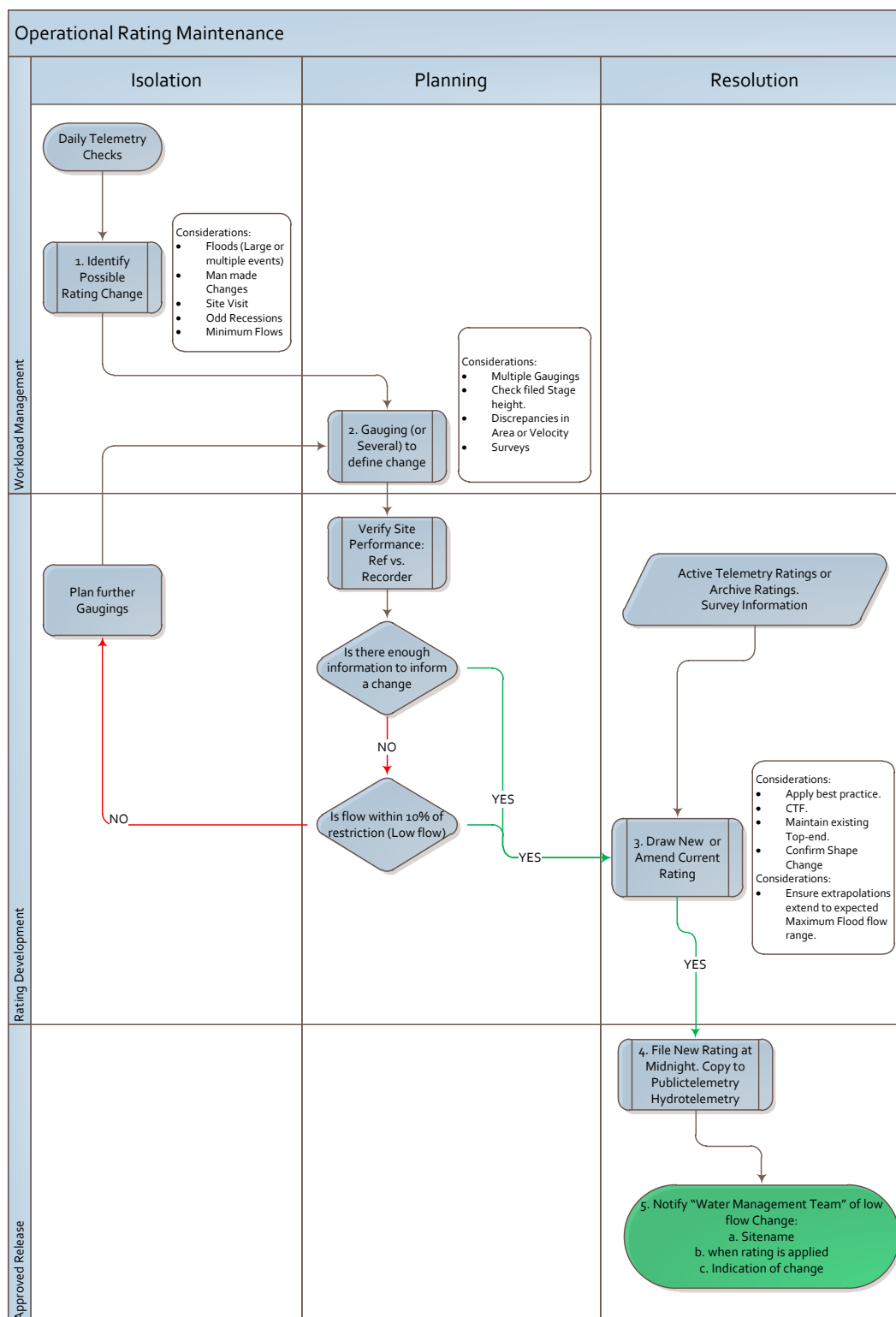


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Operational Rating Maintenance

Process Flow Chart:



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Operational Rating Maintenance

Overview:

Nominal Reference: NEMS Ratings, NEMS Water Level and NEMS Open Channel Flow.

Management of operational rating is required for the effective Water Resource Management and Flood Warning & Forecasting Systems.

With the advent of real time data provision via the internet and daily water abstraction consent management; the Catchment Data team is funded to carryout extra target gaugings to ensure real time ratings meet the required expectations.

Operational Rating differ from Final Hydrometric archive ratings; due to the need to account for performance differences on site and limited available information to ensure correct rating design has been applied.

Requirements:

Requirements Operational Ratings used for real time provision (Established Sites):

- Filed at Midnight (to be applied the following day) with no merge period.
 - Providing a clear step change for all raw data users.
- In Horizons Region the most common rating type is: “Family of Curves”.
 - Ratings will generally blend around Median Flow to 20% Flow Percentile.
 - Unless significant reach modification has occurred.
- Cover Full Expected Flood Range and have limited curvature at the top end of the rating.
 - Validate against Stage/Area and Area Velocity.
 - Particular attention is needed when extrapolating beyond bank-full.
 - Rough Generalised Flood Specific Yields for consideration:

Catchment Slope	50year	100year	200year
High Hill Country	2000-3000 l/s/km ²	3000-5000 l/s/km ²	>5000 l/s/km ²
Lowland Small Catchments	600-1200 l/s/km ²	1000-2000 l/s/km ²	>2000 l/s/km ²
Lowland Large Catchments	1000-1500 l/s/km ²	2000-3000 l/s/km ²	>3000 l/s/km ²

- Sensible extrapolation to “Cease to Flow” (CTF) being Zero.
- All hydrometric gaugings are filed against the real-time stage values at the time of mean stage.

Validation of Gauging Filed Stage Value:

Consideration is needed for any discrepancy between Logger stage (recorder) and Primary reference (External Staff Gauge or EPB) or change on-site post gauging or site inspection / servicing:

The filed height should be adjusted to the most relevant stage height (i.e. apply a correction to the filed stage height) to able an appropriate rating to be generated.

Consideration for Flood Forecasting:

All major sites have predicted flow generated from the Flood Forecasting System. The Predicted Flow is then rated to Predicted Stage. Ideally when new ratings are applied to Hydrometric stations and inverted rating should be applied to the Flood Forecasting file; to ensure that the datasets are representative (internally and externally).

This process can be achieved by notification to the Coordinator administrating the Modelling Portfolio.

Consideration for Water Management (WaterMatters):

During times of low flow; rating changes may result in a management zone or sub zone entering restriction. If this occurs then the Water Management group should be notified via waterinfo@horizons.govt.nz.

Further Detailed information available: CD_OM_7_1_6_Appendix1 Rating Design Information