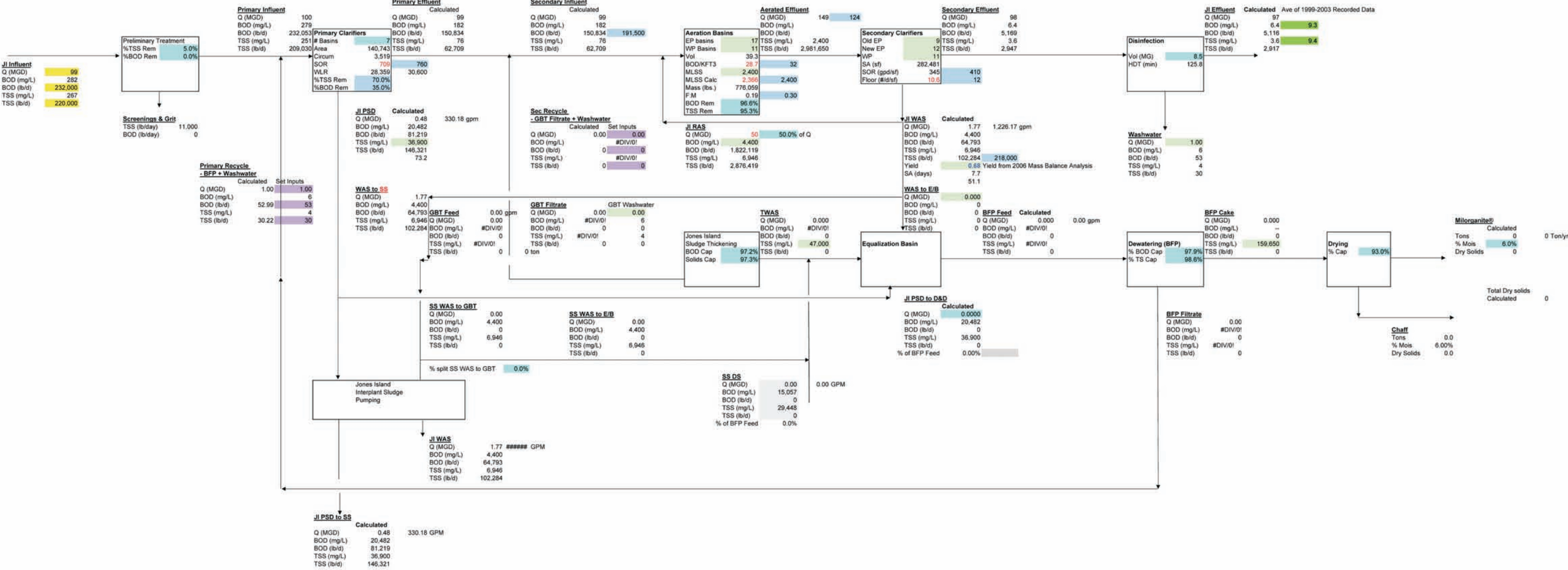


APPENDIX 9F

BIOSOLIDS RECOMMENDED PLAN ALTERNATIVES – MASS BALANCES

Year 2020 JIWWTP Mass Balance - Average Conditions

	Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
	Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
	Given design parameters
	Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
	Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
	Information from corresponding SSWWTP Mass Balance in this table
	Set inputs based on calculated data
2.07	Set from 2006 Mass Balance Analysis

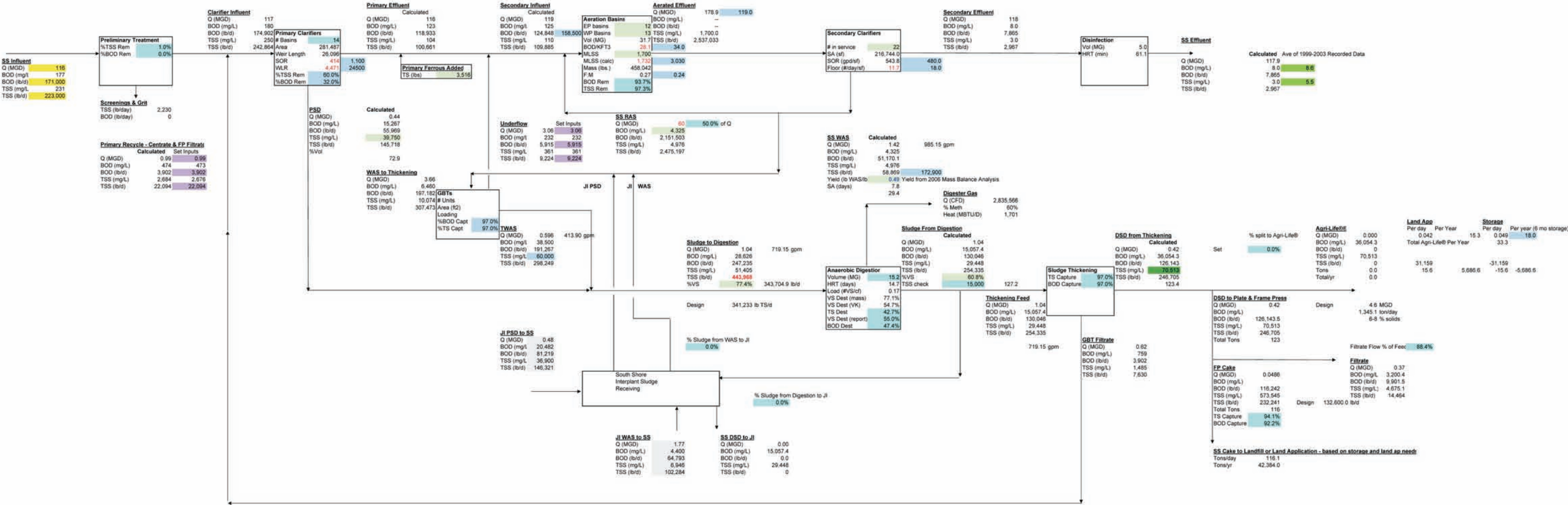


NOTES:
1) Mass Balances in this table are variations of the mass balances presented in Appendix 5C, MMSD System Revised 2020 Baseline Condition Mass Balance Analysis
2) 2003 and 2006 Mass Balance Analyses referenced in the legends in this table are presented in the 2020 Facilities Plan project files.



Year 2020 SSWWTP Mass Balance - Average Conditions

- Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
- Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
- Given design parameters
- Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
- Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
- Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
- Information from corresponding JIWWTP Mass Balance in this table
- Set inputs based on calculated data
- 2.07 Set from 2006 Mass Balance Analysis



	Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
	Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
	Given design parameters
	Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
	Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
	Information from corresponding SSWWTP Mass Balance in this table
	Set inputs based on calculated data
2.07	Set from 2006 Mass Balance Analysis

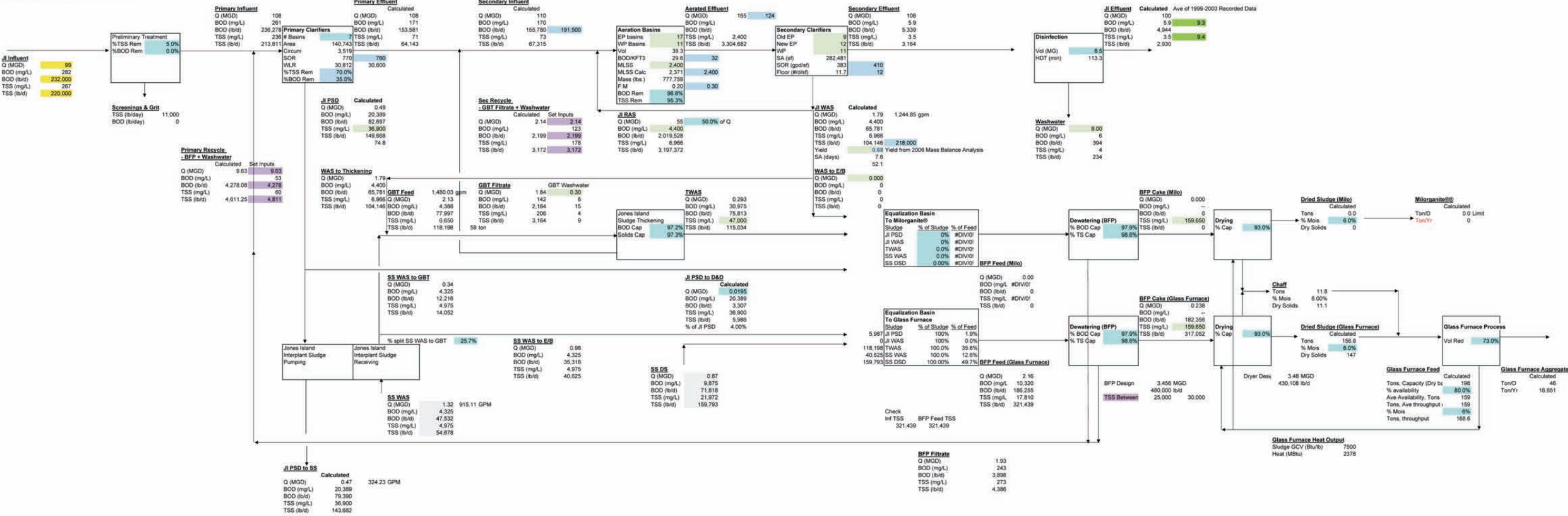


Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis	
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis	
Given design parameters	
Assumed concentrations, # basins, etc. from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages	
Assumed concentrations from age of 1999-2003 UWS Daily/Weekly Operating Reports	
Assumed BOD thickened sludge concentration based on 2005 UWS monthly report average	
Information from corresponding WWTWP Mass Balance in this table	
Set inputs based on calculated data	
Set from 2006 Mass Balance Analysis	2.07



Year 2020 JIWWTP Mass Balance - Average Conditions

Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Information from corresponding SSWWTP Mass Balance in this table
Set inputs based on calculated data
Set from 2006 Mass Balance Analysis



NOTES:
1) Mass Balances in this table are variations of the mass balances presented in Appendix 5C, MMSD System Revised 2020 Baseline Condition Mass Balance Analysis
2) 2003 and 2006 Mass Balance Analyses referenced in the legends in this table are presented in the 2020 Facilities Plan project files.



Year 2020 SSWWTP Mass Balance - Average Conditions

- Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
- Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
- Given design parameters
- Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
- Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
- Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
- Information from corresponding SSWWTP Mass Balance in this table
- Set inputs based on calculated data
- 2.07 Set from 2006 Mass Balance Analysis

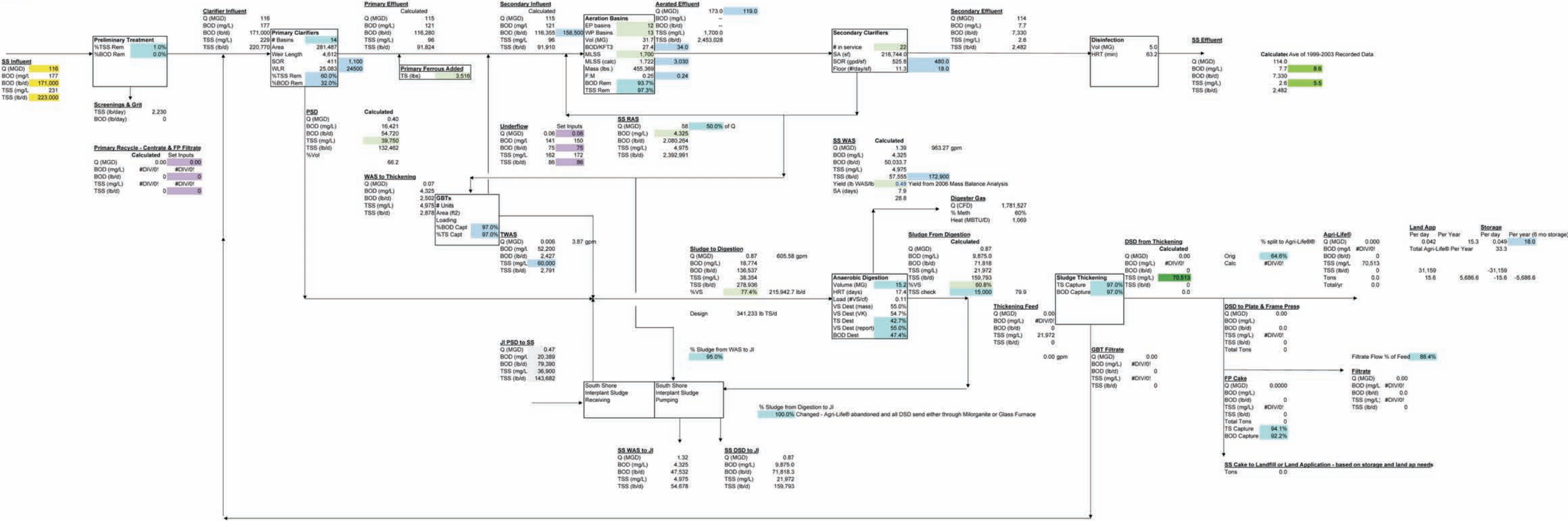
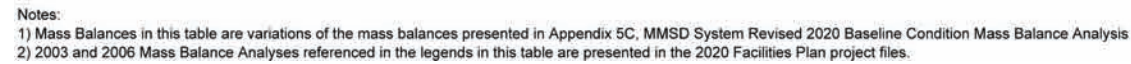


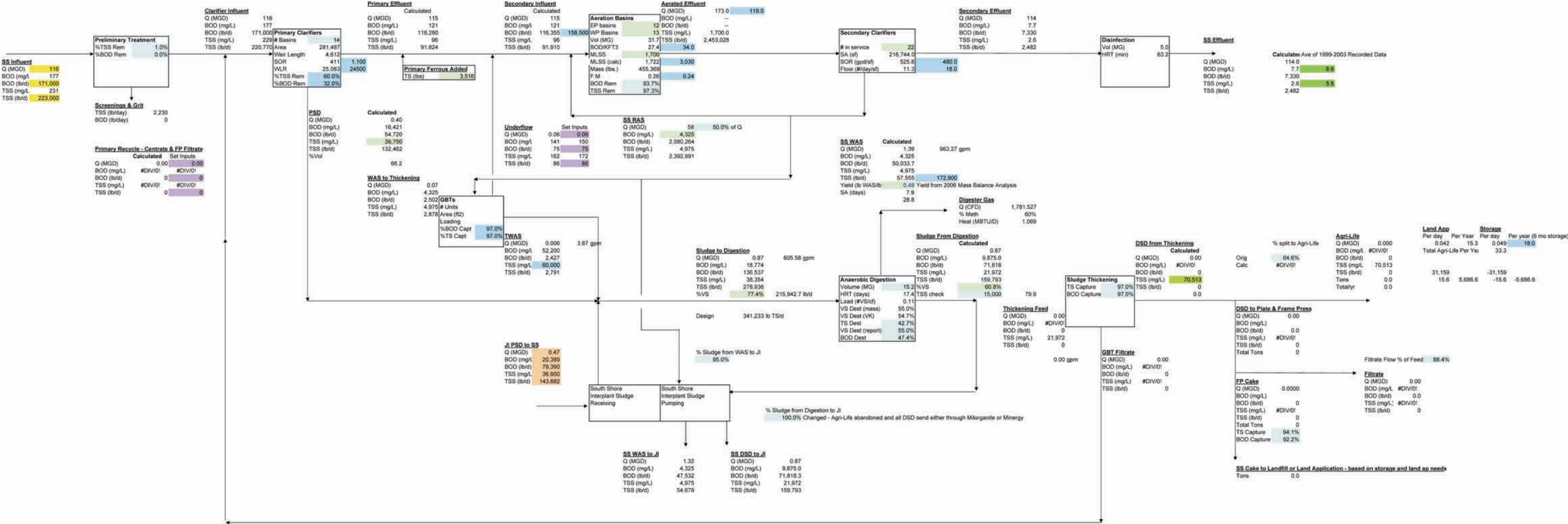
TABLE 9F-2 SHEET 2 OF 2
RECOMMENDED BIOSOLIDS PLAN
ALTERNATIVE 2 – GLASS FURNACE TECHNOLOGY
2020 TREATMENT REPORT
6/2/07

	Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
	Gen % Removals, Capex, etc., based on 2003 Mass Balance Analysis
	Given design parameters
	Assumed concentrations, % basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
	Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
	Information from corresponding SSIWTP Mass Balance in this table
	Set inputs based on calculated data
2.07	Set from 2006 Mass Balance Analysis



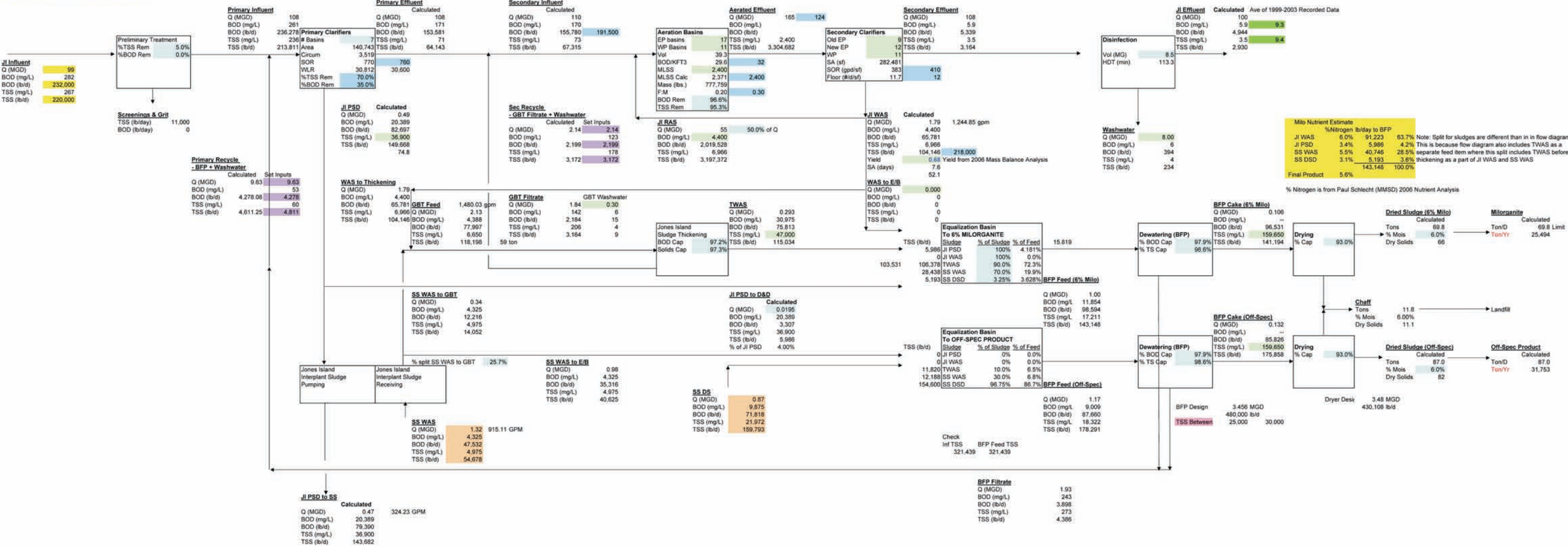
Year 2020 SSWWTP Mass Balance - Average Conditions

- Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
- Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
- Given design parameters
- Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
- Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
- Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
- Information from corresponding SSWWTP Mass Balance in this table
- Set inputs based on calculated data
- 2.07 Set from 2006 Mass Balance Analysis



Year 2020 JIWWTP Mass Balance - Average Conditions

Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Information from corresponding SSWWTP Mass Balance in this table
Set inputs based on calculated data
2.07 Set from 2006 Mass Balance Analysis



Year 2020 SSWWTP Mass Balance - Average Conditions

- Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
- Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
- Given design parameters
- Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
- Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
- Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
- Information from corresponding JWWTP Mass Balance in this table
- Set inputs based on calculated data
- 2.07 Set from 2006 Mass Balance Analysis

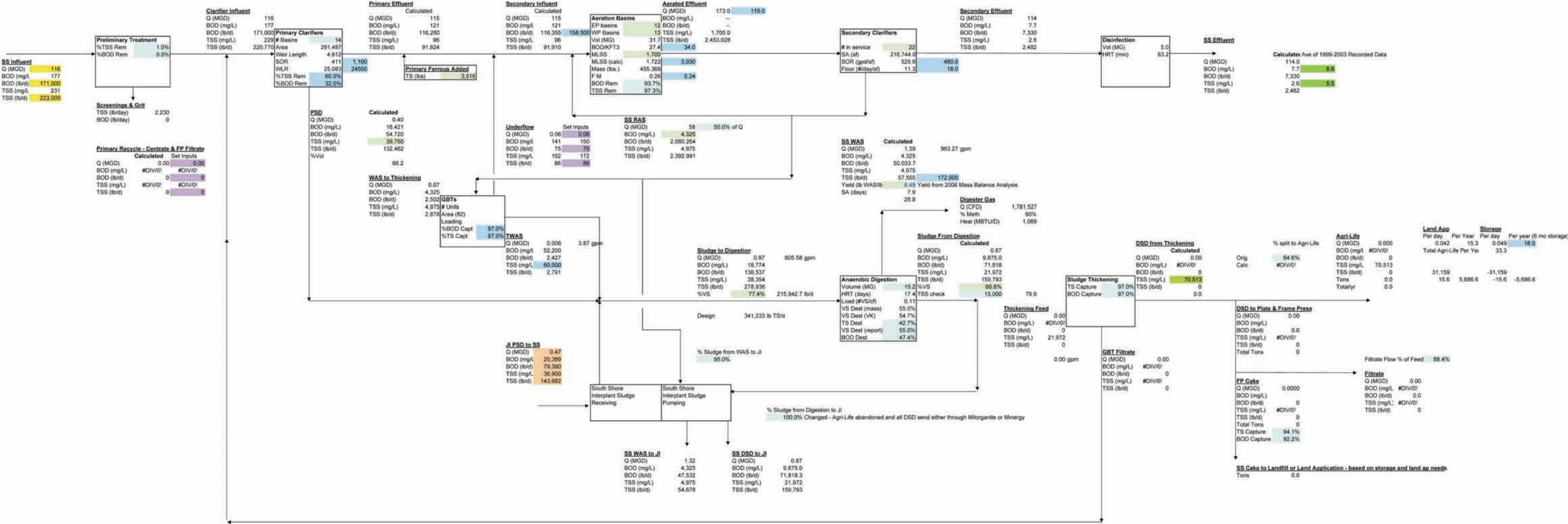
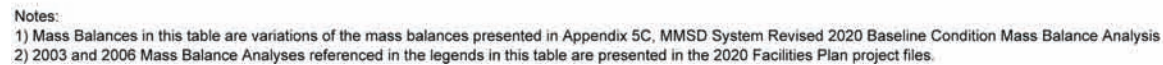


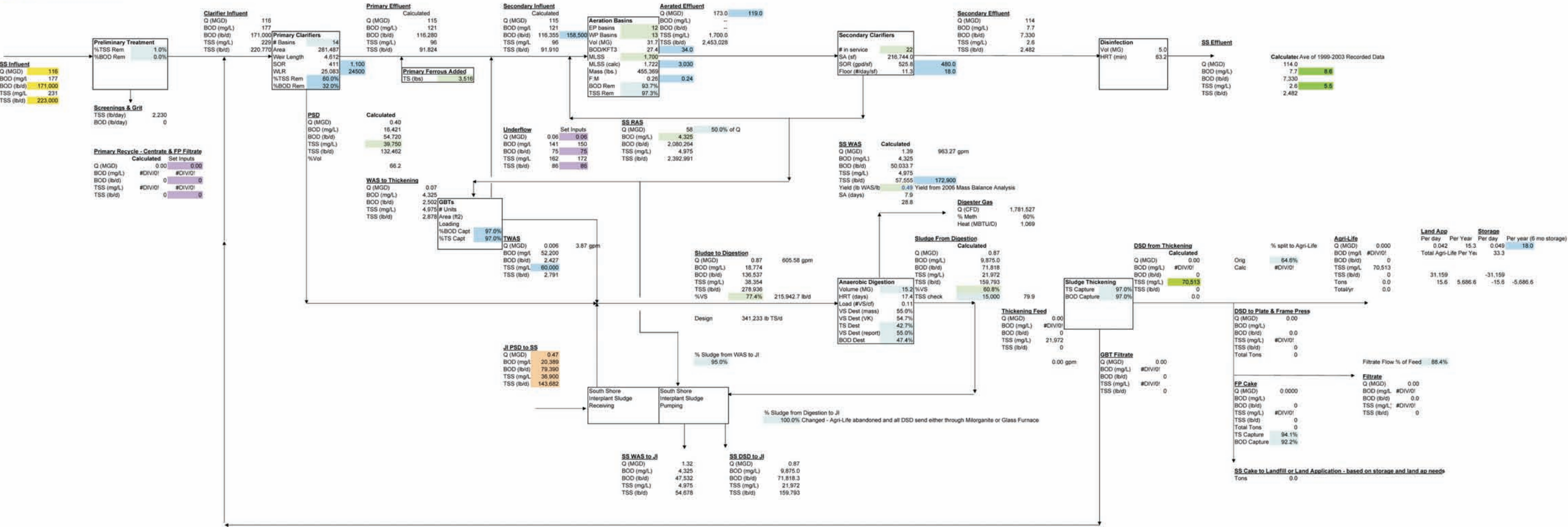
TABLE 9F-4 SHEET 2 OF 2
RECOMMENDED BIOSOLIDS PLAN
ALTERNATIVE 4 – COMBINE MILORGANITE®
PROGRAM WITH LAND APPLICATION
2020 TREATMENT REPORT
6/2/07

	Input from Figure 20 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
	Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
	Given design parameters
	Assumed concentrations, % basins, etc. from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
	Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
	Information from corresponding SSWWTP Mass Balance in this table
	Set inputs based on calculated data
2.07	Set from 2006 Mass Balance Analysis



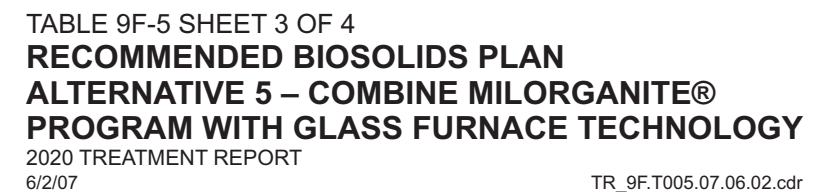
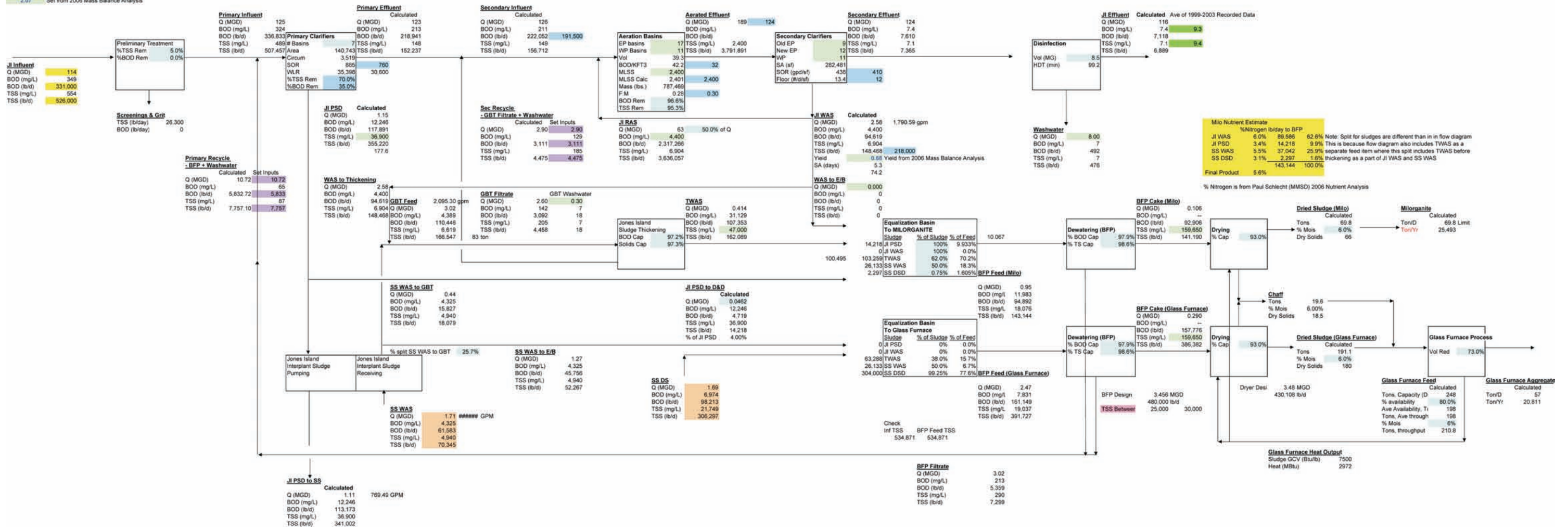
Year 2020 SSWWTP Mass Balance - Average Conditions

Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
Information from corresponding JWWTP Mass Balance in this table
Set inputs based on calculated data
2.07 Set from 2006 Mass Balance Analysis



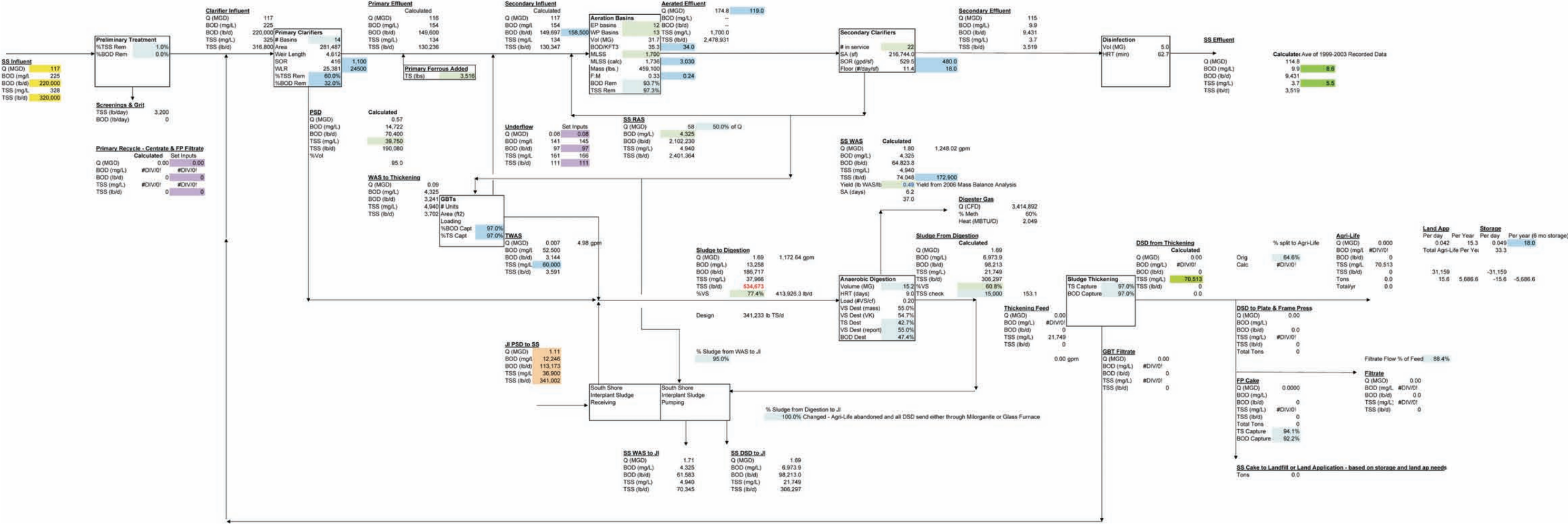
Preserving The Environment •
Improving Water Quality

Input from Future 20 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Capabilities, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Information from corresponding SSWTWP Mass Balance in this table
Set inputs based on calculated data
Set from 2006 Mass Balance Analysis
2.07



Year 2020 SSWWTP Mass Balance - Maximum Month Wasteload Conditions

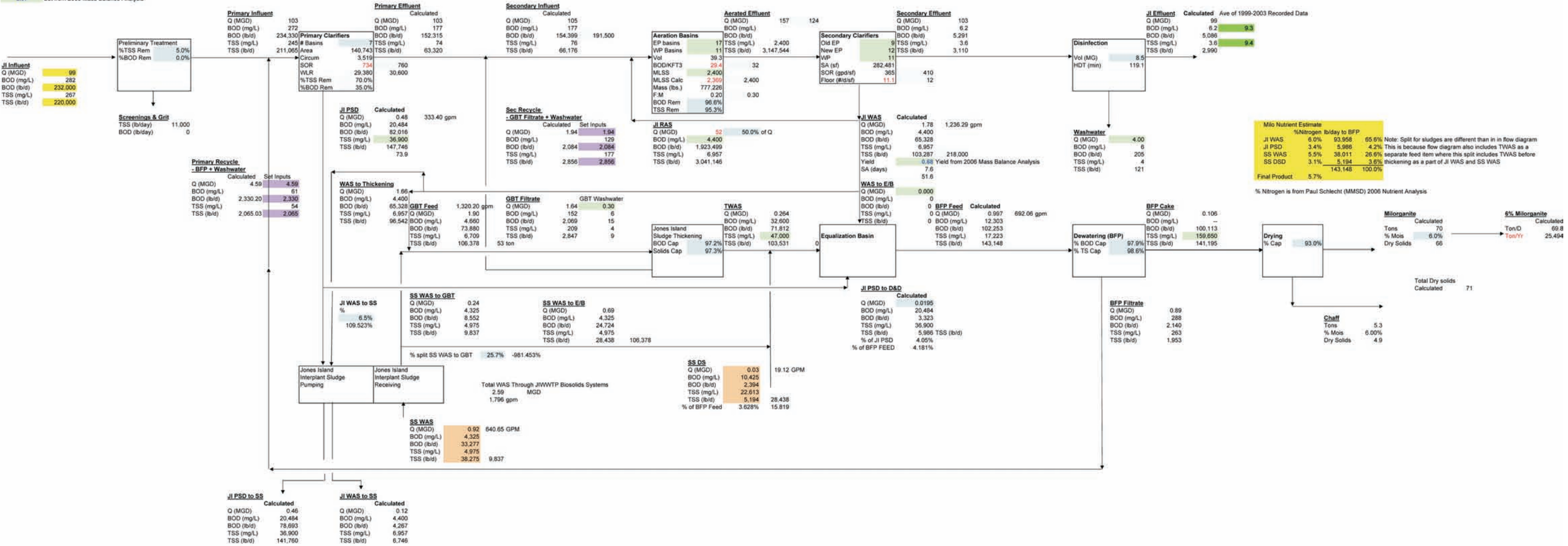
- Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
- Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
- Given design parameters
- Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
- Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
- Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
- Information from corresponding JWWTP Mass Balance in this table
- Set inputs based on calculated data
- 2.07 Set from 2008 Mass Balance Analysis



Preserving The Environment • Improving Water Quality

Year 2020 JIWWTP Mass Balance - Average Conditions

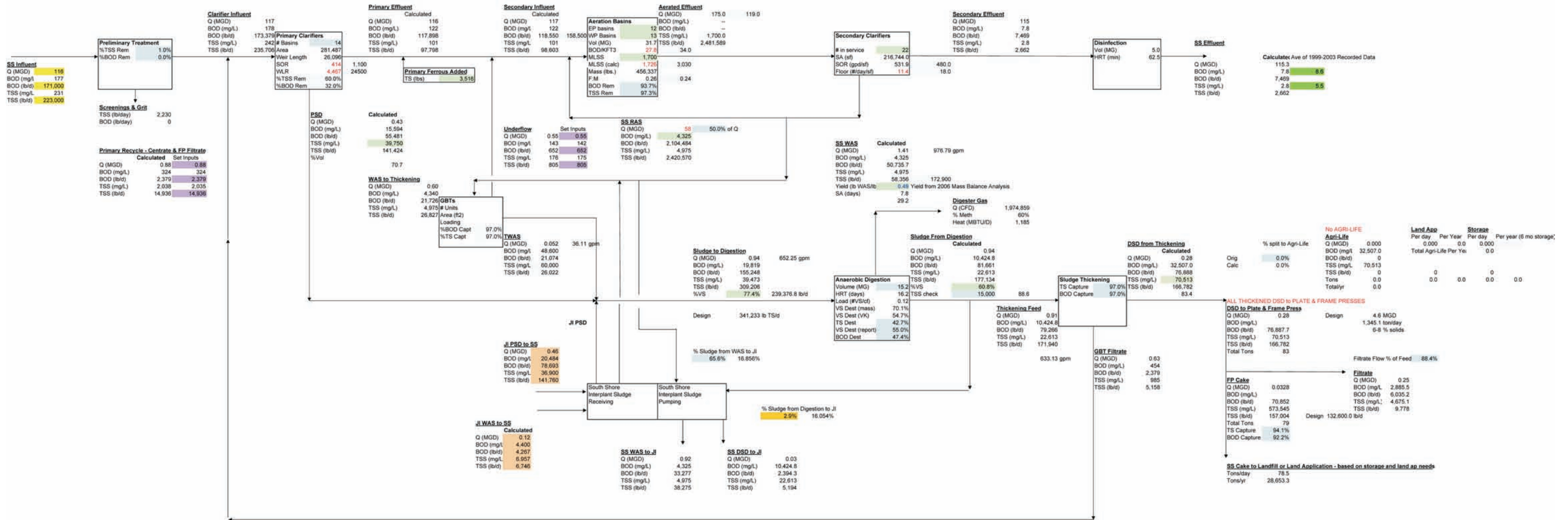
Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Information from corresponding SSWWTP Mass Balance in this table
Set inputs based on calculated data
2.07 Set from 2006 Mass Balance Analysis



Notes:
1) Mass Balances in this table are variations of the mass balances presented in Appendix 5C, MMSD System Revised 2020 Baseline Condition Mass Balance Analysis
2) 2003 and 2006 Mass Balance Analyses referenced in the legends in this table are presented in the 2020 Facilities Plan project files.

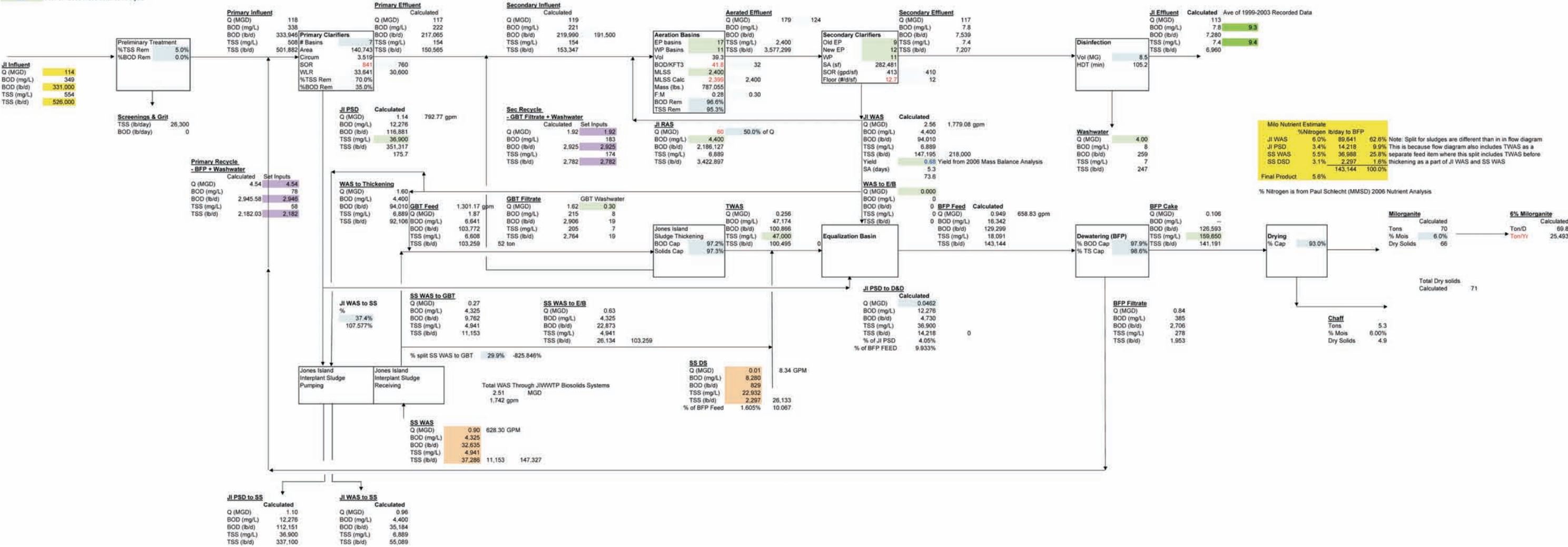


Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, β basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Assumed CBT thickened sludge concentration based on 2005 UWS monthly report average
Information from corresponding IWWTP Mass Balance in this table
Set inputs based on calculated data
Set from 2006 Mass Balance Analysis



Year 2020 JIWWTP Mass Balance - Maximum Month Wasteload Conditions

Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
Given design parameters
Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
Information from corresponding SSWWTP Mass Balance in this table
Set inputs based on calculated data
2.07 Set from 2006 Mass Balance Analysis



Year 2020 SSWWTP Mass Balance - Maximum Wasteload Conditions

- Input from Future 2020 Conditions Data as Appendix 5A, Future Condition Flow and Wasteload Analysis
- Given % Removals, Captures, etc. based on 2003 Mass Balance Analysis
- Given design parameters
- Assumed concentrations, # basins, etc from 2003 UWS Daily/Weekly Operating Report and UWS Monthly Report Averages
- Assumed concentrations from ave of 1999-2003 UWS Daily/Weekly Operating Reports
- Assumed GBT thickened sludge concentration based on 2005 UWS monthly report average
- Information from corresponding JWWTP Mass Balance in this table
- Set inputs based on calculated data
- 2.07 Set from 2008 Mass Balance Analysis

