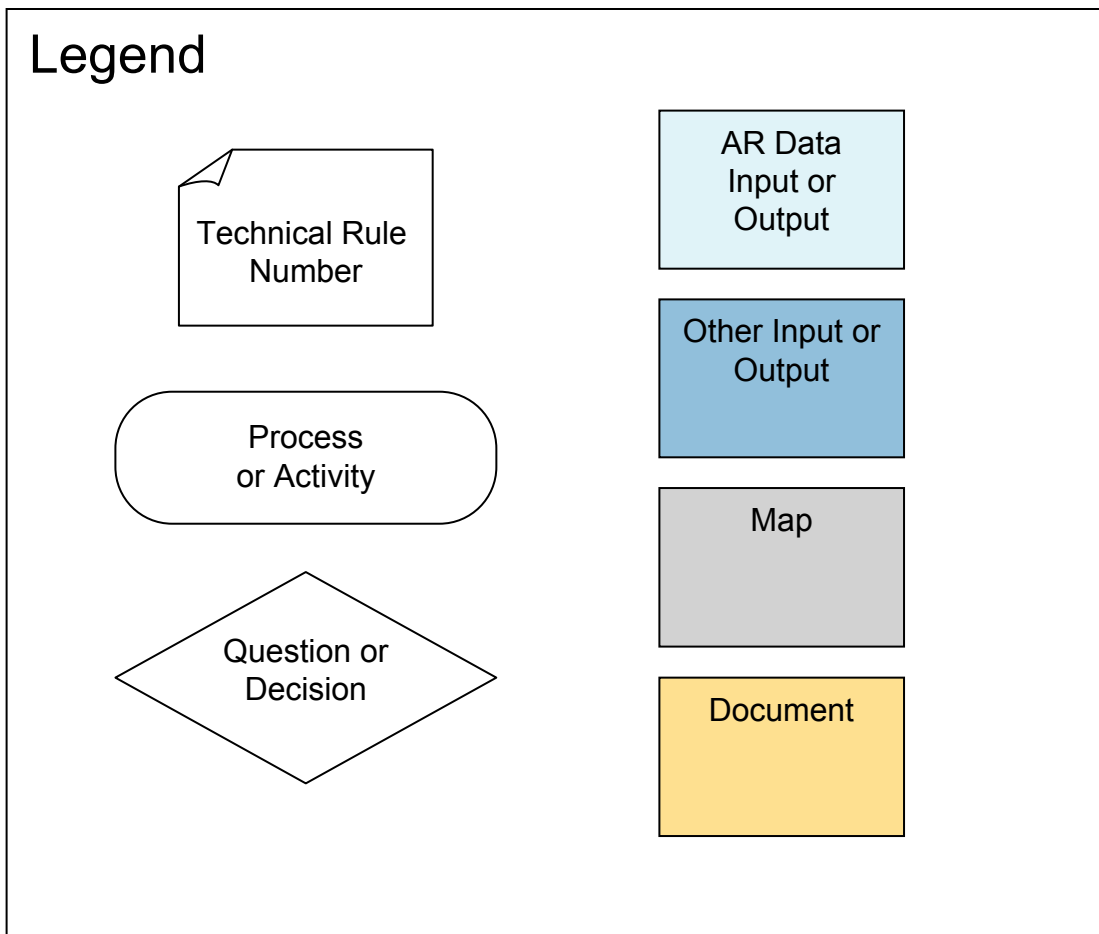
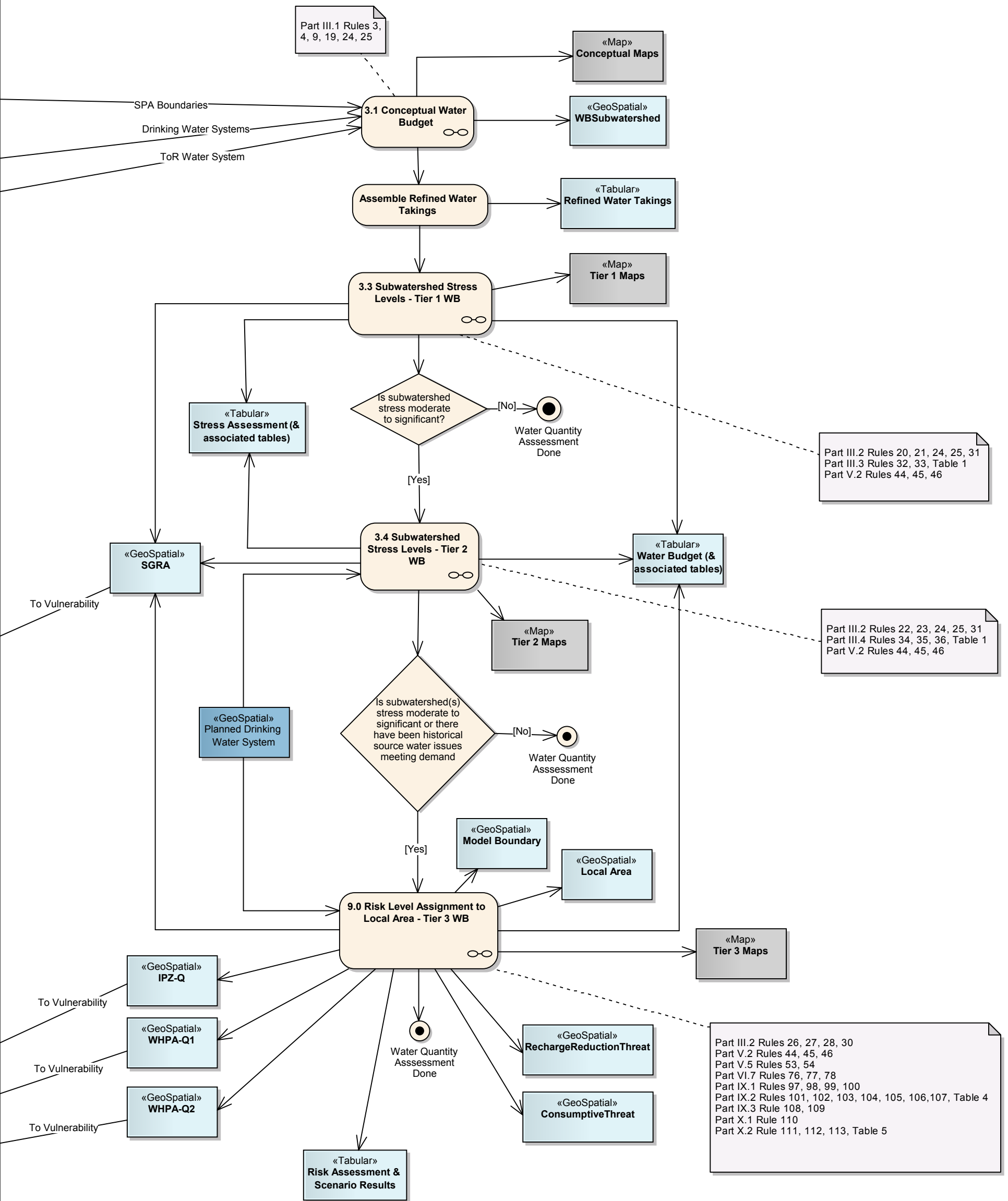


Water Budget & Water Quantity Risk Assessment Technical Rules Road Map

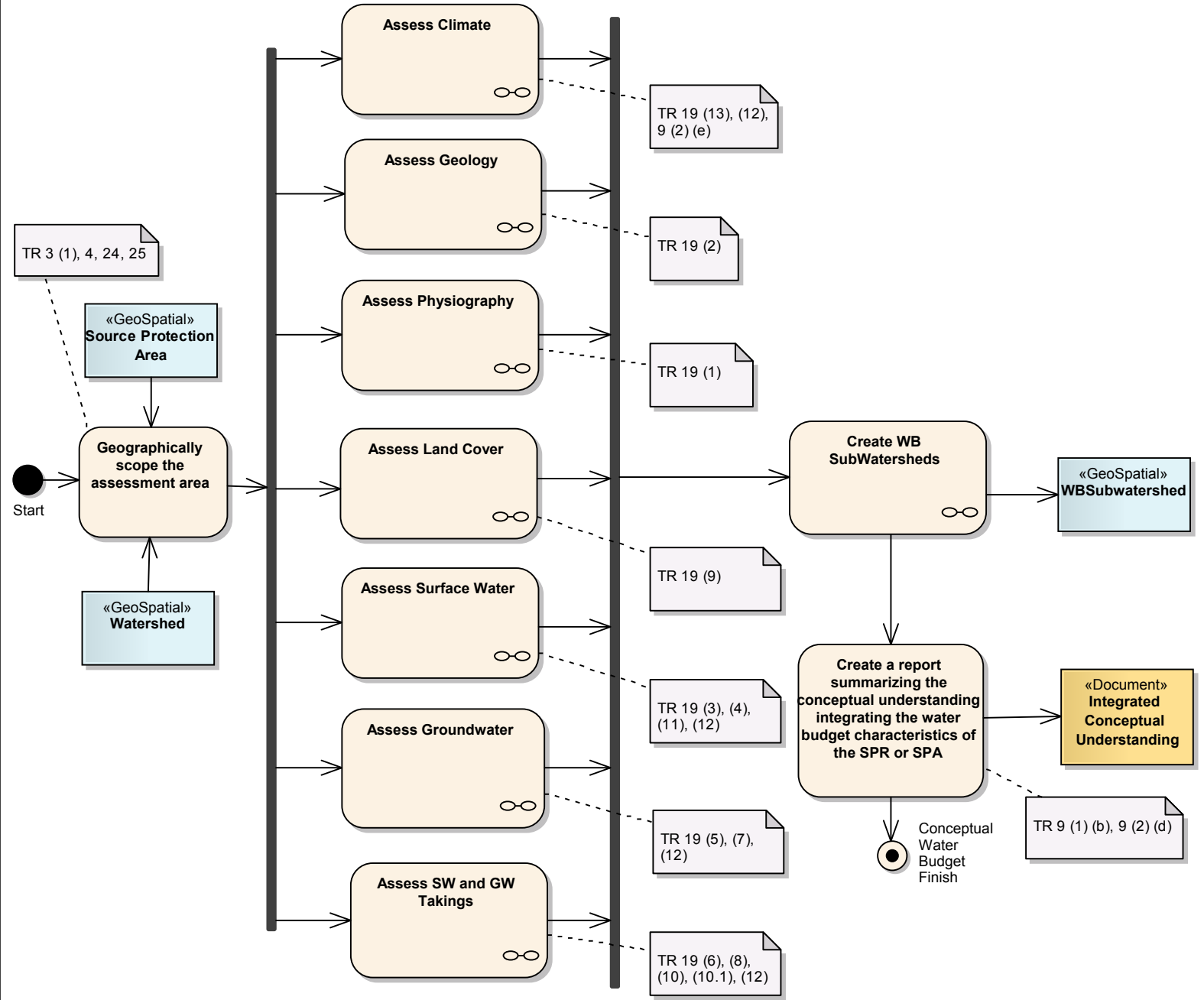
This Road Map was created in order to assist practitioners to undertake the Water Budget & Water Quantity Assessment process. The road map is a series of work flow diagrams that illustrate the processes or activities involved in completing Water Budget and Water Quantity Assessments. Where applicable, the Technical Rule numbers corresponding to the work flow have been noted. Please use this document with the “Technical Rules: Assessment Report” and the “Water Budget and Water Quantity Risk Assessment Guide”.



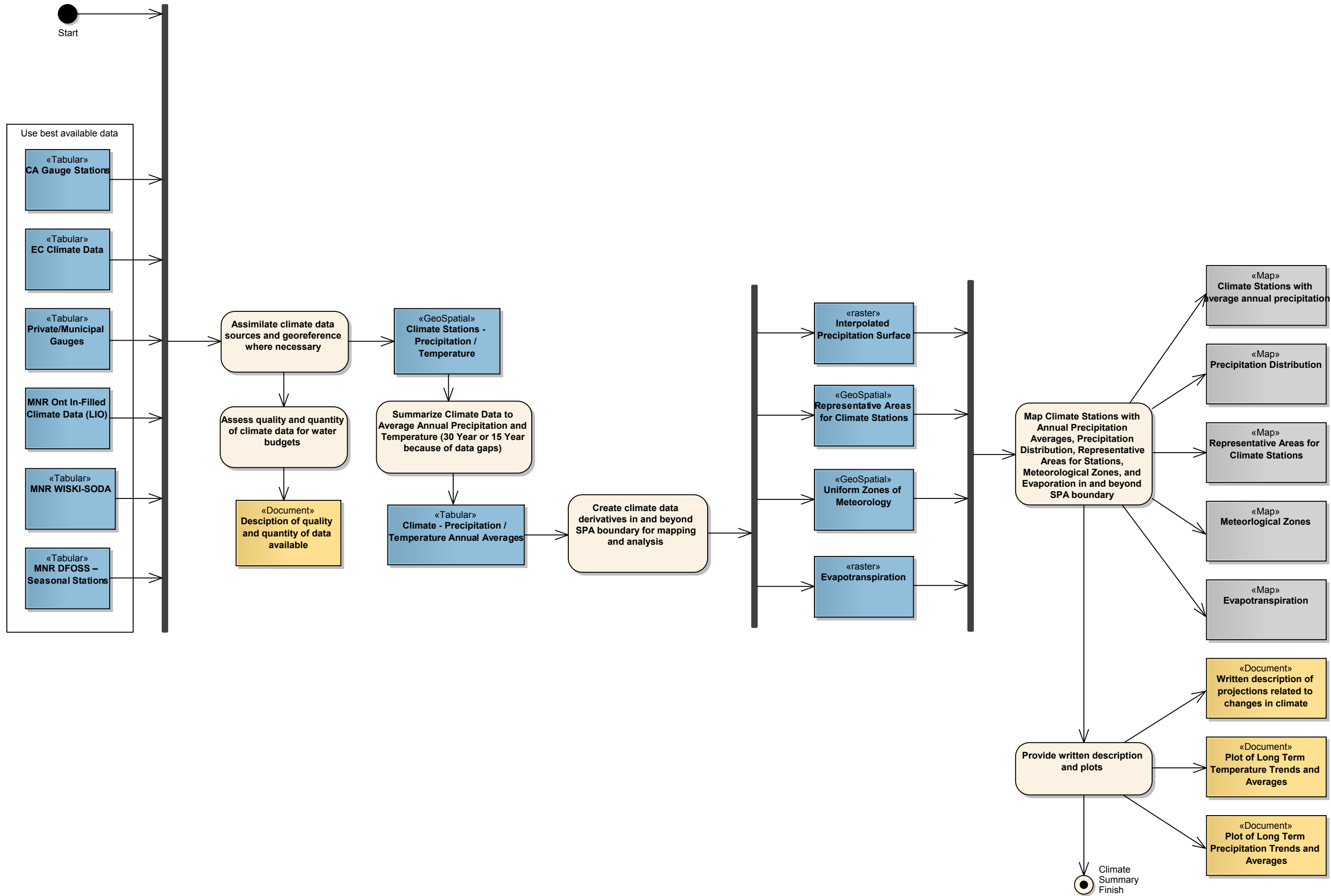
Overview of Water Budget and Water Quantity Assessment Framework



3.1 Conceptual Water Budget



Assess Climate



Assess Geology

Start

Use best available data

«GeoSpatial»
Bedrock geology of
Southern Ontario

«GeoSpatial»
Bedrock Area at 250K

«GeoSpatial»
Soil Survey Complex (ON
Soils) (LIO)

«raster»
Overburden Thickness of
SPA Area

«GeoSpatial»
CANSIS - Ontario Soil
Surveys

«Raster»
Interpolated Bedrock
Surface Elevation

«GeoSpatial»
Surficial Geology of GTA /
ORM

«GeoSpatial»
Borehole (ON Database)
(LIO)

«GeoSpatial»
MRD 126: Surficial
Geology of Southern
Ontario

«Raster»
Bedrock Topography of
Southern Ontario

Quaternary Geology of
Ontario 1:1M

«Raster»
Bedrock Topography
(GTA/ORM)

«GeoSpatial»
NOEGTS (Northern Ontario
Engineering Geology Terrain
Studies) (LIO)

«Raster»
Provincial DEM - Tiled
(Version 2)

«raster»
Overburden Thickness of
Southern Ontario (GW
Studies)

Map Overburden Thickness, Bedrock
Geology, Soils, and Surficial Geology
classified by infiltration and runoff
potential with SPA boundary

«Map»
Overburden
Thickness

«Map»
Bedrock Geology

«Map»
Soils

«Map»
Surficial Geology

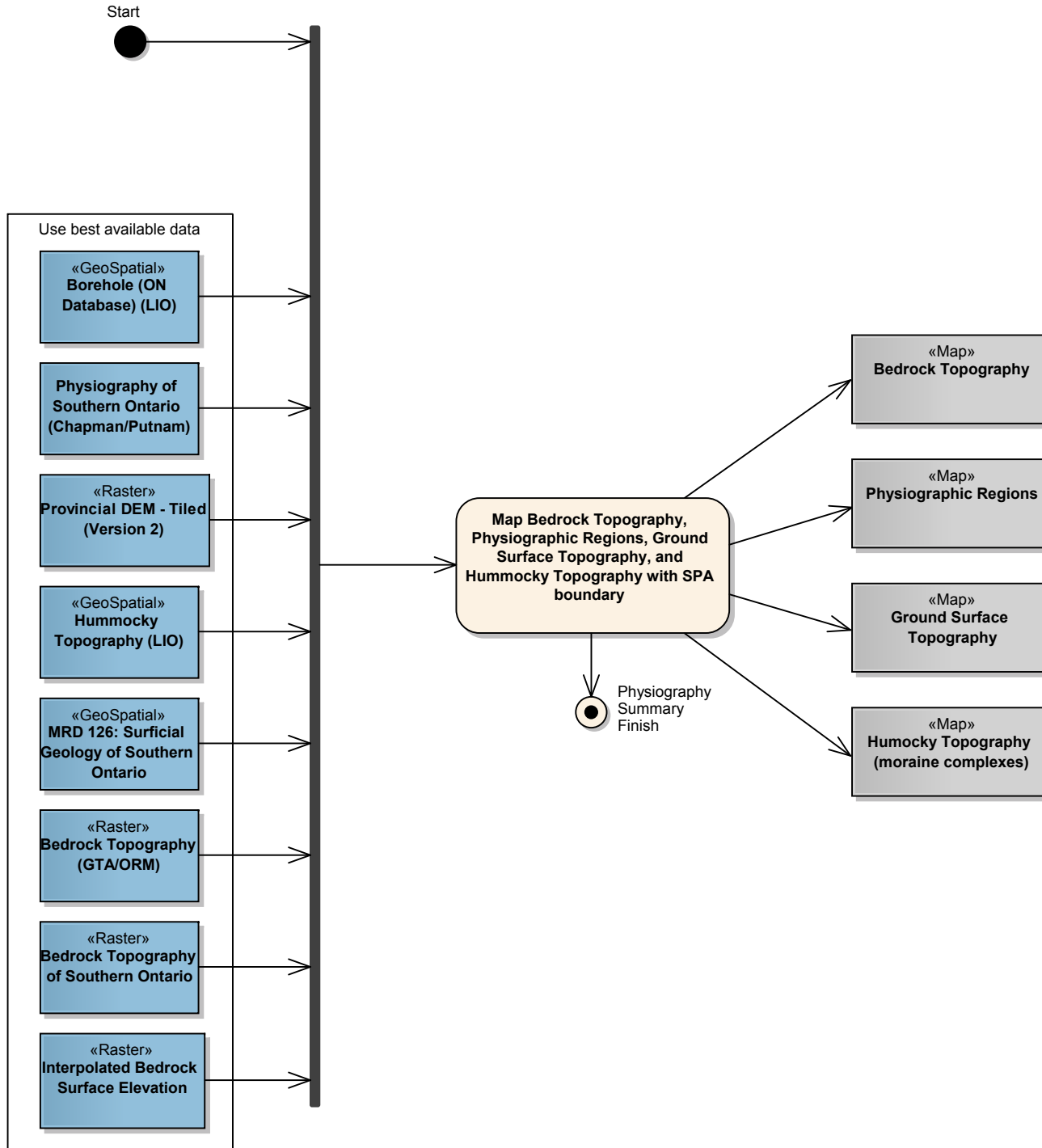
Provide written description
and cross sections

«Document»
Written description of how the
permeability distribution at surface
and subsurface influences runoff and
infiltration/recharge trends.

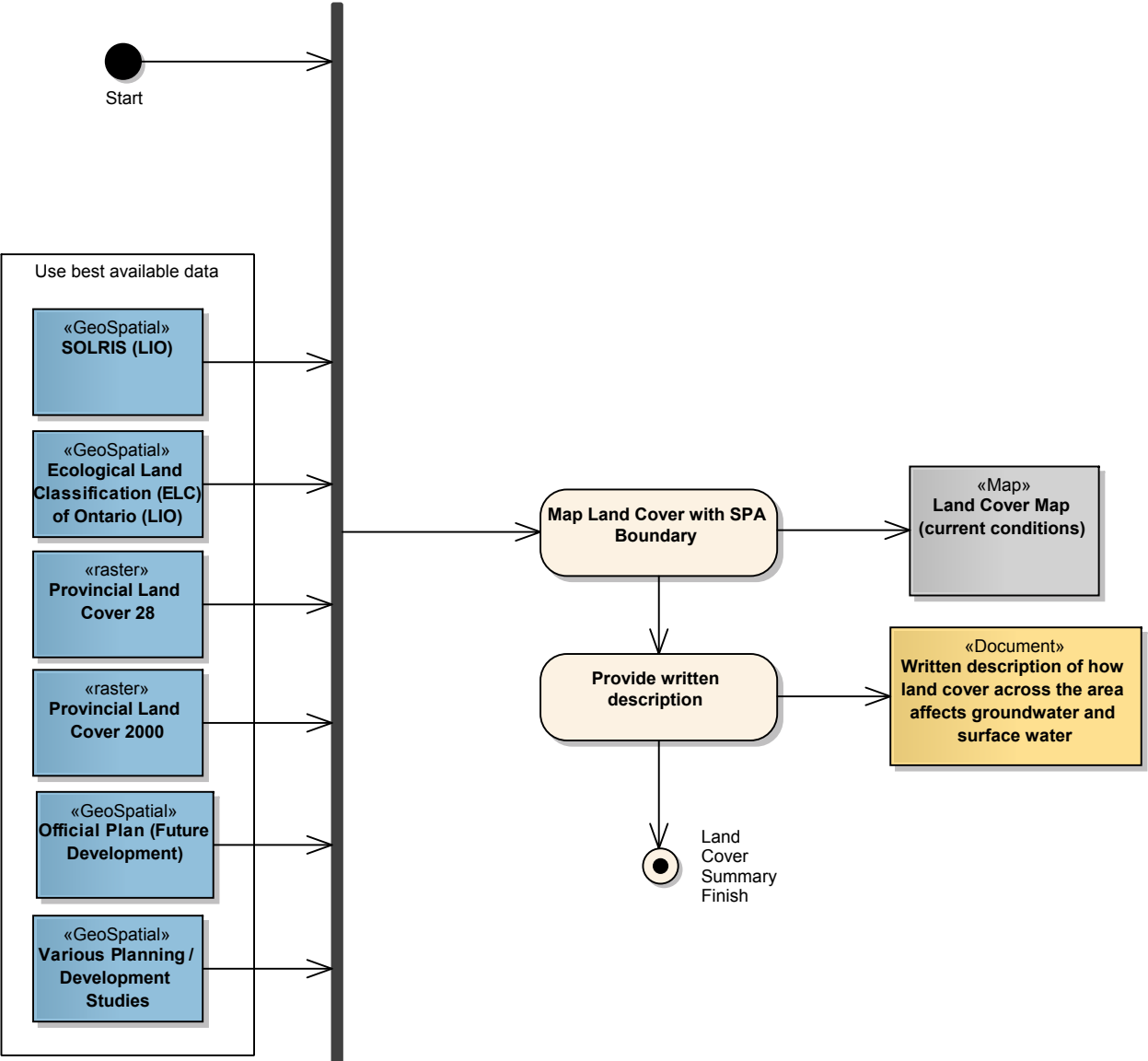
«Document»
Graphic Cross Sections of
watershed scale aquifer units

Geology
Summary
Finish

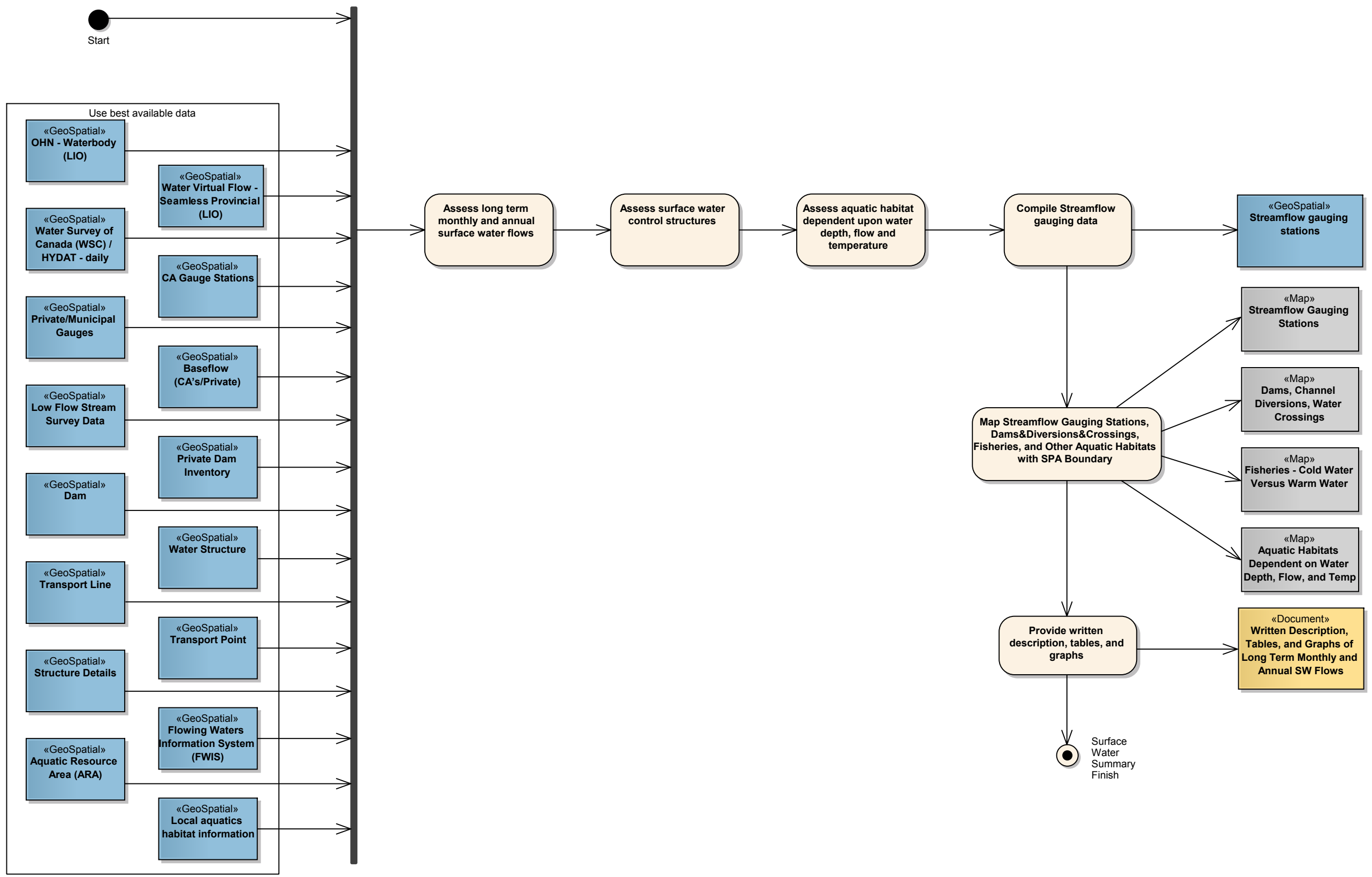
Assess Physiography



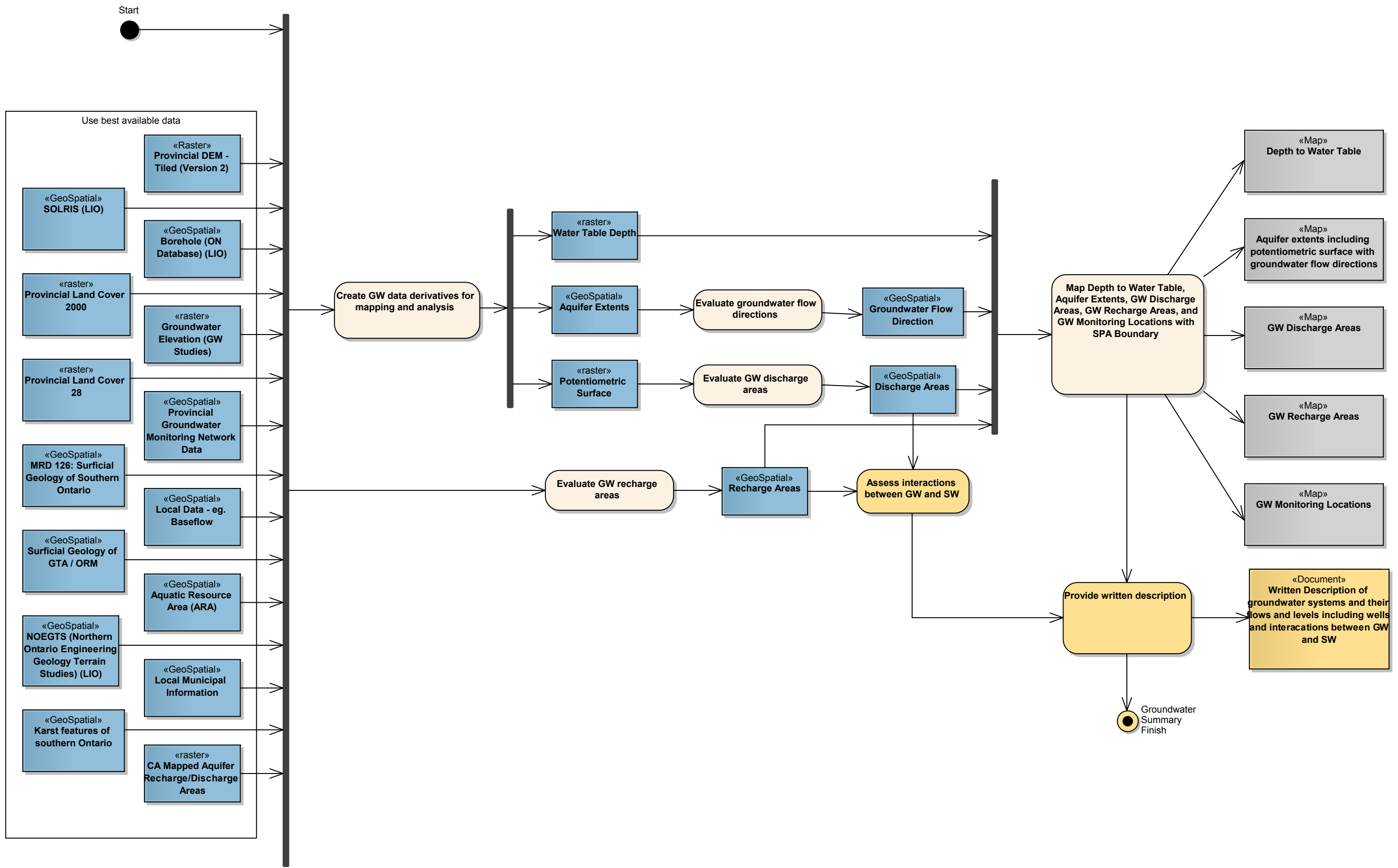
Assess Land Cover



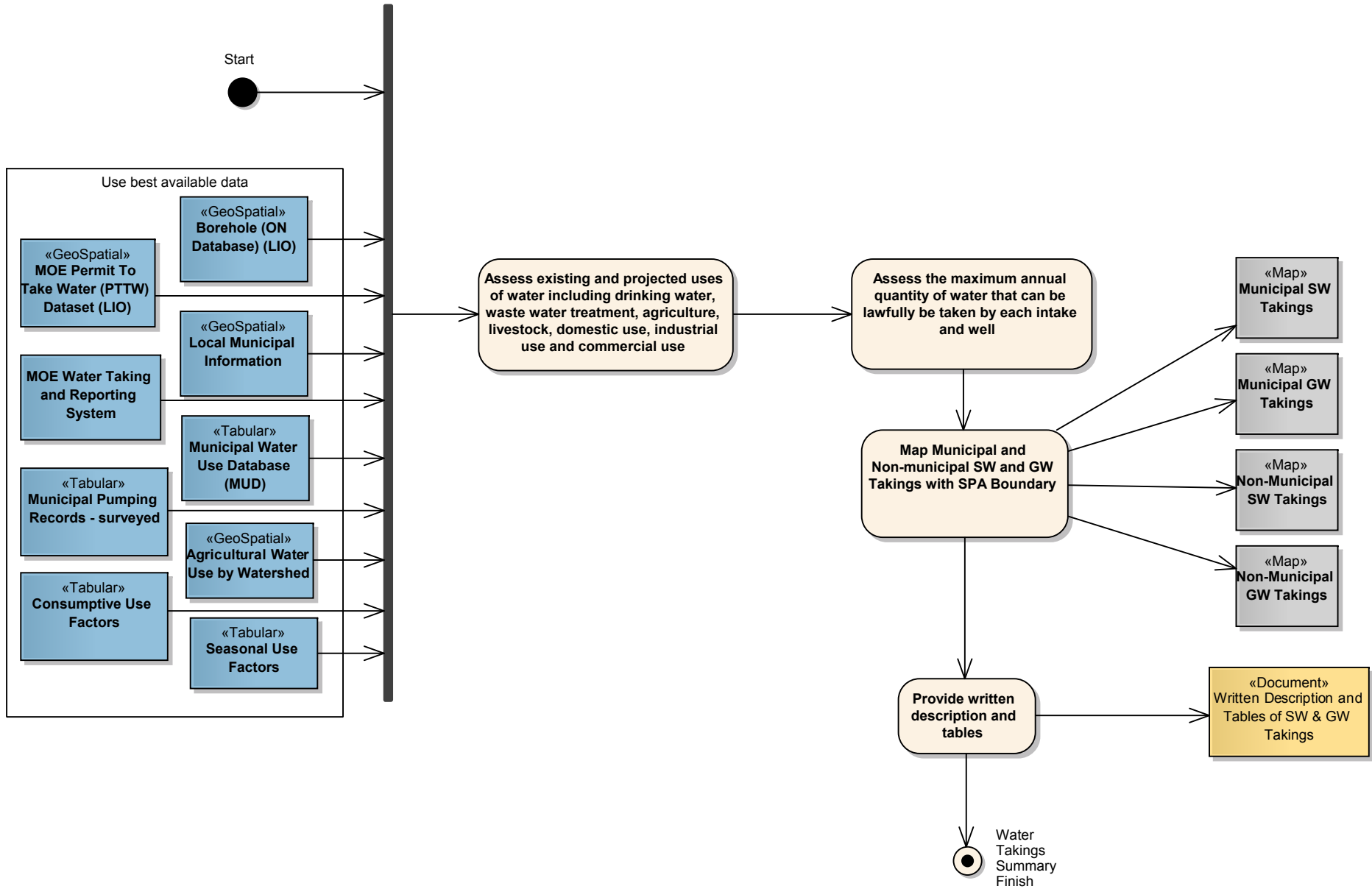
Assess Surface Water



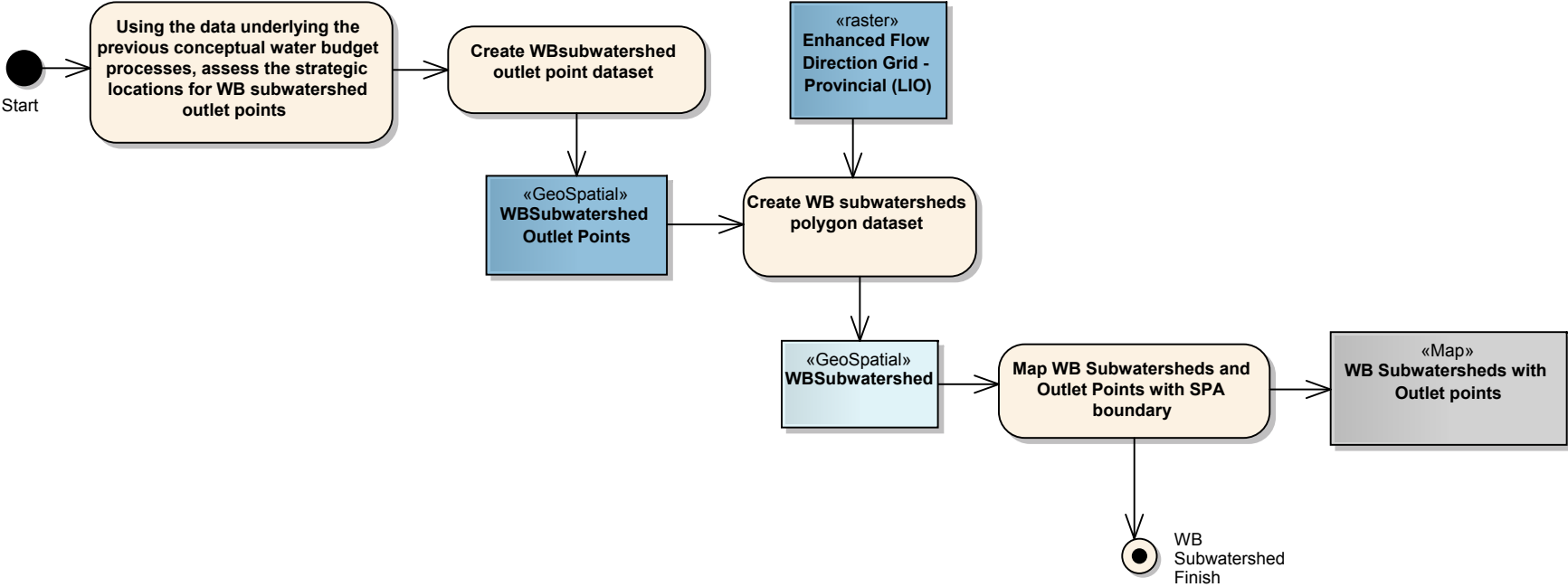
Assess Groundwater



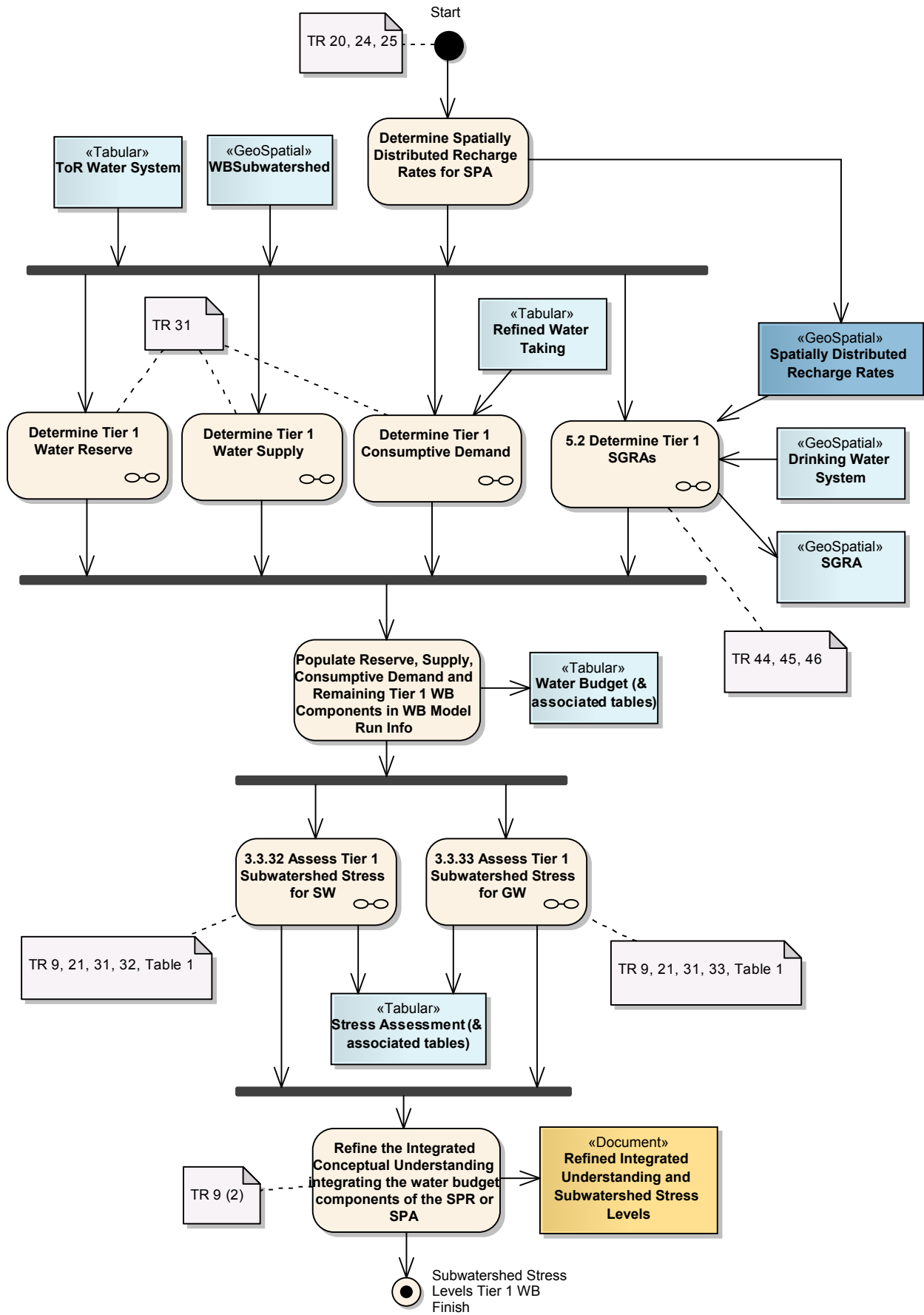
Assess SW and GW Takings



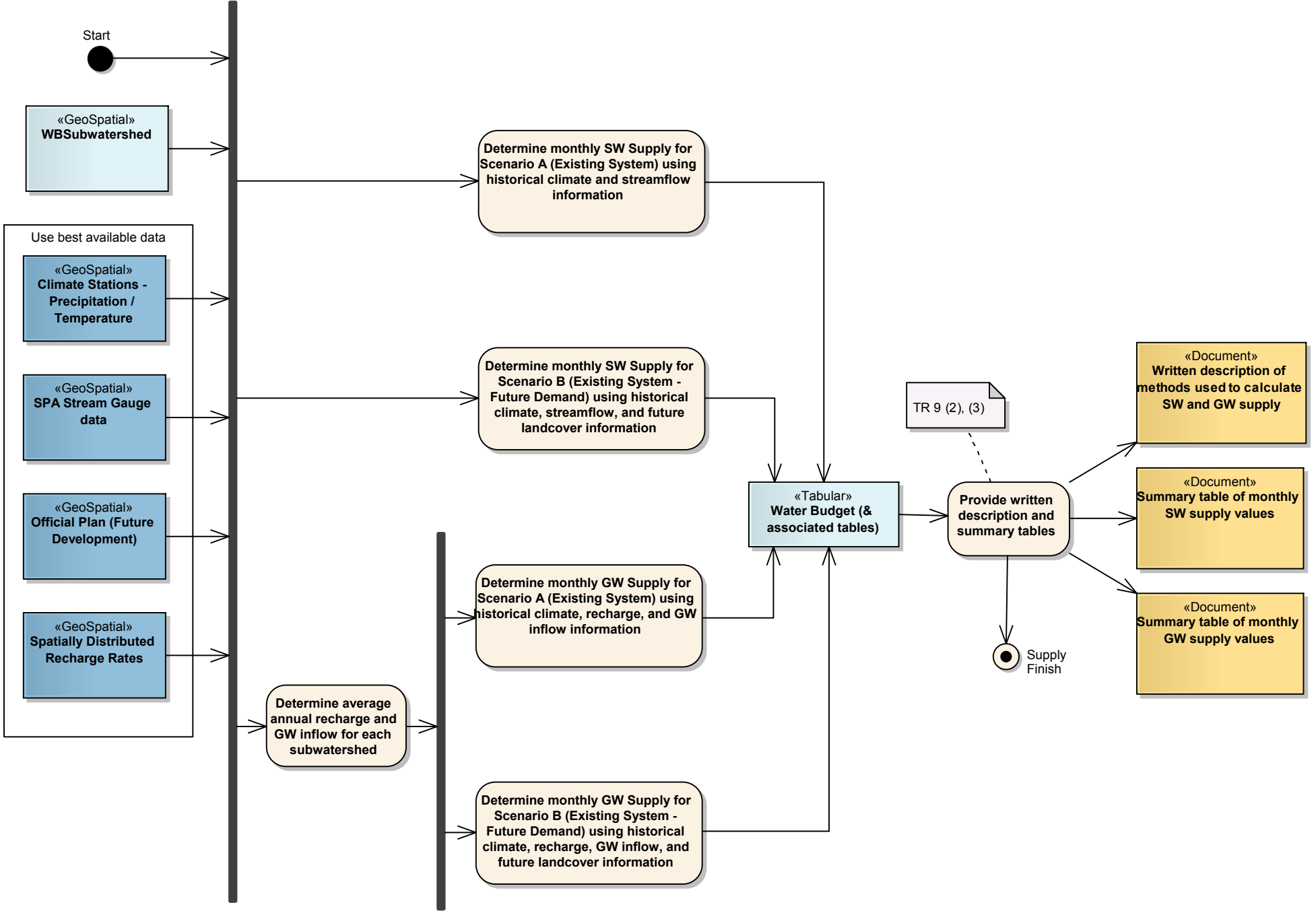
Create WB SubWatersheds



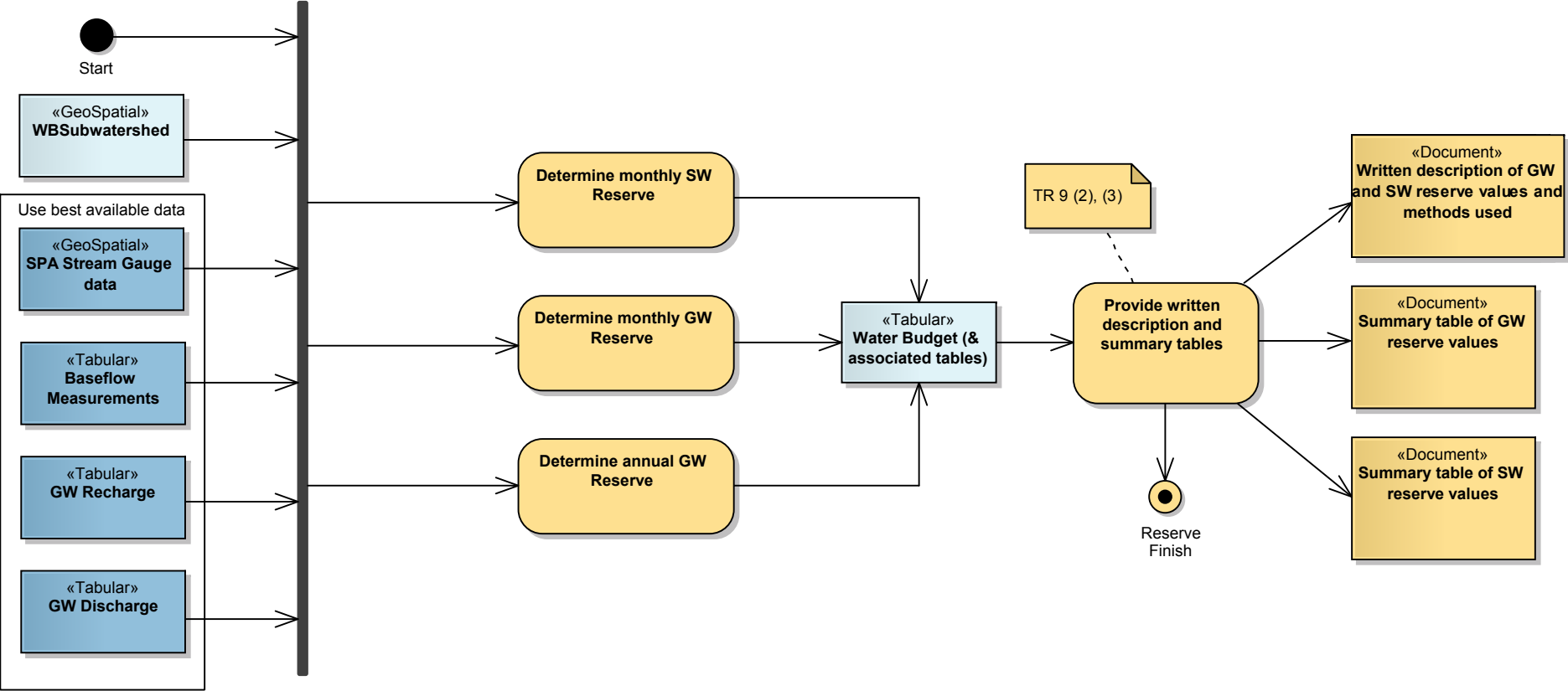
3.3 Subwatershed Stress Levels - Tier 1 WB



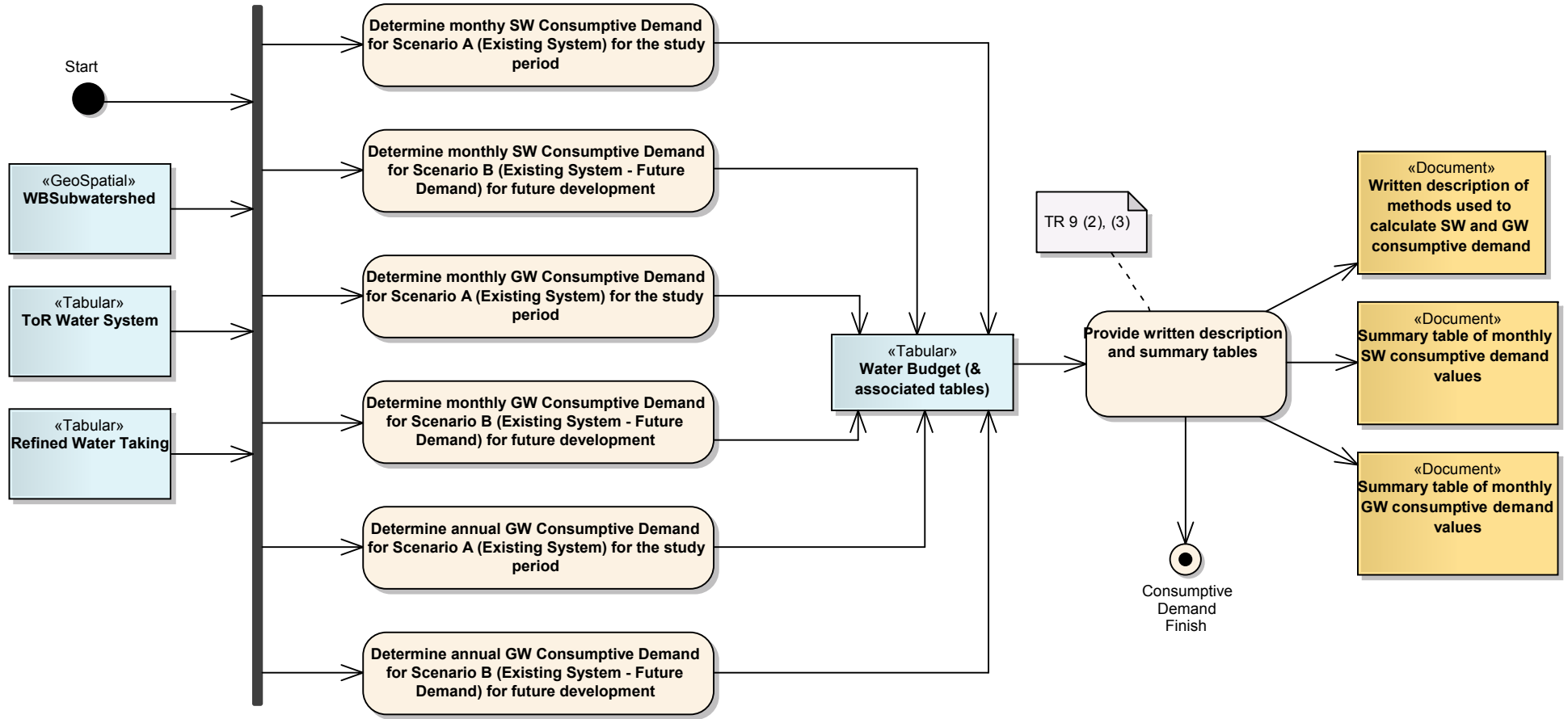
Determine Tier 1 Water Supply



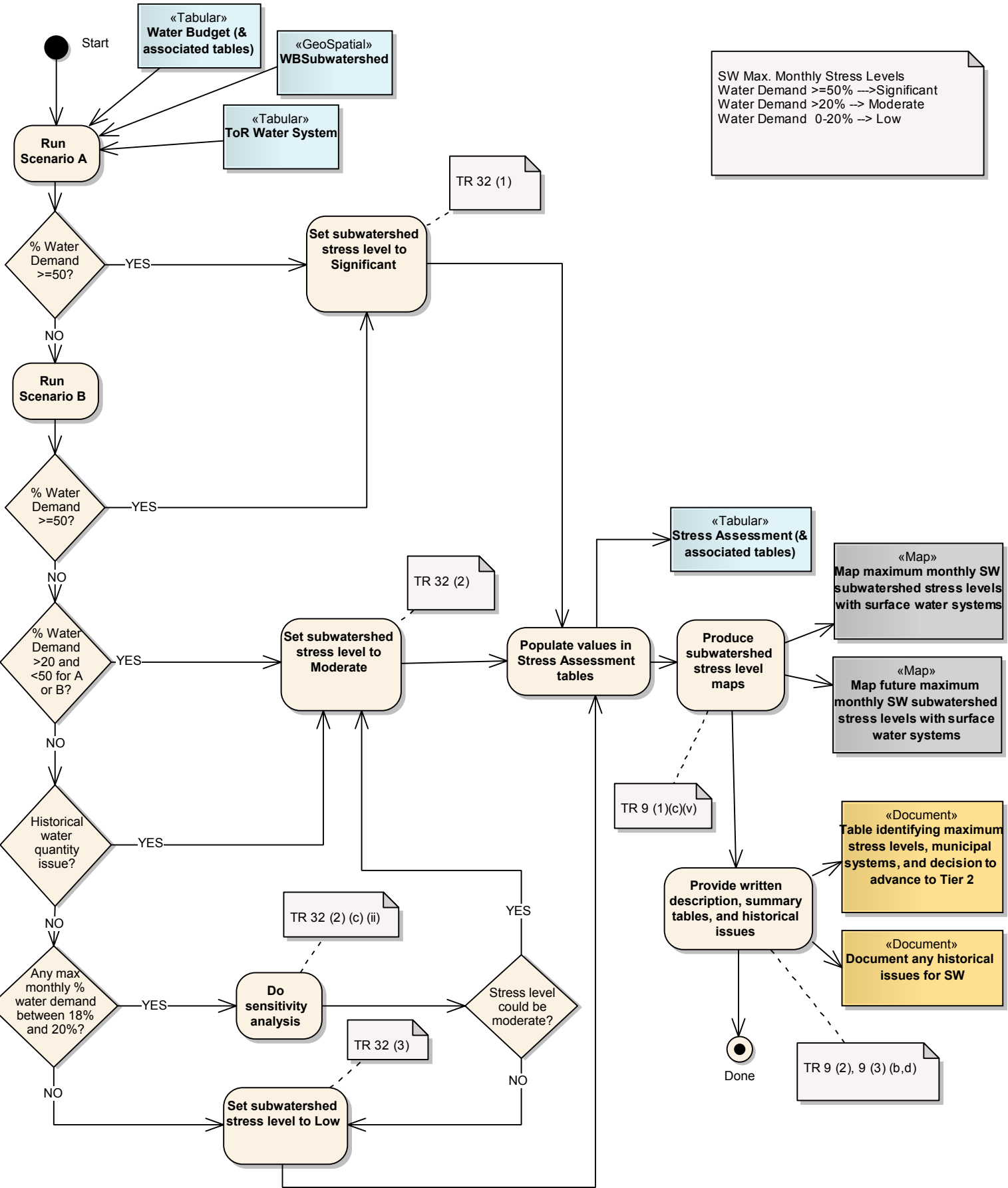
Determine Tier 1 Water Reserve



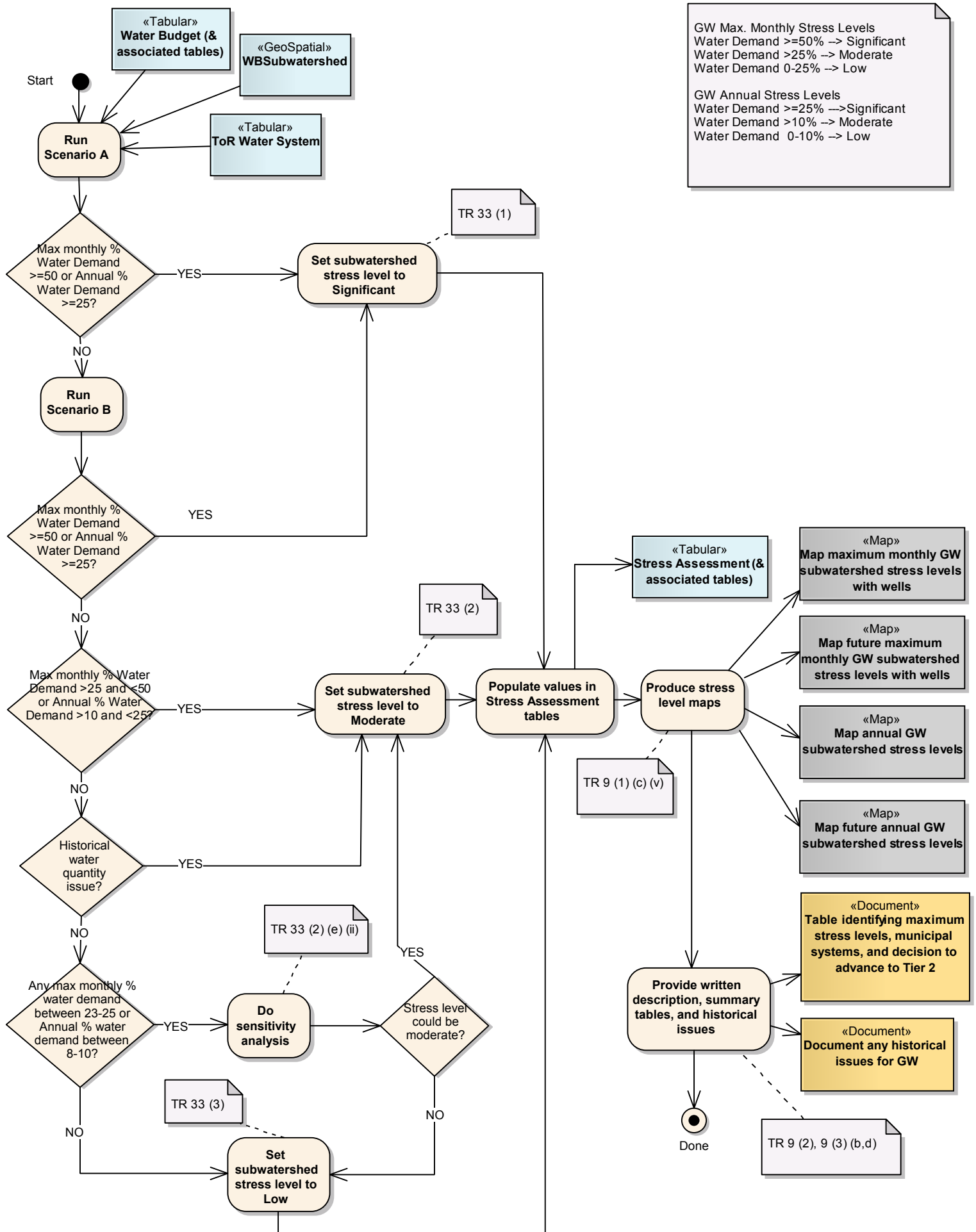
Determine Tier 1 Consumptive Demand



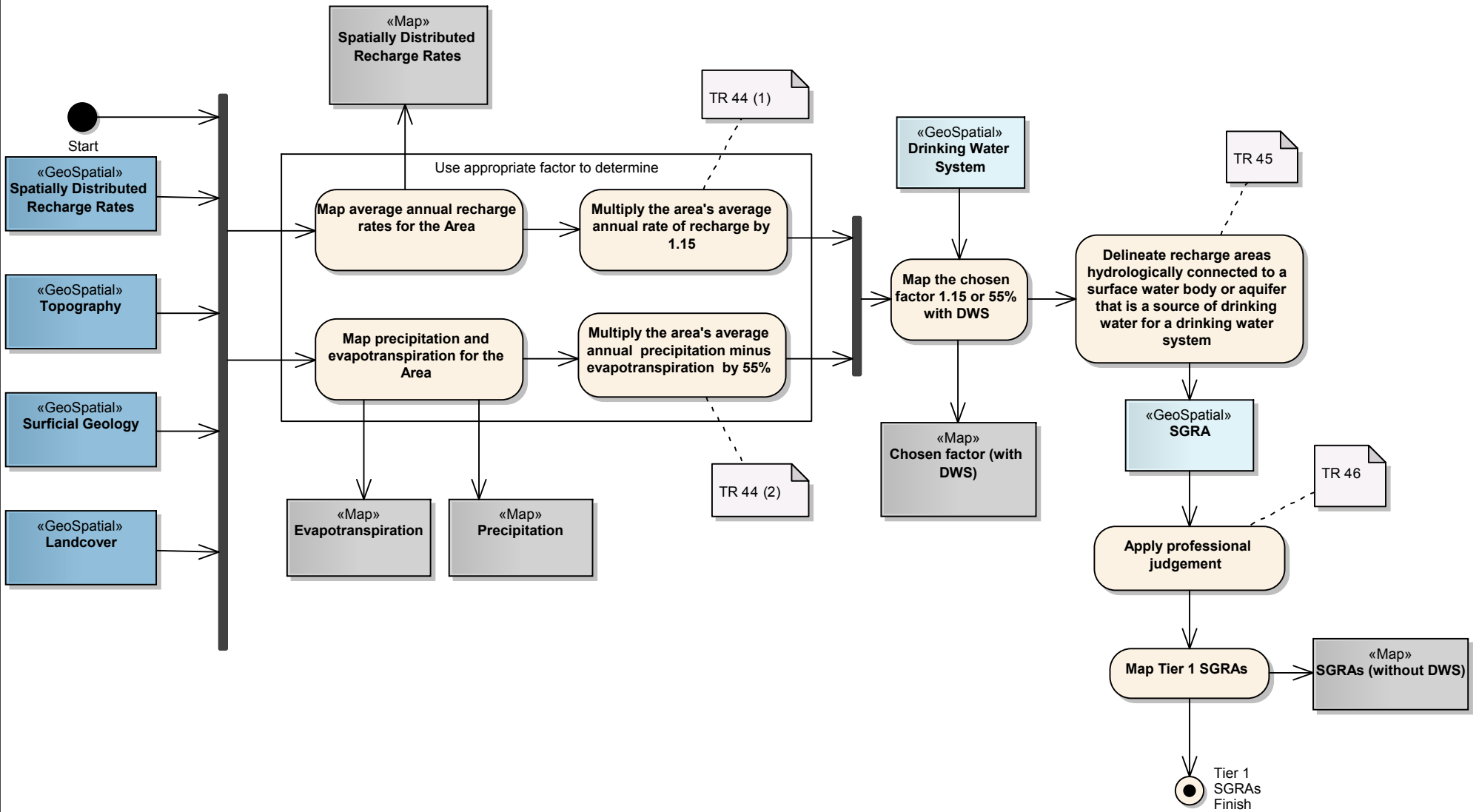
3.3.32 Assess Tier 1 Subwatershed Stress for SW



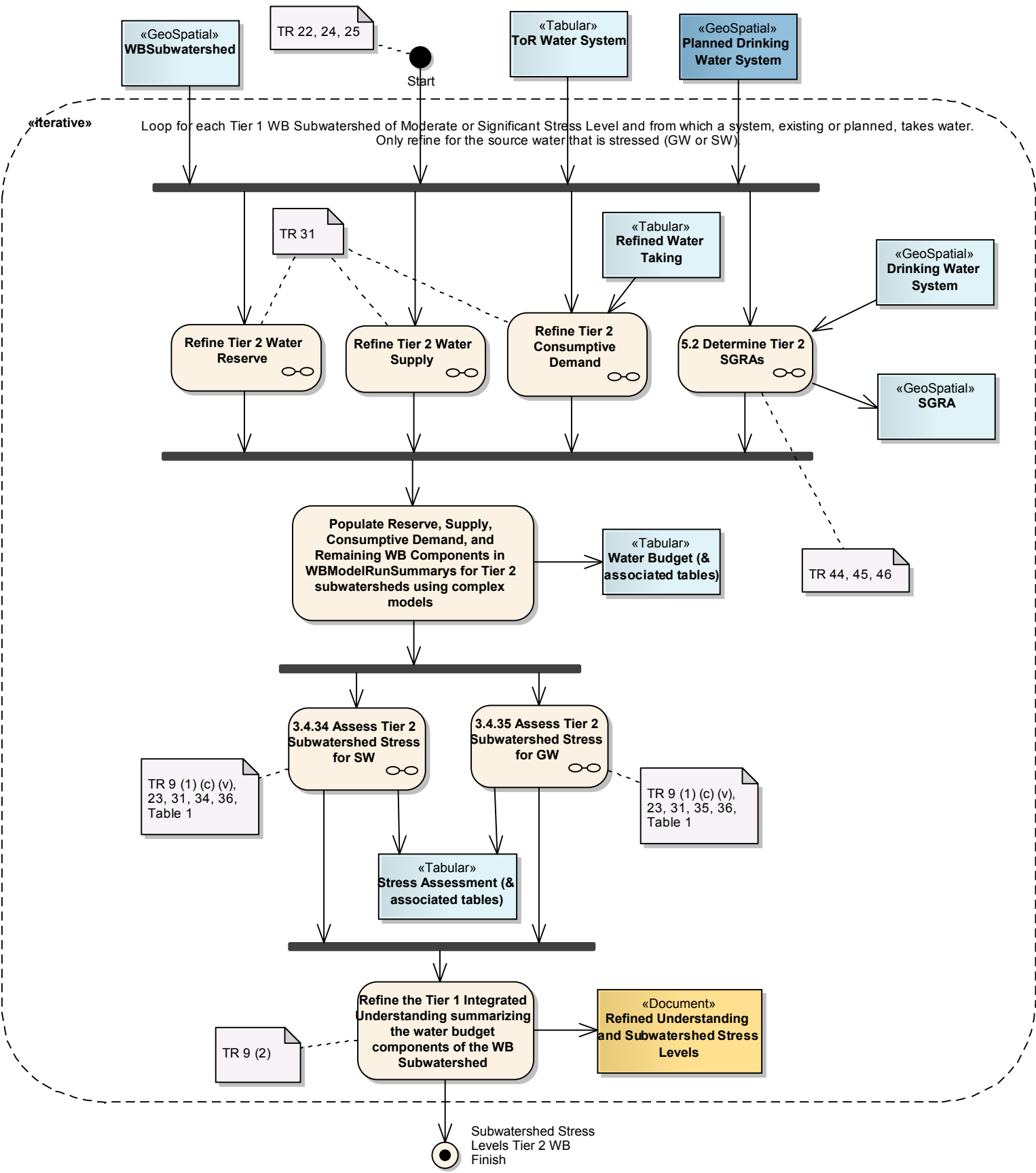
3.3.33 Assess Tier 1 Subwatershed Stress for GW



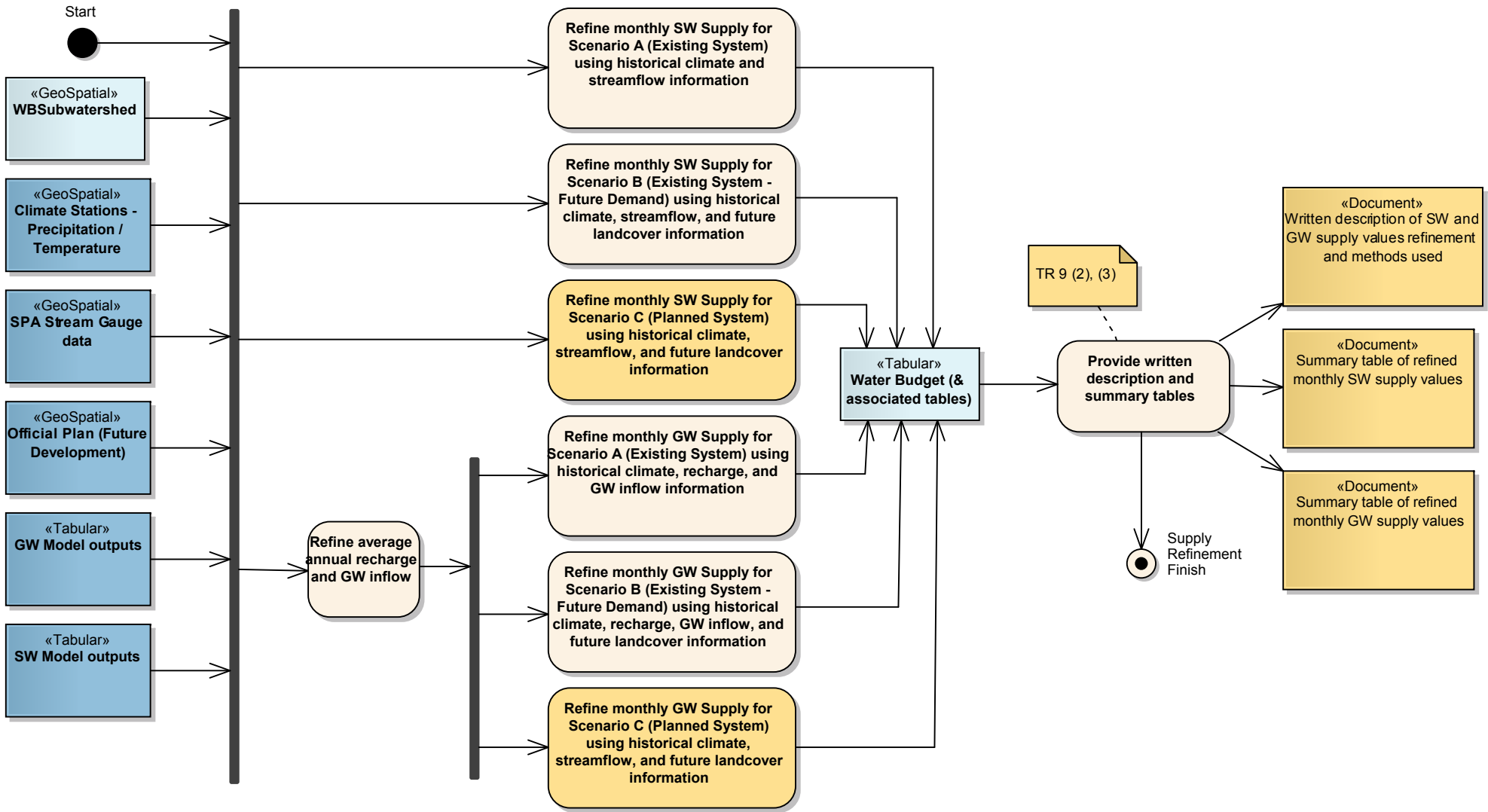
5.2 Determine Tier 1 SGRAs



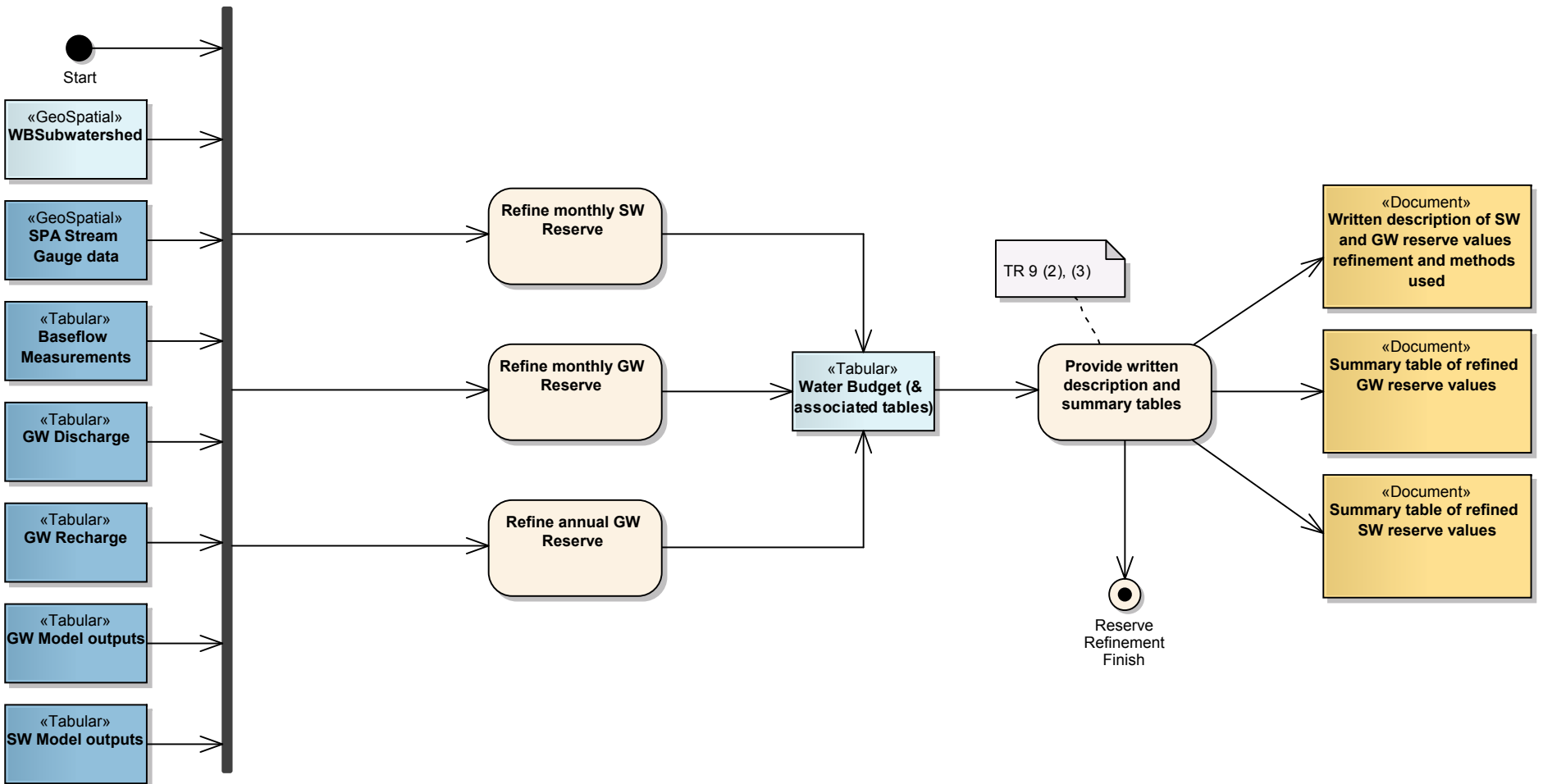
3.4 Subwatershed Stress Levels - Tier 2 WB



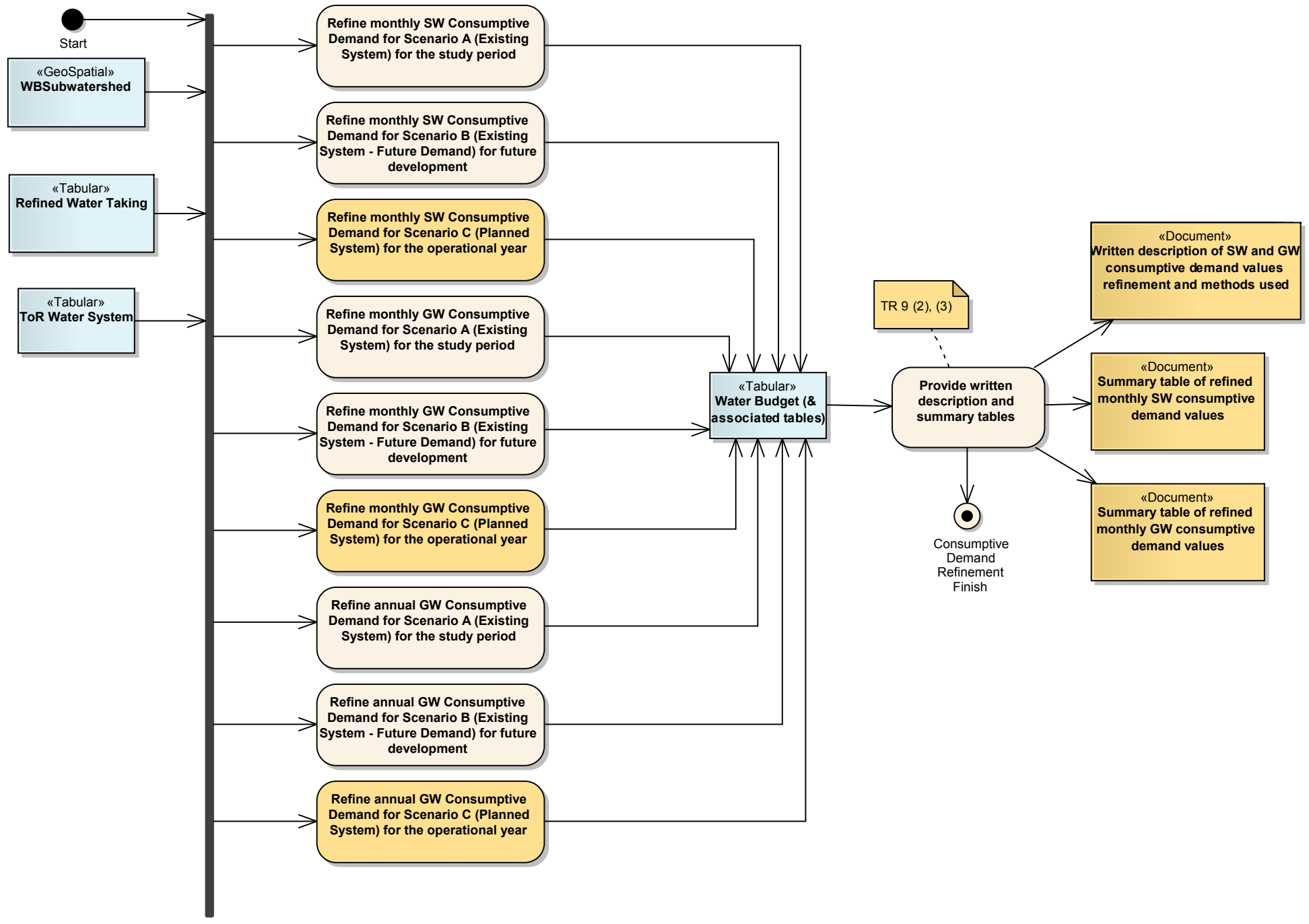
Refine Tier 2 Water Supply



Refine Tier 2 Water Reserve

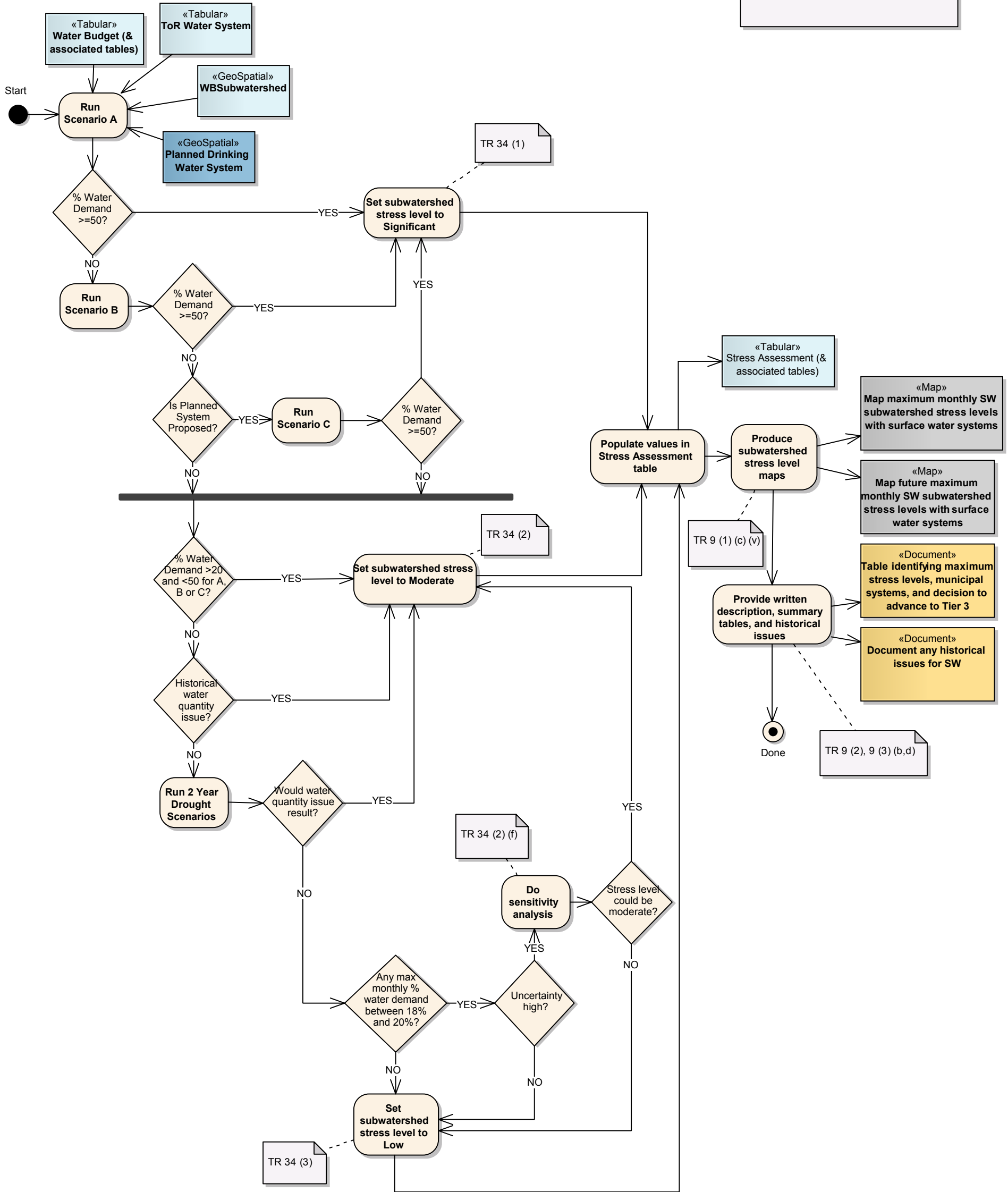


Refine Tier 2 Consumptive Demand

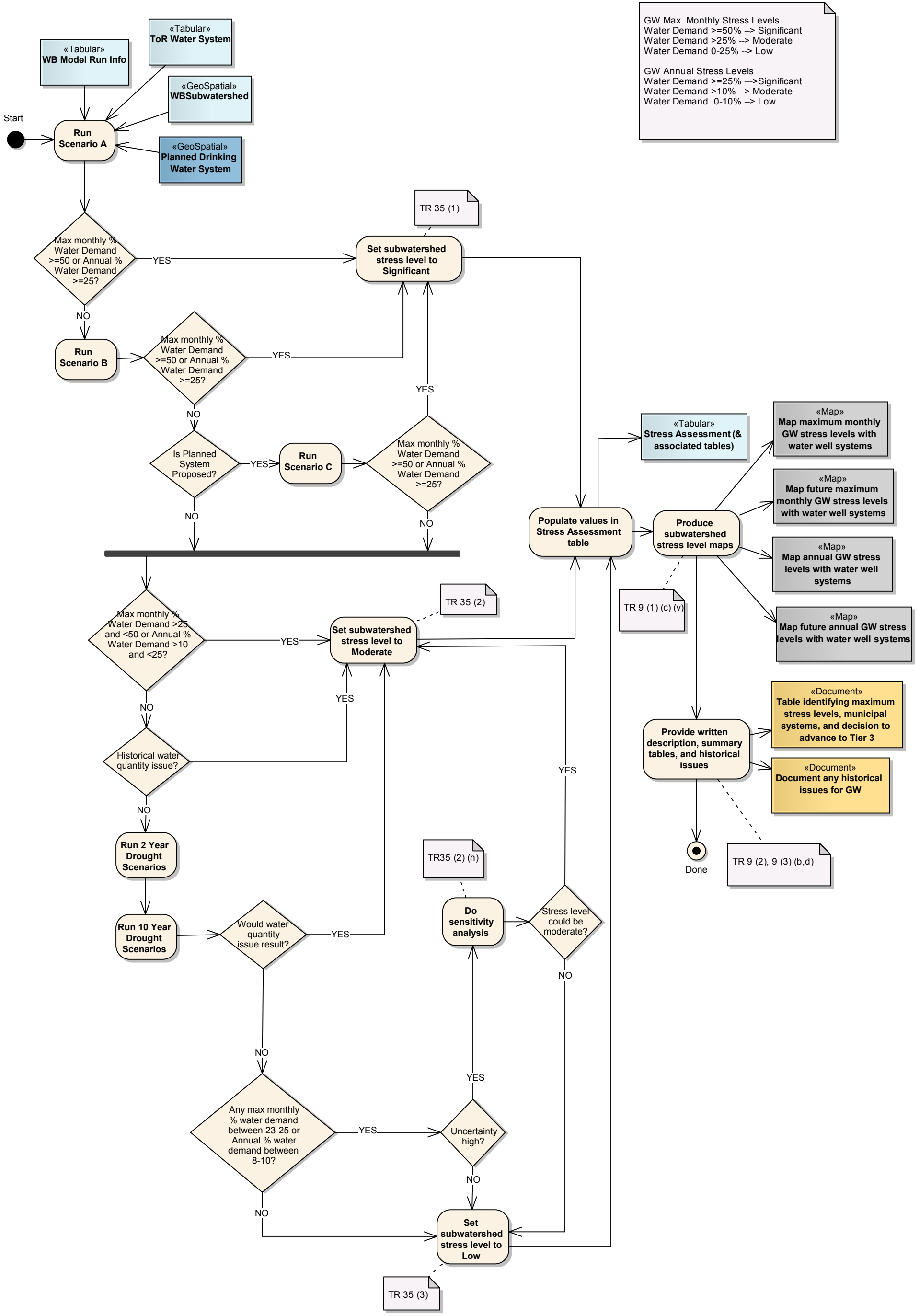


3.4.34 Assess Tier 2 Subwatershed Stress for SW

SW Max. Monthly Stress Levels
 Water Demand >=50% -> Significant
 Water Demand >20% -> Moderate
 Water Demand 0-20% -> Low



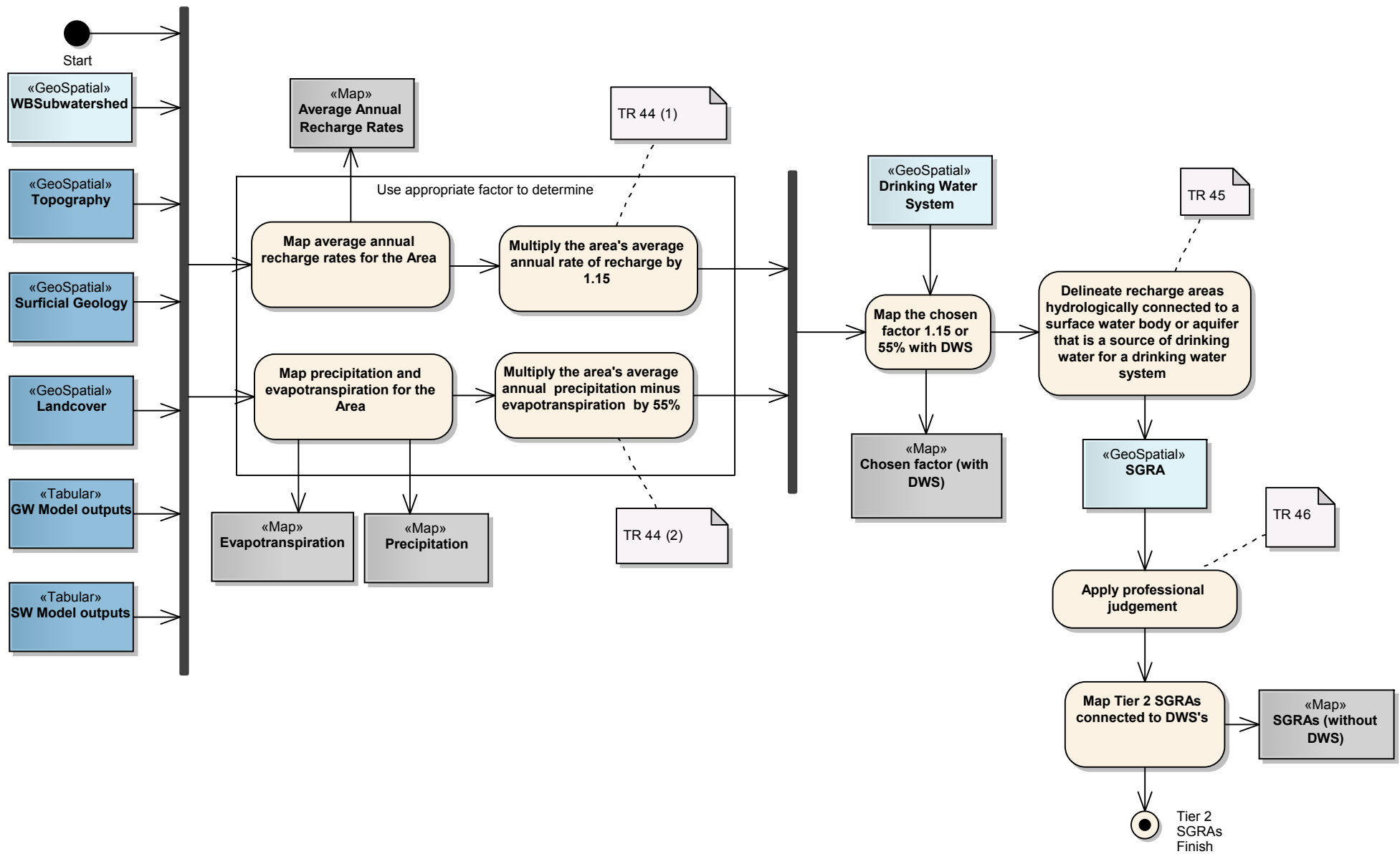
3.4.35 Assess Tier 2 Subwatershed Stress for GW



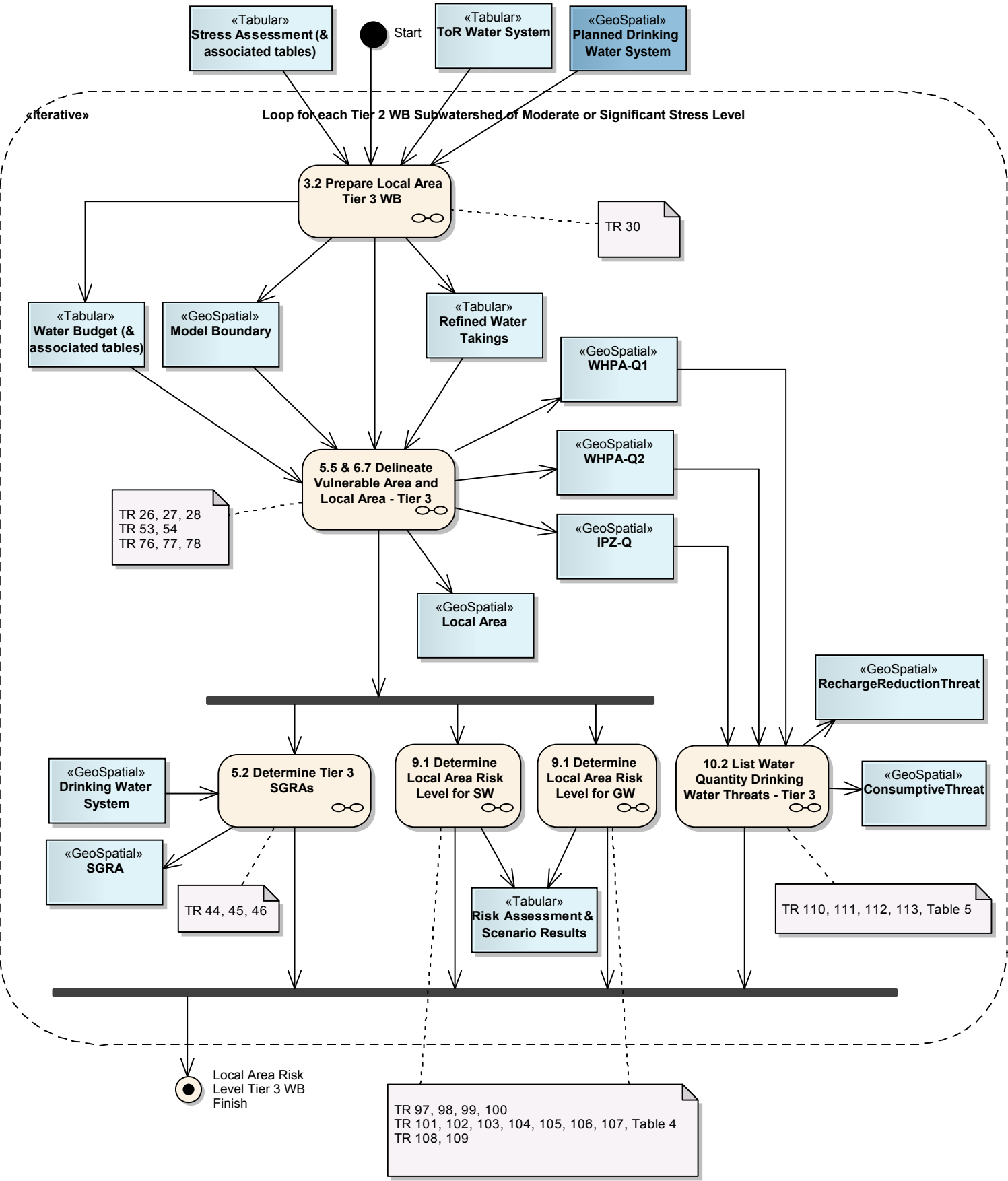
GW Max. Monthly Stress Levels
 Water Demand >=50% -> Significant
 Water Demand >25% -> Moderate
 Water Demand 0-25% -> Low

GW Annual Stress Levels
 Water Demand >=25% -> Significant
 Water Demand >10% -> Moderate
 Water Demand 0-10% -> Low

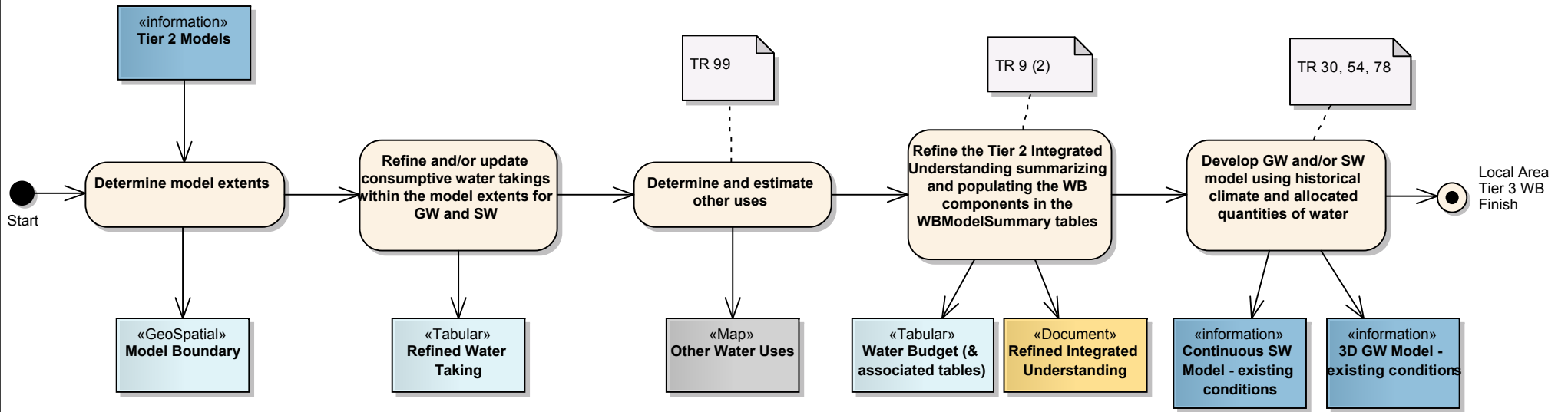
5.2 Determine Tier 2 SGRAs



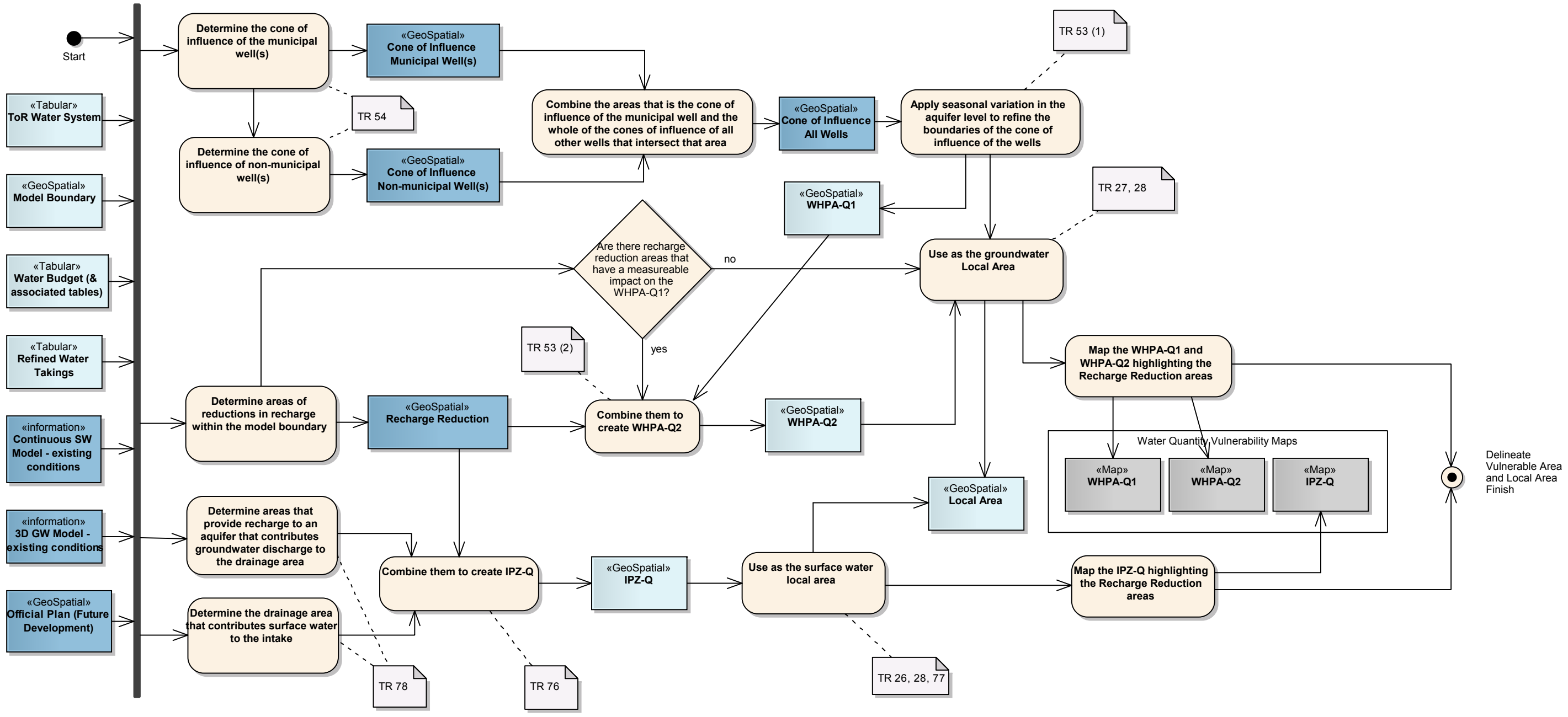
9.0 Local Area Risk Level - Tier 3 WB



3.2 Prepare Local Area Tier 3 Water Budget



5.5 & 6.7 Delineate Vulnerable Area and Local Area - Tier 3



«Tabular» ToR Water System

«GeoSpatial» Model Boundary

«Tabular» Water Budget (& associated tables)

«Tabular» Refined Water Takings

«information» Continuous SW Model - existing conditions

«information» 3D GW Model - existing conditions

«GeoSpatial» Official Plan (Future Development)

TR 54

TR 53 (1)

TR 27, 28

TR 53 (2)

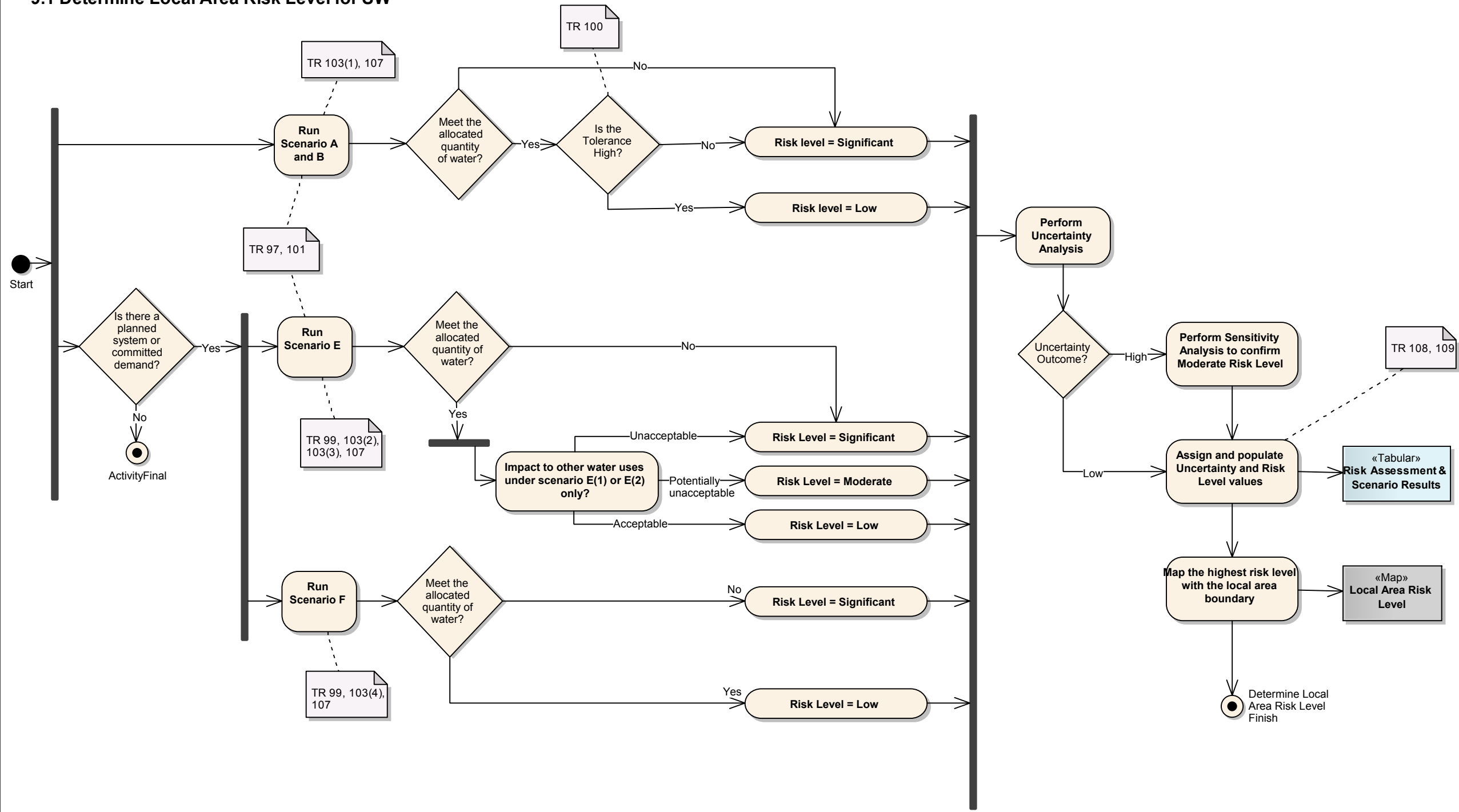
TR 78

TR 76

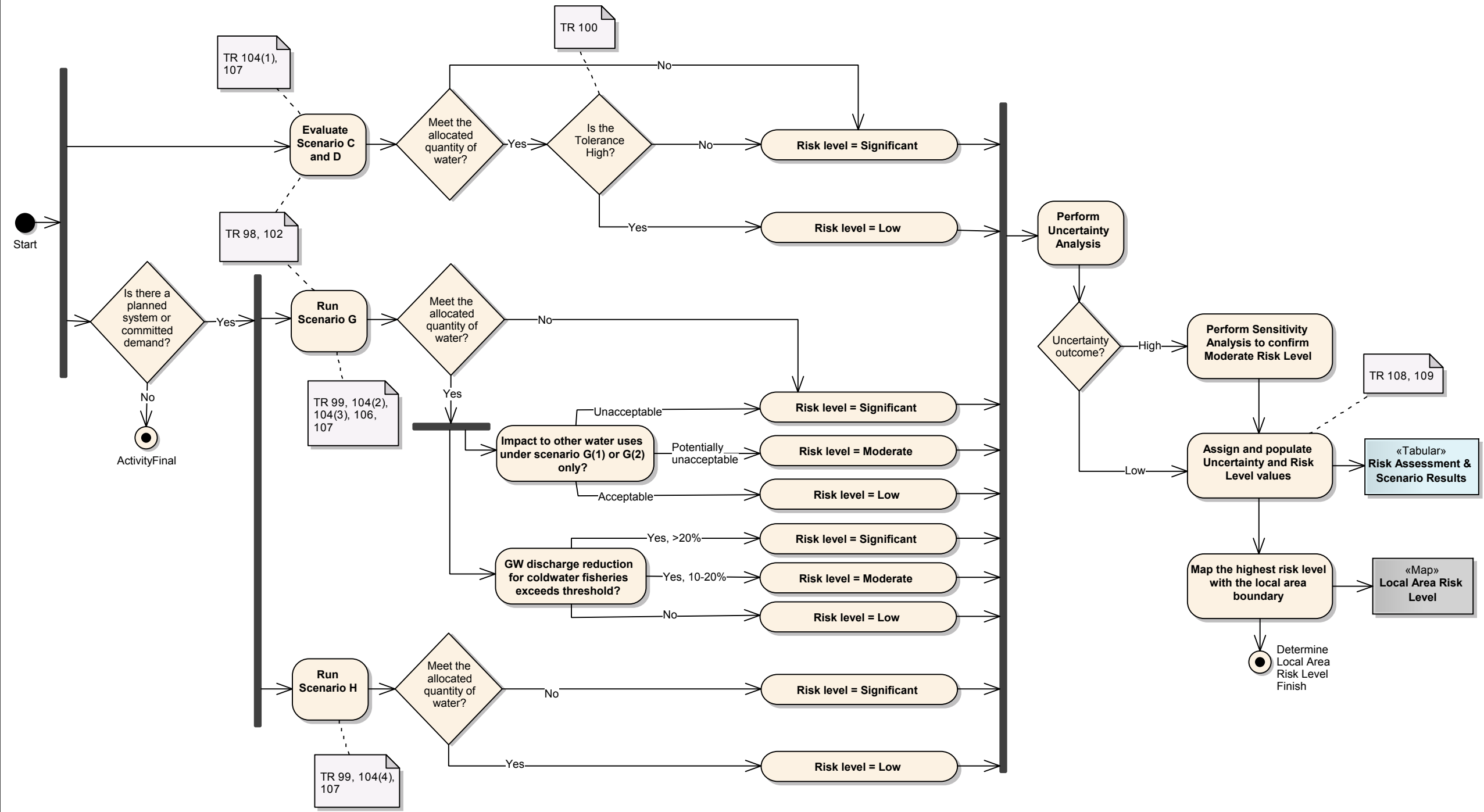
TR 26, 28, 77

Delineate Vulnerable Area and Local Area Finish

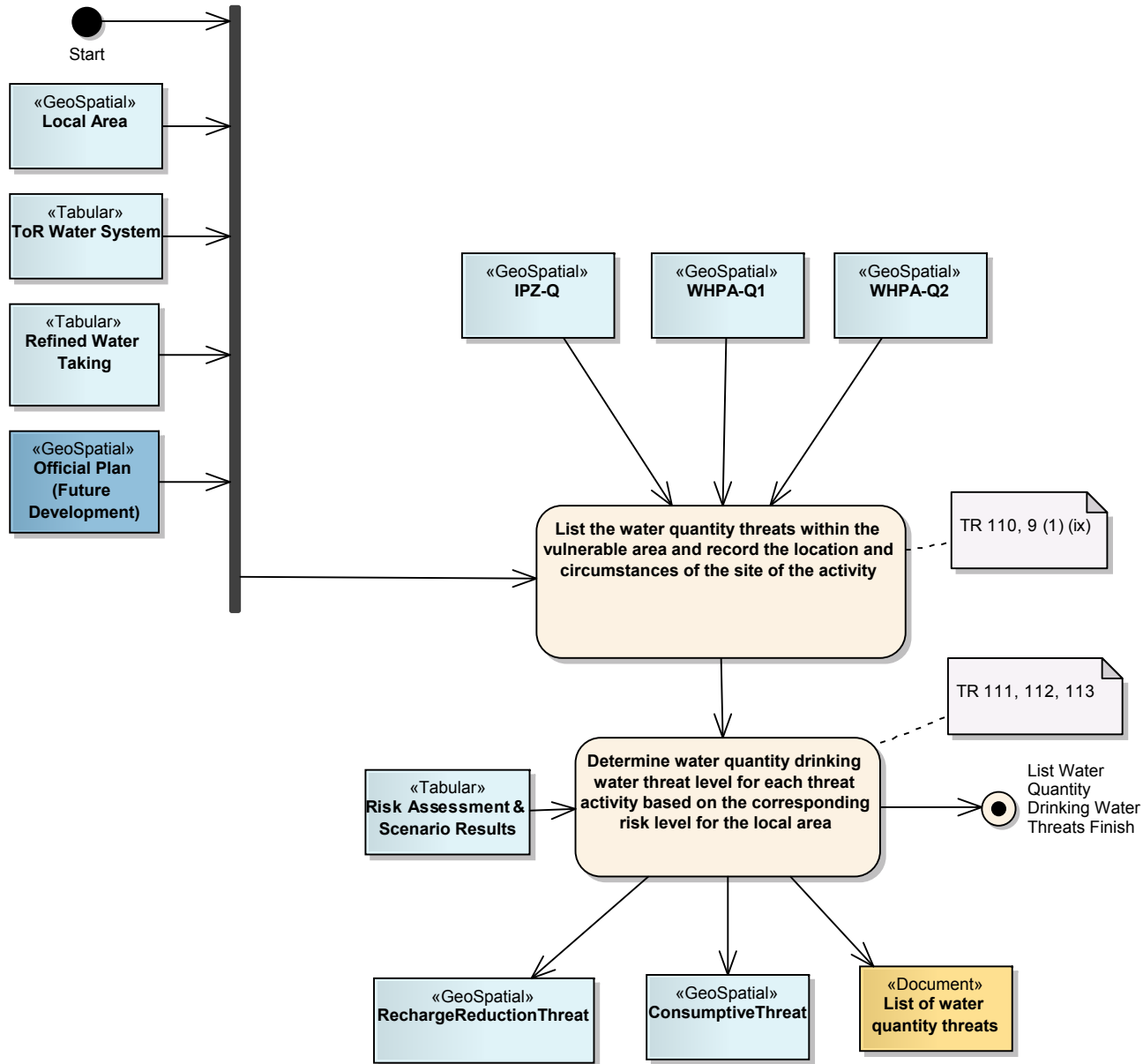
9.1 Determine Local Area Risk Level for SW



9.1 Determine Local Area Risk Level for GW



10.2 List Water Quantity Drinking Water Threats - Tier 3



5.2 Determine Tier 3 SGRAs

