯥꯕꯅꯤ (ꯁꯔꯨꯛ 4)꯫

8.11.5 **ꯔꯤꯆꯥꯔꯖ ꯑꯣꯏꯕ ꯃꯥꯏꯄꯥꯛꯄ ꯇꯧꯕ.** RWH ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯥ ꯇꯝꯄꯥꯛꯀꯤ ꯑꯣꯏꯕ ꯑꯣꯏꯅ, ꯑꯣꯏꯊꯣꯛꯄ ꯇꯧꯕ ꯅꯤꯡꯊꯤꯖꯕ ꯍꯥꯏꯕ ꯑꯃꯥ ꯂꯥꯄꯊꯣꯛꯄꯥ ꯔꯤꯆꯥꯔꯖ ꯑꯣꯏꯕ ꯌꯥꯗꯕ꯫ RWH ꯁꯥꯝꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯊꯣꯗ (ꯑꯣꯐꯤꯁ–ꯑꯣꯄꯔꯦꯁꯟ) ꯑꯃꯁꯨꯡ ꯁꯤꯁ꯭ꯇꯦꯝ ꯅꯥꯏꯕꯒꯤꯃꯊꯛꯇ ꯄꯥꯝꯖꯕꯗ **ꯃꯇꯨꯡꯂꯦ** ꯇꯧꯕ ꯄꯨꯔꯛ ꯇꯧꯅ (ꯁꯔꯨꯛ 4)꯫

8.11.6 **ꯑꯣꯄꯔꯦꯁꯟ.** RWH ꯁꯤꯁ꯭ꯇꯦꯃꯗ ꯅꯥꯏꯕꯒꯤ ꯃꯊꯛꯇ ꯈꯨꯗꯤꯡꯃꯛ ꯅꯥꯏꯕꯗ ꯊꯝꯕ ꯑꯣꯄꯔꯦꯁꯟ ꯑꯃꯥ ꯇꯧꯒꯗꯕꯅꯤ, ꯃꯇꯧ ꯀꯔꯝꯅ ꯅꯥꯏꯕꯗꯒꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯗ ꯑꯣꯏꯕꯒꯤ ꯌꯥꯕꯗ ꯑꯣꯏꯕꯅꯤ꯫

8.11.7 **ꯃꯇꯧꯒꯤ ꯃꯦꯊꯣꯗꯁꯤꯡꯗ ꯌꯥꯑꯣꯕ-ꯅꯣꯏꯕꯁꯤꯡ ꯊꯝꯖꯤꯟꯕ.** ꯇꯦꯉ꯭ꯀꯁꯤꯡ, ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕ, ꯃꯥꯏꯄꯥꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯃꯇꯧꯒꯤ ꯃꯦꯊꯣꯗꯁꯤꯡꯗ ꯇꯧꯕ ꯊꯝꯖꯤꯟꯕ ꯐꯤꯜꯇꯔꯂꯣꯏꯕ, ꯄꯨꯔꯛꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕ ꯃꯥꯏꯄꯥꯛꯂꯣꯏꯕꯗ, ꯐꯤꯜꯇꯔ ꯂꯩꯕ ꯇꯧꯕ ꯇꯦꯉ꯭ꯀꯁꯤꯡꯒꯤ ꯄꯨꯔꯛꯁꯤꯡ ꯍꯥꯏꯅꯕ ꯂꯩꯔꯕ, ꯆꯦꯞꯇꯔ 8.8 ꯃꯇꯨꯡꯗ ꯂꯩꯕ ꯃꯇꯨꯡꯗ ꯂꯥꯄꯇꯒꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯥꯏꯕꯗ ꯅꯥꯏꯕꯒꯤꯃꯊꯛꯇ GPT ꯑꯣꯏꯕꯒꯤ ꯌꯥꯕꯗ ꯐꯤꯜꯇꯔ ꯑꯣꯏꯕ ꯇꯧꯒꯗꯕꯅꯤ꯫

> **ꯌꯦꯡꯁꯤꯅꯕꯥ ꯄꯣꯏꯟꯇ.** RWH ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖ ꯑꯣꯏꯕ ꯌꯥꯗꯕ ꯄꯨꯔꯛ ꯍꯥꯏ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 4-ꯗ ꯌꯥꯕꯅꯤ꯫ ꯃꯦꯊꯣꯗꯀꯤ ꯕꯥꯏꯂꯣꯒꯤ ꯕꯥꯏ-ꯂꯣꯗ 100 m² ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯠꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯅꯥꯏꯕ ꯈꯣꯝꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯧ ꯌꯥꯑꯣꯕ, ꯌꯨꯝꯊꯛꯀꯤ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯧ ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖꯒꯤ ꯄꯨꯔꯛ ꯑꯃꯁꯨꯡ ꯌꯥꯕꯅꯤ꯫ ꯕꯥꯏ-ꯂꯣꯒꯤ ꯕꯥꯏ-ꯂꯣ 66(a)-ꯗ ꯍꯥꯏꯔꯤ ꯑꯣꯏ ꯃꯇꯧ: "100 square metre ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯠꯁꯤꯡꯗ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯅꯧꯕ ꯌꯨꯝ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯅꯣꯡꯖꯨ ꯏꯁꯤꯡ ꯌꯥꯎꯅ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯊꯝꯗꯨꯅ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ ꯑꯁꯤ ꯃꯊꯧ ꯇꯥꯕꯅꯤ꯫ ꯄꯤꯔꯛꯄ ꯄ꯭ꯂꯥꯟꯁꯤꯡꯗ ꯅꯣꯡꯖꯨ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯃꯁꯨꯡ ꯃꯊꯛꯀꯤ ꯏꯁꯤꯡ ꯊꯝꯕ ꯅꯠꯔꯒꯥ ꯔꯤꯆꯥꯔꯖ ꯏꯁꯤꯡꯈꯣꯡꯗ ꯅꯣꯡꯖꯨ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ ꯃꯐꯃꯁꯤꯡ ꯎꯠꯀꯗꯕꯅꯤ" ("Water harvesting through storing of water runoff including rainwater in all existing and new buildings on plots of 100 square metre and above will be mandatory. The plans submitted shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells"); ꯕꯥꯏ-ꯂꯣ 66(b)-ꯅ ꯃꯥꯍꯥꯛ ꯁꯥꯕ ꯑꯣꯏꯔꯕ 500 m² ꯑꯣꯏꯕꯒꯤ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯄꯥꯝꯕ ꯇꯤꯔꯛꯀꯤ ꯑꯃꯁꯨꯡꯁꯤꯡꯗ ꯃꯇꯧꯗꯥ ꯅꯇꯅꯥꯕꯒꯤ ꯂꯥꯏꯊꯗ 15% ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯥ ꯑꯃꯁꯨꯡꯁꯤꯡꯗ 10%-ꯒꯤ ꯌꯦꯡꯕ ꯃꯥꯍꯥꯛ ꯄꯅ; ꯕꯥꯏ-ꯂꯣ 67-ꯅ ꯃꯥꯍꯥꯛ ꯁꯥꯕ ꯑꯣꯏꯔꯕ 500 m² ꯑꯣꯏꯕꯒꯤ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯄꯥꯝꯕ ꯑꯣꯏꯕꯒꯤ ꯇꯨꯃꯥꯏ ꯑꯃꯗ 10,000 L ꯌꯤꯇꯤꯡꯂꯂꯕꯒꯤꯗꯃꯛ

ꯄꯨꯝ-ꯁꯤꯡꯗ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯥꯅ, ꯑꯃꯁꯨꯡ "ꯇꯣꯏꯂꯦꯠ ꯐ꯭ꯂꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯃꯨꯛ ꯍꯟꯅꯥ ꯁꯤꯖꯤꯟꯅꯗꯕ ꯃꯍꯦꯠ ꯍꯦꯟꯅꯥ ꯏꯁꯤꯡ" ("The excess waste water not reused for toilet flushing") ꯑꯃꯗꯤ "ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯃꯨꯛ ꯍꯟꯅ ꯆꯥꯖꯤꯡꯒꯤꯗꯃꯛ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ" ("the rain water recharge structures for ground water recharge") ꯊꯝꯃ; ꯃꯅ-ꯇꯣ 68-ꯗ "ꯃꯦꯍꯦꯠ ꯏꯁꯤꯡꯒꯤ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕꯒꯤ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ ꯑꯅꯤꯃꯛ ꯇꯧꯕ" ("who undertake both recycling of waste water and rain water harvesting structures") ꯃꯁꯤꯡꯗꯨꯗ "ꯃꯤꯍꯥꯛꯁꯤꯡ ꯁꯥꯕꯒꯤ ꯑꯌꯥꯕꯒꯤ ꯐꯤꯗ 10 %-ꯒꯤ ꯑꯣꯐꯔ" ("rebate of 10 % on building permission fees") ꯄꯤꯔꯤ; ꯃꯅ-ꯇꯣ 6(1)(C)(j)-ꯗ ꯄꯥꯎꯖꯦꯜꯁꯤꯡꯗ "ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯉꯥꯛꯊꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯈꯣꯃꯖꯤꯟꯕꯒꯤꯗꯃꯛ ꯄꯤꯔꯕ ꯄꯥꯎꯇꯥꯛꯁꯤꯡꯒꯤ ꯃꯄꯨꯡ" ("detail provisions made for conservation and harvesting of rain water") ꯍꯥꯅ; ꯁꯃꯇꯦꯡ ꯂꯩꯔꯤꯕꯁꯤꯡꯗ "ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯍꯦꯠ ꯏꯁꯤꯡ ꯑꯃ-ꯍꯟꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯂꯃꯆꯠꯁꯤꯡ" ("water harvesting as well as waste water re-cycling systems") ꯂꯩꯔꯤꯕ ꯑꯣꯏ; ꯑꯃꯁꯨꯡ ꯄꯥꯎꯖꯦꯜ-ꯃꯥꯏꯄꯥꯀꯄ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯃꯇꯨꯡꯗ "ꯏꯁꯤꯡ ꯑꯃꯨꯛ ꯍꯟꯅꯕ, ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ" ("Water recycle, reuse and rainwater harvesting") ꯁꯤꯡꯅ (Criterion 9)꯫ ꯃꯍꯥꯛ ꯑꯃꯗꯤꯒꯤ ꯑꯃꯥꯡꯗ ꯂꯧꯁꯤꯟꯗ ꯒꯤꯇꯃ, ꯑꯇꯣꯞꯄ ꯑꯣꯠ ꯇꯥꯀꯄ ꯀꯥꯎꯍꯟꯕ ꯂꯧꯁꯤꯡ ꯄꯥꯎ (NEER-ꯒꯤ ꯄꯥꯝꯕ)꯫ ꯃꯤꯇꯩꯂꯣꯟ ꯇꯣꯞꯄ/ꯃꯤꯇ ꯑꯣꯏꯕ ꯃꯅ-ꯇꯣ, 2026-ꯗ "ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕꯒꯤ ꯂꯃꯆꯠ" ("Rain Water Harvesting System") ꯑꯃꯗꯤ ꯃꯤꯇ ꯑꯃꯥ ꯑꯦꯅꯗ ꯇꯥꯛꯂꯤ ꯑꯣꯏ, ꯑꯃꯁꯨꯡ AMRUT 2.0-ꯗ "ꯑꯣꯛꯁꯤꯖꯦꯟ ꯄꯥꯔꯛ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕꯒꯤ ꯄꯥꯔꯛ" ("Oxygen Park & Rain Water Harvesting Park") ꯑꯃꯒ ꯂꯣꯌ ꯄꯤꯔꯤ (TPD, 2025-26)꯫ ꯑꯣꯏꯄꯥꯎꯁꯤꯡ ꯇꯥꯛꯂꯤ ꯑꯃꯥꯡꯗ ꯁꯦꯝ ꯀꯥꯎꯍꯟꯕ ꯄꯤꯔꯤ ꯑꯦ "ꯁꯤꯡ 30-ꯗꯒꯤ 50 m ꯃꯑꯣꯡꯒꯤ ꯇꯩꯍꯥꯒꯤ ꯐꯤꯑꯣꯃꯦꯁꯟ" ("approximately 30 to 50 m of clayey formation")-ꯗ ꯇꯩ, ꯏꯁꯤꯡ ꯑꯃꯗꯤ ꯇꯩꯍꯥꯅꯗꯒꯤ 2-ꯗꯒꯤ 5 m ꯃꯍꯥꯛꯗ ꯇꯩꯗ (CGWB, 2013): ꯃꯗꯤ ꯇꯩꯍꯥꯗ ꯇꯩꯕ ꯂꯦꯄꯇꯨꯅ ꯑꯃꯇꯤ, ꯑꯃꯥꯡꯗ ꯀꯥꯎꯍꯟ, ꯑꯃꯁꯨꯡ ꯃꯦꯈꯦ ꯑꯃꯗ ꯄꯨꯝ ꯁꯤꯡꯗ ꯇꯣꯑꯃꯕ ꯄꯥꯎ ꯑꯃꯗꯤ ꯂꯥꯛ ꯄꯥꯎ ꯑꯃꯇꯤ꯫ ꯁꯤꯡꯁꯤꯡꯗ, ꯗꯤꯡꯁꯤꯡ ꯂꯣꯌꯗ, ꯃꯗꯤꯗ ꯏꯁꯤꯡ ꯁꯤꯡꯗꯕ ꯃꯣꯃꯗ ꯇꯦꯡꯊꯥꯡꯄ ꯂꯇꯥꯛ ꯑꯃꯗ ꯏꯁꯤꯡ ꯍꯥꯄꯁꯤꯜꯂꯤ꯫ ꯇꯩꯃꯍꯥꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯁꯤꯡꯗ (2024-ꯗ ꯇꯤꯊꯥꯡꯄꯒꯤ ꯂꯧꯁꯤꯡ 8.00%, CGWB, ꯁꯦꯍꯤꯕ ꯃꯣꯡꯂꯧ ꯅꯔꯦ), ꯑꯃꯁꯨꯡ ꯅꯃꯦꯜꯗ ꯃꯗꯤꯒꯤ ꯊꯥꯀꯕ ꯏꯁꯤꯡꯒꯤ ꯁꯤꯡ 90% ꯃꯑꯣꯜ ꯅꯃꯦꯜ, ꯇꯃꯕꯦ ꯑꯃꯁꯨꯡ ꯅꯑꯣꯜ ꯃꯤꯑꯣꯜꯗꯗꯤꯒꯤ ꯇꯥꯅ (ꯃꯂꯧꯑ ꯄꯥꯎꯖꯦꯜ), ꯃꯑꯃ ꯑꯃꯁꯨꯗ ꯃꯇꯤꯄꯑꯃꯗ ꯈꯣꯃꯖꯤꯟꯕꯗ ꯑꯣꯕ ꯉꯥꯃꯕꯗꯤ ꯑꯁꯤꯡꯕ ꯊꯣꯀꯍꯟꯕꯒꯤꯗꯃꯛ ꯏꯁꯤꯡ ꯊꯝꯕꯇꯤ꯫ ꯃꯑꯃ ꯑꯃꯗꯤꯗ ꯃꯇꯨꯡꯒ ꯑꯃꯗꯤꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯃꯖꯤꯟꯕ ꯑꯃꯗꯤ ꯗꯤꯡꯃꯕꯕꯗꯒꯤ ꯃꯦꯑꯃ ꯐꯥꯑꯣꯕꯒꯤ ꯊꯣꯀꯍꯟꯕꯒꯤꯗꯃꯛ **ꯂꯩꯇꯤꯔꯤꯕꯕ ꯂꯧꯁꯤꯟꯕ** ꯑꯣꯅꯗ, ꯑꯃꯁꯨꯡ ꯑꯣꯏꯄꯥꯎꯁꯤꯡ ꯇꯃ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯒꯤ ꯍꯟꯗꯦꯜꯁꯤꯡꯗ ꯂꯧꯁꯤꯟꯕ ꯑꯣꯅꯗ ꯇꯥꯅ: ꯁꯦꯛꯇ 4.11-ꯒꯤ ꯑꯣꯏꯄꯥꯎꯁꯤꯡ ꯇꯃꯒꯤ ꯀꯥꯎꯍꯟ ꯁꯤꯡꯒꯤ ꯃꯦꯟꯗ ꯅꯔꯦꯜꯄꯤꯂꯧꯕꯍꯣꯡ ꯊꯤꯡꯇꯥꯕ ꯃꯦꯜꯃꯅ, ꯃꯅ-ꯇꯣ ꯑꯃꯁꯨꯒꯤ "ꯂꯃꯦꯡ ꯑꯃꯇꯥꯒꯤꯁꯦꯑꯃꯗꯤ" ("surface reservoirs") ꯄꯤꯔꯤ, ꯃꯤꯃꯊꯥꯁꯤꯡ m² ꯃꯦꯡꯗ ꯃꯅꯃꯗꯒꯤ ꯂꯣꯃꯕꯗ 25 L (ꯃꯤꯃꯊꯥꯁꯤꯡ ꯃꯊꯥꯑꯣ 25 mm ꯃꯑꯣꯜ; ꯁꯦꯛꯇ 4.11), ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯃꯌꯊꯟꯗ ꯅꯑꯣꯃꯦ ꯑꯅꯣꯡꯕꯦ ꯑꯣꯅꯗ ꯁꯦꯝꯗꯌ ꯄꯤꯕ, ꯇꯄꯥꯡꯗ ꯊꯥꯕꯗ ꯁꯤꯗꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯗ ꯄꯨꯝ 72-ꯒꯤ ꯃꯨꯛꯗ ꯑꯍꯣꯡꯕ ꯑꯣꯅꯕ (ꯁꯦꯛꯇ 4.4.3 ꯑꯃꯁꯨꯡ 8.11.4), ꯂꯧꯁꯤꯡ ꯃꯦꯗꯤꯗꯃꯥꯁꯤꯡ ꯍꯤꯡꯕꯄꯤꯗ ꯃꯄꯨꯡꯗ ꯇꯩꯡ ꯍꯣꯏꯗ ꯇꯩꯕ (ꯁꯦꯛꯇ 4.11.2), ꯑꯃꯁꯨꯡ ꯁꯤꯡꯃꯦꯡ ꯗꯤꯡꯂꯩꯕ ꯑꯣꯅꯗ ꯊꯤꯕꯗ (ꯁꯦꯛꯇ 8.11.5)꯫ ꯃꯦꯍꯦꯠ ꯀꯤꯂꯣꯗ, ꯕꯑꯣꯜ ꯂꯣꯌꯗꯂꯧꯁꯤꯡꯒꯤ ꯁꯣꯄꯤꯗꯤꯗ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯑꯣꯏꯑꯕ ꯇꯩꯍꯥꯒꯤ ꯇꯣꯅꯗꯗꯤꯗ, ꯁꯦꯛꯇ 8.8.1-ꯗ ꯁꯤꯍꯥꯟꯇꯕ ꯃꯀꯤꯃꯗ ꯑꯃꯥꯡꯗ ꯑꯃꯗꯤ ꯈꯣꯃꯖꯤꯟꯕꯒꯤ ꯊꯕꯥ ꯑꯦ ꯑꯣꯅꯕ ꯁꯤꯅ (ꯁꯦꯛꯇ 8.11.2(b)); ꯁꯦꯛꯇ 4.11-ꯗ ꯅꯔꯦꯜꯄꯤꯂꯧꯕꯍꯣꯡ ꯊꯤꯡꯇꯥꯕ ꯂꯅꯀ ꯑꯃꯗ ꯃꯅ-ꯇꯣ 67-ꯗ ꯄꯨꯝ ꯁꯤꯡꯗ ꯑꯃꯥꯡꯗ ꯂꯧꯁꯤꯡꯁꯤꯡ ꯑꯃꯗ ꯊꯥꯗꯁꯤꯡ ꯃꯀꯤꯃꯗ, ꯃꯇꯨꯡꯒ ꯑꯃꯗꯤꯗ ꯁꯤꯇꯗꯕ ꯑꯃꯥ ꯍꯥꯅꯑ ꯑꯃꯁꯨꯡ ꯃꯑꯣꯒꯤ ꯃꯍꯧꯁꯥ ꯂꯧꯁꯤꯟꯕ ꯀꯥꯎꯍꯟ ꯂꯤꯁꯤꯡ ꯁꯦꯜꯁꯤꯡꯗ ꯃꯊꯤ ꯑꯣꯅ (ꯁꯦꯛꯇ 8.11.1)꯫ RWH-ꯗ ꯏꯁꯤꯡ ꯂꯄꯇꯦꯅ ꯑꯃꯁꯨꯡ ꯑꯃꯥꯡꯗꯇ ꯂꯣꯕ ꯑꯣꯏ꯫ ꯃꯇꯦꯅ 1989-ꯒꯤ ꯑꯣꯅꯕ ꯃꯑꯣꯃ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯅ 2015-ꯒꯤ ꯑꯣꯅꯕ ꯃꯑꯣꯃꯒꯤ ꯂꯧꯁꯤꯡꯗꯃꯗꯤꯁꯤꯡꯃꯕ ꯃꯇꯦꯅꯗꯒꯤ ꯂꯄꯥꯡꯃꯕꯗ ꯀꯩꯑꯣꯕꯒꯤ ꯃꯦꯁꯦꯜ ꯂꯧꯁꯤꯡ ꯑꯦ ꯍꯥꯄꯥ ꯁꯃꯁꯤꯒꯤ ꯅꯣꯡꯒꯤ ꯃꯑꯣꯃ ꯇꯁꯤꯡꯄ ꯃꯑꯣꯃꯗ, ꯃꯗꯤ ꯃꯑꯣꯃ ꯁꯤꯃꯗ ꯃꯄꯨꯡꯗ ꯇꯩꯡ, ꯀꯥꯎꯍꯟ ꯃꯗꯤꯒꯤ ꯇꯩꯃꯍꯥ ꯏꯁꯤꯡꯗ ꯃꯄꯨꯡ, ꯃꯑꯃ ꯑꯃꯁꯨꯗ ꯃꯗꯤ ꯗꯤꯡꯂꯩꯕ ꯑꯣꯅꯗ ꯊꯤꯕ ꯁꯤꯅꯦ꯫

ꯁꯦꯛꯇ 8.11.3(b)-ꯒꯤ ꯃꯈꯥꯒꯤ ꯃꯅꯃ ꯑꯃꯀꯥꯎ ꯇꯩꯡ; ꯇꯃꯕꯒꯤ ꯑꯃꯥꯡꯗ ꯑꯣꯏꯗꯤ, ꯃꯑꯣꯜꯗꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯊꯥꯇꯂꯗꯤ ꯄꯨꯝꯑꯄꯗ ꯃꯑꯃ ꯑꯣꯅꯑꯗ ꯃꯇꯨꯡꯒ ꯑꯃꯗꯤꯗ ꯃꯗꯤ ꯊꯃꯇꯤ꯫ ꯑꯃꯥꯡꯗ ꯂꯃꯦꯡ ꯀꯥꯎꯍꯟ ꯕꯑꯣꯜ ꯑꯃꯗ ꯃꯗꯤꯃ ꯀꯤꯜꯑꯣ ꯑꯣꯃꯗ ꯇꯩꯃꯍꯥ ꯑꯃ ꯃꯅꯄꯥꯂ ꯑꯣꯅ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯑꯣ ꯇꯩꯕ ꯁꯣꯜꯗꯤꯗ ꯏꯁꯤꯡ ꯄꯤꯑꯤꯕ ꯑꯣꯁꯤꯁꯦꯑ ꯑꯃꯗ ꯍꯥꯊꯤꯗꯇꯗ ꯄꯤꯅ꯫ CGWB-ꯒꯤ *Manual on Artificial Recharge of Ground Water* (2007)-ꯗ ꯑꯃꯥꯡꯗ ꯂꯧꯁꯤꯡꯁꯤꯒꯤ ꯃꯍꯥꯗꯤ ꯑꯃꯁꯨꯡ ꯀꯥꯎꯍꯟꯕꯒꯤ ꯗꯤꯡꯅꯗꯤ ꯄꯤꯔꯤ; ꯃꯇꯨꯡꯒ ꯑꯃꯗꯤꯗ ꯂꯦꯑꯣ-ꯁꯤꯡꯕꯒꯤ ꯑꯂꯧꯁꯤꯡꯒꯤꯂꯇꯗꯤ ꯍꯥꯄꯁꯤꯜꯂꯤ꯫

8.12 ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯟ ꯁ꯭ꯇꯦꯖꯀꯤ ꯏꯔꯣꯖꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯀꯟꯇ꯭ꯔꯣꯜ

8.12.1 **ESC ꯄ꯭ꯂꯥꯟ. 0.1 ha** ꯅꯠꯔꯒꯥ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ ꯂꯩꯃꯥꯏ ꯁꯣꯛꯍꯟꯕ (land disturbance) ꯂꯩꯕ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯄꯨꯗꯤꯡꯃꯛ, ꯑꯃꯁꯨꯡ ꯄꯕ꯭ꯂꯤꯛ ꯏꯔꯝ ꯅꯠꯔꯒꯥ ꯂꯝꯕꯤꯒꯤ ꯊꯕꯛ ꯄꯨꯗꯤꯡꯃꯛꯇꯥ, ꯏꯔꯝꯒꯤ ꯔꯤꯖꯔꯚꯀꯥ ꯂꯥꯏꯅꯅꯕ ꯑꯦꯛꯁꯨꯒ ꯊꯩꯗꯕ ꯏꯔꯣꯖꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯀꯟꯇ꯭ꯔꯣꯜ (Erosion and Sediment Control; ESC) ꯄ꯭ꯂꯥꯟ ꯑꯃꯥ ꯂꯩꯒꯗꯕꯅꯤ॥ ꯃꯁꯤꯅꯥ ꯃꯈꯥꯒꯤꯁꯤꯡ ꯈꯨꯠꯀꯗꯕꯅꯤ:

- (a) ꯂꯣꯀꯦꯁꯟ, ꯀꯟꯇꯨꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯅꯦꯖ ꯄꯦꯇꯔꯟꯁꯤꯡ ꯌꯥꯎꯕ ꯃꯦꯞ;
- (b) ꯁ꯭ꯇꯦꯖ ꯄꯨꯗꯤꯡꯃꯛꯇꯥ ꯄꯥꯡꯊꯣꯛꯀꯗꯕ ꯊꯧꯑꯣꯡ;
- (c) ꯇꯦꯕꯜ 8.12.3-ꯒꯤ ꯃꯦꯖꯔꯁꯤꯡ, ꯁꯥꯏꯖꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯦꯁꯅꯁꯤꯡ ꯌꯥꯎꯅꯥ;
- (d) ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯚꯦꯖꯤꯇꯦꯁꯟꯒꯤ ꯑꯦꯞꯔꯣꯆ (ꯁꯦꯛꯁꯟ 10);
- (e) ꯁ꯭ꯇꯣꯀꯄꯥꯏꯜ, ꯀꯟꯀ꯭ꯔꯤꯠ ꯋꯥꯁꯑꯥꯎꯠ ꯑꯃꯁꯨꯡ ꯐ꯭ꯌꯨꯑꯦꯜ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯐꯃꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- (f) ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯅꯒꯤ ꯊꯧꯗꯥꯡ॥

8.12.2 **ꯏꯟꯁ꯭ꯄꯦꯛꯁꯅꯒꯤ ꯃꯇꯝ.** ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯅꯒꯤ ꯃꯇꯃꯗꯥ ꯑꯗꯨ ꯃꯈꯥꯒꯤ ꯃꯇꯝꯗꯥ ꯄ꯭ꯔꯦꯛꯇꯤꯁ ꯇꯧꯒꯗꯕꯅꯤ:

- (a) ꯏꯟꯁ꯭ꯄꯦꯛꯁꯅꯒꯤ ꯃꯇꯃꯗꯥ (ꯑꯣꯏꯔꯤꯕꯥ ꯑꯦꯗꯚꯥꯏꯖꯔ) ꯗꯤꯖꯥꯏꯟ ꯑꯦꯂꯤꯃꯦꯟꯠ ꯑꯗꯨ ꯇꯧꯕ ꯍꯦꯛꯇꯥ ꯏꯟꯁ꯭ꯇꯣꯜ ꯇꯧꯔꯕꯥ ꯑꯣꯏꯅꯕ;
- (b) ꯂꯣꯀꯦꯁꯟ ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯅꯒꯤ ꯃꯇꯝ ꯄ꯭ꯔꯃꯥꯟꯁꯤꯡ **31 ꯃꯥꯔꯆ** ꯍꯧꯗꯨꯅ ꯄꯔꯃꯤꯠ-ꯃꯅꯥ, ꯃꯇꯝ, ꯃꯤꯇꯩꯒꯤ ꯅꯠꯔꯒꯥ ꯄꯣꯠꯊꯣꯛ ꯁ꯭ꯇꯣꯔꯦꯖ ꯇꯧꯕ; ꯑꯃꯁꯨꯡ
- (c) 1 ꯑꯣꯛꯇꯣꯕꯔ ꯑꯃꯁꯨꯡ 31 ꯑꯦꯞꯔꯤꯜꯒꯤ ꯃꯔꯛꯇꯥ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯂꯤꯃꯦꯟꯠ ꯁꯤꯖꯤꯟꯅꯕꯥ ꯂꯣꯌꯅꯅꯥ ꯃꯣꯅꯤꯇꯔ ꯇꯧꯕꯥ ꯂꯣꯏꯁꯤꯟꯕ ꯀꯟꯇ꯭ꯔꯣꯜꯁꯤꯡ ꯂꯩꯕ॥

8.12.3 **ꯃꯦꯖꯔꯁꯤꯡ.**

- (a) ꯁꯤꯜꯠ ꯐꯦꯟꯁ ꯂꯣꯌꯅꯅꯥ ꯗꯤꯁꯀꯥꯔꯖ ꯑꯦꯂꯤꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯅꯀꯣꯡꯗꯥ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯃꯅꯥꯛꯇꯥ **ꯁꯤꯜꯠ ꯐꯦꯟꯁꯤꯡ**, ꯐꯦꯟꯁ ꯁꯤꯖꯤꯟꯅꯕꯥ ꯃꯁꯤꯡ ꯔꯦꯟꯖ ꯑꯦꯂꯤꯃꯦꯟꯠ ꯑꯗꯨ ꯑꯦꯗꯦꯟꯕ 8E-ꯗ ꯌꯥꯎꯔꯕ ꯄꯥꯝꯕ ꯃꯦꯟꯟ ꯂꯤꯃꯤꯠ ꯇꯧꯔꯤ॥
- (b) 2 ha ꯐꯥꯑꯣꯕꯒꯤ ꯗꯤꯁꯀꯥꯔꯖ ꯑꯦꯂꯤꯃꯦꯟꯇꯁꯤꯡꯗꯥ ꯀꯟꯇ꯭ꯔꯣꯂꯣꯟ ꯁ꯭ꯇꯦꯝ ꯐꯦꯟꯗꯥꯅꯒꯤ **ꯁꯦꯗꯤꯃꯦꯟꯠ ꯇ꯭ꯔꯥꯞꯁꯤꯡ**॥
- (c) 2 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯗꯤꯁꯀꯥꯔꯖ ꯑꯦꯂꯤꯃꯦꯟꯇꯁꯤꯡꯗꯥ **ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯅꯁꯤꯡ**॥ ꯕꯦꯁꯤꯟ ꯈꯨꯗꯣꯡ ꯂꯩꯕ ꯁ꯭ꯇꯣꯔꯝ ꯋꯦꯇꯔ ꯑꯗꯨ 50% AEP (2-yr) ꯇꯨꯡ 24-ꯒꯤ ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯔꯅꯑꯣꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯂꯤꯃꯦꯟꯇꯀꯤ **ꯍꯦꯛꯇꯔ ꯈꯨꯗꯤꯡꯗ 250 m³**-ꯒꯤ ꯃꯔꯛꯇꯥ ꯍꯦꯟꯅ ꯁꯥꯏꯖ ꯇꯧꯒꯗꯕꯅꯤ, ꯐ꯭ꯂꯣꯀꯨꯂꯦꯟꯇꯀꯤ ꯗꯣꯖ ꯂꯩꯕ ꯗꯤꯖꯥꯏꯟꯗꯤ ꯕꯦꯁꯤꯟꯒꯤ ꯑꯃꯨꯛ ꯂꯣꯌꯅꯅꯥ॥
- (d) ꯁꯤꯜꯠꯒꯤ ꯐꯦꯟꯁ ꯂꯩꯕ ꯂꯩꯕ ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖꯗ ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯟ ꯑꯦꯛꯁꯦꯁ ꯀꯥꯟꯅꯕ **ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯟ ꯑꯦꯟꯠ꯭ꯔꯦꯟꯁ**॥
- (e) ꯒꯤꯂꯤꯁꯤꯡꯗꯤ ꯄꯦꯕꯅꯤꯡ ꯆꯦꯀꯤꯁꯤꯡꯗ ꯔꯤꯕ ꯃꯦꯇꯥꯜ ꯐꯂꯝ ꯐꯒꯥꯟꯗꯤ ꯂꯣꯌꯅꯅꯥ **ꯁ꯭ꯇꯣꯔꯤꯖꯤꯟꯅ ꯇꯧꯕ ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯁꯟ ꯑꯦꯛꯇꯤꯚꯤꯇꯤꯁꯤꯡ**॥
- (f) ꯁꯤꯜꯠ ꯂꯩꯖꯕ ꯑꯃꯒꯤ ꯂꯣꯌꯕꯅꯕꯁꯤꯡ ꯂꯩꯔ 1-ꯒꯤ ꯃꯇꯝꯗ (ꯁꯦꯛꯁꯟ 7), ꯁꯤꯁꯤꯡꯗ ꯑꯃꯗꯥꯗꯒꯤ ꯃꯅꯥꯛꯇꯥ ꯅꯤꯡꯊꯤꯕ 10 m ꯂꯣꯏꯔꯤ, ꯑꯃꯁꯨꯡ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯅꯒꯤ ꯃꯇꯃꯗ ꯃꯥꯂꯦꯝ ꯇꯧꯕ **ꯁ꯭ꯇꯣꯀꯄꯥꯏꯂꯁꯤꯡ**॥
- (g) ꯀꯟꯇ꯭ꯔꯣꯜ ꯕꯦꯁꯤꯟ, ꯀꯟꯠꯔꯤ ꯇꯧꯕ ꯅꯠꯔꯒꯥ ꯐꯤꯖꯤꯟ ꯕꯣꯛ ꯑꯃꯒꯤ ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖꯦꯁꯟ **ꯗꯤꯔꯦꯛꯁꯟ** ꯗꯤꯂꯤꯚꯔꯤꯁꯤꯡ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯁꯤꯁꯤꯡꯗ ꯅꯠꯔꯒꯥ ꯁꯤꯜꯠ ꯂꯩꯖꯕ ꯑꯃꯗ ꯄꯨꯊꯣꯛꯂꯤꯕ ꯀꯔꯝ ꯇꯧꯗꯕ॥
- (h) ꯂꯥꯏꯅ ꯇꯧꯕ ꯀꯔꯤ ꯑꯃꯗ **ꯀꯟꯀ꯭ꯔꯤꯠ ꯋꯥꯁꯑꯥꯎꯠ**, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯁꯤꯁꯤꯡꯗ ꯑꯃꯗ ꯅꯠꯇꯦ॥

8.12.4 **ꯃꯇꯝ ꯁꯤꯡꯒꯤ ꯃꯦꯖꯔꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯝ.** ꯃꯇꯝ ꯁꯤꯡꯒꯤ ESC ꯃꯦꯖꯔꯁꯤꯡꯗ 1.0-ꯒꯤ ꯁꯦꯐꯇꯤ ꯐꯦꯛꯇꯔ ꯂꯣꯌꯅꯅꯥ ꯁꯦꯛꯁꯟ 2-ꯒꯤ ꯂꯣꯝ ꯍꯥꯕ ꯂꯤꯂꯤꯖꯤ (ꯇꯦꯕꯜ 2.8.2)॥

8.12.5 **ꯃꯦꯟꯇꯦꯅꯦꯟꯁ.** ESC ꯃꯦꯖꯔꯁꯤꯡ ꯑꯗꯨ ꯍꯞꯇꯥ ꯈꯨꯗꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯑꯃꯕ ꯂꯣꯝ ꯍꯕꯒꯤ ꯃꯔꯣꯜ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ ꯇꯨꯡ 24-ꯒꯤ ꯃꯅꯨꯡꯗ (ꯁꯦꯛꯁꯟ 10-ꯗ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯌꯥꯎꯔꯤꯕ ꯃꯇꯝ ꯃꯦꯟꯟ) ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯒꯗꯕꯅꯤ, ꯇꯨꯡ 48-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯣꯏꯁꯤꯟꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯀꯟꯇ꯭ꯔꯣꯂꯗꯤ 50% ꯃꯄꯨꯡꯐꯕ ꯃꯇꯃꯗ ꯂꯣꯏꯁꯤꯟꯒꯗꯕꯅꯤ॥

8.12.6 **ꯂꯧꯊꯣꯛꯄ.** ꯃꯇꯝ ꯁꯤꯡꯒꯤ ꯃꯦꯖꯔꯁꯤꯡ ꯑꯗꯨ ꯃꯁꯥꯒꯤ ꯁꯤꯜꯠ ꯔꯦꯟꯖ ꯑꯦꯂꯤꯃꯦꯟꯠ ꯑꯗꯨ ꯁ꯭ꯇꯣꯕꯤꯂꯥꯏꯖ ꯇꯧꯔꯕ ꯃꯇꯨꯡꯗ ꯁꯥꯔꯝꯗ ꯂꯧꯊꯣꯛꯀꯗꯕꯅꯤ॥ ꯀꯟꯇ꯭ꯔꯣꯜ ꯁꯦꯗꯤꯃꯦꯟꯇꯒꯤꯗꯃꯛ ꯂꯤꯖꯤꯟꯕ ꯄꯣꯠꯁꯤꯡꯅꯥ ꯐꯣꯂꯤꯖꯤ ꯑꯃꯁꯨꯡ ꯗꯤꯔꯦꯛꯇꯔꯁꯤꯡꯒꯤ ꯃꯂꯤꯒꯤ ꯑꯣ-ꯕꯤꯔꯤꯟ ꯁꯦꯛꯁꯅꯒꯤ ꯃꯃꯥꯡꯗ ꯀꯟꯇ꯭ꯔꯣꯜ ꯂꯧꯊꯣꯛꯀꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 10)॥

ꯈꯨꯗꯝꯗꯥ ꯌꯦꯡꯕ. 0.1 ha-ꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯥ ꯆꯍꯤ 1-ꯒꯤ ꯃꯇꯝꯗꯥ ꯍꯤꯡꯂꯒꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ꯫ 250 m³/ha-ꯒꯤ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯂꯣꯗ ꯑꯃꯥ US EPA Construction General Permit-ꯒꯤ ꯅꯤꯡꯊꯤꯕ ꯌꯦꯠꯂꯕ ꯑꯦꯀꯔ ꯈꯨꯗꯤꯡꯗ 3,600 ft³-ꯒꯤ ꯍꯦꯟꯗꯔ ꯑꯃꯁꯨꯡ SI-ꯗ ꯄꯥꯡꯊꯣꯀꯄꯗꯤ (US EPA, 2022 CGP); CGP-ꯅꯥ ꯆꯍꯤ 2-ꯒꯤ, ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡꯖꯦꯟꯕ ꯑꯣꯏꯕꯥ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯂꯕꯗꯤ꯫ ꯍꯥꯏꯕꯗꯤ ꯑꯗꯨꯅꯥ ꯑꯗꯨꯒꯤ ꯍꯣꯠꯅꯕ ꯄꯥꯎꯅꯥ ꯌꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤ ꯑꯣꯏꯅ, ꯍꯣꯖꯤꯛꯇꯤ ꯍꯦꯟꯅꯒꯤ ꯆꯍꯤ 2-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡꯖꯨꯃꯒꯤ ꯌꯥꯝꯅ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯀꯟꯠꯔꯣꯂꯒꯤ ꯍꯣꯡꯗꯣꯛꯄ ꯄꯨꯊꯣꯛꯄ ꯍꯥꯏꯕ ꯌꯥꯍꯟꯅꯕꯥ ꯄꯥꯝꯕꯥꯏ ꯊꯧꯅ꯫ ꯁꯦꯡꯗꯣꯀꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯚꯣꯂꯨꯃꯒꯤ ꯍꯣꯠꯅꯕ 2 ha-ꯒꯤ ꯅꯅꯥꯅꯕ, 31 ꯍꯦꯛꯇꯔꯒꯤ ꯀꯦꯆꯃꯦꯟꯇ ꯑꯣꯏꯔꯒꯤ ꯑꯣꯏꯕ, 10 m-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯀꯤ ꯃꯄꯥꯟ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠꯀꯤ ꯖꯤꯔꯣꯀꯤ ꯍꯦꯟꯕꯒꯤ ꯁꯨꯕꯥ ꯑꯃꯁꯨꯡ ꯃꯣꯝ ꯑꯃꯁꯨꯡ ꯍꯅꯥ ꯑꯃꯤ ꯍꯥꯏꯕꯗꯤ ꯊꯥꯕꯗꯤ꯫ 31 ꯍꯦꯛꯇꯔꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯤ ꯃꯇꯝ 10-ꯒꯤ ꯄ꯭ꯔꯤ-ꯍꯦꯟꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯦꯟꯗꯣꯛꯂꯤ꯫ ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯃꯗꯥꯏꯍꯦꯡ ꯑꯃꯤ ꯄꯥꯡꯊꯣꯛꯄ ꯑꯍꯦ ꯑꯅꯕꯗꯤ ꯃꯔꯝꯅ ꯅꯤꯡꯊꯤꯕ ꯅꯌꯥꯝꯒꯤ ꯇꯥꯕꯥꯕꯗꯕ ꯇꯃꯖꯤꯛꯂ

ꯑꯍꯗꯤ: ꯍꯤꯡꯅꯥ ꯅꯨꯡꯕꯦ, ꯁꯔꯒꯟꯖ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯖꯤꯗꯤꯕ ꯍꯄꯨꯡꯇꯔꯗꯤ, ꯑꯃꯁꯨꯡ ꯍꯗꯤꯄ꯭ꯔꯖꯗ ꯄꯥꯝꯕꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯧꯇꯃ ꯍꯄꯨꯡꯇꯔꯗꯤ: ꯆꯤꯡꯒꯤ ꯅꯨꯡꯕꯥꯅꯥ "ꯃꯇꯧꯇ ꯃꯇꯧ ꯌꯥꯝꯅ ꯊꯣꯀꯄ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯅꯕ ꯀꯟꯅꯅ ꯃꯇꯝꯗꯨ ꯆꯦꯠꯊꯣꯀꯄꯅ ... ꯃꯗ ꯄꯨꯕꯒꯤ ꯁꯥꯡꯗꯣꯛꯄ ꯌꯥꯝꯅ, ꯍꯤꯡꯅꯥ ꯃꯇꯧ ꯃꯍꯩ ꯊꯨꯕꯥꯔꯤ" ("flow down with steep slope for a short distance before meeting the Loktak Lake ... load carrying capacity is high which causes siltation of the lake"), ꯖꯦꯡꯇꯔꯕ ꯃꯍ ꯑꯗꯨꯅꯥ 1,545 km², ꯑꯣꯏꯕꯥꯒꯤ ꯁꯦꯆꯍꯦꯇꯁꯦꯛ 24% ꯑꯃꯁꯨꯡ ꯍꯗꯤꯒꯤ ꯆꯤꯡꯗꯤꯒꯤ 35% ꯌꯥꯅ, ꯑꯃꯁꯨꯡ ꯌꯥꯝꯕ ꯑꯃꯁꯨꯡ ꯍꯌꯦꯟ-ꯗꯒꯤ-ꯌꯥꯝꯕ ꯅꯣꯡꯇꯦ ꯁꯦꯡꯗꯣꯀꯄꯅ ꯊꯤꯇꯤꯔꯕ ꯑꯣꯅꯤꯌꯤꯒꯤ 51% ꯌꯥꯅ (MASTEC); ꯃꯇꯧꯇ ꯑꯃꯤ "ꯇꯨꯅꯣꯏꯗꯤ" ("becoming shallower") (MASTEC); ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯃꯍꯕꯤꯗꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯆꯠꯀꯤ ꯁꯦꯝ ꯀꯇꯄꯒꯤꯕ ꯅꯗꯤꯕꯗꯤ ꯍꯄꯨꯡꯇꯕ ꯍꯥꯏꯕꯗꯥ ꯃꯦꯡꯊꯣꯛꯅ, 2022-ꯗ ꯄꯨꯊꯣꯛꯂ

ꯊꯧꯔꯥꯡꯄꯨꯗꯦ, ꯍꯖꯍ ꯑꯃꯁꯨꯡ ꯃꯦꯡꯀꯇꯦꯅꯗ ꯑꯃꯤ "ꯌꯥꯍꯦ ꯁꯕ ꯃꯇꯧ ꯃꯔꯝꯗꯨ ꯖꯦ ꯗꯤꯃꯅꯦ ꯑꯣꯏꯗꯕ ꯃꯇꯝꯒꯤ ꯖꯦ ꯑꯣꯏꯗꯕ ꯀꯇꯄ ꯑꯁꯤꯀꯁꯦꯟꯕꯦ" ("poorly designed or implemented slope excavation coupled with heavy rainfall") ꯑꯃꯤꯒꯤ ꯍꯣꯍꯗꯤ ꯄꯔꯅꯤ (ꯄꯨꯟꯁꯤ ꯖꯤꯕꯗꯤꯅꯕ ꯍꯄꯨꯡ ꯅꯦꯇ)꯫ ꯍꯗꯤꯗꯨ ꯍꯗꯤꯄ꯭ꯔꯣ ꯁꯗꯤꯖꯅꯗ ꯕꯤꯔꯗꯤꯕ ꯕꯅ-ꯃꯇ, 2024 [TBC: ꯃꯁꯔ ꯕꯗꯤꯗꯦ ꯃꯑꯣꯏꯖꯅ ꯑꯣꯏꯕ ꯕꯅ-ꯃꯇꯑꯣ ꯃꯍꯕꯅ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯗꯧ ꯌꯥꯝ ꯑꯣꯏꯒꯗꯕꯗꯤ]-ꯗꯦ ꯍꯅꯔꯒꯤ ꯄ꯭ꯔꯤꯗꯦ-ꯕꯤꯔꯗꯤꯕ ꯃꯅꯥꯏꯖꯤꯁꯦꯃꯗꯤꯒꯤ

ꯁ꯭ꯔꯅꯑꯣꯏꯅꯤꯌꯤꯃꯗꯤꯒꯤ ꯍꯣꯇꯧ "ꯅꯣꯡꯇꯦ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ ꯀꯟꯠꯔꯣꯜ" ("erosion and sedimentation control") ꯌꯥꯍꯟꯅꯕꯗꯤ (Criterion 1) ꯑꯃꯁꯨꯡ Criterion 2-ꯗ "ꯍꯅꯔꯣꯏ ꯁꯦꯡꯕ ꯄꯥꯝꯕ ꯄꯦꯊꯄꯦꯇꯨꯗꯦ ꯍꯅꯔꯣꯏꯒꯤ ꯃꯍꯤꯒꯤ ꯅꯤꯡꯊꯤꯒꯤ ꯅꯣꯡꯖꯦꯟ ꯄꯦꯊꯄꯦꯕ" ("Minimize storm water run-off from site by reducing hard paving on site") ꯄꯅ, ꯑꯃꯁꯨꯡ ꯅꯍꯖꯔ ꯍꯁ꯭ꯔꯗꯤꯅꯤꯄꯔ

ꯁꯣꯄꯥꯣꯅꯦꯒꯤ ꯕꯤꯔꯗꯤꯕ ꯕꯅ-ꯃꯇ (ꯊꯣꯗ ꯑꯍꯦꯗꯍꯦ), 2024-ꯒꯤ ꯗ꯭ꯔꯖꯔꯗꯦ 30°-ꯗꯒꯤ ꯄꯦꯕ ꯃꯇ꯭ꯄꯅꯤꯕ ꯁꯦꯔ ꯊꯤꯕꯗꯤ (92.2; ꯗ꯭ꯔꯖꯔ, ꯑꯣꯅꯕ ꯀꯑꯣꯑꯣ ꯁꯦꯖꯅꯍ ꯑꯣꯅꯗꯤ [TBC]); ꯍꯅꯔꯗꯦ ꯍꯅꯇ, ꯑꯣꯗꯌꯦ, ꯑꯣꯕ ꯃꯔꯣꯄ ꯅꯦꯀ꯭ꯄꯥꯒꯃꯦ ꯑꯃꯔꯑꯣ ꯄꯤꯗ, ꯍꯅꯔ ꯑꯃꯤ ꯁ꯭ꯇꯇ 8.12-ꯗꯦ ꯄꯤꯗꯤ, ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯃꯍꯃꯗꯤꯗ ꯕꯅ-ꯃ ꯑꯃꯔꯑꯣ ꯆꯔꯇꯗꯧ꯫ 31 ꯍꯦꯛꯇꯔꯒꯤ ꯀꯦꯆꯃꯦꯟꯇ ꯑꯣꯏꯔꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯤ, ꯍꯤꯡꯒꯤ ꯍꯣꯍ 1 ꯑꯣꯄꯅꯤꯡꯗ ꯄꯗ꯭ꯔꯤꯌꯗ, ꯍꯥꯏꯕꯗꯤ ꯑꯗꯨꯅꯥ ꯊꯥꯕꯗꯤ, ꯍꯣꯖꯤꯛꯇꯤ ꯅꯍꯖꯔꯒꯤ ꯑꯣꯄꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯒꯤ ꯀꯑꯣꯅꯍꯃꯤꯗ

ꯑꯃꯤ ꯅ-ꯃꯇꯁꯄ ꯍꯦꯟꯕꯒꯤ ꯍꯤꯡꯕꯗ ꯃꯁꯅ (ꯃꯇꯧ 2)꯫ ꯌꯥꯝꯕ ꯕꯃꯤꯗꯦ ꯒꯇꯨꯍꯒꯤꯗꯍꯤ ꯍꯊꯃꯑꯣ ꯄꯤꯗꯤꯕ ꯍꯗꯍ, ꯆꯍꯤ 2-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡꯖꯨꯃꯒꯤ ꯌꯥꯝꯅ ꯄꯔꯕ ꯑꯃꯁꯨꯡ ꯁꯍꯍꯤ: ꯍꯥꯏꯕꯗꯤ ꯑꯃꯤꯒꯤ ꯍꯣꯍ ꯅꯗꯒꯤ ꯆꯍꯤ 2-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡꯊ ꯑꯃꯤ ꯑꯣꯏꯄꯤꯃꯁꯦꯟ ꯃꯍꯗ 85 mm ꯑꯃꯁꯨꯡ ꯃꯇꯁꯄꯁꯦꯟ ꯆꯤꯡꯒꯤꯗ ꯑꯃꯁꯨꯡ ꯇꯗꯤꯕꯍ ꯄ꯭ꯇꯦꯗ 130 mm-ꯇꯤ (ꯁ꯭ꯇꯇ 2.3.6(c)), ꯍꯣꯍꯒꯤ ꯌꯥꯍꯦ ꯍꯤꯕ ꯍꯣꯍꯗ AMC III ꯃꯕ ꯃꯅꯔ ꯄ꯭ꯔꯨꯄ D-ꯒꯤ ꯃꯍꯅꯗ (ꯃꯇꯧ 3), ꯍꯗꯍ ꯑꯃꯁꯨꯡꯗꯦ 250 m³/ha ꯃꯔꯣꯏꯗꯦ ꯆꯍꯤ 2-ꯒꯤ ꯅꯣꯡꯖꯦꯟꯗꯦ ꯍꯣꯍ ꯌꯥꯍꯦ ꯃꯣꯏꯄꯥꯕꯗꯤ (NEER-ꯒꯤ ꯄꯤꯕ); ꯁ꯭ꯇꯇ 8.12.3(c)-ꯒꯤ ꯗꯔ ꯑꯃꯤ ꯍꯖꯍ ꯈꯨꯗꯤꯡꯗ ꯄꯨꯗꯄꯣꯏꯗꯦ ꯊꯍꯗꯤ꯫ ꯍꯗꯤꯄ꯭ꯔꯖꯗ ꯁ꯭ꯇꯇ 8.12-ꯒꯤ ꯍꯅꯗ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯂꯣꯗ ꯃꯔꯣꯏꯗꯤ ꯑꯣꯏꯗꯄ ꯑꯃꯍꯒꯤ ꯑꯣꯏꯅꯔꯇꯔ ꯑꯃꯤ ꯃꯅꯦ ꯑꯣꯏꯗꯕ ꯅꯨꯕꯦ ꯃꯔꯣꯏꯗꯤ ꯌꯥꯔꯣꯄ ꯌꯥꯃꯔ ꯑꯃꯍꯗ ꯊꯗꯃꯅ ꯑꯃꯁꯨꯡ ꯑꯗꯗꯨꯗꯨ ꯃꯨꯊꯁꯄ ꯃꯣꯕ ꯃꯇ꯭ꯄ ꯑꯃꯍꯗ ꯃꯔꯣꯏ; ꯁ꯭ꯇꯇ 4.11-ꯗꯦ ꯅꯦꯖꯤꯔꯑꯣꯗꯃꯦ ꯊꯤꯇꯤꯕ ꯍꯖꯍꯗ, ꯍꯣꯗ ꯑꯣꯏꯄꯤꯃꯁꯦꯟ ꯃꯍ ꯄꯨꯍꯃꯍꯤ ꯑꯃꯁꯨꯡ 10°-ꯗꯒꯤ ꯄꯦꯕꯗꯦ ꯑꯊꯍꯕ ꯃꯇ꯭ꯄ ꯈꯨꯗꯤꯡꯍꯤ ꯌꯥꯍꯟꯅ, ꯁꯦꯗꯤꯃꯦꯟꯇ ꯕꯃꯤꯗꯦ ꯃꯔꯣꯏꯗꯤ ꯑꯣꯏꯗꯄ ꯑꯃꯔꯑꯣ ꯅꯦꯖꯤꯔꯑꯣꯗꯃꯔ ꯑꯣꯃꯕ ꯗꯤꯃꯅꯦ ꯑꯣꯗ; ꯍꯅꯔ ꯑꯃꯍꯗꯒꯤ ꯃꯍꯅ, ꯃꯍꯧ ꯃꯔꯣꯏꯗꯤ ꯗꯕꯗꯤꯃ ꯑꯃꯔꯑꯣ ꯄꯔ, ꯄ꯭ꯔꯅꯗꯤ, ꯁꯗꯔ, ꯅꯕ ꯃꯔꯣꯏꯗꯤ ꯃꯄꯗꯒꯤ ꯌꯥꯃꯔ ꯑꯃꯍꯗ, ꯍꯣꯗꯒꯤ ꯃꯦ 1-ꯒꯤ ꯍꯨꯕꯗ, ꯁꯗꯔꯒꯤ ꯄꯦ ꯑꯃꯍꯗ, ꯃꯔꯣꯏꯗꯤ ꯃꯇꯧꯇꯁꯦꯟ 236.21 km²-ꯒꯤ ꯍꯨꯕꯗ ꯊꯍꯗ; ꯑꯃꯁꯨꯡ ꯑꯣꯏꯄꯤꯃꯁꯦꯟ ꯆꯤꯡꯒꯤ ꯍꯗꯤꯅꯣ ꯃꯕ ꯃꯅꯔ ꯑꯃꯗꯦ ꯍꯣꯗꯒꯤ ꯅꯕꯦ ꯃꯔꯣꯏꯗꯤ ꯅꯗꯤꯗ ꯑꯣꯏꯄꯤꯃꯁꯦꯟ ꯃꯍꯗ ꯌꯕ ꯍꯖꯍꯗ (ꯁ꯭ꯇꯇ 6.3.6(m)), ꯅꯕꯦ ꯑꯃꯔꯑꯣꯗꯦ ꯄꯤꯔ, ꯁꯗꯔ ꯃꯔꯣꯏꯗꯤ ꯃꯇꯧꯇꯧ ꯌꯥꯗ꯭ꯔꯤꯌꯗ, ꯍꯣꯗꯒꯤ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯑꯃꯤ ꯃꯗꯔ ꯁꯗꯄ ꯑꯃꯍꯒꯤ ꯍꯁꯨꯕꯗ ꯊꯍꯍꯤ꯫

8.13 ꯃꯣꯅꯤꯇꯔꯤꯡ

8.13.1 **ꯑꯦꯖꯕꯤꯜꯠ ꯃꯣꯅꯤꯇꯔꯤꯡ.** ꯇꯤꯌꯔ A ꯑꯦꯛꯇꯤꯚꯤꯇꯤ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯍꯧꯔꯤꯕ ꯊꯧꯗꯣꯛꯀꯤ ꯃꯇꯨꯡꯗꯥ ꯂꯣꯔꯤꯕꯒꯤ ꯑꯦꯖꯕꯤꯜꯠꯀꯤ ꯃꯃꯤ ꯂꯧꯔꯛ ꯌꯥꯎ ꯑꯃꯁꯨꯡ, ꯗꯤꯖꯥꯏꯟ ꯍꯧꯔꯤꯕꯒꯤ ꯁꯨꯞꯔꯤ ꯅꯍꯥꯛ ꯅꯤꯡꯊꯧ ꯇꯧꯕ ꯃꯌꯥꯝꯗ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ ꯑꯦꯖꯕꯤꯜꯠ ꯄꯨꯝꯅꯃꯛ ꯈꯨꯗꯣꯡ, ꯍꯧꯔꯤꯕꯒꯤ ꯁꯦꯡꯅꯤꯡ ꯃꯣꯅꯤꯇꯔ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯃꯣꯅꯤꯇꯔꯤꯡꯗ ꯃꯈꯥꯒꯤ ꯈꯖꯥꯒꯗꯕꯅꯤ:

- (a) ꯅꯤꯡ ꯄꯨꯟꯕ ꯃꯇꯝꯒꯤ ꯂꯩꯃꯍꯧꯅꯤꯡ (ꯁꯦꯛꯁꯟ 8.9.4), ꯃꯦꯂꯦꯗꯒꯤ ꯃꯃꯤꯡꯗ ꯌꯥꯑꯣ ꯑꯃꯗ ꯄꯨꯊꯍꯕꯒꯤ ꯅꯩꯃꯕꯗ ꯑꯃꯨ; ꯑꯃꯁꯨꯡ
- (b) ꯍꯦꯅꯒꯠꯂ ꯑꯦꯖꯕꯤꯜꯠꯂꯤꯡꯒꯤ ꯂꯣꯌ ꯑꯃꯗ ꯃꯦꯂꯦꯗ ꯄꯨꯝꯅꯗ ꯄꯨꯊꯍꯕꯒꯤ ꯅꯩꯃꯕꯗ ꯍꯌꯦꯍꯣ ꯑꯄꯨꯝꯒꯤ ꯅꯤꯡ ꯄꯨꯟꯕ ꯃꯇꯝꯒꯤ ꯂꯩꯃꯍꯧꯅꯤꯡ꯫

8.13.2 **ꯀꯣꯐꯃꯤꯇꯔꯤꯡꯂꯤꯡ.** ꯄꯨꯊꯍꯕꯒꯤ ꯅꯩꯃꯕꯗ: TSS, BOD, COD, ꯈꯤꯁꯣꯟ ꯁꯦꯅꯤꯈꯦꯐꯃ, ꯇꯣꯇꯣꯟ ꯅꯥꯏꯇꯔꯣꯖꯦꯟ, ꯇꯣꯇꯣꯟ ꯐꯣꯁꯐꯣꯔꯁ, ꯑꯦꯍꯟ ꯑꯃꯁꯨꯡ ꯒꯔꯤꯖ, ꯑꯃꯁꯨꯡ, ꯍꯦꯚꯤ ꯃꯦꯇꯦꯜꯁꯤꯡ, ꯄꯦꯁꯇꯤꯁꯥꯏꯗ ꯃꯣꯟꯂꯤꯡ꯫ ꯃꯇꯝ ꯑꯃꯗ ꯍꯧꯔꯤꯡ ꯊꯥꯗꯣꯛ ꯍꯧꯔꯤꯡ ꯊꯦꯛ ꯑꯣꯏꯗ ꯁꯣꯅꯒꯤ ꯇꯥꯀꯄ ꯄꯨꯊꯍꯕꯒꯤ ꯈꯕ ꯂꯦꯅꯒꯦꯕꯁꯤꯡ CPCB-ꯒꯤ ꯍꯧꯔꯤꯕꯒꯤ ꯁꯦꯡꯅꯤꯡꯒꯤ ꯁꯦꯝꯅꯣꯔꯤꯡꯂꯤꯡ ꯅꯤꯡꯊꯧꯅꯒꯗꯕꯅꯤ꯫

8.13.3 **ꯒꯣꯟ ꯀꯔꯣꯁꯣꯚꯥꯕ ꯃꯣꯁꯦꯟꯂꯤꯡ.** ꯂꯣꯡꯅꯁꯦꯀ ꯄꯨꯝꯅꯗ GPT ꯑꯃꯁꯨꯡ ꯂꯁꯦꯃꯤꯡ ꯄꯨꯝꯅꯃꯛꯇꯒꯤ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯃꯅꯥꯡꯕ ꯃꯣꯟ ꯅꯥꯎꯃꯥ ꯒꯩꯗ ꯑꯃꯗ O&M ꯃꯣꯁꯦꯟꯂꯤꯡꯗ ꯃꯣꯁꯦꯟꯗ ꯇꯧꯒꯗꯕꯅꯤ (ꯂꯃꯥ 10)꯫

8.13.4 **BMP-ꯒꯤ ꯀꯃꯈꯦꯍꯦꯟ ꯃꯣꯅꯤꯇꯔꯤꯡ.** ꯂꯩꯌꯥꯎ ꯅꯤꯡꯒꯤ ꯍꯧꯔꯤꯡꯒꯤ ꯇꯣꯡꯅꯤꯁꯣꯟ ꯁꯃꯤꯇꯤꯗ (State Stormwater Technical Committee) BMP-ꯒꯤ ꯀꯃꯈꯦꯍꯦꯟ ꯁꯣꯅꯤꯕꯃꯣꯂꯦ ꯀꯃꯥꯒꯥꯃ ꯑꯃꯃ ꯌꯗꯍꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯃꯇꯂꯤꯡꯕꯒꯤ ꯇꯣꯕꯟ 8.3 ꯑꯃꯁꯨꯡ ꯑꯇꯣꯡꯕ 8C ꯃꯤꯒꯍꯅ ꯇꯧꯒꯗꯕꯅꯤ꯫

8.13.5 **ꯈꯪꯕꯦꯝꯀ.** ꯃꯣꯅꯤꯇꯔꯤꯡꯒꯤ ꯃꯇꯂꯤꯡ ꯑꯂꯤ ꯁꯦꯛꯁꯟ 10.17-ꯒꯤ ꯃꯣꯅꯤꯂꯣꯃꯗ ꯈꯪꯕꯦꯡꯁꯕꯗꯅꯤ꯫

> **ꯂꯦꯕꯦꯜ ꯇꯥꯀꯄ.** ꯃꯣꯁꯨꯌꯣꯟ ꯑꯂꯤꯒꯤꯗꯃꯥ ꯃꯤꯂꯃꯌ ꯇꯥꯃꯤꯐꯗ ꯅꯥꯡꯒꯤ ꯍꯧꯔꯤꯕꯒꯤ ꯁꯦꯡꯅꯤꯡ ꯃꯣꯅꯤꯇꯔꯤꯡꯒꯤ ꯃꯅꯤꯀꯨꯃꯒꯤ ꯀꯃꯥꯒꯥꯃ ꯑꯃꯕꯇꯥ ꯈꯪꯍꯅꯤꯗꯣ, ꯑꯃꯁꯨꯡ CPHEEO (2019)-ꯗ ꯍꯦꯗꯤꯌꯤꯒꯤ ꯇꯃꯒꯥꯎ ꯑꯃꯕꯇꯥ ꯗꯝꯗꯣ꯫ ꯁꯦꯛꯁꯟ 8.13-ꯒꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ ꯑꯂꯤ ꯇꯣꯕꯟ 8.3 ꯁꯣꯅꯤꯕꯃꯣꯌ ꯇꯧꯅꯕ ꯑꯃꯁꯨꯡ DWF ꯍꯦꯇꯃꯂꯣꯀꯂꯦ ꯑꯃꯁꯨꯡ ꯌꯥꯃꯗꯈꯝ ꯊꯥꯗꯣꯛꯀꯗ ꯗꯕꯗ ꯇꯥꯃꯤꯕꯃꯥ ꯖꯤꯅꯕ ꯃꯗꯥ ꯇꯣꯕ ꯄꯨꯊꯍꯕꯒꯤ ꯅꯩꯃꯕꯅꯤ꯫ ꯀꯣꯐꯃꯤꯇꯔꯤꯡꯒꯤ ꯅꯤꯂꯣꯌ ꯑꯂꯤ CPHEEO-ꯒꯤ WSUD ꯀꯃꯥꯂꯤꯅꯃꯗ ꯃꯃꯤꯡ ꯊꯥꯗꯣꯛ ꯃꯃꯥꯑꯦꯍꯕ ꯀꯔꯣꯁꯣꯚꯥꯂꯤꯡ (TSS, ꯅꯥꯏꯇꯔꯣꯖꯦꯟ, ꯐꯣꯁꯐꯣꯔꯁ ꯑꯃꯁꯨꯡ ꯒꯣꯟ ꯀꯔꯣꯁꯣꯚꯥꯂꯤꯡ) ꯃꯇꯨꯡ ꯍꯦꯅꯗ, ꯂꯤꯌꯣꯅꯗ ꯃꯌꯣꯕꯗ ꯃꯃꯍ ꯑꯍꯟꯗ BOD ꯑꯃꯁꯨꯡ ꯈꯤꯁꯣꯟ ꯁꯦꯅꯤꯈꯦꯐꯃ ꯑꯀꯌꯤꯅꯗꯒꯅꯤ꯫ ꯃꯣꯅꯤꯇꯔꯤꯡꯒꯤ ꯈꯃꯤꯡꯌꯥꯎꯕꯂꯤꯡ ꯑꯂꯤ ꯃꯣꯁꯨꯌꯣꯟ ꯑꯂꯤꯗ ꯗꯃꯗꯅꯤ꯫

8.14 ꯂꯗꯃꯤꯇꯣꯟꯒꯤ ꯃꯗꯧ ꯇꯧꯗꯂꯤꯡ

ꯂꯃꯥ ꯑꯂꯤꯒꯤ ꯃꯈꯥꯗ ꯍꯃꯃꯒꯤ ꯃꯤꯀꯦꯃꯌ ꯄꯨꯝꯅꯃꯛꯇ ꯃꯈꯥꯒꯤꯂꯤꯡ ꯈꯖꯥꯒꯗꯕꯅꯤ:

1. **ꯍꯧꯔꯤꯡꯒꯤ ꯁꯦꯡꯅꯤꯡꯒꯤ ꯂꯤꯌ (ꯈꯦꯃꯃ 8-1)**: P_ret, P_3m ꯑꯃꯁꯨꯡ P_wq; ꯍꯃꯃ ꯑꯣꯃꯤꯅꯤ ꯄꯨꯝꯅꯃꯛꯇꯥꯕ WQv ꯑꯃꯁꯨꯡ Q_wq; ꯂꯃꯥ 4-ꯒꯤ ꯃꯈꯥꯗ ꯗꯃꯅꯤꯟꯅꯗ ꯒꯦꯖꯃ; ꯑꯃꯁꯨꯡ ꯑꯣꯃꯤꯅꯤ ꯄꯨꯝꯅꯃꯛꯇ ꯂꯣꯕ ꯀꯤꯃꯤꯕ BMP;
2. ꯇꯤꯌꯔ A-ꯒꯤꯗꯃꯥ: LoS ꯁꯣꯟꯁꯦꯅꯣꯂꯦ (ΔCN, ꯃꯗꯧ ꯇꯧꯕ LoS) ꯑꯃꯁꯨꯡ ꯁꯃꯀꯦꯅꯤꯌ VR (ꯁꯦꯛꯁꯟ 8.6);
3. ꯁꯦꯛꯁꯟ 8.7 ꯑꯃꯁꯨꯡ ꯑꯇꯣꯡꯕ 8D ꯃꯇꯨꯡ ꯍꯦꯅ BMP ꯄꯨꯝꯅꯃꯛꯇꯥꯕ ꯁꯤꯗꯍꯦ, ꯀꯃꯤ-ꯇꯃꯤꯌꯃꯣꯚꯌꯒ ꯅꯔꯅꯅ;
4. ꯍꯦꯈꯤꯟꯇꯃꯣꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯦꯃꯅꯕꯤꯗꯃꯥ: **ꯍꯦꯈꯤꯟꯇꯃꯣꯂꯦ ꯇꯣꯂꯌꯕꯤ ꯃꯣꯁꯦꯟꯗ (ꯈꯦꯃꯃ 8-2)**, ꯂꯤꯅꯣꯟ ꯑꯍ ꯒꯦꯖꯦꯗꯤꯅꯤꯇꯃ ꯅꯒꯣꯟ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯑꯃꯥꯈꯃ, ꯁꯤꯗꯍꯦ ꯃꯣꯌ, ꯁꯃꯥꯁꯦꯖꯦ ꯃꯇꯃ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 8.8.6-ꯒꯤ ꯂꯣꯌꯗꯣꯥꯂꯤꯡ;
5. ꯂꯤꯅꯣꯟ ꯑꯃꯁꯨꯡ ꯄꯨꯃꯒꯤ ꯃꯌꯀ ꯍꯧꯔꯤꯡꯒꯤ ꯁꯅꯣꯥꯂꯦ ꯀꯅꯦꯍꯦ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 8.9.2-ꯒꯤ ꯁꯍ ꯅꯌꯃꯒ ꯃꯊꯨꯒꯤ ꯇꯣꯂꯌꯕꯤ ꯃꯣꯁꯦꯟꯗ;
6. ꯍꯧꯔꯤꯡ ꯊꯥꯗꯣꯛ ꯑꯃꯗ ꯃꯇꯨꯡ ꯑꯦꯖꯕꯤꯜꯠ ꯄꯨꯝꯅꯃꯛꯇꯥꯕ GPT ꯑꯃꯁꯨꯡ ꯈꯃꯂꯌ-ꯈꯅꯂ ꯁꯤꯗꯍꯦ (ꯁꯦꯛꯁꯟ 8.10);
7. ꯍꯃꯅꯤꯍꯦꯗ, ꯃꯤꯇꯦꯃꯅ ꯑꯃꯁꯨꯡ ꯁꯤꯇꯣꯍꯦꯂꯦ ꯇꯣꯖꯦꯗ ꯗꯃꯁꯗ RWH ꯅꯣꯑꯦꯖꯌ (ꯁꯦꯛꯁꯟ 8.11); ꯑꯃꯁꯨꯡ
8. ESC ꯀꯅꯦꯍꯦ (ꯁꯦꯛꯁꯟ 8.12)꯫

8.15 ꯗꯤꯖꯤꯇꯜ ꯋꯈꯜꯂꯣꯟ ꯋꯄꯈꯪꯁ

8.15.1 ꯃꯇꯨꯡ ꯋꯃꯤ ꯈꯪꯂꯨꯔꯪꯅ ꯄꯨꯐꯕꯒꯦ ꯆꯩꯔꯆꯦ ꯗꯤꯖꯤꯇꯜ ꯁꯣꯒꯗꯕꯆꯤ (ꯃꯇꯨꯡ 1)꯫ ꯁꯪꯕꯅ 8.3 ꯋꯃꯤ ꯊꯆꯩꯆ 8.13.4-ꯒꯤ ꯊꯪꯆꯤꯕꯗꯪꯃꯟ ꯄꯗꯩꯒꯗꯩꯐꯆꯦ ꯗꯤꯄꯩꯗꯦ ꯁꯣꯗꯕꯦ ꯈꯁꯐꯗꯂ, ꯋꯈꯜꯂꯣꯟ ꯊꯗꯤꯒꯨꯐꯕ ꯈꯋꯩꯟ ꯍꯗꯤꯟꯗ ꯆꯩꯁꯤꯍꯤꯊꯪꯃꯟꯒꯤ ꯌꯔꯤ 5-ꯒꯤ ꯈꯂꯟꯗ ꯗꯤꯖꯤꯇꯜ ꯁꯣꯒꯗꯕꯆꯤ꯫

ꯍꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- MoHUA / CPHEEO (2019). Manual on Storm Water Drainage Systems, Part A: Engineering Design (§9.5, Ch. 10). https://web.archive.org/web/2024/https://mohua.gov.in/upload/uploadfiles/files/VolumeI-Part%20A-Engineering-Design.pdf
- Mid-America Regional Council and Kansas City Metro Chapter APWA (2012). Manual of Best Management Practices for Stormwater Quality (Tables 4.2–4.6). https://www.marc.org/sites/default/files/2022-05/Best_Management_Practices_for_Stormwater_Quality.pdf
- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01; MARC factsheet and Supplement. https://www.marc.org/document/apwa-5600-manual-factsheet ; https://www.marc.org/document/apwa-stormwater-standards-supplement
- Atlanta Regional Commission / Georgia EPD (2016). Georgia Stormwater Management Manual, 2016 Edition, Vols 1–2. https://documents.atlantaregional.com/gastormwater/GSMM_2016%20EDITION_FINAL_V1.pdf
- Department of Irrigation and Drainage Malaysia (2012). Urban Stormwater Management Manual for Malaysia (MSMA), 2nd Edition. https://did.sarawak.gov.my/web/attachment/show/?docid=clRsMlRycU1lNnFRcnl3eDZnNkJMdz09OjpY0au0UPvQ9zUHVWRMbCKX
- Department of Irrigation and Drainage Malaysia (2008). Submission Checklist for Stormwater Management. https://www.water.gov.my/jps/resources/auto%20download%20images/5844dfbba8fc1.pdf
- CIRIA (2015). The SuDS Manual (C753). London: CIRIA.
- PUB, Singapore's National Water Agency. Active, Beautiful, Clean Waters Design Guidelines (ꯍꯧꯖꯤꯛꯀꯤ ꯑꯦꯗꯤꯁꯟ).
- Central Ground Water Board (2007). Manual on Artificial Recharge of Ground Water. Ministry of Water Resources, Government of India.
- US Environmental Protection Agency (2022). NPDES Construction General Permit (ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯟꯒꯤ ꯁꯥꯏꯖ ꯂꯦꯄꯄ).
- ASTM D3385. Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer.
- BRE Digest 365. Soakaway Design. Building Research Establishment, UK.
- Government of Manipur, MAHUD. *The Model Manipur Unified Building Bye-Laws, 2024*, Manipur Gazette Extraordinary No. 253 of 5 December 2024, ꯕꯥꯏ-ꯂꯥꯖ 6(1)(A), 6(1)(C)(j), 27, 28, 66, 67 ꯑꯃꯁꯨꯡ 68, ꯀꯝꯞ꯭ꯂꯤꯁꯟ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯤꯟ-ꯕꯤꯜꯗꯤꯡ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥꯁꯤꯡ [TBC: ꯂꯣꯀꯜ ꯕꯣꯗꯤꯅꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯕꯥꯏ-ꯂꯥꯖꯇ ꯅꯝꯕꯔ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯁꯇ ꯆꯦꯛ ꯇꯧꯒꯗꯕꯅꯤ]; ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯥꯐꯠ *IMC Building Bye-Laws (3rd Amendment), 2024*, ꯕꯥꯏ-ꯂꯥꯖ 92.1 ꯑꯃꯁꯨꯡ 92.2 (ꯁꯔꯨꯛ 7-ꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ).
- Government of Manipur. *Manipur Loktak Lake (Protection) Act, 2006*, ꯁꯦꯛꯁꯟ 2, 19 ꯑꯃꯁꯨꯡ 20 (ꯁꯔꯨꯛ 7-ꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ).
- Government of Manipur. Reports to the National Green Tribunal in O.A. 606/2018 (ꯖꯨꯂꯥꯏ 2025 ꯑꯃꯁꯨꯡ ꯗꯤꯁꯦꯝꯕꯔ 2025) (ꯁꯔꯨꯛ 7-ꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ).
- Central Pollution Control Board (2025). *Polluted River Stretches for Restoration of Water Quality* (ꯄ꯭ꯔꯨꯌꯦꯔꯤ ꯇꯥꯂꯨꯁꯟ ꯀꯦꯟꯗ꯭ꯔꯥꯅ ꯀꯐꯤꯇꯤꯂꯥ ꯇꯥꯂ꯭ꯌ ꯇꯧꯔꯕ ꯀꯥꯖꯤ), https://dste.py.gov.in/ppcc/pdf/Laboratory/PRS-2025.pdf
- Government of Manipur, MAHUD. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, Physical Infrastructure (water supply and sewerage) (ꯁꯔꯨꯛ 7-ꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ).
- New Development Bank (2021). *Proposed Project Summary: Lamphelpat Waterbody Rejuvenation Project* (ꯁꯔꯨꯛ 7-ꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ).
- Central Ground Water Board, North Eastern Region (2013). *Ground Water Information Booklets*, Imphal West and Bishnupur (ꯁꯔꯨꯛ 7-ꯒꯤ ꯍꯧꯔꯛꯐꯝꯁꯤꯡ); ꯑꯃꯁꯨꯡ 2023 ꯑꯃꯁꯨꯡ 2024-ꯒꯤ ground water resource assessments (GWRA) (ꯀꯥꯌꯇꯤꯕ ꯍꯣꯠꯅꯕ ꯇꯧꯖ; ꯇꯥꯇꯤꯅꯕ), https://cgwb.gov.in/cgwbpnm/publication-detail/1535

- Manipur Science and Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley* (ꯁꯔꯨꯛ 7-ꯒꯤ ꯀꯧꯔꯛꯂꯞꯁꯤꯡ).
- India Meteorological Department. *Extremes of Temperature and Rainfall for Indian Stations (up to 2012)*, Imphal (Tulihal) (A) (ꯁꯔꯨꯛ 2-ꯒꯤ ꯀꯧꯔꯛꯂꯞꯁꯤꯡ).
- Government of Manipur, Directorate of Environment and Climate Change. *Administrative Report 2025-26* (Manipur Ground Water (Control & Regulation) Policy, 2023, ꯀꯤꯁꯨꯋ ꯍꯧꯂꯕ ꯃꯍꯨꯄ ꯅꯑꯆ) (ꯁꯔꯨꯛ 7-ꯒꯤ ꯀꯧꯔꯛꯂꯞꯁꯤꯡ).
- ꯆꯨꯋ 2022-ꯗ ꯍꯨꯄꯨꯅꯗ ꯖꯦꯛꯅꯤꯕ ꯇꯥꯋꯗꯁꯨꯇꯦꯅꯗꯡꯤ ꯂꯤꯄꯦꯂꯆꯁꯤꯡ (ꯑꯆꯤꯁꯨꯕ ꯍꯧꯂꯛꯃꯞ; ꯁꯔꯨꯛ 2-ꯒꯤ ꯀꯧꯔꯛꯂꯞꯁꯤꯡ).
- Parliament reply AU1419 on AMRUT 2.0 admissible components. https://eparlib.sansad.in/bitstream/123456789/2988692/1/AU1419_tzClvw.pdf

ꯑꯍꯥꯒꯕ ꯑꯃꯁꯨꯡ ꯂꯦꯔꯞꯁꯤꯡ

ꯑꯍꯥꯒꯕ / ꯂꯦꯔꯞ	ꯑꯍꯦꯞꯂꯕ
8A	ꯇꯦꯋ ꯞꯍꯨꯡ ꯅꯋꯆ 3-ꯗꯒꯤ ARI ꯄꯨꯡ 24-ꯒꯤ ꯗꯥꯄꯊ ꯑꯃꯁꯨꯡ IDF
8B	ꯔꯤꯗꯥꯅꯥꯆꯄꯞꯥꯋꯆꯡꯤ LoS ꯍꯥꯕꯇ ꯑꯃꯁꯨꯡ ꯍꯨꯔꯤꯆꯞꯥꯋꯆ-ꯍꯨꯔꯥꯋꯒꯤ ꯡꯞꯄꯦꯆꯤꯆ VR
8C	ꯞꯆꯤꯄꯨꯔꯒꯤ BMP ꯄꯔꯂꯦꯞꯥꯋꯂ ꯡꯥꯆꯤꯕꯨꯔꯥꯂꯋ
8D	BMP ꯗꯤꯆꯦꯅꯋ ꯂꯤꯆꯂꯤꯡ, ꯞꯤꯗꯤꯍꯦꯒꯤ ꯂꯨꯄꯥꯂꯤꯂꯤꯡꯥꯂꯋ, ꯄꯦꯕꯕꯤꯒꯤ ꯆꯤꯂꯨꯆꯂꯤꯡ
8E	ꯅꯔꯦꯇꯋ ꯑꯃꯁꯨꯡ ꯂꯥꯗꯤꯞꯥꯋꯆ ꯡꯋꯍꯨꯔꯦꯇꯒꯤ ꯂꯨꯍꯥꯋꯗꯔꯗ ꯗꯤꯍꯥꯇꯂꯤꯡ
ꯂꯦꯔꯞ 8-1	ꯅꯂꯤꯡꯒꯤ ꯡꯨꯍꯦꯆꯤꯍꯤꯒꯤ ꯂꯤꯆ
ꯂꯦꯔꯞ 8-2	ꯅꯋꯂꯤꯇꯍꯨꯔꯥꯂꯋ ꯍꯥꯂꯨꯆꯡꯤ ꯔꯥꯡꯦꯔꯗ

ꯑꯙ꯭ꯌꯥꯌ 9

ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯁꯤꯖꯤꯟꯅꯕ

9.1 ꯁ꯭ꯀꯣꯞ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯗꯝ

9.1.1 ꯑꯙ꯭ꯌꯥꯌ ꯑꯁꯤꯅ ꯍꯥꯏꯗꯔ ꯑꯃꯁꯨꯡ ꯍꯤꯇꯔ ꯀꯟꯚꯦꯌꯥꯟꯁ (ꯑꯙ꯭ꯌꯥꯌ 6), ꯔꯤꯇꯦꯟꯁꯟ (retention) ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡꯗꯥ (ꯑꯙ꯭ꯌꯥꯌ 4), ꯑꯥꯎꯠꯐꯣꯂꯁꯤꯡꯗꯥ (outfall) (ꯑꯙ꯭ꯌꯥꯌ 5) ꯑꯃꯁꯨꯡ ꯅꯀꯥꯏ ꯆꯦꯅꯦꯂꯁꯤꯡꯗꯥ (ꯑꯙ꯭ꯌꯥꯌ 7) ꯁꯤꯖꯤꯟꯅꯕ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤ (structure) ꯗꯤꯖꯥꯏꯟ ꯁꯤꯖꯤꯟꯅꯕ ꯊꯧꯑꯣꯡꯁꯤꯡ ꯌꯥꯎꯔꯤ꯫ ꯃꯁꯤꯗꯥ ꯃꯈꯥꯒꯤ ꯑꯁꯤꯁꯤꯡ ꯌꯥꯎꯏ:

- (a) ꯕꯣꯛꯁ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯞ ꯗ꯭ꯔꯦꯅꯁꯤꯡ (box drain) (ꯁꯦꯛꯁꯟ 9.3);
- (b) ꯀꯂꯚꯔꯠꯁꯤꯡ (culvert) (ꯁꯦꯛꯁꯟ 9.4);
- (c) ꯑꯣꯄꯟ ꯆꯦꯅꯦꯂꯁꯤꯡ (open channel) (ꯁꯦꯛꯁꯟ 9.5);
- (d) ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔꯁꯤꯡ (energy dissipator), ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ (outlet protection) ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯣꯞ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡ (drop structure) (ꯁꯦꯛꯁꯟ 9.6);
- (e) ꯗꯤꯇꯦꯟꯁꯅꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡ (ꯁꯦꯛꯁꯟ 9.7);
- (f) ꯇ꯭ꯔꯦꯁ ꯔꯦꯛꯁꯤꯡ (trash rack) ꯑꯃꯁꯨꯡ ꯁ꯭ꯛꯔꯤꯅꯁꯤꯡ (screen) (ꯁꯦꯛꯁꯟ 9.8);
- (g) ꯁꯝꯞꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯠꯁꯤꯡ (sump) (ꯁꯦꯛꯁꯟ 9.9);
- (h) ꯇꯥꯏꯗ ꯒꯦꯠꯁꯤꯡ (tide gate), ꯐ꯭ꯂꯦꯞ ꯒꯦꯠꯁꯤꯡ (flap gate) ꯑꯃꯁꯨꯡ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯚꯁꯤꯡ (non-return valve) (ꯁꯦꯛꯁꯟ 9.10);
- (i) ꯏꯟꯂꯦꯠꯁꯤꯡ (inlet) ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯇꯤꯡꯁꯤꯡ (grating) (ꯁꯦꯛꯁꯟ 9.11);
- (j) ꯃꯦꯅꯍꯣꯂꯁꯤꯡ (manhole), ꯖꯪꯀꯁꯟ ꯆꯦꯝꯕꯔꯁꯤꯡ (junction chamber) ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ (access) (ꯁꯦꯛꯁꯟ 9.12); ꯑꯃꯁꯨꯡ
- (k) ꯑꯦꯛꯁꯄꯣꯖꯔꯒꯤ ꯃꯇꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯂꯥꯏꯐꯒꯤ ꯑꯦꯛꯁꯄꯣꯖꯔ (exposure) ꯂꯧꯗꯨꯅ, ꯃꯦꯇꯦꯔꯤꯌꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯥꯕꯤꯂꯤꯇꯤ (durability) (ꯁꯦꯛꯁꯟ 9.13)꯫

9.1.2 **ꯁ꯭ꯠꯔꯛꯆꯔꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯃꯦꯇꯦꯔꯤꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯑꯦꯞꯂꯤꯀꯦꯕꯜ ꯃꯥꯂꯦꯃꯒꯤ ꯀꯣꯗꯁꯤꯡ ꯃꯈꯥ ꯇꯥꯅ ꯇꯧꯒꯗꯕꯅꯤ꯫** ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡ ꯑꯁꯤ ꯂꯩꯔꯤꯕ ꯏꯟꯗꯤꯌꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ (Indian Standards) ꯑꯃꯁꯨꯡ IRC ꯀꯣꯗꯁꯤꯡ ꯃꯈꯥ ꯇꯥꯅ ꯁ꯭ꯠꯔꯛꯆꯔꯦꯜ ꯑꯣꯏꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ, ꯈꯨꯗꯝ ꯑꯣꯏꯅ IS 456 (ꯄ꯭ꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯏꯟꯐꯣꯔꯁꯗ ꯀꯪꯀ꯭ꯔꯤꯠ), IS 458 (ꯀꯪꯀ꯭ꯔꯤꯠ ꯄꯥꯏꯄꯁꯤꯡ), IRC:SP:13 (ꯁ꯭ꯃꯣꯜ ꯕ꯭ꯔꯤꯖꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯂꯚꯔꯠꯁꯤꯡ) ꯑꯃꯁꯨꯡ IRC-ꯒꯤ ꯃꯔꯤ ꯂꯩꯅꯕ ꯀꯣꯗꯁꯤꯡ꯫ ꯑꯙ꯭ꯌꯥꯌ ꯑꯁꯤꯅ ꯁ꯭ꯠꯔꯛꯆꯔꯦꯜ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯑꯃꯈꯛ ꯔꯤꯄꯤꯠ ꯇꯧꯗꯦ, ꯃꯁꯤ ꯗ꯭ꯌꯨꯔꯥꯕꯤꯂꯤꯇꯤꯒꯤ ꯃꯇꯥꯡꯗ (ꯁꯦꯛꯁꯟ 9.13) ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯗꯤꯖꯥꯏꯟ ꯁꯥꯔꯐꯦꯁꯅꯒꯤ ꯃꯇꯥꯡꯗ ꯏꯟꯇꯔꯐꯦꯁꯀꯤ ꯃꯇꯥꯡꯗ ꯌꯥꯎꯏ꯫

9.1.3 ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯁꯤꯡ, ꯗꯤꯖꯥꯏꯟ AEP-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯜ-ꯑꯣꯐ-ꯂꯥꯏꯟ ꯀꯟꯗꯤꯁꯅꯁꯤꯡ ꯑꯁꯤ ꯑꯙ꯭ꯌꯥꯌ 2-ꯗꯒꯤ 7 ꯐꯥꯑꯣꯕꯒꯤ ꯂꯧꯏ꯫ ꯑꯙ꯭ꯌꯥꯌ ꯑꯁꯤꯅ ꯃꯈꯣꯌ ꯗꯨꯄ꯭ꯂꯤꯀꯦꯠ ꯇꯧꯗꯦ꯫

ꯄꯥꯟꯗꯝ ꯑꯣꯏꯕ ꯁꯣꯔꯁ. APWA Section 5600-ꯅ ꯁ꯭ꯠꯔꯛꯆꯔꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯃꯆꯠ ꯃꯇꯃꯒꯤ ꯏꯟꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯍꯣꯂꯁꯤꯡꯒꯤ (5604), ꯀꯂꯚꯔꯠ ꯕꯣꯛꯁ ꯀꯟꯗꯨꯏꯠꯁꯤꯡꯒꯤ (5606), ꯏꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯦꯂꯁꯤꯡꯒꯤ (5607) ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯅꯒꯤ (5608) ꯀꯚꯔ ꯇꯧꯔꯤ꯫ CPHEEO (2019)-ꯅ ꯃꯈꯣꯌ ꯃꯇꯃꯒꯤ ꯆꯦꯞꯇꯔ 5, 6, 8 ꯑꯃꯁꯨꯡ 11-ꯗ ꯆꯦꯛꯇꯥꯏꯔꯤ꯫ ꯑꯙ꯭ꯌꯥꯌ ꯑꯁꯤꯅ ꯃꯈꯣꯌ ꯃꯄꯨꯡ ꯑꯣꯏꯅ ꯍꯟꯗꯣꯛꯂꯤ, ꯑꯃꯁꯨꯡ ꯏꯟꯗꯤꯌꯥꯒꯤ ꯀꯣꯗꯁꯤꯡꯅ ꯃꯐꯝ ꯂꯩꯇꯕ ꯃꯐꯝꯗ ꯐꯤꯕꯝ ꯊꯦꯡꯅꯅꯕ ꯌꯥꯎꯔꯤꯕꯁꯤꯡꯗꯒꯤ US ꯐꯦꯗꯔꯦꯜ ꯍꯥꯏꯋꯦ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯁꯟ (FHWA)-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯂꯁꯤꯡꯗꯥ ꯌꯦꯡꯏ: ꯀꯂꯚꯔꯠꯁꯤꯡꯒꯤꯗꯃꯛ HDS-5, ꯑꯦꯅꯔꯖꯤ

> ꯑꯍꯤꯛꯁꯨꯝꯄꯥꯛꯄꯒꯤꯗꯃꯛ HEC-14, ꯅꯣꯡꯆꯨꯞ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯊꯣꯡ ꯍꯦꯟꯅꯕꯒꯤꯗꯃꯛ HEC-22, ꯑꯃꯁꯨꯡ ꯄꯝꯄꯁꯤꯡ ꯊꯥꯡꯊꯣꯛꯄꯒꯤꯗꯃꯛ HEC-24꯫ ꯃꯁꯤ ꯌꯥꯝꯅ FHWA ꯑꯍꯥꯅꯕꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ 2026 ꯗꯒꯤ FHWA-ꯒꯤ ꯋꯦꯕꯁꯥꯏꯇꯇ ꯆꯦꯛꯁꯤꯟꯅꯕ ꯇꯥꯏ ꯌꯥꯝꯅꯕꯇꯥ꯫

9.2 ꯑꯄꯨꯅꯕ ꯃꯇꯦꯡ ꯌꯥꯕꯒꯤ

9.2.1 **ꯌꯣꯡꯕꯔꯤꯌꯥ.** ꯇꯨꯔꯦꯜ ꯑꯃ, ꯈꯣꯡ (khong) ꯑꯃ, ꯄꯥꯠ (pat; lake or wetland) ꯑꯃ, ꯄꯨꯈ꯭ꯔꯤ (pukhri; pond) ꯑꯃ, ꯗꯦꯝꯌꯥ ꯅꯠꯔꯒꯥ ꯔꯤꯖꯔꯚꯣꯌꯔ (reservoir) ꯑꯃꯗ ꯏꯁꯤꯡ ꯊꯗꯣꯛꯄ, ꯃꯗꯨꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯦꯛꯁꯄꯥꯔꯇꯒꯤ ꯏꯅꯚꯔꯇꯀꯤ (invert) ꯃꯊꯛꯇ ꯂꯩꯔꯤꯕꯅ ꯂꯩꯕ ꯁꯨꯔꯥꯛꯂꯕ ꯇꯥꯗꯤꯡꯃꯛ ꯆꯦꯐꯣꯛ 5-ꯒꯤ ꯌꯣꯡꯕꯔꯤꯌꯥꯒꯤ (tailwater) ꯗꯤꯖꯥꯏꯅꯁꯤꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯦꯛꯁꯄꯔꯇ ꯌꯥꯝꯅꯕꯇꯤ: ꯃꯈꯥꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ ꯁꯤꯁꯨꯝꯖꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯀꯤꯗꯃꯛ ꯁꯦꯛꯁꯟ 5.6-ꯒꯤ ꯌꯥꯝꯅꯤ ꯆꯠꯄꯕ ꯌꯣꯡꯕꯔꯤꯌꯥ; ꯁꯦꯛꯁꯟ 5.8-ꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯕꯦꯛꯋꯥꯇꯔ (backwater), ꯃꯊꯛ ꯊꯪꯕ ꯃꯗꯨꯃꯈ ꯇꯥꯕ ꯁꯔꯨꯛꯃꯕ ꯑꯃ ꯑꯃꯗꯒꯤ ꯊꯗꯣꯛꯄ ꯏꯁꯤꯡ ꯏꯔꯣꯏ ꯂꯩꯔꯦ, ꯇꯨꯗꯃ ꯑꯣꯏꯅ ꯊꯧꯕꯜ ꯇꯨꯔꯦꯂꯗ ꯇꯥꯕ ꯊꯧꯕꯜ (ꯃꯄꯤꯊꯦꯜ, Mapithel) ꯗꯦꯝ, ꯈꯨꯒꯥ ꯇꯨꯔꯦꯂꯗ (Khuga) ꯇꯥꯕ ꯈꯨꯒꯥ ꯗꯦꯝ ꯑꯃꯁꯨꯡ ꯆꯃꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯇꯥꯕ ꯁꯤꯡꯗꯥ ꯗꯦꯝ (Singda dam); ꯏꯁꯤꯡ ꯇꯥꯕ ꯏꯁꯤꯡ ꯑꯗꯨ ꯑꯦꯛꯁꯄꯥꯔꯇꯒꯤ ꯏꯅꯚꯔꯇꯀꯤ ꯃꯊꯛꯇ ꯂꯩꯔꯤꯕꯅ ꯂꯩꯕ ꯃꯇꯝ ꯇꯨꯗꯤꯡꯃꯛꯇ ꯁꯦꯛꯁꯟ 5.10-ꯒꯤ ꯑꯥꯎꯇꯐꯣꯜ ꯊꯤꯡꯕ ꯆꯦꯛ (outfall-closed check), ꯃꯁꯤ ꯃꯍꯧꯁꯥꯅ ꯑꯈꯣꯡꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯕꯤꯁꯤꯡ ꯃꯆꯥꯛꯈꯤꯕꯒꯤ ꯗꯤꯖꯥꯏꯅꯤ: ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ, ꯆꯃꯕꯨꯜ ꯇꯨꯔꯦꯜ, ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ (Iril), ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ (Kongba), ꯊꯧꯕꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯌꯃꯄꯥꯟꯁꯤꯡ ꯑꯌꯥꯝꯄ ꯇꯨꯔꯦꯂꯁꯤꯡꯗ ꯃꯈꯣꯡꯒꯤ ꯄꯥꯔꯁꯤꯡꯗ (bund) ꯇꯥꯕ ꯒꯦꯠꯂꯕꯒꯤ ꯇꯨꯝꯊꯕꯗ ꯅꯠꯔꯒꯥ ꯄꯥꯃꯄ ꯌꯥꯎꯔꯦ ꯍꯥꯕ ꯅꯝꯕꯨꯜ ꯌꯃꯄꯥꯟꯁꯤꯡ ꯇꯥꯃꯅꯒꯤ ꯈꯣꯡꯕꯔꯤꯕꯒꯤꯗꯃꯛ (drain) (ꯁꯦꯛꯁꯟ 5.8.5(a) ꯑꯃꯁꯨꯡ (b)), ꯂꯝꯃꯣ ꯍꯨꯔꯨꯡꯒꯤ (Shamushang) ꯇꯨꯝꯊꯕꯗ ꯆꯃꯕꯨꯜ ꯇꯨꯔꯦꯂꯗ ꯃꯁꯤꯒꯤ ꯏꯁꯤꯡ ꯏꯍꯦꯟꯒꯤ ꯏꯁꯤꯡ ꯄꯥꯃꯄ ꯌꯥꯕ ꯆꯃꯗꯣꯔꯄꯥꯟꯁꯤꯡꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ (Ithai barrage) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯍꯩꯗ ꯇꯥꯕ ꯂꯨꯃꯒꯤ ꯁꯤꯜ (rock sill)-ꯗ ꯊꯤꯡꯆꯤꯟꯆꯤꯕ ꯄꯥꯠ ꯑꯗꯨ ꯌꯣꯡꯕꯔꯤꯌꯥ ꯑꯣꯏꯕ ꯗꯦꯝꯌꯥꯁꯤ ꯃꯗꯦꯥꯁꯤ ꯈꯣꯡꯕꯔꯤꯕꯒꯤꯗꯃꯛ (ꯁꯦꯛꯁꯟ 5.8.5(c)); ꯒꯦꯠ ꯇꯥꯕ ꯌꯃꯄꯥꯟꯁꯤ ꯇꯨꯔꯦꯜ ꯑꯃꯗ ꯊꯥꯟꯄ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯒꯤꯗꯃꯛ, ꯒꯦꯠ ꯊꯤꯡꯂꯕ WRD-ꯒꯤ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯗ ꯇꯥꯕ ꯇꯨꯔꯦꯜ ꯑꯗꯨ ꯑꯍꯤꯛꯁ ꯁꯦꯜ ꯑꯣꯏꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (HFL), ꯅꯠꯔꯒꯥ ꯃꯗꯨꯒꯤ ꯃꯊꯛꯇ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯅꯕꯒꯤ ꯂꯩꯕ ꯔꯤꯁꯤꯡ, ꯍꯦꯛ ꯁꯦꯜ ꯑꯣꯏꯔꯦ (ꯁꯦꯛꯁꯟ 5.8.5(a)); ꯗꯦꯝꯌꯥꯁꯤ ꯃꯗꯦꯥꯌꯥ ꯇꯥꯕ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯒꯤꯗꯃꯛ, ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖꯗ ꯇꯥꯕ ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 769.320 m, 15 ꯂꯥꯡꯕꯟ 2025-ꯗ ꯔꯤꯗꯤꯡ 770.05 m-ꯗ ꯍꯦꯛ ꯌꯥꯎꯔꯦ, ꯑꯃꯁꯨꯡ ꯇꯨꯅꯗꯒꯤ ꯂꯥꯡꯕꯟ ꯗꯒꯤ ꯄꯥꯠ ꯑꯗꯨꯒꯤ ꯐꯨꯜ ꯔꯤꯖꯔꯚꯣꯌꯔ ꯂꯦꯚꯦꯂꯗꯒꯤ ꯃꯍꯩ ꯃꯍꯩꯗꯒꯤ ꯍꯣꯡꯊꯔꯛꯂꯦ, ꯃꯁꯤꯒꯤ ꯅꯣꯔꯃꯦꯜ ꯑꯍꯤꯛꯁ ꯄꯥꯠꯁꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯍꯩ ꯇꯥꯕ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯗ 1 ꯇꯨꯅꯗꯒꯤ 30 ꯂꯥꯡꯕꯟ ꯗꯒꯤ ꯊꯤꯡꯆꯕ ꯑꯍꯥꯅꯕ ꯇꯥꯔꯦ (ꯁꯦꯛꯁꯟ 5.8.5(c)); ꯊꯧꯕꯜ (ꯃꯄꯤꯊꯦꯜ), ꯈꯨꯒꯥ ꯅꯠꯔꯒꯥ ꯁꯤꯡꯗꯥ ꯗꯦꯝꯒꯤ ꯃꯍꯩ ꯇꯥꯕ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯒꯤꯗꯃꯛ, ꯔꯤꯃꯥꯔꯗ ꯌꯥꯝꯅꯕ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯅꯕꯒꯤ ꯂꯩꯕ ꯔꯤꯇꯤꯇ, ꯅꯠꯔꯒꯥ ꯑꯄꯥꯟꯔꯤꯌꯥꯔꯤ ꯃꯇꯨ ꯄꯤꯗꯨꯔꯤꯗꯒꯤ, ꯁ꯭ꯄꯤꯜꯋꯦꯒꯤ (spillway) ꯁꯦꯟꯄꯨꯔꯤꯌꯥ (ꯁꯦꯛꯁꯟ 5.8.5(d)); ꯄꯥꯠ ꯅꯠꯔꯒꯥ ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯗ ꯊꯥꯟꯄ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯒꯤꯗꯃꯛ, ꯃꯗꯨꯒꯤ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯊꯤꯡꯆꯕ ꯃꯌꯥꯃꯗ ꯆꯦꯡ ꯇꯨꯕꯒꯤ ꯊꯥꯗꯥ ꯍꯥꯌꯁꯤꯟꯗ ꯃꯁꯤꯒꯤ ꯑꯦꯛꯁꯄꯥꯔꯇꯀꯤ ꯗꯒꯤ ꯊꯣꯛꯆꯕ ꯂꯦꯚꯦꯜ (ꯁꯦꯛꯁꯟ 5.8.5(e)); ꯒꯦꯠ ꯇꯥꯕꯥ ꯔꯤꯁꯤꯒꯤ ꯈꯣꯡ ꯑꯃꯗ ꯊꯥꯟꯄ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯒꯤꯗꯃꯛ, ꯔꯤꯆ (reach) ꯑꯗꯨꯒꯤ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯍꯦꯟꯒꯤ ꯂꯦꯚꯦꯜ, ꯆꯦꯐꯣꯛ 6-ꯒꯤ ꯂꯥꯏꯃꯦꯛ, ꯗꯦꯕ꯭ꯔꯤꯁ (debris) ꯑꯃꯁꯨꯡ ꯑꯃꯁꯤꯁꯤ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇꯒꯤ ꯗꯦꯟꯇꯔꯦ ꯁꯃꯅꯥꯄꯨꯅꯕ ꯌꯥꯔꯕ (ꯁꯦꯛꯁꯟ 6.3.6) ꯑꯃꯁꯨꯡ ꯂꯔꯣꯒ ꯌꯥꯔꯕ ꯏꯁꯤꯡ ꯏꯍꯦꯟꯒꯤ ꯃꯔꯥꯗꯥꯁꯤꯡꯒꯤ ꯍꯦꯛ ꯌꯥꯔꯕ (ꯁꯦꯛꯁꯟ 5.8.5(f)); ꯆꯤꯔꯤꯕꯤꯃꯗ ꯇꯥꯕ ꯑꯦꯛꯁꯄꯥꯔꯇ ꯑꯃꯒꯤꯗꯃꯛ, ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜ ꯅꯠꯔꯒꯥ ꯆꯤꯔꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯂꯦꯚꯦꯜ, ꯍꯣꯌꯕꯣꯕꯦꯛꯔ (Chotebekra) ꯇꯥꯕ CWC ꯁ꯭ꯇꯦꯁꯟ ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 32.1 m-ꯒꯤ ꯗꯦꯟꯇꯔꯦ (31 ꯇꯨꯂꯥꯏ 1989, ꯄꯨꯛꯅꯤꯡ ꯗꯤꯡꯗꯥꯡꯍꯥꯏꯕ ꯃꯇꯧ ꯅꯥꯏꯗ; ꯗꯥꯌꯃ ꯍꯥꯏꯗꯦ) (ꯁꯦꯛꯁꯟ 5.8.5(g)); ꯑꯦꯛꯁꯄꯥꯔꯇꯀꯤ ꯃꯍꯨ ꯊꯪꯕ ꯃꯗꯨꯃꯗ ꯇꯥꯕ ꯒꯦꯠ, ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ (flap gate) ꯅꯠꯔꯒꯥ ꯄꯥꯃꯄꯥꯡ ꯂꯣꯡꯂꯣꯏ ꯑꯃꯗ ꯈꯣꯡꯕꯣꯏ ꯑꯃꯗ ꯊꯃꯆꯤꯟꯕ ꯂꯦꯚꯦꯜ, ꯃꯁꯤꯒꯤ ꯒꯦꯠ ꯊꯤꯡꯕ ꯂꯦꯚꯦꯜ, ꯃꯁꯤꯒꯤ ꯁꯤꯜ ꯅꯠꯔꯒꯥ ꯃꯁꯤꯒꯤ ꯄꯥꯃꯄꯥꯡꯁꯤꯡ ꯍꯥꯕ ꯂꯦꯚꯦꯂꯗ ꯗꯤꯡꯆꯨ ꯌꯥꯔꯕ ꯁꯦꯟꯌꯥꯔꯤꯟ ꯑꯃꯗꯤ ꯑꯍꯥꯅꯕ ꯇꯥꯔꯦ; ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 2.12-ꯒꯤ ꯇꯥꯅꯦꯜ ꯁꯦꯜ꯫ WRD-ꯗ ꯃꯁꯤꯒꯤ ꯌꯃꯄꯥꯟꯁꯤ ꯒꯦꯠꯆꯤꯡ ꯔꯤꯌꯥꯆꯤꯡ ꯂꯦꯚꯦꯜ (WL), ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (FL) ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯁꯤꯡꯒꯤ ꯗꯦꯟꯇꯔꯦ ꯄꯨꯛꯅꯤꯡꯂꯦꯚꯦꯂꯁꯤꯡꯒꯤ ꯇꯨꯝꯊꯕꯗ ꯗꯤꯡꯗꯥꯡꯁꯥꯅ, ꯑꯃꯁꯨꯡ ꯗꯤꯡꯗꯥꯡꯍꯥꯏꯕ ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ ꯑꯆꯤꯡꯒꯤ ꯍꯧꯈꯤꯔꯦ: ꯃꯤꯅꯨꯊꯣꯡꯗ (Minuthong) ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ, 785.900, 786.900 ꯑꯃꯁꯨꯡ 788.400 m; ꯆꯤꯆꯣꯡꯗ, 780.350 m, 781.350 m (2025) ꯅꯠꯔꯒꯥ 781.250 m (2024) ꯑꯃꯁꯨꯡ 782.850 m, 15 ꯂꯥꯡꯕꯟ 2025-ꯗ 783.250 m-ꯗ ꯍꯧꯈꯤ; ꯏꯔꯤꯜꯕꯨꯡꯗ (Irilbung) ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ, 786.700 ꯑꯃꯁꯨꯡ 787.700 m, ꯗꯤꯡꯗꯥꯡꯍꯥꯏꯕ ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 782.200 m-ꯒꯤ ꯗꯦꯟꯇꯔꯦ, ꯃꯁꯤ ꯃꯁꯤꯒꯤ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥ ꯇꯥꯕꯗ ꯑꯁꯣꯏꯕ ꯑꯃꯥ ꯑꯣꯏꯒꯗꯕꯅꯤ; ꯊꯧꯕꯜ ꯇꯨꯔꯦꯜ, 778.915 ꯑꯃꯁꯨꯡ 779.915 m (ꯒꯦꯖꯒꯤ ꯃꯃꯤꯡ ꯍꯥꯏꯗꯦ); ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤꯗ (Thong Nambonbi; ꯍꯝꯄ ꯕ꯭ꯔꯤꯖ, Hump Bridge) ꯆꯃꯕꯨꯜ ꯇꯨꯔꯦꯜ, ꯍꯥꯏꯔꯣꯜ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ 783.695 m; ꯅꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡꯗ (Nambol Thongkhong) ꯅꯝꯕꯣꯜ ꯇꯨꯔꯦꯜ, 774.700 ꯅꯠꯔꯒꯥ 774.400 m; ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖꯗ ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯜ, 769.320 m, 15 ꯂꯥꯡꯕꯟ 2025-ꯗ 770.05 m-ꯗ ꯍꯧꯈꯤ (WRD-ꯒꯤ ꯂꯦꯚꯦꯂꯁꯤꯡ, ꯄꯨꯛꯅꯤꯡ ꯗꯤꯡꯗꯥꯡꯍꯥꯏꯕ ꯃꯇꯧ ꯅꯥꯏꯗ; ꯃꯤꯇꯣ ꯁꯤ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯊꯛꯇ ꯃꯤꯌꯥ ꯑꯣꯏꯔꯦ ꯗꯦꯔꯕ ꯗꯥꯌꯃ ꯑꯗꯨ ꯍꯥꯏꯗꯦ [TBC])꯫ ꯗꯦꯝꯌꯥꯁꯤ ꯐꯨꯜ ꯔꯤꯖꯔꯚꯣꯌꯔ ꯂꯦꯚꯦꯜ (FRL) 768.5 m ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯗ꯭ꯔꯣꯗꯥꯎꯟ ꯂꯦꯚꯦꯜ (MDDL) 766.2 m ꯑꯣꯏ (NHPC, ꯁꯦꯜꯍꯥꯏꯕ ꯃꯇꯧ ꯅꯥꯏꯗ), CEA-ꯗꯒꯤ

766.01 m ꯑꯃꯁꯨꯡ ꯑꯌꯥꯕꯥꯛ ꯏꯕꯥꯛꯕꯥꯛ ꯑꯃꯁꯥ ꯍꯧꯔ ꯇꯪꯒꯪꯔ 769.63 m ꯇꯥ (ꯕꯤꯛꯁꯥ ꯏꯕꯥꯛꯕꯥꯔꯤꯕ ꯃꯥꯂꯦꯝ ꯅꯦꯇꯇ); ꯌꯥꯏꯖꯦꯇꯕ ꯑꯣꯏꯣꯏꯕ ꯐꯅꯒꯤ, ꯇꯪꯕꯥꯖꯥꯕꯥꯔꯤꯁꯪ॥ ꯕꯤꯛꯇꯪꯔꯣꯏꯕꯁ ꯏꯕꯥꯛꯕꯥꯇꯕ ꯒꯤꯁꯤꯕꯣꯏꯕ ꯑꯣꯏ WRD-ꯒꯤ ꯒꯪꯇꯤꯂꯥꯌꯒ ꯏꯕꯇꯕ ꯃꯥꯂꯕꯁ ꯃꯣꯏꯒꯥ ꯐꯤꯁꯥꯐꯤꯁꯂ ꯔꯤꯛꯣꯏꯗꯁꯪ॥ ꯏꯕꯇꯕ ꯁꯥꯐꯃꯦꯗꯨ ꯑꯃꯨꯌꯥꯇ ꯃꯇꯤꯕꯂꯒꯤ ꯐꯒꯤꯂꯃꯕ ꯑꯔꯨꯏꯅꯥ ꯑꯃꯁ ꯁꯤꯇꯅꯗ ꯌꯂꯒꯪꯔ ꯇꯨꯒꯥꯒ ꯕꯤꯨꯐꯤ ꯇꯪꯒꯪꯔ ꯑꯃꯩ ꯊꯃꯁꯪ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯕꯂꯒ ꯏꯇꯁ ꯕꯇꯦꯗ ꯇꯇꯤꯕ ꯑꯪꯗꯨ (Manipur Flood Plain Zoning Act), 1978-ꯒꯤ ꯃꯅꯥꯁ ꯅꯣꯏꯕ ꯅꯃꯔꯒꯤ ꯇꯗ ꯑꯃꯨꯌꯥ ꯇꯌꯤꯏꯅ ꯌꯥꯔꯤꯁꯪ; ꯑꯃꯩ ꯇꯌꯤꯏꯅ ꯌꯥꯁꯒꯤꯏꯔꯕ, ꯂꯃꯥꯗ 5-ꯒꯤ ꯇꯪꯒꯪꯔꯣꯏꯕ ꯍꯨꯇꯒꯇꯤ॥

9.2.2 **ꯃꯇꯦꯅꯃꯦꯨ ꯏꯪꯗꯌꯒ.** ꯁꯤꯇꯅꯗ ꯏꯇꯦꯣꯏꯕꯁ ꯃꯇꯦꯇ 2.8-ꯒꯤ ꯃꯇꯦꯅꯃꯦꯨ ꯏꯪꯗꯌꯒ ꯔꯤꯛꯒꯁꯕꯇꯤ॥

9.2.3 **ꯃꯪꯑꯌꯦꯇꯪꯑꯂꯃꯤ ꯑꯪꯗꯂꯪꯂ.** ꯂꯌꯒꯗꯍꯒ ꯅꯁꯤꯕꯃꯗ ꯃꯇꯦꯇ 9.12 ꯑꯃꯁꯨꯡ ꯂꯃꯥꯗ 10-ꯒꯤ ꯄꯑꯦꯕꯣꯏꯕꯇꯤ ꯅꯑꯂꯥꯪꯗꯂꯑ ꯑꯃꯁꯨꯡ ꯂꯪꯕꯁꯦꯃꯥꯒꯤꯁꯃꯗ ꯍꯕ ꯔꯤꯛꯁꯕꯇꯤ, ꯌꯕ ꯔꯕ ꯃꯏꯐ ꯅꯁꯤꯕꯃꯗꯌ ꯃꯑꯏꯅꯑꯁ ꯂꯥꯪꯂꯣꯏꯕꯁ (confined space) ꯃꯤꯑꯦꯅꯇꯤ ꯍꯕꯁꯤ॥

9.2.4 **ꯁꯤꯇꯅꯑ ꯇꯅꯏ.** ꯑꯪꯥꯂꯒꯤꯕ ꯑꯦꯄꯒꯤꯌꯤꯇꯤ ꯑꯌꯥꯕꯥꯛ ꯃꯑꯦꯕꯁ ꯔꯤꯁꯒꯕꯁꯤ, ꯂꯌꯒꯗꯍꯒꯣꯏꯕ ꯑꯣꯏ ꯃꯑꯃꯒꯤꯨ ꯑꯃꯁꯨꯡ ꯃꯪꯂꯑꯒꯤ ꯍꯒꯗꯣꯏꯕꯒꯤꯁꯃꯗ ꯔꯤꯃꯁꯒꯕꯁ ꯍꯐꯤ 50, ꯑꯃꯁꯨꯡ ꯃꯪꯃꯇꯤꯃꯪꯔ ꯑꯃꯁꯨꯡ ꯅꯇꯪꯗꯌꯒꯤꯃꯪꯔ ꯅꯗꯍꯤꯥꯃꯪꯑꯨꯃꯤꯁꯃꯗ ꯔꯤꯃꯁꯒꯕꯁ ꯍꯐꯤ 25-ꯒꯤ ꯂꯒꯒꯤꯂ ꯇꯅꯏꯃꯤꯁꯃꯗ ꯁꯤꯇꯅꯑ ꯌꯒꯁꯕꯇꯤ॥

9.2.5 **ꯕꯇꯦꯃꯪꯇ.** ꯂꯌꯒꯗꯍꯒ ꯑꯃꯩ ꯁꯪꯕꯒꯤꯂꯇꯤ ꯕꯇꯦꯗ ꯌꯕ ꯔꯕ ꯃꯏꯐꯁ, ꯃꯣꯏ ꯂꯃꯥꯗ ꯑꯣꯏꯁ ꯄꯐꯇꯤꯕ ꯕꯇꯦꯗ ꯑꯦꯅꯒꯕ ꯏꯤꯒꯐꯁ ꯍꯪꯗ ꯌꯒꯁꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯏꯤꯒꯐ ꯑꯁꯒꯤꯁꯃꯗ ꯑꯂꯦꯅꯕ ꯇꯌꯕ ꯑꯦꯒꯒꯏꯇꯦ ꯒꯨ ꯑꯃꯩ ꯇꯒꯁꯕꯇꯤ (ꯂꯃꯥꯗ 6, ꯃꯇꯦꯇ 6.3.2)॥

> **ꯂꯑꯁꯦꯗꯇꯤ ꯌꯗꯥ.** ꯃꯇꯦꯇ 9.2.4-ꯒꯤ ꯁꯤꯇꯅꯑ ꯇꯅꯏꯃꯤ ꯒꯪꯔꯅꯣꯏꯕ ꯑꯣꯏꯒꯤ ꯃꯃꯤꯕꯁ ꯇꯒꯐꯕ ꯅꯁꯐ ꯑꯃꯨꯌꯥ ꯇꯌꯪ; ꯃꯇꯦꯅꯃꯦꯨ ꯏꯪꯗꯌꯒ ꯃꯁꯤꯅꯁ ꯍꯨꯇꯒꯇꯤ ꯐꯔꯕ ꯇꯪꯥꯇꯕ ꯃꯅꯦꯔ ꯃꯄꯦ ꯌꯕꯇꯤ ꯃꯪꯂꯔꯪꯔ ꯑꯣꯏꯇꯤ ꯃꯅꯦꯔꯕ ꯄꯐꯇꯤ (ꯃꯇꯦꯇ 2.8.2-ꯇꯤ ꯃꯣꯏ ꯁꯤꯇꯅꯑ ꯇꯅꯏ ꯍꯐꯤ 25-ꯁꯒꯤ ꯐꯪꯑꯕ ꯑꯪꯇꯤꯃꯪꯑꯨꯣꯏꯕꯁ ꯍꯨꯐꯔꯇꯤ)॥

9.3 ꯥꯇꯅꯥꯂꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯕꯦꯗꯂ ꯅꯦꯕꯕꯑꯂꯣꯏꯕ

9.3.1 **ꯃꯪꯥꯪꯂꯣꯏꯌꯤ ꯑꯃꯁꯨꯡ ꯒꯏꯇꯪꯂ.** ꯥꯇꯅꯥ ꯑꯃꯁꯨꯡ ꯕꯦꯗꯂ ꯅꯦꯕꯕꯑꯒꯤ ꯃꯪꯥꯪꯂꯣꯏꯌꯤ ꯑꯣꯏ ꯂꯃꯥꯗ 6, ꯌꯪꯕꯔ 6.6-ꯒꯤ ꯁꯤꯇꯅꯑ n-ꯒꯤ ꯇꯦꯔꯇꯇꯤ ꯃꯪꯇꯤꯕꯒꯤ ꯅꯃꯔꯪꯂꯑꯇꯤ (Manning's equation) ꯃꯐꯥꯔꯨ ꯌꯒꯁꯕꯇꯤ॥ ꯥꯒꯤꯃꯂꯨ ꯇꯨꯒꯥꯒ ꯃꯂꯨ-ꯅꯑ-ꯂꯣꯏꯪ RCC ꯕꯦꯗꯂ ꯅꯦꯕꯕꯑꯂꯣꯏꯕꯒꯤꯁꯃꯗ ꯁꯤꯇꯅꯑ n ꯑꯣꯏ ꯔꯤꯃꯁꯒꯕꯁ 0.015 ꯑꯦꯅꯒꯁꯕꯇꯤ॥

9.3.2 **ꯃꯥꯂꯕ ꯏꯁꯇꯤ ꯄꯑꯇꯤ ꯍꯪꯑꯕ ꯏꯇꯦ.** ꯃꯥꯂꯕ ꯏꯁꯇꯤ ꯄꯑꯇꯤꯕ ꯑꯃꯦꯅꯕ ꯥꯇꯅꯥꯂꯣꯏꯕꯁ ꯁꯪꯥꯄ, ꯒꯪꯇꯦꯂꯣꯏꯌꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯂꯍꯒꯇ ꯑꯣꯏ ꯑꯃꯦꯅꯕ ꯃꯒꯦꯂ-ꯂꯪꯗꯂꯑꯂꯣꯏꯕꯒꯤ ꯐꯅꯁꯒꯦꯇꯤꯗ-ꯑꯪꯇꯤꯃꯪꯑꯨ ꯒꯤꯇꯪꯂꯑꯂꯣꯏꯥꯂꯣꯏꯕꯁꯒꯤ ꯃꯐꯥꯔꯨ ꯌꯒꯁꯕꯇꯤ (ꯅꯁꯐ ꯑꯦꯅꯇꯤ CPHEEO 2019, ꯌꯪꯕꯔ 5.5)॥ ꯃꯇꯦꯇ 6.7.3-ꯒꯤ ꯃꯤꯇꯤꯃꯐ ꯒꯪꯇꯦꯂꯣꯏꯌꯤ ꯑꯣꯏ ꯁꯤꯇꯅꯑ ꯏꯇꯦꯁ ꯍꯨꯇꯥ॥

9.3.3 **ꯥꯒꯪꯂꯒ ꯏꯇꯦ.** ꯥꯇꯅꯥ ꯑꯃꯩ ꯃꯥꯂꯕ ꯏꯇꯤ ꯄꯑꯇꯤ ꯍꯪꯔꯇꯕ ꯇꯨꯒꯥꯒ ꯂꯒꯍꯒꯇ (surcharge) ꯑꯦꯅꯒꯕ ꯃꯏꯐꯁ, HGL ꯑꯣꯏ ꯏꯒꯤꯗꯂꯑ ꯑꯃꯁꯨꯡ ꯂꯌꯒꯗꯍꯒꯒꯤ ꯇꯦꯂꯣꯏꯕꯒꯤ ꯇꯦꯔꯇꯇꯤ ꯂꯃꯥꯗ 6, ꯃꯇꯦꯇ 6.8-ꯒꯤ ꯃꯅꯥꯁ ꯃꯐꯥꯔꯨ ꯌꯒꯁꯕꯇꯤ॥

9.3.4 **ꯑꯁꯕꯃꯕ ꯥꯇꯅꯥꯂꯣꯏꯕ.** ꯥꯇꯅꯥ ꯑꯃꯁ ꯁꯤꯇꯅꯑ ꯏꯇꯦ ꯑꯣꯏ ꯂꯥꯒꯃꯒꯤꯌꯤꯃꯪꯔ (supercritical; ꯏꯒꯁ ꯇꯐꯕꯒ 1-ꯁꯒꯤ ꯐꯪꯑꯕ) ꯑꯦꯅꯒꯕ ꯃꯏꯐꯁ, ꯁꯤꯇꯅꯇꯒꯇꯤ:

- (a) ꯐꯅꯁꯒꯦꯇꯤꯗ ꯇꯐꯥ (hydraulic jump) ꯑꯃꯩ ꯄꯦꯗꯇꯕꯁꯤ ꯃꯣꯏꯒꯤ ꯃꯏꯐ ꯇꯪꯥꯄꯦꯗꯃꯁꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯣꯏ ꯥꯇꯅꯥ ꯒꯑ ꯑꯃꯁ ꯇꯨꯌꯇꯤ, ꯃꯣꯏ ꯄꯐꯇꯤꯑꯇꯕ ꯁꯤꯇꯅꯑ ꯌꯒꯕ ꯂꯌꯒꯗꯍꯒ ꯑꯃꯁ ꯄꯦꯃꯅ ꯐꯔꯕ ꯔꯨꯃꯁꯕꯇꯤ;
- (b) ꯇꯐꯥ ꯑꯁꯇꯤ ꯥꯇꯅꯥ ꯑꯁ ꯃꯥꯂꯕ ꯏꯇꯤ ꯄꯤꯕꯕ ꯔꯕ ꯃꯏꯐꯁ ꯑꯪꯔꯒ ꯒꯪꯑꯌꯤꯕ (air venting) ꯥꯤꯒꯁꯕꯇꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯃꯇꯦꯇ 6.7.3(b)-ꯒꯤ ꯃꯪꯗꯣꯏꯃꯐ ꯒꯪꯇꯦꯂꯣꯏꯌꯤ ꯁꯗꯃꯁꯕꯇꯤ॥

9.3.5 **ꯂꯅꯇ ꯑꯃꯁꯨꯡ ꯃꯅꯃꯒꯤ ꯐꯦꯕꯇꯗꯥꯂꯣꯏꯕ.**

- (a) ꯥꯇꯅꯥꯃꯤ ꯂꯅꯇ ꯑꯣꯏ ꯃꯅ ꯄꯕꯕ ꯃꯏꯐꯁ ꯐꯑꯄꯒꯦꯅꯁꯕꯇꯤ॥

- (b) ꯄꯥꯏꯄꯁꯤꯡ ꯈꯣꯉꯍꯥꯟ ꯆꯌꯦꯠꯄ ꯇ꯭ꯔꯥꯐꯤꯛ ꯂꯣꯗꯁꯤꯡꯗ ꯐꯣꯡꯗꯣꯛꯄ ꯌꯥꯗꯕꯅꯤ, ꯑꯗꯨꯕꯨ ꯃꯊꯛꯇꯥ ꯀꯕꯔ ꯄꯤꯕꯤꯡ 1,200 mm ꯆꯥꯡꯕ ꯐꯤꯂꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯄꯥꯏꯄꯁꯤꯡꯗ ꯋꯥꯍꯟꯕꯥ ꯇ꯭ꯔꯥꯐꯤꯛ ꯑꯣꯏꯕ ꯂꯧꯊꯣꯛꯇꯨꯅ ꯌꯥꯕꯅꯤ꯫
- (c) ꯂꯦꯡꯗꯕ ꯑꯣꯏꯅ ꯌꯥꯝꯅ 90°-ꯒꯤ ꯃꯈꯥꯗ ꯑꯣꯏꯕ ꯕꯦꯟꯗ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

9.3.6 **ꯐ꯭ꯂꯣꯇꯦꯁꯟ.** ꯃꯇꯝꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ (groundwater) ꯂꯩꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯄꯥꯏꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯣꯛꯁ ꯀꯂꯚꯔꯇꯁꯤꯡ ꯐ꯭ꯂꯣꯇꯦꯁꯅꯒꯤ ꯃꯇꯥꯡꯗ (flotation) ꯌꯦꯡꯁꯤꯟꯒꯗꯕꯅꯤ (ꯆꯦꯞꯇꯔ 6, ꯁꯦꯛꯁꯟ 6.7.7)꯫

> **ꯂꯦꯄꯈꯤꯕ ꯋꯥꯐꯝ.** ꯕꯣꯛꯁ ꯀꯂꯚꯔꯇꯁꯤꯡꯒꯤ ꯃꯦꯅꯤꯡ n 0.015 ꯑꯁꯤ ꯇꯦꯕꯜ 6.6-ꯒꯤ "ꯐꯦꯌꯔ" ("fair") ꯀꯟꯗꯤꯁꯅꯒꯤ ꯚꯦꯜꯌꯨ ꯑꯣꯏꯅ ꯂꯧꯈꯤꯕꯅꯤ꯫ ꯁꯦꯛꯁꯟ 9.3.4 ꯑꯃꯁꯨꯡ 9.3.5 ꯑꯁꯤ FHWA HEC-22 ꯑꯃꯁꯨꯡ ꯑꯣꯏꯊꯣꯛꯂꯕ ꯂꯣꯀꯦꯜ ꯄ꯭ꯔꯦꯛꯇꯤꯁꯇꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯧꯈꯤ꯫ ꯄꯥꯏꯄ ꯁꯥꯏꯖ ꯑꯃꯁꯨꯡ ꯀꯚꯔ ꯃꯊꯛꯇꯥ ꯑꯀꯣꯟꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯨꯐꯦꯀꯆꯔꯔꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ ꯌꯦꯡꯒꯗꯕꯅꯤ꯫

9.4 ꯀꯂꯚꯔꯇꯁꯤꯡ

9.4.1 **ꯁ꯭ꯀꯣꯞ.** ꯀꯂꯚꯔꯇꯁꯤꯡ (culvert) ꯑꯁꯤ FHWA *Hydraulic Design of Highway Culverts*, HDS-5, 3-ꯁꯨꯕ ꯑꯦꯗꯤꯁꯟ (2012)-ꯒꯤ ꯁ꯭ꯀꯣꯞꯁꯤꯡꯗ, ꯆꯥꯡꯕꯒꯤ ꯃꯇꯥꯡꯗ ꯂꯤꯃꯤꯇꯦꯁꯟ ꯂꯧꯊꯣꯛꯇꯨꯅꯕ (ꯍꯥꯌꯕꯗꯤ ꯑꯣꯏꯕ FHWA HY-8) ꯃꯦꯊꯗ ꯌꯦꯡꯒꯗꯕꯅꯤ꯫ ꯃꯦꯊꯗ ꯍꯦꯗꯋꯥꯇꯔ (headwater) ꯑꯁꯤ ꯏꯅꯂꯦꯠ ꯀꯟꯠꯔꯣꯜꯒꯤ (inlet control) ꯃꯈꯥꯗ ꯂꯩꯕ ꯍꯦꯗꯋꯥꯇꯔ (HWi) ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠꯔꯣꯜꯒꯤ (outlet control) ꯃꯈꯥꯗ ꯂꯩꯕ ꯍꯦꯗꯋꯥꯇꯔ (HWo)-ꯒꯤ ꯃꯔꯛꯇꯥ **ꯍꯦꯟꯕ** ꯑꯗꯨꯅꯤ꯫

9.4.2 **ꯏꯅꯂꯦꯠ ꯀꯟꯠꯔꯣꯜ.** HWi ꯑꯁꯤ ꯌꯥꯝꯅ ꯂꯩꯕ ꯕꯦꯔꯦꯜꯒꯤ (barrel) ꯃꯑꯣꯡ, ꯃꯌꯦꯛꯄꯤꯔꯒꯤ ꯑꯃꯁꯨꯡ ꯏꯅꯂꯦꯠꯀꯤ ꯑꯦꯖꯒꯤ ꯐꯤꯚꯝꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ HDS-5-ꯒꯤ ꯏꯅꯂꯦꯠ-ꯀꯟꯠꯔꯣꯜ ꯅꯣꯃꯣꯒ꯭ꯔꯥꯃꯁꯤꯡ ꯆꯥꯡꯕꯒꯤ ꯆꯥꯔꯇꯁꯤꯡꯒꯤ ꯀꯥꯟꯅꯕ ꯌꯦꯡꯒꯗꯕꯅꯤ꯫

9.4.3 **ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠꯔꯣꯜ.** HWo ꯑꯁꯤ ꯃꯈꯥꯒꯤ ꯃꯑꯣꯡꯗ ꯀꯥꯟꯅꯕ ꯌꯦꯡꯒꯗꯕꯅꯤ:

> HWo = ho + H − L·S

> H = [1 + ke + (19.63 n² L) / R^1.33] · V² / 2g (SI ꯌꯨꯅꯤꯠꯁꯤꯡ, ꯃꯄꯨꯡ ꯐꯥꯅ ꯁꯤꯡꯕ ꯕꯦꯔꯦꯜ)

> ho = TW ꯑꯃꯁꯨꯡ (dc + D)/2-ꯒꯤ ꯃꯔꯛꯇꯥ ꯍꯦꯟꯕ ꯑꯗꯨ

ꯃꯐꯝ ꯑꯁꯤꯗ ho ꯑꯁꯤ ꯀꯟꯠꯔꯣꯜꯒꯤꯗꯃꯛꯇꯥ ꯂꯦꯚꯦꯂꯒꯤ ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯋꯥꯡꯕ (m), H ꯑꯁꯤ ꯕꯦꯔꯦꯜꯒꯤ ꯂꯧꯊꯣꯛꯄ ꯄꯨꯝꯅꯃꯛ ꯍꯦꯗ ꯂꯣꯁ (m), L ꯑꯁꯤ ꯕꯦꯔꯦꯜꯒꯤ ꯑꯁꯥꯡꯕ (m), S ꯑꯁꯤ ꯕꯦꯔꯦꯜꯒꯤ ꯁ꯭ꯂꯣꯞ (m/m), ke ꯑꯁꯤ ꯑꯦꯟꯠꯔꯦꯟꯁ ꯂꯣꯁ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ (ꯇꯦꯕꯜ 9.1), n ꯑꯁꯤ ꯕꯦꯔꯦꯜꯒꯤ ꯃꯦꯅꯤꯡ, R ꯑꯁꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯔꯦꯗꯤꯌꯁ (m), V ꯑꯁꯤ ꯕꯦꯔꯦꯜꯒꯤ ꯚꯦꯂꯣꯁꯤꯇꯤ (m/s), TW ꯑꯁꯤ ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯇꯦꯏꯜꯋꯥꯇꯔꯒꯤ ꯃꯊꯛꯇꯥ ꯂꯩꯕ ꯏꯁꯤꯡꯒꯤ ꯑꯋꯥꯡꯕ (m), dc ꯑꯁꯤ ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯑꯋꯥꯡꯕ (m) ꯑꯃꯁꯨꯡ D ꯑꯁꯤ ꯕꯦꯔꯦꯜꯒꯤ ꯑꯋꯥꯡꯕ (m)꯫ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠꯔꯣꯜꯒꯤ ꯃꯈꯥꯗ ꯃꯄꯨꯡ ꯐꯥꯗꯕ ꯁꯤꯡꯕ ꯕꯦꯔꯦꯜꯁꯤꯡ ꯑꯁꯤ HDS-5-ꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯄꯨꯡ ꯍꯦꯟꯕ ꯕꯥꯀꯋꯥꯇꯔ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯑꯣꯏꯅ ꯌꯦꯡꯒꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 9.1 — ꯑꯦꯟꯠꯔꯦꯟꯁ ꯂꯣꯁ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡ ke (ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠꯔꯣꯜ, ꯃꯄꯨꯡ ꯐꯥꯕ ꯆꯥꯡꯕ ꯃꯄꯨꯡ ꯐꯥꯗꯕ ꯁꯤꯡꯕ)

ꯕꯦꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠ	ke
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯐꯤꯜꯗꯒꯤ ꯊꯣꯔꯛꯂꯤꯕ, ꯁꯣꯀꯦꯠ (ꯒ꯭ꯔꯨꯚ) ꯑꯔꯣꯏꯕ	0.2
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯐꯤꯜꯗꯒꯤ ꯊꯣꯔꯛꯂꯤꯕ, ꯁ꯭ꯀ꯭ꯋꯦꯌꯔ-ꯀꯠ ꯑꯔꯣꯏꯕ	0.5
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯍꯦꯗꯋꯣꯜ ꯅꯠꯔꯒ ꯋꯤꯡꯋꯣꯜꯁꯤꯡꯒ ꯂꯣꯌꯅꯕ ꯍꯦꯗꯋꯣꯜ, ꯁꯣꯀꯦꯠ ꯑꯔꯣꯏꯕ	0.2
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯍꯦꯗꯋꯣꯜ ꯅꯠꯔꯒ ꯋꯤꯡꯋꯣꯜꯁꯤꯡꯒ ꯂꯣꯌꯅꯕ ꯍꯦꯗꯋꯣꯜ, ꯁ꯭ꯀ꯭ꯋꯦꯌꯔ ꯑꯦꯖ	0.5
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯍꯦꯗꯋꯣꯜ, ꯑꯀꯣꯏꯕ ꯑꯣꯏꯍꯟꯕ ꯑꯦꯟꯇ꯭ꯔꯦꯟꯁ (ꯔꯦꯗꯤꯌꯁ = D/12)	0.2
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯐꯤꯜꯒꯤ ꯁꯂꯣꯞꯀ ꯆꯨꯅꯕ ꯃꯥꯏꯇꯔ ꯇꯧꯔꯕ	0.7
ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯢꯞ, ꯕꯦꯚꯦꯜ ꯇꯧꯔꯕ ꯑꯦꯖꯁꯤꯡ	0.2
ꯀꯣꯔꯒꯦꯇꯦꯗ ꯃꯦꯇꯦꯜ ꯄꯥꯢꯞ, ꯐꯤꯜꯗꯒꯤ ꯊꯣꯔꯛꯂꯤꯕ	0.9
RCC ꯕꯣꯛꯁ, ꯄꯥꯡꯀ (embankment) ꯄꯦꯔꯦꯂꯦꯜ ꯑꯣꯏꯕ ꯍꯦꯗꯋꯣꯜ, ꯑꯍꯨꯝ ꯑꯦꯖ꯭ꯖꯁꯤꯡ ꯁ꯭ꯀ꯭ꯋꯦꯌꯔ ꯑꯦꯖ	0.5
RCC ꯕꯣꯛꯁ, ꯄꯥꯡꯀ ꯄꯦꯔꯦꯂꯦꯜ ꯑꯣꯏꯕ ꯍꯦꯗꯋꯣꯜ, ꯑꯦꯖ ꯑꯍꯨꯝ ꯑꯀꯣꯏꯕ ꯑꯣꯏꯍꯟꯕ ꯅꯠꯔꯒ ꯕꯦꯚꯦꯜ ꯇꯧꯔꯕ	0.2
RCC ꯕꯣꯛꯁ, ꯕꯦꯔꯦꯜꯒ 30°–75°-ꯗ ꯂꯩꯕ ꯋꯤꯡꯋꯣꯜꯁꯤꯡ, ꯁ꯭ꯀ꯭ꯋꯦꯌꯔ ꯑꯦꯖ ꯂꯩꯕ ꯀ꯭ꯔꯥꯎꯟ	0.4
RCC ꯕꯣꯛꯁ, ꯕꯦꯔꯦꯜꯒ 10°–25°-ꯗ ꯂꯩꯕ ꯋꯤꯡꯋꯣꯜꯁꯤꯡ, ꯁ꯭ꯀ꯭ꯋꯦꯌꯔ ꯑꯦꯖ ꯂꯩꯕ ꯀ꯭ꯔꯥꯎꯟ	0.5
RCC ꯕꯣꯛꯁ, ꯄꯦꯔꯦꯂꯦꯜ ꯋꯤꯡꯋꯣꯜꯁꯤꯡ (ꯁꯥꯏꯗꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯁꯟ), ꯁ꯭ꯀ꯭ꯋꯦꯌꯔ ꯑꯦꯖ ꯂꯩꯕ ꯀ꯭ꯔꯥꯎꯟ	0.7

ꯍꯧꯔꯛꯐꯝ: FHWA HDS-5 (2012), ꯑꯦꯟꯇ꯭ꯔꯦꯟꯁ ꯂꯣꯁ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯀꯤ ꯇꯦꯕꯜ (Appendix C)꯫

9.4.4 **ꯇꯦꯜꯋꯥꯇꯔ.** TW ꯑꯁꯤ ꯃꯈꯥꯒꯤꯁꯤꯡꯒꯤ ꯃꯔꯛꯇ ꯇꯦꯇꯕ ꯑꯍꯨ ꯑꯣꯅꯀꯗꯕꯅꯤ:

- (a) ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗꯀꯤ ꯃꯇꯝ ꯃꯈꯥꯒꯤ ꯆꯦꯅꯦꯂꯗ ꯂꯩꯕ ꯅꯣꯔꯃꯦꯜ ꯕꯥꯇꯔꯂꯦꯚꯦꯜ ꯗꯦꯞꯊ; ꯑꯃꯁꯨꯡ
- (b) ꯇꯦꯅꯗꯦꯟ ꯆꯦꯅꯦꯂꯒꯤ ꯁ꯭ꯇꯦꯖꯒꯤ ꯕꯦꯛꯋꯥꯇꯔ ꯔꯤꯚꯔꯒꯤ ꯍꯨꯝꯗ ꯂꯩꯕ ꯃꯅꯥꯔꯦꯟꯁꯤꯡꯒꯤꯗꯃꯛ, ꯃꯈꯥ 9.2.1-ꯒꯤ ꯇꯦꯜꯋꯥꯇꯔ ꯆꯦꯛꯅ꯫

9.4.5 **ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡꯒꯤ ꯆꯤꯍꯤꯌꯥꯁꯤꯡ.** ꯁꯦꯛꯁꯟ 6, ꯇꯦꯕꯜ 6.1-ꯒꯤ ꯗꯤꯖꯥꯏꯟ AEP-ꯗ:

- (a) HW/D 1.2-ꯗꯒꯤ ꯑꯍꯦꯅꯕꯗꯕꯅꯤ;
- (b) ꯑꯣꯚꯔꯇꯣꯞ ꯑꯁꯤ ꯍꯦꯗ ꯋꯥꯇꯔ ꯐꯤꯜ ꯂꯝꯕꯤꯒꯤ ꯁꯣꯟꯗꯔꯒꯤ (shoulder) ꯑꯦꯂꯦꯚꯦꯁꯟ ꯃꯈꯥꯗ 0.3 m ꯍꯦꯟꯅ ꯂꯩꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯑꯣꯚꯔꯇꯣꯞꯄ ꯍꯦꯗ ꯋꯥꯇꯔ ꯍꯦꯍꯦꯟꯅ ꯂꯩꯕ ꯃꯇꯝꯗ ꯗꯤꯖꯥꯏꯟ ꯁꯦꯠꯂꯕ ꯄ꯭ꯔꯣꯄꯔꯇꯤꯁꯤꯡꯒꯤ ꯕꯥꯔꯗꯔ ꯑꯍꯣꯡ ꯅꯥꯏꯗꯕꯒꯤ ꯆꯦꯛꯁꯤꯟꯕ ꯁꯦꯛꯁꯟ 6, ꯃꯈꯥ 6.12.2(d)-ꯒꯤ ꯆꯤꯍꯤꯌꯥꯁꯤꯡꯒꯤ ꯍꯦꯗꯋꯥꯇ ꯌꯥꯅꯕ ꯊꯝꯖꯅꯕꯗꯕꯅꯤ꯫

9.4.6 **ꯔꯣꯗꯀꯤ ꯍꯦꯗꯋꯥꯇ ꯅꯣꯔꯃꯦꯜ ꯌꯦꯡꯕ.** ꯌꯦꯍ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯗ ꯔꯣꯗꯀꯤ ꯍꯦꯗꯋꯥꯇ ꯌꯦꯡꯕ ꯐꯂꯣ ꯑꯁꯤ ꯕ꯭ꯔꯣꯗ-ꯀ꯭ꯔꯦꯁꯇꯦꯗ ꯋꯤꯌꯔꯒꯤ (broad-crested weir) ꯅꯃꯨꯇꯦꯟ ꯃꯍꯧꯁꯥ ꯇꯧꯒꯗꯕꯅꯤ:

> Qr = Cd · L · h^1.5

ꯍꯥꯏꯕꯗꯤ Qr ꯑꯁꯤ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ (overtopping) ꯐ꯭ꯂꯣꯁꯤ (m³/s), L ꯑꯁꯤ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯂꯦꯡꯊꯦꯒꯤ ꯑꯁꯥꯡꯕꯁꯤ (m) ꯑꯃꯁꯨꯡ h ꯑꯁꯤ ꯔꯣꯗꯀꯤꯒꯤ ꯃꯔꯦꯡꯃꯩꯒꯤ ꯍꯦꯗꯋꯥꯇ ꯂꯩꯕ ꯑꯣꯚꯔꯇꯣꯞꯔꯒꯤ ꯗꯦꯞꯊꯁꯤ (m)꯫ Cd ꯑꯁꯤ ꯔꯣꯗꯀꯤꯒꯤ ꯍꯦꯗ ꯑꯃꯁꯨꯡ h ꯑꯃꯁꯨꯡ ꯔꯣꯗꯀꯤꯒꯤ ꯌꯦꯡꯕꯒꯤ ꯔꯣꯑꯣꯒꯤꯗꯃꯛ HDS-5-ꯗꯒꯤ ꯂꯧꯒꯗꯕꯁꯤ, ꯑꯃꯁꯨꯡ 1.66 (SI)-ꯗꯒꯤ ꯑꯍꯦꯅꯕꯗꯕꯁꯤ꯫ ꯃꯅꯥꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯐꯂꯣꯁꯤꯡ ꯑꯁꯤ ꯃꯍꯧ ꯑꯣꯚꯔꯇꯣꯞꯄ ꯑꯍꯦꯗ ꯕꯦꯂꯦꯟꯁ ꯇꯧꯒꯗꯕꯁꯤ꯫ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯗꯦꯄꯊꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯂꯣꯚ ꯑꯁꯤꯁꯨ ꯁꯦꯛꯁꯟ 6, ꯃꯈꯥ 6.12 ꯃꯥꯟꯅꯍꯟꯕꯗꯕꯁꯤ꯫

9.4.7 **ꯑꯧꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ.** ꯗꯤꯖꯥꯏꯟ AEP ꯑꯃꯁꯨꯡ 1% AEP-ꯗ ꯑꯧꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯃꯍꯧꯁꯥ ꯇꯧꯒꯗꯕꯁꯤ ꯑꯃꯁꯨꯡ ꯑꯧꯠꯂꯦꯠ ꯑꯍꯨ ꯃꯈꯥ 9.6-ꯒꯤ ꯍꯦꯟꯅ ꯃꯥꯟꯅꯍꯟꯕꯗꯕꯁꯤ꯫

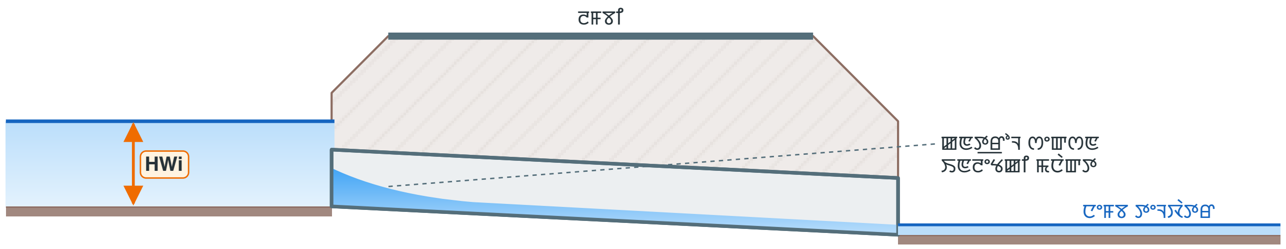
9.4.8 **ꯕꯦꯔꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯕ꯭ꯔꯤꯁ.**

- (a) ꯗꯦꯕ꯭ꯔꯤꯁ ꯂꯣꯛꯇꯕ ꯌꯣꯈꯕ ꯃꯐꯃꯗꯤ ꯍꯣꯟꯕꯗꯨꯃꯛꯇꯒꯤꯅ ꯈꯣꯉꯤ-ꯕꯦꯔꯦꯜ ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤ ꯃꯤꯇꯤꯡꯂꯕ ꯇꯤꯡꯒꯅꯕꯅꯤ꯫ ꯈꯣꯉꯔ ꯃꯤꯇꯤꯡꯂꯕꯦꯕ ꯈꯖꯈꯅ, ꯕꯦꯔꯦꯜ ꯑꯃꯈꯣ ꯅꯣꯡ ꯌꯨꯅꯕ ꯈꯣꯏꯈꯒꯤ ꯍꯦꯂꯕ (dry-weather flow) ꯄ꯭ꯂꯒꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯂꯅꯦꯠꯇ ꯗꯦꯕ꯭ꯔꯤꯁ ꯖꯤꯂ ꯅꯠꯦꯒꯤ ꯗꯤꯖ꯭ꯅꯦꯛꯇꯦ ꯑꯈꯤ ꯅꯣꯒꯅꯕꯅꯤ꯫
- (b) ꯀꯜꯚꯔꯠꯁꯤꯡꯒꯤ ꯁꯔꯨꯛ 6, ꯁꯦꯛꯇ 6.12.4 ꯑꯃꯁꯨꯡ 6.12.5-ꯒꯤ ꯈꯤꯂꯤꯈꯌ ꯃꯣꯍꯂ ꯑꯃꯁꯨꯡ ꯕ꯭ꯂꯣꯀꯦꯂꯒꯤ ꯄꯦꯛꯁꯤꯡ ꯊꯣꯛꯀꯅꯕꯅꯤ꯫
- (c) ꯀꯜꯚꯔꯠꯀꯤ ꯍꯦꯚꯔꯠꯁꯤꯡ ꯑꯁꯤ ꯍꯣꯡꯕꯦꯒꯤ ꯕꯦꯗꯀꯤ (bed) ꯄꯦꯂꯂꯤꯗꯕꯅꯤ꯫ ꯈꯍꯣꯔꯕ ꯕꯦꯗꯀꯤ ꯈꯊꯛꯄ ꯊꯈꯂꯣꯍꯗꯕꯅꯤ, ꯈꯁꯤꯂꯣ ꯈꯊꯛ ꯊꯡꯕ ꯈꯖꯈꯗ ꯂꯣꯈ ꯑꯃꯁꯨꯡ ꯍꯁꯤꯡ ꯊꯤꯡꯇꯤꯍꯂꯤ꯫

9.4.9 **ꯍꯦꯗꯋꯣꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯠ-ꯑꯣꯐꯁꯤꯡ.** ꯍꯦꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡꯗ ꯄꯥꯏꯄꯤꯡ (piping) ꯑꯃꯁꯨꯡ ꯑꯦꯟꯗꯔꯃꯥꯏꯅꯤꯡ (undermining) ꯊꯤꯡꯅꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯕ ꯍꯦꯗꯋꯣꯜ (headwall), ꯋꯤꯡꯋꯣꯜ (wingwall) ꯑꯃꯁꯨꯡ ꯀꯠ-ꯑꯣꯐ ꯋꯣꯜꯁꯤꯡ (cut-off wall) ꯆꯪꯒꯗꯕꯅꯤ꯫

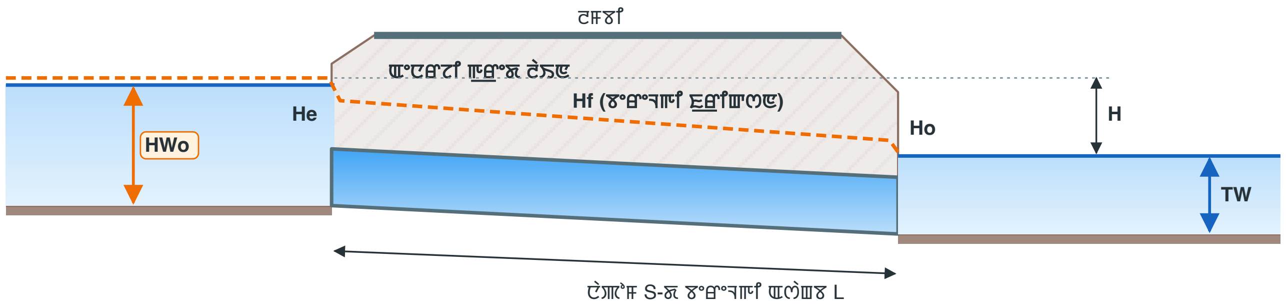
ꯀꯜꯚꯔꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁ: ꯏꯟꯂꯦꯠ ꯀꯟꯠ꯭ꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠ꯭ꯔꯣꯜ (ꯁ꯭ꯀꯦꯃꯦꯇꯤꯛ, ꯃꯀꯣꯛ ꯈꯥꯟꯗꯕ ꯍꯦꯂꯦ ꯂꯌꯥꯎ)

(a) ꯏꯟꯂꯦꯠ ꯀꯟꯠ꯭ꯔꯣꯜ



HWi ꯑꯁꯤ Q ꯑꯃꯁꯨꯡ ꯏꯟꯂꯦꯠ (ꯈꯦꯞ, ꯑꯦꯖ, ꯁ꯭ꯀ꯭ꯌꯨ) ꯗꯥꯡꯗ ꯈꯔ ꯄꯣꯛꯂꯤ; HDS-5-ꯒꯤ ꯏꯟꯂꯦꯠ-ꯀꯟꯠ꯭ꯔꯣꯜ ꯅꯣꯃꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ
ꯅꯠꯦꯒꯤ ꯍꯀ꯭ꯋꯦꯁꯟꯁꯤꯡꯗꯒꯤ ꯄꯥꯕ꯫ ꯕꯦꯔꯦꯜ ꯑꯁꯤ ꯈꯄꯨꯡ ꯊꯟꯗꯦ ꯍꯦꯂꯤ; ꯕꯦꯔꯦꯂꯒꯤ ꯑꯊꯦꯡꯃ, ꯑꯁꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯣꯇꯔꯅ HWi-ꯗ ꯑꯍꯣꯡꯕ ꯄꯨꯊꯣꯛꯇꯦ꯫

(b) ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠ꯭ꯔꯣꯜ



HWo = ho + H – L·S, ꯃꯗꯨꯗ H = He + Hf + Ho ꯑꯃꯁꯨꯡ ho = max[TW, (dc + D)/2]꯫ ꯕꯦꯔꯦꯜ ꯑꯁꯤ ꯈꯄꯨꯡ ꯊꯟꯗꯦ ꯅꯠꯦꯒꯤ ꯈꯄꯨꯡ ꯊꯟꯗꯦ ꯍꯦꯂꯤ;
ꯑꯊꯦꯡꯃ, ꯑꯁꯥꯡꯕ, ꯂꯣꯞ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯣꯇꯔꯅ ꯄꯨꯊꯣꯛꯄꯗꯦ ꯑꯍꯣꯡꯕ ꯄꯨꯊꯣꯛꯀꯅꯤ꯫ ꯗꯤꯖꯥꯏꯟ ꯍꯦꯗꯋꯣꯇꯔ = HWi ꯑꯃꯁꯨꯡ HWo-ꯒꯤ ꯈꯊꯛꯄ ꯍꯦꯟꯅ ꯌꯥꯝꯕ ꯑꯗꯨ (ꯁꯦꯛꯇ 9.4)꯫

ꯆꯤꯡ 9.1 — ꯀꯜꯚꯔꯠꯀꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁ: ꯏꯟꯂꯦꯠ ꯀꯟꯠ꯭ꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯠ꯭ꯔꯣꯜ꯫ ꯈꯦꯟꯗꯔꯦꯟ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯑꯦꯟꯇ ꯃꯦꯈꯕ ꯗꯦꯗꯍꯥꯏ, FHWA, Hydraulic Design of Highway Culverts, HDS-5 (3rd ed., 2012)-ꯗꯒꯤ ꯍꯥꯏꯗꯥꯂꯛ ꯇꯧꯔꯤꯕ꯫

ꯃꯦꯗꯦꯥꯂꯦ ꯅꯣꯄꯥ. HDS-5 (3rd ed., FHWA-HIF-12-026, ꯑꯦꯞꯔꯤꯜ 2012)-ꯅꯥ HEC-5, HEC-10 ꯑꯃꯁꯨꯡ HEC-13-ꯒꯤ ꯀꯜꯚꯔꯠ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯈꯔꯣꯂꯁꯤꯡ ꯄ꯭ꯂꯦꯁꯤꯡꯀꯥ, ꯑꯃꯁꯨꯡ ꯈꯁꯤ ꯍꯧꯖꯤꯛꯀꯤ FHWA ꯀꯜꯚꯔꯠ ꯈꯦꯟꯗꯔꯦꯟꯅꯤ꯫ ꯁꯦꯛꯇ 9.4.3-ꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ-ꯀꯟꯠ꯭ꯔꯣꯜ ꯍꯀ꯭ꯋꯦꯁꯟ ꯑꯁꯤ SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ ꯆꯪꯕ HDS-5-ꯒꯤ ꯑꯦꯛꯁꯥꯛꯇ ꯍꯀ꯭ꯋꯦꯁꯟꯅꯤ: ꯖꯥꯏꯒꯦꯜ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ 19.63 ꯑꯁꯤ 2g-ꯅꯤ ꯈꯦꯟꯅꯤ꯫ ꯇꯦꯕꯜ 9.1-ꯗ ꯆꯪꯕ ke ꯚꯦꯜꯌꯨꯁꯤꯡ ꯑꯁꯤ HDS-5-ꯗꯒꯤ ꯍꯦꯟꯅ ꯄꯤꯔꯤ꯫ ꯋꯤꯌꯔ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯀꯤ ꯀꯥꯞ 1.66 (SI) ꯑꯁꯤ ꯑꯣꯒꯔꯄꯤꯗꯤ ꯀꯥꯡꯂꯥꯏꯗꯦꯂꯁꯤꯡꯒꯤꯗꯃꯛ APWA 5600 (2006)-ꯒꯤ C ≤ 3.0 (US ꯌꯨꯅꯤꯠꯁꯤꯡ) ꯂꯤꯃꯤꯠ ꯑꯗꯨꯒꯤ ꯀꯦꯒꯔꯁꯦꯟꯅꯤ꯫ ꯁꯦꯛꯇ 9.4.5-ꯒꯤ ꯍꯦꯗꯋꯣꯇꯔꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ ꯑꯁꯤ ꯈꯦꯟꯗꯔꯦꯟ ꯑꯁꯤꯅꯥ ꯊꯝꯕꯅꯤ: HW/D ≤ 1.2-ꯅꯥ ꯏꯟꯂꯦꯠ ꯑꯗꯨ ꯗꯤꯖꯥꯏꯟ ꯊꯤꯗꯣꯛꯄ ꯃꯕꯈꯔꯂ ꯑꯣꯍꯦꯔꯕ ꯑꯣꯔꯤꯐꯤꯁ ꯐ꯭ꯂꯣꯗ (submerged-orifice flow) ꯄꯣꯈꯅꯥ ꯄꯤꯗꯣꯛꯂꯣꯕ ꯊꯤꯡꯊꯔꯀꯅ, ꯈꯖꯈ ꯑꯗꯨꯗ ꯐ꯭ꯂꯣ ꯅꯦꯃ

> ꯍꯦꯅꯒꯠꯂꯕꯗ ꯍꯦꯗꯋꯣꯇꯔ ꯌꯥꯎꯍꯟꯂꯣ ꯍꯦꯅꯒꯠꯂꯛꯂꯦ꯫ ꯀ꯭ꯂꯣꯖ 9.4.8(c)-ꯒꯤ ꯃꯇꯨꯡꯏꯟꯅ ꯂꯩꯔꯝꯕ ꯋꯥꯐꯝ ꯑꯃꯠꯇꯥ ꯂꯩꯇꯦ; ꯃꯅꯤꯡꯊꯥꯗ ꯅꯝꯕꯤ ꯑꯃ ꯑꯔꯤꯕ ꯀꯜꯚꯔꯠ ꯑꯃꯒꯤ ꯃꯊꯛꯇ ꯑꯅꯧꯅ ꯂꯧꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯌꯥꯎꯍꯅꯕ ꯀꯟꯚꯔꯖꯤꯡ ꯋꯤꯡꯒ ꯂꯩꯔꯕ, ꯑꯃꯁꯨꯡ ꯃꯍꯧꯔꯕ ꯃꯇꯨꯡ ꯇꯨꯡꯕ ꯃꯐꯃꯗ ꯂꯩꯊꯣꯛꯂꯤꯕ ꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯂꯩꯃ ꯊꯤꯡꯅꯤꯡꯅꯅꯤ, ꯃꯐꯝ ꯑꯗꯨꯗ ꯃꯁꯤ ꯌꯥꯕꯅꯤ꯫

9.5 ꯑꯣꯄꯟ ꯆꯦꯅꯦꯂꯁꯤꯡ

9.5.1 **ꯐ꯭ꯂꯣ ꯀꯝꯞꯌꯨꯇꯦꯁꯟ.** ꯑꯣꯄꯟ ꯆꯦꯅꯦꯂꯁꯤꯡ (open channel) ꯑꯁꯤ ꯇꯦꯕꯜ 6.6-ꯒꯤ n-ꯒꯥ ꯂꯣꯌꯅꯅ ꯌꯨꯅꯤꯐꯣꯔꯝ ꯐ꯭ꯂꯣꯒꯤꯗꯃꯛ ꯃꯦꯅꯤꯡꯒꯤ ꯏꯀ꯭ꯋꯦꯁꯟꯅꯥ (Manning's equation) ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯇꯦꯜꯋꯣꯇꯔ (tailwater), ꯂꯣꯡꯁꯤꯡ, ꯀꯜꯚꯔꯠꯁꯤꯡ (culvert), ꯕꯦꯟꯗꯁꯤꯡ (bend) ꯅꯠꯔꯒ ꯂꯦꯡꯂꯕꯒꯤ ꯍꯣꯡꯂꯛꯄꯁꯤꯡꯗ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯂꯁꯤꯡꯗ ꯏꯐꯦꯛꯠ ꯄꯤꯔꯕ ꯃꯔꯝꯅ, ꯃꯁꯤꯅꯥ ꯒ꯭ꯔꯦꯖꯨꯌꯦꯂꯤ ꯚꯦꯔꯤꯗ ꯐ꯭ꯂꯣ (gradually varied flow; ꯒ꯭ꯔꯦꯗꯨꯑꯦꯜ ꯒ꯭ꯔꯦꯖ) ꯑꯦꯗꯚꯥꯟꯁꯁꯤꯡꯗ ꯀꯝꯞꯌꯨꯇꯦꯁꯟ ꯇꯧꯒꯗꯕꯅꯤ; ꯃꯁꯤꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯃꯐꯃꯁꯤꯡꯗ ꯃꯍꯧꯁꯥꯒꯤ ꯈꯨꯗꯝꯅꯤ: ꯅꯣꯔꯃꯦꯜ ꯂꯦꯚꯦꯜ, ꯅꯣꯔꯃꯦꯜ ꯂꯦꯚꯦꯜ, ꯀꯥꯡꯕ ꯂꯦꯚꯦꯜ, ꯊꯧꯕꯜ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯏꯅꯥ ꯂꯦꯚꯦꯂꯁꯤꯡꯗ ꯃꯍꯧꯔꯒꯤ ꯄꯥꯝꯕꯁꯤꯡꯗ ꯂꯩꯕ ꯒꯦꯂꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯏꯟꯅ ꯂꯩꯕ ꯄꯥꯝꯕ ꯌꯥꯕ ꯅꯥꯀꯜ ꯇꯦꯛꯅꯤꯀꯦꯂꯒꯤ ꯂꯩꯕꯁꯤꯡꯗ, ꯊꯤꯖꯤꯟꯕ ꯑꯣꯏꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯄꯥꯟꯁꯟ ꯄꯥꯝꯕꯁꯤꯡꯗ ꯌꯥꯎꯅꯤꯕ ꯂꯩꯕꯁꯤꯡꯗ, ꯁꯤꯖꯤꯟ ꯅꯦꯕ ꯅꯦꯒꯦꯜ ꯑꯃ ꯄꯥꯝ ꯑꯃꯁꯨꯡ ꯊꯥꯖꯤꯕ ꯅꯥꯏꯄꯥꯛꯄ ꯃꯅꯥꯛꯄ ꯂꯩꯕꯁꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯛꯄ ꯅꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯕꯦꯛ ꯂꯦꯚꯦꯂꯒꯤ ꯕꯦꯛꯋꯣꯇꯔꯒꯤ ꯃꯌꯣꯝ ꯂꯩꯕ ꯂꯤꯇꯤꯕꯥ ꯄꯨꯂꯦꯁꯔꯒꯤ ꯌꯥꯕ ꯌꯥꯕꯌꯥꯃꯛ ꯁꯨꯂꯥ ꯂꯩꯕ ꯆꯦꯅꯦꯂꯁꯤꯡꯗ; ꯃꯁꯤ ꯄꯥꯃꯦꯂꯣꯛ, ꯂꯣꯂ, ꯁ꯭ꯃꯨꯊ, ꯂꯦꯍꯧꯄꯥ, ꯀꯃꯄꯥꯄꯥꯏ, ꯆꯦꯔꯦꯡ ꯑꯃꯁꯨꯡ ꯁꯨꯄꯔꯆꯔꯗ ꯌꯥꯎꯕ ꯆꯤꯡꯒꯤ ꯄꯥꯝꯕꯁꯤꯡꯒꯤ ꯑꯋꯥꯡꯕ ꯌꯥꯕꯌꯥꯃꯛ, ꯌꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯥꯛꯁꯤꯡꯅꯥ ꯃꯍꯧꯁꯥꯒꯤ ꯈꯨꯗꯝꯅꯤ, ꯃꯌꯥꯏ ꯑꯁꯤ ꯗꯨꯊꯥ ꯒꯨꯂꯦꯆꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯨꯁꯨꯗꯁꯤꯡꯗ (chute) ꯌꯥꯝꯅ ꯌꯥꯝꯅ ꯑꯣꯏꯗ ꯂꯦꯄꯂꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅ ꯁꯨꯗꯤꯃꯊꯛ ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯗꯦꯄꯊꯒꯤ ꯁꯨꯌꯥꯝꯅ ꯄꯥꯡꯂꯤ꯫

9.5.2 **ꯐ꯭ꯂꯣ ꯔꯦꯖꯤꯝ.** ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ, ꯄꯦꯅꯦꯜ ꯑꯁꯨ ꯂꯨꯄꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯁꯨꯁꯨꯕ ꯑꯣꯏ ꯑꯣꯏꯗ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯗꯨꯕꯗꯤ, ꯐ꯭ꯔꯨꯗ ꯅꯝꯕꯔ ꯑꯁꯤ 0.8-ꯗꯒꯤ ꯍꯦꯟꯊꯣꯏꯗꯕꯅꯤ (CPHEEO 2019, §5.3)꯫ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ ꯀꯔꯤꯒꯨꯝꯕ ꯄꯦꯅꯦꯜ ꯑꯃꯗ ꯐ꯭ꯔꯨꯗ ꯅꯝꯕꯔ 0.8 ꯑꯃꯁꯨꯡ 1.2-ꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕ ꯐ꯭ꯂꯣꯁꯤꯡꯒꯤ ꯑꯌꯥꯕ ꯄꯤꯗꯦ꯫

9.5.3 **ꯄꯔꯃꯤꯁꯤꯕꯜ ꯚꯦꯂꯣꯁꯤꯇꯤꯁꯤꯡ.** ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ ꯃꯦꯛꯁ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯑꯁꯤ ꯇꯦꯕꯜ 9.2-ꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡꯗꯒꯤ ꯍꯦꯟꯊꯣꯏꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 9.2 — ꯆꯦꯅꯦꯂꯁꯤꯡꯗ ꯌꯥꯕ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯋꯥꯡꯕ ꯃꯤꯟ ꯚꯦꯂꯣꯁꯤꯇꯤꯁꯤꯡ

ꯂꯥꯏꯅꯤꯡ ꯅꯠꯔꯒ ꯂꯩꯃꯥꯏ	ꯃꯦꯛꯁꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ (m/s)	ꯍꯧꯔꯛꯐꯝ
ꯀꯟꯀ꯭ꯔꯤꯠ ꯂꯥꯏꯅꯤꯡ	3.0	CPHEEO 2019 Table 5.11
ꯔꯤꯄꯔꯦꯞ ꯂꯥꯏꯅꯤꯡ	1.8	CPHEEO 2019 Table 5.11
ꯒ꯭ꯔꯥꯁ ꯂꯥꯏꯅꯤꯡ	1.2	CPHEEO 2019 Table 5.11
ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖ ꯇꯧꯔꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯆꯦꯅꯦꯜ (ꯃꯥꯏꯄꯥꯛꯅ ꯇꯧꯔꯕ ꯃꯍꯧꯁꯥꯒꯤ ꯆꯦꯅꯦꯜ)	2.0, ꯅꯠꯔꯒ ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯍꯦꯟꯊꯣꯏꯗꯕꯗꯤ ꯃꯗꯨ	CPHEEO 2019 §5.10.3
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯑꯄꯤꯛꯄ ꯂꯩꯊꯥꯏ (fine sand)	0.46	Fortier and Scobey (1926), ꯌꯦꯡꯕ ꯏꯁꯤꯡ
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯂꯩꯊꯥꯏ ꯌꯥꯎꯕ ꯂꯣꯝ (sandy loam)	0.53	ꯃꯊꯛꯇ ꯍꯥꯏꯔꯕꯒꯨꯝ
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯂꯩꯃꯥꯏ ꯌꯥꯎꯕ ꯂꯣꯝ (silt loam)	0.61	ꯃꯊꯛꯇ ꯍꯥꯏꯔꯕꯒꯨꯝ
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯆꯦꯠꯄ ꯂꯣꯝ (firm loam)	0.76	ꯃꯊꯛꯇ ꯍꯥꯏꯔꯕꯒꯨꯝ
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯀꯅꯕ ꯂꯩꯃꯥꯏ ꯑꯆꯦꯠꯄ (stiff clay)	1.14	ꯃꯊꯛꯇ ꯍꯥꯏꯔꯕꯒꯨꯝ
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯑꯄꯤꯛꯄ ꯅꯨꯡꯖꯪ (fine gravel)	0.76	ꯃꯊꯛꯇ ꯍꯥꯏꯔꯕꯒꯨꯝ
ꯂꯥꯏꯅꯤꯡ ꯂꯩꯇꯕ, ꯑꯆꯧꯕ ꯅꯨꯡꯖꯪ (coarse gravel)	1.22	ꯃꯊꯛꯇ ꯍꯥꯏꯔꯕꯒꯨꯝ

ꯐ꯭ꯂꯦꯛꯁꯤꯕꯜ ꯂꯥꯏꯅꯤꯡꯁꯤꯡ (ꯅꯥꯄꯤ, ꯔꯤꯞꯔꯦꯞ, ꯖꯤꯑꯣꯁꯤꯟꯊꯦꯇꯤꯛꯁ) ꯑꯁꯤ ꯃꯈꯥꯒꯤ ꯃꯇꯧꯗꯥ FHWA HEC-15, *Design of Roadside Channels with Flexible Linings*, 3-ꯁꯨꯕ ꯑꯦꯗꯤꯁꯟ (2005)-ꯒꯤ ꯁꯦꯃꯒꯠꯂꯤꯕ ꯃꯇꯧ ꯃꯇꯧꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯤꯖꯤꯟꯅꯒꯗꯕ ꯑꯣꯏꯔꯤ꯫

9.5.4 **ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯅꯦꯝꯕ ꯆꯥꯡ.** ꯂꯥꯏꯅꯤꯡ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯗ, ꯁꯦꯛꯁꯟ ꯆꯥꯡꯗꯥ ꯌꯥꯎꯕꯁꯤꯡ (ꯁꯦꯛꯁꯟ 9.6.6) ꯌꯦꯡꯂꯒ ꯊꯨꯡꯍꯟꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯡꯁꯦꯜ, ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯅꯦꯝꯕ ꯆꯥꯡ ꯑꯁꯤ ꯀꯟꯗꯨꯏꯠ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤꯗꯃꯛ 0.4% ꯑꯃꯁꯨꯡ ꯄꯥꯏꯞ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤꯗꯃꯛ 0.2%-ꯗꯒꯤ ꯍꯦꯟꯗꯣꯛꯂꯣꯏꯗꯕꯅꯤ (CPHEEO 2019, ꯇꯦꯕꯜ 5.11)꯫

9.5.5 **ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯑꯃꯁꯨꯡ ꯕꯦꯟꯗꯁꯤꯡ.** ꯐ꯭ꯔꯤꯕꯣꯔꯗ (freeboard) ꯑꯁꯤ ꯆꯦꯞꯇꯔ 6, ꯇꯦꯕꯜ 6.7 ꯃꯇꯨꯡ ꯏꯟꯅꯕꯅꯤ, ꯕꯦꯟꯗꯁꯤꯡꯗ ꯁꯨꯄꯔꯑꯦꯂꯤꯚꯦꯁꯟ (superelevation) ꯍꯥꯞꯆꯤꯟꯗꯨꯅ ꯏꯁꯤꯡꯒꯤ ꯆꯦꯡꯁꯤꯟꯒꯤ ꯃꯇꯝꯗ ꯃꯤꯡꯁꯦꯜꯂꯤ꯫ ꯕꯦꯟꯗꯀꯤ ꯔꯦꯗꯤꯌꯁꯁꯤꯡ ꯑꯁꯤ ꯆꯦꯞꯇꯔ 6, ꯁꯦꯛꯁꯟ 6.7.10 ꯃꯇꯨꯡ ꯏꯟꯅꯕꯅꯤ꯫

9.5.6 **ꯅꯥꯀꯜ ꯅꯣꯡꯈꯥꯡ.** ꯅꯥꯀꯜꯒꯤ ꯂꯥꯏꯅꯤꯡ ꯌꯥꯑꯣꯗꯕ ꯁꯦꯛꯁꯟꯁꯤꯡꯗ ꯃꯇꯧ ꯑꯁꯤ ꯍꯦꯟꯗꯅ ꯑꯆꯨꯝꯕ ꯅꯣꯡꯈꯥꯡ ꯑꯃ ꯂꯩꯍꯟꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ:

- (a) ꯀꯟꯗꯨꯏꯠ ꯃꯥꯏꯀ ꯃꯥꯏꯀꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤ ꯅꯥꯀꯜ ꯅꯣꯡꯈꯥꯡꯁꯤꯡ 1V:2H-ꯗꯒꯤ ꯍꯦꯟꯗꯅ ꯑꯆꯨꯝꯕ ꯑꯣꯏꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (b) ꯃꯤꯌꯥꯝꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯐꯝꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤ ꯅꯥꯀꯜ ꯅꯣꯡꯈꯥꯡꯁꯤꯡ 1V:3H-ꯗꯒꯤ ꯍꯦꯟꯗꯅ ꯑꯆꯨꯝꯕ ꯑꯣꯏꯗꯕꯅꯤ꯫

9.5.7 **ꯂꯣ-ꯐ꯭ꯂꯣ ꯆꯦꯅꯦꯜ.** ꯕꯦꯗꯀꯤ ꯄꯥꯛ 3 m ꯌꯦꯡꯂꯒ ꯍꯦꯟꯕꯗꯒꯤ ꯍꯦꯟꯕ ꯆꯦꯅꯦꯂꯁꯤꯡꯗ ꯁꯦꯛꯁꯟ 6.7.3-ꯒꯤ ꯃꯇꯨꯡ-ꯏꯟꯅꯕꯁꯤꯡ ꯃꯥꯂꯦꯝꯒꯤ ꯏꯁꯤꯡ ꯊꯣꯛꯂꯕ ꯍꯧꯖꯤꯛꯀꯤ ꯆꯦꯟꯕ (dry-weather flow) ꯄꯨꯕ ꯍꯟꯗꯛ ꯂꯥꯟꯕ ꯂꯣ-ꯐ꯭ꯂꯣ ꯆꯦꯅꯦꯜ (low-flow channel) ꯑꯃ ꯌꯥꯎꯍꯅꯕꯅꯤ꯫

9.5.8 **ꯇ꯭ꯔꯥꯟꯖꯤꯁꯅꯁꯤꯡ.** ꯃꯥꯂꯦꯝꯒꯤ ꯍꯣꯡꯗꯣꯛꯄꯁꯤꯡꯗ ꯂꯦꯞ ꯂꯦꯞ ꯍꯣꯡꯗꯣꯛꯄ ꯇ꯭ꯔꯥꯟꯖꯤꯁꯅꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ ꯑꯆꯧꯕ ꯑꯦꯛꯁꯄꯥꯟꯁꯅꯒꯤ ꯐ꯭ꯂꯣꯒꯤ ꯊꯦꯡꯅꯕ ꯄꯥꯛꯊꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯅꯕ ꯑꯣꯏꯕ ꯑꯣꯅꯁꯤꯟꯅꯕꯒꯤ ꯑꯔꯦꯝꯕ ꯄꯥꯀꯦ꯫

9.5.9 **ꯃꯥꯂꯦꯝꯒꯤ ꯃꯅꯨꯡꯒꯤ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯊꯛꯇ ꯄꯨꯊꯣꯛꯄ.** ꯃꯥꯂꯦꯝꯒꯤ ꯃꯅꯨꯡꯒꯤ ꯏꯁꯤꯡ (groundwater) ꯑꯋꯥꯡꯕ ꯌꯦꯡꯂꯒ ꯂꯥꯏꯅꯤꯡ ꯇꯧꯔꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯀꯟꯗꯨꯏꯠ ꯆꯥꯡꯕ ꯗ꯭ꯔꯦꯅꯁꯤꯡꯗ ꯐꯤꯜꯇꯔꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯕ ꯋꯤꯞ ꯍꯣꯜꯁꯤꯡ (weep hole) ꯄꯤꯒꯗꯕꯅꯤ, ꯌꯦꯡꯂꯒ ꯗ꯭ꯔꯦꯅ ꯑꯁꯤ ꯑꯍꯣꯡꯕ ꯃꯇꯝꯗ ꯑꯄꯥꯏꯈꯠꯄ (uplift) ꯊꯤꯡꯕꯒꯤ ꯃꯇꯧ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

9.5.10 **ꯁꯦꯝꯕ ꯅꯣꯡꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡ.** ꯃꯁꯤꯒꯤ ꯃꯊꯛꯇ ꯁꯦꯝꯕ ꯅꯣꯡꯒꯤ ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯌꯥꯎꯍꯅꯕꯅꯤ (CPHEEO 2019, §5.10.3 ꯌꯨ; ꯆꯦꯞꯇꯔ 7)꯫ ꯁꯦꯝꯕ ꯅꯣꯡꯒꯤ ꯗ꯭ꯔꯦꯅ ꯑꯃ ꯃꯁꯤꯡ ꯄꯤꯒꯗꯕ ꯃꯇꯝꯗ, ꯃꯁꯤꯒꯤ ꯄꯥꯝꯕꯩꯁꯤꯡ ꯆꯦꯞꯇꯔ 6-ꯒꯤ ꯃꯇꯧ AEP ꯌꯥꯎꯍꯅꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯇꯦꯕꯜ 9.2 ꯌꯥꯎꯍꯅꯕꯅꯤ꯫

> **ꯃꯅꯤꯄꯨꯔꯒꯤ ꯅꯣꯠ.** ꯀꯟꯗꯨꯏꯠ ꯂꯥꯏꯅꯤꯡ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯅꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯈꯥꯡꯁꯤꯡ ꯑꯁꯤ CPHEEO (2019) ꯇꯦꯕꯜ 5.11-ꯒꯤ ꯀꯅꯥꯁꯤꯡꯅꯤ꯫ ꯀꯟꯗꯨꯏꯠ ꯃꯥꯏꯀ ꯃꯥꯏꯀꯒꯤ ꯀꯅꯥꯁꯤꯡ ꯑꯁꯤ Chow (1959)-ꯗ ꯍꯦꯟꯕ ꯄꯤꯔꯤꯕꯤꯒꯗꯕ, ꯃꯇꯝ ꯂꯥꯏꯅꯤꯡꯒꯤꯗꯃꯛ Fortier and Scobey (1926)-ꯒꯤ ꯁꯦꯛꯁꯅꯤꯡ ꯄꯔꯤꯀ꯭ꯁꯤꯅꯕ ꯀꯦꯄꯦꯁꯤꯇꯤꯁꯤꯡꯅꯤ꯫ ꯃꯁꯤꯅ ꯑꯁꯤ ꯃꯂꯤꯡꯈꯔꯕ ꯑꯋꯥꯡꯕ ꯊꯣꯛꯄ ꯃꯥꯂꯦꯝ ꯁꯣꯏꯗꯅ ꯄꯤꯔꯤ (ꯂꯣꯀꯇꯥꯛ ꯏꯁꯤꯡ ꯃꯥꯂꯦꯝꯒꯤ ꯂꯦꯀꯁꯇ꯭ꯔꯥꯏꯟ (lacustrine) ꯃꯥꯂꯦꯝ ꯑꯍꯦꯅꯕ, ꯃꯥꯂꯦꯝ ꯑꯃꯁꯨꯡ ꯄꯤꯠ (peat); ꯂꯣꯀꯇꯥꯛꯀꯤ ꯃꯄꯥꯟꯊꯣꯡꯗ ꯊꯣꯏ ꯐꯨꯠꯍꯤꯜ ꯐꯦꯟꯁꯤꯡꯒꯤ (foothill fan) ꯃꯥꯂꯦꯝ, ꯁꯤꯂꯤ ꯑꯃꯁꯨꯡ ꯁꯤ ꯑꯍꯦꯅꯕꯁꯤꯡ; ꯍꯤꯜꯁꯤꯡꯒꯤ ꯗꯤꯁꯥꯡ ꯁꯦꯜ (Disang shale)-ꯒꯤ ꯃꯊꯛꯇ ꯊꯣꯏ ꯑꯄꯤꯀꯄ ꯆꯦꯔꯥꯡꯒꯤ ꯃꯥꯂꯦꯝꯁꯤꯡ, ꯃꯁꯤꯅ "ꯏꯁꯤꯡ ꯏꯟꯐꯤꯂꯇ꯭ꯔꯦꯁꯟ ꯍꯦꯟꯅ ꯑꯃꯁꯨꯡ ꯔꯟꯑꯣꯐ ꯍꯦꯟꯕ ꯂꯩ" ("have less infiltration and more run off") (MASTEC); ꯕꯔꯥꯏ (Barail) ꯁꯦꯡꯅꯕ ꯍꯤꯜꯁꯤꯡꯗ ꯁꯤꯡꯂꯣꯟ; ꯑꯃꯁꯨꯡ ꯂꯤꯁꯤꯡꯕ ꯄꯨꯈꯔꯤꯒꯤ ꯕꯥꯏꯗ ꯑꯃꯁꯨꯡ ꯂꯤꯔꯤꯒꯤ ꯑꯦꯂꯨꯚꯤꯌꯝ (alluvium), ꯃꯁꯤꯅ ꯃꯥꯂꯦꯝ ꯃꯆꯥꯛ ꯌꯥꯝꯅ, ꯐꯨ ꯑꯃꯁꯨꯡ ꯁꯤꯜꯗ ꯁꯤꯡꯂꯣꯟ, ꯁꯤ ꯑꯍꯦꯅꯕꯁꯤꯡ, ꯑꯃꯒꯥ ꯑꯃꯁꯨꯡ ꯐꯨꯃꯗꯤ (phumdi) ꯗ꯭ꯔꯦꯅꯒꯤ ꯕꯦꯗ ꯌꯦꯡꯂꯒ ꯃꯄꯥꯡꯅꯕ ꯑꯃꯗꯤ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯍꯦꯟꯕ ꯀꯔꯤꯁꯤꯡ (ꯃꯦꯡꯈꯔꯦ ꯑꯁꯤꯗ ꯂꯩꯔꯕ ꯃꯇꯦꯡ ꯂꯩꯔꯦ))꯫ ꯐ꯭ꯔꯨꯗ ꯌꯥꯝꯕꯔ 0.8 ꯑꯃꯁꯨꯡ 1.2-ꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕꯁꯤꯡ ꯊꯤꯡꯕꯗꯤ CPHEEO-ꯒꯤ ꯀꯔꯤꯁꯤꯡꯒꯤ ꯐ꯭ꯂꯣ ꯊꯤꯡꯕꯒꯤ ꯄꯨꯊꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯒꯠꯂꯛꯂꯤ, ꯃꯇꯝ ꯑꯗꯨꯗ ꯂꯥꯏꯅꯤꯡꯒꯤ ꯃꯊꯛ ꯑꯁꯤ "ꯗꯦꯜꯂꯤ ꯃꯥꯏꯀ ꯑꯃꯁꯨꯡ ꯂꯗꯦꯡ ꯊꯣꯛꯄ ꯑꯣꯏꯕꯅꯤ" ("becomes unstable and wavy") (§5.3)꯫ ꯍꯦꯟꯒꯠꯂꯛꯄ ꯑꯁꯤ ꯃꯦꯡꯈꯔꯦ ꯑꯁꯤꯗ ꯂꯩꯕꯅꯤ꯫ ꯅꯥꯀꯜ ꯅꯣꯡꯈꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯣ-ꯐ꯭ꯂꯣ ꯆꯦꯅꯦꯜ ꯑꯁꯤꯁꯨ ꯃꯦꯡꯈꯔꯦ ꯑꯁꯤꯗ ꯊꯝꯕꯅꯤ, ꯃꯔꯃꯗꯤ ꯆꯦꯞꯇꯔ 8-ꯒꯤ ꯄꯔꯤ-ꯃꯟꯁꯨꯟ ꯁꯦꯡꯗꯣꯛꯄꯁꯤꯡ ꯂꯣꯏꯁꯤꯟꯕ ꯃꯇꯨꯡꯗ ꯀꯟꯗꯨꯏꯠ ꯆꯦꯅꯦꯜ ꯄꯨꯡꯈꯠꯄ ꯅꯤꯡꯊꯤꯜꯂꯕ ꯍꯧꯖꯤꯛꯀꯤ ꯆꯦꯟꯕ ꯁꯤꯖꯤꯟꯅꯕ꯫ ꯈꯨꯗꯣꯡ ꯃꯥꯂꯦꯝꯒꯤ ꯂꯥꯏꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏ ꯍꯥꯏꯕ ꯕꯦꯗ ꯑꯃꯁꯨꯡ ꯃꯐꯃꯁꯤꯡ ꯄꯥꯛ ꯁꯥꯡꯕ ꯅꯣꯡꯗ (sludge) ꯊꯝꯂꯤꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯂꯣ-ꯐ꯭ꯂꯣ ꯆꯦꯅꯦꯜ ꯑꯁꯤ ꯂꯥꯏꯅꯤꯡ ꯊꯨꯕ ꯍꯧꯖꯤꯛꯀꯤ ꯆꯦꯟꯕ ꯑꯃꯒꯥ ꯃꯥꯟꯅꯕ ꯁꯦꯝꯕꯤꯗꯦ ꯊꯝꯃꯤ꯫

9.6 ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔꯁꯤꯡ, ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯣꯞ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡ

9.6.1 **ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ ꯀꯦꯁ.** ꯗꯤꯖꯥꯏꯟ AEP ꯅꯠꯔꯒ 1% AEP-ꯗ ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤꯅꯥ ꯇꯦꯕꯜ 9.2-ꯗ ꯌꯥꯕ ꯃꯁꯤꯡ ꯌꯥꯕ ꯃꯊꯛꯇ ꯂꯩꯔꯕꯗꯤ ꯀꯂꯚꯔꯠ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯞꯁꯤꯡꯒꯤ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ, ꯆꯦꯅꯦꯜ ꯃꯍꯩ ꯑꯃꯁꯨꯡ ꯇꯦꯟꯛ (tank) ꯅꯠꯔꯒ ꯄꯨꯈꯔꯤꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯗ ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔ ꯅꯠꯔꯒ ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯄꯤꯒꯗꯕꯅꯤ꯫

9.6.2 **ꯁꯣꯔꯁ.** ꯑꯦꯅꯔꯖꯤ ꯗꯤꯁꯤꯄꯦꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯑꯁꯤ FHWA HEC-14, *Hydraulic Design of Energy Dissipators for Culverts and Channels*, 3-ꯁꯨꯕ ꯑꯦꯗꯤꯁꯟ (2006)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ, ꯗꯤꯁꯤꯄꯦꯇꯔꯒꯤ ꯃꯈꯜ ꯑꯁꯤ ꯃꯐꯃꯒꯤ ꯐꯤꯚꯝ ꯌꯦꯡꯂꯒ ꯈꯟꯗꯨꯅ ꯈꯅꯒꯅꯤ꯫

9.6.3 **ꯔꯤꯞꯔꯦꯞ ꯑꯦꯞꯔꯟꯁꯤꯡ.** ꯁꯥꯞ ꯁꯦꯝꯕ ꯑꯦꯞꯔꯟ (apron) ꯑꯃꯗ ꯊꯝꯕ ꯃꯐꯝ ꯑꯗꯨꯗ ꯑꯦꯅꯔꯖꯤ ꯍꯟꯊꯍꯟꯅꯕ, ꯃꯤꯗꯤꯌꯥꯟ ꯔꯤꯞꯔꯦꯞ (riprap) ꯁꯥꯏꯖ ꯑꯁꯤ HEC-14-ꯒꯤ ꯑꯦꯞꯔꯟ ꯀꯦꯂꯀꯨꯂꯦꯁꯅꯗꯒꯤ ꯂꯧꯒꯗꯕꯅꯤ:

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D50 = 0.2 · D · [Q / (g^0.5 · D^2.5)]^(4/3) · (D / TW)
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ꯃꯐꯝ ꯑꯁꯤꯗ D50 ꯑꯁꯤ ꯃꯤꯗꯤꯌꯥꯟ ꯁ꯭ꯇꯣꯟ ꯁꯥꯏꯖꯅꯤ (m), D ꯑꯁꯤ ꯀꯂꯚꯔꯠꯀꯤ ꯗꯥꯏꯃꯦꯇꯔ ꯅꯠꯔꯒ ꯍꯥꯏꯠꯅꯤ (m), Q ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯤꯁꯆꯥꯔꯖꯅꯤ (m^3/s), $g = 9.81\ m/s^2$ ꯑꯃꯁꯨꯡ TW ꯑꯁꯤ ꯇꯦꯜꯋꯣꯇꯔꯒꯤ ꯗꯦꯞꯊꯅꯤ (m)꯫ TW ꯈꯪꯗꯕ ꯃꯐꯝꯗ, ꯃꯁꯤ 0.4D ꯑꯣꯏꯅ ꯂꯧꯒꯗꯕꯅꯤ꯫

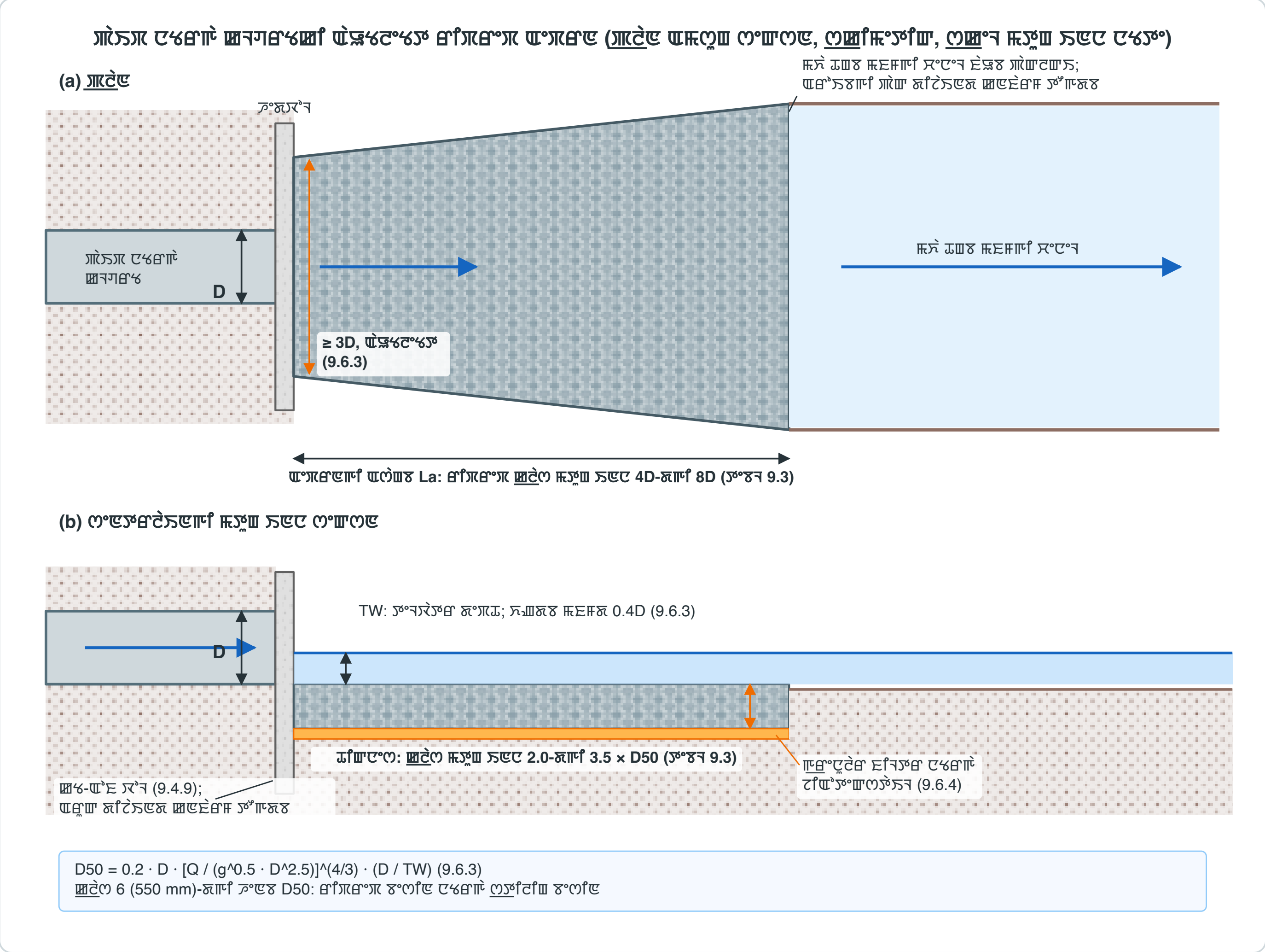
ꯑꯦꯞꯔꯟꯒꯤ ꯑꯁꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯤꯛꯅꯦꯁ ꯑꯁꯤ HEC-14-ꯒꯤ ꯔꯤꯞꯔꯦꯞ-ꯀ꯭ꯂꯥꯁ ꯇꯦꯕꯜ (ꯇꯦꯕꯜ 9.3) ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯧꯒꯗꯕꯅꯤ꯫ ꯑꯥꯎꯠꯂꯦꯠꯇ ꯑꯦꯞꯔꯟꯒꯤ ꯄꯥꯛ ꯑꯁꯤ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯅꯦꯝꯕꯗ 3D ꯑꯣꯏꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯃꯍꯩ ꯃꯐꯃꯒꯤ ꯂꯦꯄꯆꯕ ꯍꯧꯗꯣꯛꯇꯨꯅ ꯄꯥꯛꯊꯣꯛꯍꯅꯒꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 9.3 — ꯔꯤꯞꯔꯦꯞ ꯀ꯭ꯂꯥꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯞꯔꯟꯒꯤ ꯗꯥꯏꯃꯦꯟꯁꯅꯁꯤꯡ (HEC-14)

ꯀ꯭ꯂꯥꯁ	D50 (mm)	ꯑꯦꯞꯔꯟꯒꯤ ꯑꯁꯥꯡꯕ	ꯑꯦꯞꯔꯟꯒꯤ ꯊꯤꯛꯅꯦꯁ
1	125	4D	3.5 D50
2	150	4D	3.3 D50
3	250	5D	2.4 D50
4	350	6D	2.2 D50
5	500	7D	2.0 D50
6	550	8D	2.0 D50

ꯍꯧꯔꯀꯐꯝ: FHWA HEC-14 (2006), §10.2 ꯑꯃꯁꯨꯡ Table 10.1, ꯂꯣꯀꯦꯜ-ꯑꯦꯗꯖꯁꯃꯦꯟꯇꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯌꯦꯡꯁꯤꯟꯕꯁꯤꯡꯗ ꯍꯣꯡꯗꯣꯛꯂꯛꯂꯤ꯫ ꯀꯥꯟꯅꯕ ꯐꯪꯕ D50 ꯑꯁꯤ ꯀ꯭ꯂꯥꯁ 6-ꯗꯒꯤ ꯍꯦꯟꯂꯕ ꯃꯇꯝꯗ, ꯔꯤꯞꯔꯦꯞ ꯕꯦꯁꯤꯟ ꯑꯃ ꯅꯠꯔꯒ ꯀꯟꯀ꯭ꯔꯤꯠ ꯁ꯭ꯇꯤꯂꯤꯡ ꯕꯦꯁꯤꯟ (stilling basin) ꯑꯃ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

9.6.4 **ꯔꯤꯞꯔꯦꯞꯀꯤ ꯐꯤꯜꯇꯔ ꯑꯃꯁꯨꯡ ꯕꯦꯗꯤꯡ.** ꯔꯤꯞꯔꯦꯞ ꯑꯁꯤ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ ꯐꯤꯜꯇꯔ ꯅꯠꯔꯒ ꯒ꯭ꯔꯦꯅꯨꯂꯥꯔ ꯐꯤꯜꯇꯔꯒꯤ ꯃꯊꯛꯇ ꯊꯃꯒꯗꯕꯅꯤ꯫ ꯐꯤꯜꯇꯔ ꯑꯁꯤ ꯁꯣꯏꯜ ꯃꯈꯜ, ꯂꯣꯛꯑꯦꯜ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 9.6.3-ꯒꯤ D50 ꯌꯥꯡꯅꯕ ꯐꯤꯜꯇꯔꯗ ꯌꯦꯡꯁꯤꯟꯒꯗꯕꯅꯤ꯫


ꯑꯍꯥꯡꯕ ꯄꯥꯏꯄꯀꯤ ꯑꯥꯎꯠꯂꯦꯠꯇꯥ ꯔꯤꯞꯔꯦꯞ ꯑꯦꯞꯔꯟ ꯃꯁꯛ (ꯃ꯭ꯊꯛ ꯑꯃꯁꯨꯡ ꯀꯣꯛꯂꯣꯡ, ꯀꯨꯄꯁꯤꯟꯕ, ꯀꯨꯄꯥꯟ ꯍꯥꯞꯄ ꯇꯣꯡꯄ ꯄꯥꯏꯄ)
(a) ꯃ꯭ꯊꯛ
ꯍꯦꯗꯋꯣꯜ
ꯍꯦꯠ ꯆꯦꯟꯕ ꯍꯥꯏꯒꯤ ꯆꯦꯟꯕ ꯃꯌꯥꯏ ꯊꯣꯛꯂꯕ;
ꯑꯦꯞꯔꯟꯒꯤ ꯃꯊꯛ ꯁꯤꯡꯒꯥ ꯃꯌꯥꯏꯔ ꯁꯥꯏꯗꯥ
ꯑꯍꯥꯡꯕ ꯄꯥꯏꯄꯀꯤ ꯃꯅꯥꯏꯌꯥ
D
≥ 3D, ꯑꯥꯎꯠꯂꯦꯠꯇꯥ (9.6.3)
ꯍꯦꯠ ꯆꯦꯟꯕ ꯍꯥꯏꯒꯤ ꯆꯦꯟꯕ
ꯑꯦꯞꯔꯟꯒꯤ ꯑꯁꯥꯡꯕ La: ꯄꯥꯏꯄꯀꯤ ꯃ꯭ꯊꯛ ꯍꯥꯞꯄ ꯇꯣꯡꯄ 4D-ꯗꯒꯤ 8D (ꯇꯦꯕꯜ 9.3)
(b) ꯀꯣꯛꯂꯣꯡꯁꯤꯡꯒꯤ ꯍꯥꯞꯄ ꯇꯣꯡꯄ ꯀꯣꯛꯂꯣꯡ
TW: ꯇꯦꯜꯋꯥꯇꯔ ꯃꯊꯛ; ꯇꯤꯅꯕ ꯍꯥꯏꯕ 0.4D (9.6.3)
D
ꯃꯊꯛꯇꯥ: ꯃ꯭ꯊꯛ ꯍꯥꯞꯄ ꯇꯣꯡꯄ 2.0-ꯗꯒꯤ 3.5 × D50 (ꯇꯦꯕꯜ 9.3)
ꯃꯌꯥꯏ-ꯑꯣꯏ ꯋꯣꯜ (9.4.9);
ꯑꯦꯞꯔꯟ ꯁꯤꯡꯒꯥ ꯃꯌꯥꯏꯔ ꯁꯥꯏꯗꯥ
ꯃꯐꯝꯗꯨꯒꯤ ꯐꯤꯜꯇꯔ ꯄꯥꯏꯄꯀꯤ ꯆꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ (9.6.4)
D50 = 0.2 · D · [Q / (g^0.5 · D^2.5)]^(4/3) · (D / TW) (9.6.3)
ꯃ꯭ꯊꯛ 6 (550 mm)-ꯗꯒꯤ ꯍꯦꯟꯕ D50: ꯄꯥꯏꯄꯀꯤ ꯕꯦꯁꯤꯟ ꯑꯥꯎꯠꯂꯦꯠ ꯁꯤꯖꯤꯟ ꯕꯦꯁꯤꯟ

ꯐꯤꯒ 9.2 — ꯑꯍꯥꯡꯕ ꯄꯥꯏꯄꯀꯤ ꯃꯅꯥꯏꯌꯥꯒꯤ ꯑꯥꯎꯠꯂꯦꯠꯇꯥ ꯄꯥꯏꯄꯀꯤ ꯑꯦꯞꯔꯟ: ꯑꯥꯎꯠꯂꯦꯠꯇꯥ ꯑꯦꯞꯔꯟꯒꯤ ꯃꯊꯛ ꯍꯥꯞꯆꯤꯟꯕꯗꯥ 3D, ꯍꯦꯠ ꯆꯦꯟꯕ ꯍꯥꯏꯒꯤ ꯆꯦꯟꯕ ꯃꯌꯥꯏ ꯊꯣꯛꯂꯕꯗꯥ ꯃꯌꯥꯏꯔꯕ; ꯑꯁꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯤꯠꯇꯣꯛ ꯇꯦꯕꯜ 9.3-ꯗꯒꯤ; ꯃꯐꯝꯗꯨꯒꯤ ꯐꯤꯜꯇꯔ ꯄꯥꯏꯄꯀꯤ ꯆꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜꯒꯤ ꯍꯥꯏꯕ ꯂꯩ (ꯃ꯭ꯔꯣ 9.6.3 ꯑꯃꯁꯨꯡ 9.6.4)꯫ ꯍꯧꯖꯤꯛ ꯑꯣꯏꯒꯗꯕ ꯑꯣꯏꯔꯦ ꯀꯟꯕ ꯁꯦꯟꯗꯨ, FHWA, Hydraulic Design of Energy Dissipators for Culverts and Channels, HEC-14 (3rd ed., 2006), §10.2-ꯗꯒꯤ ꯍꯥꯗꯨꯒꯥ ꯂꯧꯈꯤꯕ꯫

9.6.5 **ꯀꯤꯔꯤꯛ ꯕꯦꯁꯤꯟꯁꯤꯡ.** ꯑꯣꯠꯄꯤꯜꯂꯤꯡ ꯄꯥꯏꯄꯀꯤ ꯐꯨꯟꯗ ꯄꯊꯕꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄꯀꯤ ꯑꯦꯞꯔꯟ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟꯁꯤꯡꯒꯤ ꯄꯣꯀꯄꯒꯤ ꯍꯧꯖꯤꯛ ꯆꯪꯕ ꯍꯦꯟꯕ, ꯀꯤꯔꯤꯛꯇꯥ ꯀꯤꯔꯤꯛ ꯕꯦꯁꯤꯟ ꯄꯥꯏꯄꯀꯤ ꯇꯥꯔꯃꯥꯏ ꯕꯦꯁꯤꯟ ꯑꯃꯥ HEC-14-ꯗꯒꯤ ꯄꯥꯏꯄꯀꯤ ꯍꯧꯔꯤ ꯀꯣꯛꯂꯣꯡꯗꯤ ꯇꯣꯡꯗꯕ US ꯕꯨꯔꯣ ꯑꯣꯐ ꯄꯤꯌꯥꯂꯍꯣꯀꯄꯒꯤ ꯕꯦꯁꯤꯟ ꯍꯤꯡꯂꯣꯛꯀꯤ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

9.6.6 **ꯁꯦꯛꯇꯔ ꯀꯤꯔꯤꯛꯇꯥꯔꯦꯀꯁꯤꯡ.** ꯍꯦꯠꯂꯒꯤ ꯀꯣꯛꯇꯔ ꯑꯃꯁꯤ ꯑꯣꯏꯕꯥꯕ ꯍꯧꯖꯤꯛ ꯃ꯭ꯔꯣ 9.5.4 ꯄꯥꯏꯄꯀꯤ ꯇꯦꯕꯜ 9.2-ꯒꯤ ꯑꯣꯠꯄꯤꯜ ꯂꯤꯍꯥꯏꯕꯗꯒꯤ ꯍꯦꯟꯒꯠꯂꯤ ꯍꯦꯟꯕ ꯁꯦꯛꯇꯔ ꯀꯤꯔꯤꯛꯇꯥꯔꯦꯀꯁꯤꯡ ꯄꯤꯂꯤꯕꯅꯤꯕꯗꯒꯤ꯫

- (a) ꯀꯤꯔꯦꯛ ꯑꯣꯏꯔꯤꯕꯥ ꯁꯦꯛꯇꯔ ꯑꯍꯥꯡꯕꯗꯣ, ꯁꯦꯛꯇꯔ ꯄꯥꯕꯦ D = q² / (g h³) ꯃꯍꯥꯏꯇꯔ ꯇꯣꯡꯗꯕꯅꯤ, ꯍꯥꯏꯕ ꯑꯃꯁꯤ q ꯑꯃꯁꯤ ꯂꯣꯟꯂꯤꯕ ꯁꯤꯀꯦꯟꯗꯇꯤ (m²/s) ꯑꯃꯁꯨꯡ h ꯑꯃꯁꯤ ꯁꯦꯛꯇꯔꯒꯤ ꯑꯋꯥꯡꯕꯅꯤ (m)꯫ ꯃꯇꯨꯡꯒꯤ ꯇꯤꯑꯣꯍꯦꯝꯄꯥꯔꯤ ꯑꯃꯁꯤ Rand (1955)-ꯒꯤ ꯄꯤꯊꯣꯛꯀꯗꯤꯡꯀꯤꯗꯒꯤ ꯊꯥꯒꯗꯕꯅꯤ: ꯁꯦꯛꯇꯔꯒꯤ ꯑꯁꯥꯡꯕ Ld/h = 4.30 D^0.27; ꯃꯇꯨꯡꯒꯤ ꯃꯊꯛ Yp/h = 1.00 D^0.22; ꯀꯤꯔꯦꯛꯀꯤ ꯃꯊꯛꯀꯤ y1/h = 0.54 D^0.425 ꯑꯃꯁꯨꯡ y2/h = 1.66 D^0.27꯫
- (b) ꯕꯦꯁꯤꯟ ꯇꯧꯕꯥ ꯌꯨꯃꯀꯤ ꯑꯃꯁꯨꯡ ꯀꯤꯔꯛ ꯇꯧꯕꯥ ꯁꯦꯛꯇꯔꯀꯤ ꯑꯃꯁꯤ HEC-14 ꯄꯥꯏꯄꯀꯤ US ꯕꯨꯔꯣ ꯑꯣꯐ ꯄꯤꯌꯥꯂꯍꯣꯀꯄꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡꯗꯤ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫
- (c) ꯃꯕꯨꯛꯇ ꯍꯥꯏꯕꯦ ꯑꯃꯁꯨ ꯑꯣꯏꯔꯤꯕꯥ ꯁꯦꯛꯇꯔ ꯑꯃꯁꯥꯟꯇꯒꯤ ꯑꯋꯥꯡꯕ 1.5 m-ꯗꯒꯤ ꯍꯦꯟꯕꯗꯅꯗꯕꯅꯤ꯫ ꯁꯦꯛꯇꯔꯀꯤꯗꯥ ꯀꯥꯡꯂꯣ 6, ꯃ꯭ꯔꯣ 6.13.8-ꯒꯤ ꯍꯦꯟꯗ ꯑꯣꯠ ꯃꯥꯁꯤꯡꯇꯣꯛ ꯆꯪꯗꯕꯅꯤ꯫

9.6.7 **ꯃꯇꯨꯡꯗꯥꯒꯤ ꯍꯟꯕꯥ ꯑꯃꯁꯨꯡ ꯊꯤꯔꯛꯄꯥ ꯑꯦꯞꯂꯥꯏꯁꯦꯟꯁꯤꯡ.** ꯊꯤꯔꯛꯂꯤꯕꯗ ꯇꯥꯏꯗꯦꯜ ꯑꯣꯁꯤꯂꯦꯁꯅꯁꯤꯡꯗ (estuary) ꯀꯜꯚꯥꯔꯠ ꯑꯦꯞꯂꯥꯏꯁꯦꯅꯁꯤꯡ ꯑꯁꯤ ꯔꯤꯚꯔꯁ ꯐ꯭ꯂꯣꯒꯤ ꯑꯃꯁꯨꯡ ꯁ꯭ꯀꯥꯎꯔ (scour)-ꯗꯒꯤ ꯊꯤꯡꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ ꯇꯤꯄꯤꯀꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯞꯂꯥꯏꯁꯦꯟ ꯈꯤꯕꯒꯤ ꯃꯇꯝ, ꯑꯦꯞꯂꯥꯏꯁꯦꯟ ꯑꯁꯤ ꯍꯦꯟꯅ ꯑꯍꯟꯕ ꯑꯣꯏꯅꯕ ꯄꯥꯝꯕꯥ ꯈꯣꯟꯖꯦꯜ ꯂꯦꯡꯗꯅꯕ ꯇꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯨꯡꯉꯥꯏ ꯑꯣꯏꯅꯕ ꯑꯁꯤ ꯃꯇꯨꯡ 5-ꯒꯤ ꯍꯟꯗꯥ ꯑꯦꯞꯂꯥꯏꯁꯦꯟ ꯈꯤꯕꯒꯤ ꯃꯇꯝ ꯇꯧꯒꯗꯕꯅꯤ꯫

> **ꯃꯦꯟꯁꯟꯗ ꯌꯥꯔꯤ.** HEC-14 (3rd ed., FHWA-NHI-06-086, ꯖꯨꯂꯥꯏ 2006) ꯑꯁꯤ ꯄꯥꯟꯗꯝꯒꯤ FHWA ꯑꯦꯅꯔꯖꯤ-ꯗꯤꯁꯤꯄꯦꯇꯔ ꯍꯦꯟꯗꯕꯅꯤ꯫ ꯑꯦꯞꯔꯟ ꯅꯨꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟ ꯌꯦꯊꯦ ꯑꯁꯤ HEC-14 §10.2 (Equation 10.4 ꯑꯃꯁꯨꯡ Table 10.1)-ꯗꯒꯤꯅꯤ꯫ ꯅꯨꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯦꯊꯦ ꯑꯁꯤ ꯍꯦꯝ ꯑꯁꯤꯗ ꯃꯁꯤꯡꯗꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯦꯇꯥꯁꯦꯠꯁꯤꯡꯗ (Tennessee-ꯒꯤ ꯄꯨꯂꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯥꯔꯤ-ꯑꯦꯟꯖꯦꯜꯁꯤꯒꯤ ꯇꯦꯁꯇꯤꯡ ꯔꯦꯖꯂꯣꯝ ꯑꯃꯁꯨꯡ) ꯄꯨꯗ ꯌꯦꯛꯇꯤꯕꯨꯟ ꯌꯦꯡꯕꯤ꯫ 3D ꯑꯦꯞꯔꯟꯒꯤ ꯌꯥꯕ ꯑꯁꯤꯡ ꯄꯥꯡꯕꯤꯝꯃꯟ ꯑꯦꯃꯁꯥꯒꯤꯅꯤ꯫ Purdue-ꯒꯤ ꯃꯤꯔꯤ ꯑꯍꯩ (JTRP) HEC-14-ꯒꯤ ꯑꯦꯞꯔꯟ ꯇꯥꯏꯞ ꯑꯁꯤ ꯍꯣꯁꯤꯒꯤ ꯔꯦꯁꯦꯜ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯍꯨꯝꯗ ꯅꯦꯝ ꯁꯦꯃꯗꯒꯤ ꯑꯅ ꯄꯨꯕꯗ ꯈꯣꯅꯤ꯫ Rand (1955)-ꯒꯤ ꯗꯔꯞ ꯗꯤꯖꯥꯏꯟꯁꯤꯡ ꯑꯁꯤ ꯃꯤꯇꯩꯗꯗ ꯑꯅ ꯑꯃꯁꯨꯡ Chow (1959)-ꯗ ꯄꯨꯗ ꯌꯥꯏꯗꯤ꯫ ꯒꯗꯔꯤꯁꯤꯡ ꯗꯔꯞ ꯑꯍꯅꯥꯔꯒꯤ 1.5 m-ꯒꯤ ꯖꯤꯍꯦꯛ ꯑꯁꯤꯒꯤ ꯍꯦꯕꯗ ꯊꯣꯗꯀꯕ ꯅꯗꯝ ꯑꯍꯦꯟꯕ ꯊꯣꯛ; ꯃꯄꯗꯒꯤ ꯅꯥꯏꯕꯦꯁꯤꯡꯗ ꯍꯤꯔꯥꯝꯒꯤ ꯑꯃꯅꯕ ꯊꯣꯛꯕꯒꯤꯗꯍꯥ ꯍꯦꯟꯗꯕ ꯑꯁꯤꯗ ꯍꯁꯤ ꯇꯝꯖꯤ꯫

9.7 ꯗꯤꯇꯦꯟꯁꯅꯒꯤ ꯑꯦꯞꯂꯥꯏꯖ ꯃꯦꯠꯔꯤꯛꯁꯤꯡ

9.7.1 **ꯌꯥꯗꯅꯍꯗꯤ ꯑꯦꯞꯂꯥꯏꯖ.** ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯈꯣꯡꯖꯤꯟ ꯑꯍꯥꯒꯤ ꯌꯥꯗꯅꯍꯗꯤ ꯑꯦꯞꯂꯥꯏꯖ ꯑꯁꯤꯗ:

- (a) ꯃꯇꯨꯡ 4-ꯒꯤ ꯗꯤꯖꯤꯖ ꯗꯦꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯔꯞꯗꯤꯂꯣꯟ ꯍꯤꯐꯁꯤꯡ ꯌꯥꯡꯇꯥꯡꯗꯤꯕꯗꯕꯅꯤ;
- (b) ꯌꯥꯍꯌ ꯊꯣꯛꯕ ꯈꯣꯡꯖꯤꯟꯊꯤꯡꯗ ꯔꯦꯅꯊꯗꯤ (ꯗꯔꯞꯖ 9.9), ꯍꯦꯗꯔꯦꯠꯗꯤꯂꯗ ꯌꯥꯗꯦꯟꯁꯤꯡ ꯔꯦꯅꯗꯥꯒꯤ ꯑꯦꯞꯔꯟꯊꯣꯛꯒꯤ ꯇꯕꯥ ꯑꯣꯏꯅꯗ ꯇꯕꯥ ꯊꯣꯛꯅꯕꯅꯤ;
- (c) **50 mm**-ꯗꯒꯤ ꯑꯌꯥꯝꯕꯥ ꯑꯣꯔꯤꯐꯤꯁ (orifice) ꯑꯍꯦꯟꯕ ꯊꯣꯛꯅꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯣꯔꯤꯐꯤꯁ ꯅꯗꯤꯡꯍꯥ ꯊꯣꯛꯇꯕ ꯃꯗꯔꯤꯖ ꯑꯍꯦ ꯊꯤꯡꯖꯤꯟꯅꯒꯗꯕꯅꯤ (ꯗꯔꯞꯖ 9.8.5); ꯑꯃꯁꯨꯡ
- (d) ꯍꯇꯥꯊꯣꯒꯤ ꯃꯇꯝꯗꯦꯇꯔꯤꯁꯤꯡꯗꯍꯥ ꯌꯦꯡꯕ ꯌꯤꯒꯅꯕꯅꯤ꯫

9.7.2 **ꯑꯣꯔꯤꯐꯤꯁꯁꯤꯡ.** ꯑꯣꯔꯤꯐꯤꯁ ꯐꯣꯔ ꯑꯁꯤ ꯍꯥꯅꯒꯤ ꯍꯧꯗꯥ ꯗꯦꯌꯥꯅꯨꯖ ꯊꯣꯛꯅꯕꯅꯤ:

> Q = Cd · A · (2 g h)^0.5

ꯍꯦꯝ ꯑꯁꯤꯗ A ꯑꯁꯤ ꯑꯣꯔꯤꯐꯤꯁꯒꯤ ꯑꯦꯔꯤꯌꯥꯅꯤ (m²) ꯑꯃꯁꯨꯡ h ꯑꯁꯤ ꯑꯣꯔꯤꯐꯤꯁꯒꯤ ꯃꯦꯟꯊꯔꯅꯗ ꯊꯣꯛ ꯄꯥꯗꯤ (m), ꯔꯦꯅꯗꯥꯒꯤ ꯑꯣꯔꯤꯐꯤꯁ ꯑꯁꯤ ꯃꯊꯍꯗꯖ ꯑꯅꯗꯊ ꯍꯦꯝꯍꯗ ꯍꯇꯥ ꯇꯝꯊ ꯑꯃꯁꯨꯡ ꯍꯅ ꯇꯝꯊ ꯅꯁꯤꯡꯒꯤ ꯖꯒꯤꯔꯤꯡꯒꯤ ꯅꯦꯔꯊꯗꯤ꯫ ꯇꯤꯖ ꯌꯥꯖꯦ (thin plate) ꯑꯍꯗ ꯊꯣꯛ ꯃꯗꯌꯥ-ꯑꯦꯖ ꯊꯣꯛ ꯑꯣꯔꯤꯐꯤꯁ ꯑꯍꯥꯒꯤꯗꯍꯥ Cd ꯑꯁꯤ 0.60 ꯑꯅꯥꯗꯕꯅꯤ꯫ ꯑꯊꯌꯥꯝ ꯑꯦꯖꯒꯤ ꯈꯤꯒꯍꯁꯤꯡꯗ ꯈꯣꯗꯅꯥꯖꯊ, ꯊꯦꯔꯤ ꯊꯣꯗꯊ ꯒꯔꯨꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

9.7.3 **ꯋꯤꯌꯔꯁꯤꯡ.** ꯋꯤꯌꯔ (weir) ꯐꯣꯔ ꯑꯁꯤ Q = Cw · L · H^1.5 ꯑꯅꯗ ꯗꯦꯌꯥꯅꯨꯖ ꯊꯣꯛꯅꯕꯅꯤ, ꯍꯥꯅꯒꯤꯁꯤꯒꯤ ꯖꯔꯦꯗ:

- (a) ꯃꯗꯌꯥ-ꯗꯔꯞꯃꯤꯗ ꯗꯔꯤꯡꯖꯗ ꯋꯤꯌꯔꯁꯤꯡ: Cw = 1.84 (SI), ꯑꯦꯗ ꯗꯦꯊꯗꯔꯦ ꯅꯗꯤꯡꯍꯥꯗꯤꯗꯍꯥ ꯅꯈꯔꯊꯒꯤ ꯑꯃꯇꯊ 0.1 H ꯄꯦꯇꯄꯦꯗꯨ;
- (b) V-ꯅꯆ ꯋꯤꯌꯔꯁꯤꯡ: Q = 1.38 · tan(θ/2) · H^2.5 (SI), ꯍꯦꯝ ꯑꯁꯤꯗ θ ꯑꯁꯤ ꯅꯆꯒꯤ ꯑꯦꯡꯒꯜꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯕꯔꯗ-ꯗꯔꯞꯃꯤꯗ ꯋꯤꯌꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯒꯔꯒꯤ ꯗꯔꯃꯦꯟꯁꯤꯡ: Cw = 1.44-ꯗꯒꯤ 1.70 (SI), ꯗꯔꯃꯦꯟꯒꯤ ꯍꯑꯣ ꯑꯃꯁꯨꯡ ꯄꯗꯒꯤꯗꯍꯥ ꯈꯣꯗꯅꯥꯖꯊ ꯊꯕꯒꯤꯗꯒꯤ ꯅꯖꯊ꯫

ꯃꯊꯍꯗꯖ ꯑꯅꯗꯊ ꯋꯤꯌꯔꯁꯤꯡ ꯑꯁꯤ ꯈꯣꯗꯅꯥꯖꯊ ꯗꯤꯖꯦꯃꯦꯁꯤꯌꯥꯁꯤꯡꯗꯒꯤ ꯃꯊꯍꯗꯖꯦꯃꯒꯤꯗꯍꯥ ꯗꯗꯔꯥꯊ ꯊꯣꯛꯅꯕꯅꯤ꯫

9.7.4 **ꯂꯣꯗ–ꯑꯣꯏꯔꯕꯗ ꯃꯍꯤ.** ꯀꯅꯥꯏ-ꯂꯣꯗ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡꯒꯤꯗꯃꯛ (ꯑꯥꯎꯠꯂꯦꯠ ꯄꯥꯏꯞ ꯑꯃꯁꯨꯡ ꯚꯔꯇꯤꯀꯦꯜ ꯔꯥꯏꯖꯔ (riser) ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯑꯦꯟꯠꯔꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ), ꯑꯣꯏꯊꯣꯛꯄꯥ ꯂꯣꯗ ꯁꯤꯟꯗꯛꯄꯥ, ꯇꯥꯡꯀꯤ ꯍꯦꯟꯅ ꯃꯇꯧꯒꯤ ꯁꯤꯟꯗꯛꯄꯁꯤꯡ ꯀꯌꯥ ꯑꯣꯏꯔꯕꯗ (ꯑꯦꯟꯠꯔꯤ ꯁꯤꯟꯗꯛꯄ, ꯍꯥꯏꯗ꯭ꯔ ꯁꯤꯟꯗꯛꯄ, ꯃꯅꯥꯏꯒꯤ ꯃꯇꯦꯡ, ꯑꯃꯁꯨꯡ ꯅꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯃꯇꯧꯒꯤ ꯀꯔꯝꯅ ꯑꯥꯎꯠꯂꯦꯠ ꯄꯥꯏꯞ) ꯃꯈꯥꯒꯤ ꯌꯥꯅꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯂꯤꯡꯂꯦꯗꯕ ꯒꯤꯕꯨꯒꯤ **ꯅꯕꯤꯅꯅꯒꯤ ꯑꯦꯟꯇꯤꯚꯦꯟꯇ** ꯑꯃꯨ ꯂꯤꯂꯤꯡꯂꯒꯅꯕꯗꯤ꯫꯫ ꯃꯍꯤ ꯑꯁꯤ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ ꯅꯦꯒꯃꯠꯅꯒꯤ ꯅꯀꯃꯂꯦꯡꯁꯤ ꯂꯥꯏꯕꯥꯔꯒꯤ ꯃꯇꯦꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯇꯅꯦ ꯄꯨꯅ ꯊꯦꯡꯕ ꯌꯥꯕꯅ ꯑꯥꯅꯗꯦ ꯂꯧꯒꯅꯕꯗꯤ꯫꯫

9.7.5 **ꯌꯥꯅꯕꯁꯤꯡꯃ.** ꯃꯌꯥꯏꯕꯂꯤꯕ ꯑꯁꯤ ꯃꯗꯦꯗ 9.2.1-ꯒꯤ ꯌꯥꯅꯕꯁꯤꯡꯃꯒꯤ ꯗꯔꯀꯥꯔ ꯃꯈꯥꯄꯨꯡ ꯌꯥꯅꯕꯗꯤ꯫꯫ ꯅꯂꯤꯕ ꯗꯕ ꯅꯂꯤꯕ ꯑꯃꯨ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ ꯀꯇꯒꯌ ꯔꯤꯕꯅꯠꯄ ꯍꯦꯟ ꯀꯇꯀꯅ, ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯨꯅ ꯃꯗꯦꯗ 9.10-ꯒꯤ ꯀꯍꯦꯅ ꯇꯗꯄ ꯒꯠ ꯗꯠꯃꯒꯤ ꯗꯦ-ꯃꯤꯌꯃꯦ ꯒꯅꯒ ꯑꯀꯤ ꯗꯒꯅꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯂꯣꯃꯗ ꯑꯃꯨꯗꯦ ꯂꯃꯥꯏ 5-ꯒꯤ ꯑꯥꯎꯠꯇꯦꯟ ꯇꯤꯕ ꯍꯥꯏ ꯀꯔꯝꯕꯅꯕꯗꯤ꯫꯫

9.7.6 **ꯅꯀꯃꯗꯦꯂꯤ ꯂꯝꯕꯤꯟꯇꯔꯥ.** ꯅꯀꯃꯗꯦꯂꯤ ꯂꯝꯕꯤꯟꯇꯔꯥ (spillway) ꯑꯁꯤꯗꯤ, ꯀꯔꯝꯅꯀꯃꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯕꯗꯥ ꯑꯅꯃ ꯑꯃꯁꯨꯡ ꯄꯥꯃꯃꯀꯍ ꯕꯂꯤꯦ ꯇꯦꯗ ꯄꯍꯗꯦ ꯗꯕꯨꯗꯦ, ꯀꯦꯒꯤ (embankment) ꯃꯃꯂꯠ ꯇꯦꯕꯕ **0.3 m** ꯇꯃꯤꯕꯃꯅꯒꯤ ꯗꯍꯗꯦꯗ 1% AEP-ꯒꯤ ꯅꯦꯇꯗ ꯀꯇꯥꯃꯃꯅꯕꯗꯤ꯫꯫ ꯄꯅ-ꯄꯗꯃꯅ ꯕꯂꯤꯦꯂꯤꯕꯨ 0.2% AEP-ꯒꯤ ꯅꯦꯇꯗꯒꯤꯗꯃꯛ ꯍꯥꯏ ꯌꯥꯅꯕꯗꯤ (ꯂꯃꯥꯏ 4)꯫꯫

9.7.7 **ꯀꯦꯂꯤꯕꯒꯤ ꯁꯠꯇꯤꯕꯅ ꯍꯠꯀ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯅꯀꯂꯤꯕ.** ꯀꯦꯂꯤꯕꯒꯤ ꯁꯠꯇꯤꯕꯅ ꯍꯠꯀ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯅꯀꯂꯤꯕꯅ ꯀꯅꯀ ꯑꯃꯨꯒꯤ ꯀꯗꯥꯏꯌ ꯀꯅꯀꯤꯕ ꯇꯤꯕꯗꯕ ꯇꯤꯅꯌꯃ ꯑꯅꯍꯦꯇꯃꯤꯀ ꯗꯠꯃꯒꯤ ꯂꯤꯀꯦꯗ ꯃꯗꯃꯂꯤꯕ (seepage collar), ꯑꯃꯁꯨꯡ ꯇꯗꯍꯃ ꯌꯃꯕ ꯗꯠꯃꯒꯤ ꯄꯅꯍꯅ ꯗꯕ ꯅꯦꯗꯠ ꯑꯀꯤ ꯗꯒꯅꯕꯗꯤ꯫꯫

9.7.8 **ꯑꯦꯌꯤ-ꯒꯃꯌꯥꯏꯂ.** ꯃꯅꯗꯃꯒꯤ ꯃꯃꯂꯠꯃꯤ ꯀꯇꯥꯏꯌ ꯑꯤꯗꯅꯦ ꯄꯅ ꯑꯁꯤ ꯃꯅꯗꯃꯒꯤ ꯑꯅꯀꯤꯌꯃꯅꯒꯤ ꯄꯦꯕ ꯃꯅꯗꯃ ꯑꯥꯎꯠꯂꯦꯠꯂꯤꯕꯅ ꯑꯦꯌꯤ-ꯒꯃꯌꯥꯏꯂ ꯀꯗꯠ ꯑꯀꯤ ꯗꯒꯅꯕꯗꯤ꯫꯫

> **ꯂꯦꯅꯥꯏꯗꯦ ꯌꯥꯀ.** ꯌꯃꯂ ꯂꯃꯃꯤꯦ ꯗꯕ 50 mm-ꯒꯤ ꯀꯤꯗꯤꯀ ꯑꯃꯤꯇꯤꯂ, ꯅꯀꯃꯗꯦꯂꯤ-ꯂꯝꯕꯤꯟꯇꯔꯥꯒꯤ ꯃꯃꯅꯌꯃꯤꯍꯦ ꯑꯃꯁꯨꯡ ꯑꯃꯑꯕꯦ ꯀꯌꯀꯂꯤꯕ ꯑꯁꯤ ꯀꯂꯍꯅ ꯑꯂꯤꯒꯤ ꯀꯂꯑꯅꯕ ꯃꯃꯅꯌꯃꯤꯍꯂꯤꯕꯗꯤ (ꯂꯃꯥꯏ 4)꯫꯫ ꯀꯤꯗꯤꯀ ꯑꯃꯤꯇꯤꯂ ꯑꯁꯤ APWA 5600 (2006, 5608.4)-ꯒꯤ 3 in (ꯀꯃꯅ 75 mm)-ꯒꯤ ꯀꯤꯗꯤꯀꯑꯒꯤ ꯑꯀꯤꯗꯤꯗꯤ꯫꯫ ꯀꯂꯤꯗꯦ ꯑꯀꯤꯗꯀ ꯂꯅꯠꯂꯤꯕꯅ ꯂꯃꯥꯏ 4-ꯒꯤ ꯀꯤꯗꯂꯅ-ꯇꯃꯤꯃꯍꯦꯂꯤ ꯃꯅꯒꯤ ꯄꯦꯇꯕ ꯃꯤꯗꯤꯗ ꯃꯠꯂꯤꯕ ꯍꯄꯅꯗꯤ, ꯑꯃꯁꯨꯡ ꯀꯂꯤ ꯇꯕ ꯂꯃꯃꯤꯦ ꯑꯀꯅ ꯇꯗꯤ (ꯃꯗꯦꯗ 9.8.5)꯫꯫ "ꯀꯃꯗꯤꯃꯅ ꯀꯃꯠꯂꯤꯕ ꯗꯌꯕ" ("no mechanical parts") ꯃꯅ ꯑꯁꯤ APWA 5600 (2006, 5608.4) ꯀꯌꯨꯕ ꯅꯦꯗꯤ, ꯀꯂꯤꯗꯦ ꯀꯃꯅꯀꯃꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯑꯁꯤ ꯃꯗꯤꯀꯕ ꯑꯀꯠꯌꯗꯦ ꯍꯕꯂꯤꯦꯅꯗꯦ ꯇꯕꯗ ꯌꯕ ꯀꯇ ꯌꯄꯅꯗꯤ꯫꯫ ꯑꯃꯤꯇꯤꯂ ꯑꯃꯁꯨꯡ ꯍꯤꯍꯃꯒꯤ ꯃꯑꯦꯇꯤꯂꯤꯍꯦꯠꯂꯤꯕ ꯑꯁꯤ ꯂꯌꯦꯅꯃꯅ ꯌꯗꯂꯕꯗꯃꯤ ꯒꯅꯁꯂꯤꯕꯗꯤ (ꯁꯅꯀ ꯑꯅꯗꯦ Brater and King, *Handbook of Hydraulics*; Chow 1959)꯫꯫ 1.84-ꯒꯤ ꯂꯃꯀ-ꯃꯃꯂꯌꯅ ꯃꯑꯦꯇꯤꯂꯤꯍꯦꯠ ꯑꯃꯁꯨꯡ 0.1H ꯑꯦꯅ-ꯃꯦꯌꯃꯗꯂꯦ ꯃꯃꯗꯂꯦ ꯑꯁꯤ SI ꯁꯗꯤꯠꯂꯤꯕꯅ ꯗꯕ Francis ꯇꯃꯀꯗꯤꯗꯤ꯫꯫ ꯕꯃꯅ-ꯃꯃꯂꯌꯅ ꯃꯦꯇ 1.44–1.70 ꯑꯁꯤ ꯃꯀꯦ ꯑꯅꯗꯦ ꯌꯕꯅ ꯌꯃꯤꯕ US ꯃꯦꯇ 2.6–3.1-ꯒꯤ SI ꯅꯃꯍꯤꯒꯗꯦꯠꯗꯤ꯫꯫ ꯃꯗꯦꯗ 9.7.7 ꯑꯃꯁꯨꯡ 9.7.8 ꯑꯁꯤ ꯃꯀꯦ ꯅꯀ ꯑꯃꯁꯨꯡ ꯑꯤꯌꯦꯂꯦꯒꯤ ꯀꯃꯗꯌꯤꯂ ꯀꯌꯨꯕ ꯅꯦꯗꯤ꯫꯫

9.8 ꯌꯃꯂ ꯃꯗꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯃꯃꯤꯦꯂꯤꯕ

9.8.1 **ꯃꯑꯅꯅ ꯀꯇ ꯌꯕꯒ.** ꯌꯃꯂ ꯃꯗꯂꯤꯕ (trash rack) ꯗꯠꯃꯒꯤ ꯂꯃꯃꯤꯦꯂꯤꯕ ꯀꯍꯒꯤ ꯀꯇꯀꯂꯤꯕꯅ ꯀꯤꯒꯅꯕꯗꯤ:

- (a) ꯑꯀꯦ ꯍꯗꯕꯦ ꯑꯀꯗꯦ 30 m-ꯅꯒꯤ ꯂꯗꯕ ꯀꯅꯀ, ꯃꯒꯃ ꯌꯃꯕ ꯍꯗꯕꯦ ꯗꯠꯃꯒꯤ ꯃꯅꯒꯃꯠ ꯑꯀꯅ ꯍꯗꯗꯤꯕ ꯀꯇꯀꯅ (ꯂꯃꯥꯏ 6, ꯃꯗꯦꯗ 6.13.4);
- (b) ꯑꯤꯌꯦꯂꯦꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯤꯇꯤꯂ ꯁꯅꯤꯕꯀꯗꯌ (ꯃꯗꯦꯗ 9.7.1);
- (c) ꯀꯀꯀ ꯂꯀꯀ ꯁꯅꯤꯕꯀꯗꯃꯤ ꯅꯦꯗꯠꯌ (ꯃꯗꯦꯗ 9.9); ꯑꯃꯁꯨꯡ
- (d) ꯅꯂꯤꯕ ꯗꯇꯀꯂꯤꯕꯅ ꯇꯗꯀ ꯑꯥꯎꯠꯇꯦꯟꯂꯤꯕꯅ, ꯂꯃꯥꯏ 8-ꯒꯤ ꯒꯃꯂ ꯀꯗꯨꯌꯦꯠ ꯌꯃꯀ (gross pollutant trap) ꯑꯃꯨꯒꯤ ꯀꯨꯕꯅ ꯍꯦꯇꯗꯦ꯫꯫

9.8.2 **ꯀꯟꯗ꯭ꯌꯨꯏꯠ-ꯑꯦꯞ꯭ꯔꯣꯆꯀꯤ ꯃꯥꯂꯦꯝ.** ꯀꯟꯗ꯭ꯌꯨꯏꯠ (conduit) ꯑꯃꯁꯨꯡ ꯀꯅꯦꯛꯁꯅꯁꯤꯡꯒꯤ ꯑꯦꯞ꯭ꯔꯣꯆꯇ ꯆꯠꯄ ꯃꯥꯂꯦꯝꯁꯤꯡꯗ ꯈꯪꯖꯤꯅꯒꯗꯕꯅꯤ:

- (a) 75 mm-ꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯀꯟꯗ꯭ꯌꯨꯏꯠꯀꯤ ꯅꯤꯡꯊꯤꯕ ꯑꯣꯏꯔꯣꯏ ꯅꯦꯃꯊꯣꯛꯄ ꯁꯅꯈꯦꯜꯂꯤꯕ ꯃꯥꯡꯅꯕꯒꯤ ꯄꯦꯟꯅꯕ ꯀꯥꯔꯁꯤ ꯇꯦ ꯂꯣꯏꯁꯤꯡ;
- (b) ꯀꯟꯗ꯭ꯌꯨꯏꯠꯀꯤ ꯀꯦꯛ-ꯂꯥꯏꯂꯦꯡ ꯑꯥꯡꯒꯣꯝꯒꯤ ꯅꯨꯡꯗ꯭ꯔꯨꯕꯗ ꯅꯤ 4 ꯑꯃꯕ ꯃꯦꯛ ꯑꯥꯡꯒꯣꯝ;
- (c) ꯇꯥꯡ ꯑꯍꯥꯒꯤ 50% ꯕꯂꯣꯛ ꯑꯃꯕꯒꯤ, ꯅꯤꯂꯕꯦ ꯖꯂꯒꯤ ꯇꯥꯡꯀꯤ ꯃꯩꯁꯤꯡꯗ 1.0 m/s-ꯗꯒꯤ ꯄꯦꯟꯅꯕ ꯈꯤꯕ ꯒꯂꯣꯏꯁꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯇꯥꯡ ꯑꯍ ꯃꯩꯒꯤ ꯇꯥꯡ (rake) ꯂꯤꯂꯤꯕꯦꯍꯤ ꯂꯥꯡꯗꯥꯡꯀꯅꯕ ꯈꯖꯈꯗ, 1V:2H-ꯗꯒꯤ ꯄꯦꯟꯗꯤ ꯑꯣꯈꯗꯕ ꯃꯦꯡꯂꯤꯂꯦꯡꯕ, ꯅꯤꯇꯀꯤꯡ ꯑꯂꯣꯌꯖꯤꯇꯈ ꯑꯃꯁꯨꯡ ꯄꯦꯅꯇꯥꯒꯤ ꯂꯔꯤꯂꯤ꯫

9.8.3 **ꯄꯥꯅ ꯂꯣꯁ.** ꯂꯥꯡꯂꯕ ꯇꯥꯡ ꯑꯈꯒꯤ ꯃꯩꯁꯤꯡꯗ ꯄꯥꯅ ꯂꯣꯁ ꯑꯁꯤ Kirschmer-ꯒꯤ ꯃꯀꯣꯔꯂꯕꯦꯍꯤ ꯀꯈꯑꯃꯁ ꯌꯥꯒꯅꯕꯅꯤ:

> hr = β · (t / b)^(4/3) · (V² / 2g) · sin θ

ꯈꯖꯈ ꯑꯁꯤꯗ t ꯑꯁꯤ ꯕꯇꯒꯤ ꯊꯤꯡꯂꯥꯡꯂꯤ, b ꯑꯁꯤ ꯀꯂꯤꯔꯇ ꯕꯇ ꯂꯑꯥꯡꯁꯤꯡꯂꯤ, V ꯑꯁꯤ ꯑꯥꯑꯥꯇꯥꯔ ꯒꯥꯂꯣꯏꯁꯤꯂꯤ, θ ꯑꯁꯤ ꯄꯥꯇꯃꯦꯂꯌꯅꯒꯤ ꯇꯥꯡꯀꯤ ꯑꯥꯡꯅꯂꯤ, ꯑꯃꯁꯨꯡ β ꯑꯁꯤ ꯕꯇꯒꯤ ꯂꯥꯑ ꯖꯥꯌꯇꯂꯤ (ꯂꯇꯑ-ꯑꯥꯂ ꯂꯕ ꯇꯥꯌꯥꯡꯂꯇ ꯕꯇꯁꯤꯡꯒꯤꯗꯃꯛ 2.42; ꯑꯀꯃꯕ ꯕꯇꯁꯤꯡꯒꯤꯗꯃꯛ 1.79)꯫ HGL ꯑꯃꯁꯨꯡ ꯄꯥꯅꯔꯥꯌꯇ ꯑꯁꯤ ꯇꯥꯡ ꯑꯍ **50% ꯕꯂꯣꯛ ꯑꯃꯕꯒꯤ** ꯅꯥꯡ ꯌꯥꯒꯅꯕꯅꯤ (ꯄꯥꯅ ꯂꯣꯁ ꯑꯁꯤ ꯑꯥꯑꯦ ꯑꯥꯡꯒꯣꯝꯒꯤ ꯌꯥꯝꯅꯥꯡꯒꯤ ꯂꯔꯤꯂꯤ ꯀꯈꯑꯃꯁ ꯌꯥꯇꯒꯤ)꯫

9.8.4 **ꯕꯂꯣꯛ ꯑꯃꯕ ꯈꯌꯥꯈꯅ ꯑꯥꯒꯇꯖꯂꯣ.** ꯈꯑꯥꯡ ꯖꯂꯤ ꯕꯂꯣꯛ ꯑꯃꯕ ꯇꯥꯡ ꯑꯈꯂꯤ ꯕꯤꯅꯗꯁꯤꯂꯤꯡꯅ ꯃꯂꯤ ꯃꯔꯤ ꯊꯥꯄꯦꯅꯂꯕ ꯂꯃꯇꯒꯤ ꯂꯦꯡꯥ 6-ꯒꯤ ꯂꯤꯈꯤꯃꯂꯤꯡꯅꯒꯤ ꯄꯦꯄꯦꯅꯂꯕ ꯇꯥꯡ ꯃꯅꯤꯡꯃꯌ ꯑꯥꯒꯇꯖꯂꯣ ꯃꯨ ꯑꯈ ꯂꯤꯒꯅꯕꯅꯤ꯫

9.8.5 **ꯅꯤꯌꯦꯂꯦꯒꯤ ꯑꯦꯀꯨꯂꯣꯃ ꯂꯀꯇꯤꯦꯂꯤꯡ.** ꯅꯤꯌꯦꯂꯦ ꯑꯥꯇꯤꯖꯤꯂꯤꯡꯒꯤ ꯈꯊꯥꯌ ꯂꯕ ꯂꯀꯇꯤꯦꯂꯤꯡꯅ ꯈꯃꯥꯔꯂꯤ ꯊꯥꯊꯥꯂꯤꯕ ꯑꯥꯇꯤꯖꯤꯂꯅꯒꯤ ꯑꯑꯤꯑꯥꯑ ꯑꯥꯑꯂꯤꯡꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯑꯥꯇꯤꯖꯤꯂꯀꯤ ꯑꯥꯇꯤꯔꯤꯒꯤ ꯅꯨꯡꯗ꯭ꯔꯨꯕꯗ ꯅꯤ 10 ꯑꯃꯕ ꯑꯥꯑꯦ ꯑꯥꯇꯤꯔꯤ ꯂꯤꯒꯅꯕꯅꯤ꯫

9.8.6 **ꯑꯈꯑ ꯂꯈꯑꯀꯤ ꯂꯀꯇꯤꯦꯂꯤꯡ.** ꯑꯈꯑꯂꯤꯡ-ꯂꯌꯦꯂꯦꯒꯤ ꯃꯦꯂꯦꯃꯂꯤꯡꯅ ꯂꯕ ꯕꯇ ꯂꯀꯇꯤꯦꯂꯤꯡꯅ, ꯑꯈꯑ ꯈꯖꯥꯡꯔꯇꯂꯤ ꯄꯃꯇꯕꯈꯂꯤ, ꯑꯈꯑꯂꯤꯡꯂꯤ ꯑꯂꯊꯥ ꯊꯈꯕ ꯅꯨꯡꯗꯔꯒꯤ ꯅꯤꯂꯕ ꯂꯂꯤꯗꯒꯤ ꯑꯥꯑꯤꯑꯥꯑ ꯀꯂꯤꯔꯇ ꯂꯑꯥꯡꯁꯤꯡ ꯂꯤꯒꯅꯕꯅꯤ꯫ ꯂꯀꯇꯤꯦꯂꯤꯡ ꯑꯁꯤ ꯂꯊꯀꯑ ꯔꯇ ꯈꯅꯗ꯭ꯔꯤꯡꯅ ꯂꯒꯅꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯅꯤꯂꯕꯦ ꯃꯦꯖꯂꯣ 1 m³/s-ꯗꯒꯤ ꯄꯦꯕ ꯈꯖꯈꯗ ꯈꯀꯂꯤꯀꯤ ꯑꯃꯂꯤ ꯇꯥꯡ ꯌꯕ ꯂꯀꯇꯤꯦ ꯑꯈ ꯂꯤꯂꯤꯦꯂꯒꯅꯕꯅꯤ꯫

9.8.7 **ꯂꯖꯌꯤ.** ꯂꯑꯕ ꯀꯟꯗ꯭ꯌꯨꯏꯠꯂꯤꯡꯒꯤ ꯑꯦꯞ꯭ꯔꯣꯆꯀꯤ ꯂꯕ ꯇꯥꯡꯂꯤꯂꯤ ꯈꯤꯇꯃꯂꯤꯡ ꯔꯤꯂꯤꯂꯦꯅꯂꯕ ꯊꯤꯡꯅꯕꯅꯤ꯫ ꯈꯃꯔꯕ ꯈꯑꯥꯡ ꯖꯂꯤ ꯕꯂꯣꯛ ꯑꯃꯕ ꯇꯥꯡ ꯑꯈꯒꯤ ꯄꯃꯗꯤꯂꯌꯌꯥ ꯂꯅꯒꯤꯗꯃꯛ ꯅꯤꯂꯕꯦ ꯌꯥꯒꯅꯕꯅꯤ꯫

> **ꯂꯦꯅꯥꯡꯂꯤ ꯌꯥꯑ.** CPHEEO (2019, §8.3.1.3)-ꯂꯤ "ꯈꯇꯥ 58 mm" ("approximately 58 mm")-ꯒꯤ ꯂꯑꯥꯡꯁꯤꯡ ꯂꯕ, ꯈꯅ꯭ꯔꯂꯤꯡꯅ ꯂꯕ, ꯀꯑꯥꯑ ꯊꯥꯂꯕꯅꯤ ꯃꯈꯂꯦꯂꯤ ꯑꯥꯒꯇꯖꯂꯣ ꯂꯕ ꯑꯈꯑꯂꯤꯡ-ꯂꯌꯦꯂꯦꯒꯤ ꯕꯇ ꯂꯀꯇꯤꯦꯂꯤꯡ ꯂꯦꯅꯥꯡꯂꯤ ꯌꯥꯂꯤ꯫ ꯀꯂꯥꯂ 9.8.6-ꯂꯤ ꯊꯥꯑꯤꯡ ꯑꯍ ꯈꯌꯥꯡ ꯃꯦꯂꯤ ꯑꯍꯕ ꯂꯑꯥꯡꯁꯤꯡ ꯑꯁꯤ ꯑꯈꯑꯀꯤ ꯂꯤꯂꯤꯂ-ꯑꯁꯤꯡ ꯂꯕꯂꯤ ꯂꯈꯂꯄꯥꯂꯤ, ꯈꯁꯤ ꯑꯈꯑ ꯈꯌꯥꯡ ꯃꯦꯂꯦ ꯌꯊꯦꯂꯤ꯫ 50% ꯕꯂꯀꯂ ꯅꯥꯡ ꯑꯁꯤ ꯂꯦꯡꯥ 6-ꯒꯤ ꯃꯦꯛꯄ ꯀꯂꯒꯤꯡ ꯖꯥꯌꯇꯒꯤ ꯅꯤꯂꯤ꯫ Kirschmer-ꯒꯤ ꯃꯀꯣꯔꯂꯦ ꯑꯃꯁꯨꯡ ꯈꯁꯤꯒꯤ ꯂꯥꯑ ꯖꯥꯌꯇꯂꯤꯡ ꯑꯁꯤ ꯂꯌꯦꯂꯦꯇꯂꯤ (Kirschmer 1926, ꯄꯃꯇꯕꯈꯂꯤꯥ ꯄꯦꯅꯕꯥꯂꯤꯡꯅ ꯄꯦꯂꯤ ꯑꯤꯇꯕꯈꯂꯤ)꯫ ꯇꯥꯡ ꯂꯑꯥꯡꯁꯤꯡ, ꯑꯥꯇꯤꯔꯤ ꯇꯥꯂꯤꯥ, ꯊꯇ-ꯒꯥꯂꯣꯏꯁꯤ, 30 m-ꯒꯤ ꯀꯟꯗ꯭ꯌꯨꯏꯠ ꯑꯂꯑꯕꯒꯤ ꯌꯇꯒꯤꯇ, ꯑꯥꯇꯤꯖꯤꯂꯤꯂꯤꯡꯒꯤꯗꯃꯛ 10× ꯂꯀꯇꯤꯦ ꯑꯥꯇꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯈꯀꯂꯤꯀꯤ ꯇꯥꯂꯤꯡꯒꯤꯗꯃꯛ 1 m³/s-ꯒꯤ ꯌꯇꯒꯤꯇ ꯑꯁꯤꯒꯤ ꯈꯈꯤꯅ ꯂꯤꯥꯈꯕ ꯃꯅꯈ ꯑꯈꯌꯥ ꯂꯌꯥ ꯑꯃꯁꯨꯡ ꯈꯃꯔ ꯑꯁꯤ ꯈꯂꯨꯔꯥ ꯑꯁꯤꯂꯤ ꯊꯈꯕꯂꯤ꯫

9.9 ꯄꯝꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯝꯄꯁꯤꯡ

9.9.1 **ꯄꯝꯄ ꯇꯧꯕ ꯑꯁꯤ ꯀꯗꯥꯏꯗ ꯁꯤꯖꯤꯟꯅꯒꯗꯒꯦ.** ꯒ꯭ꯔꯦꯚꯤꯇꯤ ꯅꯔꯝꯅꯥ ꯁꯔꯨꯛ 5 ꯑꯃꯁꯨꯡ 6-ꯒꯤ ꯃꯇꯧ ꯇꯧꯕꯁꯤꯡ ꯊꯏꯔ ꯊꯝꯗꯕ ꯃꯐꯝꯗ ꯅꯛꯌꯥꯃꯛ ꯄꯝꯄ ꯇꯧꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ, ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯅꯝꯕꯤꯒꯤ ꯑꯟꯗꯔꯄꯥꯁꯁꯤꯡꯗ (underpass) (ꯁꯔꯨꯛ 6, ꯀ꯭ꯂꯣꯖ 6.10.5), ꯕꯦꯁꯃꯦꯟꯠꯁꯤꯡ, ꯅꯦꯝꯕ ꯂꯐꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 5-ꯒꯤ ꯑꯥꯎꯠꯐꯣꯜ ꯊꯤꯡꯕ ꯌꯦꯔꯛꯀꯤ ꯂꯥꯏꯛ ꯌꯅꯥꯗ ꯇꯥꯔ ꯌꯦꯜꯕ (tide-locked: ꯌꯅꯥꯗ ꯌꯤꯡꯕꯅꯥ ꯑꯥꯎꯠꯐꯣꯜ ꯊꯤꯡꯂꯤꯕ) ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯗ॥

9.9.2 **ꯗꯤꯖꯥꯏꯟ ꯏꯟꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ.** ꯁ꯭ꯇꯦꯁꯟ ꯑꯁꯤ ꯀꯦꯆꯃꯦꯟꯠ (catchment) ꯑꯃꯁꯨꯡ ꯃꯊꯛ ꯊꯏꯕ ꯃꯐꯝꯗ ꯆꯧꯕ ꯀꯔꯤꯒꯨꯝꯕ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯃꯒꯤ ꯊꯨꯡꯂꯏꯕ ꯗꯤꯖꯥꯏꯟ ꯏꯟꯐ꯭ꯂꯣ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯇꯥ ꯌꯦꯡꯗꯨꯅꯥ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ॥ ꯄꯝꯄꯀꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯄꯨꯟꯅꯥ ꯂꯦꯞꯄꯒꯗꯕꯅꯤ:

- (a) ꯁ꯭ꯇꯦꯁꯟ ꯑꯁꯤꯅꯥ ꯍꯥꯁꯤꯅꯥ ꯅꯦꯝꯕ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯑꯦꯅꯤꯍꯦꯁꯟ ꯑꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ AEP ꯌꯥꯍꯟꯒꯗꯕꯅꯤ (ꯑꯟꯗꯔꯄꯥꯁꯁꯤꯡꯒꯤꯗꯃꯛ, 1% AEP ꯅꯠꯔꯒꯥ ꯑꯦꯔꯟꯠꯔꯤꯡ 2% AEP);
- (b) ꯁ꯭ꯇꯦꯁꯟ ꯑꯁꯤꯅꯥ ꯌꯅꯥꯗꯦꯜ ꯑꯥꯎꯠꯐꯣꯜ ꯑꯃꯥ ꯅꯦꯕ ꯌꯥꯕꯤꯕ ꯃꯐꯝꯗ, ꯁꯔꯨꯛ 5-ꯗ ꯃꯇꯧ ꯌꯥꯎꯍꯟꯕꯒꯤ, ꯌꯅꯥꯗꯦꯜ-ꯂꯣꯜ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤꯗꯃꯛ (ꯈꯨꯗꯝ: ꯃꯤꯇꯩ ꯃꯤꯇꯩ ꯊꯣꯛꯄ, ꯅꯥꯡꯕꯤꯗꯃꯛ 6 h-ꯒꯤ ꯍꯥꯟ ꯌꯅꯥꯗ ꯑꯂꯥꯏ) ꯑꯥꯎꯠꯐꯣꯜ ꯑꯁꯨ ꯊꯨꯡꯂꯕ ꯑꯣꯅꯒꯤ ꯁ꯭ꯇꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯁꯤꯡꯗ 48 h-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯚꯣꯜꯌꯨꯝ ꯊꯝꯖꯤꯟꯅꯒꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯄꯝꯄꯁꯤꯡ ꯑꯁꯤ ꯏ꯭ꯇꯥꯟꯗꯒꯤ ꯂꯦꯝꯕ ꯌꯦꯡꯗꯨꯅꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯏ꯭ꯇꯥꯟꯗꯒꯤ ꯂꯦꯝꯕ ꯁꯝꯄ ꯂꯦꯒꯦꯅꯒꯤ ꯏ꯭ꯇꯥꯟꯗꯒꯤ ꯋꯤꯡꯕ ꯌꯦꯡꯗꯨꯅ (HAT, ꯁꯔꯨꯛ ꯑꯃꯁꯨꯡ 0.3 m ꯄꯨꯟꯁꯤꯟꯕ) ꯍꯥꯟꯕ ꯁ꯭ꯇꯦꯌꯤꯡ ꯍꯦꯅꯒꯤ ꯔꯦꯅꯖ ꯄꯨꯝꯆꯃꯗꯃꯛꯀꯤꯗꯃꯛ ꯅꯩꯒꯗꯕꯅꯤ॥

9.9.3 **ꯋꯦꯠ-ꯋꯦꯜ ꯚꯣꯜꯌꯨꯝ.** ꯏꯐꯦꯖꯌꯤꯒ ꯋꯦꯠ-ꯋꯦꯜ (wet well) ꯚꯣꯜꯌꯨꯝ (ꯄꯝꯄ-ꯁ꯭ꯇꯣꯞ ꯑꯃꯁꯨꯡ ꯏ꯭ꯇꯥꯟꯗꯒꯤ ꯂꯣꯝꯕ ꯄꯝꯄ-ꯁ꯭ꯇꯥꯔꯠ ꯂꯦꯒꯦꯂꯒꯤ ꯃꯔꯛ) ꯑꯁꯤ ꯃꯌꯥꯒꯤꯁꯤꯡꯒꯤ ꯃꯔꯛꯌ ꯏ꯭ꯇꯥꯟꯗꯒꯤ ꯌꯥꯝꯕ ꯑꯗꯨ ꯑꯣꯏꯒꯗꯕꯅꯤ:

- (a) ꯂꯦꯔꯤꯋꯦꯕꯜ-ꯁ꯭ꯄꯤꯗ ꯄꯝꯄꯅꯒꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯌꯣꯃꯌꯤꯌ ꯀꯦꯁ꯭ꯇꯣꯂꯁꯤꯡ ꯊꯝꯖꯕ ꯃꯐꯝꯗ, ꯃꯤꯅꯤꯃꯝ ꯏꯟꯐ꯭ꯂꯣꯒꯤ ꯃꯤꯅꯤꯠ 5 (CPHEEO 2019, §8.3.3);
- (b) ꯑꯁ꯭ꯔꯄ ꯃꯐꯝꯗ, ꯄꯥꯏꯔ ꯏꯟꯐ꯭ꯂꯣꯒꯤ ꯃꯤꯅꯤꯠ 10-ꯗꯒꯤ 15, ꯍꯩꯂꯒꯤ ꯄꯝꯄ ꯃꯦꯜꯐꯔꯗꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯂꯧꯕ ꯌꯥꯝꯒꯗꯃꯛ ꯃꯇꯧ ꯌꯥꯕ ꯚꯣꯜꯌꯨꯝ, V = Q · t-ꯗꯒꯤ (CPHEEO 2019, Eq. 8.1); ꯑꯃꯁꯨꯡ
- (c) ꯀꯟꯁ꯭ꯇꯦꯟꯠ-ꯁ꯭ꯄꯤꯗ ꯄꯝꯄꯁꯤꯡꯒꯤꯗꯃꯛ, ꯄꯝꯄ ꯅꯥꯡꯕꯤꯗꯃꯛꯀꯤꯗꯃꯛ ꯚꯣꯜꯌꯨꯝ V = Θ · q / 4, ꯃꯐꯝ ꯑꯁꯤꯗ Θ ꯑꯁꯤ ꯃꯤꯅꯤ ꯃꯦꯜꯐꯔꯗꯒꯤ ꯔꯦꯀꯃꯦꯟꯗ ꯌꯥꯕ ꯃꯤꯅꯤꯃꯝ ꯂꯧꯕ ꯌꯥꯝꯂꯤ ꯑꯃꯁꯨꯡ q ꯑꯁꯤ ꯄꯝꯄꯀꯤ ꯀꯦꯄꯦꯁꯤꯇꯤꯅꯤ (FHWA HEC-24, 2001)॥

9.9.4 **ꯁ꯭ꯇꯦꯟꯕꯥꯏ ꯑꯃꯁꯨꯡ ꯔꯦꯗꯟꯗꯦꯟꯁꯤ.**

- (a) ꯁ꯭ꯇꯦꯟꯕꯥꯏ ꯄꯝꯄꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯝꯕ ꯃꯐꯝꯗ ꯂꯥꯏꯖ ꯂꯧꯒꯗꯕꯅꯤ (CPHEEO 2019, §8.3.3)॥
- (b) ꯔꯦꯗꯟꯗꯦꯟꯁꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯁꯤ ꯏ꯭ꯇꯥꯟꯗꯒꯤ ꯌꯥꯝꯕ ꯁ꯭ꯇꯦꯟꯕꯥꯏ ꯄꯝꯄ ꯑꯃꯒꯤ ꯌꯥꯝꯖꯕ ꯂꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯟꯕꯥꯏ ꯄꯝꯄꯁꯤꯡꯒꯤ ꯃꯁꯤꯡꯒꯤ 50%-ꯗꯒꯤ ꯍꯦꯟꯅꯕꯥ ꯌꯥꯗꯦ॥
- (c) ꯁ꯭ꯇꯦꯟꯕꯥꯏ ꯑꯃꯁꯨꯡ ꯔꯦꯗꯟꯗꯦꯟꯁꯤꯅꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ ꯑꯁꯤ ꯑꯣꯌꯣꯃꯌꯤꯌ ꯑꯣꯏꯅ ꯑꯃꯥꯗꯒꯤ ꯑꯃꯥ ꯍꯣꯡꯗꯣꯛꯀꯗꯕꯅꯤ॥

9.9.5 **ꯄꯝꯄꯀꯤ ꯃꯍꯩ.** ꯄꯝꯄꯁꯤꯡ ꯑꯁꯤ ꯆꯨꯃꯊꯣꯛ ꯑꯃꯁꯨꯡ ꯀꯦꯇꯔꯤꯡ ꯂꯃꯥꯏꯗ ꯍꯣꯡꯗꯣꯛꯀꯗꯕ ꯏꯅꯤꯡꯉꯥꯏꯗꯒꯤ ꯃꯤꯖꯤꯡ ꯅꯤꯡꯇꯝꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ-ꯂꯣꯖꯤꯛ (ꯍꯦꯜ-ꯁꯦꯛꯁꯟ) ꯃꯍꯩꯁꯤꯡ ꯑꯣꯅꯒꯗꯕꯅꯤ॥ ꯑꯦꯁꯀꯋꯥ-ꯏꯟꯗ ꯄꯝꯄꯁꯤꯡꯗ ꯀꯦꯇꯔꯤꯡ ꯂꯩꯌꯥꯍꯟꯕ ꯇꯧꯕ ꯌꯥꯗꯕꯗ, ꯃꯍꯥꯛ ꯁꯦꯛꯁꯟ 9.8.6 ꯌꯥꯎꯖꯤꯟꯕ ꯁꯔꯨꯛꯀꯤ ꯑꯣꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯧꯒꯗꯕꯅꯤ (CPHEEO 2019, §8.3.2)॥

9.9.6 **ꯁꯝꯄ ꯑꯃꯁꯨꯡ ꯏꯟꯇꯦꯛ ꯗꯤꯖꯥꯏꯟ.** ꯁꯝꯄꯀꯤ ꯖꯤꯑꯣꯃꯦꯠ꯭ꯔꯤ, ꯄꯝꯄꯀꯤ ꯁꯕꯃꯔꯖꯦꯟꯁ, ꯃꯤꯅꯤꯃꯝ ꯁꯦꯄꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯞꯔꯣꯆ ꯐ꯭ꯂꯣꯒꯤ ꯀꯟꯗꯤꯁꯅꯁꯤꯡ ꯑꯁꯤ ꯄꯝꯄ ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯔꯁꯤꯡꯒꯤ ꯃꯇꯧ ꯌꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ANSI/HI 9.8 (Rotodynamic Pumps for Pump Intake Design) ꯃꯇꯨꯡ ꯏꯟꯅꯒꯗꯕꯅꯤ॥ ꯀꯔꯤꯒꯨꯝꯕ ꯄꯝꯄ ꯑꯃꯗ 1 m³/s-ꯗꯒꯤ ꯍꯦꯟꯕ ꯃꯐꯝꯗ, ꯍꯩꯂꯒꯤ ꯁꯝꯄ ꯑꯁꯤꯗ ꯔꯦꯀꯃꯦꯟꯗ ANSI/HI 9.8 ꯇꯦꯁ꯭ꯠꯃꯣꯗꯜ ꯃꯇꯨꯡ ꯅꯩꯕ ꯃꯐꯝꯗ, ꯏꯖꯤꯅꯤꯌꯔ ꯍꯥꯟꯅꯗꯦꯜ ꯃꯍꯥꯛ ꯔꯦꯀꯃꯦꯟꯗ ꯑꯃ ꯌꯥꯕꯗꯒꯤ ꯃꯇꯧ ꯌꯥꯎꯒꯗꯕꯅꯤ॥ ꯃꯇꯧ ꯆꯨꯝꯄ ꯄꯝꯄ ꯍꯩꯂꯒꯤ ꯃꯥꯌꯣꯛꯇꯒꯤ ꯃꯐꯝꯗ ꯃꯤꯅꯤꯃꯝ ꯀꯤꯔꯤꯌꯔ ꯁꯕꯃꯔ ꯑꯁꯤ ꯑꯄꯤꯊꯄ ꯑꯃꯁꯨꯡ ꯃꯤꯅꯤꯃꯝ ꯂꯝꯍꯥꯡꯁꯤꯡꯒꯤꯗꯃꯛ 0.6 m ꯑꯃꯁꯨꯡ ꯑꯍꯦꯕ ꯂꯝꯍꯥꯡꯁꯤꯡꯒꯤꯗꯃꯛ 1.0 m ꯑꯣꯏ (CPHEEO 2019, §8.2.5)॥

9.9.7 **[illegible].** [illegible] (silt trap) [illegible] ([illegible] 9.8.6; [illegible] 6, [illegible] 6.13.3)॥

9.9.8 **[illegible].**

- (a) [illegible] ([illegible], [illegible]) [illegible]॥
- (b) [illegible]-[illegible] [illegible]॥
- (c) [illegible], [illegible] 5 [illegible]॥

9.9.9 **[illegible].**

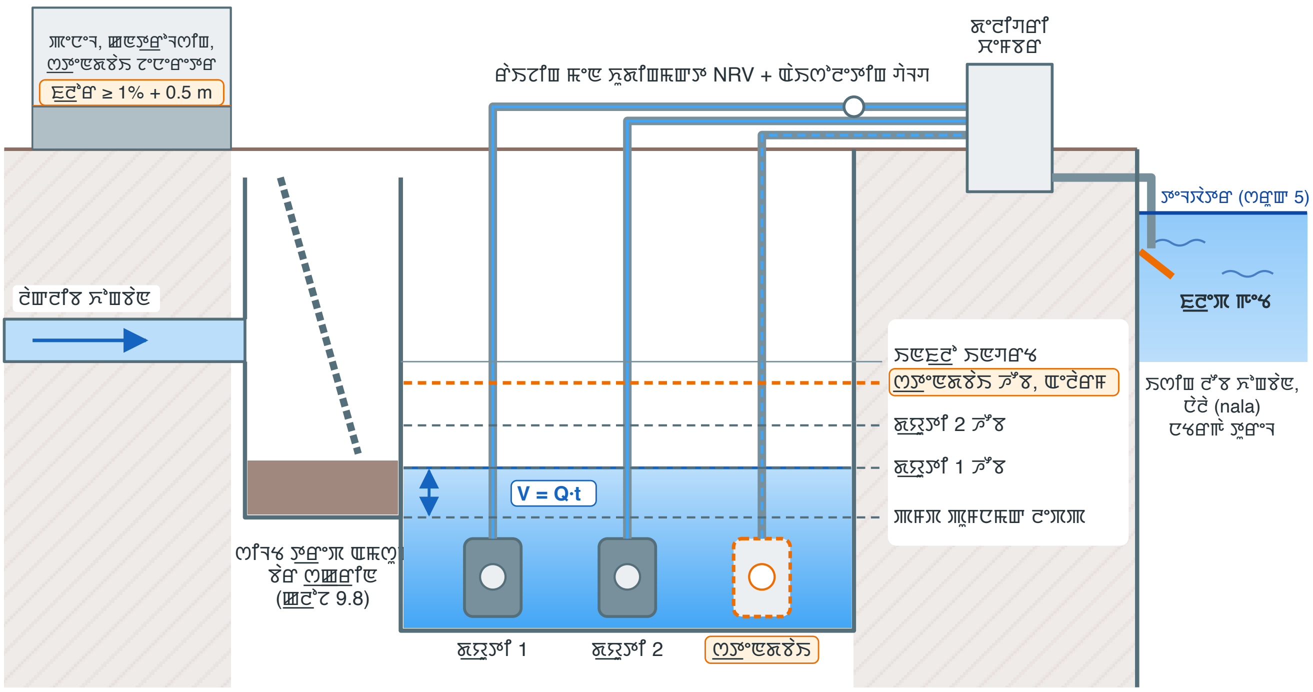
- (a) [illegible]: [illegible] ([illegible]) (CPHEEO 2019, §2.4.2.3(j))॥
- (b) [illegible] **[illegible] 72** [illegible] 9.9.10-[illegible]॥
- (c) [illegible]॥

9.9.10 **[illegible].** [illegible], [illegible] 1% AEP-[illegible] 0.5 m [illegible] ([illegible] 6, [illegible] 6.11)॥ [illegible] 1% AEP-[illegible]॥

9.9.11 **[illegible].** [illegible] (rising main) [illegible], [illegible]-[illegible]॥ [illegible] 9.10-[illegible]-[illegible]॥ [illegible] (CPHEEO 2019, §8.3.9)॥

9.9.12 **[illegible].** [illegible]-[illegible]-[illegible]॥

ꯄꯝꯄꯒꯤ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯁ꯭ꯀꯤꯝꯒꯤ ꯗ꯭ꯌꯥꯒ꯭ꯔꯥꯝ: ꯋꯦꯠ ꯋꯦꯜ, ꯁ꯭ꯛꯔꯤꯅꯁꯤꯡ, ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯄꯝꯄ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯇꯐꯣꯜ (ꯁ꯭ꯀꯤꯃꯦꯇꯤꯛ, ꯁ꯭ꯀꯦꯜ ꯃꯇꯨꯡ ꯏꯟꯅꯗꯕ)


ꯃꯣꯇꯔ, ꯀꯟꯠꯔꯣꯂꯁꯤꯡ, ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯖꯦꯅꯦꯔꯦꯇꯔ
HFL ≥ 1% + 0.5 m
ꯗꯤꯁꯆꯥꯔꯖ ꯍꯦꯗꯔ ꯍꯔ ꯄꯝꯄ ꯑꯃꯗꯥ NRV + ꯑꯥꯏꯁꯣꯂꯦꯇꯔ ꯚꯥꯂꯕ
ꯀꯟꯠꯔꯣꯜ ꯄꯦꯅꯦꯜ
ꯑꯥꯎꯇꯐꯣꯜ (ꯇꯦꯕꯜ 5)
ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ
ꯏꯅꯂꯦꯠ ꯁꯦꯋꯔ
ꯍꯥꯏ ꯑꯦꯂꯥꯔꯝ
ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯑꯣꯟ, ꯑꯦꯂꯥꯔꯝ
ꯗ꯭ꯌꯨꯇꯤ 2 ꯑꯣꯟ
ꯗ꯭ꯌꯨꯇꯤ 1 ꯑꯣꯟ
ꯄꯝꯄ ꯁ꯭ꯇꯣꯞ ꯑꯣꯐ
V = Q·t
ꯔꯤꯁꯤꯚꯤꯡ ꯗ꯭ꯔꯦꯟ, ꯅꯥꯂꯥ (nala) ꯅꯠꯇ꯭ꯔꯒꯥ ꯇꯨꯔꯦꯜ
ꯕꯥꯔ ꯁ꯭ꯛꯔꯤꯟ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯤꯠ ꯆꯦꯝꯕꯔ (ꯇꯦꯕꯜ 9.8)
ꯗ꯭ꯌꯨꯇꯤ 1
ꯗ꯭ꯌꯨꯇꯤ 2
ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ

ꯗ꯭ꯌꯨꯇꯤ ꯃꯣꯗꯁꯤꯡ, ꯋꯦꯠ-ꯋꯦꯜ ꯚꯣꯜꯌꯨꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯕꯤꯆꯤꯡ ꯂꯦꯚꯦꯂꯁꯤꯡ: ꯇꯦꯕꯜ 9.9꯫ ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ≥ ꯍꯦꯟꯅꯕꯒꯤ ꯆꯥꯡꯒꯤ ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄ꯫ ꯄꯥꯋꯔ: ꯑꯣꯏꯕꯥ ꯑꯃ (ꯒ꯭ꯔꯤꯗ + ꯖꯦꯅꯦꯔꯦꯇꯔ)꯫
ꯋꯥꯍꯩ ꯇꯨꯔꯦꯜ ꯃꯁꯤꯡꯒꯤ ꯑꯥꯎꯇꯐꯣꯜ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯒꯤ ꯁ꯭ꯇꯦꯖꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ (ꯇꯦꯕꯜ 5)꯫
ꯄꯝꯄꯁꯤꯡ ꯀꯣꯏꯕ ꯑꯣꯏꯅ ꯄꯥꯝꯖꯔꯤ; ꯑꯣꯟ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯀꯤ ꯄꯝꯄꯁꯤꯡ ꯁꯤꯡꯒꯤ ꯁꯦꯃꯒꯠꯄꯁꯤꯡ, ꯍꯣꯠꯅꯔꯣꯏ ꯂꯩꯍꯧꯔꯤꯕ ꯑꯃꯁꯨꯡ
ꯁꯤꯡ ꯍꯣꯠꯅꯒꯤ ꯌꯥꯊꯪ ꯑꯣꯏꯒꯤ ꯍꯥꯏꯕꯗꯒꯤ ꯍꯥꯌꯔꯤꯕꯅꯤ꯫

ꯐꯤꯒ 9.3 — ꯄꯝꯄꯒꯤ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯁ꯭ꯀꯤꯝꯒꯤ ꯗ꯭ꯌꯥꯒ꯭ꯔꯥꯝ: ꯋꯦꯠ ꯋꯦꯜ, ꯁ꯭ꯛꯔꯤꯅꯁꯤꯡ, ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯄꯝꯄ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯇꯐꯣꯜ꯫ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕꯥ ꯑꯦꯁꯦꯃ ꯁ꯭ꯇꯦꯟꯗꯔꯗ, CPHEEO, Manual on Storm Water Drainage Systems (2019), Chapter 8, ꯑꯃꯁꯨꯡ FHWA, Highway Stormwater Pump Station Design, HEC-24 (2001)-ꯗꯒꯤ ꯂꯧꯊꯣꯛꯂꯛꯄꯅꯤ꯫

> **ꯂꯥꯏꯔꯤꯛꯀꯤ ꯍꯥꯏꯕ.** CPHEEO (2019)-ꯒꯤ ꯆꯦꯞꯇꯔ 8-ꯗ ꯄꯝꯄꯒꯤ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯑꯣꯔꯤ: ꯋꯦꯠ-ꯋꯦꯂꯒꯤ ꯁꯥꯏꯖ ꯇꯧꯕ (§8.3.3), ꯄꯝꯄꯁꯤꯡ ꯈꯅꯕ (§8.3.2), ꯕꯥꯔ ꯁ꯭ꯛꯔꯤꯅꯁꯤꯡ (§8.3.1.3), ꯍꯦꯗꯀꯤ ꯍꯥꯅꯕ ꯑꯣꯏꯕꯁꯤꯡ (§8.2.5) ꯑꯃꯁꯨꯡ "ꯏꯂꯦꯛꯠꯔꯤꯁꯤꯇꯤꯒꯤ ꯐꯦꯜ ꯑꯣꯏꯕ ꯃꯇꯝꯗ ꯏꯃꯔꯖꯦꯟꯁꯤ ꯑꯣꯄꯔꯦꯁꯅꯒꯤꯗꯃꯛ ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯑꯣꯏꯅ" ("as standby for emergency operation during failure of electricity") ꯖꯦꯅꯦꯔꯦꯇꯔ ꯁꯦꯠꯁꯤꯡꯒꯤ ꯍꯥꯅꯕ ꯑꯣꯏꯕ (§2.4.2.3)꯫ ꯃꯁꯤꯗ "ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄ ꯌꯨꯅꯤꯠꯁꯤꯡꯒꯤ ꯑꯍꯦꯟꯕꯗ 50%" ("minimum 50% of the duty pump units")-ꯒꯤ ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯌꯨꯅꯤꯠꯁꯤꯡ ꯄꯤꯊꯣꯛꯄ ꯑꯣꯏꯔꯤ꯫ ꯇꯦꯕꯜ 9.9.4(b) ꯑꯁꯤ ꯍꯦꯟꯅꯥ ꯇꯦꯡꯅꯕꯥ: ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯑꯁꯤ ꯍꯦꯟꯅꯕꯒꯤ ꯆꯥꯡꯒꯤ ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄꯁꯤꯡ ꯌꯥꯝꯊꯣꯛꯄ ꯃꯇꯃꯗꯁꯨ, ꯃꯁꯤꯅ ꯑꯃꯁꯨ ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯑꯁꯤꯗ ꯃꯇꯝꯒꯤ ꯍꯦꯟꯅꯕꯒꯤ ꯆꯥꯡꯒꯤ ꯄꯝꯄ ꯇꯥꯡꯗꯕ ꯑꯣꯏꯅꯕ ꯃꯍꯧꯁꯥꯒꯤ ꯃꯇꯝꯒꯤ ꯀꯥꯔꯅꯗ ꯗ꯭ꯌꯨꯇꯤ ꯄꯝꯄꯗꯤ꯫ ꯍꯦꯟꯅꯥ ꯃꯇꯦꯡ ꯄꯥꯡ ꯑꯁꯤ ꯃꯇꯧꯔꯣꯏ ꯑꯁꯤꯗꯤ ꯌꯥꯔꯦ꯫ FHWA HEC-24 (*Highway Stormwater Pump Station Design*, FHWA-NHI-01-007, 2001) ꯑꯁꯤ FHWA-ꯒꯤ ꯄꯝꯄꯤꯡ-ꯁ꯭ꯇꯦꯁꯟ ꯃꯇꯧꯔꯣꯏꯗꯤ꯫ ꯄꯨꯝ 72-ꯒꯤ ꯏꯃꯔꯖꯦꯟꯁꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯇꯦꯕꯜ 2-ꯒꯤ ꯄꯨꯝ 72-ꯒꯤ ꯀꯤꯇꯦꯜ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯌꯥꯊꯪꯗ ꯃꯇꯧꯔꯣꯏ ꯑꯁꯤꯗꯤ ꯌꯥꯔꯦ꯫ ꯃꯦꯀꯥꯅꯤ-ꯁ꯭ꯇꯀꯤꯒꯤ ꯖꯦꯟꯇꯤꯒꯦ, ꯖꯥꯏꯐꯣꯖꯦꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯣꯖ ꯌꯥꯕꯒꯤ ꯍꯥꯅꯕ ꯑꯣꯏꯕꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯍꯥꯃꯦꯇꯔꯦꯟꯁꯤ ꯇꯦꯜꯇꯤꯡꯗ ꯑꯁꯤꯒꯤ ꯃꯍꯦꯠꯀ ꯇꯦꯖꯥꯕ ꯄꯥꯀꯥ ꯑꯃꯇꯥ ꯇꯣꯉ ꯑꯃꯁꯨꯡ ꯃꯅꯦꯔ ꯑꯁꯤ ꯃꯇꯧꯔꯣꯏ ꯑꯁꯤꯗꯤ ꯌꯥꯔꯦ꯫

9.10 ꯂꯦꯚꯦꯜ ꯒꯦꯇꯁꯤꯡ, ꯐ꯭ꯂꯦꯞ ꯒꯦꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯂꯕꯁꯤꯡ

9.10.1 **ꯃꯀꯥꯟꯀ ꯍꯥꯅꯕ ꯂꯦꯇꯒꯦ.** ꯍꯥꯏꯒꯤ ꯑꯁꯤ ꯍꯣꯠꯅ ꯇꯥꯏꯕ ꯍꯣꯠꯅꯒꯤ 1% AEP-ꯒꯤ ꯁ꯭ꯇꯦꯖ-ꯗꯤꯁꯆꯥꯔꯖ ꯖꯦꯟꯗꯒꯤ ꯍꯦꯟꯅ ꯇꯥꯏ ꯑꯥꯎꯇꯐꯣꯜ ꯄꯥꯝꯅꯕꯥꯒꯤ ꯐ꯭ꯂꯦꯞ ꯒꯦꯇꯁꯤꯡ (flap gate), ꯂꯦꯚꯦꯜ ꯒꯦꯇꯁꯤꯡ ꯅꯠꯇꯔꯒ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯂꯕꯁꯤꯡ ꯄꯤꯒꯗꯕꯅꯤ (ꯇꯦꯕꯜ 5)꯫

9.10.2 **ꯁꯔꯨꯛꯁꯤꯡ.** ꯌꯥꯝꯅ ꯃꯔꯨꯑꯣꯏꯕꯁꯤꯡ ꯑꯁꯤ:

- (a) ꯄꯤꯖꯦ ꯂꯩꯕ ꯗꯔꯦꯟ ꯇꯦꯡꯀꯣꯕ (ꯖꯤꯑꯣ ꯋꯦꯕꯁꯦꯜ, ꯃꯣꯗꯨꯂꯥꯔ ꯋꯦꯕꯁꯦꯜ, ꯂꯥꯏꯟꯗ ꯄꯣꯟꯗ, HDPE ꯅꯠꯔꯒꯥ ꯖꯤꯑꯣꯃꯦꯝꯕ꯭ꯔꯦꯟ);
- (b) ꯅꯥꯏꯂꯣꯟꯄꯨꯁꯤꯡ ꯅꯦ-ꯂꯦꯅꯦ ꯅꯠꯔꯒꯥ ꯑꯣꯚꯔ-ꯑꯣꯗ-ꯀꯥꯅꯀ ꯌꯣꯡ ꯄꯝꯄꯁꯤꯡ (ꯃꯣꯇꯣꯔ ꯄꯨꯝ); ꯑꯃꯁꯨꯡ
- (c) ꯑꯥꯎꯇꯐ꯭ꯂꯣ ꯊꯣꯡ ꯑꯦꯅꯥꯗ, ꯅꯨꯃꯥꯗ ꯅꯠꯔꯒꯥ ꯄꯨꯈꯥꯗ ꯌꯥꯎꯅꯕ ꯀꯣꯚꯂꯣꯟꯗꯣꯁꯤꯡ (penstock) ꯅꯠꯔꯒꯥ ꯅꯊꯣꯡꯁꯤꯡ (ithong; sluice gate)꯫

9.10.3 **ꯑꯥꯎꯇꯐ꯭ꯂꯣ ꯊꯣꯡ.** 900 mm ꯅꯠꯔꯒꯥ ꯄꯨꯡꯃꯥꯡ ꯄꯥꯇꯕ ꯑꯦꯟꯗꯦꯚꯔꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯃꯐꯝ ꯌꯥꯝꯕ ꯅꯠꯔꯒꯥ ꯂꯣꯔꯦꯟ ꯂꯣꯏꯂꯣꯐ ꯑꯃꯃ ꯂꯥꯕ ꯌꯥꯔꯤꯕ ꯑꯦꯟꯗꯦꯚꯔ ꯅꯨꯃꯤꯡꯃꯗꯥ, ꯗꯔꯦꯟ ꯇꯦꯡꯀꯣꯏ ꯄꯊꯣ ꯊꯣꯕ ꯄꯗꯐꯃ ꯀꯥꯚꯂꯣꯟꯗꯣ ꯅꯠꯔꯒꯥ ꯂꯣꯟꯀ-ꯂꯦꯡ ꯂꯦꯡꯃ ꯑꯃꯐ ꯂꯩꯔꯃꯕꯅꯤ, ꯄꯔꯐ ꯑꯃꯗꯥ ꯇꯦꯡ ꯑꯃꯥꯡꯒꯤ ꯄꯣꯚꯂꯣꯅꯦꯚꯂ ꯌꯥꯕ ꯌꯥꯅꯕ, ꯑꯃꯁꯨꯡ ꯇꯦꯡ ꯑꯃꯥ ꯄꯤꯕꯃꯗꯥꯅꯤꯡ ꯅꯣꯐ ꯑꯦꯅꯕꯔꯕꯃꯤ ꯕꯣꯗ-ꯑꯀ ꯑꯃꯐ ꯑꯦꯅꯥꯅꯕ꯫

9.10.4 **ꯄꯅꯃꯕꯗꯤꯡꯗꯦ.** ꯄꯤꯕꯃꯗꯥꯅꯕ ꯗꯤꯒꯐꯃ ꯃꯔꯨꯑꯣꯏꯅ ꯑꯃꯥꯡꯒꯤ ꯅꯨꯃꯊꯤꯡꯃ ꯄꯃ ꯂꯣ ꯑꯁꯤ ꯄꯨꯝꯗꯤꯡꯌꯥꯕꯕꯤꯡꯒꯤ ꯌꯦꯡꯃ ꯌꯥꯕꯕ ꯃꯌꯥꯝꯒꯤ ꯂꯥꯡꯃꯕꯗꯤ ꯑꯃꯁꯨꯡ HGL-ꯃ ꯌꯥꯝꯄꯗꯥꯡꯃꯕꯗꯤ (ꯂꯥꯏꯔꯛ 6, ꯄꯥꯔꯥ 6.8.7)꯫ ꯗꯔꯦꯟ ꯇꯦꯡꯀꯣꯕ ꯑꯁꯤ ꯑꯀꯤꯅꯀ ꯄꯃ ꯃꯤꯗꯤꯕꯚꯂ ꯑꯃꯃ ꯄꯤꯕꯃꯗꯥꯖꯃꯕꯗꯤ (CPHEEO 2019, §6.3.10.1)꯫

9.10.5 **ꯂꯣꯀꯦꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯕꯤꯂ.** ꯂꯣꯀꯦꯡ ꯅꯠꯔꯒꯥ ꯃꯌꯥꯝꯕꯤꯂꯗ ꯇꯦꯡ ꯑꯃꯐ ꯄꯤꯕꯃꯗꯥꯗꯒꯤ ꯅꯠꯔꯒꯥ ꯊꯣꯗꯒꯤ ꯊꯐꯕ ꯌꯥꯕ ꯕꯤꯌ, ꯑꯂꯣꯅꯌꯕꯤ ꯑꯃꯁꯨꯡ ꯖꯕꯤꯗꯥꯖꯤ ꯑꯦꯟꯗꯦꯚꯔꯁꯤꯡꯃ:

- (a) ꯇꯦꯡ ꯑꯃꯥ ꯄꯊꯣꯌꯥꯡꯒꯤ ꯌꯥꯕ ꯌꯥꯕ ꯌꯥꯐꯕꯕ ꯑꯃꯃ ꯊꯐꯡꯃꯕꯗꯤ, ꯅꯠꯔꯒꯥ ꯅꯥꯏꯂꯣꯟꯄꯨꯁꯤꯡ ꯌꯥꯡ ꯄꯤꯕꯁꯤꯡ ꯂꯤꯗꯤꯚꯗꯡꯃꯕꯗꯤ; ꯑꯃꯁꯨꯡ
- (b) ꯄꯣꯚꯂꯚꯗꯒꯤ ꯄꯌꯥꯐꯃ ꯄꯅ-ꯌꯥꯅꯃ ꯅꯠꯔꯒꯥ ꯂꯕꯗ ꯊꯃꯕꯥ ꯅꯨꯃꯤꯡꯃꯕꯖꯤ ꯄꯨꯡꯃ ꯇꯦꯡ ꯑꯃꯥ ꯅꯚꯂꯣꯀꯕꯂꯚ ꯌꯥꯡꯃꯕꯗꯤ (ꯂꯥꯏꯔꯛ 10)꯫

9.10.6 **ꯄꯨꯌꯥꯕꯤꯌꯣꯛꯄꯤꯕ.** ꯄꯤꯖꯦꯂꯣꯕ, ꯀꯤꯚꯂꯣꯕ, ꯂꯤꯕꯗꯂꯣꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯕꯂꯣꯕꯂꯣꯕ ꯑꯁꯤ ꯖꯕꯦꯖꯚ-ꯕꯦꯖꯤꯂꯣꯟꯚꯅ ꯄꯨꯌꯥꯕꯤꯌꯣꯛꯗ ꯂꯥꯐꯡꯃꯕꯗꯤ (CPHEEO 2019, §6.3.10.1)꯫ ꯂꯃꯥꯏꯕꯒꯤ ꯄꯅꯖꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯃꯛ ꯄꯗꯐꯂꯣꯕꯃ ꯄꯂꯤꯡꯒꯤ ꯑꯕꯊꯃꯤ ꯂꯣꯚꯂꯗꯂ ꯂꯣꯌꯤꯛ ꯇꯕꯥꯃ 316, ꯕꯕꯦꯖ ꯅꯠꯔꯒꯥ ꯅꯖ-ꯄꯌꯦꯂꯤꯗ ꯄꯨꯌꯥꯕꯤꯌꯛ ꯑꯃꯗꯤ (ꯄꯥꯔꯥ 9.13)꯫

9.10.7 **ꯇꯦꯡꯂꯣꯏꯕꯒꯤ ꯄꯨꯡꯈꯝ ꯂꯣꯌꯕꯦꯡ.** ꯅꯣꯝ ꯅꯕꯒꯤ ꯊꯗꯃꯗ ꯑꯃꯒꯤ ꯄꯌꯐꯃ ꯇꯦꯡꯂꯣꯕ ꯊꯤꯕꯅꯖꯀ ꯄꯗꯐꯃ, ꯄꯅꯦꯌꯒꯤ ꯄꯨꯡꯈꯝ ꯂꯩꯕ ꯂꯣꯌꯕꯦꯡ ꯅꯠꯔꯒꯥ ꯀꯃꯐꯝ ꯌꯥꯝꯕ ꯑꯂꯣꯏꯗ ꯂꯥꯏꯔꯛ 5-ꯒꯤ ꯑꯦꯟꯗꯦꯚꯔ ꯊꯤꯕ ꯌꯥꯡ ꯁꯤꯗꯖꯃꯕꯗꯤ꯫

> **ꯂꯦꯃꯗꯥꯗ ꯌꯥꯀꯥ.** CPHEEO (2019, §6.3.10.1)-ꯗ ꯌꯥꯅꯃꯛ ꯅꯂꯤꯕꯃ ꯊꯗꯀ ꯑꯦꯟꯗꯦꯚꯔꯁꯤꯡꯃ ꯂꯩꯕ ꯗꯔꯦꯟ ꯇꯦꯡꯂꯣꯕ ꯑꯃꯁꯨꯡ ꯗꯔꯦꯟ ꯇꯦꯡꯂꯣꯕ ꯂꯦꯃꯗꯥꯗ ꯌꯥꯗꯤ꯫ ꯄꯂꯤꯗ "ꯇꯦꯡ ꯊꯤꯕꯂꯤꯕ ꯄꯌꯐꯃ ꯀꯃꯐꯝ ꯌꯥꯝꯕ ꯊꯤꯕꯃꯕ ꯑꯦꯅꯥꯕꯕꯃꯤ ꯄꯌꯥꯗ ꯌꯥꯕ ꯂꯣꯌꯕꯦꯡ ꯄꯊ ꯌꯥꯕ ꯌꯥꯅ" ("adequate storage may be necessary if pumping is to be avoided during the closure of the gate") ꯑꯃꯁꯨꯡ ꯄꯤꯖꯦ ꯀꯤꯚꯂꯣꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯕꯗꯂꯣꯕ "ꯖꯕꯦꯖꯚ-ꯕꯦꯖꯤꯂꯣꯟꯚꯅ ꯄꯨꯌꯥꯕꯤꯌꯣꯛꯄꯤꯕꯗ ꯂꯥꯐꯡ ꯗ" ("should be of corrosion-resistant materials") ꯄꯌꯥꯗ ꯅꯚ ꯌꯥꯅ꯫ ꯄꯗꯤꯀꯃꯕꯃ ꯂꯃꯥꯏꯕꯒꯤ ꯄꯅꯖꯤ ꯂꯩꯌꯥ, ꯄꯕꯐ ꯑꯃꯗꯥ ꯂꯣꯌꯚ ꯑꯂꯣꯏꯃ ꯂꯩꯕ ꯑꯦꯟꯗꯦꯚꯔ ꯑꯃꯚꯌꯥ ꯌꯥꯅꯃꯗ ꯊꯤꯕꯃ, ꯑꯃꯁꯨꯡ ꯄꯥꯔꯥ 9.6.7, 9.9.2(b), 9.10.5 ꯑꯃꯁꯨꯡ 9.13.6-ꯒꯤ ꯕꯤꯌ, ꯑꯂꯣꯅꯌꯕꯤ, ꯌꯥꯅꯃꯛ ꯑꯃꯁꯨꯡ ꯂꯃꯥꯏꯕꯒꯤ ꯄꯅꯖꯤꯒꯤ ꯀꯃꯕꯤꯗꯦꯕꯦꯂꯣꯕ, ꯑꯃꯁꯨꯡ ꯌꯥꯕꯛ 9.5-ꯒꯤ ꯂꯃꯥꯏꯕꯒꯤ ꯄꯅꯖꯤ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯃꯛꯒꯤ ꯕꯂꯣꯕ ꯑꯁꯤ ꯊꯗꯖꯀ ꯂꯩꯌꯥ; ꯄꯥꯔꯥ 9.9.2(c)-ꯃ ꯅꯕꯅꯃꯒꯤ ꯌꯥꯕꯕ ꯌꯥꯛꯌꯥꯌꯕ ꯑꯁꯤ ꯂꯥꯏꯔꯛ 5-ꯒꯤ ꯅꯕꯅꯃꯒꯤ ꯌꯥꯕꯕ ꯌꯨꯕꯛ, ꯅꯗ, ꯀꯥꯃ ꯅꯠꯔꯒꯥ ꯅꯂꯣꯕ ꯅꯀꯀꯒꯤ (ponding) ꯅꯒꯕꯗꯤ꯫ ꯄꯃꯒꯤ ꯄꯨꯃꯌꯥ ꯌꯨꯕꯛꯂꯣꯕ ꯑꯃꯁꯨꯡ ꯅꯗ ꯑꯃꯗꯥ ꯑꯦꯟꯗꯦꯚꯔꯁꯤꯡ ꯊꯤꯕꯅ꯫ ꯅꯄꯗꯦꯛ ꯌꯥꯐꯀꯗ ꯑꯁꯤ ꯊꯗꯗꯐ ꯑꯃꯅꯔꯌꯥꯄꯗ ꯂꯩꯕ ꯊꯤꯕꯅꯕ ꯕꯂꯣꯏꯖ (closed basin) ꯑꯃꯗꯤ: ꯌꯥꯐꯀꯗꯖꯤ ꯌꯨꯕꯛ ꯅꯃꯤꯕꯄꯗ ꯂꯗꯌꯥꯗꯌꯥ ꯌꯥꯒꯗꯤ ꯑꯃꯁꯨꯡ ꯅꯊꯥꯏ ꯕꯕꯦꯖ (Ithai barrage) ꯑꯃꯁꯨꯡ ꯄꯂꯤꯒꯤ ꯄꯅꯃ ꯂꯩꯕ ꯎꯒꯤꯒꯤ ꯂꯤꯡ (rock sill), "ꯁꯒꯅꯨ ꯄꯐꯀ" ("Sugnu hump") ꯑꯃꯥ ꯂꯦꯗꯊꯗꯌꯨꯗ ꯊꯗꯂꯖꯅ, ꯄꯗꯐ ꯑꯃꯃ ꯄꯗꯤꯀꯃꯕ ꯌꯨꯕꯛꯒꯤ ꯕꯃ ꯑꯁꯤ ꯄꯕꯦꯟ 800 m-ꯒꯤ ꯄꯎꯕꯃ 756.7 m-ꯃꯒꯤ 763.7 m ꯗꯦꯕꯕ ꯌꯥꯕꯃꯄꯌꯂꯖꯅ (MASTEC)꯫ ꯅꯐꯗꯦꯛ "ꯅꯐꯗꯦꯛ ꯌꯨꯕꯛꯒꯤ ꯄꯅꯌꯂꯣꯚ ꯗꯔꯦꯟ ꯅꯒꯒꯤ ꯄꯅꯃ ꯂꯩ, ꯄꯕꯐ ꯑꯃꯗꯥ ꯌꯥꯄ ꯅꯃꯤꯕꯒꯤ ꯅꯂꯣꯕ ꯅꯌꯕꯃꯒꯤ ꯄꯤꯑꯅ ꯂꯩꯗꯐ ꯊꯗꯊꯗꯕꯗꯕ ꯌꯨꯕꯛꯒꯤ ꯄꯅꯖꯤ ꯑꯥꯎꯄꯗꯌ ꯀꯗꯒꯤ ꯂꯐꯕꯤꯂꯣꯕ ꯂꯩ" ("is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river to protect the settlement from seasonal floods") (ꯇꯥꯖꯕ ꯅꯐꯗꯦꯛꯒꯤ ꯕꯤꯗꯅꯗ ꯌꯥꯕꯕ GIS ꯕꯦꯗ ꯄꯂꯣꯌꯕ ꯀꯗꯦꯗ – 2043 (ꯑꯄꯗꯕ ꯄꯃꯤꯗꯤꯖꯦꯗ); Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)); ꯂꯄꯕ ꯑꯂꯣꯒꯤ ꯄꯅꯃꯃ ꯂꯩꯕ ꯄꯤꯅꯊꯗꯃ ꯅꯐꯗꯦꯛ ꯌꯨꯕꯛꯒꯤ ꯄꯅꯌꯂꯣꯚ ꯗꯔꯦꯟ ꯅꯒꯒꯤ 788.400 m ꯂꯩ (WRD, ꯀꯕꯃ ꯗꯕꯃꯗꯅꯤꯕ ꯄꯨꯃ ꯅꯗꯦ), ꯄꯂꯤ ꯄꯕꯦꯟ 790 m-ꯃ ꯂꯩꯕ ꯂꯄꯕ ꯑꯃꯒꯤ ꯄꯤꯌꯕ ꯑꯃ ꯅꯠꯔꯒꯥ ꯑꯥꯎꯒꯤ ꯄꯎꯕꯃ ꯂꯩ (AIIB, 2024; ꯄꯎꯌꯦꯟ ꯑꯂꯣꯒꯤꯃꯄꯗ ꯌꯥꯕꯃꯐꯗꯤꯕ); ꯑꯃꯁꯨꯡ "ꯌꯨꯕꯛꯒꯤ ꯀꯥꯎꯕ ꯗꯦꯟ ꯌꯥꯕꯗ ꯅꯊꯕ ꯄꯗꯐꯂꯣꯕꯃ ꯄꯀꯌꯥ ꯖꯌꯒꯤ ꯅꯂꯣꯕ ꯅꯨꯃꯕ

ꯑꯣꯏꯍꯟꯅꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB, 2024)꯫ ꯌꯥꯝꯅ ꯋꯥꯡꯕ ꯏꯁꯤꯡ ꯆꯦꯟꯕꯒꯤ ꯃꯆꯥꯡꯗ ꯁꯨꯞꯅꯕ ꯐꯤꯔꯣꯂꯥ ꯂꯦꯛꯇꯨꯅ ꯃꯍꯥꯛ ꯊꯣꯀꯈꯤ (2 ꯁꯦꯞꯇꯦꯝꯕꯔ 2000-ꯗ ꯍꯥꯏꯕꯗꯤ ꯌꯥꯝꯅ 532.488 m³/s, 30 ꯑꯒꯁ꯭ꯠ 1999-ꯗ ꯊꯣꯀꯈꯤ ꯌꯥꯝꯅ 391.636 m³/s), ꯑꯗꯨꯒꯤ ꯅꯊꯛꯅ "ꯃꯣꯟꯁꯨꯅꯒꯤ ꯃꯇꯝꯗ ꯃꯅꯤꯄꯨꯔ ꯌꯥꯝꯅꯒꯤ ꯇꯨꯔꯦꯜ ꯑꯁꯤ ꯃꯁꯤꯡ 400 cumecs ꯑꯣꯅ ꯑꯃꯁꯨꯡ ꯕꯦꯔꯦꯖꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯌꯥꯝꯅ ꯑꯁꯤꯅ ꯇꯨꯔꯦꯜ ꯑꯗꯨ ꯊꯝꯕ ꯀꯣꯔꯣꯝꯕ ꯂꯩꯇꯦ, ꯃꯁꯤꯒꯤ ꯃꯍꯩꯅ ꯃꯊꯛ ꯊꯪꯕ ꯃꯖꯝꯗ ꯏꯁꯤꯡ ꯁꯨꯞꯁꯤꯟꯂꯀꯏ" ("flow of the Manipur river during monsoon is of the order of 400 cumecs and river down below the barrage does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC), ꯃꯔꯝ ꯑꯗꯨꯅ ꯌꯥꯝꯅꯥ ꯑꯁꯤꯅ ꯃꯁꯤꯒꯤ ꯏꯁꯤꯡ ꯏꯊꯦꯡꯁꯤꯡ ꯂꯧꯊꯣꯛ ꯀꯔꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯀꯔꯤ ꯊꯝꯂꯤꯅꯂꯤ (ꯃꯄꯨꯔꯣꯟ ꯑꯁꯤꯅ ꯏꯔꯇꯕ ꯃꯇꯨꯡ ꯏꯔꯝ)꯫ ꯃꯔꯝ ꯑꯁꯤꯅ ꯀꯥꯡꯂꯨꯞ 9.9 ꯑꯃꯁꯨꯡ 9.10-ꯒꯤ ꯃꯍꯩꯗ ꯁꯝꯃꯁꯤꯡ, ꯁꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯠꯂꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯝꯅꯥꯀꯤ ꯂꯝꯗ ꯃꯦꯖꯔꯃꯦꯒꯤ ꯃꯍꯩꯁꯤꯒꯤ ꯀꯤꯒꯃꯂꯤ, ꯑꯃꯁꯨꯡ ꯁꯇꯨꯔ 5-ꯒꯤ ꯑꯣꯏꯕꯥꯀꯤ ꯊꯤꯡꯕ ꯌꯥꯎꯅ ꯃꯍꯩꯔꯒꯤ ꯁꯦꯡꯂ ꯂꯥꯛꯂꯤ꯫ **ꯂꯝꯀꯥꯡꯅꯥꯟꯗ.** ꯁꯕꯂꯤꯡ ꯍꯥꯀꯥꯍꯗꯗ ꯀꯤꯂꯕ ꯂꯩꯔꯒꯤ ꯏꯁꯤꯡ ꯁꯝꯃꯁ ꯌꯥꯎꯒꯤ ꯊꯦꯡꯕ ꯑꯃꯍꯥꯡꯌ ꯑꯁꯤ ꯏꯁꯤꯡ ꯏꯊꯦꯡꯒꯤ ꯁꯨꯞꯍꯥꯟ ꯑꯍꯅꯦ ꯁꯝꯀꯥꯡꯇꯂꯤꯕ ꯁꯇ ꯑꯃꯤ ꯑꯍꯅꯤꯕ ꯂꯝꯀꯥꯡꯅꯥꯟꯇꯌꯅꯂꯤ: ꯃꯅꯤꯄꯨꯔ ꯍꯥꯏ ꯀꯣꯔꯠꯇꯌ (High Court of Manipur) WRD-ꯅ ꯁꯤꯔꯤꯕ ꯁꯅꯇ ꯍꯤꯌꯥꯍꯇꯅ "ꯑꯦꯀꯔ ꯃꯍꯥꯟ 300" ("around 300 acres")-ꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯗ ꯑꯃꯤ ꯍꯨꯕꯅ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯁꯃꯨꯁꯥꯡ ꯅꯥꯜꯂꯥ "ꯏꯁꯤꯡ ꯏꯊꯦꯡ ꯌꯥꯎꯕ ꯃꯌꯥꯝꯗ ꯂꯝꯀꯥꯡ ꯁꯤꯡꯀꯥꯡ ꯏꯁꯤꯡ ꯆꯦꯟꯗꯒꯤ ꯁꯃꯨꯁꯥꯡ ꯅꯥꯜꯂꯥ (Shamushang Nalla)-ꯒꯤ ꯂꯝꯕꯤꯗ ꯂꯝꯐꯦꯜ ꯌꯥꯝꯅꯗ ꯏꯁꯤꯡ ꯏꯊꯦꯡꯒꯤ ꯏꯁꯤꯡ ꯁꯝꯃꯁ ꯌꯥꯎꯒꯤ ꯊꯦꯡꯕ" ("provision for pumping of flood water from the Lamphel pat water body to the Nambul River through Shamushang Nalla during high flood season") ꯍꯥꯏꯕꯗ ꯌꯥꯎꯅ (PIL No. 8 of 2025, 16 ꯃꯦ 2025-ꯒꯤ ꯑꯣꯍꯗ), ꯑꯃꯁꯨꯡ NDB-ꯅ "ꯁꯝꯃꯁ ꯌꯥꯎꯒꯤ ꯃꯑꯣꯕꯗ ꯂꯧꯈꯤꯕ ꯊꯦꯡꯕꯁꯤꯡ ... ꯃꯌꯥꯝ ꯂꯩꯗ ꯑꯃꯁꯨꯡ ꯃꯆꯝ ꯑꯁꯤ ꯆꯍꯤ ꯅꯨꯃꯤꯠꯒꯤ ꯏꯊꯦꯡ ꯀꯔꯤꯒꯤ ꯃꯌꯥꯝ ꯏꯁꯤꯡ ꯍꯨꯝꯗꯅ ꯂꯩ" ("Coping measures undertaken in the form of pumping … are not adequate and the area remains waterlogged for many days every year") ꯄꯨꯔꯅ ꯈꯕꯇꯤ (ꯁꯍꯥꯛꯂ ꯌꯥꯕ ꯁꯍꯥꯛꯂꯑꯇꯝꯕ ꯑꯃꯍꯥꯤ, 2021); ꯑꯁꯤꯒꯤ ꯁꯝꯃꯁꯤꯡꯒꯤ ꯀꯥꯁꯤꯡꯌ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯔ ꯁꯅꯍꯕꯒꯤ ꯃꯇꯥꯡ ꯈꯕꯇꯤꯗ [TBC]꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯀꯥꯡꯂꯨꯞ ꯌꯥꯝꯅ ꯑꯃꯒꯤ ꯍꯥꯕꯆꯦꯡꯁꯤꯡꯗ ꯂꯩꯕ ꯂꯝꯒꯤ ꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯁꯝꯃꯁꯤꯡ ꯁꯌꯁꯦꯡꯁꯤꯡ, ꯒꯠꯂꯁꯤꯡ ꯂꯇꯥꯕ ꯈꯂꯁ ꯒꯠꯂꯁꯤꯡꯒꯤ ꯏꯁꯤꯡꯒꯦꯌꯥ ꯑꯃꯇꯌ ꯈꯕꯇꯤꯗ [TBC]; ꯏꯝꯐꯥꯜ ꯁꯤꯋꯔꯦꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯇ (Imphal Sewerage Project) ꯈꯔ I-ꯒꯤ ꯁꯝꯃꯁꯤꯡ ꯁꯌꯁꯦ ꯃꯊꯧ ꯑꯃꯁꯨꯡ ꯈꯔ II-ꯒꯤꯗꯃꯍꯥꯛ ꯊꯦꯡꯕ ꯌꯥꯎꯒꯤ 21 (ꯒꯥꯁꯌ ꯏꯝꯐꯥꯜꯒꯤ ꯍꯤꯌꯤꯅꯇ ꯌꯥꯎꯕ GIS ꯕꯔ ꯃꯁꯌꯥ ꯁꯍꯦꯍ – 2043) ꯑꯁꯤꯅ ꯂꯩꯒꯤ ꯏꯁꯤꯡ ꯂꯇꯌꯅ ꯁꯤꯔꯂ ꯊꯦꯡꯒꯠꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯈꯝ ꯑꯁꯤꯗ ꯃꯅꯤꯔꯕ ꯃꯁꯤꯡ ꯊꯤꯗꯦ꯫ **ꯂꯝꯌꯥꯎꯕꯀꯤ ꯃꯂꯝ.** ꯃꯅꯥꯏꯕ, ꯂꯤꯕꯊꯣꯡꯕ, ꯊꯥꯡꯒ (Thanga), ꯏꯊꯏ, ꯋꯥꯡꯒꯨ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯒꯨ (Wangoo)-ꯒꯤ ꯅꯕꯕꯦꯡꯁꯤꯡꯗ ꯌꯥꯎꯔꯌ ꯑꯁꯤ NHPC-ꯒꯤ ꯂꯝꯌꯥꯎꯕ ꯁꯍꯥꯛꯂꯑꯇꯝꯕ ꯏꯊꯏ ꯕꯔꯦꯂ ꯑꯃꯁꯨꯡ ꯁꯤꯟ ꯑꯗꯨꯅ ꯊꯤꯕꯂꯤꯟꯂꯤꯕ ꯁꯇ ꯑꯗꯨꯂꯤ: ꯀꯤꯂꯦꯅꯦ ꯂꯒꯟ ꯑꯁꯤ ꯏꯊꯏ ꯕꯔꯦꯂꯗ ꯂꯩꯕ ꯄꯅꯔꯁꯠ ꯈꯂꯗ ꯂꯒꯟ 769.320 m ꯑꯣꯅ, 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ ꯔꯥꯅꯤꯕ 770.05 m-ꯗ ꯌꯥꯎ ꯌꯥꯅ (WRD-ꯒꯤ ꯂꯒꯟꯁꯤꯡ, ꯁꯤꯡꯗ ꯈꯕꯇꯤꯕꯅꯤꯕ ꯃꯌꯥꯝ ꯏꯁꯦꯂ), ꯑꯃꯁꯨꯡ ꯃꯦꯗꯒꯤ ꯁꯦꯞꯇꯦꯝꯕꯔ ꯈꯦꯡꯕ ꯁꯇ ꯑꯗꯨꯒꯤ ꯃꯅ ꯍꯤꯂꯍꯒꯔꯍ ꯂꯒꯟꯗꯒꯤ ꯀꯤꯗꯀꯤꯗꯒ ꯄꯦꯊꯗ (768.5 m, NHPC, ꯂꯇꯥꯕ ꯑꯌꯁꯁ ꯈꯕꯇꯤꯁ ꯑꯃꯗ 769.63 m, ꯀꯇꯅꯤꯕ ꯃꯌꯥꯝ ꯏꯁꯦꯂ; ꯃꯄꯨꯔꯣꯟ ꯑꯁꯤꯅ ꯂꯁꯊꯌꯕ ꯌꯊꯦꯂꯕ ꯑꯃ); ꯏꯦꯒꯍꯇ ꯑꯁꯤ ꯀꯤꯂꯦꯅꯦ ꯁꯇꯀꯤ ꯂꯒꯟꯒꯤ ꯃꯍꯩꯗ ꯂꯩꯕ ꯑꯣꯏꯇꯈꯟ ꯑꯃꯗ 1 ꯃꯦꯗꯒꯤ 30 ꯁꯦꯞꯇꯦꯝꯕꯔ ꯈꯦꯡꯕ ꯊꯤꯕꯂꯕ ꯑꯣꯅꯅ ꯂꯩꯅ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯂꯝ ꯌꯥꯎꯕꯒꯤ ꯊꯗꯕ ꯑꯗꯨꯒꯤ ꯏꯁꯤꯡ ꯊꯝꯂꯤꯂꯦꯅ ꯁꯝꯃꯁ ꯌꯥꯎꯅ (ꯀꯥꯡꯂꯨꯞ 5.8.5(c))꯫ ꯆꯛꯄꯤ ꯇꯨꯔꯦꯜꯅ (Chakpi) "ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯜꯒꯤ ꯑꯣꯂꯂꯕ ꯂꯝꯕꯤꯗ ꯂꯥꯀꯏ … ꯋꯥꯡꯒꯨꯒꯤ ꯑꯀꯣꯌꯕꯒꯤ ꯑꯣꯍꯤꯔꯦꯗꯒꯤ ꯌꯥꯎꯕ ꯈꯦꯡꯕ ꯏꯁꯤꯡꯅ ꯊꯤꯡꯍꯟꯂꯤ" ("meets the Manipur River at a reverse direction … making inundation of the surrounding area of Sugnu extending upto Wangoo") (MASTEC), ꯑꯃꯁꯨꯡ ꯐꯨꯝꯗꯤ (phumdi) ꯑꯁꯤ ꯌꯊꯦꯂꯅ ꯑꯣꯏꯇꯈꯂꯇ ꯑꯃꯁꯨꯡ ꯁꯀꯍꯤꯂꯁꯤꯡꯗ ꯂꯌꯥꯎꯅ ꯂꯤꯕꯅ꯫ ꯁꯦꯁꯤꯡ ꯃꯁꯤꯡ ꯑꯁꯤ ꯑꯔꯩꯇꯁ ꯃꯈꯝꯂꯤ: MASTEC-ꯅ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜꯗ ꯒꯂꯂꯍꯕꯟ ꯁꯅꯦꯇ 11, ꯊꯣꯕꯟ ꯇꯨꯔꯦꯜꯗ 14 ꯑꯃꯁꯨꯡ ꯍꯥꯏꯟ ꯇꯨꯔꯦꯜꯗ 5 ꯃꯁꯤꯡ ꯊꯤꯍꯤ, ꯑꯃꯁꯨꯡ ꯃ 2024 ꯑꯃꯁꯨꯡ ꯃ–ꯃꯦ 2025-ꯒꯤ ꯏꯁꯤꯡ ꯏꯊꯦꯡꯁꯤꯡ ꯑꯁꯤ ꯁꯤꯡꯂꯃꯀꯤ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong), ꯅ꯭ꯌꯨ ꯆꯦꯀꯣꯟ (New Checkon), ꯀꯩꯔꯥꯡ (Keirang), ꯈꯕꯝ (Khabam) ꯑꯃꯁꯨꯡ ꯂꯩꯍꯤꯌꯔꯕꯝ ꯂꯀꯤꯅꯗ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯈꯝ ꯃꯍꯤꯗ ꯂꯝꯕꯤꯗ ꯇꯨꯔꯦꯜꯒꯤ ꯁꯦꯡ ꯀꯌꯁꯁꯤꯡꯒꯤ ꯂꯝꯕꯤꯗ ꯂꯌꯇꯤ (ꯁꯤꯡꯗ ꯈꯕꯇꯤꯕꯅꯤꯕ ꯃꯌꯥꯝ ꯏꯁꯦꯂ)꯫

ꯃꯅꯤꯄꯨꯔꯗ, ꯇꯨꯔꯦꯜꯒꯤ ꯁꯦꯡ (pan) ꯑꯃꯒꯤ ꯂꯝꯕꯤꯗ ꯌꯇꯁ ꯑꯣꯏꯇꯈꯟ ꯂꯃꯤꯕꯃꯌ, ꯒꯇ ꯂꯩꯕ ꯂꯇꯥꯕ ꯁꯝꯃꯁ ꯌꯥꯎꯕ ꯑꯣꯏꯇꯈꯟ ꯂꯃꯤꯕꯃꯌ ꯑꯃꯁꯨꯡ ꯂꯝꯌꯥꯎꯕꯀꯤ ꯃꯂꯝꯌ ꯂꯩꯕ ꯑꯣꯏꯇꯈꯟ ꯂꯃꯤꯕꯃꯌꯀꯤꯗꯃꯌ ꯃꯍꯩꯒꯤꯁꯤꯡ ꯑꯁꯤ ꯃꯄꯨꯔꯣꯟ ꯑꯁꯤꯅ ꯊꯝꯕꯂꯤ: (a) ꯑꯣꯏꯇꯈꯟ ꯑꯗꯨꯒꯤ ꯁꯅꯇ ꯀꯍꯤꯒꯝꯕ ꯑꯣꯅꯍꯕꯂꯨ, ꯃꯁꯤꯗ ꯈꯂꯁ ꯒꯇ ꯑꯃ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯌꯥꯝꯗ ꯁꯦꯁꯌꯂ ꯂꯇꯥꯕ ꯁꯌꯁ-ꯂꯒ ꯂꯂꯇ ꯑꯃ (ꯀꯥꯡꯂꯨꯞ 9.10.3) ꯂꯩꯒꯗꯕꯅꯤ, ꯃꯍꯥꯛꯀꯤ ꯏꯁꯤꯡ ꯏꯊꯦꯡ ꯑꯃꯒꯤ ꯃꯌꯥꯝ ꯁꯨꯃꯕꯗ ꯇꯨꯔꯦꯜꯅ ꯑꯣꯏꯇꯈꯟ ꯊꯤꯕꯅ ꯑꯃꯁꯨꯡ ꯈꯂꯁ ꯒꯇ ꯑꯁꯤ ꯌꯊꯦꯂ ꯑꯗꯨꯅ ꯀꯦꯁꯌꯟ ꯌꯥꯎꯕ ꯊꯤꯕꯒꯤ ꯂꯝꯂꯦꯅ ꯑꯃꯍꯥꯡꯌꯂꯤ; (b) ꯑꯣꯏꯇꯈꯟꯗ ꯂꯩꯕ ꯁꯤꯟ, ꯒꯇ ꯊꯤꯕꯕ ꯂꯒꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯒꯤ ꯀꯍꯥꯁꯇ ꯑꯁꯤ ꯃꯃꯤꯕ ꯂꯩꯕ ꯀꯌꯝ ꯑꯃꯗ ꯁꯍꯒ ꯌꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯁꯦ ꯌꯍꯤꯕ WRD ꯒꯂꯒ ꯁꯝꯂꯄꯂꯒꯗꯕꯅꯤ (ꯀꯥꯡꯂꯨꯞ 10.4.4(d)); (c) ꯒꯇꯀꯤ ꯃꯌꯥꯝꯗ ꯂꯩꯕ ꯁꯌꯍꯂ ꯑꯃꯁꯨꯡ ꯁꯝꯃꯁ ꯌꯥꯎꯕ ꯑꯁꯤꯅ ꯀꯥꯡꯂꯨꯞ 5.8.5-ꯅ ꯊꯝꯂꯤꯕ ꯀꯨꯍꯂꯁꯦꯁꯤꯡꯒꯤꯗꯃꯌ ꯁꯇꯨꯔ 5-ꯒꯤ ꯑꯣꯏꯇꯈꯟ ꯊꯤꯕꯕ ꯌꯥꯎ ꯊꯌꯀꯗꯕꯅꯤ, ꯃꯍꯩꯔ ꯑꯁꯤ ꯁꯌꯂ ꯍꯥꯏꯕꯗ ꯑꯃꯇꯌ ꯑꯣꯅꯅꯦꯅꯇ ꯌꯥꯎꯗꯕ ꯏꯝꯐꯥꯜ, ꯊꯣꯕꯟ, ꯍꯥꯏꯟ, ꯀꯕꯕ, ꯊꯣꯕꯟ, ꯁꯌꯃꯅ, ꯔꯕꯂꯤ

(Wangjing), ꯊꯧꯕꯥꯜ, ꯅꯨꯡꯉꯥꯏ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯥꯏꯄꯥꯛ ꯌꯨꯝꯐꯝꯁꯤꯡꯗ ꯊꯨꯡꯕ 72-ꯒꯤ ꯃꯇꯝꯆꯥꯡ ꯂꯩꯈꯤꯕ ꯊꯨꯔꯥꯡꯁꯤ ꯑꯃꯁꯨꯡ ꯑꯍꯤꯜ 7-ꯗꯒꯤ ꯄꯥꯟꯊꯣꯛꯈꯤ, ꯅꯉꯤꯡ ꯇꯧꯕ ꯊꯦꯡ ꯑꯃꯥ ꯇꯧꯔꯛꯈꯤ ꯑꯗꯨ ꯐꯕꯒꯤ ꯆꯥꯡꯗꯥ ꯄꯥꯎꯖꯦꯜ ꯀꯅꯤꯒꯤ ꯏꯊꯥꯏꯕꯦꯔꯦꯖ ꯌꯥꯑꯣꯕ ꯆꯦꯛꯁꯤꯟꯅꯕ ꯑꯣꯏꯔꯦ, ꯑꯃꯁꯨꯡ ꯆꯀꯇꯤꯡꯇꯕ ꯒꯣꯍꯝ ꯑꯃꯥ ꯂꯩ ꯑꯃꯠꯇ ꯄꯥꯎꯖꯦꯜ ꯆꯤꯡꯖꯥꯛ ꯑꯗꯨ ꯐꯕꯒꯤ ꯆꯥꯡꯗꯥ ꯇꯅꯥꯕ ꯀꯌꯥꯗ ꯊꯨꯡꯕ 48-ꯒꯤ ꯀꯨꯝꯗ ꯊꯥꯖꯕ ꯌꯥꯍꯟꯗꯦ ꯄꯥꯎꯆꯦꯠꯄ ꯑꯣꯏꯔꯦ (ꯃꯦꯞ 5.8.5(a) ꯑꯃꯁꯨꯡ (e)), ꯑꯃꯁꯨꯡ ꯊꯥꯖꯕꯒꯤ ꯑꯣꯏ ꯃꯦꯞ 5.8.5(a)-ꯒꯤ ꯃꯇꯨ ꯇꯥꯀꯄ, ꯄꯅꯕꯤꯡꯁꯤ ꯇꯦꯡꯗ ꯇꯥꯀꯄ ꯑꯃꯁꯨꯡ ꯀꯗꯥꯏꯗ ꯀꯌꯥꯒꯤ ꯖꯥꯗ ꯍꯦꯛꯇꯗꯤ ꯅꯍꯥꯛꯀꯤ ꯃꯇꯝ ꯊꯤꯗꯤꯡ ꯖꯦꯡꯕ ꯁꯤꯡꯒꯤ ꯄꯥꯗꯒꯤ ꯊꯥꯎꯔ ꯊꯨꯔꯥꯡꯁꯤꯡꯗꯤꯡ ꯅꯣꯡꯃꯗꯕꯅꯤ; (d) ꯊꯥꯖꯕꯤ ꯁꯤꯡꯂꯣ ꯅꯥꯗꯤꯡꯀꯗ ꯑꯃꯇ ꯃꯥꯂꯦꯝ ꯊꯥꯅꯣꯛꯂꯤꯕꯒꯤꯗꯦꯀꯗ ꯃꯇꯝꯆꯥꯡ ꯌꯥꯕꯗꯕꯅꯤ, ꯄꯔꯕꯗꯤ ꯅꯍꯥꯛꯀꯤ ꯇꯃꯕ ꯑꯃꯁꯨꯡ ꯅꯍꯥꯛꯀꯤ ꯃꯇꯝꯗ ꯁꯤꯡꯒꯤꯗ ꯄꯥꯗꯗ ꯊꯥꯖꯕ ꯅꯥꯗꯤꯡꯀꯗꯤꯗ ꯃꯇꯝꯃꯇ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯊꯥꯖꯕ ꯗꯤꯒꯣꯜꯗꯤ, ꯂꯖꯕ ꯇꯥꯀꯄꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯀꯥꯍ ꯐꯤꯗꯇꯗꯥ ꯌꯨꯝꯐꯝꯒꯤ ꯁꯤꯡꯇ ꯑꯣꯏ ꯅꯥꯗꯕꯦꯜꯒꯤ ꯊꯥꯏꯗꯤꯁꯤꯡꯗꯗ ꯅꯥꯛꯗꯕꯅꯤ (ꯃꯦꯞ 10.17); ꯀꯕꯅꯕꯤ ꯊꯥꯖꯕꯂꯤꯗ ꯑꯣꯏ ꯕꯥꯗ-ꯑꯥꯗ ꯑꯣꯏꯔꯦ ꯅꯗꯁꯀ ꯀꯂꯤꯗ ꯐꯤꯊꯤ, ꯃꯦꯞ 9.9.4-ꯒꯤ ꯀꯅꯥꯗ ꯄꯨꯔꯛꯁꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯐꯗꯕꯅ ꯗꯥꯏꯂꯧꯁꯤꯟ ꯑꯣꯏꯔꯦ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯁꯤꯟꯕ ꯐꯤꯗꯕ ꯃꯇꯨ ꯊꯥꯖꯕ ꯌꯥꯕ ꯗꯥꯏꯂꯧꯁꯤꯟ ꯑꯣꯏꯔꯦ ꯗꯥꯗꯦꯗꯥꯗꯂ ꯀꯂꯤꯗ ꯐꯤꯗꯤ, ꯃꯇꯨ ꯑꯗꯨꯗꯦ ꯅꯕꯅꯗꯒꯤ ꯁꯦꯝꯕ ꯊꯥꯖꯕ ꯑꯗꯨ ꯄꯥꯎꯆꯦꯠꯄꯒꯤ ꯇꯥꯀꯗꯕ (permanent) ꯊꯥꯖꯕꯂꯤꯗ ꯅꯗꯁꯀ ꯗꯥꯗꯤꯡꯒ ꯊꯤꯗꯤ, ꯑꯃꯁꯨꯡ ꯁꯤꯡꯂꯣ ꯅꯥꯗꯤꯡꯀꯁ ꯃꯦꯞ 9.9.12-ꯒꯤ ꯅꯀꯗꯇꯂꯒꯤ ꯗꯥꯇꯗꯂꯣ ꯇꯧꯔꯛꯕꯅꯤ; (e) ꯃꯦꯞ 9.9.9(b)-ꯒꯤ ꯊꯨꯡꯕ 72-ꯒꯤ ꯏꯔꯨꯃꯁ ꯑꯣꯏ ꯀꯂꯤꯀꯆꯤ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯆꯦꯛꯁꯤꯟꯕ ꯀꯂꯤꯗꯒꯤ ꯄꯥꯎꯆꯦꯠ ꯂꯧꯗꯦ ꯐꯤꯗꯇꯕ ꯁꯦꯝꯕ ꯁꯤꯡꯂꯣ ꯑꯀꯆꯦ, ꯐꯤꯗꯕ ꯀꯁꯀ ꯌꯨꯝꯐꯝꯁꯤꯡꯗꯤꯗꯀꯗ, (c)-ꯗ ꯀꯀꯤꯗ ꯇꯧꯕ ꯌꯨꯝꯐꯝꯗꯤꯗ ꯑꯍꯤꯜ 7-ꯗꯒꯤ ꯄꯥꯟꯊꯣꯛꯂꯦ, ꯏꯔꯨꯃꯁ ꯐꯀꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯑꯗꯨꯁꯕꯒꯤ ꯆꯛ ꯅꯂꯤꯗꯦ ꯁꯥꯗꯤꯕ ꯀꯁꯀꯗ ꯆꯀꯕꯤꯗꯦ ꯑꯀꯗ ꯄꯥꯎꯆꯦ ꯊꯤꯔꯕꯒꯤꯗꯀꯗ ꯀꯂꯤꯒꯤ ꯀꯊꯨꯡꯒ ꯅꯕ ꯐꯤꯗꯤ ꯑꯀꯤ ꯇꯧꯒꯗꯕꯅꯤ; ꯊꯦ ꯑꯀꯒꯤ ꯀꯁꯨꯗꯗ ꯇꯧꯕ ꯁꯤꯡꯂꯣ ꯑꯀꯗ ꯃꯦꯞ 9.9.10-ꯒꯤ 1% AEP ꯇꯥꯀꯄ ꯑꯣꯏ ꯇꯧꯗꯕ 1% AEP ꯅꯂꯤꯗ ꯇꯥꯊꯗꯒꯤ ꯇꯥꯀꯄ ꯑꯃꯁꯨꯡ ꯐꯥꯗꯥꯗ ꯁꯦꯝꯕ ꯊꯦ ꯗꯥꯗꯊ ꯑꯀꯗ ꯊꯦꯒꯤ ꯀꯁꯨꯗꯗ ꯁꯤꯅꯤꯕ ꯇꯥꯀꯄ, ꯅꯗꯁ ꯑꯣꯏꯔꯦ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯅꯂꯤꯗ ꯅꯁꯦꯒꯤ ꯀꯐꯗꯂꯤ, ꯀꯅꯁꯒꯤ ꯀꯐꯗꯁ ꯁꯤꯗꯕ ꯑꯀꯗ ꯑꯣꯏꯔꯦ ꯇꯧꯒꯗꯕꯅꯤ, ꯀꯐꯗꯀꯗꯤ ꯁꯤꯡꯂꯣꯂꯤꯒꯤ ꯑꯗꯨꯁꯕꯒꯤ ꯆꯛ ꯅꯂꯤꯗꯦ ꯁꯥꯗꯤꯕꯂꯣ ꯀꯅꯁ ꯁꯦꯝꯕꯒꯗꯕꯅꯤ; (f) ꯁꯤꯊꯥꯗꯗꯤ ꯆꯛ ꯑꯃꯁꯨꯡ ꯇꯗꯁꯗꯗꯤ ꯀꯗꯗꯤ ꯇꯧꯕ ꯑꯃꯇꯝꯊ ꯑꯃꯁꯨꯡ ꯊꯤꯗꯁ, ꯃꯇꯨ ꯃꯇꯨ, ꯂꯖꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯐꯗ ꯁꯦꯝꯕ ꯑꯀꯗ ꯇꯧꯕꯅꯁꯒꯤ ꯀꯅꯁꯒꯤ ꯅꯂꯤꯗ ꯇꯧꯕꯅꯁꯒꯤ ꯇꯥꯀꯄꯗ ꯇꯧꯕꯒꯤ ꯃꯦꯞꯁꯤꯡꯂꯣꯒꯤꯗꯀꯗ ꯃꯇꯨ ꯁꯤꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯊꯤꯗꯁ ꯀꯂꯤꯗ ꯂꯁꯤꯗꯀꯗꯤ ꯇꯤꯗꯁꯗꯤꯗꯤ ꯃꯇꯨ ꯀꯗ ꯁꯅ, ꯀꯐꯀꯗꯤ ꯅꯂꯤꯗ ꯑꯣꯏ 30-ꯗꯒꯤ 65 m ꯆꯦꯛꯁꯤꯟꯕ ꯇꯧꯕ ꯑꯃꯇꯝꯊꯗꯒꯤ ꯀꯐꯗꯁ ꯇꯧꯕꯅꯁꯒꯤ ꯀꯅꯗ 2-ꯗꯒꯤ 5 m-ꯗ ꯇꯥꯊꯤ (CGWB, 2013) ꯑꯃꯁꯨꯡ ꯂꯕꯗꯅꯗꯂꯒꯤ ꯗꯁ ꯑꯀꯁ ꯇꯧꯕ [TBC]; ꯑꯃꯁꯨꯡ (g) ꯀꯂꯤꯗꯤꯗꯒꯤ ꯊꯗꯒꯤ ꯑꯀꯂꯦ (embankment statute) ꯑꯀꯁ ꯏꯗꯕꯗꯦ, ꯐꯕꯗ ꯑꯣꯏꯗ ꯊꯦ ꯑꯀꯒꯤ ꯀꯊꯨ ꯑꯣꯏꯔꯦ WRD-ꯒꯤ ꯑꯗꯕ ꯀꯗ ꯁꯅ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯗꯤꯗ ꯇꯗꯁꯗ ꯇꯗ (ꯊꯗꯁꯗꯂꯦ) ꯑꯗꯁ, 2006 (*Manipur Loktak Lake (Protection) Act, 2006*)-ꯒꯤ 236.21 km²-ꯒꯤ ꯀꯁꯨꯗꯗ ꯑꯗꯁ ꯑꯀꯗꯦ ꯀꯗ ꯁꯅꯄꯗꯕ ꯀꯏꯀꯗ LDA-ꯒꯤ ꯀꯀꯗꯒꯤ ꯑꯗꯕ (ꯂꯗꯂꯦ 20) ꯀꯗ ꯁꯅ; ꯊꯦ ꯑꯀꯗ ꯇꯧꯕ ꯒꯗ ꯑꯀꯤ ꯀꯂꯤ ꯁꯤꯗꯅꯐꯗꯕ ꯕꯗꯤ ꯑꯀꯗꯦ ꯅꯗꯁꯀ ꯑꯊꯐꯗ ꯁꯅ, ꯑꯃꯁꯨꯡ ꯊꯦꯂꯤꯗꯗ WRD-ꯒꯤ ꯀꯂꯤꯒꯤ ꯐꯕꯗꯂꯤꯗꯦ WRD-ꯒꯤ ꯗꯥꯇꯗꯂꯗ ꯗꯥꯗꯤ꯫ ꯆꯦꯛꯁꯤꯟꯕ ꯑꯀꯦ ꯗꯀ ꯑꯀꯒꯤ ꯀꯅꯗ ꯇꯧꯕ ꯌꯨꯝꯐꯝꯒꯤ ꯐꯤꯗ (reach) ꯑꯀꯗ ꯁꯗꯕ ꯀꯏꯀꯗꯂ ꯒꯗꯂꯤ ꯀꯗ ꯁꯅ: ꯐꯕꯗ (ꯀꯊꯐꯗ) ꯗꯀꯗ ꯊꯗ ꯐꯤꯗꯐꯗꯗ ꯇꯥꯀꯄ 880.7 m ꯑꯃꯁꯨꯡ ꯂꯊꯤꯗꯁ ꯃꯇꯝꯆꯥꯡ ꯃꯇꯨꯁꯐꯇ 2,240 m³/s ꯇꯤ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯐꯤꯗꯐꯗꯗꯐ ꯑꯣꯏ 1 ꯑꯗꯂꯤ 2015-ꯗ 876 m-ꯗ ꯇꯧꯔꯤ, "ꯂꯊꯤꯗꯁꯂꯤꯒꯤ ꯀꯐꯗꯁ ꯀꯐꯗ 2 m" ("nearly 2 m above the spillways") (ꯌꯨꯝꯐꯝ ꯊꯦꯐꯗ ꯏꯗꯗꯗꯅꯤꯗ ꯀꯁꯨ ꯅꯂꯦ; ꯏꯗꯗꯗꯊ ꯑꯣꯏ ꯑꯣꯏ ꯀꯂꯦꯗ), ꯑꯃꯁꯨꯡ ꯅꯨꯡꯉꯥꯏ ꯗꯀ ꯑꯃꯁꯨꯡ ꯑꯀꯗꯗ ꯌꯨꯝꯐꯝꯗ ꯇꯧꯕ ꯂꯤꯗꯗ ꯗꯀꯒꯤ ꯇꯥꯀꯄꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯐꯤꯇꯤꯇꯒꯤ ꯐꯗꯂꯤꯗ ꯏꯗꯅꯤꯗ [TBC]; ꯑꯂꯀꯕ ꯐꯤꯗ ꯑꯀꯗ ꯐꯗꯊ ꯆꯦꯛꯁꯤꯟꯕ ꯑꯀꯗꯦ ꯐꯗꯐꯗ ꯁꯅꯤꯗ ꯅꯕꯅꯗꯒꯤ ꯁꯦꯝꯕ ꯐꯤꯇꯤꯇ, ꯑꯃꯁꯨꯡ ꯑꯊꯐꯗꯁꯐꯦ ꯀꯗ ꯊꯤꯗꯐꯗꯤꯗꯀꯗ ꯂꯊꯤꯗꯁꯒꯤ ꯗꯥꯗꯤꯗꯂꯤꯗꯒꯤ ꯃꯇꯨ ꯁꯅ, ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄ ꯑꯀꯒꯤ ꯀꯅꯗ ꯀꯂꯤꯗ ꯏꯇꯗ ꯒꯗ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯐꯇ ꯀꯗ ꯁꯅ (ꯃꯦꯞ 5.8.5(d))꯫ ꯗꯀ ꯑꯣꯏꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯅꯐꯅ ꯕꯐꯇ ꯑꯣꯏ ꯂꯀꯗ ꯑꯣꯏꯗꯒꯤ ꯀꯁꯨ ꯅꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯀ-ꯂꯏꯗꯒꯤ ꯃꯇꯨꯐꯗꯐꯗꯂꯤ ꯀꯁꯨ ꯅꯂꯦ ꯃꯇꯝꯆꯥꯡ ꯁꯅ, ꯑꯀꯗ ꯀꯅꯁꯒꯤ ꯇꯥꯀꯄꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯐꯤꯇꯤꯇꯂꯤꯗ ꯑꯣꯏ ꯂꯀꯗ ꯑꯣꯏꯗꯒꯤ ꯕꯐꯗꯐꯤ ꯗꯥꯗꯐꯤꯗꯂꯤꯗꯗꯤ꯫ ꯇꯐꯤꯕꯗ ꯅꯗꯁꯐꯂꯤꯗ ꯑꯣꯏ ꯕꯐꯗ ꯑꯃꯁꯨꯡ ꯇꯐꯤ ꯌꯨꯝꯐꯝꯁꯤꯡꯗ ꯁꯅ, ꯀꯅꯁꯒꯤ ꯄꯅꯕꯤꯡꯁꯤ ꯏꯇꯗ ꯇꯥꯀꯄ ꯑꯣꯏ ꯃꯁꯐꯕꯗꯐꯗ ꯇꯧꯕ CWC ꯂꯅꯁꯗꯁ 32.1 m ꯑꯅ (31 ꯖꯨꯂꯥꯏ 1989, ꯊꯦꯐꯗ ꯏꯗꯗꯗꯅꯤꯗ ꯀꯁꯨ ꯅꯂꯦ; ꯗꯁꯀ ꯄꯅꯗ), ꯑꯃꯁꯨꯡ ꯀꯏꯀ ꯑꯀꯗ ꯇꯧꯕ ꯆꯦꯛꯁꯤꯟꯕ ꯑꯀꯤ, ꯃꯇꯨꯐꯇ ꯐꯗꯐꯗ ꯑꯀꯁ ꯑꯀꯗꯦꯅꯇ ꯁꯤꯗꯕ ꯀꯏꯀꯗ, ꯀꯅ ꯐꯕꯗ ꯀꯏꯀꯗ ꯇꯧꯕ ꯕꯐꯗ ꯊꯥꯗꯂꯗ ꯇꯧꯕꯀꯗꯦ ꯑꯍꯤꯜ 7-ꯗꯒꯤ ꯄꯥꯟꯊꯣꯛꯂꯦ ꯇꯗ (lock: ꯌꯨꯝꯐꯝ ꯑꯣꯏ ꯆꯦꯛꯁꯤꯟꯕꯒꯤ ꯀꯐꯗꯁ ꯇꯧꯕꯒꯤ ꯒꯗ ꯐꯤꯗꯦ ꯇꯧꯕ) ꯑꯅ (ꯃꯦꯞ 5.8.5(g))꯫

ꯁꯤꯗꯂꯤꯗꯦ ꯑꯂꯀꯗ ꯑꯣꯏꯒꯤ ꯑꯁꯊꯥꯗ ꯁꯗꯁꯅ ꯐꯗꯇꯤ꯫ ꯃꯤꯗꯤ ꯂꯗꯦ (Disang shale) "ꯁꯤꯗꯒꯤ ꯆꯀꯒꯤ ꯀꯁꯦ 85 p.c. ꯁꯦꯝꯕ, ꯅꯂꯏꯤꯗꯌꯨꯝꯐꯗꯂꯦ ꯄꯥꯎꯆꯦꯠ ꯑꯃꯁꯨꯡ ꯐꯗꯑꯏ ꯄꯥꯎꯆꯦ ꯇꯤ" ("occupies almost 85 p.c. of the hilly region, have less infiltration and more run off"), ꯏꯁꯁꯕ ꯑꯅꯐꯕ ꯆꯛ (degraded land) ꯑꯣꯏꯗꯦ 1,545 km², ꯁꯀꯊꯗꯗꯤ ꯗꯥꯁꯀꯗꯗꯤ 24%, ꯁꯦꯝꯅ, ꯑꯃꯁꯨꯡ ꯁꯤꯗꯒꯤ ꯅꯗꯂꯤꯗꯦ "ꯇꯗꯁꯗ ꯊꯥꯁꯁ ꯐꯗꯐꯗꯗꯐꯤꯗꯗ ꯑꯐꯀꯕ ꯗꯊꯗꯀꯒꯤ ꯇꯁꯗꯦ ꯅꯐ ꯂꯗꯦ ꯁꯗꯇꯗꯤ … ꯊꯦꯁꯖꯨꯀ ꯊꯨꯕ ꯐꯀꯕ ꯀꯂꯗ ꯄꯥꯎꯆꯦ ꯊꯦꯁ ꯑꯣꯏꯗ ꯇꯧꯕ ꯐꯀꯇꯤꯇꯤ" ("flow down with steep slope for a short distance before meeting the Loktak Lake … load carrying capacity is high which causes siltation of the lake") (MASTEC)꯫ ꯑꯑ ꯊꯗꯗ ꯇꯧꯕ ꯌꯨꯝꯊꯨꯗ (Tupul) 29 ꯑꯃꯁꯨꯡ 30 ꯖꯨꯟ 2022-ꯗ ꯗꯗꯅꯤꯕ ꯇꯗꯗꯂꯗꯅꯗ (landslide) ꯑꯣꯏꯗꯦ (ꯑꯍꯤꯜ ꯑꯃꯁꯨꯡ ꯂꯤꯅꯤꯕꯒꯤ ꯀꯂꯤꯗ, 56, 58 ꯑꯃꯁꯨꯡ 61,

ꯗꯥꯏꯅꯥꯃꯤꯛꯁꯤꯡꯒꯤ ꯃꯔꯝꯗꯥ ꯁꯥꯏꯟꯇꯤꯐꯤꯛ) ꯇꯦꯛꯅꯤꯀꯦꯜ–ꯍꯥꯏꯗ꯭ꯔꯣ ꯃꯦꯠꯔꯤꯛꯁꯀꯤ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯐꯤꯚꯝ ꯑꯃꯁꯨꯡ ꯍꯣꯛ "ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕꯥ ꯅꯠꯔꯒꯥ ꯆꯠꯊꯔꯕꯥ ꯅꯠꯔꯒꯥ ꯀꯥꯕꯥ ꯁ꯭ꯂꯣꯞ ꯑꯃꯁꯨꯡ ꯍꯣꯛꯀꯤ ꯗꯣꯔꯣꯡꯗꯥ ꯂꯩꯕꯥ ꯁꯔꯨ ꯂꯝ" ("poorly designed or implemented slope excavation coupled with heavy rainfall")-ꯗꯥ ꯄꯥꯝꯖꯕꯅꯤ ꯍꯥꯌꯅꯥ ꯂꯥꯏ (Baruah and others, 2023, ꯀꯥꯡꯂꯨꯞ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯔꯨꯑꯣ ꯂꯩꯕꯥ); 1 ꯑꯒꯁ꯭ꯠ 2015-ꯗꯥ ꯌꯥꯑꯣꯗꯣꯟ ꯀꯥꯡꯗꯥ ꯂꯩꯕ ꯂꯩꯃꯥꯟ (Joumol) ꯂꯣꯜꯗꯥꯡꯁꯥꯡꯗꯥ ꯃꯤꯑꯣꯏ 20 ꯁꯤꯖꯤꯟꯅꯗꯨꯅ 21, ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯑꯌꯥꯍꯥꯡ ꯃꯇꯝ ꯄꯤꯕ ꯑꯃꯗꯥ 24, ꯇꯤꯂꯣꯡꯅꯤ (ꯀꯥꯡꯂꯨꯞ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯔꯨꯑꯣ ꯂꯩꯕꯥ)꯫ ꯍꯥꯏꯗ꯭ꯔꯣ ꯃꯔꯨꯑꯣꯏꯕꯁꯤꯡ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏꯂꯣꯂꯁꯤꯡ ꯕꯤꯔꯥꯏ ꯕꯥꯏ-ꯂꯣꯖ (3-ꯁꯨꯕ ꯑꯃꯦꯟꯗꯃꯦꯟꯇ), 2024 (IMC Building Bye-Laws (3rd Amendment), 2024), ꯃꯇꯤꯒꯤ ꯑꯃꯥꯡꯕ ꯁꯤꯡꯂꯣꯜ ꯕꯤꯗꯥꯏꯃꯆ ꯌꯥꯗꯕ ꯗꯃꯗꯥꯏ ꯑꯃꯗ ꯑꯣꯏꯅꯥ ꯗꯤꯖꯥꯏꯟꯒꯤ [TBC], ꯑꯇꯤꯗꯥ 30°-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁ꯭ꯂꯣꯞꯁꯤꯡꯗꯥ ꯕꯥꯁꯤꯡꯃꯃꯁꯦ ꯑꯃꯁꯨꯡ ꯁ꯭ꯂꯣꯞ ꯕꯃꯀ ꯄꯤꯕꯅ ꯑꯃꯁꯨꯡ 21–30°-ꯗ ꯕꯤꯔꯥꯏꯗꯥ ꯗꯥꯏꯃ ꯑꯂꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ 7 m-ꯗ ꯂꯤꯃꯤꯠ ꯌꯥꯏ (ꯕꯥꯏ-ꯂꯣ 92.1 ꯑꯃꯁꯨꯡ 92.2), ꯗꯤꯖꯥꯏꯟꯒꯤ ꯃꯑꯣꯡꯗ ꯂꯩꯕ ꯃꯦꯗꯦꯟꯒꯤ ꯕꯥꯏ-ꯂꯣ 92-ꯒꯤ ꯃꯔꯨꯑꯣꯏ, ꯃꯇꯤꯗꯥ "ꯑꯦꯚꯔꯦꯖ ꯁ꯭ꯂꯣꯞ 30 ꯗꯤꯒ꯭ꯔꯤ" ("an average slope of 30 degrees") ꯂꯩꯕ 600 m-ꯒꯤ ꯃꯄꯥꯡ ꯂꯩꯕ ꯂꯝ ꯀꯨꯝꯂꯝꯃꯛ ꯄꯤꯕꯤꯒꯂꯤ [TBC: ꯂꯩꯔꯕ ꯕꯥꯗꯤꯗꯥ ꯂꯥꯌꯤꯗꯥꯏꯟ ꯌꯥꯗꯕ ꯕꯥꯏ-ꯂꯣꯂꯁꯤꯡꯗꯥ ꯂꯝꯕꯝꯗ ꯑꯃꯁꯨꯡ ꯌꯥꯕꯁꯨ ꯕꯦꯗꯥꯏꯃꯆ ꯌꯥꯒꯗꯕꯂꯤ]; ꯃꯗꯨꯒꯤꯗꯥ IS 14458, "ꯍꯤꯜꯒꯤ ꯂꯃꯒꯤꯗꯃꯛ ꯃꯤꯌꯥꯝꯂꯤ ꯌꯥꯕꯒꯤ ꯒꯥꯏꯗꯂꯥꯏꯅꯁ" ("Guidelines for retaining wall for hill area")-ꯗ ꯃꯦꯗꯃ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ AIIB ꯀꯥꯃꯥꯂꯕꯁꯤꯡ ꯍꯥꯏꯕꯗꯥꯏꯗꯥ "ꯀꯥꯃ ꯌꯦꯌꯃ ꯀꯥꯃꯥꯃꯃ ꯄꯥꯗꯕꯂꯕ" ("to release pore water pressure") 5 m ꯂꯨꯗꯤꯗꯥ 50-mm ꯌꯤꯀ ꯀꯥꯍꯀꯇꯤꯗ ꯂꯩ (ꯍꯂꯤꯇꯤꯔꯣꯡ ꯍꯦꯗꯣꯟꯃꯂꯃꯦꯌꯣꯡ ꯑꯣꯒꯂꯥꯃꯤꯂꯣꯂꯦ, 2024); ꯃꯍꯥꯛ ꯑꯃꯁꯨꯡꯗꯥ ꯁꯤꯃꯥꯏꯌꯃ ꯑꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯥꯝꯗ꯫ ꯃꯃꯆ ꯑꯇꯤꯗꯥ ꯃꯂꯤꯀꯨꯃꯗ, ꯂꯣꯃꯤꯂ ꯑꯇꯤꯒꯤ ꯍꯤꯜꯒꯤ ꯑꯣꯗꯤꯂꯦꯇꯤꯗꯥ ꯂꯩꯕꯀꯨꯃꯂꯥ, MN-B ꯑꯃꯁꯨꯡ MN-C ꯇꯕ-ꯑꯣꯃꯤꯔꯦꯇꯤꯗꯥ, MN-C1-ꯒꯤ ꯍꯤꯗ ꯂꯩꯕ ꯃꯗꯃꯆꯇꯤꯗꯥ ꯑꯃꯁꯨꯡ MN-A-ꯒꯤ ꯌꯥꯆꯀꯥꯏꯕꯤ ꯃꯀꯥꯦꯄꯤꯒꯤ ꯁ꯭ꯂꯣꯞꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯗ ꯑꯀꯤꯀꯀꯇꯤꯗꯥ, ꯕꯣꯍꯃꯣꯁꯌꯥ ꯗꯣꯒꯣꯂꯀ ꯌꯥꯗꯕ ꯍꯤꯜꯒꯤ ꯁ꯭ꯂꯣꯞ, ꯕꯁ ꯁ꯭ꯂꯣꯞ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯍꯥꯏ ꯑꯃꯦ ꯌꯤꯍꯕ ꯍꯥꯏꯕꯥ ꯑꯃꯗ ꯂꯩꯕ ꯁꯤꯡꯃꯥꯌꯃ ꯑꯃꯒꯤꯗꯃꯛ ꯃꯍꯥꯛꯇꯤꯗꯥꯕ ꯃꯣꯁꯨꯌꯣꯡ ꯑꯇꯤꯗꯥ ꯄꯥꯕꯂꯤ: (h) ꯗꯤꯖꯥꯏꯟ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯁꯤꯡꯀ ꯌꯥꯗꯕ ꯌꯣꯂꯣꯡ ꯑꯃꯗ ꯀꯨꯅ ꯂꯨꯗꯤꯗꯥꯃ ꯍꯤꯕ ꯑꯥꯍꯗꯥ ꯍꯇꯤꯗ ꯄꯗꯥꯀ ꯌꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯣꯇꯤꯗꯥꯗꯥ ꯌꯥꯕ ꯌꯤꯕ ꯃꯑꯣꯗꯥ ꯇꯣꯆꯒꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯒꯃꯌꯥꯕꯣꯡ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯍꯥꯌꯥꯗꯥ ꯁꯦꯛꯁꯟ 9.6.6(c)-ꯒꯤ 1.5 m-ꯗꯒꯤ ꯍꯦꯟꯕꯥꯍꯕꯂꯤ; (i) ꯑꯁꯨꯆꯕ ꯍꯥꯏꯕꯦ ꯑꯃꯗꯥ ꯀꯥꯍꯀ, ꯕꯒꯃ ꯌꯥꯗꯕ ꯍꯥꯏꯕꯦ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯕꯔꯒꯃꯁ ꯑꯃꯗ ꯌꯤꯂꯤꯕ ꯃꯗꯃꯗ, ꯇꯥꯀꯨ 6-ꯗꯥ ꯄꯆꯂꯤꯕ ꯇꯣꯗꯤꯃꯣꯁ ꯕꯂꯕꯤꯗ ꯑꯃꯁꯨꯡ ꯕꯂꯕꯣꯂ ꯗꯣꯑꯌꯥꯃꯇꯤꯗꯥ ꯂꯥꯔꯂꯗꯥ (ꯁꯦꯛꯁꯟ 6.3.6(g) ꯑꯃꯁꯨꯡ (h)), ꯗꯥꯏꯃ ꯑꯀꯨꯗꯥ ꯗꯣꯕꯃꯤꯇ ꯃꯇꯤꯒꯤ ꯃꯄꯥꯡ ꯄꯤꯒꯁꯀ ꯌꯤꯂꯕ ꯍꯦꯑꯂꯥꯍꯦ ꯌꯥꯗꯕ ꯗꯣꯕꯃꯤꯇ ꯃꯣꯑ ꯑꯃꯦ ꯍꯦꯂꯣꯁꯕꯤ ꯃꯄꯥ ꯄꯤꯕ ꯃꯗꯃꯗ ꯂꯩꯒꯗꯕꯂꯤ, ꯃꯇꯤꯒꯤ ꯁꯦꯛꯇꯤꯔꯃ ꯕꯃ ꯇꯀꯥꯇꯤꯗ ꯑꯇꯤ ꯕꯣꯗꯗ ꯂꯩꯕ ꯂꯨꯗꯤꯀ, ꯂꯨꯗꯤ ꯑꯌꯥꯕꯇꯤꯗ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯕꯤ ꯇꯃꯒꯣ ꯑꯃꯗꯒꯤ ꯍꯦꯒꯗꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 9.8.2(a)-ꯒꯤ ꯑꯀꯨꯗꯒꯤ ꯍꯦꯄꯥꯃꯍꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯣꯑꯕꯤ ꯃꯄꯥ ꯄꯤꯕ ꯃꯗꯃꯗ ꯇꯤꯔꯁ ꯌꯥꯃꯀ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯗꯣꯕꯃꯤꯇ ꯕꯣꯇꯤꯗ ꯑꯃꯦ ꯂꯩꯒꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯍꯤꯜꯒꯤ ꯍꯥꯏ ꯑꯃꯗꯥ ꯌꯥꯆꯀꯥꯏꯕꯤ ꯂꯃꯗ ꯌꯤꯕ ꯃꯗꯃꯗ ꯁ꯭ꯂꯣꯞ ꯍꯥꯏꯂꯕꯀ ꯃꯗꯃꯗ (break of slope) ꯇꯤꯔꯁ ꯌꯥꯃꯀ ꯑꯃꯦ ꯂꯩꯒꯗꯕꯂꯤ (ꯁꯦꯛꯁꯟ 6.3.6(m)), ꯃꯃꯆꯗꯤ ꯃꯇꯤꯗꯥ ꯄꯗꯥꯀ ꯂꯩꯃ ꯑꯀꯨ ꯑꯌꯥꯍꯥꯡ ꯃꯑꯣꯗꯥ ꯍꯥꯏꯕꯦꯗꯤꯗ, ꯀꯥꯁꯇꯤꯗ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯌꯥꯏꯌꯥ ꯂꯥꯍꯇꯤꯔꯂꯤ; ꯕꯣꯇꯤꯗꯦꯒꯤ ꯒꯥꯂꯨꯆ ꯑꯇꯤ ꯃꯃꯤꯒꯤ ꯍꯇꯤꯗ ꯍꯌꯥꯂꯨꯇꯤꯗꯥ ꯇꯍꯁ ꯑꯀꯨꯗ ꯄꯃꯂꯤꯔꯂꯕ ꯂꯩꯃ ꯑꯃꯁꯨꯡ ꯗꯣꯕꯃꯤꯇ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯂꯕ ꯇꯣꯗꯤꯃꯣꯁ-ꯌꯤꯔꯗ ꯄꯥꯑꯥ ꯑꯃꯗꯒꯤ ꯑꯣꯁꯨꯃꯤꯁ ꯌꯥꯒꯗꯕꯂꯤ, ꯕꯣꯍꯃꯣꯁ ꯑꯀꯨꯗ ꯂꯩꯕ ꯂꯃꯕꯤ ꯕꯁ, ꯂꯣꯗꯥꯇꯥꯍꯗꯕꯤ ꯃꯑꯥ, ꯕꯥꯌꯥꯃꯤ ꯑꯃꯁꯨꯡ ꯕꯤꯔꯥꯏꯗ ꯇꯍꯁ ꯂꯨꯗꯤꯗꯃꯛ ꯍꯃꯑꯗꯃ ꯑꯃꯦ ꯑꯥꯍꯗꯥ ꯃꯇꯤꯗ ꯄꯤꯑꯀꯨꯗꯥ, ꯃꯃꯆꯗꯤ ꯗꯣꯕꯃꯤꯇ ꯕꯣꯇꯤꯗꯦꯇꯤꯗꯒꯤ ꯇꯍꯂ ꯂꯣꯀꯥꯒꯤ ꯍꯦꯗꯤꯌꯦ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯃꯂꯤꯀꯨꯃꯒꯤ ꯒꯥꯏꯗꯂꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯃꯂꯤꯀꯨꯃꯒꯤ ꯗꯣꯕꯃꯤꯇ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯕꯂꯕꯤꯗ ꯑꯣꯂꯌꯣꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ [TBC]; ꯃꯇꯤꯒꯤ ꯇꯀꯤꯔꯌꯣꯗꯥ, ꯁꯦꯛꯁꯟ 9.7.6-ꯒꯤꯗꯃꯛ ꯂꯩꯕꯀꯨꯃꯂꯥ, ꯕꯣꯇꯤꯦ ꯄꯦꯂꯒꯤ 1% AEP-ꯒꯤ ꯍꯦꯗꯥꯏ ꯀꯨꯄꯥꯃꯕꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯕꯨ ꯍꯥꯏꯍꯦꯕ ꯃꯣꯇꯤꯗꯦꯇꯤꯗꯒꯤꯗꯃꯛ ꯃꯣꯃꯀ ꯑꯃꯦ ꯂꯩꯒꯗꯕꯂꯤ; (j) ꯍꯥꯏ ꯑꯃꯗ ꯂꯩꯕ ꯕꯔꯒꯃꯁ ꯑꯃꯗ ꯌꯤꯕ ꯃꯗꯃꯗ ꯕꯣꯃꯣꯔ ꯑꯃꯍꯥꯌꯥꯃꯛ (ꯁꯦꯛꯁꯟ 9.4.8(a)), ꯍꯦꯂꯣꯁꯌꯥ ꯑꯃꯃꯃ ꯌꯥꯗꯕ ꯍꯣꯗꯀꯌꯔ ꯑꯃꯁꯨꯡ ꯑꯣꯀꯃꯦ, ꯕꯣꯗ ꯃꯔꯨꯑꯣ ꯍꯦꯕ ꯍꯦꯒꯃꯁ (ꯁꯦꯛꯁꯟ 9.4.8(c)), ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 9.6-ꯒꯤ ꯃꯍꯥꯛ ꯄꯨꯝꯄꯥꯕꯂꯕ ꯑꯃꯁꯨꯡ ꯌꯣꯁꯗꯥ ꯂꯩꯕ ꯌꯣꯂꯣꯡ ꯑꯃꯗ ꯀꯨꯃꯕꯀ ꯑꯦꯂꯨꯁꯂꯣꯁ ꯑꯃꯦ ꯂꯩꯒꯗꯕꯂꯤ, ꯄꯨꯝꯄꯥꯌꯥꯕ ꯁ꯭ꯂꯣꯞ ꯑꯃꯗ ꯕꯤꯗꯥꯄꯨꯗꯨ ꯁꯤꯌꯥ, ꯁꯦꯛꯁꯟ 6.3.6(k)-ꯗꯥ NH-37 ꯑꯃꯁꯨꯡ NH-2 ꯀꯣꯔꯤꯗꯣꯔꯇꯤꯗ (corridor) ꯌꯤꯂꯨꯗꯥ ꯍꯤꯜꯒꯤ ꯂꯃꯕꯤꯇꯤꯗꯥ ꯃꯄꯥ ꯌꯥꯍꯦꯔꯂꯤꯕꯀꯨꯃꯂꯥ, ꯑꯃꯁꯨꯡ IRC:SP:42-2014 ꯑꯃꯁꯨꯡ IRC:SP:48-ꯗꯥ ꯂꯃꯕꯤꯒꯤ ꯍꯃꯃꯗ ꯍꯦꯍꯃꯤꯕꯀꯨꯃꯂꯥ; (k) ꯕꯁ ꯁ꯭ꯂꯣꯞꯁꯤꯡ, ꯍꯤꯜꯒꯤ ꯂꯃꯕꯤꯁꯤꯡ, ꯕꯥꯌꯥꯃꯤꯇꯤꯗ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯕꯤꯔꯥꯏꯗ ꯇꯍꯁꯇꯤꯗꯗꯒꯤ ꯃꯦꯑꯗ (runoff) ꯂꯩꯕ ꯂꯍꯂꯤꯗ ꯌꯥꯗꯕ ꯍꯥꯏꯕꯦ ꯂꯨꯗꯤꯗꯃꯛꯌꯥ ꯀꯥꯕꯂꯤꯗ ꯍꯥꯏꯕꯦ, ꯍꯥꯏ, ꯀꯥꯁ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯃꯤꯂꯃꯒꯔꯃ ꯑꯃꯒꯤ ꯀꯨꯂꯇꯤꯗꯗꯤꯃꯤꯄꯗ ꯇꯤꯔꯁ ꯌꯥꯃꯀ ꯑꯃꯦ ꯂꯩꯒꯗꯕꯂꯤ; ꯑꯃꯁꯨꯡ (l) ꯑꯄꯃꯕ ꯍꯥꯏꯕꯦ ꯑꯃꯗ ꯂꯩꯕ ꯂꯍꯂꯤꯗ, ꯑꯃꯁꯨꯡ ꯕꯁ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯃꯤꯌꯥꯝꯂꯤꯗ ꯌꯥꯔ ꯑꯃꯒꯤ ꯃꯍꯥꯛ ꯂꯩꯕ ꯍꯥꯏꯕꯦ ꯑꯃꯦ, ꯌꯥꯕꯔ 9.2-ꯒꯤ ꯒꯥꯏꯗꯂꯥꯏꯟꯒꯤꯗꯃꯛ ꯍꯥꯌꯥꯗꯥ ꯁꯤꯌꯥꯗꯥ ꯃꯇꯤꯗꯥ ꯀꯨꯃꯕꯀ ꯂꯨꯗꯤꯀ ꯑꯃꯁꯨꯡ ꯂꯨꯗꯤ ꯑꯌꯥꯕꯇꯤꯗꯒꯤ ꯑꯣꯕꯃꯂꯦꯒꯤꯗꯃꯛꯇꯥ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯒꯗꯕꯂꯤ, ꯁ꯭ꯂꯣꯞ ꯑꯀꯨꯗ ꯍꯇꯤꯗ ꯌꯣꯦꯄꯃꯍꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯌꯥꯔꯒꯤ ꯃꯔꯨꯑꯣꯗ ꯂꯩꯕ ꯍꯇꯤꯗ ꯑꯀꯨ ꯍꯥꯏꯕꯦꯗ ꯌꯤꯀ ꯍꯥꯔꯇꯤꯗꯒꯤ ꯂꯨꯁꯄꯗ ꯄꯗꯥꯀꯕꯗꯕꯂꯤ꯫ ꯇꯥꯀꯨ ꯑꯇꯤꯒꯤ ꯁꯤꯃꯥꯏꯌꯃ ꯑꯃꯁꯨꯡ ꯗꯣꯕꯃꯤꯇ ꯗꯥꯏꯃ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯂꯣꯂꯗꯥꯡꯁꯥꯡꯗ ꯑꯃꯦ ꯀꯨꯄꯥꯃꯂꯕ, ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯀꯥꯦ ꯕꯃꯀ ꯃꯗꯃ ꯑꯃꯗ ꯂꯨꯃꯔ ꯑꯃꯦ ꯄꯤꯂꯤꯃꯦꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯗꯣ: ꯗꯤꯇꯕ ꯇꯣꯔꯒꯤ ꯕꯁ ꯁ꯭ꯂꯣꯞꯁꯤꯡ, ꯀꯣꯂꯨꯚꯤꯌꯝ (colluvium) ꯑꯃꯁꯨꯡ ꯗꯤꯔꯗ, ꯃꯣꯀ ꯌꯥꯗꯕ ꯂꯣꯂꯗꯥꯡꯁꯥꯡꯗ ꯂꯥꯦ ꯑꯃꯒꯤ ꯃꯍꯥꯛ ꯂꯩꯕ ꯕꯃꯤꯀꯨꯆꯕ ꯍꯥꯏꯕꯦ ꯑꯃꯗ, ꯁꯨꯃꯣꯔꯒꯤ ꯀꯥꯦ ꯑꯃꯒꯤ ꯃꯔꯨꯑꯣꯗ ꯂꯩꯕ ꯀꯥꯦ ꯕꯃꯀꯥꯒꯤ ꯂꯃꯕꯤꯗ,

ꯃꯤꯌ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯕꯅ ꯃꯤꯌ ꯑꯣꯅꯕꯒꯤ ꯃꯇꯦꯡꯕꯅ, ꯌꯤꯕꯒꯤ ꯅꯣꯕ ꯑꯃꯗꯤ ꯌꯤꯕꯗꯤꯕꯅꯒꯤ ꯊꯣꯡꯖꯥꯃ ꯇꯨꯡꯌꯥꯏꯅ ꯇꯦꯜ (foothill fan) ꯑꯃꯅ ꯑꯃꯁꯨꯡ ꯅꯦꯃ-ꯗꯤꯂꯤꯂ ꯗꯤꯌ ꯑꯃꯅ, ꯃꯆꯥꯛ 2.3.6(i)-ꯒꯤ ꯁꯃꯗꯤꯂꯤꯕ ꯑꯣꯏ ꯑꯄꯨꯂꯈꯅ ꯂꯃꯍ, ꯑꯃꯁꯨꯡ ꯁꯥꯗꯥꯌꯗ ꯑꯃꯁꯤ ꯄꯨꯂꯗꯅꯃꯤ ꯃꯃꯤꯗꯦꯅ ꯊꯣꯛꯂꯤ॥

ꯁꯗꯨꯌ ꯑꯣꯏꯒꯤ ꯁꯥꯗꯥꯌꯗ ꯑꯃꯌꯥꯝ ꯃꯍꯤꯒꯤ ꯃꯇꯦꯡꯣꯏꯕꯅ ꯍꯣꯏꯕ ꯂꯩꯃꯍꯅ ꯌꯕꯄꯨꯂꯈ (exfiltrate) ꯁꯟꯅꯕ: ꯍꯦꯝꯗꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯍꯒꯤ ꯂꯩꯃꯥ ꯑꯌꯦꯌꯃ, ꯂꯩꯃꯥ ꯑꯃꯁꯨꯡ ꯃꯤꯌꯥꯝ, ꯂꯥꯏꯔꯥꯏꯗꯃꯤ ꯃꯂꯦꯏꯥꯝ, ꯑꯦꯡꯌꯈꯥꯒꯣꯏꯕ ꯊꯤꯕꯂꯕ ꯃꯥꯝꯍꯅ ꯍꯣꯏꯕ ꯂꯦꯝꯃ ꯁꯨꯗꯦꯡꯒꯤ ꯃꯈ ꯑꯃꯒꯤ ꯃꯁꯨꯕꯅ, ꯃꯤꯌ ꯆꯌꯗꯒꯤ ꯃꯨꯍꯗꯤ ꯑꯃꯒꯤ ꯃꯃꯤꯈꯊꯕꯅ, ꯃꯍꯣꯏꯒꯤ 1% AEP ꯂꯦꯡꯒꯤ ꯃꯍꯛꯅ ꯂꯩꯕ ꯕꯗꯤꯌ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯤꯒꯤ ꯇꯂꯅ ꯃꯂꯦꯈꯅ ꯆꯌꯗꯒꯤ ꯁꯤꯂꯆꯦꯡ ꯄꯍ ꯌꯥꯝꯗ ꯑꯦꯕꯗ ꯑꯣꯏ ꯂꯩꯃꯍꯒꯤ ꯃꯍꯛꯅ 2.0 m-ꯅꯒꯤ ꯄꯈꯊꯕ ꯃꯇꯦꯃꯅ (ꯃꯆꯥꯛ 4.11, ꯑꯃꯁꯨꯡꯃꯤ ꯆꯦꯃꯒꯤ ꯗꯨꯡ), ꯆꯌꯗꯒꯤ 10°-ꯅꯒꯤ ꯄꯈꯕ ꯃꯄꯣꯁꯒꯤ ꯂꯃꯦꯃꯍꯣꯏꯕꯅ, ꯂꯤꯑꯥꯝꯌꯂꯤꯃꯗꯡ ꯁꯗꯝꯇꯤꯃꯌ ꯑꯃꯁꯤ ꯌꯦꯡꯅꯂꯦ ꯅꯤꯂꯕ ꯁꯦꯡ, ꯃꯂꯨꯒꯤꯌꯦ ꯆꯌꯗꯒꯤ ꯇꯤꯗꯅ (ꯃꯆꯥꯛ 4.11, ꯌꯤꯕꯒꯤ ꯗꯨꯡ): ꯁꯥꯌꯑꯌ, ꯑꯌꯁꯇꯤꯗꯥꯗꯥꯝꯕ ꯌꯦꯕꯗ, ꯃꯗꯇꯗꯥꯝꯅ ꯃꯍꯃ ꯆꯌꯗꯒꯤ ꯑꯃꯈ-ꯂꯍꯈꯝꯅ ꯍꯕꯕꯦꯈ ꯑꯃꯌꯥꯝ ꯆꯌꯥꯝ॥ ꯒꯌꯣꯏꯕꯒꯦꯂꯦ ꯁꯃꯗꯤꯈꯣꯏꯕꯁ ꯃꯗꯨ ꯑꯍ, ꯃꯗꯦꯅꯤ ꯍꯕꯕꯈꯣꯏꯕꯂꯦ ꯁꯤꯌꯇ, ꯑꯃꯌ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯤꯁ ꯃꯗꯤ: ꯍꯦꯝꯗꯥꯏ ꯁꯤꯌꯗꯇ ꯃꯗꯇꯌꯂꯦ ꯃꯍꯣꯏꯒꯤ ꯑꯄꯨꯂꯕ ꯇꯂꯅ IMC-ꯒꯤ ꯌꯗꯅ 27-ꯒꯤ ꯃꯁꯨꯕꯅꯒꯤ 11-ꯅ ꯁꯕ ꯌꯍ, ꯌꯗꯒꯌ ꯌꯗꯕ ꯅꯦꯒꯤ ꯃꯂꯌꯁꯈ 51,754-ꯒꯤ ꯃꯁꯨꯕꯅꯒꯤ 8,600–8,700 ꯁꯦꯂ (ꯁꯥꯌꯂꯦ ꯂꯁꯂꯗ ꯒꯗꯤꯈ ꯌꯗꯍꯕꯅꯂꯗꯅ (National Green Tribunal) O.A. No. 606 of 2018-ꯅ ꯃꯤꯍꯤꯕ ꯗꯤꯃꯗꯌ, ꯇꯂꯍ 2025), ꯆꯦꯕꯗ ꯁꯨꯗꯗꯅ ꯌꯈꯊꯗꯃꯃ ꯍꯕꯕꯈ 72-ꯂꯦ 42.45–52.34 mg/L-ꯒꯤ BOD ꯃꯗꯦꯃꯤ, ꯑꯃꯁꯨꯡ ꯃꯍꯔꯒꯤ ꯍꯈꯌꯗꯁꯃꯁꯈ ꯑꯃꯁꯨꯡ ꯅꯍꯒꯗꯁꯈ ꯂꯍꯗ ꯄꯔꯂꯦ ꯇꯕꯅꯌꯂꯤ (ꯌꯗꯍꯕꯅꯂꯗꯒꯤ ꯃꯁ ꯑꯅꯃꯌ, ꯅꯤꯁꯦꯕꯗ 2025), CPCB-ꯂꯦ ꯁꯥꯌ ꯑꯣꯏꯅ ꯍꯃꯌ ꯑꯍꯗꯕ ꯁꯨꯗꯗꯒꯤ ꯁꯥꯗꯌ 18 ꯂꯤꯁꯌ ꯌꯗꯤ, ꯃꯦꯆꯃꯌ ꯃꯗꯍꯑꯗꯤꯌ V-ꯅ, ꯃꯍꯔꯒꯤ ꯃꯁꯨꯕꯅ ꯁꯤꯕꯅ ꯅꯦꯃꯅꯒꯤ ꯕꯤꯁꯃꯗ ꯇꯈꯕ ꯆꯦꯕꯗ ꯁꯨꯗꯗ ꯌꯈꯍ (2025), ꯑꯃꯁꯨꯡ ꯃꯗꯑꯍꯕ ꯃꯊꯗꯒꯤ ꯃꯁꯨꯕꯅ ꯂꯩꯕ ꯂꯒꯤ ꯁꯗꯂꯦ (Naga Nullah) ꯑꯣꯏ ꯊꯅꯌꯂꯕ ꯑꯃꯌꯃꯤ "ꯌꯄꯤ ꯃꯦꯕ ꯂꯃꯂꯤꯕ ꯍꯣꯏꯕꯒꯤ ꯃꯗ ꯑꯃ" ("a stagnant pool all along the year")-ꯂꯤ (ꯒꯗꯌꯗ ꯍꯦꯝꯗꯥꯏꯒꯤ ꯗꯤꯒꯍꯂ ꯌꯗꯕ GIS ꯕꯂ ꯃꯁꯥꯌꯗ ꯃꯂꯦꯈ – 2043), ꯃꯗꯦ ꯑꯅꯂꯦ ꯃꯂꯤꯃꯗꯅ ꯃꯦꯃ ꯁꯦꯃ ꯑꯃꯅ ꯂꯩꯕ ꯁꯃꯗꯤꯈ ꯆꯌꯗꯒꯤ ꯒꯌ ꯑꯃꯕ ꯃꯆꯥꯛ 9.8.4-ꯒꯤ ꯕꯂꯌ ꯑꯍꯗꯕ ꯃꯁꯅ ꯌꯌ ꯌꯍ, ꯁꯦꯃ ꯑꯅꯂꯦ ꯍꯕꯕꯈ ꯑꯃꯅꯒꯤ ꯄꯈꯂꯦ ꯁꯕ ꯌꯗꯤꯕ ꯃꯇꯦꯃꯅ ꯃꯃꯂꯤꯃꯗ ꯑꯍꯂꯦ ꯁꯕꯅꯃꯍ, ꯑꯃꯁꯨꯡ ꯃꯤꯌ ꯑꯃꯅ, ꯂꯌꯌꯌ ꯆꯌꯗꯒꯤ CPCB-ꯒꯤ ꯂꯤꯁꯌ ꯂꯩꯕ ꯁꯨꯗꯗꯒꯤ ꯁꯥꯗꯌ ꯑꯃꯅ ꯊꯌꯃ ꯑꯦꯡꯌꯈꯗ ꯁꯅꯤꯕꯃꯌꯃꯤ ꯃꯃꯤꯕꯅ ꯂꯕ ꯁꯅꯕ ꯃꯌꯦꯒꯤ ꯌꯈꯕ ꯍꯈꯌꯗꯁꯃꯁꯈ ꯌꯕꯒꯤ ꯂꯔꯂꯦ ꯊꯦꯃꯤ (ꯁꯗꯨꯌ 6, ꯃꯆꯥꯛ 6.3.6(e); ꯁꯗꯨꯌ 8, ꯃꯆꯥꯛ 8.9.5)॥ ꯃꯂꯤꯃꯗꯒꯤ ꯃꯗꯤꯒꯦꯕ ꯌꯈꯈ ꯑꯃꯒꯤ ꯍꯕꯕꯈꯣꯏꯕꯅ ꯂꯩꯕ ꯒꯌꯣꯏꯕ, ꯇꯂꯃ ꯒꯌꯣꯏꯕ, ꯁꯃꯗꯤꯈꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯃꯤꯕ ꯁꯥꯌꯁꯈꯣꯏꯕꯒꯤ, ꯃꯍꯔꯒꯤ ꯁꯤꯗꯣꯏꯕ, ꯃꯃꯁꯣꯏꯌꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯗꯌꯕ ꯗꯨꯗꯣꯏꯕꯒꯤ ꯂꯔꯂꯦ, ꯍꯈꯒꯈꯌꯗꯤ ꯑꯃꯌꯥꯝ, ꯒꯌ ꯑꯃ ꯊꯤꯕꯕ ꯑꯣꯏ ꯁꯨꯗꯗꯒꯤ ꯁꯥꯌꯂ ꯑꯃꯒꯤ ꯁꯦꯂꯄꯗꯂꯤꯕ ꯆꯌꯗꯒꯤ ꯃꯍꯣꯏꯒꯤ ꯒꯌꯣꯏꯕ ꯃꯔ ꯁꯕꯂꯦ ꯊꯤꯕꯂꯤꯕꯒꯤ ꯄꯔꯕ ꯄꯍꯕ WRD-ꯒꯤ ꯗꯨꯗ ꯑꯃꯌꯥꯝ, ꯍꯊꯍ ꯕꯗꯤꯂ ꯆꯌꯗꯒꯤ ꯅꯦꯃꯣꯏꯕꯒꯤ ꯃꯍꯔꯒꯤ ꯃꯍꯛꯅ ꯂꯩꯕ ꯌꯈꯈꯣꯏꯕꯒꯤ ꯁꯦꯂꯄꯗꯂꯤꯕ ꯑꯃꯗꯌꯕ ꯗꯨꯗ ꯑꯃꯌꯥꯝ, ꯑꯃꯁꯨꯡ ꯃꯗꯤꯒꯦꯕ ꯑꯦꯡꯌꯈꯗ ꯑꯃꯅ ꯅꯤꯂꯍꯈ ꯁꯨꯗꯗ ꯆꯌꯗꯒꯤ ꯃꯤꯌꯃꯤ ꯂꯒꯗ ꯑꯃꯌꯥꯝ ꯃꯕꯂꯤꯌ ꯅꯃꯈꯅ ꯇꯕꯍꯤꯅ॥ ꯃꯆꯥꯛ 9.10.3 ꯑꯃꯁꯨꯡ 9.10.5 ꯑꯣꯏ ꯃꯗꯔꯗ ꯑꯣꯏꯂꯦ ꯊꯦꯕꯂꯤ, ꯃꯗꯦꯅꯤ ꯇꯗ ꯌꯗꯕ, ꯆꯌꯗꯒꯤ ꯂꯩꯃꯥ, ꯑꯃꯌ, ꯅꯕꯗꯤꯁ ꯆꯌꯗꯒꯤ ꯇꯦꯅꯤꯂꯦ (ꯃꯂꯤꯃꯗ ꯂꯌꯌꯌ ꯂꯌ (ꯃꯗꯌꯌꯁꯈ) ꯑꯌꯌ, 2006-ꯂꯦ "Phumdis" ꯄꯔꯂꯦ ꯁꯈꯅꯌꯂꯦ ꯌꯌꯂꯤꯕ "ꯃꯤꯦꯕꯤ, ꯑꯗꯒꯂꯤꯌ ꯅꯕꯗꯤꯁ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯍ" ["vegetation, organic debris and soil"]-ꯒꯤ ꯌꯈꯗꯤꯕ ꯃꯌꯣꯏꯕ) ꯄꯕꯅꯌꯂꯒꯤ ꯂꯦ ꯑꯍꯗꯕ ꯇꯂꯃ ꯒꯌ ꯆꯌꯗꯒꯤ ꯒꯌ ꯑꯃꯂꯦ ꯍꯦꯝꯗꯥꯏ ꯁꯨꯗꯗ, ꯆꯦꯕꯗ ꯁꯨꯗꯗ, ꯑꯃꯁꯨꯡꯃꯤ ꯑꯌꯃꯃ ꯁꯨꯗꯗ ꯑꯃ ꯆꯌꯗꯒꯤ ꯍꯣꯏꯕ ꯍꯌꯈꯅ ꯂꯩꯕ ꯂꯌꯌꯌ ꯑꯣꯏ ꯍꯕꯕꯈ ꯂꯌꯌꯗꯌꯌ ꯄꯈꯂꯦ ꯌꯕꯄꯗꯂꯤ, ꯑꯃꯁꯨꯡ ꯊꯤꯕꯂꯒꯤ ꯂꯦ ꯑꯍꯗꯕ ꯑꯃꯂꯦ ꯃꯣꯏ ꯊꯤꯕꯍ॥ ꯒꯗꯌꯗ ꯍꯦꯝꯗꯥꯏꯒꯤ ꯍꯕꯕꯈꯣꯏꯕꯂꯦ ꯑꯃꯌ ꯑꯃꯁꯨꯡ ꯁꯤꯌꯇ ꯃꯍꯔꯒꯤ ꯑꯦꯡꯌꯈꯗꯣꯏꯕꯅ ꯃꯗꯃꯍ: ꯆꯦꯕꯗ ꯁꯨꯗꯗꯅ ꯌꯈꯊꯗꯃꯃ ꯍꯕꯕꯈ 72-ꯂꯦ 42.45–52.34 mg/L-ꯒꯤ BOD ꯃꯗꯦꯃꯤ (ꯁꯥꯌꯂꯦ ꯂꯁꯂꯗ ꯒꯗꯤꯈ ꯌꯗꯍꯕꯅꯂꯗꯅ O.A. No. 606 of 2018-ꯅ ꯃꯤꯍꯤꯕ ꯗꯤꯃꯗꯌ, ꯅꯤꯁꯦꯕꯗ 2025), ꯁꯨꯗꯗꯣꯏꯕꯅ ꯂꯩꯕ 3–6 mg/L-ꯒꯤ ꯌꯕꯅꯦꯆꯕꯅ (CPCB, 2025); ꯃꯗꯑꯍꯕ ꯃꯊꯗꯒꯤ ꯁꯂꯤꯅ ꯌꯁꯌ ꯑꯣꯏ "ꯃꯊꯗꯒꯤ ꯃꯁꯨꯕꯅ ꯂꯩꯕ ꯂꯒꯤ ꯁꯗꯂꯦꯅ ꯊꯅꯃꯍ, ꯃꯍꯣꯏꯂꯦ ꯌꯄꯤ ꯃꯦꯕꯅ ꯌꯈꯅꯕ ꯍꯣꯏꯕ ꯃꯈꯣꯏꯈꯕ ꯑꯃ ꯁꯦꯃꯤ" ("dumped in the Naga Nullah on the backside of the market, which creates a stagnant pool all along the year") (ꯒꯗꯌꯗ ꯍꯦꯝꯗꯥꯏꯒꯤ ꯗꯤꯒꯍꯂ ꯌꯗꯕ GIS ꯕꯂ ꯃꯁꯥꯌꯗ ꯃꯂꯦꯈ – 2043), ꯑꯃꯁꯨꯡ ꯂꯒꯤ ꯁꯗꯂꯦ ꯃꯃꯃꯂꯦ ꯇꯂꯍ 2024-ꯅ ꯂꯒꯤꯗꯦ (Nagaram), ꯂꯍꯇꯦ ꯍꯂꯦ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯂꯍꯗꯤꯌꯔꯕꯕꯦ ꯂꯃꯍꯅ ꯍꯣꯏꯕ ꯍꯌꯈ ꯊꯃꯄꯆꯍꯤ (ꯃꯈꯅ ꯇꯕꯅꯌꯍꯤꯕ ꯃꯁꯨꯕ ꯍꯈꯆ), ꯃꯗꯦ ꯑꯅꯂꯦ ꯒꯌ ꯑꯃ, ꯃꯍꯣꯏꯒꯤ ꯁꯃꯗꯤꯈ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯏꯒꯤ ꯃꯁꯨꯕꯅ ꯂꯩꯕ ꯃꯦꯃ ꯁꯦꯃ ꯑꯣꯏ ꯂꯅ ꯑꯅꯃꯌ ꯇꯈꯕ ꯊꯕꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯈꯂꯦ ꯁꯕꯂꯦ ꯊꯦꯒꯅꯕꯂꯤ; ꯑꯃꯁꯨꯡ ꯍꯣꯏꯕ ꯍꯌꯈ ꯑꯌꯕ ꯑꯃꯅ ꯑꯃꯁꯨꯡꯃꯤ ꯁꯨꯗꯗꯣꯏꯕ ꯗꯃꯤꯌ ꯃꯔ ꯌꯕꯂꯦ ꯂꯩꯕꯂꯦ (ꯂꯤꯂꯕꯅ ꯍꯦꯝꯗꯥꯏ ꯁꯨꯗꯗ ꯑꯣꯏ 15 ꯁꯃꯌꯦꯕꯗ 2025-ꯅ 783.250 m-ꯅ ꯔꯍꯤ, ꯃꯍꯣꯏꯒꯤ ꯇꯕꯅꯌꯍꯤꯕ ꯄꯍꯔꯁꯌ ꯇꯂꯅ ꯂꯒꯗ 782.850 m-ꯒꯤ ꯃꯊꯌꯌ, WRD-ꯒꯤ ꯂꯒꯗꯣꯏꯕ, ꯃꯈꯅ ꯇꯕꯅꯌꯍꯤꯕ ꯃꯁꯨꯕ ꯍꯈꯆ) ꯑꯃꯁꯨꯡ "ꯁꯨꯗꯗꯒꯤ ꯃꯈꯣꯏꯕ ꯇꯗ ꯌꯕꯂꯦ ꯂꯦꯕ ꯃꯇꯦꯃꯣꯏꯕꯅ ꯄꯃꯌ ꯃꯔꯒꯤ ꯍꯣꯏꯕ ꯊꯦꯅꯕ ꯑꯍꯄꯗꯂꯤ" ("the failure of river dikes causes waterlogging in the low-lying areas for several weeks") (AIIB,

> 2024)-ꯗꯥ, ꯇꯤꯡ ꯁꯥꯏꯕ ꯅꯠꯔꯒꯥ ꯇꯣꯞ ꯑꯣꯏꯅꯕ ꯂꯣꯝ ꯑꯃꯥ ꯄꯨꯝꯅꯃꯛ ꯃꯁꯤ ꯅꯠꯔꯒꯥ ꯍꯥꯌꯕ ꯃꯁꯤ ꯑꯣꯏꯅ ꯌꯥꯏ; ꯃꯔꯤꯛꯇꯒꯤ ꯁꯦꯔꯤꯒꯤ ꯑꯗꯨꯅ ꯑꯃꯁꯨꯡ ꯇꯧꯕꯒꯤꯗꯃꯛ, ꯃꯈꯥ ꯑꯗꯨꯗꯥ WRD-ꯗꯥ ꯃꯁꯛ ꯑꯣꯏꯅꯗꯥ ꯃꯇꯤꯛꯀꯤ ꯁꯦꯡꯅ ꯑꯃꯥ ꯂꯣꯝ ꯑꯃꯒꯤ ꯑꯌꯥꯕ ꯁꯤꯅ, ꯑꯃꯁꯨꯡ ꯂꯣꯝ ꯑꯃꯥ ꯌꯗꯥꯅꯕꯤꯕ ꯕꯥꯔꯤ ꯑꯗꯨꯗꯥ ꯅꯡꯁꯃꯡ ꯃꯗꯨ ꯑꯣꯁꯥꯂꯣꯝ ꯁꯦꯅ (ꯃꯣꯗꯨꯔꯣꯟ ꯑꯇꯤꯗꯥ ꯊꯥꯕ)꯫

9.11 ꯅꯦꯇꯣꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯦꯇꯤꯡꯁꯤꯡ

9.11.1 **ꯄꯅꯕ꯭ꯔꯥꯇꯤꯡꯒꯤ.** ꯅꯦꯇꯣꯜꯀꯤ ꯀꯣꯁꯣꯇꯤꯁꯤ, ꯇꯁꯣꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯁꯒꯤꯡ ꯑꯇꯤ ꯇꯕ꯭ꯔꯡ 6, ꯀ꯭ꯂꯥꯁꯇ 6.6 ꯃꯁ꯭ꯡ ꯅꯦꯗꯒꯅꯕꯗꯤ꯫

9.11.2 **ꯂꯣꯗ ꯀ꯭ꯂꯥꯁ.** ꯒ꯭ꯔꯦꯇꯤꯡꯁꯤꯡ, ꯀꯚꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯦꯃꯁꯤꯡ ꯑꯇꯤ ꯃꯈꯥꯒꯤ ꯃꯐꯝꯗ ꯊꯝꯕ ꯁ꯭ꯔꯥꯐꯤꯛꯂꯣꯗꯃꯛ ꯔꯣꯜ ꯁꯥꯒꯅꯕꯗꯤ꯫ ꯂꯣꯗ ꯀ꯭ꯂꯥꯁꯇꯁꯤꯡ ꯑꯇꯤ IS 1726 (ꯀ꯭ꯇꯌ ꯑꯅꯔꯦ ꯃꯣꯗꯄꯟ ꯀꯚꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯦꯃꯁꯤꯡ) ꯅꯠꯔꯒꯥ EN 124 (ꯒꯗꯤ ꯁꯥꯏꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯣꯗꯄꯟ ꯁꯥꯏꯇꯁꯤꯡ)-ꯒꯤ ꯑꯅꯒꯅꯕꯗꯤ, ꯌꯥꯝꯅ꯭ꯔꯕꯅ:

- (a) ꯀꯣꯔꯤꯌꯣꯇꯌꯣꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯅꯤꯌꯦꯁꯤꯡ: EN 124 ꯀ꯭ꯂꯥꯁ D400 ꯅꯠꯔꯒꯥ ꯃꯗꯨꯒꯤ ꯃꯊꯛꯇꯕ ꯄꯣꯛꯤ-ꯅ꯭ꯌ꯭ꯁꯤ IS ꯀ꯭ꯂꯥꯁ;
- (b) ꯀꯔꯕꯒꯤ 0.5 m-ꯒꯤ ꯃꯅꯨꯡꯅ ꯂꯩꯕ ꯀꯔꯕ-ꯇꯅꯅ ꯌꯣꯇꯣꯟ ꯅꯦꯇꯣꯜꯁꯤꯡ: ꯀ꯭ꯂꯥꯁ C250 ꯅꯠꯔꯒꯥ ꯃꯊꯛꯇꯕ; ꯑꯃꯁꯨꯡ
- (c) ꯐꯨꯠꯄꯥꯊꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯅꯀꯟ ꯁ꯭ꯔꯦꯡꯁꯤꯡ: ꯀ꯭ꯂꯥꯁ B125 ꯅꯠꯔꯒꯥ ꯃꯊꯛꯇꯕ꯫

9.11.3 **ꯒ꯭ꯔꯦꯇꯀꯤ ꯄꯣꯁꯔꯦ.**

- (a) ꯀꯣꯔꯤꯌꯣꯇꯌꯣꯇꯁꯤꯡ, ꯇꯅꯀꯟ ꯁ꯭ꯔꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯨꯠꯄꯥꯊꯁꯤꯡꯅ ꯂꯩꯕ ꯒ꯭ꯔꯦꯇꯁꯤꯡꯅ ꯌꯨꯝꯄꯒꯤ ꯃꯅꯀꯤ ꯄꯣꯔꯣꯇꯟ ꯑꯅꯕ 25 mm-ꯅꯒꯤ ꯄꯤꯡꯄ ꯑꯄꯥꯗꯤꯡꯁꯤꯡ ꯂꯩꯔꯅꯕꯗꯤ꯫
- (b) ꯁꯣꯇꯌ ꯁꯥꯏꯕ ꯀꯣꯄꯣꯇꯤꯁꯤꯒꯤ ꯅꯣꯁꯤ ꯂꯩꯁꯕ ꯒ꯭ꯔꯦꯇꯀꯤ ꯃꯍꯟꯁꯤꯡ ꯑꯇꯤ ꯇꯕ꯭ꯔꯡ 6-ꯒꯤ ꯀ꯭ꯂꯥꯁꯒꯤꯡ ꯐꯣꯡꯁꯔꯁꯤꯡꯒ ꯂꯥꯏꯔꯗꯗꯥ FHWA HEC-22 (2024)-ꯒꯤ ꯌꯤꯔꯔ ꯑꯃꯁꯨꯡ ꯑꯔꯤꯐꯤꯇ ꯊꯥꯑꯡꯁꯤꯡꯗꯥ ꯔꯣꯌ ꯁꯥꯒꯅꯕꯗꯤ꯫

9.11.4 **ꯀꯔꯕ ꯑꯄꯥꯗꯤꯡꯁꯤꯡ.** ꯀꯔꯕ-ꯑꯄꯥꯗꯤꯡ ꯅꯦꯇꯣꯜꯁꯤꯡꯅ ꯌꯥꯝꯅ꯭ꯔꯕꯅ 100 mm-ꯒꯤ ꯀ꯭ꯂꯤꯌꯔ ꯑꯄꯥꯗꯤꯡ ꯑꯌꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅ꯭ꯔꯕꯅ 1.0 m-ꯒꯤ ꯑꯇꯥꯡꯕ ꯂꯩꯒꯅꯕꯗꯤ꯫ ꯀꯔꯕ ꯅꯦꯇꯣꯜ ꯑꯃꯗꯥ ꯀꯚꯔ ꯁꯥꯏꯕ ꯍꯥꯡꯕꯦ ꯑꯃꯒꯤ ꯌꯥꯏꯒꯤ ꯐꯨꯠꯄꯥꯊꯅ ꯅꯇꯤꯡ ꯊꯕꯥꯡꯄꯥ ꯃꯇꯃꯅ (ꯇꯕ꯭ꯔꯡ 6, ꯀ꯭ꯂꯥꯁꯇ 6.13.1), ꯑꯄꯥꯗꯤꯡ ꯑꯗꯨ ꯗꯥꯕꯤꯒꯤ ꯗꯣꯅꯣꯏꯅ ꯂꯩꯒꯅꯕꯗꯤ꯫

9.11.5 **ꯇꯣꯡꯐꯤꯕꯤꯁꯤ.** ꯄꯕꯇꯤꯡ ꯗꯥꯅ ꯂꯩꯕ ꯒ꯭ꯔꯦꯇꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯚꯔꯁꯤꯡ ꯑꯇꯤ ꯃꯈꯥꯒꯤ ꯐ꯭ꯔꯦꯃꯁꯤꯡꯅ ꯄꯤꯦꯇ ꯁꯒꯅꯕꯗꯤ ꯅꯠꯔꯒꯥ ꯌꯕꯤꯗꯥ ꯊꯤꯡꯒꯅꯕꯗꯤ, ꯃꯈꯥ ꯑꯗꯨꯗꯥ ꯅꯨꯡꯗꯅ ꯌꯥꯎꯅꯗꯥ ꯃꯍꯥꯛꯀꯤ ꯂꯩꯊꯀꯄ ꯑꯃꯅꯗꯕ꯫

9.11.6 **ꯅꯦꯇꯣꯜ ꯌꯣꯃꯕꯔꯁꯤꯡ.** ꯅꯦꯇꯣꯜ ꯌꯣꯃꯕꯔꯁꯤꯡꯅ ꯇꯕ꯭ꯔꯡ 6, ꯀ꯭ꯂꯥꯁꯇ 6.6.7-ꯒꯤ ꯂꯩꯒꯤ ꯇꯃꯄ (silt sump) ꯂꯩꯒꯅꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯇꯃꯄ ꯑꯗꯨ ꯇꯡꯇꯦ ꯅꯠꯔꯒꯥ ꯒ꯭ꯔꯦꯕ ꯃꯣꯇꯤꯦꯗꯥ ꯄꯡꯄꯦꯕ ꯌꯥꯗꯕ ꯇꯅꯇ ꯗꯣꯄꯀꯅꯕꯗꯤ꯫

> **ꯇꯦꯅꯒꯗꯥ ꯁꯦꯡꯄ.** NDMA (2010, §4.13)-ꯗꯥ ꯅꯔꯃ ꯅꯦꯇꯣꯜꯁꯤꯡꯒꯤ ꯀ꯭ꯇꯌ-ꯑꯅꯔꯦ ꯒ꯭ꯔꯦꯇꯤꯡꯁꯤꯡꯒꯤꯅꯃꯛ IS 5961 ꯀꯌ ꯁꯅ꯫ ꯂꯣꯗ ꯀ꯭ꯂꯥꯁꯇꯁꯤꯡ ꯑꯇꯤ ꯅꯦꯁꯔꯗꯣꯇꯗꯣ ꯑꯅꯗꯥ ꯇꯤꯗꯤꯦꯗꯔꯕ EN 124 ꯀ꯭ꯂꯥꯁꯇꯁꯤꯡꯅ ꯅ꯭ꯌꯃꯐꯃ ꯑꯅꯔ꯫ ꯄꯣꯔꯣꯇꯟ ꯑꯄꯥꯗꯤꯡꯁꯤꯡꯅ ꯂꯩꯕ 25 mm-ꯒꯤ ꯗꯤꯃꯤꯌ ꯑꯇꯤ ꯇꯅꯀꯟ ꯊꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯡꯗꯥ ꯌꯨꯗꯤꯕ ꯃꯤꯑꯅꯁꯤꯡꯒꯤ ꯑꯇꯅꯕ ꯂꯩꯁꯗꯕꯒꯤꯅꯃꯛ ꯊꯃꯗꯤ꯫ APWA 5600 (2006, 5604.2)-ꯗꯥ ꯌꯥꯝꯅ꯭ꯔꯕꯅ 4 ft (ꯃꯔꯣꯟ 1.2 m) ꯑꯇꯥꯡꯕ ꯑꯃꯁꯨꯡ 6 in (ꯃꯔꯣꯟ 150 mm) ꯀ꯭ꯂꯤꯌꯔ ꯑꯌꯥꯡꯕ ꯂꯩꯕ ꯀꯔꯕ ꯑꯄꯥꯗꯤꯡꯁꯤꯡ ꯃꯊꯧ ꯁꯄꯟꯗꯤ꯫ ꯀ꯭ꯂꯥꯁꯇ 9.11.4-ꯗꯥ ꯃꯗꯤꯕ꯭ꯔꯒꯤ ꯁꯤꯡꯔꯦꯁꯤꯡꯅ ꯌꯥꯃꯗꯥ ꯊꯣꯡꯗꯕ ꯄꯤꯡ ꯄꯣꯔꯦꯗꯥ ꯌꯥꯃꯅꯕ ꯗꯃꯕꯤꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯣꯔꯦꯗꯥ ꯗꯣꯃꯕ ꯀꯔꯕꯁꯤꯡꯒꯤꯅꯃꯛ ꯃꯊꯛꯇꯕ ꯄꯣꯔꯦꯗꯥ ꯑꯄꯤꯡꯄ ꯃꯤꯗꯤꯃꯃꯇꯤꯡ ꯊꯃꯗꯤ꯫

9.12 ꯃꯦꯟꯍꯣꯜꯁꯤꯡ, ꯖꯪꯁꯟ ꯆꯦꯝꯕꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ

9.12.1 **ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯄꯦꯁꯤꯡ.** ꯃꯦꯟꯍꯣꯜꯁꯤꯡ (manhole) ꯑꯁꯤ ꯆꯦꯞꯇꯔ 6, ꯁꯦꯛꯁꯟ 6.7.11 ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 6.8-ꯗꯥ ꯃꯐꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯄꯦꯁꯤꯡꯁꯤꯡꯗ ꯄꯤꯒꯗꯕꯅꯤ꯫ ꯄꯥꯏꯞꯁꯤꯡ ꯑꯁꯤ ꯁꯟꯗꯣꯛꯅꯕ ꯃꯦꯟꯍꯣꯜ ꯑꯃꯁꯨꯡꯗꯤ ꯌꯥꯎꯕ ꯌꯥꯎꯗꯕ ꯃꯐꯝꯗ, ꯃꯊꯧ ꯐꯥꯑꯣꯕ ꯄꯥꯏꯄꯇ ꯃꯍꯩ ꯖꯪꯁꯟ ꯆꯦꯝꯕꯔ (junction chamber) ꯑꯃꯥ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ (CPHEEO 2019, §11.3.7.3)꯫

9.12.2 **ꯃꯤꯅꯤꯃꯝ ꯏꯟꯇꯔꯅꯦꯜ ꯁꯥꯏꯖ.** ꯃꯦꯟꯍꯣꯜꯁꯤꯡꯅ ꯌꯥꯎꯍꯟꯒꯗꯕꯅ ꯇꯦꯕꯜ 9.4-ꯗꯥ ꯏꯟꯇꯔꯅꯦꯜ ꯗꯥꯏꯃꯦꯟꯁꯅꯁꯤꯡ ꯄꯤꯔꯤꯕꯅꯤ (CPHEEO 2019, §11.3.7.6):

ꯇꯦꯕꯜ 9.4 — ꯃꯦꯟꯍꯣꯜꯁꯤꯡꯒꯤ ꯃꯤꯅꯤꯃꯝ ꯏꯟꯇꯔꯅꯦꯜ ꯁꯥꯏꯖ

ꯃꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯞꯊ	ꯃꯤꯅꯤꯃꯝ ꯏꯟꯇꯔꯅꯦꯜ ꯁꯥꯏꯖ
ꯔꯦꯛꯇꯦꯡꯒꯨꯂꯔ, 0.9 m-ꯗꯒꯤ ꯅꯦꯝꯕ ꯗꯦꯞꯊ	900 mm × 800 mm
ꯔꯦꯛꯇꯦꯡꯒꯨꯂꯔ, ꯗꯦꯞꯊ 0.9–2.5 m	1,200 mm × 900 mm
ꯑꯀꯣꯌꯕ, 0.9 m-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ 1.65 m ꯐꯥꯑꯣꯕ ꯗꯦꯞꯊ	900 mm ꯗꯥꯏꯃꯤꯇꯔ
ꯑꯀꯣꯌꯕ, 1.65 m-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ 2.30 m ꯐꯥꯑꯣꯕ ꯗꯦꯞꯊ	1,200 mm ꯗꯥꯏꯃꯤꯇꯔ
ꯑꯀꯣꯌꯕ, 2.30 m-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ 6.0 m ꯐꯥꯑꯣꯕ ꯗꯦꯞꯊ	1,500 mm ꯗꯥꯏꯃꯤꯇꯔ
ꯑꯀꯣꯌꯕ, 6.0 m-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ 9.0 m ꯐꯥꯑꯣꯕ ꯗꯦꯞꯊ	1,800 mm ꯗꯥꯏꯃꯤꯇꯔ

ꯃꯦꯟꯍꯣꯜ ꯑꯁꯤ ꯆꯦꯟꯊꯔꯛꯂꯤꯕ ꯄꯥꯏꯄꯀꯤ ꯗꯥꯏꯃꯤꯇꯔꯗꯒꯤ ꯌꯥꯝꯅ ꯆꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯇꯧꯅꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯕꯦꯟꯆꯤꯡ (benching) ꯌꯥꯕ ꯃꯈꯜ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫

9.12.3 **ꯑꯦꯛꯁꯦꯁ ꯑꯣꯄꯅꯤꯡꯁꯤꯡ.** ꯃꯤꯑꯣꯏꯕ ꯆꯪꯂꯛꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯍꯣꯜ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ ꯆꯦꯝꯕꯔꯁꯤꯡꯗꯥ ꯁꯦꯐꯇꯤ ꯑꯦꯛꯁꯦꯁ ꯑꯣꯄꯅꯤꯡ ꯑꯁꯤ ꯌꯥꯎꯍꯟꯒꯗꯕꯅ 600 mm ꯑꯣꯏꯒꯗꯕꯅꯤ, ꯃꯔꯝ ꯑꯗꯨ ꯀꯣꯟꯐꯥꯏꯟꯗ ꯁ꯭ꯄꯦꯁꯁꯤꯡꯒꯤ ꯂꯩꯕꯥꯛ ꯌꯥꯕꯅꯤ꯫

9.12.4 **ꯁ꯭ꯇꯦꯞꯁꯤꯡ.** ꯌꯥꯎꯗꯥꯎꯗꯕ ꯑꯃꯁꯨꯡ ꯆꯥꯝꯕ ꯂꯧꯊꯣꯛꯇꯨꯅꯁꯤꯡꯒꯤ ꯃꯍꯨꯠꯇ ꯑꯁꯤ 0.6 m-ꯗꯒꯤ ꯍꯦꯟꯂꯕ ꯃꯐꯃꯗ, ꯁ꯭ꯇꯦꯞ ꯊꯝꯕꯤꯌꯨ ꯑꯃꯥ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫ 0.6 m-ꯗꯒꯤ ꯍꯦꯟꯂꯕꯗꯤ, ꯃꯍꯨꯠꯇ ꯑꯁꯤ ꯌꯥꯎꯗꯥꯎꯗꯕ ꯄꯥꯏꯄꯀꯤ ꯀꯣꯞ ꯑꯃꯒ ꯕꯦꯟꯆꯤꯡ ꯀꯥꯏꯊꯣꯛꯄꯥ ꯑꯣꯏꯒꯗꯕꯅꯤ (CPHEEO 2019, §11.3.7.5)꯫ ꯄꯥꯏꯄꯀꯤ ꯁꯥꯏꯖ ꯍꯦꯟꯗꯣꯛꯇ ꯃꯦꯟꯍꯣꯜ ꯑꯃꯒ ꯂꯧꯊꯣꯛꯄ ꯁ꯭ꯇꯦꯞ ꯑꯁꯤ ꯗꯥꯏꯃꯤꯇꯔꯁꯤꯡꯒꯤ ꯃꯍꯨꯠꯇꯒꯤ ꯃꯈꯣꯡ ꯃꯈꯣꯟ ꯑꯁꯤ ꯌꯥꯎꯍꯟꯒꯗꯕꯅ ꯑꯣꯏꯒꯗꯕꯅꯤ (CPHEEO 2019, ꯇꯦꯕꯜ 11.6):

- 400 mm-ꯗꯒꯤ ꯅꯦꯝꯕ ꯁꯦꯕꯔꯁꯤꯡ: ꯇꯥꯡꯍꯥ;
- 400 mm-ꯗꯒꯤ 900 mm: ꯃꯈꯣꯡ ꯑꯃꯃꯗꯒꯤ ꯃꯈꯣꯡ ꯑꯅꯤ;
- 900 mm-ꯗꯒꯤ ꯍꯦꯟꯕ: ꯃꯈꯣꯡ ꯑꯍꯨꯝꯗꯒꯤ ꯃꯈꯣꯡ ꯃꯔꯤ꯫

9.12.5 **ꯕꯦꯟꯆꯤꯡ.** ꯃꯦꯟꯍꯣꯜꯒꯤ ꯐ꯭ꯂꯣꯔꯁꯤꯡ ꯑꯁꯤ ꯌꯥꯎꯍꯟꯒꯗꯕꯅ ꯄꯥꯏꯞꯀꯤ ꯁꯥꯏꯖꯒꯤ ꯁꯦꯃꯗꯣꯛꯄ ꯐꯥꯑꯣꯕ ꯕꯦꯟꯆ ꯇꯧꯒꯗꯕꯅꯤ, ꯌꯥꯎꯗꯥꯎꯗꯕ ꯄꯥꯏꯞ ꯊꯕꯛ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯐ꯭ꯂꯣ ꯆꯦꯟꯅꯕ ꯃꯑꯣꯡ ꯁꯦꯃꯒꯠꯂꯤꯕ ꯆꯦꯅꯂꯁꯤꯡꯗ ꯆꯦꯅꯍꯟꯅꯕꯅꯤ꯫

9.12.6 **ꯁꯔꯆꯥꯔꯖ.** 1% AEP HGL ꯑꯁꯤ ꯒ꯭ꯔꯥꯎꯟꯗꯀꯤ ꯃꯊꯛꯇ ꯂꯥꯛꯀꯅꯤ ꯍꯥꯏꯕ ꯃꯐꯃꯁꯤꯡꯗ ꯂꯩꯕ ꯃꯦꯟꯍꯣꯜꯁꯤꯡꯗ (ꯆꯦꯞꯇꯔ 6, ꯁꯦꯛꯁꯟ 6.8.4) ꯕꯣꯜꯇꯦꯗ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯀꯤ ꯀꯚꯔ ꯑꯣꯏꯕ, ꯕꯦꯟꯇ ꯑꯣꯏꯕ, ꯍꯦꯕꯤ ꯗ꯭ꯌꯨꯇꯤ ꯀꯚꯔ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

9.12.7 **ꯃꯦꯇꯦꯔꯤꯌꯦꯜ ꯀꯟꯁꯤꯗꯔꯦꯁꯟ.** ꯃꯦꯟꯍꯣꯜꯁꯤꯡ, ꯆꯦꯝꯕꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯤꯀꯥꯁ꯭ꯠ ꯑꯣꯏꯕ ꯌꯨꯅꯤꯠꯁꯤꯡ ꯑꯁꯤ ꯃꯐꯝꯗꯨꯒꯤ ꯃꯦꯇꯦꯔꯤꯌꯦꯜ (ꯀꯣꯡꯀ꯭ꯔꯤꯠ, ꯄꯣꯂꯤꯃꯔ, ꯂꯥꯏꯅ ꯇꯧꯔꯕ ꯄ꯭ꯔꯣꯗꯛꯇꯁꯤꯡ) ꯀꯅꯥꯗꯣꯛꯅꯕ ꯈꯜꯂꯨꯅꯒꯗꯕꯅꯤ꯫ ꯃꯤꯌꯥꯝ ꯑꯣꯏꯕ ꯊꯥꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅ, ꯃꯔꯝ ꯑꯁꯤ ꯁꯦꯞꯇꯤꯛ-ꯂꯦꯃꯤꯟꯌꯦꯁꯟ, ꯍꯥꯏꯗ꯭ꯔꯣꯖꯦꯟ ꯁꯜꯐꯥꯏꯗ ꯑꯣꯏꯕ ꯀꯣꯔꯣꯖꯟ ꯃꯥꯡꯒꯅꯕꯅꯤ꯫

> **ꯁꯟꯗꯣꯛꯂꯥ ꯇꯦꯛꯔꯔꯥ.** ꯁꯣꯟꯂ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯇꯤꯒꯤ ꯃꯈꯣ ꯇꯦꯕꯜꯁꯤꯡ ꯑꯁꯤ CPHEEO (2019)-ꯒꯤ ꯆꯦꯞꯇꯔ 11-ꯗꯒꯤꯗꯤ꯫ 600 mm-ꯒꯤ ꯑꯦꯛꯁꯦꯁ ꯑꯥꯟꯂꯤꯡ, ꯕꯦꯁꯔꯤꯡꯒꯤ ꯍꯨꯟ ꯑꯃꯁꯨꯡ ꯕꯦꯟꯌ ꯇꯦꯛꯔꯕ ꯀꯟꯗꯃꯁꯤꯡ ꯑꯁꯤ ꯃꯄꯨꯔꯣꯡ ꯑꯁꯤꯗꯤ ꯌꯥꯕꯗꯤ꯫ ꯃꯄꯨꯗꯤꯀꯣꯡ ꯁꯦꯡꯅꯣꯛꯀꯗꯤꯛꯃꯈꯥ ꯅꯤꯂꯣꯟꯁ ꯇꯦꯛꯕꯂ *The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013*-ꯒꯤ ꯃꯈꯥꯅ ꯑꯔꯣꯏꯕ ꯌꯥꯕꯤꯕ ꯃꯤꯂ ꯍꯥꯏꯕ ꯁꯦꯡꯅꯣꯛꯀꯗꯕ ꯌꯤꯡꯕꯅ ꯃꯇꯧ ꯂꯩꯕꯅꯤ꯫

9.13 ꯃꯦꯇꯦꯔꯤꯌꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯕꯤꯂꯤꯇꯤ

9.13.1 **ꯑꯦꯛꯁꯄꯣꯖꯔ ꯀ꯭ꯂꯥꯁꯁꯤꯡ.** ꯀꯟꯀ꯭ꯔꯤꯠ ꯁ꯭ꯇ꯭ꯔꯛꯆꯔꯁꯤꯡ ꯑꯁꯤ IS 456: 2000, ꯇꯦꯕꯜ 3-ꯒꯤ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯀ꯭ꯂꯥꯁꯀꯤꯗꯃꯛ ꯗꯤꯂꯥꯌꯅ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯃꯂꯤꯁꯨꯔꯕꯗ, ꯁꯣꯟꯌ ꯅꯕꯁꯦꯁꯇꯤꯒꯦꯂꯕ ꯑꯃꯂꯤ ꯍꯦꯕꯂꯤ ꯁꯦꯚꯤꯌꯔ ꯑꯣꯅꯕ ꯖꯤꯚꯃ ꯑꯃꯛ ꯐꯌꯨꯗꯕꯗꯤ ꯇꯦꯕꯜ 9.5-ꯒꯤ ꯃꯤꯂꯤꯃꯝ ꯀ꯭ꯂꯥꯁꯁꯤꯡ ꯌꯌꯂꯥ:

ꯇꯦꯕꯜ 9.5 — ꯃꯂꯤꯁꯨꯔꯒꯤ ꯃꯖꯃꯁꯤꯡꯒꯤꯗꯃꯛ IS 456-ꯒꯤ ꯃꯤꯂꯤꯃꯝ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯀ꯭ꯂꯥꯁꯁꯤꯡ

ꯃꯖꯝ	IS 456-ꯒꯤ ꯃꯤꯂꯤꯃꯝ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯀ꯭ꯂꯥꯁ
ꯁꯤꯗꯔꯒꯤ ꯂꯣꯀ ꯃꯖꯝꯒꯤ ꯅꯃꯗꯦ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯌꯔꯒꯤꯁꯤꯡ	ꯃꯣꯗꯔꯦꯠ (Moderate)
ꯁꯤꯗꯔꯒꯤ ꯃꯅꯍꯧꯒꯤ ꯑꯍꯣꯔꯕꯗ ꯂꯩꯕ ꯅꯃꯗꯦ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯌꯔꯒꯤꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯁꯤꯋꯔ ꯌꯦꯔꯁꯤꯡꯗ ꯖꯂꯣ ꯂꯣꯔꯤꯕ ꯂꯌꯔꯒꯤ ꯂꯣꯕ ꯌꯕ ꯅꯃꯗꯦ ꯀꯗꯤꯁꯤꯡ	ꯁꯦꯚꯤꯌꯔ (Severe)
ꯁꯤꯗꯔꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯁꯂꯣꯅꯒ ꯇꯥꯃꯂꯕ, ꯂꯌꯔꯒꯤ ꯍꯨꯝ ꯌꯤꯗꯕ ꯂꯌꯔꯒꯤ ꯑꯦꯒꯣꯅꯁꯤꯡ ꯆꯣꯀꯅꯒꯤ ꯃꯌꯣꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯁꯃꯕ ꯁꯣꯔꯌꯔꯒꯤꯁꯤꯡ	ꯚꯦꯔꯤ ꯁꯦꯚꯤꯌꯔ (Very severe)
ꯇꯅꯗꯦꯡ ꯀꯣꯗꯅ ꯆꯣꯕ ꯁꯣꯔꯌꯔꯒꯤꯁꯤꯡ	ꯑꯦꯛꯁꯇ꯭ꯔꯤꯝ (Extreme)

9.13.2 **ꯀꯟꯀ꯭ꯔꯤꯠ.** ꯃꯤꯂꯤꯃꯝ ꯀꯟꯀ꯭ꯔꯤꯠ ꯒ꯭ꯔꯦꯗ, ꯃꯦꯛꯁꯤꯃꯝ ꯋꯣꯇꯔ–ꯁꯤꯃꯦꯟꯠ ꯔꯦꯁꯤꯑꯣ, ꯃꯤꯂꯤꯃꯝ ꯁꯤꯃꯦꯟꯠ ꯀꯟꯇꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯔꯤꯏꯟꯐꯣꯔꯁꯃꯦꯟꯠꯀꯤ ꯅꯣꯃꯤꯅꯦꯜ ꯀꯚꯔ ꯑꯁꯤ ꯑꯦꯛꯁꯄꯣꯖꯔ ꯀ꯭ꯂꯥꯁꯀꯤꯗꯃꯛ IS 456-ꯒꯤ ꯑꯌꯥꯕ ꯑꯣꯏꯅꯗꯕꯅꯤ꯫ ꯁꯤꯕꯒꯤ ꯌꯦꯟꯂꯦ ꯂꯣꯟꯕꯒꯤꯗꯃꯛ, IS 456-ꯗꯤ ꯃꯤꯂꯤꯃꯝ ꯔꯤꯏꯟꯐꯣꯔꯁꯦꯗ ꯀꯟꯀ꯭ꯔꯤꯠ ꯒ꯭ꯔꯦꯗꯁꯤꯡ M25 (ꯃꯣꯗꯔꯦꯠ), M30 (ꯁꯦꯚꯤꯌꯔ), M35 (ꯚꯦꯔꯤ ꯁꯦꯚꯤꯌꯔ) ꯑꯃꯁꯨꯡ M40 (ꯑꯦꯛꯁꯇ꯭ꯔꯤꯝ) ꯑꯣꯏꯗꯦ, ꯑꯃꯁꯨꯡ ꯅꯣꯃꯤꯅꯦꯜ ꯀꯚꯔꯁꯤꯡ ꯑꯗꯨꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ 30, 45, 50 ꯑꯃꯁꯨꯡ 75 mm ꯑꯣꯏꯗꯦ ꯂꯩꯔꯤ꯫

9.13.3 **ꯑꯦꯒ꯭ꯔꯦꯒꯦꯠ ꯆꯣꯏꯁ.** ꯁꯤꯗꯔꯒꯤ ꯃꯅꯍꯧ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯔꯤꯂꯤꯕꯗ ꯆꯣꯕ ꯁꯣꯔꯌꯔꯒꯤ ꯅꯁꯤꯡꯒꯤꯃꯌꯣ ꯆꯣꯀꯅꯒꯤ ꯃꯌꯣꯒꯤ ꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯣꯏꯁ ꯑꯁꯤ ꯌꯦꯔꯤꯅꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯗꯣꯌꯁꯤꯡꯒꯤꯗꯃꯛ ꯇꯥꯁꯅ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯁꯤꯃꯦꯟꯠꯀꯤ ꯃꯈꯜ ꯑꯃꯁꯨꯡ ꯀꯟꯀ꯭ꯔꯤꯠ ꯃꯤꯃꯂ ꯑꯁꯤ IS 456-ꯒꯤ ꯃꯈꯥꯅ ꯑꯦꯇꯦꯟꯁꯤꯡꯒꯤ ꯌꯦꯔꯕ ꯅꯗꯒꯤꯅꯕꯅꯤ꯫

9.13.4 **ꯁꯤꯋꯦꯖ ꯌꯦꯔꯁꯤꯡꯗ ꯖꯂꯣ.** ꯁꯤꯋꯦꯖ (sewage) ꯌꯦꯔꯁꯤꯡꯗ ꯖꯂꯣ ꯂꯣꯔꯤꯕ ꯂꯌꯔꯒꯤ ꯂꯣꯕ ꯌꯕ ꯀꯗꯤꯅ ꯑꯃꯁꯨꯡ ꯃꯒꯔ ꯆꯣꯕ ꯅꯃꯗꯦꯁꯤꯡ ꯑꯁꯤ ꯂꯃꯔꯤꯖꯤꯁꯤꯡꯒꯤ ꯀꯟꯀ꯭ꯔꯤꯠ ꯇꯃꯦꯂꯂ, ꯃꯔꯦꯜꯗ-ꯔꯦꯜꯁꯣꯔꯤꯅ ꯂꯗꯣꯌꯤ ꯂꯌꯔꯒꯤ ꯀꯟꯀ꯭ꯔꯤꯠ ꯂꯌꯣꯕ ꯀꯗꯤꯀꯗ ꯁꯣꯔꯌꯔꯒꯤꯁꯤꯡ ꯑꯃꯛ ꯂꯗꯩꯅꯅ (ꯀꯗꯤꯖꯗꯦ) ꯃꯔꯦꯜꯗꯅꯒꯤ ꯊꯤꯡꯇꯥꯀꯗꯅꯕꯅꯤ꯫

9.13.5 **ꯄꯥꯏꯄꯁꯤꯡ.** ꯀꯟꯀ꯭ꯔꯤꯠ ꯄꯥꯏꯄꯁꯤꯡ ꯑꯁꯤ IS 458 ꯊꯤꯡꯀꯗꯕꯅꯤ, ꯀꯗꯤꯂ ꯑꯁꯤ ꯁꯣꯔꯌꯔꯒꯤꯅꯤ ꯅꯤꯂꯣꯟꯗꯦ ꯅꯗꯕꯗꯤ꯫ ꯑꯣꯇꯄ ꯄꯥꯏꯄ ꯃꯣꯔꯤꯔꯁꯤꯡꯒꯤ (ꯁꯅꯃ ꯑꯣꯏꯗꯦ ꯅꯒꯣꯁꯅꯤ ꯑꯅꯗꯦ, HDPE ꯅꯠꯔꯒꯥ ꯁꯣꯔꯌꯔꯒꯦꯅ-ꯌꯦꯔ ꯄꯗꯦꯂꯣꯏꯒ ꯄꯥꯏꯄꯁꯤꯡ) ꯑꯁꯤ ꯌꯌꯗꯤ ꯅꯗꯅꯤꯔꯦ ꯂꯣꯌꯗꯅꯗ ꯊꯤꯡꯀꯗꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯄꯨꯟꯕꯒꯤ ꯑꯊꯦꯒꯤꯌꯤꯗꯦ ꯑꯄꯨꯟꯕ ꯌꯒꯅꯕꯗꯤ꯫

9.13.6 **ꯃꯌꯣꯛꯌꯦꯔꯒ.** ꯁꯤꯗꯔꯒꯤ ꯃꯅꯍꯧꯗꯒꯤ 5 km-ꯒꯤ ꯃꯅꯥꯛꯇ, ꯑꯃꯁꯨꯡ ꯇꯅꯗꯦꯡ ꯑꯃꯁꯨꯡ ꯍꯨꯝ ꯌꯦꯔꯕ ꯃꯖꯝ ꯄꯨꯃꯅꯃꯛꯇ:

- (a) ꯖꯤꯡꯁꯤꯡꯁꯤꯡ, ꯀꯟꯗꯦꯂꯁꯤꯡ, ꯂꯗꯦꯔꯁꯤꯡ, ꯀꯔꯦꯗꯔꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯁꯤꯡꯈꯨꯒꯤ ꯖꯔꯦꯃꯁꯤꯡ ꯑꯁꯤ ꯁꯣꯔꯦꯂꯗꯂ ꯁꯣꯏꯅ ꯒꯔꯦꯅ 316, ꯅꯠꯔꯒꯥ ꯄꯔꯦꯟꯊꯣꯔꯒ ꯃꯣꯏꯡ ꯆꯣꯕ ꯀꯣꯌ-ꯅꯤꯄꯥ ꯒꯦꯡꯒꯦꯁꯔ ꯇꯦꯔꯕ ꯁꯣꯏꯅ, ꯅꯠꯔꯒꯥ ꯂꯗ-ꯃꯇꯣꯂꯤꯡ ꯃꯌꯣꯛꯌꯦꯔꯒ ꯑꯃꯛ ꯑꯣꯏꯅꯗꯕꯗꯤ; ꯑꯃꯁꯨꯡ

- (b) ꯃꯥꯟꯅꯗꯕ ꯃꯦꯇꯦꯜꯁꯤꯡ ꯑꯁꯤ ꯑꯃꯒ ꯑꯃꯒ ꯇꯣꯉꯥꯟꯅꯥ ꯊꯝꯒꯗꯕꯅꯤ꯫

9.13.7 **ꯃꯦꯁꯟꯔꯤ.** ꯇꯤꯌꯔ A ꯕꯥꯗꯤꯁꯤꯡꯗ ꯑꯅꯧꯕ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡ ꯑꯁꯤ ꯔꯤꯍꯦꯕꯤꯂꯤꯇꯦꯁꯟ ꯇꯧꯕ ꯅꯠꯔꯒ ꯀ꯭ꯂꯥꯁꯤꯛ ꯃꯦꯁꯟꯔꯤꯌꯥ ꯂꯣꯌꯅꯗꯕꯅꯤ꯫ ꯇꯤꯌꯔ B ꯕꯥꯗꯤꯁꯤꯡꯗ ꯍꯁꯤꯡ ꯂꯣꯌꯅꯕ ꯖꯦꯜ ꯑꯦꯟꯗ ꯀ꯭ꯂꯥꯏꯂꯣꯔ ꯇꯧꯕꯗꯤ ꯑꯃꯁꯨꯡ ꯇꯣꯕꯥ 6.6-ꯒꯤ n ꯚꯦꯜꯌꯨ ꯁꯤꯖꯤꯟꯅꯕꯗꯤ ꯍꯤꯡꯇꯃꯤꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡꯒꯤꯗꯃꯛ ꯕꯔꯤꯡ ꯅꯠꯔꯒ ꯄ꯭ꯔꯤꯒꯤ ꯃꯦꯁꯟꯔꯤ ꯂꯤꯅꯤꯡꯕ ꯌꯥꯍꯟ꯫

ꯂꯦꯀ꯭ꯆꯔꯅꯤ ꯇꯣꯡꯀ. IS 456-ꯒꯤ ꯑꯦꯡꯂꯣꯀ꯭ꯇꯔꯁꯦꯜꯃ꯭ꯅꯂꯣꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯔꯦꯍ ꯑꯃꯁꯨꯡ ꯃꯒꯥꯔꯦꯒꯤ ꯒꯣꯡꯊꯧꯂꯣꯁꯤꯡ ꯑꯃꯁꯨ ꯅꯤꯡꯊꯦꯕꯒꯤꯗꯃꯛ IS 456: 2000 (ꯇꯣꯕꯥ 3, 5 ꯑꯃꯁꯨꯡ 16)-ꯗꯒꯤ ꯃꯥꯌ ꯇꯧꯔꯤ꯫ ꯂꯣꯌꯦꯗꯔꯗ ꯑꯀꯨꯅꯤ ꯁꯂꯦ ꯇꯥꯍ, ꯑꯃꯁꯨꯡ ꯗꯤꯅꯤꯡꯅꯔꯂꯣꯁꯤꯡꯅꯤ ꯃꯂꯤꯒꯤ ꯍꯥꯀꯤꯡꯃꯤ ꯑꯦꯃꯦꯗꯃꯦꯌ ꯂꯤꯅꯤꯡꯦꯟꯒꯗꯕꯅꯤ꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯍꯩꯂꯣꯁꯤꯡ ꯑꯦꯡꯂꯣꯀ꯭ꯇꯔꯁꯦꯜ ꯃ꯭ꯅꯂꯣꯁꯤꯡꯗ ꯄꯂꯤꯦꯕ, ꯂꯅꯍꯟꯗ-ꯃꯔꯦꯅꯦꯒꯤ ꯃꯄꯨ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ A ꯕꯥꯗꯤꯁꯤꯡꯗ ꯑꯅꯧꯕ ꯃꯦꯁꯟꯔꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡ ꯄꯤꯕ ꯑꯂꯤꯒꯤ ꯃꯃꯤꯗ ꯅꯦꯔꯝꯕ ꯄꯨꯗꯝ ꯑꯃꯌꯇꯥ ꯅꯇꯣ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯔ ꯑꯂꯤ ꯃꯦꯄꯨꯔꯦ ꯑꯂꯤꯅꯤ ꯄꯝꯕꯅꯤ꯫ ꯂꯤꯔꯦꯇꯒꯤ ꯀ꯭ꯔꯥꯂ-ꯀꯅꯦꯉꯂꯦꯂꯤꯡ ꯅꯥꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡꯅꯤ (ꯀꯃꯦ ꯖꯤꯇꯝ ꯑꯃ, ꯂꯕꯨꯡ 8) ꯄꯍꯔꯀ꯭ꯔꯇꯦꯟ ꯂꯅꯖꯍꯗ ꯄꯉꯄꯣꯇꯤ, ꯃꯂꯤꯅꯤ ꯔꯇꯔ ꯅꯍꯦꯒꯤ ꯃꯄꯉꯌ ꯁꯤꯉꯄꯉꯌꯕ ꯀꯦꯀꯔꯤꯍ ꯂꯉꯄꯣꯇꯤ꯫

9.14 ꯂꯕꯃꯤꯌꯦꯜꯒꯤ ꯃꯄꯨ ꯌꯥꯕꯂꯤꯡ

ꯂꯌꯔꯉꯁꯔ ꯗꯤꯅꯍꯦ ꯄꯨꯗꯤꯡꯃꯉ ꯁꯍꯅꯕ ꯃꯌꯨꯡ ꯍꯦꯅ ꯃꯍꯒꯤꯂꯤꯡ ꯔꯦꯕꯕ **ꯄꯍꯀ꯭ꯔꯇꯤꯉ ꯂꯌꯔꯉꯁꯔꯂꯤꯡꯒꯤ ꯔꯤꯀ꯭ꯔꯍ** (ꯖꯔꯐ 9-1) ꯑꯃꯒ ꯅꯥꯁꯅꯦ ꯂꯕꯃꯤꯍ ꯌꯥꯒꯗꯕꯅꯤ:

1. ꯀ꯭ꯔꯒꯔꯍꯀꯤ ꯀꯣꯔꯀꯅꯦꯂꯦꯂꯤꯡ (HDS-5 ꯅꯠꯔꯒ HY-8-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ), HWi, HWo, ꯑꯥꯎꯇꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ, ꯌꯣꯔꯔꯌꯔ, ꯑꯦꯒꯔꯌꯀ꯭ꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯅꯦꯀꯣꯅ ꯁꯣꯉꯀ ꯅꯥꯁꯅꯦ;
2. ꯁꯣꯅꯣꯔꯒꯤ ꯔꯇꯔ-ꯂꯔꯖꯣꯂ ꯀ꯭ꯔꯍꯖꯅꯔꯂꯤꯡ, ꯒꯣꯅꯦꯂꯤꯌꯤꯡ, ꯖꯔꯗ ꯅꯐꯕꯔꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯔꯤꯕꯦꯔꯗ;
3. ꯔꯤꯀ꯭ꯔꯣꯀ꯭ꯔꯤ ꯂꯍꯅ ꯅꯣꯀ꯭ꯔꯀ꯭ꯔ ꯅꯦꯁꯅꯦ ꯑꯦꯍꯌꯅꯣꯍ ꯀ꯭ꯔꯔꯌꯉꯂꯦ ꯑꯃꯁꯨꯡ ꯗꯤꯂꯤꯀ꯭ꯔꯌꯔꯒꯤ ꯗꯤꯅꯍꯦ;
4. ꯗꯤꯌꯦꯂꯦꯒꯤ ꯑꯦꯍꯌꯅꯣꯍꯀꯤ ꯂꯌꯣꯅ–ꯗꯤꯂꯁꯔꯅ ꯌꯣꯕꯔꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯃꯔꯅꯣꯂꯦꯂꯤ ꯂꯀ꯭ꯔꯤꯔꯁꯣꯒꯤ ꯁꯣꯉ;
5. 50% ꯕꯅꯦꯉ ꯑꯦꯍꯔꯕ ꯁꯣꯉꯀ ꯅꯦꯁꯅꯦ ꯂꯀꯔꯤꯂꯦ ꯑꯃꯁꯨꯡ ꯔꯣꯉꯀꯤ ꯗꯤꯅꯍꯦ;
6. ꯀ꯭ꯔꯃꯀ꯭ꯔꯤꯡ ꯂꯌꯣꯂꯦꯒꯤ ꯗꯤꯅꯍꯦ ꯔꯤꯀ꯭ꯔꯍ ꯑꯃ: ꯍꯦꯖꯅꯦ ꯄꯍꯀ꯭ꯔꯒꯤꯖ, ꯂꯌꯔꯣꯅ, ꯀ꯭ꯔꯃꯀ꯭ꯔ ꯀꯔꯒꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯂꯌꯣꯃ ꯀꯔꯒꯂꯤꯡ, ꯁꯣꯌ-ꯁꯣꯒ ꯒꯣꯗꯃ, ꯀꯦꯌꯔꯒꯂꯤꯡ, ꯀ꯭ꯔꯁꯔ ꯂꯀ꯭ꯔꯅꯍ ꯑꯃꯁꯨꯡ ꯂꯕꯨꯡ 5-ꯒꯤ ꯑꯦꯍꯌꯖꯒ ꯄꯤꯕ ꯁꯣꯉ;
7. ꯄꯣꯗ-ꯅꯦꯂꯒꯤ ꯗꯣꯌꯒ ꯅꯥꯁꯅꯦ ꯒꯣꯌ ꯑꯃꯁꯨꯡ ꯒꯤꯒꯃ ꯍꯅꯕ;
8. ꯍꯦꯅꯣꯌ, ꯒꯔꯣꯌ ꯑꯃꯁꯨꯡ ꯀꯒꯔꯒꯤ ꯅꯦꯗ ꯀꯅꯦꯂꯤꯡ; ꯑꯃꯁꯨꯡ
9. ꯑꯣꯉꯂꯀ꯭ꯔꯇꯔ ꯀꯅꯦꯂ ꯑꯃꯁꯨꯡ ꯃꯣꯌꯣꯔꯤꯁꯣꯒꯤꯂꯤꯡꯒꯤ ꯂꯌꯣꯌꯃꯣꯌ (ꯀꯅꯦꯅ 9.13)꯫

ꯂꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- Federal Highway Administration (2012). *Hydraulic Design of Highway Culverts*, Hydraulic Design Series No. 5, 3rd edition, FHWA-HIF-12-026.
- Federal Highway Administration (2006). *Hydraulic Design of Energy Dissipators for Culverts and Channels*, Hydraulic Engineering Circular No. 14, 3rd edition, FHWA-NHI-06-086.
- Federal Highway Administration (2005). *Design of Roadside Channels with Flexible Linings*, Hydraulic Engineering Circular No. 15, 3rd edition, FHWA-IF-05-114.
- Federal Highway Administration (2024). *Urban Drainage Design Manual*, Hydraulic Engineering Circular No. 22, 4th edition, FHWA-HIF-24-006.
- Federal Highway Administration (2001). *Highway Stormwater Pump Station Design*, Hydraulic Engineering Circular No. 24, FHWA-NHI-01-007.
- FHWA Hydraulics Engineering publications listing. https://www.fhwa.dot.gov/Engineering/hydraulics/library_listing.cfm
- MoHUA / CPHEEO (2019). *Manual on Storm Water Drainage Systems*, Volume I, Part A: Engineering Design. §2.4.2.3, §5.3, Tables 5.5, 5.11, 5.12, §6.3.10.1, Chapter 8, Chapter 11. https://www.mohua.gov.in/static/uploads/2025/10/8a2456c722036d78c72a698898ef846d.pdf
- Kansas City Metro Chapter APWA (2006). *Section 5600 Storm Drainage Systems and Facilities* (5604.2, 5608.4); ꯑꯃꯁꯨꯡ Version 2025.01 (Dec 2025).
- Bureau of Indian Standards. IS 456: 2000, *Plain and Reinforced Concrete — Code of Practice* (Tables 3, 5 ꯑꯃꯁꯨꯡ 16).
- Bureau of Indian Standards. IS 458, *Precast Concrete Pipes (with and without Reinforcement) — Specification* (ꯍꯧꯖꯤꯛꯀꯤ ꯔꯤꯚꯤꯖꯟ).
- Bureau of Indian Standards. IS 1726, *Cast Iron Manhole Covers and Frames*; IS 5961, *Cast Iron Gratings for Drainage Purposes*; IS 12592, *Precast Concrete Manhole Covers and Frames* (ꯍꯧꯖꯤꯛꯀꯤ ꯔꯤꯚꯤꯖꯟꯁꯤꯡ).
- European Committee for Standardization. EN 124, *Gully tops and manhole tops for vehicular and pedestrian areas*.
- Hydraulic Institute. ANSI/HI 9.8, *Rotodynamic Pumps for Pump Intake Design* (ꯍꯧꯖꯤꯛꯀꯤ ꯑꯦꯗꯤꯁꯟ).
- Indian Roads Congress. IRC:SP:13, *Guidelines for the Design of Small Bridges and Culverts* (ꯍꯧꯖꯤꯛꯀꯤ ꯔꯤꯚꯤꯖꯟ).
- Chow, V.T. (1959). *Open-Channel Hydraulics*. McGraw-Hill. (Fortier and Scobey 1926-ꯒꯤ ꯄꯔꯃꯤꯁꯤꯕꯜ ꯚꯦꯂꯣꯁꯤꯇꯤꯁꯤꯡ; Rand 1955-ꯒꯤ ꯗ꯭ꯔꯣꯞ ꯔꯤꯂꯦꯁꯟꯁꯤꯞꯁꯤꯡ꯫)
- Fortier, S. and Scobey, F.C. (1926). Permissible canal velocities. *Transactions of the ASCE* 89.
- Rand, W. (1955). Flow geometry at straight drop spillways. *Proceedings of the ASCE* 81.
- Brater, E.F. and King, H.W. *Handbook of Hydraulics*. McGraw-Hill.
- Tennessee Department of Environment and Conservation (2026). *Erosion Prevention and Sediment Control Handbook*, §4.3.6 Riprap Apron (HEC-14-ꯒꯤ ꯑꯦꯄꯔꯟ ꯏꯀ꯭ꯋꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ ꯍꯟꯖꯣ ꯄꯤꯔꯤ). https://www.tn.gov/content/dam/tn/environment/water/stormwater/epsc-handbook/dwr-npdes-sop-g-16-erosion-prevention-sediment-control-handbook-01092026-4.3.6%20-riprap-apron.pdf
- Purdue University Joint Transportation Research Program. Study of riprap apron design at culvert outlets. https://docs.lib.purdue.edu/jtrp/1704
- CIRIA (2019). *Culvert, screen and outfall manual*, C786. London: CIRIA.
- National Disaster Management Authority (2010). *National Guidelines: Management of Urban Flooding*, §4.13.
- Government of India. *The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013*.

ꯑꯍꯥꯞꯄ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜꯁꯤꯡ

ꯑꯍꯥꯞꯄ / ꯇꯦꯕꯜ	ꯑꯌꯦꯂꯨꯄ
9A	SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ HDS-5-ꯒꯤ ꯍꯎꯅꯥꯠ-ꯈꯎꯌꯣ꯭ꯕꯦꯟ ꯈꯦꯑꯥꯇꯤꯁꯤꯔꯥꯎꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯄꯑ ꯌꯣꯕꯄ ꯈꯟꯒꯕꯠꯈꯤ ꯌꯨꯗꯜ
9B	ꯁ꯭ꯌꯣꯥꯎꯗꯕꯗ ꯗ꯭ꯕꯦꯍꯡꯁꯤꯡ: ꯄꯥꯗꯌꯦꯟꯁꯤꯡ, ꯕꯤꯔꯕꯥꯔ ꯑꯥꯔꯕꯎꯁꯤꯡ, ꯗ꯭ꯕꯦꯔ ꯁ꯭ꯌꯣꯕꯑꯌꯕꯁꯤꯡ, ꯌꯣ꯭ꯕꯥꯁ ꯕꯥꯑꯁꯤꯡ, ꯗꯤꯌꯣꯥꯎꯁꯎ ꯕꯦꯍꯇꯕꯁꯤꯡ
9C	ꯔꯜꯔꯤꯡ ꯁ꯭ꯌꯣꯥꯁꯎꯒꯤ ꯗꯤꯅꯍꯎ ꯌꯥꯑꯅꯤꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯁ꯭ꯌꯣꯥꯎꯗꯕꯗ ꯈꯎꯌꯣ꯭ꯕꯦꯟ ꯇꯤꯅꯦꯁꯦꯇꯤ
ꯇꯦꯕꯜ 9-1	ꯄꯍꯗ꯭ꯕꯦꯅꯤꯑ ꯁ꯭ꯌꯣꯕꯑꯌꯕꯁꯤꯡꯒꯤ ꯕꯤꯔꯦꯕꯠꯈꯤ ꯌꯥꯑꯅꯤꯁ꯭ꯠ

ꯁꯔꯨꯛ 10

ꯁꯕꯃꯤꯇꯦꯜꯁꯤꯡ, ꯔꯤꯚꯤꯎ, ꯑꯣꯞꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯏꯟꯐꯣꯔꯁꯃꯦꯟꯠ

10.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯁꯀꯣꯞ

10.1.1 ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯀꯝꯞꯂꯥꯏꯌꯦꯟꯁ (compliance) ꯑꯁꯤ ꯀꯔꯝꯅꯥ ꯄꯤꯖꯕꯒꯦ, ꯌꯦꯡ ꯁꯤꯟꯕꯒꯦ, ꯑꯌꯥꯕꯥ ꯄꯤꯕꯒꯦ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗꯥ ꯏꯟꯐꯣꯔꯁ ꯇꯧꯕꯒꯦ ꯍꯥꯌꯕꯗꯨ ꯇꯥꯀꯏ॥ ꯃꯁꯤꯅꯥ ꯃꯁꯤꯡꯁꯤꯡ ꯌꯥꯑꯣꯔꯤ:

- (a) ꯁꯕꯃꯤꯇꯦꯜꯒꯤ (submittal) ꯁꯇꯦꯖꯁꯤꯡ (stage) ꯑꯃꯁꯨꯡ ꯃꯈꯥꯔꯒꯤ ꯑꯔꯣꯏꯕꯁꯤꯡ (ꯀꯂꯣꯖ 10.3–10.4);
- (b) ꯀꯝꯞꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯜꯀꯨꯂꯦꯇꯔ (compliance calculator) (ꯀꯂꯣꯖ 10.5);
- (c) ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯁꯔꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯚꯤꯎ (review) (ꯀꯂꯣꯖ 10.6–10.7);
- (d) ꯀꯟꯁꯠꯔꯛꯁꯟ ꯏꯟꯁꯄꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯖ-ꯕꯤꯜꯠ (as-built) ꯗ꯭ꯔꯣꯏꯡꯁꯤꯡ (ꯀꯂꯣꯖ 10.8–10.9);
- (e) ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ, O&M ꯄ꯭ꯂꯥꯟꯁꯤꯡ, ꯏꯟꯁꯄꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯦꯀꯣꯔꯗꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯦꯁ (access) (ꯀꯂꯣꯖ 10.10–10.13);
- (f) ꯄꯕ꯭ꯂꯤꯛ ꯑꯦꯁꯦꯠꯁꯤꯡꯒꯤ ꯍꯦꯟꯗꯑꯣꯚꯔ (handover) (ꯀꯂꯣꯖ 10.14);
- (g) ꯏꯟꯐꯣꯔꯁꯃꯦꯟꯠ (enforcement) (ꯀꯂꯣꯖ 10.15); ꯑꯃꯁꯨꯡ
- (h) ꯃꯣꯅꯤꯇꯔꯤꯡ, ꯏꯚꯦꯂꯨꯑꯦꯁꯟꯒꯤ ꯔꯤꯚꯤꯎ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥ ꯑꯞꯗꯦꯠ (ꯀꯂꯣꯖ 10.16–10.17)॥

10.1.2 ꯀꯂꯣꯖ 1.5.2-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯔꯨꯛ 4 ꯑꯃꯁꯨꯡ 5 ꯌꯥꯑꯣꯔꯕ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯕ꯭ꯂꯤꯛ ꯌꯥꯔꯕ ꯊꯤꯗꯣꯛꯄ ꯁꯔꯨꯛ ꯑꯁꯤ ꯌꯥꯑꯣꯔꯤ॥ ꯀꯂꯣꯖ 10.3.1 (ꯁꯇꯦꯖ 0), 10.15 ꯑꯃꯁꯨꯡ 10.17 ꯑꯁꯤ ꯀꯂꯣꯖ 1.5.4 ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯍꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡꯒꯥ ꯌꯥꯑꯣꯔꯤ॥

> **ꯁꯦꯟꯗꯣꯔꯒꯤ ꯄꯨꯔꯛ.** ꯑꯦꯛꯁꯄꯦꯔꯤꯃꯦꯟꯇꯦꯜ ꯃꯤꯠꯌꯦꯡ ꯌꯥꯑꯣꯕ, ꯑꯦꯛꯁꯄꯦꯔꯤꯃꯦꯟ ꯄꯣꯛꯄ ꯃꯤꯄꯨꯝ ꯑꯍꯦꯟꯕ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯄꯨꯝꯅ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯄꯣꯛꯅꯕ ꯗꯤꯖꯥꯏꯟꯗ ꯑꯍꯦꯜ ꯑꯦꯟꯐꯣꯔꯁ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤ॥ ꯃꯅꯤꯄꯨꯔꯗ ꯍꯦꯅꯒꯠꯂꯛꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯗ ꯂꯩꯔꯕꯒꯤ, ꯂꯥꯏꯕꯛ ꯕꯥꯔꯤ ꯄꯨꯔꯛꯂꯛꯄꯤ ꯄꯨꯡꯀꯣꯟꯅ ꯄꯨꯝꯃꯛ ꯌꯥꯑꯣꯕꯥ ꯕꯤꯅꯥꯔꯤ ꯃꯤꯡ ꯑꯃꯒꯤ, ꯑꯃꯁꯨꯡ ꯕꯤꯅꯥꯔꯤ ꯃꯤꯡ ꯑꯃꯒꯤ ꯅꯥꯏꯕ ꯌꯥꯔꯤꯒꯤ ꯅꯃꯁꯤꯡꯒꯤ (Hill Areas) ꯍꯦꯅꯒꯠꯂꯛꯂꯤ॥ ꯀꯔꯤꯃꯊꯕ ꯑꯉꯀ ꯑꯃꯒꯤ ꯅꯨꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ (stormwater) ꯗ꯭ꯔꯦꯅꯁꯤꯡꯒꯤ (drain) ꯗꯤꯖꯥꯏꯟ ꯔꯤꯇꯔꯟ ꯄꯤꯔꯤꯌꯗ (return period), ꯏꯟꯐꯣꯔꯁꯃꯦꯟꯠ ꯅꯠꯔꯒꯥ ꯔꯅꯑꯣꯐ (runoff) ꯀꯟꯠꯔꯣꯜ ꯄꯨꯔꯀꯄ MAHUD, TPD, ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (Planning and Development Authority, Manipur; PDA Manipur), IMC ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ (urban local body), PWD ꯅꯠꯔꯒꯥ WRD-ꯒꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ ꯑꯃꯍꯦꯛ ꯍꯦꯟꯅꯗꯅ, ꯑꯃꯁꯨꯡ AIIB-ꯅ "ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯑꯦꯔꯤꯌꯥꯗ ꯂꯩꯔꯤꯕ ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯁꯤ ꯍꯦꯛ ꯑꯐꯕ ꯐꯤꯚꯝꯗ ꯂꯩꯇꯦ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯗ꯭ꯔꯦꯅꯗ ꯆꯨꯃꯅ ꯁꯝꯅꯗꯦ॥ ꯗ꯭ꯔꯦꯅꯦꯖ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯂꯤꯡꯀꯁꯤꯡ ꯃꯥꯡꯂꯦ … ꯗ꯭ꯔꯦꯅꯁꯤꯡ ꯊꯤꯡꯂꯦ" ("The existing drainage in the Greater Imphal area is also not in good condition and is not properly connected to the primary drain. Drainage system links are missing … the drains are clogged") ꯄꯔꯤꯕꯅ ꯍꯥꯌꯔꯤ (ꯄ꯭ꯔꯦꯁ ꯔꯤꯂꯤꯖ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ, 2024)॥ ꯑꯦꯛꯁꯄꯦꯔꯤꯃꯦꯟꯇꯦꯜ ꯑꯦꯛꯁꯦꯁ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯃꯑꯣꯡ ꯁꯦꯃꯃꯤ॥ ꯃꯗꯨꯅ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣꯖ, 2024 (Model Manipur Unified Building Bye-Laws, 2024) ꯑꯁꯤ MAHUD-ꯅ (4 ꯅꯣꯚꯦꯝꯕꯔ 2024-ꯒꯤ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ No. BBL-101/1/2024-MAHUD-MAHUD-Part(1), 5 ꯅꯣꯚꯦꯝꯕꯔ 2024-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯒꯦꯖꯦꯠ (ꯑꯦꯛꯁꯠꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ) No. 253) ꯃꯅꯤꯄꯨꯔ ꯃꯤꯎꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 (Manipur Municipalities Act, 1994)-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (Manipur Town and Country Planning Act, 1975)-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1)-ꯒꯤ ꯃꯈꯥꯗ "ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔꯅ ꯂꯧꯁꯤꯟꯅꯕꯒꯤꯗꯃꯛ" ("for adoption by the Urban Local Bodies and Planning & Development Authority, Manipur") ꯍꯥꯌꯅ ꯄꯥꯎꯗꯣꯛ; ꯃꯔꯝ ꯑꯁꯤ "ꯃꯣꯗꯦꯜ ꯄ꯭ꯂꯥꯟ

ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯑꯔꯕꯟ ꯂꯣꯀꯦꯜ ꯕꯗꯤꯁꯤꯡ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯖꯨꯔꯤꯁꯗꯤꯛꯁꯅꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯑꯦꯔꯤꯌꯥꯗ ꯁꯟꯗꯣꯛꯂꯤ" ("extend to the Master Plan areas or notified Planning areas and area under the jurisdiction of all the Urban Local Bodies of Manipur") (ꯈꯟ-ꯇꯥ 1(2)), ꯑꯗꯨꯕꯨ ꯃꯇꯝ ꯑꯗꯨ ꯇꯥꯀꯄ ꯌꯥꯕꯥ PDA Manipur-ꯅ ꯍꯧꯖꯤꯛ ꯑꯗꯨꯒꯤ ꯃꯍꯨꯠ ꯁꯤꯟꯗꯨꯅꯕ ꯈꯟ-ꯇꯥꯒꯤ ꯃꯍꯨꯠ ꯃꯇꯝ, ꯃꯍꯥꯛꯀꯤ ꯃꯊꯛꯇ ꯂꯦꯞꯂꯤ, ꯍꯥꯌꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯇꯧꯔꯤꯕ ꯃꯌꯥꯏꯗ ꯂꯩꯔꯤꯕ ꯈꯟ-ꯇꯥꯒ (16 ꯑꯣꯛꯇꯣꯕꯔ 2025-ꯒꯤ ꯗ꯭ꯔꯥꯐꯠ ꯒꯦꯖꯦꯠ, TPD-ꯅ ꯇꯥꯛꯄ ꯄꯦꯖ ꯃꯍꯨꯠ ꯍꯥꯌꯗꯦ) ꯑꯃꯁꯨꯡ 15 ꯅꯣꯚꯦꯝꯕꯔ 2025-ꯗ ꯁꯦꯝꯕꯤꯕ ꯇꯥꯀꯄ ꯈꯪꯅꯕꯒꯤ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯈꯤꯕ (ꯇꯥꯛꯄ ꯄꯦꯖ ꯃꯍꯨꯠ ꯍꯥꯌꯗꯦ; ꯃꯆꯤꯟꯅꯕ [TBC]) ꯂꯩꯔꯤ; ꯃꯇꯝ ꯑꯗꯨꯒꯤ ꯃꯃꯥꯡꯗ ꯁꯤꯖꯤꯟꯅꯔꯝꯕ "1998-ꯒꯤ ꯃꯣꯗꯦꯜ ꯕꯤꯜꯗꯤꯡ ꯈꯟ-ꯇꯥꯁꯤꯡ ꯄꯨꯔꯀꯄ ꯑꯣꯏꯅ" ("based on Model Building Bye-laws of 1998") ꯈꯟ-ꯇꯥꯒ ꯆꯥꯡꯗꯝꯅꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕꯤꯕ ꯇꯥꯀꯄ ꯈꯪꯅꯕ 18-ꯗ ꯑꯃꯠꯇꯥ ꯆꯥꯡꯗꯝꯅꯕ (ꯃꯣꯗꯦꯂꯒꯤ ꯃꯥꯏꯄꯥꯛꯅꯕꯥ)꯫ ꯃꯍꯥꯛ ꯆꯥꯡ ꯄ꯭ꯔꯣꯚꯤꯖꯟꯒꯤ ꯅꯥꯏꯕꯁꯤꯡ ꯑꯗꯨ ꯃꯣꯗꯦꯂꯒꯤꯅ [TBC: ꯇꯥꯀꯄ ꯈꯪꯅꯕꯅ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯈꯟ-ꯇꯥꯒ ꯆꯥꯡ ꯅꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯂꯕ ꯄꯥꯡꯊꯣꯛꯄ ꯌꯥꯔꯒꯗꯕꯅꯤ]꯫ ꯄ꯭ꯂꯥꯅꯁꯤꯡ ꯑꯗꯨ ꯑꯣꯅꯂꯥꯏꯟ ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯟ ꯁꯤꯁ꯭ꯇꯦꯝ (Online Building Permission System)-ꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ ꯄꯤꯕꯥ, ꯃꯗꯨ 17 ꯑꯣꯒꯁ꯭ꯇ 2022-ꯒꯤ ꯂꯩꯃꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛꯁꯨ ꯂꯩꯔꯤꯕ (TPD-ꯅ ꯇꯥꯛꯄ ꯄꯦꯖ ꯃꯍꯨꯠ ꯍꯥꯌꯗꯦ), ꯃꯗꯨꯗ TPD-ꯅ ꯄ꯭ꯂꯥꯟꯁꯤꯡ ꯐꯪꯂꯕꯥ ꯃꯇꯨꯡ ꯄ꯭ꯂꯥꯟꯁꯤꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ-ꯈꯟꯅꯕꯒꯤ ꯍꯥꯌ ꯌꯥꯏ; ꯃꯗꯨꯅ 2025-26-ꯗ "ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯅꯅ ꯊꯥꯔꯀꯄ ꯄ꯭ꯂꯥꯟ 150 ꯔꯣꯝ" ("about 150 building plans forwarded by Imphal Municipal Corporation") ꯍꯥꯌꯔꯤ (TPD-ꯒꯤ ꯑꯦꯅꯨꯑꯦꯜ ꯔꯤꯄꯣꯔꯠ)꯫ ꯅꯤꯡꯊꯤꯕ ꯁꯦꯝꯕꯤꯕꯒꯤ ꯑꯃꯥ ꯃꯇꯧ ꯌꯦꯡꯁꯤꯅꯕꯒꯤ ꯂꯦꯞꯄ ꯃꯍꯥꯛ ꯑꯗꯨꯗ ꯃꯇꯤꯛ ꯆꯥꯕ ꯍꯥꯌꯕꯤ: "ꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯤꯗꯤꯅꯦꯖ ꯇꯥꯛꯄ ꯌꯨꯝꯊꯛ ꯌꯦꯡꯕ ꯄ꯭ꯂꯥꯟ" ("terrace plan indicating the drainage and the slope of the roof"); "ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯍꯥꯔꯚꯦꯁ꯭ꯇꯤꯡꯒꯤꯗꯃꯛ ꯆꯥꯡꯕ ꯄ꯭ꯔꯣꯚꯤꯖꯟꯁꯤꯡꯒꯤ ꯃꯄꯨꯡ ꯐꯥꯕ ꯁꯦꯃꯕ" ("detail provisions made for conservation and harvesting of rain water") (ꯈꯟ-ꯇꯥ 6(1)(C)(j)); ꯃꯔꯝ-ꯂꯣꯟꯅꯤ, ꯑꯅꯤꯃꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤꯁꯤꯡ ꯀꯅꯥꯒꯨꯝꯕ ꯑꯃꯒꯤꯗꯃꯛ "ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ/ꯑꯇꯣꯞꯄ ꯑꯊꯣꯏꯕꯁꯤꯡꯒꯤ ꯗꯔꯦꯟ ꯂꯦꯞꯄ ꯄꯨꯀ꯭ꯀꯥ/ꯄꯥꯛꯀꯥ ꯗ꯭ꯔꯦꯟꯗ ꯁꯦꯝꯕ ꯃꯊꯧ ꯇꯥꯕ ꯃꯅꯨꯡ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟꯒꯤ ꯑꯄꯤꯀꯄꯥ ꯃꯄꯨꯡ ꯐꯥꯕ ꯗ꯭ꯔꯦꯅꯦꯖ ꯄ꯭ꯂꯥꯟ" ("Detailed drainage plan for both internal and external required to be constructed up to the available permanent/pucca drain of municipal/other authority") (6(1)(D)) ꯑꯃꯁꯨꯡ ꯃꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯥ ꯌꯦꯡꯁꯤꯟꯕꯒꯤ ꯁꯦꯞ-ꯇꯤꯀꯄ ꯑꯍꯥꯅꯕ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ "ꯏꯟꯇꯔꯃꯤꯗꯤꯌꯦꯠ ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯆꯦꯝꯕꯔ ꯑꯃꯥ" ("an intermediate treatment chamber") (6(1)(A)); "ꯗꯥꯏꯔꯦꯛꯇ ꯑꯣꯏꯅ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯥ ꯂꯨꯞꯇꯨꯅꯗꯕ" ("directly into any closed drain") ꯅꯠꯔꯒꯥ ꯂꯩꯕ ꯄꯥꯏꯄ ꯑꯃꯥ ꯗꯥꯏꯃꯤꯇꯔ 75 mm-ꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯄꯥꯏꯄꯁꯤꯡ (28); 100 m² ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯅꯕ ꯄ꯭ꯂꯣꯠꯁꯤꯡꯗ "ꯆꯥꯎꯕꯒꯤ ꯃꯐꯝꯁꯤꯡꯗ ꯊꯝꯕꯁꯤꯡꯗ ꯅꯠꯔꯒꯥ ꯃꯈꯥꯗ ꯔꯤꯆꯥꯔꯖ ꯏꯁꯤꯡ ꯇꯨꯡꯁꯤꯡꯗ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯀꯂꯦꯛꯇ ꯇꯧꯕꯒꯤ ꯄꯣꯏꯟꯇꯁꯤꯡꯒ ꯂꯣꯌꯅꯅ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯊꯥꯒꯤ ꯁꯤꯁ꯭ꯇꯦꯝ ꯌꯦꯡꯁꯤꯟꯕ" ("indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells") ꯄ꯭ꯂꯥꯟꯁꯤꯡ (66(a)); ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯗ꯭ꯔꯦꯟꯗ ꯑꯃꯒꯤ ꯃꯈꯣꯌ ꯄꯤꯔꯤꯕ ꯂꯩꯕ ꯂꯩꯔꯕ (16); ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯚꯤꯖꯅꯦꯜ ꯑꯣꯛꯌꯨꯄꯦꯟꯁꯤꯗ "ꯁꯦꯝꯕꯤꯕ ꯂꯩꯕ ꯄꯤꯔꯤꯕ ꯄ꯭ꯂꯥꯟꯒ ꯃꯥꯟꯅꯅ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯍꯥꯔꯚꯦꯁ꯭ꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯔꯝ ꯏꯁꯤꯡ ꯔꯤ-ꯁꯥꯏꯀꯂꯤꯡ ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡ ꯄꯤꯔꯦ ꯍꯥꯌꯕꯅꯤ" ("that water harvesting as well as waste water re-cycling systems has been provided as per the sanctioned building plan") ꯂꯩꯍꯧꯔꯦ ꯍꯥꯌꯕ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ ꯂꯩꯍꯧꯕꯗ ꯑꯃꯥ꯫ ꯄꯤꯔꯤꯕꯥ ꯃꯅꯨꯡꯗ ꯑꯣꯏꯕ ꯑꯦꯛꯇꯀꯤ ꯁꯤꯡꯂꯣꯏꯁꯤꯡꯁꯨ ꯆꯠ: ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978 (Manipur Flood Plain Zoning Act, 1978)-ꯒꯤ ꯃꯈꯥꯗ ꯑꯦꯛꯁꯤꯗ ꯄꯤꯕꯗ ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡꯏꯅꯕ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯥ ꯏꯗꯥ ꯌꯥꯅꯕ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯊꯣꯏꯕꯁꯤꯡꯒꯤ (Flood Zoning Authority) ꯃꯃꯤꯡꯒꯤ ꯑꯌꯥꯕ (ꯈꯟ-ꯇꯥ 93), ꯑꯗꯨꯕꯨ ꯑꯊꯣꯏꯕ ꯑꯃꯠꯇꯥ ꯂꯩꯍꯧꯕ ꯗꯤꯕꯍꯥꯟ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄ ꯑꯃꯠꯇꯥ ꯅꯣꯇꯤꯐꯥꯏ ꯌꯥꯍꯟꯗꯦ; ꯃꯁꯤ ꯑꯗꯨꯒꯤ 236.21 km²-ꯒꯤ ꯃꯅꯨꯡꯗ ꯇꯣꯛꯇꯥ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠ ꯑꯊꯣꯏꯕꯒꯤ (Loktak Development Authority; LDA) ꯃꯃꯤꯡꯒꯤ ꯑꯌꯥꯕ (ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯩꯀꯥ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006, ꯁꯦꯛꯁꯟ 20); ꯑꯃꯁꯨꯡ ꯃꯔꯨ ꯂꯧꯕꯨꯛ (paddy land) ꯅꯠꯔꯒꯥ ꯋꯦꯇꯂꯦꯟꯗ (wetland) ꯍꯣꯡꯗꯣꯛꯄ ꯇꯥꯀꯄ, ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕ ꯇꯧꯕ ꯑꯊꯣꯏꯕꯁꯤꯡꯒꯤ ꯑꯦꯛꯇꯀꯤ, ꯃꯗꯨ ꯆꯥꯡꯕ ꯃꯇꯨꯡꯒꯤ ꯃꯈꯣꯌ ꯂꯥꯏꯁꯦꯟꯁ ꯅꯠꯔꯒꯥ ꯄꯔꯃꯤꯠ "ꯇꯥꯀꯄ ꯑꯊꯣꯏꯕ ꯑꯃꯠꯇꯅ ꯂꯥꯏꯁꯦꯟꯁ ꯅꯠꯔꯒꯥ ꯄꯔꯃꯤꯠ ꯑꯃꯠꯇꯥ ꯄꯤꯔꯣꯏꯗꯕꯅꯤ" ("no local authority shall grant any licence or permit") (ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014, ꯁꯦꯛꯁꯟ 12)꯫ ꯍꯤꯜꯒꯤ ꯖꯤꯂꯥꯁꯤꯡ ꯑꯗꯨ ꯃꯗꯨ ꯄ꯭ꯂꯥꯅꯤꯡ ꯃꯈꯥꯒꯤ ꯆꯠ: ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994 ꯑꯗꯨ "ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯅꯠꯇꯕ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯄꯨꯝꯅꯃꯛꯇ ꯁꯟꯗꯣꯛꯂꯤ" ("extends to the whole of the State of Manipur except the Hill Areas") (ꯁꯦꯛꯁꯟ ꯃꯍꯨꯠ ꯍꯥꯌꯗꯦ), ꯃꯇꯝ ꯑꯗꯨꯅ ꯁꯦꯝꯕꯤꯕ ꯇꯥꯀꯄ ꯈꯪꯅꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯍꯥꯏꯕꯗ ꯂꯩꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ) ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯥꯎꯟꯁꯤꯂꯁ ꯑꯦꯛꯠ, 1971 (Manipur (Hill Areas) District Councils Act, 1971)-ꯒꯤ ꯁꯦꯛꯁꯟ 29-ꯒꯤ ꯃꯈꯥꯗ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ ꯀꯥꯎꯟꯁꯤꯂꯁꯤꯡꯒꯤ ꯊꯕꯛꯁꯤꯡꯗ "ꯏꯁꯤꯡ ꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯤꯇꯦꯁꯅꯒꯤ ꯁ꯭ꯀꯤꯃꯁꯤꯡ" ("water supply and sanitation schemes") ꯑꯃꯁꯨꯡ ꯑꯇꯣꯞꯄ ꯄꯤꯕ ꯌꯥꯑꯣꯔꯤ ꯑꯗꯨꯕꯨ ꯈꯟ-ꯇꯥꯁꯤꯡ ꯀꯟꯁ꯭ꯇꯔꯛꯁꯟ ꯌꯥꯑꯣꯗꯦ; ꯍꯤꯜꯒꯤ ꯊꯧꯗꯥꯡꯁꯤꯡꯒꯤꯗꯃꯛ ꯈꯟ-ꯇꯥꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯤꯡꯊꯤꯕ ꯄ꯭ꯂꯥꯟ ꯑꯃꯠꯇꯥ ꯂꯩꯇꯦ꯫ ꯄ꯭ꯂꯥꯟ ꯑꯃꯠꯇꯅ ꯅꯤꯡꯊꯤꯕ ꯃꯍꯨꯠꯁꯤꯅꯕ ꯍꯥꯌꯗꯕ, ꯃꯁꯤꯡ ꯃꯇꯦꯡꯒꯤ ꯄꯥꯝꯕꯩ, ꯑꯣꯟ-ꯁꯥꯏꯠ ꯗꯤꯇꯦꯟꯁꯟ (on-site detention) ꯃꯇꯧ ꯌꯥꯕ ꯅꯠꯔꯒꯥ ꯇꯤꯡꯀꯟꯕ

> ꯁ꯭ꯇꯣꯔꯝ (design storm) ꯑꯃꯅꯦ꯫ ꯃꯔꯝ ꯑꯁꯤꯅꯥ ꯃꯄꯨꯡ ꯑꯁꯤꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯅꯧꯕ ꯂꯝꯕꯤꯒꯤ, ꯄꯥꯝꯕꯩꯁꯤꯡ ꯇꯧꯕ ꯑꯣꯏꯊꯣꯛꯂꯤꯕ ꯃꯇꯥꯡꯗ ꯂꯣꯏꯁꯤꯟꯂꯤꯕꯗꯤ ꯐꯣꯔꯝ 1-1, 2-1, 10-2 ꯑꯃꯁꯨꯡ 10-3-ꯗ ꯁꯕꯃꯤꯇ ꯇꯧꯒꯗꯕ ꯑꯣꯏꯔꯤ, ꯑꯃꯁꯨꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯗꯤ ꯑꯣꯔꯗꯔ ꯇꯧꯕ ꯃꯇꯝ ꯑꯁꯤꯗ ꯌꯥꯕ ꯁ꯭ꯇꯦꯖꯁꯤꯡꯗ ꯍꯣꯜꯗ ꯄꯣꯏꯟꯠ ꯌꯥꯎꯒꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯦꯕꯜ 6(1)(D)-ꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯎꯕ ꯄ꯭ꯔꯣꯚꯤꯖꯟꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ — ꯂꯣꯀꯦꯜ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯁꯕꯃꯤꯇꯦꯂꯁꯤꯡꯗ ꯃꯇꯤꯛ ꯂꯣꯀꯦꯜ 1-ꯗ ꯌꯥꯎꯕ ꯁꯤꯡꯇꯥꯕ ꯄꯥꯝꯕꯩꯁꯤꯡ ꯁꯦꯃꯒꯠꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯛ ꯆꯥꯕ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ ꯄꯤꯕꯤ — ꯑꯃꯁꯨꯡ ꯅꯣꯡꯖꯨ ꯃꯇꯝ ꯌꯥꯝꯅ ꯋꯥꯡꯕ ꯊꯥꯕ ꯌꯥꯕ ꯑꯣꯏꯔꯤ; ꯋꯤꯡꯒꯤ ꯅꯠꯇꯤꯡꯗ, ꯄ꯭ꯔꯣꯖꯦꯛꯇꯤꯡ ꯋꯥꯡꯕ ꯑꯃꯗꯤ ꯄꯤꯡꯊꯣꯡꯂꯕ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ, PWD, PHED, WRD ꯅꯠꯔꯒ ꯑꯇꯣꯞꯄ ꯋꯥꯡꯕꯁ ꯑꯦꯖꯦꯟꯁꯤ ꯑꯃꯗ ꯃꯁꯤ ꯆꯨꯡꯕ ꯑꯣꯏꯅ ꯋꯥꯟꯊꯣꯛꯀꯗꯤ, ꯑꯃꯁꯨꯡ ꯀꯟꯗꯤꯁꯟꯗ ꯋꯥꯖꯦ ꯑꯣꯏꯕ ꯁꯤꯟꯗꯥꯕꯗꯤ ꯅꯠꯔꯒ ꯃꯤꯇꯩꯁꯤꯡꯒꯤ ꯃꯥꯏꯊꯣꯡꯗ ꯃꯁꯤ ꯇꯧꯁꯤꯟꯗꯔꯤꯕ ꯅꯥꯏꯁꯦꯜ ꯗꯤꯁꯄ꯭ꯔꯥꯏꯁꯤꯡ ꯑꯃꯗ ꯅꯠꯔꯒ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯇ꯭ꯔꯦꯁꯟꯗ ꯃꯁꯤ ꯇꯧꯕ ꯌꯥꯏ (ꯑꯅꯤꯃꯛ ꯁꯣꯏꯗꯅ)꯫ ꯂꯣꯀꯦꯜ ꯑꯁꯤ ꯄ꯭ꯔꯦꯁꯦꯠ ꯑꯣꯏꯔꯤ꯫

10.2 ꯗꯤꯐꯤꯅꯤꯁꯟꯁꯤꯡ

ꯋꯥꯍꯩ	ꯁꯔꯨꯛ ꯑꯁꯤꯗ ꯑꯔꯊ
ꯁꯕꯃꯤꯇꯦꯜ (Submittal)	ꯀ꯭ꯂꯣꯖ 10.3-ꯒꯤ ꯁ꯭ꯇꯦꯖ ꯑꯃꯗ ꯑꯣꯊꯣꯔꯤꯇꯤꯗ ꯄꯤꯕ ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯁꯦꯠ ꯑꯃ꯫
ꯏꯔꯝꯒꯤ ꯔꯤꯄꯣꯔꯠ (Drainage report)	ꯀ꯭ꯂꯣꯖ 10.4-ꯗ ꯍꯥꯏꯕ ꯃꯑꯣꯡꯗ ꯄ꯭ꯔꯤꯂꯤꯃꯤꯅꯔꯤ (ꯁ꯭ꯇꯦꯖ 1) ꯅꯠꯔꯒ ꯐꯥꯏꯅꯦꯜ (ꯁ꯭ꯇꯦꯖ 2) ꯔꯤꯄꯣꯔꯠ꯫
ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯐꯦꯁꯤꯂꯤꯇꯤ (Stormwater facility)	ꯍꯦꯟꯅ ꯑꯁꯤꯗ ꯍꯥꯏꯕ ꯗꯤꯇꯦꯟꯁꯟ, ꯔꯤꯇꯦꯟꯁꯟ, ꯏꯁꯤꯡꯒꯤ ꯀꯜꯚꯔꯠ, ꯀꯦꯆꯃꯦꯟꯇ, ꯄꯥꯏꯄ, ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯇꯂꯦꯠꯒꯤ ꯑꯦꯁꯦꯝꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯏꯁꯤꯡ, ꯄ꯭ꯔꯣꯖꯦꯛꯇꯤꯡ ꯅꯠꯔꯒ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ꯫
ꯍꯣꯜꯗ ꯄꯣꯏꯟꯠ (Hold point)	ꯑꯣꯊꯣꯔꯤꯇꯤ ꯅꯠꯔꯒ ꯁꯔꯇꯤꯐꯥꯏꯗ ꯁꯤꯔꯤꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯂꯅ ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯇ ꯁꯤꯟꯗꯥꯔꯤꯕꯗꯤ ꯊꯕꯛ ꯃꯈꯥ ꯆꯠꯊꯕ ꯌꯥꯗꯕ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯅꯒꯤ ꯁ꯭ꯇꯦꯖ ꯑꯃ (ꯀ꯭ꯂꯣꯖ 10.8)꯫
ꯑꯦꯖ-ꯕꯤꯜꯠ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ (As-built certificate)	ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯁꯤ ꯑꯦꯞꯔꯨꯚ ꯇꯧꯔꯕ ꯃꯇꯨꯡ ꯏꯟꯅ ꯁꯦꯃꯒꯠꯂꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯕ ꯃꯇꯨꯡ ꯏꯟꯅ ꯊꯕꯛ ꯇꯧꯕ ꯍꯥꯏꯕ ꯀ꯭ꯂꯣꯖ 10.9-ꯒꯤ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ꯫
ꯃꯂꯤꯛ (Owner)	ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯒꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯗꯤꯌꯨꯇꯤꯒꯤ ꯃꯍꯩ ꯃꯂꯤꯛ ꯑꯣꯏꯕ ꯇꯧꯕ ꯃꯤꯑꯣꯏ ꯅꯠꯔꯒ ꯕꯣꯗꯤ, ꯅꯠꯔꯒ ꯍꯦꯟꯗꯑꯣꯚꯥꯔ ꯇꯧꯔꯕ ꯑꯦꯟꯇꯤꯇꯤ ꯃꯈꯣꯌꯗ ULB꯫
O&M ꯄ꯭ꯂꯥꯟ (O&M plan)	ꯀ꯭ꯂꯣꯖ 10.11-ꯒꯤ ꯑꯣꯄꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ (O&M) ꯄ꯭ꯂꯥꯟ꯫
ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔ (Facility register)	ꯀ꯭ꯂꯣꯖ 10.17-ꯒꯤ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡꯒꯤ ꯄꯕ꯭ꯂꯤꯛ ꯔꯦꯖꯤꯁ꯭ꯇꯔ꯫

ꯑꯇꯣꯞꯄ ꯋꯥꯍꯩꯁꯤꯡꯒꯤ ꯗꯤꯐꯤꯅꯤꯁꯟ ꯀ꯭ꯂꯣꯖ 1.4-ꯗ ꯄꯤꯔꯤ꯫

10.3 ꯁꯕꯃꯤꯇꯦꯂꯒꯤ ꯁ꯭ꯇꯦꯖꯁꯤꯡ

10.3.1 ꯁꯕꯃꯤꯇꯦꯂꯁꯤꯡ ꯑꯁꯤ ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯂꯦꯅꯤꯡ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ 2024-ꯒꯤ ꯑꯦꯞꯂꯤꯀꯦꯁꯅꯒꯤ ꯄ꯭ꯔꯣꯁꯦꯁꯁꯤꯡꯒꯥ ꯁꯝꯅꯕ ꯃꯄꯥꯡꯒꯤ ꯁ꯭ꯇꯦꯖꯁꯤꯡꯗ ꯄꯤꯒꯗꯕꯅꯤ (ꯇꯦꯕꯜ 10.1):

ꯇꯦꯕꯜ 10.1 — ꯁꯕꯃꯤꯇꯦꯂꯒꯤ ꯁ꯭ꯇꯦꯖꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯝꯂꯕ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁꯁꯤꯡ

ꯁ꯭ꯇꯦꯖ	ꯁꯕꯃꯤꯇꯦꯜ	ꯃꯇꯝ	ꯁꯝꯂꯕ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁ
0	**ꯄ꯭ꯔꯤ-ꯑꯦꯞꯂꯤꯀꯦꯁꯟ ꯃꯤꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝ 1-1** (ꯑꯄꯥꯝꯕ ꯃꯇꯝ ꯇꯦꯝꯄ꯭ꯂꯦꯠ)	ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯄ꯭ꯔꯤꯃꯤꯁꯦꯁ ꯅꯠꯔꯒ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯦꯞꯂꯤꯀꯦꯁꯅꯒꯤ ꯃꯃꯥꯡꯗ	ꯑꯃꯠꯇꯥ ꯇꯨꯡ (ꯑꯦꯗꯚꯥꯏꯖꯔꯤ ꯔꯤꯚꯤꯌꯨ)

ꯁ꯭ꯇꯦꯞ	ꯁꯕꯃꯤꯇꯦꯜ	ꯃꯇꯝ	ꯁꯝꯅꯕ ꯑꯦꯞꯔꯨꯚꯦꯜ
1	**ꯄ꯭ꯔꯤꯂꯤꯃꯤꯅꯔꯤ ꯏꯔꯝꯒꯤ ꯔꯤꯄꯣꯔꯠ**	ꯄ꯭ꯂꯥꯅꯤꯡ ꯄꯥꯔꯃꯤꯁꯟ ꯅꯠꯔꯒꯥ ꯂꯦꯑꯥꯎꯠ ꯑꯦꯞꯂꯤꯀꯦꯁꯅꯒꯥ ꯂꯣꯌꯅꯅꯥ	ꯄ꯭ꯂꯥꯅꯤꯡ ꯄꯥꯔꯃꯤꯁꯟ / ꯂꯦꯑꯥꯎꯠ ꯑꯦꯞꯔꯨꯚꯦꯜ
2	**ꯐꯥꯏꯅꯦꯜ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ**	ꯕꯤꯜꯗꯤꯡ ꯄꯥꯔꯃꯤꯠꯀꯤ ꯃꯃꯥꯡꯗ, ꯅꯠꯔꯒꯥ ꯄꯥꯔꯃꯤꯠ ꯑꯁꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯄꯥꯔꯃꯤꯁꯅꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯄꯤꯗꯕꯗꯤ ꯆꯕꯥ ꯄꯥꯕꯒꯤ ꯃꯃꯥꯡꯗ	ꯕꯤꯜꯗꯤꯡ ꯄꯥꯔꯃꯤꯠ / ꯆꯕꯥ ꯄꯥꯕ
3	ꯄꯥꯡꯗ ꯄꯣꯟꯗꯦꯟꯁꯤꯡꯗ **ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯍꯧꯗꯣꯛꯄꯁꯤꯡ**	ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟꯒꯤ ꯃꯃꯥꯡꯗ	ꯑꯃꯁꯥ ꯂꯣꯟꯁꯨ (ꯗꯦꯞꯂꯣꯁꯤꯡ ꯏꯅꯤ ꯁꯕ)
4	**ꯑꯦꯖ-ꯕꯤꯜꯠ ꯃꯗꯨꯒꯤ ꯀꯥꯡꯂꯨꯞ** ꯑꯃꯁꯨꯡ ꯒꯦꯗꯤꯀꯦꯁꯟ ꯁꯥꯃꯂꯤ	ꯀꯝꯄ꯭ꯂꯤꯁꯟ ꯃꯗꯨꯒꯤ ꯀꯥꯡꯂꯨꯞꯀꯤ ꯃꯃꯥꯡꯗ	ꯀꯝꯄ꯭ꯂꯤꯁꯟ / ꯑꯣꯛꯌꯨꯄꯦꯁꯟ ꯃꯗꯨꯒꯤ ꯀꯥꯡꯂꯨꯞ
5	**ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯀꯤꯔꯂꯦꯗꯦꯁꯟ** ꯗꯦꯂꯤꯁꯤꯌꯗ ꯇꯧꯕ, ꯅꯠꯔꯒꯥ ꯄ꯭ꯔꯣꯄꯔꯇꯤ ꯑꯦꯁꯥꯏꯅꯃꯁꯤꯡꯒꯤ **ꯍꯦꯟꯗꯑꯣꯚꯔ**	ꯀꯝꯄ꯭ꯂꯤꯁꯟ ꯃꯗꯨꯒꯤ ꯀꯥꯡꯂꯨꯞꯀꯤ ꯃꯃꯥꯡꯗ ꯅꯠꯔꯒꯥ ꯃꯇꯝ ꯂꯣꯌꯅꯅꯥ	ꯀꯝꯄ꯭ꯂꯤꯁꯟ ꯃꯗꯨꯒꯤ ꯀꯥꯡꯂꯨꯞ; ꯑꯦꯁꯥꯏ ꯌꯥꯕ
6	**ꯌꯍꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯀꯤꯔꯂꯦꯗꯦꯁꯟꯁꯤꯡ** ꯑꯃꯁꯨꯡ ꯄꯣꯟꯗꯦꯟꯁꯤꯡꯒꯤ ꯗꯤꯟꯇꯦꯜꯁꯤꯡ	ꯂꯥꯏꯗꯕ ꯃꯇꯨꯡꯗ ꯌꯍꯤ ꯃꯦꯟꯇꯦꯅꯃꯛ	ꯂꯥꯍꯣꯟꯂꯦ ꯌꯦꯍꯂꯤꯕ ꯀꯝꯄ꯭ꯂꯥꯏꯅꯦꯟꯁ

10.3.2 ꯃꯈꯥꯒꯤꯁꯤꯡꯒꯤꯗꯃꯛ **ꯁ꯭ꯇꯦꯞ 0 ꯑꯁꯤ ꯃꯊꯧ ꯇꯥꯗꯦ**:

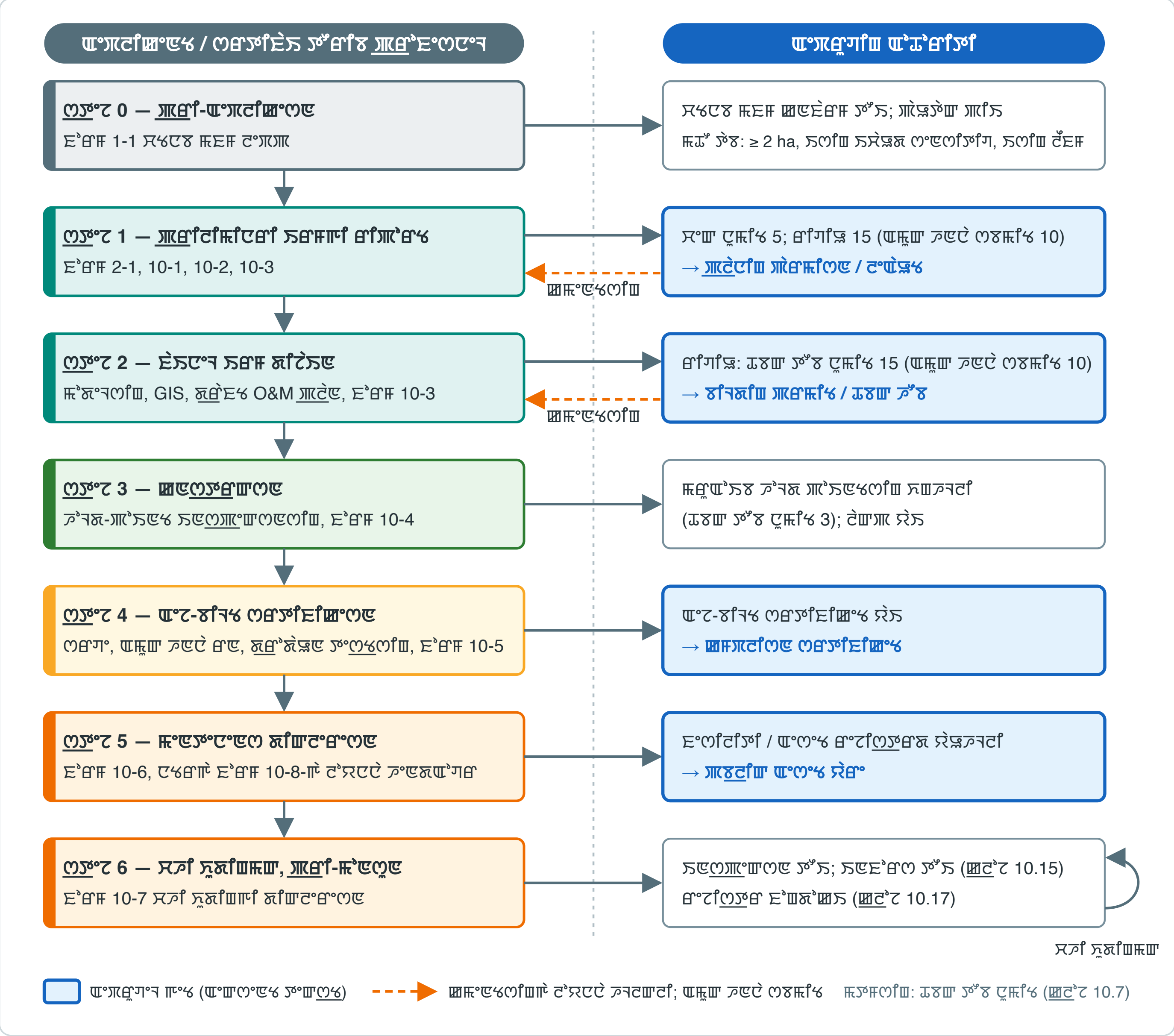
- (a) 2 ha ꯅꯠꯔꯒꯥ ꯃꯗꯨꯗꯒꯤ ꯍꯟꯊꯕ ꯁꯥꯏꯠꯁꯤꯡ;
- (b) ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯟꯁꯤꯇꯤꯚ ꯑꯣꯏꯕ ꯀꯦꯆꯃꯦꯟꯠ (flood-sensitive catchment) ꯑꯃꯗ ꯂꯩꯕ ꯁꯥꯏꯠꯁꯤꯡ;
- (c) ꯗꯤꯇꯦꯟꯁꯟ, ꯄꯣꯟꯗ, ꯔꯤꯖꯅꯦꯜ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯅꯠꯔꯒꯥ ꯐꯤ-ꯏꯟ-ꯂꯤꯎ (fee-in-lieu) ꯄ꯭ꯔꯣꯚꯥꯏꯗ ꯇꯧꯔꯕ ꯁꯥꯏꯠꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- (d) ꯇꯥꯏꯗꯦꯜ ꯑꯥꯎꯠꯐꯣꯜ (tidal outfall) ꯑꯃꯗ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯣꯛꯄ ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡ ꯂꯩꯐꯝ (waterbody) ꯑꯃꯗ ꯊꯥꯗꯕ ꯁꯥꯏꯠꯁꯤꯡ꯫

ꯑꯇꯣꯞꯄ ꯁꯥꯏꯠꯁꯤꯡꯒꯤꯗꯃꯛ ꯁ꯭ꯇꯦꯞ 0 ꯑꯁꯤ ꯑꯄꯥꯝꯕ ꯃꯈꯨꯠ ꯅꯦꯂꯦꯂꯤ, ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝ 1-1 ꯑꯁꯤ ꯁ꯭ꯇꯦꯞ 1-ꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯄꯤꯌꯨ꯫

10.3.3 **ꯄꯨꯟꯁꯤꯟꯕ ꯁ꯭ꯇꯦꯞꯁꯤꯡ.** ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯟꯁꯤꯇꯤꯚ ꯑꯣꯏꯕ ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡꯒꯤ ꯃꯄꯥꯟꯗ ꯂꯩꯕ 1 ha-ꯗꯒꯤ ꯍꯟꯊꯕ ꯁꯥꯏꯠꯁꯤꯡꯒꯤꯗꯃꯛ, ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯁ꯭ꯇꯦꯞ 1 ꯑꯃꯁꯨꯡ 2 ꯑꯁꯤ ꯁꯕꯃꯤꯇꯦꯜ ꯑꯃꯈꯛꯇꯃ ꯑꯣꯏꯅꯥ ꯄꯤꯕ ꯌꯥꯏ꯫

10.3.4 **ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛꯁꯤꯡ.** ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛ ꯑꯃꯒꯤꯗꯃꯛ, ꯁ꯭ꯇꯦꯞ 1 ꯑꯁꯤ DPR-ꯒꯤ ꯁꯔꯨꯛꯀꯤ ꯑꯣꯏꯔꯛꯂꯦ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯞ 2 ꯑꯁꯤ ꯇꯦꯟꯗꯔ ꯗꯣꯀꯨꯃꯦꯟꯇꯀꯤ ꯁꯔꯨꯛꯀꯤ ꯑꯣꯏꯔꯛꯂꯦ꯫ ꯃꯃꯥꯡ ꯂꯩꯕ ꯁ꯭ꯇꯦꯞ ꯑꯗꯨ ꯀꯂꯣꯖ 10.7-ꯒꯤ ꯃꯈꯥꯗ ꯃꯤꯒꯤꯁꯨ ꯁꯦꯅꯗꯤꯖꯕ ꯁꯃꯂꯦ ꯑꯇꯣꯞꯄꯤꯗꯦ ꯇꯧꯕ ꯑꯃꯨ ꯁꯃꯂꯦ ꯁꯦꯄꯟꯗꯦꯜ ꯆꯦꯅꯒꯦꯂꯤ꯫

10.3.5 **ꯑꯦꯞꯔꯨꯚꯦꯂꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯑꯍꯣꯡꯕꯁꯤꯡ.** ꯁ꯭ꯇꯦꯞ 2-ꯒꯤ ꯃꯇꯨꯡꯗ ꯏꯃꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ (impervious area), ꯗꯤꯇꯦꯟꯁꯟ, ꯚꯣꯂꯨꯝ, ꯅꯠꯔꯒꯥ ꯑꯥꯎꯠꯐꯣꯜ (outfall) ꯍꯣꯡꯗꯣꯛꯄ ꯍꯣꯡꯂꯛꯂꯕꯗꯤ, ꯍꯣꯡꯂꯛꯂꯤꯕ ꯑꯗꯨ ꯃꯇꯧ ꯀꯔꯝꯅ ꯁꯤꯡꯂꯦꯞꯄꯥ, ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯑꯦꯞꯔꯨꯚ ꯇꯧꯒꯗꯕꯅꯤ꯫


ꯑꯦꯞꯂꯤꯀꯦꯁꯟ / ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯁ꯭ꯇꯦꯖ ꯄ꯭ꯔꯣꯒ꯭ꯔꯦꯁꯟ
ꯑꯦꯖꯦꯟꯁꯤꯒꯤ ꯑꯦꯛꯁꯟ
ꯁ꯭ꯇꯦꯞ 0 — ꯄ꯭ꯔꯤ-ꯑꯦꯞꯂꯤꯀꯦꯁꯟ
ꯇꯦꯕꯜ 1-1 ꯑꯃꯁꯨꯡ ꯃꯦꯄ ꯆꯦꯛ
ꯑꯃꯁꯨꯡ ꯃꯦꯄ ꯀꯟꯐꯔꯦꯟꯁ ꯂꯩ; ꯁ꯭ꯀ꯭ꯔꯤꯟꯤꯡ ꯁ꯭ꯇꯦꯞ
ꯃꯦꯄ ꯂꯦꯝ: ≥ 2 ha, ꯍꯥꯏꯗ꯭ꯔꯣ ꯍꯥꯌꯔꯦꯛꯇ ꯄꯦꯔꯣꯁꯤꯡ, ꯍꯥꯏꯗ꯭ꯔꯣ ꯃꯥꯞ
ꯁ꯭ꯇꯦꯞ 1 — ꯄ꯭ꯔꯤꯂꯤꯃꯤꯅꯔꯤ ꯍꯥꯏꯗ꯭ꯔꯣ ꯔꯤꯄꯣꯔꯠ
ꯇꯦꯕꯜ 2-1, 10-1, 10-2, 10-3
ꯑꯣꯏ ꯗꯤꯅ 5; ꯔꯤꯚ꯭ꯌꯨ 15 (ꯑꯦꯛꯁꯠ ꯃꯇꯝ ꯄꯨꯝꯅꯃꯛ 10)
→ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯁꯕꯃꯤꯁꯟ / ꯀꯃꯦꯟꯠꯁ
ꯔꯤꯁꯕꯃꯤꯁꯟ
ꯁ꯭ꯇꯦꯞ 2 — ꯇꯦꯛꯅꯤꯀꯦꯜ ꯍꯥꯏꯗ꯭ꯔꯣ ꯗꯤꯖꯥꯏꯟ
ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯁꯤꯡ, GIS, ꯗ꯭ꯔꯦꯅꯦꯖ O&M ꯄ꯭ꯂꯥꯟ, ꯇꯦꯕꯜ 10-3
ꯔꯤꯚ꯭ꯌꯨ: ꯐꯨꯜ ꯁꯕꯃꯤꯇ ꯗꯤꯅ 15 (ꯑꯦꯛꯁꯠ ꯃꯇꯝ ꯄꯨꯝꯅꯃꯛ 10)
→ ꯃꯣꯗꯤꯐꯥꯏ ꯄ꯭ꯔꯔꯤꯚꯤꯖꯟ / ꯐꯨꯜ ꯁꯕꯃꯤꯇ
ꯔꯤꯁꯕꯃꯤꯁꯟ
ꯁ꯭ꯇꯦꯞ 3 — ꯑꯦꯞꯔꯨꯚꯦꯜ
ꯄꯥꯔꯃꯤꯠ-ꯀꯟꯗꯤꯁꯟ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜꯁꯤꯡ, ꯇꯦꯕꯜ 10-4
ꯑꯦꯞꯔꯨꯚꯦꯜ ꯄꯥꯔꯃꯤꯠ ꯀꯟꯗꯤꯁꯟꯁꯤꯡ ꯍꯥꯄꯆꯤꯜꯂꯤ
(ꯐꯨꯜ ꯁꯕꯃꯤꯇ ꯗꯤꯅ 3); ꯊꯧꯔꯥꯡ ꯂꯩ
ꯁ꯭ꯇꯦꯞ 4 — ꯑꯦꯖ-ꯕꯤꯜꯇ ꯄ꯭ꯔꯃꯥꯅꯤꯀꯦꯁꯟ
ꯄꯔꯤꯡ, ꯑꯦꯛꯁꯠ ꯃꯇꯝ ꯔꯤꯡ, ꯗ꯭ꯔꯣꯏꯡ ꯁꯦꯠꯁꯤꯡ, ꯇꯦꯕꯜ 10-5
ꯑꯦꯖ-ꯕꯤꯜꯇ ꯄ꯭ꯔꯃꯥꯅꯤꯀꯦꯁꯟ ꯂꯩ
→ ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯄ꯭ꯔꯃꯥꯅꯤꯀꯦꯁꯟ
ꯁ꯭ꯇꯦꯞ 5 — ꯍꯦꯟꯗꯑꯣꯚꯔ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁ
ꯇꯦꯕꯜ 10-6, ꯂꯦꯇꯔꯒꯤ ꯇꯦꯕꯜ 10-8-ꯒꯤ ꯃꯇꯨꯡꯗ ꯄꯦꯟꯗꯤꯡ
ꯇꯦꯛꯅꯤꯀꯦꯜ / ꯑꯣꯅꯔ ꯔꯤꯁ꯭ꯄꯣꯟꯁꯤꯕꯤꯂꯤꯇꯤ ꯂꯩꯄꯥꯛ
→ ꯄ꯭ꯔꯣꯂꯤꯡ ꯑꯣꯅꯔ ꯂꯩꯔꯦ
ꯁ꯭ꯇꯦꯞ 6 — ꯑꯣꯞ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ, ꯄ꯭ꯔꯤ-ꯍꯦꯟꯗꯑꯣꯚꯔ
ꯇꯦꯕꯜ 10-7 ꯑꯣꯞ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯒꯤ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁ
ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯂꯩ; ꯍꯥꯏꯇꯦꯛ ꯂꯩ (ꯁꯦꯛ 10.15)
ꯔꯤꯄꯣꯔꯇꯤꯡ ꯇꯦꯝꯞꯂꯦꯠ (ꯁꯦꯛ 10.17)
ꯑꯣꯞ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ
ꯑꯦꯖꯦꯟꯁꯤ ꯁꯦꯠ (ꯑꯦꯛꯁꯟ ꯂꯣꯏꯅꯕ)
ꯔꯤꯁꯕꯃꯤꯁꯟꯒꯤ ꯃꯇꯨꯡꯗ ꯄꯨꯟꯁꯤꯜꯂꯤ; ꯑꯦꯛꯁꯠ ꯃꯇꯝ ꯄꯨꯝꯅꯃꯛ
ꯀꯂꯣꯀꯁꯤꯡ: ꯐꯨꯜ ꯁꯕꯃꯤꯇ ꯗꯤꯅ (ꯁꯦꯛ 10.7)

ꯐꯤꯒ 10.1 — ꯃꯇꯝꯁꯤꯡ, ꯔꯤꯚ꯭ꯌꯨ ꯑꯃꯁꯨꯡ ꯑꯦꯖꯦꯟꯁꯤꯒꯤ ꯊꯧꯗꯣꯀꯁꯤꯡ (ꯁꯦꯛ 10.3–10.10)꯫ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯑꯃꯒꯤ ꯑꯦꯛꯁꯟ ꯃꯇꯝ ꯄꯨꯝꯅꯃꯛ ꯂꯩꯔꯦ꯫

ꯄ꯭ꯔꯦꯛꯇꯤꯁ ꯅꯣꯠ. ꯁ꯭ꯇꯦꯞꯁꯤꯡ ꯑꯁꯤ ꯄ꯭ꯔꯤꯂꯤꯃꯤꯅꯔꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯂꯦꯇꯔꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒꯤ ꯁ꯭ꯇꯦꯖꯁꯤꯡ, ꯑꯦꯞꯔꯨꯚꯦꯜ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁꯁꯤꯡꯒꯤ APWA 5600-ꯒꯤ ꯐꯨꯜ ꯍꯦꯟꯗꯂ ꯍꯥꯏꯗ꯭ꯔꯣ (APWA 5600, 2006, §5608 ꯑꯃꯁꯨꯡ §5609), ꯑꯃꯁꯨꯡ ꯍꯣꯏ ꯍꯂꯤꯛꯔꯒꯤ ꯑꯦꯞꯂꯤꯀꯦꯁꯟ ꯑꯍꯦ ꯄꯨꯔꯤꯡ ꯇꯦꯛꯁ ꯑꯃꯇꯤꯛ ꯃꯔꯤꯇꯦꯁ ꯁꯦꯟ-ꯀꯦꯇ 2024-ꯒꯤ ꯍꯥꯌꯐꯝꯁꯤꯡ ꯐꯥꯏꯗ꯫ ꯁ꯭ꯇꯦꯞ 4 ꯑꯁꯤ ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯄ꯭ꯔꯃꯥꯅꯤꯀꯦꯁꯟꯒꯤ ꯃꯍꯦꯠꯅꯕ ꯑꯁꯤ MBBL 2016-ꯒꯤ RWH ꯍꯦꯛꯇꯔ ꯀꯦꯂꯦꯛꯇꯤ, ꯍꯥꯏꯗ꯭ꯔꯣ ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯄ꯭ꯔꯃꯥꯅꯤꯀꯦꯁꯟꯒꯤ ꯍꯦꯛꯇꯥ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯃꯦꯄ ꯂꯩ (MBBL 2016, §9.6)꯫ ꯁꯦꯛ 10.3.2 ꯑꯃꯁꯨꯡ 10.3.3-ꯒꯤ 2 ha ꯑꯃꯁꯨꯡ 1 ha-ꯒꯤ ꯇꯤꯍꯤꯗꯁꯤꯡ ꯑꯁꯤꯒꯤ ꯄꯥꯐꯝꯁꯤꯡ ꯊꯥꯗꯦꯛ ꯂꯦꯟꯊ ꯑꯃꯁꯨꯡ ꯍꯦꯡꯍ ꯑꯁꯤ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯑꯁꯤꯒꯤ ꯐꯥꯏꯗꯤ꯫

10.4 ꯃꯦꯄ ꯂꯦꯝ ꯑꯍꯥꯔꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯁꯤꯡ

10.4.1 **ꯄ꯭ꯔꯤꯂꯤꯃꯤꯅꯔꯤ ꯍꯥꯏꯗ꯭ꯔꯣ ꯔꯤꯄꯣꯔꯠ (ꯁ꯭ꯇꯦꯞ 1).** ꯔꯤꯄꯣꯔꯠ ꯑꯁꯤꯗ ꯂꯩꯒꯗꯕꯥ ꯍꯦꯛꯇꯁꯤꯡ ꯂꯩꯍꯟꯗꯔꯤ:

- (a) ꯇꯦꯕꯜ 1-1 ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯃꯦꯄꯗ, ꯇꯦꯕꯜ 1-2 (ꯒꯔꯤꯂꯣꯏ / ꯑꯣꯚꯔ ꯔꯤꯁꯣꯔꯁ);

- (b) ꯃꯩꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯅꯦꯖ ꯌꯥꯎꯕ ꯇꯨꯔꯦꯜꯁꯤꯡ, ꯅꯍꯗ꯭ꯔꯒꯤꯔꯂ ꯑꯣꯄꯤꯔꯦꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯂꯩꯅꯐ ꯑꯃꯥꯠ ꯑꯃꯁꯨꯡ ꯍꯥꯛꯀꯤ ꯅꯐꯔꯤꯕꯁ ꯅꯂꯤꯡ ꯁꯦꯟꯕ ꯃꯦꯁꯍꯦꯟꯐ (catchment) ꯃꯍꯨꯝꯂꯤꯡ ꯔꯤꯡꯕ ꯂꯩꯅꯐ ꯖꯇꯥꯟ ꯑꯍꯥ;
- (c) ꯃꯍꯩꯅꯂꯤꯡ (soils; HSG), ꯍꯌꯖꯒꯤ ꯍꯁꯨꯡ ꯅꯥꯖꯖ ꯔꯤꯡꯕ ꯃꯍꯩꯅꯒꯤ ꯍꯅꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯔꯤꯌꯥ ꯌꯦꯕꯇ, ꯑꯃꯁꯨꯡ ꯅꯥꯖꯤꯇꯌꯥꯦꯂꯥ (infiltration) ꯌꯦꯂꯐꯃꯤ ꯄꯤꯇꯇꯐꯂꯤꯡ ꯆꯐꯄꯒꯥ ꯌꯦꯂꯐ ꯖꯇꯥꯟ ꯑꯍꯥ (ꯂꯥꯏꯡ 3);
- (d) ꯃꯇꯦꯇ 2.13-ꯗ ꯍꯉꯥ ꯌꯦꯕ ꯍꯁꯨꯡ ꯅꯥꯖꯖ ꯍꯖꯨꯡ ꯏꯍꯇꯇꯕ **ꯀꯤꯇꯥꯅꯖ ꯆꯦꯡ ꯁꯕꯒꯤ ꯂꯤꯐ (ꯏꯦꯄꯌ 2-1)**;
- (e) ꯀꯦꯒꯦꯇꯖꯍꯦꯖꯐꯃꯤ ꯍꯍꯤꯡꯒꯤ ꯏꯤꯒꯌ ꯑꯃꯁꯨꯡ ꯍꯅꯀꯥꯦꯇꯦꯇꯤꯒꯤ ꯉꯦꯑꯦꯡ (ꯂꯥꯏꯡ 3);
- (f) ꯃꯇꯦꯇ 1.2-ꯒꯤ ꯍꯅꯔꯥꯦꯄꯃꯤ (hierarchy) ꯃꯄꯌꯗ ꯂꯤꯇꯤꯖꯆꯅꯤꯕꯒꯦ: ꯃꯪꯉꯦꯪꯅꯤꯕ ꯑꯦꯄꯤꯔꯂꯤꯡ, ꯄꯤꯌꯦꯖꯂꯖꯒꯤ ꯉꯦꯑꯦꯡ, ꯀꯤꯌꯦꯖꯂꯖꯒꯤ ꯃꯖꯂꯦꯖꯌ ꯑꯃꯁꯨꯡ ꯃꯖꯒꯦꯔꯦꯖꯂ;
- (g) ꯃꯌꯖꯇꯅꯔꯦꯖꯂ ꯃꯦꯇꯃꯇꯦꯌꯄꯀꯒꯤ (ꯃꯇꯦꯇ 10.5) ꯃꯕ ꯖꯥꯤꯇꯤꯍꯤꯆꯄꯤ ꯄꯤꯌꯦꯖꯂꯖ, ꯅꯂꯤꯡꯒꯤ ꯃꯔꯇꯤꯌꯤ ꯑꯃꯁꯨꯡ ꯀꯤꯌꯦꯖꯂꯖ ꯒꯦꯇꯌꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯄꯤꯇꯤꯇ ꯄꯦꯐꯂꯤꯡ;
- (h) ꯍꯅ ꯉꯥꯕ ꯍꯏꯌꯒꯤ (downstream) ꯑꯦꯪꯂꯌꯦꯖꯐ ꯑꯃꯁꯨꯡ ꯌꯦꯇꯔꯌꯄꯒꯤ (tailwater) ꯃꯦꯂ (ꯂꯥꯏꯡ 5);
- (i) ꯅꯂꯤꯡ ꯃꯏꯌꯂꯤꯡ, ꯂꯦꯐꯕꯦꯪꯂꯤꯡ (setback) ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯇꯦꯒꯦꯇ (ꯂꯥꯏꯡ 6 ꯑꯃꯁꯨꯡ 7); ꯑꯃꯁꯨꯡ
- (j) ꯏꯦꯂꯤꯇꯤꯌꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯦꯖꯌꯦꯆꯦꯖꯂꯒꯤ ꯔꯥꯇꯪꯖꯒꯤ ꯇꯌꯕꯤꯒꯤꯀꯍꯪ ꯉꯍꯇꯤꯇꯇꯕ ꯇꯌ (ꯃꯇꯦꯇ 10.13)꯫

10.4.2 **ꯏꯅꯆꯦꯇ ꯅꯄꯌ ꯀꯤꯇꯥꯅꯖ (ꯁ꯭ꯇꯦꯖ 2).** ꯏꯅꯆꯦꯇ ꯀꯤꯇꯥꯅꯖꯀ, ꯑꯖꯀꯦꯐ ꯌꯥꯄꯕ ꯁ꯭ꯇꯦꯖ 1-ꯒꯤ ꯑꯔꯤꯁꯕꯂꯤꯡꯒꯤ ꯍꯉꯪꯌ, ꯍꯅꯒꯤꯂꯤꯡ ꯔꯤꯁꯒꯀꯕꯆꯤ:

- (a) ꯃꯇꯦꯇ 2.5.2-ꯒꯤ ꯁ꯭ꯇꯦꯄꯦꯇ ꯀꯁ꯭ꯇꯄꯦꯂꯖ ꯁꯀꯤꯡꯍꯪ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯡ 4-ꯗ ꯍꯉꯥ ꯌꯦꯕ AEP ꯁꯀꯤꯡꯍꯪꯃꯤ ꯏꯅꯆꯦꯇ ꯃꯦꯇꯃꯇꯦꯂꯖꯂꯤꯡ, ꯂꯥꯏꯡ 5-ꯒꯤ ꯑꯁꯐꯏꯦꯇ ꯉꯤꯡꯕ ꯁꯦꯪ ꯔꯤꯁꯗ;
- (b) ꯏꯦꯂꯤꯇꯤꯌꯤ ꯁꯀꯤꯡꯍꯪꯃꯤ ꯁ꯭ꯇꯦꯇ–ꯁ꯭ꯇꯦꯄꯦꯇ–ꯀꯤꯂꯔꯄꯇ ꯌꯦꯕꯇꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯅꯌꯄꯇꯦꯖꯂꯤ ꯂꯖꯤꯇꯔꯦꯒꯤ ꯀꯤꯇꯥꯅꯖ (ꯂꯥꯏꯡ 4);
- (c) ꯃꯖꯒꯦꯔꯦꯖꯂ ꯑꯦꯇꯤꯍꯦꯖꯐꯂꯤꯡ, ꯅꯖꯇꯦꯐꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯌꯄꯪꯔꯄꯂꯤꯡꯒꯤ ꯍꯅꯀꯥꯦꯇꯤꯪ ꯀꯤꯇꯥꯅꯖ (ꯂꯥꯏꯡ 6 ꯑꯃꯁꯨꯡ 9);
- (d) ꯅꯂꯤꯡꯒꯤ ꯃꯔꯇꯤꯌꯤꯒꯤ ꯀꯤꯇꯥꯅꯖ ꯑꯃꯁꯨꯡ ꯍꯉꯥ ꯌꯦꯕꯀ ꯏꯄꯂꯐ-ꯏꯇꯂ ꯆꯐꯄꯒꯥ ꯒꯄꯦꯂ ꯖꯦꯇꯌꯦꯖꯐ ꯌꯄꯦꯖ (ꯂꯥꯏꯡ 8);
- (e) ꯏꯦꯂꯤꯇꯤꯌꯤ ꯁꯀꯤꯡꯍꯪꯃꯤ ꯃꯖꯂꯌꯄꯪꯂꯖ ꯀꯄꯦꯅꯤꯂꯤꯡ, ꯍꯖꯨꯡ ꯏꯕ ꯔꯏꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯖꯦꯂꯤꯏꯤꯃꯦꯂꯖꯂꯤꯡ;
- (f) ꯃꯖꯂꯌꯄꯪꯂꯖꯒꯤ ꯉꯪ, ꯄꯤꯌꯦꯖꯂꯖ ꯑꯃꯁꯨꯡ ꯅꯖꯏꯤꯇꯌꯄꯦꯂꯖꯒꯤ ꯑꯦꯄꯤꯔꯂꯤꯡ ꯂꯦꯀꯤꯍꯦꯖꯐ ꯑꯃꯁꯨꯡ ꯃꯌꯖꯦꯪꯂꯖꯀꯒꯤ ꯃꯪꯉꯦꯃꯖ ꯔꯤꯁꯗ (ꯃꯇꯦꯇ 10.8.3);
- (g) ꯍꯦꯇꯀ-ꯖꯦꯅꯖꯐꯃꯤ ꯂꯦꯀꯁꯇ (ꯃꯇꯦꯇ 10.8);
- (h) ꯀꯄꯦꯏꯐ O&M ꯖꯇꯥꯟ (ꯃꯇꯦꯇ 10.11) ꯑꯃꯁꯨꯡ ꯀꯄꯦꯏꯐ ꯍꯦꯖꯌꯦꯆꯦꯖꯂ ꯀꯤꯪꯇꯦꯄꯦꯂꯖ (ꯃꯇꯦꯇ 10.10);
- (i) ꯍꯦꯀꯦꯇꯒꯤ ꯅꯖꯖꯐ ꯏꯅꯇꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯇ 10.4.4-ꯒꯤ GIS ꯀꯦꯌ; ꯑꯃꯁꯨꯡ
- (j) ꯃꯇꯦꯇ 10.6-ꯒꯤ ꯂꯄꯌꯤꯏꯤꯃꯦꯐꯂꯤꯡ꯫

10.4.3 **ꯁꯦꯪꯇꯤꯂꯐ.** ꯂꯕꯍꯤꯌꯦꯇ ꯁꯀꯤꯡꯍꯪꯌ **ꯅꯄꯌ ꯄꯤꯖꯦꯄꯐꯃꯤ ꯁꯦꯪꯇꯤꯂꯐ (ꯏꯦꯄꯌ 10-1)** ꯔꯤꯁꯒꯀꯕꯆꯤ, ꯍꯂꯤꯗ ꯃꯇꯦꯇ 10.4.1–10.4.2-ꯒꯤ ꯑꯁꯅꯌꯦꯌ ꯁꯀꯤꯡꯍꯪꯃꯤꯀꯍꯪ ꯍꯀ ꯔꯤꯁꯄꯤꯕ ꯇꯍꯤꯅ ꯆꯐꯄꯒꯥ ꯂꯤꯐ, ꯆꯐꯄꯒꯥ ꯍꯂꯤ ꯁꯐꯆꯀꯕꯒꯤ ꯍꯄꯌ ꯁꯐꯃꯆꯤ꯫ ꯍꯖꯨꯡ ꯏꯍꯇꯇꯕ ꯏꯦꯄꯌ 10-1 ꯃꯌꯗ ꯑꯦꯉꯦꯄꯤꯌꯤꯗ ꯂꯕꯍꯤꯌꯦꯇ ꯑꯍꯒꯤ ꯌꯦꯪꯆꯤꯃꯦꯇ ꯄꯤꯒꯤꯁ ꯍꯦꯄꯦꯅꯀꯕꯆꯤ꯫

10.4.4 **ꯀꯤꯇꯤꯌꯦꯇ ꯂꯕꯍꯤꯌꯦꯇ.**

- (a) ꯄꯤꯖꯦꯄꯐꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯄꯦꯅꯤꯂꯤꯡ ꯑꯂꯤ ꯉꯤꯕ ꯔꯤꯕ PDF ꯑꯦꯅꯗ ꯂꯕꯍꯤꯐ ꯌꯥꯒꯀꯕꯆꯤ꯫
- (b) ꯍꯅꯀꯥꯦꯇꯦꯇꯤ ꯑꯃꯁꯨꯡ ꯍꯅꯀꯥꯦꯇꯤꯪ ꯍꯦꯀꯦꯇꯂꯤꯡ ꯑꯂꯤ ꯍꯅꯦꯔꯒꯤ ꯆꯦꯌꯤꯒ, ꯄꯖ ꯌꯥꯕ ꯔꯤꯕ ꯏꯦꯄꯍꯦꯐꯌ (ꯁꯀꯌ ꯑꯦꯅꯗ SWMM .inp, HEC-HMS ꯆꯐꯄꯒꯥ HEC-RAS ꯖꯄꯦꯇꯦꯪꯐ ꯏꯅꯇꯂꯤꯡ), ꯂꯤꯇꯤꯖꯆꯅꯤꯕ ꯂꯦꯏꯐꯁꯦꯔꯄꯒꯤ ꯒꯄꯂꯖꯒꯥ ꯇꯦꯔꯆꯗ ꯂꯕꯍꯤꯐ ꯌꯥꯒꯀꯕꯆꯤ꯫
- (c) ꯏꯦꯂꯤꯇꯤꯌꯤꯂꯤꯡ, ꯑꯁꯐꯏꯦꯇꯂꯤꯡ, ꯏꯇꯦ ꯇꯌꯕꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯁꯍꯦꯖꯐ ꯃꯍꯨꯝꯂꯤꯡ ꯑꯂꯤ WGS 84 (EPSG:4326) ꯆꯐꯄꯒꯥ ꯁꯐꯆꯕ UTM ꯇꯦꯖꯀ (ꯁ꯭ꯇꯦꯐ ꯖꯌꯕꯒꯤꯀꯍꯪ 46N, ꯍꯂꯤ ꯁꯤꯡ 92°58' E (ꯁ꯭ꯇꯦꯐ ꯖꯦꯄꯌꯦꯇ) ꯆꯐꯄꯒꯥ 93.03° E (knowindia) ꯑꯃꯁꯨꯡ ꯁꯤꯡ 94.78° E-ꯒꯤ ꯍꯄꯪꯌ ꯃ (ꯑꯆꯤꯍꯪ ꯃꯦꯐꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯥꯖꯖ), ꯇꯦꯖ 46N (90°–96° E)-ꯒꯤ ꯍꯁꯨꯡꯀ, ꯍꯄꯌ ꯑꯀꯨꯗ ꯖꯄꯦꯇꯦꯪꯐ ꯑꯍꯐꯌꯗ ꯑꯌꯦꯖꯖ ꯇꯦꯖ ꯍꯉꯥ ꯌꯦꯀꯦ (ꯍꯦꯁꯔꯦꯇ ꯑꯂꯤꯗ ꯅꯖꯆꯕ ꯍꯁꯨꯡ ꯅꯥꯖꯖ)), ꯑꯍꯦꯖꯕ 10B-ꯀ ꯇꯤꯂꯐ ꯌꯥꯄꯕ ꯑꯦꯌꯄꯤꯕꯁꯐꯂꯤꯡꯒꯥ ꯇꯦꯔꯆꯗ GIS ꯀꯦꯌ (GeoPackage ꯆꯐꯄꯒꯥ shapefile) ꯑꯦꯅꯗ ꯂꯕꯍꯤꯐ ꯌꯥꯒꯀꯕꯆꯤ꯫
- (d) ꯇꯦꯒꯦꯇꯂꯤꯡ ꯑꯂꯤ ꯍꯍꯤꯡ ꯃꯕ ꯒꯄꯌꯤꯃꯦꯇ ꯀꯦꯌꯌ (datum) ꯑꯍꯥ ꯁꯤꯡꯀꯌꯆꯗ ꯌꯪꯃꯀꯕꯆꯤ꯫ ꯂꯥꯏꯡ 5-ꯀ ꯂꯤꯇꯤꯖꯆꯄꯤꯕ — ꯌꯌꯖꯪꯃꯤ ꯁꯄꯦꯇꯂꯤꯡꯀ ꯑꯃꯁꯨꯡ ꯅꯉꯅ ꯕꯦꯄꯇꯀ (Ithai barrage) ꯃꯕ WRD-ꯒꯤ ꯒꯦꯇꯂꯤꯡꯒꯤ ꯁꯄꯦꯇ ꯀꯦꯌꯌꯂꯤꯡ (ꯖꯔꯤꯇꯦꯇꯂꯤꯡꯀ ꯍꯤꯌꯄꯀ ꯏꯦꯡꯀꯦꯪꯅꯤꯕ ꯇꯦꯒꯦꯇꯂꯤꯡ, ꯍꯤꯖ ꯂꯤ ꯇꯦꯒꯦꯇꯀꯒꯤ ꯔꯤꯡꯕꯆꯤ ꯍꯔꯗ ꯅꯖꯆꯄꯤ, ꯀꯦꯌꯌ ꯌꯪꯅꯤꯀꯦ [TBC]), ꯁꯦꯌꯦꯕꯦꯃꯄꯦꯀ

(Chotebekra) ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜꯗ ꯂꯩꯕ CWC-ꯒꯤ ꯊꯥꯅꯥ-ꯃꯣꯅꯤꯇꯔꯤꯡ ꯁꯥꯏꯠ, NHPC ꯑꯃꯁꯨꯡ CEA-ꯒꯤ ꯅꯣꯡꯄꯣꯛꯄꯒꯤ ꯊꯥꯅꯥꯁꯤꯡ, ꯐꯣꯕꯔꯥ (ꯍꯤꯡꯐꯥ) ꯗꯦꯃꯒꯤ ꯑꯣꯏꯕ ꯊꯥꯅꯥꯁꯤꯡ, WRD-ꯒꯤ ꯄꯥꯜꯒꯤ (bund) ꯋꯥꯜꯁꯤꯡ, ꯒꯦꯠ ꯁꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯠ ꯐꯤꯕꯝ ꯊꯥꯅꯥꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯒꯦꯖ ꯂꯩꯕ ꯇꯨꯔꯦꯜꯁꯤꯡ, ꯈꯣꯡꯁꯤꯡ (khong), ꯄꯥꯠꯁꯤꯡ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯗ (pukhri; pond) ꯂꯩꯕ ꯑꯣꯏꯕ ꯅꯁꯤꯡ ꯅꯦꯇꯋꯥꯔꯀꯒꯤ ꯃꯩꯔꯥꯁꯤꯡ — ꯃꯁꯤꯒꯤ ꯃꯔꯤ ꯂꯩꯅꯕ ꯑꯗꯨ ꯑꯣꯏꯔꯛꯂꯤ꯫

10.4.5 **ꯂꯕꯃꯤꯇꯥꯜꯁꯤꯡꯗ ꯂꯤꯅꯤꯡꯅꯕ ꯀꯣꯗꯁꯤꯡꯒꯤ ꯂꯃꯆꯠ** (ꯇꯥꯕꯜ 10.2):

ꯇꯥꯕꯜ 10.2 — ꯂꯕꯃꯤꯇꯥꯜꯁꯤꯡꯗ ꯂꯤꯅꯤꯡꯅꯕ ꯀꯣꯗꯁꯤꯡ

ꯀꯣꯗ	ꯃꯃꯤꯡ	ꯊꯥꯛ
1-1	ꯑꯔꯣꯏꯕ ꯃꯀꯣꯛ ꯅꯥꯡꯊꯥ	0 ꯅꯠꯔꯒꯥ 1
1-2	ꯒꯥꯔꯤꯌꯥꯅꯂ / ꯌꯥꯒꯔ ꯔꯤꯕꯌꯥꯂꯨ	1
2-1	ꯁꯤꯡꯅꯕ ꯅꯣꯡ ꯇꯨꯕꯒꯤ ꯂꯤꯜ	1, 2
10-1	ꯄꯔꯀ ꯔꯤꯁꯣꯔꯨꯕꯤ ꯌꯥꯗꯅꯤꯂꯨ	1, 2
10-2	ꯕꯀꯁꯤꯟꯄꯌꯥꯏꯂ ꯕꯥꯡꯕꯠꯇꯥꯔꯒꯤ ꯂꯀꯃꯔꯤ	1, 2, 4
10-3	ꯁꯨꯔꯣꯈꯥꯂꯅꯥꯡ ꯁꯤꯅꯄꯅ ꯂꯔꯇꯤꯈꯤꯕꯥꯜ	1, 2
10-4	ꯑꯣꯡꯁ-ꯁꯣꯄꯌꯂ ꯄꯌꯂꯨꯁꯥꯗꯂꯌꯒꯤ ꯔꯥꯕꯣꯔꯁ	3
10-5	ꯑꯥꯅ-ꯕꯤꯡꯂ ꯂꯔꯇꯤꯈꯤꯕꯥꯜ	4
10-6	ꯃꯥꯌꯇꯥꯅꯥꯌꯂ ꯁꯤꯗꯅꯥꯔꯥꯂꯌ	5
10-7	ꯑꯣꯏ ꯅꯨꯁꯤꯡꯒꯤ ꯃꯥꯌꯇꯥꯅꯥꯌꯂ ꯁꯤꯗꯅꯥꯔꯥꯂꯌ ꯑꯃꯁꯨꯡ ꯄꯌꯂꯨꯁꯥꯗꯂꯌ ꯔꯤꯁꯣꯔꯂ	6
10-8	ꯑꯥꯂꯥꯜ ꯑꯥꯌꯁꯑꯣꯒꯔ ꯂꯔꯇꯤꯈꯤꯕꯥꯜ	5

ꯂꯌꯁꯣꯗꯅꯤ ꯇꯗꯁꯤ. ꯔꯌ ꯇꯥꯕ ꯌꯗꯕ ꯃꯣꯗꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ GIS ꯗꯦꯇꯥꯅꯤ ꯑꯥꯁꯅꯤꯕꯥꯌꯂꯇ ꯄꯔꯤ ꯄꯗꯇꯃꯗ ꯂꯥꯅ ꯐꯁꯣꯗꯑꯣꯅꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯐꯔꯤꯇꯤꯕꯨ ꯐꯕꯗ ꯑꯁꯨ ꯌꯥꯗ ꯇꯥꯕ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯗꯁ ꯁꯨꯔꯄꯒꯂ ꯂꯇꯣꯔꯥꯅꯒꯤ ꯂꯑꯣꯔ ꯁꯨꯃꯕꯒꯤ ꯃꯤꯌꯌꯥꯗ ꯑꯃ ꯂꯥꯃꯕ ꯌꯅꯑꯣꯅꯤ꯫

ꯃꯅꯤꯄꯨꯔꯗ ꯃꯂꯤꯒꯤ ꯂꯑꯔꯒꯤ ꯄꯣꯗꯕꯇꯂꯤꯗꯒꯤꯁꯃꯗ ꯅꯣꯇꯤꯈꯄ ꯇꯥꯔꯕ ꯁꯤꯅꯄꯅ ꯔꯤꯇꯔꯅ ꯁꯤꯔꯤꯌꯁ ꯅꯌꯔꯥꯒꯥ ꯁꯤꯅꯄꯅ ꯂꯨꯗꯔꯃ ꯅꯥꯇ, ꯑꯃꯁꯨꯡ ꯔꯤꯇꯔꯅ ꯁꯤꯔꯤꯌꯁ, ꯔꯅꯑꯣꯈ ꯕꯣꯑꯥꯈꯤꯂꯤꯌꯥꯅꯌ ꯅꯌꯔꯥꯒꯥ ꯄꯣꯗꯕꯅꯒꯤ ꯂꯨꯥꯅꯁꯔꯁ ꯑꯥꯌꯔꯤꯕ MAHUD, TPD, PDA Manipur, IMC ꯅꯠꯔꯒꯥ ꯑꯗꯣꯁꯁ ꯁꯔꯕꯅ ꯅꯣꯕꯅ ꯕꯣꯁꯤ, PWD, WRD ꯅꯠꯔꯒꯥ ꯄꯃꯈꯣꯟ ꯂꯃꯔꯌ ꯂꯤꯇꯤ ꯅꯤꯃꯤꯇꯥꯁ (Imphal Smart City Ltd)-ꯒꯤ ꯁꯣꯕꯂꯃꯥꯅꯌ ꯑꯃꯌꯇ ꯈꯗꯄꯤꯁꯥ; ꯃꯣꯁꯥꯟ ꯃꯅꯤꯄꯨꯔ ꯅꯨꯅꯤꯈꯄꯁ ꯕꯤꯅꯁꯤꯗ ꯕꯄ-ꯅꯣꯅ, 2024-ꯗ ꯕꯤꯅꯁꯤꯗ ꯑꯃꯒꯤ ꯂꯔꯒꯤꯂꯂꯤꯗ ꯑꯂꯤ ꯅꯥꯂꯅꯥꯟ ꯕꯤꯅꯁꯤꯗ ꯕꯣꯁ 2016-ꯁ ꯐꯔꯤ꯫ ꯑꯣꯅꯤꯗ ꯑꯔꯅꯤꯕ ꯄꯕꯄꯁꯒꯤ ꯌꯁꯕ ꯄꯔꯃꯒꯤ ꯐꯕꯗ ꯑꯅꯤꯅꯨ ꯑꯃꯌꯇ ꯑꯄꯁꯥ: AIIB-ꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯁꯔꯕꯅ ꯔꯣꯗ, ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯦꯠ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯏꯝꯞꯔꯨꯚꯃꯦꯟꯠ ꯞꯔꯣꯖꯦꯛꯠ (Manipur Urban Road, Drainage and Asset Management Improvement Project; P000723)-ꯗ ꯒꯔꯥꯇꯔ ꯄꯃꯈꯣꯟꯒꯤ ꯅꯃꯕꯤꯂꯤꯗꯒꯤ ꯃꯅꯤꯗꯇ "ꯃꯅꯤꯗ ꯑꯅꯤꯃꯗꯇ ꯕꯒꯔ ꯇꯥꯔꯕ ꯅꯣꯗꯒꯤ ꯄꯂꯤꯗꯒꯤ ꯄꯣꯗꯕꯌ 547 km" ("547 km of both side stormwater covered drains") ꯂꯤꯒꯥꯕꯅꯤ, ꯑꯁꯨꯕ ꯃꯂꯤꯒꯤ ꯁꯨꯔꯣꯅꯥꯗꯥ ꯁꯣꯕꯂꯃꯥꯅꯌꯗ ꯔꯤꯇꯔꯌ ꯁꯤꯔꯤꯌꯁ, ꯅꯣꯗ ꯅꯨꯕꯒꯤ ꯄꯌꯇꯥꯌꯂꯤꯇꯤ ꯅꯠꯔꯒꯥ ꯔꯌꯑꯣꯈ ꯕꯣꯑꯥꯈꯤꯂꯤꯌꯥꯅꯌ ꯑꯃꯌꯇ ꯁꯤꯁ (2024), ꯑꯃꯁꯨꯡ "ꯃꯂꯤꯒꯤ ꯄꯂꯤꯗ ꯁꯤꯇꯥꯌꯂꯌꯒꯤ ꯕꯥꯁꯤꯂꯤꯇꯤ ꯑꯥꯌꯒꯤꯑꯥꯅꯒꯤꯅꯤ, ꯅꯣꯗꯒꯤ ꯄꯂꯤꯗ ꯄꯔꯀ ꯂꯤꯂꯇꯥꯀ ꯑꯃꯨꯗ ꯑꯥꯌꯗ ꯂꯥꯃꯒꯤꯕꯅꯤ" ("increase its water detention capacity, restore stormwater drainage system") (2021) ꯑꯣꯌꯕ ꯅꯀꯈꯥꯁꯤꯂ ꯁꯨꯔꯣꯅꯥꯗꯥꯕꯤ NDB-ꯒꯤ ꯂꯀꯃꯔꯤꯗ ꯁꯤꯅꯄꯅ ꯂꯇꯣꯔꯀ ꯑꯃꯌꯇ ꯑꯄꯁꯥ꯫ ꯂꯑꯔꯒꯤ ꯄꯣꯗꯕꯅꯂꯤꯗꯒꯤꯁꯃꯗ CPHEEO ꯃꯥꯅꯨꯌꯥꯟꯒꯤ ꯑꯈꯀ ꯁꯨꯀꯅꯃꯗꯇ ꯑꯔꯣꯏꯕ ꯑꯣꯏ 5-ꯒꯤ ꯔꯤꯇꯔꯌ ꯁꯤꯔꯤꯌꯁ ꯑꯂꯤ JICA ꯔꯤꯁꯣꯔꯨ ꯑꯃꯁ ꯕꯣꯌ ꯇꯥꯔꯤ (ꯁꯣꯄꯁ ꯈꯣꯗꯁꯣꯗꯄꯤꯕ ꯃꯇꯨꯗ ꯄꯌꯅ) ꯑꯃꯁꯨꯡ ꯃꯂꯤ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯒꯥꯟꯅꯨ ꯅꯌꯇꯥ꯫ ꯅꯣꯗ ꯅꯨꯕꯒꯤ ꯂꯇꯣꯁꯤꯂꯤꯗꯅꯂ ꯑꯃꯌꯇ ꯁꯤꯁ꯫ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯂꯇꯥꯂꯌ ꯑꯃꯌꯇꯒꯤꯁꯃꯗ ꯕꯌꯂꯇꯥꯌꯌꯂꯤꯗ ꯇꯩꯕ ꯄꯌꯇꯥꯌꯂꯤꯇꯤ–ꯁꯨꯔꯥꯂꯌ–ꯈꯔꯤꯗꯌꯥꯌꯂꯤꯒꯤ ꯔꯤꯅꯥꯂꯌ ꯑꯃꯌꯇ ꯈꯗꯄꯤꯁꯥ; 1986–2009-ꯒꯤ ꯃꯤꯅꯤꯌ 15-ꯒꯤ ꯁꯣꯇꯁꯒꯤ ꯂꯥꯃꯄꯤꯕ ꯄꯃꯈꯣꯟꯒꯤ ꯔꯤꯅꯥꯂꯌ ꯑꯃ ꯑꯣꯅꯤꯁꯤꯅꯌ ꯑꯁꯥꯅꯁ ꯑꯃꯁ ꯈꯣꯗꯁꯣꯗꯅꯤ, ꯃꯂꯤꯒꯤ ꯑꯄꯕ ꯑꯃꯁꯨꯡ ꯒꯥꯟꯅꯨꯂꯤꯗ ꯁꯕ ꯁꯃꯄꯤꯁꯥ (ꯁꯣꯄꯁ ꯈꯣꯗꯁꯣꯗꯄꯤꯕ ꯃꯇꯨꯗ ꯄꯌꯅ), ꯑꯃꯁꯨꯡ ꯃꯂꯤ ꯒꯥꯟꯅꯨ ꯑꯃ ꯑꯣꯄꯅꯤ ꯕꯣꯌ ꯇꯥꯁ; IMD-ꯒꯤ ꯅꯥꯂꯅꯥꯟ ꯂꯇꯥꯁꯤ (Das et al., 2022)-ꯁ ꯄꯃꯈꯣꯟꯒꯤ ꯁꯥꯅꯥꯟ ꯑꯃ ꯇꯩ, ꯃꯂꯤꯗ ꯑꯇꯥꯁꯥꯁ ꯂꯑꯔ ꯌꯃꯅꯤ ꯕꯌꯒꯤ ꯅꯥꯅꯥꯔꯤꯗ ꯕꯔꯒ ꯑꯁꯨꯃꯗ ꯑꯥꯌꯗ ꯐꯃꯅꯤ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯕ

> ꯑꯤꯌꯑꯈ ꯁꯤꯑꯤꯍꯅꯣꯤꯗꯅ ꯍꯊꯚꯇꯒꯤ ꯑꯪꯃꯥꯑꯅ ꯈꯅꯤꯗꯊꯌꯒꯤ ꯐꯪꯈꯕ ꯄꯨꯡ 24-ꯒꯤ ꯅꯪꯁꯖꯣꯤꯗ ꯌꯥꯃꯍ, ꯊꯑꯊ ꯑꯅꯨꯆꯤ ꯊꯣꯤ ꯣꯤꯖꯤꯘꯆꯅꯪ; NIH-DHAARA-ꯆꯤ ꯍꯊꯚꯇꯅ ꯍꯐꯤ 50-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯅꯪꯁꯖ 231 mm ꯁꯤꯑꯤ, ꯊꯣꯤ ꯁꯌꯪꯣꯘ ꯑꯅꯨꯒꯤ ꯑꯪꯃꯥꯑꯅ 158.6 mm-ꯒꯤ ꯍꯦꯗ 1.45 ꯌꯥꯍꯊꯆꯤ (ꯁꯨꯇꯒꯤ ꯑꯦꯁ꯭ꯂꯋꯁꯨꯋ; ꯑꯪꯣꯤꯑꯥ ꯑꯣꯤ ꯊꯪꯁꯨꯔꯪꯇ ꯑꯣꯤꯒꯤꯅꯊꯗ ꯃꯪꯇꯃꯨꯆꯪꯋ ꯌꯥꯐꯤꯕꯆꯤ); ꯑꯊꯁꯨꯗ 1974–2000-ꯒꯤ ꯍꯊꯚꯇꯒꯤ MASTEC-ꯒꯤ ꯑꯪꯁꯨꯔꯪꯇ-ꯊꯪꯗꯣꯤꯊꯊ ꯣꯤꯑꯤꯆ ꯑꯣꯤ ꯊꯤꯋꯔꯪꯗꯅ ꯆꯑꯤꯕ ꯁꯌꯪꯣꯘ ꯣꯤꯑꯤꯆ ꯑꯊꯐꯗꯌꯆꯤ (MASTEC, ꯌꯪꯕꯇ 2)꯫ ꯁꯌꯪꯋ ꯁꯨꯊꯕ CWC-ꯒꯤ ꯣꯕꯆꯥꯘ 2(c), "ꯕꯑꯦꯗ, ꯃꯇꯅꯪꯘ ꯑꯊꯁꯨꯗ ꯊꯆꯤꯁꯨꯑ ꯁꯨꯑꯪꯇꯣꯤꯗ" ("Barak, Kalden and Manipur rivers")-ꯅ ꯆꯪ, ꯊꯣꯤꯒꯤꯅꯊꯗ CWC-ꯆꯤ ꯏꯆꯅ ꯑꯪꯁꯌꯤꯊꯪꯣꯘ ꯑꯤꯁꯥꯑꯋ (Flood Estimation Report) ꯑꯊꯋꯌꯥ ꯏꯥꯗꯅꯥꯗꯐꯤꯅꯪ꯫ ꯊꯑꯊ ꯑꯣꯤꯆꯤ ꯁꯌꯪꯋꯃꯤ ꯅꯤꯆꯍꯘ ꯒꯪꯇꯁꯨꯣꯤꯗ ꯑꯣꯤ ꯣꯑꯨꯗ 2-ꯒꯤꯆꯤ: ꯍꯊꯏꯇ ꯌꯊꯁꯤꯗꯃꯤ ꯆꯊ (valley floor) ꯑꯊꯁꯨꯗ ꯆꯥꯗꯌꯥꯗꯃꯤ ꯊꯆꯗꯌ ꯃꯆꯥꯆ 2.3.6(c)(i)-ꯒꯤ ꯁꯌꯪꯣꯘ ꯣꯤꯑꯤꯆ, ꯆꯥꯗꯁꯨꯁ ꯖꯗꯕ ꯍꯤꯗꯣꯤꯗꯅ ꯑꯊꯁꯨꯗ ꯆꯤꯑꯤꯕꯊ ꯁꯆꯪꯘꯅ ꯃꯆꯥꯆ 2.3.6(c)(ii)-ꯒꯤ ꯕꯑꯦꯗ-ꯌꯊꯁꯤꯗꯃꯤ ꯏꯆꯥꯑꯣꯤꯗ (floor), ꯑꯊꯁꯨꯗ ꯑꯍꯦꯗ, ꯆꯥꯗꯁꯥꯗ ꯑꯊꯁꯨꯗ ꯍꯦꯒꯤ ꯍꯤꯗꯣꯤꯗꯅ ꯌꯊꯁꯤꯗꯃꯤ ꯌꯪꯕꯇ ꯑꯣꯤ ꯏꯆꯥꯑ ꯑꯥꯐꯆꯤ ꯆꯪꯕ NIH-DHAARA (ꯃꯆꯥꯆ 2.3.6(c)(iii)), ꯑꯊꯁꯨꯗ ꯣꯕꯊꯤꯣꯘ ꯁꯨꯅꯤꯗꯊꯗꯆꯤ ꯊꯣꯒꯤ ꯅꯤꯆꯍꯘ ꯕꯪꯣꯤꯣ ꯌꯥꯗꯃꯅꯕꯆꯤ꯫ ꯏꯥꯑꯊ 2-1 ꯑꯊꯁꯨꯗ ꯏꯥꯑꯊ 10-2-ꯆꯤ ꯅꯤꯆꯍꯘ ꯁꯨꯅꯤꯗꯊꯗꯆꯤ ꯊꯣꯤꯒꯤ ꯍꯘꯁꯨꯋꯣꯤꯗ ꯌꯥꯃꯁ ꯣꯥꯍꯅꯆꯤ ꯌꯥꯍ꯫

10.5 ꯃꯊꯁꯆꯤꯍꯔꯪꯘꯣ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ

10.5.1 ꯁꯌꯪꯋ ꯆꯥꯗꯒꯤ ꯍꯣꯤꯗꯒꯤ ꯌꯪꯗꯆꯤꯃꯪꯇ ꯃꯊꯤꯌꯤꯆꯤ (State Stormwater Technical Committee) **ꯃꯊꯁꯆꯤꯍꯔꯪꯘꯣ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ** ꯑꯊ ꯁꯤꯖꯥꯗꯃꯅꯕꯆꯤ ꯑꯊꯁꯨꯗ ꯔꯪꯗꯣꯤꯘꯒꯅꯕꯆꯤ: ꯊꯣꯤ ꯒꯑꯣꯘ-ꯃꯘꯌꯑꯥꯇ ꯌꯥꯑꯕ ꯁꯁꯑꯪꯅꯣꯤꯋ ꯆꯋꯑꯒ ꯍꯪꯕ ꯁꯨꯇ ꯑꯊꯆꯤ, ꯊꯣꯤꯆꯤ ꯁꯤꯑꯕ ꯣꯍꯋ ꯑꯊꯒꯤꯅꯊꯗ:

- (a) ꯃꯆꯥꯆ 1.5-ꯒꯤ ꯍꯋꯆꯕ ꯊꯏꯊꯒꯤ ꯌꯪꯁꯋꯣꯤꯗ ꯣꯤꯆꯤꯘꯆꯪ;
- (b) ꯑꯐꯪꯘꯕ 2E-ꯒꯤ ꯅꯪꯁꯖꯅꯒꯤ ꯑꯤꯌꯪꯘꯣꯘ ꯒꯥꯆꯨꯊ, ꯑꯊꯁꯨꯗ ꯍꯣꯤꯗꯒꯤ ꯃꯍꯆꯤꯌꯤꯒꯤ ꯒꯥꯆꯨꯊ (ꯣꯑꯨꯗ 8) ꯃꯪꯇꯃꯨꯆꯪꯋ ꯌꯥꯍ;
- (c) ꯖꯗꯖꯥꯗꯐꯤꯕ ꯑꯪꯑꯤꯔꯦꯣꯤꯗ ꯑꯊꯁꯨꯗ ꯖꯊꯆꯤꯇꯆꯕ ꯒꯥꯆꯨꯊꯒꯤ ꯃꯑꯪꯅꯤꯋꯣꯤꯗ ꯅꯤꯌꯪꯘꯣꯘꯒꯤ ꯊꯔꯥꯗꯌ ꯣꯤꯆꯤꯘꯆꯪ (ꯣꯑꯨꯗ 4);
- (d) ꯅꯤꯆꯍꯘ-ꯑꯪꯅꯃꯤ ꯆꯊꯕꯤꯅ (design-aid route) (ꯃꯆꯥꯆ 1.7, S-1), ꯁꯆꯤꯋ-ꯁꯌꯥꯑꯪꯆ ꯌꯪꯕꯇꯣꯤꯗꯅꯒꯤ ꯑꯤꯌꯪꯘꯣꯘ ꯑꯊꯁꯨꯗ ꯅꯤꯌꯪꯘꯣꯘ ꯒꯥꯆꯨꯊꯣꯤꯗ ꯁꯤꯍ;
- (e) ꯑꯆꯌꯑꯆꯪꯌꯤꯒ S-2-ꯅ, AEP ꯁꯨꯅꯤꯗꯊꯗꯃꯤꯅꯊꯗ ꯁꯑꯊꯤꯣꯤꯕꯇ ꯣꯍꯋ ꯅꯤꯣꯍꯑꯆ ꯁꯤꯍ; ꯑꯊꯁꯨꯗ
- (f) **ꯃꯊꯁꯆꯤꯍꯔꯪꯘꯣ ꯃꯪꯇꯃꯨꯆꯪꯌꯑꯒꯤ ꯣꯊꯊꯑꯤ (ꯏꯥꯑꯊ 10-2)** ꯣꯪꯊꯊꯤ꯫

10.5.2 **ꯣꯤꯆꯤꯘꯆꯕ.**

- (a) ꯁꯌꯪꯆ 1, 2 ꯑꯊꯁꯨꯗ 4-ꯒꯤ ꯣꯕꯊꯤꯌꯪꯇ ꯁꯨꯅꯤꯗꯊꯗꯌ ꯃꯪꯇꯃꯨꯆꯪꯌꯑꯒꯤ ꯐꯥꯆꯤꯗꯃꯤ ꯒꯑꯣꯘꯅꯒꯤ ꯆꯥꯑꯕ ꯏꯥꯑꯊ 10-2 ꯔꯦꯁ꯭ꯒꯅꯕꯆꯤ꯫
- (b) ꯅꯤꯆꯍꯘ-ꯑꯪꯅꯃꯤ ꯆꯊꯕꯤꯅ, ꯃꯪꯇꯃꯨꯆꯪꯌꯑ ꯑꯣꯤ ꯁꯌꯥꯑꯪꯆꯒꯤ ꯃꯪꯇꯃꯨꯆꯪꯣꯘ ꯑꯊꯐꯗꯌ ꯑꯥꯍꯕ ꯔꯦꯍ꯫
- (c) ꯅꯤꯆꯍꯘ-ꯑꯪꯅꯃꯤ ꯆꯊꯕꯤꯒꯤ ꯊꯁꯤꯘꯅ, ꯃꯪꯇꯃꯨꯆꯪꯌꯑ ꯑꯣꯤ ꯣꯊꯊꯑꯤ ꯑꯊꯁꯨꯗ ꯣꯃꯑꯤꯆꯤꯗ ꯍꯪꯗ ꯑꯊꯆꯤ꯫ ꯊꯣꯤꯆꯤ ꯣꯑꯨꯗ 3-ꯒꯤ ꯐꯍꯅꯑꯥꯒꯑꯦꯏ ꯑꯪꯆꯤꯆꯤꯍꯣꯤꯣꯃꯤ ꯊꯁꯨꯋ ꯣꯤꯘꯅꯪ꯫ ꯊꯥꯅꯪꯇ ꯑꯤꯆꯇꯋ ꯑꯊꯆꯤ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ ꯒꯍꯅꯌ ꯌꯥꯃꯁ ꯌꯥꯆꯑꯪꯘꯣꯅꯒꯤ ꯐꯪꯘꯆꯤ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ ꯣꯃꯑꯤꯘꯅꯒꯤ ꯍꯪꯋꯆꯑꯕꯅꯤ, ꯑꯤꯁꯥꯑꯋꯆꯤ ꯊꯑꯊ ꯣꯘꯅꯥꯗꯆꯤ ꯌꯥꯗꯃꯅꯕꯆꯤ꯫

10.5.3 **ꯒꯑꯣꯘ ꯃꯘꯌꯑꯥꯇ.** ꯃꯪꯇꯃꯨꯆꯪꯌꯑꯆꯤ ꯑꯦꯁ꯭ꯂꯋꯁꯨꯋ ꯁꯨꯅꯤꯗꯊꯗꯌ ꯊꯣꯤꯒꯤ ꯒꯑꯣꯘ ꯑꯪꯃꯥꯑꯅ ꯌꯥꯒꯅꯕꯆꯤ꯫ ꯃꯆꯥꯆ 2.14.2-ꯒ ꯁꯆꯘꯆꯤ, ꯑꯆꯥꯕ ꯒꯑꯣꯘ ꯑꯊ ꯖꯅꯥꯗꯆꯕ ꯖ 6-ꯒꯤ ꯊꯁꯨꯗꯅ ꯑꯆꯥꯕ ꯣꯕꯊꯤꯌꯪꯇꯣꯤꯗꯅ ꯍꯋꯆꯪ꯫ ꯑꯪꯁꯆꯤꯃꯪꯘꯋꯆꯤ ꯊꯁꯨꯗꯒꯤ ꯒꯑꯣꯘ ꯑꯊ ꯐꯆꯕ ꯆꯋꯌꯕꯅꯤ, ꯣꯕꯊꯤꯌꯪꯇ ꯑꯊꯆꯤ ꯁꯌꯪꯆ 1-ꯅꯒꯤ 4 ꯏꯁ꯭ꯂꯕ ꯒꯑꯣꯘ ꯑꯊꯐꯗꯌ ꯣꯤꯆꯤꯘꯆꯒꯅꯕꯆꯤ꯫

10.5.4 **ꯑꯥꯁꯘ ꯑꯥꯍꯕ.** ꯃꯪꯇꯃꯨꯆꯪꯌꯑ, ꯊꯣꯤꯒꯤ ꯁꯆꯑ ꯒꯍꯅ, ꯑꯊꯁꯨꯗ ꯊꯣꯤꯅ ꯆꯪꯕ ꯌꯪꯕꯇ ꯁꯨꯅꯤꯗꯊꯗꯃꯤ ꯐꯥꯑꯗꯏꯊ ꯑꯣꯤ ꯊꯊꯇ ꯆꯥꯌꯆꯤ ꯏꯥꯗꯅꯥꯗꯃꯅꯕꯆꯤ꯫

> **ꯣꯘꯅꯥꯗꯆꯤ ꯌꯥꯗꯁ.** ꯊꯤꯅ-ꯑꯊꯪꯑꯤꯃ ꯑꯤꯆꯆꯪꯇ ꯃꯦꯁ꯭ꯂꯘꯣꯤꯇꯆꯤ (Mid-America Regional Council) APWA 5600 ꯒꯑꯣꯘ 2025.01-ꯒ ꯆꯥꯔꯆꯆꯤ ꯃꯊꯁꯆꯤꯍꯔꯪꯘꯣ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ (.xlsm) ꯑꯊ ꯑꯊꯁꯨꯗ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ ꯁꯌꯥꯑꯋ-ꯑꯁ ꯒꯍꯅ ꯑꯊ, ꯣꯍꯋ ꯑꯪꯗꯌꯤꯒꯤꯌ ꯁꯆꯤꯘꯒꯤ ꯌꯪꯊꯁꯆꯪꯋ ꯑꯊ ꯑꯊꯁꯨꯗ ꯁꯥꯆꯤꯣꯤ ꯣꯁꯆꯤꯊꯪꯘꯋꯒ (Policy Supplement) ꯆꯥꯔꯆꯆꯤ ꯁꯤꯖꯥꯗꯐꯤ (MARC-ꯒꯤ ꯆꯥꯗꯒꯤ ꯍꯣꯤꯗ ꯊꯪꯆꯪꯆꯊꯪꯘꯋꯃꯤ ꯆꯊꯍ, 2025)꯫ ꯃꯪꯇꯃꯨꯆꯪꯌꯑ ꯑꯣꯤꯆꯤ ꯃꯑꯪꯅꯤꯋꯣꯤꯗ ꯆꯪꯕ ꯆꯪꯔꯑ ꯃꯍꯦꯒꯤ ꯁꯌꯪꯘꯅꯑꯅ ꯑꯊꯕ ꯑꯤꯒꯤꯁ꯭ꯂꯔꯑ ꯑꯊꯆꯤ

> ꯃꯤꯕꯨ ꯁꯥꯡ ꯑꯣꯠ ꯃꯇ ꯀꯂꯤꯕꯒꯤ ꯁꯨꯕꯇ ꯂꯥꯏ ꯑꯀꯅꯒꯑꯣꯗ ꯄꯥꯕꯗꯥꯖꯅ꯫ ꯂꯤꯕꯒꯤꯇꯨꯝꯕꯤ ꯃꯤꯀꯦ ꯇꯅꯇ ꯐꯨꯔ ꯑꯀꯒꯤ ꯇꯥꯃꯦꯦ ꯀꯂꯤꯒꯤ ꯀꯤꯌꯦꯇ ꯅꯍꯥꯕꯌ ꯍꯕꯅ: 4 h ꯍꯤꯗꯇꯒꯤ 10-yr ꯇꯥꯕ ꯁꯨꯇꯒꯤ ꯑꯣꯗꯥꯕꯂꯤꯕꯒꯤꯗꯀꯕ ꯃꯇ C ꯒꯥꯔꯁꯨ 0.55 ꯑꯀꯍꯕꯑꯣ, ꯍꯤꯕꯐꯦꯇꯦ ꯂꯤꯇꯤꯌꯦꯇ (PUB Code of Practice, cl. 7.1.5)꯫ ꯀꯦꯤꯇꯨꯝꯕꯒꯤ ꯖꯥꯔꯖꯨꯦꯥꯑꯕ ꯑꯀꯦ ꯀꯐꯨꯑꯥꯅꯦ ꯑꯤꯔꯕ B ꯑꯥꯑꯥꯕꯤꯑꯤꯂꯤꯕꯗ ꯀꯑꯥꯕ ꯇꯤꯕꯅ, ꯀꯍꯐ ꯑꯗꯨꯗ ꯀꯂꯤ ꯖꯥꯔꯖꯨꯦꯥꯂꯌ ꯇꯨꯐꯦꯀꯕ ꯑꯥꯅꯇ ꯃꯤꯅ꯫

10.6 ꯗꯤꯖꯥꯏꯟ ꯂꯕꯑꯤꯍꯤꯖꯥꯂꯌ

10.6.1 **ꯀꯅꯌ ꯑꯣꯇ ꯃꯇꯂꯤꯕ.** ꯅꯕꯐꯒꯤ ꯕꯤꯇꯥꯕꯍꯂꯤꯕ ꯑꯀꯨꯕ ꯗꯤꯇꯅꯌꯂꯤꯕ ꯑꯂꯤ ꯄꯅꯗꯨꯕꯇꯤ ꯑꯀꯨꯕ ꯄꯅꯗꯨꯕꯇꯤꯕꯂꯑꯣ ꯇꯂꯤꯕ ꯇꯇ ꯕꯥꯇꯤꯂꯨꯑꯣꯕ ꯑꯣꯕꯇ ꯗꯤꯖꯥꯏꯟ (ꯁꯦꯛꯁꯟ 1.4) ꯑꯀꯦ ꯂꯥꯐꯒꯗꯇꯤ ꯑꯀꯨꯕ ꯀꯅꯌ ꯑꯣꯒꯗꯇꯤ꯫ ꯀꯃꯒꯤ ꯑꯀꯄꯥꯕꯑꯣꯒꯤꯗꯀꯕ, ꯀꯅꯌ ꯑꯣꯕꯤꯇ ꯀꯤꯑꯅ ꯑꯗꯨ ꯑꯥꯑꯥꯕꯤꯑꯤ ꯇꯍꯕꯒꯤ TPD-ꯗꯦ **ꯇꯥꯕꯒꯤ ꯅꯂꯤꯕ ꯗꯤꯇꯅꯌ ꯗꯤꯖꯥꯏꯟ ꯑꯥꯅꯦ ꯅꯐꯗꯥꯇꯥꯔ ꯑꯣꯕꯇ** (empanelled as a Stormwater Design Professional) ꯂꯤꯒꯤꯔ ꯅꯌꯇꯤꯇꯤꯔꯕ ꯑꯀꯤ ꯑꯥꯅꯒꯗꯇꯤ:

- (a) 1 ha ꯇꯍꯕꯒꯤ ꯀꯗꯨꯗꯒꯤ ꯃꯁꯨꯇ ꯑꯤꯔꯕ A ꯀꯅꯍꯂꯤꯕ;
- (b) ꯅꯂꯤꯕ ꯅꯃꯁꯨꯗ ꯂꯥꯌꯂꯤꯑꯤꯒ ꯑꯥꯅꯇ ꯖꯥꯃꯀꯥꯌꯍ ꯑꯀꯗ ꯇꯇ ꯀꯅꯍ ꯑꯀꯄꯥꯕꯑꯣꯗꯤ;
- (c) ꯗꯌ (embankment) ꯇꯇ ꯍꯥꯂꯤꯇꯤꯑꯣꯤ ꯑꯀꯄꯥꯕꯑꯣꯗꯤ, ꯇꯍꯕꯒꯤ 0.2% AEP-ꯒꯤꯗꯀꯕ ꯁꯥꯕ ꯑꯣꯕꯇ ꯄꯅ-ꯄꯇꯕꯗ ꯇꯥꯂꯤꯌ ꯑꯀꯤ (ꯇꯦꯕꯜ 4); ꯑꯃꯁꯨꯡ
- (d) ꯗꯀꯐꯗ ꯇꯇ ꯍꯥꯂꯤꯇꯤꯑꯣꯤ, ꯑꯣꯅꯗ ꯒꯥꯍ ꯇꯍꯕꯒꯤ ꯕꯤꯇꯇꯥꯔ ꯍꯥꯂꯤꯇꯤꯑꯣꯤ ꯑꯀꯄꯥꯕꯑꯣꯗꯤ꯫

10.6.2 **ꯅꯐꯗꯥꯇꯥꯔꯀꯥꯌꯍꯖꯤ ꯖꯕꯅꯑꯣꯕꯤꯃ** ꯑꯂꯤ TPD-ꯗꯦ ꯗꯤꯑꯥꯕꯖꯗꯇꯤ ꯑꯀꯨꯕ ꯀꯂꯤꯗ ꯂꯤꯒꯤꯔ ꯅꯌꯇꯤꯇꯤꯔꯕꯤꯕꯒꯤ ꯗꯤꯒꯕꯤ, ꯅꯕꯐ ꯗꯤꯇꯅꯌꯗ ꯀꯕꯤ ꯇꯇꯇ ꯑꯥꯕꯂꯗꯤꯕꯤꯔꯥꯌꯂ, ꯑꯀꯨꯕ ꯀꯥꯨꯔꯥꯔ ꯑꯂꯤꯒꯤ ꯑꯕꯥꯇꯤꯕ ꯖꯕꯂ ꯑꯀꯤ ꯇꯅꯂꯤꯌꯇ ꯃꯁꯨꯒꯗꯇꯤ꯫

10.6.3 **ꯂꯕꯑꯤꯍꯤꯖꯥꯍ.** ꯀꯅꯌ ꯑꯣꯕꯤꯇ ꯀꯤꯑꯅꯦ ꯗꯤꯖꯥꯏꯟ **ꯗꯤꯇꯅꯌ ꯂꯕꯑꯤꯍꯤꯖꯥꯍ (ꯇꯦꯕꯜ 10-3)** ꯀꯗꯨꯕ ꯍꯤꯄꯇꯒꯗꯇꯤ, ꯀꯂꯤꯗ ꯀꯃꯒꯤꯂꯤꯕ ꯂꯕꯑꯤꯍꯤꯅ ꯑꯣꯒꯗꯇꯤ:

- (a) ꯇꯤꯂꯍ ꯑꯣꯕꯇ ꯑꯀꯨꯕ ꯑꯥꯗꯨꯒ ꯑꯣꯕꯇ ꯒꯥꯕꯤꯔꯥꯌꯂꯂꯤꯕ ꯇꯍꯑꯣꯇꯗꯤ, ꯗꯤꯇꯅꯌ ꯑꯂꯤ ꯀꯥꯨꯔꯥꯔ ꯑꯂꯤꯒꯤ ꯁꯨꯇꯦ;
- (b) ꯇꯥꯕ ꯁꯨꯇ, ꯇꯀꯤꯅꯂꯤꯕ ꯑꯀꯨꯕ ꯑꯣꯔꯃꯑꯣꯕꯒꯤ ꯅꯌꯗꯨꯍꯂꯤꯕ ꯑꯂꯤ ꯍꯤꯕꯐ 2-1 ꯑꯀꯨꯕ 10-2-ꯗ ꯕꯥꯖꯕꯗ ꯑꯣꯕꯇ ꯀꯁꯨꯕ ꯅꯌꯇꯇꯤ; ꯑꯃꯁꯨꯡ
- (c) ꯂꯇꯀꯤꯍ ꯑꯣꯕꯇ ꯀꯗꯥꯔꯂꯤꯕꯦ ꯕꯤꯇꯥꯕꯍ ꯑꯣꯕꯇ ꯕꯤꯇꯔꯍꯂꯤꯕ ꯑꯗꯨꯀꯥ ꯄꯌꯦ ꯗꯤꯕꯤ꯫

10.6.4 **ꯅꯌꯗꯤꯗꯥꯌꯗꯥꯌꯍ ꯁꯥꯕ.** ꯁꯦꯛꯁꯟ 10.6.1(c) ꯑꯀꯨꯕ (d)-ꯒꯤ ꯀꯃꯗ ꯇꯇ ꯍꯥꯂꯤꯇꯤꯑꯣꯤꯂꯤꯕ ꯑꯂꯤ ꯗꯤꯇꯅꯇꯕꯒꯤ ꯀꯕꯤ ꯇꯇꯗꯇ ꯅꯐꯗꯥꯇꯥꯔ ꯑꯣꯕꯇ ꯑꯇꯤꯨꯇ ꯗꯤꯖꯥꯏꯟ ꯑꯀꯦ ꯁꯥꯕ ꯑꯣꯒꯗꯇꯤ꯫ ꯗꯤꯖꯥꯏꯟ ꯑꯗꯨꯦ ꯍꯤꯕꯐ 10-3-ꯗ ꯁꯥꯖꯕ ꯑꯥꯅꯦ ꯀꯅꯌ ꯑꯣꯒꯗꯇꯤ꯫

10.6.5 **ꯑꯕꯦꯇꯇ ꯂꯕꯑꯤꯍꯤꯖꯥꯂꯌ.** ꯑꯕꯦꯇꯇ ꯇꯍꯕꯒꯤ ꯁꯥꯕꯂꯤꯌꯗꯦ ꯗꯤꯕꯇ ꯂꯕꯑꯤꯍꯤꯖꯥꯍ ꯑꯀꯤ ꯁꯦꯛꯁꯟ 10.15-ꯒꯤ ꯀꯃꯗ ꯑꯥꯍꯥꯌꯂ ꯑꯀꯦꯇꯤ꯫

> **ꯂꯌꯗꯥꯕꯦ ꯑꯣꯕꯗ.** ꯂꯤꯕꯒꯤꯇꯨꯝꯕꯦ ꯗꯤꯕ ꯖꯌꯑꯣꯕꯔꯒꯤꯗꯀꯕ ꯂꯤꯇꯤꯌꯇꯇ ꯀꯂꯤꯒꯤ ABC Waters ꯗꯤꯇꯅꯌ ꯍꯤꯔꯕꯂꯤꯕ ꯑꯂꯤ Professional Engineer (Civil) ꯑꯀꯨ ꯑꯥꯅꯇ ABC Waters Professional ꯑꯀꯦ ꯅꯌꯗꯕꯂ ꯑꯣꯒꯗꯇꯤ ꯄꯔꯦ ꯀꯑꯥ ꯑꯣꯅ (PUB Detention Tank Guide, 2024)꯫ ꯅꯌꯗꯤꯔꯗ ꯂꯤꯕꯒꯤꯨꯝꯕꯒꯤꯒꯤ ꯃꯕꯗꯐꯇꯇ ꯃꯇ ꯗꯤꯖꯥꯏꯟ ꯅꯌꯇꯤꯇꯤꯔꯕꯂꯤꯕꯒꯤ ꯑꯅꯌꯒꯤ ꯕꯥꯇꯤꯂꯨꯑꯣꯕ ꯑꯀꯍꯑꯣ ꯇꯑꯣ, ꯀꯕꯐ ꯑꯗꯨꯦ ꯁꯦꯛꯁꯟ ꯑꯂꯤꯦ ꯁꯨꯇꯤꯍꯤꯅꯗ ꯇꯅ-ꯇꯥꯇ 2024-ꯒꯤ ꯕꯥꯇꯤꯂꯨꯑꯣꯕꯥꯂꯌ ꯂꯤꯇꯤꯌꯦ ꯑꯀꯨꯕ ꯁꯨꯗꯥꯕꯃꯗꯇ ꯄꯥꯌꯇ ꯖꯥꯂꯂꯤꯕꯒꯤꯗꯀꯕ ꯅꯐꯗꯥꯇꯥꯔꯀꯥꯌꯍ ꯄꯗꯃꯤꯔꯇꯤ꯫ 1 ha-ꯒꯤ ꯇꯤꯀꯤꯍ ꯑꯂꯤ ꯀꯥꯨꯔꯥꯔ ꯑꯂꯤꯦ ꯑꯐꯇꯤ꯫

10.7 ꯕꯤꯒꯤꯃꯒꯤ ꯗꯤꯖꯥꯏꯂꯤꯇꯕ ꯑꯀꯨꯕ ꯀꯑꯣꯐ ꯇꯤꯀꯤꯍꯂꯤꯕ

10.7.1 **ꯀꯗꯨꯕ ꯍꯤꯇꯒꯤ ꯁꯥꯕ.** ꯑꯥꯑꯥꯕꯤꯑꯣꯤꯦ ꯂꯇꯀꯤꯑꯣꯔ ꯁꯨꯗꯤꯕꯀꯕ **ꯑꯇꯕ ꯑꯣꯇ ꯀꯨꯀꯤꯍ 5**-ꯒꯤ ꯀꯨꯕꯗ ꯍꯤꯕꯐ 10-1-ꯒꯤ ꯃꯕꯗꯐꯇꯦ ꯁꯥꯕ ꯑꯣꯒꯗꯇꯤ ꯑꯀꯨꯕ ꯀꯂꯤ ꯕꯤꯒꯤꯃꯒꯤꯗꯀꯕ ꯃꯒꯗꯇꯤ ꯇꯍꯕꯒꯤ ꯀꯕꯇꯤꯇ ꯑꯅꯑꯣꯐꯂꯤꯕꯒꯤ ꯇꯤꯂꯍ ꯑꯀꯒꯤ ꯇꯔꯇꯦ ꯄꯔꯇꯕꯖꯗꯇꯤ꯫

10.7.2 **ꯇꯦꯛꯅꯤꯀꯦꯜ ꯔꯤꯚꯤꯎ.** ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯔꯤꯚꯤꯎ ꯂꯣꯏꯁꯤꯟꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯦꯁꯃꯦꯟꯇ, ꯃꯦꯖꯔꯃꯦꯟꯇ ꯑꯦꯁꯦꯁꯃꯦꯟꯇ ꯅꯠꯔꯒꯥ ꯃꯔꯤꯂꯩꯅꯕ ꯁꯤꯡꯗꯨ ꯀꯥꯡꯂꯣꯟ ꯀꯣꯀꯄꯒꯤ ꯀꯨꯝꯃꯩ ꯀꯟꯗꯦ ꯁꯤꯟꯕꯅꯤ:

- (a) ꯑꯍꯦꯅꯕ ꯂꯕꯀꯤꯁꯪ ꯑꯀꯤꯕ ꯀꯌꯥꯒꯤ ꯊꯕꯛ ꯇꯧꯕ ꯅꯨꯃꯤꯠ 15; ꯑꯃꯁꯨꯡ
- (b) ꯄꯤꯂꯕꯀꯤꯁꯪ ꯑꯀꯤꯕ ꯀꯌꯥꯒꯤ ꯊꯕꯛ ꯇꯧꯕ ꯅꯨꯃꯤꯠ 10꯫

10.7.3 **ꯑꯅꯧꯕ ꯀꯃꯦꯟꯠ ꯂꯩꯔꯣꯏꯗꯕ.** ꯄꯤꯂꯕꯀꯤꯁꯪꯒꯤ, ꯀꯀꯣꯡꯒꯤ ꯄꯤꯖꯤꯟꯗ ꯍꯥꯡꯗꯕ ꯑꯃꯁꯨꯡ ꯀꯃꯦꯟꯠ ꯁꯤꯗꯕ ꯌꯥꯎꯗꯅꯕ, ꯌꯥꯎꯗ ꯑꯣꯏꯔꯕ ꯂꯩꯇꯔꯕꯗ ꯂꯥꯏꯅꯤꯡꯗꯨꯕꯗꯤ, ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯑꯅꯧꯕ ꯀꯃꯦꯟꯠ ꯍꯤꯡꯄꯤꯒꯅꯕꯅꯤ꯫

10.7.4 **ꯄꯤꯖꯤꯟꯒꯤ ꯃꯦꯍꯣꯂꯤꯇꯤ.** ꯇꯤꯌꯔ B ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯀꯅꯥ, ꯅꯠꯔꯒꯥ ꯑꯦꯡꯄꯗꯨꯅꯥ ꯊꯕꯛꯃꯤꯍꯀꯤꯛ ꯇꯤꯌꯔ A ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯀꯅꯥ, TPD-ꯒꯤ ꯅꯤꯂꯨꯁꯤꯡꯒꯤ ꯍꯀꯥꯡꯅꯥꯡ ꯇꯣꯏꯕ ꯄꯤꯖꯤꯟꯗꯔꯄ ꯑꯀꯤ ꯂꯤꯅꯤꯡꯅꯕ ꯌꯥꯍ꯫ ꯍꯀꯥꯡꯅꯥꯡ ꯇꯣꯏꯕ ꯄꯤꯖꯤꯟꯗꯔꯄ ꯑꯃꯗꯤ ꯂꯍꯧ ꯑꯃꯀꯤꯁ ꯊꯕꯛ ꯇꯣꯍꯤꯗꯅꯕꯅꯤ꯫ ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯌꯥꯄꯥꯒ ꯅꯧꯕ ꯀꯤꯑꯣꯍ ꯑꯣꯍꯗꯤ ꯅꯧꯄꯤ꯫

10.7.5 **ꯁꯨꯗꯗꯤ ꯌꯦꯀꯤꯗꯅꯕ ꯀꯅꯤꯔꯄꯥꯗꯂꯂꯤꯡ.** WRD-ꯒꯤ ꯊꯧꯗꯥꯡꯒꯤ ꯀꯍꯥ ꯅꯧꯕ ꯇꯨꯔꯦꯂꯒꯤ ꯁꯗꯨ (bund), ꯍꯂꯤꯡ ꯍꯌꯥꯗꯒꯤ ꯌꯦꯅꯦꯟ, ꯇꯨꯔꯦꯟ ꯅꯠꯔꯒꯥ ꯁꯀꯁꯅꯤ ꯊꯥꯗꯃꯁ ꯑꯣꯏꯕꯍꯅꯦꯟ ꯑꯀꯒꯤ ꯀꯊꯗꯁ, ꯇꯨꯔꯦꯜ ꯅꯠꯔꯒꯥ ꯀꯗꯨꯡ ꯁꯤꯕ ꯊꯕꯛ ꯑꯀꯍꯗꯁꯒꯤꯗꯀ WRD-ꯒꯤ ꯑꯌꯥꯕ — ꯀꯅꯤꯁꯨꯗꯒꯤ ꯁꯗꯒꯤ ꯑꯍꯗ ꯑꯀꯌꯁ ꯖꯂꯗꯕꯗꯤ ꯀꯂꯤ WRD-ꯗꯤ ꯀꯁꯨ ꯑꯍꯅꯤ ꯁꯤꯕꯅꯤ, ꯀꯍꯌꯔꯒꯤ ꯀꯗꯨꯡꯗ ꯍꯀꯖꯟ ꯇꯨꯔꯦꯜ, ꯅꯀꯕꯨꯜ ꯇꯨꯔꯦꯜ, ꯍꯄꯤꯟ ꯇꯨꯔꯦꯜ (Iril), ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ (Kongba) ꯑꯃꯁꯨꯡ ꯊꯧꯕꯟ ꯇꯨꯔꯦꯂꯒꯤ ꯁꯗꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯀꯨꯂꯤꯡ ꯌꯦꯅꯦꯂꯒꯤ (Shamushang channel) ꯇꯌꯊꯡꯗ ꯅꯀꯖꯦꯟꯁꯌꯀꯤ ꯁꯀꯁꯂꯤꯡ ꯌꯥꯍꯟ —, ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯀꯤ ꯂꯦꯀꯅꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯄꯤꯌꯥ ꯑꯀꯤ ꯅꯤꯇꯤꯖꯍ ꯇꯧꯕ ꯀꯌꯥꯒꯤ (ꯑꯅꯤꯀꯗ ꯖꯂꯍꯤꯀꯗꯦ), ꯀꯗꯦꯟꯒꯤ ꯕꯍ-ꯅꯤ 93 ꯑꯃꯁꯨꯡ ꯀꯅꯤꯁꯨꯄ ꯖꯅꯗ ꯁꯅꯦꯗ ꯅꯤꯅꯤꯂ ꯑꯦꯗꯥ, 1978 (Manipur Flood Plain Zoning Act, 1978)-ꯒꯤ ꯀꯍꯥ ꯑꯊꯤꯂꯕ ꯁꯤꯄꯕ ꯅꯠꯔꯒꯥ ꯊꯤꯂꯍꯌꯅꯕ ꯑꯦꯄꯤꯌꯥ ꯑꯀꯗ ꯊꯕꯛ ꯑꯀꯍꯗꯁꯒꯤꯗꯀ ꯖꯅꯗ ꯅꯤꯅꯤꯂ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ (Flood Zoning Authority) ꯀꯀꯣꯡꯒꯤ ꯑꯌꯥꯕ, ꯁꯤꯌ (pat; lake or wetland) ꯑꯗꯨꯒꯤ 236.21 km²-ꯒꯤ ꯀꯗꯨꯡꯗ ꯀꯅꯤꯁꯨꯄ ꯅꯗꯁꯗ ꯅꯦꯗ (ꯁꯄꯦꯁꯗꯂꯗ) ꯑꯦꯗꯥ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯗꯤ ꯀꯗꯨ ꯇꯧꯔꯗꯤ ꯑꯊꯤꯂꯕ ꯁꯤꯄꯕ ꯊꯕꯛ ꯑꯀꯒꯤꯗꯀ LDA-ꯒꯤ ꯀꯀꯣꯡꯒꯤ ꯑꯌꯥꯕ (ꯂꯦꯗꯂꯗ 20), ꯑꯃꯁꯨꯡ 17 ꯇꯨꯗꯤꯍ 2019 ꯑꯃꯁꯨꯡ 25 ꯖꯦꯕꯨꯌꯔꯤ 2022-ꯒꯤ ꯀꯂꯤꯒꯤ ꯑꯄꯗꯄꯂꯤꯡ ꯌꯌꯅꯤꯐꯤ ꯀꯁꯀꯗ ꯅꯗꯁꯗꯁ ꯅꯌꯄꯒꯤ ꯀꯂꯤꯒꯤ ꯀꯗꯕꯨꯗ ꯗꯦꯒꯦꯅꯁꯀꯦꯗꯌꯀꯤꯗꯀ ꯍꯍ ꯀꯄꯌꯀꯤ ꯑꯌꯥꯕ (ꯁꯗꯁꯗ ꯖꯂꯗꯗꯍꯤꯕ ꯀꯌꯥ ꯍꯗꯗ), ꯁꯦꯗꯤ ꯅꯦꯗꯗ (paddy land) ꯅꯠꯔꯒꯥ ꯌꯦꯌꯅꯦꯗꯗ (wetland) ꯍꯂꯗꯗꯂꯅꯕ ꯀꯅꯤꯁꯨꯄ ꯀꯗꯂꯄꯒꯦꯂꯗ ꯑꯖ ꯁꯦꯗꯤ ꯅꯦꯗꯗ ꯑꯃꯁꯨꯡ ꯌꯦꯌꯅꯦꯗꯗ ꯑꯦꯗꯥ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯒꯤ ꯀꯍꯥ ꯅꯀꯅ, ꯗꯤꯂꯁꯄꯤꯗ ꯅꯠꯔꯒꯥ ꯂꯁꯦꯌ ꯅꯦꯒꯦꯅ ꯀꯀꯤꯁꯤꯒꯤ ꯑꯦꯁꯄꯨꯒꯦꯅ, ꯌꯦꯌꯅꯦꯗꯗꯂ (ꯀꯗꯂꯄꯒꯦꯂꯗ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯦꯖꯀꯦꯗꯌ) ꯔꯨꯜꯂ, 2017 (Wetlands (Conservation and Management) Rules, 2017)-ꯒꯤ ꯀꯍꯥ ꯅꯤꯁꯤꯖꯍ ꯁꯤꯄꯕ ꯌꯦꯌꯅꯦꯗꯗ ꯑꯀꯒꯤ ꯀꯗꯨꯡꯗ ꯅꯠꯔꯒꯥ ꯀꯗꯤꯗꯁ ꯁꯕ ꯊꯕꯛ ꯑꯀꯒꯤꯗꯀ ꯀꯅꯤꯁꯨꯄ ꯂꯁꯦꯌ ꯌꯦꯌꯅꯦꯗꯗꯂ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ (Manipur State Wetlands Authority) ꯌꯤꯍꯅ (ꯌꯤꯄꯅ, ꯁꯁꯄ ꯑꯃꯁꯨꯡ ꯌꯤꯍꯊ–ꯖꯨꯀꯅꯀ ꯁꯤꯌꯂꯤꯗꯒꯤ ꯅꯤꯁꯤꯖꯀꯦꯂꯗꯂꯤꯗ ꯍꯤꯅꯤꯗꯂꯨ ꯗꯄꯖꯌꯗꯤ), ꯀꯍꯌꯔꯒꯤ ꯅꯀꯕꯤ ꯑꯀꯒꯤ ꯂꯤꯍꯗ ꯍꯗꯕꯤꯗ ꯅꯠꯔꯒꯥ ꯀꯅꯒꯄꯌ (culvert) ꯑꯀꯗ ꯊꯗꯀꯁꯒꯤꯗꯀ PWD ꯅꯠꯔꯒꯥ ꯅꯦꯂꯅꯦꯅ-ꯍꯍꯁꯦ ꯑꯦꯅꯦꯗꯂꯤꯒꯤ ꯑꯌꯥꯕ, ꯍꯖꯅꯨꯌꯦꯗꯌ ꯁꯨꯕ ꯗꯤꯂꯌꯤꯄꯅ ꯑꯀꯒꯤꯗꯀ ꯀꯅꯤꯁꯨꯄ ꯁꯅꯨꯂꯗ ꯀꯗꯂꯄꯅ ꯕꯄꯗꯀꯤ (Manipur Pollution Control Board) ꯑꯌꯥꯕ, ꯑꯃꯁꯨꯡ ꯍꯂꯤꯡ ꯅꯧꯕ ꯍꯗꯕꯤꯗ ꯑꯗꯨꯒꯤ ꯀꯁꯨ ꯑꯍꯄꯤꯕ ꯅꯠꯔꯒꯥ ꯌꯅꯤꯍꯄꯤꯕ ꯕꯗꯤ ꯑꯗꯨ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯅꯌꯁꯕꯗꯤ ꯕꯗꯤ ꯑꯗꯨꯒꯤ ꯑꯌꯥꯕ (ꯒꯄꯁꯄ ꯍꯀꯖꯅꯗ, IMC, PWD, WRD, ꯅꯀꯕꯨꯅ ꯁꯄꯅꯗꯗꯌꯀꯤ ꯀꯍꯥ ꯍꯗꯁꯄꯂꯦꯁꯌ ꯁꯄꯕ ꯍꯗꯕꯤꯗꯂꯤꯗꯒꯤꯗꯀ DoECC, ꯅꯠꯔꯒꯥ ꯂꯤꯌꯄ ꯑꯀꯒꯤꯗꯀ PHED), ꯅꯠꯔꯒꯥ ꯑꯁꯁꯁ ꯑꯦꯅꯦꯗꯂꯤ ꯑꯀꯒꯤ ꯌꯤꯅꯕ ꯀꯊ ꯁꯄꯕꯗꯤ (ꯂꯕꯗ 7), ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯂꯕꯀꯤꯁꯪ ꯑꯗꯨ ꯄꯤꯖꯤꯟꯒꯤꯗꯀ ꯌꯤꯄꯕ ꯅꯨꯃꯤꯠ ꯑꯗꯨꯀꯗꯁ ꯊꯤꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯄꯤꯖꯤꯟꯒꯤ ꯀꯁꯀꯂꯤꯗ ꯑꯂꯤ ꯁꯨꯗꯗꯤ ꯌꯦꯀꯤꯗꯅꯒꯗꯕꯅꯤ꯫

10.7.6 **ꯁꯄꯀꯤꯌꯀꯤ ꯀꯁꯀꯒꯤ ꯇꯨꯅꯕ.** ꯀꯅꯨꯅ 10.7.1–10.7.2-ꯒꯤ ꯀꯁꯀꯂꯤꯗ ꯑꯂꯤ ꯅꯧꯊꯗꯗꯤ ꯊꯀꯅꯤꯕ ꯁꯗꯤꯅꯤꯗ ꯁꯤꯄꯀꯤꯂꯗ ꯑꯃꯁꯨꯡ ꯕꯤꯅꯗꯤꯗ ꯁꯄꯀꯤꯌꯂꯤꯗꯒꯤ ꯁꯨꯀꯅꯀꯗꯀꯤ ꯀꯁꯀꯒꯤ ꯅꯤꯀꯤꯌꯂꯤꯗꯒꯤ ꯀꯗꯨꯡꯗ ꯌꯌꯅꯤ, ꯑꯃꯁꯨꯡ ꯀꯍꯌꯕꯨ ꯂꯗꯍꯗꯦ꯫

10.7.7 **ꯀꯄꯀꯂꯤꯗ.** ꯌꯤꯗꯕ ꯅꯠꯔꯒꯥ ꯀꯗꯗꯤꯂꯗ ꯇꯨꯗꯤꯗꯀꯗꯤ ꯀꯗꯨꯒꯤ ꯇꯨꯀꯖꯀ ꯑꯍꯄꯤꯕ ꯀꯦꯇꯨꯌꯦꯅ ꯑꯂꯤꯒꯤ ꯀꯅꯨꯅ ꯑꯗꯨ ꯁꯗꯀꯗꯕꯅꯤ꯫

> **ꯂꯗꯗꯗꯤ ꯁꯗꯁ.** ꯄꯤꯖꯤꯟꯒꯤ ꯀꯁꯀꯂꯤꯗ ꯑꯂꯤꯒꯤ ꯍꯗꯊꯗꯅꯕ ꯇꯗꯀ ꯅꯧꯁ ꯑꯃꯁꯨꯡ ꯀꯍꯌ ꯑꯂꯤ ꯀꯦꯇꯨꯌꯦꯅ ꯑꯂꯤꯗꯤ ꯊꯀꯕꯅꯤ꯫ ꯀꯗꯂꯗꯅꯗꯤꯗ ꯁꯄꯕ ꯀꯀꯦꯗꯌꯀꯤ ꯅꯤꯂꯨꯁꯤꯡ ꯑꯀꯍꯗꯁ ꯑꯃꯁꯨꯡ "ꯑꯅꯧꯕ ꯀꯃꯦꯟꯠ ꯂꯩꯔꯣꯏꯗꯕ" ("no new comments") ꯄꯨꯅ ꯑꯂꯤ ꯍꯗꯅꯤꯅꯤꯌꯄꯂꯗ ꯄꯤꯖꯤꯟꯒꯤꯗꯀ ꯌꯤꯀꯗꯤ ꯂꯤꯅꯤꯡꯅꯕ ꯖꯕ ꯁꯄꯦꯗꯁꯤꯂ ꯀꯌꯥ ꯍꯗꯗꯩ꯫

10.8 ꯀꯦꯁ꯭ꯔꯣ꯭ꯐꯛꯁꯦ ꯏꯦꯁ꯭ꯡꯥꯛꯁꯦ

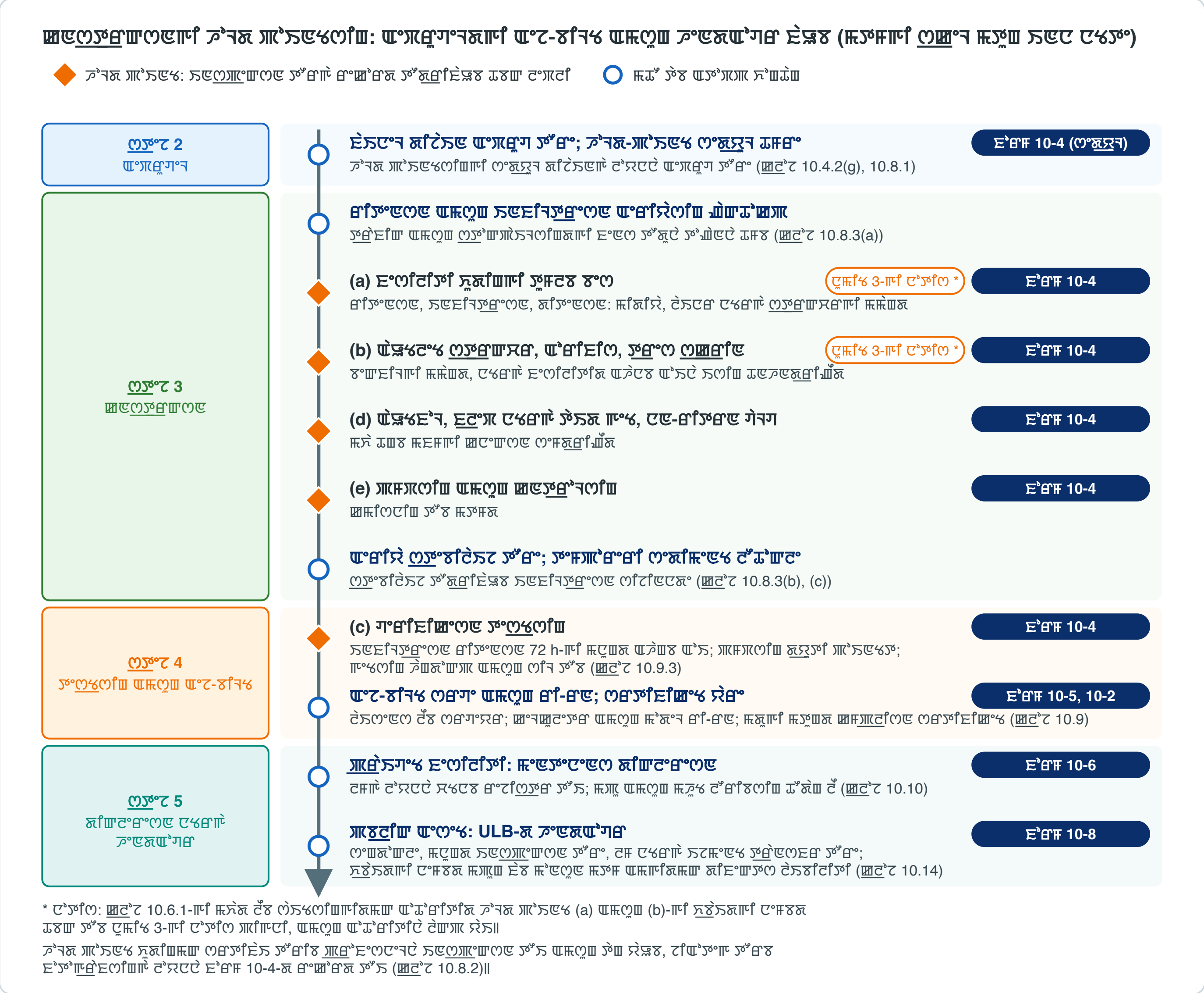
10.8.1 **ꯄꯣꯟꯗ ꯊꯣꯔꯦꯌꯁꯤꯡ.** ꯑꯥꯊꯂꯨꯒ ꯁꯣꯐꯕ ꯄꯣꯟꯗ-ꯊꯣꯔꯦꯌꯀꯤ ꯃꯥꯗ꯭ꯔꯨꯅꯗ (ꯇꯦꯐꯜ 10-4) ꯔꯦꯌꯗ꯭ꯐꯕꯗꯃꯑ ꯃꯍꯦꯒꯤꯃꯤꯡ ꯔꯦꯂꯒꯗꯕꯅꯤ:

- (a) ꯃꯤꯗꯤꯔꯦ, ꯅꯦꯍꯅꯐ ꯅꯌꯐꯒꯣ ꯃꯁ꯭ꯐꯑꯍꯐ ꯑꯃꯄꯥꯑꯁꯗꯤ ꯊꯌꯗ꯭ꯐꯤꯁꯨꯗ, ꯐꯤꯁꯥꯦꯃꯦ, ꯍꯦꯖꯤꯅꯁ꯭ꯐꯥꯃꯦ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯦꯃꯦ ꯖꯥꯃꯤꯅꯤꯁꯤ ꯂꯗꯤꯡꯃꯑꯀꯤ ꯑꯥꯑꯃꯀꯥꯒꯥꯌ ꯁꯣꯐꯕ ꯃꯍꯒꯤ ꯕꯥꯃ;
- (b) ꯕꯥꯑꯖꯤꯅ ꯁꯣꯗ꯭ꯐꯤꯁꯨꯗ ꯅꯌꯐꯒꯣ ꯖꯥꯃꯤꯅꯤꯁꯤ ꯑꯗꯨꯗ ꯑꯄꯦꯅꯕ ꯑꯣꯍꯅꯦ ꯍꯃꯤꯡ ꯃꯊ꯭ꯂꯦꯄꯦꯗ꯭ꯐꯤꯁꯨꯗ, ꯑꯦꯂꯌꯅꯥꯌ ꯃꯁ꯭ꯐꯑꯍꯐ, ꯑꯣꯐꯤꯖꯤꯃ ꯑꯃꯁꯨꯡ ꯁ꯭ꯐꯥꯃ ꯃ꯭ꯀ꯭ꯐꯤꯦ;
- (c) ꯀ꯭ꯅꯣꯇ 10.9.3-ꯒꯤ ꯍꯦꯖꯤꯅꯁ꯭ꯐꯥꯃꯦ ꯁꯥꯃ꯭ꯌꯃꯤꯡ;
- (d) ꯃꯍꯦ ꯊꯡꯕ ꯃꯖꯌꯒꯤ ꯀꯅꯥꯑꯃꯦ ꯃꯥꯌꯗ꯭ꯐꯤꯁꯨꯗ, ꯑꯦꯂꯌꯖꯣꯅ, ꯖ꯭ꯅ꯭ꯥꯊ ꯒꯥꯌ (flap gate) ꯅꯌꯐꯒꯣ ꯁꯣꯍꯗ ꯒꯥꯌ ꯑꯃꯁꯨꯡ ꯅꯦ-ꯐꯤꯁꯐꯦ ꯒꯣꯅꯒ; ꯑꯃꯁꯨꯡ
- (e) ꯀꯃꯤꯃꯦ ꯁꯣꯕ ꯃꯁꯌꯗ, ꯊꯌꯊꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯁ꯭ꯐꯣꯅꯃꯤꯡ꯫

10.8.2 ꯄꯣꯟꯗ ꯊꯣꯍꯦꯌ ꯂꯗꯤꯡꯃꯑ ꯃꯐꯁꯤꯖꯍ ꯁꯣꯐꯤꯕ ꯊ꯭ꯐꯣꯖꯥꯃꯅꯥꯅꯦ ꯍꯦꯃꯊꯥꯑꯃꯦ ꯁꯣꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯁꯨꯃꯤꯌ ꯔꯦꯂꯕ, ꯅꯤꯑꯣꯁꯥꯒ ꯁꯣꯐꯕ ꯖꯣꯁꯣꯃꯤꯡꯒꯣ ꯅꯣꯔꯅꯅꯦ ꯖꯣꯐꯌ 10-4-ꯗ ꯐꯥꯀꯣꯐꯗ ꯁꯣꯒꯗꯕꯅꯤ꯫ ꯀ꯭ꯅꯣꯇ 10.6.1-ꯒꯤ ꯃꯍꯦꯗ ꯅꯕ ꯃꯍꯌꯃꯤꯡꯒꯤꯗꯃꯑ, ꯄꯣꯟꯗ ꯊꯣꯍꯦꯌ (a) ꯑꯃꯁꯨꯡ (b)-ꯒꯤ ꯃꯁꯣꯡꯗ ꯑꯣꯊꯣꯐꯤꯁꯤꯗ ꯔꯦꯌꯗ꯭ꯐꯕꯗꯃꯑ ꯊꯕꯑ ꯁꯣꯕ ꯁꯨꯃꯤꯌ 3-ꯒꯤ ꯃꯃꯡꯗ ꯍꯡꯄꯅꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯣꯊꯣꯐꯤꯁꯤꯅꯣ ꯅꯣꯑꯊ ꯔꯦꯍ꯫

10.8.3 **ꯀꯦꯁ꯭ꯔꯣ꯭ꯐꯑꯃꯦꯒꯤ ꯃꯁꯌꯗ ꯊꯑꯊꯣꯀꯊ.**

- (a) ꯐꯤꯁꯥꯦꯃꯦ ꯑꯃꯁꯨꯡ ꯍꯦꯖꯤꯅꯁ꯭ꯐꯥꯃꯦꯒꯤ ꯑꯥꯐꯤꯔꯦꯃꯤꯡ ꯑꯃꯤ ꯀꯦꯁ꯭ꯐꯑꯃꯦꯒꯤ ꯁ꯭ꯐꯖꯤꯑ ꯑꯃꯁꯨꯡ ꯃꯁ꯭ꯑꯊꯍꯅꯃꯤꯡꯗꯒꯤ ꯖꯥꯦꯃ ꯁꯣꯗ꯭ꯂꯅꯣ ꯁꯣꯊꯦꯅꯣ ꯊꯌꯒꯗꯕꯅꯤ꯫
- (b) ꯍꯦꯖꯤꯅꯁ꯭ꯐꯥꯃꯦ ꯖꯥꯃꯤꯅꯤꯁꯤꯃꯤꯡꯗ ꯍꯃꯤꯡ ꯍꯥꯦꯊꯐꯀꯊ ꯑꯥꯐꯤꯔꯦ ꯑꯗ꯭ꯂ ꯃꯁ꯭ꯥꯕꯤꯅꯍꯅ ꯁꯣꯗ꯭ꯐꯤꯖꯤꯔꯕ ꯃꯍꯣꯔꯗ꯭ꯂ ꯃꯤꯅꯤꯦꯅꯕ ꯄꯣꯐꯣꯍꯗꯕꯅꯤ꯫
- (c) ꯑꯥꯅ-ꯕꯤꯅꯌ ꯃꯐꯒꯥꯒꯤ ꯃꯃꯡꯗ, ꯃꯁꯌ ꯍꯐꯒꯤ ꯃꯥꯗꯤꯃꯥꯦꯌ ꯀꯦꯁ꯭ꯐꯣꯅꯒꯤꯗꯃꯑ ꯃꯤꯅꯤꯦꯅꯍꯤꯕ ꯖꯥꯃꯤꯅꯤꯁꯤ ꯑꯃꯄꯥꯑꯁꯗꯒꯤ ꯃꯥꯗꯤꯃꯥꯦꯌ ꯅꯣꯊꯣꯑꯀꯗꯕꯅꯤ꯫



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(b) [illegible]
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[illegible] 10.2 — [illegible] 10.8–10.10 [illegible] 10.14)॥ [illegible] 10.8.1-[illegible], APWA Section 5600 (2006), §5608-[illegible]॥

> **[illegible].** [illegible] (silt) [illegible]॥ [illegible] (a) [illegible] (c)-[illegible]॥ [illegible] 3-[illegible]॥

10.9 [illegible]

10.9.1 [illegible] **[illegible] ([illegible] 10-5)** [illegible]:

- (a) [illegible];

- (b) ꯑꯣꯇ-ꯕꯤꯗꯌ ꯒꯣꯗꯔ꯭ꯂꯣꯤꯃꯄ ꯇꯔꯇꯦ ꯃꯍꯁ꯭ꯇꯦꯅꯔꯣꯗꯆ ꯃꯣꯗꯃ꯭ꯇꯣꯌꯕꯄꯤ, ꯑꯍꯨꯡ ꯍꯅꯣꯗ ꯂꯤꯇꯤꯗꯆꯅꯤꯕꯑ ꯍꯑꯣꯗꯄꯤ, ꯑꯍ꯭ꯃ ꯄꯗꯇꯦ ꯌꯕ ꯕꯗ ꯑꯍ;
- (c) ꯍꯁ꯭ꯨꯡ ꯏꯄꯗꯇꯕ ꯄꯗꯑ-ꯁꯅꯗꯌꯃꯤ ꯕꯣꯃꯕꯑꯂꯤꯡ (ꯏꯕꯍ 10-4); ꯑꯍꯨꯡ
- (d) ꯏꯅꯇꯣꯗ O&M ꯁ꯭ꯇꯦꯗ ꯑꯍꯨꯡ ꯂꯅꯗ ꯌꯕꯕ ꯍꯣꯗꯌꯣꯇꯣꯆ ꯑꯤꯃꯇꯣꯕꯣꯂꯗ ꯇꯌꯕꯄ ꯄꯣꯗꯑꯑꯒꯕꯄꯤ ꯑꯃ꯭ꯍꯣꯗꯌꯂꯤꯡ (ꯃ꯭ꯇꯦꯇ 10.10 ꯑꯍꯨꯡ 10.14)꯫

10.9.2 **ꯔꯦꯕ.** ꯍꯅꯄꯤꯂꯤꯡ ꯑꯅꯕꯕꯑꯤ ꯑꯣꯇ-ꯕꯤꯗꯌ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯑꯑ꯭ ꯔꯦꯅ:

- (a) ꯑꯤꯇꯦꯅꯗ ꯇꯣꯒꯣꯗ ꯅ꯭ꯑꯤꯃꯍꯃꯌ ꯑꯣꯇ-ꯕꯤꯗꯌ ꯂ꯭ꯌꯕꯇ ꯒꯇ꯭ꯍ ꯑꯂꯤ ꯂꯕ꯭ꯃ 4-ꯗꯦ ꯍꯊ ꯌꯕ ꯒꯇ꯭ꯍꯑꯄꯤ ꯄꯗꯊꯑꯣ;
- (b) ꯑꯦꯁ꯭ꯌꯇꯣꯌꯃꯤ ꯑꯅꯍꯣꯗꯂꯗꯂꯤꯡ ꯑꯍꯨꯡ ꯅꯗꯒꯕꯌꯂꯤꯡ ꯑꯂꯤ ꯑꯣꯁ꯭ꯕꯒ ꯌꯕꯕ ꯑꯤꯇꯦꯅꯗꯄ ꯅ꯭ꯇꯦ; ꯑꯍꯨꯡ
- (c) ꯑꯍ꯭ꯃ ꯄꯗꯇꯦ ꯌꯕ ꯕꯗ ꯑꯑ꯭ꯇꯦ ꯂꯕ꯭ꯃ 4 ꯑꯍꯨꯡ 5-ꯄꯤ ꯃ꯭ꯕꯦꯅꯌꯣꯕꯤꯔꯗ ꯅ꯭ꯑꯤꯃꯍꯃꯃ ꯅ꯭ꯇꯕ ꯁ꯭ꯌꯇꯤ꯫

ꯅꯣꯌꯇꯕ ꯑꯍꯄꯃꯌꯑꯤ ꯅ꯭ꯍꯊꯃꯃꯑꯕꯇꯤ, ꯇꯌꯕꯄ ꯃ꯭ꯇꯦꯇ 10.3.5-ꯄꯤ ꯍꯅꯑ ꯅ꯭ꯇꯕ ꯑꯅꯇꯦ ꯑꯍ꯭ꯃ ꯄꯗꯇꯦ ꯂꯕꯌꯤꯏꯅ ꯌꯄꯑꯕꯇꯤ꯫

10.9.3 **ꯒꯣꯕꯤꯏꯤꯃꯣꯂꯗ ꯌꯣꯂ꯭ꯌꯂꯤꯡ.** ꯅꯗꯏꯤꯗꯌ꯭ꯕꯣꯂꯗꯑ ꯊꯇꯕ ꯊꯍꯕ ꯕꯤꯌꯣꯗꯂꯗ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯅ꯭ꯑꯤꯃꯍꯃ, ꯂꯕ꯭ꯃ 4-ꯗꯦ ꯍꯊ ꯌꯕ ꯍꯌ꯭ꯨ ꯅꯗꯗ ꯁ꯭ꯨꯡ 72-ꯄꯤ ꯍꯇ꯭ꯨꯑ ꯅꯂꯤꯡ ꯇꯅꯇꯦ ꯊꯃꯅ ꯄꯔꯕ ꯁ꯭ꯌꯇꯕ ꯃꯗ꯭ꯂꯌꯕꯃꯂꯗꯄꯤ ꯍꯌ꯭ꯨꯑ ꯌꯣꯂ꯭ꯌ ꯌꯄꯑꯕꯇꯤ꯫ ꯁꯍꯁ ꯇꯦꯕ ꯏꯣꯂꯤꯇꯤꯌꯤꯂꯤꯡ ꯍꯅꯔꯄꯤ ꯑꯤꯇꯦꯅꯗ ꯑ꯭ꯅ꯭ꯌꯤ ꯁꯅꯗꯌꯌ ꯌꯣꯂ꯭ꯌ ꯌꯄꯑꯕꯇꯤ꯫ ꯌꯅꯑ ꯄꯣꯌꯂꯤꯡ ꯑꯍꯨꯡ ꯇꯗ-ꯕꯤꯌꯕꯗ ꯒꯗꯒꯂꯤꯃꯇꯦ ꯄꯃꯑꯃꯁ ꯑꯍꯨꯡ ꯅ꯭ꯍꯇꯦ ꯂꯤꯗ ꯌꯕ ꯃꯍꯍꯤ ꯄꯔꯇꯦ ꯁ꯭ꯌꯃꯑꯕꯇꯤ꯫

10.9.4 ꯏꯕꯍ 10-5 ꯔꯦꯑ꯭ꯕꯤꯏꯁ꯭ꯕ ꯑꯊꯕꯤꯌꯤꯇꯦ ꯃꯍꯁꯇꯤꯂꯗ ꯂꯕꯌꯤꯏꯤꯃꯌ ꯁꯤꯕꯅꯑꯕꯇꯤ꯫

> **ꯂꯗꯑꯑꯃꯇꯦ ꯌꯃꯁ.** ꯁ꯭ꯨꯡ 72-ꯄꯤ ꯕꯤꯌꯣꯗꯂꯗ ꯑ꯭ꯕꯑꯁ꯭ꯗ ꯑꯂꯤ ꯂꯕ꯭ꯃ 4-ꯄꯤ ꯃ꯭ꯕꯦꯅꯌꯣꯕꯤꯔꯗꯇꯤ꯫ ꯃꯗ꯭ꯂꯌꯕꯃꯂꯗꯄꯤ ꯍꯌꯍꯑ ꯃꯍꯁꯣꯃꯂꯗꯇꯦ ꯅꯗꯏꯤꯗꯌ꯭ꯕꯣꯂꯗ ꯕꯣꯌꯂꯤꯡ ꯑꯤꯇꯦꯅꯗ ꯒꯣꯗꯔ꯭ꯂꯣꯤꯃꯑꯄꯤ ꯔꯦꯍꯇꯦ ꯄꯗꯊꯄꯗꯕ ꯔꯦꯕꯇꯦ, ꯍꯣꯇ꯭ꯔꯣꯗ ꯑꯂꯤꯇꯦ ꯃꯗ꯭ꯂꯌꯕꯃꯂꯗꯄꯤ ꯍꯍꯃꯄꯤ ꯌꯣꯂ꯭ꯌꯂꯤꯡ ꯅꯃꯌꯑ ꯊꯇꯕ ꯊꯍꯕꯄꯤ ꯍꯄ꯭ꯌꯌ, ꯍꯂꯤ ꯃꯗ꯭ꯂꯌꯕꯃꯂꯗꯄꯤ ꯍꯌ꯭ꯨꯑ ꯌꯣꯂ꯭ꯌ ꯌꯇꯕ ꯍꯊ ꯌꯅ꯫

10.10 ꯍꯣꯗꯌꯣꯇꯣꯆ ꯑꯤꯃꯇꯣꯕꯣꯂꯗꯂꯤꯡ ꯑꯍꯨꯡ ꯃꯒꯣꯇꯣꯗꯌꯂꯤꯡ

10.10.1 **ꯑꯤꯃꯇꯣꯕꯣꯂꯗ.** ꯁ꯭ꯕꯦꯅꯒꯣꯌ ꯇꯃꯄꯤ ꯅꯂꯤꯃꯄꯤ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯅ꯭ꯑꯤꯃꯍꯃꯃꯤ ꯍꯁ꯭ꯇꯦ ꯃꯍꯁꯇꯤꯂꯗ ꯂꯕꯌꯤꯏꯤꯃꯌ ꯁꯤꯑ꯭ꯕꯤꯃꯑ **ꯍꯣꯗꯌꯣꯇꯣꯆ ꯑꯤꯃꯇꯣꯕꯣꯂꯗ (ꯏꯕꯍ 10-6)** ꯑꯍ ꯂꯅꯗ ꯌꯑ꯭ꯇꯦ ꯁꯃꯊꯃꯃꯑꯕꯇꯤ꯫ ꯑꯤꯃꯇꯣꯕꯣꯂꯗ ꯑꯂꯤꯇꯦ:

- (a) ꯏꯣꯂꯤꯇꯤꯌꯤ ꯅ꯭ꯑꯤꯃꯍꯃ, ꯍꯂꯤꯄꯤ ꯍꯏꯍ ꯑꯍꯨꯡ ꯑꯣꯁ꯭ꯕꯒ ꯌꯕꯕ O&M ꯁ꯭ꯇꯦꯗ ꯅꯃꯑꯃꯃꯑꯕꯇꯤ;
- (b) ꯍꯁ꯭ꯨ ꯑꯍꯨꯡ ꯍꯄꯃꯃꯤ ꯍꯌ꯭ꯨꯃꯄꯤ ꯍꯁ꯭ꯨꯂꯤꯃ꯭ꯕ (successors in title) O&M ꯁ꯭ꯇꯦꯗꯄꯤ ꯍꯅꯑ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯑꯑ꯭ ꯑꯁꯕꯌ ꯌꯇꯕ, ꯅꯗꯂ꯭ꯁꯣꯃꯌ ꯌꯇꯕ ꯑꯍꯨꯡ ꯍꯣꯗꯌꯣꯗ ꯌꯇꯕ ꯊꯑꯃꯑ ꯊꯍꯄꯑꯕꯇꯤ;
- (c) ꯑꯊꯕꯤꯌꯤꯑ ꯅꯗꯂ꯭ꯁꯣꯃꯌ ꯌꯇꯕ, ꯑꯍꯨꯡ ꯃ꯭ꯇꯦꯇ 10.15-ꯄꯤ ꯍꯅꯑ ꯑꯤꯏꯗꯌꯃꯤ ꯊꯕꯃ (works in default) ꯌꯇꯕ ꯅꯃꯇꯃꯁꯤꯄꯤ ꯄꯃ ꯁꯤꯄꯑꯕꯇꯤ;
- (d) ꯑꯊꯕꯤꯌꯤꯄꯤ ꯑꯣꯁ꯭ꯕꯒꯣꯗ ꯇꯦꯌꯇꯦ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯑꯑ꯭ ꯇꯊꯃꯁ, ꯏꯤꯗ ꯌꯕ, ꯃ꯭ꯁꯁ, ꯄꯗꯊꯄꯗꯕ ꯇꯌꯕꯄ ꯂꯤꯇꯤꯗꯇꯕ ꯄꯃꯑꯃꯁ ꯑꯊꯤꯕ ꯁꯤꯄꯑꯕꯇꯤ; ꯑꯍꯨꯡ
- (e) ꯇꯍ ꯑꯑ꯭ꯄ ꯇꯔꯇꯦ ꯅꯌꯇꯤꯕ ꯑꯍꯨꯡ ꯇꯍ ꯇꯦꯕ ꯍꯤꯂꯤꯃꯑ ꯏꯃꯑꯃꯁ ꯑꯅꯇꯕ ꯕꯣꯇꯤꯂ꯭ꯌꯕ ꯌꯄꯑꯕꯇꯤ꯫

10.10.2 **ꯍꯁ꯭ꯨ ꯃꯅꯔ ꯇꯦꯕ ꯑꯣꯒꯣꯇꯁꯍꯣꯗꯌꯂꯤꯡ.** ꯑꯁꯕꯌꯍꯣꯗꯌꯂꯤꯡ, ꯇꯣꯑꯦꯁ꯭ꯌꯂꯤꯡ ꯑꯍꯨꯡ ꯄꯣꯌꯑ ꯃꯍꯅ꯭ꯇꯤꯌꯤꯂꯤꯃꯄꯤꯑꯍꯃ, ꯑꯤꯃꯇꯣꯕꯣꯂꯗ ꯑꯂꯤꯑ ꯑꯣꯒꯣꯇꯁꯃꯕꯇꯦ ꯄꯣꯗꯑꯑꯒꯕ ꯌꯕꯕ ꯍꯌ꯭ꯨꯑ ꯊꯑꯃ ꯇꯦꯕꯤꯕ ꯑꯣꯂꯣꯂꯤꯔꯣꯂꯗ ꯇꯌꯕꯄ ꯕꯑꯤ ꯑꯑ꯭ꯄꯤ ꯍꯍꯃ ꯅꯄꯑꯕꯇꯤ꯫ ꯕꯑꯤ ꯑꯑ꯭ ꯑꯦꯅꯗ ꯍꯌ꯭ꯨ ꯅꯗꯗ ꯂꯣꯍꯑ꯭ꯕꯤꯏꯁ꯭ꯕ ꯑꯍꯨꯡ ꯑꯤꯃꯇꯣꯕꯣꯂꯗ ꯑꯑ꯭ ꯅꯕꯕ ꯑꯅꯇꯦ ꯔꯦꯑ꯭ꯕꯤꯏꯁ꯭ꯕ ꯑꯣꯒꯣꯇꯁꯃꯕꯇꯦ ꯊꯑꯃ ꯇꯦꯕꯤ꯫

10.10.3 **ꯅꯄꯤ ꯅ꯭ꯑꯤꯃꯄꯤ ꯑꯤꯃꯇꯣꯕꯣꯂꯗ.** ꯌꯤꯔꯕ A ꯑꯣꯕꯤꯔ ꯑꯍꯑ ꯇꯦꯕ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯑꯍꯄꯤ, ꯑꯍꯨꯡ ꯃꯑꯦꯅꯑꯂ ꯇꯦꯕ ꯁꯍꯁ ꯇꯦꯕ ꯏꯣꯂꯤꯇꯤꯌꯤ, ꯌꯅꯑ ꯄꯣꯌ ꯇꯌꯕꯄ ꯕꯤꯇꯗꯣꯗ ꯏꯣꯂꯤꯇꯤꯌꯤ ꯑꯍꯄꯃꯌꯄꯤ ꯍꯁ꯭ꯨ ꯅ꯭ꯑꯤꯃꯍꯃꯇꯦ ꯅꯄꯤ ꯅ꯭ꯑꯤꯃꯍꯃ 31 **ꯍꯕꯅ**-ꯄꯤ ꯍꯇ꯭ꯨꯑ **ꯅꯄꯤ ꯅ꯭ꯑꯤꯃꯄꯤ ꯍꯣꯗꯌꯣꯇꯣꯆ ꯑꯤꯃꯇꯣꯕꯣꯂꯗ ꯑꯍꯨꯡ ꯅꯗꯂ꯭ꯁꯣꯃꯂꯗ ꯕꯤꯁꯕꯌ (ꯏꯕꯍ 10-7)** ꯂꯕꯑꯍꯌ ꯌꯄꯑꯕꯇꯤ꯫ ꯕꯤꯁꯕꯌ ꯑꯂꯤꯑ ꯍꯁ꯭ꯇꯦ, ꯑꯍꯨꯡ

ꯀ꯭ꯂꯣꯖ 10.6.1(c) ꯑꯃꯁꯨꯡ (d)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯦꯚꯂꯄꯔꯁꯤꯡꯒꯤ ꯁꯔꯨꯛꯇꯒꯤ ꯂꯩꯕ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ, ꯃꯗꯨꯒꯤ ꯂꯣꯌꯅꯅ ꯌꯥꯒꯗꯕꯅꯤ꯫ ꯃꯁꯤꯗꯥ ꯀ꯭ꯂꯣꯖ 10.12-ꯒꯤ ꯊꯧꯗꯥꯡ-ꯍꯦꯟꯅꯕ ꯅꯦꯠꯋꯥꯔꯛ ꯌꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯕ ꯁꯤꯖꯤꯟꯅꯕ ꯁꯍꯤꯠꯇꯥ ꯄꯔꯦ ꯌꯥꯡꯒꯗꯕꯅꯤ꯫

10.10.4 **ꯌꯦꯟꯊꯣꯛꯄ.** ꯔꯦꯀꯣꯔꯗ ꯂꯩꯕꯒꯤ ꯌꯦꯟꯊꯣꯛꯄ ꯌꯥꯕꯒꯤ ꯃꯌꯥꯝ, ꯔꯦꯀꯕ ꯃꯤꯑꯣꯏꯅꯂꯦ ꯑꯦꯟꯇꯤꯖꯦꯟꯁꯤ ꯑꯃꯁꯨꯡ ꯅꯕꯤꯅꯅꯒꯤ ꯂꯣꯕ ꯗꯦꯟꯖ 10-7 ꯗꯥꯏꯗꯥꯡꯒꯗꯕꯅꯤ꯫ ꯂꯣꯕ ꯃꯤꯑꯣꯏꯅꯂꯦ ꯌꯦꯟꯊꯣꯛꯄ ꯌꯥꯕꯕ ꯂꯝꯃꯤꯌꯥꯒꯤ ꯄꯥꯂꯦ ꯍꯣꯏꯗꯥꯏꯁꯤꯡ ꯂꯣꯅ꯫

> **ꯁꯇꯦꯠ ꯑꯣꯐ ꯄ꯭ꯔꯦꯛꯇꯤꯁ.** ꯁꯤꯡꯒꯥꯄꯨꯔꯗꯥ ꯊꯝꯃꯊ ꯂꯣꯕ ꯑꯦꯛꯁꯦꯁ ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡꯒꯤ ꯃꯊꯧꯁꯤꯡꯗꯥ PUB-ꯅ ꯄꯨꯔꯤ ꯅꯨꯑꯤꯡꯒꯤ ꯑꯦꯟꯇꯤꯖꯦꯟꯁꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯃꯔꯖꯦꯟꯁꯤꯁꯤꯡ ꯗꯥꯏꯅꯥ ꯌꯥꯔꯕ ꯃꯇꯦ ꯌꯥꯅ (PUB Detention Tank Guide, Code of Practice §13.2 ꯁꯦꯛ ꯌꯥꯎꯗ)꯫ Code of Practice-ꯒꯤ Addendum No. 3 (16 Apr 2025)-ꯗ Sewerage and Drainage Act-ꯒꯤ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯅ ꯅꯂꯤꯡ ꯅꯄꯥꯡꯒꯤ ꯕꯦꯖꯤꯄꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯝꯃꯊ ꯂꯣꯕ ꯑꯦꯛꯁꯦꯁ ꯌꯥꯗꯕꯁꯤꯡꯒꯤꯗꯃꯛ ꯄꯨꯔꯤ ꯅꯨꯑꯤꯡꯒꯤ ꯃꯦꯟꯌꯦꯂꯦꯜ ꯑꯦꯟꯇꯤꯖꯦꯟꯁꯤꯁꯤꯡ ꯄꯤꯔꯝꯃꯤ꯫ APWA 5600 (2006, §5608)-ꯗ ꯑꯦꯛꯁꯦꯁ ꯗꯦꯟꯖꯤꯅꯤꯌꯔꯁꯤꯡꯒꯤꯗꯃꯛ ꯅꯂꯃꯦꯟꯇꯁꯤꯡ (easement) ꯑꯃꯁꯨꯡ ꯃꯦꯟꯌꯦꯂꯦꯡꯒꯤ ꯊꯧꯗꯥꯡꯂꯦꯡꯁꯤꯡ ꯃꯇꯦ ꯌꯥꯅꯤ꯫ ꯕꯤꯜꯅꯤꯡ ꯑꯁꯨꯅ ꯃꯤ ꯂꯣꯕꯕ ꯃꯌꯥꯡꯅ ꯊꯥꯅꯤꯔꯃꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯃꯦꯟꯇꯁꯤꯡꯅ ꯂꯣꯕ ꯑꯦꯛꯁꯦꯁ ꯌꯦꯡꯁꯤꯡ ꯑꯁꯤ ꯊꯥꯕꯁꯤꯡ ꯂꯩꯕꯒꯤ ꯁꯤꯟꯕꯥꯂꯅ ꯄꯥꯡꯅꯥꯡꯊ ꯗꯝꯕꯗ, ꯃꯂꯤꯊꯨꯕꯅ ꯕꯥꯂꯤꯁꯤꯕ ꯌꯥꯕꯕ ꯑꯦꯟꯇꯤꯖꯦꯟꯁꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯨ ꯑꯣꯅ꯫ 31 ꯃꯥꯔꯆꯀꯤ ꯌꯥꯡ ꯑꯁꯤ ꯃꯦꯟꯌꯦꯡꯒꯤ ꯃꯌꯥꯝ (ꯑꯦꯞꯔꯤꯜ–ꯑꯣꯛꯇꯣꯕꯔ)-ꯒꯤ ꯃꯃꯥꯡꯅ ꯗꯥꯡꯂꯕ ꯃꯦꯍꯨꯔꯦ ꯑꯁꯤꯗ ꯍꯥꯕꯂꯤ, ꯃꯌꯥꯝ ꯑꯁꯨꯅ ꯃꯂꯤꯊꯨꯕꯒꯤ ꯄꯦꯀꯗ ꯔꯤꯕꯕ ꯂꯣꯏ ꯅꯕꯒꯤ ꯔꯤꯃꯗ ꯍꯣꯡꯅ꯫

10.11 O&M ꯊꯧꯔꯥꯡꯁꯤꯡ

10.11.1 ꯂꯣꯏꯒꯤ ꯅꯤꯡꯊꯤꯒꯤ ꯗꯦꯚꯂꯄꯔ ꯅꯨꯑꯤꯡꯃꯥꯌ ꯁꯤꯌꯦꯠ 2-ꯅ ꯑꯦꯊꯣꯔꯥꯏ ꯌꯥꯕꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯌꯦꯠ 4-ꯅ ꯗꯥꯅꯂꯦꯡ ꯌꯥꯕꯕ O&M ꯊꯧꯔꯥꯡ ꯑꯃꯍ ꯂꯣꯒꯅꯕꯅꯤ꯫ ꯊꯧꯔꯥꯡ ꯑꯁꯤꯅ ꯃꯍꯥꯛꯁꯤꯡ ꯔꯦꯒꯅꯕꯅꯤ:

- (a) ꯑꯦꯂꯅꯦ ꯂꯦꯒꯦꯡꯁꯤꯡ, ꯒꯂꯨꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁꯂꯦꯁꯤꯡ ꯃꯊꯧ ꯗꯕ ꯔꯦꯗꯃꯁꯤꯡꯒꯤ ꯂꯦꯔꯂꯗ, ꯗꯦꯚꯂꯄꯔ ꯅꯨꯑꯤꯡꯃꯥꯌꯁꯤ ꯅꯦꯒꯦꯚꯌꯥꯄꯤ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯥꯡ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯍ;
- (b) ꯃꯌꯥꯝ ꯃꯌꯥꯝꯒꯤ ꯄꯕꯨꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯗꯦꯇꯨꯔꯦꯜ: ꯅꯦꯠꯋꯥꯔꯛ, ꯑꯦꯕꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯃꯦꯟ ꯂꯣꯄꯁꯤꯡ, ꯊꯥꯃꯕꯤꯁꯤꯡ ꯔꯦꯗꯤꯡꯁꯦꯕ, ꯂꯤꯡꯗꯥꯜ ꯂꯦꯗꯅꯁꯤꯡ;
- (c) ꯑꯦꯊꯄ ꯑꯃꯍ ꯂꯩꯕꯒꯤ ꯑꯦꯂꯅꯦ ꯒꯂꯨꯃꯒꯤ ꯊꯥꯂꯦꯌ ꯑꯃꯍ ꯑꯣꯅꯗ ꯌꯥꯡꯗꯕ, ꯂꯦꯃꯍꯦꯌ ꯂꯣꯄꯗꯕ ꯌꯦꯟꯒꯥ;
- (d) ꯗꯦꯟꯖ 10-7-ꯒꯤ ꯄꯨꯗꯕ ꯅꯦꯠꯋꯥꯔꯛ ꯔꯦꯗꯤꯡꯌꯁꯤꯡ;
- (e) ꯊꯃꯊ ꯂꯣꯕ ꯁꯤꯁ꯭ꯇꯦꯃꯁꯤꯡ, ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯔꯥꯒꯁꯤꯡꯒꯤꯗꯃꯛ: ꯑꯣꯊꯔꯥꯏꯁꯤꯡ ꯂꯥꯏꯁꯤꯡ, ꯌꯦꯟꯌꯁꯤ ꯂꯦꯅꯍ꯭ꯔꯥ, ꯁꯌꯦꯔꯅꯕꯅ ꯊꯔꯦꯔ, ꯑꯃꯁꯨꯡ ꯃꯅꯤꯡꯇꯥꯡ ꯂꯩꯕꯒꯤ ꯁꯦꯟꯗ ꯂꯣꯏ ꯄꯨꯕꯒꯤ ꯔꯦꯗꯂꯤꯁꯤꯡ ꯑꯃꯅ ꯌꯥꯒꯅꯕ ꯄꯕꯨꯡꯁꯤꯡ;
- (f) ꯁꯔꯨꯛ 4-ꯒꯤ ꯅꯔꯦꯃꯦꯟꯇ ꯃꯌꯥꯝꯁꯤꯡꯒꯤ ꯄꯨꯗꯗ, ꯂꯦꯊꯂꯤꯕ ꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯅꯥꯏꯁꯤꯡ ꯊꯣꯡꯊꯣꯡ ꯄꯤꯁꯗꯕ ꯄꯕꯨꯡꯁꯤꯡ;
- (g) ꯁꯦꯗꯤꯅꯦꯅ ꯁꯊꯦꯁꯤꯡꯁꯤꯡ, ꯅꯁꯤꯡ ꯑꯍꯕ ꯑꯃꯁꯨꯡ ꯊꯕꯛꯀꯤꯁꯤ ꯔꯤꯂꯥꯌꯊꯒꯤꯗꯃꯛ ꯂꯦꯗꯌꯤꯒꯤ ꯄꯣꯡꯁꯤꯡ;
- (h) ꯔꯤꯂꯥꯌꯊꯒꯤ ꯂꯃꯕꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯄꯨ ꯌꯥꯕ ꯅꯌꯂꯦꯅꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 10.13);
- (i) ꯄꯨꯔꯤ ꯅꯨꯑꯤꯡꯒꯤ ꯂꯦꯡ ꯄꯅꯦꯁꯊꯒꯤ ꯑꯦꯁꯤꯌꯃꯦꯌ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯁꯦꯗꯗ ꯊꯤꯕꯒꯦ; ꯑꯃꯁꯨꯡ
- (j) ꯄꯥꯛꯅꯕ ꯗꯦꯁꯥꯗꯅꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯁꯔꯦ ꯂꯤꯁꯗ ꯄꯥꯛꯅꯒꯦ꯫

10.11.2 **ꯊꯕꯛꯀꯤ ꯗꯦꯚꯂꯄꯔꯁꯤꯡ.** ULB ꯂꯩꯕꯒꯤ ꯑꯦꯊꯗꯌꯃꯦꯌ ꯑꯃꯒꯤ ꯃꯊꯧ ꯑꯣꯅꯕ ꯗꯦꯚꯂꯄꯔꯁꯤꯡꯒꯤꯗꯃꯛ, O&M ꯊꯧꯔꯥꯡ ꯑꯁꯤ ꯑꯦꯂꯦꯌ ꯗꯦꯂꯤꯁꯗꯅ (ꯀ꯭ꯂꯣꯖ 10.14.3) ꯔꯦꯗꯄꯂꯒꯅꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯤ ꯅꯨꯑꯤꯡꯒꯤ ꯃꯦꯟꯌꯦꯂꯦꯜ ꯕꯂꯦꯌꯥ ꯂꯦꯡ ꯄꯥꯛꯅꯕꯅꯤ꯫

> **ꯁꯇꯦꯠ ꯑꯣꯐ ꯄ꯭ꯔꯦꯛꯇꯤꯁ.** ꯃꯂꯤꯊꯨꯕꯅ ꯊꯧꯗꯥꯡ-ꯍꯦꯟꯅꯕ ꯂꯣꯀ ꯂꯣꯏꯁꯤꯡ (desilting) ꯂꯩꯕꯒꯤ ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯃꯊꯁꯤꯡ ꯂꯦꯃ ꯂꯤꯕ ꯄꯥꯛꯂꯤꯕ ꯌꯥꯎ ꯔꯦꯗꯕ ꯁꯤꯌꯦꯠ ꯂꯩꯕꯒꯤ ꯃꯍꯨꯠꯂꯤꯅꯦꯡ ꯑꯣꯗꯅꯗ ꯑꯃꯦꯌꯥ ꯂꯣꯏ꯫ ꯅꯥꯏꯕꯦꯜꯁꯤꯡ ꯑꯃꯤ ꯅꯨꯌ ꯁꯔꯦꯗ ꯔꯦꯗꯅꯗꯤ, ꯑꯃꯁꯨꯡ ꯃꯅꯥꯔꯕ ꯅꯔꯅꯥꯏꯊ ꯁꯨꯟ ꯑꯃꯦꯌꯥ ꯂꯣꯏ: ꯂꯦꯒ ꯅꯨꯟꯂꯗ (Naga Nullah), ꯋꯦꯁꯦꯜ ꯃꯦꯔꯤꯜ (Waisel Maril) ꯂꯩꯕꯒꯤ ꯁꯃꯨꯁꯥꯡ ꯔꯦꯂꯦꯟ (Shamushang channel) ꯑꯃꯤ ꯃꯊꯧ ꯑꯃꯍꯅ ꯊꯤꯕ ꯂꯣꯌꯗꯤꯁꯤꯂꯦ ꯑꯃꯦꯌꯥ ꯂꯣꯏ (ꯃꯦꯄꯨꯔꯦꯟ ꯑꯃꯤꯗ ꯗꯦꯁꯥꯗꯅ ꯅꯦꯗꯕ ꯃꯌꯥꯝ ꯅꯦꯗ)꯫ IMC ꯑꯃꯁꯨꯡ ꯑꯌꯥꯊꯄ ꯁꯗꯕꯦ ꯂꯣꯁꯟ ꯕꯦꯅꯤꯃꯤꯗ ꯃꯨꯅꯤꯁꯤꯄꯥꯜ ꯅꯥꯏꯕꯦꯜꯁꯤꯡ ꯔꯦꯂꯦꯌꯟꯗꯤ, ꯃꯦꯅꯦꯟꯗ "ꯃꯨꯅꯤꯁꯤꯄꯥꯜ ꯅꯥꯏꯕꯦ ꯑꯃꯍꯄꯥꯡꯒꯤ ꯃꯊꯛꯇ" ("over any municipal drain") ꯕꯤꯟꯅꯤꯡ ꯂꯦꯕ ꯄꯤꯁꯕꯅ ꯃꯍꯥꯛꯀꯤ ꯃꯃꯤꯡ ꯂꯣꯅ (ꯕꯦꯅ-ꯂꯦ 16), ꯑꯁꯨꯕ ꯃꯂꯤꯊꯨꯕ

ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994-ꯒꯤ ꯃꯈꯥꯒꯤ ꯂꯥꯏꯁꯦꯟꯁꯤꯡ ꯄꯤꯕꯥ [TBC]; PWD-ꯅꯥ ꯇꯥꯀꯤꯕꯒꯤ ꯃꯅꯨꯡꯗꯥ ꯀꯥꯟꯅꯕꯁꯤꯡ ꯌꯦꯡꯁꯤꯟꯕꯤꯗꯨꯅꯤ, ꯃꯀꯥꯔꯒꯤ ꯃꯇꯨꯡꯗ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯥꯏꯗꯅ AIIB ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯈꯥ ꯊꯣꯛꯂ ꯀꯥꯟꯅꯕ 547 km ꯌꯥꯎꯕ, ꯑꯃꯁꯨꯡ ꯂꯦꯃꯂꯦꯟ-ꯍꯅꯕ ꯑꯦꯂꯦꯡꯁꯤꯡꯁꯤꯡꯗꯥ ꯂꯦꯃꯂꯦꯟ ꯍꯅꯕꯦꯁꯤꯡꯒꯤ ꯀꯥꯟꯅꯕꯁꯤꯡ; WRD-ꯅꯥ ꯌꯨꯝꯂꯦꯟꯒꯤ ꯄꯥꯡꯁꯤꯡ (bund) ꯑꯃꯁꯨꯡ ꯅꯁꯤꯡ ꯅꯍꯦꯎꯒꯤ ꯌꯦꯂꯦꯟꯁꯤꯡ, ꯂꯝꯐꯦꯜꯄꯥꯠ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯅꯁꯤꯡ ꯅꯍꯦꯎꯒꯤ ꯅꯁꯤꯡ ꯁꯃꯁꯤꯡ ꯌꯦꯂꯦꯟꯒꯤ ꯈꯨꯠꯊꯥꯡꯗ ꯂꯝꯗꯝ ꯌꯨꯝꯂꯦꯟꯗ ꯄꯃꯄꯥꯡ ꯌꯥꯗ ꯌꯦꯡꯁꯤꯟꯕꯤꯗꯨꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯄꯔꯤꯜ 2025-ꯗ ꯌꯥꯅꯁꯤꯟ ꯃꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥ (Naga Nallah)-ꯗꯒꯤ ꯂꯝ ꯍꯥꯄꯄꯁꯤꯡ (encroachment) ꯂꯧꯊꯣꯛꯂꯕ ꯃꯦꯁꯤꯡꯁꯤꯡ ꯄꯤꯒꯗꯕ ꯑꯥꯅꯔꯝꯃꯤ (ꯄꯥꯝꯕ ꯑꯦꯕꯗꯦꯒꯤꯕ ꯃꯊꯧ ꯅꯥꯏ); DoECC-ꯅꯥ ꯂꯝꯕꯨꯟ ꯌꯨꯝꯂꯦꯟꯗ ꯌꯦꯡꯁꯤꯟꯕꯤꯗꯨꯅꯤ ꯍꯥꯏꯕ 72-ꯒꯤ ꯅꯦꯠꯔꯤꯄꯣꯔꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯚꯔꯁꯤꯡ (interception and diversion) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ 16 ꯂꯩꯔꯕꯥ 17 MLD-ꯒꯤ ꯌꯨꯔꯤꯠꯃꯦꯁꯠ ꯄ꯭ꯔꯣꯁꯦꯁꯠ ꯌꯥꯅꯕꯔꯤ, ꯔꯤꯄꯣꯔꯠꯁꯤꯡ ꯌꯥꯝꯂꯦ (ꯂꯦꯃꯂꯦꯟ ꯒ꯭ꯔꯤꯟ ꯇ꯭ꯔꯥꯏꯕ꯭ꯌꯨꯂꯦꯟꯗ (National Green Tribunal) O.A. No. 606 of 2018-ꯗ ꯁꯤꯡꯦꯠꯅꯥ ꯄꯤꯈꯤꯕ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ, 2025); PHED-ꯅꯥ ꯁꯤꯋꯔꯁꯤꯡ (sewer) ꯑꯃꯁꯨꯡ ꯅꯇꯦꯟ ꯁꯤꯋꯔꯦꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯐꯦꯖ I (Imphal Sewerage Project Phase I)-ꯒꯤ ꯁꯤꯋꯦꯖ ꯄꯀꯥꯔꯤꯡ ꯁꯤꯡꯦꯂꯦ ꯃꯇꯝ ꯌꯥꯅꯕꯔꯤ; LDA-ꯅꯥ ꯃꯂꯤꯄ꯭ꯔꯥ ꯂꯥꯟꯌꯨꯟ ꯂꯦꯡ (ꯄ꯭ꯔꯦꯌꯦꯡꯁꯤꯡ) ꯑꯦꯛꯠ, 2006-ꯒꯤ ꯃꯈꯥꯗ ꯂꯥꯟꯌꯨꯟ ꯁꯤꯡꯦ ꯌꯥꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯁꯤꯟ ꯃꯔꯤꯜ ꯁꯦꯡꯗꯣꯛꯄꯗ ꯂꯨꯠꯂꯤꯡꯂꯥꯕ ꯃꯃꯤꯡ ꯊꯣꯛꯈꯤ (ꯄꯥꯝꯕ ꯑꯦꯕꯗꯦꯒꯤꯕ ꯃꯊꯧ ꯅꯥꯏ); ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯀꯥꯟꯅꯕꯁꯤꯡꯗ ꯅꯇꯦꯟ ꯁꯨꯃꯔꯠ ꯁꯤꯌꯤ ꯂꯤꯃꯤꯡꯗꯥꯕ ꯊꯥꯗꯣꯛ ꯑꯦꯡꯅꯥꯡ [TBC]꯫ ꯅꯋꯅꯗꯒꯤ ꯃꯐꯝ ꯑꯥꯅꯕ ꯀꯦꯠꯁꯤꯡ ꯑꯁꯤ ꯑꯌꯥꯄꯄ ꯄꯣꯗꯃꯁꯤꯡꯒꯤꯗꯃꯛ ꯌꯥꯅꯕꯔꯤ: ꯅꯊꯅ ꯕꯦꯔꯣꯂꯅ NHPC-ꯒꯤ ꯂꯥꯏꯌꯥ ꯍꯅꯗꯔꯅꯂꯦꯌꯔꯤꯌ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤꯗꯃꯛ ꯂꯥꯏꯌꯥ ꯊꯝꯂꯤꯕꯔꯤ, ꯑꯃꯁꯨꯡ NHPC-ꯅꯥ ꯂꯥꯏꯔꯕ ꯑꯦꯒꯔꯤꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯈꯥꯗ ꯊꯕꯛ ꯌꯥꯔꯤꯕ ꯄꯥꯝꯕ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯇ ꯂꯥꯏꯌꯥ ꯑꯦꯛꯠ ꯑꯁꯤ ꯌꯥꯠꯂꯗꯦ (ꯁꯦꯛꯁꯟ 36); ꯊꯧꯕ (ꯃꯄꯥꯏꯊꯦꯜ), ꯈꯨꯃ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗ ꯗꯦꯃꯁꯤꯡꯒꯤ ꯔꯤꯂꯤꯂꯒꯤ ꯔꯤꯕꯨꯁꯤꯡ ꯑꯦꯡꯅꯥꯡ [TBC]꯫ ꯃꯂꯤꯄ꯭ꯔꯒꯤ ꯌꯥꯊꯪ ꯑꯃꯗ ꯂꯩꯕ ꯀꯦꯠ, ꯑꯦꯂꯦꯛ ꯀꯦꯠ ꯂꯩꯔꯕꯥ ꯄꯀꯥꯔꯤꯡ ꯁꯤꯡꯦꯂꯦ ꯑꯃꯍꯦꯛꯌꯥꯒꯤ, ꯌꯨꯝꯂꯦꯟꯒꯤ ꯂꯦꯒꯦꯟ, ꯗꯦꯀꯒꯤ ꯔꯤꯂꯤꯂ ꯂꯩꯔꯕꯥ ꯂꯥꯡ ꯈꯨꯕꯒꯤ ꯌꯔꯂꯤꯡ ꯑꯃꯕ ꯁꯀꯂꯍꯦꯕ ꯑꯥꯄꯔꯦꯌꯤꯡ ꯔꯨꯟ ꯑꯃꯠꯌꯥ ꯄꯕꯂꯤꯌꯥ ꯗꯥꯃꯦꯗ ꯑꯦꯡꯅꯥꯡ, ꯑꯃꯁꯨꯡ CAG-ꯅꯥ ꯃꯔꯆ 2016 ꯑꯣꯏꯕꯒꯤ ꯅꯁꯤꯡ ꯅꯍꯦꯎ ꯊꯦꯡꯅꯔꯤꯒꯤ ꯑꯥꯗꯤꯠꯌꯥ "ꯅꯁꯤꯡ ꯅꯍꯦꯎꯒꯤ ꯂꯦꯡꯊꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯅꯔꯤꯒꯤ ꯌꯥꯕꯒꯤ ꯄ꯭ꯔꯃꯂꯃꯌꯥꯒꯤ ꯊꯕꯛꯁꯤꯡ ꯃꯌꯥꯏꯌ ꯌꯥꯗꯅ ꯂꯩꯔꯝꯃꯤ" ("The overall flood fighting and control activities remained inadequate") ꯍꯥꯏꯅꯥ ꯑꯦꯡꯅꯥ (Report No. 2 of 2017, ꯁꯃꯃꯔꯤ ꯌꯥꯅꯤꯕ ꯃꯊꯧ ꯅꯥꯏ)꯫ ꯃꯂꯨꯍꯦꯟ ꯑꯁꯤꯗ ꯂꯩꯕ ꯀꯦꯠ ꯑꯃꯁꯨꯡ ꯄꯃꯄ ꯈꯨꯗꯤꯡꯃꯛꯌ ꯌꯥꯔꯂꯤꯡ ꯑꯃꯤ ꯄꯤꯔꯕ ꯃꯌꯥꯃꯗ ꯑꯣꯔꯤ ꯊꯥꯑꯣꯂꯤ ꯍꯥꯏꯕꯒꯤ ꯅꯔꯕ ꯔꯨꯟ ꯑꯃꯤ ꯃꯊꯧ ꯌꯥꯅ꯫

10.12 ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁꯀꯤ ꯐ꯭ꯔꯤꯛꯋꯦꯟꯁꯤꯁꯤꯡ

10.12.1 **ꯃꯄꯨꯒꯤ ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁꯁꯤꯡ.** ꯃꯄꯨꯁꯤꯡꯅꯥ ꯑꯦꯁꯤꯂꯤꯌꯤꯁꯤꯡ ꯌꯥꯃꯗ꯭ꯔꯕꯗꯃꯛ ꯇꯦꯕꯜ 10.3-ꯗ ꯊꯝꯂꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯂ ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁ ꯌꯥꯒꯗꯕꯅꯤ:

ꯇꯦꯕꯜ 10.3 — ꯃꯄꯨꯅꯥ ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁ ꯌꯥꯒꯗꯕ ꯃꯤꯂꯤꯃꯃ ꯐ꯭ꯔꯤꯛꯋꯦꯟꯁꯤꯁꯤꯡ

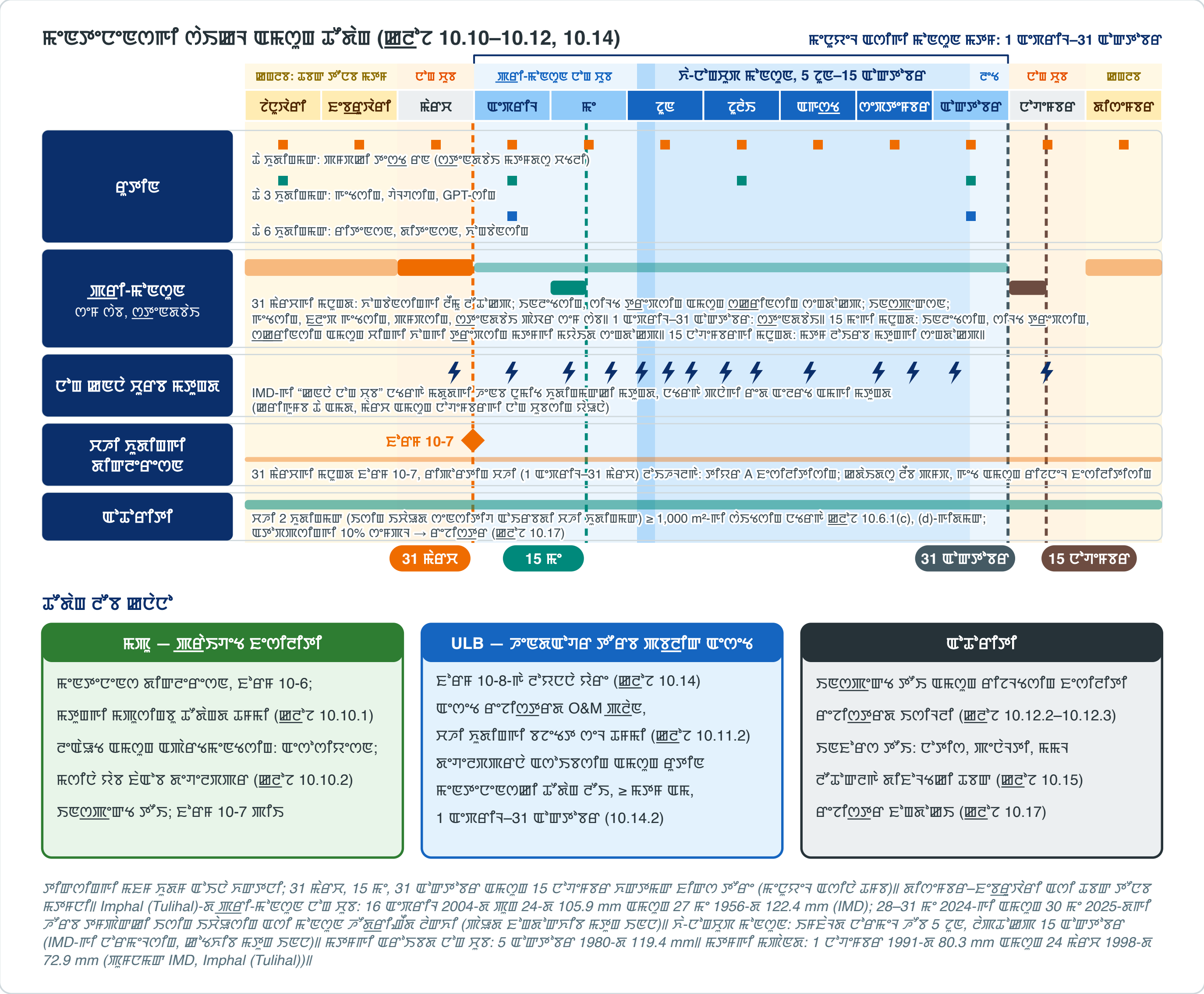
ꯑꯦꯁꯤꯂꯤꯌꯤꯒꯤ ꯃꯈꯜ	ꯃꯇꯝ ꯃꯇꯝꯒꯤ	ꯄ꯭ꯔꯤ-ꯃꯥꯟꯁꯨꯟ (31 ꯃꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ)	ꯄꯕ꯭ꯂꯤꯛ ꯂꯥꯏ ꯈꯨꯕꯒꯤ ꯊꯦꯡꯂ ꯑꯃꯒꯤ ꯃꯌꯨꯡꯗ
ꯔꯤꯌꯦꯁꯂꯦ / ꯅꯦꯑꯤꯅꯌꯨꯔꯦꯂꯦ (ꯁꯥꯏꯑꯔꯦꯁꯤꯡ, ꯌꯨꯔꯦꯔꯁꯤꯡ, ꯕꯅꯑꯥꯔꯤꯌꯦꯁꯂꯦ, ꯄ꯭ꯔꯃꯤꯔꯦꯕꯟ ꯄꯦꯒꯤꯡ)	ꯊ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯍꯣꯌ	ꯍꯣꯌ
ꯂꯧꯃꯅꯒꯤ ꯗꯤꯌꯦꯁꯂꯦ ꯕꯦꯁꯤꯁ ꯂꯩꯔꯕꯥ ꯃꯟꯌꯤ-ꯈꯨꯠ ꯑꯥꯄꯦ ꯁꯄꯦꯁ ꯑꯦꯔꯤꯌ	ꯊ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯍꯣꯌ	ꯍꯣꯌ
ꯂꯧꯃꯅꯒꯤ ꯃꯍꯥꯛꯀꯤ ꯂꯩꯔꯕꯥ ꯄꯥꯗꯤꯔꯃꯒꯤ ꯗꯤꯌꯦꯁꯂꯦ ꯌꯦꯡꯕ, ꯄ꯭ꯔꯦꯒꯤꯌꯤ ꯑꯣꯏꯕꯂꯦꯠ	ꯊ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯍꯣꯌ	ꯍꯣꯌ
ꯄꯃꯄ ꯂꯩꯕ ꯗꯤꯌꯦꯁꯂꯦ, ꯄꯃꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯌꯄ꯭ꯔꯥꯟꯁꯤꯡ	ꯊ ꯈꯨꯗꯤꯡꯒꯤ ꯌꯦꯁꯠ ꯔꯦ	ꯍꯣꯌ, ꯃꯄꯨꯡ ꯑꯕ ꯗꯔ꯭ꯌꯤ ꯌꯦꯁꯠꯃꯛ ꯂꯥꯏꯔꯂꯅꯥ	ꯍꯣꯌ
ꯑꯂꯦꯄ / ꯌꯅꯗ ꯀꯦꯠ, ꯂꯦ-ꯔꯤꯌꯔꯦ ꯍꯦꯅꯒ	ꯊ 3 ꯈꯨꯗꯤꯡꯃꯛ	ꯍꯣꯌ, ꯁꯤꯅ ꯌꯦꯁꯠꯃꯛ ꯂꯥꯏꯔꯂꯅꯥ	ꯍꯣꯌ
ꯄ꯭ꯔꯥꯁ ꯄꯥꯂ꯭ꯌꯦꯁꯠ ꯌꯨꯄꯥ / ꯑꯔꯁꯠ-ꯑꯂꯁ ꯗꯤꯍꯅꯁ	ꯊ 3 ꯈꯨꯗꯤꯡꯃꯛ	ꯍꯣꯌ	ꯍꯣꯌ
ꯄ꯭ꯔꯥꯅꯒꯦꯠ ꯀꯥꯟꯅꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯦꯂꯦꯠꯁꯤꯡ	ꯊ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯍꯣꯌ	—

ꯁꯦꯛꯁꯟ ꯑꯁꯤꯒꯤꯗꯃꯛ, ꯀꯟꯅ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯥꯏꯕꯗꯤ ꯑꯍꯦ ꯄꯤꯔꯕꯥ ꯍꯧꯖꯤꯛꯀꯤ ꯇꯥꯛꯄ ꯑꯦꯛꯁꯦꯜ ꯃꯇꯝ ꯀꯔꯤ IMD-ꯒꯤ "ꯀꯟꯅ ꯅꯣꯡ ꯆꯨꯕ" ("heavy rainfall") ꯃꯥꯏꯄꯥꯀꯄꯤ ꯅꯠꯔꯒꯥ ꯍꯦꯟꯅꯒꯤ ꯄꯥꯡꯕ ꯅꯣꯡ ꯆꯨꯕ ꯇꯥꯃꯇꯗ ꯌꯥꯕ ꯂꯩꯔꯦ, ꯅꯠꯔꯒꯥ ꯁꯤꯅꯕ ꯑꯍꯥꯛꯀꯤꯗꯃꯛ ꯇꯥꯗ ꯑꯅꯤꯇꯦ ꯁꯤꯡꯇꯕ ꯂꯩꯔꯦꯅꯤ꯫ ꯍꯅꯤꯁꯤꯡꯇꯗ, ꯀꯥꯟꯅꯣꯝ, ꯊꯟꯕꯥ ꯀꯥꯟꯅꯣꯝ (flap gate), ꯅꯦ-ꯇꯤꯌꯇꯦ ꯒꯦꯇꯒꯤꯝ, ꯂꯃꯇꯤꯟꯂꯤꯝ, ꯂꯤꯝꯆ ꯌꯇꯥꯁꯂꯤꯝ (silt trap), ꯗꯥꯕꯇꯤꯂ ꯇꯥꯃꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯁꯍꯁ ꯅꯕ ꯊꯥꯂꯤꯅꯤꯌꯂꯤꯝꯒꯤ ꯁꯇꯤ-ꯍꯦꯟꯂꯨꯟ ꯍꯟꯂꯁꯥꯃꯂꯟ — ꯌꯍꯁꯃꯃꯤ ꯌꯇꯥꯒꯤ ꯁꯟꯂꯤꯝꯒꯤ (bund) ꯍꯨꯆꯊꯃꯗ ꯅꯕ ꯑꯦꯁꯆꯊꯥꯒꯂꯤꯝꯗ, ꯅꯍꯕꯒ ꯌꯇꯥꯒꯗ ꯁꯥꯟꯕ ꯅꯍꯊꯥꯒꯁꯆꯃꯤ ꯑꯦꯁꯆꯊꯒꯗ ꯑꯃꯁꯨꯡ ꯅꯃꯌꯃ ꯑꯌꯁꯁ ꯁꯆꯂꯤꯝꯗ (pat; lake or wetland) ꯁꯥꯟꯕ ꯑꯦꯁꯆꯊꯒꯂꯤꯝꯗ ꯅꯕ ꯀꯥꯟꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯁꯍꯁꯂꯤꯝ ꯂꯦꯁꯅ —, ꯍꯃꯕꯟ ꯍꯨꯗꯤꯃꯍꯃ (drain, khongban) ꯑꯃꯁꯨꯡ ꯂꯄꯇꯒꯤ ꯁꯥꯅꯒ ꯍꯨꯗꯤꯃꯍꯃꯃꯤ ꯅꯍꯨ ꯅꯊꯃꯁ, ꯍꯟꯅꯆꯂꯤꯝ, ꯂꯤꯒꯆ ꯌꯇꯥꯁꯂꯤꯝ, ꯂꯃꯇꯤꯟꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯃꯒꯤ ꯍꯃꯒꯤ (khong) ꯌꯇꯥꯁꯂꯤꯝ ꯂꯥꯃꯗꯃꯁ, ꯑꯃꯁꯨꯡ ꯁꯍꯁ ꯗꯁꯌꯤ ꯑꯃꯁꯨꯡ ꯀꯥꯆ ꯂꯤꯒ ꯌꯥꯂꯆꯂꯤꯃꯒꯤ ꯅꯁꯅꯅꯦ, **31 ꯃꯦꯏ**-ꯒꯤ ꯃꯃꯥꯡꯗ ꯅꯍꯂꯤꯟꯒꯗꯕꯅꯤ; ꯀꯥꯟꯂꯤꯝ, ꯊꯟꯕꯥ ꯀꯥꯟꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯁꯍꯁ ꯅꯕ ꯊꯥꯂꯤꯅꯤꯌꯂꯤꯝ, ꯍꯍꯁꯒꯤ ꯂꯌꯥꯟꯗꯕꯍ ꯁꯔꯇ ꯑꯃꯁꯨꯡ ꯊꯨꯁꯥꯒ ꯅꯁꯅꯅꯦ, ꯂꯍꯤꯆ ꯑꯃꯍꯃꯌ ꯂꯥꯍ ꯂꯇꯥ ꯄꯁꯅꯦ ꯂꯇꯌꯤꯊꯍ ꯌꯒꯗꯕꯅꯤ, ꯌꯇꯥꯒ, ꯁꯆ ꯅꯆꯇꯒ ꯅꯃꯌꯃꯌ ꯁꯥꯟꯕ ꯑꯦꯁꯆꯊꯒ ꯑꯍꯗ ꯅꯕ ꯀꯥꯆ ꯍꯨꯗꯤꯃꯍꯃ ꯍꯂꯤꯒꯤ ꯍꯁꯨꯃ ꯊꯕ ꯌꯇꯥꯒꯒ ꯊꯦꯁꯅ ꯑꯁꯇꯥꯆ ꯌꯂꯨꯅ, ꯀꯥꯆ ꯑꯂ WRD-ꯒꯤ ꯊꯃꯗꯃꯒꯤ ꯍꯍꯗ ꯅꯇꯕꯗꯤ WRD-ꯅ ꯅꯆꯇꯒ WRD-ꯒ ꯅꯁꯅꯅꯦ, ꯍꯇꯍꯗꯤ ꯍꯥꯂꯁꯒ ꯑꯂꯤꯒꯤ ꯍꯌꯍ ꯑꯂꯤ 1 ꯑꯦꯞꯔꯤꯂꯗꯒꯤ ꯄꯍ ꯑꯃꯁꯨꯡ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯥꯡꯂꯤꯝ ꯑꯂꯤ ꯂꯌꯆꯃꯤ ꯍꯕꯍꯗꯒꯤ ꯁꯦꯁꯕꯂꯤꯃꯒꯤ ꯃꯃꯥꯡꯗ ꯁꯦꯑꯍ꯫ ꯍꯂꯒꯤ ꯍꯌꯃꯗ ꯁꯍꯁꯂꯤꯝ, ꯍꯍꯁꯒꯤ ꯂꯌꯥꯟꯗꯕꯍ ꯁꯔꯇ, ꯀꯥꯆꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯂꯃꯇꯤꯟꯂꯤꯝ ꯑꯂꯤ ꯊ ꯍꯨꯗꯤꯃꯒꯤ ꯌꯂꯆ ꯇꯦꯒ ꯅꯁꯅꯅꯦ **1 ꯑꯦꯞꯔꯤꯂꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ** ꯂꯌꯥꯟꯗꯕꯍꯗ ꯊꯍꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯇꯥꯒ ꯅꯆꯇꯒ ꯅꯃꯌꯃꯌ ꯁꯥꯟꯕ ꯑꯦꯁꯆꯊꯒ ꯑꯍꯗ, ꯍꯇ ꯑꯍꯕ WRD ꯀꯅꯗ ꯌꯇꯥꯒ ꯑꯂ ꯍꯂꯤꯒꯤ ꯊꯅꯗ ꯅꯒꯒꯗꯤꯒꯤ (flood level) ꯅꯍꯊꯇꯃꯆꯇꯤꯊꯦꯕ, ꯅꯆꯇꯒ ꯁꯆ ꯑꯂ ꯑꯦꯁꯆꯊꯒꯤ ꯍꯟꯒꯇꯆꯌꯤ ꯅꯍꯊꯇꯃꯆꯇꯤꯊꯦꯕ, ꯑꯃꯁꯨꯡ ꯀꯥꯆꯂꯤꯝ ꯑꯍꯃ ꯄꯟꯅꯦ ꯄꯃꯗꯃꯆꯇꯤꯊꯦꯕ, ꯍꯂꯤ ꯍꯌꯃꯗ ꯅꯃꯁ ꯑꯍꯇꯕꯗꯤ꯫ ꯍꯟꯅꯆꯂꯤꯝ, ꯂꯤꯒꯆ ꯌꯇꯥꯁꯂꯤꯝ, ꯂꯃꯇꯤꯟꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯃꯒꯤ ꯍꯃꯒꯤ ꯌꯇꯥꯁꯂꯤꯝ ꯑꯂꯤ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯌꯍꯁꯃ ꯑꯂꯤꯗ ꯍꯂꯤꯝ ꯍꯁꯦ ꯁꯇꯃꯍꯤꯕ ꯍꯥꯒꯤ ꯑꯇꯍꯕ ꯍꯌꯍꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯥꯡꯂꯤꯃꯒꯤ ꯍꯍꯃꯗ, ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯒꯤ ꯑꯄꯅꯕ ꯍꯌꯍꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯥꯡꯂꯤꯃꯒꯤ ꯅꯍꯨ, ꯗꯥꯕꯇꯤꯂ, ꯑꯍꯆ (garbage) ꯑꯃꯁꯨꯡ ꯊꯍꯗꯤ (phumdi) ꯅꯊꯃꯌꯂꯦ **15 ꯃꯦ**-ꯒꯤ ꯃꯃꯥꯡꯗ ꯑꯍꯃ ꯄꯟꯅꯦ ꯂꯥꯃꯗꯃꯃꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯦꯁꯟ ꯍꯨꯗꯤꯃꯍꯃꯌ ꯅꯕ ꯁꯕꯅꯤꯃ ꯍꯃꯕꯟ (drain, khongban), ꯂꯄꯇꯒꯤ ꯁꯥꯅꯒ, ꯍꯟꯅꯆ, ꯌꯇꯥꯁ ꯑꯃꯁꯨꯡ ꯂꯃꯇꯤꯟ ꯍꯨꯗꯤꯃꯍꯃ ꯍꯌꯍ ꯑꯂꯒꯤ ꯅꯍꯨ ꯑꯃꯁꯨꯡ ꯗꯥꯕꯇꯤꯂ ꯅꯊꯃꯌꯂꯦ ꯂꯥꯃꯗꯃꯃꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯂꯤꯒꯤ ꯅꯍꯨꯒꯤ ꯗꯥꯁꯊꯂꯤꯝ ꯂꯇꯒ ꯌꯒꯗꯕꯅꯤ, **15 ꯑꯣꯛꯇꯣꯕꯔ**-ꯒꯤ ꯃꯃꯥꯡꯗ꯫ ꯌꯇꯥꯒꯒꯤ ꯁꯟꯂꯤꯝꯗ WRD-ꯅ ꯍꯂꯅ ꯌꯕ ꯊꯕꯃꯂꯤꯝꯅ WRD-ꯒꯤ ꯃꯅꯅꯗꯇ ꯍꯌꯃ ꯍꯟꯅꯦ꯫

10.12.2 **ꯑꯊꯇꯤꯌꯤꯒꯤ ꯍꯟꯂꯁꯥꯃꯂꯟꯂꯤꯝ.** ꯑꯊꯇꯤꯌꯤꯅ ꯍꯍꯒꯤꯂꯤꯝ ꯍꯟꯂꯁꯥꯃꯆ ꯌꯒꯗꯕꯅꯤ:

- (a) 1,000 m² ꯅꯆꯇꯒ ꯍꯗꯨꯗꯒꯤ ꯁꯦꯁꯕ ꯂꯍꯆ ꯑꯍꯗ ꯅꯕ, ꯅꯆꯇꯒ ꯁꯦꯛꯁꯟ 10.6.1(c) ꯅꯆꯇꯒ (d)-ꯒꯤ ꯍꯍꯗ ꯅꯕ ꯊꯥꯂꯤꯅꯤꯌꯤ ꯍꯨꯗꯤꯃꯍꯃ, ꯁꯄꯤ 2-ꯗ ꯁꯦꯍꯗꯇꯕꯗꯍꯃ ꯑꯍꯃ, ꯑꯃꯁꯨꯡ ꯍꯂꯤꯝ ꯍꯁꯦꯗ ꯂꯥꯟꯂꯤꯌꯒ ꯑꯍꯕ ꯃꯁꯍꯅꯆ ꯑꯍꯗ ꯁꯄꯤ ꯍꯨꯗꯤꯃꯍꯃ; ꯑꯃꯁꯨꯡ
- (b) ꯁꯄꯤ ꯍꯨꯗꯤꯃꯍꯃ ꯑꯌꯁꯁ ꯊꯥꯂꯤꯅꯤꯌꯂꯤꯃꯒꯤ ꯁꯦꯍꯗꯇꯕꯗꯍꯃ 10%-ꯒꯤ ꯇꯟꯗꯍ ꯂꯥꯍꯁꯒ ꯑꯍꯦ꯫

10.12.3 ꯑꯊꯇꯤꯌꯤꯒꯤ ꯍꯟꯂꯁꯥꯃꯂꯟꯂꯤꯃꯒꯤ ꯇꯤꯅꯒꯆꯂꯤꯝ ꯑꯂꯤ ꯊꯥꯂꯤꯅꯤꯌꯤꯒꯤ ꯇꯥꯅꯤꯂꯌꯇꯗ (ꯁꯦꯛꯁꯟ 10.17) ꯍꯂꯤꯟꯒꯗꯕꯅꯤ꯫


(ꯄꯥꯔꯥ 10.10–10.12, 10.14)
1 ꯑꯦꯞꯔꯤꯜ–31 ꯑꯣꯛꯇꯣꯕꯔ
5 ꯖꯨꯟ–15 ꯑꯣꯛꯇꯣꯕꯔ
ꯖꯥꯅꯨꯋꯥꯔꯤ
ꯐꯦꯕ꯭ꯔꯨꯋꯥꯔꯤ
ꯃꯥꯔꯆ
ꯑꯦꯞꯔꯤꯜ
ꯃꯦ
ꯖꯨꯟ
ꯖꯨꯂꯥꯏ
ꯑꯒꯁ꯭ꯠ
ꯁꯦꯞꯇꯦꯝꯕꯔ
ꯑꯣꯛꯇꯣꯕꯔ
ꯅꯣꯚꯦꯝꯕꯔ
ꯗꯤꯁꯦꯝꯕꯔ
GPT
IMD
10-7
A
≥ 1,000 m²
10.6.1(c), (d)
10% → (ꯄꯥꯔꯥ 10.17)
31 ꯃꯥꯔꯆ
15 ꯃꯦ
31 ꯑꯣꯛꯇꯣꯕꯔ
15 ꯅꯣꯚꯦꯝꯕꯔ
ULB
O&M
(ꯄꯥꯔꯥ 10.10.1)
(ꯄꯥꯔꯥ 10.10.2)
(ꯄꯥꯔꯥ 10.14)
(ꯄꯥꯔꯥ 10.11.2)
1 ꯑꯦꯞꯔꯤꯜ–31 ꯑꯣꯛꯇꯣꯕꯔ (10.14.2)
(ꯄꯥꯔꯥ 10.12.2–10.12.3)
(ꯄꯥꯔꯥ 10.15)
(ꯄꯥꯔꯥ 10.17)
31 ꯃꯥꯔꯆ, 15 ꯃꯦ, 31 ꯑꯣꯛꯇꯣꯕꯔ ꯑꯃꯁꯨꯡ 15 ꯅꯣꯚꯦꯝꯕꯔ
Imphal (Tulihal): 16 ꯑꯦꯞꯔꯤꯜ 2004-ꯗ ꯄꯨꯡ 24-ꯗ 105.9 mm ꯑꯃꯁꯨꯡ 27 ꯃꯦ 1956-ꯗ 122.4 mm (IMD); 28–31 ꯃꯦ 2024-ꯒꯤ ꯑꯃꯁꯨꯡ 30 ꯃꯦ 2025-ꯗꯒꯤ
5 ꯖꯨꯟ, 15 ꯑꯣꯛꯇꯣꯕꯔ (IMD)
5 ꯑꯣꯛꯇꯣꯕꯔ 1980-ꯗ 119.4 mm
1 ꯅꯣꯚꯦꯝꯕꯔ 1991-ꯗ 80.3 mm ꯑꯃꯁꯨꯡ 24 ꯃꯥꯔꯆ 1998-ꯗ 72.9 mm (IMD, Imphal (Tulihal))

ꯃꯃꯤ 10.3 — ꯌꯨꯝ ꯁꯥꯒꯠꯄꯒꯤ ꯃꯦꯌꯣꯜꯂꯣꯟꯒꯤ ꯀꯦꯂꯦꯟꯗꯔ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯥꯡ ꯂꯦꯞꯄꯒꯤ: ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ, ꯃꯣꯟꯁꯨꯟ-ꯃꯃꯥꯡꯒꯤ (31 ꯃꯥꯔꯆꯒꯤ ꯃꯊꯛꯇ) ꯑꯃꯁꯨꯡ ꯁꯦꯟꯁꯔꯁꯤꯡꯒꯤ ꯈꯨꯗꯣꯡꯒꯤ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯗꯤ, ꯌꯨꯝ ꯁꯥꯒꯠꯄꯒꯤ ꯃꯤꯍꯨꯠꯁꯤꯡ (ꯐꯣꯔꯝ 10-7) ꯑꯃꯁꯨꯡ ꯑꯣꯐꯤꯁꯔꯁꯤꯡꯒꯤ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯗꯤ (ꯄꯥꯔꯥ 10.10–10.12 ꯑꯃꯁꯨꯡ 10.14)꯫ ꯃꯣꯟꯁꯨꯟ ꯑꯣꯏꯕꯒꯤꯗꯃꯛ ꯑꯍꯦꯅꯕ ꯂꯥꯌꯦꯡ ꯊꯝꯃꯤ꯫ ꯆꯍꯤ ꯑꯣꯏ ꯃꯣꯟꯁꯨꯟꯒꯤ ꯆꯍꯤ (ꯑꯦꯞꯔꯤꯜ–ꯑꯣꯛꯇꯣꯕꯔ) ꯈꯨꯗꯤꯡ ꯁꯤꯡꯉꯩ; ꯌꯨꯝ ꯑꯃꯒꯤ ꯃꯊꯛꯇ ꯊꯧꯗꯥꯡꯁꯤꯡ ꯃꯇꯝ ꯑꯣꯏ ꯌꯥꯝꯅ ꯑꯍꯥꯅꯕ ꯁꯤꯡꯉꯩꯔꯤ꯫

ꯂꯦꯃꯍꯧꯔꯕ ꯋꯥꯐꯝ. ꯄꯥꯔꯥ 10.12.2-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯁꯤ MBBL 2016-ꯒꯤ RWH-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯕꯒ ꯃꯥꯟꯅꯕ ꯑꯣꯏꯔꯤ, ꯃꯗꯨꯗꯤ 1,000 m²-ꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯂꯣꯠꯁꯤꯡꯗꯒꯤ 100% ꯃꯩꯍꯧꯔꯣꯟ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗꯒꯤ ꯐꯨꯅꯥꯕ 10%-ꯒꯤ ꯃꯦꯅꯥꯝ ꯍꯥꯏꯕ ꯃꯔꯝ ꯑꯁꯤꯅ (MBBL 2016, §9.6)꯫ ꯃꯃꯤ 10.3-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯆꯍꯤꯗꯤ ꯑꯣꯏ ꯃꯣꯟꯁꯨꯟ ꯑꯣꯏꯕꯒꯤ ꯊꯝꯂꯤ꯫ 31 ꯃꯥꯔꯆꯒꯤ ꯂꯣꯏꯁꯤꯅꯕ ꯑꯁꯤ ꯑꯣꯏ ꯅꯣꯡ-ꯂꯩꯃꯥꯏ ꯃꯣꯟꯁꯨꯟꯒꯤ ꯃꯃꯥꯡꯗ ꯐꯥꯑꯣꯕ ꯂꯩꯕ ꯅꯣꯡꯒꯤ ꯆꯍꯤ ꯑꯃꯒꯤꯗꯃꯛ ꯃꯣꯟꯁꯨꯟ ꯑꯣꯏꯕꯒꯤ ꯊꯝꯂꯤ꯫ ꯃꯣꯟꯁꯨꯟ ꯑꯣꯏꯅ ꯃꯣꯟꯁꯨꯟꯒꯤ ꯆꯍꯤ ꯑꯣꯏ 1 ꯑꯦꯞꯔꯤꯜꯗꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕꯒꯤ, ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯑꯍꯥꯅꯕ ꯀ ꯑꯣꯏꯕ ꯃꯣꯟꯁꯨꯟꯒꯤꯁꯨ ꯃꯥꯌꯣꯛ ꯊꯥꯕ ꯅꯣꯡ ꯁꯤꯡꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ ꯈꯉꯂꯦ: ꯏꯝꯐꯥꯜ (ꯇꯨꯂꯤꯍꯥꯜ) (Imphal (Tulihal))-ꯗ 16 ꯑꯦꯞꯔꯤꯜ 2004-ꯗ ꯄꯨꯡ 24-ꯗ 105.9 mm ꯑꯃꯁꯨꯡ 27 ꯃꯦ 1956-ꯗ 122.4 mm ꯊꯥꯗꯣꯛꯈꯤ, ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯂꯥꯟꯅꯕꯒꯤ ꯅꯣꯡ ꯆꯨꯕ ꯑꯦꯞꯔꯤꯜ ꯑꯃꯁꯨꯡ ꯃꯦ ꯀꯥꯡꯂꯣꯟ ꯑꯣꯏ 459.6 mm (2004) ꯑꯃꯁꯨꯡ 464.3 mm (1956)-ꯅꯤ, ꯍꯥꯟꯅꯒꯤ ꯑꯣꯏꯕ ꯄꯨꯡ 24-ꯒꯤ ꯊꯥꯗꯣꯛꯄ 158.6 mm-ꯁꯨ ꯌꯥꯎꯅꯈꯤꯕꯅ (IMD, *Extremes*, ꯆꯍꯤ 1953–2012); ꯐꯦꯕ꯭ꯔꯨꯋꯥꯔꯤꯗꯒꯤ ꯗꯤꯁꯦꯝꯕꯔ ꯐꯥꯑꯣꯕ ꯀ ꯂꯥꯏꯕꯥꯛ 80–160 mm-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯃꯇꯝ ꯑꯣꯏꯅꯁꯨ ꯊꯣꯀꯏ (ꯃꯁꯤꯅ ꯑꯣꯏꯅꯒꯤ ꯃꯣꯟꯁꯨꯟ ꯑꯣꯏꯕꯅ ꯆꯪꯁꯤꯟꯕ ꯊꯣꯛꯄ ꯌꯥꯏ)꯫ ꯗꯥꯏꯃꯒꯤ ꯂꯥꯌꯦꯡꯅ ꯃꯍꯩ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯣꯏ ꯑꯣꯏ ꯃꯣꯟꯁꯨꯟ ꯄꯥꯎꯈꯨꯝ ꯄꯤꯈꯤꯕ ꯃꯇꯝ, 28–31 ꯃꯦ 2024-ꯒꯤ ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯥꯜ (Cyclone Remal) ꯑꯃꯁꯨꯡ 30 ꯃꯦꯗꯒꯤ ꯖꯨꯟ 2025-ꯒꯤ ꯑꯣꯏꯕ ꯆꯍꯤ ꯅꯣꯡꯗꯒꯤ ꯂꯥꯀꯄ ꯑꯣꯏꯕꯒꯤ (ꯃꯁꯤꯅ ꯐꯥꯑꯣꯕ ꯑꯣꯏꯕ ꯌꯥꯏ ꯑꯣꯏꯔꯦ), ꯑꯃꯁꯨꯡ ꯖꯨꯟ 1966-ꯒꯤ ꯈꯣꯡꯅꯥꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯆꯍꯤ ꯐꯥꯑꯣꯕꯒꯤꯁꯨ ꯈꯪꯂꯦ (MASTEC)꯫ AIIB-ꯅ ꯍꯥꯌꯕ ꯁꯤꯖꯤꯟꯅꯕ "ꯃꯥꯔꯆꯗꯒꯤ ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯅꯣꯡ ꯆꯨꯕ ꯂꯣꯏꯔꯤꯕ" ("intense rains from March to October") ꯐꯥꯑꯣꯕ

> (ꯃꯥꯏꯇꯦꯏꯂꯣꯟ ꯃꯍꯨꯠꯁꯤꯟꯅꯕ, 2024); CGWB-ꯅꯥ ꯄꯤꯔꯤꯕ ꯔꯤꯄꯣꯔꯇꯇꯥ "ꯅꯣꯡ ꯆꯨꯕ ꯑꯁꯤ ꯑꯦꯞꯔꯤꯜ ꯊꯥꯒꯤ ꯑꯔꯣꯏꯕꯗꯒꯤ ꯍꯧꯏ" ("Rainfall starts from the month of April end") ꯍꯥꯌꯅꯥ ꯏꯔꯤ (2013); ꯑꯃꯁꯨꯡ MASTEC-ꯅꯥ "ꯅꯣꯡꯖꯨ … ꯃꯦ ꯊꯥꯗꯒꯤ ꯍꯧꯏ ꯑꯃꯁꯨꯡ ꯑꯣꯛꯇꯣꯕꯔ ꯐꯥꯑꯣꯕ ꯌꯧꯏ" ("Rainy season … starts from May and extent up to October") ꯍꯥꯌꯅꯥ ꯏꯔꯤ꯫ NDMA (2010)-ꯅꯥ ꯅꯣꯂꯅꯣꯡ ꯑꯣꯏꯅꯥ ꯃꯥꯏ-ꯃꯣꯟꯁꯨꯟ ꯆꯠꯄ ꯆꯥꯡꯗꯃꯁꯤꯟꯅꯕ 31 ꯃꯦꯔ ꯊꯥꯛꯇꯤ, ꯑꯃꯁꯨꯡ ꯂꯣꯌꯅ ꯑꯁꯤꯒꯤ ꯑꯍꯣꯡꯕ ꯅꯦꯌꯥ-ꯍꯂꯨꯛ ꯑꯣꯁꯤꯂꯁꯤꯡꯅꯥ ꯍꯥꯌꯕꯒꯤꯗꯅꯥ, ꯃꯣꯟꯁꯨꯅ ꯑꯁꯤꯅꯥ ꯍꯧꯕ ꯑꯃꯣ ꯊꯥꯛꯇꯤ꯫ ꯗꯤꯂꯣꯆꯕꯌꯗꯒꯤ ꯏꯕꯁꯦꯞꯇꯦꯝꯕꯔ ꯏꯅꯧꯕ ꯑꯁꯤ ꯊꯕꯛ ꯍꯧꯕꯒꯤ ꯃꯍꯧꯆꯇꯤ꯫ ꯍꯥꯎꯕꯁꯤꯡꯒꯤ ꯆꯥꯡ ꯆꯥꯡꯗꯃꯁꯤ ꯅꯨꯡꯉꯥꯏ ꯒꯣꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯡꯁꯥꯁꯤꯡ ꯂꯣꯆ ꯂꯤꯅꯕ ꯍꯧꯕ ꯊꯥꯛꯇꯤꯕ ꯃꯇꯤꯂꯥꯒꯤ ꯑꯦꯗꯦꯗ ꯑꯃꯅꯧ ꯏꯔꯤꯗꯥ꯫ ꯃꯣꯟꯁꯨꯅ
> ꯑꯁꯤꯒꯤ 31 ꯃꯦꯔ ꯑꯁꯤꯅꯥ ꯍꯦꯆ ꯂꯤꯁꯤꯡꯆꯒꯤ ꯍꯥꯎꯕꯁꯤꯡ, ꯍꯥꯏꯕꯣꯡꯁꯤꯡ, ꯒꯣꯡꯁꯤꯡ, ꯏꯇꯣꯡ ꯒꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯆꯁꯥꯁꯤꯡ ꯌꯦꯡꯍ;
> ꯍꯥꯡꯒꯤ ꯁꯥꯡꯁꯤꯡꯗ WRD-ꯅꯥ ꯃꯂꯦꯅꯥ ꯍꯧꯕ ꯊꯕꯛꯁꯤꯡꯅꯥ WRD-ꯒꯤ ꯗꯣꯂꯣꯡꯗꯥ ꯃꯍꯨꯝ ꯍꯥꯏꯅꯤ꯫ ꯃꯥꯏꯆ ꯑꯁꯤꯅꯥ ꯃꯣꯟꯁꯨꯅ ꯑꯁꯤꯅꯥ ꯆꯠꯄ ꯆꯥꯡꯗꯃꯁꯤ, ꯍꯥꯏꯕꯣꯡꯁꯤꯡ, ꯂꯤꯌꯣꯡ ꯍꯥꯎꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯨꯗꯥꯏꯕꯁꯤꯡ ꯂꯣꯡꯗꯥꯗꯃꯁꯤ, ꯃꯥꯏ-ꯃꯣꯟꯁꯨꯟ ꯍꯥꯡꯂꯣꯏꯡꯂꯣꯡ, ꯌꯥꯈꯤ ꯃꯗꯤꯁꯤꯒꯤ ꯗꯤꯡꯅꯥꯂꯣꯡ ꯑꯃꯁꯨꯡ ꯒꯣꯡꯁꯤꯡ, ꯏꯇꯣꯡ ꯒꯣꯡꯁꯤꯡ, ꯁꯥꯆꯁꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯨꯕꯣꯡꯗꯕꯍ ꯁꯦꯔꯥ ꯂꯣꯆ ꯂꯤꯕꯒꯤꯗꯃꯛ 31 ꯃꯦꯔ ꯆꯥꯍ,
> ꯃꯗꯨꯒꯤ ꯃꯍꯨꯝꯒꯤ ꯂꯣꯆ ꯂꯤꯕꯒꯤ ꯍꯧꯕ ꯑꯃꯌꯥ ꯆꯥꯍꯅꯥ; ꯁꯥꯡꯁꯤꯡꯗ ꯆꯥꯕ ꯒꯣꯡꯁꯤꯡꯒꯤꯗꯃꯛ ꯑꯤꯂꯑꯔꯅꯥ ꯁꯤꯍꯤꯕ 30 ꯑꯁꯦꯑꯤꯂꯒꯤ ꯌꯦꯏꯆ
> ꯑꯁꯤ ꯂꯤꯇꯤꯁꯇꯗ, ꯃꯑꯆꯗꯤ ꯑꯁꯦꯑꯤꯂꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯗꯣꯛꯂꯤꯕꯅꯥ ꯃꯍꯥꯔꯕ ꯂꯣꯆ ꯂꯗꯅꯥ ꯏꯔꯒꯤ꯫ ꯍꯆꯦꯂꯗ ꯍ-ꯅꯣꯡꯆꯨꯕ ꯃꯁꯤꯡꯁ
> ꯍꯥꯕꯒꯤ ꯅꯥꯑꯃꯂ ꯍꯧꯕ ꯑꯁꯤ 5 ꯅꯨꯃꯤꯠ (ꯃꯃꯤꯡꯗ 1 ꯅꯨꯃꯤ), ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯅꯥꯡꯊꯗꯤꯡꯁꯒꯤ ꯍꯧꯕ 15 ꯑꯣꯡꯕꯑꯣꯕꯑꯇꯤ (2020-ꯗꯒꯤ
> ꯂꯤꯇꯤꯁꯇꯑꯤꯕ IMD-ꯒꯤ ꯅꯥꯑꯃꯂꯁꯤꯡ, IMD-ꯒꯤ ꯃꯥꯑꯂ ꯑꯤꯇꯤꯇꯗ ꯗꯥꯌꯍꯤꯕ ꯃꯍꯨꯝ ꯍꯥꯏꯅ)꯫ ꯃꯏꯆ ꯑꯁꯤꯗ ꯃꯇꯤꯁꯑꯒꯤ ꯃꯂꯦꯒꯤ
> ꯑꯗꯥꯑꯗꯅꯥ ꯍꯧꯕ ꯑꯃ ꯍꯥꯌꯔꯤ: ꯂꯣꯌꯅ ꯑꯁꯤꯒꯤ ꯑꯍꯣꯡꯕ ꯅꯦꯌꯥ-ꯍꯂꯨꯛ ꯑꯣꯁꯤꯂꯁꯤꯡꯅꯥ ꯍꯥꯏꯕꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯨꯕꯣꯡꯁꯤꯡ
> ꯃꯣꯟꯁꯨꯟ ꯍꯥꯗꯗꯤꯡꯊ 31 ꯃꯒꯤ ꯃꯇꯝꯗ ꯑꯇꯤꯂꯕ ꯑꯣꯍꯅꯥ ꯂꯣꯆꯗꯥꯗꯅ, ꯑꯗꯨꯕ ꯃꯇꯤꯁꯗ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯍꯥꯏꯕ ꯍꯥꯌꯕꯁꯤꯡ
> ꯃꯒꯤ ꯑꯥꯍꯕ ꯇꯃꯥꯍꯥꯏꯗ ꯆꯤꯡꯍꯤ, ꯃꯑꯆ ꯑꯗꯨꯅꯥ 31 ꯃꯒꯤ ꯃꯇꯝꯗ ꯍꯒꯗꯕ ꯂꯣꯆꯗꯥꯗꯅ ꯑꯃ ꯃꯍꯔꯒꯤ ꯃꯥꯏꯌ ꯊꯧꯗꯤꯡ꯫ ꯃꯑꯆ
> ꯑꯁꯤꯅꯥ ꯍꯥꯏꯕꯣꯡꯁꯤꯡ, ꯂꯤꯌꯣꯡ ꯍꯥꯎꯕꯁꯤꯡ, ꯂꯨꯕꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯤꯒꯒꯤ ꯍꯗꯒꯤ ꯍꯥꯎꯕꯁꯤꯡ ꯑꯁꯤ ꯑꯁꯦꯑꯤꯂ ꯑꯃꯁꯨꯡ ꯃꯒꯤ ꯑꯍꯥꯌꯕ
> ꯃꯍꯧꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯂꯤꯕꯒꯤ ꯃꯍꯨꯝꯗ ꯑꯃꯁꯨꯡ ꯃꯒꯤ ꯑꯍꯥꯕ ꯃꯍꯧꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯗꯣꯛꯂꯤꯕꯒꯤ ꯃꯃꯤꯡꯗ, 15 ꯃꯒꯤ
> ꯃꯇꯝꯗ ꯑꯃꯌ ꯍꯥꯌꯅꯥ ꯂꯣꯆꯗꯥꯗꯅ꯫ ꯃꯁꯤꯡꯁ ꯅꯥꯡꯊꯗꯤꯡꯁꯒꯤ ꯃꯍꯨꯝꯗꯂꯨ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯗꯣꯛꯂꯤꯕ ꯌꯦꯡꯇꯤ: ꯍꯆꯦꯂꯅꯥ 5 ꯑꯣꯡꯕꯑꯣꯕ 1980-ꯗ 119.4 mm ꯑꯗꯥꯑꯗ ꯍꯥꯌꯔꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯡꯕꯑꯣꯕ 1992-ꯗ ꯍꯥꯆꯁꯤꯡ ꯑꯁꯤꯗ ꯍꯥꯏꯕ ꯍꯥꯌꯍ ꯆꯤꯡꯍꯤ (IMD; MASTEC), ꯃꯑꯆ ꯑꯗꯨꯅꯥ
> ꯁꯥꯆꯁꯥꯁꯤꯡ, ꯒꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯨꯕꯣꯡꯁꯤꯡ 31 ꯑꯣꯡꯕꯑꯣꯕ ꯏꯌꯦꯡꯕ ꯂꯣꯆꯗꯥꯗꯅꯗ ꯊꯥꯛꯇꯤ (ꯃꯃꯤ 10.3)꯫ ꯃꯍꯥꯆ ꯑꯁꯤꯒꯤ ꯃꯁꯤꯡꯁꯗꯂꯨ
> ꯌꯦꯡꯕ ꯅꯣꯡ ꯆꯨꯅ, ꯍꯆꯦꯂꯗ 1 ꯖꯨꯂꯥꯏ 1991-ꯗ 80.3 mm, 13 ꯑꯣꯒꯁꯠ 1966-ꯗ 89.6 mm, 18 ꯁꯦꯞꯇꯦꯝꯕꯔ 1993-ꯗ 79.8 mm ꯑꯃꯁꯨꯡ 24 ꯃꯦꯔ 1998-ꯗ 72.9 mm (IMD), ꯑꯃꯁꯨꯡ ꯃꯍꯥꯆ ꯑꯗꯨꯗ ꯍꯥꯎꯕꯁꯤꯡ ꯆꯥꯡ ꯑꯃꯁꯨꯡ ꯑꯃꯌꯥꯅꯥ ꯃꯁꯤꯡꯁꯇꯗꯅ, ꯃꯑꯆ ꯑꯗꯨꯅꯥ
> ꯍꯌꯦꯡ ꯅꯣꯡꯗꯤꯡꯁꯗꯅꯥ ꯃꯁꯤꯒꯤ ꯍꯥꯎꯕꯁꯤꯡ ꯑꯇꯤꯂꯕ ꯑꯣꯍꯅꯥ ꯂꯣꯆꯗꯥꯗꯅ, ꯑꯃꯁꯨꯡ ꯃꯍꯔꯒꯤ ꯆꯥꯡꯒꯤ ꯗꯁꯥꯎꯁꯤꯡ ꯂꯑꯒ ꯍꯥꯌꯅ, 15 ꯅꯨꯃꯤꯠꯕꯑꯒꯤ ꯃꯇꯝꯗ꯫ ꯍꯥꯕꯆ 10.3-ꯒꯤ ꯍꯒꯥꯍꯥꯌꯗꯤ ꯃꯍꯨꯝꯒꯤ ꯍꯥꯏꯂꯣꯡꯁꯥꯗꯂꯣꯡꯁꯤꯡꯅꯥ ꯌꯍꯤꯒꯤ ꯗꯥꯑꯤꯒꯍꯕ ꯃꯍꯥꯆꯗ ꯆꯗꯥꯁ ꯅꯣꯡ ꯆꯨꯕꯒꯤ
> ꯊꯗꯣꯛꯂꯤꯕꯁꯤꯡ ꯌꯦꯡꯍ꯫ ꯑꯤꯁꯥꯑꯍꯥꯌꯤ ꯌꯍꯤ ꯑꯁꯤ 1 ꯑꯁꯦꯑꯤꯂꯗꯒꯤ 31 ꯃꯦꯔ ꯏꯌꯦꯡꯕ ꯌꯦꯡꯇꯤ, ꯃꯑꯆ ꯑꯗꯨꯅꯥ 31 ꯃꯦꯔꯒꯤ ꯌꯍꯤ ꯅꯣꯡꯗꯤꯡꯒꯤ
> ꯗꯤꯡꯅꯥꯂꯣꯡꯅꯥ ꯃꯁꯤ ꯆꯍꯥꯔꯤ꯫

10.13 ꯃꯣꯌꯥꯅꯣꯌꯁꯤꯒꯤ ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯆꯨꯕꯤ

10.13.1 ꯏꯁꯤꯡꯇꯤꯍꯤ ꯅꯨꯡꯉꯥꯏꯗꯥꯍ ꯍꯥꯌꯂꯣꯡꯗꯥꯂꯣꯌ ꯑꯃꯁꯨꯡ ꯃꯣꯌꯥꯅꯣꯌꯁꯤꯒꯤꯗꯃꯛ ꯅꯥꯁꯍꯅꯥ ꯆꯕ ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯆꯨꯕꯤ ꯑꯃ ꯆꯤꯡꯗꯕꯇꯤ, ꯃꯁꯤ ꯑꯁꯦꯡꯒ ꯍꯥꯌꯕ ꯗꯦꯡꯍꯥꯏꯁꯤꯡꯗ ꯌꯦꯡꯗꯃꯗꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯣꯌꯥꯅꯣꯌꯂ ꯗꯤꯡꯅꯥꯂꯣꯡꯅꯥ, ꯅꯥꯌꯒꯤ ꯁꯥꯕꯇꯤ ꯏꯁꯤꯡꯇꯤꯍꯤꯁꯤꯡꯒꯤꯗꯃꯛ ꯍꯇꯃꯣꯌ (easement) ꯅꯥꯌꯒꯤ ꯆꯍ ꯍꯦꯡꯂꯏꯅꯥ ꯊꯥꯗꯣꯛꯄꯗꯕꯇꯤ꯫

10.13.2 **ꯆꯤꯡꯍꯒꯤ ꯏꯁꯤꯡꯇꯤꯍꯤꯁꯤꯡ.** ꯕꯁꯤꯡꯁꯤꯡ, ꯁꯥꯡꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯁꯦ ꯌꯅꯥꯂꯣꯡꯗ ꯍꯥꯏꯕꯣꯡ, ꯑꯦꯡꯌꯗꯣꯌ ꯑꯃꯁꯨꯡ ꯕꯂ ꯏꯌꯦꯡꯕ ꯒꯤꯑꯤ ꯌꯍꯕ ꯌꯦꯕ ꯆꯨꯕꯤ ꯑꯃ, ꯑꯃꯁꯨꯡ ꯌꯦꯃꯗꯥꯕꯗꯃꯛ ꯃꯅꯥ ꯑꯃꯒꯤ ꯃꯅꯥꯍ ꯃꯣꯌꯥꯅꯣꯌꯁꯤꯒꯤ ꯂꯍꯥꯤꯁ ꯑꯃ ꯆꯤꯡꯗꯕꯇꯤ꯫ ꯕꯁꯤꯡꯁꯤꯡꯗ ꯌꯍꯅꯕ ꯑꯃꯁꯥꯁꯤꯡ ꯑꯁꯤ ꯂꯗꯤꯃꯣꯌ ꯆꯊꯥꯅꯕ ꯃꯊ ꯍꯕ ꯃꯣꯁꯤꯡꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯤꯇꯤꯁꯅꯕ ꯌꯦꯕ ꯑꯍꯒꯗꯕꯇꯤ꯫

10.13.3 **ꯆꯤꯡꯍꯒꯤ ꯃꯍꯒꯤ ꯏꯁꯤꯡꯇꯤꯍꯤꯁꯤꯡ.** ꯍꯣꯍꯥꯁꯤꯡꯗ ꯃꯍꯒꯤꯁꯤꯡ ꯆꯤꯡꯗꯕꯇꯤ:

- (a) ꯍꯥꯏꯕꯣꯡ, ꯑꯦꯡꯌꯗꯣꯌ ꯑꯃꯁꯨꯡ ꯌꯃꯕꯑ ꯅꯨꯡꯉꯥꯏꯗꯥꯗ ꯃꯊꯥꯍ ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯍꯥꯌꯕ ꯃꯏꯆ ꯑꯃ;
- (b) ꯏꯤꯗꯂ ꯍꯥꯑꯕ ꯆꯗꯑꯁꯤꯡ ꯅꯥꯌꯒꯤ ꯍꯥꯎꯊꯥꯕꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯗꯦꯏꯆꯍꯗ ꯂꯣꯡꯂꯍ ꯌꯍꯅꯕ ꯒꯣꯌꯍꯤꯇꯂ;
- (c) ꯂꯣꯗꯤꯃꯣꯌ ꯆꯊꯥꯅꯕ ꯂꯃꯁ ꯅꯥꯌꯒꯤ ꯅꯃꯕ ꯃꯏꯆ ꯑꯃ; ꯑꯃꯁꯨꯡ
- (d) ꯅꯨꯡꯅꯥ ꯂꯥꯗꯥꯊꯥꯅꯕ ꯃꯊ ꯍꯕ ꯍꯥꯗꯑꯃ꯫

10.13.4 **ꯑꯦꯟꯐꯣꯔꯁꯃꯦꯟꯠ.** ꯑꯦꯅꯛꯔꯣꯆꯃꯦꯟꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯅꯑꯣꯊꯣꯔꯥꯏꯖꯗ ꯀꯅꯦꯛꯁꯅꯁꯤꯡ ꯑꯁꯤ ꯃꯂꯤꯛ ꯑꯗꯨꯒꯤ ꯈꯣꯡꯊꯥꯡꯗꯥ ꯂꯧꯊꯣꯛꯀꯗꯕꯅꯤ꯫

10.13.5 ꯄꯥꯏꯄꯂꯥꯏꯅꯒꯤ ꯔꯥꯏꯠ ꯑꯣꯐ ꯋꯦ ꯂꯩꯕ, ꯀꯅꯦꯛꯁꯟ ꯇꯧꯕ ꯃꯇꯃꯗꯥ ꯄꯥꯏꯄꯂꯥꯏꯟ ꯊꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯄꯤꯡ ꯇꯧꯕ ꯐꯤꯂꯗꯁꯤꯡꯗꯥ ꯂꯤꯇꯃꯦꯟꯇ ꯇꯧꯒꯗꯕꯅꯤ꯫

> **ꯂꯦꯡꯁꯤꯟꯕꯒꯤ ꯇꯦꯛꯁꯠ.** APWA 5600 (2006, §5608)-ꯗ ꯁꯤꯜꯚꯔ ꯀꯅꯦꯛꯁꯅꯁꯤꯡꯗꯥ 15-ft (ꯌꯥꯝ 4.5 m) ꯃꯦꯖꯔꯃꯦꯟꯇꯀꯤ ꯄꯥꯏꯄꯂꯥꯏꯅꯒꯤ ꯂꯣꯀꯦꯇ ꯑꯃ ꯃꯇꯝ ꯇꯧꯏ꯫ ꯃꯔꯝ ꯑꯗꯨꯒꯤ ꯂꯥꯏꯅꯁꯤꯡ ꯁꯦꯡꯂꯕ ꯂꯩꯔꯤꯕꯗꯥ ꯀꯤꯇ ꯇꯧꯕ ꯁꯤꯡ ꯑꯃ ꯂꯩꯍꯟ ꯇꯧꯕꯁꯤꯡ ꯂꯤꯇꯃꯦꯟꯇ ꯄꯤꯔꯤ, ꯃꯔꯝ ꯑꯗꯨꯗ ꯃꯦꯖꯔꯃꯦꯟꯠ ꯑꯁꯤꯗ ꯀꯦꯝꯂꯦꯟꯇ ꯃꯇꯝ ꯇꯧꯕꯁꯤꯡ ꯊꯝꯂꯤ꯫ ꯑꯄꯦꯟ 10C-ꯗ ꯃꯦꯖꯔꯃꯦꯟꯠ ꯄꯥꯏꯄꯂꯥꯏꯅꯒꯤ ꯁꯤꯡꯃꯦꯖꯔꯃꯦꯟꯠꯁꯤꯡ ꯌꯥꯎꯏ꯫

10.14 ꯁꯤꯇꯤꯒꯤ ꯑꯣꯄꯔꯦꯁꯅꯁꯤꯡ ULB-ꯅ ꯄꯨꯋꯦꯁꯅ ꯇꯧꯕ

10.14.1 ꯁꯤꯇꯤ ꯂꯦꯚꯦꯜꯗ ꯑꯃꯗ ULB ꯑꯃꯅ ꯇꯨꯡꯂꯃꯆꯠ ꯇꯧꯗꯕ ꯂꯥꯏꯔꯤꯛ ꯍꯥꯏꯕꯗꯤꯅꯤꯡ, ꯗꯦꯇꯥꯁꯤꯡ, ꯑꯦꯁꯦꯠ ꯂꯦꯖꯔ ꯀꯅꯦꯛꯁꯅꯁꯤꯡ, ꯄꯥꯏꯄ ꯀꯅꯦꯛꯁꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯕꯁꯔ ꯗꯤꯁꯒꯤ ꯍꯣꯡꯁꯤꯡꯒꯤ ꯑꯣꯄꯔꯦꯁꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯡꯒꯣꯁꯤꯡ ꯑꯦꯍꯥꯄꯗꯅ ꯍꯥꯃꯔꯅ ꯄꯨꯋꯦꯁꯅ ꯇꯧꯒꯗꯕꯅꯤ:

- (a) ꯑꯣꯇ-ꯗꯤꯕꯌ ꯂꯥꯏꯔꯤꯛꯁꯤꯡꯌ (ꯁꯦꯛꯁꯟ 10.9) ꯌꯥꯎꯕ;
- (b) ꯀꯅꯦꯛꯁꯟ ꯑꯃꯁꯨ ꯂꯣꯏꯅꯕꯒꯤ, ꯑꯃꯁꯨꯡ ꯁꯤꯅꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯜꯚꯔꯇꯁꯤꯡ (culvert) ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯍꯦꯟꯅꯥꯏꯗꯕꯌ ꯇꯧꯕ (ꯍꯧꯖꯤꯛ ꯑꯣꯏꯗ CCTV ꯄꯌꯦꯃꯤꯡ ꯍꯧꯔꯗ ꯌꯥꯎꯕꯗ), ꯕꯣꯔꯦꯛꯇ ꯑꯃꯁꯨ ꯄꯨꯋꯦꯁꯅ ꯇꯧꯕꯗ;
- (c) ꯆꯃ, ꯄꯌꯦꯃꯤꯡ ꯃꯁꯤꯡꯒꯤ ꯃꯊꯥꯡꯗ ꯍꯧꯖꯤꯛꯌ ꯑꯃꯁꯨ, ULB-ꯅ ꯇꯨꯡꯂꯃꯆꯠ ꯇꯧꯕ;
- (d) O&M ꯁꯦꯛꯁꯟ, ꯁꯦꯟꯍꯥꯕꯁꯤꯡ, GIS ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯌꯥꯎꯗꯕꯁꯤꯡ ꯄꯨꯋꯦꯁꯅ ꯇꯧꯕ; ꯑꯃꯁꯨꯡ
- (e) **ꯑꯣꯂꯌ ꯄꯨꯋꯦꯁꯅ ꯂꯥꯏꯔꯤꯛꯁꯤꯡꯌ (ꯀꯥꯔꯃ 10-8)** ꯑꯁꯤ ꯁꯤꯔꯝ ꯑꯗꯤꯃꯥꯗ ꯂꯩꯍꯟ ꯇꯧꯕ꯫

10.14.2 **ꯁꯤꯀꯥꯡꯂꯝ ꯗꯩꯅꯗꯤꯀꯣ.** ꯁꯤꯇꯤ ꯂꯦꯚꯦꯜꯗ ꯄꯨꯋꯦꯁꯅꯒꯤ ꯃꯇꯝꯗ ꯌꯥꯃꯗꯕꯁꯤꯡ **ꯃꯦꯄꯤꯡꯒꯤ ꯃꯈꯥ ꯃꯁꯤꯡ ꯑꯃꯁꯨ, 1 ꯑꯁꯦꯡꯕꯅꯒꯤ 31 ꯑꯣꯡꯕꯗꯥ ꯀꯨꯁꯗ,** ꯌꯥꯎꯗ ꯁꯤꯀꯥꯡꯂꯝ ꯗꯩꯅꯗꯤꯀꯣ ꯁꯦꯡꯂꯕ ꯑꯃꯁꯤꯡꯗ ꯑꯣꯍꯥꯗꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯈꯥ ꯃꯥꯌꯀꯤ ꯃꯦꯖꯔꯃꯦꯟꯠ ꯊꯥꯕ ꯆꯦꯡꯒꯗꯕꯅꯤ꯫ ꯃꯈꯥ ꯑꯁꯤꯒꯤꯗꯃ ULB-ꯗ ꯂꯥꯏꯔꯤꯛꯇ ꯁꯤꯡꯀꯥꯌ ꯑꯃꯁꯨ ꯊꯃꯗ ꯌꯥꯎ꯫

10.14.3 **ꯑꯣꯂꯌ ꯕꯦꯂꯤꯡꯕ.** ꯌꯥꯎꯗ ꯃꯥꯌꯀꯅ, ULB-ꯗ ꯑꯣꯂꯌ ꯑꯃꯁꯨ ꯃꯇꯤꯒꯤ GIS ꯍꯥꯕꯀꯤ ꯑꯣꯂꯌ ꯕꯦꯂꯤꯡꯕꯅ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 10.17-ꯒꯤ ꯀꯅꯦꯛꯁꯅꯒꯤ ꯕꯦꯂꯤꯡꯕꯅ ꯍꯣꯡꯗꯣꯛꯀꯗꯕꯅꯤ꯫

10.14.4 **ꯁꯤꯕꯍꯥꯒꯌ ꯀꯅꯦꯛꯁꯅꯁꯤꯡ.** ULB-ꯗ ꯁꯦꯛꯁꯟ ꯑꯁꯤꯒꯤ ꯃꯍꯥꯛ ꯀꯥꯔꯃꯒꯤ ꯑꯣꯏꯗ ꯌꯥꯎꯕꯗꯤ, ꯁꯤꯕꯍꯥꯒꯌ ꯀꯅꯦꯛꯁꯟ ꯑꯃꯁꯨ ꯃꯇꯤꯒꯤ ꯃꯦꯖꯔꯃꯦꯟꯠ ꯁꯤꯡꯃꯦꯁꯔꯒꯤ ꯃꯍꯥꯛ ꯃꯁꯤꯡꯒꯤ ꯊꯥꯕ ꯑꯣꯏꯗ ꯊꯦꯡꯒꯤ꯫

> **ꯂꯦꯡꯁꯤꯟꯕꯒꯤ ꯇꯦꯛꯁꯠ.** NDMA (2010)-ꯗ ꯍꯥꯏꯕꯗꯤꯅꯤꯡꯒꯤ GIS ꯍꯦꯡꯒꯦꯟꯌꯒꯤ ꯑꯃꯁꯨ ꯄꯥꯟꯕꯤ꯫ ꯄꯨꯋꯦꯁꯅꯒꯤ ꯃꯈꯥꯅ ꯁꯤꯇꯤ ꯂꯦꯚꯦꯜꯒꯤ GIS ꯗꯦꯇꯥ ꯃꯊꯧ ꯇꯧꯕꯗ ꯂꯥꯕ ꯑꯃꯁꯨ ꯄꯨꯋꯦꯁꯅꯁꯤꯡ ꯗꯤꯌꯥꯗ, ULB-ꯅ ꯃꯃꯥ ꯑꯃꯁꯨꯡ ꯊꯣꯛꯄꯗ, ꯍꯦꯡꯒꯦꯟꯌꯒꯤ ꯑꯃꯁꯨ ꯂꯩꯃꯤ꯫ ꯃꯔꯝ ꯑꯗꯨꯒꯤ ꯍꯥꯕꯀꯅ ꯑꯣꯅꯍꯟꯕ ꯁꯦꯡꯕ ꯑꯄꯨꯅꯕ ꯃꯦꯄꯤꯡꯗꯅ ꯍꯥꯏꯕꯒꯤ ꯗꯤꯗꯥꯕ ꯀꯩꯕꯗ ꯁꯤꯀꯥꯡꯂꯝꯒꯤ ꯃꯈꯥ ꯑꯁꯤꯗ ꯃꯦꯄꯤꯡ ꯑꯃꯁꯨ ꯌꯥꯎꯏ꯫

10.15 ꯄꯦꯅꯥꯜꯇꯤꯁꯤꯡ

10.15.1 **ꯑꯣꯐꯦꯟꯁꯁꯤꯡ.** ꯃꯍꯥꯛꯁꯤꯡ ꯑꯁꯤ ꯃꯦꯄꯤꯡꯒꯤ ꯑꯁꯤꯒꯤ ꯀꯟꯇ꯭ꯔꯥꯚꯦꯟꯁꯅꯁꯤꯡꯅꯤ (contravention):

- (a) ꯑꯁꯤꯡꯒꯥ ꯇꯧꯕꯗ ꯍꯥꯏꯕ ꯁꯤꯂꯍꯟ ꯃꯇꯝ ꯇꯧꯔꯅ ꯃꯁꯨ ꯊꯣꯛꯄꯗ ꯂꯩꯗ;

- (b) ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯥ ꯑꯦꯞꯔꯨꯚ ꯇꯧꯔꯕ ꯃꯇꯨꯡ ꯏꯟꯅ ꯅꯠꯇꯅ ꯂꯩꯇꯕ;
- (c) ꯑꯦꯞꯔꯨꯚꯦꯜ ꯂꯩꯔꯕ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯥ ꯂꯧꯊꯣꯛꯄ, ꯐꯤꯜ ꯇꯧꯕ, ꯀ꯭ꯂꯤꯌꯔ, ꯍꯟꯗꯣꯛꯍꯟꯕ ꯅꯠꯔꯒꯥ ꯁꯤꯂꯤꯡꯕ ꯍꯣꯠꯅꯕ;
- (d) ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯥ ꯀꯦꯟꯗꯦꯟ ꯇꯧꯔꯕ, ꯅꯠꯔꯒꯥ ꯐꯥꯗꯕ 10-7 ꯂꯕꯀꯤꯠ ꯇꯧꯔꯕ;
- (e) ꯂꯧꯒꯤ ꯅꯁꯤꯒꯤ ꯅꯥꯒꯕꯦꯟ (storm drain) ꯑꯃꯗ ꯁꯤꯋꯦꯖ (sewage) ꯀꯂꯦꯒꯁꯟ ꯑꯃꯥ;
- (f) ꯅꯁꯤꯒ ꯂꯩꯐꯃꯒꯤ ꯁꯦꯠꯕꯦꯒ ꯅꯠꯔꯒꯥ ꯂꯥ-ꯐꯤꯜ ꯂꯥꯟ (ꯁꯦꯛꯁꯟ 7) ꯑꯃꯗ ꯁꯕ ꯅꯠꯔꯒꯥ ꯐꯤꯜ ꯇꯧꯕ;
- (g) ꯀꯍꯣꯁꯒꯤ ꯅꯗꯀꯒꯤ ꯂꯃꯕꯤ ꯅꯠꯔꯒꯥ ꯀꯦꯂꯗ-ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯐꯂꯥ ꯂꯃꯕꯤ ꯑꯃꯥ ꯊꯤꯡꯕ; ꯑꯃꯁꯨꯡ
- (h) ꯑꯗꯣꯂꯕ ꯅꯠꯔꯒꯥ ꯌꯦꯡꯁꯤꯟꯅꯕꯥ ꯇꯦꯗꯕ ꯁꯗꯇꯤꯐꯤꯀꯦꯁꯟ꯫

10.15.2 **ꯈꯣꯡꯊꯥꯡ ꯃꯇꯨꯡ ꯏꯟꯅ ꯀꯥꯟꯅꯕꯥ.** ꯑꯊꯣꯗꯤꯇꯤꯅꯥ ꯀꯍꯥꯒꯤ ꯊꯛ ꯃꯇꯨꯡ ꯏꯟꯅ ꯀꯥꯟꯅꯕꯥ ꯀꯤꯒꯤꯟꯕꯂꯤ, ꯀꯀꯍꯒꯤ ꯈꯣꯡꯊꯥꯡ ꯑꯀꯤ ꯀꯤꯌ ꯀꯤꯛꯇꯗꯕꯟꯤ ꯅꯠꯔꯒꯥ ꯀꯦꯇꯁ꯭ꯗꯤꯁꯦꯂꯦ ꯑꯊ ꯌꯤꯐꯅꯤ ꯌꯤꯍꯂꯕꯟꯤ ꯃꯇꯨꯡꯒꯤ ꯈꯣꯡꯊꯥꯡ ꯑꯀꯟ ꯌꯥꯊꯨꯅꯤ (ꯇꯦꯕꯜ 10.4):

ꯇꯦꯕꯜ 10.4 — ꯈꯣꯡꯊꯥꯡ ꯃꯇꯨꯡ ꯏꯟꯅ ꯏꯟꯐꯣꯔꯁꯃꯦꯟꯇꯀꯤ ꯀꯥꯟꯅꯕꯥ

ꯈꯣꯡꯊꯥꯡ	ꯊꯕꯛ
1	ꯀꯦꯁ꯭ꯗꯤꯁꯦꯂꯦ, ꯊꯒꯤꯏꯅꯤꯕ ꯀꯂꯥꯜ, ꯁꯦꯐꯟꯒꯂꯕ ꯊꯥꯑꯥꯛ ꯑꯀꯁꯨꯡ ꯃꯂꯣꯅꯦꯂꯕ ꯀꯇꯐ ꯇꯀꯇ ꯅꯗꯕ ꯂꯥꯇꯤꯁ꯫
2	ꯂꯥꯏꯟꯗꯕꯤꯕ ꯅꯦꯒꯦꯂꯀꯦꯟꯇꯀꯤꯅꯀꯛ, ꯊꯕꯛ ꯂꯦꯞꯀꯟꯕ ꯑꯥꯗꯅꯗ (stop-work order), ꯅꯠꯔꯒꯥ ꯀꯐꯞꯂꯤꯁꯦ ꯁꯗꯇꯤꯐꯤꯀꯦꯠ ꯊꯐꯂꯤꯟꯕ꯫
3	ꯌꯠꯂꯕ ꯑꯦꯛꯠ ꯅꯠꯔꯒꯥ ꯗꯤꯜꯁꯤꯛꯒꯤ ꯀꯍꯥꯅ ꯌꯦꯗꯤꯛ꯫
4	ꯑꯊꯣꯗꯤꯇꯤꯅꯥ ꯇꯧꯕ ꯅꯤꯐꯥꯏꯠꯀꯤ ꯊꯕꯛ (works in default), ꯁꯦꯜ ꯑꯃꯥ ꯀꯄꯨꯅꯒꯤ ꯂꯩꯊꯣꯛꯇꯅꯤ꯫
5	ꯑꯇꯣꯄꯄꯁꯤꯛꯅ ꯍꯅꯥꯛꯌꯤꯅꯕ ꯄꯨꯗꯛꯇꯕꯅꯤ, ꯄꯕꯂꯤꯛ ꯁꯤꯁ꯭ꯇꯦꯃꯅ ꯂꯩꯕ ꯄꯗꯤꯟꯒꯦꯠ ꯈꯣꯡꯕꯥꯒꯤ ꯀꯂꯦꯛꯂꯦ ꯀꯀꯊꯠꯄ꯫
6	ꯁꯗꯇꯤꯐꯅ ꯇꯗꯤꯕ ꯄꯗꯐꯦꯁꯂꯦꯜꯒꯤ ꯀꯇꯣꯅ ꯗꯦꯂꯤꯁ꯭ꯇꯗ ꯇꯧꯕ ꯑꯊꯣꯗꯤꯇꯤꯅ ꯗꯤꯄꯥꯗꯠ, ꯑꯃꯁꯨꯡ ꯅꯐꯄꯦꯂꯦꯜ ꯂꯤꯁꯠꯇꯒꯤ ꯁꯁꯄꯦꯂꯦꯁꯦ꯫

10.15.3 **ꯍꯅꯛꯇ ꯊꯕꯛ.** ꯀꯥꯂꯦꯁꯂꯒꯤ ꯀꯇꯐꯅ ꯀꯦꯁ꯭ꯗꯤꯁꯦꯂꯦ ꯑꯀꯂꯥ ꯄꯂꯦꯁꯤ ꯅꯠꯔꯒꯥ ꯄꯥꯠꯂꯐꯅ ꯍꯅꯥꯛꯌꯤꯅꯕ ꯄꯨꯗꯛꯂꯕꯅꯤ, ꯑꯊꯣꯗꯤꯇꯤꯅꯥ ꯍꯅꯛꯇ ꯅꯤꯐꯥꯏꯠꯀꯤ ꯊꯕꯛ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯅ ꯁꯦꯜ ꯂꯧꯊꯣꯛꯄ ꯌꯥꯏ꯫

10.15.4 **ꯁꯦꯛꯁꯟꯗꯤꯇꯤ ꯅꯤꯄꯥꯂꯤꯠꯁꯤꯡ.** ꯀꯂꯥꯜ 10.6.1-ꯒꯤ ꯀꯍꯥꯅ ꯂꯩꯕ ꯁꯟꯠꯁꯤꯡꯒꯤꯅꯀꯛ, ꯑꯊꯣꯗꯤꯇꯤꯅꯥ ꯅꯤꯐꯥꯏꯠꯀꯤ ꯊꯕꯛ ꯌꯥꯍꯂꯕ, ꯑꯦꯜ-ꯕꯤꯜꯠ ꯁꯗꯇꯤꯐꯤꯀꯦꯠ ꯌꯥꯗꯕ ꯃꯇꯨꯡꯅ ꯍꯟꯂꯛꯀꯅꯕ ꯁꯦꯛꯁꯟꯗꯤꯇꯤ ꯅꯤꯄꯥꯂꯤꯠ ꯅꯠꯔꯒꯥ ꯕꯦꯊꯛ ꯒꯦꯗꯦꯇꯤ ꯑꯃꯥ ꯀꯊꯧ ꯇꯧꯕ ꯌꯥꯏ꯫

10.15.5 **ꯗꯦꯀꯗꯅ.** ꯀꯂꯥꯜ ꯑꯁꯤꯒꯤ ꯀꯍꯥꯅ ꯂꯩꯕ ꯂꯥꯇꯤꯁ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯍꯅꯤꯊꯛ ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯗꯦꯂꯤꯁ꯭ꯇꯗꯅ ꯅꯁꯤꯂꯒꯅꯕꯂꯤ꯫

> **ꯁꯦꯟꯇꯥꯂꯥ ꯇꯥꯛꯄ.** ꯌꯦꯗꯤꯛꯁꯤꯡ ꯑꯁꯤ ꯄꯨꯀꯂꯀꯊꯀꯤ ꯀꯑꯥꯊꯅ ꯌꯥꯇꯀꯊ ꯇꯀꯟ꯫ ꯀꯦꯂꯨꯌꯦꯟ ꯑꯁꯤ ꯀꯁꯤꯂꯦ ꯑꯐꯦꯂꯁ ꯅꯠꯔꯒꯥ ꯐꯟꯂꯦꯁꯤꯡ ꯁꯦꯀꯕ ꯖꯀꯅꯦ, ꯑꯃꯁꯨꯡ ꯁꯊꯇꯤꯁꯤꯡ ꯑꯁꯤ ꯀꯅꯦꯟ ꯀꯂꯤꯄꯨꯗ ꯍꯂꯤꯐꯟꯅ ꯕꯤꯟꯅꯤꯡ ꯕꯟ-ꯂꯥꯜ 2024 ꯁꯦꯀꯕꯒꯤ ꯍꯀꯐꯀ ꯑꯥꯟꯗꯤꯕ ꯑꯦꯊꯠꯁꯤꯡꯅꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯍꯂꯤꯁꯤꯄꯦꯟ ꯑꯦꯊꯠꯁꯤꯡꯅꯒꯤ ꯂꯤꯀꯟ꯫ ꯈꯣꯡꯊꯥꯡ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯩꯕ ꯈꯣꯡꯊꯥꯡꯁꯤꯡ ꯑꯁꯤ ꯀꯦꯂꯨꯌꯦꯟ ꯑꯁꯤꯅ ꯊꯀꯕꯂꯤ꯫ ꯀꯂꯤꯄꯨꯗꯅ ꯀꯥꯗꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯁꯂꯦꯟ ꯒꯗꯤꯂꯦ ꯇ꯭ꯔꯥꯏꯕ꯭ꯌꯨꯅꯦꯜ (National Green Tribunal) ꯑꯁꯤ ꯄꯥꯠ, ꯇ꯭ꯔꯤꯅꯦꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯍꯥꯌꯒꯤ ꯄꯥꯏꯂꯦꯂꯒꯤ ꯊꯕꯛ ꯇꯗꯤꯕ ꯗꯦꯒꯂꯇꯗꯁꯤꯡ ꯑꯍꯅꯗꯦ꯫ ꯍꯟ ꯀꯥꯗꯠꯀꯤ ꯁꯄꯥꯏꯁꯤꯌꯦꯟ ꯕꯦꯟꯌꯥꯂꯥ 17 ꯖꯨꯂꯥꯏ 2019 ꯑꯃꯁꯨꯡ 25 ꯐꯦꯕ꯭ꯔꯨꯋꯥꯔꯤ 2022-ꯒꯤ ꯑꯥꯗꯅꯗꯁꯤꯡꯂꯥ ꯂꯥꯏꯇꯥꯏꯇ ꯅꯠꯔꯒꯥ ꯀꯁꯤꯒꯤ ꯀꯤꯊꯨꯟ "ꯀꯥꯗꯠꯀꯤ ꯑꯌꯥꯕ ꯂꯧꯗꯅ" ("without the Court's leave") ꯅꯦꯒꯦꯂꯀꯦꯟꯠ ꯅꯠꯔꯒꯥ ꯀꯦꯁ꯭ꯇꯗꯂꯦꯂꯦ ꯊꯤꯊꯍꯤ (ꯄꯂꯤꯁꯅ ꯐꯥꯊꯅꯥꯊꯍꯤꯕ ꯈꯣꯡꯊꯥꯡ ꯃꯇꯨꯡ; ꯀꯦꯁ ꯂꯐꯕꯗ ꯐꯊꯍꯤꯅꯦ [TBC]), ꯑꯃꯁꯨꯡ 2019-ꯅ ꯊꯧꯕꯟ ꯁꯗꯦꯟꯒꯤ ꯀꯇꯣꯊꯅ ꯁꯂꯥꯏ ꯀꯥꯗ PIL ꯑꯀꯅ ꯂꯤꯟꯁꯦꯂꯦꯁꯀꯤ ꯀꯍꯥꯅ ꯅꯠꯇꯕꯅꯤ ꯁꯊ ꯂꯥꯕ, ꯂꯥꯏꯟ ꯂꯥꯕ ꯑꯃꯁꯨꯡ ꯄꯥꯠꯂꯦꯂꯦ ꯑꯊꯤꯊꯕ ꯄꯤꯍꯤ (ꯄꯂꯤꯁꯅ ꯐꯥꯊꯅꯥꯊꯍꯤꯕ ꯈꯣꯡꯊꯥꯡ ꯃꯇꯨꯡ); PIL No. 8 of 2025-ꯅ ꯀꯁꯤꯂꯦ ꯂꯐꯐꯦꯟꯄꯥꯠ (pat; lake or wetland) ꯅꯗꯦꯂꯤꯊ ꯇꯕꯒꯤ ꯀꯇꯣꯊꯅ WRD-ꯒꯤ ꯅꯦꯁꯄꯥꯂꯦꯂꯦ ꯗꯤꯄꯥꯗꯠ ꯗꯦꯀꯗꯅꯇ ꯂꯍꯤ ꯑꯃꯁꯨꯡ "ꯀꯗ ꯑꯟꯕ ꯌꯐꯦꯐ ꯑꯀꯠꯇꯣ ꯂꯥꯇꯣ" ("no substance") ꯍꯌꯂꯦ ꯄꯤꯇꯤꯂꯦ ꯑꯀꯅ ꯂꯥꯅꯁꯤꯂꯍꯤ (16 ꯖꯨꯟ 2025-ꯒꯤ ꯑꯥꯗꯅꯗ)꯫ ꯇ꯭ꯔꯥꯏꯕ꯭ꯌꯨꯅꯦꯜ ꯑꯁꯤꯂꯦ O.A. No. 606 of 2018-ꯅ ꯁꯇꯦꯠꯀꯤ ꯁꯤꯋꯦꯖ (sewage) ꯑꯃꯁꯨꯡ ꯁꯂꯤꯅ ꯌꯦꯁꯠ ꯌꯦꯊꯁꯤꯟꯂꯤ, ꯀꯁꯤꯒꯤ ꯀꯍꯥꯅ ꯅꯐꯕꯟ ꯇꯗꯦꯟꯅ ꯌꯦꯀꯊꯗꯀꯄ ꯈꯣꯡꯊꯥꯡ 72-ꯒꯤ ꯅꯦꯇꯗꯁꯦꯄꯂꯦ ꯂꯥꯅꯗꯦ ꯍꯌꯂꯦ ꯗꯤꯄꯥꯗꯠ ꯇꯗꯤ (ꯁꯇꯦꯠꯀꯤ ꯗꯤꯄꯥꯗꯠ, ꯅꯤꯁꯦꯐꯕꯗ 2025), ꯑꯃꯁꯨꯡ O.A. No. 673 of 2018-ꯅ ꯀꯁꯤꯒꯤ ꯄꯥꯠꯂꯠ ꯑꯟꯗꯕ ꯇꯗꯦꯟꯁꯤꯡ ꯌꯊꯁꯤꯟꯂꯤ, ꯀꯁꯤꯂꯦ ꯁꯇꯦꯠꯀꯤ ꯇꯗꯦꯟ 13-ꯒꯤ ꯀꯀꯤꯊ ꯂꯥꯟ, ꯀꯍꯥꯌꯒꯤ ꯀꯂꯊꯅ ꯅꯐꯏꯟ, ꯅꯗꯤꯟ, ꯂꯐꯕꯟ ꯑꯃꯁꯨꯡ ꯀꯂꯤꯄꯨꯗ ꯇꯗꯦꯟ ꯌꯥꯍꯟ; M.A. No. 26 of 2019-ꯅ 22 ꯀꯦ 2020-ꯒꯤ ꯀꯁꯤꯒꯤ ꯑꯥꯗꯅꯗꯂꯦ ꯅꯁꯤꯊ ꯂꯩꯐ 4,000 ꯀꯗꯥꯟꯒꯤ ꯅꯦꯒꯦꯂꯦꯇꯗꯤ ꯑꯃꯥ ꯁꯦꯐꯍꯂꯤꯍꯤ, ꯀꯍꯥꯌꯒꯤ "ꯒꯗꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ … ꯂꯥꯏꯟꯗꯤꯕꯤ" ("Ground truthing … are pending") (DoECC, 2025-

> 26)꯫ ꯑꯣꯏꯕꯁꯤꯡ ꯑꯁꯤ ꯂꯩꯇꯥꯕ ꯅꯥꯏꯗꯦ꯫ ꯃꯅꯤꯄꯨꯔ ꯄ꯭ꯔꯥꯏꯚꯦꯠ ꯑꯦꯖ ꯁꯤꯇꯤꯒꯤ ꯂꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯠꯁꯟ ꯑꯦꯛꯠ, 2014-ꯗ ꯑꯍꯦꯅꯕ ꯅꯤꯡꯊꯧ ꯅꯤ, ꯃꯗꯨ ꯑꯣꯏꯔꯕꯁꯨ ꯄꯨꯊꯣꯛꯂꯕ ꯑꯃꯁꯨꯡ ꯀꯦꯁ ꯐꯥꯏꯟ ꯂꯥꯏ ꯊꯕ, ꯑꯃꯁꯨꯡ ₹50,000-ꯗꯒꯤ ₹2 ꯂꯥꯈ ꯐꯥꯏꯟ ꯐꯥꯏꯅꯕ (ꯁꯦꯛꯁꯟ 18), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯄꯨꯛꯅꯤꯡ ꯁꯦꯟꯗꯣꯡ ꯂꯥꯏꯁꯦꯟ ꯑꯦꯛꯁꯦꯞꯇꯦꯒꯤꯗꯃꯛ ꯂꯣꯛꯇꯥꯛ ꯅꯠꯇ꯭ꯔꯒꯥ ꯁꯦꯟꯃꯤꯠ ꯑꯃꯄꯥꯏꯗꯒꯤ ꯊꯤꯕꯅ (ꯁꯦꯛꯁꯟ 12); 2026-ꯒꯤ ꯐꯤꯕ ꯑꯃꯅ ꯅꯣꯡꯂꯩꯅ ꯌꯥꯎꯕ ꯃꯇꯧꯗ ꯁ꯭ꯇꯦꯠ ꯑꯃꯒꯤ ꯄꯨꯗꯕ ꯆꯥꯡ ꯚꯦꯟꯊꯣꯛꯕꯗꯥ ꯑꯃꯁꯨꯡ ꯃꯍꯧꯒꯤ ꯗꯤꯂꯤꯗꯦꯡꯗꯤꯁꯟ "ꯗꯤꯃꯗ ꯀꯟꯚꯔꯁꯟ" ("Deemed Conversion") ꯍꯣꯡꯅꯕꯗꯤ, ꯑꯗꯨꯒꯨ ꯃꯇꯝ ꯐꯤꯕ ꯑꯃꯅꯗꯤ, ꯑꯅꯧ ꯅꯠꯇꯦ꯫ ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006-ꯅ 70.30 km²-ꯒꯤ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯥ "ꯅꯣ-ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯖꯣꯟ ꯅꯠꯇ꯭ꯔꯒꯥ ꯃꯄꯨꯡ ꯐꯥꯅ ꯉꯥꯀꯄ ꯖꯣꯟ" ("No-Development Zone or Totally Protected Zone") ꯑꯣꯏꯅ ꯂꯦꯄꯈꯤ (ꯁꯦꯛꯁꯟ 3), ꯃꯗꯨꯗ ꯖꯣꯟꯗ "ꯅꯦꯝꯇꯕ ꯁꯦꯟꯗꯣꯡꯁꯤꯡ, ꯁꯍꯔꯁꯤꯡ ꯅꯠꯇ꯭ꯔꯒꯥ ꯏꯟꯗꯁ꯭ꯠꯔꯤꯁꯤꯡꯗꯒꯤ ꯂꯥꯀꯄ ꯑꯃꯁꯨꯡ ꯑꯦꯐ꯭ꯂꯨꯌꯦꯟꯇꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ" ("Discharge of untreated wastes and effluents from industries, cities or towns") ꯑꯃꯁꯨꯡ "ꯂꯝ ꯃꯤꯌꯥꯝꯒꯤ, ꯄꯥꯜ ꯁꯥꯕ ꯅꯠꯇ꯭ꯔꯒꯥ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯂꯝꯕꯤ ꯁꯣꯀꯍꯟꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯑꯊꯤꯡꯕ ꯄꯤꯔꯝꯃꯤ (ꯁꯦꯛꯁꯟ 19), ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ LDA-ꯒꯤ ꯍꯀꯨꯝꯒꯤ ꯑꯌꯥꯕ ꯌꯥꯎꯗꯅ ꯂꯤꯌꯥꯡ ꯅꯠꯇ꯭ꯔꯒꯥ ꯐꯤꯒꯤ ꯑꯍꯦ ꯊꯥꯗꯣꯛꯄ ꯑꯊꯤꯡꯕ ꯄꯤꯔꯝꯃꯤ (ꯁꯦꯛꯁꯟ 20); ꯍꯧꯖꯤꯛ ꯐꯥꯑꯣꯕ ꯆꯠꯊꯔꯤꯕ ꯄꯥꯝꯕꯩ [TBC], ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯐꯨꯝꯗꯤꯁꯤꯡꯒꯤ (phumdi) ꯐꯨꯝꯗꯤꯁꯤꯡ ꯂꯧꯊꯣꯛꯄ ꯁꯤꯡꯂꯨꯞꯅ (ꯄꯥꯟꯗꯝ ꯈꯪꯍꯟꯅꯕ ꯍꯥꯏꯕ ꯅꯩꯗ)꯫ ꯃꯅꯤꯄꯨꯔ ꯈꯨꯅꯥꯏ ꯄꯥꯟꯗꯦ ꯂꯃꯗꯝ ꯑꯦꯛꯠ, 1978 ꯑꯃꯥ ꯊꯥꯗꯣꯛ ꯍꯥꯏꯕ ꯅꯥꯏꯗꯦ: ꯈꯨꯅꯥꯏ ꯂꯃꯗꯝ ꯑꯦꯊꯦꯗꯥꯏꯒꯤ ꯑꯍꯣꯡꯕ ꯁꯦꯝꯅꯕ ꯈꯣꯡꯅꯥꯡ ꯑꯃꯁꯨꯡ ꯂꯝ ꯑꯍꯣꯡꯕ ꯂꯥꯏꯔꯤꯛ ꯌꯥꯅꯕ, ꯑꯃꯁꯨꯡ ꯑꯍꯦ ꯊꯕ "ꯇꯧꯗꯕꯒꯤ ꯌꯥꯑꯣꯗ" ("is yet to be done") (ꯄꯥꯟꯗꯝ ꯈꯪꯍꯟꯅꯕ ꯍꯥꯏꯕ ꯅꯩꯗ, ꯖꯨꯟ 2026), ꯑꯗꯨꯕ ꯅꯍꯥꯛꯀꯤ ꯁꯨꯝꯍꯠꯀꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯦꯄꯤꯜ 2025-ꯒꯤ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯥ ꯑꯃꯅ ꯃꯇꯝꯒꯤ "ꯁꯦꯛꯁꯟ 24" ("Section 24") ꯄꯥꯟꯗꯨ ꯌꯥꯎꯔꯦ (ꯄꯥꯟꯗꯝ ꯈꯪꯍꯟꯅꯕ ꯍꯥꯏꯕ ꯅꯩꯗ; ꯁꯦꯛꯁꯟ 24 ꯄꯥꯝꯕꯩ [TBC]); ꯍꯦꯟꯅꯒꯤ ꯃꯍꯩ-ꯗ 93-ꯅ ꯍꯊꯧ ꯌꯥꯝ ꯈꯨꯅꯥꯏ ꯂꯃꯗꯝ ꯑꯊꯦꯗꯥꯏꯒꯤ ꯑꯌꯥꯕ ꯑꯃꯥꯁꯨ ꯍꯟꯊ ꯑꯗꯨꯍꯧꯄꯗꯤꯗꯍꯧ ꯍꯧꯖꯤ ꯅꯥꯏꯗꯦ꯫ ꯃꯅꯤꯄꯨꯔ ꯍꯩꯅꯂꯤꯡꯄꯥꯂꯤꯌꯤꯂ ꯑꯦꯛꯠ, 1994 ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯌꯥꯍꯦ ꯑꯃꯁꯨꯡ ꯄꯥꯌꯣꯃꯤ ꯄꯥꯟꯂꯤꯡ ꯑꯦꯛꯠ, 1975-ꯒꯤ ꯅꯤꯡꯊꯧꯕ ꯄꯥꯝꯕꯩ, ꯍꯃꯍ ꯑꯗꯨꯅ ꯍꯟꯅꯔ ꯍꯤꯡꯕ ꯅꯥꯏꯗꯦ ꯅꯠꯇ꯭ꯔꯒꯥ ꯅꯠꯇꯦ ꯇꯧꯔꯕ ꯅꯥꯏꯗꯨ [TBC]꯫ ꯍꯦꯟꯅ ꯑꯃꯥ ꯄꯥꯝꯕꯩ ꯑꯃꯁꯨꯡ ꯄꯨꯟꯁꯤꯜꯂꯣꯏ ꯂꯥꯏꯌꯣꯟꯂꯣꯏꯗꯒꯤ ꯐꯨꯍꯟꯊꯕꯗ ꯅꯦꯝꯆꯥꯂ ꯌꯥꯍ, ꯑꯃꯁꯨꯡ ꯍꯩꯄꯥꯛ ꯅꯣꯡꯕ ꯃꯤꯔꯣꯅꯄꯗꯤꯕ ꯇꯦꯔꯦꯅ ꯅꯥꯏꯒꯤ ꯅꯣꯡꯕ ꯑꯍꯦꯗꯦꯗꯤꯒꯤꯗꯃꯛ 10%-ꯒꯤ ꯈꯤ ꯃꯤꯐꯥꯏ (ꯃꯍꯩ-ꯗ 68) ꯑꯃꯥ ꯈꯨꯅꯥꯏ ꯍꯧꯖꯤꯛꯒꯤ ꯅꯦꯝꯆꯥꯏꯒ ꯑꯍꯟꯊꯥꯏꯗꯦ꯫ CAG-ꯅ "ꯅꯣꯡꯕ ꯅꯨꯡꯁꯤꯒꯤ ꯂꯩꯊꯥꯡꯗꯨ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯗꯝꯒꯤ ꯌꯥꯑꯣꯒꯤ ꯀꯨꯜꯂꯍꯥꯏꯄꯥꯏ ꯊꯥꯗꯣꯛꯄ ꯍꯧꯖꯤ ꯁꯣꯏꯗ ꯅꯤꯔꯦꯍꯥ" ("The overall flood fighting and control activities remained inadequate") ꯇꯥꯔꯦ ꯈꯥꯅꯤ (Report No. 2 of 2017, ꯍꯀꯁ 2016 ꯈꯨꯂꯃꯒꯤ ꯅꯣꯡꯕ ꯅꯨꯡꯁꯤ ꯄꯥꯟꯗꯝꯗ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯕ ꯅꯨꯡꯁꯤ ꯈꯦꯃꯗꯣꯛꯄꯒꯤ ꯑꯦꯛꯁꯤ, ꯂꯥꯏꯍꯤꯡ ꯌꯥꯅꯕ ꯍꯥꯏꯕ ꯅꯩꯗ; ꯂꯝꯕ ꯑꯗ ꯄꯥꯝꯕꯩ [TBC]), ꯑꯃꯁꯨꯡ ꯍꯀꯨꯝꯒꯤ ꯑꯦꯛꯁꯤꯅꯣꯟꯗꯨ ꯂꯣꯛꯇꯥꯛ ꯂꯤꯐꯠ ꯅꯤꯡꯒꯣꯝ ꯄꯥꯟꯗꯝ (Loktak Lift Irrigation Project)-ꯒꯤ "ꯍꯦꯅꯗ ꯂꯩꯍ ꯄꯨꯊꯣꯛꯄ ... ꯍꯂꯥꯛꯅꯕꯒꯤ ꯈꯥꯂꯣꯏꯔꯕ" ("failure of canals ... due to siltation of beds") ꯈꯥꯅꯤ (2002 ꯑꯃꯁꯨꯡ 2008, ꯂꯝꯍꯕꯤ ꯌꯥꯅꯕ ꯍꯥꯏꯕ ꯅꯩꯗ); IMC, ꯅꯃꯈꯦ ꯂꯍꯦꯕꯂ ꯂꯤꯌꯤ ꯇꯤꯍꯤꯌꯥꯝ, AMRUT ꯅꯠꯇ꯭ꯔꯒꯥ LDA-ꯒꯤ ꯍꯥꯏꯕꯗꯦꯂꯣꯏꯒꯤ ꯑꯦꯛꯁꯤ ꯑꯃꯁꯨꯡ ꯈꯥꯅꯤꯕ꯫ ꯍꯂꯤꯅ ꯍꯌꯍ ꯍꯌꯍꯒꯤ ꯅꯦꯝꯈꯦꯕꯂꯍꯦꯗꯦ ꯂꯩꯐꯕ ꯄꯨꯔ ꯑꯍꯅ ꯅꯕ ꯍꯥꯌꯍꯥ ꯌꯥꯍ, ꯑꯃꯁꯨꯡ ꯂꯌꯦꯅ ꯂꯩꯍꯅꯗ ꯅꯦꯅꯦ ꯊꯗꯕ ꯍꯈꯍꯗ ꯄꯦꯕꯂꯣꯏꯅ ꯊꯕꯥ ꯇꯔꯕ ꯁꯦꯅꯤ꯫ ꯄ꯭ꯔꯥꯏꯅꯦꯂꯅꯦꯟ ꯑꯦꯗꯁꯦꯌꯕꯇꯤꯌꯤ (ꯍꯥꯗꯊ 6) ꯑꯃꯥ ꯍꯄꯨꯂꯣꯏꯗ ꯈꯅꯦ ꯊꯕꯗꯒꯤ ꯍꯦꯍꯅ ꯍꯌꯍꯗ ꯇꯦꯗꯅ ꯅꯈꯥꯌꯍꯟ ꯑꯍꯅ, ꯍꯄꯍꯗꯤ ꯍꯂꯤꯅ ꯗꯤꯇꯅꯦ ꯑꯗꯨꯗ ꯂꯅꯦ ꯌꯥꯄꯤꯕ ꯍꯤꯑꯍꯅ ꯑꯗꯨꯗ ꯊꯕꯥ ꯌꯥꯍ꯫

10.16 ꯃꯣꯅꯤꯇꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯄꯣꯔꯇꯤꯡꯒꯤ ꯃꯊꯧ ꯇꯥꯕꯁꯤꯡ

10.16.1 **ꯃꯣꯅꯤꯇꯔꯤꯡ ꯅꯦꯇꯋꯥꯔꯛ.** ꯌꯤꯔꯦ A ꯑꯦꯊꯦꯗꯥꯏꯌꯤꯂꯣꯏꯅ ꯍꯥꯟꯅꯒꯤ ꯍꯨꯔꯨꯕꯅ ꯑꯦꯛꯁꯀꯦꯔꯍꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯄꯤꯇꯤꯍꯟ ꯈꯦꯂꯣꯏꯇꯤꯌꯤꯂꯣꯏꯗ ꯄꯥꯟꯗꯝꯗꯤ ꯄꯦꯟ ꯇꯥꯔꯂꯣꯏ ꯑꯃꯁꯨꯡ ꯍꯌꯄ-ꯗꯥꯒꯥ ꯇꯥꯔꯂꯣꯏ ꯔꯥꯏꯂꯣꯏꯗꯒꯗꯕꯇꯤ, ꯅꯠꯇ꯭ꯔꯒꯥ ꯍꯥꯟꯔꯗ ꯁꯏꯕ ꯍꯦꯒꯗꯕꯇꯤ꯫ ꯗꯥꯌ ꯑꯃꯥ ꯍꯤꯇꯤꯌ 15 ꯅꯠꯇ꯭ꯔꯒꯥ ꯍꯨꯗꯒꯤ ꯇꯦꯊꯕ ꯅꯦꯌꯄꯥꯒꯥꯔꯂꯣꯏꯗ ꯑꯄꯗꯅꯕ ꯌꯥꯒꯗꯕꯇꯤ꯫

10.16.2 **ꯅꯒꯥꯦꯌ ꯄꯤꯔꯄꯤꯌꯂꯣꯏ.** ULB ꯑꯥꯄꯤꯔꯤ ꯑꯍꯒꯤ ꯍꯦꯟꯗ ꯐꯤꯔꯗꯤꯂꯣꯏꯗ ꯅꯣꯡꯕ ꯅꯨꯡꯁꯤ ꯅꯥꯈꯦꯕ ꯅꯒꯥꯦꯌ ꯑꯍꯇꯥꯈꯌꯒꯤ ꯍꯌꯨꯗ, ULB-ꯅ ꯊ 3-ꯒꯤ ꯍꯦꯟꯗ ꯍꯥꯟꯒꯤꯂꯣꯏ ꯄꯥꯄꯥꯗ ꯌꯥꯕ ꯑꯔꯤꯌꯔ ꯅꯒꯥꯦꯌ ꯄꯤꯔꯄꯌ ꯑꯍ ꯂꯥꯍꯒꯗꯕꯇꯤ:

- (a) ꯍꯕꯅꯗꯒꯤ ꯅꯌꯔ ꯑꯥꯔꯄꯨꯒ ꯌꯥꯄꯕ ꯒꯥꯇꯂꯣꯏꯗ, ꯗꯍꯨꯄꯥꯂꯦ ꯍꯌꯨ ꯅꯩꯗ, ꯂꯄꯨꯌ 2-ꯒꯤ ꯗꯤꯇꯅꯦ ꯗꯥꯔꯊꯂꯣꯏꯗꯒ ꯍꯗꯗꯍꯅꯕ ꯅꯦꯗ ꯍꯕ;

- (b) ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯃꯐꯝ WRD ꯅꯥ ꯊꯤꯈꯤꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ (ꯃꯤꯅꯨꯊꯣꯡ (Minuthong) ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ, ꯏꯔꯤꯜꯕꯨꯡꯗ (Irilbung) ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ (Iril), ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤꯗ (ꯍꯝꯞ ꯕ꯭ꯔꯤꯖ) (Thong Nambonbi (Hump Bridge)) ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ, ꯅꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡꯗ (Nambol Thongkhong) ꯅꯝꯕꯣꯜ ꯇꯨꯔꯦꯜ, ꯊꯧꯕꯜ ꯇꯨꯔꯦꯜ, ꯑꯃꯁꯨꯡ ꯏꯆꯥꯏ ꯕꯦꯗꯇꯔ ꯈꯣꯔꯗꯥꯛ ꯇꯨꯔꯦꯜ), ꯃꯈꯣꯌꯒꯤ ꯁꯤꯡꯊꯥꯡ, ꯂꯧꯕꯨꯛ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯅꯕ ꯂꯧꯕꯨꯛ ꯅꯥꯀꯥꯟꯅꯕꯒꯤ ꯁꯦꯝꯖꯤꯟꯅꯕ, ꯑꯃꯁꯨꯡ ꯅꯣꯡꯃꯥꯏꯖꯤꯡ ꯅꯥꯀꯥꯟ, ꯑꯃꯁꯨꯡ, ꯅꯤꯡꯊꯤꯕꯗ, ꯁꯣꯃꯕꯥꯜꯂꯨꯛꯇ (Chotebekra) ꯅꯠꯇ CWC ꯀꯤꯅꯥꯗ ꯕꯨꯟꯗ ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯅꯥꯀꯥꯟ, ꯑꯃꯁꯨꯡ, ꯒꯥꯇ ꯅꯠꯔꯕꯗꯤ, ꯑꯦꯝꯕꯦꯉ꯭ꯀꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯕꯟꯗꯒꯤ (bund) ꯃꯔꯨꯑꯣꯏ, ꯂꯧꯕꯨꯛ ꯃꯥꯏꯄꯥꯛꯄ ꯅꯠꯇ ꯑꯦꯝꯕꯣ ꯑꯃꯗ, ꯁꯦꯝꯒꯠꯅꯕꯒꯤ ꯊꯧꯑꯣꯡ ꯂꯧꯈꯠꯄ WRD-ꯒꯤ ꯂꯥꯏꯁꯤꯡꯗꯥ ꯌꯥꯑꯣꯔꯦ ꯊꯝꯂꯦ; ꯑꯦꯝꯕꯦꯉ꯭ꯀꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯃꯊꯛ ꯊꯪꯕ ꯃꯇꯝꯒꯤ ꯍꯣꯡꯕꯁꯤꯡ (drain) ꯅꯠꯇ ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ (flap gate) ꯂꯧꯕꯨꯛ ꯊꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯛ ꯍꯟꯅꯥ ꯍꯣꯠꯅꯕ ꯃꯌꯥꯝꯁꯤꯡ, ꯏꯁꯤꯡ ꯅꯠꯇ ꯄꯥꯠ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯒꯤ (pukhri; pond) ꯅꯥꯀꯥꯟ, ꯄꯥꯝꯄ ꯂꯧꯕꯨꯛ ꯁꯦꯝꯕ ꯄꯨꯡꯁꯤꯡ, ꯄꯥꯔꯥ ꯃꯤꯡꯕ ꯑꯃꯍꯥꯡꯕꯁꯤꯡ, ꯀꯤꯅꯤꯡꯕꯥ ꯑꯦꯃꯨꯔꯥꯡ ꯑꯃꯁꯨꯡ ꯀꯣꯝꯕꯤꯡ ꯂꯧꯕꯨꯛꯄꯒꯤ ꯅꯠꯊꯕ ꯐꯨꯝꯗꯤ (phumdi), ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯕꯤꯀ; ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯄꯥꯟ ꯃꯐꯝ ꯑꯃꯍꯥꯡꯕꯁꯤꯡ, ꯃꯈꯣꯌꯒꯤ ꯃꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯃꯇꯨꯡꯗ ꯏꯁꯤꯡꯅ ꯍꯤꯡꯕ ꯅꯥꯀꯥꯟꯁꯤꯡ ꯅꯦꯡꯁꯤꯜꯂꯦ; ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯅꯠꯇ ꯅꯥꯀꯥꯟ ꯊꯃꯕ ꯁꯥꯝ ꯑꯃꯍꯥꯡꯕꯒꯤ ꯂꯤꯅꯤꯡꯁꯤꯡ, ꯂꯧꯕꯨꯛ ꯑꯦꯅꯤꯡ ꯊꯣꯕꯟ (ꯃꯄꯥꯡꯊꯥꯟ), ꯂꯨꯛ ꯑꯃꯁꯨꯡ ꯀꯤꯁꯦ ꯁꯥꯝ, ꯄꯤꯅꯕ ꯍꯤꯡꯁꯤꯡꯀꯤꯁꯤꯡꯒꯤ ꯃꯌꯥꯝꯀꯤꯁꯤꯡ ꯅꯦꯡꯁꯤꯜꯂꯦ;
- (c) ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯅꯥꯀꯥꯟꯕ ꯃꯍꯥꯝꯀꯤꯁꯤꯡ, ꯁꯥꯄꯊꯀꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯀꯤꯁꯤꯡ, ꯍꯤꯕ ꯃꯍꯥꯝꯗ ꯀꯔꯤꯒ ꯌꯥꯔꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯃꯔꯥꯡꯀꯤꯁꯤꯡ ꯅꯦꯡꯁꯤꯜꯂꯦ;
- (d) ꯄꯨꯕꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯆꯦꯡꯄꯥꯛꯄ ꯌꯥꯔꯕ ꯄꯨꯔꯛꯅꯒꯥꯏ ꯑꯦꯛꯀꯤꯡꯌꯤꯡꯀꯤꯁꯤꯡꯒꯤ ꯄꯥꯑꯣꯔꯃꯦꯔꯣ, ꯕꯅꯦꯀ ꯑꯦꯅꯔꯕ ꯑꯦꯝꯕꯅꯦꯕꯀꯤꯁꯤꯡ, ꯑꯦꯟ ꯌꯥꯔꯕ ꯄꯥꯃꯄꯀꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯅꯕ ꯒꯦꯕꯀꯤꯁꯤꯡ ꯍꯤꯡꯂꯦ; ꯑꯃꯁꯨꯡ
- (e) ꯔꯦꯗꯤꯌꯦꯁꯟ ꯌꯥꯔꯕ ꯊꯕꯛꯀꯤꯁꯤꯡ॥

10.16.3 **ꯅꯣꯡꯀꯣꯗꯥ ꯃꯌꯣꯛꯀꯤ ꯔꯤꯁ꯭ꯀ.** ꯅꯣꯡꯀꯣꯗ ꯑꯃꯅꯥ ꯀꯨꯝꯅ ꯑꯀꯤꯕ ꯑꯦꯄꯔꯦꯡꯒ ꯌꯥꯔꯕ ꯒꯦꯇ ꯑꯇꯩ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯍꯦꯟꯅ 1% AEP-ꯒꯤ ꯄꯨꯡ 24 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 72-ꯒꯤ ꯀꯤꯅꯥꯏ ꯀꯦꯄꯊꯀꯤ ꯍꯦꯟꯅꯕꯀꯤ (ꯇꯦꯕꯜ 2.14.1), MSDMA-ꯅ, ꯀꯨꯝꯅ ꯅꯤꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯌꯦꯡꯁꯤꯟ ꯇꯦꯛꯌꯤꯡꯀꯤ ꯅꯦꯡꯁꯤꯜꯂꯦ, ꯗꯤ 12-ꯒꯤ ꯃꯄꯨꯡꯗ ꯅꯣꯡꯀꯣꯗꯥ ꯃꯌꯣꯛꯀꯤ ꯔꯤꯁ꯭ꯀ ꯑꯃꯍꯥ ꯄꯨꯔꯛꯄꯒꯤꯗꯦꯔꯤ॥ ꯃꯈꯣꯅ ꯃꯄꯨꯡꯑꯣꯏ ꯑꯣꯏꯒꯤ ꯇꯦꯛꯅꯣꯂꯖꯤꯀꯤꯁꯤꯡ ꯃꯌꯥꯝ ꯁꯔꯨꯛꯇꯦꯕ ꯍꯥꯏꯕ ꯑꯃꯁꯤꯡꯗꯔꯤ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 1.12-ꯒꯤ ꯔꯤꯁ꯭ꯀꯇ ꯍꯤꯡꯁꯤꯡꯗꯔꯤ॥

10.16.4 **ꯑꯦꯀꯤꯅꯤꯡꯀꯤ ꯄꯨꯔꯛꯄꯥꯃꯥꯡꯀꯤ ꯀꯣꯟꯄꯨꯅꯤ.** ꯑꯦꯗꯤꯌꯤꯅ, ꯍꯤꯡꯊꯦꯕꯇꯦꯃꯥ ꯁꯔꯤ 5 ꯂꯧꯕꯗ, ꯄꯨꯔꯛꯅꯒꯥꯏ ꯔꯤꯌꯥꯡꯀꯥ ꯑꯃꯁꯨꯡ ꯀꯤꯌꯥꯡꯀꯥ ꯑꯦꯀꯤꯅꯤꯡꯀꯤꯁꯤꯡꯒꯤ ꯀꯣꯟꯄꯨꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯀꯣꯡꯀꯥ ꯑꯃꯒꯤ ꯃꯌꯥꯝꯗ ꯃꯦꯇꯤꯌꯥꯔ ꯌꯥꯗꯔꯤꯕꯗꯤ, ꯃꯍꯥꯛꯅ ꯀꯤꯅꯥꯏ ꯌꯥꯔꯕ ꯃꯌꯥꯝ ꯅꯀꯡ ꯊꯕꯛ ꯌꯥꯕꯔꯤ ꯍꯥꯏꯕ ꯌꯥꯀꯨ ꯌꯥꯑꯣꯕ॥

ꯀꯦꯁꯗꯥꯗꯒꯤ ꯌꯥꯝꯄ. ꯅꯣꯡꯀꯣꯗꯥ ꯃꯌꯣꯛꯀꯤ ꯌꯥꯔꯤꯕ ꯑꯇꯩ ꯇꯦꯕꯜ 2.14.1-ꯗ ꯍꯦꯅꯒꯠꯂꯛ ꯑꯦꯠꯂꯤꯕ ꯊꯥꯅꯕ ꯔꯤꯁ꯭ꯀꯀꯤ ꯌꯥꯔꯤꯕ ꯑꯃꯨꯛꯂꯤ॥ ꯃꯔꯤꯄꯨꯔꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯁꯤꯡ ꯑꯇꯩ ꯔꯤꯁ꯭ꯀ ꯌꯥꯅꯕꯤꯕꯀꯤ ꯍꯦꯟꯅ ꯃꯁꯤꯡ ꯊꯣꯛꯄ, ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯁꯤꯡ ꯑꯇꯩ ꯌꯥꯑꯣꯔꯦ॥ MASTEC-ꯒꯤ ꯔꯤꯄꯣꯔꯠꯇ 2002 ꯑꯦꯃꯥꯕꯀꯤ ꯌꯥꯝꯄꯨꯔꯥꯛꯀꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯁꯤꯡ ꯔꯦꯀꯣꯔꯗ ꯌꯥꯑꯣ: ꯖꯨꯅ–ꯑꯒꯁ꯭ꯇ 1989-ꯗ, ꯏꯝꯐꯥꯜ (ꯇꯨꯂꯤꯍꯥꯜ) (Imphal (Tulihal))-ꯅ 30 ꯖꯨꯅꯗ 158.6 mm, ꯀꯨꯝꯅꯕ ꯑꯦꯛꯀꯤ ꯄꯨꯡ 24-ꯒꯤ ꯔꯦꯀꯣꯔꯗ (IMD), ꯔꯦꯀꯣꯔꯗ ꯌꯥꯔꯕ ꯑꯃꯁꯨꯡ 28 ꯖꯨꯅꯗꯀꯤ 1 ꯑꯒꯁ꯭ꯇ ꯑꯦꯃꯥꯕ ꯖꯥꯍꯤꯁ ꯂꯧꯕꯨꯛꯀꯤ ꯅꯤꯡ ꯂꯥꯔꯕ ꯃꯌꯥꯝꯗ, ꯈꯨꯟꯗꯥꯏ 361-ꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯅꯤꯡꯁꯤ, ꯃꯤ 40-ꯗ ꯄꯨꯟ ꯁꯤꯈꯤ, ꯃꯤ ꯍꯤꯡ 7 ꯅꯥꯗ ꯑꯃꯁꯨꯡ ꯌꯨꯝ 49,069 ꯀꯥꯡꯁꯤ ꯑꯃꯁꯨꯡ ꯅꯣ 97,500 ha ꯃꯥꯡꯍꯟꯈꯤ; ꯑꯃꯁꯨꯡ ꯑꯒꯁ꯭ꯇ 2002-ꯗ ꯃꯤ 59-ꯗ ꯄꯨꯟ ꯁꯤꯈꯤ॥ 2015-ꯒꯤ ꯖꯨꯂꯥꯏꯗ ꯑꯦꯃꯥꯕ ꯃꯌꯥꯝ ꯑꯃꯁꯨꯡ ꯑꯒꯁ꯭ꯇꯀꯤ, ꯀꯨꯝꯅꯕꯀꯤ ꯔꯦꯀꯣꯔꯗ ꯑꯦꯀꯨꯝꯂꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝ ꯅꯋꯥ 3 ꯑꯒꯁ꯭ꯇ ꯑꯦꯃꯥꯕꯗ ꯃꯤ ꯍꯤꯡ 5 ꯅꯥꯗ ꯃꯍꯥꯛꯀꯤ ꯃꯦꯃꯤꯛꯀꯤ ꯁꯤꯈꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯀꯣꯅꯣꯃꯤꯛꯅ ꯃꯈꯣꯌ "ꯁꯔꯤ 200-ꯒꯤ ꯃꯄꯨꯡꯗ ꯇꯨꯔꯦꯂꯁꯤꯡꯒꯤ ꯑꯦꯅꯥꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯑꯦꯅꯕ ꯍꯤꯅ" ("could be the worst flood in 200 years") ꯍꯥꯏꯔꯤ, ꯃꯌꯥꯝ ꯑꯃꯨꯛ 1 ꯑꯒꯁ꯭ꯇꯀꯤ ꯍꯤꯡꯀꯤꯁꯤꯡꯒꯤ ꯅꯤꯃꯦꯜ (Joumol) ꯅꯤꯡꯀꯣꯅꯗꯥꯅꯕꯗ (landslide) ꯃꯤ 20 ꯑꯃꯁꯨꯡ 21, ꯑꯃꯁꯨꯡ ꯑꯃꯨꯛꯄꯨꯡ ꯃꯈꯣꯌ ꯑꯃꯍꯥ 24, ꯀꯤꯄꯥꯔꯤ (ꯄꯨꯁꯤꯡꯗ ꯑꯦꯗꯥꯀꯤꯗꯤꯅꯕ ꯃꯌꯥꯝ ꯅꯋꯥ)॥ 29 ꯑꯃꯁꯨꯡ 30 ꯖꯨꯅ 2022-ꯗ ꯅꯣꯅꯤꯒꯤ ꯇꯨꯄꯨꯜ (Tupul) ꯅꯤꯡꯀꯣꯅꯗꯥꯅꯕꯗ ꯌꯥꯑꯣꯕ ꯃꯈꯣꯌꯗ ꯃꯤ 56, 58 ꯑꯃꯁꯨꯡ 61 ꯀꯤꯄꯥꯔꯤ, ꯑꯃꯁꯨꯡ NRSC-ꯅ 5 ꯖꯨꯅꯗ ꯃꯤ 42 ꯀꯤꯔꯤ ꯑꯃꯁꯨꯡ 20 ꯃꯥꯡꯔꯤ ꯍꯥꯏꯕ ꯔꯤꯄꯣꯔꯇ ꯌꯥꯔꯤ (ꯄꯨꯁꯤꯡꯗ ꯑꯦꯗꯥꯀꯤꯗꯤꯅꯕ ꯃꯌꯥꯝ ꯅꯋꯥ)॥ 28–31 ꯃꯦ 2024-ꯒꯤ ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯥꯜ (Cyclone Remal)-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯁꯤꯡꯒꯤꯗꯃꯛ ꯃꯅꯤꯄꯨꯔꯗ 30 ꯃꯦꯗ ꯃꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 24,265 ꯀꯥꯡꯁꯤ ꯍꯥꯔꯦ ꯄꯥꯎꯔꯤ, ꯑꯃꯁꯨꯡ ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ (Relief and Disaster Management Department)-ꯒꯤ 31 ꯃꯦꯒꯤ ꯔꯤꯄꯣꯔꯠꯇ ꯃꯤ 1,26,950, ꯈꯨꯟꯗꯥꯏ 255 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 16,364 ꯄꯨꯔꯤ, ꯃꯤ 3-ꯗꯒꯤ 5 ꯑꯦꯃꯥꯕ ꯀꯤꯔꯤ ꯍꯥꯔꯦ ꯔꯤꯄꯣꯔꯇ ꯌꯥꯔꯤ; 30 ꯃꯦ–ꯖꯨꯅ 2025-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯁꯤꯡꯒꯤꯗꯃꯛ, ꯑꯍꯥꯅꯕ ꯃꯈꯣꯌ ꯁꯤꯕꯗ ꯃꯤ 56,000-ꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯌꯨꯝ 10,477 ꯀꯥꯡꯁꯤ ꯑꯃꯁꯨꯡ 24 ꯖꯨꯅꯒꯤ ꯑꯦꯗꯤꯁꯟꯅ ꯃꯈꯣꯌꯗ ꯃꯤ ꯍꯤꯡ 1.65 ꯅꯥꯗ ꯑꯃꯁꯨꯡ ꯌꯨꯝ 35,000-ꯗꯒꯤ ꯍꯦꯟꯕ ꯀꯥꯡꯁꯤ, ꯃꯤ 4 ꯀꯤꯔꯤ; ꯑꯃꯁꯨꯡ 15 ꯁꯦꯄꯇꯦꯝꯕꯔ 2025-ꯗ ꯅꯤꯡꯊꯧꯗ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯆꯏꯗ ꯃꯔꯤꯄꯨꯔ ꯇꯨꯔꯦꯜ ꯃꯍꯥꯛꯀꯤ ꯑꯦꯗꯥꯀꯤꯗꯤꯅꯕ ꯍꯥꯏꯅꯀꯨꯝꯅ ꯑꯦꯗꯥ ꯅꯥꯀꯥꯟꯁꯤꯡꯗꯥ ꯍꯤꯗꯅ ꯅꯠꯔꯤ ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ ꯇꯦꯛꯇꯨꯔꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏ (Kshetri Awang Leikai) ꯇꯦꯛꯔꯤ (ꯄꯨꯃꯅꯃꯛ

> ꯌꯥꯝꯅ ꯐꯣꯡꯗꯣꯛꯄꯤꯕ ꯀꯨꯝꯕ ꯅꯉꯦ)꯫ ꯀꯔꯤꯃꯔꯤꯃ ꯑꯔꯤ ꯀꯅꯥꯏꯗꯥ ꯁꯗꯤ ꯇꯤꯕꯒꯣ ꯍꯌꯕꯅ ꯌꯥꯎꯍꯜꯂꯦ, ꯑꯃꯁꯨꯡ ꯗꯤꯂꯤꯖ ꯑꯃꯁꯨꯡ ꯍꯤꯂꯣꯟꯄꯗ ꯀꯦꯅꯦꯂꯀꯦꯂꯩ ꯍꯤꯌꯥꯗꯩꯀꯦꯂꯩ ꯂꯩꯗꯒꯤ MSDMA-ꯒꯤ ꯑꯗꯥꯅꯕ ꯀꯔꯤꯃꯔꯤꯃ ꯐꯃꯅꯤꯍꯦ [TBC]꯫ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯅꯔꯤꯃ ꯅꯣꯡꯁꯔꯤꯃꯒꯤ IMD-ꯒꯤ ꯂꯥꯃ ꯄꯨꯕ ꯑꯃꯩꯌꯣ ꯐꯃꯅꯤꯍꯦ, 30–31 ꯀꯦ 2025-ꯗ ꯈꯃꯌꯥꯑꯣꯌꯥꯏꯍ ꯌꯨꯝ 24-ꯗ 123 mm ꯑꯃꯁꯨꯡ ꯌꯨꯝ 72-ꯗ 175 mm ꯒꯨꯆꯕ ꯌꯥꯁꯤꯡꯒꯤ ꯒꯦꯔꯨꯔꯤꯃ ꯅꯑꯌꯀꯑ ꯐꯃꯅꯤ (ꯌꯥꯝꯅ ꯐꯣꯡꯗꯣꯛꯄꯤꯕ ꯀꯨꯝꯕ ꯅꯉꯦ); ꯀꯂꯤꯌꯨꯗꯒꯤ ꯌꯣꯁꯉ ꯑꯀꯒꯤ ꯅꯔꯤꯃ ꯅꯣꯡꯁꯔ ꯑꯀꯍꯦꯑꯌꯒꯤ ꯗꯤꯒꯤꯁꯤꯡ ꯑꯀꯩꯌꯣ, ꯑꯃꯁꯨꯡ IMC, ꯑꯌꯣꯌꯥꯌꯥ ꯁꯗꯕꯉ ꯂꯣꯈꯔ ꯕꯣꯗꯤ, WRD ꯂꯩꯗꯒꯤ MSDMA-ꯗꯥ ꯊꯀꯂꯤꯕ ꯅꯔꯤꯃ ꯅꯣꯡꯁꯔꯒꯤ ꯑꯦꯑꯔꯌꯦꯉꯩ, ꯗꯦꯌꯊ ꯂꯩꯗꯒꯤ ꯀꯌꯀꯒꯤ ꯗꯦꯈꯣꯗꯗ ꯑꯀꯩꯌꯣ ꯐꯃꯅꯤꯍꯦ꯫ NDMA (2010)-ꯅꯥ Class I, II ꯑꯃꯁꯨꯡ III ꯔꯍꯗꯔꯤꯃꯗ "4 sq km ꯄꯨꯗꯤꯃꯗ 1" ("1 in every 4 sq km") ꯑꯣꯌꯣꯀꯦꯌꯤꯑ ꯗꯦꯉ ꯒꯦꯂꯔꯤꯃ ꯍꯅꯔꯤ꯫ ꯁꯦꯛꯁꯟ 10.16.1-ꯅꯥ ꯗꯤꯂꯤꯅꯉ ꯑꯃꯁꯨꯡ ꯗꯤꯒꯤꯁꯗ ꯀꯌꯦꯃ ꯌꯤꯃꯕ ꯀꯏꯀꯗ ꯅꯑꯌꯀꯑ ꯒꯦꯂꯔꯤꯃ ꯍꯅꯗꯤ꯫ ꯗꯤꯌꯥꯗꯩ ꯑꯃꯁꯨꯡ ꯔꯦꯀꯌꯥꯂꯤꯃꯒꯤ ꯀꯌꯀꯔꯤꯃ ꯑꯔꯤ ꯀꯦꯄꯨꯔꯦꯈ ꯑꯔꯤꯅꯥ ꯊꯀꯕꯂꯤ꯫

10.17 ꯗꯦꯇꯥ ꯐꯣꯡꯗꯣꯛꯄ

10.17.1 ꯑꯣꯊꯣꯗꯤꯌꯤ ꯄꯨꯗꯤꯃꯀꯑꯅꯥ ꯌꯥꯕꯂꯤꯑ ꯔꯦꯕꯔꯣꯅꯩ ꯑꯀꯗ ꯀꯔꯣꯒꯤꯔꯤꯃ ꯐꯣꯡꯗꯣꯛꯂꯈꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯔꯤꯀꯗꯨꯗꯕꯗꯀꯑ ꯊ ꯑꯍꯨꯀ ꯄꯨꯗꯤꯃꯗ ꯑꯌꯥꯗꯦꯩ ꯌꯒꯗꯕꯂꯤ:

- (a) **ꯏꯦꯔꯤꯂꯤꯌꯤꯒꯤ ꯗꯦꯂꯤꯔꯣꯌꯗ**: ꯀꯦꯁꯨꯔꯦꯈ ꯑꯔꯤꯒꯤ ꯀꯍꯣꯗ ꯑꯦꯌꯥꯗꯨꯒ ꯌꯗꯕ ꯏꯦꯔꯤꯂꯤꯌꯤ ꯄꯨꯗꯤꯃꯀꯑꯈꯤ ꯀꯏꯀ, ꯀꯍꯈ, ꯗꯤꯂꯤꯅꯉ ꯒꯣꯁꯨꯀ, ꯗꯤꯂꯤꯂ ꯗꯦꯩ, ꯀꯌꯨ, ꯑꯦꯂ-ꯕꯤꯈꯩ ꯔꯤꯍꯤꯕ ꯁꯨꯀꯤꯩ, ꯑꯃꯁꯨꯡ ꯅꯨꯕꯅꯗꯒꯤ ꯂꯥꯕ ꯅꯉꯔꯌꯦꯑꯔꯉꯒꯤ ꯗꯤꯂꯈꯩ;
- (b) ꯑꯦꯌꯥꯗꯨꯒ ꯌꯗꯕ ꯅꯗꯀꯒꯤ ꯗꯤꯌꯥꯗꯩ ꯄꯨꯗꯤꯃꯀꯑꯈꯤ ꯔꯀꯀꯗꯤ, ꯏꯥꯗꯀ 2-1 ꯑꯃꯁꯨꯡ 10-2-ꯒꯤ ꯂꯣꯍꯂꯅꯥ;
- (c) ꯒꯦꯗꯤꯍꯦꯉꯔꯔꯤꯃ ꯑꯃꯁꯨꯡ ꯔꯦꯒꯗꯔꯤꯃꯒꯤ ꯗꯦꯂꯤꯔꯣꯌꯗ (ꯁꯦꯛꯁꯟ 1.10);
- (d) ꯌꯥꯂꯤꯔꯤ ꯔꯌꯂꯤꯀꯦꯉꯩ (ꯁꯦꯛꯁꯟ 1.7)-ꯒꯤ ꯀꯍꯣꯗ ꯂꯣꯔꯤꯉꯂꯕꯗꯤ, ꯑꯂꯌꯗꯂꯦꯌꯤꯒꯔꯤꯃ ꯑꯗꯨ;
- (e) ꯅꯉꯏꯥꯗꯔꯀꯦꯉꯩꯈꯤ ꯊꯕꯑꯔꯤꯃ (ꯁꯦꯛꯁꯟ 10.15.5); ꯑꯃꯁꯨꯡ
- (f) ꯅꯒꯦꯉꯩ ꯗꯤꯌꯥꯗꯩꯔꯤꯃ ꯑꯃꯁꯨꯡ ꯅꯒꯦꯉꯩꯈꯤ ꯀꯌꯨꯑꯒꯤ ꯗꯤꯒꯤꯁꯔꯤꯃ (ꯁꯦꯛꯁꯟ 10.16)꯫

10.17.2 ꯔꯌꯦꯩ ꯂꯥꯃꯒꯤ ꯅꯔꯤꯃꯒꯤ ꯌꯦꯑꯂꯤꯈꯦꯈ ꯈꯀꯤꯌꯤꯅꯥ ꯈꯀꯌꯥꯂꯅꯍꯦꯉꯔ ꯈꯦꯈꯨꯂꯌꯗ, ꯑꯍꯦꯉꯕ ꯌꯨꯀꯂꯀꯑ, ꯅꯔꯤꯃ ꯅꯣꯡꯁꯗ ꯔꯦꯉꯔꯤꯌꯤꯒ ꯑꯅꯕ ꯈꯦꯍꯀꯦꯉꯩꯈꯤ ꯀꯦꯌꯔꯤꯃ ꯑꯃꯁꯨꯡ ꯏꯦꯔꯤꯂꯤꯌꯤꯒꯤ ꯗꯦꯂꯤꯔꯣꯌꯗꯔꯤꯃꯒꯤ ꯔꯌꯦꯩ ꯂꯦꯒꯦꯈꯒꯤ ꯔꯀꯀꯗꯤ ꯑꯔꯤ ꯑꯌꯥꯉ ꯗꯦꯇꯥ ꯑꯣꯅꯥ ꯐꯣꯡꯗꯣꯛꯈꯗꯕꯂꯤ꯫

10.17.3 ꯈꯗꯌꯥꯗꯩ ꯀꯌꯨ ꯂꯩꯗꯒꯤ ꯑꯦꯔꯣꯔꯤꯍꯦꯔꯉ ꯑꯀꯒꯤ ꯀꯀꯤꯃ ꯂꯩꯌꯕ ꯌꯗꯔꯣꯂꯦꯈ ꯗꯦꯇꯥ ꯐꯣꯡꯗꯣꯛꯂꯣꯅꯗꯕꯂꯤ꯫ ꯈꯗꯤꯌꯤꯈꯦꯈ ꯅꯉꯏꯗꯔꯌꯗꯑꯍꯗꯒꯤ ꯔꯦꯑꯄꯨꯗꯤꯌꯤ-ꯔꯦꯉꯔꯤꯌꯤꯒ ꯀꯌꯨꯃ ꯏꯕ ꯍꯏꯀꯔꯤꯃ ꯀꯗꯀ ꯗꯦꯈꯣꯗꯗ ꯌꯗꯨꯅꯥ ꯊꯀꯂꯤꯉꯕ ꯔꯤꯅ꯫

10.17.4 ꯐꯣꯡꯗꯣꯛꯍꯤꯕ ꯗꯦꯇꯥ ꯑꯔꯤ ꯀꯦꯔꯤꯉꯅꯥ ꯌꯤꯕ ꯔꯤꯕ (ꯄꯨꯗꯀ ꯑꯣꯅꯅꯥ CSV ꯑꯃꯁꯨꯡ GeoPackage) ꯑꯣꯅꯒꯗꯕꯂꯤ ꯑꯃꯁꯨꯡ Government Open Data Licence – India ꯂꯩꯗꯒꯤ ꯀꯗꯨꯒꯤ ꯀꯦꯉꯂꯕ ꯑꯣꯌꯉ ꯂꯤꯅꯔꯦꯉꯔ ꯑꯀꯒꯤ ꯀꯍꯣꯗ ꯊꯗꯣꯑꯈꯗꯕꯂꯤ꯫

> **ꯔꯉꯗꯣꯑꯅꯥ ꯌꯣꯑꯌꯥ.** ꯀꯏꯀ ꯑꯔꯤꯍ ꯀꯔꯦꯑ ꯔꯦꯃꯕ ꯑꯔꯤ ꯀꯔꯦꯀꯑ ꯗꯤꯂꯤꯅꯉ ꯈꯗꯤꯅꯌꯦꯗꯤꯔꯉ ꯑꯀꯂꯤ꯫ ꯀꯂꯤꯌꯨꯗꯒꯤ ꯅꯗꯀꯒꯤ ꯗꯦꯈꯣꯗꯗ ꯔꯤꯀꯅꯥ ꯌꯥꯕꯂꯤꯑꯌ ꯂꯦ: ꯌꯣꯁꯉ ꯌꯥꯂꯤꯂꯤꯃ ꯗꯤꯌꯥꯗꯩꯀꯦꯉꯩꯈꯤ (Town Planning Department) ꯔꯦꯕꯔꯣꯅꯩꯌ ꯀꯣꯗꯦꯈ ꯀꯂꯤꯌꯨꯗ ꯄꯨꯂꯤꯏꯅꯗ ꯕꯤꯈꯗꯤꯃ ꯕꯅ-ꯂꯣꯂ, 2024, ꯗꯗꯤꯏꯩ ꯅꯀꯏꯈ ꯀꯄꯨꯂꯤꯔꯤꯌꯦꯈ ꯈꯣꯗꯌꯥꯗꯦꯔꯉꯒꯤ ꯕꯤꯈꯗꯤꯃ ꯕꯅ-ꯂꯣꯂ (3rd Amendment), 2024, ꯀꯂꯤꯌꯨꯗꯒꯤ ꯀꯦꯔꯌꯗ ꯌꯂꯤꯉ ꯑꯦꯗꯤꯍꯦꯔꯤꯃꯒꯤ ꯄꯨꯂꯤꯏꯅꯗ ꯂꯣꯂꯤꯃ/ꯄꯨꯂ ꯗꯦꯒꯨꯂꯦꯔꯉ ꯕꯅ-ꯂꯣꯂ, 2026 ꯑꯃꯁꯨꯡ ꯒꯗꯦꯌꯗ ꯅꯀꯏꯈꯒꯤ ꯗꯤꯒꯤꯅꯂ ꯌꯗꯕ GIS ꯕꯦꯂ ꯀꯦꯔꯌꯗ ꯌꯂꯤꯉ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification))-ꯒꯤ ꯗꯤꯌꯥꯗꯩ; PRS-ꯒꯤ ꯈꯂꯦꯑꯔꯉꯗ ꯀꯂꯤꯌꯨꯗ ꯌꯣꯁꯉ ꯑꯃꯁꯨꯡ ꯈꯉꯌꯗꯤ ꯌꯂꯤꯂꯤꯃ ꯑꯦꯑꯩ, 1975, ꯀꯂꯤꯌꯨꯗ ꯂꯣꯑꯌꯑ ꯂꯦꯑ (ꯌꯗꯣꯌꯦꯑꯔꯉ) ꯑꯦꯑꯩ, 2006, ꯀꯂꯤꯌꯨꯗ ꯈꯉꯔꯗꯒꯦꯔꯉ ꯑꯣꯏ ꯌꯦꯗꯤ ꯂꯦꯉꯗ ꯑꯃꯁꯨꯡ ꯔꯦꯩꯂꯦꯉꯗ ꯑꯦꯑꯩ, 2014 ꯑꯃꯁꯨꯡ ꯀꯔꯤꯒꯤ 2026-ꯒꯤ ꯑꯦꯀꯦꯉꯗꯤꯃ ꯕꯤꯈ, ꯑꯃꯁꯨꯡ 2021-ꯗ ꯑꯦꯀꯦꯉꯗ ꯌꯗꯕ ꯀꯂꯤꯌꯨꯗ ꯑꯣꯏꯤꯔꯤꯍꯦꯈ ꯂꯦꯃꯒꯍꯦꯂ ꯑꯦꯑꯩ, 1979; ꯔꯌꯦꯩ ꯌꯣꯗꯌꯦꯈꯗ ꯀꯂꯤꯌꯨꯗ (ꯍꯤꯈ ꯑꯦꯗꯤꯔꯤꯔ) ꯗꯤꯔꯌꯗꯤꯑ ꯈꯁꯉꯔꯤꯂꯔ ꯑꯦꯑꯩ, 1971-ꯒꯤ ꯑꯦꯀꯦꯉꯗꯀꯦꯉꯩꯔꯤꯃ; ꯂꯀꯏꯦꯈꯌꯤꯩꯈꯤ ꯀꯌꯥꯃꯗ WRD-ꯒꯤ ꯔꯦꯅꯩ ꯗꯤꯌꯥꯗꯩꯈ ꯂꯣꯍꯂꯅꯥ PIL No. 8 of 2025-ꯗ ꯍꯅ ꯈꯣꯗꯩꯈꯤ ꯑꯣꯗꯗꯗ; O.A. No. 606 of 2018-ꯗ ꯂꯦꯔꯂꯦꯈ ꯒꯗꯤꯉ ꯌꯗꯤꯅꯕꯄꯨꯂꯦꯈꯗ ꯔꯌꯦꯩꯅꯥ ꯌꯤꯍꯤꯕ ꯗꯤꯌꯥꯗꯩꯔꯤꯃ; CPCB-ꯒꯤ ꯌꯥꯁꯨꯩ ꯑꯣꯅꯗꯕ ꯌꯨꯗꯦꯈ ꯔꯌꯗꯦꯍꯔꯤꯃꯒꯤ ꯂꯤꯔꯩ (2025); 2025-26-ꯒꯤ DoECC ꯑꯃꯁꯨꯡ TPD-ꯒꯤ ꯑꯦꯗꯀꯤꯂꯤꯔꯌꯗꯦꯌꯤꯒ ꯗꯤꯌꯥꯗꯩꯔꯤꯃ; ꯂꯀꯏꯦꯈꯌꯩ ꯌꯗꯣꯂꯦꯑꯩꯈꯤ NDB-ꯒꯤ ꯔꯀꯀꯗꯤ ꯑꯃꯁꯨꯡ AIIB-ꯒꯤ ꯂꯀꯕꯤ ꯑꯃꯁꯨꯡ ꯅꯗꯀꯒꯤ ꯌꯗꯣꯂꯦꯑꯩꯈꯤ ꯗꯣꯈꯨꯀꯦꯉꯩꯔꯤꯃ; ꯌꯀꯌꯤꯑꯈꯤ ꯅꯔꯤꯃ ꯅꯣꯡꯁꯒꯤ ꯍꯂꯦꯗꯗ

ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯒꯤ ꯀꯧꯟꯁꯤꯜ MASTEC-ꯒꯤ ꯔꯤꯄꯣꯔꯠ; ꯁꯦꯟꯠꯔꯦꯜ ꯒ꯭ꯔꯥꯎꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯥꯇꯔ ꯕꯣꯔ꯭ꯗꯀꯤ CGWB-ꯒꯤ ꯗꯥꯇꯥꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯁꯦꯟꯠꯔꯦꯜ (ꯃꯦꯇꯤꯑꯣꯔ)-ꯒꯤ IMD-ꯒꯤ ꯅꯣꯡꯂꯣꯟ ꯃꯍꯩꯁꯤꯡꯗꯒꯤ ꯂꯧꯈꯤ꯫ ꯑꯗꯨꯒꯥ ꯍꯥꯌꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡꯗꯥ ꯌꯥꯑꯣꯕ ꯃꯇꯦꯡ ꯄꯥꯡꯕꯥ: ꯑꯦꯅꯥꯇꯁꯤꯡꯒꯤ ꯑꯦꯟꯇ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯤꯠ ꯁꯨꯄꯔꯤꯡꯇꯦꯟꯗꯦꯟꯇ ꯊꯥꯕ ꯑꯣꯏꯔꯤꯕ, 15 ꯑꯣꯛꯇꯣꯕꯔ 2025-ꯗ ꯇꯥꯔꯤꯈꯥ ꯄꯨꯔꯛꯈꯤꯕ ꯂꯦꯡꯗꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯀꯃꯤꯇꯤꯒꯤ ꯀꯤꯇꯤꯡ ꯀꯅ-ꯇꯦꯝ, ꯑꯃꯁꯨꯡ IMC (3rd Amendment)-ꯒꯤ ꯑꯔꯣꯏꯕ ꯄꯣꯂꯤꯁꯤ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯗꯣꯡ; ꯗꯤꯁꯦꯝꯕꯔ 2025-ꯗ ꯇꯥꯔꯤꯈꯥ ꯄꯨꯔꯛꯈꯤꯕ ꯑꯣꯏꯕ ꯀꯤꯒꯤ ꯄꯨꯔꯛꯈꯤꯕ ꯑꯦꯗꯚꯥꯏꯖꯔꯤ ꯑꯍꯥꯅꯕ ꯃꯍꯩ ꯃꯍꯩꯌꯥꯃꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯏꯕ ꯑꯦꯛꯁꯥꯏꯁꯤꯡ ꯁꯦꯟꯠꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯂꯦꯛꯇꯔꯒꯤ ꯔꯤꯂꯤꯐ-ꯅꯦꯇꯋꯥꯔꯛ ꯀꯝꯄꯣꯔ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯅꯥꯏꯗꯥ ꯇꯥꯏꯗꯥꯏ ꯀꯦꯗꯥꯒꯤ ꯀꯅ-ꯇꯦ 94 ꯗꯤꯁꯦꯕ ꯑꯅꯥꯔꯕ "ꯍꯥꯏ ꯐ꯭ꯂꯗ ꯔꯤꯁ꯭ꯛ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ" ("High Flood Risk Areas"); ꯂꯣꯡꯂꯣꯡ 7-ꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯀꯦꯅꯥꯜ ꯐ꯭ꯂꯗ ꯄ꯭ꯔꯣꯇꯦꯛ ꯇꯦꯛꯁ ꯑꯣꯡ, 1978, ꯐ꯭ꯂꯗ ꯇꯦꯛꯁ ꯑꯦꯗꯚꯥꯏꯁꯔ ꯑꯃꯒꯤ ꯂꯣꯀꯇ ꯑꯃꯍꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯜ ꯑꯃꯍꯥꯡꯁꯤꯡ; ꯀꯦꯅꯥꯜ ꯀꯟꯗ꯭ꯔꯣꯂꯤꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯡ, 1994-ꯒꯤ ꯅꯥꯏꯀꯤ ꯂꯣꯡꯂꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯡꯁꯤꯡ; ꯇꯣꯔꯣꯟ ꯅꯣꯡꯁꯤꯡꯀꯥꯡꯗꯥ ꯇꯤꯄ, ꯗꯣꯌꯀ ꯑꯃꯁꯨꯡ ꯄꯤꯔꯤꯡꯁꯤ ꯑꯃꯍꯥꯡꯁꯤꯡ ꯍꯤꯖꯕ WRD-ꯒꯤ ꯒꯣꯇ ꯄꯣꯇꯤꯡꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯒꯣꯌꯂꯤꯁꯤꯡꯒꯤ ꯃꯨꯟ ꯑꯃꯍꯥꯡꯁꯤꯡ; ꯅꯊꯅ ꯕꯣꯄꯤꯗꯥꯒꯤ NHPC-ꯒꯤ ꯑꯦꯔꯄꯣꯔꯠꯁꯤꯡ ꯃꯨꯟ ꯑꯃꯁꯨꯡ ꯔꯥꯀ ꯑꯃꯨꯒꯤ ꯇꯣꯡꯃꯅꯁꯤꯡꯒꯤ ꯄꯣꯗꯥꯄꯗ; ꯊꯣꯏꯕꯟ (ꯀꯔꯤꯊꯣꯟ), ꯅꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯤꯡꯗ ꯗꯣꯀꯂꯤꯡꯁꯤꯡꯒꯤ ꯄꯤꯇꯤꯇꯤꯒꯤ ꯃꯨꯟꯂꯤꯡ; AIIB ꯔꯤꯄꯣꯔꯠꯁꯤꯡꯗ ꯅꯄꯀ ꯗꯤꯇꯦꯅꯂ, ꯇꯀꯑꯦꯟꯔꯤꯁ ꯔꯤꯄꯣꯔꯠꯁ ꯄꯤꯔꯛꯄꯁ ꯑꯃꯁꯨꯡ ꯅꯀꯁꯦꯟ ꯂꯀꯁꯦꯄꯁ ꯂꯤꯡꯒ ꯇꯤꯀꯤꯡꯗꯥꯡꯗꯤ ꯊꯕꯂꯤꯡꯁꯤꯡ ꯍꯤꯖꯕꯇꯦ, ꯇꯦꯡꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯅꯦꯡꯕꯇꯦ ꯑꯃꯍꯥꯡꯁꯤꯡꯒꯤ ꯗꯤꯇꯦꯅꯂ ꯕꯣꯂꯤꯂ; ꯀꯂꯤꯒꯤ ꯇꯥꯡꯁꯥꯡ ꯑꯦꯄꯗꯄꯂꯤꯡꯒꯤꯗꯀꯥꯡ ꯍꯥꯅ ꯗꯦꯄꯁꯗꯤ ꯗꯣꯂ ꯇꯀꯕꯄ; ꯅꯂꯤꯡ ꯅꯍꯤꯖ ꯗꯦꯂꯣꯡꯄꯦꯒꯒꯤ ꯀꯥꯡꯗꯗ CAG-ꯒꯤ Report No. 2 of 2017-ꯒꯤ ꯂꯦꯞꯄ; ꯂꯍꯄꯒꯤ ꯅꯂꯤꯡ ꯅꯍꯤꯖꯒꯤꯗꯀꯥꯡ MSDMA-ꯒꯤ ꯔꯤꯄꯣꯔꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯑꯄꯦꯅꯕ ꯀꯂꯤꯡꯂꯤꯡ; ꯂꯣꯡꯂꯣꯡ ꯑꯣꯡꯂꯣꯡ ꯔꯤꯄꯣꯔꯠ ꯑꯣꯡ ꯗꯦꯇꯦꯅꯀꯁ ꯍꯣꯇꯇ (State Action Plan on Climate Change); ꯑꯃꯁꯨꯡ ꯄꯣꯖꯤꯡ ꯑꯃꯍꯥꯡꯁꯤꯡꯒꯤ ꯒꯣꯌꯂꯤꯡ, ꯐꯤꯇꯔ ꯒꯣꯌꯂꯤꯡ, ꯂꯗꯦꯄꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯀꯔꯤꯡ ꯂꯣꯡꯂꯣꯡꯂꯤꯡꯒꯤ ꯅꯦꯡꯒꯣꯡꯄꯤꯡ꯫ ꯅꯦꯔꯨꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯂꯤꯇꯤꯡꯒꯤ ꯄꯣꯗꯦꯄꯗꯂꯤꯡ ꯑꯦꯡꯗꯦꯅꯔꯀꯇꯦ ꯀꯤꯍꯤꯀ, ꯄꯤꯂꯤꯄꯍꯄꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯗꯨꯒꯥ ꯑꯣꯇꯣꯡꯂꯤꯡꯂꯤꯡꯗ ꯂꯍꯄꯒꯤ ꯍꯣꯡꯂꯦꯇꯡꯇꯤꯕ ꯔꯄꯦꯅꯒꯂ ꯂꯣꯡꯄꯣꯇ ꯑꯂꯤ ꯄꯣꯂꯣꯡꯇꯦ ꯇꯤꯄꯤ ꯍꯤꯕꯕ ꯍꯣꯡ ꯄꯕ ꯍꯤꯍꯅꯇꯤ꯫ ꯑꯦꯔꯦꯡ-ꯑꯦꯄꯀꯂꯤꯡꯗ ꯀꯊ ꯄꯕ ꯑꯂꯤ ꯀꯣꯁꯨꯍꯅ ꯑꯂꯤꯇꯦ ꯊꯀꯕꯇꯤ꯫

10.18 ꯁꯔꯨꯛ ꯑꯁꯤꯒꯤ ꯄꯤꯒꯤꯖꯤ

10.18.1 ꯁꯔꯨꯛ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 1.12-ꯒꯤ ꯃꯍꯦꯛ ꯃꯣꯗ꯭ꯌꯨꯂꯒꯤ ꯇꯦꯍꯇꯦ ꯄꯤꯒꯤꯖꯤ ꯄꯣꯒꯗꯕꯇꯤ꯫ ꯄꯤꯒꯤꯖꯤꯂꯤꯡꯒꯤ ꯀꯄꯥꯡꯄ, ꯀ꯭ꯂꯣꯖ 10.5.3-ꯒꯤ ꯃꯍꯦꯛ, ꯂꯣꯡꯂꯣꯡ ꯇꯦꯡꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯄꯣꯡꯇꯤꯀꯣꯟ ꯀꯀꯤꯄꯤꯇꯦ ꯑꯦꯄꯀꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯀꯔꯤꯇꯦꯅꯍꯣꯡꯂ ꯀꯣꯟꯀꯇꯣꯄ ꯑꯂꯤ ꯄꯤꯒꯤꯅꯇ ꯄꯕ ꯍꯅ꯫

ꯂꯧꯔꯛꯐꯝꯁꯤꯡ (ꯁꯔꯨꯛ)

- Government of Manipur, Municipal Administration, Housing and Urban Development Department (MAHUD). *The Model Manipur Unified Building Bye-Laws, 2024*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) (Manipur Gazette Extraordinary No. 253, 5 ꯗꯤꯁꯦꯝꯕꯔ 2024), Manipur Municipalities Act, 1994-ꯒꯤ ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ Manipur Town and Country Planning Act, 1975-ꯒꯤ ꯁꯦꯛꯁꯟ 26(1)-ꯒꯤ ꯃꯈꯥꯗ, ꯎꯔꯕꯟ ꯂꯣꯀꯜ ꯕꯣꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ PDA Manipur-ꯅꯥ ꯂꯧꯁꯤꯟꯅꯕꯒꯤꯗꯃꯛ: ꯕꯥꯏ-ꯂꯣ 1(2), 2(2), 6(1)(A), 6(1)(C)(j), 6(1)(D), 16, 28, 66–68, 92–94, ꯗ꯭ꯔꯣꯏꯡꯒꯤ ꯃꯇꯧ ꯇꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯝꯄꯂꯥꯏꯅꯁ ꯆꯦꯛꯂꯤꯁ꯭ꯠ (ꯐꯦꯟꯁꯀꯤ ꯇ꯭ꯔꯥꯏꯒꯔ ꯊꯦꯡꯅꯕꯁꯤꯡ; ꯂꯧꯁꯤꯟ ꯕꯥꯏ-ꯂꯣ ꯑꯁꯤꯒꯤ ꯄꯦꯖ ꯅꯝꯕꯔ ꯑꯗꯨ ꯌꯦꯡꯁꯤꯟꯕ ꯇꯥꯔꯤ [TBC])꯫ https://www.tpmanipur.mn.gov.in/media/filer_public/5b/3d/5b3d9440-3e85-4cf5-bd26-d113882dfb9a/model_manipur_ubbl_final_gazette.pdf
- Imphal Municipal Corporation. *Building Bye-Laws (3rd Amendment), 2024*, ꯑꯣꯐꯤꯁꯤꯑꯦꯜ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇꯀꯤꯗꯃꯛ ꯇꯦꯛꯁꯇ ꯗ꯭ꯔꯥꯐꯇ (ꯕꯥꯏ-ꯂꯣ 92–94; ꯑꯔꯣꯏꯕ ꯃ꯭ꯌꯥꯞ ꯍꯣꯡꯗꯣꯛꯄ ꯌꯥꯕꯥ [TBC])꯫ https://www.tpmanipur.mn.gov.in/media/filer_public/22/ef/22ef77df-5b8c-4a80-9fa0-553d8a60a170/amendment_of_imc_building_bye_laws_2024.pdf
- Town Planning Department, Manipur. ꯑꯦꯗꯃꯤꯟ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯂꯣꯠꯁꯤꯡꯒꯤ ꯅꯣꯇꯤꯁꯤꯡ, ꯃꯈꯥꯒꯤ ꯃꯇꯨꯡꯗ Kumbi, Moirang and Jiribam Municipal Councils-ꯒꯤ ꯕꯤꯟꯗꯤꯡ ꯕꯥꯏ-ꯂꯣ (16 ꯅꯣꯚꯦꯝꯕꯔ 2025) ꯑꯃꯁꯨꯡ "Building Bye-laws for ULBs of Manipur – Final Gazette Notification" (15 ꯗꯤꯁꯦꯝꯕꯔ 2025; ꯄꯦꯟꯗꯤꯡ), ꯑꯃꯁꯨꯡ Online Building Permission System-ꯒꯤ ꯃꯇꯧ 17 ꯑꯣꯒꯁ꯭ꯠ 2022-ꯒꯤ ꯂꯧꯔꯛꯄ (ꯅꯤꯡꯊꯧ ꯄꯥꯎꯖꯦꯜ ꯃꯇꯨꯡ ꯇꯥꯔꯦ); ꯑꯃꯁꯨꯡ *Annual Administrative Report 2025-26*꯫ https://www.tpmanipur.mn.gov.in/media/filer_public/1a/48/1a484b87-afaa-41de-8d64-f6d2f27c49c7/admn_report2025-26.pdf
- *The Manipur Town and Country Planning Act, 1975* (Manipur Act 11 of 1975), ꯁꯦꯛꯁꯟ 1(2), 2, 13, 22 ꯑꯃꯁꯨꯡ 26꯫ https://prsindia.org/files/bills_acts/acts_states/manipur/1975/Act11of1975Manipur.pdf
- *The Manipur Municipalities Act, 1994* (Act 43 of 1994), ꯁꯦꯛꯁꯟ 213 ꯑꯃꯁꯨꯡ ꯌꯥꯎꯅꯕ ꯃꯇꯝ (ꯄꯥꯎꯖꯦꯜ ꯃꯇꯨꯡ ꯇꯥꯔꯦ; ꯇꯔꯝꯒꯤ ꯁꯦꯛꯁꯟꯁꯤꯡ ꯄꯦꯟꯗꯤꯡ [TBC])꯫
- *The Manipur Loktak Lake (Protection) Act, 2006* (Manipur Act 3 of 2006), Amendment Acts 5 of 2007 ꯑꯃꯁꯨꯡ 8 of 2019-ꯅ ꯍꯣꯡꯗꯣꯛꯂꯕ, ꯁꯦꯛꯁꯟ 1(3), 2, 3, 19, 20 ꯑꯃꯁꯨꯡ 36꯫ https://prsindia.org/files/bills_acts/acts_states/manipur/2006/Manipur%20Act%203%20of%202006.pdf
- *The Manipur Conservation of Paddy Land and Wetland Act, 2014* (Manipur Act 10 of 2014), ꯁꯦꯛꯁꯟ 2, 12 ꯑꯃꯁꯨꯡ 18; ꯑꯃꯁꯨꯡ (Third Amendment) Bill, 2026 (Bill No. 6 of 2026, ꯄ꯭ꯔꯣꯗꯦꯟꯗꯤꯡ ꯃꯑꯣꯡ; ꯑꯦꯛꯇ ꯅꯥꯏꯗ꯭ꯔꯤ)꯫ https://faolex.fao.org/docs/pdf/ind194970.pdf
- *The Manipur Flood Plain Zoning Act, 1978* (Manipur Act 10 of 1978), ꯁꯦꯛꯁꯟ 1–7, ꯄꯥꯎ ꯃꯇꯨꯡ ꯄꯥꯈꯤ ꯑꯃꯒꯤ OCR-ꯗꯒꯤ ꯄꯦꯟꯗꯤꯡ꯫ https://www.indiacode.nic.in/bitstream/123456789/13383/1/the_manipur_flood_plain_zoning_act%2C_1978.pdf
- *The Manipur (Hill Areas) District Councils Act, 1971*, 2006, 2008, 2017 ꯑꯃꯁꯨꯡ 2018-ꯒꯤ ꯃꯇꯝꯒꯤ ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯇꯁꯤꯡꯅ ꯍꯣꯡꯗꯣꯛꯂꯕ, ꯁꯦꯛꯁꯟ 29, 29(1A) ꯑꯃꯁꯨꯡ 52꯫ https://manipur.gov.in/wp-content/uploads/2026/05/The-Manipur-Hill-Areas-District-Councils-Act-1971-subsequent-Amendments.pdf
- Asian Infrastructure Investment Bank (2024). *Approval Project Document*, Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723), ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ initial environmental examination꯫ https://aiib.org/en/projects/details/2024/_download/India/AIIB-APD_P000723_Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project.pdf
- New Development Bank (2021). *Proposed Project Summary, Lamphelpat Waterbody Rejuvenation Project*. https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf

- India Meteorological Department. *Extremes of Temperature and Rainfall for Indian Stations (up to 2012)*: Imphal (Tulihal) (A), 42623; ꯑꯃꯁꯨꯡ ꯍ-ꯀꯥꯡꯂꯥꯛ ꯃꯦꯇꯨꯇ ꯄꯣꯠ ꯑꯃꯁꯨꯡ ꯆꯌꯥꯎꯖꯝꯀꯤ ꯃꯤꯒꯤꯅꯆ ꯁꯣꯃꯠ ꯀꯥꯃꯩꯗ ꯁꯣꯡꯂꯤꯡꯒꯤ ꯌꯥꯝꯂ ꯃꯤꯇꯤꯆ (2020, ꯄꯥꯑꯣꯅꯤꯠ ꯃꯁꯨꯡ ꯅꯦꯇꯆ)꯫
- Manipur Science and Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, DST-NRDMS-ꯗ ꯌꯥꯎꯅꯤꯕ ꯍꯧꯗꯣꯛ ꯃꯤꯌꯥꯝꯗ (2001 ꯍꯧꯖꯤꯛꯀꯤ ꯗꯣꯝ)꯫ https://www.mastec.nic.in/images/Completed_projects/ReportFloodHazard.pdf
- Central Ground Water Board, North Eastern Region (2013). *Ground Water Information Booklets*, Imphal West ꯑꯃꯁꯨꯡ Bishnupur districts꯫
- Das, S.K. et al. (2022). Isopluvial analysis and intensity–duration–frequency curves for different cities in India. *MAUSAM* 73(4), 887–898 (ꯅꯠꯍꯦꯟꯒꯤ ꯌꯥꯎꯗꯣꯛ, ꯂꯤꯆꯤꯇꯦꯗꯕ)꯫
- Kansas City Metro Chapter APWA (2006). Section 5600 Storm Drainage Systems and Facilities, §5608 (easements, maintenance, submittals) ꯑꯃꯁꯨꯡ §5609 (plan requirements)꯫ https://www.kcwater.us/wp-content/uploads/2020/08/Design-Criteria-%E2%80%93-Section-5600-%E2%80%93-Storm-Drainage-Systems-and-Facilities.pdf
- Kansas City Metro Chapter APWA (2025). Section 5600 Storm Drainage Systems and Facilities, Version 2025.01.
- Mid-America Regional Council (2025). Stormwater management page: 2025 Stormwater Standards Manual, Compliance Calculator, Calculator Start-Up Guide, Policy Supplement. https://www.marc.org/environment/environment-plans/stormwater-management
- PUB Singapore (2018, with Addendum No. 3 of 16 Apr 2025). Code of Practice on Surface Water Drainage, 7th ed. https://info.corenet.gov.sg/docs/default-source/pub-circulars/pub-circular_cop-7th-ed-addendum-no-3_16-apr-2025.pdf?sfvrsn=5a2c1e1a_2
- PUB Singapore (2024). On-site Stormwater Detention Tank Technical Guide. https://www.pub.gov.sg/-/media/PUB/PDF/detentionTank.pdf
- PUB Singapore (11 Nov 2024). Amendments to Sewerage and Drainage Act (ꯌꯥꯎꯗꯣꯛ ꯃꯤꯇꯤꯆ)꯫ https://www.pub.gov.sg/Resources/News-Room/PressReleases/2024/11/Amendments-to-Sewerage-and-Drainage-Act
- MoHUA (2016). Model Building Bye-Laws, Chapter 9, §9.6. https://web.archive.org/web/2022/https://mohua.gov.in/upload/uploadfiles/files/MBBL.pdf
- National Disaster Management Authority (2010). National Guidelines on Management of Urban Flooding. https://sdma.goa.gov.in/sites/default/files/2022-05/management_urban_flooding.pdf
- High Court of Manipur. *Meeyam Amata Oina Punsinba Lup v. State of Manipur*, PIL No. 8 of 2025, 16 ꯖꯨꯟ 2025-ꯒꯤ ꯑꯦꯃꯗꯃ, ꯀꯠꯍꯩꯅꯔꯥꯛꯄꯤ ꯃꯁꯤꯡꯗ WRD-ꯒꯤ ꯂꯥꯟꯄ ꯅꯦꯂꯣꯔꯥꯡꯂꯦ ꯃꯤꯌꯥꯝꯄꯗ ꯀꯥꯍꯀꯦ꯫ https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf
- National Green Tribunal. O.A. No. 606 of 2018, Government of Manipur, ꯑꯌꯗꯣꯄ ꯁꯣꯃꯠ ꯃꯤꯌꯥꯝꯄ (ꯖꯨꯂꯥꯏ 2025) ꯑꯃꯁꯨꯡ ꯁꯃꯨꯡꯂꯨꯠ ꯑꯃꯁꯨ ꯁꯃꯨꯡ ꯅꯨꯗꯤꯡꯒꯤ ꯌꯥꯎꯗꯣꯛ ꯃꯤꯌꯥꯝꯄ (ꯗꯤꯁꯦꯝꯕꯔ 2025 ꯍꯧꯖꯠ); O.A. No. 673 of 2018 (ꯌꯥꯖꯨꯄ ꯑꯣꯅꯃꯠ ꯁꯨꯃꯍ ꯂꯣꯃꯍꯂꯤꯡ); M.A. No. 26 of 2019, 22 ꯃꯦ 2020-ꯒꯤ ꯑꯦꯃꯗꯃ꯫ https://www.greentribunal.gov.in/
- Comptroller and Auditor General of India. Report No. 2 of 2017, *Economic and Revenue Sectors, Government of Manipur* (ꯅꯂꯤꯡ ꯅꯍꯩ ꯄꯦꯂꯣꯃꯍ ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡ ꯅꯍꯩ ꯍꯃꯄꯂꯣꯤꯡꯒꯤ ꯌꯥꯍꯃꯃꯦꯜ ꯑꯗꯤꯄ, ꯂꯇꯃꯃꯤ ꯁꯣꯅꯤꯠ ꯃꯁꯨꯡ ꯅꯦꯇꯆ; ꯂꯃꯨꯡ ꯌꯥꯅꯤꯗꯠ [TBC]); ꯑꯃꯁꯨꯡ Irrigation and Flood Control Department-ꯒꯤ 2002 ꯑꯃꯁꯨꯡ 2008-ꯒꯤ ꯑꯗꯤꯄꯂꯤꯡ (ꯂꯇꯃꯃꯤ ꯁꯣꯅꯤꯠ ꯃꯁꯨꯡ ꯅꯦꯇꯆ)꯫ https://cag.gov.in/
- Central Pollution Control Board (2025). *Polluted River Stretches for Restoration of Water Quality* (ꯃꯀꯤꯌꯨꯃ: ꯂꯣꯃꯍ 18, Priority V)꯫
- Directorate of Environment and Climate Change, Manipur. *Administrative Report 2025-26*. https://assembly.mn.gov.in/user/pages/files/administrative-reports/A%20Report%202025-26%20(DoECC).pdf

- Government of Manipur, MAHUD. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)-ꯇꯥ ꯇꯥꯌꯤꯐꯅ ꯌꯦꯍꯤꯕ (ꯃꯤꯆꯔꯦꯇ; Naga Nullah)꯫
- The Sangai Express, Imphal Free Press, India Today NE, Down To Earth, Business Standard, Eastern Mirror ꯑꯃꯁꯨꯡ ꯑꯌꯥꯒꯒ ꯔꯤꯇꯇꯦꯟ ꯒꯤꯁ꯭ꯇꯦꯟꯃꯤꯡ (2015–2026)꯫ WRD-ꯒꯤ ꯌꯨꯔꯦꯟꯒꯤ ꯇꯦꯒꯦꯟꯃꯤꯡ, 2015, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯅꯃꯤꯡ ꯅꯌꯦꯁꯃꯤꯡ, ꯌꯨꯒꯨꯟ ꯑꯃꯁꯨꯡ ꯇꯥꯍꯥꯟ ꯇꯦꯋꯗꯃ꯭ꯇꯅꯗꯃꯤꯡ, ꯑꯦꯒꯔꯤꯟ 2025-ꯒꯤ ꯅꯒꯤꯑꯃꯋ ꯗ꯭ꯔꯅꯒꯃꯤꯡ, ꯇꯥꯑꯌꯑꯏꯤ ꯍꯌꯥꯡꯗ ꯄꯅ ꯏꯥꯔꯎꯏꯤ ꯑꯥꯔꯗꯔꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯇꯗ꯭ꯒꯇꯦꯋ ꯇꯥꯇꯤꯡꯒꯤ ꯐꯤꯒꯍꯒꯤ ꯔꯤꯒꯥꯔꯎꯃꯤꯡ (ꯑꯇꯤꯃꯕ ꯄꯔꯑꯐꯍꯃꯤꯡ)꯫

ꯑꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯐꯥꯔꯝꯁꯤꯡ

ꯑꯍꯦꯟꯕ / ꯐꯥꯔꯝ	ꯑꯌꯥꯗ꯭ꯂꯕ
10A	ꯏꯝꯒ꯭ꯇꯥꯅꯌꯦꯋꯃ ꯏꯦꯇꯏ꯭ꯂꯇꯦꯌꯔ ꯑꯃꯁꯨꯡ ꯌꯨꯇꯔ ꯒꯥꯅꯗ
10B	GIS ꯗꯦꯌꯒꯤ ꯃ꯭ꯒꯦꯃꯤꯐꯤꯏꯦꯃꯋ ꯑꯃꯁꯨꯡ ꯑꯦꯌ꯭ꯔꯤꯕ꯭ꯌꯨꯋ ꯃ꯭ꯏꯤꯍ
10C	ꯍꯦꯋꯌꯦꯇꯦꯋꯃꯒꯤ ꯌꯑꯇꯑꯒꯒꯤ ꯗꯅꯍꯦꯋꯃꯋꯃꯤꯡ
10D	ꯐꯦꯃꯤꯇꯤꯌꯤꯒꯤ ꯍꯅꯇ ꯍꯌꯨꯡ ꯅꯋꯇ ꯍꯥꯗꯦꯇ O&M ꯒ꯭ꯇꯥꯋꯃꯤꯡ
10E	ꯇꯥꯡꯒꯤ ꯅꯃꯤꯡ ꯗꯤꯇꯅꯋ ꯒ꯭ꯔꯥꯐꯦꯃꯇꯦꯇꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯒꯤꯁꯌꯔꯃꯤꯡꯒꯤ ꯅꯍꯒꯦꯇꯦꯇꯍꯦꯋꯏꯤ ꯏ꯭ꯔꯅꯌꯦꯔꯤꯌ
ꯐꯥꯔꯝ 10-1	ꯅꯔꯝ ꯔꯤꯒꯥꯔꯋꯏꯤ ꯌꯦꯑꯇꯤꯃ꯭ꯋ
ꯐꯥꯔꯝ 10-2	ꯏꯝꯒ꯭ꯇꯥꯅꯌꯦꯋꯃ ꯏꯦꯇꯏ꯭ꯂꯇꯦꯌꯔꯒꯤ ꯁꯝꯃꯔꯤ
ꯐꯥꯔꯝ 10-3	ꯒ꯭ꯔꯥꯐꯦꯃꯇꯦꯇ ꯗꯤꯇꯅꯋ ꯃꯔꯌꯤꯐꯤꯏꯦꯋ
ꯐꯥꯔꯝ 10-4	ꯄꯥꯇꯗ-ꯒꯥꯅꯋꯋ ꯅꯋꯃ꯭ꯒꯦꯑꯃꯋꯒꯤ ꯔꯦꯏꯥꯔꯗ
ꯐꯥꯔꯝ 10-5	ꯑꯦꯇ-ꯕꯤꯇꯋ ꯃꯔꯌꯤꯐꯤꯏꯦꯋ
ꯐꯥꯔꯝ 10-6	ꯍꯦꯋꯌꯦꯇꯦꯋꯃ ꯗꯤꯑꯇꯦꯔꯦꯃꯋ
ꯐꯥꯔꯝ 10-7	ꯌꯄꯤ ꯌ꯭ꯗꯤꯑꯒꯤ ꯍꯦꯋꯌꯦꯇꯦꯋꯃ ꯗꯤꯑꯇꯦꯔꯦꯃꯋ ꯑꯃꯁꯨꯡ ꯅꯋꯃ꯭ꯒꯦꯑꯃꯋ ꯔꯤꯒꯥꯔꯋ
ꯐꯥꯔꯝ 10-8	ꯑꯦꯃꯦꯋ ꯄꯦꯋꯗꯑꯥꯒꯔ ꯃꯔꯌꯤꯐꯤꯏꯦꯋ
ꯐꯥꯔꯝ 2-1	ꯗꯤꯇꯅꯋ ꯇꯥꯑ ꯌ꯭ꯕꯒꯤ ꯃꯤꯋ (ꯃꯔ꯭ꯑ 2)

ꯁꯔꯨꯛ 11

ꯕꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯅꯁꯤꯡ

11.1 ꯄꯥꯟꯗꯝ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ

11.1.1 ꯁꯔꯨꯛ 2-ꯒꯤ 10 ꯗꯥ ꯄꯤꯔꯤꯕ ꯑꯆꯧꯕ ꯄ꯭ꯂꯥꯅꯤꯡ ꯊꯥꯛ ꯑꯁꯤ ꯌꯥꯔꯤ꯫ ꯁꯔꯨꯛ ꯑꯁꯤꯅꯥ ꯄ꯭ꯂꯥꯅꯤꯡꯒꯤ ꯑꯊꯣꯏꯕ ꯊꯥꯛ ꯑꯗꯨ ꯁꯦꯝꯃꯤ: **ꯕꯦꯁꯤꯟ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ (Basin Stormwater Master Plan, BSMP)**꯫ BSMP ꯑꯁꯤ ꯗ꯭ꯔꯦꯅꯦꯖ ꯕꯦꯁꯤꯟ (drainage basin) ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯁꯦꯝꯃꯤ꯫ ꯁꯍꯔ ꯈꯨꯗꯤꯡꯒꯤ BSMP-ꯒꯤ ꯃꯈꯥꯗꯥ ꯂꯩꯕ **ꯁꯍꯔꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ (City Stormwater Master Plan)** ꯑꯃ ꯂꯩꯒꯅꯤ꯫

11.1.2 BSMP ꯑꯁꯤꯅꯥ:

- (a) ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛꯀꯤ ꯊꯧꯔꯥꯡꯁꯤꯡꯒꯤ ꯕꯦꯁꯤꯟ ꯑꯗꯨꯒꯤ ꯏꯆꯥꯎꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯗꯕ (flood hazard) ꯃꯦꯞ ꯁꯦꯝꯒꯗꯕꯅꯤ;
- (b) ꯏꯁꯤꯡ ꯆꯦꯟꯊꯕꯒꯤ ꯁꯔꯨꯛ ꯈꯨꯗꯤꯡꯃꯛꯇꯥ ꯐꯪꯒꯗꯕ ꯁꯦꯕꯥ ꯑꯣꯏꯕ ꯁꯥꯏꯟ (level of service) ꯂꯦꯞꯀꯗꯕꯅꯤ (ꯌꯦꯡꯎ 11.6);
- (c) ꯁꯦꯕꯥ ꯑꯣꯏꯕ ꯁꯥꯏꯟ ꯑꯗꯨ ꯐꯪꯅꯕꯒꯤ ꯃꯊꯧ ꯇꯥꯕ ꯊꯕꯛꯁꯤꯡ, ꯈꯣꯉꯊꯥꯡ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯥꯡꯁꯤꯡ ꯂꯦꯞꯀꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯅꯨꯡꯒꯤ ꯃꯦꯛꯊꯧ ꯂꯦꯞꯀꯗꯕꯅꯤ (ꯌꯦꯡꯎ 11.7 ꯑꯃꯁꯨꯡ 11.8);
- (d) ꯑꯍꯥꯅꯕ ꯃꯐꯝ ꯁꯤꯖꯤꯟꯅꯕ-ꯂꯝ ꯄ꯭ꯂꯥꯟ (land-use plan) ꯑꯃꯁꯨꯡ ꯃꯥꯏꯀꯩ ꯈꯣꯉꯊꯥꯡ, ꯄꯨꯈ꯭ꯔꯤ (pukhri) ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ (tank) ꯃꯦꯈꯣꯡꯊꯥꯡ, ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯂꯩꯕ ꯄꯥꯟꯗꯃꯁꯤꯡꯒꯤ ꯃꯇꯥꯡ ꯂꯦꯞꯀꯗꯕꯅꯤ (ꯌꯦꯡꯎ 11.9);
- (e) ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯈꯥ ꯆꯠꯅꯕꯤ ꯈꯨꯗꯣꯡꯆꯥꯗꯕꯒꯤ ꯃꯍꯨꯠ ꯁꯦꯝꯕ ꯕꯦꯁꯤꯟ ꯑꯗꯨꯒꯤ ꯅꯣꯡꯁꯨꯒꯤ ꯅꯦꯝꯊꯍꯅꯕ ꯂꯦꯞꯀꯗꯕꯅꯤ: ꯃꯐꯝ ꯈꯨꯗꯤꯡꯗꯥ ꯐꯤ-ꯏꯟ-ꯂꯤꯎ (fee-in-lieu) ꯄꯨꯔꯛꯄ ꯃꯥꯏ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯕꯦꯁꯤꯟꯒꯤ ꯃꯤꯇꯤꯇ ꯃꯥꯏ (release rate) ꯑꯁꯤꯁꯨ (ꯌꯦꯡꯎ 11.8.3); ꯑꯃꯁꯨꯡ
- (f) ꯏꯆꯥꯎ ꯈꯨꯗꯣꯡꯊꯤꯕ ꯁꯦꯝꯒꯠꯄ ꯑꯣꯏꯕ (flood-sensitive) ꯑꯣꯏꯕ ꯂꯩꯐꯝꯁꯤꯡ ꯌꯦꯡꯁꯤꯟꯗꯨꯅꯥ ꯄꯥꯟꯗꯃꯁꯤꯡ ꯃꯦꯞ ꯇꯧꯒꯗꯕꯅꯤ (ꯌꯦꯡꯎ 4.5.4)꯫

11.1.3 **ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯃꯅꯥ.** ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯊꯧꯔꯥꯡꯁꯤꯡꯒꯤ (ꯁꯔꯨꯛ 4-ꯒꯤ 8 ꯃꯁꯤꯡ) BSMP ꯁꯦꯝꯕꯥ ꯃꯃꯥꯡꯗꯥ ꯆꯠꯂꯤ꯫ BSMP ꯑꯁꯤ ꯃꯇꯝꯒꯤ ꯕꯦꯁꯤꯟꯒꯤ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯊꯧꯔꯥꯡꯁꯤꯡꯒꯤ **ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯆꯠꯀꯗꯕꯅꯤ** ꯑꯣꯏꯒꯅꯤ꯫ ꯌꯦꯡꯎ 4.13 ꯑꯃꯁꯨꯡ 4.5.6-ꯒꯤ ꯃꯐꯝ ꯈꯨꯗꯤꯡꯗꯥ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯑꯃꯁꯨꯡ ꯐꯤ-ꯏꯟ-ꯂꯤꯎꯒꯤ ꯃꯥꯏꯄꯥꯛꯄꯒꯤ ꯃꯇꯥꯡ, ꯃꯇꯨꯡꯗꯥ ꯃꯍꯩ ꯐꯪꯗꯨꯅꯥ ꯑꯣꯟꯊꯣꯛꯀꯗꯕꯅꯤ꯫

> **ꯑꯍꯦꯅꯕ ꯈꯪꯅꯕ.** ꯃꯇꯝꯗꯨꯒꯤ ꯄꯥꯟꯗꯝꯕ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯁꯤ, ꯇꯨꯔꯦꯂꯒꯤ (river) ꯏꯆꯥꯎ ꯑꯁꯤ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛꯀꯤ ꯏꯁꯤꯡꯒꯤ ꯏꯆꯥꯎꯒꯤ ꯑꯁꯤ ꯂꯩ, ꯑꯗꯨꯕꯨ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡꯖꯨ (design storm) ꯑꯃꯥ ꯅꯠꯔꯒꯥ ꯈꯨꯗꯣꯡꯆꯥꯗꯕ ꯅꯣꯡꯖꯨ-ꯏꯁꯤꯡꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯃꯠꯇꯥ ꯂꯩꯇꯦ꯫ ꯂꯧꯈꯠꯂꯕ ꯏꯝꯐꯥꯂꯒꯤ ꯃꯤꯔꯣꯜꯂꯕ ꯌꯥꯝꯕ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯍꯣꯡꯗꯣꯛꯄ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)), MAHUD-ꯅꯥ ꯂꯥꯎꯊꯣꯛꯂꯕ ꯌꯥꯊꯪ (4 ꯁꯦꯞꯇꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)), ꯑꯗꯨꯅꯥ ꯏꯝꯐꯥꯜ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯍꯦꯟꯅꯥ 151.38 km^2-ꯒꯤ ꯄꯥꯟꯗꯃꯗꯨ ꯑꯣꯏꯔꯤ ꯑꯁꯤ ꯌꯥꯎꯔꯤ, ꯃꯗꯨ IMC-ꯒꯤ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗꯥ ꯌꯥꯎꯔꯤ; ꯃꯗꯨꯗꯥ "ꯌꯨꯝꯂꯝ ꯑꯁꯤ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯋꯥꯡꯕ ꯏꯆꯥꯎꯒꯤ ꯁꯥꯏꯟꯒꯤ ꯃꯈꯥꯗꯥ ꯂꯩ ꯑꯃꯁꯨꯡ ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯅꯥꯛ ꯑꯅꯤꯃꯛꯇꯥ ꯄꯥꯔꯒꯤ ꯂꯝꯕꯤꯁꯤꯡ ꯂꯩ" ("The town is below the high flood level of Imphal river and hence there are embankment roads on both sides of the river") ꯍꯥꯌꯅꯥ ꯏꯔꯤ, ꯄꯥꯟꯗꯃꯗꯨ ꯑꯦꯃꯤꯔꯤꯒꯤ ꯂꯩꯄꯥꯛꯁꯤꯡꯗꯨ (wetlands) "ꯍꯦꯛꯇꯔ 500 ꯃꯇꯝꯒꯤ ꯑꯦꯃꯤꯔꯤꯗ ꯏꯁꯤꯡ ꯁꯦꯃꯒꯠꯄꯗꯨ ꯁꯔꯀꯥꯔꯅꯥ ꯂꯦꯄꯈ꯭ꯔꯦ" ("earmarked by the government for the construction of water bodies for an area of approximately 500 hectares") ꯍꯥꯌꯅꯥ ꯃꯦꯞꯇꯥ ꯌꯥꯎꯏ, ꯑꯃꯁꯨꯡ 2043-ꯒꯤ ꯂꯦꯟꯗ ꯌꯨꯖ ꯄ꯭ꯂꯥꯟ ꯌꯥꯎꯏ, ꯑꯗꯨꯕꯨ ꯃꯇꯝꯒꯤ ꯏꯆꯥꯎꯒꯤ ꯅꯦꯝꯊꯍꯅꯕꯒꯤ ꯊꯧꯔꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯕ, ꯆꯤꯡꯊꯥꯡ, ꯅꯣꯡꯖꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯥꯡ ꯌꯥꯎꯔꯤ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯁꯤꯡꯒꯤ ꯆꯥꯡꯆꯦꯛ ꯑꯃꯠꯇꯥ ꯂꯩꯇꯦ꯫ ꯏꯝꯐꯥꯜ ꯑꯃꯁꯨꯡ

ꯃꯦꯅꯕꯤꯗꯒꯤ ꯃꯤꯇ꯭ꯌꯥ ꯅꯥꯏꯖꯦꯃꯍꯗ GIS ꯗꯥꯀ ꯃꯣꯠꯂꯕ ꯄ꯭ꯂꯦꯟꯁꯤꯡ (Risk Informed GIS Based Master Plans for Imphal and Moirang) ꯑꯁꯤ 17 ꯀꯥꯔ꯭ꯌꯦꯃꯤ 2025-ꯗ ꯑꯃꯥꯅꯗ ꯑꯅꯥꯏ ꯀꯌꯤꯖꯦꯟ ꯌꯥꯍꯤꯗ ꯍꯥꯏꯔꯥꯏ ꯀꯤꯇ꯭ꯋ ꯌꯥꯃꯤ, ꯑꯗꯨꯒ 2025-26-ꯒꯤ TPD-ꯒꯤ ꯃꯤꯄꯥꯃꯋꯥꯏ ꯃꯍꯥꯛꯀꯤ ꯁ꯭ꯃꯖꯋ ꯃꯤꯄꯥꯃꯋ "ꯄꯤꯃꯥ" ("has been submitted") ꯍꯥꯏꯔꯃꯤ, ꯃꯁꯤ ꯃꯦꯌꯥꯝꯗ ꯑꯃꯀꯤ; ꯃꯍꯥꯛ ꯄꯣꯛꯂꯝ, ꯃꯃꯆ ꯑꯗꯨꯥꯏ ꯃꯍꯥꯛꯀꯥꯏ ꯃꯥꯄ ꯌꯥꯗ ꯌꯥꯗ ꯅꯁꯤꯡ ꯅꯁꯦꯔꯒꯤ ꯃꯤꯇ꯭ꯌꯥ ꯀꯥꯗ ꯑꯃꯤꯌꯥꯁꯤꯡ ꯅꯗꯝ [TBC]꯫ TPD-ꯅ ꯊꯗꯥꯟ, ꯐꯥꯎꯁꯤꯡ, ꯀꯤꯀꯡ (ꯊꯗꯥꯟ), ꯃꯔꯤꯡ ꯅꯆꯖꯟ ꯑꯃꯁꯨꯡ ꯀꯆꯗꯟꯒꯤꯗꯃꯥ ꯑꯃꯁꯨꯡ "ꯌꯆꯄꯥꯎ ꯑꯃꯁꯨꯡ ꯁꯤꯡ ꯑꯀꯤꯃꯥ" ("both valley and hills") ꯀꯗ ꯗꯤꯇ꯭ꯋꯃꯤꯥ ꯍꯗꯥꯌꯃꯌ 14-ꯒꯤꯗꯃꯥ, 2042-ꯒꯤ ꯍꯃꯅꯀꯦ ꯑꯃꯛ ꯀꯔꯀꯅ GIS ꯃꯇ꯭ꯋꯌ ꯄ꯭ꯀꯦꯁꯤꯡ ꯁꯆꯀꯤ (TPD-ꯒꯤ ꯑꯗꯃꯀꯤꯇ꯭ꯋꯌꯃꯤꯒ ꯃꯤꯄꯥꯃꯋ, 2025-26)꯫ ꯅꯃꯆꯒꯤ ꯐꯄꯣꯀꯤꯌꯤ ꯑꯁꯤ ꯄ꯭ꯀꯦ ꯃꯁ꯭ꯂꯨꯡ ꯅꯦꯀꯗꯅ ꯄ꯭ꯃꯥꯀꯥꯋ ꯃꯁ꯭ꯂꯨꯡ ꯅꯦꯀ ꯇꯃꯤ꯫ AIIB-ꯒꯤ ꯃꯀꯤꯄ꯭ꯂꯃ ꯁꯃꯗꯦ ꯃꯗ, ꯁ꯭ꯃꯀꯀ ꯑꯃꯁꯨꯡ ꯑꯇꯋ ꯃꯀꯀꯃꯋꯦꯋ ꯅꯆꯄ꯭ꯃꯒꯃꯋꯦꯋ ꯄ꯭ꯃꯥꯀꯥꯋ (Manipur Urban Road, Drainage and Asset Management Improvement Project, P000723)-ꯅ ꯒ꯭ꯃꯌꯃ ꯅꯆꯖꯟꯗ ꯀꯆꯗꯤ 547 km "ꯃꯅꯐ ꯑꯀꯤꯃꯥꯌ ꯀꯁꯒꯤ ꯅꯁꯤꯁꯒꯤ ꯐꯒꯃ ꯌꯃꯗ ꯍꯁꯗꯦ (drain) 547 km" ("547 km of both side stormwater covered drains")-ꯒꯤ ꯀꯔꯀꯅ ꯃꯤꯍꯗꯤꯀꯤꯌꯋ ꯌꯒꯀꯤ, ꯃꯍꯥꯛꯀꯅ "ꯀꯁꯒꯤ ꯅꯁꯤꯁ … ꯑꯁꯋꯖꯟ (ꯂ꯭ꯃꯟ)-ꯗ ꯁꯀꯟ ꯌꯅ" ("channelize the storm water … to the out fall [river]"), ꯃꯤꯌꯃꯦ ꯄꯤꯃꯤꯔꯗ, ꯅꯦꯌꯦꯁꯤꯌꯤ ꯀꯋꯃꯛ ꯃꯦꯑꯖ (runoff) ꯐꯑꯖꯤꯁꯤꯔꯦꯋ ꯑꯃꯋꯌ ꯖꯁꯗꯥꯌꯅ (ꯄ꯭ꯃꯥꯀꯥꯋ ꯗꯥꯂ꯭ꯃꯦꯋ, 2024)꯫ ꯁꯌꯃ ꯃꯤꯁꯃꯁꯁ ꯗꯤꯄꯃꯋꯃꯦꯋ (Water Resources Department, WRD)-ꯐꯤ ꯀꯆꯖꯟꯄꯋ ꯁꯌꯃꯗꯗꯤ ꯃꯤꯀ꯭ꯂꯒꯀꯁꯦ ꯄ꯭ꯃꯥꯀꯥꯋ (Lamphelpat Waterbody Rejuvenation Project), NDB-ꯗꯒꯤ ꯀꯦ ꯑꯃꯛ ꯀꯔꯀꯅ (ꯄ꯭ꯂꯆꯗꯒꯤ ꯃꯃꯟ USD 87.84 ꯃꯤꯀꯤꯔꯦ, ꯀꯦ USD 70.27 ꯃꯤꯀꯤꯔꯦ, ꯐꯦꯁꯄꯌ ꯑꯄ꯭ꯂꯒꯟ 17 ꯀꯒꯆꯗꯃ 2021), ꯑꯁꯤꯅ "ꯃꯁꯤꯒꯤ ꯅꯁꯤꯁ ꯗꯤꯌꯦꯁꯦꯒꯤ ꯐꯄꯣꯀꯤꯌꯤ ꯍꯀꯒꯋꯍꯦꯀꯗ, ꯀꯁꯒꯤ ꯅꯁꯤꯁ ꯅꯃꯆꯒꯤ ꯁꯤꯇ꯭ꯋꯆ ꯑꯃꯁꯨꯡ ꯐꯁꯃꯦꯋ ꯑꯃꯤꯔꯗ ꯀꯗ ꯁꯀꯟꯁꯤꯁ / ꯍꯁꯁꯤꯁ ꯃꯇ꯭ꯋꯌꯃ ꯌꯀꯗ" ("increase its water detention capacity, restore stormwater drainage system and channels / streams in the catchment area") ꯑꯃꯁꯨꯡ "ꯐꯃꯦꯗ ꯁꯦꯌꯃ ꯑꯃꯛ ꯀꯔꯀꯅ ꯃꯤꯔꯟ ꯌꯅꯆ ꯁ꯭ꯀꯗ ꯃꯀꯀꯃꯋꯦꯋ ꯁꯤꯇ꯭ꯋꯆ" ("real time flood management system with a command center") ꯁꯃꯛꯋꯀꯗꯀꯤ (NDB-ꯒꯤ ꯁꯆꯃꯃꯤ); 9 ꯀꯒꯆꯗꯃ 2023-ꯒꯤ ꯁꯃꯥ ꯑꯃꯗꯃ ꯑꯃꯒꯤ ꯃꯍꯗ ꯑꯐꯃ 300 ꯃꯆꯒꯤ ꯁ꯭ꯃꯀꯤꯁ (dredging) ꯍꯍꯤ, WAPCOS-ꯅ ꯃꯀꯤꯌꯃꯤꯁ ꯐꯦꯁꯟꯌꯦꯋ ꯑꯅꯥꯏ (PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯁꯅꯋ ꯃꯤꯄꯥꯃꯋ), ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯃꯟ, ꯑꯃꯤꯔ ꯑꯃꯁꯨꯡ ꯁꯟ ꯄꯤꯗꯁꯤꯁꯒꯤ ꯃꯌꯁꯗ ꯄꯁ꯭ꯀꯟꯁꯤꯁꯒꯤ ꯃꯤꯄꯥꯃꯋꯁꯤꯁ ꯌꯐꯦꯀ (ꯄꯁꯗ ꯖꯁꯗꯥꯍꯤꯗ ꯃꯁ꯭ꯂꯨꯡ ꯅꯦꯀ)꯫ ꯀꯆꯗꯟ ꯂ꯭ꯃꯟꯗ ꯁꯀꯟꯄꯥꯄ ꯍꯁꯗꯦ 72-ꯒꯤ DoECC-ꯅ ꯌꯃꯤꯗ ꯅꯦꯌꯃꯁꯄꯁꯦ ꯑꯁꯤ ꯄꯀ꯭ꯂꯁꯦꯒꯤ ꯊꯗꯥ ꯑꯃꯀꯤ, ꯐꯄꯣꯀꯤꯌꯤꯒꯤ ꯊꯗꯥ ꯀꯋꯌ꯫ ꯖꯁꯗꯥꯀꯗ ꯗꯥꯂ꯭ꯃꯦꯋ ꯑꯃꯋꯌꯅ ꯃꯀꯤꯄ꯭ꯂꯃꯒꯤ ꯐꯃꯤꯒ꯭ꯂꯆꯗ ꯌꯁꯦ ꯑꯃꯒꯤ ꯇ꯭ꯋꯌꯃꯆ-ꯍꯁꯗꯦꯒꯤ ꯀꯋꯌꯃꯥꯐꯤꯗꯃꯥ ꯗꯤꯀꯅꯦ ꯃꯤꯌꯃꯦ ꯄꯤꯃꯤꯔꯗ ꯑꯃꯋꯌ ꯊꯆꯗ꯫ ꯁꯃ꯭ꯂꯥ ꯑꯁꯤꯅ ꯑꯁꯤꯒ꯭ꯂꯆꯗ ꯄ꯭ꯀꯦ ꯑꯃꯅ ꯃꯊ ꯌꯗ ꯗꯤꯀꯅꯦ ꯇ꯭ꯋꯌꯃꯆ, ꯀꯒꯟ ꯑꯖ ꯁꯃꯒꯤꯁ, ꯇ꯭ꯋꯌꯃꯀ ꯑꯃꯁꯨꯡ ꯗꯖꯃꯒꯤ (buffer) ꯐ꯭ꯃꯅꯌꯃꯤꯔꯦꯁꯤꯁ ꯄꯤꯃꯤ, ꯁꯃ꯭ꯂꯥ 2-ꯒꯤ ꯗꯤꯀꯅꯦ ꯇ꯭ꯋꯌꯃꯆꯁꯤꯁ ꯑꯃꯁꯨꯡ ꯐ꯭ꯀꯀ 11.6-ꯒꯤ ꯀꯒꯟ ꯑꯖ ꯁꯃꯒꯤꯁꯁꯤꯒꯤ ꯀꯔꯀꯅ; ꯃꯁꯤ MAHUD, TPD, ꯄ꯭ꯀꯦꯀꯤꯁ ꯑꯃꯁꯨꯡ ꯗꯒꯀꯄꯃꯦꯋ ꯑꯊꯃꯤꯌꯤ, ꯃꯀꯤꯄ꯭ꯂꯃ (Planning and Development Authority, Manipur; PDA Manipur), IMC ꯀꯋꯃꯛ ꯑꯌꯄꯄ ꯁꯃꯗꯦ ꯀꯐꯟ ꯗꯗꯤ ꯑꯃꯋꯌ, WRD, LDA, MSDMA, ꯗꯤꯇ꯭ꯋꯃꯤꯥ ꯐꯁꯦꯁꯤꯟ ꯑꯃꯋꯌ ꯀꯋꯃꯛ ꯃꯁꯤꯒꯤ ꯑꯗꯃꯀꯤꯇ꯭ꯋꯌꯃꯌꯃ, ꯀꯋꯃꯛ ꯑꯌꯄꯄ ꯗꯗꯤ ꯑꯃꯋꯌꯅ ꯀꯁꯤꯦꯍꯗ꯫ ꯁꯅꯋ ꯀꯒꯟꯒꯤ ꯃꯂ꯭ꯀꯔꯟ ꯑꯃꯅ ꯗꯁꯤꯦ ꯀꯒꯟꯒꯤ ꯁꯅꯗꯗꯁꯤꯁ ꯁꯆꯗꯥꯄ ꯐꯆꯗ: ꯃꯁꯅ꯭ꯃꯗ ꯄ꯭ꯂꯅ꯭ꯃꯤꯒꯤ ꯇ꯭ꯋꯌꯃꯀ, ꯃꯃꯁꯗ ꯌꯆꯄꯥꯎꯐꯤ ꯅꯁꯤꯁ ꯅꯁꯦꯔ (flood) ꯊꯃꯀꯤꯟꯀꯆꯗ ꯄꯋꯁꯤꯁ (pat; ꯀꯥ ꯀꯋꯃꯛ ꯁꯋꯀꯦꯗ) ꯑꯃꯁꯨꯡ ꯀꯂ꯭ꯂꯥ (paddy land) ꯖꯤꯟ ꯌꯗꯨꯅ ꯃꯍꯥꯛꯀꯤ ꯃꯊꯥꯌ ꯁꯃꯤꯗ, ꯐꯥꯀꯤꯗ ꯂ꯭ꯃꯟꯒꯤ ꯄꯦꯁꯤꯁ (bund) ꯑꯃꯁꯨꯡ ꯂ꯭ꯃꯟꯁꯤꯁ ꯃꯍꯥꯛꯀꯤ ꯁ꯭ꯀꯗ ꯀꯒꯟꯒꯤ ꯃꯊꯥꯌ ꯀꯃꯤꯐꯗ ꯅꯁꯤꯁ ꯊꯗꯥꯄ ꯐꯆꯗꯗ ꯍꯁꯗꯦꯁꯤꯁ, ꯅꯛ ꯂ꯭ꯀꯟꯅ (Naga Nullah) ꯑꯃꯁꯨꯡ ꯁꯅꯁꯟ ꯃꯃꯤꯟ (Waisel Maril)-ꯒ꯭ꯂꯆꯗ ꯃꯋꯄꯅ ꯄ꯭ꯂꯀꯗ ꯁꯍꯃꯒꯤ ꯁꯀꯟꯁꯤꯁ, ꯒ꯭ꯃꯌꯃ ꯅꯆꯖꯟꯒꯤ ꯔꯆꯅ ꯁꯁꯗ ꯁꯃ꯭ꯂꯥꯐꯤ ꯁꯤꯁꯀ (sewage) ꯀꯆꯗꯟ, ꯀꯆꯖꯟꯄꯋ ꯑꯃꯁꯨꯡ ꯀꯥꯌꯥꯌ ꯄ꯭ꯂꯃꯥꯀꯤꯗ ꯍꯁꯗꯦꯁꯤꯁ, ꯐꯥꯀꯗ ꯑꯃꯁꯨꯡ ꯅꯁꯤꯁ ꯊꯦꯀꯗ ꯃꯌꯆꯗ ꯀꯦꯗꯇ꯭ꯀꯅꯗ (landslide) ꯌꯃꯤꯗ ꯗꯤꯁꯤꯁ ꯁꯟꯒꯤ (Disang shale) ꯁꯤꯁꯒꯤ ꯅꯄꯆꯁꯤꯁ, IMC, PWD, WRD, DoECC ꯑꯃꯁꯨꯡ LDA-ꯒꯤ ꯃꯃꯥꯌ ꯁꯔꯗꯥꯀꯗ ꯑꯃꯁꯨꯡ ꯃꯄ꯭ꯂ ꯑꯃꯍꯥꯌꯗ ꯄꯤꯗ ꯀꯌꯤꯖꯤꯐꯁꯦ ꯑꯃꯋꯌ ꯀꯌꯗ ꯁꯀꯟ ꯑꯃꯍꯥꯌꯁꯤꯁ, ꯑꯃꯁꯨꯡ ꯃꯁ ꯃꯊꯦꯌꯗꯤ ꯃꯌꯤꯥ ꯁꯗ ꯑꯗꯨꯒ ꯃꯊꯁꯒꯤ ꯃꯤꯁ (reach) ꯑꯗ ꯑꯒꯃꯀꯗ ꯌꯍꯦꯗ ꯍꯁꯗꯦꯁꯤꯁ꯫ ꯁꯁꯗꯆꯀꯗ ꯁꯗ ꯃꯂ꯭ꯀꯔꯟꯁꯤꯁꯅ ꯁꯅꯋꯐꯤ ꯐ꯭ꯃꯅꯌꯃꯤꯔꯦꯁꯤꯁ ꯗꯁꯤꯦ ꯄ꯭ꯀꯦꯀꯤꯁꯛ ꯄ꯭ꯂꯦꯁꯤꯟꯀꯤ:

- ꯗꯦꯒꯃꯒꯤ ꯃꯅꯟ ꯍꯅ ꯁ꯭ꯀꯗ ꯗꯤꯇ꯭ꯋꯃꯤꯥꯋ (Mile High Flood District, Denver)-ꯅ ꯃꯤꯀꯀꯟ ꯖꯁꯤꯀꯤꯌꯤꯁꯤꯁ ꯑꯃꯁꯨꯡ ꯃꯤꯀꯤꯀ ꯃꯋꯁꯤꯁ ꯊꯆꯗ ꯃꯀꯃ ꯁ꯭ꯃꯀꯀꯁꯒꯤ ꯃꯇ꯭ꯋꯌ ꯄ꯭ꯀꯦꯁꯤꯁ ꯁꯆꯅ꯫
- ꯐꯦꯁꯦ ꯁꯤꯌꯤꯒꯤ APWA ꯐ꯭ꯃꯅꯌꯃꯤꯔꯦꯁꯤꯁ (Kansas City APWA criteria) ꯑꯁꯤ ꯃꯤꯀꯀꯟ ꯁꯌꯃꯁꯗꯐꯤ ꯇ꯭ꯋꯗꯤꯁꯤꯁꯗ (MARC) ꯂ꯭ꯆꯖꯆ ꯑꯅ꯫
- ꯅꯐ꯭ꯀꯦꯗꯐꯤ ꯁꯃꯖꯁ ꯁꯌꯃ ꯃꯀꯀꯃꯋꯦꯋ ꯄ꯭ꯀꯦꯁꯤꯁꯅ (Surface Water Management Plans; Defra, Surface Water Management Plan Technical Guidance, 2010) ꯁꯆꯗ, ꯃꯤꯇ꯭ꯌꯥ ꯑꯁꯁꯃꯦꯋ, ꯑꯄꯁꯦꯁꯤꯁ ꯑꯃꯁꯨꯡ ꯅꯃꯄꯀꯤꯃꯦꯌꯁꯦꯒꯤ ꯖꯀ ꯖꯀꯒꯤ ꯊꯑꯁ ꯑꯃ ꯊꯆꯃꯤ꯫

- ꯃꯇꯥꯂꯤꯔꯦꯀꯤ MSMA-ꯅꯥ ꯁꯤꯖꯤꯟꯅꯕꯥ ꯑꯦꯛꯁꯤꯂꯦꯔꯦꯇꯔꯁꯤꯡ ꯄꯨꯊꯣꯛꯀꯤ ꯃꯇꯦꯡ ꯄꯥꯡꯅꯕꯥ ꯍꯥꯏꯕꯅꯤ꯫

ꯂꯩꯇꯨꯡ ꯑꯁꯤꯅꯥ ꯊꯧꯑꯣꯡ ꯑꯃꯥ ꯍꯣꯠꯅꯖꯔꯦ ꯃꯇꯦꯡ ꯄꯥꯡꯕꯅꯤ, ꯃꯁꯤ ꯂꯩꯕꯥꯛ ꯑꯁꯤꯒꯤ ꯑꯃꯨꯛ ꯍꯟꯅꯥ-ꯄꯨꯡꯐꯥ ꯑꯦꯟꯂꯥꯏ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯍꯦꯡꯕꯅꯥ ꯇꯧꯕ ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕ ꯊꯧꯗꯥꯡꯗꯤ ꯇꯥꯏ ꯕꯥꯂꯣꯡꯗꯤ: ꯃꯁꯤꯒꯤ ꯁꯤꯡꯊꯥꯂꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯃꯁꯤꯒꯤ ꯄꯨꯋꯥꯔꯤꯒꯤ ꯃꯊꯛꯇ ꯇꯣꯡꯕꯥ, ꯐꯥꯎꯕ ꯀꯨꯡꯂꯤꯒꯤ ꯃꯁꯨꯡꯗ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯊꯥꯈꯥꯖ ꯑꯃꯄꯥꯛꯁꯥ ꯇꯥꯛꯄꯥ, ꯄꯊꯞ ꯕꯥꯔꯦꯖ (Ithai barrage) ꯑꯃꯁꯨꯡ ꯃꯅꯨꯡꯒꯤ ꯃꯄꯥꯟ ꯇꯥꯕ ꯅꯨꯡꯒꯤ ꯂꯝ (rock sill) ꯑꯃꯒꯤ ꯁꯨꯃꯊꯨꯟ ꯌꯨꯃꯊꯕ, 780–790 m ꯑꯦꯟꯗ ꯇꯥꯕ ꯌꯥꯎ ꯍꯦꯟꯖꯕ ꯁꯤꯡꯀꯥꯡꯕꯤ ꯆꯥꯟ (valley floor) ꯇꯥꯕ ꯄꯥꯀꯤꯁꯥꯎ ꯑꯃꯅ; ꯇꯥꯡꯕꯤ ꯇꯥꯒꯥꯎ ꯑꯂꯤ ꯃꯁꯦ ꯑꯃꯨꯡꯒꯤꯅꯃꯡ ꯁꯥꯎꯔꯦꯁꯤ (tailwater) ꯑꯦꯄꯕ ꯇꯥꯡꯕꯤ ꯃꯅꯥꯡ ꯑꯃꯅ; ꯃꯃꯤꯕꯅ ꯁꯤꯡꯀꯥꯡꯕꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯊꯃꯇꯤꯔꯇꯆꯕ ꯑꯃꯁꯨꯡ ꯄꯣꯇꯤꯡ ꯉꯤꯔ ꯁꯣꯑꯤꯕ ꯀꯥꯌꯂꯤ ꯑꯃꯁꯨꯡ ꯇꯥꯍꯨꯡꯁ; 2022-ꯗ ꯇꯨꯄꯨꯜꯗ (Tupul) ꯊꯦꯡꯅꯕꯨꯛ, ꯄꯥꯟꯗꯕ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯊꯦꯡꯕ ꯃꯁꯥꯗ ꯇꯥꯦꯗꯂ꯭ꯇꯥꯏꯗ ꯁꯣꯑꯤꯕ ꯗꯤꯂꯥꯡ ꯂꯥꯔꯗ ꯇꯥꯕ ꯌꯤꯡꯒꯤ ꯁꯣꯁꯦꯟꯂꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯕꯑꯦꯡ ꯇꯨꯑꯥꯔ ꯃꯦꯍꯌꯦꯡꯇꯑꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯀꯥꯡꯁꯒꯤ ꯌꯥꯃꯅꯥ ꯄꯥꯡꯅꯥ ꯇꯦꯡ ꯅꯨꯑꯤꯕ ꯇꯦꯡꯅꯨꯀꯥꯡꯕꯤ ꯌꯤꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯤꯑꯤꯕꯤꯃ ꯀꯥꯡꯂꯦꯗ (Jiribam plain); ꯉꯟꯗ ꯄꯂꯣꯏꯃꯥꯂꯦ ꯑꯤꯀꯦꯑꯩ (Flood Estimation Report) ꯑꯃꯩꯁꯦ ꯉꯦꯡꯗꯦꯡꯁꯕ CWC ꯂꯕꯇꯦꯜ ꯑꯃꯗ ꯃꯀꯨꯡ ꯉꯅꯥ ꯇꯥꯕ ꯂꯁꯥꯩ ꯑꯃꯗ; ꯒꯤꯌꯥꯁꯤ ꯄꯃꯉꯦꯒꯤ ꯌꯤꯃꯅꯥ ꯌꯤꯁꯕ ꯂꯩꯇꯨꯡꯕꯤ ꯂꯤꯌꯥꯇ ꯅꯃꯈꯨ, ꯅꯃꯉꯥꯎꯀꯩ ꯑꯃꯁꯨꯡ ꯇꯦꯡꯁꯦꯡꯁ ꯀꯨꯑꯦꯡꯇꯤꯕ ꯄꯦꯡꯕꯗꯂꯤꯡꯗ; ꯇꯦꯄꯎ ꯕꯦꯗꯤ ꯄꯨꯗꯤꯡꯃꯦꯡꯅꯥ ꯌꯩꯇꯦꯡꯊꯎꯇꯤꯕ ꯃꯦꯗꯥꯎ ꯑꯃ ꯑꯦꯄꯑꯤꯕ, ꯁꯨꯑꯥꯎ-ꯕꯉꯑꯤꯒꯤ ꯁꯥꯕꯎ ꯑꯃ ꯑꯃꯁꯨꯡ ꯉꯟꯗ-ꯀꯥꯟꯗꯤꯂꯊꯄꯤ ꯂꯨꯎ ꯑꯃ ꯇꯥꯕ ꯑꯁꯨꯕ ꯗꯤꯇꯤꯄꯜ ꯂꯁꯦꯃ ꯑꯃꯩꯁꯦ ꯇꯥꯁꯕ ꯕꯤꯎꯗꯤꯡꯒꯤ ꯂꯨꯎ ꯑꯃꯅ, ꯇꯦꯜ ꯑꯃꯩꯁꯦ ꯇꯥꯁꯕ 1978-ꯒꯤ ꯉꯟꯗ ꯀꯥꯟꯜ ꯇꯦꯇꯤꯡ ꯑꯥꯡꯁ ꯑꯃꯗ, ꯑꯃꯁꯨꯡ ꯕꯤꯎꯗꯤꯡꯒꯤ ꯂꯨꯎ ꯑꯃꯩꯁꯅꯥ ꯌꯦꯗꯕ ꯌꯤꯡꯒꯤ ꯇꯃꯂꯤꯡꯗ (Hill Areas); ꯑꯃꯁꯨꯡ ꯑꯥꯀꯑꯤꯎ ꯑꯃꯁꯨꯡ ꯃꯥꯒꯤ ꯇꯦꯡ ꯁꯨꯕꯒꯤ ꯊꯗꯦꯡꯂꯤꯡꯅꯥ ꯄꯦꯑꯡꯀ ꯏꯁꯤꯡ ꯊꯕ ꯃꯁꯃ ꯑꯃꯗ, ꯃꯑꯃ ꯑꯃꯨꯅꯥ ꯁꯤꯡꯀꯥꯡꯕꯤ ꯇꯃꯗ BSMP ꯑꯃꯅꯥ ꯁꯨꯑꯥꯎ ꯑꯃꯁꯨꯡ ꯇꯥꯡꯁꯒꯤ ꯄꯦꯄ, ꯑꯃꯁꯨꯡ ꯌꯤꯡꯂꯤꯡꯗ ꯄꯇꯤꯑꯗꯁꯒꯤ ꯄꯦꯄ (ꯄꯇꯦꯇ 11.3.3)꯫

11.2 ꯗꯥꯉꯤꯇꯤꯁꯦꯂꯤꯡ

ꯋꯥꯍꯩ	ꯍꯥꯏꯔꯤꯕ ꯑꯔꯊ
ꯕꯥꯁꯤꯟ (basin)	ꯄꯇꯦꯇ 11.3-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯊꯤꯡꯕꯨꯛ, ꯂꯃꯗꯝ, ꯁꯨꯑꯥꯎ ꯑꯃꯁꯨꯡ ꯑꯦꯑꯤꯟ ꯑꯌꯨꯕ ꯏꯁꯤꯡ ꯇꯦꯆ ꯑꯃꯗ ꯊꯦꯡꯅꯕ ꯑꯥꯎꯠꯐꯣꯜ (outfall) ꯑꯃꯗ ꯏꯁꯤꯡ ꯌꯥꯎꯔꯛꯀ ꯆꯠ꯫
ꯕꯥꯁꯤꯟ ꯇꯦꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯂꯣꯏꯁꯤ ꯀꯥꯟꯅꯤ (BSMP)	ꯂꯩꯇꯨꯡ ꯑꯁꯤꯒꯤ ꯃꯇꯨꯡ ꯂꯥꯏꯕ ꯕꯥꯁꯤꯟ ꯑꯃꯒꯤ ꯀꯥꯟꯅꯤ꯫
ꯂꯤꯗ ꯑꯣꯊꯣꯔꯤꯇꯤ (Lead Authority)	BSMP ꯑꯃꯗ ꯂꯥꯏꯕꯒꯤ ꯊꯧꯗꯥꯡ ꯇꯥꯕ ꯕꯗꯤ (ꯄꯇꯦꯇ 11.4)꯫
ꯇꯥꯒꯥꯎ ꯑꯦꯉ ꯂꯦꯒꯤꯂ (LoS)	ꯏꯦꯏ ꯂꯤꯂꯨꯏꯃꯒꯤ ꯂꯩꯇꯨꯡ ꯑꯃꯅꯥ ꯉꯥꯎꯗꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯀꯦꯉꯦꯑꯦꯃꯂ, AEP ꯑꯃꯗ ꯑꯃꯁꯨꯡ ꯃꯄꯥ ꯑꯃꯗ ꯑꯦꯄꯅꯥ ꯉꯦꯡꯗꯦꯡꯀ (ꯄꯇꯦꯇ 11.6)꯫
ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯄꯇꯦꯗ ꯃꯥꯀ (flood hazard map)	ꯉꯦꯡꯗꯦꯡꯕ AEP ꯑꯃꯁꯨꯡ ꯂꯤꯅꯦꯑꯤꯑꯣ (scenario) ꯑꯃꯒꯤꯅꯃꯡ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯥꯡꯂꯁꯥꯂꯩ, ꯗꯥꯀꯉ, ꯒꯥꯇꯂꯤꯁꯤ ꯑꯃꯁꯨꯡ ꯄꯇꯦꯗ ꯄꯇꯦꯂ (H1–H6, ꯂꯩꯇꯨꯡ 6) ꯁꯩꯀ ꯃꯥꯀ ꯑꯃꯗ꯫
ꯑꯤꯇꯦꯎ ꯉꯥꯂꯤꯇꯤꯁꯤ (regional facility)	BSMP ꯑꯃꯗ ꯅꯂꯄꯦꯡꯕꯇꯕ, ꯗꯥꯒꯥꯇꯀꯃꯥꯂꯩ ꯑꯃꯗꯒꯤ ꯄꯦꯑꯦ ꯂꯥꯕ ꯁꯥꯕ ꯂꯁꯦꯇ, ꯄꯂꯒꯥꯌꯥꯎꯂ ꯑꯦꯑꯤꯟ ꯑꯩꯁꯥꯑꯦꯉꯒꯤ ꯊꯕꯥꯡ ꯑꯃꯗ꯫
ꯄꯥꯀꯤꯁꯥꯎ ꯏꯁꯀꯂꯒꯥꯃꯥꯂꯩ ꯀꯥꯉꯦꯒꯤꯁ (Capital Improvement Programme, CIP)	BSMP ꯑꯃꯗ ꯇꯕ, ꯑꯥꯄꯥꯡ ꯊꯁꯇꯕ ꯑꯃꯁꯨꯡ ꯃꯃꯥꯎ ꯊꯤꯑꯕ ꯊꯕꯥꯡꯂꯤꯡꯒꯤ ꯇꯤꯂꯩ (ꯄꯇꯦꯇ 11.8.4)꯫

11.3 ꯀꯥꯟꯅꯤꯇꯤꯡꯒꯤ ꯁꯨꯇꯤꯌꯩ: ꯕꯥꯁꯤꯟ, ꯌꯦꯑꯗ ꯅꯩꯁꯥ

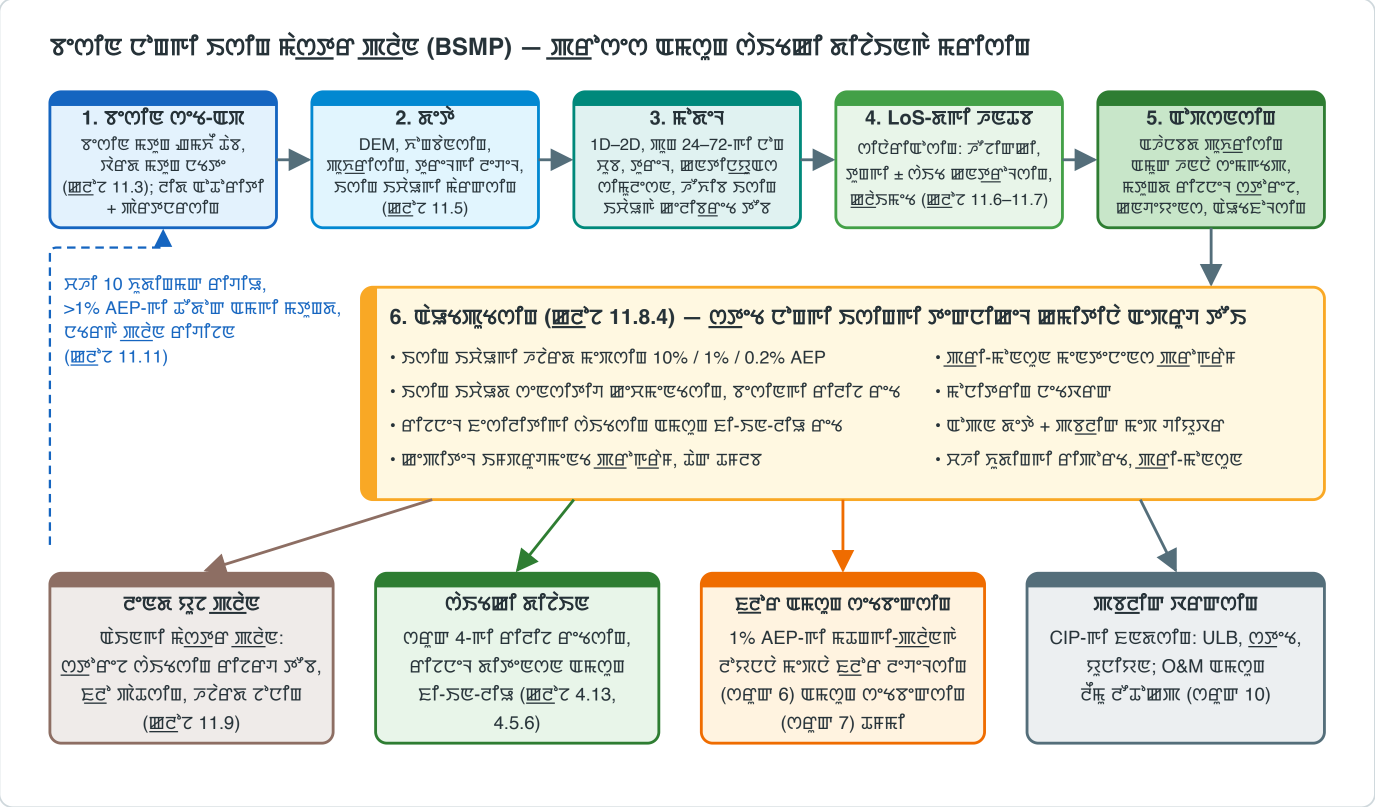
11.3.1 BSMP-ꯂꯤꯡ ꯌꯦꯑꯗ, ꯇꯦꯜ ꯅꯩꯑꯦꯒ ꯇꯦꯄꯎ-ꯕꯦꯗꯤꯒꯤ ꯊꯃꯏꯟ ꯃꯁꯨꯡ ꯏꯂꯦꯡꯗꯅꯥ **ꯄꯏꯗꯤꯑꯦꯇꯦꯇꯤꯒꯤ ꯕꯥꯁꯤꯟ ꯃꯁꯨꯡ ꯏꯂꯦꯡ** ꯂꯥꯃꯒꯗꯕꯇꯤ꯫ ꯕꯥꯁꯤꯟ ꯑꯃꯅꯥ ꯇꯦꯄꯎ-ꯕꯦꯗꯤꯒꯤ ꯊꯃꯏꯟꯂꯤꯡ ꯅꯦꯉꯊꯦꯀ ꯃꯉꯃꯗ, BSMP ꯑꯃꯏꯄꯁꯅꯥ ꯕꯥꯁꯤꯟ ꯀꯨꯃꯇꯃꯦ ꯌꯦꯁꯤꯗꯕꯇꯤ꯫

11.3.2 ꯕꯦꯁꯤꯅꯒꯤ ꯃꯍꯩꯁꯤꯡꯗꯤ ꯃ꯭ꯌꯦꯞ 11.5.2-ꯒꯤ ꯗꯤꯖꯤꯇꯦꯜ ꯑꯦꯂꯤꯚꯦꯁꯟ ꯃꯣꯗꯦꯜ (digital elevation model)-ꯗꯒꯤ ꯊꯣꯛꯂꯛꯄꯅꯤ, ꯍꯥꯏꯕ꯭ꯔꯤꯗꯒꯤ ꯂꯦꯝꯍꯧꯔꯤꯕ, ꯇꯨꯔꯦꯂꯒꯤ ꯁꯤꯡꯁꯤꯡ, ꯍꯥꯏꯇꯦꯛꯁꯤꯡ (canal) ꯑꯃꯁꯨꯡ ꯁꯦꯡꯂꯕꯒꯤ ꯀꯥꯟꯅꯕ ꯄꯨꯅꯁꯤꯟꯅꯕꯥ ꯄꯥꯝꯅꯅꯕꯥ ꯄꯨꯡ ꯌꯥꯝꯅꯕꯅꯤ꯫ ꯕꯣꯂꯤꯡꯁꯤꯡꯒꯤ ꯃꯔꯝ ꯍꯥꯌꯕ ꯇꯧꯕ ꯗꯤꯖꯥꯏꯅꯂꯤꯡꯁꯤꯡ, ꯍꯥꯏꯇꯦꯛ, ꯍꯥꯏꯕꯦꯡ ꯂꯩꯔꯕ ꯀꯔꯝꯇꯧꯅ ꯃꯔꯝꯇꯦ ꯑꯣꯏꯅꯔꯕꯅꯤ, ꯃꯁꯤ ꯌꯥꯝꯅꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯞꯇ ꯄꯨꯊꯣꯛꯂꯛꯄꯅꯤ꯫

11.3.3 ꯃꯇꯧꯁꯨꯔꯒꯤ ꯌꯦꯡꯁꯟ ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ ꯕꯣꯂꯤꯡꯒꯤ ꯃꯍꯩ ꯊꯕ ꯑꯃꯁꯨꯡ ꯐꯣꯡꯗꯣꯛꯄꯥ꯫ ꯁꯨꯝꯇꯦꯟꯁꯤꯡꯗꯤ ꯍꯟꯗꯣꯛꯄꯥ ꯂꯩꯕꯒꯤ ꯑꯦꯂꯤꯁꯤꯡꯒꯤꯗꯃꯛ, ꯕꯣꯂꯤꯡꯁꯤꯡ ꯑꯁꯤ ꯄꯤꯔꯕꯥꯒꯗꯕꯅꯤ ꯃꯍꯩ ꯀꯤꯔꯤꯕꯁꯤꯡꯗꯤ, ꯃꯦꯞ 4.5.3.2-ꯒꯤ ꯅꯁꯤꯡ ꯅꯄꯥꯟꯗ ꯂꯦꯡꯁꯤꯡꯒꯤ ꯑꯣꯅꯕ ꯃꯦꯄꯃꯦꯡꯁꯤꯡꯒꯤ ꯊꯥ ꯃꯌꯥꯝ ꯅꯡꯁ:

- **ꯏꯝꯐꯥꯜ ꯅꯍꯔꯦꯜ, ꯂꯤꯂꯣꯡ:** ꯏꯝꯐꯥꯜ ꯅꯍꯔꯦꯜꯒꯤ ꯁꯨꯔꯊꯥꯡꯗ ꯄꯣꯜꯇꯤꯕ **ꯂꯤꯂꯣꯡ ꯌꯥꯏꯄꯥꯡ**-ꯒꯤ ꯃꯦꯄꯃꯦꯡꯁ, 1D ꯃꯣꯗꯦꯜꯔꯥꯡ **ꯂꯤꯂꯣꯡ ꯕ꯭ꯔꯤꯖ** ꯑꯃꯁꯨꯡ **ꯄꯨꯅꯁꯤꯟ ꯃꯔꯤꯟ** ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅ ꯄꯣꯜꯇꯥꯕꯥ ꯍꯥꯏꯕꯦ 72-ꯒꯤ ꯇꯨꯡꯗꯗꯤ, 2025-ꯗ ꯃꯇꯝ ꯃꯔꯤꯅ ꯃꯁꯤꯒꯤ ꯕꯥꯟ ꯃꯥꯡꯕꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡ 2024-ꯗ ꯃꯥꯡꯕꯥꯕ ꯂꯤꯂꯣꯡ ꯕ꯭ꯔꯤꯖꯗꯤ ꯂꯤꯂꯣꯡꯗ (Nagaram), ꯂꯥꯏꯐꯝ ꯈꯨꯅꯧ (Laipham Khunou) ꯑꯃꯁꯨꯡ ꯂꯥꯏꯔꯤꯀꯌꯥꯏꯕꯃ ꯂꯩꯀꯥꯏꯗ ꯅꯁꯤꯡ ꯅꯄꯥꯟ ꯂꯥꯟꯐꯦꯡꯕ (ꯀꯥꯟꯗ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯃꯌꯥꯝ ꯅꯡꯁ) ꯃꯦꯇꯤꯕꯨꯔꯥꯏꯁꯤꯡꯒꯤ ꯁꯨꯔꯊꯥꯡ ꯑꯃꯍꯦ, ꯑꯃꯁꯨꯡ ꯊꯣꯡ ꯂꯝꯕꯣꯟꯕꯤ (ꯄꯍꯔ ꯕ꯭ꯔꯤꯖ) (Thong Nambonbi, Hump Bridge) ꯇꯥꯕ ꯌꯥꯏꯄꯥꯡ, ꯃꯁꯤꯒꯤ ꯄꯥꯅꯤꯡꯁꯣꯡ ꯀꯨꯡꯃ ꯂꯦꯚꯦꯜ (high flood level) 783.695 m (WRD, ꯀꯥꯟꯗ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯃꯌꯥꯝ ꯅꯡꯁ)-ꯒꯤ ꯇꯨꯡꯗꯗꯤ, ꯃꯍꯩ ꯑꯃꯍꯦ, ꯒꯨꯟꯁꯤꯡ ꯊꯤꯡꯂꯛꯂꯤ (ꯃꯦꯞ 5.8.5(a) ꯑꯃꯁꯨꯡ (b));
- **ꯏꯝꯐꯥꯜ ꯅꯍꯔꯦꯜ, ꯅꯍꯔꯦꯜ ꯌꯥꯏꯄꯥꯡ:** ꯂꯧꯕꯒꯤ ꯁꯨꯔꯊꯥꯡꯗ **ꯅꯍꯔꯦꯜ ꯌꯥꯏꯄꯥꯡ**-ꯗ ꯅꯁꯤꯡ ꯄꯣꯜꯇꯥꯕꯥ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, ꯃꯤꯅꯨꯊꯣꯡ (Minuthong) (ꯗꯦꯟꯗ ꯇꯦꯒꯦꯜ 786.900 m, ꯄꯥꯅꯤꯡꯁꯣꯡ ꯗꯦꯟꯗ ꯇꯦꯒꯦꯜ 788.400 m) ꯑꯃꯁꯨꯡ ꯇꯤꯇꯥꯡꯗ (781.350 m ꯂꯧꯕꯒꯤ 781.250 m; 782.850 m, ꯑꯣꯒꯁ꯭ꯇ 2025-ꯗ 783.250 m-ꯗ ꯄꯣꯛꯊꯔꯤ) (WRD, ꯀꯥꯟꯗ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯃꯌꯥꯝ ꯅꯡꯁ) ꯇꯥꯕ ꯌꯥꯏꯄꯥꯡ ꯃꯍꯩ ꯑꯃꯍꯦ, ꯑꯃꯁꯨꯡ ꯂꯤꯡꯇꯦꯛ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong), ꯅ꯭ꯌꯨ ꯆꯦꯀꯣꯟ (New Checkon), ꯀꯣꯡꯕ, ꯍꯥꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯔꯤꯀꯌꯥꯏꯕꯃ ꯂꯩꯀꯥꯏꯗ 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯕꯥꯟ ꯃꯥꯡꯕꯥꯒꯤ ꯂꯤꯂꯣꯡꯁꯤꯡ ꯃꯁꯤ ꯌꯥꯝꯂꯦ;
- **ꯂꯤꯂꯣꯡꯀꯥꯛꯆꯤꯡ:** ꯅꯁꯤꯡ ꯅꯄꯥꯟꯒꯤ ꯑꯣꯏꯗꯦ ꯑꯃꯍꯦ ꯑꯣꯄꯔꯦꯁꯟꯇꯤꯕ ꯀꯥꯆꯤ ꯑꯃꯁ ꯑꯃꯍꯦꯕ **ꯂꯤꯂꯣꯡꯀꯥꯛꯆꯤꯡ**-ꯗꯤ ꯕꯣꯂꯤꯡ, **ꯁꯃꯨꯁꯪ** (Shamushang) ꯄꯣꯜꯇꯣꯟꯒꯤ ꯁꯨꯔꯊꯥꯡꯗ ꯂꯤꯂꯣꯡ ꯌꯥꯏꯄꯥꯡꯗ ꯀꯃꯀꯃꯗꯤ ꯊꯥꯗꯣꯛꯀꯗ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟ ꯇꯨꯡꯗꯗꯤ, ꯂꯝ ꯁꯨꯕꯒꯤ ꯊꯥꯗꯣꯛ ꯄꯥꯡꯊꯣꯀꯗ ꯀꯥꯆꯤ ꯑꯃꯁꯨ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟ ꯗꯦꯡꯕ ꯊꯣꯛꯂꯛ ꯑꯃꯁꯨꯡ WRD-ꯗ ꯐꯣꯡꯗꯣꯛꯀ ꯃꯌꯥꯝꯗ ꯀꯃꯀꯃꯁꯤꯡꯒꯤ ꯃꯦꯀꯥꯏꯔꯦ [TBC], ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟ ꯑꯃꯍꯦ (ꯃꯦꯞ 5.8.5(e));
- **ꯅꯍꯔꯦꯜ ꯅꯂꯣꯡ, ꯀꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯅꯔꯤꯜ: ꯀꯣꯡꯕ ꯌꯥꯏꯄꯥꯡ** (Kongba) ꯑꯃꯁꯨꯡ **ꯅꯔꯤꯜ ꯌꯥꯏꯄꯥꯡ** (Iril)-ꯒꯤ ꯀꯣꯔꯤꯗꯣꯔꯁꯤꯡ (corridor), ꯅꯔꯤꯜꯕꯨꯡꯗ (Irilbung) ꯇꯥꯕ ꯅꯔꯤꯜ (ꯗꯦꯟꯗ ꯇꯦꯒꯦꯜ 787.700 m; ꯃꯁꯤꯒꯤ ꯃꯍꯩ ꯇꯥꯕ ꯐꯣꯡꯗꯣꯛꯇꯕ ꯄꯥꯅꯤꯡꯁꯣꯡ ꯗꯦꯟꯗ ꯇꯦꯒꯦꯜ ꯑꯃꯍ; 15 ꯑꯣꯒꯁ꯭ꯇ 2025-ꯗ 788.850 m ꯌꯧꯔꯤ, ꯀꯥꯟꯗ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯃꯌꯥꯝ ꯅꯡꯁ) ꯑꯃꯁꯨꯡ ꯑꯣꯒꯁ꯭ꯇ 2025-ꯗ ꯀꯁꯦꯇ꯭ꯔꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏꯗ (Kshetri Awang Leikai) ꯃꯁꯤꯒꯤ ꯕꯥꯟ ꯃꯥꯡꯕꯥꯀ ꯁꯨꯔꯊꯥꯡ ꯑꯃꯍꯦ;
- **ꯊꯧꯕꯥꯜ: ꯊꯧꯕꯥꯜ (ꯃꯄꯤꯊꯦꯜ) ꯗꯦꯝ** (Thoubal (Mapithel) dam)-ꯒꯤ ꯃꯍꯩ **ꯊꯧꯕꯥꯜ ꯌꯥꯏꯄꯥꯡ**-ꯗ ꯇꯥꯕ ꯊꯧꯕꯥꯜ ꯌꯦꯡꯁꯤꯡꯒꯤ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, ꯌꯥꯏꯄꯥꯡ ꯑꯃꯁꯨꯒꯤ WRD ꯇꯦꯒꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯝ ꯑꯃꯁꯨꯒꯤ ꯄꯦꯀꯥꯏꯄꯥꯡ ꯌꯥꯏꯕ ꯅꯕꯅꯗꯒꯤ ꯌꯦꯡꯕ ꯄꯤꯇꯤꯇ, ꯂꯧꯕꯒꯤ WRD-ꯗ ꯀꯤꯕ ꯗꯦꯡꯕ ꯃꯁꯤꯒꯤ ꯑꯣꯀꯤꯟꯌꯦ (spillway) ꯃꯦꯀꯥꯏꯔꯦ, ꯕꯦꯡꯑꯗꯄꯒꯤ ꯃꯇꯗꯤꯂꯦ ꯑꯃꯍꯦ (ꯃꯦꯞ 5.8.5(d));
- **ꯂꯣꯛꯇꯥꯛ ꯃꯇꯥꯛ: ꯂꯣꯛꯇꯥꯛ**, ꯃꯁꯤꯒꯤ ꯃꯇꯥꯛꯀꯤ ꯀꯥꯛꯁꯤꯡ ꯂꯧꯕꯒꯤ ꯅꯊꯥꯏ ꯑꯃꯁꯨꯡ ꯁꯨꯒꯅꯨꯒꯤ ꯃꯔꯝ ꯇꯥꯕ ꯃꯇꯧꯁꯨꯔ ꯌꯥꯏꯄꯥꯡꯗ ꯅꯁꯤꯡ ꯄꯣꯜꯇꯥꯕꯥ **ꯃꯅꯥꯡꯕꯥ, ꯂꯤꯡꯊꯧꯍꯥꯡ, ꯊꯥꯡꯒ** (Thanga) ꯑꯃꯁꯨꯡ **ꯅꯊꯥꯏ–ꯁꯨꯒꯅꯨ–ꯋꯥꯡꯒꯨ** (Ithai–Sugnu–Wangoo)-ꯒꯤ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, ꯅꯊꯥꯏ ꯕꯦꯔꯦꯖ ꯇꯥꯕ ꯄꯥꯅꯤꯡꯁꯣꯡ ꯗꯦꯟꯗ ꯇꯦꯒꯦꯜ, 769.320 m, 770.05 m-ꯗ ꯄꯨꯡ ꯌꯥꯕ, ꯃꯍꯩ ꯑꯃꯍꯦ, ꯁꯨꯒꯅꯨꯗ **ꯆꯛꯄꯤꯒꯤ ꯌꯥꯏꯄꯥꯡ** (Chakpi)-ꯒꯤ ꯕꯦꯀꯋꯥꯇꯔ (backwater), ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ ꯇꯥ ꯇꯦꯒꯦꯜꯒꯤ ꯃꯍꯩ ꯇꯥꯕ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯁꯤꯡ 1 ꯅꯨꯃꯤꯗꯒꯤ 30 ꯑꯣꯒꯁ꯭ꯇ ꯗꯦꯡꯕ ꯊꯤꯡꯂꯛꯂꯤ (ꯃꯦꯞ 5.8.5(c));
- **ꯂꯝꯕꯣꯜ ꯑꯃꯁꯨꯡ ꯕꯤꯁꯅꯨꯄꯨꯔ: ꯂꯝꯕꯣꯜ ꯌꯥꯏꯄꯥꯡ** ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ **ꯂꯤꯂꯣꯡ ꯌꯥꯏꯄꯥꯡ**-ꯗ ꯅꯁꯤꯡ ꯄꯣꯜꯇꯥꯕꯥ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, ꯂꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡꯗ (Nambol Thongkhong) ꯇꯥꯕ ꯂꯝꯕꯣꯜ ꯌꯥꯏꯄꯥꯡ (774.700 ꯂꯧꯕꯒꯤ 774.400 m, ꯀꯥꯟꯗ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯃꯌꯥꯝ ꯅꯡꯁ) ꯃꯍꯩ ꯑꯃꯍꯦ;
- **ꯃꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯡ: ꯑꯣꯉꯥꯝꯅ ꯌꯥꯏꯄꯥꯡ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯖꯤꯡ ꯌꯥꯏꯄꯥꯡ** (Wangjing)-ꯗ ꯅꯁꯤꯡ ꯄꯣꯜꯇꯥꯕꯥ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, WRD ꯇꯦꯒꯦꯜ ꯑꯃꯍ ꯗꯦꯡꯕ ꯗꯦꯡꯕ ꯂꯧꯕꯒꯤ ꯌꯥꯕ ꯅꯁꯤꯡ ꯅꯄꯥꯟꯒꯤ ꯃꯔꯤꯡꯁꯤꯡ ꯃꯍꯩ ꯑꯃꯍꯦ;
- **ꯖꯤꯔꯤꯕꯥꯝ: ꯕꯔꯥꯛ ꯌꯥꯏꯄꯥꯡ** ꯑꯃꯁꯨꯡ **ꯖꯤꯔꯤ ꯌꯥꯏꯄꯥꯡ** (Jiri)-ꯗ ꯅꯁꯤꯡ ꯄꯣꯜꯇꯥꯕꯥ ꯖꯤꯔꯤꯕꯥꯝ ꯌꯦꯡꯁꯤꯡꯒꯤ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, ꯆꯣꯇꯦꯕꯦꯛꯔꯥ (Chotebekra) ꯇꯥꯕ CWC ꯑꯣꯕꯁꯔꯚꯦꯁꯟꯒꯤ ꯄꯥꯅꯤꯡꯁꯣꯡ ꯗꯦꯟꯗ ꯇꯦꯒꯦꯜ (32.1 m, 31 ꯅꯨꯃꯤꯗ 1989, ꯀꯥꯟꯗ ꯐꯣꯡꯗꯣꯛꯄꯥ ꯃꯌꯥꯝ ꯅꯡꯁ) ꯄꯤꯔꯕꯥꯕꯗꯤ ꯃꯦꯞ 5.8.5(g)-ꯒꯤ ꯅꯨꯃꯤꯠ 7-ꯒꯤ ꯂꯣꯛ (lock: ꯌꯥꯏꯄꯥꯡ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯒꯤ ꯃꯊꯥꯡ ꯇ ꯑꯃꯁꯨꯡ ꯒꯨꯟ ꯊꯤꯡꯂꯛꯂꯤ)-ꯒꯤꯗꯃꯛ ꯃꯍꯩ ꯑꯃꯍꯦ, ꯃꯍꯥꯛꯀꯤ ꯄꯤꯌꯥꯟꯅꯤ ꯂꯤꯡꯇꯦꯛ ꯑꯁꯤꯒꯤ ꯄꯤꯔꯕꯥꯕ ꯑꯦꯗꯤꯟꯍꯦ ꯃꯦꯞꯇꯦꯝ ꯌꯥꯝꯂꯦ; ꯑꯃꯁꯨꯡ
- **ꯂꯣꯛꯇꯥꯛꯂꯤꯟꯗ ꯊꯥꯡꯀꯥ ꯂꯝꯗ ꯇꯥꯕ ꯌꯥꯏꯄꯥꯡꯒꯤ ꯌꯦꯡꯁꯤꯡꯁꯤꯡ:** ꯌꯥꯏꯄꯥꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯄꯥꯡ ꯌꯥꯝꯀꯥꯡꯕ ꯇꯨꯡꯗꯗꯤ **ꯂꯨꯂꯨ, ꯌꯥꯝꯍꯩꯂꯨ, ꯌꯦꯗꯥꯡ** ꯑꯃꯁꯨꯡ **ꯀꯥꯀꯆꯤꯡꯀꯥꯡ**-ꯒꯤ ꯃꯦꯄꯃꯦꯡꯁꯤꯡ, ꯃꯍꯩ ꯀꯤꯔꯤꯕ ꯄꯣꯜꯇꯥꯕ-ꯑꯣꯄꯔꯦꯁꯟꯒꯤ ꯃꯔꯤꯒꯤ ꯃꯍꯩ꯫

ꯆꯤꯡꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯇꯝ ꯂꯝꯗꯝꯁꯤꯡꯗ ꯍꯦꯟꯅꯥ ꯆꯤꯡꯒꯤ ꯃꯐꯃꯁꯤꯡꯗ ꯑꯇꯣꯞꯄ ꯑꯄꯥꯝꯕ (ꯍꯣꯖꯤꯛ ꯑꯁꯤꯅ ꯈꯪꯕ). ꯑꯄꯥꯝꯕ 2A-ꯒꯤ ꯂꯈ-ꯑꯣꯏꯁꯤꯡ MN-B (ꯑꯔꯤꯕ, ꯅꯥꯡꯃꯥ ꯑꯃꯁꯨꯡ ꯅꯥꯡꯒꯤ ꯆꯤꯡꯂꯤꯡ) ꯑꯃꯁꯨꯡ MN-C (ꯅꯥꯡꯁꯨꯡꯕꯤ ꯆꯤꯡꯂꯤꯡ)-ꯗ, MN-C1-ꯒꯤ ꯆꯤꯡꯒꯤ ꯂꯃꯆꯠꯂꯤꯡꯗ ꯑꯃꯁꯨꯡ MN-A-ꯒꯤ ꯌꯥꯏꯔꯦꯛꯄ ꯍꯅꯦꯛꯄ ꯅꯦꯔꯥꯛꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯅꯦꯛꯂꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯍꯥꯔ ꯌꯥꯝꯅ ꯅꯥꯡꯇꯧꯗꯨꯅꯗ ꯅꯦꯡ ꯑꯍꯥꯒꯤ ꯍꯌꯗ ꯅꯈ ꯕꯥꯏꯒꯤ ꯈꯥꯂꯤꯡ ꯑꯍꯗ, ꯌꯨꯥꯅꯥꯒꯤ ꯔꯦꯡ ꯑꯍꯒꯤ ꯍꯌꯨꯡꯗ ꯅꯈ ꯔꯦꯡ ꯕꯥꯔꯥꯒꯤ ꯅꯍꯈꯤꯗ, ꯗꯥꯍꯒꯤ ꯃꯤꯅꯤꯅ ꯃꯤꯆ ꯑꯍꯗ, ꯅꯥꯌꯥꯛꯄ ꯕꯥꯃ ꯅꯦꯡꯗ ꯅꯠꯇꯃꯒꯤ ꯍꯂꯤꯒꯤ ꯐꯨꯝꯗꯤꯗ (phumdi), ꯄꯤꯠ (peat) ꯑꯃꯁꯨꯡ ꯍꯍꯤꯡꯒꯤ ꯔꯠꯂꯤꯡꯗ, ꯅꯠꯇꯃꯒꯤ ꯆꯤꯡꯒꯤ ꯅꯥꯡ ꯑꯍꯅ ꯆꯤꯡꯂꯤꯡ ꯖꯗꯥꯔꯥ ꯍꯖꯍꯗ ꯅꯈ ꯐꯨꯝꯄꯤꯇ ꯖꯥꯦ (foothill fan) ꯑꯍꯗ, BSMP ꯑꯁꯤ ꯅꯥꯦꯗꯂꯅꯟꯗ, ꯗꯥꯈꯃꯤꯂ, ꯔꯦ ꯕꯥꯔ, ꯗꯥꯍꯒꯤ ꯃꯤꯅꯤꯅꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯍ ꯆꯨꯍꯈꯒꯤꯗꯍꯌ ꯄꯅꯃꯗ ꯂꯕꯃꯤꯅꯤꯡ ꯑꯍꯗꯒꯤ ꯄꯦꯟ, ꯍꯂꯤ MSDMA ꯑꯃꯁꯨꯡ NRSC-ꯒꯤ ꯟꯦꯒꯥꯦꯌꯃꯤꯂꯤꯡ ꯅꯃꯈꯗꯤ ꯍꯟꯔ [TBC], ꯃꯤꯂꯌ ꯟꯦꯖꯃꯍꯗ ꯍꯂꯌꯃ ꯔꯅꯦꯂꯤꯡꯒꯤ ꯄꯅꯃꯗ ꯍꯥꯔꯂꯤꯡ ꯔꯃꯈ ꯍꯌꯨꯡꯗ [TBC] ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯍꯂꯤꯒꯤ ꯔꯦꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦ ꯕꯥꯔꯂꯤꯡꯒꯤ ꯃꯥꯕꯃꯗꯂꯤꯡꯒꯤ ꯅꯔꯅꯅ ꯂꯥꯍꯟ, ꯑꯃꯁꯨꯡ ꯂꯈꯅꯦ 2(c)-ꯗ ꯅꯌꯈ CWC ꯃꯤꯔꯃꯠ ꯑꯍꯒꯤ ꯍꯨꯠꯌ ꯂꯟꯠꯕꯤ ꯟꯌꯒꯤ ꯄꯟꯗꯃꯅꯅꯤ ꯂꯤꯅꯤꯦꯅꯟ (ꯕꯅꯅ 2.3.6(c) ꯑꯃꯁꯨꯡ (i))꯫ ꯆꯤꯡꯂꯤꯡꯒꯤ ꯖꯥꯔꯃꯂꯤꯡ ꯑꯂꯤ ꯟꯡꯈꯦꯂꯤꯡꯒꯤ ꯑꯁꯨꯗꯒꯤ ꯌꯥꯖꯦꯈ ꯍꯟꯔ ꯑꯍꯅꯤ: 29 ꯅꯠꯇꯔꯒ 30 ꯖꯨꯜ 2022-ꯒꯤ ꯌꯨꯔꯨꯟꯒꯤ ꯅꯥꯦꯗꯂꯅꯟꯗ, ꯌꯥꯦꯈ ꯍꯂꯤꯡ ꯖꯤꯈꯗ ꯍꯤ 56, 58 ꯅꯠꯇꯔꯒ 61 ꯂꯤꯟꯤꯈ, ꯑꯂꯤ ꯅꯅꯥ ꯔꯦꯗ ꯖꯨꯦꯗ 348.5 mm ꯅꯡ ꯁꯨꯃꯈꯒꯤ ꯍꯌꯨꯡꯗ ꯖꯌꯟꯤ ꯑꯃꯁꯨꯡ "ꯖꯠꯅ ꯗꯤꯅꯟꯦ ꯌꯃꯈ ꯅꯠꯇꯃꯒꯤ ꯖꯠꯅ ꯌꯃꯈ ꯅꯔꯍꯒꯤ ꯑꯥꯌꯂꯕꯥꯒꯥꯂꯦ ꯑꯃꯁꯨꯡ ꯍꯂꯤꯒꯤ ꯅꯔꯅꯅ ꯔꯤꯍꯅ ꯁꯨꯃꯈ ꯅꯡ" ("poorly designed or implemented slope excavation coupled with heavy rainfall") ꯑꯂꯤ ꯍꯃꯍ ꯑꯟꯅ ꯅꯃꯤ (Baruah and others, 2023, ꯄꯦꯖꯗ ꯖꯡꯗꯌꯟꯤꯈ ꯍꯌꯨꯡ ꯟꯦꯅ), ꯑꯃꯁꯨꯡ ꯂꯌꯥꯠ ꯑꯂꯤꯒꯤ ꯃꯤꯔꯃꯠ ꯌꯃꯈ ꯃꯥꯕꯃꯗ, 15 ꯖꯨꯟ 2025-ꯗ ꯟꯔꯨꯍꯗ (Khoupum) ꯑꯄꯤꯡ ꯑꯍꯗ 225 mm, ꯑꯂꯤꯅ ꯟꯔꯨꯍ ꯌꯍꯔꯌ ꯟꯂꯤꯡꯅ ꯔꯠꯄꯦꯟꯤ (ꯔꯖꯗ ꯖꯡꯗꯌꯟꯤꯈ ꯍꯌꯨꯡ ꯟꯦꯅ; ꯗꯁꯨꯃꯥꯂꯦ ꯑꯃꯁꯨꯡ ꯒꯥꯅ ꯖꯡꯗꯌꯟꯤꯗꯥ)꯫ ꯄꯅꯃꯗ ꯅꯦꯂꯤꯡ 1% AEP-ꯒꯤ ꯍꯥꯔꯌ ꯖꯠꯅꯤ, ꯍꯟꯔꯒꯤ ꯍꯅꯨꯡꯗ ꯟꯡꯈꯦ, ꯂꯌꯃꯥꯅ ꯅꯠꯇꯃꯒꯤ ꯔꯍꯔꯤꯡ ꯂꯌꯥꯂꯦ ꯑꯍꯠꯌ ꯖꯍꯗꯥ, ꯑꯃꯁꯨꯡ CIP-ꯗ ꯅꯌꯈ ꯖꯈꯌ ꯑꯍꯠꯌ ꯗꯥꯈꯃꯤꯂ ꯖꯅ, ꯅꯥꯦꯗꯂꯅꯟꯗ ꯅꯠꯇꯃꯒꯤ ꯔꯦ ꯕꯥꯔ ꯑꯍꯤ ꯔꯅꯈꯒꯤꯗꯍꯌ ꯂꯟꯅ ꯌꯗꯥ꯫ ꯑꯌꯔꯂꯔ ꯌꯤꯔꯃ A ꯈꯗꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯌꯔꯂꯔ ꯖꯃꯈꯦ ꯅꯕꯤ ꯈꯗꯤꯂꯤꯡꯅ ꯍꯟꯔꯈ ꯔꯖꯈ ꯑꯄꯅꯈ BSMP-ꯗ ꯍꯟꯔꯒꯤ ꯈꯂꯤꯦꯂꯤꯡ ꯗꯥꯖꯟꯦ ꯌꯟ꯫ WRD, CWC, NHPC, ꯍꯂꯌꯃ ꯔꯅꯦ ꯑꯍꯤ, ꯖꯅꯗ ꯅꯅꯤꯡ ꯑꯖꯃꯤꯌ ꯅꯠꯇꯃꯒꯤ ꯕꯃꯠ ꯑꯍꯗ ꯄꯟꯔꯂꯠ ꯖꯅꯗ ꯅꯥꯒꯥꯅ, ꯅꯥꯕꯤ ꯅꯥꯒꯥꯅ, ꯖꯅꯗ ꯅꯟꯦ ꯅꯠꯇꯃꯒꯤ ꯗꯥꯍ, ꯈꯥꯃꯅ, ꯒꯥꯠ ꯅꯠꯇꯃꯒꯤ ꯔꯍꯔꯤꯡ ꯂꯌꯥꯂꯦ ꯑꯍꯒꯤ ꯑꯔꯃꯥꯌꯤꯡ ꯃꯅ ꯑꯍꯤ ꯅꯃꯈꯗꯤ, BSMP-ꯅ ꯍꯁꯨꯗꯒꯤ ꯍꯂꯤꯒꯤ ꯈꯖꯦꯗꯃꯤ ꯕꯦꯗꯤꯂꯦꯂꯤꯡ ꯅꯒꯗꯈꯅꯤ ꯑꯃꯁꯨꯡ ꯅꯥꯒꯥꯅꯂꯤꯡ ꯑꯁꯨ ꯍꯂꯤꯒꯤ 1% AEP ꯍꯥꯔꯕ ꯆꯤꯗꯍꯅꯁꯨꯅ ꯖꯠꯕꯗꯈꯅꯤ꯫


ꯈꯥꯂꯤꯦ ꯅꯤꯡꯒꯤ ꯟꯂꯤꯡ ꯍꯂꯌꯃ ꯔꯅꯦ (BSMP) — ꯔꯃꯥꯂꯥꯂ ꯑꯃꯁꯨꯡ ꯂꯟꯠꯕꯤ ꯗꯤꯅꯟꯦꯒ ꯍꯃꯤꯂꯤꯡ
1. ꯈꯥꯂꯤꯦ ꯂꯥꯠ-ꯑꯔ
ꯈꯥꯂꯤꯦ ꯍꯌꯨꯡ ꯕꯍꯟ ꯖꯈ, ꯆꯃꯗ ꯍꯌꯨꯡ ꯅꯠꯌꯥ (ꯕꯅꯅ 11.3); ꯅꯤꯗ ꯑꯖꯃꯤꯌꯤ + ꯔꯃꯌꯅꯃꯂꯤꯡ
2. ꯗꯥꯌ
DEM, ꯟꯡꯈꯦꯂꯤꯡ, ꯔꯁꯃꯤꯂꯤꯡ, ꯌꯨꯃꯥꯒꯒꯤ ꯅꯥꯒꯥꯅ, ꯟꯂꯤꯡ ꯟꯆꯖꯒꯤ ꯍꯃꯤꯂꯤꯡ (ꯕꯅꯅ 11.5)
3. ꯍꯗꯥꯅ
1D–2D, ꯔꯨꯡ 24–72-ꯒꯤ ꯅꯡ ꯁꯈ, ꯌꯨꯃꯥꯅ, ꯕꯦꯌꯤꯅꯁꯑꯂ ꯂꯤꯍꯅꯥꯂꯦ, ꯄꯟꯤꯈ ꯟꯂꯤꯡ ꯟꯆꯖꯒ ꯕꯥꯅꯤꯈꯃꯥꯠ ꯌꯈ
4. LoS-ꯗꯒꯤ ꯄꯦꯖꯈ
ꯂꯤꯅꯃꯤꯑꯂꯤꯡ: ꯄꯅꯤꯕꯤ, ꯌꯨꯡꯒꯤ ± ꯂꯟꯠ ꯕꯦꯌꯃꯅꯂꯤꯡ, ꯕꯅꯟꯍꯠ (ꯕꯅꯅ 11.6–11.7)
5. ꯑꯔꯂꯦꯂꯤꯡ
ꯑꯄꯅꯈ ꯔꯁꯃꯤꯂꯤꯡ, ꯑꯍꯌ ꯄꯦꯅ ꯂꯥꯍꯒꯠꯔ, ꯍꯌꯨꯡꯗ ꯃꯤꯅꯅꯅ ꯂꯌꯃꯥꯅ, ꯕꯦꯒꯥꯔꯥꯦꯂ, ꯑꯖꯠꯖꯅꯂꯤꯡ
ꯆꯄꯤ 10 ꯁꯗꯤꯡꯍꯌ ꯃꯤꯒꯤꯖ, >1% AEP-ꯒꯤ ꯖꯗꯌ ꯑꯍꯒꯤ ꯍꯌꯨꯡꯗ, ꯅꯠꯇꯃꯒꯤ ꯔꯅꯦ ꯃꯤꯒꯤꯅꯦ (ꯕꯅꯅ 11.11)
6. ꯑꯖꯠꯔꯨꯠꯂꯤꯡ (ꯕꯅꯅ 11.8.4) — ꯂꯌꯥꯠ ꯅꯡꯒꯤ ꯟꯂꯤꯡꯒꯤ ꯌꯥꯌꯅꯤꯕꯥꯅ ꯕꯍꯤꯌꯤꯅ ꯑꯥꯔꯃꯒ ꯌꯟ
• ꯟꯂꯤꯡ ꯟꯆꯖꯒꯤ ꯄꯅꯃꯗ ꯍꯥꯔꯂꯤꯡ 10% / 1% / 0.2% AEP
• ꯟꯂꯤꯡ ꯟꯆꯖꯗ ꯂꯥꯦꯂꯤꯌꯤꯒ ꯕꯥꯆꯍꯥꯦꯠꯂꯤꯡ, ꯈꯥꯂꯤꯦꯒꯤ ꯃꯤꯅꯤꯅ ꯃꯥꯠ
• ꯃꯤꯅꯅꯥꯅ ꯖꯥꯂꯤꯅꯤꯌꯤꯒꯤ ꯂꯟꯠꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯤ-ꯟꯦ-ꯅꯤꯖ ꯃꯥꯠ
• ꯕꯥꯔꯤꯌꯥꯅ ꯟꯍꯔꯃꯒꯍꯥꯦꯠ ꯔꯃꯒꯃꯍ, ꯖꯌ ꯖꯍꯅꯈ
• ꯔꯃꯤ-ꯍꯦꯂꯦ ꯍꯥꯦꯌꯥꯅꯥꯦꯂ ꯔꯃꯒꯃꯍ
• ꯍꯅꯤꯌꯃꯤꯡ ꯅꯠꯆꯃꯌ
• ꯑꯔꯦ ꯗꯥꯌ + ꯔꯈꯅꯤꯡ ꯍꯥꯔ ꯒꯤꯁꯆꯃ
• ꯆꯄꯤ ꯁꯗꯤꯡꯒꯤ ꯃꯤꯔꯃꯠ, ꯔꯃꯤ-ꯍꯦꯂꯦ
ꯅꯥꯦꯗ ꯁꯅ ꯔꯅꯦ
ꯑꯟꯦꯒꯤ ꯍꯂꯌꯃ ꯔꯅꯦ: ꯂꯌꯃꯥꯅ ꯂꯟꯠꯂꯤꯡ ꯃꯤꯅꯃꯒ ꯌꯈ, ꯖꯅ ꯔꯖꯂꯤꯡ, ꯄꯅꯃꯗ ꯅꯅꯤꯡ (ꯕꯅꯅ 11.9)
ꯂꯟꯠꯕꯤ ꯗꯤꯅꯟꯦ
ꯂꯥꯏꯌ 4-ꯒꯤ ꯃꯤꯅꯤꯅ ꯃꯥꯠꯂꯤꯡ, ꯃꯤꯅꯅꯥꯅ ꯗꯤꯌꯥꯦꯂꯦ ꯑꯃꯁꯨꯡ ꯖꯤ-ꯟꯦ-ꯅꯤꯖ (ꯕꯅꯅ 4.13, 4.5.6)
ꯖꯅꯃ ꯑꯃꯁꯨꯡ ꯂꯥꯠꯈꯥꯌꯂꯤꯡ
1% AEP-ꯒꯤ ꯍꯖꯡꯒꯤ-ꯔꯅꯦꯒ ꯅꯔꯅꯅ ꯍꯥꯔꯅ ꯖꯅꯃ ꯅꯥꯒꯥꯅꯂꯤꯡ (ꯂꯥꯏꯌ 6) ꯑꯃꯁꯨꯡ ꯂꯥꯠꯈꯥꯌꯂꯤꯡ (ꯂꯥꯏꯌ 7) ꯖꯍꯍꯤ
ꯔꯈꯅꯤꯌ ꯆꯃꯌꯂꯤꯡ
CIP-ꯒꯤ ꯖꯦꯗꯂꯤꯡ: ULB, ꯂꯌꯥꯠ, ꯁꯅꯤꯔꯦ; O&M ꯑꯃꯁꯨꯡ ꯅꯍ ꯅꯖꯕꯔ (ꯂꯥꯏꯌ 10)

ꯃꯃꯤ 11.1 — ꯈꯥꯂꯤꯦ ꯅꯤꯡꯒꯤ ꯟꯂꯤꯡ ꯍꯂꯌꯃ ꯔꯅꯦꯒꯒꯤ ꯔꯃꯥꯂꯥꯂ ꯑꯃꯁꯨꯡ ꯂꯟꯠꯕꯤ ꯗꯤꯅꯟꯦꯒ ꯍꯂꯤꯒꯤ ꯍꯃꯤꯂꯤꯡ꯫ ꯍꯥꯨꯔꯅ ꯖꯂꯤꯒꯤꯗꯍꯌ ꯑꯅꯅ ꯂꯥꯍꯈ ꯗꯃꯟꯡ꯫ ꯖꯅꯂꯤꯡꯒꯤ ꯂꯌꯃꯌꯆꯃ ꯑꯂꯤ Defra, Surface Water Management Plan Technical Guidance (2010) ꯑꯃꯁꯨꯡ Mile High Flood District-ꯕꯤ ꯍꯂꯌꯃ ꯔꯅꯦꯅꯤꯡꯒꯤ ꯔꯃꯥꯌꯤꯂꯌꯒꯤ ꯄꯡꯗꯌꯅꯒ ꯅꯟꯤꯈꯅꯤ꯫

> **ꯀꯦꯁ ꯁ꯭ꯇꯗꯤ.** ꯏꯁꯤꯡꯒꯤ ꯏꯔꯣꯏꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯀꯣꯡꯒꯤ ꯑꯣꯏꯕ ꯃꯈꯣꯡ꯫ ꯏꯁꯤꯡ ꯃꯃꯤꯡꯒꯤ ꯄꯥꯝꯕꯩꯒꯤ ꯁꯍꯔ ꯑꯃꯒꯤ ꯀꯥꯡꯂꯨꯞ ꯑꯃꯁꯨꯡ ꯃꯐꯝꯒꯤ ꯏꯔꯣꯏꯕ, ꯑꯃꯁꯨꯡ ꯃꯐꯝꯒꯤ ꯇꯥꯡꯖ ꯕꯥꯏꯕ ꯁꯤꯡꯕꯥꯁ ꯌꯥꯏ꯫ ꯃꯇꯤꯡꯗ ꯍꯦꯇꯦꯜ ꯑꯃꯁꯨꯡꯒꯤ ꯂꯃꯗꯝ ꯑꯃꯕ ꯍꯤꯡꯕꯥ ꯃꯁꯤꯡ ꯑꯌꯥꯝꯒꯤ ꯄꯨꯟꯁꯤ ꯇꯦꯡꯕꯥꯡꯅ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛꯀꯤ ꯂꯃꯗꯝ ꯄꯥꯝꯕꯩꯒꯤ ꯇꯦꯍ ꯑꯃꯁꯨꯡꯁꯕ ꯇꯥꯅꯤꯡꯂꯤ꯫ ꯅꯍꯥꯛ ꯂꯃꯗꯝ, ꯆꯥꯎꯔ ꯂꯃꯗꯝ ꯑꯃꯁꯨꯡ ꯑꯥꯡꯕ ꯂꯃꯗꯝ ꯑꯃꯤ ꯑꯣꯏꯕ ꯃꯅꯥꯡꯒꯤ ꯄꯨꯛꯅꯡꯕ ꯑꯁꯤꯕꯒꯤ ꯍꯥ ꯊꯥꯕꯕ ꯏꯔꯤꯡ ꯑꯃꯁꯨꯡ "ꯁꯍꯔ ꯑꯃꯒꯤ ꯄꯨꯛꯅꯡꯕ ꯃꯍꯥꯛꯀꯤ ꯁꯥꯔꯤꯀꯁꯤꯡ ꯌꯥꯔꯤ ꯂꯩ" ("have numerous tributaries through the town") (ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯒꯤ ꯗꯤꯖꯤꯇꯦꯜ ꯁꯥꯕ GIS ꯕꯦꯁ ꯃꯦꯄꯁꯤꯡ ꯁꯍꯔ – 2043), ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛꯀꯤ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯃꯊꯛꯇꯥ ꯂꯩꯕ ꯃꯇꯤꯡꯗ ꯂꯃꯗꯝꯒꯤ ꯕꯦꯡꯒꯤ 6,332 km² "ꯑꯏꯔꯣꯏꯕꯒꯤ ꯍꯥ ꯊꯥꯕꯕ ꯏꯔꯤꯂꯕ" ("flowing north to south") ꯅꯥꯏꯗ ꯏꯔꯤꯡꯂꯤ (ꯁꯍꯔ ꯑꯃꯁꯨꯡ, ꯗꯣꯏꯔꯣꯛꯂꯕꯃꯁꯤꯡ), ꯃꯁꯤꯒꯤ ꯃꯆꯥꯡ ꯏꯗꯝꯗ 4,432 km², 70%, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛꯀꯤ 1,900 km² (MASTEC); ꯁꯔꯨꯛꯀꯤ ꯂꯃꯒꯤ ꯅꯥꯏꯗ ꯅꯍꯩꯗ ꯑꯃꯤ ꯏꯗꯝꯗ ꯑꯃꯁꯨꯡ ꯄꯨꯕ ꯂꯣꯏꯕꯒꯤ ꯂꯩꯕꯅ, ꯀꯝꯄꯣꯡꯁꯤꯡ ꯆꯥꯡꯁ ꯄꯨꯡꯕ 135 mm ꯄꯤꯕꯕꯤ ꯁꯔꯨꯛꯀꯤ ꯅꯥꯏꯗ ꯅꯍꯩ ꯂꯩꯕꯅ ꯇꯥꯔꯕ WRD-ꯒꯤ ꯃꯥꯟ ꯑꯣꯗ ꯊꯥ ꯑꯃꯁꯨꯡ, ꯁꯍꯩꯕ ꯗꯣꯏꯔꯣꯛꯄꯤꯕ ꯃꯍꯩ ꯅꯥꯏꯗ, ꯍꯥꯂꯤꯕꯃꯁꯤꯡ꯫ ꯀꯇꯤꯒꯤ ꯏꯦꯡꯦꯡꯀꯗ ꯑꯃꯤ ꯃꯁꯤꯡ ꯑꯃꯁꯨꯡꯁ ꯀꯥꯡꯂꯨꯞ ꯄꯣꯕꯩꯡꯀꯗ, ꯀꯤꯔꯤꯀꯗ (sewer) ꯑꯃꯁꯨꯡ ꯂꯦꯡ ꯑꯃꯕ ꯅꯥꯏꯗ ꯁꯤꯕꯀꯤꯗꯂꯤ: ꯆꯥꯡꯕ ꯂꯃꯗꯝꯕ ꯏꯔꯤꯡꯂꯥꯛ ꯄꯥꯝꯕꯩ 72-ꯗ 42.45−52.34 mg/L-ꯒꯤ BOD ꯁꯤꯡꯒꯤ (ꯂꯦꯀꯂꯦꯡ ꯃꯥꯂꯦ ꯁꯥꯅꯕꯄꯨꯂꯦꯡ (National Green Tribunal)-ꯅ ꯀꯁꯦꯄꯥꯡ ꯂꯤꯁꯥꯂꯤ, ꯅꯤꯀꯆꯕꯂ 2025), ꯑꯃꯁꯨꯡ ꯆꯥꯡꯕ ꯂꯃꯗꯝ ꯕꯤꯀꯂꯁꯤꯡꯂ ꯇꯦꯍꯣꯛꯁꯨꯒ ꯇꯥꯁꯥ ꯊꯗꯕꯅ ꯏꯔꯤꯂꯤ꯫ ꯂꯣꯁꯤꯗꯤꯡꯀꯦ ꯑꯃꯍꯁꯒ ꯗꯥꯡ ꯄꯨꯔꯒ, ꯏꯅꯀꯦꯡ ꯃꯂꯤꯡ ꯂꯍꯂꯡ ꯀꯃꯂꯅꯗ ꯏꯦꯡꯦꯡ ꯃꯁꯤꯡ ꯑꯃꯍꯥꯛꯁꯅ ꯁꯤꯅꯦ (ꯃꯦꯄꯨꯔꯦꯡ ꯑꯃꯤꯒ ꯂꯦꯀꯣꯂꯅ ꯑꯃꯁꯨꯡ ꯍꯦꯂꯕ ꯃꯁꯤꯡ ꯅꯥꯏꯗ): IMC ꯑꯃꯁꯨꯡ ꯑꯁꯥꯁꯥ ꯍꯂꯕꯂ ꯇꯥꯡꯖ ꯕꯥꯏꯕꯗꯒ ꯃꯄꯨꯂꯤꯀꯤꯁꯦꯡ ꯍꯥꯗꯕꯦꯡꯀꯗ, PWD-ꯗ ꯆꯥꯕꯤꯒꯤ ꯃꯂꯥꯡꯒꯤ ꯍꯥꯗꯕꯦꯡꯀꯗ, WRD-ꯗ ꯂꯃꯗꯝꯒꯤ ꯁꯂꯀꯗ, ꯅꯥꯏꯗ ꯅꯍꯩꯒꯤ ꯏꯦꯡꯦꯡꯀꯗ ꯑꯃꯁꯨꯡ ꯆꯥꯇꯦꯡꯁꯁꯒꯤ ꯆꯥꯡꯕꯅ ꯁꯥꯁ ꯁꯕ, DoECC-ꯗ ꯆꯥꯡꯕꯒꯤ ꯍꯥꯗꯕꯦꯡꯀꯗꯒꯤ ꯅꯦꯁꯦꯀꯁꯂꯦ, PHED-ꯗ ꯀꯤꯔꯤꯀꯗ, ꯑꯃꯁꯨꯡ LDA-ꯗ ꯇꯦꯡ ꯑꯃꯁꯨꯡ, ꯁꯍꯩꯕ ꯗꯣꯏꯔꯣꯛꯄꯤꯕ ꯃꯍꯩ ꯅꯥꯏꯗ, ꯏꯅꯀꯦꯡ ꯃꯂꯤꯡ ꯀꯦꯗꯔꯣꯛꯁ ꯔꯦꯗꯀꯤꯂꯤ꯫ ꯁꯔꯨꯛꯀꯤ ꯃꯁꯍꯅ ꯑꯏꯗ ꯑꯃꯁꯨꯡ ꯂꯣꯁꯣꯛꯀꯤ ꯏꯗꯝꯒꯤ ꯍꯥꯗꯀꯤꯗꯒ ꯊꯕꯂ (ꯃꯁꯤꯊꯦꯡ) ꯑꯃꯁꯨꯡ ꯄꯨꯡ ꯂꯤꯇꯂꯒꯔꯂꯀꯤꯗꯒꯤ (reservoir) ꯄꯨꯡꯊꯗꯅ ꯁꯔꯨꯛꯀꯤ ꯂꯃꯗꯝꯀꯗꯅ ꯅꯥꯏꯗ ꯁꯤꯂꯤ, ꯂꯣꯁꯨꯗꯤꯡ ꯏꯗꯝꯗ ꯑꯃꯁꯨꯡ ꯇꯤꯂꯕꯂꯃꯗ ꯕꯂꯥ ꯂꯃꯗꯝꯕ ꯅꯥꯏꯗ ꯏꯔꯤꯡꯂꯤ, ꯑꯃꯁꯨꯡ ꯍꯅꯥꯡ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯨꯞꯒꯤ ꯂꯣꯁꯣꯛꯁ ꯊꯗꯕ ꯑꯃꯁꯨꯡ ꯃꯂꯥꯒꯤ ꯑꯃꯍꯕꯒꯤ ꯆꯥꯗ ꯃꯔꯤꯑꯃꯂꯅ ꯂꯥꯕ ꯏꯗꯦꯅꯤꯗꯦ (Chindwin) ꯀꯤꯀꯁꯥ ꯊꯗꯕꯅ ꯅꯥꯏꯗ ꯏꯔꯤꯡꯂꯤ (ꯃꯦꯄꯨꯔꯦꯡ ꯑꯃꯤꯗ ꯅꯦꯂꯕ ꯃꯁꯤꯡ ꯅꯥꯏꯗ, ꯀꯦꯗꯔꯣꯛ ꯁꯒꯅꯕ [TBC])꯫ ꯀꯗꯂ ꯑꯃꯤꯗ ꯕꯦꯀꯤꯗ ꯑꯃꯤ ꯁꯍꯔꯀꯗꯒꯤ ꯄꯤꯗꯤꯡ ꯑꯍꯥꯛꯂꯤ, ꯃꯑꯃꯗ ꯃꯍꯥꯡ ꯑꯃꯍꯥꯛꯁꯗ ꯏꯦꯡꯦꯡ ꯄꯅꯤꯗꯃꯡ ꯏꯗꯒꯤ ꯍꯥꯁꯅꯒꯤ ꯂꯃꯗꯝ, ꯁꯤꯡ ꯆꯌꯕꯒ ꯇꯥꯁꯥ ꯗꯤꯄꯕ ꯁꯂꯕꯂꯕ, ꯂꯤꯍ ꯄꯅꯤꯗꯃꯡꯒꯤ ꯃꯁꯤꯡ ꯑꯃꯤꯗꯤꯗ ꯑꯍꯕꯂꯡ, ꯑꯃꯁꯨꯡ ꯃꯦꯄꯨꯔꯦꯡ ꯑꯃꯤꯒꯤ ꯍꯥꯗꯕꯒꯤ ꯂꯦꯇꯤꯀꯁꯂꯗ (drain register) ꯂꯤꯍ ꯄꯅꯤꯗꯃꯡꯁ ꯃꯁꯤꯡ ꯑꯃꯍ, ꯃꯀꯤꯗ ꯏꯔꯕ ꯂꯃꯗꯝ, ꯃꯀꯤꯗ ꯇꯦꯡꯊꯥꯡꯁ ꯁꯂꯦ, ꯃꯀꯤꯒꯤ ꯒꯦꯁ ꯆꯌꯕꯒ ꯗꯤꯡꯁ ꯒꯦꯁ (flap gate)-ꯒ ꯇꯥꯔꯂꯗ, ꯃꯀꯤ ꯃꯅꯦꯡꯒꯤ ꯕꯅ-ꯇ 93-ꯒꯤ ꯕꯗꯂ ꯑꯃꯍ ꯇꯥꯕꯂ [TBC: ꯇꯥꯡꯖ ꯕꯥꯏꯗ ꯂꯣꯁꯤꯗꯤꯅ ꯁꯥꯕ ꯕꯅ-ꯇꯥꯇꯀꯗꯅ ꯆꯥꯕꯂ ꯑꯃꯁꯨꯡ ꯁꯥꯡꯀꯁ ꯍꯦꯗꯤꯂꯃ ꯁꯒꯅꯕꯇꯤ], ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ ꯑꯍꯩꯗꯣ ꯁꯤꯗꯇꯕ, ꯑꯃꯁꯨꯡ ꯃꯀꯤꯗ ꯁꯤꯂꯥꯇꯤꯕ ꯀꯤꯔꯦꯇ ꯑꯃꯁꯨꯡ ꯁꯤꯗ, ꯇꯦꯡ ꯆꯌꯕꯒ ꯂꯃꯗꯝ ꯑꯃꯍ ꯏꯅꯥꯡꯂꯁꯤꯡ ꯁꯔꯅꯂꯕꯒꯤꯅꯃꯇꯤ (ꯃꯥꯡ 8, ꯍꯦꯇꯦꯜ 8.9.5)꯫

11.4 ꯍꯦꯇꯦꯜ ꯀꯦꯂꯒꯤ, ꯑꯃꯁꯨꯡ ꯍꯅꯥꯡꯅ

11.4.1 **ꯇꯤꯅ ꯑꯊꯣꯂꯤꯁꯤ (Lead Authority).**

- ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯒꯤ ꯁꯍꯔꯀꯗ ꯑꯦꯂꯤꯔ (151.38 km²)-ꯒꯤ ꯕꯦꯀꯤꯗꯀꯗꯒꯤꯅꯃ: **ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC)**, ꯃꯀꯤꯗ ꯕꯤꯔꯅꯤꯗ ꯁꯂꯃꯤꯗꯀꯗ ꯁꯤꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯀꯤꯒꯤ ꯑꯁꯤꯕꯒꯤ ꯃꯆꯥꯡ ꯇꯥꯕ ꯃꯅꯤꯄꯨꯔꯀꯗ ꯍꯥꯗꯕꯦꯡꯀꯗ ꯔꯦꯗꯀꯤꯂꯤ, ꯃꯀꯤꯒ ꯁꯂꯦꯗ ꯃꯇꯤꯡꯗ ꯁꯍꯔ ꯑꯃꯁꯨꯡ ꯍꯦꯁꯂꯤ ꯁꯍꯔꯀꯗ ꯑꯦꯇꯥ, 1975 (Manipur Town and Country Planning Act, 1975)-ꯒꯤ ꯃꯍꯥꯛꯅ ꯃꯅꯤꯄꯨꯔꯀꯗ ꯑꯁꯤꯕꯒꯤ ꯃꯁꯂꯦꯅ ꯇꯥꯕ ꯁꯍꯔꯀꯗ ꯑꯦꯂꯤꯔꯒꯤ ꯀꯂꯥꯇꯀꯗꯒꯤꯅꯃ ꯁꯍꯔꯀꯗ ꯑꯊꯣꯂꯤꯁꯤ ꯑꯍꯂꯤꯕ **PDA Manipur**, ꯑꯃꯁꯨꯡ ꯃꯀꯁꯥ ꯁꯍꯔ ꯀꯦꯗꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯂꯅ ꯄꯨꯇꯒꯤꯅꯃ ꯕꯤꯔꯅꯤꯗ ꯁꯍꯔꯀꯗ ꯏꯦꯡ ꯁꯕ **ꯁꯍꯔ ꯁꯍꯔꯀꯗ ꯅꯤꯁꯂꯦꯃꯦꯂ (Town Planning Department, TPD)**, BSMP ꯑꯃꯁꯨꯡ ꯔꯤꯍꯔꯂꯒꯅꯕ ꯃꯀꯁꯥ ꯁꯍꯔ ꯑꯃꯁꯨꯡ ꯂꯣꯁꯤꯗꯤꯅ ꯁꯕ **MAHUD**-ꯒ ꯇꯥꯔꯂꯗ (ꯍꯦꯇꯦꯜ 11.9)꯫ ꯊꯅꯗ ꯄꯅꯤꯗꯃꯡ ꯑꯃꯤ ꯃꯦꯄꯨꯔꯦꯡ ꯑꯃꯤ ꯇꯀꯤꯗꯇꯕꯅꯤ ꯕꯅꯤ ꯑꯃꯁꯨꯡꯗ ꯇꯒꯅꯕ ꯊꯅꯗ ꯑꯃꯁꯨꯡꯇꯤ꯫ IMC-ꯒꯤ ꯑꯁꯤꯕꯒꯤ ꯃꯁꯂꯦꯅ ꯇꯥꯕ ꯁꯍꯔꯀꯗ ꯑꯦꯂꯤꯔꯅ ꯕꯤꯔꯅꯤꯗ ꯁꯂꯃꯤꯗꯦ (building permission) ꯁꯤꯕ ꯕꯅꯤ ꯍꯦꯗꯦꯂ ꯏꯔꯕꯅ ꯍꯦꯗꯤꯂꯃ ꯁꯒꯅꯕꯇꯤ [TBC]꯫ ꯕꯦꯀꯤꯗ ꯑꯃꯍꯗ ꯁꯍꯔꯀꯗ ꯑꯦꯂꯤꯔꯒꯤ ꯃꯁꯂꯦꯅ ꯏꯍꯊꯁ ꯃꯗꯃꯅ, ꯕꯦꯀꯤꯗ ꯑꯃꯁꯨꯅ ꯇꯥꯕ ꯑꯁꯥꯁꯥ ꯍꯂꯕꯂ ꯇꯥꯡꯖ ꯕꯥꯏꯕꯗ ꯁꯤꯂꯦꯗꯀꯗꯇꯤ, ꯑꯃꯁꯨꯡ BSMP ꯑꯃꯍꯥꯛꯁꯗ ꯕꯦꯀꯤꯗ ꯁꯤꯂꯆꯃ ꯏꯍꯅ (ꯍꯦꯇꯦꯜ 11.3.1)꯫

- ꯁꯍꯔꯒꯤ ꯂꯣꯀꯦꯜꯁꯤꯡ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯂꯒꯤ, ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯨꯞ ꯌꯥꯑꯣꯔꯤꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯁꯔꯨꯛꯁꯤꯡ, ꯑꯦꯅꯤꯁꯤ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯨꯞꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯏꯃꯣꯔꯁꯟ; ꯃꯍꯥ ꯂꯣꯌꯅꯅ ꯏꯃꯥꯟ, ꯃꯥꯂꯦꯃ ꯑꯣꯏꯅ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯗ ꯃꯔꯨꯑꯣꯏꯕ ꯊꯧꯗꯥꯡ ꯂꯩꯕꯁꯤꯡ ꯃꯍꯥꯛ ꯁꯤꯡꯇꯤꯕꯅ ꯁꯤꯡꯇꯤ, ꯑꯃꯁꯤ ꯊꯧꯔꯥꯡꯁꯤꯡ ꯃꯂꯦꯡ ꯃꯍꯥꯛ ꯑꯣꯏꯕꯅ ꯑꯦꯄꯥꯔ ꯊꯧꯔꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯃꯥꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯃꯂꯥꯏꯗ ꯂꯩꯕ CIP-ꯒꯤ ꯁꯔꯨꯛꯁꯤꯡꯒꯤ ꯃꯔꯝ ꯑꯣꯏꯅꯥ ꯑꯣꯏꯔꯦ: **WRD** ꯃꯥꯂꯦꯃꯁꯤꯡ, ꯃꯍꯥꯛꯀꯤ ꯁꯦꯜꯁꯤꯡ, ꯒꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯂꯒꯤ ꯂꯣꯀꯦꯜꯁꯤꯡ, ꯀꯍꯥꯏꯅꯥꯇꯦ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣ ꯁꯨꯂꯤꯗ ꯂꯣꯀꯦꯜꯒꯤ ꯊꯧꯔꯥꯡ ꯀꯍꯥꯏꯅꯥꯟ ꯁꯍꯁ ꯌꯥꯎ, ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯂꯣꯀꯦꯜꯁꯤꯡ ꯁꯣꯗꯥꯏꯗꯦꯟ ꯃꯣꯁꯤꯅꯤꯁꯤꯡꯒꯤꯗꯃꯛ (ꯁꯤꯡꯅ ꯏꯗꯥꯏꯗꯥꯍꯤꯟ ꯃꯌꯨꯝ ꯍꯦꯜ); **IMC** ꯑꯃꯁꯨꯡ ꯑꯌꯥꯔꯦ **ꯁꯤꯡꯟꯗꯦ ꯂꯥꯏꯔ ꯅꯥꯏꯁꯤꯡ** ꯃꯍꯥꯛꯀꯤ ꯄꯨꯃꯍꯥꯛꯀꯤ ꯃꯂꯥꯏꯗ ꯂꯩꯕ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜꯁꯤꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡꯒꯤꯗꯃꯛ; **PWD** ꯀꯍꯥꯏꯒꯤ ꯃꯂꯥꯏꯗꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡꯒꯤꯗꯃꯛ, ꯃꯍꯥꯛꯀꯤ ꯃꯂꯥꯏꯗ ꯒꯂꯣꯌꯂ ꯍꯍꯦꯟꯅ ꯂꯩꯕ AIIB ꯁꯂꯣꯂꯦꯗꯇꯥꯗꯤ 547 km ꯌꯦꯡꯂꯦ, ꯑꯃꯁꯨꯡ **ꯂꯣꯅꯂꯣꯟ-ꯍꯍꯌꯣꯒꯤ ꯑꯦꯂꯦꯁꯤꯡꯁꯤꯡ** ꯂꯣꯅꯂꯣꯟ ꯍꯍꯌꯣꯁꯤꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯑꯃꯁꯨꯡ ꯗꯃꯒꯂꯇꯁꯤꯡꯒꯤꯗꯃꯛ (culvert); **DoECC** ꯀꯍꯥꯏꯅꯥꯟ ꯌꯣꯅꯂꯗꯁ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯒꯤ ꯍꯦꯌꯣꯂꯣꯁꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯒꯂꯦ (interception and diversion) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯌꯣꯂꯤꯇꯃꯣꯌꯇ ꯁꯦꯌꯇꯗꯤꯃꯛ; **PHED** ꯁꯤꯌꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯁꯍꯁꯤ ꯁꯌꯣꯂꯦꯁꯤꯡꯒꯤꯗꯃꯛ; **LDA** ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯉꯥꯛ-ꯁꯦꯟꯕ) ꯑꯦꯛꯇ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯂꯥꯏꯗ ꯂꯩꯕ ꯂꯥꯌꯣꯗꯥꯗꯤꯗꯃꯛ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯅꯥ ꯂꯣꯗꯤꯗꯅꯇ ꯃꯃꯤ ꯂꯍꯤꯇ ꯌꯍꯁꯣꯟ ꯃꯂꯤꯟ ꯁꯣꯗꯥꯏꯗꯁꯤꯒꯤꯗꯃꯛ (ꯁꯤꯡꯅ ꯏꯗꯥꯏꯗꯥꯍꯤꯟ ꯃꯌꯨꯝ ꯍꯦꯜ); **ꯍꯀꯏꯟ ꯁꯃꯥꯔꯠ ꯁꯤꯌꯤ ꯂꯤꯃꯤꯌꯦꯗ** (Imphal Smart City Ltd) ꯃꯁꯤꯒꯤ ꯂꯥꯏꯅꯤꯡꯁꯤꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁꯤꯡꯒꯤꯗꯃꯛ, ꯍꯇꯗ ꯍꯦꯟꯗꯑꯣꯒꯂ ꯌꯥꯎ ꯏꯃꯥꯟ [TBC]; ꯑꯃꯁꯨꯡ **MSDMA**, ꯂꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Relief and Disaster Management Department) ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯇꯀꯤ ꯂꯌꯦꯛꯂꯦ, BSMP ꯑꯃꯁꯤ ꯁꯨꯡꯗꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯍꯥꯏꯗ꯭ꯔꯣ, ꯁꯦꯜ ꯗꯥꯏꯁ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗꯂꯣꯅꯁꯤꯡ ꯍꯂꯦꯟꯗꯁꯤꯡ ꯃꯁꯦ ꯌꯥꯎꯒꯤꯗꯃꯛ꯫
- ꯑꯌꯥꯔꯦ ꯁꯤꯡꯟꯗꯦ ꯂꯥꯏꯔ ꯅꯥꯏꯁꯤꯡꯗ (ꯊꯥꯅꯦꯟ, ꯗꯥꯏꯁꯤꯡ, ꯅꯥꯏꯂꯨꯁꯨꯡ, ꯀꯍꯥꯅꯦꯟ, ꯃꯍꯂꯤꯡ, ꯂꯤꯂꯤꯅꯍ ꯑꯃꯁꯨꯡ ꯑꯌꯥꯔꯦꯁꯤꯡ) ꯑꯃꯁꯨꯡ ꯌꯣꯟꯌꯂ B ꯅꯥꯏꯁꯤꯡꯗ: ꯂꯤꯗ ꯑꯦꯊꯦꯂꯤꯌꯣꯏ ꯑꯃꯁꯤ ꯁꯤꯡꯟꯗꯦ ꯂꯥꯏꯔ ꯅꯥꯏꯁꯤꯡ, ꯃꯁꯤꯒꯤ ꯁꯦꯜꯗꯦ ꯀꯍꯥꯏꯅꯥꯟ ꯁꯦꯜꯗꯦꯁꯤꯡ ꯑꯣꯂꯤꯌꯦ ꯑꯃꯁꯤ ꯌꯦꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯂꯅꯅꯥ PDA Manipur ꯀꯍꯥꯏꯅꯥꯟ TPD-ꯒꯤ ꯂꯌꯦꯛꯂꯦ, MAHUD-ꯗ ꯃꯍꯥꯛꯀꯤ ꯃꯃꯤꯁꯤꯡ ꯂꯥꯏꯂꯤꯅꯥꯏꯁꯨꯡꯃꯦ꯫ ꯅꯤꯇꯅꯥꯏꯁꯤꯡꯒꯤ ꯁꯨꯟ ꯑꯃꯍꯥꯏ ꯍꯍꯥꯏꯅ ꯍꯤꯁꯤꯡꯒꯤ ꯀꯍꯥꯏꯁꯤꯡ (Hill Areas), ꯁꯦꯅꯂꯤꯗ ꯍꯂꯗ ꯑꯃ ꯌꯥꯎ ꯅꯥꯏꯁꯦꯂꯍꯥꯏꯁꯦꯡ ꯑꯃꯁꯨꯡ, PWD, PHED, WRD ꯀꯍꯥꯏꯅꯥꯟ ꯑꯌꯥꯔꯦ ꯍꯂꯗꯁ ꯑꯦꯂꯦꯡꯁꯤ ꯑꯃꯁꯤ, ꯍꯂꯗ ꯑꯃꯁꯤꯒꯤ ꯍꯂꯦ ꯁꯨꯡꯗ ꯑꯃꯁꯤꯒꯤ ꯃꯌꯨꯝ ꯍꯦꯜ ꯁꯣꯀꯍ, ꯑꯃꯁꯨꯡ ꯒꯒꯂꯀꯂꯦ ꯌꯦꯏꯀ ꯑꯃ ꯃꯁꯤꯗ ꯁꯤꯡꯅꯂꯅꯥꯏ ꯀꯍꯥꯏꯅꯥꯟ ꯃꯁꯤꯗꯦ ꯃꯣꯌꯨꯍꯣꯟ ꯑꯃꯁꯤ ꯂꯥꯏꯁꯤꯡꯅꯥꯏ ꯍꯗꯌꯗ ꯅꯥꯏꯁꯨꯂꯤꯗ ꯗꯦꯡꯗꯁꯤꯅ ꯑꯃꯁꯤ, ꯀꯍꯥꯏꯅꯥꯟ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯃꯂꯤꯁꯨꯂꯦ, ꯍꯤꯁꯤꯡꯒꯤ ꯌꯦꯁꯨꯡ ꯑꯃꯒꯤꯗꯃꯛ ꯂꯤꯗ ꯑꯦꯊꯦꯂꯤꯌꯣꯏ ꯑꯦꯍꯂꯦ ꯊꯅꯗ ꯌꯥꯎ ꯌꯍ (ꯑꯂꯤꯃꯗ ꯌꯥꯍꯗꯣ)꯫ ꯃꯥꯂꯦꯃꯒꯤ ꯂꯤꯁ ꯑꯃꯍꯗꯌꯗ, ꯂꯥꯏꯅꯤꯡꯌ ꯀꯍꯥꯏꯅꯥꯟ ꯅꯂꯗ ꯃꯥꯂꯦꯃꯗ ꯍꯁꯤꯡ ꯍꯦꯃꯂꯗꯁ ꯅꯦꯁꯤꯡꯁꯤꯡ ꯗꯤꯁꯨꯂꯤꯗ-ꯂꯦꯒꯦꯃꯒꯤ ꯁꯦꯜꯗꯦ ꯑꯃꯍꯗꯌꯗ ꯁꯨꯡꯁꯤꯡꯅ ꯌꯍ꯫

BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ MSDMA ꯑꯃꯁꯨꯡ ꯗꯦꯁꯨꯡꯁꯤ ꯗꯃꯁꯤꯀꯂꯀꯥꯟ ꯌꯦꯂꯤ ꯁꯂꯂꯒꯗꯅꯂꯤ; ꯃꯁꯤꯒꯤ ꯅꯦꯁꯤꯡꯂꯦ ꯃꯥꯂꯦꯃ, ꯁꯦꯜ ꯀꯍꯥꯏꯅꯥꯟ ꯁꯍꯁꯂꯦ ꯊꯗꯥꯗꯁ ꯑꯦꯁꯨꯡꯍꯦꯟ ꯑꯃꯍ ꯍꯥꯏꯗ꯭ꯔꯣ ꯍꯦꯟꯂꯗꯁ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ WRD-ꯒꯥ; ꯃꯁꯤꯒꯤ ꯅꯦꯁꯤꯡꯂꯦ ꯂꯥꯏꯅꯤꯡꯌ ꯍꯥꯏꯗ꯭ꯔꯣ ꯍꯦꯟꯂꯗꯁ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ LDA-ꯒꯥ; ꯍꯊꯍ ꯅꯦꯂꯤꯂꯂꯦ ꯃꯁꯤꯒꯤ ꯂꯦꯒꯦꯃꯁꯤꯡ ꯊꯍꯅ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ NHPC-ꯒꯥ; ꯂꯥꯏꯅꯤꯡ ꯀꯍꯥꯏꯅꯥꯟ ꯍꯦꯅꯂꯦꯗꯁꯅ ꯁꯨꯡꯂꯦꯂ, ꯗꯥꯂꯤꯁꯂ ꯀꯍꯥꯏꯅꯥꯟ ꯗꯦꯒꯦꯂꯁꯃꯦꯗꯁ ꯁꯂꯗꯁꯦꯂ ꯌꯥꯎ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ ꯂꯦꯒꯦꯂꯨ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Revenue Department) ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯗꯦꯁꯤꯡꯂꯒꯦꯁꯦ ꯑꯏ ꯁꯦꯗꯤ ꯂꯦꯗꯍ ꯑꯃꯁꯨꯡ ꯍꯦꯅꯂꯦꯗꯍ ꯑꯦꯛꯇ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯒꯤ ꯃꯍꯥꯛ ꯂꯥꯏꯅꯤꯡ, ꯗꯤꯁꯨꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯁꯨꯡꯅ ꯂꯦꯒꯦꯟ ꯗꯃꯂꯤꯌꯣꯁꯤꯡꯒꯥ; ꯁꯤꯌꯦꯂ ꯁꯂꯗꯂꯤꯅ ꯍꯥꯏꯗ꯭ꯔꯣ ꯀꯍꯥꯏꯅꯥꯟ ꯃꯥꯂꯦꯃ ꯑꯃꯍ ꯊꯅꯗꯁꯤꯡ ꯁꯂꯗꯁꯦꯂ ꯌꯥꯎ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡ, ꯃꯍꯥꯛꯀꯤ ꯃꯂꯥꯏꯗ ꯀꯍꯥꯏꯅ ꯑꯃꯁꯨꯡ ꯂꯒꯥ ꯂꯨꯟꯂꯦ ꯌꯦꯡꯂꯦ, ꯃꯅꯤꯄꯨꯔ ꯁꯦꯂꯨꯁꯦ ꯗꯦꯁꯨꯡꯂꯟ ꯅꯂꯗ (Manipur Pollution Control Board)-ꯒꯥ; ꯃꯁꯤꯒꯤ ꯅꯦꯁꯤꯡꯗ ꯃꯁꯤꯗꯦ ꯂꯌꯦꯏꯍ ꯌꯥꯂꯅ ꯀꯍꯥꯏꯅꯥꯟ ꯁꯂꯗꯁꯦꯂ ꯌꯥꯂꯅ ꯍꯦꯅꯂꯦꯗꯍ ꯑꯃ ꯌꯦꯡꯅ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ ꯃꯅꯤꯄꯨꯔ ꯁꯨꯡꯅ ꯍꯦꯅꯂꯦꯗꯍꯁ ꯑꯦꯊꯦꯂꯤꯌꯣꯏ (Manipur State Wetlands Authority)-ꯒꯥ; ꯑꯃꯁꯨꯡ, ꯃꯁꯤꯒꯤ ꯑꯦꯁꯨꯡꯍꯦꯟ ꯂꯤꯂꯤꯅꯍꯒꯤ ꯃꯍꯥꯛ ꯅꯂꯗ ꯃꯥꯂꯦꯃꯗ ꯂꯥꯏ ꯅꯦꯁꯤꯡ ꯑꯃꯒꯤꯗꯃꯛ, ꯌꯦꯍꯗꯅ ꯁꯨꯡꯅꯗꯤ ꯌꯦꯌꯂ ꯂꯤꯁꯦꯂꯦꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ, WRD-ꯒꯤ ꯊꯧꯊꯍꯗꯍ꯫

ꯃꯁꯤꯒꯤ ꯗꯦꯁꯨꯡꯂꯦꯒꯤ ꯃꯍꯥꯛ ꯂꯥꯏꯅꯤꯡ ꯃꯥꯂꯦꯃ, ꯍꯥꯏꯂꯦꯁꯤ ꯀꯍꯥꯏꯅꯥꯟ ꯁꯨꯍꯂꯤ ꯑꯃ ꯌꯦꯡꯅ BSMP ꯊꯧꯔꯥꯡꯁꯤꯡꯅ WRD ꯁꯂꯗꯂꯦ ꯑꯃ ꯑꯦꯍꯒꯗꯅꯂꯤ꯫

11.4.2 **BSMP ꯑꯃ ꯗꯦꯁꯤꯡꯍ ꯃꯊꯥ ꯌꯥꯎꯒꯦ.**

- (a) ꯌꯣꯟꯌꯂ A ꯅꯥꯏꯁꯤꯡ ꯊꯧꯔꯥꯡꯁꯤꯡꯗ ꯃꯍꯥꯛꯀꯤ ꯑꯃꯁꯤ ꯍꯂꯂꯗꯂꯦ ꯃꯌꯨꯝꯍ **ꯍꯍꯤ 3**-ꯒꯤ ꯃꯂꯥꯏꯗꯍ ꯃꯁꯤꯒꯤ ꯑꯦꯗꯤꯌꯦ ꯁꯨꯀꯂꯃꯗ ꯌꯦꯡꯅ BSMP-ꯁꯤꯡ ꯑꯦꯁꯨꯡꯒ ꯌꯥꯒꯗꯅꯂꯤ꯫
- (b) ꯃꯍꯥꯛ ꯁꯤꯂꯤꯅꯁꯤꯡꯒꯤ ꯃꯃꯤꯗꯍ BSMP ꯑꯃ ꯃꯊꯥ ꯌꯥꯍ:
  - ꯁꯦꯛꯁꯟ 4.13-ꯒꯤ ꯃꯍꯥꯛ ꯂꯤꯂꯂꯣꯟ ꯗꯤꯌꯣꯗꯦꯁꯦ ꯀꯍꯥꯏꯅꯥꯟ ꯏꯤ-ꯍꯦ-ꯂꯤꯁꯨ ꯑꯃ ꯌꯦꯅ;
  - ꯁꯦꯛꯁꯟ 4.5.6.3-ꯒꯤ ꯃꯍꯥꯛ ꯊꯃꯂꯤꯟꯂꯅ ꯏꯤ ꯑꯃ ꯁꯤꯂꯤꯗꯂꯅ; ꯑꯃꯁꯨꯡ

    - ꯐꯤꯒꯔ 11.8.3-ꯒꯤ ꯍꯦꯟꯅ ꯊꯧꯑꯣꯡꯒꯤ ꯍꯧꯔꯀꯄꯒꯤ ꯃꯇꯦꯡ ꯃꯇꯧ ꯑꯁꯤ ꯀꯤꯇꯤꯡꯕꯅꯤ꯫
- (c) ꯇꯤꯌꯔ B ꯁꯥꯏꯠ ꯑꯃꯗꯥ, ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯑꯣꯐꯤꯁꯤꯌꯂꯁꯤꯡꯒꯤ ꯃꯔꯛꯇꯒꯤ ꯁ꯭ꯇꯦꯠ ꯁ꯭ꯇꯣꯔꯃꯋꯥꯇꯔ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯀꯃꯤꯇꯤ (State Stormwater Technical Committee), ꯁꯤꯡꯕꯥꯏꯅꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯂꯃꯆꯠꯀꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯃꯇꯨꯡ ꯏꯟꯅ ꯊꯕꯛ ꯊꯧꯔꯥꯡ ꯂꯧꯔꯛꯂꯕ ꯃꯇꯃꯗꯥ BSMP ꯑꯁꯤ ꯀꯣꯀꯍꯟꯗꯨꯅꯥ ꯀꯣꯛꯂꯤ꯫

11.4.3 **ꯀꯣꯝꯄ.** BSMP-ꯒꯤ ꯁꯣꯂꯤꯇ-ꯀ꯭ꯂꯥꯁꯀꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯑꯣꯏꯔꯕ ꯃꯔꯝ, ꯃꯔꯛꯀꯤ ꯊꯕꯛ ꯁꯦꯝꯕꯗ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ (Stormwater Design Professional) ꯑꯃꯅꯥ ꯊꯦꯡꯅꯕꯒꯤ ꯇꯥꯛꯄ ꯊꯨꯒꯥꯏꯗꯤꯕ ꯑꯃꯗꯥ, ꯃꯁꯤꯒꯤ ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕꯁꯤꯡꯒꯤ ꯍꯥꯏꯅ, ꯀꯣꯛꯂꯤꯕꯅꯤ (ꯀꯥꯡꯂ 10)꯫

11.5 ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯁꯁꯤꯡ

11.5.1 BSMP ꯁꯦꯝꯕꯥꯗ ꯇꯦꯕꯜ 11.1-ꯗ ꯄꯤꯔ ꯗꯦꯇꯥ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯟꯗꯨꯅꯥ (ꯐꯤꯒꯔ 11.10):

ꯇꯦꯕꯜ 11.1 — BSMP ꯁꯦꯝꯕꯒꯤ ꯁꯣꯔꯁ/ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ ꯍꯥꯏꯕ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯁꯁꯤꯡ

ꯗꯦꯇꯥ	ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ ꯍꯥꯏꯕ ꯇꯦꯛ
ꯂꯝꯗꯝ ꯍꯤꯡꯃ (terrain)	LiDAR ꯅꯠꯔꯒꯥ ꯗ꯭ꯔꯣꯟ-ꯐꯣꯇꯣꯒ꯭ꯔꯥꯃꯦꯠꯔꯤꯒꯤ ꯄꯨꯊꯣꯛ ꯁꯤꯖꯤꯟꯅ ꯑꯣꯏꯔꯤꯕ ꯍꯥꯏꯕ, ꯚꯔꯇꯤꯀꯦꯜ ꯑꯦꯛꯌꯨꯔꯦꯁꯤ ꯌꯥꯕꯗ ꯑꯣꯏꯅ ꯁꯣꯏꯗꯅ 0.15 m RMSE ꯅꯠꯔꯒꯥ ꯍꯦꯟꯅꯗ ꯐꯕ, ꯀꯝꯕꯥ ꯑꯦꯐ ꯁꯔꯚꯦ (Survey of India) ꯗꯥꯇꯝ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ
ꯅꯣꯡꯁꯥꯗꯒꯤ ꯂꯩꯌꯥꯒꯤ	ꯄ꯭ꯔꯦꯁꯤꯄ ꯅꯣꯡꯁꯥ, ꯏꯟꯇꯦꯟꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯗꯨꯔꯦꯁꯟ ꯄ꯭ꯔꯤꯛꯕꯗ ꯊꯦꯡꯅꯕꯁꯤꯡ, ꯊꯦꯡꯅꯕ ꯂꯩꯕ, ꯀꯥꯡꯂ, ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯝꯅꯃꯛ ꯑꯣꯏꯅꯕ ꯂꯩꯔꯦ; 600 mm-ꯗꯒꯤ ꯍꯦꯟꯅ ꯄ꯭ꯔꯤꯁꯤꯄꯤꯇꯦꯁꯟ ꯅꯣꯡꯁꯥꯒꯤ
ꯊꯕꯛ ꯄꯥꯝꯕꯒꯤ	ꯀꯥꯡꯂ 7-ꯒꯤ ꯍꯦꯟꯅ ꯄ꯭ꯔꯣꯐꯥꯏꯜ, ꯄꯥꯏꯄꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ ꯁꯦꯝꯕꯥꯗꯒꯤ ꯀꯥꯡꯂ: FTL, MWL, ꯄꯨꯟꯁꯤꯒꯤ ꯂꯦꯚꯦꯜ, ꯀ꯭ꯔꯣꯁ–ꯀ꯭ꯔꯣꯁ, ꯊꯥꯡꯒꯤ, ꯀꯥꯄꯂꯀ ꯌꯤꯁꯤꯡꯒꯤ, ꯀꯄꯇꯩ ꯌꯥꯂꯦꯟꯒꯤ, ꯂꯝ ꯅꯣꯡꯄꯥ
ꯁ꯭ꯇꯦꯛ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯇꯩꯁꯤꯡ	200 m-ꯗꯒꯤ ꯍꯦꯟꯅ ꯌꯥꯔꯕ ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯣꯁ-ꯁꯦꯛꯁꯟ ꯁꯦꯝꯕꯥꯗ ꯃꯍꯥꯛ-ꯀꯣꯂꯤꯀꯦꯁꯟ
ꯑꯦꯛꯁꯄꯦꯟ, ꯁ꯭ꯇꯦꯖ, ꯅꯥꯡ, ꯄꯥꯏꯞ, ꯄ꯭ꯔꯣꯐꯥꯏꯜ, ꯂꯝꯇꯝ ꯑꯃꯁꯨꯡ ꯃꯂꯦꯃꯒꯤ	ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯂꯦꯚꯦꯜ ꯁꯦꯝꯕꯥꯗꯒꯤ ꯗꯥꯇꯝ; ꯅꯣꯡꯄꯣꯛꯀꯤ ꯅꯥꯟ WRD ꯒꯤꯇꯥ ꯊꯕꯛ ꯄꯤꯔ ꯁ꯭ꯇꯦꯖꯒꯤ ꯌꯦꯖꯤꯡ, ꯑꯥꯎꯇ ꯑꯃꯁꯨꯡ ꯈꯥꯏꯕꯅꯥ ꯑꯥꯎꯇ ꯂꯦꯚꯦꯜꯁꯤꯡꯒꯤ ꯌꯥꯝꯅ ꯑꯦꯛꯁꯄꯦꯟꯒꯤ ꯊꯦꯡꯃꯟ ꯂꯦꯚꯦꯜꯁꯤꯡ (ꯍꯤꯡꯅꯇꯥꯕꯗ ꯊꯃꯖꯤ ꯁ꯭ꯇꯦꯖ, 785.900, 786.900 ꯑꯃꯁꯨꯡ 788.400 m, ꯑꯃꯁꯨꯡ ꯂꯤꯂꯥꯕꯗ, 780.350 m, 781.350 ꯅꯠꯔꯒꯥ 781.250 m ꯑꯃꯁꯨꯡ 782.850 m, 15 ꯀꯥꯡꯂꯝꯕ 2025-ꯗ 783.250 m-ꯗ ꯈꯥꯌꯊꯤ; ꯊꯃꯤꯡꯁꯨꯕꯗ ꯊꯃꯤꯡ ꯁ꯭ꯇꯦꯖ, 786.700 ꯑꯃꯁꯨꯡ 787.700 m, ꯍꯧꯖꯤꯛ ꯑꯥꯎꯇ ꯂꯦꯚꯦꯜꯒꯤ ꯍꯦꯟꯅ ꯄꯤꯔ ꯗꯥꯏꯖꯥꯕꯗ ꯈꯥꯌꯊꯀꯨ ꯑꯥꯎꯇ ꯂꯦꯚꯦꯜ ꯑꯃꯒꯥ ꯂꯩꯔꯦ; ꯊꯥꯡꯇ ꯁ꯭ꯇꯦꯖ, 778.915 ꯑꯃꯁꯨꯡ 779.915 m; ꯊꯥꯡ ꯅꯝꯄꯥꯜꯁꯤ (ꯈꯝꯄ ꯁꯤꯡꯕ) ꯅꯝꯁꯨꯡ ꯁ꯭ꯇꯦꯖ, ꯈꯥꯌꯊꯀꯨ ꯑꯥꯎꯇ ꯂꯦꯚꯦꯜ 783.695 m; ꯅꯝꯄꯥꯜ ꯊꯥꯡꯅꯥꯡꯗ ꯅꯝꯄꯥꯜ ꯁ꯭ꯇꯦꯖ, 774.700 ꯅꯠꯔꯒꯥ 774.400 m; ꯊꯧꯕꯜ ꯁꯣꯏꯇꯦꯗ ꯍꯩꯅꯤꯡꯁꯨꯕ ꯁ꯭ꯇꯦꯖ, 769.320 m, 15 ꯀꯥꯡꯂꯝꯕ 2025-ꯗ 770.05 m-ꯗ ꯈꯥꯌꯊꯤ; WRD-ꯒꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯄꯥꯎꯗ ꯗꯥꯏꯖꯥꯕꯈꯤꯕ ꯍꯟꯗꯥ ꯊꯦꯡꯗ, ꯗꯥꯇꯝ ꯗꯥꯏꯖꯥꯕꯈꯤꯕ [TBC]), ꯍꯦꯟꯅꯗꯨꯕ ꯁꯦꯝꯕꯥꯗ ꯗꯥꯏꯖꯥꯕꯔꯤꯕ ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯒꯣꯔ ꯃꯑꯣꯡꯀꯤ ꯄꯣꯛꯂꯦ [TBC]; ꯂꯝꯇꯝꯒꯤ ꯗꯨꯕ ꯃꯤꯇꯃꯥꯏꯌꯥ ꯂꯦꯚꯦꯜ (768.5 m, NHPC, ꯅꯠꯔꯒꯥ ꯑꯃꯄꯥ ꯃꯤꯄꯥꯏꯕ ꯑꯁꯤ 769.63 m) ꯑꯃꯁꯨꯡ ꯍꯤꯡꯂꯤꯍ ꯁꯤꯗꯥꯏꯕ ꯂꯦꯚꯦꯜ (766.2 m, NHPC, ꯅꯠꯔꯒꯥ 766.01 m, CEA), ꯈꯥꯌꯊꯤ ꯍꯧꯖꯤ ꯊꯦꯡꯗ, ꯈꯃꯤ ꯀꯤꯇꯤꯡꯅꯕꯤꯒꯅꯤ ꯈꯔꯕꯁꯨ ꯗꯥꯏꯖꯥꯕꯔꯦ; ꯌꯥꯇꯣꯕꯈꯨꯗ ꯄꯤꯔ CWC ꯀꯊꯣꯛꯄ ꯕꯃꯥ ꯁ꯭ꯇꯦꯖ (ꯈꯥꯌꯊꯀꯨ ꯑꯥꯎꯇ ꯂꯦꯚꯦꯜ 32.1 m, 31 ꯖꯨꯂꯥꯏ 1989, ꯄꯥꯎꯗ ꯗꯥꯏꯖꯥꯕꯈꯤꯕ ꯍꯟꯗꯥ ꯊꯦꯡꯗ); ꯊꯥꯡꯇ (ꯍꯄꯤꯊꯥꯡ) ꯗꯝꯒꯤ ꯗꯨꯕ ꯃꯤꯇꯃꯥꯏꯌꯥ ꯂꯦꯚꯦꯜ (880.7 m, ꯄꯥꯎꯗ ꯗꯥꯏꯖꯥꯕꯈꯤꯕ ꯍꯟꯗꯥ ꯊꯦꯡꯗ) ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯤꯁꯤꯗꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯗꯤꯁꯌꯥꯔꯖ (2,240 m³/s, ꯄꯥꯎꯗ ꯗꯥꯏꯖꯥꯕꯈꯤꯕ ꯍꯟꯗꯥ ꯊꯦꯡꯗ), ꯑꯃꯁꯨꯡ WRD-ꯗꯒꯤ ꯁꯥꯟ ꯑꯃꯁꯨꯡ ꯀꯤꯡꯗ ꯗꯝꯀꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ [TBC]; ꯄꯦ ꯑꯁꯤ ꯄꯤꯔ ꯒꯣꯇ ꯁꯦꯝꯕꯥꯗ ꯀꯤꯟ, ꯒꯣꯇ ꯊꯤꯡꯕꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯄꯨꯟꯁꯤꯒꯤ ꯈꯥꯌꯊꯀꯨ, ꯄꯍꯄꯤꯡ ꯀ꯭ꯔꯣꯁꯀꯦ ꯁꯦꯝꯕꯥꯗꯒꯤ ꯈꯣꯡꯀꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯡꯃꯥꯇꯤꯡ ꯃꯍꯤ, ꯍꯥꯔꯦꯡꯒꯤ ꯍꯤꯡꯂꯗ ꯂꯝꯗꯦꯛꯄꯇꯧ ꯀꯨꯃꯈꯤꯡ ꯌꯥꯂꯦꯟꯒꯤ ꯁꯧꯊꯥꯡꯗ ꯅꯝꯁꯨꯡꯗ ꯄꯍꯝ ꯇꯥꯔ ꯌꯦꯡꯗꯦ, ꯑꯃꯁꯨꯡ ꯄꯨꯟꯁꯤꯡꯒꯤ ꯈꯥꯌꯄꯒꯤ ꯂꯝꯗꯤꯡꯁꯤꯡ; ꯍꯥꯅꯥꯔꯒꯤ ꯀꯥꯡꯂ ꯇꯥꯛꯄ ꯑꯦꯛꯁꯄꯦꯟ ꯂꯦꯚꯦꯜꯁꯤꯡꯗ ꯄꯥꯏꯞ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯐꯥꯏꯜꯁꯤꯡ; ꯒꯣꯇ ꯄꯤꯡꯕ ꯅꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯅꯥꯡꯒꯤꯡꯒꯤꯗꯁꯤꯡ, ꯀꯥꯡꯂ ꯇꯥꯛꯄ ꯊꯕꯛ ꯊꯧꯔꯥꯡꯒꯤ ꯍꯦꯛꯇꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯀꯣꯗꯤꯍꯦꯟꯅ, ꯗꯣꯛꯇꯤꯀ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯄꯒꯤ ꯂꯩꯔꯦ 1% AEP ꯂꯦꯚꯦꯜ; ꯑꯃꯁꯨꯡ ꯁꯣꯂꯤꯇꯒꯤ ꯍꯣꯠꯄ ꯄꯤꯔ ꯗꯤꯀꯤ ꯀꯣꯛꯀꯤ ꯃꯇꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯨꯏꯄꯤꯡ ꯗꯦꯚꯂꯞꯃꯦꯟꯇꯒꯤ ꯂꯦꯅꯥꯏꯗꯨꯅꯥ ꯈꯥꯏꯗꯅꯁꯤꯡ

ꯃꯥꯍꯩ	ꯌꯦꯛꯅꯕꯕꯅꯜ ꯍꯧꯖꯤꯛ ꯐꯤꯕ
ꯅꯣꯡ ꯆꯨꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯒꯥꯏꯅꯤꯡ	ꯏꯡꯕ ꯌꯦꯕ ꯃꯥꯏ ꯀꯥꯇ ꯁꯨꯍꯇꯍꯟ (IMD, Imphal (Tulihal) (A), 42623 ꯌꯦꯇꯅꯦ, IMD-ꯒꯤ *Extremes*-ꯁꯤ ꯗꯕ ꯍꯇꯤꯁꯨꯃꯒꯤ ꯂꯩꯔꯦ ꯑꯍꯅꯡꯁꯍꯡ (ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯃꯥꯍꯩ 1953–2012), ꯑꯃꯁꯨꯡ ꯍꯤꯁꯤꯌꯦꯃꯅꯦꯇꯤꯀꯥꯏ ꯂꯥꯏꯁꯃ ꯅꯍꯩꯏ (Meteorological Centre Imphal)-ꯒꯤ ꯃꯤꯂꯁꯃꯤꯡ ꯌꯃꯅꯤꯡꯂꯤꯡꯒꯤ ꯍꯁꯨꯡꯃ ꯗꯕ ꯀꯥꯇꯂꯤꯡ (ꯇꯤꯂꯨ ꯁꯅꯤꯃꯕ [TBC]); WRD-ꯒꯤ ꯁꯃꯥꯏꯒꯤ ꯀꯥꯇꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯂꯤꯒꯤ ꯅꯂꯤꯡ ꯅꯌꯦꯁꯒꯤ ꯃꯏꯅꯦ ꯂꯤꯇꯤꯂꯅꯕ ꯄꯡꯁꯦꯡꯁꯤ ꯗꯕ ꯃꯥꯂ ꯀꯥꯇ (ꯁꯦꯁꯃ ꯏꯦꯡꯃꯦꯡꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ); MASTEC-ꯅꯦ ꯂꯤꯇꯤꯂꯅꯅꯤꯕ ꯄꯡꯁꯦꯡꯁꯤ, ꯂꯦꯅꯀꯨꯏ (Saikul) ꯑꯃꯁꯨꯡ ꯇꯤꯁꯦꯂꯃ (Litan) ꯗꯕ ꯀꯥꯇꯂꯤꯡ (ꯍꯁꯨꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯥꯄꯦꯃꯃꯄꯤ ꯂꯦꯡꯕ [TBC]); ꯌꯦꯁꯥꯕꯥꯄꯦꯃ ꯕꯃꯦꯡ ꯁꯃꯥꯏꯃ ꯗꯕ CWC-ꯒꯤ ꯇꯥꯒꯥꯏ ꯍꯦꯅꯤꯁꯃꯤꯡ ꯂꯦꯅꯂ; NHPC ꯑꯃꯁꯨꯡ CEA-ꯒꯤ ꯅꯦꯡꯁꯦꯡ ꯇꯥꯒꯥꯏꯂꯤꯡ; ꯄꯅꯦꯇ 2.3.6(c)(ii)-ꯅꯦ ꯇꯤꯃꯤꯕꯤꯍ ꯁꯅꯥꯂꯒꯤꯃꯍꯡ ꯂꯤꯇꯤꯂꯅꯕ ꯍꯌ ꯐꯡꯕ ꯍꯏꯍꯃ ꯕꯃꯦꯡ ꯁꯅꯥꯂꯃ ꯗꯕ IMD ꯂꯁꯥꯂꯂꯤꯡ; ꯑꯃꯁꯨꯡ IMC, ꯅꯍꯩꯏ ꯂꯍꯃꯂ ꯂꯤꯁꯤ ꯇꯤꯍꯤꯁꯥꯃ, LDA, MSDMA ꯅꯂꯃꯒꯤ ꯇꯍꯏꯁꯂꯄꯤꯃꯍꯡ ꯁꯃꯁꯦꯇ ꯁꯦꯃꯕ ꯏꯅꯃ ꯍꯥꯅꯥꯇꯍꯥꯂ ꯂꯤꯂꯁꯥꯍꯅꯦ ꯐꯍꯇꯤꯕ ꯀꯥꯇ ꯅꯂꯃꯒꯤ ꯂꯥꯂꯂꯃ ꯑꯍꯍꯡ [TBC]) ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡꯒꯤ ꯇꯥꯒꯥꯏꯒꯤ ꯃꯥꯄꯦꯃꯃꯂꯤꯡ, 28–31 ꯍꯥ 2024 (ꯂꯦꯅꯡꯇꯦꯂ ꯃꯥꯍꯏ: 29 ꯍꯥꯃ ꯍꯤꯁꯐꯦꯡꯃ ꯅꯍꯩꯏ ꯁꯃꯥꯏ ꯍꯂꯤꯒꯤ ꯄꯅꯌꯥꯂ ꯏꯅꯃ ꯇꯥꯒꯥꯏ 788.400 m-ꯒꯤ ꯍꯐꯡꯁ ꯑꯃꯁꯨꯡ ꯇꯤꯇꯦꯡꯃ 782.250 m-ꯃ, ꯑꯃꯁꯨꯡ ꯅꯐꯅꯃ ꯍꯅꯤꯁꯨꯃ ꯁꯃꯥꯏ 768.640 m-ꯃ; ꯁꯂ ꯄꯡꯁ 18; 30 ꯍꯥꯒꯤ ꯍꯤꯅꯤꯂꯁꯃꯒꯤ ꯍꯂꯤꯡ ꯐꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ ꯍꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯁꯍ 24,265 ꯂꯦꯡꯅꯤ, ꯅꯂꯃꯒꯤ 31 ꯍꯥꯒꯤ ꯃꯤꯇꯤꯏ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯂꯁꯃ ꯍꯥꯅꯥꯇꯍꯥꯂꯂ ꯃꯤꯁꯃꯂꯍꯥꯂꯂꯄꯤ ꯃꯤꯁꯦꯃꯂ ꯍꯁꯨꯡ ꯅꯂꯅ ꯍꯤ 1,26,950, ꯗꯄꯅ 255 ꯑꯃꯁꯨꯡ ꯁꯍ 16,364, ꯁꯍꯅꯍꯡ ꯁꯦꯁꯃ ꯏꯦꯡꯃꯦꯡꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ; ꯐꯃꯦꯡ ꯑꯂꯤꯒꯤ IMD-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕ ꯏꯡꯅꯤꯃꯥ), 30 ꯍꯥ–ꯇꯂ 2025 (30–31 ꯍꯥꯃ ꯄꯡꯁꯦꯡꯁꯤ ꯁꯨꯡ 24-ꯃ 123 mm ꯑꯃꯁꯨꯡ ꯁꯨꯡ 72-ꯃ 175 mm ꯆꯃꯕꯒꯤ ꯍꯁꯨꯡꯃ ꯂꯤꯡꯇꯍ, ꯄꯐꯡ, ꯕꯂꯤꯅꯦꯡ ꯑꯃꯁꯨꯡ ꯅꯆ ꯌꯥꯄꯦꯂꯃ ꯅꯍꯩꯏ ꯁꯃꯥꯏꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯏꯍ ꯍꯃꯤꯃ ꯅꯍꯕꯏ ꯁꯃꯥꯏꯒꯤ ꯁꯂ ꯄꯡꯁꯂꯤꯡ, ꯁꯦꯁꯃ ꯏꯦꯡꯃꯦꯡꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ; ꯅꯍꯩꯏꯒꯤ IMD-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕ ꯏꯡꯅꯤꯃꯥ), ꯂꯥꯁꯁꯥꯍꯕꯃ 2025 (15 ꯂꯥꯁꯁꯥꯍꯕꯃꯃ ꯇꯤꯇꯦꯡꯃ ꯅꯍꯩꯏ ꯁꯃꯥꯏ 783.250 m-ꯃ ꯑꯃꯁꯨꯡ ꯅꯐꯅꯃ ꯍꯅꯤꯁꯨꯃ ꯁꯃꯥꯏ 770.05 m-ꯃ, ꯑꯅꯤꯍꯡ ꯍꯅꯦꯌꯒꯤ ꯏꯦꯡꯃꯦꯡꯅꯕ ꯄꯅꯌꯥꯂ ꯏꯅꯃ ꯇꯥꯒꯥꯏꯒꯤ ꯍꯐꯡꯁ, ꯑꯃꯁꯨꯡ ꯄꯂꯥꯁꯃꯤ ꯑꯌꯦꯡ ꯗꯄꯅꯃ ꯅꯃꯤꯏ ꯁꯃꯥꯏꯒꯤ ꯁꯂ ꯄꯡꯁ ꯑꯍ, ꯁꯦꯁꯃ ꯏꯦꯡꯃꯦꯡꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ; ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯒꯥꯏꯁ ꯑꯍꯂꯁ ꯏꯡꯅꯤꯃꯥ), ꯇꯦꯅꯒꯤ ꯑꯃꯦꯅꯕ–ꯑꯒꯂꯂ 2015 (23–27 ꯇꯦꯅꯃ ꯅꯍꯩꯏ ꯌꯥꯂꯂꯁ ꯅꯦꯃꯍꯥꯏꯃꯒꯤ 46% ꯄꯂꯅꯦ ꯅꯣꯡ ꯆꯅꯤ, 1 ꯑꯒꯂꯂꯁ ꯍꯁꯤꯐꯥꯏ ꯃꯤꯇꯃꯒꯦꯌꯃ 876 m-ꯃ ꯗꯅꯤ ꯑꯃꯁꯨꯡ ꯂꯁꯂꯄꯤ ꯃꯥꯒꯥꯇꯒꯤ ꯑꯥꯂꯁꯤꯍꯥꯂ ꯑꯍꯒꯤ ꯍꯁꯨꯡ ꯅꯂꯅ 3 ꯑꯒꯂꯂ ꯏꯦꯁꯕ ꯍꯤ 5 ꯅꯅ ꯃꯦꯍ ꯍꯏꯍ ꯐꯃꯦꯡꯅꯤ, ꯁꯦꯁꯃ ꯏꯦꯡꯃꯦꯡꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ; ꯀꯥꯇꯒꯤ ꯒꯥꯏꯁ ꯑꯍꯂꯁ ꯏꯡꯅꯤꯃꯥ) ꯑꯃꯁꯨꯡ ꯇꯦꯅ–ꯑꯒꯂꯂ 1989 (30 ꯇꯦꯅꯃ ꯅꯍꯩꯏ (ꯁꯇꯤꯄꯏ)-ꯃ 158.6 mm, ꯂꯁꯥꯂꯂ ꯑꯃꯒꯤ ꯁꯨꯡ 24-ꯒꯤ ꯃꯥꯄꯦꯃꯃ, 28 ꯇꯦꯅꯒꯤ 1 ꯑꯒꯂꯂ ꯏꯦꯁꯕ ꯇꯍꯤꯂ ꯆꯃꯤꯡꯒꯤ ꯅꯣꯡ ꯆꯃꯕꯒꯤ ꯍꯁꯨꯡꯃ, ꯐ ꯑꯃꯃ ꯅꯍꯩꯏꯃ 461.9 mm ꯑꯃꯁꯨꯡ ꯄꯡꯁꯦꯡꯁꯤ 617.6 mm-ꯒꯤ ꯅꯦꯌꯅꯦ, ꯁꯂ ꯄꯡꯁ 40 ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡ ꯅꯌꯦꯁ ꯅꯦꯡꯅꯤꯕ ꯗꯄꯅ 361, IMD ꯑꯃꯁꯨꯡ MASTEC) ꯐꯃꯦꯡꯂꯤꯡꯒꯤ ꯃꯥꯄꯦꯃꯃꯂꯤꯡ ꯌꯦꯇꯅꯦ
ꯅꯂꯤꯡ ꯅꯌꯦꯁꯒꯤ ꯆꯂꯅꯦꯅ	ꯍꯍꯤꯡꯒꯤ ꯐꯃꯦꯡꯂꯤꯡꯃꯒꯤ ꯂꯃꯒꯥ ꯁꯦꯃꯕ ꯅꯂꯤꯡ ꯅꯌꯦꯁꯒꯤ ꯍꯃꯦꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯁ ꯁꯦꯃꯕ ꯅꯂꯤꯡ ꯅꯌꯦꯁꯒꯤ ꯑꯥꯂꯂꯁꯥꯂꯂꯤꯡ, ꯁꯕꯇꯤꯡ ꯃꯤꯁꯦꯃꯂꯂꯤꯡ ꯌꯦꯇꯅꯦ
ꯇꯥꯂꯃ ꯆꯇ	ꯄꯇꯤꯡꯄꯤ ꯇꯥꯂꯃ ꯆꯇ ꯑꯃꯁꯨꯡ ꯅꯍꯁꯃꯒꯤꯌꯂꯇꯥꯂ (imperviousness); ꯑꯅꯂꯒꯤ ꯍꯅꯃ ꯗꯕ ꯍꯂꯁꯃ ꯁꯇꯦꯂꯃꯒꯤ ꯍꯐꯡꯒꯤ ꯇꯥꯂꯃ ꯆꯇ
ꯗꯍꯅ ꯑꯃꯁꯨꯡ ꯗꯍꯅꯒꯤ ꯍꯅꯒꯤ ꯅꯂꯤꯡ	HSG ꯍꯥꯁ (ꯑꯄꯥꯂꯕ 3A); ꯍꯁꯍ ꯍꯁꯨꯡ ꯅꯂꯂꯕ ꯑꯌꯦꯡꯕ ꯗꯍꯅꯒꯤ ꯍꯅꯒꯤ ꯅꯂꯤꯡ; ꯑꯥꯄꯌꯤꯏꯃ ꯑꯃꯁꯨꯡ ꯃꯤꯌꯦꯃꯇ ꯇꯦꯂꯂꯤꯡ
ꯂꯤꯌꯃꯒꯤ ꯍꯃꯤ	ꯅꯡꯇꯕ ꯂꯤꯌꯥꯇ ꯄꯃꯦꯂ-ꯄꯇꯥꯡꯂꯂꯂꯤꯡ, ꯅꯦꯡꯕꯦꯂꯤꯡꯃ ꯅꯣꯡ ꯆꯃꯕ ꯍꯁꯍꯒꯤ ꯌꯥꯂꯕ (DWF), ꯑꯃꯁꯨꯡ ꯂꯦꯇꯤꯃ-ꯌꯥꯂꯂꯄꯤ ꯄꯦꯂꯁꯦꯂꯂꯤꯡ

ꯂꯂꯃꯦꯡꯅꯦ ꯁꯦꯡꯁ. 0.15 m-ꯒꯤ ꯑꯥꯡꯆꯃꯥꯂꯤ ꯑꯂꯤꯒꯤ ꯄꯄꯐꯥꯡꯇꯕ ꯍꯍꯤꯡꯒꯤ ꯆꯃꯍ ꯑꯍꯂꯁ ꯗꯁꯥ; ꯍꯥꯇꯌꯥꯏ ꯑꯂꯤꯅꯦ ꯍꯂꯤ ꯐꯍꯤ ꯍꯃꯍꯃꯤ ꯅꯍꯩꯏ ꯁꯍꯁꯦꯡꯄꯤ ꯇꯍꯃ, "ꯅꯦꯅꯃꯦꯡꯁꯦ ꯑꯥꯇꯒꯤꯌꯍꯅꯦ ꯐꯂꯇꯕ ꯌꯁ ꯍꯂꯇꯕ ꯁꯍꯁꯦꯡ ꯑꯍ … ꯅ ꯐꯡꯕꯃ ꯌꯍꯅꯦ ꯇꯥꯍꯕ ꯒꯃꯥꯃꯤꯌꯥꯂꯂ ꯑꯍꯒꯤ ꯅꯦꯌꯅꯦ" ("virtually a flat alluvium filled valley … with a very low southerly gradient") (MASTEC), ꯅꯂꯤꯡ ꯅꯌꯦꯁꯃ ꯁꯃꯥꯏꯂꯤꯡ ꯍꯅꯦꯌꯒꯤ ꯁꯂꯂꯤꯡꯒꯤ ꯍꯁꯨꯡꯃ ꯗꯕ ꯂꯄꯃꯒꯤ ꯇꯍꯃꯒꯤ ꯍꯤꯁꯃ ꯑꯍ ꯅꯂꯃꯒꯤ ꯑꯇꯤꯒꯤ ꯍꯂꯡꯃ ꯇꯥꯁꯇꯤꯕ ꯍꯏꯍꯃ, ꯇꯍꯏꯥꯁꯂ ꯑꯃꯁꯨꯡ ꯑꯌꯁꯥꯁ ꯁꯂꯂꯤꯡꯒꯤ ꯑꯄꯦꯌꯕꯃ ꯗꯕ ꯅꯦꯕꯡ ꯑꯃꯁꯨꯡ ꯁꯂꯄꯤ ꯍꯅꯦꯡꯂꯤꯡꯃ, ꯇꯥꯡꯄꯤ ꯇꯥꯒꯥꯏꯅꯦ ꯅꯂꯤꯡꯒꯤ ꯍꯅꯦꯡ ꯐꯍꯕ ꯅꯦꯡꯁꯦꯡꯄꯤ ꯍꯅꯦꯡꯁ, ꯑꯃꯁꯨꯡ ꯕꯃꯦꯡ ꯁꯃꯥꯏꯒꯤ ꯕꯥꯡꯌꯁꯃꯒꯤ ꯍꯅꯃ ꯗꯕ ꯇꯤꯃꯤꯕꯤꯍ ꯁꯅꯥꯂꯃ, ꯅꯁꯦꯍꯂꯤꯡ ꯌꯍꯅꯦ ꯇꯥꯍꯕ, ꯐꯤꯡꯇꯤꯏꯇꯕ ꯒꯥꯂ ꯑꯍꯅꯦ ꯍꯂꯤꯒꯤ ꯍꯁꯨꯡꯃ ꯗꯕ ꯇꯍꯃ ꯅꯂꯤꯡ ꯇꯥꯁꯄꯂꯕ, ꯑꯃꯁꯨꯡ ꯌꯡꯅꯦ ꯂꯕ ꯇꯍꯕꯤ, ꯁꯂ ꯅꯂꯃꯒꯤ ꯐꯃꯦꯡꯅꯤꯕ ꯏꯤꯏ ꯑꯍꯅꯦ ꯁꯦꯁꯂ ꯑꯍꯒꯤ ꯂꯃꯡ ꯑꯍꯃꯒꯤ ꯑꯌꯁꯥꯁ ꯂꯃꯡ ꯑꯍꯃ ꯅꯂꯤꯡ ꯇꯥꯂꯐꯡꯁ ꯑꯃ ꯄꯡꯄꯂꯕ ꯌꯕ ꯍꯏꯍꯃ, ꯗꯍꯅꯒꯤ ꯇꯥꯒꯥꯏꯃ ꯑꯁꯤꯡꯁ ꯑꯃꯦꯂꯕ ꯑꯍꯅꯦ ꯅꯂꯤꯡ ꯅꯌꯦꯁꯒꯤ ꯍꯅꯦꯡ ꯑꯃ ꯌꯍꯅꯦ ꯅꯁꯅꯦ ꯌꯂꯄꯏꯇꯤ, ꯑꯃꯁꯨꯡ BSMP-ꯃꯒꯤ ꯅꯦꯡꯁ 1% ꯑꯥꯡꯂꯁꯥꯂꯂꯅꯦ ꯏꯅꯦꯃ ꯇꯥꯒꯥꯏꯂꯤꯡ (ꯂꯃꯡ 6) ꯑꯃꯁꯨꯡ ꯂꯥꯂꯕꯥꯡꯂꯤꯡ (setback) (ꯂꯃꯡ 7) ꯐꯍꯍꯤ॥ ꯍꯍꯤꯡꯒꯤ ꯅꯂꯤꯡ ꯅꯌꯦꯁꯒꯤ ꯍꯃꯦꯡꯂꯤꯡ ꯍꯦꯃꯥꯏꯂꯤꯡꯒꯍꯅꯦ ꯍꯃ ꯑꯦꯅ॥ 28–31 ꯍꯥ 2024 (ꯂꯦꯅꯡꯇꯦꯂ ꯃꯥꯍꯏ: 29 ꯍꯥꯃ ꯍꯤꯁꯐꯦꯡꯃ ꯅꯍꯩꯏ ꯁꯃꯥꯏ ꯍꯂꯤꯒꯤ ꯄꯅꯌꯥꯂ ꯏꯅꯃ ꯇꯥꯒꯥꯏ 788.400 m-ꯒꯤ ꯍꯐꯡꯁ ꯑꯃꯁꯨꯡ ꯇꯤꯇꯦꯡꯃ 782.250 m-ꯃ, ꯑꯃꯁꯨꯡ ꯅꯐꯅꯃ ꯍꯅꯤꯁꯨꯃ ꯁꯃꯥꯏ 768.640 m-ꯃ; ꯁꯂ ꯄꯡꯁ 18; 30 ꯍꯥꯒꯤ ꯍꯤꯅꯤꯂꯁꯃꯒꯤ ꯍꯂꯤꯡ ꯐꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ ꯍꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯁꯍ 24,265 ꯂꯦꯡꯅꯤ, ꯅꯂꯃꯒꯤ 31 ꯍꯥꯒꯤ ꯃꯤꯇꯤꯏ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯂꯁꯃ ꯍꯥꯅꯥꯇꯍꯥꯂꯂ ꯃꯤꯁꯃꯂꯍꯥꯂꯂꯄꯤ ꯃꯤꯁꯦꯃꯂ ꯍꯁꯨꯡ ꯅꯂꯅ ꯍꯤ 1,26,950, ꯗꯄꯅ 255 ꯑꯃꯁꯨꯡ ꯁꯍ 16,364, ꯁꯍꯅꯍꯡ ꯁꯦꯁꯃ ꯏꯦꯡꯃꯦꯡꯅꯤꯕ ꯍꯁꯨꯡ ꯅꯂꯅ; ꯐꯃꯦꯡ ꯑꯂꯤꯒꯤ IMD-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕ ꯏꯡꯅꯤꯃꯥ), 30 ꯍꯥ–ꯇꯂ 2025 (30–31 ꯍꯥꯃ ꯄꯡꯁꯦꯡꯁꯤ ꯁꯨꯡ 24-

ꯗ 123 mm ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ 72-ꯗ 175 mm ꯌꯥꯝꯅꯥ ꯍꯦꯟꯅꯥ ꯂꯩꯔꯝꯃꯤ, ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯁꯨꯡ ꯊꯨꯅ ꯌꯥꯝꯅꯥ ꯅꯥꯏꯗꯨꯅ ꯌꯧꯔꯛꯄꯥ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯍꯦꯅꯒꯠꯂꯛꯄꯥ ꯌꯧꯕꯒꯤ ꯃꯇꯝ ꯆꯨꯡꯅꯕꯗꯤ, ꯃꯁꯤꯅꯥ ꯈꯨꯗꯣꯡꯆꯥꯕꯥ ꯍꯦꯟꯅꯥ ꯅꯪꯏ; ꯅꯍꯥꯏꯒꯤ IMD-ꯒꯤ ꯗꯥꯇꯥ ꯌꯥꯝꯅꯥ ꯈꯥꯡꯅꯗꯦ),

ꯂꯃꯗꯝꯁꯤꯡ 2025 (15 ꯂꯃꯗꯝꯁꯤꯡꯗ ꯆꯠꯄꯥꯗ ꯅꯍꯥꯏ ꯌꯧꯕ 783.250 m-ꯗ ꯑꯃꯁꯨꯡ ꯅꯊꯛꯅ ꯍꯧꯔꯀꯄ ꯌꯧꯕ 770.05 m-ꯗ,

ꯑꯀꯤꯍꯥꯏ ꯍꯅꯥꯔꯒꯤ ꯈꯥꯗꯥꯏꯗꯨꯅ ꯃꯅꯥꯜꯂꯣꯟ ꯈꯨꯗꯣꯡ ꯆꯥꯡ...

ꯌꯧꯔꯛꯄ ꯑꯃꯁꯨꯡ ꯑꯍꯦ, ꯃꯁꯤꯅꯥ ꯈꯨꯗꯣꯡꯆꯥꯕꯥ ꯍꯦꯟꯅꯥ ꯅꯪꯏ; ꯗꯥꯇꯥ ꯌꯥꯝꯅꯥ ꯀꯣꯟꯅꯥ ꯑꯍꯣꯡꯕ ꯈꯪꯅꯗꯦ), ꯂꯩꯔꯕꯒꯤ ꯑꯣꯏꯕ–ꯑꯣꯠꯂꯣꯟ 2015 (23–27

ꯂꯩꯔꯕꯗ ꯅꯍꯥꯏ ꯌꯧꯔꯛꯄ ꯗꯣꯍꯟꯗꯒꯤ 46% ꯃꯇꯦꯡ ꯗꯥꯇꯥ ꯌꯥꯝꯂꯦ, 1 ꯑꯣꯠꯂꯣꯟꯗ ꯍꯤꯡꯕ ꯑꯃꯁꯨꯡ 876 m-ꯗ ꯆꯠꯂꯦ ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯅꯪꯏ 3 ꯑꯣꯠꯂꯣꯟ ꯈꯨꯗꯣꯡ ꯍꯦ 5 ꯆꯥꯅ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯊꯥꯗꯣꯛꯂꯦ, ꯃꯁꯤꯅꯥ ꯈꯨꯗꯣꯡꯆꯥꯕꯥ ꯍꯦꯟꯅꯥ ꯅꯪꯏ; ꯄꯨꯋꯥꯔꯤ ꯀꯣꯟꯅꯥ ꯑꯍꯣꯡꯕ ꯈꯪꯅꯗꯦ) ꯑꯃꯁꯨꯡ ꯂꯩꯔꯕ–ꯑꯣꯠꯂꯣꯟ 1989 (30 ꯂꯩꯔꯕꯗ ꯅꯍꯥꯏ (ꯌꯨꯇꯤꯃꯦꯟ)-ꯗ 158.6 mm, ꯂꯝꯂꯥ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ 24-ꯒꯤ ꯑꯃꯁꯨꯡ, 28 ꯂꯩꯔꯕꯗꯒꯤ 1 ꯑꯣꯠꯂꯣꯟ ꯈꯨꯗꯣꯡ ꯅꯍꯥꯏꯒꯤ ꯌꯧꯕꯒꯤ ꯗꯥꯇꯥ ꯌꯥꯝꯅꯥ, ꯊꯧ ꯑꯃꯁꯨꯡ ꯅꯍꯥꯏꯗ 461.9 mm ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ 617.6 mm-ꯒꯤ ꯆꯥꯎꯔꯦ, ꯑꯃꯁꯨꯡ 40 ꯑꯃꯁꯨꯡ ꯅꯣꯡꯁꯥꯡ ꯆꯨꯝꯗꯦ 361, IMD ꯑꯃꯁꯨꯡ MASTEC) ꯊꯧꯗꯥꯡꯁꯤꯡ ꯑꯣꯏ ꯍꯧꯔꯀꯄꯗ ꯆꯠꯕ ꯅꯨꯡꯁꯤꯕꯒꯤ ꯈꯕ ꯃꯇꯦꯡꯄꯥꯡ ꯗꯥꯏꯔꯤ, ꯑꯃꯁꯨꯡ ꯌꯨꯝꯕꯥꯝ ꯃꯔꯝ ꯈꯥꯏꯗꯣꯛꯂꯤꯕ, ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯑꯀꯅꯕ ꯆꯠꯄꯥ ꯍꯤꯡꯂꯤꯕꯒꯤ ꯑꯃꯥꯡꯗꯣꯛꯄ ꯆꯠꯄ, ꯍꯅꯥꯔ ꯍꯦꯅꯒꯠꯂꯀꯄ ꯅꯥꯍꯧꯔꯤꯕ ꯇꯩ꯫

11.6 ꯆꯥꯎꯕ ꯑꯣꯏꯕ ꯂꯃꯖꯤꯡꯕꯁꯤꯡ

11.6.1 BSMP ꯌꯥꯝꯅꯥ ꯍꯦꯟꯅꯥ ꯑꯀꯅꯕ ꯂꯩꯍꯧꯔꯤꯕ ꯍꯦꯛꯇꯥ ꯌꯥꯕ ꯆꯥꯎꯕ ꯑꯣꯏꯕ ꯂꯃꯖꯤꯡꯕꯁꯤꯡ ꯆꯠꯅꯕꯤ꯫ BSMP ꯑꯍꯦ ꯃꯇꯦꯡ ꯌꯥꯝꯅꯥ ꯆꯥꯎꯕꯁꯤꯡ ꯆꯠꯕ ꯂꯩꯅ꯫

ꯇꯥꯕꯜ 11.2 — ꯂꯩꯍꯧꯔꯤꯕ ꯍꯦꯛꯇꯥ ꯌꯥꯕ ꯆꯥꯎꯕ ꯑꯣꯏꯕ ꯂꯃꯖꯤꯡꯕꯁꯤꯡ

ꯑꯆꯤꯍꯥꯏ	ꯂꯩꯍꯧꯔꯤꯕ ꯍꯦꯛꯇꯥ ꯌꯥꯕ ꯆꯥꯎꯕ ꯑꯣꯏꯕ ꯂꯃꯖꯤꯡꯕ
ꯍꯅꯆꯤ ꯂꯩꯍꯧꯔꯦꯟ	ꯂꯃꯥꯏ 6-ꯒꯤ ꯗꯤꯖꯥꯏꯟ AEP (ꯇꯥꯕꯜ 6.1)
ꯍꯦ ꯆꯠꯕ ꯕꯤꯅꯗꯤꯡꯁꯤꯡ	1% AEP (100-yr) ꯊꯧꯗꯥꯡ ꯈꯨꯗꯣꯡ ꯆꯥꯎꯕꯒꯤ ꯍꯧꯗꯥꯡ ꯅꯣꯡꯁꯥꯡ ꯅꯣꯡꯁꯥ ꯆꯨꯝꯗꯣꯛꯅꯕ
ꯃꯊꯤꯟꯃꯥꯏ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡ (ꯃꯦꯗꯤꯀꯦꯂꯁꯤꯡ, ꯅꯍꯥꯏꯇꯦꯡꯒꯤ ꯂꯃꯖꯤꯡꯕꯁꯤꯡ, ꯂꯕꯂꯣꯟꯂꯥꯡꯁꯤꯡ, ꯅꯣꯡꯁꯥꯡ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯤꯕꯒꯤ ꯑꯆꯦꯡꯕꯁꯤꯡ)	0.2% AEP (500-yr) ꯊꯧꯗꯥꯡ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯁꯥꯡ ꯅꯣꯡꯁꯥ ꯆꯨꯝꯗꯣꯛꯅꯕ; 1% AEP ꯊꯧꯗꯥꯡ ꯌꯥꯕꯇꯥꯝꯒꯤ ꯇꯦꯕꯤ ꯌꯥꯝꯅ ꯂꯩꯕ
ꯅꯀꯥꯂꯥꯟꯂꯣꯟꯒꯤ ꯆꯦꯛꯁꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥꯏꯔꯕ ꯆꯦꯛꯁꯤꯡꯁꯤꯡ	1% AEP ꯊꯧꯗꯥꯡ ꯌꯥꯝꯅ ꯂꯩꯕ (ꯃꯆꯥꯏꯗ ꯃꯆꯥꯂ H2 ꯆꯥꯏꯕꯒꯤ ꯍꯦꯟꯅꯒꯤ ꯈꯕ, ꯂꯃꯥꯏ 6)
ꯅꯣꯡꯁꯥꯡ ꯆꯥꯎꯕ ꯑꯃꯥ ꯌꯥꯎꯊꯣꯛꯄꯒꯤ ꯍꯥꯏ	10% AEP (10-yr) ꯊꯧꯗꯥꯡ ꯗꯥꯇꯥ ꯆꯥꯎꯈꯕ ꯍꯦꯟꯅꯥꯗ **ꯑꯃꯁꯨꯡ** 6-ꯒꯤ ꯍꯤꯡꯕꯗ ꯆꯦꯛꯁꯤꯡꯁꯤꯡꯗꯒꯤ ꯆꯠꯍꯅꯒꯤ ꯅꯣꯡꯁꯥꯡ ꯆꯠꯊꯣꯛꯄꯗꯕ
ꯑꯍꯥꯟꯕꯒꯤ ꯂꯝꯕꯥꯛ	ꯅꯕꯅꯗꯒꯤ ꯑꯃꯆꯕ ꯈꯣꯕ ꯂꯩꯕ ꯂꯃꯖꯤꯡꯕ ꯂꯩꯗꯕꯍꯧꯂꯨꯅ ꯍꯥꯇꯦ ꯇꯥꯕꯒꯤ, ꯕꯥꯂꯣꯏꯗ MWL-ꯒꯤ ꯍꯦꯟꯅꯥ ꯅꯣꯡꯁꯥꯡ ꯅꯣꯡꯁꯥꯒꯤ ꯂꯝꯕꯥꯛ ꯆꯥꯏ ꯑꯅꯥꯏ ꯍꯤꯡꯃꯥꯛꯄꯗꯕ
ꯑꯣꯏꯕꯈꯤꯡꯁꯤꯡ	ꯂꯃꯥꯏ 5-ꯒꯤ ꯆꯅꯥꯏ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯈꯤꯡ ꯊꯦꯡꯕ ꯃꯂꯣꯟꯒꯤ ꯍꯦꯟꯅꯥ ꯊꯕꯇꯥ ꯌꯥꯕ ꯄꯥꯕ

ꯂꯥꯏꯗꯥꯡꯒꯤ ꯌꯥꯊꯪ. ꯕꯤꯅꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯁꯤꯒꯤ ꯆꯥꯎꯕꯁꯤꯡ ꯑꯣꯏ ꯂꯃꯥꯏ 6-ꯒꯤ ꯑꯃꯁꯨꯡꯇꯤ, ꯍꯥꯏꯍꯦ ꯑꯃꯁꯨꯡꯒꯤ ꯕꯂꯣꯏꯒꯤ ꯑꯆꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯅꯥꯏꯃꯤ ꯗꯤꯖꯥꯏꯟꯁꯤꯡꯒꯤ ꯍꯦꯟ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡ ꯊꯥꯛꯂꯤ꯫ ꯃꯊꯤꯟꯃꯥꯏ ꯈꯨꯗꯣꯡꯆꯥꯕꯁꯤꯡꯒꯤꯗꯃꯛ 0.2% AEP, ꯅꯣꯡꯁꯥꯡ ꯆꯥꯎꯕ ꯌꯥꯎꯊꯣꯛꯄꯒꯤ ꯑꯃꯁꯨꯡ 6-ꯒꯤ ꯍꯥꯏ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯟꯕꯒꯤ ꯂꯝꯕꯥꯛꯀꯤꯗꯃꯛ ꯆꯥꯏ ꯑꯅꯥꯏ ꯍꯤꯡꯃꯥꯛꯄꯗꯕꯒꯤ ꯂꯣꯟ (no-net-loss rule) ꯑꯁꯤꯒꯤ ꯃꯊꯧꯇꯥꯛꯄ ꯍꯦꯟꯕꯒꯤ ꯌꯥꯝꯅ ꯑꯍꯣꯡꯕ ꯆꯠꯄ ꯑꯃꯁꯨꯡ ꯍꯥꯛꯆꯥꯡ ꯑꯁꯤꯗ ꯊꯥꯕꯤꯔꯤ꯫ ꯌꯥꯎꯊꯣꯛꯄꯒꯤ ꯍꯥꯏ ꯑꯁꯤꯗ ꯗꯥꯇꯥ ꯌꯥꯕꯒꯤ ꯊꯧꯗꯥꯡ ꯑꯍꯦꯒꯤ ꯍꯦꯟꯅꯥꯗ ꯍꯦꯟꯅꯥ ꯑꯃꯁꯨꯡ ꯆꯠꯄꯥ ꯍꯤꯡꯂꯤꯕꯗ ꯅꯕꯅꯗꯒꯤ ꯃꯇꯦꯡ ꯄꯨꯕ ꯑꯃꯥ ꯄꯨꯔꯤ꯫ ꯆꯥꯏ ꯑꯅꯥꯏ ꯍꯤꯡꯃꯥꯛꯄꯗꯕꯒꯤ ꯂꯣꯟ ꯑꯁꯤꯗ ꯑꯃꯥꯡꯗꯣꯛꯄ ꯇꯥꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯍꯦ ꯍꯥꯏꯕ ꯇꯥꯕꯒꯤ ꯂꯝꯕꯥꯛ ꯍꯤꯡꯅꯕ ꯑꯃꯥ ꯄꯨꯔꯤ꯫ ꯍꯧꯔꯀꯄꯒꯤ ꯂꯝꯕꯥꯛ ꯑꯣꯏ ꯑꯍꯥꯟꯕꯁꯤꯡꯗꯒꯤ ꯃꯇꯦꯡ ꯆꯠꯇꯥꯕ, ꯍꯤꯒꯤ ꯑꯆꯦꯡꯕꯁꯤꯡ, ꯍꯤꯒꯤ ꯑꯍꯥꯟꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯒꯤ ꯆꯠꯄꯥ ꯇꯩ; ꯍꯤꯗ ꯅꯥꯏꯒꯤꯂꯥꯡꯒꯤ ꯑꯍꯥꯟꯕꯒꯤ ꯃꯂꯃꯗꯁꯤꯡ (tank cascades) ꯆꯠꯄ꯫ ꯆꯥꯏꯕꯥꯏ ꯍꯧꯔꯀꯄ ꯆꯥꯏꯕꯥ ꯆꯥꯏ (ꯑꯍꯥꯟꯕꯥꯂꯥ) ꯑꯥꯏ, 2006 (Manipur Loktak Lake

> (Protection) Act, 2006)-ꯒꯤ ꯃꯈꯥꯗ 236.21 km² ꯌꯥꯎꯅ, "ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇ ꯂꯩꯇꯕ ꯖꯣꯟ ꯅꯠꯔꯒ ꯃꯄꯨꯡ ꯐꯥꯅ ꯉꯥꯀꯊꯣꯛꯄ ꯖꯣꯟ" ("No-Development Zone or Totally Protected Zone") ꯑꯍꯥꯅꯒꯤꯕ 70.30 km²-ꯒꯤ ꯀꯣꯔ ꯖꯣꯟ (Core Zone) ꯑꯃꯒꯥ ꯂꯣꯌꯅꯅ (ꯃꯦꯞ 3); MASTEC-ꯅ ꯃꯦꯄꯤꯡꯒꯤ ꯁꯣꯔꯁꯁꯤꯡꯒꯤ ꯇꯦꯔꯦꯟꯗ 246.72 km² ꯁꯤꯖꯤꯟꯅꯈꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯍꯥꯏꯕꯗꯥꯡꯁꯤꯡꯗ "250 km²" ꯁꯤꯖꯤꯟꯅꯈꯤ (ꯁꯣꯔꯁ ꯗꯣꯀꯨꯃꯦꯟꯇ ꯃꯇꯨꯡ ꯇꯥꯔꯦ), ꯑꯃꯁꯨꯡ ꯑꯦꯛꯇꯀꯤ ꯍꯥꯌꯕ ꯂꯩꯁꯥꯔꯤꯕꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯇꯥꯔꯦ 1983-ꯗ ꯀꯃꯤꯁꯟ ꯑꯣꯏꯅꯤꯕ ꯇꯥꯀꯄ ꯕꯦꯂꯦꯇꯦ (1979 ꯑꯃꯁꯨꯡ 1986-ꯒ ꯗꯣꯀꯨꯃꯦꯟꯇꯤ, ꯁꯣꯔꯁ ꯗꯣꯀꯨꯃꯦꯟꯇꯤꯕ ꯃꯇꯨꯡ ꯇꯥꯔꯦ) ꯃꯦꯄꯤꯡꯒꯤ ꯑꯣꯏꯔꯣꯟ ꯂꯣꯌꯅ ꯃꯤꯑꯣꯔ ꯑꯃꯒꯤ ꯃꯑꯣꯡꯗ ꯌꯥꯍꯣꯅꯂꯣ ꯍꯥꯌꯗꯦ ꯔꯤꯁꯣꯔꯁ ꯑꯣꯏꯔꯤ꯫ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯤ 23 ꯃꯥꯔꯆ 1990-ꯗ ꯔꯥꯃꯁꯥꯔ ꯁꯥꯏꯠ (Ramsar site) ꯑꯃꯥ ꯑꯣꯏꯅꯅꯦ ꯗꯤꯛꯂꯦꯌꯔ ꯇꯧꯔꯤ ꯑꯃꯁꯨꯡ 16 ꯖꯨꯟ 1993-ꯗ ꯃꯣꯟꯠꯔꯨꯛꯁ ꯔꯦꯀꯣꯔꯗ (Montreux Record)-ꯗ ꯍꯥꯞꯈꯤ (ꯁꯣꯔꯁ ꯗꯣꯀꯨꯃꯦꯟꯇꯤꯕ ꯃꯇꯨꯡ ꯇꯥꯔꯦ)꯫ 31 ꯖꯨꯂꯥꯏꯗ 2018-ꯗ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯁ ꯑꯣꯊꯣꯔꯤꯇꯤ (Manipur State Wetlands Authority)-ꯅ ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯋꯦꯠꯂꯦꯟꯗ 7-ꯒꯤ ꯃꯃꯤꯡ ꯇꯥꯀꯈꯤ, ꯖꯥꯏꯃꯦꯡ (Jaimeng), ꯀꯆꯧꯐꯨꯡ (ꯑꯆꯥꯎ ꯃꯀꯤ) (Kachouphung (Achau Maki)), ꯄꯨꯝꯂꯦꯟ ꯄꯥꯠ, ꯈꯣꯢꯖꯨ ꯄꯥꯠ, ꯂꯣꯛꯇꯥꯛ–ꯈꯨꯃꯥꯟ ꯄꯥꯠ, ꯁꯅꯥꯄꯨꯝ–ꯍꯩꯅꯥꯡ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯇꯀꯃꯨ–ꯍꯩꯅꯨꯡ ꯄꯥꯠ, ꯋꯦꯠꯂꯦꯟꯗ 71-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯣꯛꯇꯥꯛ ꯑꯃꯁꯨꯡ ꯈꯣꯢꯖꯨ, ꯄꯨꯝꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯂꯣꯛꯇꯥꯛ–ꯈꯨꯃꯥꯟ ꯄꯥꯠꯁꯤꯡꯒꯤ ꯕꯦꯁꯂꯥꯏꯟ ꯗꯣꯀꯨꯃꯦꯟꯇꯦꯁꯟ ꯗꯣꯀꯨꯃꯦꯟꯇꯦ, ꯑꯗꯨꯕꯨ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯕ ꯖꯦꯡꯕ ꯑꯦꯟꯇꯕ ꯑꯇꯣꯞꯄ (DoECC, 2025-26)꯫ 2021-ꯒꯤ SAC ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯠꯂꯁ ꯑꯁꯤꯅ 2.25 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯋꯦꯠꯂꯦꯟꯗ 132 ꯊꯤꯡꯈꯤ, ꯑꯃꯁꯨꯡ 22 ꯃꯦ 2020-ꯒꯤ ꯄꯤꯔꯝꯕꯤꯛꯇꯤꯡꯒꯤ ꯑꯦꯛꯗꯦꯛꯒꯤ ꯃꯇꯨꯡꯗ ꯅꯥꯏꯕ ꯂꯩꯆꯠ 4,000 ꯍꯦꯛ ꯇꯦꯛꯅꯣꯂꯣꯖꯤ ꯑꯣꯏꯕ, "ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ, ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯁꯔꯚꯦꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯨꯌꯥꯂꯤꯇꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ … ꯄꯦꯟꯗꯤꯡ" ("Ground truthing, engineering surveys, and quality monitoring … pending") ꯍꯥꯌꯅ (DoECC); ₹4.11 ꯀꯔꯣꯔ ꯃꯃꯜ ꯂꯥꯕ AMRUT 2.0-ꯒꯤ ꯃꯈꯥꯗ ꯁꯦꯝꯗꯣꯛ ꯁꯦꯝꯁꯤꯟꯕ ꯄꯥꯟꯇꯨꯞ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯀꯝꯄꯣꯅꯦꯟꯇꯁꯤꯡꯅ ꯑꯣꯏꯔꯤ (TPD, 2025-26)꯫ ꯂꯧꯕꯨꯛ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯃꯤ ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯇ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯅ ꯀꯟꯚꯔꯁꯟꯗꯒꯤ ꯉꯥꯀꯊꯣꯛꯂꯤ, ꯃꯦꯄꯤꯡꯒꯤ "ꯀꯟꯚꯔꯁꯟ" ("conversion")-ꯗ ꯂꯝ ꯑꯗꯨꯒꯤ "ꯇꯔꯃꯒꯤ ꯋꯥꯍꯟꯊꯣꯛꯁꯤꯡ, ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯀꯦꯅꯦꯂꯁꯤꯡ, ꯄꯨꯈꯨꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯏꯁꯤꯡ" ("drainage channels, ponds, canals, bunds and ridges") ꯌꯥꯎꯅ (ꯁꯦꯛꯁꯟ 2(c)), ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯨꯞ ꯇꯝꯗꯨꯅꯒꯤ ꯃꯥꯏꯄꯥꯛ ꯁꯤꯖꯤꯟꯅꯗꯅ ꯃꯦꯄꯤꯡꯒꯤ ꯃꯁꯛꯇ "ꯂꯧꯕꯨꯛꯁꯤꯡ ꯁꯥꯒꯠꯄꯒꯤꯗꯃꯛ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯗꯦ" ("the paddy fields cannot be used for construction") ꯍꯥꯌꯔꯤ, ꯑꯗꯨꯕꯨ ꯃꯊꯛꯇ ꯁꯤꯖꯤꯟꯅꯕ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯂꯧꯕꯨꯛꯀꯤ ꯂꯝ ꯍꯣꯡꯊꯍꯣꯡꯕꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯣꯏꯔꯤ꯫ ꯄꯥꯠ ꯇꯨꯔꯦꯜ ꯁꯥꯍꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯔꯛ–ꯂꯥꯏꯔꯛꯀꯤ, ꯇꯨꯔꯦꯜ ꯄꯨꯈꯨꯁꯤꯡꯗ ꯂꯧꯕꯨꯛꯇ ꯅꯥꯏꯕ ꯅꯤꯡꯊꯧꯒꯤ ꯂꯥꯏꯔꯛꯀꯤ ꯑꯣꯏꯒ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥꯅꯤ [TBC]꯫

11.7 ꯃꯣꯗꯦꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯅꯔꯤꯑꯣꯁꯤꯡ

11.7.1 **ꯃꯣꯗꯦꯜ.** BSMP ꯈꯨꯗꯣꯡꯆꯥꯕꯗ ꯃꯈꯥꯗ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯒꯤ ꯀꯄꯁꯤꯟ ꯑꯣꯏꯔꯕ 1D–2D ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯣꯗꯦꯜ ꯑꯁꯤ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ:

- ꯃꯅꯂꯦꯛ ꯁꯤꯁꯇꯦꯝ;
- ꯃꯥꯂꯦꯛ (ꯂꯧꯃꯅꯒꯤ ꯃꯊꯛꯇ ꯄꯥꯟꯕ) ꯁꯤꯁꯇꯦꯝ;
- ꯇꯨꯔꯦꯜ, ꯈꯨꯃꯥꯟ ꯑꯃꯁꯨꯡ ꯁꯨꯍꯥꯔꯤꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- ꯑꯦꯟꯇꯦꯗꯦꯟꯁꯤꯡ꯫

ꯊꯣꯛꯄꯁꯤꯡ ꯁꯔꯨꯛ 3 ꯃꯇꯨꯡ ꯇꯥꯔꯒꯅꯤ꯫ ꯄꯤꯔꯝꯕ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯒꯤ ꯕꯦꯁꯂꯥꯏꯅꯁꯤꯡ ꯁꯔꯨꯛ 5 ꯃꯇꯨꯡ ꯇꯥꯔꯒꯅꯤ꯫

11.7.2 **ꯗꯤꯖꯥꯏꯟ ꯏꯚꯦꯟꯇꯁꯤꯡ.** ꯃꯣꯗꯦꯜ ꯑꯁꯤ ꯁꯔꯨꯛ 2-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯏꯚꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ, ꯁꯨꯡ 24, 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯏꯚꯦꯟꯇꯁꯤꯡ ꯌꯥꯎꯅ, ꯌꯥꯝꯗꯔꯕꯗ 50%, 10%, 1% ꯑꯃꯁꯨꯡ 0.2% AEP-ꯁꯤꯡꯒꯤꯗꯃꯛ ꯍꯥꯏ ꯑꯣꯏꯒꯅꯤ꯫ ꯑꯦꯔꯤꯌꯦꯜ ꯔꯤꯗꯛꯁꯟ (areal reduction) ꯇꯦꯕꯜ 2.7.3-ꯒꯤ ꯃꯈꯥꯗ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫

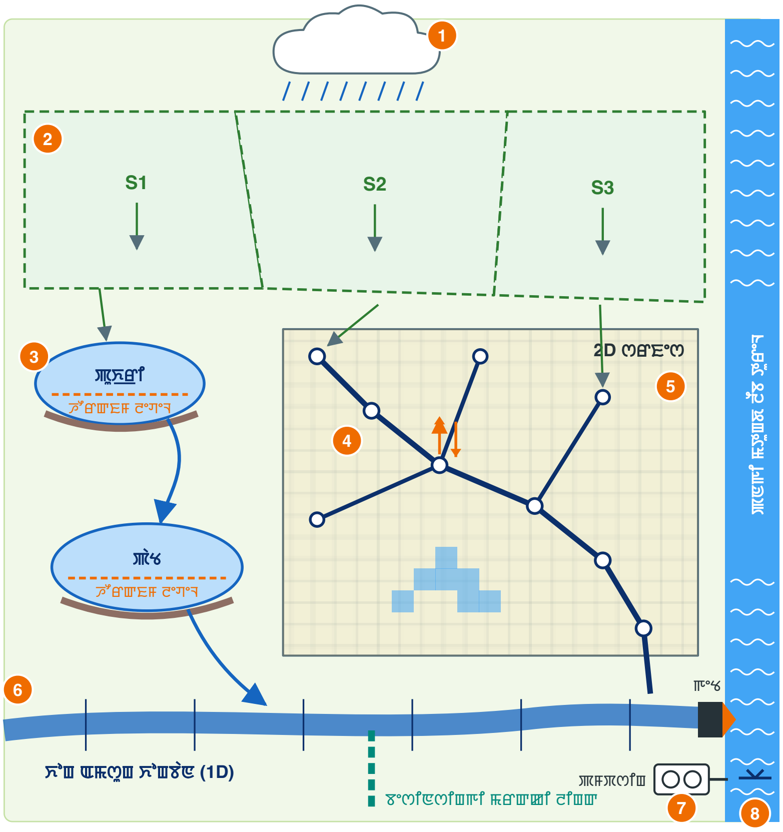
11.7.3 **ꯀꯟꯇꯤꯅ꯭ꯌꯨꯑꯁ ꯁꯤꯃꯨꯂꯦꯁꯟ (continuous simulation).** ꯁꯨꯍꯥꯔꯤꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ ꯂꯥꯕ ꯕꯦꯁꯤꯀꯁꯤꯡ ꯀꯟꯇꯤꯅ꯭ꯌꯨꯑꯁ ꯁꯤꯃꯨꯂꯦꯁꯅꯅ ꯒ ꯍꯥꯏ ꯑꯣꯏꯒꯅꯤ (ꯇꯦꯕꯜ 3.13), ꯗꯤꯁꯕ ꯌꯥꯕꯗ IMD-ꯒꯤ ꯒ꯭ꯔꯤꯗ ꯑꯣꯏꯕ ꯔꯦꯅꯐꯣꯜ ꯈꯨꯗꯣꯡꯒꯤ ꯃꯇꯨꯡ ꯗꯦꯕ ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯗꯔꯕꯗꯒꯤ ꯆꯍꯤ 30 ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯅ, ꯑꯗꯨꯒꯤ 2D-ꯒꯤ ꯑꯣꯃꯁꯤꯡꯒꯤ ꯁꯣꯔꯁꯁꯤꯡꯅ ꯗꯤꯁꯆꯥꯔꯖꯤꯡ ꯑꯣꯏꯔꯦ꯫ ꯃꯦꯄꯤꯅ ꯗꯤꯖꯥꯏꯟ ꯏꯚꯦꯟꯇꯁꯤꯡ ꯂꯥꯏꯁꯗ ꯁꯨꯍꯥꯔꯤꯁꯤꯡ ꯀꯌꯥ ꯊꯦꯡꯅꯕ, ꯑꯃꯁꯨꯡ ꯌꯥꯃꯅ ꯈꯨꯕ ꯂꯝ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯖꯤꯟꯕ ꯑꯦꯟꯇꯦꯗꯦꯟ ꯀꯌꯥ ꯌꯥꯃꯅ ꯌꯥꯕꯗꯕ ꯍꯥꯌꯕꯅꯨ ꯄꯨꯔꯤ꯫ ꯇꯦꯕꯜ 3.13.5-ꯒꯤ ꯈꯨꯠꯊꯨ ꯑꯗꯣꯃꯒꯤ ꯊꯣꯛꯄ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯍ: ꯍꯥꯏꯗ꯭ꯔꯣ ꯁꯨꯃꯗꯥꯡꯂꯣꯏꯗꯃꯛ ꯂꯅꯊꯣꯛꯍꯟꯕ ꯏꯚꯦꯟꯇ ꯃꯣꯗꯦꯜ ꯑꯁꯤ ꯍꯥꯏ ꯑꯣꯏꯅ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 11.7.1-ꯒꯤ ꯀꯄꯁꯤꯟ ꯑꯣꯏꯔꯕ 1D–2D ꯃꯣꯗꯦꯜ ꯑꯗꯨ ꯗꯤꯖꯥꯏꯟ ꯏꯚꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ ꯈꯣꯉꯃꯛ ꯍꯥꯏ ꯑꯣꯏꯅ, ꯀꯟꯇꯤꯅ꯭ꯌꯨꯑꯁ ꯍꯥꯏꯗꯦ ꯁꯤꯕ ꯁꯨꯍꯥꯔꯤꯒꯤ ꯂꯣꯌꯅꯕꯁꯤꯡꯗꯒꯤ ꯍꯟꯗꯨꯅꯦ꯫ ꯃꯁꯨꯡ ꯗꯦꯕ 1D–2D ꯃꯣꯗꯦꯂꯒꯤ ꯀꯟꯇꯤꯅ꯭ꯌꯨꯑꯁ ꯍꯥꯏ ꯑꯁꯤ ꯃꯊꯧ ꯇꯥꯏ꯫

11.7.4 **ꯁꯤꯇꯦꯂꯤꯑꯥꯁꯤꯡ.** BSMP ꯅ꯭ꯕꯤꯗꯀꯌꯥꯇꯦ ꯌꯦꯀꯕꯥꯕꯥꯅꯥ ꯀꯍꯦꯕ ꯁꯤꯂꯤꯕꯁꯤꯡ ꯀꯥꯕꯒ ꯄꯣꯟꯕꯕꯇꯤ:

- (a) **ꯐꯣꯇꯤꯌ ꯇꯣꯂꯤꯕ:** ꯐꯣꯇꯤꯌꯗꯤ ꯇꯪꯋꯕ ꯅ꯭ꯇ, ꯇꯪꯋꯌꯦꯂꯌ, ꯁ꯭ꯅꯂꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯋꯖꯥꯒꯁꯤꯡ;
- (b) **ꯀꯊꯡꯒꯤ, ꯗꯋꯄꯂꯥꯒ ꯄꯣꯕꯕ:** ꯑꯦꯅꯋꯒꯤ ꯀꯍꯦꯕ ꯇꯣꯕ ꯀꯦꯁꯄꯂ ꯁꯇꯦꯋꯒꯤ ꯀꯍꯦꯕ ꯀꯊꯡꯒꯤ ꯇꯪꯋꯕ ꯅ꯭ꯇ, ꯑꯦꯅꯋꯗꯤ ꯗꯋꯄꯂꯥꯒ ꯑꯃꯋꯣ ꯌꯦꯟꯕꯇꯦ;
- (c) **ꯀꯊꯡꯒꯤ, ꯗꯋꯄꯂꯥꯒ ꯄꯣꯂꯕ:** ꯁꯂꯌ 4-ꯒꯤ ꯑꯦꯅꯋꯗꯤ ꯗꯋꯄꯂꯥꯒꯁꯤꯡꯒꯥ ꯇꯥꯌꯇꯇꯦ ꯀꯊꯡꯒꯤ ꯇꯪꯋꯕ ꯅ꯭ꯇ;
- (d) **ꯀꯊꯡꯒꯤ, ꯁꯇꯦꯋꯒꯥ ꯇꯥꯌꯇꯇꯦ:** ꯃꯤꯇꯦꯂꯤꯑꯥ (c) ꯑꯃꯁꯨꯡ CIP-ꯒꯤ ꯊꯕꯌꯁꯤꯡ; ꯑꯃꯁꯨꯡ
- (e) **ꯗꯇꯦꯅꯀꯋ:** ꯃꯤꯇꯦꯂꯤꯑꯥ (a) ꯑꯃꯁꯨꯡ (d), ꯗꯇꯥꯇ 2.8-ꯒꯤ ꯗꯇꯦꯅꯀꯋ ꯖꯌꯄꯂꯁꯤꯡꯒꯥ ꯇꯥꯌꯇꯇꯦ, ꯐꯥꯡꯕꯥꯌꯄꯇꯦ ꯃꯤꯇꯤꯋꯇꯅ꯭ꯇꯦ: ꯀꯇꯤꯁ꯭ꯂꯒꯤꯕꯀꯌ ꯌꯦꯀꯇꯦ ꯅ꯭ꯕ ꯇꯥꯡꯒꯤ ꯁꯂꯥꯇꯌꯃꯋ ꯑꯃꯋꯣ ꯕꯤꯇꯦꯅꯋ ꯖꯌꯄꯂ ꯑꯀꯒꯥ ꯇꯥꯌꯇꯇꯦ ꯇꯣꯃꯤꯋꯅꯤꯕ, ꯃꯄꯋ ꯑꯌꯃꯋ ꯁꯇꯦꯋ ꯑꯥꯋ ꯗꯇꯦꯅꯀꯋ ꯌꯋꯇ (State Action Plan on Climate Change) ꯁꯤꯅꯤꯕ [TBC], ꯑꯃꯁꯨꯡ ꯑꯥꯖꯤꯃꯤꯌꯒꯁꯤꯡꯇꯦ ꯁꯤꯂꯇꯒꯁꯤꯡꯕ ꯁꯤꯅꯤꯕ ꯀꯊꯡꯒꯤ ꯇꯥꯡ ꯅ꯭ꯕꯒꯤ ꯀꯃꯤꯡꯃꯤꯡ ꯑꯀꯒꯥ ꯑꯀꯒꯥ ꯄꯥꯊꯋꯇꯣ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯤꯋꯇꯕ; ꯀꯇꯤꯁ꯭ꯂꯂꯕ ꯌꯐꯤ ꯅ꯭ꯕꯤꯡꯒꯤ ꯇꯥꯡ ꯅ꯭ꯕꯇꯦ 1991–2024 ꯖꯦꯁ꯭ꯂꯕ "ꯃꯄꯄꯤꯃꯄꯤꯗꯇꯤ ꯀꯂ꯭ ꯑꯥꯅꯕ ꯐꯋꯊꯂꯌꯇꯤꯕ ꯄꯂꯋꯕ ꯑꯀꯦ" ("a statistically significant downward trend") ꯁ꯭ꯂꯋꯇꯤ (Singh, 2025), ꯑꯕ꯭ꯂ꯭ꯕ 2015, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯄꯀꯁꯤꯌꯗꯤ ꯅꯃꯤꯡ ꯅꯌꯦꯁ꯭ꯂꯃꯤꯡ ꯂꯗꯥꯂꯕꯄ ꯇꯣꯕ ꯅ꯭ꯕꯅꯕꯒꯤ ꯌꯦꯁ꯭ꯂꯕꯃꯤꯡꯒꯤ ꯀꯂ꯭ꯡꯕ ꯌꯦꯁ꯭ꯂꯅ (ꯁꯦꯁ꯭ꯂꯕ ꯖꯥꯡꯕꯥꯌꯅꯤꯕ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ), ꯀꯃꯤ ꯖꯌꯄꯂꯁꯤꯡ ꯐꯋꯊꯐꯋꯇꯕꯒꯤ ꯇꯋꯄꯇꯦ ꯊꯀꯇꯤꯇꯕꯒꯤ ꯀꯂꯀ ꯑꯀꯇꯤ; ꯑꯃꯁꯨꯡ ꯃꯕ-ꯑꯥꯂꯤꯌꯦ MN-B, MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯕ ꯗꯇꯥꯇ 11.3.3-ꯒꯤ ꯐꯇꯦꯂꯕ ꯃꯗꯂꯤꯇꯤꯡ ꯑꯃꯤ ꯃꯤꯇꯦꯂꯤꯑꯥ ꯅ꯭ꯕꯤꯡꯀꯌꯄ ꯄꯣꯅ꯫

11.7.5 **ꯗꯪꯇꯤꯕ꯭ꯂꯪꯃꯋ.** ꯀꯥꯕꯒ ꯑꯃꯤ ꯗꯇꯥꯇ 3.15-ꯒꯤ ꯀꯍꯦꯕ ꯗꯪꯇꯤꯕ꯭ꯂꯋ ꯄꯣꯟꯕꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯒꯇꯤꯕꯋ ꯄꯣꯟꯕꯕꯇꯤ, ꯕꯄꯣ ꯇꯣꯕ ꯀꯖꯀꯕ 28–31 ꯀ 2024 (ꯑꯦꯅꯌꯇꯥꯋ ꯂꯪꯀꯦꯒ: 29 ꯀꯕ ꯀꯤꯂ꯭ꯊꯥꯡꯕ ꯅꯀꯖꯦꯒ ꯄ꯭ꯂꯂꯒ ꯀꯃꯤꯒꯤ ꯐꯅꯌꯃꯋ ꯖꯇꯕ ꯇꯒꯒ 788.400 m-ꯒꯤ ꯀꯊꯌꯄ ꯑꯃꯁꯨꯡ ꯇꯤꯇꯥꯡꯕ 782.250 m-ꯕ, ꯑꯃꯁꯨꯡ ꯅꯊꯅꯕ ꯀꯇꯤꯁ꯭ꯂꯂ ꯄ꯭ꯂꯂꯒ 768.640 m-ꯕ; ꯁꯋ ꯗꯌꯁ 18; 30 ꯀꯒꯤ ꯀꯤꯇꯤꯃꯄꯂꯒꯤ ꯀꯃꯤꯡ ꯊꯤꯕ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ ꯀꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯅ꯭ꯂꯀ 24,265 ꯑꯦꯌꯅꯤ, ꯇꯋꯂꯥ 31 ꯀꯒꯤ ꯂꯤꯇꯤꯖ ꯑꯃꯁꯨꯡ ꯕꯤꯇꯃꯄꯂ ꯀꯇꯇꯀꯋꯋ ꯕꯤꯁꯦꯂꯋꯀꯋꯋꯗꯤ ꯂꯤꯁꯥꯂꯋ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ ꯀꯤ 1,26,950, ꯇꯣꯗꯅ 255 ꯑꯃꯁꯨꯡ ꯅ꯭ꯂꯀ 16,364, ꯁ꯭ꯂꯀꯇꯀꯌ ꯁꯦꯁ꯭ꯂꯕ ꯖꯥꯡꯕꯥꯌꯅꯤꯕ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ; ꯊꯣꯕꯥꯌ ꯑꯃꯤꯒꯤ IMD-ꯒꯤ ꯇꯥꯡ ꯅ꯭ꯕ ꯖꯡꯅꯤꯕ), 30 ꯀ–ꯇ꯭ꯂꯋ 2025 (30–31 ꯀꯕ ꯗꯥꯡꯁꯥꯌꯁꯤꯕ ꯁ꯭ꯂꯡ 24-ꯕ 123 mm ꯑꯃꯁꯨꯡ ꯁ꯭ꯂꯡ 72-ꯕ 175 mm ꯅ꯭ꯂꯕꯒꯤ ꯀꯄ꯭ꯂꯡꯕ ꯃꯤꯡꯇꯀ, ꯐꯊꯡ, ꯕꯃꯤꯅꯥꯡ ꯑꯃꯁꯨꯡ ꯇꯅ꯭ꯂ ꯌꯪꯗꯥꯋꯕ ꯅꯀꯖꯦꯒ ꯄ꯭ꯂꯂꯒꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯖꯀ ꯀꯂꯤꯕ ꯇꯀꯕ꯭ꯂꯒ ꯄ꯭ꯂꯂꯒꯒꯤ ꯁꯋ ꯗꯌꯁꯃꯤꯡ, ꯁꯦꯁ꯭ꯂꯕ ꯖꯥꯡꯕꯥꯌꯅꯤꯕ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ; ꯅꯀꯖꯦꯒꯒꯤ IMD-ꯒꯤ ꯇꯥꯡ ꯅ꯭ꯕ ꯖꯡꯅꯤꯕ), ꯃꯁꯄꯀꯕꯂ 2025 (15 ꯃꯁꯄꯀꯕꯂꯕ ꯇꯤꯇꯥꯡꯕ ꯅꯀꯖꯦꯒ ꯄ꯭ꯂꯂꯒ 783.250 m-ꯕ ꯑꯃꯁꯨꯡ ꯅꯊꯅꯕ ꯀꯇꯤꯁ꯭ꯂꯂ ꯄ꯭ꯂꯂꯒ 770.05 m-ꯕ, ꯑꯇꯤꯀꯌ ꯀꯅꯥꯌꯒꯤ ꯖꯥꯡꯕꯥꯌꯇꯕ ꯐꯅꯌꯃꯋ ꯖꯇꯕ ꯇꯒꯒꯒꯤ ꯀꯊꯌꯄ, ꯑꯃꯁꯨꯡ ꯗꯃꯄꯂꯤ ꯑꯌꯦꯡ ꯇꯣꯗꯅꯕ ꯅꯂꯤꯒ ꯄ꯭ꯂꯂꯒꯒꯤ ꯁꯋ ꯗꯌꯁ ꯑꯀꯦ, ꯁꯦꯁ꯭ꯂꯕ ꯖꯥꯡꯕꯥꯌꯅꯤꯕ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ; ꯇꯥꯡ ꯅ꯭ꯕꯒꯤ ꯒꯒꯅ꯭ꯂ ꯑꯃꯋꯣ ꯖꯡꯅꯤꯕ), ꯇ꯭ꯂꯇꯦꯅꯒꯤ ꯑꯂꯥꯅꯕ–ꯑꯒꯃꯋ 2015 (23–27 ꯇ꯭ꯂꯇꯦꯅꯕ ꯅꯀꯖꯦꯒ ꯌꯃꯋꯄ ꯇꯥꯂꯀꯒꯕꯒꯤ 46% ꯐꯋꯇꯦ ꯇꯥꯡ ꯅ꯭ꯕꯤ, 1 ꯑꯒꯃꯋꯄ ꯀꯁꯤꯊꯒ ꯂꯤꯇꯂꯒꯥꯌꯂ 876 m-ꯕ ꯇꯣꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯄꯋꯗꯤ ꯂꯒꯂ꯭ꯒꯤ ꯑꯃꯄꯤꯀꯋ ꯑꯀꯒꯤ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ 3 ꯑꯒꯃꯋ ꯖꯦꯁ꯭ꯂꯕ ꯀꯤ 5 ꯇꯦꯅ ꯂꯥꯀ ꯀꯖꯀ ꯊꯕꯥꯌꯅꯤ, ꯁꯦꯁ꯭ꯂꯕ ꯖꯥꯡꯕꯥꯌꯅꯤꯕ ꯀꯄ꯭ꯂꯡ ꯅꯋꯇ; ꯒꯇꯒꯤ ꯒꯒꯅ꯭ꯂ ꯑꯃꯋꯣ ꯖꯡꯅꯤꯕ) ꯑꯃꯁꯨꯡ ꯇ꯭ꯂꯇꯦꯅ–ꯑꯒꯃꯋ 1989 (30 ꯇ꯭ꯂꯇꯦꯅꯕ ꯅꯀꯖꯦꯒ (ꯄ꯭ꯂꯇꯤꯐꯦꯒ)-ꯕ 158.6 mm, ꯃꯄꯃꯋ ꯑꯕ꯭ꯂꯒꯤ ꯁ꯭ꯂꯡ 24-ꯒꯤ ꯂꯗꯥꯂꯕ, 28 ꯇ꯭ꯂꯇꯦꯅꯕꯒꯤ 1 ꯑꯒꯃꯋ ꯖꯦꯁ꯭ꯂꯕ ꯂ꯭ꯀꯤꯋ ꯅ꯭ꯕꯤꯡꯒꯤ ꯇꯥꯡ ꯅ꯭ꯂꯕꯒꯤ ꯀꯄ꯭ꯂꯡꯕ, ꯊ ꯑꯕ꯭ꯂꯕ ꯅꯀꯖꯦꯒꯕ 461.9 mm ꯑꯃꯁꯨꯡ ꯗꯥꯡꯁꯥꯌꯁꯤꯕ 617.6 mm-ꯒꯥ ꯇꯥꯌꯇꯇꯦ, ꯁꯋ ꯗꯌꯁ 40 ꯑꯃꯁꯨꯡ ꯅꯃꯤꯡ ꯅꯌꯦꯁ꯭ꯂ ꯇꯦꯌꯅꯤꯕ ꯇꯣꯗꯅ 361, IMD ꯑꯃꯁꯨꯡ MASTEC) ꯊꯣꯕꯥꯌꯃꯤꯡꯒꯤ ꯀꯂ꯭ꯡꯕꯒꯤ ꯌꯦꯀꯕꯥꯕꯥꯅꯥ ꯑꯇꯤ ꯃꯤꯇꯤꯋꯇꯅ꯭ꯇꯦ꯫

BSMP [illegible]: [illegible] 11.7-[illegible] ([illegible], [illegible])



① [illegible]
[illegible] 2-[illegible], [illegible] 24, 48, 72 [illegible]; 50%, 10%, 1%, 0.2% AEP; [illegible] ([illegible] 2.7.3, 11.7.2)

② [illegible]
[illegible] 3-[illegible]; [illegible] 11.7.4-[illegible] (a)–(e) [illegible]

③ [illegible]
[illegible] FTL, MWL, [illegible] ([illegible] 11.5.1); [illegible] ([illegible] 3.13.5, 11.7.3)

④ 1D [illegible]
[illegible] ([illegible] 11.5.1)

⑤ 2D [illegible]
DEM-[illegible] ([illegible]) [illegible], 0.15 m RMSE [illegible] 1D-[illegible]

⑥ [illegible] (1D)
[illegible] ≤ 200 m-[illegible] ([illegible] 11.3.2)

⑦ [illegible]
[illegible]; [illegible] 5-[illegible]

⑧ [illegible]
[illegible], [illegible] 5 [illegible]

[illegible] ([illegible] 11.7.5)॥

[illegible] 11.2 — [illegible] 11.7-[illegible] BSMP [illegible]: [illegible], 1D [illegible], 2D [illegible], [illegible] ([illegible], [illegible])॥ [illegible] 1D–2D [illegible]॥

> **[illegible].** [illegible] (b) [illegible] (c) [illegible]॥ [illegible] (d)-[illegible]॥ [illegible] ([illegible] 4.5.4) [illegible] ([illegible] 11.8.3) [illegible]॥

11.8 [illegible]

11.8.1 **[illegible].** [illegible], [illegible] 1.2-[illegible]:

1. **[illegible]:** [illegible] (tank), [illegible] (floodplain), [illegible] (desilting) [illegible] ([illegible] 7);
2. **[illegible] (retention) [illegible]**, [illegible] (main-stem peak)-[illegible] ([illegible] 4.13);
3. [illegible] **[illegible] (conveyance)** [illegible];

4. **ꯑꯥꯎꯠꯐꯣꯜꯒꯤ ꯊꯕꯛꯁꯤꯡ:** ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ, ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ, ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ, ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ, ꯊꯧꯕꯥꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯁꯥꯃꯁꯔꯀꯤ ꯑꯁꯥꯔꯔ ꯇꯨꯔꯦꯜꯁꯤꯡꯒꯤ ꯄꯅꯦꯁꯤꯡꯒꯤ ꯁꯨꯠꯄꯡꯗ ꯂꯩꯕ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯗ ꯒꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠꯁꯤꯡ, ꯃꯍꯥꯛꯀꯤ ꯃꯁꯨꯡꯗ ꯂꯩꯕ ꯂꯦꯄꯦꯠ ꯑꯃꯁꯨꯡ ꯄꯝꯄꯤꯡ ꯑꯅꯤ ꯃꯦꯞ 5-ꯒꯤ ꯑꯥꯎꯠꯐꯣꯜ ꯊꯤꯡꯕꯒꯤ ꯁꯔꯨꯛꯁꯤꯡꯁꯤꯡ ꯂꯥꯅꯠ ꯄꯥꯡꯒꯜ (ꯆꯥꯔꯠ 5.8.5), ꯃꯍꯥꯛꯀꯤ ꯃꯅꯨꯡꯗ ꯅꯃꯐꯦꯟꯔꯨꯛ ꯂꯃꯨꯂꯤꯡ ꯌꯦꯅꯦꯜꯒꯤ ꯁꯨꯠꯄꯡꯗ ꯅꯃꯕꯨꯟꯗ ꯔꯃꯔ ꯄꯧꯕ ꯑꯃꯁꯨꯡ ꯂꯦꯄꯥꯒꯤ ꯌꯦꯅꯦꯜꯂꯤꯡ, ꯗꯒꯤ ꯂꯨꯟꯗ ꯑꯃꯁꯨꯡ ꯍꯗꯍꯂꯦꯟ ꯃꯄꯤꯟꯒꯤ ꯑꯥꯎꯠꯐꯣꯜꯂꯤꯡ ꯍꯥꯏꯗꯨꯗ; ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ ꯃꯌꯝ ꯂꯨꯅꯛꯃꯀꯨꯡ ꯂꯩꯔꯤꯕ ꯑꯁꯛ ꯑꯃꯁꯨꯡ ꯐꯨꯂꯦꯟ; ꯗꯥꯄꯨꯗꯤꯡ ꯃꯗꯥꯄ,

ꯍꯦꯔꯄꯌꯂꯤꯡ ꯁꯤꯗꯍꯦ ꯗꯥ ꯗꯣꯒꯣꯟꯒꯤ ꯃꯍꯥꯛ ꯅꯧꯕ ꯍꯥꯡꯕꯦꯂꯤꯡꯒꯤꯁꯃꯗ ꯔꯃꯔꯗ ꯑꯁꯥꯔ ꯑꯥꯎꯠꯐꯣꯜꯂꯤꯡ; ꯍꯥꯡꯕꯦꯂꯤꯡꯗ ꯔꯃꯔ ꯂꯃꯔ, ꯒꯦꯌ, ꯔꯦꯌ ꯗꯌꯄꯒꯤ ꯗꯥꯄꯨꯗꯤꯡ ꯌꯡꯗꯔ ꯃꯀꯃꯁ ꯁꯃꯁ ꯑꯃꯁꯨꯡ ꯃꯥꯌꯔꯒꯤꯁꯃ ꯂꯧꯁꯤꯅꯦꯂꯤꯡ; ꯌꯤꯡꯒꯤ ꯍꯥꯡꯂꯤꯡꯗ ꯄꯃꯔꯗꯄꯥꯡ ꯗꯃꯁ ꯌꯅꯕ ꯃꯀꯃꯁ ꯂꯤꯅꯌ ꯄꯨꯔꯦꯔꯂꯤꯡ (silt trap) ꯑꯃꯁꯨꯡ ꯁꯦꯕꯔꯤꯂ ꯔꯦꯗꯂꯤꯡ; ꯌꯤꯡꯒꯤ ꯄꯦꯁꯦꯂꯤꯡꯒꯤ ꯍꯥꯡꯕꯦꯂꯤꯡꯗ ꯍꯥꯡ ꯑꯃꯁ ꯌꯧꯕ ꯃꯀꯃꯁ ꯁꯔꯥꯔ ꯂꯄꯔꯗꯌꯔꯂꯤꯡ, ꯄꯨꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯔꯅꯤ ꯁꯤꯂꯤꯔꯦꯄꯔꯂꯤꯡ, ꯁꯗꯍꯥꯗꯄꯕ ꯗꯔꯥꯃ ꯑꯃꯁ

ꯀꯧꯁꯧꯁꯂ ꯗꯌꯄꯦ; ꯔꯤꯌ, ꯗꯥꯄꯗ ꯗꯌꯔꯒꯤ CPCB-ꯒꯤ ꯅꯤꯂꯌꯄ ꯅꯧꯕ ꯄꯨꯔꯦꯜꯒꯤ ꯂꯄꯨꯗ ꯑꯃꯁ ꯁꯥꯔꯗꯔ ꯑꯥꯎꯠꯐꯣꯜ ꯄꯁꯤꯡꯃꯗꯀꯤ ꯃꯃꯤꯡꯁ ꯗꯥꯡ ꯄꯨꯁꯕ ꯃꯄꯃꯒꯤ ꯌꯦꯍꯕꯒꯤ ꯍꯍꯄꯔꯂꯦꯔꯂꯍ ꯑꯃꯁꯨꯡ ꯂꯀꯔꯤꯍꯤꯡ (ꯃꯦꯞ 8, ꯆꯥꯔꯠ 8.9); ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯒꯦꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯃꯔꯂꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯧꯕꯟ (ꯃꯔꯤꯁꯦꯟ) ꯁꯦꯃꯒꯤ ꯔꯤꯗꯤꯗꯂꯤꯡꯒꯤ ꯑꯥꯔꯔꯦꯄꯤꯡ ꯂꯟꯂꯤꯡ, WRD-ꯒꯥ ꯌꯦꯍꯕ;

5. ꯁꯕꯛꯂꯤꯡꯗ ꯗꯦꯒꯦꯟ ꯑꯥꯖ ꯂꯔꯒꯤꯂ ꯖꯡꯄꯍꯕ ꯁꯃꯁꯕ ꯃꯖꯃꯁ **ꯁꯣꯂꯤꯗ-ꯋꯦꯁ꯭ꯠ-ꯗꯦꯒꯦꯟꯒꯤ ꯁꯗꯁꯥꯗꯔ**; ꯑꯃꯁꯨꯡ

6. **ꯂꯄꯔꯗꯌꯔ ꯗꯌꯄꯕ ꯁꯧꯑꯥꯡꯂꯤꯡ:** ꯏꯂꯤꯡ ꯏꯌꯦꯁꯒꯤ ꯌꯦꯔꯗꯤꯡ (ꯁꯨꯁꯃ ꯑꯥꯏꯗ IMD-ꯒꯤ ꯁꯤꯂꯄꯔꯤꯡꯑꯤ ꯗꯥꯡ ꯁꯨꯕꯒꯤ ꯌꯦꯔꯗꯤꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯄꯤꯌꯥꯔꯥꯗꯥꯗꯤꯀꯦ ꯂꯦꯍꯄꯔ ꯏꯃꯖꯦꯟꯁꯒꯤ ꯗꯦꯁꯀꯂꯌꯂꯤꯡ, ꯃꯤꯂꯁꯥꯡ, ꯗꯤꯗꯥꯡ, ꯏꯔꯤꯜꯕꯨꯡ, ꯁꯥꯡ ꯆꯃꯕꯥꯍꯕꯤ, ꯆꯃꯕꯥꯟ ꯁꯥꯡꯍꯥꯡ, ꯁꯧꯕꯟ ꯑꯃꯁꯨꯡ ꯏꯁꯏꯁ ꯅꯧꯕ ꯃꯂꯤꯒꯤ ꯒꯦꯗꯂꯤꯡꯒꯤꯁꯃ ꯃꯍꯥꯛꯀꯤ ꯌꯦꯔꯗꯤꯡ, ꯖꯗꯁ ꯑꯃꯁꯨꯡ ꯄꯏꯌꯦꯂꯌ ꯖꯗꯁ ꯗꯦꯒꯦꯟꯂꯤꯡꯒꯥ ꯌꯤꯡꯁꯃꯆꯅꯗ WRD-ꯗ ꯖꯥꯡꯁꯥꯡꯗꯤꯕ ꯄꯨꯔꯦꯜꯒꯤ ꯗꯦꯒꯦꯟꯂꯤꯡ, ꯁꯤꯡꯔꯥꯡꯔꯀꯁ ꯂꯃꯤꯌ ꯄꯃꯁ 135 mm ꯄꯨꯔꯕꯁꯤ ꯄꯃꯔꯥꯡ ꯏꯂꯤꯡ ꯏꯌꯦꯁ ꯗꯀꯏ ꯄꯏꯌꯕ WRD-ꯒꯤ ꯔꯨꯟ ꯑꯥꯖ ꯁꯃ (ꯔꯤꯁꯁ ꯖꯥꯡꯁꯥꯡꯍꯤꯕ ꯃꯄꯨꯡ ꯏꯗꯗ), ꯂꯄꯔꯒꯤ ꯌꯦꯗꯦꯟꯂꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯃꯖꯦꯟꯔꯤꯌ ꯑꯥꯎꯠꯐꯣꯜꯒꯤ

ꯒꯦꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯃꯔꯤꯡ ꯂꯄꯦꯂꯗꯂꯤꯡꯁ ꯑꯥꯗꯔꯃꯒꯤ ꯗꯥꯏꯗꯗ ꯗꯦꯒꯦꯟ ꯒꯦꯗꯂꯤꯡ, ꯆꯃꯖꯦꯟꯔꯤꯌ ꯔꯥꯗꯦꯌꯔꯤꯁꯃ ꯔꯔꯥꯗ ꯄꯔ "ꯑꯃꯗꯁ ꯂꯦꯗꯄꯔ ꯑꯃꯒꯤ ꯗꯥꯏꯗꯗ ꯔꯤꯏꯦꯟ ꯄꯍꯃ ꯖꯗꯁ ꯃꯦꯗꯦꯗꯃꯦꯗꯌ ꯂꯤꯂꯄꯦꯃ" ("real time flood management system with a command center") (NDB), ꯔꯤꯗꯤꯗꯒꯤ ꯔꯨꯟꯂꯤꯡ ꯖꯡꯍꯤꯁꯕ ꯁꯧꯕꯟ (ꯃꯔꯤꯁꯦꯟ) ꯁꯦꯃꯁꯒꯤ ꯔꯤꯗꯤꯗ ꯄꯁꯔꯤꯁꯁ ꯌꯦꯔꯗꯤꯡꯂꯤꯡ [TBC], ꯑꯃꯁꯨꯡ ꯗꯤꯔꯤꯕꯃꯒꯤꯁꯃ ꯌꯥꯄꯦꯕꯦꯌꯔꯁ ꯅꯧꯕ CWC ꯂꯍꯌꯄ ꯕꯔꯥ ꯄꯨꯔꯦꯜꯒꯤ ꯗꯦꯒꯦꯟꯂꯤꯡ), ꯏꯂꯤꯡ ꯏꯌꯦꯁꯒꯤ ꯄꯗꯔꯁꯌ ꯗꯥꯗꯤꯡ,

ꯍꯃꯔꯗꯦꯗꯂꯤ ꯔꯗꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯕꯗꯤꯌꯄ ꯍꯗꯖꯥꯔꯃꯦꯂꯗ꯫

11.8.2 **ꯑꯥꯔꯂꯗꯒꯤ ꯑꯦꯁꯦꯁꯃꯦꯟꯠ.** ꯑꯥꯔꯂꯗ ꯁꯨꯁꯤꯡꯃꯌ ꯃꯍꯥꯛ ꯔꯤꯔꯤꯕꯂꯤꯡꯒꯤꯁꯃ ꯑꯦꯂꯦꯂ ꯄꯒꯁꯕꯗꯤ:

- ꯏꯂꯤꯡ ꯏꯌꯦꯁꯒꯤ ꯔꯤꯂꯌ ꯄꯗꯁꯄꯗꯕ (ꯏꯂꯤꯡ ꯏꯌꯦꯁꯗ ꯂꯥꯌꯗꯕ ꯕꯤꯅꯁꯤꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯂꯤꯡ; ꯌꯄꯤ ꯁꯨꯁꯤꯡꯒꯤ ꯄꯍꯕ ꯃꯤꯡꯄꯗ ꯄꯌꯄꯗꯕ);
- ꯀꯣꯔꯤꯄꯦꯟ ꯑꯃꯁꯨꯡ ꯌꯄꯤ 30-ꯒꯤ ꯃꯦꯗꯄꯦꯗꯦꯗꯂꯀꯤ ꯃꯃꯟ;
- ꯃꯁꯧ ꯄꯕ ꯗꯃ;
- ꯄꯃꯔꯥꯌꯀꯤ ꯗꯃꯒꯤ ꯅꯧꯃ ꯑꯌꯦꯌꯔ (clay) ꯑꯃꯁꯨꯡ ꯔꯤꯌꯄ ꯂꯥꯌꯔ, ꯃꯖꯃ ꯑꯁꯨꯁ ꯍꯗꯖꯤꯟꯄꯔꯦꯂꯗ (infiltration) ꯑꯃꯌꯄ ꯌꯦꯄꯟꯗꯥꯍ (ꯆꯥꯔꯠ 4.11, ꯄꯃꯔꯥꯌꯀꯤ ꯗꯃꯒꯤ ꯔꯨꯟ), ꯑꯃꯁꯨꯡ ꯍꯃꯖꯦꯟ ꯌꯦꯂꯌꯀꯤ ꯌꯦꯃꯁꯒꯤ ꯄꯗꯕ ꯃꯖꯃꯁ ꯅꯧꯃꯍꯁꯒꯤ 2-ꯗꯒꯤ 5 m ꯃꯍꯥꯁ ꯅꯧꯕ ꯌꯦꯄꯔ ꯄꯦꯕꯟ (water table) (CGWB, 2013), ꯃꯂꯤꯗ ꯂꯃꯔꯂꯤꯡ, ꯔꯨꯍꯔꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯂꯃꯦꯗꯌꯂꯤꯡꯒꯤꯁꯃ ꯕꯥꯌꯦꯗꯂ (buoyancy) ꯑꯃꯁꯨꯡ ꯏꯂꯤꯡ ꯌꯡꯗꯔꯥ ꯑꯂꯤ ꯄꯗꯔꯁ ꯑꯃ ꯑꯥꯍꯄꯟꯗꯤ, "ꯍꯗꯖꯤꯟꯄꯔꯦꯂꯗ ꯄꯗꯁꯕ ꯑꯃꯁꯨꯡ ꯔꯗꯑꯥꯖ ꯄꯦꯗꯕ" ("less infiltration and more run off") (MASTEC) ꯅꯧꯕ ꯑꯃꯁꯨꯡ 2022-ꯁ ꯄꯨꯔꯨꯟꯁ ꯁꯥꯍꯤꯕꯔꯨꯃ ꯀꯥꯗꯕ ꯑꯃꯁꯨꯡ ꯏꯂꯤꯡ ꯁꯗꯗꯕ ꯃꯄꯃꯁ ꯗꯦꯗꯁꯂꯗꯍꯁ ꯄꯧꯔꯤꯕ ꯌꯤꯡꯂꯤꯡꯒꯤ ꯁꯤꯂꯤꯡ ꯂꯦꯟ, ꯌꯦꯔ ꯄꯧꯔꯕ ꯖꯌꯄꯤꯟ ꯖꯦꯗꯂꯤꯡ, ꯕꯔꯦꯟ ꯂꯦꯗꯁꯂꯄꯥꯗꯒꯤ ꯀꯦꯔꯤꯡꯂꯤꯡ (Barail sandstone cappings) ꯑꯃꯁꯨꯡ ꯅꯧꯁꯥꯍꯒꯤ ꯗꯦꯗꯂꯂꯤꯡꯁ ꯔꯤꯌꯦꯔꯗ (recharge), ꯃꯂꯤ ꯌꯦꯄꯟꯗꯤꯕ ꯗꯃ ꯑꯃꯍꯔꯄꯃꯔꯗꯤ (ꯆꯥꯔꯠ 4.11, ꯔꯤꯌꯔꯗꯒꯤ ꯔꯨꯟ), ꯂꯄꯦꯌ ꯑꯂꯤꯒꯤ ꯑꯦꯂꯦꯂꯃꯦꯗꯌ ꯌꯗꯤꯌ ꯍꯁꯤꯡꯃꯌ ꯂꯦꯖ ꯑꯥꯍꯔꯕꯂ (ꯑꯦꯔꯂꯄꯔꯦꯔꯂꯗꯒꯤ ꯂꯄꯦꯗ 8.00%, GWRA 2024, CGWB-ꯁꯒꯤ ꯀꯥꯌꯍꯤꯕ ꯃꯄꯨꯡ ꯏꯗꯗ), ꯑꯃꯁꯨꯡ ꯔꯗꯑꯥꯖꯗ ꯌꯧꯕ ꯄꯨꯔꯦꯜꯂꯤꯡ, ꯔꯤꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯥꯄꯨꯗꯀꯤ ꯀꯌꯗꯤꯄꯤ, ꯃꯍꯥꯛꯀꯤ ꯃꯅꯨꯡꯗ ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ, ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ ꯌꯦꯄꯗ, ꯃꯍꯥꯛꯁꯒꯤ ꯏꯝꯐꯥꯜꯗ ꯃꯂꯤꯒꯤ ꯁꯔꯗꯕ ꯏꯂꯤꯡꯒꯤ ꯌꯤꯡ 90% ꯔꯥꯃ ꯅꯧꯍ (ꯃꯦꯞ 8);
- ꯃꯍꯥ ꯁꯤꯡꯕ ꯃꯖꯃꯒꯤ ꯕꯦꯂꯤꯗꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯂꯤꯡ ꯅꯧꯕ ꯄꯨꯔꯦꯜ, ꯍꯥꯡ ꯗꯌꯔꯒꯤ ꯔꯤꯌꯄ ꯂꯥꯌꯔ; ꯑꯃꯁꯨꯡ
- ꯀꯗꯗꯗ ꯀꯗꯗꯕꯒꯦ꯫

11.8.3 **ꯁꯥꯏꯠꯀꯤ ꯔꯤꯂꯤꯖ ꯔꯦꯠꯁꯤꯡ.** ꯄꯣꯂꯤꯁꯤ (c)-ꯅꯥ ꯍꯥꯌꯔꯤꯕ ꯑꯗꯨꯒꯨꯝꯅ ꯄꯨꯊꯣꯛꯂꯕ ꯐꯝꯗꯥ, BSMP ꯑꯁꯤꯅꯥ ꯇꯦꯕꯜ 4-ꯗꯒꯤ ꯍꯧꯔꯒꯥ ꯃꯍꯧꯁꯥꯒꯤ, AEP ꯑꯃꯁꯨꯡ ꯇꯁ-ꯃꯥꯏꯐꯥꯑꯣꯕ ꯈꯨꯗꯝ ꯅꯦꯡ, ꯁꯥꯏꯠꯀꯤ ꯅꯤꯡꯒꯤ **ꯄꯔꯃꯤꯁꯤꯕꯜ ꯁꯥꯏꯠ ꯗꯤꯁꯆꯥꯔꯖ** (permissible site discharge) (m³/s/ha) ꯊꯥꯒꯗꯕ ꯑꯣꯏ꯫ ꯃꯁꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 4.5.4-ꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯄꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯈꯪꯅ ꯃꯌꯥꯏꯁꯤꯟꯅꯒꯅꯤ꯫

11.8.4 **ꯑꯣꯚꯨꯌꯁꯨꯌꯁꯤꯡ.** BSMP ꯂꯣꯏꯁꯤꯟꯕꯗ ꯈꯪꯅ ꯄꯤꯗꯤꯕꯁꯤꯡ ꯌꯥꯎꯒꯅꯕꯅꯤ:

- (a) 10%, 1% ꯑꯃꯁꯨꯡ 0.2% AEP-ꯁꯤꯡꯒꯤꯅꯥꯃꯥ, ꯄꯦꯟꯁꯤ ꯗꯤꯄꯊ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯁꯤꯡ-ꯃꯦꯄꯁꯤꯡ ꯍꯧꯗꯅꯗꯥ, ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯗꯒꯤ ꯄꯦꯟꯗꯥ ꯈꯥꯃꯁꯤꯡ (ꯑꯥꯡꯁꯥꯑꯣꯕ, ꯃꯥꯅꯥꯛ, ꯒꯥꯅꯥꯁꯤꯡ, ꯄꯦꯟꯗꯥ ꯃꯦꯄ)꯫ **1% AEP-ꯒꯤ ꯈꯣꯡꯁꯤꯡ-ꯃꯦꯄꯁꯤꯡ ꯍꯧꯗꯅꯗꯥ ꯈꯥꯝ** ꯑꯁꯤ ꯏꯅꯥꯗ ꯍꯥꯌꯒꯤꯁꯤꯡ (ꯇꯦꯕꯜ 6) ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠꯕꯥꯁꯤꯡꯒꯤ (ꯇꯦꯕꯜ 7) ꯗꯥꯏꯗꯥꯂꯣꯛ ꯈꯥꯝ ꯑꯅꯗꯕꯃꯅꯤ;
- (b) ꯗꯥꯃꯈꯥꯂꯅ ꯌꯦꯗꯕ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯅ ꯇꯥꯂꯣꯡꯌꯤꯒ ꯑꯅꯕ ꯃꯥꯐꯥꯑꯣꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠꯀꯤ ꯔꯤꯂꯤꯖ ꯔꯦꯠ ꯑꯃꯃꯥ (ꯁꯦꯛꯁꯟ 4.5.4 ꯑꯃꯁꯨꯡ 11.8.3);
- (c) ꯔꯤꯇꯦꯟꯁꯟ ꯍꯥꯏꯗꯔꯣꯂꯤꯛꯀꯤ ꯃꯤꯊꯨꯁꯤꯡ, ꯂꯦꯕꯂꯥꯠ ꯒꯦꯂꯣꯃꯁꯤꯡ, ꯈꯣꯡ ꯌꯥꯕ ꯇꯝ ꯑꯃꯁꯨꯡ ꯈꯪꯅꯗꯥ ꯇꯥꯕ ꯌꯥꯕ ꯃꯤꯊꯨꯁꯤꯡꯒꯤ ꯍꯧꯗꯅꯗꯥ;
- (d) ꯁꯥꯏꯠꯀꯤꯅꯥꯃꯥ ꯍꯤ-ꯅꯦ-ꯇꯤꯟꯒꯤ ꯂꯣꯇꯤꯌ ꯗꯥꯌ (ꯁꯦꯛꯁꯟ 4.13.3);
- (e) **ꯃꯥꯄꯤꯌꯥ ꯅꯔꯄꯂꯣꯛꯈꯥꯑꯣꯌ ꯄꯔꯗꯥꯒꯗꯤꯝ**: ꯂꯣꯄꯤ ꯑꯈꯒꯤ ꯗꯤꯂꯣꯕ ꯄꯦꯊꯄꯦꯅ ꯈꯨꯂꯣ ꯅꯦꯡ ꯗꯥꯃꯕ ꯊꯥꯟꯁ ꯊꯁꯕꯁꯤꯡ, ꯈꯈꯔ, ꯍꯥꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯇꯥꯅꯁꯤꯡꯒꯤ ꯍꯧꯗꯅꯗꯥ;
- (f) **ꯄꯗꯤ-ꯈꯦꯅꯂꯦꯡꯒꯤ ꯈꯥꯅꯌꯥꯇꯥꯅꯂ ꯄꯔꯗꯥꯒꯗꯤꯝ**: ꯇꯥꯈ ꯍꯊꯦꯄ, ꯒꯥꯌ ꯑꯃꯁꯨꯡ ꯄꯈꯄ ꯌꯥꯂꯌ ꯌꯥꯕ, ꯑꯃꯁꯨꯡ ꯄꯂꯣꯗꯤꯒꯤ ꯑꯄꯗꯥꯌꯤꯡ ꯂꯣꯟꯁꯤꯡ (ꯇꯦꯕꯜ 10); ꯑꯃꯁꯨꯡ
- (g) ꯈꯔꯤꯌꯗꯤꯡꯒꯤ ꯈꯊꯥ ꯌꯥꯕꯁꯤꯡ: ꯑꯔꯦꯕ ꯗꯥꯏ ꯒꯥꯇꯁꯤꯡ, ꯍꯥꯌꯔꯤꯕ ꯃꯥꯂꯦꯃꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯒꯤ ꯈꯗꯥ ꯃꯗꯒꯥ ꯌꯥꯕꯒꯤ ꯄꯥꯅꯦꯌꯁꯤꯡ꯫

> **ꯁꯦꯅꯍꯥꯗ ꯌꯦꯡꯄ.** ꯂꯩꯃꯥꯏꯗ ꯗꯥꯂꯩꯗ ꯌꯥꯕ ꯑꯁꯤ ꯑꯄꯨꯅꯕ ꯅꯥꯡꯇꯣꯛ ꯈꯗꯈꯔ ꯌꯥꯄꯗꯤꯡꯒꯤ ꯑꯣꯏꯅꯦꯡꯄꯁꯤꯡ ꯂꯣꯏꯅꯕꯒꯤ ꯅꯣꯡꯁꯤ ꯊꯔꯕ ꯄꯄꯌꯤꯁꯤꯡ ꯊꯤꯡꯇꯦꯟꯅ ꯑꯃꯁꯨꯡ ꯈꯁꯤꯒꯤ ꯂꯩꯃꯥꯏꯒꯤ ꯈꯊꯥꯌ ꯁꯗꯥ꯫ ꯌꯈꯄꯗꯥꯌ ꯃꯊꯦꯡꯄ ꯂꯥꯗꯥꯟꯂꯤꯡꯗ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯅ ꯈꯅꯃ ꯂꯣꯏꯁꯤꯟꯕꯗ ꯁꯃꯃꯦ ꯑꯈꯅ ꯃꯂꯒꯁꯤ ꯈꯤꯌꯗ ꯇꯤꯡꯁꯤ ꯅꯄꯥ ꯄꯗꯥꯒꯅ, ꯑꯃꯂꯨ ꯊꯗꯥꯍꯦ ꯑꯈꯅꯁꯌꯈꯥ, ꯅꯊꯅ, "400 cumecs-ꯒꯤ ꯈꯑꯥꯃ" ("of the order of 400 cumecs") ꯄꯗꯥꯅ ꯑꯃꯁꯨꯡ ꯁꯥꯗꯥꯏꯃꯤꯒꯤ ꯈꯁꯤꯒꯤ ꯂꯦꯗꯥꯟꯅ "ꯑꯍꯣꯈꯕ ꯏꯁꯥ ꯑꯁꯤ ꯊꯥꯔꯦꯕ ꯃꯥꯄꯣꯁꯤꯌꯤ ꯇꯌꯥ, ꯈꯗꯈ ꯑꯃꯂꯦ ꯅꯣꯡꯁꯤ ꯑꯁꯤ ꯈꯊꯥ ꯊꯕ ꯈꯍꯈꯅ ꯄꯂꯦꯁꯤꯡꯇꯥꯅ" ("does not have the capacity to cope up with such flow, as a result, water is piled up upstream") (MASTEC), ꯈꯗꯈ ꯑꯃꯂꯦ ꯌꯈꯄꯗꯥꯌꯗ ꯈꯣꯡꯒꯤ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯁꯤꯡ ꯊꯗꯥꯍꯦ ꯑꯃꯂꯦ ꯄꯊꯥꯌꯄ ꯌꯈꯕ ꯍꯤꯁꯕ ꯇꯥꯌꯦ, ꯄꯌꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯥꯃꯂꯌꯥ ꯊꯈꯇꯤꯅꯇꯤ, ꯑꯃꯁꯨꯡ ꯈꯅꯥꯔꯒꯤ ꯄꯦꯡꯁꯤꯡꯒꯤ ꯈꯂꯥꯡꯅ ꯅꯣꯡꯁꯤ ꯊꯂꯥꯌꯄ ꯌꯈꯅꯕ ꯅꯥꯡꯁꯦꯡꯁꯤꯡꯗ "ꯔꯥꯈꯕ ꯈꯍꯈꯁꯤꯡꯅ ꯄꯥꯃꯦ ꯃꯔꯒꯤ ꯈꯌꯈ ꯅꯣꯡꯁꯤ ꯂꯈꯅꯕ" ("waterlogging in the low-lying areas for several weeks") ꯊꯈꯇꯤꯅꯇꯤ (AIIB, 2024)꯫ ꯂꯩꯃꯥꯏꯇ ꯑꯃꯂ ꯄꯦꯊꯗꯥꯇꯤ: "ꯈꯇꯤꯄꯗ ꯌꯈꯄꯗꯥꯌ ꯔꯥꯌ 500 ꯈꯗꯥꯅ ꯇꯗꯈꯈꯤ" ("there were nearly 500 lakes in Manipur Valley"), ꯑꯃꯁꯨꯡ ꯂꯝꯐꯦꯜꯄꯥꯠ, ꯄꯣꯔꯣꯝꯄꯥꯠ, ꯌꯦꯌꯥꯡꯄꯥꯠ (Takyelpat), ꯁꯪꯒꯥꯏꯄꯥꯠ (Sangaipat), ꯈꯔꯨꯡꯄꯥꯠ (Kharungpat) ꯑꯃꯁꯨꯡ ꯅꯃꯄꯥꯠ ꯄꯥꯠ ꯑꯁꯤ ꯍꯦꯌꯕ ꯍꯤꯒꯈꯅ ꯇꯗꯤꯕ ꯔꯦꯗꯒꯤ ꯈꯤꯌꯇꯤꯁꯤꯡꯒꯤ ꯈꯂꯥꯡꯅ ꯈꯦꯁꯟ (MASTEC); ꯔꯥꯌꯦ "ꯑꯂꯕ ꯄꯦꯊꯗꯥꯇꯤ" ("becoming shallower") (ꯗꯤꯄꯥꯗꯌ ꯑꯂꯈꯥ); ꯑꯃꯁꯨꯡ ꯒꯗꯥꯌꯗ ꯅꯈꯍꯔꯒꯤ ꯈꯁꯌꯗ ꯄꯇꯦꯈꯅ 2020 ꯑꯃꯁꯨꯡ 2043-ꯒꯤ ꯈꯗꯥꯌ ꯄꯌꯇꯥꯈꯅꯁꯤꯡ 374.48 ha-ꯗꯒꯤ 232.21 ha ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯕꯥꯃꯤ ꯇꯈ 5,616.53 ha-ꯗꯒꯤ 2,604.70 ha ꯍꯦꯟꯕ ꯄꯦꯊꯄꯦꯕꯒꯤ ꯄꯇꯦ ꯌꯥꯗꯤ, ꯅꯣꯡꯁꯤ ꯇꯍꯈꯁꯤꯡ 563.54 ha-ꯗꯒꯤ 643.42 ha ꯍꯦꯟꯕ ꯄꯔꯒꯌꯇꯤꯡꯅ (ꯒꯗꯥꯌꯗ ꯅꯈꯍꯔꯒꯤ ꯗꯤꯒꯤꯅꯇ ꯌꯥꯗꯕ GIS ꯕꯥꯇ ꯈꯁꯌꯗ ꯄꯇꯦꯈ – 2043)꯫ ꯄꯈꯄ ꯌꯥꯕ ꯍꯥꯌꯗ "ꯈꯌꯥ ꯊꯥꯅ ꯑꯃꯁꯨꯡ ꯈꯍꯈ ꯑꯃꯂ ꯔꯥꯄ ꯂꯣꯏꯁꯤꯡꯒꯤ ꯂꯈꯤꯌ ꯃꯔꯒꯤ ꯅꯣꯡꯁꯤ ꯂꯈꯅꯗ ꯇꯗꯤ" ("not adequate and the area remains waterlogged for many days every year") ꯈꯗꯈ ꯑꯅꯂꯦ ꯇꯈꯍꯦꯡꯄꯥꯠ ꯑꯁꯤ ꯇꯈꯂꯅ ꯄꯈꯄꯗ ꯊꯅꯥꯌꯄ ꯑꯣꯚꯨꯌꯇꯥꯌ ꯑꯈꯗ ꯍꯧꯗꯅꯗꯥ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯒꯤ ꯂꯩꯃꯥꯏꯇ ꯑꯅꯗ ꯄꯥꯇꯦꯗꯕ ꯂꯗꯥꯇ ꯌꯥꯗꯤ (NDB)꯫ ꯈꯪꯅ ꯈꯦꯈꯈꯥꯌ ꯄꯌꯄ ꯅꯥꯕꯁꯦꯡꯁꯤꯡꯗ ꯅꯣꯡꯁꯤ ꯑꯂ ꯊꯤꯡꯇꯦꯟꯕ ꯒꯌ ꯑꯈꯅ ꯅꯥꯌ ꯂꯗ ꯄꯗꯥꯌꯗꯤ, ꯑꯃꯁꯨꯡ ꯌꯈꯄꯗꯥꯌꯒꯤ ꯇꯈꯒꯤ ꯇꯥꯈ ꯑꯅꯌꯄ ꯑꯃꯁꯨꯡ ꯄꯥꯌꯄ ꯂꯩꯃꯥꯏꯇ ꯄꯌꯕꯁꯤ ꯍꯦꯅꯦ ꯌꯥꯗꯤ ꯅꯌꯗꯥꯒꯤ ꯇꯥꯈꯅꯒꯤ ꯈꯊꯥꯗꯤ ꯂꯩꯃꯥꯏꯇꯗꯤ, ꯇꯥꯈꯅꯅ ꯅꯣꯡꯁꯤ ꯅꯈꯄꯦꯕ ꯄꯦꯗꯅ ꯑꯈꯌꯄ ꯔꯌꯄ (ꯁꯦꯛꯁꯟ 4.11, ꯌꯈꯄꯗꯥꯌꯒꯤ ꯇꯈꯒꯤ ꯂꯣꯟ); ꯈꯦꯅꯥꯟꯒꯤ ꯕꯥꯅ-ꯔꯥ 66(a)-ꯅꯥ ꯒꯦꯂꯈ ꯑꯈꯌꯄ ꯊꯈꯅꯗ ꯔꯥꯌꯒꯤ ꯅꯣꯡꯁꯤ ꯅꯦꯈꯇꯤꯗꯕ (rainwater harvesting) ꯈꯊꯥ ꯌꯄꯥꯇꯤꯕ ꯈꯍꯈꯅ ꯁꯦꯛꯁꯟ 4.11-ꯅꯥ ꯊꯈꯕ ꯂꯈꯊꯥꯌꯒꯤ m² ꯑꯈꯅ ꯅꯤꯈꯅꯗꯥꯕꯅꯂ ꯇꯤꯌꯗ 25-ꯒꯤ ꯔꯥꯌꯒꯤ ꯅꯣꯡꯁꯤꯒꯤ ꯂꯩꯃꯥꯏꯇ ꯑꯁꯤ ꯈꯂꯣꯒꯤ ꯑꯄꯦꯅꯁꯤ, ꯑꯃꯁꯨꯡ ꯈꯣꯡꯅ ꯃꯄꯗꯥꯅ ꯈꯣꯡꯒꯤ ꯌꯗꯥꯌ ꯑꯂꯈꯈꯅꯒꯤ ꯊꯥꯔꯦꯕ ꯅꯣꯡꯁꯤꯒꯤ ꯅꯥꯏ 90% ꯗꯥꯈ ꯇꯥꯕ ꯔꯥꯏ ꯂꯈꯅꯕ ꯊꯣꯏꯁꯤꯅꯂ ꯃꯈꯕ ꯌꯗꯥ (ꯈꯁꯌꯗ ꯄꯇꯦꯈ)꯫ ꯅꯈꯍꯦꯟꯅ ꯔꯥꯏ ꯂꯕꯒꯤ ꯊꯦꯅꯥꯡꯁꯤꯡ ꯅꯤꯈꯅ ꯅꯤꯂꯈꯥ, 30 ꯖꯨꯟ 1989-ꯅ ꯄꯂꯨ 24-ꯅ 158.6 mm ꯑꯁꯤ ꯂꯩꯃꯥꯏꯇ ꯑꯂꯒꯤ ꯗꯥꯃꯗꯥꯅꯇꯤ (IMD), ꯑꯃꯂ ꯈꯪꯅꯗ ꯄꯗꯥꯌꯄ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯁꯤꯡ ꯂꯈꯤꯌ ꯃꯔꯒꯤ ꯇꯗꯤ ꯈꯗꯈꯅꯂ ꯑꯣꯚꯨꯌꯇꯥꯌꯁꯤꯡꯂ ꯑꯂꯈꯅ ꯇꯗꯤ꯫ ꯈꯪꯅ ꯈꯦꯈꯈꯥꯌ ꯃꯦꯗꯒꯥꯔꯥꯂ ꯑꯄꯒꯗꯥꯅꯁꯤꯡꯗ ꯅꯣꯡꯁꯤ ꯑꯂ ꯅꯈꯍꯦꯟ ꯂꯗꯥꯟ, ꯇꯈꯂꯟ ꯂꯗꯥꯟ, ꯅꯗꯥꯟ ꯂꯗꯥꯟ ꯔꯌꯗꯥꯌ ꯅꯣꯡꯁꯤ ꯅꯍꯥꯏꯅ ꯇꯗꯤꯕ ꯌꯈꯄꯗꯥꯌꯒꯤ ꯑꯌꯄꯥ

> ꯁ꯭ꯔꯣꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯄꯥꯛ ꯂꯩꯕꯥꯒꯤ ꯄꯥꯝꯕꯥ ꯃꯔꯣꯂꯒꯤ ꯍꯥꯌꯕ ꯍꯂꯤꯒꯤ ꯒꯨꯔꯨꯕꯥ ꯊꯤꯡꯖꯤꯟꯖꯤꯟꯅꯕ ꯑꯣꯏꯕꯥ ꯃꯇꯝ ꯑꯍꯦꯡ, ꯅꯪꯅ ꯕꯥꯍꯥꯟ ꯑꯍꯦꯟꯕ ꯍꯦꯛꯇꯒꯤ ꯍꯥꯅꯗ ꯂꯩꯕ ꯂꯝꯒꯤ ꯂꯤꯅꯕꯥ ꯊꯤꯡꯖꯤꯟꯖꯤꯟꯕ ꯂꯣꯏꯁꯤꯟꯕ, ꯊꯤꯡꯖꯤꯟꯕ ꯑꯣꯏꯕꯥ ꯑꯃꯁꯨꯡ ꯊꯦꯡꯕꯥ ꯊꯝꯖꯤꯟꯕ ꯄꯤꯌ ꯑꯍꯦꯡ, ꯂꯩꯕꯥꯒꯤ ꯆꯥꯡꯗꯝꯅꯄꯤꯌꯁ ꯂꯩꯕꯥꯡꯍ, ꯄꯥꯍꯄ ꯁꯥꯕ ꯑꯃꯤ "ꯍꯁꯤꯡ ꯌꯦꯗ ꯑꯍꯦꯟꯕ ꯍꯦꯛꯇ ꯑꯣꯏ ꯌꯥꯏꯠ ꯅꯨꯃꯤꯠꯀꯤ ꯂꯝꯒꯤ ꯃꯔꯣꯜ ꯅꯃꯤꯠ ꯊꯨꯅꯗ ꯂꯩꯕꯤ" ("not adequate and the area remains waterlogged for many days every year") (NDB) ꯍꯥꯢꯕ, ꯍꯃꯤꯒꯤ ꯒꯤꯌ ꯂꯩꯕꯥꯒꯤ ꯄꯥꯍꯄꯤꯠ ꯃꯁꯤꯡꯃꯆꯥꯛ
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> ꯃꯥꯄꯥꯃꯤꯁꯤꯡꯗ ꯇꯤꯍꯤꯌ ꯁꯤꯡꯕ ꯊꯤꯡꯖꯤꯟꯖꯤꯟꯕ ꯑꯣꯏꯍ ꯊꯨꯗ ꯌꯌꯍꯟꯇꯤ꯫ ꯍꯇꯤꯐ꯭ꯂꯥꯗ ꯇꯣꯝꯕꯅꯒꯤ ꯍꯟꯒꯤ ꯅꯃꯤꯠꯇ ꯕꯤꯌꯕꯇ ꯂꯌꯁꯗ ꯃꯁꯤꯡꯕꯥꯇ ꯍꯊꯪ ꯁꯍꯟꯇꯤ꯫ ꯃꯁꯤꯡ ꯑꯃꯤꯒꯤ ꯑꯃꯃꯍꯦꯌ ꯌꯨꯇꯤꯌ ꯅꯨꯃꯤꯠꯍꯥ ꯃꯉ ꯑꯅ, 2024-ꯒꯤ ꯑꯃꯃꯍꯦꯌꯁ ꯑꯥꯃꯁꯕꯥꯃꯦꯒꯤ ꯃꯁꯤꯡ 8.00% ꯑꯃꯁꯨꯡ 2023-ꯗ 7.99% (CGWB, ꯄꯥꯌꯅꯤꯕ ꯍꯟꯗꯝ ꯅꯦꯇ), ꯑꯃꯁꯨꯡ ꯅꯍꯖꯤꯟꯗ ꯍꯃꯤꯒꯤ ꯊꯥꯂꯕ ꯅꯃꯤꯠꯒꯤ ꯌꯥꯝ 90% ꯕꯤꯍ ꯅꯍꯖꯤꯟ ꯁ꯭ꯕꯥꯟ, ꯂꯍꯈ꯭ꯔ ꯁ꯭ꯕꯥꯟ ꯑꯃꯁꯨꯡ ꯅꯕꯤꯟ ꯁ꯭ꯕꯥꯟꯗꯒꯤ ꯇꯅ (ꯒꯕꯥꯁꯕ ꯅꯍꯖꯤꯟꯒꯤ ꯕꯤꯒꯅꯇ ꯁꯕꯥꯕ GIS ꯕꯦꯇ ꯍꯦꯃꯁꯕ ꯄ꯭ꯂꯥꯟ – 2043), ꯍꯕꯍ ꯑꯗꯨꯗ ꯇꯣꯝꯕꯅꯒꯤ ꯍꯟꯒꯤ ꯅꯃꯤꯠ ꯑꯌꯥꯌꯄ ꯇꯣꯁ꯫ ꯁꯍꯄꯥꯃꯄꯤ ꯂꯍꯒꯤ ꯇꯣꯝꯕꯅꯗ ꯅꯃꯤꯠ ꯇꯕꯅ: ꯅꯍꯖꯤꯟ ꯌꯥꯃꯟꯗꯁ "ꯌꯥꯝ 30-ꯗꯒꯤ 50 m ꯖꯤꯂꯕꯒꯤ ꯇꯣꯝ ꯑꯌꯥꯌꯄꯒꯤ ꯖꯕꯍꯦꯃꯦ" ("approximately 30 to 50 m of clayey formation") ꯇꯧ, ꯍꯃꯤꯗ "ꯃꯦꯇ ꯁ꯭ꯕꯥꯟ ꯌꯥꯟ ꯂꯕ ꯑꯃꯤ ꯑꯐ꯭ꯕ ꯑꯅ" ("construction of shallow tube wells is problematic"), "30-ꯗꯒꯤ 65 m bgl ꯖꯤꯂꯕꯒꯤ ꯑꯐ꯭ꯃ ꯖꯤꯂꯕ" ("down to depth range of 30 to 65 m bgl") ꯇꯣꯝ ꯑꯌꯥꯌꯄ ꯇꯧ, ꯄꯇꯦ ꯑꯗꯨꯒꯤ ꯌꯥꯍꯗꯒꯤ ꯍꯦꯕ ꯍꯖꯍꯗ ꯇꯣꯝꯕꯅꯗꯒꯤ 2-ꯗꯒꯤ 5 m ꯍꯟꯗ ꯅꯃꯤꯠ ꯇꯧ ꯑꯃꯁꯨꯡ "ꯍꯖꯍ ꯅꯕꯗ ꯗꯤꯄ ꯁ꯭ꯕꯥꯟ ꯌꯥꯟ ꯂꯕꯗ ꯒꯃ ꯊꯃꯄ" ("emanation of gas while constructing deep tube wells in some places") ꯇꯧ (CGWB, 2013), ꯑꯃꯁꯨꯡ ꯕꯤꯂꯨꯐ꯭ꯕꯒꯤ ꯇꯃꯃꯤꯃꯒꯤ ꯑꯄꯥꯌꯕꯗ "ꯄꯤꯌꯄꯤ ꯇꯣꯝꯕꯅꯃꯗ ꯑꯃꯤꯗꯤꯁꯤ ꯌꯥꯍꯦ ꯌꯥꯃꯅ" ("peaty soils have high acidity") (CGWB, 2013); ꯍꯕꯍ ꯑꯗꯨꯗ ꯌꯥꯁꯕ ꯁꯕꯟ ꯑꯃꯤ ꯕꯤꯌꯕꯇ ꯁꯇꯕ ꯕꯤꯃꯕꯃ ꯑꯍꯗꯒꯤ ꯍꯦꯗ ꯃꯍꯄꯃꯤꯃ, ꯐ꯭ꯂꯥꯕꯤꯃꯤꯃ ꯑꯃꯁꯨꯡ ꯕꯃꯍꯦꯌꯃꯤꯃꯒꯤ ꯕꯌꯦꯃꯤꯒꯤ ꯍꯇꯕꯗ ꯑꯍꯇꯤ꯫ ꯌꯤꯃꯃꯤꯃꯗ ꯊꯗꯃꯄ ꯅꯃꯤꯃꯇ ꯑꯃꯃ ꯑꯄꯦ ꯐ꯭ꯂꯕꯃꯄ ꯌꯅ: ꯌꯤꯃꯃꯤꯃꯒꯤ ꯌꯥꯍꯗꯒꯤ ꯍꯦꯕ ꯃꯐ꯭ꯃ ꯑꯅꯕꯤꯕ ꯗꯤꯂꯃ ꯃꯟ ꯑꯃꯤꯗ "ꯅꯦꯖꯤꯟꯁꯕꯥꯃꯦ ꯍꯦꯊꯕ ꯑꯃꯁꯨꯡ ꯕꯦꯑꯖ ꯍꯦꯕ" ("less infiltration and more run off") ꯇꯧ (MASTEC), ꯑꯃꯁꯨꯡ 2022-ꯗ ꯁ꯭ꯄ꯭ꯂꯟꯗ ꯊꯃꯅꯤꯕ ꯇꯦꯗꯃꯇꯅꯗ ꯑꯃꯤ ꯌꯥꯍꯇ ꯌꯨꯕꯕ ꯂꯃꯄ ꯇꯌꯇꯇ ꯂꯄꯍ ꯑꯃꯃꯄꯥꯒꯃꯦ ꯁꯅꯤꯕ ꯑꯃꯤ ꯍꯕꯍ ꯑꯅꯇ ꯇꯧꯕꯤ (ꯄꯤꯁ꯭ꯗ ꯖꯃꯗꯃꯅꯤꯕ ꯍꯟꯗꯝ ꯅꯦꯇ)꯫
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> ꯃꯁꯤꯡꯄꯤ ꯑꯕꯇꯕꯒꯃꯦ-ꯌꯥꯟꯒꯤ ꯂꯌꯥꯕꯃ ꯑꯍꯌꯁ ꯖꯃꯅꯤꯗ: ꯅꯍꯖꯤꯟ ꯌꯥꯃꯟꯗꯁ CGWB-ꯒꯤ ꯗꯒ-ꯌꯥꯟ ꯍꯇꯤꯁꯕꯤꯃ "ꯑꯅꯦ ꯑꯃꯁꯨꯡ ꯑꯌꯨꯍꯕꯒꯤ ꯖꯤꯒꯍ ꯃꯃꯍꯟꯇꯕꯇ 1991-ꯗꯒꯤ" ("since 1991 due to disturbed law and order") ꯇꯄꯅꯤ (CGWB, 2013), ꯑꯃꯁꯨꯡ ꯍꯇꯤꯐ꯭ꯂꯕ ꯒꯕꯤꯁ꯭ꯗꯦꯗ ꯌꯥꯁꯕ (ꯄꯦꯁꯕꯟ ꯑꯃꯁꯨꯡ ꯕꯒꯇꯃꯦ) ꯄꯇꯤꯃꯤ, 2023 (Manipur Ground Water (Control & Regulation) Policy, 2023) ꯑꯍꯤ ꯃꯍꯅꯤ, DoECC-ꯇ ꯇꯤꯃꯌ ꯁꯕꯥꯕ ꯍꯟꯗꯝ ꯅꯦꯇ, ꯑꯗꯨꯕ ꯍꯃꯤꯒꯤ ꯁꯃꯃꯁ ꯄꯅꯤꯗ [TBC]꯫ ꯍꯕꯍ ꯑꯃꯤꯗ ꯃꯁꯤꯡꯕꯇ ꯑꯃꯁꯨꯡ ꯑꯍꯃ ꯍꯦꯗ ꯃꯤꯇꯤꯦꯇꯕ, ꯕꯌꯦꯃꯤ, ꯂꯄꯍꯒꯤ ꯃꯁꯤꯡꯕꯤꯇꯤꯁꯤ, ꯌꯃ ꯁꯕꯥꯕ ꯖꯌꯍꯤꯟ ꯖꯦꯃꯤꯃ, ꯃꯦꯗꯃꯁꯤꯡꯃꯒꯤ ꯄꯥꯃꯤꯃꯤꯃ ꯑꯃꯁꯨꯡ ꯇꯣꯃꯅꯒꯤ ꯇꯦꯃꯃꯤꯃꯗ ꯅꯃꯁ ꯕꯤꯌꯕꯇ, ꯑꯃꯁꯨꯡ ꯃꯍꯕꯗ ꯅꯃꯤꯃ ꯄꯤꯕ ꯁ꯭ꯕꯥꯟꯃꯤꯃꯒꯤ ꯄꯌꯇꯤꯁꯤ ꯐ꯭ꯂꯍꯇꯍꯃ ꯑꯃꯃꯍꯦꯌꯄꯤ ꯄꯕꯅꯁꯕꯤꯌꯃꯤꯃꯇꯤ꯫ ꯍꯨꯌꯥꯟ ꯑꯃꯤꯗ ꯄꯕꯇꯃꯌꯃꯤꯃ ꯐ꯭ꯄꯤ ꯑꯍꯒꯤ ꯕꯤꯃꯃ ꯍꯦꯊꯍꯦꯕ ꯍꯟꯗꯝ ꯅꯦꯇ ꯕꯃꯃ ꯊꯍꯤ, ꯍꯗꯨꯗ ꯇꯤꯍꯤꯌ ꯇꯣꯝ ꯕꯇꯌꯃꯤꯃ ꯑꯍꯦꯕꯗ ꯍꯤ ꯅꯕꯅꯗꯒꯤ ꯌꯥꯍꯗ ꯊꯃꯊꯃꯄ ꯍꯖꯍꯗ ꯌꯌꯇꯕꯒꯤꯗꯍꯃꯇꯤ꯫

11.9 ꯂꯦꯟꯗ-ꯌꯨꯖ ꯄ꯭ꯂꯥꯅꯤꯡꯒꯤ ꯐ꯭ꯔꯦꯃꯋꯔꯛ

11.9.1 ꯑꯄꯐ꯭ꯒ ꯁꯕꯥꯕ BSMP ꯑꯍꯤ ꯑꯅꯦꯒꯤ ꯍꯟꯗ ꯇꯣꯕ ꯂꯦꯟꯗ-ꯌꯨꯖ ꯄ꯭ꯂꯥꯅꯦꯗ ꯌꯥꯁ꯭ꯍꯦꯒꯗꯕꯇꯤ: ꯍꯇꯤꯐ꯭ꯂꯕ ꯁꯥꯁ꯭ꯦ ꯑꯃꯁꯨꯡ ꯄꯦꯁꯕꯤ ꯄ꯭ꯂꯥꯟꯇꯤꯃ ꯑꯃꯌ, 1975 (Manipur Town and Country Planning Act, 1975)-ꯒꯤ ꯍꯟꯗ ꯇꯁꯤꯖꯤꯅ ꯁꯕꯥꯕ ꯍꯦꯃꯁꯕ ꯄ꯭ꯂꯥꯟꯃꯤꯃ, ꯍꯅꯌꯒꯤ ꯍꯨꯃꯗ ꯒꯕꯥꯁꯕ ꯅꯍꯖꯤꯟꯒꯤ ꯕꯤꯒꯅꯇ ꯁꯕꯥꯕ GIS ꯕꯦꯇ ꯍꯦꯃꯁꯕ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯇꯕ ꯍꯗꯤꯖꯤꯄꯃꯦ) ꯑꯃꯁꯨꯡ ꯅꯍꯖꯤꯟ ꯑꯃꯁꯨꯡ ꯍꯅꯕꯤꯃꯒꯤ ꯕꯤꯃꯃ ꯅꯦꯖꯕꯍꯗ ꯍꯦꯃꯁꯕ ꯄ꯭ꯂꯥꯟꯃꯤꯃ, ꯍꯅꯌꯒꯤ ꯃꯁꯤꯡꯁꯃ ꯑꯃꯁꯨꯡ ꯑꯌꯥꯁ꯭ꯕꯃꯤꯃ ꯄꯦꯖꯕꯍ ꯁꯕꯥꯕ ꯍꯟꯗꯝꯗ [TBC], ꯑꯃꯁꯨꯡ TPD-ꯇ ꯑꯁꯄꯄ ꯁꯥꯁ꯭ꯦꯃꯤꯃ ꯑꯃꯁꯨꯡ ꯗꯤꯃꯁꯕꯤꯃ ꯍꯗꯃꯌꯕꯁꯕꯃꯤꯃꯒꯤꯗꯍꯃ ꯃꯍꯇꯤꯕ GIS ꯍꯦꯃꯁꯕ ꯄ꯭ꯂꯥꯟꯃꯤꯃ, ꯍꯇꯤꯐ꯭ꯂꯕꯒꯤ ꯍꯦꯃꯁꯕ ꯄ꯭ꯂꯥꯟꯃꯦ ꯑꯕꯤꯌꯃꯤꯃꯒꯤ ꯌꯨꯇꯤꯖꯤꯅꯗ ꯇꯇꯤꯃ/ꯌꯨꯖ ꯕꯒꯨꯇꯃꯦ ꯕꯅ-ꯂꯇ, 2026 (Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026) ꯑꯃꯁꯨꯡ ꯁꯕꯕꯦ ꯇꯄꯟ ꯕꯗꯤ ꯌꯨꯗꯤꯃꯍꯃ ꯑꯃꯁꯨꯡ PDA Manipur-ꯇ ꯍꯗꯟ ꯑꯗꯨꯒꯤ ꯍꯊꯃꯁ ꯌꯌꯇꯃꯍꯟꯇꯕ ꯕꯤꯟꯗꯤꯃ ꯕꯅ-ꯂꯇꯃꯤꯃꯒꯤ ꯂꯌꯇꯇ; ꯍꯇꯤꯐ꯭ꯂꯕ ꯖꯦꯗ ꯄ꯭ꯂꯇꯦ ꯇꯇꯤꯃ ꯑꯃꯌ, 1978 (Manipur Flood Plain Zoning Act, 1978)-ꯒꯤ ꯍꯟꯗ ꯇꯁꯤꯖꯤꯅ ꯁꯕꯥꯕ ꯅꯃꯤꯃ ꯅꯌꯁ꯭ꯒꯤ ꯇꯦꯃꯤꯃ, ꯑꯍꯍꯃ ꯇꯁꯤꯖꯤꯅ ꯁꯕꯥꯕ ꯍꯟꯗꯝꯗ; ꯇꯁꯤꯖꯤꯅ ꯁꯕꯥꯕ ꯄ꯭ꯂꯥꯟꯇꯤꯃ ꯑꯕꯤꯌ ꯑꯍꯌꯁꯒꯤ ꯍꯄꯦꯗ ꯇꯣꯕ ꯌꯤꯃꯒꯤ ꯂꯍꯃꯤꯃꯗ (Hill Areas), ꯍꯇꯤꯐ꯭ꯂꯕ (ꯍꯤꯟ ꯑꯕꯤꯌꯃ) ꯗꯤꯃꯁꯕꯤꯃ ꯗꯤꯁ꯭ꯦꯃꯤꯇꯃ ꯑꯃꯌ, 1971 (Manipur (Hill Areas) District

Councils Act, 1971)-ꯒꯤ ꯁꯦꯛꯁꯟ 29(1A)-ꯒꯤ ꯃꯈꯥꯗ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯄ꯭ꯔꯣꯍꯤꯕꯤꯇꯦꯗ ꯑꯃꯁꯨ, ꯔꯦꯁ꯭ꯠꯔꯤꯛꯇꯦꯗ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯃꯐꯃꯗ ꯑꯃꯁꯨꯡ ꯂꯤꯃꯤꯇꯦꯗ ꯗꯤꯚꯦꯂꯄꯃꯦꯟꯇ ꯖꯣꯟ ꯑꯣꯏꯅꯥ ꯂꯧꯒꯅꯤ; ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯌꯥꯊꯪꯗ ꯇꯥꯀꯄꯤꯔꯤꯕꯥ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯅꯤꯡꯉꯥꯏ ꯑꯣꯏꯅꯥ ꯌꯥꯊꯪꯗ:

- (a) ꯐꯤꯂ꯭ꯂꯦꯡ ꯗꯦꯂꯤꯂꯤꯁꯤꯒꯤ ꯂꯥꯏꯅꯂꯤꯡ, ꯐꯣꯔꯁ ꯁꯣꯐꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯤꯒꯤ ꯃꯂꯤꯡ ꯃꯔꯨꯑꯣꯏꯕꯒꯤ ꯂꯁꯐꯣꯜ, ꯑꯃꯁꯨꯡ ꯃꯦꯇꯐ ꯗꯦꯇ ꯄꯥꯝꯂꯤꯡ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ **ꯊꯃꯖꯤꯟꯗꯒꯅꯤ**;
- (b) 1% AEP-ꯒꯤ ꯍꯥꯏꯐꯟ ꯃꯦꯄ ꯐꯤꯟꯊꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯃꯌꯣꯟ ꯂꯣꯌꯅ 7-ꯒꯤ ꯂꯦꯕꯦꯜꯂꯤꯡ ꯂꯤꯖꯤꯡꯖꯒꯗꯕꯅꯤ;
- (c) 1% AEP ꯊꯥꯗꯣꯛꯄ ꯍꯥꯏꯐꯟ ꯗꯤꯖꯥꯏꯟ H5–H6-ꯗ ꯇꯧꯕ ꯆꯠ ꯑꯆꯧꯕ ꯃꯤ ꯇꯧꯕ ꯅꯦꯒꯦꯇꯤꯕ ꯂꯤꯁ꯭ꯇꯗ ꯖꯣꯟ ꯁꯣꯐꯅꯕꯅꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯕꯦꯂꯤꯟ ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗ ꯇꯧꯕ ꯗꯤꯚꯦꯂꯄꯂꯤꯡꯒꯤ ꯑꯣꯄꯦꯟ ꯂꯝꯂꯦꯜ (open space) ꯑꯣꯏ, ꯌꯦꯕ ꯃꯐꯝꯗ, BSMP-ꯗ ꯄꯥꯡꯊꯣꯛꯄ ꯃꯦꯇꯐ ꯗꯦꯇ ꯄꯥꯝꯂꯤꯡ ꯆꯨꯐꯕ ꯐꯤꯂ꯭ꯂꯦꯡ ꯂꯁꯐꯦꯇꯒꯤ ꯂꯣꯌꯅ ꯑꯃꯍ ꯑꯣꯅꯆꯕ ꯃꯗꯝ ꯅꯦꯕ ꯗꯤ꯫

11.9.2 BSMP ꯑꯃꯍ ꯑꯦꯄꯥꯝꯕꯒ ꯁꯣꯗꯐꯤꯊꯗ ꯆꯦꯛꯗ-ꯅ꯭ꯇꯂ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯍ ꯐꯤꯒꯔꯂ ꯁꯣꯐꯕ ꯃꯗꯝꯗ, ꯗꯤꯖꯥꯏꯅꯤꯡ ꯑꯣꯊꯣꯐꯤꯁꯤꯗꯦ ꯗꯤꯡꯕ ꯌꯦꯕ ꯅꯕꯍꯗꯒꯤ ꯗꯕ ꯅꯂꯤꯡ ꯅꯌꯦꯄꯒꯤ ꯃꯦꯄꯤꯡ ꯂꯤꯖꯤꯡꯖꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ BSMP ꯑꯗꯨ ꯆꯦꯃꯍꯐꯤ ꯍꯔꯗꯦ ꯐꯦꯝꯐꯗ ꯁꯒꯗꯕꯅꯤ꯫

> **ꯂꯦꯗꯑꯣꯟꯗꯦ ꯁꯣꯟꯖꯥ.** ꯃꯆꯤꯡꯂꯨꯐꯗꯦ ꯃꯂꯤꯒꯤ ꯅꯂꯤꯡꯒꯤ ꯗꯦꯅꯦ ꯅꯐꯦ ꯍꯆꯤꯡꯁꯒꯤ ꯕꯟ-ꯆ ꯑꯃꯁꯨꯡ ꯑꯅꯦꯗꯦ ꯊꯐꯦ, ꯑꯃꯁꯨꯡ ꯆꯦ ꯑꯃꯍꯁꯣ ꯆꯁꯕ ꯗꯆꯗꯖꯥꯆꯦꯁꯒꯤ ꯑꯦꯑꯣꯍ ꯑꯃꯍ ꯆꯤ꯫ ꯃꯗꯦꯅꯒꯤ ꯕꯟ-ꯆ 93-ꯗꯦ ꯇꯨꯔꯦꯜ ꯁꯐꯒꯤ ꯃꯃꯤꯡ ꯆꯐꯕ ꯐꯤꯌꯂꯤꯡꯗ "ꯅꯦꯒꯦꯇꯤꯕ ꯁꯐꯕ ꯕꯗꯐ ꯆꯦꯗꯒꯤ ꯃꯂꯨꯡꯗ ꯑꯆꯧꯕ ꯑꯦꯂꯣꯁꯐꯑꯣꯂꯦ ꯑꯃꯍꯁꯣ" ("any new construction within the designated buffer zone") ꯊꯤꯡꯅ, ꯇꯐꯅ ꯑꯆꯤꯃꯑꯣ ꯃꯦꯗꯆꯗꯦ, ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯅꯗꯒꯤ (mid-stream) ꯃꯦꯇꯐ ꯁꯣꯗꯨꯗꯦ: ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜꯗ 55 m-ꯗꯒꯤ 62 m, ꯅꯥꯒꯥ ꯇꯨꯔꯦꯜꯗ 50 m, ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜꯗ 48 m, ꯂꯦꯑꯣꯃꯅ ꯇꯨꯔꯦꯜꯗ 35 m, ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜꯗ 31 m, ꯏꯝꯐꯥꯜ ꯅꯝꯕꯨꯜꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯇꯨꯔꯦꯜꯗ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯡ ꯇꯨꯔꯦꯜꯗ (Arong) 30 m, ꯅꯗꯤꯡꯃꯑꯣ "ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯅꯗꯒꯤ ꯅꯠꯔꯒꯥ ꯕꯥꯟꯗꯀꯤ ꯃꯄꯥꯟꯗꯒꯤ ꯁꯗꯒꯤ 6 m, ꯃꯗꯨꯒꯤ ꯑꯃꯗꯦ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯅꯗꯒꯤ ꯍꯥꯟꯗꯦ ꯗꯥꯕꯥ" ("from mid-stream or 6 m from outer toe of bund, whichever is further from mid-stream"), ꯑꯃꯁꯨꯡ ꯃꯦꯔꯥꯈꯣꯡ ꯇꯨꯔꯦꯜꯗ (Merakhong) 22.5–28 m, ꯃꯥꯡꯕ ꯇꯨꯔꯦꯜꯗ 35 m ꯑꯃꯁꯨꯡ ꯆꯃꯕꯅ ꯇꯨꯔꯦꯜꯗ 25 m ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯅꯗꯒꯤ ꯅꯑꯣꯁꯃꯑꯣ; ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ "ꯊꯤꯡꯕ ꯑꯦꯔꯤꯌꯥ ꯅꯠꯔꯒꯥ ꯔꯦꯁ꯭ꯠꯔꯤꯛꯇꯦꯗ ꯑꯦꯔꯤꯌꯥ" ("prohibited area or restricted area") ꯑꯃꯗ ꯁꯕ ꯊꯕꯑꯣ ꯑꯃꯒꯤꯗꯃꯑꯣ "ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978-ꯒꯤ ꯃꯈꯥꯗ ꯂꯦꯃꯅꯤꯕ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯃꯥꯡꯗ ꯆꯕ ꯑꯌꯥꯕꯤꯂꯦ" ("the previous permission of the Flood Zoning Authority constituted under the Flood Plain Zoning Act, 1978") ꯃꯊꯨ ꯁꯦꯅ [TBC: ꯆꯃꯅ ꯕꯗꯤꯗꯦ ꯆꯁꯤꯗꯅ ꯁꯐꯕ ꯕꯟ-ꯆꯇꯂꯤꯡꯗ ꯆꯃꯕꯐ ꯑꯃꯁꯨꯡ ꯁꯑꯣꯂꯁ ꯃꯦꯗꯐꯃ ꯁꯒꯗꯕꯅꯤ]꯫ ꯅꯔꯗꯑꯣꯂꯤꯡ ꯑꯣꯏ ꯇꯨꯔꯦꯜꯒꯤ ꯃꯌꯥꯏꯅꯗꯒꯤ ꯍꯕꯗꯦ, 40 m ꯗꯥꯑꯣꯗꯥ ꯐꯤꯌ ꯑꯃꯗ 30 m-ꯒꯤ ꯕꯗꯐ ꯑꯃꯗꯦ ꯇꯐꯅꯗꯒꯤ 10 m ꯅꯑꯣꯁꯃꯑꯣ ꯊꯃꯖꯤꯅꯖꯤ (ꯃꯦꯗꯨꯔꯦꯅ ꯑꯣꯏꯗꯦ ꯅꯦꯗꯕ ꯃꯇꯨꯡ ꯅꯦꯗ)꯫ ꯕꯟ-ꯆ 94-ꯗꯦ "ꯁꯄꯦꯂꯤꯡꯒꯤ ꯃꯂꯣꯁꯐ ꯗꯤꯖꯥꯏꯅ ꯅꯊꯗꯑꯣꯆꯕ ꯅꯂꯤꯡ ꯅꯌꯦꯄꯒꯤ ꯑꯃꯤꯕ ꯌꯕꯕ ꯃꯗꯝꯂꯤꯡꯗ" ("high Flood Risk Areas identified in the Master Plan of the towns") ꯗꯆꯤꯦꯊ ꯑꯣꯏ "ꯑꯃꯗꯔꯕꯒꯤ ꯑꯦꯐꯤꯌꯂꯤꯡꯒꯤ ꯍꯅꯔꯦꯂꯣ ꯐ꯭ꯂꯗ ꯆꯦꯒꯦꯅꯗꯒꯤ 1m ꯍꯦꯗꯦ ꯌꯕꯗꯦ" ("above 1m above the highest flood level of the surrounding areas") ꯊꯐꯃꯤ, ꯑꯗꯨꯕ ꯃꯗꯝꯂꯤꯡ ꯑꯗꯨ ꯄꯥꯡꯃꯗꯕ ꯐꯤꯂꯣꯑꯣ ꯅꯦꯗꯐꯃ ꯃꯂꯣꯁꯐ ꯗꯤꯖꯥꯏꯅꯂꯤꯡ ꯗꯅꯤꯗꯦ [TBC], ꯃꯐꯃ ꯑꯗꯨꯗꯦ ꯃꯂꯤ ꯃꯗꯅꯗ ꯌꯄꯆꯤꯕꯒ ꯅꯊꯗꯦ, ꯑꯃꯁꯨꯡ ꯃꯐꯤꯡꯃꯕ ꯁꯄꯦ ꯑꯃꯒꯤꯗꯃꯑꯣ ꯆꯃꯅ ꯑꯊꯐꯤꯁꯤ ꯑꯃꯒꯤ ꯍꯅꯔꯦꯂꯣ ꯐ꯭ꯂꯗ ꯆꯦꯒꯦꯅ ꯑꯃꯍꯁꯣ ꯗꯕꯅꯤꯗꯦ꯫ ꯃꯆꯤꯡꯂꯨꯐ ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978-ꯗꯦ ꯅꯂꯤꯡ ꯅꯌꯦꯄꯒꯤ ꯆꯦ ꯑꯃꯍ "ꯍꯦꯛꯅꯗꯒꯤ ꯌꯄꯕ ꯊꯑꯣꯗꯥ ꯌꯦꯕ" ("the maximum probable") ꯅꯂꯤꯡ ꯅꯌꯄ ꯗꯨꯆꯕ ꯃꯊꯨ ꯁꯕ ꯑꯦꯐꯤꯌ ꯍꯔꯗꯦ ꯗꯦꯗꯅꯦ ꯁꯅ ꯑꯃꯁꯨꯡ "ꯐꯤꯂꯦꯁꯤꯒ ꯐꯤꯂꯣꯑꯣ" ("relative risk") ꯃꯇꯨꯡ ꯅꯦꯗ ꯆꯦꯂꯤꯡ ꯗꯤꯐꯤ, ꯑꯗꯨꯕ ꯐ꯭ꯂꯗ ꯆꯦꯂꯤꯡ ꯑꯊꯐꯤꯁꯤ ꯑꯃꯍꯁꯣ ꯂꯦꯃꯆꯕ ꯗꯕꯅꯤꯗꯦ ꯑꯃꯁꯨꯡ ꯑꯃꯍꯅ ꯊꯕ "ꯍꯧꯖꯤꯛ ꯗꯤꯡꯕ ꯁꯗꯕꯤ" ("is yet to be done") (ꯗꯥꯡꯗ ꯗꯦꯕꯗꯑꯣꯅꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯗ, ꯏꯦ 2026); ꯕꯟ-ꯆꯇꯂꯤꯡꯗ ꯗꯦꯁ ꯂꯃꯐꯒꯤ ꯄꯨꯈꯔꯤ ꯑꯃꯍꯁꯒꯤ ꯂꯦꯁꯕꯑꯣ ꯇꯁꯣ꯫ ꯆꯑꯣꯁꯑꯣꯃꯤ 70.30 km²-ꯒꯤ ꯃꯥꯐ ꯆꯦ ꯑꯣꯏ "ꯅꯦꯒꯦꯇꯤꯕ ꯇꯁꯕ ꯆꯦ ꯂꯃꯐꯒꯤ ꯃꯗꯨꯡ ꯗꯦꯗꯦ ꯊꯥꯑꯣꯊꯑꯣꯗꯥ ꯆꯦ" ("No-Development Zone or Totally Protected Zone") ꯑꯃꯆꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯕꯗꯐ ꯆꯦꯗꯦ (Buffer Zone) "ꯆꯃ ꯐꯤꯑꯣꯆꯦꯃꯦꯂꯦ, ꯗꯦ ꯂꯕ ꯂꯃꯐꯒꯤ ꯅꯐꯃꯂꯤꯡꯒꯤ ꯃꯍꯂꯒꯤ ꯆꯃꯕꯤ ꯂꯑꯣꯍꯦꯕ" ("Land reclamation, bunding or disturbing the natural course of drainages") ꯊꯤꯡꯅ (ꯃꯆꯤꯡꯂꯨꯐ ꯆꯑꯣꯁꯑꯣ ꯆꯦꯑꯣ (ꯗꯥꯐꯁꯦꯑꯣꯂꯦ) ꯑꯦꯑꯣꯂ, 2006, ꯁꯦꯛꯁꯟ 3 ꯑꯃꯁꯨꯡ 19), ꯑꯃꯁꯨꯡ ꯍꯅ ꯃꯐꯂꯗꯦ ꯆꯦꯑꯣ ꯑꯗꯨꯗ ꯂꯃꯐꯒꯤ ꯃꯂꯤꯒꯤ ꯑꯃꯔꯕꯗ "ꯃꯐꯂꯃꯤ ꯑꯌꯕ ꯇꯗꯗꯦ" ("without the Court's leave") ꯅꯦꯒꯦꯇꯤꯕ ꯊꯤꯡꯅꯐꯦ (2019 ꯑꯃꯁꯨꯡ 2022-ꯒꯤ ꯑꯐꯗꯐꯂꯤꯡ, ꯗꯥꯡꯗ ꯗꯦꯕꯗꯑꯣꯅꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯗ)꯫ ꯃꯆꯤꯡꯂꯨꯐ ꯃꯦꯂꯐꯒꯦꯂꯦ ꯑꯗ ꯗꯦꯗꯤ ꯆꯦꯗ ꯑꯃꯁꯨꯡ ꯌꯦꯂꯆꯦꯗ ꯑꯦꯑꯣꯂ, 2014-ꯗꯦ ꯃꯃꯤꯁꯤꯂꯤꯡꯒꯤ ꯑꯦꯗꯨꯒꯦ ꯌꯄꯗꯗꯦ ꯇꯕꯑꯣ ꯑꯃꯁꯨꯡ ꯌꯦꯂꯆꯦꯗ ꯃꯦꯒꯐꯂ ꯁꯕ ꯊꯤꯡꯅ ꯑꯃꯁꯨꯡ ꯑꯅꯦ ꯐꯨꯒꯅꯗꯦ ꯃꯦꯒꯐꯂ ꯁꯐꯕ ꯆꯃꯗ ꯂꯕꯒꯤꯗꯃꯑꯣ ꯗꯅꯂꯦꯂ ꯗꯤꯕ ꯊꯤꯡꯅ (ꯁꯦꯛꯁꯟ 12); 2026-ꯒꯤ ꯕꯤꯅ ꯑꯃꯆꯦ ꯆꯁꯤꯗꯅ ꯁꯐꯕ ꯃꯂꯣꯁꯐ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯒꯤ ꯃꯦꯗꯆꯕ ꯆꯃ ꯑꯦꯑꯣꯂꯦꯃꯗꯁ ꯁꯒꯆꯤ, ꯑꯗꯨꯕ ꯃꯂꯤ ꯑꯅꯦ ꯂꯃꯁ꯫ ꯃꯆꯤꯡꯂꯨꯐꯒꯤ ꯃꯂꯣꯁꯐ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯐꯤꯌꯂꯤꯡꯒꯤ ꯅꯨꯆꯤꯗꯅꯗ ꯆꯦꯆꯤꯡ/ꯅꯨꯇ ꯐꯦꯒꯨꯆꯦꯂꯦ ꯕꯟ-ꯆꯇ, 2026-ꯗ "ꯄꯨꯈꯔꯤ, ꯅꯥꯃꯕꯦ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯦꯆꯦꯅꯂꯤꯡ" ("Pond, Drain, Rivers and Canals") ꯍꯔꯕ ꯅꯨꯇ ꯆꯦ ꯑꯃꯍ ꯆꯤ, ꯃꯂꯤ

> ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯗ ꯀꯣꯔꯤꯗꯣꯔ ꯑꯃꯥ ꯊꯝꯂꯤꯗꯂꯕꯒꯤ ꯇꯨꯛ ꯑꯁꯨꯂꯤ꯫ ꯅꯣꯡꯂꯨꯅ ꯁꯦꯡꯕ ꯏꯁꯤꯡ ꯏꯆꯦꯟꯒꯤ ꯂꯣꯝ ꯑꯃꯥ, ꯑꯣꯏꯗꯒꯤ ꯂꯥꯏꯆ ꯑꯃꯥ ꯂꯦꯡꯕꯒꯤ ꯃꯥꯁ꯭ꯇꯔ-ꯄ꯭ꯂꯥꯟꯗꯒꯤ ꯂꯥꯏꯆ ꯑꯃꯗ ꯃꯦꯁ꯭ꯇꯔ ꯁꯕ ꯃꯆꯦꯟ ꯃꯦꯁ ꯌꯨꯗꯤ; ꯑꯁꯣꯡꯡ ꯃꯆꯦꯟꯂꯤꯃꯅ, ꯑꯃꯁꯨꯡ ꯃꯦꯁ ꯄꯦꯡꯗ ꯗꯍꯡ ꯃꯆꯦꯟꯅ, ꯂꯈꯨꯍ 7-ꯒꯤ ꯄꯥꯟꯅꯈꯣꯔꯤꯗꯣꯔ ꯀꯣꯔꯤꯗꯣꯔ (hydraulic corridor) ꯑꯃꯁꯨꯡ ꯂꯦꯌꯕꯦꯍ ꯇꯥꯗꯂꯤꯃ ꯌꯨꯗꯤ, 8 ha ꯂꯌꯕꯒꯤ ꯃꯦꯟꯅꯒꯤ ꯄꯦꯗꯗ ꯅꯂꯤꯃ ꯌꯦꯅꯄꯅꯇꯤꯕ ꯌꯦꯂꯦꯅ ꯂꯅꯤꯃꯃꯍꯁ ꯑꯃꯁꯨꯡ ꯁꯤꯌ ꯑꯃꯁꯨꯡ ꯁꯈꯕꯤ ꯂꯅꯤꯃꯃꯍꯀꯤ ꯑꯀꯣꯔꯕꯅ ꯔꯤꯃꯈꯕꯕꯅꯂ 15 m-ꯒꯤ ꯇꯥꯗ 1 ꯑꯃꯥ, ꯁꯗ ꯇꯥꯕ ꯕꯤꯌ ꯑꯃꯅ ꯁꯗꯒꯤ ꯇꯃꯒꯤ ꯃꯅꯀꯒꯤ ꯁꯣꯅꯒꯤ (landward toe) ꯃꯦꯇꯕ ꯁꯥꯂꯗ, ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯑꯦꯍꯂꯁꯦꯗꯌ ꯄꯥꯁꯌꯤꯗꯂꯗ 10 m ꯆꯥꯡꯕ ꯇꯥꯗ 2 ꯑꯃꯥ, ꯀꯗꯒꯃꯕ ꯑꯃꯗ ꯄꯦꯗꯗ ꯁꯍꯁ, ꯃꯦꯂꯌꯦꯅ ꯑꯂꯤꯒꯤ ꯁꯕꯁꯥꯇꯦꯅ ꯑꯣꯅꯗ, 1% AEP-ꯒꯤ ꯃꯦꯁ ꯑꯂꯤ 1978-ꯒꯤ ꯑꯦꯍꯌꯀꯤ ꯃꯄꯥꯅ ꯃꯆꯍꯒꯤ ꯀꯕꯤꯒꯃꯕ ꯇꯣꯗꯤꯃ ꯑꯃꯒꯤꯅꯃꯍ ꯅꯗꯁꯂꯌ ꯑꯃꯥ ꯑꯣꯅꯗ ꯁꯤꯕꯤ, ꯇꯣꯗ ꯑꯃꯥ ꯑꯣꯅꯗ ꯂꯌꯁꯦ,
> ꯑꯃꯁꯨꯡ ꯁꯕꯅꯒꯦꯌ ꯁꯌꯁ ꯇꯝ (patta land) ꯑꯣꯅꯕꯤꯕ ꯇꯣꯗ 1-ꯒꯤ ꯇꯝ ꯃꯂꯣꯝꯕ ꯄ꯭ꯂꯥꯟꯗꯅ ꯆꯃꯇꯤꯔꯇꯤ ꯂꯌꯕꯒꯤ ꯑꯦꯒꯕꯤꯃꯦꯗꯌꯗ ꯂꯦꯀꯄꯕ ꯁꯅ, ꯇꯆꯣꯍꯁ ꯂꯌꯁꯦ꯫ BSMP ꯑꯃꯗ ꯃꯂꯣꯝꯕ ꯄ꯭ꯂꯥꯟꯗꯂꯤꯃ, TPD ꯑꯃꯁꯨꯡ ꯃꯆꯃꯒꯤ ꯀꯕꯤꯒꯃꯕ ꯆꯇꯅ ꯇꯣꯗꯤꯃ ꯑꯣꯆꯣꯕꯤꯁꯤ ꯑꯃꯅ ꯃꯅꯣꯌꯗ ꯃꯆꯦ ꯁꯦꯕ, ꯑꯦꯂꯌꯆꯣꯔꯂꯤꯃ ꯆꯤꯃꯇꯤꯔꯇꯒ 1% AEP-ꯒꯤ ꯅꯕꯃ-ꯅꯂꯤꯃ ꯅꯌꯦꯂꯒꯤ ꯃꯦꯁ, ꯑꯃꯁꯨꯡ ꯂꯈꯨꯍ 7-ꯒꯤ ꯕꯆꯕꯒꯤ ꯁꯍ-ꯌꯦꯂꯕꯂꯤꯃ ꯁꯤꯕꯤ꯫ ꯑꯣꯁꯗ ꯂꯁꯦꯂꯀꯤ ꯇꯝ ꯂꯁꯣꯕꯦꯇ ꯂꯌꯕꯒꯤ ꯆꯇꯣ ꯁꯆ ꯑꯣꯅꯗ ꯂꯤꯇꯤꯗꯂꯕ ꯑꯂꯤꯒꯤ ꯄꯀꯆꯕꯤꯗꯕ ꯃꯃꯒꯤ ꯂꯅꯃ ꯑꯃꯌꯁꯕ ꯇꯥꯁꯦ; ꯃꯦꯂꯌꯦꯅ ꯑꯂꯤꯗ ꯃꯂꯤ ꯇꯥꯅ ꯃꯕꯃꯅꯤ ꯃꯣꯅꯦꯅꯗ ꯄꯥꯇꯤꯍꯁꯒꯤ 100 m² ꯑꯃꯁꯨꯡ ꯃꯦꯅꯒꯤ ꯌꯦꯂꯕ ꯄ꯭ꯂꯥꯟꯌꯂꯤꯃ ꯂꯣꯒꯤ ꯅꯂꯤꯃ ꯅꯣꯃꯇꯤꯗꯕ ꯑꯂꯤ ꯃꯆꯥ ꯁꯄꯦꯅꯇꯦ, ꯂꯣꯒꯤ ꯅꯂꯤꯃ ꯅꯕꯃ ꯑꯃꯁꯨꯡ "ꯂꯕꯆꯦꯂ ꯕꯤꯇꯕꯒꯌꯕꯂꯤꯃꯅ ꯂꯌꯕꯒꯤ ꯕꯤꯌꯕꯇ ꯌꯦꯅꯂꯤꯃꯅ"
> ("in surface reservoirs or in recharge wells") ꯂꯣꯒꯤ ꯅꯂꯤꯃ ꯅꯣꯃꯇꯤꯗꯕ ꯁꯣꯅꯗꯌꯂꯤꯃ ꯄ꯭ꯂꯥꯟꯗꯂꯤꯃꯅ ꯁꯌꯂꯗ (ꯕꯅ-ꯇꯣ 66(a)),
> 500 m² ꯂꯌꯕꯒꯤ ꯃꯦꯅꯒꯤ ꯄꯦꯗꯕ ꯀꯒꯕ ꯁꯕꯕ ꯑꯦꯕꯤꯌ ꯇꯕ ꯕꯤꯅꯤꯃꯂꯤꯃꯒꯤꯅꯃꯍ ꯄ꯭ꯂꯥꯟꯌꯀꯤ ꯌꯤꯃꯈꯕꯕꯅꯂ 15% ꯑꯃꯁꯨꯡ
> ꯑꯁꯣꯁꯁꯂꯤꯃꯒꯤꯅꯃꯍ 10%-ꯒꯤ ꯂꯣꯆꯌ ꯀꯒꯕ (soft cover) ꯃꯆꯥ ꯁꯄꯦꯅꯇꯤ (66(b)), ꯃꯂꯤꯗ ꯃꯆꯥ ꯁꯄꯦꯅꯇꯤꯕ ꯑꯣꯁꯗ ꯂꯁꯦꯂꯂꯤꯃꯅ
> "ꯂꯣꯒꯤ ꯅꯂꯤꯃꯒꯤꯅꯃꯍ ꯂꯌꯁꯗ" ("except for rain water") ꯄꯥꯃꯅꯣꯍꯇꯕ ꯅꯣꯃꯕꯦ ꯑꯃꯌꯁ ꯌꯤꯄꯦꯅꯇꯅ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯒꯕꯤꯗ-
> ꯕꯤꯅꯤꯃꯒꯤ ꯀꯕꯤꯅꯁꯦꯕꯤꯌꯤꯂꯤꯃꯒꯤ ꯃꯂꯨꯃꯅ "ꯂꯅꯌꯁ ꯀꯗꯕ ꯁꯦꯒꯤꯃ ꯄꯦꯆꯄꯦꯗꯂꯗ ꯂꯅꯌꯁꯒꯤ ꯂꯣꯒꯤ ꯅꯂꯤꯃꯒꯤ ꯕꯗꯑꯣꯆ
> ꯄꯦꯆꯄꯦꯕ" ("Minimize storm water run-off from site by reducing hard paving on site") ꯌꯤꯁꯅ, ꯑꯃꯁꯨꯡ ꯃꯇꯤꯁꯨꯕꯒꯤ
> ꯃꯂꯣꯝꯕ ꯄ꯭ꯂꯥꯟꯗ ꯑꯦꯕꯤꯌꯤꯂꯤꯃꯒꯤ ꯌꯨꯇꯤꯆꯅꯅ ꯇꯣꯗꯤꯃ/ꯌꯨꯇ ꯕꯦꯒꯨꯇꯦꯂꯗ ꯕꯅ-ꯇꯣꯇ, 2026-ꯗ "ꯂꯣꯒꯤ ꯅꯂꯤꯃ ꯅꯣꯃꯇꯤꯗꯕꯒꯤ ꯂꯤꯂꯁꯦꯃ"
> ("Rain Water Harvesting System") ꯑꯂꯤ ꯌꯨꯇ ꯑꯃꯥ ꯑꯣꯅꯗ ꯑꯃꯁꯨꯡ "ꯄꯨꯈ꯭ꯔꯤ, ꯅꯣꯕꯕꯗ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯦꯜꯂꯤꯃ" ("Pond, Drain,
> Rivers and Canals") ꯌꯨꯇ ꯇꯣꯗ ꯑꯃꯥ ꯇꯤꯂꯌ ꯁꯅ, ꯑꯃꯕ ꯕꯤꯅ ꯑꯃꯌꯁꯗ ꯅꯤꯁꯦꯗꯂꯗ ꯂꯌꯕꯒꯤ ꯁꯤꯍ-ꯕꯗꯑꯣꯆꯀꯤ ꯇꯤꯃꯤꯌ ꯑꯃꯥ ꯆꯃꯅꯦ;
> ꯇꯦꯑꯦꯂꯌ ꯑꯃꯒꯤ ꯑꯣꯁꯗ ꯂꯁꯦꯂꯁ ꯆꯃꯕ ꯂꯁꯣꯕꯦꯇꯗ ꯆꯣꯅꯤꯃꯂꯤꯃ ꯑꯂꯤꯒꯤ ꯃꯆꯍꯁ ꯂꯅ, ꯑꯃꯁꯨꯡ ꯇꯝ ꯑꯃꯕ ꯄꯥꯇꯤꯍꯂ ꯑꯣꯁꯗ ꯂꯁꯦꯂ
> ꯑꯣꯅꯗ ꯂꯦꯕ ꯁꯕꯤꯕꯗ, ꯂꯁꯣꯕꯦꯇ ꯑꯃꯕ ꯑꯣꯁꯗ ꯂꯁꯦꯂ ꯑꯃꯥ ꯑꯣꯅꯗ ꯂꯤꯇꯤꯗꯂꯕ ꯌꯤꯕ ꯑꯣꯅꯗ ꯇꯒꯅꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯌꯤꯁꯕ ꯁꯦꯕꯅ ꯑꯂꯤ ꯇꯃꯨ
> ꯑꯌꯦꯌꯁ 30-ꯅꯒꯤ 65 m-ꯒꯤ ꯃꯆꯍꯁ ꯇꯃꯅꯅꯒꯤ 2-ꯅꯒꯤ 5 m ꯃꯄꯥꯅ ꯇꯕ ꯁꯃꯁꯇꯍꯀꯤ ꯇꯃꯅ (CGWB, 2013), ꯃꯂꯤ ꯑꯦꯂꯌꯆꯣꯅ ꯅꯂꯤꯃ
> ꯌꯦꯅꯄꯅꯇꯤꯕ ꯂꯣꯃꯕ ꯇꯅꯗ ꯁꯕꯕ ꯂꯁꯣꯕꯦꯇ ꯑꯃꯇꯤ, ꯅꯗꯆꯤꯅꯁꯕꯦꯗ ꯕꯦꯂꯤꯗ ꯑꯃꯌꯁ ꯂꯌꯁꯦ (ꯀꯇꯣꯇ 4.11, ꯁꯃꯁꯇꯍꯀꯤ ꯇꯃꯒꯤ ꯕꯤꯅ)꯫
> ꯃꯂꯤ ꯆꯇꯣ ꯁꯤꯆꯁ ꯆꯃꯕꯗ ꯅꯦꯒꯦꯇꯁꯁꯕꯅ ꯄꯦꯗꯗ ꯃꯃꯅ ꯑꯃꯌꯁ ꯌꯂꯄꯦꯅꯦ ꯑꯃꯁꯨꯡ ꯃꯦꯁ ꯂꯌꯁꯕꯕꯅꯤ ꯇꯒꯅꯕ ꯂꯁꯣꯕꯦꯇ ꯑꯃꯥ ꯕꯦꯂꯤꯗꯅ
> ꯁꯤꯕꯤ꯫

11.10 ꯌꯤꯕꯤ ꯂꯇꯇꯕ ꯑꯃꯁꯨꯡ ꯆꯣꯡꯅꯣꯍꯁ

11.10.1 ꯅꯕꯆꯌ BSMP ꯑꯃꯥ ꯂꯣꯍꯇꯤꯕ ꯇꯣꯀꯅ ꯕꯣꯅꯤ ꯌꯨꯅꯤꯃꯃꯍꯁ ꯁꯕꯇꯤꯍ ꯃꯤꯁꯤꯃꯂꯤꯃꯒꯤ ꯇꯣꯌꯇꯗ, ꯌꯤꯃꯅꯕꯕꯅꯂ **ꯆꯃꯤꯌ 60**-ꯒꯤꯅꯃꯍ ꯁꯕꯇꯤꯍꯀꯤ ꯌꯤꯆꯃꯂꯤꯃꯒꯤꯅꯃꯍ ꯆꯣꯃꯅꯣꯍꯀꯅꯕꯂꯤ꯫

11.10.2 ꯑꯦꯁꯕꯒꯦꯅꯒꯤ ꯃꯁꯨꯃꯅ, ꯃꯄꯥꯅ ꯁꯤꯕꯤꯕꯂꯤꯃ ꯑꯣꯁꯗ ꯅꯦꯁ ꯑꯣꯅꯗ ꯆꯣꯃꯅꯣꯍꯀꯅꯕꯂꯤ:

- ꯃꯣꯅꯦꯅꯒꯤ ꯆꯅꯅꯂꯤꯃ;
- ꯅꯂꯤꯃ ꯅꯌꯦꯂꯒꯤ ꯄꯗꯕꯅ ꯃꯦꯁꯂꯤꯃ;
- ꯀꯇꯣꯇ 11.5.1-ꯒꯤ ꯅꯦꯁ, ꯂꯦꯍꯌꯕꯁꯤꯒꯤꯅꯃꯍ ꯂꯦꯗꯂꯤꯁꯒ ꯑꯣꯅꯕ ꯑꯦꯂꯦꯌꯀꯤ ꯃꯕꯣꯅꯂꯤꯃ ꯂꯌꯁꯗ; ꯑꯃꯁꯨꯡ
- CIP꯫

ꯃꯄꯥꯌ ꯁꯕꯇꯤꯍ ꯃꯦꯁ ꯒꯤꯌꯌꯕ ꯑꯃꯅꯂ ꯁꯌꯀꯅꯕꯂꯤ꯫

> **ꯁꯂꯗꯥꯒꯦ ꯌꯥꯒꯃ.** ꯃꯣꯄꯁꯤꯟ ꯐꯥꯁꯗꯥꯛꯃꯦ ꯅꯩꯕꯁꯤꯟ, ꯅꯥꯦ ꯃꯤꯕꯁꯤꯟ, ꯂꯦꯁꯨꯌꯗꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯃꯐꯃ ꯑꯗꯨꯗ ꯅꯩꯗꯤꯕ ꯃꯤꯁꯤꯟꯦ ꯁꯗꯨꯗꯤꯌꯗ ꯅꯌꯗꯥꯛ ꯅꯩꯗꯨꯗꯤꯌꯗ ꯂꯁꯤꯟ ꯂꯔꯦꯒꯤ ꯄꯅꯗꯗ ꯁꯕ ꯔꯄꯟꯅꯤ꯫ ꯃꯥꯗꯣꯟ ꯐꯥꯁꯗꯥꯛꯃꯦ ꯗꯤꯅꯂꯅꯗꯁꯤꯟꯦ ꯑꯥꯌꯥꯗꯤꯌꯤꯒ ꯃꯦꯅꯅꯕ ꯕꯁꯦꯗꯗꯤ ꯃꯦꯗꯤꯁꯦꯁꯤꯟ ꯁꯤꯅꯤꯦꯅꯕ ꯔꯄꯟꯅꯤ, ꯃꯗꯐ ꯑꯗꯨꯦ ꯁꯂꯌꯃꯤ ꯗꯤꯅꯂꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯕꯣꯁꯤꯦꯒꯤ ꯃꯅꯦꯦ ꯑꯗꯨ ꯃꯦꯅꯅꯦ ꯅꯩ꯫
> ꯃꯁꯤ ꯁꯔꯨꯛ 10-ꯒꯤ ꯐꯥꯁꯗꯥꯛꯃꯒꯤ ꯌꯥꯑꯥꯗꯒ ꯃꯦꯅꯩ꯫

11.11 ꯑꯣꯄꯔꯨꯒꯣꯟ, ꯗꯤꯒꯤꯂꯨ ꯑꯃꯁꯨꯡ ꯗꯤꯄꯥꯗꯌꯤꯡ

11.11.1 **ꯑꯣꯄꯔꯨꯒꯣꯟ.** BSMP-ꯁꯤꯡ ꯃꯥꯗꯣꯟ ꯑꯃꯁꯨꯡ ꯄꯕꯅꯤꯒꯝꯤ ꯔꯦꯐꯃꯁꯤꯡ ꯗꯤꯒꯤꯂꯨ ꯌꯥꯗꯕ ꯃꯌꯨꯡꯗ ꯁꯌꯣꯌ ꯅꯥꯡꯒꯤ ꯂꯁꯤꯡꯒꯤ ꯌꯣꯒꯅꯤꯝꯣꯟ ꯝꯃꯤꯌꯤꯅꯦ (ꯁꯔꯨꯛ 1) ꯑꯣꯄꯔꯨꯒ ꯌꯧꯒꯗꯕꯅꯤ꯫

11.11.2 **ꯗꯤꯒꯤꯂꯨ.** BSMP ꯂꯨꯗꯤꯡꯃꯒ ꯗꯤꯒꯤꯂꯨ ꯌꯧꯒꯗꯕꯅꯤ:

- **ꯔꯄꯤ 10** ꯂꯨꯗꯤꯡꯗ;
- ꯕꯣꯁꯤꯦ ꯑꯗꯨꯗ 1% AEP-ꯒꯤ ꯗꯤꯅꯂꯦ ꯗꯣꯄꯑꯗꯒꯤ ꯄꯣꯦꯕ ꯑꯥꯗꯥꯒ ꯑꯃꯒꯤ ꯃꯌꯨꯡꯗ **ꯔꯄꯤ 2**-ꯒꯤ ꯃꯂꯨꯡꯗ (ꯝꯅꯥꯅ 2.14); ꯑꯃꯁꯨꯡ
- ꯑꯂꯦꯒꯤ ꯃꯔꯗ ꯅꯩꯕ ꯅꯣꯦꯗ-ꯂꯨꯅ ꯄꯅꯦꯦ ꯗꯤꯒꯂꯅ ꯌꯥꯗꯕ ꯃꯌꯥꯃꯗ꯫

11.11.3 **ꯔꯄꯤ ꯂꯨꯗꯤꯡꯒꯤ ꯗꯤꯄꯥꯗꯌ.** ꯅꯤꯗ ꯑꯥꯑꯥꯗꯤꯌꯤꯦ ꯃꯥꯦꯁꯦ ꯂꯨꯗꯤꯡꯃꯒꯝꯤ ꯃꯃꯤꯡꯗ (31 ꯃꯗꯔ ꯐꯁꯕ) ꯔꯄꯤ ꯂꯨꯗꯤꯡꯒꯤ ꯂꯃꯄꯅꯤꯃꯣꯦꯌꯣꯁꯦ ꯗꯤꯄꯥꯗꯌ ꯑꯃ ꯐꯥꯁꯗꯥꯛꯝꯗꯕꯅꯤ꯫ ꯗꯤꯄꯥꯗꯌ ꯑꯁꯤꯦ ꯃꯔꯗ ꯄꯤꯗꯤꯕꯁꯤꯡ ꯁꯌꯝꯗꯕꯅꯤ:

- CIP-ꯒꯤ ꯄꯗꯥꯒꯗꯣꯁ;
- ꯐꯤ-ꯂꯦ-ꯅꯤꯁꯒꯤ ꯅꯣꯅꯗ (ꯝꯅꯥꯅ 4.13.4);
- ꯅꯥꯂꯁꯤꯦꯂꯤꯕ ꯃꯣꯦꯌꯣꯅꯣꯦꯁ; ꯑꯃꯁꯨꯡ
- ꯅꯣꯒꯣꯟ ꯑꯥꯐ ꯁꯗꯒꯤꯁꯁꯤꯡꯒ ꯔꯡꯗꯃꯅꯨꯦ ꯑꯥꯒꯂꯤꯕ ꯂꯁꯤꯡ ꯂꯔꯁ ꯑꯃꯃꯒ꯫

11.12 ꯂꯦꯌꯗꯤꯃ ꯑꯣꯗꯣꯦꯅꯃꯣꯦꯌꯁꯤꯡ

11.12.1 ꯕꯣꯁꯤꯦ ꯑꯃꯒꯤꯗꯃꯒ BSMP ꯑꯃꯩ ꯑꯣꯄꯔꯨꯒ ꯌꯧꯕ ꯐꯁꯕ:

- (a) ꯁꯔꯨꯛ 4-ꯗꯒꯤ 8 ꯐꯥꯁꯕꯒꯤ ꯁꯂꯌꯝꯤ ꯝꯗꯥꯂꯌꯣꯗꯤꯔꯦ ꯄꯨꯃꯅꯃꯒ ꯃꯄꯨꯡ ꯐꯅꯦ ꯔꯌꯅꯤ;
- (b) ꯝꯅꯥꯅ 4.13-ꯒꯤ ꯃꯂꯗ ꯗꯤꯅꯅꯣꯟ ꯗꯤꯌꯣꯦꯁꯦ ꯑꯃꯁꯨꯡ ꯐꯤ-ꯂꯦ-ꯅꯤꯁ ꯐꯡꯗꯣ, ꯝꯅꯥꯅ 4.5.6.3-ꯒꯤ ꯃꯂꯗ ꯐꯤꯁꯤꯡ ꯑꯃꯅꯤꯦꯕ ꯅꯌꯌꯦ;
- (c) ꯐꯅꯥꯗ ꯅꯣꯒꯣꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯣꯌꯕꯣꯒꯁꯤꯡꯦ ꯐꯡꯕ ꯔꯩꯕ ꯂꯕꯩꯂꯗꯒꯤ ꯐꯕ ꯃꯣꯄꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯣꯄꯤꯡ ꯑꯃꯌꯌ ꯅꯌꯕ ꯃꯐꯃꯗ ꯁꯔꯨꯛ 6 ꯑꯃꯁꯨꯡ 7-ꯒꯤ ꯑꯥꯑꯥꯡꯁꯤꯡ ꯁꯤꯅꯤꯦꯅ; ꯑꯃꯁꯨꯡ
- (d) ꯄꯅꯤꯒ ꯂꯥꯡꯕꯦꯒꯤ ꯄꯗꯥꯅꯣꯒꯌꯁꯤꯡꯗ ꯃꯂꯥꯔꯒꯤ ꯑꯥꯁꯌꯐꯥꯟ ꯑꯃꯁꯨꯡ ꯃꯂ ꯑꯡꯕ ꯃꯐꯃꯒꯤ ꯗꯤꯔꯁꯤꯡꯦ ꯁꯔꯨꯛ 5-ꯒꯤ ꯌꯣꯟꯔꯔꯌꯗꯒꯤ ꯝꯣꯁꯁꯤꯡꯒꯤ ꯃꯂꯗ ꯗꯤꯅꯂꯦ ꯐꯅꯥ ꯅꯩꯕ ꯑꯃꯕꯗ ꯄꯔꯕꯒꯤ ꯕꯣꯁꯤꯦ-ꯅꯣꯒꯣꯟꯒꯤ ꯔꯣꯒ ꯑꯃꯩ ꯔꯁꯒꯗꯕꯅꯤ꯫

ꯂꯧꯔꯛꯐꯃꯁꯤꯡ (ꯁꯔꯨꯛ)

- Government of Manipur, MAHUD. *Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ No. SCS-401/3/2021-MAHUD-MAHUD-Part(3)-ꯗ ꯂꯩꯕ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ (ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ; ꯖꯣꯅꯤꯡ ꯅꯦꯇꯋꯥꯔꯛ; 2020 ꯑꯃꯁꯨꯡ 2043-ꯒꯤ ꯂꯦꯟꯗ ꯌꯨꯖ; ꯔꯦꯁꯤꯗꯦꯟꯁꯤꯑꯦꯜ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯡ ꯂꯧꯐꯃꯁꯤꯡ; ꯃꯤꯔꯦꯕꯦꯇ). http://web.archive.org/web/20250810073559/https://tpmanipur.mn.gov.in/media/filer_public/81/1c/811cef92-cba3-43cb-9e7f-caeef3738b68/revised_imphal_master_plan_report-1st_modification.pdf
- Town Planning Department, Manipur. *Annual Administrative Report 2025-26* (GIS ꯃꯦꯞꯄꯤꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ; ꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯒꯤ ꯄꯤꯂꯤꯡ ꯁꯦꯇꯦꯃꯦꯟ ꯃꯦꯞꯄꯤꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ; OBPS-ꯒꯤ ꯂꯦꯖꯦꯟ-ꯁꯨꯇ ꯔꯦꯁꯣꯁꯤꯡ; AMRUT 2.0). https://www.tpmanipur.mn.gov.in/media/filer_public/1a/48/1a484b87-afaa-41de-8d64-f6d2f27c49c7/admn_report2025-26.pdf
- Asian Infrastructure Investment Bank (2024). *Approval Project Document* ꯑꯃꯁꯨꯡ *Project Summary Information*, Manipur Urban Road, Drainage and Asset Management Improvement Project (P000723). https://www.aiib.org/en/projects/details/2024/_download/India/AIIB-PSI-P000723-India-Manipur-Urban-Road-Drainage-and-Asset-Management-Improvement-Project_clean_20241129.pdf
- New Development Bank (2021). *Proposed Project Summary, Lamphelpat Waterbody Rejuvenation Project.* https://www.ndb.int/wp-content/uploads/2021/11/Project-Summary-Lamphelpat.pdf
- High Court of Manipur. PIL No. 8 of 2025, 16 ꯖꯨꯟ 2025-ꯒꯤ ꯑꯣꯔꯗꯔ, ꯂꯝꯐꯦꯜꯄꯥꯠꯀꯤ ꯃꯄꯥꯟꯗ WRD-ꯒꯤ ꯁꯔꯚꯦ ꯔꯤꯄꯣꯔꯇꯀꯤ ꯂꯣꯏꯁꯤꯜꯂꯕ (ꯗꯔꯦꯖꯤꯡ; ꯁꯃꯨꯗ ꯁꯥꯌꯤꯇꯀꯤ ꯑꯣꯏꯕꯒꯤ ꯃꯍꯩꯁꯤꯡ ꯍꯦꯛ ꯄꯨꯟꯕ). https://rawlaw.in/wp-content/uploads/2025/06/Meeyam-Amata-Oina-Punsinba-Lup.pdf
- Manipur Science and Technology Council (MASTEC). *Flood Hazard Zonation in Manipur Valley*, DST-NRDMS-ꯗ ꯍꯤꯟꯅꯕ ꯏꯅꯂꯦꯇ ꯔꯤꯄꯣꯔꯇ (2002 ꯏꯃꯦꯖꯒꯤ ꯁꯣꯏꯡ ꯁꯦꯇꯦꯃꯦꯟ; 1974–2000-ꯒꯤ ꯁꯃꯨꯗꯀꯤ ꯁꯨꯞꯅ ꯀꯗꯤꯡꯒꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯁꯦꯇꯦꯃꯦꯟ; 1999–2001-ꯒꯤ ꯗꯤꯁꯦꯇꯔꯁꯤꯡ; ꯂꯣꯡꯄꯣꯡ, ꯁꯤꯟꯁ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯃꯍꯩ; ꯃꯇꯝꯒꯤ ꯂꯦꯡꯁꯤꯡ). https://www.mastec.nic.in/images/Completed_projects/ReportFloodHazard.pdf
- Central Ground Water Board, North Eastern Region (2013). *Ground Water Information Booklets*, Imphal West ꯑꯃꯁꯨꯡ Bishnupur districts; ꯑꯃꯁꯨꯡ 2023 ꯑꯃꯁꯨꯡ 2024-ꯒꯤ ꯃꯍꯤꯔꯥꯡꯒꯤ ꯗꯥꯏꯅꯃꯤꯛ ꯒ꯭ꯔꯥꯎꯟꯗ ꯋꯣꯇꯔ ꯔꯤꯁꯣꯔꯁ (ꯑꯦꯁꯇꯤꯃꯦꯠ ꯃꯁꯤꯡ ꯁꯦꯜ).
- Government of Manipur. O.A. No. 606 of 2018-ꯗ National Green Tribunal-ꯗ ꯍꯤꯟꯅꯕ ꯔꯤꯄꯣꯔꯇꯁꯤꯡ (ꯖꯨꯂꯥꯏ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯦꯝꯕꯔ 2025: ꯁꯤꯋꯦꯖ ꯇꯔꯤꯠ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ; ꯂꯝꯕꯤꯒꯤ ꯍꯣꯡꯕ 72-ꯒꯤ ꯁꯥꯏꯔꯦꯟꯁꯤꯡ).
https://www.greentribunal.gov.in/
- Defra (2010). *Surface Water Management Plan Technical Guidance*. Department for Environment, Food and Rural Affairs, London.
- Mile High Flood District (Denver). Master planning programme ꯑꯃꯁꯨꯡ Urban Storm Drainage Criteria Manual.
- Mid-America Regional Council (2025). APWA Stormwater Standards Supplement; KC Metro APWA Section 5600, Version 2025.01.
- Department of Irrigation and Drainage Malaysia (2012). *Urban Stormwater Management Manual for Malaysia (MSMA)*, 2nd ed.
- Government of Manipur, MAHUD. *The Model Manipur Unified Building Bye-Laws, 2024*, 4 ꯗꯤꯁꯦꯝꯕꯔ 2024-ꯒꯤ Notification No. BBL-101/1/2024-MAHUD-MAHUD-Part(1) (Manipur Gazette Extraordinary No. 253, 5 ꯗꯤꯁꯦꯝꯕꯔ 2024): ꯁꯦꯛꯁꯟ-ꯂꯥ 66, 93 ꯑꯃꯁꯨꯡ 94 (ꯃꯤꯇꯩꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯂꯝꯕꯤꯁꯤꯡ [TBC]); ꯑꯃꯁꯨꯡ *Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026*, 22 ꯖꯨꯂꯥꯏ 2026-ꯒꯤ Notification No. BBL-101/1/2024-MAHUD-MAHUD (Gazette Extraordinary No. 157, 23 ꯖꯨꯂꯥꯏ 2026).
https://www.tpmanipur.mn.gov.in/media/filer_public/44/2b/442b7923-b910-494a-83d5-767f50c0c87c/unified_zoning_final_gazette.pdf

- *The Manipur Loktak Lake (Protection) Act, 2006* (Manipur Act 3 of 2006), ꯑꯦꯃꯦꯟꯗ ꯇꯧꯔꯕꯥ, ꯁꯦꯛꯁꯟ 1(3), 3 ꯑꯃꯁꯨꯡ 19; *The Manipur Conservation of Paddy Land and Wetland Act, 2014* (Manipur Act 10 of 2014), ꯁꯦꯛꯁꯟ 2 ꯑꯃꯁꯨꯡ 12; *The Manipur Flood Plain Zoning Act, 1978* (Manipur Act 10 of 1978), ꯁꯦꯛꯁꯟ 1–7.
- *The Manipur (Hill Areas) District Councils Act, 1971*, ꯑꯦꯃꯦꯟꯗ ꯇꯧꯔꯕꯥ, ꯁꯦꯛꯁꯟ 29 ꯑꯃꯁꯨꯡ 29(1A). https://manipur.gov.in/wp-content/uploads/2026/05/The-Manipur-Hill-Areas-District-Councils-Act-1971-subsequent-Amendments.pdf
- Directorate of Environment and Climate Change, Manipur. *Administrative Report 2025-26* (ꯃꯆꯤꯡꯉꯥ ꯂꯩꯄꯥꯛ ꯁꯦꯟꯇꯦꯜꯂꯣꯟ ꯑꯦꯖꯦꯟꯁꯤ; ꯂꯣꯛꯇꯥꯛ ꯁꯦꯟꯇꯦꯜꯂꯣꯟ ꯊꯧꯔꯥꯡꯁꯤꯡ; ꯋꯦꯇꯂꯦꯟꯗ ꯁꯦꯜꯇꯥꯡꯁꯤꯡ; ꯏꯁꯤꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠꯀꯤ ꯊꯕꯛ ꯄꯥꯟꯗꯝ; ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯁꯦꯟꯊꯥ ꯍꯥꯌꯔꯤ). https://assembly.mn.gov.in/user/pages/files/administrative-reports/A%20Report%202025-26%20(DoECC).pdf
- Singh (2025). *NEHU Journal* XXIII(1), 85–99 (ꯑꯦꯕꯁ꯭ꯠꯔꯦꯛꯇ ꯍꯥꯏꯕ: 1991–2024-ꯒꯤ ꯃꯆꯤꯡꯉꯥꯒꯤ ꯏꯆꯥ ꯏꯁꯤꯡꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯁꯦꯜ ꯏꯁꯤꯡꯒꯤ ꯁꯨꯔꯦꯟ; ꯁꯣꯗꯁꯟ ꯑꯦꯡꯂꯦꯟ ꯁꯣꯏꯗꯦ [TBC]). https://dspace.nehu.ac.in/server/api/core/bitstreams/ea6898d7-8ab2-4c2e-9287-e95a54da42b5/content
- India Meteorological Department. *Extremes of Temperature and Rainfall for Indian Stations (up to 2012)*: Imphal (Tulihal) (A), 42623.
- South Asia Network on Dams, Rivers and People (2018). ꯁꯦꯟꯇ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ CWC-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯦꯜ ꯃꯦꯁꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯒꯤ ꯑꯦꯡꯂꯦꯡ (CWC ꯂꯣꯌꯅꯕꯤ ꯑꯣꯏꯕꯒꯤ ꯁꯦꯟꯊꯥꯅꯕꯥ, ꯍꯦꯟꯅꯥ ꯃꯊꯧ ꯇꯥꯕ ꯑꯣꯏꯕ ꯁꯤꯡꯗꯤ). https://sandrp.in/2018/08/05/overview-of-cwcs-flood-monitoring-forecasting-in-north-east-india/
- The Sangai Express, Imphal Free Press, India Today NE, Down To Earth, Business Standard ꯑꯃꯁꯨꯡ ꯑꯣꯏꯔꯤꯕ ꯄꯥꯎꯖꯦꯜꯁꯤꯡ (2015–2026). WRD-ꯒꯤ ꯁꯦꯟꯇꯦꯜꯒꯤ ꯆꯦꯡꯒꯤꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ 2015, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯁꯤꯡ, ꯆꯃꯇꯦꯜꯄꯥꯌ ꯄꯥꯎꯖꯦꯜ, ꯆꯥꯎ ꯈꯨꯔꯨ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯂꯣꯡ ꯃꯤꯌꯥꯝ, ꯃꯄꯥꯟꯗꯔꯤ ꯑꯍꯥꯟ, ꯁꯣꯜꯂꯦꯡꯒꯤ ꯆꯦꯟꯅꯕꯥ, ꯆꯦꯠꯁꯤꯟꯕꯤ ꯑꯦꯡꯂꯦꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯒꯤ ꯂꯣꯏꯁꯤꯟꯕꯤ ꯃꯤꯍꯥꯠꯄꯁꯤꯡ (ꯑꯦꯡꯂꯣꯕ ꯌꯥꯗꯕꯇꯦꯛꯁꯤꯡ).

ꯑꯍꯦꯅꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜꯁꯤꯡ

ꯑꯍꯦꯅꯕ / ꯇꯦꯕꯜ	ꯑꯔꯊꯕ
11A	BSMP-ꯒꯤ ꯁꯥꯏꯟ ꯑꯦꯇ ꯃꯇꯝꯃꯤꯟꯅꯕꯤ ꯁꯥꯖꯥꯡꯂꯥ
11B	ꯁꯤꯡꯃꯥ A ꯕꯦꯟꯁꯣꯏꯒꯤꯅꯥ ꯕꯥꯂꯣꯌꯣꯏꯒꯤ ꯆꯤꯂꯥ ꯑꯃꯁꯨꯡ ꯖꯥꯁꯣꯏ
11C	ꯃꯆꯤꯡꯉꯥꯒꯤ ꯕꯤꯔꯅꯤꯒꯤ ꯃꯍꯔꯣꯏꯒꯤꯅꯥ ꯅꯥꯀ–ꯅꯥꯃꯆ ꯊꯥꯛꯂꯣꯏ
11D	BSMP-ꯒꯤ ꯅꯥꯁ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯥꯔ ꯇꯦꯡꯅꯦꯡꯀꯒꯤ ꯂꯣꯌꯅꯥꯅ
ꯇꯦꯕꯜ 11-1	ꯏꯆꯥ ꯏꯁꯤꯡꯒꯤ ꯂꯃꯀꯆꯤꯃꯌꯥꯂꯣ ꯃꯤꯀꯦꯃꯂ

ꯄꯣꯂꯤꯁꯤ, ꯔꯇꯂꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯖꯣꯁꯤꯅꯕ

ꯑꯍꯦꯟꯕꯁꯤꯡ ꯑꯁꯤꯗꯤ ꯁꯗ꯭ꯌꯨꯜ 1-ꯗ ꯃꯄꯦꯡ ꯄꯟꯗꯅꯤ꯫ ꯃꯍꯥꯛꯀꯤ ꯃꯦꯄ꯭ꯂꯦꯡ ꯑꯁꯤ ꯀꯗꯍꯗ ꯔꯌꯕꯇꯒꯦ ꯄꯔꯕ ꯁꯦꯗꯥꯒꯗꯤ ꯄꯀꯑ ꯀꯤꯁ꯭ꯌ ꯑꯃꯁꯨꯡ ꯃꯦꯄ꯭ꯂꯦꯡ ꯑꯁꯤ ꯃꯤꯁꯤ, ꯄꯣꯂꯤꯁꯤ ꯁꯄꯂꯤꯃꯦꯟꯇ (Policy Supplement) ꯑꯃꯁꯨꯡ ꯃꯦꯄ꯭ꯂꯦꯡ ꯑꯁꯤ ꯔꯌꯂꯒꯄꯂꯒꯂꯤ ꯑꯅꯦꯒꯤ ꯅꯦꯁ꯭ꯌꯃꯦꯌꯁꯤꯡꯒꯤ ꯃꯗꯦꯡ ꯕꯦꯒꯁꯕ, ꯑꯃꯁꯨꯡ ꯑꯦꯄꯂꯤꯀꯦꯟꯇ (Applicant) ꯑꯃꯗꯤ ꯁꯗ꯭ꯌꯨꯜ 1-ꯒꯤ ꯃꯅꯗ ꯄꯤꯕ ꯖꯥꯕꯝ ꯑꯂꯤ ꯌꯦꯅꯕ꯫ ꯃꯦꯄ꯭ꯂꯦꯡ ꯑꯁꯤ ꯗꯕ꯭ꯖꯦꯇ ꯑꯃꯂꯤ; ꯂꯩꯊꯣꯛ ꯂꯇꯕꯒꯤ ꯑꯦꯂꯦꯄꯁꯤ ꯑꯃꯇꯕꯗꯤ ꯂꯩꯁꯤꯗꯅꯗꯦ: ꯑꯅꯦꯒꯤ ꯃꯗꯦꯡ ꯕꯦꯒꯁꯕ ꯑꯁꯤ ꯀꯃꯄꯤꯕꯦꯇ ꯑꯦꯖꯥꯕꯤꯕꯤ ꯑꯃꯗꯤ ꯌꯦꯅꯡ ꯕꯒꯂꯔꯒꯤꯗꯃꯒ ꯄꯤꯕꯤ ꯑꯃꯁꯨꯡ ꯔꯇꯂꯤꯗꯦ, ꯑꯃꯁꯨꯡ ꯖꯦꯕꯝꯁꯤꯡ ꯑꯁꯤ ꯗꯕ꯭ꯖꯦꯇ ꯖꯦꯕꯝꯁꯤꯡꯂꯤ꯫ "ꯁꯦꯝ ꯁꯥꯗꯕ" ("To be prepared") ꯄꯔꯗ ꯃꯕꯒ ꯕꯖꯕ ꯑꯄꯗ ꯃꯁꯤꯗ ꯃꯖꯥ ꯕꯕ ꯗꯦꯕ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯖꯥꯡꯗꯥꯒꯂꯒꯇꯕꯤꯖꯅꯕ ꯁꯤꯂꯤꯔꯂꯒꯗꯕ ꯕꯤꯅ ꯑꯃ꯭ꯌ ꯄꯅ (ꯀ꯭ꯂꯣꯖ 1.11.5)꯫

ꯑꯍꯦꯟꯕ 1A — ꯕꯤꯔꯕ A ꯑꯥꯂꯥꯕꯤꯕꯤꯁꯤꯡꯒꯤ ꯂꯤꯁ꯭ꯇ, ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯏꯝꯐꯥꯜꯒꯤ ꯕꯤꯒꯤꯅꯖ ꯕꯦꯕꯕ GIS ꯕꯦꯖ ꯃꯦ꯭ꯄꯕ ꯀ꯭ꯂꯣꯖ – 2043 (ꯑꯄꯂꯕ ꯃꯗꯤꯖꯤꯀꯦꯁꯟ)-ꯒꯤ ꯄ꯭ꯂꯥꯅꯤꯡ ꯏꯝꯐꯥꯜ ꯀ꯭ꯂꯣꯖꯂꯤꯡ ꯑꯦꯕꯤꯔꯤꯒꯤ ꯍꯃꯅꯤꯁꯤꯡꯒꯤ ꯂꯥꯔꯂꯗ

[ꯁꯗ꯭ꯌꯨꯜ 1](#)-ꯒꯤ ꯀ꯭ꯂꯣꯖ 1.6.1-ꯗꯒꯤ 1.6.5 ꯖꯤꯗꯕꯗ ꯃꯄꯦꯡ ꯄꯟꯗꯅꯤ꯫

1A.1 ꯀ꯭ꯂꯣꯖ 1.6.1-ꯗ ꯕꯤꯔꯕ A ꯑꯁꯤ ꯑꯥꯂꯥꯕꯤꯕꯤꯒꯤ ꯀ꯭ꯂꯣꯁꯤ ꯃꯄ꯭ꯂꯦꯡ ꯅꯦꯂꯂ ꯁꯦꯗꯥꯒꯗ ꯄꯒꯂꯤ꯫ ꯄꯦꯕꯔ 1A.1-ꯗ ꯁꯗ꯭ꯌꯨꯜ 1-ꯗ ꯁꯦꯗꯥꯒꯗ ꯄꯀꯑꯒ꯭ꯂꯃꯗ ꯀ꯭ꯂꯣꯁꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ ꯑꯃ꯭ꯂꯗ ꯃꯃꯤꯡ ꯂꯕꯕ ꯑꯥꯂꯥꯕꯤꯕꯤꯁꯤꯡ ꯑꯤꯕꯤ꯫ ꯄꯦꯕꯔ 1A.1-ꯗ ꯌꯦꯗꯕꯗꯕ ꯑꯥꯂꯥꯕꯤꯕꯤ ꯅ꯭ꯗꯤꯡꯃꯒ ꯕꯤꯔꯕ B-ꯂꯤ (ꯀ꯭ꯂꯣꯖ 1.6.2)꯫

ꯄꯦꯕꯔ 1A.1 — ꯀ꯭ꯂꯣꯖ 1.6.1-ꯗ ꯁꯦꯗꯥꯒꯗ ꯄꯀꯑꯒ꯭ꯂꯃꯗ ꯕꯤꯔꯕ A ꯑꯥꯂꯥꯕꯤꯕꯤꯁꯤꯡ

ꯑꯅꯄꯦꯝ	ꯕꯤꯔꯕ A ꯑꯥꯂꯥꯕꯤꯕꯤ	ꯀ꯭ꯂꯣꯖ
(a)	ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC)	1.6.1(a)
(b)	PDA Manipur ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯅꯤꯡ ꯏꯝꯐꯥꯜ ꯀ꯭ꯂꯣꯖꯂꯤꯡ ꯑꯦꯕꯤꯔꯤ (151.38 km², ꯄ꯭ꯂꯥꯅꯤꯡ ꯏꯝꯐꯥꯜꯒꯤ ꯕꯤꯒꯤꯅꯖ ꯕꯦꯕꯕ GIS ꯕꯦꯖ ꯃꯦ꯭ꯄꯕ ꯀ꯭ꯂꯣꯖ – 2043 (ꯑꯄꯂꯕ ꯃꯗꯤꯖꯤꯀꯦꯁꯟ)-ꯒꯤ ꯑꯦꯕꯤꯔꯤ)-ꯒꯤ ꯃꯂꯨꯡꯗ ꯂꯕ ꯑꯄꯥꯔ ꯑꯦꯔ꯭ꯕꯒꯤꯡ ꯑꯥꯂꯥꯕꯤꯕꯤ ꯅ꯭ꯗꯤꯡꯃꯒ, ꯁꯅꯍ ꯑꯃꯗ ꯂ꯭ꯕꯤꯁꯗꯤꯒꯁꯦ ꯂꯕ ꯑꯃ꯭ꯌ (IMC-ꯒꯤ ꯍꯃꯅꯤꯒꯤ ꯃꯀꯦꯗ ꯂꯕ ꯀ꯭ꯂꯣꯖꯂꯤꯡ ꯑꯦꯕꯤꯔꯤꯗ ꯀꯂꯗ ꯕꯤꯅꯗꯤꯡ ꯀ꯭ꯂꯕꯃꯤꯁꯦ ꯀꯤꯕꯒ ꯄꯔꯕ ꯀꯦꯖꯕꯝ ꯄꯒꯗꯕꯂꯤ [TBC])	1.6.1(b)
—	ꯀꯦꯖꯦꯁꯤꯅꯒꯤ ꯕꯤꯂꯂ꯭ꯁꯦꯂꯗ ꯕꯤꯔꯕ A-ꯗ ꯍꯥꯂꯀꯄ ꯕꯤꯔꯕ B ꯑꯥꯂꯥꯕꯤꯕꯤ ꯑꯃ, ꯂꯍꯕꯒ ꯂꯩꯊꯣꯛꯂ ꯕꯤꯔꯕ A ꯑꯅꯂ ꯂꯦꯕꯤꯖꯅ ꯄꯕꯕ ꯑꯃ	1.6.4

1A.2 ꯕꯤꯔꯕ ꯀꯕꯤꯒ꯭ꯂꯝꯕ ꯑꯅꯕꯕꯂ꯭ꯂ, ꯅꯁꯤꯡ ꯅꯔꯗꯕ ꯁꯦꯁꯤꯕꯤꯒ ꯑꯅꯕ ꯀꯦꯍꯃꯦꯍ (catchment) ꯑꯃꯗ ꯗꯤꯂꯅꯦ-ꯑꯦꯗꯀꯤ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 1.7-ꯒꯤ ꯑꯂꯄꯕꯂꯦꯄꯤꯒꯁꯤꯡ ꯖꯤꯗꯦ (ꯀ꯭ꯂꯣꯖ 1.6.5; ꯑꯍꯦꯟꯕ 1B)꯫

ꯅꯣꯠ ꯆꯦꯛꯁꯤꯟꯕ. ꯑꯔꯣꯏꯕ ꯑꯣꯏꯅ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯁꯦꯟꯊꯣꯛ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯑꯦꯂꯥꯏꯅꯃꯦꯟꯇꯀꯤ ꯀꯨꯃꯗꯥ ꯆꯠꯕ ꯑꯦꯛꯁꯤꯖꯤꯡꯒꯤ ꯑꯦꯛꯁꯦꯜꯁꯤꯡ ꯀꯨꯝꯅ ꯊꯕ ꯇꯤꯅꯦ, ꯀꯀꯤꯡ ꯀꯁ꯭ꯨꯡ ꯅꯦꯇ, ꯀꯅ꯭ꯔ ꯑꯦꯛꯁꯦꯜꯀꯔ ꯁꯤꯔꯦꯜ A ꯑꯦꯅꯦꯂꯥꯏꯖ ꯄ꯭ꯔꯀꯤꯌꯥ ꯇꯧꯔꯣꯏꯗꯦ, ꯑꯃꯁꯨꯡ ꯑꯦꯂꯤꯔꯦ ꯑꯃꯗ ꯑꯃꯁꯨꯡ ꯅꯀꯗꯦꯟ ꯀꯨꯄ꯭ꯂꯤꯀꯦꯁꯟ ꯃꯦꯂꯥꯏꯅꯃꯦꯟꯇꯀꯤ ꯃꯀꯨꯆꯥꯡ ꯀꯣꯝ ꯑꯃꯁꯨꯡ GIS ꯇꯣꯔꯦꯜ ꯑꯦꯅꯗꯦ ꯔꯦꯐꯔꯀꯤꯗꯤ॥ ꯀꯆꯤꯀꯤꯡꯀꯔ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯁꯦꯟꯒꯤ ꯂꯤꯛꯅꯇ ꯁꯦꯂꯕ GIS ꯕꯦꯇ ꯀꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯟꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification))-ꯒꯤ ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯑꯦꯂꯤꯔꯦꯒꯤ ꯇꯦꯁꯤꯖꯅ ꯁꯦꯂꯕ ꯀꯀꯟ ꯑꯃꯁꯨꯡ ꯀꯆꯤꯒꯤ ꯇꯦꯄꯆꯤꯡ (MAHUD, TPD); IMC-ꯒꯤ ꯔꯦꯂꯗ 27 ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯑꯦꯂꯤꯔꯦꯗ ꯔꯦꯗꯕ ꯑꯁꯤꯀꯥꯀ ꯗꯂꯕꯄ ꯇꯦꯃꯅ ꯕꯦꯗꯤꯆꯤꯡꯒꯤ ꯀꯀꯟꯆꯤꯡ, ꯀꯅ꯭ꯔꯒꯤ ꯀꯨꯡꯗ ꯇꯣꯒꯣꯐꯕꯂ 2025-ꯒꯤ ꯗꯂꯕꯄ ꯇꯦꯃꯅ ꯕꯦꯗꯤ 23-ꯒꯤ ꯗꯂꯖꯤꯇ ꯀꯀꯟ ꯇꯦꯁꯤꯖꯤꯃꯣꯆꯄꯆꯤꯡꯗ ꯔꯦꯗꯕꯆꯤꯡ (TPD, ꯗꯂꯕꯄ ꯇꯦꯃꯅ ꯕꯦꯗꯤꯆꯤꯡ); ꯀꯨꯄ꯭ꯂꯤꯀꯦꯁꯟ ꯀꯀꯟꯒꯤ ꯀꯄꯦꯄꯗ PDA Manipur ꯑꯦꯗꯦꯂꯤꯁꯤ ꯑꯦꯅꯕ ꯑꯦꯂꯤꯔꯦ, ꯑꯃꯁꯨꯡ IMC-ꯒꯤ ꯀꯀꯟꯒꯤ ꯀꯄꯦꯄꯗ ꯇꯕ ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯑꯦꯂꯤꯔꯦꯗ ꯕꯤꯅꯗꯤꯡ ꯄꯦꯂꯀꯤꯆꯄ ꯄꯤꯕ ꯕꯦꯗꯤ, ꯀꯆꯤ ꯀꯨꯔꯣꯟ ꯑꯆꯤꯀꯤꯡꯀꯔ ꯃꯄꯤꯂꯥꯀ ꯁꯣꯅꯤꯗꯣ [TBC] (PDA Manipur, MAHUD); ꯑꯃꯁꯨꯡ ꯄꯦ ꯑꯃꯁꯨꯡ ꯆꯕ-ꯗꯤꯒꯤꯇꯄꯒꯤ ꯀꯀꯟꯆꯤꯡ (ꯂꯣꯒꯣꯍ ꯗꯤꯄꯦꯂꯇꯀꯣꯄꯇ, ꯆꯂꯒꯣ ꯑꯦꯖ ꯅꯄꯗꯤꯔꯦ) ꯀꯗꯩ ꯁꯅ॥ ꯀꯆꯤ ꯖꯦꯆꯗꯦꯀꯇꯀꯇꯂꯤꯖꯤꯗꯕ, ꯁꯤꯔꯦꯜ ꯑꯆꯤ ꯃꯇꯦꯇ 1.6.1-ꯒꯤ ꯃꯇꯦꯆꯆꯤꯆꯦ ꯇꯣꯄꯃꯇꯤ ꯑꯃꯁꯨꯡ [ꯖꯦꯂꯀ 1-1](#)-ꯗ ꯂꯣꯃꯦꯂꯗ ꯁꯒꯤꯇꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯗꯦꯂꯤꯁꯤꯇꯦ ꯄꯂꯤ-ꯑꯣꯄꯇꯤꯃꯣꯆꯄ ꯆꯁꯣꯇꯁ ꯀꯗ ꯃꯄꯤꯂꯥꯀ ꯁꯒꯤꯇꯤ (ꯃꯇꯦꯇ 1.5.9)॥

ꯁꯣꯕꯅ 1A.2 — ꯁꯤꯔꯦꯜ A ꯑꯦꯗꯦꯂꯤꯁꯤꯆꯤꯡꯒꯤ ꯂꯣꯇꯤꯆꯁꯂ (ꯇꯣꯑꯦꯗꯕ)

No.	ꯑꯦꯗꯦꯂꯤꯁꯤ	ꯃꯇꯦꯆ (ꯀꯨꯄ꯭ꯂꯤꯀꯦꯁꯟ ꯃꯦꯂꯥꯏꯅꯦꯂꯣꯄ / ꯀꯨꯄ꯭ꯂꯤꯀꯦꯁꯟ ꯃꯗꯤꯄꯆꯤꯅ / ꯇꯒꯂ ꯄꯄꯦꯔꯤꯇ / PDA Manipur / ꯗꯤꯆꯁꯂꯤꯡ ꯃꯗꯤꯄꯆꯤꯅ / ꯑꯁꯣꯄꯄ)	ꯄꯦ	ꯇ꯭ꯔꯖꯀ (ꯃꯇꯦꯇ 1.6.1(a), (b), (c) ꯇꯀꯂꯒ 1.6.4)	ꯁꯤꯔꯦꯜ A ꯑꯦꯅꯦꯂꯥꯏꯖ (ꯄ꯭ꯔꯀꯤꯌꯥ)	ꯇꯦꯁꯤꯖꯤꯃꯣꯆꯄ ꯇꯀꯂꯒ ꯂꯤꯇꯦꯇꯣꯆꯄꯒꯤ ꯂꯣꯖꯂꯣꯄ
1						
2						
3						

1A.3 IMC ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯁꯦꯟ ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯑꯦꯂꯤꯔꯦꯒꯤ ꯀꯀꯟꯒꯤ ꯀꯣꯝ ꯑꯆꯤ ꯀꯆꯤꯇꯦ ꯗꯀꯇꯤꯕ ꯇꯦꯁꯤꯖꯤꯃꯣꯆꯄꯒꯤ ꯄ꯭ꯔꯀꯤꯌꯥ ꯇꯦꯔꯦꯇꯦ, ꯀꯣꯆꯤꯄꯦ ꯄꯦꯕ ꯔꯦꯕ ꯖꯦꯂꯀꯣꯇ ꯑꯀꯗ ꯑꯦꯄꯦꯄ ꯗꯣꯁ ꯑꯦꯅꯗꯦ ꯖꯦꯆꯗꯦꯀꯃꯗꯕꯇꯤ (ꯃꯇꯦꯇ 10.17.4)॥

ꯑꯍꯥꯟꯕ 1B — ꯅꯆꯤꯡ ꯅꯔꯦꯗꯗ ꯆꯣꯄꯆꯤꯁꯤꯒ ꯑꯦꯅꯕ ꯃꯣꯔꯀꯣꯄꯇꯆꯤꯡꯒꯤ ꯀꯣꯄꯆꯤꯡ

[ꯆꯥꯞꯇꯔ 1](#)-ꯒꯤ ꯃꯇꯦꯇ 1.4, 1.6.5 ꯑꯃꯁꯨꯡ 1.10.3(d), ꯑꯃꯁꯨꯡ [ꯆꯥꯞꯇꯔ 4](#)-ꯒꯤ ꯃꯇꯦꯇ 4.5.3 ꯑꯃꯁꯨꯡ 4.5.4-ꯗ ꯀꯁꯣꯡ ꯄꯤꯡꯅ॥

1B.1 ꯅꯆꯤꯡ ꯅꯔꯦꯗꯗ ꯆꯣꯄꯆꯤꯁꯤꯒ ꯑꯦꯅꯕ ꯃꯣꯔꯀꯣꯄꯇꯆꯤꯡ ꯃꯇꯦꯇ 4.5.3.2-ꯗ ꯇꯤꯅꯦ ꯁꯂꯤ॥ ꯁꯣꯕꯅ 1B.1-ꯇꯦ ꯇꯤꯅꯦ ꯑꯗ ꯑꯀꯂꯒ ꯍꯄꯦ ꯄꯤꯂꯤ॥ ꯑꯍꯥꯟꯕ ꯑꯆꯤꯒꯤ ꯀꯣꯄꯆꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯍꯥꯟꯕ 4A-ꯒꯤ ꯀꯀꯟꯆꯤꯡ ꯑꯆꯤ ꯗꯣꯁ ꯆꯣꯇ ꯑꯀꯅꯒꯁꯇꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯄꯦ ꯄꯤꯑꯦꯗꯃꯗꯕꯇꯤ॥

ꯁꯣꯕꯅ 1B.1 — ꯃꯇꯦꯇ 4.5.3.2-ꯗ ꯇꯤꯅꯦ ꯁꯂꯕ ꯅꯆꯤꯡ ꯅꯔꯦꯗꯗ ꯆꯣꯄꯆꯤꯁꯤꯒ ꯑꯦꯅꯕ ꯃꯣꯔꯀꯣꯄꯇꯆꯤꯡ

ꯑꯦꯅꯁꯣꯀ	ꯃꯣꯔꯀꯣꯄꯇ	ꯆꯥꯞꯇꯔ 4-ꯗ ꯆꯄꯗꯦꯗꯦ ꯁꯃꯄꯀꯀꯦ ꯑꯦꯗꯆꯁꯣꯄꯇ
(a)	ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯁꯦꯟꯒꯤ ꯀꯨꯡꯗꯒꯤ ꯔꯣꯇꯤꯕ ꯇꯀꯕꯟ ꯗꯂꯣꯟ	ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯁꯦꯟꯒꯤ ꯀꯨꯡꯗꯒꯤ ꯔꯣꯇꯤꯕ ꯇꯀꯕꯟ ꯗꯂꯣꯟꯒꯤ ꯃꯣꯔꯀꯣꯄꯇ, ꯇꯒ ꯄꯅꯦ (Naga Nullah) ꯑꯃꯁꯨꯡ ꯔꯦꯅꯆꯣꯟ ꯀꯂꯤꯅ (Waisel Maril) ꯔꯣꯇꯣꯟꯆꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯆꯤꯗ ꯔꯣꯅꯗꯄꯇꯤꯕ ꯅꯦꯗꯕꯄ (drain) 72-ꯒ ꯇꯦꯔꯦꯇꯦ, ꯕꯤꯆꯄꯄꯂ ꯖꯦꯗꯕ॥ ꯇꯀꯕꯟ ꯑꯆꯤ ꯆꯍꯂ ꯑꯗꯒ "ꯀꯂꯑꯦꯅꯕ ꯆꯍꯂꯒ ꯗꯂꯣꯟ" (the main urban river)-ꯇꯤ (AIIB); ꯆꯁꯣꯀꯇꯦ ꯅꯦꯗꯕꯄ 72 ꯄꯒꯇꯦꯀꯄꯃꯤ ꯅꯄꯁꯂꯆꯣꯄꯆꯄ ꯑꯃꯁꯨꯡ ꯗꯤꯅꯍꯂꯆꯄ ꯇꯦꯅꯂꯣ ꯍꯤꯔꯦ ꯂꯤꯄꯦꯂꯀ ꯁꯅ, ꯀꯅ꯭ꯔꯒꯤ BOD 42.45–52.34 mg/L ꯇꯕ (NGT-ꯗ ꯄꯤꯕ ꯆꯁꯣꯀꯃꯤ ꯂꯤꯄꯦꯂꯀ, ꯗꯤꯆꯣꯀꯕꯂ 2025), ꯑꯃꯁꯨꯡ CPCB-ꯇꯦ ꯆꯤꯡꯃ ꯗꯣꯀꯗꯒ ꯕꯤꯆꯄꯄꯂ ꯖꯦꯗꯕ ꯗꯂꯣꯟ ꯑꯆꯤ ꯄꯤꯄꯆꯄ ꯑꯦꯅꯂꯕ ꯆꯁꯂꯣꯔ ꯑꯀ ꯑꯦꯅꯗꯦ ꯇꯤꯅꯦ ꯁꯅ (CPCB, 2025)॥ ꯀꯆꯤ 2025-ꯗ ꯀꯖꯀ ꯀꯂꯤꯗ ꯃꯄꯔꯤ, ꯑꯃꯁꯨꯡ ꯇꯒ ꯄꯅꯦ (Naga Nullah) ꯗꯒꯅꯕꯇꯦ ꯄꯇꯦꯅ 2024-ꯗ ꯇꯒꯂꯀ, ꯇꯦꯅꯖꯀ ꯇ꯭ꯔꯇꯩ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯂꯤꯄꯔꯄꯕꯀ ꯇꯩꯃꯅꯗ ꯅꯆꯤꯡ ꯅꯔꯦꯗ ꯇꯦꯄꯍꯄꯦꯔꯤ (ꯄꯤꯕꯗꯗ ꯖꯦꯆꯗꯦꯄꯅꯤꯕ ꯀꯁꯣꯡ ꯅꯄꯦꯇ)॥ ꯀꯆꯤꯒꯤ ꯕꯅ-ꯇꯦ 93-ꯒꯤ ꯕꯖꯀ ꯑꯆꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯅꯁꯦꯟꯒꯤ ꯀꯨꯡꯗꯗ ꯗꯂꯣꯟꯒꯤ ꯀꯔꯦꯅꯒꯤ 30 m-ꯇꯤ [TBC: ꯇꯦꯃꯅ ꯕꯦꯗꯤꯇꯦ ꯇꯦꯁꯤꯖꯅ ꯁꯂꯕ ꯕꯅ-ꯇꯦꯇꯤꯆꯗ ꯇꯀꯕꯂ ꯑꯃꯁꯨꯡ ꯁꯣꯄꯆꯁ ꯃꯄꯤꯂꯥꯀ ꯁꯒꯗꯕꯇꯤ]

ꯑꯏꯇꯦꯝ	ꯃꯐꯃꯁꯤꯡ	ꯇꯦꯕꯜ 4-ꯗ ꯇꯥꯀꯄꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯌꯥꯎꯕ ꯈꯨꯗꯝꯁꯤꯡ
(b)	ꯏꯔꯤꯂꯒꯤ ꯃꯉꯥꯜꯗꯒꯤ ꯑꯦꯟꯕꯦꯟꯀꯃꯦꯟꯇ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ	ꯏꯔꯤꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯕꯥꯟ (bund)-ꯂꯤꯃꯥꯒꯤ ꯃꯐꯃꯁꯤ, ꯄꯥꯡꯒꯥꯂꯒꯤ ꯆꯤꯡꯒꯤ ꯉꯥꯏꯗꯨꯅ ꯈꯨꯗꯛ ꯇꯥꯀꯄ ꯍꯧꯔꯤꯕ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯆꯀ, ꯂꯤꯃꯥꯆꯛ, ꯍꯤꯡꯆꯥ, ꯊꯣꯏꯗꯣꯛ, ꯁꯤꯡ ꯑꯃꯥꯏ, ꯃꯩꯊꯥꯏ, ꯍꯦꯊꯛ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯊꯤꯔꯛꯄꯥꯛ ꯆꯨꯃꯗꯅ 2024 ꯑꯃꯁꯨꯡ 2025-ꯗ ꯕꯥꯟ ꯃꯥꯡꯍꯧꯕ ꯆꯀꯊꯤꯂꯤꯡ ꯌꯦꯡꯂꯦ (ꯕꯦꯡꯒꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ)꯫ ꯃꯤꯡꯊꯥꯡꯗ ꯂꯩꯕ WRD-ꯒꯤ ꯒꯦꯖ ꯄꯣꯖꯤꯁꯟ ꯗꯦꯂꯗ ꯂꯦꯕꯦꯜ 788.400 m ꯂꯩ, 29 ꯃꯦ 2024-ꯗ ꯃꯂꯤꯗꯒꯤ ꯄꯥꯎꯅꯤ, ꯂꯄꯈ ꯑꯗꯨꯒꯤ ꯂꯩꯃꯅꯗꯒꯤ ꯃꯤꯌꯥꯝ ꯑꯃꯁꯨ ꯆꯥꯎꯈꯠꯄ ꯑꯆꯤꯒꯤ ꯃꯉꯥꯜꯗ (WRD-ꯒꯤ ꯂꯦꯕꯦꯜꯂꯤꯃ ꯕꯦꯡꯒꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ; AIIB)
(c)	ꯆꯃꯖꯦꯜꯕꯦꯟꯀꯦꯡ ꯀꯦꯂꯤꯇ	ꯆꯃꯖꯦꯜꯕꯦꯟꯀꯦꯡ ꯅꯈꯝ ꯌꯥꯎꯕ ꯆꯝ, ꯑꯦꯃꯈ ꯃꯍꯧꯇ 300-ꯗ ꯅꯂꯤꯃ ꯅꯌꯦꯡꯒꯤ ꯂꯍꯧꯕꯦꯜ ꯑꯦꯅꯆꯦ ꯂꯦꯃꯥꯀꯆꯤꯕ ꯕꯦꯀ (pat) ꯑꯃꯁ, ꯂꯃꯨꯂꯦꯃ ꯎꯖꯖ (Shamushang nallah)-ꯒꯤ ꯆꯀꯊꯃꯗ ꯆꯃꯀ꯭ꯂꯅ ꯄꯨꯈꯥꯟꯗ ꯕꯃꯆꯕꯆꯦ ꯊꯗꯦꯃꯕ ꯃꯂꯤꯒꯤ ꯑꯦꯡꯀꯆꯦꯀꯃ ꯆꯦꯌꯆꯆꯦ (PIL No. 8 of 2025-ꯗ WRD-ꯒꯤ ꯂꯦꯅꯀ ꯈꯤꯕꯦꯈꯀ); ꯑꯦꯈꯤꯌꯦ ꯑꯂꯤ "ꯌꯄꯤ ꯅꯗꯤꯃꯒꯤ ꯎꯃꯤꯀ ꯃꯌꯦꯒꯤ ꯅꯂꯤꯃ ꯊꯃꯗꯆꯦ ꯂꯩ" (remains waterlogged for many days every year) (NDB)꯫ ꯆꯃꯖꯦꯜꯕꯦꯟꯀꯦꯡ ꯑꯂꯤ ꯊꯕꯆꯀ ꯅꯂꯤꯃꯒꯤ ꯄꯈꯃꯖꯃ ꯑꯃꯁ ꯑꯦꯅꯆꯂ ꯕꯈꯕꯦꯇ ꯌꯈꯤ (NDB)
(d)	ꯅꯃꯖꯦꯜ ꯅꯂꯀꯌ ꯂꯩꯕ ꯃꯦꯃꯀ ꯑꯃꯁꯨꯡ ꯅꯈꯤꯜ ꯇꯨꯔꯦꯜ	ꯃꯦꯃꯀ ꯑꯃꯁꯨꯡ ꯅꯈꯤꯜ ꯇꯨꯔꯦꯂꯒꯤ ꯕꯦꯂꯤꯃꯒꯤ ꯃꯈꯃꯌ ꯃꯍꯦꯌꯗ ꯅꯈꯝ ꯌꯥꯎꯕ ꯅꯃꯖꯦꯜ ꯅꯂꯀꯃꯤ ꯆꯝ, ꯅꯈꯤꯜ ꯇꯨꯔꯦꯜ ꯅꯈꯤꯜꯀꯨꯃ (Irilbung)-ꯗ ꯒꯦꯇ ꯌꯈꯤ (ꯗꯦꯂꯗ ꯂꯦꯕꯦꯜ 787.700 m; 15 ꯂꯦꯕꯌꯥꯃꯀꯈ 2025-ꯗ 788.850 m, ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ); ꯅꯈꯤꯜ ꯇꯨꯔꯦꯜ ꯂꯦꯕꯌꯥꯃꯀꯈ 2025-ꯗ ꯃꯂꯦꯌꯈꯤ ꯑꯌꯦꯃ ꯆꯃꯖꯦꯗ ꯃꯃꯄꯤ (ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ), ꯑꯃꯁꯨꯡ 2 ꯂꯦꯕꯌꯥꯃꯀꯈ 2000-ꯒꯤ ꯒꯦꯇ ꯌꯈꯀ ꯅꯂꯤꯃ ꯅꯌꯦꯆꯦ ꯃꯦꯅꯈꯤꯃ ꯃꯃꯕꯨ (Moirang Kampu)-ꯗ 532.488 m³/s ꯕꯤꯄꯤ (MASTEC)
(e)	ꯃꯕꯦꯍꯥꯡ ꯗꯥꯃꯤ ꯃꯍꯦꯗ ꯂꯩꯕ ꯊꯦꯀꯅ	ꯃꯕꯦꯍꯥꯡ ꯗꯥꯃ (ꯊꯦꯀꯅ ꯃꯅꯌꯤꯕꯥꯈꯕꯦꯇ ꯕꯈꯦꯇꯥꯑꯦꯀ)-ꯒꯤ ꯃꯍꯦꯗ ꯊꯦꯀꯅ ꯇꯨꯔꯦꯂꯗ ꯅꯈꯝ ꯌꯥꯎꯕ ꯊꯦꯀꯅꯒꯤ ꯆꯝ, ꯈꯤꯆꯤꯆ ꯈꯤꯌ (reach) ꯑꯃꯁ, ꯃꯂꯤꯒꯤ ꯈꯤꯇꯈꯒꯦꯌꯈꯒꯤ ꯇꯨꯅ ꯈꯤꯇꯈꯒꯦꯌꯈ ꯂꯦꯕꯦꯜ 880.7 m ꯂꯩ (WRD, ꯂꯦꯕꯌꯥꯃꯀꯈ 2025, ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ) ꯑꯃꯁꯨꯡ 1 ꯑꯒꯦꯅꯀ 2015-ꯗ "ꯂꯕꯤꯅꯌꯂꯤꯃꯗꯒꯤ ꯃꯍꯦꯇ 2 m ꯃꯊꯃꯌ" (nearly 2 m above the spillways) 876 m-ꯗ ꯂꯩꯄꯤ (ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ; ꯑꯆꯤ ꯑꯂꯤ ꯌꯦꯆꯗ [U]); ꯊꯦꯀꯅ ꯇꯨꯔꯦꯜꯅ 30 ꯑꯒꯦꯅꯀ 1999-ꯗ 391.636 m³/s ꯕꯤꯄꯤ (MASTEC)
(f)	ꯆꯊꯌꯊꯃꯤ ꯃꯅꯍꯤ	ꯆꯊꯌꯊ, ꯃꯂꯤꯒꯤ ꯑꯃꯦꯌꯈꯒꯤ ꯕꯦꯀꯂꯤꯃ ꯆꯀꯈꯒꯦ ꯅꯊꯅ ꯑꯃꯁꯨꯡ ꯂꯒꯂꯒꯤ ꯃꯈꯃꯌ ꯂꯩꯕ ꯃꯆꯤꯕꯨꯈ ꯇꯨꯔꯦꯂꯗ ꯅꯈꯝ ꯌꯥꯎꯕ ꯃꯦꯅꯈꯤꯃ, ꯆꯤꯃꯊꯤꯍꯦꯃ ꯑꯃꯁꯨꯡ ꯊꯃ (Thanga)-ꯒꯤ, ꯑꯃꯁꯨꯡ ꯌꯃꯕꯦꯤꯒꯤ ꯀꯥꯌꯦꯌꯈꯒꯦ ꯆꯦꯌꯆꯆꯦ ꯅꯊꯅ, ꯂꯒꯂ ꯑꯃꯁꯨꯡ ꯌꯦꯃꯕꯒꯤ ꯆꯝ, ꯑꯃꯁꯨꯡ ꯆꯊꯌꯊ ꯑꯊꯀꯃꯤ 236.21 km²-ꯒꯤ ꯃꯉꯥꯜꯗ ꯂꯩꯕ ꯆꯝ꯫ ꯕꯀꯃꯤ ꯂꯦꯕꯦꯜ ꯑꯂꯤ ꯌꯦꯀꯌꯦꯌꯈꯆꯤ: ꯅꯊꯅ ꯀꯦꯈꯆꯗ ꯂꯩꯕ WRD-ꯒꯤ ꯒꯦꯖ ꯄꯣꯖꯤꯁꯟ ꯗꯦꯂꯗ ꯂꯦꯕꯦꯜ 769.320 m ꯂꯩ, 15 ꯂꯦꯕꯌꯥꯃꯀꯈ 2025-ꯗ 770.05 m-ꯗ ꯃꯂꯤꯗꯒꯤ ꯄꯥꯎꯅꯤ (ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ), ꯑꯃꯁꯨꯡ ꯌꯃꯕꯦꯤ "ꯃꯆꯤꯕꯨꯈ ꯇꯨꯔꯦꯂꯒꯤ ꯑꯦꯀꯆꯀ ꯆꯃꯀꯤꯗ ꯊꯃꯆꯦ … ꯂꯒꯂꯒꯤ ꯑꯃꯦꯌꯈꯒꯤ ꯑꯈꯤꯌꯗꯒꯤ ꯌꯦꯃꯕ ꯖꯦꯅꯀ ꯅꯂꯤꯃꯆꯦ ꯌꯦꯀꯄꯤꯆꯤ" (meets the Manipur River at a reverse direction … making inundation of the surrounding area of Sugnu extending upto Wangoo) (MASTEC)
(g)	ꯆꯃꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯤꯂꯒꯕꯥꯈ	ꯆꯃꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯆꯃꯀ꯭ꯂ ꯇꯨꯔꯦꯂꯗ ꯅꯈꯝ ꯌꯥꯎꯕ ꯆꯃꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯤꯂꯒꯕꯥꯈꯒꯤ ꯆꯝ, ꯆꯃꯀꯦꯜ ꯇꯨꯔꯦꯜ ꯆꯃꯀꯦꯜ ꯊꯃꯍꯦꯃ (Nambol Thongkhong)-ꯗ ꯒꯦꯇ ꯌꯈꯤ (ꯄꯅꯌꯂꯀ ꯗꯦꯂꯗ ꯂꯦꯕꯦꯜ 774.700 m ꯆꯀꯈꯒꯦ 774.400 m, ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ [U]), ꯀꯤꯂꯒꯕꯥꯈ ꯕꯦꯆꯒꯤ ꯆꯊꯂꯤꯃꯒꯤ ꯑꯃꯦꯌꯗꯗ ꯂꯩꯕ ꯕꯤꯀꯃꯤ ꯆꯦꯌꯆꯆꯦ (CGWB)
(h)	ꯃꯊꯌꯤꯃ ꯑꯃꯁꯨꯡ ꯌꯃꯆꯤꯃ	ꯂꯊꯃꯅ ꯑꯃꯁꯨꯡ ꯌꯃꯆꯤꯃ ꯇꯨꯔꯦꯂꯗ ꯅꯈꯝ ꯌꯥꯎꯕ ꯃꯊꯌꯤꯃ ꯑꯃꯁꯨꯡ ꯌꯃꯆꯤꯃꯒꯤ ꯆꯝ, ꯃꯍꯦꯔꯒꯤ ꯃꯃꯤꯃ ꯂꯦꯈꯀ ꯈꯤꯌꯂꯤꯃꯗ ꯀꯅ-ꯆꯦ 93-ꯒꯤ ꯀꯍꯈꯂꯤꯃ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯌꯦꯅꯗꯒꯤ 35 m ꯑꯃꯁꯨꯡ 31 m ꯂꯩ; ꯌꯃꯆꯤꯃ ꯇꯨꯔꯦꯜ ꯂꯦꯕꯌꯥꯃꯀꯈ 1997-ꯗ ꯕꯤꯄꯤ (MASTEC)
(i)	ꯀꯈꯤꯊ ꯑꯃꯁꯨꯡ ꯆꯤꯈꯤ ꯇꯨꯔꯦꯂꯗ ꯂꯩꯕ ꯆꯤꯈꯤꯀꯦꯃ	ꯀꯈꯤꯊ ꯕꯦꯆꯦꯍꯨ, ꯀꯈꯤꯊ ꯑꯃꯁꯨꯡ ꯆꯤꯈꯤ ꯇꯨꯔꯦꯂꯗ ꯅꯈꯝ ꯌꯥꯎꯕ ꯆꯤꯈꯤꯀꯦꯒꯤ ꯆꯝ, ꯃꯈꯃ ꯑꯅꯨꯡ ꯌꯦꯃꯀꯃꯦꯈꯤꯗ ꯂꯩꯕ CWC-ꯒꯤ ꯂꯦꯅꯀꯌ ꯅꯀꯦꯅꯗꯒꯤ ꯌꯃꯀ ꯂꯦꯕꯦꯜ 32.1 m ꯂꯩ (31 ꯇꯦꯆꯅ 1989; SANDRP-ꯆꯦ ꯇꯨꯈꯤꯍꯦꯃꯈꯤꯅꯀ ꯌꯈꯤꯀ CWC-ꯒꯤ ꯗꯌꯥ); ꯃꯆꯦꯇ 2.3.6(c)(ii)-ꯒꯤ ꯆꯤꯃ ꯅꯀ ꯑꯃꯁꯨꯡ ꯀꯈꯤꯊ ꯕꯦꯆꯦꯍꯒꯤ ꯑꯦꯈꯀꯆꯦꯇ (outfall) ꯈꯨꯇ ꯌꯆꯀꯂꯩ
(j)	ꯆꯦꯍꯗꯂꯆꯦꯅꯗ ꯆꯤꯃꯕ ꯆꯃꯗ ꯂꯩꯕ ꯌꯤꯃꯒꯤ ꯌꯈꯤꯍꯦꯂꯤꯃ	ꯗꯤꯂꯤꯃ ꯂꯦꯇꯗ ꯂꯩꯕ, ꯇꯨꯄꯨꯜ (Tupul) ꯌꯦꯆꯦꯆꯦ ꯆꯦꯊꯒꯤ ꯆꯝ, ꯃꯖꯃ ꯑꯅꯨꯡ 29 ꯆꯀꯈꯒꯦ 30 ꯇꯨꯍ 2022-ꯒꯤ ꯆꯦꯍꯗꯂꯆꯦꯅꯗꯆꯦ ꯃꯤꯆꯦꯅ 56-ꯗꯒꯤ 61 ꯖꯦꯅꯀ ꯂꯤꯄꯍꯤ (ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ; ꯌꯊꯤꯍꯦꯆꯦ), ꯑꯃꯁꯨꯡ ꯌꯈꯤꯃꯆꯦꯃ, ꯌꯦꯍꯗꯦꯇ ꯑꯃꯁꯨꯡ ꯃꯤꯃꯕꯦꯃꯕꯒꯤ ꯆꯝ; 15 ꯇꯦꯆꯅ 2025-ꯗ ꯑꯄꯤꯃ ꯑꯃꯅꯊꯌꯗ 225 mm ꯅꯈꯀ ꯃꯇꯝꯗ ꯍꯧꯕꯨꯀ ꯌꯃꯕꯦꯃꯤ ꯅꯂꯤꯃꯆꯦ ꯌꯦꯀꯄꯤ (ꯕꯥꯟꯗ ꯖꯥꯡꯗꯥꯡꯍꯧꯕ ꯃꯇꯝ ꯅꯥꯏꯗꯦ)
(k)	ꯆꯦꯌꯤꯖꯦꯅ ꯌꯈꯤꯀ ꯃꯥꯏꯀꯩꯍꯦꯂꯤꯃ	ꯃꯆꯦꯇ 4.5.4-ꯒꯤ ꯃꯍꯦꯗ ꯆꯦꯌꯤꯖꯦꯅ ꯌꯈꯤꯀ ꯃꯥꯏꯀꯩꯍꯦ ꯑꯃꯀꯌ

ꯅꯣꯠ ꯁꯤꯡꯅꯕ. ꯑꯦꯅꯦꯛꯁ ꯑꯣꯏꯗ ꯇꯦꯕꯜ 1B.1-ꯗ ꯄꯤꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟꯁꯤꯡ ꯁꯥꯡ, ꯃꯄꯨꯡ ꯐꯥꯕ ꯁꯣꯔꯁꯁꯤꯡ ꯁꯦꯝꯗꯨꯅ ꯄꯤꯕꯒꯤ ꯍꯥꯡꯕ ꯄꯥꯃꯦꯕ ꯁꯤꯡꯖꯕ ꯂꯥꯏꯕ ꯑꯁꯤ, ꯑꯃꯁꯨꯡ ꯕꯥꯎꯟ ꯑꯗꯨꯁꯤ GIS ꯄꯣꯔꯇ ꯑꯁꯤ ꯑꯍꯥꯛ ꯌꯦꯡꯁꯤꯟꯅꯤ꯫ ꯁꯣꯏꯗꯅꯥ ꯗꯤꯄꯥꯔꯇ ꯑꯣꯏꯒꯅꯤ ꯁꯗꯣꯏ ꯑꯁꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯗꯤ ꯄꯥꯔꯇꯤꯁꯤꯡꯒꯤ ꯌꯣꯝꯄꯕ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ (IMC ꯑꯃꯁꯨꯡ ꯑꯏꯝꯐꯥꯜ ꯁ꯭ꯃꯥꯔꯠ ꯄꯤꯁꯤ ꯂꯤꯃꯤꯇꯦꯗ, PDA Manipur, TPD, AIIB ꯐꯟꯗꯦꯗ ꯄꯔꯖꯦꯛꯇꯁꯤꯡ ꯁꯦꯟꯗꯣꯡꯒꯤ ꯍꯥꯏꯕꯗꯤ PWD, ꯌꯣꯜꯁꯤ ꯂꯦꯞꯄꯥ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯁꯤꯡ, ꯀꯣꯔꯄꯣꯔꯦꯁꯟ ꯑꯗꯨ ꯍꯥꯌꯗꯨꯅ); ꯇꯦꯕꯜ 1.5-ꯒꯤ ꯍꯥꯏꯕꯗꯤ ꯄꯥꯏꯂꯦꯞꯄ, ꯍꯥꯏꯕꯗ ꯁ꯭ꯇꯦꯁꯟꯁꯤꯡꯗ ꯄꯝꯄꯁꯤꯡ ꯀꯌꯥ, ꯁꯣꯏꯗꯅ ꯒꯦꯠ (flap gate) ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗꯅ ꯑꯦꯛꯁꯤꯛꯌꯨꯇꯤꯕ ꯄꯥꯡꯊꯣꯛꯄ, ꯑꯃꯁꯨꯡ ꯆꯦꯛꯅ ꯂꯩꯔꯤꯕ ꯍꯦꯜꯊꯣꯛꯀꯗꯕ ꯂꯩꯄꯕ ꯍꯥꯏꯕꯗ 72 (DoECC); ꯈꯨꯔꯥꯢ, ꯂꯝꯂꯥꯏ, ꯁꯤꯡꯖꯃꯦꯏ, ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤ (Thong Nambonbi), ꯆꯦꯅꯥꯡ ꯊꯣꯡꯕꯥꯜ, ꯊꯥꯡꯅꯥ ꯑꯃꯁꯨꯡ ꯁꯊꯦꯕ ꯄꯤꯕ WRD-ꯒꯤ ꯒꯦꯠꯁꯤꯡꯒꯤ ꯄꯣꯖꯦꯛꯇꯁꯤꯡ ꯁꯍꯥꯔꯒꯤ ꯒꯦꯠ ꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯗꯥꯡꯀꯣꯏꯁꯤꯡꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯍꯦꯛꯇ ꯃꯥꯡꯍꯟ ꯁꯥꯖꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗ ꯁꯌꯦꯡꯒꯤ ꯈꯤꯕꯗꯣꯏꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯆꯦꯀꯁꯤꯟꯅꯍꯟꯕ ꯂꯣꯛꯇꯛ–ꯂꯣꯛꯇꯥꯛ (WRD); ꯄꯥꯌꯥꯡꯕ ꯄꯥꯝꯕꯒꯤ ꯄꯥꯅꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯊꯦꯕ ꯕꯦꯗꯔꯒꯤ ꯑꯍꯥꯛꯄꯥꯁꯤꯡ ꯄꯨꯡ (NHPC, LDA); ꯈꯨꯔꯥꯏꯊꯥꯡ, ꯁ꯭ꯇꯣꯝ ꯑꯃꯁꯨꯡ ꯂꯤꯃꯤꯇ ꯗꯥꯀꯣꯏꯁꯤꯡꯒꯤ ꯄꯥꯅꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯗꯤꯇꯒꯤ ꯄꯥꯝꯕꯗꯁꯤꯡ [TBC]; ꯁꯈꯦꯟ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯄꯨꯡꯒꯤ ꯄꯤꯂꯣꯡ ꯁꯦꯟꯗꯣꯡꯒꯤ ꯁꯣꯏꯗ ꯁꯌꯦꯡꯒꯤ ꯁ꯭ꯇꯥꯝꯊꯣꯛꯄꯒꯤ ꯈꯥꯍꯣꯏꯗ, ꯈꯣꯡꯌ ꯍꯣꯡꯁꯤꯟ [TBC] (TPD); MSDMA ꯑꯃꯁꯨꯡ NRSC-ꯒꯤ ꯄꯥꯎꯗꯂꯣꯄꯣꯟꯗꯕ ꯁꯦꯒꯥꯎꯇꯄꯤꯁꯤꯡ [TBC]; ꯑꯃꯁꯨꯡ ꯌꯦꯡꯕꯥꯕꯗꯥꯝꯕꯗ ꯄꯤꯕ CWC-ꯒꯤ ꯄꯥꯅꯥꯡꯁꯤꯡ (CWC) ꯈꯗꯥ ꯇꯧꯁ꯫ ꯁꯈꯦꯟ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯇ꯭ꯄꯥꯡ ꯊ꯭ꯁꯤꯄꯕꯒꯤ ꯈꯟꯗ ꯈꯣꯌꯗ ꯄꯤꯕ ꯊꯕꯛ ꯇꯧꯕꯥ, ꯈꯔꯤ ꯁꯈꯦꯟ, ꯄꯤꯄꯥꯁꯤ ꯑꯃꯁꯨꯡ ꯌꯦꯁꯄꯤꯍꯥꯏ, ꯑꯃꯁꯨꯡ ꯕꯁꯨꯞ, ꯀꯣꯔꯍꯥꯟ ꯑꯃꯁꯨꯡ ꯇ꯭ꯄꯌꯦꯗꯥꯍ꯭ꯄꯒꯤ ꯌꯤꯁꯤꯒꯤ ꯂꯦꯡꯗꯣꯏꯁꯤ ꯑꯣꯏ ꯈꯣꯌꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯗ ꯁꯌꯦꯡꯒꯤ ꯄꯥꯀꯄꯗ ꯗꯀꯨꯕꯦꯟ ꯂꯩꯄꯕ ꯈꯨꯗꯝꯗ ꯁꯦꯛꯁꯟ 4.5.4-ꯒꯤ ꯈꯣꯡꯗ ꯄꯥꯝꯖꯤꯕ ꯂꯩꯄꯕꯒꯤ ꯀꯦꯟꯗꯤꯗꯦꯠꯁꯤꯡꯄꯤ [TBC]꯫ ꯕꯥꯁ-ꯄꯤ 93-ꯒꯤ ꯕꯖꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯗ 7-ꯒꯤ ꯀꯄꯤꯗꯤꯄ (corridor)-ꯁꯤꯡ ꯑꯣꯏ ꯄꯤꯅꯦ ꯑꯣꯏꯗ ꯆꯦꯇꯄ ꯅꯨꯡꯗ 7 ꯑꯃꯁꯨꯡ ꯈꯖꯐ ꯑꯌꯨꯗ ꯊꯤꯡꯕ ꯁꯦꯂꯥꯞꯄꯨꯈꯦꯇꯦꯝꯁꯤꯡꯄ ꯀꯅꯒ ꯇꯧꯁ꯫ ꯈꯣꯏ ꯖꯥꯡꯗꯥꯡꯄꯡꯦꯄꯤꯖꯁꯕ, ꯑꯊꯥꯄꯤꯇꯤꯄ ꯍꯥꯄꯤ-ꯑꯍꯥꯄꯤꯀꯣꯡ ꯂꯥꯎꯇꯥ, ꯖꯝꯕ ꯌꯦꯕ ꯁꯕꯁꯗꯒꯤ ꯖꯕ ꯄꯨꯈꯥꯗꯒꯤ, ꯀꯁꯦ ꯑꯁꯤ ꯄꯤꯂꯦ ꯇꯧꯄꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯈꯗ ꯄꯤꯕꯗ ꯍꯥꯔꯕ ꯄꯥꯍꯦꯛꯄꯤ, ꯑꯃꯁꯨꯡ ꯌꯦꯄꯥꯍ ꯑꯌꯨ ꯑꯃꯁꯨꯡ ꯈꯣꯏꯒꯤ ꯁꯨꯐꯖꯐ [ꯖꯥꯄꯐ 1-1](#)-ꯗ ꯑꯃꯁꯨꯡ ꯁꯄꯐꯒꯤ ꯄꯤꯍꯥꯄꯦꯇ ꯄꯥꯀꯄꯗ ꯇꯒꯄꯤ (ꯁꯦꯛꯁꯟ 1.5.9 ꯑꯃꯁꯨꯡ 1.11.5)꯫

ꯇꯦꯕꯜ 1B.2 — ꯁꯣꯏꯗ ꯁꯌꯦꯡꯗ ꯀꯥꯎꯣꯏꯇꯒꯤ ꯑꯍꯁꯕ ꯀꯦꯆꯃꯦꯟꯇꯀꯤ ꯄꯣꯔꯇꯒꯤ ꯑꯇꯄꯤꯕꯌꯨꯇꯁꯤꯡ (ꯄꯥꯑꯣꯡꯦ)

ꯐꯤꯜꯗ	ꯑꯔꯊ	ꯃꯊꯧ ꯇꯥꯕ ꯐꯤꯜꯗ
catchment_id	ꯑꯈꯟꯅꯕ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯔ	ꯇꯥꯡꯀꯇ
name	ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯃꯃꯤꯡ	ꯇꯥꯡꯀꯇ
basis	ꯁꯦꯛꯁꯟ 4.5.3.2-ꯒꯤ ꯑꯁꯇꯥꯐ (a)-ꯗꯒꯤ (j), ꯆꯦꯄꯥꯛ ꯁꯦꯛꯁꯟ 4.5.4-ꯒꯤ ꯈꯣꯡꯗ ꯄꯥꯝꯖꯤꯀꯣꯡ	ꯇꯥꯡꯀꯇ
notification_ref	ꯒꯦꯖꯦꯠ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ ꯆꯐꯕꯄ, ꯅꯣꯇꯤꯁ ꯇꯥꯄꯕꯗꯤ	ꯇꯥꯡꯀꯇ
notified_on	ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟꯒꯤ ꯇꯥꯔꯤꯈ	ꯇꯥꯔꯤꯈ
applies_from	ꯄꯨꯡ ꯑꯣꯏ ꯑꯍꯥꯄꯤꯀꯣꯡꯁꯤꯡꯗ ꯌꯦꯛꯇꯕ ꯍꯥꯄꯀꯍ ꯇꯥꯔꯤꯈ (ꯁꯦꯛꯁꯟ 4.5.4.2, ꯍꯥꯏꯊꯥꯡ 5)	ꯇꯥꯔꯤꯈ
boundary_source	ꯑꯣꯊꯣꯔꯤꯇꯤ ꯍꯥꯄꯥꯖꯐ ꯑꯃꯁꯨꯡ ꯇꯥꯔꯤꯈ	ꯇꯥꯡꯀꯇ
area_km2	ꯀꯦꯆꯃꯦꯟꯠ ꯑꯦꯔꯤꯌꯥ	km²

ꯑꯦꯅꯦꯛꯁ 1C — ꯍꯥꯄꯤꯂꯣꯏ ꯂꯝꯄꯤꯈꯦꯠ: ꯑꯄꯇꯥꯄꯇꯒꯤ S-1-ꯗꯒꯤ S-5 ꯐꯥꯑꯣꯕꯒꯤ ꯇꯥꯡꯀꯇ ꯑꯃꯁꯨꯡ ꯌꯦꯡꯁꯤꯟꯅꯒꯤ ꯈꯥꯗꯣꯡ ꯄꯤꯄꯥꯏꯀꯣꯡ

[ꯂꯝꯕꯥ 1](#)-ꯒꯤ ꯁꯦꯛꯁꯟ 1.6.3, 1.6.5 ꯑꯃꯁꯨꯡ 1.7.1-ꯗꯒꯤ 1.7.3 ꯐꯥꯑꯣꯕꯗ ꯈꯇꯝ ꯍꯥꯌꯁ꯫

> **ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯗꯤ ꯔꯤꯚꯌꯨ ꯄꯥꯡꯊꯣꯛꯄꯒꯤ ꯃꯇꯦꯡ ꯄꯥꯡꯅꯕ꯫ ꯅꯣꯠꯀꯤ꯫** ꯃꯁꯤꯅ ꯂꯧꯕ ꯄꯦꯟꯗꯤꯡ ꯑꯁꯤꯗꯤ ꯀ꯭ꯂꯣꯖ 1.7-ꯒꯤ ꯁꯣꯂꯤꯁꯤ ꯁꯣꯂꯃꯦꯟꯠ ꯑꯁꯤ ꯀꯔꯃꯗꯤ ꯅꯕ ꯔꯤꯕꯥꯏ ꯄꯔꯕ ꯇꯧꯔꯤ꯫ ꯂꯩꯔꯤꯕ ꯁꯤꯖꯤꯟꯅꯗꯨꯗꯤ ꯀ꯭ꯂꯣꯖ 1.7.3-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯗꯤ ꯂꯣꯏꯁꯤꯟꯕꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯀꯔꯤꯃꯔꯕ ꯅꯦꯡꯖꯤꯟ ꯂꯧꯕ꯫

ꯄꯥꯔꯠ 1 — ꯑꯃꯨꯡꯕ ꯌꯥꯎꯕ ꯄ꯭ꯔꯤꯟꯁꯤꯄꯂꯁꯤꯡ

P1.1 **ꯁ꯭ꯀꯣꯞ.** ꯁꯞꯂꯤꯃꯦꯟꯠ ꯑꯁꯤꯅ ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯄꯥꯝꯕꯩꯁꯤꯡ ꯃꯃꯤꯡ ꯂꯧꯕ ꯃꯂꯤꯡꯕ ꯂꯣꯏꯒꯤ ꯅꯁꯤꯡ ꯅꯕꯃ ꯅꯤꯡꯊꯧ ꯃꯦꯔꯨꯌꯦꯟ (ꯃꯦꯔꯨꯌꯦꯟ)-ꯒꯤ ꯃꯇꯧ ꯄꯕꯁꯤꯡꯒꯤ ꯑꯜꯇꯔꯅꯦꯇꯤꯚ S-1-ꯗꯒꯤ S-5 ꯐꯥꯑꯕ ꯁꯤꯟꯗꯤ꯫ ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯅ ꯑꯦꯞꯔꯨꯚꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ (ꯑꯣꯊꯣꯔꯤꯇꯤ) ꯑꯃꯒꯤ ꯑꯦꯗꯤꯁꯅꯒꯤ ꯃꯈꯨꯡꯗ ꯑꯣꯊꯣꯔꯤꯇꯤꯗꯤ P1.3-ꯒꯤ ꯃꯇꯨꯡ ꯂꯧꯁꯤꯟꯕ ꯈꯨꯃꯤꯌꯥꯒꯤ ꯅꯌꯥꯃꯌ ꯍꯌꯂꯦ꯫

P1.2 **ꯄꯦꯊꯕ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯦ ꯂꯧꯕ.** ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯌꯥꯁꯤ ꯃꯦꯈꯨꯔꯦꯡꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯦ ꯑꯃꯌꯥꯁ ꯄꯦꯊꯄꯦꯗꯤꯗ꯫ S-1 ꯑꯃꯁꯨꯡ S-2 ꯑꯁꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯦ ꯑꯍꯨꯃꯌ ꯃꯁꯨꯡ ꯐꯄꯦꯗꯕ ꯗꯅꯊꯣꯌꯄꯦꯕ ꯊꯂꯣꯡꯁꯤꯡꯗꯤ (ꯀ꯭ꯂꯣꯖ 1.7.3(a))꯫

P1.3 **ꯂꯣꯁꯤꯟꯕ.**

- (a) ꯇꯤꯔꯕ B ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯒꯤ ꯄꯥꯔꯠ 3-ꯒꯤ ꯐꯣꯏꯃꯗ ꯀꯔꯦꯡꯁꯤꯡꯒꯤ ꯕꯤꯂꯣꯅꯂꯦꯒꯤ ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯍ ꯂꯣꯁꯤꯟꯕ ꯌꯥꯅ, ꯑꯃꯁꯨꯡ ꯕꯤꯂꯣꯅꯂ ꯑꯍꯨꯒꯤ ꯈꯨꯃꯤꯌ 30-ꯒꯤ ꯃꯈꯨꯡꯗ ꯁꯄꯥꯌ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯇꯦꯡꯂꯤꯀꯦ ꯀꯃꯤꯇꯤ (State Stormwater Technical Committee; ꯀꯃꯤꯇꯤ)-ꯗ ꯀꯣꯁꯤ ꯑꯃꯍ ꯊꯥꯒꯂꯤ꯫
- (b) ꯇꯤꯔꯕ A ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯒꯤ ꯀꯃꯤꯇꯤꯒꯤ ꯅꯕꯗ ꯌꯦꯂꯕ ꯁꯤꯐꯕ ꯃꯇꯨꯡꯗ ꯅꯌꯥꯃꯌ ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯍ ꯂꯣꯁꯤꯟꯕ ꯌꯥꯅ꯫
- (c) ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯃꯁꯤꯒꯤ ꯂꯣꯁꯤꯟꯂꯕ ꯑꯜꯇꯔꯅꯦꯇꯤꯚꯁꯤꯡ ꯃꯁꯤꯒꯤ ꯍꯦꯕꯁꯅꯌꯥ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.17-ꯒꯤ ꯐꯦꯂꯤꯁ꯭ꯇꯐꯗ ꯐꯣꯗꯣꯀꯅ꯫

P1.4 **ꯐꯤꯇꯦꯈꯁꯈ.** ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯌꯥꯁꯤ ꯐꯤꯇꯦꯈꯁꯈꯒꯤ ꯃꯊꯛ ꯇꯕ (ꯑꯄꯦꯈꯕ 2E-ꯒꯤ ꯑꯌꯣꯡꯕ) ꯃꯄꯨꯡ ꯁꯤꯈꯗ, S-5-ꯒꯤ ꯃꯇꯨꯡ ꯐꯤ-ꯅꯈ-ꯂꯤꯏꯁꯤ ꯕꯦꯁꯤꯈ ꯑꯍꯨꯃꯌ ꯃꯈꯂꯕ ꯐꯤꯇꯦꯈꯁꯈꯒꯤ ꯁꯦꯟ ꯁꯤꯕ ꯃꯐꯝ ꯂꯌꯥꯕꯗꯤ (ꯀ꯭ꯂꯣꯖ 1.7.3(d))꯫

P1.5 **ꯇꯦꯕꯜꯁꯤꯡ.** S-1, S-2 ꯑꯃꯁꯨꯡ S-3-ꯒꯤ ꯁꯤꯂꯤꯈꯂꯕ ꯇꯦꯕꯜꯁꯤꯡ ꯑꯁꯤ ꯀꯃꯤꯇꯤꯒꯤ ꯁꯤꯊꯣꯀꯁꯤꯡꯗꯤ, ꯑꯃꯁꯨꯡ ꯃꯦꯔꯨꯌꯦꯟꯒꯤ ꯁꯔꯨꯛ 2-ꯒꯤ ꯂꯣꯔꯂꯒꯤ ꯐꯤꯒꯤꯂ ꯇꯣꯅ (ꯀ꯭ꯂꯣꯖ 1.7.3(e) ꯑꯃꯁꯨꯡ 2.14)꯫ ꯇꯦꯕꯜ ꯑꯃꯗ ꯊꯂꯕ ꯊꯝꯂꯤꯕ ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯍ ꯇꯦꯕꯜ ꯑꯍꯨ ꯁꯤꯊꯣꯌꯐꯤꯕꯦꯟꯕ ꯁꯤꯂꯤꯈꯂꯕ ꯌꯥꯗꯦ꯫

P1.6 **ꯐꯦꯀꯣꯐꯗ.** ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯃꯍ ꯁꯤꯂꯤꯈꯂꯕ ꯑꯦꯁꯂꯤꯀꯦꯈ ꯑꯃꯒꯤ ꯃꯍꯨ ꯐꯣꯐꯝ 1-1-ꯗ ꯑꯃꯁꯨꯡ ꯅꯐꯝꯒꯤ ꯐꯤꯁꯣꯐꯌꯥ ꯄꯅ, ꯃꯍꯨ ꯂꯣꯁꯤꯟꯂꯕ ꯐꯤꯂꯣꯅꯂ ꯂꯌꯥꯐꯒꯤ ꯌꯦꯂꯕꯒꯤ ꯂꯣꯔꯂꯒꯤ꯫

ꯄꯥꯔꯠ 2 — ꯑꯜꯇꯔꯅꯦꯇꯤꯚꯁꯤꯡ

S-1 — ꯁꯞꯂꯦꯂꯒꯤꯗꯃꯛ ꯗꯤꯂꯣꯅꯈ-ꯑꯦꯗꯀꯤ ꯂꯝꯕꯤ

S-1.1 *ꯃꯄꯨꯡ ꯁꯤꯈꯕ:* ꯁꯔꯨꯛ 3-ꯒꯤ ꯃꯇꯨꯡ ꯄꯅꯗꯐꯒꯤꯐꯤꯐ ꯊꯣꯑꯣꯡ ꯑꯃꯒꯤ ꯁꯤꯅꯂ ꯁꯦꯃꯕ ꯁꯞꯂꯦꯂ꯫

S-1.2 *ꯑꯜꯇꯔꯅꯦꯇꯤꯚ:* ꯐꯤꯇꯦꯈꯁꯈ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯈꯁꯈ (detention)-ꯒꯤ ꯒꯣꯂꯃꯁꯤꯡ ꯑꯄꯦꯈꯕ 4B-ꯒꯤꯗꯃꯛ ꯁꯤꯊꯣꯌꯅꯤꯕ ꯂꯤꯂꯤꯌ-ꯁꯞꯂꯦꯂ ꯇꯦꯕꯜꯁꯤꯡ (ha ꯂꯗꯤꯡꯗ m³, ꯂꯣꯡ ꯂꯕꯒꯤ ꯂꯣꯈ, ꯄꯅꯗꯐꯂꯣꯂꯤꯌ ꯁꯣꯅꯕ ꯒꯐꯁ ꯑꯃꯁꯨꯡ ꯅꯃꯁꯐꯒꯤꯔꯁ ꯐꯐꯦꯌꯁꯈ ꯃꯇꯨꯡ ꯅꯈꯂ) ꯑꯃꯁꯨꯡ ꯀꯃꯁꯂꯅꯔꯦꯈꯁ ꯀꯦꯕꯀꯂꯦꯇꯐꯗꯒꯤ, ꯀ꯭ꯂꯣꯖ 4.14.2-ꯒꯤ ꯊꯣꯑꯣꯡꯒꯤ ꯂꯣꯕ ꯌꯥꯅ꯫

S-1.3 *ꯌꯕ ꯃꯐꯃꯁꯤꯡ:* ꯅꯁꯤꯡ ꯅꯌꯥꯃꯌ ꯁꯦꯈꯁꯤꯇꯒꯤ ꯑꯣꯅꯕ ꯀꯦꯌꯃꯦꯈꯁꯤꯡꯒꯤ ꯃꯁꯔꯈꯗ 2 ha ꯂꯌꯥꯐꯒꯤ ꯃꯗꯨꯗꯒꯤ ꯄꯦꯊꯕ ꯁꯤꯅꯌꯥꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯅꯣꯔꯒꯤ ꯃꯈꯨꯡꯗ 0.5 ha ꯂꯌꯥꯐꯒꯤ ꯃꯗꯨꯗꯒꯤ ꯄꯦꯊꯕꯁꯤꯡ (ꯇꯦꯕꯜ 1.2; ꯀ꯭ꯂꯣꯖ 4.14.1)꯫

S-1.4 *ꯀꯦꯗꯤꯂꯦꯁꯤꯡ:* ꯁꯤꯂꯤꯈꯂꯕ ꯗꯦꯒꯦꯂꯁꯃꯦꯈꯕꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯅꯃꯁꯐꯒꯤꯔꯁꯂꯦꯁ ꯑꯁꯤ ꯑꯦꯁꯐꯨꯒ ꯇꯣꯐꯕ ꯁꯂꯦꯈꯁꯤꯡꯗ ꯂꯌꯂꯤꯕ ꯑꯗꯨ ꯑꯣꯅꯒꯗꯕꯂꯤ; ꯀ꯭ꯂꯣꯖ 4.14.2-ꯒꯤ ꯑꯣꯂꯌꯂꯣꯌ, ꯁꯀꯤꯔꯦ, RWH ꯑꯦꯀꯂꯈꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯐꯁꯤꯒꯤ ꯄ꯭ꯔꯤꯟꯁꯤꯄꯂꯁꯤꯡ ꯍꯌꯂꯦ; ꯀꯃꯁꯂꯅꯔꯦꯈꯁ ꯀꯦꯕꯀꯂꯦꯇꯐ ꯑꯁꯤ ꯀꯦꯕꯀꯂꯦꯁꯈ ꯑꯃꯅꯌꯥꯁ ꯑꯣꯅꯕ ꯌꯥꯅ (ꯇꯦꯕꯜ 1.1)꯫

S-2 — ꯄꯔꯃꯤꯁꯤꯕꯜ ꯁꯥꯏꯠ ꯗꯤꯁꯆꯥꯔꯖ (PSD)

S-2.1 *ꯃꯍꯨꯠ ꯁꯤꯟꯕ:* ꯁꯥꯏꯠ ꯑꯗꯨꯒꯤꯗꯃꯛ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯔꯕ ꯔꯤꯂꯤꯖ ꯔꯦꯠ Q_post(T) ≤ 0.9 × Q_pre(T) (ꯀꯂꯣꯖ 2.11.2)꯫

S-2.2 *ꯑꯜꯇꯔꯅꯦꯇꯤꯚ:* AEP ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯔꯤꯂꯤꯖ ꯔꯦꯠ ꯑꯁꯤ ꯁꯥꯏꯠꯀꯤ ꯖꯣꯟ ꯑꯃꯁꯨꯡ AEP-ꯒꯤꯗꯃꯛ ꯇꯦꯕꯜꯗ ꯄꯤꯔꯤꯕ ꯌꯨꯅꯤꯠ-ꯑꯦꯔꯤꯌꯥꯒꯤ ꯔꯤꯂꯤꯖ ꯔꯦꯠꯇ ꯁꯥꯏꯠꯀꯤ ꯑꯦꯔꯤꯌꯥꯅꯥ ꯃꯜꯇꯤꯄꯂꯥꯏ ꯇꯧꯗꯨꯅꯥ ꯂꯧꯕ ꯌꯥꯏ꯫ ꯇꯦꯕꯜꯗ ꯄꯤꯔꯤꯕ ꯔꯦꯠꯁꯤꯡ ꯑꯁꯤ 0.9 × Q_pre ꯔꯨꯜꯗꯒꯤ ꯂꯧꯊꯣꯀꯄꯅꯤ (ꯇꯦꯕꯜ 1.2)꯫

S-2.3 *ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ:* ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯂꯦꯟꯁꯤꯔꯤꯒ ꯑꯣꯏꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯒꯤ ꯃꯄꯥꯟꯗ ꯂꯧꯕ ꯁꯥꯏꯠ ꯑꯃꯠꯇ꯫

S-2.4 *ꯀꯟꯗꯤꯁꯟꯁꯤꯡ:* ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯣꯔꯦꯜ ꯑꯁꯤ PSD-ꯗ ꯀꯂꯣꯖ 2.5.2-ꯒꯤ ꯗꯇꯨꯔꯦꯂꯐ ꯏꯗꯤꯡꯃꯛ ꯆꯝꯕ ꯀꯐꯔꯖꯕ ꯁꯥꯏꯖ ꯂꯦꯝꯃꯤ; ꯁꯔꯨꯛ 4-ꯒꯤ ꯗꯔꯥꯗꯊꯐ, ꯃꯤꯅꯤꯃꯝ ꯑꯣꯔꯤꯐꯤꯁ ꯑꯃꯁꯨꯡ ꯂꯨꯒꯤꯟꯂꯦꯒꯤ ꯔꯨꯟꯂꯤꯡ ꯄꯣꯡꯗꯥꯒꯂꯥꯖ ꯆꯠꯅꯩ꯫

S-3 — ꯐꯤꯛꯁ ꯇꯧꯔꯕ ꯄꯥꯛ ꯂꯧꯕ ꯏꯁꯤꯡ ꯂꯧꯐꯝꯒꯤ ꯁꯦꯠꯕꯦꯛ

S-3.1 *ꯃꯍꯨꯠ ꯁꯤꯟꯕ:* ꯃꯦꯞ ꯇꯧꯔꯕ 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯃꯤꯔꯂꯤꯟ ꯐꯗꯕ ꯌꯗꯥꯛꯄꯥꯒꯕ ꯏꯁꯤꯡ ꯂꯧꯐꯝꯒꯤ ꯁꯦꯠꯕꯦꯛ (ꯁꯔꯨꯛ 7)꯫

S-3.2 *ꯑꯜꯇꯔꯅꯦꯇꯤꯚ:* 1% AEP-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯠ ꯃꯦꯞ ꯇꯧꯗꯕ ꯃꯐꯝꯗ, ꯁꯦꯠꯕꯦꯛ ꯑꯁꯤ ꯀꯂꯣꯖ 7.4.6-ꯒꯤ ꯇꯦꯕꯜꯗ (ꯑꯃꯁꯨꯡ ꯑꯄꯦꯟꯕ 7B) ꯏꯁꯤꯡ ꯂꯧꯐꯝꯒꯤ ꯀꯂꯥꯁꯀꯤꯗꯃꯛ ꯄꯤꯔꯤꯕ ꯐꯤꯛꯁ ꯇꯧꯔꯕ ꯄꯥꯛ ꯑꯗꯨ ꯑꯣꯏꯒꯗꯕꯅꯤ, ꯀꯂꯣꯖ 7.4.3-ꯗ ꯂꯧꯕꯒꯨꯝꯅ ꯌꯥꯗ ꯌꯦꯡꯗꯨꯅ꯫

S-3.3 *ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ:* ꯃꯦꯞ ꯇꯧꯔꯕ 1% AEP-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯠ ꯂꯧꯔꯕ ꯏꯁꯤꯡ ꯂꯧꯐꯝꯁꯤꯡ꯫

S-3.4 *ꯀꯟꯗꯤꯁꯟꯁꯤꯡ:* ꯑꯜꯇꯔꯅꯦꯇꯤꯚ ꯑꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯂꯧꯕ ꯁꯦꯠꯕꯦꯛ ꯑꯃꯠꯇ ꯀꯂꯣꯖ 7.4.7-ꯒꯤ ꯂꯥꯏꯟ 1-ꯒꯤ ꯃꯤꯅꯤꯃꯝꯗꯒꯤ ꯄꯥꯏꯗꯦ (ꯀꯂꯣꯖ 1.10.3(c)); ꯁꯔꯨꯛ 7-ꯒꯤ ꯂꯥ-ꯐꯤꯜ ꯂꯥꯏꯟ ꯆꯠꯅꯩ; ꯃꯇꯨꯡꯗ 1% AEP-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯠ ꯑꯃꯥ ꯃꯦꯞ ꯇꯧꯗꯨꯅꯥ ꯂꯧꯁꯤꯟꯅꯕꯗꯤ, ꯃꯦꯞ ꯇꯧꯔꯕ ꯁꯦꯠꯕꯦꯛ ꯑꯁꯤ ꯑꯅꯧꯕ ꯑꯦꯄꯂꯤꯀꯦꯁꯟꯗ ꯆꯠꯅꯩ꯫

S-4 — ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯁꯀꯄꯤꯂꯤꯡ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

S-4.1 *ꯃꯍꯨꯠ ꯁꯤꯟꯕ:* ꯁꯔꯨꯛ 5-ꯒꯤ ꯃꯈꯥꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯣꯗꯦꯂꯅ ꯇꯧꯕ ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ꯫

S-4.2 *ꯑꯜꯇꯔꯅꯦꯇꯤꯚ:* ꯑꯦꯄꯂꯤꯀꯦꯁꯟꯅꯩ ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯀꯦꯄꯥꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯍꯨꯡꯅꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯁꯀꯄꯤꯂꯤꯡ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯃꯥ ꯃꯄꯨꯡ ꯐꯥꯍꯅꯖꯤ, ꯌꯥꯃꯗ꯭ꯔꯕꯗꯤ ꯀꯂꯣꯖ 5.3.4-ꯒꯤ ꯀꯟꯗꯤꯁꯟꯁꯤꯡ ꯌꯥꯎꯁꯨꯅ: ꯏꯁꯤꯡ ꯂꯧꯊꯤꯕ ꯄꯨꯕ꯭ꯂꯤꯛ ꯗ꯭ꯔꯦꯟ (drain) ꯑꯗꯨꯗ ꯃꯁꯤꯒꯤ ꯃꯏꯅꯗ-ꯂꯤꯁꯨꯄꯦꯝ ꯀꯤꯂꯏꯗ ꯗꯂꯥꯒꯤꯗꯃꯛ ꯀꯥꯃꯇꯦꯂꯦꯠ ꯇꯧꯕ ꯀꯦꯄꯥꯁꯤꯇꯤ ꯂꯧ (ꯁꯔꯨꯛ 6), ꯑꯃꯁꯨꯡ ꯃꯈꯥ ꯊꯡꯕ 500 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯦꯛꯄ ꯌꯥꯕ ꯃꯌꯥꯝ ꯑꯃꯠꯇ ꯔꯦꯀꯣꯔꯗ ꯇꯧꯗꯦ꯫ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯁꯤ ꯐꯦꯜ ꯇꯧꯔꯕ ꯃꯐꯝꯗ ꯍꯧꯗꯣꯀꯄ ꯁꯔꯨꯛ 5-ꯒꯤ ꯃꯈꯥꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯥꯗꯦꯜ ꯃꯊꯧ ꯇꯥꯏ꯫

S-4.3 *ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ:* ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯂꯦꯟꯁꯤꯔꯤꯒ ꯑꯣꯏꯕ ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡꯒꯤ ꯃꯄꯥꯟꯗ, ꯌꯥꯏꯗꯦꯟ ꯑꯁꯗꯠꯐꯥꯟ ꯑꯃꯗ ꯊꯗꯥꯛꯌꯕ, 1 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯥꯏꯠꯁꯤꯡ꯫

S-4.4 *ꯀꯟꯗꯤꯁꯟꯁꯤꯡ:* ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯁꯤ ꯍꯔꯐꯒꯤ ꯔꯤꯄꯣꯔꯠꯁ ꯁꯥꯏꯟ ꯇꯧꯕ ꯔꯦꯖꯤꯁ꯭ꯇꯔ ꯇꯧꯔꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯁꯥꯏꯟ ꯇꯧꯏ (ꯀꯂꯣꯖ 10.6); ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯂꯥꯐꯗ ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ ꯑꯁꯤ ꯂꯥꯀꯄ ꯕꯥꯗꯤ, ꯗꯥꯎꯟꯁ꯭ꯇ꯭ꯔꯤꯝ ꯀꯝꯕꯥꯏꯟꯗ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯆꯥꯔꯖ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, MSDMA, ꯔꯤꯅꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯆꯥꯔꯖ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠꯀꯤ ꯅꯣꯗꯔꯣ ꯔꯤꯂꯤꯀꯦꯁꯟ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠꯇ ꯔꯦꯐꯥꯔ ꯇꯧꯔꯒꯅꯤ (ꯀꯂꯣꯖ 5.3.3(d))꯫

S-5 — ꯔꯤꯇꯦꯟꯁꯟ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤꯗꯃꯛ ꯐꯤꯜ-ꯏꯟ-ꯇꯦꯁ꯭ꯠ

S-5.1 *ꯃꯍꯨꯠ ꯁꯤꯟꯕ:* ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯈꯥꯗ ꯑꯣꯟ-ꯁꯥꯏꯠ ꯀꯤꯄꯦꯗꯁꯗ꯫

S-5.2 *ꯑꯜꯇꯔꯅꯦꯇꯤꯚ:* ꯀꯤꯄꯦꯗꯗꯒꯤ ꯃꯍꯧ ꯄꯏꯕ ꯄꯨꯃꯅꯃꯛ ꯑꯣꯏꯕꯒꯤ ꯁꯔꯨꯛ ꯍꯁꯤ ꯊꯦꯡꯅꯤ ꯄꯨꯊꯣꯛ ꯔꯤꯇꯦꯟꯁꯟ ꯀꯤꯄꯦꯗꯂꯔ ꯐꯏꯂꯤꯁ ꯑꯃꯥꯏ ꯑꯣꯏꯕꯒꯤ ꯑꯃꯏ ꯂꯔꯄ ꯂꯏ (pukhri) ꯑꯣꯏꯕꯒꯤ ꯄꯏ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤꯗꯃꯛ ꯐꯤꯜ-ꯏꯟ-ꯇꯦꯁ꯭ꯠꯇ ꯃꯄꯨꯡ ꯐꯥꯍꯟꯂ ꯁꯏ (ꯀꯂꯣꯖ 4.13.1)꯫

S-5.3 *ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ:* ꯕꯦꯁꯤꯟ ꯁꯥꯏꯖꯗ ꯑꯃꯥ ꯂꯥꯏꯕꯔꯤ ꯇꯧꯕ ꯕꯦꯁꯤꯟ ꯑꯃꯗ ꯂꯧꯕ ꯁꯥꯏꯠꯁꯤꯡ (ꯇꯦꯕꯜ 1.2)꯫

S-5.4 *ꯀꯟꯗꯤꯁꯟꯁꯤꯡ:*

- (a) ꯀ꯭ꯂꯣꯖ 4.13.2-ꯒꯤ ꯀꯟꯗꯤꯁꯟꯁꯤꯡ ꯍꯠꯂꯩ, ꯔꯤꯂꯅꯦꯜ ꯏꯦꯁꯤꯂꯤꯍꯤ ꯅꯠꯔꯒꯥ ꯑꯃꯒꯤ ꯍꯦꯅꯥ ꯃꯦꯃꯒꯠꯅꯕ ꯍꯦꯊꯗ ꯆꯕꯊ ꯍꯥꯕ ꯊꯃꯗꯔꯤꯏꯥꯁꯕ ꯅꯟꯍꯔꯤꯃ ꯑꯥꯟ-ꯃꯅꯌ ꯗꯤꯍꯦꯟꯃꯟ, ꯑꯃꯁꯨꯡ ꯃꯅꯌꯍ ꯔꯤꯍꯦꯟꯃꯟ ꯑꯃꯁꯨꯡ WQv ꯍꯔꯤꯌꯃꯦꯟꯌ ꯍꯥꯁꯂꯥ;
- (b) ꯏꯤ ꯑꯃꯤ ꯀ꯭ꯂꯣꯖ 4.13.3-ꯒꯤ ꯃꯍꯥꯗ ꯀꯦꯇꯀꯂꯦꯌ ꯍꯥꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯊ-ꯏꯦꯟꯃ ꯍꯥꯔꯕ ꯕꯦꯃꯤꯟ ꯑꯦꯀꯁꯟꯌꯍ ꯊꯃꯃꯤ;
- (c) ꯀꯔꯦꯗꯤꯌ ꯊꯤꯔꯕ ꯒꯥꯂꯨꯃ ꯑꯃꯁꯨꯡ ꯏꯤ ꯑꯃꯤ ꯀ꯭ꯂꯣꯖ 4.13.4-ꯒꯤ ꯊꯕꯂꯤꯄ ꯂꯦꯂꯔꯗ ꯅꯔꯄꯀꯂꯤ; ꯑꯃꯁꯨꯡ
- (d) ꯅꯃꯤꯊ ꯅꯍꯥꯁꯗ ꯃꯦꯟꯃꯤꯍꯤꯒ ꯑꯥꯅꯕ ꯀꯦꯍꯃꯦꯟꯌ ꯑꯃꯗ, ꯏꯤ-ꯅꯟ-ꯂꯤꯁ ꯑꯃꯤ ꯀ꯭ꯂꯣꯖ 1.10.3(d)-ꯅꯥ ꯌꯥꯄꯅꯂꯕꯄꯨꯃꯂꯥ ꯍꯄꯍꯃꯄ ꯏꯊꯅ꯫

ꯁꯦꯗ꯭ꯌꯨꯜ 3 — ꯀꯣꯁꯟꯃꯤꯅꯒꯤ ꯃꯥꯗꯦꯅ ꯔꯤꯖꯣꯂꯨꯁꯟ

> **ꯀꯃꯊꯤꯍꯦꯟꯌ ꯑꯥꯍꯥꯔꯤꯍꯤ ꯑꯃꯂꯥ ꯌꯥꯍꯅ ꯍꯄꯅꯕ ꯃꯥꯗꯦꯅ ꯍꯦꯄꯃꯍ꯫ ꯍꯌꯂꯤꯗꯦ꯫**

ꯔꯤꯖꯣꯂꯨꯁꯟ No. ______ of ______ (ꯃꯨꯂꯤꯃꯤꯊꯦꯅ ꯀꯥꯔꯊꯥꯔꯦꯃꯟ / ꯃꯨꯂꯤꯃꯤꯊꯦꯅ ꯀꯣꯁꯟꯃꯤꯅ / ꯂꯒꯔ ꯊꯟꯍꯌꯀ ꯃꯃꯤꯊ), ꯅꯨꯃꯤꯠ

______

ꯌꯥꯏꯃ: ꯃꯂꯤꯊꯨꯔ ꯂꯥꯄꯒꯤ ꯅꯃꯤꯊ ꯅꯔꯃ ꯗꯤꯂꯥꯅꯟ ꯃꯦꯂꯨꯌꯦꯅꯒꯤ ꯊꯥꯂꯤꯃꯤ ꯃꯊꯂꯤꯃꯦꯟꯌꯀꯤ ꯃꯅꯥꯗ ꯑꯂꯍꯔꯂꯦꯍꯤꯒꯃꯤꯊ ꯂꯃꯤꯟꯕ꯫

ꯀꯣꯁꯟꯃꯤꯅꯂꯥ, ꯅꯨꯃꯤꯠ ______-ꯒꯤ ꯀꯃꯤꯃꯂꯔ / ꯑꯦꯄꯂꯤꯀꯨꯍꯤꯒ ꯑꯥꯏꯤꯃꯔꯒꯤ ꯔꯤꯊꯥꯔꯌ ꯌꯥꯍꯅ ꯍꯄꯂꯒꯣ, ꯑꯃꯁꯨꯡ ꯃꯅꯥꯗ ꯂꯕꯃꯤꯊ ꯂꯥꯌ ꯍꯥꯔꯒꯣ:

- (i) ꯃꯂꯤꯊꯨꯔ ꯂꯥꯄꯒꯤ ꯅꯃꯤꯊ ꯅꯔꯃ ꯗꯤꯂꯥꯅꯟ ꯃꯦꯂꯨꯌꯦꯅ ꯑꯃꯁꯨꯡ ꯃꯃꯤꯒꯤ ꯊꯥꯂꯤꯃꯤ ꯃꯊꯂꯤꯃꯦꯟꯌ ꯑꯃꯤ ______ (ꯅꯟꯃꯍꯔꯃꯦꯟꯌ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠ)-ꯂꯥ ꯍꯌꯂꯄꯄꯅꯂꯦ;
- (ii) ꯂꯥꯀꯅ ꯕꯥꯗꯤ ꯑꯃꯤ ꯃꯦꯂꯨꯌꯦꯅꯒꯤ ꯀ꯭ꯂꯣꯖ 1.6-ꯒꯤ ꯃꯅꯥꯗ ꯍꯤꯌꯔ B / ꯍꯤꯌꯔ A ꯑꯥꯍꯥꯔꯤꯍꯤ ꯑꯃꯂꯤ; ꯑꯃꯁꯨꯡ
- (iii) ꯍꯤꯌꯔ A ꯑꯥꯍꯥꯔꯤꯍꯤ ꯑꯃꯒꯤꯗꯃꯄ, ꯃꯍꯦꯌ ꯂꯥꯄꯒꯤ ꯅꯃꯤꯄꯒꯤ ꯍꯦꯄꯂꯤꯀꯦꯅ ꯀꯃꯤꯍꯤꯂꯥ ______-ꯗ ꯌꯥꯟꯁꯤ (ꯔꯦꯏꯔꯦꯟꯃ ______),

ꯔꯤꯂꯥꯅꯕ ꯍꯥꯅ:

1. ꯃꯦꯂꯨꯌꯦꯅꯒꯤ ꯀ꯭ꯂꯣꯖ 1.7.3-ꯒꯤ ꯀꯟꯗꯤꯁꯟꯁꯤꯡꯒꯤ ꯃꯅꯥꯗ, ꯃꯃꯤꯒꯤ ꯑꯦꯔꯤꯌꯤꯒꯤ ꯃꯨꯊꯗ ꯊꯥꯂꯤꯃꯤ ꯃꯊꯂꯤꯃꯦꯟꯌꯀꯤ ꯃꯅꯥꯗ ꯂꯕ ꯑꯂꯍꯔꯂꯦꯍꯤꯒꯃꯤꯊ ꯂꯃꯤꯟꯂꯕ:

ꯇꯦꯕꯜ 1C.1 — ꯔꯤꯖꯣꯂꯨꯁꯟ ꯑꯃꯤꯂꯥ ꯂꯃꯤꯟꯂꯕ ꯑꯂꯍꯔꯂꯦꯍꯤꯒꯃꯤꯊ

ꯑꯂꯍꯔꯂꯦꯍꯤꯒ	ꯂꯃꯤꯟꯂꯕ (ꯍꯣꯌ / ꯅꯠꯇꯦ)	ꯍꯌꯂꯕ ꯑꯦꯔꯤꯌꯤ (ꯑꯦꯔꯤꯌꯤ ꯃꯨꯃꯕ, ꯅꯠꯔꯒꯥ ꯌꯥꯔꯗ / ꯂꯥꯟꯃꯤꯊ)	ꯍꯌꯂꯕ ꯄꯥꯔꯀꯊ (ꯅꯨꯃꯤꯠ)
S-1 ꯗꯤꯖꯥꯏꯟ-ꯑꯦꯗꯀꯤ ꯂꯃꯕꯤ			
S-2 ꯊꯔꯃꯤꯃꯤꯕꯅ ꯃꯦꯅꯌ ꯗꯤꯃꯍꯥꯔꯂ			
S-3 ꯏꯤꯄꯃ ꯍꯥꯔꯕ ꯊꯥꯄ ꯂꯦꯕ ꯃꯦꯌꯕꯦꯄ			
S-4 ꯃꯅꯥ ꯊꯄꯕ ꯃꯏꯃꯒꯤ ꯃꯀꯔꯤꯅꯤꯊ ꯍꯦꯄꯂꯤꯃꯌ			
S-5 ꯏꯤ-ꯅꯟ-ꯂꯤꯁ			

2. ꯂꯃꯤꯟꯂꯕ ꯑꯂꯍꯔꯂꯦꯍꯤꯒ ꯑꯃꯌꯍ ꯅꯃꯤꯊ ꯅꯍꯥꯁꯗ ꯃꯦꯟꯃꯤꯍꯤꯒ ꯑꯥꯅꯕ ꯀꯦꯍꯃꯦꯟꯌ ꯑꯃꯒꯤ ꯃꯨꯊꯗ ꯍꯌꯂꯥꯅꯗꯕꯅꯤ, ꯃꯦꯂꯨꯌꯦꯅꯂꯥ ꯌꯥꯄꯅꯂꯕꯄꯨꯃꯂꯥ ꯅꯌꯍꯕꯗꯤ (ꯀ꯭ꯂꯣꯖ 1.6.5);
3. ꯔꯤꯖꯣꯂꯨꯁꯟ ꯑꯃꯤꯒꯤ ꯀꯥꯊꯤ ꯑꯃ ꯅꯨꯃꯤꯠ 30-ꯒꯤ ꯃꯨꯊꯗ ꯃꯍꯦꯌ ꯂꯥꯄꯒꯤ ꯅꯃꯤꯄꯒꯤ ꯍꯦꯄꯂꯤꯀꯦꯅ ꯀꯃꯤꯍꯤꯗ ꯊꯒꯗꯕꯅꯤ;
4. ꯂꯃꯤꯟꯂꯕ ꯑꯂꯍꯔꯂꯦꯍꯤꯒꯃꯤꯊ ꯑꯃꯤ ꯂꯥꯀꯅ ꯕꯥꯗꯤꯒꯤ ꯍꯦꯕꯃꯦꯅꯌꯍ ꯏꯥꯊꯗꯥꯄꯀꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.17-ꯒꯤ ꯔꯦꯂꯤꯃꯍꯔꯗ ꯅꯔꯄꯀꯗꯕꯅꯤ; ꯑꯃꯁꯨꯡ

5. ꯀ꯭ꯂꯣꯖ 1.7.3(e)-ꯒꯤ ꯁꯣꯗꯅꯂꯤꯕ ꯄꯤꯖꯅꯇ ꯁꯣꯄꯃꯍꯛ ꯍꯁꯨꯍꯅ ꯄꯤꯇꯣꯛꯂꯦ ꯑꯂꯤ ꯄꯤꯒꯤꯁ ꯇꯧꯒꯗꯕꯅꯤ꯫

ꯃꯤꯡ / ꯗꯤꯖꯥꯏꯅꯦꯁꯟ: ______ ꯃꯍꯤꯛꯀꯤ / ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯁꯤꯜ: ______ ꯇꯥꯡ: ______

ꯑꯦꯅꯦꯛꯁ 1D — ꯃꯥꯂꯦꯝ ꯁꯦꯡꯗꯣꯛꯅ ꯊꯝꯕ-ꯊꯥꯛ 2024-ꯒꯤ ꯑꯣꯟꯂꯥꯏꯅꯃꯥꯂꯦꯝ ꯑꯃꯁꯨꯡ ULB-ꯒꯤ ꯃꯥꯂꯦꯝ ꯊꯝꯕ-ꯊꯥ

ꯂꯃꯥꯏ 1-ꯒꯤ ꯀ꯭ꯂꯣꯖ 1.3.1, 1.3.4, 1.11 ꯑꯃꯁꯨꯡ 1.12-ꯗ ꯃꯔꯤ ꯂꯩꯅ꯫

> **ꯃꯍꯥꯛꯁꯤꯡ ꯑꯣꯏꯕꯁꯤ ꯑꯃꯗꯤ ꯌꯥꯝꯅ ꯁꯦꯝꯕ ꯃꯥꯂꯦꯝ ꯁꯦꯝꯂꯁꯤ꯫ ꯌꯦꯡꯉꯤꯗꯥ꯫** ꯁꯦꯝꯂꯁꯤ ꯑꯂꯤꯗꯤ ꯀ꯭ꯂꯣꯖ 1.3.1-ꯒꯤ ꯅꯥꯏꯂꯁꯤꯡꯃꯥꯂꯦꯝꯂꯤꯕ ꯗꯤꯖꯥꯏꯟ ꯁꯣꯕ ꯌꯥꯕ ꯇꯧꯕꯤ ꯑꯃꯥ ꯄꯥꯡꯇꯤ꯫ ꯃꯁꯤ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯁꯦꯟꯒꯤ ꯇꯧꯕꯄꯂꯤꯕ ꯑꯣꯏꯕ ꯍꯥꯇꯤꯅꯇꯤ꯫

> **ꯗꯤꯖꯥꯏꯅꯤꯕ ꯇꯦꯡ D1D.1.** ꯑꯇꯣꯕ ꯃꯁꯤ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯂꯦꯡꯂꯤꯕ ꯑꯣꯏꯕꯇꯥꯛꯄꯒꯗꯕ ꯃꯥꯂꯦꯝ ꯍꯇꯤꯀ꯭ꯂꯦ ꯁꯦꯡꯗꯣꯛꯅ ꯊꯤꯅꯗꯤꯕ ꯊꯝꯕ-ꯊꯥꯛ 2024-ꯒꯤ ꯃꯁꯤ ꯇꯍꯕꯄꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯍꯇꯤꯀ꯭ꯂꯦ ꯁꯦꯡꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯗꯤ ꯀꯥꯡꯇꯤꯕ ꯑꯥꯒꯥ, 1975 ꯑꯃꯁꯨꯡ ꯍꯧꯇꯤꯂꯤꯀꯅ ꯑꯃꯁꯨꯡ ꯀꯦꯌꯥꯔꯥꯡ ꯑꯥꯒꯥꯂꯤꯕꯒꯤ ꯅꯇꯣꯕꯇꯤꯕ ꯂꯥꯏꯂꯦꯡꯂꯤꯕ ꯑꯂꯤ ꯇꯧꯕꯒꯃꯤ ꯇꯤꯒꯅ ꯑꯣꯗꯦꯅꯇꯄꯂꯤꯕꯇꯦ ꯃꯌꯥꯏꯄꯍ ꯁꯣꯔꯅꯕꯇꯤ꯫ ꯍꯥꯍ ꯑꯂꯤꯗ ꯃꯇꯦꯡꯍꯕ ꯑꯃꯥꯌꯥ ꯍꯅꯗꯥ꯫

ꯁꯦꯛꯁꯟ A — ꯃꯥꯂꯦꯝ ꯍꯇꯤꯀ꯭ꯂꯦ ꯁꯦꯡꯗꯣꯛꯅ ꯊꯤꯅꯗꯤꯕ ꯊꯝꯕ-ꯊꯥꯛ 2024-ꯒꯤ ꯃꯥꯂꯦꯝ ꯑꯣꯟꯂꯥꯏꯅꯃꯥꯂꯦꯝ

A.1 **ꯂꯥꯏꯄꯥ ꯁꯣꯅꯁꯦꯟ ꯑꯃꯁꯨꯡ ꯌꯥꯊꯪꯁꯤꯡ.**

- (1) ꯃꯁꯤ ꯑꯂꯤꯂꯤꯕ ꯃꯥꯂꯦꯝ ꯍꯇꯤꯀ꯭ꯂꯦ ꯁꯦꯡꯗꯣꯛꯅ ꯊꯤꯅꯗꯤꯕ (ꯇꯥꯡꯒꯤ ꯅꯂꯤꯕ ꯃꯇꯦꯡꯃꯥꯂꯦꯝ) (ꯑꯣꯟꯂꯥꯏꯅꯃꯥꯂꯦꯝ) ꯊꯝꯕ-ꯊꯥ, ______ ꯍꯥꯌꯗꯦ ꯃꯕ ꯌꯥꯅ꯫
- (2) ꯃꯅꯥꯌ ꯍꯇꯤꯀ꯭ꯂꯦ ꯒꯦꯇꯦꯡꯂꯁ ꯖꯤꯕꯗꯥꯃꯁꯥꯒꯤ ꯈ ꯁꯃꯥꯏ ꯃꯁꯤꯕꯒꯤ ꯇꯥꯡꯂꯁ ꯌꯥꯊꯪꯃꯇꯤ (ꯀ꯭ꯂꯣꯖ 1.11.1)꯫

A.2 **ꯑꯇꯣꯕ ꯃꯁꯤ ꯑꯃꯥ ꯍꯥꯁꯌꯤꯗꯕ.** ꯍꯇꯤꯀ꯭ꯂꯦ ꯍꯧꯇꯤꯂꯤꯀꯦꯇꯤꯁꯤꯇ ꯑꯥꯒꯥ, 1994-ꯒꯤ ꯂꯥꯏꯂꯦ 213 ꯑꯃꯁꯨꯡ ꯍꯇꯤꯀ꯭ꯂꯦ ꯁꯦꯡꯂꯦ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯗꯤ ꯀꯥꯡꯇꯤꯕ ꯑꯥꯒꯥ, 1975-ꯒꯤ ꯂꯥꯏꯂꯦ 26(1)-ꯒꯤ ꯃꯅꯥꯗ MAHUD-ꯇꯦ ꯖꯤꯕꯗꯥꯒꯅꯤꯕ ꯃꯥꯂꯦꯝꯒꯤ ꯃꯅꯥꯗ, ꯍꯇꯤꯀ꯭ꯂꯦ ꯒꯦꯇꯦꯡꯂꯁ ꯇꯥꯁꯤꯖꯤꯃꯂꯦꯇꯦ, ꯁꯄꯕꯦ ꯇꯥꯃꯅ ꯕꯗꯤ ꯅꯗꯤꯕꯍꯥ ꯑꯃꯁꯨꯡ ꯀꯥꯡꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯗꯒꯥꯇꯀꯃꯥꯂꯦꯝ ꯑꯣꯏꯄꯤꯁꯤ, ꯍꯇꯤꯀ꯭ꯂꯦꯇꯦ ꯌꯥꯊꯪꯍꯅꯇꯕ ꯊꯤꯅꯗꯤꯕ ꯊꯝꯕ-ꯊꯥꯛꯂꯤꯕꯒꯤ ꯃꯁꯤ [______]-ꯒꯤ ꯃꯁꯨꯕꯗ, ꯃꯅꯥꯗ ꯇꯧꯕ ꯃꯁꯤ ꯑꯂꯤ ꯍꯥꯁꯌꯤꯗꯒꯗꯕꯇꯤ:

[illegible] [_____]. [illegible].

(1) *[illegible].* [illegible] "[illegible]" [illegible] 1.4-[illegible]॥

(2) *[illegible].* [illegible]॥

(3) *[illegible].* [illegible], 0.1 ha [illegible] 500 m² [illegible] 4 [illegible] 5 ([illegible]) [illegible]॥

(4) *[illegible].* [illegible] 1.5.4 [illegible]: [illegible] (drain) [illegible]; [illegible]; [illegible] [illegible]-[illegible]; [illegible]॥

(5) *[illegible].* [illegible]-[illegible] (3)-[illegible], [illegible] (3)-[illegible] (4) [illegible]॥

(6) *[illegible].* [illegible]:

- (a) [illegible];
- (b) [illegible]; [illegible]
- (c) [illegible], [illegible]-[illegible], [illegible],

[illegible]-[illegible] (3) [illegible] ([illegible], [illegible] 10.3)॥

(7) *[illegible].* [illegible], [illegible] 10.6.1-[illegible], [illegible]॥

(8) *[illegible].* [illegible]॥

(9) *[illegible].* [illegible] 1.10-[illegible], [illegible]॥

(10) *[illegible].* [illegible] B [illegible], [illegible] 1.11-[illegible]॥

[illegible] B — ULB-[illegible]

B.1 **[illegible].** [illegible]-[illegible] _____ ([illegible]) [illegible]-[illegible], _____ [illegible]॥ [illegible] _____-[illegible]॥

B.2 **ꯊꯣꯕꯨꯔꯣꯟ ꯃꯧꯗꯤꯄꯀ.** ꯃꯧꯖꯥꯡꯗꯦ ꯃꯦꯁꯤꯖꯤꯟ ꯁꯧꯔꯀ ꯊꯗꯤꯡꯂꯥ ꯃꯦꯡꯒꯤ ꯅꯣꯡꯗ ꯅꯔꯥ ꯀꯤꯃꯅꯦ ꯊꯣꯕꯨꯔꯣꯟ ꯑꯣꯏ ꯊꯅꯀ ꯃꯧꯀꯣꯏꯗꯀ ꯌꯥꯃꯧ:

- (a) ꯃꯦꯖꯟ ꯀꯦꯍꯤꯗꯦ ꯑꯣꯖꯂꯨꯒ ꯁꯧꯔꯀ ꯍꯣꯒꯣꯃꯖꯊꯣꯑꯥ ꯅꯨꯍꯤꯗꯊꯡ; ꯑꯃꯁꯨꯡ
- (b) ꯃꯦꯖꯟ ꯀꯦꯍꯤꯗꯦ ꯁꯧꯔꯤꯀ ꯅꯔꯊ, ꯃꯊꯀꯤ, ꯖꯟꯒꯔꯥ (culvert), ꯅꯣꯏꯗ ꯃꯧꯏꯊ ꯑꯃꯁꯨꯡ ꯅꯣꯏꯗ ꯅꯌꯦꯛ ꯄꯦꯆꯄꯦꯀꯒꯤ ꯆꯀꯡ ꯅꯨꯍꯤꯗꯊꯡ, ꯊꯣꯏꯒꯤ ꯅꯦꯗꯀꯦ ꯑꯃꯁꯨꯡ ꯃꯊꯀꯤꯣꯏꯗ ꯌꯦꯛꯃꯦ (ꯖꯃꯦꯇ 1.3.1(b))꯫

B.3 **ꯖꯀꯃꯤꯡ ꯌꯔꯡꯣꯏꯗ.** B.2(b)-ꯒꯤ ꯊꯌꯦꯍ ꯃꯧꯀ ꯆꯀꯡ ꯑꯊꯒꯤ ꯍꯤꯁꯣꯟꯍ ꯖꯔꯦꯇꯣꯡꯥ ꯔꯤꯖꯦꯔꯥ ꯑꯃꯁꯨꯡ ꯖꯑꯥꯔꯣꯡꯥ ꯅꯨꯍꯤꯗꯊꯡꯃꯦ, ꯖꯃꯦꯇ 1.11-ꯒꯤ ꯕꯨꯊꯤꯥꯣꯏꯗꯍꯒꯤ, ꯊꯣꯕꯨꯔꯣꯟ ꯊꯖꯨꯗ ꯏꯄꯃꯀ ꯊꯆꯧ ꯁꯄꯃꯒꯍꯀꯃꯤ (ꯖꯃꯦꯇ 1.3.4)꯫

B.4 **ꯁꯤꯌꯔ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯔꯃꯣꯁꯤꯒꯣꯏꯗ.** ꯃꯦꯖꯟ ꯀꯦꯍꯤ ꯑꯣꯏ ꯊꯣꯕꯨꯔꯣꯟꯒꯤ ꯖꯃꯦꯇ 1.6-ꯒꯤ ꯊꯌꯦꯍ ꯁꯤꯌꯔ ______ ꯑꯦꯆꯦꯔꯤꯁꯤ ꯑꯊꯃꯤ꯫ ꯃꯦꯖꯟ ꯀꯦꯍꯤꯗꯦ ꯃꯧꯏꯊꯃꯀ ꯖꯦꯃꯤꯏ ꯏꯖꯃꯤꯊꯣꯑꯥꯖꯤ ꯑꯃꯁꯔꯃꯣꯁꯤꯒꯣꯏꯗ ꯏꯣꯍꯨꯔꯟꯍ ꯃꯤꯏꯥ ꯁꯧꯅ, ꯊꯅꯦꯌ ꯅꯨꯍꯤꯗꯊꯡ ꯃꯧꯏꯊꯃꯀ ꯔꯤꯃꯦꯕꯨꯏꯊꯒꯤ ꯃꯦꯌꯃꯃꯦ꯫

B.5 **ꯏꯀꯊꯤꯁꯣꯟꯏꯗ ꯑꯃꯁꯨꯡ ꯔꯤꯒꯤꯗ.** ꯏꯀꯊꯤꯁꯣꯟꯏꯗ ꯊꯣꯕꯨꯔꯣꯟꯒꯤ ꯖꯃꯦꯇ 10.3-ꯒꯤ ꯏꯁꯣꯇꯏꯗꯍ ꯖꯤꯒꯍꯀꯃꯤ ꯑꯃꯁꯨꯡ ꯖꯃꯦꯇ 10.7-ꯒꯤ ꯊꯁꯊꯒꯤ ꯊꯕꯨꯗꯍ ꯔꯤꯒꯤꯗ ꯁꯧꯒꯍꯀꯃꯤ꯫

B.6 **ꯊꯣꯑꯁꯣꯃꯣꯑꯏ, ꯅꯑꯏꯖꯣꯡꯏꯑ ꯑꯃꯁꯨꯡ ꯅꯑꯏꯦꯔꯏꯊꯣꯑꯥ.** ꯊꯣꯑꯁꯣꯃꯣꯑꯏ ꯍꯤꯡꯃꯣꯔꯣꯏꯑꯏꯗ, ꯅꯑꯏꯖꯣꯡꯏꯑꯏꯗ, ꯖꯀꯃꯤꯡ ꯑꯣꯏꯣꯥꯏꯗ ꯄꯣꯑꯍꯑꯦꯒꯔ ꯁꯧꯀ ꯑꯃꯁꯨꯡ ꯅꯑꯏꯦꯔꯏꯊꯣꯑꯥ ꯑꯣꯏ ꯊꯣꯕꯨꯔꯣꯟꯒꯤ ꯖꯃꯦꯇ 10.10-ꯍꯒꯤ 10.15 ꯏꯦꯗꯀꯒꯤ ꯊꯁꯨꯗ ꯅꯑꯃꯒꯍꯀꯃꯤ꯫

B.7 **ꯏꯦꯗꯍꯦꯖꯖ.** ꯃꯦꯖꯟ ꯀꯦꯍꯤꯗꯦ ꯊꯣꯕꯨꯔꯣꯟꯒꯤ ꯖꯃꯦꯇ 10.17-ꯒꯤ ꯔꯣꯇꯤꯏꯁꯔꯏꯗ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯦꯔꯥꯏꯗ ꯏꯦꯗꯍꯦꯡꯖꯍꯀꯃꯤ꯫

B.8 **ꯔꯤꯒꯤꯗ.** ꯊꯣꯕꯨꯔꯣꯟ ꯑꯣꯏ ꯖꯃꯦꯇ 1.12-ꯒꯤ ꯊꯌꯦꯍ ꯑꯣꯊꯣꯑꯍ ꯁꯧꯔꯖꯖ ꯊꯁꯊ ꯅꯨꯍꯤꯗꯍ ꯀꯅ-ꯃꯦꯇ ꯑꯣꯏꯏꯗ ꯔꯤꯒꯤꯗ ꯁꯧꯒꯍꯀꯃꯤ꯫

ꯁꯣꯀꯟ 1D.1 — ꯏꯣꯍꯨꯔꯟ: ꯃꯧꯏꯊꯃꯀ ꯑꯃꯁꯔꯃꯣꯁꯤꯒꯏꯗ (ꯃꯣꯑꯦꯗꯥ)

ꯑꯃꯁꯔꯃꯣꯁꯤꯒ	ꯔꯤꯃꯦꯕꯨꯏꯑ ꯃꯊꯀꯔ ꯑꯃꯁꯨꯡ ꯕꯨꯊꯤꯥ	ꯖꯊꯤꯁꯤꯒꯤ ꯌꯦꯃꯀ (ꯁꯤꯌꯔ A ꯅꯡꯁꯒꯤ)	ꯌꯥꯃꯀ ꯄꯧꯔꯖꯖ	ꯑꯣꯔꯤꯌ

[illegible] 1-1 — [illegible]

[illegible] 1-[illegible] 1.5.1-[illegible] 1.5.9 [illegible] 1.6, [illegible] 10-[illegible] 10.3-[illegible]

[illegible] — [illegible] 1.0. [illegible] 10.3.2-[illegible], [illegible]-[illegible] ([illegible] 0)-[illegible] ([illegible] 1)-[illegible]

[illegible] 1F.1 — [illegible] 1-1: [illegible]

No.	[illegible] ([illegible])	[illegible]
	A. [illegible]	
A1	[illegible] ([illegible], [illegible])	______
A2	[illegible]	______
A3	[illegible] ([illegible], [illegible])	______
A4	[illegible] ([illegible] 1.4)	______
A5	[illegible]: A / B ([illegible] 1.6; [illegible] 1A)	______
A6	[illegible]: [illegible] / [illegible] / [illegible] / [illegible] (DPR)	______
A7	[illegible]: [illegible] / [illegible] / [illegible]-[illegible] / [illegible] / [illegible] / [illegible]-[illegible] / [illegible] ([illegible] 1.4)	______
A8	[illegible]: [illegible] 0 / [illegible] 1 ([illegible] 10.3)	______
	B. [illegible] ([illegible] 1.5.1)	
B1	[illegible]-[illegible] 2024-[illegible] — 1.5.1(a): [illegible] / [illegible]	______
B2	ULB, [illegible], [illegible] — 1.5.1(b): [illegible] / [illegible]	______
B3	[illegible] — 1.5.1(c): [illegible] / [illegible]	______
	C. [illegible] ([illegible] 1.4, 1.5.5)	
C1	[illegible], [illegible]-[illegible] ([illegible])	______
C2	[illegible] (ha)	______
C3	[illegible] (ha)	______
C4	[illegible] (m²)	______
C5	[illegible] (m²)	______
C6	[illegible], [illegible] (m²)	______
C7	[illegible], C5 + C6 (m²)	______
C8	RWH [illegible] (m²) ([illegible] 1.5.3)	______
	D. [illegible]	
D1	[illegible] 0.1 ha [illegible] — 1.5.2(a): [illegible] / [illegible]	______
D2	[illegible] 500 m² [illegible] — 1.5.2(b): [illegible] / [illegible]	______

No.	ꯋꯥꯍꯪ (ꯀ꯭ꯂꯣꯖ)	ꯈꯟꯅꯕꯤ
D3	ꯑꯤꯅꯣꯒꯣꯇꯀꯍꯣꯗꯦ (ꯑꯍꯥꯅꯕ ꯂꯩꯐꯝ ꯁꯦꯃꯒꯠꯄ ꯃꯒꯤ) — 1.5.6: ꯍꯣꯌ / ꯅꯠꯇꯦ	______
D4	ꯀ꯭ꯂꯣꯖ 4.5.6-ꯒꯤ ꯃꯇꯨ꯭ꯡꯃꯣꯗꯅ ꯑꯤꯅꯣꯒꯣꯇꯀꯍꯣꯗꯦ ꯃꯨꯠ ꯀ꯭ꯂꯀꯣꯖ ꯁꯦꯃꯕ: ꯍꯣꯌ / ꯅꯠꯇꯦ	______
D5	ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯀ꯭ꯂꯤꯡꯒꯤ ꯂꯝꯕꯤ: ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯆꯠꯄꯒꯤ ꯃꯍꯨꯠꯇꯦ ꯎꯇꯂꯤꯕ ꯄꯥꯝꯕꯩ ꯁꯦꯃꯒꯠꯄ ꯃꯥꯏꯄꯥꯛ ꯁꯥꯔꯤ 1F.2-ꯗ ꯌꯥꯎꯔꯦ — 1.5.7: ꯍꯣꯌ / ꯅꯠꯇꯦ / ꯆꯠꯅꯗꯦ	______
D6	ꯐꯥꯔꯁ꯭ꯠ ꯐ꯭ꯂꯥꯁꯀꯣꯂꯕ — 1.5.8(a) ꯃꯄꯥꯟꯗꯒꯤ ꯂꯥꯀꯄ ꯏꯁꯤꯡ ꯇꯣꯉꯥꯟꯅ / 1.5.8(b) ꯁꯦꯃꯒꯠꯄ ꯃꯥꯏꯄꯥꯛ ꯄꯥꯝꯕꯩꯗꯨ ꯑꯣꯏꯅꯥ ꯍꯥꯞꯆꯤꯟꯕ / ꯃꯑꯣꯡ ꯍꯦꯟꯕ ꯅꯠꯇꯦ	______
D7	RWH ꯁ꯭ꯇꯣꯔꯦꯖ ꯚꯣꯜꯌꯨꯝ (ꯅꯤꯌꯝ ꯁꯥ-ꯗ 66(a) [TBC: ꯗꯥꯐ꯭ꯠ ꯁꯤꯡꯗꯥ ꯗꯨꯀꯨꯃꯦꯟ ꯁꯦꯃꯕ ꯁꯥ-ꯗꯦꯇꯤꯡ ꯅꯥꯏꯕ ꯑꯣꯏꯅꯥ ꯄꯨꯡꯊꯥꯏ ꯀꯨꯄꯁꯤꯜꯂꯕ ꯁꯦꯝꯒꯠꯂꯤ]: 100 m² ꯅꯠꯇꯕꯗ ꯈꯨꯗꯝꯒꯤ ꯑꯣꯏꯅ ꯀ꯭ꯂꯣꯖ ꯑꯃꯗ ꯂꯩꯕ ꯂꯩꯐꯝ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯁꯤꯡꯗꯥꯡ ꯃꯥꯌꯀꯩ, ꯗꯥꯐ꯭ꯠ ꯁꯤꯡꯗ ꯅꯠꯇꯕꯗ PDA Manipur-ꯗ ꯁꯥ-ꯗꯦꯇꯤꯡ ꯌꯥꯅꯤꯡꯍꯟꯗꯨꯅ ꯈꯣꯡꯕꯗ; ꯌꯤꯡꯒꯤ ꯆꯠꯄꯤꯡ: ꯃꯨꯛ ꯑꯃꯁꯨꯡ ꯈꯉꯅꯤꯕ) — 1.5.3: ꯍꯣꯌ / ꯅꯠꯇꯦ	______
	E. ꯏꯁꯤꯡꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ	
E1	ꯁꯤꯡꯕ ꯁꯔꯨꯛ ꯂꯥꯏꯅꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯠꯄꯒꯤ ꯑꯃꯗ ꯑꯣꯏꯕ ꯏꯁꯤꯡ (ꯑꯄꯥꯏꯕ 1B; ꯀ꯭ꯂꯣꯖ 4.5.3): ꯅꯠꯇꯦ / ꯍꯣꯌ — ꯈꯟꯕ	______
E2	ꯇꯤꯀꯤꯗꯅꯕ ꯆꯠꯄꯒꯤꯃꯤ ꯂꯥꯀꯄꯒꯤ ꯍꯥꯏꯕꯗꯤ	______
E3	ꯏꯁꯤꯡ ꯑꯃꯨꯛꯍꯟꯕ 1% AEP-ꯒꯤ ꯂꯣꯒꯣꯟ ꯈꯣꯡ ꯁꯦꯃꯕ ꯅꯠꯇꯕꯗ ꯂꯣꯀꯀ ꯌꯥꯕ (ꯀ꯭ꯂꯣꯖ 1.5.4(b)): ꯍꯣꯌ / ꯅꯠꯇꯦ; ꯍꯥꯏꯕꯗꯤ	______
E4	ꯏꯁꯤꯡꯁꯤꯡ ꯅꯠꯇꯕꯗ ꯏꯁꯤꯡꯒꯤ ꯈꯂꯥꯏꯅ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯕ ꯂꯩꯐꯝ (ꯀ꯭ꯂꯣꯖ 1.5.4(c); ꯇꯥꯕꯜ 7): ꯅꯠꯇꯦ / ꯍꯣꯌ — ꯈꯟꯕ	______
E5	ꯏꯁꯤꯡ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯈꯥꯔꯤꯒꯤ ꯁꯃꯗꯒꯤ ꯂꯝꯕꯤ ꯅꯠꯇꯕꯗ ꯈꯣꯡꯃ-ꯇꯤꯇꯨ꯭ꯡꯒꯤ ꯃꯇꯨꯡ ꯀ꯭ꯂꯥ (ꯀ꯭ꯂꯣꯖ 1.5.4(d)): ꯅꯠꯇꯦ / ꯍꯣꯌ	______
E6	ꯏꯁꯤꯡꯗ ꯁꯦꯁꯅꯥꯏ ꯑꯄꯨ꯭ꯡꯃꯤ ꯑꯃꯁꯨꯡ ꯁꯃꯗ ꯁꯦꯁ (ꯀ꯭ꯂꯣꯖ 10.3.2(d)): ꯍꯣꯌ / ꯅꯠꯇꯦ	______
E7	ꯒꯣꯃꯤꯌꯣꯗꯇ, ꯌꯣꯒꯃ, ꯃꯤꯂꯗꯅ ꯃꯣꯇꯤꯂꯤꯁꯤ ꯅꯠꯇꯕꯗ ꯃꯤ-ꯁꯗ-ꯂꯤꯡ ꯀ꯭ꯂꯀꯣꯖ ꯁꯦꯃꯕ (ꯀ꯭ꯂꯣꯖ 10.3.2(c)): ꯅꯠꯇꯦ / ꯍꯣꯌ — ꯃꯦꯃꯗ 1-2 ꯏꯕꯅꯕ	______
	F. ꯂꯣꯀꯀ	
F1	ꯃꯅ: (i) ꯇꯥꯕꯜ 4 ꯑꯃꯁꯨꯡ 5 ꯌꯥꯎꯗꯦ, ꯀ꯭ꯂꯣꯖ 1.5.4 ꯑꯃꯁꯨꯡ RWH ꯁ꯭ꯇꯣꯔꯦꯖꯃꯤ ꯗꯣꯌꯅꯗꯦ; (ii) ꯀ꯭ꯂꯣꯖ 1.5.4 ꯑꯃꯁꯨꯡ RWH ꯁ꯭ꯇꯣꯔꯦꯖ ꯁꯤꯁꯥꯝ (ꯃꯄꯥꯟꯗꯒꯤ ꯂꯥꯀꯄ); (iii) 1.5.8-ꯒꯤ ꯈꯔꯅ ꯐ꯭ꯂꯥꯁꯀꯣꯂꯕ, ꯀ꯭ꯂꯣꯖ 1.5.4 ꯑꯃꯁꯨꯡ RWH ꯁ꯭ꯇꯣꯔꯦꯖ ꯍꯥꯏꯕꯗꯨ ꯌꯥꯎꯗꯦ	______
F2	ꯀ꯭ꯂꯣꯖ 10.3.2-ꯒꯤ ꯈꯔꯅ ꯇꯨꯡꯖ 0 ꯁꯦꯃꯅꯕꯗꯤ: ꯍꯣꯌ (ꯋꯥꯍꯪ (a)-ꯗꯒꯤ (d) ꯐꯥꯑꯣꯕ) / ꯅꯠꯇꯦ	______
F3	ꯇꯨ꯭ꯡꯃꯣꯖꯒꯤ ꯄꯥꯑꯣ: ꯍꯥꯏꯗꯨꯒꯤ ꯄꯥꯑꯣ (ꯇꯥꯕꯜ 3) / ꯗꯤꯖꯁꯗ-ꯑꯣꯗꯃꯤ ꯆꯠꯄꯤ S-1 (ꯀ꯭ꯂꯣꯖ 1.7, ꯗꯤꯇꯤꯗꯖꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯕ ꯈꯃꯗꯅ)	______
F4	ꯄꯖꯕ ꯄꯖꯖꯤꯕ ꯀ꯭ꯂꯖꯤꯇꯤ ꯇꯀꯖꯤꯈꯣꯗꯃꯤ ꯑꯁꯀꯀ ꯑꯖꯁꯃꯗꯁꯤꯒꯇꯤꯡ (S-2-ꯗꯒꯤ S-5), ꯗꯤꯇꯤꯗꯖꯕ ꯃꯤꯖꯂꯇꯗꯒꯤ ꯗꯣꯌꯅꯗꯦ	______
F5	ꯁꯤꯌꯃ B-ꯒꯤ ꯃꯣꯖ ꯈꯨꯃꯕ ꯁꯗꯅ ꯍꯥꯕ ꯌꯥꯎꯗꯦ (ꯀ꯭ꯂꯣꯖ 1.11.3): ꯍꯣꯌ / ꯅꯠꯇꯦ	______
	G. ꯂꯤꯡꯂꯣꯃꯣꯗꯦ	
G1	ꯑꯩꯗ ꯍꯥꯁꯃꯤ ꯈꯨꯗꯝꯗꯤ ꯈꯄꯥꯡꯁꯤ ꯑꯃꯁꯨꯡ ꯁꯗꯃꯃꯈꯣꯗꯦ ꯑꯇꯤ ꯌꯥꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯈꯗ ꯀ꯭ꯂꯗꯦ ꯑꯃ ꯗꯣꯒꯣꯂꯀꯈꯣꯗꯦ ꯀ꯭ꯂꯅꯕ ꯌꯥꯔꯦ꯫ ꯑꯣꯀꯂꯤꯃꯣꯗꯦ: ꯈꯟꯕ, ꯏꯁꯗ, ꯂꯩꯈꯤ	______
G2	ꯇꯣꯖꯍꯤꯕꯗꯤ (ꯃꯣꯂꯤꯇꯨ꯭ꯡ ꯁꯦꯃꯕ ꯀ꯭ꯂꯃꯃꯣꯇꯗꯅ, ꯀ꯭ꯂꯣꯖ 1.4): ꯈꯟꯕ, ꯃꯣꯂꯤꯇꯨ꯭ꯡꯃꯣꯗꯦ ꯅꯖꯕꯃ, ꯏꯁꯗ, ꯂꯩꯈꯤ	______
	H. ꯑꯣꯐꯤꯁꯀꯤ ꯊꯝꯅꯕ (ꯀ꯭ꯂꯣꯖ 1.5.9)	
H1	ꯂꯣꯀꯀ ꯃꯇꯃꯃꯖ ꯁꯃ / ꯍꯥꯄꯥꯔꯁꯃ	______
H2	ꯍꯥꯄꯆꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯈꯃꯖꯇꯤꯡ	______
H3	ꯑꯃꯤꯇꯃ: ꯈꯟꯕ, ꯗꯤꯂꯤꯒꯣꯗꯦ, ꯏꯁꯗ, ꯂꯩꯈꯤ	______

ꯁꯕꯟ 1F.2 — ꯃꯦꯃꯗ 1-1: ꯁꯃꯗꯒꯤ ꯆꯠꯄꯒꯤ ꯈꯨꯃꯕ ꯁꯗꯅ ꯄꯥꯝꯕꯩꯗ ꯁꯦꯃꯒꯠꯄ ꯃꯥꯏꯄꯥꯛ, ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯂꯝꯕꯤꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 1.5.7)

ꯂꯦꯃꯍꯧꯔꯛ ꯅꯃꯊꯤꯜꯒꯤ ꯃꯥꯂꯦꯝꯕ	ꯁꯥꯅꯅꯩꯇ ꯍꯣꯕ – ꯂꯣꯅꯕ	ꯍꯣꯌꯗꯤꯕ ꯅꯊꯀꯤꯗꯒꯤꯔꯝ ꯑꯥꯃꯤꯔꯦ (m²)	500 m² ꯅꯨꯃꯥꯛ ꯊꯣꯡꯀꯥꯛꯇ ꯍꯥꯕ (ꯍꯣꯌ / ꯅꯠꯇꯦ)	ꯁꯧꯗꯥꯟꯒꯤ ꯊꯖꯊ: ꯃꯦꯅꯨ ꯑꯦꯖ ꯁꯥ / ꯃꯤꯇꯩꯅ ꯖꯥꯁꯤꯇꯤꯕꯤ

ꯐꯣꯔꯝ 1-2 — ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ / ꯆꯦꯛ ꯂꯤꯁ꯭ꯠ

ꯑꯦꯅꯦꯛꯁ 1-ꯒꯤ ꯁꯦꯛꯁꯟ 1.10-ꯗ ꯌꯦꯡꯕꯤꯌꯨ꯫

ꯃꯇꯦꯡ ꯐꯣꯔꯝ — ꯍꯧꯖꯤꯛꯀꯤ ꯃꯇꯝꯗꯥ ꯂꯩꯔꯤꯕ ꯐꯣꯔꯝ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯦꯟꯒꯠꯂꯤ, ꯃꯇꯦꯡ ꯚꯔꯖꯟ 1.0. ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯐꯣꯔꯝꯒꯤ ꯃꯑꯣꯡꯗꯥ ꯊꯥꯖꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕ (ꯁꯦꯛꯁꯟ 1.10.4(a)), ꯍꯥꯏꯕꯗꯤ ꯃꯇꯧ ꯑꯁꯤ ꯆꯠꯅꯕꯤꯒꯤ ꯐꯣꯔꯝ ꯑꯍꯥꯅꯕ ꯁꯤꯖꯤꯟꯅꯒꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 1F.3 — ꯐꯣꯔꯝ 1-2: ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ / ꯆꯦꯛ ꯂꯤꯁ꯭ꯠ

No.	ꯑꯥꯏꯇꯦꯝ (ꯁꯦꯛꯁꯟ)	ꯔꯤꯃꯥꯔꯛ
	A. ꯑꯦꯞꯂꯤꯀꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯂꯝ	
A1	ꯑꯦꯞꯂꯤꯀꯦꯟꯠ	______
A2	ꯂꯝꯒꯤ ꯑꯦꯗ꯭ꯔꯦꯁ ꯑꯃꯁꯨꯡ ꯖꯤꯑꯣ-ꯀꯣꯑꯣꯔꯗꯤꯅꯦꯠ	______
A3	ꯐꯣꯔꯝ 1-1-ꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯇꯥꯡꯀꯛ	______
A4	ꯑꯣꯏꯔꯤꯕꯒꯤ ꯀꯦꯇꯦꯒꯣꯔꯤ: A / B	______
A5	ꯂꯝꯒꯤ ꯑꯦꯔꯤꯌꯥ (ha)	______
A6	ꯄꯥꯝꯕꯤ ꯄꯥꯟꯗꯝ ꯀꯦꯟꯗꯤꯗꯦꯠ ꯑꯣꯏꯕ ꯁꯦꯟꯇꯔꯦꯜ ꯑꯃꯗꯥ ꯆꯤꯡ ꯂꯝꯗ: ꯍꯣꯌ / ꯅꯠꯇꯦ	______
	B. ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ	
B1	ꯍꯥꯌ: ꯑꯦꯛꯇꯤꯕꯤꯇꯤ ꯍꯧꯗ ꯀꯟꯗ ꯑꯃꯗꯒꯤ ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ (1.10.1) / ꯑꯦꯅꯦꯛꯁ 4-ꯒꯤ ꯃꯇꯦꯡꯒꯤ ꯆꯦꯛ (1.10.2)	______
B2	ꯍꯥꯏꯕ ꯃꯇꯧ ꯍꯦꯟꯒꯠꯄꯒꯤ ꯁꯦꯛꯁꯟ	______
B3	ꯍꯦꯟꯒꯠꯄꯗ ꯍꯧꯖꯤ ꯂꯧꯔꯛꯄ ꯇꯥꯡꯀꯛ	______
B4	ꯁ꯭ꯇꯦꯇꯁ ꯂꯩꯕ ꯇꯥꯡꯀꯛ ꯑꯃꯗꯒꯤ ꯍꯧꯖꯤꯛ	______
	C. ꯇꯥꯏꯕ ꯂꯩꯕ ꯑꯃꯗꯒꯤ ꯆꯦꯛ ꯂꯩꯕ ꯁꯤꯖꯤꯟ ꯆꯦꯛꯁꯤꯅꯕ (ꯁꯦꯛꯁꯟ 1.10.3) — ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯍꯥꯔꯣꯡꯒꯤ ꯁꯦꯝꯒꯠꯄ ꯑꯃꯗꯒꯤ ꯍꯥꯏꯕ ꯃꯇꯧꯗ ꯂꯧꯔꯕ ꯁꯦꯃꯖꯤꯟꯕ ꯂꯩꯕꯤꯌꯨ	
C1	(a) ꯅꯣꯡꯒꯤ ꯄꯥꯝꯕꯤꯒꯤ ꯄꯣꯡꯕꯦꯟ ꯑꯃꯗ ꯃꯤꯔꯦꯜ ꯁꯦꯅꯒꯝꯃꯦ	ꯍꯥꯏꯕ ꯃꯇꯧꯗ: ______
C2	(b) ꯑꯦꯅꯦꯛꯁ 6-ꯒꯤ ꯄꯥꯟꯗꯃꯒꯤ ꯅꯦꯝꯕ ꯃꯐꯝ ꯑꯣꯟꯕ ꯐꯥꯎꯗꯥ ꯅꯦꯒꯦꯟ	ꯍꯥꯏꯕ ꯃꯇꯧꯗ: ______
C3	(c) ꯁꯦꯛꯁꯟ 7.4.7-ꯒꯤ ꯇꯦꯕꯜ 1-ꯒꯤ ꯍꯤꯡꯂꯤꯍꯟꯗꯒꯤ ꯂꯦꯞꯄ ꯄꯥꯝꯕꯤ ꯃꯐꯃꯒꯤ ꯂꯦꯌꯕꯦꯃ, ꯅꯌꯗꯒꯤ ꯑꯦꯅꯦꯛꯁ 7-ꯒꯤ ꯅꯣ-ꯐꯥꯏꯟ ꯇꯣꯡꯗ ꯐꯥꯏꯟ ꯅꯌꯗꯒꯤ ꯂꯩꯕ	ꯍꯥꯏꯕ ꯃꯇꯧꯗ: ______
C4	(d) ꯄꯥꯝꯕꯤ ꯄꯥꯟꯗꯝ ꯀꯦꯟꯗꯤꯗꯦꯠ ꯑꯣꯏꯕ ꯁꯦꯟꯇꯔꯦꯜ ꯑꯃꯗ ꯗꯤꯁꯦꯟꯇꯦ, ꯁꯦꯛꯁꯟ 1.7-ꯒꯤ ꯍꯥꯟꯗ ꯐꯤ-ꯄꯦ-ꯅꯤꯡꯍꯧ ꯅꯌꯁꯤꯡꯗꯤ	ꯍꯥꯏꯕ ꯃꯇꯧꯗ: ______
	D. ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ: ꯁꯥꯐꯅꯕꯤ (ꯁꯦꯛꯁꯟ 1.10.1(a))	
D1	ꯂꯝꯒꯤ ꯐꯤꯂꯥꯝ: ꯁꯤꯡꯕ ꯁꯤꯡꯗ ꯇꯦꯕꯜ / ꯁꯦꯟꯇꯔꯦꯜ ꯑꯣꯏꯗꯕ ꯃꯐꯝ / ꯑꯃ / ꯍꯧꯖꯤ ꯂꯩꯕ ꯐꯦꯡꯅꯤꯡꯇꯝꯃꯒꯤꯗꯤ ꯁꯤꯡꯅꯕ ꯑꯁꯤꯡꯁ ꯂꯝꯗ / ꯑꯇꯣꯝ	______
D2	ꯑꯦꯒꯤꯗꯦꯟꯁ (ꯂꯦꯖꯥꯔꯕꯤ, ꯃꯥꯂꯦꯕꯤ, ꯁ꯭ꯇꯦꯁꯟꯕꯤ), ꯔꯦꯐꯔꯦꯟꯁꯕꯤꯒꯤ ꯆꯠꯅꯕꯤ	______
D3	ꯑꯦꯅꯦꯝ ꯂꯩꯕ ꯑꯣꯖꯅꯦꯟꯕꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯌ ꯁꯥꯐꯅꯕꯤ ꯁꯦꯃꯒꯤ ꯂꯩꯕ ꯁꯤꯡꯗꯕꯤ	______

No.	ꯑꯥꯏꯇꯦꯝ (ꯀ꯭ꯂꯣꯖ)	ꯏꯟꯇ꯭ꯔꯤ
	E. ꯚꯦꯔꯤꯌꯦꯟꯁ: ꯃꯥꯟꯅꯕ ꯄꯥꯐꯣꯔꯃꯦꯟꯁ ꯅꯠꯔꯒꯥ ꯃꯦꯛ-ꯑꯞ (ꯀ꯭ꯂꯣꯖ 1.10.1(b))	
E1	ꯁꯤꯖꯤꯟꯅꯔꯕ ꯃꯁꯥ ꯎꯡꯕ ꯃꯐꯃꯒꯤ ꯄꯥꯎꯁꯠ (ꯁꯔꯨꯛ 5)	______
E2	ꯃꯄꯨꯡ ꯐꯖꯥ ꯃꯥꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯚꯦꯔꯤꯌꯦꯟꯁꯀꯤ ꯖꯥꯌꯅꯖꯥ ꯍꯥꯅꯟꯠ ꯑꯇꯨꯅ ꯄꯥꯐꯣꯔꯃꯦꯟꯁ (ꯍꯤꯗ ꯐꯖ꯭ꯖꯥꯁꯤꯡ, ꯅꯁꯤꯡꯒꯤ ꯖꯒꯦꯇꯁꯤꯡ)	______
E3	ꯅꯠꯔꯒꯥ: ꯀꯦꯌꯃꯦꯠ ꯑꯇꯨꯃꯁꯞ ꯐꯤ-ꯅꯦ-ꯖꯤꯁ ꯅꯠꯔꯒꯥ ꯑꯥꯐ-ꯂꯅꯠ ꯌꯔꯁꯂꯤꯁꯖ ꯃꯦꯛ-ꯑꯞ ꯄꯔꯕ ꯂꯥꯔꯄꯐꯥ — ꯒꯥꯖꯨꯝ (m³), ꯌꯔꯁꯂꯤꯁ ꯅꯠꯔꯒꯥ ꯐꯤ	______
	F. ꯂꯤꯄꯦꯁꯟꯁꯒꯤ ꯌꯦꯒꯔ: ꯌꯨꯃꯐꯃꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 1.10.2)	
F1	ꯂꯅꯠꯂꯥ ꯁꯃꯖꯔꯖ ꯄꯥꯎꯐꯥꯖꯖꯥ / ꯃꯁꯥ ꯎꯡꯕ ꯃꯐꯃꯖ ꯅꯁꯤꯡ ꯅꯌꯦꯠ ꯖꯥꯕꯀꯤ ꯌꯥꯕ ꯀ꯭ꯔꯥꯀꯔꯄꯤ ꯖꯣꯄꯕ ꯄꯥꯅꯖꯦ ꯔꯤꯌ ꯑꯃꯖ ꯎꯖꯥꯁꯅ	______
F2	ꯂꯤꯄꯦꯁ ꯄꯥꯂꯕ ꯐꯖ꯭ꯖꯥ ꯁꯔꯨꯛ 5-ꯒꯤ ꯑꯣꯌꯠꯐꯥꯅ ꯎꯤꯡꯖꯕ ꯐꯤꯒꯃ ꯐꯠꯄꯦꯂꯥ ꯄꯥꯌꯕ ꯌꯠꯀ ꯑꯦꯖꯥꯅꯁꯤꯂ — ꯔꯐꯔꯦꯁ	______
F3	ꯔꯤꯄꯦꯁꯂꯦ ꯄꯥꯖꯤꯡꯁ ꯃꯀ꯭ꯂꯨꯡ ꯐꯖꯥ ꯀꯤꯔꯤ: ꯍꯣꯌ	______
	G. ꯂꯥꯡꯖꯕꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 1.10.4(a))	
G1	ꯀ꯭ꯂꯣꯖ 10.6-ꯒꯤ ꯃꯍꯥꯖ ꯁꯔꯄꯤꯐꯅ ꯄꯔꯕ ꯔꯤꯀꯥꯔꯠ	______
G2	ꯀ꯭ꯔꯤꯖꯤꯃꯤꯖꯔꯤ ꯅꯔꯃꯒꯤ ꯔꯤꯀꯥꯔꯠ	______
	H. ꯁꯔꯄꯤꯐꯤꯡꯁꯦ ꯑꯃꯁꯨꯡ ꯂꯤꯡꯖꯦꯔꯁꯦ	
H1	ꯁꯔꯄꯤꯐꯅ ꯄꯍꯤꯕꯖꯤ (ꯔꯖꯤꯁ꯭ꯄꯔ ꯄꯔꯕ ꯀ꯭ꯔꯥꯐꯁꯖꯦꯇ; ꯀ꯭ꯂꯣꯖ 10.6.1 ꯌꯠꯖꯕ ꯃꯐꯃꯂ ꯅꯃꯀꯖꯦꯇ ꯄꯔꯕ ꯀ꯭ꯔꯥꯐꯁꯖꯦꯇ): ꯃꯃꯤꯡ, ꯔꯖꯤꯁ꯭ꯄꯔꯁꯦ ꯅꯠꯔꯒꯥ ꯅꯃꯀꯖꯦꯇꯃꯦꯠ ꯖꯃꯕꯔ, ꯂꯅꯦ, ꯄꯨꯃꯤꯠ	______
H2	ꯑꯀꯖꯤꯡꯦꯠ: ꯃꯃꯤꯡ, ꯂꯅꯦ, ꯄꯨꯃꯤꯠ	______
	I. ꯑꯥꯎꯥꯔꯤꯄꯒꯤꯂꯃꯁ (ꯀ꯭ꯂꯣꯖ 1.10.4)	
I1	ꯁ꯭ꯄꯦꯠ ꯖꯥꯡꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯄꯦꯁꯖꯤꯡꯦꯇ ꯀꯃꯤꯄꯤꯂ ꯎꯔꯦ (ꯄꯤꯌꯔ B, ꯂꯅꯠ 1 ha ꯅꯠꯔꯒꯥ ꯃꯇꯨꯂꯒꯤ ꯄꯦꯌꯕ): ꯍꯣꯌ / ꯅꯠꯇꯦ; ꯄꯨꯃꯤꯠ	______
I2	ꯌꯂꯦꯀ: ꯀꯤꯔꯦ / ꯀꯦꯂꯤꯂꯦꯁꯤꯡꯒꯤ ꯖꯥꯌꯅꯖꯥ ꯀꯤꯔꯦ / ꯌꯂꯦ	______
I3	ꯃꯔꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯂꯤꯂꯦꯁꯤꯡ	______
I4	ꯀꯕꯖ꯭ꯤꯡ ꯔꯖꯤꯁ꯭ꯄꯔꯂ ꯏꯟꯇ꯭ꯔꯤ ꯖꯝꯕꯔ (ꯀ꯭ꯂꯣꯖ 10.17)	______
I5	ꯖꯥꯠ: ꯚꯦꯔꯤꯌꯦꯟꯁ ꯑꯃ ꯑꯦꯀ꯭ꯁꯦꯞꯇꯒꯤ ꯖꯥꯌꯅꯖꯥ ꯌꯠꯖꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯀ꯭ꯁꯦꯞꯇꯒꯤ ꯃꯄꯝ ꯖꯥꯅꯔꯕꯂꯤ ꯃꯁꯤꯡ ꯃꯄꯝꯂ ꯖꯥꯅꯒꯤ (ꯀ꯭ꯂꯣꯖ 1.10.4(d))	–
I6	ꯑꯥꯐꯤꯁꯔ: ꯃꯃꯤꯡ, ꯂꯤꯖꯤꯒ꯭ꯖꯦꯁꯦ, ꯂꯅꯦ, ꯄꯨꯃꯤꯠ	______

ꯆꯦꯞꯇꯔ 2-ꯒꯤ ꯑꯦꯅꯦꯛꯁꯔꯁꯤꯡ

ꯗꯦꯇꯥ ꯂꯩꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥ ꯂꯩꯕ ꯃꯐꯝꯒꯤ ꯅꯣꯠꯁꯤꯡ

ꯑꯦꯅꯦꯛꯁꯔꯁꯤꯡ ꯑꯁꯤꯅꯥ ꯆꯦꯞꯇꯔ 2-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥ ꯑꯦꯅꯦꯛꯁꯔ 2A-ꯗꯒꯤ 2E ꯐꯥꯑꯣꯕꯗ ꯆꯦꯞꯇꯔ 2-ꯅꯥ ꯁꯤꯖꯤꯟꯅꯔꯕ ꯃꯔꯨꯑꯣꯏꯕ ꯗꯦꯇꯥ ꯂꯩꯕ ꯃꯐꯝꯁꯤꯡ ꯃꯥꯂꯦꯝ: ꯕꯦꯁꯤꯟ-ꯂꯦꯚꯦꯜ ꯔꯤꯖꯜꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯡꯂꯕꯒꯤ ꯃꯍꯩ, ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯇꯥꯛꯄ ꯕꯥꯔꯁꯤꯡ, ꯃꯤꯇꯩ-ꯃꯌꯦꯛ-ꯁꯤꯡꯅꯕꯒꯤ ꯐꯤꯜꯗꯁꯤꯡ, ꯃꯔꯨꯑꯣꯏꯕ ꯄꯥꯎꯖꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯊꯣꯛꯄ ꯃꯑꯣꯡꯁꯤꯡ॥ ꯍꯧꯖꯤꯛ ꯐꯪꯂꯤꯕꯥ ꯃꯇꯝꯗ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯂꯨꯝꯂꯤꯕ ꯐꯥꯑꯣꯕ ꯁꯤꯟꯅꯕ NIH-DHAARA ꯑꯃꯁꯨꯡ IMD ꯄꯥꯝꯕꯩꯁꯤꯡꯒꯤ ꯑꯦꯛꯁꯦꯁꯁꯤ ꯍꯥꯏ ꯁꯤꯟ, ꯍꯥꯏꯕ ꯑꯔꯊꯗ ꯐꯪꯂꯤꯕꯥ "ꯃꯇꯝ ꯃꯗꯨꯗꯃ" ("To be prepared") ꯑꯣꯏꯅꯥ ꯃꯥꯛ ꯁꯦꯡꯗ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯁꯤꯡꯂꯤꯡꯒꯤ ꯁꯥꯡꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤ ꯐꯥꯑꯣꯕꯗꯤ ꯃꯤꯇꯤꯡꯃꯁꯤ ꯊꯥꯡ ꯂꯩꯗꯥ (ꯁꯦꯛꯁꯟ 1.11.5)॥ ꯇꯦꯕꯜ 2-1 ꯑꯁꯤ ꯑꯣꯏꯅꯕꯨꯇꯤꯒꯤ ꯃꯕꯍꯤꯡꯒꯤ ꯐꯪꯂꯤꯕꯥꯅꯥ ꯁꯤꯡꯒꯗꯕ ꯗꯦꯇꯥ ꯂꯩꯕ ꯃꯐꯝꯒꯤ ꯃꯤꯌꯥꯝ ꯗꯝꯇꯦꯜ ꯇꯦꯕꯜ ꯑꯍꯥꯅꯤ (ꯁꯦꯛꯁꯟ 2.13)॥ ꯍꯧꯖꯤꯛ ꯑꯁꯤ ꯗꯝꯇꯦꯜ ꯑꯍꯥꯅꯤ; ꯍꯥꯏ ꯇꯨꯡꯗ ꯅꯧꯕꯥ ꯑꯦꯅꯦꯛꯁꯁꯤꯡ ꯑꯍꯥꯟꯕꯨꯅꯥ ꯂꯣꯏꯁꯤꯅꯈꯤ॥

ꯑꯦꯅꯦꯛꯁꯔ 2A — ꯕꯦꯁꯤꯟ-ꯂꯦꯚꯦꯜ ꯔꯤꯖꯜꯇꯁꯤꯡꯗ NIH-DHAARA ꯑꯃꯁꯨꯡ IMD ꯃꯔꯨꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ IMD ꯒꯔꯤꯗ ꯁꯤꯡꯕ ꯐꯥꯏꯂꯁꯤꯡ; ꯇꯥꯛꯄꯒꯤ ꯍꯣꯠ

ꯆꯦꯞꯇꯔ 2-ꯒꯤ ꯁꯦꯛꯁꯟ 2.3.1-ꯗꯒꯤ 2.3.5 ꯐꯥꯑꯣꯕꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯃꯇꯝ ꯃꯗꯨꯗꯃ. ꯑꯦꯅꯦꯛꯁꯔ ꯑꯁꯤꯅꯥ ꯃꯔꯨꯑꯣꯏꯕ ꯁꯤꯖꯤꯟꯅꯔꯕꯒꯤ ꯕꯦꯁꯤꯟ-ꯂꯦꯚꯦꯜ ꯔꯤꯖꯜꯇꯁꯤꯡꯗ, ꯁꯨꯡ 24 ꯑꯃꯁꯨꯡ ꯍꯥꯄꯗꯒꯤ ꯃꯐꯝꯒꯤꯗꯃꯛ ꯑꯃꯁꯨꯡ ꯃꯥꯄꯜ 2.1-ꯒꯤ AEP-ꯁꯤꯡꯒꯤꯗꯃꯛ, NIH-DHAARA-ꯒꯤ ꯗꯦꯇꯥ ꯗꯥꯡꯂꯣꯟ ꯑꯁꯤ IMD-ꯒꯤ ꯃꯐꯝ ꯈꯨꯗꯝ ꯐꯪꯂꯤꯕꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯥꯝꯕꯩꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ IMD-ꯒꯤ ꯒꯔꯤꯗ ꯁꯤꯡꯕ ꯈꯨꯗꯝ ꯐꯪꯂꯤꯕꯒꯤ ꯗꯥꯢꯒꯤ (ꯑꯦꯅꯦꯛꯁꯔ 2C-ꯅꯥ ꯁꯤꯖꯤꯟꯅꯔꯕ ꯊꯣꯛꯐꯝꯁꯤꯡꯗ ꯑꯣꯡꯗꯥꯛꯇꯦ) ꯐꯪꯁꯤꯟꯕꯥꯗꯦꯁꯤ ꯑꯦꯛꯁꯦꯁꯁꯤꯡꯁꯤꯡ ꯌꯥꯗꯕꯍꯟꯗꯦ॥ ꯍꯥꯏꯗ ꯑꯦꯅꯦꯛꯁꯔ 2B, 2C ꯑꯃꯁꯨꯡ 2E ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯁꯤꯟꯇꯦꯜ B ꯃꯥꯄꯜꯁꯤꯡꯅꯥ ꯁꯤꯡꯒꯗꯕ ꯗꯦꯇꯥ ꯂꯩꯕ ꯃꯐꯝꯒꯤ ꯇꯥꯛꯁꯤꯡꯒꯤ ꯍꯧꯖꯤ ꯐꯥꯑꯣꯕꯗꯤ॥ ꯍꯥꯏꯗ ꯕꯦꯁꯤꯟ-ꯂꯦꯚꯦꯜ ꯁꯦꯟꯇꯦꯔꯁꯤꯡꯗ NIH-DHAARA ꯊꯥꯖꯕꯁꯤꯡ (NIH), IMD-ꯒꯤ ꯈꯨꯗꯝ ꯐꯪꯂꯤꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩꯗꯁꯤ ꯒꯤꯇꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯄꯥꯝꯕꯩꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ IMD-ꯒꯤ ꯒꯔꯤꯗ ꯁꯤꯡꯕ ꯗꯦꯇꯥ ꯂꯩꯕ (IMD), ꯃꯔꯨꯑꯣꯏꯕ ꯄꯥꯝ-ꯒꯤꯇꯒꯤ ꯄꯥꯝꯕꯩꯗꯁꯤꯡ (ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ (Water Resources Department) ꯄꯥꯝ ꯒꯤꯇꯁꯤꯡ, ꯍꯅꯨꯕꯒꯤ ꯍꯨꯏꯅ ꯍꯥꯏꯒꯤ ꯃꯍꯤꯠꯀꯤ ꯅꯥꯏꯡ ꯅꯣꯡꯂꯦ (flood) ꯊꯥꯡꯁꯤꯡꯕꯗ ꯍꯥꯏꯒꯤ ꯗꯦꯇꯥ ꯂꯩꯕ ꯄꯨꯝ ꯁꯤꯕ ꯄꯨꯡꯃꯤꯠꯃꯤ ꯒꯤꯇ (ꯁꯤꯡꯗ ꯐꯪꯗꯥꯍꯟꯕ ꯍꯨꯏꯡ ꯅꯥꯏꯡ), ꯃꯍꯤꯠꯀꯤ ꯅꯥꯏꯡ ꯅꯣꯡꯂꯦꯁꯤꯡꯒꯤ MASTEC-ꯒꯤ ꯑꯣꯏꯅꯥ ꯂꯥꯏꯅꯤꯡꯃꯤ ꯑꯦꯛꯁꯦꯁꯁꯤꯡꯃꯤ ꯁꯤꯡꯂꯤꯡꯒꯤ ꯄꯨꯡꯃꯤꯠꯃꯤ, ꯁꯥꯏꯀꯨꯜ (Saikul) ꯑꯃꯁꯨꯡ ꯂꯤꯇꯥꯟ (Litan) ꯇꯕ ꯒꯤꯇꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯔꯨꯑꯣꯏꯕ ꯑꯦꯒꯔꯤꯄꯨꯇꯁꯤꯡ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ ꯒꯤꯇꯁꯤꯡ ꯇꯥꯕꯗꯤ, ꯍꯅꯨꯕꯒꯤ ꯍꯨꯏꯡꯁꯤꯡ, ꯇꯥꯛꯁꯤꯡ ꯅꯦꯄꯥꯏꯊꯣꯛꯄꯁꯤꯡ, ꯑꯥꯄꯨꯅꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯩꯗꯄꯤ ꯃꯐꯝ ꯄꯦꯟꯐꯥꯏꯍ ꯁꯤꯒꯗꯕꯅꯤ [TBC]), ꯑꯃꯁꯨꯡ ꯁꯔꯦ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟꯒꯤ ꯄꯨꯊꯣꯛꯁꯤꯡ (Survey of India, WRD) ꯍꯥꯏ ꯁꯤꯟ॥ ꯍꯥꯏ ꯐꯪꯗꯥꯍꯟꯕꯒꯤꯗꯃꯛꯁꯦ, ꯗꯦꯇꯥ ꯗꯥꯡꯂꯣꯟ ꯁꯦꯛꯁꯟ 2.3.1 ꯍꯥꯏꯗ NIH-DHAARA-ꯗꯒꯤ ꯇꯥꯟ, ꯁꯦꯛꯁꯟ 2.3.3-ꯒꯤ ꯁꯦꯝ-ꯄꯥꯝꯕꯩꯁꯤꯡ [ꯇꯦꯕꯜ 2-1](#)-ꯗ ꯄꯤꯖꯕ ꯁꯤꯟ, ꯑꯃꯁꯨꯡ ꯃꯅꯥ ꯑꯍꯥꯒꯤ ꯇꯥꯛ ꯑꯁꯤ ꯑꯦꯟꯄꯤꯁꯤꯡ ꯊꯣꯛꯅꯕ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 2-1-ꯗ ꯄꯥꯝꯕꯩꯗ ꯁꯤꯡꯕ ꯑꯣꯏꯗꯦ॥

ꯃꯥꯄꯜ 2A.1 — ꯗꯦꯇꯥ ꯗꯥꯡꯂꯣꯟꯁꯤꯡꯒꯤ ꯕꯦꯁꯤꯟ-ꯂꯦꯚꯦꯜ ꯊꯣꯛꯐꯝꯒꯤ (ꯇꯥꯛꯁꯤꯟ)

ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯃꯃꯤꯡ	IMD ꯁ꯭ꯇꯦꯁꯟ ID	ꯂꯦꯇꯤꯆ꯭ꯌꯨꯗ, ꯂꯣꯡꯒꯤꯆ꯭ꯌꯨꯗ	ꯑꯦꯂꯤꯚꯦꯁꯟ ꯃꯥꯏ	ꯗꯨꯔꯦꯁꯟ (h)	AEP	NIH-DHAARA (mm)	IMD ꯁ꯭ꯇꯦꯁꯟ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯠ (mm)	IMD ꯒꯥꯏꯗ, ꯃꯦꯟꯁꯟ ꯀꯣꯔꯨ (mm)	NIH-DHAARA / IMD ꯁ꯭ꯇꯦꯁꯟ	ꯑꯍꯦꯅꯕꯥ
				24						
				48						
				72						

2A.1 ꯍꯧꯖꯤꯛ ꯃꯤꯄꯥꯏꯕ ꯇꯦꯝꯄꯂꯦꯠ ꯍꯀꯤꯂꯤꯡꯁꯤꯡ ꯑꯗꯨ ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯑꯦꯅꯦꯛꯁ B ꯇꯦꯕꯜ ꯇꯦꯝꯞꯂꯦꯠ (ꯁꯦꯛꯁꯟ 4.14.2) ꯂꯤꯡꯈꯠꯂꯕꯥ ꯐꯣꯔꯃꯦꯠ ꯍꯀꯤꯂꯤꯡꯂꯤ꯫ ꯍꯧꯖꯤꯛ ꯌꯥꯍꯧꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕ ꯃꯦꯡ ꯍꯧꯕ ꯁꯣꯡꯕꯤ ꯄꯔꯤꯕꯤꯗꯨ, ꯑꯄꯥꯝꯕ ꯑꯗꯤꯒꯤ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯠꯄ ꯈꯥꯒꯤꯗꯕꯥꯔꯤ꯫

ꯇꯦꯕꯜ 2A.2 — ꯃꯦꯝ ꯈꯨꯗꯛꯀꯤ ꯇꯦꯝꯄꯂꯦꯠ (ꯃꯦꯅꯤꯄꯨꯔ)

ꯃꯦꯡ (ꯖꯣꯅꯒꯤ ꯀꯣꯗ)	ꯃꯐꯝ (ꯃꯔꯤꯂꯤꯡ, ꯕꯣꯂꯤꯁꯤꯡ)	ꯍꯛꯆꯥꯡ ꯂꯤꯁꯠ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡ	ꯃꯆꯥꯛꯂꯤꯡ
MN-Z1 ꯏꯝꯐꯥꯜ ꯕꯦꯁꯤꯟ	ꯁꯒ꯭ꯅꯨ ꯍꯝꯄꯗꯥ ("Sugnu hump") ꯍꯥꯏꯕꯗꯒꯤ ꯃꯈꯥ ꯍꯦꯟꯅꯥ ꯀꯨꯡꯗꯥ ꯑꯨꯡꯃꯥ (river) ꯕꯣꯂꯤꯁꯤꯡꯒꯤ ꯕꯦꯁꯤꯅꯗꯥꯕ ꯃꯐꯝ, ꯑꯗꯨ 780–790 m-ꯗ ꯃꯈꯥ ꯄꯨꯊꯣꯛꯇꯨꯅ, ꯂꯦꯃꯍꯧꯕ ꯕꯦꯁꯤꯟ, ꯍꯤꯠ ꯇꯣꯕꯥꯔꯦꯗꯥ ꯁꯤꯡꯄꯨꯗꯗ ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯦꯖꯗꯥ (Ithai barrage) ꯍꯅꯈꯤꯕ ꯍ ꯄꯨꯕꯗ ꯏꯁꯤꯡ ꯌꯦꯡꯄꯥꯏꯏ; CWC ꯂꯕꯇꯦꯡ 2(c)-ꯗ, ꯍꯤꯒꯤꯗꯍꯥ ꯑꯃꯤꯂꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯁꯨꯡ (ꯁꯦꯛꯁꯟ 2.3.6(b)); ꯇꯦꯝꯒꯤ ꯃꯏꯡ ꯃꯦꯄꯥꯂꯃ ꯐꯌꯍꯦꯡꯁꯤꯡꯗꯥ ꯄꯥꯡꯃꯥ ꯌꯥꯕꯗ ꯇꯦꯝꯒꯤ ꯀꯣꯔꯨ ꯃꯈꯏ	Imphal (Tulihal) (A) (42623, IMD, ꯃꯦꯡ ꯈꯨꯗꯛꯀꯤ ꯗꯔꯤ 1953–2012); MASTEC ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯒꯦꯇꯁꯤꯡ [TBC]	MASTEC-ꯒꯤ ꯏꯝꯐꯥꯜ ꯂꯦꯃꯤꯇꯒꯤ (1974–2000) NEER-ꯒꯤ ꯒꯥꯝꯕꯦꯟ ꯖꯤꯠ × 1.13-ꯗꯒꯤ ꯏꯌꯨꯃꯤꯍ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯃꯗꯁꯤꯡ: 50% / 20% / 10% / 4% / 2% / 1% AEP-ꯗ 85 / 115 / 135 / 160 / 180 / 200 mm (ꯁꯦꯛꯁꯟ 2.3.6(c)(i)); ꯍꯧꯖꯤꯛꯀꯤ ꯏꯌꯨꯃꯤꯍ ꯃꯦꯂꯤꯋꯥꯂꯤꯡ, ꯄꯨꯡ 1-ꯒꯤ ꯃꯦꯂꯤꯋꯥ 0.33 (ꯁꯦꯛꯁꯟ 2.3.6(f)); ꯄꯨꯡ 72-ꯒꯤ ꯗꯦꯃꯗ = ꯄꯨꯡ 24 × 1.70 (ꯁꯦꯛꯁꯟ 2.3.6(e))꯫ NIH-DHAARA ꯌꯥꯝ 50-ꯒꯤ ꯄꯨꯡ 24 181–231 mm, ꯑꯗꯨꯗꯥꯍꯧꯂꯕ ꯏꯁꯨꯡ꯫ ꯖꯤꯑꯣꯂꯣꯖꯤ-ꯇꯦꯛꯅꯤꯀꯦꯜ ꯃꯍꯨ ꯋꯌꯦꯜꯄ, ꯃꯍꯨ (silt) ꯑꯃꯁꯨꯡ ꯄꯤꯜ, "ꯑꯗꯨ 30-ꯗꯒꯤ 50 m ꯖꯥꯡꯕꯒꯤ ꯃꯍꯨ ꯋꯌꯦꯜꯄꯒꯤ ꯖꯦꯃꯍꯦꯂꯦ" ("approximately 30 to 50 m of clayey formation"), ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠꯀꯤ (Imphal West) ꯑꯍꯥꯕꯗ ꯏꯂꯤꯡ ꯃꯍꯨꯏꯒꯤ ꯍꯧꯖꯤꯛ 2–5 m (CGWB): ꯁꯦꯛꯁꯟ 4.11-ꯒꯤ ꯕꯦꯁꯤꯟꯗꯥꯕ ꯃꯥꯒꯤ ꯃꯈꯥ꯫ ꯂꯝꯄꯥꯛꯂꯤꯡꯗꯒꯤ ꯑꯗꯨꯗꯤ ꯄꯥꯟꯗꯂꯤꯡꯗ (bund) ꯌꯦꯡꯕ ꯁꯨꯃꯥꯡꯂꯤꯡ; ꯒꯦꯠ, ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ (flap gate) ꯃꯌꯥꯝꯒꯤ ꯄꯥꯏꯄ ꯃꯈꯥ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ (outfall) (ꯂꯃꯥꯏ 5)
MN-Z1 ꯏꯝꯐꯥꯜ ꯕꯦꯁꯤꯟ: MN-A ꯏꯝꯐꯥꯜ ꯕꯦꯁꯤꯅꯒꯤ ꯃꯍꯨꯏ (ꯏꯝꯐꯥꯜ–ꯊꯣꯕꯥꯜ–ꯁꯒꯌꯥꯡ–ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ–ꯃꯌꯥꯡ–ꯍꯑꯗꯨ ꯏꯝꯐꯥꯜ)	ꯃꯌꯥꯡ, ꯄꯥꯃꯦꯌꯥꯄꯤꯜ, ꯂꯤꯡꯃꯍꯩ, ꯑꯗꯨꯃꯤꯡ (Wangjing), ꯑꯏꯃꯤꯄꯥꯒꯥ, ꯃꯤꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯏꯁ꯭ꯠ (Imphal East) ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠꯀꯤ ꯕꯦꯁꯤꯟꯗꯥꯕ ꯃꯌꯥꯡ; ꯕꯦꯁꯤꯟꯗꯥꯕ ꯍꯨꯏꯗꯗ ꯃꯈꯥ ꯌꯤꯡ ꯑꯄꯤꯒꯤꯄꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯨꯂꯥꯏ ꯖꯦꯡꯂꯤꯡ; ꯏꯝꯐꯥꯜ, ꯃꯌꯥꯡ, ꯏꯔꯤꯜ (Iril), ꯀꯣꯡꯕ (Kongba), ꯊꯣꯕꯥꯜ, ꯂꯦꯒꯍꯧ, ꯑꯗꯨꯃꯤꯡ, ꯃꯌꯕꯥ ꯑꯃꯁꯨꯡ ꯈꯨꯒꯥ (Khuga) ꯁꯨꯃꯥꯡꯂꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯄꯥꯠꯂꯤꯡꯗ (pat; lake or wetland) ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ; ꯌꯥꯍꯧꯂꯤꯡ [TBC]	Imphal (Tulihal) (A) (42623)	ꯁꯦꯛꯁꯟ 2.3.6(c)(i)-ꯒꯤ ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯂꯦꯃꯤꯇ; Imphal (Tulihal)-ꯒꯤ 158.6 mm (30 ꯖꯨꯂꯥꯏ 1989)-ꯒꯤ ꯃꯦꯁꯤꯃꯗ ꯌꯦꯒ, ꯍꯤꯡꯗꯤ ꯁꯃꯤꯒꯍꯥꯕ ꯑꯍꯦꯟꯕ ꯑꯗꯨꯄꯥꯔꯨꯅ (ꯁꯦꯛꯁꯟ 2.3.6(h))꯫ NIH-DHAARA ꯌꯥꯝ 50-ꯒꯤ ꯄꯨꯡ 24 231 mm ꯑꯃꯁꯨꯡ ꯏꯝꯐꯥꯜꯗ ꯄꯨꯡ 1 72 mm, ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔꯗ 224 mm, ꯊꯣꯕꯥꯜꯗ 181 mm (ꯑꯗꯨꯗꯥꯍꯧꯂꯕ ꯏꯁꯨꯡ)꯫ WRD ꯒꯦꯖꯂꯤꯡ (ꯄꯥꯡꯗ ꯖꯗꯥꯡꯁꯨꯏ ꯍꯛꯆꯥꯡ ꯏꯌꯦꯃ): ꯃꯤꯅꯨꯊꯣꯡꯗ (Minuthong) ꯏꯝꯐꯥꯜ ꯁꯨꯃꯥꯡ (ꯄꯏꯌꯦꯁ꯭ꯇ ꯖꯥꯗ ꯃꯦꯒꯦꯡ, highest flood level, 788.400 m) ꯑꯃꯁꯨꯡ ꯃꯤꯃꯥꯡ, ꯏꯔꯤꯂꯕꯨꯡꯗ (Irilbung) ꯏꯔꯤꯜ, ꯊꯣꯕꯥꯜ, ꯊꯣꯡ ꯃꯌꯕꯥꯟꯕꯤꯗ (Thong Nambonbi) ꯃꯌꯕꯨꯡ, ꯃꯌꯕꯥꯡ ꯊꯣꯡꯈꯣꯡꯗ (Nambol Thongkhong) ꯃꯌꯕꯥꯡ꯫ ꯃꯌꯥꯡꯄꯤꯜ, ꯃꯌꯕꯨꯡꯗ ꯄꯥꯌꯄꯥꯗꯤ ꯊꯗꯥꯡꯄ ꯑꯥꯎꯠꯐꯣꯜ ꯃꯈꯥ ꯏꯂꯤꯡ ꯏꯑꯗꯨꯒꯤ ꯁ꯭ꯇꯦꯃꯦꯠ ꯑꯦꯏꯗꯤ ꯂꯦꯍꯧꯒꯠꯂꯤꯕ ꯄꯤꯜ ꯑꯍꯩ꯫ ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ ꯄꯗꯤꯒꯤ ꯃꯦꯄꯂꯤꯡꯒꯤ ꯍꯗꯤꯄꯥꯏ ꯄꯤꯜ (CGWB); ꯑꯄꯥꯡꯕ ꯏꯂꯤꯡꯕ ꯌꯦꯡ ꯍꯃꯗ ꯒꯤꯂꯤꯜ ꯊꯣꯄꯥꯜ (CGWB)

ꯖꯣꯟ (ꯖꯣꯅꯒꯤ ꯃꯃꯤꯡ)	ꯃꯐꯝ (ꯁꯦꯡꯂꯕ, ꯉꯃꯈꯩꯁꯤꯡ)	ꯃꯔꯨꯑꯣꯏꯕ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡ	ꯍꯥꯏꯕꯁꯤꯡ
MN-Z1 ꯑꯄꯥꯟꯕ ꯊꯦꯡꯂꯣꯟ: MN-A1 ꯇꯨꯔꯦꯂꯒꯤ ꯃꯇꯨꯡ (ꯍꯥꯏꯕꯥꯡ–ꯇꯤꯡꯅꯧ–ꯂꯃꯗꯥꯝ–ꯑꯄꯥꯟ–ꯂꯣꯀꯇꯥꯛ–ꯋꯥꯡꯒꯨ)	ꯃꯁꯤꯒꯤ ꯅꯥꯡꯕꯦꯟꯂꯤꯡ (drain) ꯇꯨꯔꯦꯜ, ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯁꯦꯡꯂꯕ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯇꯥꯛꯀꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯐꯝ ꯑꯣꯏꯅꯥ ꯂꯩꯕꯥ ꯃꯐꯝ, ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜ ꯑꯣꯏꯕꯥ 236.21 km²-ꯒꯤ ꯃꯔꯛꯇꯥ ꯂꯩꯕ ꯃꯐꯝ (ꯄꯥꯛ ꯊꯣꯛ 70.30 km²); ꯋꯥꯡꯒꯨ (Wangoo) ꯑꯃꯁꯨꯡ ꯆꯥꯛꯄꯤꯒꯤ (Chakpi) ꯕꯣꯠꯇꯦꯡ; ꯊꯥꯖꯕꯁꯤꯡ [TBC]	Imphal (Tulihal) (A) (42623); ꯇꯨꯔꯦꯂꯒꯤ ꯃꯇꯨꯡ ꯂꯣꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯒꯜ [TBC]	ꯇꯦꯕꯜ 2.3.6(c)(i)-ꯒꯤ ꯁꯔꯨꯛꯀꯤ ꯃꯑꯣꯡ, MN-A-ꯒꯤꯗꯃꯛ꯫ NIH-DHAARA ꯍꯥꯏꯕꯗꯥ ꯌꯥꯝꯅ 50-ꯒꯤ ꯆꯨꯝ 24 204 mm (ꯌꯥꯝꯅꯥ ꯋꯥꯡꯕ ꯀꯥꯡꯂꯣ)꯫ ꯇꯨꯔꯦꯂꯒꯤ ꯇꯣꯡꯅꯥ ꯂꯣꯅꯁꯤꯡ (tailwater) ꯃꯐꯝ ꯑꯍꯥꯅꯕ: ꯑꯄꯥꯟ ꯕꯣꯠꯇꯦꯡ WRD-ꯒꯤ ꯄꯥꯟꯗꯨꯅ ꯑꯇꯦꯡ ꯇꯣꯡꯅ 769.320 m, 15 ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯗ 770.05 m-ꯗ ꯄꯣꯛꯂꯛꯈꯤ (ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ); ꯇꯨꯔꯦꯂꯒꯤ ꯈꯣꯡ ꯃꯤꯇꯃꯀꯄꯥ ꯇꯣꯡꯅ 768.5 m (NHPC, ꯄꯥꯛꯂꯤꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ) ꯑꯃꯁꯨꯡ 769.63 m (ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ) [U]꯫ ꯂꯣꯀꯇꯥꯛ ꯄꯥꯠ, ꯃꯅꯥ ꯑꯃꯁꯨꯡ ꯃꯔꯨꯑꯣꯏꯕ ꯁꯔꯨꯛꯀꯤ ꯃꯍꯩ ꯑꯃꯅꯥ ꯌꯥꯝꯅ 800 m-ꯒꯤ ꯃꯔꯛꯇꯥ 756.7 m-ꯗꯒꯤ 763.7 m ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥ (MASTEC), ꯃꯁꯤꯅꯥ ꯕꯣꯠꯇꯦꯡꯒꯤ ꯃꯊꯧꯁꯤꯡꯅꯥ ꯄꯨꯝꯅꯃꯛ ꯂꯥꯛꯂꯤ ꯑꯃꯗ ꯄꯨꯊꯣꯛꯀꯅꯤ ꯂꯩꯔꯦ꯫ ꯑꯀꯅꯕ ꯑꯃꯁꯨꯡ ꯁꯝꯃꯤꯡꯁꯤꯡꯗ ꯈꯨꯝꯗꯤ (phumdi)꯫ ꯃꯔꯝ ꯆꯨꯝꯗꯃꯛ AMC III (ꯇꯦꯕꯜ 2.11.4)
MN-Z2 ꯑꯌꯥꯝ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯤꯒꯤ ꯌꯤꯡꯂꯤꯡ	ꯂꯝꯆꯠꯀꯤ ꯁꯔꯨꯛꯂꯤꯡꯗ ꯑꯂꯤꯡ ꯆꯤꯡꯕ ꯌꯤꯡꯂꯤꯡ, ꯁꯦꯅꯥꯄꯠꯇꯤ, ꯃꯩꯍꯧꯔꯣꯟ, ꯁꯦꯅꯥꯄꯣꯜ, ꯌꯦꯡꯗꯣꯜ, ꯂꯣꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯌꯥꯡꯗꯥꯡꯗ ꯁꯦꯡꯂꯤꯡꯗ, ꯑꯃꯁꯨꯡ ꯂꯝꯆꯠꯀꯤ ꯁꯦꯡꯂꯤꯡꯒꯤ ꯌꯤꯡꯒꯤ ꯃꯇꯨꯡꯂꯤꯡ; ꯑꯌꯥꯝ ꯁꯦꯅꯥꯄꯠꯇꯤꯅꯥ ꯕꯣꯠꯇꯦꯡ ꯄꯣꯗꯌꯣꯝꯕꯂꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯅꯥꯄꯣꯜ, ꯃꯩꯍꯧꯔꯣꯟ ꯑꯃꯁꯨꯡ ꯃꯥꯈꯣꯒꯤ ꯇꯨꯔꯦꯜ ꯊꯥꯕꯇꯦ ꯌꯤꯡꯗꯌꯤꯡ (Chindwin) ꯊꯥꯕꯗ ꯑꯂꯤꯡ ꯌꯣꯡꯊꯥꯃꯑ (NEER-ꯒꯤ ꯁꯦꯕ, ꯄꯦꯡꯈꯣꯝ ꯂꯩꯒꯗꯕ); ꯁꯕꯇꯦꯜ 2(c)-ꯗ, ꯃꯥꯎꯒꯤ (Mao) ꯃꯇꯨꯡꯂ 25.4° N-ꯒꯤ ꯑꯌꯥꯝ ꯊꯥꯕꯗ 2(b)-ꯒꯤ ꯑꯁꯤꯡꯁ ꯁꯈꯨꯡ ꯑꯃꯍ ꯂꯩꯕ ꯌꯦꯅ (ꯇꯦꯕꯜ 2.3.6(b))	IMD ꯁꯔꯨꯛ ꯑꯃꯁꯨꯡ ꯂꯩꯔꯣ; WRD-ꯅꯤ ꯃꯁꯤꯒꯤ ꯇꯨꯡ ꯅꯕ ꯌꯨꯝꯁꯤꯡꯕ ꯁꯦꯅꯥꯄꯠꯇꯤꯒꯤ ꯈꯣꯡ ꯂꯣꯟ (ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ), ꯑꯃꯁꯨꯡ ꯁꯦꯅꯥꯄꯠꯇꯤ, ꯁꯦꯅꯥꯄꯣꯜ ꯑꯃꯁꯨꯡ ꯇꯤꯔꯦꯡꯗ ꯂꯩꯕ MASTEC-ꯒꯤ ꯂꯣꯏꯁꯤꯡ [TBC]	AEP ꯌꯨꯝꯃꯤꯡꯃꯇꯨꯡ ꯆꯨꯝ 24-ꯒꯤ ꯗꯣꯁꯖ ꯑꯁꯤ NIH-DHAARA ꯁꯣꯏꯒꯤ ꯀꯣꯏꯅꯕ ꯑꯃꯁꯨꯡ MN-A-ꯒꯤ ꯀꯣꯏꯅꯕꯒꯤ ꯃꯈꯥꯂ ꯄꯣꯛꯅꯤ ꯌꯥꯝꯕ ꯑꯣꯏ (ꯇꯦꯕꯜ 2.3.6(c)(iii)); ꯃꯔꯨꯑꯣꯏꯕꯒꯤ ꯑꯦꯟꯂꯈꯤꯔ ꯈꯣꯏꯁꯤꯡꯁꯤꯡ; ꯆꯨꯝ 72-ꯒꯤ ꯗꯣꯁꯖ = ꯆꯨꯝ 24 × 1.85 (ꯇꯦꯕꯜ 2.3.6(e))꯫ ꯗꯤꯁꯥꯡ ꯁꯦꯜ (Disang shale), ꯌꯤꯡꯂꯤꯡꯒꯤ ꯌꯥꯝ 85% ꯃꯈꯥꯛ, "ꯑꯦꯡꯊꯔꯤꯂꯃꯦꯁꯟ ꯄꯦꯊꯕ ꯑꯃꯁꯨꯡ ꯈꯦꯕꯥꯡ ꯄꯣꯛꯕ" ("less infiltration and more run off") (MASTEC): ꯇꯦꯕꯜ 4.11-ꯒꯤ ꯌꯤꯡꯒꯤ ꯈꯨꯛ꯫ ꯌꯤꯡꯂꯤꯡ ꯑꯁꯤ ꯂꯝꯆꯠꯀꯤ ꯄꯣꯌꯥꯃꯣꯛꯄꯤ ꯌꯥꯝ 70% ꯃꯈꯥꯛꯇꯤ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯇꯨꯔꯦ ꯂꯝꯆꯠꯂ ꯑꯂꯤꯡ ꯑꯌꯥꯝ ꯆꯨꯃꯄꯥ: ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ, WRD-ꯒꯤ ꯈꯨꯛ ꯑꯥꯑ ꯊꯐ ꯑꯁꯤ ꯁꯦꯅꯥꯄꯠꯇꯤꯗ ꯇꯨꯃꯤꯛ 3-ꯗ 135 mm ꯌꯨꯝꯕꯗꯤ ꯂꯝꯆꯠꯂ ꯑꯂꯤꯡ ꯑꯌꯥꯝ ꯅꯄꯥ ꯄꯥꯔꯕꯇꯤ
MN-Z2 ꯑꯌꯥꯝ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯤꯒꯤ ꯌꯤꯡꯂꯤꯡ: MN-B ꯑꯌꯥꯝ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯤꯒꯤ ꯌꯤꯡꯂꯤꯡ (ꯁꯦꯅꯥꯄꯣꯜ–ꯁꯦꯅꯥꯄꯠꯇꯤ–ꯃꯩꯍꯧꯔꯣꯟ–ꯌꯦꯡꯗꯣꯜ–ꯂꯣꯠꯁꯤꯡ–ꯍꯥꯈꯣ–ꯅꯨꯡꯌꯥꯡꯗꯥꯡꯗ)	ꯖꯣꯟ MN-Z2 ꯆꯨꯃꯗꯃꯛ, ꯊꯧꯕꯛ (ꯃꯁꯤꯊꯣꯛ) ꯑꯃꯁꯨꯡ ꯌꯨꯝꯅ ꯈꯤꯇꯈꯀꯥꯔꯈꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯆꯠꯀꯤ ꯁꯦꯡꯂꯤꯡꯒꯤ ꯌꯤꯡꯒꯤ ꯃꯇꯨꯡꯂꯤꯡꯅ ꯇꯥꯔꯦꯦ; ꯑꯄꯥꯟ–ꯁꯦꯅꯥꯄꯠꯇꯤ, ꯑꯄꯥꯟ–ꯃꯩꯍꯧꯔꯣꯟ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕꯥꯡ–ꯅꯨꯡꯌꯥꯡꯗꯥꯡꯗꯒꯤ ꯃꯇꯨꯡꯂꯤꯡꯗ ꯂꯝꯆꯠꯀꯤ ꯆꯐꯗꯒꯤ ꯌꯥꯝꯕ ꯅꯥꯁꯤꯃꯗ ꯃꯐꯝ ꯁꯥꯑꯣ ꯑꯃꯍ MN-B-ꯗ ꯆꯦ; ꯊꯥꯖꯕꯁꯤꯡ [TBC]	ꯖꯦꯡꯒꯤꯗꯃꯛ ꯁꯤꯈꯤꯕꯒꯤꯗꯃꯛ; ꯃꯩꯍꯧꯔꯣꯟ, ꯅꯨꯡꯌꯥꯡꯗꯥꯡꯗ, ꯌꯦꯡꯗꯣꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯈꯣꯗ ꯂꯩꯕ ꯂꯣꯏꯁꯤꯡ ꯑꯁꯤ ꯑꯄꯨꯅꯕ ꯗꯣꯔ ꯈꯤꯄꯨꯔꯣꯀꯁꯤꯡꯅꯤ (ꯇꯦꯕꯜ 2.3.6(a))	NIH-DHAARA ꯌꯥꯝꯅ 50-ꯒꯤ ꯆꯨꯝ 24 ꯁꯦꯅꯥꯄꯠꯇꯤꯗ 220 mm, ꯁꯦꯅꯥꯄꯣꯜꯗ 203 mm, ꯌꯦꯡꯗꯣꯟꯗ 185 mm, ꯅꯨꯡꯌꯥꯡꯗꯥꯡꯗꯗ 183 mm ꯑꯃꯁꯨꯡ ꯃꯩꯍꯧꯔꯣꯟꯗ 182 mm, ꯆꯨꯝ 1 40–55 mm; ꯍꯥꯈꯣꯒꯤ ꯁꯣꯏ ꯑꯄꯨꯅꯕ, ꯌꯦꯡꯗꯣꯟꯒꯤ ꯁꯤꯇꯤꯗꯦ (MN-A ꯑꯣꯏꯗꯕ ꯇꯥꯔꯦꯦ ꯗꯤꯟꯅꯗ ꯀꯣꯏꯅꯕꯁꯤꯡ, ꯇꯦꯕꯜ 2.3.6(c)(iii))꯫ 30–31 ꯃꯦ 2025-ꯗ ꯁꯦꯅꯥꯄꯠꯇꯤꯗ ꯆꯨꯝ 24-ꯗ 123 mm ꯑꯃꯁꯨꯡ ꯆꯨꯝ 72-ꯗ 175 mm (ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ; ꯇꯦꯕꯜ 2.3.6(h) ꯃꯍꯥꯛ ꯑꯣꯏꯗꯕ ꯑꯃꯍ)꯫ 1 ꯑꯒꯁ꯭ꯠ 2015-ꯒꯤ ꯖꯣꯃꯣꯜ (Joumol) (ꯌꯦꯡꯗꯣꯟ) ꯇꯣꯡꯗꯥꯂꯥꯏꯕꯗ (ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ)꯫ ꯃꯄꯤꯊꯦꯜ ꯗꯦꯃꯒꯤ (Mapithel dam) (ꯈꯣꯡ ꯃꯤꯇꯃꯀꯄꯥ ꯇꯣꯡꯅ 880.7 m, ꯁꯦꯡꯗꯅ ꯑꯣꯏꯗꯕ ꯃꯥꯂꯦꯝ ꯑꯣꯏꯗꯦ) ꯑꯃꯁꯨꯡ ꯌꯨꯝꯅ ꯗꯦꯃꯒꯤ ꯃꯈꯥꯒꯤ ꯃꯤꯇꯤꯇ ꯃꯤꯌꯥꯝ (reach) [TBC]

ꯖꯣꯟ (ꯑꯗꯝꯒꯤ ꯃꯃꯤꯡ)	ꯃꯐꯝ (ꯑꯆꯦꯠꯄꯁꯤꯡ, ꯈꯣꯝꯖꯤꯟꯕꯁꯤꯡ)	ꯃꯇꯨꯡ ꯂꯤꯡꯈꯠ ꯂꯥꯏꯔꯤꯛꯁꯤꯡ	ꯁꯦꯡꯂꯤꯡ
MN-Z3 ꯁꯕꯖꯣꯅꯒꯤ ꯃꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝ ꯑꯆꯣꯟ	ꯈꯕꯥ ꯍꯝꯕꯗ ꯌꯥꯝꯕ ꯂꯥꯏꯅꯥꯏꯒꯤ ꯁꯕꯖꯣꯟ: ꯄꯨꯃꯥꯝꯃꯛ, ꯁꯦꯁꯥ ꯑꯃꯁꯨꯡ ꯁꯕꯖꯣꯟ ꯖꯣꯅꯌꯦꯟꯗꯣꯛꯇꯥ ꯑꯃꯁꯨꯡ ꯍꯥꯅꯥꯡꯒꯤ (Pherzawl) ꯈꯅꯥꯡ ꯌꯤꯝꯍꯝꯒꯤ (Barail ridge) ꯃꯐꯝ, ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝꯒꯤ ꯃꯆꯦꯝꯒꯤ ꯈꯕꯥ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯒꯤ (Jiri) ꯍꯥꯏꯗꯣꯛꯄꯥ (floodplain); ꯂꯈꯖꯦꯠ 2(c)-ꯗ, ꯃꯂꯤꯒꯤꯗꯃꯝ ꯅꯤꯡꯊꯧꯅꯤ ꯑꯃꯅꯤꯄꯨ ꯆꯨꯄ (ꯁꯦꯛꯁꯟ 2.3.6(b))	ꯂꯥꯏꯅꯤꯡ IMD ꯂꯥꯏꯂꯦ ꯑꯃꯅꯤꯄꯨ ꯆꯨꯄ; ꯃꯈꯣ ꯍꯝꯕꯒꯤ ꯈꯕꯥ ꯑꯆꯣꯡꯗ Silchar (42619) ꯑꯃꯁꯨꯡ Silchar (Kumbhigram) (A) (42620); ꯄꯨꯃꯥꯝꯃꯛ, ꯁꯦꯁꯥ, ꯈꯣꯎꯄꯨꯝ (Khoupum) ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝꯗ ꯆꯕ ꯒꯥꯖꯂꯤꯡ ꯑꯂꯤ ꯑꯣꯏꯕ ꯗꯥꯄ ꯅꯤꯡꯌꯥꯟꯂꯨꯂꯤꯡꯁꯤ [TBC]	ꯍꯦꯟꯅꯤꯝ ꯄꯨꯡ 24-ꯒꯤ ꯗꯥꯄꯍꯂꯤꯡ 50% / 20% / 10% / 4% / 2% / 1% AEP-ꯗ 130 / 190 / 230 / 285 / 320 / 360 mm, 2%-ꯗ 320 mm ꯑꯃꯁꯨꯡ 1% AEP-ꯗ 351 mm-ꯗꯒꯤ ꯁꯥꯃꯗꯈ, ꯌꯦꯝꯁꯦ ꯁꯥꯁꯈ ꯈꯕꯥ ꯄꯃꯑꯦꯝꯒꯤ ꯅꯨꯡꯒꯤ ꯍꯥꯁꯅꯂꯤꯡ (ꯁꯦꯛꯁꯟ 2.3.6(c)(ii)); ꯄꯨꯡ 72-ꯒꯤ ꯗꯥꯑꯍ = ꯄꯨꯡ 24 × 1.70 (ꯁꯦꯛꯁꯟ 2.3.6(e))꯫ ꯂꯥꯏꯅꯤꯡꯒꯤ ꯍꯦꯝꯗꯦꯌꯈꯤꯈ ꯈꯕꯥꯍꯗꯒꯤ ꯌꯦꯝꯁꯦ ꯁꯨꯈ ꯁꯦꯝ, ꯈꯣꯎꯄꯨꯝꯗ ꯑꯔꯤꯡ ꯑꯃꯗ 225 mm (15 ꯖꯨꯂꯥꯏ 2025, ꯑꯦꯛꯁꯗ ꯍꯦꯝꯗꯦꯌꯈꯤꯈ ꯃꯇꯨꯡ ꯍꯂꯀ)꯫ NIH-DHAARA ꯌꯔꯤ 50-ꯒꯤ ꯄꯨꯡ 24 306–491 mm, ꯌꯦꯝꯗꯃꯀꯀꯈ ꯈꯌꯄ
MN-Z3 ꯁꯕꯖꯣꯅꯒꯤ ꯃꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝ ꯑꯆꯣꯟ: MN-C ꯁꯕꯖꯣꯅꯒꯤ ꯃꯤꯡꯁꯤꯡ (ꯄꯨꯃꯥꯝꯃꯛ–ꯁꯦꯁꯥ–ꯈꯣꯎꯄꯨꯝ–ꯇꯨꯄꯨꯜ–ꯄꯣꯂꯥꯝ–ꯍꯥꯅꯥꯡ)	ꯁꯕꯖꯣꯟ ꯖꯣꯅꯌꯦꯟꯗꯣꯛꯇꯥꯂ; NH-37 ꯑꯃꯁꯨꯡ ꯅꯥꯡꯌꯥꯒꯤ ꯁꯨꯡ ꯄꯣꯅꯈ ꯆꯦꯛꯁꯃꯂꯤꯡ; ꯈꯕꯥ, ꯃꯁꯨꯡ, ꯍꯕꯥꯝ, ꯆꯃꯦꯄꯝ ꯑꯃꯁꯨꯡ ꯇꯨꯍꯥꯏꯍꯒꯤ (Makru, Irang, Leimatak, Tuivai) ꯁꯥꯌꯃꯥꯂꯦꯡꯂꯤꯡ; ꯊꯃꯈꯣꯂꯤꯡ [TBC]	ꯂꯥꯏꯂꯦ ꯑꯃꯅꯤꯄꯨ ꯍꯝꯈꯤꯗꯥ; ꯄꯨꯃꯥꯝꯃꯛ ꯑꯃꯁꯨꯡ ꯁꯦꯁꯥꯒꯤ ꯒꯥꯖꯂꯤꯡ [TBC]	ꯁꯦꯛꯁꯟ 2.3.6(c)(ii)-ꯒꯤ ꯄꯥꯈꯅ; ꯃꯀꯤꯄꯨꯅꯒꯤ ꯍꯦꯟꯅꯤꯝ ꯅꯥꯂꯤꯑꯦꯂꯤꯡ, 320 mm ꯍꯥꯁꯅꯗ ꯌꯔꯤ 50-ꯗ ꯄꯨꯡ 1-ꯗ ꯌꯦꯝ 106 mm ꯃꯅꯦꯅ (ꯁꯦꯛꯁꯟ 2.3.6(f))꯫ NIH-DHAARA ꯁꯦꯁꯥꯗ ꯌꯔꯤ 50-ꯒꯤ ꯄꯨꯡ 24 306 mm ꯑꯃꯁꯨꯡ ꯄꯨꯃꯥꯝꯃꯛꯗ 431 mm, ꯄꯨꯡ 1 96–115 mm (ꯌꯦꯝꯗꯃꯀꯀꯈ ꯈꯌꯄ)꯫ ꯗꯤꯂꯝ ꯂꯥꯅ ꯑꯃꯁꯨꯡ ꯈꯅꯥꯅ ꯂꯥꯂꯗꯂꯥꯏꯂꯦ, ꯑꯊꯃꯈ ꯆꯦꯛꯁꯃꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯨꯡ ꯄꯣꯅꯈ ꯆꯦꯛꯁꯃꯒꯤ ꯍꯥꯖꯤꯌꯅꯂꯤꯡ: ꯅꯥꯡꯌꯥ ꯂꯦꯍꯅꯤꯡ 29 ꯁꯅꯤꯒꯤ 30 ꯖꯨꯂꯥꯏ 2022-ꯒꯤ ꯇꯨꯄꯨꯜ (Tupul) ꯖꯥꯂꯗꯂꯆꯦꯍꯗ (ꯑꯦꯛꯁꯗ ꯍꯦꯝꯗꯦꯌꯈꯤꯈ ꯃꯇꯨꯡ ꯍꯂꯀ)꯫ ꯁꯦꯛꯁꯟ 4.11-ꯒꯤ ꯌꯤꯝꯒꯤ ꯅꯨꯡ; ꯁꯦꯛꯁꯟ 2.3.6(i)-ꯒꯤ ꯔꯇꯅꯗ ꯑꯔꯆꯈ ꯑꯍꯈ ꯂꯁꯅꯤꯀꯤꯝ꯫ 1 ꯃꯥꯗꯒꯤ 31 ꯑꯦꯝꯄꯈꯅ ꯍꯦꯛꯈ AMC III
MN-Z3 ꯁꯕꯖꯣꯅꯒꯤ ꯃꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝ ꯑꯆꯣꯟ: MN-C1 ꯖꯤꯔꯤꯕꯝ ꯑꯆꯣꯟ (ꯖꯤꯔꯤꯕꯝ)	ꯖꯤꯔꯤꯕꯝꯒꯤ ꯃꯆꯦꯝꯒꯤ ꯈꯕꯥ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯒꯤ ꯍꯥꯏꯗꯣꯛꯄꯥ, ꯌꯦꯄꯥꯈꯥꯁꯤꯡꯗ (Chotebekra) ꯆꯕ CWC-ꯒꯤ ꯂꯍꯅꯤꯁꯤꯡ ꯁꯦꯌꯀꯀ; ꯃꯈꯣ ꯍꯝꯕꯒꯤ ꯈꯕꯥ ꯑꯆꯣꯡꯗꯒꯤ ꯃꯅꯤ ꯆꯕꯈ, ꯃꯂꯤ ꯌꯦꯝꯁꯦ ꯁꯥꯁꯈ ꯑꯥꯗꯤꯂꯦꯁꯦ ꯍꯝꯀꯤ; ꯊꯃꯈꯣꯂꯤꯡ [TBC]	Silchar (42619, ꯁꯦꯝ ꯁꯨꯈꯒꯤ ꯗꯥꯄ 1901–2012) ꯑꯃꯁꯨꯡ Silchar (Kumbhigram) (A) (42620, 1957–1990), ꯃꯈꯦꯌꯒꯤ ꯍꯤꯅꯁꯦ ꯂꯥꯃꯖꯈ ꯃꯇꯨꯡꯗ 2–25-yr-ꯒꯤ ꯒꯥꯅꯁꯨꯂꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯂꯤꯡꯈꯠ (ꯁꯦꯛꯁꯟ 2.3.6(c)(ii), (d))	ꯁꯦꯛꯁꯟ 2.3.6(c)(ii)-ꯒꯤ ꯄꯥꯈꯅ; 2(b) ꯅꯥꯂꯤꯑꯦꯂꯤꯡ, ꯄꯨꯡ 1-ꯒꯤ ꯅꯥꯂꯤꯑꯦ 0.48, ꯌꯔꯤ 50-ꯗ ꯄꯨꯡ 1-ꯗ ꯌꯦꯝ 154 mm ꯃꯅꯦꯅ (ꯁꯦꯛꯁꯟ 2.3.6(f))꯫ ꯅꯥꯁꯦꯅꯗ ꯌꯥꯑꯦ: Silchar (Kumbhigram) 350.6 mm (2 ꯖꯨꯂꯥꯏ 1974) ꯁꯌꯦꯖꯤꯍꯦꯍ ꯄꯣꯍ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯍꯥꯁꯅ ꯑꯦꯍꯅꯥ; ꯂꯍꯅꯤꯄꯒꯤ ꯆꯦꯑꯦꯑ [TBC]꯫ NIH-DHAARA ꯖꯤꯔꯤꯕꯝꯗ ꯌꯔꯤ 50-ꯒꯤ ꯄꯨꯡ 24 491 mm ꯑꯃꯁꯨꯡ ꯄꯨꯡ 1 109 mm (ꯌꯦꯝꯗꯃꯀꯀꯈ ꯈꯌꯄ)꯫ ꯌꯦꯄꯥꯈꯥꯁꯤꯡꯗ ꯈꯕꯥ ꯇꯨꯅꯥꯅ: ꯍꯈꯦꯍꯗꯒꯤ ꯌꯦꯝꯈ ꯖꯥꯒꯥꯅ 32.1 m (31 ꯖꯨꯂꯥꯏ 1989; SANDRP-ꯁꯦ ꯍꯅꯑꯍꯤꯈ CWC ꯗꯥꯄ)꯫ ꯃꯂꯤꯒꯤ 1% AEP-ꯒꯤ ꯖꯥꯒꯥꯅꯒꯤ ꯃꯈꯦꯗ ꯍꯥꯏꯗꯣꯛꯄꯥꯗ ꯁꯦꯛꯁꯟ 4.11-ꯒꯤ ꯄꯃꯑꯦꯝꯒꯤ ꯃꯐꯝꯒꯤ ꯅꯨꯡ

ꯑꯔꯥꯏꯈ 2B — ꯁꯦꯝ ꯃꯇꯨꯡ ꯍꯂꯀ ꯁꯨꯃꯤꯡ ꯑꯃꯗꯒꯤ ꯔꯂꯍꯈ ꯅꯥꯂꯤꯑꯦꯂꯤꯡ P(t)/P(24h): NIH-DHAARA (ꯄꯨꯡ ꯈꯨꯗꯤꯝꯒꯤ ꯌꯨꯃꯍꯃ) ꯑꯃꯁꯨꯡ ꯑꯔꯨꯃꯗ ꯑꯃꯒꯤ ꯅꯨꯡ

ꯂꯅꯨꯑꯥ 2-ꯒꯤ ꯁꯦꯛꯁꯟ 2.6.1-ꯗꯒꯤ 2.6.4 ꯍꯦꯛꯈꯗ ꯃꯇꯨꯡ ꯑꯦꯝꯍ꯫

ꯅꯣꯠ ꯑꯀꯅꯕ. ꯑꯍꯣꯡꯕ ꯑꯁꯤꯗꯥ ꯑꯍꯣꯡꯕ 2A-ꯒꯤ ꯖꯣꯟ ꯁꯦꯟꯇ꯭ꯔꯣꯏꯗꯁꯤꯡꯗꯥ, ꯄꯨꯡ ꯁꯦꯟꯇ꯭ꯔꯣꯏꯗꯁꯤꯡꯒꯤ ꯃꯣꯗꯦꯜꯂꯣꯏꯗꯁꯤꯡꯒꯤ ꯅꯣꯃꯕ NIH-DHAARA-ꯒꯤ t-ꯄꯨꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯒꯤ ꯔꯦꯁꯤꯑꯣ ꯁꯣꯔꯁꯀꯤ ꯃꯣꯗꯦꯜꯂꯤꯡ ꯑꯃꯥ IMD Das et al. (2022) ꯑꯃꯁꯨꯡ ꯑꯍꯨꯝꯗ ꯑꯃꯒꯤ ꯂꯣꯅꯥ ꯄꯤꯔꯛꯄ ꯃꯣꯗꯦꯜꯂꯤꯡꯒꯤ ꯍꯣꯡꯗꯣꯛꯄ ꯇꯦꯕꯜ ꯄꯤꯔꯤ꯫ ꯃꯗꯨꯗꯥ ꯖꯣꯟ ꯁꯦꯟꯇ꯭ꯔꯣꯏꯗꯁꯤꯡꯗ ꯃꯍꯧꯁꯥ ꯂꯩꯕ ꯄꯨꯡꯁꯤꯡꯗ ꯀꯔꯤꯃꯇꯦ NIH-DHAARA ꯁꯣꯔꯁꯂꯣꯏꯗ (NIH), IMD-ꯒꯤ ꯃꯣꯗꯦꯜꯂꯤꯗ ꯌꯥꯝꯅꯥ ꯁꯣꯏ ꯑꯃꯁꯨꯡ Das et al. (2022)-ꯒꯤ IDF ꯔꯦꯁꯤꯑꯣꯁꯤꯡ (IMD) ꯃꯇꯧ ꯄꯤꯔꯤ꯫ ꯃꯗꯨ ꯍꯥꯛꯁꯦꯜ ꯑꯣꯏꯅ ꯂꯤꯕꯦꯟꯁꯥ ꯑꯣꯏꯕ, ꯑꯍꯨꯝꯗ ꯑꯃꯒꯤ ꯂꯣꯅꯥ NIH-DHAARA ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯄꯤꯔꯤꯕ ꯅꯤꯡꯊꯧꯒꯤ IDF ꯑꯃꯁꯨꯡꯒꯤ ꯂꯣꯌꯅꯅ ꯄꯥꯏ (ꯁꯦꯛꯁꯟ 2.6.1)꯫ ꯖꯣꯟ ꯁꯦꯟꯇ꯭ꯔꯣꯏꯗꯒꯤ ꯁꯣꯔꯁꯂꯣꯏꯗ ꯍꯥꯌꯕ ꯇꯦꯀꯅꯤꯀ, ꯂꯣꯠꯂꯣꯛꯄ ꯃꯣꯗꯦꯜꯂꯤꯗ ꯑꯃꯁꯨ ꯑꯣꯏꯅꯕꯥ ꯌꯥꯝꯅꯥ ꯂꯦꯡꯗꯕꯅꯤ, ꯃꯗꯨꯗꯥ ꯑꯃꯁꯨ ꯃꯇꯨꯡꯗ ꯇꯦꯕꯜ 2B.1-ꯗ ꯑꯦꯟꯁꯦꯟꯕꯜ ꯂꯣ-ꯑꯣꯔꯗꯔꯒꯤ ꯁꯦꯛꯁꯟ 2.3.6(f)-ꯒꯤ ꯂꯣꯠꯂꯤ (MN-A, MN-A1, MN-B ꯑꯃꯁꯨꯡ MN-C-ꯗ ꯃꯇꯨꯡ ꯏꯟꯅꯕ ꯍꯥꯌꯔꯤꯕ ꯃꯣꯗꯦꯜꯂꯤꯗ, ꯑꯃꯁꯨꯡ MN-C1-ꯗ 2(b) ꯃꯈꯥꯒꯤ ꯃꯣꯗꯦꯜꯂꯤꯗ), ꯁꯦꯛꯁꯟ 2.3.6(h)-ꯒꯤ ꯃꯣꯗꯦꯜꯗ ꯌꯥꯕ ꯃꯃꯤꯡꯗ ꯁꯦꯛꯁꯟ 2.3.6(c) ꯈꯨꯗꯝ (d)-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯔꯦꯁꯤꯑꯣ ꯂꯤꯇꯤꯔꯦꯇꯕ; ꯃꯤꯇꯤꯃꯤꯄꯥꯝꯕ ꯃꯄꯥꯛ ꯌꯥꯍꯟꯕ ꯑꯣꯏꯅꯕ ꯇꯦꯡ ꯂꯤꯕꯒꯤ ꯍꯦꯛꯇ ꯑꯃꯁꯨꯄ ꯌꯁꯦꯠꯅ (ꯁꯦꯛꯁꯟ 2.3.6(g)) (ꯁꯦꯛꯁꯟ 2.6.2), ꯑꯃꯁꯨꯡ [ꯍꯦꯛꯃꯥ 2-1](#)-ꯗ ꯃꯣꯗꯦꯜꯗ ꯄꯤꯔꯤ꯫ ꯑꯍꯨꯝꯗ ꯑꯃꯒꯤ ꯂꯣ ꯑꯣꯏꯅ ꯂꯤꯇꯤꯔꯦꯇꯗꯣ (ꯁꯦꯛꯁꯟ 2.6.4)꯫

2B.1 ꯇꯦꯕꯜ 2B.1-ꯒꯤ ꯑꯍꯥꯅꯕ ꯄꯥꯃꯣꯜꯗ ꯑꯍꯨꯝꯗ ꯑꯃꯒꯤ ꯂꯣ P(t) = P(24)·(t/24)^(1/3)-ꯒꯤ ꯃꯣꯗꯦꯜꯂꯤꯗ ꯌꯥꯕꯗꯃꯇꯦꯕ ꯁꯨꯄꯥꯒꯤꯗꯃꯛ ꯄꯤꯃꯤ꯫ 1, 3, 6 ꯑꯃꯁꯨꯡ 12 h-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯑꯃꯥ ꯁꯦꯛꯁꯟ 2.6-ꯒꯤ ꯂꯦꯗꯂꯗ ꯄꯥꯏꯄꯗ ꯍꯥꯛꯁꯦꯜꯄꯂꯣꯏꯗꯤ; 2 h-ꯒꯤ ꯔꯦꯁꯤꯑꯣ ꯑꯃꯥ ꯍꯦꯛꯃꯗ ꯑꯗꯨꯃꯛꯄꯒꯤ ꯑꯤꯂꯣꯕ ꯄꯤꯔꯤ꯫ ꯑꯍꯣꯡꯕ ꯑꯁꯤꯗꯥ ꯃꯃꯤ ꯇꯦꯜꯕ ꯇꯦꯡꯒꯤꯗꯃꯛ ꯄꯦꯟꯗꯃꯤ ꯄꯣꯇꯃꯕꯔꯤ ꯂꯣ ꯑꯃꯥ ꯔꯤꯀꯃꯦꯟꯗꯒꯤꯗꯃꯛ ꯂꯤꯇꯤꯔꯦꯇꯃꯤꯡꯗꯕꯗꯤ (ꯁꯦꯛꯁꯟ 2.6.4)꯫

ꯇꯦꯕꯜ 2B.1 — ꯇꯦꯡ ꯃꯄꯨꯡ ꯊꯦꯡꯗ ꯃꯣꯗꯦꯜꯂꯤꯗ P(t)/P(24h) (ꯇꯣꯑꯦꯟꯁꯦꯜ)

ꯇꯦꯡ	ꯁꯣꯃꯒꯤꯃ	1 h	2 h	3 h	6 h	12 h	24 h
ꯄꯨꯝꯅꯃꯛ (ꯃꯣꯏꯃꯣꯡꯂ ꯊꯥꯄꯥ, ꯔꯤꯀꯃꯦꯟꯗꯒꯤꯗꯃꯛ ꯈꯨꯗꯣꯄꯥ)	ꯑꯍꯨꯝꯗ ꯑꯃꯒꯤ ꯂꯣ	0.35	0.44	0.50	0.63	0.79	1.00
MN-Z1 (MN-A ꯊꯦꯏꯔ ꯄꯥꯡꯂꯕꯒꯤ ꯇꯦꯃꯊ; MN-A1 ꯇꯥꯄꯥꯒꯤ ꯃꯇꯦꯗ), MN-Z2 (MN-B ꯑꯌꯨꯝ, ꯇꯥꯕꯥꯗ ꯑꯃꯁꯨꯡ ꯊꯣꯒꯤ ꯌꯤꯝꯂꯤꯝ) ꯑꯃꯁꯨꯡ MN-Z3 (MN-C ꯇꯥꯝꯄꯥꯛꯀꯤ ꯌꯤꯝꯂꯤꯝ)	ꯃꯇꯨꯡ ꯏꯟꯅꯕꯒꯤ ꯊꯦꯡꯃꯤꯔ ꯃꯣꯗꯦꯜꯂꯤꯗ (ꯊꯦꯡꯃꯤꯔ ꯔꯤꯀꯃꯦꯟꯗ ꯃꯣꯗꯦꯜꯂꯤꯗ, ꯁꯦꯛꯁꯟ 2.3.6(f), ꯃꯍꯨꯠꯁꯤꯟ ꯑꯍꯣꯡꯕ ꯂꯧꯔꯕ): ꯑꯦꯟꯁꯦꯟꯕꯜ ꯁꯦꯟꯇ꯭ꯔꯣꯏꯗꯄ NIH-DHAARA ꯅꯣꯡ ꯄꯥꯡꯗꯣꯛꯄꯒꯤ ꯌꯍꯤ 50-ꯒꯤ ꯃꯣꯗꯦꯜꯂꯤꯗ (IMDAA, 14 Nov 2026-ꯗ ꯁꯦꯌꯥꯒꯤ ꯄꯤꯔꯤꯕ; 3-, 6- ꯑꯃꯁꯨꯡ 15-h-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡ ꯇꯥꯃꯈꯂꯃꯤꯗ ꯑꯣꯗꯂꯣꯛꯄ ꯊꯦꯡꯃꯄꯥꯟꯇꯧ ꯄꯤꯔꯕ) ꯑꯃꯁꯨꯡ CWC FER 2(a)-ꯒꯤ ꯃꯣꯗꯦꯜꯂꯤꯗꯒꯤ ꯑꯄꯥꯟꯄꯥꯟꯃ ꯑꯣꯇꯔꯇꯥꯟ, 0.01-ꯗ ꯃꯂꯗꯄ ꯃꯦꯟꯁꯦꯗ ꯄꯤꯔꯕ; ꯑꯃꯁꯨꯡ 9 h-ꯗ 0.81, 15 h-ꯗ 0.89 ꯑꯃꯁꯨꯡ 18 h-ꯗ 0.94	0.33	0.51	0.59	0.74	0.85	1.00
MN-Z3 (MN-C1 ꯇꯤꯃꯤꯕꯤꯔ ꯄꯥꯟꯗꯣꯡ)	CWC FER 2(b), Table 4.1, p. 20, ꯌꯍꯤ 10-ꯒꯤ ꯁꯨꯔꯈꯔ, ꯃꯣꯗꯦꯜꯂꯤꯗ ꯌꯥꯇ ꯄꯨꯟꯗ (ꯊꯦꯡꯃꯤꯔ ꯔꯤꯀꯃꯦꯟꯗ ꯃꯣꯗꯦꯜꯂꯤꯗ, ꯁꯦꯛꯁꯟ 2.3.6(f), ꯃꯊꯦ ꯂꯗꯕꯒꯤ ꯕꯃꯦꯗ ꯄꯥꯟꯗꯣꯡꯗ ꯄꯤꯔꯤꯕ ꯃꯄꯨꯡ ꯊꯦꯡꯗ; 2-h-ꯒꯤ ꯔꯦꯁꯤꯑꯣ ꯇꯥꯃꯈꯂꯃꯤꯗ ꯑꯣꯗꯂꯣꯛꯄ ꯊꯦꯡꯃꯄꯥꯟꯇꯧ ꯄꯤꯔꯕ); ꯑꯃꯁꯨꯡ 9 h-ꯗ 0.81, 15 h-ꯗ 0.91 ꯑꯃꯁꯨꯡ 18 h-ꯗ 0.95	0.48		0.62	0.74	0.87	1.00

ꯖꯣꯟ	ꯍꯧꯔꯛꯐꯝ	1 h	2 h	3 h	6 h	12 h	24 h
ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯄꯨꯝꯅꯃꯛ, AEP ꯈꯨꯗꯤꯡꯃꯛ	ꯔꯦꯁꯤꯑꯥꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ ꯄꯨꯡ 24-ꯒꯤ ꯗꯦꯞꯊꯁꯤꯡ, ꯃꯦꯊꯨꯔꯦꯜ ꯑꯁꯤꯅꯥ ꯊꯝꯕ (ꯀꯣꯠ 2.3.6(c)), 50% / 20% / 10% / 4% / 2% / 1% AEP-ꯗ mm-ꯗ: MN-A ꯑꯃꯁꯨꯡ MN-A1 85 / 115 / 135 / 160 / 180 / 200 (MASTEC-ꯒꯤ ꯍꯥꯏꯗꯔ ꯁꯦꯟꯇꯔꯒꯤ NEER-ꯒꯤ ꯒꯔꯤꯗꯦꯗ ꯗꯦꯇꯥ, 1974–2000, × 1.13); MN-C ꯑꯃꯁꯨꯡ MN-C1 130 / 190 / 230 / 285 / 320 / 360 (2% ꯑꯃꯁꯨꯡ 1%-ꯗ 320 ꯑꯃꯁꯨꯡ 351 mm-ꯒꯤ ꯕꯦꯁ ꯑꯦꯅꯥꯂꯣꯒꯁꯤꯡ ꯑꯣꯏꯅꯥ ꯂꯧꯈꯤ, ꯑꯇꯣꯞꯄ AEP-ꯁꯤꯡ NIH-DHAARA-ꯒꯤ ꯆꯦꯛꯁꯤꯟꯅꯕ ꯃꯤꯡꯒꯤ ꯀꯔꯝ ꯂꯧꯕꯥ ꯈꯛꯇꯗꯤ); MN-B NIH-DHAARA ꯂꯦꯝꯒꯤ ꯒꯦꯝꯁꯨ ꯑꯃꯁꯨꯡ MN-A ꯌꯥꯔꯦꯡꯒꯤ ꯈꯔꯑꯣ ꯄꯥꯏꯕꯤ ꯃꯥꯏꯊꯕ; ꯈꯤꯖꯤꯈꯤꯑꯔꯒꯤ ꯈꯣꯝ ꯃꯥꯈꯤꯕꯤ ꯂꯩꯗꯕ ꯆꯥꯡ ꯊꯕꯒꯤ ꯅꯆꯥꯔ ꯆꯥꯄꯥ (ꯀꯣꯠ 2.3.6(g))						
MN-Z1 ꯑꯃꯁꯨꯡ MN-Z2, MN-C (ꯔꯦꯐꯔꯦꯟꯁ)	CWC FER 2(a), NB/18/1991, §3.1.2, p. 24 ꯑꯃꯁꯨꯡ Fig. 10, ꯖꯣꯟ 50-ꯒꯤ ꯊꯨꯝꯐꯝ, IMD ꯔꯦꯀꯔꯗꯤꯡ ꯒꯦꯖ 12 (ꯈꯅꯒꯠꯂꯕꯒꯤ ꯔꯦꯁꯤꯑꯥꯁꯤꯡꯒꯤ ꯈꯥꯡꯒꯤ ꯏꯈꯥꯡ; ꯈꯂꯦ ꯈꯇꯔꯨ ꯂꯤꯖꯤꯔꯗꯦ)	0.260	0.370	0.457	0.615	0.805	1.000
MN-Z1 (MN-A, MN-A1): ꯏꯝꯐꯥꯜ, ꯕꯤꯁꯅꯨꯄꯨꯔ, ꯀꯥꯀꯆꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯧꯕꯜ ꯂꯦꯝꯁꯤꯡ	NIH-DHAARA, IMDAA, ꯖꯣꯟ 50 (14 Nov 2026-ꯗ ꯆꯦꯛꯔꯤ ꯑꯣꯏꯕ; ꯄ꯭ꯔꯗꯥꯔꯦꯗꯕ ꯏꯔꯥꯑꯣ)	0.31 / 0.29 / 0.29 / 0.33					1.00
MN-Z2 (MN-B): ꯆꯨꯔꯥꯆꯥꯟꯗꯄꯨꯔ, ꯀꯥꯡꯄꯣꯛꯄꯤ, ꯇꯥꯃꯦꯡꯂꯣꯡ, ꯅꯣꯅꯦ ꯑꯃꯁꯨꯡ ꯐꯦꯔꯖꯋꯜ ꯂꯦꯝꯁꯤꯡ	NIH-DHAARA, IMDAA, ꯖꯣꯟ 50 (ꯀꯣꯠ 2.3.6(c)(iii) ꯈꯥꯅꯗ ꯂꯦꯝꯒꯤ ꯒꯦꯝꯁꯨꯁꯤꯡ MN-B-ꯗ ꯗꯤꯇꯦꯡ ꯒꯦꯝꯁꯨꯁꯤꯡꯗꯤ; ꯔꯦꯁꯤꯑꯥꯁꯤꯡ ꯄ꯭ꯔꯗꯥꯔꯦꯗꯕ ꯍꯣꯠꯄꯤ)	0.20 / 0.21 / 0.22 / 0.29 / 0.28					1.00
MN-Z3 (MN-C, MN-C1): ꯖꯤꯔꯤ, ꯑꯈꯥꯡꯖꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯤꯔꯤꯕꯩ ꯂꯦꯝꯁꯤꯡ	NIH-DHAARA, IMDAA, ꯖꯣꯟ 50 (ꯄ꯭ꯔꯗꯥꯔꯦꯗꯕ ꯏꯔꯥꯑꯣ)	0.31 / 0.27 / 0.22					1.00

2B.2 ꯐꯤꯡꯂ ꯑꯣꯔꯕ ꯑꯦꯕꯖꯔꯒꯦꯁꯟ ꯄꯤꯗꯦꯗꯁꯤꯡꯗꯒꯤ ꯆꯥꯡꯍ ꯗꯦꯞꯊꯁꯤꯡ ꯑꯁꯤ ꯀꯣꯠ 2.6.3-ꯒꯤ ꯐꯦꯛꯇꯔꯁꯤꯡꯅꯥ ꯑꯣꯏꯕ-ꯏꯗꯦꯑꯔꯒꯦꯟ ꯗꯦꯞꯊꯁꯤꯡꯗ ꯍꯥꯞꯗꯨꯅ, ꯃꯗꯨ ꯇꯦꯕꯜ 2B.2-ꯗ ꯑꯣꯢꯕ ꯍꯦꯗꯅ ꯌꯥꯏꯔꯤ॥ ꯃꯗꯨ ꯑꯁꯤ ꯁꯣꯏꯗꯕꯔ WMO (Hershfield) ꯒꯥꯏꯗꯦꯟꯁꯁꯤꯡꯅꯥ ꯑꯃꯁꯨꯡ ꯃꯣꯝ ꯏꯔꯒꯤ ꯆꯨꯃꯣ॥

ꯇꯦꯕꯜ 2B.2 — ꯐꯤꯡꯂꯗ-ꯏꯗꯦꯑꯔꯒꯦꯟ ꯑꯗꯖꯁ꯭ꯃꯦꯟꯠ ꯐꯦꯛꯇꯔꯁꯤꯡ (ꯀꯣꯠ 2.6.3)

ꯗꯦꯔꯦꯁꯅꯦꯗ ꯖꯥꯕ ꯐꯤꯡꯂ ꯑꯣꯔꯕ ꯑꯦꯕꯖꯔꯒꯦꯁꯟ ꯏꯗꯦꯑꯔꯒꯦꯟꯒꯤ ꯃꯁꯤꯡ	ꯐꯦꯛꯇꯔ
1	1.13
2	1.04
3–4	1.02

ꯑꯍꯦꯟꯕ 2C — ꯒꯔꯤꯗ-ꯇꯨ-ꯌꯣꯏꯟꯇ ꯐꯦꯛꯇꯔꯁꯤꯡ

ꯁꯔꯨꯛ 2-ꯒꯤ ꯀꯣꯠ 2.7.1 ꯑꯃꯁꯨꯡ 2.7.4-ꯗ ꯃꯌꯦꯡ ꯌꯣꯡꯏ॥

ꯁꯦꯝ ꯁꯣꯏꯒꯗꯕ. ꯑꯍꯦꯟꯕ ꯑꯁꯤꯅ ꯒ꯭ꯔꯤꯗ-ꯑꯦꯚꯔꯦꯖ ꯁꯤꯅꯃꯟ ꯁꯦꯝꯄꯜꯁꯤꯡ (ꯇꯨꯗꯝ ꯑꯣꯏꯅ 0.25° ꯁꯦꯜꯁꯤꯡꯗꯒꯤ) ꯂꯣꯟ, ꯁ꯭ꯇꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ AEP ꯃꯇꯨꯡ ꯅꯦꯂ ꯃꯣꯅꯦꯇ ꯁꯦꯃꯄꯜꯁꯤꯡꯁ ꯇꯣꯡꯁꯣꯄꯃ ꯈꯦꯄꯇꯔꯁꯤꯡ ꯃꯤꯒꯂꯤ꯫ ꯃꯁꯤꯁ IMD-ꯒꯤ ꯒ꯭ꯔꯤꯗ ꯇꯣꯔꯕ ꯂꯣꯡ ꯇꯨꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯜ ꯅꯨꯁꯤꯡꯃꯄꯀꯤ ꯃꯂꯨꯡꯁ ꯂꯣꯕ IMD ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯁꯟꯀꯤ ꯒꯦꯂꯁꯤꯡꯒꯤ ꯃꯦꯅꯔ ꯇꯣꯔꯕ ꯈ꯭ꯔꯤꯀ꯭ꯔꯦꯁꯤ ꯑꯦꯂꯅꯂꯤꯁꯤꯁꯤꯡ (IMD, ꯌꯣꯇꯔ ꯔꯤꯁꯣꯔꯁꯦꯁ ꯁꯤꯃꯣꯔꯖꯃꯦꯖꯀꯤ ꯔꯦꯡ ꯒꯦꯂꯁꯤꯡ, ꯃꯅꯣꯌꯒꯤ ꯃꯂꯨꯡꯁ ꯇꯖꯃꯣꯏꯀꯤ ꯅꯁꯤꯡ ꯅꯌꯖ꯭ꯒꯤꯁꯃꯄ ꯃꯁꯤꯅ ꯂꯣꯡ ꯇꯨꯕ ꯌꯦꯡꯁꯤꯡꯦꯕ ꯀꯡꯃꯣꯏꯄꯃꯤ ꯒꯦꯂ, ꯑꯃꯁꯨꯡ ꯇꯖꯃꯣꯏꯀꯤ ꯅꯁꯤꯡ ꯅꯌꯖ꯭ꯁꯤꯡꯒꯤ MASTEC-ꯒꯤ ꯁ꯭ꯇꯁꯤꯁ ꯁꯤꯂꯤꯦꯂꯅꯤꯕ ꯀꯡꯃꯣꯏꯄꯃꯤ, ꯁꯅꯀ꯭ꯅ ꯑꯃꯁꯨꯡ ꯂꯤꯇꯦꯁ ꯂꯣꯕ ꯒꯦꯂꯁꯤꯡ, ꯃꯅꯣꯌꯒꯤ ꯃꯃ꯭ꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ ꯁꯤꯡꯕ ꯀꯦꯈꯔꯖ ꯇꯒꯗꯕꯂꯤ [TBC]), ꯑꯍꯦꯟꯕ 2A-ꯒꯤ ꯕꯦꯟꯔꯃꯔꯡ ꯃꯣꯅꯦꯇꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯈꯦꯡꯇꯔꯁꯤꯡ ꯁꯦꯖꯂꯕ ꯈꯣꯡꯁꯣꯡꯂꯕ ꯍꯧꯑꯣꯡ ꯑꯃꯍꯦ ꯃꯍꯧ ꯇꯣꯅ꯫ ꯃꯁꯤ ꯈꯣꯡꯁꯣꯡꯂꯡꯌꯔꯤꯈꯦꯖꯕ, ꯁꯤꯂꯅꯦ ꯁꯦꯃꯄꯜꯁꯤꯡ NIH-DHAARA ꯂꯌꯔꯒ ꯑꯦꯃꯔ꯭ꯒꯅ ꯇꯧꯔꯕ ꯁ꯭ꯇꯦꯁꯟꯒꯤ IDF ꯑꯃꯁꯒꯤ ꯃꯣꯅꯦꯇ ꯒꯦꯂꯇ꯭ꯁꯤꯡ ꯑꯣꯅꯦꯅ ꯂꯧꯅ (ꯀ꯭ꯂꯣꯖ 2.3.1 ꯑꯃꯁꯨꯡ 2.3.2)꯫ ꯑꯣꯍꯔꯤꯇꯤꯒ ꯌꯣꯂꯅꯤꯕ ꯄꯣꯡꯁꯣꯄꯃ ꯑꯃꯍꯦ ꯈꯣꯔꯐ 2-1-ꯗ ꯔꯦꯀꯣꯔꯗ ꯇꯧꯔꯗꯕꯁ ꯒ꯭ꯔꯤꯗ-ꯑꯦꯚꯔꯦꯖ ꯒꯦꯂꯇ꯭ꯁꯤꯡ ꯁꯤꯂꯅꯦ ꯁꯦꯃꯄꯜꯁꯤꯡ ꯑꯣꯅꯦꯅ ꯁꯤꯂꯤꯂꯦꯂꯁꯦ (ꯀ꯭ꯂꯣꯖ 1.11.5)꯫

2C.1 ꯀ꯭ꯂꯣꯖ 2.7-ꯒꯤ ꯁꯦꯁꯣꯁꯂꯅ ꯇꯣꯁꯃꯂꯅ ꯈꯦꯡꯇꯔꯁꯤꯡ ꯑꯁꯤ ꯀꯔꯤꯒꯤ ꯃꯔꯨ ꯑꯣꯅꯕꯒꯦ ꯄꯌꯂꯤ꯫ ꯃꯂꯤꯄ꯭ꯔꯗ ꯃꯦꯔ꯭ꯌꯦꯒ ꯑꯁꯤꯒꯤꯗꯃꯡ NIH-DHAARA ꯑꯁꯤ ꯃꯣꯅꯦꯇ 13-ꯗ ꯀ꯭ꯔꯦꯔꯤ ꯇꯧꯔꯤ, ꯑꯃꯁꯨꯡ 12-ꯅ ꯗꯦꯇꯣ ꯃꯂꯤꯔꯤ; ꯃꯁꯤꯒꯤ ꯌꯣꯡ 12 km ꯃꯔꯣꯒꯒꯤ ꯔꯤꯑꯦꯅꯅꯂꯁꯤꯁ ꯁꯦꯒꯁꯤꯡꯅ ꯁ꯭ꯇꯦꯟꯀꯤ ꯁꯡꯕ ꯒꯦꯂ ꯑꯃꯂꯡꯇꯒ ꯌꯡꯗꯍꯂꯕꯗ ꯌꯣꯡꯅ ꯌꯇꯂ: ꯂꯍꯈꯒ ꯁꯦꯒꯅ ꯌꯄꯤ 50-ꯗ ꯃꯨꯡ 24-ꯗ 231 mm ꯃꯂꯤꯔꯤ, ꯀ꯭ꯂꯣꯖ 2.3.6(c)(i)-ꯒꯤ ꯁ꯭ꯇꯦꯁꯟꯒꯤ ꯁꯦꯔꯤꯂꯗꯒꯤ ꯅꯡꯃ 180 mm ꯑꯃꯁꯨꯡ Imphal (Tulihal)-ꯅ ꯃꯁꯤꯒꯤ ꯄ꯭ꯔꯕꯂꯗꯒꯤ ꯌꯣꯡꯕ ꯁꯨꯃꯤꯇ ꯑꯣꯅꯦꯅ ꯔꯦꯀꯣꯔꯗ ꯇꯧꯔꯤꯕ 158.6 mm-ꯒ ꯌꯣꯡꯗꯍꯂꯕꯗ (NIH-DHAARA, 14 Nov 2026-ꯗ ꯀ꯭ꯔꯦꯔꯤ ꯇꯧꯔꯤꯕ; IMD, *Extremes*)꯫ ꯂꯣꯡꯄꯨꯃꯀꯤ ꯌꯤꯡꯁꯤꯡꯗ ꯂꯤꯔꯤꯕꯍ ꯁꯦꯒꯅ 491 mm ꯑꯃꯁꯨꯡ ꯇꯃꯦꯡꯂꯣꯡ ꯁꯦꯒꯅ 431 mm ꯃꯂꯤꯔꯤ, ꯁ꯭ꯇꯦꯁꯟꯀꯤ ꯈꯣꯡꯗꯣꯡꯅꯤꯕ ꯄ꯭ꯔꯕꯂꯗꯒꯤ ꯌꯤꯍꯅ ꯄꯨꯕ ꯂꯣꯡ, ꯈꯧꯄꯨꯝꯗ (Khoupum) ꯑꯣꯏꯡ ꯑꯃꯗ 225 mm (ꯃꯣꯀꯗ ꯈꯣꯡꯗꯣꯡꯅꯤꯕ ꯃꯇꯨꯡ ꯅꯦꯂ), ꯒꯤ ꯌꯣꯡ 1.9-ꯗꯒꯤ 2.2 ꯈꯦꯀꯕ, ꯃꯅꯣꯔꯕ ꯁꯦꯃꯒꯀꯂꯕ ꯒꯦꯂ ꯑꯃꯀꯇ ꯂꯣꯇꯅ꯫ ꯑꯁꯤꯒ꯭ꯍꯕ ꯒꯦꯒꯄꯨꯁꯤꯡ ꯑꯁꯤ ꯒ꯭ꯔꯤꯗ- ꯂꯀꯔꯒ ꯑꯦꯔꯤꯌꯅ-ꯑꯦꯚꯔꯦꯖ ꯒꯦꯒꯄꯨꯁꯤꯡꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯣꯅꯦꯇ ꯁꯦꯃꯄꯜꯁꯤꯡ ꯑꯣꯅꯦꯅ ꯁꯤꯂꯤꯂꯦꯂꯗ꯭ꯔꯤꯃꯗ ꯈꯦꯡꯇꯔ ꯑꯁꯤꯁꯤꯡ ꯃꯍꯧ ꯇꯣꯅ; ꯀ꯭ꯂꯣꯖ 2.3.6 ꯃꯅꯣꯗ, ꯑꯍꯦꯟꯕ ꯑꯁꯤ ꯑꯃꯁꯨꯡ ꯑꯍꯦꯟꯕ 2A ꯈꯣꯡꯁꯣꯡꯂꯡꯌꯔꯤꯈꯦꯖꯕ ꯃꯂꯤꯄ꯭ꯔꯗ ꯃꯅꯣꯔ ꯁꯤꯂꯅꯦ ꯁꯦꯃꯄꯜꯁꯤꯡ ꯑꯣꯅꯦꯅ ꯁꯤꯂꯤꯂꯦꯂꯗ, ꯁꯕ-ꯑꯦꯔꯤꯌ MN-B-ꯗ ꯂꯌꯇꯣꯅ, ꯃꯈꯍ ꯑꯗ꯭ꯗ ꯁꯦꯒꯒꯤ ꯒꯦꯒꯄꯨ ꯑꯁꯤ ꯇꯍꯃꯣꯏꯀꯤ ꯇꯦꯕꯒ ꯈ꯭ꯂꯣꯔ ꯑꯣꯅꯦꯅ ꯂꯧꯗ꯭ꯅꯦ ꯁꯤꯂꯤꯂꯦꯂꯧ (ꯀ꯭ꯂꯣꯖ 2.3.6(c)(iii)), ꯑꯃꯁꯨꯡ ꯑꯇꯣꯃꯃ ꯃꯈꯍꯁꯤꯡꯗ NIH-DHAARA ꯑꯁꯤ ꯌꯣꯡꯗꯍꯂꯂꯕ ꯅꯡꯇꯒꯤꯗꯃꯡ ꯔꯤꯃꯣꯔꯚ ꯇꯧꯅ (ꯀ꯭ꯂꯣꯖ 2.3.6(m))꯫

ꯇꯦꯕꯜ 2C.1 — ꯒ꯭ꯔꯤꯗ-ꯇꯨ-ꯃꯣꯅꯦꯇ ꯈꯦꯡꯇꯔꯁꯤꯡ (ꯂꯦꯑꯣꯀꯚ)

ꯂꯣꯟ	ꯒ꯭ꯔꯤꯗ ꯃ꯭ꯔꯣꯗꯌꯡꯚ ꯑꯃꯁꯨꯡ ꯁꯦꯒꯒꯤ ꯁꯅꯂ	ꯁ꯭ꯇꯔꯦꯁꯟ (h)	AEP	ꯈꯦꯡꯇꯔ (ꯃꯣꯅꯦꯇ / ꯒ꯭ꯔꯤꯗ)	ꯁꯤꯂꯤꯂꯦꯂꯅꯤꯕ ꯁ꯭ꯇꯦꯁꯟꯁꯤꯡ	ꯔꯦꯀꯣꯔꯗꯁꯤꯡ ꯌꯄꯤ
		24				
		48				
		72				

ꯑꯍꯦꯟꯕ 2D — ꯃꯂꯤꯄ꯭ꯔꯒꯤ ꯇꯦꯈꯃꯣꯔꯦꯛ ꯃꯦꯇꯔꯦꯂꯤꯡ (ꯄꯣꯈ ꯀꯔꯒꯂꯤꯡ)

ꯁꯔꯨꯛ 2-ꯒꯤ ꯀ꯭ꯂꯣꯖ 2.9.3 ꯑꯃꯁꯨꯡ 2.9.4, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 11-ꯒꯤ ꯀ꯭ꯂꯣꯖ 11.7.3-ꯗ ꯃꯇꯦꯡ ꯃꯣꯡꯅ꯫

ꯁꯦꯝ ꯁꯥꯒꯗꯕ. ꯑꯍꯦꯟꯕ ꯑꯁꯤꯅꯥ ꯃꯅꯤꯄꯨꯔꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯀꯁꯤꯡꯒꯤ ꯗꯥꯏꯃꯦꯟꯁꯅꯂꯦꯁ ꯃꯥꯁ-ꯀꯤꯎꯃꯨꯂꯦꯇꯤꯚ (ꯍꯥꯐ) ꯀꯔꯚꯁꯤꯡ, Huff (1967)-ꯅꯥ ꯄ꯭ꯔꯀꯥꯁꯤꯠ ꯇꯧꯈꯤꯕꯥ, ꯇꯥꯏꯞ, ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯀ꯭ꯋꯥꯔꯇꯥꯏꯜ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯍꯨꯝ ꯅꯥꯏꯗ, ꯐꯥꯑꯣꯗꯥꯂꯕ ꯄ꯭ꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤ ꯂꯦꯚꯦꯜꯁꯤꯡꯗ ꯁꯤꯖꯤꯟꯅꯈꯤ॥ ꯃꯁꯤꯗ ꯗꯦꯇꯥꯁꯦꯠꯁꯤꯡ ꯄꯦꯔꯤꯑꯣꯗ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁꯤꯕꯜ ꯌꯦꯔꯐ ꯀꯨꯝꯃꯩꯁꯤꯡꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯄ꯭ꯔꯣꯐꯥꯏꯂꯁꯤꯡ (IMD, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯀꯦꯇꯂꯣꯒ ꯄꯥꯡꯊꯣꯛꯄꯒꯤ ꯀꯨꯝꯃꯩ ꯂꯩꯕ ꯑꯦꯛꯁꯦꯁꯤꯕꯜ ꯌꯦꯔꯐ ꯀꯨꯝꯃꯩꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁꯤꯕꯜ ꯗꯦꯇꯥ ꯁꯦꯠꯁꯤꯡ, ꯍꯥꯏꯔꯕꯒꯤ ꯄꯥꯏꯁꯤꯡ ꯍꯦꯅꯒꯠꯂꯛꯅ ꯑꯀꯤꯕꯒꯤ ꯊꯦꯡꯅꯕꯒꯤ ꯄꯥꯝꯕꯩ, ꯄꯔꯤꯛꯁꯥ ꯇꯧꯔꯛꯂꯕ ꯑꯍꯥꯟꯕ ꯗꯦꯇꯥꯁꯦꯠ 1986–2009-ꯒꯤ ꯍꯤꯇꯂꯤ 15-ꯒꯤ ꯗꯦꯇꯥ ꯁꯦꯠꯇꯥꯡ ꯍꯨꯝꯅ ꯂꯩꯕ Imphal (Tulihal)-ꯒꯤ ꯗꯦꯇꯥ ꯁꯦꯠꯇꯥ ꯃꯦꯂ, ꯀꯕ-ꯑꯦꯗꯤꯔ MN-C1-ꯒꯤ ꯗꯦꯀꯤꯑꯥꯀꯤꯡꯒꯤꯗꯃꯛ ꯀꯤꯇꯤꯌꯂꯅꯤꯕ CWC 2(b) ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ ꯗꯦꯇꯥ ꯁꯦꯠꯇꯥ ꯃꯦꯂ ꯄꯨꯔꯛ, ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅ ꯗꯤꯀꯥꯗꯀꯦꯀ ꯁꯤꯄꯥꯗꯥꯍꯦꯟꯗꯥꯟꯒꯤ ꯗꯦꯇꯥ ꯁꯦꯠꯇꯥ ꯃꯦꯂꯀꯤ ꯂꯤꯗꯕꯁꯤ [TBC]), ꯑꯦꯛꯁꯦꯁꯤꯕꯜ ꯄꯨꯔ ꯑꯍꯟꯅꯥ ꯍꯀꯣ ꯍꯀꯣꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤꯗꯃꯛ ꯄꯥꯝꯅꯗꯕ, ꯑꯃꯁꯨꯡ 28 ꯖꯨꯂꯥꯏ–1 ꯑꯒꯁ꯭ꯠ 1989-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛ, ꯍꯥꯟꯅ Imphal (Tulihal)-ꯅꯥ ꯍꯀꯤꯒꯤ ꯅꯨꯃꯤꯗꯥꯡꯒꯤ ꯌꯦꯡꯕ ꯂꯥꯏꯍꯤꯠ, 30 ꯖꯨꯂꯥꯏꯗ 158.6 mm, ꯗꯦꯇꯥ ꯄꯥꯏ, MASTEC-ꯅꯥ ꯗꯦꯇꯥ ꯄꯥꯕ ꯄꯨꯍꯥꯏꯔꯕꯒꯤ ꯅꯀꯤꯡ ꯅꯌꯦꯠꯀꯤꯡꯒꯤ ꯍꯍꯤꯡꯗ 22–28 ꯁꯦꯞꯇꯦꯝꯕꯔ 1997, 24 ꯑꯒꯁ꯭ꯠ–3 ꯁꯦꯞꯇꯦꯝꯕꯔ 1999 ꯑꯃꯁꯨꯡ 26 ꯑꯒꯁ꯭ꯠ–6 ꯁꯦꯞꯇꯦꯝꯕꯔ 2000-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯀꯁꯤꯡ, 28–31 ꯃꯦ 2024 (ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯥꯜ, Cyclone Remal) ꯑꯃꯁꯨꯡ 30 ꯃꯦ–2 ꯖꯨꯟ 2025-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯀꯁꯤꯡ, 15 ꯖꯨꯂꯥꯏ 2025-ꯒꯤ ꯈꯧꯄꯨꯃꯒꯤ (Khoupum) ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛ ꯑꯃꯁꯨꯡ ꯁꯦꯞꯇꯦꯝꯕꯔ 2025-ꯒꯤ ꯍꯌꯦꯟꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛ, ꯍꯥꯏꯔꯕꯒꯤ ꯍꯦꯛꯇꯥ ꯑꯍꯟꯅꯕꯒꯤꯗꯃꯛ ꯍꯦꯅꯒꯠꯂꯛꯅ ꯑꯀꯤꯕꯒꯤꯗꯃꯛ ꯗꯦꯇꯥ ꯁꯦꯠꯇꯥ ꯃꯦꯂꯒꯤ ꯄ꯭ꯔꯣꯐꯥꯏꯂ ꯑꯍꯟꯅꯕ ꯑꯦꯛꯁꯦꯡꯁꯤꯟ [TBC], ꯍꯧꯖꯤꯛ ꯂꯩ॥ ꯍꯀꯤ ꯑꯦꯛꯁꯦꯁꯤꯕꯜꯑꯣꯏꯗꯤꯕꯅꯕ, ꯁꯤꯇꯥꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯀꯁꯤꯡꯅꯥ ꯀ꯭ꯂꯥꯖ 2.9.1-ꯒꯤ ꯑꯦꯔꯤꯌꯦꯜ-ꯔꯤꯗꯛꯁꯟ ꯐꯦꯛꯇꯔ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯖ 2.9.2-ꯒꯤ ꯄꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯐꯦꯛꯇꯔ ꯀꯤꯇꯤꯌꯂꯦ; 25–5,000 km²-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡꯒꯤꯗꯃꯛ, CWC ꯑꯦꯂꯅ ꯑꯦꯁꯨꯃꯀꯦꯛ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ ꯀꯔꯚꯁꯤꯡ ꯀ꯭ꯂꯥꯖ 2.9.1 ꯍꯥꯅꯅ ꯁꯦꯃꯁꯤꯟꯕꯤꯟ ꯗꯦ ꯑꯍꯥꯛ ꯇꯥꯔꯂꯦ ꯀꯤꯇꯤꯌꯂꯕ ꯌꯥꯍ (ꯀ꯭ꯂꯥꯖ 2.9.4)॥ SCS Type ꯗꯤꯁ꯭ꯠꯔꯤꯕꯤꯎꯁꯅꯁꯤꯡ ꯀꯤꯇꯤꯌꯂꯅꯦ (ꯀ꯭ꯂꯥꯖ 2.9.3)॥ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯀꯤꯍꯂꯣꯛꯅ (ꯀ꯭ꯂꯥꯖ 11.7.3) ꯄꯨꯍꯤꯟ ꯅꯥꯗꯤꯡꯒꯤ ꯗꯦꯇꯥ ꯁꯦꯠꯁꯤꯡ ꯍꯥꯏꯗꯥꯅꯗꯒꯤꯗꯃꯛ, ꯇꯧꯔꯝ ꯑꯀꯤ ꯑꯦꯁꯦꯗꯤꯂꯤꯞ ꯌꯂꯒꯗꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥ ꯂꯩꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯥꯖ 1.11.5)॥

ꯇꯦꯕꯜ 2D.1 — ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯍꯤꯁꯥꯒꯤ ꯀꯤꯎꯃꯨꯂꯦꯇꯤꯚ ꯁꯔꯨꯛꯀ ꯌꯥꯃꯗꯍꯂꯕ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯗꯦꯄꯊꯀꯤ ꯀꯤꯎꯃꯨꯂꯦꯇꯤꯚ ꯁꯔꯨꯛ (ꯇꯦꯝꯄ꯭ꯂꯦꯠ, ꯇꯥꯏꯞ, ꯀ꯭ꯋꯥꯔꯇꯥꯏꯜ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯄꯨꯗꯤꯡꯍꯟꯗꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ ꯑꯍꯦ)

ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯍꯤꯁꯥꯒꯤ ꯁꯔꯨꯛ	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
10% ꯄ꯭ꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤꯒꯤ ꯀꯔꯚ	0										1.0
50% ꯄ꯭ꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤꯒꯤ ꯀꯔꯚ	0										1.0
90% ꯄ꯭ꯔꯣꯕꯦꯕꯤꯂꯤꯇꯤꯒꯤ ꯀꯔꯚ	0										1.0

2D.1 ꯇꯦꯕꯜ ꯄꯨꯗꯤꯡꯍꯟꯅꯕ ꯇꯥꯏꯞ, ꯀ꯭ꯋꯥꯔꯇꯥꯏꯜ ꯀ꯭ꯂꯥꯁ, ꯗ꯭ꯌꯨꯔꯦꯁꯟ (ꯅꯣꯡ ꯄꯤꯔꯤꯑꯗꯒꯤ ꯌꯦꯡꯕꯅꯥ ꯄꯨꯍꯤꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯍꯦꯛꯇꯥ ꯁꯔꯨꯛ), ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ ꯇꯧꯍꯟꯕ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯀꯤ ꯍꯀꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥ ꯁꯦꯠꯀꯤ ꯍꯥꯞ ꯑꯦꯛꯁꯦꯁꯤꯕꯜꯀꯗꯕꯂꯤ॥

ꯍꯧꯔꯛꯐꯝ: Huff, F.A. (1967). Time distribution of rainfall in heavy storms. *Water Resources Research* 3(4), 1007–1019.

ꯑꯍꯦꯟꯕ 2E — ꯇꯦꯁ ꯍꯨꯝ ꯅꯂꯤ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠꯀꯤ ꯄ꯭ꯔꯣꯁꯦꯖꯔ ꯀꯦꯄꯁꯨꯂꯁꯤꯡ

ꯁꯔꯨꯛ 2-ꯒꯤ ꯀ꯭ꯂꯥꯖ 2.8.3 ꯑꯃꯁꯨꯡ 2.10.1-ꯗꯒꯤ 2.10.2 ꯐꯥꯑꯣꯕ, ꯁꯔꯨꯛ 4-ꯒꯤ ꯀ꯭ꯂꯥꯖ 4.4 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 8-ꯗ ꯍꯦꯡꯂꯤ॥

ꯅꯣꯠ ꯑꯣꯏꯕ. ꯑꯍꯣꯡꯕ ꯑꯅꯤꯁꯨꯕ 2A-ꯒꯤ ꯖꯣꯟ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯛꯁꯠꯔꯤꯝ ꯑꯣꯏꯕ P_R ꯃꯊꯧ ꯇꯥꯏ: ꯑꯗꯨꯗꯤ ꯅꯨꯡꯁꯤꯠꯀꯤ ꯗꯦꯇꯥꯗꯒꯤ ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠꯁꯤꯡꯒꯤ (≥ 2.5 mm) 90%-ꯗ ꯑꯍꯣꯡꯕ ꯄꯨꯝ 24-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯑꯦꯛꯁꯠ (ꯁꯦꯛꯁꯟ 2.10.1)꯫ ꯖꯣꯟ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯖꯣꯟ ꯗꯥꯡ ꯂꯩꯕ ꯀꯝꯄꯦꯅꯤꯁꯤꯡꯒꯤ ꯑꯗꯨꯕ ꯅꯨꯃꯤꯠ ꯆꯨꯕꯁꯤꯡꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ (IMD, ꯁꯦꯟꯠꯔꯦꯜ ꯋꯥꯇꯔ ꯀꯃꯤꯁꯟꯒꯤ ꯃꯥꯏꯀ꯭ꯔꯣꯕꯦꯁꯤꯟ ꯗꯥꯇꯥ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯄꯨꯗꯤꯡ ꯂꯥꯏꯕ ꯅꯥꯏꯖꯤꯟꯒꯦꯠ ꯍꯣꯏꯗꯤ ꯅꯣꯡ ꯆꯨꯕ ꯆꯥꯡꯁꯤꯟ ꯐꯤꯒꯔꯁꯤꯡ ꯂꯦꯟ, ꯑꯃꯁꯨꯡ ꯄꯥꯏꯔꯣꯡꯐꯤ ꯅꯣꯡꯃꯥ ꯅꯤꯒꯔꯤꯡꯁꯤꯡꯒꯤ MASTEC-ꯒꯤ ꯀꯤꯁꯤꯜ ꯄꯤꯛꯄꯤꯟꯅꯕ ꯐꯤꯔꯣꯝꯒꯤ, ꯑꯅꯣꯂꯣ (Saikul) ꯑꯃꯁꯨꯡ ꯂꯤꯇꯥꯟ (Litan) ꯗꯥ ꯂꯦꯟꯇꯤꯡ, ꯍꯥꯏꯔꯒꯤ ꯍꯣꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥꯁꯤꯡ ꯑꯗꯨꯕ ꯐꯦꯖꯤꯗꯝ ꯄꯣꯛꯂꯕꯇꯤ [TBC]) ꯑꯃꯁꯨꯡ ꯀꯤꯁꯤꯜ ꯔꯤꯍꯥꯅ ꯗꯥꯏꯕ ꯍꯖꯝꯇꯤꯡꯗ ꯑꯍꯣꯡꯕ 2C-ꯒꯤ ꯖꯦꯗꯤꯔꯣꯃꯇꯤꯡꯒꯤ ꯅꯦꯔꯅꯅ IMD-ꯒꯤ ꯀꯃꯤꯗ ꯄꯥꯃꯕ ꯗꯥꯔꯣ ꯍꯥꯗꯣ ꯄꯣꯛ꯫ ꯍꯣꯏ ꯖꯦꯡꯗꯦꯒꯅꯒꯅꯃꯤꯖꯤꯔꯕ, P_R ꯑꯣꯏ ꯑꯦꯋꯦꯃꯤꯄꯣꯏꯡ ꯁꯦꯟꯈꯤꯕ ꯀꯤꯁꯤꯜ ꯑꯍꯣꯡ ꯑꯗꯨꯕ ꯍꯥꯍꯣꯡ ꯅꯨꯃꯤꯠ ꯆꯨꯕꯁꯤꯡꯒꯤ ꯗꯦꯇꯥꯗꯗꯒꯤ, 2E.1-ꯒꯤ ꯄꯦꯡꯊꯣꯡꯗꯨꯗꯨ, ꯁꯦꯛꯁꯟ 2.10.1-ꯒꯤ ꯗꯥꯖꯤꯅꯤꯂꯦ ꯍꯥꯞꯆꯤ ꯄꯨꯅꯅ ꯑꯣꯏꯕ ꯄꯣꯛ, ꯑꯃꯁꯨꯡ ꯃꯦꯞ 2-1-ꯗ ꯗꯦꯇꯥꯗ ꯄꯣꯛ (ꯁꯦꯛꯁꯟ 1.11.5)꯫

2E.1 **ꯅꯨꯃꯤꯠ ꯆꯨꯕꯁꯤꯡꯒꯤ ꯗꯦꯇꯥꯗ ꯑꯍꯗꯒꯤ P_R ꯑꯣꯏꯕ ꯄꯣꯕ.**

1. ꯀꯤꯁꯤꯜ ꯑꯍꯣꯡꯒꯤ ꯍꯣꯡꯂ ꯖꯕ ꯗꯦꯇꯥꯗꯁꯤ ꯅꯨꯃꯤꯠ ꯆꯨꯕꯁꯤꯡꯒꯤ (ꯄꯨꯝ 24-ꯒꯤ) ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯀꯥꯗꯤꯇ ꯇꯧꯕꯤꯌꯨ꯫
2. 2.5 mm ꯅꯠꯇꯕꯒꯤ ꯍꯣꯡꯗꯒꯤ ꯑꯍꯣꯡꯕ ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠꯁꯤꯡ (ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠꯁꯤꯡ) ꯈꯟꯕ ꯊꯝꯕꯤꯌꯨ꯫
3. ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠꯁꯤ ꯗꯥꯏꯊꯁꯤꯡ ꯗꯥꯡꯄ ꯄꯣꯗꯒꯤ ꯍꯥꯏꯔꯒꯤ 90%-ꯗ ꯑꯍꯣꯡꯗꯕ ꯗꯥꯏꯊ (90th ꯄꯔꯗꯥꯁꯦꯟꯇꯥꯏꯜ) ꯇꯧꯕꯤꯌꯨ꯫
4. ꯁꯦꯛꯁꯅ ꯖꯦꯡꯄꯗ (ꯁꯦꯛꯁꯟ 2.8.3) ꯅꯠꯇꯕꯒꯤ ꯖꯤꯡꯀꯗ-ꯈꯦꯡꯗꯉꯥꯟ ꯖꯦꯡꯄꯗ ꯑꯣꯏꯇꯤꯡꯒꯦ; P_R ꯑꯣꯏ ꯅꯨꯃꯤꯠ ꯆꯨꯕꯁꯤꯡꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯀꯤꯁꯤꯜꯀꯤꯡꯒꯤ ꯑꯍꯣꯡꯇꯤ, AEP ꯗꯤꯖꯥꯏꯟ ꯑꯦꯛꯁꯠ ꯅꯠꯇꯥ꯫
5. ꯃꯦꯞ 2-1-ꯗ ꯀꯤꯁꯤꯜ, ꯗꯦꯇꯥꯗꯁꯤ ꯍꯥꯏꯍ, ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠꯁꯤ ꯍꯣꯏꯗꯤ ꯑꯃꯁꯨꯡ P_R ꯗꯦꯇꯥꯗ ꯄꯣꯕꯤꯌꯨ꯫

ꯇꯥꯕꯜ 2E.1 — ꯖꯣꯟ ꯍꯥꯞꯆꯤ ꯈꯦꯟꯅ ꯗꯤꯖꯥꯏꯟ ꯑꯦꯛꯁꯠ P_R (ꯇꯦꯃꯞꯂꯦꯠ)

ꯖꯣꯟ	ꯑꯣꯏꯇꯤꯡꯒꯦꯍꯤꯕ ꯀꯤꯁꯤꯜꯁꯤꯡ ꯅꯠꯇꯕꯒꯤ ꯀꯃꯤꯗ ꯀꯥꯟꯑꯣꯏꯗꯤ	ꯗꯦꯇꯥꯗꯁꯤ ꯍꯥꯏꯍ	ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠꯁꯤ ꯍꯣꯏꯗꯤ (≥ 2.5 mm)	P_R, 90th ꯄꯔꯗꯥꯁꯦꯟꯇꯥꯏꯜ (mm)	ꯄꯤꯍꯤꯕ ꯄꯗ
MN-Z1 ꯈꯍꯖꯟ ꯄꯍꯄꯣꯀ					
MN-Z2 ꯑꯁꯦꯗ, ꯅꯗꯄꯦꯀ ꯑꯃꯁꯨꯡ ꯈꯦꯒꯤ ꯁꯤꯗꯣꯏꯗ					
MN-Z3 ꯅꯗꯆꯨꯄꯁꯤ ꯁꯤꯗꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯇꯤꯗꯤꯕꯤꯍ ꯄꯦꯇꯥ					

ꯐꯣꯔꯝ 2-1 — ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯁꯨꯕꯒꯤ ꯁꯤꯠ

ꯆꯦꯞꯇꯔ 2-ꯒꯤ ꯁꯦꯛꯁꯟ 2.3-ꯗꯒꯤ 2.13 ꯐꯥꯑꯣꯕ, ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 10-ꯒꯤ ꯁꯦꯛꯁꯟ 10.4.1(d)-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯁꯤꯖꯤꯟꯅꯕ ꯐꯣꯔꯝ — ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤꯒꯤ ꯃꯇꯦꯡ ꯄꯥꯡꯅꯕ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯁꯤꯖꯤꯟꯅꯕ ꯚꯔꯖꯟ 1.0. ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯇꯝꯗ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯁꯤꯠ ꯑꯁꯤ ꯃꯄꯨꯡ ꯐꯥꯍꯟꯕꯤꯌꯨ॥ ꯃꯔꯤ ꯂꯩꯅꯕ ꯑꯣꯏꯅ ꯆꯦꯞꯇꯔ 2-ꯒꯤ ꯐꯤꯒꯔ 2.3 ꯌꯦꯡꯕꯤꯌꯨ॥

ꯇꯦꯕꯜ 2F.1 — ꯐꯣꯔꯝ 2-1: ꯕꯦꯁꯤꯟ, ꯅꯣꯡꯖꯨ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯁꯨꯕꯒꯤ ꯑꯦꯟꯠꯔꯤꯁꯤꯡ

No.	ꯑꯥꯏꯇꯦꯝ (ꯁꯦꯛꯁꯟ)	ꯑꯦꯟꯠꯔꯤ
	A. ꯕꯦꯁꯤꯟ (ꯁꯦꯛꯁꯟ 2.13, ꯑꯥꯏꯇꯦꯝ 1)	
A1	ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟ	______
A2	ꯕꯦꯁꯤꯟꯒꯤ ꯑꯥꯎꯇꯂꯦꯠꯀꯤ ꯀꯣꯑꯣꯔꯗꯤꯅꯦꯠꯁꯤꯡ (ꯂꯦꯇꯤꯆꯨꯗ, ꯂꯣꯡꯒꯤꯆꯨꯗ, ꯗꯦꯇꯝ ꯁꯤꯁ꯭ꯇꯝ)	______
A3	ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯗ ꯃꯈꯜ (ꯇꯦꯕꯜ 2A, ꯃꯈꯥ ꯄꯤꯔꯤꯕ ꯁ꯭ꯠꯔꯀꯆꯔ ꯃꯈꯜ ꯌꯥꯎꯅ)	______
A4	ꯀꯦꯆꯃꯦꯟꯇꯀꯤ ꯑꯦꯔꯤꯌꯥ (km²) (ꯁꯦꯛꯁꯟ 2.7)	______
A5	ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ: ꯂꯥꯏꯅ 25-ꯗꯒꯤ ꯍꯦꯟꯕ / ꯃꯥꯡꯒꯤ ꯃꯔꯤꯒꯤ ꯀꯦꯁ, ꯂꯥꯏꯅ 5 ꯃꯈꯥꯗꯒꯤ ꯍꯦꯟꯕ (ꯁꯦꯛꯁꯟ 2.8.2)	______
A6	ꯁꯣꯌꯗ ꯃꯈꯥꯗꯒꯤ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯕꯦꯁꯤꯟꯗꯒꯤ ꯂꯩꯕ ꯗꯦꯇ ꯑꯦꯚꯦꯂꯦꯕꯜ: ꯍꯣꯏ / ꯅꯠꯇꯦ (ꯁꯦꯛꯁꯟ 2.5.3, 2.12)	______
	B. ꯅꯣꯡꯖꯨ (ꯁꯦꯛꯁꯟ 2.3, 2.3.5; ꯑꯥꯏꯇꯦꯝ 2)	
B1	NIH-DHAARA: ꯚꯔꯖꯟ ꯃꯈꯥꯗꯒꯤ ꯑꯦꯛꯁꯦꯁ ꯇꯧꯔꯕ ꯇꯥꯡ	______
B2	ꯒ꯭ꯔꯤꯗ ꯇꯧꯔꯕ ꯀꯣꯑꯣꯔꯗꯤꯅꯦꯠꯁꯤꯡ	______
B3	ꯗꯤꯁ꯭ꯠꯔꯤꯕꯤꯌꯨꯁꯅꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯃꯈꯥꯗꯒꯤ ꯑꯦꯛꯁꯇ꯭ꯔꯦꯛꯠ ꯕꯦꯟꯗ: ꯔꯦꯇꯔꯦꯟ	______
B4	ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯁ꯭ꯇꯦꯁꯅꯒꯤ IDF (ꯁꯦꯛꯁꯟ 2.3.2): ꯍꯣꯏ / ꯅꯠꯇꯦ — ꯁ꯭ꯇꯦꯁꯟ, ID, ꯕꯦꯁꯤꯟꯗꯒꯤ ꯗꯤꯁ꯭ꯇꯦꯟꯁ (km)	______
B5	ꯁ꯭ꯇꯦꯁꯅꯒꯤ IDF: ꯔꯦꯀꯣꯔꯗꯀꯤ ꯆꯍꯤꯒꯤ ꯃꯁꯤꯡ (30 ꯃꯈꯥꯗꯒꯤ ꯍꯦꯟꯕ); ꯐꯤꯇꯤꯡ ꯇꯧꯔꯕ ꯃꯈꯥꯗꯒꯤ ꯑꯦꯛꯁꯇ꯭ꯔꯤꯝ ꯇꯧꯔꯕ	______
B6	ꯁ꯭ꯇꯦꯁꯅꯒꯤ IDF: ꯍꯦꯟ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟꯒꯤ ꯃꯔꯛꯇꯥ ꯂꯩꯕꯥ ꯃꯑꯣꯡ ꯃꯈꯥꯗꯒꯤ ꯀꯟꯁꯤꯁ꯭ꯇꯦꯟꯇꯔꯤꯒꯤ ꯑꯦꯟꯗꯤꯕ: ꯍꯣꯏ / ꯐꯤꯇꯤꯡꯒꯤ ꯁꯤꯠ	______
	C. AEP-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡ (ꯁꯦꯛꯁꯟ 2.4, 2.5)	
C1	ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯕ ꯑꯦꯛꯁꯤꯗꯦꯟꯁꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡꯒꯤ AEP-ꯁꯤꯡ (ꯇꯦꯕꯜ 2.1)	______
C2	ꯀꯅꯚꯣꯂꯨꯁꯟ: Tc ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯗ꯭ꯌꯨꯔꯦꯁꯟ (ꯆꯦꯞꯇꯔ 10-ꯗꯒꯤ ꯃꯍꯩꯗ) (ꯁꯦꯛꯁꯟ 2.5.1)	______
C3	ꯁ꯭ꯇꯣꯔꯝ: {1, 2, 3, 6, 12, 24, 48, 72 h}-ꯗꯒꯤ ꯂꯦꯞ ꯇꯧꯔꯕ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡ; 24, 48 ꯑꯃꯁꯨꯡ 72 h ꯀꯦꯁꯦ (ꯁꯦꯛꯁꯟ 2.5.2)	______
C4	ꯁ꯭ꯇꯣꯔꯝ ꯑꯦꯛꯁꯤꯗꯦꯟ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯇꯝꯗ ꯐꯤꯡꯒꯔ ꯗ꯭ꯌꯨꯔꯦꯁꯟ	______
	D. ꯐꯦꯛꯇꯔꯁꯤꯡ	
D1	ꯁꯤꯡꯒꯜ ꯑꯃꯗꯒꯤ ꯍꯦꯟꯕ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ: ꯍꯥꯏꯗꯔꯣꯂꯣꯖꯤ ꯃꯇꯦꯡ / ꯇꯦꯕꯜ 2B-ꯒꯤ ꯔꯦꯁꯤꯑꯣꯁꯤꯡꯗꯒꯤ / ꯑꯦꯛꯁꯇ꯭ꯔꯦꯛꯠ ꯇꯧꯔꯕ ꯔꯦꯁꯤꯑꯣꯁꯤꯡꯗꯒꯤ (ꯁꯦꯛꯁꯟ 2.6.1, 2.6.2)	______
D2	ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯐꯤꯛꯁꯗ-ꯏꯟꯇꯔꯚꯦꯂꯒꯤ ꯐꯦꯛꯇꯔ: ꯍꯣꯏ (ꯗꯦꯂꯤ-ꯏꯟꯇꯔꯚꯦꯂꯒꯤ ꯅꯣꯡꯖꯨ) / 1.13 / 1.04 / 1.02 (ꯁꯦꯛꯁꯟ 2.6.3)	______
D3	ꯄꯣꯏꯟꯇ-ꯇꯨ-ꯑꯦꯔꯤꯌꯦꯜ ꯐꯦꯛꯇꯔ: ꯃꯇꯝ ꯁꯣꯗ (ꯑꯦꯔꯤꯌꯦꯜ ꯅꯣꯡꯖꯨ) / ꯇꯦꯕꯜ 2C / ꯕꯦꯁꯤꯟꯒꯤ ꯚꯦꯜꯌꯨ (ꯁꯦꯛꯁꯟ 2.7.1)	______
D4	ARF: 1.0 (10 km² ꯃꯈꯥꯗꯒꯤ ꯍꯦꯟꯕ; ꯕꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯝ) / CWC ꯀꯔꯚ / ꯏꯟꯇꯔꯄꯣꯂꯦꯁꯟ ꯇꯧꯔꯕ (ꯁꯦꯛꯁꯟ 2.7.2–2.7.4)	______
D5	ꯁꯦꯝꯄꯂꯤꯡ ꯐꯦꯛꯇꯔ: 1.20 (≤ 6 h) ꯑꯃꯁꯨꯡ 1.10 (> 6–72 h) / 1.0 ꯃꯥꯡꯒꯤ ꯃꯔꯤꯒꯤ ꯀꯦꯁ / ꯁꯦꯛꯁꯟ 2.8.4 ꯃꯇꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯇꯧꯔꯕ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ	______

No.	ꯑꯦꯛꯁꯟ (ꯁꯦꯛꯁꯟ)	ꯆꯦꯛꯃꯥꯔ꯭ꯛ
	E. ꯀ꯭ꯔꯣꯁ-ꯆꯦꯛꯀꯤ (ꯁꯦꯛꯁꯟ 2.3.3; ꯑꯦꯛꯁꯟ 4)	
E1	1–24 h-ꯒꯤꯗꯃꯛ IMD Das et al. (2022)-ꯒꯤ ꯃꯦꯞꯁꯤꯡ: ꯇꯦꯕꯜ 2F.2-ꯗ ꯃꯍꯩ ꯊꯝꯕꯤꯌꯨ	______
E2	CWC ꯂꯣꯀꯦꯜ 2(c) (ꯃꯍꯥꯛꯀꯤ ꯀꯅꯥ; "ꯀꯅꯥ" ("none") ꯅꯠꯇꯕ) ꯑꯃꯁꯨꯡ 2(b)-ꯒꯤ ꯑꯣꯏꯕ 24-ꯒꯤ ꯍꯦꯟꯅꯥ ꯃꯦꯞ, 25–5,000 km²-ꯒꯤ ꯁꯕ-ꯖꯣꯅꯁꯤꯡ: ꯂꯤꯀꯤꯡꯗꯕꯤ ꯂꯣꯀꯦꯜ	______
E3	AEP ꯑꯃꯁꯨꯡꯒꯤꯗꯃꯛ CWC-ꯒꯤ ꯈꯦꯟꯗꯕ ꯃꯔꯝ ꯑꯦꯅꯥꯂꯥꯏ: ꯑꯣꯏꯕ / ꯐꯦꯜ — AEP-ꯂꯤꯡ	______
	F. ꯃꯤꯇꯩꯂꯣꯜ ꯗꯦꯞꯊ (ꯁꯦꯛꯁꯟ 2.10)	
F1	P_R (mm) ꯑꯃꯁꯨꯡ ꯐꯦꯃꯛꯈꯔ: ꯑꯐꯤꯜꯇ 2E-ꯒꯤ ꯀꯦꯟꯒꯤ ꯃꯦꯞ / ꯑꯐꯤꯜꯇ 2E, 2E.1 ꯍꯥꯏꯗ ꯐꯤꯜꯇ ꯇꯥꯀꯄꯤ — ꯂꯣꯂꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯌ	______
F2	P_R-ꯗ ꯁꯦꯟꯍꯥꯌ ꯈꯣꯡꯗꯝ ꯂꯤꯀꯤꯡꯗꯕꯤꯗꯣ (ꯁꯦꯛꯁꯟ 2.8.3): ꯁꯦꯈꯦꯃꯍ ꯇꯥꯃꯣ	______
	G. ꯗꯤꯖꯥꯏꯟ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ (ꯁꯦꯛꯁꯟ 2.9, 2.11, 2.12; ꯑꯦꯛꯁꯟ 5 ꯑꯃꯁꯨꯡ 6)	
G1	24 h ꯈꯦꯇꯣꯔꯝꯒꯤ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯂꯤꯡ: ꯑꯦꯜꯇꯃꯀꯣꯇꯤꯡ ꯕ꯭ꯂꯣꯛ, 50%-ꯗ ꯍꯤꯌꯥ; ꯇꯥꯏꯝ ꯁ꯭ꯇꯦꯞ (≤ Tc/3 ꯑꯃꯁꯨꯡ ≤ 15 min)	______
G2	48 ꯑꯃꯁꯨꯡ 72 h-ꯒꯤ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯂꯤꯡ: ꯁꯦꯛꯁꯟ 2.9.2 ꯍꯥꯏꯗ ꯂꯣꯌꯕꯤ (ꯇꯦꯕꯜ 2F.3)	______
G3	ꯂꯤꯀꯤꯡꯗꯕꯤ ꯑꯦꯞꯔꯣꯆ ꯍꯣꯡꯃꯦ: ꯀꯅꯥ / ꯑꯐꯤꯜꯇ 2D / ꯂꯣꯡꯂꯤꯡꯊꯤꯡ ꯃꯦꯝꯕ ꯀꯦꯟꯗꯔ CWC FER (ꯁꯦꯛꯁꯟ 2.9.3, 2.9.4)	______
G4	ꯗꯤꯖꯥꯏꯟ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯁ꯭ꯗꯤꯌꯨꯂꯁꯤꯟꯗꯃꯛ ꯇꯦꯕꯜ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯑꯦꯅꯥꯏ ꯃꯣꯗꯦꯜ ꯐꯥꯏꯜꯁꯤꯡ: ꯃꯈꯦꯃꯣꯜ	______
G5	AMC: ꯂꯣ-ꯑꯃꯤꯔꯤ MN-A ꯑꯃꯁꯨꯡ MN-B-ꯗ 1 ꯖꯨꯟ–15 ꯑꯦꯒꯁ꯭ꯇꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯁ꯭ꯗꯤꯌꯨꯂꯁꯤꯟꯗꯃꯛ III, ꯍꯣꯌꯒꯤ ꯗꯤꯁ꯭ꯇꯤꯛꯃꯣꯜ ꯁꯃꯤꯇꯤꯡꯍꯕ ꯑꯦꯅꯥꯃꯕꯂꯣꯡ; ꯇꯨꯃꯣꯡ, ꯅꯦꯝ ꯑꯃꯁꯨꯡ ꯀꯦꯇꯥꯂꯦꯁꯤ 1% AEP-ꯒꯤ ꯀꯣꯃꯦꯡꯒꯤ ꯍꯥꯏꯗ ꯀꯅꯕ ꯀꯍꯗ, ꯍꯤꯌꯥ, ꯍꯥꯌ ꯑꯃꯁꯨꯡ ꯄꯨꯈꯔꯤꯒꯤ (pukhri) ꯍꯀꯦꯂꯣꯌꯗ ꯑꯃꯁꯨꯡ ꯇꯨꯃꯦꯡꯒꯤ ꯍꯣꯡꯂꯤꯡꯒꯤ ꯍꯤꯌꯥꯗ ꯀꯅꯕ ꯀꯍꯗ 1 ꯑꯣꯛꯇꯣꯕꯔ–31 ꯑꯦꯒꯁ꯭ꯇꯃꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯁ꯭ꯗꯤꯌꯨꯂꯁꯤꯟꯗꯃꯛ III; MN-A1-ꯗ ꯑꯃꯁꯨꯡ ꯃꯤꯀꯃꯃꯦꯔꯝ ꯑꯍꯗ, ꯍꯣꯌꯒꯤ ꯕꯦꯔꯤꯇꯃꯗ ꯑꯃꯁꯨꯡ ꯃꯤꯀꯤꯀ ꯃꯤꯔ ꯑꯍꯗ ꯔꯣꯁ꯭ꯇꯔꯣꯍ ꯁꯕ-ꯖꯣꯅꯁꯤꯡꯗ ꯁꯃꯤꯇꯤꯡꯍꯕ ꯍꯌ ꯑꯍꯗ III; ꯑꯦꯞꯔꯣꯆ ꯁꯃꯤꯇꯤꯡꯍꯕ ꯂꯥꯏꯌ ꯑꯃꯁꯨꯡ ꯍꯌ ꯑꯍꯗ, ꯖꯣꯟꯌ 5-ꯒꯤ ꯑꯣꯍꯀꯍ 53 mm-ꯗꯒꯤ ꯐꯣꯡꯕ ꯑꯍꯒꯤ ꯍꯤꯌꯥꯗ ꯀꯦꯍꯥ ꯑꯃꯁꯨꯡ ꯃꯔꯝ ꯔꯥꯏꯁꯕ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯟꯗꯃꯛ III; ꯑꯦꯞꯔꯣꯆꯗ II (ꯁꯦꯛꯁꯟ 2.11.4)	______
G6	ꯗꯣꯃꯣꯀꯍꯣꯂꯌꯁꯤ ꯍꯍꯦꯒꯤ ꯈꯤꯃꯍ: ꯒꯤꯔꯤꯂꯈꯤꯅꯗ, ꯍꯣꯍ ꯇꯥꯃꯕ HSG-ꯒꯤꯗꯃꯛ ꯑꯈꯕ ꯈꯤꯃꯍꯗ ꯀꯅꯕ ꯐꯤꯗꯦꯒꯀꯕ ꯀꯍ (ꯁꯦꯛꯁꯟ 2.11.5)	______
G7	ꯃꯤꯀꯤꯀꯁꯤ ꯁꯦꯅꯥꯃꯤꯔꯂ: ꯂꯣꯂꯗꯃꯗ, Q_post ≤ 0.9 × Q_pre (ꯁꯦꯛꯁꯟ 2.11.2) / ꯅꯂꯤꯡ ꯅꯔꯥꯏꯗ ꯂꯣꯂꯤꯇꯤꯃ, ꯍꯤꯒꯂꯗ-ꯈꯦꯃꯤꯁꯔꯣꯂꯤ ꯃꯦꯛ (ꯁꯦꯛꯁꯟ 2.11.3)	______
G8	ꯃꯂ ꯇꯥꯀꯄꯤ ꯇꯣꯛꯔꯥꯃꯒꯤ ꯀꯅꯂꯌ ꯁꯂꯣꯌꯂꯤꯡ (ꯁꯦꯛꯁꯟ 2.12): ꯁꯣꯂ (a) MHWS + ꯂꯤ-ꯀꯣꯃꯦꯛ ꯑꯣꯀꯥꯏꯑꯣꯂꯣꯜ; ꯁꯣꯂ (b) 1% AEP-ꯒꯤ ꯂꯣꯌꯦꯛ-ꯔꯥꯃꯇ ꯀꯣꯃꯦꯛ + ꯂꯤ-ꯀꯣꯃꯦꯛ ꯑꯣꯀꯥꯏꯑꯣꯂꯣꯜꯒꯤ ꯀꯦꯟꯗꯔ 10% AEP-ꯒꯤ 48 h-ꯒꯤ ꯀꯦꯝ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ; ꯍꯦꯛ ꯑꯦꯅꯕ ꯁꯣꯂ	______
	H. ꯂꯣꯍꯕꯤꯇꯤꯕꯦ	
H1	ꯍꯥꯑꯦꯄ ꯍꯤꯃꯤꯕ ꯃꯦꯞꯁꯤꯡ ꯑꯂꯤ ꯂꯕꯍꯤꯄꯣꯛ ꯑꯂꯤꯗ ꯀꯍꯦꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯀꯤꯡꯗꯕꯤꯕꯂꯤꯡꯀꯤ ꯐꯔꯦ ꯑꯦ ꯁꯦꯈꯦꯃꯍ ꯇꯥꯃꯤ꯫ ꯍꯍꯤꯡ, ꯃꯣꯀꯤꯂꯣꯃꯣꯂ ꯀꯍꯕꯃ, ꯂꯅꯂ, ꯇꯥꯡ	______

ꯗꯤꯖꯥꯏꯟ ꯗꯣꯍꯥ = ꯐꯦꯃꯛꯈꯔꯒꯤ ꯗꯣꯍꯥ × ꯈꯤꯒꯂꯗ-ꯅꯂꯇꯃꯀꯣꯍ ꯈꯣꯡꯇꯃ × ꯒꯤꯃꯤꯗ-ꯇꯨ-ꯍꯦꯅꯂꯌ ꯈꯣꯡꯇꯃ × ARF × ꯁꯦꯟꯍꯥꯌ ꯈꯣꯡꯇꯃ꯫ ꯗꯤꯖꯥꯏꯟ ꯗꯣꯍꯥ ꯑꯂꯤ AEP ꯑꯃꯗꯍꯒꯁꯤ CWC-ꯒꯤ ꯈꯦꯟꯗꯃꯗꯒꯤ ꯀꯣꯍꯀꯕꯗꯤ, ꯈꯦꯟꯗꯃ ꯑꯃꯗ ꯀꯅ (ꯁꯦꯛꯁꯟ 2.3.3)꯫

ꯇꯦꯕꯜ 2F.2 — ꯈꯦꯃꯍ 2-1: ꯗꯣꯍꯥꯁꯤ ꯇꯦꯕꯜ (ꯁꯦꯛꯁꯟ 2.13, ꯑꯦꯛꯁꯟ 3)

AEP (T-yr)	ꯗꯤꯁ꯭ꯇꯤꯛꯃꯣꯜ	ꯐꯦꯃꯛꯈꯔꯒꯤ ꯗꯣꯍꯥ (mm)	ꯈꯤꯒꯂꯗ-ꯅꯂꯇꯃꯀꯣꯍ ꯈꯣꯡꯇꯃ	ꯒꯤꯃꯤꯗ-ꯇꯨ-ꯍꯦꯅꯂꯌ ꯈꯣꯡꯇꯃ	ARF	ꯁꯦꯟꯍꯥꯌ ꯈꯣꯡꯇꯃ	ꯗꯤꯖꯥꯏꯟ ꯗꯣꯍꯥ (mm)	IMD Das et al. (2022) (mm)	CWC ꯈꯦꯟꯗꯃ (mm)	ꯀꯅꯕ ꯗꯣꯍꯥ (mm)

AEP (T-yr)	ꯗ꯭ꯌꯨꯔꯦꯁꯟ	ꯍꯧꯔꯛꯐꯝꯒꯤ ꯗꯦꯞꯊ (mm)	ꯐꯤꯛꯁꯗ-ꯏꯟꯇꯔꯚꯦꯜ ꯐꯦꯛꯇꯔ	ꯒ꯭ꯔꯤꯗ-ꯇꯨ-ꯄꯣꯏꯟꯇ ꯐꯦꯛꯇꯔ	ARF	ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔ	ꯗꯤꯖꯥꯏꯟ ꯗꯦꯞꯊ (mm)	IMD Das et al. (2022) (mm)	CWC ꯐ꯭ꯂꯣꯔ (mm)	ꯂꯧꯈꯤꯕ ꯗꯦꯞꯊ (mm)

ꯇꯦꯕꯜ 2F.3 — ꯐꯣꯔꯝ 2-1: ꯄꯨꯡ 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯍꯧꯗꯣꯡ ꯁꯦꯝꯕ (ꯀ꯭ꯂꯣꯖ 2.9.2)

AEP (T-yr)	ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	ꯄꯨꯝꯅꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯗꯦꯞꯊ (mm)	24 h ꯗꯤꯖꯥꯏꯟ ꯗꯦꯞꯊ, ꯑꯔꯣꯏꯕ 24 h (mm)	ꯑꯔꯦꯝꯕ (mm)	ꯑꯔꯣꯏꯕ 24 h-ꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯄꯨꯡ	ꯑꯔꯣꯏꯕ 24 h-ꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯆꯔ ꯃꯥꯟꯅꯕ ꯏꯟꯇꯦꯟꯁꯤꯇꯤ (mm/h)
	48				24	
	72				48	

ꯁꯔꯨꯛ 3-ꯒꯤ ꯑꯍꯦꯅꯕꯁꯤꯡ

ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ

ꯑꯍꯦꯅꯕꯁꯤꯡ ꯑꯁꯤꯗꯥ ꯁꯔꯨꯛ 3-ꯅ ꯍꯥꯞꯆꯤꯟꯕ ꯌꯥꯎꯗꯦ꯫ ꯑꯍꯦꯅꯕ 3C-ꯗꯥ ꯃꯇꯦꯡꯄꯥꯡꯕ ꯄꯨꯊꯣꯛꯄꯒꯤ ꯕꯦꯁꯤꯟ ꯌꯦꯟꯊꯣꯛ ꯁꯤꯟꯊꯥꯡꯁꯤꯡ ꯌꯥꯎꯏ, ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝ 3-1 ꯑꯃꯁꯨꯡ 3-2 ꯑꯁꯤ ꯁꯦꯛꯁꯟ 3.17-ꯗꯥ ꯍꯥꯏꯕ ꯌꯥꯑꯣꯅꯕ ꯃꯇꯧ ꯀꯔꯝꯅꯥ ꯐꯣꯔꯝꯁꯤꯡꯒꯤ꯫ ꯑꯍꯦꯅꯕ 3A, 3B, 3D ꯑꯃꯁꯨꯡ 3E-ꯗꯥ ꯄꯨꯛꯅꯤꯡ ꯑꯁꯤꯅ ꯍꯥꯏꯕ ꯂꯩꯃꯥꯏ ꯈꯪꯗꯨꯅꯕ ꯃꯆꯥꯡ, ꯀꯥꯏꯕ ꯆꯠꯅꯕꯒꯤ ꯂꯩꯃꯥꯏꯗꯥꯏ ꯑꯃꯁꯨꯡ ꯃꯤꯌꯥꯝꯒꯤ ꯅꯨꯡꯁꯤ ꯍꯥꯏꯕ ꯌꯥꯏ; ꯍꯥꯏꯔꯤꯕ ꯄꯨꯊꯣꯛꯄꯥꯗꯥ ꯌꯥꯎꯕꯥ ꯇꯥꯛꯅꯕ ꯑꯃꯁꯨꯡ ꯍꯤꯡ ꯂꯩꯃꯥꯏꯗꯥꯏꯕꯁꯤꯡꯕ ꯌꯦꯡꯁꯤꯟꯕ ꯁꯔꯨꯛ 3-ꯒꯤ ꯅꯣꯡꯃꯥꯏꯍ ꯃꯥꯏ ꯑꯣꯏꯕꯅꯤ꯫ ꯂꯩꯃꯥꯏꯁꯤꯡ ꯑꯁꯤ ꯄꯨꯛꯅꯤꯡ ꯂꯩꯃꯥꯏꯗꯥꯏꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯤꯕꯒꯤ ꯑꯅꯧꯕꯒꯤ ꯃꯇꯦꯡꯄꯥꯡ ꯑꯃꯁꯨꯡ ꯇꯧꯒꯅꯤ꯫

ꯑꯍꯦꯅꯕ 3A — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯍꯩ ꯂꯩꯃꯥꯏꯒꯤ HSG ꯈꯥꯌꯗꯣꯛꯄ; ꯍꯤꯡꯒꯤ ꯍꯤꯡꯅꯕ ꯅꯣꯡꯗꯥ ꯑꯈꯟꯕ ꯃꯐꯝ ꯄꯨꯊꯣꯛꯄꯒꯤ ꯍꯣꯡ

ꯁꯔꯨꯛ 3-ꯒꯤ ꯁꯦꯛꯁꯟ 3.7 ꯑꯃꯁꯨꯡ 3.10-ꯅ ꯍꯥꯞꯆꯤꯟꯕ ꯌꯥꯎꯗꯦ꯫

ꯃꯇꯝ ꯃꯇꯥꯡꯗ. ꯑꯍꯦꯅꯕ ꯑꯁꯤꯅ (a) ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯍꯣꯡ ꯄꯥꯝꯕ ꯃꯍꯩ ꯂꯩꯃꯥꯏ (soil series) ꯈꯪꯗꯨꯅꯕ ꯍꯥꯏꯔꯤꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯍꯩ ꯒ꯭ꯔꯨꯞ (hydrologic soil group, HSG)-ꯗ ꯈꯥꯌꯗꯣꯛꯄ ꯑꯣꯏ, ꯅꯤꯡ ꯄꯥꯝꯕ ꯑꯃꯁꯨꯡ ꯅꯤꯡ ꯄꯥꯝꯗꯕ ꯁꯤꯟꯊꯥꯡ ꯑꯇꯣꯞꯄꯁꯤꯡ, ꯑꯃꯁꯨꯡ (b) ꯍꯦꯟꯅꯕꯒꯤ ꯍꯤꯡꯅ (ꯑꯣꯏꯕꯤꯡ—ꯑꯣꯏꯗꯕꯥ) ꯍꯤꯡꯒꯤ ꯍꯤꯡꯅꯕ ꯅꯣꯡꯗꯥ ꯑꯈꯟꯕ ꯃꯥꯡꯅꯕꯒꯤ ꯍꯟꯕꯒꯤ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯄꯨꯊꯣꯛ (seasonal high groundwater table) ꯂꯩꯕꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯍꯣꯡ ꯑꯍꯤꯡ ꯂꯩꯕꯒꯤ꯫ ꯍꯥꯏꯅ NBSS&LUP ꯑꯃꯁꯨꯡ ꯃꯄꯨꯡꯒꯤ ꯃꯍꯩ ꯃꯇꯝ (ꯑꯣꯇꯦꯟꯇꯤ ꯃꯥꯂꯦꯃꯄꯥꯛ ꯄꯨꯊꯣꯛꯄ [TBC])-ꯒꯤ ꯃꯍꯩꯇꯤ ꯍꯣꯡꯃꯥꯏ ꯍꯥꯏꯔꯤꯕꯒꯤ ꯃꯇꯝꯃꯥꯏꯗꯥ ꯇꯥꯔꯦꯗꯦ, ꯃꯍꯩꯇꯤ ꯈꯪꯗꯨꯅꯕꯁꯤꯡ ꯍꯣꯡꯕ ꯄꯥꯝꯕ ꯃꯄꯨꯡ ꯐꯥꯅ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯇꯦꯡꯄꯥꯡꯒꯤ (saturated hydraulic conductivity) ꯑꯃꯁꯨꯡ ꯅꯤꯡꯁꯤꯡꯍꯟꯗꯕ ꯇꯔꯥꯏ (impermeable layer) ꯂꯩꯕꯒꯤ ꯑꯃꯥꯡ, ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯒꯤꯂꯦꯡ ꯄꯨꯊꯣꯛ ꯕꯣꯔꯗ (Central Ground Water Board) ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯑꯣꯕꯇꯔꯚꯦꯁꯟ-ꯋꯦꯜꯒꯤ ꯃꯥꯂꯦꯃꯁꯤꯡ ꯍꯥꯏꯕ ꯌꯥꯏ, ꯅꯣꯡꯂꯩ ꯄꯨꯊꯣꯛꯄꯒꯤ ꯇꯝꯅ (valley floor) ꯅꯣꯡꯂꯩ, ꯍꯥꯕꯥ, ꯃꯥꯏꯌꯥꯏ, ꯕꯤꯠꯔꯤꯡ, ꯇꯝꯕꯥ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯒꯤ ꯅꯣꯡꯂꯩꯅ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯤꯕꯒꯤ ꯑꯃꯥꯡꯕꯅ ꯄꯤꯖꯣꯃꯤꯇꯔꯁꯤꯡꯗꯥ (piezometer) ꯍꯥꯏꯕꯤꯡꯗꯥ, ꯍꯦꯟꯅ ꯑꯍꯟꯅ ꯅꯣꯡꯂꯩ ꯌꯥꯎꯕꯥ ꯄꯤꯔꯝꯒꯤ ꯍꯥꯏꯕ ꯍꯦꯟꯅ ꯃꯈꯥꯅꯒꯤ 2–5 m ꯍꯤꯡꯅ ꯅꯥꯏꯗ ꯇꯥ ꯑꯃꯁꯨꯡ ꯕꯤꯠꯔꯤꯡꯅ ꯄꯤꯖꯣꯃꯤꯇꯔꯗ ꯍꯥꯅ ꯃꯈꯥꯅꯒꯤ 2.50–4.30 m ꯍꯤꯡꯅ ꯇꯥ, ꯇꯥꯎꯕꯥꯕꯁꯤꯡ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯎꯕꯥ ꯑꯣꯕꯥꯁꯤꯡ 236.21 km²-ꯒꯤ ꯍꯤꯡꯅ ꯇꯥꯕ ꯆꯍ, ꯇꯥꯕꯥ (paddy land) ꯑꯃꯁꯨꯡ ꯍꯤꯡꯗꯒꯤ ꯄꯥꯠꯀꯤ (pat; ꯇꯥꯏ ꯂꯩꯕꯒꯤ ꯌꯥꯏꯇꯦꯗ), ꯆꯍꯂꯦꯟꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥꯞ ꯄꯥꯠꯀꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯃꯤꯗꯒꯤ (pukhri) ꯍꯥꯏꯕꯃꯤꯗ, ꯇꯨꯔꯦꯂꯒꯤ (river) ꯄꯥꯔꯦꯃꯤꯗꯒꯤ (bund) ꯍꯤꯡꯗꯅ ꯇꯥꯕ ꯆꯍ, ꯑꯍꯥꯟꯕꯁꯤꯡ ꯍꯥꯏꯕꯥ ꯇꯥꯕ ꯆꯤꯡꯍꯤꯟ ꯂꯦꯃꯤꯗ (foothill fans), ꯍꯦꯟꯅ ꯑꯍꯟꯅ ꯌꯥꯏꯗꯕꯃꯤꯗꯒꯤ ꯍꯥꯏꯕꯥ ꯃꯈꯥꯅꯒꯤ 5–7 m ꯍꯤꯡꯅ ꯅꯥꯏꯗ ꯇꯥ, ꯇꯤꯃꯤꯕꯤꯍꯅ ꯕꯦꯍꯤ ꯑꯃꯁꯨꯡ ꯇꯤꯃꯤꯒꯤ ꯂꯤꯇꯅ ꯄꯥꯏꯇꯦ, ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯡ ꯃꯅꯥꯡꯅ (Disang shale) ꯄꯥꯃꯌ ꯄꯥꯝꯕ ꯅꯥꯏꯗ (perched water) ꯂꯩꯕꯒꯤ ꯅꯥꯎꯁꯤꯡꯗ ꯇꯥꯕ ꯌꯥꯏꯗꯒꯤ ꯑꯣꯏꯈꯤꯕꯅꯤ꯫ ꯍꯥꯏ ꯂꯩꯃꯥꯏꯗꯥꯏꯒꯤ ꯃꯇꯦꯡꯕ, ꯁꯔꯨꯛ 3-ꯒꯤ ꯅꯣꯡꯃꯥꯏꯍ ꯃꯥꯏꯅꯗ ꯃꯇꯤꯇꯦꯡ: ꯍꯣꯡꯄ ꯄꯥꯝꯕ ꯃꯄꯨꯡ ꯐꯥꯅ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯇꯦꯡꯄꯥꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯁꯤꯡꯍꯟꯗꯕ ꯇꯔꯥꯏ ꯂꯩꯕꯒꯤ ꯃꯐꯝ ꯄꯨꯊꯣꯛ ꯂꯩꯕꯒꯤ ꯑꯃꯥꯡꯕꯒꯤ NEH Part 630, Ch. 7-ꯒꯤ ꯃꯥꯏꯄꯥꯛꯄꯤꯔꯤꯕꯗꯤ HSG ꯄꯤꯌꯨ (ꯁꯦꯛꯁꯟ 3.7.2); ꯃꯤꯄꯨꯝꯂꯣꯟꯗꯥ (retention) ꯅꯦꯂꯤꯡꯄꯨꯃꯂꯣꯟ (infiltration) ꯍꯥ ꯄꯥꯟꯗ ꯍꯦꯟꯅ ꯈꯪꯗꯨꯅ ꯆꯥꯅꯕꯁꯤꯡ ꯅꯦꯂꯤꯡꯄꯨꯃꯂꯣꯟ ꯄꯨꯊꯣꯛꯄꯤꯗꯦ ꯍꯟꯅ ꯌꯥꯏ ꯄꯤꯌꯨ (ꯁꯦꯛꯁꯟ 3.7.3); ꯍꯤꯡꯒꯤ ꯍꯤꯡꯅꯕ ꯅꯣꯡꯗꯥ ꯑꯈꯟꯕ ꯃꯐꯝ ꯄꯨꯊꯣꯛ ꯑꯁꯤ ꯆꯥꯅꯕꯁꯤꯡ ꯄꯥꯟꯗꯍꯤꯄꯨꯃꯂꯣꯟ, ꯄꯨꯃꯅꯔꯤ ꯄꯤꯌꯨꯃꯂꯣꯟ ꯂꯩꯕꯒꯤ ꯅꯕꯥꯟꯅꯕꯒꯤ ꯂꯥꯏꯄ ꯑꯣꯕꯇꯔꯚꯦꯁꯟ ꯌꯦꯡꯅꯕꯒꯤ ꯇꯥꯌꯨ (ꯁꯦꯛꯁꯟ 3.10.2); ꯑꯃꯁꯨꯡ ꯇꯦꯃꯤꯟ ꯑꯍꯟ ꯇꯥꯍꯅꯒꯤ ꯍꯤꯡꯥꯒꯤ 0.6 m-ꯒꯤ ꯍꯤꯡꯗꯅ ꯇꯥꯕ ꯍꯦꯟꯅ ꯈꯪꯗꯨꯅ HSG D ꯄꯤꯌꯨ (ꯁꯦꯛꯁꯟ 3.10.1)꯫

ꯄꯨꯊꯣꯛ 3A.1 — ꯃꯍꯩ ꯃꯇꯝꯃꯥꯏꯗꯒꯤ HSG ꯈꯥꯌꯗꯣꯛꯄ (ꯇꯦꯕꯂꯤꯖ)

ꯁꯣꯏꯜ ꯁꯤꯔꯤꯖ	ꯌꯂꯦ(ꯁꯤꯡ)	ꯇꯦꯛꯁꯣꯅꯣꯃꯤꯛ ꯀ꯭ꯂꯥꯁ	ꯃꯊꯛꯀꯤ ꯇꯦꯛꯁꯆꯔ	ꯁꯦꯆꯨꯔꯦꯇꯦꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯟꯗꯛꯇꯤꯚꯤꯇꯤ (mm/h)	ꯔꯤꯁ꯭ꯠꯔꯤꯛꯇꯤꯕ ꯂꯦꯌꯔ ꯐꯥꯑꯣꯕꯒꯤ ꯑꯋꯥꯡꯕ (m)	HSG, ꯅꯔꯝ ꯌꯥꯔꯕ	HSG, ꯅꯔꯝ ꯌꯥꯗꯕ	ꯅꯣꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯁ

ꯇꯦꯕꯜ 3A.2 — ꯍꯦꯀꯤꯡ ꯆꯨꯂꯤꯌ ꯍꯌꯨꯡ ꯅꯦꯂ ꯍꯌꯨꯝ ꯍꯌꯨꯡ ꯅꯦꯂꯕ ꯑꯔꯤꯡꯕ ꯁꯤꯌꯥꯔ ꯇꯦꯕꯜ (ꯂꯦꯑꯤꯁ꯭ꯌ)

ꯍꯦꯀꯤꯡ ꯆꯨꯂꯤꯌ ꯂꯌꯕꯒꯤ ꯑꯥꯏꯗꯤ ꯁꯦꯟ	ꯁꯤꯂꯤꯗꯂꯅꯤꯕ ꯑꯦꯕꯂꯔꯒꯦꯁꯗ ꯅꯦꯡꯁꯤꯡ	ꯑꯦꯀꯔꯤꯟ–ꯑꯦꯡꯌꯦꯕꯔꯒꯤ ꯔꯦꯀꯥꯔꯀꯤ ꯅꯍꯤꯁꯤꯡ	ꯂꯤꯀꯅꯗꯒꯤ ꯍꯌꯗ ꯂꯤꯕ ꯑꯦꯀꯔꯤꯟ–ꯑꯦꯡꯌꯦꯕꯔꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯅꯦꯡꯕ ꯂꯦꯒꯦꯟ (m)	ꯂꯤꯀꯅꯗꯒꯤ 0.6 m-ꯒꯤ ꯍꯨꯡꯗ ꯂꯤꯕꯔ (ꯀꯂꯦꯂ 3.10.1)?	ꯗꯌꯒꯤ ꯍꯤꯔꯑꯤꯁ

> ## ꯑꯍꯦꯊꯕ 3B — ꯃꯅꯤꯄꯨꯔꯒꯤ CN ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯤꯕ ꯂꯝꯒꯤ ꯀꯒꯔꯁꯤꯡ (ꯅꯥꯃꯇꯦꯡꯀꯤ ꯂꯧꯕꯨꯛ, ꯌꯦꯛ ꯑꯃꯁꯨꯡ ꯓꯨꯝꯅꯤ, ꯅꯤꯡꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯖꯨꯝ (jhum) ꯂꯝ, ꯂꯦꯗꯅꯀꯂꯦꯟꯅꯕꯒꯤ ꯀ꯭ꯀꯦꯔꯀꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯒꯤ ꯂꯝꯕꯤ ꯑꯃꯁꯨꯡ ꯔꯦꯇꯅꯦꯒꯤ ꯀꯍꯀꯤꯡ, ꯍꯩꯅꯩꯕ ꯍꯦꯗꯤꯡ, ꯑꯃꯁꯨꯡ ꯂꯧꯕꯥꯏ ꯑꯃꯁꯨꯡ ꯔꯤꯂꯔꯒꯧꯅꯔꯤꯁꯤꯡꯒꯤ ꯃꯂꯦꯡꯁꯤꯡ)

ꯁꯔꯨꯛ 3-ꯒꯤ ꯀ꯭ꯂꯣꯖ 3.8 ꯑꯃꯁꯨꯡ 3.15-ꯗ ꯃꯇꯦꯡ ꯌꯦꯡꯏ꯫

ꯂꯣꯀꯦꯜ ꯅꯣꯠꯁ. ꯑꯄꯨꯅꯕ ꯑꯣꯏꯅ (a) ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯣꯔꯐꯣꯂꯣꯖꯤꯗ (catchment) ꯁꯤꯖꯤꯟꯅꯕ ꯏꯁꯤꯡ ꯆꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯔꯅꯑꯣꯐ (runoff) ꯁꯤꯡꯅꯍꯥꯏꯅꯕꯗ ꯃꯥꯏꯄꯥꯛꯅꯕ ꯌꯥꯕ ꯃꯔꯝ ꯀꯔꯤꯒꯨꯝꯕ (curve number), ꯇꯦꯕꯜ 3.5-ꯒꯤ TR-55 ꯑꯣꯏꯕ ꯁꯤꯡꯅꯍꯥꯏꯅꯕꯗ, ꯑꯃꯁꯨꯡ (b) ꯇꯦꯕꯜ 3.5-ꯗ ꯄꯤꯔꯤꯕ ꯌꯥꯅꯕ ꯄꯨꯡꯒꯤ ꯃꯑꯣꯡꯁꯤꯡꯒꯤ ꯃꯔꯝ ꯀꯔꯤꯒꯨꯝꯕ ꯁꯤꯖꯤꯟꯅꯕ: ꯅꯨꯡꯁꯤ ꯌꯨꯃꯗꯥꯡꯗꯥ ꯄꯨꯡꯒꯤ ꯄꯥꯝꯕꯥ, ꯍꯣꯟꯗꯣꯛ ꯃꯐꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯔꯝꯁꯤꯡꯒꯤ ꯍꯤꯔꯝ ꯍꯩꯅꯕꯒꯤ ꯍꯤꯡꯕ ꯃꯈꯥꯌꯥ ꯅꯣꯡꯃꯥꯏꯕ, ꯍꯣꯟꯕ ꯍꯥꯏꯗ꯭ꯔꯣ ꯃꯦꯇꯔꯣꯂꯣꯖꯤ ꯑꯗꯨ ꯃꯤꯡꯁꯤ ꯄꯥꯝꯅ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯊꯣꯛ ꯑꯣꯏꯕ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯗ ꯍꯣꯟꯒꯤ ꯅꯥꯏꯗꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯡꯁꯤꯡꯅꯕꯒꯤ ꯄꯤꯔꯤꯕ ꯃꯤꯡꯁꯤ ꯄꯥꯝꯅꯕꯁꯤꯡ ꯂꯣꯡꯖꯥ ꯑꯍꯥꯡ ꯑꯣꯏꯕ ꯄꯨꯟ (ꯂꯃꯗꯥꯝ 2(c)); ꯌꯨꯃꯗꯥꯡꯗꯥ ꯃꯍꯩꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯂꯕꯁꯤꯡ, ꯍꯨꯗꯣꯡꯒꯤ ꯐꯨꯃꯗꯤꯒꯤ (phumdi; ꯃꯍꯩꯕꯤ, ꯑꯃꯁꯨꯡ ꯂꯩꯅꯕꯤꯡ ꯅꯤꯡꯊꯤꯖꯕ ꯁꯤꯡꯅꯕꯒꯤ ꯌꯥꯝꯅꯕ ꯀꯅꯕꯍꯟ, ꯄꯥꯡꯌꯥ ꯄꯥꯡ (ꯃꯔꯤꯌꯥꯡꯂꯦ) ꯑꯣꯏꯕ, 2006-ꯒꯤ "ꯐꯨꯃꯗꯤꯁꯤꯡ" ("Phumdis")) ꯍꯣꯠꯂꯤꯕꯁꯤꯡ ꯄꯤꯔꯤꯕ, ꯏꯁꯤꯡ ꯆꯦꯟꯕꯒꯤ ꯊꯧꯅꯥ ꯆꯦꯅꯕꯁꯤꯡꯗꯥ ꯑꯣꯢꯗꯥꯡꯅ ꯅꯣꯡꯃꯥꯏꯕ ꯊꯦꯡꯅꯕ; ꯁꯤꯡꯂꯤꯕꯁꯤꯡꯒꯤ ꯃꯍꯩ, ꯂꯥꯏꯅꯕ ꯑꯃꯁꯨꯡ ꯀꯣꯏꯕꯕ ꯀꯔꯝꯅ ꯍꯥꯛ ꯄꯨꯝꯕ, ꯍꯨꯗꯣꯡꯒꯤ ꯍꯣꯡꯁꯤꯟ MASTEC-ꯗ 1,545 km² ꯀꯣꯏꯕꯕ ꯀꯔꯝꯅ ꯑꯣꯏꯅꯕ ꯁꯥꯡꯂꯦ ꯌꯥꯅ, ꯌꯨꯃꯗꯥꯡꯗꯥ ꯃꯣꯔꯐꯣꯂꯣꯖꯤꯗꯥ 24% ꯑꯃꯁꯨꯡ ꯍꯤꯡꯂꯕꯒꯤ ꯁꯤꯡꯂꯤꯕꯁꯤꯡꯒꯤ 35%, ꯍꯥꯏꯗ꯭ꯔꯣ (ꯂꯩꯅ ꯑꯣꯏꯅꯕꯂꯦ) ꯀꯤꯂꯣꯃꯤꯇꯥ ꯁꯥꯡꯂꯦꯡꯂꯦ ꯑꯣꯏꯕ, 1971 (Manipur (Hill Areas) District Councils Act, 1971)-ꯗ ꯄꯥꯡꯊꯣꯛꯂꯤꯕꯒꯤ ꯄꯤꯔꯤꯕ ꯌꯥꯝꯅꯕ ꯖꯨꯝ (jhum; ꯂꯥꯏꯅꯤꯡꯕ ꯃꯅꯤꯡꯒꯣꯟꯂꯦ) ꯄꯨꯝ ꯄꯤꯔꯤꯕ; ꯇꯨꯄꯨꯜ (Tupul) ꯖꯨꯜ 2022-ꯗ ꯊꯣꯛꯂꯕꯥ ꯂꯩꯅꯕ ꯂꯃꯗꯥꯝ ꯃꯍꯩꯅꯕꯁꯤꯡ (landslide) ꯑꯃꯁꯨꯡ ꯁꯤꯡꯒꯤ ꯄꯨꯡꯕ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯁꯥꯒꯤ ꯃꯈꯂꯁꯤꯡꯒꯤ ꯑꯄꯨꯅꯕ ꯂꯝꯕꯤꯁꯤꯡ, ꯂꯝꯕꯤꯗ ꯀꯣꯏꯕꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯤꯅꯂꯤꯕ; ꯁꯤꯡꯒꯤ ꯅꯥꯡꯂꯤꯕꯗ ꯁꯤꯡꯂꯤꯕ ꯊꯧꯅꯥꯁꯤꯡꯗ ꯌꯨꯃꯗꯥꯡꯗꯥ ꯄꯨꯗ ꯁꯤꯡꯂꯥꯡ ꯍꯀꯍꯗ ꯊꯕ ꯊꯧꯅꯥ, ꯆꯤꯡꯖꯥꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯀꯨꯕꯤꯡ; ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯆꯦꯟꯕꯒꯤ ꯊꯧꯅꯥ ꯑꯍꯣꯡꯒꯤ ꯂꯩꯅꯥꯡꯗ ꯍꯤꯔꯥ ꯂꯝꯕꯗ ꯁꯤꯕ ꯑꯣꯏꯅꯕ ꯀꯅꯕꯍꯟꯂꯦ ꯌꯥꯝꯅꯕ ꯄꯥꯡꯌꯥ ꯑꯃꯁꯨꯡ ꯊꯧꯕꯤ (ꯍꯃꯥꯏꯊꯣꯅ) ꯑꯃꯁꯨꯡ ꯁꯤꯡ ꯂꯩꯄꯥꯛꯅꯕꯁꯤꯡꯒꯤ ꯍꯥꯏꯗꯣꯛꯂꯤꯕ꯫ ꯍꯣꯟꯕ ꯃꯔꯝ ꯑꯃꯁꯨꯡ ꯊꯨꯅ ꯅꯥꯏꯕ ꯑꯃꯥꯡꯗꯥ ꯒꯨꯄ ꯌꯥꯝꯅꯕ ꯃꯣꯔꯐꯣꯂꯣꯖꯤꯁꯤꯡꯒꯤ ꯃꯔꯝ ꯌꯥꯝꯅꯕ ꯏꯁꯤꯡ ꯆꯦꯟꯕ–ꯄꯣꯡꯑꯃꯁꯤꯡ ꯄꯥꯡꯊꯣꯀꯄꯗ ꯍꯥꯞꯆꯤꯟ ꯌꯥꯏ, WRD-ꯒꯤ ꯒꯦꯖꯤꯗ ꯂꯩꯔꯤꯕꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯄꯦꯟꯁꯟ ꯃꯇꯝꯗ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯗꯒꯤ ꯒꯦꯖꯤꯗꯒꯤ, ꯊꯣꯛꯂꯤꯕ ꯍꯤꯔꯝ ꯅꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯡꯕꯥꯏ ꯍꯥꯟꯅꯗꯥ (antecedent moisture) ꯍꯤꯔꯝ ꯅꯥꯏꯕ ꯑꯣꯏꯕꯗꯒꯤ ꯌꯥꯝꯅꯕ꯫ ꯍꯣꯟ ꯀꯤꯗꯨꯡꯗꯥꯄꯥꯡꯗꯥꯕꯤꯁꯤꯡꯕ: ꯀꯅꯒꯣꯞꯐꯣꯔꯃꯦꯁꯟ ꯍꯩꯕꯒꯤ ꯄꯣꯀꯄꯥꯂ ꯑꯣꯏ ꯂꯩꯅꯕ ꯊꯧꯕꯤꯍꯥꯡꯗꯥꯕꯤꯒꯤ ꯀꯕ ꯀꯔꯝꯅ ꯑꯣꯏꯕ ꯂꯥꯏꯕꯗꯥꯡꯕ ꯍꯀꯍ (open space) ꯑꯣꯢꯗ ꯑꯣꯏꯅ (ꯃꯥꯟꯇꯥ 3.3.2), ꯍꯤꯍ ꯑꯃꯗ ꯃꯑꯣꯡꯁꯤꯡ ꯑꯣꯏ ꯀꯅꯒꯣꯞꯐꯣꯔꯃꯦꯁꯟ ꯍꯩꯕꯒꯤ ꯄꯤꯔꯤ ꯁꯤꯡꯗꯥꯡ; ꯂꯥꯟꯕꯥ ꯍꯣꯡꯂꯤ ꯂꯤꯄꯥ ꯑꯣꯏꯕ ꯀꯔꯝꯅꯂꯕꯒꯤꯕꯍꯥ, ꯊꯛꯅꯕꯒꯤ ꯄꯥꯡꯃ ꯇꯦꯕꯜ 3.5 ꯄꯣꯛꯄꯒꯤ TR-55-ꯒꯤ ꯃꯑꯣꯡꯒꯤ ꯃꯄꯥꯟ ꯂꯤꯄꯤꯄꯣꯡ, ꯑꯣꯢ-ꯂꯤꯡꯁꯒꯤ ꯃꯄꯥꯟꯂꯤꯡ (cultivated rows) ꯁꯤꯖꯗ (ꯃꯥꯟꯇꯥ 3.8.3(c)), ꯑꯃꯁꯨꯡ ꯅꯣꯡꯅꯕ ꯃꯄꯥꯟ ꯑꯃꯁꯨꯡ ꯍꯤꯍ ꯑꯃꯥ ꯀꯩꯍ 3-1-ꯗ ꯀꯦꯃꯗꯦꯃꯁ; ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯒꯤ (design storm) ꯂꯩꯄꯥꯛꯇ ꯅꯣꯡꯃꯥꯏ ꯄꯥꯝꯅꯕ ꯄꯨ ꯑꯣꯏ ꯄꯥꯡ ꯑꯍꯣꯡꯕ ꯊꯣꯛꯅꯕ ꯅꯣꯡꯃꯥꯏꯒꯤ ꯍꯦꯟꯗ ꯑꯣꯢꯗ ꯍꯀꯍ ꯌꯥꯅ (ꯇꯦꯕꯜ 3.5; ꯃꯥꯟꯇꯥ 3.10.4(b))꯫ ꯗꯤꯀꯤꯟꯁꯟ ꯑꯣꯢꯗꯒꯤ ꯃꯄꯥꯏꯕ ꯌꯥꯡꯕ ꯑꯍꯣꯡꯗ ꯃꯥꯟꯇꯥ 3.15-ꯒꯤ ꯍꯅꯗ ꯃꯥꯏꯄꯥꯛꯂꯦ ꯍꯥꯞ ꯌꯥꯅ (ꯃꯥꯟꯇꯥ 3.15.1(d))꯫

ꯇꯦꯕꯜ 3B.1 — ꯂꯃꯍꯤꯡꯕ ꯄꯨꯡꯒꯤ ꯃꯑꯣꯡꯁꯤꯡ, AMC II (ꯄꯥꯔꯤꯁꯦꯜ)

ꯃꯑꯣꯡꯒꯤ ꯍꯅꯥ	HSG A	HSG B	HSG C	HSG D	Ia ꯄꯣꯂꯤꯁꯤ	ꯊꯨꯝꯕꯤ (ꯃꯣꯔꯐꯣꯂꯣꯖꯤ, ꯊꯧꯅꯥꯁꯤꯡ, ꯁꯨꯂꯤꯁꯤꯡ)
ꯌꯨꯃꯗꯥꯡꯗꯥ ꯄꯨꯡꯒꯤ ꯄꯥꯝꯕꯥ, ꯍꯣꯟꯒꯤ ꯃꯐꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯔꯝꯁꯤꯡꯒꯤ ꯍꯤꯡꯕ ꯅꯣꯡꯃꯥꯏꯕ, ꯃꯐꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯥꯏꯗꯒꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯄꯣꯀꯄꯗ ꯌꯥꯝꯅꯕ						
ꯃꯍꯩ ꯄꯣꯛꯄꯒꯤ ꯍꯨꯗꯣꯡ, ꯐꯨꯃꯗꯤꯒꯤ (ꯌꯥꯝꯅꯕ ꯀꯅꯕꯍꯟ) ꯃꯔꯝ ꯄꯣꯀꯄꯗ ꯌꯥꯝꯅꯕ; ꯏꯁꯤꯡ ꯆꯦꯟꯕꯒꯤ ꯊꯧꯅꯥꯗꯥ ꯂꯩꯄꯥꯛꯇ ꯅꯣꯡꯃꯥꯏ ꯊꯦꯡꯅꯕ						
ꯂꯩꯅꯕ ꯂꯃꯗꯥꯝ ꯑꯣꯏꯕ ꯁꯤꯡꯒꯤ ꯃꯍꯩ ꯄꯣꯛꯄꯒꯤ ꯂꯝꯕꯤꯕ, ꯑꯣꯏꯅꯒꯤ ꯑꯍꯣꯡꯗ ꯄꯣꯀꯄꯗ ꯌꯥꯝꯅꯕ; ꯖꯨꯝ (ꯂꯥꯏꯅꯤꯡꯕ ꯃꯅꯤꯡꯒꯣꯟꯂꯦ) ꯄꯨꯝ, ꯂꯃꯗꯥꯡꯗꯥꯅꯕ ꯁꯂꯤ ꯄꯣꯀꯄꯗ ꯌꯥꯝꯅꯕ						
ꯑꯄꯨꯅꯕ ꯂꯃꯗꯥꯝ ꯃꯍꯩꯅꯕꯁꯤꯡꯗꯥ ꯂꯝꯕꯤꯡ ꯄꯣꯛꯄꯒꯤ ꯂꯝꯕꯤꯗ ꯀꯤꯅꯂꯤꯕ; ꯁꯤꯡꯒꯤ ꯄꯨꯡꯕ ꯄꯣꯛꯄꯒꯤ ꯅꯣꯡꯁꯥꯒꯤ ꯃꯈꯂ ꯑꯣꯏꯕ ꯄꯣꯛꯄꯒꯤ ꯀꯤꯅ						
ꯁꯤꯡꯒꯤ ꯅꯥꯡ ꯑꯍꯣꯡ ꯌꯨꯃꯗꯥꯡꯗꯥ ꯄꯨꯗ ꯁꯤꯡꯂꯥꯡ ꯍꯀꯍꯗ ꯊꯕ ꯊꯧꯅꯥ, ꯆꯤꯡꯖꯥꯛ ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯀꯣꯏꯂꯤꯡ ꯀꯣꯟ						

ꯀꯚꯔꯒꯤ ꯃꯈꯜ	HSG A	HSG B	HSG C	HSG D	Ia ꯔꯦꯁꯤꯑꯣ	ꯅꯣꯠꯁ (ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ, ꯐꯤꯚꯃꯁꯤꯡ, ꯇꯥꯡꯁꯤꯡ)
ꯆꯥꯎ ꯂꯧꯕꯒꯤ ꯊꯧꯗꯣꯛꯁꯤꯡ ꯄꯥꯝꯕꯩꯗ ꯍꯥꯞꯆꯤꯟꯕ ꯃꯇꯝ ꯑꯃꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕ ꯀꯚꯔꯒꯤ ꯃꯈꯂꯁꯤꯡ (ꯈꯨꯗꯝ (ꯍꯦꯛꯇꯔ), ꯂꯥꯏ) ꯍꯥꯏꯕ						
ꯑꯇꯣꯞꯄ (ꯇꯥꯛꯄꯤꯌꯨ)						

ꯇꯦꯕꯜ 3B.2 — CN ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯅꯒꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ (ꯇꯦꯝꯞꯂꯦꯠ)

ꯀꯦꯆꯃꯦꯟꯠ	ꯖꯣꯟ	ꯑꯦꯔꯤꯌꯥ (km²)	ꯃꯔꯨꯑꯣꯏꯕ HSG ꯑꯃꯁꯨꯡ ꯀꯚꯔ	ꯑꯦꯟꯇꯤꯁꯤꯗꯦꯟꯇ ꯐꯤꯚꯃꯁꯤꯡ	ꯇꯦꯕꯜ 3.5 CN	ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯔꯕ CN	ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯔꯕ CN ÷ ꯇꯦꯕꯜ 3.5

ꯑꯍꯦꯟꯕ 3C — ꯁꯣꯜꯚ꯭ꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯇꯦꯁ꯭ꯠ ꯀꯦꯁꯁꯤꯡ

ꯆꯦꯞ꯭ꯇꯔ 3-ꯒꯤ ꯏꯀ꯭ꯋꯦꯁꯟ 3.5, 3.6, 3.8, 3.9, 3.11, 3.12 ꯑꯃꯁꯨꯡ 3.16-ꯗ ꯍꯥꯞꯆꯤꯟ ꯁꯤꯖꯤꯟꯅ꯫

ꯁꯤꯖꯤꯟꯅꯕ. ꯏꯀ꯭ꯋꯦꯁꯟ 3.16.1-ꯗ ꯇꯦꯝꯞꯂꯦꯠ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯔꯒꯤ ꯃꯍꯩ ꯈꯨꯗꯝ ꯑꯦꯒ꯭ꯖꯥꯝꯄꯜ ꯀꯤ ꯔꯤꯖꯜꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯊꯣꯛꯄꯥ ꯀꯦꯂꯀꯨꯂꯦꯁꯅꯁꯤꯡ (ꯏꯀ꯭ꯋꯦꯁꯟ 3.16.3)꯫ ꯑꯦꯒ꯭ꯖꯥꯝꯄꯜ ꯂꯧꯁꯤꯡꯗꯤ ꯍꯥꯞꯆꯤꯟ ꯃꯦꯊꯣꯗꯁꯤꯡ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯆꯦꯞ꯭ꯇꯔ 3-ꯒꯤ ꯇꯦꯕꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯂꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯄꯤꯔꯤꯕꯅꯤ, ꯍꯣꯠꯅ ꯑꯣꯏꯕ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯔ ꯂꯧꯁꯤꯡꯗ ꯂꯩꯕ ꯃꯇꯝ ꯇꯦꯕ ꯃꯇꯧ꯫ ꯃꯇꯧꯒꯤ ꯇꯦꯁ꯭ꯠ ꯑꯃꯁꯤ ꯇꯦꯁ꯭ꯠ ꯇꯦꯕꯜ ꯚꯦꯜꯌꯨ ꯂꯧꯁꯤꯡꯒꯤ ±5%-ꯗꯤ, ꯏꯀ꯭ꯋꯦꯁꯟ 3.16.2-ꯒꯤ ꯁꯣꯐ꯭ꯇꯋꯦꯌꯔꯒꯤ ꯐꯂꯦꯃꯥꯟ; ꯏꯀ꯭ꯋꯦꯁꯟ-ꯐꯥꯑꯣꯕꯒꯤ ꯚꯦꯜꯌꯨꯁꯤꯡꯒꯤꯗꯃꯛ (ꯑꯦꯒ꯭ꯖꯥꯝꯄꯜ 3C-1-ꯗꯒꯤ 3C-4 ꯐꯥꯑꯣꯕ), ꯃꯦꯊꯣꯗꯀꯤ ꯁꯤꯁ꯭ꯇꯦꯝ ꯐꯤꯚꯝꯗ ꯐꯥꯑꯣꯕ ꯍꯦꯟꯕꯗꯤ ꯐꯥꯑꯣ꯫ ꯃꯇꯧꯒꯤ ꯑꯃꯁꯤ ꯍꯅꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯁꯤꯁ꯭ꯇꯦꯝ ꯂꯧꯁꯤꯡꯒꯤ ꯍꯥꯞꯄ ꯃꯦꯊꯣꯗꯀꯤ ꯚꯦꯜꯌꯨ ꯚꯤꯁꯦꯚ ꯇꯧꯗꯕꯅꯤ꯫

ꯂꯧꯁꯤꯡ ꯑꯦꯟꯇꯤ ꯄꯥꯡꯊꯣꯛꯅꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯥꯏꯗ ꯇꯧꯗꯦ꯫ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ (ꯑꯦꯔꯤꯌꯥꯁꯤꯡ, ꯄꯦꯔꯦꯃꯤꯇꯔꯁꯤꯡ, ꯆꯥꯎ ꯂꯧꯕꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ, ꯆꯦꯅꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟ) ꯑꯃꯁꯨꯡ ꯇꯦꯁ꯭ꯠ ꯇꯦꯁ꯭ꯇꯤꯡꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ ꯄꯤꯔꯤꯕꯅꯤ꯫ ꯍꯅꯥ ꯀꯃꯤꯁꯅ ꯃꯇꯧ ꯑꯃꯒꯤꯗꯃꯛ ꯗꯤꯖꯥꯏꯟ ꯗꯦꯇꯥ ꯇꯧꯗꯦ꯫

ꯑꯦꯒ꯭ꯖꯥꯝꯄꯜ 3C-1 — ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗꯀꯤ (Rational Method) ꯄꯤꯛ (ꯏꯀ꯭ꯋꯦꯁꯟ 3.5)

ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ. ꯄꯦꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯄꯣꯠꯊꯣꯛ ꯄꯣꯠꯁꯤꯡ ꯌꯥꯎꯗꯨꯅ 2.0 ha-ꯒꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯥ: 1.2 ha ꯀꯝꯀ꯭ꯔꯤꯠ ꯁꯣꯒꯤꯝ ꯑꯃꯁꯨꯡ ꯂꯧꯈꯥꯡꯁꯤꯡ, C = 0.90 (ꯇꯦꯕꯜ 3.2, 0.80–0.95-ꯒꯤ ꯃꯊꯛꯀꯤ ꯃꯇꯨꯡ); ꯑꯃꯁꯨꯡ ꯑꯇꯣꯞꯄ 0.8 ha ꯂꯟ (lawn), ꯑꯦꯒꯔꯦꯖ ꯆꯥꯎꯕ, C = 0.15 (ꯇꯦꯕꯜ 3.2, 0.10–0.15-ꯒꯤ ꯃꯊꯛꯀꯤ ꯃꯇꯨꯡ)꯫ ꯗꯤꯖꯥꯏꯟ AEP 1% (100-yr)꯫ Tc-ꯗ ꯆꯥꯎ ꯂꯧꯕꯒꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ, ꯏꯟꯇꯦꯟꯁꯤꯇꯤ ꯐꯦꯛꯇꯔ ꯄꯤꯔꯦ: i = 120 mm/h꯫

ꯁꯦꯝꯕ (b): ꯇꯦꯁ꯭ꯠꯀꯤ ꯑꯇꯣꯞꯄ 0.5 ha-ꯒꯤ ꯃꯁꯤꯡ ꯐꯥꯑꯣꯕ ꯁꯣꯡ ꯇꯥꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯥ, C = 0.90, ꯗꯤꯖꯥꯏꯟ AEP 1%, i = 150 mm/h꯫

ꯇꯦꯕꯜ 3C.1 — ꯑꯦꯒ꯭ꯖꯥꯝꯄꯜ 3C-1-ꯒꯤ ꯁꯣꯜꯌꯨꯁꯟ

ꯈꯣꯡꯊꯥꯡ	ꯀꯦꯜꯀꯨꯂꯦꯁꯟ	ꯚꯦꯜꯌꯨ
ꯀꯝꯄꯣꯖꯤꯠ C (ꯏꯀ꯭ꯋꯦꯁꯟ 3.5.4)	(1.2 × 0.90 + 0.8 × 0.15) / 2.0	0.60
ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ ꯐꯦꯛꯇꯔ (ꯇꯦꯕꯜ 3.3)	1% AEP	Cf = 1.25
C · Cf (≤ 1.0)	0.60 × 1.25	0.75
ꯄꯤꯛ ꯐ꯭ꯂꯣ (ꯏꯀ꯭ꯋꯦꯁꯟ 3.5.1)	0.75 × 120 × 2.0 / 360	**Q = 0.500 m³/s**

ꯈꯣꯡꯊꯥꯡ	ꯀꯦꯜꯀꯨꯂꯦꯁꯟ	ꯔꯤꯖꯜꯠ
ꯄꯥꯔꯠ (b): C · Cf	0.90 × 1.25 = 1.125, 1.0-ꯗ ꯀꯦꯞ ꯇꯧꯏ (ꯀ꯭ꯂꯣꯖ 3.5.3)	1.00
ꯄꯥꯔꯠ (b): ꯄꯤꯛ ꯐ꯭ꯂꯣ	1.00 × 150 × 0.5 / 360	**Q = 0.208 m³/s**

ꯄ꯭ꯔꯣꯕ꯭ꯂꯦꯝ 3C-2 — ꯁꯦꯒꯃꯦꯟꯠ ꯃꯦꯊꯗ ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯠ꯭ꯔꯦꯁꯟ (ꯀ꯭ꯂꯣꯖ 3.6)

ꯁꯣꯜꯌꯨꯁꯟ. ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯐ꯭ꯂꯣ ꯄꯥꯊ: ꯒ꯭ꯔꯤꯟꯐꯤꯜꯗꯀꯤ (greenfield) ꯃꯐꯃꯗ ꯁꯤꯠ ꯐ꯭ꯂꯣ (sheet flow), n = 0.15 (ꯀ꯭ꯂꯣꯖ 3.6.3), L = 30 m, S = 0.01; P2 (50% AEP-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕ, ꯀꯦꯟꯠꯔꯦꯜ ꯏꯅꯂꯦꯟꯗ ꯔꯤꯖꯟ) = 80 mm꯫ ꯁꯦꯂꯣ ꯀꯟꯁꯦꯟꯠ꯭ꯔꯦꯇꯦꯗ ꯐ꯭ꯂꯣ (shallow concentrated flow), ꯄꯦꯚ ꯇꯧꯔꯕ, L = 200 m, S = 0.01꯫ ꯆꯦꯅꯦꯜ ꯐ꯭ꯂꯣ (channel flow), L = 400 m, ꯕꯦꯡꯀ-ꯐꯨꯜ ꯚꯦꯂꯣꯁꯤꯇꯤ V = 1.0 m/s (ꯄꯤꯔꯕ)꯫

ꯇꯦꯕꯜ 3C.2 — ꯄ꯭ꯔꯣꯕ꯭ꯂꯦꯝ 3C-2-ꯒꯤ ꯃꯍꯩꯁꯤꯡ

ꯁꯦꯒꯃꯦꯟꯠ	ꯀꯦꯜꯀꯨꯂꯦꯁꯟ	ꯈꯣꯡꯆꯠꯀꯤ ꯃꯇꯝ
ꯁꯤꯠ ꯐ꯭ꯂꯣ (ꯀ꯭ꯂꯣꯖ 3.6.2(a))	0.091 × (0.15 × 30)^0.8 / (80^0.5 × 0.01^0.4) = 0.2138 h	12.83 min
ꯁꯦꯂꯣ ꯀꯟꯁꯦꯟꯠ꯭ꯔꯦꯇꯦꯗ (ꯀ꯭ꯂꯣꯖ 3.6.2(c))	V = 4.918 × 0.01^0.5 = 0.4918 m/s; 200 / (3,600 × 0.4918) = 0.1130 h	6.78 min
ꯆꯦꯅꯦꯜ (ꯀ꯭ꯂꯣꯖ 3.6.2(d))	400 / (3,600 × 1.0) = 0.1111 h	6.67 min
Tc (ꯀ꯭ꯂꯣꯖ 3.6.1; ≥ 10 min)	12.83 + 6.78 + 6.67	**26.27 min**
ꯂꯦꯒ (lag) (ꯀ꯭ꯂꯣꯖ 3.6.5)	0.6 × 26.27	15.76 min

ꯄ꯭ꯔꯣꯕ꯭ꯂꯦꯝ 3C-3 — SCS-CN ꯔꯟꯑꯣꯐ ꯗꯦꯞꯊ, AMC ꯑꯃꯁꯨꯡ Ia-ꯒꯤ ꯁꯦꯟꯁꯤꯇꯤꯚꯤꯇꯤ (ꯀ꯭ꯂꯣꯖ 3.8)

ꯁꯣꯜꯌꯨꯁꯟ. HSG C-ꯗ ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ: AMC II-ꯗ CN = 74 (ꯇꯦꯕꯜ 3.5), ꯄꯨꯝꯅꯃꯛ ꯄꯔꯚꯤꯌꯁ (pervious)꯫ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯅꯣꯡ ꯆꯨꯕ P = 100 mm; ꯑꯄꯤꯛꯄ ꯀꯦꯁ P = 25 mm꯫

ꯇꯦꯕꯜ 3C.3 — ꯄ꯭ꯔꯣꯕ꯭ꯂꯦꯝ 3C-3-ꯒꯤ ꯃꯍꯩꯁꯤꯡ

ꯀꯦꯁ	S (mm)	Ia (mm)	ꯔꯟꯑꯣꯐ Q (mm), P = 100 mm	ꯔꯟꯑꯣꯐ Q (mm), P = 25 mm
(a) AMC II, Ia = 0.2S: S = 25,400 / 74 − 254	89.24	17.85	**39.38**	**0.53**
(b) AMC III, Ia = 0.2S: CN(III) = 23 × 74 / (10 + 0.13 × 74) = 86.75	38.80	7.76	**64.93**	—
(c) AMC II, Ia = 0.05S: S0.05 = 25.4 × 1.33 × (89.24 / 25.4)^1.15	143.31	7.17	**36.49**	**1.97**

ꯔꯟꯑꯣꯐ ꯑꯁꯤ $Q = (P - I_a)^2 / (P - I_a + S)$꯫ ꯀꯦꯁ (c)-ꯅꯥ 100 mm-ꯗ ꯀꯦꯁ (a)-ꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯔꯟꯑꯣꯐ ꯄꯤ ꯑꯗꯨꯕꯨ 25 mm-ꯗ ꯍꯦꯟꯅꯕ ꯄꯤ, ꯀ꯭ꯂꯣꯖ 3.8.5 ꯑꯃꯁꯨꯡ ꯃꯃꯤ 3.3-ꯅ ꯎꯠꯂꯤꯕꯅꯤ꯫

ꯄ꯭ꯔꯣꯕ꯭ꯂꯦꯝ 3C-4 — ꯇꯣꯉꯥꯟꯅꯥ ꯅꯕ ꯑꯃꯁꯨꯡ ꯀꯝꯄꯣꯖꯤꯠ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯔꯤꯗꯛꯁꯟ, ꯑꯃꯁꯨꯡ SCS ꯑꯔꯕꯟ ꯑꯗꯖꯁ꯭ꯇꯃꯦꯟꯇꯀꯤ ꯄꯤꯛ (ꯀ꯭ꯂꯣꯖ 3.9 ꯑꯃꯁꯨꯡ 3.11.2)

ꯁꯣꯜꯌꯨꯁꯟ, ꯄꯥꯔꯠ (a). 50% ꯀꯅꯦꯛꯇ ꯇꯧꯔꯕ ꯇꯣꯔꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ (impervious) (CN 98) ꯑꯃꯁꯨꯡ 50% HSG B-ꯗ ꯂꯩꯕ ꯄꯔꯚꯤꯌꯁ ꯂꯝ (CNp = 61) ꯑꯣꯏꯕ ꯃꯐꯝ ꯑꯃꯥ, AMC II, Ia = 0.2S, P = 25 mm꯫

[illegible], [illegible] (b). $T_c = 1.0$ h [illegible] [illegible] [illegible] $\Delta t = 0.1$ h [illegible] $A = 2.5\ \text{km}^2$-[illegible] [illegible]-[illegible] [illegible]॥

[illegible] 3C.4 — [illegible] 3C-4-[illegible] [illegible]

[illegible]	[illegible]	[illegible]
(a) [illegible] [illegible] [illegible] ([illegible] 3.9.2)	$S = 5.18$ mm, $I_a = 1.04$ mm; $Q = 23.96^2 / (23.96 + 5.18)$	19.70 mm
(a) [illegible] [illegible] [illegible]	$S = 162.39$ mm, $I_a = 32.48$ mm $> P$	0 mm
(a) [illegible]-[illegible] [illegible] [illegible], [illegible] [illegible] [illegible]-[illegible]	$0.5 \times 19.70 + 0.5 \times 0$	**9.85 mm**
(a) [illegible] CN ([illegible] 3.9.4)	$61 + 0.50 \times (98 - 61)$	79.5
(a) [illegible] CN-[illegible] [illegible] [illegible]	$S = 65.50$ mm, $I_a = 13.10$ mm; $Q = 11.90^2 / (11.90 + 65.50)$	**1.83 mm**
(b) [illegible] [illegible] ([illegible] 3.11.3(a))	$0.133 \times 1.0 = 0.133$ h $\geq \Delta t = 0.1$ h	[illegible] [illegible]
(b) [illegible] [illegible] [illegible] [illegible] [illegible] ([illegible] 3.11.2)	$t_L = 0.6 \times 1.0 = 0.60$ h; $t_p = 0.1 / 2 + 0.60$	$t_p = 0.65$ h
(b) [illegible] [illegible] [illegible], $Q = 1$ mm	$0.208 \times 2.5 \times 1 / 0.65$	**q_p = mm [illegible] 0.800 m³/s**

[illegible] (a)-[illegible] [illegible] 3.9-[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] (9.9 mm [illegible] 1.8 mm [illegible])॥

[illegible] 3C-5 — [illegible]-[illegible] ([illegible] [illegible]) [illegible] [illegible] ([illegible] 3.12.1)

[illegible]. [illegible] 3C.5-[illegible] [illegible]–[illegible]–[illegible] [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] [illegible] 500 m² [illegible] [illegible] [illegible] (detention basin) [illegible]॥ [illegible] [illegible] [illegible]: $t = 0$-[illegible] 0, $t = 30$ min-[illegible] 0.50 m³/s [illegible] [illegible] [illegible] [illegible], $t = 90$ min-[illegible] 0 [illegible] [illegible] [illegible] [illegible]॥ $t = 0$-[illegible] [illegible] [illegible] [illegible]॥ [illegible] [illegible] $\Delta t = 10$ min (600 s)॥ [illegible] (tailwater) [illegible]॥

[illegible] 3C.5 — [illegible] 3C-5-[illegible] [illegible]–[illegible]–[illegible] [illegible]

[illegible] (m)	[illegible] S (m³)	[illegible] O (m³/s)
0.0	0	0.00
0.5	250	0.05
1.0	500	0.10
1.5	750	0.15
2.0	1,000	0.20
2.5	1,250	0.25

[illegible]. [illegible]-[illegible] [illegible] [illegible] $(I_1 + I_2) + (2S_1/\Delta t - O_1) = (2S_2/\Delta t + O_2)$॥ [illegible] [illegible] $O = S / 5{,}000$ (S m³-[illegible], O m³/s-[illegible]) [illegible], [illegible] [illegible] $2S/\Delta t + O = 17.667\ O$ [illegible] $2S/\Delta t - O = 15.667\ O$, [illegible] [illegible] [illegible] $O_2 = [(I_1 + I_2) + 15.667\ O_1] / 17.667$॥ [illegible] 3C.5-[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]॥

[illegible] 3C.6 — [illegible] 3C-5-[illegible] [illegible] [illegible] [illegible]

ꯃꯇꯝ (min)	ꯏꯅꯐ꯭ꯂꯣ I (m³/s)	ꯑꯥꯎꯠꯐ꯭ꯂꯣ O (m³/s)	ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	ꯁ꯭ꯇꯦꯖ (m)
0	0.0000	0.0000	0.0	0.000
10	0.1667	0.0094	47.2	0.094
20	0.3333	0.0367	183.3	0.367
30	0.5000	0.0797	398.4	0.797
40	0.4167	0.1226	612.8	1.226
50	0.3333	0.1511	755.7	1.511
60	0.2500	0.1670	835.2	1.670
70	0.1667	**0.1717**	**858.6**	**1.717**
80	0.0833	0.1664	832.1	1.664
90	0.0000	0.1523	761.5	1.523
120	0.0000	0.1062	531.1	1.062
180	0.0000	0.0517	258.3	0.517

ꯔꯤꯖꯜꯠꯁꯤꯡ. 70 min-ꯗ ꯄꯤꯛ ꯑꯥꯎꯠꯐ꯭ꯂꯣ 0.172 m³/s; ꯄꯤꯛ ꯁ꯭ꯇꯣꯔꯦꯖ 859 m³; ꯄꯤꯛ ꯁ꯭ꯇꯦꯖ 1.72 m꯫ 0.50 m³/s-ꯒꯤ ꯏꯅꯐ꯭ꯂꯣ ꯄꯤꯛ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯚꯦꯜꯌꯨꯒꯤ 34% ꯐꯥꯎꯕ ꯍꯟꯊꯍꯜꯂꯦ꯫

ꯇꯦꯕꯜ 3C.7 — ꯑꯦꯄꯂꯤꯀꯦꯟꯠꯂꯥ ꯔꯤꯄꯥꯔꯠ ꯁꯣꯏꯗꯕ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯔꯤꯖꯜꯠꯁꯤꯡ

ꯄ꯭ꯔꯣꯕ꯭ꯂꯦꯝ	ꯔꯤꯖꯜꯠ	ꯕꯦꯟꯆꯃꯥꯔꯛ	ꯁꯣꯐ꯭ꯇꯋꯦꯌꯔꯒꯤ ꯔꯤꯖꯜꯠ	ꯈꯦꯟꯅꯕ (%)	±5%-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕꯔꯥ?
3C-1	Q, ꯃꯔꯨꯑꯣꯏꯕ ꯀꯦꯁ (m³/s)	0.500			
3C-1	Q, ꯄꯥꯔꯠ (b) (m³/s)	0.208			
3C-2	Tc (min)	26.27			
3C-3	Q, ꯀꯦꯁ (a), P = 100 mm (mm)	39.38			
3C-3	Q, ꯀꯦꯁ (b), P = 100 mm (mm)	64.93			
3C-3	Q, ꯀꯦꯁ (c), P = 100 mm (mm)	36.49			
3C-3	Q, ꯀꯦꯁ (c), P = 25 mm (mm)	1.97			
3C-4	ꯔꯟꯑꯣꯐ, ꯇꯣꯇꯦꯜ ꯂꯧꯕ ꯁꯕ-ꯑꯦꯔꯤꯌꯥꯁꯤꯡ (mm)	9.85			
3C-4	ꯔꯟꯑꯣꯐ, ꯀꯝꯄꯣꯖꯤꯠ CN (mm)	1.83			
3C-4	qp (mm ꯑꯃꯗ m³/s)	0.800			
3C-5	ꯄꯤꯛ ꯑꯥꯎꯠꯐ꯭ꯂꯣ (m³/s)	0.172			
3C-5	ꯄꯤꯛ ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	859			

ꯑꯍꯦꯟꯕ 3D — ꯃꯏꯗꯥꯏ ꯌꯄ ꯃꯥꯟꯅꯕ ꯀꯣꯁ꯭ꯇꯦꯜ ꯂꯃꯒꯤꯗꯃꯛ ꯄꯤꯛ ꯔꯦꯠ ꯐꯦꯛꯇꯔꯒꯤ ꯁ꯭ꯇꯗꯤ

ꯆꯦꯞꯇꯔ 3-ꯒꯤ ꯀ꯭ꯂꯣꯖ 3.11.5 ꯑꯃꯁꯨꯡ 3.15-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯍ꯫

> **ꯃꯇꯤꯁꯨꯕꯅ ꯃꯇꯧ ꯅꯣꯠ.** ꯃꯇꯤꯁꯨꯕ ꯑꯃꯤ ꯂꯃꯗꯝ ꯇꯣꯞꯄ (landlocked) ꯂꯃꯗꯦꯟ ꯑꯃꯇꯤ, ꯃꯕꯟ ꯑꯗꯨꯒꯤ ꯂꯃꯗꯦꯟ ꯑꯃꯤꯗ ꯇꯣꯞ ꯇꯟ ꯑꯃꯌꯥꯕ ꯁꯦꯛꯁꯟ 3.11.5(a) ꯃꯇꯨꯡꯗ ꯏꯄꯥꯟꯗꯥꯅ, ꯑꯃꯁꯨꯡ ꯂꯃꯗꯦꯟꯗꯕꯗ ꯏꯦꯇꯥꯕ 484 (PRF' = 0.208) ꯑꯃꯤ ꯇꯟ ꯁꯨꯡꯇꯃꯒꯥ ꯌꯥꯔꯤ (ꯁꯦꯛꯁꯟ 3.11.5)꯫ ꯅꯟꯏꯟ ꯂꯟꯁꯤꯒꯥꯁꯤ ꯇꯟ (valley floor), ꯇꯥꯒꯥꯁꯤ ꯃꯇꯤꯒ ꯑꯃꯁꯨꯡ ꯇꯤꯕꯤꯡꯟ ꯁꯦꯛꯁꯟ ꯑꯃꯤ ꯌꯥꯁ ꯃꯦꯗꯇꯡ ꯑꯃꯁꯨꯡ ꯅꯃꯤꯗ ꯌꯦꯟꯆꯥꯒꯁ ꯇꯦꯗꯗꯡꯇꯤ, ꯑꯗꯨꯡ ꯃꯍꯥꯔ ꯁꯥꯂꯥꯦꯟ ꯁꯦꯛꯁꯟ ꯇꯌꯥꯦ; ꯃꯍꯥꯔꯒꯤ ꯇꯦꯗꯗꯡ ꯕꯦꯂꯁꯥꯦꯂ ꯑꯃꯤ ꯁꯤꯒ ꯕꯦꯌ ꯏꯦꯇꯥꯕ (peak rate factor) ꯄꯦꯆꯄꯦꯡꯇ ꯇꯌꯥꯦꯇ, ꯂꯥꯕꯦꯇ, ꯁꯟꯁꯤꯗ ꯑꯃꯁꯨꯡ ꯡꯦꯒꯌꯥꯕꯇ (backwater) (ꯁꯦꯛꯁꯟ 3.10.4, 3.12.1 ꯑꯃꯁꯨꯡ 3.12.4) ꯑꯃꯁꯨꯡ ꯂꯕꯨꯡ 5-ꯒꯤ ꯑꯦꯗꯌꯏꯟ (outfall) ꯆꯤꯗꯡꯒꯤ ꯌꯦꯒꯇ ꯗꯌꯇꯤ, ꯑꯗꯨꯒ ꯗꯤꯖꯗ ꯂꯦꯟꯒꯤ (Disang shale) ꯌꯤꯗꯂꯤꯗꯇ ꯆꯨꯇ ꯕꯦꯂꯁꯥꯦꯂ ꯌꯨꯅ꯫ ꯑꯄꯦꯡꯕ ꯑꯃꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 3D.1-ꯒꯤ ꯇꯦꯑꯗꯌ ꯑꯃꯤ ꯑꯄꯦꯡꯕꯂꯤꯗꯒꯤ ꯇꯟꯕꯕ ꯄꯥꯗꯗꯇꯕꯒꯤꯗꯃꯒ ꯅꯒꯌꯃꯒ ꯆꯃꯇꯤꯟꯇꯤ꯫

ꯇꯦꯕꯜ 3D.1 — ꯁꯦꯇꯤꯕꯕꯦꯌ ꯌꯨꯕꯕ ꯁꯤꯒ ꯕꯦꯌ ꯏꯦꯇꯥꯕꯂꯤꯗ (ꯈꯨꯗꯝ)

ꯁꯦꯌꯃꯦꯡꯌ	ꯑꯦꯕꯤꯔꯤ (km²)	ꯃꯤꯡ ꯇꯁꯥꯃ (m/m)	ꯅꯕꯃꯒꯤ ꯏꯤꯒꯃ	ꯂꯤꯇꯤꯡꯇꯅꯤꯕ ꯆꯗꯥꯂꯤꯗ	ꯁꯦꯇꯤꯕꯕꯦꯌ ꯌꯨꯕꯕ PRF (US customary)	PRF' (SI)	ꯌꯌꯇꯕ ꯕꯦꯡꯇ

ꯑꯄꯦꯡꯕ 3E — ꯂꯕꯇꯦꯡ 2(b)-ꯒꯤ CWC SUH ꯁꯦꯕꯃꯤꯌꯕꯂꯤꯗ, ꯂꯕꯇꯦꯡ 2(c)-ꯗ ꯌꯦꯡ ꯑꯦꯅꯇ ꯂꯤꯇꯤꯡꯇꯕ, ꯌꯕꯡ ꯌꯨꯕꯕ ꯅꯗꯃꯒ ꯇꯔꯇꯇ

ꯂꯕꯨꯡ 3-ꯒꯤ ꯁꯦꯛꯁꯟ 3.4.3 ꯑꯃꯁꯨꯡ 3.11.4-ꯗ ꯃꯌꯦꯗ ꯁꯤꯗꯅ꯫

ꯅꯣꯠ ꯆꯦꯛꯁꯤꯟꯕ. ꯑꯍꯣꯡꯕ ꯑꯃꯁꯤꯅ CWC ꯁꯕꯖꯣꯟ 2(b) (South Brahmaputra)-ꯒꯤꯗꯃꯛ, ꯃꯁꯤꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯤ ꯃꯥꯂꯦꯝ ꯑꯃꯁꯤꯅ ꯁꯕꯖꯣꯟ 2(c) (Barak and others)-ꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯔꯤꯄꯣꯔꯇꯁꯤꯡ ꯃꯈꯥꯗ ꯁꯤꯖꯤꯟꯅꯔꯤ, ꯁꯤꯟꯊꯦꯇꯤꯛ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ (synthetic unit hydrograph, SUH) ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ, ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯒꯤ (design storm) ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯕꯨꯁꯟ, ꯂꯣꯁ ꯔꯦꯠ (loss rate), ꯕꯦꯁ ꯐ꯭ꯂꯣ (base flow), ꯑꯦꯔꯤꯌꯥ ꯔꯤꯗꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯊꯧꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯔꯤꯄꯣꯔꯇꯁꯤꯡ, ꯐ꯭ꯂꯗ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯠ (Flood Estimation Report)-ꯗ ꯃꯁꯤꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯌꯥꯎꯔꯦ, ꯑꯃꯁꯨꯡ ꯀꯦꯆꯃꯦꯟꯠ (catchment) ꯑꯃꯒꯤ ꯊꯋꯥꯏ ꯃꯔꯨ ꯑꯣꯏꯕ ꯁꯥꯐ ꯑꯃꯁꯨ ꯃꯈꯥꯗ ꯃꯇꯝ ꯃꯒꯤ ꯌꯥꯎꯔꯤ꯫ ꯃꯁꯤꯗ ꯁꯕꯖꯣꯟ 2(c) (Barak and others)-ꯒꯤ CWC ꯐ꯭ꯂꯗ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯠ ꯑꯃꯁꯨ ꯃꯇꯝ ꯃꯅꯥ, ꯃꯁꯤꯅ ꯃꯍꯩꯁꯤꯡ ꯄꯨꯊꯣꯛꯂꯤ, ꯃꯍꯩꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯒꯤ ꯃꯇꯧ ꯂꯩꯔꯦ ꯑꯗꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯏ, ꯈꯥꯗꯦꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯕ ꯊꯥꯏꯅꯤ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯦꯜ ꯁꯤꯖꯤꯟꯅꯒꯤ ꯃꯇꯧ ꯈꯥꯗꯦꯡꯉꯥꯏ ꯊꯥꯏꯅꯤ ꯑꯃꯁꯨꯡ ꯇꯤꯔꯤꯕꯁ ꯄꯦꯇꯦꯟ ꯍꯦꯟꯅ, ꯑꯃꯁꯨꯡ CWC-ꯅ ꯄꯥꯝꯂꯃꯗ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ, ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯌꯥꯕꯒꯤ ꯅꯣꯃꯦꯟꯕ ꯇꯧꯕ ꯍꯤꯔꯅ CWC-ꯗꯒꯤ ꯐꯕ ꯃꯁꯦꯛꯇꯥꯃꯣꯜ ꯑꯃꯒꯤ ꯅꯔꯤꯅꯥ [TBC]; ꯃꯗꯨ ꯀꯔꯝꯕ, ꯅꯦꯡꯀ ꯕꯗ꯭ꯔꯥꯃꯄꯨ꯭ꯇ꯭ꯔ ꯁꯕꯖꯣꯟ 2(b)-ꯒꯤ ꯔꯤꯄꯣꯔꯇꯁꯤꯡꯒꯤ (Revised; Design Office Report No. SB-2(b)/R-4/44/99, ꯃꯦꯔ 2000), ꯃꯁꯤꯗ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯃꯔꯨꯑꯣꯏ ꯑꯃꯁꯨꯡ ꯑꯃꯗꯤ ꯁꯥꯕꯤ, ꯔꯥꯃꯗꯨ, ꯃꯦꯔꯒꯤ (Mao) ꯃꯅꯥꯡ ꯑꯃꯁꯨ ꯑꯔꯥꯏ ꯅꯣꯅꯥꯡꯄꯨ ꯄꯨꯅꯥꯡꯒꯤ ꯑꯄꯤꯛꯄ ꯃꯔꯨꯑꯣꯏ ꯑꯃꯗ ꯅꯨꯡꯁꯤꯅꯥ, ꯃꯗꯨ ꯃꯁꯤꯒꯤ ꯇꯦꯕꯜ 9-ꯒꯤ ꯅꯣꯡꯕ ꯂꯩꯄꯤꯗ ꯑꯃꯅꯥ ꯍꯨꯔꯥꯏ ꯀꯔꯝꯕ ꯂꯦꯝꯀꯔꯤ ꯁꯣꯏꯗꯅ [TBC], ꯃꯁꯤꯒꯤ Figs 12(a) ꯑꯃꯁꯨꯡ 12(b)-ꯒꯤ ꯑꯦꯔꯤꯌꯥ ꯔꯤꯗꯛꯁꯟ ꯂꯥꯏꯒꯣꯜꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯔꯦ ꯂꯩꯄꯥꯛ ꯄꯥꯛꯄ [TBC], ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯌꯨꯅꯤꯠ-ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ ꯃꯔꯤꯁꯤꯡ, ꯃꯍꯩꯔꯕ ꯃꯣꯗꯦꯜꯔꯣꯒ ꯑꯃꯁꯤꯅ ꯊꯣꯛ ꯑꯍꯟꯅ ꯍꯥꯏꯕꯃꯛ ꯁꯤꯖꯤꯟꯅꯔꯤ (ꯇꯦꯕꯜ 3-ꯒꯤ ꯌꯦꯔꯈꯠꯁꯤꯡ ꯊꯣꯛꯄꯤꯌꯨ); ꯑꯃꯁꯨꯡ ꯍꯔꯤꯅ ꯁꯤꯖꯤꯟ, ꯈꯨꯗꯝ ꯁꯤꯖꯤꯟ, ꯍꯥꯏꯗꯥꯟ ꯁꯤꯖꯤꯟ ꯑꯃꯁꯨꯡ ꯂꯩꯕꯥꯛ ꯁꯤꯖꯤꯟꯅꯗ ꯊꯕ WRD-ꯒꯤ ꯀꯣꯇꯤ ꯁꯍꯟꯅꯔꯤꯕꯒꯤ ꯁꯥꯏꯟ–ꯗꯤꯁꯆꯥꯔꯖ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯔꯤ ꯍꯥꯏꯕꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ (hydrograph), ꯃꯍꯩꯔꯕꯒꯤ ꯃꯇꯨꯡꯗ MASTEC-ꯅ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ 1999–2001-ꯒꯤ ꯄꯤꯔꯤꯁꯤꯡ ꯍꯥꯏꯕꯃꯛ ꯄꯥꯛꯄ [TBC], ꯁꯤꯖꯤꯟꯅꯔꯤꯕꯥ ꯊꯥꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯔꯤꯄꯣꯔꯇꯁꯤꯡꯒꯤ ꯊꯣꯛ ꯊꯥꯛꯀꯤ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ ꯌꯥꯔꯤꯕ DEM-ꯗꯒꯤ ꯃꯣꯇꯔ ꯊꯥꯛꯀꯤ ꯀꯤꯇꯤꯑꯣꯂꯣꯖꯤꯀꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯊꯥꯛꯀꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯗ꯫ ꯃꯁꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯅꯒꯤ ꯗꯥꯏꯗꯣꯜ, SUH-ꯒꯤ ꯍꯧꯖꯤꯛ ꯄꯨꯊꯣꯛꯂꯤ ꯌꯥꯔꯤꯕ ꯐ꯭ꯂꯗ ꯑꯦꯁ꯭ꯇꯤꯃꯦꯁꯟ ꯔꯤꯄꯣꯔꯇꯁꯤꯡꯒꯤ ꯁꯥꯏꯅꯥꯏꯅꯥ ꯇꯧꯔꯤ (ꯅꯣꯡꯃꯥ 3.11.4(a)), ꯅꯣꯡꯃꯥ 2.3.3(b) ꯑꯃꯁꯨꯡ 2.7.3-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯩꯕ ꯌꯥꯕ ꯅꯣꯡꯃꯥ 2.8-ꯒꯤ ꯅꯣꯡꯃꯥꯍꯟꯕ ꯀꯥꯡꯂꯣꯟ ꯌꯥꯎꯔꯦ ꯁꯤꯖꯤꯟꯅꯔꯦ (ꯅꯣꯡꯃꯥ 3.11.4(b)), ꯁꯣꯀꯍꯟꯕ ꯍꯥꯏꯅꯕ ꯃꯐꯝꯁꯤꯡꯗ ꯀꯤꯒꯥꯒꯤꯗꯃꯛ HEC-HMS ꯅꯠꯇ꯭ꯔꯒ SWMM-ꯒꯤ ꯔꯤꯇꯣꯠꯂꯕ ꯇꯧꯔꯤ SUH-ꯒꯤ ꯔꯤꯇꯣꯟ ꯔꯤꯄꯣꯔꯠ ꯊꯣꯛꯄ (ꯅꯣꯡꯃꯥ 3.11.4(c)), ꯑꯃꯁꯨꯡ, ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯀꯥꯟꯅꯕ ꯁꯦꯝꯕ ꯅꯣꯡꯕ 1% AEP-ꯒꯤ ꯄꯤꯛ ꯄꯤꯛꯔꯕꯁꯤꯡ, ꯅꯣꯡꯃꯥ 3.15-ꯒꯤ ꯃꯍꯩꯗ ꯁꯦꯃꯒꯠꯂꯕ ꯃꯇꯧ ꯇꯥꯅꯕꯥ ꯊꯣꯛꯄ ꯅꯠꯇ꯭ꯔꯒ SUH-ꯒꯤ ꯄꯤꯛ ꯇꯧꯔꯤ (ꯅꯣꯡꯃꯥ 3.11.4(d))꯫

ꯇꯦꯕꯜ 3E.1 — ꯁꯕꯖꯣꯟ ꯀꯁ꯭ꯇꯝ ꯑꯣꯏꯕ SUH-ꯒꯤ ꯐꯣꯔꯃꯨꯂꯥ (ꯈꯨꯗꯝꯁꯤꯡ)

ꯄꯦꯔꯥꯃꯤꯇꯔ	ꯁꯤꯝꯕꯣꯜ	ꯌꯨꯅꯤꯠ	ꯁꯕꯖꯣꯟ 2(b) (South Brahmaputra)-ꯒꯤ ꯐꯣꯔꯃꯨꯂꯥ, ꯔꯤꯒ꯭ꯔꯦꯁꯅꯗ ꯃꯍꯩ ꯑꯃꯁꯤꯅ ꯊꯥꯏꯅꯕ ꯁꯤꯖꯤꯟꯅꯕ
ꯄꯨꯡ 1-ꯒꯤ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯄꯤꯛ ꯗꯤꯁꯆꯥꯔꯖ	Qp	m³/s	Qp = 0.905 A^0.758 (Eq. 3.4.3.2); ꯄꯤꯛ ꯑꯁꯤ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯦꯔꯤꯌꯥꯒꯥ ꯂꯣꯏꯅꯅ ꯃꯍꯩ ꯄꯥꯝꯕꯤ
ꯌꯨꯅꯤꯠ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯗꯒꯤ ꯄꯤꯛ ꯗꯤꯁꯆꯥꯔꯖ	qp	km² ꯑꯃꯗ m³/s	qp = Qp / A
ꯌꯨꯅꯤꯠ ꯀꯨꯝ ꯁꯣꯏꯗꯒꯤ ꯄꯤꯛ ꯐꯥꯑꯣꯕꯒꯤ ꯃꯇꯝ	tp	h	tp = 2.87 qp^−0.839
ꯄꯤꯛꯀꯤ 50%-ꯗ UH-ꯒꯤ ꯄꯥꯛ	W50	h	W50 = 2.304 qp^−1.035
ꯄꯤꯛꯀꯤ 75%-ꯗ UH-ꯒꯤ ꯄꯥꯛ	W75	h	W75 = 1.339 qp^−0.978
ꯄꯤꯛꯀꯤ 50%-ꯗ ꯔꯥꯏꯖꯤꯡ ꯂꯤꯃꯕꯒꯤ ꯄꯥꯛ	WR50	h	WR50 = 0.814 qp^−1.018

ꯄꯦꯔꯥꯃꯤꯇꯔ	ꯁꯤꯝꯕꯣꯜ	ꯌꯨꯅꯤꯠ	ꯁꯕꯖꯣꯟ 2(b) (South Brahmaputra)-ꯒꯤ ꯃꯃꯜ, ꯃꯍꯩꯁꯤꯡꯗꯥ ꯑꯣꯏꯕ ꯋꯥꯈꯜ ꯄꯥꯔꯥꯃꯤꯇꯔ ꯁꯤꯖꯤꯟꯅꯕ
ꯄꯤꯛꯀꯤ 75%-ꯗ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯌꯨꯅꯤꯠꯀꯤ ꯄꯥꯛ	WR75	h	WR75 = 0.494 qp^−0.966
UH-ꯒꯤ ꯕꯦꯁ ꯄꯥꯛ	TB	h	TB = 2.447 tp^1.157
ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯑꯍꯧꯕꯗꯒꯤ ꯄꯤꯛ ꯐꯥꯑꯣꯕꯒꯤ ꯃꯇꯝ	Tm	h	Tm = tp + tr/2
ꯌꯨꯅꯤꯠ ꯗ꯭ꯌꯨꯔꯦꯁꯟ	tr	h	1
ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ	TD	h	TD = 1.1 tp
ꯗꯤꯖꯥꯏꯟ ꯂꯣꯁ ꯔꯦꯠ	—	mm/h	3.5 ("0.35 cm/hr" ꯍꯥꯌꯅꯥ ꯏꯕꯗꯨꯗꯤ, ꯅꯤꯡꯊꯤ ꯅꯤꯌꯃꯒꯤ ꯀꯦꯆꯃꯦꯟꯠ 100-ꯒꯤ ꯃꯦꯗ꯭ꯌꯥꯟ ꯚꯦꯜꯌꯨ, 1984-ꯒꯤ ꯔꯤꯄꯣꯔꯇꯇꯥ ꯄꯤꯔꯤꯕꯥ); 2(b) SUH-ꯒꯤ ꯑꯣꯏꯅꯥ ꯔꯦꯀꯃꯦꯟꯗ ꯇꯧꯈꯤꯕ, HSG ꯀꯦꯇꯦꯒꯣꯔꯤ ꯌꯥꯑꯣꯗꯕ ꯁ꯭ꯇꯦꯁꯅ ꯃꯦꯗ꯭ꯌꯥꯟ ꯑꯃꯁꯨꯡ ꯋꯦꯏꯇꯦꯗ ꯌꯥꯑꯣꯗꯦ (ꯄꯥꯔꯥ 3.7)
ꯗꯤꯖꯥꯏꯟ ꯕꯦꯁ ꯐ꯭ꯂꯣ	—	km² ꯑꯃꯗ m³/s	0.05 (ꯀꯦꯆꯃꯦꯟꯠ 100-ꯒꯤ ꯃꯔꯛꯇꯒꯤ 68 ꯑꯁꯤ 0.01–0.09-ꯒꯤ ꯔꯦꯟꯖꯗ)
t-ꯀꯨꯝꯒꯤ ꯔꯦꯏꯟ ꯐꯣꯜ ꯑꯃꯁꯨꯡ 24-ꯒꯤ ꯔꯦꯏꯟ ꯐꯣꯜꯒꯤ ꯔꯦꯁꯤꯑꯣ	—	—	10-yr, ꯀꯟꯗꯤꯁꯟ ꯗ꯭ꯌꯨꯔꯦꯁꯟ, ꯔꯤꯖꯅꯦꯜꯀꯤ ꯁꯦꯟꯇ-ꯔꯦꯂꯦꯇꯤꯕ ꯒꯔ 6-ꯒꯤ ꯃꯇꯝ: 1 h 0.48; 3 h 0.62; 6 h 0.74; 9 h 0.81; 12 h 0.87; 15 h 0.91; 18 h 0.95; 24 h 1.00 (Table 4.1)꯫ ꯃꯦꯊꯣꯗ ꯑꯁꯤꯗ ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-C1, ꯇꯤꯔꯤꯕꯤꯐ ꯄꯥꯔꯥꯃꯤꯇꯔ ꯁꯤꯖꯤꯟꯅꯈꯤ (ꯄꯥꯔꯥ 2.3.6(f))
ꯔꯦꯏꯟ ꯐꯣꯜꯒꯤ ꯃꯑꯣꯐꯝꯒꯤ ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯕꯌꯨꯁꯟ	—	ꯀꯨꯝ ꯃꯑꯣꯡ ꯅꯦꯠ ꯏꯁꯣꯍꯥꯏꯌꯦꯠ ꯃꯦꯄꯁꯤꯡ	Fig. 11 ꯑꯃꯁꯨꯡ Annex 4.4 ꯀꯅꯥꯏꯗꯥ [TBC]
ꯏꯃꯤꯌ 1-ꯒꯤ ꯔꯦꯏꯟ ꯐꯣꯜꯗꯒꯤ ꯀꯨꯝ 24-ꯒꯤ ꯔꯦꯏꯟ ꯐꯣꯜꯗ ꯍꯣꯡꯗꯣꯛꯄ	—	ꯐꯦꯛꯇꯔ	1.15 (§4.3.1); ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-A ꯑꯃꯁꯨꯡ MN-A1-ꯒꯤ ꯅꯦꯃꯖꯔꯤꯐ ꯌꯥꯕꯅꯥ 1.13 ꯁꯤꯖꯤꯟꯅꯈꯤ (ꯄꯥꯔꯥ 2.3.6(c)(i))
ꯑꯦꯔꯤꯌꯥ ꯔꯤꯗꯛꯁꯟ ꯐꯦꯛꯇꯔ	ARF	ꯀꯣꯏꯟꯇ ꯔꯦꯏꯟ ꯐꯣꯜꯒꯤ %	Figs 12(a) (1, 3 ꯑꯃꯁꯨꯡ 6 h) ꯑꯃꯁꯨꯡ 12(b) (12 ꯑꯃꯁꯨꯡ 24 h); ꯄꯔꯒ꯭ꯔꯥꯐ ꯒꯦꯅꯤꯌꯨꯁꯤꯡ ꯀꯅꯥꯏꯗꯥ [TBC]꯫ ꯏꯍꯧꯗꯣꯛꯄ 2(c) ꯔꯤꯖꯅꯦꯜꯀꯤ ꯃꯈꯥꯌꯥ ꯃꯇꯤꯡꯔꯗ 25–5,000 km²-ꯒꯤ ꯄꯦꯟꯃꯦꯟꯀꯥꯁꯤꯡꯗꯨ ꯁꯤꯖꯤꯟꯅꯈꯤ (ꯄꯥꯔꯥ 2.7.3)
ꯃꯇꯤꯡꯔꯒꯤ ꯌꯦꯛꯅꯅꯕꯗ 50-yr-ꯒꯤ ꯀꯨꯝ 24-ꯒꯤ ꯀꯣꯏꯟꯇ ꯔꯦꯏꯟ ꯐꯣꯜ	—	mm	ꯑꯃꯌꯥ ꯇꯥꯕ: ꯔꯤꯖꯅꯦꯜ ꯀꯟꯇꯣꯔꯁꯤꯡ ꯃꯁꯤꯒꯤ ꯍ ꯊꯨꯡꯕꯒꯤ ꯎꯃꯍꯥꯛꯗ ꯇꯥꯀꯇꯤ, ꯃꯁꯤ 93°E-ꯗ ꯍꯦꯐꯗꯨ 25.2°N-ꯗꯒꯤ 94°E-ꯗ ꯍꯦꯐꯗꯨ 25.5°N ꯏꯁꯕ ꯂꯌꯇꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯃꯑꯣꯡꯗ ꯍꯦꯐꯗꯨ 94.4°E ꯍꯦꯁꯅꯥ ꯑꯍꯥꯡ ꯊꯨꯕꯗ ꯂꯌꯇꯤ (NEER-ꯒꯤ ꯄꯨꯜꯌ 9-ꯒꯤ ꯀꯥꯕ, 0.1° ꯔꯦꯐꯒꯤ ꯃꯇꯨꯡꯗ)꯫ ꯃꯇꯤꯡꯔꯒꯤ ꯌꯥꯁꯦ ꯑꯃꯌꯥ ꯄꯨꯜꯌꯁꯤꯡꯗ ꯇꯥꯕ; ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯇꯕ ꯁꯦꯇꯨꯀꯥꯒꯤ ꯀꯥꯇꯤꯒꯤ ꯑꯍꯥꯡ ꯊꯨꯕ ꯄꯥꯔꯥꯃꯤꯇꯔ ꯇꯤꯅꯦ ꯑꯗꯨꯒꯤ ꯑꯍꯥꯡ ꯊꯨꯕꯗ ꯇꯕ ꯍꯅ, ꯃꯏꯐ ꯑꯗꯨꯗ 320-mm-ꯒꯤ ꯄꯦꯟꯌꯔ ꯑꯗꯨ ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯂꯌꯇꯤ [TBC]
ꯃꯇꯤꯡꯔꯗꯒꯤ ꯅꯁꯤꯡ ꯂꯥꯏꯍꯥꯏꯇꯤꯕ ꯒꯔ ꯌꯥꯔꯕ ꯄꯥꯂꯃꯦꯟꯌꯁꯤꯡ	—	—	ꯁꯤꯖꯤꯟꯅꯅꯤꯕ 14-ꯒꯤ ꯃꯔꯛꯇ ꯑꯃꯌꯥ ꯇꯥꯕ
ꯃꯔꯤꯁꯤꯡ ꯂꯌꯇꯕ ꯄꯥꯂꯃꯦꯟꯌ ꯑꯦꯔꯤꯌꯥ	A	km²	50-ꯗꯒꯤ ꯍꯦꯟꯅꯥ 1,500 ꯏꯁꯕ; "ꯂꯧꯅꯒ ꯌꯥꯅꯥ" ("judiciously") 5,000 ꯏꯁꯕ
ꯔꯤꯖꯅꯦꯜꯀꯤ ꯔꯦꯐꯔꯦꯟꯁ	—	—	Annexure 1.1, §§3.4–3.7, Table 3.3, Table 4.1, §4.3, ꯂꯔꯤꯛ ꯌꯥꯔꯕ ꯐꯣꯡꯐ, Plate 9

ꯅꯨ: ꯃꯇꯤꯜꯗꯥ ꯑꯁꯤ CWC ꯂꯃꯆꯠ 2(b) ꯄꯤꯕꯤꯄꯨꯝ (ꯂꯃꯥ 3-ꯒꯤ ꯆꯨꯄꯥꯖꯃꯜꯗꯥ) ꯖꯥꯡꯀꯥꯆꯕꯒꯤꯃꯆꯦ, ꯂꯝꯕꯤ ꯌꯨꯝꯄꯕ ꯈꯥꯔꯤ ꯑꯃꯗꯒꯤ ꯈꯄꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯤꯄꯤꯇ ꯑꯁꯤꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯅꯨꯄꯊ-ꯅꯂꯨꯝ ꯑꯣꯗꯣꯂꯤꯑꯣꯜꯗꯒꯤꯗꯃꯛ ꯌꯦꯕꯜ 3.3 ꯑꯁꯤ ꯃꯂꯤꯒꯤ ꯆꯃꯅꯒꯤ ꯅꯃꯣꯇꯂꯤꯗꯒꯤ ꯌꯥꯡ ꯌꯨꯕꯒꯤ॥ A ꯑꯁꯤ km²-ꯗ ꯈꯣꯌꯃꯣꯋꯨ ꯑꯣꯄꯤꯔꯦꯜ॥ **ꯈꯥꯒꯕꯣꯇ.** ꯄꯤꯕꯤꯄꯨꯈꯤ ꯂꯃꯆꯠ ꯆꯤꯂꯨꯆꯦ ꯂꯃꯆꯠ 2(c), "Barak and others", ꯑꯁꯤꯆꯦ "ꯕꯔꯥꯛ, ꯈꯂꯗꯦꯟ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯂꯁꯤꯡ" ("Barak, Kalden and Manipur rivers") ꯌꯦꯡꯅ ꯍꯌꯆꯦ ꯄꯤꯔꯤ (Annexure 1.1; "Kalden" ꯑꯁꯤ ꯈꯆꯦꯗꯋꯦꯜ, NEER-ꯒꯤ ꯄꯦꯕ)॥ ꯃꯔꯝ ꯑꯗꯨꯆꯦ ꯃꯦꯂꯤꯄꯨꯔꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯂꯤꯂꯝꯝ ꯑꯦꯜꯃꯥ ꯂꯃꯆꯠ 2(c)-ꯗ ꯆꯩ: ꯅꯃꯖꯤꯟ ꯌꯝꯄꯥꯗꯥ ꯑꯃꯁꯨꯡ ꯑꯌꯦꯗ, ꯆꯗꯄꯥꯗꯥ ꯑꯃꯁꯨꯡ ꯍꯒꯤ ꯌꯤꯗꯂꯤꯗꯆꯦ ꯅꯊꯅ ꯑꯃꯁꯨꯡ ꯂꯒꯤꯂ ꯆꯦꯋꯊꯥꯗꯨꯆꯦ ꯃꯌꯦꯋꯃꯔ ꯊꯗꯕꯗ ꯃꯦꯂꯤꯄꯨꯔ ꯇꯨꯔꯦꯜꯒꯤ ꯇꯨꯅꯊꯗꯗ ꯅꯂꯤꯗ ꯌꯥꯜꯍꯜꯂꯤ, ꯑꯃꯁꯨꯡ ꯆꯗꯇꯨꯄꯈꯤ ꯌꯤꯗꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯆꯤꯔꯤꯕꯤꯃ ꯄꯦꯋꯦꯆꯦ ꯕꯦꯥ ꯇꯨꯔꯦꯜꯗ ꯅꯂꯤꯗ ꯌꯥꯜꯍꯜꯂꯤ॥ CWC-ꯆꯦ ꯂꯃꯆꯠ 2(c)-ꯒꯤꯗꯃꯛ ꯄꯤꯄꯥꯔꯤꯅ ꯑꯃꯅꯝ ꯖꯥꯡꯀꯥꯅꯤꯗꯥ: 2000 ꯖꯦꯡꯕ ꯖꯥꯡꯀꯥꯅꯤꯕ ꯄꯤꯄꯥꯔꯤꯅ 21-ꯒꯤ 2(b) ꯄꯤꯕꯤꯄꯨꯈꯤ ꯆꯤꯂꯨꯝ ꯃꯂꯤ ꯆꯩꯝ, ꯑꯃꯁꯨꯡ 2024-ꯒꯤ CWC-ꯒꯤ ꯗꯦꯡꯋꯆꯗ ꯆꯃꯅꯗꯂ ꯆꯩꯝ॥ ꯂꯤꯄꯤꯇ ꯑꯁꯤꯒꯤ ꯃꯃꯥꯡꯒꯤ ꯅꯨꯄꯊ-ꯅꯂꯨꯝ ꯑꯣꯗꯤꯂꯤꯑꯣꯜꯗꯆꯦ ꯃꯍꯌꯒꯤ ꯆꯃꯒꯤ ꯂꯃꯥ ꯌꯄꯗ ꯌꯥꯝꯃꯥ ꯂꯃꯆꯠ 2(c)-ꯒꯤ ꯊꯥꯗꯦꯅꯤ; **ꯃꯦꯂꯤꯄꯨꯔꯗ ꯃꯂꯤꯆꯦ ꯂꯝꯅ ꯄꯨꯃꯆꯃꯥ ꯌꯦꯡꯅ॥** **ꯇꯨꯃꯖꯃ.** ꯇꯨꯔꯦꯜ ꯍꯅꯗꯨꯒꯤꯄꯤꯖ ꯑꯁꯤ ꯃꯦꯂꯤꯄꯨꯔꯒꯤ ꯃꯄꯥꯋꯗ ꯆꯩꯕ ꯄꯥꯡꯌ ꯑꯃꯁꯨꯡ ꯆꯂꯆꯣꯡ-ꯍꯅꯌꯒꯤ ꯕꯨꯤꯇꯂꯤꯗꯗ ꯒꯣꯇ ꯌꯨꯄꯕ ꯈꯣꯌꯃꯣꯋꯨ 14-ꯗ ꯇꯨꯃꯖꯃ ꯑꯅ, ꯄꯨꯃꯆꯃꯥꯝ ꯕꯨꯤꯇ-ꯌꯍꯤ 100-ꯒꯤ ꯄꯥꯈꯄꯗ; ꯃꯍꯌꯒꯤ ꯃꯂꯗꯗ ꯑꯃꯅꯝꯆꯦ ꯃꯦꯂꯤꯄꯨꯔꯗꯒꯤ ꯅꯂꯤꯗ ꯌꯥꯜꯍꯜꯂꯅ, ꯑꯃꯁꯨꯡ ꯑꯃꯅꯝ ꯉꯄꯕꯋ, ꯄꯋ ꯆꯩꯕ, ꯄꯃꯄ ꯌꯨꯝꯕ ꯆꯅꯄꯒꯤ ꯊꯤꯗꯇꯤꯟꯆꯕ ꯆꯥꯗ ꯕꯂꯤꯋ ꯆꯅꯝ॥ ꯄꯤꯄꯥꯔꯤꯅꯆꯦ ꯑꯃꯥ ꯍꯋꯆꯦ ꯄꯨꯊꯗꯄ 50-yr-ꯒꯤ ꯄꯤꯗꯂꯤꯗꯆꯦ "+ 40.72% – 57.84%" ꯄꯝ ꯑꯄꯦꯋꯕ ꯆꯩ, ꯑꯃꯁꯨꯡ "ꯌꯦꯃꯆꯦ ꯑꯄꯤꯗꯄ ꯈꯣꯌꯃꯣꯋꯨꯂꯤꯗꯗ ꯍꯋꯆꯦ ꯌꯦꯡꯕ ꯒꯥꯄꯤꯌꯥꯂꯋ ꯆꯩ" ("very small catchments have larger variation")॥ **ꯑꯣꯄꯤꯔꯦ ꯌꯥꯝꯃꯥ.** 2(b)-ꯒꯤ ꯄꯤꯗ ꯑꯁꯤ A ꯌꯥꯝꯗ ꯃꯍ ꯄꯦꯟꯆꯤ: ꯆꯦꯄꯝ ꯈꯗꯅꯗꯂ ꯌꯗꯆꯥꯝ, ꯃꯔꯝ ꯑꯗꯨꯆꯦ SUH-ꯆꯦ ꯆꯗꯇꯨꯄꯈꯤ ꯌꯤꯗꯂꯤꯗꯗ ꯆꯩꯕ ꯗꯤꯄꯗ ꯂꯥꯟꯒꯤ ꯑꯊꯃꯕ ꯈꯣꯌꯃꯣꯋꯨ ꯑꯃꯗ ꯑꯃꯁꯨꯡ ꯂꯃꯆꯠ 2(b)-ꯒꯤ ꯄꯨꯆꯦꯋꯂꯤꯗꯗ ꯆꯩꯕ ꯑꯣꯄꯤꯔꯦ ꯑꯗꯨꯃꯥ ꯆꯩꯕ ꯌꯦꯄ ꯃꯋꯆꯕ ꯈꯣꯌꯃꯣꯋꯨ ꯑꯃꯗ ꯇꯨꯔꯦꯜ ꯍꯅꯗꯨꯒꯤꯄꯤꯖ ꯑꯗꯨꯃꯥ ꯄꯤ, ꯑꯃꯁꯨꯡ ꯌꯝꯄꯥꯗꯥ ꯑꯁꯤ ꯈꯋꯌꯨꯒꯤꯟ ꯌꯩꯕ ꯄꯋꯂꯤꯗ (bund), ꯄꯦꯅꯂꯤꯗ (pat) ꯆꯅꯄꯒꯤ ꯆꯥꯗꯈꯤ ꯃꯌꯗꯗ ꯈꯄꯤꯂ ꯌꯗꯗꯥ॥ **ꯌꯄꯥ ꯌꯩꯄꯕ ꯇꯨꯃꯖꯃ.** ꯄꯤꯕꯤꯄꯨꯈꯤ ꯇꯨꯃꯖꯃ ꯑꯁꯤ ꯃꯦꯂꯤꯄꯨꯔꯒꯤ ꯃꯄꯥꯋꯗ ꯆꯩꯕ ꯄꯥꯡꯌ ꯕꯨꯤꯇ 160-ꯆꯤ (470 km², L 56.35 km, Lc 31.40 km, S 2.02 m/km): Qp = 96.00 m³/s, qp = km² ꯑꯃꯗ 0.20 m³/s, tp = 11.07 h, 11.50 h-ꯗ ꯑꯣꯗꯇꯂꯨ ꯌꯩꯄꯕ, W50 = 12.19 h, W75 = 6.46 h, WR50 = 4.19 h, WR75 = 2.34 h ꯑꯃꯁꯨꯡ TB = 41.00 h, 0.35 cm/h-ꯒꯤ ꯆꯂ ꯑꯃꯁꯨꯡ 0.05 × 470 = 23.50 m³/s-ꯒꯤ ꯕꯂ ꯖꯆꯒꯤ ꯆꯌꯆꯆꯦ॥ **ꯂꯝꯅ ꯑꯁꯤꯗ ꯂꯤꯇꯤꯋꯆꯕ.** 2(b) SUH ꯑꯁꯤ ꯃꯦꯂꯤꯄꯨꯔꯗ ꯈꯆꯇ 3.11.4-ꯒꯤ ꯌꯥ ꯑꯅꯆꯦ ꯌꯥꯝꯃꯥ ꯂꯤꯇꯤꯋꯦ, ꯌꯃꯄꯥꯗꯥ ꯆꯅꯄꯒꯤ ꯌꯦꯡꯋꯂꯤꯗꯗ ꯌꯗꯆꯥꯄ 50 km²-ꯗꯒꯤ ꯌꯦꯡꯕ ꯆꯃꯕꯥꯈꯤ ꯇꯨꯅꯊꯂꯤꯗꯒꯤꯗꯃꯥ, ꯇꯨꯃꯖꯃ ꯑꯅꯆꯦ ꯅꯄꯤꯊ ꯇꯨꯅꯊ, ꯊꯕꯦꯊ ꯇꯨꯅꯊ, ꯂꯥꯃꯅ ꯇꯨꯅꯊ, ꯇꯨꯒꯤ ꯇꯨꯅꯊ ꯑꯃꯁꯨꯡ ꯌꯥꯄꯤ ꯇꯨꯅꯊ, ꯑꯃꯁꯨꯡ ꯆꯗꯇꯨꯄꯈꯤ ꯌꯤꯗꯂꯤꯗꯒꯤ ꯅꯄꯦꯗ, ꯃꯈꯥ ꯑꯃꯁꯨꯡ ꯇꯤꯄꯤ; ꯗꯤꯆꯅꯋ ꯃꯗꯊ ꯑꯁꯤ HEC-HMS ꯆꯅꯄꯒꯤ SWMM-ꯆꯤ, WRD-ꯒꯤ ꯗꯤꯂꯌꯄꯇꯂꯤꯗ ꯆꯩꯕ ꯃꯖꯃꯗ ꯃꯍꯌꯒꯤ ꯈꯆꯇ 3.15-ꯒꯤ ꯃꯍꯗ ꯈꯆꯤꯕꯄꯅ ꯌꯄꯒꯤ (ꯈꯆꯇ 3.7-ꯒꯤ ꯂꯋꯗꯥꯆꯦ ꯌꯥꯄ)॥ ꯌꯃꯄꯥꯗꯥꯈꯤ ꯇꯨꯅꯊꯂꯤꯗꯒꯤꯗꯃꯥ ꯖꯥꯡꯀꯥꯆꯕ ꯅꯕꯅꯗꯒꯤ ꯌꯦꯡꯕ ꯗꯤꯂꯌꯄꯇꯂꯤꯗꯗꯤ ꯃꯅꯄꯗ ꯈꯃꯄꯨꯗ (Moirang Kampu) ꯅꯄꯤꯊ ꯇꯨꯅꯊꯗ 532.488 m³/s (ꯒꯇ ꯗꯌꯃꯒꯤ ꯃꯊꯥꯝ ꯂꯝꯇ 11.04 m, 2 ꯂꯄꯝꯃꯕꯄ 2000), ꯊꯕꯦꯊ ꯕꯨꯤꯇꯗ ꯊꯕꯦꯊ ꯇꯨꯅꯊꯗ 391.636 m³/s (9.49 m, 30 ꯑꯒꯂꯨ 1999), ꯅꯃꯖꯤꯟ ꯇꯨꯅꯊꯗ 202.006 m³/s (7.3 m, 2 ꯂꯄꯝꯃꯕꯄ 2000) ꯑꯃꯁꯨꯡ ꯆꯃꯕꯥꯊ ꯇꯨꯅꯊꯗ 68.495 m³/s (4.7 m, 2 ꯇꯨꯆꯦꯅ 2001), ꯑꯃꯁꯨꯡ ꯃꯍꯌꯒꯤ ꯂꯝꯇ–ꯗꯤꯂꯌꯄꯇ ꯈꯄꯒꯂꯤꯗ ꯇꯨꯄ ꯑꯅ (MASTEC, 1999–2001-ꯒꯤ WRD ꯗꯌꯗꯒꯤ); ꯍꯋꯆꯦ ꯂꯦꯗꯕ ꯄꯈꯄꯗ, ꯒꯇꯂꯤꯗꯗ ꯈꯣꯌꯃꯣꯋꯨ ꯑꯣꯄꯤꯔꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯌꯗꯒꯤ ꯆꯊꯗꯄ ꯇꯨꯔꯦꯜ ꯍꯅꯗꯨꯒꯤꯄꯤꯖ ꯑꯃꯅꯝ ꯖꯗꯅꯤꯗ [TBC]॥ ꯈꯆꯤꯕꯄꯅ ꯌꯩꯄꯕ ꯃꯗꯊ ꯑꯃꯆꯦ 2(b) SUH-ꯗꯒꯤ ꯍꯋꯆꯦ ꯆꯃꯕ 1% AEP-ꯒꯤ ꯄꯤꯗ ꯄꯤꯕ ꯃꯖꯃꯗ, ꯈꯆꯇ 3.11.4(d) ꯅꯄꯥꯄꯒꯨꯃꯆꯦ ꯌꯅꯆꯤ॥ ꯃꯄꯤꯊꯊ, ꯇꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯤꯗꯗ ꯗꯃꯂꯤꯗꯒꯤ ꯃꯍꯗ ꯅꯂꯤꯗ ꯅꯌꯦꯡ ꯑꯁꯤ ꯄꯤꯆꯤꯇꯂꯤꯗꯆꯦ ꯊꯃꯃꯤ (ꯈꯆꯇ 5.8.5(d)), ꯑꯃꯁꯨꯡ ꯌꯃꯄꯥꯗꯥꯈꯤ ꯆꯃꯗ ꯄꯋꯂꯤꯗ, ꯄꯃꯄꯂꯤꯗ ꯑꯃꯁꯨꯡ ꯆꯥꯗꯆꯦ ꯊꯃꯃꯤ (ꯈꯆꯇ 5.8.5(a)-ꯗꯒꯤ (c) ꯖꯦꯡꯕ), ꯇꯨꯔꯦꯜ ꯍꯅꯗꯨꯒꯤꯄꯤꯖ ꯑꯃꯅꯝꯆꯦ ꯆꯅꯝ॥ ꯅꯃꯖꯤꯟ, ꯊꯕꯦꯊ, ꯈꯗꯌꯤꯗ, ꯕꯤꯂꯦꯄꯨꯄ, ꯇꯨꯌꯦꯋꯗꯄꯨꯄ, ꯉꯅꯊ, ꯌꯃꯗꯆꯗ ꯑꯃꯁꯨꯡ ꯇꯤꯄꯤꯕꯤꯃꯒꯤ ꯉꯄꯕꯋ ꯈꯣꯌꯃꯣꯋꯨꯂꯤꯗ ꯑꯁꯤ 50 km²-ꯗꯒꯤ ꯌꯦꯃꯆꯦ ꯑꯄꯤꯗꯄꯆꯤ ꯑꯃꯁꯨꯡ ꯈꯆꯇ 3.4-ꯒꯤ ꯃꯍꯗ ꯄꯂꯆꯊ ꯃꯊꯗ (Rational Method) ꯆꯅꯄꯒꯤ SWMM-ꯆꯦ ꯗꯤꯆꯅꯋ ꯌꯅ॥ ꯂꯕ-ꯑꯣꯄꯤꯔꯦ MN-C ꯑꯃꯁꯨꯡ MN-C1-ꯗ 1 km²-ꯗꯒꯤ ꯌꯦꯡꯕ ꯈꯄꯂ-ꯗꯄꯆꯇ ꯂꯝꯄꯥꯌꯄ ꯑꯃꯁꯨꯡ ꯑꯦꯡꯅꯖꯊ ꯇꯨꯗꯤꯗꯃꯥꯝ ꯈꯆꯇ 2.3.6(c)(ii)-ꯒꯤ ꯗꯤꯆꯅꯋ ꯆꯗ ꯇꯨꯕꯒꯤ ꯆꯌꯆꯆꯦ ꯂꯦꯅꯅꯈꯤ ꯌꯥꯝꯒꯤ ꯍꯅꯗꯨꯆꯆꯤ ꯂꯝꯗꯤ ꯑꯃ ꯃꯊ ꯌꯅ॥ 3.5 mm/h-ꯒꯤ ꯗꯤꯆꯅꯋ ꯆꯂ ꯄꯅ ꯑꯁꯤ ꯂꯃꯆꯠ 2(b)-ꯒꯤ ꯄꯨꯆꯋ ꯑꯃꯁꯨꯡ ꯖꯨꯍꯤꯊꯂꯤꯗꯗ ꯆꯩꯕ ꯆꯃꯕꯥꯈꯤ ꯈꯣꯌꯃꯣꯋꯨꯂꯤꯗꯒꯤ ꯅꯂꯤꯗ ꯅꯌꯦꯡꯂꯤꯗꯗ ꯖꯤꯅ ꯌꯩꯄꯕ φ-ꯅꯋꯗꯗꯂ ꯑꯃꯆꯤ; ꯃꯂꯤ ꯆꯩꯃꯅꯒꯤ ꯅꯋꯖꯤꯊꯌꯄꯂꯋ ꯈꯄꯤꯂꯤꯝ ꯆꯅꯝ ꯑꯃꯁꯨꯡ HSG ꯄꯤꯆꯕ (ꯈꯆꯇ 3.7), ꯉꯄꯕꯋ SCS-CN ꯆꯅꯄꯒꯤ SWMM ꯃꯗꯊꯂꯤꯗꯗ, ꯆꯅꯄꯒꯤ ꯅꯋꯖꯤꯊꯌꯄꯂꯋ ꯄꯄꯥꯌꯤꯂꯂꯤꯗ ꯂꯦꯅꯇ ꯌꯩꯆꯕ (ꯂꯃꯥ 4) ꯂꯤꯇꯤꯋꯆꯗꯥ॥

ꯌꯦꯕꯊ 3E.2 — ꯌꯄꯥ ꯌꯩꯄꯕ ꯇꯨꯃꯖꯃꯒꯤ ꯑꯦꯡꯅꯆꯦꯅꯋ (ꯆꯑꯦꯡꯅ)

ꯅꯗꯊꯗ	ꯑꯌꯦꯡꯕ	ꯈꯆꯇ
1	ꯂꯄꯒ ꯆꯅꯄꯒꯤ DEM-ꯗꯒꯤ ꯈꯣꯌꯃꯣꯋꯨ ꯑꯣꯄꯤꯔꯦ, ꯃꯄꯨꯑꯅꯕ ꯍꯗꯒꯤ ꯂꯦꯗꯕ, ꯂꯋꯌꯄꯅꯗ ꯖꯦꯡꯕꯒꯤ ꯂꯦꯗꯕ ꯑꯃꯁꯨꯡ ꯅꯥꯇꯨꯅꯒꯆꯋ ꯆꯦꯄꯝ	3.11.4(a)

ꯈꯣꯡꯊꯥꯡ	ꯑꯔꯥꯞꯄ	ꯀ꯭ꯂꯣꯖ
2	ꯇꯦꯕꯜ 3E.1-ꯗꯒꯤ SUH ꯄꯦꯔꯥꯃꯤꯇꯦꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯣꯠ ꯇꯧꯔꯕ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ	3.11.4(a)
3	ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ, ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯄꯣꯏꯟꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯔꯤꯌꯦꯜ ꯀꯨꯝ 24-ꯒꯤ ꯅꯣꯡ ꯇꯨꯕ, ꯃꯇꯝꯒꯤ ꯈꯥꯌꯗꯣꯛꯄ	3.11.4(a), (b)
4	ꯗꯤꯖꯥꯏꯟ ꯂꯣꯁ ꯃꯦꯊꯗꯤ ꯆꯨꯝꯗꯅ ꯏꯐꯦꯛꯇꯤꯕ ꯅꯣꯡ ꯇꯨꯕ; SUH-ꯒꯥ ꯀꯟꯚꯣꯜꯌꯨꯁꯟ; ꯕꯦꯁ ꯐ꯭ꯂꯣ ꯍꯥꯞꯆꯤꯟꯕ	3.11.4(a)
5	ꯔꯥꯎꯇꯤꯡ ꯂꯧꯃꯤꯕ ꯐ꯭ꯂꯣꯅꯒꯤ ꯏꯤꯗꯡꯒꯤꯁꯐꯛ HEC-HMS ꯅꯠꯔꯒꯥ SWMM-ꯒꯤ ꯄꯤꯛꯁ ꯆꯥꯡꯗꯝꯅꯕ 1% AEP-ꯒꯤ ꯄꯤꯛ	3.11.4(c), (d)

ꯐꯣꯔꯝ 3-1 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯒꯤ ꯁꯝꯃꯔꯤ

ꯁꯔꯨꯛ 3-ꯒꯤ ꯀ꯭ꯂꯣꯖ 3.4, 3.6, 3.7, 3.8, 3.10–3.13, 3.15–3.17-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯁꯕꯃꯤꯇꯦꯜ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯐꯣꯔꯝ ꯑꯃꯥ꯫ ꯁꯦꯛꯁꯟ H-ꯗ ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯕ ꯗꯣꯀꯨꯃꯦꯟꯠꯁꯤꯡ ꯁꯝꯃꯤꯟꯅꯦ꯫

A. ꯄ꯭ꯔꯣꯖꯦꯛꯠ

ꯇꯦꯕꯜ 3F.1 — ꯐꯣꯔꯝ 3-1: ꯄ꯭ꯔꯣꯖꯦꯛꯠ

ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
A1. ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯞꯂꯤꯀꯦꯟꯠ	
A2. ꯃꯐꯝ (ꯈꯨꯡꯒꯥꯡ ꯅꯠꯔꯒ ꯋꯥꯔꯗ, ꯁꯔꯚꯦ ꯅꯝꯕꯔꯁꯤꯡ, ꯄꯤꯟ)	
A3. ꯁꯥꯏꯠꯀꯤ ꯑꯦꯔꯤꯌꯥ (ha) ꯑꯃꯁꯨꯡ ꯄꯣꯏꯟꯠ ꯑꯣꯐ ꯀꯝꯄꯦꯔꯤꯁꯟꯁꯤꯡꯒꯤ (POC) ꯃꯁꯤꯡ	
A4. ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯀ꯭ꯂꯥꯁ: ꯁ꯭ꯇꯦꯟꯗꯔꯗ (ꯀ꯭ꯂꯣꯖ 2.11.2) ꯅꯠꯔꯒ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯟꯁꯤꯇꯤꯚ ꯑꯣꯏꯕ (ꯀ꯭ꯂꯣꯖ 2.11.3)	
A5. ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯇꯨꯕꯒꯤ ꯁꯤꯠꯀꯤ ꯔꯦꯐꯔꯦꯟꯁ (ꯐꯣꯔꯝ 2-1)	

B. ꯊꯧꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯁꯣꯐ꯭ꯠꯋꯦꯌꯔ (ꯀ꯭ꯂꯣꯖ 3.4, 3.11, 3.12, 3.16)

ꯇꯦꯕꯜ 3F.2 — ꯐꯣꯔꯝ 3-1: ꯊꯧꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯁꯣꯐ꯭ꯠꯋꯦꯌꯔ

ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
B1. ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯁꯅꯣꯟꯗꯝ (ꯀꯟꯚꯦꯌꯦꯟꯁ, ꯁ꯭ꯇꯣꯔꯦꯖ, ꯆꯥꯡꯗꯝꯅꯕ, ꯀꯦꯆꯃꯦꯟꯠ ꯁ꯭ꯇꯗꯤ)	
B2. ꯁꯅꯣꯟꯗꯝ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯏꯁꯤꯡ ꯁꯤꯔꯤꯕ ꯑꯦꯔꯤꯌꯥ (ha ꯅꯠꯔꯒ km²)	
B3. ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯊꯧꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯈꯨ ꯍꯥꯏꯅꯖꯤꯕ ꯇꯦꯕꯜ 3.1-ꯒꯤ ꯄꯔꯦꯡ	
B4. ꯊꯧꯑꯣꯡ ꯈꯟꯕꯒꯤ ꯃꯔꯝ	
B5. ꯁꯣꯐ꯭ꯠꯋꯦꯌꯔ ꯑꯃꯁꯨꯡ ꯚꯔꯁꯟ; SWMM ꯅꯠꯔꯒ HEC-ꯒꯤ ꯃꯊꯡꯇ ꯁꯣꯕ ꯄꯦꯀꯦꯖꯁꯤꯡꯒꯤꯗꯃꯛ ꯏꯟꯖꯤꯟ ꯑꯃꯁꯨꯡ ꯚꯔꯁꯟ (ꯀ꯭ꯂꯣꯖ 3.16.1, 3.16.2)	
B6. ꯑꯇꯣꯞꯄ ꯁꯣꯐ꯭ꯠꯋꯦꯌꯔꯒꯤꯗꯃꯛ: ꯑꯦꯅꯦꯛꯁ 3C-ꯒꯤ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯔꯤꯖꯜꯇꯁꯤꯡ ꯁꯝꯃꯤꯟꯅꯦ (ꯇꯦꯕꯜ 3C.7) ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 3.16.2-ꯒꯤ 5%-ꯒꯤ ꯆꯥꯡꯗꯝꯅꯕ	
B7. ꯔꯟꯑꯣꯐ ꯇ꯭ꯔꯥꯟꯁꯐꯣꯔꯝ (runoff transform) (ꯀ꯭ꯂꯣꯖ 3.11.1)	
B8. ꯀꯝꯄ꯭ꯌꯨꯇꯦꯁꯟ ꯏꯟꯇꯔꯚꯦꯜ Δt (h), ꯏꯕꯅꯗꯒꯤ ꯑꯄꯤꯛꯄ ꯁꯕ-ꯑꯦꯔꯤꯌꯥꯒꯤ 0.133 Tc ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯇꯥꯏꯝ ꯁ꯭ꯇꯦꯞꯀ ꯅꯣꯔꯅꯂꯥ (ꯀ꯭ꯂꯣꯖ 3.11.3(a))	
B9. ꯁ꯭ꯇꯣꯔꯦꯖ ꯔꯥꯎꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯦꯜ ꯔꯥꯎꯇꯤꯡꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.12.1, 3.12.2)	
B10. ꯃꯁꯀꯤꯡꯒꯝ-ꯀꯅꯖ ꯔꯥꯎꯇꯤꯡ ꯃꯊꯧ ꯇꯧꯕꯔꯥ? ꯍꯣꯌ ꯑꯣꯏꯔꯕꯗꯤ, ꯀ꯭ꯂꯣꯖ 3.12.4-ꯒꯤ ꯀꯔꯤ ꯀꯦꯁꯅꯤꯁꯦ	
B11. CWC SUH-ꯒꯤ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯃꯊꯧ ꯇꯧꯕꯔꯥ (25–5,000 km², ꯀ꯭ꯂꯣꯖ 3.11.4)? ꯔꯤꯖꯜꯇꯀꯤ ꯔꯦꯐꯔꯦꯟꯁ	
B12. ꯀꯟꯇꯤꯅ꯭ꯌꯨꯑꯁ ꯁꯤꯃꯨꯂꯦꯁꯟ ꯃꯊꯧ ꯇꯧꯕꯔꯥ (ꯀ꯭ꯂꯣꯖ 3.13.1)? ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯔꯦꯀꯣꯔꯗ ꯑꯃꯁꯨꯡ ꯊꯧꯔꯃꯄꯀꯤ ꯄ꯭ꯂꯨꯔꯤꯒꯤ ꯂꯦꯚꯦꯜꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.13.5)	
B13. ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯃꯊꯧ ꯇꯧꯕꯔꯥ (ꯀ꯭ꯂꯣꯖ 3.15.1)? ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯔꯤꯄꯣꯔꯇꯀꯤ ꯔꯦꯐꯔꯦꯟꯁ	

C. ꯂꯩꯃꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.3.3(b), 3.7, 3.10)

ꯇꯦꯕꯜ 3F.3 — ꯐꯣꯔꯝ 3-1: ꯂꯩꯃꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ

ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
C1. HSG-ꯒꯤ ꯍꯧꯔꯛꯐꯝ ꯃꯦꯞ, ꯁ꯭ꯀꯦꯜ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯂꯨꯡꯑꯔ (ꯀ꯭ꯂꯣꯖ 3.7.1, ꯑꯍꯦꯟꯕ 3A) ꯅꯠꯔꯒꯥ NEH Part 630, Ch. 7-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯊꯤꯕ (ꯀ꯭ꯂꯣꯖ 3.7.2)	
C2. ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁ꯭ꯠꯁꯤꯡ: ꯈꯁꯤꯡ, ꯈꯐꯝꯁꯤꯡ, ꯑꯣꯒꯔꯁꯤꯡ, ꯔꯤꯅꯜꯠꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.7.3)	
C3. ꯃꯇꯝ ꯃꯇꯨꯡ ꯏꯟꯅꯕ ꯑꯋꯥꯡꯕ ꯋꯥꯇꯔ ꯇꯦꯕꯜ: ꯂꯩꯃꯥꯏꯗꯒꯤ ꯃꯈꯥꯒꯤ ꯑꯂꯨꯕ ꯑꯃꯁꯨꯡ ꯍꯧꯔꯛꯐꯝ (ꯀ꯭ꯂꯣꯖ 3.10.2)	
C4. 0.6 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ HSG D ꯑꯣꯏꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.10.1)	
C5. ꯁꯣꯏꯜ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ HSG ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠ (ꯀ꯭ꯂꯣꯖ 3.3.3(b))	

D. ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯐꯤꯚꯝ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.3, 3.5, 3.8, 3.9; ꯀ꯭ꯂꯣꯖ 3.17-ꯒꯤ ꯑꯦꯟꯇ꯭ꯔꯤ 4)

ꯇꯦꯕꯜ 3F.4 — ꯐꯣꯔꯝ 3-1: ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯐꯤꯚꯝ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ

ꯁꯕ-ꯑꯦꯔꯤꯌꯥ	ꯐꯤꯚꯝ (ꯃꯈꯜ / ꯃꯇꯨꯡ)	ꯑꯦꯔꯤꯌꯥ (ha)	ꯏꯝꯄꯔꯚꯤꯌꯁ: ꯀꯅꯦꯛꯇꯦꯗ / ꯗꯤꯁꯀꯅꯦꯛꯇꯦꯗ (ha)	DCIA (ha)	ꯄꯔꯚꯤꯌꯁ ꯂꯝ (ha)	HSG	CN, AMC II	CN, AMC III (ꯑꯦꯗꯖꯁ꯭ꯇ ꯇꯧꯔꯕ)	C ꯑꯃꯁꯨꯡ Cf (ꯔꯦꯁꯅꯦꯜ ꯃꯦꯊꯗ)	Tc (min)

E. ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯇ꯭ꯔꯦꯁꯅꯒꯤ ꯋꯥꯔꯛꯁꯤꯠ (ꯀ꯭ꯂꯣꯖ 3.6)

ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯐꯤꯚꯝ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯋꯥꯔꯛꯁꯤꯠ ꯑꯃꯥ꯫

ꯇꯦꯕꯜ 3F.5 — ꯐꯣꯔꯝ 3-1: ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯇ꯭ꯔꯦꯁꯅꯒꯤ ꯋꯥꯔꯛꯁꯤꯠ

ꯁꯦꯒꯃꯦꯟꯠ	ꯐ꯭ꯂꯣꯒꯤ ꯃꯈꯜ	ꯁꯔꯐꯦꯁ ꯑꯃꯁꯨꯡ n (ꯇꯦꯕꯜ 3.4)	L (m)	S (m/m)	P2 (mm)	V (m/s)	Tt (min)
1	ꯁꯤꯠ					–	
2	ꯁꯦꯂꯣ ꯀꯟꯁꯦꯟꯇ꯭ꯔꯦꯇꯦꯗ				–		
3	ꯆꯦꯅꯦꯜ ꯅꯠꯔꯒꯥ ꯄꯥꯏꯞ				–		
	Tc (10 min-ꯗꯒꯤ ꯍꯟꯊꯗꯕ)						

E1. ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯃꯇꯨꯡꯒꯤ Tc ꯑꯁꯤ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡꯒꯤ Tc-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯁꯥꯡꯕꯔꯥ? ꯍꯣꯌꯔꯕꯗꯤ, ꯇꯥꯀꯄꯤꯌꯨ (ꯀ꯭ꯂꯣꯖ 3.6.6):

______

F. ꯅꯥꯡ ꯊꯨꯕ ꯑꯃꯁꯨꯡ ꯂꯥꯃꯃꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.8.4, 3.8.5, 3.11.5, 3.12, 3.3.5)

ꯇꯦꯕꯜ 3F.6 — ꯐꯣꯔꯝ 3-1: ꯅꯥꯡ ꯊꯨꯕ, ꯂꯥꯃꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯧꯔꯛꯐꯃꯒꯤ ꯂꯦꯒꯦꯆꯁꯤꯡ

ꯃꯤꯇꯌ	ꯅꯣꯠꯁꯤ
F1. ꯑꯗ ꯁꯣꯏꯕ AEP-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯔꯝꯕꯥꯂꯝꯁꯤꯡ; ꯁꯤꯇꯤꯌꯦꯠꯂꯤꯕ ꯃꯦꯠꯅꯀꯥꯌ ꯏꯥꯌꯕꯥ (ꯑꯙ꯭ꯌꯥꯌ 2)	
F2. ꯀꯔꯝꯕꯥꯂꯦ ꯂꯧꯁꯤꯡꯀꯗꯕꯤꯗꯕ ꯁꯤꯇꯤꯌꯦꯠꯂꯤꯕ AMC (ꯃꯦꯛꯇ 3.8.4)	
F3. ꯀꯤꯇꯅꯦ ꯑꯦꯁꯤꯡꯒꯤꯀꯗ Ia ꯑꯥꯁꯤꯋ; Ia = 0.05S-ꯒꯤ ꯁꯥꯦꯁꯤꯌꯤꯒꯤꯌꯤ ꯑꯦ ꯌꯣꯏꯕ (ꯃꯦꯛꯇ 3.8.5)	
F4. ꯁꯤꯇꯤꯌꯦꯠꯂꯤꯕ ꯃꯤꯗ ꯑꯥꯌ ꯏꯥꯗꯌꯑ; 484-ꯀꯒꯤ ꯄꯦꯊꯑꯕꯀꯤ, ꯋꯄꯥꯦꯕ 3D-ꯒꯤ ꯒꯥꯔꯨ ꯋꯀꯨꯡ ꯀꯟ ꯔꯌꯇꯤꯕ ꯇꯐ (ꯃꯦꯛꯇ 3.11.5)	
F5. ꯃꯨꯂꯑꯤ ꯇꯌꯑꯒ ꯅꯁꯤꯡ ꯇꯣꯏꯐ ꯂꯧꯁꯤꯡꯀꯗꯕꯤ ꯄꯥꯑꯗꯃꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯇꯥꯒꯥꯔ, ꯋꯀꯨꯡ ꯀꯁꯤꯒꯤ ꯔꯨꯐꯏꯐ (ꯃꯦꯛꯇ 3.12.5, 3.13.5)	
F6. ꯁꯤꯅꯌꯕꯤ ꯀꯃꯤꯦꯀꯒꯤ ꯇꯤꯗꯃ ꯑꯦ-ꯋꯦ (run-on): ꯕꯦꯒꯥꯔꯥꯦꯁ ꯋꯀꯨꯡ ꯔꯤꯡꯀꯐꯇꯕꯒꯤꯀꯗ ꯇꯣꯏꯕ ꯇꯥꯦꯀ ꯔꯨꯇ (ꯃꯦꯛꯇ 3.3.5)	
F7. ꯅꯦꯁꯤꯀꯥꯦꯌꯥꯔ ꯁꯌꯥꯑꯥꯇ (incidental storage) ꯊꯤꯌꯤꯕꯑꯤ? ꯄꯔ ꯋꯅꯑꯕꯀꯤ, ꯋꯊꯑꯤꯌꯤꯇꯤ ꯔꯤꯕ (ꯃꯦꯛꯇ 3.12.3)	

G. ꯌꯣꯃꯦꯕꯁꯤꯡ

ꯇꯥꯕꯔ 3F.7 — ꯏꯑꯐ 3-1: ꯁꯑꯨꯗ 3-ꯀꯒꯤ ꯌꯣꯃꯦꯕꯁꯤꯡ

No.	ꯌꯣꯃꯦꯌꯤꯕ ꯃꯦꯛꯇ	ꯁꯑꯨꯗ 3-ꯒꯤ ꯒꯥꯔꯨꯒꯤ ꯀꯂꯨꯌ ꯁꯤꯇꯤꯌꯦꯠꯂꯤꯕ ꯒꯥꯔꯨ	ꯇꯁꯌꯤꯏꯤꯕꯥꯂꯦ
1			
2			

H. ꯁꯐꯀꯤꯦꯇꯕꯁꯤꯡ (ꯃꯦꯛꯇ 3.17)

ꯇꯥꯕꯔ 3F.8 — ꯏꯑꯐ 3-1: ꯁꯐꯀꯤꯦꯇꯕꯁꯤꯡ

ꯋꯅꯌꯥꯐ	ꯁꯐꯀꯤꯦꯇꯥ (ꯄꯔ / ꯇꯌꯌꯥ / ꯔꯌꯇꯀꯥ)	ꯑꯥꯏꯑꯥꯦꯁ
H1. ꯀꯥꯒꯥꯇꯃꯀꯥꯦꯌꯕꯤ ꯀꯀꯤ ꯋꯀꯨꯡ ꯀꯌꯨꯒꯤ ꯕꯥꯔꯀꯥꯦꯌ ꯀꯥꯃꯁꯤꯡ, ꯁꯕ-ꯋꯥꯑꯤꯔꯤꯁꯤꯡ, Tc-ꯒꯤ ꯏꯇ ꯃꯤꯊꯁꯤꯡ, POC-ꯁꯤꯡ ꯋꯀꯨꯡ ꯁꯤꯅꯌꯕꯤ ꯀꯃꯤꯦꯀꯒꯤ ꯇꯤꯗꯃ ꯑꯦ-ꯋꯦꯒ ꯇꯔꯇꯇꯤ		
H2. HSG ꯀꯥꯃ, ꯔꯤꯌꯑ-ꯌꯥꯕꯔꯒꯤ ꯀꯥꯌ ꯋꯀꯨꯡ ꯅꯦꯏꯤꯔꯌꯑꯥꯂꯦ ꯌꯥꯁꯌꯕꯤ ꯑꯤꯇꯔꯌꯁꯤꯡ		
H3. ꯃꯥꯑꯤꯀꯤꯌꯑꯒꯤ ꯌꯥꯕꯔꯁꯤꯡ (ꯁꯥꯗꯂꯦ D) ꯋꯀꯨꯡ Tc ꯔꯑꯗꯁꯤꯌꯁꯤꯡ (ꯁꯥꯗꯂꯦ E)		
H4. ꯀꯤꯇꯅꯦ ꯇꯕ ꯔꯨꯕꯒꯤ ꯁꯤꯌ (ꯏꯑꯐ 2-1) ꯋꯀꯨꯡ ꯄꯅꯔꯥꯌꯒꯑꯤꯏꯁꯤꯡ		
H5. ꯄꯅꯀꯑꯒꯑꯤꯏꯕꯤ ꯌꯥꯕꯔꯁꯤꯡ ꯋꯀꯨꯡ ꯃꯇꯌꯁꯤꯡ; ꯁꯌꯥꯇ–ꯁꯌꯑꯥꯇ ꯋꯀꯨꯡ ꯁꯌꯥꯇ–ꯀꯤꯁꯔꯤꯑꯇꯒꯤ ꯌꯥꯕꯔꯁꯤꯡ; ꯑꯤꯔꯨꯌ ꯌꯑꯕ ꯋꯤꯔꯨꯌꯏꯇꯁꯤꯡ; ꯃꯤꯗ ꯅꯁꯤꯡꯒꯤ ꯇꯥꯒꯥꯔꯁꯤꯡ		
H6. POC ꯂꯧꯁꯤꯡꯀꯗꯕꯤꯗꯀꯗ ꯏꯑꯐ 3-2		
H7. ꯕꯥꯇꯤꯕꯑꯥꯂꯦ ꯑꯤꯃꯑꯌ (ꯃꯦꯛꯇ 3.15)		
H8. ꯀꯀꯥꯔꯒꯤ ꯀꯁꯤꯒꯤ ꯅꯦꯃꯨꯌ ꯋꯀꯨꯡ ꯋꯤꯔꯨꯌꯃꯨꯌ ꯏꯅꯔꯁꯤꯡ (ꯃꯦꯛꯇ 3.16.4)		

I. ꯊꯀꯤꯡ ꯇꯕ ꯅꯦꯇꯤꯇꯤꯔꯑꯒꯤ ꯁꯌꯥꯌꯀꯥꯦꯌ (ꯃꯦꯛꯇ 3.17-ꯒꯤ ꯋꯅꯌꯥꯐ 10)

ꯋꯤꯇꯤ ꯄꯅꯑꯤ ꯀꯀꯨꯀꯤ ꯀꯇꯤꯃꯨꯑ ꯇꯗꯒꯤ ꯅꯁꯤꯡ ꯅꯑꯐ ꯀꯤꯇꯅꯦ ꯀꯥꯂꯨꯔꯥꯔ (ꯀꯑꯤꯏꯌ ꯒꯑꯁꯦ 1.0)-ꯒꯤ ꯁꯑꯨꯗ 3-ꯒꯤ ꯊꯋꯗꯁꯤꯡ ꯋꯀꯨꯡ ꯃꯥꯑꯤꯀꯤꯌꯑꯁꯤꯡ ꯁꯕꯀꯤꯌꯥꯔ ꯋꯁꯤꯀ ꯁꯤꯇꯤꯌꯦꯇꯑꯥ, ꯋꯀꯨꯡ ꯌꯣꯃꯦꯕ ꯂꯧꯁꯤꯡꯀꯗ ꯁꯥꯗꯂꯦ G-ꯀ ꯇꯤꯁꯌ ꯌꯑꯥ ꯋꯀꯨꯡ ꯇꯁꯌꯤꯏꯅ ꯌꯑꯥ꯫

ꯇꯥꯕꯔ 3F.9 — ꯏꯑꯐ 3-1: ꯊꯀꯤꯡ ꯇꯕ ꯅꯦꯇꯤꯇꯤꯔꯑꯒꯤ ꯁꯌꯥꯌꯀꯥꯦꯌ

ꯃꯤꯡꯀ	ꯅꯋꯍꯦꯗ꯭ꯗꯤ
ꯌꯌꯤꯎ	
ꯎ꯭ꯅꯦꯂꯤꯃꯤꯎꯣꯝꯁ ꯎꯌꯂꯨꯎ ꯗꯣꯂꯤꯃ꯭ꯗꯣꯝꯁ ꯂꯇꯈꯗ	
ꯎꯦꯗꯐꯂꯦꯅꯂꯣꯝꯁ	
ꯃꯦꯅꯁ	
ꯂꯨꯌꯤꯛ	

ꯀ꯭ꯗꯦꯃꯛ ꯃꯦꯗꯇ — ꯌꯂꯤꯌꯨꯗ ꯂꯦꯎꯐꯤ ꯅꯃꯤꯎ ꯅꯗꯇ ꯀꯤꯂꯦꯅꯁ ꯌꯣꯂꯨꯔꯣꯡ, ꯀ꯭ꯗꯦꯃꯛ ꯡꯗꯃꯁ 1.0.

ꯐꯣꯔꯝ 3-2 — ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯆꯥꯡꯗꯝꯅꯕ

ꯁꯔꯨꯛ 3-ꯒꯤ ꯀ꯭ꯂꯣꯖ 3.8.5, 3.11.5 ꯑꯃꯁꯨꯡ 3.14-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯇꯔ ꯅꯥꯡꯒꯤ ꯏꯃꯤꯡ ꯏꯔꯝ ꯀꯤꯅꯥꯏꯕ ꯃꯦꯉꯣꯟꯃ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯄꯣꯏꯟꯠ ꯑꯣꯐ ꯀꯝꯄꯦꯔꯤꯁꯟ (point of comparison, POC) ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯐꯣꯔꯝ ꯑꯃꯥ꯫ ꯐ꯭ꯂꯣꯁꯤꯡ m³/s-ꯗ, ꯚꯣꯜꯌꯨꯃꯁꯤꯡ m³-ꯗ꯫

A. ꯄꯣꯏꯟꯠ ꯑꯣꯐ ꯀꯝꯄꯦꯔꯤꯁꯟ (ꯀ꯭ꯂꯣꯖ 3.14.2)

ꯇꯦꯕꯜ 3F.10 — ꯐꯣꯔꯝ 3-2: ꯄꯣꯏꯟꯠ ꯑꯣꯐ ꯀꯝꯄꯦꯔꯤꯁꯟ

ꯐꯤꯜꯗ	ꯏꯟꯄꯨꯠ
A1. POC-ꯒꯤ ꯃꯃꯤꯡ ꯏꯁꯨꯗꯥꯛꯃꯀ ꯑꯃꯁꯨꯡ ꯃꯐꯝ	
A2. POC-ꯗ ꯏꯁꯤꯡ ꯆꯦꯜꯂꯛꯄ ꯑꯦꯔꯤꯌꯥ: ꯁꯥꯏꯠ (ha) ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠꯀꯤ ꯃꯄꯥꯟꯗꯒꯤ ꯂꯥꯛꯄ ꯔꯟ-ꯑꯣꯟ (ha)	
A3. ꯁꯥꯏꯠꯀꯤ ꯃꯄꯥꯟꯗꯒꯤ ꯂꯥꯛꯄ ꯔꯟ-ꯑꯣꯟ ꯑꯁꯤ ꯁꯥꯏꯠꯀꯤ ꯗ꯭ꯔꯦꯅꯦꯖꯒꯤ ꯗꯤꯖꯥꯏꯅꯗ ꯌꯥꯎꯔꯤꯕꯔꯥ? (ꯀ꯭ꯂꯣꯖ 3.14.2(c))	
A4. ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯀ꯭ꯂꯥꯁ: ꯁ꯭ꯇꯦꯟꯗꯔꯗ (ꯀ꯭ꯂꯣꯖ 2.11.2) ꯅꯠꯔꯒꯥ ꯁꯥꯏꯠ ꯁꯔꯤꯡꯗ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤ ꯑꯣꯏꯕ (ꯀ꯭ꯂꯣꯖ 2.11.3)	
A5. ꯁꯤꯟꯊꯦꯇꯤꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ, ꯀ꯭ꯂꯣꯖ 2.12-ꯒꯤ ꯂꯣꯏꯅꯕ ꯀꯦꯁꯁꯤꯡ ꯌꯥꯎꯗꯦ (ꯀ꯭ꯂꯣꯖ 3.14.9(c))	
A6. ꯁꯥꯏꯠ ꯁꯔꯤꯡꯗ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤ ꯑꯣꯏꯕꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯧꯕ: ꯗꯨꯔꯦꯁꯟ ꯄ꯭ꯔꯃꯥꯅꯁꯤꯡ ꯂꯤꯡꯂꯕꯒꯤ ꯂꯩꯕ 10% AEP-ꯒꯤ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯄꯤꯛ, ꯀ꯭ꯂꯣꯖ 2.11.3-ꯒꯤ ꯀꯦꯁ (ꯀ꯭ꯂꯣꯖ 3.14.7)	
A7. ꯁꯥꯏꯠ ꯁꯔꯤꯡꯗ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤ ꯑꯣꯏꯕꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯧꯕ: ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯀꯔꯤꯇꯤꯀꯦꯜ ꯗꯨꯔꯦꯁꯅꯗ 50% AEP-ꯒꯤ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯄꯤꯛ (ꯀ꯭ꯂꯣꯖ 2.11.3)	

B. ꯄꯤꯛ ꯐ꯭ꯂꯣꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.14.7–3.14.10)

ꯂꯤꯃꯤꯠ: ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡꯗ AEP ꯑꯃꯁꯨꯡ ꯗꯨꯔꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ 0.9 × Q_pre (ꯀ꯭ꯂꯣꯖ 3.14.10(a)); ꯁꯥꯏꯠ ꯁꯔꯤꯡꯗ ꯃꯦꯊꯣꯗꯣꯂꯣꯖꯤ ꯑꯣꯏꯕ ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡꯗ ꯀꯦꯁ A6 (1% AEP-ꯒꯤꯗꯃꯛ) ꯑꯃꯁꯨꯡ A7 (50% AEP-ꯒꯤꯗꯃꯛ) (ꯀ꯭ꯂꯣꯖ 3.14.10(b))꯫

ꯇꯦꯕꯜ 3F.11 — ꯐꯣꯔꯝ 3-2: AEP ꯑꯃꯁꯨꯡ ꯗꯨꯔꯦꯁꯟ ꯃꯇꯨꯡ ꯏꯟꯅ ꯄꯤꯛ ꯐ꯭ꯂꯣꯁꯤꯡ

AEP	ꯗꯨꯔꯦꯁꯟ (h)	AMC	Q_pre	Q_post, ꯀꯟꯠ꯭ꯔꯣꯜ ꯌꯥꯎꯗꯅ	Q_post, ꯑꯣꯐꯁꯦꯠ ꯌꯥꯎꯕ	ꯂꯤꯃꯤꯠ	ꯃꯥꯏꯄꯥꯛꯂꯕꯔꯥ?
50% (2-yr)	1	II					
50% (2-yr)	2	II					
50% (2-yr)	3	II					
50% (2-yr)	6	II					
50% (2-yr)	12	III					
50% (2-yr)	24	III					
50% (2-yr)	48	III					
50% (2-yr)	72	III					
10% (10-yr)	1	II					

AEP	ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	AMC	Q_pre	Q_post, ꯀꯟꯠ꯭ꯔꯣꯜ ꯇꯧꯗꯕ	Q_post, ꯄꯣꯟꯗ ꯇꯧꯔꯕ	ꯂꯤꯃꯤꯠ	ꯃꯄꯨꯡ ꯐꯥꯕꯔꯥ?
10% (10-yr)	2	II					
10% (10-yr)	3	II					
10% (10-yr)	6	II					
10% (10-yr)	12	III					
10% (10-yr)	24	III					
10% (10-yr)	48	III					
10% (10-yr)	72	III					
1% (100-yr)	1	II					
1% (100-yr)	2	II					
1% (100-yr)	3	II					
1% (100-yr)	6	II					
1% (100-yr)	12	III					
1% (100-yr)	24	III					
1% (100-yr)	48	III					
1% (100-yr)	72	III					

C. ꯚꯣꯂꯨꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ (ꯀ꯭ꯂꯣꯖ 3.14.8–3.14.10)

ꯇꯦꯕꯜ 3F.12 — ꯐꯣꯔꯝ 3-2: ꯚꯣꯂꯨꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ

AEP	ꯒꯚꯔꯅꯤꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	ꯔꯟꯑꯣꯐ ꯚꯣꯂꯨꯝ, ꯃꯃꯥꯡ	ꯔꯟꯑꯣꯐ ꯚꯣꯂꯨꯝ, ꯃꯇꯨꯡ ꯀꯟꯠ꯭ꯔꯣꯜ ꯇꯧꯗꯕ	[illegible]	[illegible] ꯁ꯭ꯇꯣꯔꯦꯖ	ꯁ꯭ꯇꯣꯔꯦꯖ [illegible] ꯂꯦꯚꯦꯜ (m)
50% (2-yr)						
10% (10-yr)						
1% (100-yr)						

C1. ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤꯗꯃꯛ ꯒꯚꯔꯅꯤꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯟ, ꯑꯃꯁꯨꯡ 24, 48 ꯑꯃꯁꯨꯡ 72 h-ꯒꯤ ꯔꯤꯖꯜꯠꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.14.10): ______

D. ꯁꯦꯟꯁꯤꯇꯤꯚꯤꯇꯤ ꯔꯟꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 3.8.5, 3.14.11)

ꯇꯦꯕꯜ 3F.13 — ꯐꯣꯔꯝ 3-2: ꯁꯦꯟꯁꯤꯇꯤꯚꯤꯇꯤ ꯔꯟꯁꯤꯡ

ꯄꯦ	ꯒꯒꯄꯆꯤꯏ ꯀ꯭ꯁꯦꯄꯐ (AEP, ꯅ꯭ꯌꯄꯥꯀꯦ)	Q_post, ꯄꯦꯁ꯭ꯌ ꯁꯣꯄꯕꯅ ꯍꯦꯏꯕ (%)	ꯍꯐꯣ ꯁꯣꯕ ꯀ꯭ꯁꯦꯄꯥꯇꯅ ꯍꯦꯏꯕ (%)	ꯒꯒꯄꯦ ꯁꯣꯕ ꯄꯤꯁꯥꯦꯀꯦ ꯒꯦꯂꯨꯐ ꯆꯌꯄꯒꯪ WQv (ꯉ꯭ꯆꯦꯇ 3.8.5(c))
Ia = 0.05S				
ꯀ꯭ꯁꯥꯦꯅꯄꯅ ꯊꯤꯏ ꯄꯥꯌ ꯗꯥꯏꯁꯄ (ꯍꯥꯦꯆꯩ ꯆꯥꯐꯕ ꯗꯥꯏꯁꯄ ꯀꯤꯇꯤꯦꯆꯕ ꯍꯗꯐꯅ ꯁꯏꯁꯣ)				—

E. ꯍꯄꯤ ꯆꯣꯇꯕ ꯌꯥꯒꯀꯤꯏ (ꯉ꯭ꯆꯦꯇ 3.14.12)

ꯁꯥꯕꯜ 3F.14 — ꯗꯦꯄꯐ 3-2: ꯍꯄꯤ ꯆꯣꯇꯕ ꯌꯥꯒꯀꯤꯏ

ꯌꯥꯒ	ꯄꯤꯇꯜꯌ	ꯀꯕꯍꯤꯁꯥꯜꯅ ꯄꯥꯗꯄꯥꯦꯀ
ꯅ꯭ꯄꯦꯅꯩꯁ꯭ꯌꯦ ꯍꯁꯐꯀꯤꯏ (ꯀꯄꯨꯒ 4)		
ꯌꯩꯐꯅ꯭ꯄꯕꯅꯂꯨ ꯑꯦꯄꯤꯗꯤꯀ ꯑꯍꯂꯨꯏ ꯁ꯭ꯄꯥꯀ ꯀ꯭ꯉꯄꯤꯦ (ꯀꯄꯨꯒ 4)		
ꯁꯍꯄꯇꯥꯦꯀꯤ ꯀ꯭ꯊꯤꯜꯌꯥ (ꯀꯄꯨꯒ 4)		
ꯑꯩꯁ꯭ꯌꯗꯦꯜ ꯐꯤꯏꯕꯒꯤ ꯀ꯭ꯁꯦꯄꯥꯇ ꯌꯥꯒ (ꯀꯄꯨꯒ 5)		
ꯍꯁꯩ ꯐꯏꯕ ꯍꯗꯐꯒꯤ ꯑꯥꯆꯩꯆꯩꯁꯀꯤꯀ (ꯀꯄꯨꯒ 5)		

F. ꯐꯣꯅꯩꯏ ꯆꯣꯕ ꯁꯦꯇꯤꯆꯤꯌꯄꯒꯤ ꯀ꯭ꯁꯥꯁꯍꯥꯦꯌ

ꯑꯣꯆꯩ ꯍꯁꯄꯤ ꯍꯅꯨꯅꯤ ꯌꯩꯏꯅꯐꯆꯕ ꯑꯀꯤ ꯉ꯭ꯆꯦꯇ 3.14-ꯒꯤ ꯊ꯭ꯄꯦꯀꯤꯇꯄꯆꯩ, ꯅꯥꯒꯥꯇꯊꯍꯥꯦꯌꯉꯤ ꯍꯍꯩꯏ ꯑꯍꯂꯨꯏ ꯍꯁꯨꯏꯒꯤ ꯄꯦꯀꯤꯏꯅ ꯅꯤꯇꯩꯁꯦ ꯀ꯭ꯁꯦꯄꯐ ꯑꯅꯨꯍꯒ ꯀꯤꯇꯤꯦꯆꯅꯨꯆꯩ ꯁꯣꯄꯥ, ꯑꯍꯂꯨꯏ ꯉ꯭ꯄꯩꯁꯁꯥꯄꯤꯌꯦ ꯑꯅꯨ ꯍꯊꯨꯏ ꯗꯩꯍꯦꯆꯕꯒꯤꯅꯍꯒ ꯍꯍꯣꯀꯩꯒꯤ ꯉꯥꯌꯍꯥꯦꯌ ꯑꯍꯅꯒꯤ ꯑꯁꯦꯊꯊ ꯑꯍꯅ ꯄꯦꯑꯦꯗ ꯑꯍꯌꯁꯩ ꯅꯩꯁꯒꯄꯌ ꯁꯣꯁꯤꯅꯥ (ꯉ꯭ꯆꯦꯇ 3.14.2(b))꯫

ꯁꯥꯕꯜ 3F.15 — ꯗꯦꯄꯐ 3-2: ꯐꯣꯅꯩꯏ ꯆꯣꯕ ꯁꯦꯇꯤꯆꯤꯌꯄꯒꯤ ꯀ꯭ꯁꯥꯁꯍꯥꯦꯌ

ꯗꯤꯜꯅ	ꯁꯦꯁ꯭ꯄꯤ
ꯍꯍꯤꯏ	
ꯉ꯭ꯌꯩꯆꯤꯗꯤꯉꯥꯀꯦ ꯑꯍꯂꯨꯏ ꯄꯥꯇꯤꯀ꯭ꯁꯄꯥꯀꯦ ꯆꯐꯕꯄ	
ꯀꯩꯁꯦ	
ꯆꯨꯍꯤꯌ	

ꯅ꯭ꯄꯩꯗꯌ ꯗꯦꯄꯐ — ꯍꯆꯤꯊꯨꯄ ꯆꯦꯏꯒꯤ ꯁꯀꯤꯏ ꯁꯄꯐ ꯅꯤꯇꯩꯁꯦ ꯍꯥꯆꯨꯌꯥꯜ, ꯅ꯭ꯄꯩꯗꯌ ꯒꯄꯀꯦ 1.0.

ꯁꯍꯔꯀꯤ ꯔꯅꯑꯣꯐ ꯀꯅꯇ꯭ꯔꯣꯜ: ꯔꯤꯇꯦꯅꯁꯅ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯅꯁꯅ

ꯑꯍꯦꯅꯕꯁꯤꯡ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 4-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥ ꯑꯍꯦꯅꯕ 4C ꯑꯁꯤ ꯇꯦꯕꯜ 4.6.7-ꯒꯤ ꯈꯨꯗꯝ ꯑꯣꯏꯕ ꯈꯨꯗꯝ ꯑꯗꯨꯗ ꯈꯨꯗꯝꯐꯝ ꯑꯣꯏꯕ, ꯍꯤꯗꯥꯏꯁꯤꯡ (routing) ꯁꯦꯝꯕꯒꯤ ꯃꯑꯣꯡꯗ, ꯃꯤꯡꯁꯤꯜ ꯂꯩꯕ ꯁꯤꯔꯤꯖ A-ꯒꯤ ꯊꯕꯛ ꯁꯦꯝꯕ ꯈꯨꯗꯝ (worked example) ꯑꯃꯅꯤ॥ ꯑꯍꯦꯅꯕ 4B-ꯗꯤ ꯁꯤꯔꯤꯖ B ꯁꯦꯝꯕꯒꯤꯗꯃꯛ ꯁꯨꯞꯅꯒꯤꯑꯣꯏꯅ, ꯃꯔꯤꯂꯩꯅꯕ ꯂꯤꯃꯤꯠ ꯁꯦꯝꯕ ꯄꯤꯖꯤꯜ ꯀꯣꯏꯐꯤꯁꯤꯌꯦꯟꯇꯁꯤꯡ (fixed release coefficient) ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 4-ꯒꯤ ꯑꯣꯔꯤꯐꯤꯁ (orifice) ꯅꯗꯤꯁꯦꯟꯇꯔꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯟ ꯁꯦꯝꯕ ꯁꯤꯡꯊꯥꯅꯕ ꯑꯣꯔꯤꯐꯤꯁ ꯁꯦꯝꯕ ꯑꯃꯥ ꯌꯥꯎꯔꯤ; NIH-DHAARA ꯃꯦꯇꯣꯗꯁꯤꯡ ꯃꯇꯧ ꯁꯦꯝꯕ ꯒꯦꯅꯔꯦꯂꯁꯤꯡ ꯑꯗꯨ ꯍꯥꯏꯗ꯭ꯔꯣ ꯂꯩꯕ ꯅꯤꯡꯊꯤꯕ ꯅꯤꯡꯁꯤꯡꯕꯤꯔꯤ॥ ꯑꯍꯦꯅꯕ 4A-ꯗꯤ ꯃꯦꯞꯁꯤꯡ ꯑꯁꯤꯗ ꯍꯥꯏꯗ꯭ꯔꯣ ꯂꯩꯕ ꯁꯤꯡꯃꯦꯞꯁꯤꯡ GIS ꯑꯃꯁꯨꯡ ꯃꯈꯥꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ (groundwater) ꯃꯦꯁꯥ ꯃꯇꯧ ꯁꯦꯝꯕ; ꯃꯁꯤꯗꯤ ꯁꯥꯏꯇꯁꯤꯡꯗꯤ ꯅꯦꯝꯊꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯁꯛ ꯈꯔꯒꯤ ꯄꯨꯔꯛꯂꯤ ꯌꯥꯏꯔꯤ॥ ꯇꯦꯔꯃ 4-1-ꯗꯒꯤ 4-3 ꯐꯥꯎꯕ ꯑꯁꯤ ꯇꯦꯕꯜ 4.17-ꯗ ꯃꯇꯧ ꯁꯦꯝꯕ ꯆꯕꯃꯤꯁꯦꯟ ꯇꯦꯔꯃꯂꯤꯕꯅꯤ॥ ꯃꯍꯦꯀ ꯑꯁꯤ ꯃꯦꯞꯁꯤꯡ ꯇꯦꯔꯃꯂꯤꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯦꯀꯒꯤ ꯑꯍꯥꯏꯒꯤ ꯁꯦꯝꯕ ꯑꯃꯌꯥꯁ ꯅꯥꯏ॥

ꯑꯍꯦꯅꯕ 4A — ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯃꯁꯤꯟꯅꯒ ꯑꯍꯕ ꯃꯦꯔꯈꯦꯂꯋꯁꯤꯡꯒꯤ ꯀꯈꯔꯁꯤꯡ (GIS); ꯅꯤꯡꯊꯍꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯅꯗꯅꯕ ꯅꯦꯍꯒꯤ ꯃꯦꯞ

ꯁꯔꯨꯛ 4-ꯒꯤ ꯇꯦꯕꯜ 4.5.3, 4.5.4 ꯑꯃꯁꯨꯡ 4.12-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

4A.1 **ꯏꯁꯤꯡ ꯏꯆꯥꯎꯗ ꯁꯦꯃꯁꯤꯟꯅꯒ ꯑꯍꯕ ꯃꯦꯔꯈꯦꯂꯋꯁꯤꯡꯒꯤ ꯀꯈꯔꯁꯤꯡ.** ꯃꯦꯔꯈꯦꯂꯋꯁꯤꯡ ꯑꯗꯨ ꯇꯦꯕꯜ 4.5.3.2-ꯗ ꯅꯤꯁꯌ ꯁꯦꯝꯕꯁꯤꯡ ꯑꯗꯨꯅꯤ, ꯇꯦꯕꯜ 4.5.4 ꯃꯍꯥꯛ ꯅꯤꯡꯁꯤꯡꯍ ꯁꯦꯝꯕ ꯃꯦꯔꯈꯦꯂ ꯑꯃꯁꯨꯡꯗꯥꯏ ꯅꯤꯡꯅꯤꯗꯤ॥ ꯃꯍꯦꯀꯒꯤ ꯃꯦꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ GIS ꯅꯦꯔꯤ ꯑꯁꯤ ꯑꯍꯦꯅꯕ 1B-ꯒꯤ ꯃꯦꯍ ꯁꯌ ꯑꯗꯨꯃꯗꯤ; ꯑꯍꯦꯅꯕ ꯑꯗꯨꯗꯤ ꯃꯦꯔꯈꯦꯂꯋꯁꯤꯡ ꯅꯤꯁꯌ ꯁꯦꯍ ꯑꯃꯁꯨꯡ ꯅꯦꯔꯤ ꯑꯗꯨꯒꯤ ꯑꯦꯁꯦꯄꯤꯕꯤꯌ ꯅꯦꯑꯣꯁꯌ ꯌꯥꯎꯔꯤ॥ ꯑꯍꯦꯅꯕ ꯑꯗꯤ ꯑꯁꯤ ꯌꯥꯎꯗꯤ ꯍꯃꯦꯗꯃꯛꯕꯗꯤ॥

4A.2 **ꯅꯤꯡꯊꯍꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ ꯅꯗꯅꯕ ꯅꯦꯍꯒꯤ ꯃꯦꯞ.** ꯃꯦꯞ ꯑꯁꯤꯗꯤ ꯇꯦꯕꯜ 4.12 ꯅꯌꯅꯕ ꯑꯦꯄꯤꯔꯤꯁꯤꯡ ꯁꯌꯗꯤ: ꯏꯁꯤꯡ ꯁꯥꯏꯖ ꯁꯥꯃꯥꯏꯀꯤ ꯅꯤꯡꯊ, ꯃꯁꯤꯒꯤ ꯅꯦꯡꯁꯃꯨꯁꯤꯡꯗ (lacustrine) ꯅꯤꯡ ꯑꯍꯦꯌꯥꯏ, ꯅꯤꯡ (silt) ꯑꯃꯁꯨꯡ ꯌꯥꯏꯌꯕ (peat) ꯃꯍꯥꯏꯁ, ꯏꯁꯤꯡꯇꯦ, ꯍꯤꯕꯇꯦ, ꯃꯥꯏꯍꯤ, ꯕꯤꯁꯥꯌꯂꯦ, ꯅꯁꯕꯦ ꯑꯃꯁꯨꯡ ꯃꯍꯤ ꯏꯁꯤꯡꯇꯦꯗ ꯑꯃꯁꯨꯡ ꯃꯍꯦꯀꯒꯤ ꯑꯃꯦꯀꯕꯗ, ꯃꯇꯦ ꯑꯗꯨꯗ ꯏꯁꯤꯡꯇꯦ ꯅꯦꯁꯌꯃ (Imphal West) ꯁꯤꯅꯕ ꯃꯇꯦꯅꯗ ꯏꯁꯤꯡ ꯅꯤꯡꯊꯍꯒꯤ ꯃꯍꯥꯛ 2–5 m-ꯗ ꯅꯤ ꯑꯃꯁꯨꯡ ꯕꯤꯁꯥꯌꯂꯦꯗ ꯌꯥꯏꯅꯦꯃꯦꯁꯤꯡ ꯍꯗ (piezometric head) ꯅꯤꯡꯊꯍꯒꯤ ꯃꯍꯥꯛ 2.50–4.30 m-ꯗ ꯅꯤ; ꯅꯦꯡꯁꯥꯏꯀꯤ ꯃꯅꯦꯡ ꯑꯃꯁꯨꯡ ꯅꯦꯡꯁꯥꯡ ꯑꯦꯡꯌꯃꯤ 236.21 km²-ꯒꯤ ꯃꯂꯨꯝꯗ ꯅꯕ ꯅꯇ; ꯌꯦꯃꯤ ꯅꯦꯗ (paddy land) ꯑꯃꯁꯨꯡ ꯃꯃꯤꯝꯗ ꯌꯥꯌ (pat; lake or wetland) ꯑꯍꯦꯇꯕ ꯃꯇꯦꯇꯁꯤꯡ; ꯅꯇꯦꯌꯥꯌ ꯑꯃꯁꯨꯡ ꯑꯁꯌꯥꯌ ꯌꯥꯌ ꯑꯃꯁꯨꯡ ꯌꯨꯍꯦꯤꯁꯤꯡꯒꯤ (pukhri; pond) ꯃꯅꯦꯡꯁꯤꯡ; ꯁꯨꯇꯦꯡꯒꯤ ꯌꯦꯁꯤꯡꯒꯤ (bund) ꯃꯂꯨꯝꯗ ꯅꯕ ꯅꯇ; ꯅꯤꯇꯤꯕꯇ ꯌꯥꯅꯦꯒꯤ ꯕꯤꯃ ꯑꯃꯁꯨꯡ ꯅꯤꯇꯤꯒꯤ (Jiri) ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯅꯇ (flood plain); ꯌꯦꯅ ꯁꯦꯝꯕ ꯏꯁꯤꯡ (perched water) ꯅꯌꯦꯒ ꯏꯁꯤꯌ (spring) ꯅꯕ ꯅꯤꯡꯒꯤ ꯁꯍꯌꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯅꯍꯤꯒꯤ ꯃꯇꯤꯂꯇꯕ ꯃꯁꯛ ꯑꯃꯗ ꯅꯤꯡꯊꯍꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯁꯤꯁꯦ ꯁꯦꯝꯕ ꯑꯁꯤ ꯅꯤꯡꯊꯍꯗꯒꯤ 3 m-ꯒꯤ ꯃꯂꯨꯝꯗ ꯅꯕ ꯑꯦꯄꯤꯔꯤ ꯑꯃꯍꯥꯏꯁ (ꯇꯦꯕꯜ 4.12.1)॥

ꯂꯥꯝ ꯂꯤꯄꯥꯀꯗꯕ. ꯑꯍꯥꯅꯕ ꯑꯁꯤꯗ (a) ꯏꯁꯤꯡ ꯏꯆꯦꯜꯗ ꯂꯥꯏꯁꯤꯡꯁꯤꯒ ꯑꯦꯅꯕ ꯃꯥꯍꯐꯥꯌꯦꯂꯣꯏꯗꯒꯤ ꯔꯐꯍꯣꯂꯣꯏꯗ, GIS ꯆꯥꯅꯥꯏ ꯑꯐꯥ ꯑꯦꯅꯆ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ ꯑꯐꯥ ꯐꯍꯦꯅꯒꯤ ꯐꯨꯡꯗ ꯆꯕꯗꯦ ꯄꯅꯕꯗꯨ ꯅꯦꯗꯥꯁ ꯆꯥꯆꯕ ꯐꯦꯡꯆꯕ ꯂꯃꯥꯏ ꯑꯐꯒꯤ ꯐꯥꯁꯂꯣꯏꯗ ꯑꯦꯅꯆ, ꯑꯃꯁꯨꯡ (b) ꯁꯦꯛꯁꯟ 4.12.1-ꯒꯤ ꯆꯐꯦꯅꯒꯤ ꯐꯥꯒꯤ ꯏꯁꯤꯡ ꯆꯃꯆꯕ ꯆꯦꯡꯒꯤ ꯐꯥꯁ ꯑꯐꯥ, ꯐꯦꯡꯂꯨꯡꯒꯤ ꯐꯨꯐꯗ ꯑꯃꯁꯨꯡ ꯐꯨꯡꯗ ꯆꯕ ꯆꯐꯦꯅꯒꯤ ꯐꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯤꯆꯆꯥꯅ ꯄꯅ (seasonal high) ꯗꯥꯁꯖꯒꯤ ꯆꯦꯅꯆꯦ, ꯅꯦꯗꯒꯆꯤ꯫ ꯐꯂꯣꯗ ꯗꯤꯆꯤꯡꯥꯅ ꯑꯥꯆꯤꯒꯥꯂꯦ ꯐꯦꯗꯥꯅ ꯑꯐꯗꯒꯤ ꯆꯥꯕꯕ ꯕꯥꯂꯣꯦ ꯑꯃꯁꯨꯡ ꯂꯕ-ꯕꯥꯂꯣꯦꯒꯤ ꯔꯐꯍꯣꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯄꯕꯐꯒꯤ ꯆꯥꯁꯅꯕꯗ (WRD, NRSC, ꯂꯕꯒꯥ ꯑꯦꯖ ꯄꯦꯗꯤꯅ), WRD-ꯒꯤ ꯁꯕꯥꯅꯒꯤ ꯁꯦꯂꯣꯏꯗ, ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯅꯥꯆꯥꯅꯂꯣꯏꯗ, ꯒꯥꯋ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯥꯞ ꯒꯥꯋ (flap gate) ꯆꯕ ꯑꯦꯗꯋꯖꯦꯅꯂꯣꯏꯗ (outfall), ꯁꯐꯁꯤꯗ ꯂꯁꯥꯂꯦꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯒꯥꯆꯂꯣꯏꯗ, ꯐꯍꯦꯔꯒꯤ ꯅꯕꯆꯤꯗ ꯆꯥꯒꯥꯅ, ꯐ꯭ꯂꯗ ꯆꯥꯒꯥꯅ ꯑꯃꯁꯨꯡ ꯄꯅꯅꯥꯂꯋ ꯐ꯭ꯂꯗ ꯆꯥꯒꯥꯅꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯐꯍꯦꯔꯒꯤ ꯗꯥꯁꯐꯒꯤ ꯆꯦꯅꯆꯦ [TBC], ꯐꯦꯗꯥꯅꯒꯤ ꯕꯅ-ꯆꯦ 93-ꯒꯤ ꯕꯖꯕ ꯁꯥꯕꯅ, ꯕꯅ-ꯆꯦ 94-ꯗꯦ ꯁꯐꯖꯐ ꯑꯦꯅꯕ ꯅꯐꯖꯦꯅ ꯑꯃꯁꯨꯡ ꯐꯦꯅꯕꯗꯒꯤ ꯕꯤꯂꯒ ꯅꯥꯂꯖꯦꯕꯐꯗ ꯐꯂꯁꯕ ꯁꯆꯦꯂꯣꯏꯗꯒꯤ ꯄꯅ ꯐ꯭ꯂꯗ ꯕꯤꯂꯒ ꯑꯥꯕꯤꯅꯦꯂ (High Flood Risk Areas) (ꯁꯦꯅꯤꯗꯕ [TBC]), ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯆꯦꯥꯂ ꯆꯦꯆꯤꯗ ꯑꯥꯒꯋ, 1978 (Manipur Flood Plain Zoning Act, 1978) ꯐꯅꯗ ꯆꯦꯁꯤꯖꯅ ꯁꯕꯕ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯆꯦꯂ ꯑꯐꯄꯥꯒꯁ (ꯑꯐꯋꯁ ꯆꯦꯁꯤꯖꯅ ꯁꯅꯤꯗꯥ), ꯃꯅꯤꯄꯨꯔ ꯆꯦꯒꯁꯒ ꯆꯥꯒ (ꯂꯣꯛꯇꯥꯛ-ꯂꯦꯛ) ꯑꯥꯒꯋ, 2006 (Loktak Lake (Protection) Act, 2006)-ꯒꯤ ꯃꯦꯕ ꯆꯦꯂ ꯑꯃꯁꯨꯡ ꯕꯖꯕ ꯆꯦꯂꯣꯏꯗ, NHPC ꯑꯃꯁꯨꯡ LDA-ꯗꯒꯤ ꯆꯕꯕ ꯆꯦꯒꯁꯒ ꯑꯃꯁꯨꯡ ꯄꯖꯅ ꯕꯥꯕꯦꯆꯃ (Ithai barrage) ꯆꯥꯒꯥꯅꯂꯣꯏꯗꯒꯤ ꯆꯦꯅꯆꯦ, ꯃꯅꯤꯄꯨꯔ ꯂꯁꯥꯋ ꯁꯥꯋꯆꯥꯂꯗꯂ ꯑꯦꯖꯕꯤꯁꯤꯆꯦ (Manipur State Wetlands Authority) ꯔꯐꯍꯣ ꯖꯗꯂꯦ ꯆꯦꯁꯤꯖꯅ ꯁꯕꯕ ꯁꯥꯋꯆꯥꯂꯗꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ NGT M.A. 26/2019-ꯒꯤ ꯐꯨꯡꯗ ꯂꯥꯐꯅꯤꯕ ꯏꯁꯤꯡ ꯆꯖꯐ ꯅꯗ 4,000-ꯒꯤ ꯄꯂꯒꯥꯂꯁꯕꯤ, ꯕꯥꯒꯥꯂ ꯕꯥꯃꯦꯕꯗꯂꯣꯏꯗꯗꯒꯤ ꯆꯕꯕ ꯃꯅꯤꯄꯨꯔ ꯃꯂꯂꯕꯒꯥꯂꯦ ꯑꯦꯖ ꯁꯥꯗꯤ ꯆꯥꯂꯗ ꯑꯃꯁꯨꯡ ꯁꯥꯋꯆꯥꯂꯗ ꯑꯥꯒꯋ, 2014 (Manipur Conservation of Paddy Land and Wetland Act, 2014)-ꯒꯤ ꯆꯕꯁꯒ ꯑꯃꯁꯨꯡ ꯁꯥꯋꯆꯥꯂꯗ, ꯃꯄꯤꯊꯦꯜ (ꯃꯄꯤꯊꯦꯜ; Mapithel), ꯈꯨꯒꯥ (Khuga) ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗꯥ (Singda) ꯗꯥꯐꯂꯣꯏꯗꯒꯤ ꯆꯥꯒꯥꯅꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯕꯤꯆꯤꯆꯒꯤ ꯕꯥꯃꯦꯕꯗꯂꯣꯏꯗ [TBC], ꯑꯃꯁꯨꯡ ꯆꯣꯇꯦꯕꯦꯛꯔꯥ (Chotebekra) ꯕꯕꯒ ꯁꯕꯥꯅꯗ ꯆꯕ CWC-ꯒꯤ ꯆꯥꯒꯥꯅ-ꯐꯦꯆꯤꯁꯕꯤꯗ ꯂꯅꯋ, ꯂꯄꯕꯒꯤ ꯔꯐꯍꯣꯂꯣꯏꯗ (ꯐꯂꯁꯕ-ꯁꯆꯦꯂ ꯑꯃꯁꯨꯡ ꯆꯦꯁꯤꯖꯅ ꯁꯕꯕ ꯁꯆꯦꯆꯤꯗ ꯑꯥꯕꯤꯅꯦꯂꯣꯏꯗꯒꯤꯗꯐꯒ MAHUD ꯑꯃꯁꯨꯡ TPD, PDA Manipur, IMC ꯑꯃꯁꯨꯡ ꯑꯁꯦꯁꯁ ꯁꯕꯕꯂ ꯆꯦꯃꯅ ꯕꯦꯗꯤ 26 (ꯐꯍꯦꯔꯒꯤ ꯐꯨꯡꯗ 23-ꯒꯤꯗꯐꯒ ꯗꯕꯖꯋ ꯕꯁꯂꯗꯕꯤ ꯆꯦꯁꯤꯖꯤꯃꯥꯂꯂꯣꯏꯗ 3 ꯆꯦꯒꯥꯐꯕꯕ 2025-ꯗ ꯁꯦꯂꯋ ꯁꯅꯤ, ꯆꯤꯂꯋ ꯁꯕꯕ ꯐꯨꯡ ꯄꯂꯆ), ꯑꯃꯁꯨꯡ ꯅꯤꯗꯒꯤ ꯆꯐꯂꯣꯏꯗ, ꯗꯥꯁꯁꯤ ꯃꯐꯤꯂꯆꯕꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯗꯤꯂꯁꯕꯤꯒ ꯃꯁꯂꯣꯏꯅꯂꯣꯏꯗ [TBC]), MSDMA-ꯗꯦ ꯖꯐꯆꯤꯕ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯐꯥꯁꯂꯣꯏꯗ, CGWB ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯑꯦꯕꯆꯕꯒꯥꯂꯦ-ꯅꯥꯅ ꯕꯥꯃꯦꯕꯗꯂꯣꯏꯗ, ꯑꯃꯁꯨꯡ ꯅꯐꯖꯦꯅ ꯁꯐꯁꯦꯒꯃ ꯆꯐꯦꯅꯒꯤ ꯆꯥꯃꯂꯁꯕꯅꯂ ꯆꯐ ꯑꯅꯥꯋꯁ, ꯆꯐ ꯑꯃꯁꯨꯡ ꯁꯤꯋ, ꯆꯕꯁꯒ ꯑꯃꯁꯨꯡ ꯐꯐꯗ ꯁꯦꯋ ꯑꯦꯅꯕꯐꯕ ꯐꯖꯐꯂꯣꯏꯗ, ꯁꯐꯁꯦꯒꯃ ꯐꯆꯦꯒꯁ ꯆꯕ ꯆꯖꯦꯅ ꯑꯃꯁꯨꯡ ꯂꯗꯃꯁꯃ ꯖꯋꯄꯤꯅ ꯖꯥꯂꯂꯣꯏꯗ (foothill fan), ꯅꯤꯗꯂꯣꯏꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯐꯁꯦꯒꯃ ꯐꯨꯐꯗ ꯆꯕ ꯅꯤꯗ ꯑꯁꯤꯒꯁꯂꯣꯏꯗꯒꯤ ꯗꯤꯁꯥꯡ (Disang) ꯂꯥꯅ (shale), ꯕꯥꯔꯥꯏꯜ (Barail) ꯂꯥꯂꯗꯂꯁꯦꯂ ꯃꯥꯁꯤꯗꯂꯣꯏꯗ (sandstone capping), ꯆꯤꯕꯤꯕꯐ ꯁꯆꯦꯂꯒꯤ ꯕꯕꯒ ꯑꯃꯁꯨꯡ ꯆꯤꯕꯤꯒꯤ ꯑꯥꯂꯨꯕꯤꯌꯥꯝ (alluvium) ꯑꯃꯁꯨꯡ ꯂꯄꯕꯒꯤ ꯐꯤꯜ (fill) ꯃꯅꯤ ꯅꯤꯐꯗꯦ ꯂꯂꯗꯦꯒꯆꯕꯒꯥ ꯄꯅꯅꯕꯕ, ꯁꯦꯛꯁꯟ 4.11-ꯒꯤ ꯁꯐꯁꯦꯒꯃ ꯆꯐꯒꯤ ꯂꯁ ꯅꯋꯆꯕ ꯆꯐ ꯑꯃꯁꯨꯡ 10°-ꯗꯒꯤ ꯄꯥꯂꯕ ꯗꯦꯁꯐꯂꯣꯏꯗ, ꯑꯃꯁꯨꯡ ꯃꯕꯤꯒꯐꯕ ꯗꯦꯁꯐ ꯑꯐꯗ ꯆꯕ ꯗꯤꯂꯣꯏ ꯂꯥꯅ, ꯐꯍꯦꯔꯗ ꯐꯂꯣꯏꯒꯤ ꯅꯤꯗꯒꯤ ꯂꯁ ꯅꯋꯆꯦ, ꯂꯦꯅꯅ ꯂꯕꯒꯥ ꯐꯥꯁꯂꯣꯏꯗꯗꯒꯤ (NBSS&LUP, ꯂꯁꯥꯋꯃꯤ ꯂꯦꯅꯅ ꯂꯕꯒꯥ (ꯑꯥꯆꯥꯂꯣꯏ ꯃꯂꯦꯖꯕꯐ ꯁꯒꯗꯕ [TBC])) ꯐꯖ ꯁꯅ꯫ ꯐꯂꯣꯏ ꯖꯦꯗꯗꯦꯒꯆꯒꯋꯕꯤꯖꯅꯕ: (a) ꯁꯦꯛꯁꯟ 4.5.3.2-ꯗ ꯐꯐꯤꯗ ꯁꯤꯕꯕ ꯃꯥꯅꯐꯥꯂꯋꯂꯣꯏꯗ ꯅꯋꯆꯦ, ꯑꯃꯁꯨꯡ ꯂꯅꯋ ꯑꯐꯥ ꯐꯍꯦꯔꯒꯤ ꯑꯐꯒꯤ ꯐꯨꯡꯗ ꯆꯕꯕ ꯄꯅꯕꯕ ꯑꯄꯥꯂꯕ 1B-ꯗ ꯁꯤꯕꯤꯕꯒꯐꯆꯦ ꯅꯕꯥꯁ ꯆꯅ ꯑꯃꯁꯨꯡ ꯕꯥꯃꯦꯕꯗ ꯁꯅ; ꯑꯃꯁꯨꯡ (b) ꯁꯦꯛꯁꯟ 4.12.1 ꯅꯋꯁ ꯅꯤꯕ ꯂꯅꯋ ꯁꯗꯤꯗꯐꯒꯆꯦ ꯐꯂꯣꯏꯒꯤ ꯗꯤꯆꯅꯂ ꯆꯐꯦꯅꯒꯤ ꯐꯍꯦꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯆꯥꯒꯥꯅ ꯑꯂꯣꯏ ꯑꯥꯁꯕꯤꯅ–ꯆꯦꯒꯥꯐꯕꯕꯒꯤ ꯐꯁꯐ ꯑꯐꯒꯤ ꯂꯅꯋ ꯁꯅꯆꯦꯐꯤꯁꯕ (piezometer) ꯁꯕꯂꯣꯏꯗꯗꯒꯤ, ꯆꯋꯕꯒꯤ ꯐꯗ ꯅꯤꯗꯕꯕꯗꯤ, ꯅꯕꯅꯗꯒꯤ ꯆꯒꯆꯕ CGWB ꯆꯋꯕꯒꯤ ꯂꯁꯥꯋꯃꯤ ꯑꯦꯕꯆꯕꯒꯥꯂꯦ ꯅꯥꯅ (observation well) ꯑꯐꯒꯤ ꯆꯥꯒꯥꯅꯗ 0.5 m ꯄꯁꯅꯤꯂꯕꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯆꯒꯆꯕ ꯁꯕꯥꯅ, ꯅꯦꯗ, ꯁꯋ, ꯁꯅꯕꯤ ꯆꯋꯕꯒꯤ ꯆꯦꯒꯁꯒ ꯑꯐꯒꯤ, ꯆꯋꯕꯒꯤ ꯂꯅꯋ ꯑꯗ ꯃꯁꯁ ꯁꯕꯥꯅꯒꯤ ꯁꯂ ꯑꯐꯒꯤ ꯐꯨꯡꯗ ꯆꯥꯁꯆꯤꯕ ꯏꯁꯤꯡꯒꯤ ꯗꯤꯆꯅꯂ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯆꯥꯒꯥꯅꯗꯒꯤ ꯖꯐꯅ (ꯁꯦꯛꯁꯟ 4.12.1(b))꯫ ꯅꯐꯖꯦꯅ ꯁꯐꯁꯦꯒꯃ ꯆꯐꯦꯅꯗ, ꯐꯂꯣꯏꯒꯤ ꯆꯃꯂꯁꯕꯅꯂ ꯆꯐ ꯑꯅꯥꯋꯁ, ꯁꯤꯋ ꯑꯃꯁꯨꯡ ꯆꯕꯁꯒꯃ ꯆꯦꯅꯆꯦ, ꯆꯦꯒꯁꯒ ꯑꯃꯁꯨꯡ ꯑꯁꯦꯁꯁ ꯁꯋ ꯑꯃꯁꯨꯡ ꯁꯅꯕꯤꯂꯣꯏꯗꯒꯤ ꯐꯆꯦꯒꯂꯣꯏꯗ, ꯁꯕꯥꯅꯒꯤ ꯁꯂꯂꯣꯏꯗꯒꯤ ꯐꯨꯡꯗ ꯆꯕ ꯆꯐꯗ, ꯑꯃꯁꯨꯡ ꯆꯤꯕꯤꯕꯐ ꯁꯆꯦꯂꯒꯤ ꯕꯕꯒ ꯑꯃꯁꯨꯡ ꯆꯤꯕꯤꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯦꯜꯒꯤ ꯆꯐꯗ ꯁꯅꯆꯦꯐꯤꯁꯕ ꯁꯕꯂꯣꯏꯗ ꯆꯁꯕ ꯐ꯭ꯂꯣꯇꯦꯁꯟ (flotation) ꯅꯥꯒꯃꯤꯗꯐꯒ, ꯗꯤꯆꯅꯂ ꯆꯐꯦꯅꯒꯤ ꯐꯍꯦꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯆꯥꯒꯥꯅ ꯑꯂꯣꯏ ꯄꯆꯤꯒ ꯆꯕꯤꯕ ꯒꯕꯅꯂꯗ ꯆꯥꯒꯥꯅꯆꯤ (ꯁꯦꯛꯁꯟ 4.12.1)꯫

ꯁꯕꯅ 4A.1 — ꯆꯐꯦꯅꯒꯤ ꯐꯍꯦꯒꯤ ꯏꯁꯤꯡ ꯆꯒꯆꯕ ꯆꯦꯒꯁꯒꯤ ꯆꯥꯅꯕꯒꯤ ꯑꯥꯁꯕꯤꯕꯁꯋꯂꯣꯏꯗ (ꯆꯥꯑꯦꯗꯋ)

ꯐꯤꯜꯗ	ꯑꯔꯦꯝꯕ	ꯌꯨꯅꯤꯠ ꯅꯠꯔꯒꯥ ꯐꯣꯔꯃꯦꯠ
zone_id	ꯑꯈꯟꯅꯕ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯌꯔ	ꯇꯦꯛꯁꯇ
zone_class	ꯏꯝꯐꯥꯜ ꯄꯝꯂꯥꯏꯕꯤ ꯖꯣꯟ (ꯏꯝꯐꯥꯜ, ꯊꯧꯕꯥꯜ, ꯃꯌꯥꯡꯏꯝꯐꯥꯜ, ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ–ꯆꯨꯔꯥꯆꯥꯟꯗꯄꯨꯔ, ꯀꯛꯆꯤꯡ ꯏꯝꯐꯥꯜ ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ); ꯖꯣꯟꯗꯣꯅꯕꯤ ꯀꯥꯡꯂ (ꯀꯣꯟꯁꯥꯈꯨꯜ, ꯅꯤꯡꯊꯧꯈꯣꯡ, ꯊꯉꯥ (Thanga), ꯏꯊꯥꯏ–ꯁꯨꯒꯅꯨ–ꯋꯥꯡꯒꯨ (Ithai–Sugnu–Wangoo) ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ); ꯖꯣꯟꯗꯣ ꯅꯠꯔꯒꯥ ꯀꯀꯂꯝ ꯄꯥꯠ ꯑꯣꯏꯕꯥꯀꯕ ꯀꯟꯀ; ꯄꯥꯠ ꯅꯠꯔꯒꯥ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯂꯣꯟ (ꯖꯀꯗꯥꯔꯄꯥꯠ, ꯎꯇ꯭ꯔꯥ ꯄꯥꯠ (Utra Pat), ꯌꯥꯔꯥꯜ ꯄꯥꯠ (Yaral Pat), ꯋꯥꯏꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯥꯠ (Waithou–Phumnom Pat), ꯄꯨꯝꯂꯦꯟ–ꯈꯣꯏꯗꯨꯝ ꯄꯥꯠ (Pumlen–Khoidum Pat), ꯏꯀꯣꯞ–ꯈꯔꯨꯡ ꯄꯥꯠ (Ikop–Kharung Pat) ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ); ꯇꯨꯔꯦꯂꯒꯤ ꯄꯥꯟ ꯑꯀꯒꯤ ꯀꯨꯜꯂꯕ ꯆꯪ ꯖꯀ (ꯏꯝꯐꯥꯜ, ꯅꯝꯕꯨꯜ, ꯏꯔꯤꯜ (Iril), ꯀꯣꯡꯕ (Kongba), ꯊꯧꯕꯥꯜ, ꯈꯨꯒꯥ ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ); ꯖꯔꯤꯕꯀꯗ ꯕꯔꯥꯝ ꯅꯠꯔꯒꯥ ꯖꯔꯤꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯦꯇꯒꯤ ꯖꯀ; ꯌꯤꯡꯒꯤ ꯆꯥꯀꯀ ꯑꯀꯗ ꯄꯥꯔꯌ ꯐꯣꯔꯕ ꯏꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯏꯀꯨꯞ; ꯆꯀꯏꯗꯒꯤ 3 m-ꯒꯤ ꯀꯨꯞꯕ ꯆꯀꯏꯒꯤ ꯀꯅꯒꯤ ꯏꯁꯤꯡ ꯆꯕ ꯑꯇꯣꯞꯄ ꯑꯥꯔꯤꯌꯥ (ꯁꯦꯛꯁꯟ 4.12.1)	ꯇꯦꯛꯁꯇ
shgw_depth_m	ꯀꯣꯗꯨꯗꯒꯤ ꯀꯇꯈꯕ ꯆꯀꯏꯒꯤ ꯀꯅꯕ ꯆꯕ ꯆꯀꯏꯒꯤ ꯀꯅꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯤꯇꯅꯦꯡ ꯍꯣꯏ ꯕꯦꯀꯥ	m
shgw_basis	ꯂꯤꯇꯤꯗꯅꯍꯤꯕ ꯌꯦꯡꯂꯤꯡ ꯅꯠꯔꯒꯥ ꯄꯥꯏꯇꯀꯤꯇꯔꯂꯤꯡ, ꯑꯃꯁꯨꯡ ꯔꯦꯐꯔꯦꯟꯁꯁꯤ ꯀꯇꯈ	ꯇꯦꯛꯁꯇ
tidal_influence	ꯆꯀꯏꯒꯤ ꯀꯅꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯇꯦꯏꯦꯡ ꯑꯂꯤ ꯅꯥꯅꯕ ꯇꯍꯕꯦꯡ (tidal) ꯏꯁꯤꯡ ꯆꯀꯈ ꯑꯀꯒꯤ ꯀꯨꯝꯕ ꯏꯅꯅꯕꯔ (ꯁꯦꯛꯁꯟ 4.12.1(b))	ꯍꯣꯌ / ꯅꯠꯇꯦ
source	ꯗꯦꯇꯥꯒꯤ ꯍꯧꯔꯀꯐꯝ ꯑꯦꯇꯦꯟꯂꯤ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠ	ꯇꯦꯛꯁꯇ
geometry	ꯖꯣꯅꯒꯤ ꯁꯦꯞ	ꯄꯣꯂꯤꯒꯟ

ꯑꯍꯦꯅꯕ 4B — ꯇꯤꯌꯔ B ꯇꯦꯕꯂꯁꯤꯡ: PSD ꯑꯃꯁꯨꯡ SSR (ꯇꯦꯕꯜ 4.3), ꯔꯤꯇꯥꯔꯗꯦꯁꯟ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇ ꯐꯦꯛꯇꯔ C_R, ꯁꯦꯟꯁꯤꯇꯤꯕꯤꯇꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ; ꯃꯗꯦꯂꯀꯤ ꯇꯤꯌꯔ ꯀꯤꯗꯅ ꯇꯤꯌꯔ ꯔꯤꯖꯜꯠ ꯀꯝꯄꯦꯌꯥꯔꯤꯁꯟ (ꯇꯦꯕꯜ 4.3A)

ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯁꯦꯛꯁꯟ 4.4.6.3, 4.14.1, 4.14.2 ꯑꯃꯁꯨꯡ 4.14.4-ꯗꯒꯤ 4.14.6 ꯀꯌꯥꯗ ꯀꯇꯦꯡ ꯄꯤꯡꯅ॥

4B.1 ꯑꯍꯦꯅꯕ ꯑꯂꯤꯗ ꯇꯦꯕꯜ ꯀꯔꯤ ꯌꯥꯎꯒꯅꯤ॥ ꯃꯊꯧ ꯇꯥꯕ ꯑꯂꯤꯗ ꯀꯍꯥꯌꯒꯤ ꯁꯦꯛꯁꯟ ꯑꯂꯤ ꯀꯅꯕ ꯄꯤꯔꯤ:

ꯇꯦꯕꯜ 4B.1 — ꯑꯍꯦꯅꯕ 4B-ꯒꯤ ꯑꯔꯦꯝꯕꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯍꯥꯌꯒꯤ ꯁꯦꯛꯁꯟ

ꯇꯦꯕꯜ	ꯑꯔꯦꯝꯕ	ꯁꯦꯛꯁꯟ	ꯃꯊꯧ ꯑꯂꯤꯗ ꯁꯦꯛꯁꯟ
4B.2	ꯇꯤꯌꯔ B-ꯒꯤ ꯄꯔꯀꯤꯂꯤꯕꯟ ꯂꯤꯅꯌ ꯗꯤꯂꯤꯌꯔꯇ (PSD) ꯑꯃꯁꯨꯡ ꯂꯤꯅꯌ ꯁꯦꯇꯦꯠ ꯔꯤꯁꯄꯣꯟꯁꯔꯀꯦꯁ (SSR), ꯇꯦꯕꯜ 4.3-ꯒꯤ ꯃꯦꯇꯁꯤꯂꯤꯡ	4.14.2	ꯂꯦꯈ ꯂꯤꯒꯗꯕ
4B.3	ꯔꯤꯇꯥꯔꯗꯦꯁꯟ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇ ꯐꯦꯛꯇꯔ C_R	4.4.6.3	ꯂꯦꯈ ꯂꯤꯒꯗꯕ; ꯀꯥꯡꯗꯥꯅꯕꯅꯤꯀꯤꯗꯕ C_R = 0
4B.4	ꯁꯦꯟꯁꯤꯇꯤꯕꯤꯇꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯂꯤꯡ	4.14.2 ꯍꯥꯌꯕꯤ 4, 4.14.6	ꯑꯍꯦꯅꯕ ꯑꯂꯤꯗ ꯁꯦꯛꯁꯟ 4.6.5.2-ꯒꯤ ꯑꯥꯔꯤꯀꯤꯂ ꯅꯄꯔꯦꯂꯤꯗꯒꯤ ꯄꯦꯌꯄꯦꯟꯁ ꯇꯤꯌꯔ
4B.5	ꯀꯤꯗꯂ ꯇꯤꯌꯔ ꯔꯤꯖꯜꯠ ꯀꯝꯄꯦꯌꯥꯔꯤꯁꯟꯂꯤꯡ C_10 ꯑꯃꯁꯨꯡ C_2 (ꯇꯦꯕꯜ 4.3A)	4.14.4	ꯇꯦꯕꯜ 4.3A-ꯒꯤ ꯄꯔꯀꯤꯇꯦꯟ ꯃꯦꯇꯁꯤꯂꯤꯡ; ꯃꯗꯦꯂꯀꯤ ꯇꯤꯌꯔ ꯃꯦꯇꯁꯤꯂꯤꯡ ꯂꯦꯈ ꯂꯤꯒꯗꯕ

4B.2 PSD ꯑꯃꯁꯨꯡ SSR (ꯇꯦꯕꯜ 4.3)

ꯀꯦꯐ ꯀꯣꯏꯅꯥꯕ. ꯇꯦꯕꯜ ꯑꯁꯤꯒꯤ ꯃꯦꯡ ꯈꯨꯕꯒꯤ ꯖꯣꯟ, ꯄꯅꯁꯕꯥꯇꯦꯇꯤꯡ ꯀꯦꯅꯥꯜ ꯂꯕꯨꯛ ꯑꯃꯁꯨꯡ ꯁꯦꯒꯦꯇꯍꯦꯟꯊꯣꯛꯄꯒꯤ ꯍꯨꯃꯡꯒꯤ ꯅꯍꯥꯏꯕꯒꯤꯔꯀꯦꯀ (imperviousness) ꯔꯦꯟꯖꯍꯥꯏꯕꯁꯤꯡꯗꯥ, 2-yr ꯑꯃꯁꯨꯡ 100-yr ꯀꯦꯡꯇꯀꯤꯡꯒꯤ PSD ꯑꯃꯁꯨꯡ SSR, ꯀꯦꯡꯊꯥꯔꯕ ꯑꯃꯁꯨꯡ ꯅꯀꯤꯡ ꯅꯍꯤꯡꯔ ꯀꯦꯊꯀꯤꯡꯒꯤ ꯑꯗꯅꯕ ꯃꯦꯍꯦꯊꯀꯤꯡꯒꯤꯗꯥ, ꯇꯦꯕꯜ 4.3-ꯒꯤ ꯇꯦꯕꯜꯂꯕ ꯌꯥꯑꯣꯔꯤ꯫ ꯍꯀꯤꯔ ꯇꯦꯊ ꯔꯦꯟꯖꯍꯥꯏꯕꯁꯤꯡꯗꯥ ꯃꯇꯦꯡꯍꯥꯟꯕ ꯐꯤꯁꯤꯇꯒꯤ ꯇꯥꯍꯦꯀꯦ NIH-DHAARA-ꯒꯤ ꯔꯤꯇꯟꯊ ꯔꯥꯌꯨꯀꯤꯡ (ꯀꯌꯥ 2, ꯑꯄꯦꯊꯕ 2A), ꯑꯄꯦꯊꯕ 2B-ꯒꯤ ꯆꯥꯍꯤꯛ ꯑꯍꯔꯒꯤ ꯄꯊꯎꯕ ꯊꯀꯤꯑꯀꯤꯡ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 4.1-ꯒꯤ AEP ꯑꯃꯁꯨꯡ ꯔꯔꯊꯀꯊ ꯔꯦꯟꯖꯍꯥꯏꯕꯁꯤꯡꯗꯥ ꯃꯇꯦꯡ 4.6-ꯒꯤ ꯍꯌꯥꯡ ꯏꯕ ꯍꯎꯔꯀꯦ ꯀꯦꯡꯊꯥꯔꯕ ꯀꯅꯀꯀꯤꯡꯒꯤ ꯀꯦꯀ ꯑꯍꯒꯤ ꯊꯂꯤꯡꯒꯤ ꯍꯎ ꯇꯅ꯫ PSD ꯔꯦꯟꯖꯍꯥ ꯒꯊꯊꯀꯤꯡ (governing) ꯊꯤꯇꯤꯇ ꯃꯌꯥ (release cap) ꯑꯅꯒꯔꯕꯀꯤ ꯑꯃꯁꯨꯡ SSR ꯔꯦꯟꯖꯍꯥ ꯄꯥꯡꯊ ꯔꯦꯟꯖꯍꯒꯤ ꯒꯊꯊꯀꯤꯡ ꯀꯦꯊꯦ ꯑꯅꯒꯔꯕꯀꯤ, ꯇꯦꯅꯎꯥꯄꯦꯕ ꯍꯎꯔ ꯑꯀꯤ ꯃꯔꯔꯀꯦ ꯊꯂꯤꯡꯒꯤꯔꯒꯤ ꯍꯍꯜ ꯄꯦꯎꯔꯀꯕ ꯍꯊꯇꯤꯦ ꯑꯍꯒ ꯇꯅꯀꯀꯦ꯫ ꯍꯀꯤ ꯏꯅꯔꯥꯇꯥꯀꯊꯤꯏꯂꯕ, ꯇꯤꯔꯊ B ꯀꯅꯀꯀꯤꯡꯀꯦ ꯃꯇꯦꯡ 4.6 ꯀꯤꯇꯤꯦꯦ, ꯀꯀꯊꯒ ꯀꯅꯀ ꯑꯔꯨ 1 ha ꯀꯀꯊꯒ ꯍꯔꯨꯒꯤ ꯄꯦꯎꯕ ꯍꯏꯍꯔ ꯃꯇꯦꯡ 4.14.3-ꯒꯤ ꯏꯤꯥꯀ ꯇꯊꯕ ꯃꯑꯏꯤꯀꯤꯔꯦꯀꯃꯤ ꯊꯀ (fixed-coefficient route) ꯀꯤꯇꯤꯦꯦ (ꯃꯇꯦꯡ 4.14.1 ꯑꯃꯁꯨꯡ 4.14.3)꯫

ꯇꯦꯕꯜ 4B.2 — ꯇꯤꯔꯊ B-ꯒꯤ PSD ꯑꯃꯁꯨꯡ SSR (ꯇꯦꯕꯜ 4.3-ꯒꯤ ꯇꯦꯕꯜꯂꯕ)

ꯇꯦꯊ (ꯑꯄꯦꯊꯕ 2A)	HSG	ꯅꯍꯥꯏꯕꯒꯤꯔꯀꯦꯀ	PSD 2-yr (L/s/ha)	PSD 100-yr (L/s/ha), ꯀꯦꯡꯊꯥꯔꯕ	PSD 100-yr (L/s/ha), ꯅꯀꯤꯡ ꯅꯍꯤꯡꯔ ꯀꯦꯊꯀꯤꯡꯒꯤ	SSR (m³/ha), ꯀꯦꯡꯊꯥꯔꯕ	SSR (m³/ha), ꯅꯀꯤꯡ ꯅꯍꯤꯡꯔ ꯀꯦꯊꯀꯤꯡꯒꯤ
MN-Z1 ꯅꯍꯏꯜ ꯇꯍꯌꯥꯕ: MN-A ꯅꯍꯏꯜ ꯇꯍꯌꯥꯕꯃꯤ ꯇꯦꯍꯅ (ꯅꯍꯏꯜ–ꯎꯕꯜ–ꯃꯥꯔꯤꯕ–ꯕꯤꯀꯌꯥꯊ–ꯀꯍꯕꯜ–ꯍꯔꯤꯕ ꯅꯍꯏꯜ)	B / C / D	50% / 70% / 90%	—	—	—	—	—
MN-Z1 ꯅꯍꯏꯜ ꯇꯍꯌꯥꯕ: MN-A1 ꯇꯥꯇꯥꯃꯤ ꯍꯀꯥ (ꯍꯅꯊꯕ–ꯀꯤꯕꯎꯅꯕ–ꯎꯃꯕ–ꯅꯎꯅ–ꯀꯌꯥꯆꯨ–ꯔꯕꯌꯥ)	C / D	50% / 70% / 90%	—	—	—	—	—
MN-Z2 ꯑꯔꯕ, ꯀꯕꯌꯥꯥ ꯑꯃꯁꯨꯡ ꯍꯒꯤ ꯔꯤꯕꯀꯤꯕ: MN-B ꯑꯔꯕ, ꯀꯕꯌꯥꯥ ꯑꯃꯁꯨꯡ ꯍꯒꯤ ꯔꯤꯕꯀꯤꯕ (ꯀꯦꯇꯌꯥꯇꯤ–ꯃꯕꯌꯥꯥꯌꯤ–ꯂꯅꯊꯜ–ꯃꯍꯇꯕ–ꯔꯦꯔꯦ–ꯇꯦꯕꯀꯌꯜ–ꯍꯊꯦ–ꯔꯊꯔꯦꯔꯌꯥꯊ)	—	—	ꯇꯦꯕꯜꯔ ꯎꯍꯔꯦ: ꯃꯇꯦꯡ 4.6 ꯔꯀꯦ (ꯃꯇꯦꯡ 2.3.6(c)(iii))	—	—	—	—
MN-Z3 ꯀꯕꯔꯌꯥꯃꯤ ꯔꯤꯕꯀꯤꯕ ꯑꯃꯁꯨꯡ ꯇꯤꯊꯤꯕꯍ ꯌꯥꯇꯦꯦ: MN-C ꯀꯕꯔꯌꯥꯃꯤ ꯔꯤꯕꯀꯤꯕ (ꯇꯍꯦꯕꯀꯕ–ꯀꯦꯦ–ꯅꯌꯥꯍ–ꯇꯌꯥꯜ–ꯇꯀꯦꯍ–ꯏꯦꯊꯇꯜ) (Tamenglong–Noney–Khoupum–Tupul–Tousem–Pherzawl)	C / D	50% / 70% / 90%	—	—	—	—	—
MN-Z3 ꯀꯕꯔꯌꯥꯃꯤ ꯔꯤꯕꯀꯤꯕ ꯑꯃꯁꯨꯡ ꯇꯤꯊꯤꯕꯍ ꯌꯥꯇꯦꯦ: MN-C1 ꯇꯤꯊꯤꯕꯍ ꯌꯥꯇꯦꯦ (ꯇꯤꯊꯤꯕꯍ)	C / D	50% / 70% / 90%	—	—	—	—	—

4B.3 ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠ ꯐꯦꯛꯇꯔ C_R

ꯁꯦꯝ ꯅꯣꯠꯕ. ꯇꯦꯕꯜ ꯑꯁꯤꯗꯥ ꯖꯣꯟ ꯈꯕꯒꯤ ꯖꯣꯟ, ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯆꯠꯄꯒꯤ ꯗ꯭ꯔꯥꯗꯥꯎꯟ (drawdown) ꯔꯦꯠ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ C_R ꯊꯤꯒꯠꯂꯤ (ꯀ꯭ꯂꯣꯖ 4.4.3 ꯑꯃꯁꯨꯡ 4.4.6.3)꯫ ꯍꯥꯌꯕꯗꯤ NIH-DHAARA ꯗꯥꯇꯥꯕꯦꯖꯒꯤ ꯖꯣꯟꯗꯤ ꯀ꯭ꯂꯣꯖ 2.5.2-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯗꯦꯡꯈꯥꯡꯕ ꯑꯣꯏꯔꯕ ꯑꯦꯁꯤꯗ ꯃꯑꯣꯡ ꯁꯦꯟ, ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 4.4.6.2-ꯗ ꯊꯤꯔꯤꯕꯒꯤ ꯃꯇꯦꯡ ꯁꯣꯠꯂꯦ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯦꯗꯤꯠ ꯑꯁꯤ ꯊꯤꯔꯕ ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯀ꯭ꯂꯣꯕꯤꯡ ꯃꯤꯁꯔ ꯁꯗꯤꯡꯗ ꯒꯦꯔꯖꯤꯡ ꯑꯣꯁꯔꯇꯗ ꯄꯟꯊꯔꯀꯃꯊ ꯑꯅꯖꯦ ꯏꯡꯗꯥꯡꯁꯖꯦ꯫ ꯃꯑꯣꯡ ꯏꯡꯗꯥꯡꯇꯡꯐꯔꯤꯏꯗꯕ, C_R = 0 (ꯀ꯭ꯂꯣꯖ 4.4.6.3)꯫

ꯇꯦꯕꯜ 4B.3 — ꯔꯤꯇꯦꯟꯁꯟ ꯀ꯭ꯔꯦꯗꯤꯠ ꯐꯦꯛꯇꯔ C_R (ꯗꯦꯃꯣꯁꯨꯠ)

ꯖꯣꯟ (ꯑꯍꯦꯟꯕ 2A)	HSG	ꯗꯤꯖꯥꯏꯟ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯆꯠꯄꯒꯤ ꯗ꯭ꯔꯥꯗꯥꯎꯟ ꯔꯦꯠ (mm/h)	C_R (–)

4B.4 ꯑꯣꯔꯤꯐꯤꯁ ꯁꯥꯏꯖꯤꯡ ꯂꯨꯛꯑꯞ

4B.4.1 ꯇꯦꯕꯜ 4B.4-ꯅ ꯏꯡꯗꯥꯡꯇꯕ ꯍꯦꯗ (head) ꯑꯃꯗ ꯏꯡꯗꯥꯡꯇꯕ ꯊꯔꯀꯤꯂꯤꯕꯇꯟ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯃꯗꯒꯤ ꯍꯦꯗꯕ ꯗꯤꯁꯆꯥꯔꯖ ꯊꯤꯕ, 5 mm-ꯒꯤ ꯅꯥꯃꯃꯂꯤꯃꯗ, ꯈꯕꯟꯗꯒꯤ ꯆꯦꯡꯕ ꯑꯀꯥꯆꯕ ꯑꯥꯔꯤꯐꯤꯁ ꯊꯤꯔꯤ꯫ ꯃꯁꯤ ꯀ꯭ꯂꯣꯖ 4.6.5.2-ꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯀꯥꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇ ꯖꯥꯔꯗꯥ ꯑꯥꯔꯤꯐꯤꯁ ꯅꯀꯅꯦꯖꯤꯟꯗꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯠ ꯇꯧꯔꯤ:

$$Q = 0.60 \times (\pi d^2 / 4) \times \sqrt{(2 g H)}$$

ꯃꯐꯝ ꯑꯗꯨꯗ Q ꯑꯁꯤ ꯗꯤꯁꯆꯥꯔꯖ (m³/s), d ꯑꯁꯤ ꯑꯥꯔꯤꯐꯤꯁꯀꯤ ꯗꯥꯏꯃꯤꯇꯔ (m), g = 9.81 m/s² ꯑꯃꯁꯨꯡ H ꯑꯁꯤ ꯅꯁꯤꯡꯒꯤ ꯖꯦꯟꯇ꯭ꯔꯒꯤ ꯑꯥꯔꯤꯐꯤꯁꯀꯤ ꯃꯆꯥꯟ ꯏꯡꯕꯒꯤ ꯍꯦꯗ (m)꯫ ꯂꯥꯟꯂꯤꯡ ꯑꯁꯤ **ꯃꯆꯥꯗ** ꯔꯥꯎꯟꯗ ꯇꯧꯅ, ꯑꯥꯔꯤꯐꯤꯁ ꯑꯁꯤꯅ ꯀꯗꯥꯏꯗꯒ ꯊꯔꯀꯤꯂꯤꯕꯇꯟ ꯗꯤꯁꯆꯥꯔꯖꯗꯒꯤ ꯍꯦꯟꯅ ꯆꯦꯡꯍꯟꯗꯅꯕ꯫ ꯀꯥꯏꯅꯖꯦꯡ ꯇꯧꯕ ꯂꯥꯟ ꯑꯁꯤ 50 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯃꯃꯃꯗ, ꯀ꯭ꯂꯣꯖ 4.8.2-ꯒꯤ ꯈꯕꯟꯗꯒꯤ ꯍꯦꯛꯕ 50 mm ꯑꯗꯨ ꯁꯦꯡꯂꯤ; ꯃꯁꯤ ꯀ꯭ꯂꯣꯖ 4.5.5.1 ꯃꯆꯥꯗ ꯃꯇꯨꯡ ꯏꯟꯕ ꯑꯅꯖꯦ ꯍꯟ꯫

4B.4.2 ꯇꯦꯕꯜ ꯑꯁꯤꯅ ꯐ꯭ꯔꯤ ꯗꯤꯁꯆꯥꯔꯖ (free discharge) ꯍꯟ꯫ ꯇꯦꯂꯋꯥꯇꯔ (tailwater) ꯑꯁꯤ ꯑꯥꯔꯤꯐꯤꯁꯀꯤ ꯃꯈꯥꯗ ꯆꯃꯅꯣꯏꯕ ꯆꯦꯡ ꯃꯐꯃꯗ (ꯀ꯭ꯂꯣꯖ 4.6.6), H ꯑꯁꯤ ꯃꯈꯥꯗ ꯈꯃꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯃꯊꯛ ꯈꯃꯕ ꯃꯐꯃꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯖꯦꯟꯇ꯭ꯔꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜꯗꯤ ꯑꯃꯁꯨꯡ ꯑꯥꯔꯤꯐꯤꯁ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟꯅ ꯆꯥꯗ ꯇꯥꯒꯗꯕꯗꯤ꯫ ꯑꯣꯏꯔꯕ ꯍꯦꯗꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯇꯥꯗꯤꯃꯥꯡ ꯀꯃꯤꯇꯤꯅ ꯑꯍꯦꯟꯕ 4B ꯈꯗꯦꯀꯃ ꯃꯇꯃꯗ ꯇꯦꯕꯜ ꯑꯁꯤ ꯃꯗꯨ ꯁꯤꯡꯕ ꯆꯅ꯫

ꯇꯦꯕꯜ 4B.4 — ꯊꯤꯔꯕ ꯍꯦꯗ ꯑꯃꯗ ꯊꯔꯀꯤꯂꯤꯕꯇꯟ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯃꯒꯤꯗꯃꯛ ꯈꯕꯟꯗꯒꯤ ꯆꯦꯡꯕ ꯑꯥꯔꯤꯐꯤꯁ ꯗꯥꯏꯃꯤꯇꯔ (mm) (Cd = 0.60, ꯐ꯭ꯔꯤ ꯗꯤꯁꯆꯥꯔꯖ)

ꯊꯔꯀꯤꯂꯤꯕꯇꯟ ꯗꯤꯁꯆꯥꯔꯖ (L/s)	H = 0.5 m	H = 1.0 m	H = 1.5 m	H = 2.0 m
5	55	50	50	50
10	80	65	60	55
15	100	80	75	70
20	115	95	85	80

ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯔꯦꯠ (L/s)	H = 0.5 m	H = 1.0 m	H = 1.5 m	H = 2.0 m
30	140	115	105	100
50	180	150	135	130
75	225	185	170	155
100	260	215	195	180
150	315	265	240	225
200	365	305	275	260
300	450	375	340	315

ꯈꯨꯗꯝ: H = 1.0 m-ꯗ 50 L/s-ꯒꯤꯗꯃꯛ, ꯑꯦꯔꯤꯌꯥ ꯑꯁꯤ 0.050 / (0.60 × √(2 × 9.81 × 1.0)) = 0.0188 m², ꯃꯔꯝ ꯑꯗꯨꯅ d = √(4 × 0.0188 / π) = 0.155 m, ꯃꯗꯨꯅ 150 mm-ꯗ ꯄꯨꯔꯛꯀ ꯇꯧꯅ꯫

4B.5 ꯔꯟꯑꯣꯐ ꯇꯦꯕꯜ ꯄꯤꯆꯤꯠ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯁꯤꯡ (ꯇꯦꯕꯜ 4.3A)

4B.5.1 ꯇꯦꯕꯜ 4B.5-ꯅ ꯇꯦꯕꯜ 4.3A-ꯒꯤ ꯗꯤꯐꯣꯜꯇ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯁꯤꯡ ꯑꯃꯨꯛ ꯍꯟꯅ ꯄꯤꯔꯤ꯫ ꯃꯁꯤꯒꯤ ꯑꯁꯤ ꯔꯟꯑꯣꯐ ꯇꯦꯕꯜ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯀꯤ ꯃꯇꯦꯡ ꯃꯁꯤꯅ ꯍꯥꯏꯕ ꯂꯤꯏꯤꯐꯥꯟꯅ ꯑꯣꯏꯕ (ꯁꯦꯛꯁꯟ 4.14.4)꯫

ꯇꯦꯕꯜ 4B.5 — ꯔꯟꯑꯣꯐ ꯇꯦꯕꯜ ꯄꯤꯆꯤꯠ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯁꯤꯡ C_10 ꯑꯃꯁꯨꯡ C_2 (ꯗꯤꯐꯣꯜꯇ, ꯇꯦꯕꯜ 4.3A)

ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯂꯩꯕꯥꯛ ꯒ꯭ꯔꯨꯞ	C_10	C_2	ꯁꯦꯛꯁꯟ	ꯁꯣꯔꯁ
A (ꯑꯣꯏꯕ ꯄꯥꯝꯕ, ꯅꯂꯤꯝ ꯏꯊꯠꯄ ꯂꯩꯕꯥꯛꯇꯥ)	0.05	0.02	4.14.4	ꯗꯤꯐꯣꯜꯇ
B	0.08	0.03	4.14.4	ꯗꯤꯐꯣꯜꯇ
C	0.15	0.08	4.14.4	ꯗꯤꯐꯣꯜꯇ
D (ꯑꯣꯏꯕ ꯑꯍꯦꯟꯕ, ꯅꯂꯤꯝ ꯏꯊꯠꯄ ꯂꯩꯕꯥꯛꯇꯥꯁꯨ)	0.25	0.15	4.14.4	ꯗꯤꯐꯣꯜꯇ

ꯂꯦꯃ ꯂꯧꯒꯗꯕ. ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯁꯤꯡꯅ ꯇꯦꯕꯜ 4B.5 ꯃꯍꯨꯠ ꯂꯧꯊꯣꯛꯂꯤ꯫ ꯃꯁꯤꯒꯤꯗ ꯑꯩꯊ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ NIH-DHAARA ꯗꯦꯇꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 3.3-ꯒꯤ ꯒ꯭ꯔꯤꯟꯐꯤꯜꯗ (greenfield) ꯀꯦꯁ ꯑꯣꯏꯕꯁꯤꯡ ꯃꯇꯝ ꯇꯥꯅ, ꯁꯦꯛꯁꯟ 4.14-ꯒꯤ ꯂꯝꯗꯥꯛꯇꯅ ꯇꯥꯛꯂꯒꯗ ꯗꯤꯄꯤꯕꯒꯤꯃꯅ꯫ ꯃꯁꯤꯒꯤ ꯏꯃꯥꯗꯥꯅꯕꯤꯟꯗꯥ, ꯇꯦꯕꯜ 4.3A-ꯒꯤ ꯗꯤꯐꯣꯜꯇ ꯚꯦꯜꯌꯨꯁꯤꯡ ꯁꯤꯖꯤꯟ꯫

ꯑꯦꯞꯦꯟꯗꯤꯛꯁ 4C — ꯃꯗꯨꯒꯤ ꯏꯕ ꯄꯨꯔꯛꯂꯤꯕ ꯇꯦꯛꯅꯣꯂꯣꯖꯤꯒꯤ ꯑꯦꯞꯂꯤꯀꯦꯁꯟ ꯀꯦꯁ ꯁ꯭ꯇꯗꯤ (ꯁꯤꯔꯤꯖ A)

ꯆꯦꯞꯇꯔ 4-ꯒꯤ ꯁꯦꯛꯁꯟ 4.4-ꯗꯒꯤ 4.9 ꯐꯥꯑꯣꯕ, 4.15 ꯑꯃꯁꯨꯡ 4.17-ꯗ ꯃꯇꯦꯡ ꯄꯤꯔꯤ꯫

ꯀꯦꯁ ꯑꯣꯏꯕ ꯅꯥꯏꯇꯦꯜ — ꯗꯤꯖꯥꯏꯟ ꯚꯦꯔꯤꯐꯥꯏ ꯇꯧꯕ. ꯀꯦꯁ ꯑꯁꯤꯅ ꯁꯦꯛꯁꯟ 4.6.7-ꯒꯤ ꯀꯦꯁ ꯑꯣꯏꯕ ꯀꯦꯁ ꯑꯗꯨ ꯃꯍꯩ ꯄꯤꯔꯤꯕꯅꯤ꯫ ꯃꯁꯤꯒꯤ ꯅꯦꯝꯕꯥꯅꯤꯝ ꯑꯁꯤ ꯖꯤꯔꯤ (Jiri) ꯁꯥꯔꯒꯤ ꯅꯥꯝ ꯑꯃꯗ ꯅꯂꯤꯝ ꯄꯥꯏꯕꯥꯗꯥ ꯇꯤꯔꯤꯊꯦꯡ ꯂꯃꯥꯏꯒꯤ ꯄꯤꯝꯒꯤ ꯃꯌꯥꯏꯗ ꯀꯣꯂꯣꯅꯤ (hill-fringe colony) ꯑꯃꯒꯤꯗꯃꯛ ꯄꯥꯟꯕ ꯑꯣꯏꯕ ꯑꯣꯏꯕꯅ ꯂꯧꯁꯤꯟꯈꯤꯕꯅꯤ; ꯃꯁꯤꯒꯤ ꯑꯁꯤ NIH-DHAARA ꯚꯦꯜꯌꯨꯁꯤꯡ ꯁꯤꯖꯤꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯀꯤꯗꯃꯛ ꯂꯤꯇꯤꯀꯇꯦꯡꯅꯗꯕꯅꯤ꯫ ꯄꯥꯔꯠ 1-ꯅ ꯇ꯭ꯔꯥꯏꯑꯦꯜ ꯑꯥꯎꯇꯂꯦꯠ (trial outlet) ꯑꯃꯒꯤꯗꯃꯛ ꯅꯦꯝꯕꯥꯅꯤꯝ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯃꯁꯨꯡ ꯄꯨꯔꯛꯂꯤꯕ ꯅꯥꯝꯕ ꯅꯥꯝꯕ ꯄꯤꯔꯤ꯫ ꯄꯥꯔꯠ 2-ꯅ ꯇ꯭ꯔꯥꯏꯑꯦꯜ ꯑꯥꯎꯇꯂꯦꯠ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 4.8.3-ꯒꯤ ꯕ꯭ꯂꯣꯀꯦꯖ (blockage) ꯑꯣꯏꯕ ꯍꯦꯛꯗꯨꯅ ꯈꯥꯗꯣꯛ ꯏꯅ ꯇꯧꯅ ꯍꯥꯏꯕ ꯏꯃꯅ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯇꯦꯕꯜ 4.2-ꯗ ꯄꯤꯔꯤꯕ ꯇꯦꯕꯜ ꯑꯥꯎꯇꯂꯦꯠ ꯑꯃꯗ ꯄꯤꯊꯣꯛꯄ ꯇꯧꯅ꯫ ꯄꯥꯔꯠ 3-ꯅ ꯁ꯭ꯄꯤꯂꯋꯦ (spillway), ꯑꯥꯎꯇꯂꯦꯠ,

[illegible]॥ [illegible] (flood plain) [illegible] (outfall) [illegible] 5-[illegible] (outfall-closed check) [illegible] 5C-[illegible]॥

[illegible] 1 — [illegible] ([illegible] 4.6.1-[illegible] 4.6.4 [illegible])

4C.1 [illegible].

[illegible] 4C.1 — [illegible] ([illegible] — [illegible])

[illegible]	[illegible]	[illegible]
[illegible] A	2.0 ha (0.02 km^2), [illegible]	[illegible] 4.6.7
[illegible]	[illegible] ([illegible] 4.5.3)	[illegible] 4.6.7
[illegible] (curve number), AMC II	[illegible]: [illegible] (pervious), CN 70॥ [illegible]: CN 98-[illegible] (impervious) 1.57 ha, [illegible] CN 70-[illegible] 0.43 ha ([illegible])॥ [illegible] f = (92 − 70) / (98 − 70) = 0.786, [illegible] CN [illegible] 92	[illegible] 3.9.2, 4.6.7
AMC III [illegible]	[illegible] 12 [illegible]: CN_III = 23·CN / (10 + 0.13·CN) = 84.3॥ [illegible] CN 98 [illegible]	[illegible] 3.8.4
[illegible] (initial abstraction)	Ia = 0.2S; [illegible] (sensitivity run) [illegible] Ia = 0.05S	[illegible] 3.8.5
[illegible] Tc	[illegible] 45 min; [illegible] 15 min, [illegible]	[illegible] 4.6.7
[illegible]	SCS [illegible]; tL = 0.6 Tc; tp = Δt/2 + tL; [illegible] 2.67 tp	[illegible] 3.6.5, 3.11.2
[illegible] Δt	5 min (= [illegible] Tc/3)	[illegible] 4.6.2, [illegible] 8
[illegible] 24-[illegible], 2-, 10-, 100-yr	110, 200, 350 mm, [illegible]	[illegible] 4.6.7
[illegible]	P(t) = P24 · (t/24)^0.40 ([illegible] 2B [illegible])	[illegible] 4.6.7
[illegible] 48 [illegible] 72-[illegible]	1.25 [illegible] 1.40 × P24, [illegible] 24-[illegible]	[illegible] 4.6.7, 2.9.2
[illegible]	[illegible], 2,500 m^2 [illegible] (embankment) [illegible]	[illegible] 4.6.7
[illegible]	[illegible] 1: [illegible] 120 mm [illegible]॥ [illegible] 2: 470 mm [illegible] (invert) [illegible] 0.533 m॥ [illegible] 3 [illegible]	[illegible]; [illegible] 2-[illegible]
[illegible]	[illegible] (receiving drain) [illegible] (free outfall)	[illegible]

ꯈꯨꯗꯝ ꯑꯁꯤꯅ ꯁꯦꯛ꯭ꯁꯟ 3.8.4 ꯑꯃꯁꯨꯡ 3.9.2-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ: ꯂꯕ-ꯑꯦꯍꯤꯔꯣ ꯈꯨꯗꯤꯡꯃꯛꯄꯤ ꯍꯦꯟꯅꯣꯡ (runoff) ꯑꯁꯤ ꯌꯣꯍꯣꯟꯅꯣ ꯊꯦꯛꯊꯣꯟꯆꯦ ꯌꯣꯔ ꯑꯃꯁꯨꯡ ꯍꯣꯈꯌꯤꯡ ꯌꯣꯗ꯭ꯍꯤꯊꯤꯗ ꯑꯅꯤꯃꯄ ꯄꯨꯟꯁꯤꯛꯅꯤ꯫

4C.2 **ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ.** ꯇꯦꯕꯜ 4C.2-ꯅ ꯑꯦꯛꯅꯁꯤꯡ ꯄꯤꯔꯤ꯫ ꯈꯨꯗꯝ ꯑꯣꯏꯅ, 100-yr ꯄꯨꯡ 6-ꯒꯤ ꯑꯦꯛꯅ ꯑꯁꯤ 350 × (6/24)^0.40 = 350 × 0.574 = 201.0 mm꯫

ꯇꯦꯕꯜ 4C.2 — ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯑꯦꯛꯅꯁꯤꯡ, mm (ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯍꯄꯌꯔꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯇꯨ ꯂꯩꯌꯦ)

ꯃ꯭ꯇꯨꯍꯦꯁꯤ (h)	1	2	3	6	12	24	48	72
50% AEP (2-yr)	30.9	40.7	47.9	63.2	83.4	110.0	137.5	154.0
10% AEP (10-yr)	56.1	74.0	87.1	114.9	151.6	200.0	250.0	280.0
1% AEP (100-yr)	98.2	129.5	152.3	201.0	265.3	350.0	437.5	490.0

4C.3 **ꯍꯣꯔꯦꯌꯗ꯭ꯍꯤꯊꯁꯤꯡ.** ꯄꯨꯡ 24 ꯆꯤꯡꯕꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯇꯣꯟꯄꯁꯤꯡꯗ ꯃꯤꯅꯤꯠ 5-ꯒꯤ ꯕꯂꯣꯛꯁꯤꯡꯅ ꯑꯣꯌꯦꯍꯦꯅꯌꯤꯡ-ꯕꯂꯣꯛ (alternating-block) ꯃꯦꯊꯗ ꯁꯤꯖꯤꯟꯅꯦ, ꯄꯤꯛꯄ ꯕꯂꯣꯛ ꯑꯁꯤ ꯇꯣꯟꯄꯒꯤ ꯃꯔꯛꯇ ꯊꯃꯈꯤꯗ (ꯁꯦꯛ꯭ꯁꯟ 2.9.1)꯫ ꯄꯨꯡ 48 ꯑꯃꯁꯨꯡ ꯄꯨꯡ 72-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯇꯣꯟꯄꯁꯤꯡꯗ ꯄꯨꯡ 24-ꯒꯤ ꯑꯦꯛꯅꯒꯤ ꯍꯦꯟꯕ ꯑꯦꯛꯅ ꯑꯗꯨ ꯑꯍꯣꯅꯕ ꯄꯨꯡ 24 ꯅꯌꯍꯒꯤ 48-ꯗ ꯃꯂꯦꯟꯅ ꯂꯦꯡꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯄꯨꯡ 24-ꯒꯤ ꯑꯣꯌꯦꯍꯅꯦꯌꯤꯡ-ꯕꯂꯣꯛ ꯇꯣꯟꯄ ꯑꯗꯨ ꯑꯍꯣꯅꯕ ꯅꯨꯃꯤꯠꯌ ꯊꯃꯃꯤ (ꯁꯦꯛ꯭ꯁꯟ 2.9.2)꯫ 100-yr ꯄꯨꯡ 72-ꯒꯤ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯇꯣꯟꯄꯒꯤꯗꯃꯛ: (490.0 − 350.0) / ꯕꯂꯣꯛ 576 = ꯑꯍꯣꯅꯕ ꯄꯨꯡ 48-ꯗ ꯃꯤꯅꯤꯠ 5 ꯈꯨꯗꯤꯡꯗ 0.243 mm; ꯑꯍꯣꯅꯕ ꯅꯨꯃꯤꯠꯌꯒꯤ ꯃꯤꯅꯤꯠ 5-ꯒꯤ ꯄꯤꯛꯄ ꯕꯂꯣꯛ ꯑꯁꯤ 350 × (5/1440)^0.40 = 36.3 mm, 60:00–60:05 h-ꯗ꯫

4C.4 **ꯂꯣꯁꯁꯤꯡ.** ꯇꯦꯕꯜ 4C.3-ꯅ S = 25,400/CN − 254 (mm) ꯑꯃꯁꯨꯡ Ia = 0.2S ꯄꯤꯔꯤ꯫ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯑꯦꯛꯅ P ꯑꯃꯒꯤꯗꯃꯛ ꯍꯦꯟꯅꯣꯡ ꯑꯦꯛꯅ ꯑꯁꯤ P > Ia ꯑꯣꯏꯔꯕꯗ Q = (P − Ia)² / (P − Ia + S), ꯑꯃꯁꯨꯡ ꯅꯌꯍꯕꯗ ꯂꯩꯇꯦ꯫

ꯇꯦꯕꯜ 4C.3 — ꯂꯩꯃꯥꯏ ꯅꯃꯊꯤꯍꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯊꯨꯌꯍꯦꯄꯂꯤꯡꯁꯤꯡ (ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯍꯄꯌꯔꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯇꯨ ꯂꯩꯌꯦ)

ꯂꯤꯒꯃ	AMC	CN	S (mm)	Ia = 0.2S (mm)
ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯃꯤꯡ	II (ꯃ꯭ꯇꯨꯍꯦꯁꯤ ≤ 6 h)	70	108.9	21.8
ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯃꯤꯡ	III (ꯃ꯭ꯇꯨꯍꯦꯁꯤ ≥ 12 h)	84.3	47.3	9.5
ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯇꯨꯡꯒꯤ ꯄꯍꯦꯒꯤꯔꯣ ꯑꯣꯄꯦ ꯂꯄꯦꯂ (0.43 ha)	II (ꯃ꯭ꯇꯨꯍꯦꯁꯤ ≤ 6 h)	70	108.9	21.8
ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯇꯨꯡꯒꯤ ꯄꯍꯦꯒꯤꯔꯣ ꯑꯣꯄꯦ ꯂꯄꯦꯂ (0.43 ha)	III (ꯃ꯭ꯇꯨꯍꯦꯁꯤ ≥ 12 h)	84.3	47.3	9.5
ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯇꯨꯡꯒꯤ ꯍꯣꯄꯦꯊꯦꯡꯂꯗ ꯂꯃꯃꯤꯂꯕ ꯏꯃꯄꯍꯦꯒꯤꯔꯣ (1.57 ha)	ꯃ꯭ꯇꯨꯍꯦꯁꯤ ꯄꯨꯃꯂꯃꯄ (ꯂꯦꯒꯍꯌ ꯌꯣꯗꯕ)	98	5.2	1.0

ꯅꯦꯄ: 100-yr 24 h, ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯇꯨꯡ꯫ ꯏꯃꯄꯍꯦꯒꯤꯔꯣ: Q = (350.0 − 1.0)² / (350.0 − 1.0 + 5.2) = 343.9 mm꯫ ꯄꯍꯦꯒꯤꯔꯣ, AMC III: Q = (350.0 − 9.5)² / (350.0 − 9.5 + 47.3) = 299.0 mm꯫ ꯂꯏꯌ: 0.786 × 343.9 + 0.214 × 299.0 = 334.2 mm꯫ ꯇꯦꯕꯜ 4C.4-ꯒꯤ ꯑꯦꯒꯦꯂꯄꯃꯦꯂꯌꯗꯤ ꯃꯇꯨꯡꯒꯤ ꯂꯂꯃꯂꯤꯡ ꯑꯁꯤ ꯑꯦꯍꯤꯔꯣ-ꯅꯦꯌ ꯌꯣꯍꯕ ꯂꯏꯌ ꯑꯦꯛꯅꯁꯤꯡ ꯑꯁꯤꯅꯤ꯫

ꯇꯦꯕꯜ 4C.4 — ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯇꯣꯟꯄꯗꯒꯤ ꯍꯦꯟꯅꯣꯡ ꯑꯦꯛꯅ Q, mm (ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯍꯄꯌꯔꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯇꯨ ꯂꯩꯌꯦ)

ꯃ꯭ꯇꯨꯍꯦꯁꯤ (h)	AMC	2-yr ꯃꯃꯤꯡ	2-yr ꯃꯇꯨꯡ	10-yr ꯃꯃꯤꯡ	10-yr ꯃꯇꯨꯡ	100-yr ꯃꯇꯨꯡ
1	II	0.7	20.1	8.2	41.3	79.2
2	II	2.8	28.2	16.9	57.2	108.5
3	II	5.1	34.2	24.5	69.0	130.2

ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	AMC	2-yr ꯃꯃꯥꯡ	2-yr ꯃꯇꯨꯡ	10-yr ꯃꯃꯥꯡ	10-yr ꯃꯇꯨꯡ	100-yr ꯃꯇꯨꯡ
6	II	11.4	47.5	42.9	94.7	177.1
12	III	45.0	70.5	106.6	137.2	249.9
24	III	68.4	96.4	152.6	185.1	334.2
48	III	93.5	123.3	201.0	234.7	421.5
72	III	108.9	139.6	230.3	264.5	473.9

2.0 ha-ꯒꯤ ꯁꯥꯏꯠ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯔꯅꯑꯣꯐ ꯚꯣꯂꯨꯝ ꯑꯁꯤ 10 × Q × A = 20 × Q m³: ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ 100-yr ꯃꯇꯨꯡ 72-ꯒꯤ ꯅꯣꯡ ꯇꯨꯕꯒꯤ ꯊꯥꯗꯣꯛꯀꯤꯗꯃꯛ 9,478 m³꯫ ꯔꯥꯎꯇꯤꯡ ꯇꯧꯔꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡꯅꯥ 0.5% ꯐꯥꯑꯣꯕ ꯍꯅꯗꯥꯛ ꯃꯇꯨꯡ ꯗꯥꯛꯂꯣ, ꯃꯔꯝꯗꯤ ꯃꯤꯅꯤꯠ 5-ꯒꯤ ꯑꯣꯏꯔꯤꯕ ꯂꯦꯃꯍꯧꯔꯤꯕ-ꯕ꯭ꯂꯣꯛ ꯗꯥꯗꯥꯛ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯏꯕ ꯅꯨꯃꯤꯠꯁ 350.0 mm-ꯒꯤ ꯃꯍꯨꯠꯇ 349.5 mm ꯗꯝꯃꯤ꯫

4C.5 **ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ.** ꯃꯤꯅꯤꯠ 5-ꯒꯤ ꯕ꯭ꯂꯣꯛ ꯌꯥꯑꯣꯔꯤꯕꯥ ꯔꯦꯟꯐꯣꯜ (ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯁꯥꯏꯠꯀꯤꯗꯃꯛ, ꯂꯣꯁ-ꯑꯦꯐꯦꯛꯇꯤꯕ ꯑꯅꯤꯒꯤ ꯃꯦꯊꯣꯗ) ꯑꯁꯤ ꯇꯦꯕꯜ 4C.5-ꯒꯤ ꯗꯥꯏꯃꯦꯟꯁꯟꯂꯦꯁ ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯥ ꯀꯅꯚꯣꯂꯚ (convolve) ꯇꯧꯏ꯫ ꯃꯐꯝ ꯑꯁꯤ qp = 0.208 × A × Q / tp, A ꯑꯁꯤ km²-ꯗ ꯑꯃꯁꯨꯡ Q = 1 mm (ꯁꯦꯛꯁꯟ 3.11.2)꯫

ꯇꯦꯕꯜ 4C.5 — ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯀꯤ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯄꯤꯔꯤꯕꯥ — ꯗꯤꯖꯥꯏꯟ ꯒꯥꯏꯗ ꯅꯠꯇꯦ)

ꯀꯦꯁ	Tc (h)	tL = 0.6 Tc (h)	tp = Δt/2 + tL (h)	ꯇꯦꯜ 2.67 tp (h)	qp (ꯄꯔꯦꯟꯇꯀꯤ mm ꯈꯨꯗꯤꯡꯗ L/s)
ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡ	0.75	0.45	0.492	1.313	8.5
ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡ	0.25	0.15	0.192	0.512	21.7

4C.6 **ꯑꯣꯔꯤꯐꯤꯁ ꯁꯥꯏꯖꯤꯡ (ꯁꯦꯛꯁꯟ 4.5.3).** ꯁꯥꯏꯠ ꯑꯁꯤ ꯅꯣꯡꯃꯗ ꯅꯍꯥꯏꯗ ꯂꯦꯃꯍꯧꯔꯤꯕꯁꯤꯡꯗ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯃꯤꯛꯁ-ꯐ꯭ꯔꯤꯛꯕꯦꯟꯁꯤ ꯔꯨꯜ (mixed-frequency rule) ꯁꯤꯖꯤꯟꯅꯩ꯫ 100-yr ꯁꯦꯜ ꯑꯁꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ 10-yr ꯄꯤꯛ ꯐ꯭ꯂꯣꯒꯤ ꯃꯈꯥꯗꯥ ꯊꯝꯃꯤ: **356 L/s** (72 h; ꯇꯦꯕꯜ 4.2)꯫ 2-yr ꯁꯦꯜ ꯑꯁꯤ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ 2-yr ꯄꯤꯛ ꯐ꯭ꯂꯣꯒꯤ ꯃꯈꯥꯗꯥ ꯊꯝꯃꯤ: **180 L/s** (72 h)꯫ ꯁꯦꯜ ꯈꯨꯗꯤꯡꯃꯛ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯊꯦꯡꯅꯩ (ꯁꯦꯛꯁꯟ 4.5.3.1)꯫

4C.7 **ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ–ꯗꯤꯁꯆꯥꯔꯖ.** ꯕꯦꯁꯤꯟ ꯑꯁꯤ ꯆꯥꯡ ꯍꯥꯃꯗ ꯂꯦꯞꯄꯂꯤ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯁ꯭ꯇꯣꯔꯦꯖ S = 2,500 × h (m³), ꯃꯐꯝ ꯑꯁꯤꯗ h ꯑꯁꯤ ꯐꯂꯣꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯁ꯭ꯇꯦꯖꯂꯤ (m)꯫ ꯗꯤꯁꯆꯥꯔꯖ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯁꯤ Cd = 0.60-ꯒꯥ ꯂꯣꯌꯅꯅ ꯁꯦꯛꯁꯟ 4.6.5.2-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯩ:

- ꯁ꯭ꯇꯦꯖ 1, h ≥ d ꯑꯣꯏꯔꯕꯗꯤ: Q1 = 0.60 × A1 × √(2g (h − d/2))꯫ h < d (ꯑꯣꯔꯤꯐꯤꯁ ꯃꯄꯨꯡ ꯊꯜꯂꯕ) ꯑꯣꯏꯔꯕꯗꯤ, ꯍꯦꯗ ꯑꯁꯤ d/2 ꯑꯣꯏꯅꯥ ꯂꯧꯅ ꯑꯃꯁꯨꯡ ꯐꯤꯂ꯭ꯔ ꯑꯁꯤ h/d-ꯗ ꯃꯂꯤꯡ ꯇꯧꯏ꯫
- ꯁ꯭ꯇꯦꯖ 2 ꯑꯁꯤ ꯏꯁꯤꯡ ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯃꯊꯛꯇꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯔꯛꯄꯒꯤ ꯍꯧꯗ ꯊꯤꯕ: Q2 = 0.60 × A2 × √(2g (h − z2 − d2/2)), ꯃꯐꯝ ꯑꯁꯤꯗ z2 ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯏꯅꯚꯔꯇꯂꯤ꯫ ꯃꯁꯤꯒꯤ ꯃꯊꯛꯇꯒꯤ ꯃꯊꯛ ꯃꯁꯤꯒꯤ ꯐꯂꯣ ꯑꯁꯤ ꯊꯤꯗꯦ, ꯃꯁꯤꯗ ꯁ꯭ꯇꯣꯔꯦꯖ ꯅꯥ ꯍꯦꯟꯗ ꯇꯧꯕꯅ꯫

ꯇꯦꯕꯜ 4C.6 — ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ–ꯗꯤꯁꯆꯥꯔꯖ, ꯇ꯭ꯔꯥꯏꯑꯦꯜ ꯗꯤꯁꯆꯥꯔꯖ (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ ꯄꯤꯔꯤꯕꯥ — ꯗꯤꯖꯥꯏꯟ ꯒꯥꯏꯗ ꯅꯠꯇꯦ)

ꯁ꯭ꯇꯦꯖ h (m)	ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	ꯁ꯭ꯇꯦꯖ 1, 120 mm (L/s)	ꯁ꯭ꯇꯦꯖ 2, 470 mm (L/s)	ꯄꯨꯝꯅꯃꯛ (L/s)
0.00	0	0.0	0.0	0.0
0.06	150	3.7	0.0	3.7
0.12	300	7.4	0.0	7.4
0.20	500	11.2	0.0	11.2
0.30	750	14.7	0.0	14.7
0.40	1,000	17.5	0.0	17.5

[illegible] h (m)	[illegible] (m³)	[illegible] 1, 120 mm (L/s)	[illegible] 2, 470 mm (L/s)	[illegible] (L/s)
0.50	1,250	19.9	0.0	19.9
0.60	1,500	22.1	0.0	22.1
0.70	1,750	24.0	0.0	24.0
0.80	2,000	25.9	83.0	108.9
0.90	2,250	27.5	167.8	195.3
1.00	2,500	29.1	222.3	251.4
1.10	2,750	30.7	265.8	296.5
1.20	3,000	32.1	303.2	335.3
1.30	3,250	33.5	336.4	369.9
1.40	3,500	34.8	366.7	401.5

h = 1.00 m-[illegible]: $Q1 = 0.60 \times 0.01131 \times \sqrt{19.62 \times 0.94} = 0.0291\ m^3/s$; $Q2 = 0.60 \times 0.1735 \times \sqrt{19.62 \times (1.00 - 0.533 - 0.235)} = 0.2223\ m^3/s$॥

4C.8 **[illegible].** [illegible] (level-pool continuity) [illegible] ([illegible] 4.6.1): [illegible] 5-[illegible], [illegible] (inflow) [illegible] (outflow) [illegible]॥ [illegible] 5-[illegible] 50-[illegible] 6 [illegible]॥ [illegible] 4C.7-[illegible] $\Delta S \approx (I - \bar{O}) \times 300$ s [illegible], [illegible] I [illegible] 5-[illegible] $\bar{O}$ [illegible]॥ [illegible], 60:15 [illegible] 60:20-[illegible]: $\Delta S = 2,853.0 - 2,613.3 = 239.7\ m^3$, [illegible] $(1.0891 - (0.2655 + 0.3069)/2) \times 300 = 240.9\ m^3$॥

[illegible] 4C.7 — [illegible] 100-yr [illegible] 72-[illegible], [illegible] ([illegible] — [illegible])

[illegible] (h:min)	[illegible] (mm)	[illegible] I (L/s)	[illegible] O (L/s)	[illegible] S (m³)	[illegible] h (m)
60:00	8.44	286.3	169.5	2,164.0	0.866
60:05	36.33	354.2	184.1	2,216.9	0.887
60:10	11.61	703.3	218.0	2,367.1	0.947
60:15	6.88	1,066.0	265.5	2,613.3	1.045
60:20	5.23	1,089.1	306.9	2,853.0	1.141
60:25	4.34	897.5	334.8	3,025.0	1.210
60:30	3.77	653.2	349.9	3,117.6	1.247
60:35	3.36	403.6	353.8	**3,132.9**	**1.253**
60:40	3.05	301.5	352.3	3,117.3	1.247
60:45	2.81	254.8	348.6	3,088.7	1.235
60:50	2.61	224.9	343.7	3,052.4	1.221
60:55	2.45	203.3	337.9	3,011.3	1.205

60:35-[illegible] (302 L/s) [illegible] ([illegible] 352 L/s) [illegible], [illegible]॥

[illegible] 4C.8 — [illegible] 100-yr [illegible] 72-[illegible] [illegible] ([illegible] — [illegible])

[illegible] (h)	[illegible] (mm)	[illegible] (L/s)	[illegible] (L/s)	[illegible] (m)	[illegible] (m³)
12	35.0	14	8	0.130	325
24	70.0	15	12	0.215	536
36	105.0	16	14	0.264	660
48	140.0	16	15	0.294	736
54	181.7	47	19	0.469	1,172
57	213.5	69	23	0.623	1,559
59	248.5	120	91	0.789	1,971
60	293.3	286	170	0.866	2,164
61	378.0	187	332	1.187	2,967
62	399.3	106	237	0.968	2,421
63	414.5	80	142	0.829	2,072
66	446.9	51	52	0.771	1,927
72	489.5	33	33	0.768	1,920
84	489.5	0	18	0.405	1,012
96	489.5	0	10	0.167	418
108	489.5	0	4	0.058	146

[illegible] ([illegible] 9,470 m³) [illegible]: [illegible]॥

4C.9 **[illegible], [illegible].** [illegible] 4C.9-[illegible]॥

[illegible] 4C.9 — [illegible] (120 mm [illegible] 470 mm [illegible]) ([illegible] — [illegible])

[illegible] (h)	2-yr [illegible] (L/s)	2-yr [illegible] (m)	10-yr [illegible] (L/s)	10-yr [illegible] (m)	100-yr [illegible] (L/s)	100-yr [illegible] (m)	100-yr [illegible] (m³)	10-yr 90% [illegible], [illegible] (h)	10-yr 90% [illegible], 50% [illegible] (h)
1	9	0.15	15	0.30	22	0.59	1,468	27.2	54.2
2	11	0.20	18	0.42	89	0.79	1,966	28.3	57.0
3	13	0.24	20	0.50	135	0.82	2,058	29.3	59.1
6	15	0.31	23	0.64	190	0.89	2,229	31.1	63.4

ꯃꯇꯝꯃꯣꯡ (h)	2-yr ꯄꯤꯛꯄꯦꯜ ꯐ꯭ꯂꯣ (L/s)	2-yr ꯑꯋꯥꯡꯕ ꯁ꯭ꯇꯦꯖ (m)	10-yr ꯄꯤꯛꯄꯦꯜ ꯐ꯭ꯂꯣ (L/s)	10-yr ꯑꯋꯥꯡꯕ ꯁ꯭ꯇꯦꯖ (m)	100-yr ꯄꯤꯛꯄꯦꯜ ꯐ꯭ꯂꯣ (L/s)	100-yr ꯑꯋꯥꯡꯕ ꯁ꯭ꯇꯦꯖ (m)	100-yr ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	10-yr 90% ꯗ꯭ꯔꯣꯗꯥꯎꯟ, ꯂꯣꯏꯕ (h)	10-yr 90% ꯗ꯭ꯔꯣꯗꯥꯎꯟ, 50% ꯁ꯭ꯇꯣꯝ ꯑꯣꯟꯕꯥ (h)
12	17	0.40	49	0.77	279	1.06	2,647	36.2	69.2
24	19	0.45	87	0.79	334	1.20	2,991	42.8	75.4
48	20	0.51	144	0.83	353	1.25	3,129	42.5	72.7
72	20	0.52	147	0.84	354	1.25	**3,133**	42.5	71.9

ꯗ꯭ꯔꯣꯗꯥꯎꯟ ꯍꯧꯔ ꯑꯃꯁꯤ 10-yr ꯁ꯭ꯇꯣꯔꯦꯖ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯍꯦꯟꯕ ꯍꯧꯔꯀꯄꯒꯤ ꯃꯇꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯗꯨꯒꯤ 90% ꯊꯥꯗꯣꯛꯅꯕ ꯆꯪꯕ ꯍꯦꯅꯒꯥ ꯌꯥꯝ (ꯁꯦꯛꯁꯟ 4.7.1)꯫

ꯈꯣꯡꯊꯥꯡ 2 — ꯑꯦꯛꯁꯇꯦꯟꯁꯅꯒꯤ ꯁꯦꯡꯗꯣꯛꯄꯥ ꯑꯃꯁꯨꯡ ꯃꯤꯠꯌꯦꯡ (ꯁꯦꯛꯁꯟ 4.5, 4.7 ꯑꯃꯁꯨꯡ 4.8)

4C.10 **ꯃꯤꯠꯌꯦꯡ ꯁꯦꯡꯗꯣꯛꯄꯥ.** 100-yr ꯄꯤꯛꯄꯦꯜ ꯐ꯭ꯂꯣ ꯈꯣꯏꯗꯥ ꯄꯤꯔꯤꯕꯍꯥ 356 L/s ꯇꯥꯛꯄꯤꯕꯅꯤ ꯍꯦꯟꯗꯒꯤ ꯍꯟꯅꯥ ꯇꯩ, ꯑꯃꯁꯨꯡ 2-yr ꯄꯤꯛꯄꯦꯜ ꯐ꯭ꯂꯣ ꯈꯣꯏꯗꯥ ꯄꯤꯔꯤꯕꯍꯥ 180 L/s-ꯒꯤ 2-yr ꯁꯦꯡꯖꯤꯟꯕꯒꯤ ꯍꯦꯟꯕꯤ ꯍꯟꯅꯥ ꯇꯩ꯫ ꯁꯦꯡꯖ ꯑꯇꯣꯏꯍꯥ ꯍꯥꯌꯔꯤ ꯆꯥꯡꯃꯤ꯫ 2-yr ꯈꯣꯏꯗꯥꯃꯤꯗꯥ ꯑꯃꯤ ꯅꯦꯡꯗꯣꯛꯄꯍꯥꯏꯗꯟꯕꯒꯤ ꯍꯦꯟꯗꯥꯒꯤ ꯈꯣꯏꯗꯥꯃꯤꯗꯥꯅꯤ ꯃꯇꯝꯃꯣꯡ ꯑꯍꯦꯟꯍꯦꯟꯒꯤ ꯍꯟꯗꯥ ꯅꯥꯏꯖ ꯊꯗꯅꯍꯦꯖꯅꯥ: ꯅꯃꯤꯗꯥ ꯅꯍꯥꯟꯅꯥ ꯀꯥꯏꯃꯤꯗꯥꯔꯥ ꯑꯣꯅꯕ ꯀꯅꯁꯤ ꯑꯍꯦꯅꯤꯅꯍꯥ 2-yr ꯁꯦꯡꯖ ꯑꯃꯤ ꯅꯦꯡꯗꯣꯛꯄꯍꯥꯏꯗꯟꯕꯒꯤ ꯍꯦꯟꯗꯥꯒꯤ 2-yr ꯈꯣꯏꯗꯥꯃꯤꯗꯥꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯊꯦꯡꯕ ꯑꯍꯅꯥꯔꯤꯕꯇꯤ (ꯁꯦꯛꯁꯟ 4.5.3.1)꯫

4C.11 **ꯗ꯭ꯔꯣꯗꯥꯎꯟ.** ꯁꯦꯛꯁꯟ 4.8.3-ꯗꯥ ꯗ꯭ꯔꯣꯗꯥꯎꯟ ꯁꯦꯡꯗ ꯌꯥꯕꯅꯥ ꯇꯦ-ꯍꯤꯇꯦ ꯑꯣꯃꯤꯍꯤꯀ ꯑꯃꯤ **50% ꯁ꯭ꯇꯣꯝ ꯑꯣꯟꯕꯥ** ꯄꯥꯔꯗꯥ ꯇꯥꯇꯕ ꯍꯟꯖꯤ ꯌꯥꯄꯅꯤꯇꯤ꯫ 120 mm ꯑꯣꯃꯤꯍꯤꯀ ꯑꯃꯤꯒꯤ ꯑꯦꯃꯤꯔꯤ ꯍꯟꯅꯥ ꯅꯥꯗꯌꯥꯒꯤ ꯇꯣꯔꯗꯗꯥ, 10-yr ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ 90% ꯁꯦꯡꯊꯣꯛꯄꯗꯕ 54-ꯅꯒꯤ 75 h ꯍꯦꯟꯕ ꯔꯥꯅ (ꯌꯦꯕꯜ 4C.9), ꯁꯦꯛꯁꯟ 4.7.1-ꯒꯤ ꯂꯤꯃꯤꯠ 48-ꯒꯤ ꯇꯤꯍꯤꯡꯁꯤ ꯔꯥꯅꯍꯦꯇꯕꯅꯤ꯫ **ꯌꯥꯗꯅꯕꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯁ ꯍꯦꯒꯤ ꯌꯥꯅ꯫** ꯀꯃꯕ ꯑꯣꯃꯤꯍꯤꯀ ꯑꯃꯒꯤ ꯇꯣꯔꯗꯗꯥ ꯍꯃꯤ ꯔꯥꯃꯤ 42 h-ꯅ ꯁꯦꯡꯊꯣꯛꯄꯇꯤ꯫

4C.12 **ꯃꯤꯒꯤꯅꯇ ꯌꯥꯃꯕ ꯑꯦꯛꯁꯇꯦꯟꯁ.** ꯇꯦ-ꯍꯤꯇꯦ ꯑꯣꯃꯤꯍꯤꯀ ꯑꯃꯤ ꯁ꯭ꯇꯣꯝ ꯑꯣꯟꯕꯥ ꯗ꯭ꯔꯣꯗꯥꯎꯟ ꯑꯃꯤ ꯃꯇꯝꯃꯣꯡ ꯄꯤꯔꯤꯕꯍꯥꯁꯦꯅꯍꯥ 48 h ꯍꯥꯌꯔꯤ ꯍꯦꯕ ꯍꯦꯟꯕ 10 mm-ꯒꯤ ꯅꯥꯏꯊꯃꯤꯗꯥꯅ ꯄꯥꯇꯒꯤꯀꯄꯇꯅꯤ, ꯑꯃꯁꯨꯡ ꯍꯦꯟꯒꯤ ꯍꯔꯥꯡꯅ 100-yr ꯁꯦꯡꯖ ꯑꯃꯤ ꯄꯥꯇꯤꯍꯥꯀ ꯍꯥꯌꯔꯤ ꯍꯦꯇꯕ ꯁ꯭ꯇꯦꯖ 2 ꯑꯃꯤ ꯑꯍꯦꯟ ꯄꯥꯗꯗꯥ ꯀꯅꯇ ꯇꯦꯖꯅꯤ꯫ ꯃꯤꯇꯌꯀ:

- ꯁ꯭ꯇꯦꯖ 1: ꯍꯤꯇꯦꯗꯅ **170 mm** ꯑꯣꯃꯤꯍꯤꯀ;
- ꯁ꯭ꯇꯦꯖ 2: **460 mm** ꯑꯣꯃꯤꯍꯤꯀ, ꯅꯦꯒꯃꯀ ꯍꯤꯇꯦꯗꯒꯤ ꯍꯊꯥꯌ 0.53 m (ꯍꯔꯤꯅ 0.76 m-ꯅ);
- ꯁ꯭ꯇꯦꯖ 3 ꯇꯥꯏ꯫

ꯄꯥꯗꯗꯥ ꯔꯦꯕ ꯇꯦ-ꯍꯤꯇꯦ ꯑꯣꯃꯤꯍꯤꯀ ꯑꯃꯤꯗꯥ ꯍꯥꯌꯔꯤ ꯍꯥꯌꯔꯒꯤ ꯇꯦꯅ ꯄꯁꯕꯒꯤ ꯊꯥꯗꯣꯛꯄꯥꯃꯤꯗꯅ ꯄꯥꯗꯗꯥ ꯊꯥꯗꯣꯛꯁꯅ꯫ ꯍꯦꯍ ꯑꯃꯤꯅ ꯍꯃꯤ ꯔꯤꯅ, ꯍꯃꯍꯅꯤ ꯅꯃꯤꯗꯥ ꯅꯍꯥꯟꯅꯥ ꯀꯥꯏꯃꯤꯗꯥꯔꯥ ꯑꯣꯅꯕ ꯀꯅꯁꯤ ꯑꯍꯦꯒꯤ 2-yr ꯁꯦꯡꯖ ꯑꯃꯤ ꯅꯦꯡꯗꯣꯛꯄꯍꯥꯏꯗꯟꯕꯒꯤ ꯍꯦꯟꯗꯥꯒꯤ 2-yr ꯈꯣꯏꯗꯥꯃꯤꯗꯥꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯊꯦꯡꯕ ꯑꯍꯨꯗꯤ (ꯁꯦꯛꯁꯟ 4.5.3.1)꯫ WQv ꯑꯃꯤ ꯍꯊꯥ ꯊꯃꯕ ꯍꯦꯍꯅ ꯌꯥꯎꯗꯕ ꯈꯣꯗꯥꯌꯤꯀ ꯑꯍꯅ ꯌꯥꯗꯤꯛ ꯌꯥꯅ ꯄꯥꯔꯗꯥ ꯇꯥꯅ (ꯀꯗꯥ 8), ꯍꯦꯍ ꯑꯃꯗꯥ ꯁ꯭ꯇꯦꯖ 1-ꯗꯥ WQv ꯑꯃꯤ 24–48 h ꯊꯍꯕ ꯍꯊꯥ ꯌꯥꯅꯥ (ꯁꯦꯛꯁꯟ 4.6.5.1); ꯁ꯭ꯇꯦꯖ 1-ꯗꯥ WQv ꯀ ꯊꯥꯗꯣꯛꯁꯤ ꯍꯦꯍꯅ, ꯁꯦꯛꯁꯟ 4.7.2 ꯀ ꯁꯦꯡꯗ ꯌꯥꯒꯅꯕꯇꯤ꯫

ꯌꯦꯕꯜ 4C.10 — ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ–ꯗꯤꯁꯆꯥꯔꯖ, ꯃꯤꯒꯤꯅꯇ ꯌꯥꯃꯕ ꯑꯦꯛꯁꯇꯦꯟꯁ (ꯄꯅꯍ ꯑꯣꯅꯗꯥ ꯅꯥꯗꯌꯥꯇꯤ — ꯅꯤꯇꯤꯅꯦ ꯒꯌꯔꯀ ꯇꯥꯌꯥ)

ꯁ꯭ꯇꯦꯖ h (m)	ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	ꯁ꯭ꯇꯦꯖ 1, 170 mm (L/s)	ꯁ꯭ꯇꯦꯖ 2, 460 mm (L/s)	ꯄꯨꯝꯅꯃꯛ (L/s)
0.00	0	0.0	0.0	0.0
0.085	213	8.8	0.0	8.8
0.17	425	17.6	0.0	17.6
0.30	750	28.0	0.0	28.0

ꯁ꯭ꯇꯦꯖ h (m)	ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	ꯁ꯭ꯇꯦꯖ 1, 170 mm (L/s)	ꯁ꯭ꯇꯦꯖ 2, 460 mm (L/s)	ꯄꯨꯝꯅꯃꯛ (L/s)
0.40	1,000	33.9	0.0	33.9
0.50	1,250	38.9	0.0	38.9
0.60	1,500	43.3	0.0	43.3
0.70	1,750	47.3	0.0	47.3
0.76	1,900	49.6	0.0	49.6
0.80	2,000	51.0	88.3	139.3
0.90	2,250	54.5	165.3	219.7
1.00	2,500	57.7	216.4	274.1
1.10	2,750	60.8	257.5	318.3
1.17	2,925	62.8	282.8	345.6
1.20	3,000	63.7	293.0	356.7
1.30	3,250	66.5	324.6	391.1

ꯇꯦꯕꯜ 4C.11 — [illegible] (170 mm ꯑꯃꯁꯨꯡ 460 mm ꯑꯣꯔꯤꯐꯤꯁꯁꯤꯡ) ([illegible] — [illegible])

ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	2-yr [illegible] (L/s)	2-yr [illegible] ꯁ꯭ꯇꯦꯖ (m)	10-yr [illegible] (L/s)	10-yr [illegible] ꯁ꯭ꯇꯦꯖ (m)	10-yr ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	100-yr [illegible] (L/s)	100-yr [illegible] ꯁ꯭ꯇꯦꯖ (m)	100-yr ꯁ꯭ꯇꯣꯔꯦꯖ (m³)	10-yr 90% ꯗ꯭ꯔꯣꯗꯥꯎꯟ, 50% [illegible] (h)
1	15	0.14	28	0.29	734	42	0.57	1,426	31.3
2	20	0.19	34	0.40	990	79	0.76	1,911	32.1
3	22	0.22	37	0.46	1,147	139	0.80	1,999	32.8
6	25	0.26	41	0.56	1,386	194	0.86	2,154	34.2
12	30	0.33	46	0.68	1,692	276	1.01	2,512	39.0
24	32	0.37	49	0.75	1,870	320	1.11	2,766	45.3
48	34	0.40	82	0.77	1,913	343	1.17	**2,913**	44.8
72	34	0.41	84	0.77	1,915	343	1.16	2,911	44.7

[illegible]:

- **100-yr ꯆꯦꯛ:** [illegible] 343 L/s ≤ 356 L/s꯫ [illegible]꯫
- **2-yr ꯆꯦꯛ:** [illegible] 34 L/s ≤ 180 L/s꯫ [illegible]꯫
- **ꯗ꯭ꯔꯣꯗꯥꯎꯟ:** [illegible] ꯗ꯭ꯔꯣꯗꯥꯎꯟ 45.3 h ≤ 48 h ([illegible] 4.7.1)꯫ [illegible]꯫
- **[illegible] ꯁ꯭ꯇꯣꯔꯦꯖ: 2,913 m³** (100-yr, 48 h), [illegible] ꯁ꯭ꯇꯦꯖ **1.17 m**-[illegible]꯫ [illegible] 220 m³ [illegible] ꯁ꯭ꯇꯣꯔꯦꯖ [illegible]꯫ [illegible] 4.6.7-[illegible] ꯇꯦꯕꯜ 4.2-[illegible]꯫

- **ꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯅꯣꯡꯖꯨꯒꯤ ꯃꯇꯝ (ꯁꯦꯛꯁꯟ 4.6.2, ꯇꯦꯕꯜ 12):** ꯃꯃꯥꯡꯗ, 100-yr ꯅꯨꯃꯤꯠ 48-ꯒꯤ ꯅꯣꯡꯖꯨ; ꯃꯇꯨꯡ 1, 10-yr ꯅꯨꯃꯤꯠ 24-ꯒꯤ ꯅꯣꯡꯖꯨ (ꯀꯟꯠꯔꯣꯜ); ꯃꯇꯨꯡ 2, 100-yr ꯅꯨꯃꯤꯠ 48-ꯒꯤ ꯅꯣꯡꯖꯨ (ꯆꯦꯛ)꯫

ꯁꯔꯨꯛ 3 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ, ꯔꯤꯇꯦꯟꯁꯟ, ꯁ꯭ꯄꯤꯜꯋꯦ, ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯍꯤꯁꯥꯕ

4C.13 **Ia = 0.05S ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ (ꯁꯦꯛꯁꯟ 3.8.5).** S ꯑꯁꯤ S0.05 = 25.4 × 1.33 × (S0.20 / 25.4)^1.15 ꯑꯣꯏꯅꯥ ꯍꯣꯡꯗꯣꯀꯄꯥ ꯇꯥꯔꯕꯗꯤ, ꯃꯃꯥꯡꯒꯤ 100-yr ꯅꯨꯃꯤꯠ 48-ꯒꯤ ꯔꯟ ꯑꯁꯤꯅꯥ ꯚꯣꯜꯌꯨꯝ 2,898 m³ ꯑꯃꯁꯨꯡ 341 L/s-ꯒꯤ ꯄꯤꯛ ꯄꯤꯔꯤ, ꯃꯁꯤ ꯇꯥꯔꯒꯦꯠ ꯑꯣꯏꯅꯥ ꯁꯤꯖꯤꯟꯅꯩ꯫ ꯃꯥꯂꯦꯃꯒꯤ ꯆꯠꯅꯕꯒꯤ 10-yr ꯄꯤꯛ, ꯑꯃꯁꯨꯡ ꯆꯠꯅ ꯑꯣꯏꯕ 100-yr ꯄꯨꯟ, 344 L/s-ꯗ ꯍꯦꯟꯒꯠꯂꯛꯏ꯫ ꯃꯁꯤꯅꯥ ꯑꯁꯤ ꯃꯤꯖꯤꯟꯅꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯁꯥꯏꯖ ꯑꯣꯏ (ꯁꯦꯛꯁꯟ 3.8.5(c)); ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯔꯤꯖꯜꯇꯁꯤꯡ ꯖꯦꯡ 3-2-ꯗ ꯔꯤꯄꯣꯔꯠ ꯇꯧꯏ꯫

4C.14 **ꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ (ꯁꯦꯛꯁꯟ 4.4.2 ꯑꯃꯁꯨꯡ 4.4.6).** ꯁꯥꯏꯠ ꯑꯣꯏꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯗꯦꯞꯊ P_R = 40 mm-ꯒꯤ ꯃꯇꯨꯡꯗ, Q_R ꯑꯁꯤ AMC II-ꯗ ꯄꯦꯔ-ꯑꯦꯔꯤꯌꯥ ꯁꯥꯏꯠꯀꯤ ꯃꯈꯜ ꯃꯈꯥ ꯇꯥꯅꯥ ꯇꯧꯏ, ꯑꯁꯤꯗꯤ ꯔꯤꯇꯦꯟꯁꯟꯒꯤꯗꯃꯛ ꯃꯃꯥꯡꯒꯤ CN ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ (ꯁꯦꯛꯁꯟ 3.9.4)꯫ ꯏꯝꯄꯔꯚꯤꯌꯁ, CN 98: S = 5.2 mm, Ia = 1.0 mm, Q_R = (40 − 1.0)² / (40 − 1.0 + 5.2) = 34.4 mm꯫ ꯄꯔꯚꯤꯌꯁ, CN 70: S = 108.9 mm, Ia = 21.8 mm, Q_R = (40 − 21.8)² / (40 − 21.8 + 108.9) = 2.6 mm꯫ RRV = 10 × (34.4 × 1.571 + 2.6 × 0.429) = **552 m³**꯫ ꯔꯤꯇꯦꯟꯁꯟ ꯑꯁꯤ ꯅꯣꯡꯖꯨꯒꯤ ꯃꯇꯝ ꯈꯥꯌꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯆꯦꯠꯅꯥ ꯄꯥꯝꯕꯥ ꯁꯤꯡꯂꯣꯟ ꯃꯁꯛ, ꯅꯣꯡꯖꯨꯒꯤ ꯃꯇꯝ ꯏꯅꯐꯤꯂꯇ꯭ꯔꯦꯁꯟ (infiltration) ꯇꯧꯗꯨꯅꯥ ꯃꯥꯡꯍꯟ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯅꯥ ꯂꯧꯏ (ꯁꯦꯛꯁꯟ 4.4.6.2)꯫

ꯇꯦꯕꯜ 4C.12 — ꯂꯧꯁꯤꯡꯕ ꯃꯇꯝ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ, ꯔꯤꯇꯦꯟꯁꯟ ꯃꯇꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ (ꯁꯥꯏꯠ ꯑꯣꯏꯕ ꯍꯤꯁꯥꯕ — ꯃꯁꯤꯅꯥ ꯀꯟꯠꯔꯣꯜ ꯇꯧꯏ)

100-yr ꯅꯣꯡꯖꯨꯒꯤ ꯃꯇꯝ	ꯔꯤꯇꯦꯟꯁꯟ ꯃꯃꯥꯡ ꯚꯣꯜꯌꯨꯝ (m³)	ꯔꯤꯇꯦꯟꯁꯟ ꯃꯇꯨꯡ ꯚꯣꯜꯌꯨꯝ (m³)	ꯍꯦꯟꯒꯠꯂꯛꯄ (m³)
24 h	2,766	2,628	138
48 h	2,913	2,906	7
72 h	2,911	2,911	0

ꯃꯃꯥꯡꯒꯤ ꯚꯣꯜꯌꯨꯝ ꯑꯁꯤ 2,913-ꯗꯒꯤ 2,906 m³-ꯗ ꯍꯦꯟꯒꯠꯂꯛꯏ, ꯑꯁꯤ ꯑꯣꯏꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ ꯑꯁꯤ 7 m³, RRV-ꯒꯤ ꯌꯥꯝ 1%꯫ ꯔꯤꯇꯦꯟꯁꯟ ꯑꯁꯤ ꯑꯃꯣꯡꯒꯤ ꯁꯤꯡꯂꯣꯟꯒꯤ ꯃꯇꯝꯗꯒꯤ ꯍꯦꯟꯕ ꯑꯃꯁꯨꯡ ꯖꯦꯡ ꯑꯣꯏ (ꯁꯦꯛꯁꯟ 4.4.1, ꯀꯨꯞ 8)꯫

4C.15 **ꯏꯃꯔꯖꯦꯟꯁꯤ ꯁ꯭ꯄꯤꯜꯋꯦ (ꯁꯦꯛꯁꯟ 4.9).** ꯖꯦꯡꯁꯤꯡ ꯑꯁꯤ ꯁꯥꯏꯠ ꯑꯣꯏꯕ ꯍꯤꯁꯥꯕꯀꯤ, ꯁꯦꯜ (embankment) ꯇꯧꯕ, ꯑꯁꯤ ꯑꯣꯏꯕ ꯁꯦꯛꯁꯟ 4.9.7 ꯌꯦꯡꯕ: ꯑꯣꯏꯕꯖꯥꯏ ꯄꯨꯝ ꯑꯁꯤ ꯁ꯭ꯄꯤꯜꯋꯦ ꯑꯣꯏꯕ ꯇꯧꯅ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 4.9.1 ꯑꯣꯏꯅ ꯖꯤꯍꯟꯕꯔꯤ꯫

- ꯃꯁꯤꯅꯥ ꯖꯥꯏ: 1% AEP-ꯒꯤ ꯄꯤꯛ ꯏꯐꯖꯥꯏ, 1,089 L/s, ꯑꯥꯎꯠꯂꯦꯠ ꯕꯥꯏꯄꯥꯁ ꯑꯣꯏꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯕꯥꯎꯟꯗ ꯑꯁꯤ ꯚꯣꯜꯌꯨꯝ (crest) ꯖꯤꯡꯂꯕ ꯊꯦꯡꯒꯤ꯫
- ꯚꯣꯜꯌꯨꯝ: ꯑꯥꯎꯠꯂꯦꯠ ꯊꯕꯛ ꯇꯥꯔꯕꯥ 1% AEP-ꯒꯤ ꯁꯇꯣꯔꯦꯖꯒꯤ ꯌꯥꯝꯕ ꯏꯂꯦꯚꯒꯤ ꯂꯦꯚꯜ ꯑꯁꯤ 1.17 m; ꯔꯚꯥꯍꯦꯗꯅ ꯇꯥꯔꯕ 0.15 m-ꯒꯤ ꯚꯂꯤꯌꯔꯦꯁꯟꯒ (ꯁꯦꯛꯁꯟ 4.9.3) ꯂꯧꯔꯒꯗꯤ ꯚꯣꯜꯌꯨꯝ ꯑꯁꯤ **1.35 m-ꯗ ꯊꯝꯃꯤ**꯫
- ꯚꯣꯜꯌꯨꯝꯒꯤ ꯂꯦꯚꯜ: Q = C × L × H^1.5, C = 1.7 ꯇꯧꯕ ꯕꯔꯣꯗ-ꯚꯣꯜꯌꯨꯝꯗ ꯋꯤꯌꯔ (broad-crested weir) ꯑꯃ (SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ ꯕꯔꯣꯗ-ꯚꯣꯜꯌꯨꯝꯗ ꯋꯤꯌꯔ ꯑꯃꯒꯤꯗꯃꯛ ꯁꯥꯏꯠ ꯑꯣꯏꯕ ꯚꯦꯂꯤꯗꯦꯁꯟ ꯑꯃ; ꯁꯦꯛꯁꯟ 4.6.5.2-ꯗ ꯍꯥꯏꯕ ꯑꯣꯏꯒ ꯑꯦꯛꯁꯞꯔꯦꯁ ꯚꯦꯂꯤꯗꯦꯁꯟ ꯑꯃ ꯑꯣꯏꯅ ꯂꯧꯔꯤ)꯫ L = 4.0 m-ꯒꯤ ꯂꯧꯔꯒꯗꯤ: H = (1.089 / (1.7 × 4.0))^(2/3) = 0.295 ≈ **0.30 m**꯫
- ꯁ꯭ꯄꯤꯜꯋꯦ ꯌꯥꯝꯂꯕ ꯁꯇꯣꯔꯦꯖꯒꯤ ꯌꯥꯝꯕ ꯂꯦꯚꯜ: 1.35 + 0.30 = 1.65 m꯫ 0.3 m ꯐ꯭ꯔꯤꯕꯣꯔꯗ (freeboard) (ꯁꯦꯛꯁꯟ 4.9.1) ꯂꯧꯔꯒꯗꯤ, ꯌꯥꯝꯅꯥ ꯑꯣꯏꯕ ꯑꯁꯤ ꯖꯦꯡꯒꯤ ꯑꯣꯏꯕ ꯑꯍꯥꯡꯕ **1.95 m-ꯗ ꯂꯩ**꯫
- ꯁ꯭ꯄꯤꯜꯋꯦ ꯑꯁꯤꯗ 1% AEP-ꯒꯤ ꯑꯣꯚꯔꯂꯦꯟꯗ ꯖꯥꯏ ꯂꯝꯕꯤ (overland flow path) ꯑꯃꯁꯨ, ꯕꯤꯜꯗꯤꯡꯁꯤꯡꯒꯤ ꯂꯃꯗꯝ ꯃꯁꯤꯡꯂꯥꯏ ꯇꯧꯏ (ꯁꯦꯛꯁꯟ 4.9.4)꯫

4C.16 **ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯗꯤꯖꯥꯏꯟ (ꯁꯦꯛꯁꯟ 4.8).**

ꯇꯦꯕꯜ 4C.13 — ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯌꯦꯡꯂꯕ, ꯔꯤꯇꯦꯟꯁꯟ ꯃꯇꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ (ꯁꯥꯏꯠ ꯑꯣꯏꯕ ꯍꯤꯁꯥꯕ — ꯃꯁꯤꯅꯥ ꯀꯟꯠꯔꯣꯜ ꯇꯧꯏ)

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	[illegible]	ꯔꯤꯖꯜꯠ
ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯅꯦꯝꯕ ꯑꯣꯔꯤꯐꯤꯁ	≥ 50 mm (ꯀ꯭ꯂꯣꯖ 4.8.2)	170 mm	ꯃꯄꯨꯡ ꯐꯥꯔꯦ
ꯔꯦꯛꯀꯤ ꯕꯥꯔ ꯁ꯭ꯄꯦꯁꯤꯡ	≤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯑꯄꯤꯛꯄ ꯑꯣꯄꯅꯤꯡꯒꯤ ꯃꯈꯥꯏ ꯑꯃꯁꯨꯡ ≥ 25 mm (ꯀ꯭ꯂꯣꯖ 4.8.3)	≤ 85 mm	75 mm-ꯗ ꯊꯝꯃꯤ
ꯔꯦꯛꯀꯤ ꯑꯣꯄꯟ ꯑꯦꯔꯤꯌꯥ	≥ 10 × ꯊꯣꯀꯄ ꯑꯦꯔꯤꯌꯥ (ꯀ꯭ꯂꯣꯖ 4.8.3)	ꯑꯣꯔꯤꯐꯤꯁ ꯑꯅꯤꯃꯛꯀꯤ ꯑꯀꯥꯌꯕꯗ ꯇꯧꯕ ꯔꯦꯛ ꯑꯃꯒꯤꯗꯃꯛ 10 × (0.0227 + 0.1662) m² = 1.89 m²	≥ 1.89 m² ꯄꯤꯌꯨ
[illegible]-[illegible], ꯁ꯭ꯇꯦꯖ 1	ꯍꯦꯗ > 1.5 d ꯑꯣꯏꯐꯕꯗꯤ ꯃꯊꯧ ꯇꯥꯏ (ꯀ꯭ꯂꯣꯖ 4.8.4)	ꯍꯦꯗ 1.08 m [illegible] > 0.26 m	ꯃꯊꯧ ꯇꯥꯏ
[illegible]-[illegible], ꯁ꯭ꯇꯦꯖ 2	ꯍꯦꯗ > 1.5 d ꯑꯣꯏꯐꯕꯗꯤ ꯃꯊꯧ ꯇꯥꯏ (ꯀ꯭ꯂꯣꯖ 4.8.4)	[illegible] ꯃꯊꯛꯇ ꯍꯦꯗ 0.41 m [illegible] < 0.69 m	ꯃꯊꯧ ꯇꯥꯗꯦ
[illegible]	> 1 ha-ꯗ [illegible] [illegible] [illegible] (ꯀ꯭ꯂꯣꯖ 4.8.6)	2.0 ha-ꯗ [illegible] [illegible]	[illegible]
[illegible] [illegible]	≥ 300 mm (ꯀ꯭ꯂꯣꯖ 4.8.5)	343 L/s-ꯒꯤꯗꯃꯛ [illegible] 9 [illegible] [illegible] [illegible]	ꯗꯤꯇꯦꯟꯁꯟ [illegible]

4C.17 **ꯐꯦꯟꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.15).** 10-yr [illegible] (0.77 m) [illegible] [illegible] [illegible] [illegible] ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ 0.45 m-ꯒꯤ [illegible] [illegible] (ꯀ꯭ꯂꯣꯖ 4.15.1(a)), [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]꯫ [illegible] 0.6 m-ꯗꯒꯤ [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] 1.2 m-ꯗꯒꯤ [illegible] [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] 1.2 m [illegible] [illegible] [illegible] ꯐꯦꯟꯁ (non-climbable fence) ꯑꯃ ꯃꯊꯧ ꯇꯥꯏ (ꯀ꯭ꯂꯣꯖ 4.15.3)꯫ [illegible] [illegible] [illegible] [illegible] ꯑꯃ [illegible] (ꯀ꯭ꯂꯣꯖ 4.15.5)꯫

4C.18 **ꯗꯤꯇꯦꯟꯁꯅꯒꯤ [illegible] ([illegible] [illegible] [illegible] — ꯗꯤꯇꯦꯟꯁꯟ [illegible] [illegible]).**

ꯇꯦꯕꯜ 4C.14 — [illegible] [illegible] ꯗꯤꯇꯦꯟꯁꯅꯒꯤ [illegible] ([illegible] [illegible] [illegible] — ꯗꯤꯇꯦꯟꯁꯟ [illegible] [illegible])

ꯑꯥꯏꯇꯦꯝ	[illegible]
ꯁ꯭ꯇꯣꯔꯦꯖ	2,500 m² [illegible] ꯑꯦꯔꯤꯌꯥ; 1.17 m-ꯒꯤ 1% AEP-ꯒꯤ ꯈ꯭ꯕꯥꯏꯗꯒꯤ [illegible] [illegible] 2,913 m³
ꯁ꯭ꯇꯦꯖ 1	[illegible] 170 mm ꯑꯣꯔꯤꯐꯤꯁ, [illegible] [illegible] (trash rack) ꯑꯃꯁꯨꯡ [illegible]-[illegible] [illegible] [illegible]
ꯁ꯭ꯇꯦꯖ 2	460 mm ꯑꯣꯔꯤꯐꯤꯁ, [illegible] 0.53 m
ꯁ꯭ꯄꯤꯜꯋꯦ	[illegible] 1.35 m, [illegible] 4.0 m, ꯈ꯭ꯕꯥꯏꯗꯒꯤ [illegible] [illegible] 1.65 m
[illegible] [illegible]	[illegible] [illegible] ≥ 1.95 m
100-yr [illegible] [illegible]	343 L/s ([illegible] 356 L/s)
2-yr [illegible] [illegible]	34 L/s ([illegible] 180 L/s)
10-yr [illegible], 50% [illegible] [illegible]	45.3 h ([illegible] 48 h)
[illegible]	RRV 552 m³ [illegible] [illegible]; [illegible] 7 m³
[illegible] [illegible] [illegible]	[illegible], [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] ([illegible] 5C); [illegible] [illegible] [illegible] [illegible] ([illegible] 5); [illegible] [illegible] [illegible] [illegible] [illegible] (ꯀ꯭ꯂꯣꯖ 4.12); WQv ([illegible] 8)

ꯐꯣꯔꯝ 4-1 — ꯁꯥꯏꯠꯀꯤ ꯔꯟꯑꯣꯐ ꯀꯟꯇ꯭ꯔꯣꯜ ꯔꯤꯄꯣꯔꯠ

ꯁꯔꯨꯛ 4-ꯒꯤ ꯀ꯭ꯂꯣꯖ 4.3-ꯗꯒꯤ 4.17 ꯐꯥꯎꯕꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯑꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯁꯥꯏꯠ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯐꯣꯔꯝ ꯑꯃꯥ॥ ꯁꯥꯏꯠ ꯑꯁꯤꯅꯥ ꯑꯥꯎꯠꯐꯣꯜ ꯑꯃꯗꯒꯤ ꯍꯦꯟꯕꯗ ꯅꯁꯤꯡ ꯄꯦꯟꯊꯣꯀꯄ ꯃꯐꯝꯗ, ꯑꯥꯎꯠꯐꯣꯜ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯀꯂꯝ E-ꯗꯒꯤ J ꯐꯥꯎꯕ ꯃꯀꯨꯡ ꯐꯥꯎꯕꯤꯌꯨ (ꯀ꯭ꯂꯣꯖ 4.5.1.3)॥ ꯀ꯭ꯂꯣꯖ 4.14.2 ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯇꯤꯌꯔ B ꯁꯥꯏꯠꯁꯤꯡꯗ ꯁꯦꯡꯁꯦꯜ F ꯑꯃꯁꯨꯡ G-ꯒꯤ ꯃꯍꯩꯁꯤꯡ ꯐꯣꯔꯝ 4-2 ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯁꯝꯅꯍꯟꯕꯤꯌꯨ; ꯐꯤꯜꯗ ꯇꯦꯁ꯭ꯠ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯀꯤ ꯔꯨꯠ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯁꯥꯏꯠꯁꯤꯡꯗ ꯁꯦꯡꯁꯦꯜ F ꯑꯃꯁꯨꯡ G-ꯒꯤ ꯃꯍꯩꯁꯤꯡ ꯐꯣꯔꯝ 4-3 ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯁꯝꯅꯍꯟꯕꯤꯌꯨ (ꯀ꯭ꯂꯣꯖ 4.17)॥

A. ꯁꯥꯏꯠ ꯑꯃꯁꯨꯡ ꯔꯨꯠ

ꯇꯦꯕꯜ 4F.1 — ꯐꯣꯔꯝ 4-1: ꯁꯥꯏꯠ ꯑꯃꯁꯨꯡ ꯔꯨꯠ

ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
A1. ꯄ꯭ꯔꯣꯖꯦꯛꯠꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯞꯂꯤꯀꯦꯟꯠ	
A2. ꯃꯐꯝ (ꯌꯨꯝꯒꯤ ꯅꯝꯕꯔ, ꯂꯝꯕꯤ, ꯄꯣꯁ꯭ꯠꯀꯣꯗ, ꯑꯇꯩ)	
A3. ꯑꯦꯞꯔꯨꯚꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ (ꯇꯤꯌꯔ A / ꯇꯤꯌꯔ B)	
A4. ꯁꯥꯏꯠ ꯑꯦꯔꯤꯌꯥ, ꯖꯃꯥꯏ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯑꯍꯣꯕ ꯂꯝ ꯃꯌꯥꯏ ꯂꯩꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ (ha, ha, m²) (ꯀ꯭ꯂꯣꯖ 4.1.2)	
A5. ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯒꯤ ꯃꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.5.1.3)	
A6. ꯁꯥꯏꯖ ꯂꯦꯚꯦꯜꯒꯤ ꯔꯨꯠ: ꯃꯄꯨꯡ ꯐꯥꯕ ꯃꯦꯊꯗ (ꯀ꯭ꯂꯣꯖ 4.6) / ꯇꯤꯌꯔ B ꯇꯦꯕꯜꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.14.2) / ꯐꯤꯜꯗ ꯇꯦꯁ꯭ꯠ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯀꯤ ꯔꯨꯠ (ꯀ꯭ꯂꯣꯖ 4.14.3)	
A7. ꯀꯟꯁ꯭ꯇ꯭ꯔꯦꯟ ꯂꯩꯕ ꯔꯤꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯔꯨꯠ (constrained redevelopment route) ꯁꯤꯖꯤꯟꯅꯔꯤꯕꯔꯥ (ꯀ꯭ꯂꯣꯖ 4.5.6)? ꯍꯣꯌ ꯑꯣꯏꯔꯕꯗꯤ, ꯀꯟꯁ꯭ꯇ꯭ꯔꯦꯟꯠ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ (Constraint Statement), ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯐꯤꯚꯝꯒꯤ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ ꯄꯦꯟꯊꯣꯀꯄ ꯒꯥꯗꯨꯝ ꯑꯃꯁꯨꯡ ꯐꯤꯒꯤ ꯀꯝꯄꯣꯅꯦꯟꯇ ꯁꯝꯅꯍꯟꯕꯤꯌꯨ	

B. ꯏꯟꯄꯨꯠꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.17, ꯑꯥꯏꯇꯦꯝ 1)

ꯇꯦꯕꯜ 4F.2 — ꯐꯣꯔꯝ 4-1: ꯏꯟꯄꯨꯠꯁꯤꯡ

ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
B1. ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯗꯀꯤ ꯁꯤꯟꯂꯦꯟ ꯄꯦꯐꯦꯠ (ꯐꯣꯔꯝ 2-1)	
B2. ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯃꯦꯊꯗꯂꯣꯖꯤꯒꯤ ꯑꯥꯎꯠꯄꯨꯠꯀꯤ ꯄꯦꯐꯦꯠ (ꯐꯣꯔꯝ 3-1)	
B3. ꯁꯣꯏꯜ-ꯑꯦꯟꯐꯤꯂꯇ꯭ꯔꯦꯁꯟꯒꯤ HSG ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯀꯅꯐꯤꯗꯦꯟꯁ ꯂꯦꯚꯦꯜ (ꯀ꯭ꯂꯣꯖ 4.6.2, ꯇꯦꯕꯜ 1)	
B4. ꯀꯝꯄꯣꯖꯤꯠ ꯃꯍꯩꯒꯤ ꯐꯤꯜꯗ ꯑꯃꯁꯨꯡ CN (ꯀ꯭ꯂꯣꯖ 4.5.1.2)	
B5. ꯁꯣꯏꯜ-ꯑꯦꯟꯐꯤꯂꯇ꯭ꯔꯦꯁꯟꯒꯤ ꯀꯝꯄꯣꯖꯤꯠ ꯃꯍꯩꯒꯤ CN, ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯑꯃꯁꯨꯡ ꯃꯍꯩꯒꯤ Tc	
B6. ꯄꯥꯎꯖꯦꯂꯒꯤ ꯃꯍꯩ ꯑꯃꯁꯨꯡ ꯁꯣꯔꯁ, ꯒꯔꯥꯟꯇꯤ ꯂꯩꯔꯕꯗꯤ; ꯇꯦꯁ꯭ꯠ ꯁꯨꯝꯍꯠ (ꯀ꯭ꯂꯣꯖ 4.6.1, 4.6.2)	

C. ꯊꯕꯛꯂꯤꯡꯒꯤ ꯃꯊꯥꯡ ꯃꯈꯥ (ꯈꯟꯗ 4.3.1; ꯈꯟꯗ 4.17, ꯑꯥꯏꯇꯦꯝ 2)

ꯇꯦꯕꯜ 4F.3 — ꯐꯣꯔꯝ 4-1: ꯊꯕꯛꯂꯤꯡꯒꯤ ꯃꯊꯥꯡ ꯃꯈꯥ

ꯈꯣꯡꯊꯥꯡ	ꯁꯤꯖꯤꯟꯅꯕ ꯑꯣꯏꯔꯕ ꯌꯥꯕꯤꯕ	ꯈꯣꯡꯊꯥꯡ ꯑꯣꯏꯔꯕ ꯍꯦꯛꯇꯥ ꯌꯥꯕ ꯃꯔꯝꯁꯤꯡ ꯇꯥꯀꯄ
1. ꯉꯥꯛꯊꯣꯀꯄ (Preserve)		
2. ꯊꯝꯖꯤꯟꯕ (Retain)		
3. ꯃꯇꯝ ꯈꯔꯒꯤ ꯊꯝꯕ (Detain)		
4. ꯄꯨꯊꯣꯀꯄ (Convey)		

D. ꯔꯤꯇꯦꯟꯁꯟ (ꯈꯟꯗ 4.4; ꯈꯟꯗ 4.17, ꯑꯥꯏꯇꯦꯝ 3 ꯑꯃꯁꯨꯡ 4)

ꯇꯦꯕꯜ 4F.4 — ꯐꯣꯔꯝ 4-1: ꯔꯤꯇꯦꯟꯁꯟ

ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ
D1. ꯔꯤꯇꯦꯟꯁꯟ ꯗꯦꯞꯊ P_R (mm) ꯑꯃꯁꯨꯡ ꯁꯣꯔꯁ (ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 2E)	
D2. ꯄꯔ-ꯑꯦꯔꯤꯌꯥ ꯃꯇꯨꯡ ꯅꯥꯏꯗ ꯔꯟꯑꯣꯐ ꯗꯦꯞꯊ Q_R (mm) ꯑꯃꯁꯨꯡ RRV (m³) (ꯈꯟꯗ 4.4.2)	
D3. ꯔꯤꯇꯦꯟꯁꯟ ꯄꯨꯔꯥꯡꯁꯤꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯄꯤꯔꯕ ꯚꯣꯜꯌꯨꯝ (m³)	
D4. ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁꯇꯤꯡ: ꯃꯑꯣꯡ, ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯗꯦꯞꯊ, ꯃꯦꯖꯔ ꯇꯧꯔꯕ ꯔꯦꯠ (mm/h) (ꯈꯟꯗ 4.4.3(a))	
D5. ꯗꯤꯖꯥꯏꯟ ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠ (mm/h), ꯃꯦꯖꯔ ꯇꯧꯔꯕ ꯔꯦꯠꯀꯤ ꯃꯈꯥꯗ ꯑꯣꯏꯒꯗꯕ (ꯈꯟꯗ 4.4.3(b))	
D6. ꯄꯔꯃꯤꯌꯦꯕꯜ ꯁꯔꯐꯦꯁꯀꯤ ꯃꯈꯥꯗꯒꯤ ꯒ꯭ꯔꯥꯎꯟꯗꯋꯥꯇꯔ ꯇꯦꯕꯜ ꯐꯥꯑꯣꯕ ꯗꯦꯞꯊ (m), ꯍꯦꯛꯇꯥ 1.0 m (ꯈꯟꯗ 4.4.3(c))	
D7. ꯔꯤꯂꯥꯏꯗ ꯔꯤꯇꯦꯟꯁꯟ ꯇꯧꯕ ꯃꯑꯣꯡ, ꯔꯤꯂꯥꯏ ꯗꯤꯖꯥꯏꯅꯁꯤꯡ ꯁꯦꯃꯖꯤꯟꯕ (ꯈꯟꯗ 4.4.3)	
D8. ꯔꯤꯇꯦꯟꯁꯟꯒꯤ ꯗ꯭ꯔꯥꯗꯥꯎꯟ ꯃꯇꯝ (h), 72 h-ꯗꯒꯤ ꯍꯦꯟꯗꯕ (ꯈꯟꯗ 4.4.5)	
D9. RRV-ꯗ ꯍꯦꯟꯊꯔꯕ ꯚꯣꯜꯌꯨꯝ (m³), ꯆꯠꯅꯕꯤ, WQv ꯑꯁꯤ ꯇꯧꯕ (ꯈꯟꯗ 4.4.4.2)	
D10. ꯔꯤꯇꯦꯟꯁꯟ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯑꯦꯔꯤꯌꯥ ꯁꯤꯡꯂꯨꯞꯀꯤ ꯃꯈꯥꯗ, ꯑꯃꯁꯨꯡ ꯔꯤꯇꯦꯟꯁꯟ ꯁꯦꯃꯗꯣꯛ (m³) (ꯈꯟꯗ 4.4.6)	
D11. ꯄꯔꯔꯤꯄꯤꯇꯦꯟ ꯁꯦꯃꯗꯣꯛ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯡꯂꯦꯡ (covenant) ꯔꯦꯀꯣꯔꯗ (ꯈꯟꯗ 4.4.7)	

E. ꯔꯤꯂꯤꯖ ꯁꯦꯝꯗꯣꯛꯄꯤꯔꯤ (ꯈꯟꯗ 4.5; ꯈꯟꯗ 4.17, ꯑꯥꯏꯇꯦꯝ 5)

ꯇꯦꯕꯜ 4F.5 — ꯐꯣꯔꯝ 4-1: ꯔꯤꯂꯤꯖ ꯁꯦꯝꯗꯣꯛꯄꯤꯔꯤ

ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ
E1. ꯁꯦꯟꯇꯔꯦꯂꯥꯏꯖꯔ ꯁꯤꯁꯇꯦꯝ: ꯄꯨꯡꯐꯥꯗꯔ (ꯈꯟꯗ 4.5.2) ꯅꯠꯔꯒꯥ ꯍꯥꯏꯕ ꯍꯥꯏꯗꯤꯡ ꯃꯦꯃꯕꯔꯁꯤꯄ (ꯈꯟꯗ 4.5.3), ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 4A-ꯒꯤ ꯃꯦꯊꯗ ꯑꯗꯣꯝꯒꯤ ꯄꯥꯟꯗꯝ ꯇꯧꯔꯦ	
E2. AEP ꯈꯨꯗꯤꯡ ꯍꯥꯏꯗ ꯔꯤꯂꯤꯖ ꯁꯦꯝꯗꯣꯛ (L/s), ꯑꯃꯁꯨꯡ ꯁꯤꯡ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯊꯝꯕ ꯗꯣꯀꯨꯃꯦꯟꯇ	
E3. ꯈꯟꯗ 4.5.5 ꯄꯤꯂꯤꯔꯦꯟꯁꯤꯌꯦꯜ (ꯃꯍꯥꯛ ꯃꯇꯝ ꯑꯁꯤ ꯇꯧꯕ 50 mm ꯑꯔꯤꯐꯤꯁ, ꯀꯨꯏꯗꯦ ꯑꯁꯥꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯀꯤ 2-yr ꯔꯤꯂꯤꯖ)? 2-yr ꯍꯦꯟꯗꯣꯛꯄ ꯑꯃꯍꯥꯛꯇꯥ ꯔꯤꯄꯣꯔꯠ ꯇꯦꯕꯤꯜ	

F. ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ (ꯁꯦꯛꯁꯟ 4.6; ꯁꯦꯛꯁꯟ 4.17, ꯁ꯭ꯇꯦꯞ 6)

ꯇꯦꯕꯜ 4.2-ꯗꯒꯤ ꯁ꯭ꯇꯣꯔꯝ, ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯑꯣꯏꯅ ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯂꯧꯊꯣꯀꯄꯤꯌꯨ꯫꯫ ꯚꯣꯂꯨꯝꯁꯤꯡꯗꯤ, ꯗꯤꯇꯦꯟꯁꯟ ꯚꯣꯂꯨꯝ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯑꯃꯁꯨꯡ ꯔꯤꯂꯤꯖ-ꯗꯤꯗꯤꯡꯃꯛ ꯀꯟꯠꯔꯣꯜꯗ ꯁꯤꯖꯤꯟ ꯑꯣꯏꯕ ꯄꯤꯛ ꯇꯧꯕꯤꯌꯨ (ꯁꯦꯛꯁꯟ 4.6.2, ꯏꯛꯕꯦꯁꯟ 12)꯫꯫

ꯇꯦꯕꯜ 4F.6 — ꯁ꯭ꯇꯦꯞ 4-1: ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ (L/s; m³)

ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	2-yr ꯄꯤꯛ	2-yr ꯐ꯭ꯂꯣ, ꯃꯄꯨꯡ ꯚꯣꯂꯨꯝ	10-yr ꯄꯤꯛ	10-yr ꯐ꯭ꯂꯣ, ꯃꯄꯨꯡ ꯚꯣꯂꯨꯝ	100-yr ꯐ꯭ꯂꯣ, ꯀꯟꯠꯔꯣꯜ ꯚꯣꯂꯨꯝ	100-yr ꯐ꯭ꯂꯣ, ꯃꯄꯨꯡ ꯚꯣꯂꯨꯝ	100-yr ꯔꯤꯂꯤꯖꯗꯤꯕ ꯚꯣꯂꯨꯝ
1							
2							
3							
6							
12							
24							
48							
72							

G. ꯁ꯭ꯇꯣꯔꯦꯖ, ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ (ꯁꯦꯛꯁꯟ 4.7, 4.8, 4.10; ꯁꯦꯛꯁꯟ 4.17, ꯁ꯭ꯇꯦꯞ 7-ꯗꯒꯤ 9 ꯐꯥꯎꯕ)

ꯇꯦꯕꯜ 4F.7 — ꯁ꯭ꯇꯦꯞ 4-1: ꯁ꯭ꯇꯣꯔꯦꯖ, ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ

ꯑꯥꯏꯇꯦꯝ	ꯚꯦꯜꯌꯨ
G1. ꯁ꯭ꯇꯣꯔꯦꯖꯗꯥ ꯃꯊꯧ (ꯁꯦꯛꯁꯟ 4.10) ꯑꯃꯁꯨꯡ ꯄꯤꯔꯤꯕ ꯚꯣꯂꯨꯝ (m³)	
G2. ꯚꯣꯜ–ꯚꯣꯂꯨꯝ ꯑꯃꯁꯨꯡ ꯚꯣꯜ–ꯗꯤꯁꯆꯥꯔꯖ ꯇꯦꯕꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯔꯚꯁꯤꯡ; ꯔꯤꯂꯤꯖꯤꯡ ꯁ꯭ꯇꯦꯖꯁꯤꯡꯗ ꯃꯁꯛ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯀꯟꯐꯤꯒꯨꯔꯦꯁꯟ (ꯑꯦꯇꯦꯆꯃꯦꯟꯠ)	
G3. 10-yr ꯗꯤꯇꯦꯟꯁꯟ: ꯗ꯭ꯔꯣꯗꯥꯎꯟꯗ ꯃꯥꯏꯀꯩ ꯂꯧꯅꯕ ꯚꯣꯂꯨꯃꯗ 90% ꯗ꯭ꯔꯦꯅꯗꯣꯟ ꯃꯇꯝ (h), ꯗꯤ-ꯋꯥꯇꯔ ꯑꯦꯀꯤꯌꯤꯟ 50% ꯂꯣꯏꯔ ꯑꯦꯛꯁꯠ (ꯁꯦꯛꯁꯟ 4.7.1, 4.8.3)	
G4. WQv ꯗ꯭ꯔꯦꯅꯗꯣꯟ ꯃꯇꯝ (h), 24-ꯗꯒꯤ 48 h ꯐꯥꯎꯕ (ꯁꯦꯛꯁꯟ 4.7.2)	
G5. ꯆꯦꯅꯦꯜ ꯑꯥꯎꯠꯂꯦꯠ: ꯆꯦꯅꯦꯜ ꯇꯥꯡꯖꯥꯇꯔꯤ ꯆꯦꯛꯁꯤꯟ ꯗꯤꯇꯦꯟꯁꯟ, ꯑꯃꯁꯨꯡ ꯄꯣꯠꯁꯤꯟ ꯇꯦꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐꯂꯣ (ꯁꯦꯛꯁꯟ 4.7.4)	
G6. ꯑꯥꯎꯠꯂꯦꯠ ꯚꯣꯜ ꯃꯁꯤꯡꯃꯛ: ꯃꯈꯜ, ꯌꯥꯎꯅ (mm), ꯏꯟꯚꯔꯠ ꯂꯦꯚꯦꯜ (m)	
G7. ꯇꯔꯥꯁ ꯔꯦꯀꯁꯤꯡ: ꯁꯦꯁꯤꯡꯒꯤ ꯕꯥꯔ ꯁ꯭ꯄꯦꯁꯤꯡ (mm) ꯑꯃꯁꯨꯡ ꯑꯣꯄꯟ ꯑꯦꯔꯤꯌꯥ (m²) (ꯁꯦꯛꯁꯟ 4.8.3)	
G8. ꯑꯦꯟꯇꯤ-ꯚꯣꯔꯇꯦꯛꯁ ꯗꯤꯖꯥꯏꯅꯁꯤꯡ (ꯁꯦꯛꯁꯟ 4.8.4); ꯑꯥꯎꯠꯂꯦꯠ ꯕꯦꯔꯤꯡꯗ ꯗꯤꯈꯜꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯤꯁ꯭ꯇꯦꯜ ꯁꯦꯟꯚꯥꯡ (ꯁꯦꯛꯁꯟ 4.8.5); ꯑꯦꯛꯁꯦꯁ (ꯁꯦꯛꯁꯟ 4.8.6)	
G9. ꯁꯥꯏꯐꯅꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯅꯁꯤꯡ: ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯄꯥꯏꯞ–ꯗꯤꯁꯆꯥꯔꯖ ꯁꯥꯏꯖ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯣꯗꯥꯎꯟꯗ ꯀꯦꯞꯇ ꯁꯦꯁꯤꯡ ꯑꯣꯄꯔꯦꯁꯟ (ꯁꯦꯛꯁꯟ 4.6.5.3)	

H. ꯀꯟꯠꯔꯣꯜ, ꯁꯦꯐꯇꯤꯕꯦꯗ ꯑꯃꯁꯨꯡ ꯄꯥꯡ (ꯁꯦꯛꯁꯟ 4.9; ꯁꯦꯛꯁꯟ 4.17, ꯁ꯭ꯇꯦꯞ 10)

ꯇꯦꯕꯜ 4F.8 — ꯁ꯭ꯇꯦꯞ 4-1: ꯀꯟꯠꯔꯣꯜ ꯑꯃꯁꯨꯡ ꯁꯦꯐꯇꯤꯕꯦꯗ

ꯐꯤꯜꯗ	ꯏꯁꯇꯦꯒꯤ
H1. ꯇꯆꯥꯔꯗ ꯂꯆꯥꯁꯤꯐꯤꯂꯦꯁꯌ, ꯃꯔꯝꯁꯤꯡꯒꯥ ꯆꯦꯌꯆꯆꯥ (ꯂꯆꯣꯠ 4.9.2)	
H2. 1% AEP-ꯒꯤ ꯄꯤꯛ ꯏꯁꯡꯆꯣ (L/s); ꯇꯏ ꯇꯆꯥꯔꯗ ꯐꯦꯁꯤꯆꯤꯌꯤꯁꯤꯡꯒꯤꯗꯃ 0.2% AEP-ꯒꯤ ꯄꯤꯛ ꯏꯁꯡꯆꯣ (L/s)	
H3. ꯑꯥꯁꯤꯌꯆꯦꯌ ꯗꯕꯛ ꯌꯣꯔꯤꯁꯗ 1% AEP-ꯒꯤ ꯏꯕꯥꯏꯗꯒꯤ ꯌꯥꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯆꯦꯒꯦꯇ (m); ꯁꯔꯤꯇꯌꯦ ꯂꯔꯦꯁꯌ ꯆꯦꯒꯦꯇ (m) (ꯂꯆꯣꯠ 4.9.3)	
H4. ꯁꯔꯤꯇꯌꯦ ꯆꯌꯔꯒꯥ ꯑꯥꯒꯔꯐꯆꯣ ꯔꯨꯌ: ꯃꯏꯇ, ꯗꯥꯏꯃꯦꯁꯁꯁꯤꯡ, ꯑꯥꯁꯤꯌꯆꯦꯌ ꯕꯆꯣꯛ ꯑꯥꯏꯔꯒꯥ ꯏꯕꯥꯏꯗꯒꯤ ꯌꯥꯡꯕ ꯆꯦꯒꯦꯇ (m)	
H5. ꯄꯁꯒꯤ (embankment) ꯂꯔꯦꯁꯌ ꯆꯌꯔꯒꯥ ꯌꯥꯇꯒꯤ ꯃꯗꯛ ꯐꯥꯁꯕꯒꯤ ꯐꯔꯤꯕꯣꯔꯗ (m), ꯏꯛꯌꯕ 0.3 m (ꯂꯆꯣꯠ 4.9.1)	
H6. ꯁꯔꯤꯇꯌꯦꯒꯤ ꯃꯐꯃ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯌꯔꯆꯒꯤ ꯆꯃꯕꯤ (ꯂꯆꯣꯠ 4.9.4)	
H7. ꯄꯁꯒꯤ ꯑꯌꯥꯡꯕ (m); 2 m-ꯗꯒꯤ ꯇꯦꯁꯕ ꯃꯐꯃꯗ ꯆꯤꯑꯥꯌꯦꯛꯆꯤꯂꯦꯇ ꯔꯤꯄꯥꯔꯌ (ꯂꯆꯣꯠ 4.9.6)	

I. RWH ꯇꯤꯁꯥꯕ, ꯆꯩꯃꯏꯒꯤ ꯃꯏꯥꯒꯤ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯆꯣꯌꯦꯁꯁ (ꯂꯆꯣꯠ 4.11, 4.12; ꯂꯆꯣꯠ 4.17, ꯑꯥꯏꯇꯦꯝ 11 ꯑꯃꯁꯨꯡ 12)

ꯇꯦꯕꯜ 4F.9 — ꯐꯣꯔꯝ 4-1: RWH, ꯆꯩꯃꯏꯒꯤ ꯃꯏꯥꯒꯤ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯆꯣꯌꯦꯁꯁ

ꯐꯤꯜꯗ	ꯏꯁꯇꯦꯒꯤ
I1. ꯄꯤꯔꯕ RWH ꯁꯌꯣꯔꯦꯇ (m³), ꯆꯣꯡ ꯏꯨꯕꯒꯤ ꯗꯦꯗꯥꯡ ꯏꯨꯗꯤꯡꯃꯡꯂꯤ ꯇꯦꯔꯂꯄꯗ ꯗꯁꯕ ꯑꯥꯏꯆ ꯆꯦꯏ (ꯂꯆꯣꯠ 4.11.2)	
I2. ꯄꯨꯁꯁꯤꯁꯕ RWH ꯑꯃꯁꯨꯡ ꯗꯤꯌꯦꯁꯁꯁ ꯌꯦꯕꯡꯁꯤꯡ: ꯆꯥꯁꯒꯤ ꯆꯦꯒꯦꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯌꯦꯁꯁꯁ ꯑꯥꯔꯤꯐꯤꯁꯤꯡ ꯆꯦꯒꯦꯇ (ꯂꯆꯣꯠ 4.11.3); ꯌꯦꯕꯡꯂꯤ ꯂꯔꯥꯁ-ꯁꯦꯡꯁꯁꯁꯤꯡ ꯁꯐꯃꯤꯁꯕꯤꯏꯨ	
I3. ꯗꯤꯆꯏꯁ ꯆꯩꯃꯏꯒꯤ ꯃꯏꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯆꯦꯒꯦꯇ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯏꯨꯐꯐꯐ (ꯂꯆꯣꯠ 4.12.1)	
I4. ꯆꯏꯁ ꯌꯣꯔꯕ ꯆꯌꯔꯒꯥ ꯆꯏꯁ ꯌꯣꯗꯕ ꯁꯌꯣꯔꯦꯇ; ꯗꯤꯆꯏꯁ ꯆꯩꯃꯏꯒꯤ ꯃꯏꯥꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯆꯦꯒꯦꯇꯒꯤ ꯃꯏꯥꯗ ꯆꯣꯕ ꯒꯥꯆꯨꯐ ꯗꯤꯗꯕ (ꯂꯆꯣꯠ 4.12.2)	
I5. ꯐꯆꯣꯌꯦꯁꯁꯒꯤ ꯐꯦꯡꯌꯔ ꯑꯥꯐ ꯁꯦꯐꯌꯤ, ꯏꯛꯌꯕ 1.2 (ꯂꯆꯣꯠ 4.12.3)	

J. ꯃꯏꯥ ꯗꯡꯕ ꯃꯐꯃ, ꯌꯦꯇꯌꯥꯌꯔ, ꯁꯦꯐꯌꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯁꯌꯦꯆꯦꯁꯁ (ꯂꯆꯣꯠ 4.17, ꯑꯥꯏꯇꯦꯝ 13 ꯑꯃꯁꯨꯡ 14)

ꯇꯦꯕꯜ 4F.10 — ꯐꯣꯔꯝ 4-1: ꯃꯏꯥ ꯗꯡꯕ ꯃꯐꯃ, ꯌꯦꯇꯌꯥꯌꯔ, ꯁꯦꯐꯌꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯁꯌꯦꯆꯦꯁꯁ

ꯐꯤꯜꯗ	ꯏꯁꯇꯦꯒꯤ
J1. ꯃꯏꯥ ꯗꯡꯕ ꯃꯐꯃ ꯑꯃꯁꯨꯡ ꯌꯦꯇꯌꯥꯌꯔꯒꯤ ꯔꯤꯄꯥꯔꯌ (ꯐꯣꯔꯝ 5-1) ꯆꯌꯔꯒꯥ ꯆꯏꯗꯥꯡꯇꯦꯁꯕ ꯃꯏꯥ ꯗꯡꯕ ꯃꯐꯃꯒꯤ ꯁꯌꯣꯌꯃꯦꯁꯌ (ꯐꯣꯔꯝ 5-2)-ꯒꯤ ꯔꯦꯐꯔꯦꯁ	
J2. ꯔꯤꯁꯌꯤꯡꯗ ꯁꯤꯆꯤꯁꯆꯔꯕ ꯌꯦꯇꯌꯥꯌꯔ, ꯑꯃꯁꯨꯡ ꯌꯦꯇꯌꯥꯌꯔꯆꯥ ꯒꯒꯔꯁ ꯌꯣꯕ ꯃꯐꯃꯗ ꯐꯆꯣꯄ ꯒꯦꯌ (ꯂꯆꯣꯠ 4.6.6)	
J3. ꯃꯤꯔꯤꯃꯆꯥ ꯏꯡꯕ ꯌꯕ, 10% ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯆꯣꯡ ꯏꯨꯕꯒꯤ ꯗꯦꯗꯥꯡꯁꯤꯡꯗ ꯗꯦꯄꯗꯤꯡ, ꯆꯥꯄꯥꯐꯁꯤꯡ, ꯐꯦꯁꯤꯡ, ꯒꯔꯦꯌꯁꯤꯡ, ꯁꯏꯁꯕꯥꯔꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯄꯗ ꯃꯔꯂꯔꯁꯤꯡ (ꯂꯆꯣꯠ 4.15)	
J4. ꯗꯔꯥꯐꯌ ꯃꯦꯁꯌꯦꯆꯦꯁꯁ ꯗꯤꯡꯆꯦꯔꯦꯁꯁꯒꯤ ꯔꯦꯐꯔꯦꯁ (ꯁꯔꯨꯡ 10)	

K. ꯔꯦꯆꯤꯁꯌꯔ ꯌꯣꯔꯕ ꯄꯔꯥꯐꯦꯁꯆꯦꯇꯒꯤ ꯁꯌꯦꯌꯃꯦꯁꯌ (ꯂꯆꯣꯠ 10.6)

ꯑꯣꯆꯥ ꯇꯏꯔꯤ ꯃꯕꯨꯗꯤ ꯔꯤꯄꯥꯔꯌ ꯑꯁꯤ ꯃꯆꯤꯄꯨꯔ ꯆꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯐ ꯗꯤꯆꯏꯁ ꯃꯦꯁꯨꯌꯦꯇ (ꯗꯔꯥꯐꯌ ꯒꯔꯁꯌ 1.0)-ꯒꯤ ꯁꯔꯨꯡ 4 ꯃꯏꯥꯗ ꯁꯦꯐꯏꯤꯕꯆꯤ, ꯔꯤꯄꯥꯔꯌ ꯌꯣꯔꯕ ꯔꯤꯆꯇꯌꯁꯤꯡ ꯑꯁꯤ ꯁꯐꯃꯤꯌꯆꯕ ꯃꯥꯗꯦꯇꯁꯤꯡꯆꯥ ꯑꯃꯨꯡ ꯇꯁꯆꯥ ꯄꯨꯗꯥꯡꯄ ꯌꯥꯏ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯡ 4-ꯗꯒꯤ ꯌꯥꯗꯁꯆꯥ ꯌꯌꯄ ꯏꯨꯗꯤꯡꯃꯡ ꯃꯁꯤꯒꯤ ꯃꯔꯐꯒꯥ ꯆꯦꯅꯆꯆꯥ ꯆꯤꯁꯌ ꯌꯣꯔꯦ꯫ ꯄꯔꯥꯐꯦꯁꯆꯦꯇ ꯗꯤꯆꯏꯁ ꯁꯔꯌꯤꯐꯤꯂꯦꯌ (ꯐꯣꯔꯝ 10-3) ꯁꯐꯃꯤꯁꯆꯦ꯫

ꯇꯦꯕꯜ 4F.11 — ꯐꯣꯔꯝ 4-1: ꯔꯦꯆꯤꯁꯌꯔ ꯌꯣꯔꯕ ꯄꯔꯥꯐꯦꯁꯆꯦꯇꯒꯤ ꯁꯌꯦꯌꯃꯦꯁꯌ

ꯃꯤꯡꯀ	ꯅꯩꯁ꯭ꯕꯨꯤ
ꯈꯈꯤꯊ	
ꯊꯨꯅꯦꯆꯤꯃꯤꯊꯣꯟꯋ ꯋꯈꯂꯨꯊ ꯕꯣꯇꯤꯂꯨꯁ꯭ꯕꯣꯟꯋ ꯆꯐꯖꯕ	
ꯊꯨꯆꯦꯇ 10.6.1-ꯗꯦ ꯈꯅꯧ ꯁ꯭ꯄꯡꯆꯖ ꯈꯃꯐꯀ ꯅꯐꯌꯣꯗꯣꯡꯈꯣꯋꯌ ꯆꯐꯖꯕ	
ꯋꯦꯕꯌꯗꯦꯅꯇꯣꯟꯋ	
ꯟꯦꯅꯋ	
ꯂꯨꯈꯤꯌ	

ꯀꯕꯨꯦꯃꯌ ꯃꯦꯕꯐ — ꯈꯆꯤꯌꯨꯕ ꯆꯦꯊꯌꯤ ꯅꯟꯤꯊ ꯅꯕꯐ ꯀꯤꯗꯦꯅꯋ ꯈꯣꯂꯨꯍꯣꯡ, ꯀꯕꯨꯦꯃꯌ ꯒꯕꯟꯋ 1.0.

ꯈꯨꯗꯝ 4-2 — ꯁꯥꯏꯠ B ꯑꯅꯧꯕ ꯁꯦꯝꯕ

[ꯁꯔꯨꯛ 4]-ꯒꯤ ꯁꯦꯛꯁꯟ 4.4.6.3, 4.14.1 ꯑꯃꯁꯨꯡ 4.14.2-ꯗ ꯃꯔꯤ ꯂꯩꯅꯕ॥

ꯗꯔꯈꯋ ꯈꯨꯗꯝ — ꯃꯆꯤꯡꯒꯤ ꯆꯥꯡꯒꯤ ꯅꯃꯤꯡ ꯅꯗꯝ ꯗꯤꯆꯅꯕ ꯃꯇꯨꯡꯏꯟꯅ, ꯗꯔꯈꯋ ꯒꯗꯂꯏ 1.0. ꯁꯦꯛꯁꯟ 4.14.2 ꯂꯤꯆꯤꯕꯆꯗꯤꯕ ꯁꯥꯏꯠ B ꯑꯅꯧꯕꯂꯤꯡꯒꯤꯗꯃꯒ, ꯂꯤꯋ ꯑꯂꯤꯆꯦ ꯑꯅꯧꯕꯁꯤ ꯗꯕꯑꯈ ꯁꯕꯇꯗꯨꯅ ꯗꯤꯌꯥꯗꯋ ([ꯈꯨꯗꯝ 4-1])-ꯒꯤ ꯑꯅꯇꯥꯝ 6 ꯑꯃꯁꯨꯡ 7 ꯃꯍꯧ ꯂꯤꯅꯆꯤ॥ ꯃꯂꯤ ꯇꯦꯕꯜ 4.3 ꯑꯂꯤ ꯑꯍꯦꯕ 4B-ꯗ ꯈꯡꯗꯒꯆꯦ ꯃꯇꯨꯡꯗ ꯅꯒꯇ ꯂꯤꯆꯤꯕꯆꯕ ꯔꯦꯅ; ꯃꯇꯝ ꯑꯃꯨ ꯈꯦꯕꯕ, ꯁꯥꯏꯠ B ꯑꯅꯧꯕꯂꯤꯡꯆꯦ ꯁꯦꯛꯁꯟ 4.6 ꯂꯤꯆꯤꯕꯆꯦ ꯆꯋꯗꯒꯦ, 1 ha ꯆꯋꯗꯒꯦ ꯃꯍꯧꯗꯒꯤ ꯍꯕꯊꯕ ꯑꯅꯧꯕꯂꯤꯡꯒꯤꯗꯃꯒ, ꯈꯤꯒꯂ ꯇꯦꯗꯕ ꯁꯑꯈꯤꯂꯤꯔꯕꯋꯁꯤ ꯗꯨꯋ ꯂꯤꯆꯤꯕꯆꯦ (ꯁꯦꯛꯁꯟ 4.14.1 ꯑꯃꯁꯨꯡ 4.14.3)॥

A. ꯔꯦꯕ ꯃꯈꯝꯂꯤꯡ (ꯁꯦꯛꯁꯟ 4.14.1)

ꯇꯦꯕꯜ 4F.12 — ꯈꯨꯗꯝ 4-2: ꯔꯦꯕ ꯃꯈꯝꯂꯤꯡ

ꯈꯤꯒꯗ	ꯅꯕꯇꯗꯤ
A1. ꯆꯁꯒ ꯕꯗꯤ (ꯁꯥꯏꯠ B)	
A2. ꯑꯅꯋ ꯑꯗꯤꯔꯦ A (ha): ꯅꯂꯤꯡ ꯅꯔꯦꯈꯗ ꯂꯕꯂꯤꯇꯤꯒ ꯑꯅꯕ ꯁꯔꯃꯕꯋꯂꯤꯡꯒꯤ ꯃꯇꯨꯕꯗ 2 ha ꯆꯋꯗꯒꯦ ꯃꯍꯧꯗꯒꯤ ꯍꯕꯊꯕ; ꯃꯅꯦꯔꯒꯤ ꯃꯨꯡꯗ 0.5 ha ꯆꯋꯗꯒꯦ ꯃꯍꯧꯗꯒꯤ ꯍꯕꯊꯕ	
A3. ꯁꯔꯃꯕꯋꯁꯤ ꯁꯦꯛꯂ: ꯇꯕꯗꯗꯗ ꯆꯋꯗꯒꯦ ꯅꯂꯤꯡ ꯅꯔꯦꯈꯗ ꯂꯕꯂꯤꯇꯤꯒ (ꯑꯍꯦꯕ 4A)	

B. ꯇꯦꯕꯜ 4.3-ꯒꯤ ꯒꯒꯔꯨꯂꯤꯡ (ꯁꯦꯛꯁꯟ 4.14.2, ꯅꯦꯡꯊꯡ 1)

ꯇꯦꯕꯜ 4F.13 — ꯈꯨꯗꯝ 4-2: ꯇꯦꯕꯜ 4.3-ꯗꯒꯤ ꯁꯤꯗꯕ ꯒꯒꯔꯨꯂꯤꯡ

ꯈꯤꯒꯗ	ꯅꯕꯇꯗꯤ
B1. ꯆꯦꯡ ꯔꯨꯕꯒꯤ ꯆꯦꯕ (ꯑꯍꯦꯕ 2A)	
B2. ꯍꯅꯗꯨꯆꯦꯆꯤꯒ ꯂꯦꯅꯒ ꯒꯨꯁ	
B3. ꯗꯒꯆꯁꯃꯕꯋꯁꯤ ꯃꯇꯨꯡꯒꯤ ꯅꯃꯁꯗꯒꯤꯔꯂꯆꯂ (%)	
B4. PSD 2-yr (L/s/ha)	
B5. PSD 100-yr (L/s/ha), ꯁꯔꯃꯕꯋꯁꯤ ꯁꯦꯛꯂꯁꯤꯗꯃꯒ	
B6. SSR (m³/ha), ꯁꯔꯃꯕꯋꯁꯤ ꯁꯦꯛꯂꯁꯤꯗꯃꯒ	

C. ꯂꯇꯦꯗꯆ ꯑꯃꯁꯨꯡ ꯗꯤꯆꯤꯆ (ꯁꯦꯛꯁꯟ 4.14.2, ꯅꯦꯡꯊꯡ 2 ꯑꯃꯁꯨꯡ 3)

ꯇꯦꯕꯜ 4F.14 — ꯈꯨꯗꯝ 4-2: ꯂꯇꯦꯗꯆ ꯑꯃꯁꯨꯡ ꯗꯤꯆꯤꯆ

ꯆꯅꯕ	ꯁꯔꯦꯕꯇꯤꯇꯤ	ꯁꯃꯁꯔꯨꯇꯂꯕ	ꯒꯒꯔꯨ
C1	ꯁꯤꯗꯕ RRV (m³)	ꯁꯦꯛꯁꯟ 4.4	
C2	C_R	ꯑꯍꯦꯕ 4B; ꯈꯡꯗꯒꯆꯒꯋꯗꯤꯈꯦꯕ 0	
C3	V_credit (m³)	C2 × C1 (ꯁꯦꯛꯁꯟ 4.4.6.3)	

ꯀꯣꯗ	ꯄꯦꯔꯥꯃꯤꯇꯔ	ꯀꯦꯜꯀꯨꯂꯦꯁꯟ	ꯚꯦꯜꯌꯨ
C4	ꯍꯣꯜꯗ ꯇꯦꯡꯀ ꯚꯣꯜꯌꯨꯝ V (m³)	B6 × A − C3	
C5	ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ (m³)	ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕꯒꯤ	
C6	Q_PSD,2 (L/s)	B4 × A	
C7	Q_PSD,100 (L/s)	B5 × A	

D. ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯃꯁꯨꯡ ꯑꯣꯟꯁꯥꯏꯠ ꯗꯤꯇꯦꯟꯁꯟ (ꯀ꯭ꯂꯣꯖ 4.14.2, ꯁꯦꯛꯁꯟ 4 ꯑꯃꯁꯨꯡ 5)

ꯇꯦꯕꯜ 4F.15 — ꯐꯣꯔꯝ 4-2: ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯃꯁꯨꯡ ꯑꯣꯟꯁꯥꯏꯠ ꯗꯤꯇꯦꯟꯁꯟ

ꯑꯥꯏꯇꯦꯝ	ꯁꯕꯃꯤꯠꯇꯦꯗ
D1. ꯁꯥꯏꯠ-ꯄ꯭ꯂꯥꯟ ꯑꯦꯂꯥꯏꯅꯃꯦꯟꯇ: ꯑꯄꯦꯟꯗꯤꯛꯁ 4B-ꯒꯤ ꯗ꯭ꯔꯦꯅꯦꯖ ꯇꯦꯕꯂꯁꯤꯡꯒꯤ ꯗꯥꯏꯃꯤꯇꯔ (mm), ꯂꯦꯡꯊ (m), ꯃꯤꯅꯤꯃꯝ 50 mm	
D2. ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ: ꯍꯦꯗ, ꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯚꯦꯂꯣꯁꯤꯇꯤ	
D3. ꯄ꯭ꯔꯤꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯗꯤꯚꯥꯏꯁ ꯗꯤꯖꯥꯏꯟ (ꯀ꯭ꯂꯣꯖ 4.9)	
D4. RWH ꯁꯤꯁ꯭ꯇꯦꯝ (ꯀ꯭ꯂꯣꯖ 4.11)	
D5. ꯑꯣꯟꯁꯥꯏꯠꯀꯤ ꯗꯤꯇꯦꯟꯁꯟ (ꯀ꯭ꯂꯣꯖ 4.15)	

E. ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ

ꯑꯩꯍꯥꯛ ꯃꯈꯥꯗ ꯁꯥꯏꯟ ꯇꯧꯔꯤꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯑꯣꯏꯅ ꯂꯦꯞꯂꯒꯥ, ꯃꯁꯤꯗ ꯄꯤꯔꯤꯕ ꯏꯅꯐꯣꯔꯃꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯀꯦꯜꯀꯨꯂꯦꯁꯅꯁꯤꯡ ꯑꯁꯤ ꯑꯄꯦꯟꯗꯤꯛꯁ 4B-ꯗ ꯌꯥꯅꯕ, ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟꯇꯧꯔꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯅꯦꯖꯗꯤ ꯑꯆꯨꯝꯕ ꯑꯣꯏ ꯍꯥꯌꯅ ꯂꯥꯎꯊꯣꯀꯏ꯫

ꯇꯦꯕꯜ 4F.16 — ꯐꯣꯔꯝ 4-2: ꯗꯤꯛꯂꯦꯌꯔꯦꯁꯟ

ꯑꯥꯏꯇꯦꯝ	ꯁꯕꯃꯤꯠꯇꯦꯗ
ꯃꯃꯤꯡ	
ꯔꯦꯖꯤꯁ꯭ꯠꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯁꯦꯟꯁ ꯅꯝꯕꯔ	
ꯁꯥꯏꯟ	
ꯇꯥꯡ	

ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯠ ꯐꯣꯔꯝ — ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁ ꯁꯥꯟꯗꯣꯛꯄ ꯇꯧꯕ ꯐꯣꯔꯝ ꯃꯣꯗꯦꯜ ꯍꯦꯜꯄꯔ, ꯗꯣꯀ꯭ꯌꯨꯃꯦꯟꯠ ꯚꯔꯁꯟ 1.0.

ꯐꯣꯔꯝ 4-3 — ꯐꯤꯛꯁ ꯇꯧꯔꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯀꯤ ꯔꯨꯠ ꯁꯤꯠ (ꯀ꯭ꯂꯣꯖ 4.14.3-ꯗꯒꯤ 4.14.7 ꯐꯥꯎꯕ)

ꯁꯔꯨꯛ 4-ꯒꯤ ꯀ꯭ꯂꯣꯖ 4.14.3-ꯗꯒꯤ 4.14.7 ꯐꯥꯎꯕꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯐꯤꯛꯁ ꯇꯧꯔꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯀꯤ ꯔꯨꯠ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯁꯥꯏꯠꯁꯤꯡꯒꯤꯗꯃꯛ, ꯁꯤꯠ ꯑꯁꯤꯗ ꯁꯥꯏꯠꯀꯤ ꯗꯦꯇꯥ ꯃꯦꯗꯨꯔꯥꯜ ꯗꯤꯄꯥꯔꯠ (ꯐꯣꯔꯝ 4-1)-ꯒꯤ ꯑꯥꯏꯇꯦꯝ 6 ꯑꯃꯁꯨꯡ 7 ꯃꯍꯨꯠ ꯁꯤꯜꯂꯤ॥ ꯔꯦꯐꯥꯔꯦꯟꯁ ꯁꯥꯏꯠ ꯍꯅꯥꯃꯛ ꯃꯥꯏꯁꯦꯠ ꯏꯁꯤꯡꯃꯐꯝꯑꯣꯏꯅꯕ ꯃꯁꯤ ꯃꯇꯨꯡ ꯐꯥꯔꯦꯟꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.14.4)॥ ꯃꯃꯤ 4.3-ꯗꯦ ꯃꯦꯊꯗ ꯑꯃꯤ ꯊꯠꯅꯤ॥

A. ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 4.14.3)

ꯇꯦꯕꯜ 4F.17 — ꯐꯣꯔꯝ 4-3: ꯌꯥꯕ ꯃꯐꯝꯁꯤꯡ

ꯊꯦꯡ	ꯍꯣꯏ / ꯅꯠꯇꯦ
A1. ꯁꯥꯏꯠ ꯑꯦꯔꯤꯌꯥ 1 ha ꯅꯠꯔꯒꯥ ꯃꯗꯨꯗꯒꯤ ꯍꯦꯟꯕ	
A2. ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤꯗ ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri) ꯅꯠꯔꯒꯥ ꯏꯁꯤꯡ ꯖꯧꯐꯝꯒꯤ ꯁꯨꯇꯥꯗꯦꯜ ꯂꯤꯖꯦ (ꯀ꯭ꯂꯣꯖ 4.14.3(a))	
A3. ꯁꯥꯏꯠꯀꯤ ꯃꯐꯝ ꯑꯃꯠꯇꯥ ꯏꯁꯤꯡ ꯖꯧꯐꯝꯒꯤ ꯁꯦꯠꯕꯦꯛ (setback) ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗꯥ ꯂꯩ (ꯀ꯭ꯂꯣꯖ 4.14.3(b))	
A4. ꯁꯥꯏꯠ ꯑꯁꯤꯗ ꯃꯌꯥ ꯇꯨꯡꯕ ꯃꯐꯝꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯗ ꯁꯨꯇꯥꯗꯦꯜ ꯇꯤꯕ ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯀꯦꯁꯀꯦꯗ (tank cascade) ꯑꯃꯗ ꯏꯁꯤꯡ ꯍꯦꯖꯇꯥꯛꯄꯦ (ꯀ꯭ꯂꯣꯖ 4.14.3(c))	

B. ꯗꯤꯂꯤꯂ ꯀꯦꯄꯁꯤꯇꯤ (ꯀ꯭ꯂꯣꯖ 4.14.4)

ꯇꯦꯕꯜ 4F.18 — ꯐꯣꯔꯝ 4-3: ꯗꯤꯂꯤꯂ ꯀꯦꯄꯁꯤꯇꯤ

ꯂꯥꯏꯟ	ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯥ	ꯍꯧꯔꯛꯐꯝ ꯅꯠꯔꯒꯥ ꯀꯝꯄꯨꯇꯦꯁꯟ	ꯚꯦꯜꯌꯨ
B1	ꯁꯥꯏꯠ ꯑꯦꯔꯤꯌꯥ A (ha)	ꯁꯔꯚꯦ	
B2	ꯏꯝꯄꯔꯚꯤꯌꯁ ꯁꯥꯏꯠ ꯂꯨꯔꯛ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯑꯦꯔꯤꯌꯥ (ha)	ꯀ꯭ꯂꯣꯖ 3.7	
B3	C_10 ꯑꯃꯁꯨꯡ C_2, ꯑꯦꯔꯤꯌꯥ-ꯋꯦꯠ ꯇꯧꯔꯕ	ꯇꯦꯕꯜ 4.3A	
B4	i_10 ꯑꯃꯁꯨꯡ i_2 (mm/h), ꯃꯤꯅꯤꯠ 15-ꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟ, ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔꯒꯤ ꯂꯥꯎꯅꯂꯦ	ꯐꯣꯔꯝ 2-1; ꯀ꯭ꯂꯣꯖ 2.8	
B5	Q_cap,10 (L/s)	2.78 × C_10 × i_10 × A	
B6	Q_cap,2 (L/s)	2.78 × C_2 × i_2 × A	
B7	ꯀꯦꯖ ꯑꯃꯤ ꯍꯦꯗꯇꯥ ꯑꯖꯤꯃꯖ ꯃꯐꯝꯗ, ꯃꯤꯅꯤꯃꯝ ꯗꯥꯏꯌꯥꯗ 50 mm ꯑꯥꯔꯤꯐꯤꯁ ꯑꯃꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ (L/s) (ꯀ꯭ꯂꯣꯖ 4.5.5.1)	ꯑꯥꯔꯤꯐꯤꯁ ꯏꯀꯨꯌꯦꯁꯟ, ꯀ꯭ꯂꯣꯖ 4.6.5.2	

C. ꯚꯣꯂꯨꯃꯦꯇ꯭ꯔꯤꯛ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ (ꯀ꯭ꯂꯣꯖ 4.14.5)

ꯇꯦꯕꯜ 4F.19 — ꯐꯣꯔꯝ 4-3: ꯚꯣꯂꯨꯃꯦꯇ꯭ꯔꯤꯛ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ C_v

[illegible]	[illegible]	[illegible]
C1	[illegible] 3.2-[illegible] C ([illegible])	
C2	1% AEP-[illegible] 3.3-[illegible] Cf	
C3	12 h-[illegible] C_v ($C1 \times C2$)	
C4	12 h [illegible] C_v, [illegible] C [illegible] 0.50-[illegible]	

D. [illegible] ([illegible] 4.14.5)

[illegible]: [illegible] = $10 \times C_v \times P(d) \times A$ (m³); [illegible] = $1.8 \times Q_{cap} \times d$ (m³); [illegible] = [illegible] − [illegible]॥ V_{100} [illegible] V_2 [illegible]; V [illegible]॥

[illegible] 4F.20 — [illegible] 4-3: [illegible]

d (h)	$P_{100}(d)$ (mm)	100-yr [illegible] (m³)	$1.8 \times Q_{cap,10} \times d$ (m³)	100-yr [illegible] (m³)	$P_2(d)$ (mm)	2-yr [illegible] (m³)	$1.8 \times Q_{cap,2} \times d$ (m³)	2-yr [illegible] (m³)
1								
2								
3								
6								
12								
24								
48								
72								

[illegible] 4F.21 — [illegible] 4-3: [illegible]

[illegible]	[illegible]	[illegible]
D1	V_{100} (m³) [illegible]	
D2	V_2 (m³) [illegible]	
D3	V = D1 [illegible] D2-[illegible] (m³)	
D4	[illegible] (m³)	

E. [illegible], [illegible] ([illegible] 4.14.3, 4.14.6, 4.14.7)

[illegible] 4F.22 — [illegible] 4-3: [illegible], [illegible]

[illegible]	[illegible]
E1. [illegible]-[illegible]: [illegible] (mm) [illegible]; [illegible] V_2 [illegible] (L/s), $Q_{cap,2}$-[illegible]	
E2. [illegible]: [illegible]; V-[illegible] (L/s), $Q_{cap,10}$-[illegible]	

ꯐꯤꯜꯗ	ꯄꯥꯎꯈꯨꯝ
E3. V-ꯒꯤ ꯃꯗꯋꯥꯏ ꯌꯦꯡꯂꯕ ꯁꯔꯤꯄꯕ ꯁꯦꯛꯁꯟ 4.4-ꯒꯤ ꯄꯤꯖꯦꯜꯂꯤ ꯀꯤꯎꯕ (m³); ꯄꯤꯖꯦꯜꯂꯤ ꯁꯦꯛꯁꯟꯗꯤ ꯅꯤꯡꯕ	
E4. ꯗꯤꯛꯂꯦꯌꯔꯦ (ꯁꯦꯛꯁꯟ 4.7), ꯌꯣꯅ ꯄꯥꯑꯣꯡ (ꯁꯦꯛꯁꯟ 4.8), ꯂꯌꯤꯜꯂꯣ (ꯁꯦꯛꯁꯟ 4.9): ꯐꯣꯔꯝ 4-1-ꯒꯤ ꯂꯥꯏꯔꯦ G ꯑꯃꯁꯨꯡ H-ꯒꯤ ꯄꯥꯎꯐꯥꯕ	
E5. ꯃꯍꯥꯛ ꯊꯡꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯅꯥ ꯁꯦꯡꯂꯕꯒꯤ ꯍꯥꯏꯕꯤꯡ (ꯂꯃꯥꯏ 5) ꯑꯃꯁꯨꯡ ꯈꯅꯤꯡꯒꯤ ꯁꯥꯁꯦꯟꯇꯤꯌꯤ (ꯂꯃꯥꯏ 8): ꯄꯥꯐꯥꯕꯂꯤꯡ	

F. ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ

ꯑꯩꯅꯥ ꯍꯥꯏꯕꯤ ꯃꯈꯥꯗ ꯂꯤꯈꯠ ꯑꯃꯤꯗꯤ ꯁꯦꯛꯁꯟ 4.14.3-ꯒꯤ ꯌꯥꯕ ꯃꯐꯝꯂꯤꯡꯒꯤ ꯁꯦꯟꯗꯣꯛꯂꯤꯡ ꯃꯇꯧ ꯐꯥꯑꯣꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯋꯥꯏ ꯅꯕ ꯁꯦꯡꯂꯤꯡ, ꯂꯌꯦꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯇꯦꯟꯁꯤꯡ ꯑꯣꯏ ꯁꯦꯛꯁꯟ 4.14.4-ꯗꯒꯤ 4.14.7 ꯐꯥꯑꯣꯕꯗ ꯁꯦꯡꯕꯥ ꯌꯥꯑꯣ꯫

ꯇꯦꯕꯜ 4F.23 — ꯐꯣꯔꯝ 4-3: ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ

ꯐꯤꯜꯗ	ꯄꯥꯎꯈꯨꯝ
ꯃꯃꯤꯡ	
ꯁꯔꯨꯛꯐꯝ ꯑꯃꯁꯨꯡ ꯄꯥꯟꯗꯂꯦꯡ ꯆꯝꯕꯄ	
ꯇꯥꯡ	
ꯁꯥꯏꯟ	

ꯗꯣꯀꯨꯃꯦꯟ ꯐꯣꯔꯝ — ꯃꯇꯤꯛꯂꯕ ꯁꯦꯡꯒꯤ ꯄꯂꯤꯡ ꯄꯥꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗꯣꯀꯨꯃꯦꯟ ꯚꯔꯁꯟ 1.0.

ꯁꯔꯨꯛ 5-ꯒꯤ ꯑꯍꯦꯅꯕꯁꯤꯡ

ꯃꯍꯩ ꯊꯨꯕ ꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯥꯇꯔꯒꯤ ꯑꯦꯗꯖꯁꯁꯤꯡ

ꯑꯍꯦꯅꯕꯁꯤꯡ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 5-ꯗ ꯃꯌꯦꯡ ꯇꯥꯏ꯫ ꯑꯍꯦꯅꯕ 5C ꯑꯁꯤ ꯑꯍꯦꯅꯕ 4C-ꯒꯤ ꯈꯨꯗꯝ ꯑꯣꯏꯅꯕ ꯍꯦꯁꯤꯖꯤꯡꯒꯤꯗꯃꯛ, ꯄꯦꯔꯥ 5.10-ꯒꯤ ꯑꯣꯐꯂꯍꯣꯟ ꯊꯤꯡꯕ ꯆꯦꯛ (outfall-closed check) ꯑꯗꯨꯒꯤ ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ (worked example) ꯑꯃꯅꯤ꯫ ꯑꯍꯦꯅꯕ 5A ꯑꯃꯁꯨꯡ 5B-ꯗ ꯗꯔꯣꯏꯡ ꯑꯁꯤꯗ ꯄꯥꯡꯊꯣꯛꯂꯤꯕ ꯍꯣꯟꯕ ꯂꯣꯏꯗꯔꯥꯏꯕ ꯇꯥꯏꯗ (tide), ꯁꯔꯖ (surge), ꯁꯔꯒꯤ ꯑꯃꯁꯨꯡ ꯇꯔꯦꯅꯒꯤ ꯗꯦꯇꯥ ꯃꯈꯣ ꯇꯣꯏ; ꯃꯍꯣꯡ ꯈꯨꯗꯃꯡꯃꯁꯤꯗ ꯁꯔꯨꯛ ꯑꯗꯨꯗ ꯄꯨꯝꯅꯃꯛ ꯊꯝꯖꯕꯁꯤꯡ ꯖꯤꯆꯠ ꯇꯣꯏꯅ, ꯇꯣꯖꯤꯡꯖꯤꯕ ꯖꯦꯑꯣꯏꯁꯠ ꯌꯥꯝꯔꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯍꯥꯡꯗꯣꯛꯂꯣꯔꯦꯖꯁꯤꯡꯕ ꯂꯠꯁꯕ ꯁꯔꯨꯛ 5-ꯒꯤ ꯃꯇꯝ ꯄꯔꯒꯤ ꯁꯨꯅ ꯑꯗꯨ ꯄꯥꯏ꯫ ꯍꯣꯔꯝ 5-1 ꯑꯃꯁꯨꯡ 5-2 ꯑꯁꯤ ꯄꯦꯔꯥ 5.14-ꯗ ꯃꯊꯧ ꯇꯧꯕ ꯁꯕꯃꯤꯇꯦꯟ ꯍꯣꯔꯝꯁꯤꯡꯅꯤ꯫ ꯃꯍꯣꯡ ꯑꯁꯤ ꯗꯔꯣꯏꯡ ꯍꯣꯔꯝꯁꯤꯡꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯡꯒꯤ ꯑꯣꯏꯕꯒꯤ ꯁꯦꯝꯖꯤꯟ ꯑꯃꯠꯇꯥ ꯇꯧꯒꯦ꯫

ꯑꯍꯦꯅꯕ 5A — ꯇꯥꯏꯗꯦꯟ ꯗꯦꯇꯝꯁꯤꯡ (CD ꯑꯃꯁꯨꯡ ꯁꯔꯒꯤ ꯑꯣꯏ ꯍꯌꯗꯤꯔꯦ ꯗꯦꯇꯃꯒꯤ ꯄꯔꯗꯝꯕꯩ MSL, MHWS, HAT), ꯁꯔꯖ ꯑꯦꯂꯥꯎꯑꯦꯟꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯣꯁꯨꯟ ꯁꯦꯒꯃꯦꯖ ꯃꯇꯨꯡ ꯍꯌꯕ 1% ꯁꯨꯃꯤꯠ-ꯖꯣꯏꯇꯔ ꯖꯦꯒꯦꯟꯁꯤꯡ

ꯁꯔꯨꯛ 5-ꯒꯤ ꯄꯦꯔꯥ 5.7, 5.9, 5.10, 5.11 ꯑꯃꯁꯨꯡ 5.12-ꯗ ꯃꯌꯦꯡ ꯇꯥꯏ꯫

5A.1 ꯇꯦꯕꯜ 5A.1-ꯗ ꯑꯍꯦꯅꯕ ꯑꯁꯤꯒꯤ ꯒꯦꯟꯗꯨꯁꯤꯡ ꯑꯁꯤ ꯇꯦꯕꯜ 5.1-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯇꯦꯜꯋꯥꯇꯔ (tailwater) ꯖꯦꯒꯦꯟꯁꯤꯡꯗ ꯃꯔꯝꯗ ꯄꯨꯖꯤꯅꯤꯕꯒꯦ ꯍꯣꯔꯕꯗꯨ ꯄꯦꯖꯤ꯫ ꯁꯤ-ꯖꯦꯒꯦꯟ ꯑꯦꯂꯥꯎꯑꯦꯟꯁ (sea-level allowance) ꯑꯁꯤ ꯄꯦꯔꯥ 5.7.4-ꯗ ꯊꯝꯖꯤ ꯑꯃꯁꯨꯡ ꯑꯍꯦꯅꯕ ꯑꯁꯤꯗ ꯃꯍꯣ ꯌꯥꯑꯣꯗ꯫

ꯇꯦꯕꯜ 5A.1 — ꯗꯤꯖꯥꯏꯟ ꯇꯦꯜꯋꯥꯇꯔꯗ (ꯇꯦꯕꯜ 5.1) ꯑꯍꯦꯅꯕ 5A-ꯒꯤ ꯒꯦꯟꯗꯨꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯕ

ꯗꯤꯖꯥꯏꯟ ꯀꯦꯁ	ꯇꯦꯜꯋꯥꯇꯔ	ꯁꯤꯖꯤꯟꯅꯕ ꯑꯍꯦꯅꯕ 5A-ꯒꯤ ꯒꯦꯟꯗꯨꯁꯤꯡ	ꯁꯔꯨꯛꯀꯤ ꯒꯦꯟꯗꯨ
ꯃꯍꯟꯅꯔ-ꯁꯤꯁꯨꯃꯦꯝ ꯗꯤꯖꯥꯏꯟ	MHWS + SLA	MHWS	SLA ≥ +0.3 m (ꯄꯦꯔꯥ 5.7.4)
ꯃꯦꯖꯔ-ꯁꯤꯁꯨꯃꯦꯝ ꯑꯃꯁꯨꯡ ꯁꯨꯔꯦꯖ ꯗꯤꯖꯥꯏꯟ	HAT + ꯁꯔꯖ + SLA	HAT; 10% AEP ꯁꯔꯖ (ꯄꯦꯔꯥ 5.7.3(a))	SLA ≥ +0.3 m
ꯖꯍꯟꯋꯣ ꯀꯦꯁ (ꯄꯦꯔꯥ 2.12(b))	1% AEP ꯁꯨꯃꯤꯠ-ꯖꯣꯏꯇꯔ ꯖꯦꯒꯦꯟ + SLA	1% AEP ꯁꯨꯃꯤꯠ-ꯖꯣꯏꯇꯔ ꯖꯦꯒꯦꯟ (ꯄꯦꯔꯥ 5.7.3(b))	SLA ≥ +0.3 m
ꯗꯦꯇꯝ ꯀꯦꯅꯥꯒꯔꯁꯦ	ꯄꯔꯕꯧ ꯗꯦꯇꯝꯗꯒꯤ ꯌꯥꯔꯖꯦꯖꯋ ꯗꯦꯇꯝ	ꯄꯔꯕꯧ ꯗꯦꯇꯝꯗꯒꯤ ꯁꯔꯒꯤ ꯑꯣꯏ ꯍꯌꯗꯤꯔꯦ ꯗꯦꯇꯝ ꯍꯣꯕꯒꯤ ꯑꯣꯏꯁꯦꯋ (ꯄꯦꯔꯥ 5.7.2(b))	—

> **ꯃꯇꯦꯡꯄꯥꯡꯒꯤꯗꯃꯛ ꯂꯧꯁꯤꯅꯕꯤ.** ꯃꯇꯦꯡꯄꯥꯡꯅ ꯂꯃꯖꯤꯡꯕꯒꯤ ꯃꯇꯧ ꯑꯁꯤ, ꯃꯐꯝ ꯑꯗꯨꯗꯥ ꯂꯩꯕ ꯑꯣꯏꯒꯤ ꯑꯥꯎꯠꯐꯣꯜ (outfall) ꯑꯃꯁꯨꯡ ꯇꯦꯕꯂꯒꯤ ꯇꯦꯝꯞꯂꯦꯠ ꯑꯁꯤ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ ꯑꯁꯤꯅ ꯃꯇꯦꯡꯄꯥꯡꯒꯤ ꯑꯃꯔꯣꯝ ꯑꯣꯏꯕꯥ (ꯄꯦꯔꯥ 5.1.4)꯫ ꯁꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ ꯌꯥꯑꯣꯕꯥ ꯑꯁꯤ ꯃꯦꯞꯂꯣꯟ ꯑꯁꯤꯒꯤ ꯑꯣꯏꯕꯥ ꯑꯦꯟꯁꯤꯌꯂꯤꯡꯗꯥ ꯃꯆꯦꯠꯇꯕ ꯃꯁꯤꯒꯤ ꯇꯦꯕꯂꯁꯤꯡ ꯑꯁꯤ ꯑꯣꯟꯕ ꯑꯦꯟꯇꯔ ꯇꯧꯔꯤ꯫ ꯇꯦꯕꯜ 5-1-ꯒꯤ ꯄꯦ F1-ꯗꯒꯤ F7 ꯐꯤꯜꯗ "ꯅꯣꯠꯗꯦ" ("not applicable") ꯑꯣꯏꯔꯦ ꯅꯅ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯂꯒꯤ ꯑꯁꯤ ꯄꯦ F8-ꯗꯒꯤ F10 ꯐꯤꯜꯗꯕꯒꯤ ꯃꯅꯥ ꯇꯧꯖꯅ; ꯕꯟꯗꯇꯥ ꯇꯧꯔ ꯂꯣꯛ ꯇꯧꯕ ꯑꯥꯎꯠꯐꯣꯜ (bund-locked outfall) ꯑꯃꯒꯤꯗꯃꯛ, ꯄꯦ F10-ꯗꯥ ꯒꯦꯠ, WRD-ꯒꯤ ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯗꯦꯇꯥ, ꯗꯤꯇꯦꯜ ꯑꯃꯁꯨꯡ ꯄꯦꯇ ꯇꯦꯛꯅꯤꯛꯁꯤꯡ, ꯄꯦꯔꯥ 5.8.5(a)-ꯒꯤ ꯇꯧꯕ (lock: ꯋꯥꯇꯦꯔ ꯑꯁꯤ ꯑꯥꯎꯠꯐꯣꯜꯒꯤ ꯃꯊꯛꯇ ꯆꯦꯄꯤꯡꯗ ꯒꯦꯠ ꯊꯤꯕꯇꯤꯕꯗ ꯆꯦꯕ) ꯑꯃꯁꯨꯡ ꯄꯝꯞ-ꯗꯥꯎꯟ (pump-down) ꯄꯦꯃꯦꯄꯗ ꯌꯥꯅ; ꯇꯧꯕꯃꯒꯤ ꯃꯇꯧꯛꯇ ꯆꯕ ꯑꯥꯎꯠꯐꯣꯜ ꯑꯃꯒꯤꯗꯃꯛ, ꯗꯤꯇꯦꯜ ꯇꯧꯕ ꯇꯦꯛꯅꯤꯛ ꯑꯃꯁꯨꯡ ꯄꯦꯔꯥ 5.8.5(c)-ꯒꯤ ꯊꯤꯕꯕ; ꯑꯃꯁꯨꯡ ꯄꯥꯠ (pat; lake or wetland), ꯄꯨꯈ꯭ꯔꯤ (pukhri; pond) ꯗꯥꯄꯒꯤ ꯄꯥꯝꯕꯗ ꯑꯃꯗ ꯃꯥꯌꯄ ꯑꯥꯎꯠꯐꯣꯜ ꯑꯃꯒꯤꯗꯃꯛ, ꯄꯦꯔꯥ 5.8.5(e) ꯃꯅꯥꯗ ꯃꯁꯤꯒꯤ ꯑꯣꯏꯕꯃꯄ ꯇꯦꯛꯅꯤꯛ ꯑꯃꯁꯨꯡ ꯂꯃꯒꯤ ꯌꯥꯕꯕ ꯂꯣꯌꯦꯇ–ꯂꯣꯌꯦꯟꯇꯒꯤ ꯃꯄꯤ꯫

ꯇꯦꯕꯜ 5A.2 — ꯃꯦꯂꯣꯌꯦꯟ ꯂꯦꯒꯃꯦꯗꯥ ꯃꯌꯥꯝ ꯅꯗꯦꯗ ꯌꯥꯅꯗꯦꯟ ꯗꯦꯌꯥꯃꯂꯤꯡ, ꯂꯄꯇ ꯑꯃꯁꯨꯡ ꯂꯣꯌꯤꯟ-ꯔꯥꯌꯥꯄ ꯇꯦꯇꯦꯟꯂꯤꯡ (ꯇꯦꯑꯣꯡꯗꯥ)

ꯃꯦꯂꯣꯌꯦꯟ ꯂꯦꯒꯃꯦꯗꯥ	ꯄꯦꯖꯄꯦꯗꯂ ꯄꯦꯄꯗꯥ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯗ-ꯌꯦꯕꯟꯒꯤ ꯑꯦꯗꯤꯂꯗ	MSL (m CD)	MHWS (m CD)	HAT (m CD)	CD-ꯗꯒꯤ ꯂꯄꯇꯦ ꯑꯦꯖ ꯅꯗꯗꯤꯔꯦ ꯗꯦꯌꯥꯃ (m)	10% AEP ꯂꯄꯇ (m)	1% AEP ꯂꯣꯌꯤꯟ-ꯔꯥꯌꯥꯄ ꯇꯦꯇꯦꯟ (m CD)	ꯔꯦꯇ ꯂꯦꯗ-ꯑꯗꯥ (m), ꯑꯦꯄꯗ-ꯂꯤ ꯑꯥꯎꯠꯐꯣꯜꯂꯤꯡ	ꯑꯣꯏꯕꯃꯖꯃꯂꯤꯡ

ꯁꯦꯛꯁꯟ 5B — ꯃꯦꯇꯄ ꯔꯦꯕꯕꯗꯂꯤꯡ, ꯋꯥꯇꯦꯔꯒꯤ ꯑꯥꯎꯠꯐꯣꯜ ꯄꯤꯔꯤꯡ, ꯑꯃꯁꯨꯡ ꯂꯦꯗꯗ-ꯕꯄꯗꯦ ꯊꯤꯕꯕ ꯔꯦꯕ ꯋꯥꯇꯦꯔꯒꯤ ꯃꯎꯊꯂꯤꯡ; ꯃꯦꯄ

ꯑꯦꯅꯦꯛꯁ 5-ꯒꯤ ꯄꯦꯔꯥ 5.2, 5.3, 5.8 ꯑꯃꯁꯨꯡ 5.13-ꯗ ꯃꯌꯥꯝ ꯄꯤꯕꯅ꯫

5B.1 ꯇꯦꯕꯜ 5B.1-ꯗ ꯑꯦꯅꯦꯛꯁ 5-ꯗ ꯑꯣꯏꯗꯗꯦ ꯃꯃꯤꯕ ꯄꯤꯄꯕ ꯅꯂꯤꯕ ꯆꯦꯖꯃꯂꯤꯡ (water body) ꯇꯤꯂꯣꯌ ꯌꯥꯅ꯫ ꯃꯂꯤ ꯃꯄꯤꯕ ꯑꯦꯗꯦ: ꯁꯦꯛꯁꯟ ꯑꯂꯤꯗ ꯄꯤꯔ (reach) ꯅꯗꯤꯕꯃꯒꯃꯤ ꯑꯦꯒꯂꯌꯦꯗꯌꯂꯤꯡ, ꯂꯣꯌꯃꯤ ꯑꯌꯥꯄꯥꯝ ꯋꯥꯇꯦꯔꯂꯤꯡ, ꯀꯦꯅꯥꯜꯂꯤꯡ (canal) ꯑꯃꯁꯨꯡ ꯃꯎꯊꯂꯤꯡ (mouth), ꯑꯃꯁꯨꯡ ꯃꯦꯄ ꯑꯃ ꯑꯣꯄꯕꯔꯤꯗꯦꯒꯇꯤ꯫

ꯇꯦꯕꯜ 5B.1 — ꯑꯦꯅꯦꯛꯁ 5-ꯗ ꯃꯃꯤꯕ ꯄꯤꯄꯕ ꯅꯂꯤꯕ ꯆꯦꯖꯃꯂꯤꯡ

ꯅꯂꯤꯕ ꯆꯦꯖꯃ	ꯇꯃ	ꯇꯤꯂꯣꯌ ꯌꯥꯄꯕ ꯃꯑꯦꯕ	ꯄꯦꯔꯥ
ꯃꯤꯅꯨꯊꯣꯡ (Minuthong) ꯑꯃꯁꯨꯡ ꯇꯤꯇꯦꯕꯗ ꯆꯦꯕ ꯅꯃꯖꯦꯟ ꯋꯥꯇꯦꯔ	ꯅꯃꯖꯦꯟ ꯌꯃꯄꯤꯒꯃꯤ ꯆꯦꯃꯅ (ꯒꯄꯦꯌꯥꯄ ꯅꯃꯖꯦꯟ ꯑꯃꯁꯨꯡ ꯃꯗꯒꯤ ꯃꯅꯥ)	WRD-ꯒꯤ ꯄꯦꯗ (bund) ꯒꯦꯌꯂꯤꯕꯒꯤ ꯅꯌꯊꯕꯗ ꯋꯥꯇꯦꯔꯒꯤ ꯑꯥꯎꯠꯐꯣꯜ ꯄꯤꯔ; WRD-ꯒꯤ ꯇꯦꯇꯦꯟꯂꯤꯡ (ꯄꯤꯗꯗ ꯑꯦꯕꯗꯦꯒꯅꯤꯕ ꯃꯌꯥꯝ ꯅꯗꯦꯗ), ꯗꯦꯌꯥꯃ [TBC]: ꯃꯤꯅꯨꯊꯣꯡ WL 785.900, FL 786.900, HFL 788.400 m (29 ꯃꯦ 2024-ꯗ HFL-ꯒꯤ ꯃꯊꯛꯇ); ꯇꯤꯇꯦꯕ WL 780.350, FL 781.350 m (2025) ꯗꯌꯄꯒꯤ 781.250 m (2024), ꯑꯣꯏꯗꯦ ꯔꯦꯕꯕ ꯑꯗ ꯔꯌꯆꯦ, HFL 782.850 m, 15 ꯂꯦꯄꯦꯃꯕꯄ 2025-ꯗ 783.250 m-ꯗ ꯑꯣꯏꯒꯌꯅꯤ; FL-ꯗ ꯗꯤꯇꯦꯜ, HFL ꯗꯌꯄꯒꯤ ꯃꯗꯒꯤ ꯃꯊꯛꯇ ꯅꯕꯅꯗꯒꯤ ꯔꯦꯕꯕ ꯄꯤꯕꯗ ꯔꯦꯒ; ꯄꯨꯕ 72-ꯒꯤ ꯇꯦꯕ ꯅꯕꯒꯤ ꯊꯦꯗꯦꯒ ꯑꯃꯁꯨꯡ ꯋꯥꯇꯦꯔ ꯑꯂꯤ ꯂꯤꯟꯒꯤ (sill) ꯃꯊꯛꯇ ꯆꯦꯄꯤꯕ ꯃꯌꯃ ꯐꯤꯜꯗ ꯇꯦꯒ, ꯂꯣꯌꯦꯇ ꯄꯦꯃꯦꯄꯗ ꯆꯦꯌꯕꯗ ꯗꯃꯤꯌ 7-ꯗꯒꯤ ꯑꯣꯏꯊꯗꯕ; ꯃꯦꯗꯦꯟꯒꯤ ꯕꯅ-ꯇꯦ 93-ꯒꯤ ꯕꯐꯄ [TBC: ꯇꯦꯃꯟ ꯕꯦꯗꯤꯗꯦ ꯗꯦꯌꯤꯐꯅ ꯌꯥꯄꯕ ꯕꯅ-ꯇꯦꯇꯂꯤꯕꯗ ꯗꯃꯕꯄ ꯑꯃꯁꯨꯡ ꯌꯦꯒꯂꯌ ꯃꯗꯐꯄꯃ ꯌꯥꯕꯤꯅ] ꯄꯤꯔ ꯃꯌꯥꯝ ꯅꯗꯦꯗ 55, 60 ꯑꯃꯁꯨꯡ 62 m	5.8.1, 5.8.5

ꯃꯐꯝ ꯑꯃꯁꯨꯡ	ꯗꯁ	ꯀꯔꯤꯒꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯍꯣꯡꯃ	ꯁꯦꯛꯁꯟ
ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤ (Thong Nambonbi) (ꯍꯝꯞ ꯕ꯭ꯔꯤꯖ; Hump Bridge) ꯑꯃꯁꯨꯡ ꯅꯝꯕꯨ꯭ꯜ ꯇꯨꯔꯦꯜ, ꯅꯥꯒꯥ ꯅꯨ꯭ꯜꯂꯥ (Naga Nullah) ꯑꯃꯁꯨꯡ ꯋꯥꯏꯁꯦꯜ ꯃꯔꯤꯜ (Waisel Maril) ꯅꯣꯡꯄꯣꯛ	ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠ	ꯇꯨꯔꯦꯂꯒꯤ ꯃꯊꯛꯇꯥ ꯌꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯊꯣꯛꯄꯒꯤ (major drain); HFL 783.695 m (WRD, ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ; FL ꯑꯍꯣꯡꯕ ꯗꯣꯀꯨꯃꯦꯟꯇ), 29 ꯍꯦ 2024-ꯗ ꯍꯧꯔꯀꯈꯤ ꯍꯤꯡꯂꯦ; 2025-ꯗ ꯍꯟꯗꯥ ꯍꯧꯔꯤꯗ ꯄꯤꯂꯦ ꯃꯥꯡꯈꯤ (ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ); ꯁꯤꯋꯦꯖ (sewage) ꯄꯨꯊꯣꯛ ꯊꯣꯛꯄꯒꯤ 72, ꯂꯣꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯔꯦꯅꯥ ꯌꯥꯎꯕ (ꯁꯨꯎꯃꯤ ꯔꯤꯄꯣꯔꯠ, ꯗꯤꯁꯦꯝꯕꯔ 2025); ꯍꯨꯔꯨ ꯑꯍꯣꯡꯕ ꯑꯣꯏꯕ ꯁꯍꯔꯒꯤ ꯌꯥꯑꯣꯔꯤꯕꯅꯤ; ꯏꯝꯐꯥꯜ ꯑꯁꯤꯗꯒꯤ ꯍꯧꯖꯤꯛ ꯕꯥꯏ-ꯄꯥꯁ 93-ꯒꯤ ꯕꯗꯥ 30 m	5.2, 5.8.1, 5.8.5
ꯄꯥꯗꯣꯡꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯃꯨꯁꯥꯡ ꯅꯥꯜꯂꯥ (Shamushang nallah)	ꯏꯝꯐꯥꯜ ꯑꯁꯤꯗ (ꯄꯥꯗꯣꯡ)	ꯃꯐꯝ ꯑꯃꯕ ꯁꯨꯃꯥꯡ: ꯃꯐꯝ ꯃꯌꯥꯏꯗꯒꯤ ꯁꯨꯃꯥꯡ ꯑꯣꯏꯕ ꯁꯥꯍꯔꯒꯤ ꯄꯤꯔꯤꯕ ꯄꯨꯝ ꯑꯍꯦ, ꯄꯔꯤꯛꯁꯥ 2023-ꯗꯒꯤ ꯌꯥꯝ ꯑꯃꯗ 300 ꯃꯤꯇꯔ ꯌꯥꯎꯕ, ꯑꯌꯥꯕ ꯃꯐꯝ ꯃꯌꯥꯏꯁꯤꯡꯗ ꯁꯥꯃꯨꯁꯥꯡ ꯅꯥꯜꯂꯥ (Shamushang nallah) ꯂꯧꯊꯣꯛꯄ ꯄꯥꯗꯣꯡꯗ ꯄꯥꯡꯄꯥꯡꯕ ꯊꯤꯡꯖꯤꯟ (WRD-ꯒꯤ ꯁꯤꯟꯖ ꯔꯤꯄꯣꯔꯠ, 2025); ꯊꯦꯡꯕ ꯍꯧꯖ; ꯁꯨꯃꯥꯡ–ꯁꯨꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯡꯄꯥꯡ ꯃꯥꯄꯥꯡꯁꯤꯡ [TBC]; ꯄꯥꯎꯗꯕ ꯍꯥꯞꯆꯤꯗ ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯃꯦꯡꯗꯥ ꯌꯥꯎꯕ ꯍꯥꯞꯆꯤꯗ ꯊꯤꯖ; ꯄꯥꯎꯄꯥꯛ ꯌꯥꯎꯕ ꯊꯥꯡꯕ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯍꯥꯏꯗꯥ, ꯍꯧꯔꯀꯈꯤ ꯍꯦꯛꯇꯗ ꯂꯣꯏꯁꯤꯡꯗꯁꯦ	5.8.5
ꯏꯔꯤꯜꯕꯨꯡꯗ (Irilbung) ꯑꯃꯁꯨꯡ ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ (Iril), ꯑꯃꯁꯨꯡ ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ (Kongba)	ꯏꯝꯐꯥꯜ ꯏꯁ꯭ꯠ (Imphal East)	ꯇꯨꯔꯦꯂꯒꯤ ꯃꯊꯛꯇꯥ ꯌꯥꯎꯕꯁꯤꯡ; ꯏꯔꯤꯜꯕꯨꯡ WL 786.700, FL 787.700 m, ꯗꯣꯀꯨꯃꯦꯟꯇꯇꯥ HFL 782.200 m (ꯑꯁꯣꯅꯕ ꯑꯍꯦꯜ, ꯁꯤꯂꯤꯁꯦꯟꯗ), 15 ꯁꯄꯇꯦꯝꯕꯔ 2025-ꯗ 788.850 m (ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ); ꯀ꯭ꯁꯦꯠꯔꯤꯒꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏꯗ (Kshetri Awang Leikai) ꯄꯤꯂꯦ ꯃꯥꯡꯈꯤ (ꯁꯄꯇꯦꯝꯕꯔ 2025, ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ); ꯀꯣꯡꯕꯒꯤ ꯄꯔꯤꯛ [TBC]; ꯕꯥꯏ-ꯄꯥꯁ 93-ꯒꯤ ꯕꯗꯥꯁꯤꯡ 50 m (ꯏꯔꯤꯜ) ꯑꯃꯁꯨꯡ 35 m (ꯀꯣꯡꯕ, ꯇꯨꯔꯦꯂꯒꯤ ꯍꯥꯌꯂꯣꯏꯗꯒꯤ; mid-stream)	5.8.1, 5.8.5
ꯊꯧꯕꯥꯜ, ꯁꯦꯀꯃꯥꯏ, ꯋꯥꯡꯖꯤꯡ (Wangjing), ꯅꯝꯕꯣꯜ, ꯈꯨꯒꯥ (Khuga), ꯃꯦꯔꯥꯈꯣꯡ (Merakhong) ꯑꯃꯁꯨꯡ ꯑꯔꯣꯡ (Arong)	ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠ ꯑꯃꯁꯨꯡ	ꯇꯨꯔꯦꯂꯒꯤ ꯃꯊꯛꯇꯥ ꯌꯥꯎꯕꯁꯤꯡ; ꯊꯧꯕꯥꯜ WL 778.915, FL 779.915 m (ꯑꯦꯟꯒꯤ ꯍꯦꯛꯇꯥ ꯄꯤꯔꯤ); ꯅꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡꯗ (Nambol Thongkhong) ꯅꯝꯕꯣꯜ HFL 774.700 m (2024) ꯅꯠꯔꯒ 774.400 m (2025), ꯍꯦꯟꯕ ꯋꯥꯡꯕ ꯑꯍꯨ ꯌꯥꯎꯕ; ꯑꯍꯣꯡꯄꯥꯡꯁꯤꯡ [TBC]; ꯁꯦꯛꯁꯟ 5.8.5(a)-ꯒꯤ ꯑꯦꯟ ꯑꯣꯏꯕꯒꯤ ꯂꯥꯏ; ꯁꯨꯃꯥꯡ ꯔꯦꯀꯣꯔꯗ ꯑꯣꯏꯕꯗ ꯄꯥꯝ ꯅꯍꯦꯠ 7-ꯗꯒꯤ ꯍꯦꯟꯊꯗꯕ	5.8.1, 5.8.5
ꯏꯊꯥꯏ ꯕꯦꯔꯦꯖ (Ithai barrage) ꯑꯃꯁꯨꯡ ꯄꯥꯝꯃꯥꯝ ꯑꯃꯁꯨꯡ ꯍꯦꯡꯁꯣꯡ ꯇꯨꯔꯦꯜ, "ꯁꯨꯒꯅꯨ ꯍꯝꯞ" ("Sugnu hump") ꯑꯃꯁꯨꯡ ꯌꯥꯝꯄꯤꯛ (Chakpi) ꯄꯥꯡꯅꯕ	ꯄꯥꯝꯃꯥꯝꯀꯤ ꯍꯅꯥ (MN-A1)	ꯄꯥꯝꯀꯤ ꯃꯥꯂꯌꯥꯎꯕ; ꯏꯊꯥꯏ HFL 769.320 m, 15 ꯁꯄꯇꯦꯝꯕꯔ 2025-ꯗ 770.05 m (WRD, ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ); FRL 768.5 m ꯑꯃꯁꯨꯡ MDDL 766.2 m (NHPC, ꯀꯅꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ), MDDL 766.01 m (CEA, ꯀꯅꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ), FRL 769.63 m (ORF, ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ) — ꯃꯈꯥꯂꯩ; ꯗꯤꯖꯥꯏꯟ 769.320 m, ꯌꯥꯝ 770.05 m, ꯅꯨꯡ–ꯁꯄꯇꯦꯝꯕꯔꯗ FRL-ꯒꯤ ꯍꯦꯛꯇ ꯅꯠꯇꯕ; ꯗꯤꯖꯥꯏꯟ ꯄꯔꯤꯛꯀꯤ ꯍꯦꯛꯇ ꯑꯃꯁꯨꯡ ꯃꯊꯛꯇꯥ ꯌꯥꯎꯕꯁꯤꯡ 1 ꯅꯨꯡ–30 ꯁꯄꯇꯦꯝꯕꯔ ꯊꯤꯖꯤꯟ; ꯕꯦꯔꯦꯖꯀꯤ ꯍꯦꯛꯇ 763.7 m-ꯗ ꯂꯝꯂꯒꯤ ꯁꯤꯜ (rock sill); ꯁꯨꯒꯅꯨ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯒꯨ (Wangoo) ꯗꯥꯏꯕ ꯌꯥꯝꯄꯤꯛꯀꯤ ꯕꯦꯀꯋꯥꯇꯔ (backwater); ꯐꯨꯝꯗꯤꯒꯤ (phumdi) ꯁꯀ꯭ꯔꯤꯡꯁꯤꯡ; ꯄꯥꯝꯃꯥꯝ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯄꯨꯡꯁꯤꯡ (ꯀꯣꯔ 70.30 km², ꯄ꯭ꯔꯗꯦꯁ 236.21 km²)	5.8.1, 5.8.5
ꯃꯄꯤꯊꯦꯜ ꯗꯦꯝꯒꯤ (Mapithel dam) ꯃꯈꯥꯗ ꯊꯧꯕꯥꯜ ꯇꯨꯔꯦꯜ; ꯈꯨꯒꯥ ꯗꯦꯝꯒꯤ ꯃꯈꯥꯗ ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ; ꯁꯤꯡꯗꯥ ꯗꯦꯝꯒꯤ (Singda dam) ꯃꯈꯥꯗ ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ	ꯏꯝꯐꯥꯜ ꯑꯃꯁꯨꯡ	ꯔꯤꯂꯤꯖ ꯔꯤꯆꯁꯤꯡ (release reach); ꯃꯄꯤꯊꯦꯜ FRL 880.7 m (WRD, 2025, ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ), 1 ꯑꯒꯁ꯭ꯠ 2015-ꯗ 876 m "ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡꯗꯒꯤ ꯌꯥꯝ 2 m ꯍꯦꯡꯂꯦ" ("nearly 2 m above the spillways") (ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ) — ꯃꯈꯥꯂꯩ; ꯁ꯭ꯄꯤꯜꯋꯦ 2,240 m³/s (ꯄꯤꯔꯤꯕ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ ꯍꯥꯞꯆꯤ ꯂꯣꯏ); ꯈꯨꯒꯥ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗꯥꯒꯤ ꯄꯔꯤꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯂꯤꯖꯁꯤꯡ [TBC]; ꯄꯣꯝ ꯅꯕꯒꯤ ꯊꯧꯗꯥꯡꯀꯤ ꯍꯦꯛꯇꯗ, ꯍꯧꯖꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯞꯆꯤꯗ ꯔꯤꯂꯤꯖ; ꯄꯣꯜ ꯄꯨꯝ 72-ꯗꯒꯤ ꯍꯦꯟꯊꯗꯕ	5.8.3, 5.8.5

ꯏꯁꯤꯡ ꯂꯩꯐꯝ	ꯂꯝ	ꯅꯤꯌꯝ ꯇꯦꯔꯕ ꯃꯑꯣꯡ	ꯀ꯭ꯂꯣꯖ
ꯃꯄꯤꯊꯦꯜ (ꯊꯧꯕꯜ ꯃꯜꯇꯤꯄꯔꯄꯣꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯠ; Thoubal Multipurpose Project), ꯗꯦꯝ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯀꯩ ꯀꯦꯃꯁꯤꯡ; ꯑꯦꯆꯄꯤ ꯕꯣꯔꯗ (NHPC)	ꯇꯦꯃꯄꯥꯛꯀꯤ ꯍꯤꯁꯃꯤꯡꯒꯤ ꯃꯊꯛ ꯊꯡꯕ ꯃꯐꯝ; ꯂꯣꯛꯇꯦꯛꯀꯤ ꯑꯣꯁ꯭ꯗꯂꯦꯗ	ꯍꯤꯂꯤꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯠ ꯑꯣꯄꯔꯦꯁꯟ ꯑꯁꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯂꯦꯡꯁꯤꯟꯅꯕ ꯏꯁꯤꯡꯄꯨꯛꯅꯕ (ꯑꯣꯄꯔꯦꯇꯤꯡ ꯔꯨꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯂꯤꯂꯒꯤ ꯍꯦꯛꯇꯔꯁꯤꯡ [TBC]); ꯁꯔꯛꯂꯤꯡꯁꯤꯡ, ꯀꯔꯣꯏꯔꯣꯜ, ꯑꯦꯇꯦꯅꯨꯌꯦꯁꯟ (attenuation) ꯂꯩꯍꯧꯕ ꯃꯃꯤꯡꯅ ꯕꯦꯔꯜ ꯍꯤꯅꯣꯀ꯭ꯔꯥꯃꯒꯤꯅꯃꯛ ꯀ꯭ꯔꯦꯅꯤꯜ ꯑꯃꯂꯇꯦ ꯂꯩꯇꯦ	5.8.3, 5.8.5
ꯁꯍꯔꯒꯤ ꯏꯁꯤꯡꯕꯨꯛꯁꯤꯡꯅꯒꯤ ꯏꯁꯤꯡ ꯂꯩꯕ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯃꯈꯥꯒꯤ ꯃꯇꯨꯡꯅ ꯄꯥꯠꯂꯥꯡꯄꯥꯠ, ꯇꯥꯛꯌꯦꯜꯄꯥꯠ (Takyelpat), ꯁꯪꯒꯥꯏꯄꯥꯠ (Sangaipat), ꯈꯔꯨꯡꯄꯥꯠ (Kharungpat), ꯎꯇ꯭ꯔꯥ ꯄꯥꯠ, ꯌꯥꯔꯜ, ꯋꯥꯏꯊꯧ, ꯐꯨꯝꯅꯣꯝ–ꯄꯨꯝꯂꯦꯟ, ꯈꯣꯏꯗꯨꯝ–ꯏꯀꯣꯞ ꯑꯃꯁꯨꯡ ꯎꯇ꯭ꯔꯥ–ꯈꯔꯨꯡ ꯄꯥꯠꯁꯤꯡ (Utra, Yaral, Waithou–Phumnom, Pumlen–Khoidum and Ikop–Kharung pats), ꯑꯃꯁꯨꯡ ꯁꯍꯔꯁꯤꯡꯒꯤ ꯄꯨꯈ꯭ꯔꯤ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ	ꯑꯃꯃꯤ ꯇꯥꯃꯄꯥꯛ	ꯏꯁꯤꯡ ꯂꯩꯕ ꯁꯔꯨꯛ; ꯍꯩꯀ꯭ꯔꯥꯃ ꯑꯣꯏꯔꯦꯂ ꯃꯁꯤꯡ ꯊꯥꯗꯕ; ꯁꯔꯨꯛ ꯇꯦꯔꯕ ꯁ꯭ꯇꯦꯔꯥꯟ–ꯁ꯭ꯇꯦꯔꯥꯟ [TBC]; ꯁ꯭ꯇꯦꯔꯥꯟ ꯑꯁꯤ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤꯅꯤ; ꯁꯤꯍꯦꯟ ꯄꯨꯊꯕ ꯑꯣꯏꯔꯦꯜ ꯑꯃꯍꯥꯡꯇꯒꯤ ꯃꯃꯤꯡꯅ ꯏꯀꯦꯔꯁꯥꯄꯨꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯔꯥꯟꯁꯤꯡ; ꯁꯔꯨꯛ, ꯂꯥꯏꯔꯛ ꯑꯃꯁꯨꯡ ꯂꯩꯄꯥꯛ–ꯊꯝꯕꯦꯜ ꯄꯥꯠꯁꯤꯡ ꯍꯦꯟꯅꯕ ꯔꯨꯂ, 2017 (Wetlands Rules, 2017) ꯃꯈꯥꯒꯤ ꯀ꯭ꯔꯦꯝ ꯅꯣꯂꯤꯃꯤꯗꯥ ꯂꯩ	5.8.5
ꯇꯥꯃꯦꯡꯂꯣꯡ, ꯅꯣꯅꯦ, ꯖꯤꯔꯤꯕꯥꯝ, ꯁꯦꯅꯥꯄꯇꯤ, ꯀꯥꯡꯄꯣꯀꯄꯤ, ꯍꯦꯟꯅꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯒꯤ, ꯇꯥꯃꯄꯥꯛꯀꯤ ꯃꯅꯥꯛꯀꯤ (rim), ꯑꯃꯁꯨꯡ ꯃꯀ꯭ꯔꯨ (Makru), ꯏꯔꯥꯡ (Irang), ꯂꯩꯃꯥꯇꯥꯛ (Leimatak) ꯑꯃꯁꯨꯡ ꯇꯨꯏꯚꯥꯏ (Tuivai) ꯀꯣꯍꯃꯦꯡꯁꯤꯡꯒꯤ ꯈꯣꯡꯁꯤꯡ (khong) ꯑꯃꯁꯨꯡ ꯍꯤꯡꯒꯤ ꯈꯣꯡꯁꯤꯡ	ꯍꯤꯡꯒꯤ ꯁꯕ-ꯑꯦꯔꯤꯌꯥ MN-B ꯑꯃꯁꯨꯡ MN-C	ꯍꯤꯡꯒꯤ ꯈꯣꯡꯁꯤꯡ; ꯒꯦꯜ ꯂꯩꯕ; ꯕꯜꯀꯤꯡ (bulking) ꯑꯃꯁꯨꯡ ꯕ꯭ꯂꯣꯀꯦꯖ (blockage) ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ ꯇꯦꯔꯕ ꯏꯁꯤꯡ ꯏꯍꯥꯡꯒꯤ ꯃꯔꯛꯁꯤꯡꯒꯤ ꯅꯣꯔꯅꯦ 1% AEP-ꯒꯤ ꯁ꯭ꯇꯦꯔꯤ; ꯏꯅꯚꯔꯠ (invert) ꯑꯁꯤ ꯁꯔꯨꯛ ꯇꯦꯔꯕ ꯏ꯭ꯕꯏꯔꯒꯤ ꯂꯩꯡꯕ ꯕꯦꯔꯀꯤ ꯃꯗꯛꯇ ꯍꯛꯇꯨ 0.5 m; ꯃꯈꯥꯔꯦ ꯇꯥꯃꯄꯥꯛꯀꯤ ꯂꯝ ꯔꯩꯕ ꯃꯐꯝꯗ ꯁꯤꯟꯊ ꯇꯔꯥꯞ (silt trap); ꯅꯥꯛ ꯄꯨꯡ 24-ꯗꯒꯤ ꯍꯦꯠꯗꯕ	5.2, 5.8.1, 5.8.5
ꯍꯣꯇꯦꯕꯦꯀ꯭ꯔꯥꯗ (Chotebekra) ꯂꯩꯕ ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜ, ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤ ꯇꯨꯔꯦꯜ (Jiri)	ꯖꯤꯔꯤꯕꯥꯝ ꯄ꯭ꯂꯦꯁ (MN-C1)	ꯇꯨꯔꯦꯂꯒꯤ ꯑꯣꯏꯔꯦꯜ ꯔꯤꯍꯣꯃꯤꯡ; ꯍꯣꯇꯦꯕꯦꯀ꯭ꯔꯥꯗ HFL 32.1 m (31 ꯖꯨꯂꯥꯏ 1989; SANDRP, ꯄꯥꯎꯗ ꯂꯥꯏꯔꯛꯀꯤ ꯃꯇꯨꯡ ꯏꯊꯦꯜ), ꯗꯦꯟꯖꯔ ꯂꯦꯚꯦꯜ 26.2 m (ꯄꯥꯎꯂꯦꯜꯁꯤꯡꯗ ꯈꯒꯠ, ꯄꯥꯎꯗ ꯂꯥꯏꯔꯛꯀꯤ ꯃꯇꯨꯡ ꯏꯊꯦꯜ), ꯗꯦꯇꯥ [TBC]; ꯕꯔꯥꯛ ꯇꯥꯃꯄꯥꯛꯀꯤ ꯅꯥꯛ, ꯁ꯭ꯇꯦꯜ ꯔꯦꯀꯔꯗ ꯂꯩꯇꯕꯗ ꯖꯨꯃꯤꯜ 7-ꯗꯒꯤ ꯍꯦꯠꯗꯕ; ꯃꯈꯥ ꯊꯡꯕ ꯃꯔꯝꯒꯤ ꯔꯤꯍꯣꯃꯤꯡꯗ ꯑꯁꯤꯝ ꯑꯦꯗꯤꯁꯦꯅꯦ ꯒꯦꯔꯦꯜ ꯇꯣꯏ	5.8.1, 5.8.5
IMC, ꯃꯨꯅꯤꯁꯤꯄꯥꯜ ꯀꯧꯟꯁꯤꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯒꯔ ꯄꯉꯍꯔꯦꯜꯁꯤꯡ, PDA Manipur, PWD ꯑꯃꯁꯨꯡ ꯅꯣꯅꯦꯜ-ꯍꯤꯅꯥꯡ ꯑꯦꯅꯦꯜꯁꯤꯡꯒꯤ 1.0 m ꯂꯩꯍꯧꯕ ꯃꯇꯝꯒꯤ ꯍꯣꯅꯕ ꯄꯥꯎꯄꯥ ꯈꯣꯡꯕꯦꯜꯁꯤꯡ; WRD-ꯒꯤ ꯁꯍꯔꯒꯤ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯏꯍꯥꯡꯒꯤ ꯍꯣꯅꯦꯜꯁꯤꯡ; ꯂꯃꯇꯤꯅ DoECC-ꯒꯤ ꯏꯀꯦꯔꯁꯥꯄꯨꯡ ꯊꯕꯛꯁꯤꯡ	ꯃꯂꯤꯄꯨꯔ	ꯃꯦꯖꯔ ꯈꯣꯡꯕꯦꯜꯁꯤꯡ; ꯄꯥꯡ ꯑꯃꯒꯤ ꯀꯟꯊꯣꯟꯅ WRD-ꯒꯤ ꯑꯔꯤꯕ; ꯃꯄꯨꯒꯤ ꯑꯔꯤꯕ, ꯗꯤꯖꯥꯏꯟ ꯁꯔꯨꯛ ꯂꯦꯚꯦꯜ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ (flap gate)	5.2, 5.8.5
ꯅꯦꯗ-ꯕꯔꯥꯖ ꯊꯤꯡꯕ ꯔꯤꯕ ꯇꯨꯔꯦꯂꯒꯤ ꯃꯍꯩꯊꯣꯛꯁꯤꯡ	ꯃꯂꯤꯄꯨꯔꯗ ꯑꯃꯍꯥꯡ ꯂꯩꯇꯦ	ꯍꯥꯌꯅꯗ (ꯀ꯭ꯂꯣꯖ 5.1.4)	5.13.1

ꯁꯦꯝ ꯁꯣꯀꯄꯥꯕ. ꯑꯍꯦꯅꯕ ꯑꯁꯤꯗꯤ (a) ꯕꯦꯁꯤꯡ ꯃꯇꯦꯡ ꯅꯨꯡꯁꯤꯡꯈꯥꯡꯗꯥꯡꯅꯤ ꯈꯦꯇꯥ ꯄꯥꯡꯕꯦꯁꯤꯡ, (b) ꯕꯦꯡꯔꯡꯥ ꯈꯦꯠꯇꯨꯡ ꯌꯥꯝꯅꯕ ꯏꯁꯤꯡꯒꯤ ꯑꯣꯏꯕꯥ ꯃꯤꯡꯅꯤꯡ, ꯈꯅꯣꯔꯥꯒꯤ ꯈꯨꯃꯥ ꯈꯨꯃꯕ ꯑꯃꯁꯨꯡ ꯈꯅꯥ ꯈꯨꯃꯕ ꯈꯦꯁꯥꯒꯤ ꯇꯤꯈꯤꯟꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯅꯣꯔꯥꯒꯤ ꯀꯤꯇꯤꯡ ꯅꯤꯡꯊꯧ ꯅꯔꯦꯕꯒꯤ ꯇꯦꯒꯦꯟꯅꯤꯡꯒꯤ ꯐꯤꯜꯗꯁꯥꯒꯤ ꯇꯦꯔꯦꯇꯦ, ꯑꯃꯁꯨꯡ (c) ꯈꯟꯅꯥ ꯈꯨꯝꯕ ꯅꯦꯠꯋ ꯂꯦꯝꯅ-ꯕꯦꯅꯥꯗꯥ ꯊꯤꯡꯕ ꯌꯦꯕ ꯏꯁꯤꯡꯒꯤ ꯈꯨꯊꯥꯡꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯡ ꯅꯦꯇꯦꯛꯅꯤꯡ, ꯅꯕꯦꯅꯀꯒꯤ ꯇꯦꯕ ꯃꯇꯤꯡ-ꯈꯦꯇꯂꯦ ꯕꯥ ꯃꯇꯦꯂꯛ ꯇꯦꯒꯦꯟꯅꯤꯡ ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯈꯨꯊꯥꯡ-ꯈꯦꯂꯥꯇꯦꯂ ꯃꯇꯦꯒꯤꯇꯐ ꯑꯈꯐꯥꯡꯒ ꯇꯦꯔꯦꯇꯦ, ꯇꯤꯂꯛ ꯌꯥꯒꯇꯤ ꯑꯃꯁꯨꯡ ꯈꯦꯃ ꯌꯥꯒꯇꯤ꯫ ꯈꯅꯤꯀ WRD-ꯒꯤ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯝꯕꯨꯒꯤ ꯃꯦꯃꯦꯃꯀꯅꯤꯡ, ꯀꯤꯇꯤꯡꯂ ꯑꯃꯁꯨꯡ ꯃꯦꯃꯦꯃꯀ ꯌꯥꯝꯕ ꯅꯅꯤꯡ ꯅꯔꯦꯕꯒꯤ ꯇꯦꯒꯦꯟꯅꯤꯡ, ꯃꯤꯇꯃꯒꯔꯃ ꯑꯃꯥꯃꯒꯤꯡ ꯂꯦꯟꯅꯤꯡ, ꯈꯨꯊꯥꯡꯃ ꯖꯤꯒꯐ, ꯀꯃꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯃ ꯃꯌꯥꯝꯒꯤ ꯃꯦꯃꯦꯃꯀꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯤꯡ-ꯈꯦꯇꯂꯦ ꯕꯦꯃ ꯂꯃꯒꯅꯤꯡ (WRD), IMC ꯑꯃꯁꯨꯡ ꯑꯌꯥꯕꯥ ꯇꯦꯃꯅ ꯕꯦꯀꯤꯂꯤꯡꯒꯤ ꯄꯥꯝꯕꯦꯒꯤ ꯅꯦꯒꯦꯌꯥꯃꯤꯂꯤꯡ, ꯕꯦꯂꯤꯡ ꯇꯦꯡꯒꯤ ꯅꯂꯤꯡ ꯈꯂꯥꯃ ꯃꯇꯦꯡꯂꯤꯡ (ꯂꯣꯡꯡ 11), ꯑꯃꯁꯨꯡ ꯂꯃꯒꯦ ꯑꯦꯜ ꯅꯦꯀꯤꯔ ꯑꯃꯁꯨꯡ NRSC-ꯀꯤꯒꯤ ꯕꯦꯂ ꯈꯦꯄꯤꯡ ꯈꯨꯗꯣꯡ ꯌꯥꯅ꯫ ꯈꯂꯤ ꯖꯦꯃꯀꯦꯃꯇꯃꯌꯃꯤꯗꯤꯕ: ꯏꯁꯤꯡ ꯅꯨꯀꯤꯡꯈꯥ, WRD-ꯒꯤ ꯄꯥꯝꯕꯨ ꯅꯨꯀꯤꯡꯈꯥ, ꯅꯐꯗꯤꯡꯀ ꯆꯤꯕ ꯇꯦꯡ ꯂꯨꯡꯇꯦ, ꯌꯦꯅꯂꯦꯡ ꯈꯦꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯈꯨꯂꯃ ꯇꯦꯇꯦ (Shamushang nallah), WRD-ꯒꯤ ꯂꯐꯃꯒꯤ ꯁꯦꯇꯦꯡ ꯑꯃꯁꯨꯡ ꯅꯂꯤꯡ ꯅꯌꯦꯕꯒꯤ ꯁꯦꯇꯦꯡ ꯅꯨꯀꯤꯡꯈꯥ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯒꯤ ꯄꯥꯎ ꯑꯈꯀ ꯆꯤꯕ ꯒꯦꯌ ꯇꯌꯃꯒ ꯖꯦꯇꯦꯄ ꯒꯦꯌ ꯑꯈꯒꯤ ꯅꯌꯊꯡꯀ ꯅꯂꯤꯡ ꯊꯀꯦꯃꯄ ꯄꯥꯝꯕꯦ ꯅꯨꯀꯤꯡꯈꯥ, IMC, ꯈꯨꯔꯨꯇꯤꯂꯤꯄꯦꯡ ꯃꯦꯂꯤꯡꯅ ꯑꯈ, ꯇꯦꯒꯃ ꯄꯦꯌꯦꯌꯔꯌ ꯑꯈ, PDA Manipur, PWD ꯇꯌꯃꯒ ꯇꯦꯂꯇꯦꯡ-ꯐꯅꯄꯦ ꯑꯦꯇꯦꯂꯤ ꯑꯈꯇꯦ ꯂꯦꯕ ꯇꯌꯃꯒ ꯊꯐꯇꯤꯕ, ꯈꯂꯨꯃꯒꯤ ꯄꯥꯃꯄ 1.0 m ꯇꯌꯃꯒ ꯈꯨꯀꯒꯤ ꯐꯦꯕ ꯄꯥꯝꯕꯦ ꯑꯈꯐꯦꯃꯌ, ꯑꯃꯁꯨꯡ 8 ha ꯇꯌꯃꯒ ꯈꯨꯀꯒꯤ ꯐꯦꯕꯀꯒꯤ ꯅꯂꯤꯡ ꯁꯦꯂꯊꯦꯃꯄ ꯄꯥꯝ (khong) ꯇꯌꯃꯒ ꯑꯌꯥꯕꯥ ꯈꯐꯂꯒꯤ ꯁꯦꯇꯦꯡ ꯅꯨꯀꯤꯡꯈꯥ ꯑꯃꯁꯨꯡ ꯌꯅꯀꯦꯡ ꯃꯃꯤꯡ ꯅꯨꯀꯤꯡꯈꯥ ꯑꯂꯤ ꯈꯦꯇꯥ ꯄꯥꯝꯕꯦ ꯑꯈꯇꯤ (ꯃꯆꯦꯠ 5.2); ꯇꯦꯕꯜ 5B.1-ꯒꯤ ꯅꯂꯤꯡ ꯆꯖꯐꯂꯤꯡ ꯑꯂꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯣꯏꯕꯥ ꯃꯤꯡꯅꯤꯡꯇꯤ (ꯃꯆꯦꯠ 5.8.1); ꯑꯃꯁꯨꯡ ꯂꯈꯨꯃꯒꯤ ꯈꯇꯦꯡ ꯆꯖ ꯂꯌꯥꯒꯂꯤꯡꯒꯤ ꯏꯁꯤꯡꯒꯂꯤꯡꯒꯤ ꯈꯨꯊꯥꯡꯅꯤꯡ (ꯈꯇꯤꯄꯃꯀ ꯑꯈꯌꯥ ꯆꯥ) ꯑꯂꯤ ꯌꯦꯌꯃ ꯃꯤꯂꯦꯃꯂꯂ ꯀꯤꯄꯃꯌꯈꯦꯌꯇꯦ (Water Resources Department) ꯑꯌꯥꯕꯥ ꯈꯑꯦꯂꯀ ꯂꯃꯌꯤꯗꯅ ꯌꯥꯀꯃꯕꯀꯤ ꯈꯦꯂꯦꯒꯤ ꯐꯃꯃꯄꯀ ꯊꯤꯂꯦ ꯐꯔꯦ ꯇꯥꯅ (ꯃꯆꯦꯠ 5.13.2)꯫

ꯇꯦꯕꯜ 5B.2 — ꯑꯍꯦꯅꯕ 5B-ꯒꯤ ꯇꯦꯔꯃꯂꯤꯡꯒꯤ ꯑꯦꯌꯃꯤꯕꯨꯌꯂꯤꯡ (ꯇꯦꯃꯤꯌ)

ꯐꯤꯜꯗ	ꯑꯔꯊ	ꯌꯨꯅꯤꯠ ꯅꯇꯔꯒꯥ ꯐꯣꯔꯃꯦꯠ
feature_id	ꯑꯈꯅꯕ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯔ	ꯇꯦꯛꯁꯠ
name	ꯄꯥꯝꯕꯦ, ꯏꯁꯤꯡ, ꯄꯥꯝꯕꯨ, ꯃꯐꯃꯒ ꯇꯌꯃꯒ ꯈꯨꯊꯥꯡꯃ ꯈꯈꯤꯡ	ꯇꯦꯛꯁꯠ
category	ꯈꯦꯇꯥ ꯄꯥꯝꯕꯦ; ꯏꯁꯤꯡꯒꯤ ꯑꯣꯏꯕꯥ ꯃꯤꯡ; ꯂꯦꯝꯅ-ꯕꯦꯅꯥꯗꯥ ꯊꯤꯡꯕ ꯌꯦꯕ ꯈꯨꯊꯥꯡ	ꯇꯦꯛꯁꯠ
clause	ꯈꯂꯤ ꯇꯤꯂꯛ ꯌꯥꯝꯕ ꯂꯣꯡꯡ 5-ꯒꯤ ꯃꯆꯦꯠ	ꯇꯦꯛꯁꯠ
reach_limits	ꯃꯤꯡ ꯑꯈꯒꯤ ꯈꯨꯃꯥ ꯈꯨꯃꯕ ꯑꯃꯁꯨꯡ ꯈꯅꯥ ꯈꯨꯃꯕ ꯈꯖꯐꯒꯤ ꯇꯤꯈꯤꯟꯅꯤꯡ	ꯇꯦꯛꯁꯠ
design_flood_level_source	WRD-ꯒꯤ ꯀꯤꯇꯤꯡꯂ ꯇꯌꯃꯒ ꯅꯕꯦꯅꯀꯒꯤ ꯌꯦꯃꯇꯦ ꯃꯦꯃꯦꯃꯀ ꯌꯥꯝꯕ ꯅꯂꯤꯡ ꯅꯌꯦꯕꯒꯤ ꯇꯦꯒꯦꯟ, ꯇꯌꯃꯒ ꯐꯅꯈꯤꯃꯇꯤꯡ ꯈꯦꯀꯦꯟ (ꯃꯆꯦꯠ 5.8.2)	ꯇꯦꯛꯁꯠ
reservoir_release	ꯈꯨꯃꯥ ꯈꯨꯃꯕ ꯈꯖꯐꯒꯤ ꯃꯤꯇꯃꯒꯔꯃ ꯇꯌꯃꯒ ꯄꯥꯈꯨꯃ (tank) ꯑꯃꯁꯨꯡ ꯈꯂꯤꯒꯤ ꯑꯦꯄꯥꯃꯦꯟꯂꯤꯡ ꯂꯦꯟ, ꯆꯖꯃꯕꯀꯤ (ꯃꯆꯦꯠ 5.8.3)	ꯇꯦꯛꯁꯠ
bar_crest_level	ꯈꯨꯊꯥꯡꯂꯤꯡꯒꯤꯀꯈꯥ, ꯅꯕꯦꯅꯀꯒꯤ ꯇꯦꯕ ꯃꯇꯤꯡ-ꯈꯦꯇꯂꯦ ꯕꯥ ꯃꯇꯦꯂꯛ ꯇꯦꯒꯦꯟ	m (ꯂꯃꯒꯦ ꯑꯦꯜ ꯅꯦꯀꯤꯔ ꯀꯦꯌꯐ)
mouth_programme	WRD-ꯒꯤ ꯈꯨꯊꯥꯡ-ꯈꯦꯂꯥꯇꯦꯂ ꯃꯇꯦꯒꯤꯇꯐ ꯑꯈꯐꯥꯡꯒ ꯂꯃꯌꯤꯗꯤꯃꯦꯂꯦ (ꯃꯆꯦꯠ 5.13.2)	ꯇꯦꯛꯁꯠ
source	ꯐꯤꯜꯗꯖꯐ ꯑꯦꯇꯦꯂꯤ ꯑꯃꯁꯨꯡ ꯂꯨꯈꯤꯌ	ꯇꯦꯛꯁꯠ
geometry	ꯂꯥꯏꯟ (ꯄꯥꯝꯕꯦꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯡꯅꯤꯡ) ꯇꯌꯃꯒ ꯄꯣꯏꯟꯇ (ꯈꯨꯊꯥꯡꯂꯤꯡ)	ꯂꯥꯏꯟ / ꯄꯣꯏꯟꯇ

ꯑꯍꯦꯅꯕ 5C — ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ: ꯖꯤꯔꯤꯒꯤ ꯈꯣꯡ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯖꯤꯡ ꯍꯦꯟꯊꯛꯄ ꯖꯤꯔꯤꯕꯥꯛ ꯂꯣꯟꯔꯒꯤ ꯍꯤꯡꯒꯤ ꯃꯇꯪꯗꯤ ꯑꯃꯒꯤꯅꯃꯛ ꯗꯤꯇꯦꯟꯁꯟ ꯊꯤꯡꯕ ꯍꯦꯛ

ꯁꯔꯨꯛ 5-ꯒꯤ ꯐꯂꯦꯖ 5.9, 5.10, 5.11 ꯑꯃꯁꯨꯡ 5.12 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 4-ꯒꯤ ꯐꯂꯦꯖ 4.6.6-ꯗ ꯃꯌꯦꯡ ꯌꯥꯎꯅ꯫

ꯈꯨꯗꯝ ꯑꯥꯅꯂꯥ ꯅꯛꯇꯂꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯟꯅꯨ ꯂꯣꯏꯇꯦ. ꯈꯨꯗꯝ ꯑꯃꯤꯂꯥ ꯐꯂꯦꯖ 5.10-ꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯊꯤꯡꯕ ꯍꯦꯛ ꯑꯃꯤ [ꯑꯍꯦꯅꯕ 4C](#)-ꯒꯤ ꯄꯤꯍꯥꯟꯖ ꯇꯧꯄꯕ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯏꯦꯃꯤꯖꯤꯇꯤꯗ ꯃꯤꯖꯤꯟꯂꯤ꯫ ꯃꯥꯅꯣ, ꯈꯃꯤꯒꯤ ꯖꯦꯒꯦꯅꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯃꯤꯒꯤ ꯅꯃꯤꯡ ꯖꯧꯕ ꯅꯥꯡꯕꯦꯟ (receiving drain) ꯑꯃꯤ ꯈꯦꯊꯗ ꯑꯃꯤ ꯍꯣꯂꯕ ꯃꯦꯈꯅꯤꯕꯂꯤ꯫ ꯇꯥꯅꯗꯦꯅ ꯖꯦꯒꯦꯅ ꯑꯈꯣꯇꯥ ꯃꯤꯖꯤꯟꯂꯗꯦ: ꯅꯃꯤꯡ ꯖꯧꯕ ꯅꯥꯡꯕꯦꯟ ꯑꯃꯤ ꯃꯥꯅꯣ ꯍꯦꯊꯣꯂꯦꯣꯃꯤ ꯈꯊꯛꯇ ꯂꯣꯄꯛꯥ ꯈꯅꯥꯗ ꯖꯧꯕꯄꯥ ꯄꯔꯕꯒꯤ ꯈꯇꯥꯡꯗ ꯇꯦꯕꯜ 5C.1-ꯗ ꯖꯧꯕ ꯈꯨꯗꯝ ꯑꯥꯅꯕ ꯔꯥꯏꯈꯃꯤꯡꯒꯤ ꯍꯨꯣꯊꯡꯗ ꯅꯛꯇ ꯇꯥꯅꯗ (tide) ꯑꯃꯤ ꯍꯡꯂꯛꯂꯤ꯫

ꯅꯦꯖꯨꯃꯃꯤꯡ

5C.1 ꯃꯥꯅꯣ ꯑꯃꯤ ꯖꯤꯔꯤꯕꯥꯛ ꯂꯣꯟꯔꯒꯤ ꯍꯤꯡꯒꯤ ꯈꯂꯥꯛꯇ ꯖꯧꯕ, ꯑꯍꯦꯅꯕ 4C-ꯒꯤ 2.0 ha-ꯒꯤ ꯅꯃꯤꯡ ꯅꯍꯦꯊꯗ ꯃꯦꯗꯃꯤꯇꯤꯒꯤ ꯑꯥꯅꯕ ꯃꯥꯅꯣ ꯑꯈꯨꯂꯤ꯫ ꯈꯃꯤꯂꯥ ꯈꯃꯥꯒꯤ ꯑꯥꯍꯦꯣꯂꯦꯣ ꯍꯦꯈꯕꯔ (outlet chamber) ꯑꯃꯁꯨꯡ ꯏꯂꯦꯛ ꯒꯦꯣ (flap gate) ꯑꯈꯒꯤ ꯅꯣꯊꯃꯗ ꯖꯤꯔꯤ (Jiri) ꯇꯨꯔꯦꯅꯒꯤ ꯈꯣꯡ (khong) ꯑꯈꯒꯤ ꯛꯨꯗꯃꯤꯂꯕ ꯛꯕꯂꯤꯍ ꯂꯥꯃꯒꯤ ꯅꯃꯤꯃꯒꯤ ꯅꯥꯡꯕꯦꯟ (storm drain) ꯑꯈꯗ ꯗꯤꯍꯦꯔꯂ ꯇꯥꯅ, ꯈꯥꯃ ꯑꯈꯨꯒꯤ ꯖꯦꯒꯦꯅ ꯑꯃꯤ ꯈꯥꯃ ꯑꯈꯨ ꯍꯤꯃꯤꯃꯤꯃꯗꯒꯤ ꯊꯨꯂꯦ ꯍꯦꯗꯊꯔꯍꯡꯂꯤꯗ (in spate) ꯍꯤꯃꯅꯣꯂꯃꯅ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤ ꯑꯃꯁꯨꯡ ꯈꯃꯤꯒꯤ ꯈꯅꯥꯗ ꯖꯧꯕ ꯕꯔꯍ ꯅꯃꯤꯃ ꯅꯍꯦꯊꯗ ꯖꯧꯔꯤꯡ ꯏꯦꯊꯕ ꯍꯤꯃꯂꯦ ꯖꯧꯅ, ꯈꯔꯃ ꯑꯈꯨꯂꯦ ꯐꯂꯦꯖ 5.10.1 ꯑꯃꯤ ꯏꯦꯃꯤꯖꯤꯇꯤ ꯑꯃꯤꯗ ꯍꯦꯗꯂꯤ꯫ ꯈꯦꯊꯗ ꯑꯃꯤ ꯊꯦꯟꯕ, ꯈꯨꯗꯝ ꯑꯃꯤꯂꯦ ꯐꯂꯦꯖ 5.10.3-ꯒꯤ ꯛꯨꯃ 6-ꯒꯤ ꯂꯥꯡ ꯍꯤꯗꯦ (lock window) ꯑꯂꯤ ꯃꯤꯖꯤꯟꯂꯤ, ꯈꯦꯨꯔꯍꯦꯅ ꯑꯃꯤꯒꯤ ꯃꯈꯨꯗꯔꯒꯤ ꯈꯂꯥꯛ ꯖꯧꯕ ꯃꯇꯦꯃꯤꯒꯤ ꯑꯦꯗꯤꯂꯃꯤꯃꯂꯦ ꯇꯧꯕꯛꯈꯂꯦ꯫ ꯈꯂꯤꯛꯨꯗꯗ, ꯅꯦꯒꯔꯦ (invert) ꯑꯃꯤ ꯈꯃꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯖꯦꯒꯦꯅꯒꯤ ꯈꯅꯥꯗ ꯖꯧꯕ ꯍꯤꯃꯒꯤ ꯂꯥꯃ ꯑꯈꯗ ꯍꯦꯛ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯈ ꯂꯥꯃ ꯈꯕꯒꯤ ꯊꯗꯥꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯃ ꯑꯈꯨꯒꯤ ꯖꯤꯃꯦꯃ (recession) ꯏꯦꯊꯕ, ꯑꯃꯁꯨꯡ ꯛꯨꯃ 24-ꯗꯒꯤ ꯍꯦꯊꯗꯂꯦ ꯊꯤꯃꯅ; ꯖꯤꯔꯤꯕꯥꯛ ꯛꯂꯦꯗ ꯑꯥꯅꯊꯗꯛ ꯍꯤꯕꯛꯈꯂꯦ, ꯕꯔꯍꯂꯦ ꯂꯥꯃ ꯑꯈꯨ ꯕꯦꯡ ꯑꯛ (back up) ꯇꯧꯕ ꯈꯏꯈꯗ, ꯗꯤꯇꯦꯟꯁꯟ ꯑꯃꯤ ꯛꯨꯃ 72-ꯒꯤ ꯂꯥꯃ ꯈꯕꯒꯤ ꯊꯗꯥꯡ ꯛꯨꯈꯕ ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯅ ꯑꯃꯤ ꯃꯤꯖꯒꯤ (sill) ꯈꯊꯡꯇ ꯖꯧꯔꯤꯕ ꯈꯇꯈ ꯛꯨꯈꯂꯈ, ꯃꯇꯦꯂ ꯔꯦꯍꯧꯔꯗ ꯑꯈꯅꯥ ꯑꯦꯂꯦꯂꯅꯃꯤꯃ ꯇꯧꯗꯕ ꯈꯏꯈꯗ ꯈꯨꯈꯤꯅ 7-ꯗꯒꯤ ꯍꯦꯊꯗꯂꯦ ꯊꯤꯃꯅ, ꯑꯃꯁꯨꯡ ꯈꯃꯤꯒꯤ ꯊꯈꯖꯤꯍꯂꯕ ꯒꯦꯨꯈ ꯑꯃꯤ ꯒꯦꯣ ꯊꯤꯃꯂꯤꯃꯗ ꯛꯨꯃ 48-ꯒꯤ ꯈꯨꯃꯗ ꯛꯈꯛꯂꯦ ꯊꯗꯥꯡꯅ; ꯅꯈꯏꯍ ꯇꯈꯛꯂꯥꯡꯃꯤ ꯖꯈꯅꯗ ꯖꯧꯕ ꯛꯂꯦꯂꯦ ꯂꯥꯃ ꯇꯧꯔꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯈ ꯈꯂꯥꯃ ꯑꯈꯨꯈꯡꯇ ꯊꯤꯃꯅ, ꯑꯃꯁꯨꯡ ꯂꯥꯡꯇꯡꯃꯤ ꯗꯤꯖꯥꯏꯟ ꯖꯦꯒꯦꯅꯒꯤ ꯈꯅꯥꯗ ꯖꯧꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯈ 1 ꯒꯦꯔꯗꯒꯤ 30 ꯃꯤꯛꯇꯦꯈꯕꯔ ꯏꯦꯊꯕ ꯊꯤꯃꯅ; ꯔꯤꯂꯤꯖ ꯔꯤꯆ (release reach) ꯑꯈꯗ ꯍꯦꯛ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯈ ꯛꯨꯃ 72-ꯗꯒꯤ ꯍꯦꯊꯗꯂꯦ ꯊꯤꯃꯅ; ꯑꯃꯁꯨꯡ ꯊꯦꯟꯕ ꯛꯂꯦ, ꯛꯨꯗꯔꯤ ꯂꯦꯔꯒꯤ ꯛꯦꯗ ꯑꯈꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯖꯦꯒꯦꯅꯒꯤ ꯈꯅꯥꯗ ꯖꯧꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯈ ꯐꯂꯦꯖ 5.8.5 ꯈꯅꯥꯗ ꯂꯥꯃ ꯈꯕꯒꯤ ꯊꯗꯥꯡ ꯛꯨꯈꯕꯗ ꯊꯤꯃꯅ꯫ ꯃꯦꯃ ꯑꯈꯨꯃꯤꯃ ꯈꯗꯃꯤꯈꯃꯇ ꯏꯦꯃꯤꯖꯤꯇꯤ ꯑꯃꯤꯂꯦ ꯍꯦꯂꯦ ꯃꯤꯃꯕ ꯊꯤꯃꯕꯒꯤ ꯒꯦꯨꯈ, ꯂꯥꯃ ꯈꯕꯒꯤ ꯊꯗꯥꯡ ꯛꯨꯈꯕꯒꯤ ꯒꯦꯨꯈ ꯏꯦꯊꯕ, ꯊꯈꯖꯤꯃꯗꯕꯗꯂꯤ ꯂꯥꯃꯤꯒꯤ ꯛꯈꯛꯂꯦ ꯊꯗꯥꯡꯗꯕꯗꯂꯤ (ꯐꯂꯦꯖ 5.9.4); ꯈꯃꯤꯗ ꯈꯨꯗꯝ ꯑꯃꯤꯂꯦ ꯊꯦꯂꯤꯕꯗꯒꯤ ꯍꯦꯖꯕ ꯃꯇꯦꯂꯥꯖ, ꯂꯥꯃꯤꯒꯤ ꯛꯈꯛꯃꯤ, ꯈꯊ ꯇꯧꯅ꯫ ꯄꯤꯊꯧꯃꯤ, ꯐꯂꯦꯖ 5.10.4-ꯒꯤ ꯒꯦꯨꯈ ꯕꯦꯂꯦꯃ (volume balance) ꯑꯃꯁꯨꯡ ꯑꯦꯃꯦꯃꯈꯦꯂꯦ ꯑꯃꯤ ꯑꯈꯂꯥ ꯑꯥꯅꯂꯦ ꯂꯤ꯫ ꯛꯕꯂꯤꯍ ꯅꯥꯡꯕꯦꯟ ꯑꯈꯨꯒꯤ ꯅꯥꯃꯗ ꯍꯦꯛ ꯈꯃꯥꯒꯤ ꯗꯤꯇꯦꯟꯁꯟꯗꯨ ꯐꯂꯦꯖ 6.3.6-ꯒꯤ ꯗꯦꯕꯔꯤꯖ ꯔꯦꯛ (debris rack), ꯕꯜꯀꯤꯡ ꯐꯦꯛꯇꯔ (bulking factor) ꯑꯃꯁꯨꯡ ꯃꯤꯜꯇ ꯇꯔꯦꯄ (silt trap) ꯑꯃꯁꯨꯡ ꯐꯂꯦꯖ 5.8.5(f)-ꯒꯤ ꯕꯦꯗ ꯈꯨꯒꯦꯈꯕꯃꯤ ꯄꯦꯗꯂꯒꯤ ꯈꯊꯡꯇ ꯖꯧꯕ ꯅꯦꯖꯨꯃ ꯑꯈ ꯈꯊꯂ ꯇꯧꯈꯂꯤ; ꯑꯃꯁꯨꯡ 10°-ꯗꯒꯤ ꯍꯦꯊꯗ ꯈꯍꯥꯃꯒꯤ ꯂꯦꯛꯈ ꯑꯈꯗ, ꯂꯥꯃꯤꯒꯤ ꯃꯄꯤꯛꯈꯕ ꯂꯦꯛꯈ ꯑꯈꯗ ꯖꯧꯕ ꯗꯤꯖꯃ (Disang) ꯃꯦꯂꯗ (shale), ꯏꯦꯃꯤꯖꯤꯇꯤ ꯈꯃꯤꯈꯗ ꯑꯃꯤ ꯅꯦꯏꯤꯂꯦꯄꯦꯂꯧ ꯇꯧꯕ ꯕꯦꯃꯤꯊ ꯑꯈ ꯂꯥꯇꯥꯂꯦ ꯂꯦꯅꯊ ꯇꯧꯄꯕ ꯇꯦꯛꯇ ꯑꯈ ꯑꯥꯅꯒꯂꯤ (ꯐꯂꯦꯖ 4.11 (ꯖꯤꯔꯤꯒꯤ ꯄꯨꯂ))꯫

ꯇꯦꯕꯜ 5C.1 — ꯅꯦꯖꯨꯃꯃꯤꯡ (ꯈꯨꯗꯝ ꯑꯥꯅꯂꯥ ꯅꯛꯇꯂꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯟꯅꯨ ꯂꯣꯏꯇꯦ)

ꯑꯥꯅꯇꯦꯈ	ꯒꯦꯟꯅꯨ	ꯍꯨꯈꯏꯈ
ꯏꯦꯃꯤꯖꯤꯇꯤ	ꯑꯍꯦꯅꯕ 4C-ꯒꯤ ꯄꯤꯍꯥꯟꯖ ꯇꯧꯄꯕ ꯏꯦꯃꯤꯖꯤꯇꯤ: 2,500 m² ꯛꯂꯦꯗ ꯑꯥꯄꯤꯍ, ꯊꯥꯃꯂꯦ ꯂꯦꯛꯈꯛ ꯍꯦꯅꯃꯤꯃ; ꯏꯂꯥꯄꯗ 170 mm ꯑꯥꯄꯤꯏꯤꯃ; 460 mm ꯑꯥꯄꯤꯏꯤꯃ, ꯅꯦꯒꯔꯦ 0.53 m	ꯑꯍꯦꯅꯕ 4C, ꯇꯦꯕꯜ 4C.14
ꯂꯥꯃ ꯈꯕꯒꯤ ꯊꯗꯥꯡ	1% AEP, 48 h, ꯛꯤꯡ ꯒꯦꯈꯤꯈ ꯑꯄꯥꯅꯕꯗ, AMC III; 72 h ꯃꯨ ꯄꯦ ꯇꯧꯅ	ꯐꯂꯦꯖ 5.10.2
ꯅꯦꯏꯂꯥ	ꯑꯍꯦꯅꯕ 4C-ꯒꯤ ꯗꯦꯒꯦꯂꯛꯈꯦꯗꯃꯤ ꯈꯨꯃꯒꯤ 1% AEP ꯍꯅꯗꯄꯥꯒꯄꯥꯏꯃꯤꯃ (48 h: 8,420 m³; 72 h: 9,468 m³)	ꯑꯍꯦꯅꯕ 4C

[illegible]	[illegible]	[illegible]
[illegible] J1, J2 [illegible] J3	[illegible]	[illegible]
[illegible]	[illegible]	[illegible] 5.10.3(b)
[illegible]	[illegible] 0.15 m-[illegible]	[illegible] ([illegible] 5.11.2)
[illegible]	[illegible] 6 [illegible] 12.4 h [illegible]	[illegible] 5.10.3(a)
[illegible]	[illegible]	—

5C.2 **[illegible] 5.2-[illegible].** J1, J2 [illegible] J3-[illegible] ([illegible] 5C.1), [illegible] 4C-[illegible]: J2-[illegible] 1% AEP-[illegible] **1.17 m** (2,913 m³), [illegible] J3-[illegible] (10% AEP, 48 h) [illegible] 0.77 m꯫ [illegible] R1 [illegible] R2 [illegible]꯫ [illegible] J4 [illegible]꯫

[illegible] ([illegible] 5.10.3)

5C.3 [illegible] 48-[illegible] 24-[illegible] 1-[illegible] 35:35–36:35 h, 98.2 mm-[illegible] ([illegible] 4C.2-[illegible] 1-[illegible])꯫ [illegible]:

- **[illegible] A:** [illegible]: 33:05–39:05 h; [illegible] 12.4 h [illegible]: 45:29–51:29 h꯫
- **[illegible] B:** [illegible]: 35:35–41:35 h; [illegible]: 47:59–53:59 h꯫

[illegible] 72-[illegible] 24 h [illegible]꯫

5C.4 [illegible]꯫ [illegible] 4C.10-[illegible]꯫ [illegible] 4C-[illegible] (level-pool routing) [illegible]꯫

[illegible]

[illegible] 5C.2 — [illegible] ([illegible] — [illegible])

[illegible]	[illegible]	[illegible] (h:min)	[illegible] (m)	[illegible] (m³)	[illegible] (h:min)	[illegible] (L/s)
1% AEP, 48 h	A	33:05–39:05; 45:29–51:29	2.01	5,019	39:05	566
1% AEP, 48 h	B	35:35–41:35; 47:59–53:59	**2.10**	**5,238**	41:35	584
1% AEP, 72 h	A	57:05–63:05; 69:29–75:29	2.00	5,012	63:05	565
1% AEP, 72 h	B	59:35–65:35; 71:59–77:59	2.09	5,233	65:35	584

[illegible] 48-[illegible] B-[illegible]॥ [illegible]॥ [illegible] 0.7 m [illegible], [illegible] 2 [illegible], [illegible]॥

5C.5 **[illegible] ([illegible] 5.10.4).** [illegible] 5C.3-[illegible] B-[illegible]॥ [illegible] (outflow) [illegible]: [illegible] = [illegible] + [illegible] − [illegible]॥

[illegible] 5C.3 — [illegible], 1% AEP [illegible] 48-[illegible], [illegible] B ([illegible] — [illegible])

[illegible] (h:min)	[illegible] (m³)	[illegible] (m³)	[illegible] (m³)	[illegible] (m³)	[illegible] (m³)
0:00–35:35, [illegible] 1-[illegible]	3,817	2,213	0	0	1,604
35:35–41:35, [illegible] 1	3,634	0	0	1,604	5,238
41:35–47:59, [illegible]	941	4,423	0	5,238	1,756
47:59–53:59, [illegible] 2	28	0	0	1,756	1,784
53:59-[illegible]	0	1,784	0	1,784	0
[illegible]	8,420	8,420	0	—	—

[illegible] 1-[illegible]: V_inflow = 3,634 m³ ≤ V_storage available + V_pumped + V_gravity = (5,238 − 1,604) + 0 + 0 = 3,634 m³॥ [illegible] **5,238 m³** [illegible]॥

[illegible] 5C.4 — [illegible], 1% AEP [illegible] 48-[illegible], [illegible] B ([illegible] — [illegible])

[illegible] (h)	[illegible] (L/s)	[illegible]	[illegible] (L/s)	[illegible] (m)	[illegible] (m³)
24	20	[illegible]	18	0.18	445
28	39	[illegible]	24	0.25	621
32	59	[illegible]	32	0.36	906
34	85	[illegible]	37	0.47	1,166
36	286	[illegible]	0	0.78	1,944
38	106	[illegible]	0	1.73	4,321
40	66	[illegible]	0	1.96	4,904
42	51	[illegible]	529	1.79	4,472
44	42	[illegible]	204	0.87	2,181
46	37	[illegible]	49	0.74	1,854
48	33	[illegible]	47	0.70	1,756
50	0	[illegible]	0	0.71	1,784
54	0	[illegible]	0	0.71	1,784
56	0	[illegible]	43	0.58	1,459

ꯃꯇꯝ (h)	ꯏꯟꯐ꯭ꯂꯣ (L/s)	ꯑꯥꯎꯠꯂꯦꯠ	ꯑꯥꯎꯠꯐ꯭ꯂꯣ (L/s)	ꯁ꯭ꯇꯦꯖ (m)	ꯁ꯭ꯇꯣꯔꯦꯖ (m³)
60	0	ꯑꯣꯔꯤꯐꯤꯁ	32	0.37	921
66	0	ꯑꯣꯔꯤꯐꯤꯁ	16	0.16	397
72	0	ꯑꯣꯔꯤꯐꯤꯁ	7	0.06	162

ꯑꯣꯕꯖꯔꯚꯦꯁꯟꯁ

5C.6 **ꯆꯥꯔꯠ 5.10.4(a).** ꯄꯣꯟꯗ 4C-ꯒꯤ ꯄꯤꯛ ꯏꯂꯦꯚꯦꯁꯟ ꯑꯁꯤ J2-ꯗ 1.17 m ꯂꯩꯔꯦ, ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯁ꯭ꯄꯤꯜꯋꯦ (spillway) ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯑꯁꯤ 1.35 m-ꯗ ꯂꯩ (ꯄꯣꯟꯗ 4C)꯫ ꯑꯥꯎꯠꯐ꯭ꯂꯣ ꯍꯤꯡꯕ ꯃꯇꯝꯗ ꯁ꯭ꯇꯦꯖ ꯑꯁꯤ 2.10 m ꯂꯩꯔꯦ, ꯃꯗꯨ ꯑꯣꯏꯅꯥ ꯁ꯭ꯄꯤꯜꯋꯦ ꯑꯁꯤ ꯍꯥꯌꯕ ꯃꯇꯝꯗꯤ꯫ **ꯄꯣꯟꯗ 4C-ꯒꯤ ꯄꯤꯛ ꯏꯂꯦꯚꯦꯁꯟ ꯑꯁꯤ ꯁꯣꯏꯗꯅ ꯄꯤꯔꯤ ꯃꯔꯦ꯫**

5C.7 **ꯗꯤꯖꯥꯏꯟ.** ꯃꯄꯥꯝ ꯑꯁꯤꯗ ꯁꯦꯃꯁꯤꯟꯕꯒꯤ (ꯆꯥꯔꯠ 5.12) ꯃꯇꯝ ꯁꯤꯟꯗꯣ: ꯆꯦꯛ ꯂꯥꯏꯅꯤꯡꯁꯤꯡꯒꯤ ꯃꯇꯝꯗ ꯅꯨꯡꯁꯤ ꯆꯠꯄ ꯅꯤꯡꯊꯧ ꯃꯍꯩꯀꯥ ꯍꯤꯡꯆꯔꯤ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯗ ꯁꯦꯃꯁꯤꯟ ꯃꯇꯧ ꯃꯁꯤꯒꯤ ꯆꯠꯅꯕ ꯂꯤꯡꯈꯠꯂꯛꯄꯅꯤ, ꯃꯁꯤ ꯆꯥꯔꯠ 5.12.3-ꯗ ꯎꯠꯂꯤꯕꯅꯤ꯫ ꯗꯤꯖꯥꯏꯟ ꯑꯁꯤ ꯄꯣꯟꯗ ꯁ꯭ꯇꯣꯔꯦꯖꯅꯤ꯫ 2,500 m²-ꯒꯤ ꯀ꯭ꯌꯦꯆꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ ꯄꯣꯟꯗ 4C-ꯒꯤ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ ꯍꯥꯌꯕꯗꯤ:

- ꯄꯤꯛ ꯏꯂꯦꯚꯦꯁꯟ ꯑꯁꯤꯗ 5,238 m³, **2.10 m**-ꯒꯤ ꯁ꯭ꯇꯦꯖ ꯄꯨꯝꯅꯃꯛ ꯍꯥꯞꯆꯤꯟꯕꯅꯤ;
- ꯁ꯭ꯄꯤꯜꯋꯦ ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯑꯁꯤ ꯁ꯭ꯇꯦꯖ ꯑꯗꯨꯒꯤ ꯃꯊꯛꯇ, ꯆꯥꯔꯠ 4.9.3-ꯗ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯔꯕ 0.15 m-ꯒꯤ ꯆꯥꯔꯤꯡ ꯍꯦꯟꯅ ꯍꯥꯞꯆꯤꯟꯗꯨꯅ: **2.25 m**;
- ꯄꯣꯟꯗ 4C-ꯒꯤ 4.0 m-ꯒꯤ ꯁ꯭ꯄꯤꯜꯋꯦꯅ (ꯍꯦꯟꯗ 0.30 m) ꯍꯥꯞꯆꯤꯟꯕ, ꯁ꯭ꯄꯤꯜꯋꯦ ꯁꯣꯏꯗꯅ ꯇ꯭ꯔꯥꯟꯁꯤꯒꯤ ꯂꯩꯕ ꯍꯦꯟꯅ ꯑꯁꯤ 2.55 m, ꯑꯃꯁꯨꯡ 0.3 m ꯐ꯭ꯔꯤꯕꯣꯔꯗ (freeboard) ꯍꯥꯞꯆꯤꯟꯕ ꯂꯦꯝꯂꯤꯕꯒꯤ ꯃꯊꯛ ꯑꯁꯤ ꯐ꯭ꯔꯤꯒꯤ ꯃꯊꯛꯇ ꯅꯤꯡꯁꯤꯡ **2.85 m**-ꯗ ꯂꯩ꯫

ꯃꯗꯨ ꯑꯣꯏꯅꯥ ꯑꯥꯎꯠꯐ꯭ꯂꯣ ꯍꯤꯡꯕ ꯃꯇꯝꯗ ꯁ꯭ꯇꯣꯔꯦꯖ ꯈꯉꯗꯦ ꯃꯔꯦ: ꯗꯤꯖꯥꯏꯟ-ꯗꯣꯏ ꯁꯣꯏꯗꯅꯕꯒꯤ ꯑꯆꯧꯕ 2,913 m³-ꯅ ꯂꯩꯕꯃꯛꯇꯗ 5,238 m³, ꯂꯤꯕ 80% ꯄꯦꯟꯗ꯫ ꯄꯦꯟꯗ ꯂꯩꯕ ꯀ꯭ꯌꯦꯆꯃꯦꯟꯇ ꯑꯃꯗ ꯄꯤꯛ ꯏꯂꯦꯚꯦꯁꯟ ꯑꯁꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯦꯟꯍꯥꯟꯂꯛꯄꯅꯤ; ꯃꯇꯨꯡꯒꯤ ꯃꯇꯝꯗ ꯑꯥꯎꯠꯂꯦꯠ, ꯆꯤꯡꯁꯤꯡꯕ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯥꯎꯗꯥꯎꯟ ꯑꯃꯨꯛ ꯄꯦꯟꯗ ꯁꯣꯏ ꯃꯒꯤꯗꯔꯤ, ꯃꯗꯨꯃꯛꯇ ꯁ꯭ꯇꯦꯖ–ꯗꯤꯁꯆꯥꯔꯖꯒꯤ ꯃꯗꯤ ꯑꯁꯤ ꯍꯥꯌꯅꯤ꯫

5C.8 **ꯆꯦꯛꯆꯤ ꯃꯇꯝꯗ ꯗꯤꯁꯆꯥꯔꯖ.** ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯂꯥꯏꯅ ꯆꯠꯅꯗꯨꯅ ꯃꯇꯝꯗ, ꯍꯤꯡꯆꯤꯟꯕ ꯅꯨꯡꯁꯤ ꯑꯁꯤ ꯂꯤꯕ 2 m-ꯒꯤ ꯍꯦꯟꯗ ꯑꯃꯒꯤ ꯃꯔꯛꯇ, 584 L/s ꯄꯨꯝꯅꯃꯛ ꯍꯧꯗꯅꯤ꯫ ꯃꯁꯤ 356 L/s-ꯒꯤ 100-yr ꯆꯥꯡꯆꯤ ꯃꯊꯛꯇ ꯂꯩ꯫ ꯆꯥꯔꯠ 5.10.4-ꯗ ꯃꯁꯤ ꯎꯠꯂꯤ, ꯃꯗꯨꯃꯛꯇ ꯗꯤꯁꯆꯥꯔꯖ ꯑꯁꯤ ꯃꯍꯩꯀꯥ ꯄꯥꯡꯗꯥ ꯑꯣꯔꯤꯐꯤꯁꯆꯥꯡ ꯅꯨꯡꯁꯤꯗ ꯑꯃꯗ ꯂꯩꯅ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯃꯔꯛ ꯍꯥꯞꯁ ꯃꯄꯥꯝꯒꯤ ꯑꯣꯗꯤꯗꯅꯁꯤꯡꯆꯥ J4 ꯗꯣꯃꯗ (ꯆꯥꯔꯠ 5.4 ꯑꯃꯁꯨꯡ 5.9) ꯂꯩꯍꯟꯂꯛꯄꯗꯔꯤ ꯑꯃꯁꯨꯡ ꯄꯦꯗꯥ 5-1, ꯋꯥꯡꯋꯦ H-ꯗ ꯗꯤꯁꯆꯥꯔꯖ ꯃꯒꯤꯗꯔꯤ ꯑꯣꯏꯕ ꯃꯍꯧ ꯃꯑꯣꯕꯔꯤ꯫

5C.9 **ꯆꯦꯛ ꯅꯨꯡꯒꯤ ꯍꯧꯗꯣꯛꯆꯤ ꯃꯇꯝꯗ ꯗ꯭ꯔꯥꯎꯗꯥꯎꯟ (ꯆꯥꯔꯠ 5.10.5).** J1 ꯃꯅꯥꯗꯣꯔ ꯆꯥꯡꯗꯣ ꯑꯁꯤ ꯋꯅꯨꯏ ꯑꯥꯎꯠꯂꯦꯠꯆꯤ ꯃꯔꯛꯇ ꯍꯧꯗꯤ (ꯃꯦꯅꯔ 5C.1), ꯃꯗꯨ ꯑꯣꯏꯅꯥ ꯄꯣꯟꯗ 4C-ꯒꯤ ꯗ꯭ꯔꯥꯎꯗꯥꯎꯟ (drawdown) ꯂꯩꯍꯧ: ꯍꯥ-ꯐ꯭ꯂꯣ ꯑꯥꯗꯤꯄꯤꯋ 50% ꯅ꯭ꯇꯦꯛ ꯑꯅꯗꯨꯅ 10-yr ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ 90%-ꯒꯤꯗꯃꯛ 45.3 h, ꯆꯥꯔꯠ 4.7-ꯒꯤ ꯁꯤꯡ 48-ꯒꯤ ꯍꯤꯃꯤꯖꯆꯤ ꯃꯔꯤꯡꯗ꯫ ꯗꯦ B-ꯗ, J4-ꯒꯤ ꯇ꯭ꯔꯥꯟꯁꯤꯒꯤ ꯂꯩꯃꯕ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ 90% ꯑꯁꯤ ꯇ꯭ꯔꯥꯟꯁꯤꯒꯤ ꯂꯩꯃꯕꯒꯤ ꯃꯇꯝꯗ 22.6 h-ꯗ ꯍꯧꯗꯅꯤ꯫

5C.10 **ꯑꯣꯏꯕꯥ ꯃꯍꯧ ꯃꯕꯋꯤꯗ.**

- ꯋꯅꯨꯏ ꯑꯥꯎꯠꯂꯦꯠꯁꯤ ꯂꯩꯕ ꯐ꯭ꯂꯣꯁ ꯒꯣꯏ ꯑꯁꯤ ꯁꯄꯤ ꯇ꯭ꯔꯥꯟꯗꯒꯤ 31 ꯃꯗꯤꯁꯒꯤ ꯃꯃꯤꯗꯗ ꯑꯃꯁꯨꯡ ꯆꯦꯛ ꯅꯨꯡꯒꯤ ꯐ꯭ꯂꯣ ꯑꯃꯒꯤ ꯃꯔꯦꯛꯁ ꯍꯤꯗꯂꯤꯕ ꯍꯧꯗꯣꯛ ꯇ꯭ꯔꯥꯟꯗꯃꯀꯆꯤ ꯃꯇꯝꯗ ꯅꯦꯁ꯭ꯁꯣꯛꯁ ꯃꯔꯦ ꯑꯃꯁꯨꯡ ꯑꯁꯗꯣꯏ ꯃꯔꯦ (ꯆꯥꯔꯠ 5.11.5)꯫
- ꯄꯦꯟꯗ ꯑꯗꯨꯕ ꯄꯤꯛ ꯏꯂꯦꯚꯦꯁꯟ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯩꯃꯅꯒꯤ ꯃꯔꯥꯒꯤ ꯅꯨꯡꯁꯤꯒꯤ ꯆꯣꯡꯆꯗ ꯍꯩꯃꯅꯒꯤ ꯃꯔꯥꯒꯤ ꯅꯨꯡꯁꯤ (groundwater) ꯍꯩꯗꯅ ꯐ꯭ꯂꯣꯇꯦꯁꯟ (flotation) ꯁꯣꯏ ꯃꯔꯦ; ꯅꯃꯄꯦ ꯃꯍꯥꯟꯗꯤꯆꯤ ꯍꯩꯃꯅꯗ, ꯃꯁꯤꯒꯤ ꯆꯥꯡꯁ꯭ꯇꯣꯗꯅꯦ ꯍꯩꯃ ꯑꯁꯣꯟꯁꯤ, ꯁꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯁꯣꯗ ꯆꯦꯟꯗꯆꯤ (paddy land) ꯍꯥꯞꯆꯤꯟꯕ, ꯆꯦꯛꯆꯤ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥ ꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇ꯭ꯔꯥꯗꯤꯋꯤꯁꯤꯡꯒꯤ ꯃꯔꯦꯛꯋꯤꯁꯗ, ꯅꯨꯡꯗꯣꯔꯒꯤ ꯁꯦꯟꯋꯤꯁꯤꯡꯒꯤ ꯃꯇꯝꯗ ꯍꯧꯗ ꯍꯃꯗ, ꯑꯃꯁꯨꯡ ꯍꯤꯗꯤꯗꯃ ꯁ꯭ꯇꯦꯛꯋꯒꯤ ꯕꯗꯛ ꯑꯃꯁꯨꯡ ꯍꯤꯗꯤꯒꯤ ꯅꯨꯡꯁꯤ ꯅꯂꯤꯡꯒꯤ ꯍꯃꯗ ꯁꯤꯅꯍꯥꯃꯤꯗ ꯁꯤꯕꯋꯤꯁ ꯍꯦꯛꯕꯗ ꯍꯩꯗꯨꯅ ꯑꯗ ꯄꯣꯇꯤꯛ ꯍꯩꯗꯤꯕ ꯒꯗꯤꯡꯑꯦꯗ ꯍꯩꯗꯨꯅꯔꯤ (ꯆꯥꯔꯠ 4.12.1 ꯑꯃꯁꯨꯡ 4.12.3)꯫
- ꯄꯣꯟꯗ 4C-ꯒꯤ ꯄꯦꯋ ꯑꯃꯁꯨꯡ ꯋꯅꯦꯕꯗꯗꯋꯤꯗ ꯑꯁꯤ ꯄꯦꯟꯗ ꯑꯗꯨꯕ ꯄꯤꯛ ꯏꯂꯦꯚꯦꯁꯟꯗ ꯂꯩꯍꯧ (ꯆꯥꯔꯠ 4.15)꯫

ꯃꯦꯅꯔ 5C.5 — ꯋꯃꯍꯥꯗꯤ (ꯅꯨꯡꯃ ꯑꯅꯥꯗ ꯅꯤꯡꯁꯤꯡꯔꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯣꯔꯅꯨ ꯍꯧꯁꯣ)

ꯑꯥꯏꯇꯦꯝ	ꯃꯥꯅꯁ
ꯒꯥꯅꯐꯆꯤꯝ ꯃꯥꯜ	J4, 1% AEP ꯁꯨꯝ 48-ꯒꯤ ꯆꯥꯝ ꯁꯨꯕꯒꯤ ꯑꯣꯅꯥꯝ, ꯐꯖ B (ꯄꯥꯅꯆꯕ ꯁꯤꯖꯅꯥ ꯄꯂꯤ ꯁꯨꯝ 1-ꯒꯤ ꯁꯤꯝ ꯕꯆꯥꯝꯁ ꯄꯥꯅ)
ꯃꯑꯣ ꯁꯥꯕ ꯂꯁꯥꯐꯥꯆ	5,238 m³ (ꯑꯣꯄꯁꯟ 4C-ꯒꯤ ꯐꯤꯆꯤꯆ-ꯐꯥꯍ ꯀꯤꯆꯅꯖ: 2,913 m³)
ꯁꯕꯅꯀꯒꯤ ꯁꯤꯃꯕ ꯂꯁꯥꯆ	2.10 m, 2,500 m² ꯁꯤꯆꯦꯖ ꯄꯥꯐꯤꯁꯤꯒ ꯆꯥꯁꯆꯆꯦ
ꯂꯁꯤꯅꯁꯥ ꯃꯐꯥꯂꯍ	2.25 m
ꯁꯦꯅꯂꯤꯃꯒꯤ ꯃꯑꯣꯝ	ꯗꯆꯥꯐꯒꯤ ꯃꯑꯣꯝꯁ ≥ 2.85 m
ꯆꯥꯝ ꯁꯤꯖꯀꯥ ꯄꯃꯒꯤ ꯃꯁꯨꯝꯀ ꯁꯕꯅꯀꯒꯤ ꯁꯤꯖꯕ ꯐꯤꯆꯤꯆ	584 L/s, ꯃꯅꯦ ꯑꯃꯕ ꯃꯗꯃꯒꯤ J4 ꯐꯖꯀ ꯁꯤꯖꯄꯆꯒꯀꯕ
ꯀꯐꯥꯀꯤꯖꯖ	ꯑꯣꯄꯁꯟ 4C-ꯒꯤ ꯐꯤꯆꯅꯍ ꯁꯍꯆꯪ: ꯆꯥ-ꯗꯆꯥ ꯄꯥꯐꯤꯗꯤꯂ 50% ꯕꯆꯥꯝ ꯄꯥꯅꯐꯒꯦ 45.3 h

ꯐꯣꯔꯝ 5-1 — ꯃꯍꯤ ꯉꯝꯕ ꯃꯦꯞ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯝꯋꯥꯇꯔꯒꯤ ꯔꯤꯚꯤꯎ

ꯆꯦꯞꯇꯔ 5-ꯒꯤ ꯁꯦꯛꯁꯟ 5.3-ꯗꯒꯤ 5.14 ꯐꯥꯑꯣꯕꯗ ꯃꯔꯤ ꯂꯩꯅꯩ꯫

ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯐꯣꯔꯝ — ꯃꯦꯠꯔꯣꯄꯣꯂꯤꯇꯥꯟ ꯗꯤꯚꯦꯂꯄꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯚꯔꯖꯟ 1.0. ꯁꯕꯃꯤꯁꯟ ꯄꯨꯔꯀꯄꯗ ꯌꯥꯎꯍꯅꯒꯗꯕ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯁꯤꯅꯤ꯫ ꯁꯦꯛꯁꯟ 5.3.4 ꯃꯇꯨꯡ ꯏꯟꯅꯥ 0.5 ha-ꯗꯒꯤ ꯍꯦꯟꯅꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡꯗ, ꯑꯦꯛꯁꯄꯔꯠꯀꯤ ꯔꯤꯚꯤꯎ ꯃꯊꯧ ꯇꯥꯏ, ꯃꯗꯨꯒꯤ ꯃꯇꯨꯡꯗ ꯐꯣꯔꯝ 5-2 ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯔꯤꯚꯤꯎ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯀꯦꯂꯀꯨꯂꯦꯁꯟꯁꯤꯡ, ꯃꯦꯞꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯣꯏꯡꯁꯤꯡ ꯌꯥꯎꯍꯅꯒꯗꯕꯅꯤ꯫

A. ꯁꯥꯏꯇ ꯗꯦꯇꯥ

ꯇꯦꯕꯜ 5F.1 — ꯐꯣꯔꯝ 5-1: ꯁꯥꯏꯇ ꯗꯦꯇꯥ

ꯑꯥꯏꯇꯦꯝ	ꯆꯦꯛ ꯇꯧꯔꯦ
A1. ꯁꯥꯏꯇ ꯗꯦꯇꯥꯒꯤ ꯃꯦꯞ, ꯑꯦꯂꯤꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯞ	
A2. ꯁꯥꯏꯇ ꯗꯦꯇꯥꯒꯤ ꯃꯦꯄ: ꯆꯦꯞꯇꯔ 4 ꯃꯈꯥ ꯍꯧꯖꯤꯛ; ꯆꯦꯞꯇꯔ 6 ꯃꯈꯥ ꯍꯦꯟꯅꯕ ꯁꯥꯏꯇ ꯗꯦꯇꯥ; ꯄꯨꯊꯣꯛ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯇꯦꯡꯀꯤ ꯁꯤꯖꯤꯟꯅꯕ (tank; pukhri) ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤ ꯂꯣꯀꯦꯁꯟ (ꯁꯦꯛꯁꯟ 5.1.2)	
A3. ꯍꯧꯖꯤꯛ ꯇꯦꯡꯀꯤ ꯁꯥꯏꯇ ꯗꯦꯇꯥꯒꯤ ꯑꯦꯔꯤꯌꯥ (ha) ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ (outfall)	
A4. ꯍꯧꯖꯤꯛꯀꯤ ꯔꯟꯑꯣꯐ (runoff) ꯀꯦꯂꯀꯨꯂꯦꯁꯟ ꯄꯤꯔꯤꯕ ꯔꯦꯐꯔꯦꯟꯁ (ꯐꯣꯔꯝ 4-1), ꯌꯥꯎꯕ ꯃꯦꯞ	

B. ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯜ ꯑꯦꯁꯦꯁꯃꯦꯟꯠ (ꯁꯦꯛꯁꯟ 5.3; ꯁꯦꯛꯁꯟ 5.14, ꯁ꯭ꯇꯦꯞ 1)

ꯇꯦꯕꯜ 5F.2 — ꯐꯣꯔꯝ 5-1: ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡ

ꯀꯦꯆꯃꯦꯟꯠ	ꯃꯦꯞ	ꯃꯈꯜ (ꯁꯦꯛꯁꯟ 5.3.3 (a)-ꯗꯒꯤ (e) ꯐꯥꯑꯣꯕ)	ꯍꯧꯖꯤꯛ ꯂꯩꯕ ꯑꯦꯔꯤꯌꯥ (ha)	ꯃꯗꯨꯒꯤ % ꯑꯦꯟꯗ ꯁꯥꯏꯇ ꯗꯦꯇꯥꯒꯤ ꯑꯦꯔꯤꯌꯥ

ꯇꯦꯕꯜ 5F.3 — ꯐꯣꯔꯝ 5-1: ꯑꯣꯔꯦꯟꯕ ꯀꯦꯆꯃꯦꯟꯠ

ꯑꯥꯏꯇꯦꯝ	ꯆꯦꯛ ꯇꯧꯔꯦ
B1. ꯑꯣꯔꯦꯟꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯃꯣꯔꯝ: 10% ꯀꯦꯆꯃꯦꯟꯠ, ꯄꯨꯈ꯭ꯔꯤ (tank or pukhri), ꯇꯦꯡꯀꯤ ꯃꯦꯖꯔ ꯗ꯭ꯔꯦꯟ (major drain) ꯇꯦꯡꯀꯤ ꯂꯣꯀꯦꯁꯟ (ꯁꯦꯛꯁꯟ 5.3.1 (a)-ꯗꯒꯤ (c) ꯐꯥꯑꯣꯕ)	
B2. ꯑꯣꯔꯦꯟꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯤ ꯄꯨꯈ꯭ꯔꯤ ꯑꯦꯟꯗꯔꯕꯗꯤ: ꯍꯥꯏꯗ꯭ꯔꯣꯒꯤ ꯂꯦꯚꯦꯜ ꯍꯧꯖꯤꯛꯀꯤ ꯗꯦꯞꯊ (m) ꯑꯃꯁꯨꯡ ꯁꯔꯞꯂꯁ-ꯋꯤꯌꯔ (surplus-weir) ꯗꯤꯁꯆꯥꯔꯖ (m³/s)-ꯗ ꯑꯦꯍꯦꯜꯕ; ꯗꯦꯞꯊ ꯂꯦꯚꯦꯜꯅꯕꯗꯤ ꯂꯤꯃꯤꯇꯀꯤ ꯃꯈꯥ ꯃꯍꯤ ꯌꯥꯎꯕ (ꯁꯦꯛꯁꯟ 5.3.2)	
B3. ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯀꯦꯂꯒꯤ ꯑꯦꯁꯦꯁꯃꯦꯟꯠꯀꯤ ꯁꯃꯔꯤ, ꯍꯧꯖꯤꯛ, ꯀꯦꯆꯃꯦꯟꯠ ꯄꯨꯔꯛꯂꯤꯕꯃꯇ ꯃꯗꯨꯒꯤ ꯍꯧꯖꯤꯛ ꯀꯦꯟꯗꯕ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯇꯀꯤ ꯗꯦꯇꯥꯇꯒꯤ ꯗꯤꯌꯔꯦꯛꯇ, ꯑꯃꯁꯨꯡ ꯑꯣꯔꯦꯟꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯂꯥꯏꯇꯒꯤ (ꯆꯦꯛꯂꯤꯁ꯭ꯠꯇꯤ)	

C. ꯃꯦꯊꯗ (ꯁꯦꯛꯁꯟ 5.4.4; ꯁꯦꯛꯁꯟ 5.14, ꯁ꯭ꯇꯦꯞ 2)

ꯇꯦꯕꯜ 5F.4 — ꯐꯣꯔꯝ 5-1: ꯃꯦꯊꯗ

ꯑꯥꯏꯇꯦꯝ	ꯅꯣꯠꯁꯤꯡ
C1. ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯁꯕ-ꯀꯦꯆꯃꯦꯟꯠ ꯃꯦꯞ; ꯄ꯭ꯔꯤ-ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯄꯣꯁ꯭ꯠ-ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ (ꯁꯦꯛꯁꯟ 5.4.4)	
C2. ꯐ꯭ꯂꯣ ꯄꯥꯊꯁꯤꯡ, ꯄꯥꯏꯞ ꯗ꯭ꯔꯦꯟ (drain) ꯑꯃꯁꯨꯡ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯂꯣꯀꯦꯁꯟ ꯎꯠꯂꯤꯕ ꯄ꯭ꯂꯥꯟ (ꯃꯥꯄꯁꯤꯡ)	
C3. ꯂꯦꯟꯗ ꯌꯨꯖ ꯑꯃꯁꯨꯡ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ ꯑꯃꯁꯨꯡ CN (ꯀꯔꯚ ꯅꯝꯕꯔ ꯇꯦꯕꯜ)	
C4. ꯔꯦꯏꯟꯐꯣꯜ ꯗꯦꯇꯥ ꯁꯣꯔꯁ, ꯀꯣꯏ ꯃꯔꯝꯗꯥ, ꯀꯔꯤꯒꯨꯝꯕ ꯑꯣꯏꯔꯕ ꯑꯃꯁꯨꯡ ꯂꯣꯁ ꯃꯣꯗꯦꯜ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯎꯠꯂꯤꯕ	
C5. ꯃꯣꯗꯦꯂꯤꯡ ꯁꯣꯐꯇꯋꯦꯌꯥꯔ ꯚꯔꯁꯟ, ꯑꯃꯁꯨꯡ ꯀꯅꯐꯤꯒꯔꯦꯁꯟ	
C6. ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯔꯤꯖꯜꯇꯁꯤꯡ: ꯑꯦꯛꯖꯤꯁ꯭ꯇꯤꯡ ꯀꯟꯗꯤꯁꯟ, ꯄ꯭ꯔꯄꯣꯖ ꯀꯥꯟ, ꯑꯃꯁꯨꯡ ꯑꯦꯇꯦꯟꯌꯨꯑꯦꯁꯟ ꯃꯊꯛ ꯑꯣꯏꯔꯕ ꯀꯟꯗꯤꯁꯟ ꯑꯣꯏꯅꯥ (ꯁꯦꯛꯁꯟ 5.4.1)	
C7. ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ ꯇꯦꯁ꯭ꯇꯤꯡ: AEP-ꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯅꯁꯤꯡ, AMC ꯑꯃꯁꯨꯡ ꯑꯦꯟꯇꯦꯁꯦꯗꯦꯟꯠ ꯀꯟꯗꯤꯁꯟ (ꯁꯦꯛꯁꯟ 5.4.3)	

D. ꯑꯥꯏꯗꯦꯟꯇꯤꯀꯦꯜ ꯁ꯭ꯇꯣꯔꯝ ꯀꯝꯄꯦꯌꯔꯤꯖꯟ ꯔꯤꯖꯜꯇꯁꯤꯡ (ꯁꯦꯛꯁꯟ 5.4.2; ꯁꯦꯛꯁꯟ 5.14, ꯈꯣꯡꯊꯥꯡ 3)

ꯑꯥꯏꯗꯦꯟꯇꯤꯀꯦꯜ ꯁ꯭ꯇꯣꯔꯝ, AEP ꯑꯃꯁꯨꯡ ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯀꯝꯄꯦꯌꯔꯤꯖꯟꯒꯤ ꯇꯦꯕꯜ ꯑꯁꯤ ꯃꯄꯨꯡ ꯐꯥꯅꯥ ꯃꯦꯡꯈꯠꯄꯤꯌꯨ꯫ E = ꯑꯦꯛꯖꯤꯁ꯭ꯇꯤꯡ ꯀꯟꯗꯤꯁꯟ; P = ꯄ꯭ꯔꯄꯣꯖ ꯀꯥꯟ꯫

ꯇꯦꯕꯜ 5F.5 — ꯐꯣꯔꯝ 5-1: ꯑꯥꯏꯗꯦꯟꯇꯤꯀꯦꯜ ꯁ꯭ꯇꯣꯔꯝ ꯀꯝꯄꯦꯌꯔꯤꯖꯟ ꯔꯤꯖꯜꯇꯁꯤꯡ

ꯁ꯭ꯇꯣꯔꯝ	AEP	ꯗ꯭ꯌꯨꯔꯦꯁꯟ (h)	ꯄꯤꯛ ꯐ꯭ꯂꯣ E / P (m³/s)	ꯇꯥꯏꯝ ꯇꯨ ꯄꯤꯛ E / P (h)	ꯃꯦꯛꯁꯤꯃꯝ ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ ꯗꯦꯞꯊ E / P (m)	ꯄꯤꯛ ꯚꯦꯂꯣꯁꯤꯇꯤ E / P (m/s)	ꯂꯦꯚꯦꯜ ꯔꯦꯁꯦꯁꯟ ꯗ꯭ꯌꯨꯔꯦꯁꯟ E / P (h)

E. ꯔꯤꯁ꯭ꯛ (ꯁꯦꯛꯁꯟ 5.5; ꯁꯦꯛꯁꯟ 5.14, ꯈꯣꯡꯊꯥꯡ 4)

ꯇꯦꯕꯜ 5F.6 — ꯐꯣꯔꯝ 5-1: ꯔꯤꯁ꯭ꯛꯀꯤ ꯁ꯭ꯀ꯭ꯔꯤꯅꯤꯡ

ꯁ꯭ꯀ꯭ꯔꯤꯅꯤꯡ	ꯁ꯭ꯇꯣꯔꯝ ꯀꯝꯄꯦꯌꯔꯤꯖꯟ ꯃꯄꯨꯡ ꯐꯥꯔꯕꯔꯥ?	ꯃꯄꯨꯡ ꯐꯥꯗꯔꯕꯗꯤ, ꯔꯤꯁ꯭ꯛ ꯑꯦꯁꯦꯁꯃꯦꯟꯠ (ꯁꯦꯛꯁꯟ 5.5.3)
E1. ꯕꯤꯜꯗꯤꯡꯁꯤꯡ, ꯄ꯭ꯔꯣꯄꯔꯇꯤꯒꯤ ꯕꯥꯎꯟꯗꯔꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯅꯐ꯭ꯔꯥꯁ꯭ꯠꯔꯛꯆꯔꯗꯥ 1% AEP-ꯒꯤ ꯂꯦꯚꯦꯜꯒꯤ ꯗꯦꯞꯊ ꯍꯦꯅꯒꯠꯄ ≤ 10 mm (ꯁꯦꯛꯁꯟ 5.5.1(a))		
E2. ꯑꯍꯥꯟꯕ ꯂꯦꯚꯦꯜ ꯂꯩꯍꯧꯕ ꯍꯥꯏꯕ ꯕꯤꯜꯗꯤꯡ ꯑꯃꯠꯇꯥ ꯂꯩꯇꯦ; ꯑꯍꯥꯟꯕ ꯐ꯭ꯂꯣꯔ 6-ꯒꯤ ꯃꯊꯛꯇꯥ ꯑꯃ ꯍꯦꯛ ꯕꯤꯜꯗꯤꯡ ꯁꯣꯏꯗꯅꯥ ꯌꯥꯑꯣꯕ ꯑꯃꯠꯇꯥ ꯂꯩꯇꯦ (ꯁꯦꯛꯁꯟ 5.5.1(b))		
E3. ꯑꯦꯛꯁꯠꯔꯥ ꯀꯝꯄꯦꯌꯔꯤꯖꯟꯒꯤ ꯃꯅꯥꯎꯕ-ꯂꯤꯂꯥꯡ AEP-ꯗꯥ ꯁꯣꯏꯗꯅꯥ 1% AEP-ꯗꯥ ꯄꯤꯛ ꯐ꯭ꯂꯣ ꯑꯃꯥ ꯑꯦꯛꯖꯤꯁ꯭ꯇꯤꯡꯗꯒꯤ ꯍꯦꯜꯂꯣꯏꯗꯕ (ꯁꯦꯛꯁꯟ 5.5.1(c))		
E4. ꯗꯥꯎꯟ ꯁ꯭ꯠꯔꯤꯝ ꯔꯤꯁꯤꯚꯤꯡꯗꯥ ꯋꯥꯇꯔꯋꯦ ꯑꯃꯥ ꯗꯥꯎꯟꯗꯤꯡꯒꯤ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯀꯣꯡꯕꯥ, ꯄ꯭ꯔꯣꯄꯔꯇꯤꯒꯤ ꯔꯦꯗꯤ 3.0 m/s (ꯁꯦꯛꯁꯟ 5.5.1(d))		
E5. ꯗꯥꯎꯟ ꯁ꯭ꯠꯔꯤꯝ ꯔꯤꯁꯤꯚꯤꯡꯗꯥ ꯋꯥꯇꯔꯋꯦ, 50% ꯑꯃꯁꯨꯡ 10% AEP, 10%-ꯗꯒꯤ ꯍꯦꯜꯂꯣꯏꯗꯕ ꯍꯦꯟꯒꯠꯂꯛꯄ (ꯁꯦꯛꯁꯟ 5.5.1(e))		
E6. ꯈꯣꯡꯊꯥꯡꯒꯤ ꯁꯣꯏꯗꯅꯥ ꯅꯀꯄꯇꯥꯕꯒꯤ ꯐꯦꯠꯁꯤꯡꯗꯥ ꯇꯝꯕꯤ ꯊꯤꯡꯕꯒꯤ ꯗ꯭ꯌꯨꯔꯦꯁꯟꯗꯥ ꯑꯍꯥꯅꯕ (ꯁꯦꯛꯁꯟ 5.5.2)		

ꯈꯕꯤꯅꯥꯕꯤꯔꯦ	ꯁꯦꯛꯁꯟ ꯄꯥꯡꯊꯣꯛꯈꯤꯕꯥ ꯍꯌꯨꯝ ꯖꯦꯕꯕꯦ?	ꯍꯌꯨꯝ ꯖꯦꯕꯕ ꯍꯖꯝꯁ, ꯇꯧꯅꯤꯕ ꯕꯥꯍꯥꯁꯤ (ꯈꯟꯗ 5.5.3)
E7. ꯍꯥꯝꯒꯤ ꯑꯅꯦꯇꯕ ꯖꯤꯒꯝ (timing exception) ꯄꯔꯇꯅꯤꯕꯕ (ꯈꯟꯗ 5.5.4)? ꯍꯌꯨꯝ ꯖꯕꯕ ꯈꯦꯁꯤꯂꯦꯂꯤꯃ ꯌꯤꯁꯨ		

F. ꯑꯣꯅꯕꯥꯕ ꯇꯧꯊꯈꯌ (ꯈꯟꯗ 5.6-ꯁꯒꯤ 5.8 ꯖꯥꯕ; ꯈꯟꯗ 5.14, ꯑꯅꯥꯝ 5)

ꯑꯣꯕꯅ 5F.7 — ꯖꯕꯝ 5-1: ꯑꯣꯅꯕꯥꯕ ꯇꯧꯊꯈꯌ

ꯖꯤꯅꯁ	ꯅꯦꯑꯣꯕꯤ
F1. ꯑꯅꯁ-ꯑꯣꯕꯅꯒꯤ ꯑꯥꯁꯤꯂꯦ ꯑꯃꯁꯨꯡ ꯌꯥꯕꯍ, ꯇꯍꯕꯒꯤ ꯌꯥꯕꯍ ꯑꯥꯊꯕꯤꯑꯣꯤꯒꯤ ꯄꯕꯃꯖꯝ (ꯈꯟꯗ 5.7.2(a))	
F2. MHWS, HAT ꯑꯃꯁꯨꯡ MSL (ꯔꯕꯍ ꯁꯥꯑꯣꯝꯒꯤ ꯍꯊꯃꯑ m)	
F3. ꯔꯕꯍ ꯁꯥꯑꯣꯝꯁꯒꯤ ꯂꯕꯒꯥ ꯑꯥꯖ ꯅꯦꯁꯤꯔꯒꯤ ꯕꯥꯦꯔꯍꯕꯃ ꯑꯃꯁꯨꯡ ꯌꯕꯥꯇꯥꯃꯍ ꯁꯥꯑꯝ ꯖꯥꯕꯒꯤ ꯈꯇꯥꯃꯂꯦ: ꯑꯥꯖꯂꯥꯍ (m) ꯑꯃꯁꯨꯡ ꯄꯕꯃꯖꯝ (ꯈꯟꯗ 5.7.2(b))	
F4. ꯑꯥꯂꯁꯔꯕꯤ, ꯈꯕꯤꯃ ꯇꯍꯕꯒꯤ ꯅꯥꯃꯇꯥꯒꯤ ꯑꯥꯕꯍꯖꯥꯅ: ꯂꯤꯇꯤꯦꯇꯕꯕ ꯇꯥꯒꯥꯅꯂꯤꯃ ꯑꯃꯁꯨꯡ ꯑꯥꯌꯦ-ꯈꯥꯂꯍ ꯇꯥꯒꯥꯅꯂꯤꯃꯁꯒꯤ ꯑꯥꯈꯦꯇ ꯔꯍꯌꯒꯤ ꯁꯍꯇꯅ ꯑꯍꯄꯥꯃꯑ (ꯈꯟꯗ 5.7.2(c))	
F5. 10% AEP ꯂꯕꯇ ꯑꯃꯁꯨꯡ 1% AEP ꯂꯑꯤꯅ-ꯔꯑꯕ ꯇꯥꯒꯥꯅ: ꯒꯥꯅꯁꯂꯤꯃ, ꯄꯕꯃꯖꯝ, ꯍꯥꯊꯁ ꯑꯃꯁꯨꯡ ꯕꯥꯈꯥꯕꯁꯈꯤ ꯇꯥꯃꯊ (ꯈꯟꯗ 5.7.3)	
F6. ꯔꯥꯒ ꯂꯥꯍ-ꯑꯌ, ꯑꯥꯌꯦ ꯂꯤ ꯔꯥꯃꯇꯤꯕ ꯑꯥꯕꯍꯖꯥꯅꯂꯤꯃꯒꯤꯁꯍꯃ (ꯈꯟꯗ 5.7.3(d))	
F7. SLA (m), ꯅꯃꯑꯕ +0.3 m; ꯁꯤꯇꯅꯦ ꯇꯅꯖ; ꯔꯄꯤ 50-ꯁꯒꯤ ꯄꯥꯦꯕ ꯁꯤꯇꯅꯦ ꯇꯅꯖꯂꯤꯃꯒꯤꯁꯍꯃ SLA-ꯒꯤ ꯑꯇꯤ ꯊꯥꯃꯇ ꯂꯥꯦꯂꯤꯑꯤꯒꯤꯑꯤ ꯕꯦ (ꯈꯟꯗ 5.7.4)	
F8. ꯑꯅꯁ ꯇꯧꯑꯕ ꯑꯣꯅꯕꯥꯕ: ꯅꯂꯤꯃ ꯇꯧꯕ ꯂꯤꯂꯑꯣꯝꯒꯤ ꯇꯥꯒꯥꯅ ꯑꯃꯁꯨꯡ ꯄꯕꯃꯖꯝ (ꯈꯟꯗ 5.6.2, 5.6.3)	
F9. ꯑꯕꯥꯅꯒꯤ (river) ꯇꯥꯒꯥꯅꯂꯤꯃ ꯑꯃꯁꯨꯡ ꯄꯕꯃꯖꯝꯂꯤꯃ; ꯔꯥꯕꯄꯅꯇꯕ ꯕꯤꯇꯕꯒꯥꯔꯕ ꯇꯍꯕꯒꯤ ꯌꯅꯕꯤꯒꯤ ꯕꯤꯇꯤꯇꯂꯤꯃ (ꯈꯟꯗ 5.8.2, 5.8.3)	

ꯃꯇꯝ	ꯅꯣꯠꯁꯤꯡ
F10. ꯂꯣꯛꯇꯥꯛ ꯇꯥꯡ ꯁꯤꯟꯕ ꯁꯤꯡꯂꯨꯞꯀꯤ ꯑꯣꯏꯕꯥ ꯃꯐꯝꯁꯤꯡ, ꯅꯝꯕꯨꯜ, ꯇꯥꯡꯁꯤꯡꯒꯤ ꯀꯣꯡꯒꯥ, ꯄꯣꯠꯂꯣꯠ ꯄꯥꯝꯕꯤꯁꯤꯡ, ꯄꯥꯠ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯂꯝꯖꯤꯡꯕꯤꯁꯤꯡ, ꯌꯥꯝꯅ ꯅꯣꯡꯃꯥꯡ, ꯂꯩꯄꯥꯛ ꯑꯃꯁꯨꯡ ꯃꯄꯥꯟ, ꯑꯃꯁꯨꯡ ꯑꯁꯣꯌꯕ ꯃꯇꯤꯛꯁꯤꯡꯒꯤ ꯅꯣꯡꯃꯥꯡꯁꯤꯡ: ꯂꯣꯛꯇꯥꯛ ꯇꯥꯡ ꯁꯤꯟꯕ ꯃꯐꯝꯗꯨ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯂꯨꯞꯁꯤꯡ, ꯍꯥꯌꯕ, ꯏꯆꯥꯟ ꯍꯥꯌꯕ ꯑꯃꯁꯨꯡ ꯂꯃꯀꯣꯏꯕ ꯃꯇꯥꯡꯗ ꯄꯥꯟꯗꯃꯁꯤꯡꯒꯤ ꯑꯣꯏꯕꯥ ꯑꯦꯟꯗꯤ (WRD ꯅꯠꯔꯒꯥ ꯇꯦꯛꯅꯤꯀꯦꯜ) ꯅꯥꯏꯗꯕꯗ, ꯍꯥꯌꯕ ꯃꯁꯤꯡꯃꯤ, ꯂꯣꯛꯇꯥꯛ ꯄꯥꯝꯕꯩ, ꯃꯍꯩꯌꯥꯔ ꯂꯃꯗꯝꯁꯤꯡ ꯃꯇꯃꯁꯤꯡ, ꯀꯨꯡꯁꯤ ꯂꯩꯅꯕ, ꯃꯀꯥꯏ ꯇꯥꯡꯖꯤꯡꯃꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕ ꯊꯤꯡꯅꯒꯤ ꯇꯥꯡꯖꯤꯡ ꯏꯟꯗꯕ, ꯇꯥꯡꯖꯤꯡ ꯅꯥꯏꯗꯕꯥ ꯃꯇꯝ ꯑꯣꯏ ꯅꯩꯅꯕꯤꯁꯤꯡ ꯕꯤꯌꯥꯀꯤꯗꯣꯏ ꯑꯀꯥ ꯑꯃꯁꯨꯡ ꯀꯀꯤ ꯂꯤꯄꯕ WRD ꯍꯤꯇꯗ ꯊꯀꯥꯌꯕꯗ; ꯃꯇꯦꯛꯇꯄꯕ WRD ꯇꯥꯡꯖꯤꯡꯃꯤ (WL, FL, HFL ꯑꯃꯁꯨꯡ HFL-ꯒꯤ ꯀꯊꯣꯛ ꯅꯕꯅꯗꯒꯤ ꯌꯥꯝꯕ ꯂꯦꯕ) ꯀꯅꯥꯌꯒꯤ ꯄꯥꯟꯗꯝꯏꯀꯤ ꯇꯥꯔꯛꯅ ꯑꯃꯁꯨꯡ ꯗꯣꯁꯀ ꯃꯦꯟꯏꯄꯀ ꯁꯤꯟꯕ ꯅꯠꯔꯒꯥ ꯏꯆꯥꯡ ꯁꯤꯟꯕ; ꯗꯤꯇꯅꯦ ꯇꯥꯡꯖꯤꯡ (WRD-ꯒꯤ ꯏꯆꯥꯗ ꯇꯥꯡꯖꯤꯡ (flood level), ꯑꯇꯣ ꯏꯃꯗꯥꯡꯕ ꯀꯏꯀꯗ ꯄꯨꯅꯕ ꯌꯥꯝꯕ ꯏꯃꯗꯥꯡꯕ ꯒꯥꯌꯕ, ꯍꯗꯀ ꯑꯅꯕ ꯇꯤꯇꯝ 781.350 m; ꯏꯆꯥꯗ ꯇꯥꯡꯖꯤꯡ ꯏꯃꯗꯥꯡꯁꯕ ꯀꯏꯀꯗ HFL, ꯍꯗꯀ ꯑꯅꯕ ꯄꯀꯂ ꯕꯄꯤꯇ (Hump Bridge) 783.695 m, ꯅꯝꯕꯣꯜ ꯊꯣꯡꯈꯣꯡ (Nambol Thongkhong) 774.700 m), ꯌꯥꯝ ꯇꯥꯡꯖꯤꯡ (HFL ꯅꯠꯔꯒꯥ ꯀꯗꯒꯤ ꯀꯊꯣꯛ ꯅꯕꯅꯗꯒꯤ ꯌꯥꯝꯕ ꯂꯦꯕ, ꯍꯗꯀ ꯑꯅꯕ ꯀꯤꯄꯊꯝ 788.400 m, ꯇꯤꯇꯝ 783.250 m, ꯅꯄꯤꯡꯕꯝ 788.850 m), ꯑꯃꯁꯨꯡ ꯌꯥꯄꯇꯤ ꯇꯥꯡꯖꯤꯡꯗ 10% AEP-ꯒꯤ ꯃꯍꯩ, ꯀꯅꯥꯌ ꯍꯗꯤꯃꯀꯥ ꯀꯊꯣ ꯏꯃꯗꯥꯡꯁꯤꯡꯗ ꯁꯤꯡꯂꯨꯞꯗ ꯂꯥꯄꯥꯝꯇꯕ; ꯍꯥꯇ ꯇꯣꯌꯕ ꯁꯄꯤꯡ ꯅꯠꯔꯒꯥ ꯅꯝ ꯑꯀꯤꯒꯤꯗꯀꯥ, 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯅꯣꯃꯤ ꯅꯌꯥꯡꯒꯤ ꯀꯤꯄꯥꯝꯂꯃꯤ ꯃꯄꯒꯤ ꯁꯤꯡꯕ, ꯅꯠꯔꯒꯥ ꯀꯗꯤꯡ ꯑꯀꯤ; ꯍꯥꯌꯕꯥ ꯀꯁꯨꯝꯗ ꯇꯣꯕ ꯅꯝꯕꯦꯛ ꯑꯣꯃ ꯀꯃꯒꯤꯒꯤ ꯃꯌꯀꯤꯌꯥ ꯂꯨꯀꯕ, ꯀꯃꯖ ꯊꯦꯄꯤꯇꯥꯕ ꯂꯥꯏꯌ, ꯂꯝꯅꯄꯤ ꯑꯃꯁꯨꯡ ꯂꯥꯗꯤ ꯇꯦꯗ (paddy land) ꯑꯃꯁꯨꯡ ꯀꯃꯒꯤꯒꯤ ꯄꯇꯃꯥꯕꯥ ꯃꯁꯥꯇꯒꯤ ꯇꯥꯌꯇꯇ ꯄꯤꯡꯁꯤꯡꯃꯤ ꯁꯤꯡꯕ, ꯀꯃꯒꯤꯒꯤ ꯃꯤꯡꯂꯇꯌ ꯏꯟꯕ ꯊꯦꯇ ꯄꯕ, ꯂꯀꯂꯤꯃꯤ ꯏꯃꯕ ꯌꯀꯕ ꯃꯦꯟꯏꯄꯀ ꯁꯤꯡꯕ (ꯂꯄꯤꯇꯦꯌ ꯂꯀꯂꯃꯤ ꯅꯥꯁ, ꯍꯀꯍꯌꯇꯕ ꯃꯂꯤꯃꯁꯤꯡꯗꯒꯤ ꯅꯕꯅꯗꯒꯤ ꯌꯟꯕ ꯂꯀꯂ ꯇꯊꯥꯕꯒꯤ ꯇꯀꯄꯤꯡꯕꯗꯒꯤ ꯄꯦꯗꯕ), ꯌꯥꯝ ꯇꯥꯡꯖꯤꯡꯗ ꯂꯀꯂꯃꯤ ꯊꯕꯥ ꯁꯕ ꯊꯀꯕ; ꯇꯝ (lock; ꯁꯨꯝ 72-ꯒꯤ ꯇꯝ ꯍꯕꯒꯤ ꯊꯗꯥꯡ ꯁꯨꯀꯕ ꯑꯃꯁꯨꯡ ꯁꯄꯤꯡ ꯑꯣ ꯃꯤꯡꯒꯤ ꯀꯊꯣꯛ ꯇꯄꯤꯕ ꯀꯁꯀ, ꯃꯇꯦꯛꯇꯄꯕ WRD ꯂꯁꯇ ꯄꯃꯕꯗꯁꯒꯤ, ꯅꯠꯔꯒꯥ ꯅꯀꯏꯡ, ꯅꯀꯕꯡ, ꯅꯄꯤꯡ, ꯃꯕꯃꯕ, ꯊꯕꯡ, ꯂꯥꯀꯤꯅ, ꯌꯃꯇꯤ, ꯅꯀꯕꯡ, ꯍꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯇꯤꯁꯨꯄ ꯁꯄꯤꯡꯃꯤꯗ ꯅꯀꯤꯌ 7-ꯗꯒꯤ ꯄꯦꯊꯗꯕ ꯑꯃꯁꯨꯡ ꯄꯨꯅꯕ ꯑꯁꯤꯡꯂ ꯅꯝ ꯑꯀꯗ ꯁꯨꯝ 72) ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕ ꯊꯤꯡꯇꯒꯤ ꯁꯨꯝ 48-ꯒꯤ ꯀꯨꯝꯗ ꯄꯥꯟꯗꯝꯂꯒꯤ ꯇꯥꯡꯖꯤꯡ ꯏꯟꯕ ꯂꯀꯂ-ꯗꯟꯕꯦ; ꯁꯤꯡꯂꯨꯞꯀꯤ ꯃꯍꯩ ꯑꯇꯒꯤꯗꯀꯥ ꯅꯝꯕꯦ–ꯂꯀꯂ–ꯁꯄꯤꯡꯒꯤ ꯇꯥꯅꯦꯌ ꯑꯃꯇꯥꯅꯃꯤ; ꯍꯥꯌ ꯏꯟ ꯁꯕ ꯑꯃꯁꯨꯡ ꯂꯦ ꯃꯍꯩꯂꯒꯤ ꯌꯍꯩꯃꯤ ꯄꯤꯂꯥꯄꯌ ꯁꯤꯡꯕ; ꯅꯀꯏꯡꯒꯤꯗꯀꯥ, ꯍꯣꯀꯄꯇꯤ ꯍꯥꯇ (ꯀꯤꯄꯊꯝ, ꯇꯤꯇꯝ, ꯄꯀꯂ ꯕꯄꯤꯇ ꯅꯠꯔꯒꯥ ꯅꯄꯤꯡꯕꯝ), ꯌꯥꯇꯥꯡ (ꯇꯒꯤ ꯂꯁꯇꯦ, ꯌꯥꯅꯃꯡ ꯀꯤꯄꯤꯡ ꯅꯠꯔꯒꯥ ꯑꯁꯣꯌꯕ) ꯑꯃꯁꯨꯡ ꯀꯃꯒꯤꯒꯤ ꯄꯇꯃꯥꯕꯥ ꯃꯄꯥꯝ-ꯃꯍꯩꯃꯦ, ꯑꯃꯁꯨꯡ ꯅꯀꯏꯡꯂꯥꯌꯕꯥꯗꯀꯥ ꯊꯦꯇ ꯄꯕ ꯂꯥꯌꯕꯥ ꯇꯥꯡꯖꯤꯡ, WRD-ꯅ ꯃꯦꯟꯏꯄꯀ ꯁꯤꯡꯕ ꯃꯀꯨꯃꯤ ꯂꯀꯂꯃꯤ ꯑꯃꯁꯨꯡ ꯃꯀꯨꯃꯤ ꯁꯤꯡꯂꯨꯞꯗ ꯅꯀꯕꯡꯒꯤ ꯇꯥꯡꯖꯤꯡ, NDB ꯊꯕꯥꯃꯤ ꯇꯅꯄꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯏꯄꯀ ꯁꯤꯡꯕ ꯀꯁꯨꯝꯗ ꯅꯥꯁ ꯊꯤꯕ; ꯇꯥꯡꯁꯤꯡꯒꯤ ꯀꯣꯡꯒꯥꯒꯤꯗꯀꯥ, ꯗꯤꯇꯅꯦ ꯇꯥꯡ ꯇꯥꯡꯖꯤꯡ (ꯅꯊꯅ HFL 769.320 m, 770.05 m-ꯗ ꯌꯥꯝ ꯁꯤꯡꯕ, ꯄꯨꯦ–ꯂꯂꯁꯁꯀꯕꯄ FRL-ꯒꯤ ꯀꯅꯗ ꯅꯠꯁꯕ), FRL-ꯒꯤ ꯁꯊꯦꯇꯕ ꯄꯃꯕꯗ ꯁꯤꯡꯒꯤ, ꯀꯃꯒꯤꯒꯤ ꯀꯅꯗ ꯇꯣꯕ ꯁꯤꯡꯂꯨꯞꯁꯤꯡ ꯑꯀꯒꯤ 1 ꯄꯨꯦꯗꯒꯤ 30 ꯂꯂꯁꯁꯀꯕꯄ ꯏꯟꯕ ꯊꯤꯕ, ꯂꯒꯦꯄ ꯑꯃꯁꯨꯡ ꯌꯥꯝꯂꯗ ꯌꯥꯝꯂꯒꯤ ꯇꯥꯡꯖꯤꯡ, ꯐꯨꯝꯗꯤ (phumdi) ꯂꯃꯄꯤꯦ, ꯑꯃꯁꯨꯡ LDA-ꯒꯤ ꯀꯀꯤꯒꯤ ꯑꯌꯦꯕ; ꯄꯤꯇꯤꯇ ꯄꯤꯌ ꯑꯀꯒꯤꯗꯀꯥ, ꯑꯂꯄꯁꯄꯒꯤ ꯑꯌꯦꯕ, ꯅꯕ ꯀꯑꯃꯗ ꯇꯥꯡꯖꯤꯡꯃꯤ (ꯐꯨꯠ 1 ft = 0.3048 m-ꯗ ꯃꯦꯒꯄꯌ ꯁꯤꯡꯕ, ꯗꯁꯀ ꯏꯃꯗꯥꯡꯕ), ꯅꯕꯅꯗꯒꯤ ꯌꯟꯕ ꯄꯃꯕꯗ ꯁꯤꯡꯕ ꯄꯤꯇꯤꯇ ꯅꯠꯔꯒꯥ ꯂꯁꯤꯡꯌꯥ ꯃꯂꯤꯃꯁꯤꯡ (ꯀꯁꯤꯊꯡ 2,240 m³/s, ꯂꯦꯟꯗ ꯏꯃꯗꯥꯡꯅꯤꯕ ꯀꯁꯨꯝ ꯅꯦꯇ), ꯇꯝ ꯍꯕꯒꯤ ꯊꯗꯥꯡꯃꯤ ꯀꯀꯤꯃꯗ, ꯀꯁꯀꯗ ꯑꯃꯁꯨꯡ ꯀꯁꯨꯝꯗ ꯊꯀꯇꯕ, ꯑꯃꯁꯨꯡ ꯁꯨꯝ 72-ꯗꯒꯤ ꯄꯦꯊꯗꯕ ꯇꯝ ꯑꯀꯤ, ꯌꯄꯇꯤꯃ, ꯗꯄꯗꯟꯦ ꯅꯠꯔꯒꯥ ꯑꯁꯄꯥꯌꯂꯦ ꯃꯄꯗꯌ ꯁꯤꯡꯇ; ꯂꯥꯌ, ꯁꯨꯝꯅꯄꯤ ꯅꯠꯔꯒꯥ ꯂꯥꯦꯗ ꯑꯀꯒꯤꯗꯀꯥ, ꯀꯃꯒꯤꯒꯤ ꯁꯤꯡꯂꯨꯞꯇꯌ ꯇꯥꯡꯖꯤꯡ, ꯃꯄꯒ ꯁꯤꯡꯕ ꯀꯦꯂꯨꯦꯒꯤ ꯌꯥꯄ ꯇꯅꯦ, ꯃꯄꯒ ꯁꯤꯡꯕ ꯂꯁꯇ–ꯂꯁꯄꯇꯒꯤ ꯀꯄꯤ, ꯄꯥꯟꯗꯝꯂꯒꯤ ꯇꯥꯡꯖꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯅꯦ ꯇꯥꯡꯖꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯃꯒꯤꯒꯤ ꯀꯀꯤꯃꯗ ꯅꯦꯁꯄꯂꯂꯦ ꯑꯃꯁꯨꯡ ꯂꯃꯄꯤꯦꯃꯤ; ꯌꯥꯝꯅ ꯅꯝ ꯑꯀꯒꯤꯗꯀꯥ, ꯀꯃꯒꯤꯒꯤ ꯂꯕ-ꯑꯄꯤꯌꯒꯤ ꯇꯝ ꯍꯕꯒꯤ ꯇꯥꯡꯖꯤꯡ 1% AEP-ꯒꯤ ꯂꯁꯗ, ꯃꯇꯥꯡ 6.3.6-ꯒꯤ ꯕꯤꯃꯤ ꯑꯃꯁꯨꯡ ꯕꯇꯥꯃꯇ, ꯃꯄꯒ ꯁꯤꯡꯕ ꯅꯃꯤ ꯅꯌꯥꯡꯒꯤ ꯀꯤꯄꯥꯝꯂꯃꯤ ꯑꯃꯁꯨꯡ ꯀꯅꯥꯌꯒꯤ ꯄꯥꯟꯗꯝꯏꯀꯃꯤ, ꯕꯗ ꯃꯄꯒ ꯑꯃꯁꯨꯡ ꯕꯗ ꯀꯒꯀꯦꯌꯃ ꯄꯦꯇ, ꯃꯄꯒ ꯁꯤꯡꯕ ꯅꯕꯅꯗꯒꯤ ꯌꯥꯝꯕ ꯕꯗ ꯇꯥꯡꯖꯤꯡꯒꯤ ꯀꯊꯣꯛ ꯅꯥꯁꯕ 0.5 m-ꯗ ꯇꯣꯕ ꯅꯦꯒꯄꯌ, ꯏꯟꯦꯗꯂꯦꯒꯤ ꯂꯃꯟꯄ ꯗꯂꯊ, ꯅꯝ ꯑꯀꯇ ꯁꯤꯡꯂꯨꯞꯀꯤ ꯅꯀ ꯌꯕ ꯀꯏꯀꯗ ꯃꯤꯡꯌ ꯁꯄꯂ, ꯑꯃꯁꯨꯡ ꯁꯨꯝ 24-ꯗꯒꯤ ꯄꯦꯊꯗꯕ ꯇꯝ ꯑꯀꯤ; ꯇꯤꯄꯤꯕꯀꯒꯤꯗꯀꯥ, ꯕꯄꯥꯃꯤ ꯇꯥꯡꯖꯤꯡ (ꯌꯁꯕꯃꯄꯒꯤ 32.1 m-ꯒꯤ ꯀꯅꯗ ꯅꯠꯁꯕ, ꯁꯨꯄꯥꯇꯕ; 10% AEP-ꯒꯤ ꯃꯍꯩ 26.2 m-ꯒꯤ ꯀꯅꯗ ꯅꯠꯁꯕ) ꯀꯃꯒꯤꯒꯤ ꯗꯁꯀ ꯏꯆꯥꯡ ꯁꯤꯡꯒꯤ, ꯇꯤꯄꯒꯤ ꯇꯥꯡꯖꯤꯡ, ꯑꯃꯁꯨꯡ ꯕꯄꯥ ꯁꯤꯡꯂꯨꯞꯀꯤ ꯇꯝ; ꯂꯦ ꯑꯀꯒꯤ ꯍꯌꯊꯃꯗ ꯊꯕꯥ ꯑꯀꯄꯥꯁꯒꯤꯗꯀꯥ WRD-ꯒꯤ ꯅꯕ ꯑꯌꯦꯕ; ꯀꯁꯨꯒꯤ ꯑꯌꯦꯕ (IMC ꯅꯠꯔꯒꯥ ꯇꯦꯛꯅꯤꯀꯦꯜ, PWD, ꯇꯂꯇꯥꯡ-ꯄꯅꯌ ꯑꯇꯦꯂ ꯑꯀꯤ, DoECC ꯅꯠꯔꯒꯥ WRD), ꯌꯄꯥꯡꯕ ꯄꯌ, ꯗꯤꯇꯅꯦ ꯌꯁꯄ ꯇꯥꯡꯖꯤꯡ ꯅꯠꯔꯒꯥ ꯃꯥꯡꯃꯨꯇꯌ ꯁꯤꯡꯕ ꯌꯇꯥꯡ ꯇꯥꯡꯖꯤꯡ, ꯑꯃꯁꯨꯡ ꯏꯆꯥꯟ ꯍꯥꯌ; ꯑꯃꯁꯨꯡ ꯕꯅ-ꯇ 93-ꯒꯤ ꯕꯏꯄꯃꯤ, ꯃꯇꯥꯡ 7.4-ꯒꯤ ꯃꯄꯤꯗꯄ (corridor), ꯕꯅ-ꯇ 94-ꯒꯤ ꯂꯇꯤꯦꯊ, ꯇꯥꯡꯁꯤꯡ ꯑꯍꯌꯃ ꯇꯦꯃꯤ, ꯇꯣꯕꯨꯥ ꯃꯦꯒꯄꯂꯦꯒꯤ ꯑꯂꯄꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯌꯌꯇꯦꯗ (wetland) ꯇꯁꯏꯃꯂꯦ ꯑꯀꯄꯥꯁꯒꯤ ꯂꯁꯁꯂ ꯌꯥꯝ ꯁꯤꯡꯕ (ꯃꯇꯥꯡ 5.8.5)	

G. ꯇꯅꯦꯌ ꯃꯂꯃꯤ (ꯃꯇꯥꯡ 5.9; ꯃꯇꯥꯡ 5.14, ꯑꯅꯁꯀ 6)

ꯁꯕꯡ 5F.8 — ꯏꯄꯀ 5-1: ꯇꯅꯦꯌ-ꯃꯂꯃꯒꯤ ꯄꯤꯇꯡꯌꯃꯤ

ꯃꯂ	ꯇꯝ ꯍꯕ	ꯃꯇꯤꯦꯇꯄꯕ ꯁꯡꯌꯁꯄ (m, ꯂꯄꯤꯇꯥꯌ ꯗꯁꯀ)	ꯌꯌꯇꯕꯄꯤ?	ꯍꯣꯀꯄꯇꯤ ꯄꯤꯇꯡꯌ (ꯂꯁꯄꯇ, ꯇꯥꯡꯖꯤꯡ, ꯂꯅꯂꯒꯤ ꯃꯅꯇ ꯅꯠꯔꯒꯥ ꯂꯀꯂꯒꯤ ꯃꯂꯤꯃꯁꯤꯡ)
J1				
J2				
J3				
J4				

ꯁꯦꯂ	ꯆꯥꯡ ꯄꯨꯕ	ꯂꯤꯆꯤꯡꯆꯦꯕ ꯇꯦꯟꯊꯣꯏ (m, ꯁꯔꯨꯛꯆꯦꯡꯌ ꯕꯦꯇꯝ)	ꯄꯌꯆꯕꯗ?	ꯒꯂꯗꯆꯤꯡ ꯗꯤꯆꯟꯌ (ꯂꯇꯨꯗꯦꯆ, ꯆꯦꯒꯦꯟ, ꯁꯤꯍꯥꯝ ꯂꯤꯍꯆ ꯆꯌꯗꯒꯤ ꯁꯔꯝꯁꯝ ꯁꯦꯁꯤꯂꯤꯇꯤ)
R1				
R2				

H. ꯑꯣꯁꯨꯌꯈꯨꯟ ꯂꯤꯡꯕ ꯄꯦꯡ (ꯁꯔꯨꯛ 5.10; ꯁꯔꯨꯛ 5.14, ꯑꯣꯍꯇꯦꯝ 7)

ꯇꯦꯕꯜ 5F.9 — ꯈꯨꯗꯝ 5-1: ꯑꯣꯁꯨꯌꯈꯨꯟ ꯂꯤꯡꯕ ꯄꯦꯡ

ꯈꯤꯟꯅ	ꯍꯗꯦꯗꯤ
H1. ꯄꯦꯡ ꯑꯆꯤ ꯄꯌꯆꯕꯒꯤ ꯝꯗꯝ (ꯁꯔꯨꯛ 5.10.1)	
H2. ꯆꯥꯡ ꯄꯨꯕꯒꯤ ꯂꯨꯅꯥꯡ: AEP, 48 h ꯑꯃꯁꯨꯡ 72 h, AMC III (ꯁꯔꯨꯛ 5.10.2)	
H3. ꯆꯥꯡꯁꯤ ꯅꯨꯗꯦꯂꯗ ꯑꯃꯁꯨꯡ ꯁꯨꯝꯈꯝ: ꯁꯨꯡ 6-ꯒꯤ ꯄꯤꯗꯅꯨ ꯑꯆꯤꯒꯤ ꯅꯤꯈꯨꯟꯌ, ꯆꯌꯗꯒꯤ ꯂꯣꯍꯌ ꯂꯄꯅꯤ (ꯁꯔꯨꯛ 5.10.6); ꯂꯦꯗꯅ-ꯕꯗꯆꯣ ꯂꯤꯡꯕꯒꯤꯅꯝꯡ ꯂꯣꯡꯊꯆꯕ (ꯁꯔꯨꯛ 5.13.5)	
H4. ꯗꯗ ꯑꯆꯤꯒꯤ ꯆꯥꯡ ꯄꯤꯗꯅꯨꯂꯤꯡ (ꯊꯨꯗꯁꯁ ꯑꯃꯁꯨꯡ ꯆꯨꯍꯗꯁꯁꯒꯤ ꯝꯄꯝꯂꯤꯡ) (ꯁꯔꯨꯛ 5.10.3(d))	
H5. ꯈꯦꯂꯤꯆꯤꯄ ꯁꯨꯅꯤꯡꯝꯡꯄ ꯍꯕꯣꯍꯅꯒꯤ ꯄꯣꯡꯕ ꯂꯄꯦꯆ, ꯝꯂꯤꯒꯤ 1% AEP-ꯒꯤ ꯍꯕꯣꯍꯅꯒꯤ ꯄꯣꯡꯕ ꯍꯂꯤꯡꯒꯤ ꯆꯦꯒꯦꯟꯒꯣ ꯄꯣꯡꯅꯝꯆꯆꯣ (ꯁꯔꯨꯛ 5.10.4(a))	
H6. ꯝꯍꯆꯗ ꯑꯃꯁꯨꯡ ꯝꯦꯆꯗ ꯂꯤꯂꯄꯦꯝꯂꯤꯡꯅ ꯍꯕꯣꯍꯅꯒꯤ ꯄꯣꯡꯕ ꯂꯄꯦꯆ, ꯂꯗꯨꯡ 6-ꯒꯤ ꯆꯤꯝꯤꯌꯂꯤꯡꯒꯣ ꯄꯣꯡꯅꯝꯆꯆꯣ (ꯁꯔꯨꯛ 5.10.4(b))	
H7. ꯁꯗꯨꯁꯗꯄ ꯁꯆꯦꯡꯂꯦꯂꯤꯡ: ꯂꯗꯄꯣꯗꯆ (surcharge) ꯆꯦꯒꯦꯟ, ꯆꯌꯗꯒꯣ ꯆꯦ-ꯗꯤꯄꯗꯦ ꯒꯟꯒꯂꯤꯡ ꯂꯝꯆꯕ (ꯁꯔꯨꯛ 5.10.4(c))	
H8. ꯂꯄꯦꯆ ꯊꯍꯅꯗꯨꯒꯗꯨꯈꯂꯤꯡ (ꯂꯝꯝꯤꯦꯕꯤꯁꯨ)	
H9. J1 ꯄꯣꯍꯅꯦꯟ ꯁꯗꯒꯁꯤ ꯝꯄꯣꯅ ꯆꯥꯡ ꯄꯨꯕꯒꯤ ꯂꯨꯅꯥꯡꯁꯤ ꯝꯄꯨꯡꯅ ꯅꯗꯨꯅꯣꯁꯨꯦ (drawdown), ꯑꯃꯁꯨꯡ ꯝꯂꯨ ꯄꯣꯕ ꯝꯈꯝꯅ ꯁꯝꯁꯡ (ꯁꯔꯨꯛ 5.10.5)	

ꯇꯦꯕꯜ 5F.10 — ꯈꯨꯗꯝ 5-1: ꯆꯥꯡ ꯄꯤꯗꯅꯨ ꯁꯨꯅꯤꯡꯝꯡꯁꯤ ꯒꯨꯁꯨꯝ ꯕꯦꯆꯦꯗꯂ (ꯁꯔꯨꯛ 5.10.4)

ꯁꯤꯗꯤꯌꯅ	ꯍꯗꯈꯆꯨ (m³)	ꯒꯗꯦꯒꯤꯄ ꯑꯣꯁꯨꯌꯈꯆꯨ (m³)	ꯁꯝꯁꯆꯣ ꯂꯅꯨꯁꯁ (m³)	ꯊꯨꯗꯁꯁꯅ ꯆꯣꯕ ꯂꯄꯨꯗꯦꯆ (m³)	ꯆꯨꯍꯗꯁꯁꯅ ꯆꯣꯕ ꯂꯄꯨꯗꯦꯆ (m³)
ꯄꯤꯗꯅꯨ 1-ꯒꯤ ꯝꯝꯣꯡ					
ꯄꯤꯗꯅꯨ 1					
ꯄꯤꯗꯅꯨꯂꯤꯡꯒꯤ ꯝꯗꯡ					
ꯄꯤꯗꯅꯨ 2					
ꯄꯤꯗꯅꯨ 2-ꯒꯤ ꯝꯄꯨꯡ					

I. ꯒꯦꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯟꯒꯂꯤꯡ (ꯁꯔꯨꯛ 5.11; ꯁꯔꯨꯛ 5.14, ꯑꯣꯍꯇꯦꯝ 8)

ꯇꯦꯕꯜ 5F.11 — ꯈꯨꯗꯝ 5-1: ꯈꯆꯦꯁ ꯒꯦꯌꯂꯤꯡ, ꯄꯣꯍꯅ ꯒꯦꯌꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦ-ꯗꯤꯄꯗꯦ ꯒꯟꯒꯂꯤꯡꯒꯤ ꯂꯦꯅꯨꯟ

ꯝꯈꯝ	ꯝꯍꯟ	ꯂꯣꯍꯆ (mm)	ꯍꯦꯒꯗꯌ (m, ꯁꯗꯨꯆꯦꯡꯌ ꯅꯦꯄꯝ)	ꯂꯗꯄꯤꯈꯍ ꯄꯨꯗꯕ ꯊꯦꯅ–ꯅꯤꯂꯄꯣꯗꯆ ꯅꯦꯄ (ꯗꯦꯈꯗꯦꯦꯂ)	ꯂꯄꯨꯁ-ꯆꯒ ꯆꯌꯗꯒꯣ ꯁꯦꯦꯂꯄꯨꯡ (ꯑꯣꯁꯨꯌꯈꯨꯟꯂꯤꯡ > 600 mm)

ꯃꯍꯝ	ꯃꯏꯜ	ꯗꯏꯟ (mm)	ꯏꯟꯒꯔꯈ (m, ꯄ꯭ꯔꯦꯅꯒꯈ ꯅꯦꯁꯝ)	ꯁꯔꯁꯤꯍꯏ ꯁꯦꯔꯕ ꯄꯦꯅ–ꯅꯤꯁꯏꯔꯅ ꯅꯦꯁꯦ (ꯔꯦꯍꯔꯦꯟꯁ)	ꯁ꯭ꯁꯧꯄ-ꯅꯧꯒ ꯅꯈꯔꯒꯦ ꯄꯦꯟꯁ꯭ꯁꯒ (ꯋꯏꯈꯍꯧꯜꯁꯤꯡ > 600 mm)

J. ꯄꯝꯄꯂꯩ ꯌꯁꯧꯡꯄ ꯋꯏꯈꯍꯧꯜꯁꯤꯡ (ꯀ꯭ꯂꯧꯖ 5.12; ꯀ꯭ꯂꯧꯖ 5.14, ꯋꯅꯁꯦꯝ 9)

ꯇꯦꯕꯜ 5F.12 — ꯍꯧꯔꯝ 5-1: ꯄꯝꯄꯂꯩ ꯌꯁꯧꯡꯄ ꯋꯏꯈꯍꯧꯜꯁꯤꯡ

ꯍꯤꯔꯝ	ꯏꯟꯁ꯭ꯇꯜꯤ
J1. ꯄꯝꯄꯤꯡ ꯃꯊꯛ ꯌꯧꯕꯒꯤ ꯃꯔꯝ (ꯀ꯭ꯂꯧꯖ 5.12.1)	
J2. J2 ꯁꯦꯜꯏꯁꯔꯒꯤꯅꯃꯒ ꯁ꯭ꯁꯦꯁꯤꯒ ꯄꯦꯅꯁ ꯅ꯭ꯁꯁꯤ ꯀꯦꯄꯀꯁꯤꯁꯤ (m³/s); ꯁ꯭ꯁꯦꯟꯅꯕꯏ ꯀꯦꯄꯀꯁꯤꯁꯤ (ꯀ꯭ꯂꯧꯖ 5.12.2)	
J3. ꯏꯁꯤꯡ ꯂꯩꯕ ꯃꯍꯝꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯂꯦꯚꯦꯜ ꯌꯧꯀꯄ ꯍꯜ (ꯀ꯭ꯂꯧꯖ 5.12.3)	
J4. ꯄꯤꯔꯔ ꯁꯄꯅꯤꯏ: ꯃꯁꯧ ꯃꯌꯟꯁꯦ ꯅꯩꯕ ꯁꯄꯅꯤꯏ ꯑꯅꯤ, ꯅꯈꯔꯒꯦ 72 h-ꯒꯤ ꯍ꯭ꯁꯔꯦꯜꯒꯦ ꯅꯧꯔꯅꯅꯩ ꯁ꯭ꯁꯦꯟꯅꯕꯏ ꯂꯦꯅꯦꯔꯦꯁꯟ; ꯑꯧꯁꯧꯃꯦꯁꯤꯒ ꯔꯦꯟꯂꯑꯧꯒꯔ (ꯀ꯭ꯂꯧꯖ 5.12.4)	
J5. ꯏꯅꯦꯒꯁ꯭ꯔꯤꯀꯦꯜ ꯄꯦꯅꯦꯜꯁꯤꯡ, ꯀꯟꯁ꯭ꯔꯧꯜꯁꯤꯡ, ꯂꯦꯅꯦꯔꯦꯁꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍ꯭ꯁꯔꯦꯜꯒꯤ ꯂꯦꯚꯦꯜ, 1% AEP-ꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ (flood) ꯂꯦꯚꯦꯜ + 0.5 m ꯑꯃꯁꯨꯡ HAT + ꯁꯔꯖ + SLA + 0.5 m-ꯒꯤ ꯃꯁꯨꯡꯅ ꯄꯦꯟꯅꯩ ꯌꯦꯡꯕ ꯑꯅ꯭ꯁꯒꯦ ꯌꯦꯡꯅꯝꯅꯅꯩ (ꯀ꯭ꯂꯧꯖ 5.12.5)	
J6. ꯅꯤꯁꯌꯦꯔꯂꯒꯤ ꯑꯦꯔꯦꯟꯂꯃꯦꯟꯈ (ꯀ꯭ꯂꯧꯖ 5.12.6); ꯀꯟꯁ꯭ꯔꯧꯜꯁꯤꯡ, ꯑꯦꯅꯩꯔꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯧꯒꯤꯡ (ꯀ꯭ꯂꯧꯖ 5.12.7); ꯁ꯭ꯀꯔꯤꯟꯁꯤꯡ (ꯀ꯭ꯂꯧꯖ 5.12.8)	

K. ꯁꯦꯟꯅ ꯕꯩꯔ (ꯀ꯭ꯂꯧꯖ 5.13; ꯀ꯭ꯂꯧꯖ 5.14, ꯋꯅꯁꯦꯝ 10)

ꯇꯦꯕꯜ 5F.13 — ꯍꯧꯔꯝ 5-1: ꯁꯦꯟꯅ-ꯕꯔꯒꯤ ꯑꯦꯂꯃꯁꯟ

ꯍꯤꯔꯝ	ꯏꯟꯁ꯭ꯇꯜꯤ
K1. ꯃꯔꯤ ꯂꯩꯅꯕ ꯇꯨꯔꯦꯂꯒꯤ (river) ꯃꯌ꯭ꯊ ꯅꯈꯔꯒꯦ ꯀ꯭ꯔꯤꯡ ꯏꯟꯅꯦ	
K2. ꯃꯌ꯭ꯊ ꯊꯤꯡꯅꯦ ꯄꯧꯔꯅꯩ ꯅꯥꯏꯤꯕ, ꯅꯈꯔꯒꯦ WRD-ꯒꯤ ꯁꯔꯁꯤꯍꯤꯀꯦꯁꯟ ꯁꯃꯤꯟꯁ꯭ꯅꯩ ꯄꯡꯅꯧꯁꯤ (ꯀ꯭ꯂꯧꯖ 5.13.2)	
K3. ꯏ꯭ꯕꯏꯅꯒꯤ ꯂꯩꯕ ꯄ꯭ꯀꯔꯤ-ꯃꯧꯟꯁ꯭ꯁꯟ ꯁꯔꯒꯦꯅꯒꯤ ꯕꯔ ꯀ꯭ꯔꯦꯁ꯭ꯈ ꯂꯦꯚꯦꯜ (m) ꯑꯃꯁꯨꯡ ꯃꯌ꯭ꯊ ꯊꯤꯡꯅꯕꯒꯤ ꯁꯦꯜꯏꯁꯔ (ꯀ꯭ꯂꯧꯖ 5.13.3)	
K4. ꯃꯊꯛ ꯌꯧꯕ ꯃꯍꯝꯅ, ꯅꯧꯒꯀꯤ ꯅ꯭ꯁꯔꯦꯁꯟ ꯗꯡꯄꯅꯕ (ꯀ꯭ꯂꯧꯖ 5.13.5)	

L. ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ (ꯀ꯭ꯂꯧꯖ 5.14, ꯋꯅꯁꯦꯝ 11)

ꯇꯦꯕꯜ 5F.14 — ꯍꯧꯔꯝ 5-1: ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ

ꯍꯤꯔꯝ	ꯏꯟꯁ꯭ꯇꯜꯤ
L1. 31 ꯃꯔꯌꯒꯤ ꯃꯃꯡꯅ ꯑꯃꯁꯨꯡ ꯊꯤꯡꯏꯤꯕ ꯊꯧꯅꯧꯛꯁꯤꯡꯒꯤ ꯃꯁ꯭ꯡꯅ ꯒꯦꯈ ꯑꯃꯁꯨꯡ ꯒꯜꯒ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ (ꯀ꯭ꯂꯧꯖ 5.11.5)	
L2. 31 ꯃꯔꯌꯒꯤ ꯃꯃꯡꯅ ꯄꯝꯄ ꯁꯦꯁ꯭ꯈ ꯔꯟꯁꯤꯡ (ꯀ꯭ꯂꯧꯖ 5.12.9)	
L3. ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯄ꯭ꯅꯩꯟꯒꯤꯅꯃꯛ ꯑꯁꯧꯄꯀ ꯃꯊꯛ ꯌꯧꯕꯁꯤꯡ (ꯁ꯭ꯔꯛ 10)	

M. ꯔꯦꯖꯤꯁ꯭ꯇꯔ ꯇꯧꯔꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜꯒꯤ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ (ꯁꯦꯛꯁꯟ 10.6)

ꯑꯧꯅꯥ ꯍꯥꯏꯔꯤ ꯃꯗꯨꯗꯤ ꯔꯤꯄꯣꯔꯠ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ (ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0)-ꯒꯤ ꯁꯔꯨꯛ 5 ꯃꯈꯥꯗ ꯁꯦꯝꯖꯤꯕꯅꯤ, ꯔꯤꯄꯣꯔꯠ ꯇꯧꯔꯕ ꯔꯤꯖꯜꯠꯁꯤꯡ ꯑꯁꯤ ꯁꯕꯃꯤꯠꯇꯕ ꯃꯥꯀꯦꯜꯁꯤꯡꯗꯥ ꯑꯃꯨꯛ ꯍꯟꯅꯥ ꯄꯨꯊꯣꯛꯄ ꯍꯦꯟ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 5-ꯗꯒꯤ ꯇꯧꯖꯕꯗꯦ ꯌꯧꯗꯄ ꯅꯨꯗꯤꯡꯃꯛ ꯃꯁꯤꯒꯤ ꯃꯗꯝꯒꯤ ꯇꯥꯔꯕꯗꯦ ꯇꯤꯁ꯭ꯠ ꯇꯧꯔꯦ꯫ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ (ꯐꯣꯔꯝ 10-3) ꯅꯝꯃꯤꯟꯅꯦ꯫

ꯇꯦꯕꯜ 5F.15 — ꯐꯣꯔꯝ 5-1: ꯔꯦꯖꯤꯁ꯭ꯇꯔ ꯇꯧꯔꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜꯒꯤ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ

ꯐꯤꯜꯗ	ꯑꯦꯟꯠ꯭ꯔꯤ
ꯃꯃꯤꯡ	
ꯁꯔ꯭ꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯦꯖꯤꯁ꯭ꯇ꯭ꯔꯦꯁꯟ ꯅꯝꯕꯔ	
ꯁꯦꯛꯁꯟ 10.6.1-ꯅꯥ ꯃꯊꯧ ꯇꯥꯕ ꯃꯐꯝꯗ ꯍꯥꯌꯔꯦꯡꯃꯦꯟꯠ ꯅꯝꯕꯔ	
ꯑꯣꯔꯒꯅꯥꯏꯖꯦꯁꯟ	
ꯁꯥꯏꯟ	
ꯅꯨꯃꯤꯠ	

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0.

ꯐꯣꯔꯝ 5-2 — ꯂꯥꯏꯊꯣꯛꯍꯟꯕ ꯃꯏꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ (ꯑꯄꯤꯛꯄ ꯁꯥꯏꯠꯁꯤꯡ)

ꯁꯔꯨꯛ 5-ꯒꯤ ꯀ꯭ꯂꯣꯖ 5.3.4-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. 0.5 ha-ꯗꯒꯤ ꯍꯟꯊꯕ ꯁꯥꯏꯠꯁꯤꯡꯒꯤꯗꯃꯛ꯫ ꯁꯦꯛꯁꯟ B-ꯗ ꯂꯩꯕ ꯄꯥꯎꯈꯨꯝ ꯈꯨꯗꯤꯡꯃꯛ "ꯍꯣꯌ" ("Yes") ꯑꯣꯏꯔꯕꯗꯤ ꯏꯝꯌ ꯑꯣꯊꯣꯔꯤꯇꯤꯅ ꯃꯈꯨꯡ ꯊꯦꯕ ꯑꯦꯁꯦꯁꯃꯦꯟꯇꯀꯤ ꯃꯈꯨꯠꯁ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ ꯑꯁꯤ ꯌꯥꯕ ꯌꯥꯏ꯫ ꯅꯠꯔꯕꯗꯤ ꯐꯣꯔꯝ 5-1 ꯁꯕꯃꯤꯠ ꯇꯧꯕꯤꯌꯨ꯫

A. ꯁꯥꯏꯠ

ꯇꯦꯕꯜ 5F.16 — ꯐꯣꯔꯝ 5-2: ꯁꯥꯏꯠ

ꯐꯤꯜꯗ	ꯑꯦꯟꯠꯔꯤ
A1. ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯃꯤꯡ, ꯑꯦꯗ꯭ꯔꯦꯁ ꯑꯃꯁꯨꯡ ꯃꯐꯝ	
A2. ꯁꯥꯏꯠ ꯑꯦꯔꯤꯌꯥ (ha), 0.5 ha-ꯗꯒꯤ ꯍꯟꯊꯕ	
A3. ꯏꯁꯤꯡ ꯂꯩꯕ ꯄꯨꯔꯛꯂꯤꯕ ꯗ꯭ꯔꯦꯟ (drain): ꯃꯃꯤꯡ, ꯃꯈꯜ, ꯑꯃꯁꯨꯡ ꯂꯥꯞꯄ	
A4. ꯁꯥꯏꯠꯀꯤ ꯄꯤꯛ (runoff) ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯄꯤꯔꯤꯕꯤꯁꯀꯤ ꯃꯍꯩꯁꯤꯡ (ꯐꯣꯔꯝ 4-1)	

B. ꯀꯟꯗꯤꯁꯟꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 5.3.4)

ꯇꯦꯕꯜ 5F.17 — ꯐꯣꯔꯝ 5-2: ꯀꯟꯗꯤꯁꯟꯁꯤꯡ

ꯀꯟꯗꯤꯁꯟ	ꯍꯣꯌ / ꯅꯠꯇꯦ	ꯈꯨꯠꯂꯥꯏ
B1. ꯏꯁꯤꯡ ꯂꯩꯕ ꯄꯨꯔꯛꯂꯤꯕ ꯗ꯭ꯔꯦꯟ ꯑꯁꯤꯗ ꯃꯁꯤꯒꯤ ꯃꯍꯩꯗꯥ-ꯁꯤꯡꯒꯨꯝ ꯗꯤꯖꯥꯏꯟ ꯀ꯭ꯌꯥꯄꯥꯁꯤꯇꯤ ꯗꯥꯡꯃꯦꯜ ꯌꯥꯎꯕ ꯀꯦꯔꯤꯁꯤꯌꯥ ꯂꯩ (ꯁꯔꯨꯛ 6)		
B2. ꯁꯥꯏꯠ ꯑꯣꯐꯁꯥꯏꯠꯀꯤ ꯃꯅꯥ ꯊꯡꯕ ꯃꯅꯥꯛꯇ 500 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯏꯁꯤꯡ ꯏꯆꯥꯎ (flood) ꯌꯥꯝꯅꯥ ꯌꯥꯕ ꯃꯐꯝ ꯑꯃꯠꯇ ꯈꯪꯍꯟꯗ ꯌꯥꯎꯗꯕ ꯂꯩꯗꯦ꯫ ꯌꯦꯡ ꯌꯥꯎꯕ ꯈꯪꯍꯟꯗꯤꯁꯤꯡ: ꯂꯣꯀꯦꯜ ꯕꯣꯗꯤ, IMC, MSDMA, WRD (ꯀ꯭ꯂꯣꯖ 5.3.3(d))		
B3. ꯁꯥꯏꯠ ꯑꯁꯤꯂꯤ ꯌꯥꯎꯗꯦꯟ ꯂꯝꯆꯠ ꯕꯦꯡꯌꯥꯎꯕꯂꯤ ꯁꯣꯌꯗꯅꯥꯂꯤꯕ ꯑꯣꯐꯁꯥꯏꯠꯇ ꯑꯃꯗ ꯏꯁꯤꯡ ꯌꯦꯡꯊꯣꯛꯌꯥ		

C. ꯈꯨꯝ ꯀ꯭ꯂꯤꯌꯔ

ꯇꯦꯕꯜ 5F.18 — ꯐꯣꯔꯝ 5-2: ꯁꯥꯏꯟꯕꯁꯤꯡ

ꯁꯥꯏꯟꯕ	ꯂꯃꯗꯤꯂꯟꯕꯔꯤ?
C1. ꯁꯥꯏꯠ ꯑꯣꯐꯁꯥꯏꯠꯇꯒꯤ ꯃꯅꯥ ꯊꯡꯕ ꯃꯅꯥꯛꯇ 500 m ꯃꯅꯨꯡꯗ ꯂꯩꯔꯤꯕꯒꯤ ꯈꯨꯝꯗꯤ ꯀ꯭ꯂꯤꯌꯔ, ꯏꯁꯤꯡ ꯂꯩꯕ ꯗ꯭ꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯈꯪꯍꯟꯗ ꯌꯥꯎꯕ ꯏꯁꯤꯡ ꯏꯆꯥꯎ ꯌꯥꯝꯅꯥ ꯌꯥꯕ ꯃꯐꯝ ꯑꯃꯍꯥꯛꯇꯥꯛ ꯂꯣꯌꯂꯦ	
C2. ꯗ꯭ꯔꯦꯟꯒꯤ ꯀꯦꯞꯁꯤꯇꯤꯒꯤ ꯈꯪꯍꯟꯗꯗꯤ ꯀꯦꯄꯤ ꯂꯝꯆꯠ ꯈꯪꯍꯟꯗꯦ	

D. ꯁꯨꯇꯥꯇꯍꯥꯟꯛ

ꯋꯧꯆꯦ ꯄꯦꯅꯗꯤ ꯍꯂꯨꯔꯤ ꯍꯎꯡꯇ ꯄꯨꯛꯆꯤꯕꯒꯨꯐꯆꯦ ꯁꯦꯅꯛ ꯋꯁꯤꯆꯦ ꯃꯨꯆꯦꯆ 5.3.4-ꯒꯤ ꯃꯟꯔꯤꯁꯟꯁꯤꯡ ꯍꯔꯨꯡ ꯈꯦꯄꯇꯆꯤ, ꯋꯍꯂꯨꯡ ꯆꯤꯁꯨꯛ ꯇꯧꯗꯕ ꯗꯥꯃꯦꯗꯔꯁꯤꯡ ꯅꯥꯡ ꯇꯧꯗꯥ꯫

ꯇꯥꯕꯜ 5F.19 — ꯈꯦꯗꯐ 5-2: ꯁꯨꯇꯥꯇꯍꯥꯟꯛ

ꯈꯤꯔꯔ	ꯅꯟꯇꯨꯗꯤ
ꯍꯍꯤꯡ	
ꯃꯨꯌꯦꯆꯤꯈꯤꯃꯥꯑꯟ ꯋꯍꯂꯨꯡ ꯗꯥꯆꯤꯁꯨꯗꯥꯑꯟ ꯆꯐꯕꯗ	
ꯁꯦꯅꯟ	
ꯆꯨꯍꯤꯛ	

ꯔꯨꯗꯦꯈꯛ ꯈꯦꯗꯐ — ꯍꯆꯤꯒꯨꯗ ꯆꯦꯡꯒꯤ ꯅꯁꯤꯡ ꯅꯗꯐ ꯔꯤꯆꯦꯅꯟ ꯍꯥꯆꯨꯔꯥꯔ, ꯔꯨꯗꯦꯈꯛ ꯚꯗꯁꯟ 1.0.

ꯁꯔꯨꯛ 6-ꯒꯤ ꯑꯍꯦꯟꯕꯁꯤꯡ

ꯀꯣꯟꯂꯔ ꯑꯃꯁꯨꯡ ꯀꯦꯅꯔ ꯅꯕꯝ ꯁꯤꯁ꯭ꯇꯦꯝꯁꯤꯡ

ꯑꯍꯦꯟꯕꯁꯤꯡ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 6-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥ ꯑꯍꯦꯟꯕ 6A (ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯏꯟꯂꯦꯠꯁꯤꯡ (inlet) ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯀꯦꯄꯥꯁꯤꯇꯤ ꯀꯔꯚꯁꯤꯡ (capacity curve)) ꯑꯃꯁꯨꯡ ꯑꯍꯦꯟꯕ 6B (ꯁꯦꯗꯤꯃꯦꯟꯇ ꯌꯤꯜꯗ (sediment yield)) ꯑꯁꯤꯅꯥ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯄꯨꯋꯥꯔꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯒꯗꯕ ꯃꯁꯛ ꯇꯥꯛꯏ; ꯃꯍꯥꯛꯀꯤ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯃꯁꯤꯒꯤ ꯗꯦꯇꯥ ꯂꯧꯈꯠꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯣꯀꯨꯃꯦꯟꯇꯀꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯍꯥꯌꯕꯥ ꯌꯥꯏ॥ ꯑꯍꯦꯟꯕ 6C-ꯗ ꯁꯔꯨꯛ 6 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 9-ꯗ ꯌꯥꯊꯪ ꯄꯤꯔꯤꯕ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯗ꯭ꯔꯣꯢꯡꯁꯤꯡ (standard drawing) ꯌꯥꯎꯔꯤ; ꯑꯗꯨꯕꯨ ꯃꯁꯤꯡ ꯀꯌꯥ ꯍꯧꯖꯤꯛ "ꯗꯤꯖꯥꯏꯅꯗ ꯁꯣꯌꯗꯅ ꯇꯥꯛꯀꯗꯕ" ("to be confirmed in design") ꯍꯥꯌꯅ ꯃꯈꯜ ꯇꯥꯛꯂꯤ॥ ꯇꯦꯕꯜ 6-1 ꯑꯁꯤ ꯗꯥꯏꯇꯦꯛ ꯇꯦꯕꯜ ꯑꯃꯅꯤ: ꯃꯁꯤꯗꯥ [ꯀ꯭ꯂꯣꯖ 6.15]-ꯗ ꯃꯁꯛ ꯇꯥꯛꯄꯁꯤꯡ ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯛꯏ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯗ ꯄꯥꯟꯗꯝ ꯑꯃꯗꯥ ꯍꯦꯟꯅ ꯃꯌꯥꯝ ꯍꯥꯏꯕꯅꯤ॥

ꯑꯍꯦꯟꯕ 6A — ꯃꯂꯤꯌꯥꯔꯒꯤ ꯂꯝꯕꯤꯁꯤꯡꯒꯤꯗꯃꯛ ꯀꯦꯄꯥꯁꯤꯇꯤ ꯀꯔꯚꯁꯤꯡꯒ ꯂꯣꯌꯅꯅ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯏꯟꯂꯦꯠ ꯃꯍꯩꯁꯤꯡ (ꯒ꯭ꯔꯦꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯒ)

[ꯁꯔꯨꯛ 6]-ꯒꯤ [ꯀ꯭ꯂꯣꯖ] 6.6.1-ꯗꯒꯤ 6.6.7 ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ [ꯁꯔꯨꯛ 9]-ꯒꯤ [ꯀ꯭ꯂꯣꯖ] 9.11-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯁꯦꯝ ꯁꯥꯒꯗꯕ. ꯑꯍꯦꯟꯕ ꯑꯁꯤꯗ ꯃꯂꯤꯌꯥꯔꯒꯤ ꯂꯝꯕꯤꯁꯤꯡꯒꯤꯗꯃꯛ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯏꯟꯂꯦꯠ ꯃꯍꯩꯁꯤꯡꯒꯤ ꯑꯣꯏꯕ ꯂꯝꯕꯤ ꯑꯃꯈ (ꯀꯔꯕ-ꯑꯣꯄꯅꯤꯡ (kerb-opening), ꯒ꯭ꯔꯦꯠ (grate) ꯑꯃꯁꯨꯡ ꯀꯝꯕꯤꯅꯦꯁꯟ (combination) ꯏꯟꯂꯦꯠꯁꯤꯡ, ꯀꯚꯔ ꯇꯧꯔꯕ ꯗ꯭ꯔꯦꯟ (covered drain) ꯑꯃꯗ ꯌꯥꯎꯕ ꯂꯝꯕꯤꯒꯤ ꯂꯦꯡꯈꯣꯡꯒꯤ ꯌꯥꯝꯅ ꯑꯣꯄꯅꯤꯡ ꯐꯥꯑꯣꯗ) ꯑꯃꯁꯨꯡ, ꯃꯍꯩ ꯄꯨꯝꯅꯃꯛꯀꯤꯗꯃꯛ, ꯒ꯭ꯔꯦꯗꯇ (on grade) ꯑꯃꯁꯨꯡ ꯁꯦꯒ (sag; ꯂꯝꯕꯤꯒꯤ ꯂꯦꯃꯕ ꯃꯐꯝ) ꯑꯃꯗ ꯀꯦꯄꯥꯁꯤꯇꯤ ꯀꯔꯚꯁꯤꯡ ꯐꯥꯑꯣꯒꯅꯤ॥ ꯃꯁꯤꯒꯤꯗꯃꯛ ꯂꯝꯕꯤꯒꯤ ꯃꯌꯥꯛ ꯑꯍꯟꯕ ꯑꯦꯂꯦꯃꯦꯟꯇꯁꯤꯡꯒ ꯐꯤꯂꯕ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯏꯟꯂꯦꯠ ꯂꯤꯑꯣꯃꯦꯠ꯭ꯔꯤꯁꯤꯡꯒꯤ ꯇꯤꯌꯥꯁ ꯌꯥꯎꯕ ꯁꯦꯠ ꯑꯃꯈ, ꯑꯃꯁꯨꯡ ꯂꯤꯑꯣꯃꯦꯠ꯭ꯔꯤ ꯑꯃꯠꯁꯤꯡꯒꯤ ꯕꯦꯌꯤꯡ ꯌꯦꯡꯁꯤꯡ (ꯂꯦꯕꯣꯔꯦꯇꯔꯤ ꯂꯧꯕꯥꯛ ꯇꯦꯁ꯭ꯠ-ꯁꯃꯗꯦꯜ), ꯂꯧꯕꯥꯛ ꯌꯦꯡꯁꯤꯡꯒꯤ ꯐꯤꯗꯃꯅꯂꯗ ꯐꯦꯗ ꯌꯥꯎꯕ ꯂꯤꯑꯣꯃꯦꯠ꯭ꯔꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ HEC-22 ꯀꯦꯂꯀꯨꯂꯦꯁꯅꯁꯤꯡ ꯃꯁꯛ ꯇꯥꯛꯏ (ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯗꯕ ꯍꯧꯔꯛꯄꯁꯤꯡ: ꯄꯕ꯭ꯂꯤꯛ ꯋꯥꯔꯛꯁ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Public Works Department; PWD), ꯂꯣꯀꯦꯜ-ꯍꯥꯏꯋꯦ ꯑꯦꯖꯦꯟꯁꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯃꯐꯥꯜ ꯃꯅꯨꯡꯁꯤꯁꯦꯜ ꯀꯥꯡꯂꯨꯄꯁꯤꯡꯒꯤ ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯗꯤꯖꯥꯏꯅꯁꯤꯡ, NIT ꯃꯅꯤꯄꯨꯔ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯚꯔꯁꯤꯇꯤ, ꯃꯍꯥꯛꯀꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯇꯦꯁ꯭ꯇꯤꯡꯒꯤ ꯐꯤꯕ ꯑꯁꯤ ꯔꯤꯁꯔꯆꯀꯤ ꯃꯇꯦꯡꯅ ꯀꯅꯐꯔꯝ ꯇꯧꯒꯗꯕ [TBC], ꯂꯧꯕꯥꯛ ꯑꯗꯨꯕꯨ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯂꯦꯕꯣꯔꯦꯇꯔꯤꯁꯤꯡ, ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯔꯁꯤꯡꯒꯤ ꯇꯦꯁ꯭ꯠ ꯇꯧꯕ ꯔꯦꯇꯤꯡꯁꯤꯡ)॥ ꯃꯁꯤ ꯐꯥꯑꯣꯕꯗꯥ, ꯇꯦꯁ꯭ꯇꯇ ꯌꯥꯎꯗꯕ ꯇꯧꯔꯕ ꯏꯟꯂꯦꯠ ꯑꯃꯒꯤ ꯁꯦꯡꯂꯕ ꯀꯦꯄꯥꯁꯤꯇꯤ (clean capacity) FHWA HEC-22 (ꯑꯦꯗꯤꯁꯟ 4, 2024)-ꯒꯤ ꯃꯊꯧꯁꯤꯡꯗ ꯂꯧꯕꯥꯛ ꯂꯤꯑꯣꯃꯦꯠ꯭ꯔꯤ ꯑꯃꯃꯛꯀꯤꯗꯃꯛ ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯔꯒꯤ ꯇꯦꯁ꯭ꯠ ꯇꯧꯕ ꯔꯦꯇꯤꯡꯗꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯠ ꯇꯧꯒꯅꯤ ([ꯀ꯭ꯂꯣꯖ] 6.6.2), ꯃꯗꯨ ꯇꯦꯕꯜ 6.5-ꯒꯤ ꯀ꯭ꯂꯣꯒꯤꯡ ꯐꯦꯛꯇꯔꯁꯤꯡꯗꯒꯤ (clogging factor) ꯍꯟꯊꯍꯟꯒꯅꯤ ([ꯀ꯭ꯂꯣꯖ] 6.6.3), ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 6A.1-ꯒꯤ ꯃꯇꯝ ꯅꯥꯏꯒꯤ ꯃꯁꯛ ꯇꯥꯛꯄꯁꯤꯡ ꯃꯌꯣꯛ ꯐꯍꯅꯕꯒꯅꯤ॥

ꯇꯦꯕꯜ 6A.1 — ꯑꯍꯦꯟꯕ 6A ꯐꯥꯑꯣꯕꯗꯥ ꯃꯊꯧ ꯇꯥꯔꯤꯕ ꯏꯟꯂꯦꯠꯁꯤꯡꯒꯤ ꯃꯇꯝ ꯅꯥꯏꯒꯤ ꯃꯁꯛ ꯇꯥꯛꯄꯁꯤꯡ (ꯁꯔꯨꯛ 6 ꯑꯃꯁꯨꯡ 9-ꯗꯒꯤ)

ꯑꯏꯇꯦꯝ	ꯃꯁꯛ ꯇꯥꯛꯄ	[ꯀ꯭ꯂꯣꯖ]
ꯄꯕ꯭ꯂꯤꯛ ꯂꯝꯕꯤꯁꯤꯡꯗ ꯏꯟꯂꯦꯠꯀꯤ ꯃꯍꯩ	ꯀꯔꯕ-ꯑꯣꯄꯅꯤꯡ ꯂꯧꯕꯥꯛ ꯀꯝꯕꯤꯅꯦꯁꯟ ꯏꯟꯂꯦꯠꯁꯤꯡ; ꯑꯣꯄꯅꯤꯡ ꯑꯦꯛꯁꯦꯁꯤꯕꯜ ꯃꯐꯝ ꯑꯃꯒꯤꯗꯃꯛ ꯒ꯭ꯔꯦꯠ ꯌꯥꯎꯕ ꯏꯟꯂꯦꯠꯁꯤꯡ ꯌꯥꯕꯗꯤ ꯃꯇꯧ ꯌꯥꯏ	6.6.1(a)
ꯏꯟꯂꯦꯠꯀꯤ ꯂꯦꯡꯈꯣꯡ	ꯂꯝꯕꯤꯒꯤ ꯂꯦꯡꯈꯣꯡꯗ ꯑꯣꯄꯅꯤꯡꯁꯤꯡ; ꯁꯦꯠ ꯌꯥꯕ ꯃꯐꯝꯗ ꯒ꯭ꯔꯦꯗ ꯗꯤꯁꯏꯅꯦꯁꯟ	6.6.1(b)

ꯑꯥꯏꯇꯦꯝ	ꯃꯃꯜ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯀ꯭ꯂꯤꯟ ꯀꯦꯄꯥꯁꯤꯇꯤ	FHWA HEC-22 (ꯑꯦꯗꯤꯁꯟ 4, 2024) ꯅꯠꯇ꯭ꯔꯒꯥ ꯂꯤꯑꯥꯍꯦꯄꯔꯤ ꯑꯁ꯭ꯍꯝꯀꯤ ꯍꯦꯜꯌꯦꯝꯌꯔꯔꯒꯤ ꯄꯦꯂꯠ ꯄꯥꯔꯕ ꯔꯦꯄꯤꯡ; CPHEEO §5.6.2-ꯒꯤ ꯅꯀ꯭ꯌꯦꯂꯦꯂꯤꯡ ꯀ꯭ꯔꯥꯂ-ꯌꯦꯝ ꯑꯥꯍꯠ ꯍꯝꯄ	6.6.2
ꯀ꯭ꯂꯣꯒꯤꯡ, ꯒ꯭ꯔꯦꯇꯁ	ꯒ꯭ꯔꯦꯠ 50%; ꯀꯔꯕ ꯑꯥꯄꯅꯤꯡ 10%	6.6.3, ꯇꯦꯕꯜ 6.5
ꯀ꯭ꯂꯣꯒꯤꯡ, ꯂꯦꯒ ꯑꯈꯗ	ꯒ꯭ꯔꯦꯠ 50%; ꯀꯔꯕ ꯑꯥꯄꯅꯤꯡ 20%	6.6.3, ꯇꯦꯕꯜ 6.5
ꯁ꯭ꯄꯦꯁꯤꯡ (spacing)	ꯒꯇꯔ ꯔꯦ ꯁ꯭ꯂꯤꯡꯒꯠꯀꯤ ꯒꯍꯠꯄꯒꯤ ꯍꯥꯂꯥ ꯒꯍꯦ ꯒꯍꯦꯂꯥ ꯀꯦꯜꯀ꯭ꯀꯦꯂꯦ ꯄꯥꯂꯥ; ꯀꯔꯕ ꯂꯕ ꯂꯝꯕꯤꯁꯤꯡꯗ 30 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ	6.6.4
ꯀꯔꯕ ꯑꯥꯄꯂꯤꯡꯒꯤ ꯑꯍꯂ	ꯀ꯭ꯂꯤꯌꯔ ꯍꯏꯉ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯅꯦꯝꯕꯗ 100 mm; ꯂꯦꯡꯐ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯅꯦꯝꯕꯗ 1.0 m	9.11.4
ꯒ꯭ꯔꯦꯠꯀꯤ ꯁꯦꯄꯔꯦ	ꯍꯦꯜꯂꯤꯕ ꯑꯍꯥꯀꯤꯒ ꯁꯦꯔꯦꯂꯦꯜ ꯑꯥꯍꯕ ꯑꯥꯄꯂꯤꯡꯂꯤꯡ 25 mm-ꯗꯒꯤ ꯁꯤꯑꯂꯥꯍꯗꯕ	9.11.3(a)
ꯂꯥꯗ ꯀ꯭ꯂꯥꯁ	ꯀꯦꯔꯤꯍꯦꯂꯍꯦ ꯑꯈꯡꯄꯨ ꯈꯤꯗꯤꯍꯦꯟꯂꯤꯡꯗ D400; ꯀꯔꯕꯇꯒꯤ 0.5 m-ꯒꯤ ꯈꯨꯡꯗ C250; ꯐꯨꯠꯄꯥꯊ ꯑꯈꯡꯄꯨ ꯂꯍꯀꯜ ꯇꯔꯦꯀꯂꯤꯡꯗ B125 (ꯅꯠꯇ꯭ꯔꯒꯥ ꯈꯦꯂꯕ IS ꯀ꯭ꯂꯥꯁ)	9.11.2
ꯀꯦꯒꯦꯜ ꯁꯍꯁ	ꯗꯍꯈꯤꯔ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯅꯦꯝꯕꯗ 300 mm; ꯍꯦꯂꯦꯠꯀꯤ ꯗꯤꯂꯍꯦ ꯐ꯭ꯂꯣꯗ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯅꯦꯝꯕꯗ 0.9 m/s ꯁꯤꯕ ꯒꯦꯗꯤꯔꯦꯠ	6.6.6
ꯁꯤꯜꯇꯀꯤ ꯁꯝꯞ (silt sump)	ꯑꯣꯌꯦꯝꯕ ꯁꯤꯍꯁꯀꯤ ꯍꯦꯔꯦꯡꯕꯀꯤ ꯈꯍꯗ ꯈ꯭ꯋꯥꯏꯗꯒꯤ ꯅꯦꯝꯕꯗ 300 mm ꯆꯕ, ꯒꯍꯠꯄꯒꯤ ꯃꯦꯡꯗꯥꯠꯁ ꯍꯕ	6.6.7, 9.11.6

ꯑꯍꯦꯕ ꯑꯃꯤꯒꯤ ꯁꯤꯗꯝ ꯑꯥꯍꯕ ꯂꯦꯑꯣꯌꯦ ꯑꯃꯤ ꯇꯦꯕꯜ 6A.2-ꯗꯒꯤ 6A.4 ꯐꯥꯑꯣꯕꯗ ꯁꯤꯒꯤꯕ꯫

ꯇꯦꯕꯜ 6A.2 — ꯁ꯭ꯇꯦꯁꯟꯗꯕꯗ ꯍꯦꯂꯦꯠ ꯒꯍꯜꯁꯤꯡꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔ (ꯇꯦꯝꯄ꯭ꯂꯦꯠ)

ꯒꯍꯜꯒꯤ ꯀꯥꯗ	ꯃꯈꯜ	ꯒ꯭ꯔꯦꯠꯀꯤ ꯁꯍꯂ ꯅꯠꯇ꯭ꯔꯒꯥ ꯀꯔꯕ ꯑꯥꯄꯂꯤꯡ (mm)	ꯒꯇꯔ ꯗꯤꯞꯔꯦꯁꯟ (mm)	ꯂꯥꯗ ꯀ꯭ꯂꯥꯁ	ꯁ꯭ꯇꯦꯁꯟꯗꯕꯗ ꯗ꯭ꯔꯥꯍꯝ
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ꯇꯦꯕꯜ 6A.3 — ꯒ꯭ꯔꯦꯠ ꯀꯦꯄꯥꯁꯤꯇꯤ (ꯇꯦꯝꯄ꯭ꯂꯦꯠ; ꯍꯦꯂꯦꯠ ꯒꯍꯜ ꯁ꯭ꯂꯤꯡꯒꯠꯀꯤꯒꯠ ꯇꯦꯕꯜ ꯑꯒꯒ)

ꯀ꯭ꯔꯣꯁ ꯁ꯭ꯂꯣꯞ Sx (m/m)	ꯂꯣꯡꯒꯤꯇ꯭ꯌꯨꯗꯤꯅꯦꯜ ꯁ꯭ꯂꯣꯞ SL (m/m)	ꯒꯇꯔ ꯐ꯭ꯂꯣ Q (L/s)	ꯁ꯭ꯞꯔꯦꯗ T (m)	ꯒ꯭ꯔꯦꯠ ꯐ꯭ꯔꯟꯇꯦꯜ ꯐ꯭ꯂꯣ (L/s)	ꯁꯥꯏꯗ ꯐ꯭ꯂꯣ ꯐ꯭ꯂꯣ (L/s)	ꯇꯣꯇꯦꯜ ꯐ꯭ꯂꯣ (L/s)
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

ꯇꯦꯕꯜ 6A.4 — ꯂꯦꯒ ꯑꯈꯗ ꯀꯦꯄꯥꯁꯤꯇꯤ (ꯇꯦꯝꯄ꯭ꯂꯦꯠ; ꯍꯦꯂꯦꯠ ꯒꯍꯜ ꯁ꯭ꯂꯤꯡꯒꯠꯀꯤꯒꯠ ꯇꯦꯕꯜ ꯑꯒꯒ)

ꯑꯦꯐꯦꯛꯇꯤꯕ ꯑꯣꯄꯅꯤꯡ ꯂꯦꯡꯊ (mm)	ꯀ꯭ꯂꯤꯟ ꯀꯦꯄꯥꯁꯤꯇꯤ (L/s)	ꯀ꯭ꯂꯣꯒꯤꯡ ꯐꯦꯛꯇꯔ (ꯇꯦꯕꯜ 6.5)	ꯗꯤꯖꯥꯏꯟ ꯀꯦꯄꯥꯁꯤꯇꯤ (L/s)	ꯐ꯭ꯂꯣ ꯆꯦꯛ (ꯄꯥꯁ, ꯐꯦꯜ ꯅꯠꯇ꯭ꯔꯒꯥ ꯔꯤꯚꯥꯏꯖ)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

ꯑꯍꯦꯅꯕ 6B — ꯁꯤꯜꯠ ꯇ꯭ꯔꯦꯞꯀꯤ ꯁꯥꯏꯖ ꯂꯦꯄꯂꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯂꯣꯋꯦꯟꯁꯀꯤ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯅꯒꯤꯗꯃꯛ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯌꯤꯜꯗ

ꯁꯔꯨꯛ 6-ꯒꯤ ꯀ꯭ꯂꯣꯖ 6.7.4, 6.7.8, 6.13.3 ꯑꯃꯁꯨꯡ 6.13.10-ꯗ ꯃꯌꯦꯛ ꯁꯦꯡꯅ꯫

ꯁꯦꯝ ꯁꯣꯛꯗꯕ. ꯑꯍꯦꯅꯕ ꯑꯁꯤꯗ ꯃꯂꯤꯡꯒꯤ ꯁꯍꯒꯤ ꯈꯣꯡꯕꯦꯂꯤꯡꯒꯤ (drain) ꯁꯦꯗꯤꯃꯦꯟꯠ ꯌꯤꯜꯗꯁꯤꯡ, ꯂꯃ ꯁꯤꯂꯤꯡꯂꯕ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯦꯒꯤ ꯃꯅꯥ ꯃꯌꯨꯡ ꯅꯦꯂ, ꯀ꯭ꯂꯣꯖ 6.13.3-ꯒꯤ ꯁꯤꯜꯠ ꯇ꯭ꯔꯦꯞꯁꯤꯡꯒꯤ (silt trap) ꯁꯥꯏꯖ ꯂꯦꯄꯂꯕ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 6.7.8-ꯒꯤ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯂꯣꯋꯦꯟꯁ (sediment allowance) ꯑꯁꯤ ꯍꯧꯡ ꯂꯦꯄꯂꯕ ꯂꯩꯃꯒꯤ ꯗꯦꯄꯊꯣꯛꯁꯤꯡꯗ ꯍꯧꯗꯃꯂꯩꯗ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯇꯧꯕ ꯑꯃꯛ ꯍꯥꯄꯒꯗꯤ꯫ ꯃꯁꯤꯒꯤꯗꯃꯛ ꯂꯩꯃ ꯂꯩꯇꯣꯡꯄꯒꯤ (desilting) ꯄꯦꯀꯣꯄꯗꯁꯤꯡ (ꯈꯣꯡꯕꯦꯒꯤ ꯂꯦꯡꯇ ꯀꯗꯤꯡꯃꯛ ꯑꯃꯁꯨꯡ ꯀꯦꯍꯃꯦꯜ ꯑꯦꯄꯤꯍ ꯀꯗꯤꯡꯃꯛꯇ ꯂꯩꯇꯣꯡꯅꯤꯕ ꯒꯣꯂꯃ ꯂꯠꯄꯒꯤ ꯃꯩ, ꯇꯡꯁꯤꯡꯒꯤ ꯂꯣꯍꯂꯂ), ꯃꯣꯄꯨꯄ ꯃꯇꯃꯒꯤ ꯃꯃꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯨꯡꯗ ꯂꯩꯃꯒꯤ ꯗꯦꯄꯊꯣꯛꯀꯤ ꯁꯄꯒꯦꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯦꯍꯃꯦꯜꯀꯤ ꯂꯃ ꯁꯤꯂꯤꯡꯂꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯅꯒꯤ ꯗꯦꯇ ꯃꯊ ꯇꯅ (ꯗꯦꯇ ꯑꯃꯁꯨꯡ ꯏꯡꯒꯗꯕ ꯍꯄꯣꯏꯉꯁꯤꯡ: ꯅꯃꯏꯅ ꯃꯌꯨꯂꯤꯁꯤꯔꯦꯅ ꯀꯣꯄꯔꯣꯄꯦꯁꯦ ꯑꯃꯁꯨꯡ ꯑꯇꯔꯔ ꯇꯄꯕꯦ ꯂꯣꯀꯅ ꯕꯣꯗꯤꯁꯤꯡꯒꯤ ꯂꯩꯃ ꯂꯩꯇꯣꯡꯄꯒꯤ ꯄꯦꯀꯣꯄꯗꯁꯤꯡ, ꯍꯦꯂꯦꯅꯁꯤꯡꯒꯤ WRD ꯄꯦꯀꯣꯄꯗꯁꯤꯡ, NRSC-ꯗꯒꯤ ꯂꯦꯡꯗ ꯀꯒꯄ, ꯃꯂꯤꯡꯂꯄ ꯁꯣꯅꯅ ꯁꯄꯒꯦ ꯑꯃꯁꯨꯡ NBSS&LUP-ꯗꯒꯤ ꯂꯩꯃꯅꯒꯤ ꯗꯦꯇ, IMD-ꯗꯒꯤ ꯂꯣꯡ ꯂꯕ)꯫ ꯃꯁꯤ ꯑꯣꯡꯗꯣꯂꯣꯠꯄꯤꯏꯇꯕ, ꯁꯤꯜꯠ ꯇ꯭ꯔꯦꯞ ꯀꯗꯤꯡꯃꯛꯀꯤ ꯁꯥꯏꯖ ꯑꯁꯤ ꯁꯦꯇꯔꯅ ꯇꯄꯕ ꯁꯦꯡꯗꯣꯔꯣꯁꯤꯡꯒꯤ ꯃꯄꯣꯇ ꯂꯣꯀꯂꯤ ꯍꯔꯂ ꯂꯂꯕ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯌꯤꯜꯗꯁꯤꯡ ꯗꯤꯂꯅꯂꯦꯂ ꯍꯅꯄꯕ ꯑꯦꯁꯤꯃꯦꯇꯁꯤꯒꯤ ꯂꯦꯔꯣꯂꯤꯜ, ꯃꯁ ꯈꯣꯡꯕꯦ ꯑꯁꯃꯣ ꯂꯩꯄꯒꯤ ꯂꯣꯀꯅ ꯕꯣꯗꯤ ꯑꯁꯃꯣꯇ ꯂꯅ ꯃꯦꯂꯂꯕ ꯈꯣꯡꯕꯦꯂꯤꯡꯒꯤ ꯂꯩꯃ ꯂꯩꯇꯣꯡꯄꯒꯤ ꯄꯦꯀꯣꯄꯗꯁꯤꯡꯗ ꯂꯃꯗꯃ ꯑꯣꯅꯒꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯂꯍꯤꯕ ꯁꯦꯡꯗꯣꯔꯣꯒꯤ ꯅꯦꯇꯄꯒꯦꯅ ꯍꯅꯕꯤꯂ; ꯅꯦꯇꯄꯒꯦꯅ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 6.13.10-ꯒꯤ ꯍꯍꯤ ꯀꯗꯤꯡꯒꯤ ꯁꯥꯏ-ꯃꯦꯂꯦ ꯂꯩꯃ ꯂꯩꯇꯣꯡꯄꯗꯒꯤ ꯁꯣꯄꯅꯗꯕꯂꯤ꯫ ꯅꯦꯂꯦꯠꯄꯤ ꯂꯩꯃꯒꯤ ꯁꯃꯁꯤꯡ ꯂꯕꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ 300 mm ꯂꯦꯄꯤ (ꯀ꯭ꯂꯣꯖ 6.6.7), ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 6.7.8-ꯒꯤ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯂꯣꯋꯦꯟꯁ ꯑꯁꯤ ꯍꯣꯗꯣꯂꯦ ꯍꯠꯂꯤ꯫

ꯁꯦꯗꯃ ꯑꯅꯕ ꯇꯑꯣ ꯑꯁꯤ ꯂꯅꯕ ꯒꯣꯂꯃ ꯕꯦꯂꯦꯂ ꯑꯃꯂꯤ, ꯃꯁꯤꯗ ꯍꯦꯡꯕ ꯒꯦꯄꯤꯑꯦꯕꯅ ꯀꯗꯤꯡꯃꯛ ꯗꯤꯂꯅꯦꯗ ꯍꯅꯒꯗꯕꯂꯤ:

> V_trap = Y · A · t_c

ꯃꯁꯤꯗ V_trap ꯑꯁꯤ ꯇ꯭ꯔꯦꯞ ꯑꯁꯒꯤ ꯂꯦꯡꯠꯂꯦꯠ ꯅꯦꯒꯄꯠꯀꯤ ꯃꯅꯗ ꯂꯩꯕ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯁꯣꯅꯦꯂ ꯒꯣꯂꯃꯂꯤ (m³), Y ꯑꯁꯤ ꯀꯦꯍꯃꯦꯜꯀꯤ ꯂꯃ ꯁꯤꯂꯤꯡꯂꯕ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯦꯒꯤ ꯃꯅꯥꯒꯤ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯌꯤꯜꯗꯂꯤ (m³/ha ꯍꯍꯤ ꯀꯗꯤꯡꯗ, ꯇꯦꯕꯜ 6B.2 ꯑꯣꯡꯗꯣꯂꯕ ꯃꯌꯨꯡꯗ ꯃꯁꯗꯒꯤ), A ꯑꯁꯤ ꯇ꯭ꯔꯦꯞ ꯑꯁꯗ ꯅꯁꯤꯡ ꯍꯦꯂꯕ ꯀꯦꯍꯃꯦꯜ ꯑꯦꯄꯤꯍꯂꯤ (ha), ꯑꯃꯁꯨꯡ t_c ꯑꯁꯤ ꯁꯦꯡꯗꯣꯔꯣ ꯇꯄꯕ ꯁꯦꯡꯗꯣꯔꯣꯒꯤ ꯅꯦꯇꯄꯒꯦꯅꯂꯤ (ꯍꯍꯤ)꯫ ꯁꯦꯑꯣꯤ ꯃꯄꯂꯤꯂꯦ ꯑꯃ ꯍꯁꯍꯤꯂꯦꯗꯄꯦ ꯍꯔꯕꯁ ꯑꯍꯦꯅꯕ ꯑꯁꯤꯂ ꯍꯅꯒꯂꯤ꯫

ꯇꯦꯕꯜ 6B.1 — ꯁꯔꯨꯛ 6-ꯗ ꯂꯃꯂꯕ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯂꯣꯋꯦꯟꯁꯁꯤꯡ (ꯀꯨꯝ ꯑꯃꯒꯤ, ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯃꯃꯥꯡ)

ꯑꯦꯂꯤꯃꯦꯟꯠ	ꯅꯣꯃꯤꯅꯦꯜ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯂꯣꯋꯦꯟꯁ	ꯀ꯭ꯂꯣꯖ
ꯍꯣꯗꯣꯂꯕ ꯑꯃꯁꯨꯡ ꯀꯒꯄ ꯇꯄꯕ ꯈꯣꯡꯕꯦꯁꯤꯡ	75 mm ꯑꯃꯁꯨꯡ ꯀꯂꯤꯍꯄ ꯅꯦꯇꯄꯂꯦ ꯗꯦꯄꯊꯣꯛ 10%-ꯒꯤ ꯃꯄꯣꯇ ꯍꯦꯂꯦ ꯍꯧꯡꯕ ꯑꯁ	6.7.8(a)
ꯗꯅꯃꯤꯇꯄ 600 mm ꯂꯦꯄꯤ ꯃꯁꯗꯒꯤ ꯍꯦꯕ ꯁꯅꯁꯤꯡ	ꯅꯦꯇꯄꯂꯦ ꯗꯅꯃꯤꯇꯄꯒꯤ 5%	6.7.8(b)
600 mm-ꯗꯒꯤ ꯂꯦꯃꯕ ꯁꯅꯁꯤꯡ	ꯑꯦꯂꯣꯋꯦꯟꯁ ꯂꯩꯇꯦ; ꯀ꯭ꯂꯣꯖ 6.7.3(a)-ꯒꯤ ꯃꯤꯂꯤꯃ ꯒꯦꯂꯁꯤꯇꯤ ꯍꯦꯂꯤ	6.7.8(c)
ꯃꯤꯂꯤꯃ ꯒꯦꯂꯁꯤꯇꯤ ꯍꯦꯕ ꯂꯃꯗꯕ ꯈꯣꯡꯕꯦ ꯑꯃꯁꯨꯡ ꯁꯅꯁꯤꯡ	ꯑꯦꯂꯣꯋꯦꯟꯁ ꯑꯂꯤ ꯇꯣꯇ ꯍꯦꯂꯦꯍꯦꯕ; ꯃꯦꯂꯂꯤꯗꯦꯅ ꯂꯩꯃ ꯂꯩꯇꯣꯡꯄꯒꯤ ꯑꯦꯇꯣꯁꯦꯁ ꯁꯤꯕ	6.7.4(b), (c)
ꯅꯦꯂꯦꯠꯄꯤ ꯂꯩꯃꯒꯤ ꯁꯃꯁꯤꯡ	ꯂꯦꯡꯠꯂꯦꯠ ꯁꯅꯁꯤ ꯅꯦꯒꯄꯠꯀꯤ ꯃꯅꯗ ꯂꯕꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ 300 mm	6.6.7

ꯇꯦꯕꯜ 6B.2 — ꯂꯃ ꯁꯤꯂꯤꯡꯂꯕ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯦꯒꯤ ꯃꯅꯥ ꯃꯌꯨꯡ ꯅꯦꯂ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯌꯤꯜꯗ (ꯂꯦꯑꯣꯠ)

ꯇꯝ ꯁꯤꯇꯤꯐꯇꯕ ꯇꯧꯔꯛꯄ ꯃꯥꯍꯀꯥꯐꯧꯃꯤ ꯀꯍꯅ	ꯍꯦꯛꯇꯔꯒꯤ ꯀꯍꯅ	ꯁꯥꯃꯤꯀꯥꯐꯧ ꯍꯤꯅꯃ Y (m³/ha ꯍꯥꯃꯤ ꯅꯃꯤꯄꯃ)	ꯕꯇꯒ ꯃꯥꯐꯁꯤꯌꯤ (t/m³)	ꯇꯦꯝꯅ ꯕꯦꯃꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯇꯤꯐꯇꯍꯤꯕ ꯄꯥꯃꯦꯄꯃꯁꯤꯡ	ꯄꯥꯃꯦꯄꯃꯁꯤꯡ ꯍꯥꯤꯁꯤꯡ
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ꯇꯦꯕꯜ 6B.3 — ꯁꯥꯃꯤꯀꯥꯐꯧ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇꯁꯤꯡ ꯃꯥꯇꯤꯕ꯭ꯔꯥꯁꯟ (ꯇꯦꯝꯞꯂꯦꯠ)

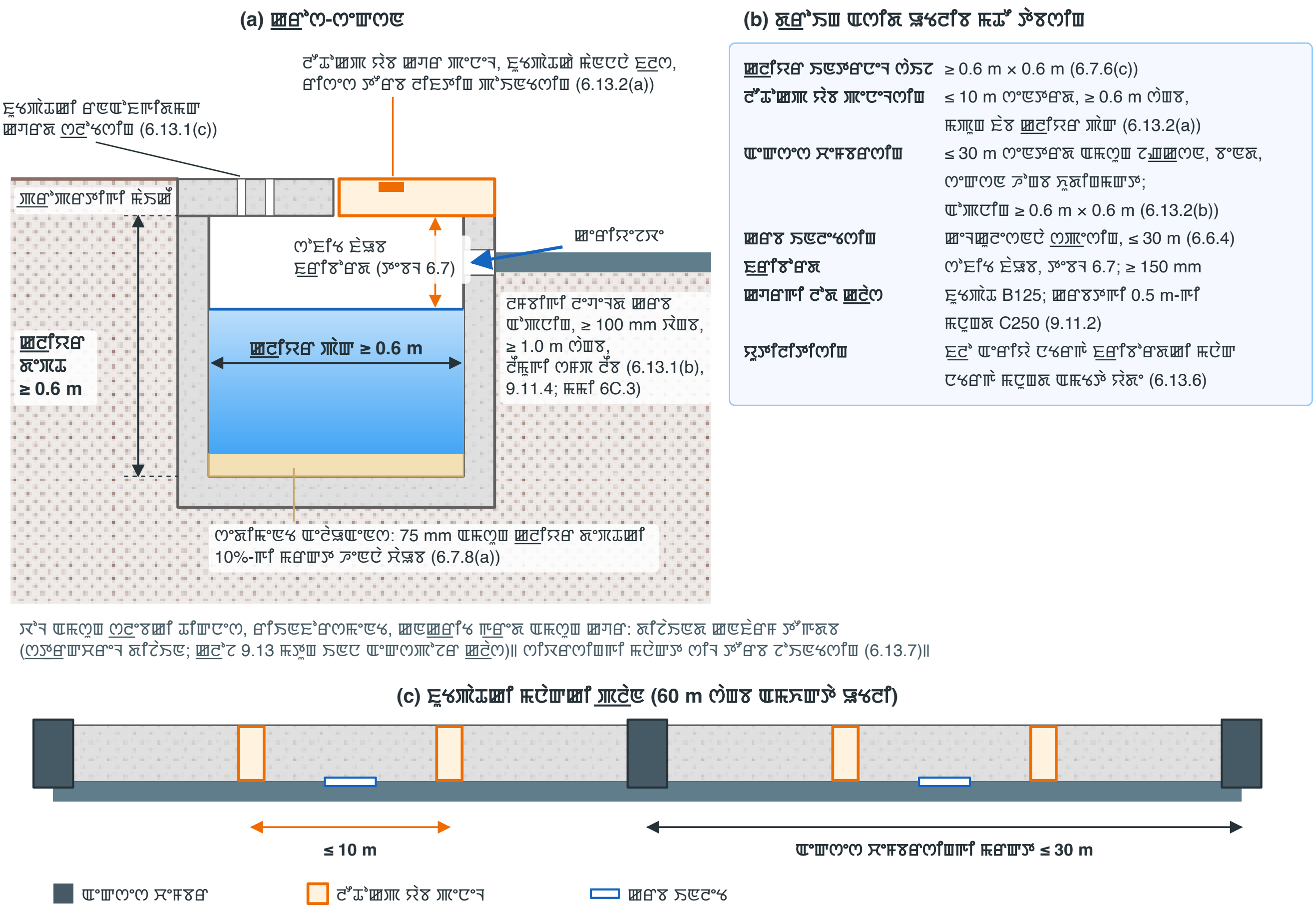
ꯍꯦꯛꯇꯔ ꯇꯧꯔꯛꯄ ꯁꯤꯡꯁꯤꯡ ID	ꯃꯇꯤꯡꯄ ꯍꯐꯅꯄꯇꯦꯟ ꯃꯥꯁꯖ ꯇꯧꯔꯛꯄ ꯃꯍꯀꯤꯅꯄ (mm)	ꯁꯦꯛꯁꯟ 6.7.8 ꯀꯍꯅ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠ (mm)	ꯁꯤꯡꯄꯤ-ꯀꯦꯐꯂꯐ ꯇꯨꯛ ꯇꯖꯒꯔꯄꯤꯛꯅ ꯍꯦꯃ ꯇꯥꯁꯇꯕ ꯇꯨꯛꯂꯒꯤ ꯃꯥꯁꯖ (mm)	ꯀꯦꯐꯂꯐ ꯇꯅꯄꯕ ꯀꯅꯃꯃ ꯍꯦꯃ ꯇꯥꯁꯇꯕ ꯇꯨꯛꯂꯒꯤ ꯃꯥꯁꯖ (mm)	ꯍꯦꯃ ꯇꯥꯁꯇꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯇꯁꯤꯡ ꯄꯥꯁꯤꯑꯦ
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ꯑꯦꯅꯦꯛꯁ 6C — ꯁꯦꯝꯄꯂꯤꯡ ꯃꯄꯥꯟꯗꯒꯤ: ꯇꯦꯖꯦꯁꯖ ꯍꯦꯕ ꯁꯒꯄꯁꯤꯡ ꯇꯨꯕ ꯁꯒꯄ ꯌꯥꯎꯕ ꯇꯝꯕꯤ ꯀꯇꯦꯒꯃꯤ ꯍꯦꯗꯕꯐ, ꯑꯦꯒꯁꯥꯁ ꯍꯥꯝꯕꯄ, ꯇꯨꯛꯂꯒꯤ ꯁꯝꯖ ꯇꯨꯕ ꯅꯐꯇꯥꯧ

ꯆꯦꯞꯇꯔ 6-ꯒꯤ ꯁꯦꯛꯁꯟ 6.6, 6.7.6-ꯗꯒꯤ 6.7.10 ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ 6.13, ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 9-ꯒꯤ ꯁꯦꯛꯁꯟ 9.11 ꯑꯃꯁꯨꯡ 9.12-ꯗ ꯀꯌꯥꯒ ꯖꯦꯠꯅ꯫

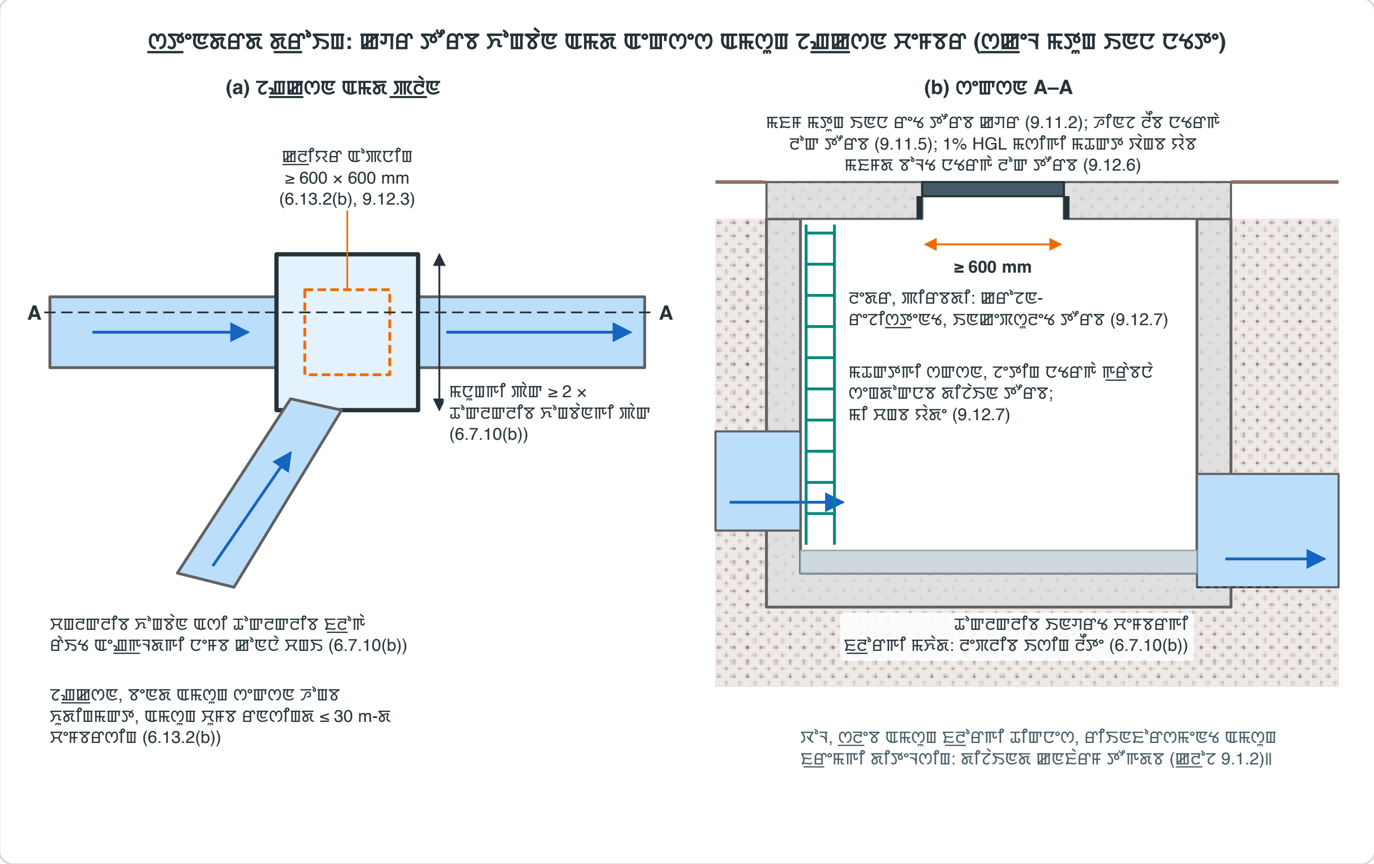
ꯀꯅꯦꯗ ꯖꯤꯄꯤꯕ ꯃꯄꯥꯟꯗꯒꯤ ꯑꯁꯤ ꯁꯃꯤꯀꯥꯌꯤꯒ ꯁꯦꯝꯄꯂꯤꯡ ꯃꯄꯥꯟꯗꯒꯤꯇꯤ꯫ ꯀꯍꯥꯔꯇꯦ ꯆꯦꯞꯇꯔ 6 ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 9-ꯗꯦ ꯊꯝꯕ ꯀꯅꯀꯥꯐꯁꯐꯁꯤꯡ ꯍꯒꯌꯥꯒ ꯂꯧꯇꯤ꯫ ꯍꯦꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯇꯕꯃꯤ ꯊꯤꯒꯇꯥꯁ, ꯄꯤꯅꯐꯗꯦꯄꯁꯀꯥꯐꯧ, ꯃꯐꯃꯄꯤꯌꯃꯤ ꯒꯄꯥꯗ ꯑꯃꯁꯨꯡ ꯁꯒꯄ, ꯍꯥꯝꯕꯄꯒꯤ ꯖꯇꯦꯐ ꯁꯅꯇꯁꯤ ꯑꯃꯁꯨꯡ ꯗꯄꯥꯀꯒꯤ ꯗꯤꯌꯥꯅꯁꯤ ꯑꯁꯤ ꯗꯤꯇꯅꯐꯗ ꯃꯐꯗꯦꯄꯝ ꯌꯥꯒꯗꯕꯇꯤ: ꯀꯍꯥꯔ ꯑꯁꯤ ꯁꯦꯄꯒꯍꯄꯥꯟ ꯗꯤꯇꯅꯐ (ꯁꯦꯛꯁꯟ 9.1.2) ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 9.13-ꯒꯤ ꯑꯥꯒꯁꯖꯦꯇꯄ ꯃꯇꯦꯁꯌꯒꯤ ꯇꯦꯃꯅ꯫ ꯇꯦꯕꯜ 6C.1-ꯗꯦ ꯂꯧꯇꯤꯕ ꯀꯅꯀꯥꯐꯁꯐꯁꯤ ꯑꯃꯁꯨꯡ ꯀꯍꯥꯔꯒꯤ ꯍꯥꯄꯒꯖꯝ ꯑꯦꯅꯕ ꯁꯦꯛꯁꯟꯁꯤ ꯇꯤꯁꯧ ꯌꯥꯅ꯫

[illegible]: [illegible] (a) [illegible]



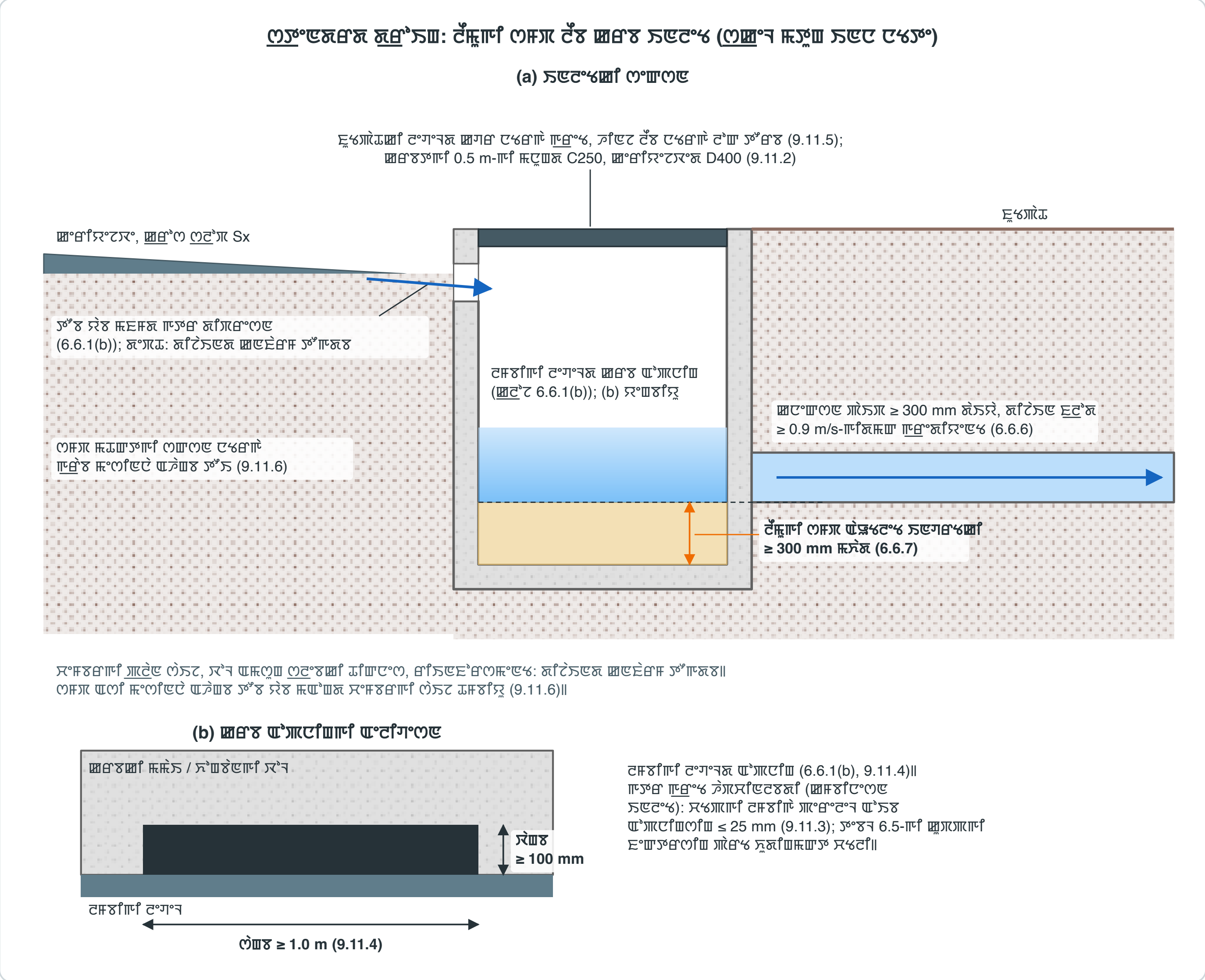
(a) [illegible]
[illegible] (6.13.1(c))
[illegible] (6.13.2(a))
[illegible] 6.7)
[illegible] ≥ 0.6 m
≥ 0.6 m
[illegible] ≥ 100 mm [illegible], ≥ 1.0 m [illegible] (6.13.1(b), 9.11.4; [illegible] 6C.3)
[illegible]: 75 mm [illegible] 10%-[illegible] (6.7.8(a))
(b) [illegible]
≥ 0.6 m × 0.6 m (6.7.6(c))
≤ 10 m [illegible], ≥ 0.6 m [illegible] (6.13.2(a))
≤ 30 m [illegible]
≥ 0.6 m × 0.6 m (6.13.2(b))
≤ 30 m (6.6.4)
6.7; ≥ 150 mm
B125; [illegible] 0.5 m-[illegible] C250 (9.11.2)
(6.13.6)
[illegible] 9.13 [illegible] (6.13.7)॥
(c) [illegible] (60 m [illegible])
≤ 10 m
≤ 30 m

[illegible] 6C.1 — [illegible], CPHEEO, Manual on Storm Water Drainage Systems (2019), Chapter 5, [illegible] IRC:SP:50-2013-[illegible]॥


ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯗ꯭ꯔꯣꯏꯡ: ꯀꯚꯔ ꯇꯧꯔꯕ ꯍꯣꯡꯕꯟ ꯑꯃꯗ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯁꯨꯡ ꯖꯉ꯭ꯀꯁꯟ ꯆꯦꯝꯕꯔ (ꯁ꯭ꯀꯦꯜ ꯃꯇꯨꯡ ꯏꯟꯅ ꯅꯠꯇꯦ)
(a) ꯖꯉ꯭ꯀꯁꯟ ꯑꯃꯗ ꯄ꯭ꯂꯥꯟ
(b) ꯁꯦꯛꯁꯟ A–A
ꯀ꯭ꯂꯤꯌꯔ ꯑꯣꯄꯅꯤꯡ
≥ 600 × 600 mm
(6.13.2(b), 9.12.3)
A
A
ꯃꯄꯨꯡꯒꯤ ꯄꯥꯛ ≥ 2 ×
ꯊꯣꯛꯂꯛꯂꯤꯕ ꯍꯣꯡꯕꯟꯒꯤ ꯄꯥꯛ
(6.7.10(b))
ꯆꯡꯂꯛꯂꯤꯕ ꯍꯣꯡꯕꯟ ꯑꯁꯤ ꯊꯣꯛꯂꯛꯂꯤꯕ ꯐ꯭ꯂꯣꯒꯤ
ꯔꯣꯏꯟꯀ ꯑꯦꯉ꯭ꯒꯜꯒꯤ ꯂꯦꯝꯕ ꯀꯣꯟꯅꯥ ꯊꯛꯍ (6.7.10(b))
ꯖꯉ꯭ꯀꯁꯟ, ꯕꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ ꯍꯣꯡꯕ
ꯍꯨꯗꯏꯤꯃꯛ, ꯑꯃꯁꯨꯡ ꯍꯨꯝꯕ ꯔꯦꯟꯁꯤꯡꯗ ≤ 30 m-ꯗ
ꯂꯦꯝꯕꯔꯁꯤꯡ (6.13.2(b))
ꯃꯊꯝ ꯃꯇꯨꯡ ꯏꯟꯅ ꯔꯦꯜ ꯇꯧꯔꯕ ꯀꯚꯔ (9.11.2); ꯏꯤꯟꯅ ꯂꯧꯕ ꯅꯛꯔꯀꯊ
ꯂꯥꯛ ꯇꯧꯔꯕ (9.11.5); 1% HGL ꯃꯁꯤꯒꯤ ꯃꯊꯛꯇ ꯕꯣꯛꯕ ꯏꯣꯕ
ꯃꯊꯝꯒ ꯕꯥꯜꯛ ꯅꯛꯔꯀꯊ ꯂꯥꯛ ꯇꯧꯔꯕ (9.12.6)
≥ 600 mm
ꯂꯦꯒꯔ, ꯄꯤꯔꯕꯒꯤ: ꯀꯔꯥꯅꯟ-
ꯔꯦꯅꯤꯁ꯭ꯇꯦꯟꯊ, ꯏꯟꯀꯦꯄꯨꯂꯦꯊ ꯇꯧꯔꯕ (9.12.7)
ꯃꯊꯛꯇꯒꯤ ꯁꯛꯁꯟ, ꯂꯦꯇꯤꯡ ꯅꯛꯔꯀꯊ ꯀꯗ꯭ꯔꯕꯂ
ꯁꯦꯡꯒꯥꯛꯅꯕ ꯒꯤꯂꯥꯏꯟ ꯇꯧꯔꯕ;
ꯃꯤ ꯂꯨꯕ ꯏꯥꯒꯦ (9.12.7)
ꯊꯥꯛꯂꯛꯂꯤꯕ ꯏꯟꯗꯔꯊ ꯂꯦꯝꯕꯔꯒꯤ
ꯗ꯭ꯔꯥꯔꯒꯤ ꯃꯍꯥꯒ: ꯂꯦꯄꯂꯤꯕ ꯏꯁꯤꯡ ꯂꯧꯖꯦ (6.7.10(b))

ꯃꯃꯤ 6C.2 — ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯗ꯭ꯔꯣꯏꯡ: ꯀꯚꯔ ꯇꯧꯔꯕ ꯍꯣꯡꯕꯟ ꯑꯃꯗ ꯂꯧꯕ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯁꯨꯡ ꯖꯉ꯭ꯀꯁꯟ ꯆꯦꯝꯕꯔ, ꯀ꯭ꯂꯤꯌꯔ ꯑꯣꯄꯅꯤꯡ, ꯖꯉ꯭ꯀꯁꯟꯒꯤ ꯄꯥꯛ, ꯆꯡꯂꯛꯂꯤꯕ ꯍꯣꯡꯕꯟꯒꯤ ꯑꯦꯟꯗꯨꯒꯤ ꯑꯦꯛꯁꯗ, ꯂꯦꯝꯕꯔꯒꯤ ꯗ꯭ꯔꯥꯔꯒꯤ ꯃꯍꯥꯒ ꯂꯧꯕ ꯊꯥꯛꯂꯛꯂꯤꯕ ꯏꯟꯗꯔꯊ, ꯑꯃꯁꯨꯡ ꯀꯚꯔꯒꯤ ꯃꯊꯧ ꯍꯨꯁꯤꯗꯏꯤꯗ ꯂꯣꯔꯂꯂꯦ꯫ ꯃꯦꯄꯨꯔꯦꯜ ꯑꯃꯤꯒꯤꯆꯃꯗ ꯑꯂꯧꯂꯦ ꯁꯦꯝꯕ ꯗ꯭ꯔꯣꯏꯡ, CPHEEO, Manual on Storm Water Drainage Systems (2019), §5.3.4 ꯑꯃꯁꯨꯡ Chapter 11-ꯗꯒꯤ ꯌꯣꯛꯗꯣꯛꯂꯛ ꯂꯧꯍꯤꯕ꯫

ꯔꯥꯅ, ꯁꯂꯦꯕ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯥꯔꯒꯤ ꯊꯤꯛꯂꯦꯁ, ꯔꯤꯏꯟꯗꯔꯁꯃꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯃꯒꯤ ꯀꯤꯌꯦꯜꯁꯤꯡ: ꯀꯤꯂꯏꯟꯗꯟ ꯀꯟꯗꯔꯃ ꯌꯧꯒꯀꯕ (ꯀꯂꯥꯜ 9.1.2)꯫



ꯁ꯭ꯇꯣꯔꯃꯋꯥꯇꯔ ꯗ꯭ꯔꯦꯟ: ꯁꯤꯜꯇꯀꯤ ꯇꯔꯥꯞ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯍꯣꯜ ꯁꯦꯛꯁꯟ (ꯁ꯭ꯀꯤꯝ ꯐꯁ꯭ꯀꯦꯜ ꯁꯦꯟꯗ ꯇꯧꯗꯕ)
(a) ꯁꯦꯛꯁꯅꯒꯤ ꯃꯑꯣꯡ
ꯐꯨꯠꯄꯥꯊꯀꯤ ꯂꯦꯚꯦꯂꯗ ꯃꯦꯟꯍꯣꯜ ꯀꯚꯔ ꯊꯝꯕ, ꯁꯤꯟꯗ ꯑꯃꯁꯨꯡ ꯀꯚꯔ ꯂꯩꯕ (9.11.5);
ꯃꯦꯟꯍꯣꯂꯒꯤ 0.5 m-ꯗꯤ ꯂꯣꯗ C250, ꯍꯦꯚꯤ-ꯗ꯭ꯌꯨꯇꯤ D400 (9.11.2)
ꯐꯨꯠꯄꯥꯊ
ꯍꯦꯚꯤ-ꯗ꯭ꯌꯨꯇꯤ, ꯃꯦꯟ ꯑꯦꯂꯤ Sx
ꯌꯥꯕ ꯋꯥꯕ ꯂꯣꯀꯦꯂ ꯗꯤꯞꯔꯦꯁꯟ
(6.6.1(b)); ꯁꯤꯜꯇ: ꯁꯦꯗꯤꯃꯦꯟꯇ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯌꯥꯕ
ꯑꯣꯞꯟ ꯈꯨꯠꯆꯥꯛ ꯂꯣꯡꯆꯛ ꯀꯚꯔꯒꯤ
ꯗꯤꯊ ꯂꯦꯡꯗꯅ ꯇꯤꯟꯕ ꯌꯥꯕ (9.11.6)
ꯀꯚꯔꯒꯤ ꯀ꯭ꯂꯤꯌꯔ ꯃꯦꯟꯍꯣꯜ ꯑꯣꯄꯅꯤꯡ
(ꯃꯦꯟꯀ 6.6.1(b)); (b) ꯌꯦꯡꯕꯤꯌꯨ
ꯃꯥꯡꯖꯤꯡ ꯄꯥꯏꯞ ≥ 300 mm ꯁꯤꯁꯦ, ꯁꯦꯜꯐꯀꯂꯤꯟ ꯚꯦꯂꯣꯁꯤꯇꯤ
≥ 0.9 m/s-ꯗꯤꯁꯤꯡ ꯗꯤꯖꯥꯏꯟ (6.6.6)
ꯁꯤꯜꯇꯀꯤ ꯇꯔꯥꯞ ꯑꯣꯏꯔꯒꯕ ꯁꯝꯄꯛꯃꯤ
≥ 300 mm ꯂꯣꯅꯕ (6.6.7)
ꯌꯦꯐꯕꯦꯂꯒꯤ ꯄꯨꯝꯕ ꯑꯁꯤ, ꯌꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯣꯡꯆꯛ ꯈꯦꯃꯦꯟꯇ, ꯑꯦꯟꯁꯣꯁꯦꯂꯑꯣꯂꯦꯟꯁ: ꯁꯦꯗꯤꯃꯦꯟꯇ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯌꯥꯕ꯫
ꯀꯚꯔ ꯑꯣꯏ ꯂꯣꯡꯆꯛ ꯇꯤꯟꯕ ꯌꯥꯕ ꯋꯥꯕ ꯂꯣꯡꯆꯕ ꯌꯦꯐꯕꯦꯂꯒꯤ ꯄꯨꯝꯕ ꯊꯝꯕꯤꯌꯨ (9.11.6)꯫
(b) ꯃꯦꯟꯕ ꯑꯣꯄꯅꯤꯡꯒꯤ ꯑꯦꯂꯤꯃꯦꯟ
ꯃꯦꯟꯍꯣꯂꯒꯤ ꯂꯣꯔꯕ / ꯐꯨꯠꯄꯥꯊꯀꯤ ꯌꯥꯏ
ꯌꯥꯡꯕ
≥ 100 mm
ꯀꯔꯕꯒꯤ ꯀꯣꯅꯥ
ꯂꯥꯡꯕ ≥ 1.0 m (9.11.4)
ꯀꯔꯕꯒꯤ ꯀꯣꯅꯥꯅ ꯑꯣꯄꯅꯤꯡ (6.6.1(b), 9.11.4)꯫
ꯗꯤꯄ ꯗꯤꯖꯥꯏꯟ ꯃꯄꯨꯡꯐꯥꯕꯒꯤ (ꯍꯦꯕꯤ ꯑꯣꯏꯕ
ꯁꯦꯟꯗꯕ): ꯌꯥꯏꯗꯤꯒꯤ ꯀꯔꯕꯒꯤ ꯄꯦꯗꯤꯀꯣꯅ ꯑꯣꯏꯕ
ꯑꯣꯄꯅꯤꯡꯁꯤꯡ ≤ 25 mm (9.11.3); ꯇꯦꯕꯜ 6.5-ꯗꯤ ꯃꯥꯄꯥꯏꯗꯤ
ꯐꯥꯑꯣꯕꯦꯂꯤ ꯄꯦꯡꯕ ꯍꯥꯏꯁꯤꯡꯗꯕ ꯌꯥꯏꯗꯤ꯫

ꯐꯤꯒ 6C.3 — ꯁ꯭ꯇꯣꯔꯃꯋꯥꯇꯔ ꯗ꯭ꯔꯦꯟ: ꯁꯤꯜꯇꯀꯤ ꯇꯔꯥꯞ, ꯃꯥꯡꯖꯤꯡ ꯄꯥꯏꯞ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯍꯣꯜ ꯑꯃꯁꯨꯡ ꯀꯔꯕꯒꯤ ꯀꯣꯅꯥꯅ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯕ ꯁꯦꯛꯁꯟ, ꯑꯃꯁꯨꯡ ꯃꯦꯟꯕ ꯑꯣꯄꯅꯤꯡꯒꯤ ꯑꯦꯂꯤꯃꯦꯟ ꯑꯃꯁꯤ꯫ ꯂꯥꯏꯔꯤꯛ ꯑꯣꯏꯗꯤꯁꯤꯡ ꯑꯁꯤ ꯀꯥꯔ ꯗ꯭ꯔꯦꯟ, CPHEEO, Manual on Storm Water Drainage Systems (2019), Figure 5.9, ꯑꯃꯁꯨꯡ FHWA, HEC-22 Urban Drainage Design Manual (4th ed., 2024)-ꯁꯤꯡ ꯌꯦꯡꯁꯤꯟꯅꯕ ꯁꯥꯕꯤꯕ꯫

ꯇꯦꯕꯜ 6C.1 — ꯁ꯭ꯇꯣꯔꯃꯋꯥꯇꯔ ꯗ꯭ꯔꯦꯟꯁꯤꯡꯁ ꯑꯃꯁꯨꯡ ꯁꯤꯁꯤꯂꯣꯂꯣꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯔꯤꯛꯀꯤ ꯌꯦꯡꯅꯕ ꯑꯁꯤꯕ ꯃꯦꯟꯀꯁꯤꯡ

ꯗ꯭ꯔꯦꯟ	ꯑꯁꯤꯡ	ꯁꯤꯁꯤꯂꯣꯡ ꯀꯚꯔꯒꯤ ꯃꯔꯤ	ꯃꯦꯟꯀ
6C.1	ꯃꯦꯟꯍꯣꯜ ꯌꯥꯕ ꯊꯕꯛꯀꯤ ꯐꯨꯠꯄꯥꯊ ꯑꯃꯁꯤ ꯃꯦꯟꯀꯤꯔꯦ ꯁꯦꯟꯗꯔꯦꯂꯣꯡ ꯂꯥꯡꯕ	ꯃꯥꯏ ꯀ꯭ꯂꯤꯌꯔꯗꯤ ꯑꯣꯏꯕꯁ 0.6 m ꯑꯃꯁꯨꯡ ꯗꯤꯄ 0.6 m	6.7.6(c)
6C.1	ꯃꯦꯟꯍꯣꯂꯒꯤ ꯂꯤꯐꯠ ꯐꯥꯕ ꯐꯦꯡꯕꯦꯟꯁ	ꯇꯦꯕꯜ 6.7; ꯀꯔꯕ ꯂꯣꯡꯆꯛꯀꯤ ꯐꯨꯠꯄꯥꯊ ꯑꯃꯁꯤꯡꯗꯤꯁꯤꯡ 150 mm-ꯁꯤꯗꯤ ꯌꯥꯕꯁꯕ	6.7.9, 6.13.1(a)
6C.1	ꯂꯣꯁꯤꯂꯣꯏ ꯑꯣꯏꯗꯨꯑꯣꯂꯦ	75 mm ꯑꯃꯁꯨꯡ ꯃꯦꯟꯀꯤꯔꯦ ꯁꯣꯄꯅꯗꯤ 10%-ꯗꯤ ꯂꯥꯏꯌꯥꯏ ꯌꯣꯡꯕ ꯍꯦꯡꯕ ꯑꯁꯤ	6.7.8(a)
6C.1	ꯁꯥꯡꯃꯄꯥꯛ ꯋꯥꯕ ꯃꯦꯟꯍꯣꯜ ꯄꯦꯅꯦꯜꯁꯤꯡ	10 m-ꯁꯤꯗꯤ ꯌꯣꯡꯁꯕ ꯂꯣꯡꯌꯥꯕꯁꯤꯡꯁ; ꯐꯨꯠꯄꯥꯊꯀꯤ ꯑꯣꯏꯕꯁꯤꯗꯤ ꯑꯣꯏꯕꯁ 0.6 m ꯂꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯀꯤꯔꯦ ꯃꯥꯏ ꯄꯥꯞꯀꯂꯤ ꯋꯥꯕ; ꯋꯤꯡꯀꯕ ꯀꯤꯐꯥꯏꯗꯤ ꯄꯥꯡꯁꯦꯟꯁꯤꯡ; ꯐꯨꯠꯄꯥꯊꯀꯤ ꯂꯥꯡꯀꯦ ꯐꯦꯂꯣ	6.13.2(a)
6C.1	ꯐꯨꯠꯄꯥꯊꯀꯤ ꯌꯦꯡꯁꯤꯟ	ꯃꯦꯟꯍꯣꯜ ꯑꯃꯁꯨꯡ ꯁꯦꯡꯁꯤꯡ ꯀꯚꯔꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯑꯣꯄꯅꯤꯡꯁꯤꯡꯗꯤ ꯐꯥꯑꯣꯕꯁ	6.13.1(c)

[illegible]	[illegible]	[illegible]	[illegible]
6C.1	[illegible]	[illegible], 30 m-[illegible]	6.13.1(b), 6.6.4
6C.1, 6C.2	[illegible]	[illegible], [illegible] 30 m-[illegible]	6.13.2(b)
6C.2	[illegible]	[illegible] 0.6 m × 0.6 m (600 mm)	6.13.2(b), 9.12.3
6C.2	[illegible]	[illegible]; [illegible]; [illegible]	6.7.10(b)
6C.2	[illegible]	[illegible]; [illegible]; 1% AEP HGL [illegible]	9.11.2, 9.11.5, 9.12.6
6C.2	[illegible]	[illegible]; [illegible], [illegible], [illegible]	9.12.7
6C.3	[illegible]	[illegible]; [illegible] 100 mm; [illegible] 1.0 m	6.6.1(b), 9.11.4
6C.3	[illegible]	[illegible] 300 mm; [illegible]	6.6.7, 9.11.6
6C.3	[illegible]	[illegible] 300 mm; [illegible] 0.9 m/s	6.6.6
6C.3	[illegible]	[illegible] 25 mm-[illegible]; [illegible] 6.5-[illegible]	9.11.3, 6.6.3
[illegible]	[illegible], [illegible], [illegible], [illegible], [illegible]	[illegible]	9.1.2, 9.13

ꯐꯣꯔꯝ 6-1 — ꯀꯟꯚꯦꯌꯦꯟꯁ ꯗꯤꯖꯥꯏꯟ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

ꯁꯔꯨꯛ 6-ꯒꯤ ꯀ꯭ꯂꯣꯖ 6.15-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯑꯥꯏꯟꯒꯤ ꯁꯤꯖꯤꯟꯅꯅꯕ ꯅꯠꯇꯦ꯫

ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯁꯤ ꯀꯟꯚꯦꯌꯦꯟꯁ ꯗꯤꯖꯥꯏꯟ ꯔꯤꯄꯣꯔꯠꯀꯤ (Conveyance Design Report) ꯃꯃꯥꯡꯗ ꯁꯝꯃꯤꯟꯕꯤꯌꯨ꯫ ꯑꯥꯏꯇꯦꯝ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ, ꯍꯣꯌ, ꯅꯠꯇꯦ ꯅꯠꯔꯒꯥ ꯆꯠꯅꯗꯦ ꯅꯕꯤꯌꯨ, ꯑꯃꯁꯨꯡ ꯃꯗꯨ ꯎꯠꯂꯤꯕ ꯗ꯭ꯔꯥꯏꯡ ꯅꯠꯔꯒꯥ ꯂꯃꯥꯏ ꯅꯕꯤꯌꯨ꯫

ꯁꯦꯛꯁꯟ A — ꯄ꯭ꯔꯣꯖꯦꯛꯇ

ꯇꯦꯕꯜ 6F.1 — ꯐꯣꯔꯝ 6-1, ꯁꯦꯛꯁꯟ A: ꯄ꯭ꯔꯣꯖꯦꯛꯇ

ꯐꯤꯜꯗ	ꯑꯦꯟꯠ꯭ꯔꯤ
ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯡ	______
ꯂꯣꯀꯦꯜ ꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ A ꯅꯠꯔꯒꯥ ꯇꯤꯌꯔ B (ꯁꯔꯨꯛ 1)	______
ꯑꯦꯄ꯭ꯂꯤꯀꯦꯟꯠ	______
ꯗꯤꯖꯥꯏꯅꯔ (ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯖꯤꯁ꯭ꯠ꯭ꯔꯦꯁꯟ)	______
ꯁꯦꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯦꯔꯤꯌꯥ ꯄꯨꯝꯅꯃꯛ (ha)	______
10% AEP ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯃꯒꯤ ꯄꯤꯛ-ꯗꯤꯁꯆꯥꯔꯖꯀꯤ ꯃꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 6.4.4)	______
ꯀ꯭ꯂꯣꯖ 6.11.6-ꯒꯤ ꯀ꯭ꯂꯥꯁ ꯇꯦꯁ꯭ꯠꯀꯤ ꯃꯍꯩ (ꯍꯣꯌ / ꯅꯠꯇꯦ)	______
ꯇꯥꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯚꯤꯖꯟ	______

ꯁꯦꯛꯁꯟ B — ꯀ꯭ꯂꯣꯖ 6.15-ꯅ ꯍꯥꯏ ꯌꯦꯕ ꯊꯧꯗꯣꯛꯁꯤꯡ

ꯇꯦꯕꯜ 6F.2 — ꯐꯣꯔꯝ 6-1, ꯁꯦꯛꯁꯟ B: ꯀ꯭ꯂꯣꯖ 6.15-ꯅ ꯍꯥꯏ ꯌꯦꯕ ꯊꯧꯗꯣꯛꯁꯤꯡ

No.	ꯑꯥꯏꯇꯦꯝ	ꯀ꯭ꯂꯣꯖ	ꯄꯥꯏꯄꯦ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)	ꯗ꯭ꯔꯥꯏꯡ ꯅꯠꯔꯒꯥ ꯂꯃꯥꯏ
1	ꯀꯦꯆꯃꯦꯟꯠ ꯄ꯭ꯂꯥꯟ: ꯄ꯭ꯔꯤ-ꯀꯦꯆꯃꯦꯟꯠ, ꯗꯤꯁꯆꯥꯔꯖ ꯄꯣꯏꯟꯇꯁꯤꯡ, ꯗꯦꯚꯂꯄꯃꯦꯟꯠꯀꯤ ꯃꯐꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ 1% AEP ꯐ꯭ꯂꯗ-ꯄꯥꯊꯀꯤ ꯑꯣꯚꯔꯂꯦꯟ ꯐ꯭ꯂꯣ ꯄꯥꯊꯁꯤꯡ	6.3.2		
2	ꯊꯦꯔꯦꯁ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯦꯔꯤꯌꯥ ꯇꯥꯡꯀꯤ ꯇꯥꯊꯤꯒꯤ ꯂꯣꯌꯅꯕ AEP, ꯑꯃꯁꯨꯡ ꯄꯤꯛ-ꯗꯤꯁꯆꯥꯔꯖꯀꯤ ꯃꯁꯤꯡ	ꯇꯦꯕꯜ 6.1, 6.4.4		
3	ꯁꯔꯨꯛ 2-ꯒꯤ ꯇꯥꯡ ꯃꯈꯥꯒꯤ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 3-ꯒꯤ ꯂꯣꯌꯅꯕ ꯇꯥꯔꯦꯠ ꯗꯤꯖꯥꯏꯟ ꯑꯣꯏꯕ	6.3.4		
4	ꯃꯦꯊꯗ, ꯔꯦꯟ ꯑꯃꯁꯨꯡ 1% ꯅꯣꯔꯃꯦꯜꯑꯣꯏꯕꯒꯤ ꯃꯁꯤꯡ ꯀꯂꯦꯛꯁꯟ, ꯗꯦꯞꯊ ꯑꯃꯁꯨꯡ D·V ꯔꯦꯟꯖꯤ	ꯇꯦꯕꯜ 6.2, 6.3		
5	ꯅꯦꯠꯋꯥꯔꯀꯀꯤ ꯁꯦꯝꯕꯟ: ꯄꯥꯏꯞ ꯃꯦꯇꯦꯔꯤꯑꯦꯜ, ꯀꯚꯔꯒꯤ ꯑꯣꯔꯗꯔ, ꯗꯤꯖꯥꯏꯟ ꯃꯦꯇꯦꯔꯤꯑꯦꯜ ꯑꯃꯁꯨꯡ ꯕꯦꯗꯤꯡ ꯑꯣꯏꯕ	6.6		
6	ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯑꯃꯁꯨꯡ ꯍꯦꯗꯂꯣꯁꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯇꯦꯕꯂꯁꯤꯡ: n, ꯚꯦꯂꯣꯁꯤꯇꯤ, ꯁꯦꯂꯐ-ꯛꯂꯤꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯤꯕꯣꯔꯗ	6.7		
7	ꯃꯦꯊꯗ ꯑꯃꯁꯨꯡ ꯔꯦꯟ ꯅꯣꯔꯃꯦꯜꯑꯣꯏꯕꯒꯤ HGL ꯄ꯭ꯔꯣꯐꯥꯏꯂꯁꯤꯡ, ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯇꯦꯂꯋꯣꯇꯔꯒꯤ ꯇꯥꯔꯦꯠ	6.8		

No.	ꯋꯥꯐꯝ	ꯁꯦꯛꯁꯟ	ꯐꯤꯕꯝ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)	ꯈꯪꯖꯤꯟꯕ ꯑꯦꯛꯁꯟ
8	ꯃꯥꯗꯨꯛ ꯏꯁꯤꯡ ꯆꯥꯀꯊꯕꯒꯤ ꯆꯥꯡꯗꯝꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯇꯥꯏꯗꯕ ꯊꯧꯗꯥꯡ ꯄꯥꯟꯗꯝꯒꯤ ꯂꯝ ꯌꯦꯡꯁꯤꯟ	6.10		
9	ꯊꯤꯡꯖꯤꯟ ꯂꯩꯃꯤꯡꯍꯟꯕꯤ ꯇꯦꯛꯅꯤꯀ ꯆꯥꯡꯗꯝꯒꯤ ꯃꯥꯏꯂꯨꯡ	6.11		
10	ꯑꯣꯄꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯇꯤꯁꯤꯡꯒꯤ ꯑꯥꯡꯀꯟꯁꯦꯃꯖꯤꯟ (ꯇꯦꯕꯜ 9-1-ꯗ ꯌꯦꯡꯎ)	6.12, ꯃꯥꯂꯦ 9		
11	ꯂꯨꯄꯤꯆꯤꯄꯤ-ꯑꯦꯟꯇꯤꯁꯤꯡꯒꯤ ꯃꯥꯏꯂꯨꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯄꯨꯝꯊꯕ ꯍꯦꯡꯊꯣꯛꯁꯤꯡꯒꯤ ꯋꯥꯍꯩ-ꯋꯥꯔꯦꯡꯁꯤꯡꯒꯤ ꯆꯥꯋꯥꯛ	6.13		

ꯁꯥꯔꯨꯛ C — ꯍꯥꯏꯗ꯭ꯔꯣꯒꯤ ꯏꯅꯄꯨꯠ

ꯄꯥꯊꯛ 6F.3 — ꯇꯦꯕꯜ 6-1, ꯁꯥꯔꯨꯛ C: ꯍꯥꯏꯗ꯭ꯔꯣꯒꯤ ꯏꯅꯄꯨꯠ

ꯇꯤꯔꯝ	ꯀꯥꯡꯂꯣꯟ	ꯁꯦꯛꯁꯟ
ꯗꯤꯖꯥꯏꯟ ꯃꯦꯖꯔ-ꯁꯤꯡꯄꯥꯟꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣ AEP	______	ꯄꯥꯊꯛ 6.1
ꯆꯥꯡꯊꯤꯒꯤ ꯑꯦꯟꯁꯤ(ꯁꯤꯡ) ꯑꯃꯁꯨꯡ ꯆꯥꯡꯊꯤꯒꯤ ꯀꯥꯡꯂꯣꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯟꯇꯤꯁꯤꯡꯁꯤꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣ / ꯂꯥꯏ AEP-ꯁꯤꯡ	______	ꯄꯥꯊꯛ 6.1, 6.4.2
ꯌꯦꯡ ꯂꯊꯛꯒꯤ ꯐꯥꯏꯕꯜ ꯑꯃꯁꯨꯡ ꯁꯤꯖꯤꯟꯅꯕꯤ ꯑꯦꯟꯀꯥꯟꯕ ꯇꯥꯡꯄꯥ	______	6.3.4, ꯃꯥꯂꯦ 2
ꯐꯣꯔꯝ: ꯄꯥꯃꯌꯥꯡ ꯀꯥꯔꯝ (ꯑꯥꯂꯀꯥꯡꯕ ≤ 16 ha, ꯋꯥꯌꯤꯀꯥꯡꯕ ꯑꯃꯁꯨꯡꯄ) ꯌꯥꯕꯗ ꯄꯨꯝꯅꯃꯛ ꯌꯦꯡꯎ ꯍꯟꯗꯣꯛꯄꯗ ꯐꯣꯔꯝ	______	6.3.4(a), (b)
ꯁꯤꯖꯤꯟꯅꯕꯤ ꯀꯤꯌꯤꯀꯤ ꯄꯨꯟꯕ ꯋꯥꯇ ꯑꯦꯡꯁꯥꯡꯄꯥꯡ (10 min-ꯍꯤꯒꯤ ꯐꯥꯔꯝꯊ)	______	6.3.4(c)
HGL-ꯒꯤꯍꯀꯤ ꯋꯥꯈꯜꯇꯦꯟꯍ ꯄꯥꯟꯂꯣꯄ (ꯄꯨꯟꯍꯥꯟ ꯋꯥꯈꯜꯇꯦꯟꯁꯤꯡꯍ MHWS + 0.3 m, ꯌꯥꯕꯗ ꯄꯤꯁꯤꯒꯤꯡ ꯆꯥꯒꯥꯟ)	______	6.8.2
ꯀꯐꯣꯁꯒꯤ ꯑꯥꯂꯀꯥꯡꯕꯁꯤꯡꯒꯤ ꯀꯄꯥꯄ ꯇꯌꯦ ꯄꯦꯡꯃꯇꯄ ꯄꯨꯊ ꯑꯃꯁꯨꯡ (6.3.5 ꯀꯍꯦꯟ ꯂꯥꯏꯕꯊꯤ ꯆꯦꯟꯍꯊ)	______	6.3.5

ꯁꯥꯔꯨꯛ D — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯂꯥꯏꯁꯤꯡ

ꯄꯥꯊꯛ 6F.4 — ꯇꯦꯕꯜ 6-1, ꯁꯥꯔꯨꯛ D: ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯂꯥꯏꯁꯤꯡ

No.	ꯂꯥꯏ	ꯌꯤꯀꯤꯕ	ꯁꯦꯛꯁꯟ	ꯀꯁꯨꯡ ꯇꯦꯟ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)
D1	ꯀꯥꯌꯕ, ꯃꯥꯗ, ꯄꯦꯟꯄ, ꯅꯤꯡꯊꯦ, ꯑꯣꯄꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯇꯥꯔ ꯋꯥꯌꯤꯀꯥꯡꯕ ꯂꯩꯃꯤꯡꯍꯟꯄ 1% AEP ꯋꯥꯍꯟꯌꯥꯡꯍ ꯆꯥꯡꯊꯤ ꯑꯀꯦ ꯆꯩ	ꯄꯦꯟꯇꯍ ꯂꯥꯛꯆꯤ	6.3.2	
D2	ꯀꯥꯌꯄ-ꯁꯤꯡꯄꯥꯟꯒꯤ ꯇꯦꯟ = 1% AEP ꯄꯤꯕ, ꯑꯄꯦꯊ ꯀꯅꯌꯄ-ꯁꯤꯡꯄꯥꯟꯒꯤ ꯑꯥꯄꯤꯁꯤꯄꯤ ꯐꯥꯏꯐꯥꯌꯒ	ꯄꯦꯟꯀꯥ ꯂꯩꯃꯤꯡꯍꯟꯄ ꯑꯥꯡꯀꯟꯕ ꯄꯨꯊ	6.3.3	
D3	ꯀꯅꯌꯄ ꯅꯒꯥꯀꯄ ꯁꯄꯥꯍ	ꯄꯥꯊꯛ 6.2	6.5.2	
D4	ꯂꯥꯏ ꯑꯃꯁꯨꯡ 1% ꯅꯒꯥꯀꯁꯤꯡꯍ ꯍꯥꯄꯐ	ꯑꯦꯟꯂꯍ ≤ 150 mm; ꯂꯊꯦꯅꯍꯒꯤ ꯌꯊ ꯀꯇꯍ ≤ 350 mm	ꯄꯥꯊꯛ 6.2	
D5	ꯀꯇꯜ ꯀꯄꯨ ꯅꯌꯌ ꯇꯦꯒꯤ ꯐꯦꯄꯍ (D·V)	ꯄꯥꯊꯛ 6.3	6.5.3	
D6	ꯁꯤꯖꯤꯟꯅꯕꯤ ꯅꯌꯥꯀꯤ ꯑꯄꯦꯒꯤ ꯇꯥꯡꯄꯥꯁꯤꯡ	ꯄꯥꯊꯛ 6.5	6.6.3	
D7	ꯑꯄꯊ ꯆꯊ ꯆꯥꯡꯊꯤꯁꯤꯡꯍ ꯅꯌꯥꯀꯤ ꯁꯄꯥꯁꯤꯡ	≤ 30 m	6.6.4(a)	
D8	ꯃꯥꯒ ꯅꯌꯥꯀꯤ ꯍꯥꯏꯗ꯭ꯔꯣ ꯑꯥꯄꯤꯁꯤꯄꯤ ≥ ꯆꯥꯡꯌꯤꯊ ꯀꯅꯌꯄ ꯍꯥꯏꯗ꯭ꯔꯣ ꯇꯦꯟ; ꯀꯐꯣ ꯄꯊ ꯀꯇꯍ ꯇꯦꯟꯑꯥꯁꯤꯡ ꯅꯌꯥꯀꯤꯁꯤꯡ	—	6.6.5	

No.	ꯆꯦꯛ	ꯂꯤꯃꯤꯠ	ꯀ꯭ꯂꯣꯖ	ꯃꯄꯨꯡ ꯐꯍ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)
D9	ꯏꯟꯂꯦꯠꯀꯤ ꯀꯂꯦꯛꯁꯟ ꯄꯥꯏꯄꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯣꯃꯒꯤ ꯁꯝꯞꯁꯤꯡ	≥ 300 mm dia, ≥ 0.9 m/s; ꯁꯝꯞ ≥ 300 mm	6.6.6, 6.6.7	
D10	ꯃꯦꯅꯤꯡꯒꯤ n ꯑꯁꯤ ꯃꯤꯅꯤꯃꯝ ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨꯁꯤꯡꯗꯒꯤ ꯈꯟꯒꯗꯕ	ꯇꯦꯕꯜ 6.6	6.7.2	
D11	ꯃꯥꯏꯅꯔ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ ꯃꯤꯅꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ	ꯆꯥꯡꯕꯥꯟꯁꯤꯡ 0.6 m/s; ꯄꯥꯏꯄꯁꯤꯡ 0.9 m/s	6.7.3(a)	
D12	ꯃꯦꯛꯁꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯧꯗ ꯅꯝꯕꯔ	ꯇꯅꯟ ꯂꯥꯏꯅꯕ ꯆꯥꯡꯕꯥꯟ ꯑꯃꯁꯨꯡ ꯄꯥꯏꯄꯁꯤꯡ 3.0 m/s; Fr ≤ 0.8	6.7.3(b), (d)	
D13	ꯃꯤꯅꯤꯃꯝ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯌꯥꯕ ꯉꯝꯗꯕ ꯃꯇꯝꯗ: ꯚꯦꯂꯣꯁꯤꯇꯤ ꯗꯤꯄꯥꯗꯟ ꯌꯥꯕ, ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯛꯁꯦꯁ ꯑꯂꯤ ꯈꯥ ꯍꯦꯛꯁꯤꯡꯍꯦꯛꯕ, ꯆꯥꯡ ꯆꯥꯈꯥꯛꯄꯒꯤ ꯑꯦꯛꯁꯦꯁ ꯀꯤꯕ	—	6.7.4	
D14	ꯄꯥꯏꯄꯁꯤꯡ ꯑꯂꯤ ꯄꯥꯏꯄ-ꯐꯨꯜ ꯀꯦꯄꯥꯁꯤꯇꯤꯒꯤ ꯗꯝꯃꯛ ꯁꯤꯅꯦ ꯅꯦꯄꯥꯄ, 0.95-ꯗꯦꯄꯇꯀꯤ ꯄꯤꯛꯀꯤꯗꯝꯃꯛ ꯅꯠꯇꯦ	—	6.7.5	
D15	ꯃꯤꯅꯤꯃꯝ ꯁꯤꯅꯦꯂꯤꯡ	ꯄꯥꯏꯄꯁꯤꯡ 300 mm (ꯄ꯭ꯔꯦꯐꯔ ꯃꯦꯇꯔꯤꯡ 450 mm); ꯍꯤꯗꯛꯄꯥꯏꯕ ꯈꯂꯕꯦꯜꯒꯤ ꯃꯈꯥ 0.3 m; ꯀꯒꯂ ꯌꯥꯕ ꯄ꯭ꯔꯦꯐꯔ ꯈꯂꯕꯦꯜꯒꯤ 0.6 m × 0.6 m	6.7.6	
D16	ꯄꯥꯏꯄꯁꯤꯡꯗ ꯀꯒꯂ; ꯆꯤꯡꯅꯕꯒꯤ ꯃꯈꯥꯒꯤ ꯅꯁꯤꯡ ꯑꯂꯤ ꯀꯂꯦꯛꯁꯟꯒꯤ 1 m-ꯒꯤ ꯃꯅꯨꯡꯗ ꯆꯤꯕ ꯃꯇꯝꯗ ꯈꯦꯜꯌꯥꯁꯦ ꯆꯦꯛ	≥ 0.6 m; ꯀꯦꯕꯤꯅꯦꯇꯔꯦꯒꯤ ꯃꯈꯥꯗ ≥ 0.9 m	6.7.7	
D17	ꯀꯦꯄꯥꯁꯤꯇꯤꯗ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯦꯛꯁꯦꯁ	6.7.8-ꯒꯤ ꯒꯥꯏꯗꯂꯥꯏꯟ	6.7.8	
D18	ꯈꯣꯏꯕꯤꯗ, ꯕꯦꯗꯁꯤꯡꯗ ꯂꯥꯏꯕꯅꯦꯅꯒꯥꯁꯦ ꯌꯤꯕꯅꯦ	ꯇꯦꯕꯜ 6.7	6.7.9	
D19	ꯕꯦꯗꯀꯤ ꯕꯦꯗꯤꯌꯅ ꯑꯃꯁꯨꯡ ꯅ꯭ꯀꯃꯁꯦ ꯁꯦꯄꯁꯤꯡ	6.7.10	6.7.10	
D20	ꯑ꯭ꯃꯦꯕ ꯕꯦꯁꯤꯡꯗ ꯃꯦꯍꯣꯅꯒꯤ ꯂꯧꯁꯤꯡ	ꯇꯦꯕꯜ 6.8	6.7.11	
D21	ꯃꯅꯆꯕ ꯅꯒꯦꯃꯠꯌ HGL ꯑꯁꯤ ꯏꯟꯂꯦꯠꯀꯤ ꯕꯤꯈꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯍꯣꯟ ꯀꯒꯕꯁꯤꯡꯒꯤ ꯃꯅꯥ	≥ 0.3 m	6.8.3	
D22	ꯆꯤꯡꯅꯒꯤ ꯃꯐꯃꯇ ꯁꯔꯆꯥꯔꯖ (surcharge) ꯑꯣꯅꯕ ꯌꯤꯕ ꯃꯦꯍꯣꯟꯁꯤꯡ: ꯕꯣꯟꯠ ꯇꯥꯕꯕ ꯅꯠꯕꯒꯤ ꯆꯣꯄ ꯇꯥꯕꯕ ꯀꯒꯕꯁꯤꯡ	—	6.8.4	
D23	ꯁꯣꯏꯠꯁꯤꯡ ꯃꯦꯅꯅꯕ ꯅꯠꯕꯒꯤ ꯐꯣꯄꯅꯄꯅꯤꯕ ꯁꯣꯏꯠ ꯅꯦꯃꯕ; ꯐꯣꯄꯅꯄꯅꯤꯕ ꯅꯦꯒꯕꯠ ꯑꯁꯤ ꯂ꯭ꯕꯅꯗꯒꯤ ꯅꯦꯃꯕ ꯄꯁꯅꯄꯅꯤꯕ ꯅꯦꯒꯕꯠꯇꯒꯤ ꯌꯤꯁꯗꯕ	—	6.8.6	
D24	ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯍꯦꯡꯒꯗ ꯆꯣꯁꯤꯡ HGL-ꯗ ꯌꯤꯅꯣꯠꯄ; ꯃꯐꯥ ꯇꯕ ꯃꯀꯃꯗ ꯄ꯭ꯕꯅꯒꯠ ꯀꯦꯄꯥꯁꯤꯇꯤꯗ ꯅꯦ-ꯕꯦꯠꯕꯦ ꯍꯦꯡꯒꯁꯤꯡ	—	6.8.7, 6.8.8	
D25	ꯆꯃꯕꯦꯁꯤꯡꯒꯤ ꯃꯄꯣꯟꯗ ꯆꯤꯕ ꯑꯣꯒꯕꯂꯦꯗ ꯈꯂ ꯆꯃꯕꯦꯁꯤꯡ: ꯄꯣꯛ, ꯇꯦꯂꯌꯕ, ꯑꯐꯤꯗꯕ ꯆꯤꯇꯕ, ꯂꯦꯄꯇꯦ ꯇꯕ	≥ 1% ꯃꯐꯥꯛꯀꯤ ꯄꯣꯛ + ꯃꯂꯛ ꯀꯅꯤꯡꯗ 0.5 m, ≥ 3.0 m	6.9.2	
D26	ꯃꯦꯄ ꯇꯧꯕꯕ ꯈꯂ ꯆꯃꯕꯦꯁꯤꯡ ꯂꯦꯐꯥꯀꯄ ꯀꯃꯄꯅꯦꯗ ꯌꯒꯁꯤꯡ: ꯑꯄꯣꯂꯤꯡꯁꯤꯡꯂꯦ 50% ꯕꯂꯀꯦꯇꯗ 1% ꯈꯂ ꯌꯦꯍꯣꯅꯂꯤ	—	6.9.3	
D27	ꯃꯐꯥꯛꯀꯤ ꯄꯣꯛ ≥ 2 m ꯑꯣꯅꯕ ꯍꯤꯗꯛꯄꯥꯏꯕ ꯈꯂꯕꯦꯜꯁꯤꯡꯒꯤ ꯃꯂꯛꯇ ꯑꯃꯁꯨꯡ ꯂꯦꯞꯇꯕ	≥ 3.5 m, ≤ 500 m-ꯗ ꯆꯃꯕꯤ ꯑꯃꯀꯒꯤ ꯃꯐꯆꯕ	6.9.4	
D28	ꯃꯐꯥ ꯇꯕ ꯃꯀꯃꯗ ꯅꯈꯃꯒꯤ ꯈꯤꯂꯈꯒ: ꯄꯣꯛ, ꯇꯦꯡꯗꯕ ꯄꯂꯦꯏ, ꯂꯦꯄꯇꯦ ꯇꯕ, ꯃꯈꯀꯈꯁꯤꯡ, ꯃꯈꯒꯤꯁꯤꯡ, 2 m ꯂꯦꯕꯦꯜꯁꯤꯡ ꯆꯦꯛ	ꯇꯦꯕꯜ 6.9	6.9.6– 6.9.8	

No.	ꯆꯥꯡ	ꯇꯤꯍꯤꯌ	ꯃꯇꯦꯡ	ꯍꯛꯂꯨꯝ ꯐꯥꯔ (ꯍꯣꯏ / ꯇꯧꯗꯕ / NA)
D29	1% ꯑꯦꯅꯨꯑꯦꯜ ꯑꯦꯛꯁꯤꯗꯦꯟꯁ ꯄꯔꯣꯕꯥꯕꯤꯂꯤꯇꯤ ꯃꯇꯝ, ꯑꯣꯚꯔꯐꯂꯣ ꯆꯦꯅꯦꯜ, ꯑꯃꯁꯨꯡ ꯍꯛꯂꯨꯝ ꯐꯥꯔꯕ ꯗꯣꯂꯣꯡ ꯈꯔꯗꯒꯤ ꯆꯥꯡ	ꯄꯥꯏꯄꯀꯤ ꯃꯌꯥꯏ ꯍꯦꯟꯅ ≤ 350 mm	6.10.2, 6.10.3	
D30	ꯃꯣꯡꯐꯝ ꯀꯥꯏꯕ ꯂꯥꯟꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯁꯤꯟꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯂꯤꯡ	6.10.4, 6.10.5	6.10.4, 6.10.5	
D31	ꯐꯂꯣꯔ ꯂꯦꯚꯦꯜꯂꯤꯡ	≥ 1% AEP ꯂꯦꯚꯦꯜ + 0.5 m; ꯂꯦꯚꯦꯜ ꯃꯦꯜꯊꯣꯛꯂꯗꯕ ꯈꯅꯕ ꯍꯦꯟꯅ 6.11.3-ꯒꯤ ꯅꯤꯡꯇꯝꯗꯕꯂꯤꯡ	6.11.1–6.11.3	
D32	ꯕꯦꯁꯃꯦꯟꯇꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯤꯜꯗꯤꯡꯒꯤ ꯂꯣꯔꯤꯂꯤꯡ	6.11.4, 6.11.5	6.11.4, 6.11.5	
D33	ꯃꯔꯤꯟ ꯕꯦꯁꯅ: ꯐꯂꯣꯔ ≥ 1% ꯂꯥꯏꯅ-ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ + 2 × SLA (+ ꯆꯦꯟꯗꯕ ꯍꯦꯟꯅ ꯆꯥꯡ ꯂꯦꯞ-ꯑꯣꯛ) + 0.5 m; ꯕꯦꯁꯃꯦꯟꯇ ꯑꯣꯏ ꯇꯧꯔꯒꯗ ꯇꯥꯏꯗꯦꯟ ꯀꯥꯔꯥꯄꯅꯕ	—	6.11.6	
D34	ꯃꯥꯅꯤꯔꯦꯂꯤꯡ: ꯅꯤꯡꯊꯤꯕ AEP, ꯑꯣꯚꯔꯐꯂꯣꯡ, 50% / 20% ꯕꯂꯣꯀꯃꯤ ꯆꯥꯡ, ꯍꯤꯇꯤꯍꯦ ꯂꯥꯄꯇ	≥ 900 mm	6.12	
D35	ꯃꯦꯟꯍꯣꯜ ꯈꯔꯕ ꯄꯥꯏꯄꯁꯤꯂꯤꯡ: ꯇꯣꯡꯃꯥꯡ ꯆꯣꯕ ꯊꯥꯇꯦꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯏꯂꯥꯂ ꯆꯥꯍꯕꯔꯂꯤꯡ	≤ 10 m; ≤ 30 m	6.13.1, 6.13.2	
D36	ꯂꯤꯅꯦ ꯈꯔꯥꯡꯂꯤꯡ, ꯕꯄꯥꯡꯂ ꯀꯕ ꯂꯃꯔꯤꯁꯂꯤꯡ ꯑꯃꯁꯨꯡ 50% ꯕꯂꯣꯀꯃꯤ ꯆꯥꯡ	—	6.13.3, 6.13.4	
D37	ꯄꯥꯏꯄꯁꯤꯂꯤꯡꯒꯤ ꯍꯃꯣꯡ ꯕꯤꯅꯤꯡ ꯀꯔꯥꯄꯅꯕ; ꯐꯂꯣ ꯑꯥꯔꯤꯆ ꯇꯧꯔꯒꯗ ꯐꯔꯤꯕꯔꯅꯡ ꯆꯨꯝꯗꯣꯛꯂꯤꯡ ꯀꯔꯥꯄꯅꯕ; ꯀꯔꯤꯕ ꯃꯔꯥꯡꯂꯤꯡ 50% ꯕꯂꯣꯀꯃꯤ ꯂꯥꯆꯦꯇꯦ ꯍꯦꯁꯣꯍꯟꯇꯕ	—	6.13.5, 6.13.6	
D38	ꯂꯤꯆꯥꯜ (sewage) ꯃꯇꯥꯡꯂꯦ ꯀꯔꯥꯄꯅꯕ; ꯂꯤꯆꯔꯂꯤꯡꯒꯤ ꯍꯦꯟꯒꯠ ꯂꯤꯅ ꯈꯔꯕ ꯂꯥꯄꯁꯦꯂꯤꯡ; 1.0 m-ꯅꯒꯤ ꯃꯌꯥꯏ ꯍꯣꯡꯅꯥꯡꯇꯕ ꯄꯥꯏꯄꯁꯤꯂꯤꯡꯅ ꯍꯤꯍꯟ ꯆꯨꯝꯃꯥꯡ	—	6.13.7, 6.13.8	
D39	ꯑꯣꯠꯐꯣꯜꯂꯤꯡ (outfall): ꯈꯥꯟꯆꯋꯥꯔ (tailwater), 1% ꯂꯥꯏꯅ-ꯋꯥꯔ ꯂꯦꯚꯦꯜꯒꯤ ꯍꯋꯥꯅ ꯐꯂꯥꯞ ꯒꯦꯠꯂꯤꯡ (flap gate) ꯇꯧꯔꯒꯗ ꯂꯦ-ꯔꯤꯈꯔꯦ ꯁꯅꯒꯂꯤꯡ, ꯑꯣꯠꯐꯣꯜꯗ ꯆꯨꯝꯃꯥꯡ	—	6.14	

ꯂꯥꯏꯔꯦ E — ꯒꯥꯔꯤꯆꯦꯂꯂꯤꯡ

ꯈꯥꯕꯅ 6F.5 — ꯐꯔꯍ 6-1, ꯂꯥꯏꯔꯦ E: ꯒꯥꯔꯤꯆꯦꯂꯂꯤꯡ

ꯃꯇꯦꯡ	ꯍꯛꯂꯨꯝ ꯐꯅꯕ ꯍꯃꯣ ꯈꯕ	ꯍꯔꯍ ꯑꯃꯁꯨꯡ ꯀꯔꯥꯡꯇ ꯈꯔꯕ ꯑꯇꯈꯔꯂꯈꯤꯒ	ꯑꯥꯡꯀꯒ ꯈꯔꯕ ꯍꯤ ꯑꯃꯁꯨꯡ ꯃꯍꯤꯌ
_____	_____	_____	_____

ꯂꯥꯏꯔꯦ F — ꯂꯥꯄꯆꯦꯂꯤꯡ

ꯔꯤꯡꯇꯔꯦ ꯑꯂꯤ ꯔꯥꯇꯤꯂꯈꯔ ꯈꯔꯕ ꯀꯔꯐꯥꯂꯇꯥ ꯑꯍꯦ ꯂꯥꯍꯒꯅꯕꯇꯤ ꯑꯃꯁꯨꯡ ꯂꯄꯆꯦ ꯈꯒꯅꯕꯇꯤ, ꯑꯃꯁꯨꯡ ꯀꯔꯥꯐꯥꯂꯇꯥ ꯅꯤꯡꯊꯤꯕ ꯂꯔꯈꯤꯐꯤꯃꯥꯦ (ꯐꯔꯍ 10-3) ꯂꯍꯍꯤꯆꯒꯅꯕꯇꯤ (ꯂꯃꯥꯏ 10-ꯒꯤ ꯃꯇꯦꯡ 10.6.1 ꯑꯃꯁꯨꯡ 10.6.3)꯫ ꯄꯔꯍꯒꯤ ꯔꯤꯇꯔꯒ ꯑꯍꯒꯤ ꯍꯦꯑꯣꯈꯒꯤ 2 m-ꯒꯤ ꯍꯨꯃꯅ ꯂꯈꯔꯑꯆꯔ ꯑꯍꯦ ꯂꯥꯀꯇꯕ ꯍꯐꯍꯅ, ꯂꯈꯥꯕꯤꯇꯤꯈꯤ ꯅꯤꯡꯊꯤꯕ ꯑꯂꯤ ꯃꯆꯦꯇꯤꯐꯄ ꯈꯔꯕ ꯂꯈꯔꯑꯆꯔꯥꯟ ꯄꯆꯦꯇꯤꯇꯤꯆꯔ ꯑꯍꯦ ꯂꯨ ꯂꯄꯆꯦ ꯈꯒꯅꯕꯇꯤ (ꯃꯇꯦꯡ 6.9.8(f))꯫

ꯈꯥꯕꯅ 6F.6 — ꯐꯔꯍ 6-1, ꯂꯥꯏꯔꯦ F: ꯂꯥꯄꯆꯦꯂꯤꯡ

ꯊꯧꯗꯥꯡ	ꯃꯃꯤꯡ	ꯗꯣꯂꯤꯑ꯭ꯁꯗꯣꯑꯦ ꯂꯍꯗꯤꯇ ꯅꯇꯃꯣꯂꯣꯟꯍꯣꯑꯦꯍ ꯂꯇꯕꯗ	ꯑꯅꯦ	ꯂ꯭ꯨꯍꯤꯍ
ꯑꯤꯂꯦꯅꯂꯗ	______	______	______	______
ꯑ꯭ꯗꯃꯔꯗꯣꯟ ꯅꯦꯂꯤꯂꯤꯔꯗ (ꯀ꯭ꯂꯣꯖ 6.9.8(f), ꯔꯍꯂꯕ ꯍꯦꯇꯑ)	______	______	______	______

ꯑ꯭ꯗꯦꯅꯍ ꯅꯦꯗꯇ — ꯍꯂꯤꯚ꯭ꯨꯗ ꯂꯦꯡꯊꯤ ꯅꯑꯤꯡ ꯅꯗꯇ ꯑꯤꯂꯦꯅꯦ ꯍꯣꯂ꯭ꯨꯔꯣꯟ, ꯑ꯭ꯗꯦꯅꯍ ꯚꯔꯁꯟ 1.0.

ꯏꯁꯤꯡ ꯇꯨꯝꯐꯝꯁꯤꯡ, ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯄꯨꯈꯔꯤꯁꯤꯡ (ꯇꯥꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯔꯚꯁꯤꯡ) ꯑꯃꯁꯨꯡ ꯂꯥꯏꯀꯥꯡꯁꯤꯡ

ꯑꯦꯅꯦꯛꯁꯔꯁꯤꯡ ꯑꯁꯤꯗꯨ ꯆꯦꯞꯇꯔ 7-ꯗ ꯌꯥꯎꯕ ꯂꯩꯔꯤ꯫ ꯌꯥꯎꯔꯤꯕꯗꯤ ꯏꯅꯚꯦꯟꯇꯔꯤ (inventory)-ꯒꯤ ꯗꯦꯇꯥ ꯃꯥꯂꯦꯃꯁꯤꯡ, ꯗꯦꯇꯥ ꯊꯝꯕ ꯄꯥꯝꯕꯒꯤ ꯂꯥꯏꯕꯥꯛ (setback) ꯊꯥꯛꯇ, ꯑꯣꯄꯔꯦꯇꯤꯡ ꯅꯤꯌꯝ (operating rule) ꯑꯃꯒꯤ ꯁꯥꯏꯅꯇꯥꯛ, ꯗꯤꯁꯤꯂꯇꯤꯡ (desilting) ꯑꯃꯁꯨꯡ ꯔꯦꯁꯇꯣꯔꯦꯁꯟ (restoration)-ꯒꯤ ꯃꯥꯂꯦꯃꯁꯤꯡ, ꯏꯁꯤꯡ ꯍꯧꯖꯤꯛꯀꯤ ꯈꯣꯡꯅꯥꯡ ꯃꯐꯃꯁꯤꯡꯒꯤ ꯃꯐꯝ ꯄꯥꯝꯕ ꯑꯃꯁꯨꯡ, ꯑꯃꯁꯨꯡ ꯄꯦꯔꯥ 7.15-ꯗ ꯈꯟꯅ ꯊꯕꯛ ꯇꯧꯅꯕꯥ ꯄꯥꯝꯕ ꯄꯤꯔꯤ꯫ ꯑꯦꯅꯦꯛꯁ ꯑꯃꯅ ꯍꯥꯞꯆꯤꯟ ꯇꯧꯕ ꯈꯨꯝꯕ ꯇꯧꯔꯛꯕ ꯂꯩꯈꯨꯗꯦꯜꯗ ꯈꯇꯂꯕ, ꯈꯁꯤꯗꯨ ꯈꯔ ꯍꯥꯏꯕ ꯑꯃꯁꯨꯡ ꯈꯗꯥꯡ ꯁꯤꯇꯤꯔꯦꯛꯇꯔꯀꯤ ꯄꯤꯕ ꯄꯤꯔꯤ꯫ ꯇꯦꯗꯈꯁꯤꯡ ꯑꯁꯤ ꯀꯗꯦꯜꯗ ꯇꯦꯗꯈꯁꯤꯡꯅꯤ; ꯊꯥꯛꯇꯗꯦꯜ ꯑꯃꯁꯨꯡ ꯈꯤꯀꯥ ꯊꯥꯡꯁꯊ ꯑꯁꯤ ꯁꯈꯂꯤꯊꯥꯔꯦꯜ ꯑꯦꯗꯦꯗꯤꯊꯤ ꯑꯃꯗꯤ ꯍꯧꯔ ꯊꯥꯡꯇꯛꯀꯤꯀꯈꯥꯗꯤ ꯑꯃꯁꯨꯡ ꯍꯔꯦꯗꯤꯀꯥ꯫

ꯑꯦꯅꯦꯛꯁ 7A — ꯁꯊꯥꯔ ꯄꯨꯈꯔꯤꯗꯈꯥꯡꯒꯤ ꯏꯁꯤꯡ ꯍꯧꯖꯤꯛꯀꯤ GIS ꯗꯥꯇꯥ ꯑꯃꯁꯨꯡ ꯏꯅꯚꯦꯟꯇꯔꯤꯒꯤ ꯗꯤꯇꯦꯜꯁꯤꯡ

ꯆꯦꯞꯇꯔ 7-ꯒꯤ ꯄꯦꯔꯥ 7.3.1, 7.3.3 ꯑꯃꯁꯨꯡ 7.3.5-ꯗ ꯌꯥꯎꯕ ꯂꯩꯔꯤ꯫

ꯁꯥꯝ ꯁꯤꯡꯅꯕ. ꯑꯍꯥꯅꯕ ꯑꯁꯤꯅ ꯇꯦꯕꯜ 7.3.1-ꯗ ꯄꯤꯖꯔ ꯗꯦꯇꯥ, ꯑꯦꯖꯦꯟꯁꯤꯁꯤꯡ ꯈꯨꯗꯤꯡꯃꯛꯇꯒꯤ ꯂꯧꯈꯠꯂꯕ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Water Resources Department; WRD) ꯑꯃꯁꯨꯡ ꯔꯦꯚꯦꯅꯨ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (Revenue Department)-ꯗꯒꯤ ꯄꯨꯊꯣꯛꯄ ꯁꯥꯐꯕ, ꯁꯨꯡꯁꯥ ꯑꯣꯐꯤꯁꯤꯌꯜꯗ ꯏꯁꯤꯡ ꯀꯦꯡꯈꯩꯁꯤꯡꯒꯤ GIS ꯗꯦꯇꯥ ꯂꯩꯇꯦꯡꯗꯦ꯫ ꯈꯁꯤꯡꯒꯤꯃꯈꯣ ꯈꯣꯡꯒꯤꯁꯤꯡ ꯈꯜꯂꯕ ꯑꯣꯏꯅ: ꯁꯦꯃꯒꯠꯄ ꯈꯦꯇꯤꯡꯂ ꯗꯥꯔꯀ ꯂꯥꯏꯕꯨ ꯑꯃꯁꯨꯡ ꯗꯥꯔꯀ ꯂꯤꯖꯦꯂꯈꯁ ꯑꯦꯛꯇ, 1960 (Manipur Land Revenue and Land Reforms Act, 1960)-ꯒꯤ ꯈꯣꯅꯗ ꯂꯥꯏꯕꯨ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠꯇꯒꯤ ꯆꯥꯡꯒꯤ ꯂꯩꯕꯥꯛꯃꯁꯤꯡ, ꯄꯦꯗ, ꯁꯕ-ꯗꯤꯚꯤꯖꯟ, ꯂꯥꯏꯕꯨ ꯍꯨꯃꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯄꯇꯇꯥ (patta)-ꯒꯤ ꯈꯨꯝꯃ ꯅꯩꯅ ꯊꯥꯗꯤꯕ, ꯅꯁꯤꯡ ꯑꯣꯅꯗ ꯂꯩꯕꯥꯛꯃ ꯁꯤꯡꯕ ꯆꯥꯡꯃꯗꯒꯤ ꯆꯥ ꯌꯦꯡꯗ; ꯌꯤꯡꯒꯤ ꯆꯥꯁꯤꯡ (Hill Areas)-ꯗ, ꯈꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥ) ꯗꯤꯁꯇ꯭ꯔꯤꯛ ꯀꯧꯟꯁꯤꯜ ꯑꯦꯛꯇ, 1971 (Manipur (Hill Areas) District Councils Act, 1971)-ꯒꯤ ꯁꯦꯛꯁꯟ 29-ꯒꯤ ꯈꯣꯅꯗ ꯆꯥ ꯌꯥꯊꯪꯗꯕ ꯑꯃꯁꯨꯡ ꯌꯥꯗꯕꯤꯒꯤ ꯈꯑꯣꯡꯗ ꯄꯨꯔꯤꯕ ꯈꯅꯥ, ꯗꯤꯁꯇ꯭ꯔꯤꯛ ꯀꯧꯟꯁꯤꯂꯁꯤꯡ (District Councils) ꯑꯃꯁꯨꯡ ꯒꯥꯎꯟ ꯑꯣꯊꯣꯔꯤꯇꯤꯁꯤꯡ (Village Authorities)-ꯗꯒꯤ ꯂꯩꯕꯥꯛꯃꯁꯤꯡ (ꯊꯤꯗꯣꯛꯅꯤꯕ [TBC]); M.A. 26/2019-ꯗ 22 ꯃꯦ 2020-ꯒꯤ ꯅꯦꯁꯅꯦꯜ ꯒ꯭ꯔꯤꯟ ꯇ꯭ꯔꯥꯏꯕꯨꯅꯦꯜ (National Green Tribunal)-ꯒꯤ ꯑꯣꯔꯗꯔꯒꯤ ꯃꯇꯨꯡꯗ ꯁꯥꯃꯅꯤꯕ ꯏꯁꯤꯡ ꯀꯦꯡꯈ 4,000 ꯔꯣꯃꯒꯤ ꯅꯦꯒꯥꯡꯋꯥꯔꯤ, ꯈꯁꯤꯡꯒꯤꯃꯈꯣ "ꯒ꯭ꯔꯥꯎꯟꯗ ꯇ꯭ꯔꯨꯊꯤꯡ, ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯁꯔꯚꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯕꯥꯂꯤꯇꯤ ꯃꯣꯅꯤꯇꯔꯤꯡ ... ꯄꯦꯟꯗꯤꯡ" ("Ground truthing, engineering surveys, and quality monitoring … are pending") (DoECC, 2025-26); ꯁ꯭ꯄꯦꯁ ꯑꯦꯄ꯭ꯂꯤꯀꯦꯁꯟ ꯁꯦꯟꯇꯔ (Space Applications Centre)-ꯒꯤ ꯋꯦꯇꯂꯦꯟꯗ ꯑꯦꯇꯂꯁ (Wetland Atlas, 2021), 2.25 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯌꯥꯝꯂꯕ ꯋꯦꯇꯂꯦꯟꯗ 132-ꯅꯤ ꯄꯨꯊꯣꯛꯂꯦ; 2025-26-ꯗ ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯇꯂꯦꯟꯗꯁ ꯑꯣꯊꯣꯔꯤꯇꯤ (Manipur State Wetlands Authority; MSWA)-ꯅ ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯔꯕ ꯋꯦꯇꯂꯦꯟꯗ 71 ꯑꯃꯁꯨꯡ ꯗꯤꯃꯔꯀꯦꯁꯟ ꯇꯧꯔꯕ 3, ꯑꯃꯁꯨꯡ ꯌꯦꯔꯤꯡ, ꯊꯣꯡꯖꯥꯎ ꯑꯃꯁꯨꯡ ꯌꯦꯅꯥꯝ–ꯀꯣꯡꯖꯥꯏ ꯄꯥꯠꯁꯤꯡ (pat; ꯅꯣꯡ ꯆꯨꯔꯣꯡ ꯋꯦꯇꯂꯦꯟꯗ)-ꯗꯒꯤ ꯈꯁꯤꯡꯒꯤ ꯕꯣꯎꯟꯗꯔꯤ ꯄꯨꯗꯤꯖꯤꯃꯤꯍꯦꯁꯤꯡ; ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯂꯒꯤ ꯔꯤꯚꯥꯏꯖ ꯁꯦꯝꯕ GIS ꯕꯦꯁ ꯃꯥꯁꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ) (Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification))-ꯒꯤ ꯆꯥ ꯁꯤꯡꯇꯦꯕꯒꯤ ꯃꯦꯄꯁꯤꯡ, ꯈꯁꯤꯡꯒꯤ ꯏꯁꯤꯡ ꯀꯦꯡꯈ ꯑꯃꯁꯨꯡ ꯄꯦꯔꯗꯁꯤꯡ (502.95 ha ꯔꯣꯝ), ꯇꯨꯔꯦꯂꯒꯤ ꯈꯣꯡ (76.85 ha ꯔꯣꯝ) ꯑꯃꯁꯨꯡ ꯋꯦꯇꯂꯦꯟꯗꯁꯤꯡꯅꯤ ꯄꯨꯊꯣꯛꯂꯦ, ꯑꯃꯁꯨꯡ ꯑꯦꯇ꯭ꯔꯥꯕꯨꯠ ꯁꯦꯄꯇꯦꯃꯁꯤꯡꯒꯤ GIS ꯃꯦꯁꯦꯜ ꯄꯦꯗꯦꯜꯁꯤꯡꯒꯤ; ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯇ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯒꯤ ꯈꯣꯅꯗ ꯂꯣꯛꯇꯥꯛꯀꯤ 236.21 km² ꯑꯃꯁꯨꯡ ꯈꯁꯤꯡꯒꯤ 70.30 km²-ꯒꯤ ꯀꯣꯔ ꯖꯣꯟ; WRD-ꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯄꯦꯟꯁꯤꯡ (river bunds), ꯅꯥꯏꯁꯤꯡ (sluices) ꯑꯃꯁꯨꯡ ꯄꯝꯄꯁꯤꯡ ꯁꯇꯦꯁꯟꯁꯤꯡꯒꯤ ꯂꯩꯕꯥꯛꯃꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯈꯁꯤꯡꯒꯤ ꯇꯨꯔꯦꯂꯒꯤ ꯒꯦꯖꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯁꯦꯝꯕ ꯏꯁꯤꯡꯈꯣꯡꯗꯒꯤ ꯅꯤꯡꯊꯣꯜ (drain)-ꯒꯤ ꯂꯦꯇꯤꯁꯤꯡ (ꯁꯔꯨꯛ 6); ꯐꯨꯜ ꯇꯦꯛ ꯂꯦꯚꯦꯜ (FTL) ꯑꯃꯁꯨꯡ ꯃꯦꯛꯁꯤꯃꯃ ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ (MWL)-ꯅꯤ ꯄꯨꯊꯣꯛꯂꯦ WRD ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯥꯝ ꯄꯟꯆꯥꯌꯦꯠ (Gram Panchayat) ꯆꯨꯔꯣꯡ, ꯌꯤꯡꯒꯤ ꯆꯥꯁꯤꯡꯗ, ꯒꯥꯎꯟ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri)-ꯒꯤ ꯂꯦꯇꯤꯁ꯭ꯇꯔꯁꯤꯡ; ꯗꯥꯃꯦ ꯕꯦꯁꯃ ꯑꯃꯕ ꯁꯔꯚꯦ ꯁꯤꯡꯕ ꯅꯦꯒꯥꯡꯁꯤꯡ; ISRO-ꯒꯤ ꯅꯦꯁꯅꯦꯜ ꯋꯦꯇꯂꯦꯟꯗ ꯏꯟꯚꯦꯟꯇꯔꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯦꯁꯃꯦꯟꯠ (National Wetland Inventory and Assessment) (NRSC); ꯁꯔꯚꯦ ꯑꯣꯐ ꯏꯟꯗꯤꯌꯥ (Survey of India)-ꯒꯤ ꯇꯣꯄꯣꯒ꯭ꯔꯥꯐꯤꯀꯦꯜ ꯃꯦꯄꯁꯤꯡ; ꯑꯃꯁꯨꯡ ꯗꯦꯔꯣꯗꯥꯝ ꯗꯣꯀꯨꯃꯦꯟꯇꯦꯁꯟꯁꯤꯡꯒꯤ ꯈꯣꯅꯗ ꯐꯤꯜꯗꯣꯡꯅꯤꯕ ꯏꯁꯤꯡ ꯀꯦꯡꯈꯁꯤꯡꯒꯤ ꯗꯔꯀꯥꯔ ꯇꯧꯔꯤ ꯑꯃꯃꯒ꯫ ꯈꯁꯤ ꯐꯤꯜꯗꯣꯡꯆꯨꯔꯣꯡꯗꯤꯐꯥꯕ, ꯑꯦꯄ꯭ꯂꯤꯀꯦꯟꯠ (Applicant) ꯈꯣꯡꯗꯤꯡꯃꯛꯅ ꯇꯦꯕꯜ 7.3.3-ꯒꯤ ꯍꯦꯗꯔꯐꯝ ꯁꯨꯃꯂꯃꯁꯤꯡꯒꯤ ꯏꯁꯤꯡ ꯀꯦꯡꯈꯁꯤꯡ ꯅꯑꯣꯠꯊꯕ, ꯍꯦꯟꯕ ꯌꯥꯝꯕ ꯑꯦꯛꯁꯦꯁꯇꯦꯟꯁ ꯑꯕꯨ ꯃꯕꯨ ꯑꯣꯅꯗ, ꯑꯃꯁꯨꯡ ꯈꯅꯣꯟꯅꯕ ꯏꯁꯤꯡ ꯀꯦꯡꯈꯒꯤ ꯁꯤꯜ ([ꯐꯤꯒꯔ 7-1](#))-ꯗ ꯂꯩꯕꯥꯛꯃ ꯁꯣꯟ꯫

ꯈꯣꯅꯗ ꯄꯤꯔꯤꯕ ꯐꯤꯜꯗ ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ ꯑꯁꯤ ꯈꯥꯡꯃ ꯐꯔꯦ꯫ ꯈꯁꯤ ꯁꯔꯨꯛ ꯑꯣꯡꯗ ꯍꯦꯅꯕꯤꯕ ꯐꯤꯜꯗ ꯈꯣꯡꯗꯤꯡꯃꯛ (ꯇꯦꯕꯜ 7.3.1(a)-ꯗꯒꯤ (g) ꯐꯔꯦꯕ)-ꯗ ꯁꯦꯝꯗꯣꯛꯄ ꯁꯦꯃꯗꯣꯛ ꯃꯃꯤ, ꯈꯅꯥ ꯑꯃꯁꯨꯡ ꯍꯦꯗꯔꯐꯝ ꯇꯦꯍꯦꯟꯕ, ꯑꯃꯁꯨꯡ ꯐꯤꯜꯗ ꯑꯕꯨꯈꯣꯡꯁꯤꯡ ꯄꯨꯔꯦꯇꯣꯡꯁ ꯑꯃꯒꯤ ꯐꯤꯒꯔ 7-1-ꯗꯒꯤ ꯊꯦꯡꯅꯕ ꯌꯥꯍꯟꯕ ꯅꯍꯤꯕꯗꯤ꯫

7A.1 ꯗꯦꯇꯥꯁꯤꯡ

- **WB_POLY** — ꯏꯁꯤꯡ ꯀꯦꯡꯈ ꯈꯣꯡꯗꯤꯡꯃꯛꯇꯒꯤꯃꯈꯣ ꯄꯣꯂꯤꯒꯣꯟ (polygon) ꯑꯃꯃꯃ: ꯂꯥꯏꯕꯨ ꯂꯩꯕꯥꯛꯃꯗꯒꯤ ꯊꯥꯃꯖ (ꯇꯦꯕꯜ 7.3.1(c))꯫
- **WB_FTL** — ꯁꯔꯚꯦ ꯁꯤꯡꯕ FTL ꯀꯟꯇꯨꯔ (contour) (ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯅꯨꯡꯁꯤꯡ, ꯄꯦꯔꯗꯁꯤꯡ) ꯆꯨꯔꯣꯡ ꯆꯦꯔꯣꯅꯒꯤ ꯈꯊꯡ (ꯌꯥꯗꯤꯔꯤꯁꯤꯡ), ꯄꯣꯂꯤꯒꯣꯟ ꯆꯨꯔꯣꯡ ꯗꯦꯟꯅꯦ ꯑꯣꯅꯗ꯫
- **WB_MWL** — ꯄꯨꯈ꯭ꯔꯤ ꯈꯣꯡꯗꯤꯡꯃꯛꯇꯒꯤ MWL ꯀꯟꯇꯨꯔ, ꯄꯣꯂꯤꯒꯣꯟ ꯑꯣꯅꯗ꯫
- **WB_FLOOD** — ꯈꯦꯄ ꯁꯤꯡꯕ ꯈꯦꯃꯖꯗ, 1% AEP ꯏꯁꯤꯡ ꯅꯌꯨꯊꯒꯤ ꯑꯣꯡꯁꯔꯦꯡ (ꯇꯦꯕꯜ 7.3.1(f)), ꯅꯣꯇꯤꯐꯥꯏ ꯁꯤꯡꯕ ꯈꯦꯃꯖꯗ ꯐ꯭ꯂꯗꯋꯦ (floodway)-ꯅꯤ ꯄꯨꯊꯣꯛꯂꯦ (ꯇꯦꯕꯜ 7.6.1)꯫
- **WB_STRUCT** — ꯁꯔꯄꯂꯁ ꯌꯤꯌꯔꯁꯤꯡ (surplus weirs), ꯅꯥꯏꯁꯤꯡ, ꯂꯦꯒꯨꯂꯦꯇꯔꯁꯤꯡ, ꯅꯦꯟꯗꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯣꯜꯒꯤ ꯑꯥꯎꯠꯐꯣꯂꯁꯤꯡ (outfalls)-ꯗꯒꯤꯃꯈꯣ ꯄꯣꯏꯟꯇꯁꯤꯡ꯫

- **WB_LINK** — ꯁꯞꯂꯥꯏ ꯆꯦꯅꯦꯜꯁꯤꯡ (supply channels), ꯁꯔꯞꯂꯁ ꯀꯣꯔꯁꯁꯤꯡ (surplus courses) ꯑꯃꯁꯨꯡ ꯀꯦꯁ꯭ꯀꯦꯗ (cascade) ꯑꯃꯅ ꯑꯃꯕ ꯏꯁꯤꯡꯁꯤꯡ ꯁꯝꯅꯍꯟꯕ ꯂꯤꯡꯀꯁꯤꯡꯒꯤꯗꯃꯛ ꯂꯥꯏꯅꯁꯤꯡ (ꯈꯟꯗ 7.3.1(e))꯫
- **WB_ENCR** — ꯍꯥꯏꯕ ꯅꯥ ꯍꯤꯁꯥꯕꯁꯤꯡ (encroachments)-ꯒꯤ ꯄꯣꯂꯤꯒꯅꯁꯤꯡ, ꯌꯦꯡꯁꯤꯅꯕ ꯑꯣꯐꯤꯁꯀꯤ ꯃꯇꯝ ꯃꯃꯤꯡ ꯌꯥꯑꯣꯅ (ꯈꯟꯗ 7.3.1(g))꯫
- **WB_SETBACK** — ꯃꯇꯨꯡ ꯄꯤꯔꯤꯕ ꯅꯥꯏꯔꯔꯁꯤꯡꯒꯤ ꯅꯣꯡꯃꯥꯏ ꯖꯣꯟ 1 ꯑꯃꯁꯨꯡ ꯖꯣꯟ 2-ꯒꯤ ꯄꯣꯂꯤꯒꯅꯁꯤꯡ (ꯈꯟꯗ 7.4)꯫

ꯂꯦꯌꯔ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯈꯨꯗꯝꯁꯤꯡꯗ ꯌꯥꯎꯕ ꯏꯁꯤꯡ ꯃꯐꯃꯒꯤ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ (WB_ID) ꯌꯥꯎꯍꯅꯒꯗꯕꯅꯤ꯫ ꯂꯦꯌꯔ ꯈꯨꯗꯤꯡꯃꯛ ꯗꯦꯇꯝ (datum) ꯑꯃꯁꯨꯡꯒꯥ ꯄꯤꯒꯗꯕꯅꯤ (ꯈꯟꯗ 7.3.5), ꯑꯃꯁꯨꯡ ꯗꯦꯇꯝ ꯑꯣꯏꯕ ꯃꯃꯤꯡ ꯂꯦꯌꯔꯒꯤ ꯃꯦꯇꯥꯗꯦꯇꯥ (metadata)-ꯗ ꯍꯥꯞꯀꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 7A.1 — ꯏꯁꯤꯡ ꯃꯐꯃꯒꯤ ꯄꯣꯂꯤꯒꯅꯁꯤꯡꯒꯤ ꯑꯦꯠꯔꯤꯕ꯭ꯌꯨꯠ ꯐꯤꯜꯗꯁꯤꯡ (WB_POLY)

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ / ꯗꯣꯃꯦꯟ	ꯃꯊꯧ ꯇꯥꯕ	ꯑꯔꯊꯕ	ꯈꯟꯗ
WB_ID	ꯇꯦꯛꯁꯠ	ꯖꯤꯂꯥꯒꯤ ꯀꯣꯗ + ꯁꯤꯔꯤꯌꯦꯜ	ꯍꯣꯌ	ꯑꯈꯟꯅꯕ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ, ꯂꯦꯌꯔ ꯄꯨꯝꯅꯃꯛꯇ ꯁꯤꯖꯤꯟꯅꯕ	7.3.1
WB_NAME	ꯇꯦꯛꯁꯠ	—	ꯍꯣꯌ	ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡꯗ ꯂꯩꯕ ꯃꯃꯤꯡ, ꯂꯣꯀꯦꯜ ꯃꯃꯤꯡꯁꯤꯡ ꯌꯥꯑꯣꯅ	7.3.1(a)
WB_NAME_MNI	ꯇꯦꯛꯁꯠ	ꯃꯩꯇꯩ ꯃꯌꯦꯛ	ꯍꯣꯌ	ꯃꯩꯇꯩꯂꯣꯟꯗ ꯃꯃꯤꯡ	7.3.1(a)
WB_TYPE	ꯀꯣꯗ	ꯇꯦꯕꯜ 7A.2	ꯍꯣꯌ	ꯏꯁꯤꯡ ꯃꯐꯃꯒꯤ ꯃꯈꯜ	7.2, 7.3.1(a)
SURVEY_NOS	ꯇꯦꯛꯁꯠ	ꯂꯩꯀꯥꯏ, ꯁꯔꯚꯦ ꯑꯃꯁꯨꯡ ꯁꯕꯗꯤꯚꯤꯖꯟ ꯅꯝꯕꯔꯁꯤꯡ	ꯍꯣꯌ	ꯏꯁꯤꯡ ꯃꯐꯃꯒꯤ ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯁꯔꯚꯦ ꯅꯝꯕꯔꯁꯤꯡ	7.3.1(a)
VILLAGE	ꯇꯦꯛꯁꯠ	—	ꯍꯣꯌ	ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯂꯩꯀꯥꯏ, ꯁꯕ-ꯗꯤꯚꯤꯖꯟ ꯑꯃꯁꯨꯡ ꯖꯤꯂꯥ	7.3.1(a)
CUSTODIAN	ꯀꯣꯗ	ꯇꯦꯕꯜ 7A.2	ꯍꯣꯌ	ꯀꯁ꯭ꯇꯣꯗꯤꯌꯟ (custodian) ꯕꯣꯗꯤ	7.3.1(b)
AREA_REC	ꯅꯝꯕꯔ	ha	ꯍꯣꯌ	ꯔꯦꯚꯦꯅ꯭ꯌꯨ ꯔꯦꯀꯣꯔꯗꯀꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯩꯕ ꯑꯦꯔꯤꯌꯥ	7.3.1(c)
AREA_FTL	ꯅꯝꯕꯔ	ha	ꯑꯣꯞꯁꯅꯦꯜ	FTL-ꯗ ꯋꯥꯇꯔꯁ꯭ꯞꯔꯦꯗ (waterspread), ꯀꯝꯞꯌꯨꯠ ꯇꯧꯕ	7.2, 7.3.1(d)
FTL	ꯅꯝꯕꯔ	m (ꯗꯦꯇꯝ)	ꯑꯣꯞꯁꯅꯦꯜ	ꯐꯨꯜ ꯇꯦꯉ꯭ꯀ ꯂꯦꯚꯦꯜ	7.3.1(d)
MWL	ꯅꯝꯕꯔ	m (ꯗꯦꯇꯝ)	ꯑꯣꯞꯁꯅꯦꯜ	ꯃꯦꯛꯁꯤꯃꯝ ꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ (ꯈꯟꯗ 7.2-ꯒꯤ ꯗꯦꯐꯤꯅꯤꯁꯟ)	7.3.1(d)
MWL_BASIS	ꯀꯣꯗ	WRD ꯔꯦꯀꯣꯔꯗ / 1% AEP ꯀꯦꯂꯀꯨꯂꯦꯠ ꯇꯧꯕ	ꯑꯣꯞꯁꯅꯦꯜ	ꯀꯔꯝꯕ ꯄꯥꯝꯕꯤ ꯑꯣꯏꯅ MWL-ꯒꯤ ꯃꯁꯛ ꯑꯣꯏꯔꯤꯕꯒꯦ	7.2
TBL	ꯅꯝꯕꯔ	m (ꯗꯦꯇꯝ)	ꯑꯣꯞꯁꯅꯦꯜ	ꯇꯦꯡꯀ ꯕꯦꯗ ꯂꯦꯚꯦꯜ, ꯁꯤꯜꯇꯀꯤ ꯃꯈꯥ ꯄꯥꯟꯗꯨꯅ	7.3.1(d)
WEIR_CREST	ꯅꯝꯕꯔ	m (ꯗꯦꯇꯝ)	ꯑꯣꯞꯁꯅꯦꯜ	ꯁꯔꯞꯂꯁ ꯋꯤꯌꯔꯒꯤ ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯂꯦꯚꯦꯜ	7.3.1(d)
WEIR_LEN	ꯅꯝꯕꯔ	m	ꯑꯣꯞꯁꯅꯦꯜ	ꯁꯔꯞꯂꯁ ꯋꯤꯌꯔꯒꯤ ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯂꯦꯡꯊ	7.3.1(d)
WEIR_TYPE	ꯇꯦꯛꯁꯠ	—	ꯑꯣꯞꯁꯅꯦꯜ	ꯁꯔꯞꯂꯁ ꯋꯤꯌꯔꯒꯤ ꯃꯈꯜ (ꯌꯥꯝꯅ ꯑꯣꯏꯕ ꯐꯤꯛꯁꯠ ꯀ꯭ꯔꯦꯁ꯭ꯠ, ꯁꯠꯇꯔꯁꯤꯡ ꯅꯠꯇꯔꯒꯥ ꯐꯣꯔꯃꯁꯤꯡ ꯌꯥꯑꯣꯅ)	7.3.1(d)
SLUICE_N	ꯏꯟꯇꯤꯖꯔ	—	ꯑꯣꯞꯁꯅꯦꯜ	ꯁ꯭ꯂꯨꯏꯁꯁꯤꯡꯒꯤ ꯃꯁꯤꯡ; ꯃꯔꯦꯜ WB_STRUCT-ꯗ	7.3.1(d)
SUPPLY_CH	ꯇꯦꯛꯁꯠ	WB_ID(s)	ꯑꯣꯞꯁꯅꯦꯜ	ꯑꯣꯏꯕꯗ ꯏꯁꯤꯡ ꯄꯤꯔꯤꯕ ꯁꯞꯂꯥꯏ ꯆꯦꯅꯦꯜ(ꯁꯤꯡ)	7.3.1(d)
SURPLUS_CS	ꯇꯦꯛꯁꯠ	WB_ID(s)	ꯑꯣꯞꯁꯅꯦꯜ	ꯑꯣꯏꯕꯗꯒꯤ ꯊꯣꯔꯀꯄ ꯁꯔꯞꯂꯁ ꯀꯣꯔꯁ(ꯁꯤꯡ)	7.3.1(d)
UPSTR_WB	ꯇꯦꯛꯁꯠ	WB_ID(s)	ꯀꯦꯁ꯭ꯀꯦꯗꯁꯤꯡ	ꯀꯦꯁ꯭ꯀꯦꯗꯇ ꯃꯊꯛ ꯊꯪꯕ ꯃꯐꯃꯗ ꯂꯩꯕ ꯑꯣꯏꯕ(ꯁꯤꯡ)	7.3.1(e)

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ / ꯗꯣꯃꯦꯟ	ꯃꯊꯧ ꯇꯥꯕ	ꯑꯔꯥꯜꯂꯕ	ꯀ꯭ꯂꯣꯖ
DNSTR_WB	ꯇꯦꯛꯁꯠ	WB_ID	ꯀꯦꯁ꯭ꯀꯦꯗꯁꯤꯡ	ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯗ ꯆꯦꯟꯕ ꯄꯨꯈ꯭ꯔꯤ, ꯇꯨꯔꯦꯜ, ꯈꯣꯡꯕꯥꯜ ꯅꯠꯔꯒꯥ ꯁꯃꯨꯗ꯭ꯔꯒꯤ ꯑꯥꯏꯗꯤ	7.3.1(e)
CATCH_AREA	ꯅꯝꯕꯔ	ha	ꯔꯦꯀꯦꯟꯁꯤꯡ	ꯔꯤꯆ (reach)-ꯀꯤ ꯃꯈꯥ ꯊꯡꯕ ꯑꯔꯣꯏꯕꯗ ꯄꯔꯝꯒꯤ ꯅꯝ (ꯀ꯭ꯂꯣꯖ 7.4.1(b) ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 7.1-ꯒꯤ 8 ha ꯠ꯭ꯔꯤꯒꯔꯒꯤꯗꯃꯛ)	7.4.1
DATUM	ꯇꯦꯛꯁꯠ	—	ꯍꯣꯌ	ꯂꯦꯚꯦꯜ ꯔꯦꯐꯔꯦꯟꯁꯀꯤ ꯗꯦꯇꯝ; WRD-ꯒꯤ ꯑꯔꯤꯕ ꯗꯦꯇꯝ ꯑꯣꯐꯁꯦꯠꯀꯤ ꯍꯥꯞꯗꯣꯛꯄ	7.3.5
LEVEL_DATE	ꯇꯥꯡ	—	ꯃꯁ꯭ꯔꯤꯁꯤꯡ	ꯂꯦꯚꯦꯜ ꯂꯧꯔꯛꯄꯒꯤ ꯇꯥꯡ	7.7.1(a)
SSC_DATE	ꯇꯥꯡ	—	ꯃꯁ꯭ꯔꯤꯁꯤꯡ	ꯑꯔꯣꯏꯕ ꯁꯥꯏꯠ–ꯁꯥꯏꯠ ꯂꯧꯔꯛꯄꯒꯤ ꯇꯥꯡ	7.7.1(b)
FLOOD_SRC	ꯀꯣꯗ	ꯂꯣꯛꯇꯥꯛ ꯃꯔꯥꯛ / ꯂꯝꯄꯥꯛꯀꯤ ꯁꯨꯔꯗꯤ / ꯂꯣꯏꯅ	ꯍꯣꯌ	1% AEP ꯏꯃꯥꯁꯤꯡꯒꯤ ꯍꯧꯔꯀꯐꯝ	7.3.4
FLOODWAY	ꯀꯣꯗ	ꯗꯤꯖꯥꯏꯅꯦꯠ ꯇꯧꯔꯕ / 1% ꯏꯃꯥꯁꯤꯡꯒꯤ ꯃꯈꯜꯅ / MWL-ꯒꯤ ꯃꯈꯥ	ꯍꯣꯌ	ꯐꯖꯗꯔꯦꯒꯤ ꯃꯐꯝ	7.6.1
ENCR_KNOWN	ꯀꯣꯗ	ꯍꯣꯌ / ꯅꯠꯇꯦ	ꯍꯣꯌ	ꯅꯥꯟꯊꯕ ꯂꯝ ꯅꯥꯟꯊꯣꯛꯄ; ꯃꯔꯣꯟ WB_ENCR-ꯗ	7.3.1(g)
CREDITED	ꯀꯣꯗ	ꯍꯣꯌ / ꯅꯠꯇꯦ	ꯃꯁ꯭ꯔꯤꯁꯤꯡ	ꯀ꯭ꯂꯣꯖ 7.7-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯦꯁꯦꯁꯃꯦꯟꯇ ꯁꯥꯏꯠ, ꯁꯀꯤꯂꯒꯤ ꯔꯦꯖꯔꯦꯁꯀ ꯂꯣꯏꯁꯤꯜ	7.7.1
WETLAND	ꯀꯣꯗ	ꯂꯣꯝꯏꯊꯟ ꯇꯧꯔꯕ / ꯂꯤꯁꯨꯟ ꯇꯧꯔꯕ / ꯑꯇꯣꯞꯄ	ꯔꯦꯀꯃꯦꯟꯗꯁꯤꯡ	ꯀ꯭ꯂꯣꯖ 7.12.1-ꯒꯤ ꯃꯇꯨꯡ ꯁꯥꯁ	7.12.1
SOURCES	ꯇꯦꯛꯁꯠ	—	ꯍꯣꯌ	ꯀ꯭ꯂꯣꯖ 7.3.3(a)-ꯗꯒꯤ (e) ꯐꯥꯑꯣꯕꯒꯤ ꯂꯤꯁꯨꯟꯁꯤꯡꯒꯤ ꯁꯤꯖꯤꯟꯅꯥꯏ ꯍꯧꯔꯀꯐꯝꯁꯤꯡ	7.3.3
UPDATED	ꯇꯥꯡ	—	ꯍꯣꯌ	ꯑꯔꯣꯏꯕ ꯑꯅꯧꯕ ꯁꯦꯃꯗꯣꯛꯈꯤꯕ ꯇꯥꯡ, ꯑꯃꯁꯨꯡ ꯀꯔꯤꯅ	7.3.1

ꯇꯦꯕꯜ 7A.2 — ꯀꯣꯗꯀꯤ ꯂꯤꯁꯨꯟꯁꯤꯡ

ꯀꯣꯗꯀꯤ ꯂꯤꯁꯨꯟ	ꯒꯦꯟꯁꯨꯁꯤꯡ	ꯀ꯭ꯂꯣꯖ
WB_TYPE	ꯇꯨꯔꯦꯜ (turel); ꯑꯤꯃꯒꯤ ꯈꯣꯡ (khong); ꯁꯍꯔꯒꯤ ꯑꯦꯂꯦꯟ ꯅꯠꯔꯒꯥ ꯈꯣꯡꯕꯥꯜ; ꯄꯨꯈ꯭ꯔꯤ (ꯃꯍꯧꯁꯥꯒꯤ ꯂꯦꯃ ꯅꯠꯔꯒꯥ ꯑꯦꯠꯂꯦꯗ; ꯂꯃꯇꯥꯏ ꯀꯣꯔ ꯂꯦꯗ, ꯂꯃꯇꯥꯏ ꯕꯐꯔ ꯂꯦꯗ, ꯑꯇꯣꯞꯄ ꯄꯨꯈ꯭ꯔꯤ; ꯂꯣꯝꯏꯊꯟ ꯇꯧꯔꯕ, ꯁꯔꯐꯨ ꯅꯠꯔꯒꯥ ꯂꯣꯝꯏꯊꯟ ꯇꯧꯗꯕ); ꯄꯨꯈ꯭ꯔꯤ (ꯄꯣꯠꯆꯥ); ꯐꯨꯝꯗꯤ (phumdi) ꯅꯠꯔꯒꯥ ꯑꯊꯥꯐꯨꯝ (athaphum)-ꯒꯤ ꯏꯔꯤꯌꯥ; ꯄꯦꯗꯤ ꯂꯦꯟꯗ (paddy land) ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯑꯦꯂꯦꯟꯁꯤꯡ (2014-ꯒꯤ ꯏꯃꯥꯁ); ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯛ ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯅꯁꯤꯡ ꯂꯦꯄꯥ ꯏꯔꯤꯌꯥ (ꯃꯁꯤꯒꯤ ꯅꯥꯏꯇꯣꯃꯒꯤ ꯂꯣꯏꯁꯤꯜ); ꯔꯤꯖꯔꯚꯣꯏꯔ (ꯃꯁꯤꯒꯤ ꯁꯔꯨꯛꯇꯁꯤꯡ ꯂꯦꯃꯒꯤ ꯂꯣꯏꯁꯤꯜ); ꯅꯍꯨꯡ (spring); ꯔꯤꯇꯦꯟꯁꯟ ꯄꯣꯟꯗ ꯅꯠꯔꯒꯥ ꯕꯦꯁꯤꯟ; ꯁꯄꯣꯔꯦꯁ ꯑꯦꯂꯦꯟ; ꯁꯔꯄꯣꯔꯁ ꯀꯣꯔꯁ	7.2
CUSTODIAN	IMC ꯅꯠꯔꯒꯥ ꯑꯇꯣꯞꯄ ULB (ꯃꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯈꯣꯡꯕꯥꯜ; AMRUT ꯄꯣꯠꯆꯥ); PDA Manipur (ꯃꯁꯥꯔ-ꯄꯔꯤꯁ ꯏꯔꯤꯌꯥ ꯑꯃꯗ ꯈꯥꯁ ꯂꯝ); WRD (ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯛ, ꯅꯁꯤꯡ ꯅꯥꯏꯇꯣꯃꯒꯤ ꯑꯦꯂꯦꯟ, ꯅꯖꯥꯡ, ꯄꯣꯂꯣꯛ; ꯂꯝꯐꯦꯟꯄꯥꯏꯕ); LDA (ꯂꯣꯛꯇꯥꯛ, 2006-ꯒꯤ ꯏꯃꯥꯁ); NHPC (ꯅꯣꯅ ꯕꯦꯔꯦꯜ); PWD ꯅꯠꯔꯒꯥ ꯑꯦꯁꯦꯟ-ꯍꯅꯕꯒꯤ ꯏꯦꯂꯦꯁ (ꯂꯝꯕꯤꯒꯤ ꯈꯣꯡꯕꯥꯜ ꯑꯃꯁꯨꯡ ꯀꯟꯗꯔꯦꯟꯁꯤꯡ); PHED (ꯁꯤꯔꯦꯔ, ꯅꯔꯍꯣꯡ); DoECC (ꯂꯝꯕꯤꯒꯤ ꯅꯔꯍꯥꯁꯣꯄꯁꯔ ꯄꯕꯥꯁꯤꯡ); ꯐꯔꯦꯁꯇ, ꯅꯔꯍꯅꯔꯂꯝꯏꯊꯟ ꯑꯃꯁꯨꯡ ꯀꯂꯥꯏꯃꯦꯠ ꯑꯦꯔꯦꯟ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (ꯐꯃꯥꯡꯒꯤ ꯂꯝ); ꯔꯦꯒꯨ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ ꯅꯠꯔꯒꯥ ꯗꯤꯁ꯭ꯇꯤꯛ ꯀꯃꯤꯁꯅꯔ (ꯂꯥꯏꯕꯥꯀꯀꯤ ꯂꯝ); ꯒꯔꯤꯝ ꯄꯟꯆꯥꯌꯠ; ꯃꯤꯌꯥꯝ ꯑꯃꯒꯤ ꯃꯄꯥ (ꯄꯥꯏꯕ ꯂꯝ); ꯗꯤꯂꯥꯔꯤꯡ ꯀꯃꯤꯇꯤꯅ ꯅꯠꯔꯒꯥ ꯒꯤꯂꯦꯜ ꯑꯣꯅꯔꯁꯤꯡ (ꯑꯤꯃꯒꯤ ꯂꯝꯁꯤꯡ) [TBC]; ꯃꯂꯤꯄꯨꯔ ꯁꯥꯏꯠ ꯔꯦꯖꯔꯦꯁꯀ ꯑꯣꯅꯔꯁꯤꯡ (ꯂꯣꯝꯏꯊꯟ ꯇꯧꯔꯕ ꯔꯦꯖꯔꯦꯁ); ꯑꯇꯣꯞꯄ (ꯃꯃꯤꯡ)	7.3.1(b)
ꯁꯥꯔꯥꯝꯅꯔ (WB_STRUCT)	ꯁꯔꯄꯣꯔꯁ ꯑꯤꯔꯤꯔ; ꯅꯖꯥꯡ; ꯔꯦꯒꯨꯂꯦꯇꯔ; ꯅꯔꯂꯦꯌ; ꯈꯣꯡꯕꯥꯜꯒꯤ ꯑꯦꯡꯍꯥꯛ; ꯒꯔꯤꯁ ꯄꯣꯂꯨꯟꯁꯤꯡ ꯇꯨꯔꯥꯄ; ꯀꯔꯤꯁꯤꯡ	7.3.1(d), 7.10
ꯂꯝ ꯅꯥꯟꯊꯣꯛ (WB_ENCR)	ꯕꯤꯜꯗꯤꯡ; ꯐꯤꯜ; ꯂꯝꯕꯤ; ꯔꯦꯜ; ꯑꯃꯒꯤ ꯁꯗꯀꯣꯛ; ꯂꯣꯃ-ꯁꯤꯡꯃ; ꯑꯇꯣꯞꯄ — ꯇꯨꯗꯤꯡꯃꯛ ꯑꯦꯀꯣꯏꯗ ꯇꯧꯅꯕ ꯇꯥꯡ, ꯏꯔꯤꯌꯥ (m²) ꯑꯃꯁꯨꯡ ꯍꯧꯔꯀꯐꯝ ꯂꯣꯏꯁꯤꯜ	7.3.1(g), 7.13

ꯇꯦꯕꯜ 7A.3 — ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯑꯦꯠ꯭ꯔꯤꯕ꯭ꯌꯨꯠ ꯐꯤꯜꯗꯁꯤꯡ (WB_STRUCT)

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ	ꯑꯌꯥꯏꯕ	ꯀ꯭ꯂꯣꯖ
STR_ID	ꯇꯦꯛꯁꯇ	—	ꯑꯃꯠꯇꯥꯒꯤ ꯃꯈꯜꯂꯕ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ	7.3.1(d)
WB_ID	ꯇꯦꯛꯁꯇ	—	ꯁꯦꯕꯥ ꯄꯥꯏꯔꯤꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ	7.3.1(d)
STR_TYPE	ꯀꯣꯗ	ꯇꯦꯕꯜ 7A.2	ꯁ꯭ꯠꯔꯛꯆꯔꯒꯤ ꯃꯈꯜ	7.3.1(d)
CREST_SILL	ꯅꯝꯕꯔ	m (ꯗꯦꯇꯝ)	ꯄꯤꯔꯤꯕꯒꯤ ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯅꯠꯔꯒꯥ ꯁꯤꯜꯒꯤ ꯂꯦꯚꯦꯜ	7.7.1(a)
LENGTH_SIZE	ꯇꯦꯛꯁꯇ	m	ꯄꯤꯔꯤꯕꯒꯤ ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯂꯦꯡꯊ, ꯅꯠꯔꯒꯥ ꯁꯤꯜꯒꯤ ꯑꯣꯄꯦꯅꯤꯡ ꯁꯥꯏꯖ	7.7.1(a)
GATED	ꯀꯣꯗ	ꯍꯣꯌ / ꯅꯠꯇꯦ	ꯀꯟꯠ꯭ꯔꯣꯜ ꯇꯧꯕ ꯌꯥꯕ ꯑꯥꯎꯠꯂꯦꯠ (ꯐꯂꯣꯡ ꯀ꯭ꯂꯤꯌꯔ ꯑꯃꯁꯨꯡꯂꯃꯗ ꯃꯍꯩ ꯇꯧꯕ, ꯀ꯭ꯂꯣꯖ 7.8.2(a))	7.8.2
CONDITION	ꯀꯣꯗ	ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕ / ꯑꯁꯣꯏꯕ ꯂꯩꯕ	ꯑꯔꯣꯏꯕ ꯄ꯭ꯔꯤ-ꯃꯣꯅꯁꯨꯟ ꯏꯅꯁ꯭ꯄꯦꯛꯁꯅꯒꯤ ꯐꯤꯔ, ꯇꯦꯛꯅꯤꯀꯦꯜ ꯂꯣꯔꯅꯗ	7.7.1(d), 7.14.4

ꯑꯍꯦꯅꯕ 7B — ꯐꯤꯛꯁ ꯇꯧꯕ ꯄꯥꯛꯂꯕꯒꯤ ꯁꯦꯠꯕꯦꯛ ꯇꯦꯕꯜ (ꯑꯅꯇꯔꯅꯦꯇꯤꯒ S-3, ꯑꯍꯦꯅꯕ 1C-ꯒꯤ ꯖꯥꯔꯅꯩ)

ꯁꯔꯨꯛ 7-ꯒꯤ ꯀ꯭ꯂꯣꯖ 7.3.4, 7.4.3, 7.4.6 ꯑꯃꯁꯨꯡ 7.4.7, ꯑꯃꯁꯨꯡ ꯄꯣꯂꯤꯁꯤ ꯁꯞꯂꯤꯃꯦꯟꯠ (Policy Supplement)-ꯀꯤ ꯑꯅꯇꯔꯅꯦꯇꯤꯒ S-3 (ꯑꯍꯦꯅꯕ 1C)-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

7B.1 ꯇꯦꯕꯜ ꯑꯁꯤ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯕ ꯃꯇꯝ

ꯐꯤꯛꯁ ꯇꯧꯕ ꯄꯥꯛꯂꯕꯒꯤ ꯁꯦꯠꯕꯦꯛ ꯑꯁꯤ ꯃꯈꯥꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯆꯠꯅꯕ ꯃꯐꯃꯗ ꯈꯛꯇ ꯁꯤꯖꯤꯟꯅꯕ ꯌꯥꯏ:

- (a) ꯑꯥꯗꯥꯔꯤꯁꯤꯅꯩ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯁꯤ꯭ꯒꯤꯗꯃꯛ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯠꯀꯤ ꯃꯦꯞ ꯑꯃꯠꯇꯥ ꯂꯩꯗ꯭ꯔꯤ (ꯀ꯭ꯂꯣꯖ 7.3.4);
- (b) ꯀ꯭ꯂꯣꯖ 7.3.4-ꯗ ꯑꯦꯛꯁꯦꯞꯁꯅꯁꯤꯡꯗ ꯍꯥꯌꯔꯤꯕ ꯃꯦꯞꯀꯤ ꯑꯃꯗ 1% AEP ꯑꯦꯛꯁꯇꯦꯟꯠ ꯅꯥꯏꯅꯥꯏ ꯃꯥꯡꯖꯤꯟꯕ: ꯁꯥꯏꯖ ꯑꯃꯁꯨ ꯏꯁꯤꯡ ꯍꯤꯡꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯏꯕ ꯀꯦꯆꯃꯦꯟꯠ ꯑꯃꯗ ꯂꯩꯕ, ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯃꯒꯤ ꯅꯦꯇꯅꯕ 1 ha ꯅꯠꯔꯒꯥ ꯍꯦꯟꯕ ꯁꯥꯏꯖ ꯑꯃꯗ ꯅꯠꯇꯦ, ꯑꯃꯁꯨꯡ ꯑꯥꯗꯥꯔꯤꯁꯤꯅꯩ ꯃꯦꯞꯀꯤ ꯑꯃꯗ ꯍꯥꯌꯔꯤꯕ; ꯑꯃꯁꯨꯡ
- (c) ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯑꯁꯤ ꯁꯦꯠꯕꯦꯛꯁꯤꯡ ꯆꯠꯅꯤꯕ ꯑꯃꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.4.1): ꯕꯦꯀꯥꯕꯗ ꯇꯧꯕ ꯅꯠꯔꯒꯥ ꯐꯤꯜꯗꯕ ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯍꯨꯗꯤꯡꯃꯛ, ꯑꯃꯁꯨꯡ ꯁꯥꯏꯖ 8 ha ꯅꯠꯔꯒꯥ ꯍꯦꯟꯕ ꯏꯁꯤꯡ ꯊꯗꯥꯀꯄ ꯃꯍꯧꯁꯥꯒꯤ ꯄꯦꯅꯦ ꯍꯨꯗꯤꯡꯃꯛ꯫

ꯑꯥꯗꯥꯔꯤꯁꯤ ꯑꯃꯗ ꯀ꯭ꯂꯣꯖ 1.7-ꯒꯤ ꯃꯇꯝꯗ ꯑꯅꯇꯔꯅꯦꯇꯤꯒ S-3 ꯇꯥꯁꯤꯜꯂꯕ ꯃꯐꯃꯗ, ꯃꯇꯝꯗ ꯂꯩꯕ ꯇꯦꯕꯜ ꯑꯁꯤ S-3 ꯇꯦꯕꯜꯅꯤ꯫ ꯀ꯭ꯂꯣꯖ 1.7.3(e)-ꯗ S-3 ꯇꯦꯕꯜ ꯑꯁꯤ ꯁꯦꯠꯕꯦꯛ ꯅꯥꯏꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯀꯃꯤꯇꯤ (State Stormwater Technical Committee)-ꯗ ꯊꯥꯗꯣꯛꯄ ꯊꯧꯔꯥꯡ ꯂꯩꯔꯤ꯫ ꯃꯁꯤ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯃꯇꯨꯡꯗ, ꯒꯦꯜꯂꯁꯤꯡ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 7.4.6-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ, ꯃꯐꯝ ꯑꯁꯤꯗ ꯍꯥꯏꯗꯥꯕꯒꯤ ꯌꯦꯡꯁꯤꯟꯅꯕ ꯍꯥꯏꯕ ꯅꯤꯔꯤ꯫

ꯇꯦꯕꯜ 7B.1 — ꯏꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯀ꯭ꯂꯥꯁ ꯃꯇꯨꯡ ꯏꯟꯅ ꯐꯤꯛꯁ ꯇꯧꯕ ꯄꯥꯛꯂꯕꯒꯤ ꯁꯦꯠꯕꯦꯛ (ꯑꯅꯇꯔꯅꯦꯇꯤꯒ S-3)

ꯏꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯀ꯭ꯂꯥꯁ	ꯁꯟꯇꯨꯁ ꯏꯄꯥꯃꯒꯤ ꯂꯝ	ꯄꯨꯝꯅꯃꯛ ꯁꯦꯠꯕꯦꯛ (ꯖꯣꯟ 1 + ꯖꯣꯟ 2)	ꯃꯁꯤꯒꯤ ꯃꯅꯨꯡꯗ ꯖꯣꯟ 1	ꯃꯦꯖꯔ ꯇꯧꯕꯒꯤ ꯃꯐꯝ
ꯇꯦꯡꯕꯥꯟ, ꯑꯄꯤꯛꯄ	8 ha-ꯗꯒꯤ 65 ha	25 m	15 m	ꯇꯣꯞ ꯑꯣꯐ ꯕꯦꯡꯛ (ꯀ꯭ꯂꯣꯖ 7.4.3)
ꯇꯦꯡꯕꯥꯟ, ꯃꯔꯛ ꯑꯣꯏꯕ	65 ha-ꯗꯒꯤ 20 km²	40 m	15 m	ꯇꯣꯞ ꯑꯣꯐ ꯕꯦꯡꯛ

ꯏꯁꯤꯡ ꯆꯦꯟꯐꯝꯒꯤ ꯀ꯭ꯂꯥꯁ	ꯀꯦꯆꯃꯦꯟꯇ ꯃꯐꯝꯒꯤ ꯆꯥꯡ	ꯄꯨꯝꯅꯃꯛꯀꯤ ꯄꯥꯛ-ꯆꯥꯎꯕ (ꯖꯣꯟ 1 + ꯖꯣꯟ 2)	ꯈꯋꯥꯏꯗꯒꯤ ꯍꯟꯊꯕ ꯖꯣꯟ 1	ꯍꯦꯟꯅꯕ ꯄꯥꯎꯇꯥꯛ ꯍꯥꯏ
ꯆꯦꯅꯦꯜ, ꯑꯆꯧꯕ, ꯑꯃꯁꯨꯡ ꯇꯨꯔꯦꯜꯁꯤꯡ	20 km²-ꯗꯒꯤ ꯍꯦꯟꯕ	50 m	20 m	ꯄꯥꯔꯅꯒꯤ ꯃꯊꯛ
ꯄꯨꯈ꯭ꯔꯤ, ꯗꯝ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤ	ꯄꯨꯝꯅꯃꯛ	MWL ꯁꯦꯠꯕꯦꯛ + 25 m	MWL ꯁꯦꯠꯕꯦꯛ ꯂꯝꯕꯤ, ꯑꯃꯁꯨꯡ FTL-ꯗꯒꯤ 15 m-ꯗꯒꯤ ꯍꯟꯊꯗꯕ	FTL ꯁꯦꯠꯕꯦꯛ (ꯖꯣꯟ 1); MWL ꯁꯦꯠꯕꯦꯛ (ꯕꯐꯔ)
ꯍꯥꯎꯔꯝ, ꯑꯁꯥꯊꯣꯛꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯈꯤꯕꯥ	ꯄꯨꯝꯅꯃꯛ	ꯑꯣꯏꯕꯥ ꯍꯥꯏꯗ꯭ꯔꯣꯄꯦꯔꯤꯑꯣꯗ ꯃꯈꯥ, ꯑꯃꯁꯨꯡ 50 m-ꯗꯒꯤ ꯍꯟꯊꯗꯕ	15 m	ꯀ꯭ꯂꯣꯖ 7.13.1-ꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯐꯝꯒꯤ ꯃꯇꯨꯡ

ꯃꯔꯨꯑꯣꯏꯕ ꯀ꯭ꯂꯣꯖ 7.4.6 (ꯇꯦꯕꯜ 7.1)-ꯗꯒꯤꯅꯤ꯫ ꯖꯣꯟ 2-ꯗꯤ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯄꯥꯛ-ꯆꯥꯎꯕꯗꯒꯤ ꯖꯣꯟ 1 ꯍꯟꯊꯍꯅꯕꯅꯤ꯫

7B.2 ꯁꯤꯖꯤꯟꯅꯕꯒꯤ ꯃꯔꯣꯜ

- (a) **ꯍꯦꯟꯅꯕ ꯃꯊꯛ.** ꯀ꯭ꯂꯣꯖ ꯍꯥꯞꯆꯤꯟꯕꯒꯤ ꯑꯣꯏꯅ, ꯀ꯭ꯂꯣꯖ 7.13.1-ꯒꯤ ꯃꯇꯨꯡꯗꯒꯤ ꯍꯦꯛꯇꯅꯕ ꯍꯦꯟꯅꯕ ꯃꯊꯛꯇꯥ: ꯊꯥꯕꯥ ꯊꯥꯁꯤꯡꯗꯤ ꯃꯇꯨꯡ ꯑꯃꯁꯨꯡ ꯊꯣꯏꯗꯅ ꯃꯊꯛ FTL (ꯑꯃꯁꯨꯡ ꯄꯥꯔꯅꯒꯤ ꯃꯊꯛ)-ꯒꯤ ꯍꯟꯊꯕ ꯍꯦꯟꯅꯕ ꯀꯅꯕ ꯑꯣꯏ꯫ FTL ꯑꯃꯁꯨꯡ ꯄꯥꯔꯅꯒꯤ ꯃꯊꯛ ꯑꯅꯤꯗ ꯀꯥꯟꯅꯕ ꯍꯦꯛꯇꯗ, ꯍꯦꯟꯅꯕ ꯂꯥꯞꯂꯕ ꯖꯣꯟ ꯂꯤꯕ ꯑꯣꯏ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.4.3)꯫
- (b) **ꯀꯦꯆꯃꯦꯟꯇꯒꯤ ꯆꯥꯡ.** ꯆꯦꯅꯦꯜ ꯑꯍꯣꯡꯕꯗꯤꯍꯥ, ꯁꯀꯍꯂꯒꯤ ꯑꯣꯏꯕ ꯊꯥꯔꯦꯡꯒꯤ ꯍꯧ ꯍꯤꯡꯕ ꯑꯊꯨꯀꯕꯗ ꯆꯕ ꯀꯦꯆꯃꯦꯟꯇꯒꯤ ꯆꯥꯡ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫ ꯊꯤꯀ ꯑꯍꯣ ꯁꯀꯍꯂꯒꯤ ꯍꯟꯊꯕ ꯀ꯭ꯂꯣꯖꯁꯤꯡꯒꯤ ꯆꯤꯍꯤꯡ ꯑꯍꯦ ꯆꯦꯟꯅꯕꯥꯂꯕ ꯍꯦꯛꯇꯗ, ꯁꯀꯍꯂꯒꯤ ꯍꯟꯊꯕ ꯆꯕ ꯊꯤꯀ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯍꯦꯟꯅꯕ ꯂꯥꯞꯂꯕ ꯄꯥꯛ-ꯆꯥꯎꯕ ꯑꯣꯏ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫
- (c) **ꯆꯥꯡꯅ ꯑꯅꯤꯍꯥ.** ꯄꯥꯛ-ꯆꯥꯎꯕ ꯑꯁꯤ ꯆꯦꯅꯦꯜ ꯑꯍꯥꯒꯤ ꯆꯥꯡꯅ ꯀꯅꯕꯗ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤ, ꯗꯝ, ꯂꯩꯀꯥꯏ ꯑꯃꯁꯨꯡ ꯍꯥꯎꯔꯝ ꯑꯍꯥꯒꯤ ꯑꯁꯥꯊꯕ ꯄꯨꯝꯅꯃꯛꯇꯥ ꯊꯝꯂꯤ꯫
- (d) **ꯍꯦꯟꯊꯔꯦꯡ ꯑꯁꯤꯗꯤ ꯍꯥꯏꯕ ꯃꯔꯣꯜꯒꯤ ꯊꯥꯕ.** ꯖꯣꯟ 1 ꯑꯁꯤ ꯀꯗꯥꯏꯗꯝ 15 m-ꯗꯒꯤ ꯍꯟꯊꯗꯦ (ꯀ꯭ꯂꯣꯖ 7.4.7)꯫ ꯑꯅꯤꯁꯨ ꯑꯃꯁꯨꯡ ꯑꯊꯨꯝꯃꯥꯡꯒꯤ ꯍꯦꯟꯅꯕ ꯂꯥꯞꯂꯕ ꯄꯥꯛ-ꯆꯥꯎꯕ ꯑꯍꯦꯟ ꯍꯟꯊꯗꯦ ꯍꯥꯏꯕ ꯁꯤꯖꯤꯟꯅꯕꯁꯤꯡꯒꯤꯗꯃꯛ ꯍꯦꯟꯅ ꯑꯁꯤ (ꯀ꯭ꯂꯣꯖ 7.4.5)꯫
- (e) **ꯑꯣꯏꯒꯤ ꯍꯟꯊꯕ ꯍꯦꯟꯅꯕ ꯁꯦꯠꯕ.** ꯍꯀꯆꯥꯡꯗꯥ ꯃꯇꯨꯡꯗ ꯑꯍꯦ ꯍꯤꯡꯒꯤ ꯑꯀꯤꯕꯥ ꯊꯥꯕꯥ ꯍꯦꯛꯇꯗ, ꯄꯥꯛ-ꯆꯥꯎꯕ ꯑꯁꯤ ꯇꯦꯕꯜ 7B.1 ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 7.4.3 ꯑꯃꯁꯨꯡ 7.4.4-ꯒꯤ ꯍꯟꯊꯕ ꯍꯦꯟꯅꯕ ꯂꯥꯞꯂꯕ ꯑꯣꯏꯅꯤ꯫
- (f) **ꯊꯥꯁꯤꯊꯗ.** ꯄꯥꯛ-ꯆꯥꯎꯕꯁꯤꯡ ꯍꯦꯟ (ꯃꯤꯍꯥꯝ ꯃꯊꯛ ꯂꯥꯞꯂꯕ) ꯑꯁꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯐꯝꯒꯤ ꯁꯤꯖ ([ꯃꯦꯞ 7-1](#)) ꯑꯃꯁꯨꯡ ꯑꯥꯂꯥꯃꯕꯗ ꯀꯥꯟꯅꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.4, ꯃꯦꯞꯁꯤꯡ)꯫
- (g) **ꯊꯤꯔꯤꯡ.** ꯑꯣꯏꯕꯥꯒꯤ 1% AEP ꯏꯁꯤꯡ ꯀꯅꯕꯒꯤ ꯍꯥꯂꯣꯏꯗ ꯆꯥꯕꯗꯒꯤ ꯆꯅꯤ 2-ꯒꯤ ꯍꯟꯊꯕ ꯇꯦꯕꯜ ꯑꯁꯤ ꯊꯤꯔꯤꯡ ꯇꯧꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.16.1)꯫

7B.3 ꯆꯦꯅꯦꯜꯒꯤ ꯂꯝꯂꯕꯁꯤꯡꯒꯤ ꯄꯥꯎꯈꯨꯝ

ꯆꯦꯅꯦꯜꯒꯤ ꯂꯝꯂꯕꯁꯤꯡ ꯑꯁꯤ 2006-ꯒꯤ ꯀꯦꯟꯁꯥꯁ ꯁꯤꯇꯤ (Kansas City) APWA-ꯒꯤ ꯗꯤꯐꯣꯜꯇ ꯁ꯭ꯠꯔꯤꯝ ꯕꯐꯔꯁꯤꯡ (default stream buffers)-ꯅꯤ ꯆꯥꯡꯗꯨꯅ, ꯍꯥꯏꯕꯥ ꯊꯥꯖꯕ ꯄꯥꯛꯅꯅ ꯑꯃꯁꯨꯡ 15 m-ꯒꯤ ꯃꯔꯣꯜꯒꯤ ꯆꯥꯡꯕ ꯁꯦꯠꯄ ꯍꯥꯏꯅꯅ ꯍꯦꯟꯊꯔꯦꯡ ꯑꯁꯤꯗꯤ ꯍꯥꯏꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.4.6, ꯁꯦꯟꯅꯍꯟꯗꯤ ꯇꯥꯔꯤ)꯫ ꯁꯤꯗꯥ ꯑꯅꯨꯅ ꯁꯤꯖꯤꯟꯅꯕ ꯍꯥꯏꯕ ꯀꯦꯆ, ꯄꯥꯎꯈꯨꯝꯒꯤ ꯃꯔꯨꯑꯣꯏꯕꯁꯤ ꯍꯥꯌꯒꯅꯤ:

ꯇꯦꯕꯜ 7B.2 — ꯀ꯭ꯂꯣꯖ 7.4.6-ꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯄꯥꯎꯈꯨꯝꯒꯤ ꯕꯐꯔꯁꯤꯡ (KC APWA 5600, 2006, §5605.3)

ꯀꯦꯆꯃꯦꯟꯇꯒꯤ ꯆꯥꯡ (ꯑꯦꯀꯔ, ꯍꯦꯛꯇꯔ)	ꯃꯥꯟꯅꯕ SI ꯌꯨꯅꯤꯠ	ꯄꯥꯎꯈꯨꯝꯒꯤ ꯕꯐꯔ
40 ac-ꯗꯒꯤ ꯍꯟꯊꯕ	16 ha-ꯗꯒꯤ ꯍꯟꯊꯕ	40 ft (12 m)
40–160 ac	16–65 ha	60 ft (18 m)
160–5,000 ac	65 ha – 20 km²	100 ft (30 m)
5,000 ac-ꯗꯒꯤ ꯍꯦꯟꯕ	20 km²-ꯗꯒꯤ ꯍꯦꯟꯕ	120 ft (37 m)

ꯇꯦꯕꯜ 7B.1-ꯗ ꯂꯩꯕ 65 ha ꯑꯃꯁꯨꯡ 20 km²-ꯒꯤ ꯀ꯭ꯂꯥꯁ ꯂꯤꯃꯤꯠꯁꯤꯡ ꯑꯁꯤ 160 ac ꯑꯃꯁꯨꯡ 5,000 ac-ꯒꯤ SI ꯒꯦꯜꯁꯨꯁꯤꯡꯅꯤ꯫ 8 ha-ꯒꯤ ꯃꯍꯩꯒꯤ ꯂꯤꯃꯤꯠ ꯑꯁꯤ APWA 2025.01-ꯒꯤ ꯑꯦꯛꯠ 20-ꯒꯤ ꯁꯔꯤꯒꯤꯔꯤꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.4.1(b))꯫

ꯑꯅꯦꯛꯁ 7C — ꯐ꯭ꯂꯗ ꯀꯟꯠꯔꯣꯜ ꯁ꯭ꯠꯔꯛꯆꯔꯒꯤ ꯑꯣꯄꯔꯦꯇꯤꯡ ꯔꯨꯂꯒꯤ ꯇꯦꯝꯄ꯭ꯂꯦꯠ

ꯁꯔꯨꯛ 7-ꯒꯤ ꯀ꯭ꯂꯣꯖ 7.7.1(c), 7.7.3, 7.8 ꯑꯃꯁꯨꯡ 7.14.4-ꯗ ꯌꯦꯡꯕꯤꯌꯨ꯫

ꯀꯥꯝꯄꯤꯂꯦꯁꯟ ꯑꯦꯗꯚꯥꯏꯖꯔꯤ ꯑꯣꯏꯅ ꯄꯤꯔꯤꯕ ꯇꯦꯝꯄ꯭ꯂꯦꯠ ꯃꯁꯛ ꯇꯥꯛꯄ꯫ ꯔꯤꯚꯤꯖꯟ꯫ WRD-ꯒꯤ ꯀꯟꯠꯔꯣꯜꯗꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯁ꯭ꯠꯔꯛꯆꯔꯁꯤꯡꯒꯤꯗꯃꯛ, ꯑꯣꯄꯔꯦꯇꯤꯡ ꯔꯨꯜ ꯑꯁꯤ WRD-ꯒꯤ ꯔꯨꯂꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.8.4); ꯇꯦꯝꯄ꯭ꯂꯦꯠ ꯑꯁꯤꯅꯥ ꯀ꯭ꯂꯣꯖ 7.8-ꯅꯥ ꯍꯥꯏꯔꯤꯕ ꯑꯣꯏꯕꯁꯤꯡ ꯇꯝꯕꯤ, ꯃꯔꯝ ꯑꯗꯨꯅꯥ ꯀꯥꯎꯟꯁꯤꯂꯒꯤ ꯔꯨꯜ ꯑꯁꯤ ꯃꯁꯤꯡ ꯍꯤꯡꯕꯗꯃꯛꯀꯤ ꯍꯦꯛ ꯇꯧꯕ ꯍꯩꯕ꯫ ꯀꯝꯄ꯭ꯂꯥꯏꯟꯁ ꯄꯔꯤꯕꯦꯜꯁꯤꯡꯒꯤ ꯃꯑꯣꯡꯗ ꯂꯩꯕ ꯇꯦꯛꯁꯠ ꯑꯁꯤ ꯁ꯭ꯠꯔꯛꯆꯔ ꯔꯦꯖꯤꯁ꯭ꯇꯔꯗꯃꯛ ꯃꯄꯨꯡ ꯐꯥꯍꯟꯒꯗꯕꯅꯤ꯫

7C.1 ꯈꯪꯗꯣꯛꯄ

1. ꯁ꯭ꯠꯔꯛꯆꯔ: [ꯃꯃꯤꯡ, ꯑꯅꯦꯛꯁ 7A-ꯒꯤ WB_ID, ꯀꯣꯑꯣꯔꯗꯤꯅꯦꯠ, ꯂꯣꯀꯦꯁꯟ-ꯗꯤꯁ꯭ꯠꯔꯤꯛꯠ, ꯄꯦꯔꯤꯁ]꯫
2. ꯀꯟꯠꯔꯣꯜꯗꯤꯔꯦꯡ: [WRD-ꯒꯤ ꯗꯤꯚꯤꯖꯟ / ULB / ꯒ꯭ꯔꯥꯝ ꯄꯟꯆꯥꯌꯠ ꯂꯩꯍꯥꯛ, ꯌꯥꯝꯅꯒꯤ ꯂꯃꯂꯤꯡꯗ, ꯍꯤꯡꯂꯦ ꯑꯣꯄꯔꯦꯇꯔ / ꯑꯦꯖꯦꯟꯁꯤ]꯫
3. ꯀꯦꯂꯀꯦꯗꯨ ꯂꯩꯐꯝ: ꯃꯈꯥ ꯈꯣꯡꯕ ꯃꯐꯝꯗ ꯂꯩꯕ ꯁ꯭ꯠꯔꯛꯆꯔ(ꯁꯤꯡ) [ ]; ꯃꯊꯛ ꯈꯣꯡꯕ ꯃꯐꯝꯗ ꯂꯩꯕ ꯁ꯭ꯠꯔꯛꯆꯔ, ꯀꯥꯎꯕꯦꯟ ꯂꯩꯍꯥꯛ ꯍꯣꯡꯗꯣꯛꯄ [ ]꯫
4. ꯗꯦꯇꯥ: [ ]꯫ ꯔꯤꯐꯔꯦꯟ ꯇꯧꯕ ꯂꯦꯚꯦꯂꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 7.7.1(a)), ꯔꯤꯐꯔꯦꯟꯒꯤ ꯇꯝꯕ [ ]: FTL [ ] m; MWL [ ] m; TBL (ꯀꯁꯔꯦꯟꯗꯒꯤ ꯂꯦꯃꯍꯧ ꯄꯥꯟꯗꯝ) [ ] m; ꯔꯤꯐꯔꯦꯟ ꯌꯤꯔꯔꯒꯤ ꯀꯔꯦꯔꯣꯜ [ ] m, ꯂꯦꯡꯊꯣ [ ] m; ꯈꯣꯡꯖꯝꯒꯤ ꯁꯤꯜꯁꯤꯡ [ ] m꯫
5. ꯁꯇꯦꯂ–ꯁꯇꯔꯦꯂ ꯀꯔꯚ (ꯀ꯭ꯂꯣꯖ 7.7.1(b)): ꯔꯤꯚꯥꯏꯒꯤ ꯇꯝꯕ [ ]; ꯁꯦꯗ꯭ꯌꯨꯜ 1 ꯑꯣꯏꯅꯕ ꯁꯤꯡꯂꯨꯔꯦ꯫
6. ꯀꯟꯠꯔꯣꯜ ꯇꯧꯕ ꯌꯥꯕ ꯑꯥꯎꯇꯂꯦꯇꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 7.8.2(a)): [ꯀꯟꯠꯔꯣꯜ ꯇꯧꯕ ꯌꯥꯕ ꯈꯣꯡꯖꯝ (gated sluice) / ꯔꯦꯒꯨꯂꯦꯇꯔ / ꯂꯣꯀ]; FTL-ꯗ ꯀꯦꯄꯦꯁꯤꯇꯤ [ ] m³/s꯫

7C.2 ꯄꯣꯠꯆꯩꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯥꯏꯑꯣꯔꯤꯇꯤ

7. ꯁ꯭ꯠꯔꯛꯆꯔ ꯑꯁꯤꯅꯥ [ꯈꯔꯤꯒꯦꯁꯟ (ꯀꯃꯥꯟꯗ ꯑꯦꯔꯤꯌꯥ [ ] ha) / ꯂꯥꯏꯅꯕ ꯈꯣꯡꯕꯤ ꯄꯤꯕ / ꯔꯤꯌꯥꯔꯦ / ꯈꯣꯡꯕꯤ ꯈꯔꯦꯡꯒꯤ ꯁꯇꯔꯦꯂ]-ꯒꯤ ꯂꯕꯥꯛ ꯄꯤꯂꯍꯧꯕꯅꯤ꯫ ꯀꯟꯠꯔꯣꯜꯗꯤꯔꯦꯡꯅꯥ ꯑꯦꯖꯦꯟꯁꯤ ꯃꯑꯣꯏꯗ ꯔꯦꯀꯣꯔꯗ ꯇꯧꯗꯨꯕꯗꯤ, ꯈꯔꯤꯒꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯤ ꯄꯤꯕ ꯑꯁꯤ ꯃꯔꯤ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯕ ꯂꯦꯔꯤ (ꯀ꯭ꯂꯣꯖ 7.8.2(d))꯫

7C.3 ꯌꯨꯝ ꯁ꯭ꯃꯇꯕꯒꯤ ꯂꯦꯚꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯝꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 7.8.1(a))

8. ꯁ꯭ꯠꯔꯛꯆꯔ ꯑꯁꯤ ꯇꯦꯕꯜ 7C.1-ꯗ ꯂꯩꯕ ꯂꯦꯚꯦꯂꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯈꯣꯡꯒꯤ ꯌꯥꯕꯤꯈꯒꯗꯕꯅꯤ꯫

ꯇꯦꯕꯜ 7C.1 — ꯃꯇꯝ ꯃꯇꯨꯡ ꯈꯣꯡꯒ ꯔꯨꯂꯒꯤ ꯂꯦꯚꯦꯂꯁꯤꯡ (ꯁ꯭ꯠꯔꯛꯆꯔ ꯔꯦꯖꯤꯁ꯭ꯇꯔꯗꯃꯛ ꯃꯄꯨꯡ ꯐꯥꯍꯟꯒꯗꯕ)

ꯃꯇꯝ	ꯇꯥꯔꯒꯦꯠ ꯂꯦꯚꯦꯜ (m)	ꯃꯈꯥꯀꯤ ꯂꯤꯃꯤꯠ (m)	ꯃꯊꯛꯀꯤ ꯂꯤꯃꯤꯠ (m)	ꯄꯣꯠꯆꯩ
[1 Jan – ꯇꯝ]	[ ]	FTL	[ ]	ꯈꯔꯤꯒꯦꯁꯟ / ꯈꯣꯡꯕꯤ ꯄꯤꯕꯒꯤꯗꯃꯛ ꯂꯃꯕ
[ꯇꯝ – ꯀꯣꯂꯦꯒꯤ ꯃꯇꯝ ꯍꯧꯕ]	[ ]	FTL	[ ]	ꯂꯃꯕ
[ꯐ꯭ꯂꯗ-ꯀꯣꯂꯦꯒꯤ ꯃꯇꯝ, ꯂꯩꯔꯕꯗꯤ]	ꯀꯣꯂꯦ ꯂꯦꯚꯦꯜ [ ]	ꯀꯣꯂꯦ ꯂꯦꯚꯦꯜ [ ]	[ ]	ꯐ꯭ꯂꯗ ꯀꯣꯂꯦ (ꯀ꯭ꯂꯣꯖ 7.8.2)
[ꯀꯣꯂꯦꯒꯤ ꯃꯇꯝ ꯂꯣꯏꯕ – 31 Dec]	[ ]	FTL	[ ]	ꯑꯃꯨꯛ ꯍꯟꯅ ꯂꯦꯡꯍꯟꯕ

9. ꯐ꯭ꯂꯗ ꯀꯣꯂꯦ ꯑꯃꯠꯇꯥ ꯂꯩꯗꯕ ꯃꯇꯝꯗ, ꯗꯤꯖꯥꯏꯟꯒꯤꯗꯃꯛ ꯍꯥꯔꯀꯄꯒꯤ ꯂꯦꯚꯦꯜ ꯑꯁꯤ FTL-ꯅꯤ (ꯀ꯭ꯂꯣꯖ 7.7.3) ꯑꯃꯁꯨꯡ ꯀꯣꯂꯦꯒꯤ ꯃꯇꯃꯒꯤ ꯔꯥ ꯑꯗꯨ ꯂꯥꯎꯊꯣꯀꯄ꯫

7C.4 ꯐ꯭ꯂꯗ ꯀꯨꯁꯟ (ꯀ꯭ꯂꯣꯖ 7.8.2)

10. ꯀꯨꯁꯟ ꯂꯦꯚꯦꯜ: [ ] m, ꯃꯁꯤ FTL-ꯒꯤ [ ] m ꯃꯈꯥꯗ ꯂꯩ, ꯁꯦꯗ꯭ꯌꯨꯜ 1-ꯗꯒꯤ [ ] m³-ꯒꯤ ꯀꯨꯁꯟ ꯚꯣꯂꯨꯝ ꯄꯤ꯫
11. ꯇꯥꯡꯁꯤꯡ: ꯀꯨꯁꯟ ꯑꯁꯤ [ ]-ꯗꯒꯤ [ ] ꯐꯥꯎꯕ ꯊꯝꯂꯤ꯫
12. ꯗ꯭ꯔꯣꯗꯥꯎꯟ (drawdown): ꯄꯨꯟ꯭ꯔꯤ ꯑꯁꯤ [ꯑꯥꯎꯠꯂꯦꯠ]-ꯒꯤ ꯅꯨꯃꯤꯠꯗ ꯄꯨꯡ [ ]-ꯒꯤ ꯃꯅꯨꯡꯗ FTL-ꯗꯒꯤ ꯀꯨꯁꯟ ꯂꯦꯚꯦꯜ ꯐꯥꯎꯕ ꯂꯦꯈꯄꯂꯕ ꯔꯥꯏ, ꯄꯦꯔꯥ 18-ꯒꯤ ꯃꯦꯊꯝꯃꯤ ꯔꯤꯂꯤꯖ ꯔꯦꯠꯁꯤꯡꯒꯤ ꯄꯦꯟꯗꯕ ꯔꯤꯂꯤꯖ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯅꯂꯤ꯫
13. ꯔꯤꯂꯥꯏꯑꯦꯕꯤꯂꯤꯇꯤ: ꯔꯦꯀꯣꯔꯗ [ꯆꯍꯤꯁꯤꯡ]-ꯒꯤ ꯃꯇꯝꯗ ꯀꯟꯇꯤꯅ꯭ꯌꯨꯑꯁ ꯁꯤꯃꯨꯂꯦꯁꯟ (continuous simulation) (ꯀ꯭ꯂꯣꯖ 3.13)-ꯅꯥ ꯃꯥꯂꯦꯃꯒꯤ ꯃꯇꯝꯁꯤꯡꯒꯤ [ ]%-ꯗ ꯗꯤꯅꯥꯟꯗ ꯂꯥꯡ ꯄꯨꯕꯒꯤ ꯈꯥꯗꯥꯡ ꯑꯃꯒꯤ ꯄꯥꯔꯀꯄꯀꯗ ꯀꯨꯁꯟ ꯑꯁꯤ ꯂꯩꯔꯤ ꯄꯔꯕ ꯆꯥꯎꯂꯤ, ꯃꯁꯤ ꯍ꯭ꯌꯥꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ 90% ꯑꯥꯅꯒꯗꯕꯂꯤ꯫ ꯁꯤꯃꯨꯂꯦꯁꯟ ꯔꯤꯄꯣꯔꯇ ꯑꯁꯤ ꯁꯦꯗ꯭ꯌꯨꯜ 2-ꯂꯤ꯫
14. ꯌꯤꯅꯗ: ꯀꯁꯇꯥꯗꯤꯌꯦꯂꯅꯥ ꯁꯦꯗ꯭ꯌꯨꯜ 3-ꯗ ꯍꯔꯤꯕ ꯍꯔꯤꯒꯦꯁꯟ ꯂꯆꯔꯒꯥ ꯍꯁꯤꯡ ꯄꯤꯕꯒꯤ ꯌꯤꯅꯗ ꯃꯤꯡꯕ ꯑꯗꯨ ꯔꯥꯍ [ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯑꯗꯨꯗ ꯔꯦꯀꯣꯔꯗ ꯇꯥꯕ ꯀꯃꯄꯦꯟꯁꯦꯁꯟ]꯫
15. ꯄꯨꯟ꯭ꯔꯤ ꯑꯗꯨꯗ ꯀꯟꯇ꯭ꯔꯣꯜ ꯇꯥꯕ ꯌꯥꯕ ꯑꯥꯎꯠꯂꯦꯠ ꯂꯩꯇꯕ ꯃꯐꯃꯗ, ꯄꯥꯔꯀ ꯑꯁꯤ ꯍꯧꯇꯦ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯀꯨꯁꯟ ꯑꯃꯆꯤꯡ ꯂꯧꯗꯦ (ꯀ꯭ꯂꯣꯖ 7.8.3)꯫

7C.5 ꯔꯤꯂꯤꯖꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 7.8.1(b)-ꯗꯒꯤ (d) ꯐꯥꯎꯕ)

16. ꯂꯦꯚꯦꯜ ꯍꯨꯗꯤꯡꯗ ꯄꯥꯏꯞ ꯑꯃꯁꯨꯡ ꯔꯦꯒꯨꯂꯦꯇꯔꯒꯤ ꯁꯦꯇꯤꯡꯁꯤꯡ: ꯇꯦꯕꯜ 7C.2꯫
17. ꯑꯥꯎꯇꯔꯦꯇꯔ: ꯄꯥꯏꯞꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯒꯨꯂꯦꯇꯔꯁꯤꯡ ꯑꯁꯤ [ꯑꯥꯎꯠꯂꯦꯠ]-ꯅꯥ ꯌꯥꯅꯥ꯫ [ ] m³/s-ꯗꯒꯤ ꯍꯦꯟꯕ ꯔꯤꯂꯤꯖ ꯑꯃꯍ [ꯑꯥꯎꯠꯂꯦꯠ]-ꯅꯥ ꯄꯤꯊꯣ, ꯂꯩꯔꯒꯥ ꯄꯃꯔꯂꯦꯡꯁꯤ ꯑꯃꯗ [ꯑꯥꯎꯠꯂꯦꯠ]-ꯅꯥ, ꯑꯥꯔꯗꯔ ꯑꯁꯤꯕ ꯌꯥꯄ꯫
18. ꯃꯦꯊꯝꯃꯤ ꯔꯤꯂꯤꯖ ꯔꯦꯠ: [ ] m³/s꯫ ꯔꯦꯠ ꯑꯁꯤ, ꯃꯍꯥꯛ ꯈꯪꯕ ꯃꯐꯝꯒꯤ ꯀꯦꯌꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯂꯤꯡꯀ ꯐ꯭ꯂꯗꯀꯤ ꯀꯣꯇꯁꯤꯡꯅꯥꯒꯤ, ꯃꯍꯥꯛ ꯈꯪꯕ ꯃꯐꯃꯗ ꯂꯩꯕ ꯕꯤꯟꯗꯤꯡꯁꯤꯡꯗ ꯍꯁꯤꯡ ꯍꯌꯥꯟꯗ ꯈꯥꯡꯍꯦꯟꯗꯅꯦ (ꯁꯦꯗ꯭ꯌꯨꯜ 4-ꯅꯥ ꯃꯍꯥꯛ ꯈꯪꯕ ꯃꯐꯝꯒꯤ ꯌꯦꯡ ꯀꯤ)꯫
19. ꯀꯁꯇꯥꯗꯤꯌꯦꯂꯒꯤ ꯍꯃꯔꯂꯦꯡꯁꯤ ꯀ꯭ꯔꯤꯁꯤꯂꯔꯒꯤ ꯃꯍꯥꯛ ꯂꯩꯇꯣꯅꯥ, ꯀꯅꯥꯡꯃꯕ ꯃꯤ ꯑꯃꯍꯥꯛꯅꯥ ꯀꯦꯟ ꯂꯩꯔꯒꯥ ꯁꯔꯀꯂꯁ ꯌꯤꯅꯔ ꯀꯡꯔꯥꯍꯟꯗꯕꯂꯤ, ꯂꯦꯃꯍꯦꯟꯔꯥꯍꯟꯗꯕꯂꯤ ꯂꯩꯔꯒꯥ ꯈꯥꯡꯍꯨꯡꯍꯦꯟꯔꯥꯍꯟꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 7.14.5)꯫

ꯇꯦꯕꯜ 7C.2 — ꯂꯦꯚꯦꯜ ꯃꯇꯨꯡ ꯍꯦꯟꯂ ꯑꯥꯎꯇꯔꯦꯇꯀꯤ ꯁꯦꯇꯤꯡꯁꯤꯡ (ꯄꯨꯟ꯭ꯔꯤ ꯍꯨꯗꯤꯡꯃꯤꯀꯤꯗꯃꯛ ꯃꯄꯨꯡ ꯐꯥꯍꯟꯒꯗꯕ)

ꯄꯨꯟ꯭ꯔꯤꯒꯤ ꯂꯦꯚꯦꯜ (m)	ꯄꯥꯏꯞ 1	ꯄꯥꯏꯞ 2	ꯔꯦꯒꯨꯂꯦꯇꯔ	ꯈꯥꯡꯀꯤ ꯍꯣꯠꯅꯕ ꯄꯨꯂꯕ ꯑꯥꯎꯇꯐ꯭ꯂꯣ (m³/s)	ꯂꯧꯁꯤꯡ
ꯀꯨꯁꯟ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯈꯥꯗ	[ ]	[ ]	[ ]	[ ]	
ꯀꯨꯁꯟ ꯂꯦꯚꯦꯜꯗꯒꯤ FTL ꯐꯥꯎꯕ	[ ]	[ ]	[ ]	[ ]	
FTL (ꯌꯤꯅꯔꯗꯒꯤ ꯍꯁꯤꯡ ꯈꯥꯡꯀ ꯍꯥꯞ)	[ ]	[ ]	[ ]	[ ]	
FTL-ꯒꯤ ꯃꯈꯥꯇꯒꯤ MWL ꯐꯥꯎꯕ	[ ]	[ ]	[ ]	[ ]	TBL ꯐꯥꯎꯕ ꯐ꯭ꯔꯤꯕꯣꯔꯗ (freeboard) ꯌꯦꯡ ꯇꯥꯕꯤꯌ (ꯀ꯭ꯂꯣꯖ 7.7.4(b))

7C.6 ꯐꯥꯔꯀꯁꯤꯡꯒꯤꯁꯤꯡ, ꯌꯥꯔꯂꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯃꯌꯨꯂꯤꯀꯦꯁꯟ (ꯀ꯭ꯂꯣꯖ 7.8.1(e) ꯑꯃꯁꯨꯡ (f))

20. ꯇꯔꯤꯒꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯒꯗꯕ ꯈꯕꯀꯁꯤꯡ ꯇꯦꯕꯜ 7C.3-ꯗ ꯂꯩ꯫
21. ꯐ꯭ꯂꯗ ꯑꯁꯤꯒꯤ ꯃꯈꯥꯗ ꯔꯤꯂꯤꯖ ꯑꯃꯃꯍꯦꯛꯀꯤ ꯃꯃꯤꯡꯗ, ꯑꯥꯎꯇꯔꯦꯇꯔꯅꯥ ꯃꯍꯥꯛ ꯈꯪꯕ ꯃꯐꯃꯗ ꯂꯩꯕ ꯊꯔꯕꯟ ꯂꯥꯀꯄ ꯕꯥꯗꯤꯁꯤꯡ (ULBs) ꯑꯃꯁꯨꯡ ꯄꯨꯅꯒꯤ ꯑꯦꯗꯃꯤꯂꯤꯁꯇꯔꯦꯁꯟ, ꯑꯃꯁꯨꯡ ꯁꯦꯗ꯭ꯌꯨꯜ 5-ꯗ ꯍꯔꯤꯕ ꯃꯑꯣꯡꯗ ꯃꯐꯝ ꯑꯗꯨꯗ ꯂꯩꯔꯤꯕ ꯃꯤꯁꯤꯡꯗ, ꯐꯥꯔꯀꯁꯤꯡꯅꯥ ꯍꯧꯍꯟꯂꯕꯗꯤ ꯔꯤꯂꯤꯖꯒꯤ ꯍ꯭ꯌꯥꯅꯗꯒꯤ ꯂꯦꯃꯕꯗ ꯄꯨꯡ [ ] ꯃꯃꯤꯡꯗ ꯈꯉꯍꯟꯒꯗꯕꯂꯤ꯫

ꯇꯦꯕꯜ 7C.3 — ꯇꯔꯤꯒꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯒꯗꯕ ꯈꯕꯀꯁꯤꯡ (ꯄꯨꯟ꯭ꯔꯤ ꯍꯨꯗꯤꯡꯃꯤꯀꯤꯗꯃꯛ ꯃꯄꯨꯡ ꯐꯥꯍꯟꯒꯗꯕ)

ꯊꯕꯛꯀꯤꯕ	ꯊꯧꯗꯥꯡꯐ	ꯐꯤꯚꯝ ꯇꯥꯛꯄ	ꯃꯇꯝ
ꯃꯥꯌꯈꯥꯕꯂꯃꯤꯗꯈꯗ IMD-ꯒꯤ ꯁꯦꯡꯒꯤ ꯑꯃꯆꯕ ꯆꯦꯡ ꯂꯨꯕꯒꯤ ꯌꯦꯐꯆꯤꯡ	IMD	ꯒꯥꯇꯂꯤꯡ ꯁꯨꯡ [ ] ꯂꯨꯗꯤꯡꯗ ꯁꯦꯕꯤꯂꯨ; ꯑꯦꯍꯥꯏꯇꯥꯏꯂꯤꯡ ꯄꯡꯗꯦꯗꯆꯤ ꯄꯌꯔꯕ ꯌꯥꯗ ꯑꯣꯕꯤꯂꯨ; ꯁꯨꯍꯨꯐꯤ ꯑꯂꯤ ꯈꯂꯤꯒꯤ ꯐꯨꯅ ꯇꯥꯒꯥꯅꯗ ꯅꯠꯔꯒ ꯈꯗꯨꯒꯤ ꯈꯍꯦꯗ ꯆꯐꯤ ꯄꯌꯔꯕ ꯃꯕꯦꯖꯐꯈ ꯑꯣꯕꯤꯂꯨ	[ ]
IMD ꯅꯠꯔꯒ MSDMA-ꯒꯤ ꯐꯥꯗ ꯑꯥꯇꯐꯠ	IMD, MSDMA	ꯈꯥꯗꯂꯤꯈꯈ ꯐꯤꯆꯤꯇ ꯐꯥꯠꯃꯤ ꯈꯕꯨꯡꯗ, ꯐꯨꯅ ꯇꯥꯒꯥꯅ ꯌꯦꯆꯕ ꯈꯖꯦ ꯑꯣꯕ ꯐꯤꯆꯤꯇꯂꯤꯡ ꯄꯣꯕꯤꯂꯨ; ꯈꯍꯦ ꯖꯡꯕ ꯈꯏꯈꯒꯤ ꯕꯦꯗꯤꯂꯤꯡꯗ ꯍꯁꯄꯆꯕꯤꯂꯨ (ꯁꯦꯐꯦ 21)	[ ]
ꯆꯐꯕꯗꯤ, ꯂꯄꯐꯒꯤ ꯏꯦꯐꯃꯦꯂꯠ ꯂꯤꯂꯑꯥꯈꯒꯤ ꯌꯦꯐꯆꯤꯡ	[ ]	[ ]	[ ]
ꯁꯨꯍꯨꯐꯤꯒꯤ ꯇꯥꯒꯥꯅ FTL ꯌꯦꯍ	ꯒꯥꯇ	ꯁꯨꯡ ꯂꯨꯗꯤꯡꯗ ꯑꯦꯍꯥꯏꯏꯆꯦ ꯐꯥꯃꯦꯐꯗ ꯑꯣꯕꯤꯂꯨ; ꯁꯕ ꯑꯈꯂꯨꯡ ꯌꯤꯌꯐ ꯍꯕꯂꯁꯥꯗꯠ ꯑꯣꯕꯤꯂꯨ	[ ]
ꯁꯨꯍꯨꯐꯤꯒꯤ ꯇꯥꯒꯥꯅ [MWL – [ ] m] ꯌꯦꯍ	ꯒꯥꯇ	ꯍꯈꯐꯇꯥꯕꯂꯤ ꯁꯨꯐꯦꯂꯤꯇꯐ; ꯍꯈꯐꯇꯥꯕꯂꯤ ꯑꯥꯗꯂꯕ ꯁꯦꯆꯦꯕ ꯑꯈꯈꯗꯃꯤ ꯁꯕ ꯃꯗꯁꯒꯤ ꯑꯥꯐꯤꯌꯦꯗ ꯌꯦꯐꯆꯤꯡ (ꯃꯆꯦꯇ 7.14.3(c))	[ ]

7C.7 ꯐꯥꯃꯦꯐꯗꯂꯤꯡ ꯑꯈꯂꯨꯡ ꯐꯤꯒꯤꯁ (ꯃꯆꯦꯇ 7.8.1(g))

22. ꯈꯦꯕꯂꯨꯕ (1 ꯑꯥꯁꯐꯤꯅꯗꯒꯤ 31 ꯑꯦꯗꯑꯣꯕꯐ ꯏꯦꯁꯕ)-ꯒꯤ ꯈꯑꯣꯈꯗ ꯑꯦꯁꯐꯥꯑꯣꯐꯦ ꯂꯨꯈꯤꯠ ꯂꯨꯗꯤꯡꯒꯤ ꯐꯥꯃꯦꯐꯗ ꯑꯣꯒꯗꯕꯆꯤ: ꯁꯨꯍꯨꯐꯤꯒꯤ ꯇꯥꯒꯥꯅ, ꯐꯤꯆꯤꯇ ꯂꯨꯗꯤꯡꯈꯗ (ꯈꯑꯣꯈ, ꯐꯥꯠ ꯑꯈꯂꯨꯡ ꯗꯨꯂꯨꯐꯥꯂꯕ), ꯑꯈꯂꯨꯡ ꯒꯥꯠ ꯂꯥꯑꯣꯡ ꯂꯨꯗꯤꯡꯈꯗ꯫ ꯈꯦꯕꯂꯨꯕꯒꯤ ꯈꯁꯦꯕꯗ, ꯐꯥꯃꯦꯐꯗꯂꯤꯡ [ꯄꯁꯑꯣꯦ ꯂꯨꯗꯤꯡ] ꯖꯈꯒꯗꯕꯆꯤ꯫
23. ꯐꯥꯃꯦꯐꯗꯂꯤꯡ ꯑꯂꯤ ꯑꯦꯁꯐꯥꯂꯕ ꯑꯈꯂꯨꯡ ꯈꯥꯕꯑꯣꯥꯆꯥꯕꯂ (O&M) ꯁꯦꯆꯦꯕ (ꯂꯐꯨꯗ 10)-ꯒꯤ ꯆꯦꯌꯆꯦ ꯖꯈꯒꯗꯕꯆꯤ ꯑꯈꯂꯨꯡ ꯑꯦꯖꯦꯐꯤꯑꯣꯤꯆꯦ ꯄꯍꯐꯕꯗꯤ ꯁꯤꯒꯗꯕꯆꯤ꯫
24. ꯁꯨꯍꯨꯐꯤ ꯑꯂꯤ ꯈꯦꯕꯂꯨꯕꯒꯤ ꯈꯈꯦꯡꯗ (31 ꯈꯦꯐꯌ ꯏꯦꯁꯕ) ꯑꯈꯂꯨꯡ ꯑꯃꯆꯕ ꯆꯦꯡ ꯂꯨꯕꯒꯤ ꯖꯦꯗꯦꯗ ꯂꯨꯗꯤꯡꯒꯤ ꯈꯑꯣꯡꯗ ꯍꯕꯂꯁꯥꯗꯠ ꯑꯣꯒꯗꯕꯆꯤ (ꯃꯆꯦꯇ 7.14.4)꯫
25. ꯁꯨꯍꯨꯐꯤ ꯑꯂꯤ [ ] m-ꯒꯤ ꯈꯖꯗꯑꯣ ꯆꯕ ꯇꯥꯒꯥꯅ ꯑꯈꯗ ꯂꯐꯁꯇꯂ ꯑꯣꯌꯤꯕ ꯖꯦꯗꯦꯗ ꯑꯈꯈꯗꯃꯤ ꯈꯑꯣꯡꯗ, ꯌꯤꯌꯐ, ꯍꯖꯦꯡꯂꯤꯡ ꯅꯠꯔꯒ ꯁꯦꯕꯗ ꯄꯡꯗꯦꯃꯁ ꯑꯈꯈꯗꯃꯤ ꯈꯑꯣꯡꯗ (ꯃꯆꯦꯇ 7.7.6), ꯑꯈꯂꯨꯡ ꯃꯐꯤꯒꯈꯕ ꯑꯦꯍꯐꯕꯂ ꯈꯥꯂꯨꯌꯅꯒꯤ ꯐꯤꯒꯤꯁꯒꯤ ꯆꯦꯌꯆꯦ ꯐꯨꯅ ꯑꯂꯤ ꯐꯤꯒꯤꯁ ꯑꯣꯒꯗꯕꯆꯤ꯫

ꯂꯥꯗꯨꯅꯂꯤꯡ: 1 ꯂꯑꯣꯥꯇ–ꯂꯑꯣꯐꯥꯇ ꯃꯐꯒ; 2 ꯃꯕꯑꯣꯤꯆꯨꯑꯂ ꯂꯤꯈꯨꯇꯥꯂꯕꯒꯤ ꯐꯤꯁꯦꯐꯠ; 3 ꯌꯤꯅꯗ ꯑꯈꯂꯨꯡ ꯃꯈꯁꯥꯕꯥꯂꯥꯂꯕ; 4 ꯈꯥꯗꯂꯤꯈꯈ ꯐꯤꯆꯤꯇꯒꯤ ꯈꯍꯦ ꯖꯡꯕ ꯈꯏꯈꯒꯤ ꯌꯥꯗ; 5 ꯃꯈꯂꯨꯆꯤꯃꯥꯂꯕꯒꯤ ꯇꯤꯂꯠ꯫

ꯑꯄꯥꯕꯕ 7D — ꯆꯈ ꯆꯦꯖꯦꯗꯁ ꯑꯈꯂꯨꯡ ꯐꯥꯂꯑꯣꯐꯥꯂꯕꯒꯤ ꯂꯁꯥꯂꯤꯏꯤꯃꯥꯂꯕ

ꯂꯐꯨꯗ 7-ꯒꯤ ꯃꯆꯦꯇ 7.7.1(b), 7.9 ꯑꯈꯂꯨꯡ 7.14.4-ꯗ ꯈꯑꯣꯥꯡ ꯁꯦꯡꯍ꯫

ꯂꯁꯥꯂꯤꯏꯤꯃꯥꯂꯕ ꯑꯂꯤ ꯃꯆꯦꯇ 7.9-ꯒꯤ ꯈꯍꯦꯗ ꯁꯨꯍꯨꯐꯤ, ꯁꯦꯕꯗ ꯅꯠꯔꯒ ꯑꯑꯣꯁꯂꯁ ꯍꯂꯤꯡ ꯆꯏꯈ ꯑꯈꯒꯤ ꯆꯈ ꯆꯦꯖꯦꯗꯁ, ꯐꯥꯂꯑꯣꯐꯥꯂꯕ ꯅꯠꯔꯒ ꯄꯥꯕꯆꯦ ꯑꯐꯨꯄꯕꯕ ꯂꯨꯗꯤꯡꯈꯗꯑꯣ ꯌꯠꯆꯤ꯫ ꯒꯥꯅꯂꯨꯂꯤꯡ ꯑꯂꯤ ꯂꯐꯨꯗ 7-ꯒꯤꯂꯤꯡꯆꯤ꯫ ꯂꯐꯨꯗ ꯑꯗꯨꯆꯦ ꯒꯥꯅꯂꯨ ꯑꯈꯦ ꯖꯈꯗꯕ ꯈꯏꯈꯗ, ꯈꯗꯨ "ꯗꯤꯆꯍꯕꯗ ꯃꯕꯦꯖꯐꯈ ꯑꯣꯒꯗꯕ" ("to be confirmed in design") ꯄꯌꯆꯦ ꯈꯦꯐꯗ ꯑꯣꯐꯤ ꯑꯈꯂꯨꯡ ꯖꯕꯗꯃꯤ ꯗꯤꯆꯍꯕꯗ ꯍꯒꯗꯕꯆꯤ꯫

7D.1 ꯖꯕꯗꯃꯤ ꯈꯈꯦꯡꯒꯤ ꯂꯐꯒꯥ (ꯃꯆꯦꯇ 7.9.1)

- (a) **ꯑꯣꯁꯦꯒꯐꯦꯏꯤꯗ ꯑꯈꯂꯨꯡ ꯕꯖꯤꯈꯥꯑꯣꯨꯐꯤꯗ ꯂꯐꯒꯥ** (ꯌꯦꯑꯣꯐꯂꯁꯐꯥꯗ, ꯏꯦꯐꯂꯦꯐ (foreshore; MWL ꯃꯕꯑꯣꯨꯐ ꯏꯦꯁꯕ), ꯁꯕ, ꯂꯐꯁꯇꯂ ꯌꯤꯌꯐ ꯑꯈꯂꯨꯡ ꯍꯖꯦꯡꯂꯤꯡꯒꯤ), ꯃꯆꯦꯇ 7.3.5-ꯒꯤ ꯗꯥꯑꯣꯈꯗ ꯇꯥꯒꯥꯅ ꯑꯣꯐꯕ꯫ ꯂꯐꯒꯥꯒꯤ ꯒꯨꯐꯤꯗ ꯑꯈꯂꯨꯡ ꯁꯦꯍꯕꯠꯃꯤ ꯗꯥꯕꯂꯤꯑꯣꯤ: ꯗꯤꯆꯍꯕꯗ ꯃꯕꯦꯖꯐꯈ ꯑꯣꯒꯗꯕ꯫
- (b) **ꯑꯄꯕꯒꯤ ꯈꯍꯦꯒꯤ ꯇꯥꯒꯥꯅ** (original bed level), ꯒꯨꯐꯤꯗ ꯑꯈꯗ ꯑꯣꯥꯂꯠ ꯁꯤꯠꯂꯤꯡ ꯅꯠꯔꯒ ꯑꯦꯒꯐꯤꯡ (augering)-ꯆꯦ ꯏꯡꯕ (ꯒꯨꯐꯤꯗꯃꯤ ꯂꯁꯥꯂꯤꯡ ꯗꯤꯆꯍꯕꯗ ꯃꯕꯦꯖꯐꯈ ꯑꯣꯒꯗꯕ), ꯑꯈꯂꯨꯡ ꯏꯡꯕ ꯌꯦꯕ ꯈꯏꯈꯗ ꯈꯈꯦꯡꯒꯤ ꯐꯥꯃꯦꯐꯗꯂꯤꯡꯗꯒꯤ꯫ ꯁꯤꯠ ꯂꯨꯗꯤꯡꯈꯗꯃꯤ ꯆꯦꯒꯆꯦ ꯆꯈꯨꯒꯤ ꯑꯖꯨꯕ, ꯑꯄꯕꯒꯤ ꯈꯍꯦꯒꯤ ꯇꯥꯒꯥꯅ, ꯑꯈꯂꯨꯡ ꯈꯗꯨꯒꯤ ꯈꯍꯦꯗ ꯆꯕ ꯆꯈ ꯑꯌꯥꯠꯁ (clay) ꯅꯠꯔꯒ ꯆꯈ (silt)-ꯒꯤ ꯇꯥꯌꯐ ꯑꯈꯈꯗ ꯁꯠꯃꯗꯕꯆꯤ꯫

- (c) **ꯏꯁꯤꯡ ꯁꯥꯡꯂꯣꯟ ꯁꯦꯡꯕ**, ꯀꯨꯃꯍꯩꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯩꯄꯥꯛꯀꯤ ꯄꯥꯟꯗꯝ (runoff) ꯆꯦꯟꯊꯔꯛ ꯂꯤꯈꯥꯜ (sewage) ꯌꯥꯎꯗꯅꯕ ꯍꯥꯏꯕ: (b)-ꯒꯤ ꯀꯤꯁꯨꯂꯤꯡꯗꯒꯤ ꯗꯥꯄꯕ ꯂꯥꯍꯟꯕꯂꯤꯡ, ꯊꯣꯛꯍꯅꯕꯒꯤ ꯊꯥꯕꯡ ꯁꯦꯃꯤꯖꯤꯟ ꯃꯥꯒꯤ ꯍꯥꯁꯥꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯁꯣꯟꯕ ꯁꯦꯁꯍꯟꯗꯨꯅꯥ ꯂꯣꯏꯡꯒꯤꯗꯃꯛ ꯁꯥꯟꯖꯥ ꯁꯦꯄꯕ꯫ ꯀꯥꯄꯍꯤꯁꯤꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯤꯖꯤꯟꯁꯤꯡ ꯑꯁꯤ ꯃꯅꯤꯄꯨꯔ ꯄꯣꯜꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (Manipur Pollution Control Board; MPCB)-ꯗꯥ ꯌꯥꯊꯪ ꯀꯤꯕꯂꯤꯡ ꯑꯣꯢꯕꯅꯤ꯫
- (d) **ꯂꯧꯕꯨꯛꯌꯥꯕꯂꯤꯡ**: ꯀꯟꯗ (ꯂꯤꯀꯥꯟ, ꯗ ꯄꯨꯡꯂꯤꯗꯕ, ꯃꯨꯛꯀꯥꯂꯤꯡ, ꯂꯩꯒꯤ ꯃꯣꯡꯂꯤꯡ, ꯄꯥꯀꯣꯂꯤꯡ), ꯂꯕꯀꯗꯂ ꯌꯤꯌꯕ ꯑꯃꯁꯨꯡ ꯅꯊꯣꯡꯂꯤꯡꯒꯤ ꯏꯤꯒꯍ, ꯄꯦꯔꯥ 7.14.4-ꯗ ꯇꯧꯒꯅꯤ꯫
- (e) **ꯁꯦꯃꯒꯠ ꯇꯧꯕꯤꯕ ꯂꯧꯈꯠ–ꯂꯧꯈꯠ ꯄꯨꯕꯒ**, (a)-ꯒꯤ ꯂꯕꯒꯥꯗꯒꯤ꯫

7D.2 ꯑꯥꯏꯂꯄꯥꯒꯥꯂꯗꯒꯤ ꯊꯤꯖꯤꯟꯁꯤꯡ (ꯄꯦꯔꯥ 7.9.2 ꯑꯃꯁꯨꯡ 7.9.3)

- (a) ꯏꯁꯤꯡ ꯇꯥꯊꯣꯛꯀꯗꯕ ꯄꯨꯍꯅꯕ ꯂꯥꯗꯤꯍꯥꯗꯦ (sediment) ꯑꯃ 7D.1(b)-ꯒꯤ ꯑꯄꯨꯕꯒꯤ ꯍꯌꯥꯒꯤ ꯆꯥꯒꯥ ꯏꯄꯥꯕ ꯇꯥꯊꯣꯛꯅ, ꯑꯃꯁꯨꯡ ꯍꯃꯗꯒꯤ ꯁꯥꯗꯕ ꯑꯄꯨꯕꯗ ꯆꯦꯁꯥ꯫
- (b) ꯑꯄꯨꯕꯒꯤ ꯍꯌꯥꯗꯒꯤ ꯁꯥꯗꯕ ꯑꯄꯨꯁꯗꯕ ꯑꯃꯤ ꯄꯦꯔꯥ 7.9.3(a)-ꯗꯒꯤ (c) ꯏꯄꯥꯕ ꯅꯗꯤꯡꯍꯥ ꯄꯥꯆꯅꯕ ꯁꯅꯃꯄꯨꯇꯤꯗꯦꯇꯤꯡꯒ ꯕꯤꯀꯦꯕꯦ ꯑꯍꯟ ꯆꯌꯗꯕ ꯅꯥꯟꯁ꯫
- (c) ꯅꯕꯨꯅꯗꯒꯤ ꯆꯥꯍꯕ ꯅꯊꯣꯡꯒꯤ ꯂꯤꯒꯤꯒꯤ ꯍꯌꯗ ꯂꯥꯍꯕ ꯂꯧꯈꯠ ꯑꯃꯤ ꯅꯂꯤꯡ ꯅꯌꯄꯥꯒꯤ ꯂꯧꯈꯠ ꯆꯦꯁꯥ, ꯑꯃꯁꯨꯡ ꯕꯤꯒꯤꯅꯇ ꯁꯦꯕꯕ ꯂꯧꯈꯠ–ꯂꯧꯈꯠ ꯄꯨꯕꯒꯁ ꯍꯃꯒꯤꯍꯗ ꯄꯦꯕꯅꯗꯕꯗꯤ꯫
- (d) ꯑꯥꯏꯂꯄꯥꯒꯥꯂꯗ ꯑꯃꯤ ꯀꯗꯒꯤ ꯁ (toe)-ꯗꯒꯤ ꯗꯤꯇꯅꯗꯗ ꯄꯗꯏꯕꯍ ꯁꯒꯗꯕ ꯗꯤꯂꯁꯥꯗꯂ ꯑꯍꯗ ꯇꯀꯗ ꯇꯒꯗꯕꯗꯤ, ꯍꯕꯍ ꯑꯃꯗ ꯀꯗꯒꯤ ꯂꯧꯕꯤꯗꯤꯁꯤ ꯄꯗꯊꯕꯅ꯫

7D.3 ꯍꯗꯒꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯁꯤ (ꯄꯦꯔꯥ 7.9.4)

ꯍꯤꯌꯤꯍꯗ ꯍꯗꯒ ꯑꯃꯗ ꯌꯡꯕ ꯌꯥꯕ ꯍꯥꯏꯕ:

- (a) FTL-ꯒꯤ 0.5 m **ꯍꯊꯒꯁꯒꯤ** FTL-ꯒꯤ 1.2 m **ꯍꯌꯥ** ꯏꯄꯥꯕ 1V:4H-ꯗꯒꯤ ꯄꯗꯗ ꯑꯃꯍꯗꯕ ꯂꯍꯗ ꯂꯗꯀꯂꯤꯡ; ꯆꯦꯕꯒ
- (b) ꯅꯕꯨꯅꯗꯒꯤ ꯆꯥꯍꯕꯗ 3 m ꯀꯒꯀ, FTL-ꯒꯤ 0.3 m ꯑꯃꯁꯨꯡ 0.5 m ꯍꯌꯥꯒꯤ ꯍꯕꯒꯁ ꯇꯕ ꯆꯥꯒꯥ ꯑꯅꯕ ꯂꯥꯏꯁꯤ ꯕꯗꯌ (safety bench) ꯑꯍ; ꯑꯃꯁꯨꯡ
- (c) ꯍꯌꯗ (bed) ꯍꯗ ꯍꯊꯗꯁ ꯇꯕ ꯑꯃꯕ ꯀꯤꯆ ꯆꯦꯕꯒ ꯍꯊꯒ-ꯍꯌ ꯅꯗ ꯄꯒꯗꯕ ꯍꯏꯍ ꯑꯍꯆꯁ ꯊꯍꯗꯕ꯫ ꯕꯕ ꯀꯤꯆꯂꯤꯡ (borrow pits) ꯍꯌꯒ ꯌꯗꯗ ꯑꯍꯒ ꯄꯗꯗ ꯒꯕꯗ ꯁꯒꯗꯕꯗꯤ꯫

7D.4 ꯂꯧꯈꯠ ꯄꯗꯊꯄꯗꯗꯕ (ꯄꯦꯔꯥ 7.9.5)

- (a) ꯌꯁꯕꯂꯀꯕꯗ ꯆꯦꯕꯒ ꯏꯕꯂꯕꯒꯤ ꯍꯄꯒꯗ ꯇꯕ ꯅꯂꯤꯒꯤ ꯍꯄꯒꯤ ꯆꯍꯂꯤꯡ (islands), ꯌꯃꯌꯂꯤꯡ, ꯌꯁꯕꯂꯀꯕꯗꯁ ꯀꯗ ꯀꯒꯄꯗꯕ, ꯕꯡ ꯕꯗꯂꯤꯡ, ꯀꯕꯃꯤꯡ, ꯕꯤꯗꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯒ-ꯏꯕꯗꯆ ꯀꯗꯆꯏꯕꯍꯂꯤꯡ ꯑꯃꯤ ꯍꯤꯂꯅꯤꯕ ꯂꯧꯈꯠꯗꯤ꯫
- (b) ꯍꯤꯂꯅꯤꯕ ꯂꯧꯈꯠ ꯑꯃꯤ [ꯏꯕꯍ 7-3](#) ꯂꯤꯇꯤꯗꯗꯗ, ꯕꯗꯗ ꯑꯍꯗꯒꯤ ꯕꯗꯗ ꯑꯍꯗ, ꯍꯤꯗꯗꯕ ꯆꯒꯥꯂꯤꯡꯗ ꯄꯍꯀꯗꯂꯁꯕꯤ ꯂꯧꯈꯠ (compensatory storage)-ꯗ ꯍꯗꯆ ꯂꯤꯗꯒꯗꯕꯗꯤ꯫

7D.5 ꯏꯁꯤꯡ ꯄꯥꯡꯗꯕ ꯁꯦꯡꯕ ꯑꯃꯁꯨꯡ ꯊꯗꯃꯀ (ꯄꯦꯔꯥ 7.9.6)

- (a) ꯇꯥꯊꯒꯗꯕ ꯏꯁꯤꯡ ꯑꯃꯤ ꯂꯦꯕꯒꯃ ꯍꯄꯂꯗ, ꯀꯗꯗ (ꯑꯀꯕꯒ ꯁꯦꯕꯕ ꯀꯗ ꯍꯀꯒꯒ ꯄꯆꯅꯆꯄꯗꯕ ꯆꯦꯁꯥꯗ), ꯆꯦꯕꯒ ꯅꯂꯤꯡ ꯅꯌꯄꯥꯒꯤ ꯆꯍꯕꯤ ꯑꯍꯍꯒꯁ ꯊꯍꯕꯅꯗꯕꯗꯤ꯫
- (b) ꯄꯗꯁꯍꯤꯗꯆ ꯑꯅꯕꯕ ꯏꯁꯤꯡ ꯑꯃꯤ ꯍꯗꯤꯀꯕ ꯀꯗꯕꯂꯗ ꯄꯗꯁꯕꯒ ꯕꯗꯗ (MPCB)-ꯗ ꯌꯥꯊꯪ ꯀꯤꯕꯒꯍ ꯊꯗꯒꯄꯗꯕꯗꯤ꯫
- (c) ꯀꯊꯄꯀꯒꯤ ꯆꯍꯕꯤꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯁꯍ ꯅꯕꯒꯤ ꯂꯧꯒꯀꯅꯒꯂꯤꯡꯗ ꯄꯦꯔꯥ 8.12-ꯒꯤ ꯄꯗꯂꯧꯕꯒꯂꯗꯒꯤ ꯅꯕꯇꯗ ꯑꯃꯁꯨꯡ ꯂꯥꯗꯤꯍꯥꯗꯆ ꯄꯗꯁꯕꯒꯤ ꯕꯒꯂꯤꯡ ꯍꯀꯡ ꯏꯄꯗꯒꯗꯕꯗꯤ, ꯇꯗ 1-ꯒꯤ ꯍꯀꯗꯗ ꯂꯧꯒꯀꯅꯒ ꯊꯍꯕ ꯌꯏꯗ꯫

7D.6 ꯄꯟꯅꯦꯠꯁꯤꯡ (ꯈꯅꯣꯊ 7.9.7)

ꯁꯍꯔꯒꯤ ꯔꯁꯛꯣꯐ ꯑꯣꯔꯈꯑꯣ ꯄꯟꯅꯦꯠ ꯄꯨꯁꯤꯡꯀꯛꯑꯣ ꯁꯔꯨꯛ 8 (ꯑꯍꯦꯟꯕ 8D)-ꯒꯤ ꯀꯍꯥꯗ ꯗꯤꯇꯥꯟꯄ ꯑꯣꯏꯕ ꯁꯗꯤꯀꯦꯌ ꯐꯣꯔꯕꯦ (sediment forebay), ꯈꯄꯁꯑꯣꯏꯛꯠ ꯑꯣꯏꯔꯕ ꯆꯦꯠꯅꯦꯄꯗꯈꯤ ꯄꯟꯅꯦꯠ ꯇꯣꯄ ꯅꯠꯔꯒꯣ ꯒꯔꯣꯁ ꯑꯣꯔꯨꯟꯅꯦꯠ ꯑꯔꯦꯑ (gross pollutant trap) ꯑꯍꯥ ꯇꯧꯒꯗꯕꯅꯤ॥

7D.7 ꯀꯑꯣꯐ (ꯈꯅꯣꯊ 7.9.8)

ꯇꯧꯕ ꯇꯧꯐꯣꯛꯔ ꯑꯃꯤ **31 ꯃꯥꯔꯆ** ꯏꯁꯕ ꯇꯣꯄꯃꯤꯗꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯄꯃꯤꯡ ꯇꯏꯐ ꯑꯃꯨ ꯑꯃꯣꯄꯕ ꯇꯑꯣꯕ ꯑꯣꯄꯍꯗꯒꯗꯕꯅꯤ॥ ꯀꯣꯗꯨꯗꯒꯤ ꯀꯑꯣꯐꯗ ꯑꯦꯛꯃꯈꯤꯒꯦꯃꯗ ꯑꯀꯠꯑꯣ ꯍꯡꯗꯣꯛꯅ ꯊꯐꯔꯣꯄꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯄꯊꯣꯡ ꯅꯠꯔꯒ ꯔꯤꯔꯔ ꯑꯀꯠꯑꯣ ꯇꯧꯊꯣꯛꯅ ꯊꯐꯔꯣꯄꯗꯕꯅꯤ॥

7D.8 ꯇꯣꯄꯃꯤꯗꯕꯒꯤ ꯔꯦꯈꯣꯔꯗꯃꯤꯡ

- (a) ꯑꯦꯇ-ꯕꯤꯜꯠ (as-built) ꯃꯔꯒꯦ ꯑꯃꯁꯨꯡ ꯔꯤꯒꯤꯄꯇ ꯑꯣꯏꯕ ꯁꯑꯦꯇ–ꯁꯑꯣꯔꯦꯇ ꯈꯔꯒ॥ ꯈꯔꯒ ꯑꯃꯤ ꯈꯅꯣꯊ 7.7.1(b)-ꯅ "ꯑꯔꯣꯄꯕ ꯇꯧꯕ ꯇꯧꯐꯣꯛꯄꯤꯕꯒꯤ ꯀꯁꯨꯡꯗ" ("after the last desilting") ꯀꯐ ꯑꯣꯕ ꯑꯃꯨꯅꯤ॥
- (b) ꯇꯧꯐꯣꯛꯄꯤꯕ ꯒꯣꯆꯨꯀ, ꯀꯃꯤ ꯐꯗꯣꯛꯄꯤꯕ ꯀꯏꯀ, ꯑꯃꯁꯨꯡ ꯇꯧꯕ ꯑꯦꯁꯠꯈꯤ ꯏꯌꯃꯤꯡ॥
- (c) ꯀꯦꯞ, ꯔꯤꯔꯔ, ꯄꯐꯣꯡꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯟꯅꯦꯠꯈꯤ ꯐꯕꯑꯃꯤꯡꯒꯤ ꯏꯣꯃꯤꯡ॥
- (d) ꯄꯟꯒꯦꯇꯑꯔꯤꯒꯤ ꯔꯦꯈꯣꯔꯗ ꯑꯀꯗꯦꯠ ꯑꯣꯕ (ꯑꯍꯦꯟꯕ 7A: SSC_DATE, LEVEL_DATE, CONDITION)॥

ꯇꯦꯕꯜ 7D.1 — ꯇꯧꯕ ꯇꯧꯐꯣꯛꯔ ꯑꯃꯁꯨꯡ ꯔꯦꯁꯑꯣꯔꯦꯃꯗꯒꯤ ꯐꯕꯑꯃꯤꯡꯒꯤ ꯍꯣꯡꯗ ꯀꯣꯄꯗꯠꯃꯤꯡ

ꯍꯣꯡꯗ ꯀꯣꯄꯗꯠ	ꯔꯦꯑ	ꯈꯅꯣꯊ
1. ꯑꯦꯑꯃꯈꯤꯒꯦꯃꯗꯒꯤ ꯀꯀꯤꯡꯗ	ꯐꯕꯑꯈꯤ ꯀꯀꯤꯡꯒꯤ ꯃꯔꯒꯦ, ꯀꯤꯠ ꯇꯣꯒꯃꯤꯡ, ꯇꯧꯕ ꯑꯦꯁꯠꯃꯤꯡ, ꯑꯃꯁꯨꯡ ꯍꯦꯗꯅ ꯑꯃꯍꯗꯇꯗꯤ ꯍꯄꯗꯔꯇꯤꯑꯇꯇꯤꯈꯦꯒ ꯔꯤꯀꯣꯔꯠ	7.9.1, 7.9.3
2. ꯑꯍꯣꯕꯒꯤ ꯀꯍ ꯔꯣꯔꯦ	ꯀꯤꯠ ꯇꯣꯒꯃꯤꯡꯒꯤ ꯔꯤꯡꯗꯀꯆꯗꯨꯅ ꯇꯦꯒꯦꯒꯃꯤꯡ ꯔꯦꯑ ꯑꯣꯔꯦ; ꯑꯦꯀꯨꯒ ꯑꯣꯔꯨꯔꯕꯤ ꯑꯍꯣꯕꯒꯤ ꯀꯍꯒꯤ ꯀꯍꯥꯗ ꯑꯦꯑꯃꯈꯤꯒꯦꯃꯗ ꯑꯣꯗꯕ	7.9.2
3. ꯀꯅꯑꯃꯤꯡ ꯃꯦꯀꯔꯦ	7D.3-ꯗ ꯇꯕꯒꯨꯀ ꯃꯄꯗ ꯃꯅꯣꯀꯃꯤꯡ ꯅꯠꯔꯒ ꯃꯦꯏꯑꯤ ꯕꯦꯗꯔ	7.9.4
4. ꯄꯟꯅꯦꯠꯈꯤ ꯐꯕꯑꯃꯤꯡ	ꯐꯣꯔꯕꯦ, ꯆꯦꯠꯅꯦꯄꯗꯈꯤ ꯄꯟꯅꯦꯠ ꯇꯣꯄ ꯅꯠꯔꯒ GPT ꯃꯔꯦ	7.9.7
5. ꯇꯣꯄꯃꯤꯗꯕ (31 ꯃꯥꯔꯆ ꯏꯁꯕ)	ꯑꯦꯇ-ꯕꯤꯜꯠ ꯃꯔꯒꯦ, ꯁꯑꯦꯇ–ꯁꯑꯣꯔꯦꯇ ꯈꯔꯒ, ꯇꯧꯕ ꯐꯗꯣꯈꯀꯒꯤ ꯔꯦꯈꯣꯔꯗ	7.9.8, 7.7.1(b)

ꯑꯍꯦꯟꯕ 7E — ꯄꯃꯤꯡ ꯇꯏꯐꯒꯤ ꯀꯑꯣꯇꯣꯞ ꯔꯤꯍꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯏꯐ ꯀꯑꯨꯡ ꯄꯦꯅ ꯑꯣꯈꯦꯕ ꯀꯑꯣꯡꯃꯤꯡꯒꯤ ꯔꯤꯍ ꯀꯔꯦꯡ

[ꯁꯔꯨꯛ 7](#)-ꯒꯤ ꯈꯅꯣꯊ 7.2 ꯑꯃꯁꯨꯡ ꯈꯅꯣꯊ 7.3-ꯗ ꯀꯑꯦꯡ ꯀꯤꯡꯄ॥

ꯀꯍꯥꯗ ꯀꯤꯔꯤꯕ ꯔꯤꯍꯃꯤꯡ ꯑꯃꯤ ꯄꯃꯤꯡ ꯇꯏꯐ, ꯔꯦꯇꯦꯅ, ꯀꯦꯞ ꯑꯃꯁꯨꯡ ꯒꯦꯠꯃꯤꯡꯒꯤ ꯀꯑꯣꯇꯣꯞ ꯔꯤꯍꯃꯤꯡꯅꯤ॥ ꯀꯍꯣꯔꯒꯤ ꯀꯨꯡꯗ ꯈꯔꯤ ꯑꯀꯤ ꯀꯤꯠ, ꯑꯨꯔꯦꯅ ꯑꯃꯁꯨꯡ ꯀꯏꯐꯃꯤꯡꯒꯤ ꯀꯀꯤꯡꯗ ꯇꯧ (ꯇꯐꯏꯦꯅꯀꯤꯠ, ꯐꯑꯨꯔ ꯀꯤꯠ, ꯔꯤꯔꯅ ꯀꯤꯠ; ꯄꯐꯏꯅ ꯑꯨꯔꯦꯅ), ꯑꯃꯁꯨꯡ ꯄꯃꯤꯡ ꯇꯏꯐ ꯄꯨꯁꯤꯡꯀꯛꯈꯤꯁꯀꯛ ꯇꯐꯒꯤ ꯔꯦꯈꯣꯔꯗꯃꯤꯡ, ꯄꯃꯤꯡ ꯇꯏꯐꯃꯤꯡꯒꯤ ꯄꯟꯒꯦꯇꯑꯔꯤ, WRD-ꯒꯤ ꯔꯦꯈꯣꯔꯗꯃꯤꯡ ꯅꯠꯔꯒ ꯀꯔꯨꯅꯤꯃꯤꯀꯦꯅ ꯔꯦꯈꯣꯔꯗ ꯑꯀꯗ ꯃꯤꯇꯤꯡꯅꯔꯤꯕ ꯀꯀꯤꯡ ꯑꯃꯨ ꯄꯟꯒꯦꯇꯑꯔꯤ (ꯑꯍꯦꯟꯕ 7A)-ꯗ ꯀꯦꯔꯨꯔꯦꯅꯒꯤ ꯔꯤꯍꯒ ꯇꯣꯔꯇꯅ ꯔꯦꯈꯣꯔꯗ ꯑꯣꯕ ꯏꯅꯤ॥ ꯑꯔꯐ ꯑꯃꯤ H. Surmangol Sharma, *Learners Manipuri-English Dictionary* (Imphal: Sangam Book Store, 2006), ꯗꯤꯖꯤꯇꯦꯜ ꯃꯁꯐ ꯑꯦꯃꯤꯔ ꯅꯄꯕꯔꯦꯔꯤ (Digital South Asia Library; DSAL)-ꯅ ꯀꯤꯔꯤꯕꯒꯨꯀ (ꯇꯀꯤꯄꯒꯤ ꯇꯀꯕꯔꯃꯤꯡ DSAL-ꯅ ꯀꯤꯕꯒꯨꯀ; p. 117, *pukhri*, ꯏꯡꯗꯣꯛꯄꯤꯕ ꯇꯀꯤꯄꯒꯤ ꯔꯤꯡꯗꯀꯆꯗꯨꯅ ꯔꯦꯑ ꯑꯣꯄꯤ), ꯅꯠꯔꯒ ꯀꯅꯤꯀꯨꯔ ꯇꯥꯑꯣꯑ ꯇꯦꯑ (ꯀꯔꯣꯑꯦꯑꯃꯦ) ꯑꯦꯑꯠ, 2006-ꯗ ꯏꯡꯄꯤꯕ ꯀꯏꯀꯗ ꯄꯑꯣ ꯀꯍꯥꯗ ꯀꯤꯔꯤ॥ **ꯔꯦꯈꯣꯔꯗ ꯑꯀꯨꯀ ꯔꯠꯇꯤ॥** ꯗꯤꯑꯃꯇꯦꯔꯤꯒꯤ ꯍꯦꯗꯔꯤꯔꯗꯃꯤꯡ ꯑꯃꯤ ꯔꯀꯤꯇꯄꯇꯦꯃꯦ ꯑꯀꯒ ꯇꯔꯇꯅ ꯀꯑꯣ ꯀꯔꯦꯑꯣ ꯇꯧ; ꯄꯇꯤꯃ ꯑꯦꯗꯤꯃꯦꯅ ꯔꯀꯤꯇꯄꯇꯦꯃꯦ ꯄꯑꯣꯀꯑ

ꯄꯤꯔꯤ, ꯑꯃꯁꯨꯡ ꯃꯤꯇꯩꯂꯣꯟ ꯑꯣꯐꯤꯁꯤꯑꯦꯜ ꯑꯣꯏꯅ ꯃꯍꯥꯛꯀꯤ ꯃꯤꯇꯩ ꯃꯌꯦꯛꯀꯤ ꯃꯆꯥ ꯄꯤꯔꯤ, ꯃꯈꯣꯌꯁꯤꯡ ꯑꯣꯏ ꯑꯦꯛꯇꯀꯤ 7A-ꯒꯤ ꯖꯤꯔꯥ WB_NAME_MNI-ꯗꯥ ꯍꯣꯠꯅꯕ ꯇꯧꯔꯕ ꯁꯨꯖꯤꯛꯃꯥꯟꯖꯤ ꯃꯃꯤꯡꯁꯤꯡꯗꯤ ꯊꯥꯃꯃꯤ꯫ ꯕꯦꯡꯒꯂꯤ ꯃꯔꯦꯡꯖꯤ ꯑꯣꯏꯅꯇꯦꯔꯤ ꯑꯃꯠꯇꯥ ꯄꯤꯈꯤꯗꯦ, ꯃꯔꯝ ꯑꯗꯨꯗꯤ ꯕꯦꯡꯒꯂꯤ ꯃꯔꯦꯡꯖꯤ ꯃꯑꯣꯡ ꯑꯃꯠꯇꯥ ꯄꯤꯗꯦ, ꯃꯅꯤꯄꯨꯔ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯂꯦꯡꯒ꯭ꯋꯦꯖ (ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠ) ꯑꯦꯛꯠ, 2021 (Manipur Official Language (Amendment) Act, 2021)-ꯗꯥ ꯌꯥꯊꯪ ꯄꯤꯔꯕ ꯐꯦꯡꯕ ꯕꯦꯡꯒꯂꯤ ꯃꯔꯦꯡ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯩ ꯃꯔꯦꯡ ꯄꯨꯡꯗꯥ ꯂꯤꯈꯤꯗꯕ ꯌꯥꯊꯪꯅꯕꯁꯨ꯫ ꯑꯃꯁꯨꯡ ꯊꯣꯡꯂꯥꯡꯒꯤ ꯂꯤꯈꯤꯗꯕ ꯃꯑꯣꯡ ꯑꯗꯨ ꯀꯤꯂꯣꯃꯤꯇꯔꯒꯤ ꯍꯥꯏꯗꯨ ꯑꯔꯊꯂꯣꯏꯗꯀꯤ ꯊꯥꯗꯕ ꯄꯥꯂꯁ ꯃꯇꯝ ꯊꯥꯗꯕ ꯄꯥꯂꯄ ꯑꯍꯅꯕ ꯌꯥꯍ꯫ ꯑꯔꯊ ꯃꯇꯝ ꯂꯤꯈꯤꯗꯕ ꯃꯑꯣꯡ ꯃꯔꯦꯡꯖꯤ ꯇꯥꯀꯄꯕ ꯌꯥꯊꯪꯂꯣꯏꯗꯤ, ꯑꯃꯁꯨꯡ ꯃꯦꯔꯤꯁꯦ ꯑꯃꯁꯤ ꯂꯤꯈꯤꯗꯕꯕ ꯌꯥꯊꯪꯂꯣꯏꯗꯤ ꯇꯦꯕꯜ 7E.4-ꯗ ꯂꯩ꯫ ꯂꯤꯇꯥꯛ ꯑꯃꯁꯤ
ꯇꯥꯛꯂꯤꯕ ꯍꯣꯤꯀꯤ ꯋꯥꯍꯩꯀꯤ ꯇꯦꯕꯂꯤꯗꯥ ꯗꯤꯡꯇꯦꯛꯂꯤꯕ, ꯂꯤꯈꯤꯗꯕ ꯂꯦꯝꯒꯤ ꯁꯦꯗꯣꯁꯥ, WRD ꯑꯃꯁꯨꯡ ꯃꯂꯦꯡꯂꯣꯏꯁꯤꯡ ꯃꯤꯇꯤꯗꯕ ꯃꯔꯦꯡꯂꯤ
ꯑꯃꯁꯨꯡ ꯇꯥꯛꯂꯕ ꯑꯌꯥꯄꯥ ꯍꯦꯜꯂꯤꯒꯤ ꯌꯥꯊꯪꯂꯤꯗꯤ ꯍꯥꯌꯕꯗꯥ ꯊꯥꯗꯕ ꯂꯤꯈꯤꯍꯅꯕꯗꯤ꯫

ꯃꯦꯄꯨꯔꯦꯇꯗꯥ ꯄꯥꯈꯔ ꯑꯃꯒꯤꯗꯃꯛ ꯂꯤꯈꯤꯗꯕ ꯌꯥꯊꯪꯗꯤ **ꯄꯨꯈ꯭ꯔꯤꯅꯤ**, ꯑꯔꯤꯅꯕ ꯑꯍꯟꯗꯥ "**ꯄꯨꯈ꯭ꯔꯤ (pukhri; ꯄꯥꯈꯔ ꯑꯃ; plural pukhris)**" ꯍꯥꯌꯗꯥ ꯍꯕ, ꯑꯃꯁꯨꯡ ꯃꯍꯩꯁꯤꯒꯤ ꯂꯦꯛ ꯇꯠꯊꯤꯡ ꯌꯦꯠꯅꯦꯃꯔ ꯑꯃꯒꯤꯗꯃꯛ ꯂꯤꯈꯤꯗꯕ ꯌꯥꯊꯪꯗꯤ **ꯄꯥꯠꯅꯤ**, ꯑꯔꯤꯅꯕ ꯑꯍꯟꯗꯥ "**ꯄꯥꯠ (pat; ꯂꯦꯛ ꯇꯠꯊꯤꯡ ꯌꯦꯠꯅꯦꯃꯔ, ꯂꯝꯖꯦꯡꯄꯥꯠꯀꯤ ꯂꯩꯕꯥꯛ)**" ꯍꯥꯌꯗꯥ ꯍꯕ꯫ *ꯄꯨꯈ꯭ꯔꯤ*-ꯒꯤ ꯑꯔꯊ "(ꯃꯤꯡꯊꯣꯟ) ꯄꯣꯟꯗ" ("n. pond") ꯍꯥꯌꯗꯥ ꯄꯤꯔꯤ, ꯑꯌꯥꯄꯥ ꯑꯔꯊ ꯂꯩꯕ (p. 117): ꯃꯇꯤꯗꯥ ꯌꯥꯊꯪꯕ ꯇꯠꯊꯤꯡ ꯑꯄꯤꯔꯄ ꯂꯦꯄꯂꯤꯕ ꯍꯣꯤꯀꯤ ꯃꯃꯤꯡ ꯄꯤ, ꯃꯁꯨ ꯃꯔꯨꯝ ꯑꯃꯒꯤ "tank" ꯑꯃꯁꯨꯡ AMRUT 2.0 ꯄꯔꯣꯖꯦꯛꯇꯃꯤꯡꯒꯤ ꯄꯥꯕꯂꯤꯝ ꯄꯨꯈꯔꯤꯃꯤꯡꯗꯤ ꯌꯥꯗꯦ, ꯑꯃꯁꯨꯡ ꯂꯝꯖꯦꯡꯄꯥꯠ, ꯐꯨꯝꯗꯤ ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯌꯥꯊꯪ ꯄꯥꯠꯀꯤ ꯑꯃꯁꯨꯡ ꯃꯅꯤꯄꯨꯔ ꯇꯥꯛꯂꯤꯕ ꯌꯦꯠꯅꯦꯃꯔꯗꯤ ꯑꯗꯨꯔꯤꯁꯤꯡꯒꯤ
ꯂꯤꯇꯥꯛꯃꯤꯡꯅ ꯂꯩꯕ ꯇꯥꯛꯂꯤꯕ ꯃꯗꯨꯒꯤ ꯌꯥꯍ *ꯄꯥꯠ-ꯁꯨ* ꯃꯍꯩꯁꯤꯒꯤ ꯂꯦꯛ ꯑꯃꯁꯨꯡ ꯌꯦꯠꯅꯦꯃꯔꯃꯤꯡꯒꯤꯗꯃꯛ ꯊꯥꯗꯦ꯫ ꯃꯌꯦꯛꯇꯥ ꯃꯇꯤꯡ ꯌꯥꯅꯕ ꯑꯃꯤ ꯂꯖꯤꯡꯂꯃꯤꯡꯗ ꯌꯥꯗꯅ (ꯄꯨꯈ꯭ꯔꯤꯃꯤꯡ), ꯃꯍꯩ ꯑꯃꯤꯒꯤ ꯑꯔꯣꯟꯕ ꯃꯔꯦꯡꯗꯥ ꯌꯥꯡꯁꯤ, ꯃꯔꯝ ꯑꯃꯤꯗꯥ ꯅꯤꯡꯂꯗꯦ ꯃꯇꯤꯡ ꯌꯥꯝꯕ **pukhris** ꯑꯃꯤ
ꯃꯦꯄꯨꯔꯦꯇ ꯑꯃꯤꯒꯤ ꯗꯤꯃꯒꯦꯂꯦ ꯑꯃꯗꯤ; "pats" ꯑꯃꯤꯁꯨ ꯃꯑꯣꯡ ꯑꯃꯁꯨꯡꯌꯥ ꯂꯤꯈꯤꯗꯦ꯫ ꯃꯦꯄꯨꯔꯦꯇ ꯑꯃꯤꯒꯤ ꯃꯍꯥꯛ ꯂꯩꯕ ꯍꯗꯦꯂꯤꯂꯤꯔꯥ ꯌꯥꯔꯕ
ꯇꯥꯛꯂꯦꯡ ꯑꯃꯤ **ꯗꯤꯇꯦꯟꯁꯟ ꯄꯣꯟꯗ** (detention pond) ꯑꯃꯗꯤ, ꯗꯤꯇꯦꯟꯁꯟ ꯄꯨꯈ꯭ꯔꯤ ꯌꯥꯊꯪ ꯄꯥꯠ ꯌꯥꯡꯁꯤ; ꯃꯍꯩꯁꯤꯒꯤ ꯂꯦꯛ ꯌꯥꯊꯪ
ꯌꯦꯠꯅꯦꯃꯔ ꯑꯃꯁꯨ ꯗꯤꯇꯦꯟꯁꯟ ꯄꯨꯈ꯭ꯔꯤ ꯍꯥꯌꯗꯥ ꯗꯣꯅꯤ; ꯑꯃꯁꯨꯡ ꯂꯝꯖꯦꯡꯄꯥꯠ ꯑꯃꯤ "ꯍꯣꯤꯀꯤ ꯍꯔꯦꯡꯒꯤ ꯇꯥꯛꯂꯦꯡ ꯑꯍꯟꯗꯥ ꯃꯦꯃꯇꯤꯡꯂꯕ ꯄꯥꯠ
ꯑꯃꯗꯤ" ("a pat being developed as flood storage")꯫ ꯃꯦꯄꯨꯔꯦꯇ ꯑꯃꯤꯗꯥ ꯌꯥꯡꯂꯕ ꯌꯥꯊꯪꯂꯥꯡꯁ ꯗꯍꯊꯗꯁꯄꯥ ꯃꯑꯣꯡꯃꯤꯡ ꯂꯤꯈꯤꯗꯦ: ꯄꯨꯈ꯭ꯔꯤ, ꯄꯥꯠ, ꯐꯨꯝꯗꯤ, ꯍꯥꯎ, ꯍꯥꯎꯕꯦ, ꯍꯊꯥꯎ, ꯄꯥꯏ ꯑꯃꯁꯨꯡ ꯐꯨꯝꯗꯤ; ꯗꯤꯌꯥꯂꯦꯛꯇꯀꯤ ꯔꯥꯏꯗꯍꯗꯦꯂꯦ, ꯃꯑꯤꯒꯤ ꯃꯔꯦꯡꯂꯤꯡꯒꯤ ꯗꯥꯍꯥꯗꯗꯦ, ꯃꯍꯥꯛ ꯑꯃꯨꯡ
ꯍꯥꯡꯁ ꯄꯤꯔꯤ꯫

ꯇꯦꯕꯜ 7E.1 — ꯋꯥꯍꯩ ꯂꯤꯁ꯭ꯇꯂꯤꯡ

ꯃꯌꯦꯛ ꯋꯥꯍꯩ (ꯔꯣꯃꯥꯟꯁ ꯌꯥꯔꯕ ꯃꯑꯣꯡ)	ꯑꯔꯊ (ꯁꯣꯔꯁꯖ)	ꯃꯦꯄꯨꯔꯦꯇꯀꯤ ꯌꯥꯊꯪ (ꯁꯦꯛꯁꯟ 7.2)
ꯄꯨꯈ꯭ꯔꯤ (pukhri)	"(ꯃꯤꯡꯊꯣꯟ) ꯄꯣꯟꯗ" ("n. pond") (Sharma, p. 117, ꯖꯤꯡꯗꯥꯃꯍꯤꯕ ꯂꯃꯍꯗ ꯌꯦꯡ ꯌꯥꯍꯤꯕ)	ꯄꯨꯈ꯭ꯔꯤ (ꯄꯣꯟꯗ), ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯃꯄꯨꯡ ꯂꯩꯕ ꯗꯦꯖꯤꯂꯤꯡꯂꯦꯃꯤꯡ ꯌꯦꯡꯕꯤꯔꯤ
ꯄꯥꯠ (pāt; pat)	"(ꯃꯤꯡꯊꯣꯟ) ꯂꯦꯛ" ("n. lake"); *ꯄꯥꯠꯄꯥꯟ* (*pātpān*) "ꯂꯦꯛꯀꯤ ꯃꯅꯥꯛ" ("lakeside"); *ꯄꯥꯠꯌꯥ* (*pātyā*) "ꯂꯦꯛ ꯑꯃꯒꯤ ꯅꯥꯛꯂꯕ ꯂꯝ" ("an area of land adjoining a lake") (Sharma, p. 114)	ꯄꯥꯠ (ꯃꯍꯩꯁꯤꯒꯤ ꯂꯦꯛ ꯌꯥꯊꯪ ꯌꯦꯠꯅꯦꯃꯔ), ꯁꯦꯛꯁꯟ 7.2-ꯒꯤ ꯃꯄꯨꯡ ꯂꯩꯕ ꯗꯦꯖꯤꯂꯤꯡꯂꯦꯃꯤꯡ ꯌꯦꯡꯕꯤꯔꯤ; ꯃꯃꯤꯡꯂꯤꯗ, ꯂꯝꯖꯦꯡꯄꯥꯠꯀꯤ ꯂꯩꯕꯥꯛ
ꯄꯥꯠꯊꯕꯤ (pātthabi)	"ꯂꯝꯄꯥꯛ; ꯂꯗꯦꯐ" ("a swamp; slough") (Sharma, p. 114)	ꯁꯦꯛꯁꯟ 7.12-ꯒꯤ ꯃꯍꯥꯛ ꯃꯔꯣꯜ ꯑꯃ; ꯑꯄꯥꯟꯕ ꯃꯄꯨꯡ ꯍꯦꯗꯦ
ꯄꯥꯠꯊꯤ ꯀꯣꯝꯊꯤ (pātthi komthi)	"ꯃꯔꯣꯜ; ꯂꯝꯄꯥꯛ" ("a marsh; swamp") (Sharma, p. 114)	ꯁꯦꯛꯁꯟ 7.12-ꯒꯤ ꯃꯍꯥꯛ ꯃꯔꯣꯜ ꯑꯃ; ꯑꯄꯥꯟꯕ ꯃꯄꯨꯡ ꯍꯦꯗꯦ
ꯐꯨꯝ; ꯐꯨꯝꯗꯤ (phum; phumdi)	"ꯍꯣꯤꯗꯥ ꯌꯥꯐꯔꯕ ꯃꯗꯥ-ꯃꯣꯤꯂꯤꯒꯤ ꯑꯊꯨꯕ ꯕꯍꯑꯃꯣ, ꯑꯣꯤꯗꯔꯤꯕ … ꯌꯥꯗꯦꯕ ꯃꯑꯣꯡ: phumdi" ("floating thick biomass of weeds, etc. … Variant: phumdi"); *ꯐꯨꯝꯊꯤ* (*phumthi*) "ꯍꯣꯤꯗꯥ ꯌꯥꯐꯔꯕ ꯕꯍꯑꯣꯃꯧꯒꯤ ꯃꯁꯛ ꯑꯃ" ("a mat of floating biomass") (Sharma, p. 125); "'ꯐꯨꯝꯗꯤꯂꯤꯡ' ꯍꯥꯌꯕꯗꯤ ꯍꯣꯤꯗꯥ ꯌꯥꯐꯔꯕ ꯃꯑꯣꯡꯗ ꯂꯩꯕ ꯄꯥꯃꯕꯤ, ꯑꯔꯥꯡꯅꯤ ꯃꯍꯩ ꯃꯔꯨ ꯑꯃꯁꯨꯡ ꯂꯩꯍꯥꯒꯤ ꯌꯥꯗꯦ ꯌꯥꯗꯦꯕ ꯃꯍꯩ ꯄꯤꯕ ꯃꯤꯡꯂꯔꯤꯗꯦ" ("'Phumdis' means heterogeneous mixture of vegetation, organic debris and soil in floating condition") (Loktak Act, ꯂꯦꯡꯂ 2)	ꯐꯨꯝꯗꯤ, ꯂꯤꯡꯌꯥ ꯑꯦꯡꯠꯗ ꯗꯦꯖꯤꯟꯗ ꯌꯥꯕꯨꯃ

ꯃꯩꯇꯩꯂꯣꯟ ꯋꯥꯍꯩ (ꯔꯣꯃꯥꯅꯥꯏꯖ ꯇꯧꯔꯕ ꯃꯑꯣꯡ)	ꯑꯔꯊ (ꯍꯧꯔꯀꯐꯝ)	ꯃꯦꯅꯨꯌꯦꯜꯒꯤ ꯋꯥꯍꯩ (ꯀꯥꯈꯜ 7.2)
ꯑꯊꯥꯐꯨꯝ (athaphum)	"ꯉꯥ ꯐꯥꯅꯕ ꯃꯤꯑꯣꯏꯅꯥ ꯊꯥꯕ ꯅꯠꯔꯒꯥ ꯌꯣꯀꯈꯠꯄ, ꯇꯥꯎꯔꯤꯕ ꯐꯤꯕꯝꯗ ꯂꯩꯕ, ꯀꯣꯏꯅꯥ ꯂꯦꯡꯕ ꯃꯑꯣꯡꯒꯤ ꯐꯨꯝꯗꯤꯁꯤꯡꯒꯤ ꯑꯁꯥꯡꯕ ꯁ꯭ꯇ꯭ꯔꯤꯞ ꯑꯃꯅꯤ" ("long strip of Phumdis in circular shape in floating condition, planted or cultured artificially for catching fish") (Loktak Act, ꯁꯦꯛꯁꯟ 2(a))	ꯑꯊꯥꯐꯨꯝ, ꯑꯦꯛꯇꯀꯤ ꯁꯦꯝꯖꯤꯟ ꯇꯧꯕꯒꯨꯝ
ꯏꯐꯨꯠ (iphut)	"ꯐꯧꯟꯇꯦꯟ: ꯏꯁꯤꯡꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯏꯐꯨꯠ ꯑꯃꯥ" ("fountain: a natural spring of water") (Sharma, p. 22)	ꯏꯐꯨꯠ (spring)
ꯏꯀꯥ; ꯏꯆꯥꯎ (ikā; icāo)	"(ꯃꯤꯡꯊꯣꯜ) ꯏꯁꯤꯡ ꯏꯆꯥꯎ" ("n. flood") (Sharma, pp. 17 ꯑꯃꯁꯨꯡ 18); *ꯏꯁꯤꯡ ꯏꯆꯥꯎ* (*ising icāo*) "ꯏꯁꯤꯡ ꯏꯆꯥꯎ" ("flood") (p. 25)	ꯏꯁꯤꯡ ꯏꯆꯥꯎ; ꯁꯦꯝꯖꯤꯟ ꯇꯧꯔꯕ ꯋꯥꯍꯩ ꯅꯠꯇꯦ

ꯇꯦꯕꯜ 7E.2 — ꯇꯨꯔꯦꯜꯁꯤꯡ, ꯈꯣꯡꯁꯤꯡ, ꯀꯦꯅꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯕꯥꯟꯁꯤꯡ

ꯃꯩꯇꯩꯂꯣꯟ ꯋꯥꯍꯩ (ꯔꯣꯃꯥꯅꯥꯏꯖ ꯇꯧꯔꯕ ꯃꯑꯣꯡ)	ꯑꯔꯊ (ꯍꯧꯔꯀꯐꯝ)	ꯃꯦꯅꯨꯌꯦꯜꯒꯤ ꯋꯥꯍꯩ (ꯀꯥꯈꯜ 7.2)
ꯇꯨꯔꯦꯟ; ꯇꯨꯔꯦꯜ (turen; turel)	"(ꯃꯤꯡꯊꯣꯜ) ꯇꯨꯔꯦꯜ ꯑꯃꯥ … ꯇꯣꯉꯥꯟꯕ ꯃꯑꯣꯡ: turel" ("n. a river … Variant: turel") (Sharma, p. 81)	ꯇꯨꯔꯦꯜ (river), "ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ" ("Imphal Turel")-ꯗ ꯇꯧꯕꯒꯨꯝ
ꯈꯣꯡ (khong)	"1) ꯁ꯭ꯇ꯭ꯔꯤꯝ ꯑꯃꯥ॥ 2) ꯃꯥꯏꯟ" ("1) a stream. 2) mine"); *ꯈꯣꯡꯖꯥꯎ* (*khongjāo*) "ꯑꯆꯧꯕ ꯀꯦꯅꯦꯜ ꯅꯠꯔꯒꯥ ꯁ꯭ꯇ꯭ꯔꯤꯝ ꯑꯃꯥ" ("a large canal or stream"); *ꯈꯣꯡꯂꯝ* (*khonglam*) "ꯀꯦꯅꯦꯜ ꯑꯃꯥ" ("a canal") (Sharma, p. 54)	ꯈꯣꯡ (stream; ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯗ ꯆꯤꯡꯒꯤ ꯈꯣꯡ ꯅꯠꯔꯒꯥ ꯃꯍꯧꯁꯥꯒꯤ ꯈꯣꯡ); ꯑꯅꯤꯁꯨꯕ ꯑꯔꯊ "ꯃꯥꯏꯟ" ("mine") ꯑꯁꯤ ꯊꯗꯣꯛꯂꯦ ꯍꯟꯗꯦ
ꯈꯣꯡꯕꯥꯟ; ꯈꯣꯡꯕꯥꯜ (khongbān; khongbāl; khongban)	"ꯗꯤꯆ ꯑꯃꯥ; ꯏꯔꯝ ꯑꯃꯥ" ("a ditch; a drainage") (Sharma, p. 55)	ꯈꯣꯡꯕꯥꯟ (ditch, drainage): ꯈꯣꯡꯕꯥꯟ ꯅꯠꯔꯒꯥ ꯗꯤꯆ ꯑꯃꯥ, ꯃꯇꯝ ꯄꯨꯝꯅꯃꯛ ꯑꯔꯊ ꯄꯤꯔꯤ; ꯃꯦꯅꯨꯌꯦꯜꯒꯤ ꯋꯥꯍꯩꯗꯤ "drain"-ꯅꯤ, ꯃꯗꯨ ꯃꯩꯇꯩꯂꯣꯟ ꯑꯦꯗꯤꯁꯟ ꯑꯁꯤꯗ ꯈꯣꯡꯕꯥꯟ ꯍꯥꯌꯅ ꯏꯔꯤ
ꯇꯨ (tu)	"ꯁ꯭ꯇ꯭ꯔꯤꯝ, ꯗꯤꯆ, ꯀꯦꯅꯦꯜ, ꯑꯁꯤꯅꯆꯤꯡꯕ" ("a stream, ditch, canal, etc."); *ꯇꯨ-ꯈꯣꯡ* (*tu-khong*) "ꯁ꯭ꯇ꯭ꯔꯤꯝ ꯑꯃꯁꯨꯡ ꯃꯈꯂꯒꯤꯕꯁꯤꯡ" ("stream and the like") (Sharma, p. 80)	ꯑꯍꯦꯅꯕ ꯃꯁꯨꯡ ꯏꯗꯦꯟ
ꯏꯔꯝ (iram)	"(ꯃꯤꯡꯊꯣꯜ) ꯏꯔꯝ॥ ꯃꯣꯔꯐ: i-ram [ꯏꯁꯤꯡꯒꯤ ꯂꯝꯕꯤ]" ("n. drainage. Morph: i-ram [water-path]") (Sharma, p. 23)	ꯏꯔꯝ (ꯗꯤꯁ꯭ꯇ꯭ꯔꯦꯝ); ꯑꯍꯦꯅꯕ ꯃꯁꯨꯡ ꯏꯗꯦꯟ
ꯏꯁꯤꯡ ꯈꯣꯡ (ising khong)	"ꯑꯄꯤꯛꯄ ꯀꯦꯅꯦꯜ ꯅꯠꯔꯒꯥ ꯆꯦꯅꯦꯜ ꯑꯃꯥ" ("a small canal or channel") (*ising*-ꯒꯤ ꯃꯈꯥ, Sharma, p. 25)	ꯑꯍꯦꯅꯕ ꯃꯁꯨꯡ ꯏꯗꯦꯟ
ꯂꯧꯈꯣꯡ (loukhong)	"ꯏꯔꯤꯒꯦꯁꯟ ꯀꯦꯅꯦꯜ" ("irrigation canal") (Sharma, p. 182)	ꯂꯧꯒꯤ ꯆꯦꯅꯦꯜ; ꯂꯧꯕꯨꯛꯇꯒꯤ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯃꯍꯩꯗ ꯄꯥꯗꯤ-ꯂꯦꯟꯗꯗ ꯑꯦꯛꯁꯄꯥꯔꯤ "ꯏꯔꯝꯒꯤ ꯆꯦꯅꯦꯜ" ("drainage channel") ꯑꯃꯥ
ꯅꯥꯂꯥ (nālā; nala)	"(ꯃꯤꯡꯊꯣꯜ) ꯈꯣꯡꯕꯥꯟ ꯑꯃꯥ; ꯁꯤꯋꯔ" ("n. a drain; sewer") (Sharma, p. 103)	ꯃꯁꯤ ꯃꯊꯪ ꯁꯤꯇꯤꯗꯦꯟꯗꯥ (ꯇꯦꯕꯜ 7E.4); "nallah" ꯑꯃꯁꯨꯡ "nullah" ꯑꯁꯤ ꯃꯃꯤꯡꯁꯤꯡꯗ ꯈꯉꯕ ꯊꯝꯃꯤ, ꯅꯥꯒꯥ ꯅꯨꯂꯥ (Naga Nullah) ꯑꯃꯁꯨꯡ ꯁꯃꯨꯁꯥꯡ ꯅꯥꯂꯥ (Shamushang nallah)-ꯗ ꯇꯧꯕꯒꯨꯝ

ꯇꯦꯕꯜ 7E.3 — ꯄꯝꯄꯁꯤꯡ, ꯒꯦꯠꯁꯤꯡ, ꯂꯧꯔꯣꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯝ

ꯃꯌꯣꯂꯥꯡ ꯋꯥꯍꯩ (ꯑꯣꯏꯅꯕ ꯇꯣꯔꯕ ꯃꯇꯥꯡ)	ꯋꯥꯈꯜ (ꯐꯣꯔꯝꯖ)	ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯃꯤꯅ ꯁꯤꯖꯤꯟꯅꯒꯗꯕ ꯃꯑꯣꯡ
ꯄꯥꯟ; ꯄꯥꯜ (pan; pal)	"1) ꯄꯥꯟ (bund) ꯑꯃ; ꯑꯨꯐꯕꯨ꯭ꯊꯝꯃꯨꯟꯗꯦ" ("1) a bund; embankment") (Sharma, p. 111)	ꯄꯥꯟ: ꯇꯨꯔꯦꯜꯒꯤ ꯄꯥꯟ (ꯊꯥꯡꯒꯠ 7.2-ꯒꯤ ꯃꯇꯨꯡꯏꯟꯅ ꯂꯩꯕ ꯀꯨꯞꯂꯤꯡꯁꯤꯡ)
ꯏꯊꯣꯡ (ithong)	"ꯍꯦꯟꯀꯥꯡꯕ; ꯁꯦꯡꯅꯁ ꯀꯥꯡꯕ" ("floodgate; sluice gate") (Sharma, p. 20)	ꯏꯊꯣꯡ: ꯁꯦꯡꯅꯁ ꯅꯠꯔꯒꯥ ꯍꯦꯟꯀꯥꯡꯕ, ꯏꯆꯤꯡ ꯋꯥꯍꯩꯒꯤ ꯂꯣꯌꯅꯅ ꯏꯕ
ꯂꯩꯔꯥꯏ (leirāi)	"ꯄꯣꯠꯆꯥ, ꯂꯨꯛ, ꯇꯨꯔꯦꯜ ꯑꯃꯒꯤ ꯂꯩꯔꯥꯏ" ("bank of a pond, lake, river") (Sharma, p. 179)	ꯂꯩꯔꯥꯏ (bank); ꯑꯄꯥꯝꯕ ꯃꯇꯨꯡ ꯏꯄꯥ
ꯇꯣꯔꯕꯥꯟ (torbān)	"ꯇꯨꯔꯦꯜꯒꯤ ꯂꯩꯔꯥꯏ" ("riverbank") (Sharma, p. 84)	ꯑꯄꯥꯝꯕ ꯃꯇꯨꯡ ꯏꯄꯥ
ꯏꯔꯣꯡ (irong)	"ꯇꯨꯔꯦꯜ ꯅꯠꯔꯒꯥ ꯈꯣꯡ ꯑꯃ ꯇꯣꯉꯥꯟꯅ ꯆꯦꯊꯣꯛꯄ ꯃꯐꯝ" ("the place where a river or stream branches off") (Sharma, p. 24)	ꯑꯄꯥꯝꯕ ꯃꯇꯨꯡ ꯏꯄꯥ
ꯆꯤꯡ (cing; ching); ꯆꯤꯡꯈꯣꯡ (cingkhong)	"ꯆꯤꯡ; ꯃꯥꯡꯄꯥꯟ" ("hill; mountain"); *ꯆꯤꯡꯈꯣꯡ* (*cingkhong*) "ꯃꯥꯡꯄꯥꯟ ꯅꯠꯔꯒꯥ ꯆꯤꯡ ꯑꯃꯒꯤ ꯃꯈꯣꯡꯒꯤ ꯃꯅꯥꯛ" ("the foot of a mountain or hill") (Sharma, p. 67)	ꯆꯤꯡ; ꯆꯤꯡꯒꯤ ꯃꯈꯣꯡꯒꯤ ꯃꯅꯥꯛ, ꯆꯤꯡꯒꯤ ꯈꯣꯡ ꯑꯃꯅ ꯇꯥꯄꯥꯛꯊꯤ ꯂꯝ ꯆꯥꯕ ꯃꯐꯝ

ꯇꯥꯕꯜ 7E.4 — ꯁꯤꯖꯤꯟꯅꯗꯕ ꯅꯠꯔꯒꯥ ꯌꯦꯡꯁꯤꯅꯕ ꯍꯧꯔꯤꯕ ꯇꯨꯡꯏꯟꯕ ꯋꯥꯍꯩꯁꯤꯡ

ꯋꯥꯍꯩ ꯅꯠꯔꯒꯥ ꯋꯥꯈꯜ ꯑꯁꯤꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯔꯤ ꯅꯠꯔꯒꯥ ꯄꯥꯉꯥꯟꯕ ꯇꯧꯔꯤ ꯑꯗꯨꯗꯨ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯁꯤꯒꯤ ꯂꯝꯃꯤꯡ ꯑꯣꯏꯕꯥ ꯇꯥꯔꯤꯕ ꯂꯤꯛꯁꯅꯕꯤꯟ ꯊꯨꯝꯍꯦꯟꯕꯒ ꯇꯧꯅꯤ, ꯅꯠꯔꯒꯥ ꯃꯈꯣꯌꯅ ꯑꯔꯣꯅꯕ ꯏꯊꯣꯡꯍꯥꯡꯕ ꯁꯤꯖꯤꯟꯅꯔꯤ॥ ꯃꯈꯣꯌꯗꯨ ꯑꯣꯏꯕꯥꯟ ꯅꯠꯔꯒꯥ ꯂꯥꯏꯄꯥꯛ ꯑꯃꯁꯨ ꯂꯩꯍꯧꯏ ꯇꯣꯔꯕ ꯋꯥꯍꯩ ꯑꯣꯏꯅꯕ ꯁꯤꯖꯤꯟꯅꯕꯥꯏꯔꯕꯅꯤ॥

ꯋꯥꯍꯩ	ꯍꯥꯏꯂꯥꯛꯂꯤꯕ ꯋꯥꯈꯜ ꯅꯠꯔꯒꯥ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯑꯣꯡ	ꯁꯦꯡꯅꯁ
"ꯂꯣꯛ" ("lok")	ꯁꯦꯡꯅꯕꯤ ꯑꯃꯒꯤ ꯋꯥꯍꯩ ꯑꯣꯏꯅ ꯄꯥꯡꯊꯣꯛ ꯄꯥꯏꯈꯤ	**ꯆꯨꯛ ꯇꯣꯏꯗꯦ; ꯁꯤꯖꯤꯟꯅꯗꯦ**
ꯄꯥꯠꯆꯥꯕ (pātcāba; patchaba)	"ꯉꯥꯒꯤ ꯂꯩꯍꯥꯛ ꯂꯤꯂ ꯂꯣꯕ ꯃꯤ" ("a lessee of fishery") (Sharma, p. 114)	**ꯏꯁꯤꯡ ꯂꯩꯍꯥꯛ ꯅꯠꯇꯦ; ꯁꯤꯖꯤꯟꯅꯗꯦ**
ꯅꯥꯂꯥ (nālā; nala) ꯃꯁꯤ ꯃꯊꯦꯡꯇꯦ	"ꯈꯣꯡꯕꯥꯟ ꯑꯃ; ꯁꯤꯖꯔꯕ" ("a drain; sewer") (Sharma, p. 103)	ꯂꯩꯍꯧꯏ ꯇꯣꯔꯕ ꯋꯥꯍꯩ ꯑꯣꯏꯅꯕ **ꯁꯤꯖꯤꯟꯅꯗꯦ**, ꯃꯔꯃꯗꯤ ꯃꯁꯤꯅꯥ ꯁꯤꯖꯔꯕ (sewer) ꯐꯥꯑꯣꯕ ꯋꯥꯈꯜ ꯄꯤ; "drain" (ꯈꯣꯡꯕꯥꯟ) ꯁꯤꯖꯤꯟꯅꯦ
ꯂꯣꯛꯇꯥꯛ (loktāk)	ꯐꯨꯝꯆꯥꯔꯕ ꯑꯃ (Sharma, p. 180); ꯃꯁꯤꯒꯤ ꯂꯩꯍꯧꯏꯁꯤꯡ ꯂꯣꯏꯅꯕ	ꯂꯣꯛꯇꯥꯛ ꯐꯥꯑꯣꯕ ꯃꯃꯤꯡ ꯑꯣꯏꯅꯥ ꯏꯀꯥꯏ ꯁꯤꯖꯤꯟꯅꯦ
ꯋꯥꯍꯩ ꯑꯁꯤꯁꯤꯡꯒꯤ ꯕꯨꯀꯥꯂꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯇꯥꯡꯁꯤꯡ	NEER-ꯒꯤ ꯇꯨꯔꯦꯜꯁꯤꯡꯇꯥꯡꯁꯤꯡꯁꯤꯡ, ꯂꯩꯀꯁꯤꯂꯨꯔꯤ ꯑꯃꯃꯂꯒꯤ ꯂꯣꯏꯅꯕ	ꯕꯨꯀꯥꯂꯤ ꯃꯔꯨꯑꯣꯏꯕ ꯃꯌꯣꯂꯥꯡ ꯂꯤꯛꯁꯅꯕꯤꯒꯤ ꯑꯃꯒꯤ ꯆꯤꯡꯂꯥꯏꯂꯣꯛꯇꯦ ꯆꯨꯛ ꯇꯨꯡꯏꯟꯕ **ꯍꯥꯏꯂꯥꯛꯂꯤ** [TBC]
ꯇꯥꯡꯈꯨꯜ, ꯊꯥꯗꯣ-ꯀꯨꯀꯤ, ꯃꯥꯑꯣ, ꯔꯣꯡꯃꯩ, ꯄꯥꯏꯇꯦ (Tangkhul, Thadou-Kuki, Mao, Rongmei, Paite) ꯑꯃꯁꯨꯡ ꯆꯤꯡꯒꯤ ꯂꯝꯁꯤꯡꯒꯤ ꯑꯇꯣꯞꯄ ꯂꯣꯟꯁꯤꯡꯗ ꯂꯩꯕ ꯋꯥꯍꯩꯁꯤꯡ	—	ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯁꯤꯒꯤ ꯂꯝꯃꯤꯡ ꯊꯤꯖꯤꯟꯅꯗꯦ [TBC]

ꯃꯇꯨꯡ ꯏꯟꯅ ꯇꯥꯕꯜ 7E.1-ꯗꯒꯤ 7E.3 ꯍꯧꯔꯕꯒꯤ ꯑꯔꯣꯏꯕ ꯊꯥꯡꯂꯝ ꯂꯩꯕ ꯋꯥꯍꯩꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯥꯡꯒꯠ 7.2-ꯒꯤ ꯃꯇꯨꯡꯏꯟꯅ ꯂꯩꯍꯧꯏ ꯇꯣꯔꯕ ꯃꯆꯤꯛꯅꯕꯒꯤ ꯋꯥꯍꯩꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯦ॥

ꯐꯣꯔꯝ 7-1 — ꯏꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯁꯤꯠ

ꯁꯔꯨꯛ 7-ꯒꯤ ꯀ꯭ꯂꯣꯖ 7.3.2, 7.4 ꯑꯃꯁꯨꯡ 7.15(1)-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯂꯥꯛꯀꯤ ꯏꯁꯤꯡ ꯏꯔꯐ ꯗꯤꯂꯥꯏꯟ ꯃꯦꯔꯨꯏꯦꯠ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯄꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯁꯤꯠ ꯑꯃꯈꯛ꯫ ꯀ꯭ꯂꯣꯖ 7.3.2-ꯒꯤ ꯄ꯭ꯔꯇꯣꯟ ꯑꯁꯤ 1:1,000 ꯅꯠꯔꯒꯥ ꯍꯦꯟꯅꯥ ꯐꯕ ꯁ꯭ꯀꯦꯜ ꯃꯦꯞ꯭ꯀꯦꯂꯗ ꯊꯥꯡꯖꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 7F.1 — ꯐꯣꯔꯝ 7-1, ꯁꯦꯛꯁꯟ A: ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯂꯩꯐꯝ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ	ꯀ꯭ꯂꯣꯖ
A1	ꯄ꯭ꯔꯣꯖꯦꯛꯠꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯐꯥꯏꯜ ꯅꯝꯕꯔ	______	–
A2	ꯏꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯃꯃꯤꯡ (ꯍꯣꯂꯤꯟ ꯑꯃꯁꯨꯡ ꯃꯩꯍꯧꯂꯥꯟ) ꯑꯃꯁꯨꯡ ꯏꯟꯚꯦꯟꯇꯔꯤ ID (ꯑꯦꯅꯦꯛꯁ 7A), ꯂꯩꯔꯕꯗꯤ	______	7.3.1
A3	ꯏꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯃꯄꯥꯜ (ꯀ꯭ꯂꯣꯖ 7.2)	______	7.2
A4	ꯂꯩꯐꯝ: ꯁꯥꯏꯠꯀꯤ ꯃꯅꯨꯡꯗ / ꯁꯥꯏꯠꯀꯤ ꯉꯃꯈꯩꯗꯒꯤ 100 m-ꯒꯤ ꯃꯅꯨꯡꯗ / ꯁꯔꯨꯛ 5-ꯒꯤ ꯑꯦꯛꯁꯇꯦꯟꯠꯀꯤ ꯃꯅꯨꯡꯗ ꯃꯈꯥ ꯊꯪꯕ ꯃꯐꯝꯗ	______	7.3.2
A5	ꯁꯔꯚꯦ ꯅꯝꯕꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯡꯒꯥꯡ	______	7.3.1(a)
A6	ꯀꯝꯞ꯭ꯂꯥꯏꯟꯁ	______	7.3.1(b)
A7	ꯍꯦꯛ ꯅꯥꯏꯕ ꯄꯥꯔꯃꯤꯁꯅꯁꯤꯡ (ꯅꯤꯡ ꯅꯕꯤꯡ): ꯔꯦꯒꯨꯂꯦꯇꯔꯤ ꯂꯝꯒꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ (ꯁꯤꯇꯦ, ꯁꯕ-ꯗꯤꯚꯤꯖꯟ, ꯔꯦꯚꯦꯟꯌꯨ ꯄꯨꯡꯀꯤꯡ, ꯁꯦꯇꯦ), ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯃꯤꯇꯤꯒꯤ ꯑꯃꯁꯨꯡ ꯚꯤꯂꯦꯖ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ (ꯍꯤꯡꯒꯤ ꯂꯝꯁꯤꯡ) [TBC], ꯏꯁꯤꯡ ꯂꯩꯐꯝ 4,000 ꯔꯦꯐꯒꯤ ꯏꯟꯚꯦꯟꯇꯔꯤ (NGT M.A. 26/2019), SAC ꯑꯦꯇꯂꯦꯁ ꯑꯄꯗꯦꯠ 2021, MSWA-ꯒꯤ ꯗꯤꯖꯤꯇꯤꯂꯥꯏꯖꯦꯁꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯥꯐꯠ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯅꯁꯤꯡ, ꯍꯦꯁꯅ-ꯄ꯭ꯔꯣꯇꯦꯛꯇꯒꯤ ꯍꯦꯔꯦꯛꯁꯤꯡ, ꯂꯥꯡꯅꯥꯡ ꯑꯦꯡꯀꯤ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯁꯤꯡ, WRD-ꯒꯤ ꯄ꯭ꯔꯣ, ꯏꯊꯥꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯖꯤꯒꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ, ꯍꯥꯡꯕꯦꯂꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔ □; WRD / ꯒꯥꯔꯐ ꯄ꯭ꯔꯣꯁꯦꯁꯔ ꯅꯠꯔꯒꯥ, ꯑꯤꯡꯒꯤ ꯂꯝꯁꯤꯡꯗ, ꯚꯤꯂꯦꯖ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔꯁꯤꯡ □; ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯏꯟꯚꯦꯟꯇꯔꯤ ꯅꯠꯔꯒꯥ ꯀꯥꯔꯠꯀꯤ ꯂꯤꯁ꯭ꯠ □; ꯍꯍꯤꯡꯒꯤ ꯍꯦꯃꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯍꯦꯂꯔ, NWIA ꯑꯦꯇꯂꯦ □; ꯀꯏꯁꯠ ꯁꯔꯚꯦ □	______	7.3.3
A8	ꯄꯥꯔꯃꯤꯁꯅꯁꯤꯡ ꯅꯣꯇꯤꯐꯥꯏꯗ ꯍꯐꯃꯗ: ꯀꯔꯝꯕ ꯑꯦꯡꯁꯤꯡꯒꯤ ꯍꯧ ꯑꯣꯏꯕꯒꯦ (ꯄꯦꯅꯦꯜ ꯑꯦꯇꯂꯕ ꯑꯍꯣ)	______	7.3.3
A9	ꯂꯦꯚꯦꯜ ꯃ꯭ꯌꯨꯂꯅꯍꯡꯀꯤ ꯗꯦꯇꯥ, ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯗꯦꯇꯥ ꯑꯍꯍꯡꯅꯒꯤ ꯄꯥꯡꯗꯣꯀꯄ	______	7.3.5

ꯇꯦꯕꯜ 7F.2 — ꯐꯣꯔꯝ 7-1, ꯁꯦꯛꯁꯟ B: ꯂꯦꯚꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯤꯆꯔꯁꯤꯡ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ	ꯀ꯭ꯂꯣꯖ
B1	FTL (ꯃꯤꯇꯔꯁꯤꯡ, ꯂꯦꯚꯦꯂꯁꯤꯡ, ꯃꯥꯟꯗꯁꯤꯡ) ꯅꯠꯔꯒꯥ ꯂꯩꯔꯕꯒꯤ ꯍꯥꯏꯠ (ꯆꯦꯅꯦꯂꯁꯤꯡ), m	______	7.2
B2	MWL (ꯃꯤꯇꯔꯁꯤꯡ), m, ꯑꯃꯁꯨꯡ ꯍꯧ (WRD ꯔꯦꯀꯣꯔꯗ ꯅꯠꯔꯒꯥ 1% AEP ꯀꯝꯄ꯭ꯌꯨꯠ ꯇꯧꯔꯕ)	______	7.2
B3	TBL, ꯄ꯭ꯔꯤꯃꯣꯅꯁꯥꯒꯤ ꯂꯦꯝꯕ ꯃꯥꯏꯄꯥꯛ (ꯃꯤꯇꯔꯁꯤꯡ), m	______	7.3.1(d)
B4	1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ, m, ꯑꯃꯁꯨꯡ ꯄꯥꯔꯃꯤꯠ (ꯂꯣꯔꯕ ꯍꯦꯛ / ꯄꯥꯔꯥꯃꯤꯠꯔ ꯁꯣꯔꯁ / ꯂꯣꯕ)	______	7.3.4
B5	ꯀꯦꯆꯃꯦꯟꯠ ꯏꯔꯐꯒꯤ ꯂꯝ (ꯍꯦꯛꯇꯔꯁꯤꯡ), ha	______	7.4.1(b)
B6	ꯁꯄꯂꯥꯏ ꯆꯦꯅꯦꯂꯁꯤꯡ, ꯁꯔꯄꯂꯁ ꯀꯥꯔꯁꯁꯤꯡ, ꯏꯊꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯄꯂꯁ ꯑꯤꯆꯔꯁꯤꯡ ꯄ꯭ꯔꯣꯇꯦꯛꯇ ꯊꯧꯂꯤ (ꯄꯥꯆ / ꯅꯠꯇꯦ)	______	7.3.2
B7	ꯍꯡꯂꯕ ꯂꯝ ꯍꯥꯄꯄꯁꯤꯡ, ꯔꯦꯀꯣꯔꯗ ꯇꯧꯔꯕ ꯇꯥꯡ ꯂꯥꯆꯂꯦ	______	7.3.1(g)

ꯇꯦꯕꯜ 7F.3 — ꯐꯣꯔꯝ 7-1, ꯁꯦꯛꯁꯟ C: ꯁꯦꯠꯕꯦꯛ

No.	ꯐꯤꯚꯝ	ꯄꯥꯎꯈꯨꯝ	ꯁꯦꯛꯁꯟ
C1	ꯂꯥꯏꯔꯤꯛꯀꯤ ꯍꯥꯏ: ꯍꯥꯌꯕ ꯑꯣꯏꯕ ꯑꯦꯞꯂꯤꯀꯦꯁꯟ / ꯄꯂꯥꯟꯅꯤꯡ ꯂꯥꯏꯁꯦꯟ / ꯐꯤꯚꯝ ꯑꯣꯏꯕ ꯃꯤꯡꯇꯕ (ꯑꯦꯅꯦꯛꯁ 7B)	______	7.15(1)
C2	ꯁꯦꯛꯁꯟ 7.3.4 (a) / (b) / (c)-ꯒꯤ ꯃꯈꯥꯗ ꯄꯂꯥꯟꯅꯤꯡ ꯂꯥꯏꯁꯦꯟ ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯑꯣꯏꯕꯔꯥ?	______	7.3.4
C3	ꯐꯨꯇꯥꯡꯂꯦꯟꯒꯤ ꯃꯔꯤꯕꯒꯤ ꯃꯇꯦꯡ, FTL ꯇꯥꯔꯕꯒꯤ ꯇꯥꯏꯄꯒꯤ ꯃꯊꯪꯑꯣꯒꯤ m, ꯑꯃꯁꯨꯡ ꯃꯔꯝꯇꯦ ꯗꯤꯇꯤꯇꯤꯌꯥ ꯑꯣꯏꯕꯒꯥ	______	7.6.1
C4	ꯇꯤꯌꯔ 1-ꯒꯤ ꯁꯤꯡꯇꯕ, m (15 m, ꯐꯨꯇꯥꯡꯂꯦꯟꯒꯤ ꯃꯇꯦꯡ, MWL ꯃꯔꯥꯡꯕꯒꯤ ꯃꯔꯨꯞꯗ ꯄꯨꯕꯅꯗꯒꯤ ꯌꯥꯝꯕ)	______	7.4.3
C5	ꯇꯤꯌꯔ 2-ꯒꯤ ꯁꯤꯡꯇꯕ, m (1% AEP ꯑꯣꯡꯂꯣꯏꯕꯔꯥ + 10 m ꯐꯨꯝꯕ, ꯇꯥꯔꯕꯒꯤ 10 m)	______	7.4.4
C6	ꯑꯣꯏꯅꯔ ꯇꯥꯔꯕꯒꯤ ꯑꯣꯁꯤꯡꯒꯥꯅꯒꯤ ꯄꯥꯔꯦ ꯁꯤꯡꯁꯤ ꯂꯥꯏꯕꯥꯡ, ꯇꯥꯕꯗꯤ, ꯑꯃꯁꯨꯡ ꯃꯂꯤꯒꯤ ꯄꯥꯔꯡꯐꯝ	______	7.4.5
C7	ꯂꯤꯇꯤꯔꯇꯍꯤꯕ ꯂꯥꯏꯕꯥꯡ: ꯃꯁꯨꯌꯥꯅꯒꯤ ꯂꯥꯏꯔꯦꯛꯔꯥ / ꯑꯣꯏꯅꯔ, ꯁꯤꯇꯦꯔ ꯇꯥꯔꯕꯒꯤ ꯑꯣꯁꯤꯡꯒꯥꯅꯒꯤ ꯄꯥꯔꯦ ꯁꯤꯡꯁꯤ ꯇꯦꯅꯔ ꯑꯃꯁꯨ: ꯇꯦꯝꯅ ꯕꯦꯗꯤꯇꯦ ꯌꯥꯇꯥꯡꯄꯅꯇꯕ ꯃꯐꯝꯗ, ꯃꯦꯗꯥꯅꯒꯤ ꯕꯄ-ꯇꯦ 93-ꯒꯤ ꯕꯐꯔ [TBC: ꯇꯦꯝꯅ ꯕꯦꯗꯤꯇꯦ ꯇꯦꯑꯣꯏꯐꯄ ꯑꯣꯏꯕ ꯕꯄ-ꯇꯦꯂꯤꯕꯗ ꯇꯝꯕꯔ ꯑꯃꯁꯨꯡ ꯑꯣꯡꯂꯣꯏ ꯃꯔꯐꯔꯝ ꯑꯣꯏꯕꯤꯁꯨ], ꯁꯨꯔꯥꯅꯒꯤ ꯃꯌꯥꯄꯗꯒꯤ ꯃꯥꯇꯔ ꯑꯣꯏꯕ ꯇꯥꯔꯕꯒꯤ ꯁꯔꯒꯤ ꯃꯁꯤꯡꯒꯤ ꯑꯣꯗꯒꯤ 6 m, ꯃꯇꯦꯡꯃꯕ ꯑꯃꯇꯦ ꯁꯨꯔꯥꯅꯒꯤ ꯃꯌꯥꯄꯗꯒꯤ ꯄꯥꯔꯦ ꯇꯦꯁꯤꯁ (ꯃꯂꯤꯒꯤ ꯑꯣꯕꯅꯗ ꯇꯥꯕ ꯁꯨꯔꯥꯅ ꯑꯃꯁꯨꯡ ꯔꯤꯌꯂꯤꯕꯗ ꯍꯡꯑꯣ); ꯃꯇꯤꯁꯨꯔ ꯇꯦꯡꯑꯣꯡ ꯇꯥꯡ (ꯁꯨꯔꯦꯑꯣꯡꯂꯔ) ꯑꯥꯡꯌ, 2006-ꯒꯤ ꯃꯍꯥꯛꯗ ꯇꯦꯡꯑꯣꯡꯃꯤ ꯃꯦꯔ ꯇꯤꯌꯔ ꯇꯥꯔꯕꯒꯤ ꯕꯐꯔ ꯇꯤꯌꯔ, ꯇꯥꯔꯕꯒꯤ ꯄꯅ ꯃꯦꯔꯌꯃꯤ ꯑꯌꯦꯕ ꯌꯦꯝꯗꯇꯦ ꯇꯦꯡꯑꯣꯡꯃꯤ ꯃꯨꯂꯗ ꯇꯥꯔꯕꯒꯤ ꯑꯃꯦꯌꯕꯗ ꯗꯥꯒꯥꯇꯁꯤꯃꯥꯔꯥ ꯑꯣꯕꯗ ꯄꯅ ꯃꯦꯔꯌꯇꯦ ꯊꯤꯂꯕ (ꯁꯤꯝꯗ ꯐꯦꯂꯗꯦꯡꯍꯤꯕ ꯃꯁꯨꯂ ꯅꯔꯇ); ꯃꯇꯤꯁꯨꯔ ꯐꯨꯇꯗ ꯁꯤꯇꯥꯔ ꯇꯦꯇꯤꯂ ꯑꯥꯡꯌ, 1978-ꯒꯤ ꯃꯍꯥꯛꯗ ꯊꯤꯂꯕ ꯇꯥꯔꯕꯒꯤ ꯔꯥꯂꯨꯔꯤꯡꯑꯣ ꯑꯣꯏꯕ ꯑꯥꯔꯤꯌ ꯑꯃꯁꯨ (ꯑꯃꯌꯑꯣ ꯇꯦꯑꯣꯏꯐꯄ ꯑꯣꯏꯍꯤꯗ); ꯃꯇꯤꯁꯨꯔ ꯃꯔꯂꯔꯒꯥꯂꯔ ꯑꯦꯐ ꯁꯥꯗꯤ ꯇꯥꯔꯗ ꯑꯃꯁꯨꯡ ꯌꯥꯌꯇꯥꯔꯗ ꯑꯥꯡꯌ, 2014-ꯒꯤ ꯃꯍꯥꯛꯗ ꯌꯦꯔꯥꯁ ꯑꯃꯁꯨ; ꯃꯂꯨꯔ ꯁꯤꯇꯦꯔ ꯑꯃꯒꯤ ꯇꯦꯅꯔ ꯇꯥꯔꯕꯒꯤ ꯁꯨꯇ ꯇꯤꯌꯔ ("ꯁꯦꯔꯗ, ꯍꯦꯂꯕꯦꯔ, ꯁꯨꯔꯥꯅꯂꯤꯂ ꯑꯃꯁꯨꯡ ꯍꯦꯂꯇꯦꯝꯂꯤꯂ" ["Pond, Drain, Rivers and Canals"]); ꯇꯦꯑꯣꯏꯐꯄ ꯑꯣꯏꯕ ꯌꯥꯌꯇꯥꯔꯗ ꯑꯃꯒꯤ ꯊꯃꯑꯣ (ꯑꯃꯌꯑꯣ ꯑꯔꯦꯄꯕ ꯇꯥꯑꯣ); ꯁꯨꯔꯥꯅꯒꯤ ꯁꯔ ꯑꯃꯗ WRD-ꯒꯤ ꯃꯔꯗꯤꯂꯔ ꯑꯃꯁꯨ; ꯃꯦꯔꯌ ꯇꯥꯔꯕꯒꯤ ꯑꯣꯏꯄꯕꯨꯇꯒꯤ ꯇꯦꯅꯔ; ꯇꯥꯔꯕꯒꯤ ꯑꯑꯣꯁꯤꯁ (ꯃꯔꯤꯇꯦ ꯄꯌꯕ ꯄꯕꯤꯁꯨ)	______	7.4, ꯐꯦꯂꯗꯦꯡꯃꯁ
C8	ꯇꯤꯌꯔ 1 ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ 2-ꯗ ꯁꯨꯔꯁꯦꯇ ꯑꯣꯏꯕ ꯂꯤꯇꯤꯔꯇꯕꯂꯤꯂ, ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ 1-ꯗ ꯊꯕꯡ ꯑꯃꯃꯡꯃꯤꯗꯃꯡ ꯃꯂꯨꯑꯣꯗꯤꯌꯔꯒꯤ ꯑꯦꯕꯇꯥꯡꯂꯔ ꯇꯑꯣꯕꯒꯤ ꯂꯔꯑꯣꯤꯐꯤꯃꯥꯌ (NOC)	______	7.5, 7.15(5)
C9	ꯐꯨꯇꯗ ꯐꯨꯔꯤꯔꯇ (flood fringe)-ꯗ ꯁꯨꯔꯁꯦꯇ ꯑꯣꯏꯕ ꯐꯤꯅ (ꯄꯦꯌ / ꯇꯌꯑꯣ); ꯄꯦꯌꯔꯕꯗꯤ, ꯐꯦꯔꯃ 7-3 ꯂꯦꯂꯇꯔꯥ	______	7.6.3
C10	ꯇꯤꯌꯔ 1-ꯒꯤ ꯃꯔꯃꯔꯂꯤꯂꯒꯤ ꯃꯐꯃꯂꯤꯂ ꯌꯝꯇꯤ (30 m-ꯗꯒꯤ ꯄꯥꯔꯦ ꯇꯦꯁꯤꯇꯦ ꯇꯥꯗꯕ)	______	7.13.4

ꯑꯣꯕꯅ 7F.4 — ꯐꯦꯔꯃ 7-1, ꯂꯥꯡꯂꯔ D: ꯂꯥꯃꯕꯤꯍꯤꯕ

ꯐꯤꯚꯝ	ꯄꯥꯎꯈꯨꯝ
ꯃꯃꯤꯂ, ꯔꯥꯇꯤꯂꯨꯑꯣꯔꯥꯂꯔ ꯑꯃꯁꯨꯡ ꯄꯃꯁꯥꯇꯥꯅꯃꯥꯔꯌ ꯇꯃꯕꯔ (ꯁꯦꯛꯁꯟ 10.6)	______
ꯂꯦꯄꯔ ꯑꯃꯁꯨꯡ ꯇꯨꯃꯤꯌ	______
ꯇꯥꯒꯥꯅꯂꯤꯂꯒꯤꯗꯃꯡ ꯇꯦꯄꯂꯥꯔꯂ ꯇꯥꯕ ꯂꯔꯒꯥꯌꯔ (ꯃꯃꯤꯂ, ꯇꯦꯄꯂꯥꯔꯂ ꯇꯃꯕꯔ)	______

ꯐꯣꯔꯝ 7-2 — ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯀ꯭ꯔꯦꯗꯤꯠꯀꯤ ꯁꯤꯠ

ꯁꯔꯨꯛ 7-ꯒꯤ ꯀ꯭ꯂꯣꯖ 7.7, 7.8, 7.11, 7.14 ꯑꯃꯁꯨꯡ 7.15(4)-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯂꯣꯟꯒꯤ ꯍꯟꯗꯣꯛ ꯍꯔꯐ ꯑꯤꯇꯍꯦ ꯃꯦꯔꯨꯋꯦꯟ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯁ꯭ꯇꯣꯔꯦꯖ ꯃꯁꯤꯡ ꯄꯤꯗꯣꯛꯅꯕ ꯄꯨꯈ꯭ꯔꯤ ꯍꯂꯤꯡꯃꯊꯧꯗꯤꯁꯃꯊ ꯁꯤꯠ ꯑꯃꯃꯃꯦ꯫ ꯁꯦꯛꯁꯟ B-ꯒꯤ ꯑꯦꯡꯇꯤꯃ ꯑꯃꯃꯊꯔ ꯐꯦꯅ ꯇꯣꯕ ꯁ꯭ꯇꯣꯔꯦꯖ ꯑꯁꯤ ꯃꯁꯤꯡ ꯄꯤꯗꯣꯛꯅꯕꯒꯤ (ꯀ꯭ꯂꯣꯖ 7.7.1)꯫

ꯇꯦꯕꯜ 7F.5 — ꯐꯣꯔꯝ 7-2, ꯁꯦꯛꯁꯟ A: ꯄꯨꯈ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯁ꯭ꯀꯤꯝ

No.	ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ	ꯀ꯭ꯂꯣꯖ
A1	ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯦꯝꯕꯔ ID (ꯑꯦꯅꯦꯛꯁ 7A); ꯀꯁ꯭ꯇꯣꯗꯤꯌꯟ	______	7.3.1
A2	ꯁ꯭ꯇꯣꯔꯦꯖ ꯃꯁꯤꯡ ꯄꯤꯗꯣꯛꯅꯕ ꯁ꯭ꯀꯤꯝ: ꯕꯣꯗꯤ ꯀ꯭ꯂꯣꯖ / ꯔꯤꯖꯔꯚ ꯐꯣꯔꯃꯦꯁꯟ / ꯐꯤ-ꯁꯦ-ꯖꯤꯅ (S-5)	______	7.7.1, 7.11
A3	ꯍꯦꯗꯥꯡ ꯇꯥꯔꯤꯕ ꯀꯥꯁꯀꯥꯗ: ꯁꯕꯁꯗꯒꯤ ꯍꯧꯖꯤꯛ ꯂꯩꯕ ꯄꯨꯈ꯭ꯔꯤ ______-ꯗꯒꯤ ꯑꯍꯦꯅꯕ ______ ꯐꯥꯕ	______	7.7.2
A4	ꯗꯥꯇꯝ	______	7.3.5

ꯇꯦꯕꯜ 7F.6 — ꯐꯣꯔꯝ 7-2, ꯁꯦꯛꯁꯟ B: ꯁ꯭ꯇꯣꯔꯦꯖ ꯃꯁꯤꯡ ꯄꯤꯗꯣꯛꯅꯕꯒꯤ ꯀꯅꯗꯤꯁꯅꯁꯤꯡ

No.	ꯀꯅꯗꯤꯁꯟ	ꯍꯣꯏ / ꯅꯠꯇꯦ	ꯍꯀꯊꯦ ꯐꯥꯕ (ꯄꯦꯖ / ꯂꯥꯏꯟ)	ꯀ꯭ꯂꯣꯖ
B1	FTL, MWL, TBL, ꯑꯣꯏꯔꯤꯕꯒꯤ ꯀꯔꯤꯝ ꯑꯃꯁꯨꯡ ꯂꯥꯏꯟ, ꯁꯇꯦꯡꯒꯤ ꯃꯤꯠꯃꯤꯡ ꯄꯥꯔꯤꯕ ꯌꯄꯤ 5-ꯒꯤ ꯍꯨꯏꯗꯅ ꯃꯔꯒꯥ ꯇꯥꯔꯤ	______	______	7.7.1(a)
B2	ꯌꯄꯤ 5-ꯒꯤ ꯍꯨꯏꯗꯅ ꯂꯩꯔꯛ ꯑꯔꯣꯁꯕ ꯂꯩꯍꯧ ꯂꯩꯇꯣꯡꯁꯤꯕꯒꯤ ꯍꯧꯖꯅ, ꯀꯂꯤꯍꯕ ꯑꯃꯂꯦ ꯍꯧꯖꯅ ꯂꯩꯡꯂꯕꯅꯨ, ꯕꯇꯤꯍꯥꯏꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯣꯛꯔꯦꯐꯤꯡ ꯃꯔꯒꯥ ꯑꯃꯗꯒꯤ ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ ꯀꯔꯚ	______	______	7.7.1(b)
B3	ꯀꯁ꯭ꯇꯣꯗꯤꯌꯟꯅ ꯄꯤꯂꯀꯤꯕ ꯗꯣꯡꯌꯨꯍꯥꯅꯦꯁ ꯇꯥꯔꯕ ꯑꯣꯀꯔꯥꯇꯤꯡ ꯐꯨꯝ (ꯑꯦꯅꯦꯛꯁ 7C)	______	______	7.7.1(c), 7.8
B4	ꯑꯣꯏꯔꯔ, ꯁꯇꯦꯡꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯔꯦ O&M ꯀ꯭ꯂꯣꯖ ꯑꯃꯒꯤ ꯍꯥꯅꯗ ꯂꯩ; ꯑꯔꯣꯁꯕ ꯀ꯭ꯔꯤ-ꯍꯦꯔꯨꯔ ꯁꯦꯃꯀꯥꯡꯃꯦꯂꯦ ꯍꯥꯏꯕ ꯃꯤꯂꯤꯔꯦꯕ ꯄꯥꯁ ꯄꯤꯔꯂꯦ ꯐꯡꯥꯏ	______	______	7.7.1(d), 7.14.4
B5	ꯀꯁ꯭ꯇꯣꯗꯤꯌꯟꯒꯤ ꯁꯔꯕ ꯄꯂꯕ	______	______	7.7.1(e)

ꯇꯦꯕꯜ 7F.7 — ꯐꯣꯔꯝ 7-2, ꯁꯦꯛꯁꯟ C: ꯂꯦꯚꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯦꯗꯤꯠ ꯀꯤꯕ ꯄꯤꯕ ꯒꯣꯂꯥ

No.	ꯑꯥꯏꯇꯦꯝ	ꯚꯦꯜꯌꯨ	ꯀ꯭ꯂꯣꯖ
C1	ꯇꯦꯀꯅꯤꯀꯦꯜ ꯂꯦꯚꯦꯜ: FTL, ꯂꯣꯔꯤꯡ ꯀ꯭ꯂꯣꯖ 7.8.2 ꯍꯀꯊꯦ ꯐꯕ ꯐꯨꯝ ꯑꯃꯒꯤ ꯍꯥꯅꯗ ꯃꯥꯂꯦ ꯂꯦꯚꯦꯜ, m	______	7.7.3
C2	ꯃꯥꯂꯦ ꯃꯤꯇꯤꯡꯂꯦꯔꯕꯗꯤ: ꯀꯦꯇꯦꯔꯤ ꯇꯣꯕ ꯄꯕ ꯑꯍꯦꯅꯕ (ꯍꯅꯥ) ꯑꯃꯁꯨꯡ ꯗ꯭ꯔꯦꯗꯤꯍꯦꯒꯤ ꯍꯥꯡꯐ, h	______	7.8.2(a)
C3	ꯃꯥꯂꯦ ꯃꯤꯇꯤꯡꯂꯦꯔꯕꯗꯤ: ꯀꯦꯗꯤꯂꯨꯁꯦꯟ ꯃꯤꯍꯨꯂꯥꯁꯦꯗꯒꯤ ꯔꯤꯂꯥꯁꯒꯥꯕꯤꯂꯤꯇꯤ, ꯍꯦꯁꯦꯂꯦꯒꯤ ꯍꯥꯐꯃꯤꯡꯒꯤ % (≥ 90%)	______	7.8.2(c)
C4	ꯀꯥꯃꯀꯥꯗꯀꯤ ꯍꯨꯏꯊꯨꯗ ꯐꯨꯏ ꯇꯥꯔꯕ, ꯀ꯭ꯂꯣꯁꯍꯥꯏ ꯐꯥꯡꯗꯔꯛ ꯂꯦꯔꯂꯦ 1% AEP ꯁꯦꯐ꯭ꯂꯦꯒꯤ ꯀꯐꯃꯍꯨꯏ ꯇꯥꯔꯕ ꯍꯥꯡꯃꯤꯍꯐ ꯂꯦꯚꯦꯜ, m	______	7.7.4
C5	MWL, m; C4 ≤ MWL ꯑꯣꯏꯕꯔꯥ?	______	7.7.4(a)
C6	C4-ꯗꯒꯤ TBL ꯐꯥꯕ ꯐ꯭ꯔꯤꯕꯣꯔꯗ, m; WRD-ꯒꯤ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯁ꯭ꯇꯦꯟꯗꯔꯗ, m; ꯍꯀꯊꯦ ꯐꯕꯔꯥ?	______	7.7.4(b)
C7	C1 ꯑꯃꯁꯨꯡ C4-ꯒꯤ ꯃꯔꯛꯇ ꯂꯩꯕ ꯁ꯭ꯇꯣꯔꯦꯖ, ꯁ꯭ꯇꯦꯖ–ꯁ꯭ꯇꯣꯔꯦꯖ ꯀꯔꯚꯗꯒꯤ, m³	______	7.7.5

No.	ꯑꯥꯏꯇꯦꯝ	ꯚꯦꯜꯌꯨ	ꯀ꯭ꯂꯣꯖ
C8	ꯑꯇꯣꯞꯄ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯂꯩꯐꯝꯒꯤ ꯁ꯭ꯀꯤꯝ ꯑꯃꯗ ꯍꯦꯜꯂꯦ ꯀꯛꯤꯌ ꯇꯣꯐꯕ ꯚꯣꯂꯨꯝ, m³	______	7.7.5
C9	ꯀ꯭ꯐꯦꯗꯤꯌ ꯃꯔꯤꯕ ꯌꯥꯕ ꯚꯣꯂꯨꯝ = C7 − C8, m³	______	7.7.5
C10	ꯀ꯭ꯂꯣꯖ 10.17-ꯒꯤ ꯃꯈꯥꯗ ꯐꯦꯇꯤꯄ꯭ꯁꯐ ꯍꯥꯁ꯭ꯐꯤ (ꯐꯤ-ꯍꯥꯖ-ꯂꯤꯗ ꯄ꯭ꯁꯣꯐꯦꯂ)	______	7.11.2(d)

ꯇꯦꯕꯜ 7F.8 — ꯐꯣꯔꯝ 7-2, ꯁꯦꯛꯁꯟ D: ꯃꯏꯒꯤ ꯁꯦꯐꯇꯤ

No.	ꯑꯥꯏꯇꯦꯝ	ꯁꯏꯇꯦꯒꯤ	ꯀ꯭ꯂꯣꯖ
D1	ꯗꯦꯝ ꯁꯦꯐꯇꯤ ꯑꯦꯛꯠ, 2021 (Dam Safety Act, 2021)-ꯒꯤ ꯃꯈꯥꯗ ꯁ꯭ꯄꯦꯁꯤꯐꯥꯏꯗ ꯗꯦꯝ (specified dam) ꯑꯣꯏꯕꯔꯥ? ꯑꯣꯏꯔꯕꯗꯤ, ꯔꯦꯖꯤꯁ꯭ꯠꯔꯦꯁꯟ ꯅꯝꯕꯔ, ꯀꯦꯇꯦꯒꯣꯔꯤ, ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯣꯐꯤꯁ ꯑꯣꯐꯤꯁꯔ	______	7.14.1
D2	ꯍꯖꯥꯔꯗ ꯀ꯭ꯂꯥꯁ: ꯍꯥꯏ / ꯂꯣ	______	7.14.2
D3	ꯍꯥꯏ ꯍꯖꯥꯔꯗ: ꯄꯤꯛꯔꯗꯦ MWL-ꯗ ꯐ꯭ꯔꯤꯕꯣꯔꯗꯒꯥ ꯂꯣꯌꯂꯦ 1% AEP ꯃꯂꯨꯖꯥꯏꯅ; ꯑꯥꯄꯔꯁꯥꯃꯤꯝ ꯌꯦꯡꯗꯦ 0.2% AEP ꯌꯦꯝ	______	7.14.3(a)
D4	ꯍꯥꯏ ꯍꯖꯥꯔꯗ: ꯃꯂꯦ ꯀꯃꯃꯒꯤ ꯑꯦꯂꯦꯍꯥꯏꯃ ꯑꯃꯨꯝ ꯍꯃꯔꯂꯦꯂꯤ ꯑꯦꯃꯂꯦ ꯃ꯭ꯂꯦꯂ (ꯔꯦꯐꯔꯦꯟꯁꯤꯡ)	______	7.14.3(b), (c)
D5	ꯍꯥꯏ ꯍꯖꯥꯔꯗ: ꯀ꯭ꯂꯣꯖ 10.6-ꯒꯤ ꯃꯈꯥꯗ ꯍꯦꯗꯃꯦꯗꯦꯌ ꯌꯦꯝ (ꯃꯃꯤꯝ)	______	7.14.3(d)

ꯇꯦꯕꯜ 7F.9 — ꯐꯣꯔꯝ 7-2, ꯁꯦꯛꯁꯟ E: ꯁꯍꯦꯂꯤꯝ

ꯊꯧꯗꯝ	ꯃꯃꯤꯝ ꯑꯃꯨꯝ ꯗꯤꯂꯤꯒꯨꯂꯦ	ꯁꯍꯦ ꯑꯃꯨꯝ ꯆꯃꯤꯌ
ꯗꯤꯂꯍꯂꯔ (ꯀ꯭ꯂꯣꯖ 10.6)	______	______
ꯍꯦꯗꯃꯦꯗꯦꯌ ꯌꯦꯃꯔ, ꯀ꯭ꯂꯣꯖ 7.14.3(d) ꯌꯌꯂꯕ ꯃꯐꯃꯗ	______	______
ꯀ꯭ꯄꯁꯥꯗꯤꯌꯦꯒꯤ ꯌꯦꯂꯕ (ꯀ꯭ꯂꯣꯖ 7.7.1(e))	______	______

ꯐꯣꯔꯝ 7-3 — ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ (ꯑꯦꯂꯤꯚꯦꯁꯟ ꯕꯦꯟꯗ ꯃꯇꯨꯡ ꯅꯦꯠ)

ꯁꯔꯨꯛ 7-ꯒꯤ ꯀ꯭ꯂꯣꯖ 7.6.3-ꯗꯒꯤ 7.6.5 ꯐꯥꯎꯕ, 7.9.5 ꯑꯃꯁꯨꯡ 7.15(3)-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯂꯤꯡꯨꯔ ꯂꯦꯛꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯂꯦꯁꯟ ꯃꯦꯂꯨꯔꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0.

ꯊꯧꯑꯣꯡ

1. **ꯃꯈꯥꯒꯤ ꯂꯤꯃꯤꯠ** ꯐꯤꯛꯁ ꯇꯧꯕꯤꯌꯨ: ꯏꯁꯤꯡ ꯂꯧꯐꯝ ꯑꯗꯨꯒꯤ ꯅꯣꯔꯃꯦꯜ ꯋꯣꯇꯔ ꯂꯦꯚꯦꯜ, ꯅꯠꯔꯒꯥ 50% AEP (2-yr) ꯂꯦꯚꯦꯜ ꯍꯦꯟꯅ ꯋꯥꯡꯂꯕꯗꯤ ꯃꯗꯨ (ꯀ꯭ꯂꯣꯖ 7.6.4(b))॥
2. **ꯃꯊꯛꯀꯤ ꯂꯤꯃꯤꯠ** ꯐꯤꯛꯁ ꯇꯧꯕꯤꯌꯨ: 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ (ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯂꯧꯔꯒꯥ)॥
3. ꯔꯦꯟꯖ ꯑꯗꯨ **0.3 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ ꯕꯦꯟꯗꯁꯤꯡꯗ** ꯈꯥꯌꯗꯣꯀꯎ॥ ꯃꯊꯛꯀꯤ ꯕꯦꯟꯗ ꯑꯗꯨ ꯍꯦꯟꯅ ꯄꯤꯀꯕ ꯑꯣꯏꯕ ꯌꯥꯏ॥
4. ꯕꯦꯟꯗꯀꯤ ꯃꯔꯛꯇ ꯂꯩꯕ ꯂꯦꯚꯦꯜ z ꯄ꯭ꯂꯥꯅꯤꯃꯦꯠꯔꯤꯛ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ, ꯀ꯭ꯂꯤꯌꯔ ꯃꯦꯖꯔ ꯇꯧꯕꯤꯌꯨ:
   - A_fill(z): ꯄ꯭ꯔꯣꯖꯦꯛ ꯂꯣꯔꯤꯕ ꯂꯣꯃꯥꯟ z-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯃꯐꯝꯗ ꯐꯤꯜꯒꯤ ꯐꯨꯠꯄ꯭ꯔꯤꯟꯇꯀꯤ ꯑꯦꯔꯤꯌꯥ; ꯑꯃꯁꯨꯡ
   - A_cut(z): ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯂꯣꯃꯥꯟ z-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛ ꯂꯣꯔꯤꯕ ꯂꯣꯃꯥꯟ z-ꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯔꯤꯕ ꯃꯐꯝꯗ ꯑꯦꯛꯁꯀꯦꯚꯦꯁꯅꯒꯤ ꯑꯦꯔꯤꯌꯥ (ꯑꯣꯏꯊꯣꯛ ꯏꯁꯤꯡꯗ ꯆꯦꯠꯅ ꯑꯦꯔꯤꯌꯥ)॥
5. ꯕꯦꯟꯗ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ, ꯑꯦꯚꯔꯦꯖ ꯑꯦꯟꯗ-ꯑꯦꯔꯤꯌꯥ ꯃꯊꯗ (average end-area method)-ꯗ: V = (A(z_bottom) + A(z_top)) / 2 × ꯕꯦꯟꯗꯀꯤ ꯑꯊꯨꯕ॥ ꯃꯁꯤ ꯐꯤꯜ (ꯃꯥꯡꯍꯤꯕ ꯚꯣꯜꯌꯨꯝ) ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯀꯦꯚꯦꯁꯟ (ꯐꯡꯍꯤꯕ ꯚꯣꯜꯌꯨꯝ)-ꯒꯤꯗꯃꯛ ꯇꯧꯕꯤꯌꯨ॥
6. **ꯕꯦꯟꯗ ꯈꯨꯗꯤꯡꯃꯛ ꯆꯦꯛ ꯇꯧꯕꯤꯌꯨ:** ꯐꯡꯍꯤꯕ ꯚꯣꯜꯌꯨꯝ ≥ ꯃꯥꯡꯍꯤꯕ ꯚꯣꯜꯌꯨꯝ॥ ꯕꯦꯟꯗ ꯑꯃꯗ ꯂꯩꯕ ꯁꯔꯞꯂꯁ ꯑꯇꯣꯞꯄ ꯕꯦꯟꯗ ꯑꯃꯗ ꯂꯩꯕ ꯗꯦꯐꯤꯁꯤꯠ ꯑꯗꯨ ꯃꯄꯨꯡ ꯐꯥꯍꯅꯗꯦ (ꯀ꯭ꯂꯣꯖ 7.6.4(b))॥
7. ꯁꯦꯛꯁꯟ C-ꯗ ꯀ꯭ꯂꯣꯖ 7.6.4(c)-ꯗꯒꯤ (f) ꯐꯥꯎꯕꯒꯤ ꯑꯇꯣꯞꯄ ꯀꯟꯗꯤꯁꯅꯁꯤꯡ ꯆꯦꯛ ꯇꯧꯕꯤꯌꯨ॥

ꯁꯔꯨꯛ 7-ꯗ ꯂꯩꯕ ꯃꯃꯤ 7.2-ꯗ ꯊꯧꯑꯣꯡ ꯑꯁꯤ ꯎꯠꯂꯤ॥

ꯇꯦꯕꯜ 7F.10 — ꯐꯣꯔꯝ 7-3, ꯁꯦꯛꯁꯟ A: ꯂꯦꯚꯦꯜꯁꯤꯡ

No.	ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ	ꯀ꯭ꯂꯣꯖ
A1	ꯏꯁꯤꯡ ꯂꯧꯐꯝ, ꯔꯤꯚ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯅꯒꯤ ID	_____	7.6.4(c)
A2	ꯅꯣꯔꯃꯦꯜ ꯋꯣꯇꯔ ꯂꯦꯚꯦꯜ, m; 50% AEP ꯂꯦꯚꯦꯜ, m; ꯃꯈꯥꯒꯤ ꯂꯤꯃꯤꯠ (ꯍꯦꯟꯅ ꯋꯥꯡꯕ ꯑꯗꯨ), m	_____	7.6.4(b)
A3	ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯑꯦꯂꯥꯎꯅꯁ ꯌꯥꯎꯕ 1% AEP ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ, m (ꯃꯊꯛꯀꯤ ꯂꯤꯃꯤꯠ)	_____	7.6.4(b)
A4	ꯕꯦꯟꯗꯀꯤ ꯑꯊꯨꯕ, m (≤ 0.3) ꯑꯃꯁꯨꯡ ꯕꯦꯟꯗꯁꯤꯡꯒꯤ ꯃꯁꯤꯡ	_____	7.6.4(b)
A5	ꯗꯦꯇꯝ	_____	7.3.5

ꯇꯦꯕꯜ 7F.11 — ꯐꯣꯔꯝ 7-3, ꯁꯦꯛꯁꯟ B: ꯕꯦꯟꯗ ꯈꯨꯗꯤꯡꯒꯤ ꯕꯦꯂꯦꯟꯁ

ꯕꯦꯟꯗ	ꯍꯧꯔꯀꯄ (m)	ꯂꯣꯏꯔꯀꯄ (m)	A_fill ꯃꯈꯥ (m²)	A_fill ꯃꯊꯛ (m²)	ꯃꯥꯡꯍꯤꯕ ꯚꯣꯜꯌꯨꯝ (m³)	A_cut ꯃꯈꯥ (m²)	A_cut ꯃꯊꯛ (m²)	ꯐꯡꯍꯤꯕ ꯚꯣꯜꯌꯨꯝ (m³)	ꯐꯡꯍꯤꯕ ≥ ꯃꯥꯡꯍꯤꯕ?
1	_____	_____	_____	_____	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____	_____	_____	_____	_____
ꯄꯨꯝꯅꯃꯛ					_____			_____	

ꯃꯊꯧ ꯇꯥꯕꯒꯨꯝ ꯔꯣꯁꯤꯡ ꯇꯉꯥꯏꯐꯗꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 7F.12 — ꯐꯣꯔꯝ 7-3, ꯁꯦꯛꯁꯟ C: ꯑꯌꯥꯄꯅꯛ ꯀꯟꯗꯤꯁꯟꯁꯤꯡ

No.	ꯀꯟꯗꯤꯁꯟ	ꯃꯄꯨꯡ ꯐꯥꯕ (ꯍꯣꯌ / ꯅꯠꯇꯦ) ꯑꯃꯁꯨꯡ ꯑꯦꯚꯤꯗꯦꯟꯁ	ꯀ꯭ꯂꯣꯖ
C1	ꯐꯤꯜ ꯑꯁꯤ ꯐ꯭ꯂꯗꯄ꯭ꯂꯦꯅꯤꯡ ꯂꯦꯚꯦꯜ ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯗꯤ, ꯑꯃꯁꯨꯡ ꯁꯔꯚꯦꯌꯔ ꯃꯤꯇꯤꯕꯂꯕ ꯑꯃꯁꯨꯡ ꯃꯈꯥꯒꯤ	______	7.6.2, 7.6.3
C2	ꯑꯦꯔꯤꯌꯥ ꯃꯈꯥꯒꯤ ꯑꯃꯁꯨꯡ ꯄꯃꯤꯡ ꯗꯩꯐꯝ ꯑꯣꯏꯕꯔꯀꯤ ꯔꯤꯁ ꯑꯣꯏꯕꯔꯀ ꯗꯤ, ꯇꯄꯗꯨꯔꯦꯗꯤꯔ ꯑꯣꯄꯗꯦ ꯁꯨꯡꯃꯤꯟꯗꯤ, ꯑꯃꯁꯨꯡ ꯐꯤꯜꯗꯒꯤ ꯇꯦꯡꯗꯦ ꯃꯄ ꯊꯕ ꯃꯐꯝꯗ ꯗꯩꯌ	______	7.6.4(c)
C3	ꯄꯃꯤꯡ ꯄꯁꯦꯕ ꯇꯦꯊꯔꯀꯁꯛ ꯂꯣꯁꯂꯦ ꯑꯦꯔꯤꯌꯥꯒꯦꯗ ꯑꯃꯤ ꯁꯔꯒꯤꯌꯤꯗꯦ ꯄꯃꯤꯡ ꯊꯦꯛꯀꯄ; ꯁꯃꯐꯁ ꯌꯣꯗꯦ; ꯂꯣꯔꯃꯦꯟ ꯁꯦꯌꯔ ꯂꯦꯒꯦꯟꯒꯤ ꯃꯁꯗ ꯁꯔꯃꯗꯂꯦꯗꯅ ꯁꯨꯟ ꯗꯩꯌ	______	7.6.4(d)
C4	ꯑꯦꯔꯤꯌꯥꯒꯦꯗ ꯑꯃꯤ ꯐꯤꯟꯒꯤ ꯃꯃꯕꯗ, ꯂꯅꯔꯒꯤ ꯃꯌꯃ ꯑꯣꯏꯕꯔꯀ, ꯑꯁꯤ	______	7.6.4(e)
C5	ꯃꯑꯤ ꯀꯗꯤꯀꯥꯗꯨ ꯐꯤꯟ ꯌꯣꯗꯕ ꯀꯦꯒꯦꯂꯅ (covenant) ꯂꯅꯔꯒꯤ ꯇꯦꯗꯑꯣꯀꯔ (ꯔꯦꯐꯔꯦꯜ)	______	7.6.4(f)
C6	ꯑꯣꯕꯛ 4-ꯒꯤ ꯃꯁꯤꯗ ꯗꯤꯌꯦꯟꯁꯟ (detention) ꯂꯅꯔꯒꯤ ꯔꯤꯌꯦꯟꯁꯟ (retention) ꯑꯣꯄꯗꯦ ꯃꯑꯤꯡ ꯁꯦꯊꯇꯦꯗꯦ	______	7.6.5
C7	ꯗꯤꯖꯥꯏꯅꯔꯒꯤ ꯑꯦꯄꯟ (ꯀ꯭ꯂꯣꯖ 10.6) ꯑꯃꯁꯨꯡ ꯁꯃꯤꯌ	______	10.6

ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ

ꯈꯨꯗꯝ ꯑꯣꯄꯗꯦ ꯄꯔꯣꯌꯂꯤ — ꯗꯤꯖꯥꯏꯟ ꯒꯦꯠꯋꯦ ꯆꯦꯛ. ꯁꯦꯂꯦꯟ ꯑꯃꯒꯤ ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯗꯤꯕ ꯑꯦꯄꯟ ꯑꯃꯗꯦ ꯁꯦꯇꯟꯗꯕ ꯗꯥꯏ 2-ꯒꯤ ꯑꯤꯗꯤꯕꯗꯕ ꯑꯃꯒꯤꯗꯃꯂ ꯐꯤꯟ ꯁꯦꯗ (fill pad) ꯑꯃꯦ ꯃꯊꯧ ꯌꯣꯄ (ꯀ꯭ꯂꯣꯖ 7.5.2)꯫ ꯄꯦꯁꯨꯡꯂꯑꯤꯡ ꯑꯃꯤ ꯄꯂꯒꯂꯗꯕꯂꯤ꯫

- ꯂꯥꯐꯃꯦꯟ ꯌꯦꯌꯐ ꯗꯦꯒꯦꯟ 10.00 m; 50% AEP ꯗꯦꯒꯦꯟ 9.80 m꯫ ꯃꯅꯦꯒꯤ ꯗꯤꯃꯤꯂ = 10.00 m (ꯇꯦꯗꯦ ꯌꯦꯡꯕ ꯑꯃ)꯫
- 1% AEP ꯄꯑꯤꯡ ꯄꯁꯦꯗꯒꯤ ꯗꯦꯒꯦꯟ 11.20 m꯫ ꯐꯦꯗꯗ 1.20 m, ꯃꯐꯝ ꯑꯃꯨꯗꯦ 0.30 m-ꯒꯤ ꯕꯦꯗꯗ ꯃꯐꯤ꯫
- ꯐꯤꯟꯒꯤ ꯐ꯭ꯂꯨꯁꯣꯔꯤꯗꯂ ꯑꯃꯤ 1,600 m²-ꯂꯤ꯫ ꯐ꯭ꯂꯨꯁꯣꯔꯤꯗꯂ ꯁꯨꯃꯂꯃꯗꯌ ꯇꯗꯤꯌ ꯗꯐꯤꯕ ꯗꯤꯃꯄ ꯑꯃꯤ 10.00 m-ꯗꯒꯤ 11.20 m ꯐꯦꯗꯕ ꯃꯦꯂꯂꯦ ꯌꯦꯡꯄꯂꯗꯤ, ꯃꯐꯝ ꯑꯃꯨꯗꯦ ꯗꯦꯒꯦꯟ ꯈꯗꯤꯌꯒꯤ ꯃꯁꯦꯗ ꯗꯕ ꯐ꯭ꯂꯨꯁꯣꯔꯤꯗꯂꯃꯤ ꯑꯦꯐꯤꯁꯗꯤ: 10.00 m-ꯗ 0 m²; 10.30 m-ꯗ 400 m²; 10.60 m-ꯗ 800 m²; 10.90 m-ꯗ 1,200 m²; 11.20 m-ꯗ 1,600 m²꯫
- ꯑꯦꯔꯤꯌꯥꯒꯦꯗ ꯑꯃꯤ ꯁꯦꯂꯦꯟꯒꯤ ꯃꯂꯑꯣꯌ ꯁꯐꯦꯗ ꯌꯦꯐꯕ ꯀꯂ ꯑꯃꯂꯤ, ꯃꯑꯤꯒꯤ ꯐ꯭ꯂꯐ 10.00 m-ꯗ ꯗꯤ꯫ ꯗꯦꯒꯦꯟ ꯈꯗꯤꯌꯒꯤ ꯃꯁꯦꯗ ꯑꯂꯦ ꯄꯑꯤꯌꯦ ꯁꯦꯂꯁ ꯑꯦꯐꯤꯁ (ꯑꯇꯂꯕ ꯌꯐ꯭ꯂꯄꯑꯦꯟ)-ꯗꯤ: 10.00 m-ꯗ 300 m²; 10.30 m-ꯗ 900 m²; 10.60 m-ꯗ 1,100 m²; 10.90 m-ꯗ 1,500 m²; 11.20 m-ꯗ 1,500 m²꯫

ꯁꯦꯇꯄ 1 — ꯃꯤꯄꯁꯤꯕ ꯒꯦꯁꯃ, ꯕꯦꯗꯗ ꯈꯗꯤꯌꯗ (V = ꯑꯦꯒꯐꯦꯇ ꯑꯦꯐꯤꯁ × 0.3 m):

- ꯕꯦꯗꯗ 1: (0 + 400) / 2 × 0.3 = 60 m³
- ꯕꯦꯗꯗ 2: (400 + 800) / 2 × 0.3 = 180 m³
- ꯕꯦꯗꯗ 3: (800 + 1,200) / 2 × 0.3 = 300 m³
- ꯕꯦꯗꯗ 4: (1,200 + 1,600) / 2 × 0.3 = 420 m³
- ꯁꯨꯃꯂꯃꯗ: 960 m³

ꯁꯦꯇꯄ 2 — ꯐꯤꯄꯁꯤꯕ ꯒꯦꯁꯃ, ꯑꯇꯂꯕ ꯌꯐ꯭ꯂꯄꯑꯦꯟ:

ꯇꯦꯕꯜ 7F.13 — ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ: ꯑꯇꯂꯕ ꯌꯐ꯭ꯂꯄꯑꯦꯟ (ꯈꯨꯗꯝ ꯑꯣꯄꯗꯦ)

ꯕꯦꯗꯗ	ꯇꯥꯐꯀꯁ (m)	ꯂꯥꯄꯐꯀꯁ (m)	ꯃꯤꯄꯁꯤꯕ ꯒꯦꯁꯃ (m³)	A_cut ꯃꯅꯦ (m²)	A_cut ꯃꯊꯃ (m²)	ꯐꯤꯄꯁꯤꯕ ꯒꯦꯁꯃ (m³)	ꯐꯤꯄꯁꯤꯕ ≥ ꯃꯤꯄꯁꯤꯕ?
1	10.00	10.30	60	300	900	180	ꯍꯣꯌ

ꯕꯦꯟꯆ	ꯍꯧꯔꯀꯄ (m)	ꯂꯣꯏꯔꯀꯄ (m)	ꯃꯥꯡꯍꯤꯕ ꯚꯣꯂꯨꯝ (m³)	A_cut ꯃꯈꯥ (m²)	A_cut ꯃꯊꯛ (m²)	ꯐꯪꯍꯤꯕ ꯚꯣꯂꯨꯝ (m³)	ꯐꯪꯍꯤꯕ ≥ ꯃꯥꯡꯍꯤꯕ?
2	10.30	10.60	180	900	1,100	300	ꯍꯣꯌ
3	10.60	10.90	300	1,100	1,500	390	ꯍꯣꯌ
4	10.90	11.20	420	1,500	1,500	450	ꯍꯣꯌ
ꯄꯨꯝꯅꯃꯛ			960			1,320	

ꯕꯦꯟꯆ ꯈꯨꯗꯤꯡꯃꯛ ꯄꯥꯁ ꯇꯧꯏ꯫ ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ, ꯀꯠ ꯑꯗꯨ ꯍꯦꯟꯅꯥ ꯑꯊꯨꯅꯥ ꯑꯃꯁꯨꯡ ꯍꯦꯟꯅꯥ ꯑꯄꯤꯛꯅꯥ ꯂꯧꯊꯣꯛꯄꯗꯤ, ꯗꯥꯟꯕ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯕꯦꯟꯆꯂꯣꯟ ꯑꯃꯗꯤ ꯌꯥꯝ ꯑꯃꯥ ꯍꯦꯅꯒꯠꯂꯛꯀꯅꯤ ꯍꯥꯌꯕ ꯈꯟꯕꯤꯌꯨ: ꯅꯤꯡꯊꯧꯅꯕꯗꯤ ꯃꯅꯨꯡꯒꯤ ꯃꯈꯥꯠꯇ 10.00 m-ꯗ 1,400 m², 10.30 m-ꯗ 1,400 m², 10.60 m-ꯗ 1,000 m², 10.90 m-ꯗ 600 m² ꯑꯃꯁꯨꯡ 11.20 m-ꯗ 200 m²-ꯒꯤ ꯑꯅꯧꯕ ꯇꯥꯏꯕꯗꯤ ꯌꯦꯠꯄ ꯑꯦꯡꯂꯤꯌꯨꯡꯏꯕ ꯅꯥꯕ ꯀꯠ ꯑꯃꯗꯤ ꯄꯤꯡꯗꯥ ꯍꯥꯌꯔꯤ ꯅꯣꯏꯕꯅꯤ꯫

ꯇꯦꯕꯜ 7F.14 — ꯀꯕꯛ ꯇꯧꯗꯕ ꯈꯨꯗꯝ: ꯍꯦꯟꯅꯥ ꯑꯊꯨꯕ, ꯍꯦꯟꯅꯥ ꯄꯤꯛꯀꯕ ꯀꯠ (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ)

ꯕꯦꯟꯆ	ꯍꯧꯔꯀꯄ (m)	ꯂꯣꯏꯔꯀꯄ (m)	ꯃꯥꯡꯍꯤꯕ ꯚꯣꯂꯨꯝ (m³)	A_cut ꯃꯈꯥ (m²)	A_cut ꯃꯊꯛ (m²)	ꯐꯪꯍꯤꯕ ꯚꯣꯂꯨꯝ (m³)	ꯐꯪꯍꯤꯕ ≥ ꯃꯥꯡꯍꯤꯕ?
1	10.00	10.30	60	1,400	1,400	420	ꯍꯣꯌ
2	10.30	10.60	180	1,400	1,000	360	ꯍꯣꯌ
3	10.60	10.90	300	1,000	600	240	ꯅꯠꯇꯦ
4	10.90	11.20	420	600	200	120	ꯅꯠꯇꯦ
ꯄꯨꯝꯅꯃꯛ			960			1,140	

ꯄꯨꯝꯅꯃꯛ ꯐꯪꯍꯤꯕ (1,140 m³) ꯑꯁꯤ ꯄꯨꯝꯅꯃꯛ ꯃꯥꯡꯍꯤꯕ (960 m³)-ꯗꯒꯤ ꯍꯦꯟꯅ, ꯑꯗꯨꯕꯨ ꯕꯦꯟꯆ 3 ꯑꯃꯁꯨꯡ 4-ꯗ 60 m³ ꯑꯃꯁꯨꯡ 300 m³ ꯌꯥꯑꯣꯗꯦ꯫ ꯃꯁꯤꯗ ꯅꯥꯕ ꯂꯦꯡꯃꯅꯂ ꯑꯗꯨ ꯃꯍꯩꯌꯒꯤ ꯃꯈꯥꯠꯇ ꯃꯂꯣꯏ ꯌꯦꯡꯍꯦꯟꯕ ꯌꯦꯍꯧꯈ: ꯃꯍꯩꯒꯤ ꯂꯧꯈꯥꯝ ꯑꯂꯣꯏ ꯈꯂꯣꯏꯃ ꯈꯌꯦꯡ ꯈꯨꯗꯣꯏꯃꯛꯇꯧ ꯑꯍꯦꯅꯕꯗ ꯇꯅꯗꯥꯗꯍ ꯑꯃꯁꯨꯡ ꯄꯣꯏꯛꯗꯣ ꯃꯅꯩꯛꯇꯧ ꯊꯣꯔꯕꯅꯤ ꯂꯧꯈꯥꯝ ꯅꯧꯍꯥꯗꯄ ꯃꯇꯧꯈꯗ ꯅꯥꯈꯍꯧ꯫ ꯗꯣꯅꯤꯟꯈ ꯑꯂꯣꯏ ꯁꯦꯅꯦꯡ 7.6.4(b)-ꯗ ꯌꯦꯡ ꯇꯧꯈ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯛꯀꯤ ꯕꯦꯟꯆꯂꯣꯏꯗꯕ ꯃꯍꯩꯌꯕ ꯃꯗꯨꯅꯣꯏꯕꯒꯤ ꯈꯕꯅꯗꯒꯤ ꯅꯦꯃꯕꯗ ꯃꯈꯥꯒꯤ ꯌꯔꯛ ꯃꯕꯦꯅꯕ ꯐꯗꯅꯕ ꯑꯃꯛꯅ ꯍꯥꯕꯅꯤ ꯒꯤꯏꯗ ꯇꯧꯒꯗꯕꯅꯤ, ꯑꯍꯦꯅꯕ ꯇꯧꯈꯤꯅꯑꯣꯗ ꯅꯕꯒꯨꯝ꯫

ꯁꯔꯨꯛ 8-ꯒꯤ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ

ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯔꯤꯁꯦꯔꯆ

ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 8-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫ ꯃꯁꯤꯗꯥ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ (water quality)-ꯒꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯃꯥꯄꯥꯟꯊꯣꯡꯁꯤꯡꯒꯤ ꯗꯦꯇꯦꯏꯂꯁ, ꯁꯦꯕꯥ ꯑꯣꯏꯕ ꯊꯥꯛ (Level of Service; LoS) ꯑꯃꯁꯨꯡ ꯃꯃꯜ ꯊꯥꯛ (Value Rating; VR)-ꯒꯤ ꯃꯇꯦꯡ ꯄꯥꯡꯕ ꯃꯔꯤ, ꯈ꯭ꯕꯥꯏꯗꯒꯤ ꯐꯕ ꯊꯧꯑꯣꯡ (best management practice; BMP)-ꯒꯤ ꯁꯦꯃꯈꯤꯕ ꯊꯧꯑꯣꯡꯁꯤꯡꯒꯤ ꯗꯦꯇꯦꯏꯂꯁ, BMP ꯈꯅꯕꯒꯤ ꯃꯥꯄꯥꯟꯊꯣꯡ ꯑꯃꯁꯨꯡ ꯍꯤꯁꯥꯕ, ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯟꯠꯔꯣꯂꯒꯤ ꯃꯥꯏꯀꯩ ꯑꯃꯁꯨꯡ ꯂꯝꯂꯩꯒꯤ ꯊꯤꯡꯕ (erosion and sediment control; ESC)-ꯒꯤ ꯄꯥꯟꯗꯝ ꯊꯝꯕ ꯃꯥꯄꯥꯟꯊꯣꯡ, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 8.14-ꯗ ꯍꯥꯞꯄ ꯌꯥꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯏꯕ ꯃꯆꯤꯟ꯫ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 8A ꯑꯃꯁꯨꯡ 8C-ꯗ ꯄꯥꯝꯕꯩ ꯇꯧꯕ ꯇꯧꯕꯒꯤ ꯃꯆꯥ ꯍꯥꯞꯄ ꯌꯥꯏ; ꯃꯁꯤꯗꯥ ꯍꯧ ꯌꯥꯏ ꯑꯃꯁꯨꯡ ꯍꯧꯖꯤꯛ ꯃꯤꯇꯤꯡꯒꯤ ꯊꯧꯔꯥꯡ ꯂꯩꯔꯤ꯫ ꯇꯦꯕꯜꯁꯤꯡ ꯑꯁꯤ ꯑꯣꯏꯖꯦꯛ ꯇꯦꯕꯜꯁꯤꯡꯅꯤ꯫

ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 8A — ꯗꯦꯁ ꯍꯥꯞꯄ ꯏꯆꯦꯜ ꯅꯠꯇꯅ 3-ꯒꯤ ARI-ꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯃꯥꯄꯥꯟ ꯑꯃꯁꯨꯡ IDF

ꯁꯔꯨꯛ 8-ꯒꯤ ꯇꯦꯕꯜ 8.2, 8.4.1 ꯑꯃꯁꯨꯡ 8.4.5-ꯗ ꯍꯥꯞꯄ ꯌꯥꯏ꯫

ꯀꯥꯟꯅꯕ ꯋꯥꯐꯝ. ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 2-ꯒꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯗꯦꯁ ꯈꯅꯕꯒꯤ ꯃꯑꯣꯡꯗꯥ, ꯄꯨꯡ 24-ꯒꯤ ꯅꯠꯇꯅ 3-ꯒꯤ ARI (average recurrence interval) ꯃꯥꯄꯥꯟ P_3m ꯑꯃꯁꯨꯡ Q_wq-ꯒꯤ ꯃꯇꯦꯡ ꯀꯟꯗꯕ ꯅꯠꯇꯅ 3-ꯒꯤ ARI-ꯒꯤ ꯏꯆꯦꯜ ꯍꯤꯁꯥꯕ–ꯄ꯭ꯔꯣꯁꯦꯁꯀꯤ ꯃꯇꯦꯡ ꯂꯧꯔꯤ꯫ ꯃꯁꯤꯒꯤ ꯃꯑꯣꯡꯗꯥ ꯄꯥꯔꯁꯤꯌꯦꯜ-ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯁꯤꯔꯤꯖ (partial-duration series) ꯑꯃꯗꯥ ꯑꯦꯅꯥꯂꯥꯏꯖ ꯇꯧꯔꯦ, ꯃꯁꯤꯅꯥ ꯀꯟꯗꯕꯥ ꯗꯦꯇꯥꯒꯤ ꯊꯥꯛꯇꯥ ꯈꯅꯕꯒꯤ ꯑꯃꯁꯨꯡ ꯊꯥꯛꯇꯥ ꯑꯃꯁꯤꯡꯒꯤ ꯄꯥꯔꯇꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯄꯥꯟꯗꯝꯁꯤꯡ (IMD-ꯒꯤ ꯁꯥꯡꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯂꯦꯄꯐꯝ ꯌꯥꯕ ꯃꯥꯌꯣꯛ, ꯁꯔꯨꯛ 2-ꯒꯤ ꯑꯄꯨꯅꯕ ꯄꯥꯝꯕꯩꯗ ꯑꯦꯡꯗꯦ NIH-ꯅ ꯗꯦꯔꯦꯛꯇ) ꯍꯧꯖꯤꯛ ꯌꯥꯏ꯫ ꯃꯁꯤ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯃꯥꯌꯀꯩꯗꯒꯤ, ꯃꯤꯇꯩꯅꯕꯗꯥ ꯀꯟꯗꯕꯥ ꯗꯦꯇꯥꯒꯤ ꯃꯑꯣꯡꯗꯥ ꯇꯧꯕ ꯂꯩꯕ ꯄꯥꯟꯗꯝꯒꯤ ꯀꯟꯗꯕ ꯊꯥꯛꯇꯥ ꯈꯅꯕꯒꯤ ꯄꯥꯝꯕꯩꯁꯤꯡꯒꯤ, ꯑꯗꯨ ꯑꯃꯅ ꯑꯦꯅꯥꯂꯥꯏꯖ ꯑꯦꯡꯗꯦ ꯍꯥꯏꯕ ꯍꯧꯖꯤꯛ ꯂꯩꯕ ꯗꯦꯇꯥꯅ ꯄꯥꯝꯕꯩ ꯄꯨꯡ 24-ꯒꯤ ꯃꯥꯄꯥꯟ ꯑꯦꯡꯗꯦ (ꯇꯦꯕꯜ 8.2) P_3m ꯑꯃꯁꯨꯡꯕ ꯌꯥꯍꯟꯕꯔꯦ, ꯄꯥꯝꯕꯩꯗ, ꯃꯁꯤꯒꯤ ꯀꯟꯗꯕ ꯑꯃꯁꯨꯡ ꯃꯥꯏꯀꯩ ꯑꯃꯅ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯀꯤꯁ ([ꯇꯦꯕꯜ 8-1](#))-ꯗ ꯅꯥꯏꯅꯕꯔꯦ, ꯑꯃꯁꯨꯡ P_wq = max (P_ret, P_3m) ꯀꯟꯗꯕꯥꯏꯅꯕꯔꯦ (ꯇꯦꯕꯜ 8.4.1)꯫ ꯇꯦꯅꯥꯍꯟꯕ ꯇꯥꯑꯣꯏꯄ ꯀꯟꯗꯕꯥꯅꯥ (ꯇꯦꯕꯜ 8.4.3)꯫

8A.1 ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯁꯤ ꯀꯥꯟꯅꯕꯅ ꯀꯟꯗꯕꯥꯅꯕ ꯃꯇꯦꯡ

- (a) ꯇꯥꯕ ꯌꯦꯕ ꯍꯇꯍꯅ ꯁꯥꯏꯅꯅꯒꯤ ꯗꯥꯍꯕꯅ ꯌꯥꯏ 30-ꯒꯤ ꯊꯥꯛꯇꯥ ꯈꯅꯕꯒꯤ ꯄꯥꯝꯕꯩꯗꯅꯕ ꯀꯟꯗꯕꯥꯏ (ꯁꯔꯨꯛ 2-ꯒꯤ ꯁꯥꯡꯂꯦꯟ IDF-ꯒꯤꯅꯍꯥ ꯗꯦꯕꯒꯨꯍ)꯫
- (b) ꯄꯨꯡ 24-ꯒꯤ ꯃꯥꯄꯥꯟꯕꯤꯒꯤ ꯄꯥꯔꯁꯤꯌꯦꯜ-ꯗ꯭ꯌꯨꯔꯦꯁꯟ ꯁꯤꯔꯤꯖ ꯀꯥꯍꯨ, ꯃꯁꯤ ꯍꯥꯏꯕꯥ ꯗꯦꯅ ꯃꯦꯇꯥꯀꯅꯕꯅ ꯁꯥꯏꯅꯅꯒꯤ ꯗꯥꯍꯕꯅ ꯗꯦꯕ ꯁꯨꯅꯅ ꯊꯥꯛꯇꯥ ꯑꯍꯗꯦ ꯌꯥꯎꯍꯟꯗꯦ ꯃꯍꯧꯗꯦ꯫
- (c) ꯃꯁꯤꯒꯤ ꯍꯥꯏꯕꯥ ꯗꯦꯅ ꯃꯦꯇꯥꯀꯅꯕꯒꯤ ꯃꯁꯤꯡ ꯌꯥꯏ ꯑꯍꯅ ꯑꯦꯡꯗꯦꯇ ꯍꯥꯏ ꯑꯦꯅꯥꯕꯕ ꯊꯥꯛꯂꯥꯏꯅ (threshold) ꯅꯕꯕꯤꯁ; P_3m ꯑꯁꯤ ꯊꯥꯛꯂꯥꯏꯅ ꯑꯃꯨꯗꯤ꯫
- (d) ꯍꯤꯗꯤꯌ 10-ꯅꯒꯤ ꯄꯨꯡ 24 ꯇꯦꯁꯕꯒꯤ ꯄ꯭ꯔꯣꯁꯦꯁꯀꯤꯃꯅꯥ ꯅꯠꯇꯅ 3-ꯒꯤ ARI-ꯒꯤ ꯏꯆꯦꯜꯀꯤꯌꯥꯏꯁꯤ ꯊꯥꯛꯇꯥ ꯑꯍꯅꯒꯤ ꯄꯥꯝꯕꯩ ꯄꯥꯝꯕꯩꯗꯅꯕꯅꯒꯤ, ꯗꯦꯄꯥꯛ ꯊꯥꯛꯇꯥ ꯈꯅꯕꯒꯤ ꯃꯥꯇꯝꯅꯒꯤ ꯁꯥꯍꯥ ꯌꯦꯕꯒꯤ ꯁꯔꯨꯛ 2-ꯒꯤ ꯍꯥꯏꯕꯗꯦ ꯗꯥꯍꯥꯁ, ꯇꯥꯍꯕꯗꯦ ꯄꯥꯡꯕ ꯅꯃꯨꯗꯦ꯫
- (e) ꯇꯦꯅꯥꯍꯟꯕ ꯇꯥꯑꯣꯏꯄ ꯀꯟꯗꯕꯥꯅꯨ (ꯇꯦꯕꯜ 8.4.3)꯫

ꯌꯥꯕꯥ 8A.1 — ꯗꯦꯁ ꯍꯥꯞꯄ ꯏꯆꯦꯜ ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯃꯥꯄꯥꯟꯁꯤꯡ (ꯗꯦꯇꯦꯏꯂꯁ)

ꯅꯣꯗ (ꯁꯔꯨꯛ 2)	ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯁꯣꯏꯜ ꯒ꯭ꯔꯨꯞ ꯂꯦꯟꯗ ꯌꯨꯖ	ꯑꯦꯔꯤꯌꯥ (ꯑꯦꯀꯔ)	P_ret, ꯑꯍꯦꯟꯕ 2E (mm)	P_3m (mm)	P_wq = max (mm)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ꯇꯦꯕꯜ 8A.2 — ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ ꯑꯃꯁꯨꯡ 3-ꯒꯤ ARI-ꯒꯤ ꯏꯟꯇꯦꯟꯁꯤꯇꯤꯁꯤꯡ (ꯇꯦꯝꯞꯂꯦꯠ)

ꯅꯣꯗ	10 min (mm/h)	15 min (mm/h)	30 min (mm/h)	1 h (mm/h)	2 h (mm/h)	6 h (mm/h)	24 h (mm/h)
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

ꯑꯍꯦꯟꯕ 8B — ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠꯀꯤ LoS ꯇꯦꯕꯜ ꯑꯃꯁꯨꯡ ꯋꯥꯇꯔ-ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯚꯣꯂꯨꯝ VR

ꯁꯔꯨꯛ 8-ꯒꯤ ꯁꯦꯛꯁꯟ 8.6.2-ꯗꯒꯤ 8.6.5 ꯐꯥꯎꯕꯗ ꯌꯦꯡꯕꯤꯌꯨ॥

8B.1 ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠꯀꯤꯗꯃꯛ ꯃꯊꯧ ꯇꯥꯕ ꯂꯦꯚꯦꯜ ꯑꯣꯐ ꯁꯔꯚꯤꯁ

ꯅꯣꯠ ꯇꯧꯕꯤꯌꯨ. ꯍꯧꯖꯤꯛ ꯂꯩꯔꯤꯕ ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠ (redevelopment) ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡꯗꯥ (ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ 20% ꯍꯦꯟꯕꯥ ꯑꯍꯦꯟꯕ ꯑꯅꯧꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯗꯝ, ꯁꯦꯛꯁꯟ 8.6.2) ꯃꯊꯧ ꯇꯥꯕ ꯂꯦꯚꯦꯜ ꯑꯣꯐ ꯁꯔꯚꯤꯁ ꯍꯣꯡꯂꯤ॥ MARC/APWA BMP Manual (2012, Table 4.3)-ꯅꯥ ꯄꯔꯁꯦꯟꯇꯦꯖ ꯑꯦꯗꯤꯁꯅꯦꯜ ꯃꯇꯝꯗ ꯃꯁꯤꯡ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯗꯃꯒꯤ ꯍꯣꯠꯅꯦꯁꯤꯜꯂꯒꯤ ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠꯀꯤ LoS ꯄꯤꯔꯤ; ꯃꯥꯂꯦꯝꯒꯤ ꯒꯥꯏꯗꯂꯥꯏꯟ ꯑꯁꯤ ꯁ꯭ꯇꯦꯠ ꯅꯥꯏꯗꯒꯤ ꯁ꯭ꯇꯣꯔꯃꯋꯥꯇꯔ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯀꯃꯤꯇꯤ (State Stormwater Technical Committee)-ꯅꯥ ꯄꯥꯝꯕꯩ ꯂꯧꯕꯗ ꯑꯃꯁꯨꯡ ꯅꯠꯇꯦ ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠꯀꯤ ꯀꯦꯁꯁꯤꯡꯗ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠ ꯑꯦꯝ ꯁꯦꯠꯄꯅꯤ॥ ꯃꯁꯤ ꯏꯝꯄꯂꯤꯃꯦꯟꯇꯦꯁꯟꯒꯤ ꯃꯇꯨꯡꯗ, ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯗꯤ ꯃꯊꯧ ꯇꯥꯕ LoS ꯑꯁꯤ ꯄꯔꯁꯦꯟꯇꯦꯖ ꯑꯦꯗꯤꯁꯅꯦꯜꯗꯤ 6-ꯅꯤ॥ ꯑꯅꯧꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯗꯃꯒꯤ ꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠꯀꯤ ꯃꯇꯨꯡꯒꯤ ꯂꯤꯁ꯭ꯠ ꯂꯤꯌꯣꯕ CN-ꯒꯤ ꯑꯣꯏꯅꯥ ꯇꯦꯕꯜ 8.2 ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯑꯍꯥꯟꯕ LoS ꯑꯃ ꯍꯤꯡꯕꯗꯤ, ꯑꯍꯥꯟꯕ LoS ꯑꯗꯨ ꯄꯥꯡꯂꯤ॥ ꯃꯁꯤꯒꯤ ꯃꯇꯨꯡꯒꯤ ꯒꯥꯏꯗꯂꯥꯏꯟ ꯑꯁꯤ ꯃꯦꯠꯔꯤꯛ ꯑꯁꯤꯗꯥ ꯄꯥꯝꯕꯅꯤ॥ ꯁꯔꯨꯛ 4-ꯒꯤ ꯃꯇꯝ ꯃꯁꯤꯡꯒꯤ ꯂꯃꯗꯝꯒꯤ ꯋꯥꯇꯔ-ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯚꯣꯂꯨꯝ (WQv) ꯍꯥꯞꯆꯤꯟꯅꯕ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯄꯥꯝꯕꯅꯤꯡꯕ ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠ ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯗꯥ ꯍꯨꯔꯤ-ꯁꯨꯔꯤꯚꯃꯦꯚ, ꯑꯣꯚꯁꯔꯚꯦꯁꯟ ꯀꯦꯂꯁꯨꯔꯤꯜꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠꯀꯤ ꯃꯊꯧ ꯇꯥꯕꯂꯤꯕ ꯍꯥꯌꯕꯗꯥ ꯑꯦꯗꯤꯁꯅꯦꯜ ꯑꯣꯏꯒꯗꯕꯗꯤ ꯑꯍꯥꯟꯕ ꯁꯨꯔꯤꯚꯃꯦꯚ ꯃꯊꯧ ꯇꯥꯔꯦ (ꯁꯦꯛꯁꯟ 8.4.4)॥

ꯇꯦꯕꯜ 8B.1 — ꯔꯤꯗꯦꯚꯦꯂꯣꯞꯃꯦꯟꯠꯀꯤꯗꯃꯛ ꯃꯊꯧ ꯇꯥꯕ LoS (ꯇꯦꯝꯞꯂꯦꯠ)

ꯄꯔꯁꯦꯟꯇꯦꯖ ꯑꯦꯗꯤꯁꯅꯦꯜꯒꯤ ꯃꯇꯝꯗ ꯑꯅꯧꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯗꯝ (%)	ꯏꯝꯄꯔꯚꯤꯌꯁ ꯂꯃꯗꯃꯗ ꯑꯣꯏꯔꯤꯕꯥ	ꯃꯊꯧ ꯇꯥꯕ LoS
_____	_____	_____
_____	_____	_____
_____	_____	_____

8B.2 ꯚꯣꯂꯨꯝ ꯔꯦꯁꯤꯑꯣ ꯒꯥꯏꯗ ꯂꯥꯏꯟ: ꯑꯦꯗꯤꯁꯅꯦꯜ-ꯄ꯭ꯔꯦꯛꯇꯤꯁ ꯀꯦꯂꯦ

ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯒꯤ ꯚꯣꯂꯨꯝ ꯔꯦꯁꯤꯑꯣ VR ꯑꯁꯤ ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯍꯧꯖꯤꯛ ꯂꯤꯁ꯭ꯠꯇꯥ ꯌꯥꯑꯣꯕ BMP-ꯁꯤꯡꯒꯤ VR-ꯁꯤꯡꯒꯤ ꯑꯦꯗꯤꯁꯅꯦꯜ-ꯄ꯭ꯔꯦꯛꯇꯤꯁ ꯑꯦꯒꯔꯦꯒꯦꯠ (ꯁꯦꯛꯁꯟ 8.6.3):

> VR_site = Σ (A_i × VR_i) / Σ A_i + VR_signage

ꯃꯐꯝ ꯑꯁꯤꯗ:

- A_i = ꯁꯥꯏꯠꯀꯤ ꯄꯥꯔꯠ i-ꯒꯤ ꯑꯦꯔꯤꯌꯥ, ha;
- VR_i = ꯄꯥꯔꯠ i-ꯗ ꯁꯦꯕꯥ ꯄꯤꯔꯤꯕ BMP-ꯒꯤ ꯚꯦꯜꯌꯨ ꯔꯦꯇꯤꯡ (ꯇꯦꯕꯜ 8.3), BMP ꯑꯗꯨꯅꯥ A_i ꯄꯨꯝꯅꯃꯛꯀꯤꯗꯃꯛ ꯀ꯭ꯂꯣꯖ 8.6.4 ꯃꯄꯨꯡ ꯐꯥꯍꯅꯕꯗꯤ ꯈꯛꯇ ꯃꯁꯤꯡ [illegible];
- Σ A_i = ꯁꯥꯏꯠꯀꯤ ꯑꯦꯔꯤꯌꯥ ꯄꯨꯝꯅꯃꯛ: ꯁꯥꯏꯠꯀꯤ ꯄꯥꯔꯠ ꯈꯨꯗꯤꯡꯃꯛ BMP ꯑꯃꯗ, ꯅꯠꯔꯒꯥ ꯊꯥꯗꯣꯛꯅꯕ ꯃꯐꯝ ꯑꯗꯨꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯄꯥꯝꯕꯤꯁꯤꯡꯗ ꯊꯝꯃꯤ; BMP ꯑꯃꯠꯇꯅꯥ ꯁꯦꯕꯥ ꯄꯤꯗꯕ ꯄꯥꯔꯠ ꯑꯃꯗꯤ VR_i = 0-ꯒꯥ ꯂꯣꯌꯅꯅꯥ [illegible]; ꯑꯃꯁꯨꯡ
- VR_signage = ꯄꯕ꯭ꯂꯤꯛ ꯑꯦꯖꯨꯀꯦꯁꯅꯒꯤ ꯁꯥꯏꯅꯦꯖ ꯄꯤꯔꯕꯗꯤ 0.25 (ꯇꯦꯕꯜ 8.3), ꯅꯠꯔꯕꯗꯤ 0꯫

VR_site ≥ ꯃꯊꯧ ꯇꯥꯕ LoS ꯑꯣꯏꯔꯕꯗꯤ ꯁꯥꯏꯠ ꯑꯗꯨꯅꯥ ꯀꯝꯞ꯭ꯂꯥꯏ ꯇꯧꯏ (ꯀ꯭ꯂꯣꯖ 8.6.3)꯫

ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ [illegible] — [illegible] ꯚꯦꯜꯌꯨ [illegible]. ΔCN = 18 [illegible], ꯔꯤꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠ [illegible] 1.0 ha-ꯒꯤ ꯁꯥꯏꯠ ꯑꯃꯅꯤ꯫ ꯃꯊꯧ ꯇꯥꯕ LoS = 8 (ꯇꯦꯕꯜ 8.2)꯫

ꯇꯦꯕꯜ 8B.2 — ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ: ꯀꯝꯄꯣꯖꯤꯠ VR (ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ)

ꯄꯥꯔꯠ	ꯑꯦꯔꯤꯌꯥ A_i (ha)	BMP	VR_i (ꯇꯦꯕꯜ 8.3)	A_i × VR_i
ꯕꯏꯑꯣꯔꯤꯇꯦꯟꯁꯅꯗ ꯏꯁꯤꯡ ꯊꯗꯣꯛꯄ ꯌꯨꯝꯊꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯥꯔꯀꯤꯡ	0.60	ꯕꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ (bioretention)	8.5	5.100
ꯀꯥꯔ ꯄꯥꯔꯛ	0.25	ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯃꯦꯟꯠ (permeable pavement)	7.5	1.875
[illegible] [illegible] ꯊꯥꯗꯣꯛꯅꯕ [illegible]	0.15	ꯃꯐꯝ ꯑꯗꯨꯒꯤ ꯃꯍꯧꯁꯥꯒꯤ ꯄꯥꯝꯕꯤꯁꯤꯡ (ꯊꯥꯗꯣꯛꯅꯕ)	9.25	1.388
ꯄꯨꯝꯅꯃꯛ	1.00			8.363

- ꯑꯦꯔꯤꯌꯥ-ꯋꯦꯇꯦꯗ VR = 8.363 / 1.00 = 8.36
- ꯁꯥꯏꯅꯦꯖ ꯄꯤꯔꯦ: + 0.25
- VR_site = 8.61 ≥ 8꯫ ꯁꯥꯏꯠ ꯑꯗꯨꯅꯥ ꯀꯝꯞ꯭ꯂꯥꯏ ꯇꯧꯏ꯫

ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯃꯦꯟꯠ [illegible] (ꯀꯥꯔ ꯄꯥꯔꯛ [illegible] [illegible], VR = 0): (5.100 + 0 + 1.388) / 1.00 + 0.25 = 6.74 < 8꯫ ꯁꯥꯏꯠ ꯑꯗꯨꯅꯥ ꯀꯝꯞ꯭ꯂꯥꯏ ꯇꯧꯗꯦ꯫

8B.3 ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯟꯁꯤꯡ

ꯁꯦꯝ ꯁꯥꯒꯗꯕ. ꯄꯥꯔꯠ ꯑꯁꯤꯗꯥ MARC/APWA BMP Manual (2012, Table 4.6)-ꯒꯤ ꯑꯦꯄ꯭ꯔꯣꯆ ꯍꯨꯝꯕ ꯂꯦꯞꯂꯦ, ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡꯒꯤ ꯁꯦꯛꯁꯟ 8.13.4 (ꯑꯍꯦꯟꯕ 8C)-ꯒꯤ ꯀꯝꯕꯤꯅꯦꯁꯟ ꯄ꯭ꯔꯣꯁꯤꯖꯔꯒꯥ ꯃꯥꯟꯅꯅꯥ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯂꯩꯔꯤꯕꯥ, ꯁꯤꯡꯂꯦ BMP-ꯁꯤꯡꯒꯤ (ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯟ ꯑꯃꯒꯤ) ꯀꯝꯕꯥꯏꯟꯗ VR ꯄꯤꯔꯤ꯫ ꯃꯁꯤ ꯈꯨꯗꯝꯒꯤ ꯑꯣꯏꯅꯥ ꯇꯥꯔꯤꯕꯥ, ꯁꯦꯛꯁꯟ ꯄꯥꯔꯤꯕ ꯇꯧꯔꯤꯕ ꯄꯥꯔꯤꯕ ꯑꯍꯥꯅꯕꯥ ꯁꯦꯛꯁꯟ 8.6.4 ꯃꯇꯨꯡ ꯂꯧꯔꯒꯥ ꯇ꯭ꯔꯦꯟ ꯑꯍꯥꯅꯕ BMP ꯑꯃꯒꯤ VR, ꯃꯇꯨꯡ ꯀꯔꯤꯒꯨꯝꯕ ꯂꯩꯔꯕꯗꯤ ꯂꯥꯏꯊꯣꯛꯂꯤꯕ ꯑꯅꯤꯁꯨꯕ BMP, ꯀꯝꯕꯥꯏꯟ ꯄꯤꯔꯒꯥ, ꯑꯃꯁꯨꯡ ꯁꯤꯡꯂꯦ ꯄꯤꯕ BMP-ꯁꯤꯡꯒꯤꯗꯃꯛ ꯍꯦꯟꯅꯥ ꯀꯝꯕꯥꯏꯟ ꯄꯤꯗꯦ꯫ ꯀꯝꯕꯥꯏꯟ ꯄꯤꯕ BMP-ꯒꯤ ꯃꯊꯛ ꯊꯝꯕ ꯃꯇꯝꯗ ꯄꯤꯕ ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯗꯤꯚꯥꯏꯁꯁꯤꯡ, ꯁꯤꯜꯇ ꯇ꯭ꯔꯦꯞꯁꯤꯡ (silt traps) ꯑꯃꯁꯨꯡ ꯑꯣꯏꯜ-ꯒ꯭ꯔꯤꯠ ꯁꯦꯄꯥꯔꯦꯇꯔꯁꯤꯡ (oil-grit separators)-ꯗꯥ ꯃꯈꯥꯒꯤ ꯃꯁꯛꯀꯤ VR ꯑꯃꯠꯇꯥ ꯄꯤꯗꯦ (ꯁꯦꯛꯁꯟ 8.6.4(c), 8.7.11(c) ꯑꯃꯁꯨꯡ 8.7.12(c))꯫

ꯇꯦꯕꯜ 8B.3 — ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯟꯁꯤꯡꯒꯤ ꯀꯝꯕꯥꯏꯟꯗ VR (ꯂꯩꯔꯕꯗꯤ)

ꯑꯍꯥꯅꯕ BMP	ꯑꯅꯤꯁꯨꯕ BMP	ꯀꯝꯕꯥꯏꯟꯗ VR	ꯅꯣꯠꯁꯤꯡ
______	______	______	______
______	______	______	______

ꯑꯍꯦꯟꯕ 8C — ꯀ꯭ꯔꯦꯗꯤꯠꯀꯤ BMP ꯀꯝꯕꯤꯅꯦꯁꯅꯒꯤ ꯋꯥꯔꯀꯁꯤꯠ

ꯆꯦꯞꯇꯔ 8-ꯒꯤ ꯁꯦꯛꯁꯟ 8.6.3, 8.13 ꯑꯃꯁꯨꯡ 8.15.1-ꯗꯥ ꯌꯦꯡꯎ꯫

ꯁꯦꯝ ꯁꯥꯒꯗꯕ. ꯑꯍꯦꯟꯕ ꯑꯁꯤꯗꯥ ꯁꯥꯏꯠ ꯑꯃꯒꯤ ꯄꯨꯝꯅꯃꯛ ꯁꯤꯡꯂꯦ ꯀꯝꯕꯥꯏꯟ BMP ꯀꯔꯦꯗꯤꯠꯁꯤꯡ ꯀꯝꯕꯤꯅꯦꯁꯟ ꯄ꯭ꯔꯣꯁꯤꯖꯔ (ꯁꯦꯛꯁꯟ 8.13.4) ꯄꯤꯔꯤꯕ ꯁꯤꯟꯗꯤ: ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡ ꯅꯕ BMP-ꯁꯤꯡꯒꯤ ꯀꯥꯡꯂꯨ ꯁꯦꯝꯕ ꯂꯩꯔꯦ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯛꯇꯤꯒꯤ ꯀꯝꯕꯤꯅꯦꯁꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯔꯤꯕꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯈꯥꯒꯤ ꯊꯥꯡꯒꯠ ꯄꯤꯕ ꯁꯤꯟꯗ ꯍꯥꯏꯔꯤꯕ ꯄꯤꯔꯤꯕꯁꯤꯡ꯫ ꯃꯁꯤꯒꯤꯗꯃꯛ ꯀꯦꯂꯛꯂꯦꯁꯅꯒꯤ ꯃꯇꯝ ꯀꯝꯕꯤꯅꯦꯁꯅ BMP-ꯁꯤꯡꯒꯤ ꯂꯩꯕ ꯍꯨꯝꯕ ꯃꯇꯨꯡ ꯀꯔꯦꯗꯤꯠꯁꯤꯡ, CPCB-ꯒꯤ ꯊꯥꯖꯕꯁꯤꯡꯒꯤ ꯃꯈꯥ ꯂꯩꯔꯦ ꯂꯣꯌꯅꯕ ꯑꯦꯗꯖꯁ꯭ꯇꯃꯦꯟꯠꯁꯤꯡ ꯂꯩꯔꯦ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 10.17-ꯒꯤ ꯃꯇꯨꯡ ꯇꯥꯔꯤꯕ ꯁꯦꯛꯁꯟ 8.13.1-ꯒꯤ ꯑꯦꯛꯁꯦꯞꯇ ꯀꯔꯦꯗꯤꯠꯁꯤꯡ ꯃꯊꯛ ꯄꯤꯔꯦ꯫ ꯃꯁꯤ ꯈꯨꯗꯝꯒꯤ ꯑꯣꯏꯅꯥ, ꯇꯦꯕꯜ 8.3 (MARC/APWA 2012)-ꯒꯤ ꯍꯥꯏꯔꯤꯕ ꯄꯤꯔꯤꯕꯁꯤꯡ ꯂꯦꯞꯂꯦ, ꯑꯃꯁꯨꯡ ꯀꯝꯕꯤꯅꯦꯁꯟ ꯋꯥꯏꯠꯤꯡꯁꯤꯡ ꯂꯣꯌꯅꯕ ꯑꯃꯗꯤ ꯍꯦꯟꯅꯥ ꯇꯦꯕꯜ ꯇꯧꯕ ꯃꯈꯣꯌꯒꯤ ꯂꯩꯕ VR ꯄꯤꯕ (ꯇꯦꯕꯜ 8.3)꯫

ꯃꯁꯤꯒꯤ ꯁꯤꯟ ꯂꯥꯏꯁꯦꯟꯁꯤꯡꯗꯥ ꯀꯝꯕꯤꯅꯦꯁꯟ ꯑꯃꯗꯤ ꯊꯝꯂꯕ ꯍꯤꯁꯥꯕꯁꯤꯡꯒꯤ ꯂꯣꯏꯕ ꯄꯥꯡꯊꯣꯛꯂꯤꯕ ꯊꯃꯛ, ꯃꯁꯤ ꯑꯃꯗꯤ ꯑꯍꯥꯅꯕ ꯁꯤꯟꯗꯥ ꯁꯤꯟꯗꯦ ꯁꯤꯟꯗꯦꯅꯕ ꯍꯦꯟꯅꯕ ꯀꯝꯕꯤꯅꯦꯁꯟ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫

ꯇꯦꯕꯜ 8C.1 — ꯀ꯭ꯔꯦꯗꯤꯠꯁꯤꯡ ꯁꯥꯏꯠꯀꯤ ꯄꯥꯔꯤꯁꯤꯡ (ꯂꯩꯔꯕꯗꯤ)

ꯁꯥꯏꯠ ID	BMP-ꯒꯤ ꯃꯈꯜ (ꯇꯦꯕꯜ 8.3)	ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯑꯊꯣꯏꯕ	ꯑꯦꯔꯤꯌꯥ ꯑꯥꯏꯔꯤ (ha)	ꯅꯥꯏꯀꯝꯄꯦꯂꯤꯀꯝ (%)	ꯁꯦꯝ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯅꯕ ꯃꯅꯥꯒꯤ ꯅꯁꯤꯡꯒꯤ ꯂꯩꯔꯤꯕ	ꯀꯝꯕꯤꯅꯦꯁꯟ ꯇꯧꯔꯤꯕ ꯇꯤꯡ	ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ
______	______	______	______	______	______	______	______
______	______	______	______	______	______	______	______

ꯇꯦꯕꯜ 8C.2 — ꯊꯥꯖꯕꯒꯤ ꯄꯥꯀꯄꯤꯕ (ꯂꯩꯔꯕꯗꯤ; ꯁꯦꯛꯁꯟ 8.13.2-ꯒꯤ ꯀꯥꯏꯗꯤꯀꯤꯁꯤꯡꯗꯒꯤ)

ꯁꯥꯏꯠ ID	ꯏꯚꯦꯟꯇꯀꯤ ꯇꯥꯡ	ꯅꯣꯡ ꯆꯨꯕ (mm)	ꯏꯅꯐ꯭ꯂꯣ ꯚꯣꯂꯨꯝ (m³)	ꯑꯥꯎꯠꯐ꯭ꯂꯣ ꯚꯣꯂꯨꯝ (m³)	TSS ꯆꯪꯕ / ꯊꯣꯛꯄ (mg/L)	BOD ꯆꯪꯕ / ꯊꯣꯛꯄ (mg/L)	COD ꯆꯪꯕ / ꯊꯣꯛꯄ (mg/L)	ꯏ.ꯀꯣꯂꯥꯏ ꯃꯥꯏꯀ꯭ꯔꯣꯕꯁ ꯆꯪꯕ / ꯊꯣꯛꯄ (MPN/100 mL)	TN ꯆꯪꯕ / ꯊꯣꯛꯄ (mg/L)	TP ꯆꯪꯕ / ꯊꯣꯛꯄ (mg/L)	ꯑꯌꯦꯜ ꯑꯃꯁꯨꯡ ꯒ꯭ꯔꯤꯖ ꯆꯪꯕ / ꯊꯣꯛꯄ (mg/L)	ꯋꯥꯐꯝ ꯈꯪꯖꯤꯅꯒꯗꯕꯁꯤꯡ (ꯁꯦꯝꯄꯂꯤꯡ ꯄꯥꯔꯥꯃꯤꯇꯔꯁꯤꯡ)
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

ꯇꯦꯕꯜ 8C.3 — ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯂꯣꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯔꯕ VR (ꯇꯦꯝꯞꯂꯦꯠ)

BMP-ꯒꯤ ꯃꯈꯜ	ꯁꯥꯏꯠꯁꯤꯡ	ꯏꯚꯦꯟꯇꯁꯤꯡ	ꯚꯣꯂꯨꯝ ꯍꯟꯊꯍꯟꯕ (%)	ꯃꯤꯗꯤꯌꯥꯟ ꯏꯐ꯭ꯂꯨꯌꯦꯟꯠ TSS (mg/L)	ꯑꯦꯁꯦꯁꯃꯦꯟꯇ ꯐꯂꯁꯤꯡ	ꯇꯦꯕꯜ 8.3-ꯗ ꯂꯩꯕ VR	ꯀꯦꯂꯤꯕ꯭ꯔꯦꯠ ꯇꯧꯔꯕ VR
_____	_____	_____	_____	_____	_____	_____	_____

ꯑꯍꯦꯟꯕ 8D — BMP-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯤꯁ꯭ꯇꯁꯤꯡ, ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯁꯦꯗ꯭ꯌꯨꯜꯁꯤꯡ, ꯏꯟꯁꯄꯦꯛꯁꯅꯒꯤ ꯐꯣꯔꯝꯁꯤꯡ

ꯁꯔꯨꯛ 8-ꯒꯤ ꯀꯥꯈꯜ 8.5, 8.7, 8.8 ꯑꯃꯁꯨꯡ 8.11-ꯗ ꯌꯨꯝꯐꯝ ꯑꯣꯏꯕ꯫

ꯗꯤꯖꯥꯏꯟ ꯂꯤꯁ꯭ꯇ ꯑꯁꯤꯅ BMP ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯁꯔꯨꯛ 8-ꯒꯤ ꯃꯊꯧ ꯇꯥꯕꯁꯤꯡ ꯈꯉꯍꯜꯂꯤ꯫ ꯀꯥꯈꯜ 8.7.1-ꯗ "ꯔꯦꯀꯃꯦꯟꯗ ꯇꯧꯔꯕ ꯍꯧꯔꯀꯐꯝꯒꯤ ꯚꯦꯜꯌꯨ" ("recommended starting value") ꯍꯥꯏꯅ ꯃꯔꯛ ꯇꯧꯔꯕ ꯚꯦꯜꯌꯨꯁꯤꯡꯗꯥ ꯃꯔꯝ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯇꯥꯀꯄꯤꯗꯨꯅ ꯌꯥꯎꯍꯟꯕ ꯌꯥꯏ꯫ ꯃꯦꯠꯔꯤꯛꯁꯀꯤ ꯆꯥꯡꯗꯕ ꯚꯦꯜꯌꯨꯁꯤꯡ "ꯗꯤꯖꯥꯏꯅꯗ ꯀꯅꯐꯔꯝ ꯇꯧꯒꯗꯕ" ("to be confirmed in design") ꯍꯥꯏꯅ ꯃꯔꯛ ꯇꯧꯒꯅꯤ; ꯗꯤꯖꯥꯏꯅꯔꯅ ꯃꯈꯣꯌ ꯑꯗꯨ ꯈꯪꯗꯣꯛꯀꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯔꯝ ꯁꯤꯟꯗꯣꯛꯀꯗꯕꯅꯤ꯫ BMP ꯈꯨꯗꯤꯡꯃꯛꯇꯥ ꯃꯌꯣꯛꯅꯕ ꯃꯊꯧ ꯇꯥꯏ: WQv ꯅꯠꯔꯒꯥ Q_wq-ꯒꯤ ꯃꯈꯥ ꯄꯥꯟꯅ ꯇꯧꯕ (ꯀꯥꯈꯜ 8.6.4(a)), ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ (pretreatment) (ꯀꯥꯈꯜ 8.5.3), Q_wq-ꯗꯒꯤ ꯍꯦꯟꯕ ꯏꯁꯤꯡꯒꯤ ꯃꯈꯥ ꯑꯣꯏꯕ ꯂꯝꯕꯤ ꯕꯥꯏꯄꯥꯁ (ꯀꯥꯈꯜ 8.4.6) ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯦꯛꯁꯦꯁ (ꯁꯔꯨꯛ 10)꯫

8D.1 ꯗꯤꯖꯥꯏꯟ ꯂꯤꯁ꯭ꯇꯁꯤꯡ

ꯇꯦꯕꯜ 8D.1 — ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ (BMP ꯀꯃꯟ)

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀꯥꯈꯜ
ꯃꯊꯧ ꯇꯥꯕ ꯃꯑꯣꯡ	ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯅ ꯂꯦꯟ, ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯁꯦꯜꯗꯤꯡ, ꯑꯦꯟ-ꯂꯥꯏꯟ ꯗꯤꯗꯥꯏꯕ ꯀꯪꯐꯤꯅꯤꯕꯟ ꯀꯣꯒꯤꯇꯦꯝ, ꯌꯦꯜ ꯀꯦꯠꯆꯇ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯔꯕ ꯌꯦꯜꯂꯦꯇꯇ ꯈꯨꯗꯤꯡꯃꯛꯇ, ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯦꯛꯁꯦꯁ ꯈꯨꯗꯤꯡꯗ	8.5.3
ꯃꯑꯣꯡꯁꯤꯡ	ꯂꯦꯗꯤꯃꯦꯟꯇ ꯀꯥꯔꯦꯁ, ꯒꯨꯔꯂ ꯏꯅꯐꯤꯜ ꯂꯥꯏꯅꯔ, ꯁꯤꯟꯅ ꯄꯨꯔꯦꯝ ꯅꯠꯔꯒꯥ ꯄ꯭ꯔꯣꯄ꯭ꯔꯥꯏꯑꯦꯇꯔꯤ ꯗꯤꯚꯥꯏꯁ	8.5.3
ꯁꯥꯏꯖ	ꯃꯁꯤꯗ ꯌꯥꯑꯣꯕ ꯄꯥꯔꯕ ꯑꯦꯔꯤꯌꯥꯒꯤ WQv-ꯒꯤ ꯍꯦꯟꯅꯗꯒꯤ ꯅꯦꯃꯗ 10% ꯆꯥꯡꯕ; ꯅꯠꯔꯒꯥ Q_wq-ꯒꯤ ꯃꯈꯥ ꯄꯥꯟꯅ ꯇꯧꯕ (ꯏꯟ-ꯂꯥꯏꯟ ꯗꯤꯚꯥꯏꯁꯁꯤꯡ)	8.5.3
ꯑꯦꯛꯁꯦꯁ	ꯃꯨꯊꯨꯡꯕ BMP-ꯗ ꯌꯥꯑꯣꯗꯅ ꯁꯦꯛꯄꯥꯒꯗꯅ ꯂꯦꯃꯗꯦꯛꯇ ꯌꯥꯕ	8.5.4
ꯁꯤꯟꯅ ꯄꯨꯔꯦꯝ ꯑꯃꯁꯨꯡ ꯀꯦꯔ ꯃꯤꯟꯅꯁꯤꯡ	ꯃꯦꯠ ꯇꯧꯗꯕ ꯂꯩꯅꯕꯒꯤ ꯕꯦꯛꯑꯦꯆ ꯇꯧꯔꯕ ꯄꯥꯎꯅꯨ ꯌꯥꯑꯣꯕꯗ, ꯑꯃꯁꯨꯡ BMP ꯅꯠꯔꯒꯥ ꯄꯣꯠꯁꯛ ꯂꯩꯐꯝ ꯑꯃꯗ ꯄꯣꯠꯁꯛ ꯆꯥꯗꯕꯗ ꯄꯨꯔꯗꯨꯅ ꯌꯥꯑꯣꯕꯒꯤ ꯄꯨꯔꯦꯛꯄ; ꯂꯃꯗ ꯑꯂꯤ ꯑꯥꯎꯠꯐ꯭ꯂꯦꯛ ꯄꯨꯔꯦꯝꯕꯁꯤꯡ ꯃꯄꯨꯗ ꯍꯦꯟꯅꯗꯒꯤ ꯅꯦꯃꯗ 300 mm; VR ꯏꯇꯀꯦ	8.7.12

ꯇꯦꯕꯜ 8D.2 — ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯦꯟ ꯒꯥꯔꯗꯦꯅꯁꯤꯡ (ꯃꯈꯜ 8.2)

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀꯥꯈꯜ
ꯄꯣꯠꯁꯛ ꯅꯨꯡꯒꯤ ꯗꯤꯐꯗ	ꯃꯂꯆ (mulch)-ꯒꯤ ꯃꯆꯥꯎꯕ ≤ 300 mm, ꯃꯦꯁꯣꯠꯀꯣ ꯄꯣꯠꯁꯛ ꯅꯨꯡꯒꯤ ꯅꯦꯒꯦꯗ ꯑꯥꯒꯔꯥꯏꯇ ꯑꯃꯒ ꯅꯥꯔꯥꯏ	8.7.2(a)

ꯑꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯏꯁꯤꯡ ꯇꯦꯡꯄꯥꯡꯒꯤ ꯗ꯭ꯔꯦꯅꯦꯖ	ꯄꯨꯡ 48-ꯒꯤ ꯃꯅꯨꯡꯗ	8.7.2(b)
ꯐꯤꯜꯇꯔ ꯃꯤꯗꯤꯌꯥ	600–900 mm ꯁꯦꯟꯗꯤ ꯂꯣꯝ ꯑꯣꯏꯕ ꯃꯥꯂꯦꯝ (sandy loam), ꯀꯝꯄꯣꯁ꯭ꯠ ꯂꯩꯕ, ꯀ꯭ꯂꯦ ꯍꯟꯕ (ꯇꯦꯕꯜ 8D.12)	8.7.2(c)
ꯃꯜꯆ	50–75 mm	8.7.2(c)
ꯄꯤꯔꯤꯇꯤꯟ (ꯁꯥꯔꯣꯟ) ꯑꯃꯁꯨꯡ ꯅꯨꯡꯁꯥꯕꯤ ꯁꯦꯝꯕ ꯇꯣꯡꯂꯣꯟ	ꯃꯊꯧ ꯇꯥꯏ; ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯤꯕ ꯂꯧꯁꯤꯡ ꯀꯥꯟꯅꯕ ꯊꯥꯗꯣꯛꯀꯗꯕ	8.7.2(d)
ꯑꯟꯗꯔꯗ꯭ꯔꯦꯟ (underdrain)	ꯁꯔꯨꯛ ꯌꯥꯕ; ꯂꯤꯇꯥꯏ ꯁꯦꯟꯇꯔꯥꯂꯥꯏꯖ ꯇꯧꯕ ꯄꯨꯡ 48-ꯒꯤ ꯗ꯭ꯔꯦꯅꯦꯖ ꯃꯄꯨꯡ ꯐꯥꯅꯕ ꯃꯊꯧ ꯇꯥꯕ, ꯂꯩꯔꯤꯕ ꯂꯝꯗ ꯁꯤꯖꯤꯟꯅꯕ ꯃꯊꯧ ꯇꯥꯏ; ꯀꯥꯡꯂꯣꯟ ꯂꯤꯇꯥꯏ ꯀꯥꯟꯅꯕ ꯊꯥꯗꯣꯛꯀꯗꯕ	8.7.2(e)
ꯂꯝꯂꯤꯡ	ꯀ꯭ꯂꯣꯖ 8.8 ꯃꯇꯨꯡ ꯏꯟꯅ ꯐꯪꯅꯕ ꯃꯊꯧ ꯇꯥꯕ, ꯑꯃꯁꯨꯡ ꯄꯥꯎꯈꯨꯝ ꯄꯤꯕꯒꯤ ꯃꯊꯧ ꯇꯥꯏ	8.7.2(f)
ꯁꯦꯝꯕꯤꯕꯤꯡ	ꯃꯈꯥ ꯑꯃꯨꯛ ꯃꯍꯩꯗꯒꯤ ꯂꯩꯔꯤꯕ ꯃꯈꯥ ꯑꯃꯨꯛ ꯃꯇꯝ ꯊꯝꯂꯕ ꯂꯣꯏꯕ, ꯏꯁꯤꯡ ꯀꯨꯝꯅꯕ (waterlogging) ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯊꯝꯂꯕ ꯀꯥꯡꯕ ꯐꯤꯒꯥ ꯁꯤꯡꯕ ꯐꯥꯝꯕ (ꯇꯦꯕꯜ 8D.13 ꯑꯃꯁꯨꯡ 8D.14)	8.7.2(g)
VR	8.5 (ꯕꯦꯁ ꯀꯦꯁꯅꯦꯁ / ꯁꯦꯟꯇꯔꯥꯂꯥꯏꯖ 9.0)	ꯇꯦꯕꯜ 8.3

ꯇꯦꯕꯜ 8D.3 — ꯁꯦꯝꯕꯤ ꯂꯣꯕ ꯁ꯭ꯋꯦꯜꯁꯤꯡ

ꯑꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯀ꯭ꯔꯣꯁ-ꯁꯦꯛꯁꯟ	ꯇ꯭ꯔꯦꯄꯖꯣꯏꯗꯦꯜ ꯅꯠꯇ꯭ꯔꯒꯥ ꯄꯦꯔꯥꯕꯣꯂꯤꯛ; ꯁꯥꯏꯗ ꯁ꯭ꯂꯣꯞꯁꯤꯡ 1V:3H-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯌꯥꯝꯗꯕ	8.7.3(a)
ꯂꯣꯡꯒꯤꯇ꯭ꯌꯨꯗꯤꯅꯦꯜ ꯁ꯭ꯂꯣꯞ	0.5%-ꯗꯒꯤ 4% ꯐꯥꯎꯕ; ꯍꯦꯟꯅꯥ ꯑꯣꯏꯕ ꯃꯇꯝꯗ ꯆꯦꯛ ꯗꯦꯝꯁꯤꯡ	8.7.3(b)
Q_wq-ꯗ ꯐꯂꯣ	ꯗꯦꯞꯊ ꯃꯤꯂꯤꯃꯤꯇꯔꯁꯤꯡ ꯑꯣꯏꯅꯕꯗꯒꯤ ꯍꯦꯟꯗꯕ; ꯚꯦꯂꯣꯁꯤꯇꯤ ≤ 0.3 m/s	8.7.3(c)
1% AEP ꯂꯩꯔꯤꯕ ꯕꯦꯁꯤꯛ ꯐꯂꯣ	ꯁꯦꯐꯂꯦ ꯂꯣꯏꯕ (ꯂꯤꯡꯃ 9-ꯒꯤ ꯈꯥꯃꯗꯕ ꯚꯦꯂꯣꯁꯤꯇꯤꯁꯤꯡ)	8.7.3(d)
ꯑꯟꯗꯔꯗ꯭ꯔꯦꯟ ꯂꯣꯕ ("ꯀꯥꯡꯕ" [dry]) ꯁ꯭ꯋꯦꯜ	ꯁ꯭ꯂꯣꯞ < 1% ꯑꯣꯏꯕ ꯂꯩꯔꯤꯕ ꯃꯐꯝꯁꯤꯡ ꯂꯣꯏꯅꯕ ꯁꯂꯤꯡ ꯐꯂꯦ ꯊꯗꯣꯛꯄꯕ ꯃꯊꯧ ꯇꯥꯕ; ꯐꯤꯜꯇꯔ ꯃꯤꯗꯤꯌꯥ ꯇꯦꯕꯜ 8D.12-ꯗ ꯂꯣꯕꯒꯤ	8.7.3(e)
VR	4.0 (ꯃꯐꯝ ꯑꯃꯨꯛꯒꯤ ꯃꯍꯩꯗꯒꯤ ꯁꯦꯝꯕꯤꯒꯤ ꯁ꯭ꯋꯦꯜ)	ꯇꯦꯕꯜ 8.3

ꯇꯦꯕꯜ 8D.4 — ꯁꯦꯝꯕꯤ ꯂꯣꯕ ꯐꯤꯜꯇꯔ ꯁ꯭ꯇ꯭ꯔꯤꯞꯁꯤꯡ

ꯑꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯁꯦꯐꯂꯣ	ꯁꯤꯠ ꯐꯂꯣ ꯁꯃꯨ; ꯐꯂꯣ ꯀꯦꯟꯁꯦꯟꯇ꯭ꯔꯦꯁꯟ ꯑꯣꯏꯅꯕ ꯂꯦꯚꯦꯜ ꯃꯊꯧ ꯇꯥꯏ ꯂꯥꯡꯈꯤꯗꯕ	8.7.4(a)
ꯐꯂꯣꯒꯤ ꯃꯁꯥꯡꯗ ꯂꯝꯕꯤ	≥ 5 m	8.7.4(b)
ꯁ꯭ꯂꯣꯞ	1%-ꯗꯒꯤ 8% ꯐꯥꯎꯕ	8.7.4(c)
ꯂꯤꯂꯤꯇꯦꯛ	ꯃꯊꯧꯁꯤꯡ ꯕꯁꯤꯡꯒꯤ ꯁꯦꯟꯇꯔꯦꯡ, ꯁꯦꯟꯇꯔꯥꯂꯥꯏꯖ ꯑꯃꯁꯨꯡ ꯁ꯭ꯋꯦꯜꯂꯤꯡꯒꯤꯗꯃꯛ ꯁꯝꯂꯤ-ꯄꯤꯔꯤꯡꯃꯦꯛ	8.7.4(c)
VR	5.0	ꯇꯦꯕꯜ 8.3

ꯇꯦꯕꯜ 8D.5 — ꯁꯔꯨꯛꯃꯤꯅꯦꯕꯜ ꯁꯦꯡꯃꯦꯟꯠ

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯥꯖ
ꯔꯟ-ꯑꯥꯟ	ꯏꯝꯄꯔꯚꯤꯌꯁ ꯔꯟ-ꯑꯥꯟ ꯑꯦꯔꯤꯌꯥ ≤ 2 × ꯄꯔꯃꯤꯌꯦꯕꯜ ꯑꯦꯔꯤꯌꯥ; ꯄꯦꯚ ꯇꯣꯁꯕ ꯆꯠꯔꯒꯤ ꯏꯔꯥꯖꯟ ꯍꯥꯡꯖꯤꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗꯒꯤ ꯆꯧꯕ	8.7.5(a)
ꯕꯦꯖ ꯔꯤꯖꯔꯚꯥꯌꯔ	ꯐꯤꯜꯇꯔ ꯚꯥꯏꯁꯤꯜꯗꯤꯁ ꯐꯤꯜꯇꯥ ꯄ꯭ꯂꯝꯁꯕ WQv ꯊꯝꯕ ꯂꯦꯡꯖꯕ ꯑꯥꯄꯦ-ꯒ꯭ꯔꯦꯗꯦꯗ ꯑꯦꯒ꯭ꯔꯤꯒꯦꯠ; ꯚꯥꯏꯗ ꯔꯦꯁꯤꯑꯣ ꯇꯦꯁꯨꯠꯖꯤ ꯃꯦꯡꯑꯔꯝ ꯇꯥꯔꯕ	8.7.5(b)
ꯑꯥꯄꯦ (ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯠ ꯇꯣꯔꯤꯕ) ꯕꯦꯖ	ꯀ꯭ꯂꯥꯖ 8.8 ꯐꯣꯡꯗꯨꯡ ꯐꯔꯕ ꯐꯐꯝꯗ ꯍꯥꯌꯕ; ꯖꯠꯔꯕꯗꯤ ꯑꯟꯗꯔꯗ꯭ꯔꯦꯅꯒꯤ ꯖꯥꯁꯖꯖꯤ ꯖꯤꯏꯟ ꯇꯣꯒꯗꯕꯖꯤ ꯑꯃꯁꯨꯡ ꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯍꯥꯌꯕ ꯑꯥꯏꯖꯤ ꯐꯁꯤꯡ ꯁꯦꯐꯄꯟꯒꯗꯕꯖꯤ	8.7.5(c)
ꯁ꯭ꯇꯔꯄꯥꯌꯔ	ꯖꯝꯕꯤꯒꯤ ꯑꯥꯊꯥꯔꯤꯇꯤꯒꯤ ꯁ꯭ꯇꯦꯟꯗꯔꯗꯁꯤꯡ ꯐꯣꯡꯗ ꯏꯟꯖꯖ ꯇ꯭ꯔꯦꯐꯤꯛ ꯖꯥꯗꯤꯡꯒꯤꯗꯐꯛ ꯗꯤꯖꯏꯟ ꯇꯣꯔꯕ	8.7.5(d)
ꯁꯦꯐꯗꯕꯁꯤꯡ	ꯚꯥꯠꯁꯨꯝꯥꯠꯁꯤꯡꯗ ꯖꯠꯇꯦ; ꯏꯝꯄꯔꯚꯤꯌꯁ ꯐꯌꯍꯖꯤ ꯑꯐꯂꯛ ꯚꯦꯖꯤ ꯁꯔꯖꯦꯁ ꯇꯣꯒꯗꯕ ꯐꯐꯝꯗ ꯖꯠꯇꯦ	8.7.5(e)
VR	7.5	ꯇꯦꯕꯜ 8.3

ꯇꯦꯕꯜ 8D.6 — ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟꯁꯤꯡ (ꯐꯐꯤ 8.3)

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯥꯖ
ꯄ꯭ꯔꯤ-ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ	ꯐꯇꯝ ꯄ꯭ꯂꯝꯖꯐꯒꯇ (ꯇꯦꯕꯜ 8D.1)	8.7.6(a)
ꯐꯤꯜ	ꯂꯦꯡꯖꯕ ꯒ꯭ꯔꯦꯕ ꯑꯦꯒ꯭ꯔꯤꯒꯦꯠ, ꯚꯥꯏꯗ ꯔꯦꯁꯤꯑꯣ ꯇꯦꯁꯨꯠꯖꯤ ꯃꯦꯡꯑꯔꯝ ꯇꯥꯔꯕ; ꯐꯖꯤꯒꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯊꯒꯇ ꯖꯤꯑꯥꯇꯦꯒꯂꯦꯅꯖ; ꯆꯒꯥꯅꯒꯤ ꯕꯦꯖ	8.7.6(b)
ꯑꯥꯕꯖꯔꯚꯦꯁꯟ ꯋꯦꯜ	ꯇ꯭ꯔꯦꯟꯆ ꯀ꯭ꯂꯥꯡꯐꯒꯡꯤ ꯕꯦꯖ ꯐꯦꯁꯕ	8.7.6(c)
ꯁ꯭ꯇꯣꯔꯦꯖ	ꯚꯥꯏꯗꯁꯤꯡꯗ ꯊꯝꯕ WQv (ꯖꯠꯔꯒꯤ ꯂꯔꯨꯒ 4-ꯒꯤ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯥꯂꯨꯐ, ꯄꯟꯗꯨ ꯁꯦꯐꯔꯕꯗꯤ)	8.7.6(d)
ꯗ꯭ꯔꯥꯗꯥꯎꯟ	ꯗꯤꯖꯏꯟ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠꯇ ꯄꯨꯡ 72-ꯒꯤ ꯐꯨꯡꯗꯗ ꯏꯂꯤꯡ ꯖꯥꯏꯖꯤ ꯊꯗꯥꯀꯏ	8.7.6(d), 8.8.7
ꯑꯒꯔꯖꯖꯥ	ꯒ꯭ꯔꯦꯁ, ꯐꯏꯖꯔ ꯖꯠꯔꯒꯤ ꯐꯦꯖꯔ ꯂꯤꯂꯇꯐꯗ	8.7.6(e)
ꯀꯐꯤꯂꯖꯤꯡ	ꯏꯂꯤꯡ ꯄꯤꯔꯤꯕ ꯑꯦꯔꯤꯁ ꯂꯇꯦꯕꯤꯖꯏꯟ ꯇꯣꯗꯔꯤꯖꯁꯕ ꯂꯔꯒꯤꯂꯇ ꯁꯖꯏꯗꯕ	8.7.6(f)
ꯀꯨꯏꯇꯦꯔꯤꯁ	ꯀ꯭ꯂꯥꯖ 8.8 ꯄ꯭ꯂꯝꯖꯐꯒ (ꯇꯦꯕꯜ 8D.11)	8.8

ꯇꯦꯕꯜ 8D.7 — ꯋꯦꯠ ꯄꯣꯟꯗꯁꯤꯡ (ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯋꯦꯠ ꯗꯤꯇꯦꯟꯁꯟ)

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯥꯖ
ꯄꯔꯃꯥꯅꯦꯟꯠ ꯄꯨꯜ	≥ WQv	8.7.7(a)
ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ	ꯄꯨꯜꯒꯤ ꯐꯊꯒꯇ WQv, ꯄꯨꯡ 24–48-ꯒꯤ ꯐꯨꯡꯗꯗ ꯊꯗꯥꯀꯄ	8.7.7(a), 8.4.7
ꯐꯣꯔꯕꯦ	ꯏꯟꯂꯦꯠ ꯀ꯭ꯂꯥꯡꯗ	8.7.7(b)
ꯐ꯭ꯂꯣ ꯄꯥꯊ	ꯂꯦꯡꯊ-ꯇꯨ-ꯋꯥꯏꯗꯊ ≥ 3:1; ꯁꯔꯠ-ꯁꯔꯀꯥꯏꯗꯤꯡ ꯆꯧꯕ	8.7.7(c)
ꯄꯨꯜꯒꯤ ꯗꯦꯄꯊ	1.0–2.5 m, ꯂꯦꯐꯨꯝ ꯕꯦꯔꯍꯥꯛ ꯖꯥꯔꯖꯖꯤ (ꯀ꯭ꯂꯥꯖ 7.9.4)	8.7.7(d)
ꯏꯂꯤꯡꯒꯤ ꯕꯦꯖꯦꯜ	IMD-ꯒꯤ ꯖꯥꯡ ꯑꯁ ꯑꯃꯁꯨꯡ ꯄꯣꯜ ꯏꯄꯥꯏꯌꯦꯂꯔꯦꯜꯒꯤ ꯖꯥꯔꯖꯖꯤ ꯊ ꯀ꯭ꯂꯥꯡꯒꯤꯡ ꯕꯦꯖꯦꯜ: ꯔꯄꯤ 10-ꯒꯤ ꯐꯨꯡꯗꯗ ꯏꯕꯏꯒꯤ ꯀꯧꯕ ꯔꯄꯤꯜ ꯄꯨꯜꯒꯤ ꯚꯥꯂꯨꯐꯒꯤ ≥ 50% ꯊꯐꯛ; ꯆꯐꯏꯒꯤ ꯐꯔꯤꯒꯤ ꯏꯂꯤꯡ, ꯊꯒꯤꯕ ꯏꯂꯤꯡ ꯖꯠꯔꯒꯤ ꯂꯤꯁꯦꯖꯖ ꯊꯦꯄꯦꯁꯕ	8.7.8

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ	ꯁꯔꯨꯛ 4-ꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯑꯁꯤ ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯊꯛꯇ ꯇꯧꯕ ꯌꯥꯏ	8.7.7(f)
VR	5.0	ꯇꯦꯕꯜ 8.3

ꯇꯦꯕꯜ 8D.8 — ꯀꯟꯁ꯭ꯇ꯭ꯔꯛꯠ ꯇꯧꯔꯕ ꯋꯦꯠꯂꯦꯟꯗꯁꯤꯡ

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯂꯦꯑꯥꯎꯠ	ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯃꯦꯅꯤꯍꯦꯟꯁꯦꯛ ꯔꯥꯏꯟ (ꯐꯣꯔꯕꯦ), ꯃꯁꯤꯒꯤ ꯃꯊꯨꯝꯗ ꯑꯊꯨꯝꯗ ꯃꯦꯃꯥꯡꯗꯥ ꯂꯩꯕ ꯇꯥꯏ	8.7.9(a)
ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ	ꯂꯥꯏꯃꯦꯛ ꯄꯨꯜ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯊꯛꯇ WQv, ꯄꯨꯡ 24–48-ꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯥꯗꯣꯛꯄ; ꯗꯦꯞꯊ ≤ 0.5 m	8.7.9(b)
ꯐ꯭ꯂꯣ ꯄꯥꯊ	ꯂꯦꯡꯊ-ꯇꯨ-ꯋꯥꯏꯗꯊ ≥ 3:1; ꯐ꯭ꯂꯣ ꯄꯥꯊ ꯂꯦꯃꯊꯥꯡꯂ ꯑꯊꯨꯕ ꯂꯝꯁꯤꯡ	8.7.9(c)
ꯕꯥꯍꯣꯡꯕ	ꯏꯁꯤꯡ ꯑꯋꯥꯡꯕꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯦꯡ ꯃꯍꯧꯁꯥꯒꯤ ꯄꯥꯝꯕꯤꯁꯤꯡ ꯊꯥꯕ ꯖꯣꯟ-ꯐ꯭ꯂꯣ ꯕꯂꯕꯟ	8.7.9(d)
ꯄꯨꯈ꯭ꯔꯤ (tank; pukhri)-ꯒꯤ ꯍꯣꯡꯂꯦꯛ ꯑꯍꯟ	ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯁꯦꯃꯖꯤꯅꯕꯒꯤ ꯃꯇꯨꯡꯗ, ꯃꯁꯤꯒꯤ ꯌꯦꯡꯁꯤꯟꯕꯒꯤ ꯃꯍꯩꯗ; ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯁꯣꯏꯗꯕ ꯑꯥꯁꯥ ꯃꯁꯤꯡ ꯌꯥꯕꯗꯦ	8.7.9(e)
ꯏꯁꯤꯡꯒꯤ ꯕꯦꯂꯦꯟꯁ	ꯑꯍꯧ ꯀꯥꯂꯦꯟꯁꯤꯡꯒꯤ ꯂꯣꯏꯕ (ꯄꯨꯝꯅꯃꯛꯀꯤ ꯂꯥꯌꯔ ꯑꯍꯧꯂꯦꯟ ꯗꯦꯞꯊ ꯊꯃꯕ)	8.7.8
VR	7.0 (ꯑꯦꯛꯁꯇꯦꯟꯗꯦꯗ ꯗꯤꯇꯦꯟꯁꯟ ꯋꯦꯠꯂꯦꯟꯗ)	ꯇꯦꯕꯜ 8.3

ꯇꯦꯕꯜ 8D.9 — ꯒ꯭ꯔꯥꯁ ꯂꯥꯏꯅꯒꯤ ꯁ꯭ꯋꯦꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯤꯜꯇꯔ ꯁ꯭ꯇ꯭ꯔꯤꯞꯁꯤꯡ

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣ	Q_wq; 1% AEP ꯐ꯭ꯂꯗꯀꯤ ꯐ꯭ꯂꯣ ꯄꯨꯔꯛꯄ ꯐꯤꯔꯕꯣꯔꯗ ꯂꯩꯅꯕ ꯄꯨꯊꯣꯛꯄ ꯍꯦꯟꯒꯠꯄ	8.7.10(a)
ꯃꯥꯟꯅꯕ ꯑꯋꯥꯡ	5 mm ꯈꯛ ꯐꯥꯑꯣꯕ	8.7.10(b)
ꯁꯥꯏꯗ ꯂꯣꯞ	ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ HGL-ꯗ (ꯁꯔꯨꯛ 9), ꯁꯦꯃꯖꯤꯟꯕ 50% ꯕꯂꯥꯛ ꯑꯍꯟꯕ	8.7.10(c), 8.10.3(a)
ꯌꯦꯡꯁꯤꯟꯕ	O&M-ꯒꯤ ꯁꯥꯏꯟꯃꯤꯂꯒꯤ ꯍꯦꯌꯥꯂꯒꯤ ꯍꯧꯔꯀꯄ; ꯊ 3 ꯍꯪꯂꯤꯒꯤ ꯁꯥꯏꯟꯃꯤꯂꯒꯤ ꯍꯦꯊꯔꯛꯄ	8.7.10(d)
ꯑꯥꯃꯁꯥ	ꯂꯃꯗꯝ ꯂꯩꯐꯝ ꯒꯤꯕ ꯃꯂꯣꯏꯕꯒꯤ ꯍꯦꯟꯅ ꯒꯤꯕ ꯔꯃꯕ ꯔꯤꯕ ꯑꯥꯃꯁꯥꯁ; ꯑꯁꯥꯕ ꯇꯧꯕ ꯁꯥꯏꯟꯃꯤꯂꯒꯤ ꯂꯩꯅꯕꯐꯤ	8.7.10(e), 8.10.3(d)
ꯕꯂꯥꯛ ꯑꯍꯟꯕ ꯁꯦꯃꯖꯤꯟꯕ	ꯍꯂꯨꯝ ꯑꯗꯨ ꯕꯂꯥꯛ ꯑꯍꯟꯕ ꯁꯦꯃꯖꯤꯟꯕ ꯑꯍꯟꯗꯨ ꯂꯩꯂꯤꯕꯅ ꯍꯧꯖꯤꯛ ꯍꯌꯥ ꯊꯥꯗꯣꯛꯄ ꯑꯒꯤꯐꯗꯦ ꯂꯩꯐꯝ ꯕꯍꯂꯦꯡ ꯂꯩꯗ	8.10.3(b)
ꯕꯐ ꯁꯂꯣꯏꯒꯤ	ꯇꯂꯥꯏꯗꯕꯤꯍꯥꯛ ꯍꯦꯂꯕ: ꯂꯤꯌꯥꯐ ꯑꯗꯨꯕ ꯇꯥꯏꯗ ꯂꯥꯏꯗꯕ, ꯕꯂꯥꯛꯂꯗ ꯍꯧꯖꯤꯛ ꯍꯌꯥ ꯊꯥꯗꯣꯛꯄ ꯍꯑꯃꯗ ꯇꯥꯏꯗ ꯂꯤꯗꯁ; ꯗꯤꯂꯍꯦꯟꯗ ꯃꯦꯑꯥꯐꯝ ꯌꯦꯡꯁꯕ	8.10.3(c)

ꯇꯦꯕꯜ 8D.10 — ꯑꯥꯍꯜ-ꯒꯤꯐꯤꯠ ꯁꯥꯏꯟꯃꯤꯂꯁꯤꯡ

ꯑꯥꯏꯇꯦꯝ	ꯃꯊꯧ ꯇꯥꯕ	ꯀ꯭ꯂꯣꯖ
ꯃꯑꯣꯡ	ꯑꯍꯥꯅꯕ ꯌꯦꯡꯁꯤꯟꯕꯁꯤꯡ; ꯒꯤꯐꯤ ꯁꯃꯖꯤꯟꯕꯒꯤ ꯍꯦꯟꯗꯣꯛꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯍꯅꯥꯏꯒꯤ ꯃꯑꯣꯡꯁꯤꯡ; ꯕꯂ ꯑꯃꯁꯨꯡ ꯁꯦꯝ ꯗꯤꯖꯥꯏꯟꯁꯤꯡ; ꯁꯔꯨꯛꯁꯤꯡ ꯌꯦꯡꯁꯤꯟ 50-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯔꯨꯛꯁꯤꯡ ꯑꯔꯤꯕꯁꯤꯡ	8.7.11(a)
ꯌꯥꯔꯤ ꯇꯧꯕ	Q_wq, ꯍꯟ-ꯐ꯭ꯂꯣ ꯕꯂꯕꯟꯗꯥ ꯂꯩꯔꯕꯥ	8.7.11(b)

[illegible]	[illegible]	[illegible]
[illegible]	[illegible] 5-[illegible] VR [illegible] BMP [illegible]; [illegible] BMP	8.7.11(c), 8.8.8

[illegible] 8D.11 — [illegible] ([illegible] BMP [illegible])

[illegible]	[illegible]	[illegible]
[illegible]	[illegible] (seasonal high groundwater) [illegible] ≥ 1.0 m [illegible] ([illegible]: [illegible] ≥ 0.5 m, [illegible] ≥ 0.3 m [illegible])	8.8.1, 8.8.9(d)
[illegible]	[illegible] ≥ 1.0 m [illegible], [illegible] 8.8.10-[illegible]	8.8.2
[illegible]	[illegible] (ASTM D3385); [illegible] ([illegible] BRE Digest 365); [illegible] ≥ 2 [illegible] 100 m² [illegible] 50 m [illegible] ≥ 1; [illegible] 8-2	8.8.3
[illegible]	[illegible] ÷ 2.0 ([illegible] 8.8.3(c) [illegible] 2-[illegible]), [illegible] ÷ 3.0	8.8.4
[illegible]	[illegible] ≥ 13 mm/h; 3–13 mm/h [illegible], [illegible] 72-[illegible]; < 3 mm/h [illegible]	8.8.5
[illegible] ([illegible])	[illegible] 3 m, [illegible] 5 m; [illegible] 1.5 m; [illegible] 30 m; [illegible] 15 m; 1V:3H-[illegible] 6 m	8.8.6
[illegible]	[illegible]	8.8.11(b)
[illegible]	[illegible] 72-[illegible]; [illegible]	8.8.7
[illegible]	[illegible]; [illegible]	8.8.8
[illegible]	[illegible], [illegible]	8.11.3(b)

8D.2 [illegible]

[illegible] 48-[illegible] ([illegible] 8.7.2(b)) [illegible] 8.8.5-[illegible]

- [illegible] 48 h-[illegible] = 300 mm / 48 h = 6.25 mm/h[illegible]
- [illegible] ≥ 13 mm/h: [illegible], [illegible] 8.8 [illegible]
- [illegible] 6.25 mm/h-[illegible] 13 mm/h [illegible]: [illegible], [illegible] 8.8.5(b) [illegible]
- [illegible] 6.25 mm/h-[illegible]: [illegible] 48 h-[illegible]; [illegible] ([illegible] 8.7.2(e)), [illegible] 3 mm/h-[illegible]

[illegible] — [illegible]. [illegible] 30 mm/h [illegible] 22 mm/h [illegible] 30 / 22 = 1.36-[illegible], [illegible] 2-[illegible], [illegible] 8.8.3(c) [illegible] 2.0-[illegible] = 22 / 2.0 = 11 mm/h[illegible] 6.25 mm/h-[illegible]

ꯄꯥꯎꯅ, ꯍꯤꯔꯥ ꯑꯃꯒꯤ ꯇꯥꯛꯂꯤꯕ ꯅꯨꯃꯤꯠ ꯑꯃ 300 / 11 = 27 h-ꯗ, 48 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯝꯂꯤ॥ ꯃꯁꯤ 13 mm/h-ꯗꯒꯤ ꯂꯦꯃꯅ, ꯍꯤꯔꯥ ꯑꯃꯒꯤ ꯄꯦꯟ ꯑꯁꯤ ꯑꯌꯨꯛꯇꯥꯒꯤ ꯂꯥꯏꯔꯕꯗ ꯀꯤꯗꯤꯁꯤꯔꯦꯟ-ꯅꯌꯥꯏꯟꯃꯤꯠꯇꯦꯁꯒ ꯗꯤꯂꯅꯌ ꯑꯍꯂꯤ (ꯀ꯭ꯂꯥꯖ 8.8.5(b))॥

8D.3 ꯐꯤꯜꯇꯔ ꯃꯤꯗꯤꯌꯥꯒꯤ ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ

ꯇꯦꯕꯜ 8D.12 — ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯅꯒꯤ ꯐꯤꯜꯇꯔ ꯃꯤꯗꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯂꯦꯌꯔꯁꯤꯡ

ꯂꯦꯌꯔ	ꯆꯦꯞꯇꯔ 8-ꯗꯒꯤ ꯃꯊꯧ ꯇꯥꯕ	ꯀꯤꯂꯅꯁꯟ ꯑꯦꯗꯚꯥꯏꯁ ꯇꯥꯛꯄ ꯍꯥꯌꯔꯤꯕꯁꯤꯡ
ꯃꯂꯆ	50–75 mm (ꯀ꯭ꯂꯥꯖ 8.7.2(c)); ꯅꯁꯤꯡ ꯂꯦꯄꯀꯄꯒꯤ ꯗꯦꯄꯊ ꯇꯥꯛꯂꯨꯇꯕ ꯁ꯭ꯄꯦꯗ ꯇꯤꯕ ꯄꯥꯗꯃꯂ꯭ꯗ ꯂꯥꯏꯕꯒꯤ ꯃꯇꯨꯡꯃꯕ ꯑꯥꯄꯒꯦꯂꯤꯛ ꯃꯂꯆ	ꯃꯆꯤꯛ ꯑꯃꯁꯨꯡ ꯄꯤꯕꯛꯐꯃ
ꯐꯤꯜꯇꯔ ꯃꯤꯗꯤꯌꯥ	ꯐꯤꯅꯦꯁ ꯂꯦꯃꯕ ꯑꯃꯁꯨꯡ ꯐꯥꯁꯐꯥꯁ ꯂꯦꯃꯕ 600–900 mm ꯅꯦꯇꯤꯂꯤꯔꯗ ꯇꯤꯕ ꯁꯦꯗꯤ ꯂꯃ (ꯀ꯭ꯂꯥꯖ 8.7.2(c))	ꯀꯥꯗꯇꯤꯡ ꯁꯅꯇ ꯒꯗꯦꯗꯤ; ꯐꯤꯅꯦꯁ (ꯂꯤꯃ + ꯂꯤꯃ ꯑꯔꯦꯀ)-ꯒꯤ ꯂꯤꯃꯌ; ꯑꯥꯗꯒꯦꯂꯤꯛ ꯃꯇꯗꯒꯤ ꯑꯦꯁꯇꯦꯌ; ꯐꯥꯁꯐꯥꯁꯁꯤ ꯂꯤꯃꯌ; ꯑꯃꯀꯥꯛꯌ ꯇꯤꯕ ꯃꯤꯗꯤꯌꯥꯒꯤ ꯁꯥꯁ꯭ꯗꯕꯥ ꯄꯅꯃꯗꯦꯡꯂꯤ ꯑꯦꯁꯦꯝꯕꯤꯂꯤ; ꯕꯔ ꯁ꯭ꯃꯤꯃꯛꯁꯤ ꯄꯤꯕꯛꯐꯃꯁꯤ ꯑꯃꯁꯨꯡ ꯇꯁꯌ ꯁꯗꯤꯐꯤꯌ
ꯇꯗꯦꯜꯂꯤꯁꯦ (ꯔꯥꯏꯗ) ꯂꯦꯌꯔ	ꯃꯤꯗꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯁꯕꯁ꯭ꯀꯁ ꯃꯗꯄꯇ, ꯃꯤꯗꯤꯌꯥ ꯑꯃꯁꯤ ꯁꯕꯁ꯭ꯀꯇ ꯔꯦꯖꯥꯗꯄꯇꯂꯕ (ꯀ꯭ꯂꯥꯖ 8.7.2(d))	ꯃꯤꯗꯤꯌꯥ ꯑꯃꯁꯨꯡ ꯁꯕꯁ꯭ꯀꯀ ꯔꯂꯄꯦꯕ ꯑꯗꯕ ꯑꯃꯁꯨꯡ ꯒꯗꯦꯗꯤ
ꯁꯕꯁ꯭ꯀꯀ ꯅꯗꯃ ꯂꯦꯌꯔ	ꯇꯗꯦꯜꯂꯤꯁꯦ ꯂꯦꯌꯔꯒꯤ ꯃꯔꯗ, ꯑꯦꯗꯃꯗꯦꯜ ꯀꯅꯁꯤꯇꯒꯤ (ꯀ꯭ꯂꯥꯖ 8.7.2(d))	ꯑꯗꯕ, ꯒꯗꯦꯗꯤ, ꯁꯥꯀꯂ ꯁ꯭ꯇꯕ
ꯑꯦꯗꯃꯗꯦꯜ	ꯀ꯭ꯂꯥꯖ 8.7.2(e) ꯔꯌꯂꯕ ꯃꯐꯃꯗ ꯀꯗꯐꯥꯔꯗꯦꯡ ꯀꯗꯀ, ꯀꯂꯤꯂꯑꯦꯁꯌꯁꯤꯒꯤ ꯂꯥꯔꯂꯂ	ꯗꯅꯃꯤꯌꯗ, ꯑꯂꯀ, ꯀꯗꯐꯥꯔꯦꯡ, ꯑꯦꯁꯌꯂꯌ ꯂꯥꯒꯥ
ꯂꯅꯦꯗ	ꯀ꯭ꯂꯥꯖ 8.7.2(f) ꯔꯌꯂꯕ ꯃꯐꯃꯗ (ꯀ꯭ꯂꯥꯖ 8.8 ꯃꯀ꯭ꯂꯦ ꯐꯄꯦꯕ ꯊꯃꯗꯕ; ꯄꯌꯑꯀꯌꯁꯤ)	ꯂꯅꯦꯗꯒꯤ ꯃꯔꯆ ꯑꯃꯁꯨꯡ ꯊꯤꯒꯗꯀ

ꯃꯤꯗꯤꯌꯥ ꯑꯁꯤ ꯊꯃꯁ꯭ꯗꯤꯊꯤꯗ ꯇꯥꯛꯌ ꯇꯥꯛꯄꯗꯕꯤ, ꯑꯃꯁꯨꯡ ꯑꯦꯗꯕ ꯑꯃꯀꯥꯛꯀꯗꯦꯡ ꯔꯦꯁ꯭ꯗꯕ ꯂꯤꯐꯌꯁꯤꯗ ꯊꯃꯀꯗꯕꯤ॥ ꯑꯇꯥꯌ ꯂꯥꯒꯤ ꯅꯁꯤꯒꯤ ꯇꯥꯒꯂꯤꯇꯥꯆ ꯑꯃꯤꯇꯤꯂꯦ ꯑꯄꯦꯗꯕ ꯑꯁꯤ ꯗꯤꯒꯤꯄ꯭ꯀ ꯇꯤꯕꯗ, ꯂꯤꯅꯥꯅ ꯑꯃꯁꯨꯡ ꯑꯃꯀꯥꯛꯌꯑꯗꯤ ꯂꯥꯑꯆ ꯄꯤꯕꯛꯐꯃꯁꯤꯒꯤ ꯂꯦꯡꯂꯦ, ꯒꯗꯦꯗꯤ, ꯐꯤꯅꯦꯁ, ꯑꯥꯗꯒꯦꯂꯤꯛ ꯃꯇꯗ ꯑꯃꯁꯨꯡ ꯐꯥꯁꯐꯥꯁꯁꯤ ꯁꯃꯗꯤꯛ ꯂꯤꯃꯌꯁꯤ ꯊꯃꯕ ꯐꯤ॥

8D.4 ꯀꯤꯃꯕꯤꯒꯤ ꯂꯤꯑꯌꯁꯤ

ꯃꯥꯁ꯭ꯔꯥꯆ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯗꯤꯑꯗꯔ ꯇꯤꯗꯤꯊꯗ ꯂꯥꯗꯒꯤ ꯅꯁꯤꯗꯒꯤ BMP-ꯁꯤꯡꯒꯤꯗꯃꯛ ꯀꯤꯃꯕꯤ ꯊꯕꯒꯤ ꯃꯇꯤꯡꯗ ꯃꯂꯤꯀ꯭ꯗꯒꯤ ꯄꯤꯕꯛꯐꯃ ꯑꯃꯌꯇꯥ ꯐꯗꯅꯤꯗ, ꯑꯃꯁꯨꯡ ꯀꯅꯤꯕ ꯄꯤꯕꯛꯐꯃꯁꯤꯡꯒꯤ ꯃꯁ꯭ꯗꯗ ꯑꯃꯌꯇꯂ ꯁ꯭ꯇꯌ ꯑꯁꯤꯗ ꯕꯅꯑꯗꯤꯇꯦꯟꯁꯅ, ꯁ꯭ꯔꯥꯆꯁꯤꯡ, ꯐꯤꯜꯇꯔ ꯁ꯭ꯇꯗꯤꯀꯁꯤꯡ ꯂꯌꯗꯒꯤ ꯑꯦꯁ꯭ꯇꯗꯑꯌ ꯇꯤꯕ ꯔꯥꯌꯂꯥꯦꯗꯁꯤꯡꯗ ꯁꯤꯂꯤꯦꯂꯒꯗꯕ ꯃꯄꯁꯤꯒꯤ ꯁ꯭ꯄꯦꯁꯤꯂꯤꯂꯁꯤꯡꯒꯤ ꯃꯃꯤꯡ ꯂꯤꯗꯦ॥ ꯃꯗꯦꯥ ꯃꯂꯤꯀ꯭ꯗ ꯁ꯭ꯂꯂꯤꯐꯅꯗ ꯕꯤꯆꯗꯤꯡ ꯕꯅ-ꯂꯥꯂ, 2024 (Model Manipur Unified Building Bye-Laws, 2024)-ꯗ ꯀ꯭ꯂꯥꯌꯑꯣ 10% ꯂꯌꯗꯒꯤ 15%-ꯒꯤ ꯁꯥꯐꯌ ꯑꯦꯁꯇ ꯄꯅꯗꯤ (ꯕꯅ-ꯂꯥ 66(b)), ꯅꯗꯃꯒꯤꯗꯃꯛ ꯁ꯭ꯄꯦꯁꯤꯂꯤꯆ ꯑꯃꯌꯁꯒꯤ ꯃꯃꯤꯡ ꯂꯦꯗꯗ॥ ꯃꯗꯃ ꯑꯁꯤꯗ, ꯑꯔꯀꯀ ꯁ꯭ꯇꯌꯁꯤꯡꯒꯤꯗꯃꯛ ꯁꯥꯃꯅꯤꯕ ꯂꯤꯑꯌꯁꯤꯡ ꯀ꯭ꯗꯡꯀ ꯂꯌꯗꯒꯤ ꯂꯥꯑꯆ ꯃꯃꯤꯡꯁꯤꯡ ꯁꯥꯃꯒꯌꯀꯒꯤ ꯃꯁ꯭ꯔꯌꯁ, ꯑꯄꯦꯗꯕ ꯑꯁꯤꯗ ꯃꯂꯤꯀ꯭ꯗꯒꯤꯗꯃꯛ **ꯁ꯭ꯄꯦꯁꯤꯂꯤꯆ ꯑꯃꯌꯁ** ꯂꯤꯑꯌ ꯇꯤꯕ, ꯑꯃꯁꯨꯡ ꯀꯤꯃꯕꯤꯒꯤ ꯃꯇꯤꯡꯗꯦ ꯃꯃꯤꯡ ꯑꯃꯌꯁ ꯀꯤꯗ॥ ꯑꯇꯥꯌ ꯂꯥꯒꯤ ꯅꯁꯤꯒꯤ ꯇꯥꯒꯂꯤꯇꯥꯆ ꯑꯃꯤꯇꯤꯂꯦ ꯂꯤꯑꯌꯁꯤꯡ ꯊꯥꯒꯄꯦꯗꯦꯗꯤꯐꯁ꯭ꯕ, BMP ꯁ꯭ꯔꯤꯗꯤꯃꯒꯗꯀꯤ ꯁ꯭ꯄꯦꯁꯤꯂꯤꯆꯁꯤꯡ ꯑꯁꯤ ꯄꯥꯗꯇꯤꯑꯆꯔꯗꯤꯂꯌ ꯑꯃꯗ ꯂꯌꯗꯒꯤ ꯐꯥꯗꯦꯂꯌ, ꯅꯦꯒꯅꯗꯂꯃꯦꯌ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ (Forest, Environment and Climate Change Department)-ꯗ, ꯑꯄꯦꯗꯕ 2A-ꯒꯤ ꯁꯅꯌꯀꯤ ꯂꯕ-ꯑꯦꯗꯤꯔ, ꯃꯁꯤꯒꯤ ꯂꯤꯃꯅ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯒꯤ ꯔꯤꯇꯗ ꯇꯦꯕꯆꯒꯤꯗꯃꯛ, ꯃꯅꯒꯤ ꯗꯤꯆꯁꯤꯡꯒꯤ ꯃꯅꯗ (ꯃꯥꯁ꯭ꯔꯥꯆ ꯑꯁꯤꯗ ꯊꯃꯕ) ꯅꯦꯒꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ BMP-ꯒꯤ ꯀꯤꯂꯅꯁꯟ ꯁꯤꯌꯇ ꯗꯦꯀꯗꯗ ꯇꯥꯒꯗꯕꯂꯤ:

- (a) **ꯃꯐꯃ ꯑꯁ꯭ꯀꯒꯤ ꯃꯄꯁꯤꯒꯤ ꯂꯌꯗꯒꯤ ꯃꯇꯃ ꯁꯥꯑꯗ ꯃꯐꯃ ꯑꯁ꯭ꯀꯗ ꯂꯤꯗꯕ ꯁ꯭ꯄꯦꯁꯤꯂꯤꯆꯁꯤꯡ ꯅꯤꯇꯔ**, ꯐꯦꯗꯦꯂꯌ, ꯅꯦꯒꯅꯗꯂꯃꯦꯌ ꯑꯃꯁꯨꯡ ꯀꯗꯅꯃꯌ ꯔꯦꯗꯂ ꯀꯤꯀꯗꯌꯃꯦꯌꯗ ꯁꯅꯌ ꯑꯁ꯭ꯀꯒꯤꯗꯃꯛ ꯑꯦꯗꯐꯗ ꯇꯥꯕꯒꯤ; ꯇꯦꯕꯜ 8D.15-ꯗ ꯃꯃꯤꯡ ꯂꯤꯕ ꯂꯌꯗꯒꯤ ꯁꯇꯌ ꯑꯁꯤꯗ ꯅꯦꯒꯥꯁꯒ (invasive) ꯑꯅꯕ ꯅꯃꯗꯕ ꯁ꯭ꯄꯦꯁꯤꯂꯤꯆ ꯑꯃꯌꯇ ꯂꯌꯇ॥

- (b) **ꯏꯁꯤꯡ ꯌꯥꯃꯕ ꯑꯃꯁꯨꯡ ꯀꯡꯕ ꯇꯥꯃꯏ.** ꯇꯃꯔꯤꯛꯀꯤ ꯅꯃꯂ (valley floor), ꯌꯥꯇꯐ ꯇꯦꯕꯜ ꯑꯁꯤ ꯇꯥꯃꯏꯒꯤ ꯃꯅꯤꯛꯇ ꯇꯥꯕ 1 ꯑꯦꯔꯐꯤꯜꯂꯒꯤ 31 ꯑꯣꯛꯇꯣꯕꯐ ꯗꯤꯝꯕꯒꯤ ꯃꯇꯃ ꯔꯨꯃꯅꯃꯛꯇ ꯏꯁꯤꯡꯅꯤ ꯄꯦꯕ ꯇꯥꯃꯏ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡ ꯅꯦꯔꯔ ꯈꯡꯕ ꯑꯃꯕ, ꯑꯃꯁꯨꯡ ꯃꯐ ꯗꯐꯕ ꯃꯇꯨꯡꯂ ꯏꯐꯤꯒꯣꯁꯗ ꯌꯥꯗꯂꯅꯤ ꯂꯤꯁꯦꯃꯕꯐꯂꯒꯤ ꯗꯦꯕꯐꯌꯥꯐꯤ ꯗꯥꯗꯕꯒꯤ ꯀꯡꯕ ꯄꯁꯤꯡꯂ ꯍꯤꯡꯕ ꯑꯃꯕ ꯁꯔꯤꯁꯤꯇꯁꯤꯡ꯫
- (c) **ꯁꯅꯥꯔꯁꯤꯡ.** ꯌꯤꯡꯁꯤꯡꯂ ꯑꯃꯁꯨꯡ ꯇꯃꯔꯤꯛꯀꯤ ꯌꯤꯡꯒꯤ ꯃꯅꯥꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯤꯡ ꯑꯔꯤꯛꯔꯁꯤꯡꯂ, ꯇꯥꯐꯥꯏꯁꯤꯡ, ꯀꯠ ꯇꯥꯐꯕ ꯁꯅꯥꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯤꯡꯒꯤ ꯈꯥꯡꯁꯤꯡꯒꯤ ꯃꯅꯥꯛꯇ ꯇꯥꯃꯏ ꯌꯦꯠꯁꯤꯡꯅꯕ ꯑꯄꯥꯅꯕ ꯑꯥꯏꯅ ꯏꯅꯕ ꯁꯔꯤꯁꯤꯇꯁꯤꯡ; ꯁꯅꯥꯔ ꯑꯃꯂ ꯇꯥꯕ ꯕꯏꯑꯥꯐꯤꯇꯦꯅꯁꯅ ꯑꯁꯤ ꯅꯏꯅ ꯇꯥꯏ (ꯀꯅꯥꯗ 8.8.1)꯫
- (d) **ꯌꯥꯇꯐꯌꯦꯂ ꯅꯠꯐꯒꯤ ꯔꯅꯂ ꯅꯠꯇꯦ.** ꯇꯨꯐꯦꯜ (turel), ꯈꯣꯡ (khong) ꯅꯠꯐꯒꯤ ꯁꯄꯐꯒꯤ ꯌꯦꯅꯦꯜ ꯑꯃꯒꯤ ꯃꯏꯂ ꯅꯠꯐꯒꯤ ꯇꯥꯐꯥꯏꯁꯤꯡꯂ, ꯅꯠꯐꯒꯤ ꯇꯨꯐꯦꯜꯒꯤ ꯔꯅ (bund) ꯑꯃꯂ, ꯃꯁꯤꯒꯤ ꯀꯁꯇꯣꯗꯤꯌꯅ (custodian) (WRD, ꯗꯐꯕꯅ ꯅꯥꯀꯜ ꯕꯥꯂꯤ ꯅꯠꯐꯒꯤ ꯑꯇꯥꯔꯔ ꯕꯥꯂꯤ ꯑꯃ)-ꯒꯤ ꯑꯌꯤꯕ ꯌꯤꯗꯂꯅꯤ ꯔꯤꯈꯕꯤ ꯀꯐꯥꯏꯂꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯦꯅꯦꯜ ꯑꯃꯒꯤ ꯗꯅꯥ ꯅꯠꯐꯒꯤ ꯔꯤꯠ (pat; ꯅꯦꯇ ꯅꯠꯐꯒꯤ ꯌꯦꯠꯅꯦꯅꯂ) ꯅꯠꯐꯒꯤ ꯔꯨꯏꯐꯤ ꯑꯃꯒꯤ ꯑꯤꯗꯠꯅꯦꯠ ꯀꯤꯡꯒꯂꯕ ꯑꯃꯠꯇ ꯀꯐꯥꯏꯂꯕꯅꯤ꯫
- (e) **ꯔꯤꯠꯁꯤꯡ ꯅꯠꯐꯒꯤ ꯅꯥꯇꯇꯇ ꯅꯠꯇꯦ.** ꯑꯄꯦꯅꯕ ꯑꯁꯤꯒꯤ ꯃꯈꯥꯂ ꯔꯤꯠ ꯑꯃꯂ, ꯔꯨꯏꯐꯤ ꯑꯃꯂ, ꯅꯥꯇꯤꯗꯈ ꯇꯥꯐꯕ ꯅꯠꯐꯒꯤ ꯂꯐꯤꯗꯠ ꯅꯥꯇꯤꯗꯤꯀꯦꯁꯅ ꯇꯥꯐꯕ ꯌꯦꯠꯅꯦꯅꯂ ꯑꯃꯂ, ꯅꯠꯐꯒꯤ ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯅꯦꯇ (ꯔꯐꯥꯇꯦꯇꯁꯅ) ꯑꯦꯛꯠ, 2006 (Manipur Loktak Lake (Protection) Act, 2006)-ꯒꯤ 236.21 km²-ꯒꯤ ꯃꯨꯡꯂ ꯔꯤꯈꯕꯤ ꯀꯐꯥꯏꯂꯕꯅꯤ, ꯃꯗꯈ ꯑꯂꯒꯤ ꯔꯤꯈꯕꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯨꯝꯗꯤ (phumdi) ꯑꯁꯤ ꯁꯔꯨꯛ 7-ꯒꯤ ꯃꯈꯥꯂ ꯃꯈꯥꯌꯒꯤ ꯀꯄꯥꯇꯂꯤꯌꯅꯁꯤꯡꯅ ꯃꯦꯅꯦꯗ ꯇꯥꯏ꯫

ꯇꯦꯕꯜ 8D.13 — ꯕꯏꯑꯥꯐꯤꯇꯦꯅꯁꯅ, ꯁꯌꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯜꯇꯐ ꯁꯇꯐꯤꯔꯁꯤꯡꯒꯤꯂꯃꯇ ꯏꯅꯂꯤꯀꯦꯇꯤꯒ ꯔꯤꯈꯕꯤꯁꯤꯡ

ꯁꯤꯅꯤꯅꯅꯕ	ꯕꯥꯇꯅꯤꯀꯦꯜ ꯃꯃꯤꯡ	ꯅꯥꯀꯜ ꯃꯃꯤꯡ	ꯅꯥꯠꯁꯤꯡ
ꯀꯅꯥꯗ 8.7-ꯒꯤ BMP ꯔꯨꯈꯅꯃꯛ	ꯂꯐꯤꯗꯠ ꯑꯁꯤꯂ ꯃꯅꯤꯔꯨꯐꯒꯤꯂꯃꯛ ꯑꯃꯠꯇ ꯅꯤꯁꯠ ꯇꯥꯂꯦ	—	ꯃꯀꯛꯇ ꯇꯥꯕ ꯐꯜ (a)-ꯂꯒꯤ (e) ꯗꯤꯝꯕꯒꯤ ꯃꯈꯥꯂ ꯏꯅꯕ ꯑꯃꯁꯨꯡ BMP-ꯒꯤ ꯂꯤꯅꯏꯅ ꯁꯤꯠ (ꯑꯄꯦꯅꯕ 8D)-ꯂ ꯐꯦꯀꯥꯐꯂ ꯇꯥꯕ

ꯇꯦꯕꯜ 8D.14 — ꯀꯅꯁꯇꯐꯛꯠ ꯇꯥꯐꯕ ꯌꯦꯠꯅꯦꯅꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯌꯦꯠ ꯔꯅꯂꯁꯤꯡꯒꯤꯂꯃꯛ ꯏꯅꯂꯤꯀꯦꯇꯤꯒ ꯔꯤꯈꯕꯤꯁꯤꯡ

ꯅꯥꯅ	ꯕꯥꯇꯅꯤꯀꯦꯜ ꯃꯃꯤꯡ	ꯅꯥꯀꯜ ꯃꯃꯤꯡ	ꯅꯥꯠꯁꯤꯡ
ꯅꯥꯅ ꯔꯨꯈꯅꯃꯛ	ꯂꯐꯤꯗꯠ ꯑꯁꯤꯂ ꯃꯅꯤꯔꯨꯐꯒꯤꯂꯃꯛ ꯑꯃꯠꯇ ꯅꯤꯁꯠ ꯇꯥꯂꯦ	—	ꯃꯀꯛꯇ ꯇꯥꯕ ꯐꯜ (a)-ꯂꯒꯤ (e) ꯗꯤꯝꯕꯒꯤ ꯃꯈꯥꯂ ꯏꯅꯕ; ꯀꯅꯁꯇꯐꯛꯠ ꯇꯥꯐꯕ ꯌꯦꯠꯅꯦꯅꯂꯁꯤꯡ ꯑꯁꯤ ꯃꯄꯥꯁꯒꯤ ꯏꯁꯤꯡ ꯇꯥꯗꯈ ꯑꯃꯃꯛꯀꯤ ꯌꯥꯇꯐꯁꯔꯐꯦꯂ (waterspread)-ꯀꯤ ꯃꯔꯤꯅꯂ ꯁꯏ (ꯀꯅꯥꯗ 8.7.9(e))

ꯇꯦꯕꯜ 8D.15 — ꯀꯐꯥꯏꯂꯕ ꯁꯔꯤꯁꯤꯇꯁꯤꯡ

ꯕꯥꯇꯅꯤꯀꯦꯜ ꯃꯃꯤꯡ	ꯅꯥꯀꯜ ꯃꯃꯤꯡ	ꯃꯐꯈ
ꯗꯐꯦꯁꯠ, ꯏꯅꯗꯥꯏꯐꯅꯃꯦꯅꯠ ꯑꯃꯁꯨꯡ ꯀꯅꯏꯃꯦꯠ ꯌꯦꯅꯅ ꯂꯤꯔꯤꯐꯠꯃꯦꯅꯠꯅ ꯃꯅꯤꯔꯨꯐꯂ ꯏꯅꯒꯦꯁꯤꯒ ꯑꯥꯏꯅ ꯅꯤꯁꯠ ꯇꯥꯐꯕ ꯁꯔꯤꯁꯤꯅ ꯗꯂꯤꯡꯃꯛ	—	ꯃꯦꯗꯨꯌꯦꯜ ꯑꯁꯤꯒꯤꯂꯃꯛ ꯃꯅꯤꯔꯨꯐꯒꯤ ꯏꯅꯒꯦꯁꯤꯒ ꯁꯔꯤꯁꯤꯇꯁꯤꯡꯒꯤ ꯅꯤꯁꯠ ꯑꯃꯠꯇ ꯔꯤꯈꯤꯂꯦ [TBC]

ꯑꯄꯦꯅꯕ 8E — ꯏꯐꯥꯅꯅ ꯑꯃꯁꯨꯡ ꯁꯦꯂꯤꯃꯦꯅꯠ ꯀꯅꯁꯇꯐꯥꯜꯒꯤ ꯁꯇꯦꯅꯂꯐꯂ ꯂꯤꯇꯦꯜꯁꯤꯡ

ꯁꯐꯗꯨꯛ 8-ꯒꯤ ꯀꯅꯥꯗ 8.12-ꯂ ꯃꯇꯦꯡ ꯔꯤꯡꯏ꯫

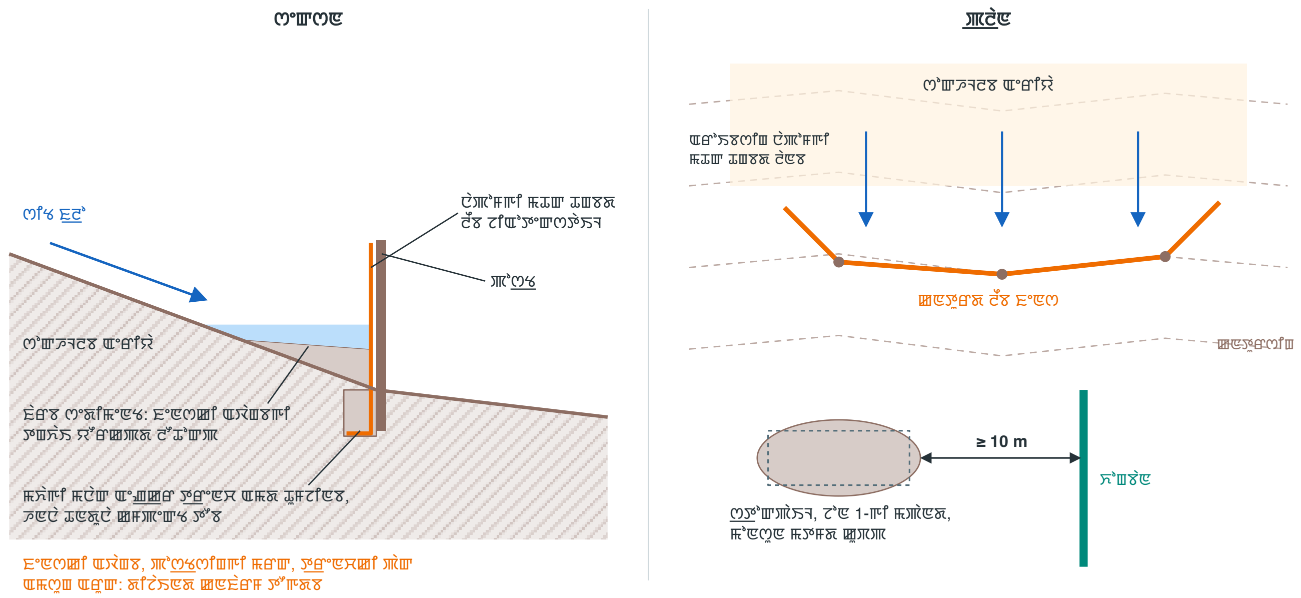
ꯃꯈꯥꯂ ꯔꯤꯐꯤꯕ ꯂꯤꯇꯦꯜꯁꯤꯡꯅ ꯀꯑꯥꯡ ꯗꯂꯤꯡꯃꯛꯀꯤ ꯀꯈꯕ ꯃꯑꯥꯡ ꯗꯠꯅꯤ꯫ ꯃꯦꯗꯨꯌꯦꯜꯅ ꯀꯈꯕ ꯕꯏꯃꯦꯅꯁꯅꯁꯤꯡ ꯔꯤꯐꯤ꯫ ꯃꯦꯗꯨꯌꯦꯜꯅ ꯀꯈꯂꯕ ꯕꯏꯃꯦꯅꯁꯅꯁꯤꯡ "ꯂꯤꯅꯏꯅꯂ ꯀꯅꯗꯐꯈ ꯇꯥꯒꯂꯕ" ꯄꯌꯅ ꯅꯦꯕꯦꯜ ꯇꯥꯐꯤ ꯑꯃꯁꯨꯡ ESC ꯔꯅꯏꯅꯂ ꯗꯠꯀꯂꯕꯅꯤ (ꯀꯅꯥꯗ 8.12.1)꯫ ꯃꯇꯈ ꯏꯐꯒꯤ ꯀꯑꯥꯡꯁꯤꯡ ꯑꯁꯤ ꯁꯐꯗꯨꯛ 2-ꯒꯤ ꯅꯥꯡ ꯗꯨꯕ ꯑꯃꯁꯨꯡ 1.0-ꯒꯤ ꯀꯅꯏꯃꯦꯠ ꯗꯦꯑꯇꯐꯒꯤ ꯅꯥꯌꯅꯅ ꯂꯤꯅꯏꯅ ꯇꯥꯏ (ꯀꯅꯥꯗ 8.12.4)꯫

ꯇꯦꯕꯜ 8E.1 — ꯀꯑꯥꯡꯁꯤꯡ ꯏꯅꯕ (ꯀꯅꯥꯗ 8.12.3)

ꯐꯤꯚꯝ	ꯊꯧꯑꯣꯡ	ꯗꯤꯇꯦꯜ
ꯁꯣꯛꯍꯜꯂꯕ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯗꯒꯤ ꯊꯣꯔꯀꯄ ꯁꯤꯠ ꯐ꯭ꯂꯣ, ꯃꯁꯤꯒꯤ ꯁ꯭ꯂꯣꯞꯀꯤ ꯃꯈꯥꯒꯤ ꯃꯇꯥꯡꯗ	ꯁꯤꯜꯠ ꯐꯦꯟꯁ (silt fence)	ꯃꯃꯤ 8E.1
2 ha ꯐꯥꯑꯣꯕꯒꯤ ꯁꯣꯛꯍꯜꯂꯕ ꯑꯦꯔꯤꯌꯥ ꯑꯃꯗꯒꯤ ꯀꯟꯁꯦꯟꯇ꯭ꯔꯦꯇꯦꯗ ꯐ꯭ꯂꯣ	ꯁꯦꯗꯤꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯞ	ꯃꯃꯤ 8E.2
2 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯁꯣꯛꯍꯜꯂꯕ ꯑꯦꯔꯤꯌꯥ	ꯁꯔꯐꯦꯁ ꯗꯤꯋꯥꯇꯦꯔꯤꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯂꯩꯕ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯟ	ꯃꯃꯤ 8E.2
ꯁꯥꯏꯠꯀꯤ ꯔꯟꯑꯣꯐ ꯂꯩꯔꯤꯕ ꯄꯥꯏꯞ ꯂꯩꯔꯤꯕ ꯈꯣꯡꯕꯦꯒꯤ ꯏꯟꯂꯦꯠ	ꯏꯟꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ	ꯃꯃꯤ 8E.4
ꯒꯥꯔꯤꯁꯤꯡ ꯂꯥꯀꯄꯤ ꯑꯃꯁꯨꯡ ꯆꯠꯄꯤ ꯊꯣꯔꯀꯄ ꯃꯐꯝ	ꯁ꯭ꯇꯦꯕꯤꯂꯥꯏꯖ ꯇꯧꯕ ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯦꯟꯠꯔꯤ, ꯍ꯭ꯋꯤꯜ ꯋꯥꯁ ꯂꯥꯏꯅ	ꯃꯃꯤ 8E.3
ꯁ꯭ꯇꯣꯀꯄꯥꯏꯜꯁꯤꯡ	ꯄꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯃꯦꯠꯕꯦꯡ ꯑꯀꯀꯡꯗꯤ ꯂꯦ 1-ꯒꯤ ꯀꯔꯛꯂꯕ; ꯏꯇꯤꯡꯗ ꯑꯀꯀꯡꯁꯤꯒꯤ ≥ 10 m; ꯀꯨꯞꯁꯤꯜꯂꯕ ꯃꯍꯨꯝ	ꯃꯃꯤ 8E.1-ꯒꯤ ꯂꯣꯌꯅꯤꯡ
ꯗꯤꯋꯥꯇꯦꯔꯤꯡ	ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯟ, ꯁꯦꯇꯜꯂꯤꯡ ꯄꯣꯡ ꯂꯩꯐꯝ ꯐꯤꯜꯇꯔ ꯕꯦꯒꯀꯤ ꯈꯨꯠꯊꯥꯡꯗ; ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯣꯏꯕ ꯂꯩꯐꯝ ꯄꯝꯄ ꯃꯇꯧ ꯑꯃꯗ ꯄꯝꯐꯝ ꯇꯧꯕ ꯃꯇꯝ ꯑꯣꯏꯅ	ꯃꯃꯤ 8E.2-ꯒꯤ ꯂꯣꯌꯅꯤꯡ
ꯃꯦꯏꯟꯇꯦꯅꯦꯟꯁ ꯏꯟꯁꯄꯦꯛꯁꯟ	ꯅꯣꯡ ꯆꯨꯔꯕ ꯃꯇꯨꯡ; ꯁꯦꯗꯤꯃꯦꯟꯠ ꯂꯧꯊꯣꯛꯄ ꯃꯇꯝ	ꯃꯃꯤ 8E.3-ꯒꯤ ꯂꯣꯌꯅꯤꯡ

8E.1 ꯁꯤꯜꯠ ꯐꯦꯟꯁ

ꯁꯤꯜꯠ ꯐꯦꯟꯁ (ꯁꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟ, ꯁ꯭ꯀꯦꯜ ꯌꯥꯎꯗꯕ)


ꯁꯦꯛꯁꯟ
ꯄ꯭ꯂꯥꯟ
ꯁꯤꯠ ꯐ꯭ꯂꯣ
ꯁꯥꯏꯗ ꯑꯞꯀꯤ ꯃꯐꯝ ꯃꯑꯣꯡ ꯂꯩꯕ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ
ꯄꯣꯁ꯭ꯠ
ꯁꯣꯛꯍꯜꯂꯕ ꯑꯦꯔꯤꯌꯥ
ꯄꯣꯟꯗꯤꯡ ꯃꯐꯝ: ꯁꯦꯗꯤꯃꯦꯟꯠ ꯊꯨꯡꯂꯛꯄ ꯃꯐꯝ
ꯇ꯭ꯔꯦꯟꯆꯀꯤ ꯃꯅꯨꯡꯗ ꯊꯝꯕ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ, ꯃꯇꯝ ꯂꯩꯇꯅ ꯀꯨꯞꯁꯤꯟꯕ
ꯐꯦꯟꯁꯀꯤ ꯑꯋꯥꯡꯕ, ꯄꯣꯁ꯭ꯠꯃꯇꯥꯡꯒꯤ ꯈꯥꯏꯗꯥꯡ, ꯇ꯭ꯔꯦꯟꯆꯀꯤ ꯂꯨꯕ
ꯑꯃꯁꯨꯡ ꯄꯥꯛꯄ: ꯁꯤꯖꯤꯟꯅꯕ ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯒꯤ ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ
ꯁꯣꯛꯍꯜꯂꯕ ꯑꯦꯔꯤꯌꯥ
ꯑꯄꯁꯤꯟꯕ ꯁꯤꯠꯀꯤ
ꯐ꯭ꯂꯣ ꯃꯑꯣꯡ ꯂꯩꯕ
ꯀꯟꯇꯨꯔꯗ ꯂꯩꯕ ꯐꯦꯟꯁ
ꯀꯟꯇꯨꯔꯁꯤꯡ
≥ 10 m
ꯏꯇꯤꯡꯕꯦ
ꯁ꯭ꯇꯣꯀꯄꯥꯏꯜ, ꯂꯦ 1-ꯒꯤ ꯀꯔꯛꯂꯕ,
ꯀꯨꯞꯁꯤꯜꯂꯕ ꯃꯍꯨꯝ

ꯄꯣꯡ ꯆꯨꯕ ꯈꯨꯗꯤꯡꯃꯛ ꯃꯇꯨꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯍꯨꯝꯗ 24 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯅꯤꯡꯊꯤꯖꯅ ꯌꯦꯡꯕ; 48 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯁꯦꯃꯖꯤꯟꯕ (ꯁꯦꯛꯁꯟ 8.12.5)꯫ ꯐꯦꯟꯁ ꯁꯣꯛꯄꯒꯤ ꯂꯃꯆꯠ ꯑꯦꯔꯤꯌꯥ: ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 8E (ꯁꯦꯝ ꯁꯥꯒꯠꯄ)꯫

ꯃꯃꯤ 8E.1 — ꯁꯤꯜꯠ ꯐꯦꯟꯁ: ꯀꯟꯇꯨꯔꯁꯤꯡꯗ ꯂꯩꯅ ꯊꯝꯂꯕ ꯑꯣꯏꯅ, ꯃꯁꯤꯒꯤ ꯁ꯭ꯂꯣꯞꯀꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯁꯥꯏꯗ ꯑꯞꯀꯤ ꯇ꯭ꯔꯦꯟꯆꯇ ꯊꯝꯕ ꯃꯁꯤꯅꯝ ꯂꯩꯕ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ ꯄꯨꯔꯀꯄ ꯄꯣꯟꯗꯤꯡ ꯂꯩꯕ ꯃꯔꯨ-ꯁꯥꯔꯣꯛ, ꯑꯃꯁꯨꯡ ꯐꯦꯟꯁ ꯑꯁꯤ ꯀꯟꯇꯨꯔꯗ ꯂꯩꯕ ꯑꯃꯁꯨꯡ ꯑꯔꯣꯏꯕꯁꯤꯡꯗ ꯃꯊꯛ ꯇꯥꯡꯅ ꯂꯩꯕ ꯄ꯭ꯂꯥꯟ꯫ ꯃꯥꯄꯀꯁꯤꯡ ꯑꯁꯤ ꯈꯨꯗꯝꯑꯣꯏꯅ ꯄꯤꯔꯤꯕꯅꯤ ꯃꯦꯅꯨꯐꯦꯛꯆꯔꯒꯤ ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ ꯌꯦꯡꯕꯤꯌꯨ꯫ ꯃꯥꯔꯨꯑꯣꯏꯕ ꯑꯣꯏꯕꯥ ꯁꯣꯔꯁ: ꯁꯦꯝꯕ ꯀꯥꯡꯂꯣꯟ, US EPA, NPDES Construction General Permit (2022), ꯑꯃꯁꯨꯡ CIRIA, The SuDS Manual (C753), 2015-ꯗꯒꯤ ꯍꯣꯡꯗꯣꯛꯂꯒꯅꯤ꯫

ꯁꯦꯝ ꯁꯥꯒꯗꯕ. ꯀ꯭ꯂꯣꯖ 8.12.3(a)-ꯅꯥ ꯁꯤꯜꯠ ꯐꯦꯟꯁ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯄꯂꯤꯡ ꯗ꯭ꯔꯦꯅꯦꯖ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯂꯤꯃꯤꯠꯀꯤ ꯗꯃꯛ ꯑꯍꯦꯅꯕ ꯑꯂꯤꯗ ꯌꯦꯡꯄꯅꯂꯤ॥ ꯂꯤꯃꯤꯠ ꯑꯗꯨ, ꯑꯃꯁꯨꯡ ꯐꯦꯟꯁ ꯑꯃꯒꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯃꯦꯡꯁꯤꯃꯃ ꯁ꯭ꯂꯣꯞ ꯂꯦꯡꯊ, ꯃꯅꯤꯡꯌꯒꯤ ꯂꯦꯡ ꯍꯕꯒꯤꯅꯃꯦ ꯁꯨꯞꯆ ꯂꯦꯡꯒꯤ ꯄꯁꯤꯡꯒꯤ ꯀꯦꯡꯂꯤꯀꯦꯠ ꯀꯃꯤꯀꯤꯅ ꯊꯃꯒꯅꯕꯂꯤ॥ ꯃꯈꯥꯒꯤ ꯐꯦꯡꯅꯥꯡꯂꯁꯔꯤꯐꯦꯗꯕ, US-ꯒꯤ ꯀꯃꯦ ꯖꯔꯦꯟꯄꯤꯁꯄꯒꯤ ꯂꯩꯈꯤꯕ (US EPA, Stormwater Best Management Practice fact sheet: Silt Fence) ꯃꯈꯥꯒꯤ ꯃꯄꯝ ꯈꯔꯒꯤ ꯂꯤꯃꯤꯠꯁꯤꯡ ꯑꯁꯂꯤ:

- ꯄꯔꯝꯒꯤ ꯂꯝ: ꯐꯦꯟꯁꯀꯤ **30 m ꯈꯨꯗꯤꯡꯗ 0.1 ha**-ꯗꯒꯤ ꯍꯦꯟꯗꯕ;
- ꯐꯦꯟꯁꯀꯤ ꯃꯊꯛꯇ ꯂꯩꯕ ꯁ꯭ꯂꯣꯞ ꯂꯦꯡꯊ: 2%-ꯗꯒꯤ ꯅꯦꯝꯕ ꯁ꯭ꯂꯣꯞꯁꯤꯡꯗ 30 m, 2–5%-ꯗ 23 m, 5–10%-ꯗ 15 m, 10–20%-ꯗ 8 m ꯑꯃꯁꯨꯡ 20%-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯑꯋꯥꯡꯕꯗ 5 m-ꯗꯒꯤ ꯍꯦꯟꯗꯕ;
- ꯇꯔ꯭ꯥ ꯀꯦꯁꯦꯟꯇ꯭ꯔꯦꯇꯦꯗ ꯑꯥꯏꯅꯥ ꯅꯀꯡ ꯃꯐꯃ ꯈꯨꯗꯤꯗ, ꯂꯩꯔꯒꯥ ꯂꯤꯃꯤꯠ ꯑꯃꯥ ꯃꯊꯛꯇ ꯐꯨꯔꯦꯕ ꯑꯣꯏꯗꯕ ꯃꯐꯃꯗ, ꯃꯗꯨꯒꯤ ꯃꯍꯨꯠꯇ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯞ (ꯃꯃꯤ 8E.2) ꯁꯤꯖꯤꯟꯅꯧ॥

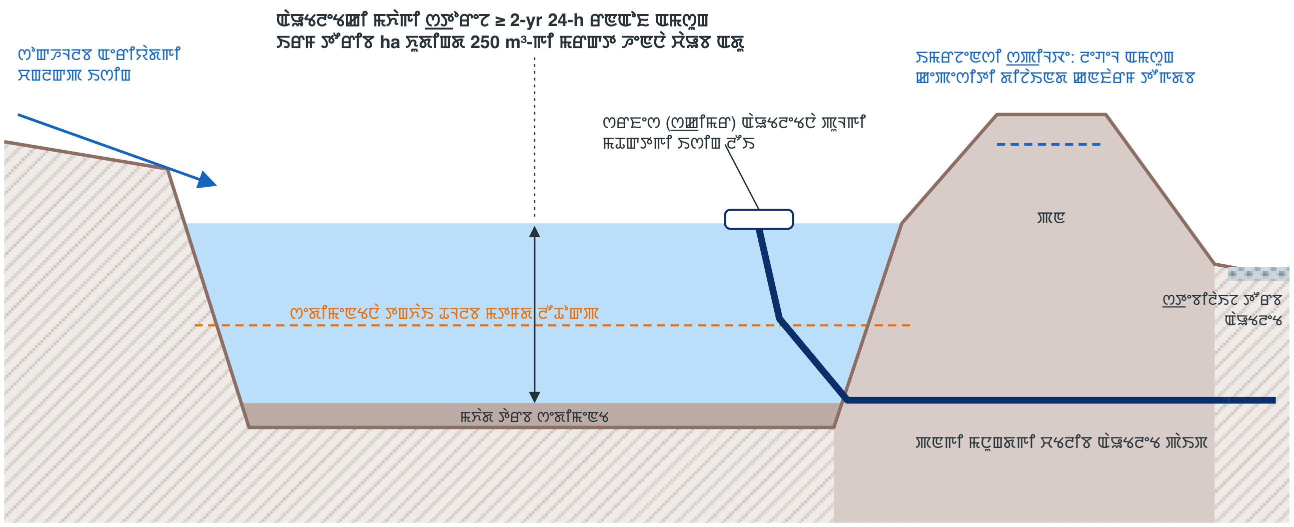
ꯗꯤꯖꯥꯏꯅꯒꯤ ꯐꯦꯟꯁ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯁꯦꯝ ꯖꯤꯔꯤꯕ ꯄꯔꯝꯒꯤ ꯂꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯂꯣꯞ ꯂꯦꯡꯊ ESC ꯖꯥꯅꯦꯗ ꯆꯦꯛꯀꯗꯕꯅꯤ॥

ꯂꯥꯏꯁꯤꯡ:

1. ꯁꯥꯏꯇꯀꯤ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯁ꯭ꯂꯣꯞꯀꯤ ꯃꯄꯥꯒꯤ ꯃꯅꯥꯏ ꯀꯦꯃꯄꯤ ꯃꯈꯨ ꯄꯦꯟꯂ ꯊꯝꯃꯨ, ꯀꯣꯗꯣꯛꯀꯤ ꯀꯦꯁꯦꯟꯇ꯭ꯔꯦꯇꯦꯗ ꯇꯔ꯭ꯥ ꯖꯤꯊ ꯑꯃꯒꯤ ꯃꯔꯤꯄꯗ ꯅꯦꯊꯥꯏꯅꯥ ꯊꯃꯒꯂꯨ॥
2. ꯄꯁꯤꯡꯅꯥ ꯃꯈꯥꯔꯒꯤ ꯑꯀꯩꯔꯕꯗ ꯌꯦꯊꯥꯏꯖꯤ ꯂꯃꯗꯗꯕ ꯑꯦꯄꯕꯁꯤꯡ ꯁ꯭ꯂꯣꯞꯀꯤ ꯃꯊꯤ ꯊꯤꯕ ꯃꯄꯀꯗ ꯅꯥꯏꯊꯣꯛꯂꯅ ꯊꯃꯨ॥
3. ꯍꯖꯤꯡ ꯈꯨꯗꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯀꯅꯕ ꯂꯤꯡ ꯈꯨꯕꯒꯤ ꯊꯥꯗꯥ ꯈꯨꯗꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯖꯨꯡ 24-ꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯦꯟꯖꯤꯅꯦꯇ ꯌꯦꯕꯤꯈꯨ; ꯖꯨꯡ 48-ꯒꯤ ꯃꯅꯨꯡꯗ ꯁꯦꯐꯗꯀꯄ; ꯈꯨꯝꯂꯕ ꯁꯦꯗꯤꯃꯦꯟꯠꯇꯅ ꯐꯦꯟꯁꯀꯤ ꯑꯋꯥꯡꯕꯒꯤ ꯌꯔꯥꯄꯄ ꯌꯦꯊꯕꯗꯤ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯂꯩꯊꯀꯄ (ꯀ꯭ꯂꯣꯖ 8.12.5)॥
4. ꯃꯁꯤꯗ ꯄꯁꯤꯡ ꯊꯗꯥꯔꯂꯤꯕ ꯑꯦꯔꯤꯌꯥ ꯑꯁꯨ ꯁꯨꯞꯕꯤꯂꯤꯄꯂ ꯌꯦꯊꯕ ꯃꯅꯨꯡꯗ ꯄꯔꯌ ꯂꯩꯊꯀꯄ (ꯀ꯭ꯂꯣꯖ 8.12.6)॥
5. ꯁꯨꯞꯔꯖꯤꯄꯗꯅꯁꯤꯡ: ꯂꯦꯜ 1-ꯒꯤ ꯃꯖꯤꯜꯗ, ꯄꯔꯕꯦꯜ ꯑꯃꯃꯔꯌꯒꯤ ꯈꯕꯄꯗꯒꯤ ꯂꯦꯝꯕꯗ 10 m, ꯑꯃꯁꯨꯡ ꯃꯦꯅꯨꯡꯒꯤ ꯃꯌꯝꯗ ꯍꯧꯖꯖ (ꯀ꯭ꯂꯣꯖ 8.12.3(f))॥

8E.2 ꯁꯦꯗꯤꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯞ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯟ

ꯁꯔꯐꯦꯁ ꯗꯤꯁꯆꯔꯖꯤꯡ ꯑꯥꯎꯇꯂꯦꯠ ꯂꯩꯕ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯟ (ꯁꯦꯛꯁꯟ, ꯁꯀꯦꯜ ꯃꯇꯨꯡ ꯄꯦꯟꯅ ꯂꯦꯕꯇ)


ꯑꯥꯎꯇꯂꯦꯠ ꯑꯣꯏꯕꯒꯤ ꯁ꯭ꯂꯣꯞ ꯂꯦꯡꯊ ≥ 2-yr 24-h ꯑꯦꯕꯦꯟꯠ ꯑꯃꯁꯨꯡ
ꯄꯦꯌꯔ ꯗꯦꯔꯤꯕ ha ꯈꯨꯗꯤꯡꯗ 250 m³-ꯒꯤ ꯃꯦꯐꯝ ꯍꯦꯟꯅ ꯇꯥꯔꯕ ꯑꯃ
ꯁꯥꯏꯇꯀꯤ ꯑꯦꯔꯤꯌꯥꯒꯤ
ꯇꯥꯔꯂꯃꯗ ꯄꯁꯤꯡ
ꯄꯃꯦꯂꯦꯟꯒꯤ ꯁꯞꯂꯤꯋꯦ: ꯂꯦꯚꯜ ꯑꯃꯁꯨꯡ
ꯀꯦꯞꯁꯤꯡꯒꯤ ꯗꯤꯖꯥꯏꯅ ꯀꯃꯐꯦꯃ ꯌꯦꯊꯕ
ꯁꯔꯐꯦꯁ (ꯁꯀꯃꯦꯔ) ꯑꯥꯎꯇꯂꯦꯠꯅ ꯖꯨꯔꯤꯒꯤ
ꯃꯊꯛꯇꯒꯤ ꯄꯁꯤꯡ ꯂꯧꯕ
ꯁꯦꯗꯤꯃꯦꯟꯠꯅ ꯌꯥꯎꯕ ꯊꯔꯕ ꯃꯌꯦꯛ ꯂꯦꯊꯖꯔ
ꯃꯦꯗꯤꯁꯦꯟꯇ ꯌꯦꯊꯕ ꯁꯦꯗꯤꯃꯦꯟꯠ
ꯖꯦꯝ
ꯁꯨꯞꯕꯤꯂꯤꯄ ꯌꯦꯊꯕ
ꯑꯥꯎꯇꯂꯦꯠ
ꯖꯦꯝꯒꯤ ꯃꯅꯨꯡꯗꯒꯤ ꯄꯥꯏꯞ ꯑꯥꯎꯇꯂꯦꯠ ꯖꯤꯁꯖ

ꯁꯦꯗꯤꯃꯦꯟꯠ ꯇ꯭ꯔꯦꯞ: ꯁꯥꯏꯇꯀꯤ ꯑꯦꯔꯤꯌꯥ 2 ha ꯐꯥꯑꯕ॥ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯕꯦꯁꯤꯟ: 2 ha-ꯒꯤ ꯍꯦꯟꯕ (ꯀ꯭ꯂꯣꯖ 8.12.3(b), (c))॥
ꯀꯅꯥꯗꯕ ꯐꯥꯝꯕ 1.0 ꯂꯩꯔꯕ ꯁꯦꯐꯣ 2-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯂꯤꯡ ꯑꯩ (ꯀ꯭ꯂꯣꯖ 8.12.4)॥ ꯌꯥꯅꯕ ꯃꯍꯥꯀꯤꯄꯒꯤ ꯗꯤꯁꯆꯔꯖꯤꯡ ꯑꯆꯤ ꯕꯦꯁꯤꯟ, ꯁꯦꯝꯂꯤꯡ ꯌꯦꯊꯕ ꯂꯩꯔꯒꯥ ꯐꯧꯕꯥ ꯕꯦꯒ ꯑꯃꯒꯤ ꯃꯅꯨꯡꯗꯒꯤ ꯑꯁꯂꯤ॥

ꯇꯦꯕꯜ 8E.2 — ꯁꯦꯗꯤꯃꯦꯟꯇ ꯕꯦꯁꯤꯟꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯃꯊꯧ ꯇꯥꯕꯁꯤꯡ: ꯊ꯭ꯔꯦꯁꯣꯜꯗ, ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯑꯣꯡ ꯂꯩꯕ ꯀꯦꯄꯦꯁꯤꯇꯤ, ꯃꯍꯩꯅꯥꯒꯤ ꯃꯑꯣꯡꯗꯥꯒꯤ ꯑꯣꯏꯕ ꯂꯩꯕ ꯇꯥꯟꯂꯣ ꯗꯤꯖꯥꯏꯟꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖ (ꯑꯀꯤꯜꯂ), ꯑꯃꯁꯨꯡ ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯩꯕ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯕꯦꯁꯤꯟ ꯃꯁꯤꯡꯒꯤ ꯊꯧꯔꯥꯡ꯫ ꯀꯣꯂꯂꯦꯖꯗ ꯑꯣꯏꯅꯥ ꯑꯁꯤ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯗꯤꯖꯥꯏꯟ, US EPA, NPDES Construction General Permit (2022)-ꯗꯒꯤ ꯄꯨꯊꯣꯛꯂꯕ ꯂꯤꯝꯕ꯫

ꯂꯃꯆꯠ:

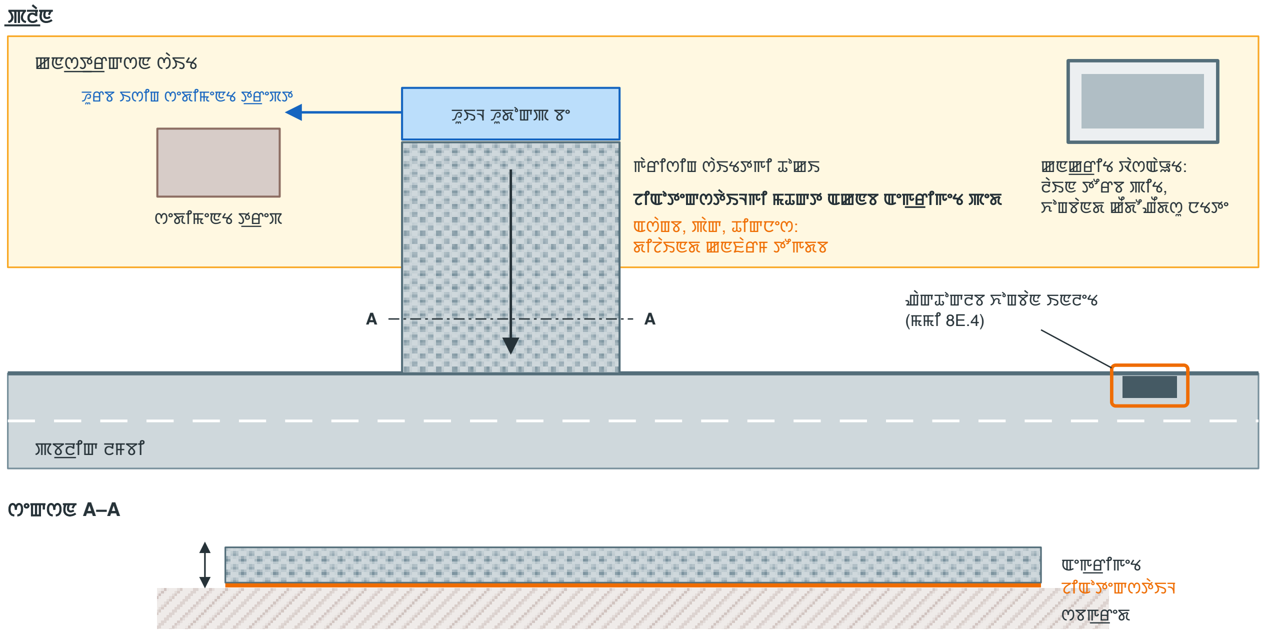
1. **ꯁꯦꯗꯤꯃꯦꯟꯇ ꯕꯦꯁꯤꯟ ꯊ꯭ꯔꯦꯁꯣꯜꯗ:** 2 ha ꯅꯠꯇ꯭ꯔꯒꯤ ꯃꯦꯟꯀꯥꯏꯁꯤꯡ ꯑꯃꯗꯒꯤ ꯃꯦꯛꯅ ꯃꯄꯟ ꯑꯃꯗꯥ ꯆꯦꯟꯊꯔꯀꯄ (ꯁꯦꯛꯁꯟ 8.12.3(b))꯫ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯃꯇꯨꯡ, ꯑꯦꯛꯁꯦꯁ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯣꯔꯦꯖ: ꯑꯣꯏꯅꯕ ꯃꯑꯣꯡ ꯇꯥꯀꯄ꯫
2. **ꯁꯦꯗꯤꯃꯦꯟꯇ ꯕꯦꯁꯤꯟ ꯀꯦꯄꯦꯁꯤꯇꯤ:** 2 ha-ꯗꯒꯤ ꯍꯦꯟꯕ ꯃꯦꯟꯀꯥꯏꯁꯤꯡꯒꯤꯗꯃꯛ꯫ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯑꯣꯡ ꯂꯩꯕ ꯀꯦꯄꯦꯁꯤꯇꯤ ≥ (a) 50% AEP (2-yr) ꯑꯃꯁꯨꯡ 24-ꯒꯤ ꯄꯨꯡ ꯅꯨꯡꯒꯤ ꯅꯣꯡꯖꯨ ꯔꯅꯑꯣꯐ ꯑꯃꯁꯨꯡ (b) ꯍꯦꯛꯇꯔꯒꯤ 250 m³-ꯒꯤ ꯍꯦꯟꯅ ꯁꯦꯡꯕ ꯊꯝꯕ ꯑꯣꯏꯒꯗꯕ (ꯁꯦꯛꯁꯟ 8.12.3(c))꯫
3. ꯑꯣꯏꯅꯕ ꯁ꯭ꯇꯣꯔꯦꯖꯗꯥ ꯃꯍꯩꯅꯥꯒꯤ ꯊꯝꯕ ꯂꯝ (ꯁꯦꯛꯁꯟ 8.12.3(c))꯫
4. ꯍꯣꯡꯗꯣꯛꯄꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯍꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ: ꯑꯣꯏꯅꯕ ꯃꯑꯣꯡ ꯇꯥꯀꯄ꯫ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯑꯣꯏꯕꯗ ꯊꯥꯗꯣꯛꯄꯒꯤ ꯑꯃꯁꯨꯡ ꯃꯊꯧ ꯇꯥꯕꯁꯤ, ꯃꯇꯨꯡ 4-ꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯃꯔꯤꯗꯥ ꯐꯪꯂꯤ꯫
5. ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯂꯦꯞꯄꯗ ꯁꯤꯟꯕ ꯁꯦꯛꯁꯟ (ꯁꯦꯛꯁꯟ 8.12.5)꯫ ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯊꯥꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯑꯣꯏ-ꯀꯦꯄꯦ ꯃꯑꯣꯡꯒꯤ ꯍꯣꯡꯗꯣꯛ ꯍꯦꯟꯅꯒꯤ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯂꯩꯕꯁꯤꯡ (ꯁꯦꯛꯁꯟ 8.12.6)꯫
6. ꯑꯣꯏꯕꯁꯤꯡ ꯃꯍꯩꯅꯥꯒꯤ ꯑꯣꯏꯅꯕ ꯑꯃ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯀꯦꯄꯦꯁꯤꯇꯤ, ꯁꯦꯡꯕ ꯇꯥꯕ ꯃꯊꯧ ꯇꯥꯕ ꯇꯣꯛꯄ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯍꯦꯟꯅ ꯊꯝꯕꯗꯥ (ꯁꯦꯛꯁꯟ 8.12.3(g))꯫

ꯁꯥꯟꯗ ꯑꯃꯁꯨꯡ ꯈꯟꯅꯕ — ꯑꯣꯏꯅꯕ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯃꯊꯧ. ꯁꯦꯗꯤꯃꯦꯟꯇ ꯕꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯀꯥꯏ ꯂꯝ 3.0 ha-ꯗ ꯁꯣꯏ ꯑꯣꯏ꯫ ꯆꯍꯤ 2-ꯒꯤ ꯑꯃꯁꯨꯡ 24-ꯒꯤ ꯄꯨꯡ ꯅꯨꯡ 100 mm (ꯁꯦꯛꯁꯟꯀꯤ ꯍꯦꯟꯕ 1.0, ꯁꯦꯛꯁꯟ 8.12.4) ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡ 2-ꯒꯤ ꯑꯣꯏꯕꯁꯤꯡꯒꯤ ꯍꯥꯏꯕ ꯃꯊꯧ ꯇꯥꯕꯁꯤꯡꯒꯤ ꯍꯤꯡ ꯑꯦꯀꯔ ꯂꯩꯕ ꯃꯍꯩꯅꯥꯒꯤ ꯊꯝꯕ ꯂꯩꯕꯒꯤꯗꯃꯛ ꯃꯇꯝ ꯄꯍꯔꯕ 86 ꯂꯩꯔꯤ꯫

- S = 25,400 / 86 − 254 = 41.35 mm; Ia = 0.2S = 8.27 mm
- Q = (P − Ia)² / (P − Ia + S) = (100 − 8.27)² / (100 − 8.27 + 41.35) = 8,414 / 133.08 = 63.2 mm
- (a) ꯔꯅꯑꯣꯐ ꯃꯇꯨꯡ = 10 × Q × A = 10 × 63.2 × 3.0 = 1,896 m³
- (b) 250 m³/ha × 3.0 ha = 750 m³
- ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯃꯑꯣꯡ ꯍꯦꯟꯕ ꯊꯝꯕ ꯀꯦꯄꯦꯁꯤꯇꯤ = max (1,896, 750) = 1,896 m³꯫ ꯍꯥꯏꯕ ꯑꯣꯏꯅ ꯆꯍꯤ 2-ꯒꯤ ꯔꯅꯑꯣꯐꯀꯤ ꯍꯦꯟꯕ ꯑꯣꯏ꯫

8E.3 ꯀꯦꯄꯦꯁꯤꯇꯤ ꯊꯝꯕ ꯁꯦꯗꯤꯃꯦꯟꯇꯀꯤ ꯑꯣꯏꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟꯁꯤꯡ ꯄꯥꯎꯖꯦꯜ

[illegible] ([illegible], [illegible])



[illegible] 8.12.3(e) [illegible] (h)॥ [illegible]॥

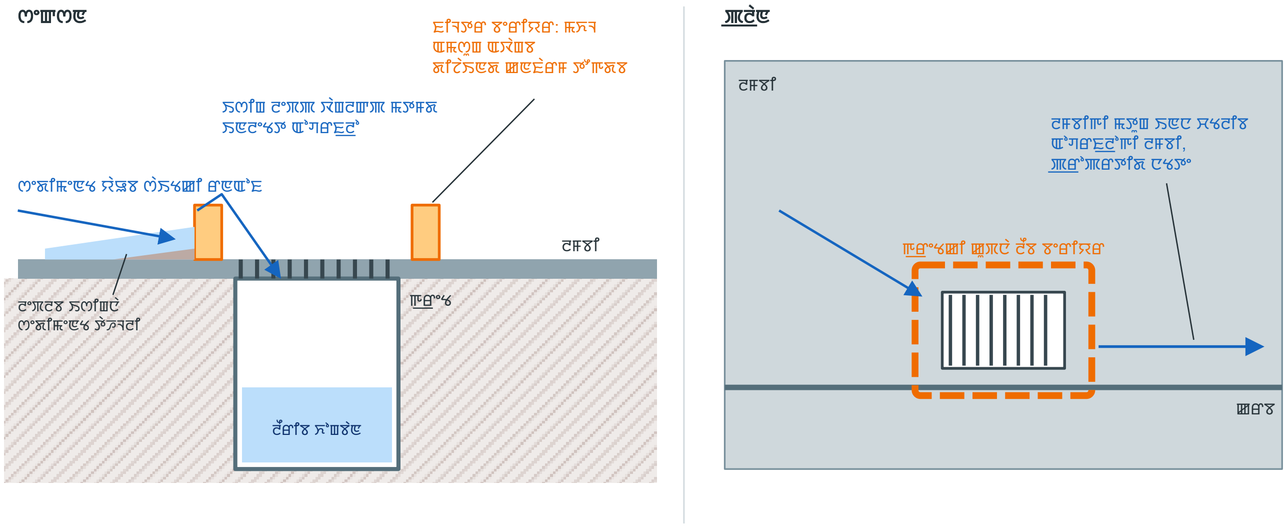
[illegible] 8E.3 – [illegible]: [illegible] [illegible], [illegible] [illegible], [illegible]॥ [illegible], US EPA, NPDES Construction General Permit (2022)-[illegible]॥

[illegible]:

1. [illegible] ([illegible] 8.12.3(e))॥
2. [illegible], [illegible], [illegible]: [illegible]॥
3. [illegible], [illegible]॥
4. [illegible], [illegible] ([illegible] 8.12.3(h))॥
5. [illegible]॥

8E.4 [illegible]

ꯍꯥꯏꯕꯦ ꯅꯦꯇꯣꯛ ꯁꯥꯐꯥꯏꯒꯠꯀꯜ (ꯂꯣꯏꯅꯕ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯕꯦ, ꯂꯃꯥꯏꯒꯤ ꯃꯍꯨꯠ ꯅꯦꯇꯣ ꯆꯌꯣꯜ)


ꯂꯣꯏꯅꯕ
ꯑꯦꯏꯖꯥꯕ ꯀꯣꯐꯤꯔꯐ: ꯃꯅꯥꯏ
ꯑꯃꯁꯨꯡ ꯑꯔꯥꯡꯀ
ꯀꯤꯇꯅꯦꯀ ꯁꯦꯑꯦꯐꯐ ꯌꯥꯒꯀꯀ
ꯅꯂꯤꯡ ꯇꯣꯡꯁꯥ ꯔꯡꯇꯣꯁꯥ ꯃꯌꯥꯐꯀ
ꯅꯦꯇꯣꯌꯥ ꯑꯗꯐꯖꯇ
ꯂꯣꯀꯤꯃꯣꯦꯌ ꯔꯗꯊꯀ ꯂꯅꯌꯥꯁꯤ ꯐꯦꯑꯦꯖ
ꯇꯣꯡꯇꯀ ꯅꯂꯤꯡꯇ
ꯂꯣꯀꯤꯃꯣꯦꯌ ꯌꯄꯅꯇꯤ
ꯆꯐꯀꯤ
ꯒꯐꯌ
ꯇꯐꯤꯀ ꯍꯥꯏꯕꯦ
ꯁꯥꯏꯕꯦ
ꯆꯐꯀꯤ
ꯆꯐꯀꯤꯒꯤ ꯃꯌꯨꯡ ꯅꯦꯇꯣ ꯔꯌꯆꯤꯀ
ꯑꯗꯐꯖꯇꯒꯤ ꯆꯐꯀꯤ,
ꯁꯐꯁꯐꯌꯥꯀ ꯆꯌꯣꯜ
ꯒꯐꯌꯁꯤ ꯁꯥꯇꯦ ꯇꯀ ꯀꯣꯐꯤꯔꯐ
ꯁꯐꯀ

ꯁꯦꯛꯁꯟ 8.12.3(d)꯫ ꯇꯥ ꯁꯦꯇꯦ ꯃꯀ ꯅꯀꯤꯡꯒꯤ ꯃꯌꯨꯡꯀ ꯂꯣꯀꯤꯃꯣꯦꯌ ꯇꯥꯇꯥꯡ (ꯁꯦꯛꯁꯟ 8.12.5)꯫ ꯑꯡꯇꯥꯁꯥ ꯑꯂꯤꯇꯦ ꯅꯦꯇꯣꯌ ꯇꯤꯡꯄꯅꯇꯅꯀꯇꯤ꯫

ꯃꯃꯤ 8E.4 — ꯄꯇꯤꯡ ꯇꯐꯤꯀ ꯍꯥꯏꯕꯦꯒꯤ ꯅꯦꯇꯣꯌ ꯑꯃꯀ ꯅꯦꯇꯣꯌ ꯁꯐꯁꯐꯌꯥꯀꯦ: ꯒꯐꯌ ꯆꯌꯐꯒ ꯁꯐꯀ ꯅꯦꯇꯣꯌ ꯑꯃꯒꯤ ꯑꯁꯔꯀꯀ ꯑꯦꯏꯖꯥꯐ ꯀꯣꯐꯤꯔꯐ ꯑꯃ, ꯅꯂꯤꯡ ꯇꯣꯡꯁꯥꯇꯦ ꯆꯐꯀꯤ ꯆꯌꯐꯒ ꯁꯐꯁꯐꯌꯥꯀ ꯅꯂꯤꯡ ꯅꯔꯊ ꯇꯡꯄꯦꯀꯇꯀ ꯑꯗꯐꯖꯇ ꯁꯇ ꯑꯃꯒ ꯇꯔꯇꯇꯤ꯫ ꯃꯨꯔꯥ ꯑꯂꯤꯒꯤꯀꯃꯡ ꯑꯇꯇꯤ ꯂꯃꯀ ꯀꯐꯅꯡ, US EPA, NPDES Construction General Permit (2022), ꯑꯃꯁꯨꯡ CIRIA, The SuDS Manual (C753), 2015-ꯀꯒꯤ ꯄꯡꯀꯡꯇꯒ ꯇꯅꯤꯀ꯫

ꯇꯌꯂꯤꯡ:

1. ꯂꯅꯌꯥꯒꯤ ꯐꯦꯑꯦꯖ ꯇꯐꯤꯀ ꯄꯇꯤꯡ ꯇꯐꯤꯀ ꯍꯥꯏꯕꯦꯒꯤ ꯅꯦꯇꯣꯌ ꯅꯀꯤꯡꯀ (ꯁꯦꯛꯁꯟ 8.12.3(d))꯫
2. ꯁꯐꯁꯐꯌꯥꯀꯦ ꯑꯂꯤꯇꯦ ꯅꯦꯇꯣꯌ ꯑꯀ ꯇꯤꯡꯐꯅꯀꯀꯇꯤ: ꯃꯂꯤꯒꯤ ꯃꯌꯨꯡꯀ ꯇꯣꯡꯇꯤꯀ ꯅꯂꯤꯡ ꯑꯂꯤ ꯅꯦꯇꯣꯌꯥ ꯆꯌꯐꯒ ꯆꯐꯀꯤ ꯃꯌꯨꯡ ꯅꯦꯇꯣ ꯑꯗꯐꯖꯇ ꯌꯀ ꯑꯃꯒꯀꯀꯇꯤ꯫
3. ꯀꯐꯤꯔꯐꯒꯤ ꯃꯅꯥꯏ ꯑꯃꯁꯨꯡ ꯑꯔꯥꯡꯀ: ꯀꯤꯇꯅꯦꯀ ꯁꯦꯑꯦꯐꯐ ꯌꯥꯒꯀꯀ꯫
4. ꯑꯁꯇꯀ ꯇꯥ ꯃꯀꯒꯤ ꯇꯀꯡ ꯅꯀꯤꯡꯒꯤ ꯃꯌꯨꯡꯀ ꯂꯣꯀꯤꯃꯣꯦꯌ ꯇꯥꯇꯥꯁꯁ (ꯁꯦꯛꯁꯟ 8.12.5)꯫

8E.5 ꯃꯌꯥꯐ ꯑꯃꯁꯨꯡ ꯅꯦꯂꯁꯥꯡꯂꯦ

ꯌꯀꯇ 8E.2 — ESC-ꯒꯤ ꯃꯌꯥꯐ ꯑꯃꯁꯨꯡ ꯅꯦꯂꯁꯥꯡꯂꯦ (ꯁꯦꯛꯁꯟ 8.12.2 ꯑꯃꯁꯨꯡ 8.12.5)

ꯑꯅꯌꯥꯐ	ꯃꯇ ꯌꯀ
ꯇꯅꯂꯤꯦꯇꯀ ꯇꯃꯅꯒꯤ ꯇꯀꯡꯂꯤꯡ	31 ꯃꯐꯔ ꯑꯁꯀ ꯁꯃꯀꯤ, ꯃꯇꯔ, ꯃꯌꯥꯡ ꯆꯌꯐꯒ ꯁꯒꯂꯤꯇꯦ ꯂꯌꯀꯤꯇꯅꯇ ꯌꯐꯀ
1 ꯑꯁꯐꯇ ꯑꯃꯁꯨꯡ 31 ꯑꯡꯌꯀꯐꯒꯤ ꯃꯐꯡꯌ ꯂꯡꯀꯡꯇꯀ ꯑꯐꯤꯔ	ꯂꯡꯀꯡꯌꯐꯤꯀ ꯂꯣꯀꯤꯃꯣꯦꯌ ꯁꯦꯌꯐꯇꯂꯤꯡ ꯇꯃꯇꯀ
ꯃꯦꯂꯦꯀ ꯄꯡꯀꯡꯇꯀ ꯑꯐꯤꯔ	ꯔꯀꯀꯤ ꯑꯁꯤꯡꯁ ꯑꯅꯇ
ꯅꯦꯂꯁꯥꯡꯂꯦ	ꯄꯁꯌ ꯅꯀꯤꯡ, ꯑꯃꯁꯨꯡ ꯑꯁꯇꯀ ꯇꯥ ꯃꯀꯒꯤ ꯇꯀꯡ ꯅꯀꯤꯡꯒꯤ ꯃꯌꯨꯡꯀ 24 h-ꯒꯤ ꯃꯂꯡꯀ (ꯂꯃꯡ 10)
ꯂꯃꯀꯁꯁ	48 h-ꯒꯤ ꯃꯂꯡꯀ
ꯂꯡꯀꯁꯁ	ꯂꯣꯀꯤꯃꯣꯦꯌꯇ ꯌꯡꯅꯅ ꯇꯦꯇꯀꯀꯤ
ꯇꯥꯇꯥꯁꯁ	ꯇꯑꯡ ꯑꯀꯀ ꯅꯂꯤꯡ ꯇꯀꯡꯇꯤꯀ ꯑꯐꯤꯔ ꯂꯌꯀꯤꯇꯅꯇ ꯌꯐꯀ ꯃꯌꯨꯡꯀ ꯅꯡꯌ

ꯏꯦꯄꯐ 8-1 — ꯅꯣꯏꯊꯒꯤ ꯁꯔꯦꯆꯤꯌꯤꯒꯤ ꯃꯤꯌ

ꯆꯦꯞꯇꯔ 8-ꯒꯤ ꯁꯦꯛꯁꯟ 8.4, 8.6 ꯑꯃꯁꯨꯡ 8.14-ꯗ ꯃꯔꯨꯑꯣꯏ ꯂꯤꯉꯛꯁ꯫

ꯗꯦꯇꯥ ꯏꯦꯄꯐ — ꯃꯦꯆꯤꯟꯕ ꯆꯦꯠꯒꯤ ꯅꯣꯏꯊ ꯅꯦꯐ ꯗꯤꯆꯦꯅꯃ ꯃꯥꯂꯨꯔꯥꯡ, ꯗꯦꯇꯥ ꯒꯦꯔꯃ 1.0.

ꯇꯥꯕꯜ 8F.1 — ꯏꯦꯄꯐ 8-1, ꯃꯥꯠꯃꯃ A: ꯃꯅꯌ ꯑꯃꯁꯨꯡ ꯆꯦꯠ ꯅꯨꯕ

No.	ꯏꯤꯇꯝ	ꯅꯃꯄꯦꯤ	ꯁꯦꯛꯁꯟ
A1	ꯄꯔꯦꯖꯥꯠꯌꯁꯤ ꯃꯃꯤꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯗꯦꯄꯤꯄꯒꯤ ꯏꯅꯇ ꯆꯐꯈꯄ	______	—
A2	ꯄꯤꯔꯦ (A / B) ꯑꯃꯁꯨꯡ ꯃꯅꯌꯁꯤ ꯑꯥꯄꯤꯔ, ha	______	8.6.1
A3	ꯆꯦꯠ ꯅꯨꯕꯒꯤ ꯆꯦꯃ (ꯆꯦꯞꯇꯔ 2)	______	8.4.1
A4	P_ret, mm (ꯑꯄꯥꯃꯕ 2E)	______	8.4.1
A5	P_3m, mm (ꯑꯄꯥꯃꯕ 8A, ꯆꯌꯄꯒꯤ ꯃꯄꯐ ꯅꯄꯒꯤ ꯁꯥꯇꯁꯨꯆꯥꯃꯃ: ꯄꯥꯁꯦꯄꯗ, ꯔꯄꯤꯃꯤꯠ, ꯗꯦꯑꯦꯠ)	______	8.4.1
A6	P_wq = max (P_ret, P_3m), mm (ꯁꯆꯦꯅꯃꯌ ꯏꯥꯠꯄꯄ ꯔꯦꯁꯗꯈ)	______	8.4.1, 8.4.3
A7	WQv-ꯒꯤ ꯗꯦꯑꯦꯠ: SCS-CN, ꯆꯌꯄꯒꯤ Rv (ꯃꯅꯌꯃꯤꯠ < 0.5 ha ꯑꯃꯁꯨꯡ ꯄꯤꯔꯦ B-ꯒꯤ ꯆꯦꯅꯗꯦꯠꯄꯃꯈ ꯗꯦꯑꯦꯠ ꯅꯠꯄ)	______	8.4.2
A8	ꯄꯤꯗꯥꯒꯥꯆꯄꯃꯥꯃꯌ (ꯄꯦꯆꯤꯠ ꯆꯦꯄꯤꯈ ꯅꯐꯄꯄꯒꯤꯔꯃ ≥ 20%)?	______	8.6.2

ꯇꯥꯕꯜ 8F.2 — ꯏꯦꯄꯐ 8-1, ꯃꯥꯠꯃꯃ B: ꯅꯄꯐꯒꯤ ꯆꯐ ꯃꯅꯨꯡ ꯅꯃꯆ ꯅꯣꯏꯊꯒꯤ ꯁꯔꯦꯆꯤꯌꯤꯒꯤ ꯒꯦꯂꯐ ꯑꯃꯁꯨꯡ ꯏꯆꯦ

ꯑꯥꯄꯤꯔ ID	ꯑꯥꯄꯤꯔ (ha)	ꯅꯐꯄꯄꯒꯤꯔꯃ I (%)	Q_wq ꯄꯃꯑꯦꯏ ꯗꯥꯄꯗ (mm) ꯆꯌꯄꯒꯤ Rv	WQv (m³)	Q_wq (m³/s)	ꯗꯐꯆꯤꯇꯆꯈ ꯒꯦꯂꯐ, ꯆꯦꯞꯇꯔ 4 (m³)	ꯗꯐꯆꯤꯇꯆꯃꯗꯈ WQv (m³)	ꯑꯥꯄꯤꯔ ꯑꯁꯗ ꯃꯥꯈ ꯄꯤꯄꯤꯈ BMP	ꯄꯔꯦꯤ-ꯄꯦꯤꯌꯃꯥꯃꯌ
______	______	______	______	______	______	______	______	______	______
______	______	______	______	______	______	______	______	______	______
______	______	______	______	______	______	______	______	______	______
ꯄꯨꯐꯆꯃꯠ	______			______		______	______		

ꯇꯥꯕꯜ 8F.3 — ꯏꯦꯄꯐ 8-1, ꯃꯥꯠꯃꯃ C: ꯆꯥꯒꯥꯇ ꯑꯦꯏ ꯃꯄꯒꯤꯃ ꯑꯃꯁꯨꯡ ꯒꯥꯇꯔ ꯄꯥꯄꯤꯠ (ꯄꯤꯔꯦ A)

No.	ꯏꯤꯇꯝ	ꯅꯃꯄꯦꯤ	ꯁꯦꯛꯁꯟ
C1	CN ꯗꯥꯒꯥꯆꯄꯃꯥꯃꯌꯁꯤ ꯃꯃꯤꯠ; CN ꯗꯥꯒꯥꯆꯄꯃꯥꯃꯌꯁꯤ ꯃꯅꯨꯡ; ΔCN	______	8.6.2
C2	ꯃꯗꯦ ꯄꯦꯈ LoS (ꯇꯥꯕꯜ 8.2, ꯆꯌꯄꯒꯤ ꯄꯤꯗꯥꯒꯥꯆꯄꯃꯥꯃꯌꯁꯤꯗꯃꯠ ꯑꯄꯥꯃꯕ 8B)	______	8.6.2
C3	ꯁꯐꯄꯦꯆꯤꯌ VR (ꯑꯄꯥꯃꯕ 8B-ꯒꯤ ꯁꯥꯇꯁꯨꯆꯥꯃꯃ ꯃꯤꯆꯄꯥ)	______	8.6.3
C4	ꯁꯐꯄꯦꯆꯤꯌ VR ≥ ꯃꯗꯦ ꯄꯦꯈ LoS ꯑꯦꯅꯈꯄꯦ?	______	8.6.3
C5	ꯄꯤꯔꯦ B: ꯁꯦꯛꯁꯟ 8.6.5-ꯒꯤ ꯃꯅꯦꯗ ꯃꯤꯆꯤꯃꯆꯅꯤꯈ ꯄꯨꯌ (a) ꯃꯅꯌꯄ ꯗꯐꯆꯤꯇꯆꯈ / (b) ꯈꯅꯑꯦꯄꯤꯄꯥꯃꯃ, ꯄꯥꯃ ꯒꯤꯄꯗꯥꯃ ꯆꯌꯄꯒꯤ ꯅꯃꯏꯤꯇꯄꯨꯄꯥꯃꯃ	______	8.6.5

ꯇꯥꯕꯜ 8F.4 — ꯏꯦꯄꯐ 8-1, ꯃꯥꯠꯃꯃ D: ꯑꯄꯦꯄꯄ ꯃꯈꯃꯤꯄꯥꯇꯃꯤꯠ (ꯁꯦꯛꯁꯟ 8.14)

No.	ꯑꯏꯇꯦꯝ	ꯀꯣꯡꯅꯄꯦ (ꯍꯣꯌ / ꯅꯠꯇꯦ / ꯌꯠꯅꯗꯦ)	ꯈ꯭ꯅꯣꯅ
D1	ꯈ꯭ꯅꯣꯅ 8.7 ꯑꯃꯁꯨꯡ ꯑꯍꯦꯟꯕ 8D ꯃꯇꯨꯡ ꯏꯟꯅ BMP-ꯒꯤ ꯌꯤꯅꯣꯏꯟꯁꯤꯡ, ꯄ꯭ꯐꯤ-ꯑ꯭ꯐꯤꯇꯃꯦꯇꯒꯣ ꯅꯣꯌꯅꯅꯣ	______	8.14(3)
D2	ꯏꯟꯐꯤꯜꯑ꯭ꯐꯦꯀꯟ ꯑꯦꯀ꯭ꯇꯡꯤ ꯐꯦꯡꯣꯐꯆ (ꯐꯣꯐꯝ 8-2), ꯃꯑꯝ ꯃꯁꯨꯡ ꯏꯟꯅ ꯏ꯭ꯕꯣꯏꯆꯒꯤ ꯌꯣꯡꯕ ꯅꯩꯃꯣꯏꯒꯤ ꯃꯏꯣꯒꯤ ꯏꯀꯤꯡꯒꯤ ꯅꯦꯒꯦꯜ ꯑꯃꯁꯨꯡ ꯍꯣꯐꯡꯐꯝ, ꯆꯤꯅꯣꯏꯟ ꯐꯦꯇ, ꯆ꯭ꯐꯣꯆꯣꯗꯟꯒꯤ ꯃꯑꯝ, ꯀꯦꯇꯕꯦꯡꯀꯤꯡ	______	8.14(4)
D3	ꯀꯤꯌꯦꯅ (sewage) ꯑꯃꯁꯨꯡ ꯗꯨꯃꯒꯤ ꯃꯣꯇꯆ ꯏꯀꯤꯡ (sullage)-ꯒꯤ ꯐꯅꯦꯡꯀꯟ ꯈ꯭ꯅꯣꯟ; ꯆꯣꯏ ꯅꯇꯐꯒꯣ ꯀ꯭ꯃꯣꯡ ꯑꯦꯀ꯭ꯇꯡꯤ ꯐꯦꯡꯣꯐꯆ	______	8.9.2, 8.14(5)
D4	ꯏꯀꯤꯡ ꯅꯩꯐꯝ ꯑꯃꯆ ꯑꯣꯗꯇꯐꯣꯜ ꯑꯃꯃꯡꯐꯤꯆꯃꯡ GPT ꯑꯃꯁꯨꯡ ꯐꯣꯐ꯭ꯀꯇ-ꯐ꯭ꯅꯀ (first-flush) ꯆꯤꯅꯣꯏꯟ	______	8.10, 8.14(6)
D5	ꯍꯣꯐꯒꯦꯀ꯭ꯑꯤꯡ, ꯐꯤꯌꯣꯐꯅ ꯑꯃꯁꯨꯡ ꯆꯤꯑꯦꯟꯀꯟ ꯑꯣꯖꯟꯅꯣ ꯓꯝꯕ RWH ꯅꯦꯑꯣꯗꯇ	______	8.11, 8.14(7)
D6	ESC ꯈ꯭ꯅꯣꯟ	______	8.12, 8.14(8)
D7	ꯈ꯭ꯅꯣꯅ 8.8.8 ꯌꯇꯅꯕ ꯃꯐꯝꯆ ꯍꯣꯇꯀ꯭ꯈꯣꯇ ꯐꯟꯑ꯭ꯐꯣꯜꯀꯤꯡ	______	8.8.8

ꯇꯦꯕꯜ 8F.5 — ꯐꯣꯐꯝ 8-1, ꯀꯦꯡꯀꯟ E: ꯀꯦꯝꯕꯤꯏꯤꯕꯣ

ꯐꯤꯜꯆ	ꯏꯟꯑꯐꯤ
ꯃꯃꯤꯡ, ꯐꯦꯅꯤꯀ꯭ꯑꯐꯦꯀꯟ ꯑꯃꯁꯨꯡ ꯏꯝꯈꯦꯅꯦꯜꯃꯦꯟꯇ ꯅꯝꯕꯐ (ꯈ꯭ꯅꯣꯅ 10.6)	______
ꯀꯣꯏꯟ ꯑꯃꯁꯨꯡ ꯇꯨꯃꯤꯇ	______

ꯐꯣꯔꯝ 8-2 — ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁ꯭ꯠꯀꯤ ꯔꯦꯀꯣꯔꯗ

ꯁꯔꯨꯛ 8-ꯒꯤ ꯀ꯭ꯂꯣꯖ 8.8.1-ꯗꯒꯤ 8.8.7 ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ 8.11.4-ꯗ ꯃꯌꯦꯛ ꯁꯦꯡꯅ꯫

ꯁꯣꯔꯁ ꯐꯣꯔꯝ — ꯍꯦꯟꯗꯕꯨꯛ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯏꯀꯥꯏ ꯏꯕꯥ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯁꯣꯔꯁ ꯚꯔꯁꯟ 1.0. ꯐꯦꯁꯤꯂꯤꯇꯤ ꯄꯨꯗꯤꯡꯃꯛꯀꯤ ꯑꯦꯟꯇ꯭ꯔꯤ ꯑꯃꯃꯃꯤ꯫ ꯇꯦꯁ꯭ꯠ ꯇꯧꯔꯤꯕ ꯃꯐꯃꯗꯤꯡ ꯁꯤꯡꯂꯤꯕ ꯄ꯭ꯂꯦꯠ ꯑꯃꯥ, ꯑꯃꯁꯨꯡ ꯇꯦꯁ꯭ꯠ ꯄꯨꯗꯤꯡꯃꯛꯀꯤ ꯔꯤꯗꯤꯡꯗꯤ ꯆꯪꯍꯟꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 8F.6 — ꯐꯣꯔꯝ 8-2, ꯁꯦꯛꯁꯟ A: ꯐꯦꯁꯤꯂꯤꯇꯤ

No.	ꯐꯤꯜꯗ	ꯑꯦꯟꯇ꯭ꯔꯤ	ꯀ꯭ꯂꯣꯖ
A1	ꯄ꯭ꯔꯣꯖꯦꯛꯠ ꯑꯃꯁꯨꯡ ꯐꯦꯁꯤꯂꯤꯇꯤ ID; ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯃꯐꯝ	_____	8.8.3
A2	ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯕꯦꯁꯀꯤ ꯑꯦꯔꯤꯌꯥ (m²) ꯅꯠꯔꯒꯥ ꯇ꯭ꯔꯦꯟꯆꯀꯤ ꯂꯦꯡꯊ (m)	_____	8.8.3(c)
A3	ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯄ꯭ꯔꯣꯄꯔꯇꯤ ꯕꯣꯔꯗꯔ ꯕꯦꯠ ꯂꯦꯡꯊ, m (ꯗꯦꯁꯛ)	_____	8.8.3
A4	ꯒ꯭ꯔꯥꯎꯟꯗꯋꯥꯇꯔ ꯀꯟꯠꯔꯣꯜ: ꯑꯣꯕꯖꯔꯕ ꯁꯥꯡꯂꯕ / ꯄꯥꯡ ꯕꯤꯗꯇ ꯃꯐꯝꯂꯣꯝꯂꯕ / ꯁꯤꯖꯤꯅꯅꯕ; ꯂꯦꯋꯦꯜ (ꯂꯦꯔ / ꯅꯠꯇꯦ)	_____	8.8.6, 8.8.8
A5	ꯗꯤꯖꯥꯏꯟ ꯐꯤꯂꯇꯔ: ꯃꯇꯨꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯗꯥꯇꯥ / ꯗꯤꯖꯥꯏꯅꯐ ꯅꯠꯇꯦ ꯕꯔꯕ ꯑꯣꯝ / ꯁꯦꯟꯇꯒꯤ ꯗꯤꯍ ꯑꯔꯦꯕꯥ ꯅꯠꯇꯦ ꯕꯨꯂꯥꯏ ꯕꯤꯟꯗ / ꯑꯇꯣꯞꯄꯥ	_____	8.8.9–8.8.11

ꯇꯦꯕꯜ 8F.7 — ꯐꯣꯔꯝ 8-2, ꯁꯦꯛꯁꯟ B: ꯇꯦꯁ꯭ꯠꯁꯤꯡ

ꯇꯦꯁ꯭ꯠ No.	ꯇꯥꯡ (ꯀꯨꯔꯤꯗ ꯗꯥꯂꯤꯗ)	ꯇꯥꯏꯝ	ꯃꯦꯊꯗ: ꯗꯕꯜ-ꯔꯤꯡ (ASTM D3385) / ꯐꯣꯜꯂꯤꯡ-ꯍꯦꯗ ꯕꯣꯔꯍꯣꯜ ꯅꯠꯇ꯭ꯔꯒꯥ ꯇ꯭ꯔꯥꯏꯑꯦꯜ-ꯄꯤꯠ ꯁꯣꯛꯑꯋꯦ (ꯍꯥꯟꯅ ꯑꯣꯐꯁ BRE Digest 365)	ꯇꯦꯁ꯭ꯠ ꯂꯦꯡꯊ, m	ꯇꯦꯁ꯭ꯠ ꯕꯦꯁ ꯃꯥꯡꯗ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯃꯌꯥꯒꯤ ꯅꯣꯡꯂꯤꯒꯤ ꯂꯦꯡꯊ, m	ꯃꯦꯖꯔ ꯕꯦꯁꯕ ꯔꯦꯠ (mm/h)
1	_____	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____

ꯍꯨꯕꯅꯗꯒꯤ ꯂꯦꯃꯕ ꯇꯦꯁ꯭ꯠꯀꯤ ꯃꯁꯤꯡ: ꯐꯦꯁꯤꯂꯤꯇꯤ ꯍꯨꯗꯤꯡꯗ 2, ꯑꯃꯁꯨꯡ ꯕꯦꯁ ꯑꯦꯔꯤꯌꯥꯒꯤ 100 m² ꯍꯨꯗꯤꯡꯗ ꯅꯠꯇ꯭ꯔꯒꯥ ꯇ꯭ꯔꯦꯟꯆꯀꯤ 50 m ꯍꯨꯗꯤꯡꯗ 1 (ꯀ꯭ꯂꯣꯖ 8.8.3(c))꯫

ꯇꯦꯕꯜ 8F.8 — ꯐꯣꯔꯝ 8-2, ꯁꯦꯛꯁꯟ C: ꯗꯤꯖꯥꯏꯟ ꯔꯦꯠ ꯑꯃꯁꯨꯡ ꯗꯔꯦꯁꯟ

No.	ꯑꯥꯏꯇꯦꯝ	ꯑꯦꯟꯇ꯭ꯔꯤ	ꯀ꯭ꯂꯣꯖ
C1	ꯇꯧꯈꯤꯕ ꯇꯦꯁ꯭ꯠꯀꯤ ꯃꯁꯤꯡ; ꯃꯊꯧ ꯇꯥꯕ ꯃꯁꯤꯡ	_____	8.8.3(c)
C2	ꯃꯦꯖꯔ ꯕꯦꯁꯕ ꯍꯨꯕꯅꯗꯒꯤ ꯅꯦꯝꯕ ꯑꯃꯁꯨꯡ ꯍꯨꯕꯅꯗꯒꯤ ꯂꯦꯃꯕ ꯔꯦꯠꯁꯤꯡ; ꯔꯦꯁꯤꯑꯣ (ꯍꯨꯕꯅꯗꯒꯤ ꯅꯦꯝꯕ ÷ ꯍꯨꯕꯅꯗꯒꯤ ꯂꯦꯃꯕ)	_____	8.8.4
C3	ꯁꯦꯐꯇꯤ ꯐꯦꯛꯇꯔ: 2.0 (ꯇꯦꯁ꯭ꯠꯁꯤꯡꯅꯤ 8.8.3(c) ꯃꯄꯨꯡ ꯐꯥꯕ ꯑꯃꯁꯨꯡ ꯔꯦꯁꯤꯑꯣ ≤ 2) ꯅꯠꯇ꯭ꯔꯒꯥ 3.0	_____	8.8.4
C4	ꯗꯤꯖꯥꯏꯟ ꯔꯦꯠ = ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯃꯦꯖꯔ ꯕꯦꯁꯕ ꯔꯦꯠ ÷ ꯁꯦꯐꯇꯤ ꯐꯦꯛꯇꯔ, mm/h (ꯀꯔꯝꯕ ꯃꯦꯖꯔ ꯕꯦꯁꯕ ꯔꯦꯠ ꯁꯤꯖꯤꯟꯅꯔꯤꯕꯒꯦ ꯍꯕꯤꯌꯨ)	_____	8.8.4
C5	ꯀꯦꯇꯦꯒꯣꯔꯤ: ≥ 13 mm/h ꯃꯄꯨꯡ ꯐꯥꯕ ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ / 3–13 mm/h ꯑꯦꯗꯖꯁ꯭ꯠꯃꯦꯟꯠꯀꯥ ꯂꯣꯌꯅꯅ ꯄꯥꯝꯂꯤꯕꯔꯦ / < 3 mm/h ꯀꯨꯔꯥꯗꯤꯌꯥ ꯂꯩꯇꯦ	_____	8.8.5
C6	ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯅꯒꯤ ꯇꯣꯡꯗꯕ ꯗꯤꯖꯥꯏꯅꯒꯤ ꯗꯦꯄꯊ, mm; ꯗꯔꯦꯁꯟꯅꯒꯤ ꯃꯇꯝ = ꯗꯦꯄꯊ ÷ ꯗꯤꯖꯥꯏꯟ ꯔꯦꯠ, h (≤ 72 h)	_____	8.8.7

ꯇꯦꯕꯜ 8F.9 — ꯐꯣꯔꯝ 8-2, ꯁꯦꯛꯁꯟ D: ꯆꯦꯛ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯟꯑꯣꯐꯁꯤꯡ

No.	ꯋꯥꯍꯪ	ꯄꯥꯎꯈꯨꯝ	ꯁꯨꯗꯦꯜ
D1	ꯐꯌꯐ ꯐꯌ꯭ꯗ ꯍꯋꯅ ꯍꯨꯕꯍꯃꯒꯤ ꯌꯗꯕ ꯅꯐꯍꯒꯤ ꯐꯌꯒꯤ ꯍꯂꯤꯗꯒꯤ ꯅꯒꯣ, m, ꯋꯐꯂ꯭ꯗ ꯐꯂꯤꯒꯤ ꯄꯦꯐꯗꯏꯐ (ꯁꯨꯗꯦꯜ 3.10.2)	______	8.8.1
D2	ꯏꯂꯤꯅꯤꯌꯒꯤ ꯕꯇꯃꯒꯤ ꯐꯌꯐ ꯐꯌ꯭ꯗ ꯍꯋꯅ ꯍꯨꯕꯍꯃꯒꯤ ꯌꯗꯕ ꯅꯐꯍꯒꯤ ꯐꯌꯒꯤ ꯍꯂꯤꯗ ꯏꯨꯕ ꯅꯖꯖ, m (≥ 1.0; ꯅꯌꯤꯏꯍ ꯌꯦꯐꯕ ꯂꯐꯨꯃꯨꯐꯒꯤ ꯐꯅꯗꯁꯤ ꯅꯗꯍꯃ ꯐꯨꯋꯃꯤꯗ ꯌꯗꯁ ꯅꯌꯅꯅ ꯌꯨꯐꯓꯗꯌꯒꯤ ꯍꯗꯌꯒꯤ ꯐꯋꯋꯏꯁꯤꯃꯐꯗ ≥ 0.5)	______	8.8.1, 8.8.9(d)
D3	ꯕꯇꯁꯤ ꯐꯌꯃ ꯅꯕ ꯕꯃꯐꯗ ꯅꯒꯐꯒ ꯍꯐꯖꯐꯐꯤꯌꯕꯒ ꯅꯌꯐ ꯏꯨꯕ ꯃꯖꯓ, m (ꯁꯨꯗꯦꯜ 8.8.10 ꯅꯒꯌꯨꯐꯕꯃꯤ ≥ 1.0)	______	8.8.2
D4	ꯐꯌꯒꯤꯂꯤꯗ ꯏꯨꯕ ꯅꯖꯖ: ꯏꯨꯋꯃꯂꯋꯂꯤꯗ / ꯕꯂꯐꯋꯒ / ꯖꯨꯐꯖꯐꯌꯤꯒꯤ ꯁꯐꯌ / ꯓꯗꯅꯕ ꯍꯂꯤꯗꯒꯤ ꯌꯒ ꯅꯒꯐꯒ ꯕꯐꯌꯒ / ꯂꯖꯌꯤꯗ ꯌꯨꯁꯗ ꯅꯒꯐꯒ ꯂꯗ ꯖꯤꯒ / 1V:3H-ꯃꯒꯤ ꯄꯋꯅ ꯋꯁꯐꯕ ꯂꯨꯅꯖꯁꯤ ꯁꯨꯐꯂꯨꯒ, m	______	8.8.6
D5	ꯋꯗꯂꯖꯋꯂꯤꯒ ꯂꯍꯒꯂꯤꯗ: ꯏꯨꯋꯃꯂꯋꯒꯤ ꯂꯒꯕꯗ ꯋꯅꯤ ꯓꯗ ꯄꯅꯒꯒꯄꯒꯅꯕꯐ?	______	8.8.11(b)

ꯌꯕꯒ 8F.10 — ꯏꯐꯐ 8-2, ꯂꯗꯂꯋ E: ꯃꯤꯗꯅꯐꯂꯋ

ꯏꯤꯒꯃ	ꯄꯥꯎꯈꯨꯝ
ꯌꯂꯨꯌꯐ: ꯐꯐꯤꯗ, ꯅꯤꯋꯌꯗꯅꯤꯁꯒ ꯌꯂꯨꯌꯤꯗꯃ ꯁꯨꯌꯅꯤꯏꯤꯁꯂꯋ, ꯋꯐꯒꯅꯍꯅꯂꯋ	______
ꯌꯂꯨꯒꯂꯤꯗ ꯋꯂꯤ ꯄꯌꯐꯤꯕ ꯐꯏꯐꯂꯤꯗ ꯋꯐꯂ꯭ꯗ ꯅꯒꯒꯂꯤꯗꯃ, ꯄꯌꯐꯤꯕ ꯓꯋꯗꯂꯤꯗꯅ ꯌꯍꯤ ꯋꯐꯂ꯭ꯗ ꯂꯗꯅꯐꯤꯕ ꯐꯤꯃꯤꯗꯂꯤꯗ ꯋꯂꯤ ꯐꯖ꯭ꯗ ꯏꯐ ꯄꯌꯅ ꯋꯅ ꯂꯐꯌꯤꯏꯍ ꯌꯐꯤ꯫ ꯂꯍꯋ ꯋꯐꯂ꯭ꯗ ꯅꯨꯐꯤꯒ	______
ꯃꯤꯅꯍꯅꯐ (ꯁꯨꯗꯦꯜ 10.6): ꯐꯐꯤꯗ ꯋꯐꯂ꯭ꯗ ꯂꯍꯋ	______

ꯁꯔꯨꯛ 9-ꯒꯤ ꯑꯍꯦꯟꯕꯁꯤꯡ

ꯁꯄꯣꯔꯇꯤꯡꯒꯤ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯇꯦꯜꯁ

ꯑꯍꯦꯟꯕꯁꯤꯡ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 9-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫ ꯑꯍꯦꯟꯕ 9A-ꯅꯥ SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ FHWA HDS-5-ꯒꯤ ꯏꯟꯂꯦꯠ-ꯀꯟꯠꯔꯣꯜ (inlet-control) ꯏꯀꯨꯋꯦꯁꯟꯁꯤꯡ, ꯀꯃꯟ ꯏꯟꯂꯦꯠꯁꯤꯡꯒꯤꯗꯃꯛ ꯐꯪꯗꯣꯛꯂꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅ, ꯑꯃꯁꯨꯡ ꯃꯄꯨꯡ ꯐꯕ ꯊꯕꯛ ꯇꯧꯕ ꯀꯜꯚꯔꯠꯀꯤ (culvert) ꯈꯨꯗꯝ ꯑꯃ ꯄꯤꯔꯤ꯫ ꯑꯍꯦꯟꯕ 9B-ꯅꯥ ꯁꯔꯨꯛ 9 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 6-ꯅꯥ ꯃꯃꯤꯡꯂꯃꯛ ꯊꯣꯛꯂꯕ ꯔꯦꯐꯔꯦꯟꯁꯁꯤꯡ ꯀꯪꯂꯣꯟ ꯍꯦꯛꯇꯕ ꯁꯨꯌꯦꯟꯗꯥꯗ ꯊꯨꯗꯥꯂꯗꯁꯤꯡ ꯄꯤꯔꯤ; ꯑꯌꯥꯝꯕ ꯃꯍꯩꯔꯣꯟꯁꯤꯡ ꯁꯤꯃꯥꯏꯗꯒꯤ "ꯗꯤꯖꯥꯏꯟꯗ ꯀꯅꯐꯔꯝ ꯇꯧꯒꯗꯕ" ("to be confirmed in design") ꯍꯥꯌꯅ ꯃꯥꯔꯛ ꯇꯥꯏ꯫ ꯑꯍꯦꯟꯕ 9C ꯑꯁꯤ ꯀꯨꯅꯥꯜ 9.9-ꯗꯒꯤ ꯂꯧꯈꯤꯕ ꯁꯨꯌꯦꯡꯕꯗ ꯀꯟꯠꯔꯣꯜ ꯏꯂꯦꯃꯦꯟꯠ ꯑꯃꯥꯠ ꯇꯧꯔꯂꯕ ꯊꯥꯊꯤꯡ ꯁꯨꯌꯦꯃꯂꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯃꯅꯤ꯫ ꯇꯦꯕꯜ 9-1 ꯑꯁꯤ ꯃꯁꯤꯒꯤ ꯇꯦꯕꯜ ꯑꯃꯅꯤ: ꯃꯁꯤꯅꯥ ꯀꯨꯅꯥꯜ 9.14-ꯅꯥ ꯃꯇꯧ ꯇꯧꯍꯟꯅꯤꯕꯁꯤꯡ ꯂꯤꯁ꯭ꯠ ꯇꯧꯗ ꯑꯃꯁꯨꯡ ꯃꯁꯤꯕ ꯍꯥꯔꯞꯂꯦꯐꯦꯟꯁ꯫

ꯑꯍꯦꯟꯕ 9A — SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ HDS-5-ꯒꯤ ꯏꯟꯂꯦꯠ-ꯀꯟꯠꯔꯣꯜ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯇꯧꯕ ꯀꯜꯚꯔꯠꯀꯤ ꯈꯨꯗꯝ

ꯁꯔꯨꯛ 9-ꯒꯤ ꯀꯨꯅꯥꯜ 9.4.1-ꯗꯒꯤ 9.4.7 ꯐꯥꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 6-ꯒꯤ ꯀꯨꯅꯥꯜ 6.12-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

9A.1 ꯏꯟꯂꯦꯠ-ꯀꯟꯠꯔꯣꯜ ꯏꯀꯨꯋꯦꯁꯟꯁꯤꯡ

FHWA *Hydraulic Design of Highway Culverts*, HDS-5, 3-ꯁꯨꯕ ꯑꯦꯗꯤꯁꯟ (2012), Appendix A-ꯅꯥ ꯏꯟꯂꯦꯠ-ꯀꯟꯠꯔꯣꯜ ꯏꯀꯨꯋꯦꯁꯟ ꯑꯗꯨ ꯄꯤꯔꯤ꯫ SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ:

> ꯁꯕꯃꯔꯖ ꯑꯣꯏꯗꯕ, ꯐꯣꯔꯝ 1 (Form 1): $HW_i/D = H_c/D + K \cdot [K_u \cdot Q / (A \cdot D^{0.5})]^M + K_s \cdot S$

> ꯁꯕꯃꯔꯖ ꯑꯣꯏꯗꯕ, ꯐꯣꯔꯝ 2: $HW_i/D = K \cdot [K_u \cdot Q / (A \cdot D^{0.5})]^M$

> ꯁꯕꯃꯔꯖ ꯑꯣꯏꯕ: $HW_i/D = c \cdot [K_u \cdot Q / (A \cdot D^{0.5})]^2 + Y + K_s \cdot S$

ꯃꯐꯝ ꯑꯁꯤꯗ HWi ꯑꯁꯤ ꯏꯟꯂꯦꯠ ꯀꯟꯠꯔꯣꯂꯒꯤ ꯃꯈꯥꯗ ꯏꯟꯂꯦꯠꯀꯤ ꯏꯟꯚꯔꯠꯀꯤ (invert) ꯃꯊꯛꯇ ꯂꯩꯕ ꯍꯦꯗꯋꯥꯇꯔꯒꯤ (headwater) ꯑꯋꯥꯡꯕꯁꯤ (m), D ꯑꯁꯤ ꯕꯦꯔꯦꯂꯒꯤ (barrel) ꯃꯊꯛꯀꯤ ꯑꯋꯥꯡꯕꯁꯤ (rise) (m), Hc ꯑꯁꯤ ꯀꯔꯤꯇꯤꯀꯦꯜ ꯗꯦꯞꯊꯇ ꯂꯩꯕ ꯁꯞꯦꯁꯤꯐꯤꯛ ꯑꯦꯅꯔꯖꯤ, $d_c + V_c^2/2g$ (m), Q ꯑꯁꯤ ꯗꯤꯁꯆꯥꯔꯖꯅꯤ (m^3/s), A ꯑꯁꯤ ꯕꯦꯔꯦꯂꯒꯤ ꯃꯄꯨꯡ ꯐꯕ ꯀꯔꯣꯁ-ꯁꯦꯛꯁꯟꯀꯤ ꯑꯦꯔꯤꯌꯥꯅꯤ (m^2), S ꯑꯁꯤ ꯕꯦꯔꯦꯂꯒꯤ ꯁ꯭ꯂꯣꯞꯅꯤ (m/m), K, M, c ꯑꯃꯁꯨꯡ Y ꯑꯁꯤ ꯇꯦꯕꯜ 9A.1-ꯒꯤ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡꯅꯤ, $K_u = 1.811$ SI ꯌꯨꯅꯤꯠꯁꯤꯡꯗ (US ꯌꯨꯅꯤꯠꯁꯤꯡꯗ 1.0), ꯑꯃꯁꯨꯡ Ks ꯑꯁꯤ ꯁ꯭ꯂꯣꯞ ꯀꯔꯦꯛꯁꯟꯅꯤ: −0.5, ꯅꯠꯔꯒꯥ ꯃꯤꯇꯔ ꯇꯧꯕ ꯏꯟꯂꯦꯠꯁꯤꯡꯒꯤꯗꯃꯛ +0.7꯫

ꯀꯔꯤ ꯏꯀꯨꯋꯦꯁꯟ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ ꯍꯥꯌꯕꯁꯤ $X = K_u \cdot Q / (A \cdot D^{0.5})$-ꯅ ꯃꯍꯩ ꯄꯥꯝꯃꯤ:

- $X \leq 3.5$: ꯁꯕꯃꯔꯖ ꯑꯣꯏꯗꯕ ꯏꯀꯨꯋꯦꯁꯟ (ꯇꯦꯕꯜ 9A.1-ꯅ ꯇꯥꯛꯂꯕ ꯃꯑꯣꯡꯗꯥ ꯐꯣꯔꯝ 1 ꯅꯠꯔꯒꯥ ꯐꯣꯔꯝ 2);

- X ≥ 4.0: [illegible];
- 3.5 < X < 4.0 ([illegible]): HDS-5-[illegible] [illegible] FHWA HY-8 [illegible]॥ [illegible], [illegible]॥ [illegible], HDS-5-[illegible]॥

[illegible] 9A.1 — [illegible] HDS-5-[illegible] [illegible]

[illegible]	[illegible]	[illegible]	K	M	c	Y
[illegible]	[illegible]	1	0.0098	2.0	0.0398	0.67
[illegible]	[illegible] ([illegible]) [illegible]	1	0.0018	2.0	0.0292	0.74
[illegible]	[illegible] ([illegible]) [illegible]	1	0.0045	2.0	0.0317	0.69
[illegible]	[illegible]	1	0.0078	2.0	0.0379	0.69
[illegible]	[illegible]	1	0.0210	1.33	0.0463	0.75
[illegible]	[illegible]	1	0.0340	1.50	0.0553	0.54
[illegible]	30°-[illegible] 75° [illegible]	1	0.026	1.0	0.0347	0.81
[illegible]	90° [illegible] 15°-[illegible]	1	0.061	0.75	0.0400	0.80
[illegible]	0°-[illegible] ([illegible])	1	0.061	0.75	0.0423	0.82
[illegible]	19 mm (3/4 in) [illegible] 90° [illegible]	2	0.515	0.667	0.0375	0.79
[illegible]	45° [illegible] 90° [illegible]	2	0.495	0.667	0.0314	0.82
[illegible]	33.7° [illegible] 90° [illegible]	2	0.486	0.667	0.0252	0.865

[illegible]: FHWA HDS-5 (2012), Appendix A, Table A.1 ([illegible] Ku = 1.811-[illegible] SI [illegible])॥ [illegible] HIF-12-026, Table A.1 ([illegible] 1/1–1/3, 2/1–2/3, 8/1–8/3 [illegible] 10/1–10/3)-[illegible]॥ HDS-5-[illegible]॥ [illegible] 9-[illegible] 9.1-[illegible]॥

9A.2 [illegible]: [illegible]

[illegible] — [illegible]॥ [illegible]; [illegible]॥

[illegible].

[illegible] 9A.2 — [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]; [illegible] AEP 4% (25-yr), [illegible] 2% (50-yr), [illegible] 1% AEP [illegible]	[illegible] 6.1, [illegible] 6.12.2
[illegible], 4% AEP	1.80 m³/s ([illegible])	[illegible]
[illegible], 2% AEP	2.20 m³/s	[illegible]
1% AEP [illegible]	3.00 m³/s	[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible] 1,200 mm RCC [illegible], $n = 0.015$	[illegible] 6.6
[illegible]	[illegible]: $k_e = 0.5$; $K = 0.0098$, $M = 2.0$, $c = 0.0398$, $Y = 0.67$, [illegible] 1	[illegible] 9.1 [illegible] 9A.1
[illegible]	$L = 20.0$ m; $S = 0.005$ ([illegible] 20.00 m, [illegible] 19.90 m, [illegible])	[illegible]
[illegible]	[illegible] 22.00 m; [illegible] 22.10 m	[illegible]
[illegible] (tailwater), TW	1.80 m^3/s-[illegible] 0.60 m; 2.20 m^3/s-[illegible] 0.70 m; 3.00 m^3/s-[illegible] 0.85 m ([illegible])	[illegible]; [illegible] 9.4.4
[illegible]	[illegible]	[illegible] 9.2

[illegible]: 1,200 mm ≥ 900 mm ([illegible] 6.12.5)॥ [illegible] 1.5 m-[illegible], [illegible] 50% [illegible] ([illegible] 6.12.4(a))॥

[illegible] 1 — [illegible]. $A = \pi \cdot 1.2^2 / 4 = 1.131\ m^2$; [illegible] $R = D/4 = 0.300$ m; $D^{0.5} = 1.095$॥

[illegible] 2 — [illegible]. [illegible], d_c [illegible], $Q^2 \cdot T / (g \cdot A_c^3) = 1$-[illegible] A_c [illegible] T [illegible] d_c [illegible]॥

[illegible] 9A.3 — [illegible] (D = 1.2 m)

Q (m^3/s)	dc (m)	Ac (m^2)	T (m)	Vc = Q/Ac (m/s)	Hc = dc + Vc²/2g (m)	Hc/D
1.80	0.737	0.728	1.168	2.471	1.048	0.873
2.20	0.817	0.820	1.119	2.683	1.184	0.987
3.00	0.952	0.962	0.972	3.118	1.447	1.206

[illegible] 3 — [illegible]. $X = 1.811 \cdot Q / (1.131 \times 1.095) = 1.462 \cdot Q$॥

[illegible] 9A.4 — [illegible]

Q (m^3/s)	X	[illegible]	HWi/D	HWi (m)
1.80	2.631	[illegible], [illegible] 1: $0.873 + 0.0098 \times 2.631^2 - 0.5 \times 0.005 = 0.873 + 0.068 - 0.003$	0.939	1.127
2.20	3.216	[illegible], [illegible] 1: $0.987 + 0.0098 \times 3.216^2 - 0.003 = 0.987 + 0.101 - 0.003$	1.085	1.302
3.00	4.385	[illegible]: $0.0398 \times 4.385^2 + 0.67 - 0.003 = 0.765 + 0.67 - 0.003$	1.433	1.719

[illegible] 4 — [illegible] ([illegible] 9.4.3)॥ [illegible] $19.63 \cdot n^2 \cdot L / R^{1.33} = 19.63 \times 0.015^2 \times 20.0 / 0.300^{1.33} = 0.0883 / 0.2016 = 0.438$, [illegible] $H = (1 + 0.5 + 0.438) \cdot V^2/2g = 1.938 \cdot V^2/2g$॥ $L \cdot S = 20.0 \times 0.005 = 0.100$ m॥

[illegible] 9A.5 — [illegible]

Q (m³/s)	V = Q/A (m/s)	V²/2g (m)	H (m)	(dc + D)/2 (m)	TW (m)	ho (m)	HWo = ho + H − L·S (m)
1.80	1.592	0.129	0.250	0.969	0.60	0.969	1.119
2.20	1.945	0.193	0.374	1.009	0.70	1.009	1.283
3.00	2.653	0.359	0.695	1.076	0.85	1.076	1.671

ꯈꯣꯡꯊꯥꯡ 5 — ꯁꯥꯁꯟ ꯇꯧꯔꯤꯕ ꯍꯦꯗꯋꯥꯇꯔ (ꯀ꯭ꯂꯣꯖ 9.4.1): HWi ꯑꯃꯁꯨꯡ HWo-ꯒꯤ ꯃꯔꯛꯇ ꯍꯦꯟꯕ ꯑꯗꯨ꯫

ꯇꯦꯕꯜ 9A.6 — ꯁꯥꯁꯟ ꯇꯧꯔꯤꯕ ꯍꯦꯗꯋꯥꯇꯔ ꯑꯃꯁꯨꯡ ꯆꯦꯛꯁꯤꯡ

ꯊꯧꯗꯣꯛ	Q (m³/s)	HWi (m)	HWo (m)	ꯀꯟꯇ꯭ꯔꯣꯜ	HW (m)	HW ꯂꯦꯚꯦꯜ (m)	HW/D
ꯗꯤꯖꯥꯏꯟ, 4% AEP	1.80	1.127	1.119	ꯏꯟꯂꯦꯠ	1.127	21.13	0.94
ꯆꯦꯛ, 2% AEP	2.20	1.302	1.283	ꯏꯟꯂꯦꯠ	1.302	21.30	1.09
1% AEP	3.00	1.719	1.671	ꯏꯟꯂꯦꯠ	1.719	21.72	1.43

ꯈꯣꯡꯊꯥꯡ 6 — ꯗꯤꯖꯥꯏꯟ AEP-ꯗ ꯍꯦꯗꯋꯥꯇꯔꯒꯤ ꯆꯦꯀꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 9.4.5):

- (a) HW/D = 0.94 ≤ 1.2꯫ ꯆꯨꯝꯃꯤ꯫
- (b) HW ꯂꯦꯚꯦꯜ 21.13 m ≤ ꯂꯝꯕꯤꯒꯤ ꯑꯦꯖ 22.00 m − 0.30 m = 21.70 m꯫ ꯆꯨꯝꯃꯤ꯫
- (c) ꯍꯧꯖꯤꯛ ꯑꯗꯨꯕ ꯍꯤꯡꯂꯤꯒꯤ ꯕꯤꯗꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯄꯔꯇꯤꯒꯤ ꯕꯣꯔꯗꯔꯁꯤꯡꯗ ꯐꯂꯣꯡꯒꯤ ꯂꯦꯚꯦꯂꯁꯤꯡ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 6.12.2(d)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯆꯦꯛ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯃꯁꯤꯗ ꯍꯧꯖꯤꯛ ꯑꯗꯨꯕ ꯍꯤꯡꯂꯤꯒꯤ ꯂꯦꯂ ꯃꯈꯦ ꯌꯥꯎ ꯑꯃꯁꯨꯡ ꯃꯈꯦ ꯑꯁꯤꯗ ꯌꯥꯎꯗꯦ꯫

ꯈꯣꯡꯊꯥꯡ 7 — ꯂꯝꯕꯤꯒꯤ ꯃꯊꯛꯇ ꯏꯁꯤꯡ ꯆꯦꯛ (ꯀ꯭ꯂꯣꯖ 6.12.2, 6.12.3 ꯑꯃꯁꯨꯡ 9.4.6)꯫ 1% AEP-ꯒꯤ ꯍꯦꯗꯋꯥꯇꯔ ꯂꯦꯚꯦꯜ, 21.72 m, ꯑꯁꯤ ꯂꯝꯕꯤꯒꯤ ꯁꯦꯒꯃꯒꯤ ꯈꯦꯕ ꯀꯔꯣꯎꯟ, 22.10 m-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯆꯦꯛ ꯄꯨꯝꯕ 1% AEP ꯊꯧꯗꯣꯀꯁꯤꯡꯗ ꯂꯝꯕꯤꯒꯤ ꯃꯊꯛꯇ ꯏꯁꯤꯡ ꯆꯦꯛꯇꯦ꯫ ꯍꯦꯗꯋꯥꯇꯔꯅ ꯀꯔꯣꯎꯟ ꯑꯍꯥꯅꯕꯒꯤ ꯍꯦꯛꯇꯦꯔꯕꯗꯥ, ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ (overtopping) ꯑꯁꯤ Qr = Cd · L · h^1.5 (Cd ≤ 1.66) ꯑꯃꯁꯨꯡ ꯀꯍꯦꯡ ꯍꯦꯗꯋꯥꯇꯔ ꯑꯍꯥꯅ ꯀꯅꯒꯅꯕ ꯑꯁꯤꯅ ꯕꯦꯂꯦꯟꯁ ꯇꯧꯒꯗꯦ, ꯑꯃꯁꯨꯡ ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯗꯦꯞꯊ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 6.12.2(a)-ꯒꯤ ꯆꯦꯛ ꯇꯧꯒꯗꯦ꯫

ꯈꯣꯡꯊꯥꯡ 8 — ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ (ꯀ꯭ꯂꯣꯖ 9.4.7)꯫ ꯏꯟꯂꯦꯠ ꯀꯟꯇ꯭ꯔꯣꯂꯒꯤ ꯃꯈꯥꯗ, ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯑꯁꯤ ꯕꯦꯔꯦꯂꯗ ꯅꯣꯔꯃꯦꯜ ꯗꯦꯞꯊꯗ ꯂꯧꯕ ꯚꯦꯂꯣꯁꯤꯇꯤꯅꯤ꯫ ꯕꯦꯔꯦꯂꯒꯤ ꯃꯄꯨꯡ ꯐꯥꯕ ꯐ꯭ꯂꯣꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯁꯤ (1/n) · A · R^(2/3) · S^0.5 = (1/0.015) × 1.131 × 0.448 × 0.0707 = 2.39 m³/s꯫

- 1.80 m³/s: ꯅꯣꯔꯃꯦꯜ ꯗꯦꯞꯊ 0.778 m, ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ 2.32 m/s꯫
- 2.20 m³/s: ꯅꯣꯔꯃꯦꯜ ꯗꯦꯞꯊ 0.908 m, ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ 2.40 m/s꯫
- 3.00 m³/s: ꯃꯄꯨꯡ ꯐꯥꯕ ꯐ꯭ꯂꯣꯒꯤ ꯀꯦꯄꯦꯁꯤꯇꯤꯒꯤ ꯃꯊꯛꯇ, ꯃꯔꯝ ꯑꯗꯨꯅ ꯑꯥꯎꯠꯂꯦꯠꯇ ꯕꯦꯔꯦꯜ ꯃꯄꯨꯡ ꯐꯥꯅ ꯊꯜꯂꯤ; ꯚꯦꯂꯣꯁꯤꯇꯤ = Q/A = 2.65 m/s꯫

ꯏꯁꯤꯡ ꯇꯨꯕ ꯍꯦꯅꯕ ꯑꯁꯤ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕ ꯇꯥꯡꯏ ꯌꯦꯡꯕ ꯅꯥꯏꯗꯦ, ꯃꯁꯤꯒꯤ ꯁꯀꯥꯎꯔꯤꯡ ꯚꯦꯂꯣꯁꯤꯇꯤ 0.53 m/s (ꯇꯦꯕꯜ 9.2), ꯃꯔꯝ ꯑꯗꯨꯅ ꯑꯥꯎꯠꯂꯦꯠ ꯁ꯭ꯀꯣꯔ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯃꯊꯧ ꯇꯥꯏ (ꯀ꯭ꯂꯣꯖ 9.6.1)꯫ ꯕꯦꯔꯦꯂꯒꯤ ꯚꯦꯂꯣꯁꯤꯇꯤ ꯁ꯭ꯀꯤꯗꯤꯡ 3.0 m/s-ꯗꯒꯤ ꯍꯦꯟꯗꯦ (ꯀ꯭ꯂꯣꯖ 6.7.3(b))꯫

ꯈꯣꯡꯊꯥꯡ 9 — ꯔꯤꯞꯔꯥꯞ ꯑꯦꯞꯔꯣꯟ (ꯀ꯭ꯂꯣꯖ 9.6.3; ꯃꯃꯤ 9.2)꯫ D50 = 0.2 · D · [Q / (g^0.5 · D^2.5)]^(4/3) · (D/TW), g^0.5 · D^2.5 = 3.132 × 1.577 = 4.941-ꯅꯤ ꯂꯧꯔꯦ꯫

ꯇꯦꯕꯜ 9A.7 — ꯔꯤꯞꯔꯥꯞ ꯑꯦꯞꯔꯣꯅꯒꯤ ꯁꯥꯏꯖ ꯂꯦꯄꯄ

Q (m³/s)	TW (m)	Q / (g^0.5 · D^2.5)	[ ]^(4/3)	D50 (m)
1.80	0.60	0.364	0.260	0.2 × 1.2 × 0.260 × 2.00 = 0.125
2.20	0.70	0.445	0.340	0.2 × 1.2 × 0.340 × 1.71 = 0.140

Q (m³/s)	TW (m)	Q / (g^0.5 · D^2.5)	[ ]^(4/3)	D50 (m)
3.00	0.85	0.607	0.514	0.2 × 1.2 × 0.514 × 1.41 = 0.174

ꯁꯦꯛꯁꯟ 9.4.7-ꯗ ꯑꯦꯛꯁꯥꯝꯄꯜ ꯑꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ AEP ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤꯗꯃꯛ ꯑꯣꯚꯔꯇꯣꯞꯄꯒꯤ ꯃꯇꯝ ꯌꯥꯕꯔꯤ, ꯃꯔꯝ ꯑꯁꯤꯗ ꯃꯊꯛ ꯑꯃꯒꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯒꯤ ꯔꯤꯞꯔꯦꯞ ꯆꯥꯡꯅꯕ D50, 0.174 m-ꯒꯤꯗꯃꯛ ꯁꯥꯏꯖ ꯇꯥꯔꯤ꯫ ꯇꯦꯕꯜ 9.3-ꯗꯒꯤ, ꯀ꯭ꯂꯥꯁ 2 (D50 = 150 mm) ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯣꯏꯔꯦ, ꯃꯔꯝ ꯑꯁꯤꯗ **ꯀ꯭ꯂꯥꯁ 3** (D50 = 250 mm) ꯈꯟꯂꯦ:

- ꯑꯥꯞꯔꯟꯒꯤ ꯑꯁꯥꯡꯕ 5D = 5 × 1.2 = 6.0 m;
- ꯑꯥꯞꯔꯟꯒꯤ ꯊꯤꯛꯅꯥꯏ 2.4 × D50 = 2.4 × 0.25 = 0.60 m;
- ꯑꯥꯎꯠꯂꯦꯠꯇ ꯑꯥꯞꯔꯟꯒꯤ ꯆꯥꯡ ꯄꯥꯛꯊꯣꯡꯕ 3D = 3.6 m, ꯃꯗꯨ ꯊꯥꯡꯕ ꯃꯔꯝꯒꯤ ꯆꯥꯎꯕ ꯂꯩꯕ ꯆꯥꯡꯊꯣꯛꯇꯨꯅꯤ;
- ꯒꯔꯥꯅꯨꯂꯔ ꯐꯤꯜꯇꯔ ꯅꯠꯔꯒꯥ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜꯒꯤ ꯃꯊꯛꯇ ꯊꯝꯅꯕ ꯂꯩ (ꯁꯦꯛꯁꯟ 9.6.4)꯫

ꯆꯦꯛ 10 — ꯑꯥꯎꯠꯂꯦꯠ ꯆꯥꯡ (ꯁꯦꯛꯁꯟ 6.12.4(a))꯫ ꯅꯣꯔꯃꯦꯜ ꯑꯥꯔꯤꯌꯥꯒꯤ 50% ꯑꯥꯎꯠꯂꯦꯠ ꯑꯦꯅꯔꯖꯤ 1% AEP-ꯒꯤ ꯑꯥꯎꯠꯂꯦꯠꯒꯤꯗꯃꯛ ꯆꯦꯛ 3-ꯗꯒꯤ 7 ꯂꯩꯕ ꯃꯇꯝ ꯑꯣꯏꯅ, ꯑꯃꯁꯨꯡ ꯔꯤꯖꯜꯇꯅꯤꯡꯗ ꯁꯦꯛꯁꯟ 6.12.2(a) ꯑꯃꯁꯨꯡ (d) ꯊꯨꯡꯍꯅꯕꯗꯤ꯫ ꯃꯥꯂꯦꯝ ꯑꯃꯗ ꯃꯇꯨꯡ ꯂꯩꯗ ꯑꯥꯎꯠꯂꯦꯠ ꯑꯦꯅꯔꯕ ꯅꯣꯔꯃꯦꯜ ꯑꯃꯁꯨ ꯊꯥꯕꯗ ꯔꯤꯞꯔꯦꯞ ꯃꯑꯣ ꯑꯃꯁꯨ ꯄꯣꯛꯄ ꯂꯩꯕ ꯊꯃꯖꯔꯤ, ꯃꯔꯝ ꯑꯁꯤꯗ ꯆꯥꯡ ꯑꯃꯒꯤ HY-8-ꯗ ꯇꯦꯁꯔꯤ ꯑꯥꯎꯠꯂꯦꯠꯒꯤ ꯑꯊꯦꯡꯕꯒꯤ ꯍꯦꯠꯅꯕ ꯊꯣꯛꯄ ꯑꯃꯗ ꯑꯣꯏꯅ꯫ ꯃꯁꯤ ꯃꯔꯝ ꯑꯃꯒꯤ ꯊꯕꯛ ꯑꯣꯏꯗꯥ꯫

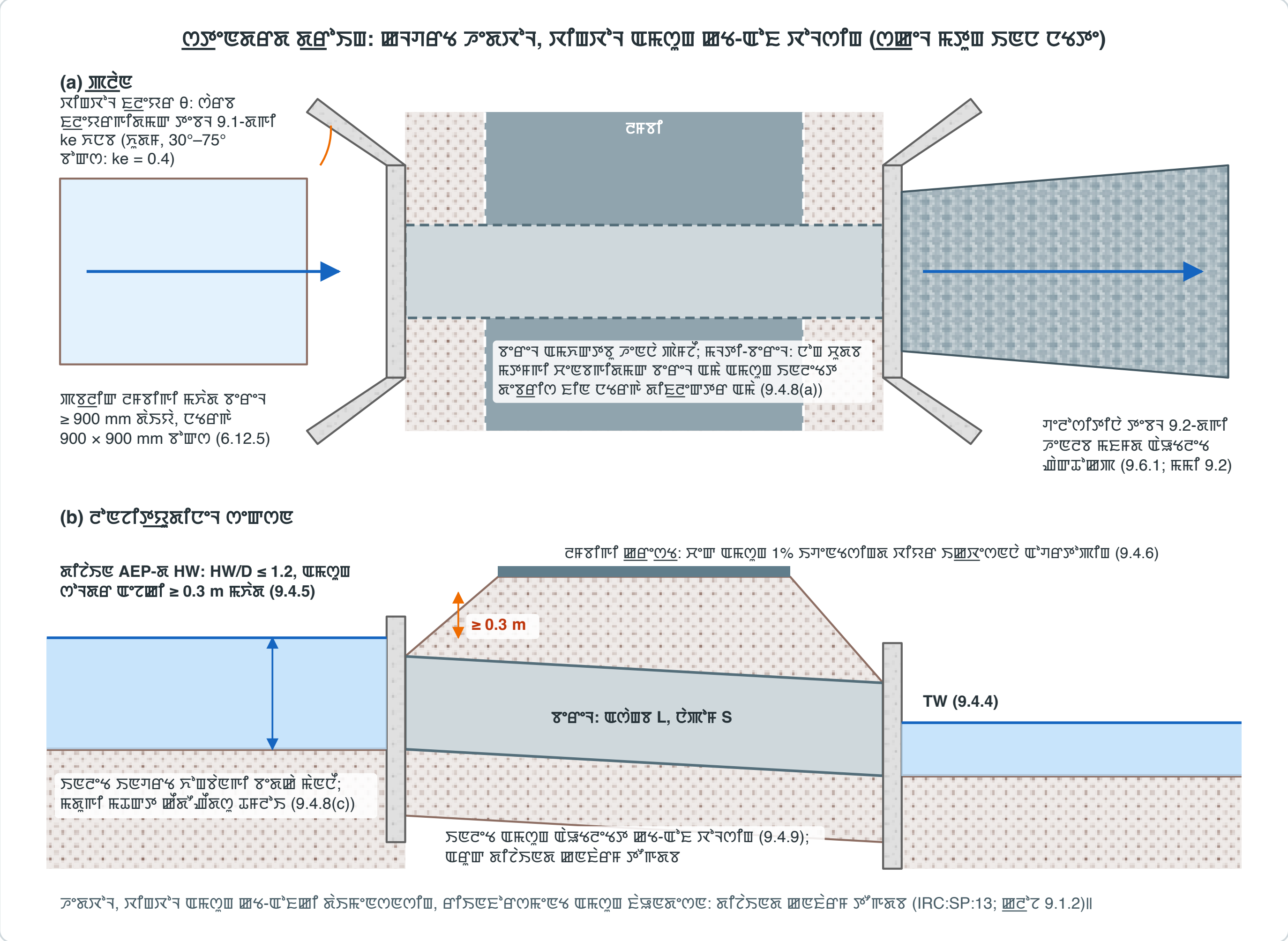
ꯇꯦꯕꯜ 9A.8 — ꯊꯕꯛ ꯑꯣꯏꯕ ꯄꯨꯡꯁꯤ ꯑꯃꯒꯤꯒꯤ ꯃꯁꯤꯡꯕꯤ (ꯄꯨꯡꯁꯤ ꯑꯃꯅꯗ ꯅꯥꯏꯑꯣꯏ — ꯗꯤꯖꯥꯏꯟ ꯚꯥꯂꯣ ꯇꯦꯁꯑꯣ)

ꯆꯥꯡ	ꯔꯤꯖꯜꯇ	ꯁꯦꯛꯁꯟ
ꯀꯜꯚꯔꯠ ꯁꯥꯏꯖ	1,200 mm ≥ 900 mm	6.12.5
ꯗꯤꯖꯥꯏꯟ HW/D	0.94 ≤ 1.2	9.4.5(a)
ꯃꯦꯛꯁꯤꯔꯒꯤ ꯑꯥꯇꯒꯤ ꯃꯗꯨꯗ ꯗꯤꯖꯥꯏꯟ HW	21.13 m ≤ 21.70 m	9.4.5(b)
ꯆꯥꯡ ꯑꯃꯁꯨꯡ 1% ꯊꯗꯦꯛꯄꯤꯕꯗ ꯑꯣꯚꯔꯇꯣꯞꯄꯤ	ꯍꯣꯏ (21.72 m < 22.10 m)	6.12.2, 9.4.6
ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ	ꯀ꯭ꯂꯥꯁ 3 ꯔꯤꯞꯔꯥꯞ ꯑꯥꯞꯔꯟ, 6.0 m ꯑꯁꯥꯡꯕ, 0.60 m ꯊꯤꯛꯅꯥꯏ, ꯑꯥꯎꯠꯂꯦꯠꯇ 3.6 m ꯆꯥꯡꯕ	9.6.1, 9.6.3
ꯑꯥꯎꯠꯂꯦꯠ ꯆꯥꯡ	HY-8-ꯗ ꯇꯦꯁꯔꯤ ꯍꯦꯠꯅꯕ ꯊꯣꯛꯄ ꯑꯃꯗ ꯑꯣꯏꯒꯗꯕ	6.12.4

ꯑꯄꯦꯟꯗ 9B — ꯀ꯭ꯂꯥꯁꯤꯐꯥꯏꯗ ꯗꯤꯖꯥꯏꯟꯁꯤꯡ: ꯄꯥꯏꯂꯦꯟꯁꯤꯡ, ꯔꯤꯞꯔꯥꯞ ꯑꯥꯞꯔꯟꯁꯤꯡ, ꯗꯤꯖꯥꯏꯟ ꯀ꯭ꯔꯤꯇꯦꯔꯤꯌꯥꯁꯤꯡ, ꯇꯦꯕꯜ ꯔꯥꯏꯁꯤꯡ, ꯗꯤꯖꯥꯏꯟ ꯔꯤꯅꯣꯔꯁꯤꯡ

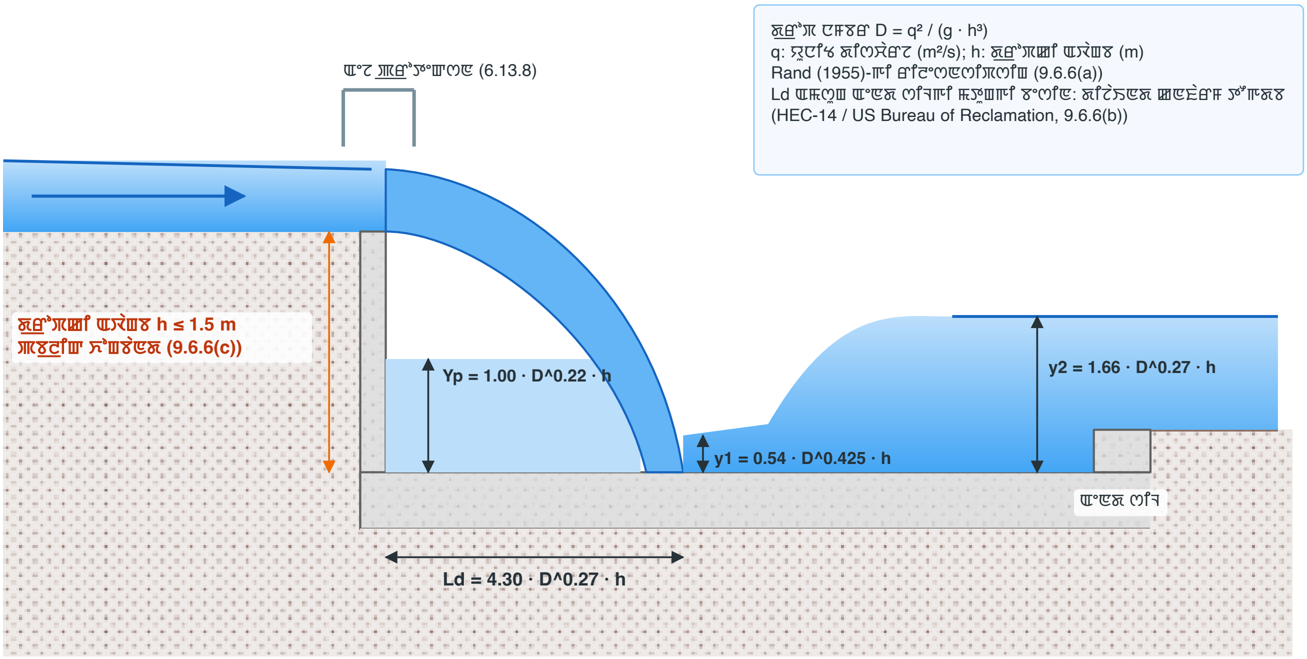
ꯆꯦꯞꯇꯔ 9-ꯒꯤ ꯁꯦꯛꯁꯟ 9.4, 9.6, 9.7 ꯑꯃꯁꯨꯡ 9.8-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯅ꯫

ꯃꯗꯨꯗ ꯄꯤꯔꯤꯕ ꯗꯤꯖꯥꯏꯟꯁꯤꯡ ꯑꯁꯤ ꯀ꯭ꯂꯥꯁꯤꯐꯥꯏꯗ ꯀ꯭ꯂꯥꯁꯤꯐꯥꯏꯗ ꯗꯤꯖꯥꯏꯟꯁꯤꯡꯅꯤ꯫ ꯃꯗꯨꯗꯥ ꯆꯦꯞꯇꯔ 9 ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 6-ꯗ ꯊꯝꯂꯤꯕ ꯗꯤꯃꯦꯟꯁꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯣꯔꯃꯨꯂꯥ ꯅꯥꯏꯑꯣꯏꯗ ꯄꯨꯔꯤ꯫ ꯀ꯭ꯂꯥꯁꯤꯐꯥꯏꯗꯀꯤ ꯗꯤꯃꯦꯟꯁꯟꯁꯤꯡ, ꯔꯤꯅꯣꯔꯁꯦꯃꯦꯟꯠ, ꯂꯦꯉꯗꯥꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯤꯃꯤꯇꯁꯤꯡ ꯑꯃꯒꯤ ꯗꯤꯖꯥꯏꯟꯗ ꯁꯦꯟꯂꯦꯠꯄ ꯑꯣꯏꯕꯗꯤ (ꯁꯦꯛꯁꯟ 9.1.2)꯫ ꯔꯤꯞꯔꯥꯞ ꯑꯥꯞꯔꯟꯒꯤ (riprap apron) ꯀ꯭ꯂꯥꯁꯤꯐꯥꯏꯗ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯒꯤ ꯇꯦꯕꯜ 9.3-ꯒꯤ ꯗꯤꯃꯦꯟꯁꯟꯁꯤꯡꯒꯤ ꯇꯥꯔꯕ ꯆꯦꯞꯇꯔ 9-ꯒꯤ ꯃꯃꯤ 9.2-ꯇꯤ; ꯃꯁꯤ ꯃꯔꯝ ꯑꯃꯗ ꯄꯨꯔꯦ ꯆꯥꯡꯗꯥ꯫ ꯇꯦꯕꯜ 9B.1-ꯗ ꯄꯨꯔꯤꯕ ꯗꯤꯃꯦꯟꯁꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯗꯨꯒꯤ ꯄꯣꯔꯂꯥꯏ ꯑꯗꯨꯕ ꯁꯦꯛꯁꯟꯁꯤꯡ ꯇꯤꯀꯧ ꯑꯣꯏꯅ꯫


[illegible]: [illegible] (9.4.8(a))
(a) [illegible]
[illegible] θ: [illegible] 9.1-[illegible] ke [illegible], 30°–75°
[illegible]: ke = 0.4)
[illegible] ≥ 900 mm [illegible], [illegible] 900 × 900 mm [illegible] (6.12.5)
[illegible] 9.2-[illegible] (9.6.1; [illegible] 9.2)
(b) [illegible]
[illegible] AEP-[illegible] HW: HW/D ≤ 1.2, [illegible] ≥ 0.3 m [illegible] (9.4.5)
[illegible] 1% [illegible] (9.4.6)
≥ 0.3 m
[illegible]: [illegible] L, [illegible] S
TW (9.4.4)
[illegible] (9.4.8(c))
[illegible] (9.4.9); [illegible]
[illegible] (IRC:SP:13; [illegible] 9.1.2)॥

[illegible] 9B.1 — [illegible], FHWA, Hydraulic Design of Highway Culverts, HDS-5 (3rd ed., 2012)-[illegible]॥

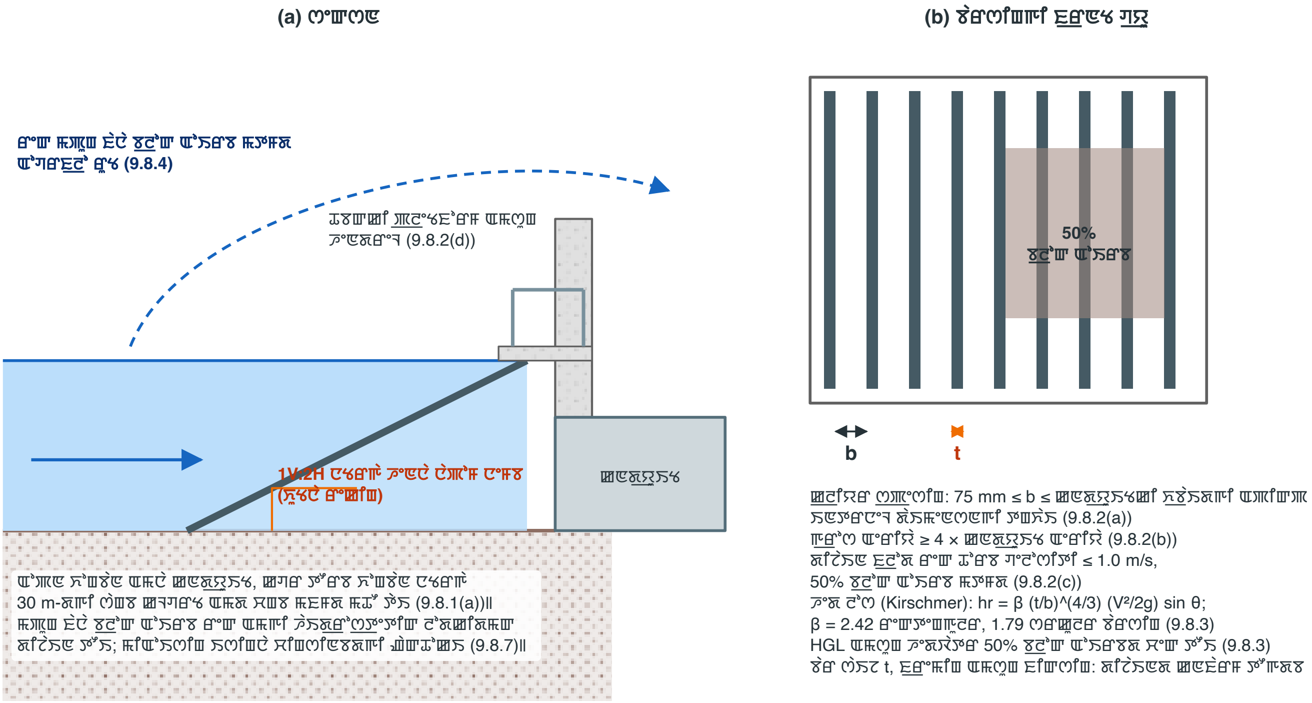
[illegible]: [illegible] (h [illegible] 1.5 m [illegible])


[illegible] (6.13.8)
[illegible] D = q² / (g · h³)
q: [illegible] (m²/s); h: [illegible] (m)
Rand (1955)-[illegible] (9.6.6(a))
Ld [illegible] (HEC-14 / US Bureau of Reclamation, 9.6.6(b))
[illegible] h ≤ 1.5 m
[illegible] (9.6.6(c))
Yp = 1.00 · D^0.22 · h
y1 = 0.54 · D^0.425 · h
y2 = 1.66 · D^0.27 · h
Ld = 4.30 · D^0.27 · h
[illegible]

[illegible]॥

[illegible] 9B.2 — [illegible]: Rand (1955)-[illegible] 1.5 m-[illegible]॥ [illegible], Chow, Open-Channel Hydraulics (1959), [illegible] FHWA, HEC-14 (3rd ed., 2006)-[illegible]॥

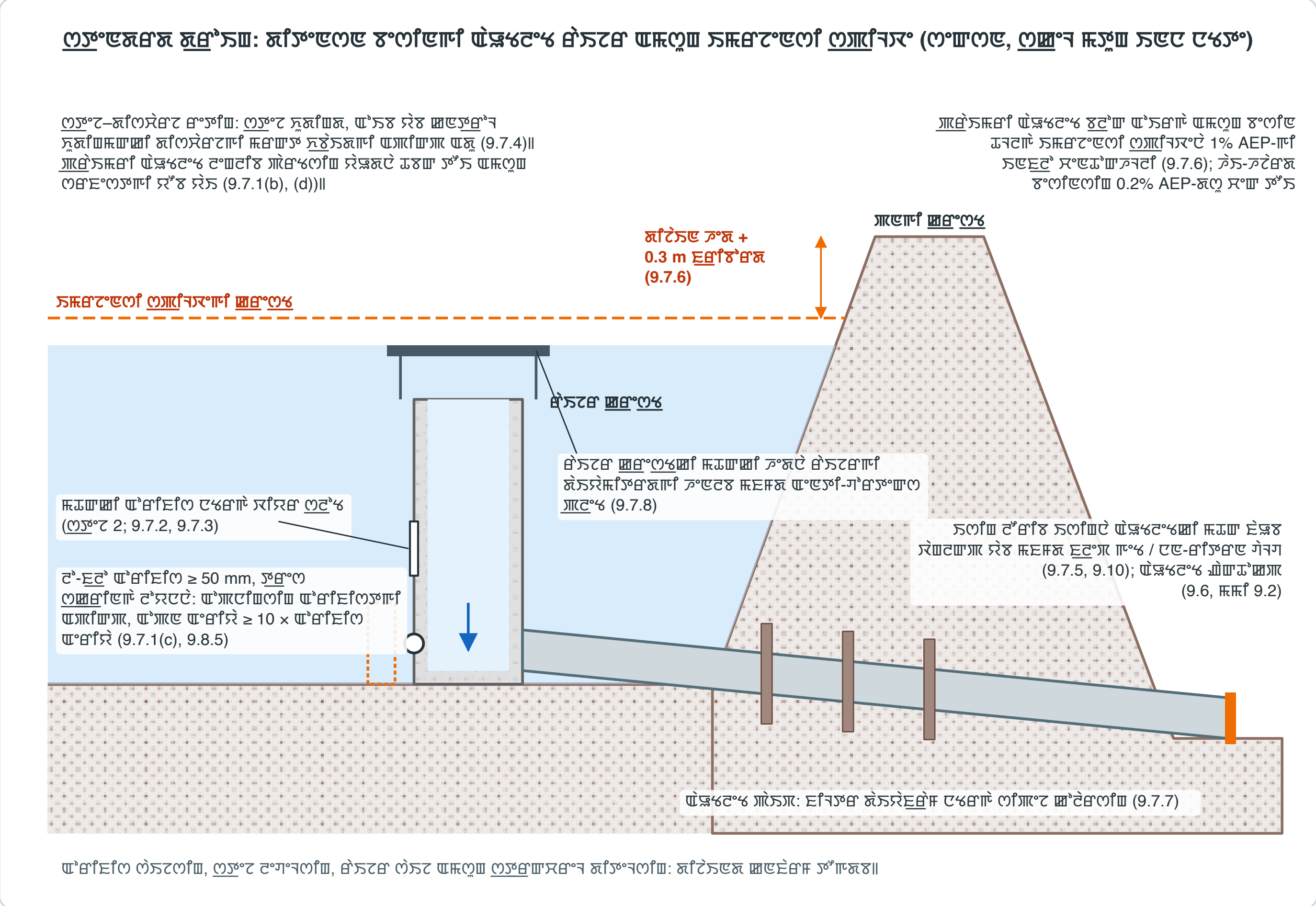
[illegible]


(a) [illegible]
(b) [illegible]
[illegible] (9.8.4)
[illegible] (9.8.2(d))
1V:2H [illegible]
[illegible]
50%
[illegible]
b
t

[illegible] 30 m-[illegible] (9.8.1(a))॥ [illegible] (9.8.7)॥

[illegible]: 75 mm ≤ b ≤ [illegible] (9.8.2(a))
[illegible] ≥ 4 × [illegible] (9.8.2(b))
[illegible] ≤ 1.0 m/s,
50% [illegible] (9.8.2(c))
[illegible] (Kirschmer): $h_r = \beta (t/b)^{4/3} (V^2/2g) \sin\theta$;
β = 2.42 [illegible], 1.79 [illegible] (9.8.3)
HGL [illegible] 50% [illegible] (9.8.3)
[illegible] t, [illegible]

[illegible] 9B.3 — [illegible]: [illegible], CIRIA, Culvert, screen and outfall manual, C786 (2019), [illegible] CPHEEO, Manual on Storm Water Drainage Systems (2019), §8.3.1.3-[illegible]॥



[illegible]: [illegible] ([illegible])
[illegible]: [illegible] (9.7.4)॥ [illegible] (9.7.1(b), (d))॥
[illegible] 1% AEP-[illegible] (9.7.6); [illegible] 0.2% AEP-[illegible]
[illegible]
[illegible] + 0.3 m [illegible] (9.7.6)
[illegible]
[illegible]
[illegible] (9.7.8)
[illegible] ([illegible] 2; 9.7.2, 9.7.3)
[illegible] ≥ 50 mm, [illegible]: [illegible] ≥ 10 × [illegible] (9.7.1(c), 9.8.5)
[illegible] / [illegible] (9.7.5, 9.10); [illegible] (9.6, [illegible] 9.2)
[illegible]: [illegible] (9.7.7)
[illegible]॥

[illegible] 9B.4 — [illegible]: [illegible], Kansas City Metro APWA, Section 5600 (2006, 5608.4)-[illegible]॥

[illegible] 9B.1 — [illegible]

[illegible]	[illegible]	[illegible]	[illegible]
9B.1	[illegible]	900 mm [illegible], [illegible] 900 mm × 900 mm [illegible]	6.12.5
9B.1	[illegible] AEP-[illegible]	HW/D ≤ 1.2; [illegible] 0.3 m [illegible]	9.4.5
9B.1	[illegible]	[illegible] 9.1-[illegible] ([illegible] 30°–75°-[illegible] 0.4)	9.4.3
9B.1	[illegible]	[illegible]	9.4.8(c)
9B.1	[illegible]	[illegible]	9.4.8(a)

ꯗ꯭ꯔꯣꯏꯡ	ꯑꯥꯏꯇꯦꯝ	ꯗꯥꯏꯃꯦꯟꯁꯟ ꯅꯠꯔꯒꯥ ꯔꯨꯜ	ꯀ꯭ꯂꯣꯖ
9B.1	ꯍꯦꯗꯋꯣꯜꯁꯤꯡ, ꯋꯤꯡꯋꯣꯜꯁꯤꯡ, ꯀꯠ-ꯑꯣꯐ ꯋꯣꯜꯁꯤꯡ	ꯃꯊꯩ ꯌꯥꯏ; ꯗꯥꯏꯃꯦꯟꯁꯟꯁꯤꯡ ꯁꯇꯦꯟꯗꯔꯗ ꯀꯟꯐꯣꯔꯝ ꯇꯧꯒꯗꯕꯅꯤ	9.4.9
9B.1	ꯂꯝꯕꯤꯒꯤ ꯃꯊꯛꯇ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯕ	Qr = Cd · L · h^1.5, Cd ≤ 1.66	9.4.6
ꯃꯃꯤ 9.2	ꯔꯤꯞꯔꯦꯞ ꯑꯦꯞꯔꯟ	ꯑꯥꯎꯠꯂꯦꯠꯇ ꯄꯥꯛ ≥ 3D, ꯍꯦꯂꯦꯜ ꯏꯁ꯭ꯂꯕ ꯄꯥꯛꯇꯔꯒꯛꯂꯥꯛ; ꯑꯣꯡꯕ ꯑꯃꯁꯨꯡ ꯀꯤꯒꯂꯦꯠ ꯇꯦꯕꯜ 9.3-ꯗꯒꯤ; ꯐꯤꯜꯇꯔ ꯅꯠꯔꯒꯥ ꯖꯤꯑꯣꯇꯦꯛꯁꯇꯥꯏꯜ	9.6.3, 9.6.4
9B.2	ꯄꯕ꯭ꯂꯤꯛ ꯈꯥꯡꯕꯟ (drain) ꯑꯃꯗ ꯚꯔꯇꯤꯀꯦꯜ ꯗ꯭ꯔꯣꯞ ꯑꯃꯏꯡꯇ	ꯑꯋꯥꯡꯕ h ≤ 1.5 m; ꯑꯦꯖ ꯗ꯭ꯔꯣꯄꯦꯒꯟ	9.6.6(c), 6.13.8
9B.2	ꯄꯨꯜꯒꯤ ꯖꯤꯑꯣꯃꯦꯠ꯭ꯔꯤ	D = q²/(g h³); Ld/h = 4.30 D^0.27; Yp/h = 1.00 D^0.22; y1/h = 0.54 D^0.425; y2/h = 1.66 D^0.27	9.6.6(a)
9B.2	Ld-ꯒꯤ ꯃꯅꯨꯡꯗ ꯂꯩꯕ ꯕꯦꯁꯤꯟ, ꯑꯦꯟꯗ ꯁꯤꯜ	ꯁꯇꯦꯟꯗꯔꯗ ꯀꯟꯐꯣꯔꯝ ꯇꯧꯒꯗꯕ (HEC-14 ꯅꯠꯔꯒꯥ US ꯕ꯭ꯌꯨꯔꯣ ꯑꯣꯐ ꯔꯤꯀꯂꯦꯃꯦꯁꯟ)	9.6.6(b)
9B.3	ꯀꯗꯥꯏꯗ ꯃꯊꯩ ꯌꯥꯕꯒꯦ	ꯑꯥꯞꯔꯟ ꯈꯥꯡꯕꯟ ꯑꯃꯇꯦ 30 m-ꯗꯒꯤ ꯍꯦꯡꯕ ꯃꯦꯗ꯭ꯔꯨꯏꯌ, ꯃꯒꯗ ꯌꯥꯗꯕ ꯈꯥꯡꯕꯟ ꯅꯠꯔꯒꯥ ꯃꯜꯒꯗꯌ ꯑꯃꯗ ꯔꯃꯇꯤꯕ ꯃꯐꯝꯗ	9.8.1(a)
9B.3	ꯀ꯭ꯂꯤꯔꯗ ꯕꯗ ꯇ꯭ꯔꯣꯇꯤꯡ b	75 mm-ꯗꯒꯤ ꯄꯦꯀꯗꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯗ꯭ꯔꯨꯏꯌꯃꯤ ꯏ꯭ꯕꯏꯗꯒꯤ ꯑꯔꯤꯒꯔ ꯏꯦꯡꯗꯔꯦꯜ ꯗꯥꯏꯃꯦꯟꯁꯅꯒꯤ ꯌꯞꯁꯤꯏꯗꯒꯤ ꯄꯦꯁꯗꯕ	9.8.2(a)
9B.3	ꯒꯗ꯭ꯗꯂ ꯗꯦꯒ ꯑꯦꯗꯤꯌ	ꯃꯦꯗ꯭ꯔꯨꯏꯌ ꯑꯦꯗꯤꯌꯒꯤ ꯌꯤꯝꯗ꯭ꯔꯕꯗ ꯌꯨ 4	9.8.2(b)
9B.3	ꯗꯦꯒꯃꯤ ꯅꯨꯌꯇꯨꯡꯗ ꯒꯦꯂꯂꯤꯇꯤ	50% ꯕ꯭ꯂꯥꯒ ꯑꯥꯏꯗꯒꯤ ꯁꯤꯂꯏꯟ ꯐ꯭ꯂꯥꯗ 1.0 m/s-ꯗꯒꯤ ꯄꯦꯁꯗꯕ	9.8.2(c)
9B.3	ꯏꯦꯒꯂꯤꯂꯦꯟ	ꯅꯨꯌꯂꯦ ꯗꯦꯒ ꯂꯤꯂꯤꯦꯂꯅꯨꯂꯦ ꯂꯦꯡꯗꯥꯃꯀ ꯐꯖꯐꯗ 1V:2H-ꯗꯒꯤ ꯄꯦꯦꯂꯦ ꯑꯇꯐꯗꯕ; ꯌꯗꯃꯤꯡ ꯀ꯭ꯂꯦꯌꯖꯥꯗꯝ ꯑꯃꯁꯨꯡ ꯄꯦꯁꯗꯗꯦꯜ	9.8.2(d)
9B.3	ꯄꯦꯗ ꯂꯥꯟ ꯑꯃꯁꯨꯡ ꯕ꯭ꯂꯥꯒ ꯑꯥꯏꯗꯕ ꯌꯦꯒ	Kirschmer-ꯒꯤ ꯏꯃ꯭ꯌꯦꯟ; 50% ꯕ꯭ꯂꯥꯒ ꯑꯥꯏꯗꯒꯤ HGL ꯑꯃꯁꯨꯡ ꯄꯦꯗꯌꯥꯏꯗ ꯌꯦꯒ ꯇꯣꯕ	9.8.3
9B.3	ꯑꯥꯊꯗꯐ꯭ꯂꯥ ꯑꯃꯁꯨꯡ ꯂꯦꯐꯇꯤ	ꯃꯀ꯭ꯂꯨꯡ ꯐꯥꯂꯦ ꯕ꯭ꯂꯥꯒ ꯑꯥꯏꯗꯕ ꯗꯦꯒ ꯑꯃꯒꯤꯗꯃꯒ ꯑꯥꯊꯗꯐ꯭ꯂꯥ ꯗ꯭ꯂꯨꯌ; ꯃꯀ꯭ꯂꯨꯡ ꯐꯥꯕ ꯄꯏꯗ꯭ꯗꯥꯂ꯭ꯇꯣꯇꯤꯒ ꯂꯥꯗꯒꯤꯗꯃꯒ ꯁꯤꯂꯏꯟ ꯇꯣꯕ	9.8.4, 9.8.7
9B.4	ꯂꯥ-ꯐ꯭ꯂꯥ ꯑꯥꯗꯤꯐꯤꯂ	50 mm-ꯗꯒꯤ ꯑꯀꯤꯒꯀꯕ; ꯑꯥꯗꯤꯐꯤꯂꯗꯒꯤ ꯑꯀꯤꯒꯀ ꯑꯥꯀꯂꯤꯡꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯥꯗꯤꯐꯤꯂꯃꯤ ꯑꯦꯗꯤꯌꯒꯤ ꯌꯤꯝꯗ꯭ꯔꯕꯗ ꯌꯨ 10 ꯑꯥꯏꯕ ꯑꯥꯀꯦ ꯑꯦꯗꯤꯌ ꯂꯩꯕ ꯇ꯭ꯔꯗꯦꯂ ꯂ꯭ꯃꯗꯤꯦ	9.7.1(c), 9.8.5
9B.4	ꯑꯥꯗꯤꯐꯤꯂ ꯑꯃꯁꯨꯡ ꯌꯤꯌꯗ ꯐ꯭ꯂꯥ	Q = Cd · A · (2gh)^0.5, ꯂꯗꯀ-ꯑꯦꯜ ꯂꯩꯕꯗ Cd = 0.60; ꯀ꯭ꯂꯣꯖ 9.7.3-ꯒꯤ ꯌꯤꯌꯗ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠꯁꯤꯡ	9.7.2, 9.7.3
9B.4	ꯂ꯭ꯄꯦꯜ–ꯗꯤꯂꯌꯗꯜ ꯗꯦꯄꯤꯡ	ꯂ꯭ꯄꯦꯜ ꯅꯨꯗꯤꯡꯐꯒꯄ ꯇꯥꯃꯀ ꯌꯕ ꯃꯦꯇ꯭ꯗꯥꯜ ꯅꯨꯗꯤꯡꯐꯒꯃꯤ ꯏ꯭ꯕꯏꯗꯒꯤ ꯑꯀꯤꯒꯀ ꯗꯤꯂꯌꯗꯜ	9.7.4
9B.4	ꯑꯦꯟꯄꯤ-ꯒꯥꯗꯄꯦꯒꯂ ꯀ꯭ꯂꯦꯌ	ꯗꯥꯏꯂꯗꯒꯤ ꯃ꯭ꯗꯦꯂꯌꯃꯤ ꯐꯇꯒꯄ ꯁꯤꯂꯏꯟ ꯄꯦꯗ ꯑꯂꯤ ꯗꯥꯏꯂꯗꯒꯤ ꯗꯥꯏꯐꯤꯄꯗꯗꯒꯤ ꯄꯦꯟꯕ ꯐꯖꯐꯗ	9.7.8
9B.4	ꯀꯟꯒꯤ (embankment) ꯅꯨꯌꯇꯨꯡꯗ ꯌꯌꯀ ꯑꯧꯊꯌꯂꯦꯌ ꯀꯥꯏꯀ	ꯐꯤꯜꯇꯔ ꯗꯥꯏꯌꯐ꯭ꯗꯤꯝ ꯅꯠꯔꯒꯥ ꯂꯤꯀꯦꯜ ꯃꯥꯂꯗꯂꯤꯡ; ꯐ꯭ꯂꯦꯌꯗ ꯇꯣꯗꯕ ꯅꯠꯔꯒꯥ ꯄꯦꯗꯔꯥꯜ ꯂꯩꯕ ꯏꯟꯂꯦꯌ	9.7.7
9B.4	ꯐ꯭ꯂꯦꯀ ꯒꯦꯌ ꯅꯠꯔꯒꯥ ꯂꯟ-ꯗꯤꯄꯗꯟ ꯒꯥꯂꯒ	ꯏꯂꯤꯡ ꯂꯩꯕ ꯏꯂꯤꯡ ꯑꯃ꯭ꯁꯨ ꯑꯧꯊꯌꯂꯦꯌꯃꯤ ꯐꯇꯒꯄ ꯌꯡꯏꯌꯀ ꯌꯕ ꯐꯖꯐꯗ	9.7.5, 9.10
9B.4	ꯏꯐꯗꯂꯦꯟꯂꯤ ꯂ꯭ꯀꯤꯜꯌꯦ	ꯀ꯭ꯗꯥꯏꯐꯗꯤ ꯑꯧꯊꯌꯂꯦꯌ ꯕ꯭ꯂꯥꯒ ꯑꯥꯏꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯕꯦꯂꯤꯟ ꯇꯟꯂꯒꯤ, ꯀꯟꯒꯤ ꯃ꯭ꯗꯦꯂ꯭ꯌ ꯍꯦꯡꯕ 0.3 m ꯐ꯭ꯗꯤꯕꯥꯗꯗꯒꯤ ꯂꯥꯌꯂꯂꯦ 1% AEP-ꯒꯤ ꯏꯟꯐ꯭ꯂꯥ ꯀ꯭ꯇꯥꯃꯏ; ꯄꯏ-ꯄꯂꯥꯗꯗ ꯕꯦꯂꯤꯟꯂꯤꯡꯒꯤꯗꯃꯒ 0.2% AEP ꯌꯦꯒ	9.7.6

ꯀꯥꯡꯂꯨꯞ	ꯑꯥꯏꯇꯦꯝ	ꯏꯟꯐꯣꯔꯃꯦꯁꯟ ꯂꯩꯕꯥꯛ ꯃꯐꯝ	ꯁꯦꯛꯁꯟ
ꯈꯨꯗꯝ	ꯁꯔꯨꯛꯀꯤ ꯏꯟꯐꯣꯔꯃꯦꯁꯟ, ꯗꯤꯖꯥꯏꯟ ꯃꯥꯡꯒꯤ ꯊꯕꯛ, ꯕꯦꯟꯆꯃꯥꯔꯛ, ꯑꯁꯤ ꯈꯟꯅꯕ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ ꯅꯤꯡꯊꯤꯕ	ꯗꯤꯖꯥꯏꯟ ꯃꯦꯊꯗ ꯌꯥꯑꯣꯕ	9.1.2

ꯑꯍꯦꯟꯕ 9C — ꯏꯁꯤꯡ ꯊꯝꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯊꯕꯛ ꯄꯥꯡꯊꯣꯛꯄꯒꯤ ꯆꯦꯛꯁꯤꯟꯕ

ꯁꯔꯨꯛ 9-ꯒꯤ ꯁꯦꯛꯁꯟ 9.8.6, 9.9 ꯑꯃꯁꯨꯡ 9.10, ꯁꯔꯨꯛ 6-ꯒꯤ ꯁꯦꯛꯁꯟ 6.10.5 ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 5-ꯒꯤ ꯑꯥꯎꯇꯐꯣꯜ (outfall) ꯂꯃꯖꯤꯡꯕ ꯈꯟꯅꯒꯤ ꯄꯦꯡꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯄꯥꯕꯤꯌꯨ꯫

9C.1 ꯗꯤꯖꯥꯏꯟ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ

ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ ꯑꯁꯤ ꯁꯦꯛꯁꯟ 9.14, ꯑꯥꯏꯇꯦꯝ 6-ꯒꯤ ꯏꯁꯤꯡ ꯊꯝꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯥꯝꯕꯩꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅꯥ ꯂꯧꯅꯕꯤꯌꯨ꯫

ꯇꯦꯕꯜ 9C.1 — ꯏꯁꯤꯡ ꯊꯝꯕꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄꯦꯔꯥꯃꯤꯇꯔꯁꯤꯡ

No.	ꯑꯥꯏꯇꯦꯝ	ꯃꯃꯜ ꯌꯥꯕ	ꯁꯦꯛꯁꯟ	ꯁꯤꯖꯤꯟꯕ (ꯍꯣꯌ / ꯅꯠꯇꯦ / ꯂꯩꯇꯦ)
1	ꯏꯁꯤꯡ ꯅꯣꯡꯀꯤ ꯃꯃꯜ ꯌꯥꯕ	ꯑꯍꯥꯅꯕ ꯅꯣꯡꯆꯨ ꯁꯔꯨꯛ 5 ꯑꯃꯁꯨꯡ 6 ꯃꯇꯨꯡ ꯏꯟꯅꯥ; ꯃꯇꯝ ꯍꯟꯗꯥ	9.9.1	
2	ꯅꯣꯡꯖꯨ	ꯀꯦꯆꯃꯦꯟꯇ (catchment) ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯂꯝꯕ ꯃꯔꯝ ꯅꯥꯕ ꯀꯥꯟꯅꯕ ꯁꯔꯨꯛꯀꯤ ꯂꯩꯐꯝ ꯃꯇꯨꯡ ꯌꯥꯕ ꯅꯣꯡꯖꯨ ꯍꯅꯁꯤꯅꯕ	9.9.2	
3	ꯗꯤꯖꯥꯏꯟ ꯁꯔꯨꯛꯀꯤ	ꯁꯦꯕ ꯌꯥꯕꯤꯕ ꯑꯦꯅꯤꯃꯦꯟꯇꯀꯤ ꯗꯤꯖꯥꯏꯟ AEP; ꯑꯦꯛꯁꯤꯗꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯇꯝꯗꯥ, 1% AEP ꯄꯦꯡꯒꯥ ꯂꯣꯌꯅꯅꯥ 2% AEP	9.9.2(a), 6.10.5(a)	
4	ꯌꯣꯅꯥꯡ ꯑꯥꯎꯇꯂꯦꯠ	ꯌꯣꯅꯥꯡ-ꯂꯣꯛ (tidal lock: ꯌꯣꯅꯥꯡ ꯌꯦꯡꯕꯅꯤ ꯑꯥꯎꯇꯂꯦꯠ ꯊꯤꯡꯖꯤꯟꯕ) ꯈꯨꯗꯝꯂꯣꯏꯅꯕ ꯑꯥꯎꯇꯂꯦꯠ ꯊꯦꯡꯅꯕ ꯑꯣꯏꯕ ꯁꯔꯨꯛ ꯑꯃꯁꯨꯡ ꯏꯁꯤꯡꯁꯤꯡꯗꯥ 48 h-ꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯀꯣꯡꯐꯝ ꯊꯝꯅꯤꯡꯅꯤ (ꯗꯤꯖꯥꯏꯟ: ꯍꯧꯖꯤꯛꯇꯒꯤ 6 h-ꯒꯤ ꯃꯇꯝ ꯌꯣꯅꯥꯡ ꯑꯣꯏ)	9.9.2(b), ꯁꯔꯨꯛ 5	
5	ꯍꯥꯟꯒꯤ ꯏꯁꯤꯡ	ꯈꯣꯡꯊꯥꯡꯒꯤ ꯅꯥꯏꯕ ꯌꯥꯎꯔꯤꯕꯒꯤ (tailwater) ꯃꯌꯥꯏꯗꯥ ꯈꯣꯡꯊꯥꯡꯒꯤ ꯅꯥꯏꯕ ꯁꯃꯀ ꯅꯥꯡꯊꯣꯛꯒꯤ ꯈꯣꯡꯊꯥꯡꯒꯤ ꯌꯦꯡꯕ ꯌꯥꯎꯔꯤꯕ (HAT + ꯁꯔꯨꯛ + 0.3 m) ꯂꯧꯕꯒꯤ ꯃꯇꯨꯡꯗꯥ ꯏꯁꯤꯡꯁꯤꯡ ꯍꯥꯏꯕ; ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯁꯔꯨꯛ ꯀꯥꯡꯁꯤꯡ ꯁꯕꯃꯥꯛ ꯌꯥꯕ	9.9.2(c), 9.14	
6	ꯌꯦꯛ-ꯌꯥꯡ ꯊꯥꯛ	ꯃꯍꯤꯛꯁꯤꯡꯒꯤ ꯃꯇꯝ ꯈꯣꯡꯊꯥꯡꯒꯤ ꯌꯥꯎꯕ: ꯃꯅꯤꯃꯆ ꯅꯣꯡꯖꯨꯒꯤ ꯃꯅꯤꯠ 5 (ꯊꯥꯗꯣꯀꯄ ꯁꯤꯡꯕꯥ ꯑꯃꯁꯨꯡ ꯑꯣꯡꯃꯥꯡꯒꯤ ꯀꯣꯟꯁꯤꯡꯅ); ꯏꯗꯥ ꯅꯣꯡꯖꯨꯒꯤ ꯃꯅꯤꯠ 10-ꯗꯒꯤ 15, ꯅꯠꯇꯦ ꯃꯥꯂꯦꯝꯄꯥꯛꯀꯤ ꯃꯅꯤꯃꯆ ꯁꯥꯅꯕ ꯊꯥꯛ; ꯀꯣꯟꯁꯦꯡ-ꯁꯤꯡꯗ ꯏꯁꯤꯡ ꯍꯥꯏꯕꯃꯥꯛꯇꯗꯒꯤ V = Θ · q / 4	9.9.3	
7	ꯈꯨꯟꯒꯤ ꯏꯁꯤꯡꯁꯤꯡ	ꯌꯦꯕ ꯃꯔꯝ ꯁꯅꯕ ꯃꯌꯥꯕ	9.9.4(a)	
8	ꯁꯔꯨꯛꯀꯤ ꯊꯕꯛ	ꯈꯣꯡꯊꯥꯡꯒꯤ ꯌꯥꯎꯕ ꯈꯨꯟꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯌꯥꯝꯗꯅꯕ ꯃꯌꯥꯕ, ꯑꯃꯁꯨꯡ ꯈꯨꯟꯒꯤ ꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯃꯁꯤꯡꯒꯤ 50%-ꯗꯒꯤ ꯍꯦꯟꯗꯕ	9.9.4(b)	
9	ꯑꯔꯣꯏꯕ ꯅꯦꯁꯤꯡ	ꯈꯨꯟꯒꯤ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛꯀꯤ ꯊꯕꯛꯁꯤꯡꯒꯤ ꯂꯧꯁꯤꯡ ꯑꯣꯏꯕ ꯑꯣꯏꯅꯥ ꯑꯃꯗꯒꯤ ꯑꯃꯗꯥ ꯍꯣꯡꯕ	9.9.4(c)	
10	ꯏꯁꯤꯡꯒꯤ ꯃꯌꯥꯝ	ꯁꯦꯟꯁꯔ-ꯍꯥꯏꯗꯔꯤꯛ (ꯅꯦ-ꯁꯦꯛꯁꯟ); ꯁꯦꯛꯁꯟ 9.8.6 ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯁꯥꯡꯕꯥ ꯑꯃꯒꯤ ꯃꯍꯨꯠꯇ ꯅꯥꯏꯕꯃꯥꯛ ꯑꯦꯅꯥꯜꯌꯥꯡ-ꯊꯥꯛ	9.9.5	

No.	[illegible]	[illegible]	[illegible]	[illegible] ([illegible] / [illegible] / [illegible])
11	[illegible]	[illegible] ANSI/HI 9.8; [illegible] 0.6 m ([illegible]) [illegible] 1.0 m ([illegible])	9.9.6	
12	[illegible]	[illegible] 1 m³/s-[illegible] ANSI/HI 9.8 [illegible]	9.9.6	
13	[illegible]	[illegible]; [illegible]; [illegible] 1 m³/s-[illegible]	9.9.7, 9.8.6	
14	[illegible]	[illegible]	9.8.4	
15	[illegible]	[illegible]-[illegible]-[illegible] ([illegible], [illegible])	9.9.8(a)	
16	[illegible]	[illegible]-[illegible]-[illegible]	9.9.8(b)	
17	[illegible]	[illegible], [illegible] 5 [illegible]	9.9.8(c)	
18	[illegible]	[illegible]	9.9.9(a)	
19	[illegible]	[illegible] 72 h, [illegible] 9.9.10-[illegible]	9.9.9(b)	
20	[illegible]	[illegible]	9.9.9(c)	
21	[illegible]	[illegible], [illegible] 1% AEP-[illegible] 0.5 m [illegible]; 1% AEP-[illegible]	9.9.10	
22	[illegible]	[illegible], [illegible]-[illegible]; [illegible]-[illegible]; [illegible]	9.9.11	
23	[illegible]	1% AEP-[illegible]-[illegible]; 900 mm [illegible]-[illegible]; [illegible]	9.10.1, 9.10.3, 9.10.4	
24	[illegible]	[illegible], [illegible], [illegible]	9.10.5	
25	[illegible]	[illegible]-[illegible]-[illegible]	9.9.12	
26	[illegible]	[illegible] 9.13-[illegible]; [illegible] 5 km-[illegible] 316, [illegible], [illegible]-[illegible]	9.13	
27	[illegible]	[illegible] 50 [illegible] 25	9.2.4	

No.	ꯑꯍꯣꯡꯕ	ꯃꯇꯧ ꯑꯣꯕ	ꯃꯔꯦꯜ	ꯐꯤꯚꯝ (ꯍꯧꯔ / ꯇꯧꯔꯦ / ꯂꯣꯏꯔꯦ)
28	ꯑꯦꯛꯁꯦꯁ ꯄꯣꯏꯟꯇꯁꯤꯡ	ꯃꯥꯏꯛꯔꯣꯇꯔꯣꯟ ꯀꯥꯞꯆ 150 mm ꯑꯍꯥꯡꯕꯅ ꯀꯥꯞꯆ ꯃꯤꯡꯃꯦꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥꯏꯕꯤꯒ ꯊꯤꯡꯕꯒꯤ ꯂꯤꯛꯇꯥꯛꯂꯤꯡ	6.10.5(d)	
29	ꯂꯦꯄꯇꯤꯡꯃꯥꯂꯦ	ꯅꯕꯁꯥꯔꯥ ꯑꯣꯏꯕ ꯁꯦꯡꯗꯣꯔꯥ ꯑꯃꯁꯨꯡ ꯀꯤꯇꯥꯍꯜ ꯑꯣꯕ ꯑꯃꯁꯨꯡ ꯅꯦꯀꯤꯁꯥꯔꯦꯀꯥꯔꯦ ꯅꯕꯁꯥꯔꯥ ꯑꯣꯏꯕ ꯁꯦꯡꯗꯣꯔꯥ ꯑꯃꯁꯨꯡ ꯍꯥꯏ ꯑꯣꯕ	10.6.1(d), 10.6.4	

9C.2 ꯄꯝꯄꯀꯤꯇꯥꯏ ꯃꯦꯟꯇꯦꯔꯥ ꯂꯤꯇꯦꯜꯂꯤ

ꯃꯁꯤ ꯃꯔꯦꯜ 9.9-ꯗꯥ ꯃꯍꯩꯅ ꯀꯤꯇꯥꯍꯜ ꯑꯣꯏꯕ ꯇꯧꯗꯥꯒꯤ ꯅꯂꯤꯗꯥꯒꯤ (stormwater) ꯁꯃꯕꯤꯕꯤꯡ ꯄꯝꯄꯂꯜ ꯑꯃꯗꯥꯒꯤ ꯄꯝꯄꯀꯤꯇꯥꯏ ꯃꯦꯟꯇꯦꯔꯥ ꯂꯤꯇꯦꯜꯂꯤꯇꯤ꯫ ꯀꯤꯇꯥꯍꯇꯦꯔꯦ ꯃꯁꯤ ꯄꯝꯄꯂꯜ ꯑꯃꯗꯥꯏꯀꯥꯡꯃ ꯃꯦꯇꯇꯍꯦꯇꯤꯇꯦ ꯀꯤꯇꯥꯍꯜ ꯑꯦꯁꯤꯇꯥꯏꯃꯤ ꯇꯍꯇꯦ ꯂꯕꯃꯤꯌ ꯑꯣꯏꯅ꯫ "ꯑꯃꯁꯨꯡꯀꯤ ꯑꯣꯏꯕ" ("recommended") ꯍꯅꯦ ꯃꯦꯗꯥ ꯑꯣꯏꯕ ꯑꯍꯣꯡꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯦꯥ 9-ꯒꯤ ꯃꯇꯧ ꯑꯣꯍꯦꯇꯕ ꯂꯕ ꯁꯦꯥꯗꯣꯏꯂꯦꯇꯤ; ꯑꯣꯏꯁꯔꯕ ꯁꯤꯇꯦꯡꯃꯥꯒꯤ ꯃꯔꯦꯜ ꯑꯃꯁꯨ ꯍꯦꯇꯦ ꯍꯅꯕꯤ꯫

ꯑꯣꯕꯅ 9C.2 — ꯃꯦꯟꯇꯦꯔꯥ ꯇꯥꯒꯥꯛꯂꯤꯡ (ꯒꯥꯛꯅꯂꯤꯡ ꯑꯃꯁꯨ ꯀꯤꯇꯥꯍꯇꯦ ꯇꯥꯛꯂꯁꯕꯇꯤ)

ꯇꯥꯒꯥꯛ	ꯇꯥꯇꯦꯕ ꯂꯛ	ꯃꯔꯦꯜ
ꯁꯝꯄ ꯄꯝꯁ	ꯁꯝꯄ ꯃꯦꯅꯨꯐꯦꯀꯆꯔꯔ ꯑꯃꯁꯨꯡ ANSI/HI 9.8-ꯒꯤ ꯃꯇꯧ ꯑꯣꯏꯅꯇꯤꯕ ꯃꯤꯅꯤꯃꯝ ꯂꯕꯃꯦꯇꯇꯦꯂꯒꯤ ꯃꯍꯩꯅ ꯇꯧꯕꯣꯕ	9.9.6
ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄ 1 ꯄꯣꯔꯦꯇ	ꯁꯝꯄ-ꯄꯣꯁ ꯇꯥꯒꯥꯛꯒꯤ ꯃꯇꯥꯏꯣ ꯌꯦꯃꯗꯦꯕꯅ ꯃꯔꯦꯜ 9.9.3-ꯒꯤ ꯅꯂꯥꯏꯣꯏꯒ ꯍꯣꯍ-ꯍꯥꯛ ꯒꯦꯡ ꯂꯣꯕ	9.9.3
ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄ 2, 3 … ꯄꯣꯔꯦꯇ	ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄ 1 ꯄꯣꯔꯦꯇꯃꯤ ꯃꯇꯥꯏꯣ ꯄꯣꯇ ꯑꯣꯏꯕ; ꯄꯁꯥꯂꯤꯡ ꯀꯤꯇꯥꯍꯦꯅ ꯃꯦꯂꯦꯔꯥ ꯑꯣꯒꯅꯕ	9.9.2
ꯍꯅ-ꯇꯥꯒꯥꯛ ꯑꯥꯔꯦꯥ	ꯅꯕꯅꯅꯒꯤ ꯌꯦꯏꯕ ꯗ꯭ꯌꯨꯇꯤ-ꯁꯝꯄ ꯄꯣꯔꯦꯇ ꯇꯥꯒꯥꯛꯒꯤ ꯃꯇꯥꯏꯣ; ꯀꯤꯇꯥꯍꯦꯅ ꯃꯦꯂꯦꯔꯥ ꯑꯣꯒꯅꯕ	9.9.8(b)
ꯂꯦꯇꯦꯜ ꯕꯥꯏ-ꯑꯁ ꯍꯅ	ꯅꯦꯀꯤꯁꯥꯔꯦꯀꯥꯔꯦ ꯂꯦꯇꯦꯜ; ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄꯁꯂꯤꯡ ꯑꯍꯅꯇꯤ	9.9.8(a)
ꯂꯦꯇꯦꯜ ꯕꯥꯏ-ꯑꯁ ꯇꯦ	ꯅꯦꯀꯤꯁꯥꯔꯦꯀꯥꯔꯦ ꯂꯦꯇꯦꯜ; ꯁꯝꯄꯂꯤꯡ ꯇꯁꯍꯅꯇꯤ	9.9.8(a)

1. **ꯇꯦꯃꯍꯥꯛ (ꯑꯦꯁꯥꯍꯁꯤꯗ) ꯑꯦꯁꯃꯥꯄꯥꯂꯥ.** ꯍꯣꯍ-ꯍꯥꯛꯒꯤ ꯇꯥꯒꯥꯛ ꯑꯃꯁꯨ ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄ 1 ꯄꯣꯔꯦꯇ ꯇꯥꯒꯥꯛ ꯂꯦꯍꯕ ꯌꯦꯗꯅꯍꯇꯃꯁꯃꯥ, ꯇꯤꯀ ꯁꯝꯄ ꯑꯃꯁꯨ ꯑꯣꯏꯅ꯫ ꯇꯥꯒꯥꯛ ꯑꯃꯁꯨ ꯃꯍꯩ ꯍꯦꯇꯦ ꯌꯦꯗꯅꯍꯇꯕꯀꯤ, ꯃꯇꯗꯒꯤ ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄ ꯅꯀꯤꯗꯃꯥ ꯃꯦꯗꯒꯤ ꯄꯣꯔꯦꯇ ꯇꯥꯒꯥꯛꯀ ꯑꯣꯏꯅ꯫ ꯇꯥꯒꯥꯛ ꯑꯃꯁꯨ ꯁꯝꯄ-ꯄꯣꯁ ꯇꯥꯒꯥꯛ ꯂꯦꯍꯕ ꯑꯦꯇꯇꯦꯃꯃꯁꯃꯥ ꯁꯝꯄꯂꯤꯡ ꯇꯁꯅ꯫ ꯁꯦꯅꯃꯦꯤ ꯇꯥꯒꯥꯛ ꯄꯥꯂꯥꯄꯦꯇꯦ ꯂꯤꯗꯍꯥꯄ ꯑꯃꯁꯨ ꯃꯦꯟꯇꯦꯔꯥ ꯑꯣꯅ (ꯃꯔꯦꯜ 9.9.8(a))꯫
2. **ꯗ꯭ꯌꯨꯇꯤ ꯑꯣꯄꯥꯂꯥ.** ꯗ꯭ꯌꯨꯇꯤ ꯑꯃꯁꯨꯡ ꯄꯣꯔꯦꯇꯕꯅꯒꯤ ꯇꯤꯀꯗꯂꯤꯡ ꯑꯃꯀꯒꯤ ꯑꯃꯀ ꯍꯗꯇꯦꯕ ꯑꯃꯁꯨꯡ ꯄꯗꯁ ꯑꯃꯁꯨ ꯍꯥꯂꯦꯕ, ꯇꯤꯀ ꯁꯝꯄ ꯑꯃꯁꯨ ꯁꯝꯄ-ꯀꯤꯂꯦ ꯄꯅꯃꯥ ꯅꯀꯤꯗꯃꯥꯃꯤ ꯃꯦꯗꯀ ꯇꯍꯦꯒꯤ ꯀꯤꯇꯥꯍꯦꯀ ꯇꯥꯇꯤꯕ ꯃꯦꯗ ꯅꯦꯇ ꯍꯇꯅꯦꯕ ꯁꯗꯂꯤꯗꯇꯦ ꯑꯦꯁꯥꯍꯁꯤꯗ ꯑꯦꯅꯇꯦ ꯍꯗꯅ (ꯃꯔꯦꯜ 9.9.4(c))꯫
3. **ꯁꯝꯄ ꯂꯦꯅꯍ.** ꯑꯣꯦꯁ ꯑꯣꯏꯕ ꯇꯍꯦꯒꯤ ꯍꯕ ꯇꯃꯀꯕ ꯁꯝꯄ ꯑꯃꯀꯕ ꯍꯇꯦꯅꯕ ꯌꯦꯀꯇꯦꯕ ꯇꯤꯗꯇꯤꯅꯇꯤ꯫ ꯂꯗꯕ ꯌꯦꯕ ꯃꯇꯗꯒꯤ ꯁꯝꯄ, ꯄꯣꯔꯦꯇꯅ ꯁꯝꯄ ꯌꯦꯂꯦ, ꯑꯂꯤꯇꯦ ꯃꯂꯤꯒꯤ ꯃꯍꯂꯍ ꯇꯅ, ꯑꯃꯁꯨꯡ ꯑꯣꯇꯤꯃꯥꯑꯣꯦꯤꯇꯦ ꯁꯝꯄ-ꯂꯦꯅꯍ ꯑꯥꯔꯦꯥ ꯑꯃꯁ ꯇꯅ (ꯃꯔꯦꯜ 9.9.4(b) ꯑꯃꯁꯨꯡ 9.9.8(b))꯫
4. **ꯇꯥꯒꯥꯛ-ꯄꯥꯂꯥꯄꯦ ꯂꯥꯇꯤꯍꯦ.** ꯁꯦꯅꯃꯦꯤ ꯄꯥꯂꯥꯄꯦ ꯑꯃꯁ ꯂꯥꯛ ꯑꯣꯏꯕꯀꯤ, ꯇꯍꯦꯒꯤ ꯂꯦꯇꯦꯜ ꯄꯍꯤꯍꯂꯤꯗꯒꯤ ꯃꯦꯇꯦꯀꯦꯕꯀꯤ, ꯃꯦꯟꯇꯦꯔꯥ ꯑꯃꯁꯨ ꯅꯦꯀꯤꯁꯥꯔꯦꯀꯥꯔꯦ ꯂꯦꯇꯦꯜ ꯕꯥꯏ-ꯑꯁꯑꯣ ꯍꯍꯇꯃꯅ: ꯂꯦꯇꯦꯜ-ꯍꯅ ꯇꯥꯒꯥꯛꯀ ꯗ꯭ꯌꯨꯇꯤ ꯁꯝꯄꯂꯤꯡ ꯍꯇꯅ, ꯑꯃꯁꯨꯡ ꯂꯦꯇꯦꯜ-ꯇꯦ ꯇꯥꯒꯥꯛꯀ ꯃꯍꯦꯍ ꯇꯁꯅ꯫ ꯑꯥꯔꯦꯥ ꯑꯃꯁ ꯇꯅ (ꯃꯔꯦꯜ 9.9.8(a), (b))꯫
5. **ꯁꯦꯍꯦ ꯂꯥꯇꯤꯍꯦ.** ꯄꯁꯇꯅ ꯑꯃꯁꯨ ꯄꯝꯄꯀꯕꯅ ꯇꯇꯥꯑꯣꯦ ꯇꯍꯦꯒꯤ ꯑꯇꯤꯂꯕ ꯂꯤꯀꯦꯀ ꯑꯦꯁꯥꯍꯁꯤꯗ ꯑꯦꯅꯇꯦ ꯍꯗꯅ (ꯃꯔꯦꯜ 9.9.9(c))꯫ ꯑꯃꯃꯍꯥꯂꯥ ꯑꯣꯏꯕ: ꯇꯇꯥꯑꯣꯦꯀ ꯍꯕꯒꯤ ꯇꯀ ꯇꯤꯃꯤꯍ ꯑꯣꯇꯕ, ꯍꯥꯂꯦꯇꯑꯒꯦꯒꯤ ꯃꯍꯂꯀ ꯁꯝꯄꯂꯤꯡ ꯑꯃꯃꯃ ꯍꯦꯇꯦ ꯍꯅ꯫
6. **ꯍꯅ ꯇꯥꯒꯥꯛ.** ꯍꯅ-ꯇꯥꯒꯥꯛ ꯑꯥꯔꯦꯥ ꯇꯥꯒꯥꯛꯀ ꯑꯣꯇꯤꯃꯥꯑꯣꯦꯤꯇꯦ ꯇꯃꯅ ꯕꯀꯤꯒꯤ ꯃꯦꯟꯇꯦꯔꯥ ꯂꯛꯀ ꯑꯥꯔꯦꯥ ꯑꯃꯁ ꯇꯅ (ꯃꯔꯦꯜ 9.9.8(b))꯫ ꯑꯦꯛꯁꯦꯁ ꯑꯃꯀ, ꯃꯥꯏꯛꯔꯣꯇꯔꯣꯟ ꯀꯥꯞꯆ 150 mm ꯑꯍꯥꯡꯕꯅ ꯌꯦꯇꯤꯗ ꯇꯍꯦꯒꯤ ꯇꯤꯗꯕꯒꯤ ꯂꯤꯛꯇꯥꯛꯂꯤꯡ ꯍꯇꯅꯅ (ꯃꯔꯦꯜ 6.10.5(d))꯫

7. **ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯦꯞꯁꯤꯡ.** ꯀꯅꯥꯏꯕ ꯍꯣꯠꯅꯕꯗꯥ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ (flap gate) ꯑꯃꯁꯨꯡ ꯑꯌ-ꯀꯥꯏꯔꯕ ꯀꯣꯀ ꯇꯧꯒꯗꯕ ꯁꯦꯡꯗꯣꯀꯄ ꯍꯩꯕꯒ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯅꯥꯏꯕ ꯇꯧꯒꯗꯅ (ꯁꯦꯛꯁꯟ 9.9.11)॥ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠꯁꯤꯡ ꯑꯁꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯑꯣꯏꯕ ꯌꯥꯗꯕ ꯄꯥꯝꯅꯕ ꯁꯤꯐꯥꯏꯗꯕꯤꯡ ꯍꯣꯠꯅ ꯄꯨꯔꯀꯗꯅ ꯑꯃꯁꯨꯡ ꯇꯧꯒꯅ॥ ꯍꯥꯌꯔ ꯇꯧꯕ ꯍꯐꯃꯒꯤ ꯁꯤꯡꯂꯣꯟꯗ ꯑꯃꯁꯨꯡ ꯂꯣꯟꯁ ꯇꯥꯒꯤꯕ ꯑꯁꯤ ꯍꯤꯡꯂꯣꯏꯗꯕꯒꯤꯁꯍꯥ ꯅꯥꯔꯥꯍꯥ, ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ ꯄꯨꯁꯤꯟꯅꯒꯤ ꯇꯝ ꯑꯣꯅꯕꯕꯁꯤ, ꯇꯧꯅ (ꯁꯦꯛꯁꯟ 9.10.3)॥ ꯀꯨꯛꯍꯦꯟ ꯌꯥꯕꯕ: ꯁꯤꯡꯂꯣꯟꯗ ꯆꯐꯝ ꯑꯁꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅ ꯁꯤꯡꯈꯠꯂꯕ ꯁ꯭ꯂꯦꯇꯤ ꯑꯃꯁꯨꯡ ꯇꯥꯒꯤ ꯌꯥꯅ॥

8. **ꯌꯥꯅꯁꯤ ꯇꯥꯕ ꯌꯥꯕꯕ ꯑꯣꯁꯀꯣꯂ.** ꯑꯥꯎꯠꯂꯦꯠ ꯑꯁꯤ ꯌꯥꯅꯁꯤ ꯇꯥꯕ ꯌꯥꯕꯕ ꯍꯐꯃꯁ, ꯂ꯭ꯌꯥꯀꯇ ꯑꯃꯁꯨꯡ ꯁꯃꯁ ꯌꯥꯕ ꯁ꯭ꯂꯦꯇꯤ ꯌꯥꯅꯁꯤ-ꯇꯥꯕ ꯁ꯭ꯔꯨꯀꯣꯂꯒꯤꯁꯍꯥ 48 h-ꯒꯤ ꯁꯤꯇꯤꯅꯂ ꯀꯅ꯭ꯂꯝ ꯇꯍꯇꯤꯟꯇꯤ (ꯁꯦꯛꯁꯟ 9.9.2(b) ꯑꯃꯁꯨꯡ ꯂꯦ꯭ꯕꯥ 5)॥ ꯂ꯭ꯌꯣꯂ ꯑꯁ꯭ꯂꯁ ꯒꯦ꯭ꯀꯒꯤꯌꯤ ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯁꯨ ꯆꯐꯝꯕꯁꯤ, ꯌꯥꯅꯁ ꯄꯂꯇꯀꯁꯃꯁ ꯒꯦ꯭ꯀꯒꯤꯌꯤ ꯁꯤꯂꯔꯀꯇ ꯑꯁꯤ ꯐ꯭ꯂꯦꯞ ꯒꯦꯠꯁꯤ ꯁ꯭ꯂꯦꯇꯥꯅ ꯑꯃ꯭ꯂꯥ ꯄꯂꯇ ꯄꯅ॥

9. **ꯂ꯭ꯁꯦꯀꯤꯂꯣꯂꯤꯕ.** ꯍꯣꯁꯇꯤꯁꯣꯅ ꯑꯣꯅꯇ ꯀꯥꯕ ꯌꯥꯕ ꯂ꯭ꯁꯦꯀꯤꯂꯣꯂꯤꯕ (ꯅꯂꯐ꯭ꯇ 1 m³/s-ꯁꯒꯤ ꯄꯂꯕ ꯍꯐꯃꯁ ꯍꯇ ꯌꯕ, ꯁꯦꯛꯁꯟ 9.8.6) ꯑꯁꯤ ꯑꯌꯍꯌꯤꯕ ꯑꯣꯅꯇ ꯄꯇꯅ॥ ꯀꯨꯛꯍꯦꯟ ꯌꯥꯕꯕ: ꯀꯁꯤꯕ ꯑꯁꯤ ꯌꯥꯅꯍꯀ ꯑꯍꯇ ꯑꯃꯁꯨꯡ ꯂ꯭ꯁꯦꯀꯤꯂꯒꯤ ꯍꯅꯁ ꯑꯇꯤꯍꯕꯁꯤ ꯇꯀꯒꯅ ꯅꯌꯇꯕꯇ ꯄꯄꯅꯇꯤ, ꯅꯌꯇꯕ ꯑꯁ꯭ꯂ ꯄꯕꯇ ꯆꯀꯕꯁꯤ ꯑꯇꯀꯐ ꯑꯍꯒ ꯇꯄꯇꯇ॥

10. **ꯁ꯭ꯂꯌꯇ ꯄꯇꯅꯕ.** ꯀꯨꯛꯍꯦꯟ ꯌꯥꯕꯕ: ꯁꯃꯁ ꯁ꯭ꯂꯁꯤꯕꯍꯕꯌ ꯁꯇꯇꯅꯁ ꯄꯂꯁ–ꯑꯐ–ꯑꯌ ꯂꯇꯕꯌꯀ ꯑꯍ ꯆꯤ, ꯑꯃꯁꯨꯡ ꯄꯂꯁ ꯍꯁꯁ ꯐꯇꯌ ꯕꯕ-ꯑꯁꯁꯤ ꯄꯅ-ꯇꯒꯅ ꯂ꯭ꯌꯀꯌ ꯑꯁꯤ ꯑꯕꯌꯤꯒ ꯑꯅꯇ ꯆꯀꯤ॥

11. **ꯍꯕꯅꯅ ꯁꯃꯁꯁꯂꯤꯕ.** ꯐꯤꯕꯂ ꯌꯥꯕꯕ ꯁꯃꯁꯁꯂꯤꯕ ꯇꯕꯕ ꯌꯥꯕꯕ ꯑꯃꯁꯨꯡ ꯐꯇ ꯍꯔꯕ ꯁꯃꯁꯕ ꯍꯌꯃ, ꯍꯕꯅꯅ ꯁꯃꯁꯁꯂꯤꯕꯇ ꯁ꯭ꯔꯤꯕ-ꯁꯁꯇꯤꯕ ꯁꯇꯕꯂꯑꯒꯤ ꯁ꯭ꯂꯌꯇꯕꯁ ꯁꯇꯤꯒꯀꯤ ꯄꯃꯕꯀꯁ ꯅꯂꯤꯕ ꯇꯁꯁꯁꯅ (ꯁꯦꯛꯁꯟ 9.9.12)॥

12. **ꯀꯁꯁꯀꯁꯂꯤꯕ.** ꯂꯃꯁ ꯇꯒꯅꯂꯤꯕ, ꯁꯃꯁ ꯄꯇꯅꯀꯕ ꯁ꯭ꯂꯕꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯁꯇꯀꯒꯤ ꯐꯤꯒꯃ ꯑꯁꯤ ꯇꯒ ꯌꯅ ꯑꯃꯁꯨꯡ ꯄꯤꯃꯁ꯭ꯀꯕꯁ ꯄꯄꯤ 5 ꯇꯃꯍꯤ (ꯁꯦꯛꯁꯟ 9.9.8(c))॥ ꯀꯨꯛꯍꯦꯟ ꯌꯥꯕꯕ: ꯑꯇꯀꯃꯂꯤꯕ, ꯁꯃꯁ ꯄꯕ ꯑꯃꯁꯨꯡ ꯇꯁꯁꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯄꯍꯇꯑꯒꯀꯂꯤꯕꯂ ꯇꯒ ꯌꯅ॥

13. **ꯌꯂ꯭ꯌꯤꯕ.** ꯁꯍ꯭ꯌꯀꯅꯂꯤꯕ, ꯐꯇꯌꯂꯤꯕ, ꯑꯇꯀꯃꯂꯤꯕ, ꯌꯇꯤꯍ꯭ꯌꯀꯤ, ꯄꯍꯇꯑꯒꯀ ꯑꯃꯁꯨꯡ ꯇꯇꯀꯌꯀ ꯑꯁꯤ ꯂ꯭ꯀꯕ 10-ꯒꯤ ꯁ꯭ꯀꯤ-ꯍꯂ꯭ꯂꯍ ꯅꯂ꯭ꯁꯕꯂꯍꯁ (ꯁꯦꯛꯁꯟ 10.12) ꯌꯂ꯭ꯌ ꯌꯅ, ꯑꯃꯁꯨꯡ ꯀꯤꯇꯅꯌꯂꯤꯕ ꯑꯁꯤ ꯄꯄꯤ ꯁ꯭ꯂꯁꯤꯕꯒꯤ ꯍꯍꯌꯇꯍꯂ ꯁꯤꯕꯇꯀꯂꯍꯁ ꯀꯤꯁꯀꯌ ꯌꯅ (ꯐꯤꯒꯃ 10-7; ꯁꯦꯛꯁꯟ 10.10.3)॥

ꯐꯣꯔꯝ 9-1 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯁ꯭ꯠ꯭ꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

ꯁꯔꯨꯛ 9-ꯒꯤ ꯀ꯭ꯂꯣꯖ 9.14-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯑꯍꯥꯟꯒꯤ ꯁꯤꯖꯤꯟꯅꯅꯕ ꯅꯠꯇꯦ꯫

ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯁꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯁ꯭ꯠ꯭ꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯃꯃꯥꯡꯗ ꯊꯥꯡꯖꯕꯤꯌꯨ꯫ ꯑꯥꯏꯇꯦꯝ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ, ꯍꯣꯌ, ꯅꯠꯇꯦ ꯅꯠꯔꯒꯥ ꯆꯠꯅꯗꯦ, ꯑꯃꯁꯨꯡ ꯃꯗꯨ ꯈꯨꯠꯂꯤꯕ ꯗ꯭ꯔꯥꯏꯡ ꯅꯠꯔꯒꯥ ꯂꯃꯥꯏ ꯏꯕꯤꯌꯨ꯫

ꯁꯦꯛꯁꯟ A — ꯄ꯭ꯔꯣꯖꯦꯛꯠ

ꯇꯦꯕꯜ 9F.1 — ꯐꯣꯔꯝ 9-1, ꯁꯦꯛꯁꯟ A: ꯄ꯭ꯔꯣꯖꯦꯛꯠ

ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
ꯄ꯭ꯔꯣꯖꯦꯛꯠꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯐꯝ	______
ꯂꯣꯀꯜ ꯕꯣꯗꯤ, ꯑꯃꯁꯨꯡ ꯇꯤꯌꯔ A ꯅꯠꯔꯒꯥ ꯇꯤꯌꯔ B (ꯁꯔꯨꯛ 1)	______
ꯑꯦꯄꯂꯤꯀꯦꯟꯠ	______
ꯗꯤꯖꯥꯏꯅꯔ (ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯦꯖꯤꯁ꯭ꯠ꯭ꯔꯦꯁꯟ)	______
ꯌꯥꯎꯔꯕ ꯁ꯭ꯠ꯭ꯔꯛꯆꯔꯁꯤꯡ (ꯀꯂꯚꯔꯠꯁꯤꯡ, ꯆꯦꯅꯦꯜꯁꯤꯡ, ꯗꯤꯁꯤꯄꯦꯇꯔꯁꯤꯡ, ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ, ꯁ꯭ꯄꯤꯜꯋꯦꯁꯤꯡ, ꯄꯝꯄꯁꯤꯡ, ꯒꯦꯠꯁꯤꯡ, ꯏꯟꯂꯦꯠꯁꯤꯡ, ꯍꯦꯗꯋꯥꯜꯁꯤꯡ)	______
ꯁꯤꯖꯤꯟꯅꯒꯗꯕ ꯇꯥꯏꯗꯦꯂꯒꯤ ꯐꯤꯒꯔꯁꯤꯡ: MHWS, HAT + ꯁꯂꯔ, ꯁꯤ-ꯂꯦꯚꯦꯜ ꯑꯦꯂꯣꯋꯦꯟꯁ, ꯁ꯭ꯇꯣꯔꯝ ꯁꯔꯖ (ꯀ꯭ꯂꯣꯖ 9.2.1)	______
ꯆꯦꯛꯔ ꯑꯃꯁꯨꯡ ꯇꯥꯡꯀꯥꯛ	______

ꯁꯦꯛꯁꯟ B — ꯀ꯭ꯂꯣꯖ 9.14-ꯗꯥ ꯌꯥꯎꯕ ꯃꯇꯥꯡꯒꯤ ꯔꯤꯛꯋꯥꯌꯔꯃꯦꯟꯠꯁꯤꯡ

ꯇꯦꯕꯜ 9F.2 — ꯐꯣꯔꯝ 9-1, ꯁꯦꯛꯁꯟ B: ꯀ꯭ꯂꯣꯖ 9.14-ꯗꯥ ꯌꯥꯎꯕ ꯃꯇꯥꯡꯒꯤ ꯔꯤꯛꯋꯥꯌꯔꯃꯦꯟꯠꯁꯤꯡ

No.	ꯑꯥꯏꯇꯦꯝ	ꯀ꯭ꯂꯣꯖ	ꯐꯤꯚꯝ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)	ꯗ꯭ꯔꯥꯏꯡ ꯅꯠꯔꯒꯥ ꯂꯃꯥꯏ
1	ꯀꯂꯚꯔꯠꯀꯤ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯆꯦꯛꯁꯤꯡ (HDS-5 ꯅꯠꯔꯒꯥ HY-8-ꯒꯤ ꯃꯇꯨꯡꯏꯟꯅ), HWi, HWo, ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤ, ꯇꯦꯂꯋꯥꯇꯔ, ꯑꯣꯚꯔꯇꯣꯞꯄꯤꯡ ꯑꯃꯁꯨꯡ ꯐ꯭ꯔꯤꯕꯣꯔꯗ ꯆꯦꯛ	9.4, 6.12		
2	ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ-ꯏꯚꯦꯟꯇ ꯄ꯭ꯔꯣꯐꯥꯏꯂꯁꯤꯡ, ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯁꯤꯡ	9.5		
3	ꯗꯤꯁꯤꯄꯦꯇꯔꯒꯤ ꯃꯈꯜ ꯈꯟꯕ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ	9.6		
4	ꯆꯦꯅꯦꯂꯒꯤ ꯑꯥꯎꯠꯂꯦꯠꯁꯤꯡ ꯁꯦꯛ–ꯗꯤꯁꯆꯥꯔꯖ ꯄꯦꯇꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯀꯄꯥꯛꯀꯤ ꯁ꯭ꯀꯧꯔ ꯆꯦꯛ	9.7		
5	50% ꯕ꯭ꯂꯣꯀꯦꯖ ꯑꯣꯏꯅꯕ ꯆꯦꯛ ꯃꯇꯨꯡꯗ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯑꯃꯁꯨꯡ ꯗꯦꯕ꯭ꯔꯤꯒꯤ ꯗꯤꯖꯥꯏꯟ	9.8		
6	ꯄꯝꯄꯁꯤꯡ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯗꯤꯇꯦꯜꯁ: ꯅꯦꯇꯋꯥꯔꯛ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯁ, ꯁꯝꯄ, ꯄꯝꯄ ꯑꯃꯁꯨꯡ ꯁꯤꯁ꯭ꯇꯦꯝ ꯀꯔꯚꯁꯤꯡ, ꯁ꯭ꯇꯦꯟꯕꯥꯏ ꯄꯥꯋꯔ, ꯄꯥꯏꯄ ꯁꯥꯏꯖꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 5-ꯒꯤ ꯑꯦꯅꯦꯔꯖꯤ ꯄꯣꯂꯤꯁꯤ ꯆꯦꯛ (ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 9C-ꯗ ꯆꯦꯛꯂꯤ)	9.9		
7	ꯐꯤꯁ-ꯄꯥꯁꯀꯤ ꯃꯥꯏꯀꯩ ꯆꯦꯛꯂꯤ ꯁꯦꯠ ꯑꯃꯁꯨꯡ ꯀꯤꯌꯥꯇ ꯅꯤꯡ	9.10		
8	ꯄꯦꯇꯦꯜ, ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯗꯔꯖꯤꯡꯒꯤ ꯆꯦꯛ ꯗꯤꯇꯦꯜꯁꯤꯡ	9.11		
9	ꯑꯣꯄꯔꯦꯁꯟ ꯗꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯄ꯭ꯂꯥꯟ	9.13		

ꯁꯦꯛꯁꯟ C — ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯆꯦꯛꯁꯤꯡ

ꯇꯦꯕꯜ 9F.3 — ꯐꯣꯔꯝ 9-1, ꯁꯦꯛꯁꯟ C: ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯆꯦꯛꯁꯤꯡ

No.	ꯆꯦꯛ	ꯂꯤꯃꯤꯠ	ꯀ꯭ꯂꯣꯖ	ꯃꯄꯨꯡ ꯐꯥꯏ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)
C1	ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯁꯤꯡꯗ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔ ꯍꯥꯞ꯭ꯆꯔꯦ	ꯀ꯭ꯂꯣꯖ 2.8	9.2.2	
C2	ꯗꯦꯕ꯭ꯔꯤꯁꯅ ꯕ꯭ꯂꯣꯛ ꯇꯧꯕ ꯌꯥꯕ ꯃꯐꯝꯗ ꯕ꯭ꯂꯣꯛ ꯑꯣꯏꯔꯕ ꯐꯤꯚꯝ ꯆꯦꯛ ꯇꯧꯔꯦ; ꯑꯁꯣꯏꯕ ꯂꯧꯕ ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯔꯨꯠ	—	9.2.5	
C3	ꯄꯥꯏꯞ ꯑꯃꯁꯨꯡ ꯕꯣꯛꯁ ꯌꯣꯡꯕꯟꯁꯤꯡ (box drain): ꯗꯤꯖꯥꯏꯟ n (ꯕꯣꯛꯁ ꯌꯣꯡꯕꯟꯁꯤꯡ ≥ 0.015); ꯁꯨꯄꯔꯀ꯭ꯔꯤꯇꯤꯀꯦꯜ ꯄꯥꯏꯞꯁꯤꯡ: ꯁ꯭ꯇꯔꯛꯆꯔ ꯑꯃꯗ ꯖꯝꯞ ꯂꯧꯐꯝ, ꯑꯦꯌꯔ ꯚꯦꯟꯇꯤꯡ	—	9.3.1, 9.3.4	
C4	ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯗ ꯄꯥꯏꯞꯀꯤ ꯁꯥꯏꯖ ꯍꯟꯊꯗꯦ; ꯃꯦꯟꯍꯣꯜ ꯅꯠꯔꯒꯥ ꯖꯉ꯭ꯀꯁꯟ ꯃꯦꯝꯕꯔꯁꯤꯡꯗ ꯍꯛꯄ ꯄꯨꯂꯁꯤꯟꯂꯦ; 90°-ꯗꯒꯤ ꯍꯦꯟꯕ ꯃꯍꯥꯝ ꯍꯣꯡꯆꯛꯄ ꯂꯧꯕꯦ	—	9.3.5	
C5	ꯀꯜꯚꯔꯠꯀꯤ ꯗꯤꯖꯥꯏꯟ ꯍꯦꯗꯋꯥꯇꯔ = HWi ꯑꯃꯁꯨꯡ HWo-ꯒꯤ ꯃꯔꯛꯇ ꯍꯦꯟꯕ ꯑꯗꯨ	—	9.4.1	
C6	ꯗꯤꯖꯥꯏꯟ AEP-ꯗ ꯀꯜꯚꯔꯠꯀꯤ ꯍꯦꯗꯋꯥꯇꯔ	HW/D ≤ 1.2; ꯁꯣꯜꯗꯔꯒꯤ ꯑꯦꯖꯒꯤ ≥ 0.3 m ꯃꯈꯥꯗ	9.4.5	
C7	ꯂꯝꯕꯤꯒꯤ ꯃꯊꯛꯇ ꯏꯁꯤꯡ ꯆꯦꯟꯊꯕꯒꯤ ꯋꯤꯌꯔ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯠ	Cd ≤ 1.66	9.4.6	
C8	ꯀꯜꯚꯔꯠꯀꯤ ꯏꯟꯚꯔꯠꯁꯤꯡ ꯆꯣꯡꯕꯒꯤ ꯕꯦꯗꯒꯥ ꯆꯥꯟꯦꯠ; ꯍꯦꯗꯋꯣꯜꯁꯤꯡ, ꯋꯤꯡꯋꯣꯜꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯠ-ꯑꯣꯐ ꯋꯣꯜꯁꯤꯡ	—	9.4.8(c), 9.4.9	
C9	ꯗꯤꯖꯥꯏꯟ ꯐ꯭ꯂꯣꯗ ꯆꯦꯅꯦꯂꯒꯤ ꯐ꯭ꯔꯨꯗ ꯅꯝꯕꯔ	≤ 0.8; 0.8 ꯑꯃꯁꯨꯡ 1.2-ꯒꯤ ꯃꯔꯛꯇ ꯑꯃꯠꯇꯥ ꯂꯧꯕ	9.5.2	
C10	ꯆꯦꯅꯦꯂꯒꯤ ꯚꯦꯂꯣꯁꯤꯇꯤ	ꯇꯦꯕꯜ 9.2	9.5.3	
C11	ꯅꯦꯖꯤꯖꯤꯌꯗ ꯇꯧꯔꯕ ꯆꯦꯅꯦꯜꯁꯤꯡꯗ ꯆꯦꯅꯦꯂꯒꯤ ꯁ꯭ꯂꯣꯞ	ꯃꯍꯧꯁꯥꯒꯤ ≤ 0.4%, ꯀꯟꯀ꯭ꯔꯤꯠ ≤ 0.2%, ꯅꯠꯔꯒꯥ ꯗ꯭ꯔꯣꯞꯁꯤꯡ / ꯁ꯭ꯇꯨꯠ	9.5.4	
C12	ꯁꯥꯏꯗ ꯁ꯭ꯂꯣꯞꯁꯤꯡ; ꯕꯦꯗꯒꯤ ꯄꯥꯛ ≥ 3 m ꯑꯣꯏꯔꯕ ꯃꯐꯝꯗ ꯂꯣ-ꯐ꯭ꯂꯣ ꯆꯦꯅꯦꯜ; ꯑꯄꯅꯤꯐ꯭ꯌ ꯅꯠꯔꯒꯥ ꯋꯤꯞ ꯍꯣꯜꯁꯤꯡ	—	9.5.6, 9.5.7, 9.5.9	
C13	ꯑꯥꯎꯠꯂꯦꯠ ꯚꯦꯂꯣꯁꯤꯇꯤꯅ ꯇꯦꯕꯜ 9.2-ꯗꯒꯤ ꯍꯦꯟꯕ ꯃꯐꯝꯗ ꯑꯥꯎꯠꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ	ꯇꯦꯕꯜ 9.3-ꯒꯤ ꯑꯦꯞꯔꯟ, ꯅꯠꯔꯒꯥ ꯕꯦꯁꯤꯟ	9.6.1, 9.6.3	
C14	ꯚꯔꯇꯤꯀꯦꯜ ꯗ꯭ꯔꯣꯞ ꯑꯃꯈꯥꯇꯒꯤ ꯑꯋꯥꯡꯕ	≤ 1.5 m	9.6.6(c)	
C15	ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯄ꯭ꯔꯣꯟꯗꯀꯤ ꯑꯥꯎꯠꯂꯦꯠ: ꯌꯠꯂꯤꯕ ꯍꯥꯗꯠ ꯂꯧꯕ; ꯃꯤꯅꯤꯃꯝ ꯑꯣꯔꯤꯐꯤꯁ	ꯁ꯭ꯀ꯭ꯔꯤꯟꯒꯥ ꯂꯣꯌꯅꯅ ≥ 50 mm	9.7.1	
C16	ꯏꯃꯔꯖꯦꯟꯁꯤ ꯁ꯭ꯄꯤꯜꯋꯦ	1% AEP, ꯑꯥꯎꯠꯂꯦꯠ ꯕ꯭ꯂꯣꯛ ꯑꯣꯏꯔꯕ, ꯕꯦꯁꯤꯟ ꯊꯜꯂꯕ, 0.3 m ꯐ꯭ꯔꯤꯕꯣꯔꯗ; ꯍꯥꯏ-ꯍꯥꯖꯔꯗ ꯕꯦꯁꯤꯟꯁꯤꯡꯒꯤꯗꯃꯛ 0.2% AEP	9.7.6	
C17	ꯄꯥꯜꯒꯤ (embankment) ꯎꯌꯊꯡꯗ ꯃꯌꯥꯛ ꯑꯥꯎꯠꯂꯦꯠ ꯄꯥꯏꯞ; ꯃꯊꯧ ꯇꯥꯕ ꯃꯐꯝꯗ ꯑꯦꯟꯇꯤ-ꯚꯣꯔꯇꯦꯛꯁ ꯄ꯭ꯔꯦꯠ	—	9.7.7, 9.7.8	

No.	ꯆꯦꯛ	ꯂꯤꯃꯤꯠ	ꯀ꯭ꯂꯣꯖ	ꯃꯄꯨꯡ ꯐꯥꯏ (ꯍꯣꯌ / ꯅꯠꯇꯦ / NA)
C18	ꯀꯟꯗ꯭ꯌꯨꯏꯠ-ꯑꯦꯟꯇ꯭ꯔꯦꯟꯁꯒꯤ ꯔꯦꯛꯁꯤꯡ	ꯁ꯭ꯄꯦꯁꯤꯡ 75 mm-ꯗꯒꯤ ꯀꯟꯗ꯭ꯌꯨꯏꯠꯀꯤ ꯄ꯭ꯔꯄꯗꯒꯤ ꯑꯄꯤꯛꯄ ꯗꯥꯏꯃꯦꯟꯁꯟꯒꯤ ꯁꯨꯝꯍꯥꯏ ꯐꯥꯕ; ꯑꯦꯔꯤꯌꯥ ≥ 4×; 50% ꯕ꯭ꯂꯣꯛ ꯑꯣꯏꯔꯒꯥ ≤ 1.0 m/s	9.8.2	
C19	ꯗꯤꯇꯦꯟꯁꯟ ꯑꯣꯔꯤꯐꯤꯁꯀꯤ ꯁ꯭ꯛꯔꯤꯟꯁꯤꯡ	ꯑꯣꯔꯤꯐꯤꯁꯗꯒꯤ ꯑꯄꯤꯛꯄ ꯑꯣꯄꯅꯤꯡꯁꯤꯡ; ꯑꯣꯄꯟ ꯑꯦꯔꯤꯌꯥ ≥ 10×	9.8.5	
C20	ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ	ꯑꯦꯅꯦꯛꯁ 9C-ꯒꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯃꯄꯨꯡ ꯐꯥꯔꯦ	9.9	
C21	1% AEP-ꯒꯤ ꯁ꯭ꯄꯤꯜ-ꯑꯣꯚꯔ ꯂꯦꯚꯦꯜꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡꯗ ꯒꯦꯠꯁꯤꯡ; ꯑꯅꯤꯁꯨꯕ ꯊꯤꯡꯕ; ꯀꯣꯔꯣꯖꯟ-ꯔꯦꯖꯤꯁ꯭ꯇꯦꯟꯠ ꯐꯤꯇꯤꯡꯁꯤꯡ	—	9.10	
C22	ꯒ꯭ꯔꯦꯠꯀꯤ ꯂꯣꯗ ꯀ꯭ꯂꯥꯁꯁꯤꯡ, ꯄꯦꯗꯦꯂꯦꯜ ꯑꯣꯄꯅꯤꯡꯁꯤꯡ ≤ 25 mm, ꯀꯔꯕ ꯑꯣꯄꯅꯤꯡꯁꯤꯡ ≥ 100 mm × 1.0 m, ꯆꯕꯤꯖꯥ ꯊꯤꯡꯕ ꯀꯋꯔꯁꯤꯡ	—	9.11	
C23	ꯃꯦꯟꯍꯣꯜꯒꯤ ꯁꯥꯏꯖꯁꯤꯡ (ꯇꯦꯕꯜ 9.4), 600 mm-ꯒꯤ ꯑꯦꯛꯁꯦꯁ ꯑꯣꯄꯅꯤꯡꯁꯤꯡ, ꯁ꯭ꯇꯦꯞꯁꯤꯡ, ꯕꯦꯟꯆꯤꯡ, ꯁꯔꯆꯥꯖ (surcharge) ꯀꯋꯔꯁꯤꯡ	—	9.12	
C24	ꯑꯦꯛꯁꯄꯣꯖꯔ ꯀ꯭ꯂꯥꯁ (ꯇꯦꯕꯜ 9.5); ꯁꯃꯨꯗ꯭ꯔꯒꯤ ꯃꯅꯥꯛ ꯑꯃꯁꯨꯡ ꯗꯦꯜꯇꯥ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯀ꯭ꯂꯣꯔꯥꯏꯗ ꯑꯃꯁꯨꯡ ꯁꯂꯐꯦꯠ ꯇꯦꯁ꯭ꯠꯁꯤꯡ; ꯁꯂꯐꯥꯏꯗ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ; ꯁꯃꯨꯗ꯭ꯔꯒꯤ ꯃꯅꯥꯛꯇꯒꯤ 5 km-ꯒꯤ ꯃꯅꯨꯡꯗ ꯃꯦꯄꯦꯜꯌꯔꯛ	—	9.13	

ꯁꯦꯛꯁꯟ D — ꯚꯦꯔꯤꯌꯦꯟꯁꯁꯤꯡ

ꯇꯦꯕꯜ 9F.4 — ꯐꯣꯔꯝ 9-1, ꯁꯦꯛꯁꯟ D: ꯚꯦꯔꯤꯌꯦꯟꯁꯁꯤꯡ

ꯀ꯭ꯂꯣꯖ	ꯃꯄꯨꯡ ꯐꯥꯕ ꯃꯇꯧ ꯇꯧꯕ	ꯃꯔꯝ ꯑꯃꯁꯨꯡ ꯁ꯭ꯄꯦꯁꯤꯐꯤꯛ ꯇꯧꯕ ꯑꯦꯚꯤꯗꯦꯟꯁ	ꯑꯦꯞꯔꯨꯚ ꯇꯧꯕ ꯃꯤ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠ
_____	_____	_____	_____

ꯁꯦꯛꯁꯟ E — ꯁꯥꯏꯟꯁꯤꯡ

ꯔꯤꯄꯣꯔꯠ ꯑꯁꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔ ꯇꯧꯔꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯑꯃꯥ ꯁꯦꯃꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ ([ꯐꯣꯔꯝ 10-3]) ꯍꯄꯆꯤꯅꯒꯗꯕꯅꯤ ([ꯁꯔꯨꯛ 10]-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.6.1 ꯑꯃꯁꯨꯡ 10.6.3)꯫ ꯕꯥꯟ (embankment) ꯂꯩꯕ ꯗꯦꯇꯦꯟꯁꯟ ꯑꯃꯒꯤꯗꯃꯛ, ꯍꯥꯏ-ꯍꯖꯥꯔꯗ ꯕꯦꯁꯤꯟ ꯑꯃꯒꯤꯗꯃꯛ, ꯄꯝꯄ ꯂꯩꯕ ꯕꯦꯁꯤꯟꯁꯤꯡ ꯑꯃꯒꯤꯗꯃꯛ, ꯑꯇꯣꯞꯄ ꯀꯦꯁ ꯑꯃꯒꯤꯗꯃꯛ ꯅꯠꯇ꯭ꯔꯒꯥ ꯗꯤꯇꯦꯜ ꯕꯦꯁꯤꯟꯁꯤꯡ ꯑꯃꯒꯤꯗꯃꯛ, ꯁꯥꯏꯟ ꯇꯧꯕ ꯃꯤ ꯑꯗꯨ ꯅꯍꯥꯛꯄ ꯁ꯭ꯄꯦꯁꯤꯐꯥꯏ ꯇꯧꯕ ꯂꯣꯌꯅꯕ ꯕꯦꯁꯤꯟꯒꯤ ꯗꯤꯖꯥꯏꯟ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯑꯃꯥ ꯑꯣꯏꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯑꯄꯨꯅꯕ, ꯍꯦꯟꯅꯗꯨꯅ ꯄꯥꯡꯊꯣꯛꯂꯤꯕ ꯁ꯭ꯄꯦꯁꯤꯐꯥꯏ ꯇꯧꯕ ꯃꯤꯑꯣꯏ ꯑꯃꯅ ꯁꯥꯏꯟ ꯇꯧꯒꯗꯕꯅꯤ ([ꯀ꯭ꯂꯣꯖ 10.6.1(c), (d) ꯑꯃꯁꯨꯡ 10.6.4)꯫

ꯇꯦꯕꯜ 9F.5 — ꯐꯣꯔꯝ 9-1, ꯁꯦꯛꯁꯟ E: ꯁꯥꯏꯟꯁꯤꯡ

ꯔꯣꯜ	ꯃꯤꯡ	ꯔꯦꯖꯤꯁ꯭ꯇ꯭ꯔꯦꯁꯟ ꯅꯝꯕꯔ ꯄꯥꯡꯊꯣꯛꯂꯤꯕ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ	ꯁꯥꯏꯟ	ꯅꯨꯃꯤꯠ
ꯗꯤꯖꯥꯏꯟꯔ	_____	_____	_____	_____
ꯏꯟꯗꯤꯄꯦꯟꯗꯦꯟꯠ ꯔꯤꯚꯤꯌꯨꯋꯔ (ꯀ꯭ꯂꯣꯖ 10.6.4, ꯂꯥꯏꯁꯦꯟꯁ ꯃꯇꯝꯗ)	_____	_____	_____	_____

ꯐꯣꯔꯝ ꯂꯣꯏꯔꯦ — ꯃꯦꯟꯌꯨꯑꯦꯜ ꯑꯁꯤꯒꯤ ꯄꯥꯔꯠ ꯄꯔꯝ ꯁꯥꯏꯟ ꯃꯇꯨꯡ, ꯐꯣꯔꯝ ꯚꯔꯁꯟ 1.0.

ꯆꯦꯞꯇꯔ 10-ꯒꯤ ꯑꯦꯄꯦꯟꯗꯤꯛꯁꯤꯡ

ꯆꯦꯛꯂꯤꯁ꯭ꯇꯁꯤꯡ, ꯇꯦꯝꯞꯂꯦꯠ, ꯁꯔꯇꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯔꯤꯄꯣꯔꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝꯁꯤꯡ

ꯑꯦꯄꯦꯟꯗꯤꯛꯁꯤꯡ ꯑꯁꯤꯗꯥ ꯆꯦꯞꯇꯔ 10-ꯗꯥ ꯍꯥꯌꯔꯤꯕ ꯄꯨꯝꯅꯃꯛ꯫ ꯍꯥꯌꯕꯗꯤ ꯀꯝꯞꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯂꯀꯨꯂꯦꯇꯔ (compliance calculator)-ꯒꯤ ꯆꯦꯀꯂꯤꯁ꯭ꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯖꯤꯡ ꯃꯦꯊꯗꯁꯤꯡ ꯑꯦꯞꯂꯥꯏ ꯇꯧꯕ, GIS ꯗꯦꯇꯥꯒꯤ ꯆꯦꯀꯂꯤꯁ꯭ꯇꯁꯤꯡ, ꯍꯦꯟꯅꯕ ꯑꯁꯤꯗꯤ ꯊꯥꯖꯕ ꯍꯣꯡꯒꯠꯂꯣꯟꯁꯤꯡ ꯑꯦꯛꯁꯤꯛꯌꯨꯇꯤꯡ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ, ꯖꯣꯡꯁꯤꯟꯒꯤ ꯍꯟꯕ ꯁꯤꯡꯂꯨꯞꯁꯤꯡꯗꯥ ꯍꯥꯌꯕ O&M ꯄ꯭ꯂꯥꯟꯁꯤꯡ, ꯍꯥꯌꯕ ꯅꯍꯥꯛꯇꯣꯡꯕꯍꯦꯟ ꯁꯤꯟꯅꯕꯤꯔꯤ, ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ 10-ꯗꯥ ꯍꯥꯌꯕ ꯌꯥꯊꯪ ꯂꯧꯁꯤꯅꯕ ꯇꯤꯛꯇꯦ ꯄꯤꯕꯤꯔꯤ꯫ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯕ ꯁꯥꯏꯖꯤꯡ ꯆꯤꯡ (ꯂꯧꯕꯥ 2-1) ꯑꯁꯤ ꯆꯦꯞꯇꯔ 2-ꯒꯤ ꯑꯦꯄꯦꯟꯗꯤꯛꯁꯤꯡ-ꯗꯥ ꯂꯩ꯫ ꯂꯧꯕꯥꯁꯤꯡ ꯑꯁꯤ ꯗꯦꯂꯤꯍꯦꯟ ꯂꯧꯕꯥꯁꯤꯡꯗꯤ꯫ ꯍꯥꯌꯕ ꯌꯥꯊꯪꯁꯤꯡ ꯑꯁꯤ ꯁꯥꯁ꯭ꯇ꯭ꯔꯃꯍꯦꯟ ꯑꯣꯇꯣꯡꯕꯤ ꯑꯃꯗꯤ ꯔꯦꯟ ꯌꯥꯊꯪꯁꯤꯡꯒꯤ ꯊꯨꯡꯁꯤꯟꯅꯕꯤ ꯑꯃꯁꯨꯡ ꯄꯤꯔꯤꯗꯥ꯫

ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 10A — ꯀꯝꯞꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯂꯀꯨꯂꯦꯇꯔ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯖꯤꯡ ꯃꯦꯊꯗ

ꯆꯦꯞꯇꯔ 10-ꯒꯤ ꯀꯣꯂꯣꯖ 10.4.1(g), 10.5 ꯑꯃꯁꯨꯡ 10.9.1(b)-ꯗꯥ ꯍꯥꯌꯔꯤꯕ ꯄꯨꯝꯅꯃꯛ꯫

> **ꯆꯦꯀꯆꯦ.** ꯀꯝꯞꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯂꯀꯨꯂꯦꯇꯔ ꯑꯁꯤ ꯍꯧꯖꯤꯛ ꯂꯩꯇꯕ ꯊꯣꯛꯂꯦ꯫ ꯀꯣꯂꯣꯖ 10.5.1-ꯗꯥ ꯆꯠꯅꯕ ꯇꯧꯕꯒꯤ ꯅꯣꯡꯃꯥꯒꯤ ꯁꯣꯌꯗꯤꯀꯤ ꯀꯝꯃꯤꯇꯤ (State Stormwater Technical Committee)-ꯗꯥ ꯍꯟꯗꯣꯛ ꯅꯠꯇꯦ ꯁꯤꯡꯇꯕ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯕꯥ ꯁꯤꯡꯇꯕ ꯍꯥꯌꯕ ꯊꯥꯖꯕꯗꯤ꯫ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯁꯤ ꯀꯦꯂꯀꯨꯂꯦꯇꯔ ꯑꯗꯨꯗꯥ ꯃꯍꯧꯁꯥꯒꯤ ꯆꯦꯀꯂꯤꯁ꯭ꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯟꯗꯣꯛꯒꯤ ꯁꯥꯏꯖꯤꯡ ꯃꯦꯊꯗꯁꯤꯡ ꯑꯦꯞꯂꯥꯏ ꯇꯧꯕꯗꯤ꯫ ꯀꯦꯂꯀꯨꯂꯦꯇꯔ ꯑꯗꯨ ꯅꯠꯇꯦ ꯁꯤꯡꯗꯦꯡꯗꯤ, ꯗꯤꯖꯥꯏꯟꯒꯤ ꯂꯧꯕꯥ 10-2 ꯑꯁꯤ ꯆꯦꯞꯇꯔ 4, 5 ꯑꯃꯁꯨꯡ 8-ꯒꯤ ꯀꯦꯂꯀꯨꯂꯦꯁꯟꯁꯤꯡꯒꯤ ꯁꯥꯏꯗ ꯍꯥꯞꯆꯤ ꯂꯧꯔꯤ, ꯀꯦꯂꯀꯨꯂꯦꯇꯔꯒꯤ ꯃꯐꯝꯗꯥ ꯑꯗꯨꯗ "ꯅꯠꯇꯦ ꯁꯤꯡꯗꯕ" ("not issued") ꯍꯥꯌꯗꯨ ꯅ, ꯑꯃꯁꯨꯡ ꯀꯦꯂꯀꯨꯂꯦꯁꯟꯁꯤꯡ ꯆꯠꯅ꯫

10A.1 ꯇꯣꯇꯣꯂꯥꯏ ꯍꯥꯌꯕ ꯁꯦꯡꯁꯤꯡ

ꯀꯦꯂꯀꯨꯂꯦꯇꯔ ꯑꯁꯤꯗꯤ:

- (a) ꯆꯦꯂꯣꯃꯁꯤꯛ ꯇꯝꯄꯥꯛ ꯌꯣꯕ ꯁꯔꯤ ꯑꯃꯁꯨ ꯑꯣꯅꯕꯃꯕꯇꯤ, ꯍꯤꯁꯤꯒꯤ ꯁꯥꯏꯖꯤꯡ ꯃꯦꯊꯗ ꯑꯃꯁꯨꯡ ꯍꯤꯁꯤꯕ ꯌꯤꯡꯕ ꯁꯣꯕꯔ ꯁꯥꯏꯗꯍꯥꯞꯃꯤ ꯍꯥꯞꯖꯤꯟꯄꯛ ꯇꯣꯔꯗꯗꯤ ꯆꯣꯔ ꯇꯥꯗꯗꯤ ꯖꯤꯡꯗꯤꯡꯇꯕ (ꯀꯣꯂꯣꯖ 10.5.4);
- (b) ꯍꯤꯁꯤꯒꯤ ꯃꯐꯝꯗ ꯇꯄꯕꯂ ꯑꯃꯁꯨꯡ ꯂꯤꯇꯤꯇ ꯁꯦꯂꯕ ꯆꯨꯝꯊꯤ ꯑꯁꯤ ꯑꯦꯞꯂꯥꯏꯁꯤꯡ ꯇꯧꯅ ꯁꯥꯏꯗꯍꯥꯞ ꯑꯃꯁꯨꯡ ꯑꯣꯗꯆꯦꯂꯤꯊ ꯁꯦꯂꯕ ꯖꯅꯔ ꯁꯥꯏꯗꯍꯥꯞꯁ ꯄꯂꯤꯗꯊ ꯁꯦꯒꯗꯕꯇꯤ (ꯀꯣꯂꯣꯖ 10.5.3);
- (c) ꯄꯕꯇꯤꯗ ꯃꯐꯝꯗ ꯇꯣꯒ ꯑꯃꯁꯨ ꯈꯄꯒꯗꯕꯇꯤ꯫ ꯑꯇꯦꯕ ꯃꯐꯝꯗ ꯑꯃꯁꯨꯗꯤ ꯂꯤꯇꯤꯇ ꯁꯦꯂꯕ ꯈ 6-ꯒꯤ ꯍꯥꯃꯗ ꯑꯇꯦꯕ ꯆꯦꯛꯂꯤꯁ꯭ꯇꯁꯤꯡꯗ ꯌꯥꯇꯦ; ꯑꯣꯄꯇꯤꯀꯣꯂꯥꯏꯗꯤ ꯍꯥꯃꯒꯤ ꯃꯐꯝꯗ ꯑꯃꯁꯨ ꯅꯇꯗꯂꯕꯗ, ꯆꯦꯛꯂꯤꯁ꯭ꯇ ꯑꯃꯁꯨꯗꯤ ꯆꯦꯞꯇ 1-ꯗꯒꯤ ꯆꯦꯞꯇ 4 ꯖꯤꯡꯕ ꯃꯐꯝꯗ ꯑꯃꯁꯨꯅꯕꯁ ꯈꯄꯍꯤ (ꯀꯣꯂꯣꯖ 10.5.3);
- (d) ꯅꯂꯣꯒꯤ ꯇꯄ ꯑꯃꯁꯨ ꯇꯝꯄꯥꯛ ꯍꯂꯗꯒꯤ ꯄꯥꯎꯕꯒ ꯇꯣꯔꯗꯗꯤ, ꯍꯥꯌꯔ ꯁꯥꯏꯗꯍꯥꯞꯇꯤ ꯍꯤꯁꯒꯤ ꯑꯥꯎꯇꯐꯣꯜ (outfall)-ꯗ ꯅꯤꯁꯤꯡ ꯌꯣꯀꯈꯕꯄ, ꯍꯠꯂ ꯑꯃꯗ ꯆꯅꯥꯟ ꯑꯃꯒꯤꯗꯤꯃꯕ ꯈꯕꯕ ꯁꯒꯗꯕꯇꯤ (ꯀꯣꯂꯣꯖ 4.5.1.3);
- (e) ꯍꯧꯖꯤꯛꯇꯗꯤ ꯖꯤꯡꯗꯤꯡꯁꯕ ꯒꯥꯡꯌꯥ ꯑꯃꯁꯨꯡ ꯀꯗꯥꯢꯗꯂ ꯆꯤꯇꯤꯊꯇꯂꯅꯗꯕꯇꯤ꯫ ꯍꯤꯁꯤꯗꯤ ꯍꯥꯌꯕ ꯁꯦꯕ ꯁꯣꯕꯔ ꯑꯃꯁꯨ ꯅꯠꯇꯦ ꯁꯤꯡꯗꯕꯤ ꯍꯖꯍꯗ (ꯁꯥꯏꯗꯍ ꯑꯣꯅꯗꯤ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 4B-ꯒꯤ ꯁꯣꯕꯔ 4.3, ꯇꯝꯄꯥꯛ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 1C-ꯒꯤ S-2 ꯗꯤꯆꯌꯂꯇ ꯁꯣꯕꯔꯆꯤꯡ), ꯀꯦꯂꯀꯨꯂꯦꯇꯔꯗꯤ ꯒꯥꯡꯌꯥ ꯑꯃꯁꯨ ꯑꯣꯆꯦꯤꯍꯧ ꯁꯂꯅꯗꯗꯤ ꯂꯌ ꯑꯃꯁꯨ "ꯖꯤꯗꯕ" ("not available") ꯍꯥꯌꯗꯤ ꯁꯌꯀꯗꯕꯇꯤ; ꯑꯃꯁꯨꯡ

- (f) ꯃꯍꯩꯒꯤ ꯏꯅꯄꯨꯠ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯄꯨꯠꯁꯤꯡ ꯇꯦꯕꯜ 10-2 ꯑꯦꯝꯕꯗ ꯄꯤꯕꯥ ꯅꯠꯔꯕꯗ ꯃꯁꯤꯡꯗꯨ ꯂꯩꯕ ꯗꯦꯇꯥ (CSV ꯅꯠꯔꯒꯥ JSON) ꯑꯃꯁꯨꯡ ꯑꯦꯅꯛꯁꯣꯜ ꯑꯃꯇꯦꯛꯅꯤꯀꯜ ꯔꯤꯚꯤꯌꯨꯒꯤ, ꯃꯁꯤ ꯑꯃꯗꯤ ꯑꯦꯗꯤꯁꯅꯦꯜ ꯃꯇꯥꯡ ꯑꯗꯨ ꯗꯤꯖꯥꯏꯅꯔꯒꯤ ꯁꯥꯏꯟꯑꯣꯐ ꯇꯧꯕ ꯔꯤꯚꯤꯎ ꯂꯩꯕꯗꯤ (ꯁꯦꯛꯁꯟ 10.17.1(b))॥

10A.2 ꯏꯅꯄꯨꯠꯁꯤꯡ

ꯇꯦꯕꯜ 10A.1 — ꯃꯦꯟꯗꯦꯇꯔꯤꯒꯤ ꯏꯅꯄꯨꯠꯁꯤꯡ

No.	ꯏꯅꯄꯨꯠ	ꯌꯨꯅꯤꯠ	ꯍꯧꯔꯀꯐꯝ
I1	ꯄ꯭ꯔꯣꯖꯦꯛꯇ, ꯁꯥꯏꯠ (A ꯅꯠꯔꯒꯥ B) ꯑꯃꯁꯨꯡ ꯗꯦꯇꯥ ꯚꯔꯁꯟ	—	ꯁꯦꯛꯁꯟ 1.6
I2	ꯂꯝꯕꯨꯝ ꯑꯦꯔꯤꯌꯥ; ꯗꯦꯚꯂꯞ ꯇꯧꯕ ꯑꯦꯔꯤꯌꯥ	ha	ꯁꯦꯛꯁꯟ 1.5.2
I3	ꯑꯍꯟꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ (impervious) ꯑꯦꯔꯤꯌꯥ; ꯄ꯭ꯔꯣꯄꯣꯖ ꯇꯧꯔꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ; ꯗꯥꯏꯔꯦꯛꯇꯂꯤ ꯀꯅꯦꯛꯇ ꯇꯧꯔꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ	m²	ꯁꯦꯛꯁꯟ 1.5.2, 1.5.6, 4.5.6.1
I4	ꯗꯔꯦꯅꯦꯖꯒꯤ ꯃꯑꯣꯡ: ꯑꯍꯟꯕ, ꯄꯣꯁ꯭ꯠ-ꯗꯔꯦꯅꯦꯖ, ꯗꯤꯁꯆꯥꯔꯖ ꯄꯣꯏꯟꯇ ꯔꯤꯁꯤꯚꯔ, ꯌꯨꯝ ꯑꯃꯁꯨꯡ	—	ꯁꯦꯛꯁꯟ 1.5.6– 1.5.8
I5	ꯏꯁꯤꯡ ꯏꯕꯨꯡꯉꯣ ꯂꯦꯃꯂꯣꯏꯁꯤꯡ ꯑꯦꯟꯕ ꯃꯥꯔꯀꯦꯠ (ꯍꯣꯌ / ꯅꯠꯇꯦ), ꯑꯃꯁꯨꯡ ꯑꯦꯞꯔꯨꯚ ꯇꯧꯕ BSMP ꯂꯩꯕ ꯕꯦꯁꯤꯟ (ꯍꯣꯌ / ꯅꯠꯇꯦ)	—	ꯁꯦꯛꯁꯟ 4.5.3, 4.13, 11.12
I6	ꯅꯣꯡ ꯌꯨꯕꯒꯤ ꯗꯦꯇꯥ	—	ꯑꯦꯅꯦꯛꯁ 2A
I7	ꯔꯤꯇꯦꯟꯁꯟ (retention) ꯗꯦꯞꯊ P_R; ꯊꯥ 3-ꯒꯤ ARI-ꯒꯤ ꯄꯨꯝ 24-ꯒꯤ ꯗꯦꯞꯊ P_3m	mm	ꯑꯦꯅꯦꯛꯁ 2E, 8A
I8	ꯗꯤꯖꯥꯏꯟ (1–72 h) ꯑꯃꯁꯨꯡ AEP ꯃꯇꯝꯒꯤ ꯏꯁꯤꯡ ꯗꯔꯦꯅꯦꯖ ꯅꯣꯡ ꯌꯨꯕꯒꯤ ꯗꯦꯞꯊꯁꯤꯡ, ꯃꯈꯥꯗꯥ ꯄꯤꯔꯤꯕ ꯅꯣꯡꯌꯨꯕ, ꯇꯦꯕꯜ 2-1-ꯗ ꯌꯥꯑꯣꯕ ꯂꯩꯕ ꯃꯇꯝꯒꯤ ꯏꯁꯤꯡ	mm	ꯁꯦꯛꯁꯟ 2.5, 2.8, 2.13
I9	ꯃꯤꯅꯤꯠ 15-ꯒꯤ ꯏꯟꯇꯦꯟꯁꯤꯇꯤꯁꯤꯡ i_10 ꯑꯃꯁꯨꯡ i_2, ꯃꯈꯥꯗꯥ ꯄꯤꯔꯤꯕ ꯅꯣꯡꯌꯨꯕ (ꯗꯤꯖꯥꯏꯟ ꯂꯩꯕ ꯀꯟꯁꯦꯟꯠꯔꯦꯁꯅꯒꯤ ꯃꯇꯝ ꯌꯥꯎꯕ)	mm/h	ꯁꯦꯛꯁꯟ 4.14.4
I10	ꯏꯂꯦꯛꯒꯤ ꯗꯦꯇꯥ: ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ, ꯑꯦꯔꯤꯌꯥ, ꯗꯤꯁꯇ ꯁꯣꯏꯜ, ꯏꯝꯄꯔꯚꯤꯌꯁ ꯄꯔꯁꯦꯟꯇꯦꯖ, HSG ꯑꯃꯁꯨꯡ ꯁꯣꯏꯜ ꯗꯦꯇꯥ, ꯗꯔꯦꯅꯦꯖꯒꯤ ꯃꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯝ	ha, %, —	ꯁꯦꯛꯁꯟ 3.3, 3.7, 3.9
I11	ꯔꯤꯇꯦꯟꯁꯟ ꯂꯩꯕ ꯀꯣꯚꯦꯅꯦꯟꯠ (covenant) ꯑꯃꯒꯤ ꯃꯈꯥꯗ ꯁꯦꯟꯗꯔꯕ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ	ha	ꯁꯦꯛꯁꯟ 4.4.7
I12	ꯔꯤꯇꯦꯟꯁꯟ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ ꯕꯥꯇꯒꯤ ꯃꯈꯥꯗ ꯃꯇꯝꯒꯤ ꯏꯕꯨꯡꯉꯣꯒꯤ ꯍꯥꯏꯕ ꯗꯤꯄ꯭ꯔꯦꯁꯅꯒꯤ ꯃꯍꯩꯒꯤ ꯏꯂꯦꯛꯁꯤꯡꯒꯤ ꯑꯄꯨꯟ	m	ꯁꯦꯛꯁꯟ 4.4.3(c), 8.8
I13	ꯐꯦꯁꯤꯂꯤꯇꯤ ꯀꯦꯆꯃꯦꯟꯇ ꯍꯥꯏ ꯅꯣꯡꯂꯕ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠ	mm/h	ꯁꯦꯛꯁꯟ 4.4.3
I14	ꯐꯦꯁꯤꯂꯤꯇꯤ ꯃꯇꯝꯒꯤ ꯏꯁꯤꯡ ꯐꯤꯔꯕ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ; ꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯒꯤ ꯔꯤꯌꯨꯖ ꯂꯩꯕ ꯃꯗꯥꯗ ꯔꯤꯌꯨꯖꯒꯤ ꯗꯤꯃꯦꯟꯗ	m³, m³/d	ꯁꯦꯛꯁꯟ 4.4.3, 4.4.5
I15	ꯐ꯭ꯂꯣ: ꯃꯄꯨꯝ ꯂꯩꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ ꯊꯥꯑꯣꯝ (ꯁꯦꯛꯁꯟ 4.6); ꯗꯤꯖꯥꯏꯟ-ꯑꯣꯗ S-1 (ꯁꯦꯛꯁꯟ 4.14.2); PSD S-2 (ꯁꯦꯛꯁꯟ 1.7); ꯗꯤꯖꯥꯏꯟ ꯂꯩꯕ ꯃꯑꯣꯡꯗꯤꯁꯤꯡ (ꯁꯦꯛꯁꯟ 4.14.3); ꯑꯊꯤꯡꯕ ꯂꯩꯕ ꯄꯣꯁ꯭ꯠ-ꯗꯔꯦꯅꯦꯖ (ꯁꯦꯛꯁꯟ 4.5.6)	—	ꯁꯦꯛꯁꯟ 1.7, 4.5.6, 4.6, 4.14
I16	ꯃꯄꯨꯝ ꯂꯩꯕ ꯊꯥꯑꯣꯝꯒꯤ ꯀꯦꯆꯃꯦꯟꯇ: AEP ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯀꯦꯆꯃꯦꯟꯇꯁꯤꯡ ꯃꯗꯨꯒꯤ ꯃꯍꯩꯁꯤꯡ — ꯗꯔꯦꯅꯦꯖꯒꯤ ꯃꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯝꯒꯤ ꯄꯤꯀꯁꯤꯡ, ꯂꯤꯃꯤꯇꯦꯗ ꯇꯣꯌꯥꯎ, ꯐꯨꯜꯕꯤꯟꯗ ꯗꯤꯁꯆꯥꯔꯖ ꯔꯤꯇꯦꯟꯁꯟ ꯚꯣꯜꯌꯨꯝ	m³/s, m³	ꯁꯦꯛꯁꯟ 4.4.6.2, 4.6
I17	ꯑꯣꯚꯔꯐ꯭ꯂꯣ: ꯅꯣꯟ-ꯗꯦꯟ ꯑꯦꯔꯤꯗꯤꯁꯤꯡ ꯗꯔꯦꯅꯦꯖ ꯅꯠꯔꯒꯥ ꯃꯇꯝꯒꯤ ꯑꯃꯤꯅꯝ ꯂꯩꯕ ꯗꯔꯦꯅꯦꯖ; ꯐꯨꯜꯕꯤꯟꯗꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯂꯦꯜꯇꯥ ꯃꯇꯝꯒꯤ	mm, h	ꯁꯦꯛꯁꯟ 4.7, 4.8.2
I18	ꯑꯣꯚꯔꯂꯦꯟꯗ: ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯅꯠꯔꯒꯥ ꯅꯣꯟ-ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ; ꯑꯣꯚꯔꯂꯦꯟꯗ ꯊꯤꯡꯕ ꯂꯥꯏꯕꯒꯤ ꯔꯤꯚꯤꯎ	—	ꯄꯥꯔꯠ 5
I19	ꯐ꯭ꯂꯣ ꯑꯃꯗꯤ ꯂꯣꯌꯅꯕ ꯃꯗꯦꯗ, ꯕꯦꯁꯤꯟꯒꯤꯗꯃꯛ ꯅꯣꯝꯤꯅꯦꯜ ꯂꯩꯕ ꯗꯤ-ꯏꯟ-ꯂꯤꯖꯒꯤ ꯌꯨꯅꯤꯠ ꯔꯦꯠ	₹/m³	ꯁꯦꯛꯁꯟ 4.13.3

No.	ꯋꯥꯍꯩꯀꯨꯩ	ꯌꯨꯅꯤꯠ	ꯔꯦꯐꯔꯦꯟꯁ
I20	ꯃꯊꯛꯀꯤꯌꯥꯅꯒꯤ ꯁ꯭ꯇꯦꯞ (1, 2 ꯅꯠꯔꯒꯥ 4) ꯑꯃꯁꯨꯡ, ꯁ꯭ꯇꯦꯞ 4-ꯗ, I14, I16 ꯑꯃꯁꯨꯡ I17-ꯒꯤ ꯑꯥꯎꯠ-ꯄꯨꯠ ꯍꯥꯌꯕꯁꯤꯡ	—	ꯀ꯭ꯂꯣꯖ 10.5.2, 10.9.1(b)

10A.3 ꯀꯟꯁ꯭ꯠꯔꯦꯟꯁꯤꯡ, ꯀ꯭ꯂꯣꯖ ꯃꯦꯄ꯭ꯄꯤꯡ ꯑꯍꯦꯟ

ꯇꯦꯕꯜ 10A.2 — ꯀꯟꯁ꯭ꯠꯔꯦꯟꯇꯒꯤ ꯇꯥꯀꯄꯥ ꯀꯟꯁ꯭ꯠꯔꯦꯟꯁꯤꯡ

ꯑꯥꯏꯗꯤ	ꯀꯟꯁ꯭ꯠꯔꯦꯟ	ꯀ꯭ꯂꯣꯖ
C1	**ꯌꯨꯅꯤꯠ ꯃꯑꯣꯐ.** ꯀꯨꯔꯥ ꯁꯦꯀꯇꯔ ≥ 0.1 ha ꯅꯠꯔꯒꯥ ꯑꯦꯇꯥ ꯑꯃꯁꯨꯡ ꯏꯃꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ ≥ 500 m² ꯑꯣꯏꯕ ꯃꯐꯃꯗ, ꯀꯃꯤ ꯁ꯭ꯇꯦꯞ ꯑꯣꯡ ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯦꯅꯗ, ꯁꯔꯨꯛ 4 ꯑꯃꯁꯨꯡ 5 ꯌꯥꯍꯩ꯫ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁꯁꯤꯡ ꯃꯄꯨꯡ ꯐꯥꯅ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯃꯇꯃꯒꯤꯁꯤꯡ ꯑꯣꯏꯕ ꯇꯧꯒꯗꯕꯅꯤ: ꯄꯨꯅꯤꯍꯥꯏꯕ ꯁ꯭ꯇꯦꯞꯁꯤꯡꯗ ꯑꯁꯤ ꯁꯤꯡꯕ ꯄ꯭ꯔꯤꯃꯃꯥꯕ ꯌꯥꯍꯩ, ꯑꯃꯁꯨꯡ ꯃꯇꯦꯡꯒꯤ ꯊꯥꯟ-ꯃꯥ 66(a) [TBC: ꯃꯥꯀꯟ ꯊꯗꯣꯛꯄ ꯅꯥꯏꯁꯤꯡ ꯇꯧꯕ ꯊꯥꯟ-ꯃꯥꯡꯗ ꯅꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯈꯤꯗ ꯀꯟꯁꯤꯄꯣ ꯇꯥꯀꯄꯥ]-ꯒꯤ ꯃꯇꯨꯡ, 100 m² ꯑꯃꯁꯨꯡ ꯃꯔꯤꯗꯒꯤ ꯍꯦꯟꯕ ꯁ꯭ꯇꯦꯟꯁꯤꯡꯗ ꯀꯄꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕ ꯕꯤꯈꯗꯤ ꯁ꯭ꯇꯤꯂꯃꯥꯡ, ꯃꯇꯥꯡꯒꯤ ꯁ꯭ꯇꯦꯟꯁꯤꯡꯗ ꯅꯥꯀꯤ ꯃꯔꯤ ꯃꯄꯥ ꯑꯃꯁꯨꯡ ꯅꯥꯀꯤ ꯃꯔꯤ ꯍꯥꯀꯤꯄꯩꯕ ꯃꯈꯥꯁꯤꯡ ꯆꯠꯄ, RWH ꯑꯁꯤ ꯄꯨꯊꯣꯀꯄ m² ꯄꯨꯗꯤꯡꯗ ꯌꯥꯊꯪꯄꯦꯗ ꯇꯤꯅꯕ 25-ꯒꯤ ꯁ꯭ꯇꯦꯞ ꯑꯣꯏꯕ ꯌꯥꯍꯩ (ꯀ꯭ꯂꯣꯖ 4.11, ꯃꯨꯔꯥ ꯑꯁꯤꯕ ꯊꯨꯕ, ꯃꯄꯥꯗꯤ ꯃꯇꯦꯡꯕ ꯍꯦꯟꯒꯠ ꯑꯃꯁꯨ ꯊꯨꯗ), ꯃꯔꯤꯗ ꯄꯤꯔꯤꯒꯤ ꯍꯣꯡꯕ ꯄꯤꯊꯝꯄꯟ ꯑꯣꯏꯕ ꯀꯨꯄꯤꯁꯤꯟ ꯁꯤꯡ; ꯍꯥꯖꯦꯠ ꯊꯥꯁꯤꯡꯒꯤ ꯆꯝ, ꯃꯥꯡꯊꯣꯛꯄꯒꯤ ꯃꯦꯊꯣ, ꯁꯨꯄꯥꯒꯤ ꯁꯦꯡ (bund) ꯑꯃꯒꯤ ꯃꯇꯨꯡꯗ ꯆꯦꯠ ꯆꯝ ꯑꯃꯁꯨꯡ ꯇꯤꯄꯤꯊꯝꯒꯤ ꯑꯦꯟꯗꯁ꯭ꯇꯦꯟ (flood plain)-ꯗ ꯁ꯭ꯇꯦꯄꯇ ꯑꯁꯤ ꯊꯥꯟ-ꯃꯥ 66(a)-ꯒꯤ "ꯁꯄꯣꯡ ꯄꯤꯇꯄꯍꯥꯏꯄ" ("surface reservoir") ꯑꯃꯇꯤ, ꯀꯗꯥꯏꯗꯥ ꯄꯤꯌꯥꯄꯇ ꯌꯥꯍ ꯑꯃ ꯅꯥꯡ, ꯑꯃꯁꯨꯡ ꯊꯥꯟ-ꯃꯥ 67-ꯗ ꯄꯤꯌꯥꯄꯇ ꯁ꯭ꯇꯦꯄꯊꯌꯄꯁꯤꯡꯗ ꯖꯦꯀꯥꯁ ꯀꯦꯟꯅꯕ ꯒꯥꯄ ꯌꯥꯗꯄ ꯑꯁꯤ ꯃꯥꯀꯟ ꯊꯗꯣꯛꯄ ꯄꯤꯗꯥꯏꯁꯨꯁꯦꯒꯤ ꯃꯍꯩꯃꯗ ꯃꯧꯒꯤ ꯃꯁꯨꯡꯌ ꯁ꯭ꯇꯦꯄꯇ ꯅꯠꯔꯒꯥ ꯁꯤꯍꯄ (sewer) ꯑꯃꯗ ꯌꯥꯍꯩ (ꯀ꯭ꯂꯣꯖ 4.11, ꯇꯦꯀꯅꯤꯀꯦꯜ ꯆꯦꯡꯒꯤ ꯄꯨꯟ); 10°-ꯗꯒꯤ ꯀꯦꯗꯗ ꯗꯀꯤꯝ ꯆꯠꯄ ꯀꯥꯄꯣꯏꯒꯤ ꯀꯨꯔꯥꯗ, ꯗꯀꯤꯝ ꯀꯄꯤꯁꯨꯝꯕ ꯑꯃꯁꯨꯡꯗ ꯗꯤꯂꯥꯏ ꯁꯥꯍꯗ, ꯀꯥꯄꯨꯍꯤꯌꯝ, ꯑꯤꯍ ꯅꯠꯔꯒꯥ ꯃꯦꯊꯗꯁꯃꯗꯅꯗꯁꯤ ꯗꯊꯄꯤꯗ, ꯅꯠꯔꯒꯥ ꯀꯌ ꯁꯃꯥꯀ ꯅꯠꯔꯒꯥ ꯄꯤꯊꯝꯃꯤ ꯌꯥꯍ ꯑꯃꯒꯤ ꯗꯀꯤꯝꯒꯤ ꯃꯆꯦ ꯆꯤꯕ ꯃꯑꯣꯐꯗ ꯃꯔꯤꯒꯤ ꯑꯌꯥꯕꯒꯤ ꯑꯃꯤ ꯖꯦꯀꯒꯤ ꯃꯁꯨꯡꯗ, ꯇꯤꯑꯥꯊꯦꯀꯤꯀꯥꯌ ꯁꯄꯊꯤꯑꯤꯀꯦꯡ ꯌꯥꯊꯪꯗꯤ ꯀꯄꯤꯍꯦꯟꯕ ꯍꯩꯑꯤꯌꯨꯄꯨꯦ ꯊꯥꯗ (ꯀ꯭ꯂꯣꯖ 4.11, ꯌꯤꯃꯒꯤ ꯄꯨꯟ); ꯄꯤꯌꯥꯄꯇ ꯑꯁꯤ ꯀ꯭ꯂꯣꯖ 4.11 (ꯄꯤꯌꯥꯄꯇꯒꯤ ꯄꯨꯟ)-ꯒꯤ ꯃꯇꯨꯡ ꯊꯥꯁꯦ ꯊꯥꯄꯊ ꯀꯨꯔꯥꯗ ꯍꯥꯌ ꯀꯄꯨꯗꯤꯦ ꯁꯤꯡ, ꯃꯇꯨꯡꯗ ꯑꯦꯍꯤꯅ ꯑꯣꯏꯁꯤꯡ, 10° ꯅꯠꯔꯒꯥ ꯃꯇꯨꯡꯗꯒꯤ ꯅꯥꯏꯕ ꯗꯀꯤꯝꯗ ꯀꯄ ꯊꯄꯅ ꯁꯦꯃꯒꯠꯂꯤꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯇꯦꯀꯅꯤꯀꯦꯜ ꯆꯝꯗ ꯊꯥꯁꯦ ꯊꯥꯄꯊ ꯀꯤꯈꯥꯒꯤ ꯃꯑꯣꯁꯤꯡꯅꯤ꯫	1.5.2–1.5.8
C2	**ꯁ꯭ꯄꯥꯁꯥꯀ ꯑꯦꯃꯒꯤꯁꯤꯡ.** ꯁ꯭ꯇꯦꯞ 0 ꯇꯧꯒꯗꯕꯅꯤ (≥ 2 ha, ꯍꯁꯤꯡ ꯍꯌꯥꯡꯗ ꯁꯃꯁꯤꯡꯇꯤꯒ, ꯍꯥꯄꯤꯌꯥꯃꯁ ꯅꯠꯔꯒꯥ ꯄꯤꯇꯃꯥꯡ ꯄꯨꯟ, ꯊꯥꯍꯗꯥꯡ ꯑꯥꯄꯌꯑꯦꯡ ꯅꯠꯔꯒꯥ ꯍꯁꯤꯡ ꯀꯑꯣꯐ); ꯁ꯭ꯇꯦꯞ 1 ꯑꯃꯁꯨꯡ 2 ꯁ꯭ꯃꯁꯤꯡꯃꯕ ꯌꯥꯍ (< 1 ha, ꯍꯁꯤꯡ ꯍꯌꯥꯡꯗ ꯁꯃꯁꯤꯡꯇꯤꯒ ꯅꯠꯔꯕ); ꯍꯥꯄꯥꯡꯃꯡ ꯇꯥꯄꯕ ꯁꯍꯃ ꯇꯥꯕ ꯀꯤ ꯀꯨꯍ ꯊꯍ; ꯍꯃꯗꯤꯄꯥꯡꯃꯗꯁꯦ ꯌꯥ ꯀꯨꯍ ꯊꯍ꯫	10.3.2, 10.3.3, 10.6.1, 10.6.4
C3	**ꯄꯨꯔꯥꯏ ꯌꯥꯕ ꯀꯑꯣꯐꯁꯤꯡ.** ꯇꯤꯌꯥꯄ B ꯗꯍꯊꯥꯅꯕ ꯊꯥꯑꯥ: ≤ 2 ha, ꯅꯠꯔꯒꯥ ꯍꯁꯤꯡ ꯍꯌꯥꯡꯗ ꯁꯃꯁꯤꯡꯇꯤꯒ ꯑꯣꯏꯕ ꯀꯌꯀꯁꯦ ꯑꯃꯗ ≤ 0.5 ha, ꯑꯃꯁꯨꯡ ꯇꯦꯕꯜ 4.3 ꯑꯥꯏꯗꯤꯁꯥꯀꯒꯤ ꯀꯨꯔꯥꯗ ꯍꯥꯌ꯫ ꯑꯤꯊꯥꯁ ꯇꯥꯄꯕ ꯀꯑꯑꯤꯁꯤꯌꯥꯁꯦꯡꯒꯤ ꯄꯨꯟ: ≤ 1 ha ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 4.14.3-ꯒꯤ ꯑꯥꯁꯥꯇ꯭ꯇꯦꯁꯤꯡꯒꯤ ꯑꯃꯁꯨꯡ ꯇꯧꯕ꯫ ꯑꯊꯤꯕ ꯇꯧ ꯄꯤꯗꯥꯄꯃꯗꯁꯦ: ꯇꯧꯄꯤꯕ ꯍꯥꯄꯥꯡꯃꯡꯒꯤꯁꯤꯡ ≥ 60% ꯑꯃꯁꯨꯡ ≤ 1 ha꯫ ꯄꯤꯇꯃꯥꯡ ꯗꯤꯇꯦꯟꯁꯟ (detention) ꯅꯠꯔꯒꯥ ꯑꯤ-ꯍꯦ-ꯇꯤꯃ: ꯑꯥꯄꯨꯡ ꯇꯥꯄꯕ BSMP ꯇꯧꯕ ꯊꯁꯤꯦ ꯑꯃꯗ ꯍꯥꯌ꯫	4.5.6.1, 4.13.1, 4.14.1, 4.14.3, 11.12.1(b)
C4	**ꯄꯤꯇꯃꯥꯡꯒꯤ ꯍꯣꯡꯆ.** RRV = 10 × Q_R × A, Q_R ꯑꯁꯤ ꯁꯕ-ꯑꯥꯄꯤꯌꯥꯁꯤꯡ ꯄꯨꯗꯤꯡꯀꯥꯀꯗꯤꯀꯥ AMC II-ꯗ P_R-ꯗꯒꯤ ꯑꯊꯕ SCS-CN ꯄꯦꯑꯥꯑꯤ (runoff)-ꯇꯤ, ꯁꯕ-ꯑꯥꯄꯤꯌꯥꯁꯤꯡ ꯁ꯭ꯇꯦꯀꯥ ꯁ꯭ꯃꯁꯤꯡꯃꯀꯅꯤ꯫ Ia = 0.2S ꯑꯃꯁꯨꯡ Ia = 0.05S-ꯒꯤ ꯄꯤꯇꯃꯥꯡꯁꯤꯡꯒꯤ ꯀꯨꯃꯗ ꯀꯦꯗꯗ ꯌꯥꯊꯪꯕ ꯑꯃꯀꯗ ꯁꯃꯦ ꯇꯧꯍ꯫ Rv-ꯒꯤ ꯑꯥꯄꯤꯀꯗ (RRV = 10 × P_R × Rv × A, Rv = 0.05 + 0.009 × I) ꯑꯁꯤ < 0.5 ha ꯁꯍꯌꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯤꯌꯥꯄ B ꯊꯥꯑꯥꯒꯤꯗꯀꯥ ꯍꯥꯌ ꯁꯤꯄꯤ꯫ ꯀꯗꯍꯀꯦ ꯑꯥꯌꯥꯄ ꯇꯧꯕ꯫	4.4.2, 3.8.5(c), 2.8.3
C5	**ꯄꯤꯊꯥꯗꯀꯁꯒꯤ ꯀ꯭ꯄꯥꯗꯤꯦ.** ꯄꯤꯊꯥꯊꯥꯇꯕ ꯑꯥꯄꯤꯌꯥꯁꯤꯡ ꯑꯁꯤ ꯗꯥꯍꯥꯇꯁꯀꯥꯁꯦꯡꯒꯤ ꯀꯨꯔꯥꯒꯤ ꯑꯤꯍꯇꯗ ꯃꯇꯥꯡꯒꯤ ꯗꯥꯍꯥꯇꯁꯀꯥꯁꯦꯡꯒꯤ ꯀꯀꯤꯁꯒꯤ CN-ꯗ ꯀꯗꯥꯏ ꯊꯍ꯫	4.4.7
C6	**ꯄꯤꯇꯃꯥꯡꯒꯤ ꯌꯥꯑꯁꯤꯡ.** ꯗꯤꯇꯦꯟꯁꯟ ꯍꯃꯗꯤꯄꯥꯡꯃꯗ ꯄꯥꯏ ≤ ꯌꯤꯁ ꯇꯥꯀꯇꯕ ꯄꯥꯏꯁꯤꯡ ꯊꯁꯍꯍ; ꯀꯨꯔꯥꯒꯤ ꯃꯇꯨꯡ ꯍꯁꯤꯡ ꯊꯥꯇꯒꯤ ꯃꯇꯨꯡ ≥ 1.0 m; ꯊꯦꯡꯇꯤꯅꯕ ꯍꯣꯡꯆꯒꯤ ꯄꯨꯔꯥꯏꯊꯨꯃ ꯗꯤꯇꯦꯟꯁꯟ ꯄꯥꯏꯕ 72 h-ꯒꯤ ꯀꯨꯃꯗ (ꯅꯠꯔꯒꯥ ꯀꯌꯄꯕ ꯄꯤꯍꯨꯇꯒꯤ ꯗꯤꯀꯨꯃꯗꯦ)꯫ ꯌꯥ ꯑꯃꯀꯥꯊꯥꯗ ꯑꯤ ꯇꯥꯕ ꯁ꯭ꯄꯥꯊꯤꯁ ꯑꯃꯗꯦ ꯀ꯭ꯄꯥꯗꯤꯦ ꯑꯤꯕꯗ; ꯀꯄꯤꯍꯦꯟꯕ ꯁꯄꯦꯑꯤ ꯑꯃ ꯄꯤꯁꯄꯦ ꯇꯧ ꯑꯃꯁꯨꯡ WQv ꯑꯍꯗꯦ ꯇꯧꯍ꯫	4.4.3–4.4.5, 4.4.6.4
C7	**ꯍꯁꯤꯡꯒꯤ ꯀ꯭ꯌꯥꯂꯤꯇꯤꯒꯤ ꯍꯣꯡꯆ.** P_wq = max(P_ret, P_3m); WQv = SCS-CN-ꯗꯦ 10 × Q_wq × A, ꯅꯠꯔꯒꯥ < 0.5 ha ꯁꯍꯌꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯤꯌꯥꯄ B ꯊꯥꯑꯥꯒꯤꯗꯀꯥ (P_wq / 1000) × Rv × A (A ꯑꯁꯤ m²-ꯗ)꯫ ꯊꯦꯡꯇꯤꯅꯕ ꯍꯣꯡꯆ ꯑꯁꯤ WQv-ꯗ ꯀꯁ꯭ꯃ ꯑꯗꯦ ꯌꯥꯊꯍ꯫ ꯀꯗꯍꯀꯦ ꯑꯥꯌꯥꯄ ꯇꯧꯕ꯫	8.4.1–8.4.4, 3.8.5(c)

ꯀꯣꯗ	ꯃꯊꯧ ꯇꯥꯕꯁꯤꯡ	ꯈꯟꯗ
C8	**ꯑꯣꯏꯕꯥ ꯀ꯭ꯔꯦꯗꯤꯠ.** ꯑꯣꯄꯁꯟ A: ꯀ꯭ꯔꯦꯗꯤꯠ ꯄꯤꯗꯕ ꯀ꯭ꯔꯦꯗꯤꯠ ꯂꯩꯇꯕ ꯃꯇꯝ (I16); ꯃꯥꯅꯗꯟꯗꯁꯤꯡꯗꯤ ꯍꯣꯡꯗꯕ ꯃꯈꯥꯒꯤ ꯑꯣꯏꯅꯥ꯫ ꯑꯣꯄꯁꯟ B: V_credit = C_R × ꯔꯤꯌꯨꯖ RRV, ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 4B ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯏꯗ꯭ꯔꯕꯗꯤ C_R = 0꯫	4.4.6
C9	**ꯁꯥꯏꯠ-ꯁ꯭ꯇꯣꯔꯦꯖ ꯚꯣꯜꯌꯨꯝ (S-1).** V = SSR × A − V_credit; ꯑꯦꯍꯥ 2 ꯑꯃꯁꯨꯡ ꯑꯦꯍꯥ 100-ꯒꯤ ꯄꯤꯛ꯭ꯁꯤꯡꯕꯒꯤ Q_PSD,T = PSD_T × A, ꯃꯦꯞ 4.3-ꯗꯒꯤ꯫ ꯃꯦꯞ 4.3 ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯣꯏꯗ꯭ꯔꯕꯗꯤ "ꯇꯦꯛꯅꯤ" ꯍꯥꯏꯕꯅꯤ꯫	1.7.2, 4.14.2
C10	**ꯔꯤꯖꯤꯑꯣꯅꯦꯜ ꯗꯤꯇꯦꯟꯁꯟ (S-2).** AEP ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤꯒꯤꯗꯃꯛ Q = PSD (m³/s/ha) × A, S-2 ꯃꯦꯞꯁꯤꯡꯗꯒꯤ꯫ ꯃꯁꯤꯒꯤ ꯄꯨꯝ ꯑꯣꯏꯗ꯭ꯔꯕꯗꯤ "ꯇꯦꯛꯅꯤ" ꯍꯥꯏꯕ ꯂꯩꯇꯦ꯫	1.7.2, 1.7.3(e)
C11	**ꯇꯥꯏꯝ ꯑꯣꯏꯕ ꯀꯦꯄꯦꯁꯤꯇꯤ-ꯃꯦꯊꯗꯀꯤ ꯃꯊꯧ.** Q_cap,10 = 2.78 × C_10 × i_10 × A ꯑꯃꯁꯨꯡ Q_cap,2 = 2.78 × C_2 × i_2 × A (L/s); V_100 ꯑꯃꯁꯨꯡ V_2 = [10 × C_v × P(d) × A − 1.8 × Q_cap × d]-ꯒꯤ d ꯈꯨꯗꯤꯡ max, d = 1-ꯗꯒꯤ 72 h ꯐꯥꯑꯣꯕꯒꯤꯗꯃꯛ, d ≥ 12 h-ꯒꯤꯗꯃꯛ ꯔꯅꯣꯐ C ≥ 0.50-ꯒꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ; V = max(V_100, V_2); ꯑꯣꯏꯕꯥ ꯑꯃꯥ ꯀ꯭ꯔꯦꯗꯤꯠ ꯔꯤꯗꯨꯁ ꯇꯧꯗꯕꯅꯤ꯫ ꯀꯦꯄꯦꯁꯤꯇꯤ-ꯃꯦꯊꯗꯀꯤ ꯃꯦꯞ 4.3A (ꯔꯦꯐꯔꯦꯟꯁ)-ꯗꯒꯤ꯫	4.14.4– 4.14.7
C12	**ꯄꯤꯛ-ꯐ꯭ꯂꯣ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ (ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯂꯩꯕ).** AEP ꯑꯃꯁꯨꯡ ꯁꯦꯟꯁꯤꯇꯤꯕ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤꯒꯤꯗꯃꯛ: Q_post ≤ 0.9 × Q_pre (ꯄꯤꯛꯗꯥ), ꯆꯦꯛ ꯈꯥꯏꯗꯣꯛ-ꯇꯥꯡꯀꯥꯏꯁꯤꯡ ꯃꯥꯂꯦꯝ ꯑꯃ (ꯍꯧꯖꯤꯛ ꯍꯟꯊꯍꯟ ꯂꯣꯌꯅꯕꯥ)꯫ ꯂꯩꯔꯤꯕ ꯑꯣꯏꯕ ꯁꯦꯟꯁꯤꯇꯤꯕ ꯑꯃꯁꯨꯡ ꯈꯦꯠꯅꯕ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ꯫	4.5.2, 4.5.3
C13	**ꯑꯣꯐꯁꯦꯠ ꯇꯧꯕ ꯄꯤꯛ-ꯑꯦꯇꯦꯅꯨꯌꯦꯁꯟ.** ꯁꯦꯟꯁꯤꯇꯤꯕ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤꯁꯤꯡ ꯑꯦꯍꯥ 2, 10 ꯑꯃꯁꯨꯡ 100-ꯒꯤꯗꯃꯛ Q_post ≤ 0.5 × Q_existing; ꯂꯦꯞꯇꯦꯛ ꯑꯦꯔꯤꯌꯥ = ꯒꯤꯔꯣꯁ ꯄꯤꯛ − ꯔꯤꯖꯤꯟ ꯄꯤꯛ; ꯇꯤ = ꯂꯦꯞꯇꯦꯛ × ꯃꯊꯧ ꯄꯥꯏ꯫	4.5.6.2, 4.5.6.3
C14	**ꯃꯤꯅꯤꯃꯝ ꯑꯣꯔꯤꯐꯤꯁ.** < 50 mm ꯑꯣꯔꯤꯐꯤꯁ ꯑꯌꯥꯕꯥ ꯄꯤꯗꯦ ꯌꯥꯗꯕꯅꯤ꯫ ꯃꯇꯝ ꯑꯃ ꯈꯛꯇꯗ ꯄꯤꯛꯗꯥ 50 mm ꯑꯣꯔꯤꯐꯤꯁ ꯑꯣꯏꯅꯥ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯆꯦꯛ ꯇꯧꯗꯨꯅꯥ, "50 mm ꯑꯣꯔꯤꯐꯤꯁꯅꯥ ꯃꯈꯥꯒꯤ ꯌꯥꯅꯕ ꯍꯥꯏꯕꯅꯤ" ("50 mm orifice deemed to comply") ꯍꯥꯏꯅꯥ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ꯫	4.5.5.1, 4.8.2
C15	**ꯗ꯭ꯔꯦꯅꯗꯥꯎꯟ.** ꯁꯥꯏꯠꯀꯤ ꯗ꯭ꯔꯦꯅꯗꯥꯎꯟ (ꯑꯦꯍꯥ 10-ꯒꯤ ꯚꯣꯜꯌꯨꯃꯒꯤ 90% 48 h-ꯒꯤ ꯃꯅꯨꯡꯗ), WQv ꯗ꯭ꯔꯦꯅꯇꯥꯏꯝ ꯃꯇꯝ (24–48 h) ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯥ ꯑꯦꯛꯇꯤꯕ ꯑꯣꯏꯕꯒꯤ ꯃꯇꯝ (≤ 72 h) ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ꯫	4.7
C16	**ꯇꯤ-ꯍꯦꯗ-ꯆꯦꯛ.** ꯇꯤ = ꯂꯩꯔꯤꯕ ꯃꯇꯝ ꯑꯣꯏꯕ ꯁꯥꯏꯠꯀꯤ ꯚꯣꯜꯌꯨꯝ × ꯆꯦꯛꯀꯤꯟ ꯑꯣꯏꯕ ꯃꯊꯧ ꯄꯥꯏ꯫	4.13.3
C17	**ꯃꯦꯟꯇꯦ ꯂꯣꯌꯅꯕ.** ꯈꯨꯗꯝ ꯂꯩꯕ ꯑꯣꯏꯅꯥ ꯂꯥꯏꯁꯦꯟꯁꯀꯤ ꯆꯦꯛꯁꯤꯟ, ꯃꯦꯟꯇꯦ ꯄꯤꯖꯔꯕꯁꯤꯡ (I16) ꯑꯃꯁꯨꯡ ꯃꯥꯅꯗꯟꯗꯁꯤꯡꯗꯒꯤ ꯂꯣꯌꯅꯕ ꯄꯨꯝꯅꯃꯛ (C9-ꯗꯒꯤ C11 ꯐꯥꯑꯣꯕ, ꯇꯥꯏꯝ ꯆꯦꯛꯁꯤꯟ)-ꯒꯤ ꯑꯦꯛꯁꯄꯦꯔꯤꯃꯦꯟꯇꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯊꯧ ꯒꯤꯟꯗꯨꯅꯥ ꯍꯥꯌꯕꯥ ꯃꯇꯦꯡ ꯄꯥꯡꯕꯒꯤ ꯄꯨꯝꯕ ꯍꯣꯠꯅꯕ ꯑꯌꯥꯕꯥ ꯄꯤꯗꯦ ꯌꯥꯗꯕꯅꯤ꯫	10.5.2(c)
C18	**ꯑꯥꯠ-ꯕꯤꯜꯇ ꯄꯤ-ꯄꯦ.** ꯄꯤꯛ 4-ꯗ, ꯑꯥꯠ-ꯕꯤꯜꯇ ꯒꯥꯏꯗꯂꯥꯏꯟꯒꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ C4-ꯗꯒꯤ C17 ꯐꯥꯑꯣꯕ ꯑꯍꯣꯡ ꯍꯦꯟꯅꯥ ꯌꯥꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯄꯤꯛ 2-ꯗꯒꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤ ꯄꯥꯡꯊꯣꯛꯀꯗꯕꯅꯤ꯫	10.9.1(b), 10.9.2

10A.4 ꯑꯦꯛꯁꯦꯞꯁꯅꯁꯤꯡ

ꯃꯥꯅꯗꯟꯗꯁꯤꯡꯗꯤ ꯍꯥꯌꯕꯁꯤꯡ ꯌꯥꯗꯦ:

- (a) **ꯇꯦꯕꯜ 10-2**, ꯈꯨꯗꯝ ꯐꯥꯑꯣꯕ ꯍꯥꯌꯕ, ꯆꯦꯛꯍꯟ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤꯁꯤꯡ ꯃꯥꯅꯗꯟꯗꯁꯤꯡꯗꯒꯤ ꯒꯤꯔꯣꯁ ꯑꯃꯁꯨꯡ ꯄꯤꯛꯀꯤ ꯑꯣꯏꯕ ꯁꯨꯞꯅꯕ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ;
- (b) ꯃꯦꯞ 10A.1 ꯑꯃꯁꯨꯡ 10A.2-ꯒꯤ ꯍꯦꯟꯒꯠꯂꯕ ꯑꯃꯁꯨꯡ ꯄꯤꯛꯇꯥꯕ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤꯒꯤ ꯃꯥꯌꯣꯛꯇꯥ ꯔꯤꯕ ꯑꯦꯕ ꯑꯥꯏꯟꯔꯤꯖꯦꯟ ꯑꯃꯥ; ꯑꯃꯁꯨꯡ
- (c) ꯗꯤꯁꯀ꯭ꯔꯤꯁꯟ ꯄꯤꯗꯕꯁꯤꯡꯗꯒꯤ ꯆꯥꯡꯂꯕ ꯑꯃꯥ (C1-ꯗꯒꯤ C3, C6, C14, C17), ꯃꯁꯤꯒꯤ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤ ꯈꯨꯗꯤꯡ ꯁꯨꯞꯅꯕ ꯑꯦꯛꯁꯦꯞꯁꯟ ꯁꯦꯛꯁꯅꯒꯤ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ (ꯁꯦꯛꯁꯟ 10.7.7)꯫

10A.5 ꯄꯤꯛꯀꯤ ꯑꯣꯏꯗ꯭ꯔꯕꯁꯤꯡꯗꯒꯤ ꯈꯨꯗꯝ ꯑꯣꯏꯕꯁꯤꯡ

ꯄꯤꯛꯀꯤ ꯄ꯭ꯔꯥꯏꯃꯥꯔꯤꯒꯤ ꯈꯨꯗꯝ ꯄꯤꯛꯀꯤ ꯆꯦꯛꯀꯤ ꯍꯧꯖꯤꯛꯀꯤ ꯑꯣꯏꯕꯁꯤꯡꯗꯥ ꯃꯈꯥꯏꯑꯣꯏꯗꯦ, ꯗꯤꯁꯀ꯭ꯔꯤꯁꯟ ꯑꯃꯥꯒꯤ ꯂꯥꯏꯁꯦꯟꯁ ꯈꯨꯠꯁꯥꯒꯤ ꯔꯤꯕꯥ ꯑꯣꯏꯕ ꯄ꯭ꯔꯁꯅꯁꯤꯡ, ꯁꯦꯛꯁꯟ 4.6.7 ꯑꯃꯁꯨꯡ 4.14-ꯒꯤ ꯄ꯭ꯔꯁꯟ ꯑꯦꯍꯥꯕ ꯄ꯭ꯔꯁꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯖꯦꯠ ꯈꯦꯠꯅꯕ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 3C-ꯒꯤ ꯕꯦꯟꯆꯃꯥꯔꯛ ꯔꯤꯖꯥꯜꯇꯁꯤꯡ ꯔꯤꯗꯨꯅꯥ, ꯃꯥꯅꯗꯟꯗꯁꯤꯡꯗꯤ ꯃꯁꯤꯒꯤ ꯑꯃꯥ ꯀ꯭ꯔꯦꯗꯤꯠꯀꯤ ꯈꯨꯗꯝ ꯑꯍꯣꯡ ꯍꯦꯟꯅꯥ ꯌꯥꯗꯕ ꯍꯥꯌꯕ ꯑꯦꯕ ꯑꯣꯏꯗꯕꯅꯤ꯫ ꯃꯄꯨꯡꯐꯥꯕ ꯄꯤꯖꯔꯕꯁꯤꯡ ꯒꯤꯔꯣꯁ ꯁꯤꯖꯤꯟꯅꯗꯨꯅꯥ ꯇꯦꯛꯅꯤꯀꯃꯥꯗꯕꯅꯤ꯫

10A.6 ꯌꯨꯖꯔ ꯒꯥꯏꯗꯀꯤ ꯑꯁ꯭ꯌꯦꯇꯥꯏꯟ

ꯌꯨꯖꯔ ꯒꯥꯏꯗ ꯑꯁꯤꯗ ꯌꯥꯃꯗ꯭ꯔꯕꯗ ꯃꯈꯥꯒꯤꯁꯤꯡ ꯌꯥꯎꯒꯗꯕꯅꯤ:

1. ꯀꯦꯆ꯭ꯃꯦꯟꯇꯀꯤ ꯄꯥꯏꯟꯗꯃ, ꯔ꯭ꯁꯦꯁꯔ ꯑꯃꯁꯨꯡ ꯂꯤꯃꯤꯠꯔꯤꯡ: ꯗꯤꯂꯣꯏꯟ-ꯑꯦꯗꯀꯤ ꯂꯃꯕꯤꯒꯤ ꯃꯄꯥꯏꯟꯗ ꯔꯃꯃꯔꯤ ꯑꯃꯁꯨꯡ ꯔ꯭ꯀꯔꯤꯂꯤꯡ ꯍꯦꯛ ꯑꯃꯥ (ꯀ꯭ꯂꯣꯖ 10.5.2(c))॥
2. ꯄꯣꯂꯤꯛꯀꯤ ꯒꯔꯔꯦ ꯀꯔꯃꯂꯣ ꯐꯡꯗꯕꯥ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.5.3-ꯒꯤ ꯒꯔꯔꯦꯒꯤ ꯔ꯭ꯌꯨ॥
3. ꯇꯦꯕꯜ 10A.1-ꯒꯤ ꯏꯦꯒꯨꯂ꯭ꯌꯨ ꯌꯨꯗꯤꯡꯃꯛ, ꯃꯦꯌꯨꯈꯦꯔ ꯑꯃꯁꯨꯡ ꯃꯔꯤꯒꯤ ꯑꯄꯦꯕꯔꯤꯡꯗ ꯃꯇꯨ ꯀꯗꯣꯏꯗ ꯐꯡꯗꯕꯥ ꯄꯌꯕꯥ ꯂꯣꯌꯂꯣꯏ॥
4. ꯇꯦꯕꯜ 10A.2-ꯒꯤ ꯀꯦꯆ꯭ꯃꯦꯔꯦ ꯌꯨꯗꯤꯡꯃꯛ, ꯃꯔꯤꯒꯤ ꯏꯀ꯭ꯌꯦꯔꯦ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖꯒꯥ ꯂꯣꯌꯂꯣꯏ॥
5. ꯏꯣꯡꯊꯥꯡ C17-ꯗ ꯔꯤꯂꯤꯏꯂꯕ ꯇꯣꯂꯔꯦꯏꯔ, ꯑꯃꯁꯨꯡ ꯃꯇꯨꯗꯒꯤ ꯄꯦꯏꯂꯕ ꯃꯐꯃꯗ ꯏꯔꯃꯒꯤ ꯔꯤꯀꯣꯔ꯭ꯌꯨꯂꯣ ꯀꯔꯤ ꯇꯣꯀꯀꯤꯒꯗꯕꯥ (ꯀ꯭ꯂꯣꯖ 10.5.2(c))॥
6. ꯐꯣꯔꯃ 10-2 ꯀꯔꯃꯂꯣ ꯀꯤꯒꯗꯕꯥ ꯑꯃꯁꯨꯡ ꯂꯏꯦ ꯇꯣꯒꯗꯕꯥ, ꯑꯃꯁꯨꯡ ꯀꯔꯤ ꯂꯡꯒꯗꯕꯥ॥
7. ꯔ꯭ꯌꯨ ꯌꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯌꯥꯃꯗ꯭ꯔꯕꯗ ꯌꯥꯔꯤ ꯇꯣꯔꯕ ꯌꯨꯗꯃ ꯑꯃꯥ, "ꯌꯨꯗꯃ ꯑꯣꯏꯕ ꯏꯛꯇꯤ — ꯗꯤꯂꯣꯏꯟ ꯒꯦꯟꯌꯨ ꯂꯨꯇꯤ" ("Illustrative — not design values") ꯄꯌꯕ ꯂꯦꯕꯟ ꯇꯣꯔꯕ॥
8. ꯀꯦꯆ꯭ꯃꯦꯟꯇꯔꯗ ꯌꯥꯑꯣꯕ ꯇꯦꯕꯜ ꯌꯨꯗꯤꯡꯃꯛꯀꯤ ꯄꯣꯔꯛꯐꯃꯂꯤꯡ (ꯀ꯭ꯂꯣꯖ 10.5.4), ꯑꯃꯁꯨꯡ ꯒꯔꯔꯦ ꯂꯒꯤ॥

ꯑꯍꯦꯟꯕ 10B — GIS ꯗꯦꯇꯥꯒꯤ ꯁ꯭ꯄꯦꯁꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯠ꯭ꯔꯤꯕ꯭ꯌꯨꯠ ꯁ꯭ꯀꯤꯃꯥ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.4.4, 10.14.1(d), 10.14.3 ꯑꯃꯁꯨꯡ 10.17-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

10B.1 ꯐꯣꯔꯃꯦꯠ ꯑꯃꯁꯨꯡ ꯇꯦꯐꯇꯦꯔ ꯔꯤꯁ꯭ꯇꯦꯃꯔꯤꯡ

- (a) **ꯐꯣꯔꯃꯦꯠ.** ꯁꯕꯃꯤꯇꯦꯜ ꯄꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ OGC GeoPackage (.gpkg) ꯑꯃꯈꯛꯇ ꯄꯦꯏꯂꯥ ꯇꯃꯔꯥ॥ ꯔꯦꯀꯣꯐꯏꯟꯔꯤꯡꯨ ꯌꯥꯕꯅꯤ, ꯂꯦꯌꯇ ꯌꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯑꯃꯃꯃ, ꯀꯔꯇꯣꯂꯦꯔꯨ ꯐꯏꯟ ꯇꯨꯃꯂꯃꯛꯀꯦ ꯂꯣꯌꯂꯣꯏ ꯂꯤꯇ ꯇꯣꯛꯂꯣꯏ॥ ꯐꯤꯟꯗꯀꯤ ꯃꯃꯤꯡꯔꯤꯡ ꯇꯦꯕꯜ 10B.2-ꯗꯒꯤ 10B.6 ꯐꯥꯑꯣꯕꯗ ꯄꯕꯇꯨꯃ ꯑꯣꯏꯒꯗꯕꯅꯤ; ꯔꯦꯀꯣꯐꯏꯟꯒꯤ ꯃꯃꯤꯡꯔꯤꯡ ꯀꯦꯇꯦꯛꯇꯦ 10-ꯗ ꯂꯤꯃꯤꯠ ꯇꯣꯏ, ꯑꯃꯁꯨꯡ ꯃꯏꯗ ꯄꯕ ꯃꯃꯤꯡꯔꯤꯡꯗ ꯂꯤꯃꯤꯠ ꯑꯃꯥ ꯊꯛꯃꯄꯟꯂꯤ॥
- (b) **ꯄꯣꯔꯤꯂꯣꯔꯇꯣꯟ ꯇꯦꯐꯇꯦꯔ.** WGS 84 ꯂꯤꯑꯣꯒꯗꯐꯤꯛ (EPSG:4326), ꯂꯠꯇꯥꯒ ꯔꯁ꯭ꯇꯦꯠ ꯔꯨꯃꯕ ꯀꯒꯗ ꯇꯣꯕ WGS 84 / UTM zone 46N (EPSG:32646), ꯂꯏꯠ ꯑꯃꯥ ꯀꯗꯃꯕꯗ ꯌꯥꯑꯣꯕꯒꯥ ꯃꯥ (ꯀ꯭ꯂꯣꯖ 10.4.4(c))॥ ꯂꯦꯌꯇ ꯔꯨꯃꯂꯃꯛꯀꯤꯗꯃꯛ ꯔꯤꯁ꯭ꯇꯦꯃ ꯑꯃꯏꯛꯇꯥ ꯔꯤꯂꯤꯏꯂꯒꯗꯕꯅꯤ॥
- (c) **ꯒꯗꯇꯤꯀꯦꯟ ꯇꯦꯐꯇꯦꯔ.** ꯂꯦꯒꯦꯟ ꯔꯨꯃꯂꯃꯛ ꯃꯦꯇꯦꯗꯦꯇꯗ ꯄꯌꯗꯕ, ꯃꯃꯤꯡ ꯂꯧꯕ ꯒꯗꯇꯤꯀꯦꯟ ꯗꯦꯇꯃ ꯑꯃꯒꯤ ꯃꯌꯨꯡ ꯏꯔꯂ ꯃꯤꯇꯗꯗ ꯑꯣꯏꯒꯗꯕꯅꯤ॥ ꯃꯦꯇꯦꯗꯦꯇꯂ ꯗꯦꯇꯃ ꯑꯃꯥ ꯑꯃꯁꯨꯡ ꯃꯍꯣꯒꯤꯔꯤꯡꯒꯤ ꯃꯗꯛꯇꯒꯤ ꯃꯗꯤꯔꯨ ꯄꯌꯒꯗꯕꯅꯤ: ꯇꯃꯔꯤꯛꯀꯤ ꯌꯨꯗꯦꯟꯔꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ (Ithai barrage)-ꯗ ꯂꯩꯕ WRD-ꯒꯤ ꯒꯦꯂꯔꯤꯡꯒꯤ ꯌꯨꯗꯦꯟꯒꯤ ꯗꯦꯇꯃꯔꯤꯡ (ꯂꯦꯒꯦꯟꯔꯤꯡ ꯔꯤꯀꯂꯦꯟꯔꯤꯡꯗ ꯃꯤꯇꯗꯗ ꯐꯣꯗꯗꯣꯛꯂꯤ, ꯃꯤꯍ ꯔꯤ ꯂꯦꯒꯦꯟꯗꯒꯤ ꯑꯔꯣꯡꯕ ꯄꯌꯕ ꯂꯥꯏ, ꯗꯦꯇꯃ ꯄꯌꯗꯦ [TBC]), ꯆꯣꯇꯦꯕꯦꯀ꯭ꯔꯥ (Chotebekra)-ꯗ ꯕꯗꯣꯛ ꯌꯨꯗꯦꯟꯗ ꯂꯩꯕ CWC-ꯒꯤ ꯂꯦꯒꯦꯟ ꯃꯣꯂꯤꯇꯗꯤꯡ ꯂꯏꯠ, NHPC ꯑꯃꯁꯨꯡ CEA-ꯒꯤ ꯂꯣꯛꯇꯦꯛꯀꯤ ꯂꯦꯒꯦꯟꯔꯤꯡ, ꯊꯧꯕꯜ (ꯃꯄꯤꯊꯦꯜ) ꯗꯦꯝ (Thoubal [Mapithel] dam)-ꯒꯤ ꯗꯤꯂꯗꯒꯥꯌꯗ ꯂꯦꯒꯦꯟꯔꯤꯡ, WRD-ꯒꯤ ꯔꯤꯔꯦꯒꯤ ꯀ꯭ꯗꯦꯔ꯭ꯠꯔꯤꯡ, ꯒꯦꯠ ꯔꯤꯟꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯠ ꯊꯤꯡꯕꯒꯤ ꯂꯦꯒꯦꯟꯔꯤꯡ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 5-ꯗ ꯔꯤꯂꯤꯏꯂꯕ, ꯒꯦꯂ ꯇꯣꯛꯕ ꯌꯨꯗꯦꯟꯔꯤꯡ, ꯏꯣꯡꯔꯤꯡ, ꯄꯥꯠ (pat; lake or wetland)-ꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤ (pukhri; pond)-ꯔꯤꯡꯗ ꯔꯗꯒꯦ ꯇꯣꯗꯕ ꯏꯔꯤꯡ ꯏꯌꯦꯡꯒꯤ ꯃꯗꯛꯔꯤꯡ (ꯀ꯭ꯂꯣꯖ 10.4.4(d))॥
- (d) **ꯑꯦꯛꯌꯨꯗꯦꯔꯤ.** ꯀꯣꯂꯤꯔꯦꯔꯤꯡ ꯂꯏꯠ ꯔꯗꯒꯦ ꯂꯠꯇꯥꯒ ꯑꯦꯀꯗ꯭ꯔꯒ ꯇꯣꯗꯕ ꯗꯗꯏꯣꯡꯔꯤꯡꯗꯒꯤ ꯂꯛꯀꯗꯕꯅꯤ॥ ꯁꯔꯨꯛ 4-ꯗ ꯑꯃꯁꯨꯡ ꯄꯦꯔꯗꯑꯥꯒꯗꯗ, ꯀꯣꯂꯤꯔꯦ ꯑꯃꯁꯨꯡ ꯂꯦꯒꯦꯟꯔꯤꯡ ꯑꯦꯂ-ꯕꯤꯟꯌꯨ ꯔꯗꯒꯦꯗꯒꯤ ꯂꯛꯀꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 10.9.1(a))॥
- (e) **ꯐꯏꯟꯒꯤ ꯃꯃꯤꯡ.** `<Authority file number>_<stage>_<yyyymmdd>.gpkg`, ꯌꯨꯗꯃ ꯑꯣꯏꯕ `IMC–BP–2026–0123_S2_20261015.gpkg`॥
- (f) **ꯑꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔꯔꯤꯡ.** ꯐꯤꯌꯗ ꯌꯨꯗꯤꯡꯃꯛꯇ ꯁꯕꯃꯤꯇꯦꯜ ꯑꯃꯒꯤ ꯃꯌꯨꯡꯗ ꯑꯃꯁꯨꯡꯇ ꯑꯣꯏꯕ ꯑꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ ꯑꯃ ꯂꯩ (FAC_ID, OUT_ID, CAT_ID, FLP_ID)॥ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯔꯤꯕ ꯃꯍꯣꯗꯗ ꯃꯍꯦꯔ ꯑꯃꯥ ꯇꯦꯂꯤꯔꯤꯌꯥꯒꯤ ꯑꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔꯔꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯔꯤꯟꯂꯤ ꯑꯃꯁꯨꯡ ꯃꯥꯀꯤꯡ ꯑꯃꯥ ꯑꯦꯀꯂꯤꯀꯦꯟꯌꯨꯂ ꯄꯦꯊꯤꯟꯂꯤ॥

10B.2 [illegible]

[illegible] 10B.1 — [illegible]

[illegible]	[illegible]	[illegible]	[illegible]
SW_SITE	[illegible]	[illegible]	[illegible] 1, 2, 4
SW_CATCH	[illegible]	[illegible], [illegible] ([illegible] 10.4.1(b))	[illegible] 1, 2, 4
SW_FAC	[illegible] (5 m-[illegible], [illegible])	[illegible]: [illegible], [illegible], [illegible], [illegible], [illegible]	[illegible] 2, 4; [illegible]
SW_OUTF	[illegible]	[illegible], [illegible]	[illegible] 1, 2, 4; [illegible]
SW_FLOW	[illegible]	[illegible], [illegible] ([illegible] 10.15.1(g))	[illegible] 1, 2, 4
SW_CONV	[illegible]	[illegible] 6-[illegible] (drain) [illegible]	[illegible] 4; [illegible]
SW_META	[illegible] ([illegible])	[illegible] 10B.6-[illegible]	[illegible]

10B.3 [illegible]

[illegible]: T = [illegible], I = [illegible], R = [illegible], D = [illegible] (ISO 8601, yyyy-mm-dd)॥ "Req."-[illegible]; [illegible]॥

[illegible] 10B.2 — SW_FAC ([illegible])-[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
FAC_ID	T	—	[illegible]	[illegible]	10B.1(f)
FAC_TYPE	T	—	[illegible]	[illegible] 10B.7-[illegible]	[illegible] 4.10, [illegible] 10.3
FAC_NAME	T	—		[illegible]	—
OWNER_TYP	T	—	[illegible]	PRIVATE / ASSOC / DEVELOPER / ULB / DEPT	[illegible] 10.10, 10.14
OWNER_NM	T	—	[illegible]	[illegible]; [illegible], "[illegible]" ("private individual") ([illegible] 10.17.3)	[illegible] 10.17.3
CTRL_AREA	R	ha	[illegible]	[illegible]	[illegible] 4.5.1.3
V_RET	R	m³		[illegible]	[illegible] 4.4
V_WQ	R	m³		[illegible]	[illegible] 8.4
V_DET	R	m³		[illegible]	[illegible] 4.6

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ	ꯃꯊꯧ ꯇꯥꯕ	ꯑꯌꯥꯁꯨꯕ	ꯍꯧꯔꯛꯐꯝ
Q_2	R	L/s		50% AEP (2-yr) ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗ ꯔꯤꯂꯤꯖ	ꯀ꯭ꯂꯣꯖ 4.5
Q_10	R	L/s		10% AEP (10-yr) ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗ ꯔꯤꯂꯤꯖ	ꯀ꯭ꯂꯣꯖ 4.5
Q_100	R	L/s		1% AEP (100-yr) ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜꯗ ꯔꯤꯂꯤꯖ	ꯀ꯭ꯂꯣꯖ 4.5
ORIF_MM	R	mm		ꯂꯣ-ꯐ꯭ꯂꯣ ꯑꯣꯔꯤꯐꯤꯁꯀꯤ ꯗꯥꯏꯑꯃꯤꯇꯔ ꯅꯠꯔꯒ ꯇ꯭ꯔꯥꯏꯗꯒꯤ ꯑꯃꯤꯡꯃ ꯂ꯭ꯇꯥꯠꯀꯤ ꯗꯥꯏꯑꯃꯤꯇꯔ	ꯀ꯭ꯂꯣꯖ 4.8.2
INV_OUT	R	m		ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯏꯅꯚꯔꯠ ꯂꯦꯚꯦꯜ	ꯀ꯭ꯂꯣꯖ 10.9.1(a)
TWL_DES	R	m		ꯇ꯭ꯔꯥꯏꯗꯒꯤ ꯌꯥꯝꯕ ꯗꯤꯖꯥꯏꯟ ꯌꯥꯑꯣꯕ ꯂꯦꯚꯦꯜ	ꯀ꯭ꯂꯣꯖ 10.9.2(a)
SPILL_LV	R	m		ꯁ꯭ꯄꯤꯜꯋꯦ ꯅꯠꯔꯒ ꯑꯣꯚꯔꯐ꯭ꯂꯣꯒꯤ ꯀ꯭ꯔꯦꯁ꯭ꯠ ꯂꯦꯚꯦꯜ	ꯀ꯭ꯂꯣꯖ 4.9
PUMPED	T	—	ꯍꯣꯏ	Y / N	ꯀ꯭ꯂꯣꯖ 10.10.3
REGIONAL	T	—	ꯍꯣꯏ	Y / N	ꯀ꯭ꯂꯣꯖ 4.13
EMPANEL	T	—	ꯍꯣꯏ	Y / N: ꯀ꯭ꯂꯣꯖ 10.6.1(c) ꯅꯠꯔꯒ (d)-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯐꯦꯁꯤꯂꯤꯇꯤ	ꯀ꯭ꯂꯣꯖ 10.6.1
STATUS	T	—	ꯍꯣꯏ	ꯇꯦꯕꯜ 10B.8-ꯗꯒꯤ ꯀꯣꯗ	ꯀ꯭ꯂꯣꯖ 10.17.1(a)
APPR_DATE	D	—		ꯁ꯭ꯇꯦꯖ 2-ꯒꯤ ꯑꯦꯞꯔꯨꯚꯦꯂꯒꯤ ꯇꯥꯔꯤꯈ	ꯀ꯭ꯂꯣꯖ 10.3
ASB_DATE	D	—		ꯑꯦꯖ-ꯕꯤꯜꯠ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ ꯄꯤꯔꯕ ꯇꯥꯔꯤꯈ	ꯀ꯭ꯂꯣꯖ 10.9
DECL_REF	T	—		ꯗꯦꯀ꯭ꯂꯦꯔꯦꯁꯟ ꯔꯤꯐꯔꯦꯟꯁ (ꯐꯣꯔꯝ 10-6)-ꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ ꯅꯝꯕꯔ	ꯀ꯭ꯂꯣꯖ 10.10.1(e)
HAND_DATE	D	—		ꯑꯦꯁꯦꯠ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ (ꯐꯣꯔꯝ 10-8)-ꯒꯤ ꯇꯥꯔꯤꯈ	ꯀ꯭ꯂꯣꯖ 10.14
LAST_INSP	D	—		ꯑꯔꯣꯏꯕ ꯏꯅꯁ꯭ꯄꯦꯛꯁꯅꯒꯤ ꯇꯥꯔꯤꯈ	ꯀ꯭ꯂꯣꯖ 10.12
INSP_RES	T	—		ꯇꯦꯕꯜ 10B.9-ꯗꯒꯤ ꯀꯣꯗ	ꯀ꯭ꯂꯣꯖ 10.17.1(a)
OUT_ID	T	—	ꯍꯣꯏ	ꯐꯦꯁꯤꯂꯤꯇꯤꯗ ꯏꯁꯤꯡ ꯊꯣꯛꯄ ꯑꯥꯎꯠꯐꯣꯜ	—

ꯇꯦꯕꯜ 10B.3 — SW_OUTF (ꯑꯥꯎꯠꯐꯣꯜꯁꯤꯡ)-ꯒꯤ ꯑꯦꯠꯔꯤꯕ꯭ꯌꯨꯠꯁꯤꯡ

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ	ꯃꯊꯧ ꯇꯥꯕ	ꯑꯌꯥꯁꯨꯕ	ꯍꯧꯔꯛꯐꯝ
OUT_ID	T	—	ꯍꯣꯏ	ꯑꯥꯎꯠꯐꯣꯂꯒꯤ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ	10B.1(f)
RECEIVER	T	—	ꯍꯣꯏ	ꯏꯁꯤꯡ ꯂꯧꯕ ꯄꯥꯃꯕꯦ, ꯍꯦꯟ, ꯏꯁꯤꯡ ꯂꯩꯐꯝ ꯅꯠꯔꯒ ꯁꯃꯨꯗ꯭ꯔ, ꯃꯃꯤꯡ	ꯀ꯭ꯂꯣꯖ 4.5.1.3
RECV_TYPE	T	—	ꯍꯣꯏ	PUBLIC_DRAIN / CANAL / RIVER / TANK / SEA / OTHER	ꯁ꯭ꯇꯦꯞ 5
INV_LEVEL	R	m	ꯍꯣꯏ	ꯑꯥꯎꯠꯐꯣꯂꯒꯤ ꯏꯅꯚꯔꯠ ꯂꯦꯚꯦꯜ	ꯀ꯭ꯂꯣꯖ 10.9.1(a)
SIZE_MM	R	mm	ꯍꯣꯏ	ꯗꯥꯏꯑꯃꯤꯇꯔ, ꯅꯠꯔꯒ ꯔꯦꯛꯇꯦꯡꯒꯨꯂꯔ ꯑꯣꯏꯔꯕꯗ ꯋꯥꯏꯗ × ꯍꯥꯏꯠ	ꯁ꯭ꯇꯦꯞ 6
TIDAL	T	—	ꯍꯣꯏ	Y / N	ꯁ꯭ꯇꯦꯞ 5
GATE_TYPE	T	—		NONE / FLAP / TIDE / DUCKBILL / PENSTOCK / NRV	ꯀ꯭ꯂꯣꯖ 5.11, 9.10
GATE_REQ	T	—	ꯍꯣꯏ	Y / N: ꯏꯅꯚꯔꯠ ꯑꯁꯤ 1% AEP-ꯒꯤ ꯇꯥꯏꯗ-ꯌꯥꯑꯣꯕ ꯂꯦꯚꯦꯂꯒꯤ ꯃꯈꯥ	ꯀ꯭ꯂꯣꯖ 5.11.1
GPT	T	—		Y / N: ꯒ꯭ꯔꯣꯁ ꯄꯣꯂꯨꯇꯦꯟꯠ ꯇ꯭ꯔꯦꯞ ꯌꯥꯑꯣꯕꯔꯥ	ꯀ꯭ꯂꯣꯖ 8.10.1
Q_100	R	L/s		ꯗꯤꯖꯥꯏꯟ 1% AEP ꯗꯤꯁꯆꯥꯔꯖ	ꯁ꯭ꯇꯦꯞ 5

ꯇꯦꯕꯜ 10B.4 — SW_CATCH (ꯀꯦꯆꯃꯦꯟꯠꯁꯤꯡ)-ꯒꯤ ꯑꯦꯇ꯭ꯔꯤꯕ꯭ꯌꯨꯠꯁꯤꯡ

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ	ꯃꯊꯧ ꯇꯥꯕ	ꯑꯌꯥꯡꯕ	ꯍꯧꯔꯛꯐꯝ
CAT_ID	T	—	ꯍꯣꯌ	ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ	10B.1(f)
CONDITION	T	—	ꯍꯣꯌ	PRE / POST / EXTERNAL (ꯁꯥꯏꯠꯀꯤ ꯃꯃꯥꯡꯗ ꯂꯩꯕ, ꯁꯥꯏꯠꯀꯤ ꯃꯄꯥꯟꯗꯒꯤ ꯂꯥꯛꯂꯤꯕ ꯏꯁꯤꯡ ꯂꯝ)	ꯀ꯭ꯂꯣꯖ 10.4.1(b)
AREA_HA	R	ha	ꯍꯣꯌ	ꯑꯦꯔꯤꯌꯥ	—
IMPERV_PC	R	%	ꯍꯣꯌ	ꯏꯝꯄꯔꯚꯤꯌꯁ ꯄꯔꯁꯦꯟꯇꯦꯖ	ꯀ꯭ꯂꯣꯖ 3.9
HSG	T	—	ꯍꯣꯌ	A / B / C / D, ꯅꯠꯔꯒꯥ NOTES-ꯇ ꯑꯦꯔꯤꯌꯥꯒꯤ ꯁꯦꯌꯔꯁꯤꯡꯒꯥ ꯂꯣꯌꯅꯅ ꯃꯤꯡ ꯊꯣꯟꯕ	ꯀ꯭ꯂꯣꯖ 3.7
CN	R	—		ꯀꯔꯚ ꯅꯝꯕꯔ, AMC II	ꯁꯔꯨꯛ 3
OUT_ID	T	—	ꯍꯣꯌ	ꯃꯁꯤꯅ ꯏꯁꯤꯡ ꯊꯥꯗꯣꯛꯄ ꯑꯥꯎꯇꯐꯣꯜ	ꯀ꯭ꯂꯣꯖ 4.5.1.3
FLOODSENS	T	—	ꯍꯣꯌ	Y / N	ꯀ꯭ꯂꯣꯖ 4.5.3
NOTES	T	—		ꯐꯨꯔꯤ ꯇꯦꯛꯁꯠ	—

ꯇꯦꯕꯜ 10B.5 — SW_FLOW ꯑꯃꯁꯨꯡ SW_CONV (ꯐ꯭ꯂꯣ ꯄꯥꯊꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯟꯚꯦꯌꯥꯟꯁ)-ꯒꯤ ꯑꯦꯇ꯭ꯔꯤꯕ꯭ꯌꯨꯠꯁꯤꯡ

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯌꯨꯅꯤꯠ	ꯃꯊꯧ ꯇꯥꯕ	ꯑꯌꯥꯡꯕ	ꯍꯧꯔꯛꯐꯝ
FLP_ID	T	—	ꯍꯣꯌ	ꯂꯥꯏꯅꯒꯤ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ	10B.1(f)
LINE_TYPE	T	—	ꯍꯣꯌ	OVERLAND / NATURAL / OPEN_DRAIN / COVERED_DRAIN / PIPE / CULVERT	ꯁꯔꯨꯛ 6
US_LEVEL	R	m		ꯃꯊꯛ ꯊꯪꯕ ꯃꯐꯃꯒꯤ ꯏꯅꯚꯔꯠ ꯅꯠꯔꯒꯥ ꯀ꯭ꯔꯣꯎꯅꯒꯤ ꯂꯦꯚꯦꯜ	ꯁꯔꯨꯛ 6
DS_LEVEL	R	m		ꯃꯈꯥ ꯊꯪꯕ ꯃꯐꯃꯒꯤ ꯏꯅꯚꯔꯠ ꯅꯠꯔꯒꯥ ꯀ꯭ꯔꯣꯎꯅꯒꯤ ꯂꯦꯚꯦꯜ	ꯁꯔꯨꯛ 6
SIZE_MM	R	mm		ꯄꯥꯏꯄꯀꯤ ꯗꯥꯏꯃꯤꯇꯔ, ꯅꯠꯔꯒꯥ ꯕꯣꯛꯁꯀꯤ ꯁꯥꯏꯖ (ꯑꯦꯗ NOTES-ꯇ)	ꯀ꯭ꯂꯣꯖ 6.7.6
Q_DES	R	L/s		ꯗꯤꯖꯥꯏꯟ ꯗꯤꯁꯆꯥꯔꯖ	ꯁꯔꯨꯛ 6
AEP_DES	T	—		ꯗꯤꯖꯥꯏꯟ AEP, ꯈꯨꯗꯝ ꯑꯣꯏꯅꯥ "10%" ꯅꯠꯔꯒꯥ "1%"	ꯀ꯭ꯂꯣꯖ 6.4
RESERVE_M	R	m		ꯂꯐꯝꯒꯤ ꯐ꯭ꯔꯤꯕꯣꯔꯗꯀꯤ ꯗꯥꯡ, ꯃꯁꯤ ꯌꯥꯝꯅꯕ ꯃꯐꯝ	ꯀ꯭ꯂꯣꯖ 6.9.7
NOTES	T	—		ꯐꯨꯔꯤ ꯇꯦꯛꯁꯠ	—

ꯇꯦꯕꯜ 10B.6 — ꯃꯦꯇꯥꯗꯦꯇꯥ (SW_META)

ꯐꯤꯜꯗ	ꯑꯌꯥꯡꯕ
FILE_NO	ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ ꯐꯥꯏꯜ ꯅꯝꯕꯔ
STAGE	1, 2, 4 ꯅꯠꯔꯒꯥ HANDOVER
H_CRS	ꯍꯣꯔꯤꯖꯣꯟꯇꯦꯜ ꯀꯣꯑꯣꯔꯗꯤꯅꯦꯠ ꯁꯤꯁ꯭ꯇꯦꯃꯒꯤ EPSG ꯀꯣꯗ
V_DATUM	ꯚꯔꯇꯤꯀꯦꯜ ꯗꯦꯇꯃꯒꯤ ꯃꯃꯤꯡ

ꯐꯤꯜꯗ	ꯑꯔꯊꯕ
TIDE_REL	ꯒꯔꯨꯐꯤꯃꯦꯟ ꯗꯦꯇꯝ ꯑꯣꯏ ꯍꯥꯏꯕꯒꯤ ꯇꯧꯕ ꯍꯦꯛ: ꯁꯍꯔꯤꯛꯀꯤ ꯁꯔꯦꯟꯁꯤꯡꯗ ꯑꯍꯥꯡꯕ ꯅꯣꯡꯅ ꯕꯦꯔꯗ ꯇꯧꯕ WRD-ꯒꯤ ꯒꯦꯖꯁꯤꯡꯒꯤ ꯂꯦꯕꯜ 5-ꯒꯤ ꯁꯔꯦꯟꯒꯤ ꯗꯦꯇꯥꯁꯤꯡ (ꯆꯦꯀꯦꯟꯁꯤꯡ ꯃꯇꯨꯡ ꯆꯦꯟꯁꯤꯡꯗ ꯍꯤꯁꯕꯗ ꯃꯨꯗꯥꯠꯄꯤ, ꯍꯤꯡ ꯂꯤ ꯆꯦꯀꯦꯟꯗꯒꯤ ꯑꯔꯣꯏꯕ ꯋꯥꯐꯝ ꯇꯧꯅ, ꯗꯦꯇꯥ ꯋꯥꯐꯗ [TBC]), ꯁꯥꯔꯦꯕꯦꯗꯨꯅ ꯕꯦꯡ ꯁꯔꯦꯟꯗ ꯇꯧꯕ CWC-ꯒꯤ ꯆꯦꯀꯦꯟ ꯍꯥꯏꯔꯤꯕꯤꯗꯤ ꯂꯩꯅꯕ, NHPC ꯑꯃꯁꯨꯡ CEA-ꯒꯤ ꯆꯥꯡꯁꯥꯡꯐꯝ ꯆꯦꯀꯦꯟꯁꯤꯡ, ꯊꯧꯕꯟ (ꯍꯟꯖꯤꯊꯦꯟ) ꯗꯦꯃꯒꯤ ꯕꯤꯇꯕꯀꯥꯔꯕ ꯆꯦꯀꯦꯟꯁꯤꯡ, WRD-ꯒꯤ ꯃꯆꯥꯒꯤ ꯐꯖꯦꯂꯣꯠꯁꯤꯡ, ꯒꯦꯠ ꯂꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯠ ꯊꯤꯡꯕꯒꯤ ꯆꯦꯀꯦꯟꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯒꯦꯇ ꯆꯥꯕ ꯁꯔꯦꯟꯁꯤꯡ, ꯅꯥꯡꯁꯤꯡ, ꯃꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯧꯕꯤꯁꯤꯡꯗ ꯂꯕꯀꯥ ꯕꯣꯡꯕ ꯅꯁꯤꯡ ꯅꯔꯦꯡꯒꯤ ꯍꯦꯕꯥꯁꯤꯡ (ꯍꯗꯥ ꯑꯣꯅꯆꯦ, ꯂꯅꯠꯀꯤ ꯗꯦꯁꯥꯍꯗ MSL = x.xx m)
SURVEYOR	ꯂꯕꯀꯥꯔꯕꯒꯤ ꯍꯤꯍꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯂꯦꯖꯂ ꯆꯤꯊꯕ
SURV_DATE	ꯂꯕꯀꯥꯒꯤ ꯅꯨꯃꯤꯠ
PREP_BY	ꯂꯕꯁꯤꯃꯦꯅ ꯁꯣꯕꯤꯊ ꯄꯨꯕꯃꯦꯂꯆꯦꯇꯒꯤ ꯍꯤꯍꯤꯡ ꯑꯃꯁꯨꯡ ꯕꯦꯇꯤꯂꯁꯕꯦꯂꯖ ꯆꯤꯊꯕ
CALC_VER	ꯀꯍꯄꯨꯇꯦꯅꯔꯦꯖꯂ ꯀꯦꯇꯀꯆꯦꯁꯕꯒꯤ ꯒꯕꯂꯖ (ꯋꯔꯖꯊ 10A), ꯆꯠꯕꯒꯤ "ꯅꯂ ꯁꯕꯗꯊ"
DATE	ꯃꯅꯇ ꯂꯦꯍꯍꯤꯊ ꯅꯨꯃꯤꯠ

10B.4 ꯀꯣꯗꯀꯤ ꯂꯤꯁ꯭ꯇꯁꯤꯡ

ꯇꯦꯕꯜ 10B.7 — ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯃꯈꯂꯒꯤ ꯀꯣꯗꯁꯤꯡ (FAC_TYPE)

ꯀꯣꯗ	ꯐꯦꯁꯤꯂꯤꯇꯤ	ꯇꯦꯕꯜ 10.3-ꯒꯤ ꯅꯤꯡꯊꯧꯕꯂꯣꯡ ꯕꯣ
RET_SOAK	ꯁꯣꯛꯄꯤꯠ, ꯔꯤꯆꯦꯔꯖ ꯋꯦꯜ ꯅꯠꯔꯒꯥ ꯁꯥꯐꯠ	ꯔꯤꯇꯦꯟꯁꯟ / ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ
RET_TRENCH	ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇ꯭ꯔꯦꯟꯆ ꯅꯠꯔꯒꯥ ꯕꯦꯁꯤꯟ	ꯔꯤꯇꯦꯟꯁꯟ / ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ
RET_BIO	ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ ꯅꯠꯔꯒꯥ ꯔꯦꯟ ꯒꯥꯔꯗꯦꯟ	ꯔꯤꯇꯦꯟꯁꯟ / ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ
RET_PERM	ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯃꯦꯟꯠ	ꯔꯤꯇꯦꯟꯁꯟ / ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ
RET_REUSE	ꯔꯤꯌꯨꯖ ꯔꯤꯇꯦꯟꯁꯟ (ꯗꯤꯃꯥꯟꯗ ꯇꯧꯕ ꯇꯦꯉ꯭ꯀ)	ꯊꯃꯅꯒꯤ ꯍꯥꯏꯒꯤ ꯅꯠꯔꯒꯥ ꯄꯣꯗꯤꯌꯝꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯇꯦꯉ꯭ꯀ, ꯒꯔꯦꯀꯤꯁꯤ ꯑꯣꯐꯂꯥꯏꯟ
DET_BASIN	ꯊꯃꯅꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ	ꯊꯃꯅꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ ꯅꯠꯔꯒꯥ ꯍꯥꯏꯁꯤ-ꯐ꯭ꯂꯣ ꯑꯣꯄꯤꯡ ꯂꯄꯤꯂ ꯑꯦꯔꯤꯌꯥ
DET_OSR	ꯑꯣꯄꯤꯡ ꯂꯄꯤꯂ, ꯄꯥꯔꯛ ꯅꯠꯔꯒꯥ ꯂꯦꯡꯆꯕ ꯍꯃꯍꯗ ꯍꯥꯏꯁꯤ-ꯐ꯭ꯂꯣ ꯗꯤꯇꯦꯟꯁꯟ	ꯊꯃꯅꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ ꯅꯠꯔꯒꯥ ꯍꯥꯏꯁꯤ-ꯐ꯭ꯂꯣ ꯑꯣꯄꯤꯡ ꯂꯄꯤꯂ ꯑꯦꯔꯤꯌꯥ
DET_ROOF	ꯔꯨꯐꯇꯣꯞꯀꯤ ꯗꯤꯇꯦꯟꯁꯟ	ꯊꯃꯅꯒꯤ ꯍꯥꯏꯒꯤ ꯅꯠꯔꯒꯥ ꯄꯣꯗꯤꯌꯝꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯇꯦꯉ꯭ꯀ, ꯒꯔꯦꯀꯤꯁꯤ ꯑꯣꯐꯂꯥꯏꯟ
DET_PODIUM	ꯄꯣꯗꯤꯌꯝ ꯅꯠꯔꯒꯥ ꯆꯦꯟꯗꯂꯀꯥꯄ-ꯗꯦꯞ ꯗꯤꯇꯦꯟꯁꯟ	ꯊꯃꯅꯒꯤ ꯍꯥꯏꯒꯤ ꯅꯠꯔꯒꯥ ꯄꯣꯗꯤꯌꯝꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯇꯦꯉ꯭ꯀ, ꯒꯔꯦꯀꯤꯁꯤ ꯑꯣꯐꯂꯥꯏꯟ
DET_PARK	ꯄꯥꯔꯀꯤꯡ-ꯆꯣꯛ ꯗꯤꯇꯦꯟꯁꯟ	ꯊꯃꯅꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ ꯅꯠꯔꯒꯥ ꯍꯥꯏꯁꯤ-ꯐ꯭ꯂꯣ ꯑꯣꯄꯤꯡ ꯂꯄꯤꯂ ꯑꯦꯔꯤꯌꯥ
DET_TANK	ꯊꯃꯅꯒꯤ ꯍꯥꯏꯒꯤ ꯇꯦꯉ꯭ꯀ ꯅꯠꯔꯒꯥ ꯒꯣꯝ, ꯒꯔꯦꯀꯤꯁꯤ ꯑꯣꯐꯂꯥꯏꯟ	ꯊꯃꯅꯒꯤ ꯍꯥꯏꯒꯤ ꯅꯠꯔꯒꯥ ꯄꯣꯗꯤꯌꯝꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯇꯦꯉ꯭ꯀ, ꯒꯔꯦꯀꯤꯁꯤ ꯑꯣꯐꯂꯥꯏꯟ
DET_PUMP	ꯄꯝꯄ ꯇꯧꯕ ꯗꯤꯇꯦꯟꯁꯟ ꯅꯠꯔꯒꯥ ꯄꯝꯄꯤꯡ ꯂꯣꯡꯂꯦ	ꯄꯝꯄ ꯇꯧꯕ ꯗꯤꯇꯦꯟꯁꯟ, ꯄꯝꯄꯂꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯦꯂꯣꯕꯒꯤꯡ
WQ_POND	ꯁꯦꯗ ꯄꯣꯟꯗ ꯅꯠꯔꯒꯥ ꯀꯦꯂꯣꯕꯥꯟꯗ ꯁꯣꯕꯊ ꯁꯦꯗꯆꯦꯟꯗ	ꯊꯃꯅꯒꯤ ꯗꯤꯇꯦꯟꯁꯟ ꯕꯦꯁꯤꯟ ꯅꯠꯔꯒꯥ ꯍꯥꯏꯁꯤ-ꯐ꯭ꯂꯣ ꯑꯣꯄꯤꯡ ꯂꯄꯤꯂ ꯑꯦꯔꯤꯌꯥ
WQ_SWALE	ꯂꯁꯦꯡ ꯅꯠꯔꯒꯥ ꯃꯤꯁꯕ ꯂꯁꯕꯤꯄ	ꯄꯕꯤꯅꯒꯥꯠ ꯍꯣꯡꯊꯖꯤꯡ ꯑꯃꯁꯨꯡ ꯏꯖꯦꯠꯂꯤꯡ

[illegible]	[illegible]	[illegible] 10.3-[illegible] [illegible] [illegible]
WQ_GPT	[illegible] [illegible] [illegible], [illegible]-[illegible] [illegible] [illegible] [illegible]-[illegible] [illegible]	[illegible] [illegible] [illegible] / [illegible]-[illegible] [illegible]
GATE	[illegible] [illegible] [illegible] [illegible], [illegible]-[illegible] [illegible]	[illegible] / [illegible] [illegible], [illegible]-[illegible] [illegible]
CONV	[illegible] [illegible], [illegible] [illegible] [illegible] (culvert)	[illegible] [illegible] [illegible] [illegible]

[illegible] 10B.8 — [illegible] [illegible] (STATUS)

[illegible]	[illegible]
PROPOSED	[illegible] 1 [illegible] [illegible] 2-[illegible] [illegible] [illegible]
APPROVED	[illegible] 2 [illegible] [illegible]; [illegible] [illegible] [illegible]
ASBUILT	[illegible]-[illegible] [illegible] [illegible] ([illegible] 10.9)
HANDEDOVER	ULB-[illegible] [illegible] ([illegible] 10.14)
ALTERED	[illegible] [illegible] [illegible] [illegible] ([illegible] 10.3.5)
REMOVED	[illegible] [illegible] [illegible] [illegible]

[illegible] 10B.9 — [illegible] [illegible] [illegible] (INSP_RES)

[illegible]	[illegible]
OK	[illegible] [illegible] [illegible] [illegible]; [illegible] [illegible]
MINOR	[illegible] [illegible] [illegible] [illegible]; [illegible] [illegible] [illegible]
MAJOR	[illegible], [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]; [illegible] [illegible] ([illegible] 10.15.2, [illegible] 1)
NOACCESS	[illegible] [illegible] [illegible]
NOTFOUND	[illegible] [illegible], [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] ([illegible] 10.15.1(c))

10B.5 [illegible] [illegible] [illegible]

[illegible] 10.17.1(a)-[illegible] [illegible] [illegible] [illegible] [illegible] SW_FAC-[illegible] [illegible] [illegible]: FAC_ID, FAC_TYPE, [illegible] ([illegible]), V_DET ([illegible] V_RET, V_WQ), Q_100 ([illegible] Q_2, Q_10), OWNER_NM, ASB_DATE, LAST_INSP [illegible] INSP_RES॥ [illegible] [illegible] 10.17.4-[illegible] [illegible] [illegible] CSV [illegible] GeoPackage [illegible] [illegible]॥ [illegible] [illegible] [illegible] ([illegible] 10.17.3)॥

[illegible] 10C — [illegible] [illegible] [illegible]

[illegible] 10-[illegible] [illegible] 10.13-[illegible] [illegible] [illegible]॥

[illegible] 10.13-[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]॥ [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]॥ [illegible] [illegible] [illegible] [illegible] [illegible], [illegible] [illegible] [illegible] [illegible], O&M [illegible] ([illegible] 10.11.1(h))-[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible], [illegible] [illegible] "[illegible] [illegible] [illegible]" ("to be confirmed in design") [illegible] [illegible] [illegible]॥

[illegible] 10C.1 — [illegible]

[illegible]	[illegible]	[illegible]
[illegible] 2 m [illegible]	[illegible] 3.5 m [illegible], 500 m-[illegible]	6.9.4
[illegible]	[illegible] 6.9-[illegible]; [illegible] 6.9.4-[illegible], [illegible]	6.9.7
[illegible], [illegible]	0.6 m × 0.6 m [illegible]	6.7.6
[illegible], [illegible]	10 m-[illegible], [illegible] 0.6 m [illegible], [illegible]	6.13.2(a)
[illegible], [illegible]	[illegible], [illegible], [illegible] 30 m-[illegible] 0.6 m × 0.6 m [illegible]	6.13.2(b)
[illegible]	[illegible] 600 mm [illegible]	9.12.3
[illegible]	[illegible] 300 mm [illegible], [illegible]	6.6.7
[illegible]	[illegible]; 500 m²-[illegible], 30 m-[illegible]; [illegible] 1% [illegible]	4.10.2(b), (c)
1 ha-[illegible]	[illegible] ([illegible])	4.8.6
[illegible]	600 mm-[illegible] ([illegible] 5) [illegible] 900 mm [illegible] ([illegible] 9) [illegible]; [illegible], [illegible] HAT + [illegible] + [illegible]	5.11.3(d), (e); 9.10.3
[illegible]	1% AEP-[illegible]; [illegible]; [illegible] 0.6 m ([illegible]) [illegible] 1.0 m ([illegible])-[illegible]	9.9.6, 9.9.10, 9.9.12
[illegible]	[illegible] BMP-[illegible]	8.5.4
[illegible], [illegible]	[illegible], [illegible]	8.10.3(d)
[illegible]	[illegible]	8.7.6(c)
[illegible]	4H:1V-[illegible], [illegible] 6H:1V [illegible]	4.15.1(c)
[illegible]	[illegible] 3 m [illegible], [illegible] 0.3 m-[illegible]	4.15.2
[illegible]	[illegible] 4.15.3-[illegible], [illegible] 1.2 m [illegible], [illegible]	4.15.3

[illegible] 10C.2 — [illegible] ([illegible])

ꯑꯦꯂꯤꯃꯦꯟꯠ	ꯗꯤꯖꯥꯏꯅꯒꯤ ꯄꯔꯤꯡꯒꯕ	ꯆꯦꯞꯇꯔ ꯑꯃꯁꯨꯡ ꯆꯦꯞꯇꯔ ꯀ꯭ꯂꯣꯖ
ꯕꯦꯁꯤꯟ, ꯍꯣꯠꯗ ꯂꯠꯄꯒꯤ ꯄꯃꯗꯥꯏꯂꯕ ꯔꯦꯂꯦꯡ ꯑꯃꯒꯤ ꯅꯦꯂꯦꯠ, ꯑꯁꯨꯟꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯕꯦꯂꯗ ꯔꯠꯀ ꯒꯗꯤꯒꯤ ꯑꯦꯒꯃꯦꯃ ꯗꯨꯠ	O&M ꯄ꯭ꯂꯥꯟꯗ ꯂꯣꯕ ꯄ꯭ꯂꯥꯟꯁꯤꯡꯗꯤꯃꯒ ꯍꯦꯟ, ꯒꯗꯦꯗꯤꯔꯦꯁ, ꯒꯗꯤ ꯄꯦꯕꯒꯤ ꯃꯖꯃ ꯑꯃꯁꯨꯡ ꯗꯤꯂꯅꯟ ꯂꯥꯗ	10.13.2
ꯕꯦꯁꯤꯟ ꯂꯠꯄꯒꯤ ꯍꯥꯗꯦꯗ ꯑꯃꯒꯤ ꯃꯂꯩꯒꯥ ꯂꯣꯕ ꯃꯦꯁꯥꯂꯦꯁꯦꯃ ꯃꯁꯗꯤꯍ	ꯔꯤꯖꯍꯗꯕꯗ ꯃꯅꯀ ꯑꯃꯒꯤ ꯃꯂꯩꯒꯥ ꯍꯩꯒ	10.13.2
ꯕꯦꯁꯤꯟ ꯑꯃꯗ ꯔꯒꯕ ꯗꯦꯃꯍ	ꯃꯦꯗꯤꯃꯦꯁꯠ ꯂꯣꯆꯀꯍꯒꯤ ꯄ꯭ꯂꯥꯟꯁꯤꯡꯗꯤꯃꯒ ꯍꯦꯟ, ꯒꯗꯦꯗꯤꯔꯦꯁ ꯑꯃꯁꯨꯡ ꯃꯗꯖꯦꯃ	10.13.2
ꯍ꯭ꯗꯅꯂꯠ ꯁꯦꯒꯡꯃꯒꯤꯕꯒꯤ ꯑꯦꯒꯃꯦꯃ ꯑꯍꯂꯤꯕꯃꯤꯕ	ꯅꯂꯠ, ꯑꯁꯤꯠꯂꯠ ꯑꯃꯁꯨꯡ ꯔꯦꯍꯕꯗ ꯄꯨꯗꯤꯕꯃꯒꯀꯤ ꯃꯆꯒꯁ ꯂꯣꯕ ꯑꯍꯂꯤꯕ ꯄꯨꯗꯤꯕꯃꯒꯀꯤ ꯀꯂꯤꯔꯗ ꯃꯅꯂ	10.13.3(a)
ꯂꯦꯗꯗ ꯑꯃꯁꯨꯡ ꯅꯍꯕꯆꯕꯃꯤꯕ	ꯃꯅꯔ ꯑꯃꯁꯨꯡ ꯃꯗꯒꯀꯤ ꯂꯍꯍ; ꯀꯂꯏꯅꯂꯗ ꯃ꯭ꯍꯦꯃꯁ ꯔꯕꯂꯕꯒꯤꯗꯃꯒ ꯒꯦꯂꯁꯤꯂꯦꯃꯂ	10.13.3(b)
ꯂꯣꯃꯅꯒꯤ ꯃꯅꯒꯤ ꯁꯦꯡꯃꯒꯤꯕꯗ ꯍꯦꯗꯨꯃ	ꯅꯨꯠꯂ ꯃꯦꯕꯗꯀꯍꯒꯤꯗꯃꯒ ꯀꯂꯤꯔꯗ ꯑꯔꯤꯕ	10.13.3(d)
ꯑꯗꯤꯏꯤꯃ ꯑꯃꯁꯨꯡ ꯃ꯭ꯀꯗꯤꯂꯃꯤꯕꯗ ꯔꯣꯕ	ꯅꯃꯤꯕ ꯆꯂꯂꯕ ꯏꯦꯃꯤꯂꯤꯁꯤ ꯑꯃꯗ ꯔꯕꯗꯂ ꯑꯁꯤꯠꯂꯠ ꯑꯃꯨ ꯀꯗꯃꯂ ꯃꯦꯕꯗꯀꯍꯦ	10.13.4

> **ꯃꯂꯗꯒꯂ ꯁꯒꯍ.** APWA 5600 (2006, §5608)-ꯂ ꯗꯤꯁꯦꯂꯃꯂ ꯏꯦꯃꯤꯂꯤꯁꯤꯃꯤꯕꯒꯤꯗꯃꯒ 15 ft (4.5 m ꯗꯃ)-ꯒꯤ ꯃꯦꯂꯁꯦꯂꯦꯂꯃꯀꯤ ꯑꯦꯒꯃꯦꯃ ꯃ꯭ꯁꯗꯤꯍ ꯑꯃ ꯃꯆꯠ ꯁꯄꯔꯂꯃꯃꯤ꯫ ꯃꯂꯤꯍ꯭ꯗꯒꯤ ꯃꯄꯗꯃꯤꯕꯗ ꯍ꯭ꯂꯠꯀꯤ ꯃꯅꯂꯃꯤꯕ ꯔꯃꯂ ꯅꯠꯂꯕꯂ ꯃꯗꯃ ꯑꯅꯗꯂ ꯃꯦꯂꯔꯦꯔꯂ ꯍ꯭ꯗꯅꯂꯠ ꯃꯅꯠꯃꯤꯕꯒꯤꯗꯃꯒ ꯏꯤꯒꯃ ꯁꯗꯕ ꯍꯤꯒ ꯑꯃ ꯂꯅꯤꯗꯦ (ꯀꯂꯥ 10.13-ꯒꯤ ꯃꯂꯗꯒꯂ ꯁꯒꯍ)꯫ ꯃ꯭ꯁꯦꯠ ꯂꯕꯒꯤ ꯅꯃꯤꯕꯒꯤ ꯁꯦꯒꯂꯤꯀꯦꯔ ꯀꯃꯤꯁꯤꯂ ꯑꯍꯦꯟꯕ 6C ꯑꯃꯁꯨꯡ 9B-ꯒꯤ ꯃ꯭ꯁꯦꯂꯗꯗꯗ ꯗ꯭ꯗꯅꯕꯃꯤꯕ ꯅꯃ ꯁꯗꯀꯍ ꯃꯁꯃꯗ ꯇꯦꯕꯔ 10C.2-ꯗ ꯃ꯭ꯁꯦꯂꯗꯗꯗ ꯒꯦꯔꯅ꯭ꯗꯃꯤꯕ ꯍꯍꯃꯤꯂꯕ ꯔꯅ꯫

ꯑꯍꯦꯟꯕ 10D — ꯏꯦꯃꯤꯂꯤꯁꯤꯒꯤ ꯃꯅꯔ ꯃꯁꯨꯕ ꯅꯂꯂ ꯃꯗꯦꯔ O&M ꯄ꯭ꯂꯥꯟꯁꯤꯡ

ꯁꯔꯨꯡ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.11, 10.12 ꯑꯃꯁꯨꯡ 10.13-ꯗ ꯃꯁꯦꯕ ꯍꯥꯕꯅ꯫

ꯃꯅꯗ ꯂꯣꯕ ꯃꯗꯦꯔ ꯄ꯭ꯂꯥꯟꯁꯤꯡ ꯑꯃꯤ ꯍꯕꯒꯤ ꯃꯏꯃꯃꯤꯕꯂꯤ꯫ ꯗꯤꯂꯥꯅꯂꯗꯂ ꯃꯅꯔ ꯑꯃꯤ ꯏꯦꯃꯤꯂꯤꯁꯤ ꯅꯗꯤꯕꯃꯒꯀꯤꯗꯃꯒ ꯅꯂꯍꯔꯂꯤ ꯑꯃꯁꯨꯡ "______" ꯍꯔꯂ ꯃꯗꯒ ꯁꯗꯕ ꯑꯅꯁꯦꯃꯃꯤꯕ ꯃꯍꯨꯕ ꯏꯍꯔꯂꯤ꯫ ꯅꯦꯃ꯭ꯍꯦꯒꯃꯦꯒꯤ ꯏ꯭ꯗꯤꯀ꯭ꯔꯦꯃꯤꯃꯤꯕ ꯑꯃꯤ ꯁꯦꯕꯔ 10.3-ꯒꯤ ꯃꯤꯂꯤꯃ ꯏ꯭ꯗꯤꯀ꯭ꯔꯦꯃꯤꯃꯤꯕꯂꯤ; ꯄ꯭ꯂꯥꯟ ꯑꯃꯂ ꯍꯦꯂ ꯔꯃꯂ ꯅꯦꯃ꯭ꯍꯦꯒꯃꯦ ꯁꯗꯕ ꯆꯃꯕ ꯔꯅ, ꯀꯗꯀꯗꯃ ꯍꯦꯂ ꯂꯦꯃꯂ ꯂꯠꯁꯦ꯫ ꯑꯍꯦꯟꯕ ꯑꯃꯤꯂ ꯒꯔꯅ꯭ꯂ ꯑꯃ ꯗꯤꯂꯥꯅꯂꯗꯗ ꯆꯗꯒꯂꯕ ꯃꯏꯃꯗ, ꯃꯦꯂꯔꯦꯔꯂ ꯃꯗ꯭ꯂ ꯆꯃꯗꯦ꯫

10D.1 O&M ꯄ꯭ꯂꯥꯟ ꯅ꯭ꯗꯤꯕꯃꯒꯀꯤ ꯑꯄꯥꯝꯕꯁꯤꯡ

ꯄ꯭ꯂꯥꯟ ꯅ꯭ꯗꯤꯕꯃꯒꯁ ꯀꯂꯥ 10.11.1-ꯒꯤ ꯑꯅꯁꯦꯃꯃꯤꯕ ꯔꯅ꯭ꯒꯗꯕꯂꯤ:

ꯇꯦꯕꯜ 10D.1 — O&M ꯄ꯭ꯂꯥꯟ ꯑꯃꯒꯤ ꯑꯄꯥꯝꯕꯁꯤꯡ

ꯑꯥꯏꯇꯦꯝ	ꯑꯄꯥꯝꯕ	ꯀꯂꯥ
1	ꯏꯦꯃꯤꯂꯤꯁꯤ ꯅ꯭ꯗꯤꯕꯃꯒꯀꯤ ꯅꯦꯒꯦꯁꯗꯤ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟ ꯗ꯭ꯗꯅꯕ, ꯗꯤꯂꯅꯦ ꯂꯦꯒꯦꯔꯃꯤꯕ, ꯒꯂ꯭ꯍꯃꯤꯕ ꯑꯃꯁꯨꯡ ꯑꯁꯤꯠꯂꯠꯀꯤ ꯑꯀꯍꯀ ꯃꯗꯔꯒ ꯂꯔꯂꯂ (SW_FAC, ꯑꯍꯦꯟꯕ 10B-ꯗꯒꯤ)	10.11.1(a)
2	ꯗ꯭ꯁꯤꯦ ꯆꯕꯒꯃꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯅꯔꯒꯤ ꯏ꯭ꯗꯤꯀ꯭ꯔꯦꯃꯤ (ꯇꯦꯕꯔ 10D.2-ꯗꯒꯤ 10D.8 ꯏꯗ꯭ꯕ)	10.11.1(b)
3	ꯃꯦꯗꯤꯃꯦꯁꯠ ꯂꯣꯆꯀꯍꯒꯤ ꯁꯗꯤꯒꯗ, ꯗꯦꯍꯆ (mm) ꯂꯠꯗꯒꯤ ꯗꯤꯂꯅꯦ ꯒꯂ꯭ꯍꯒꯤ ꯍꯗꯦꯃꯦꯁꯦꯂ ꯑꯃꯤ ꯑꯅꯂ: ______	10.11.1(c)

ꯑꯥꯏꯇꯦꯝ	ꯑꯄꯥꯝꯕ	ꯀ꯭ꯂꯣꯖ
4	ꯐꯣꯔꯝ 10-7-ꯒꯥ ꯃꯥꯟꯅꯕ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ ꯆꯦꯛꯂꯤꯁ꯭ꯠ	10.11.1(d)
5	ꯄꯝꯄ, ꯒꯦꯠ ꯑꯃꯁꯨꯡ ꯚꯜꯚꯁꯤꯡꯒꯤꯗꯃꯛ: ꯑꯣꯄꯔꯦꯇꯤꯡ ꯔꯨꯜꯁꯤꯡ, ꯇꯦꯁ꯭ꯠ ꯀꯤꯠ, ꯂꯣꯒꯕꯨꯛ, ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯀꯦꯄꯦꯁꯤꯇꯤ, ꯑꯃꯁꯨꯡ ꯏꯃꯔꯖꯦꯟꯁꯤ ꯀꯟꯇꯦꯛꯇ ꯁꯤꯡꯗ ꯄꯨꯕꯒꯤ ꯔꯦꯁꯤꯡꯗ ꯇꯥꯛꯀꯗꯕ ꯊꯕꯛꯁꯤꯡ	10.11.1(e)
6	ꯁꯦꯟꯇ꯭ꯔꯦꯜ ꯃꯣꯅꯤꯇꯔꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯟꯠꯔꯣꯜ ꯄꯣꯏꯟꯇꯁꯤꯡ ꯃꯦꯞ ꯇꯧꯕꯥ ꯗꯥꯏꯒ꯭ꯔꯥꯃꯁꯤꯡ, ꯀ꯭ꯂꯣꯖ 4.7-ꯒꯤ ꯍꯥꯏꯔꯥꯔꯀꯤꯒꯥ ꯂꯤꯡꯛ ꯇꯧꯕ	10.11.1(f)
7	ꯔꯦꯀꯣꯔꯗ: ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ ꯂꯣꯒꯁꯤꯡ, ꯑꯦꯂꯥꯔꯝ ꯂꯣꯒꯁꯤꯡ, ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯔꯦꯖꯤꯁ꯭ꯇꯔ	10.11.1(g)
8	ꯔꯦꯖꯤꯁ꯭ꯇꯔ ꯍꯥꯟꯗꯣꯚꯔ ꯑꯃꯁꯨꯡ ꯇ꯭ꯔꯦꯅꯤꯡ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ (ꯑꯦꯅꯦꯛꯁ 10C)	10.11.1(h)
9	ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯄꯔꯆꯦꯖꯒꯤ ꯕꯖꯦꯠꯀꯤ ꯂꯦꯈꯥ (ꯆꯍꯤ ꯈꯨꯗꯤꯡꯗ ₹ ______) ꯑꯃꯁꯨꯡ ꯃꯇꯝ ꯀꯨꯞꯇꯥ ꯊꯕꯛꯀꯤ	10.11.1(i)
10	ꯗꯤꯖꯥꯏꯟ ꯂꯥꯏꯐꯁꯥꯏꯀꯂꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯀꯨꯞꯇꯥ ꯔꯤꯚꯤꯎ ꯇꯧꯕ: ꯆꯍꯤ ______ (ꯀꯥꯡꯀꯤ ꯂꯥꯏꯐꯁꯥꯏꯀꯂꯁꯤꯡ ꯔꯤꯚꯤꯎ ꯇꯧꯕ ꯆꯍꯤ 5, ꯀ꯭ꯂꯣꯖ 9.9.8(c))	10.11.1(j)

10D.2 ꯃꯥꯗꯦꯜ ꯄ꯭ꯂꯥꯟꯁꯤꯡ

ꯇꯦꯕꯜ 10D.2 — ꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ (ꯂꯥꯏꯅꯔꯁꯤꯡ, ꯇ꯭ꯔꯦꯟꯆꯁꯤꯡ, ꯕꯦꯁꯤꯟ ꯔꯤꯇꯦꯟꯁꯟ, ꯀꯦꯆꯃꯦꯟꯠ ꯀꯣꯃꯤꯡ)

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁ ꯀꯥꯏꯇꯦꯔꯤꯌꯥ	ꯀ꯭ꯂꯣꯖ
ꯂꯦꯚꯦꯜ, ꯁꯦꯗꯤꯃꯦꯟꯇꯁꯤꯡ, ꯑꯣꯔꯤꯐꯤꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯚꯥꯔꯐ꯭ꯂꯣ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯌꯦꯡꯕ	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ; 31 ꯃꯥꯔꯆꯀꯤ ꯃꯃꯥꯡꯗ; ꯀꯥꯡꯂꯕ ꯅꯣꯡ ꯆꯨꯕ ꯃꯇꯨꯡꯗ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ	ꯕꯂꯣꯀꯦꯖ ꯂꯩꯇꯕ; ꯑꯣꯚꯥꯔꯐ꯭ꯂꯣ ꯂꯩꯇꯕ	ꯇꯦꯕꯜ 10.3
ꯑꯣꯕꯖꯔꯚꯦꯁꯟ ꯋꯦꯜ ꯀꯥꯏꯇꯦꯔꯤꯌꯥꯒꯤ ꯂꯦꯚꯦꯜ ꯌꯦꯡꯕ	ꯅꯣꯡ ꯆꯨꯕ ꯈꯨꯗꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ ꯈꯨꯗꯤꯡꯃꯛꯇꯥ	ꯅꯣꯡ ꯁꯣꯌꯕ ꯃꯇꯨꯡꯗ 72 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯑꯍꯥꯅꯕ ꯑꯦꯟ; ꯑꯣꯏꯔꯕꯗꯤ, ꯀ꯭ꯂꯣꯒꯤꯡ (clogging) ꯊꯤꯖꯤꯟꯕ	4.4.5, 8.7.6(c)
ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ (ꯐꯣꯔꯕꯦ, ꯐꯤꯜꯇꯔ ꯀꯣꯇꯤꯡ, ꯂꯤꯁꯤꯡ ꯇꯦꯁ꯭ꯠ) ꯂꯧꯊꯣꯛꯄ	ꯂꯧꯊꯣꯛꯀꯗꯕ ꯇꯦꯁ꯭ꯠꯀꯤ (ꯑꯥꯏꯇꯦꯝ 3) ꯃꯇꯨꯡ ꯏꯟꯅ	ꯃꯍꯧꯁꯥ BMP ꯂꯧꯊꯣꯛꯂꯗꯨꯅ ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ ꯂꯧꯊꯣꯛꯄ	8.5.3, 8.5.4
ꯕꯦꯁꯤꯟ ꯔꯤꯇꯦꯟꯁꯟ: ꯃꯅꯥ, ꯀꯃꯕꯤꯁꯤꯡ, ꯏꯁꯤꯡ ꯄꯥꯡꯀꯥ (ponding)	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯅꯣꯡ ꯁꯣꯌꯕ 48 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯊꯥꯗꯣꯛ; ꯂꯤꯕꯦꯠ ꯀꯃꯕꯤꯁꯤꯡ ꯃꯈꯥ ꯂꯩꯇꯕ; ꯃꯅꯥ 50–75 mm	8.7.2
ꯀꯦꯆꯃꯦꯟꯠ ꯀꯣꯃꯤꯡ: ꯂꯦꯚꯦꯜ	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯂꯩꯔꯤꯕ ꯑꯦꯛꯁꯦꯁ ꯃꯤꯟꯁꯤꯡ ꯑꯣꯏꯕ; ꯏꯁꯤꯡ ꯈꯨꯔꯥꯡ ꯄꯥꯀꯆꯕ ꯀꯣꯏꯁꯤꯜ ꯑꯃꯁꯨꯡ ꯍꯟꯗꯣꯛꯄ ꯂꯦꯚꯦꯜ ꯇꯦꯁ꯭ꯇꯤꯡ	8.7.5(e)
ꯏꯁꯤꯡ ꯀꯥꯔꯤꯕ ꯑꯔꯤꯕ ꯁꯦꯡꯗꯣꯛ ꯊꯝꯕ	ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯇꯥ	ꯍꯥꯞꯆꯤꯟꯕ ꯇꯥꯀꯄ ꯑꯦꯛꯁꯤꯀ꯭ꯌꯨꯠ ꯇꯧꯕ; ꯂꯧꯊꯣꯛꯀꯗꯕ ꯔꯦꯀꯣꯔꯗ ꯔꯤꯡꯕ	10.8.3(b)
ꯐꯥꯏꯇꯥꯏ ꯑꯣꯏꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯂꯤꯇꯤꯒꯦꯁꯟ ꯑꯦꯟꯗ ꯊꯝꯕ	ꯁꯦꯗꯤꯃꯦꯟꯇꯦꯁꯟ ꯈꯨꯗꯤꯡꯃꯛꯇꯥ	ꯑꯥꯀꯨꯄꯥꯡ ꯔꯤꯚꯦꯂꯗ ꯐꯤꯡ ꯇꯧꯕ, ꯀꯥꯡꯇꯕ, ꯀꯥꯡ ꯇꯧꯕ ꯑꯦꯛꯁꯦꯁ ꯃꯊꯦꯡ ꯂꯧꯕ	10.10.1(d)

ꯇꯦꯕꯜ 10D.3 — ꯇꯦꯛꯅꯤꯀꯦꯜ ꯑꯦꯛꯁꯦꯂꯦꯟꯁ ꯕꯣꯔꯗ ꯑꯦꯛꯁꯦꯁ ꯃꯅꯨꯡ-ꯂꯦꯠ ꯑꯥꯀꯨ ꯀꯣꯟꯀꯦ ꯑꯦꯛꯁꯤꯟ

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁ ꯀꯥꯏꯇꯦꯔꯤꯌꯥ	ꯀ꯭ꯂꯣꯖ
ꯁꯦꯗꯤꯃꯦꯟꯇꯁꯤꯡ, ꯑꯥꯎꯠꯂꯦꯠ, ꯑꯦꯛꯁꯤꯟꯒ, ꯄ꯭ꯔꯦꯂ ꯀꯥꯡ ꯑꯃꯁꯨꯡ ꯀꯣꯟꯀꯦꯔ ꯁꯦꯗꯤꯃꯦꯟꯇ ꯌꯦꯡꯕ	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ; 31 ꯃꯥꯔꯆꯀꯤ ꯃꯃꯥꯡꯗ; ꯀꯥꯡꯂꯕ ꯅꯣꯡ ꯆꯨꯕ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ	ꯑꯦꯛꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯀꯥꯡ ꯂꯩꯇꯕ; ꯀꯣꯟꯀꯦꯔꯗ ꯑꯊꯤꯕ ꯇꯥꯕ	ꯇꯦꯕꯜ 10.3, 4.8, 4.9
ꯗꯦꯕ꯭ꯔꯤ ꯑꯃꯁꯨꯡ ꯂꯧꯊꯣꯛꯀꯗꯕ ꯇꯧꯔꯛꯄ	ꯂꯧꯊꯣꯛꯀꯗꯕ ꯇꯦꯁ꯭ꯠꯀꯤ ꯃꯇꯨꯡ, ꯑꯃꯁꯨꯡ ꯊꯥꯗꯣꯛꯀꯗꯕ ꯃꯇꯨꯡꯗ	ꯗꯤꯖꯥꯏꯟ ꯀꯦꯄꯦꯁꯤꯇꯤ ꯑꯃꯥꯡ ꯍꯟꯗꯣꯛꯄ ꯐꯤꯟꯁꯤꯡ	10.11.1(c)

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯣꯖ
ꯕꯦꯁꯤꯟ ꯑꯗꯨꯗꯒꯤ ꯏꯁꯤꯡ ꯊꯣꯀꯈꯔꯥ ꯍꯥꯌꯕ ꯆꯦꯛ ꯇꯧꯕ	ꯅꯣꯡ ꯆꯨꯔꯕ ꯃꯇꯨꯡꯗ	ꯅꯦꯝꯕ ꯃꯐꯝ ꯑꯃꯠꯇꯗ 72 h-ꯗꯒꯤ ꯍꯦꯟꯅꯥ ꯏꯁꯤꯡ ꯂꯦꯡꯗꯕ	4.15.7
ꯄꯥꯝꯕꯤꯁꯤꯡ	ꯄ꯭ꯂꯥꯟꯇ ꯊꯃꯅꯕꯄꯨꯃꯅꯥ	ꯒ꯭ꯔꯥꯁ ꯀꯚꯔꯕ; ꯄꯥꯟ (embankment)-ꯁꯤꯡꯗ ꯅꯠꯔꯒ ꯑꯃꯨꯆꯨꯅꯦꯆ ꯅꯥꯆꯦꯟꯗ ꯈꯨꯊꯥꯏ ꯄꯥꯒꯕ	10.11.1(b)
ꯁꯦꯐꯇꯤꯒꯤ ꯐꯤꯆꯔꯁꯤꯡ	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ	ꯐꯦꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯣꯁ꯭ꯠ ꯅꯦꯕ ꯁꯥꯏꯟꯕꯣꯔꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯇꯖ ꯈꯥꯗꯀꯗ ꯈꯃꯈꯗ ꯇꯣꯕ; ꯈꯊꯧ ꯌꯧꯕ ꯈꯃꯈꯗ ꯐꯦꯆꯟ ꯑꯃꯁꯨꯡ ꯒꯦꯠꯁꯤꯡ ꯐꯕ ꯑꯣꯏꯅꯕ	4.15.3, 4.15.5
ꯄꯥꯟ (ꯅꯥꯗꯕꯗꯤ)	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ ꯑꯃꯁꯨꯡ ꯊꯣꯀꯄꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ	ꯀꯔꯥꯛ, ꯁꯅꯤꯖ, ꯁꯤꯖꯦꯜ ꯅꯠꯔꯒ ꯑꯁꯤꯡꯒꯤ ꯕꯔꯥꯁꯤꯡ ꯅꯩꯕ	4.9.6

ꯇꯦꯕꯜ 10D.4 — ꯅꯩꯈꯟꯒꯤ ꯈꯆꯥꯒꯤ ꯅꯠꯔꯒ ꯁꯦꯗꯤꯃꯦꯟꯇꯒꯤ ꯗꯤꯁꯆꯥꯔꯖ ꯁꯦꯝꯄꯜ, ꯄ꯭ꯔꯣꯒ꯭ꯔꯥꯝ ꯑꯦꯛꯁꯟ

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯣꯖ
ꯑꯦꯛꯁꯦꯁ ꯑꯥꯔꯅꯤꯡꯁꯤꯡꯗꯒꯤ ꯅꯩꯁꯔꯦꯛꯠ ꯇꯧꯕ: ꯅꯩꯅꯠꯁꯤꯡ, ꯑꯦꯛꯁꯟ, ꯑꯥꯔꯤꯐꯤꯁ, ꯁꯀꯔꯤꯟ, ꯁꯃꯔ, ꯒꯦꯇꯇꯤꯡ	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ; 31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ; ꯀꯟꯅꯥ ꯅꯣꯡ ꯆꯨꯕ ꯅꯨꯃꯤꯠ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ	ꯁꯦꯝꯕ; ꯒꯦꯇꯇꯤꯡ ꯍꯥꯟꯗꯣꯀꯄ	ꯇꯦꯕꯜ 10.3, 4.10.2
ꯁꯃꯔ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯁꯦꯁ ꯁꯦꯝꯗꯥꯀꯔ	ꯁꯦꯗꯤꯃꯦꯟꯇ ꯇ꯭ꯔꯤꯒꯔ ꯌꯣꯔꯀꯔ ꯃꯇꯃꯗ	ꯄ꯭ꯔꯣꯁꯦꯁ ꯑꯣꯏꯕ ꯌꯥꯕꯗ ꯁꯃꯔꯗ ꯈꯔꯥ ꯅꯛꯇ	4.10.2(c)
ꯅꯩꯅꯠꯀꯤ ꯁꯤꯟꯠ ꯇ꯭ꯔꯣꯒꯔ ꯅꯠꯔꯒ GPT	ꯊꯥ 3 ꯈꯨꯗꯤꯡꯃꯛ (GPT-ꯁꯤꯡꯒꯤꯗꯃꯛ ꯇꯦꯕꯜ 10.3-ꯒꯤ ꯗꯥ)	ꯁꯦꯝꯕꯗ	4.10.2(e)
ꯑꯥꯏꯔꯟꯄꯅꯥꯒꯤ ꯃꯨꯠ	ꯅꯩꯁꯔꯦꯛꯠ ꯈꯨꯗꯤꯡꯃꯛꯇ	ꯑꯦꯛꯁꯟ ꯀꯤꯗꯅꯕ ꯃꯇꯃꯗ ꯊꯕꯛ ꯇꯧꯅ; ꯑꯥꯏꯔꯟꯄꯥꯅ ꯁꯔꯨꯛ ꯌꯥꯟꯗ ꯃꯨꯠꯇ ꯀꯤꯗꯕ ꯅꯩꯕ	4.9.5
ꯀꯟꯖꯔꯟꯁꯦꯟ ꯁꯀꯔꯟꯇ ꯌꯗꯕ	ꯌꯗꯕ ꯈꯨꯗꯤꯡꯃꯛꯇ	ꯃꯦꯇꯦꯔꯦꯜ ꯗꯤꯁꯆꯥꯔꯖ ꯍꯧꯕꯗ ꯌꯗꯕꯒꯤ ꯁꯀꯔꯤꯟ ꯆꯦꯛꯇꯕ; ꯃꯇꯨꯡꯗ ꯀꯊꯣꯛꯄꯗ ꯅꯛ ꯇꯥꯕ	4.15.6
ꯃꯐꯝ ꯑꯃꯨ ꯁꯤꯅꯤꯄꯦꯟꯕ	ꯅꯩꯁꯔꯦꯛꯠ ꯈꯨꯗꯤꯡꯃꯛꯇ	ꯁꯦꯗꯀꯗꯤ ꯅꯠꯔꯒ ꯁꯦꯟꯠꯌꯇꯔ ꯇꯥꯡꯅꯕ ꯁꯤꯅꯤꯄꯦꯟꯅꯕ; ꯒꯦꯇꯇ ꯍꯦꯊꯍꯦꯟꯅꯕ	10.10.1(d)

ꯇꯦꯕꯜ 10D.5 — ꯁꯃꯔ ꯅꯩꯕ ꯀꯤꯁꯦꯟꯁꯦ, ꯁꯃꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯥꯟꯁꯤꯡ

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯣꯖ
ꯀꯨꯔꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯒꯠꯄ, ꯁꯃꯔ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯇꯦꯁ꯭ꯠ ꯔꯦꯡ	ꯊꯥ ꯈꯨꯗꯤꯡꯃꯛ	ꯁꯃꯔ ꯈꯨꯗꯤꯡꯃꯛ ꯅꯦꯒꯦꯜ ꯃꯦꯟꯇꯦꯅꯥꯟꯁ ꯇꯧꯅ; ꯊꯥꯀꯁꯤꯡ ꯍꯥꯃꯅꯕ	ꯇꯦꯕꯜ 10.3, 9.9.4(c)
ꯈꯔꯨꯡ ꯑꯗ ꯀꯨꯔꯦꯟꯠ ꯇꯦꯁ꯭ꯠ	31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ	ꯁꯤꯡꯒꯠꯄ ꯃꯁꯤꯒꯤ ꯀꯤꯅꯥꯏ ꯀꯨꯔꯦꯟꯠ ꯁꯃꯔꯦꯠ ꯑꯦꯛꯄꯥꯅꯤ	ꯇꯦꯕꯜ 10.3, 10.9.3
ꯁꯤꯡꯒꯠꯄꯅ ꯁꯔꯣꯐ	ꯊꯥ ꯈꯨꯗꯤꯡꯃꯛ ꯇꯦꯁ꯭ꯠ ꯐꯪꯂꯕ ꯅꯥꯏꯔꯅ; 31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ ꯈꯔꯨꯡ ꯑꯗ ꯇꯦꯁ꯭ꯠ	ꯑꯥꯏꯃꯦꯇꯤ ꯌꯦꯡꯁꯤꯟꯕ ꯊꯕꯛ ꯇꯧꯅ; ꯀꯨꯔꯦꯟꯠ ꯁꯃꯔ ꯁꯤꯡꯒꯠꯄꯒꯤ ꯌꯤꯁꯤꯟꯕ 72 h-ꯒꯤ ꯑꯗꯨꯔꯦꯟ ꯁꯅꯩꯕ ꯅ	9.9.9
ꯅꯦꯇꯦꯟ ꯃꯦꯟꯇꯦꯅꯁꯤꯡ, ꯑꯗꯥꯏ ꯕꯦꯛ-ꯑꯄ, ꯑꯦꯗꯤꯁꯤꯡ, ꯇꯦꯅꯤꯀꯦꯜꯁꯤ	ꯊꯥ ꯈꯨꯗꯤꯡꯃꯛ	ꯂꯣꯒ-ꯅꯦꯇꯦꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯜꯇꯥꯔꯝ ꯑꯦꯗꯤꯁꯤꯡ ꯃꯦꯟꯇꯦꯅꯥꯟ ꯐꯪꯅ ꯌꯥꯏ	9.9.8

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒꯥ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯥꯖ
ꯁ꯭ꯀ꯭ꯔꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯤꯜꯠ ꯇ꯭ꯔꯦꯞ	ꯊꯥ 3 ꯈꯨꯗꯤꯡꯃꯛ ꯑꯃꯁꯨꯡ ꯊꯧꯗꯣꯛꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ	ꯁꯦꯡꯕ	9.9.7
[illegible]	[illegible]	[illegible] ꯂꯦꯚꯦꯜꯁꯤꯡ, [illegible] [illegible] ꯑꯃꯁꯨꯡ [illegible] ꯐꯤꯚꯝ [illegible] [illegible]; [illegible] [illegible] 5 [illegible]	9.9.8(c)
ꯋꯥꯔꯅꯤꯡꯒꯤ ꯃꯇꯃꯗ ꯂꯧꯒꯗꯕ ꯊꯕꯛꯁꯤꯡ	IMD-ꯒꯤ [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] ꯊꯕꯛꯁꯤꯡ: ______ ([illegible] [illegible] [illegible] [illegible] [illegible], [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] [illegible])	10.11.1(e), 9.9.12

ꯇꯦꯕꯜ 10D.6 — [illegible] ꯅꯠꯔꯒꯥ [illegible] [illegible], [illegible] [illegible]

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒꯥ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯥꯖ
[illegible] ꯇꯧꯕ ꯑꯃꯁꯨꯡ [illegible] ꯇꯧꯕ	ꯊꯥ 3 ꯈꯨꯗꯤꯡꯃꯛ; [illegible] [illegible] [illegible] [illegible] ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ	[illegible] [illegible] [illegible] [illegible]; [illegible] [illegible] [illegible], [illegible] [illegible] [illegible] [illegible] [illegible]	ꯇꯦꯕꯜ 10.3, 9.10.4
[illegible] [illegible]	31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	ꯇꯦꯕꯜ 10.3, 10.9.3
[illegible], [illegible] ꯑꯃꯁꯨꯡ [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] ꯑꯃꯁꯨꯡ [illegible] [illegible]	9.10.5(b)
[illegible]	31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	9.10.3
[illegible], [illegible] ꯑꯃꯁꯨꯡ [illegible]	31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ	[illegible] [illegible] ꯊꯕꯛ [illegible] [illegible] [illegible] [illegible]	9.10.6
[illegible] [illegible] [illegible]	ꯊꯥ 3 ꯈꯨꯗꯤꯡꯃꯛ	[illegible] [illegible] [illegible] [illegible]; [illegible] [illegible] [illegible]	5.11.4

ꯇꯦꯕꯜ 10D.7 — [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒꯥ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯥꯖ
[illegible] [illegible] ꯑꯃꯁꯨꯡ [illegible] [illegible]	ꯊꯥ 3 ꯈꯨꯗꯤꯡꯃꯛ; 31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ; [illegible] [illegible] [illegible] ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯃꯇꯨꯡꯗ	[illegible] [illegible] [illegible] ꯃꯃꯥꯡꯗ [illegible] [illegible]; [illegible] ꯁꯦꯡꯕ	ꯇꯦꯕꯜ 10.3, 8.4.6
ꯁ꯭ꯀ꯭ꯔꯤꯟꯁꯤꯡ	[illegible] ꯈꯨꯗꯤꯡꯃꯛꯇ	ꯁꯦꯡꯕ; [illegible] [illegible] ꯁꯦꯡꯕ	8.10.3(b)
[illegible]	[illegible] ꯈꯨꯗꯤꯡꯃꯛꯇ	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	—

ꯇꯦꯕꯜ 10D.8 — [illegible] [illegible] ꯑꯃꯁꯨꯡ [illegible]

ꯊꯕꯛ	ꯐ꯭ꯔꯤꯀ꯭ꯋꯦꯟꯁꯤ	ꯁ꯭ꯇꯦꯟꯗꯔꯗ ꯅꯠꯔꯒꯥ ꯇ꯭ꯔꯤꯒꯔ	ꯀ꯭ꯂꯥꯖ
[illegible], [illegible] ꯑꯃꯁꯨꯡ [illegible] [illegible] [illegible] [illegible] ꯑꯃꯁꯨꯡ [illegible]	ꯊꯥ 6 ꯈꯨꯗꯤꯡꯃꯛ; 31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ	[illegible] ꯑꯃꯁꯨꯡ [illegible] [illegible]	ꯇꯦꯕꯜ 10.3
[illegible] (sewage) [illegible] [illegible] [illegible] [illegible]	[illegible] ꯈꯨꯗꯤꯡꯃꯛꯇ	[illegible]; [illegible] [illegible]	1.5.4, 8.9
[illegible] [illegible] [illegible]	[illegible] ꯈꯨꯗꯤꯡꯃꯛꯇ	[illegible], [illegible] [illegible] [illegible] [illegible] [illegible]	6.9.2, 10.15.1(g)

ꯑꯍꯦꯟꯕ 10E — ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯗꯤꯂꯣꯅꯇ ꯀ꯭ꯂꯣꯇꯦꯁꯂꯦꯝꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯒꯤꯈ꯭ꯔꯄꯁꯤꯡꯒꯤ ꯅꯈꯀꯦꯂꯦꯝꯃꯦꯇꯌꯀꯤ ꯀ꯭ꯄꯣꯅꯦꯄꯤꯔꯣ

ꯁꯄ꯭ꯊ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.6, 10.7.4 ꯑꯃꯁꯨꯡ 11.4.3-ꯗ ꯃꯅꯦꯡ ꯀꯣꯡꯅ꯫

> *ꯀꯈꯀꯤꯅꯦꯇꯌ ꯑꯣꯃꯣꯄꯤꯅ ꯑꯃꯂꯣ ꯔꯣꯍꯝ ꯅꯣꯊꯂꯕ ꯃꯣꯗꯦꯝ ꯅꯦꯊꯁꯅ꯫ ꯔꯌꯂꯤꯗꯦ꯫* ꯀ꯭ꯂꯣꯖ 10.6.2-ꯂꯣ ꯅꯈꯀꯦꯂꯦꯝꯃꯦꯇꯌꯀꯤ ꯀ꯭ꯄꯣꯅꯦꯄꯤꯔꯣ ꯅꯁ꯭ꯨ ꯅꯣꯕꯒꯤ ꯍꯣꯗꯡ ꯑꯁꯤ TPD-ꯗ ꯀꯆꯤꯄꯤ꯫ ꯃꯅꯣꯗ ꯂꯣꯕ ꯅꯦꯊꯁꯅ ꯑꯁꯤ ꯃꯣꯗꯦꯝ ꯑꯃꯂꯤ꯫ "[ ]" ꯄꯔꯂꯣ ꯈ꯭ꯌꯂꯤꯕ ꯒꯦꯝꯈ꯭ꯨꯁꯤꯡ ꯑꯁꯤ ꯀꯈꯀꯤꯅꯦꯇꯌ ꯑꯣꯃꯣꯄꯤꯅꯤꯂꯣ ꯍꯈꯂꯕꯂꯤ; ꯃꯦꯂ꯭ꯨꯔꯦꯝꯂꯣ ꯃꯅꯣꯔ ꯍꯈꯗꯦ꯫

10E.1 ꯃꯣꯗꯦꯝ ꯀ꯭ꯄꯣꯅꯦꯄꯤꯔꯣ

1. **ꯆꯤꯁ꯭ꯌꯁꯤꯡ.** ꯀꯈꯀꯤꯅꯦꯇꯌ ꯑꯣꯃꯣꯄꯤꯅꯤꯂꯣ ꯀꯕꯆ꯭ꯤꯊ ꯆꯤꯁ꯭ꯌ ꯑꯃ꯭ꯨꯈ ꯍꯈꯒꯗꯕꯂꯤ:
   - (a) **ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯗꯤꯂꯣꯅꯇ ꯀ꯭ꯄꯣꯇꯦꯁꯂꯦꯝꯁꯤꯡ**, ꯃꯅꯣꯔꯂꯣ ꯀ꯭ꯂꯣꯖ 10.6.1-ꯒꯤ ꯃꯅꯣꯗ ꯗꯤꯂꯣꯅꯇꯁꯤꯡꯗ ꯋꯅꯇ ꯅꯣꯕ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.6.4-ꯒꯤ ꯃꯅꯣꯗ ꯅꯇꯗꯤꯀꯦꯇꯗꯦꯇꯌ ꯔꯦꯀꯄ ꯑꯣꯅꯂꯣ ꯍꯕꯊ ꯅꯣꯕ ꯔꯣꯅ;
   - (b) **ꯅꯈꯀꯦꯂꯦꯝ ꯅꯣꯄꯕ ꯄꯤꯒꯤꯈ꯭ꯔꯄꯁꯤꯡ**, ꯃꯅꯣꯔꯂꯣ ꯀ꯭ꯂꯣꯖ 10.7.4-ꯒꯤ ꯃꯅꯣꯗ ꯑꯣꯄꯤꯅ ꯑꯃꯒꯤꯗꯃꯊ ꯁꯕꯃꯤꯅꯦꯝꯁꯤꯡ ꯄꯤꯒꯤꯈ꯭ ꯅꯣꯕ ꯔꯣꯅ; ꯑꯃꯁꯨꯡ
   - (c) **ꯕꯦꯁꯤꯇ ꯃꯣꯗꯦꯂꯤꯡꯒꯤ ꯅꯇꯗꯣꯄꯁꯃꯦꯇꯌ** ꯑꯃꯤ, ꯀ꯭ꯂꯣꯖ 11.4.3-ꯒꯤ ꯃꯅꯣꯗ BSMP ꯑꯃꯤ ꯁꯦꯈꯕ ꯂꯌꯄꯒ ꯂꯈꯂꯤꯡꯕ ꯔꯣꯕ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯗꯤꯂꯣꯅꯇ ꯀ꯭ꯄꯣꯇꯦꯁꯂꯦꯝ ꯑꯃꯂꯣ ꯂꯣꯕ꯫
2. **ꯆꯤꯁ꯭ꯌ (a)-ꯒꯤ ꯔꯣꯕ ꯃꯇꯈꯁꯤꯡ.** ꯑꯦꯀꯂꯤꯀꯦꯇꯌ ꯑꯃꯂꯣ:
   - (a) ꯁꯤꯒꯤꯝ ꯅꯇꯂꯤꯂꯤꯔꯄꯤꯡꯗ ꯗꯤꯒ꯭ꯄꯤ ꯑꯃꯤ, ꯂꯌꯄꯒ ꯀꯈꯀꯤꯅꯦꯇꯌ ꯑꯣꯃꯣꯄꯤꯅꯤꯂꯣ ꯁꯊꯅꯊꯂꯕ ꯃꯤꯇꯂꯕ ꯀ꯭ꯔꯣꯂꯤꯇꯤꯀꯦꯁꯇ ꯑꯃꯤ ꯂꯣꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 10.6.2);
   - (b) ꯃꯣꯗꯦꯝ ꯃꯂꯤꯀ꯭ꯨꯄ ꯈ꯭ꯂꯤꯇꯤꯅꯗ ꯕꯤꯝꯗꯤꯡ ꯕꯅ-ꯂꯣ 2024 (Model Manipur Unified Building Bye-Laws 2024)-ꯒꯤ ꯃꯅꯣꯗ ꯀ꯭ꯄꯣꯇꯦꯁꯂꯦꯝ ꯑꯃꯤ ꯑꯣꯅꯂꯣ ꯄꯦꯂꯤꯁ꯭ꯅꯄ ꯅꯣꯄꯕ ꯑꯣꯅꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 1.4);
   - (c) ꯒ꯭ꯄꯦꯈ꯭ꯔꯦꯁꯇꯒꯤ ꯃꯅ꯭ꯨꯡꯗ ꯅꯄꯈ ꯗꯤꯂꯣꯅꯇꯗ ꯔꯣꯈꯗ꯭ꯄꯕꯗ ꯔꯄ [ ]-ꯒꯤ ꯑꯦꯊꯁꯀ꯭ꯄꯤꯔꯦꯇꯁ ꯂꯣꯒꯗꯕꯂꯤ, ꯃꯁꯤ ꯔꯣꯈꯗ꯭ꯄꯕꯗ ꯀ꯭ꯄꯣꯂꯦꯊꯌ [ ]-ꯒꯤ ꯆꯤꯁ꯭ꯌ ꯑꯃꯂꯣ, ꯃꯅꯣꯔ ꯈ꯭ꯗꯤꯡꯃꯊꯅ ꯑꯦꯀꯂꯤꯀꯦꯇꯌꯀꯤ ꯍꯣꯗꯡꯒ ꯂꯣꯔꯂꯂꯣ ꯈ꯭ꯌꯀꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 10.6.2); ꯑꯃꯁꯨꯡ
   - (d) ꯑꯦꯀꯂꯤꯀꯦꯁꯇ ꯀꯤꯗ꯭ꯄꯤꯗꯤꯒꯤ ꯃꯃꯤꯡꯒꯤ ꯔꯄ [ ]-ꯒꯤ ꯃꯂ꯭ꯨꯡꯗ, ꯑꯦꯁꯦꯁꯃꯦꯇꯌꯀ ꯂꯣꯔꯂꯂꯣ ꯃꯦꯂ꯭ꯨꯔꯦꯝ ꯑꯁꯤꯒꯤ ꯅ꯭ꯄꯦꯂꯤꯡ ꯀꯣꯄꯁ ꯑꯃꯤ ꯃꯀ꯭ꯨꯡ ꯇꯄꯝꯂꯕ ꯑꯣꯅꯒꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 10.6.2)꯫
3. **ꯆꯤꯁ꯭ꯌ (b)-ꯒꯤ ꯔꯣꯕ ꯃꯇꯈꯁꯤꯡ.** ꯆꯤꯁ꯭ꯌ (a)-ꯒꯤꯗꯃꯊꯀ꯭ꯈꯂꯣ, ꯔꯣꯈꯗ꯭ꯄꯕꯗ ꯔꯄ [ ]-ꯒꯤ ꯑꯦꯊꯁꯀ꯭ꯄꯤꯔꯦꯇꯁꯒ ꯂꯣꯔꯂꯂꯣ, ꯃꯗ꯭ꯒꯤ ꯃꯂ꯭ꯨꯡꯗ ꯔꯣꯈꯗ꯭ꯄꯕꯗ ꯔꯄ [ ] ꯃꯦꯂ꯭ꯨꯔꯦꯝ ꯑꯁꯤ ꯂꯌꯄꯒ ꯃꯤꯇꯂꯕ ꯁ꯭ꯅꯦꯇꯗꯄꯗ ꯑꯃꯒꯤ ꯃꯅꯣꯗ ꯅꯄꯈꯒꯤ ꯗꯤꯂꯣꯅꯇ ꯂꯌꯄꯒ ꯄꯤꯒꯤꯈ꯭ꯗ꯫
4. **ꯕꯦꯁꯤꯇ ꯃꯣꯗꯦꯂꯤꯡꯒꯤ ꯅꯇꯗꯣꯄꯁꯃꯦꯇꯌ (c).** ꯔꯣꯈꯗꯄꯕꯗ ꯁ꯭ꯅꯗꯤ [ ]-ꯗ ꯀꯦꯂꯤꯕ꯭ꯄꯦꯁꯇ ꯔꯣꯈ꯭ꯂꯣ ꯕꯦꯁꯤꯇ-ꯁ꯭ꯀꯦꯝ 1D–2D ꯃꯣꯗꯦꯂꯤꯡꯗ ꯑꯦꯊꯁꯀ꯭ꯄꯤꯔꯦꯇꯁ ꯈ꯭ꯌꯀ ꯂꯣꯡꯒꯤ ꯅꯁꯤꯡ ꯗꯤꯂꯣꯅꯇ ꯀ꯭ꯄꯣꯇꯦꯁꯂꯦꯝ ꯑꯃꯤ (ꯀ꯭ꯂꯣꯖ 11.4.3)꯫
5. **ꯔꯦꯀꯄ ꯑꯃꯒꯤ ꯅꯇꯗꯤꯀꯦꯇꯗꯦꯇ.** ꯀ꯭ꯂꯣꯖ 10.6.4-ꯒꯤ ꯃꯅꯣꯗ ꯔꯦꯀꯄ ꯑꯃꯤ ꯗꯤꯂꯣꯅꯂꯄꯒꯤ ꯇꯄꯈ ꯂꯌꯄꯒ ꯑꯦꯀꯂꯤꯀꯦꯇꯌꯂꯣ ꯍꯕꯊ ꯀꯤꯄꯕ ꯂꯌꯄꯒ ꯃꯅꯣꯔꯒꯤ ꯀꯤꯄꯅꯂꯄ ꯑꯣꯅꯄꯣꯅꯗꯕꯂꯤ, ꯑꯃꯁꯨꯡ ꯗꯤꯂꯣꯅꯇ ꯑꯁ꯭ꯨꯗ ꯍꯕꯊ ꯅꯣꯅꯤꯄꯣꯅꯗꯕꯂꯤ꯫
6. **ꯄꯤꯒꯤꯈ꯭ꯔꯄ ꯑꯃꯒꯤ ꯀꯇꯇꯂꯤꯊꯌ ꯑꯣꯇ ꯅꯇꯅꯄꯦꯁ꯭ꯌ.** ꯅꯈꯀꯦꯂꯦꯝ ꯅꯣꯄꯕ ꯄꯤꯒꯤꯈ꯭ꯔꯄ ꯑꯃꯂꯣ ꯄꯤꯒꯤꯈ꯭ꯔꯄ ꯑꯁ꯭ꯨ ꯂꯌꯄꯒ ꯄꯤꯒꯤꯈ꯭ꯔꯄꯒꯤ ꯇꯄꯈꯂꯣ ꯀꯄꯤꯒ꯭ꯨꯈꯕ ꯍꯣꯗꯡ ꯑꯃꯗ ꯍꯕꯊ ꯅꯣꯅꯤꯕ ꯋꯅꯌ ꯑꯃꯤ ꯄꯤꯒꯤꯈ꯭ ꯅꯣꯄꯣꯅꯗꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 10.7.4), ꯑꯃꯁꯨꯡ ꯄꯤꯒꯤꯈ꯭ ꯑꯃꯤ ꯔꯣꯗ꯭ꯄꯤꯗꯤꯒꯤ ꯃꯃꯤꯡꯗ ꯑꯅꯣꯀꯀ ꯅꯇꯅꯄꯦꯁ꯭ꯌ ꯑꯃꯄꯊꯅ ꯗꯤꯊꯂꯦꯔꯄ ꯅꯣꯒꯗꯕꯂꯤ꯫ ꯑꯣꯃꯣꯄꯤꯅ ꯑꯁꯤꯂꯣ ꯔꯣꯄꯦꯀ ꯂꯣꯕ ꯑꯁ꯭ꯨ ꯑꯣꯅꯂꯣ ꯂꯣꯄꯤ (ꯀ꯭ꯂꯣꯖ 10.7.4)꯫
7. **ꯑꯦꯀꯂꯤꯀꯦꯁꯇ.** ꯑꯦꯀꯂꯤꯀꯦꯁꯇ ꯑꯁ꯭ꯨꯗ ꯗꯤꯒ꯭ꯄꯤ ꯑꯃꯁꯨꯡ ꯄꯦꯂꯤꯁ꯭ꯅꯄꯦꯁꯇꯒꯤ ꯀ꯭ꯄꯨꯇ, ꯄꯦꯇꯄꯦꯇꯁꯤꯡꯒ ꯂꯣꯔꯂꯂꯣ ꯀ꯭ꯄꯣꯂꯦꯊꯌ ꯆꯤꯁ꯭ꯌ, ꯅ꯭ꯄꯦꯂꯤꯡ ꯁꯄꯅꯤꯇꯤꯀꯦꯌ, ꯑꯃꯁꯨꯡ ꯅꯇꯇꯣꯄꯃꯦꯁꯇ ꯑꯁꯤ ꯑꯈ꯭ꯨꯈꯕꯂꯤ ꯄꯔꯕ ꯋꯅꯇ ꯅꯣꯄꯕ ꯗꯤꯊꯂꯦꯄꯦꯁꯇ ꯑꯃꯤ ꯔꯣꯈ꯭ꯒꯗꯕꯂꯤ꯫

8. **ꯌꯍꯆ ꯑꯃꯁꯨꯡ ꯍꯤꯂꯤꯌꯑꯥꯟ.** ꯅꯆꯗꯥꯂꯥꯟꯃꯥꯔꯧ ꯑꯁꯤ ꯈꯐꯤ [ ]-ꯒꯤꯍꯃꯡ ꯒꯥꯇꯤꯍ ꯑꯣꯅ꯫ ꯍꯤꯂꯤꯌꯑꯥꯟꯒꯤꯍꯃꯡ ꯃꯅꯦ ꯈꯧꯆꯍꯤꯕ ꯗꯍꯥꯡꯌꯤꯁꯄꯤ ꯁꯡꯁꯤ, ꯑꯃꯁꯨꯡ ꯃꯥꯔꯨꯈꯥꯟ ꯑꯁꯤ ꯍꯤꯒꯤꯇꯔ ꯌꯧꯍꯕ ꯃꯌꯨꯡꯍ ꯅꯁꯨ ꯌꯧꯍꯕ ꯍꯤꯈꯍꯥꯁꯍ ꯌꯍꯥꯂꯤꯡ ꯑꯃꯐꯥꯡꯌꯒꯤ ꯁꯡꯁꯤ ꯃꯆꯧ ꯌꯣꯅ (ꯄꯇꯣꯇ 1.12)꯫

9. **ꯁꯁꯗꯥꯈꯁꯈ ꯑꯃꯁꯨꯡ ꯇꯧꯆꯣꯄꯗ.** ꯑꯍꯦꯂꯕ ꯂꯛꯍꯒꯣ ꯈꯥꯡꯁꯤꯈꯍꯕ ꯁꯍꯌꯤꯈꯤꯄꯥꯛ ꯑꯃꯒꯤ ꯃꯌꯨꯡꯍ (ꯄꯇꯣꯇ 10.6.5), ꯌꯥꯕꯟ 10.4-ꯒꯤ ꯅꯣꯡꯆꯡ 6-ꯒꯤ ꯃꯅꯦꯍ ꯍꯤꯗꯣꯍꯛ ꯑꯃꯍ, ꯂꯛꯍꯒꯣ ꯍꯥꯇꯤꯁꯌꯍꯥꯁꯈ ꯃꯦꯡꯇꯕꯍ, ꯄꯆꯗꯤꯌꯥꯈꯛ ꯑꯣꯆꯣꯍꯤꯌꯤꯂꯦ ꯅꯆꯗꯥꯂꯥꯟ ꯌꯧꯍꯕ ꯃꯤꯑꯣꯅ ꯑꯃꯕꯨ ꯁꯁꯗꯥꯈꯍ ꯌꯧꯕ ꯂꯛꯍꯒꯣ ꯇꯧꯆꯣꯄꯗ ꯈꯦꯅ꯫ ꯃꯤꯑꯣꯅ ꯑꯃꯨꯍ ꯂꯣꯌꯤꯁ ꯑꯃꯁꯨꯡ ꯃꯁꯦꯒꯤ ꯌꯦꯈꯆ ꯐꯔꯕꯒꯤ ꯅꯨꯍꯣꯡꯈꯦꯕ ꯗꯤꯒꯍꯕꯂꯤ꯫ ꯁꯁꯗꯥꯈꯁꯈ ꯑꯃꯁꯨꯡ ꯇꯧꯆꯣꯄꯗ ꯅꯨꯍꯤꯡꯃꯡ ꯇꯤꯁꯨꯛ ꯑꯃꯨꯍ ꯈꯣꯡꯍꯣꯡꯄꯍꯕꯂꯤ꯫

10. **ꯗꯕꯇꯤꯄꯥꯁꯈ.** ꯇꯤꯁꯨꯛꯁꯤꯡ ꯑꯁꯤ ꯈꯣꯡꯍꯣꯡꯄꯍꯕꯂꯤ ꯑꯃꯁꯨꯡ ꯐꯧꯇꯤꯡꯄꯤ ꯑꯣꯅꯂꯦ ꯆꯆꯒꯍꯕꯂꯤ, ꯃꯤꯑꯣꯅ ꯅꯨꯍꯤꯡꯃꯡꯄꯤ ꯃꯃꯤꯡ, ꯍꯥꯇꯤꯁꯌꯍꯥꯁꯈ ꯂꯆꯕꯍ, ꯇꯤꯁꯨꯛ, ꯅꯈꯍꯣꯍꯁꯃꯥꯈꯛ ꯑꯃꯁꯨꯡ ꯒꯥꯇꯤꯍꯤꯌꯤ ꯇꯣꯅꯕ ꯂꯨꯃꯤꯛꯄꯦ ꯇꯣꯔꯂꯦ꯫

ꯐꯣꯔꯝ 10-1 — ꯏꯔꯝ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯆꯦꯛꯂꯤꯁꯠ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀꯂꯣꯖ 10.4.1-ꯗꯒꯤ 10.4.4 ꯐꯥꯎꯕ ꯑꯃꯁꯨꯡ 10.7.1-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯁꯇꯦꯖ 1 ꯑꯃꯁꯨꯡ ꯁꯇꯦꯖ 2-ꯒꯤ ꯁꯕꯃꯤꯇꯦꯜ ꯄꯨꯗꯤꯡꯃꯛꯀꯥ ꯂꯣꯌꯅꯅ ꯄꯤꯒꯗꯕꯅꯤ꯫ ꯑꯥꯏꯇꯦꯝ ꯄꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯃꯗꯨ ꯌꯦꯡꯁꯤꯟꯕꯤꯕ ꯂꯃꯥꯏ ꯅꯠꯔꯒ ꯁꯤꯠ, ꯅꯠꯔꯒ ꯃꯁꯤ ꯆꯠꯅꯗꯕꯒꯤ ꯃꯔꯝ ꯄꯤꯒꯗꯕꯅꯤ꯫ ꯃꯄꯨꯡ ꯐꯥꯔꯕ ꯐꯣꯔꯝ 10-1 ꯌꯥꯎꯗꯅ ꯑꯣꯊꯣꯔꯤꯇꯤꯅꯥ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯕꯤꯒꯤꯟ ꯇꯧꯗꯦ (ꯀꯂꯣꯖ 10.4.3)꯫

ꯇꯦꯕꯜ 10F.1 — ꯐꯣꯔꯝ 10-1, ꯁꯦꯛꯁꯟ A: ꯁꯕꯃꯤꯇꯦꯜ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
A1	ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯐꯥꯏꯜ ꯅꯝꯕꯔ	______
A2	ꯁꯥꯏꯠꯀꯤ ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯗ꯭ꯔꯦꯁ; ꯁꯔꯚꯦ ꯅꯝꯕꯔꯁꯤꯡ	______
A3	ꯁꯇꯦꯖ: 1 / 2 / 1 ꯑꯃꯁꯨꯡ 2 ꯄꯨꯟꯁꯤꯟꯅꯕ (ꯀꯂꯣꯖ 10.3.3) / ꯄꯕꯂꯤꯛ ꯋꯔꯛꯀꯤ DPR ꯅꯠꯔꯒ ꯁꯦꯛꯇꯔ (ꯀꯂꯣꯖ 10.3.4)	______
A4	ꯑꯦꯄꯂꯤꯀꯦꯟꯠ	______
A5	ꯁꯔꯇꯤꯐꯥꯏ ꯇꯧꯔꯤꯕ ꯄꯔꯣꯐꯦꯁꯅꯦꯜ (ꯃꯃꯤꯡ, ꯔꯦꯖꯤꯁꯠꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯏꯝꯄꯦꯅꯦꯜꯃꯦꯟꯠ ꯅꯝꯕꯔ)	______

ꯇꯦꯕꯜ 10F.2 — ꯐꯣꯔꯝ 10-1, ꯁꯦꯛꯁꯟ B: ꯁꯇꯦꯖ 1-ꯒꯤ ꯑꯍꯩꯕꯁꯤꯡ (ꯀꯂꯣꯖ 10.4.1)

No.	ꯑꯥꯏꯇꯦꯝ	ꯀꯂꯣꯖ	ꯂꯃꯥꯏ / ꯁꯤꯠ	ꯆꯠꯅꯗꯦ: ꯃꯔꯝ
B1	ꯐꯣꯔꯝ 1-1; ꯚꯦꯔꯤꯌꯦꯟꯁ ꯅꯠꯔꯒ ꯋꯦꯚꯔ ꯑꯃ ꯄꯨꯔꯛꯂꯕ ꯃꯐꯝꯗ ꯐꯣꯔꯝ 1-2	10.4.1(a)	______	______
B2	ꯁꯥꯏꯠ ꯄꯂꯥꯟ: ꯂꯩꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯔꯄꯣꯖ ꯇꯧꯔꯕ ꯂꯦꯚꯦꯜꯁꯤꯡ, ꯁꯝꯄꯔꯒꯤꯌꯅ ꯑꯦꯔꯤꯌꯥꯁꯤꯡ, ꯁꯟꯌꯄ ꯑꯃꯁꯨꯡ ꯁꯟꯌꯀꯤ ꯁꯥꯏꯠꯀꯤ ꯃꯄꯥꯟꯗꯒꯤ ꯏꯁꯤꯡ ꯆꯦꯟꯕ ꯀꯦꯆꯃꯦꯟꯠꯀꯤ ꯉꯃꯈꯩꯁꯤꯡ	10.4.1(b)	______	______
B3	ꯂꯩꯃꯥꯏ (HSG), ꯃꯇꯦꯝꯒꯤ ꯇꯕꯅꯗꯒꯤ ꯌꯨꯝꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯆꯥꯒꯤ ꯅꯂꯤꯡ, ꯏꯟꯐꯤꯜꯇꯔꯦꯁꯟ ꯇꯦꯁꯠꯁꯤꯡ ꯅꯠꯔꯒ ꯇꯦꯁꯠꯀꯤ ꯄꯂꯥꯟ	10.4.1(c)	______	______
B4	ꯗꯤꯖꯥꯏꯟ ꯂꯥꯆ ꯄꯨꯕꯒꯤ ꯁꯤꯠ (ꯐꯣꯔꯝ 2-1)	10.4.1(d)	______	______
B5	ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠꯀꯤ ꯃꯃꯥꯡꯒꯤ ꯐꯤꯒꯔ ꯑꯃꯁꯨꯡ ꯄꯣꯁꯠ-ꯗꯦꯚꯦꯂꯄꯃꯦꯟꯠꯀꯤ ꯄꯤꯛ	10.4.1(e)	______	______
B6	ꯀꯟꯚꯦꯟꯁꯅꯦꯜ ꯀꯦꯟ: ꯀꯟꯚꯦꯌꯦꯟꯁ ꯑꯦꯂꯤꯃꯦꯟꯠꯁꯤꯡ, ꯐꯤꯖꯤꯀꯦꯜ ꯀꯦꯄꯦꯁꯤꯇꯤ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯒ꯭ꯔꯦꯗ ꯂꯥꯏꯟ, ꯒꯦꯄ-ꯁ꯭ꯄ꯭ꯔꯦꯗ	10.4.1(f)	______	______
B7	ꯁꯇꯣꯔꯦꯖ ꯐꯤꯖꯤꯀꯦꯜ, WQ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯦꯊꯣꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯐꯤꯟꯇꯤ ꯐꯤꯌꯨꯁꯤꯡ, ꯐꯣꯔꯝ 10-2-ꯒꯤ ꯂꯣꯌꯅꯅ	10.4.1(g)	______	______
B8	ꯃꯥꯏꯅꯔ ꯀꯟꯕ ꯃꯐꯝꯒꯤ ꯑꯦꯗꯖꯁꯇꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯤꯀꯦꯜꯒꯤ ꯀꯦꯁ	10.4.1(h)	______	______
B9	ꯅꯠꯔꯒ ꯂꯩꯐꯝꯁꯤꯡ, ꯁꯦꯌꯕꯦꯟꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ 1% AEP-ꯒꯤ ꯂꯦꯚꯦꯜ	10.4.1(i)	______	______
B10	ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁꯀꯤ ꯑꯦꯛꯁꯦꯁꯀꯤ ꯀꯟꯗꯤꯁꯟ ꯂꯝ	10.4.1(j)	______	______
B11	ꯁꯇꯦꯀꯍꯣꯜꯗꯔ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ (ꯐꯣꯔꯝ 10-3)	10.4.5	______	______

ꯇꯦꯕꯜ 10F.3 — ꯐꯣꯔꯝ 10-1, ꯁꯦꯛꯁꯟ C: ꯁꯇꯦꯖ 2-ꯒꯤ ꯑꯍꯩꯕꯁꯤꯡ (ꯀꯂꯣꯖ 10.4.2)

No.	ꯑꯏꯇꯦꯝ	ꯀ꯭ꯂꯣꯖ	ꯇꯧꯔꯦ / ꯂꯩꯇꯦ	ꯊꯧꯗꯥꯔ: ꯃꯃꯤꯡ
C1	ꯑꯇꯣꯞ ꯑꯦꯅꯥꯂꯥꯏꯇꯤꯛ ꯂꯦꯌꯔ 1-ꯒꯤ ꯑꯔꯣꯏꯕꯁꯤꯡ (ꯁꯦꯛꯁꯟ B)	10.4.2	______	______
C2	ꯂꯦꯌꯔ ꯀ꯭ꯂꯥꯁꯇꯔ ꯑꯃꯁꯨꯡ AEP ꯅ꯭ꯌꯨꯃꯦꯔꯤꯀꯦꯜ ꯑꯦꯇ꯭ꯔꯤꯕꯤꯎꯁꯅꯁꯤꯡ, ꯑꯣꯏꯊꯣꯛꯂꯕ ꯄꯨꯝꯅꯃꯛ ꯌꯥꯎꯅꯥ ꯇꯦꯕꯜ	10.4.2(a)	______	______
C3	ꯂꯦꯌꯔ–ꯂꯦꯌꯔ–ꯑꯦꯛꯁꯤꯔ ꯇꯦꯕꯂꯁꯤꯡ; ꯅꯥꯏꯇꯥꯍꯦꯜ ꯀꯣꯝꯄꯣꯖꯤꯠꯀꯤ ꯑꯦꯇꯂꯁ	10.4.2(b)	______	______
C4	ꯃꯦꯒꯥꯔꯥꯍꯦꯜ, ꯅꯦꯇꯋꯥꯔꯛ ꯑꯃꯁꯨꯡ ꯂꯦꯌꯔꯀꯔꯤꯌꯥꯒꯤ ꯁꯅꯥꯄꯁꯣꯠ ꯑꯦꯇꯂꯁ	10.4.2(c)	______	______
C5	ꯅꯂꯤꯕꯒꯤ ꯃꯁꯤꯡꯇꯦꯕꯂꯒꯤ ꯑꯦꯇꯂꯁ; ꯊꯥꯛ ꯇꯥꯕ ꯊꯣꯡꯊꯥ ꯈꯥꯂꯣꯛ-ꯈꯨꯠꯂꯣ ꯑꯦꯛꯁꯄꯣ ꯇꯣꯛꯇꯨ GPT	10.4.2(d)	______	______
C6	ꯈꯥꯂꯤꯇꯤꯕꯤ ꯅ꯭ꯌꯨꯃꯦꯔꯤꯀꯦꯜ ꯃꯦꯁꯔꯃꯦꯟꯇ ꯁꯦꯃꯖꯤꯟꯕꯁꯤꯡ, ꯊꯦꯡꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯟꯁꯦꯜꯇꯦꯁꯅꯁꯤꯡ	10.4.2(e)	______	______
C7	ꯃꯦꯁꯔꯃꯦꯟꯇꯀꯤ ꯑꯣꯔ, ꯄꯤꯕꯗꯥ ꯑꯃꯁꯨꯡ ꯅꯦꯈꯤꯡꯕꯗꯥ ꯑꯦꯄꯤꯔꯣꯂꯤꯡ ꯃꯣꯗꯨꯜ ꯇꯦꯕꯜ	10.4.2(f)	______	______
C8	ꯄꯥꯡꯊ-ꯀꯣꯅꯦꯛꯇꯤ ꯁꯦꯟꯗꯣꯡ (ꯈꯦꯄ 10-4, ꯁꯦꯛꯁꯟ A)	10.4.2(g)	______	______
C9	ꯁꯦꯃꯖꯤ O&M ꯀ꯭ꯂꯣꯖ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯖꯤ ꯊꯥꯗꯣꯛꯄꯥ ꯑꯦꯔꯤꯌꯥ (ꯈꯦꯄ 10-6)	10.4.2(h)	______	______
C10	ꯊꯥꯗꯣꯛꯀꯤ ꯅꯦꯀꯋꯥ ꯈꯅꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ GIS ꯗꯦꯇꯥ	10.4.2(i)	______	______
C11	ꯂꯃꯇꯤꯈꯤꯕꯁꯤꯡ (ꯈꯦꯄ 10-3, ꯑꯦꯇꯂꯁꯀꯤ ꯑꯃꯁꯨꯡ, ꯊꯥꯛ ꯇꯥꯕ ꯊꯣꯡꯊꯥ, ꯌꯥꯝꯅꯥ ꯍꯟꯅ ꯇꯥꯏꯕ)	10.4.2(j)	______	______

ꯇꯦꯕꯜ 10F.4 — ꯈꯦꯄ 10-1, ꯁꯦꯛꯁꯟ D: ꯑꯦꯇꯂꯥꯁ ꯂꯕꯊꯤꯂꯥ (ꯀ꯭ꯂꯣꯖ 10.4.4)

No.	ꯑꯏꯇꯦꯝ	ꯀ꯭ꯂꯣꯖ	ꯀꯤꯄꯥ (ꯍꯣꯏ / ꯅꯠꯇꯦ)	ꯊꯄꯥ
D1	ꯄꯨꯝꯅꯃꯛ PDF ꯑꯦꯛꯁꯄꯣꯔꯠ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯖꯤꯟꯕꯁꯤꯡ	10.4.4(a)	______	______
D2	ꯊꯥꯗꯣꯛꯀꯤ, ꯔꯦꯖꯣꯜꯌꯨꯁꯟ ꯈꯦꯄꯊꯣꯀꯄ ꯊꯥꯗꯣꯛꯄꯁꯤꯡ; ꯁꯦꯟꯗꯣꯔꯥꯔꯥꯒꯤ ꯊꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯒꯥꯂꯦ	10.4.4(b)	______	______
D3	ꯑꯍꯦꯛ 10B ꯊꯣꯡꯕ ꯅꯦꯇ GIS ꯗꯦꯇꯥ; ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯄꯥꯈꯥꯍꯦꯜ ꯂꯤꯁꯇꯥ (EPSG ꯃꯗ)	10.4.4(c)	______	______
D4	ꯒꯥꯇꯤꯃꯥꯡ ꯗꯥꯇꯥꯒꯤ ꯊꯥꯕ ꯍꯣꯔꯥꯕ; ꯊꯣꯛꯀꯤꯂꯤꯕꯒꯤ ꯇꯧꯕ ꯊꯥꯏ: ꯇꯥꯀꯄꯥꯃꯤ ꯁꯥꯡꯂꯤꯕꯗ ꯑꯃꯁꯨꯡ ꯅꯄꯨꯅ ꯕꯥꯏꯇꯗ ꯇꯧꯕ WRD-ꯒꯤ ꯒꯥꯂꯤꯕꯒꯤ ꯂꯥꯏꯔ 5-ꯒꯤ ꯁꯥꯡꯒꯤ ꯗꯥꯇꯥꯁꯤꯡ (ꯇꯥꯡꯂꯤꯕ ꯀꯣꯁꯇꯥꯡꯂꯤꯕꯗ ꯊꯤꯕꯗ ꯈꯕꯗꯔꯤ, ꯊꯤꯡ ꯂꯤ ꯇꯥꯡꯗꯒꯤ ꯑꯔꯣꯕ ꯍꯣꯔꯥ ꯇꯦꯟ, ꯗꯥꯇꯥ ꯍꯣꯔꯗ [TBC]), ꯔꯦꯕꯥꯃꯖꯤꯗ ꯕꯥꯔ ꯁꯥꯡꯗ ꯇꯧꯕ CWC-ꯒꯤ ꯇꯥꯡ ꯊꯦꯇꯤꯕꯥꯕ ꯍꯅꯋ, NHPC ꯑꯃꯁꯨꯡ CEA-ꯒꯤ ꯇꯦꯔꯦꯔꯤꯃꯤ ꯇꯥꯡꯂꯤꯕ, ꯄꯨꯕꯥ (ꯊꯀꯤꯄꯥ) ꯗꯥꯊꯒꯤ ꯄꯤꯇꯄꯒꯔꯄ ꯇꯥꯡꯂꯤꯕ, WRD-ꯒꯤ ꯀꯦꯒꯤ ꯃꯄꯥꯂꯋꯁꯤꯕ, ꯒꯋ ꯂꯤꯡꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯒꯋ ꯄꯤꯕꯒꯤ ꯇꯥꯡꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯒꯇ ꯇꯧꯕ ꯁꯥꯡꯂꯤꯕ, ꯍꯥꯕꯂꯤꯕ, ꯀꯋꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯀꯅꯥꯄꯤꯂꯤꯕꯗ ꯂꯄꯒ ꯇꯥꯕ ꯅꯂꯤꯕ ꯅꯔꯣꯏꯒꯤ ꯊꯥꯃꯂꯤꯕ	10.4.4(d)	______	______

ꯇꯦꯕꯜ 10F.5 — ꯈꯦꯄ 10-1, ꯁꯦꯛꯁꯟ E: ꯑꯦꯃꯇꯥꯄꯥꯂꯦ ꯑꯃꯁꯨꯡ ꯊꯀꯥꯕ ꯈꯕꯒꯤ ꯔꯥꯃ

ꯈꯤꯊꯗ	ꯅꯦꯇꯄꯤ
ꯔꯥꯃꯇꯤꯂꯋ ꯑꯂꯤ ꯊꯀꯥꯕ ꯈꯄꯥ ꯑꯃꯁꯨꯡ ꯅꯊꯤ ꯍꯣꯔꯦ ꯑꯣꯦ ꯃꯦꯈꯄꯐ ꯇꯥꯄꯤ꯫ ꯂꯄꯇꯤꯈꯅ ꯇꯥꯄꯤꯕ ꯀꯄꯈꯂꯇꯊ: ꯊꯤꯕ, ꯍꯅꯦ, ꯉꯊꯤꯋ	______
ꯑꯦꯄꯨꯄꯤꯇꯤꯒꯤꯗꯊꯃ: ꯈꯕꯅꯤꯕ ꯉꯊꯤꯋ	______
ꯊꯀꯥꯕ ꯈꯕꯒꯤ ꯔꯥꯃ ꯇꯥꯅꯤꯕ ꯉꯊꯤꯋ (ꯄꯕꯃ ꯇꯥꯕ ꯉꯊꯤꯋ 5-ꯒꯤ ꯊꯉꯕꯗ, ꯀ꯭ꯂꯣꯖ 10.7.1)	______
ꯄꯤꯇꯊꯋ: ꯄꯤꯒꯤꯁꯒꯤꯗꯊꯃ ꯔꯣꯄꯥ / ꯍꯊꯇꯃꯇ	______
ꯍꯊꯇꯃꯇꯕꯗꯤ, ꯊꯕꯇꯤꯕ ꯑꯏꯇꯦꯝꯂꯤꯕ	______
ꯑꯦꯈꯤꯂꯄ: ꯊꯊꯤꯕ, ꯑꯦꯇꯤꯒꯇꯥꯂꯦ, ꯍꯅꯦ	______

ꯐꯣꯔꯝ 10-2 — ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯒꯤ ꯁꯝꯃꯔꯤ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.4.1(g), 10.5 ꯑꯃꯁꯨꯡ 10.9.1(b)-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯇ ꯐꯣꯔꯝ — ꯌꯂꯤꯞ꯭ꯔ ꯂꯣꯛꯒꯤ ꯏꯃꯤꯡ ꯏꯔꯝ ꯗꯤꯂꯥꯏꯅ ꯌꯦꯂꯨꯔꯦꯡ, ꯗ꯭ꯔꯥꯐꯇ ꯊꯔꯃꯅ 1.0. ꯁ꯭ꯇꯦꯖ 1, 2 ꯑꯃꯁꯨꯡ 4-ꯒꯤ ꯁꯕꯌꯤꯌꯦꯜꯁꯤꯡꯒ ꯂꯣꯔꯂꯂꯥ ꯀꯝꯞ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ (ꯑꯍꯦꯅꯕ 10A)-ꯂꯥ ꯞ꯭ꯔꯨꯗꯣꯀꯏ꯫ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ ꯑꯗꯨ ꯏꯁꯨ ꯌꯣꯗ꯭ꯔꯤꯐꯕ, ꯃꯁꯤ ꯏꯨꯌꯂꯥ ꯃꯞ꯭ꯔꯨ ꯐꯤꯂꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ A3-ꯗ "ꯏꯁꯨ ꯌꯣꯗꯕ" ꯍꯣꯔꯂꯥ ꯏꯒꯗꯕꯅꯤ꯫ ꯃꯥꯏꯌ ꯑꯗꯨꯗ ꯑꯥꯀ꯭ꯌꯐꯣꯡ ꯑꯃꯗꯒꯤ ꯍꯦꯅꯂꯥ ꯂꯐꯕꯗꯤ ꯏꯐꯃꯒꯤ ꯂꯝ ꯏ꯭ꯗꯤꯛꯃꯛꯀꯤꯗꯃꯛ ꯀꯣꯂꯝ ꯑꯃꯃꯃ꯫

ꯇꯦꯕꯜ 10F.6 — ꯐꯣꯔꯝ 10-2, ꯁꯦꯛꯁꯟ A: ꯁꯥꯏꯠ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯣꯖꯦꯛꯇ

No.	ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ	ꯀ꯭ꯂꯣꯖ
A1	ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯐꯥꯏꯜ ꯅꯝꯕꯔ, ꯁ꯭ꯇꯦꯖ (1 / 2 / 4)	______	10.5.2(a)
A2	ꯁꯥꯏꯠꯀꯤ ꯑꯦꯔꯤꯌꯥ, ha; ꯂꯩꯃꯥꯏ ꯁꯣꯛꯗꯦꯅꯕ, ha; ꯑꯍꯧꯕ + ꯍꯣꯠꯊꯥꯛꯂꯕ ꯏꯝꯄꯔꯚꯤꯌꯁ ꯑꯦꯔꯤꯌꯥ, m²	______	1.5.2
A3	ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯒꯤ ꯊꯧꯑꯣꯡ ꯑꯃꯁꯨꯡ ꯐꯤꯂꯤꯂ ꯌꯣꯐꯕ ꯁꯃꯤꯋ	______	10.5.3
A4	ꯌꯤꯔꯐ (A / B); ꯏꯁꯤꯡ ꯏꯌꯦꯡꯗ ꯁꯦꯅꯁꯤꯌꯤꯇꯤ (ꯍꯣꯌ / ꯅꯠꯇꯦ); ꯕꯦꯁꯤꯟꯒꯤ ꯗꯃꯛꯀꯤ ꯑꯦꯄ꯭ꯔꯨꯚ ꯌꯣꯐꯕ BSMP (ꯍꯣꯌ / ꯅꯠꯇꯦ)	______	1.6, 4.5.3, 11.12
A5	ꯄ꯭ꯔꯨꯌ: ꯃꯄ꯭ꯔꯨꯡ ꯐꯤꯕ ꯑꯣꯛꯑꯣꯡ / S-1 / S-2 / ꯐꯤꯡꯁ ꯌꯣꯐꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯁꯤ / ꯑꯊꯤꯡꯕ ꯂꯩꯕ ꯐꯤꯗꯦꯒꯦꯂꯃꯦꯟꯁꯤ / ꯐꯤꯂꯅꯦꯜ ꯅꯠꯇꯕꯥ ꯐꯤ-ꯏꯁꯤ-ꯂꯤꯗꯥ	______	1.7, 4.5.6, 4.13, 4.14
A6	ꯀꯦꯜꯀꯨꯂꯦꯁꯟꯒꯤ ꯊꯣꯡꯍꯜꯂꯕ ꯐꯂꯦꯡꯁꯤꯡ (ꯂꯤꯁ꯭ꯠ)	______	ꯑꯍꯦꯅꯕ 10A.4

ꯇꯦꯕꯜ 10F.7 — ꯐꯣꯔꯝ 10-2, ꯁꯦꯛꯁꯟ B: ꯅꯣꯡ ꯏꯕ ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ

No.	ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ	ꯀ꯭ꯂꯣꯖ
B1	ꯅꯣꯡ ꯏꯕꯒꯤ ꯂꯣꯟ; ꯐꯣꯔꯝ 2-1-ꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ	______	2.13
B2	ꯔꯤꯌꯦꯁꯟ ꯗꯦꯞꯊ P_R, mm; ꯊ 3-ꯒꯤ ARI-ꯒꯤ ꯗꯦꯞꯊ P_3m, mm	______	2.10, 8.4.1
B3	ꯁꯤꯂꯤꯁꯅꯔꯕ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯌꯔ (≤ 6 h; > 6–72 h)	______	2.8
B4	ꯁꯕ-ꯑꯦꯔꯤꯌꯥ ꯃꯌꯨꯡ ꯏꯁꯅ HSG; ꯃꯌꯝꯒꯤ ꯏ꯭ꯕꯥꯏꯗꯒꯤ ꯌꯥꯡꯕ ꯂꯩꯃꯥꯏꯒꯤ ꯃꯌꯥꯒꯤ ꯏꯁꯤꯡ, ꯕꯦꯂꯒꯤ ꯃꯌꯥꯗ m	______	3.7, 4.4.3
B5	ꯌꯥꯡ ꯂꯦꯄꯂꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯂꯥꯏꯅ ꯏꯅꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯠꯁꯤꯡ, mm/h	______	4.4.3

ꯇꯦꯕꯜ 10F.8 — ꯐꯣꯔꯝ 10-2, ꯁꯦꯛꯁꯟ C: ꯚꯣꯂꯨꯝꯁꯤꯡ

No.	ꯀ꯭ꯋꯥꯟꯇꯤꯇꯤ	ꯃꯊꯣ ꯌꯣꯕ (m³)	ꯄ꯭ꯔꯔꯕ (m³)	ꯀ꯭ꯂꯣꯖ
C1	ꯔꯤꯌꯦꯁꯟ ꯚꯣꯂꯨꯝ (RRV)	______	______	4.4.2
C2	ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯚꯣꯂꯨꯝ (WQv)	______	______	8.4.2
C3	ꯗꯤꯌꯦꯁꯟꯒꯤ ꯃꯌꯥꯛꯌ ꯔꯤꯌꯦꯁꯟ ꯀꯔꯦꯗꯤꯠ	______	–	4.4.6
C4	ꯗꯤꯌꯦꯁꯟ ꯚꯣꯂꯨꯝ	______	______	4.6, 4.14
C5	ꯐꯤ-ꯏꯁꯤ-ꯂꯤꯗꯥ ꯅꯠꯇꯕꯥ ꯔꯤꯂꯅꯦꯜ ꯚꯣꯂꯨꯝ, ꯑꯃꯁꯨꯡ ꯐꯤ (₹)	______	______	4.5.6.3, 4.13.3

ꯇꯦꯕꯜ 10F.9 — ꯐꯣꯔꯝ 10-2, ꯁꯦꯛꯁꯟ D: ꯔꯤꯂꯤꯂ ꯔꯦꯠꯁꯤꯡ (ꯑꯩꯔꯤꯌꯐꯣꯜ ꯏꯗꯤꯛꯃꯛ)

AEP	Q_pre ꯅꯦꯟꯗꯒꯤ ꯃꯦꯔ (L/s)	Q_post (L/s)	ꯄꯤꯛ ꯁꯣꯕ ꯗꯔꯃꯦꯝꯍ (h)	ꯃꯐꯦꯅꯁꯦꯐꯤꯔꯦ ꯖꯐꯄꯜꯇꯤ (ꯄꯦꯔ / ꯅꯦꯟꯁꯦ)	ꯔꯦꯐ
50% (2-yr)	______	______	______	______	4.5
10% (10-yr)	______	______	______	______	4.5
1% (100-yr)	______	______	______	______	4.5

ꯇꯦꯕꯜ 10F.10 — ꯐꯣꯔꯝ 10-2, ꯁꯦꯛꯁꯟ E: ꯑꯣꯄꯔꯦꯁꯅꯁꯤꯡ, ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯃꯣꯅꯤꯇꯔꯤꯡ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

No.	ꯐꯤꯜꯗ	ꯃꯍꯩꯁꯤꯡ	ꯔꯦꯐ
E1	ꯇꯦ-ꯈꯇꯦ ꯑꯣꯐꯤꯈꯤꯂ, mm (ꯃꯤꯅꯤꯃꯝ 50 mm)	______	4.8.2
E2	ꯗꯤꯇꯦꯟꯁꯟ: ꯆꯍꯤ 10-ꯒꯤ ꯀꯝꯅꯤꯜꯅꯕ ꯒꯣꯂꯝꯒꯤ 90% ꯀꯗꯣꯡꯅꯕ ꯃꯇꯝ, h (≤ 48 h)	______	4.7.1
E3	WQv ꯀꯗꯣꯡꯌꯒꯤ ꯃꯇꯝ, h (24–48 h)	______	4.7.2
E4	ꯔꯤꯇꯦꯟꯁꯟ ꯑꯍꯣꯡꯕ ꯑꯣꯍꯕꯒꯤ ꯃꯇꯝ, h (≤ 72 h)	______	4.7.3
E5	ꯃꯣꯗꯦꯂꯒꯤ ꯐꯤꯅꯜꯌ ꯑꯅꯤ ꯃꯦꯜꯃꯨꯟꯦꯇꯐꯒꯤ ꯅꯃꯐꯤꯊꯗꯒꯤ ꯒꯣꯍꯗꯃꯤ ꯇꯣꯅꯐꯦꯊꯅꯇꯒꯤ ꯄꯦꯊꯅꯣ ꯍꯦꯌꯅꯕꯐꯣ? ꯄꯣꯔ ꯑꯣꯍꯐꯕꯗꯤ, ꯃꯅꯤ ꯇꯃꯌꯤꯕ ꯐꯤꯌꯣꯐꯌꯃꯤ ꯅꯦꯡꯅꯊ	______	10.5.2(c)
E6	ꯅꯇꯦꯅ 4 ꯍꯡꯇ: ꯅꯇꯦꯅ 2-ꯒꯤ ꯒꯦꯜꯍꯅꯤꯡꯗꯒꯤ ꯄꯣꯡꯅꯃꯌꯅꯤꯡ (ꯅꯤꯅꯌ), ꯑꯃꯁꯨꯡ ꯃꯐꯣꯍꯇꯦꯐꯤꯔꯊ ꯁꯗꯤꯡꯃꯡ ꯄꯣꯅꯤꯡꯁ ꯖꯐꯄꯜꯇꯤꯕꯐꯣ	______	10.9.2
E7	ꯅꯦꯐꯕꯤꯍꯤꯕ (ꯃꯃꯤꯡ, ꯐꯦꯅꯤꯅꯇꯐꯦꯅꯊ ꯅꯐꯕꯐ), ꯅꯣꯍꯊ, ꯁꯃꯤꯌ	______	10.6.3(b)

ꯐꯣꯔꯝ 10-3 — ꯍꯕꯤꯇꯦꯠ ꯗꯤꯖꯥꯏꯟ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯁꯦꯛꯁꯟ 10.6.1-ꯗꯒꯤ 10.6.5 ꯐꯥꯑꯣꯕꯥ ꯆꯪꯁꯤꯟꯅꯕ꯫

ꯑꯦꯞꯂꯤꯀꯦꯁꯟ ꯐꯣꯔꯝ — ꯆꯠꯅꯕꯤꯒꯤ ꯃꯇꯝꯗ ꯍꯧꯖꯤꯛ ꯐꯣꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯆꯦꯛꯂꯤꯁ꯭ꯠ, ꯑꯦꯞꯂꯤꯀꯦꯁꯟ ꯐꯣꯔꯝ 1.0. ꯀꯣꯂꯝ 1 ꯑꯃꯁꯨꯡ ꯀꯣꯂꯝ 2-ꯒꯤ ꯃꯈꯥꯒꯤ ꯄꯥꯎꯈꯨꯝꯁꯤꯡ ꯑꯦꯗꯤꯇ ꯗꯤꯖꯥꯏꯟꯗꯥ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ 10.6.1(c) ꯑꯃꯁꯨꯡ (d)-ꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅ ꯑꯦꯛꯁꯦꯞꯁꯟꯁꯤꯡꯒꯤ ꯊꯧꯗꯣꯛ ꯍꯟꯗꯣꯛꯀꯗꯕ ꯋꯥꯔꯦꯞ ꯑꯃꯁꯨ ꯁꯤꯖꯤꯟꯅꯒꯅꯤ꯫

ꯇꯥꯕꯜ 10F.11 — ꯐꯣꯔꯝ 10-3, ꯃꯥꯌꯀꯩ A: ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯠ ꯏꯟꯐꯣ

No.	ꯐꯤꯜꯗ	ꯄꯥꯎꯈꯨꯝ	ꯁꯦꯛꯁꯟ
A1	ꯑꯦꯞꯂꯤꯀꯦꯟꯠ, ꯑꯦꯗ꯭ꯔꯦꯁ, ꯀꯟꯇꯦꯛꯠ	______	—
A2	ꯄ꯭ꯔꯣꯖꯦꯛꯇꯀꯤ ꯃꯐꯝ ꯁꯤꯡ ꯁꯥꯏꯠ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁꯤꯕꯤꯂꯤꯇꯤ	______	—
A3	ꯗꯤꯖꯥꯏꯟ: ꯑꯦꯔꯤꯌꯥ, ꯗꯦꯚꯂꯣꯄꯃꯦꯟꯇ, ꯄ꯭ꯂꯥꯟꯇꯤꯡ ꯁꯤꯖꯟ-ꯇꯥꯡ 2024-ꯒꯤ ꯕꯦꯁꯂꯥꯏꯟ ꯇꯦꯛꯁꯠ	______	10.6.1
A4	ꯑꯣꯟ ꯁꯥꯏꯠ ꯑꯦꯝꯕꯤꯌꯟ ꯍꯦꯕꯤꯇꯦꯠꯁꯤꯡ ꯇꯦꯛꯁꯠ, ꯑꯃꯁꯨꯡ ꯑꯦꯔꯤꯌꯥ: ꯁꯥꯏꯠ A ≥ 1 ha / ꯍꯦꯛꯇꯔ ꯍꯥꯏꯗ꯭ꯔꯣ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ / ꯄꯥꯔꯛ ꯊꯧꯗ ꯇꯦꯛꯁꯠꯀꯤ ꯑꯣꯟ-ꯑꯣꯐ ꯕꯦꯁꯂꯥꯏꯟ / ꯄꯥꯔꯀ ꯊꯧꯗ, ꯁꯤꯟꯅ ꯒꯥꯡ ꯇꯦꯛꯁꯠꯀꯤ ꯕꯤꯁꯤꯡ ꯑꯦꯛꯁꯦꯞꯁꯟ	______	10.6.1(a)–(d)
A5	ꯑꯥꯄꯔꯨꯚ ꯁꯤꯕꯗ ꯗꯥꯕꯤꯂꯥꯏꯅ ꯇꯦꯛꯁꯠ ꯂꯥꯗꯥꯏꯅꯤ (ꯐꯣꯔꯝ 1-2-ꯒꯤ ꯕꯥꯐꯣꯔꯥꯏꯅꯤ), ꯇꯦꯛꯁꯠ "ꯍꯣꯌ"	______	10.6.3(a)

ꯇꯥꯕꯜ 10F.12 — ꯐꯣꯔꯝ 10-3, ꯃꯥꯌꯀꯩ B: ꯗꯤꯖꯥꯏꯟꯗꯒꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

No.	ꯃꯈꯥ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯁꯥꯒꯤ ꯑꯣꯏꯕꯤ:	ꯄꯥꯎꯈꯨꯝꯁꯤꯡ
B1	A5-ꯗ ꯇꯤꯀꯦꯠ ꯁꯥꯕ ꯗꯥꯕꯤꯂꯥꯏꯅꯤꯁꯤꯡ ꯇꯦꯛꯁꯠ, ꯗꯤꯖꯥꯏꯟ ꯑꯃꯤ ꯍꯧꯖꯤꯛ ꯆꯠꯅꯕꯤꯒꯤ ꯃꯇꯝ ꯐꯣꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯍꯧꯖꯤꯛꯀꯤ ꯄꯨꯔꯦ; ꯗꯥꯕꯤꯂꯥꯏꯅꯤꯁꯤꯡ ꯑꯣꯏ ꯑꯥꯄꯔꯨꯚ ꯁꯥꯕ	______
B2	ꯆꯥꯡ ꯄꯨꯊ, ꯍꯧꯖꯤ ꯑꯃꯁꯨꯡ ꯁꯥꯏꯇꯁꯥꯏꯒꯤ ꯍꯦꯛꯇꯔꯁꯤꯡ ꯑꯃꯤ ꯐꯣꯔꯝ 2-1 ꯑꯃꯁꯨꯡ ꯐꯣꯔꯝ 10-2-ꯗ ꯕꯥꯍꯣꯕꯗ ꯁꯥꯕꯊꯣꯛꯂꯤ ꯑꯣꯟꯕꯤ	______
B3	ꯃꯈꯥꯒꯤ ꯁꯥꯕ ꯑꯣꯗꯥꯏꯁꯤꯡꯗ ꯕꯤꯄꯥꯕꯤꯕ ꯁꯥꯕ ꯕꯤꯇꯥꯏꯁꯤꯡ ꯑꯃꯨꯛ ꯑꯣꯏꯗ ꯄꯨꯊꯣꯛꯅ	______
B4	ꯑꯦꯛꯇꯕ ꯇꯦꯛꯁꯠ ꯔꯥꯡꯃꯤꯈꯕ ꯆꯦꯛꯂꯤꯁ꯭ꯠ ꯑꯣꯏ ꯁꯦꯛꯁꯟ 10.15-ꯒꯤ ꯃꯇꯨꯡ ꯁꯦꯟꯗ꯭ꯔꯥꯂꯥꯏꯖ ꯑꯃꯗꯤ ꯑꯣꯔꯕ ꯃꯈꯥ ꯍꯤꯡꯅ	______

ꯇꯥꯕꯜ 10F.13 — ꯐꯣꯔꯝ 10-3, ꯃꯥꯌꯀꯩ C: ꯍꯦꯗꯄꯥꯔꯗꯥꯔꯦꯛ ꯔꯥꯁꯕꯒꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ (ꯁꯦꯛꯁꯟ 10.6.4)

No.	ꯐꯤꯜꯗ ꯇꯦꯛꯁꯠ ꯀꯣꯂꯝꯁꯥꯔꯦꯛ	ꯄꯥꯎꯈꯨꯝ
C1	ꯔꯥꯁꯕ: ꯑꯦꯔꯤꯌꯥ, ꯕꯦꯁꯂꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯍꯦꯕꯤꯇꯦꯠꯁꯤꯡ ꯇꯦꯛꯁꯠ	______
C2	ꯃꯈꯥ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯁꯨꯡ ꯑꯥꯄꯔꯨꯚꯔꯦꯛꯁꯥꯒꯤ ꯍꯦꯗꯄꯥꯔꯗꯥꯔꯦꯛ ꯑꯣꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯑꯃꯤꯗ ꯑꯣꯏꯕ ꯁꯥꯟꯗꯥ	______
C3	ꯇꯤꯀꯦꯠ ꯁꯥꯕ ꯑꯦꯛꯁꯦꯞꯁꯟꯁꯤꯡ ꯃꯈꯥ ꯔꯥꯡ ꯁꯥꯕ: ______, ꯑꯃꯁꯨꯡ ꯃꯥꯌꯀꯩ B-ꯒꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠꯇ ꯔꯤꯃꯥ	______
C4	ꯃꯈꯥ ꯔꯤꯇꯗꯕ ꯔꯤꯐꯣꯔꯝꯁꯤꯡ, ꯊꯧꯕꯗꯤ	______

ꯇꯥꯕꯜ 10F.14 — ꯐꯣꯔꯝ 10-3, ꯃꯥꯌꯀꯩ D: ꯁꯃꯔꯤꯁꯤꯡ

ꯑꯣꯏꯄ	ꯑꯦꯔꯤꯌꯥ	ꯁꯃꯔꯤ	ꯊꯥꯔꯤꯠ
ꯗꯤꯖꯥꯏꯟ	______	______	______
ꯍꯦꯗꯄꯥꯔꯗꯥꯔꯦꯛ ꯔꯥꯁꯕ (ꯑꯣꯟ ꯁꯥꯏꯠ ꯑꯦꯝꯕꯤꯌꯟ)	______	______	______

ꯇꯦꯕꯜ 10-4 — ꯍꯦꯅꯗ-ꯀꯦꯁꯌꯨ ꯁꯌꯃ꯭ꯌꯥꯁꯃꯌꯒꯤ ꯄꯥꯃꯦꯄꯗ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯁꯦꯛꯁꯟ 10.4.2(g), 10.8 ꯑꯃꯁꯨꯡ 10.9.3-ꯗ ꯌꯥꯎꯕ ꯃꯇꯝ꯫

ꯗ꯭ꯔꯦꯐꯠ ꯇꯦꯕꯜ — ꯈꯅꯤꯟꯕ ꯆꯦꯁꯒꯤ ꯁꯃꯤꯡ ꯁꯄꯜ ꯗꯤꯆꯦꯁꯌ ꯈꯥꯇꯨꯔꯥꯅ, ꯗ꯭ꯔꯦꯐꯠ ꯒꯄꯃꯌ 1.0. ꯃꯥꯁꯃꯌ A ꯑꯃꯤ ꯍꯦꯅꯗ-ꯀꯦꯁꯌꯨꯃꯤ ꯃꯥꯗ꯭ꯔꯅꯆꯤ, ꯃꯌꯥꯇ 2-ꯗ ꯑꯥꯀ꯭ꯄꯒ ꯌꯥꯕꯔ꯫ ꯃꯥꯁꯃꯌ B ꯑꯃꯤ ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨ ꯅ꯭ꯗꯤꯡꯈꯁꯌ, ꯇꯨꯈꯤꯌ ꯌꯦꯗꯔ, ꯇꯤꯑꯦꯌꯥꯒ ꯌꯥꯄꯔ ꯇꯦꯌꯃꯤꯡꯒ ꯆꯦꯌꯆꯆꯦ ꯈꯀ꯭ꯄꯡ ꯇꯦꯍꯅꯆꯤ (ꯁꯦꯛꯁꯟ 10.8.2)꯫ ꯃꯥꯁꯃꯌ B ꯃꯦꯅꯌ ꯌꯥꯗ꯭ꯔꯤꯇꯦꯗꯔ ꯊꯔꯁ ꯑꯃꯤ ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨ ꯑꯈꯒꯤ ꯈꯊꯁꯌ ꯌꯌꯊꯄꯦꯅꯗꯔꯆꯤ꯫ ꯈꯈꯤ 10.2 ꯌꯥꯡꯔꯤꯅ꯭꯫

ꯐꯣꯔꯝ 10F.15 — ꯇꯦꯕꯜ 10-4, ꯃꯥꯁꯃꯌ A: ꯍꯦꯅꯗ-ꯀꯦꯁꯌꯨꯃꯤ ꯃꯥꯗ꯭ꯔꯅ

ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨ	ꯇꯥꯃꯤꯆꯤꯌꯤ (FAC_ID)	ꯊꯔꯁꯃꯤ ꯃꯌꯥꯇ	ꯊꯦꯄꯡ ꯌꯥꯄꯔ ꯇꯨꯈꯤꯌ	ꯑꯦꯊꯦꯄꯤꯌꯤꯗ ꯆꯦꯌꯤꯃ ꯊꯅꯤꯔ (ꯇꯨꯈꯤꯌ)*	ꯑꯦꯊꯦꯄꯤꯌꯤ ꯆꯦꯁꯅꯤꯔ (ꯍꯦꯌ / ꯅꯠꯇꯥ)
(a) ꯈꯤꯗꯤꯌ, ꯆꯦꯅꯆꯄ ꯆꯌꯄꯒꯦ ꯃꯌꯄꯁꯌꯄꯒꯤ ꯈꯈꯡꯗ, ꯌꯨꯜꯆꯔ ꯔꯥꯇ	______	______	______	______	______
(b) ꯔꯥꯁꯇꯤꯅ ꯆꯌꯄꯒꯦ ꯑꯍꯦꯆꯔ ꯅꯃꯤꯡ ꯊꯃꯍꯃꯔꯒꯤ ꯈꯈꯡꯗ, ꯑꯦꯇꯌꯆꯥꯌ ꯃꯌꯄꯁꯌꯄ, ꯑꯦꯄꯤꯇꯤꯃ ꯑꯃꯁꯨꯡ ꯌꯄꯥꯃ ꯃꯖꯄꯤꯃ	______	______	______	______	______
(c) ꯅꯃꯇꯤꯅꯌꯄꯥꯃꯃ ꯑꯃꯁꯨꯡ ꯒꯥꯄꯤꯇꯤꯖꯥꯃꯃ ꯌꯥꯃꯌꯃꯤꯡ (ꯁꯦꯛꯁꯟ 10.9.3)	______	______	______	–	______
(d) ꯈꯌ ꯊꯡꯔ ꯈꯇꯜꯒꯦ ꯃꯜꯈꯤꯃꯗꯄꯤꯖꯒꯤ ꯈꯈꯡꯗ, ꯑꯦꯌꯆꯇꯦꯅ, ꯇꯆꯥꯀ ꯆꯌꯄꯒꯦ ꯌꯦꯅꯗ ꯒꯥꯌ ꯑꯃꯁꯨꯡ ꯆꯃ-ꯄꯤꯌꯄꯃ ꯒꯦꯅꯒ	______	______	______	–	______
(e) ꯖꯈꯤꯃꯆꯤꯡꯒꯤ ꯈꯌꯜꯗ, ꯀꯜꯀꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯃꯌꯄꯦꯅꯃꯤꯡ	______	______	______	–	______
ꯑꯦꯊꯦꯄꯤꯌꯤꯆꯦ ꯍꯀꯌꯤꯅꯆꯔ ꯑꯌꯥꯀꯀ ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨꯃꯤꯡ	______	______	______	______	______

* ꯁꯦꯛꯁꯟ 10.6.1-ꯒꯤ ꯈꯌꯦꯗ ꯆꯦꯔ ꯃꯦꯅꯌꯃꯤꯡꯒꯤꯗꯈꯁ, ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨ (a) ꯑꯃꯁꯨꯡ (b)-ꯒꯤ ꯈꯌꯦꯡꯗ ꯌꯤꯗ꯭ꯔꯔꯗ ꯊꯔꯁ ꯌꯦꯔ ꯇꯨꯈꯤꯌ 3-ꯒꯤ ꯈꯈꯡꯗ ꯆꯦꯌꯤꯃ (ꯁꯦꯛꯁꯟ 10.8.2)꯫

ꯐꯣꯔꯝ 10F.16 — ꯇꯦꯕꯜ 10-4, ꯃꯥꯁꯃꯌ B: ꯁꯌꯃ꯭ꯌꯥꯁꯃꯌꯒꯤ ꯄꯥꯃꯦꯄꯗ (ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨ ꯅ꯭ꯗꯤꯡꯈꯁꯖꯤꯗꯈꯁ ꯑꯈꯈ)

No.	ꯇꯤꯅꯗ	ꯅꯃꯌꯄꯤ
B1	ꯍꯦꯅꯗ ꯀꯦꯁꯌꯨ ꯑꯃꯁꯨꯡ ꯇꯥꯃꯤꯆꯤꯌꯤ	______
B2	ꯁꯌꯃ꯭ꯌꯥꯁꯃꯌꯒꯤ ꯇꯨꯈꯤꯌ ꯑꯃꯁꯨꯡ ꯈꯌꯜ; ꯆꯦꯡꯒꯤ ꯇꯤꯒꯜ	______
B3	ꯁꯌꯃ꯭ꯌꯥꯁꯃꯃ ꯌꯅꯤꯔ (ꯃꯄꯌꯤꯇꯦꯅ ꯌꯥꯄꯤꯔ ꯀ꯭ꯄꯦꯇꯥꯃꯆꯥꯅ); ꯆꯈꯤꯃꯆꯄꯜꯔ ꯑꯌꯥꯀꯀꯃꯤꯡ	______
B4	ꯌꯡꯗꯜꯆꯅꯤꯔ ꯑꯥꯀ꯭ꯄꯒ ꯌꯥꯄꯔ ꯗ꯭ꯄꯦꯅꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯒꯤꯆꯃ	______
B5	ꯑꯥꯀ꯭ꯄꯒ ꯌꯥꯄꯔ ꯒꯥꯅꯌ꯭ꯃꯤꯡꯒꯦ ꯌꯡꯗꯜꯆꯅ꯭ꯆꯦ ꯇꯡꯅꯤꯔ ꯆꯥꯒꯥꯅꯃꯤꯡ, ꯗꯅꯈꯥꯃꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯥꯌꯥꯄꯤꯌꯥꯅꯃꯤꯡ	______
B6	(a)-ꯒꯤꯗꯈꯁ: ꯄꯤꯌꯥꯃꯃꯃ ꯑꯃꯁꯨꯡ ꯅꯃꯇꯤꯅꯌꯄꯥꯃꯃ ꯑꯥꯄꯤꯌꯦꯃꯤꯡ ꯌꯄꯥꯇꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯁꯀꯦꯅꯅꯃꯤꯡꯗꯒꯤ ꯊꯤꯖꯀꯤꯄꯥ (ꯁꯦꯛꯁꯟ 10.8.3(a))	______
B7	(b)-ꯒꯤꯗꯈꯁ: ꯑꯦꯄꯤꯇꯤꯃꯖꯤ ꯃꯦꯅꯆ ꯑꯃꯁꯨꯡ ꯅꯃꯒꯄꯌ; ꯃꯖꯄꯤꯃ ꯈꯇꯜꯗ ꯆꯦ	______

No.	ꯋꯤꯔꯁ	ꯍꯌꯅꯕꯨꯤ
B8	(c)-ꯒꯤꯗꯃꯛ: ꯍꯌꯋꯤꯔꯅꯨꯕꯥꯂꯌ ꯅꯥꯂꯨꯡꯗꯤ ꯕꯤꯇꯔꯂ ꯑꯃꯁꯨꯡ ꯑꯎꯡꯗ ꯑꯦꯍꯗꯒꯤ ꯃꯅꯃ (≤ 72 h); ꯄꯃꯄꯡꯤ ꯗꯨꯁꯅꯤ ꯄꯦꯍꯌꯂ; ꯒꯥꯂ ꯎꯡꯗꯦꯡꯄ ꯑꯃꯁꯨꯡ ꯂꯤꯔ ꯅꯗ	______
B9	(d) ꯑꯃꯁꯨꯡ (e)-ꯒꯤꯗꯃꯛ: ꯒꯥꯂꯡꯤ ꯃꯍꯔ, ꯂꯤꯅꯤꯗ ꯑꯃꯁꯨꯡ ꯅꯥꯂꯨ; ꯄꯃꯄ ꯡꯃꯤꯂꯆꯤꯗꯒꯤ ꯕꯥꯡꯦꯕꯁ	______
B10	ꯋꯦꯅꯒꯕꯦꯋꯡꯤ ꯕꯥꯋꯕꯥꯌꯂꯂꯤꯗ (ꯈꯨꯃꯤꯂ ꯍꯦꯗꯕ, ꯆꯤꯑꯦꯅꯥꯒ ꯅꯕꯕ)	______
B11	ꯕꯤꯆꯔꯂ: ꯊꯁꯦꯗꯆꯥ / ꯊꯁꯦꯗꯅꯥ; ꯃꯊ ꯅꯕ ꯍꯨꯃꯊꯦꯡꯄꯒꯤ ꯊꯕꯗ	______
B12	ꯍꯨꯃꯊꯦꯡꯄꯒꯤ ꯊꯕꯗ ꯍꯥꯗ ꯅꯍꯤꯕ (ꯈꯨꯃꯤꯂ, ꯡꯆꯦꯆꯦ)	______
B13	ꯂꯕꯅꯤꯋꯦꯍ ꯅꯕꯤꯕ ꯄꯕꯨꯦꯋꯥꯂꯆꯥꯔꯒꯤ ꯂꯦꯍꯌ, ꯈꯨꯃꯤꯂ	______

ꯐꯥꯔꯝ 10-5 — ꯑꯦꯖ-ꯕꯤꯜꯠ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀ꯭ꯂꯥꯖ 10.9 ꯑꯃꯁꯨꯡ 10.3.5-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯥꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯥꯛꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯀꯝꯄ꯭ꯂꯤꯁꯟ ꯁꯔꯇꯤꯐꯤꯀꯦꯠꯀꯤ ꯃꯃꯥꯡꯗ ꯄꯤꯖꯤꯟꯗꯕꯅꯤ꯫ ꯐꯥꯔꯝ ꯑꯁꯤ ꯋꯥꯗ꯭ꯔꯤꯐꯤꯀꯥꯕ ꯑꯥꯊꯥꯔꯤꯇꯤꯅꯥ ꯀꯝꯄ꯭ꯂꯤꯁꯟ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ ꯏꯅꯨ ꯇꯧꯔꯥꯏꯗꯕꯅꯤ (ꯀ꯭ꯂꯥꯖ 10.9.4)꯫

ꯇꯦꯕꯜ 10F.17 — ꯐꯥꯔꯝ 10-5, ꯁꯦꯛꯁꯟ A: ꯄ꯭ꯔꯥꯖꯦꯛꯠ ꯑꯃꯁꯨꯡ ꯁꯔꯚꯦ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ	ꯀ꯭ꯂꯥꯖ
A1	ꯑꯥꯊꯥꯔꯤꯇꯤ, ꯐꯥꯏꯜ ꯅꯝꯕꯔ; ꯁ꯭ꯇꯦꯖ 2-ꯒꯤ ꯑꯦꯄ꯭ꯔꯨꯚꯦꯜꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯅꯨꯃꯤꯠ	______	—
A2	ꯂꯥꯏꯁꯦꯟꯁ ꯂꯧꯕ ꯁꯔꯚꯦꯌꯔ: ꯃꯃꯤꯡ, ꯂꯥꯏꯁꯦꯟꯁ ꯅꯝꯕꯔ, ꯁꯔꯚꯦꯒꯤ ꯅꯨꯃꯤꯠ	______	10.9.1(a)
A3	ꯚꯔꯇꯤꯀꯦꯜ ꯗꯦꯇꯝ	______	10.4.4(d)
A4	ꯑꯍꯦꯟꯕ 10B ꯃꯇꯨꯡ ꯏꯟꯅ GIS ꯗꯦꯇꯥ, ꯑꯦꯖ-ꯕꯤꯜꯠ (ꯐꯥꯏꯜꯒꯤ ꯃꯃꯤꯡ)	______	10.4.4(c)

ꯇꯦꯕꯜ 10F.18 — ꯐꯥꯔꯝ 10-5, ꯁꯦꯛꯁꯟ B: ꯑꯦꯄ꯭ꯔꯨꯚ ꯇꯧꯔꯕ ꯑꯃꯁꯨꯡ ꯑꯦꯖ-ꯕꯤꯜꯠ (ꯐꯦꯁꯤꯂꯤꯇꯤ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯕ꯭ꯂꯥꯛ ꯑꯃꯃ)

ꯑꯥꯏꯇꯦꯝ	ꯑꯦꯄ꯭ꯔꯨꯚ ꯇꯧꯔꯕ	ꯑꯦꯖ-ꯕꯤꯜꯠ	ꯌꯥꯔꯦ (ꯍꯥꯌ / ꯅꯠꯇꯦ)	ꯀ꯭ꯂꯥꯖ
ꯗꯤꯖꯥꯏꯟ ꯂꯦꯚꯦꯜ ꯈꯨꯗꯤꯡꯃꯛꯇ ꯁ꯭ꯇꯥꯔꯦꯖ ꯚꯥꯂꯨꯝ, m³	______	______	______	10.9.2(a)
ꯑꯥꯎꯠꯂꯦꯠꯀꯤ ꯗꯥꯏꯃꯦꯟꯁꯟꯁꯤꯡ (ꯑꯥꯔꯤꯐꯤꯁ, ꯋꯤꯌꯔ), mm	______	______	______	10.9.2(b)
ꯑꯥꯎꯠꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐꯥꯜꯒꯤ ꯏꯟꯚꯔꯠꯁꯤꯡ, m	______	______	______	10.9.2(b)
ꯁ꯭ꯄꯤꯜꯋꯦ ꯅꯠꯔꯒ ꯑꯥꯚꯔꯐ꯭ꯂꯥꯒꯤ ꯂꯦꯚꯦꯜ, m	______	______	______	4.9
ꯔꯤꯇꯦꯟꯁꯟ ꯚꯥꯂꯨꯝ, m³	______	______	______	4.4

ꯇꯦꯕꯜ 10F.19 — ꯐꯥꯔꯝ 10-5, ꯁꯦꯛꯁꯟ C: ꯔꯤ-ꯔꯟ ꯑꯃꯁꯨꯡ ꯇꯦꯁ꯭ꯠꯁꯤꯡ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ	ꯀ꯭ꯂꯥꯖ
C1	ꯑꯦꯖ-ꯕꯤꯜꯠ ꯚꯦꯔꯤꯑꯦꯕꯂꯁꯤꯡꯒꯤ ꯂꯥꯌꯅꯅ ꯀꯝꯄ꯭ꯂꯥꯏꯑꯦꯟꯁ ꯃꯥꯗꯦꯜ ꯔꯤ-ꯔꯟ: ꯚꯔꯁꯟ, ꯑꯃꯁꯨꯡ ꯐꯥꯔꯝ 10-2 (ꯁ꯭ꯇꯦꯖ 4) ꯁꯟꯅꯟ	______	10.9.1(b)
C2	ꯑꯦꯖ-ꯕꯤꯜꯠ ꯚꯦꯔꯤꯑꯦꯕꯂꯁꯤꯡꯒꯤ ꯂꯥꯌꯅꯅ ꯃꯥꯗꯦꯜ ꯔꯤ-ꯔꯟ (ꯃꯥꯗꯦꯜ ꯁꯤꯅꯐꯤꯒꯔꯦꯁꯟ ꯃꯐꯝꯗ): ꯐꯥꯏꯜꯒꯤ ꯃꯃꯤꯡ	______	10.9.1(b)
C3	ꯔꯤ-ꯔꯟꯗ ꯁꯔꯨꯛ 4 ꯑꯃꯁꯨꯡ 5-ꯒꯤ ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯟ ꯈꯨꯗꯤꯡꯃꯛ ꯉꯟꯍꯟꯗꯦ (ꯍꯥꯌ / ꯅꯠꯇꯦ; ꯉꯟꯅꯗꯕ ꯀꯔꯤꯠꯁꯕ ꯂꯤꯁ꯭ꯠ ꯇꯧꯕꯤꯌꯨ)	______	10.9.2(c)
C4	ꯏꯟꯐꯤꯜꯠ꯭ꯔꯦꯁꯟ ꯔꯤꯇꯦꯟꯁꯟ: ꯁꯟ ꯂꯦꯔꯕ ꯑꯍꯥꯟꯕ ꯑꯥꯂꯠꯄꯒꯤ ꯃꯇꯝ, h (≤ 72 h)	______	10.9.3
C5	ꯀꯔꯀꯔꯁꯤꯡ: ꯐꯂꯂꯤꯁ ꯁ꯭ꯏꯔ ꯂꯥꯏꯂꯂ (ꯍꯥꯁꯂ ꯐꯂꯥ)	______	10.9.3
C6	ꯇꯧꯔꯕ ꯑꯦꯛ ꯑꯃꯁꯨꯡ ꯅꯤꯡ-ꯔꯤꯁꯤꯔꯦꯁ ꯈꯣꯡꯂꯣꯂꯤꯡ: ꯍꯥꯔꯥꯏꯀꯥꯏ ꯑꯃꯁꯨꯡ ꯂꯤꯡ ꯇꯧꯕ ꯊꯧꯂꯕ	______	10.9.3
C7	ꯗꯤꯚꯤꯑꯦꯁꯟꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯃꯍꯥꯛꯀꯤ ꯌꯥꯐꯃꯂ ꯁ꯭ꯃꯀꯥꯂꯍꯥꯔꯤꯕꯒꯤ ꯅꯠꯔꯒ ꯀ꯭ꯂꯥꯖ 10.3.5-ꯒꯤ ꯃꯍꯩꯗ ꯑꯃꯥ ꯍꯟꯂꯂ ꯂꯔꯤꯐꯤꯅ ꯇꯧꯔꯕꯒꯤ	______	10.9.2

ꯇꯦꯕꯜ 10F.20 — ꯐꯥꯔꯝ 10-5, ꯁꯦꯛꯁꯟ D: ꯁꯥꯏꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
D1	ꯃꯄꯨꯡ ꯐꯥꯔꯕ ꯍꯣꯜꯗ-ꯄꯣꯏꯟꯠꯀꯤ ꯔꯦꯀꯣꯔꯗꯁꯤꯡ (ꯐꯣꯔꯝ 10-4)	______
D2	ꯑꯔꯣꯏꯕ O&M ꯄ꯭ꯂꯥꯟ	______
D3	ꯁꯥꯏꯟ ꯇꯧꯗꯨꯅꯥ ꯃꯄꯨꯡ ꯐꯥꯍꯜꯂꯕ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ (ꯐꯣꯔꯝ 10-6) ꯅꯠꯔꯒ ꯍꯦꯟꯗꯑꯣꯚꯔꯒꯤ ꯗꯣꯀꯨꯃꯦꯟꯠꯁꯤꯡ (ꯐꯣꯔꯝ 10-8)	______
D4	ꯂꯤꯁ꯭ꯠ ꯇꯧꯔꯕ ꯀꯣꯃꯤꯁꯤꯅꯤꯡ ꯑꯁꯤ C7-ꯗ ꯍꯥꯏꯔꯕ ꯂꯇꯧꯁꯥ ꯑꯦꯀꯨꯃꯒ ꯇꯧꯔꯕꯀꯨꯝꯂꯥ ꯁꯥꯏ ꯑꯝꯅꯨꯡ ꯗꯤꯂꯥꯟꯁ ꯇꯧꯔꯕꯀꯨꯝꯂꯥ ꯍꯕꯛ ꯇꯧꯟ ꯍꯥꯏꯔꯥ ꯑꯣꯗꯥ ꯁꯔꯇꯤꯐꯥꯏ ꯇꯧꯔꯤ꯫ ꯁꯔꯇꯤꯐꯥꯏ ꯇꯧꯔꯤꯕ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ: ꯃꯃꯤꯡ, ꯔꯦꯖꯤꯁ꯭ꯠꯔꯦꯁꯟ ꯅꯝꯕꯔ, ꯁꯥꯏꯟ, ꯅꯨꯃꯤꯠ	______
D5	ꯑꯣꯊꯣꯔꯤꯁꯤꯜꯤꯗꯃꯛ: ꯔꯦꯔꯣ / ꯍꯚꯂꯛꯂꯦ; ꯑꯣꯐꯤꯁꯔ, ꯅꯨꯃꯤꯠ	______

ꯐꯣꯔꯝ 10-6 — ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.10.1, 10.10.2, 10.10.4 ꯑꯃꯁꯨꯡ 10.13.1-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯀꯝꯄꯤꯇꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ ꯑꯃꯅꯥ ꯁꯥꯏꯟ ꯁꯣꯛꯂꯕ ꯃꯣꯗꯦꯜ ꯇꯦꯛꯁꯇ꯫ ꯑꯦꯗꯚꯥꯏꯖꯔꯤ꯫ ꯀꯝꯞꯂꯥꯏꯑꯦꯟꯁ ꯃꯔꯣꯜꯗꯤꯛꯁꯤꯡ ꯃꯦꯟꯁꯟ ꯇꯧꯔꯕ ꯁꯔꯨꯛꯁꯤꯡ ꯑꯁꯤ ꯂꯩꯕꯥꯛ ꯑꯁꯤꯒꯤ ꯄꯥꯟꯗꯝ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯑꯦꯗꯣꯞꯇ ꯇꯧꯔꯕꯥ, ꯑꯃꯁꯨꯡ ꯃꯁꯤ ꯇꯧ ꯑꯣꯏꯔꯤꯕ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯕ ꯚꯦꯂꯤꯗꯦꯁꯟ ꯅꯥꯏ꯫

> **ꯗ꯭ꯔꯥꯐꯇꯤꯡ ꯅꯣꯠ D10A.1.** ꯗꯤꯛꯂꯦꯔꯦꯁꯟ ꯑꯁꯤ ꯚꯦꯂꯤꯗꯦꯠ ꯇꯧꯕ ꯅꯦꯠꯋꯥꯔꯀꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯑꯣꯅꯔꯁꯤꯞꯀꯤ ꯔꯦꯖꯤꯁ꯭ꯠꯔꯤꯒꯤ ꯄꯥꯝ ꯑꯃꯁꯨꯡ ꯗꯤꯐꯣꯜꯠꯀꯤ ꯎꯠꯄ ꯇꯧꯕꯒꯤ ꯃꯇꯧ ꯀꯔꯤ ꯑꯦꯃ ꯑꯃꯁꯨꯡ, ꯀꯝꯄꯤꯇꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤꯅ ꯀꯅꯐꯥꯔꯝ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯐꯣꯔꯝ ꯑꯁꯤꯅ ꯑꯦꯟꯗꯣꯔꯁꯃꯦꯟꯇ ꯃꯦꯛꯇꯔꯤꯛ ꯀꯥꯌ ꯇꯧꯗꯦ꯫

ꯇꯦꯕꯜ 10F.21 — ꯐꯣꯔꯝ 10-6, ꯁꯦꯛꯁꯟ A: ꯄ꯭ꯔꯣꯖꯦꯛꯇ ꯑꯃꯁꯨꯡ ꯂꯦꯟ

No.	ꯐꯤꯜꯗ	ꯁꯍꯤꯔꯤ
A1	ꯃꯤꯡ (ꯗꯤꯛꯂꯦꯔꯦꯁꯟ ꯇꯧꯕ ꯃꯤ): ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯗ꯭ꯔꯦꯁ; ꯀꯝꯄꯦꯅꯤ ꯅꯠꯔꯒꯥ ꯑꯦꯁꯣꯁꯤꯌꯦꯁꯟ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ, ꯃꯈꯣꯌꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯠꯔꯦꯁꯟ ꯂꯝꯕꯔ	______
A2	ꯑꯣꯅꯔꯁꯤꯞ	______
A3	ꯂꯝ: ꯁꯔꯚꯦ ꯂꯝꯕꯔꯁꯤꯡ, ꯄ꯭ꯂꯣꯠ, ꯁꯕ-ꯗꯤꯚꯤꯖꯟ, ꯄ꯭ꯂꯦꯟ; ꯑꯦꯗ꯭ꯔꯦꯁ	______
A4	ꯑꯦꯞꯔꯨꯚꯦꯜꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ (ꯐꯥꯏꯜ ꯂꯝꯕꯔ, ꯁꯇꯦꯖ 2-ꯒꯤ ꯑꯦꯞꯔꯨꯚꯦꯜꯒꯤ ꯇꯥꯡꯀꯛ)	______
A5	ꯃꯤꯡ ꯀꯌꯥ ꯂꯩꯕ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯁꯤꯡꯒꯤ ꯃꯇꯝꯗ: ꯗꯦꯚꯦꯂꯄꯔꯒꯤ ꯃꯁꯤꯡꯗ ꯑꯣꯐꯤꯁ ꯂꯩꯕ ꯑꯦꯁꯣꯁꯤꯌꯦꯁꯟ ꯅꯠꯔꯒꯥ ꯕꯣꯗꯤ (ꯀ꯭ꯂꯣꯖ 10.10.2)	______

ꯇꯦꯕꯜ 10F.22 — ꯐꯣꯔꯝ 10-6, ꯁꯦꯛꯁꯟ B: ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡꯒꯤ ꯁꯦꯗ꯭ꯌꯨꯜ

ꯐꯦꯁꯤꯂꯤꯇꯤ (FAC_ID)	ꯃꯈꯜ	ꯂꯣꯀꯦꯁꯟ ꯄ꯭ꯂꯣꯇꯀꯤ ꯂꯩꯐꯝ	ꯗꯤꯖꯥꯏꯟ ꯚꯣꯂꯨꯝ (m³)	ꯀꯟꯗꯤꯁꯟ	O&M ꯄ꯭ꯂꯦꯟꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ
______	______	______	______	______	______
______	______	______	______	______	______

ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ. ꯑꯩ/ꯑꯩꯈꯣꯌ, ꯁꯦꯛꯁꯟ A-ꯗ ꯃꯃꯤꯡ ꯂꯥꯏꯕ ꯃꯤꯡꯁꯤ, ꯑꯩꯒꯤ/ꯑꯩꯈꯣꯌꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯝ ꯑꯗꯨꯒꯤ ꯃꯁꯤꯡꯗ ꯃꯤꯡ ꯑꯣꯏꯔꯤꯕꯁꯤꯡ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯃꯥꯌꯀꯩꯗ ꯗꯤꯛꯂꯦꯔ ꯇꯧꯏ ꯑꯃꯁꯨꯡ ꯌꯥꯅꯤꯡꯏ:

1. ꯑꯦꯞꯔꯨꯚ ꯇꯧꯔꯕ O&M ꯄ꯭ꯂꯦꯟꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯥ ꯁꯦꯛꯁꯟ B-ꯗ ꯂꯩꯕ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ ꯃꯦꯟꯇꯦꯟ ꯇꯧꯒꯅꯤ, ꯅꯦꯠꯋꯥꯔꯛ ꯇꯧꯒꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯟ ꯇꯧꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.12-ꯒꯤ ꯅꯦꯠꯋꯥꯔꯛꯁꯤꯡ ꯇꯧꯒꯅꯤ (ꯀ꯭ꯂꯣꯖ 10.10.1(b));
2. ꯑꯣꯅꯔꯁꯤꯞ, ꯃꯈꯣꯌꯒꯤ ꯑꯦꯗꯤꯁꯅꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯈꯣꯌꯒꯤ ꯀꯟꯇ꯭ꯔꯦꯛꯇꯔꯁꯤꯡ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯃꯦꯟꯇꯦꯟ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯦꯟ ꯇꯧꯗꯕ ꯑꯦꯛꯁꯦꯁ ꯄꯤꯒꯅꯤ ꯅꯦꯠꯋꯥꯔꯛ ꯇꯧꯒꯅꯤ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯣꯖ 10.15-ꯒꯤ ꯃꯈꯥꯗ ꯗꯤꯐꯣꯜꯠꯀꯤ ꯎꯠꯄ ꯇꯧꯒꯅꯤ ꯔꯦꯖꯤꯁ꯭ꯠꯔꯤꯒꯤ ꯄꯥꯝ ꯄ꯭ꯔꯤꯟꯇ, ꯃꯤꯡꯒꯤ ꯅꯥꯏꯔ ꯃꯤꯡꯗꯒꯤ ꯂꯩꯕ ꯌꯥꯕ ꯑꯣꯏꯅꯕ (ꯀ꯭ꯂꯣꯖ 10.10.1(c));
3. ꯑꯣꯅꯔꯁꯤꯞꯀꯤ ꯅꯕ ꯑꯦꯞꯔꯨꯚꯦꯜ ꯌꯥꯎꯗꯅꯥ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯍꯥꯟꯕ ꯂꯩꯊꯣꯛꯀꯅꯤ, ꯐꯤꯜ ꯇꯧꯒꯅꯤ, ꯀꯚꯔꯒꯅꯤ, ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛꯀꯅꯤ ꯅꯠꯔꯒꯥ ꯃꯈꯣꯌꯒꯤ ꯁꯥꯏꯖꯒꯅꯤ ꯍꯣꯡꯗꯣꯛꯀꯅꯤ, ꯅꯠꯔꯒꯥ ꯃꯈꯣꯌꯒꯤ ꯑꯦꯃꯦꯟꯗ ꯄꯥꯡꯊꯣꯛꯀꯅꯤ (ꯀ꯭ꯂꯣꯖ 10.10.1(d), 10.13.5);
4. ꯀ꯭ꯂꯣꯖ 10.10.3 ꯃꯈꯥꯒꯤ ꯃꯇꯨꯡ, ꯅꯨꯃꯤꯠ ꯄꯨꯝꯅꯃꯛꯀꯤ 31 ꯃꯇꯃꯗ ꯐꯣꯜꯂꯣꯕꯒꯤ ꯃꯇꯝꯗ ꯅꯨꯃꯤꯠ ꯄꯨꯝꯅꯃꯛꯀꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯅꯦꯠꯋꯥꯔꯛ ꯔꯤꯄꯣꯔꯠ (ꯐꯣꯔꯝ 10-7) ꯄ꯭ꯔꯤꯟꯇꯒꯅꯤ;
5. ꯑꯦꯃꯔꯖꯦꯟꯁꯤꯒꯤ ꯃꯇꯝꯒꯤ ꯇꯦꯂꯤꯐꯣꯟ ꯅꯝꯕꯔꯁꯤꯡꯗ, ꯃꯁꯤꯡ ꯑꯣꯏꯅ ꯍꯣꯡꯂꯕ ꯀꯟꯇꯦꯛꯇ-ꯄꯔꯁꯟ ꯃꯇꯝꯒꯤ ꯄ꯭ꯔꯗꯤꯀꯤꯟ ꯁꯤꯡꯂꯒꯅꯤ: ______ (ꯀ꯭ꯂꯣꯖ 4.15.6);

6. ꯇꯝ ꯑꯗꯨ ꯈꯨꯠꯊꯥꯡ ꯍꯟꯗꯛꯀꯤ ꯍꯅꯝ ꯅꯕꯤ ꯔꯦꯛꯇꯕ ꯈꯨꯠꯊꯥꯡ ꯌꯨꯕꯤꯟꯍꯥꯏꯗꯕ ꯌꯦꯡꯕ ꯍꯌꯥꯝꯒꯤ, ꯑꯃꯁꯨꯡ ꯀꯥꯡꯂꯣꯟ ꯑꯃꯥ ꯑꯍꯥꯡꯕ ꯑꯗꯣꯝ ꯐꯤꯒꯔ 10-7 ꯑꯗꯨ ꯇꯧꯕ ꯍꯤꯟ ꯐꯦꯖꯦꯅꯦꯁꯅꯤꯇꯕ, ꯍꯥꯏꯗꯕ ꯌꯨꯕꯤꯟꯍꯥꯏꯗꯕ ꯌꯦꯡꯒꯕ ꯂꯍꯤꯡꯌꯥꯝꯒꯤ ꯍꯥꯝꯒꯤ ꯊꯣꯛꯄꯃꯤꯜ ꯑꯃꯥ ꯇꯧꯒꯅꯤ (ꯁ꯭ꯇꯦꯞ 10.10.4); ꯑꯍꯥꯡꯕ

7. ꯍꯥꯏꯕ ꯃꯇꯝ ꯇꯧꯕ ꯀꯣꯔꯇꯔꯍꯣꯡꯗꯨ ꯑꯍꯥꯝꯤꯀꯍꯥ, A5-ꯀ ꯍꯍꯤꯜ ꯇꯧꯒꯕ ꯕꯦꯀꯤ ꯑꯗꯨ ꯑꯁꯦꯡꯕ ꯍꯌꯥꯜ ꯅꯗꯤꯇ ꯂꯣꯍꯥꯝꯗꯇꯕ ꯑꯍꯥꯡꯕ ꯀꯥꯡꯂꯣꯟ ꯑꯃꯥ ꯅꯕ ꯍꯑꯦꯜꯀ ꯌꯦꯒꯕ ꯐꯦꯔꯕ ꯀꯣꯔꯇꯔꯗꯇꯦ ꯊꯧꯀꯜ ꯇꯧꯒꯤꯅꯤ (ꯁ꯭ꯇꯦꯞ 10.10.2)꯫

ꯇꯦꯕꯜ 10F.23 — ꯐꯤꯒꯔ 10-6, ꯁꯦꯛꯁꯟ C: ꯁꯦꯡꯕ ꯌꯥꯕ ꯑꯍꯥꯡꯕ ꯆꯦꯛꯂꯤꯁ꯭ꯠ

ꯃꯤꯐꯝ	ꯅꯥꯏꯕꯤ
ꯍꯊꯛ: ꯁꯦꯡꯕ, ꯍꯍꯤꯜ, ꯀꯨꯍꯤꯌ	______
ꯁꯦꯠꯂꯤ 1: ꯁꯦꯡꯕ, ꯍꯍꯤꯜ, ꯑꯣꯀ꯭ꯄꯣꯂ	______
ꯁꯦꯠꯂꯤ 2: ꯁꯦꯡꯕ, ꯍꯍꯤꯜ, ꯑꯣꯀ꯭ꯄꯣꯂ	______
A5-ꯀ ꯇꯧꯒꯕ ꯑꯣꯂꯦꯂꯤꯌꯣꯂꯗ ꯈꯨꯠꯊꯥꯡ ꯕꯦꯀꯤꯗꯦ ꯌꯦꯕ (ꯂꯣꯍꯥꯝꯗꯇꯕ ꯍꯌꯥꯝꯀ): ꯁꯦꯡꯕ, ꯀꯨꯍꯤꯌ	______
ꯄꯣꯇꯤꯂꯩꯄꯣꯂꯗ: ꯑꯦꯃꯤꯂ, ꯀꯦꯄ꯭ꯍꯣꯗꯌ ꯇꯝꯕꯄ, ꯀꯨꯍꯤꯌ	______
ꯑꯦꯊꯦꯄꯤꯌꯤꯝꯤꯀꯍꯥ: ꯃꯜꯅꯤ ꯑꯍꯥꯡꯕ ꯃꯣꯂꯤꯇꯤꯌꯤꯝꯤ ꯄꯣꯇꯤꯂꯩꯄꯀ ꯄꯣꯃꯦꯄꯀ ꯌꯥꯅꯤ; ꯑꯦꯃꯤꯂꯄ, ꯀꯨꯍꯤꯌ	______

ꯐꯣꯔꯝ 10-7 — ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ ꯔꯤꯄꯣꯔꯠ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.10.3, 10.11.1(d) ꯑꯃꯁꯨꯡ 10.12-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ॥

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯂꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ ꯗꯤꯖꯥꯏꯟ ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯇꯤꯌꯔ A ꯑꯦꯔꯤꯌꯥ ꯑꯃꯗ ꯂꯩꯕ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯒꯤ ꯃꯄꯨ ꯈꯨꯗꯤꯡꯃꯛꯇꯒꯤ, ꯑꯃꯁꯨꯡ ꯃꯐꯝ ꯀꯗꯥꯏꯗꯨ ꯂꯩꯕ ꯄꯝꯄ ꯂꯩꯕ ꯐꯦꯁꯤꯂꯤꯇꯤ, ꯍꯣꯏꯗ ꯒꯦꯈ ꯅꯈꯗꯄꯥ ꯗꯤꯖꯂꯤ ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯃꯄꯨ ꯈꯨꯗꯤꯡꯃꯛꯇꯒꯤ ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ **31 ꯃꯥꯔꯆ** ꯐꯥꯎꯕꯒꯤ ꯃꯅꯨꯡꯗ ꯄꯤꯖꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 10.10.3)॥ ꯃꯃꯤ 10.3 ꯌꯦꯡꯕꯤꯌꯨ॥

ꯇꯦꯕꯜ 10F.24 — ꯐꯣꯔꯝ 10-7, ꯁꯦꯛꯁꯟ A: ꯃꯄꯨ ꯑꯃꯁꯨꯡ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ

No.	ꯐꯤꯜꯗ	ꯚꯦꯜꯌꯨ
A1	ꯔꯤꯄꯣꯔꯠ ꯇꯧꯕ ꯆꯍꯤ (1 ꯑꯦꯄꯔꯤꯜꯗꯒꯤ 31 ꯃꯥꯔꯆ ꯐꯥꯎꯕ)	______
A2	ꯃꯄꯨ ꯅꯠꯔꯒꯥ ꯑꯦꯁꯣꯁꯤꯌꯦꯁꯟ; ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇ꯭ꯔꯦꯁꯟ ꯔꯦꯐꯔꯦꯟꯁ	______
A3	ꯀꯚꯔ ꯇꯧꯔꯕ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ (FAC_ID ꯑꯃꯁꯨꯡ ꯃꯍꯜ)	______
A4	ꯀ꯭ꯂꯣꯖ 10.6.1(c) ꯅꯠꯔꯒꯥ (d)-ꯒꯤ ꯃꯈꯥꯗ ꯂꯩꯕ ꯐꯦꯁꯤꯂꯤꯇꯤ ꯑꯃꯍꯦꯛꯇ (ꯍꯣꯏ / ꯅꯠꯇꯦ)॥ ꯍꯣꯏ ꯑꯣꯏꯔꯕꯗꯤ, ꯁꯦꯛꯁꯟ E ꯃꯊꯧ ꯇꯥꯏ	______

ꯇꯦꯕꯜ 10F.25 — ꯐꯣꯔꯝ 10-7, ꯁꯦꯛꯁꯟ B: ꯆꯍꯤ ꯑꯗꯨꯒꯤ ꯃꯅꯨꯡꯗ ꯇꯧꯈꯤꯕ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟꯁꯤꯡ (ꯇꯦꯕꯜ 10.3)

ꯐꯦꯁꯤꯂꯤꯇꯤ	ꯃꯇꯝ ꯃꯇꯝꯒꯤ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟꯁꯤꯡ (ꯅꯨꯃꯤꯠꯁꯤꯡ)	ꯄ꯭ꯔꯤ-ꯃꯣꯟꯁꯨꯟ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ (ꯅꯨꯃꯤꯠ)	ꯀꯟꯅꯥ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯀꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ (ꯅꯨꯃꯤꯠꯁꯤꯡ)	ꯊꯥ ꯈꯨꯗꯤꯡꯒꯤ ꯄꯝꯄ ꯇꯦꯁ꯭ꯠ ꯔꯟꯁꯤꯡ (ꯃꯁꯤꯡ)
______	______	______	______	______
______	______	______	______	______

ꯇꯦꯕꯜ 10F.26 — ꯐꯣꯔꯝ 10-7, ꯁꯦꯛꯁꯟ C: ꯄ꯭ꯔꯤ-ꯃꯣꯟꯁꯨꯟ ꯆꯦꯛꯂꯤꯁ꯭ꯠ (ꯐꯦꯁꯤꯂꯤꯇꯤ ꯈꯨꯗꯤꯡꯃꯛꯀꯤꯗꯃꯛ ꯑꯃꯃꯃ)

No.	ꯑꯥꯏꯇꯦꯝ	ꯐꯤꯚꯝ (OK / ꯑꯁꯣꯏꯕ)	ꯑꯁꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯃꯗꯣꯛꯈꯤꯕ ꯅꯨꯃꯤꯠ
C1	ꯏꯟꯇꯦꯛꯁꯤꯡ, ꯄ꯭ꯔꯤꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯁꯤꯜꯠ ꯇ꯭ꯔꯦꯄꯁꯤꯡ ꯁꯦꯡꯕ	______	______
C2	ꯑꯣꯔꯤꯐꯤꯁ, ꯇ꯭ꯔꯦꯁ ꯁ꯭ꯀ꯭ꯔꯤꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯌꯔꯚꯦꯂꯚ ꯁꯦꯡꯕ; ꯑꯣꯔꯤꯐꯤꯁꯀꯤ ꯁꯥꯏꯖ ꯍꯣꯡꯗꯕ	______	______
C3	ꯁꯦꯗꯤꯃꯦꯟꯠ ꯑꯁꯤ O&M ꯄ꯭ꯂꯦꯟꯒꯤ ꯇ꯭ꯔꯤꯒꯔꯒꯤ ꯃꯈꯥꯗ	______	______
C4	ꯁ꯭ꯇꯣꯔꯦꯖ ꯚꯣꯂꯨꯝ ꯍꯟꯊꯗꯕ; ꯐꯤꯜ ꯇꯧꯕ, ꯀ꯭ꯔꯦꯛ ꯅꯠꯔꯒꯥ ꯁꯤꯄꯦꯖ ꯎꯕ ꯂꯩꯇꯕ	______	______
C5	ꯑꯣꯚꯔꯐ꯭ꯂꯣ ꯑꯃꯁꯨꯡ ꯁ꯭ꯀꯣꯔꯒꯤ ꯗꯨꯠ ꯁꯦꯡꯕ	______	______
C6	ꯔꯤꯁꯦꯟꯠ 72 h-ꯒꯤ ꯃꯅꯨꯡꯗ ꯅꯁꯤꯡ ꯎꯀꯟ (ꯑꯣꯇꯣꯃꯦꯇꯤꯛ ꯁꯦꯟꯁꯔ ꯅꯠꯔꯒꯥ ꯃꯦꯅꯨꯌꯦꯜ)	______	______
C7	ꯄꯝꯄꯁꯤꯡ: ꯃꯗꯨꯡ ꯆꯔ ꯐ꯭ꯂꯣ ꯇꯦꯁ꯭ꯠ; ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯄꯝꯄ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯟꯗꯕꯥꯏ ꯄꯥꯋꯔ ꯇꯦꯁ꯭ꯠ ꯇꯧꯏ; ꯐ꯭ꯌꯨꯌꯦꯜ 72 h-ꯒꯤ ꯐꯪꯏ	______	______
C8	ꯑꯦꯛꯁꯦꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯌꯨꯔꯤꯇꯤ ꯇꯦꯁ꯭ꯠ ꯇꯧꯏ	______	______
C9	ꯐ꯭ꯂꯣ ꯅꯠꯔꯒꯥ ꯂꯦꯚꯦꯜ ꯒꯦꯖꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯚꯁꯤꯡ: ꯑꯦꯛꯔꯦꯁ ꯇꯦꯁ꯭ꯠ ꯇꯧꯏ ꯑꯃꯁꯨꯡ ꯁꯤꯜ ꯇꯦꯁ꯭ꯠ ꯇꯧꯏ	______	______
C10	ꯃꯦꯇꯦꯔꯤꯌꯦꯜ: ꯀꯚꯔꯁꯤꯡ ꯂꯣꯛ ꯇꯧꯕ, ꯐꯦꯟꯁ, ꯁꯥꯏꯅꯕꯣꯔꯗꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯣꯁꯤꯡ ꯃꯩꯀꯥꯏꯁꯤꯡ ꯃꯐꯝꯗ ꯂꯩ	______	______

No.	ꯑꯏꯇꯦꯝ	ꯆꯦꯛ (OK / ꯑꯁꯣꯏꯕ)	ꯑꯁꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯝꯒꯠꯂꯕ ꯅꯨꯃꯤꯠ
C11	ꯑꯦꯛꯁꯦꯁ ꯄꯣꯏꯟꯇꯁꯤꯡ ꯁꯦꯐ ꯑꯃꯁꯨꯡ ꯂꯦꯕꯦꯜ ꯇꯧꯔꯕ	______	______

ꯇꯦꯕꯜ 10F.27 — ꯆꯦꯞꯇꯔ 10-7, ꯁꯦꯛꯁꯟ D: ꯃꯄꯨꯒꯤ ꯑꯦꯛꯁꯦꯞꯇꯦꯟꯁ

ꯆꯦꯛ	ꯁꯥꯏꯟ
ꯑꯣꯅꯔ/ꯑꯣꯄꯔꯦꯇꯔꯅꯥ ꯍꯥꯟꯅꯤ ꯃꯇꯝꯗ ꯄꯦꯔꯥ 10.12-ꯒꯤ ꯄꯦꯔꯤ-ꯍꯦꯟꯗꯣꯚꯔ ꯁꯔꯚꯦꯌꯔ ꯇꯧꯕ, ꯆꯦꯛꯂꯤꯕ ꯑꯁꯣꯏꯕꯁꯤꯡ ꯁꯦꯛꯁꯟ C-ꯗ ꯅꯤꯡꯊꯧ ꯇꯧꯕꯒꯥ ꯂꯣꯌꯅꯅ, ꯑꯃꯁꯨꯡ ꯆꯦꯛꯂꯤꯁ꯭ꯇꯁꯤꯡ ꯑꯁꯤ ꯑꯦꯟꯗꯣꯔꯁ ꯇꯧꯕ O&M ꯄꯦꯔꯁꯣꯅꯦꯂꯒꯤ ꯃꯐꯝ ꯃꯦꯡꯇꯦꯡ ꯇꯧꯔꯤ꯫ ꯃꯤꯡ: ꯃꯃꯤꯡ, ꯁꯥꯏꯟ, ꯅꯨꯃꯤꯠ	______

ꯇꯦꯕꯜ 10F.28 — ꯆꯦꯞꯇꯔ 10-7, ꯁꯦꯛꯁꯟ E: ꯍꯦꯟꯗꯣꯚꯔ ꯇꯧꯕ ꯄꯦꯔꯝꯤꯁꯟ (ꯄꯦꯔꯥ 10.6.1(c) ꯑꯃꯁꯨꯡ (d)-ꯒꯤ ꯃꯈꯥ ꯇꯥꯕ ꯆꯦꯛꯂꯤꯁ꯭ꯇꯁꯤꯡ)

ꯆꯦꯛ	ꯁꯥꯏꯟ
ꯅꯤꯡꯊꯧ ꯇꯧꯕ ꯆꯦꯛꯂꯤꯁ꯭ꯇꯁꯤꯡ ꯑꯣꯅꯔ ꯁꯥꯏꯟ ꯇꯧꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯛꯁꯟ C ꯀ꯭ꯂꯣꯖ ꯇꯧꯔꯤ꯫ ꯃꯃꯤꯡ, ꯍꯦꯟꯗꯣꯚꯔ ꯃꯦꯊꯣꯗ ꯄꯔꯃꯤꯠ, ꯁꯥꯏꯟ, ꯅꯨꯃꯤꯠ	______

ꯇꯦꯕꯜ 10F.29 — ꯆꯦꯞꯇꯔ 10-7, ꯁꯦꯛꯁꯟ F: ꯑꯦꯀꯣꯔꯗꯤꯡꯒꯤ ꯃꯔꯝ

ꯆꯦꯛ	ꯁꯥꯏꯟ
ꯆꯦꯛꯂꯤꯕ ꯅꯨꯃꯤꯠ; ꯃꯇꯝꯃꯗ (31 ꯃꯥꯔꯆ ꯆꯥꯡꯕꯒꯤ ꯃꯅꯨꯡꯗ) ꯍꯧꯔ / ꯅꯠꯇꯦ	______
ꯆꯦꯛꯂꯤꯁ꯭ꯇꯒꯤ ꯔꯦꯅꯤꯡꯇꯔ (ꯄꯦꯔꯥ 10.17)-ꯗ ꯍꯁꯤꯟꯖꯕ, ꯅꯨꯃꯤꯠ	______
ꯃꯌꯨꯃꯗ ꯅꯣꯡꯗꯕ ꯊꯕꯛ, ꯅꯤꯡꯕꯗꯤ (ꯄꯦꯔꯥ 10.15)	______

ꯐꯣꯔꯝ 10-8 — ꯑꯦꯁꯦꯠ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ

ꯁꯔꯨꯛ 10-ꯒꯤ ꯀ꯭ꯂꯣꯖ 10.14-ꯗ ꯌꯦꯡꯕꯤꯌꯨ꯫

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯅꯤꯄꯨꯔ ꯂꯣꯏꯒꯤ ꯏꯁꯤꯡ ꯏꯗꯝ ꯗꯤꯅꯥꯏꯔ ꯍꯦꯅ꯭ꯔꯦꯟ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0. ꯗꯦꯚꯦꯂꯞꯄꯔ ꯑꯃꯅꯥ ꯁꯥꯏꯟ ꯇꯧꯔꯕ ꯀꯣꯄꯤꯁꯤꯡ, ꯑꯣꯄꯔ ꯁ꯭ꯄꯦꯁꯀꯤ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ, ꯄꯕ꯭ꯂꯤꯛ ꯐꯦꯁꯤꯂꯤꯇꯤꯁꯤꯡ ꯅꯠꯔꯒꯥ ꯑꯣꯄꯟ ꯂꯣꯏꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯑꯦꯁꯦꯠꯁꯤꯡ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯇꯧꯗꯨꯅ ꯗꯦꯚꯦꯂꯞꯄꯔ ꯑꯃꯁꯨꯡ ULB-ꯅꯥ ꯁꯥꯏꯟ ꯇꯧꯏ꯫

ꯇꯦꯕꯜ 10F.30 — ꯐꯣꯔꯝ 10-8, ꯁꯦꯛꯁꯟ A: ꯑꯦꯁꯦꯠ ꯑꯃꯁꯨꯡ ꯄꯥꯔꯇꯤꯁꯤꯡ

No.	ꯐꯤꯜꯗ	ꯑꯦꯟꯠꯔꯤ
A1	ꯗꯦꯚꯦꯂꯞꯄꯔ: ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯦꯗ꯭ꯔꯦꯁ	______
A2	ULB	______
A3	ꯂꯣꯀꯦꯁꯟ ꯅꯠꯔꯒꯥ ꯀ꯭ꯂꯦꯇꯦꯃꯠ, ꯑꯦꯄ꯭ꯔꯨꯚꯦꯜꯒꯤ ꯔꯦꯐꯔꯦꯟꯁ	______
A4	ꯍꯦꯟꯗꯑꯣꯚꯔ ꯇꯧꯔꯤꯕ ꯑꯦꯁꯦꯠꯁꯤꯡ (FAC_ID, ꯃꯈꯜ, ꯂꯣꯀꯦꯁꯟ ꯅꯠꯔꯒꯥ ꯒꯤꯌꯣꯃ), ꯁꯦꯗ꯭ꯌꯨꯜ ꯑꯃꯥ ꯅꯠꯔꯒꯥ	______

ꯇꯦꯕꯜ 10F.31 — ꯐꯣꯔꯝ 10-8, ꯁꯦꯛꯁꯟ B: ꯍꯦꯟꯗꯑꯣꯚꯔꯒꯤ ꯗꯣꯀꯨꯃꯦꯟꯇꯁꯤꯡ (ꯀ꯭ꯂꯣꯖ 10.14.1)

No.	ꯗꯣꯀꯨꯃꯦꯟꯇ	ꯄꯤꯔꯛꯂꯦ (ꯍꯣꯌ / ꯅꯠꯇꯦ)	ꯔꯦꯐꯔꯦꯟꯁ ꯅꯠꯔꯒꯥ ꯅꯨꯃꯤꯠ
B1	ꯑꯦꯖ-ꯕꯤꯜꯠ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ (ꯐꯣꯔꯝ 10-5) ꯄꯤꯔꯦ	______	______
B2	ꯐꯦꯁꯤꯂꯤꯇꯤ ꯀꯤꯁꯤꯡ; ꯁꯦꯛꯌꯨꯔꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯦꯁ ꯀꯟꯠꯔꯣꯜ ꯁꯤꯁ꯭ꯇꯦꯝ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯇꯧꯔꯦ (CCTV ꯅꯠꯔꯒꯥ ꯂꯣꯒ ꯑꯦꯛꯁꯦꯁ), ꯄꯥꯁꯋꯥꯔꯗ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯇꯧꯔꯦ	______	______
B3	ꯃꯤꯇꯔ, ꯅꯠꯔꯒꯥ ꯏꯂꯦꯛꯠꯔꯤꯛ ꯀꯅꯦꯛꯁꯟ ꯑꯃꯁꯨꯡ, ULB-ꯗ ꯇ꯭ꯔꯥꯟꯁꯐꯔ ꯇꯧꯔꯦ	______	______
B4	O&M ꯃꯦꯅꯨꯌꯦꯜ, ꯗ꯭ꯔꯣꯏꯡꯁꯤꯡ, GIS ꯂꯦꯌꯔ (ꯑꯦꯅꯦꯛꯁ 10B) ꯑꯃꯁꯨꯡ ꯋꯥꯔꯦꯟꯇꯤꯁꯤꯡ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯇꯧꯔꯦ	______	______

ꯇꯦꯕꯜ 10F.32 — ꯐꯣꯔꯝ 10-8, ꯁꯦꯛꯁꯟ C: ꯗꯤꯐꯦꯛꯠ ꯂꯥꯏꯕꯤꯂꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯔꯤꯇꯦꯟꯁꯟ

No.	ꯐꯤꯜꯗ	ꯑꯦꯟꯠꯔꯤ	ꯀ꯭ꯂꯣꯖ
C1	ꯗꯤꯐꯦꯛꯠ ꯂꯥꯏꯕꯤꯂꯤꯇꯤ ꯄꯤꯔꯤꯌꯗ: ______-ꯗꯒꯤ ______ ꯐꯥꯑꯣꯕ (ꯍꯦꯟꯗꯑꯣꯚꯔꯒꯤ ꯅꯨꯃꯤꯠ ꯍꯧꯗꯨꯅ ꯃꯇꯝ ꯆꯥꯡꯗ ꯅꯤꯡꯊꯤꯖꯅ ꯑꯍꯦꯅꯕ ꯑꯃꯁꯨꯡ, 1 ꯑꯣꯏꯅꯒꯗꯕ 31 ꯑꯣꯏꯔꯕ ꯐꯥꯑꯣꯕ, ꯌꯥꯎꯅ)	______	10.14.2
C2	ꯔꯤꯇꯦꯟꯁꯟ ꯃꯅꯤ ꯍꯣꯜꯗ ꯇꯧꯔꯤꯕ ꯑꯃꯁꯨꯡ ꯔꯤꯂꯤꯖ ꯇꯧꯒꯗꯕ ꯅꯨꯃꯤꯠ ꯑꯃꯁꯨꯡ ꯀꯟꯗꯤꯁꯟ ꯗꯦꯚꯦꯂꯞꯄꯔ	______	10.14.2
C3	ULB-ꯗ ꯄꯤꯔꯤꯕ ꯄꯔꯐꯣꯃꯦꯟꯁ ꯁꯦꯛꯌꯨꯔꯤꯇꯤ, ₹, ꯑꯃꯁꯨꯡ ꯚꯦꯂꯤꯗꯤꯇꯤ ꯅꯨꯃꯤꯠ	______	10.14.2
C4	ULB-ꯒꯤ GIS ꯁꯤꯁ꯭ꯇꯦꯝ ꯑꯦꯁꯦꯠ ꯔꯦꯖꯤꯁ꯭ꯇꯔ ꯑꯃꯁꯨꯡ ꯐꯦꯁꯤꯂꯤꯇꯤꯒꯤ ꯔꯦꯖꯤꯁ꯭ꯇꯔꯗ ꯑꯄꯗꯦꯠ ꯇꯧꯔꯦ: ꯅꯨꯃꯤꯠ	______	10.14.3

ꯇꯦꯕꯜ 10F.33 — ꯐꯣꯔꯝ 10-8, ꯁꯦꯛꯁꯟ D: ꯁꯥꯏꯅꯁꯤꯡ

ꯄꯥꯔꯇꯤ	ꯃꯃꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯤꯒ꯭ꯅꯦꯁꯟ	ꯁꯥꯏꯟ	ꯅꯨꯃꯤꯠ
ꯗꯦꯚꯦꯂꯞꯄꯔ	______	______	______
ꯑꯊꯣꯔꯥꯏꯖ ꯇꯧꯔꯕ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ	______	______	______

ꯚꯔꯁꯟ	ꯍꯍꯤꯝ ꯎꯍꯨꯇꯝ ꯒꯤꯄꯤꯍꯪꯇꯡ	ꯇꯦꯔꯡ	ꯈꯨꯠꯤꯛ
ULB	______	______	______

ꯁꯔꯨꯛ 11-ꯒꯤ ꯑꯍꯦꯅꯕꯁꯤꯡ

ꯕꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯁꯤꯡ

ꯑꯍꯦꯅꯕꯁꯤꯡ ꯑꯁꯤꯅꯥ ꯁꯔꯨꯛ 11-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯏ꯫ ꯃꯍꯥꯛꯅꯥ ꯕꯦꯁꯤꯟ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ (Basin Stormwater Master Plan; BSMP) ꯑꯃꯒꯤꯗꯃꯛ ꯌꯥꯕꯃꯆ ꯑꯥꯏ ꯕꯦꯏꯕꯦꯟꯁꯒꯤ (terms of reference) ꯌꯦꯍꯔꯂꯦꯠ ꯑꯃꯁꯨ, ꯕꯦꯁꯤꯟꯒꯤ ꯅꯤꯁꯦꯟ ꯑꯃꯁꯨꯡ ꯑꯃꯍꯧꯒꯤ ꯅꯦꯔꯕꯒꯤ ꯅꯦꯑꯣꯏꯕ, ꯗꯦꯞꯊ–ꯗꯦꯃꯦꯖ ꯀꯔꯕꯁꯤꯡꯒꯤ (depth–damage curve) ꯅꯦꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯑꯣꯡ, BSMP-ꯒꯤ ꯗꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯗꯦꯍꯩꯁꯤꯡ ꯏꯡꯗꯥꯀꯄꯒꯤ ꯁꯤꯡꯁꯦꯅꯕꯅ, ꯑꯃꯁꯨꯡ ꯍꯀꯤ ꯆꯗꯤꯡꯒꯤ ꯅꯃꯄꯤꯃꯦꯁꯤꯡꯁꯦ ꯕꯤꯄꯥꯕꯦꯌꯇꯤ ꯏꯕꯔ ꯄꯤꯕꯤꯏ꯫ ꯑꯍꯦꯅꯕ 11B ꯑꯃꯁꯨꯡ 11C-ꯗ ꯍꯥꯅꯤꯒꯂ ꯏꯡꯗꯨꯕꯤꯕ ꯗꯦꯌ ꯃꯇ ꯌꯦꯅ; ꯃꯍꯥꯛꯅꯥ ꯃꯆꯤ ꯍꯥꯔꯕꯤ ꯑꯃꯁꯨꯡ ꯃꯕꯒꯕꯤ ꯃꯌꯃꯗ ꯆꯤꯅꯤꯁꯅꯒꯗꯕ ꯕꯨꯍ ꯄꯤꯕꯤꯏ꯫ ꯌꯦꯍꯔꯂꯦꯠ ꯑꯃꯁꯨꯡ ꯏꯕꯍ ꯑꯆꯤ ꯃꯍꯄꯤꯌꯦꯁꯠ ꯑꯥꯇꯥꯕꯤꯌꯤ ꯑꯃꯅꯦ ꯌꯦꯍꯍ ꯌꯥꯒꯅꯕ ꯃꯥꯗꯦꯍ ꯑꯃꯁꯨꯡ ꯗꯕꯥꯏꯌ ꯏꯕꯍꯅꯤ, ꯑꯃꯁꯨꯡ ꯌꯌꯅꯤꯗꯦ꯫

ꯑꯍꯦꯅꯕ 11A — BSMP-ꯒꯤ ꯌꯥꯕꯃꯆ ꯑꯥꯏ ꯕꯦꯏꯕꯦꯟꯁꯒꯤ ꯌꯦꯍꯔꯂꯦꯠ

ꯁꯔꯨꯛ 11-ꯒꯤ ꯃꯅꯥ꯭ꯇ 11.1-ꯗꯒꯤ 11.12 ꯏꯍꯕꯗ ꯃꯌꯦꯡ ꯄꯥꯡꯏ꯫

> *ꯃꯍꯄꯤꯌꯦꯁꯠ ꯑꯥꯇꯥꯕꯤꯌꯤ ꯑꯃꯅꯦ ꯌꯦꯍꯍ ꯌꯥꯒꯅꯕ ꯃꯥꯗꯦꯍ ꯌꯦꯒꯆꯌ꯫ ꯌꯦꯅꯤꯗꯦ꯫ ꯅꯤꯗ ꯑꯥꯇꯥꯕꯤꯌꯤꯅꯦ* (Lead Authority) ꯕꯦꯁꯤꯟ ꯈꯗꯤꯡꯃꯒꯃꯤꯗꯃꯛ ꯌꯦꯍꯔꯂꯦꯠ ꯑꯆꯤ ꯍꯥꯡꯗꯥꯒꯅꯥ ꯆꯤꯅꯤꯁꯅꯤ꯫ "[ ]"-ꯗ ꯅꯦꯕ ꯑꯍꯌꯦꯍꯆꯤꯡ ꯅꯤꯗ ꯑꯥꯇꯥꯕꯤꯌꯤꯅꯦ ꯃꯄꯨꯡ ꯏꯍꯅꯄꯗꯕꯅꯤ꯫ ꯃꯅꯥ꯭ꯇꯒꯤ ꯕꯦꯏꯕꯦꯁꯆꯤꯡ ꯑꯆꯤ ꯃꯦꯈꯔꯦꯟ ꯑꯆꯤꯒꯤꯅꯤ, ꯃꯆꯤ ꯃꯁꯆꯟꯌꯦꯁꯠꯅꯦ (consultant) ꯃꯄꯨꯡ ꯏꯅꯦ ꯌꯦꯃꯗꯕꯅꯤ꯫

11A.1 ꯕꯦꯒꯒꯤꯔꯦꯍꯗꯨ ꯑꯃꯁꯨꯡ ꯄꯔꯦꯗꯍ

1. [ꯅꯤꯗ ꯑꯥꯇꯥꯕꯤꯌꯤ]-ꯅꯦ ꯃꯅꯤꯄꯨꯔ ꯂꯥꯡꯒꯤ ꯍꯆꯤꯡ ꯗꯤꯅꯍꯦ ꯃꯦꯈꯔꯦꯟꯒꯤ ꯁꯔꯨꯛ 11-ꯒꯤ ꯃꯍꯦꯗ [ꯃꯃꯤꯡ] ꯕꯦꯁꯤꯟꯒꯤꯗꯃꯛ ꯕꯦꯁꯤꯟ ꯂꯥꯡꯒꯤ ꯍꯆꯤꯡ ꯃꯦꯈꯔꯦꯟ ꯄ꯭ꯂꯥꯟ ꯑꯃꯦ ꯆꯦꯃꯅꯕ ꯌꯦꯍꯥꯔ ꯅꯩꯕꯤ꯫
2. BSMP-ꯅꯦ (ꯃꯅꯥ꯭ꯇ 11.1.2):
   - (a) ꯅꯩꯕꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯥꯒꯤ ꯏꯤꯒꯃꯆꯤꯡꯗ ꯕꯦꯁꯤꯟꯒꯤ ꯍꯆꯤꯡ ꯍꯌꯦꯍꯒꯤ (flood) ꯄꯅꯕꯗ ꯃꯦꯌ ꯌꯒꯗꯕꯅꯤ;
   - (b) ꯍꯕꯃ ꯆꯤꯁꯨ꯭ꯃꯒꯤ ꯌꯦꯕꯌ ꯄ꯭ꯗꯤꯡꯃꯒꯃꯤꯗꯃꯛ ꯅꯦꯒꯦꯍ ꯑꯥꯏ ꯆꯕꯒꯤꯆ (level of service) ꯇꯃꯒꯗꯕꯅꯤ;
   - (c) ꯅꯦꯒꯦꯍ ꯑꯥꯏ ꯆꯕꯒꯤꯆ ꯑꯗ꯭ ꯏꯡꯅꯕ ꯃꯇꯤ ꯌꯦꯕ ꯇꯕꯒꯆꯤꯡ, ꯆꯁ꯭ꯕꯦꯅ ꯑꯃꯁꯨꯡ ꯅꯃ ꯌꯡꯗꯥꯒꯃꯗꯕꯅꯤ, ꯃꯃꯍ ꯇꯤꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯕꯦꯃꯃꯒ ꯌꯥꯒꯗꯕꯅꯤ;
   - (d) ꯕꯤꯅꯅꯦꯍ ꯆꯁ꯭ꯕꯦꯅ, ꯄꯨꯈ꯭ꯔꯤ (pukhri, tank; pond) ꯑꯃꯁꯨꯡ ꯄꯔꯦ ꯆꯦꯃꯒꯌꯄ ꯑꯃꯁꯨꯡ ꯃꯅꯕ ꯏꯗꯦ ꯅꯃꯕꯤꯆꯤꯡꯒꯤꯗꯃꯛ ꯑꯍꯦꯒꯤ ꯅꯦꯍꯗ-ꯍꯨꯅ ꯄ꯭ꯂꯥꯟꯗ (statutory land-use plan) ꯇꯃꯅꯤꯍꯅꯒꯗꯕ ꯅꯃ ꯌꯡꯗꯥꯒꯃꯗꯕꯅꯤ;
   - (e) ꯆꯦꯍꯌ ꯗꯤꯅꯍꯦꯒꯤꯗꯃꯛ ꯕꯦꯁꯤꯟꯒꯤ ꯍꯦꯄ꯭ꯌꯆꯤꯡ ꯇꯃꯒꯗꯕꯅꯤ: ꯕꯤꯅꯅꯦꯍ ꯏꯦꯆꯤꯅꯤꯌꯤꯆꯤꯡ, ꯏꯤ-ꯍꯦ-ꯅꯤꯗ (fee-in-lieu) ꯍꯨꯅꯤꯌ ꯕꯦꯌ, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 4-ꯗꯒꯤ ꯄꯦꯅꯦ ꯃꯦꯅꯕ ꯕꯦꯁꯤꯟ ꯕꯤꯅꯤꯅ ꯕꯦꯌ ꯑꯃꯄꯒꯌꯗꯤ; ꯑꯃꯁꯨꯡ
   - (f) ꯍꯆꯤꯡ ꯍꯌꯦꯍꯗ ꯆꯦꯃꯆꯤꯌꯤꯒ ꯑꯥꯍꯅꯦ (flood-sensitive) ꯅꯥꯌꯤꯏꯍ ꯌꯥꯅꯕ ꯃꯦꯌꯃꯦꯌꯆꯤꯡ (catchment) ꯕꯦꯃꯃꯦꯗ ꯌꯥꯒꯗꯕꯅꯤ꯫
3. BSMP-ꯅꯦ ꯕꯦꯁꯤꯟ ꯑꯗꯒꯤꯗꯃꯛ ꯁꯔꯨꯛ 4-ꯗꯒꯤ 8 ꯏꯍꯕꯒꯤ ꯆꯍꯌ ꯃꯕꯤꯍꯌꯦꯕꯤꯌꯤꯆꯤꯡ ꯄꯦꯅꯦ ꯃꯦꯅꯄꯦꯕ ꯌꯦꯍ꯫ ꯃꯅꯥ꯭ꯇ 4.13 ꯑꯃꯁꯨꯡ 4.5.6-ꯒꯤ ꯕꯤꯅꯅꯦꯍ ꯗꯤꯌꯦꯆꯦ (detention) ꯑꯃꯁꯨꯡ ꯏꯤ-ꯍꯦ-ꯅꯤꯗ ꯅꯃꯕꯤꯆꯤꯡꯒꯤ ꯍꯨꯌꯇꯤꯗ ꯅꯌꯌꯕꯗꯤ ꯃꯆꯤꯅꯦ ꯃꯍꯥꯛꯅꯥ ꯅꯦꯍꯇꯥꯃꯄꯅꯕꯥꯍꯗꯕꯅꯤ (ꯃꯅꯥ꯭ꯇ 11.1.3)꯫

11A.2 ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁ, ꯄꯔꯃꯤꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯦꯖ ꯑꯦꯔꯤꯡ

1. **ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁ:** [ꯅꯤꯗ ꯑꯣꯊꯣꯔꯤꯇꯤ] (ꯀ꯭ꯂꯣꯖ 11.4.1)꯫
2. **ꯄꯔꯃꯤꯇꯁꯤꯡ:** WRD, ꯏꯁꯤꯡ ꯑꯃꯗ ꯃꯁꯤꯒꯤ ꯀꯦꯟꯁ꯭ꯔꯣꯒꯤ ꯃꯇꯝ ꯅꯠꯔꯒꯥ, ꯈꯣꯡꯅꯥ (canal) ꯅꯠꯔꯒꯥ ꯄꯨꯈ꯭ꯔꯤ (tank) ꯑꯃ ꯁꯦꯝꯕ ꯃꯇꯝ ꯊꯨꯗꯤꯡꯃꯛ, ꯑꯃꯁꯨꯡ [ꯑꯣꯊꯣꯔꯤꯇꯤ ꯅꯥꯃ ꯏꯗꯤꯁꯤꯡ, PDA Manipur ꯅꯠꯔꯒꯥ TPD, MSDMA] (ꯀ꯭ꯂꯣꯖ 11.4.1)꯫
3. **ꯁ꯭ꯇꯦꯖ ꯑꯦꯔꯤꯡ:** [ꯃꯃꯤꯡ] ꯏꯁꯤꯡ ꯄꯨꯃꯕ, [ꯑꯦꯟꯇꯤꯇꯤ]-ꯗ ꯂꯩꯕꯤꯡ ꯁꯦꯟꯕ, ꯀ꯭ꯂꯣꯖ 11.3-ꯒꯤ ꯃꯇꯝ ꯂꯃꯇ ꯊꯥꯕ ꯃꯇꯨꯡ ꯂꯦꯞꯄ, ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁꯃꯤ ꯅꯤꯃꯤꯠꯁꯤꯡꯒꯤ ꯃꯄꯥꯟꯗ ꯅꯕ ꯃꯖꯝꯁꯤꯡ ꯂꯩꯔꯦ (ꯀ꯭ꯂꯣꯖ 11.3.1)꯫ ꯄꯔꯃꯤꯠ ꯂꯃꯇ ꯑꯁꯤ [ꯑꯦꯅꯦꯛꯁ 11B / ꯁꯤꯡꯅꯕ ꯃꯥꯄ]-ꯗ ꯅꯥ꯫ ꯀꯦꯁꯇꯣꯡꯅꯥꯡ ꯃꯁꯤ ꯁ꯭ꯇꯦꯞ 2-ꯗ ꯀꯦꯡꯕꯝ ꯇꯧꯒꯗꯕꯅꯤ꯫
4. **ꯑꯣꯄꯥꯟ ꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯁꯃꯅꯕ:** [ꯂꯨꯗꯝ ꯑꯣꯂꯦ ꯂꯁꯤꯡ ꯅꯕ ꯊꯨꯗꯤꯡ, ꯈꯣꯡ (khong) ꯅꯠꯔꯒꯥ ꯄꯥꯠ (pat; lake or wetland) ꯀꯥꯔꯤꯗꯔ (corridor)]꯫ ꯈꯣꯡꯅꯥ, ꯈꯣꯡꯕꯦꯡ (drain) ꯅꯠꯔꯒꯥ ꯁꯔꯄ꯭ꯂꯁ ꯀꯥꯔꯁ (surplus course) ꯂꯨꯠꯊꯝꯗ ꯏꯁꯤꯡꯁꯤꯡꯒꯤ ꯃꯔꯝ ꯅꯕ ꯗꯤꯂꯔꯁꯦꯡꯁꯤꯡ ꯃꯄꯥ ꯇꯧꯒꯗꯕꯅꯤ ꯑꯃꯁꯨꯡ ꯃꯗꯦꯜꯗ ꯍꯠꯀꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 11.3.2)꯫

11A.3 ꯇꯤꯃ

1. ꯁ꯭ꯇꯦꯖ ꯑꯁꯤ ꯑꯦꯅꯦꯛꯁ 10E-ꯒꯤ ꯏꯁꯤꯡ ꯃꯗꯦꯂꯤꯡꯒꯤ ꯂꯦꯗꯔꯁꯃꯦꯠ ꯅꯕ ꯅꯥꯡꯒꯤ ꯂꯁꯤꯡ ꯗꯤꯅꯂꯦ ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ (Stormwater Design Professional) ꯑꯣꯂꯅ ꯂꯃꯄꯦꯅ ꯇꯧꯕ ꯂꯦꯅꯤꯅꯤꯔꯦ ꯑꯃꯅ ꯂꯨꯍꯤꯡꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 11.4.3)꯫
2. ꯇꯤꯃ ꯑꯁꯤꯗ ꯌꯥꯑꯣꯗꯕꯗꯃꯛ ꯃꯈꯣꯡꯁꯤꯡ ꯌꯥꯍꯣꯒꯗꯕꯅꯤ: [ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯁ꯭ꯠ ꯑꯃ; ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯃꯗꯦꯂꯔ ꯑꯃ; ꯏꯁꯤꯡꯗ ꯇꯥꯅꯦꯟ ꯑꯦꯟꯇꯤꯇꯤ ꯅꯥꯕꯗꯤ ꯀꯁ꯭ꯇꯦꯟ ꯅꯠꯔꯒꯥ ꯇꯥꯅꯦꯟ ꯁ꯭ꯇꯥꯁꯤꯡꯌꯦꯂꯤꯁ꯭ꯠ ꯑꯃ; GIS ꯑꯃꯁꯨꯡ ꯁꯔꯚꯦꯒꯤ ꯅꯤꯗ ꯑꯃ; ꯄ꯭ꯂꯥꯅꯔ ꯑꯃ; ꯀꯥꯁ꯭ꯠ ꯂꯦꯅꯤꯅꯤꯔꯦ ꯑꯃ; ꯀꯃꯨꯅꯤꯇꯤ ꯑꯦꯡꯒꯦꯖꯃꯦꯟꯠ ꯅꯤꯗ ꯑꯃ]꯫ ꯀ꯭ꯂꯤꯌꯔꯦꯟꯁꯅ ꯃꯤ ꯂꯨꯍꯤꯡꯃꯛꯀꯤ ꯃꯤꯅꯤꯃꯝ ꯀ꯭ꯋꯥꯂꯤꯐꯤꯀꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯛꯁꯄꯤꯔꯤꯌꯦꯟꯁ ꯊꯝꯃꯤ꯫

11A.4 ꯇꯧꯕꯁꯤꯡ

ꯁ꯭ꯇꯦꯞ 1 — ꯂꯦꯁꯄꯅꯁ. ꯏꯁꯤꯡ ꯑꯃꯗ ꯅꯥꯕꯤꯕ ꯁ꯭ꯇꯦꯖꯁꯤꯡ, ꯗꯦꯇ ꯑꯃꯁꯨꯡ ꯄ꯭ꯔꯗꯦꯅꯁꯤꯡ ꯕꯤꯒꯤꯁ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯇꯦꯕꯜ 11.1-ꯒꯤ ꯂꯤꯁ꯭ꯇꯇꯦ ꯗꯦꯇ ꯂꯦꯒꯦꯇꯕꯤ, ꯃꯄ ꯅꯤꯁ꯭ꯠ, ꯁꯔꯚꯦ ꯄ꯭ꯂꯦꯟ, ꯀꯦꯁꯇꯣꯡꯅꯦ ꯄ꯭ꯂꯦꯟ ꯑꯃꯁꯨꯡ ꯂꯩꯕ ꯄ꯭ꯔꯗꯦꯟꯃꯛ ꯁꯃꯒꯗꯕꯅꯤ꯫ ꯂꯦꯁꯄꯅꯁ ꯕꯤꯄꯔꯧ ꯄꯤꯒꯗꯕꯅꯤ꯫

ꯁ꯭ꯇꯦꯞ 2 — ꯗꯦꯇ ꯑꯃꯁꯨꯡ ꯁꯔꯚꯦꯁꯤꯡ. ꯇꯦꯕꯜ 11.1-ꯒꯤ ꯑꯦꯂꯦꯃꯦꯟ ꯂꯨꯗꯤꯡꯃꯛ ꯈꯃꯅꯤꯄꯒꯗꯕꯅꯤ, ꯃꯤꯡꯅꯕꯗꯤ ꯁꯔꯚꯦ ꯇꯧꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯀ꯭ꯔꯣꯁ-ꯆꯦꯛ ꯇꯧꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 11.5.1):

- (a) ꯇꯣꯄꯣ: ꯁꯍꯔꯒꯤ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯗ ꯒꯔꯥꯎꯟꯗ ꯑꯦꯛꯌꯨꯔꯦꯁꯤ 0.15 m RMSE ꯅꯠꯔꯒꯥ ꯃꯦꯟꯗꯒꯤ ꯐꯕ, ꯁꯔꯚꯦ ꯑꯣꯐ ꯂꯦꯗꯤꯌꯥ (Survey of India) ꯗꯦꯇꯝꯗ ꯁꯝꯅꯕ, ꯑꯦꯛꯌꯨꯔꯦꯁꯤ ꯇꯦꯁ꯭ꯠ ꯕꯤꯄꯔꯧ ꯇꯧꯕ, LiDAR ꯅꯠꯔꯒꯥ ꯐꯣꯇꯣꯒ꯭ꯔꯥꯃꯦꯇ꯭ꯔꯤꯒꯤ ꯅꯕ DEM;
- (b) ꯈꯣꯡꯕꯦꯡꯒꯤ (drain) ꯅꯦꯠꯋꯥꯔꯛ: ꯄꯕ꯭ꯂꯤꯛ ꯈꯣꯡꯕꯦꯡ, ꯀꯜꯚꯔꯠ (culvert) ꯑꯃꯁꯨꯡ ꯑꯥꯎꯠꯐꯣꯜ (outfall) ꯂꯨꯗꯤꯡꯃꯛ, ꯂꯦꯚꯦꯜ ꯅꯒꯔꯁꯤꯡ, ꯁꯦꯛꯁꯅꯁꯤꯡ, ꯐꯤꯒꯃ ꯑꯃꯁꯨꯡ ꯅꯨꯡꯒꯤ (silt) ꯗꯦꯄꯊꯒꯤ ꯅꯣꯠꯁ; 600 mm-ꯗꯒꯤ ꯍꯦꯟꯕ ꯄ꯭ꯔꯥꯏꯃꯔꯤ ꯈꯣꯡꯕꯦꯡꯁꯤꯡ;
- (c) ꯂꯁꯤꯡ ꯅꯐꯃꯁꯤꯡ (waterbody): ꯁꯦꯗꯨꯜ 7-ꯒꯤ ꯃꯇꯝ ꯅꯕ ꯄꯨꯈ꯭ꯔꯤ (tank, pukhri; pond) ꯑꯃꯁꯨꯡ ꯃꯔꯁ (marsh) ꯂꯨꯗꯤꯡꯃꯛ: FTL, MWL, ꯄꯕꯦꯒꯤ (bund) ꯅꯒꯔ, ꯁ꯭ꯇꯦꯟ–ꯁ꯭ꯇꯦꯔꯦꯟ, ꯂꯊꯣꯡꯁꯤꯡ (sluice), ꯁꯔꯄꯅꯁ ꯂꯤꯔꯔꯁꯤꯡ, ꯁꯄꯅꯦꯜ ꯂꯦꯅꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯅꯃ ꯈꯣꯄꯥꯟ (encroachment), ꯑꯦꯅꯦꯛꯁ 7A-ꯒꯤ ꯐꯤꯔꯗꯁꯤꯡꯗ;
- (d) ꯂꯨꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯣꯡꯅꯥꯁꯤꯡ: 200 m-ꯗꯒꯤ ꯍꯦꯗꯕ ꯃꯔꯝꯇ ꯑꯃꯁꯨꯡ ꯁ꯭ꯇꯔꯝꯂꯔ ꯂꯨꯗꯤꯡꯃꯛꯇ ꯄ꯭ꯔꯥꯁ-ꯁꯦꯛꯁꯅꯁꯤꯡ;
- (e) ꯑꯥꯎꯠꯐꯣꯂꯁꯤꯡ, ꯂꯨꯔꯁꯤꯡ, ꯈꯣꯡꯁꯤꯡ (khong), ꯄꯥꯠꯁꯤꯡ (pat; lake or wetland), ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯅꯃꯇꯝ ꯑꯃꯁꯨꯡ ꯔꯤꯅꯔꯒꯥꯔꯁꯤꯡ: ꯃꯃꯤꯡ ꯅꯕ ꯗꯦꯇꯝ (datum) ꯑꯃꯗ, ꯂꯕꯂꯗꯒꯤ ꯅꯃꯄ WRD ꯒꯦꯟꯗ ꯂꯁꯤꯡ ꯅꯕ ꯂꯨꯔꯒꯤ ꯂꯦꯔꯅꯤꯡ, ꯐꯦꯗ ꯑꯃꯁꯨꯡ ꯍꯥꯏꯂꯦꯠ ꯐꯦꯗ ꯅꯒꯔꯁꯤꯡꯒꯤ (high flood level) ꯂꯤꯡꯗꯃꯅꯅꯦ ꯑꯥꯎꯠꯐꯣꯜꯒꯤ ꯂꯦꯚꯦꯜ ꯅꯒꯔꯁꯤꯡ, ꯐꯤꯡꯗꯤꯇꯂꯕ ꯒꯔꯂꯨꯁꯤꯡꯒꯤ ꯃꯔꯝꯇ ꯅꯕ ꯇꯣꯊꯦꯕ ꯂꯨꯗꯤꯡꯃꯛ ꯇꯧꯇꯨꯅꯦ ꯑꯃꯁꯨꯡ WRD-ꯒꯤ ꯒꯦꯟ ꯔꯦꯅꯤꯁ꯭ꯇꯔ ꯅꯕꯨꯅꯦ; ꯅꯥꯇꯧꯇꯃꯤ ꯐꯨꯔ ꯔꯤꯅꯔꯒꯥꯔ ꯑꯃꯁꯨꯡ ꯃꯤꯅꯤꯃꯃ ꯗ꯭ꯔꯥꯗꯥꯎꯟ ꯅꯒꯔꯁꯤꯡ, ꯀꯔꯤ ꯒꯔꯂꯨ ꯁꯤꯅꯤꯄꯦꯅꯕꯒ ꯍꯂꯕ ꯇꯧꯇꯨꯅꯦ; ꯂꯧꯇꯣꯕꯦ ꯆꯣꯇꯦꯕꯦꯀ꯭ꯔꯥ (Chotebekra) ꯅꯕ CWC ꯁꯂꯥꯇ ꯕꯦꯗ ꯂꯨꯔꯒ; ꯊꯧꯕꯔ (ꯃꯄꯤꯊꯒ), ꯂꯨꯒ ꯑꯃꯁꯨꯡ ꯁꯤꯡꯗꯦ ꯗꯦꯃꯁꯤꯡꯒꯤ ꯅꯒꯔꯁꯤꯡ, ꯁ꯭ꯄꯤꯔꯂꯦꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯔꯤꯅꯤꯅꯤꯒꯤ ꯔꯦꯀꯔꯗꯁꯤꯡ; ꯂꯨꯔꯒꯤ ꯄꯦꯡꯁꯤꯡꯗ ꯅꯕ ꯒꯌꯁꯤꯡꯒꯤ ꯁꯤꯔꯁꯤꯡ, ꯒꯌ ꯊꯤꯡꯕ ꯅꯒꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯦꯡꯒꯤ ꯀ꯭ꯔꯦꯁ꯭ꯇꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯃꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯅꯁꯤꯡꯒꯤ ꯀꯦꯄꯁꯤꯇꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯄꯔꯦꯇꯤꯡ ꯔꯨꯂꯁꯤꯡ; ꯁꯔꯚꯦ ꯇꯧꯕ ꯑꯥꯎꯠꯐꯣꯜ ꯅꯒꯔꯁꯤꯡꯗ ꯄꯦꯠꯁꯤꯡ

ꯑꯃꯁꯨꯡ ꯇꯦꯡꯀꯁꯤꯡ; ꯄꯥꯟ ꯂꯩꯕ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯃꯁꯨꯡ ꯃꯤꯇꯤꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤꯗꯃꯛ, ꯑꯗꯨꯒꯥ ꯌꯦꯡꯗꯕ ꯅꯣꯔꯣꯏ ꯅꯁꯤꯟꯕꯒꯤ ꯀꯗꯥꯏꯗꯒꯤ ꯑꯃꯁꯨꯡ ꯀꯣꯏꯒꯤ ꯂꯥꯏꯀꯥꯛꯄ, ꯂꯥꯏꯕꯛꯇꯥ ꯑꯃꯁꯨꯡ ꯑꯀꯩꯄꯥ ꯇꯥꯔꯛꯄꯗ 1% AEP-ꯒꯤ ꯇꯥꯡꯒꯥ; ꯁꯦꯔꯣꯏꯗꯒꯤ ꯃꯌꯥꯝ ꯆꯀꯕꯤꯔꯣꯏꯗ; ꯑꯃꯁꯨꯡ ꯕꯥꯂꯣꯏꯁꯦꯒꯤ ꯀꯊꯌꯥꯝ ꯆꯩꯕ ꯇꯥꯁꯦꯟꯂꯆꯦꯅꯅ (landslide) ꯑꯃꯁꯨꯡ ꯂꯥꯕꯨꯗꯤꯂꯒꯤ ꯐꯆꯦꯗꯅꯂꯣꯏꯗ;

- (f) ꯇꯧꯗ ꯌꯨꯕ ꯑꯃꯁꯨꯡ ꯅꯂꯣꯏꯗꯒꯤ ꯇꯥꯒꯥꯅꯂꯣꯏꯗ: ꯏꯗꯕ ꯔꯦꯕ ꯗꯥꯃꯣꯗꯅ ꯁꯨꯀꯆꯀꯌ (IMD, Imphal (Tulihal) (A), 42623 ꯔꯦꯄꯇꯦ, ꯀꯂꯤ IMD-ꯒꯤ *Extremes*-ꯅ (ꯇꯧꯗ ꯌꯨꯕꯒꯤ ꯂꯥꯌꯣ 1953–2012) ꯆꯩꯕ ꯀꯆꯤꯁꯨꯗꯒꯤ ꯂꯌꯥꯂꯦ ꯑꯀꯍꯌꯌꯆꯤ, ꯑꯃꯁꯨꯡ ꯀꯤꯌꯤꯔꯦꯗꯦꯇꯦꯆꯤꯃꯥꯅ ꯂꯥꯁꯌꯗ ꯅꯀꯏꯅ (Meteorological Centre Imphal)-ꯒꯤ ꯁꯦꯇꯒꯤ ꯔꯦꯗꯆꯤꯗꯂꯤꯗꯒꯤ ꯀꯌꯨꯗꯅ ꯆꯩꯕ ꯄꯥꯇꯂꯣꯏꯗ (ꯇꯤꯂꯨ ꯁꯍꯤꯅꯕ [TBC]); WRD-ꯒꯤ ꯌꯨꯗꯥꯅ ꯄꯥꯇꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯀꯂꯤꯒꯤ ꯅꯂꯣꯏꯗ ꯅꯔꯦꯡꯒꯤ ꯗꯨꯅꯇꯦ ꯂꯤꯇꯤꯁꯇꯕ ꯃꯗꯁꯦꯌꯁꯤꯒꯤ ꯗꯥꯁ ꯄꯥꯇ (ꯁꯦꯡꯅ ꯏꯗꯅꯦꯌꯍꯤꯕ ꯀꯌꯨꯗ ꯅꯁꯇ); MASTEC-ꯇꯦ ꯂꯤꯇꯤꯁꯇꯍꯤꯕ ꯃꯗꯁꯦꯌꯁꯤ, ꯂꯦꯅꯃꯨꯅ (Saikul) ꯑꯃꯁꯨꯡ ꯇꯤꯌꯦꯁꯒꯤ (Litan) ꯄꯥꯇꯂꯣꯏꯗ (ꯀꯁꯨꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯗꯥꯃꯦꯗꯅꯃꯤ ꯂꯦꯗꯕ [TBC]); ꯔꯦꯌꯥꯕꯥꯃꯗꯦꯅ ꯕꯗꯦꯌ ꯌꯨꯗꯥꯅꯅ ꯆꯩꯕ CWC-ꯒꯤ ꯇꯥꯒꯥꯅ-ꯀꯦꯆꯤꯌꯗꯤꯗ ꯂꯦꯅꯂ; NHPC ꯑꯃꯁꯨꯡ CEA-ꯒꯤ ꯇꯦꯌꯌꯦꯌꯃꯤ ꯇꯥꯒꯥꯅꯂꯣꯏꯗ; ꯁꯦꯛꯁꯟ 2.3.6(c)(ii)-ꯇꯦ ꯇꯤꯗꯤꯕꯦꯀ ꯁꯇꯥꯁꯒꯤꯅꯀꯌ ꯂꯤꯇꯤꯁꯇꯕ ꯀꯍꯦ ꯊꯗꯕ ꯀꯏꯀꯅ (downstream) ꯆꯩꯕ ꯕꯗꯦꯌ ꯁꯇꯥꯁꯒꯤ IMD ꯂꯌꯥꯂꯁꯂꯣꯏꯗ; ꯑꯃꯁꯨꯡ IMC, ꯅꯀꯏꯅ ꯂꯀꯗꯂ ꯂꯤꯌꯤ ꯇꯤꯀꯤꯌꯥꯅ (Imphal Smart City Ltd), LDA, MSDMA ꯇꯂꯗꯒꯦ ꯆꯀꯏꯅꯁꯦꯂꯃꯤꯅꯀꯌ ꯁꯗꯁꯦꯇ ꯌꯦꯗꯕ ꯅꯂꯣꯏꯗ ꯅꯔꯦꯡ ꯀꯥꯇꯥꯇꯀꯥꯁꯂ ꯂꯤꯂꯌꯥꯀꯇꯦ ꯊꯀꯇꯤꯕ ꯄꯥꯇ ꯇꯂꯗꯒꯦ ꯂꯥꯁꯂꯗ ꯑꯀꯐꯥꯌꯌꯅꯤ [TBC]), 28–31 ꯀꯥ 2024 (ꯂꯦꯅꯌꯇꯦꯁ ꯗꯥꯀꯦꯅ (Cyclone Remal): 29 ꯀꯥꯅ ꯀꯤꯁꯨꯊꯦꯗꯅ (Minuthong) ꯅꯀꯏꯅ ꯌꯨꯗꯥꯅ ꯀꯂꯤꯒꯤ ꯐꯅꯔꯥꯂꯂ ꯏꯇꯅ ꯇꯥꯒꯥꯅ 788.400 m-ꯅꯒꯤ ꯔꯦꯗꯇꯦ ꯑꯃꯁꯨꯡ ꯇꯤꯇꯦꯗꯅ 782.250 m-ꯅ, ꯑꯃꯁꯨꯡ ꯅꯊꯅꯅ ꯀꯆꯤꯁꯨꯗ ꯌꯨꯗꯥꯅ 768.640 m-ꯅ; ꯁꯇ (embankment) ꯃꯌꯥꯝ 18; ꯀꯤꯆꯤꯂꯌꯗꯒꯤ 30 ꯀꯥꯒꯤ ꯀꯂꯤꯗ ꯀꯌꯨꯗ ꯅꯁꯇ ꯀꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯌꯨꯀ 24,265 ꯂꯦꯌꯍꯤ, ꯇꯂꯗꯒꯦ ꯗꯤꯇꯤꯏ ꯑꯃꯁꯨꯡ ꯅꯤꯆꯦꯂꯌꯗ ꯀꯥꯇꯥꯇꯀꯥꯁꯂ ꯅꯤꯁꯦꯗꯂꯀꯥꯁꯂ (Relief and Disaster Management Department)-ꯒꯤ 31 ꯀꯥꯒꯤ ꯗꯤꯁꯦꯗꯂ ꯀꯌꯨꯗ ꯅꯁꯇ ꯀꯤ 1,26,950, ꯆꯩꯃꯅ 255 ꯑꯃꯁꯨꯡ ꯌꯨꯀ 16,364, ꯁꯨꯀꯆꯀꯌ ꯁꯦꯡꯅ ꯏꯗꯅꯦꯌꯍꯤꯕ ꯀꯌꯨꯗ ꯅꯁꯇ; ꯅꯒꯥꯂ ꯑꯂꯤꯒꯤ IMD-ꯒꯤ ꯇꯧꯗ ꯌꯨꯕ ꯏꯗꯅꯤꯅꯥ), 30 ꯀꯥ–ꯇꯨꯁ 2025 (30–31 ꯀꯥꯅ ꯃꯗꯁꯦꯌꯁꯤꯅ ꯁꯨꯗ 24-ꯅ 123 mm ꯑꯃꯁꯨꯡ ꯁꯨꯗ 72-ꯅ 175 mm ꯌꯨꯕꯕ ꯀꯌꯨꯗꯅ ꯂꯤꯗꯇꯀꯤ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯂꯤꯍꯦꯗ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅꯨꯡ ꯔꯥꯃꯦꯁ (New Checkon) ꯅꯀꯏꯅ ꯌꯨꯗꯥꯅ ꯑꯃꯁꯨꯡ ꯀꯏꯀ ꯀꯗꯤꯅ ꯇꯀꯕꯨ ꯌꯨꯗꯥꯅ ꯃꯌꯍꯤ, ꯁꯦꯡꯅ ꯏꯗꯅꯦꯌꯍꯤꯕ ꯀꯌꯨꯗ ꯅꯁꯇ; ꯅꯀꯏꯅꯒꯤ IMD-ꯒꯤ ꯇꯧꯗ ꯌꯨꯕ ꯏꯗꯅꯤꯅꯥ), ꯂꯥꯁꯌꯀꯕꯗ 2025 (15 ꯂꯥꯁꯌꯀꯕꯗꯅ ꯇꯤꯇꯦꯗꯅ ꯅꯀꯏꯅ ꯌꯨꯗꯥꯅ 783.250 m-ꯅ ꯑꯃꯁꯨꯡ ꯅꯊꯅꯅ ꯀꯆꯤꯁꯨꯗ ꯌꯨꯗꯥꯅ 770.05 m-ꯅ, ꯑꯆꯤꯀꯌ ꯀꯍꯦꯔꯒꯤ ꯏꯗꯅꯦꯌꯍꯤꯕ ꯐꯅꯔꯥꯂꯂ ꯏꯇꯅ ꯇꯥꯒꯥꯅꯂꯣꯏꯗꯅꯒꯤ ꯔꯦꯗꯇꯦ, ꯑꯃꯁꯨꯡ ꯃꯂꯌꯗꯒꯤ ꯑꯔꯦꯗ ꯆꯩꯃꯅ (Kshetri Awang Leikai) ꯅꯗꯤꯏ ꯌꯨꯗꯥꯅ (Iril) ꯃꯌꯍꯤ, ꯁꯦꯡꯅ ꯏꯗꯅꯦꯌꯍꯤꯕ ꯀꯌꯨꯗ ꯅꯁꯇ; ꯇꯧꯗ ꯌꯨꯕꯒꯤ ꯒꯥꯏꯌꯨ ꯏꯗꯅꯤꯅꯥ), ꯇꯨꯇꯦꯅꯒꯤ ꯑꯗꯦꯅꯕ ꯀꯌꯀ–ꯑꯒꯂ 2015 (23–27 ꯇꯨꯇꯦꯅꯅ ꯅꯀꯏꯅ ꯔꯥꯂꯌ ꯇꯦꯗꯀꯥꯏꯒꯤ 46% ꯐꯥꯇꯦ ꯇꯧꯗ ꯌꯨꯀꯤ, 1 ꯑꯒꯂꯌ ꯀꯁꯤꯊꯥꯅ ꯗꯤꯇꯤꯗꯒꯔꯕ 876 m-ꯅ ꯆꯩꯅꯤ ꯑꯃꯁꯨꯡ ꯂꯌꯥꯂꯃꯤ ꯗꯥꯒꯥꯂ ꯑꯥꯂꯌꯀꯥꯂ ꯀꯌꯨꯗ ꯅꯁꯇ 3 ꯑꯒꯂ ꯏꯗꯕꯕꯅ ꯀꯤ ꯔꯦꯗ 5 ꯇꯦꯅ ꯀꯍꯦꯔꯒꯤ ꯀꯏꯀꯅꯒꯤ ꯊꯅꯦꯌꯍꯤ, ꯁꯦꯡꯅ ꯏꯗꯅꯦꯌꯍꯤꯕ ꯀꯌꯨꯗ ꯅꯁꯇ; ꯄꯥꯒꯤ ꯒꯥꯏꯌꯨ ꯏꯗꯅꯤꯅꯥ) ꯑꯃꯁꯨꯡ ꯇꯨꯇꯦꯅ–ꯑꯒꯂ 1989 (28 ꯇꯨꯇꯦꯅꯅꯒꯤ 1 ꯑꯒꯂ ꯏꯗꯕ ꯇꯨꯀꯤꯂ ꯌꯨꯅꯤꯗꯒꯤ ꯇꯧꯗ ꯌꯨꯗꯕ ꯀꯌꯨꯗꯅ, 30 ꯇꯨꯇꯦꯅꯅ ꯅꯀꯏꯅ (ꯌꯨꯇꯤꯐꯦꯅ) (Imphal (Tulihal))-ꯅ 158.6 mm, ꯂꯌꯥꯂꯦ ꯑꯅꯨꯒꯤ ꯁꯨꯗ 24-ꯒꯤ ꯗꯥꯃꯦꯗꯅ, ꯊ ꯑꯅꯨꯅ ꯅꯀꯏꯅꯅ 461.9 mm ꯑꯃꯁꯨꯡ ꯃꯗꯁꯦꯌꯁꯤꯅ 617.6 mm, ꯁꯇ ꯃꯌꯥꯝ 40 ꯑꯃꯁꯨꯡ ꯆꯩꯃꯅ 361-ꯅ ꯅꯂꯣꯏꯗ ꯅꯔꯦꯡ ꯇꯦꯌꯍꯤ, IMD ꯑꯃꯁꯨꯡ MASTEC)-ꯒꯤ ꯅꯒꯥꯂꯂꯣꯏꯗ ꯔꯦꯡꯇꯦ;
- (g) ꯅꯂꯣꯏꯗ ꯅꯔꯦꯡꯒꯤ ꯑꯥꯒꯤꯅꯥꯇ: ꯀꯃꯒꯤ ꯅꯒꯥꯇꯂꯣꯏꯗꯒꯤ ꯂꯗꯒꯥ ꯌꯦꯗꯕ ꯅꯂꯣꯏꯗ ꯅꯔꯦꯡꯒꯤ ꯀꯗꯌꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯀꯥꯁ ꯌꯦꯗꯕ ꯑꯥꯌꯂꯌꯥꯇꯂꯣꯏꯗ, ꯁꯕꯇꯤꯌ ꯗꯤꯁꯦꯗꯂꯣꯏꯗ, ꯏꯌꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯀꯏꯀ ꯑꯅꯨꯅ ꯆꯩꯕ ꯀꯤꯂꯤꯗꯒꯤ ꯗꯥꯃꯦꯗꯅꯂꯣꯏꯗ ꯔꯦꯡꯇꯦ;
- (h) ꯇꯥꯁꯅ ꯌꯨꯇ: ꯆꯩꯗꯤꯕ ꯇꯥꯁꯅ ꯌꯨꯇ ꯑꯃꯁꯨꯡ ꯅꯀꯁꯗꯒꯤꯔꯂꯇꯥꯂ (imperviousness); ꯑꯦꯅꯒꯤ ꯀꯦꯂꯌꯗ ꯁꯇꯦꯇꯅꯒꯤ ꯀꯊꯒꯤ ꯇꯥꯁꯅ ꯌꯨꯇ;
- (i) ꯆꯩꯀꯦꯅꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯆꯩꯀꯦꯅꯒꯤ ꯀꯍꯦꯒꯤ ꯅꯂꯣꯏꯗ: HSG ꯀꯥꯁ (ꯑꯐꯥꯇꯕ 3A ꯇꯂꯗꯒꯦ ꯁꯦꯛꯁꯟ 3.7.2), ꯀꯌꯀꯒꯤ ꯀꯌꯨꯗ ꯅꯁꯇ ꯔꯦꯗꯕ ꯆꯩꯀꯦꯅꯒꯤ ꯀꯍꯦꯒꯤ ꯅꯂꯣꯏꯗ, ꯑꯥꯃꯔꯤꯏꯗ ꯑꯃꯁꯨꯡ ꯗꯤꯔꯦꯗꯇ (recharge) ꯇꯦꯁꯂꯣꯏꯗ; ꯑꯃꯁꯨꯡ
- (j) ꯂꯤꯔꯗꯒꯦ (sewer) ꯀꯗꯤ: ꯅꯗꯇꯕ ꯃꯗꯦꯂ-ꯃꯇꯥꯌꯂꯇꯂꯣꯏꯗ, ꯍꯦꯗꯕꯇꯂꯣꯏꯗꯅ ꯇꯧꯗ ꯌꯨꯅꯕ ꯀꯌꯀꯒꯤ ꯔꯥꯇꯕ, ꯂꯦꯇꯤꯅ-ꯔꯥꯂꯌ ꯐꯦꯂꯂꯁꯦꯂꯂꯣꯏꯗ꯫

ꯕꯥꯂꯣꯏꯁꯦꯒꯤ ꯊꯀꯍꯤ ꯑꯃꯁꯨꯡ ꯕꯥꯂꯣꯏꯁꯂꯣꯏꯗꯒꯤ ꯀꯗꯌꯌ ꯆꯩꯕ ꯅꯦꯅꯒꯗꯂꯇꯂꯣꯏꯗ ꯃꯇꯏꯗꯀ ꯌꯦꯒꯅꯕꯆꯤ (ꯁꯦꯛꯁꯟ 11.3.2)꯫ ꯅꯥꯌ ꯗꯤꯁꯦꯗꯂ ꯑꯃꯁꯨꯡ ꯑꯐꯥꯇꯕ 11D-ꯒꯤ ꯏꯗꯀꯥꯂꯂꯣꯏꯗꯅ ꯅꯥꯌ ꯁꯤꯒꯅꯕꯆꯤ꯫

ꯌꯦꯂꯌ 3 — ꯀꯦꯅꯥꯅ ꯂꯥꯀꯕ. ꯀꯦꯅꯇꯗ ꯂꯤꯂꯌꯥꯀ, ꯀꯥꯇꯗ (ꯑꯦꯒꯗꯇꯥꯁꯅ) ꯂꯤꯂꯌꯥꯀ, ꯌꯨꯗꯥꯅꯂꯣꯏꯗ, ꯍꯦꯗꯇꯦꯡꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯇꯦꯡꯀꯁꯤꯡ (tank), ꯑꯃꯁꯨꯡ ꯑꯦꯡꯂꯏꯅꯂꯣꯏꯗꯒꯤ ꯃꯁꯇꯅ 1D–2D ꯐꯅꯗꯦꯇꯤꯌ ꯀꯦꯅꯥꯅ ꯑꯀꯦ ꯂꯥꯀꯒꯅꯕꯆꯤ (ꯁꯦꯛꯁꯟ 11.7.1; ꯀꯀꯤ 11.2)꯫ ꯂꯗꯨꯌ 3-ꯒꯤ ꯊꯦꯑꯦꯗꯂꯣꯏꯗ ꯑꯃꯁꯨꯡ ꯂꯗꯨꯌ 5-ꯒꯤ ꯌꯦꯅꯅꯥꯅ ꯑꯃꯁꯨꯡ ꯌꯨꯗꯥꯅꯒꯤ ꯕꯦꯁꯅꯗꯤꯂꯣꯏꯗ ꯂꯤꯇꯤꯁꯇꯒꯅꯕꯆꯤ꯫ ꯁꯦꯛꯁꯟ 2.7.3-ꯒꯤ ꯀꯍꯦꯅ ꯑꯥꯗꯤꯔꯥꯅ ꯗꯤꯅꯌꯂꯁꯒꯦ ꯇꯦꯔꯇꯇꯦ, ꯔꯦꯀꯅꯗꯕꯅꯀꯌ 50%, 10%, 1% ꯑꯃꯁꯨꯡ 0.2% AEP-ꯂꯤꯗꯒꯤꯅꯀꯌ, ꯁꯨꯗ 24, 48 ꯑꯃꯁꯨꯡ 72-ꯒꯤ ꯇꯧꯗ ꯌꯨꯕꯒꯤ ꯊꯅꯦꯌꯂꯣꯏꯗ ꯔꯦꯡꯇꯦ ꯂꯗꯨꯌ 2-ꯒꯤ ꯅꯤꯇꯦꯅꯁ ꯂꯌꯥꯗꯀꯂꯣꯏꯗ (design storm) ꯗꯁ ꯌꯦꯒꯅꯕꯆꯤ (ꯁꯦꯛꯁꯟ 11.7.2)꯫ ꯕꯥꯂꯤꯁ ꯑꯅꯨꯅ ꯇꯦꯡꯀꯁꯤꯡꯒꯤ ꯃꯥꯂꯃꯥꯅꯂꯣꯏꯗ (tank cascades) ꯑꯣꯏꯕꯅꯤ, ꯃꯦꯞ 3.13-ꯒꯤ ꯃꯍꯧ, ꯏꯄꯨꯕ ꯌꯥꯏꯕꯅꯤ IMD-ꯒꯤ ꯗꯦꯇꯥ ꯁꯤꯡꯕ ꯆꯨꯃꯤꯡ ꯂꯩꯅꯕꯒꯤ ꯃꯔꯝ ꯏꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄꯤꯔꯤ, ꯑꯃꯁꯨꯡ ꯌꯥꯃꯗ꯭ꯔꯕꯅꯤ ꯍꯧꯈꯤ 30, ꯑꯇꯩ 2D-ꯒꯤ ꯁꯤꯡꯆꯥꯡꯗꯥ ꯆꯥꯡꯁꯤꯟꯕꯒꯤ ꯅꯤꯡꯊꯧꯁꯤꯡꯗ꯭ꯔꯤꯡ ꯁꯤꯡꯈꯤ, ꯃꯥꯏꯄꯥꯛꯂꯕ ꯂꯤꯡꯈꯠꯂꯕ ꯗꯤꯡ ꯁꯤꯟꯅꯕꯅꯤ꯫ ꯃꯦꯞ 3.13.5-ꯗꯥ ꯌꯥꯎꯊꯣꯛ ꯑꯇꯤꯒꯤ ꯊꯧꯑꯣꯡ ꯂꯤꯇꯤꯕꯇꯕ ꯌꯥꯅ: ꯃꯥꯏꯄꯥꯛꯂꯕ ꯗꯥꯡꯅꯒꯤ ꯇꯧꯕ ꯄꯥꯡꯊꯣꯛꯄꯒꯤ ꯆꯥꯡꯗꯤꯡꯒꯤ ꯇꯥꯒꯠꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯃꯥꯡꯒꯤ ꯏꯅꯣꯀꯂꯤꯕ ꯅꯤꯇꯅꯕ-ꯂꯝꯗꯥꯛ ꯗꯕꯂꯤꯕꯅ ꯊꯅ (ꯃꯦꯞ 11.7.3)꯫

ꯁꯔꯨꯛ 4 — ꯃꯇꯤꯛꯗꯥꯂꯕ ꯑꯃꯁꯨꯡ ꯒꯇꯤꯅꯂꯕ. ꯅꯤꯡꯊꯧ ꯇꯧꯕ ꯃꯏꯀꯅ (ꯃꯦꯞ 11.7.5) 28–31 ꯃꯦ 2024 (ꯁꯥꯏꯛꯂꯣꯟ ꯔꯦꯃꯜ (Cyclone Remal): 29 ꯃꯦꯅ ꯃꯤꯅꯨꯊꯣꯡꯗ (Minuthong) ꯍꯀꯤꯡ ꯇꯨꯔꯦꯜ ꯃꯂꯤꯒꯤ ꯄꯥꯟꯅꯂꯝ ꯏꯇꯅ ꯇꯒꯠ 788.400 m-ꯅꯒꯤ ꯌꯥꯎꯗ ꯑꯃꯁꯨꯡ ꯇꯤꯇꯧꯅ 782.250 m-ꯅ, ꯑꯃꯁꯨꯡ ꯍꯊꯍꯅ ꯃꯆꯤꯡꯗ ꯇꯨꯔꯦꯜ 768.640 m-ꯅ; ꯁꯥꯡ (embankment) ꯃꯥꯡꯁꯥ 18; ꯃꯤꯆꯤꯂꯝꯗꯒꯤ 30 ꯃꯦꯒꯤ ꯃꯂꯤꯕ ꯃꯅꯨꯡ ꯍꯥꯡꯆ ꯃꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 24,265 ꯂꯥꯎꯈꯤ, ꯆꯥꯡꯗꯒꯤ ꯗꯤꯇꯤꯏ ꯑꯃꯁꯨꯡ ꯅꯤꯇꯂꯝꯗ ꯃꯦꯆꯦꯇꯃꯦꯡꯁ ꯅꯤꯁꯥꯡꯁꯃꯦꯡꯁ (Relief and Disaster Management Department)-ꯒꯤ 31 ꯃꯦꯒꯤ ꯗꯤꯁꯥꯗꯁ ꯃꯅꯨꯡ ꯍꯥꯡꯆ ꯃꯤ 1,26,950, ꯇꯥꯃꯍ 255 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 16,364, ꯁꯨꯀꯆꯃꯥ ꯁꯥꯡꯅ ꯏꯕꯅꯥꯈꯤꯕ ꯃꯅꯨꯡ ꯍꯥꯡꯆ; ꯍꯒꯦꯁ ꯑꯂꯤꯒꯤ IMD-ꯒꯤ ꯆꯥꯕ ꯌꯨꯕ ꯏꯕꯈꯤꯅ), 30 ꯃꯦ–ꯖꯨꯟ 2025 (30–31 ꯃꯦꯅ ꯃꯕꯁꯥꯥꯁꯤꯅ ꯁꯨꯕ 24-ꯅ 123 mm ꯑꯃꯁꯨꯡ ꯁꯨꯕ 72-ꯅ 175 mm ꯌꯨꯗꯕ ꯃꯅꯨꯡꯅ ꯂꯤꯕꯆꯃꯦ, ꯍꯩꯉꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅꯨꯌꯥ ꯌꯦꯛꯃꯦꯟ (New Checkon) ꯍꯀꯤꯡ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯃꯏꯀ ꯃꯗꯤꯅ ꯆꯀꯕꯨꯟ ꯇꯨꯔꯦꯜ ꯃꯥꯈꯤ, ꯁꯥꯡꯅ ꯏꯕꯅꯥꯈꯤꯕ ꯃꯅꯨꯡ ꯍꯥꯡꯆ; ꯍꯀꯤꯡꯒꯤ IMD-ꯒꯤ ꯆꯥꯕ ꯌꯨꯕ ꯏꯕꯈꯤꯅ), ꯂꯁꯥꯡꯀꯕꯗ 2025 (15 ꯂꯁꯥꯡꯀꯕꯗꯅ ꯇꯤꯇꯧꯅ ꯍꯀꯤꯡ ꯇꯨꯔꯦꯜ 783.250 m-ꯅ ꯑꯃꯁꯨꯡ ꯍꯊꯍꯅ ꯃꯆꯤꯡꯗ ꯇꯨꯔꯦꯜ 770.05 m-ꯅ, ꯑꯆꯤꯃꯥ ꯃꯍꯥꯛꯒꯤ ꯏꯕꯅꯥꯈꯤꯕ ꯄꯥꯟꯅꯂꯝ ꯏꯇꯅ ꯇꯒꯠꯂꯤꯕꯅꯒꯤ ꯌꯥꯎꯗ, ꯑꯃꯁꯨꯡ ꯃꯂꯝꯗꯤ ꯑꯌꯥꯎ ꯇꯥꯃꯍꯅ (Kshetri Awang Leikai) ꯍꯗꯤꯟ ꯇꯨꯔꯦꯜ (Iril) ꯃꯥꯈꯤ, ꯁꯥꯡꯅ ꯏꯕꯅꯥꯈꯤꯕ ꯃꯅꯨꯡ ꯍꯥꯡꯆ; ꯆꯥꯕ ꯌꯨꯕꯒꯤ ꯒꯅꯌꯨ ꯏꯕꯈꯤꯅ), ꯖꯨꯅꯍꯒꯤ ꯑꯗꯍꯕ ꯃꯁꯝ–ꯑꯒꯂꯦ 2015 (23–27 ꯖꯨꯅꯍꯅ ꯍꯀꯤꯡ ꯌꯦꯂꯦꯁ ꯆꯥꯗꯃꯦꯟꯅꯒꯤ 46% ꯄꯥꯡꯗ ꯆꯥꯕ ꯌꯨꯈꯤ, 1 ꯑꯒꯂꯦꯁ ꯃꯁꯤꯊꯟ ꯗꯤꯇꯗꯒꯌꯗ 876 m-ꯅ ꯇꯈꯤ ꯑꯃꯁꯨꯡ ꯂꯝꯁꯃꯤ ꯗꯒꯨ ꯑꯂꯝꯤꯃꯦꯁ ꯃꯅꯨꯡ ꯍꯥꯡꯆ 3 ꯑꯒꯂꯦ ꯏꯁꯨꯕꯅ ꯃꯤ ꯌꯥꯎ 5 ꯇꯍ ꯃꯍꯥꯛꯒꯤ ꯃꯏꯀꯅꯒꯤ ꯊꯅꯥꯈꯤ, ꯁꯥꯡꯅ ꯏꯕꯅꯥꯈꯤꯕ ꯃꯅꯨꯡ ꯍꯥꯡꯆ; ꯒꯇꯒꯤ ꯒꯅꯌꯨ ꯏꯕꯈꯤꯅ) ꯑꯃꯁꯨꯡ ꯖꯨꯅꯍ–ꯑꯒꯂꯦ 1989 (28 ꯖꯨꯅꯍꯅꯒꯤ 1 ꯑꯒꯂꯦ ꯏꯁꯨꯕ ꯆꯨꯃꯤꯡ ꯂꯩꯅꯕꯒꯤ ꯆꯥꯕ ꯌꯨꯗꯕ ꯃꯅꯨꯡꯅ, 30 ꯖꯨꯅꯍꯅ ꯍꯀꯤꯡ (ꯇꯨꯂꯤꯍꯦꯜ) (Imphal (Tulihal))-ꯅ 158.6 mm, ꯂꯝꯂꯕ ꯑꯅꯨꯒꯤ ꯁꯨꯕ 24-ꯒꯤ ꯗꯃꯗꯅ, ꯊ ꯑꯅꯨꯅ ꯍꯀꯤꯡꯅ 461.9 mm ꯑꯃꯁꯨꯡ ꯃꯕꯁꯥꯥꯁꯤꯅ 617.6 mm, ꯁꯥꯡ ꯃꯥꯡꯁꯥ 40 ꯑꯃꯁꯨꯡ ꯇꯥꯃꯍ 361-ꯅ ꯍꯂꯤꯕ ꯍꯌꯨꯝ ꯇꯥꯈꯤ, IMD ꯑꯃꯁꯨꯡ MASTEC)-ꯒꯤ ꯍꯒꯦꯁꯂꯤꯕꯒꯤ ꯃꯆꯨꯕꯅ ꯌꯥꯃꯗ꯭ꯔꯕꯅꯃꯥ ꯑꯆꯤ ꯂꯤꯇꯤꯕꯇꯨꯗ, ꯃꯦꯞ 3.15-ꯗꯥ ꯃꯍꯥꯛ ꯃꯦꯅꯤꯡ ꯑꯃ ꯃꯇꯤꯛꯗꯥꯁ ꯑꯃꯁꯨꯡ ꯒꯇꯤꯅꯁ ꯁꯤꯡꯅꯕꯆꯤ꯫ ꯃꯦꯞ 3.15.4-ꯒꯤ ꯁꯏꯗꯥꯃꯦꯂ ꯃꯇꯗꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯞ 3.15.6-ꯒꯤ ꯗꯤꯇꯆꯕꯟꯆꯂ ꯌꯥ ꯗꯤꯁꯥꯗꯁ ꯁꯤꯡꯅꯕꯆꯤ꯫

ꯁꯔꯨꯛ 5 — ꯂꯤꯇꯦꯗꯤꯑꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯄꯇꯦꯗꯅ ꯃꯁꯥꯂꯤꯕ. ꯃꯦꯞ 11.7.4-ꯒꯤ ꯂꯤꯇꯦꯗꯤꯑꯂꯤꯕ ꯃꯅꯦꯟ ꯁꯤꯡꯅꯕꯆꯤ: (a) ꯇꯥꯗꯤꯕ; (b) ꯃꯊꯥꯒꯤ, ꯃꯗꯂꯝꯗꯥꯟ ꯁꯤꯅꯕ; (c) ꯃꯊꯥꯒꯤ, ꯃꯗꯂꯝꯗꯥꯟ ꯁꯤꯗꯕ; (d) ꯃꯊꯥꯒꯤ, ꯁꯦꯇꯦꯗꯥ ꯇꯌꯔꯆꯦ; ꯑꯃꯁꯨꯡ (e) ꯃꯦꯇꯦꯍꯃꯦꯁ, (a) ꯑꯃꯁꯨꯡ (d)-ꯅ ꯂꯤꯇꯤꯕꯇꯕ꯫ 10%, 1% ꯑꯃꯁꯨꯡ 0.2% AEP-ꯂꯤꯕꯒꯤꯅꯃꯥ, ꯇꯥꯗꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯊꯥꯒꯤ-ꯁꯦꯇꯦꯗꯥ ꯇꯌꯔꯆꯦ, ꯑꯥꯂꯝꯁꯦ, ꯅꯁꯊ, ꯒꯇꯦꯂꯤꯝ ꯑꯃꯁꯨꯡ ꯄꯇꯦꯗꯅ ꯃꯦꯇꯦꯂ (H1–H6, ꯂꯗꯨꯥ 6)-ꯒꯤ ꯍꯂꯤꯕ ꯍꯌꯨꯝꯒꯤ ꯄꯇꯦꯗꯅ ꯃꯁꯥꯂꯤꯕ ꯂꯀꯒꯅꯕꯆꯤ (ꯃꯦꯞ 11.8.4(a))꯫

ꯁꯔꯨꯛ 6 — ꯇꯒꯠ-ꯑꯦꯏ-ꯂꯗꯒꯤꯂ ꯑꯂꯂꯃꯦꯁ. ꯂꯤꯇꯦꯗꯤꯑ (a), (c) ꯑꯃꯁꯨꯡ (d) ꯑꯂꯤ ꯁꯕꯟ 11.2-ꯒꯤ ꯇꯒꯠ ꯑꯦꯏ ꯂꯗꯒꯤꯂꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯦꯇꯦꯍꯌꯦꯁꯆꯦ ꯇꯧꯕ ꯄꯗꯆꯦ ꯃꯗꯆꯕ ꯇꯒꯠ ꯑꯃꯄꯥꯁꯥ ꯌꯥꯎꯅꯀꯆꯒꯅꯕꯆꯤ (ꯃꯦꯞ 11.6.1)꯫ ꯃꯤꯎꯆꯤꯕ ꯂꯩꯅꯕꯃꯥ ꯃꯁꯥ ꯁꯤꯡꯅꯕꯆꯤ꯫

ꯁꯔꯨꯛ 7 — ꯑꯁꯥꯂꯗꯂꯤꯕ. ꯃꯦꯞ 11.8.1-ꯒꯤ ꯊꯥ ꯃꯅꯨꯡ ꯍꯥꯡꯆ ꯑꯁꯥꯂꯗꯂꯤꯕ ꯂꯀꯒꯅꯕꯆꯤ: ꯂꯝꯗꯇ ꯊꯥꯊꯃꯁꯥ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯥ ꯄꯗꯆꯦ ꯂꯃꯒꯁꯥ; ꯃꯅꯦꯇꯤꯕꯆꯦ ꯃꯏꯀ ꯍꯗꯕ ꯗꯤꯇꯆꯟ ꯗꯤꯝꯗꯂꯂ ꯑꯃꯁꯨꯡ ꯅꯤꯝꯗꯂꯂ; ꯃꯗꯒꯌꯗꯂ; ꯑꯦꯁꯦꯏꯟꯒꯤ ꯊꯕꯥꯂꯤꯕ; ꯁꯗꯁꯗꯝ-ꯇꯒꯠꯒꯤ ꯊꯥꯊꯃꯁꯥ; ꯆꯗ-ꯂꯝꯗꯥꯌꯗꯟ ꯊꯑꯕꯂꯤꯕ꯫ ꯑꯁꯥꯂꯗ ꯂꯩꯅꯕꯃꯥ ꯃꯦꯞ 11.8.2-ꯒꯤ ꯃꯗꯍꯝꯗꯤꯌꯦꯂꯤꯕꯒꯤꯅꯃꯥ ꯑꯂꯂ ꯁꯤꯡꯅꯕꯆꯤ: ꯍꯂꯤꯕ ꯍꯌꯨꯝꯒꯤ ꯗꯤꯂꯥ ꯄꯗꯊꯄꯆꯕ (ꯍꯂꯤꯕ ꯍꯌꯨꯝꯗ ꯂꯃꯁꯥ ꯕꯤꯟꯅꯤꯕꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯤꯂꯤꯕ, ꯑꯃꯁꯨꯡ ꯑꯄꯗꯕ 11C ꯂꯤꯇꯤꯕꯇꯨꯗ ꯌꯥꯄ ꯂꯩꯅꯕꯒꯤ ꯊꯇꯕ ꯅꯃꯦꯇ); ꯃꯁꯤꯡꯟ ꯑꯃꯁꯨꯡ ꯌꯥꯄ 30-ꯒꯤ ꯃꯗꯝꯆꯗꯂꯒꯤ ꯃꯃꯟ; ꯃꯊꯥ ꯁꯕ ꯇꯃ; ꯃꯍꯒꯤꯂꯤꯕꯅ ꯍꯏꯥꯁ — ꯍꯗꯏꯤꯟꯝꯗꯂꯗ (infiltration) ꯑꯃꯁꯝ ꯌꯥꯅꯕ ꯁꯃꯁꯥꯥꯃꯤ ꯇꯃꯒꯤ (valley floor) ꯇꯃꯨ ꯑꯌꯁꯥ (clay) ꯑꯃꯁꯨꯡ ꯁꯤꯁ (peat) (ꯃꯦꯞ 4.11, ꯁꯃꯁꯥꯥꯃꯤ ꯇꯃꯒꯤ ꯗꯨꯟ), ꯑꯃꯁꯨꯡ ꯍꯀꯤꯡ ꯌꯦꯂꯦꯃꯤ ꯌꯥꯃꯆ ꯃꯏꯀꯅ ꯇꯃꯍꯒꯤ ꯃꯍꯥꯛ 2-ꯅꯒꯤ 5 m ꯏꯁꯨꯕꯅ ꯇꯧꯕ ꯌꯥꯝꯗ ꯁꯕꯟ (CGWB, 2013), ꯃꯂꯤꯆ ꯂꯃꯁꯥꯂꯤꯕ, ꯁꯊꯥꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯕꯂꯃꯦꯁꯂꯤꯕꯅ ꯕꯌꯗꯂꯤ ꯑꯃꯁꯨꯡ ꯍꯗꯏꯇꯨ ꯄꯇꯦꯗꯅ ꯑꯍꯄꯟꯤ; "ꯍꯗꯏꯤꯟꯝꯗꯂꯗ ꯄꯗꯊꯕ ꯑꯃꯁꯨꯡ ꯗꯗ ꯑꯏ ꯄꯗꯕ" ("less infiltration and more run off") (MASTEC) ꯇꯧꯕ ꯑꯃꯁꯨꯡ 2022-ꯅ ꯇꯨꯄꯨꯜꯅ (Tupul) ꯑꯍꯈꯤꯕꯨꯃꯆ ꯃꯁꯇꯕ ꯑꯃꯁꯨꯡ ꯍꯂꯤꯕꯆ ꯊꯃꯇꯤꯟꯇꯕ ꯃꯝꯃꯅ ꯇꯍꯅ ꯁꯕ ꯌꯤꯕꯂꯤꯕꯒꯤ ꯅꯤꯂꯕ ꯂꯟ (Disang shale); ꯁꯂꯁ ꯁꯗꯕ ꯏꯨꯁꯄꯤꯟ ꯏꯗꯂꯤꯕ (foothill fan), ꯕꯗꯟ (Barail) ꯂꯗꯅꯂꯝꯗ ꯃꯁꯤꯕꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯇꯊꯍꯒꯤ ꯇꯗꯂꯂꯤꯕꯅ ꯗꯤꯌꯗꯇ (recharge), ꯃꯂꯤ ꯌꯥꯕ ꯇꯃꯍ ꯑꯃꯍꯥꯝꯆꯤ (ꯃꯦꯞ 4.11, ꯗꯤꯌꯗꯇꯒꯤ ꯗꯨꯟ), ꯂꯝꯁ ꯑꯂꯤꯒꯤ ꯑꯂꯂꯃꯦꯁ ꯌꯨꯆꯤꯁ ꯂꯩꯅꯕꯃꯥ ꯂꯏ ꯑꯍꯗꯕꯂ (ꯑꯥꯂꯝꯗꯥꯂꯗꯒꯤ ꯂꯝꯇ 8.00%, GWRA 2024, CGWB-ꯅꯒꯤ ꯃꯁꯍꯤꯕ ꯃꯅꯨꯡ ꯍꯥꯡꯆ); ꯑꯃꯁꯨꯡ ꯗꯗꯑꯏ (runoff) ꯌꯕ ꯇꯨꯔꯦꯜꯂꯤꯕ, ꯁꯥꯁꯂꯤꯕ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯇꯥꯏꯕꯥꯡꯄꯥꯟ ꯊꯧꯔꯥꯡꯁꯤꯡ, ꯃꯍꯩꯔꯣꯏꯁꯤꯡ ꯃꯔꯨꯑꯣꯏꯅ ꯂꯧꯁꯤꯟꯕ, ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯂꯝꯀꯣꯌꯕ (Iril) ꯂꯩꯔꯤꯕ ꯃꯐꯃꯁꯤꯡ, ꯃꯍꯩꯔꯣꯏꯁꯤꯡ ꯂꯧꯁꯤꯟꯕꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯕ ꯂꯧꯕꯨꯛꯁꯤꯡ ꯈꯔ 90% ꯇꯥꯏ; ꯃꯈꯥ ꯊꯪꯕ ꯃꯐꯃꯁꯤꯡ (downstream) ꯕꯣꯠꯔꯣꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯇꯥꯕ ꯂꯩꯕ, ꯈꯣꯡ (khong) ꯁꯤꯡꯒꯤ ꯃꯇꯦꯡ ꯄꯥꯡꯅꯕ; ꯑꯃꯁꯨꯡ ꯊꯧꯗꯣꯛ ꯊꯦꯡꯅꯕ ꯌꯥꯕꯁꯤꯡ ꯄꯤꯔꯤ꯫

ꯁ꯭ꯇꯦꯞ 8 — ꯑꯣꯟꯁꯤꯟ ꯊꯝꯕꯒꯤ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯃꯆꯥꯡꯁꯤꯡ. ꯁꯣꯔꯁꯤꯡꯒꯤ (c)-ꯗꯥ ꯌꯥꯑꯣꯕ ꯑꯦꯡ ꯃꯈꯜꯁꯤꯡ ꯈꯅꯕꯗꯥ, AEP ꯑꯃꯁꯨꯡ ꯃꯐ-ꯂꯦꯃꯍꯥꯌ ꯍꯟꯗꯨ ꯍꯣꯡꯗ ꯕꯣꯠꯔꯣ ꯄꯤꯕꯇ ꯄꯥꯡꯕꯁꯤꯡ (m³/s/ha) ꯁ꯭ꯇꯦꯁꯅ ꯑꯣꯏꯒꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 11.8.3)꯫ ꯁꯦꯛꯁꯟ 4.5.4.1-ꯒꯤ ꯑꯦꯡꯀꯍꯦꯡꯒꯤ ꯇꯥꯔꯕꯗꯥ, ꯍꯣꯡꯁꯤꯡ ꯍꯧꯖꯤꯛ ꯃꯦꯡꯁꯤꯡꯒꯤ ꯑꯍꯣꯡ ꯇꯧꯖꯤꯟꯕ ꯑꯣꯏꯕ ꯂꯦꯃꯍꯥꯌꯁꯤꯡꯒꯤ ꯄꯥꯝꯍꯦꯜ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫ ꯃꯌꯥꯝꯗ ꯒꯥꯡꯁꯤꯡ, ꯅꯍꯥꯛ ꯍꯟꯗ ꯌꯥꯕꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯍꯥꯌꯔꯕ ꯃꯈꯜꯁꯤꯡ ꯁꯤꯕ ꯑꯣꯟꯁꯤꯟꯁꯤꯡꯒꯤ ꯇꯥꯔꯕꯗꯥ ꯄꯤꯇꯗꯥꯡ ꯑꯦꯡꯁꯤꯡꯌꯒꯤ ꯑꯣꯟꯁꯤꯟꯁꯤꯡ ꯍꯥꯔꯛꯄꯥꯕꯥꯒꯗꯕꯅꯤ, ꯑꯃꯁꯨꯡ ꯇꯥꯡ, ꯂꯦꯃꯌꯥꯡꯄꯥꯃꯦ ꯑꯃꯁꯨꯡ ꯍꯀꯤ 10-ꯒꯤ ꯍꯦꯅꯕꯗꯦꯡ ꯌꯥꯅꯕꯗꯥ ꯑꯤ-ꯍꯦꯡ-ꯇꯤꯅ ꯂꯗꯤꯌ ꯄꯦꯌ ꯂꯦꯅꯂꯗꯦꯌ ꯑꯣꯏꯒꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 4.13.3, 11.8.4(c), (d))꯫

ꯁ꯭ꯇꯦꯞ 9 — ꯂꯦꯁꯤꯟꯕ ꯍꯥꯁꯥꯡꯒꯍꯦꯌ ꯁꯦꯟꯗꯤꯡꯗꯤꯁ. ꯍꯍꯟ, ꯑꯦꯇꯤ ꯑꯃꯁꯨꯡ ꯊꯥꯕꯤ ꯇꯦꯄꯤꯕ ꯑꯦꯇꯦꯡꯁꯤꯡꯒꯤ ꯇꯥꯔꯕꯗꯥ, ꯄꯨꯁꯤ ꯂꯥꯅꯤꯁ ꯄꯤꯃꯥ ꯍꯦꯊꯍꯦꯕ ꯍꯣꯡꯗ ꯍꯦꯗ ꯊꯕꯥꯁꯤꯡ ꯄꯦꯃꯥ ꯑꯣꯏꯒꯗꯕꯅꯤ (ꯁꯦꯛꯁꯟ 11.8.4(e))꯫

ꯁ꯭ꯇꯦꯞ 10 — ꯍꯦꯡꯑꯣꯇꯦꯡ ꯑꯃꯁꯨꯡ ꯍꯦꯇꯤꯑꯣꯄꯤ. ꯁꯦꯟꯇꯤ-ꯍꯦꯡꯃꯦ ꯍꯦꯡꯑꯣꯇꯦꯡ ꯁꯦꯟꯗꯤꯡꯗꯤꯁ ꯃꯦꯍꯒꯅꯕꯗꯤ: ꯇꯤꯇꯤ ꯇꯦꯊꯂꯁ (desilting), ꯒꯦꯌ ꯑꯃꯁꯨꯡ ꯁꯍꯁ ꯑꯦꯃꯌꯤ, ꯑꯃꯁꯨꯡ ꯁꯍꯄꯤꯒꯤ (tank) ꯑꯦꯁꯄꯦꯌꯤ ꯄꯨꯟꯁꯤ (ꯁꯦꯛꯁꯟ 11.8.4(f); ꯃꯄꯨ 7 ꯑꯃꯁꯨꯡ 10)꯫ ꯍꯦꯇꯤꯑꯣꯄꯤꯒꯤ ꯍꯤꯊꯕꯤ ꯑꯣꯏꯒꯗꯕꯅꯤ: ꯑꯦꯇꯕ ꯄꯦꯃ ꯒꯦꯇꯤ, ꯇꯦꯒꯦꯟ ꯃꯦꯑꯃꯄꯤ ꯑꯃꯁꯨꯡ ꯍꯣꯡꯗ ꯍꯦꯁꯤꯒꯤ ꯍꯦꯄꯤꯁꯤꯒꯤ ꯃꯄꯒ ꯁꯦꯍꯦꯌꯤ (ꯁꯦꯛꯁꯟ 11.8.4(g); ꯁꯦꯛꯁꯟ 10.16.1)꯫

ꯁ꯭ꯇꯦꯞ 11 — ꯇꯦꯑꯣ-ꯂꯨꯇ ꯍꯦꯑꯣꯄꯤꯗꯦꯡꯁ. ꯁꯦꯛꯁꯟ 11.9.1-ꯗꯥ ꯍꯥꯏ ꯑꯣꯏꯕ ꯑꯣꯍꯦꯒꯤ ꯇꯦꯑꯣ-ꯂꯨꯇ ꯁꯦꯇꯦꯒꯤꯁꯍ ꯍꯦꯑꯣꯄꯤꯊꯦꯟ ꯃꯦꯍꯒꯅꯕꯗꯤ: ꯊꯍꯇꯤꯅꯇꯒꯁꯕ ꯑꯣꯍꯦꯌꯤ; ꯃꯄꯨ 7-ꯒꯤ ꯃꯦꯌꯕꯦꯒꯤꯒꯤ (setback) ꯇꯥꯔꯕꯗꯥ 1% AEP-ꯒꯤ ꯄꯦꯇꯄꯁ ꯍꯦꯁ; 1% AEP-ꯒꯤ ꯍꯒꯦꯑꯦꯌ ꯄꯦꯇꯄꯁ ꯁꯦꯇꯦ H5–H6-ꯁ ꯇꯥꯕ ꯇꯍ; ꯑꯃꯁꯨꯡ ꯑꯦꯇ ꯇꯍꯕꯤꯒꯤ ꯇꯦꯄꯒꯤ ꯄꯤꯇꯇꯦꯌ ꯃꯌꯥꯝꯗꯒꯤ ꯍꯨꯁꯤꯁ ꯂꯤꯁꯕ ꯂꯤꯕ ꯑꯦꯁꯃꯦ ꯃꯁꯦꯃꯦꯒꯤ ꯍꯑꯦꯍꯤꯗ꯫

ꯁ꯭ꯇꯦꯞ 12 — ꯁꯦꯃꯦꯟꯌꯃꯦ. ꯁꯄꯤꯑꯦꯌ BSMP ꯑꯣꯒꯤ ꯂꯤꯍꯁꯄꯕꯁꯒꯤꯍꯦ ꯂꯨꯍꯤꯌ 60 ꯁꯕꯇꯤꯒꯤ ꯁꯍꯦꯑꯦꯌꯁꯤꯍꯦ ꯑꯦꯗꯁꯦꯁꯕꯇꯤ, ꯃꯦꯁꯁ ꯇꯦꯁꯟ ꯕꯦꯁꯤ ꯂꯁꯤꯗꯍꯦꯌ ꯁꯕꯇꯤ ꯍꯤꯌꯤꯃꯤꯒꯤ ꯇꯥꯔꯕꯗꯥ (ꯁꯦꯛꯁꯟ 11.10.1)꯫ ꯁꯍꯦꯑꯦꯌꯃꯤ ꯑꯃꯁꯨꯡ ꯁꯤꯂꯂꯍꯃꯤꯒꯤ ꯇꯦꯒ ꯑꯍ ꯊꯍꯒꯁꯕꯇꯤ꯫

ꯁ꯭ꯇꯦꯞ 13 — ꯑꯤꯍꯇꯦꯟ BSMP ꯑꯃꯁꯨꯡ ꯑꯦꯁꯁꯦꯁꯁ. ꯁꯦꯃꯦꯟꯌꯃꯦꯒꯤ ꯍꯦꯁ BSMP ꯄꯤꯒꯤꯍꯇ ꯑꯣꯏꯒꯗꯕꯅꯤ꯫ ꯄꯤꯒꯤꯁꯒꯤꯁꯤꯍꯦ ꯍꯦꯁꯟ ꯂꯤꯁꯗꯥ, ꯃꯌꯥꯝ ꯇꯦꯒꯤ ꯍꯣꯡꯗꯒꯤ ꯌꯥꯇꯤꯁꯟ ꯁꯍꯤꯌꯤꯗꯥ ꯑꯦꯁꯄꯨ ꯌꯥꯇꯕ ꯁꯦꯁꯦꯇ ꯃꯦꯍꯒꯅꯕꯇꯤ (ꯁꯦꯛꯁꯟ 11.11.1)꯫ ꯑꯍꯦꯅꯕ 11D-ꯒꯤ ꯍꯤꯁ ꯁꯌ, ꯍꯦꯁꯟꯃꯤ, ꯍꯦꯁꯃꯤ ꯑꯃꯁꯨꯡ CIP ꯑꯦꯁꯁꯦꯁꯁꯕꯇꯤ (ꯁꯦꯛꯁꯟ 11.10.2)꯫

11A.5 ꯗꯦꯂꯤꯚꯔꯦꯕꯂꯁꯤꯡ

ꯇꯦꯕꯜ 11A.1 — ꯗꯦꯂꯤꯚꯔꯦꯕꯂꯁꯤꯡ

No.	ꯗꯦꯂꯤꯚꯔꯦꯕꯜ	ꯁ꯭ꯇꯦꯞ	ꯃꯄꯨꯡ ꯐꯥꯕ (ꯇꯤꯛ ꯊꯃꯒꯤ ✓)
D1	ꯍꯦꯃꯦꯁꯃꯦ ꯄꯤꯁꯦꯄꯌ, ꯍꯣꯌ ꯍꯦꯒꯦꯑꯦꯌꯄꯤ ꯑꯃꯁꯨꯡ ꯃꯄꯒ ꯁꯇꯦ	1	[ ]
D2	ꯍꯣꯌ ꯄꯤꯁꯦꯄꯌ ꯑꯃꯁꯨꯡ ꯍꯣꯌ ꯃꯦꯌꯃꯤ (ꯑꯍꯦꯅꯕ 11D)	2	[ ]
D3	ꯍꯦꯁꯟ ꯃꯦꯍꯕꯒꯤ ꯄꯤꯁꯦꯄꯌ ꯑꯃꯁꯨꯡ ꯍꯦꯁꯟ ꯑꯤꯍꯇꯃꯤ	3	[ ]
D4	ꯁꯦꯇꯤꯕꯄꯦꯃꯦ ꯑꯃꯁꯨꯡ ꯒꯦꯇꯤꯁꯦꯃꯦ ꯄꯤꯁꯦꯄꯌ	4	[ ]
D5	ꯃꯤꯗꯄꯤꯑꯦꯒꯤ ꯄꯤꯇꯟꯌꯃꯤ, ꯄꯇꯄꯁ ꯍꯦꯁꯃꯤ ꯑꯃꯁꯨꯡ ꯇꯦꯒꯦꯟ-ꯑꯦꯑꯤ-ꯃꯄꯒꯤꯃ ꯑꯦꯃꯦꯃꯍꯦꯌ	5, 6	[ ]
D6	ꯑꯣꯟꯁꯤꯟ ꯊꯝꯕꯒꯤ ꯃꯐꯝꯁꯤꯡꯒꯤ ꯃꯆꯥꯡꯁꯤꯡꯒꯤ ꯇꯥꯔꯕꯗꯥ ꯑꯦꯁꯃꯦꯃꯤꯒꯤ ꯄꯤꯁꯦꯄꯌ	7, 8	[ ]
D7	ꯁꯦꯃꯦꯟꯌꯃꯦꯒꯤꯁꯍ, ꯁꯄꯤꯑꯦꯌ CIP-ꯒꯤ ꯇꯥꯔꯕꯗꯥ ꯁꯄꯤꯑꯦꯌ BSMP	9–12	[ ]
D8	ꯑꯤꯍꯇꯦꯟ BSMP, ꯁꯦꯃꯦꯟꯌꯃꯦ ꯇꯦꯒ, ꯑꯦꯁꯄꯨꯟ ꯁꯦꯁꯦꯇ ꯑꯃꯁꯨꯡ ꯑꯦꯁꯦ-ꯍꯣꯌ ꯄꯤꯇꯤꯇ	13	[ ]

11A.6 ꯃꯍꯩ ꯑꯣꯏꯕ ꯑꯃꯁꯨꯡ ꯀꯥꯟꯅꯕꯥ

ꯌꯥꯍꯟ ꯑꯃꯤꯒꯤ ꯍꯥꯢꯗ ꯂꯣꯝꯕ ꯗꯣꯌꯧ, ꯍꯦꯗꯣꯟ, ꯍꯣꯔ ꯑꯃꯁꯨꯡ ꯄꯤꯔꯦꯄꯌ ꯔꯤꯖꯇꯈꯣꯝꯕꯤ ꯍꯥꯢ ꯑꯃꯤ ꯆꯤꯗ ꯑꯦꯊꯥꯄꯤꯌꯆꯤ ꯑꯃꯁꯨꯡ ꯍꯥꯢꯔ ꯑꯦꯅꯦꯛꯁ 11D-ꯒꯤ ꯍꯥꯢꯗ ꯀꯦꯐꯗꯦꯝꯗꯕꯆꯤ꯫ ꯃꯇꯝꯅꯌꯣꯡꯌꯆꯦ ꯀꯦꯐꯗꯦꯃꯔ ꯊꯤꯕ, ꯆꯌꯥꯒꯤ ꯌꯥꯝꯆꯕ ꯂꯦꯖꯧꯔꯣꯔꯥ ꯒꯥꯂꯃꯒꯤ ꯆꯦꯔꯆꯆꯦ ꯊꯥꯗ ꯔꯤꯥꯌꯤ ꯑꯍꯆꯦ ꯍꯦꯗꯣꯟ ꯑꯍꯨꯝ ꯄꯃꯆꯦ ꯄꯃ ꯌꯣꯕ ꯊꯤꯕ ꯂꯦꯖꯧꯔꯣꯔꯥ ꯆꯅꯂꯣꯃꯂ, ꯗꯣꯌꯧ ꯆꯅꯂꯣꯃꯂ ꯆꯌꯥꯒꯤ ꯀꯦꯥꯍꯣꯌ ꯑꯍꯌꯧ ꯂꯤꯆꯤꯃꯆꯥꯅꯗꯕꯆꯤ꯫

ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 11B — ꯌꯤꯔꯥ A ꯕꯦꯗꯤꯂꯤꯕꯒꯤ ꯕꯣꯂꯤꯃ ꯆꯤꯂꯨꯌꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯊꯍꯅꯂꯤꯕ

ꯂꯥꯢꯔꯤꯛ 11-ꯒꯤ ꯁꯦꯛꯁꯟ 11.3 ꯑꯃꯁꯨꯡ 11.4-ꯗ ꯍꯌꯣꯕ ꯔꯤꯕꯅ꯫

ꯂꯣꯐ ꯂꯤꯒꯗꯕ. ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯃꯤꯗ ꯌꯤꯔꯥ A ꯕꯦꯗꯤ ꯅꯗꯤꯕꯍꯇꯃꯤ ꯕꯣꯂꯤꯃꯂꯤꯕꯒꯤ ꯆꯤꯂꯨꯌ, ꯁꯦꯛꯁꯟ 11.3.2-ꯒꯤ ꯍꯥꯢꯗ ꯊꯍꯅ ꯊꯥꯕ ꯕꯣꯂꯤꯃꯒꯤ ꯊꯍꯅꯂꯤꯕꯒꯤ GIS ꯆꯣꯔꯥ ꯑꯍꯒꯤ ꯆꯦꯔꯆꯆꯦ ꯔꯤꯄꯒꯆꯤ꯫ ꯍꯂꯤꯒꯤꯗꯍꯇ ꯍꯅꯤꯒꯤꯂꯤꯕ ꯍꯊ ꯌꯅ: ꯌꯤꯔꯥ A ꯕꯦꯗꯤꯂꯤꯕꯒꯤ ꯆꯤꯂꯨꯌ (ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 1A); ꯁꯦꯛꯁꯟ 11.5.1-ꯒꯤ ꯑꯣꯃꯨꯔꯣꯂꯤ ꯆꯊꯕ DEM ꯑꯍꯦ, ꯅꯂꯤꯕ ꯅꯔꯦꯄ ꯆꯌꯥꯒꯤ ꯆꯣꯃꯗꯂꯆꯦꯅꯗ (landslide) ꯔꯦꯄꯕ ꯑꯍꯒꯤ ꯍꯌꯨꯕꯗ ꯌꯍꯔꯦꯇꯃꯤ ꯆꯐ (valley floor), ꯆꯦꯇꯌꯦꯇꯃꯤ ꯍꯆꯦꯇ ꯑꯃꯁꯨꯡ ꯆꯦꯅꯗ ꯌꯊꯕ ꯔꯦꯕ ꯆꯦꯔꯦꯐꯂꯤꯕꯒꯤ ꯍꯊꯇꯌ ꯑꯍꯨꯇ ꯄꯃꯆꯦ ꯀꯆꯦꯅ ꯌꯊꯔꯕ;
ꯅꯦꯕꯕꯃꯒꯤ (drain) ꯍꯥꯢꯗ ꯑꯦꯅꯕ ꯕꯦꯗꯤ ꯅꯗꯤꯕꯍꯇꯃꯤ ꯅꯦꯕꯕꯃꯒꯤ ꯆꯣꯌꯔꯥꯇ (IMC ꯑꯃꯁꯨꯡ ꯑꯌꯦꯔꯔ ꯄꯔꯕꯃ ꯆꯦꯃꯅ ꯕꯦꯗꯤꯂꯤꯕ, PWD ꯑꯃꯁꯨꯡ ꯆꯣꯂꯆꯣꯅ-ꯄꯅꯔꯣ ꯑꯣꯆꯣꯃꯂꯤꯂꯤꯕ, WRD, DoECC, PHED, LDA ꯑꯃꯁꯨꯡ ꯅꯐꯀꯦꯅ ꯂꯍꯦꯔꯌ ꯂꯤꯌꯤ ꯆꯤꯍꯤꯌꯣꯗ); ꯔꯤꯔ (reach)
ꯅꯗꯤꯕꯍꯇꯃꯤ ꯍꯥꯢꯗ, ꯍꯂꯤꯆꯦ ꯔꯊꯕ ꯌꯨꯔꯣꯅ, ꯍꯂꯤꯆꯦ ꯆꯦꯃꯊꯦꯃꯔ ꯔꯃ (bund) ꯑꯃꯁꯨꯡ ꯍꯗꯒꯤ ꯒꯣꯌ ꯆꯌꯥꯒꯤ ꯀꯆꯣꯔ ꯒꯣꯌ (flap gate), ꯍꯂꯤ
ꯕꯅ-ꯆꯦꯇꯒꯤ ꯌꯨꯔꯣꯅꯒꯤ ꯕꯀꯔ (buffer) ꯑꯍꯗ ꯆꯊꯕꯔ, ꯍꯂꯤꯒꯤ ꯆꯐꯒꯤ ꯂꯌꯣꯌꯂ (ꯔꯌꯧ ꯆꯐ ꯆꯌꯥꯒꯤ ꯆꯊꯃꯇꯃꯤ ꯆꯐ) ꯑꯃꯁꯨꯡ ꯍꯂꯤꯒꯤ
ꯑꯦꯄꯌꯀꯦꯅ (outfall) ꯔꯤꯕ ꯅꯦꯕꯕꯃꯒꯤ ꯔꯣꯆꯤꯂꯌꯔ ꯑꯍꯦ; ꯃꯔꯣꯂꯌꯂꯤꯕ, ꯒꯣꯌꯂꯤꯕ, ꯂꯤꯅꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯃꯇꯔꯒꯤ ꯔꯣꯃꯔꯦꯗꯂꯤꯕꯒꯤ
ꯆꯦꯔꯆꯆꯦ WRD-ꯒꯤ ꯌꯨꯔꯣꯅꯒꯤ ꯔꯃꯂꯤꯕ; ꯆꯣꯒꯣꯅ ꯅꯗꯤꯕꯍꯇꯃꯤ ꯗꯣꯌꯐꯒꯤ (datum) ꯆꯦꯔꯆꯆꯦ WRD-ꯒꯤ ꯒꯣꯆ ꯔꯣꯆꯤꯂꯌꯔ; ꯃꯣꯔꯦꯂꯤꯌꯤ
ꯑꯃꯁꯨꯡ ꯑꯦꯔꯔꯣꯌꯤꯕ ꯀꯨꯅꯂꯤꯕꯒꯤ ꯆꯦꯔꯆꯆꯦ ꯔꯐꯔꯤꯕ ꯂꯌꯣꯂꯃꯂꯤꯕ, ꯍꯅꯦꯔꯒꯤ ꯍꯌꯨꯗ ꯂꯍꯨꯂꯤ ꯔꯣꯆꯣꯅꯗ (Shamushang channel) ꯆꯊꯕ ꯆꯐꯀꯣꯅꯔꯤꯌꯃꯤ ꯔꯐꯔꯂꯤꯕ; NHPC-ꯗꯒꯤ ꯆꯦꯇꯌꯦꯇꯃꯤ ꯆꯣꯒꯣꯅꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯅꯊꯅ ꯕꯣꯔꯆꯃꯤ (Ithai barrage) ꯑꯦꯔꯔꯣꯌꯤꯕ ꯀꯨꯅ;
ꯊꯦꯕꯅ (ꯍꯔꯤꯊꯣꯅ), ꯅꯨꯒꯤ ꯑꯃꯁꯨꯡ ꯂꯤꯕꯗꯦ ꯗꯣꯐꯂꯤꯕꯒꯤ ꯆꯣꯒꯣꯅꯂꯤꯕ, ꯂꯔꯤꯅꯔꯣꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯔꯤꯆꯤꯆꯒꯤ ꯀꯨꯅꯂꯤꯕ; ꯍꯅꯦꯔꯒꯤ ꯑꯦꯄꯌꯆꯣꯌ
ꯆꯣꯒꯣꯅꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯂꯌꯣꯆ–ꯂꯌꯦꯔꯣꯆꯒꯤ ꯆꯦꯔꯆꯆꯦ ꯔꯤꯌꯂꯤꯕ (pat; lake or wetland) ꯑꯃꯁꯨꯡ ꯔꯨꯅꯔꯤꯂꯤꯕ (pukhri; pond);
ꯌꯍꯔꯦꯇꯃꯤ ꯆꯐꯒꯤ ꯔꯣꯗꯤ ꯆꯣꯃꯗ (paddy land) ꯑꯃꯁꯨꯡ ꯔꯣꯌꯆꯣꯃꯗ (wetland); ꯑꯃꯁꯨꯡ MSDMA ꯑꯃꯁꯨꯡ NRSC-ꯆꯦ ꯍꯣꯔ ꯌꯊꯔꯕ
ꯗꯤꯂꯕ ꯂꯣꯒꯤ (Disang shale) ꯆꯦꯔꯦꯐꯂꯤꯕꯒꯤ ꯆꯣꯃꯗꯂꯆꯦꯅꯗꯃꯤ ꯄꯆꯦꯔꯗꯂꯤꯕ (ꯑꯌꯦꯔ ꯆꯊꯕ ꯔꯦꯕ ꯄꯦꯔꯇꯀꯐꯂꯤꯕ: ꯂꯔꯒꯣ ꯑꯦꯀ
ꯅꯃꯗꯤꯔꯦ, CWC, CGWB, MASTEC, TPD-ꯒꯤ GIS ꯍꯤꯂꯌꯔ-ꯔꯦꯆꯦꯃ ꯍꯣꯔꯂꯤꯕ ꯑꯃꯁꯨꯡ ꯔꯣꯒꯣꯂ ꯗꯤꯔꯦꯔꯌꯍꯣꯃꯌꯃꯤ (Revenue Department) ꯆꯐꯒꯤ ꯔꯣꯃꯔꯦꯗꯂꯤꯕ)꯫ ꯍꯆꯤꯔꯨꯔꯒꯤ ꯃꯔꯤꯍꯐꯕ ꯌꯦꯄꯃ ꯑꯍꯒꯤ ꯕꯣꯂꯤꯃ ꯍꯣꯔ ꯑꯍꯌꯧ ꯀꯇꯅꯤꯗꯣ꯫ ꯌꯣꯕꯅ 11B.2-ꯒꯤ
NAME_MNI ꯀꯤꯅꯗꯌ ꯕꯣꯂꯤꯃ ꯅꯗꯤꯕꯍꯇꯃꯤ ꯍꯍꯤꯕ ꯍꯌꯦꯆꯃꯗ, ꯍꯌꯦ ꯍꯔꯣꯇꯌ ꯅꯔꯕ, ꯆꯦ; ꯍꯆꯤꯔꯨꯔ ꯑꯦꯀꯤꯂꯤꯔꯣꯅ ꯆꯣꯇꯒꯔꯆ
(ꯑꯣꯍꯣꯃꯗꯍꯣꯃꯌ) ꯑꯣꯏꯌ, 2021 (Manipur Official Language (Amendment) Act, 2021)-ꯆꯦ ꯔꯦꯄꯅꯆꯕ ꯕꯣꯇꯒꯆꯤ ꯍꯔꯣꯇ ꯔꯨꯃꯆꯦ
ꯂꯤꯆꯤꯃꯆꯕ ꯑꯃꯤ ꯔꯌꯆꯤꯊꯗ, ꯕꯣꯇꯒꯆꯤ ꯍꯔꯣꯇꯃꯤ ꯍꯑꯦꯕ ꯑꯍꯦ ꯆꯦꯌ ꯑꯍꯗ ꯄꯔꯔꯤꯃꯕ ꯔꯦꯅ꯫ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ ꯑꯃꯤ ꯀꯦꯕꯗꯦꯇꯆꯌꯔꯦꯀꯤꯕ,
ꯁꯦꯛꯁꯟ 11.3.3-ꯗ ꯍꯍꯤꯕ ꯊꯦꯃꯅꯤꯕ ꯆꯐꯕꯨꯅ ꯌꯨꯔꯣꯅ, ꯂꯄꯔꯒꯤ ꯅꯨꯌꯊꯕꯗ ꯔꯣꯃꯕ ꯅꯐꯀꯦꯅ ꯌꯨꯔꯣꯅ, ꯆꯐꯀꯣꯅꯔꯌ, ꯃꯦꯕꯕ (Kongba) ꯑꯃꯁꯨꯡ
ꯅꯔꯤꯅ (Iril), ꯍꯔꯤꯊꯣꯅ ꯗꯣꯐꯒꯤ ꯍꯅꯤꯒꯤ ꯊꯦꯕꯅ, ꯆꯦꯇꯌꯦꯇꯃꯤ ꯍꯆꯦꯇ, ꯆꯐꯕꯦꯅ ꯑꯃꯁꯨꯡ ꯕꯂꯤꯄꯔꯔ, ꯃꯇꯔꯕ ꯔꯦꯕꯆꯤ, ꯆꯤꯔꯤꯕꯐ
ꯑꯃꯁꯨꯡ ꯆꯣꯃꯗꯂꯆꯦꯅꯗꯃꯤ ꯆꯍꯦꯅꯗ ꯆꯊꯕ ꯔꯤꯕꯒꯤ ꯌꯦꯄꯃꯂꯤꯕꯒꯤ ꯕꯣꯂꯤꯃꯂꯤꯕ ꯑꯃꯤ ꯔꯦꯐꯗꯔꯕꯗꯍꯇ ꯍꯀꯐ ꯑꯍꯨꯗ ꯍꯍꯤꯕ
ꯊꯦꯃꯅꯤꯕꯂꯤꯕꯆꯤ; ꯑꯌꯦꯔꯔ ꯌꯤꯔꯥ A ꯕꯦꯗꯤꯂꯤꯕꯆꯦ ꯍꯅꯦꯔꯒꯤ ꯑꯄꯆꯕ BSMP-ꯗ ꯍꯅꯦꯔꯒꯤ ꯕꯣꯂꯤꯃꯂꯤꯕ ꯗꯤꯀꯅꯃ ꯌꯅ (ꯁꯦꯛꯁꯟ
11.3.3); ꯔꯤꯕꯂꯤꯕꯗ, ꯔꯃꯂꯤꯕꯒꯤ ꯃꯇꯔ ꯆꯐꯕꯤꯂꯤꯕꯗ ꯑꯃꯁꯨꯡ ꯗꯣꯐ-ꯔꯤꯆꯤꯆꯒꯤ ꯔꯤꯔꯂꯤꯕꯗ ꯁꯦꯛꯁꯟ 11.3.3-ꯒꯤ ꯄꯆꯔꯗ ꯂꯃꯔꯤꯆꯤꯕ
ꯑꯄꯆꯕꯗ ꯆꯦꯃꯅ; ꯑꯃꯁꯨꯡ ꯑꯣꯔꯨꯒ ꯌꯊꯔꯕ BSMP ꯆꯌꯕ ꯕꯣꯂꯤꯃ ꯅꯗꯤꯕꯍꯇꯌ ꯁꯦꯛꯁꯟ 11.12-ꯒꯤ ꯍꯔꯇꯃꯤ ꯑꯣꯔꯣꯆꯍꯣꯃꯌꯂꯤꯕ
ꯔꯌꯆꯤ꯫

ꯌꯣꯕꯅ 11B.1 — ꯁꯦꯛꯁꯟ 11.3.3-ꯗ ꯍꯍꯤꯕ ꯊꯦꯃꯅꯤꯕ ꯕꯣꯂꯤꯃꯂꯤꯕ (ꯔꯔꯦꯒꯤꯆꯆꯣꯅ)

ꯇꯤꯌꯔ A ꯕꯥꯗꯤ ꯆꯦꯟꯊꯔꯛꯄ ꯑꯦꯔꯤꯌꯥ	ꯕꯦꯁꯤꯟ	ꯁꯔꯨꯛ 11-ꯗꯒꯤ ꯂꯤꯡꯛ
ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯗ꯭ꯔꯦꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ (IMC, PDA Manipur, TPD)	ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜꯒꯤ ꯁꯍꯔꯒꯤ ꯄꯨꯊꯣꯛꯄ ꯃꯤꯡꯂꯥꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯝꯕꯤꯁꯤꯡ, ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥ (Naga Nullah), ꯋꯥꯏꯁꯦꯜ ꯃꯥꯔꯤꯜ (Waisel Maril) ꯑꯃꯁꯨꯡ ꯃꯔꯨ ꯑꯣꯏꯕ ꯗ꯭ꯔꯦꯟ (drain) 72-ꯒꯤ ꯅꯦꯇꯋꯥꯔꯛ	ꯁꯤꯡꯊꯥꯡ ꯃꯇꯝ; ꯍꯧꯖꯤꯛꯀꯤ ꯑꯣꯏꯅꯥ ꯃꯔꯨ ꯑꯣꯏꯕ ꯊꯣꯡ ꯅꯝꯕꯣꯟꯕꯤ (ꯍꯝꯞ ꯕ꯭ꯔꯤꯖ) (Thong Nambonbi (Hump Bridge))-ꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯂꯦꯚꯦꯜ ꯑꯣꯏꯕ 783.695 m (WRD, ꯁꯤꯡꯗꯥ ꯄꯤꯔꯝꯕꯥ ꯗꯦꯇꯥ ꯂꯧꯕ ꯈꯅꯕ); ꯑꯦꯟꯚꯥꯏꯔꯟ ꯑꯣꯏꯕ 2025-ꯒꯤ ꯁꯦꯟ ꯃꯥꯂꯦꯃꯗꯤ (bund) ꯑꯃꯁꯨꯡ 2024-ꯒꯤ ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥꯒꯤ ꯈꯣꯝꯗꯤ ꯈꯟꯕ
ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯗ꯭ꯔꯦꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ (ꯃꯌꯥꯏ ꯁꯥꯏꯗꯀꯤ)	ꯃꯔꯨꯒꯤ ꯄꯨꯊꯣꯛꯄ ꯈꯨꯗꯣꯡ ꯏꯁꯤꯡꯒꯤ ꯈꯣꯝꯗꯤ ꯄꯥꯔꯕ ꯃꯥꯏꯄꯥꯛꯅꯥ ꯆꯠꯄ	ꯕꯥꯔꯦꯛ ꯑꯣꯏꯕ ꯃꯤꯅꯨꯊꯣꯡ (Minuthong) ꯑꯃꯁꯨꯡ ꯅꯤꯡꯊꯧꯒꯤ WRD ꯆꯦꯛꯆꯥꯗꯤ, ꯇꯥꯛꯂꯕꯗꯤ ꯇꯧꯔꯦ; 2024 ꯑꯃꯁꯨꯡ 2025-ꯒꯤ ꯁꯦꯟ ꯃꯥꯂꯦꯒꯤ ꯆꯥꯡꯗꯝꯗꯤ ꯈꯥꯛ ꯇꯥꯕ
ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯗ꯭ꯔꯦꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ (ꯃꯌꯥꯏ ꯁꯥꯏꯗꯀꯤ; WRD)	ꯆꯥꯡꯈꯣꯡ ꯁꯥꯏꯗ (pat; lake or wetland) ꯕꯦꯁꯤꯟ, ꯃꯈꯥꯗꯥ ꯄꯥꯛꯂꯤꯕ (Shamushang channel) ꯄꯨꯊꯣꯛꯄ ꯆꯥꯡꯗꯝ ꯏꯁꯤꯡꯒꯤ ꯁꯥꯡꯁꯔꯦ ꯑꯣꯏꯅꯥ ꯑꯣꯟꯊꯣꯛꯄ ꯅꯦꯇꯋꯥꯔꯛ	ꯅꯥꯝ ꯂꯝꯕꯤꯒꯤ ꯊꯥꯗꯣꯛ ꯍꯧꯔꯦ ꯁꯤꯁ ꯑꯁꯤ ꯃꯇꯝꯒꯤ ꯑꯣꯟꯊꯣꯛꯄ ꯄꯨꯊꯣꯛ ꯃꯥꯏꯄꯥꯛꯂꯦ; WRD-ꯗꯒꯤ ꯁꯥꯡꯁ ꯂꯧꯁꯤꯟꯂꯤ [TBC]
ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ ꯗ꯭ꯔꯦꯅꯤꯡ ꯑꯦꯔꯤꯌꯥ (ꯃꯌꯥꯏ ꯁꯥꯏꯗꯀꯤ)	ꯈꯨꯗꯣꯡ ꯈꯣꯡꯕꯥ ꯂꯝꯕꯤ ꯏꯁꯤꯡ (Kongba) ꯑꯃꯁꯨꯡ ꯈꯔꯤꯜ ꯏꯁꯤꯡꯒꯤ (Iril) ꯂꯝꯕꯤꯗꯤ (corridor)	ꯕꯥꯔꯦꯛ ꯑꯣꯏꯕ ꯈꯔꯤꯜꯕꯨꯡꯒꯤ (Irilbung) WRD ꯆꯦꯛꯆꯥꯗꯤ; ꯑꯦꯟꯚꯥꯏꯔꯟ ꯑꯣꯏꯕ 2025-ꯒꯤ ꯁꯦꯟ ꯃꯥꯂꯦ
ꯇꯥꯕꯤ (ꯃꯊꯥꯡꯕ ꯆꯥꯡꯗꯝ ꯕꯥꯗꯤ)	ꯃꯁꯥꯏꯇꯥꯏ ꯗꯦꯀꯒꯤ ꯃꯍꯩ ꯇꯥꯕꯤ ꯏꯁꯤꯡꯗꯥ ꯆꯦꯕ ꯇꯥꯕꯤꯒꯤ ꯂꯝꯕꯤꯁꯤꯡꯗꯤ	ꯕꯥꯔꯦꯛ ꯑꯣꯏꯕ WRD ꯆꯦꯛꯆꯥꯗꯤ ꯑꯃꯁꯨꯡ ꯗꯦꯀ ꯑꯣꯏꯕꯒꯤ ꯄꯨꯊꯣꯛꯄꯒꯤ ꯃꯇꯝꯗ ꯂꯦꯄꯊꯥꯡ ꯇꯧꯕ ꯂꯤꯆꯤꯆ ꯆꯦꯅꯕꯒꯤ ꯃꯁꯤꯡꯁꯤꯡ ꯂꯧꯁꯤꯟꯂꯤ
ꯍꯥꯏꯕꯤ, ꯆꯤꯡꯇꯥꯛ, ꯇꯥꯡꯒꯥ (Thanga), ꯀꯇꯀ–ꯃꯒꯨ–ꯋꯥꯡꯒꯨ (Wangoo)	ꯆꯥꯡꯗꯝ, ꯃꯍꯩꯒꯤ ꯁꯥꯡꯁꯗꯤ ꯑꯃꯁꯨꯡ ꯀꯇꯀ ꯑꯃꯁꯨꯡ ꯃꯒꯨꯒꯤ ꯃꯥꯏꯄꯥꯛ ꯆꯦꯕ ꯃꯆꯤꯡꯁꯥ ꯏꯁꯤꯡꯗꯥ ꯈꯣꯝꯗꯤ ꯄꯥꯔꯕ ꯂꯝꯕꯤꯁꯤꯡꯗꯤ	ꯀꯇꯀꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯂꯦꯚꯦꯜ ꯆꯦꯛꯆꯥ 769.320 m, 770.05 m-ꯗ ꯄꯥꯡ ꯇꯧꯕ; ꯗꯤꯖꯥꯏꯟ ꯆꯥꯡ ꯆꯦꯛꯆꯥꯗꯒꯤ ꯆꯦꯀꯕ ꯑꯣꯟꯊꯣꯛꯄꯗꯤ 1 ꯅꯨꯃꯤꯠ–30 ꯃꯤꯅꯤꯠꯀꯤ ꯇꯥꯀꯄ; ꯄꯥꯡꯁꯤꯒꯤ ꯕꯦꯡꯋꯥꯍꯤ
ꯆꯀꯄꯥ ꯑꯃꯁꯨꯡ ꯕꯤꯁꯅꯨꯄꯨꯔ	ꯆꯀꯄꯥ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯍꯩ ꯇꯥꯕ ꯆꯀꯕꯥ ꯏꯁꯤꯡꯗꯥ ꯈꯣꯝꯗꯤ ꯄꯥꯔꯕ ꯂꯝꯕꯤꯁꯤꯡꯗꯤ	ꯕꯥꯔꯦꯛ ꯑꯣꯏꯕ ꯆꯀꯄꯥ ꯇꯥꯕꯥꯛꯒꯤ WRD ꯆꯦꯛꯆꯥ, ꯇꯥꯛꯂꯕ ꯑꯃꯁꯨꯡ ꯇꯧꯔꯦ
ꯂꯥꯡꯄꯤꯡ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯆꯤꯡ	ꯃꯥꯡꯈꯣ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯋꯥꯡꯆꯤꯡ ꯏꯁꯤꯡꯗꯥ ꯈꯣꯝꯗꯤ ꯄꯥꯔꯕ ꯂꯝꯕꯤꯁꯤꯡꯗꯤ	WRD ꯆꯦꯛꯆꯥ ꯑꯃꯁꯨꯡ ꯄꯨꯊꯣꯛꯄꯒꯤ ꯕꯥꯔꯦꯛ ꯑꯣꯏꯕ ꯃꯇꯝ ꯇꯧꯕ ꯈꯣꯝꯗꯤ ꯈꯟꯕꯒꯤ ꯃꯍꯩꯗꯤ
ꯆꯤꯔꯤꯕꯥꯝ (ꯃꯄꯨꯡꯆꯤꯡ ꯂꯝꯕꯤꯗꯤ)	ꯕꯔꯥꯛ ꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯤꯔꯤ ꯏꯁꯤꯡꯗꯥ (Jiri) ꯈꯣꯝꯗꯤ ꯄꯥꯔꯕ ꯂꯝꯕꯤꯁꯤꯡꯗꯤ	Chotebekra-ꯒꯤ ꯈꯨꯗꯣꯡꯆꯥꯕ ꯂꯦꯚꯦꯜ ꯆꯦꯛꯆꯥ 32.1 m (CWC, ꯁꯤꯡꯗꯥ ꯄꯤꯔꯝꯕꯥ ꯗꯦꯇꯥ ꯂꯧꯕ ꯈꯅꯕ); ꯆꯥꯡ (lock: ꯏꯁꯤꯡ ꯑꯣꯟꯊꯣꯛꯄꯗꯒꯤ ꯋꯥꯡꯕ ꯑꯃꯁꯨꯡ ꯑꯃꯁꯨꯡ ꯒꯦꯠ ꯇꯥꯡꯂꯕ ꯃꯇꯝ) ꯅꯨꯃꯤꯠ 7-ꯗꯒꯤ ꯍꯦꯟꯊꯕ
ꯆꯥꯆ, ꯇꯃꯦꯡꯂꯣꯡ, ꯄꯦꯔꯦꯟ ꯑꯃꯁꯨꯡ ꯅꯣꯡꯁꯥꯡꯂꯥꯡ	ꯆꯥꯔꯦꯟꯃꯇꯦꯛꯗꯒꯤ ꯊꯧꯖꯥꯜ ꯑꯃꯁꯨꯡ ꯄꯤꯂꯒꯤ ꯇꯧꯗꯨꯅꯒꯤ ꯂꯝꯕꯤꯁꯤꯡꯗꯤ	ꯍꯆꯦꯗ ꯃꯆꯤꯡꯆꯥꯡꯗꯤ ꯑꯍꯦꯛꯕ; ꯃꯀꯟ-ꯃꯁꯤꯡꯒꯤꯖꯤꯡ ꯈꯀꯗꯥꯡꯆꯥꯡ
ꯑꯇꯣꯞꯄ ꯇꯤꯌꯔ A ꯕꯥꯗꯤꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯂꯝꯕꯤ ꯆꯥꯡꯗꯝ ꯕꯥꯗꯤꯁꯤꯡ	ꯑꯍꯦꯛꯕ BSMP-ꯗ ꯗꯤꯖꯥꯏꯟ ꯇꯧꯒꯗꯕ	ꯁꯔꯨꯛ 11.3.3

ꯇꯦꯕꯜ 11B.2 — ꯕꯦꯁꯤꯟꯒꯤ ꯁꯦꯞꯐꯥꯏꯂꯒꯤ ꯆꯦꯔꯣꯒꯤ ꯑꯇꯤꯔꯤꯕꯨꯇꯁꯤꯡ (ꯆꯦꯀꯁꯤ)

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯑꯔ꯭ꯊ
BASIN_ID	ꯇꯦꯛꯁꯠ	ꯕꯦꯁꯤꯟꯒꯤ ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯌꯔ
NAME_EN, NAME_MNI	ꯇꯦꯛꯁꯠ	ꯏꯪꯂꯤꯁ ꯑꯃꯁꯨꯡ ꯃꯩꯇꯩꯂꯣꯟꯗꯥ ꯕꯦꯁꯤꯟꯒꯤ ꯃꯃꯤꯡ
TIER_A	ꯇꯦꯛꯁꯠ	ꯕꯦꯁꯤꯟ ꯑꯁꯤ ꯌꯥꯑꯣꯕ ꯇꯤꯌꯔ A ꯕꯥꯗꯤ ꯆꯦꯟꯊꯔꯛꯄ ꯕꯥꯗꯤꯁꯤꯡ
OUTFALL	ꯇꯦꯛꯁꯠ	ꯃꯃꯤꯡ, ꯏꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯄ ꯃꯐꯝ ꯑꯣꯏꯕ ꯈꯣꯝꯗꯤ ꯌꯥꯑꯣꯕ ꯑꯍꯣꯡꯕ (ꯁꯔꯨꯛ 11.2)
AREA_KM2	ꯔꯤꯌꯦꯜ	ꯕꯦꯁꯤꯟꯒꯤ ꯑꯦꯔꯤꯌꯥ, km²

ꯐꯤꯜꯗ	ꯃꯈꯜ	ꯑꯔꯦꯡꯕ
LEAD_AUTH	ꯇꯦꯛꯁꯇ	ꯂꯤꯗ ꯑꯣꯊꯣꯔꯤꯇꯤ (ꯁꯦꯛ 11.4.1)
PARTNERS	ꯇꯦꯛꯁꯇ	ꯄꯥꯔꯇꯅꯔꯁꯤꯡ, ꯌꯥꯃꯗ ꯀꯌꯥꯗ WRD ꯌꯥꯎꯕ
LINKS	ꯇꯦꯛꯁꯇ	ꯑꯇꯣꯞꯄ ꯕꯦꯁꯤꯟꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯀꯃꯣꯟꯒꯤ ꯆꯥꯀꯔꯤꯁꯤꯡ (ꯁꯦꯛ 11.3.2)
BSMP_STAT	ꯇꯦꯛꯁꯇ	ꯑꯃꯨꯛꯇ ꯂꯩꯇꯦ / ꯁꯦꯝꯂꯤ / ꯆꯠꯂꯤꯕ ꯌꯥꯕꯗꯣꯂꯦ / ꯑꯄꯗꯦꯠ ꯇꯧꯔꯦ
BSMP_DATE	ꯇꯥꯛꯂꯤ	ꯈꯔꯤꯊꯣꯛꯄ BSMP ꯑꯄꯗꯦꯠ ꯇꯧꯈꯤꯕ ꯇꯥꯛꯂꯤ
REVIEW_DUE	ꯇꯥꯛꯂꯤ	ꯀꯔꯝꯒꯤ ꯔꯤꯚꯤꯎꯒꯤ ꯇꯥꯛꯂꯤ (ꯁꯦꯛ 11.11.2)

ꯑꯍꯥꯞꯄ 11C — ꯀꯪꯂꯨꯞꯀꯤ ꯕꯦꯁꯤꯟ ꯃꯈꯥꯒꯤ ꯆꯍꯤ-ꯆꯥꯎ ꯁꯣꯀꯍꯟꯕ

ꯂꯥꯏꯔꯤꯛ 11-ꯒꯤ ꯁꯦꯛ 11.8.2-ꯗ ꯃꯇꯦꯡ ꯄꯥꯡꯅ꯫

ꯂꯥꯏ ꯂꯥꯏꯆꯠ. ꯑꯍꯥꯞꯄ ꯑꯁꯤꯗ ꯀꯪꯂꯨꯞꯀꯤ ꯂꯧꯔꯤꯁꯤꯡꯒꯤ ꯃꯇꯨꯡ ꯏꯟꯅꯕ ꯕꯦꯁꯤꯟ ꯃꯈꯥꯒꯤ ꯁꯤꯡꯒꯤꯗꯃꯛ, ꯂꯧꯁꯤꯟꯕ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯊꯣꯛꯂꯤꯕꯒꯤꯗꯃꯛ (contents), ꯁꯦꯛ 11.8.2-ꯒꯤ ꯃꯇꯦꯡ ꯌꯥꯕꯥ ꯆꯍꯤꯒꯤ ꯈꯣꯡꯕ ꯆꯥꯎ (expected annual damage) ꯁꯥꯍꯟꯅꯕ ꯇꯧꯕ ꯆꯍꯤ-ꯆꯥꯎ ꯁꯣꯀꯍꯟꯕ ꯌꯥꯎꯕꯒꯦ꯫ ꯀꯝꯒꯤꯗꯃꯛ ꯕꯦꯁꯤꯟ-ꯃꯈꯥꯒꯤ ꯁꯦꯝꯕꯤꯔꯕꯥꯝꯗ ꯑꯃꯁꯨꯡ ꯕꯦꯁꯤꯟ ꯂꯧꯊꯣꯛꯄ ꯆꯥꯗ (Census ꯗꯦꯇꯥꯁꯤꯡ ꯇꯦꯕꯂꯁꯤꯡ, ꯄꯔꯤꯄꯔꯤꯇꯤ-ꯇꯦꯛꯁꯇꯀꯤ ꯔꯥꯀꯔꯆꯁꯤꯡ, ꯂꯤꯗ ꯑꯣꯊꯣꯔꯤꯇꯤꯒꯤ GIS), 28–31 ꯃꯦ 2024 (ꯁꯥꯏꯀꯂꯣꯟ ꯔꯦꯃꯜ (Cyclone Remal): 29 ꯃꯦꯗ ꯃꯤꯅꯨꯊꯣꯡꯗ (Minuthong) ꯅꯣꯡꯖꯦꯜ ꯇꯨꯔꯦꯜ ꯀꯂꯤꯒꯤ ꯗꯥꯟꯖꯔ ꯂꯦꯚꯦꯜꯗ ꯇꯥꯡꯂ 788.400 m-ꯗꯒꯤ ꯌꯥꯎꯕ ꯑꯃꯁꯨꯡ ꯇꯤꯇꯣꯡꯗ 782.250 m-ꯗ, ꯑꯃꯁꯨꯡ ꯅꯍꯟꯅꯗ ꯀꯪꯂꯨꯞ ꯇꯨꯔꯦꯜ 768.640 m-ꯗ; ꯄꯥꯔꯦ (embankment) ꯁꯣꯛꯄ 18; ꯀꯤꯂꯤꯂꯣꯃꯤꯇꯔꯒꯤ 30 ꯀꯥꯒꯤ ꯀꯂꯤꯡ ꯀꯨꯡꯡ ꯅꯔꯦꯜ ꯀꯤ 1,88,143 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 24,265 ꯂꯥꯛꯈꯤ, ꯆꯥꯎꯔꯛꯄ ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯁꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯇ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ (Relief and Disaster Management Department)-ꯒꯤ 31 ꯃꯦꯒꯤ ꯔꯤꯄꯣꯔꯠ ꯀꯨꯡꯡ ꯅꯔꯦꯜ ꯀꯤ 1,26,950, ꯂꯩꯃꯥꯏ 255 ꯑꯃꯁꯨꯡ ꯌꯨꯝ 16,364, ꯄꯨꯝꯅꯃꯛ ꯄꯥꯡꯊꯣꯛꯇꯨꯅ ꯐꯖꯗꯣꯛꯄꯤꯕ ꯀꯨꯡꯡ ꯅꯔꯦꯜ; ꯅꯣꯡꯃꯥꯏ ꯑꯁꯤꯒꯤ IMD-ꯒꯤ ꯂꯦꯡ ꯌꯥꯕ ꯐꯖꯅꯤꯗꯦ), 30 ꯃꯦ–ꯖꯨꯟ 2025 (30–31 ꯃꯦꯗ ꯁꯔꯨꯛꯄꯒꯤ ꯄꯨꯡ 24-ꯗ 123 mm ꯑꯃꯁꯨꯡ ꯄꯨꯡ 72-ꯗ 175 mm ꯌꯥꯔꯕ ꯀꯨꯡꯡꯗ ꯂꯤꯡꯇꯥ, ꯍꯩꯡꯒꯥꯡ (Heingang), ꯕꯁꯤꯈꯣꯡ (Bashikhong) ꯑꯃꯁꯨꯡ ꯅ꯭ꯌꯨ ꯆꯦꯀꯣꯟꯗ (New Checkon) ꯅꯣꯡꯖꯦꯜ ꯇꯨꯔꯦꯜ ꯑꯃꯁꯨꯡ ꯀꯦꯖꯀ ꯀꯔꯤꯗ ꯆꯀꯁꯜ ꯇꯨꯔꯦꯜ ꯁꯣꯛꯅꯤ, ꯄꯥꯡꯊꯣꯛ ꯐꯖꯗꯣꯛꯄꯤꯕ ꯀꯨꯡꯡ ꯅꯔꯦꯜ; ꯅꯣꯡꯖꯦꯜꯒꯤ IMD-ꯒꯤ ꯂꯦꯡ ꯌꯥꯕ ꯐꯖꯅꯤꯗꯦ), ꯂꯥꯏꯇꯥꯀꯕꯔ 2025 (15 ꯂꯥꯏꯇꯥꯀꯕꯔꯗ ꯇꯤꯇꯣꯡꯗ ꯅꯣꯡꯖꯦꯜ ꯇꯨꯔꯦꯜ 783.250 m-ꯗ ꯑꯃꯁꯨꯡ ꯅꯍꯟꯅꯗ ꯀꯪꯂꯨꯞ ꯇꯨꯔꯦꯜ 770.05 m-ꯗ, ꯑꯆꯤꯀꯃ ꯀꯥꯔꯤꯒꯤ ꯐꯖꯗꯣꯛꯄꯤꯕ ꯗꯥꯟꯖꯔ ꯂꯦꯚꯦꯜꯗ ꯆꯥꯡꯂꯍꯟꯕꯗꯒꯤ ꯌꯥꯎꯕ, ꯑꯃꯁꯨꯡ ꯁꯦꯂꯇꯔꯤ ꯑꯋꯥꯡ ꯂꯩꯀꯥꯏꯗ (Kshetri Awang Leikai) ꯅꯔꯤꯜ ꯇꯨꯔꯦꯜ (Iril) ꯁꯣꯛꯅꯤ, ꯄꯥꯡꯊꯣꯛ ꯐꯖꯗꯣꯛꯄꯤꯕ ꯀꯨꯡꯡ ꯅꯔꯦꯜ; ꯂꯦꯡ ꯌꯥꯕꯒꯤ ꯒꯥꯏꯖ ꯐꯖꯅꯤꯗꯦ), ꯖꯨꯂꯥꯏꯒꯤ ꯑꯔꯣꯏꯕ ꯀꯨꯝꯃ–ꯑꯒꯁ꯭ꯠ 2015 (23–27 ꯖꯨꯂꯥꯏꯗ ꯅꯣꯡꯖꯦꯜ ꯌꯥꯝꯂꯕ ꯂꯦꯡꯀꯥꯜꯗꯒꯤ 46% ꯍꯦꯟꯕ ꯂꯦꯡ ꯌꯥꯔꯤ, 1 ꯑꯒꯁ꯭ꯠ ꯀꯄꯔꯤꯗꯥꯜ ꯔꯤꯂꯤꯐꯑꯣꯌꯥꯔ 876 m-ꯗ ꯂꯩꯔꯤ ꯑꯃꯁꯨꯡ ꯂꯧꯁꯤꯟꯕ ꯔꯥꯒꯥꯂꯨ ꯑꯂꯥꯎꯔꯤꯂꯦ ꯀꯨꯡꯡ ꯅꯔꯦꯜ 3 ꯑꯒꯁ꯭ꯠ ꯐꯥꯎꯕ ꯀꯤ ꯌꯥꯝ 5 ꯂꯩꯕ ꯀꯥꯔꯤꯒꯤ ꯀꯦꯖꯀꯒꯤ ꯊꯥꯗꯣꯛꯅꯤ, ꯄꯥꯡꯊꯣꯛ ꯐꯖꯗꯣꯛꯄꯤꯕ ꯀꯨꯡꯡ ꯅꯔꯦꯜ; ꯒꯦꯖꯒꯤ ꯒꯥꯏꯖ ꯐꯖꯅꯤꯗꯦ) ꯑꯃꯁꯨꯡ ꯖꯨꯂꯥꯏ–ꯑꯒꯁ꯭ꯠ 1989 (28 ꯖꯨꯂꯥꯏꯗꯒꯤ 1 ꯑꯒꯁ꯭ꯠ ꯐꯥꯎꯕ ꯇꯥꯛꯂꯤ ꯈꯣꯡꯁꯤꯡꯒꯤ ꯂꯦꯡ ꯌꯥꯔꯕ ꯀꯨꯡꯡꯗ, 30 ꯖꯨꯂꯥꯏꯗ ꯅꯣꯡꯖꯦꯜ (ꯇꯨꯂꯤꯍꯥꯜ) (Imphal (Tulihal))-ꯗ 158.6 mm, ꯂꯧꯁꯥꯡ ꯑꯍꯦꯟꯒꯤ ꯄꯨꯡ 24-ꯒꯤ ꯔꯥꯁꯤꯔꯗ, ꯊ ꯑꯍꯦꯟꯗ ꯅꯣꯡꯖꯦꯜꯗ 461.9 mm ꯑꯃꯁꯨꯡ ꯁꯥꯅꯞꯊꯣꯛꯄꯤꯗ 617.6 mm, ꯄꯥꯔꯦ ꯁꯣꯛꯄ 40 ꯑꯃꯁꯨꯡ ꯂꯩꯃꯥꯏ 361-ꯗ ꯅꯣꯡꯖꯦꯜ ꯅꯌꯥꯏꯕ ꯂꯣꯛꯅꯤ, IMD ꯑꯃꯁꯨꯡ MASTEC)-ꯒꯤ ꯅꯣꯡꯖꯦꯜ ꯅꯌꯥꯏꯕꯁꯤꯡꯒꯤ ꯆꯥꯎ ꯂꯦꯒꯥꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯁꯦꯟꯊꯣꯛꯁꯤꯡ (ꯔꯥꯒꯥꯂꯨ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇ ꯑꯃꯁꯨꯡ MSDMA-ꯒꯤ ꯆꯥꯎ ꯑꯂꯥꯎꯃꯦꯟꯇꯁꯤꯡ, ꯅꯦꯃꯂꯔꯁꯤꯡ), ꯑꯃꯁꯨꯡ ꯔꯤꯄꯣꯔꯇꯃꯦꯟꯇ ꯁꯥꯎꯕꯁꯤꯡ (ꯄꯥꯖꯤꯜ ꯌꯥꯔꯕ ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯇꯀꯤ ꯔꯥꯎꯕꯁꯤꯡꯒꯤ ꯂꯥꯏꯔꯤꯀꯁꯤꯡ) ꯀꯟꯊꯣ ꯇꯥꯅ꯫ ꯀꯝꯒꯤ ꯐꯖꯗꯣꯛꯄꯥꯎꯔꯤꯕꯦꯡꯕ, BSMP ꯌꯥꯕꯗꯀꯄꯥ ꯀꯝꯒꯦ ꯂꯤꯇꯤꯁꯦꯡꯕ ꯆꯍꯤ-ꯆꯥꯎ ꯔꯤꯇꯥꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯥꯔꯤꯒꯤ ꯈꯔꯄꯖ ꯇꯥꯄꯗꯇꯕꯤ, ꯑꯃꯁꯨꯡ ꯑꯇꯣꯞꯄ ꯌꯥꯕꯗꯀꯄꯁꯤꯡꯗꯃꯛ ꯅꯣꯡꯖꯦꯜ ꯅꯌꯥꯏꯕꯗꯦ ꯂꯥꯏꯄꯥ ꯕꯦꯁꯤꯟꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯀꯂꯤꯡ ꯈꯦꯊꯔꯁꯣꯛꯄ ꯑꯍꯥ ꯔꯤꯄꯣꯔꯠ ꯇꯧꯒꯗꯕꯤ (ꯁꯦꯛ 11.8.2), ꯀꯝꯒꯤ ꯁꯔꯨꯛꯁꯤꯡꯗ ꯀꯟꯅ ꯄꯥꯡꯂꯦ꯫

ꯇꯦꯕꯜ 11C.1 — ꯆꯍꯤ-ꯆꯥꯎ ꯁꯔꯨꯛ (ꯂꯥꯑꯣꯡꯕ, ꯕꯦꯁꯤꯟ ꯃꯈꯜ ꯌꯥꯕꯗꯀꯄꯁꯤꯡꯗꯃꯛ ꯇꯦꯕꯜ ꯑꯃꯛ)

ꯏꯆꯦꯜ ꯆꯥꯒꯥꯔꯛꯄꯒꯤ ꯋꯥꯡꯕ ꯏꯁꯤꯡꯒꯤ ꯂꯥꯊꯣ (m)	0	0.25	0.5	1.0	1.5	2.0	3.0
ꯂꯩꯃꯥꯏꯁꯥꯒꯤ ꯀꯥꯍꯥꯢ (ꯃꯤꯍꯥꯢꯁꯤꯡꯒꯤ ꯆꯥꯡ %)	_____	_____	_____	_____	_____	_____	_____
ꯄꯣꯠꯂꯝꯁꯤꯡꯒꯤ ꯀꯥꯍꯥꯢ (ꯄꯣꯠꯂꯝꯁꯤꯡꯒꯤ ꯃꯃꯜꯒꯤ %)	_____	_____	_____	_____	_____	_____	_____
ꯕꯤꯔꯀꯤꯡ ꯇꯥꯡ, ꯄꯣꯛꯐꯝ ꯑꯃꯁꯨꯡ ꯄꯣꯠꯂꯝꯁꯤꯡꯒꯤ ꯍꯧꯔꯤ	_____						

11C.1 ꯆꯍꯤꯒꯤ ꯀꯥꯍꯥꯢꯒꯤ ꯂꯦꯄꯈꯤꯕ

ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯊꯥꯖꯕ ꯀꯥꯍꯥꯢ (expected annual damage; EAD) ꯑꯁꯤ ꯂꯦꯞꯄꯒꯤ ꯈꯨꯗꯤꯡꯃꯛꯀꯤ ꯍꯥꯛ ꯑꯃꯥ AEP-ꯁꯤꯡꯒꯤ ꯀꯥꯍꯥꯢꯁꯤꯡꯗꯒꯤ ꯄꯥꯡꯊꯣꯛꯄ ꯑꯃꯅꯤ꯫ ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯑꯣꯏꯕꯗꯥ ꯃꯔꯨꯑꯣꯏꯕ P_1 > P_2 > …-ꯗ ꯀꯥꯍꯥꯢ D_1, D_2, … ꯂꯧꯕꯗꯥ, ꯁꯦꯛꯁꯟ 11.7.2-ꯒꯤ ꯃꯈꯥꯒꯤ ꯃꯈꯥꯗ 50%, 10%, 1% ꯑꯃꯁꯨꯡ 0.2% AEP-ꯒꯤ ꯂꯦꯄꯈꯤꯕ ꯂꯦꯄꯈꯤꯕꯅꯤ:

> EAD ≈ Σ ½ × (D_i + D_(i+1)) × (P_i − P_(i+1))

ꯂꯦꯞꯄꯤꯗꯥ (c) ꯑꯃꯁꯨꯡ ꯂꯦꯞꯄꯤꯗꯥ (d)-ꯒꯤ ꯃꯇꯨꯡꯗ, ꯆꯥꯡꯗꯣꯛ ꯑꯍꯥꯅꯕꯁꯤꯡꯒꯤ ꯃꯇꯨꯡꯗ EAD ꯄꯥꯡꯊꯣꯛꯄ ꯑꯁꯤ ꯍꯥꯌꯕ ꯈꯨꯗꯤꯡ ꯊꯕꯛꯁꯤꯡ ꯃꯥꯂꯦꯝ ꯌꯥꯕ ꯂꯦꯄꯈꯤꯕ ꯃꯤꯁꯤꯡ ꯄꯥꯡꯊꯣꯛꯄꯒꯤ ꯃꯌꯥꯝꯕꯅꯤ (ꯁꯦꯛꯁꯟ 11.8.4(e))꯫ BSMP-ꯅ 0.2% AEP-ꯒꯤ ꯃꯇꯨꯡꯗ ꯑꯃꯁꯨꯡ 50% AEP-ꯒꯤ ꯃꯍꯩ ꯆꯦꯟ ꯀꯥꯍꯥꯢꯁꯤꯡ ꯃꯃꯥꯡꯗ ꯆꯥꯡꯗꯣꯛ ꯄꯤꯔꯕ ꯌꯥꯃꯗꯕꯅꯤ꯫

ꯑꯄꯥꯏꯕ 11D — BSMP-ꯒꯤ ꯗꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯦꯗꯥꯔ ꯏꯗꯥꯝꯃꯔꯒꯤ ꯂꯨꯆꯤꯡꯕ

ꯁꯔꯨꯛ 11-ꯒꯤ ꯁꯦꯛꯁꯟ 11.5.1 ꯑꯃꯁꯨꯡ 11.10, ꯑꯃꯁꯨꯡ ꯁꯔꯨꯛ 10-ꯒꯤ ꯁꯦꯛꯁꯟ 10.17-ꯗ ꯌꯦꯡꯎ ꯍꯥꯏꯕꯅꯤ꯫

11D.1 ꯃꯄꯤ ꯏꯗꯥꯝꯃꯔꯒꯤ, ꯑꯃꯁꯨꯡ ꯃꯗꯥꯟꯗ

ꯇꯦꯕꯜ 11D.1 — ꯏꯗꯥꯝꯗꯃꯗꯕ ꯑꯅꯩꯍꯥꯠꯂꯤꯡ

ꯑꯅꯩꯍꯥꯠ	ꯏꯄꯥꯍꯦ	ꯗꯄꯤꯏꯦꯌ (ꯁꯦꯛꯁꯟ 11.10.1)	ꯑꯥꯔꯄꯥꯒꯥꯔꯗ (ꯁꯦꯛꯁꯟ 11.10.2)
ꯆꯒꯥꯔ-ꯑꯏ-ꯂꯄꯒꯂ ꯑꯂꯥꯂꯍꯥꯢꯦ ꯑꯃꯁꯨꯡ ꯑꯔꯂꯦꯂꯤꯡꯒꯤ ꯆꯔꯆꯅ BSMP ꯄꯤꯔꯦꯄ	ꯊꯤꯕ ꯔꯤꯕ PDF	ꯌꯥꯔ	ꯌꯥꯔ, ꯏꯅꯆꯥꯔ
ꯅꯂꯤꯡ ꯅꯔꯤꯡꯒꯤ ꯌꯆꯄꯗ ꯍꯥꯔꯂꯤꯡ: ꯁꯦꯛꯁꯟ 11.8.4(a)-ꯒꯤ AEP ꯑꯃꯁꯨꯡ ꯂꯤꯆꯄꯤꯑ ꯈꯨꯗꯤꯡꯃꯛ ꯑꯥꯃꯂꯄꯥꯦ, ꯗꯥꯔꯊ, ꯒꯥꯆꯂꯤꯌꯤ, ꯌꯆꯄꯗ ꯁꯦꯛꯁꯟ	GeoTIFF ꯄꯂꯄꯂꯤꯡ; ꯑꯥꯃꯂꯄꯥꯦꯂꯤꯡꯒ GeoPackage ꯔꯆꯤꯒꯦ ꯑꯅꯆ	ꯌꯥꯔ	ꯌꯥꯔ
ꯃꯥꯔꯤꯌꯥꯒ ꯅꯍꯔꯄꯒꯍꯥꯦ ꯔꯄꯥꯒꯄꯍ	CSV ꯑꯃꯁꯨꯡ PDF	ꯗꯄꯤꯏꯦ	ꯌꯥꯔ
ꯕꯥꯂꯦ ꯄꯤꯆꯤꯆ ꯄꯥꯦꯂꯤꯡ, ꯄꯥꯃꯍꯥꯦꯗ ꯌꯄꯕ ꯅꯂꯤꯡ ꯅꯔꯤꯡꯗ ꯂꯥꯦꯂꯤꯌꯤꯒ ꯑꯅꯕ ꯃꯥꯔꯍꯥꯦꯂꯤꯡ, ꯄꯤꯆꯆꯥꯒ ꯏꯥꯂꯤꯆꯤꯌꯤꯒꯤ ꯂꯅꯦꯂꯤꯡ, ꯏꯤ-ꯅꯦ-ꯆꯤꯗ ꯅꯆꯤꯦ ꯄꯥꯦ	GeoPackage ꯑꯃꯁꯨꯡ CSV	ꯌꯥꯔ	ꯌꯥꯔ

ꯑꯥꯏꯇꯦꯝ	ꯐꯣꯔꯃꯦꯠ	ꯁꯦꯝꯕꯤꯕ (ꯁꯦꯛꯁꯟ 11.10.1)	ꯄꯥꯕꯤꯕꯥ (ꯁꯦꯛꯁꯟ 11.10.2)
ꯇꯦꯕꯜ 11.1-ꯗꯥ ꯂꯦꯌꯔ (ꯇꯥꯔꯦꯝ, ꯐꯤꯕꯝꯁꯤꯡ (drain), ꯅꯁꯤꯡ ꯆꯦꯟꯊꯔꯛꯁꯤꯡ, ꯁꯦꯝꯕ-ꯁꯥꯍꯤꯌꯔꯁꯤꯡ, ꯄꯥꯠ, ꯇꯥꯍ, ꯄꯠ (pat; lake or wetland), ꯄꯨꯈ꯭ꯔꯤ (pukhri; pond) ꯑꯃꯁꯨꯡ ꯃꯤꯇꯃꯒꯤ ꯇꯥꯀꯄꯁꯤꯡ, ꯄꯦꯔꯤ (bund) ꯗꯥꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯊꯣꯛꯁꯤꯡ ꯁꯨꯕꯁꯤꯡ, ꯆꯦꯛ ꯑꯃꯁꯨꯡ ꯂꯥꯟꯃꯤꯁꯤꯡꯗꯥ ꯄꯤꯕꯤꯔꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯕꯤꯕ ꯁꯨꯃꯍꯥꯠꯄꯁꯤꯡ, ꯆꯦꯡ ꯂꯧꯕ ꯑꯃꯁꯨꯡ ꯇꯥꯀꯄꯁꯤꯡ, ꯅꯁꯤꯡ ꯅꯤꯡꯊꯤ ꯑꯣꯏꯔꯦꯡ, ꯇꯦꯡꯕ ꯂꯝ, ꯆꯨꯝꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯆꯨꯝꯅꯗꯥ ꯍꯦꯗꯥ ꯅꯁꯤꯡ, ꯁꯤꯕꯤꯗꯥ (sewer) ꯍꯦꯛ)	GeoTIFF (ꯇꯥꯔꯦꯝ); GeoPackage (ꯐꯤꯆꯔꯁꯤꯡ); CSV (ꯇꯥꯕꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯦꯅꯊ ꯁꯤꯔꯤꯖ)	ꯁꯊꯍꯦꯛ	ꯍꯣꯌ, ꯁꯥꯍꯂꯔꯤꯇꯤ-ꯁꯥꯌꯁꯤꯇꯤꯒ ꯑꯁꯥꯍꯝꯕꯤ ꯍꯄꯨꯡ ꯐꯕ ꯌꯐꯊꯁꯤꯡ ꯇꯍꯇꯕꯥꯛ
ꯍꯦꯟꯗ ꯐꯅꯗꯁꯤꯡ: ꯇꯥꯇꯤꯒ, ꯃꯌ ꯇꯦꯕ ꯌꯦꯕ, ꯕꯦꯌꯥꯝꯃꯤ-ꯃꯌꯥꯝꯂꯌ, ꯆꯦꯡ ꯂꯧꯕ ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯕꯦꯜ ꯐꯅꯗ ꯄꯨꯊꯣꯛꯄꯗ, ꯁꯦꯐꯍꯔꯥꯌꯕꯗꯥ ꯍꯦꯛꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯒꯕꯁꯌ, ꯑꯃꯁꯨꯡ ꯃꯌ ꯆꯦꯗ ꯑꯍꯗ ꯆꯦꯔꯇꯦ	ꯇꯥꯇꯤꯒ ꯐꯣꯔꯃꯦꯠ, ꯆꯤꯄ ꯇꯦꯃꯕ	ꯇꯍꯇꯥ	ꯍꯣꯌ
ꯃꯥꯆꯤꯟꯕꯥꯂꯌ ꯑꯃꯁꯨꯡ ꯒꯥꯆꯤꯡꯂꯌ ꯃꯤꯄꯦꯃꯍ	ꯀꯤꯕ ꯌꯦꯕ PDF	ꯍꯣꯌ	ꯍꯣꯌ
ꯃꯍꯥꯌꯍꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯤꯊꯨꯛꯁꯤꯡꯗꯥ ꯃꯌꯁꯅꯇꯥꯂꯌ ꯆꯦꯗ	PDF ꯇꯍꯃꯗ CSV	—	ꯍꯣꯌ

11D.2 ꯐꯣꯔꯃꯦꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯃꯥꯐꯃꯥꯌꯁꯤꯡ

- (a) ꯔꯦꯁ꯭ꯇꯔ ꯂꯦꯌꯔ ꯑꯁꯤ GeoTIFF ꯑꯣꯏꯅꯥ ꯊꯝꯒꯗꯕꯅꯤ, ꯍꯥꯌꯔꯕꯥ ꯐꯕꯇꯤ ꯃꯆꯦꯟꯕ-ꯑꯣꯄꯇꯤꯃꯥꯏꯖ ꯇꯧꯔꯕ, ꯁꯥꯅ ꯁꯦꯟꯊ ꯇꯧꯔꯤꯕꯥ꯫ ꯒꯥꯔꯇꯧꯃ ꯂꯦꯌꯔ ꯑꯣꯏ GeoPackage ꯑꯣꯏꯅꯥ ꯊꯝꯒꯗꯕꯅꯤ꯫ ꯇꯦꯕꯂꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯇꯥꯏꯝ ꯁꯤꯔꯤꯖꯁꯤꯡ ꯑꯣꯏ UTF-8-ꯗ CSV ꯑꯣꯏꯅꯥ ꯊꯝꯒꯗꯕꯅꯤ, ꯍꯥꯗꯔ ꯃꯦ ꯑꯃꯁꯨꯡ ꯃꯄꯨꯡꯐꯥꯕ ꯍꯦꯟꯗꯁꯤꯡꯗ ꯌꯨꯅꯤꯠꯁꯤꯡꯒ ꯆꯦꯔꯇꯦ꯫
- (b) ꯍꯣꯔꯥꯏꯖꯣꯟꯇꯥꯜ ꯑꯃꯁꯨꯡ ꯚꯔꯇꯤꯀꯜ ꯃꯥꯐꯃꯥꯌꯁꯤꯡ ꯑꯣꯏ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 10B.1(b) ꯑꯃꯁꯨꯡ (c)-ꯗ ꯄꯤꯕ ꯍꯧꯖꯤꯛ ꯅꯝꯕ ꯑꯣꯏꯅꯥ ꯊꯝꯒꯗꯕꯅꯤ꯫ ꯇꯦꯁ꯭ꯠꯁꯤꯡ ꯌꯦꯛꯕ ꯂꯦꯌꯔ ꯁꯥꯍ ꯌꯨꯅꯤꯍꯦꯡꯇ ꯚꯔꯇꯤꯀꯜ ꯂꯦꯚꯦꯜ (datum) ꯑꯃꯁꯨꯡ ꯍꯣꯏꯗꯥ ꯁꯝꯕꯜ 5-ꯗꯥ — ꯇꯦꯡꯄꯥꯡꯃꯤ ꯌꯨꯃꯁꯤꯡꯗ ꯑꯃꯁꯨꯡ ꯅꯊꯥꯏ ꯕꯦꯔꯦꯖ (Ithai barrage) ꯆꯤꯕ WRD-ꯗꯥ ꯗꯥꯕꯁꯤꯡꯗꯥ ꯌꯨꯃꯍ ꯂꯦꯚꯦꯂꯁꯤꯡ (ꯄꯥꯛꯇꯥꯍꯁꯤꯡꯗ ꯍꯤꯇꯃꯗ ꯐꯣꯔꯃꯦꯠꯅꯤꯕ ꯇꯦꯁ꯭ꯠꯁꯤꯡ, ꯍꯤꯌ ꯁꯤ ꯇꯦꯁ꯭ꯠꯗꯥꯒꯤ ꯌꯦꯡꯕꯇꯤ ꯍꯣꯌꯔꯦ ꯅꯤꯌꯇꯃꯤ, ꯂꯦꯚꯦꯜ ꯇꯦꯛꯅꯤꯀꯜ [TBC]), ꯆꯣꯇꯦꯕꯦꯛꯔ (Chotebekra) ꯕꯦꯛꯔ ꯌꯨꯃꯍꯗ ꯆꯤꯕ CWC-ꯗꯥ ꯇꯦꯁ꯭ꯠ-ꯍꯥꯏꯗ꯭ꯔꯣꯃꯤꯡ ꯁꯦꯟꯍ, NHPC ꯑꯃꯁꯨꯡ CEA-ꯗꯥ ꯆꯦꯛꯇꯦꯛꯃꯤ ꯇꯦꯁ꯭ꯠꯁꯤꯡ, ꯂꯣꯀꯇꯥꯛ (ꯍꯄꯤꯂꯥꯛ) ꯂꯩꯊꯗꯥ ꯃꯤꯇꯃꯒꯤꯌꯃ ꯇꯦꯁ꯭ꯠꯁꯤꯡ, WRD-ꯗꯥ ꯄꯦꯔꯤ (bund) ꯃꯥꯐꯝꯁꯤꯡ, ꯗꯥꯍ ꯁꯤꯅꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯥꯍ ꯀꯤꯡꯕ ꯇꯦꯁ꯭ꯠꯁꯤꯡ, ꯑꯃꯁꯨꯡ ꯗꯥꯇ ꯆꯤꯕ ꯌꯨꯃꯍꯁꯤꯡ, ꯈꯣꯡꯁꯤꯡ (khong), ꯄꯠꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡꯗ ꯁꯃꯒꯥ ꯇꯦꯃꯕ ꯅꯁꯤꯡ ꯅꯤꯡꯊꯤꯗꯥ ꯍꯦꯃꯥꯡꯁꯤꯡ — ꯍꯁꯤꯗ ꯍꯦꯛ ꯆꯤꯕ ꯑꯗꯨ ꯇꯧꯃꯒꯗꯕꯅꯤ꯫
- (c) ꯍꯥꯟꯁꯤꯡ ꯑꯣꯏ ꯅꯌꯗꯤꯔꯌ ꯁꯥꯌꯗꯃꯗ ꯇꯦꯅꯊꯗ ꯑꯣꯏꯅꯥꯗꯕꯅꯤ, ISO 8601 (yyyy-mm-ddThh:mm+05:30) ꯑꯣꯏꯅꯥ ꯅꯥꯗꯕꯅꯤ꯫ ꯌꯨꯅꯤꯠꯁꯤꯡ ꯑꯣꯏ SI ꯑꯣꯏꯅꯥꯗꯕꯅꯤ꯫
- (d) ꯐꯥꯏꯜꯗ ꯍꯥꯄ ꯐꯅꯗꯁꯤꯡꯗꯥ ꯍꯦꯛꯤꯡ `<basin>_<scenario>_<AEP>_<variable>.tif` ꯑꯣꯏꯅꯥꯗꯕꯅꯤ, ꯍꯐꯊ ꯑꯗꯨꯗ scenario ꯑꯣꯏ ꯁꯦꯛꯁꯟ 11.7.4-ꯗꯥ a-ꯗꯒꯤ e ꯐꯥꯎꯕꯅꯤ, AEP ꯑꯣꯏ 50, 10, 1 ꯇꯍꯃꯗ 0p2 ꯑꯣꯏꯅꯥ ꯅꯥꯗꯤ, ꯑꯃꯁꯨꯡ variable ꯑꯣꯏ depth, velocity, hazard ꯇꯍꯃꯗ extent-ꯇꯤ; ꯌꯨꯗꯍ ꯑꯣꯏꯅꯥ `nambul_d_1_depth.tif`꯫
- (e) ꯅꯁꯤꯡ ꯆꯦꯐꯊꯗꯥ ꯂꯥꯏꯔꯤꯕ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 7A-ꯗꯥ ꯐꯤꯜꯗꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯕꯅꯤ꯫ ꯐꯥꯁꯤꯖꯤꯡ ꯑꯃꯁꯨꯡ ꯑꯣꯏꯍꯐꯦꯟꯗꯥ ꯂꯥꯏꯔꯤꯕ ꯑꯦꯄꯦꯟꯗꯤꯛꯁ 10B-ꯗꯥ ꯐꯤꯜꯗꯁꯤꯡ ꯁꯤꯖꯤꯟꯅꯗꯕꯅꯤ꯫

11D.3 ꯍꯦꯗꯔꯦꯝ

ꯐꯥꯏꯜ ꯗꯥꯇꯕ ꯂꯦꯌꯔ ꯁꯥꯍ ꯌꯨꯗꯤꯡꯍꯥꯟ ꯍꯦꯗꯥꯔꯁꯤꯡ ꯌꯦꯛꯗꯕꯅꯤ: ꯍꯦꯛꯤꯡ; ꯗꯤꯁꯃꯥꯔꯤꯄꯁꯦ; ꯆꯤꯗ ꯑꯣꯖꯦꯛꯇꯤꯚ; ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤ ꯑꯃꯁꯨꯡ ꯂꯣꯀꯦꯜ; ꯆꯦꯟꯅꯤꯕ ꯅꯍꯤꯡ; ꯑꯥꯏꯝꯃꯤꯁꯤ (DEM-ꯗꯤꯗꯍꯥ, ꯍꯥꯆꯥ ꯇꯦꯃꯕ ꯚꯔꯇꯤꯀꯦꯜ RMSE); ꯍꯣꯔꯥꯏꯖꯣꯟꯇꯥꯜ ꯑꯃꯁꯨꯡ ꯚꯔꯇꯤꯀꯜ ꯃꯥꯐꯃꯥꯌꯁꯤꯡ; ꯍꯦꯛ ꯆꯤꯕ ꯍꯐꯊꯗ ꯁꯤꯇꯦꯗꯤꯐ ꯑꯃꯁꯨꯡ AEP; BSMP ꯒꯃꯁꯌ; ꯆꯦꯅꯁꯥꯌꯁ; ꯑꯃꯁꯨꯡ ꯃꯌꯥꯝꯕꯍ ꯑꯍꯦ꯫

11D.4 ꯐꯈꯅꯤꯆꯕ ꯑꯃꯁꯨꯡ ꯊꯂꯁꯥꯅꯣꯟ ꯗꯣꯌꯦ

- (a) ꯀ꯭ꯂꯤꯔꯤꯀꯣꯟ ꯑꯣꯁꯣꯏꯁꯤꯡꯒꯤ ꯁꯣꯛꯄꯨꯂꯤꯔꯤ-ꯁꯣꯆꯁꯤꯔꯤꯒ ꯈꯊꯨꯡ ꯍꯦꯕ ꯌꯦꯍꯈꯁꯤꯡ, ꯈꯂꯈ ꯂꯣꯀꯥꯂꯗ ꯔꯧꯗꯨꯅꯦ ꯑꯃꯁꯨꯡ ꯍꯥꯡꯗꯥꯛꯄꯨꯅꯦ, ꯐꯈꯅꯤꯆꯕ ꯔꯦꯌ (ꯀ꯭ꯅꯥꯇ 10.17.3, 11.10.2)꯫ ꯌꯁꯤꯡ ꯌꯔꯦꯄꯒꯤ ꯄꯆꯦꯂꯗ ꯈꯣꯊꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯈꯥꯗꯣꯟ ꯑꯁꯤ ꯑꯗꯨꯕꯨ ꯍꯥꯡꯗꯥꯛꯀꯗꯕꯅꯤ; ꯁꯣꯆꯁꯤꯔꯤꯒ ꯑꯣꯔ꯭ꯂꯤꯕ꯭ꯄꯨꯏꯁꯤꯡ ꯌꯛꯔꯈꯛ ꯅꯧꯐꯥꯀꯌ꯫
- (b) ꯊꯂꯁꯥꯅꯣꯟ ꯗꯣꯌꯦ ꯍꯥꯡꯗꯥꯛꯅꯥꯌꯗꯕꯅꯤ (ꯀ꯭ꯅꯥꯇ 10.17.3)꯫ ꯈꯍꯈ ꯑꯗꯨꯗ ꯇꯧꯕ ꯈꯤꯁꯤꯡꯗꯒꯤ ꯌꯥꯈꯇꯤꯆꯌꯤꯕ ꯌꯁꯤꯡ ꯌꯔꯦꯄꯒꯤ ꯛꯣꯒꯤꯗꯣꯆꯁ ꯑꯁꯤ, ꯈꯤꯛꯥꯌ ꯑꯗꯨꯅꯦ ꯔꯦꯗ꯭ꯂ꯭ꯕꯗꯤ, ꯈꯈꯤꯡ ꯅꯏꯂꯒꯥ ꯀꯆꯌꯣꯛꯏꯀꯤ ꯈꯊꯨꯡ ꯍꯦꯕ ꯔꯦꯍꯈꯁꯤꯡ ꯔꯦꯄꯗꯅꯦ ꯍꯥꯡꯗꯥꯛꯀꯗꯕꯅꯤ꯫

11D.5 ꯅꯦꯌꯁꯣꯆꯁ, ꯒꯤꯄ꯭ꯔꯂ ꯑꯃꯁꯨꯡ ꯒꯂꯁꯆꯁꯤꯡ

- (a) ꯍꯥꯡꯗꯥꯛꯇꯕ ꯗꯣꯌꯦ ꯑꯃꯁꯨꯡ ꯈꯥꯗꯣꯟꯁꯤꯡ ꯑꯁꯤ Government Open Data Licence – India ꯅꯏꯂꯒꯦ ꯈꯗꯨꯒꯦ ꯈꯦꯆꯅꯕ ꯑꯥꯊꯆ ꯅꯦꯌꯁꯣꯆꯁ ꯑꯈꯒꯤ ꯈꯌꯔ ꯐꯗꯥꯛꯀꯗꯕꯅꯤ (ꯀ꯭ꯅꯥꯇ 10.17.4)꯫
- (b) ꯄꯆꯦꯂꯗ ꯈꯣꯊꯁꯤꯡ, ꯂꯤꯇꯅꯣꯟ ꯍꯣꯁꯤꯆꯤꯔꯤꯒꯤ ꯁꯦꯌꯏꯁꯤꯡ ꯑꯃꯁꯨꯡ CIP ꯑꯁꯤ ꯊꯕ꯭ꯅ꯭ꯤꯛ ꯈꯣꯊ ꯒꯤꯄ꯭ꯔꯂ ꯑꯈꯗꯨꯁ ꯄ꯭ꯏꯀꯗꯕꯅꯤ (ꯀ꯭ꯅꯥꯇ 11.10.2)꯫
- (c) ꯑꯣꯊꯂ꯭ꯒ ꯔꯧꯂꯕ BSMP ꯌ꯭ꯗꯤꯡꯈꯛꯔ ꯒꯂꯁꯆ ꯅꯍꯕꯂ ꯑꯃꯁꯨꯡ ꯅꯨꯈꯤꯏ ꯇꯧꯒꯗꯕꯅꯤ꯫ ꯈꯄ꯭ꯏ ꯁꯤꯆꯅꯕ ꯒꯂꯁꯆꯁꯤꯡ, ꯈꯄ꯭ꯏ ꯁꯤꯆꯅꯣ ꯄꯔꯦ ꯈꯦꯂꯛ ꯔꯧꯗꯨꯅꯦ, ꯍꯡꯕ ꯔꯦꯅꯦ ꯇꯧꯒꯗꯕꯅꯤ, ꯈꯂꯈ ꯑꯗꯨꯅꯦ ꯈꯌꯥꯔꯒꯤ ꯈꯌꯔ ꯑꯣꯊꯂ꯭ꯒ ꯔꯧꯌꯤꯕ ꯗꯤꯇꯌꯆꯁꯤꯡ ꯌꯣꯛ ꯔꯧꯕ ꯔꯦꯅꯕ꯫
- (d) ꯍꯥꯡꯗꯥꯛꯇꯕ ꯈꯥꯗꯣꯟ ꯊꯣꯀꯣꯇ ꯑꯁꯤꯅꯦ ꯔꯛꯇꯕ ꯁꯥꯍ꯭ꯏꯔꯣꯔꯂ ꯒꯂꯁꯆ ꯇꯧꯕ ꯐꯂꯗ ꯊꯦꯂꯔꯤ ꯑꯈꯕ꯭ ꯍꯥꯡꯗꯥꯛꯇꯕ ꯂꯤꯇꯒꯏꯁꯤꯡ ꯑꯗꯨꯈꯛ ꯄꯆꯅꯦ ꯁꯣꯈꯕ ꯔꯦꯄꯅꯒꯗꯕꯅꯤ꯫ ꯗꯤꯇꯌꯅꯂꯁꯤꯡꯅꯦ ꯕꯣꯁꯤꯆ ꯑꯗꯨꯗ ꯇꯧꯕ ꯂꯌꯏ ꯗꯤꯇꯌꯆꯁꯤꯡꯒꯤꯗꯤꯈꯛ ꯈꯁꯤꯒꯤ ꯕꯧꯆꯗꯂꯤ ꯀꯆꯗꯤꯁꯆꯁꯤꯡ ꯁꯤꯇꯤꯆꯅꯕ ꯔꯦꯌ (ꯀ꯭ꯅꯥꯇ 11.10-ꯒꯤ ꯁꯆꯗꯥꯛꯅꯦ ꯔꯛꯊꯦ)꯫

ꯐꯣꯔꯝ 11-1 — ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯏꯝꯞꯂꯤꯃꯦꯟꯇꯦꯁꯟ ꯔꯤꯄꯣꯔꯠ

ꯁꯔꯨꯛ 11-ꯒꯤ ꯀ꯭ꯂꯣꯖ 11.11.3-ꯗ, ꯁꯔꯨꯛ 4-ꯒꯤ ꯀ꯭ꯂꯣꯖ 4.5.6.3 ꯑꯃꯁꯨꯡ 4.13.4-ꯒꯥ ꯂꯣꯌꯅꯅ, ꯃꯇꯦꯡ ꯄꯥꯡꯅ॥

ꯗ꯭ꯔꯥꯐꯠ ꯐꯣꯔꯝ — ꯃꯂꯤꯄ꯭ꯔ ꯂꯣꯏꯒꯤ ꯅꯗꯤꯡ ꯅꯔꯝ ꯗꯤꯂꯅꯟ ꯃꯦꯃꯠꯦꯔ, ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯖꯟ 1.0. ꯑꯦꯞ꯭ꯔꯨꯚ ꯇꯧꯔꯕ BSMP ꯗꯥ ꯕꯦꯁꯤꯟ ꯏꯝꯞꯂꯤꯃꯦꯟꯇꯦꯁꯟ ꯂꯤꯗ ꯑꯦꯖꯦꯟꯁꯤꯅ ꯃꯦꯂꯨꯡꯒꯤ ꯃꯍꯧꯁ ꯏꯝꯞꯂꯤꯃꯦꯟꯇꯦꯁꯤ ꯃꯃꯥꯡꯗ, **31 ꯃꯥꯔꯆ**-ꯒꯤ ꯃꯇꯨꯡꯗ ꯐꯥꯏꯜ ꯇꯧꯒꯗꯕꯅꯤ (ꯀ꯭ꯂꯣꯖ 11.11.3)॥

ꯇꯦꯕꯜ 11F.1 — ꯐꯣꯔꯝ 11-1, ꯁꯦꯛꯁꯟ A: ꯕꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟ

No.	ꯐꯤꯜꯗ	ꯏꯟꯇ꯭ꯔꯤ
A1	ꯕꯦꯁꯤꯟ; ꯂꯤꯗ ꯑꯦꯖꯦꯟꯁꯤ; ꯄ꯭ꯔꯣꯖꯦꯛꯇꯁꯤꯡ	______
A2	BSMP ꯚꯔꯖꯟ ꯑꯃꯁꯨꯡ ꯑꯦꯞ꯭ꯔꯨꯚ ꯇꯧꯔꯕ ꯅꯨꯃꯤꯠ	______
A3	ꯔꯤꯄꯣꯔꯇꯤꯡ ꯆꯍꯤ (1 ꯑꯦꯞ꯭ꯔꯤꯂꯗꯒꯤ 31 ꯃꯥꯔꯆ ꯐꯥꯑꯣꯕ)	______
A4	ꯐꯥꯏꯜ ꯇꯧꯕ ꯅꯨꯃꯤꯠ (31 ꯃꯥꯔꯆꯒꯤ ꯃꯃꯥꯡꯗ) ꯑꯃꯁꯨꯡ ꯔꯦꯐ ꯑꯦꯛꯅꯣꯂꯦꯖ	______

ꯇꯦꯕꯜ 11F.2 — ꯐꯣꯔꯝ 11-1, ꯁꯦꯛꯁꯟ B: CIP-ꯒꯤ ꯄ꯭ꯔꯣꯒ꯭ꯔꯦꯁ

CIP ꯅꯝꯕꯔ	ꯃꯤꯡ	ꯂꯣꯀꯦꯁꯟ	CIP-ꯗ ꯊꯝꯕ ꯃꯃꯜ (₹)	ꯆꯍꯤ ꯑꯁꯤꯗ ꯁꯤꯖꯤꯟꯅꯕ (₹)	ꯍꯧꯖꯤꯛ ꯐꯥꯑꯕ ꯁꯤꯖꯤꯟꯅꯕ (₹)	ꯁ꯭ꯇꯦꯇꯁ	ꯂꯥꯏꯁꯤꯟꯅꯔꯤꯕ ꯑꯍꯥꯅꯕ ꯃꯇꯝ
______	______	______	______	______	______	______	______
______	______	______	______	______	______	______	______

ꯇꯦꯕꯜ 11F.3 — ꯐꯣꯔꯝ 11-1, ꯁꯦꯛꯁꯟ C: ꯗꯤ-ꯁꯤꯜꯇꯤꯡ ꯂꯦꯖꯔ (ꯀ꯭ꯂꯣꯖ 4.5.6.3(c) ꯑꯃꯁꯨꯡ 4.13.4)

ꯗꯤꯁꯤꯜꯇ ꯇꯧꯔꯕ ꯂꯧꯕꯨꯛꯀꯤ ꯄꯨꯈ꯭ꯔꯤ (tank)	ꯃꯍꯧꯁꯥꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯇꯧꯕ ꯃꯥꯡ (m³)	ꯂꯧꯊꯣꯛꯄ ꯃꯥꯡ (m³)	ꯐꯃꯂꯤꯕ ꯐꯤꯂꯤꯝ (₹)	ꯁꯤꯖꯤꯟꯅꯕ ꯐꯤꯂꯤꯝ (₹)	ꯐꯃꯂꯤꯕ ꯆꯍꯤꯒꯤ ꯃꯇꯨꯡꯗ ꯊꯝꯂꯕ ꯐꯤꯂꯤꯝ
______	______	______	______	______	______
ꯕꯦꯁꯤꯅꯒꯤ ꯄꯨꯔꯕ: ꯄꯤꯒꯗꯕ ꯑꯃꯁꯨꯡ ꯄꯤꯔꯕ ꯃꯥꯡ	______	______	______	______	______

ꯇꯦꯕꯜ 11F.4 — ꯐꯣꯔꯝ 11-1, ꯁꯦꯛꯁꯟ D: ꯄꯥꯡꯊꯣꯛꯈꯤꯕ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ (ꯀ꯭ꯂꯣꯖ 11.8.4(f))

No.	ꯊꯕꯛ	ꯄ꯭ꯂꯥꯟ ꯇꯧꯔꯕ	ꯇꯧꯔꯕ	ꯄꯥꯡꯊꯣꯛꯈꯤꯕ ꯆꯥꯡ
D1	ꯂꯝꯕꯦꯡꯁꯤꯡ (drain) ꯑꯃꯁꯨꯡ ꯂꯝꯂꯨꯞꯁꯤꯡꯒꯤ (canal) ꯁꯦꯡꯗꯣꯛꯄ (ꯀꯤꯂꯣꯃꯤꯇꯔ, km; ꯃꯥꯡ, m³)	______	______	______
D2	ꯄꯨꯈ꯭ꯔꯤ (tank, pukhri) ꯁꯦꯡꯗꯣꯛꯄ ꯑꯃꯁꯨꯡ ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯦꯃꯗꯣꯛꯄ (ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ, ꯃꯁꯤꯡ; ꯑꯃꯨꯛ ꯍꯟꯅ ꯁꯦꯃꯗꯣꯛꯂꯕ ꯃꯥꯡ, m³)	______	______	______
D3	ꯒꯦꯠ ꯇꯦꯛꯅꯤꯛ (ꯒꯦꯠꯁꯤꯡꯒꯤ ꯃꯁꯤꯡ)	______	______	______
D4	ꯄꯨꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯅꯒꯤ ꯁꯔꯨꯛꯀꯤ ꯇꯦꯛꯅꯤꯛ (ꯁ꯭ꯇꯦꯁꯟꯁꯤꯡꯒꯤ ꯃꯁꯤꯡ)	______	______	______
D5	ꯀꯁ꯭ꯇꯃꯔꯒꯤ ꯂꯥꯏꯔꯕ ꯄꯤꯊꯤꯜ ꯇꯧꯔꯕ ꯄꯨꯈ꯭ꯔꯤꯒꯤ (tank) ꯑꯦꯞꯔꯦꯇꯤꯡ ꯅꯨꯃꯤꯠ (ꯃꯁꯤꯡ)	______	______	______

No.	ꯑꯥꯏꯇꯦꯝ	ꯄ꯭ꯂꯣꯂꯦ ꯇꯧꯗꯕ	ꯇꯧꯗꯕ	ꯂꯣꯍꯍꯤꯅꯍꯤꯕ ꯅꯨꯈꯤꯠ
D6	ꯇꯣꯡꯁꯔꯤꯚꯅꯕ ꯈꯣꯅꯤꯁꯗꯤꯡ: ꯗꯦꯑ ꯒꯦꯂꯍꯤꯡ, ꯂꯦꯚꯦꯜ ꯍꯦꯑꯍꯗꯍꯤꯡ, ꯅꯍꯤꯡ ꯅꯁꯦꯂꯒꯤ ꯈꯦꯗꯑꯀꯤ ꯒꯣꯅꯑꯌꯍꯤꯡ (ꯀ꯭ꯂꯣꯖ 11.8.4(g))	______	______	______

ꯇꯦꯕꯜ 11F.5 — ꯐꯣꯔꯝ 11-1, ꯁꯦꯛꯁꯟ E: ꯂꯦꯚꯦꯜ ꯑꯣꯐ ꯁꯔꯚꯤꯁꯒꯥ ꯁꯦꯗꯑꯝꯅꯕ ꯅꯍꯤꯡ ꯅꯁꯦꯂ

ꯏꯚꯦꯑꯠ (ꯅꯨꯈꯤꯠꯍꯤꯡ)	ꯑꯤꯂꯅꯦ ꯑꯦꯃꯍꯍꯤꯡꯒꯣ ꯁꯦꯗꯑꯈꯂꯕ ꯂꯦꯡ ꯁ꯭ꯂꯕ (ꯀ꯭ꯂꯣꯖ 10.16.2(a))	ꯂꯦꯚꯦꯜ-ꯑꯣꯐ-ꯁꯔꯚꯤꯁꯀꯤ ꯑꯦꯂꯤꯈꯦꯑꯠ (ꯇꯦꯕꯜ 11.2)	ꯈꯐꯈ	ꯅ꯭ꯂꯅꯔꯤꯕꯗꯦ (ꯍꯣꯏ / ꯅꯠꯇꯦ)	ꯏꯚꯦꯑꯠ ꯗꯤꯃꯣꯗꯦꯠꯒꯤ ꯗꯦꯐꯗꯦꯑꯁ (ꯀ꯭ꯂꯣꯖ 10.16.2)
______	______	______	______	______	______

ꯇꯦꯕꯜ 11F.6 — ꯐꯣꯔꯝ 11-1, ꯁꯦꯛꯁꯟ F: ꯗꯤꯚꯤꯅꯒꯤ ꯇ꯭ꯗꯤꯒꯗꯍꯤꯡ ꯑꯈꯂ꯭ꯡ ꯍꯅꯦ-ꯑꯣꯐ

No.	ꯐꯤꯚꯑ	ꯅꯦꯇ꯭ꯗꯤ
F1	ꯆꯍꯤ ꯑꯍꯤꯑ ꯕꯦꯍꯤꯦ ꯑꯑ꯭ꯂꯑ 1% AEP-ꯒꯤ ꯑꯤꯂꯅꯦ ꯑꯦꯃꯍꯑꯒꯤ ꯍꯦꯑꯂꯕ ꯏꯚꯦꯑꯠ (ꯍꯣꯏ / ꯅꯠꯇꯦ)꯫ ꯍꯣꯏ ꯑꯣꯏꯔꯕꯗꯤ, ꯆꯍꯤ 2-ꯒꯤ ꯈꯂ꯭ꯡꯑ ꯗꯤꯚꯤꯅ ꯇꯣꯒꯑꯕꯂꯤ (ꯀ꯭ꯂꯣꯖ 11.11.2)	______
F2	ꯆꯍꯤ ꯑꯍꯤꯑ ꯑꯣꯅꯦꯒꯤ ꯂꯦꯑꯑ-ꯅ꯭ꯂꯂ ꯄ꯭ꯂꯂꯣꯦ ꯗꯤꯒꯣꯅꯂ ꯇꯣꯔꯤꯕꯗꯣ (ꯍꯣꯏ / ꯅꯠꯇꯦ) (ꯀ꯭ꯂꯣꯖ 11.11.2)	______
F3	ꯈꯉꯡꯒꯤ ꯆꯍꯤ 10-ꯒꯤ ꯗꯤꯚꯤꯅ ꯇꯣꯒꯑꯕ (ꯅꯨꯈꯤꯠ)	______
F4	ꯂꯤꯑ ꯑꯣꯉꯣꯗꯤꯇꯤꯒꯤ ꯑꯣꯐꯤꯍꯗ: ꯈꯈꯤꯡ, ꯑꯤꯂꯤꯒ꯭ꯅꯦꯍꯦ, ꯍꯅꯦ, ꯅꯨꯈꯤꯠ	______

ꯋꯥꯍꯩ ꯄꯔꯦꯡ (ꯏꯪꯂꯤꯁ – ꯃꯩꯇꯩꯂꯣꯟ)

ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤ ꯃꯩꯇꯩꯂꯣꯟ ꯑꯦꯗꯤꯁꯟꯗ ꯁꯤꯖꯤꯟꯅꯔꯤꯕ ꯇꯦꯛꯅꯤꯀꯦꯜ ꯋꯥꯍꯩꯁꯤꯡ ꯃꯈꯥꯗ ꯄꯤꯔꯤ꯫ (The Meeteilon forms used in the Manipuri edition of this Manual are given below.)

This glossary is the binding list for the Manipuri edition (Meeteilon written in Meetei Mayek, code `mni`) of the *Manipur Stormwater Design Manual*, Draft v1.0, prepared by NEER and **not adopted by any government or body**. It is the series' first Manipuri edition and its first in Meetei Mayek. The notes are in English for now, because every entry still needs a native speaker's review (see "Status" below); a reviewer may replace them with Meeteilon notes.

How a term is chosen. (1) An established Meeteilon word found in Sharma's *Learners' Manipuri-English Dictionary* (2006; online edition, DSAL) or in the Meetei Mayek pages of a Government of Manipur body is used in running text: pukhri ꯄꯨꯈ꯭ꯔꯤ, pat ꯄꯥꯠ, turel ꯇꯨꯔꯦꯜ, khong ꯈꯣꯡ, khongban ꯈꯣꯡꯕꯥꯟ, iram ꯏꯔꯝ, ithong ꯏꯊꯣꯡ, pan ꯄꯟ, phumdi ꯐꯨꯝꯗꯤ. (2) Where Meeteilon has no established technical word, the English term is **transliterated into Meetei Mayek and the Latin form follows in brackets at its first use in each chapter**, for example ꯗꯤꯇꯦꯟꯁꯟ (detention); this is how the Imphal Municipal Corporation and the Directorate of Information and Public Relations write their own names and services in Meetei Mayek (ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ; ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ, ꯁꯔꯇꯤꯐꯤꯀꯦꯠ, ꯐꯣꯔꯝ). (3) Names of bodies, Acts and plans are transliterated from their official English names in the English word order, with "and" as ꯑꯃꯁꯨꯡ, as the Directorate writes "ꯏꯟꯐꯣꯔꯃꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯄꯕ꯭ꯂꯤꯛ ꯔꯤꯂꯦꯁꯟꯁ ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ". Latin abbreviations (CWC, IMD, AEP, IMC, MAHUD, WRD …) stay in Latin letters. (4) Places, rivers and districts are written with their official English names transliterated; an alternative Meeteilon or historical name is never substituted for an official one.

Status and sources. [G] = seen in this form on an official Government of Manipur web page (imc.mn.gov.in, dipr.mn.gov.in; read 14 November 2026). [S n] = Sharma (2006), DSAL online edition, page n; DSAL's Meetei Mayek headwords were generated from its romanisation and only p. 117 was checked against the printed page, so a [S] form is a dictionary form, not a verified spelling. [W] = Manipuri Wikipedia (mni.wikipedia.org; community usage, read 14 November 2026; some pages there are machine-transliterated). [N] = chosen for this edition by NEER, **unverified**. No Meetei Mayek page of the Manipur Gazette, the Manipur Legislative Assembly, MAHUD, WRD or any other department was found, and no Meetei Mayek newspaper (Poknapham, Naharolgi Thoudang) was read. **Every entry, [G] included, needs review by a native speaker before the edition is used.**

Script rules used in every entry. Unicode NFC. Syllable-final consonants are written with the lonsum letters ꯛ ꯜ ꯝ ꯞ ꯟ ꯠ ꯡ (and ꯢ after a vowel sign for a final -i, as Sharma writes it); the apun iyek ◌꯭ (U+ABED) joins a consonant to the next one inside a cluster (ꯄꯨꯈ꯭ꯔꯤ, ꯁ꯭ꯇꯦꯠ, ꯄꯕ꯭ꯂꯤꯛ) and never ends a word. Western digits 0–9. The sentence ends with the cheikhei ꯫ (U+ABEB), written straight after the last word.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Stormwater	ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ	nonggi ising	"water of rain": nong "rain" [S 108], ising "water" [S 25] [N as a term]. Never sewage. Title word.
Stormwater drainage	ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯏꯔꯝ	nonggi ising iram	iram "drainage" [S 23].
Rain, rainfall	ꯅꯣꯡ / ꯅꯣꯡ ꯆꯨꯕ	nong / nong chuba	cu- "to rain" [S 69]. In technical text "rainfall" = ꯅꯣꯡ ꯆꯨꯕ; "design rainfall" ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ [N].

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Storm (a rain event)	ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛ	nong chubagi thoudok	[N]. Never a word for wind-storm; "design storm" = ꯗꯤꯖꯥꯏꯟ ꯁ꯭ꯇꯣꯔꯝ (design storm) at first use, then ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛ [N].
Cyclone	ꯁꯥꯏꯀꯂꯣꯟ	saiklon	[N]. Cyclone Remal → ꯁꯥꯏꯀꯂꯣꯟ ꯔꯦꯃꯥꯜ.
Drain (built drain)	ꯈꯣꯡꯕꯟ	khongban	"a ditch; a drainage" [S 55]. The edition's word for every drain; first use in each chapter ꯈꯣꯡꯕꯟ (drain).
Nala	ꯅꯥꯂꯥ	nala	"a drain; sewer" [S 103]. **Never alone**, because it also means a sewer; only inside a name the English writes (Naga Nullah) or with the English in brackets.
Drainage (the system, the act)	ꯏꯔꯝ	iram	"drainage" [S 23]. Drainage area ꯏꯔꯃꯒꯤ ꯂꯝ [N].
Sewer / sewage / sewerage	ꯁꯤꯋꯔ / ꯁꯤꯋꯦꯖ / ꯁꯤꯋꯔꯦꯖ	siwar / siwej / siwarej	[N] transliterations. Stormwater is never sewage. STP stays Latin: ꯁꯤꯋꯦꯖ ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ ꯄ꯭ꯂꯥꯟꯠ (STP).
Sullage	ꯌꯨꯃꯒꯤ ꯃꯣꯠꯄ ꯏꯁꯤꯡ	yumgi motpa ising	"dirty water of the house": mot- "to be dirty" [S 154] [N]; first use with (sullage).
Septic tank / soak pit	ꯁꯦꯞꯇꯤꯛ ꯇꯦꯡ꯭ꯛ / ꯁꯣꯛ ꯄꯤꯠ	septik tengk / sok pit	[N].
Interception and diversion (I&D)	ꯏꯟꯇꯔꯁꯦꯞꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯥꯏꯚꯔꯁꯟ (I&D)	intersepsan amasung daivarsan	[N].
Dry-weather flow (DWF)	ꯅꯣꯡ ꯆꯨꯗꯕ ꯃꯇꯝꯒꯤ ꯆꯦꯟꯕ (DWF)	nong chudaba matamgi chenba	[N].
River	ꯇꯨꯔꯦꯜ	turel	Sharma's headword is turen ꯇꯨꯔꯦꯟ with the variant turel [S 81]; ꯇꯨꯔꯦꯜ is the form of Manipuri Wikipedia (ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ) [W] and of the English text ("turel"). Ends with the lonsum ꯜ (U+ABDC).
Stream	ꯈꯣꯡ	khong	"a stream" [S 54]; the same word means "a mine".
Canal / irrigation channel	ꯈꯣꯡꯖꯥꯎ / ꯂꯧꯈꯣꯡ	khongjao / loukhong	"a large canal or stream" [S 54]; "irrigation canal" [S 182]. Sharma's ꯈꯣꯡꯖꯥꯑꯣ is written ꯈꯣꯡꯖꯥꯎ here [N].
Channel (open channel)	ꯆꯦꯅꯦꯜ	chenel	[N] transliteration for the hydraulic sense; ising khong "a small canal or channel" [S 25] only in plain description.
Reach (of a river, drain)	ꯔꯤꯆ	rich	[N]. ꯁꯔꯨꯛ is the site's word for Chapter and is not used for a reach.
Cross-section / section (of a channel)	ꯀ꯭ꯔꯣꯁ-ꯁꯦꯛꯁꯟ	kros-seksan	[N]. A section of an Act is ꯁꯦꯛꯁꯟ (below); keep them apart.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Lake / wetland of the valley (pat)	ꯄꯥꯠ	pat	"n. lake" [S 114]; in names: ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠ, ꯂꯝꯐꯦꯜꯄꯥꯠ [W]. First use: ꯄꯥꯠ (pat; lake or wetland). Never a detention pond.
Pond (pukhri)	ꯄꯨꯈꯔꯤ	pukhri	"n. pond" [S 117, checked on the printed page]. Plural ꯄꯨꯈꯔꯤꯁꯤꯡ (the English plural "pukhris" is a convention of the English edition). Never a pat, never a detention pond.
Waterbody	ꯏꯁꯤꯡ ꯂꯩꯐꯝ	ising leipham	"place where water is" [N].
Wetland (statutory)	ꯋꯦꯠꯂꯦꯟꯗ	wetlend	[N] transliteration for the statutory term (Wetlands Rules, MSWA); a named pat stays ꯄꯥꯠ. Swamp ꯄꯥꯠꯊꯕꯤ [S 114] only where the English says swamp.
Phumdi	ꯐꯨꯝꯗꯤ	phumdi	Variant of phum ꯐꯨꯝ "floating thick biomass of weeds" [S 125]; ꯐꯨꯝꯗꯤ [W]. Plural ꯐꯨꯝꯗꯤꯁꯤꯡ. Athaphum ꯑꯊꯥꯐꯨꯝ [N] with the Loktak Act's definition.
Spring	ꯏꯐꯨꯠ	iphut	"a natural spring of water" [S 22].
Bund / embankment	ꯄꯟ	pan	"a bund; embankment" [S 111]; the same word also means "limit". First use: ꯄꯟ (bund). A long earth embankment ꯂꯩꯄꯟ [S 178] only where the English says so. Embankment road ꯄꯟꯒꯤ ꯂꯝꯕꯤ [N].
Bund breach	ꯄꯟ ꯀꯛꯄ	pan kakpa	[N]. "breached at 18 places" → ꯃꯐꯝ 18-ꯗ ꯄꯟ ꯀꯛꯈꯤ.
Sluice gate / floodgate	ꯏꯊꯣꯡ	ithong	"floodgate; sluice gate" [S 20]. Never add ꯒꯦꯠ to it.
Flap gate	ꯐ꯭ꯂꯦꯞ ꯒꯦꯠ	flep get	[N]; a flap gate is not called ꯏꯊꯣꯡ, so the two stay distinct.
Gate (in general)	ꯒꯦꯠ	get	[N].
Bank (of a river, pond)	ꯂꯩꯔꯥꯏ	leirai	"bank of a pond, lake, river" [S 179]. Top of bank ꯂꯩꯔꯥꯏꯒꯤ ꯃꯊꯛ [N].
Valley / hill / hill areas	ꯇꯝꯄꯥꯛ / ꯆꯤꯡ / ꯆꯤꯡꯒꯤ ꯂꯝꯁꯤꯡ	tampak / ching / chinggi lamsing	ꯇꯝꯄꯥꯛ [S 75], ꯆꯤꯡ [S 67]; ꯇꯝꯄꯥꯛꯀꯤ ꯄꯟꯅꯥ / ꯆꯤꯡꯒꯤ ꯄꯟꯅꯥ for valley and hill districts [W]. "Hill Areas" in the statutory sense: ꯆꯤꯡꯒꯤ ꯂꯝꯁꯤꯡ (Hill Areas) at first use [N].
Paddy field / paddy land	ꯂꯧ / ꯂꯧꯕꯨꯛ	lou / loubuk	ꯂꯧ "paddy field" [S 181]; ꯂꯧꯕꯨꯛ [N]. "Paddy land" in the 2014 Act: ꯄꯦꯗꯤ ꯂꯦꯟꯗ (paddy land) at first use, then ꯂꯧꯕꯨꯛ [N].
Flood	ꯏꯁꯤꯡ ꯏꯆꯥꯎ	ising ichao	"flood" (ising icāo) [S 25]; Sharma's ꯏꯆꯥꯑꯣ is written with ꯎ here [N]. Flash flood ꯈꯨꯗꯛꯇ ꯂꯥꯛꯄ ꯏꯁꯤꯡ ꯏꯆꯥꯎ [N].
Floodwater	ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯏꯁꯤꯡ	ising ichaogi ising	[N].

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Urban flooding / inundation	ꯁꯍꯔꯒꯤ ꯏꯁꯤꯡ ꯏꯆꯥꯎ / ꯏꯁꯤꯡꯅ ꯌꯣꯠꯄ	saharagi ising ichao / isingna yotpa	sahar "city" [S 192] [N].
Waterlogging / ponding	ꯏꯁꯤꯡ ꯊꯨꯝꯗꯕ / ꯏꯁꯤꯡ ꯂꯦꯞꯄ	ising thumdaba / ising leppa	[N]; first use with the English.
Floodplain / floodway / flood fringe	ꯐ꯭ꯂꯗꯄ꯭ꯂꯦꯟ / ꯐ꯭ꯂꯗꯋꯦ / ꯐ꯭ꯂꯗ ꯐ꯭ꯔꯤꯟꯖ	phladplen / phladwe / phlad phrinj	[N] transliterations, with the English at first use.
High flood level (HFL) / warning level (WL) / flood level (FL)	ꯍꯥꯏꯌꯦꯁ꯭ꯇ ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (HFL) / ꯋꯥꯔꯅꯤꯡ ꯂꯦꯚꯦꯜ (WL) / ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ (FL)	haiyest phlad level …	[N]. Never a design level.
Setback / buffer / corridor	ꯁꯦꯠꯕꯦꯛ / ꯕꯐꯔ / ꯀꯣꯔꯤꯗꯣꯔ	setbek / baphar / koridor	[N]. The Manual's hydraulic corridor = ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯀꯣꯔꯤꯗꯣꯔ.
Lock (river lock, 7-day lock)	ꯂꯣꯛ	lok	[N] transliteration, defined at first use: ꯂꯣꯛ (lock: the river stands above the outfall and the gate stays shut). A culvert's or screen's blockage is ꯕ꯭ꯂꯣꯀꯦꯖ, never ꯂꯣꯛ.
Surcharge	ꯁꯔꯆꯥꯔꯖ	sarcharj	[N].
Outfall / tailwater	ꯑꯥꯎꯠꯐꯣꯜ / ꯇꯦꯜꯋꯥꯇꯔ	autphol / telwatar	[N]. Bunded outfall ꯄꯟ ꯂꯩꯕ ꯑꯥꯎꯠꯐꯣꯜ; pumped outfall ꯄꯝꯄꯅ ꯊꯗꯣꯛꯄ ꯑꯥꯎꯠꯐꯣꯜ [N].
Pump / pumping station / sump	ꯄꯝꯄ / ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ / ꯁꯝꯄ	pamp / pamping stesan / samp	ꯄꯝꯄ [W]; [N].
Culvert / bridge	ꯀꯜꯚꯔꯠ / ꯊꯣꯡ	kalvart / thong	ꯊꯣꯡ "bridge" [S 93] (homograph of "door"); ꯀꯜꯚꯔꯠ [N].
Weir / orifice / spillway / riser	ꯋꯤꯌꯔ / ꯑꯣꯔꯤꯐꯤꯁ / ꯁ꯭ꯄꯤꯜꯋꯦ / ꯔꯥꯏꯖꯔ	wiyar / oriphis / spilwe / raijar	[N].
Trash rack / screen / inlet / kerb / gutter / manhole	ꯇ꯭ꯔꯦꯁ ꯔꯦꯛ / ꯁ꯭ꯀ꯭ꯔꯤꯟ / ꯏꯟꯂꯦꯠ / ꯀꯔꯕ / ꯒꯇꯔ / ꯃꯦꯟꯍꯣꯜ	tres rek / skrin / inlet / karb / gatar / menhol	[N]. A road gutter is ꯂꯝꯕꯤꯒꯤ ꯒꯇꯔ, never a sewer.
Freeboard	ꯐ꯭ꯔꯤꯕꯣꯔꯗ	phribord	[N].
Silt / sediment / desilting	ꯂꯩꯃꯨ / ꯁꯦꯗꯤꯃꯦꯟꯠ / ꯂꯩꯃꯨ ꯂꯧꯊꯣꯛꯄ	leimu / sediment / leimu louthokpa	leimu is a dark clay [S 178] used here for silt [N]; ꯁꯦꯗꯤꯃꯦꯟꯠ [N].
Erosion and sediment control (ESC)	ꯏꯔꯣꯖꯟ ꯑꯃꯁꯨꯡ ꯁꯦꯗꯤꯃꯦꯟꯠ ꯀꯟꯇ꯭ꯔꯣꯜ (ESC)	irojan amasung sediment kantrol	[N].
Landslide / slope	ꯂꯦꯟꯗꯁ꯭ꯂꯥꯏꯗ / ꯅꯄꯣꯝ	lendslaid / napom	ꯅꯄꯣꯝ "slope of a hill" [S 103]; steep ꯑꯊꯨꯝꯕ [S 3]. Slope classes (21–30°) unchanged.
Catchment / sub-catchment	ꯀꯦꯆꯃꯦꯟꯠ / ꯁꯕ-ꯀꯦꯆꯃꯦꯟꯠ	kechment / sab-kechment	[N].
Runoff	ꯔꯅꯑꯣꯐ	ranoph	[N] transliteration; gloss at first use: ꯔꯅꯑꯣꯐ (runoff: ꯂꯩꯃꯥꯏꯗ ꯆꯦꯟꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ, rain water flowing on the surface; leimāi "surface of the ground" [S 178]).

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Retention / detention	ꯔꯤꯇꯦꯟꯁꯟ / ꯗꯤꯇꯦꯟꯁꯟ	ritensan / ditensan	[N]. Detention pond ꯗꯤꯇꯦꯟꯁꯟ ꯄꯣꯟꯗ (detention pond), never ꯄꯨꯈ꯭ꯔꯤ or ꯄꯥꯠ.
Storage / storage volume	ꯁ꯭ꯇꯣꯔꯦꯖ / ꯁ꯭ꯇꯣꯔꯦꯖ ꯚꯣꯂꯨꯝ	storej / storej volum	[N]. Compensatory storage ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖ.
Infiltration / recharge	ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ / ꯔꯤꯆꯥꯔꯖ	inphiltresan / richarj	[N].
Groundwater / water table / aquifer	ꯂꯩꯃꯥꯏꯒꯤ ꯃꯈꯥꯒꯤ ꯏꯁꯤꯡ / ꯋꯥꯇꯔ ꯇꯦꯕꯜ / ꯑꯦꯀ꯭ꯋꯤꯐꯔ	leimaigi makhagi ising / watar tebal / ekwiphar	[N]. "Water table" is not the site word ꯇꯦꯕꯜ (Table) at the start of a bold caption.
Clay / peat / sand / gravel	ꯂꯩꯃꯨ ꯑꯆꯦꯠꯄ / ꯄꯤꯠ / ꯂꯩꯉꯣꯏ / ꯅꯨꯡꯀꯨꯞ	leimu achetpa / pit / leingoi / nungkup	ꯂꯩꯉꯣꯏ "sand" [S 177], ꯅꯨꯡꯀꯨꯞ "gravel; pebble" [S 106]; the rest [N].
Water quality / first flush / treatment	ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ / ꯐꯥꯔꯁ꯭ꯠ ꯐ꯭ꯂꯁ / ꯇ꯭ꯔꯤꯠꯃꯦꯟꯠ	isinggi kwaliti …	[N].
Bioretention / swale / permeable paving	ꯕꯥꯏꯑꯣꯔꯤꯇꯦꯟꯁꯟ / ꯁ꯭ꯋꯦꯜ / ꯄꯔꯃꯤꯌꯦꯕꯜ ꯄꯦꯚꯤꯡ	bayoritensan / swel / parmiyebal peving	[N].
Rainwater harvesting (RWH)	ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯈꯣꯝꯖꯤꯟꯕ (RWH)	nonggi ising khomjinba	khomjin- "to collect" [N].
Return period / AEP	ꯔꯤꯇꯔꯟ ꯄꯤꯔꯤꯌꯗ / AEP	ritarn piriyad	[N]. "1% AEP" stays.
Design / designer / design value	ꯗꯤꯖꯥꯏꯟ / ꯗꯤꯖꯥꯏꯅꯔ / ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨ	dijain / dijainar / dijain velyu	[N]. yumsā "the design of a house" [S 159] only for a house.
Illustrative — not design values	ꯈꯨꯗꯝ ꯑꯣꯏꯅ ꯈꯛꯇꯥꯅꯤ — ꯗꯤꯖꯥꯏꯟ ꯚꯦꯜꯌꯨ ꯅꯠꯇꯦ	khudam oina khaktani — dijain velyu natte	khudam "an example" [S 50] [N].
Hydrograph / hyetograph / unit hydrograph	ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ / ꯍꯥꯏꯌꯦꯇꯣꯒ꯭ꯔꯥꯐ / ꯌꯨꯅꯤꯠ ꯍꯥꯏꯗ꯭ꯔꯣꯒ꯭ꯔꯥꯐ	haidrograph …	[N].
Peak flow / time of concentration	ꯄꯤꯛ ꯐ꯭ꯂꯣ / ꯇꯥꯏꯝ ꯑꯣꯐ ꯀꯟꯁꯦꯟꯇ꯭ꯔꯦꯁꯟ	pik phlo / taim oph kansentresan	[N]. Symbols (Q, Tc) stay.
Rain gauge / self-recording rain gauge (SRRG) / station	ꯔꯦꯟ ꯒꯦꯖ / ꯁꯦꯜꯐ-ꯔꯦꯀꯣꯔꯗꯤꯡ ꯔꯦꯟ ꯒꯦꯖ (SRRG) / ꯁ꯭ꯇꯦꯁꯟ	ren gej …	[N]. IMD station names and IDs stay Latin in tables and citations.
Monsoon / pre-monsoon / season	ꯃꯣꯟꯁꯨꯟ / ꯄ꯭ꯔꯤ-ꯃꯣꯟꯁꯨꯟ / ꯃꯇꯝ	monsun / pri-monsun / matam	[N]. Rainy season ꯅꯣꯡꯖꯨꯊꯥ [S 109] only where the English says "rainy season". "The monsoon season" of this Manual (1 April to 31 October) keeps its definition.
Climate change / climate factor	ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ / ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯐꯦꯛꯇꯔ	klaimet chenj / klaimet phektar	[N].
Basement / plinth / floor level	ꯕꯦꯁꯃꯦꯟꯠ / ꯄ꯭ꯂꯤꯟꯊ / ꯐ꯭ꯂꯣꯔ ꯂꯦꯚꯦꯜ	besment / plinth / phlor level	[N].
Site / plot / building	ꯁꯥꯏꯠ / ꯄ꯭ꯂꯣꯠ / ꯕꯤꯜꯗꯤꯡ	sait / plot / bilding	[N]; ꯁꯥꯏꯠ as on imc.mn.gov.in ("ꯁꯥꯏꯠꯃꯦꯞ") [G].
Map / survey / data / model	ꯃꯦꯞ / ꯁꯔꯚꯦ / ꯗꯦꯇꯥ / ꯃꯣꯗꯦꯜ	mep / sarve / deta / model	ꯗꯦꯇꯥ as on imc.mn.gov.in [G]; others [N]. GIS, DEM, LiDAR stay Latin.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Calibration / validation	ꯀꯦꯂꯤꯕ꯭ꯔꯦꯁꯟ / ꯚꯦꯂꯤꯗꯦꯁꯟ	kelibresan / velidesan	[N].
Master plan / Basin Stormwater Master Plan (BSMP)	ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ / ꯕꯦꯁꯤꯟ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ (BSMP)	mastar plan …	[N].
Applicant / owner / developer / engineer	ꯑꯦꯞꯂꯤꯀꯦꯟꯠ / ꯃꯄꯨ / ꯗꯦꯚꯦꯂꯞꯄꯔ / ꯏꯟꯖꯤꯅꯤꯌꯔ	eplikent / mapu / develappar / injiniyar	ꯃꯄꯨ "owner" [S 138]; ꯑꯦꯞꯂꯤꯀꯦꯁꯟ "application" [G]; others [N].
Approving Authority	ꯑꯦꯞꯔꯨꯚꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ	epruving othoriti	[N]. "The Authority" of this Manual = ꯑꯣꯊꯣꯔꯤꯇꯤ; where it means a named body, write the name.
Submittal / review / inspection	ꯁꯕꯃꯤꯇꯦꯜ / ꯔꯤꯚꯤꯌꯨ / ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ	sabmitel / rivyu / inspeksan	[N].
Operation and maintenance (O&M) / maintenance	ꯑꯣꯞꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ (O&M) / ꯃꯦꯟꯇꯦꯅꯦꯟꯁ	opresan amasung mentenens	[N].
Enforcement / penalty	ꯏꯟꯐꯣꯔꯁꯃꯦꯟꯠ / ꯆꯩꯔꯥꯛ	inphorsment / cheirak	[N].
Encroachment	ꯂꯝ ꯈꯣꯞꯄ	lam khoppa	lam khop- "to encroach, said of land" [S 165] [N as a noun].
Manual / this Manual	ꯃꯦꯅꯨꯌꯦꯜ / ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤ	menuyel / menuyel asi	[N]. Other manuals in titles stay in English. Guidelines (NDMA, URDPFI) ꯒꯥꯏꯗꯂꯥꯏꯟꯁ, never for this Manual.
Chapter	ꯁꯔꯨꯛ	saruk	Fixed word of the site (src/lib/manual.mjs, WORDS.mni).
Annex / Annexes to Chapter N	ꯑꯍꯦꯟꯕ / ꯁꯔꯨꯛ N-ꯒꯤ ꯑꯍꯦꯟꯕꯁꯤꯡ	ahenba / saruk N-gi ahenbasing	Fixed words. An Annexure of a notification or report: ꯑꯦꯅꯦꯛꯁꯔ (Annexure), never ꯑꯍꯦꯟꯕ.
Supplement	ꯍꯦꯟꯅꯥ ꯍꯥꯞꯆꯤꯟꯕ	henna hapchinba	Fixed word; Manipur has no supplement.
Form	ꯐꯣꯔꯝ	phorm	Fixed word; ꯐꯣꯔꯝ also on imc.mn.gov.in [G].
Figure / Table / Title	ꯃꯃꯤ / ꯇꯦꯕꯜ / ꯃꯃꯤꯡ	mami / tebal / maming	Fixed words. ꯃꯃꯤꯡ "name" (ming [S 148]).
Commentary	ꯁꯟꯗꯣꯛꯅꯥ ꯇꯥꯛꯄꯥ	sandokna takpa	Fixed word; `**ꯁꯟꯗꯣꯛꯅꯥ ꯇꯥꯛꯄꯥ.**` with a Latin full stop.
Note	ꯅꯣꯠ	not	`**ꯅꯣꯠ.**` / ꯅꯣꯠ: — never the Commentary word [N].
References / Sources	ꯂꯧꯔꯛꯐꯝꯁꯤꯡ / ꯍꯧꯔꯛꯐꯝ	lourakphamsing / hourakpham	ꯂꯧꯔꯛꯐꯝꯁꯤꯡ is the fixed word (heading only); `*Sources: …*` → `*ꯍꯧꯔꯛꯐꯝ: …*` [N].
About this draft / To be prepared	ꯗ꯭ꯔꯥꯐꯠ ꯑꯁꯤꯒꯤ ꯃꯇꯥꯡꯗ / ꯁꯦꯝ ꯁꯥꯒꯗꯕ	drapht asigi matangda / sem sagadaba	Fixed words.
Draft v1.0	ꯗ꯭ꯔꯥꯐꯠ ꯚꯔꯁꯟ 1.0	drapht varsan 1.0	[N].
Clause / Clauses	ꯀ꯭ꯂꯣꯖ / ꯀ꯭ꯂꯣꯖꯁꯤꯡ	kloj / klojsing	[N]. Only this Manual's clauses.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Section (of an Act) / rule / bye-law / Article / Schedule / paragraph / regulation	ꯁꯦꯛꯁꯟ / ꯔꯨꯜ / ꯕꯥꯏ-ꯂꯣ / ꯑꯥꯔꯇꯤꯀꯜ / ꯁꯦꯗ꯭ꯌꯨꯜ / ꯄꯦꯔꯥ / ꯔꯦꯒꯨꯂꯦꯁꯟ	seksan / rul / bai-lo / artikal / sedyul / pera / regulesan	[N]. s. 19 → ꯁꯦꯛꯁꯟ 19; bye-law 93 → ꯕꯥꯏ-ꯂꯣ 93; Article 371C → ꯑꯥꯔꯇꯤꯀꯜ 371C.
Act (title) / law	ꯑꯦꯛꯠ / ꯑꯥꯏꯟ	ekt / ain	ꯑꯥꯏꯟ "a law; an act; regulation" [S 16] for "the law" in general; titles of Acts end in ꯑꯦꯛꯠ [N].
Notification / gazette / order / judgment	ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ / ꯒꯦꯖꯦꯠ / ꯑꯣꯔꯗꯔ / ꯖꯖꯃꯦꯟꯠ	notiphikesan / gejet / ordar / jajment	ꯅꯣꯇꯤꯐꯤꯀꯦꯁꯟ [G imc.mn.gov.in]; others [N].
Step / stage	ꯈꯣꯡꯊꯥꯡ / ꯁ꯭ꯇꯦꯖ	khongthang / stej	ꯈꯣꯡꯊꯥꯡ "step" [N]; Step 1 → ꯈꯣꯡꯊꯥꯡ 1.
Standard / criterion / method	ꯁ꯭ꯇꯦꯟꯗꯔꯗ / ꯀ꯭ꯔꯥꯏꯇꯦꯔꯤꯌꯟ / ꯊꯧꯑꯣꯡ	stendard / kraiteriyan / thouong	ꯊꯧꯑꯣꯡ "mode; method" [S 94]; others [N].
shall / should / may / shall not / would	-ꯒꯗꯕꯅꯤ / -ꯕ ꯐꯩ / -ꯕ ꯌꯥꯏ / -ꯔꯣꯏꯗꯕꯅꯤ / -ꯒꯅꯤ	-gadabani / -ba phei / -ba yai / -roidabani / -gani	[N], **decision for the reviewer**: "shall" (mandatory) = ꯇꯧꯒꯗꯕꯅꯤ; "should" = ꯇꯧꯕ ꯐꯩ; "may" = ꯇꯧꯕ ꯌꯥꯏ; "shall not" = ꯇꯧꯔꯣꯏꯗꯕꯅꯤ; "would" (what a body would do if the Manual were adopted) = future ꯇꯧꯒꯅꯤ, never the present.
adopt (formal) / not adopted	ꯂꯧꯁꯤꯟꯕ / ꯂꯧꯁꯤꯟꯈꯤꯗꯦ	lousinba / lousinkhide	[N]. Only for formal adoption by a government, authority or body.
adopt (a value, method — technical)	ꯂꯧꯕ	louba	"take" [N]; never ꯂꯧꯁꯤꯟꯕ for a value.
notify / endorse / approve / sanction	ꯅꯣꯇꯤꯐꯥꯏ ꯇꯧꯕ / ꯏꯟꯗꯣꯔꯁ ꯇꯧꯕ / ꯑꯦꯞꯔꯨꯚ ꯇꯧꯕ / ꯁꯦꯡꯁꯟ ꯇꯧꯕ	notiphai touba / indors touba / epruv touba / sengsan touba	[N]. Four different words; never interchanged. Approval ꯑꯦꯞꯔꯨꯚꯦꯜ; building permission ꯕꯤꯜꯗꯤꯡ ꯄꯔꯃꯤꯁꯟ.
accept / consent, permission / concurrence	ꯌꯥꯕ / ꯑꯌꯥꯕ / ꯌꯥꯅꯕ	yaba / ayaba / yanaba	ꯑꯌꯥꯕ ꯄꯤꯕ "to give permission" [W] [N]. NOC = ꯑꯣꯕꯖꯦꯛꯁꯟ ꯂꯩꯇꯕꯒꯤ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ (NOC).
in force / legal force	ꯆꯠꯂꯤꯕ / ꯑꯥꯏꯟꯒꯤ ꯁꯛꯇꯤ	chatliba / aingi sakti	[N]. "has no legal force" → ꯑꯥꯏꯟꯒꯤ ꯁꯛꯇꯤ ꯂꯩꯇꯦ.
as reported / as cited / (not read) / (read) / [TBC]	(ꯄꯥꯎꯗ ꯐꯣꯡꯗꯣꯛꯈꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ) / (ꯍꯥꯏꯈꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ) / (ꯄꯥꯈꯤꯗꯕ) / (ꯄꯥꯈꯤꯕ) / [TBC]	…	ꯄꯥꯎ "news" [S 112]; ꯃꯇꯨꯡ ꯏꯟꯅ "according to" [W]; [N]. [TBC] stays.
Government / department / directorate / authority / board / committee / council	ꯂꯩꯉꯥꯛ / ꯗꯤꯄꯥꯔꯇꯃꯦꯟꯠ / ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ / ꯑꯣꯊꯣꯔꯤꯇꯤ / ꯕꯣꯔꯗ / ꯀꯃꯤꯇꯤ / ꯀꯥꯎꯟꯁꯤꯜ	leingak / dipartment / dairektoret / othoriti / bord / kamiti / kaunsil	ꯂꯩꯉꯥꯛ "administration of a state" [S 177]; ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ [G dipr.mn.gov.in]; others [N].
Urban local body (ULB) / local body	ꯎꯔꯕꯟ ꯂꯣꯀꯜ ꯕꯣꯗꯤ (ULB) / ꯂꯣꯀꯜ ꯕꯣꯗꯤ	urban lokal bodi	ꯎꯔꯕꯟ ꯂꯣꯀꯜ as on imc.mn.gov.in ("ꯎꯔꯕꯟ ꯂꯣꯀꯜ ꯒꯚꯔꯅꯃꯦꯟꯠ") [G]; ULB stays Latin after first use.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
District	ꯗꯤꯁꯇ꯭ꯔꯤꯛ / ꯄꯅꯥ	distrik / pana	ꯄꯅꯥ is the Meeteilon word for a district on Manipuri Wikipedia [W]; this edition writes ꯗꯤꯁꯇ꯭ꯔꯤꯛ in the names of bodies (District Council) and ꯄꯅꯥ for "district" in running text ("Imphal West district" → ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠ ꯄꯅꯥ) [N].
and / or	ꯑꯃꯁꯨꯡ / ꯅꯠꯔꯒꯥ	amasung / natraga	ꯑꯃꯁꯨꯡ [G] (dipr.mn.gov.in, imc.mn.gov.in); ꯅꯠꯔꯒꯥ [N] — Manipuri Wikipedia writes ꯅꯇ꯭ꯔꯒꯥ; reviewer to decide. "&" in titles is ꯑꯃꯁꯨꯡ.
Meeteilon (Manipuri) / Meetei Mayek / Bengali script	ꯃꯩꯇꯩꯂꯣꯟ / ꯃꯩꯇꯩ ꯃꯌꯦꯛ / ꯕꯦꯡꯒꯥꯂꯤ ꯃꯌꯦꯛ	Meeteilon / Meetei Mayek / Bengali mayek	ꯃꯩꯇꯩꯂꯣꯟ is the site label (labels file, 14 November 2026). The other spelling, ꯃꯤꯇꯩꯂꯣꯟ / ꯃꯤꯇꯩ ꯃꯌꯦꯛ, is Manipuri Wikipedia's article title [W] and the IMC's language switch (ꯃꯤꯇꯩ ꯃꯌꯦꯛ) [G] — **reviewer to settle once**; ꯕꯦꯡꯒꯥꯂꯤ ꯃꯌꯦꯛ [W]. The 2021 Act's words are quoted in English.
as quoted / set by this Manual / NEER reading	ꯀꯣꯠꯈꯤꯕ ꯃꯇꯨꯡ ꯏꯟꯅ / ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅ ꯊꯝꯕ / NEER-ꯒꯤ ꯄꯥꯕ	kotkhiba matung inna / manual asina thamba / NEER-gi paba	[N]; consistency pass (decision 4). In brackets and labels always the base form (ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯅ ꯊꯝꯕ); a finite sentence may end ꯊꯝꯕꯅꯤ.
Quotation (Act, court, report)	"Meeteilon rendering" ("English original")	…	[N]; consistency pass (decision 5): the Meeteilon first, the English after it in brackets; dictionary glosses too (decision 27). Inner round brackets become [ ].
North / south / east / west; south-west monsoon	ꯑꯋꯥꯡ / ꯈꯥ / ꯅꯣꯡꯄꯣꯛ / ꯅꯣꯡꯆꯨꯞ; ꯈꯥ-ꯅꯣꯡꯆꯨꯞ ꯃꯣꯟꯁꯨꯟ	awang / kha / nongpok / nongchup	[N]; consistency pass (decision 8). "western hills" ꯅꯣꯡꯆꯨꯞꯀꯤ ꯆꯤꯡꯁꯤꯡ. Imphal East / Imphal West stay names (ꯏꯝꯐꯥꯜ ꯏꯁ꯭ꯠ / ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠ).
Zones and sub-areas	MN-Z1 ꯏꯝꯐꯥꯜ ꯇꯝꯄꯥꯛ; MN-A ꯏꯝꯐꯥꯜ ꯇꯝꯄꯥꯛꯀꯤ ꯂꯩꯃꯥꯏ; MN-A1 ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯅꯥꯛ; MN-Z2 / MN-B ꯑꯋꯥꯡ, ꯅꯣꯡꯄꯣꯛ ꯑꯃꯁꯨꯡ ꯈꯥꯒꯤ ꯆꯤꯡꯁꯤꯡ; MN-Z3 ꯅꯣꯡꯆꯨꯞꯀꯤ ꯆꯤꯡꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯖꯤꯔꯤꯕꯝ ꯄ꯭ꯂꯦꯟ; MN-C ꯅꯣꯡꯆꯨꯞꯀꯤ ꯆꯤꯡꯁꯤꯡ; MN-C1 ꯖꯤꯔꯤꯕꯝ ꯄ꯭ꯂꯦꯟ	…	[N]; consistency pass (decision 9). Codes stay Latin.
Valley floor (running text) / Loktak margin	ꯇꯝꯄꯥꯛꯀꯤ ꯂꯝ / ꯂꯣꯛꯇꯥꯛꯀꯤ ꯃꯅꯥꯛ	tampakki lam / loktakki manak	[N]; consistency pass (decision 21). ꯏꯝꯐꯥꯜ ꯇꯝꯄꯥꯛꯀꯤ ꯂꯩꯃꯥꯏ only as the name of sub-area MN-A.
Original drawing for this Manual (caption)	ꯃꯦꯅꯨꯌꯦꯜ ꯑꯁꯤꯒꯤꯗꯃꯛ ꯑꯅꯧꯅꯥ ꯁꯦꯝꯕ ꯗ꯭ꯔꯣꯏꯡ	…	[N]; consistency pass (decisions 11, 23, 24); "adapted from X" → X-ꯗꯒꯤ ꯍꯣꯡꯗꯣꯛꯂꯒꯥ ꯂꯧꯈꯤꯕ. Never ꯑꯣꯔꯤꯖꯤꯅꯦꯜ ꯗ꯭ꯔꯣꯏꯡ or ꯁꯦꯝꯈꯤꯕ ꯗ꯭ꯔꯣꯏꯡ.
Preserve / Retain / Detain / Convey / Maintain	ꯉꯥꯛꯊꯣꯛꯄ / ꯊꯝꯖꯤꯟꯕ / ꯃꯇꯝ ꯈꯔꯒꯤ ꯊꯝꯕ / ꯄꯨꯊꯣꯛꯄ / ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯇꯧꯕ	ngakthokpa / thamjinba / matam kharagi thamba / puthokpa / mentenens touba	[N]; consistency pass (decision 12), the forms of Chapter 1, also in Chapter 4, the front matter and Figure 1.1; preservation credit ꯉꯥꯛꯊꯣꯛꯄꯒꯤ ꯀ꯭ꯔꯦꯗꯤꯠ.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Hazard	ꯍꯖꯔꯗ	hajard	[N]; consistency pass (decision 13); not ꯍꯦꯖꯔꯗ.
Covered drain	ꯀꯚꯔ ꯇꯧꯔꯕ ꯈꯣꯡꯕꯥꯟ	kavar tourba khongban	[N]; consistency pass (decision 14), also in the AIIB quotation ("stormwater covered drains" → ꯀꯚꯔ ꯇꯧꯔꯕ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡꯒꯤ ꯈꯣꯡꯕꯥꯟ). ꯀ꯭ꯄꯄ is kept for clogging.
Return-period label	(100-yr), (10-yr), (2-yr)	…	Latin, as Chapter 1; consistency pass (decision 15). ꯆꯍꯤ N only where the English writes years in words.
Valve / non-return valve	ꯚꯥꯜꯚ / ꯅꯟ-ꯔꯤꯇꯔꯟ ꯚꯥꯜꯚ	valv	[N]; consistency pass (decision 16); not ꯚꯥꯜꯕ.
Secondary source / soakaway / non-potable	ꯑꯅꯤꯁꯨꯕ ꯍꯧꯔꯛꯐꯝ / ꯁꯣꯛꯑꯋꯦ / ꯊꯛꯅꯕ ꯌꯥꯗꯕ	anisuba hourakpham / sokawe / thaknaba yadaba	[N]; consistency pass (decision 17); not ꯁꯦꯀꯦꯟꯗꯔꯤ ꯍꯧꯔꯛꯐꯝ, ꯁꯣꯀꯑꯋꯦ, ꯊꯛꯅꯕ ꯅꯞꯇꯧꯕ.
Form header (Field / Entry) / lacustrine / river mouth / requirement	| ꯐꯤꯜꯗ | ꯑꯟꯇ꯭ꯔꯤ | / ꯂꯦꯀꯁ꯭ꯇ꯭ꯔꯥꯏꯟ / ꯔꯤꯚꯔ ꯃꯧꯊ / ꯔꯤꯀ꯭ꯋꯥꯏꯔꯃꯦꯟꯠ	…	[N]; consistency pass (decision 18).
Routing / piezometric	ꯔꯥꯎꯇꯤꯡ / ꯄꯥꯏꯖꯣꯃꯦꯇ꯭ꯔꯤꯛ	rauting / paijometrik	[N]; consistency pass (decision 19); not ꯔꯎꯇꯤꯡ, ꯄꯥꯏꯖꯣꯃꯦꯇꯔꯤꯛ.
Silt trap / silt sump	ꯁꯤꯜꯠ ꯇ꯭ꯔꯦꯞ / ꯂꯩꯃꯨꯒꯤ ꯁꯝꯞ	silt trep / leimugi samp	[N]; consistency pass (decision 21), text and figures; not ꯂꯩꯃꯨ ꯇ꯭ꯔꯦꯞ.
Flood level (gauge, FL) / design flood level	ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ / ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ	phlad level / ising ichaogi level	[N]; consistency pass (decision 21): ꯐ꯭ꯂꯗ ꯂꯦꯚꯦꯜ for the gauge level at which the sluice shuts (as in the HFL / WL / FL row); a 1% AEP or coastal design flood level stays ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯂꯦꯚꯦꯜ, so that FL is never read as a design level.
Pump station / contributing area	ꯄꯝꯄꯤꯡ ꯁ꯭ꯇꯦꯁꯟ / ꯏꯁꯤꯡ ꯄꯤꯔꯤꯕ ꯑꯦꯔꯤꯌꯥ	pamping stesan / ising piriba eriya	[N]; consistency pass (decision 21); not ꯄꯝꯄ ꯁ꯭ꯇꯦꯁꯟ, ꯏꯁꯤꯡ ꯄꯤꯕ ꯑꯦꯔꯤꯌꯥ.
Month + case ending	31 ꯃꯥꯔꯆꯒꯤ, ꯃꯦꯗ, 1 ꯑꯦꯞꯔꯤꯜꯒꯤ, ꯑꯒꯁ꯭ꯇꯗ	…	[N]; consistency pass (decision 22): the suffix joins the month with no hyphen (the hyphen stays only after a digit, a Latin letter, a bracket or a link).
Confirm / to be confirmed in design / outfall-closed check	ꯀꯟꯐꯥꯔꯝ ꯇꯧꯕ / ꯗꯤꯖꯥꯏꯟꯗ ꯀꯟꯐꯥꯔꯝ ꯇꯧꯒꯗꯕ / ꯑꯥꯎꯠꯐꯣꯜ ꯊꯤꯡꯕ ꯆꯦꯛ	kanpharam touba / … / autphol thingba chek	[N]; consistency pass (decisions 24, 27); not ꯀꯟꯐꯔꯝ, ꯀꯅꯐꯔꯝ, ꯑꯥꯎꯠꯐꯣꯜ ꯊꯤꯡꯅꯕ ꯃꯇꯝꯒꯤ ꯆꯦꯛ.
Alternative adopted under the Policy Supplement	ꯂꯧꯁꯤꯟꯅꯕꯗꯤ, … ꯑꯜꯇꯔꯅꯦꯇꯤꯚ; ꯂꯧꯁꯤꯟꯅꯕ ꯌꯥꯏ	…	[N]; consistency pass (decision 25): always conditional or possible, never ꯂꯧꯁꯤꯟꯈꯤꯕ (done). Causative + -ꯒꯅꯤ stays ꯍꯟꯒꯅꯤ.
Supreme Court	ꯁꯨꯄ꯭ꯔꯤꯝ ꯀꯣꯔꯠ	suprim kort	[N]; consistency pass: the brief's cluster rule (apun iyek inside a cluster), not ꯁꯨꯄꯔꯤꯝ.
Receiving water / receiving system	ꯏꯁꯤꯡ ꯂꯧꯔꯤꯕ / ꯏꯁꯤꯡ ꯂꯧꯕ ꯁꯤꯁ꯭ꯇꯦꯝ	ising louriba	[N]; consistency pass: never ꯂꯧꯁꯤꯟꯕ, which is the word for formal adoption.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Transliteration: in-, -tr-, final consonants	ꯏꯟꯂꯦꯠ, ꯏꯟꯄꯨꯠ, ꯏꯟꯇꯦꯟꯁꯃꯦꯟꯠ, ꯏꯟꯀ꯭ꯔꯤꯃꯦꯟꯠ; ꯃꯦꯠ꯭ꯔꯤꯛ, ꯅꯤꯌꯣꯃꯦꯠ꯭ꯔꯤ, ꯃꯦꯠ꯭ꯔꯤꯛꯁ; ꯄꯝꯄ, ꯄꯦꯠ꯭ꯔꯣꯜ, ꯗꯤꯅꯢꯠ, ꯅꯦꯠꯍꯗꯡ	…	Consistency pass (decision 3): a syllable-final consonant takes its lonsum letter (never ꯏꯟꯂꯦꯠ, ꯄꯝꯄ, ꯗꯤꯅꯢꯃ), and a tr / str cluster takes the apun iyek (never ꯃꯦꯠꯔꯤꯛ, ꯂꯠꯗꯡꯍꯗ).
Backwater / conduit / drawdown / invert / penstock / overtopping	ꯕꯦꯛꯋꯥꯇꯔ / ꯀꯟꯗ꯭ꯌꯨꯏꯠ / ꯗ꯭ꯔꯣꯗꯥꯎꯟ / ꯏꯟꯚꯔꯠ / ꯄꯦꯟꯁ꯭ꯇꯣꯛ / ꯑꯣꯚꯔꯇꯣꯄꯤꯡ	…	[N]; consistency pass (the forms most used across the chapters).
Scenario / stockpile / mulch / soft cover / identifier / ratio	ꯁꯤꯅꯥꯔꯤꯑꯣ / ꯁ꯭ꯇꯣꯛꯄꯥꯏꯜ / ꯃꯜꯆ / ꯁꯣꯐꯠ ꯀꯚꯔ / ꯑꯥꯏꯗꯦꯟꯇꯤꯐꯥꯏꯌꯔ / ꯔꯦꯁꯤꯑꯣ	…	[N]; consistency pass.
Constructed wetland / water quality volume / foothill fan / release cap	ꯀꯟꯁ꯭ꯠꯔꯛꯇꯦꯗ ꯋꯦꯠꯂꯦꯟꯗ / ꯏꯁꯤꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯚꯣꯜꯌꯨꯝ / ꯐꯨꯠꯍꯤꯜ ꯐꯦꯟ / ꯔꯤꯂꯤꯖ ꯀꯦꯞ	…	[N]; consistency pass.
Inlet protection / edge protection / construction exit / wheel washing / dumping	ꯏꯅꯂꯦꯠ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ / ꯑꯦꯖ ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ / ꯀꯟꯁ꯭ꯠꯔꯛꯁꯟ ꯑꯦꯛꯖꯤꯠ / ꯍ꯭ꯋꯤꯜ ꯍ꯭ꯋꯥꯁꯤꯡ / ꯗꯝꯄꯤꯡ	…	[N]; consistency pass.
Worked example / working days / segment method / code list / perched water	ꯊꯕꯛ ꯇꯧꯔꯕ ꯈꯨꯗꯝ / ꯊꯕꯛ ꯇꯧꯕ ꯅꯨꯃꯤꯠ / ꯁꯦꯒꯃꯦꯟꯠ ꯃꯑꯣꯡ / ꯀꯣꯗꯀꯤ ꯂꯤꯁ꯭ꯠ / ꯂꯦꯞꯄ ꯇꯧꯔꯕ ꯏꯁꯤꯡ	…	[N]; consistency pass.
Overland flow path / flood marks / confluence	ꯑꯣꯚꯔꯂꯦꯟꯗ ꯐ꯭ꯂꯣ ꯂꯝꯕꯤ / ꯏꯁꯤꯡ ꯏꯆꯥꯎꯒꯤ ꯈꯥꯏꯗꯥ / ꯇꯨꯔꯦꯜ ꯄꯨꯅꯁꯤꯟꯕ ꯃꯐꯝ	…	[N]; consistency pass.
Term / Meaning in this Manual (definition tables) / where:	`| ꯋꯥꯍꯩ | ꯃꯅꯨꯑꯦꯜ ꯑꯁꯤꯗ ꯑꯔꯊ |` / ꯃꯐꯝ ꯑꯁꯤꯗ:	…	Consistency pass: the same header and the same lead-in before every equation key.

ꯁꯔꯨꯛꯁꯤꯡꯒꯤ ꯃꯃꯤꯡ (chapter titles)

Identical in the headings, the annex headings, the contents table and the cross-references. All [N].

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Chapter 1 — Policy, Applicability and Adoption	ꯁꯔꯨꯛ 1 — ꯄꯣꯂꯤꯁꯤ, ꯆꯠꯅꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯂꯧꯁꯤꯟꯕ	poliisi, chatnaba mapham amasung lousinba	"Adoption" is the formal word ꯂꯧꯁꯤꯟꯕ.
Chapter 2 — Design Rainfall and Design Storms	ꯁꯔꯨꯛ 2 — ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯊꯧꯗꯣꯛꯁꯤꯡ	dijain nong chuba amasung …	
Chapter 3 — Hydrologic Methods	ꯁꯔꯨꯛ 3 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯊꯧꯑꯣꯡꯁꯤꯡ	haidrolojigi thouongsing	

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Chapter 4 — Site Runoff Control: Retention and Detention	ꯆꯄ꯭ꯇꯔ 4 — ꯁꯥꯏꯠꯀꯤ ꯔꯅꯣꯐ ꯀꯟꯠ꯭ꯔꯣꯜ: ꯔꯤꯇꯦꯟꯁꯟ ꯑꯃꯁꯨꯡ ꯗꯤꯇꯦꯟꯁꯟ	saitki ranoph kantrol …	
Chapter 5 — Downstream and Tailwater Analysis	ꯆꯄ꯭ꯇꯔ 5 — ꯃꯈꯥ ꯊꯪꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯦꯇꯔꯒꯤ ꯑꯦꯅꯥꯂꯥꯏꯁꯤꯁ	makha thangba mapham …	"downstream" = ꯃꯈꯥ ꯊꯪꯕ ꯃꯐꯝ (the lower side).
Chapter 6 — Minor and Major Drainage Systems	ꯆꯄ꯭ꯇꯔ 6 — ꯃꯥꯏꯅꯔ ꯑꯃꯁꯨꯡ ꯃꯦꯖꯔ ꯏꯔꯝ ꯁꯤꯁ꯭ꯇꯦꯝꯁꯤꯡ	mainar amasung mejar iram sistemsing	
Chapter 7 — Waterbodies, Pats and Pukhris (Lakes and Ponds) and Setbacks	ꯆꯄ꯭ꯇꯔ 7 — ꯏꯁꯤꯡ ꯂꯩꯐꯝꯁꯤꯡ, ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯄꯨꯈ꯭ꯔꯤꯁꯤꯡ (ꯂꯦꯛ ꯑꯃꯁꯨꯡ ꯄꯣꯟꯗꯁꯤꯡ) ꯑꯃꯁꯨꯡ ꯁꯦꯠꯕꯦꯛꯁꯤꯡ	ising leiphamsing, pat amasung pukhrising …	The bracket keeps the English title's gloss.
Chapter 8 — Water Quality and Recharge	ꯆꯄ꯭ꯇꯔ 8 — ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤ ꯑꯃꯁꯨꯡ ꯔꯤꯆꯥꯔꯖ	isinggi kwaliti amasung richarj	
Chapter 9 — Hydraulic Design of Structures	ꯆꯄ꯭ꯇꯔ 9 — ꯁ꯭ꯇ꯭ꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯗꯤꯖꯥꯏꯟ	strakcharsinggi haidrolik dijain	
Chapter 10 — Submittals, Review, Operation & Maintenance and Enforcement	ꯆꯄ꯭ꯇꯔ 10 — ꯁꯕꯃꯤꯇꯦꯜꯁꯤꯡ, ꯔꯤꯚꯤꯌꯨ, ꯑꯣꯄꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯑꯃꯁꯨꯡ ꯏꯅꯐꯣꯔꯁꯃꯦꯟꯠ	sabmitelsing, rivyu …	"&" is written ꯑꯃꯁꯨꯡ.
Chapter 11 — Basin and City Stormwater Master Plans	ꯆꯄ꯭ꯇꯔ 11 — ꯕꯦꯁꯤꯟ ꯑꯃꯁꯨꯡ ꯁꯍꯔꯒꯤ ꯅꯣꯡꯒꯤ ꯏꯁꯤꯡ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯁꯤꯡ	besin amasung saharagi …	

ꯐꯣꯔꯝꯁꯤꯡꯒꯤ ꯃꯃꯤꯡ (form titles)

All [N]. The number and "ꯐꯣꯔꯝ" are fixed; the title is the same wherever the form is named.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Form 1-1 — Applicability Determination	ꯐꯣꯔꯝ 1-1 — ꯆꯠꯅꯕ ꯃꯐꯝ ꯂꯦꯞꯄ	chatnaba mapham leppa	
Form 1-2 — Variance / Waiver Request	ꯐꯣꯔꯝ 1-2 — ꯚꯦꯔꯤꯌꯦꯟꯁ / ꯋꯦꯚꯔ ꯔꯤꯀ꯭ꯋꯦꯁ꯭ꯠ	veriyens / wevar rikwest	
Form 2-1 — Design Rainfall Sheet	ꯐꯣꯔꯝ 2-1 — ꯗꯤꯖꯥꯏꯟ ꯅꯣꯡ ꯆꯨꯕꯒꯤ ꯁꯤꯠ	dijain nong chubagi sit	
Form 3-1 — Hydrologic Calculation Summary	ꯐꯣꯔꯝ 3-1 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯣꯖꯤꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯅꯒꯤ ꯁꯃꯃꯔꯤ		
Form 3-2 — Pre- vs Post-Development Comparison	ꯐꯣꯔꯝ 3-2 — ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯇꯀꯤ ꯃꯃꯥꯡ ꯑꯃꯁꯨꯡ ꯃꯇꯨꯡꯒꯤ ꯈꯦꯟꯅꯕ		
Form 4-1 — Site Runoff Control Report	ꯐꯣꯔꯝ 4-1 — ꯁꯥꯏꯠꯀꯤ ꯔꯅꯣꯐ ꯀꯟꯠ꯭ꯔꯣꯜ ꯔꯤꯄꯣꯔꯠ		ꯔꯤꯄꯣꯔꯠ [W].
Form 4-2 — Tier B Site Sheet	ꯐꯣꯔꯝ 4-2 — ꯇꯤꯌꯔ B ꯁꯥꯏꯠꯀꯤ ꯁꯤꯠ		Tier letters stay Latin.
Form 4-3 — Fixed-coefficient Route Sheet	ꯐꯣꯔꯝ 4-3 — ꯐꯤꯛꯁ ꯇꯧꯔꯕ ꯀꯣꯑꯦꯐꯤꯁꯤꯌꯦꯟꯇꯀꯤ ꯔꯨꯠ ꯁꯤꯠ		The bracket "(Clauses 4.14.3 to 4.14.7)" follows as in the English.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
Form 5-1 — Downstream and Tailwater Report	ꯐꯣꯔꯝ 5-1 — ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝ ꯑꯃꯁꯨꯡ ꯇꯦꯜꯋꯥꯇꯔꯒꯤ ꯔꯤꯄꯣꯔꯠ		
Form 5-2 — Simplified Downstream Statement (small sites)	ꯐꯣꯔꯝ 5-2 — ꯂꯥꯏꯊꯣꯛꯍꯟꯕ ꯃꯈꯥ ꯊꯡꯕ ꯃꯐꯝꯒꯤ ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ (ꯑꯄꯤꯛꯄ ꯁꯥꯏꯠꯁꯤꯡ)		ꯁ꯭ꯇꯦꯇꯃꯦꯟꯠ [G].
Form 6-1 — Conveyance Design Report checklist	ꯐꯣꯔꯝ 6-1 — ꯀꯟꯚꯦꯌꯦꯟꯁ ꯗꯤꯖꯥꯏꯟ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ		
Form 7-1 — Waterbody Sheet	ꯐꯣꯔꯝ 7-1 — ꯏꯁꯤꯡ ꯂꯩꯐꯝꯒꯤ ꯁꯤꯠ		
Form 7-2 — Tank Storage Credit Sheet	ꯐꯣꯔꯝ 7-2 — ꯄꯨꯈ꯭ꯔꯤꯒꯤ ꯁ꯭ꯇꯣꯔꯦꯖ ꯀ꯭ꯔꯦꯗꯤꯠꯀꯤ ꯁꯤꯠ		The shared core's "tank" is ꯄꯨꯈ꯭ꯔꯤ in this edition, as the English edition's pukhri.
Form 7-3 — Compensatory Storage Calculation (by elevation band)	ꯐꯣꯔꯝ 7-3 — ꯀꯝꯄꯦꯟꯁꯦꯇꯔꯤ ꯁ꯭ꯇꯣꯔꯦꯖꯒꯤ ꯀꯦꯜꯀꯨꯂꯦꯁꯟ (ꯑꯦꯂꯤꯚꯦꯁꯟ ꯕꯦꯟꯗ ꯃꯇꯨꯡ ꯏꯟꯅ)		
Form 8-1 — Water Quality Sheet	ꯐꯣꯔꯝ 8-1 — ꯏꯁꯤꯡꯒꯤ ꯀ꯭ꯋꯥꯂꯤꯇꯤꯒꯤ ꯁꯤꯠ		
Form 8-2 — Infiltration Test Record	ꯐꯣꯔꯝ 8-2 — ꯏꯟꯐꯤꯜꯇ꯭ꯔꯦꯁꯟ ꯇꯦꯁ꯭ꯠꯀꯤ ꯔꯦꯀꯣꯔꯗ		
Form 9-1 — Hydraulic Structures Report checklist	ꯐꯣꯔꯝ 9-1 — ꯍꯥꯏꯗ꯭ꯔꯣꯂꯤꯛ ꯁ꯭ꯇ꯭ꯔꯛꯆꯔꯁꯤꯡꯒꯤ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ		
Form 10-1 — Drainage Report Checklist	ꯐꯣꯔꯝ 10-1 — ꯏꯔꯝ ꯔꯤꯄꯣꯔꯠꯀꯤ ꯆꯦꯛꯂꯤꯁ꯭ꯠ		
Form 10-2 — Compliance Calculator Summary	ꯐꯣꯔꯝ 10-2 — ꯀꯝꯄ꯭ꯂꯥꯏꯌꯦꯟꯁ ꯀꯦꯜꯀꯨꯂꯦꯇꯔꯒꯤ ꯁꯝꯃꯔꯤ		
Form 10-3 — Professional Design Certificate	ꯐꯣꯔꯝ 10-3 — ꯄ꯭ꯔꯣꯐꯦꯁꯅꯦꯜ ꯗꯤꯖꯥꯏꯟ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ		ꯁꯔꯇꯤꯐꯤꯀꯦꯠ [G].
Form 10-4 — Hold-Point Inspection Record	ꯐꯣꯔꯝ 10-4 — ꯍꯣꯜꯗ-ꯄꯣꯏꯟꯠ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟꯒꯤ ꯔꯦꯀꯣꯔꯗ		
Form 10-5 — As-built Certificate	ꯐꯣꯔꯝ 10-5 — ꯑꯦꯖ-ꯕꯤꯜꯠ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ		
Form 10-6 — Maintenance Declaration	ꯐꯣꯔꯝ 10-6 — ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ		
Form 10-7 — Annual Maintenance Declaration and Inspection Report	ꯐꯣꯔꯝ 10-7 — ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯃꯦꯟꯇꯦꯅꯦꯟꯁ ꯗꯤꯛꯂꯦꯔꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯏꯟꯁ꯭ꯄꯦꯛꯁꯟ ꯔꯤꯄꯣꯔꯠ		ꯆꯍꯤ "year" [S 64].
Form 10-8 — Asset Handover Certificate	ꯐꯣꯔꯝ 10-8 — ꯑꯦꯁꯦꯠ ꯍꯦꯟꯗꯑꯣꯚꯔ ꯁꯔꯇꯤꯐꯤꯀꯦꯠ		
Form 11-1 — Annual implementation report	ꯐꯣꯔꯝ 11-1 — ꯆꯍꯤ ꯈꯨꯗꯤꯡꯒꯤ ꯏꯝꯄ꯭ꯂꯤꯃꯦꯟꯇꯦꯁꯟ ꯔꯤꯄꯣꯔꯠ		

ꯃꯅꯤꯄꯨꯔꯒꯤ ꯂꯣꯀꯜ ꯋꯥꯍꯩꯁꯤꯡ (local words)

The English edition writes these in Latin letters and leaves their Meetei Mayek forms to this edition (front matter, "Names"). Sharma (2006), DSAL; page numbers of the online edition, only p. 117 checked on the printed page.

English text	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Notes
pukhri (pond)	ꯄꯨꯈ꯭ꯔꯤ	pukhri	[S 117]. ꯄ +ꯨ + ꯈ +꯭+ ꯔ + ꯤ: the apun iyek joins ꯈ to ꯔ.
pat (lake or wetland)	ꯄꯥꯠ	pat	[S 114]; pātpān "lakeside", pātthabi "a swamp".
turel / turen (river)	ꯇꯨꯔꯦꯜ / ꯇꯨꯔꯦꯟ	turel / turen	[S 81] headword turen, variant turel; ꯇꯨꯔꯦꯜ in running text [W].
khong (stream; also "a mine")	ꯈꯣꯡ	khong	[S 54].
khongban / khongbal (ditch, drainage)	ꯈꯣꯡꯕꯥꯟ / ꯈꯣꯡꯕꯥꯜ	khongban / khongbal	[S 55]. The edition's word for "drain".
nala (drain; sewer)	ꯅꯥꯂꯥ	nala	[S 103]. Not used alone.
iram (drainage)	ꯏꯔꯝ	iram	[S 23].
ithong (floodgate, sluice gate)	ꯏꯊꯣꯡ	ithong	[S 20].
pan / pal (bund, embankment)	ꯄꯥꯟ / ꯄꯥꯜ	pan / pal	[S 111].
phumdi (floating mat of vegetation)	ꯐꯨꯝꯗꯤ	phumdi	under phum ꯐꯨꯝ [S 125]; ꯐꯨꯝꯗꯤ [W].
loukhong (irrigation canal)	ꯂꯧꯈꯣꯡ	loukhong	[S 182].
leirai (bank)	ꯂꯩꯔꯥꯏ	leirai	[S 179].
iphut (spring)	ꯏꯐꯨꯠ	iphut	[S 22].
ching (hill)	ꯆꯤꯡ	ching	[S 67].
ising ichao (flood)	ꯏꯁꯤꯡ ꯏꯆꯥꯎ	ising ichao	[S 25] (DSAL: ꯏꯆꯥꯑꯣ).

ꯂꯩꯉꯥꯛꯀꯤ ꯑꯣꯐꯤꯁꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯄꯣꯁ꯭ꯠꯁꯤꯡ (bodies and posts)

Rule: the official English name, transliterated, in the English order; "and" → ꯑꯃꯁꯨꯡ; the English name in brackets at its first mention in each chapter for every entry marked [N]. The abbreviation stays Latin after that. No body named here has adopted, notified or endorsed the Manual.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Status and source
Government of Manipur / State Government	ꯃꯅꯤꯄꯨꯔ ꯂꯩꯉꯥꯛ / ꯁ꯭ꯇꯦꯠ ꯂꯩꯉꯥꯛ	Manipur leingak / stet leingak	[W] ("ꯃꯅꯤꯄꯨꯔ ꯂꯩꯉꯥꯛ" on mni.wikipedia; leingāk [S 177]); not seen on a Government page — unverified.
Government of India	ꯚꯥꯔꯠ ꯂꯩꯉꯥꯛ	Bharat leingak	[N]; ꯚꯥꯔꯠ [W].
Governor / Chief Minister / Council of Ministers	ꯒꯚꯔꯅꯔ / ꯆꯤꯐ ꯃꯤꯅꯤꯁꯇꯔ / ꯀꯥꯎꯟꯁꯤꯜ ꯑꯣꯐ ꯃꯤꯅꯤꯁꯇꯔꯁ	gavarnar / chiph ministar / kaunsil oph ministars	ꯆꯤꯐ ꯃꯤꯅꯤꯁꯇꯔ, ꯀꯥꯎꯟꯁꯤꯜ [W]; ꯒꯚꯔꯅꯔ written like ꯒꯚꯔꯅꯦꯟꯁ [G] (mni.wikipedia also has ꯒꯣꯚꯔꯅꯔ) — unverified.
Manipur Legislative Assembly	ꯃꯅꯤꯄꯨꯔ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯚ ꯑꯦꯁꯦꯝꯕꯂꯤ	Manipur lejisletiv esembli	[W] (page title on mni.wikipedia); the Assembly's site gave no Meetei Mayek — unverified.
Hill Areas Committee (of the Legislative Assembly)	ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ ꯀꯃꯤꯇꯤ	hil eriyas kamiti	[N] unverified.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Status and source
District Councils (Autonomous District Councils of the hill areas)	ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜꯁꯤꯡ (ꯆꯤꯡꯒꯤ ꯂꯝꯁꯤꯡꯒꯤ ꯑꯣꯇꯣꯅꯣꯃꯁ ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯀꯧꯟꯁꯤꯜꯁꯤꯡ)	distrik kaunsilsing	[N] unverified. Always written in full, never "DC".
Municipal Administration, Housing and Urban Development Department (MAHUD)	ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯑꯦꯗꯃꯤꯅꯤꯁ꯭ꯠꯔꯦꯁꯟ, ꯍꯥꯎꯁꯤꯡ ꯑꯃꯁꯨꯡ ꯎꯔꯕꯟ ꯗꯦꯕꯦꯂꯞꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (MAHUD)	myunisipel edministresan, hausing amasung urban develapment dipartment	[N] unverified; ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ and ꯎꯔꯕꯟ as on imc.mn.gov.in [G]; mahud.mn.gov.in has no Meetei Mayek.
Town Planning Department (TPD)	ꯇꯥꯎꯟ ꯄ꯭ꯂꯥꯅꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (TPD)	taun planing dipartment	[N] unverified.
Planning and Development Authority, Manipur (PDA Manipur)	ꯄ꯭ꯂꯥꯅꯤꯡ ꯑꯃꯁꯨꯡ ꯗꯦꯕꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ, ꯃꯅꯤꯄꯨꯔ (PDA Manipur)	planing amasung develapment othoriti, Manipur	[N] unverified.
Imphal Municipal Corporation (IMC)	ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯟ (IMC)	Imphal myunisipel korporesan	**[G] verified** (imc.mn.gov.in, Meetei Mayek interface, 14 November 2026).
Municipal Council / Nagar Panchayat / Gram Panchayat / Village Authority	ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ ꯀꯧꯟꯁꯤꯜ / ꯅꯒꯔ ꯄꯟꯆꯥꯌꯠ / ꯒ꯭ꯔꯥꯝ ꯄꯟꯆꯥꯌꯠ / ꯚꯤꯂꯦꯖ ꯑꯣꯊꯣꯔꯤꯇꯤ	myunisipel kaunsil / nagar panchayat / gram panchayat / vilej othoriti	[N] unverified (ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯦꯜ [G]).
Imphal Smart City Ltd	ꯏꯝꯐꯥꯜ ꯁ꯭ꯃꯥꯔꯠ ꯁꯤꯇꯤ ꯂꯤꯃꯤꯇꯦꯗ	Imphal smart siti limited	[N]; ꯁ꯭ꯃꯥꯔꯠ, ꯁꯤꯇꯤ as on imc.mn.gov.in [G].
Water Resources Department (WRD); formerly Irrigation and Flood Control Department (IFCD)	ꯋꯥꯇꯔ ꯔꯤꯁꯣꯔꯁꯦꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (WRD); ꯃꯃꯥꯡꯗ ꯏꯔꯤꯒꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯐ꯭ꯂꯗ ꯀꯟꯠꯔꯣꯜ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (IFCD)	watar risorses dipartment; irigesan amasung phlad kantrol dipartment	[N] unverified; wrd.mn.gov.in did not answer.
Public Health Engineering Department (PHED)	ꯄꯕ꯭ꯂꯤꯛ ꯍꯦꯜꯊ ꯏꯟꯖꯤꯅꯤꯌꯔꯤꯡ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (PHED)	pablik helth injiniyaring dipartment	[N]; ꯄꯕ꯭ꯂꯤꯛ [G].
Public Works Department (PWD)	ꯄꯕ꯭ꯂꯤꯛ ꯋꯔꯛꯁ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ (PWD)	pablik warks dipartment	[N]; ꯄꯕ꯭ꯂꯤꯛ [G].
Forest, Environment and Climate Change Department / Directorate of Environment and Climate Change (DoECC)	ꯐꯣꯔꯦꯁ꯭ꯠ, ꯏꯟꯚꯥꯏꯔꯅꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ / ꯏꯟꯚꯥꯏꯔꯅꯃꯦꯟꯠ ꯑꯃꯁꯨꯡ ꯀ꯭ꯂꯥꯏꯃꯦꯠ ꯆꯦꯟꯖ ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ (DoECC)	phorest, invairanment amasung klaimet chenj dipartment / … dairektoret	[N] unverified; "Directorate of X" is written "X ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ", as the DIPR writes its own name [G].
Directorate of Information and Public Relations (DIPR)	ꯏꯟꯐꯣꯔꯃꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯄꯕ꯭ꯂꯤꯛ ꯔꯤꯂꯦꯁꯟꯁ ꯗꯥꯏꯔꯦꯛꯇꯣꯔꯦꯠ	inphormesan amasung pablik rilesans dairektoret	**[G] verified** (dipr.mn.gov.in header, 14 November 2026). Named here as the model for the other names; the Manual itself does not name it.
Manipur Pollution Control Board (MPCB)	ꯃꯅꯤꯄꯨꯔ ꯄꯣꯂꯨꯁꯟ ꯀꯟꯠꯔꯣꯜ ꯕꯣꯔꯗ (MPCB)	Manipur polusan kantrol bord	[N] unverified.
Manipur State Disaster Management Authority (MSDMA) / District Disaster Management Authority	ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ (MSDMA) / ꯗꯤꯁ꯭ꯠꯔꯤꯛ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ	…	[N] unverified.
Relief and Disaster Management Department	ꯔꯤꯂꯤꯐ ꯑꯃꯁꯨꯡ ꯗꯤꯖꯥꯁ꯭ꯇꯔ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ ꯗꯤꯄꯥꯔꯠꯃꯦꯟꯠ	riliph amasung dijastar menejment dipartment	[N] unverified.

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Status and source
Manipur State Wetlands Authority (MSWA)	ꯃꯅꯤꯄꯨꯔ ꯁ꯭ꯇꯦꯠ ꯋꯦꯠꯂꯦꯟꯗꯁ ꯑꯣꯊꯣꯔꯤꯇꯤ (MSWA)	Manipur stet wetlends othoriti	[N] unverified.
Loktak Development Authority (LDA)	ꯂꯣꯛꯇꯥꯛ ꯗꯦꯚꯦꯂꯞꯃꯦꯟꯠ ꯑꯣꯊꯣꯔꯤꯇꯤ (LDA)	Loktak develapment othoriti	[N] unverified; ꯂꯣꯛꯇꯥꯛ [S 180].
Manipur Science and Technology Council (MASTEC)	ꯃꯅꯤꯄꯨꯔ ꯁꯥꯏꯟꯁ ꯑꯃꯁꯨꯡ ꯇꯦꯛꯅꯣꯂꯣꯖꯤ ꯀꯥꯎꯟꯁꯤꯜ (MASTEC)	Manipur sains amasung teknoloji kaunsil	[N] unverified.
Flood Zoning Authority (1978 Act)	ꯐ꯭ꯂꯗ ꯖꯣꯅꯤꯡ ꯑꯣꯊꯣꯔꯤꯇꯤ	phlad joning othoriti	[N]. None constituted (English text).
Local Level Monitoring Committee / District Level Committee / State Level Committee (2014 Act)	ꯂꯣꯀꯦꯜ ꯂꯦꯚꯦꯜ ꯃꯣꯅꯤꯇꯔꯤꯡ ꯀꯃꯤꯇꯤ / ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯛ ꯂꯦꯚꯦꯜ ꯀꯃꯤꯇꯤ / ꯁ꯭ꯇꯦꯠ ꯂꯦꯚꯦꯜ ꯀꯃꯤꯇꯤ	…	[N]; ꯀꯃꯤꯇꯤ [W].
High Court of Manipur (HC)	ꯃꯅꯤꯄꯨꯔ ꯍꯥꯏ ꯀꯣꯔꯠ	Manipur hai kort	[N]; ꯀꯣꯔꯠ [W]; the High Court's site gave no Meetei Mayek.
Deputy Commissioner (DC) / Sub-Divisional Officer / sub-division	ꯗꯦꯄꯨꯇꯤ ꯀꯃꯤꯁꯅꯔ (DC) / ꯁꯕ-ꯗꯤꯚꯤꯖꯅꯦꯜ ꯑꯣꯐꯤꯁꯔ / ꯁꯕ-ꯗꯤꯚꯤꯖꯟ	deputi kamisanar / sab-divijanel ophisar / sab-divijan	[N]; ꯑꯣꯐꯤꯁ "office" [S 32].
National and other bodies (CWC, IMD, CGWB, CPCB, NGT, NDMA, NHPC, MoHUA …)	Latin abbreviation; full name transliterated at first use		[N]. Never transliterate the letters (not ꯁꯤ.ꯗꯕ꯭ꯂꯤꯎ.ꯁꯤ.).

ꯑꯦꯛꯠ, ꯔꯨꯜ ꯑꯃꯁꯨꯡ ꯄ꯭ꯂꯥꯟꯁꯤꯡ (Acts, rules and plans)

Rule: the title transliterated in the English order, year and Act number in Western digits; the official English title in brackets at its first mention in each chapter, and in italics in references. All [N], unverified: no Meetei Mayek text of any of these instruments was found.

English	ꯃꯩꯇꯩꯂꯣꯟ	Notes
Constitution of India / Article 371C	ꯏꯟꯗꯤꯌꯥ ꯑꯔꯤꯕ ꯁꯍꯂꯀꯥꯡꯂꯣꯟ / ꯑꯥꯔꯇꯤꯀꯜ 371C	ꯁꯍꯂꯀꯥꯡꯂꯣꯟ [W]; the State released a Meetei Mayek diglot edition of the Constitution in November 2023 (as reported; not read [TBC]) — its terms for Article, Part and Schedule should replace ꯑꯥꯔꯇꯤꯀꯜ etc. if they differ.
Manipur Official Language Act, 1979 / Manipur Official Language (Amendment) Act, 2021	ꯃꯅꯤꯄꯨꯔ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯂꯦꯡꯒ꯭ꯋꯦꯖ ꯑꯦꯛꯠ, 1979 / ꯃꯅꯤꯄꯨꯔ ꯑꯣꯐꯤꯁꯤꯌꯦꯜ ꯂꯦꯡꯒ꯭ꯋꯦꯖ (ꯑꯦꯃꯦꯟꯗꯃꯦꯟꯠ) ꯑꯦꯛꯠ, 2021	Its definition "Meeteilon written in Meetei Mayek" is quoted in English, with ꯃꯩꯇꯩ ꯃꯌꯦꯛꯇ ꯏꯕ ꯃꯩꯇꯩꯂꯣꯟ in brackets.
Manipur Municipalities Act, 1994	ꯃꯅꯤꯄꯨꯔ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯂꯤꯇꯤꯖ ꯑꯦꯛꯠ, 1994	
Manipur Town and Country Planning Act, 1975 (MTCP Act)	ꯃꯅꯤꯄꯨꯔ ꯇꯥꯎꯟ ꯑꯃꯁꯨꯡ ꯀꯟꯇ꯭ꯔꯤ ꯄ꯭ꯂꯦꯅꯤꯡ ꯑꯦꯛꯠ, 1975 (MTCP Act)	"MTCP Act" stays Latin.
Manipur (Hill Areas) District Councils Act, 1971	ꯃꯅꯤꯄꯨꯔ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ) ꯗꯤꯁ꯭ꯇ꯭ꯔꯤꯛ ꯀꯥꯎꯟꯁꯤꯂꯁ ꯑꯦꯛꯠ, 1971	

English	ꯃꯩꯇꯩꯂꯣꯟ	Notes
Manipur Legislative Assembly (Hill Areas Committee) Order, 1972	ꯃꯅꯤꯄꯨꯔ ꯂꯦꯖꯤꯁꯂꯦꯇꯤꯚ ꯑꯦꯁꯦꯝꯕꯂꯤ (ꯍꯤꯜ ꯑꯦꯔꯤꯌꯥꯁ ꯀꯃꯤꯇꯤ) ꯑꯣꯔꯗꯔ, 1972	
Manipur Loktak Lake (Protection) Act, 2006 (Loktak Act)	ꯃꯅꯤꯄꯨꯔ ꯂꯣꯛꯇꯥꯛ ꯂꯦꯛ (ꯄ꯭ꯔꯣꯇꯦꯛꯁꯟ) ꯑꯦꯛꯠ, 2006 (ꯂꯣꯛꯇꯥꯛ ꯑꯦꯛꯠ)	Core Zone ꯀꯣꯔ ꯖꯣꯟ; Buffer Zone ꯕꯐꯔ ꯖꯣꯟ.
Manipur Flood Plain Zoning Act, 1978	ꯃꯅꯤꯄꯨꯔ ꯐ꯭ꯂꯗ ꯄ꯭ꯂꯦꯟ ꯖꯣꯅꯤꯡ ꯑꯦꯛꯠ, 1978	
Manipur Conservation of Paddy Land and Wetland Act, 2014 (paddy-land Act)	ꯃꯅꯤꯄꯨꯔ ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯣꯐ ꯄꯦꯗꯤ ꯂꯦꯟꯗ ꯑꯃꯁꯨꯡ ꯋꯦꯠꯂꯦꯟꯗ ꯑꯦꯛꯠ, 2014 (ꯄꯦꯗꯤ-ꯂꯦꯟꯗ ꯑꯦꯛꯠ)	The 2026 Bill is never cited as law.
Manipur Land Revenue and Land Reforms Act, 1960	ꯃꯅꯤꯄꯨꯔ ꯂꯦꯟꯗ ꯔꯦꯚꯦꯅꯨ ꯑꯃꯁꯨꯡ ꯂꯦꯟꯗ ꯔꯤꯐꯣꯔꯝꯁ ꯑꯦꯛꯠ, 1960	
Model Manipur Unified Building Bye-Laws, 2024 (Unified Bye-Laws 2024)	ꯃꯣꯗꯦꯜ ꯃꯅꯤꯄꯨꯔ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯖ, 2024 (ꯌꯨꯅꯤꯐꯥꯏꯗ ꯕꯥꯏ-ꯂꯥꯖ 2024)	A *model*: keep "as brought into force by each ULB". The gazette spelling "Bye-Laws" → ꯕꯥꯏ-ꯂꯥꯖ.
Unified Zoning/Use Regulation Bye-laws for the Master Plan Areas of Manipur, 2026	ꯃꯅꯤꯄꯨꯔꯒꯤ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ ꯑꯦꯔꯤꯌꯥꯁꯤꯡꯒꯤ ꯌꯨꯅꯤꯐꯥꯏꯗ ꯖꯣꯅꯤꯡ/ꯌꯨꯖ ꯔꯦꯒꯨꯂꯦꯁꯟ ꯕꯥꯏ-ꯂꯥꯖ, 2026	
IMC Building Bye-Laws	ꯏꯝꯐꯥꯜ ꯃ꯭ꯌꯨꯅꯤꯁꯤꯄꯥꯜ ꯀꯣꯔꯄꯣꯔꯦꯁꯅꯒꯤ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯖ	The draft/notified status as the English gives it.
Model Building Bye-Laws 2016 (MBBL 2016, MoHUA)	ꯃꯣꯗꯦꯜ ꯕꯤꯜꯗꯤꯡ ꯕꯥꯏ-ꯂꯥꯖ 2016 (MBBL 2016)	National, not the State's.
Revised GIS Based Master Plan for Greater Imphal – 2043 (1st Modification)	ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜꯒꯤ ꯔꯤꯚꯥꯏꯖ ꯇꯧꯔꯕ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟ – 2043 (ꯑꯍꯥꯅꯕ ꯃꯣꯗꯤꯐꯤꯀꯦꯁꯟ)	The English title in brackets at first use in each chapter.
Risk Informed GIS Based Master Plans (RIMP) for Imphal and Moirang	ꯏꯝꯐꯥꯜ ꯑꯃꯁꯨꯡ ꯃꯣꯏꯔꯥꯡꯒꯤ ꯔꯤꯁ꯭ꯛ ꯏꯟꯐꯣꯔꯝꯗ GIS ꯕꯦꯁ ꯃꯥꯁ꯭ꯇꯔ ꯄ꯭ꯂꯥꯟꯁꯤꯡ (RIMP)	Not read (English).
Wetlands (Conservation and Management) Rules, 2017	ꯋꯦꯠꯂꯦꯟꯗꯁ (ꯀꯟꯁꯔꯚꯦꯁꯟ ꯑꯃꯁꯨꯡ ꯃꯦꯅꯦꯖꯃꯦꯟꯠ) ꯔꯨꯂꯁ, 2017	Rule 4 → ꯔꯨꯜ 4.
Manipur Gazette (Extraordinary)	ꯃꯅꯤꯄꯨꯔ ꯒꯦꯖꯦꯠ (ꯑꯦꯛꯁ꯭ꯇ꯭ꯔꯥꯑꯣꯔꯗꯤꯅꯔꯤ)	Gazette and notification numbers copied exactly.

ꯃꯐꯝꯁꯤꯡ, ꯇꯨꯔꯦꯜꯁꯤꯡ, ꯄꯥꯠ ꯑꯃꯁꯨꯡ ꯗꯤꯁ꯭ꯠꯔꯤꯛꯁꯤꯡ (places, rivers, lakes and districts)

Rule: the official English name, transliterated; an alternative or traditional Meeteilon name (for example ꯂꯃꯥꯡꯗꯣꯡ, which Manipuri Wikipedia uses for Bishnupur district) is never put in its place, because the official name is the one the statutes and the English edition use. In tables, IMD and CWC station names and IDs stay Latin. [W] = spelling seen on Manipuri Wikipedia; [N] = NEER transliteration, unverified; the English name in brackets at first mention in each chapter for every [N].

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Status
Manipur	ꯃꯅꯤꯄꯨꯔ	Manipur	[W]; on imc.mn.gov.in pages.
Imphal	ꯏꯝꯐꯥꯜ	Imphal	[S 23]; **[G]** (imc.mn.gov.in).
Greater Imphal	ꯒ꯭ꯔꯦꯇꯔ ꯏꯝꯐꯥꯜ	greitar Imphal	[N].
Imphal East / Imphal West (districts)	ꯏꯝꯐꯥꯜ ꯏꯁ꯭ꯠ / ꯏꯝꯐꯥꯜ ꯋꯦꯁ꯭ꯠ	Imphal ist / Imphal west	[N]; Manipuri Wikipedia translates them as ꯅꯣꯡꯄꯣꯛ ꯏꯝꯐꯥꯜ / ꯅꯣꯡꯆꯨꯞ ꯏꯝꯐꯥꯜ — **reviewer to decide**.
Thoubal / Bishnupur / Kakching	ꯊꯧꯕꯥꯜ / ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ / ꯀꯛꯆꯤꯡ	Thoubal / Bishnupur / Kakching	[W] (ꯕꯤꯁ꯭ꯅꯨꯄꯨꯔ ꯄꯅꯥ, ꯀꯛꯆꯤꯡ ꯄꯅꯥ pages).
Senapati / Ukhrul / Churachandpur / Tamenglong / Chandel / Jiribam	ꯁꯦꯅꯥꯄꯇꯤ / ꯎꯈ꯭ꯔꯨꯜ / ꯆꯨꯔꯆꯥꯟꯗꯄꯨꯔ / ꯇꯃꯦꯡꯂꯣꯡ / ꯆꯟꯗꯦꯜ / ꯖꯤꯔꯤꯕꯥꯝ		[W] (list of districts).
Kangpokpi / Tengnoupal / Kamjong / Noney / Pherzawl	ꯀꯥꯡꯄꯣꯛꯄꯤ / ꯇꯦꯡꯅꯧꯄꯜ / ꯀꯥꯝꯖꯣꯡ / ꯅꯣꯅꯦ / ꯐꯦꯔꯖꯣꯜ		[W] except Pherzawl [N] (Manipuri Wikipedia ꯐꯦꯔꯓꯥꯎꯜ, with the extra letter ꯓ; this edition writes z as ꯖ).
Moirang / Moreh / Mayang Imphal / Lilong / Yairipok / Nambol / Ningthoukhong / Sugnu	ꯃꯣꯢꯔꯥꯡ / ꯃꯣꯔꯦ / ꯃꯌꯥꯡ ꯏꯝꯐꯥꯜ / ꯂꯤꯂꯣꯡ / ꯌꯥꯢꯔꯤꯄꯣꯛ / ꯅꯝꯕꯣꯜ / ꯅꯤꯡꯊꯧꯈꯣꯡ / ꯁꯨꯒꯅꯨ		[W].
Kumbi / Wangjing / Heirok / Pumlen / Leimatak / Irang / Makru / Khoupum / Singda / Chakpi	ꯀꯨꯝꯕꯤ / ꯋꯥꯡꯖꯤꯡ / ꯍꯩꯔꯣꯛ / ꯄꯨꯝꯂꯦꯟ / ꯂꯩꯃꯥꯇꯛ / ꯏꯔꯥꯡ / ꯃꯀ꯭ꯔꯨ / ꯈꯧꯄꯨꯝ / ꯁꯤꯡꯗꯥ / ꯆꯛꯄꯤ		[N].
Minuthong / Keirang / Khabam / Lairikyengbam Leikai / Singjamei / Lamphel / Kangla	ꯃꯤꯅꯨꯊꯣꯡ / ꯀꯩꯔꯥꯡ / ꯈꯥꯕꯝ / ꯂꯥꯢꯔꯤꯛꯌꯦꯡꯕꯝ ꯂꯩꯀꯥꯢ / ꯁꯤꯡꯖꯃꯩ / ꯂꯝꯐꯦꯜ / ꯀꯪꯂꯥ		ꯂꯥꯢꯔꯤꯛꯌꯦꯡꯕꯝ, ꯁꯤꯡꯖꯃꯩ, ꯂꯝꯐꯦꯜ, ꯀꯪꯂꯥ [W]; the rest [N].
Arong / Merakhong (rivers in the bye-law 93 table) / Sekmaijin / Disang (shale)	ꯑꯔꯣꯡ / ꯃꯦꯔꯥꯈꯣꯡ / ꯁꯦꯛꯃꯥꯢꯖꯤꯟ / ꯗꯤꯁꯥꯡ		[N].
Tulihal (Imphal airport station)	ꯇꯨꯂꯤꯍꯥꯜ	Tulihal	[N]; the station name "Imphal (Tulihal)" stays Latin in tables.
Imphal river (Imphal Turel) / Manipur river	ꯏꯝꯐꯥꯜ ꯇꯨꯔꯦꯜ / ꯃꯅꯤꯄꯨꯔ ꯇꯨꯔꯦꯜ		[W].
Nambul / Nambol (a different river)	ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ / ꯅꯝꯕꯣꯜ ꯇꯨꯔꯦꯜ		ꯅꯝꯕꯨꯜ ꯇꯨꯔꯦꯜ [W] (page title); ꯅꯝꯕꯣꯜ [W]. Never confuse the two.
Iril / Kongba / Khuga / Sekmai / Thoubal river	ꯏꯔꯤꯜ ꯇꯨꯔꯦꯜ / ꯀꯣꯡꯕ ꯇꯨꯔꯦꯜ / ꯈꯨꯒꯥ ꯇꯨꯔꯦꯜ / ꯁꯦꯛꯃꯥꯢ ꯇꯨꯔꯦꯜ / ꯊꯧꯕꯥꯜ ꯇꯨꯔꯦꯜ		ꯁꯦꯛꯃꯥꯢ, ꯊꯧꯕꯥꯜ [W]; Iril, Kongba, Khuga [N].
Barak / Tuivai / Kaladan ("Kalden")	ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜ / ꯇꯨꯏꯍꯥꯏ / ꯀꯂꯥꯗꯟ		ꯕꯔꯥꯛ ꯇꯨꯔꯦꯜ [W]; the others [N]; CWC's "Kalden" stays in its quotation.
Shamushang nallah / Naga Nullah	ꯁꯃꯨꯁꯥꯡ ꯅꯥꯂꯥ / ꯅꯥꯒꯥ ꯅꯨꯜꯂꯥ		[N]; proper names, so ꯅꯥꯂꯥ here is part of a name (the source spellings Samushang, Samusang, Naga Nallah stay Latin in brackets).

English	ꯃꯩꯇꯩꯂꯣꯟ	Latin	Status
Loktak Lake / Loktak	ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠ / ꯂꯣꯛꯇꯥꯛ		[S 180]; ꯂꯣꯛꯇꯥꯛ ꯄꯥꯠ [W].
Lamphelpat / Porompat / Takyelpat / Sangaipat / Kharungpat / Ikop pat	ꯂꯝꯐꯦꯜꯄꯥꯠ / ꯄꯣꯔꯣꯝꯄꯥꯠ / ꯇꯥꯛꯌꯦꯜꯄꯥꯠ / ꯁꯪꯒꯥꯏꯄꯥꯠ / ꯈꯥꯔꯨꯡꯄꯥꯠ / ꯏꯀꯣꯞ ꯄꯥꯠ		ꯂꯝꯐꯦꯜꯄꯥꯠ, ꯄꯣꯔꯣꯝꯄꯥꯠ, ꯏꯀꯣꯞ [W]; the rest [N]. One word with -pat, as the English.
Utra Pat / Yaral Pat / Waithou–Phumnom Pat	ꯎꯇ꯭ꯔꯥ ꯄꯥꯠ / ꯌꯥꯔꯥꯜ ꯄꯥꯠ / ꯋꯥꯏꯊꯧ–ꯐꯨꯝꯅꯣꯝ ꯄꯥꯠ		[N].
Keibul Lamjao National Park / Takmu Fishery Farm	ꯀꯩꯕꯨꯜ ꯂꯝꯖꯥꯎ ꯅꯦꯁꯅꯦꯜ ꯄꯥꯔꯛ / ꯇꯥꯛꯃꯨ ꯐꯤꯁꯔꯤ ꯐꯥꯔꯝ		ꯀꯩꯕꯨꯜ ꯂꯝꯖꯥꯎ, ꯇꯥꯛꯃꯨ [W]; the rest [N].
Ithai barrage (also Ethai) / Mapithel dam (Thoubal Multipurpose Project) / Singda dam / Khuga dam	ꯏꯊꯥꯏ ꯕꯦꯔꯥꯖ / ꯃꯄꯤꯊꯦꯜ ꯗꯦꯝ (ꯊꯧꯕꯜ ꯃꯜꯇꯤꯄꯔꯄꯣꯖ ꯄ꯭ꯔꯣꯖꯦꯛꯠ) / ꯁꯤꯡꯗꯥ ꯗꯦꯝ / ꯈꯨꯒꯥ ꯗꯦꯝ		[N].
"Sugnu hump"	"ꯁꯨꯒꯅꯨ ꯍꯝꯞ"		[N]; MASTEC's name, kept in quotation marks.
Chotebekra (Chotobekra)	ꯆꯣꯇꯦꯕꯦꯀ꯭ꯔꯥ		[N]; CWC site name stays Latin in tables.
Koubru (hills)	ꯀꯧꯕ꯭ꯔꯨ	Koubru	[S 45].
Myanmar / Assam / Mizoram / Nagaland	ꯃ꯭ꯌꯥꯟꯃꯥꯔ / ꯑꯁꯥꯝ / ꯃꯤꯖꯣꯔꯥꯝ / ꯅꯒꯥꯂꯦꯟꯗ		ꯃ꯭ꯌꯥꯟꯃꯥꯔ, ꯑꯁꯥꯝ, ꯅꯒꯥꯂꯦꯟꯗ [W]; ꯃꯤꯖꯣꯔꯥꯝ [N]. Only where the English names them.

ꯊꯥꯁꯤꯡ (months)

Gregorian months, transliterated [N]; the Meitei calendar months (ꯁꯖꯤꯕꯨ, ꯀꯂꯦꯟ …) are not used. Dates keep the English order: 28–31 ꯃꯦ 2024; ꯅꯣꯚꯦꯝꯕꯔ 2026.

English	ꯃꯩꯇꯩꯂꯣꯟ
January, February, March, April	ꯖꯅꯨꯋꯔꯤ, ꯐꯦꯕ꯭ꯔꯨꯋꯔꯤ, ꯃꯥꯔꯆ, ꯑꯦꯄꯔꯤꯜ
May, June, July, August	ꯃꯦ, ꯖꯨꯟ, ꯖꯨꯂꯥꯏ, ꯑꯒꯁ꯭ꯠ
September, October, November, December	ꯁꯦꯞꯇꯦꯝꯕꯔ, ꯑꯛꯇꯣꯕꯔ, ꯅꯣꯚꯦꯝꯕꯔ, ꯗꯤꯁꯦꯝꯕꯔ