MORPHUM environmental

# FRESH WATER MANAGEMENT TOOL

Site Specific Water Treatment Devices

# Overview

- What is the Fresh Water Management Tool (FWMT)?
- Mitigation Opportunities / Treatment Devices
- Wetlands
  - Footprint Mapping
  - Hydrological Connections
- Quality Assurance
- Potential Improvements

# What is the Freshwater Management Tool?

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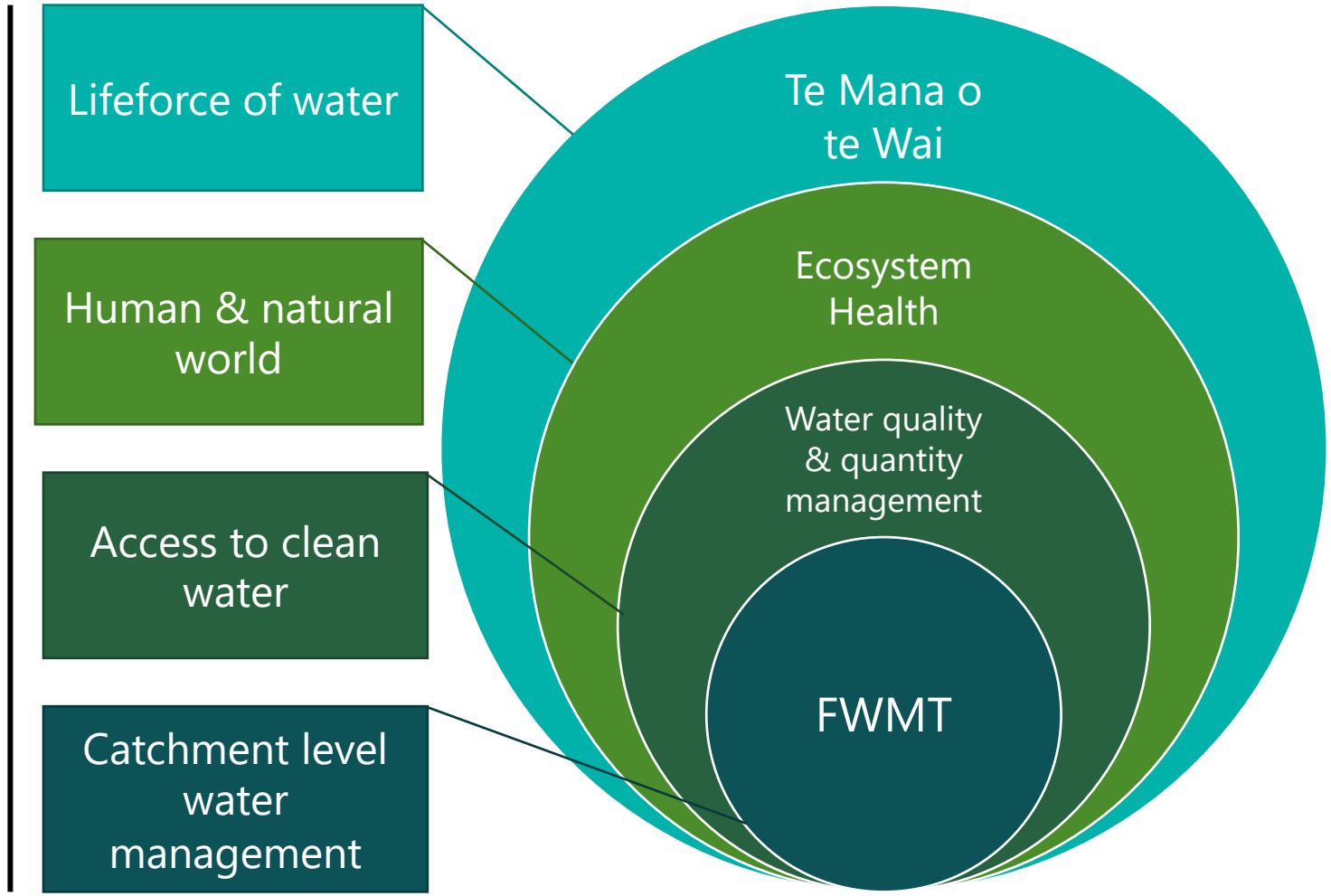
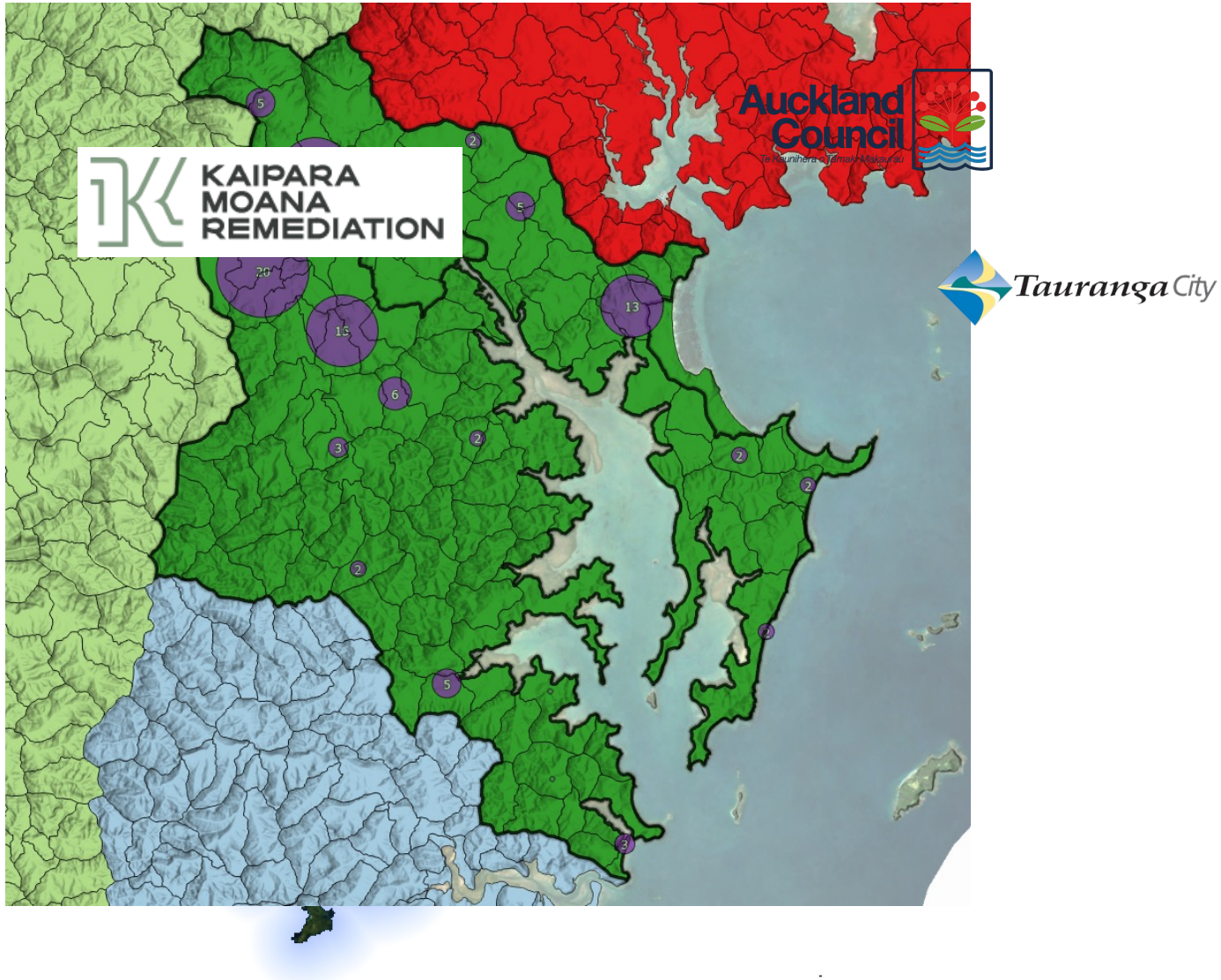
# FWMT


Lifeforce of water
Human & natural world
Access to clean water
Catchment level water management
Te Mana o te Wai
Ecosystem Health
Water quality & quantity management
FWMT

# FWMT


KAIPARA
MOANA
REMEDIATION
Auckland Council
Tauranga City

# Mitigation Opportunities

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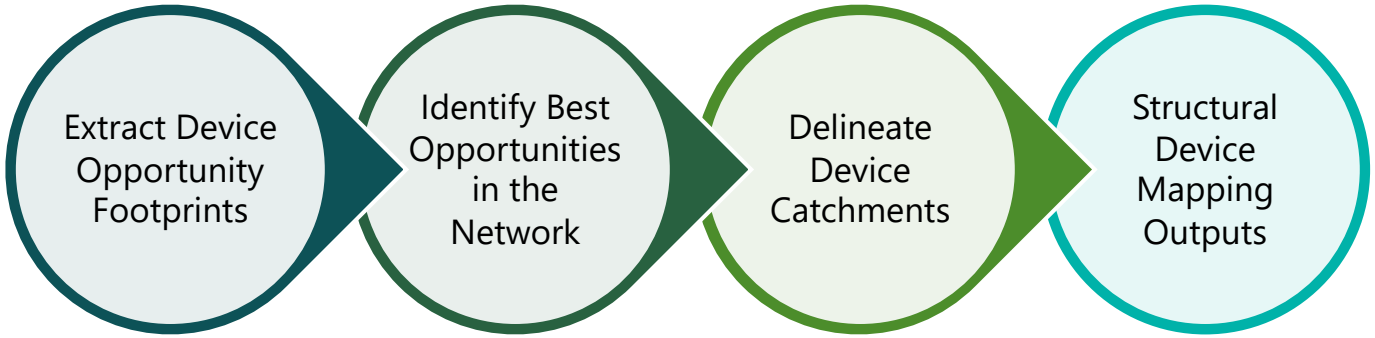
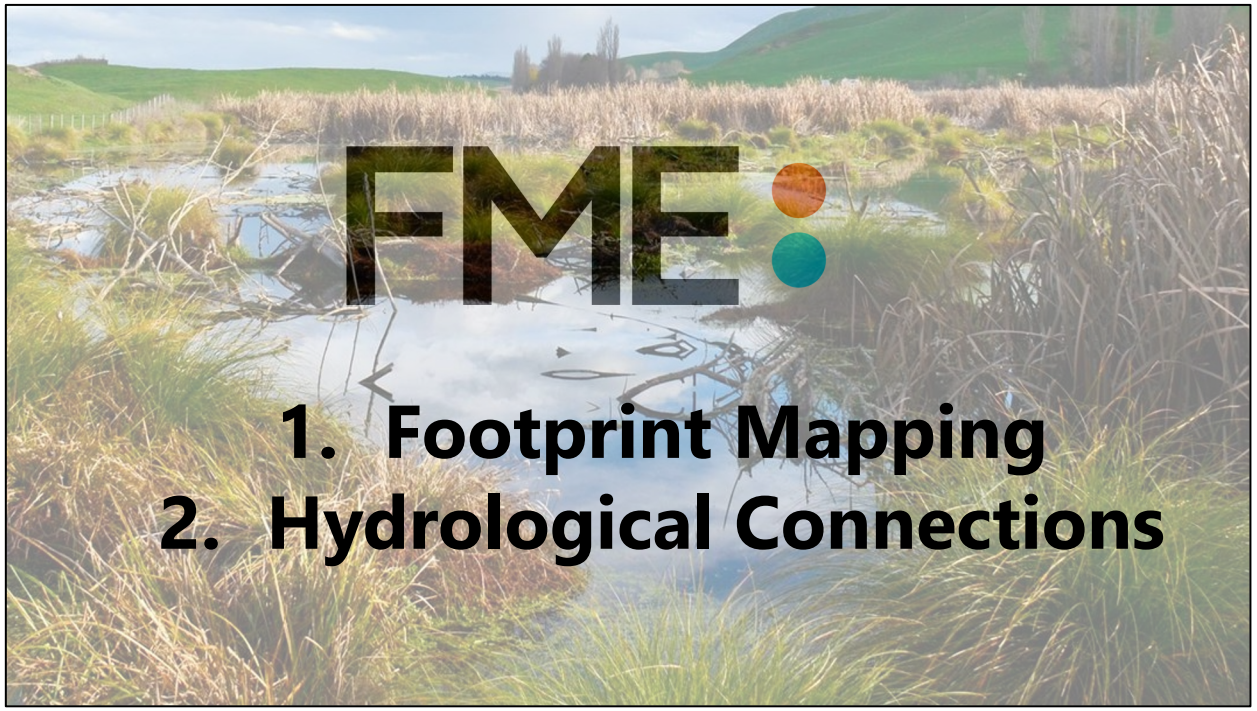
# Mitigation Opportunities

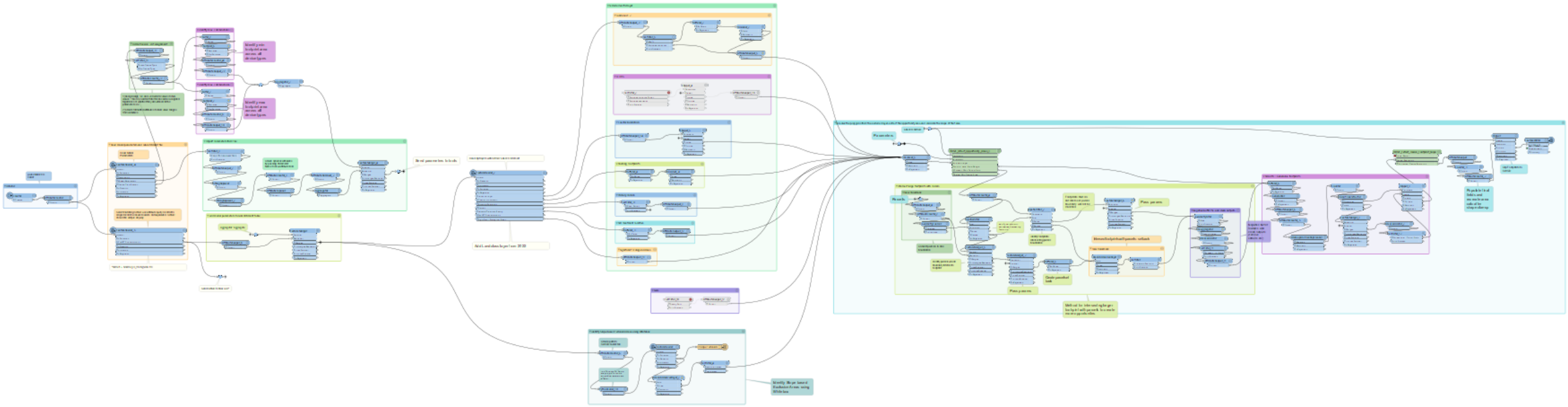
## Treatment Devices

# Wetlands


Extract Device Opportunity Footprints
Identify Best Opportunities in the Network
Delineate Device Catchments
Structural Device Mapping Outputs


FME
1. Footprint Mapping
2. Hydrological Connections

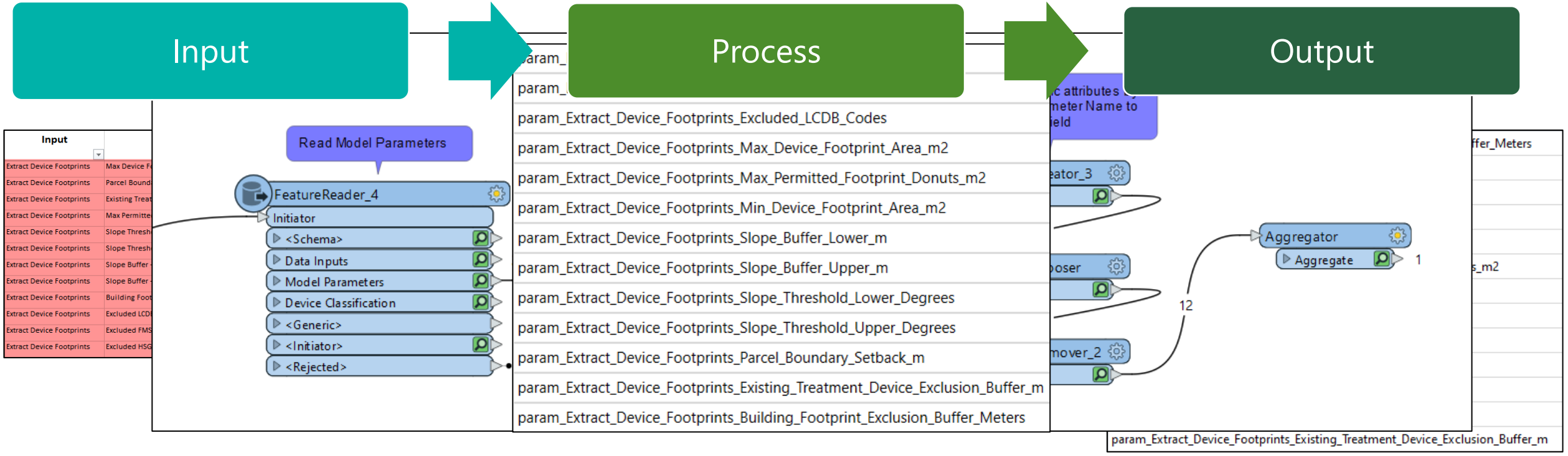
# Footprint Mapping



# Footprint Mapping

Extract Device Opportunity Footprints

- Model Parameters
- Exclusion layers
- Process data inputs from GDB
- Identify slope-based exclusions
- Extracting Opportunity Areas



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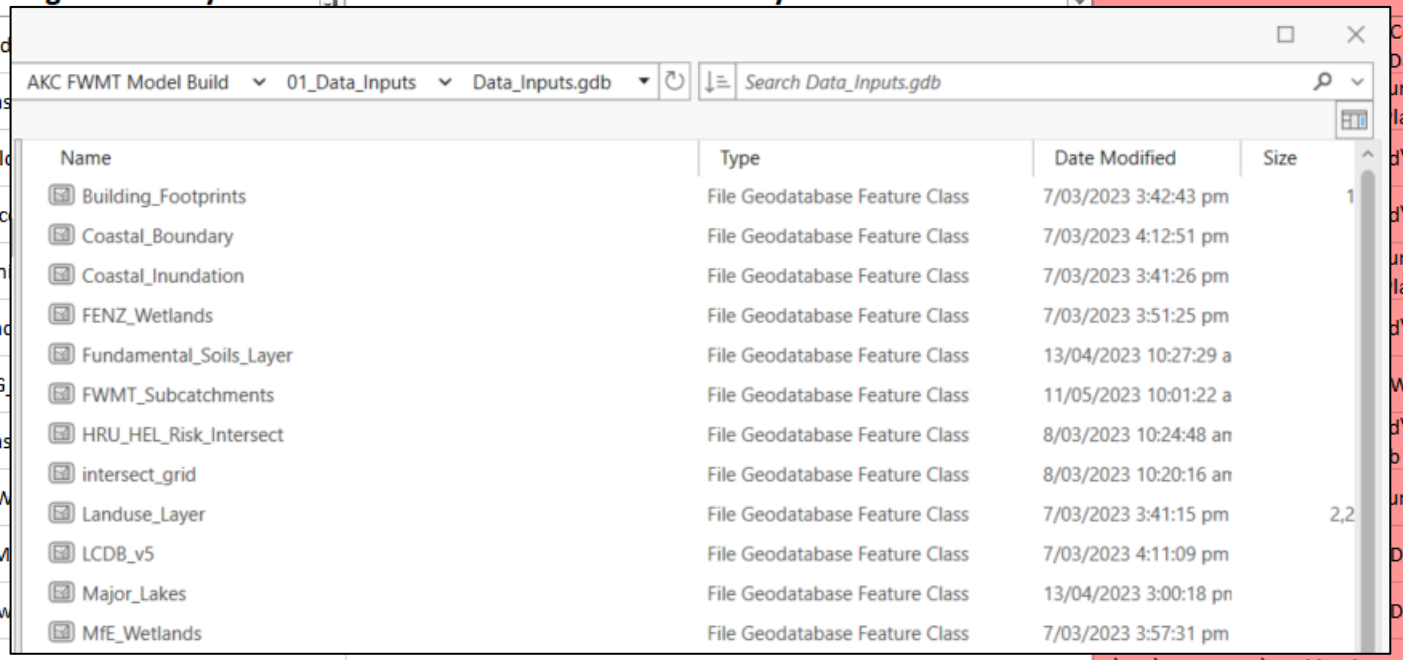
| Model Uses | Target Directory Name | Source Directory Name | Source Directory |
|---|---|---|---|
| Device Exclusion Layer | Land | | Council\P03203 FWMT Advancements 2021\GIS\Task 1_Baseline Data\Delivered Data\Updated Landuse Data.gdb |
| Device Exclusion Layer | Coas | | uncil\Council\District lan\UnitaryPlan.gdb |
| Device Exclusion Layer | Build | | d\Water\Impervious Areas\building_outlines.gdb |
| Device Exclusion Layer (Roads), Split larger devices | Parc | | d\Parcels\parcel_boundaries.gdb |
| Device Exclusion Layer | Signi | | uncil\Council\District lan\UnitaryPlan.gdb |
| Device Exclusion Layer | Func | | d\Landcover\LRIS\fsl_Soil_Drainage_Class.gdb |
| Device Exclusion Layer | HSG_ | | WMT_GIS\Data\Databases\Soils_HSG.gdb |
| Device Exclusion Layer | Coas | | d\Water\NZ Coastlines and Islands Polygons\nz-coastlines-and-o |
| Existing Treatment Devices, Device Exclusion Layer | swW | | uncil\Underground Services\SAP Data\Stormwater.gdb |
| Device Exclusion Layer (Slope), Elevation calculations | DEM | | Derived Products\Regional Rasters\AKC_DTM_2m.gdb |
| Device Pour Point Placement, Device Catchment Size Es | Flow | | Derived Products\Regional Rasters\AKC_DTM_2m.gdb |
| Device Offtake Network, Primary Flow Network Burnlin | SW_Pipe | PUBLICATION_MASTER_swPipe | Z:\GIS\Base_Data\Auckland Council\Underground Services\SAP Data\Stormwater.gdb |



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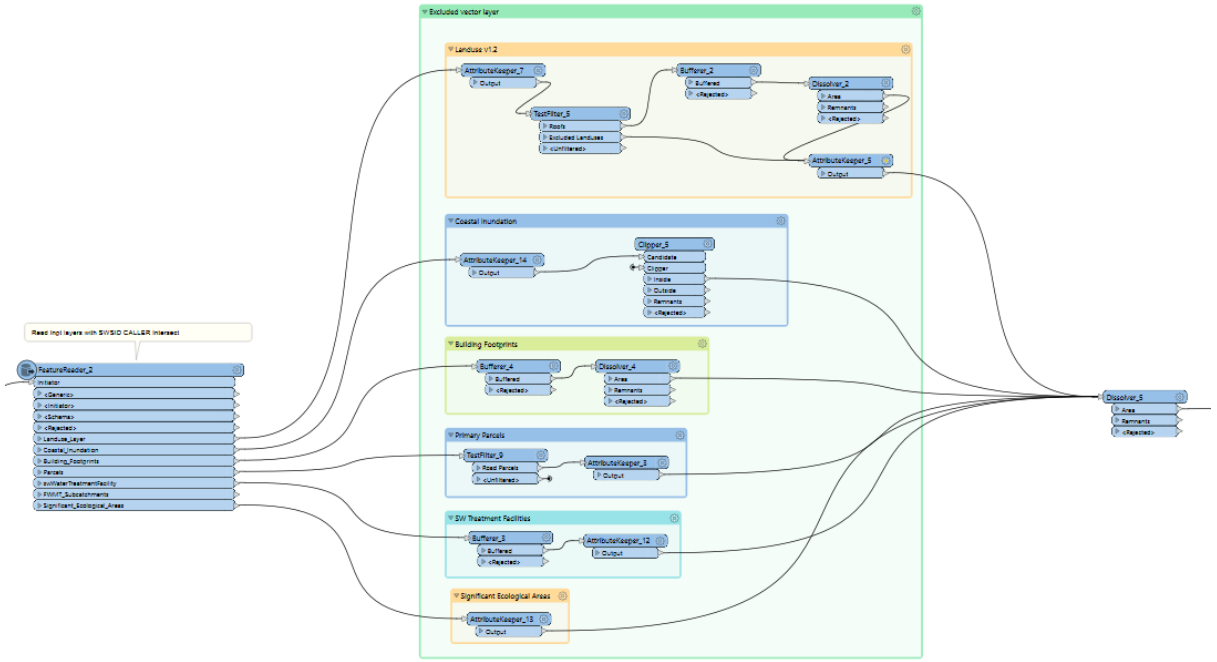

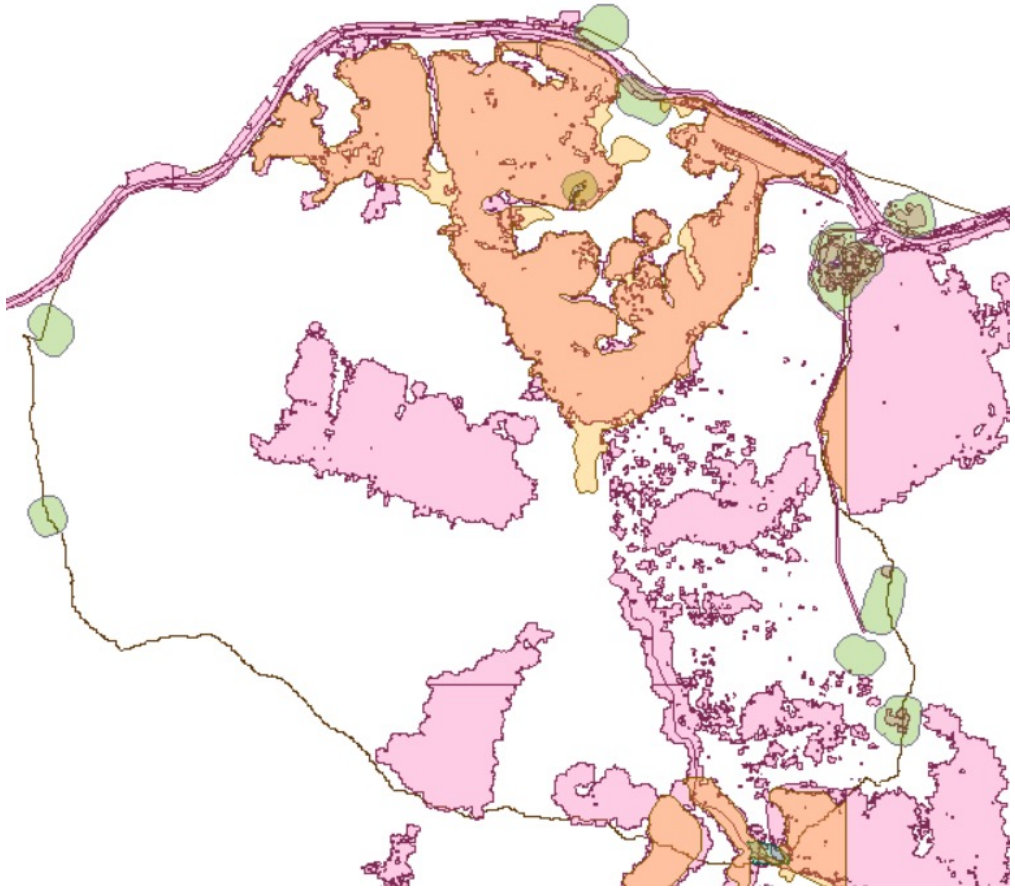

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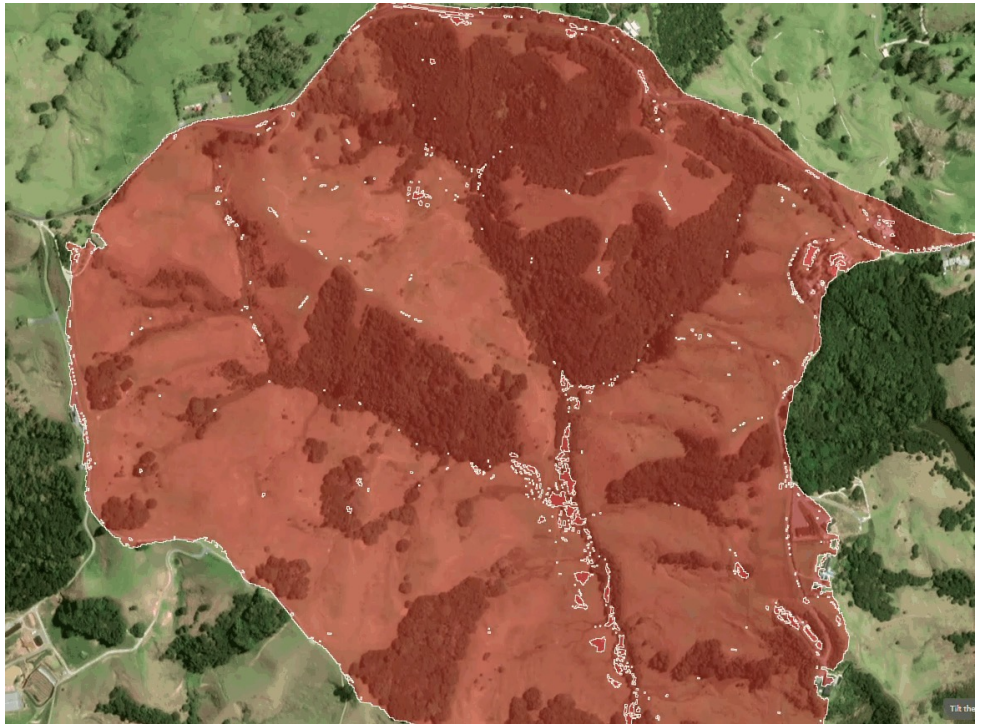

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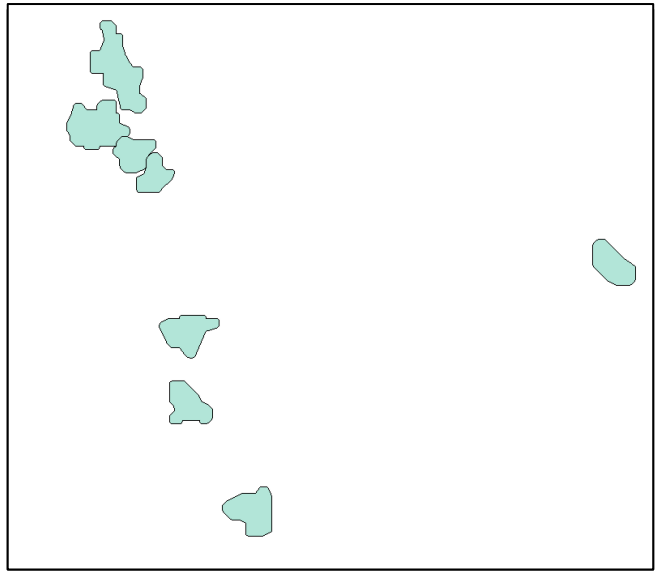
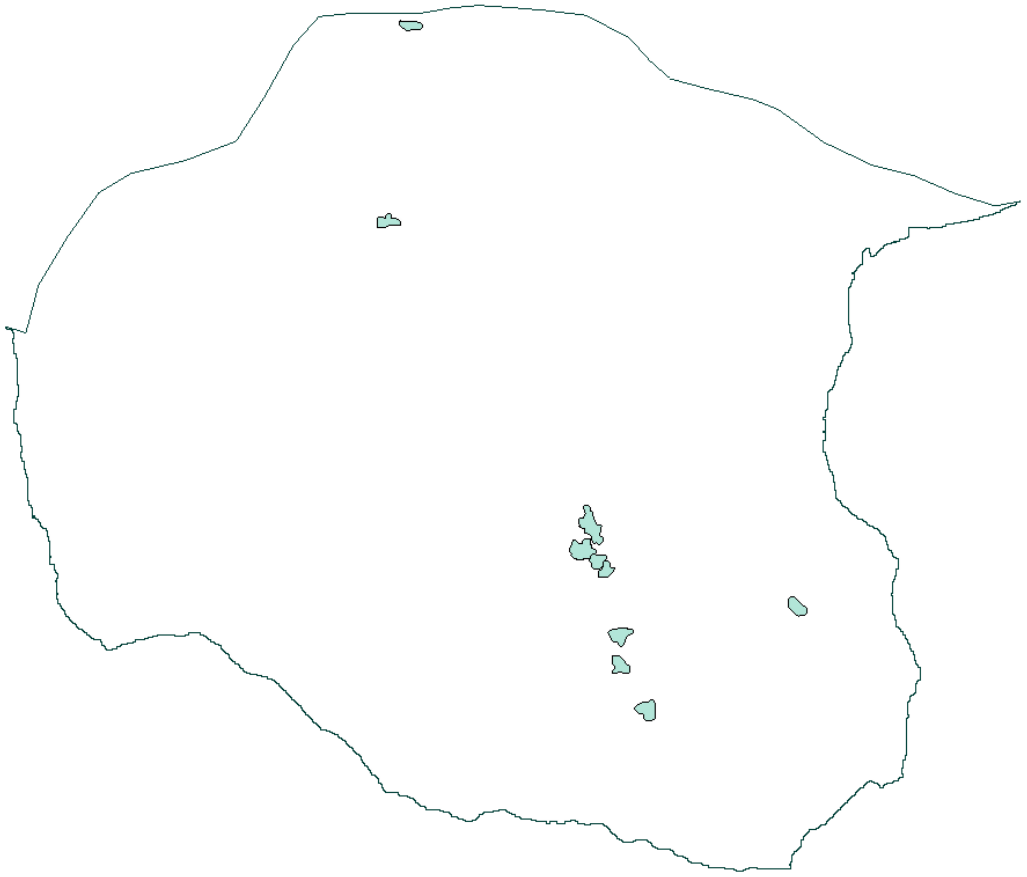
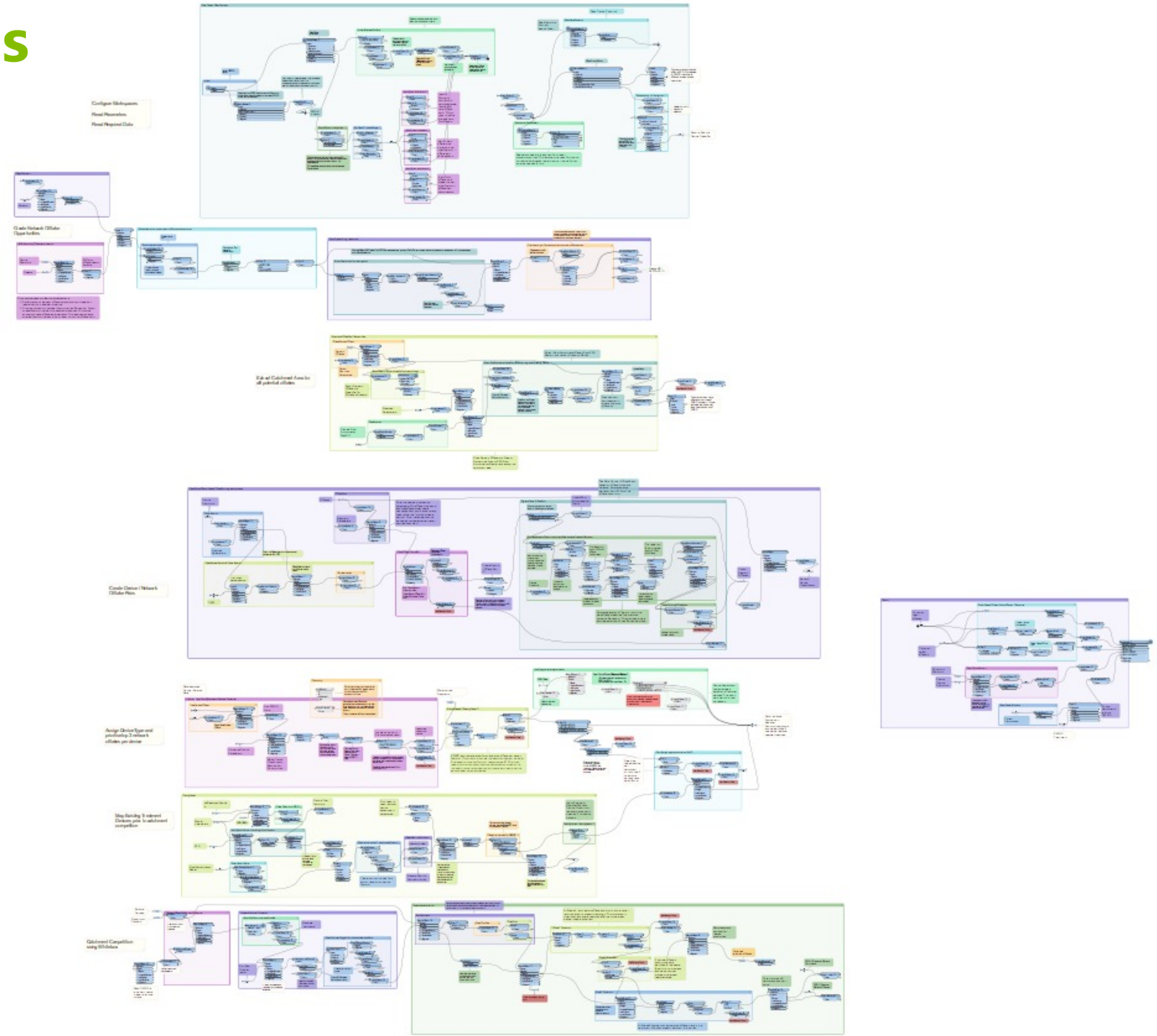




# Hydrological Connections



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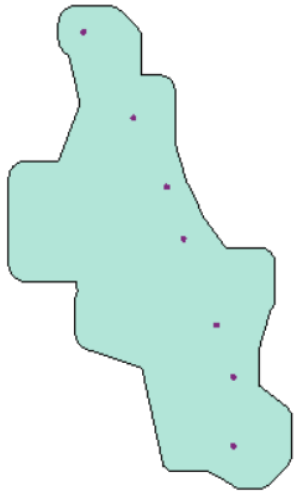
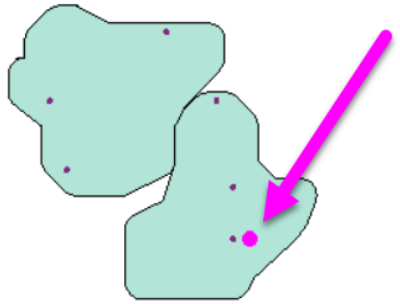
# Hydrological Connections

Identify Best Opportunities in the Network

- Finding valid streams along the Primary Flow Network
- Apply a buffer to the footprints
- Filter valid streams within the buffer
- Break the stream into 10m segments (iterativesnapper & centrepointreplacer)
- Find points within wetland
- Check validity of each pour point
- Join back to wetland to identify the ones that are valid

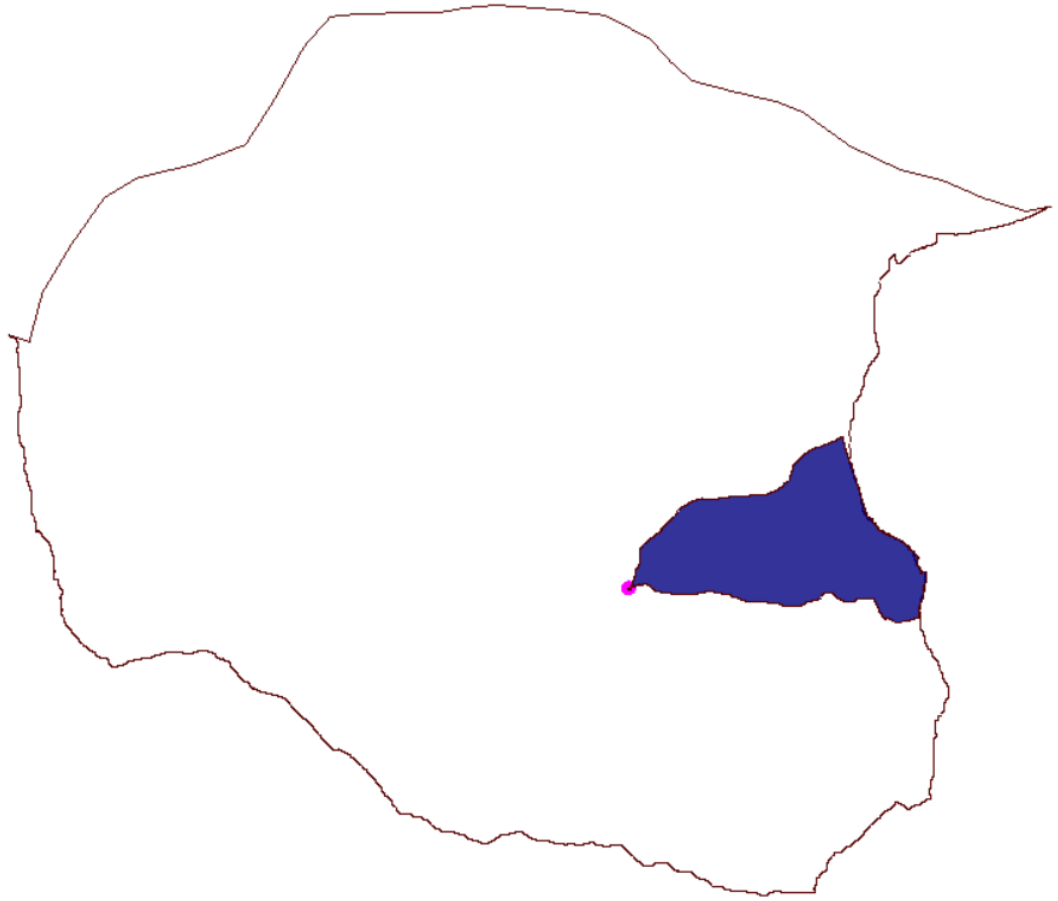




# Hydrological Connections

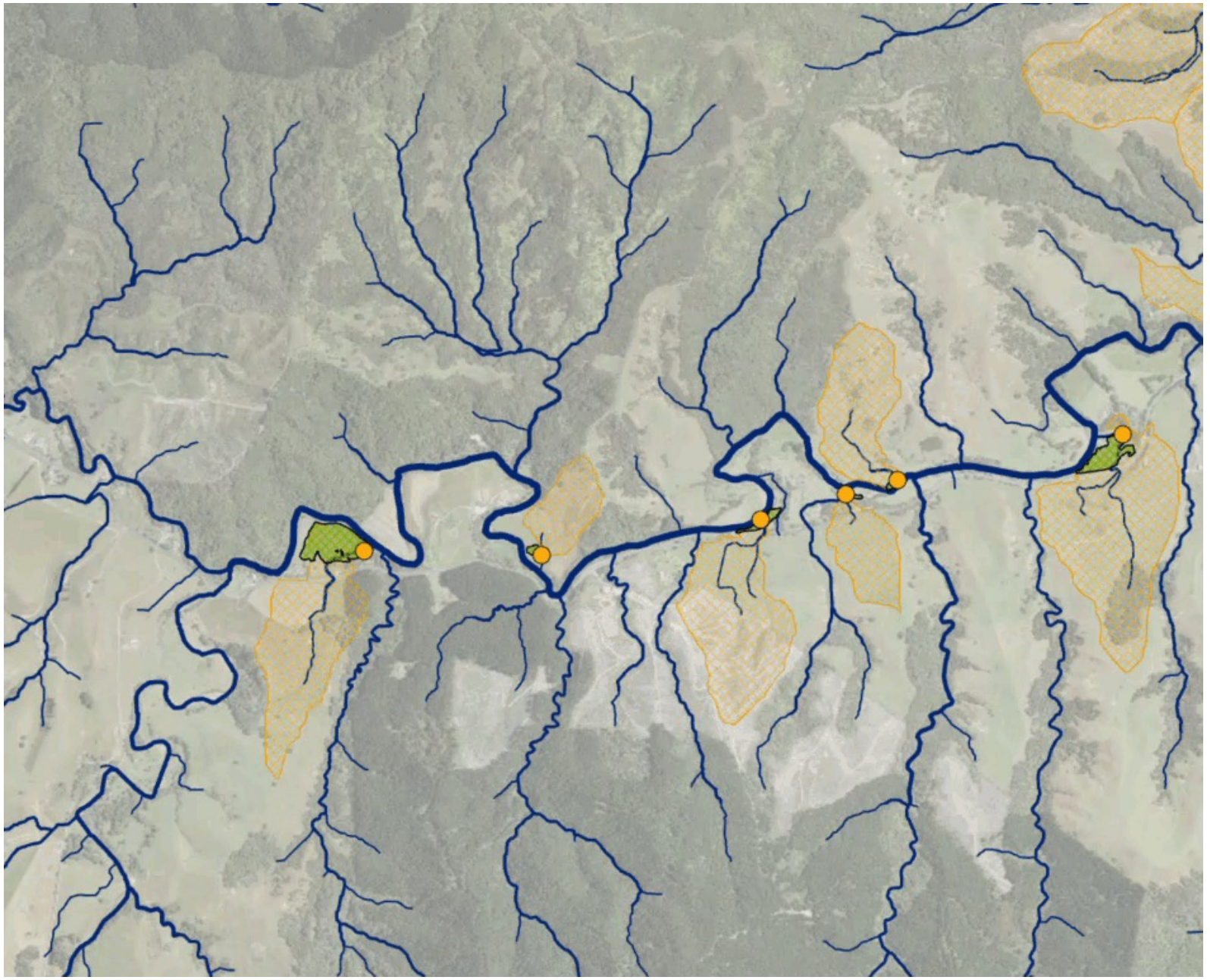
Delineate Device Catchments

- Creating Catchments / Treatment Area from Network Offtake



# Hydrological Connections

Structural Device Mapping Output



# Workspace Runner & FFS Files

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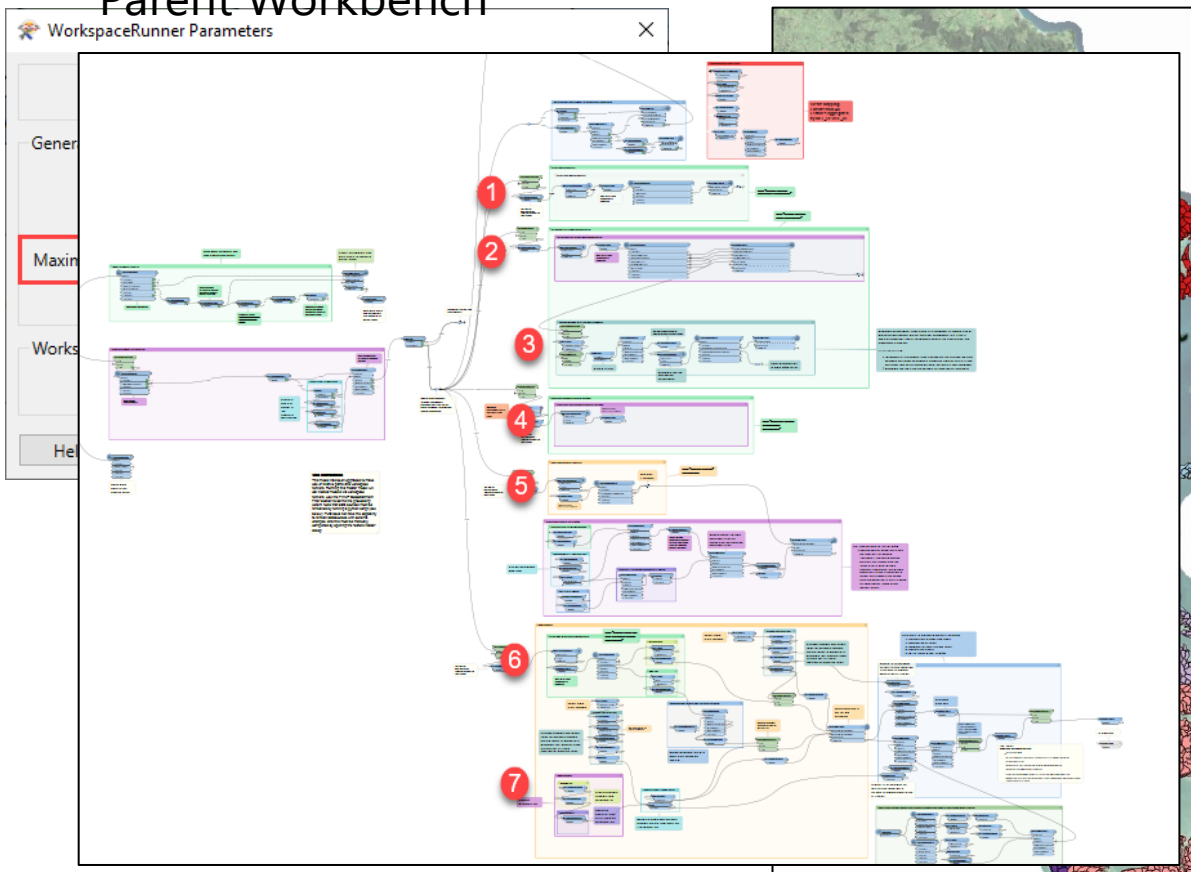
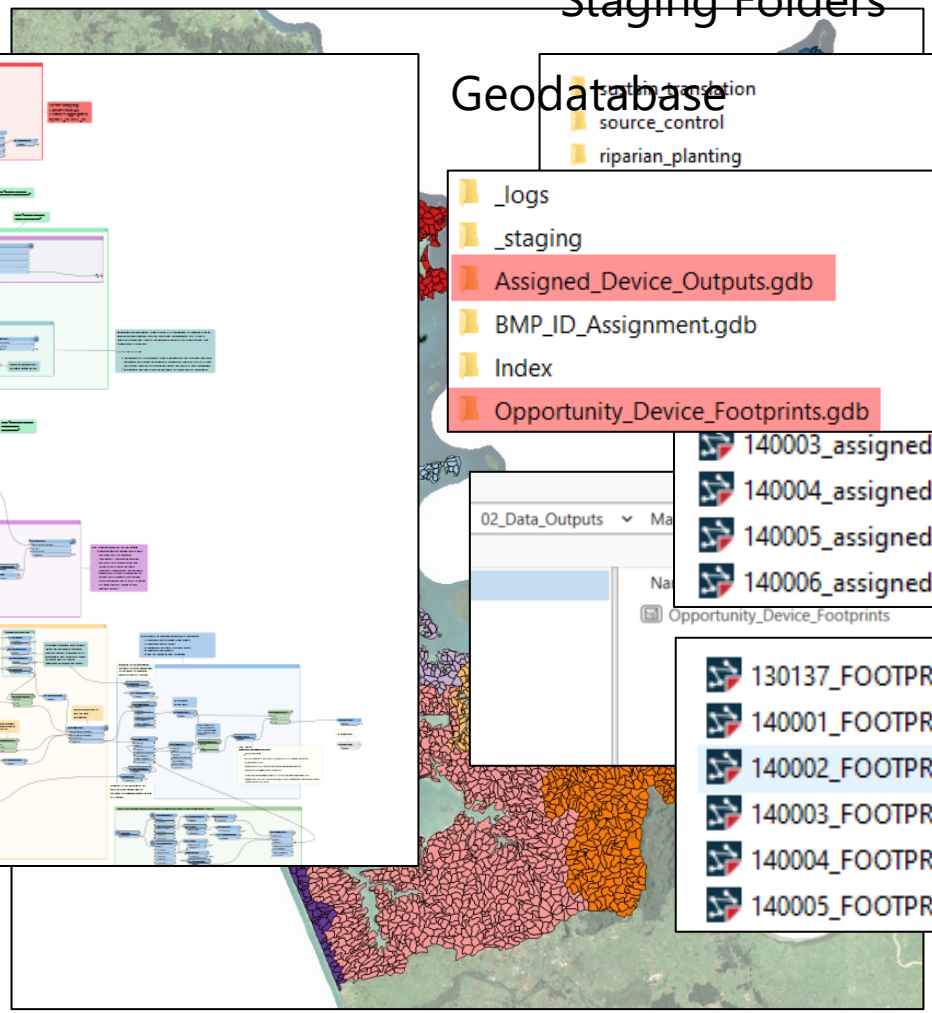
# Workspace Runner & FFS Files

Benefits

Parent Workbench

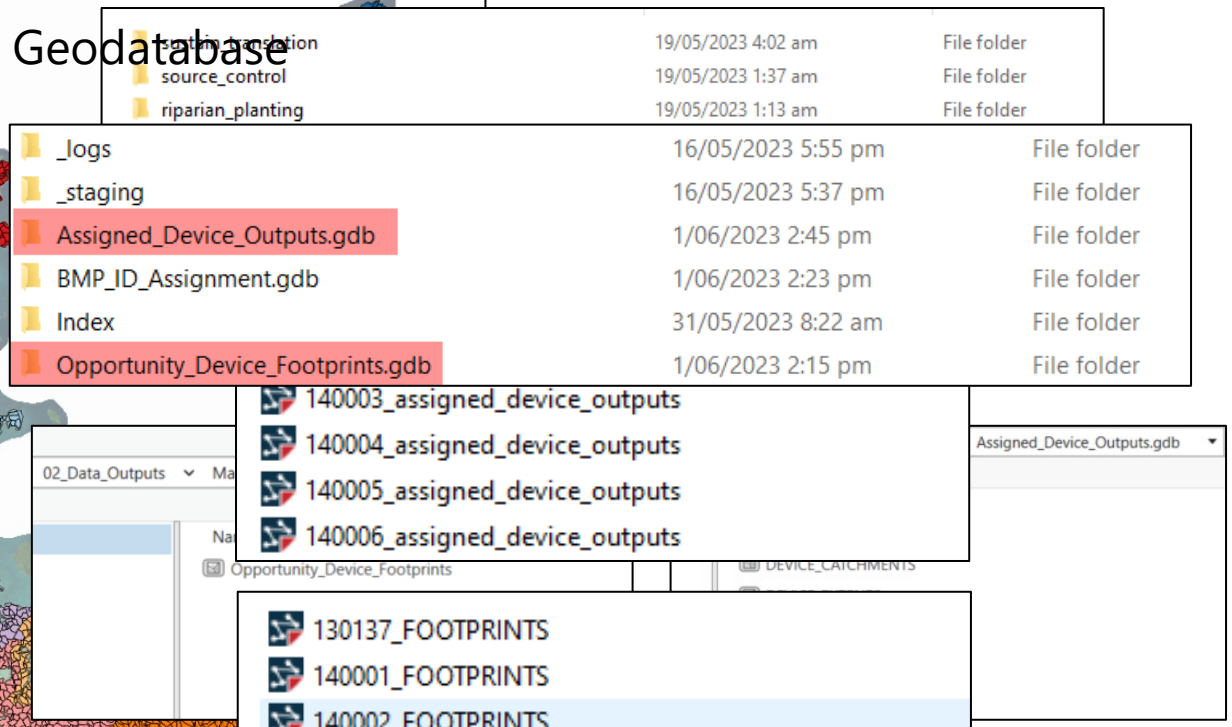



Auckland Region



Staging Folders

Geodatabase



# Quality Assurance

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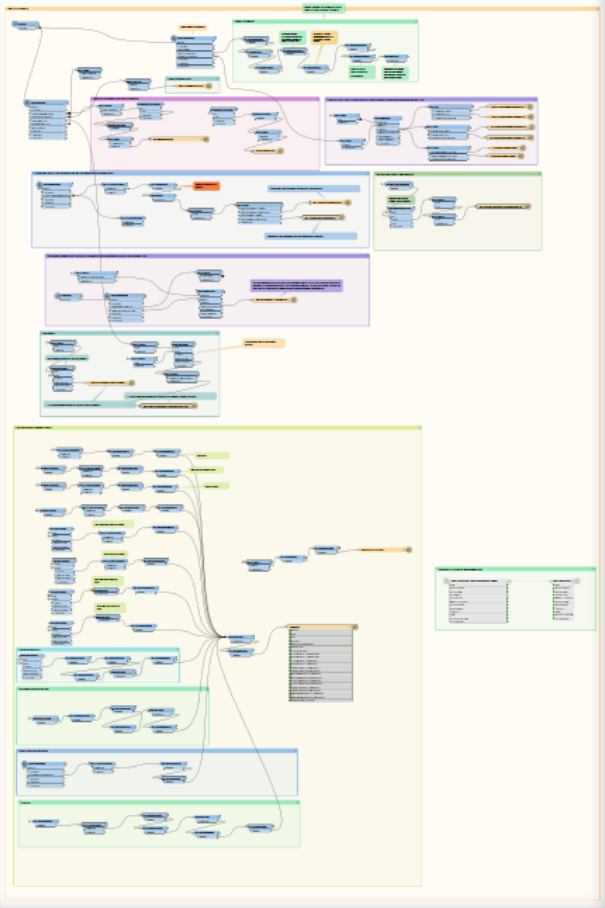
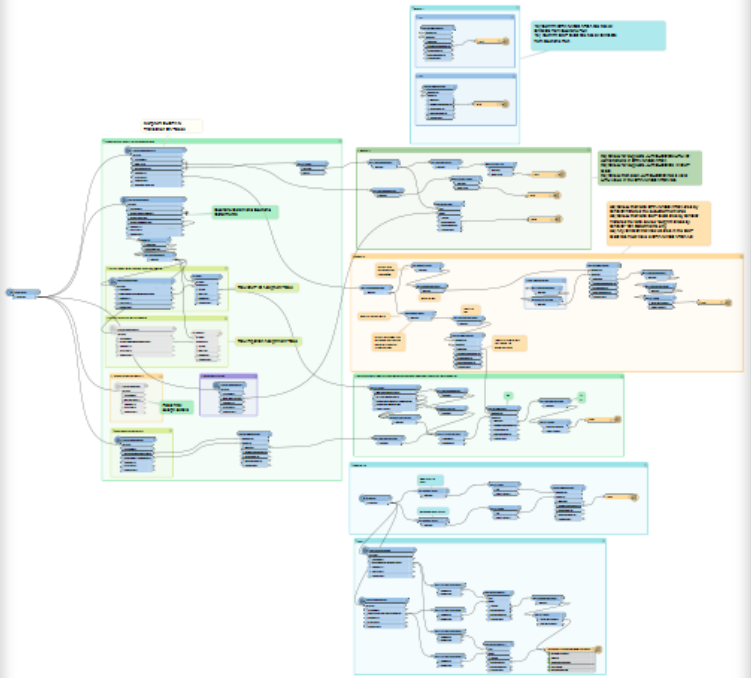
# Quality Assurance

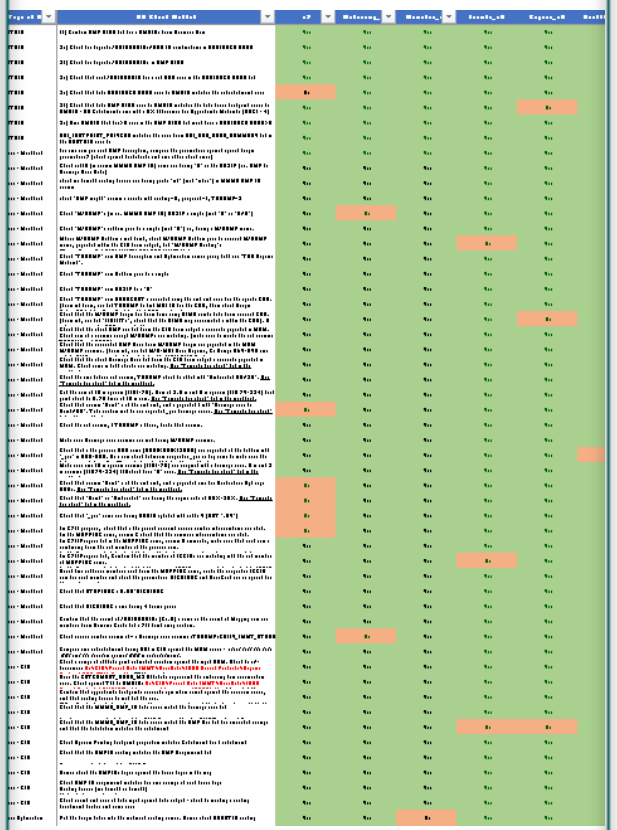
## Spatial QA



## FWMT QA



## Manual QA



# Potential Improvements

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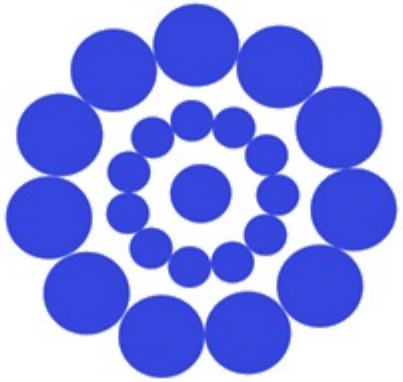
# Potential Improvements



FME Flow
(was FME Server)

FME Flow Hosted
(was FME Cloud)

- FME Flow / Flow Hosted
- PostGIS database for multi write access
  - Replace staging folder

# Wrap Up

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THANK YOU.
shannon.fourie@morphum.com