Quadreal Property Group Limited Partnership & Tribal Partners Canada Inc.

# 12668 & 12862 Dixie Road - Caledon

## Feature Based Water Balance Analysis

March 28, 2024

Original

# 12668 & 12862 Dixie Road - Caledon

## Feature Based Water Balance Analysis

Quadreal Property Group Limited Partnership & Tribal Partners Canada Inc.

Original

Project No.: 201-11545-00
Date: March 2024

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# Quality Management

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| **FIRST ISSUE (ORIGINAL)** | | |
| 2024.03.28 | OPZBA | |
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# Signatures

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Senior Project Manager, Water Resources

Date

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# Contributors

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# 1 INTRODUCTION AND BACKGROUND

WSP Canada Inc. (WSP) has been retained by QuadReal Property Group Limited Partnership & Tribal Partners Canada Inc. to develop a Feature Based Water Balance Analysis in support of the proposed development at 12668 & 12862 Dixie Road in the Town of Caledon, Ontario.

As shown in **Figure 1.1**, the proposed development site is located in the Town of Caledon and bounded by Old School Road to the North, Dixie Road to the East, and undeveloped lands to the West and South. The site is currently used for agricultural purposes, and is primarily vacant with the exception of a farmhouse and some associated structures. The proposed development will consist of three (3) large industrial warehouse buildings with their associated loading dock areas, trailer and car parking spaces, etc. Two (2) Stormwater Management Ponds together with Low Impact Developments (e.g., infiltration galleries, underground storm chambers) will be constructed to achieve the required stormwater management control targets specified for the proposed site (refer to the "*Stormwater Management Report*" prepared for the site, prepared by WSP, dated March 01, 2024).

A "*Comprehensive Environmental Impact Study and Management Plan (CEISMP)*" was prepared for the subject site by WSP dated March 2024. As part of CEISMP, a preliminary Headwater Drainage Feature (HDF) assessment was conducted on the subject property. The assessment confirmed the recommendations for retention of identified HDFs within the subject site (i.e., Tributary 2 / HDF3, Tributary 3 / HDF9c and Tributary 4 / HDF8a-4). Tributaries 2 and 3 convey surface flows through the identified centre Significant Woodland, which was also identified as a natural feature to be retained (i.e., FOD5-1). **Figure 1.1** shows the locations of these identified features.

CEISMP further states that "*The preliminary water balance analysis presented in the Preliminary Hydrogeological Assessment (MTE; Feb. 2021) notes that none of the tributaries and associated wetlands on the subject properties is groundwater dependent. To mitigate potential impacts, it is recommended that future studies incorporate strategies to maintain surface water inputs to the watercourses that originate on the subject property (i.e., Tributaries 2, 3, and 4).*"

On April 29, 2021, a consultation meeting with TRCA technical staff was conducted to discuss the potential impacts to the identified nature features (i.e., HDFs and Woodland) within the subject site due to the proposed development. The meeting confirmed that a Feature Based Water Balance study by using the approved continuous hydrologic modelling would be required to support the proposed development. The study shall apply the best management practices to provide adequate compensations since there would be unavoidable major

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OLD SCHOOL RD

SW-4/SG3

Tributary 4 of the West Humber River (HDF8a-4)

Tributary 5 of the West Humber River

SW-3/SG4

Tributary 3 of the West Humber River (HDF9c)

DIXIE RD

SW-1/SG5

Tributary 2 of the West Humber River (HDF3)

SW-2/SG6

Kilamanagh Creek

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

## Legend

- SurfaceWaterMonitoringGauges
- Development boundary
- Streets
- Water courses
- Natural Drainage Features to be Retained
- Significant Woodland (FOD5-1)

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**Site Location and Existing Surface Drainage Natural Feature Inventory**

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alteration to the drainage boundaries of these identified natural features. The meeting further confirmed that a typical 3 years of monitoring data would be required to properly establish the baseline conditions of the features. Such monitoring program shall be designed on long term basis and continue through the construction cycle. Adaptive Management Plan (AMP) would also be required to ensure that the proposed mitigation measures could be modified to accommodate future adaptive management recommendations.

Upon acknowledgement of the technical requirements by TRCA, MTE Consultants completed the scoped surface water monitoring program (as part of the comprehensive hydrogeological assessment) for a period of 3 years (i.e., May 2021 to December 2023). The collected monitoring data was provided to WSP on February 12, 2024 for the purpose of developing a calibrated existing conditions hydrologic model to support the study.

This report includes the technical details of the Feature Based Water Balance analysis, discusses the continuous hydrological model, summarizes the potential impacts, and provides recommendations on appropriate mitigation measures to preserve and maintain the identified nature features. Note that the report was prepared by following TRCA's "*Wetland Water Balance Modelling Guidance Document – Draft*" dated August 2019.

# 2 OBJECTIVES AND POLICIES

## 2.1 Water Balance Objectives and Policies

Water balance requirements for the natural features detailed in the TRCA's *Stormwater Management Criteria* (August 2012) are as follows:

***Woodlands:*** *Manage the water balance with the intent to maintain the volume, timing and spatial distribution of surface water and groundwater contributions that ensures that hydrological changes do not cause a negative impact on the form and/or function of the woodland.*

***Wetlands:*** *Manage the water balance with the intent to maintain the quantity (i.e. volume, timing and spatial distribution) of surface water and groundwater contributions that ensures the pre-development hydro-period (seasonal pattern of water level fluctuation) of the wetland is protected.*

Any proposed development in the vicinity of a natural feature should ideally follow the following Best Management Practices, as applicable:

1. No net reduction in surficial aquifer recharge
2. Minimize potential for contamination of groundwater
3. No loss of wetland function or area
4. Minimize alteration to the natural drainage boundaries
5. Provide adequate compensation in case of any unavoidable major alteration to the natural drainage boundaries

## 2.2 Wetland Monitoring Objectives and Policies

The "*Wetland Water Balance Monitoring Protocol*" dated September 2016 and "*Wetland Water Balance Risk Evaluation"* dated November 2017 were published by TRCA, and were produced to provide guidance regarding potential impact to wetland features due to the proponents of urban development, infrastructure or water extraction applications. The document indicates that pre-development monitoring programs shall include 1 - 3 years of monitoring. The pre-development monitoring data collected are to be used to:

1. Develop a calibrated existing conditions wetland water balance model

2. Collect data that can be used to compare pre-to-post development conditions
3. Guide mitigation efforts during and after construction

## 2.3 Technical Guidance Document

The "*Wetland Water Balance Modelling Guidance Document - Draft*" prepared by TRCA, dated August 2019 outlines the approach and procedure for conducting a feature-based water balance modelling exercise for the protection of wetland hydrology. The purpose of the modelling exercise is to inform the need for, and the design of, mitigation measures to ensure a minimal difference between the post-development and pre-development water balance of a wetland. The Document provides an overview of wetland hydrology modelling, the strengths and weaknesses of various hydrological models, and the information that needs to be included in a feature-based water analysis report.

This Feature Based Water Balance study was prepared by generally following the template format as outlined in Appendix A of the "*Wetland Water Balance Modelling Guidance Document"*.

# 3 MONITORING PROGRAM

## 3.1 Program Setup

MTE Consultants completed the scoped surface water monitoring program (as part of its comprehensive hydrogeological assessment) for a period of 3 years (i.e., May 2021 to December 2023). The monitoring program was designed in accordance with the *Wetland Water Balance Monitoring Protocol* prepared by TRCA dated September 2016. As previously indicated in **Section 2.2**, the objective of the monitoring program is to calibrate the wetland water balance model under existing conditions, and evaluate the effectiveness of the proposed mitigation measures to maintain the hydrological cycle of the wetland feature.

A total of four (4) water level gauges were established. The locations of these gauges are shown in **Figure 1.1**. **Table 3.1** provides a summary of the gauge details.

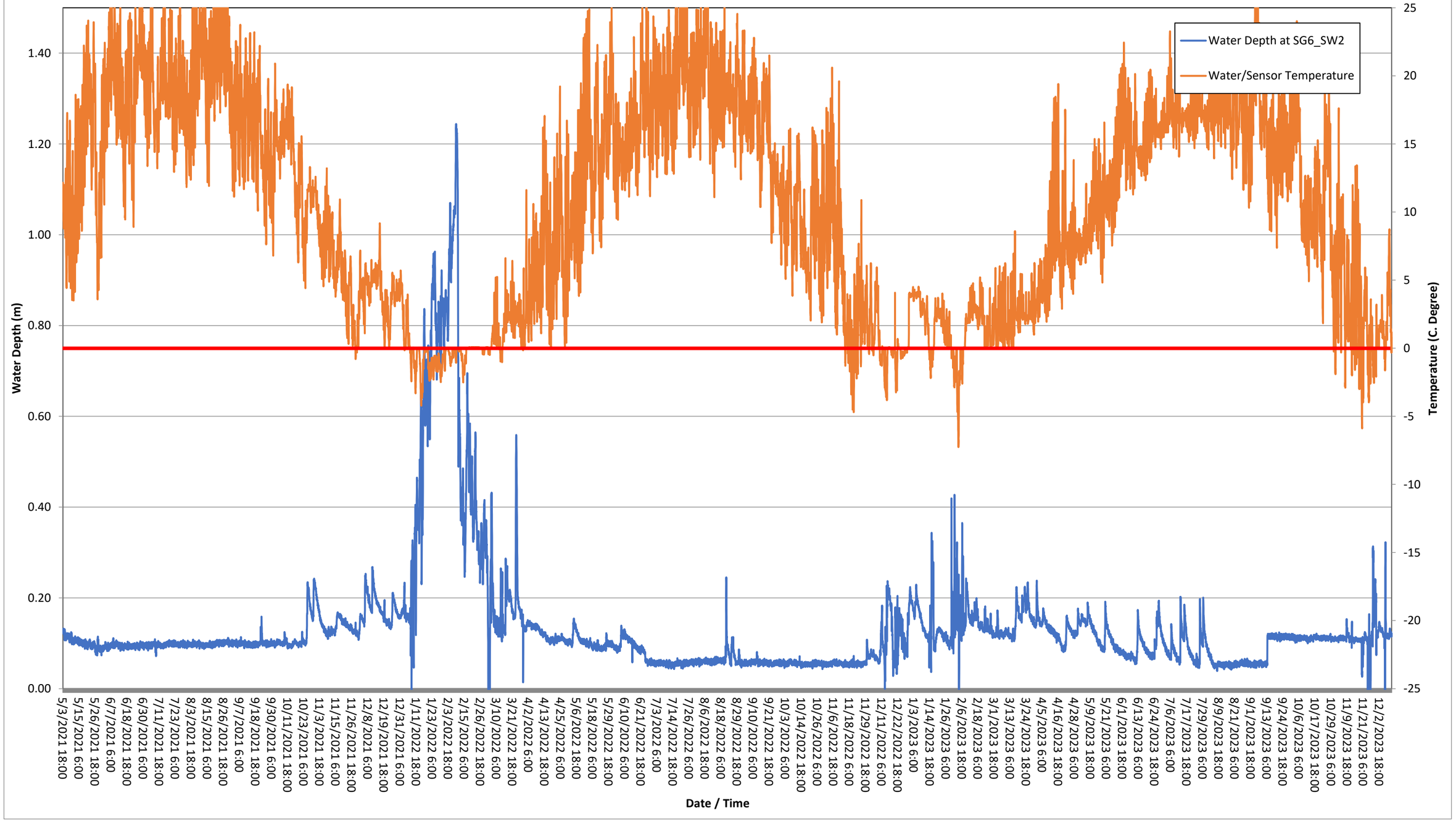
**Table 3.1 Water Level Monitoring Gauges Details (provided by MTE)**

| Gauge Name - WSP | Gauge Name - MTE | Location (Feature) | Monitoring Parameters |
|---|---|---|---|
| SW-1 | SG5 | Surface Water Entrance to Tributary 2 (HDF3) | Water Level, Temperature. Hourly Data. |
| SW-2 | SG6 | Surface Water Exit from Tributary 2 (HDF3) / Downstream of Significant Woodland (FOD5-1) | Water Level, Temperature. Hourly Data. |
| SW-3 | SG4 | Surface Water Entrance to Tributary 3 (HDF9c) | Water Level, Temperature. Hourly Data. |
| SW-4 | SG3 | Surface Water Entrance to Tributary 4 (HDF8a-4) | Water Level, Temperature. Hourly Data. |

## 3.2 Monitoring Results

WSP received the monitoring data from MTE on February 12, 2024. The hourly data covers a period from May 3, 2021 to December 11, 2023. For demonstration purposes, the recorded continuous water levels with temperature at SW-2 (SG6) are plotted in **Figure 3.1.** In order to

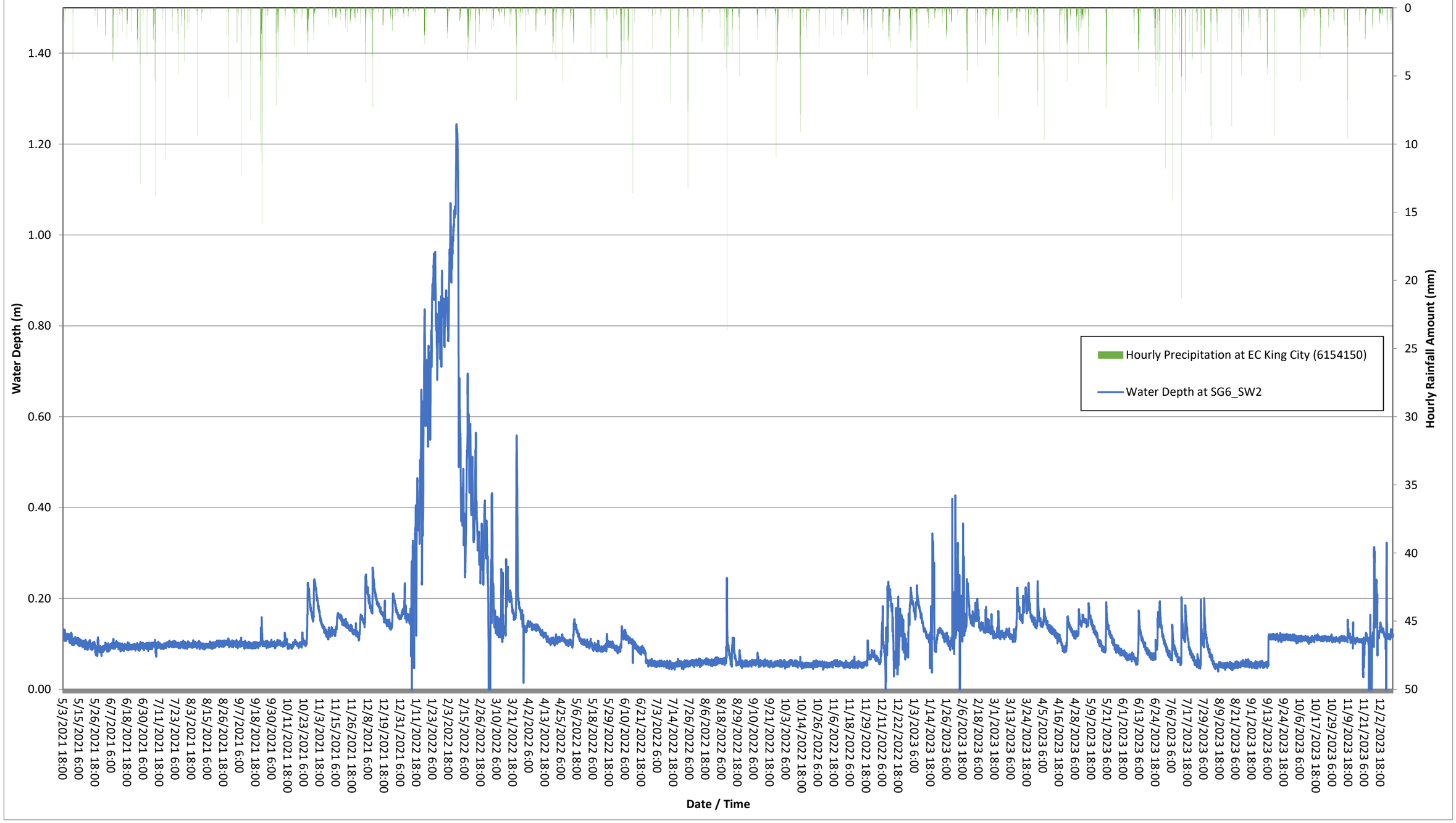
**Figure 3.1 Dixie FBWB (2021-2023 Monitoring Year)**
**Water Depths and Temperature - SG6_SW2**



better understand the runoff response in relationship with the rainfall, the corresponding hourly precipitation data was purchased from Environment Canada at its Weather Station of King City (ID 6154150), the nearest station to the study area that has the available hourly weather data for the identified period (e.g., 2021 to 2023). The recorded continuous water levels with precipitation at SW-2 (SG6) are plotted in **Figure 3.2.**

Note that, because the level logger (pressure transducer) is an electronic device to record water pressure, the collected data is not valid if water is frozen. Therefore, the data collected during the Winter season is not reliable and cannot be used for the purpose of model calibration.

**Figure 3.2 Dixie FBWB (2021-2023 Monitoring Year)**
**Water Depths and Precipitation - SG6_SW2**



# 4 DEVELOPMENT OF CONTINUOUS HYDROLOGICAL MODELLING

## 4.1 Modelling Methodology

As identified previously, three (3) Headwater Drainage Features (HDFs) together with the central Significant Woodland require water balance analyses. **Figures 4.1** and **4.2** show the drainage catchments of the identified features under the pre-development and post-development conditions respectively. As shown, during the post-development conditions, upstream contributing area will be developed and therefore, surface runoff from such areas will be captured by the proposed infrastructure system (e.g., storm sewer system, etc.) and therefore be diverted away from these features.

The methodology for the feature-based water balance analysis is based on guidance outlined in both "*Wetland Water Balance Risk Evaluation"* (TRCA, November 2017), and "*Wetland Water Balance Modelling Guidance Document - Draft*" (TRCA, August 2019). The continuous model selected for the surface runoff water balance study is the Visual OTTHYMO 6 (VO6) hydrological model developed by Civica Infrastructure. The model was approved by TRCA for the purpose of Feature Based Water Balance analysis. The continuous version of VO was released in 2017 with the ability to simulate snow melt, infiltration, evapotranspiration and groundwater infiltration. Continuous VO uses the same commands as the single event simulation (with some additional parameters required for continuous modelling). The wetland command is a new feature added to VO in 2018. This command is designed to model all the hydrological processes in a wetland including inflow, evaporation, seepage and outflow.

The water balance / budget equation adopted by the VO model is described as:

**Precipitation = Evaporation + Infiltration + Runoff + Storage Change (∆)**

The development of the VO continuous model follows the "Technical Guidelines for Flood Hazard Mapping" (EWRG, March 2017) and the Visual OTTHYMO technical and reference manuals. Model development details, including the model parameters, model schematics, rating curve development, etc., are included in **Appendix A**.

As discussed in **Section 1**, the Preliminary Hydrogeological Assessment (MTE, Feb. 2021) notes that none of the tributaries and associated wetlands on the subject properties is groundwater dependent. Therefore, the evaluation of groundwater components/impacts is not included in the continuous model for the purpose of subject FBWB study.

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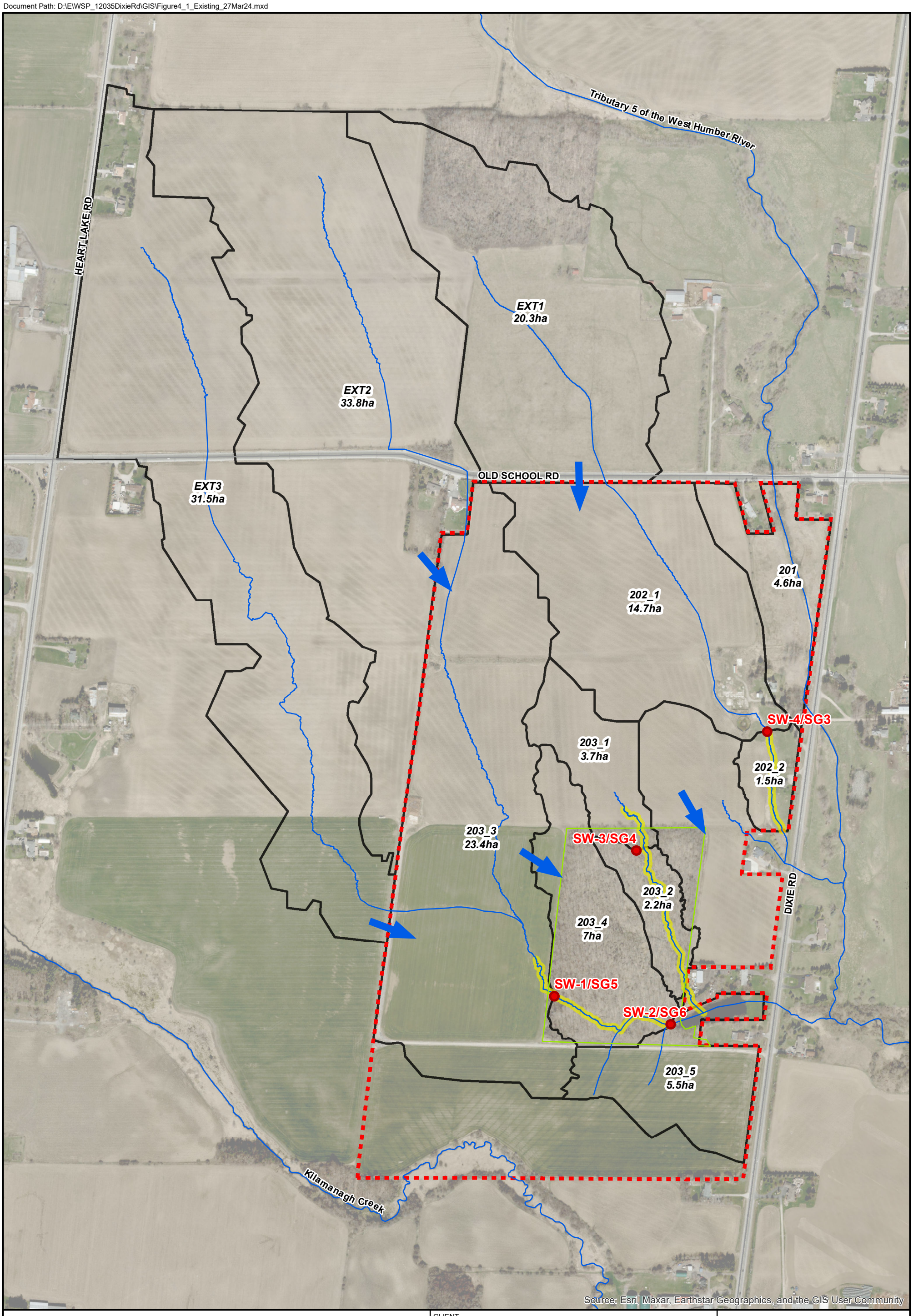


## Legend

- SurfaceWaterMonitoringGauges
- Development boundary
- Streets
- Significant Woodland (FOD5-1)
- Water courses
- Natural Drainage Features to be Retained
- Existing Condition Catchments
- Drainage Flow (existing) Directions

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**Existing Conditions**

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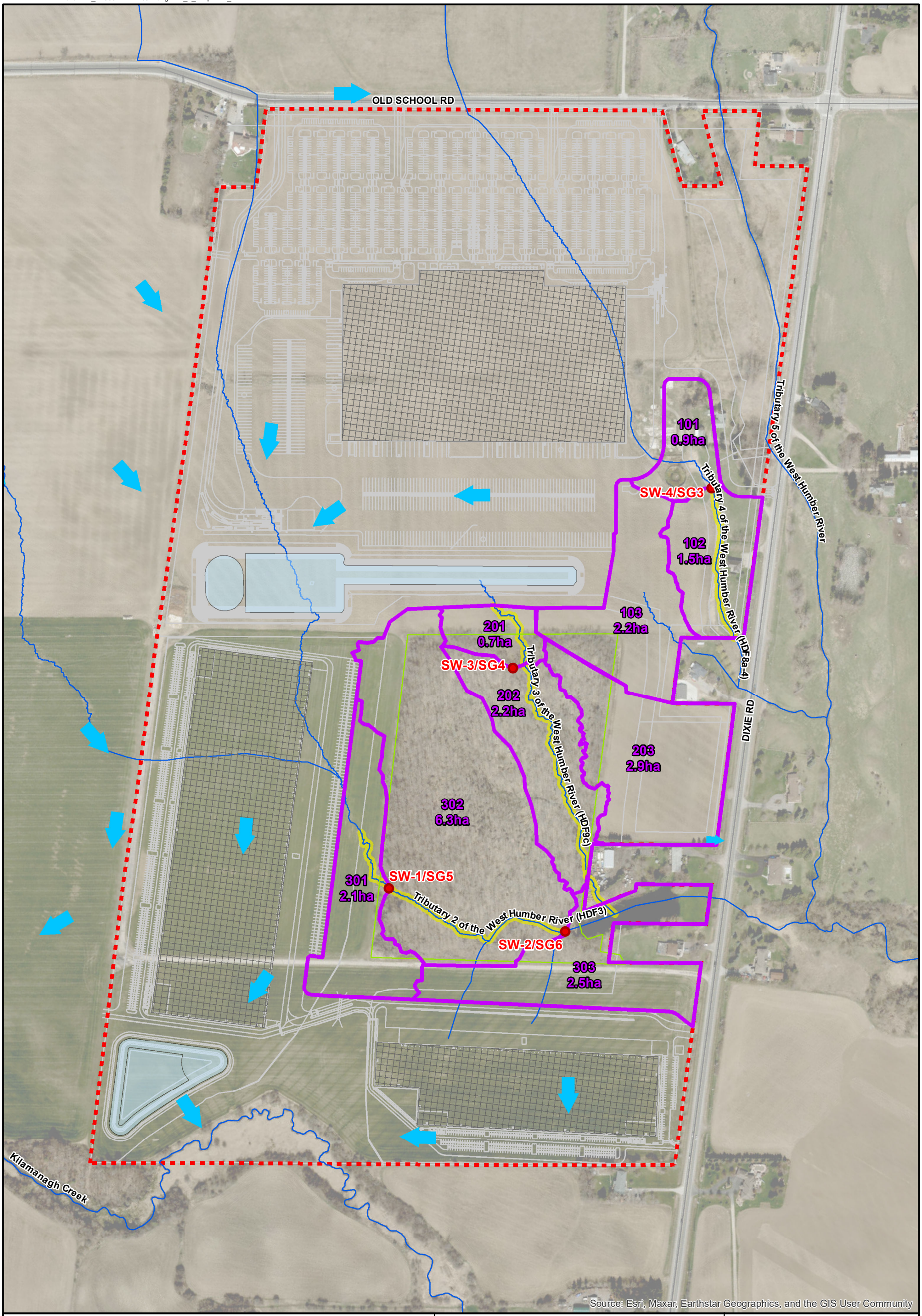


## Legend

- SurfaceWaterMonitoringGauges
- Development boundary
- Water courses
- Natural Drainage Features to be Retained
- Streets
- Proposed Catchments
- Proposed buildings
- Proposed SWM Pond
- Drainage flow (future) directions
- Significant Woodland (FOD5-1)

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TITLE
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**Proposed Development Conditions**

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## 4.2 Model Calibration

The model calibration is typically achieved by utilizing field observations and comparing the outputs generated by fine tuning the model parameters iteratively and comparing simulated and observed values of interest both qualitative and quantitative measures. The calibration and validation process is an important step to assist in producing a reliable and representative hydrological model for a watershed.

As indicated **Section 3**, the data applied for calibration was the hourly water depths at the established gauges provided by MTE for a period from May 3, 2021 to December 11, 2023. The corresponding hourly precipitation data was further purchased from Environment Canada at its Weather Station of King City (ID 6154150), the nearest station to the study area that has the available hourly weather data for the identified period (e.g., 2021 to 2023).

The calibration procedure follows "*Wetland Water Balance Modelling Guidance Document - Draft*" (TRCA, August 2019) and adopts trial-and-error manual parameter adjustment approach. Graphical comparison of the observed and calibrated hydrographs was conducted to confirm the effectiveness of the calibration process. Graphical display of calibrated and observed flows is very important because the traditional method of evaluating model performance by statistical measures has limitations.

Best efforts have been conducted to produce meaningful calibration results. **Illustrations 4.1 through 4.3** show the water levels comparisons between the observed and calibrated scenarios at Gauge SW-2/SG6 (Surface Water Exit from Tributary 2 (HDF3) / Downstream of Significant Woodland FOD5-1) for 2021, 2022 and 2023 respectively. Note that, the data collected during the Winter season is not reliable and therefore was removed for the purpose of model calibration. Detailed results including the quantitative data comparison are summarized in **Appendix B**.

Graphical comparisons demonstrate that the calibrated model has the ability in mimicking the hydrological processes within the study catchment, and therefore, is proper to be applied for the purpose of Feature Based Water Balance analysis for the subject site.

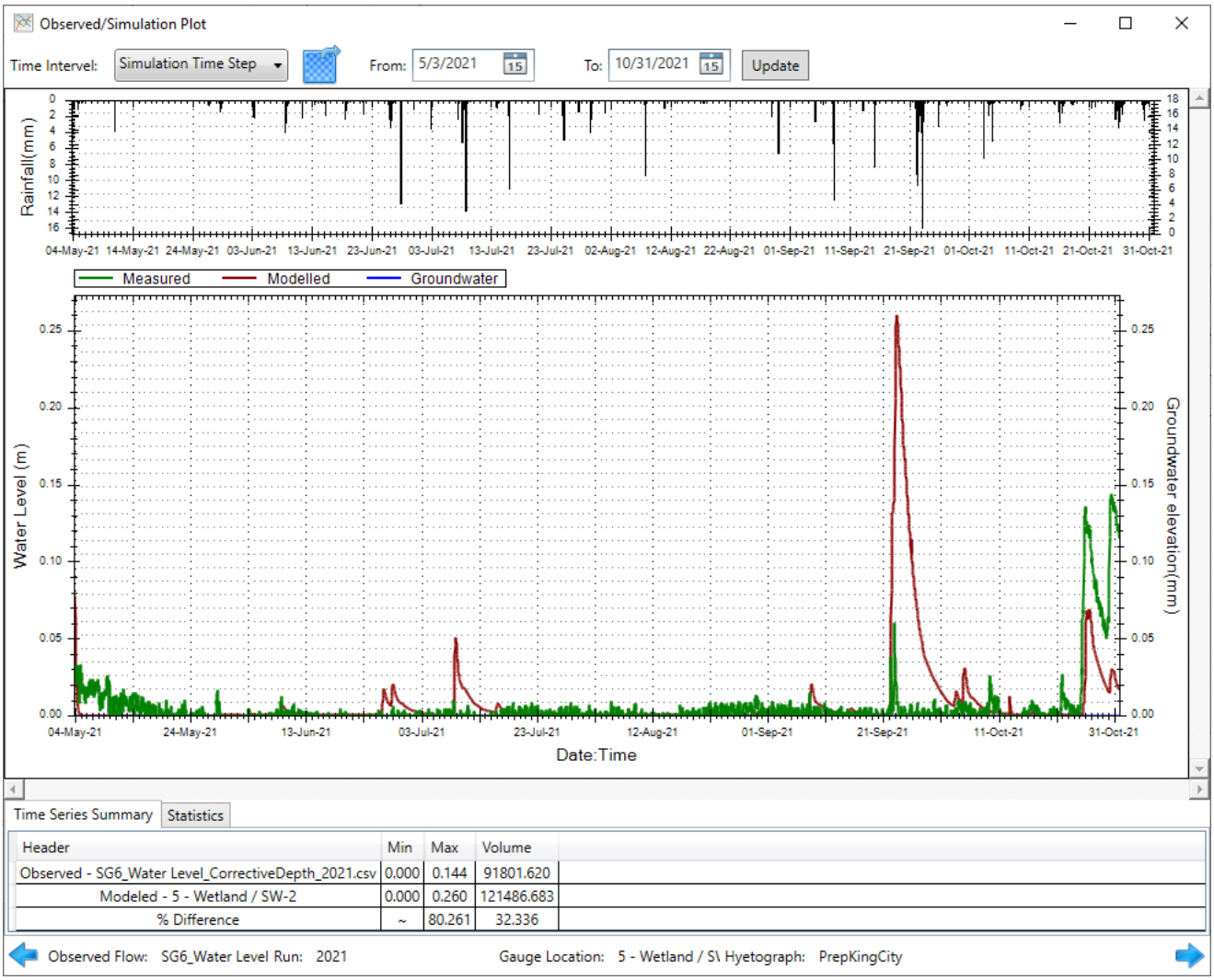


**Illustration 4.1 Comparison of Water Levels for Model Calibration, 2021**

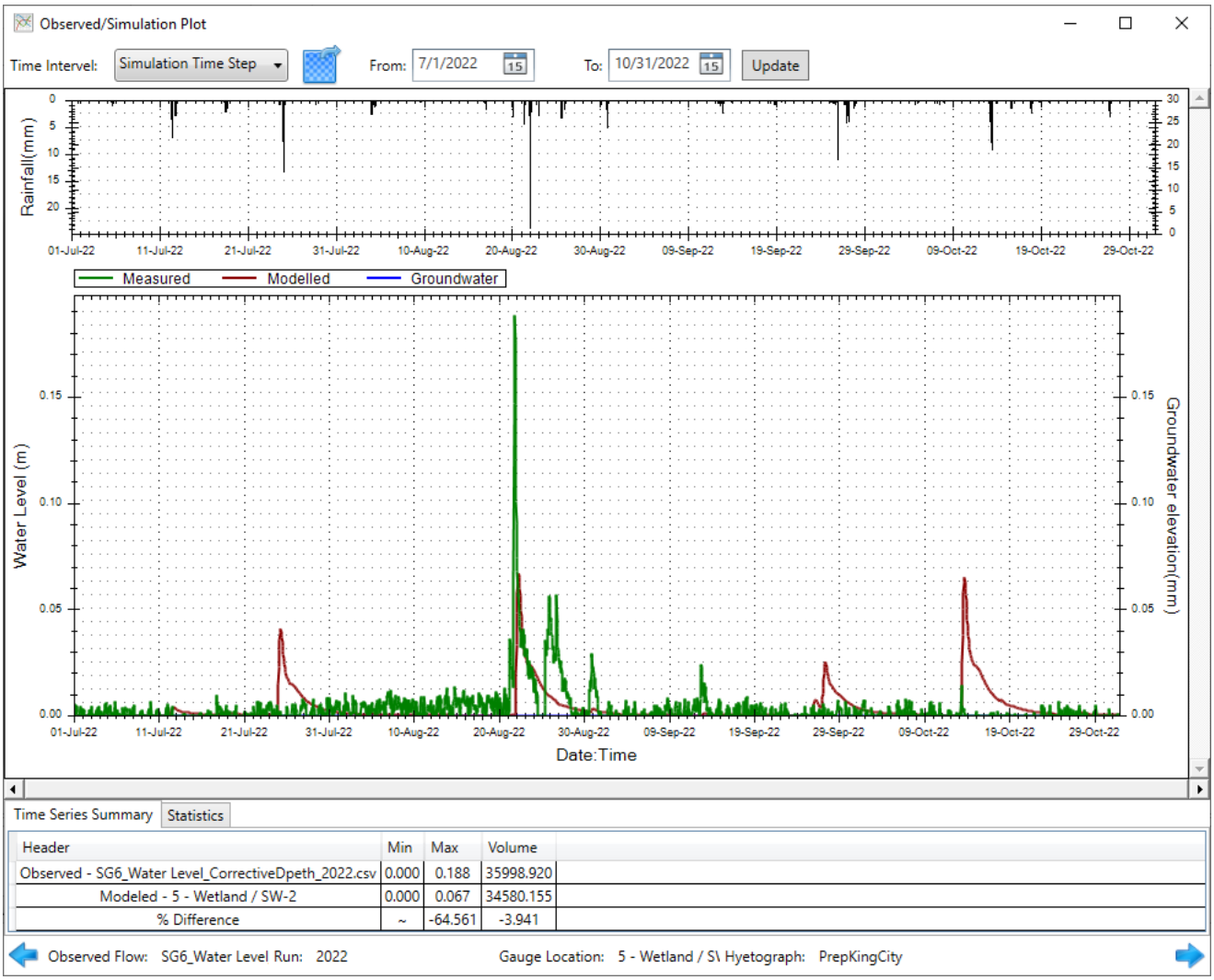


**Illustration 4.2 Comparison of Water Levels for Model Calibration, 2022**

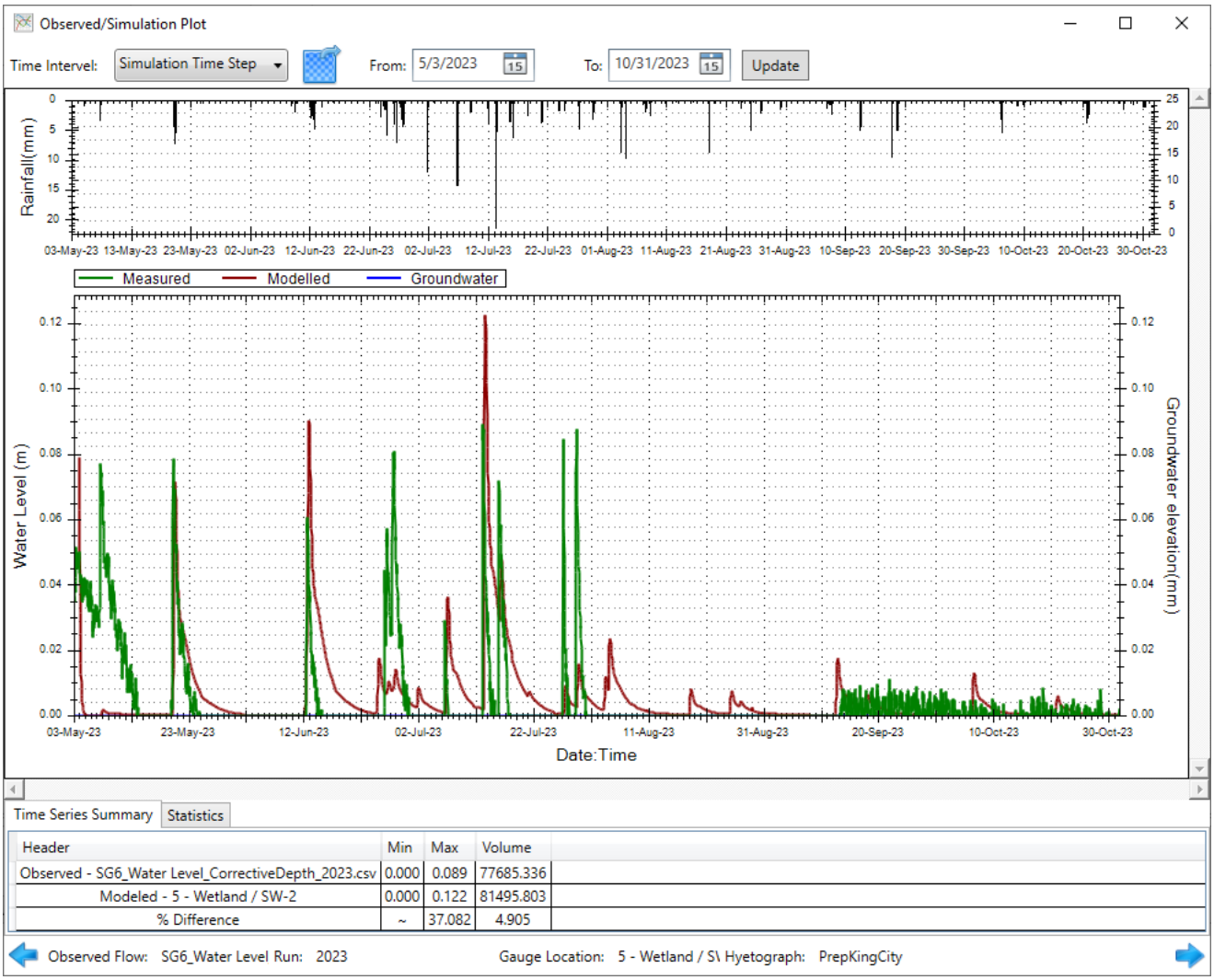


**Illustration 4.3 Comparison of Water Levels for Model Calibration, 2023**

## 4.3 Long-Term Dataset to Establish Hydroperiod

The target hydroperiod was established by running the calibrated pre-development model using a long-term dataset. The Stormwater Management Criteria Document (TRCA, 2012) states that the overall objective of FBWB analysis is to “manage the water balance with the intent to maintain the quantity (i.e. volume, timing, and spatial distribution) of surface water and groundwater contributions that ensures the pre-development hydroperiod (seasonal pattern of water level fluctuation) of the wetland is protected”. The proposed development must not cause significant changes to the hydroperiod that negatively impact the ecological and hydrological functions of the feature.

To achieve the requirements, the long-term meteorological data inputs to the continuous simulation, including precipitation, temperature, etc., was based on the observed daily data recorded at Toronto Int’l Airport (IDs 6158733 and 6158731) from 1940 to 2023 for a long-term period of 82 continuous years (note that data during year 1993 was removed from the dataset due to significant data missing). The VO model automatically uses the results of the calibrated pre-development scenario to calculate the confidence interval for the hydroperiod analysis.

The identical the long-term meteorological data was used to calculate both post-development unmitigated and mitigated hydroperiods.

The proposed development will consist of three (3) large industrial warehouse buildings with their associated loading dock areas, trailer and car parking spaces, etc. As shown in **Figure 4.2**, under post-development conditions, the majority surface runoff will be diverted away from the identified features. VO continuous simulation was conducted to calculate the post development hydroperiods by using the same 82 years of long-term dataset. The modelling results (to be discussed in **Section 5**) confirm that the reduction of the runoff to these features under post-development conditions requires compensation management via mitigation measures.

# 5 RESULTS OF FEATURE-BASED WATER BALANCE ANALYSIS

## 5.1 Mitigation Measures

The approach to managing surface water flow contributions to the retained features is to identify measures to direct adequate surface runoff volumes to maintain their functions. The objective is to manage post-development runoff volumes through the hydroperiod (i.e., seasonal pattern of water level fluctuation). Comparisons (both graphically and in tabular format) between the simulated target hydroperiod, the post-development unmitigated hydroperiod and post-development mitigated hydroperiod were completed to evaluate the potential ecological significance of differences for the features.

Mitigation measures were iteratively modeled in the VO continuous simulations. Theoretically speaking, the ideal mitigation measures are achieved when the calculated runoff volumes closely matched those under the pre-development conditions. TRCA recognizes that in most cases it will not be possible to achieve a post-development hydroperiod that matches exactly the pre-development hydroperiod. TRCA is conducting research to support more robust decision making around levels of ecological risk, based on the natural range of observed variation within and among different wetland communities. The selection of the recommended mitigation option should focus on minimizing the difference in hydroperiod timing and magnitude in order to minimize negative impacts to the feature.

The proposed mitigation includes directing runoff from clean areas (e.g., existing undeveloped area, rooftops of proposed buildings, etc.). The compensation runoff discharge locations are shown in **Figure 5.1**. Water quality treatment may be required to ensure clean runoff compensation. One of commonly adopted approach is to divert the runoff from rooftop area. Since the roof flow is considered “clean” and therefore no water quality treatment will be required.

The following eight (8) Mitigation Options are proposed:

- Divert Clean Flows from 0.5 ha Impervious Area
- Divert Clean Flows from 1.0 ha Impervious Area
- Divert Clean Flows from 5.0 ha Impervious Area
- Divert Clean Flows from 7.5 ha Impervious Area
- Divert Clean Flows from 10.0 ha Impervious Area

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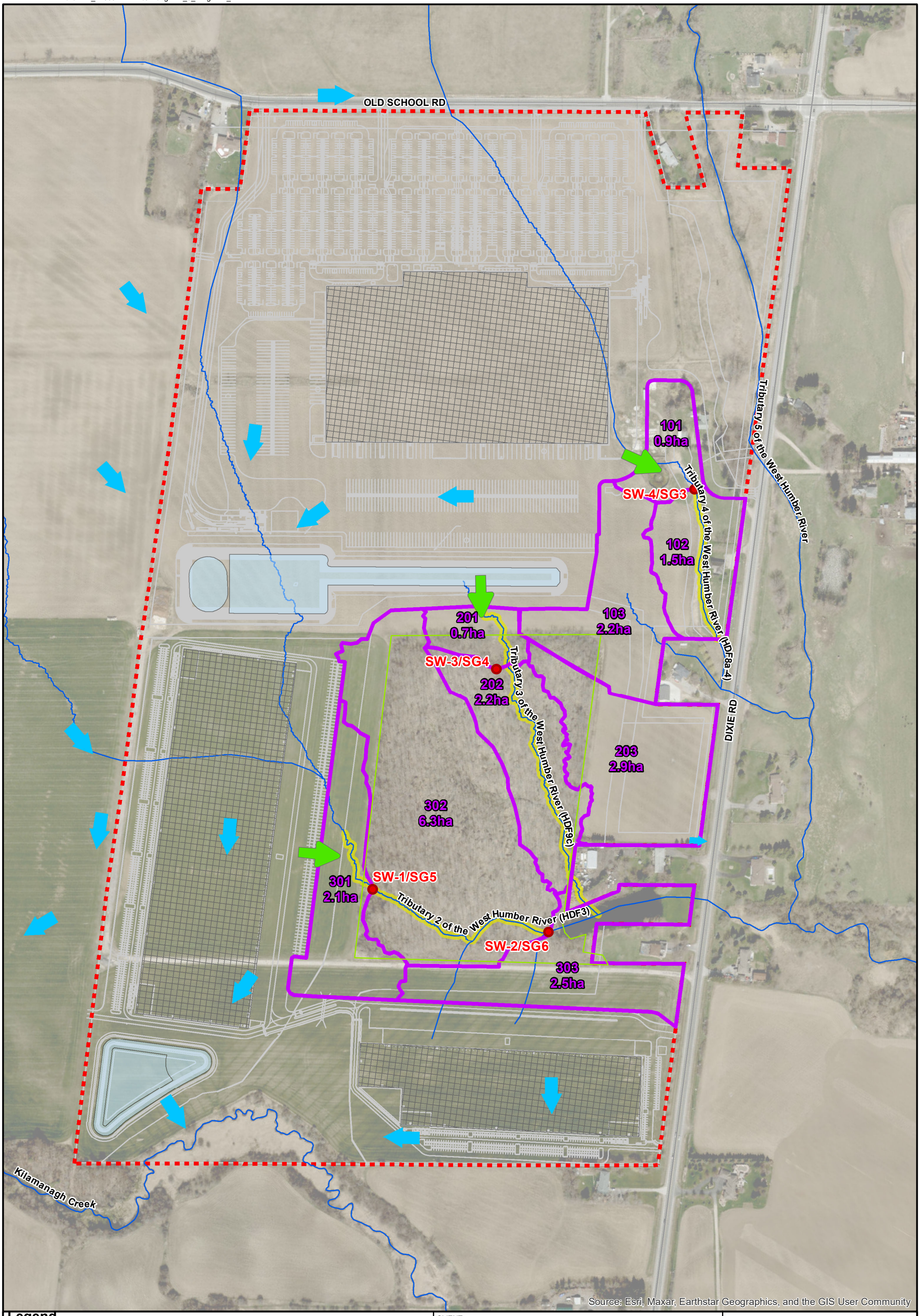


**Legend**

- Monitoring Locations
- Development boundary
- Water courses
- Natural Drainage Features to be Retained
- Proposed Catchments
- Proposed buildings
- Proposed SWM Pond
- Drainage flow (future) directions
- Potential Surface Drainage Compensation Discharge Location
- Significant Woodland (FOD5-1)
- Streets

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TITLE
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**Proposed Development Conditions Mitigation Measures**

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— Divert Clean Flows from 12.5 ha Impervious Area
— Divert Clean Flows from 15.0 ha Impervious Area
— Divert Clean Flows from 20.0 ha Impervious Area

## 5.2 Results of Proposed Mitigation Options

**Mitigation Measures for HDF3 (Entrance to Tributary 2)**

The results of continuous modelling under the pre- and post-development with mitigation conditions for runoff volumes to HDF3 are presented based on a monthly average annual basis as summarized in **Table 5.1** and **Chart 5.1.** Note that the results based on a weekly average annual basis are recommended by TRCA to be presented. Since VO continuous simulation model only produces monthly water balance results, monthly average annual data are presented in the table for comparison purposes. A complete set of the results is included in **Appendix C**.

**Table 5.1: Comparison of Monthly Average Annual Volume ($m^3$) for HDF3**

| Month | Existing | Proposed with No Mitigation | Proposed with Mitigation of Compensation Area = 1.0 ha | Proposed with Mitigation of Compensation Area = 10 ha | Proposed with Mitigation of Compensation Area = 15 ha | Proposed with Mitigation of Compensation Area = 20 ha |
|---|---|---|---|---|---|---|
| Jan | 17756 | 383 | 728 | 3825 | 5545 | 7265 |
| Feb | 19776 | 491 | 906 | 4635 | 6707 | 8779 |
| Mar | 32555 | 803 | 1519 | 7965 | 11546 | 15127 |
| Apr | 23369 | 495 | 1176 | 7301 | 10703 | 14105 |
| May | 16136 | 388 | 1057 | 7066 | 10405 | 13743 |
| Jun | 11098 | 253 | 892 | 6640 | 9833 | 13027 |
| Jul | 12468 | 301 | 995 | 7238 | 10706 | 14173 |
| Aug | 12553 | 298 | 980 | 7110 | 10515 | 13920 |
| Sep | 12634 | 296 | 935 | 6680 | 9872 | 13063 |
| Oct | 13375 | 312 | 883 | 6025 | 8881 | 11737 |
| Nov | 15749 | 387 | 959 | 6103 | 8961 | 11818 |
| Dec | 19120 | 460 | 918 | 5035 | 7322 | 9609 |
| Average | 17216 | 406 | 996 | 6302 | 9250 | 12197 |
| Total | 206590 | 4867 | 11948 | 75624 | 110995 | 146366 |

## Chart 5.1 - Comparison of Runoff Volume Inflow to Feature HDF3 (SW-1/SG5)

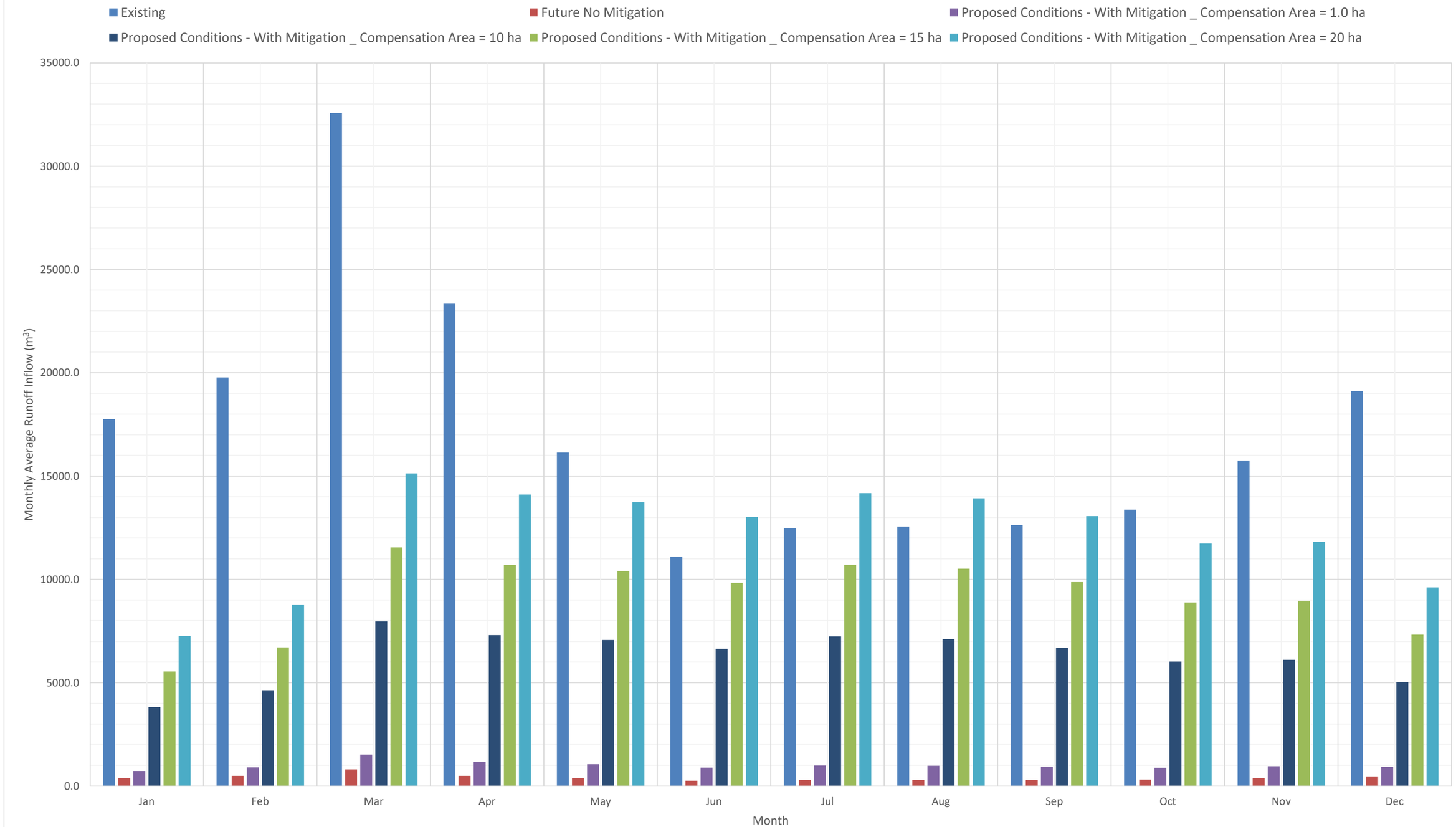



**Illustration 5.1 Time Series of Flow Hydrograph Comparison (Existing and Recommended Mitigated Scenarios) – HDF3**

TRCA recognizes that in most cases it will not be possible to achieve a post-development hydroperiod that matches exactly the pre-development hydroperiod. TRCA is conducting research to support more robust decision making around levels of ecological risk, based on the natural range of observed variation within and among different wetland communities. The selection of the recommended mitigation option should focus on minimizing the difference in hydroperiod timing and magnitude in order to minimize negative impacts to the feature. Therefore, for the HDF3 feature, based on the preliminary analysis, diverting clean flows equivalent from 15.0 ha of impervious area is recommended.

**Illustration 5.1** presents time series of flow hydrograph comparison for HDF3 (between existing and recommended mitigated scenarios) based on the daily dataset for a long-term period from 1940-2023. All other VO Continuous Simulation Model Scenario Comparison Charts, including Hydrograph Time Series for all mitigation options are included in **Appendix C**.

**Mitigation Measures for HDF9c (Entrance to Tributary 3)**

The results of continuous modelling under the pre- and post-development with mitigation conditions for runoff volumes to HDF9c are presented based on a monthly average annual basis as summarized in **Table 5.2** and **Chart 5.2.** Note that the results based on a weekly average annual basis are recommended by TRCA to be presented. Since VO continuous simulation model only produces monthly water balance results, monthly average annual data are presented in the table for comparison purposes. A complete set of the results is included in **Appendix C**.

As described previously, TRCA recognizes that in most cases it will not be possible to achieve a post-development hydroperiod that matches exactly the pre-development hydroperiod. The selection of the recommended mitigation option should focus on minimizing the difference in hydroperiod timing and magnitude in order to minimize negative impacts to the feature. Therefore, for the HDF9c feature, based on the preliminary analysis, diverting clean flows equivalent from 0.5 ha of impervious area is recommended.

**Illustration 5.2** presents time series of flow hydrograph comparison for HDF9c (between existing and recommended mitigated scenarios) based on the daily dataset for a long-term period from 1940-2023. All other VO Continuous Simulation Model Scenario Comparison Charts, including Hydrograph Time Series for all mitigation options are included in **Appendix C**.

## Chart 5.2 - Comparison of Runoff Volume Inflow to Feature HDF9c (SW-3/SG4)

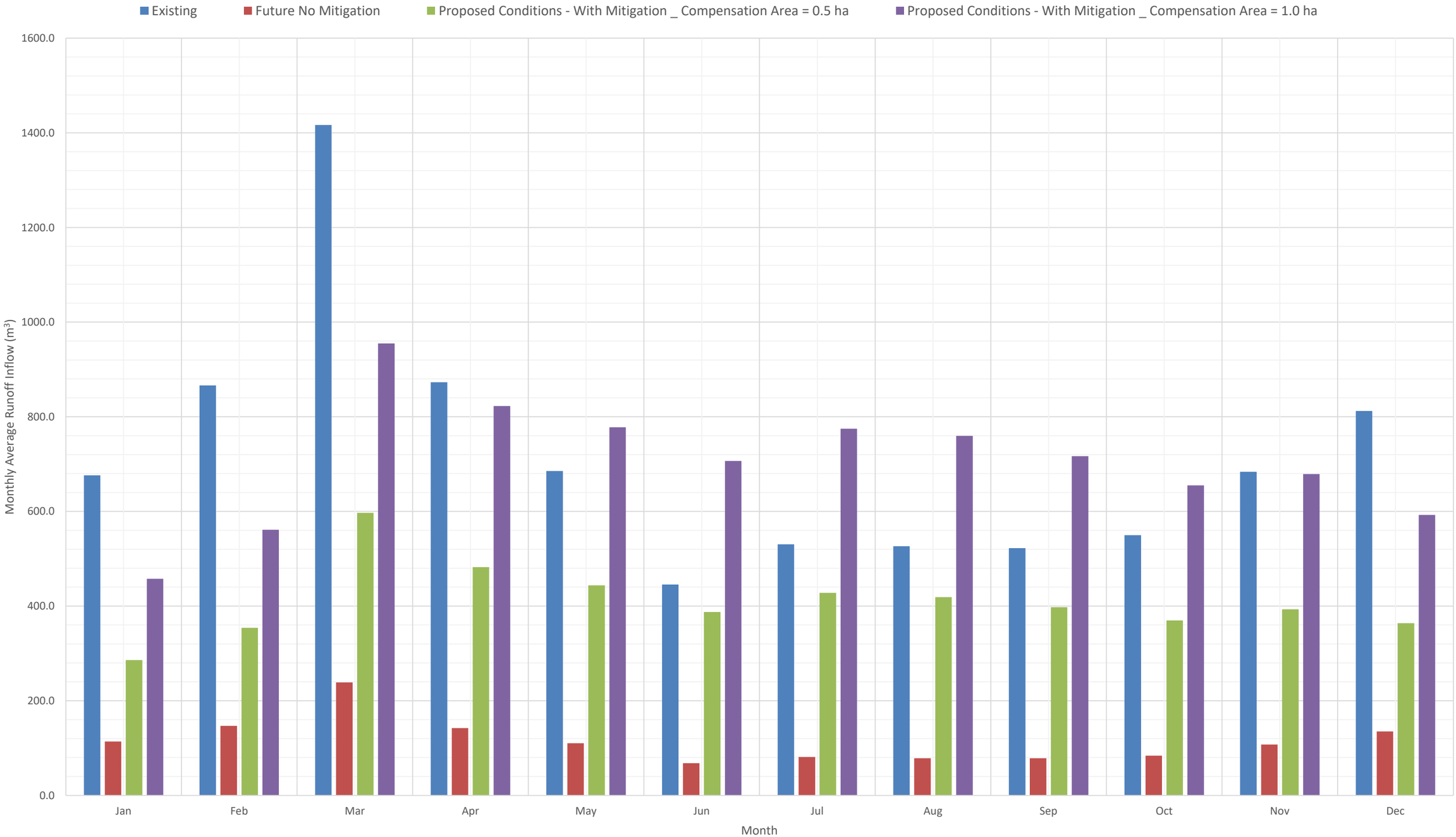



**Illustration 5.2 Time Series of Flow Hydrograph Comparison (Existing and Recommended Mitigated Scenarios) – HDF9c**

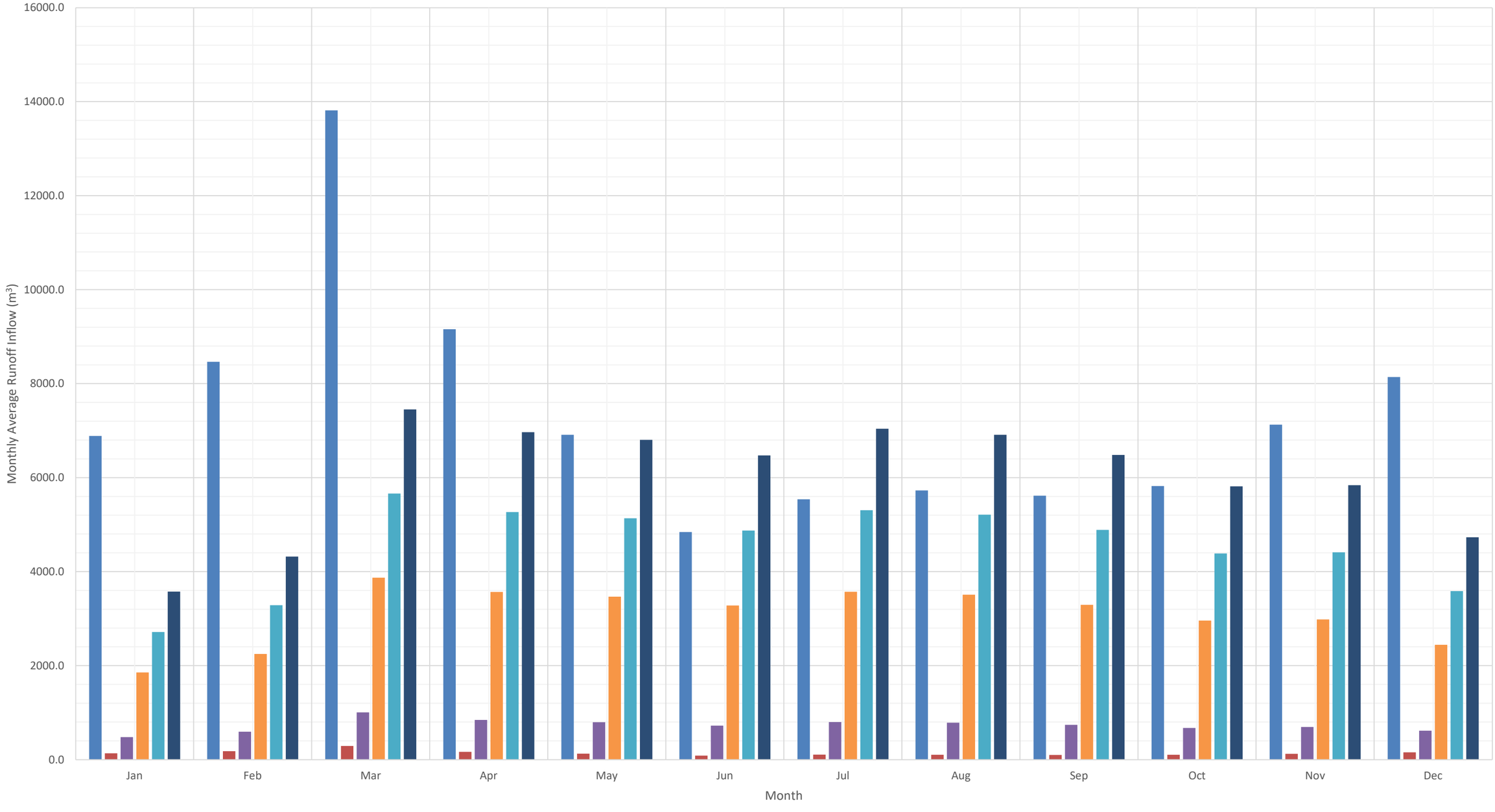
## Table 5.2: Comparison of Monthly Average Annual Volume ($m^3$) for HDF9c

| Month | Existing | Proposed with No Mitigation | Proposed with Mitigation of Compensation Area = 0.5 ha | Proposed with Mitigation of Compensation Area = 1.0 ha |
|---|---|---|---|---|
| Jan | 676 | 114 | 286 | 458 |
| Feb | 866 | 147 | 354 | 561 |
| Mar | 1417 | 239 | 597 | 955 |
| Apr | 873 | 142 | 482 | 823 |
| May | 685 | 110 | 444 | 778 |
| Jun | 446 | 68 | 387 | 707 |
| Jul | 530 | 81 | 428 | 775 |
| Aug | 526 | 78 | 419 | 759 |
| Sep | 522 | 78 | 398 | 717 |
| Oct | 550 | 84 | 369 | 655 |
| Nov | 684 | 107 | 393 | 679 |
| Dec | 812 | 135 | 364 | 593 |
| Average | 716 | 115 | 410 | 705 |
| Total | 8588 | 1384 | 4922 | 8459 |

### Mitigation Measures for HDF8a-4 (Entrance to Tributary 4)

The results of continuous modelling under the pre- and post-development with mitigation conditions for runoff volumes to HDF8a-4 are presented based on a monthly average annual basis as summarized in **Table 5.3** and **Chart 5.3.** Note that the results based on a weekly average annual basis are recommended by TRCA to be presented. Since VO continuous simulation model only produces monthly water balance results, monthly average annual data are presented in the table for comparison purposes. A complete set of the results is included in **Appendix C**. VO Continuous Simulation Model Scenario Comparison Charts of Hydrograph Time Series are also included in **Appendix C**.

## Chart 5.3 - Comparison of Runoff Volume Inflow to Feature HDF8a-4 (SW-4/SG3)



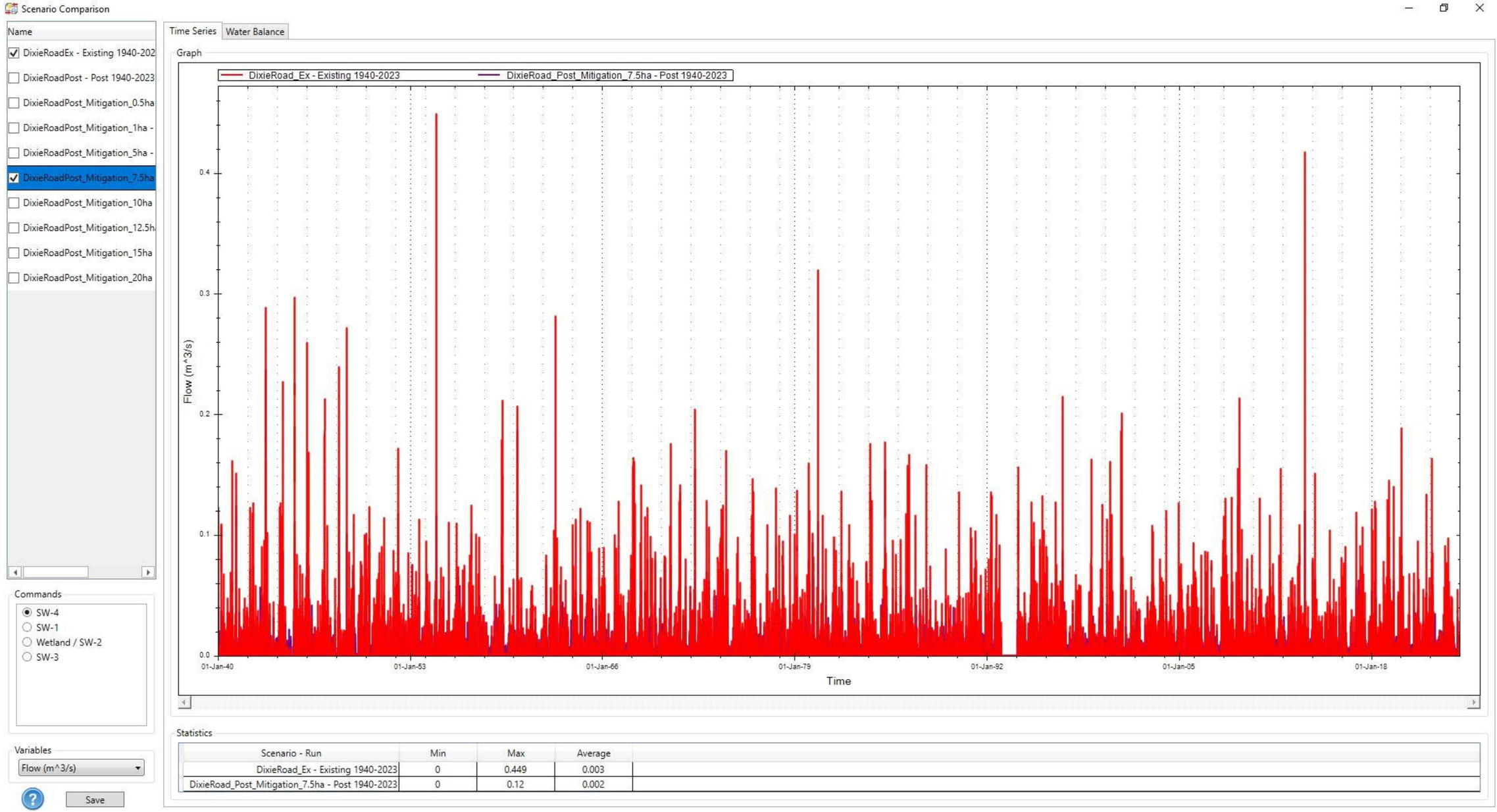



**Illustration 5.3 Time Series of Flow Hydrograph Comparison (Existing and Recommended Mitigated Scenarios) – HDF8a-4**

**Table 5.3: Comparison of Monthly Average Annual Volume ($m^3$) for HDF8a-4**

| Month | Existing | Proposed with No Mitigation | Proposed with Mitigation of Compensation Area = 1.0 ha | Proposed with Mitigation of Compensation Area = 5.0 ha | Proposed with Mitigation of Compensation Area = 7.5 ha | Proposed with Mitigation of Compensation Area = 10 ha |
|---|---|---|---|---|---|---|
| Jan | 6886 | 134 | 478 | 1854 | 2714 | 3574 |
| Feb | 8465 | 178 | 592 | 2250 | 3286 | 4322 |
| Mar | 13815 | 290 | 1006 | 3871 | 5661 | 7451 |
| Apr | 9156 | 164 | 845 | 3566 | 5267 | 6968 |
| May | 6911 | 128 | 796 | 3466 | 5135 | 6804 |
| Jun | 4842 | 86 | 724 | 3278 | 4875 | 6471 |
| Jul | 5538 | 106 | 799 | 3573 | 5307 | 7041 |
| Aug | 5726 | 103 | 784 | 3508 | 5210 | 6913 |
| Sep | 5615 | 101 | 739 | 3292 | 4888 | 6484 |
| Oct | 5821 | 104 | 675 | 2960 | 4388 | 5816 |
| Nov | 7128 | 125 | 696 | 2982 | 4411 | 5839 |
| Dec | 8142 | 157 | 614 | 2444 | 3587 | 4731 |
| Average | 7337 | 140 | 729 | 3087 | 4561 | 6034 |
| Total | 88045 | 1676 | 8749 | 37044 | 54729 | 72414 |

Again, TRCA recognizes that in most cases it will not be possible to achieve a post-development hydroperiod that matches exactly the pre-development hydroperiod. The selection of the recommended mitigation option should focus on minimizing the difference in hydroperiod timing and magnitude in order to minimize negative impacts to the feature. Therefore, for the HDF8a-4 feature, based on the preliminary analysis, diverting clean flows equivalent from 7.5 ha of impervious area is recommended.

**Illustration 5.3** presents time series of flow hydrograph comparison for HDF8a-4 (between existing and recommended mitigated scenarios) based on the daily dataset for a long-term period from 1940-2023. All other VO Continuous Simulation Model Scenario Comparison Charts, including Hydrograph Time Series for all mitigation options are included in **Appendix C**.

## Mitigation Measures for Significant Woodland FOD5-1 (Exit from Tributary 2)

The results of continuous modelling under the pre- and post-development with mitigation conditions for runoff volumes at Significant Woodland FOD5-1 (located at the exit from Tributary 2) are presented based on a monthly average annual basis as summarized in **Table 5.4** and **Chart 5.4.** Note that the results based on a weekly average annual basis are recommended by TRCA to be presented. Since VO continuous simulation model only produces monthly water balance results, monthly average annual data are presented in the table for comparison purposes. A complete set of the results is included in **Appendix C**.

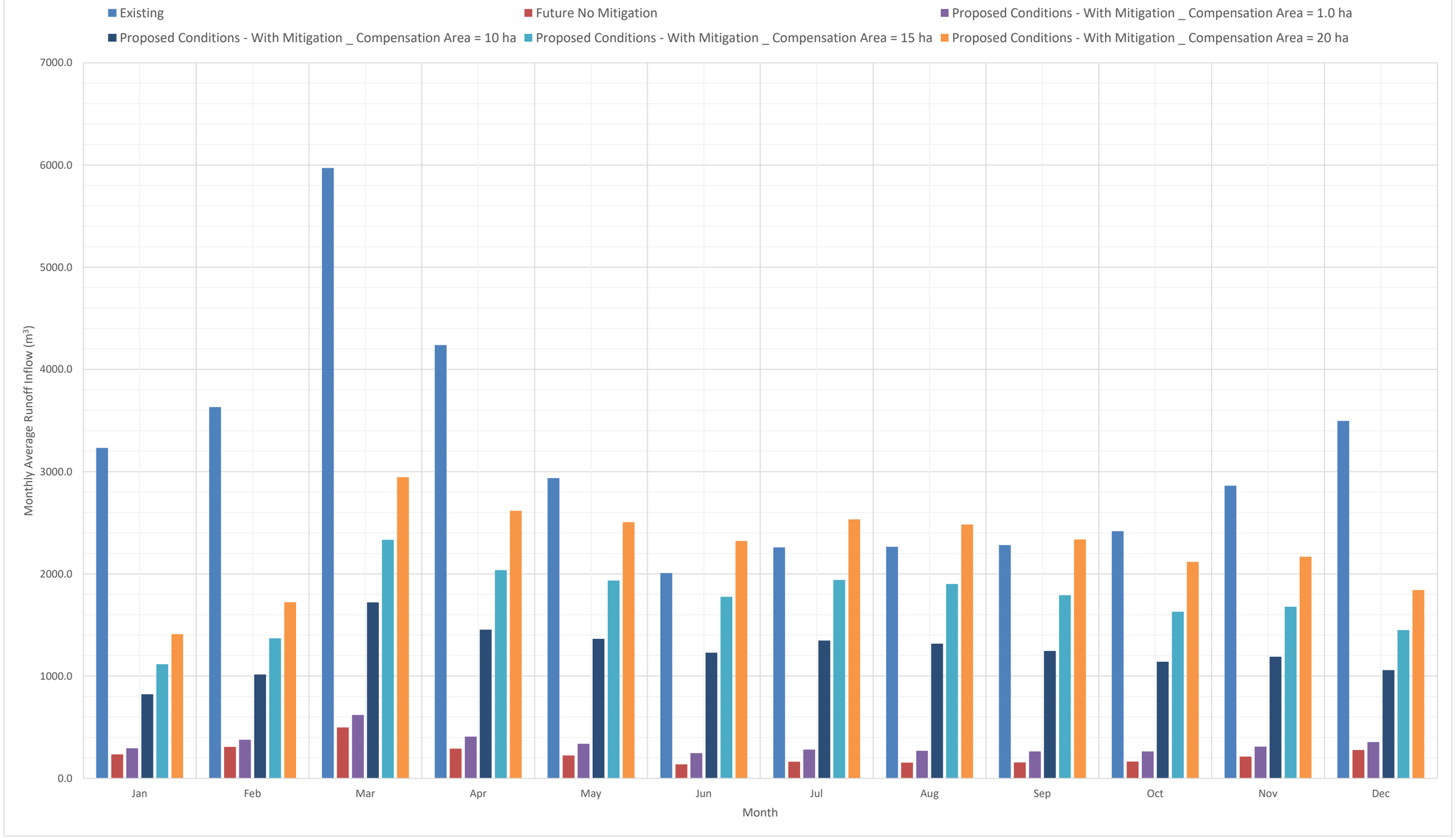
**Table 5.4: Comparison of Monthly Average Annual Volume ($m^3$) for Significant Woodland FOD5-1**

| Month | Existing | Proposed with No Mitigation | Proposed with Mitigation of Compensation Area = 1.0 ha | Proposed with Mitigation of Compensation Area = 10 ha | Proposed with Mitigation of Compensation Area = 15 ha | Proposed with Mitigation of Compensation Area = 20 ha |
|---|---|---|---|---|---|---|
| Jan | 3232 | 234 | 293 | 822 | 1117 | 1411 |
| Feb | 3632 | 307 | 378 | 1015 | 1369 | 1723 |
| Mar | 5971 | 498 | 620 | 1722 | 2333 | 2945 |
| Apr | 4238 | 291 | 407 | 1454 | 2036 | 2618 |
| May | 2937 | 223 | 337 | 1364 | 1935 | 2505 |
| Jun | 2007 | 137 | 246 | 1229 | 1776 | 2322 |
| Jul | 2258 | 162 | 281 | 1347 | 1940 | 2533 |
| Aug | 2265 | 153 | 269 | 1318 | 1900 | 2482 |
| Sep | 2281 | 154 | 264 | 1246 | 1791 | 2337 |
| Oct | 2417 | 165 | 262 | 1141 | 1630 | 2118 |
| Nov | 2862 | 213 | 310 | 1190 | 1678 | 2167 |
| Dec | 3495 | 276 | 355 | 1059 | 1450 | 1841 |
| Average | 3133 | 234 | 335 | 1242 | 1746 | 2250 |
| Total | 37595 | 2813 | 4022 | 14907 | 20955 | 27002 |

TRCA recognizes that in most cases it will not be possible to achieve a post-development hydroperiod that matches exactly the pre-development hydroperiod. TRCA is conducting research to support more robust decision making around levels of ecological risk, based on the natural range of observed variation within and among different wetland communities. The selection of the recommended mitigation option should focus on minimizing the difference in hydroperiod timing and magnitude in order to minimize negative impacts to the feature. Therefore, for the Significant Woodland FOD5-1 feature, based on the preliminary analysis, diverting clean flows equivalent from 15.0 ha of impervious area is recommended.

**Illustration 5.4** presents storage depth hydroperiod comparison for Woodland FOD5-1 (between existing, post unmitigated and recommended mitigated scenarios) with confidence interval of 95% based on the daily dataset for a long-term period from 1940-2023. **Illustration 5.5** presents time series of flow hydrograph comparison (between existing and recommended mitigated scenarios). All other VO Continuous Simulation Model Scenario Comparison Charts, including Hydrograph Time Series, Hydroperiod and Inflow Mass Curve are included in **Appendix C**.

## Chart 5.4 - Comparison of Runoff Volume at Downstream of Woodlot Feature (SW-2/SG6)



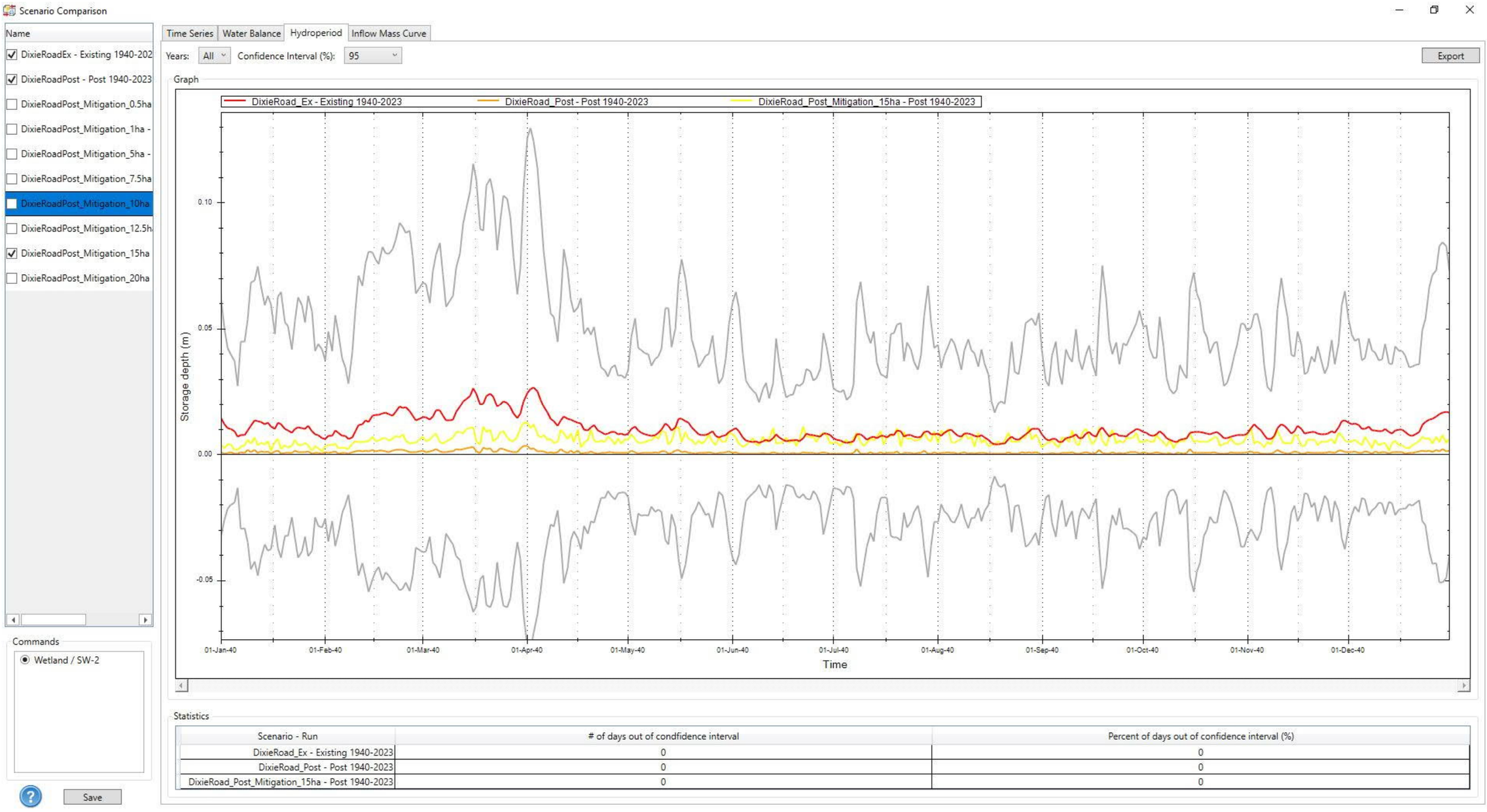



**Illustration 5.4 Storage Depths Hydroperiod Comparison with 95% Confidence Interval – Woodland FOD5-1**


**Illustration 5.5 Time Series of Flow Hydrograph Comparison (Existing and Recommended Mitigated Scenarios) – Woodland FOD5-1**

# 6 MONITORING AND ADAPTIVE MANAGEMENT PLAN

According to relevant TRCA guidance, an Adaptive Management Plan (AMP) will be prepared during the detailed design stage for the identified natural features. An adaptive management approach will be used to monitor and assess potential changes in runoff volumes and vegetation conditions in these features, and to the extent feasible, provide the opportunity to modify the drainage system design to respond to monitoring data, if/where appropriate. Please note that the detailed design on these systems will take place along with the detailed design of the development.

To achieve the Adaptive Management Plan, a post-implementation monitoring plan will also be required during and post-construction periods. Again, detailed monitoring components, methods, duration and key locations for monitoring will be determined during the detailed design stage. The monitoring key factors may include, but not limited to, hydrology / hydraulics, stream morphology, terrestrial Natural Heritage System, fisheries and aquatic habitat, and groundwater. Such monitoring is intended to inform adaptive management if required.

# 7 SUMMARY

WSP Canada Inc. (WSP) has been retained by QuadReal Property Group Limited Partnership & Tribal Partners Canada Inc. to develop a Feature Based Water Balance Analysis in support of the proposed development at 12668 & 12862 Dixie Road in the Town of Caledon, Ontario.

A "*Comprehensive Environmental Impact Study and Management Plan (CEISMP)*" was prepared for the subject site by WSP dated March 2024. The Plan confirmed the recommendations for retention of identified HDFs within the subject site (i.e., Tributary 2 / HDF3, Tributary 3 / HDF9c and Tributary 4 / HDF8a-4). Tributaries 2 and 3 convey surface flows through the identified centre Significant Woodland, which was also identified as a natural feature to be retained (i.e., FOD5-1).

On April 29, 2021, a consultation meeting with TRCA technical staff was conducted to discuss the potential impacts to the identified nature features (i.e., HDFs and Woodland) within the subject site due to the proposed development. The meeting confirmed that a Feature Based Water Balance study by using the approved continuous hydrologic modelling would be required to support the proposed development.

This report includes the technical details of the Feature Based Water Balance analysis, discusses the continuous hydrological model, summarizes the potential impacts, and provides recommendations on appropriate mitigation measures to preserve and maintain the identified nature features. It was prepared by following TRCA's "*Wetland Water Balance Modelling Guidance Document – Draft*" dated August 2019.

A Monitoring and Adaptive Management Plan (AMP) was discussed in the report. The AMP was designed to ensure that the proposed mitigation measures could be modified to accommodate future adaptive management recommendations.

The following summarizes key highlights and findings of the study:

1. There are four (4) identified natural features within the subject study area: Tributary 2 / HDF3 (Tribuary 2), HDF9c (Tributary 3), HDF8a-4 (Tributary 4) and a centre Significant Woodland FOD5-1. Preliminary Hydrogeological Assessment states that none of features on the subject properties is groundwater dependent.
2. The continuous hydrologic model was developed based on the continuous version of VO6 model which was approved TRCA for the purpose of Feature Based Water Balance analysis.
3. The established VO6 continuous model was calibrated based on the hourly water depths at the established gauges provided by MTE for a period from May 3, 2021 to December 11,

2023. The corresponding hourly precipitation data was further purchased from Environment Canada at its Weather Station of King City (ID 6154150), the nearest station to the study area that has the available hourly weather data for the identified period (e.g., 2021 to 2023).

4. The target hydroperiod was established by running the calibrated pre-development model using a long-term dataset. The long-term meteorological data including precipitation, temperature, etc., was based on the observed daily data recorded at Toronto Int'l Airport (IDs 6158733 and 6158731) from 1940 to 2023 for a long-term period of 82 continuous years.
5. Since under post-development conditions, the majority surface runoff will be diverted away from the identified features, the VO continuous simulation confirms that the reduction of the runoff to these features under post-development conditions requires compensation management via mitigation measures.
6. During the post-development conditions, the surface runoff compensation would be provided by diverting clean flows equivalent from the calculated impervious areas. TRCA recognizes that in most cases it will not be possible to achieve a post-development hydroperiod that matches exactly the pre-development hydroperiod. The selection of the recommended mitigation option should focus on minimizing the difference in hydroperiod timing and magnitude in order to minimize negative impacts to the feature.
7. The recommended mitigation options for the identified features are summarized as follows.
    a. HDF3: diverting clean flows equivalent from 15.0 ha of impervious area
    b. HDF9c: diverting clean flows equivalent from 0.5 ha of impervious area
    c. HDF8a-4: diverting clean flows equivalent from 7.5 ha of impervious area
    d. Woodland FOD5-1: diverting clean flows equivalent from 15.0 ha of impervious area
8. A Monitoring Plan will be required for the identified features for during and post construction periods. Detailed monitoring components, methods, duration and key locations for monitoring will be determined during the detailed design stage. The monitoring key factors may include, but not be limited to, hydrology / hydraulics, stream morphology, terrestrial Natural Heritage System, fisheries and aquatic habitat, and groundwater.
9. An Adaptive Management Plan (AMP) will also be prepared for the identified features. An adaptive management approach will be used to monitor and assess potential changes in runoff volumes and vegetation conditions in these wetlands, and to the extent feasible, provide the opportunity to modify the drainage system design to respond to monitoring data, if/where appropriate.

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- WSP Canada Group Limited, March 2024. Stormwater Management Report for 12668 & 12862 Dixie Road.
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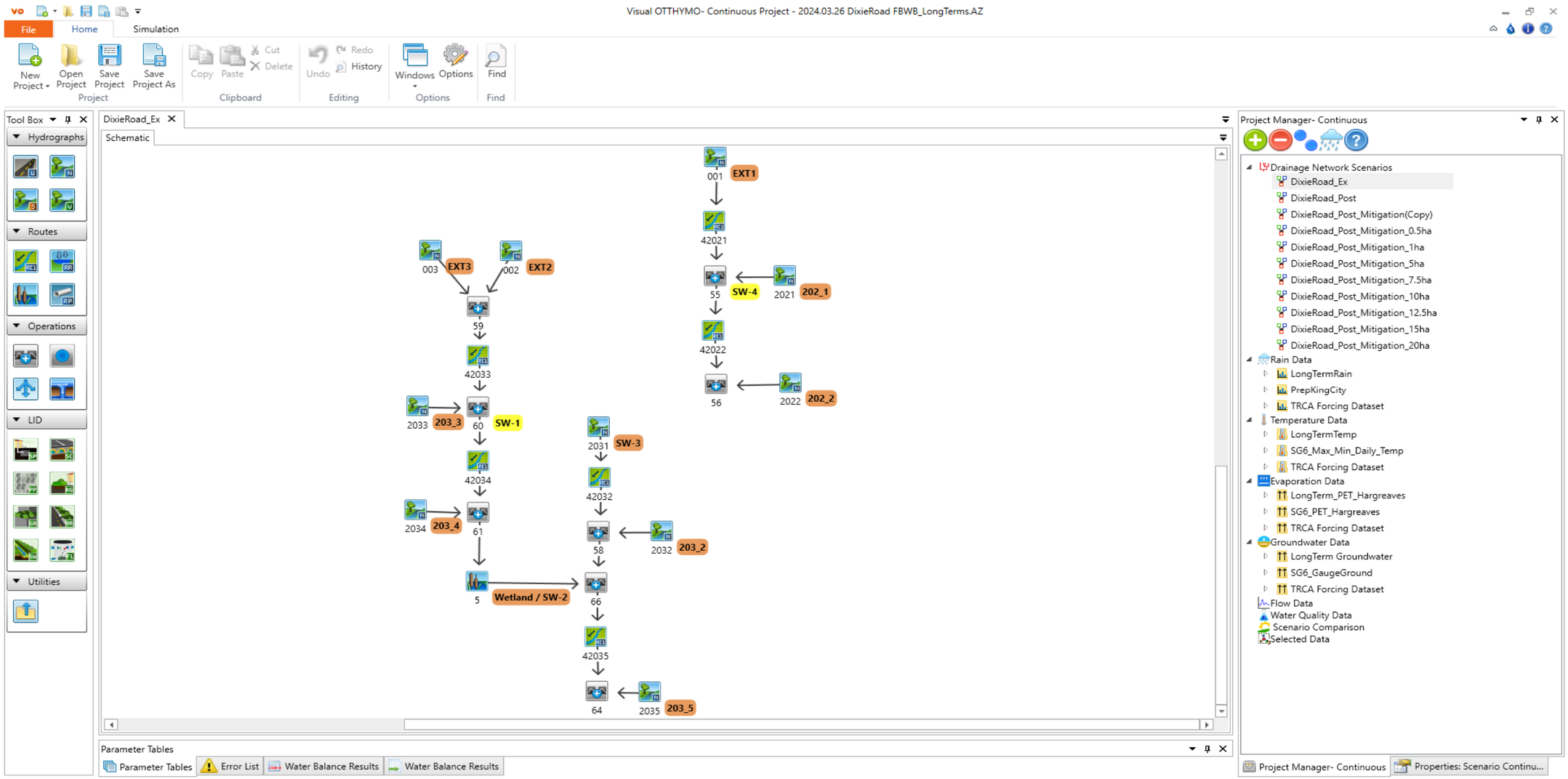
- Visual OTTHYMOTO V6.0. Reference Manual and User's Guide.

# APPENDIX

# A VO Continuous Model Development

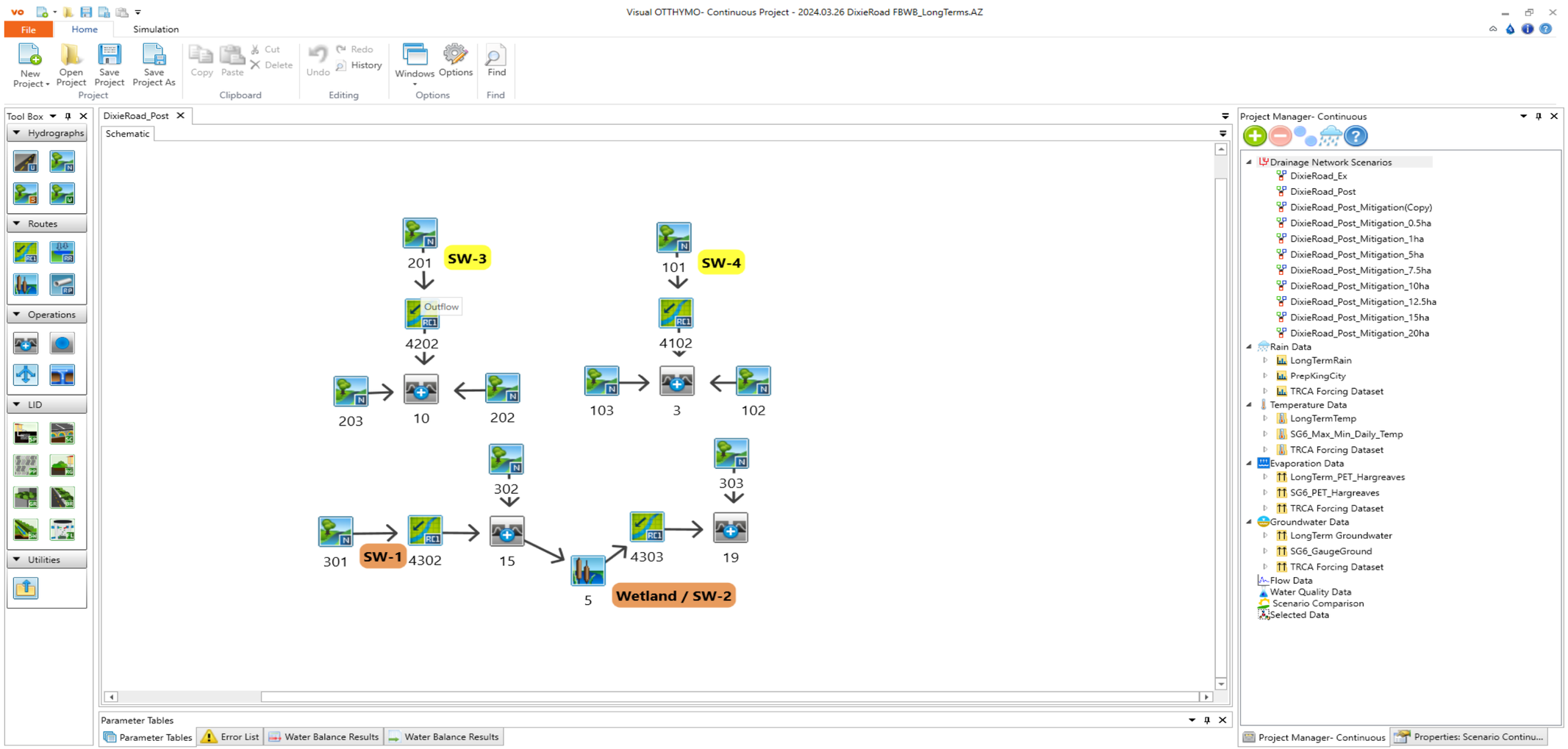
**Existing Conditions**

| Name | NHYD | OUTLET | AREA [ha] | CNII | Inter-Event Time [hr] | IA [mm] | N | TP [hr] | Soil Texture | Total Porosity | Field Capacity | Wilting Point | Saturated K | Temp ID | Evap ID | Land Cover | GI/PAN | VEGK3 | Precip ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 202_1 | 2021 | | 14.71233 | 82 | 4 | 4.4 | 3 | 0.58 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 202_2 | 2022 | | 1.53118 | 82 | 4 | 4.4 | 3 | 0.19 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 203_1 | 2031 | | 3.67116 | 81 | 4 | 4.4 | 3 | 0.19 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 203_2 | 2032 | | 2.15757 | 73 | 4 | 7.6 | 3 | 0.49 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 203_3 | 2033 | | 23.42608 | 82 | 4 | 4.4 | 3 | 0.99 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Light Forest | 1.6 | 7.11 | 1 |
| 203_4 | 2034 | | 7.04078 | 75 | 4 | 6.9 | 3 | 0.38 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 203_5 | 2035 | | 5.47155 | 82 | 4 | 4.4 | 3 | 0.63 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| EXT1 | 001 | | 20.32898 | 84 | 4 | 3.8 | 3 | 1.12 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| EXT2 | 002 | | 33.8519 | 82 | 4 | 4.4 | 3 | 3.70 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Light Forest | 1.6 | 7.11 | 1 |
| EXT3 | 003 | | 31.52246 | 79 | 4 | 5.0 | 3 | 9.51 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |



Post Development Conditions

| Name | AREA [ha] | CNII | CNII+20% | Inter-Event Time [hr] | IA [mm] | IA -80% | N | TP [hr] | TP*5 | TP*8 | TP*10 | Soil Texture | Total Porosity | Field Capacity | Wilting Point | Saturated K | Temp ID | Evap ID | Land Cover | GI/PAN | VEGK3 | Precip ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | 0.86 | 82 | 98 | 4 | 4.4 | 0.9 | 3 | 0.12 | 0.62 | 0.99 | 1.23 | Sandy Loam | 0.453 | 0.19 | 0.085 | 262.128 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 102 | 1.49 | 82 | 98 | 4 | 4.4 | 0.9 | 3 | 0.28 | 1.39 | 2.22 | 2.77 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 103 | 2.21 | 81 | 97 | 4 | 4.4 | 0.9 | 3 | 0.13 | 0.65 | 1.04 | 1.30 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 201 | 0.66 | 78 | 94 | 4 | 5.6 | 1.1 | 3 | 0.25 | 1.26 | 2.02 | 2.52 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 202 | 2.16 | 73 | 88 | 4 | 7.6 | 1.5 | 3 | 0.48 | 2.41 | 3.85 | 4.82 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 203 | 2.92 | 81 | 97 | 4 | 4.4 | 0.9 | 3 | 0.19 | 0.96 | 1.54 | 1.92 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Light Forest | 1.6 | 7.11 | 1 |
| 301 | 2.08 | 81 | 98 | 4 | 4.4 | 0.9 | 3 | 0.34 | 1.68 | 2.70 | 3.37 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 302 | 6.30 | 74 | 89 | 4 | 6.9 | 1.4 | 3 | 0.57 | 2.83 | 4.52 | 5.65 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |
| 303 | 2.55 | 81 | 98 | 4 | 4.4 | 0.9 | 3 | 0.62 | 3.10 | 4.97 | 6.21 | Clay Loam | 0.464 | 0.31 | 0.187 | 24.384 | 1 | 1 | Grass Land | 1.2 | 5.84 | 1 |



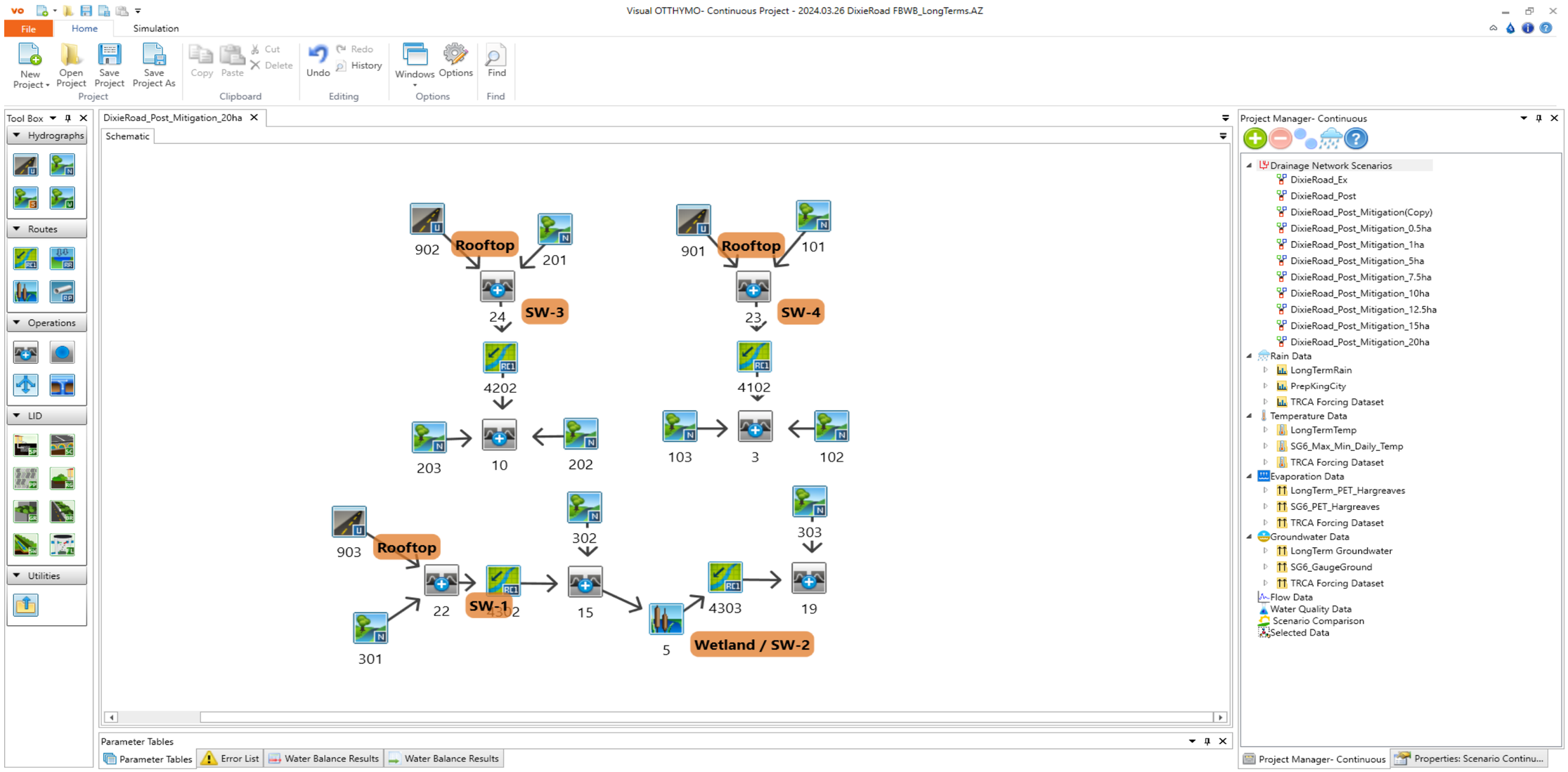
# B VO Continuous Model Calibration

Model Calibration Summary

| Scenario Name | Parameter Changed | Monitoring vs Simulated | | | |
|---|---|---|---|---|---|
| | | Volume Change | | Peak flow Change | |
| DixieRoad | Base parameter | Year 2021 | 35.5 | Year 2021 | 237.4 |
| | | Year 2022 | 27.0 | Year 2022 | 55.2 |
| | | Year 2023 | 34.3 | Year 2023 | 262.6 |
| | | **Average** | **32.3** | **Average** | **185.1** |
| DixieRoad_1 | Stage Discharge – Discharge increased by 50% | Year 2021 | 2.658 | Year 2021 | 189.369 |
| | | Year 2022 | -8.87 | Year 2022 | 34.437 |
| | | Year 2023 | -2.791 | Year 2023 | 213.953 |
| | | **Average** | **-3.0** | **Average** | **145.9** |
| DixieRoad_2 | Stage Discharge – Discharge increased by 50%, TP*5 | Year 2021 | 27.08 | Year 2021 | 104.686 |
| | | Year 2022 | -3.851 | Year 2022 | -39.654 |
| | | Year 2023 | 4.829 | Year 2023 | 105.124 |
| | | **Average** | **9.4** | **Average** | **56.7** |
| Selected for the Calibrated Model ➔ DixieRoad_3 | Stage Discharge – Discharge increased by 50%, TP*8 | Year 2021 | 32.336 | Year 2021 | 80.261 |
| | | Year 2022 | -3.941 | Year 2022 | -64.561 |
| | | Year 2023 | 4.905 | Year 2023 | 37.082 |
| | | **Average** | **11.1** | **Average** | **17.6** |
| DixieRoad_4 | Stage Discharge – Discharge increased by 50%, TP*10 | Year 2021 | 33.401 | Year 2021 | 70.892 |
| | | Year 2022 | -4.02 | Year 2022 | -71.349 |
| | | Year 2023 | 4.885 | Year 2023 | 14.601 |
| | | **Average** | **11.4** | **Average** | **4.7** |

# C Results of Feature Based Water Balance Analysis

**Post-Development Mitigation Option - VO Continuous Model - Schematic**



**Water Balance Summary**
**Existing Conditions**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 60 | 88.8 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 7.450 | 13.885 | 14.939 | 19.996 | 10.556 | 0.378 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 11.242 | 13.063 | 10.914 | 22.270 | 4.375 | 0.456 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 24.628 | 23.943 | 15.183 | 36.661 | -20.522 | 0.655 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 45.417 | 32.068 | 15.104 | 26.316 | -18.343 | 0.384 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 70.047 | 34.487 | 7.023 | 18.171 | -23.034 | 0.252 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 69.339 | 36.967 | 1.589 | 12.498 | -14.250 | 0.181 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 64.058 | 40.057 | 0.377 | 14.041 | -3.609 | 0.188 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 57.396 | 40.045 | 0.332 | 14.136 | 1.540 | 0.193 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 42.040 | 36.677 | 1.453 | 14.228 | 11.271 | 0.206 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 25.760 | 32.297 | 4.960 | 15.062 | 16.647 | 0.241 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 12.276 | 33.121 | 12.408 | 17.735 | 22.387 | 0.274 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 7.498 | 21.531 | 17.054 | 21.532 | 13.973 | 0.359 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 36.429 | 29.845 | 8.445 | 19.387 | 0.082 | 0.301 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 2031 | 3.67 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 7.430 | 13.866 | 14.987 | 18.429 | 12.096 | 0.348 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 11.193 | 13.093 | 10.918 | 23.605 | 3.084 | 0.484 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 24.574 | 24.047 | 15.127 | 38.598 | -22.350 | 0.690 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 45.418 | 32.393 | 14.983 | 23.787 | -15.693 | 0.347 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 70.029 | 34.914 | 6.915 | 18.676 | -23.414 | 0.259 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 69.113 | 37.544 | 1.541 | 12.143 | -13.621 | 0.176 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 63.649 | 40.635 | 0.356 | 14.455 | -3.593 | 0.193 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 57.153 | 40.526 | 0.323 | 14.346 | 1.581 | 0.195 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 41.970 | 37.127 | 1.440 | 14.231 | 11.350 | 0.206 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 25.743 | 32.584 | 4.959 | 14.979 | 16.747 | 0.240 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 12.269 | 33.222 | 12.457 | 18.626 | 21.454 | 0.287 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 7.498 | 21.505 | 17.125 | 22.129 | 13.306 | 0.368 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 36.336 | 30.121 | 8.428 | 19.500 | 0.079 | 0.303 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 55 | 35.04 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 7.384 | 13.071 | 14.502 | 19.653 | 11.402 | 0.371 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 11.107 | 12.420 | 10.292 | 24.157 | 3.244 | 0.495 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 24.456 | 23.017 | 14.153 | 39.426 | -22.085 | 0.705 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 45.209 | 31.797 | 13.750 | 26.130 | -16.595 | 0.381 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 67.046 | 34.693 | 6.012 | 19.722 | -20.573 | 0.273 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 64.035 | 37.462 | 1.297 | 13.818 | -9.974 | 0.200 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 60.671 | 40.281 | 0.334 | 15.806 | -1.945 | 0.211 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 55.144 | 39.836 | 0.365 | 16.341 | 1.553 | 0.223 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 41.337 | 36.418 | 1.605 | 16.024 | 10.024 | 0.232 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 25.563 | 31.555 | 5.379 | 16.613 | 14.874 | 0.266 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 12.212 | 31.743 | 13.346 | 20.342 | 18.907 | 0.314 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 7.490 | 20.311 | 17.341 | 23.237 | 11.990 | 0.387 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 35.138 | 29.384 | 8.198 | 20.939 | 0.068 | 0.325 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 95.84 | Jan | 52.941 | 3231.859 | 7.640 | 20.684 | 3244.173 | 12.303 |
| | | | | | Feb | 48.800 | 3631.503 | 11.871 | 19.897 | 3647.906 | 0.630 |
| | | | | | Mar | 55.950 | 5971.084 | 25.277 | 34.570 | 5997.152 | -29.965 |
| | | | | | Apr | 68.495 | 4237.629 | 45.823 | 34.875 | 4251.153 | -25.727 |
| | | | | | May | 72.206 | 2936.676 | 75.881 | 31.952 | 2947.256 | -46.208 |
| | | | | | Jun | 69.176 | 2006.823 | 95.822 | 29.552 | 2012.611 | -61.986 |
| | | | | | Jul | 74.867 | 2258.193 | 88.854 | 34.156 | 2265.099 | -55.049 |
| | | | | | Aug | 73.402 | 2265.379 | 72.808 | 35.593 | 2271.562 | -41.182 |
| | | | | | Sep | 68.990 | 2281.308 | 47.850 | 34.088 | 2287.677 | -19.317 |
| | | | | | Oct | 62.429 | 2416.765 | 27.046 | 34.190 | 2423.733 | -5.777 |
| | | | | | Nov | 64.806 | 2862.240 | 12.380 | 40.275 | 2872.069 | 2.321 |
| | | | | | Dec | 60.057 | 3495.357 | 7.515 | 29.757 | 3509.945 | 8.198 |
| | | | | | Average | 64.343 | 3132.901 | 43.231 | 31.633 | 3144.195 | -21.813 |
| | | | | | Total | 772.120 | 37594.814 | 518.767 | 379.590 | 37730.334 | -261.756 |

**Water Balance Summary**
**Proposed Conditions _ Unmitigated**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 301 | 2.08 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 7.430 | 13.866 | 14.987 | 18.429 | 12.096 | 0.348 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 11.193 | 13.093 | 10.918 | 23.605 | 3.084 | 0.484 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 24.574 | 24.047 | 15.127 | 38.598 | -22.350 | 0.690 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 45.418 | 32.393 | 14.983 | 23.787 | -15.693 | 0.347 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 70.029 | 34.914 | 6.915 | 18.676 | -23.414 | 0.259 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 69.113 | 37.544 | 1.541 | 12.143 | -13.621 | 0.176 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 63.649 | 40.635 | 0.356 | 14.455 | -3.593 | 0.193 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 57.153 | 40.526 | 0.323 | 14.346 | 1.581 | 0.195 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 41.970 | 37.127 | 1.440 | 14.231 | 11.350 | 0.206 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 25.743 | 32.584 | 4.959 | 14.979 | 16.747 | 0.240 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 12.269 | 33.222 | 12.457 | 18.626 | 21.454 | 0.287 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 7.498 | 21.505 | 17.125 | 22.129 | 13.306 | 0.368 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 36.336 | 30.121 | 8.428 | 19.500 | 0.079 | 0.303 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 201 | 0.66 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 7.524 | 14.960 | 15.171 | 17.232 | 13.014 | 0.325 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 11.433 | 13.873 | 11.517 | 22.265 | 3.585 | 0.456 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 24.839 | 25.089 | 16.368 | 36.177 | -21.434 | 0.647 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 45.570 | 32.061 | 16.841 | 21.540 | -15.457 | 0.314 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 73.017 | 33.732 | 8.433 | 16.683 | -25.928 | 0.231 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 76.511 | 35.602 | 2.048 | 10.314 | -19.697 | 0.149 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 68.962 | 39.021 | 0.494 | 12.285 | -6.873 | 0.164 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 60.608 | 39.581 | 0.307 | 11.883 | 0.604 | 0.162 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 43.029 | 36.355 | 1.250 | 11.889 | 12.822 | 0.172 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 25.972 | 32.835 | 4.330 | 12.702 | 19.424 | 0.203 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 12.316 | 34.721 | 10.923 | 16.266 | 25.300 | 0.251 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 7.499 | 23.107 | 16.323 | 20.475 | 15.761 | 0.341 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 38.107 | 30.078 | 8.667 | 17.476 | 0.094 | 0.272 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 101 | 0.86 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 7.429 | 16.757 | 18.113 | 15.539 | 11.860 | 0.294 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 11.193 | 15.991 | 13.355 | 20.707 | 3.545 | 0.424 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 24.572 | 28.916 | 19.304 | 33.729 | -21.656 | 0.603 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 45.403 | 37.053 | 19.664 | 19.127 | -15.700 | 0.279 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 71.241 | 38.687 | 9.998 | 14.903 | -23.936 | 0.206 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 72.523 | 39.725 | 2.506 | 9.962 | -15.815 | 0.144 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 66.574 | 42.801 | 0.745 | 12.288 | -4.741 | 0.164 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 59.743 | 42.874 | 0.557 | 11.998 | 1.104 | 0.163 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 42.657 | 39.599 | 2.251 | 11.759 | 12.324 | 0.170 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 25.917 | 35.494 | 6.709 | 12.069 | 17.734 | 0.193 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 12.290 | 37.329 | 15.509 | 14.519 | 22.488 | 0.224 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 7.498 | 25.390 | 20.499 | 18.244 | 13.817 | 0.304 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 37.253 | 33.385 | 10.768 | 16.237 | 0.085 | 0.252 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 8.38 | Jan | 52.941 | 233.942 | 7.636 | 18.669 | 247.314 | 13.264 |
| | | | | | Feb | 48.800 | 306.737 | 11.863 | 16.922 | 325.110 | 1.642 |
| | | | | | Mar | 55.950 | 497.780 | 25.251 | 29.507 | 527.197 | -28.225 |
| | | | | | Apr | 68.495 | 290.908 | 45.772 | 31.936 | 306.746 | -25.051 |
| | | | | | May | 72.206 | 223.104 | 75.805 | 30.522 | 234.653 | -45.671 |
| | | | | | Jun | 69.176 | 136.948 | 95.760 | 28.776 | 143.491 | -61.902 |
| | | | | | Jul | 74.867 | 162.457 | 88.788 | 32.948 | 170.458 | -54.870 |
| | | | | | Aug | 73.402 | 152.935 | 72.750 | 34.589 | 159.716 | -40.719 |
| | | | | | Sep | 68.990 | 154.424 | 47.809 | 32.867 | 161.647 | -18.909 |
| | | | | | Oct | 62.429 | 164.668 | 27.022 | 32.943 | 172.343 | -5.211 |
| | | | | | Nov | 64.806 | 212.520 | 12.370 | 38.948 | 222.828 | 3.181 |
| | | | | | Dec | 60.057 | 276.440 | 7.510 | 27.956 | 291.952 | 9.080 |
| | | | | | Average | 64.343 | 234.405 | 43.195 | 29.715 | 246.954 | -21.116 |
| | | | | | Total | 772.120 | 2812.861 | 518.336 | 356.583 | 2963.452 | -253.389 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **0.5** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 2.58 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 6.729 | 11.180 | 12.080 | 21.531 | 12.601 | 0.407 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 9.851 | 10.557 | 8.800 | 27.067 | 3.083 | 0.555 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 21.234 | 19.391 | 12.193 | 45.007 | -22.483 | 0.804 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 37.905 | 26.124 | 12.076 | 32.379 | -13.865 | 0.473 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 57.477 | 28.155 | 5.574 | 28.011 | -18.856 | 0.388 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 56.765 | 30.274 | 1.242 | 22.184 | -11.014 | 0.321 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 52.355 | 32.765 | 0.287 | 25.112 | -2.887 | 0.335 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 47.095 | 32.677 | 0.261 | 24.782 | 1.265 | 0.338 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 34.817 | 29.938 | 1.162 | 23.860 | 9.152 | 0.346 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 21.760 | 26.274 | 3.998 | 23.160 | 13.510 | 0.371 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 10.967 | 26.786 | 10.044 | 26.104 | 17.690 | 0.403 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 6.970 | 17.338 | 13.806 | 26.712 | 12.570 | 0.445 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 30.327 | 24.288 | 6.794 | 27.159 | 0.064 | 0.422 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 1.16 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 5.927 | 8.522 | 8.637 | 24.636 | 13.740 | 0.465 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 8.349 | 7.905 | 6.554 | 30.531 | 3.366 | 0.626 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 17.306 | 14.301 | 9.316 | 51.454 | -22.126 | 0.920 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 28.821 | 18.282 | 9.585 | 41.588 | -11.499 | 0.607 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 43.855 | 19.232 | 4.799 | 38.273 | -14.722 | 0.530 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 45.899 | 20.297 | 1.166 | 33.398 | -11.287 | 0.483 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 41.591 | 22.241 | 0.282 | 36.887 | -3.893 | 0.493 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 36.784 | 22.558 | 0.176 | 36.118 | 0.324 | 0.492 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 26.688 | 20.722 | 0.714 | 34.281 | 7.308 | 0.497 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 17.027 | 18.715 | 2.468 | 31.851 | 11.082 | 0.510 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 9.406 | 19.783 | 6.226 | 33.890 | 15.284 | 0.523 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 6.326 | 13.163 | 9.297 | 31.366 | 13.069 | 0.522 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 23.998 | 17.143 | 4.935 | 35.356 | 0.054 | 0.549 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 1.36 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 6.103 | 10.608 | 11.461 | 22.474 | 12.903 | 0.425 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 8.652 | 10.124 | 8.449 | 28.327 | 3.373 | 0.580 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 18.248 | 18.312 | 12.212 | 47.654 | -22.165 | 0.852 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 31.184 | 23.470 | 12.440 | 37.107 | -12.236 | 0.542 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 47.031 | 24.503 | 6.324 | 33.965 | -15.114 | 0.470 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 47.890 | 25.160 | 1.586 | 29.772 | -10.072 | 0.430 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 44.116 | 27.106 | 0.472 | 33.263 | -2.984 | 0.444 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 39.749 | 27.150 | 0.353 | 32.618 | 0.682 | 0.444 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 28.862 | 25.078 | 1.425 | 30.898 | 7.806 | 0.448 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 18.311 | 22.478 | 4.247 | 28.628 | 11.242 | 0.459 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 9.818 | 23.635 | 9.819 | 30.186 | 14.982 | 0.466 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 6.498 | 16.073 | 12.974 | 28.350 | 12.236 | 0.472 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 25.539 | 21.141 | 6.814 | 31.937 | 0.055 | 0.496 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 8.88 | Jan | 52.941 | 263.365 | 7.636 | 18.677 | 276.722 | 13.271 |
| | | | | | Feb | 48.800 | 342.148 | 11.863 | 16.937 | 360.531 | 1.618 |
| | | | | | Mar | 55.950 | 558.969 | 25.252 | 29.531 | 588.279 | -28.142 |
| | | | | | Apr | 68.495 | 349.074 | 45.774 | 31.944 | 364.879 | -25.028 |
| | | | | | May | 72.206 | 280.154 | 75.809 | 30.524 | 291.704 | -45.677 |
| | | | | | Jun | 69.176 | 191.575 | 95.764 | 28.773 | 198.121 | -61.907 |
| | | | | | Jul | 74.867 | 221.708 | 88.793 | 32.948 | 229.712 | -54.878 |
| | | | | | Aug | 73.402 | 211.173 | 72.754 | 34.585 | 217.960 | -40.724 |
| | | | | | Sep | 68.990 | 208.991 | 47.812 | 32.865 | 216.228 | -18.923 |
| | | | | | Oct | 62.429 | 213.496 | 27.023 | 32.944 | 221.185 | -5.227 |
| | | | | | Nov | 64.806 | 261.383 | 12.370 | 38.949 | 271.680 | 3.190 |
| | | | | | Dec | 60.057 | 315.549 | 7.510 | 27.962 | 331.040 | 9.094 |
| | | | | | Average | 64.343 | 284.799 | 43.197 | 29.720 | 297.337 | -21.111 |
| | | | | | Total | 772.120 | 3417.586 | 518.360 | 356.639 | 3568.041 | -253.334 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **1** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 3.08 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 6.256 | 9.367 | 10.119 | 23.624 | 12.942 | 0.446 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 8.946 | 8.846 | 7.370 | 29.403 | 3.082 | 0.603 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 18.979 | 16.249 | 10.212 | 49.333 | -22.574 | 0.882 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 32.835 | 21.893 | 10.115 | 38.177 | -12.632 | 0.557 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 49.007 | 23.594 | 4.668 | 34.311 | -15.780 | 0.475 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 48.431 | 25.369 | 1.041 | 28.959 | -9.254 | 0.419 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 44.733 | 27.455 | 0.241 | 32.304 | -2.412 | 0.431 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 40.308 | 27.380 | 0.219 | 31.824 | 1.052 | 0.434 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 29.990 | 25.086 | 0.974 | 30.357 | 7.670 | 0.440 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 19.071 | 22.016 | 3.350 | 28.681 | 11.326 | 0.459 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 10.089 | 22.443 | 8.416 | 31.151 | 15.150 | 0.481 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 6.613 | 14.526 | 11.565 | 29.805 | 12.073 | 0.496 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 26.272 | 20.352 | 5.691 | 32.327 | 0.054 | 0.502 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 1.66 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 5.293 | 5.963 | 6.040 | 27.580 | 14.029 | 0.521 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 7.124 | 5.533 | 4.582 | 33.816 | 3.279 | 0.693 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 14.312 | 10.013 | 6.513 | 57.527 | -22.402 | 1.028 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 22.163 | 12.805 | 6.701 | 49.557 | -9.926 | 0.724 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 32.263 | 13.468 | 3.355 | 46.855 | -10.267 | 0.649 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 33.731 | 14.213 | 0.815 | 42.574 | -7.944 | 0.615 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 30.711 | 15.571 | 0.198 | 46.667 | -2.709 | 0.623 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 27.313 | 15.791 | 0.124 | 45.752 | 0.213 | 0.623 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 20.193 | 14.508 | 0.500 | 43.181 | 5.116 | 0.626 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 13.472 | 13.102 | 1.728 | 39.463 | 7.766 | 0.632 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 8.249 | 13.845 | 4.359 | 40.895 | 11.303 | 0.631 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.860 | 9.210 | 6.504 | 35.696 | 11.998 | 0.594 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 18.390 | 12.002 | 3.451 | 42.464 | 0.038 | 0.660 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 1.86 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 5.490 | 7.764 | 8.385 | 25.681 | 13.386 | 0.485 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 7.477 | 7.411 | 6.179 | 31.850 | 3.294 | 0.653 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 15.324 | 13.408 | 8.933 | 54.093 | -22.400 | 0.967 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 24.609 | 17.189 | 9.099 | 45.421 | -10.634 | 0.663 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 35.835 | 17.944 | 4.626 | 42.780 | -11.035 | 0.592 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 36.498 | 18.425 | 1.160 | 38.934 | -7.416 | 0.563 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 33.730 | 19.847 | 0.346 | 42.962 | -2.171 | 0.574 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 30.502 | 19.878 | 0.259 | 42.154 | 0.487 | 0.574 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 22.482 | 18.363 | 1.044 | 39.748 | 5.716 | 0.576 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 14.793 | 16.459 | 3.109 | 36.286 | 8.241 | 0.581 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 8.675 | 17.302 | 7.188 | 37.432 | 11.511 | 0.578 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 6.036 | 11.764 | 9.494 | 33.024 | 11.504 | 0.550 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 20.121 | 15.479 | 4.985 | 39.197 | 0.040 | 0.609 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 9.38 | Jan | 52.941 | 292.788 | 7.636 | 18.686 | 306.125 | 13.282 |
| | | | | | Feb | 48.800 | 377.560 | 11.864 | 16.952 | 395.872 | 1.672 |
| | | | | | Mar | 55.950 | 620.159 | 25.253 | 29.559 | 649.577 | -28.279 |
| | | | | | Apr | 68.495 | 407.241 | 45.775 | 31.954 | 423.072 | -25.066 |
| | | | | | May | 72.206 | 337.204 | 75.812 | 30.528 | 348.738 | -45.668 |
| | | | | | Jun | 69.176 | 246.202 | 95.768 | 28.773 | 252.749 | -61.911 |
| | | | | | Jul | 74.867 | 280.960 | 88.797 | 32.951 | 288.951 | -54.873 |
| | | | | | Aug | 73.402 | 269.411 | 72.758 | 34.583 | 276.201 | -40.729 |
| | | | | | Sep | 68.990 | 263.559 | 47.814 | 32.865 | 270.778 | -18.907 |
| | | | | | Oct | 62.429 | 262.324 | 27.024 | 32.946 | 269.999 | -5.216 |
| | | | | | Nov | 64.806 | 310.246 | 12.371 | 38.952 | 320.546 | 3.184 |
| | | | | | Dec | 60.057 | 354.658 | 7.510 | 27.970 | 370.133 | 9.102 |
| | | | | | Average | 64.343 | 335.193 | 43.198 | 29.727 | 347.728 | -21.117 |
| | | | | | Total | 772.120 | 4022.311 | 518.382 | 356.719 | 4172.739 | -253.409 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **5** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 7.08 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.879 | 4.087 | 4.407 | 29.720 | 13.935 | 0.561 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 6.308 | 3.862 | 3.207 | 36.206 | 3.079 | 0.742 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 12.415 | 7.100 | 4.445 | 61.928 | -22.837 | 1.107 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 18.071 | 9.573 | 4.402 | 55.060 | -9.039 | 0.804 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 24.340 | 10.311 | 2.031 | 52.657 | -6.822 | 0.729 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 24.164 | 11.084 | 0.454 | 48.689 | -4.130 | 0.704 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 22.539 | 11.990 | 0.106 | 53.248 | -1.026 | 0.711 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 20.543 | 11.955 | 0.097 | 52.330 | 0.432 | 0.713 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 15.934 | 10.957 | 0.426 | 49.279 | 3.352 | 0.714 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 11.243 | 9.617 | 1.463 | 44.758 | 4.965 | 0.717 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 7.532 | 9.796 | 3.674 | 45.846 | 7.754 | 0.707 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.576 | 6.338 | 5.042 | 38.813 | 10.627 | 0.646 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 14.462 | 8.889 | 2.479 | 47.378 | 0.024 | 0.736 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 5.66 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.252 | 1.768 | 1.782 | 32.404 | 14.502 | 0.612 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 5.114 | 1.644 | 1.348 | 39.202 | 3.137 | 0.803 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 9.404 | 2.983 | 1.917 | 67.482 | -22.853 | 1.206 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 11.249 | 3.826 | 1.972 | 62.620 | -7.347 | 0.914 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 13.260 | 4.019 | 0.986 | 60.924 | -2.965 | 0.844 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 13.783 | 4.239 | 0.241 | 57.616 | -2.464 | 0.833 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 12.875 | 4.637 | 0.060 | 62.699 | -0.767 | 0.837 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 11.789 | 4.697 | 0.039 | 61.544 | 0.031 | 0.838 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 9.545 | 4.321 | 0.150 | 57.772 | 1.523 | 0.837 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 7.643 | 3.901 | 0.515 | 51.942 | 2.330 | 0.832 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.352 | 4.111 | 1.299 | 52.379 | 4.776 | 0.808 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.095 | 2.731 | 1.926 | 42.793 | 10.243 | 0.713 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 9.197 | 3.573 | 1.020 | 54.115 | 0.012 | 0.841 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 5.86 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.350 | 2.483 | 2.672 | 31.637 | 14.282 | 0.598 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 5.295 | 2.373 | 1.966 | 38.394 | 3.146 | 0.787 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 9.893 | 4.301 | 2.843 | 66.051 | -22.837 | 1.181 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 12.398 | 5.525 | 2.896 | 60.861 | -7.660 | 0.889 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 15.044 | 5.763 | 1.471 | 59.149 | -3.459 | 0.819 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 15.344 | 5.917 | 0.370 | 55.946 | -2.484 | 0.809 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 14.444 | 6.368 | 0.111 | 60.974 | -0.663 | 0.814 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 13.332 | 6.375 | 0.084 | 59.862 | 0.124 | 0.816 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 10.636 | 5.893 | 0.335 | 56.183 | 1.837 | 0.814 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 8.262 | 5.282 | 0.995 | 50.506 | 2.666 | 0.809 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.553 | 5.541 | 2.301 | 50.887 | 5.065 | 0.785 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.177 | 3.763 | 3.031 | 41.702 | 10.147 | 0.694 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 10.061 | 4.965 | 1.590 | 52.679 | 0.014 | 0.819 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 13.38 | Jan | 52.941 | 528.174 | 7.637 | 18.800 | 541.436 | 13.241 |
| | | | | | Feb | 48.800 | 660.851 | 11.866 | 17.140 | 679.134 | 1.512 |
| | | | | | Mar | 55.950 | 1109.673 | 25.258 | 29.880 | 1138.802 | -28.318 |
| | | | | | Apr | 68.495 | 872.571 | 45.791 | 32.103 | 888.364 | -25.192 |
| | | | | | May | 72.206 | 793.606 | 75.838 | 30.621 | 805.108 | -45.754 |
| | | | | | Jun | 69.176 | 683.216 | 95.800 | 28.825 | 689.724 | -61.957 |
| | | | | | Jul | 74.867 | 754.971 | 88.834 | 33.054 | 762.890 | -54.940 |
| | | | | | Aug | 73.402 | 735.317 | 72.789 | 34.653 | 742.108 | -40.830 |
| | | | | | Sep | 68.990 | 700.098 | 47.833 | 32.939 | 707.345 | -19.028 |
| | | | | | Oct | 62.429 | 652.949 | 27.032 | 33.007 | 660.616 | -5.278 |
| | | | | | Nov | 64.806 | 701.154 | 12.374 | 39.029 | 711.429 | 3.128 |
| | | | | | Dec | 60.057 | 667.530 | 7.512 | 28.076 | 683.015 | 8.985 |
| | | | | | Average | 64.343 | 738.343 | 43.214 | 29.844 | 750.831 | -21.203 |
| | | | | | Total | 772.120 | 8860.110 | 518.564 | 358.125 | 9009.971 | -254.430 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **7.5** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 9.58 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.603 | 3.027 | 3.260 | 30.943 | 14.134 | 0.584 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 5.778 | 2.862 | 2.371 | 37.572 | 3.079 | 0.770 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 11.097 | 5.264 | 3.287 | 64.456 | -22.890 | 1.152 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 15.108 | 7.100 | 3.256 | 58.449 | -8.318 | 0.853 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 19.389 | 7.645 | 1.502 | 56.339 | -5.024 | 0.780 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 19.293 | 8.216 | 0.336 | 52.649 | -3.102 | 0.761 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 18.083 | 8.886 | 0.079 | 57.452 | -0.748 | 0.767 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 16.575 | 8.858 | 0.072 | 56.447 | 0.308 | 0.769 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 13.112 | 8.121 | 0.316 | 53.077 | 2.485 | 0.769 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 9.672 | 7.128 | 1.084 | 47.985 | 3.688 | 0.769 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 7.018 | 7.257 | 2.722 | 48.796 | 6.270 | 0.753 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.367 | 4.694 | 3.732 | 40.621 | 10.337 | 0.676 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 12.091 | 6.588 | 1.835 | 50.399 | 0.018 | 0.783 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 8.16 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.120 | 1.235 | 1.241 | 33.018 | 14.562 | 0.624 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.858 | 1.149 | 0.937 | 39.887 | 3.118 | 0.817 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.780 | 2.089 | 1.333 | 68.747 | -22.910 | 1.229 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 9.861 | 2.684 | 1.371 | 64.281 | -7.019 | 0.938 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 10.844 | 2.818 | 0.685 | 62.713 | -2.037 | 0.869 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 11.247 | 2.971 | 0.168 | 59.529 | -1.768 | 0.861 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 10.607 | 3.247 | 0.042 | 64.737 | -0.520 | 0.865 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 9.815 | 3.287 | 0.028 | 63.552 | 0.008 | 0.866 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 8.191 | 3.025 | 0.106 | 59.627 | 1.066 | 0.864 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.902 | 2.731 | 0.361 | 53.528 | 1.639 | 0.857 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.111 | 2.874 | 0.909 | 53.839 | 3.946 | 0.831 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.998 | 1.907 | 1.344 | 43.696 | 10.020 | 0.728 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 8.028 | 2.502 | 0.710 | 55.596 | 0.009 | 0.864 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 8.36 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.192 | 1.749 | 1.878 | 32.465 | 14.406 | 0.613 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.991 | 1.673 | 1.380 | 39.304 | 3.126 | 0.805 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 9.138 | 3.035 | 1.996 | 67.714 | -22.898 | 1.210 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 10.700 | 3.903 | 2.033 | 63.008 | -7.246 | 0.920 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 12.153 | 4.069 | 1.032 | 61.426 | -2.405 | 0.851 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 12.402 | 4.178 | 0.260 | 58.312 | -1.798 | 0.843 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 11.761 | 4.494 | 0.079 | 63.479 | -0.453 | 0.848 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 10.944 | 4.497 | 0.060 | 62.324 | 0.074 | 0.849 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 8.989 | 4.159 | 0.236 | 58.469 | 1.297 | 0.847 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 7.353 | 3.727 | 0.701 | 52.484 | 1.891 | 0.841 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.257 | 3.906 | 1.622 | 52.758 | 4.169 | 0.814 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.058 | 2.650 | 2.133 | 42.909 | 9.958 | 0.714 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 8.662 | 3.503 | 1.117 | 54.554 | 0.010 | 0.848 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 15.88 | Jan | 52.941 | 675.289 | 7.638 | 18.907 | 688.586 | 13.100 |
| | | | | | Feb | 48.800 | 837.909 | 11.867 | 17.308 | 856.138 | 1.396 |
| | | | | | Mar | 55.950 | 1415.619 | 25.262 | 30.169 | 1444.749 | -28.611 |
| | | | | | Apr | 68.495 | 1163.402 | 45.800 | 32.257 | 1179.096 | -25.256 |
| | | | | | May | 72.206 | 1078.856 | 75.854 | 30.736 | 1090.426 | -45.955 |
| | | | | | Jun | 69.176 | 956.352 | 95.821 | 28.911 | 962.827 | -62.030 |
| | | | | | Jul | 74.867 | 1051.228 | 88.857 | 33.176 | 1059.188 | -55.125 |
| | | | | | Aug | 73.402 | 1026.507 | 72.808 | 34.772 | 1033.287 | -40.958 |
| | | | | | Sep | 68.990 | 972.936 | 47.845 | 33.050 | 980.148 | -19.116 |
| | | | | | Oct | 62.429 | 897.089 | 27.038 | 33.077 | 904.666 | -5.264 |
| | | | | | Nov | 64.806 | 945.472 | 12.377 | 39.126 | 955.656 | 3.119 |
| | | | | | Dec | 60.057 | 863.076 | 7.513 | 28.182 | 878.456 | 8.983 |
| | | | | | Average | 64.343 | 990.311 | 43.223 | 29.973 | 1002.769 | -21.310 |
| | | | | | Total | 772.120 | 11883.735 | 518.678 | 359.672 | 12033.222 | -255.717 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **10** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 12.08 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.441 | 2.406 | 2.589 | 31.660 | 14.251 | 0.598 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 5.468 | 2.275 | 1.882 | 38.372 | 3.079 | 0.786 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 10.325 | 4.188 | 2.609 | 65.938 | -22.921 | 1.179 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 13.371 | 5.651 | 2.584 | 60.435 | -7.895 | 0.882 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 16.488 | 6.082 | 1.192 | 58.497 | -3.971 | 0.810 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 16.439 | 6.536 | 0.267 | 54.970 | -2.499 | 0.795 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 15.473 | 7.067 | 0.063 | 59.916 | -0.585 | 0.800 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 14.251 | 7.044 | 0.058 | 58.859 | 0.235 | 0.802 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 11.459 | 6.459 | 0.252 | 55.302 | 1.977 | 0.802 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 8.751 | 5.669 | 0.862 | 49.876 | 2.940 | 0.799 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.717 | 5.770 | 2.165 | 50.524 | 5.400 | 0.780 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.245 | 3.731 | 2.965 | 41.680 | 10.167 | 0.694 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 10.702 | 5.240 | 1.457 | 52.169 | 0.015 | 0.811 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 10.66 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.050 | 0.952 | 0.953 | 33.344 | 14.594 | 0.630 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.723 | 0.887 | 0.719 | 40.250 | 3.109 | 0.825 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.449 | 1.615 | 1.023 | 69.419 | -22.941 | 1.241 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 9.124 | 2.078 | 1.052 | 65.163 | -6.845 | 0.951 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 9.562 | 2.180 | 0.525 | 63.663 | -1.544 | 0.882 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 9.901 | 2.298 | 0.129 | 60.544 | -1.398 | 0.875 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 9.403 | 2.509 | 0.033 | 65.819 | -0.389 | 0.879 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 8.767 | 2.538 | 0.022 | 64.618 | -0.004 | 0.880 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 7.473 | 2.338 | 0.082 | 60.612 | 0.824 | 0.879 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.508 | 2.110 | 0.279 | 54.370 | 1.272 | 0.871 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.983 | 2.217 | 0.703 | 54.615 | 3.505 | 0.843 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.946 | 1.469 | 1.035 | 44.175 | 9.902 | 0.736 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 7.407 | 1.933 | 0.546 | 56.383 | 0.007 | 0.876 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 10.86 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.106 | 1.353 | 1.449 | 32.912 | 14.474 | 0.622 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.828 | 1.294 | 1.064 | 39.795 | 3.115 | 0.815 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.730 | 2.352 | 1.539 | 68.611 | -22.930 | 1.226 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 9.784 | 3.027 | 1.567 | 64.166 | -7.023 | 0.937 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 10.593 | 3.155 | 0.795 | 62.654 | -1.836 | 0.868 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 10.815 | 3.239 | 0.201 | 59.589 | -1.428 | 0.861 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 10.314 | 3.482 | 0.061 | 64.831 | -0.340 | 0.866 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 9.656 | 3.483 | 0.047 | 63.653 | 0.046 | 0.867 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 8.100 | 3.223 | 0.183 | 59.702 | 1.006 | 0.865 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.863 | 2.888 | 0.542 | 53.551 | 1.473 | 0.858 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.098 | 3.023 | 1.255 | 53.768 | 3.685 | 0.830 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.993 | 2.050 | 1.648 | 43.560 | 9.856 | 0.725 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 7.907 | 2.714 | 0.863 | 55.566 | 0.008 | 0.864 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 18.38 | Jan | 52.941 | 822.405 | 7.639 | 19.036 | 835.646 | 13.026 |
| | | | | | Feb | 48.800 | 1014.966 | 11.868 | 17.511 | 1033.148 | 1.238 |
| | | | | | Mar | 55.950 | 1721.564 | 25.266 | 30.513 | 1750.184 | -28.449 |
| | | | | | Apr | 68.495 | 1454.233 | 45.810 | 32.451 | 1469.841 | -25.375 |
| | | | | | May | 72.206 | 1364.106 | 75.870 | 30.888 | 1375.418 | -45.864 |
| | | | | | Jun | 69.176 | 1229.488 | 95.841 | 29.037 | 1235.928 | -62.141 |
| | | | | | Jul | 74.867 | 1347.485 | 88.879 | 33.346 | 1355.296 | -55.169 |
| | | | | | Aug | 73.402 | 1317.698 | 72.827 | 34.950 | 1324.563 | -41.240 |
| | | | | | Sep | 68.990 | 1245.773 | 47.856 | 33.205 | 1253.099 | -19.397 |
| | | | | | Oct | 62.429 | 1141.229 | 27.043 | 33.181 | 1148.735 | -5.301 |
| | | | | | Nov | 64.806 | 1189.790 | 12.379 | 39.254 | 1199.893 | 3.070 |
| | | | | | Dec | 60.057 | 1058.622 | 7.513 | 28.319 | 1073.942 | 8.905 |
| | | | | | Average | 64.343 | 1242.280 | 43.233 | 30.141 | 1254.641 | -21.391 |
| | | | | | Total | 772.120 | 14907.360 | 518.792 | 361.692 | 15055.691 | -256.696 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **12.5** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 14.58 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.335 | 1.998 | 2.147 | 32.131 | 14.328 | 0.607 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 5.264 | 1.890 | 1.560 | 38.898 | 3.078 | 0.797 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 9.818 | 3.481 | 2.163 | 66.911 | -22.942 | 1.196 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 12.230 | 4.699 | 2.142 | 61.740 | -7.617 | 0.901 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 14.582 | 5.056 | 0.988 | 59.915 | -3.278 | 0.830 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 14.563 | 5.432 | 0.221 | 56.495 | -2.103 | 0.817 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 13.758 | 5.872 | 0.053 | 61.534 | -0.478 | 0.822 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 12.723 | 5.852 | 0.049 | 60.443 | 0.187 | 0.823 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 10.373 | 5.367 | 0.209 | 56.765 | 1.644 | 0.823 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 8.146 | 4.711 | 0.716 | 51.119 | 2.448 | 0.819 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.520 | 4.792 | 1.798 | 51.660 | 4.828 | 0.797 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.165 | 3.098 | 2.461 | 42.377 | 10.055 | 0.706 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 9.790 | 4.354 | 1.209 | 53.332 | 0.012 | 0.829 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 13.16 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.006 | 0.776 | 0.775 | 33.545 | 14.614 | 0.634 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.639 | 0.724 | 0.583 | 40.476 | 3.103 | 0.829 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.243 | 1.321 | 0.830 | 69.836 | -22.959 | 1.248 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 8.668 | 1.703 | 0.854 | 65.710 | -6.737 | 0.959 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 8.766 | 1.784 | 0.426 | 64.251 | -1.238 | 0.890 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 9.066 | 1.880 | 0.105 | 61.174 | -1.169 | 0.884 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 8.657 | 2.051 | 0.027 | 66.490 | -0.308 | 0.888 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 8.117 | 2.074 | 0.018 | 65.279 | -0.012 | 0.889 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 7.027 | 1.912 | 0.067 | 61.223 | 0.673 | 0.887 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.264 | 1.725 | 0.228 | 54.892 | 1.044 | 0.879 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.904 | 1.809 | 0.575 | 55.095 | 3.232 | 0.850 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.914 | 1.198 | 0.843 | 44.472 | 9.828 | 0.740 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 7.023 | 1.580 | 0.444 | 56.870 | 0.006 | 0.884 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 13.36 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.053 | 1.105 | 1.181 | 33.192 | 14.516 | 0.627 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.725 | 1.058 | 0.866 | 40.102 | 3.108 | 0.822 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.475 | 1.924 | 1.253 | 69.173 | -22.951 | 1.236 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 9.211 | 2.480 | 1.276 | 64.891 | -6.883 | 0.947 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 9.616 | 2.583 | 0.647 | 63.423 | -1.480 | 0.878 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 9.821 | 2.652 | 0.164 | 60.388 | -1.197 | 0.873 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 9.408 | 2.849 | 0.050 | 65.677 | -0.269 | 0.877 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 8.849 | 2.849 | 0.039 | 64.485 | 0.029 | 0.879 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 7.543 | 2.637 | 0.150 | 60.474 | 0.824 | 0.877 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.556 | 2.363 | 0.443 | 54.218 | 1.211 | 0.868 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.998 | 2.471 | 1.025 | 54.400 | 3.382 | 0.839 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.953 | 1.674 | 1.344 | 43.968 | 9.792 | 0.732 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 7.434 | 2.220 | 0.703 | 56.199 | 0.007 | 0.873 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 20.88 | Jan | 52.941 | 969.520 | 7.639 | 19.190 | 982.702 | 12.930 |
| | | | | | Feb | 48.800 | 1192.022 | 11.869 | 17.747 | 1210.172 | 1.035 |
| | | | | | Mar | 55.950 | 2027.509 | 25.270 | 30.912 | 2056.155 | -28.878 |
| | | | | | Apr | 68.495 | 1745.064 | 45.819 | 32.683 | 1760.403 | -25.346 |
| | | | | | May | 72.206 | 1649.355 | 75.887 | 31.078 | 1660.665 | -46.069 |
| | | | | | Jun | 69.176 | 1502.626 | 95.861 | 29.204 | 1509.025 | -62.288 |
| | | | | | Jul | 74.867 | 1643.742 | 88.902 | 33.570 | 1651.818 | -55.681 |
| | | | | | Aug | 73.402 | 1608.889 | 72.846 | 35.184 | 1615.873 | -41.614 |
| | | | | | Sep | 68.990 | 1518.610 | 47.868 | 33.403 | 1525.722 | -19.392 |
| | | | | | Oct | 62.429 | 1385.369 | 27.049 | 33.318 | 1393.062 | -5.631 |
| | | | | | Nov | 64.806 | 1434.109 | 12.381 | 39.417 | 1444.505 | 2.612 |
| | | | | | Dec | 60.057 | 1254.169 | 7.514 | 28.487 | 1269.457 | 8.769 |
| | | | | | Average | 64.343 | 1494.249 | 43.242 | 30.349 | 1506.630 | -21.630 |
| | | | | | Total | 772.120 | 17930.983 | 518.906 | 364.193 | 18079.559 | -259.554 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **15** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 17.08 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.259 | 1.710 | 1.835 | 32.465 | 14.382 | 0.613 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 5.120 | 1.618 | 1.333 | 39.269 | 3.078 | 0.805 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 9.459 | 2.981 | 1.848 | 67.599 | -22.956 | 1.208 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 11.423 | 4.025 | 1.830 | 62.662 | -7.421 | 0.915 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 13.234 | 4.330 | 0.844 | 60.917 | -2.789 | 0.844 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 13.237 | 4.651 | 0.189 | 57.573 | -1.823 | 0.832 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 12.545 | 5.027 | 0.045 | 62.679 | -0.402 | 0.837 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 11.643 | 5.009 | 0.042 | 61.564 | 0.153 | 0.839 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 9.605 | 4.595 | 0.179 | 57.799 | 1.408 | 0.838 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 7.718 | 4.034 | 0.613 | 51.997 | 2.101 | 0.833 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.380 | 4.101 | 1.539 | 52.463 | 4.424 | 0.810 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.109 | 2.651 | 2.104 | 42.869 | 9.976 | 0.714 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 9.144 | 3.728 | 1.033 | 54.155 | 0.011 | 0.842 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 15.66 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 3.977 | 0.657 | 0.654 | 33.683 | 14.628 | 0.636 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.581 | 0.613 | 0.491 | 40.629 | 3.099 | 0.833 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.103 | 1.120 | 0.699 | 70.119 | -22.972 | 1.253 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 8.357 | 1.447 | 0.720 | 66.082 | -6.663 | 0.965 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 8.225 | 1.515 | 0.359 | 64.652 | -1.030 | 0.895 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 8.498 | 1.596 | 0.089 | 61.603 | -1.013 | 0.891 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 8.149 | 1.740 | 0.023 | 66.947 | -0.252 | 0.894 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 7.675 | 1.758 | 0.016 | 65.729 | -0.017 | 0.895 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 6.724 | 1.621 | 0.058 | 61.639 | 0.571 | 0.893 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.098 | 1.463 | 0.193 | 55.248 | 0.889 | 0.885 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.850 | 1.532 | 0.488 | 55.423 | 3.046 | 0.855 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.893 | 1.014 | 0.713 | 44.674 | 9.778 | 0.744 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 6.761 | 1.340 | 0.375 | 57.202 | 0.005 | 0.889 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 15.86 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.016 | 0.935 | 0.997 | 33.383 | 14.545 | 0.631 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.655 | 0.896 | 0.730 | 40.312 | 3.103 | 0.826 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.301 | 1.631 | 1.057 | 69.557 | -22.965 | 1.243 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 8.818 | 2.105 | 1.077 | 65.388 | -6.788 | 0.955 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 8.948 | 2.191 | 0.546 | 63.949 | -1.237 | 0.886 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 9.141 | 2.250 | 0.138 | 60.935 | -1.038 | 0.881 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 8.788 | 2.416 | 0.043 | 66.256 | -0.220 | 0.885 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 8.297 | 2.415 | 0.033 | 65.054 | 0.018 | 0.886 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 7.162 | 2.236 | 0.127 | 61.002 | 0.699 | 0.884 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.346 | 2.004 | 0.375 | 54.676 | 1.032 | 0.876 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.930 | 2.093 | 0.868 | 54.833 | 3.175 | 0.846 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.925 | 1.417 | 1.136 | 44.247 | 9.749 | 0.737 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 7.111 | 1.882 | 0.594 | 56.633 | 0.006 | 0.880 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 23.38 | Jan | 52.941 | 1116.636 | 7.640 | 19.368 | 1129.860 | 12.709 |
| | | | | | Feb | 48.800 | 1369.079 | 11.870 | 18.008 | 1386.888 | 1.113 |
| | | | | | Mar | 55.950 | 2333.453 | 25.273 | 31.348 | 2361.744 | -28.962 |
| | | | | | Apr | 68.495 | 2035.894 | 45.828 | 32.953 | 2051.092 | -25.485 |
| | | | | | May | 72.206 | 1934.603 | 75.903 | 31.305 | 1945.575 | -45.973 |
| | | | | | Jun | 69.176 | 1775.765 | 95.881 | 29.414 | 1782.461 | -62.815 |
| | | | | | Jul | 74.867 | 1939.999 | 88.925 | 33.843 | 1947.765 | -55.666 |
| | | | | | Aug | 73.402 | 1900.079 | 72.866 | 35.465 | 1906.941 | -41.790 |
| | | | | | Sep | 68.990 | 1791.447 | 47.880 | 33.649 | 1798.897 | -19.988 |
| | | | | | Oct | 62.429 | 1629.509 | 27.054 | 33.487 | 1637.345 | -5.948 |
| | | | | | Nov | 64.806 | 1678.429 | 12.383 | 39.612 | 1688.675 | 2.564 |
| | | | | | Dec | 60.057 | 1449.715 | 7.515 | 28.685 | 1465.104 | 8.469 |
| | | | | | Average | 64.343 | 1746.217 | 43.252 | 30.595 | 1758.529 | -21.814 |
| | | | | | Total | 772.120 | 20954.608 | 519.019 | 367.137 | 21102.346 | -261.773 |

**Water Balance Summary**

**Proposed Conditions _ Mitigated with Compensation Area=** **20** **ha**

**ΔStorage = Precipitation - ET - GWI - Runoff**

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Rain (mm) | Snow (mm) | Snowmelt (mm) | ET (mm) | Infiltration (mm) | GW Infiltration (mm) | Runoff (mm) | Delta Storage | Runoff Coef. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | 22 | 22.08 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 4.160 | 1.329 | 1.423 | 32.904 | 14.454 | 0.622 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.930 | 1.258 | 1.032 | 39.760 | 3.078 | 0.815 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.985 | 2.321 | 1.432 | 68.508 | -22.975 | 1.224 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 10.358 | 3.136 | 1.418 | 63.880 | -7.162 | 0.933 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 11.454 | 3.371 | 0.653 | 62.241 | -2.142 | 0.862 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 11.486 | 3.621 | 0.147 | 58.997 | -1.454 | 0.853 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 10.943 | 3.911 | 0.036 | 64.190 | -0.302 | 0.857 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 10.217 | 3.896 | 0.033 | 63.044 | 0.108 | 0.859 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 8.591 | 3.575 | 0.140 | 59.164 | 1.096 | 0.858 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 7.153 | 3.139 | 0.476 | 53.157 | 1.642 | 0.851 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 6.196 | 3.189 | 1.197 | 53.524 | 3.890 | 0.826 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 5.034 | 2.060 | 1.634 | 43.519 | 9.872 | 0.725 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 8.292 | 2.900 | 0.802 | 55.241 | 0.009 | 0.859 |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | 24 | 20.66 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 3.939 | 0.504 | 0.499 | 33.858 | 14.645 | 0.640 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.508 | 0.472 | 0.374 | 40.824 | 3.094 | 0.837 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 7.925 | 0.865 | 0.533 | 70.480 | -22.988 | 1.260 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 7.960 | 1.121 | 0.548 | 66.556 | -6.570 | 0.972 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 7.535 | 1.172 | 0.273 | 65.163 | -0.765 | 0.902 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 7.774 | 1.234 | 0.068 | 62.149 | -0.814 | 0.898 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 7.501 | 1.343 | 0.018 | 67.529 | -0.182 | 0.902 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 7.111 | 1.355 | 0.013 | 66.302 | -0.024 | 0.903 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 6.337 | 1.252 | 0.045 | 62.168 | 0.441 | 0.901 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 5.887 | 1.129 | 0.149 | 55.701 | 0.692 | 0.892 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.781 | 1.178 | 0.376 | 55.840 | 2.809 | 0.862 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.865 | 0.778 | 0.546 | 44.932 | 9.715 | 0.748 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 6.427 | 1.034 | 0.287 | 57.625 | 0.004 | 0.896 |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | 23 | 20.86 | Jan | 52.941 | 20.379 | 32.562 | 24.282 | 3.969 | 0.718 | 0.762 | 33.628 | 14.582 | 0.635 |
| | | | | | Feb | 48.800 | 19.501 | 29.299 | 39.306 | 4.565 | 0.688 | 0.557 | 40.582 | 3.097 | 0.832 |
| | | | | | Mar | 55.950 | 34.107 | 21.843 | 57.636 | 8.077 | 1.256 | 0.806 | 70.050 | -22.983 | 1.252 |
| | | | | | Apr | 68.495 | 62.711 | 5.784 | 12.707 | 8.315 | 1.624 | 0.821 | 66.024 | -6.665 | 0.964 |
| | | | | | May | 72.206 | 71.988 | 0.218 | 0.220 | 8.092 | 1.690 | 0.416 | 64.623 | -0.925 | 0.895 |
| | | | | | Jun | 69.176 | 69.176 | 0.000 | 0.000 | 8.270 | 1.734 | 0.106 | 61.636 | -0.836 | 0.891 |
| | | | | | Jul | 74.867 | 74.867 | 0.000 | 0.000 | 7.994 | 1.861 | 0.033 | 66.998 | -0.158 | 0.895 |
| | | | | | Aug | 73.402 | 73.402 | 0.000 | 0.000 | 7.590 | 1.859 | 0.026 | 65.784 | 0.003 | 0.896 |
| | | | | | Sep | 68.990 | 68.944 | 0.047 | 0.048 | 6.674 | 1.723 | 0.098 | 61.679 | 0.539 | 0.894 |
| | | | | | Oct | 62.429 | 61.644 | 0.785 | 0.787 | 6.077 | 1.544 | 0.288 | 55.261 | 0.802 | 0.885 |
| | | | | | Nov | 64.806 | 55.279 | 9.527 | 8.276 | 5.843 | 1.609 | 0.667 | 55.387 | 2.909 | 0.855 |
| | | | | | Dec | 60.057 | 31.498 | 28.559 | 22.981 | 4.890 | 1.087 | 0.870 | 44.605 | 9.693 | 0.743 |
| | | | | | Average | 64.343 | 53.625 | 10.719 | 13.854 | 6.696 | 1.449 | 0.454 | 57.188 | 0.005 | 0.889 |

| Flow Node ID | Feature | Location | VOID | Drainage Area (ha) | Month | Precipitation (mm) | Wetland Inflow | ET (mm) | Wetland Seeppage | Welland Outflow | Wetland Storage Changes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | 5 | 28.38 | Jan | 52.941 | 1410.867 | 7.641 | 19.772 | 1423.690 | 12.705 |
| | | | | | Feb | 48.800 | 1723.190 | 11.873 | 18.574 | 1740.381 | 1.163 |
| | | | | | Mar | 55.950 | 2945.340 | 25.280 | 32.313 | 2972.459 | -28.763 |
| | | | | | Apr | 68.495 | 2617.555 | 45.847 | 33.592 | 2632.568 | -25.958 |
| | | | | | May | 72.206 | 2505.098 | 75.935 | 31.864 | 2516.194 | -46.689 |
| | | | | | Jun | 69.176 | 2322.044 | 95.922 | 29.947 | 2328.620 | -63.268 |
| | | | | | Jul | 74.867 | 2532.513 | 88.969 | 34.524 | 2540.067 | -56.180 |
| | | | | | Aug | 73.402 | 2482.460 | 72.903 | 36.155 | 2489.392 | -42.588 |
| | | | | | Sep | 68.990 | 2337.122 | 47.903 | 34.238 | 2344.352 | -20.380 |
| | | | | | Oct | 62.429 | 2117.788 | 27.065 | 33.907 | 2125.355 | -6.109 |
| | | | | | Nov | 64.806 | 2167.070 | 12.388 | 40.093 | 2177.158 | 2.237 |
| | | | | | Dec | 60.057 | 1840.810 | 7.517 | 29.149 | 1855.870 | 8.331 |
| | | | | | Average | 64.343 | 2250.155 | 43.270 | 31.177 | 2262.175 | -22.125 |
| | | | | | Total | 772.120 | 27001.857 | 519.243 | 374.127 | 27146.106 | -265.499 |

**Water Balance Summary**
**COMPARISON TABLE with Mitigation**

| Flow Node ID | Feature | Location | Month | Existing | Proposed _ No Mitigation | | | Proposed Conditions - With Mitigation _ Compensation Area = 0.5 ha | | | Proposed Conditions - With Mitigation _ Compensation Area = 1.0 ha | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Proposed | Changes | Changes (%) | Proposed | Changes | Changes (%) | Proposed | Changes | Changes (%) |
| SW-1/SG5 | HDF3 | Entrance to Tributary 2 | Jan | 17756.4 | 383.3 | -17373 | -97.84% | 555 | -17201 | -96.87% | 728 | -17029 | -95.90% |
| | | | Feb | 19775.8 | 491.0 | -19285 | -97.52% | 698 | -19077 | -96.47% | 906 | -18870 | -95.42% |
| | | | Mar | 32555.0 | 802.8 | -31752 | -97.53% | 1161 | -31394 | -96.43% | 1519 | -31036 | -95.33% |
| | | | Apr | 23368.6 | 494.8 | -22874 | -97.88% | 835 | -22533 | -96.43% | 1176 | -22193 | -94.97% |
| | | | May | 16135.8 | 388.5 | -15747 | -97.59% | 723 | -15413 | -95.52% | 1057 | -15079 | -93.45% |
| | | | Jun | 11098.2 | 252.6 | -10846 | -97.72% | 572 | -10526 | -94.84% | 892 | -10206 | -91.96% |
| | | | Jul | 12468.4 | 300.7 | -12168 | -97.59% | 648 | -11821 | -94.80% | 995 | -11473 | -92.02% |
| | | | Aug | 12552.8 | 298.4 | -12254 | -97.62% | 639 | -11913 | -94.91% | 980 | -11573 | -92.19% |
| | | | Sep | 12634.5 | 296.0 | -12338 | -97.66% | 616 | -12019 | -95.13% | 935 | -11699 | -92.60% |
| | | | Oct | 13375.1 | 311.6 | -13063 | -97.67% | 598 | -12778 | -95.53% | 883 | -12492 | -93.40% |
| | | | Nov | 15748.7 | 387.4 | -15361 | -97.54% | 673 | -15075 | -95.72% | 959 | -14789 | -93.91% |
| | | | Dec | 19120.4 | 460.3 | -18660 | -97.59% | 689 | -18431 | -96.40% | 918 | -18202 | -95.20% |
| | | | **Average** | 17215.7 | 405.6 | **-16810** | **-97.6%** | 701 | **-16515** | **-95.8%** | 996 | **-16220** | **-93.9%** |
| SW-3/SG4 | HDF9c | Entrance to Tributary 3 | Jan | 676.3 | 113.7 | -563 | -83.18% | 286 | -391 | -57.75% | 458 | -219 | -32.31% |
| | | | Feb | 866.3 | 146.9 | -719 | -83.04% | 354 | -512 | -59.12% | 561 | -305 | -35.20% |
| | | | Mar | 1416.5 | 238.8 | -1178 | -83.14% | 597 | -820 | -57.86% | 955 | -462 | -32.59% |
| | | | Apr | 873.0 | 142.2 | -731 | -83.72% | 482 | -391 | -44.74% | 823 | -50 | -5.77% |
| | | | May | 685.4 | 110.1 | -575 | -83.94% | 444 | -241 | -35.23% | 778 | 92 | 13.48% |
| | | | Jun | 445.6 | 68.1 | -378 | -84.73% | 387 | -58 | -13.07% | 707 | 261 | 58.58% |
| | | | Jul | 530.5 | 81.1 | -449 | -84.72% | 428 | -103 | -19.34% | 775 | 244 | 46.03% |
| | | | Aug | 526.5 | 78.4 | -448 | -85.10% | 419 | -108 | -20.42% | 759 | 233 | 44.25% |
| | | | Sep | 522.3 | 78.5 | -444 | -84.98% | 398 | -125 | -23.86% | 717 | 195 | 37.25% |
| | | | Oct | 549.7 | 83.8 | -466 | -84.75% | 369 | -180 | -32.79% | 655 | 105 | 19.17% |
| | | | Nov | 683.6 | 107.4 | -576 | -84.29% | 393 | -290 | -42.49% | 679 | -5 | -0.69% |
| | | | Dec | 812.1 | 135.1 | -677 | -83.36% | 364 | -448 | -55.20% | 593 | -220 | -27.04% |
| | | | **Average** | 715.7 | 115.3 | **-600** | **-84.1%** | 410 | **-306** | **-38.5%** | 705 | **-11** | **7.1%** |
| SW-4/SG3 | HDF8a-4 | Entrance to Tributary 4 | Jan | 6886.4 | 133.6 | -6753 | -98.06% | 306 | -6581 | -95.56% | 478 | -6409 | -93.06% |
| | | | Feb | 8464.6 | 178.1 | -8287 | -97.90% | 385 | -8079 | -95.45% | 592 | -7872 | -93.00% |
| | | | Mar | 13814.9 | 290.1 | -13525 | -97.90% | 648 | -13167 | -95.31% | 1006 | -12809 | -92.72% |
| | | | Apr | 9156.0 | 164.5 | -8991 | -98.20% | 505 | -8651 | -94.49% | 845 | -8311 | -90.77% |
| | | | May | 6910.6 | 128.2 | -6782 | -98.15% | 462 | -6449 | -93.32% | 796 | -6115 | -88.49% |
| | | | Jun | 4841.8 | 85.7 | -4756 | -98.23% | 405 | -4437 | -91.64% | 724 | -4118 | -85.04% |
| | | | Jul | 5538.4 | 105.7 | -5433 | -98.09% | 452 | -5086 | -91.83% | 799 | -4739 | -85.57% |
| | | | Aug | 5725.9 | 103.2 | -5623 | -98.20% | 444 | -5282 | -92.25% | 784 | -4942 | -86.31% |
| | | | Sep | 5614.8 | 101.1 | -5514 | -98.20% | 420 | -5195 | -92.52% | 739 | -4875 | -86.83% |
| | | | Oct | 5821.2 | 103.8 | -5717 | -98.22% | 389 | -5432 | -93.31% | 675 | -5146 | -88.41% |
| | | | Nov | 7127.8 | 124.9 | -7003 | -98.25% | 411 | -6717 | -94.24% | 696 | -6432 | -90.23% |
| | | | Dec | 8142.2 | 156.9 | -7985 | -98.07% | 386 | -7757 | -95.26% | 614 | -7528 | -92.46% |
| | | | **Average** | 7337.0 | 139.6 | **-7197** | **-98.1%** | 434 | **-6903** | **-93.8%** | 729 | **-6608** | **-89.4%** |
| SW-2/SG6 | HDF3 and Significant Woodland (FOD5-1) | Exit from Tributary 2 / Downstream of Significant Woodland | Jan | 3231.9 | 233.9 | -2998 | -92.76% | 263 | -2968 | -91.85% | 293 | -2939 | -90.94% |
| | | | Feb | 3631.5 | 306.7 | -3325 | -91.55% | 342 | -3289 | -90.58% | 378 | -3254 | -89.60% |
| | | | Mar | 5971.1 | 497.8 | -5473 | -91.66% | 559 | -5412 | -90.64% | 620 | -5351 | -89.61% |
| | | | Apr | 4237.6 | 290.9 | -3947 | -93.14% | 349 | -3889 | -91.76% | 407 | -3830 | -90.39% |
| | | | May | 2936.7 | 223.1 | -2714 | -92.40% | 280 | -2657 | -90.46% | 337 | -2599 | -88.52% |
| | | | Jun | 2006.8 | 136.9 | -1870 | -93.18% | 192 | -1815 | -90.45% | 246 | -1761 | -87.73% |
| | | | Jul | 2258.2 | 162.5 | -2096 | -92.81% | 222 | -2036 | -90.18% | 281 | -1977 | -87.56% |
| | | | Aug | 2265.4 | 152.9 | -2112 | -93.25% | 211 | -2054 | -90.68% | 269 | -1996 | -88.11% |
| | | | Sep | 2281.3 | 154.4 | -2127 | -93.23% | 209 | -2072 | -90.84% | 264 | -2018 | -88.45% |
| | | | Oct | 2416.8 | 164.7 | -2252 | -93.19% | 213 | -2203 | -91.17% | 262 | -2154 | -89.15% |
| | | | Nov | 2862.2 | 212.5 | -2650 | -92.58% | 261 | -2601 | -90.87% | 310 | -2552 | -89.16% |
| | | | Dec | 3495.4 | 276.4 | -3219 | -92.09% | 316 | -3180 | -90.97% | 355 | -3141 | -89.85% |
| | | | **Average** | 3132.9 | 234.4 | **-2898** | **-92.7%** | 285 | **-2848** | **-90.9%** | 335 | **-2798** | **-89.1%** |

**Runoff Volume (cu.m.)**

| Proposed Conditions - With Mitigation _ Compensation Area = 5.0 ha | | | Proposed Conditions - With Mitigation _ Compensation Area = 7.5 ha | | | Proposed Conditions - With Mitigation _ Compensation Area = 10 ha | | | Proposed Conditions - With Mitigation _ Compensation Area = 12.5 ha | | | Proposed Conditions - With Mitigation _ Compensation Area = 15 ha | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Proposed** | **Changes** | **Changes (%)** | **Proposed** | **Changes** | **Changes (%)** | **Proposed** | **Changes** | **Changes (%)** | **Proposed** | **Changes** | **Changes (%)** | **Proposed** | **Changes** | **Changes (%)** |
| 2104 | -15652 | -88.15% | 2964 | -14792 | -83.31% | 3825 | -13932 | -78.46% | 4685 | -13072 | -73.62% | 5545 | -12211 | -68.77% |
| 2563 | -17212 | -87.04% | 3599 | -16176 | -81.80% | 4635 | -15140 | -76.56% | 5671 | -14104 | -71.32% | 6707 | -13069 | -66.08% |
| 4385 | -28170 | -86.53% | 6175 | -26380 | -81.03% | 7965 | -24590 | -75.53% | 9756 | -22799 | -70.03% | 11546 | -21009 | -64.53% |
| 3898 | -19470 | -83.32% | 5599 | -17769 | -76.04% | 7301 | -16068 | -68.76% | 9002 | -14367 | -61.48% | 10703 | -12666 | -54.20% |
| 3728 | -12408 | -76.90% | 5397 | -10739 | -66.55% | 7066 | -9069 | -56.21% | 8736 | -7400 | -45.86% | 10405 | -5731 | -35.52% |
| 3447 | -7651 | -68.94% | 5044 | -6054 | -54.55% | 6640 | -4458 | -40.17% | 8237 | -2861 | -25.78% | 9833 | -1265 | -11.40% |
| 3770 | -8698 | -69.76% | 5504 | -6965 | -55.86% | 7238 | -5231 | -41.95% | 8972 | -3497 | -28.04% | 10706 | -1763 | -14.14% |
| 3705 | -8848 | -70.48% | 5408 | -7145 | -56.92% | 7110 | -5443 | -43.36% | 8813 | -3740 | -29.80% | 10515 | -2038 | -16.23% |
| 3489 | -9146 | -72.39% | 5085 | -7550 | -59.75% | 6680 | -5954 | -47.12% | 8276 | -4358 | -34.49% | 9872 | -2762 | -21.86% |
| 3169 | -10206 | -76.31% | 4597 | -8778 | -65.63% | 6025 | -7350 | -54.95% | 7453 | -5922 | -44.28% | 8881 | -4494 | -33.60% |
| 3246 | -12503 | -79.39% | 4675 | -11074 | -70.32% | 6103 | -9645 | -61.25% | 7532 | -8217 | -52.17% | 8961 | -6788 | -43.10% |
| 2748 | -16372 | -85.63% | 3891 | -15229 | -79.65% | 5035 | -14085 | -73.67% | 6179 | -12942 | -67.69% | 7322 | -11798 | -61.71% |
| 3354 | **-13861** | **-78.7%** | 4828 | **-12388** | **-69.3%** | 6302 | **-10914** | **-59.8%** | 7776 | **-9440** | **-50.4%** | 9250 | **-7966** | **-40.9%** |
| 1834 | 1158 | 171.17% | 2694 | 2018 | 298.36% | 3554 | 2878 | 425.54% | 4415 | 3738 | 552.70% | 5275 | 4598 | 679.89% |
| 2219 | 1353 | 156.13% | 3255 | 2388 | 275.71% | 4291 | 3424 | 395.28% | 5327 | 4460 | 514.87% | 6363 | 5496 | 634.44% |
| 3819 | 2403 | 169.63% | 5610 | 4193 | 296.02% | 7400 | 5984 | 422.40% | 9190 | 7774 | 548.79% | 10981 | 9564 | 675.17% |
| 3544 | 2671 | 306.00% | 5245 | 4372 | 500.85% | 6946 | 6073 | 695.71% | 8647 | 7774 | 890.56% | 10348 | 9475 | 1085.41% |
| 3448 | 2763 | 403.10% | 5117 | 4432 | 646.62% | 6786 | 6101 | 890.13% | 8455 | 7770 | 1133.63% | 10125 | 9439 | 1377.15% |
| 3261 | 2815 | 631.76% | 4858 | 4412 | 990.00% | 6454 | 6008 | 1348.23% | 8050 | 7605 | 1706.47% | 9647 | 9201 | 2064.72% |
| 3549 | 3018 | 568.95% | 5283 | 4752 | 895.77% | 7016 | 6486 | 1222.59% | 8750 | 8220 | 1549.41% | 10484 | 9953 | 1876.24% |
| 3483 | 2957 | 561.61% | 5186 | 4659 | 884.97% | 6888 | 6362 | 1208.32% | 8591 | 8064 | 1531.67% | 10293 | 9767 | 1855.02% |
| 3270 | 2748 | 526.08% | 4866 | 4343 | 831.60% | 6461 | 5939 | 1137.13% | 8057 | 7535 | 1442.66% | 9653 | 9130 | 1748.19% |
| 2940 | 2390 | 434.79% | 4368 | 3818 | 694.55% | 5796 | 5246 | 954.31% | 7224 | 6674 | 1214.06% | 8652 | 8102 | 1473.84% |
| 2965 | 2281 | 333.70% | 4393 | 3710 | 542.69% | 5822 | 5138 | 751.69% | 7251 | 6567 | 960.68% | 8679 | 7996 | 1169.69% |
| 2422 | 1610 | 198.24% | 3566 | 2753 | 339.04% | 4709 | 3897 | 479.84% | 5853 | 5040 | 620.63% | 6996 | 6184 | 761.43% |
| 3063 | **2347** | **371.8%** | 4537 | **3821** | **599.7%** | 6010 | **5295** | **827.6%** | 7484 | **6768** | **1055.5%** | 8958 | **8242** | **1283.4%** |
| 1854 | -5032 | -73.08% | 2714 | -4172 | -60.59% | 3574 | -3312 | -48.10% | 4434 | -2452 | -35.61% | 5295 | -1592 | -23.12% |
| 2250 | -6215 | -73.42% | 3286 | -5179 | -61.18% | 4322 | -4143 | -48.94% | 5358 | -3107 | -36.71% | 6393 | -2071 | -24.47% |
| 3871 | -9944 | -71.98% | 5661 | -8154 | -59.02% | 7451 | -6364 | -46.06% | 9242 | -4573 | -33.10% | 11032 | -2783 | -20.15% |
| 3566 | -5589 | -61.05% | 5267 | -3888 | -42.47% | 6968 | -2188 | -23.89% | 8669 | -487 | -5.31% | 10371 | 1215 | 13.27% |
| 3466 | -3444 | -49.84% | 5135 | -1775 | -25.69% | 6804 | -106 | -1.54% | 8473 | 1563 | 22.61% | 10142 | 3232 | 46.76% |
| 3278 | -1563 | -32.29% | 4875 | 33 | 0.68% | 6471 | 1630 | 33.66% | 8068 | 3226 | 66.63% | 9664 | 4822 | 99.60% |
| 3573 | -1965 | -35.49% | 5307 | -232 | -4.18% | 7041 | 1502 | 27.12% | 8774 | 3236 | 58.43% | 10508 | 4970 | 89.73% |
| 3508 | -2218 | -38.74% | 5210 | -516 | -9.00% | 6913 | 1187 | 20.73% | 8615 | 2889 | 50.46% | 10318 | 4592 | 80.19% |
| 3292 | -2322 | -41.36% | 4888 | -727 | -12.94% | 6484 | 869 | 15.47% | 8079 | 2465 | 43.89% | 9675 | 4060 | 72.31% |
| 2960 | -2862 | -49.16% | 4388 | -1434 | -24.63% | 5816 | -6 | -0.10% | 7244 | 1422 | 24.43% | 8672 | 2850 | 48.97% |
| 2982 | -4146 | -58.16% | 4411 | -2717 | -38.12% | 5839 | -1289 | -18.08% | 7268 | 140 | 1.96% | 8697 | 1569 | 22.01% |
| 2444 | -5699 | -69.99% | 3587 | -4555 | -55.94% | 4731 | -3412 | -41.90% | 5874 | -2268 | -27.86% | 7018 | -1125 | -13.81% |
| 3087 | **-4250** | **-54.5%** | 4561 | **-2776** | **-32.8%** | 6034 | **-1303** | **-11.0%** | 7508 | **171** | **10.8%** | 8982 | **1645** | **32.6%** |
| 528 | -2704 | -83.66% | 675 | -2557 | -79.11% | 822 | -2409 | -74.55% | 970 | -2262 | -70.00% | 1117 | -2115 | -65.45% |
| 661 | -2971 | -81.80% | 838 | -2794 | -76.93% | 1015 | -2617 | -72.05% | 1192 | -2439 | -67.18% | 1369 | -2262 | -62.30% |
| 1110 | -4861 | -81.42% | 1416 | -4555 | -76.29% | 1722 | -4250 | -71.17% | 2028 | -3944 | -66.04% | 2333 | -3638 | -60.92% |
| 873 | -3365 | -79.41% | 1163 | -3074 | -72.55% | 1454 | -2783 | -65.68% | 1745 | -2493 | -58.82% | 2036 | -2202 | -51.96% |
| 794 | -2143 | -72.98% | 1079 | -1858 | -63.26% | 1364 | -1573 | -53.55% | 1649 | -1287 | -43.84% | 1935 | -1002 | -34.12% |
| 683 | -1324 | -65.96% | 956 | -1050 | -52.34% | 1229 | -777 | -38.73% | 1503 | -504 | -25.12% | 1776 | -231 | -11.51% |
| 755 | -1503 | -66.57% | 1051 | -1207 | -53.45% | 1347 | -911 | -40.33% | 1644 | -614 | -27.21% | 1940 | -318 | -14.09% |
| 735 | -1530 | -67.54% | 1027 | -1239 | -54.69% | 1318 | -948 | -41.83% | 1609 | -656 | -28.98% | 1900 | -365 | -16.13% |
| 700 | -1581 | -69.31% | 973 | -1308 | -57.35% | 1246 | -1036 | -45.39% | 1519 | -763 | -33.43% | 1791 | -490 | -21.47% |
| 653 | -1764 | -72.98% | 897 | -1520 | -62.88% | 1141 | -1276 | -52.78% | 1385 | -1031 | -42.68% | 1630 | -787 | -32.57% |
| 701 | -2161 | -75.50% | 945 | -1917 | -66.97% | 1190 | -1672 | -58.43% | 1434 | -1428 | -49.90% | 1678 | -1184 | -41.36% |
| 668 | -2828 | -80.90% | 863 | -2632 | -75.31% | 1059 | -2437 | -69.71% | 1254 | -2241 | -64.12% | 1450 | -2046 | -58.52% |
| 738 | **-2395** | **-74.8%** | 990 | **-2143** | **-65.9%** | 1242 | **-1891** | **-57.0%** | 1494 | **-1639** | **-48.1%** | 1746 | **-1387** | **-39.2%** |

| Proposed Conditions - With Mitigation _ Compensation Area = 20 ha | | |
|---|---|---|
| **Proposed** | **Changes** | **Changes (%)** |
| 7265 | -10491 | -59.08% |
| 8779 | -10997 | -55.61% |
| 15127 | -17428 | -53.54% |
| 14105 | -9264 | -39.64% |
| 13743 | -2393 | -14.83% |
| 13027 | 1928 | 17.37% |
| 14173 | 1705 | 13.67% |
| 13920 | 1367 | 10.89% |
| 13063 | 429 | 3.40% |
| 11737 | -1638 | -12.25% |
| 11818 | -3931 | -24.96% |
| 9609 | -9511 | -49.74% |
| 12197 | **-5019** | **-22.0%** |
| 6995 | 6319 | 934.25% |
| 8434 | 7568 | 873.59% |
| 14561 | 13145 | 927.93% |
| 13750 | 12877 | 1475.11% |
| 13463 | 12777 | 1864.18% |
| 12840 | 12394 | 2781.19% |
| 13951 | 13421 | 2529.88% |
| 13698 | 13171 | 2501.72% |
| 12844 | 12322 | 2359.21% |
| 11508 | 10958 | 1993.36% |
| 11537 | 10853 | 1587.68% |
| 9283 | 8471 | 1043.03% |
| 11905 | **11190** | **1739.3%** |
| 7015 | 128 | 1.86% |
| 8465 | 1 | 0.01% |
| 14612 | 798 | 5.77% |
| 13773 | 4617 | 50.42% |
| 13480 | 6570 | 95.07% |
| 12857 | 8015 | 165.55% |
| 13976 | 8437 | 152.34% |
| 13723 | 7997 | 139.66% |
| 12866 | 7251 | 129.15% |
| 11527 | 5706 | 98.03% |
| 11554 | 4426 | 62.09% |
| 9305 | 1162 | 14.28% |
| 11929 | **4592** | **76.2%** |
| 1411 | -1821 | -56.35% |
| 1723 | -1908 | -52.55% |
| 2945 | -3026 | -50.67% |
| 2618 | -1620 | -38.23% |
| 2505 | -432 | -14.70% |
| 2322 | 315 | 15.71% |
| 2533 | 274 | 12.15% |
| 2482 | 217 | 9.58% |
| 2337 | 56 | 2.45% |
| 2118 | -299 | -12.37% |
| 2167 | -695 | -24.29% |
| 1841 | -1655 | -47.34% |
| 2250 | **-883** | **-21.4%** |

**Water Balance Summary**
**COMPARISON TABLE with Mitigation - VO SUMMARY CHARTS**

HDF3 (SW-1 / SG5)

| Scenario-Run | Min | Max | Average | |
|---|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.451 | 0.007 | |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.028 | 0 | |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.035 | 0 | |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.042 | 0 | |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.101 | 0.001 | |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.137 | 0.002 | |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.173 | 0.002 | |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.21 | 0.003 | |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.246 | 0.004 | ← Recommended |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.319 | 0.005 | |

HDF9c (SW-3 / SG4)

| Scenario-Run | Min | Max | Average | |
|---|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.05 | 0 | |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.009 | 0 | |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.016 | 0 | ← Recommended |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.023 | 0 | |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.082 | 0.001 | |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.118 | 0.002 | |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.155 | 0.002 | |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.191 | 0.003 | |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.227 | 0.003 | |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.3 | 0.005 | |

HDF8a-4 (SW-4 / SG3)

| Scenario-Run | Min | Max | Average | |
|---|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.449 | 0.003 | |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.011 | 0 | |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.018 | 0 | |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.026 | 0 | |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.084 | 0.001 | |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.12 | 0.002 | ← Recommended |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.157 | 0.002 | |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.193 | 0.003 | |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.23 | 0.003 | |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.303 | 0.005 | |

Significant Woodland FOD5-1 (SW-2 / SG6)

| Scenario-Run | Min | Max | Average | |
|---|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.522 | 0.007 | |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.11 | 0.001 | |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.117 | 0.001 | |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.124 | 0.001 | |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.182 | 0.002 | |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.219 | 0.002 | |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.255 | 0.003 | |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.292 | 0.003 | |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.328 | 0.004 | ← Recommended |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.401 | 0.005 | |

Scenario Comparison

Name

- DixieRoadEx - Existing 1940-20
- DixieRoadPost - Post 1940-202
- DixieRoadPost_Mitigation_0.5ha
- DixieRoadPost_Mitigation_1ha
- DixieRoadPost_Mitigation_5ha
- DixieRoadPost_Mitigation_7.5ha
- DixieRoadPost_Mitigation_10ha
- DixieRoadPost_Mitigation_12.5h
- DixieRoadPost_Mitigation_15ha
- DixieRoadPost_Mitigation_20ha

Commands

- SW-4
- SW-1
- Wetland / SW-2
- SW-3

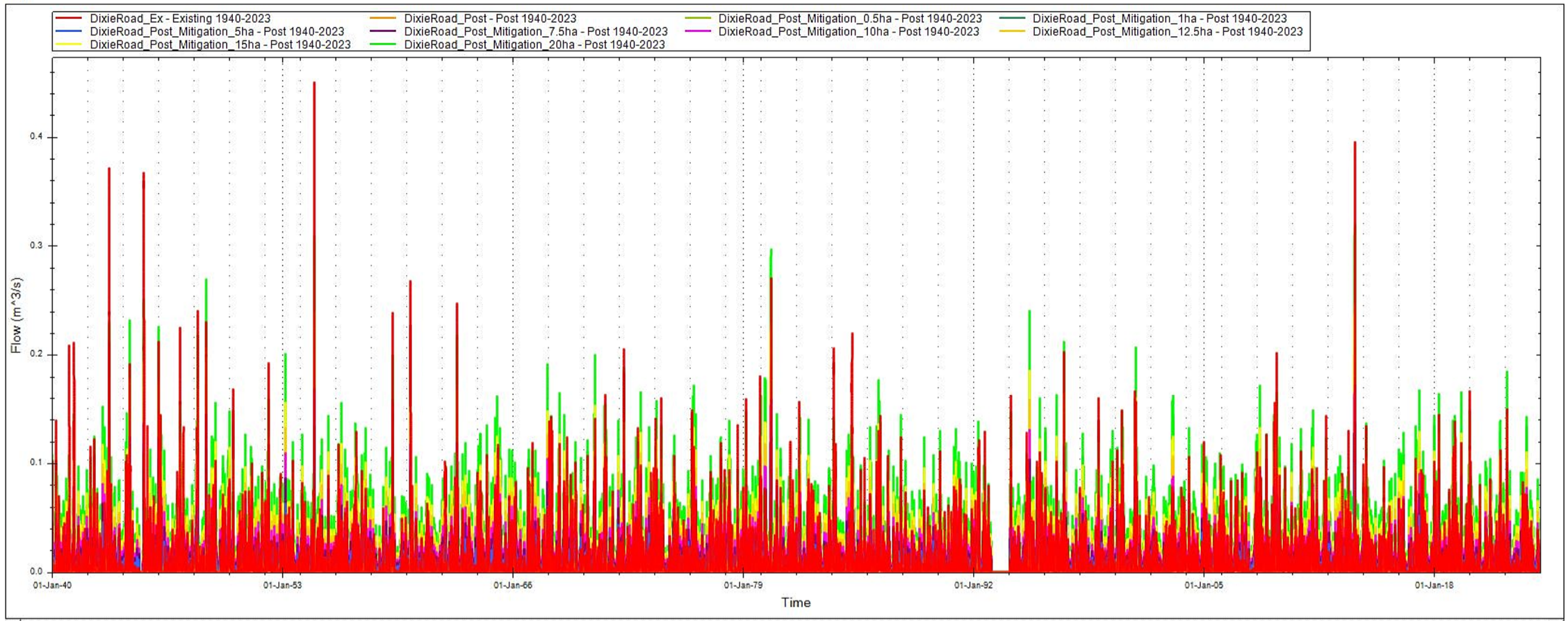
Variables

Flow (m^3/s)

Save

Time Series

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.451 | 0.007 |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.028 | 0 |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.035 | 0 |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.042 | 0 |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.101 | 0.001 |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.137 | 0.002 |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.173 | 0.002 |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.21 | 0.003 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.246 | 0.004 |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.319 | 0.005 |

Scenario Comparison

Name

- [x] DixieRoadEx - Existing 1940-202
- [ ] DixieRoadPost - Post 1940-2023
- [ ] DixieRoadPost_Mitigation_0.5ha
- [ ] DixieRoadPost_Mitigation_1ha -
- [ ] DixieRoadPost_Mitigation_5ha -
- [ ] DixieRoadPost_Mitigation_7.5ha
- [ ] DixieRoadPost_Mitigation_10ha
- [ ] DixieRoadPost_Mitigation_12.5h
- [x] DixieRoadPost_Mitigation_15ha
- [ ] DixieRoadPost_Mitigation_20ha

Commands

- ( ) SW-4
- (•) SW-1
- ( ) Wetland / SW-2
- ( ) SW-3

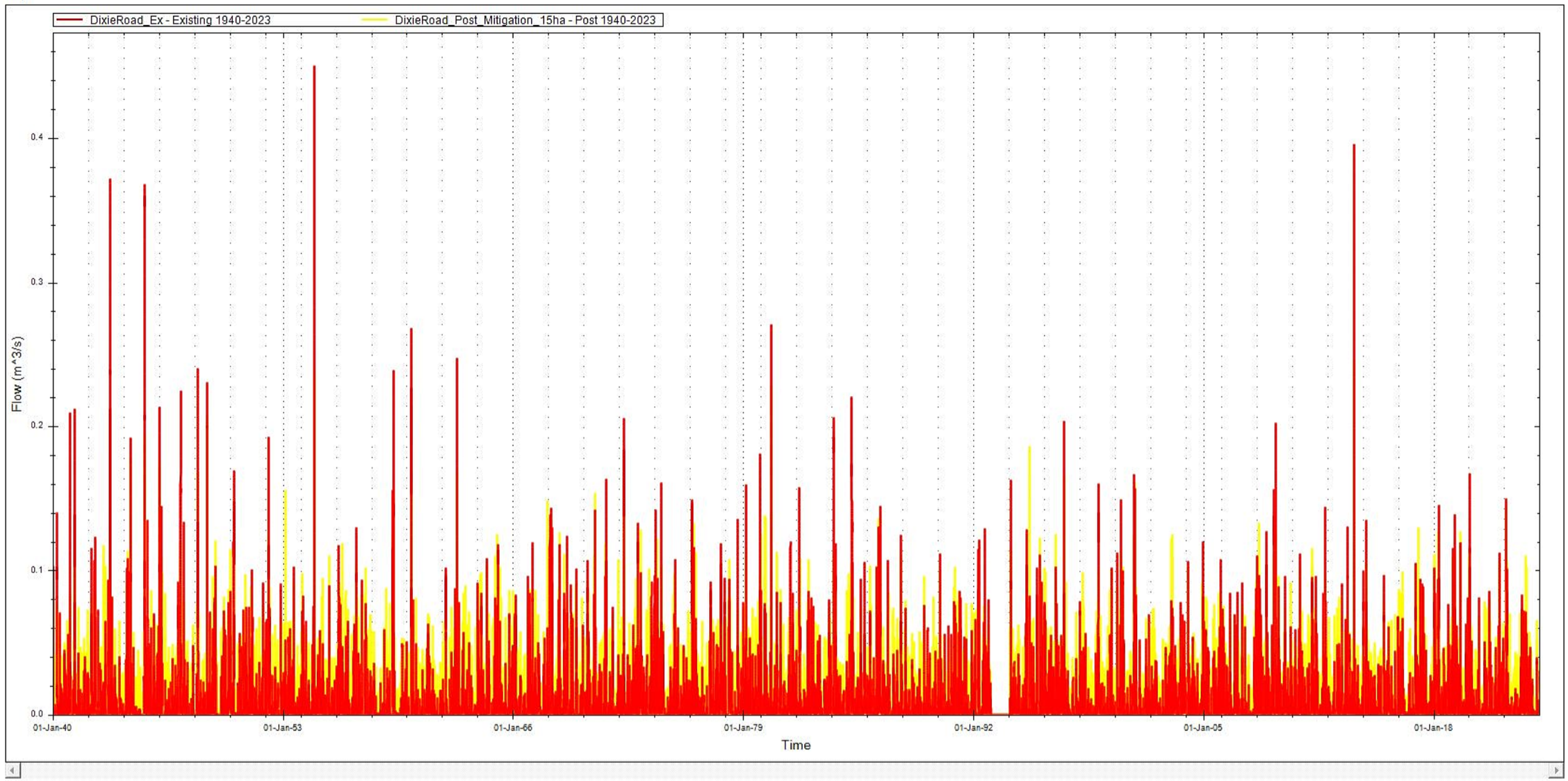
Variables

Flow (m^3/s)

?  Save

Time Series | Water Balance

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.451 | 0.007 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.246 | 0.004 |

Scenario Comparison

Name

- DixieRoadEx - Existing 1940-20
- DixieRoadPost - Post 1940-202
- DixieRoadPost_Mitigation_0.5ha
- DixieRoadPost_Mitigation_1ha
- DixieRoadPost_Mitigation_5ha
- DixieRoadPost_Mitigation_7.5ha
- DixieRoadPost_Mitigation_10ha
- DixieRoadPost_Mitigation_12.5h
- DixieRoadPost_Mitigation_15ha
- DixieRoadPost_Mitigation_20ha

Commands

- SW-4
- SW-1
- Wetland / SW-2
- SW-3

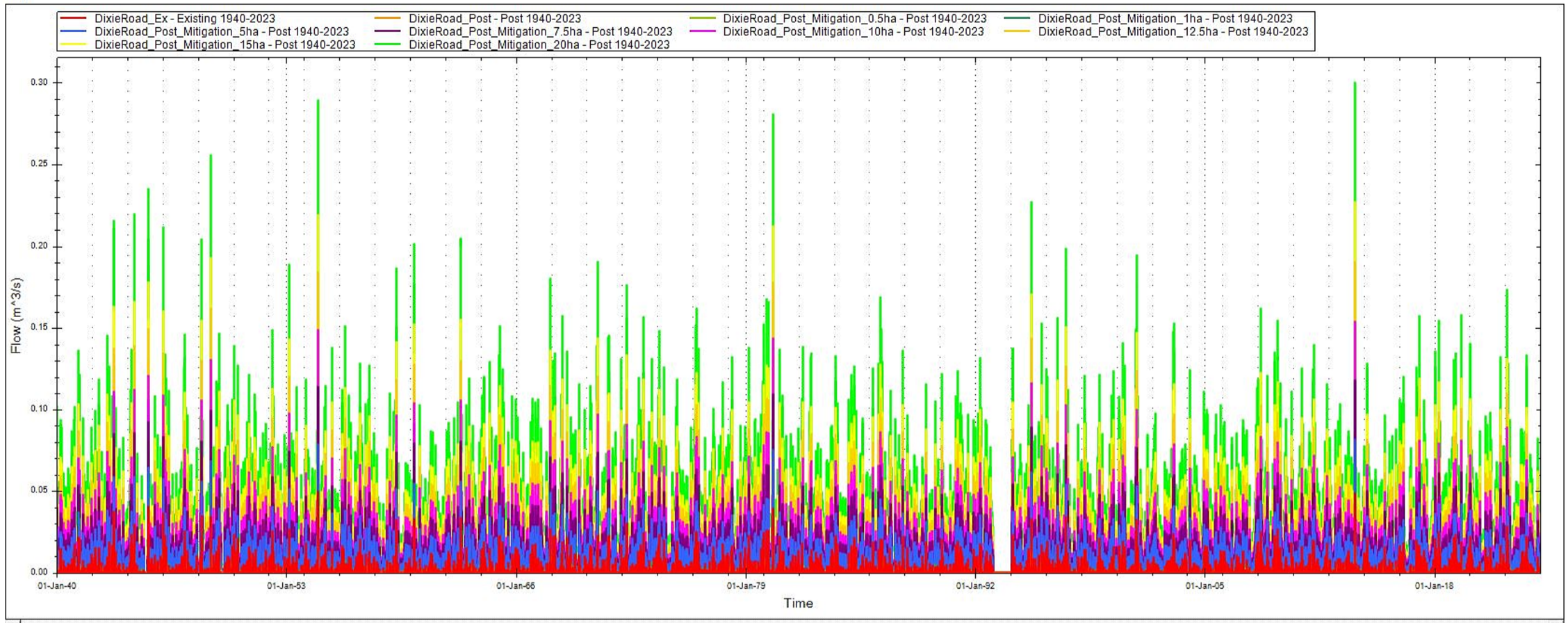
Variables

Flow (m^3/s)

Save

Time Series

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.05 | 0 |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.009 | 0 |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.016 | 0 |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.023 | 0 |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.082 | 0.001 |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.118 | 0.002 |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.155 | 0.002 |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.191 | 0.003 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.227 | 0.003 |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.3 | 0.005 |

Scenario Comparison

Name

- [x] DixieRoadEx - Existing 1940-202
- [ ] DixieRoadPost - Post 1940-2023
- [x] DixieRoadPost_Mitigation_0.5ha
- [ ] DixieRoadPost_Mitigation_1ha -
- [ ] DixieRoadPost_Mitigation_5ha -
- [ ] DixieRoadPost_Mitigation_7.5ha
- [ ] DixieRoadPost_Mitigation_10ha
- [ ] DixieRoadPost_Mitigation_12.5h
- [ ] DixieRoadPost_Mitigation_15ha
- [ ] DixieRoadPost_Mitigation_20ha

Commands

- ( ) SW-4
- ( ) SW-1
- ( ) Wetland / SW-2
- (•) SW-3

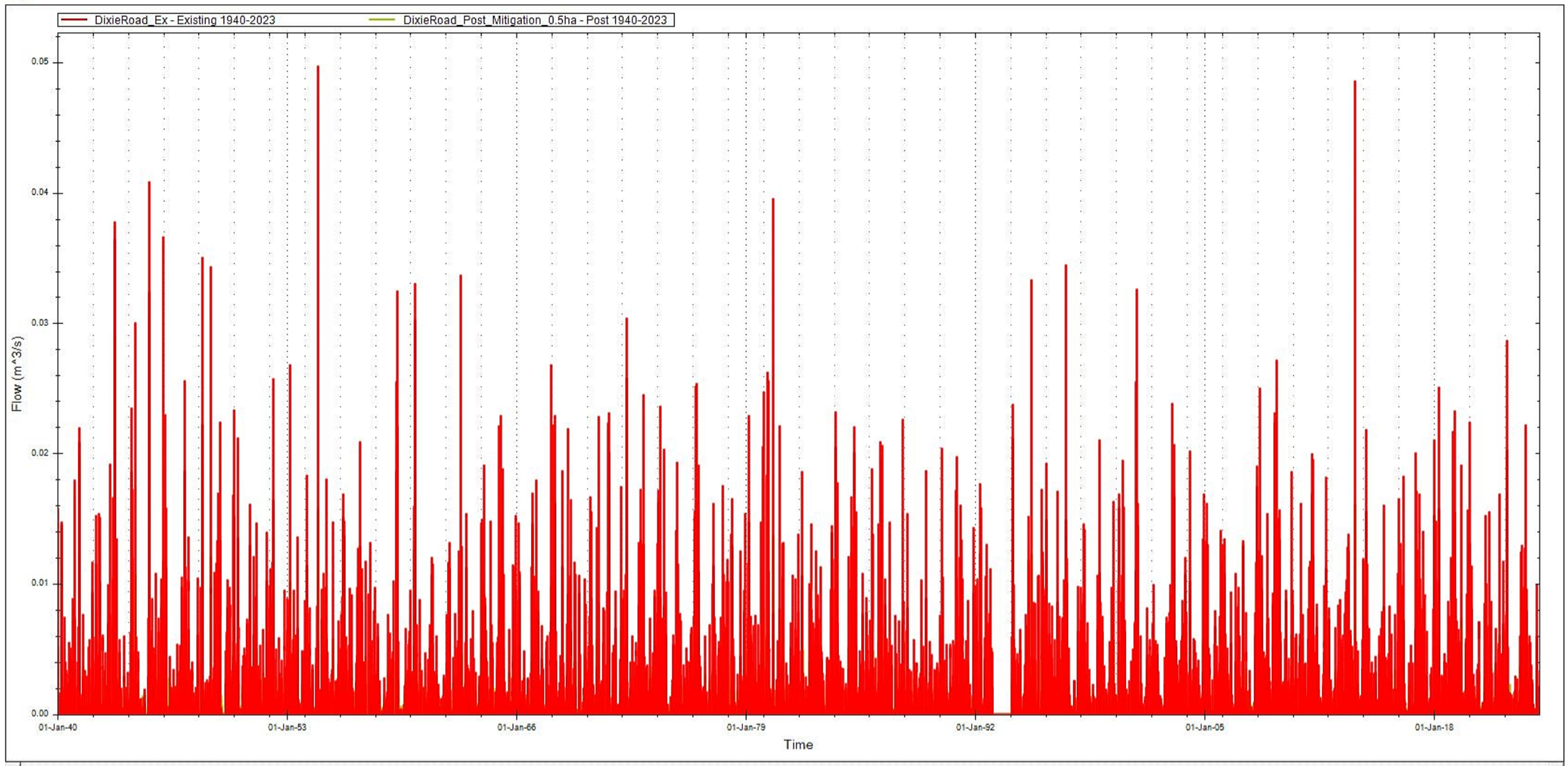
Variables

Flow (m^3/s)

Save

Time Series

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.05 | 0 |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.016 | 0 |

Scenario Comparison

Name

- DixieRoadEx - Existing 1940-20
- DixieRoadPost - Post 1940-202
- DixieRoadPost_Mitigation_0.5ha
- DixieRoadPost_Mitigation_1ha
- DixieRoadPost_Mitigation_5ha
- DixieRoadPost_Mitigation_7.5ha
- DixieRoadPost_Mitigation_10ha
- DixieRoadPost_Mitigation_12.5h
- DixieRoadPost_Mitigation_15ha
- DixieRoadPost_Mitigation_20ha

Commands

- (•) SW-4
- ( ) SW-1
- ( ) Wetland / SW-2
- ( ) SW-3

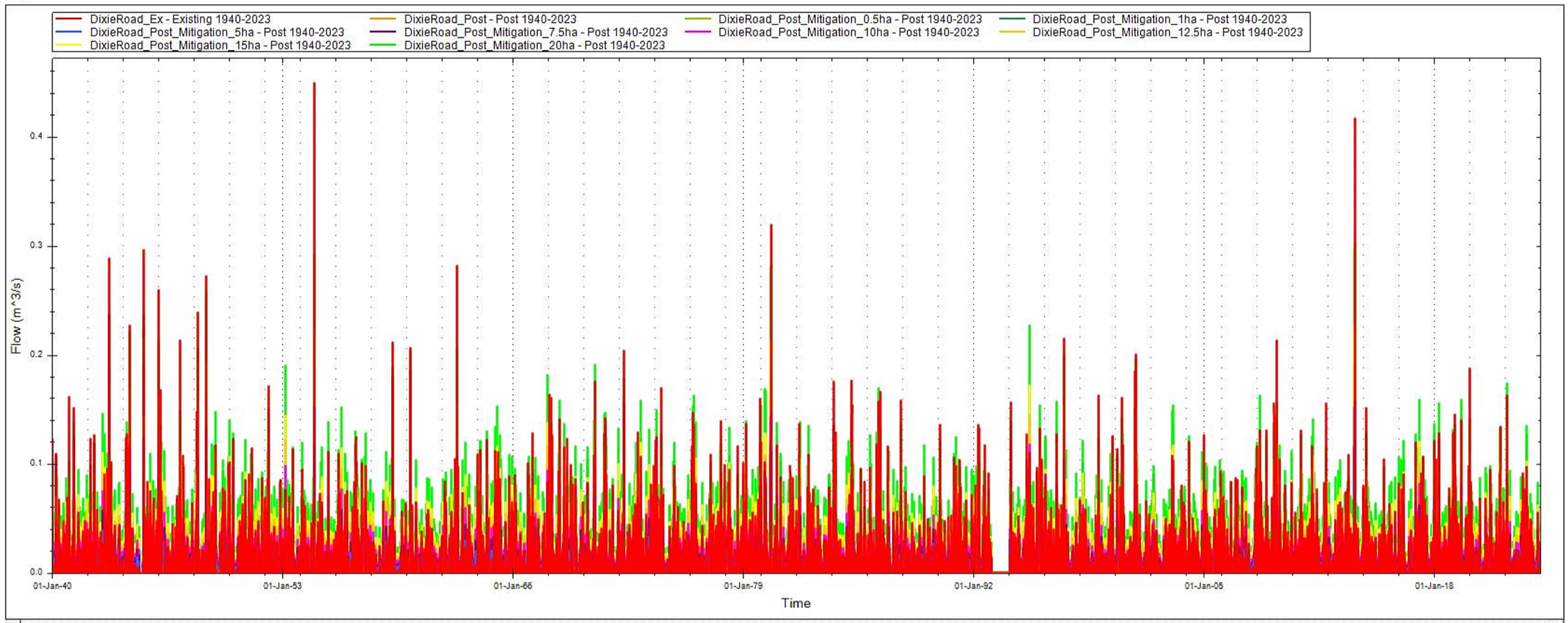
Variables

Flow (m^3/s)

Save

Time Series

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.449 | 0.003 |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.011 | 0 |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.018 | 0 |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.026 | 0 |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.084 | 0.001 |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.12 | 0.002 |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.157 | 0.002 |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.193 | 0.003 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.23 | 0.003 |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.303 | 0.005 |

Scenario Comparison

Name

- [x] DixieRoadEx - Existing 1940-202
- [ ] DixieRoadPost - Post 1940-2023
- [ ] DixieRoadPost_Mitigation_0.5ha
- [ ] DixieRoadPost_Mitigation_1ha -
- [ ] DixieRoadPost_Mitigation_5ha -
- [x] DixieRoadPost_Mitigation_7.5ha
- [ ] DixieRoadPost_Mitigation_10ha
- [ ] DixieRoadPost_Mitigation_12.5h
- [ ] DixieRoadPost_Mitigation_15ha
- [ ] DixieRoadPost_Mitigation_20ha

Commands

- (•) SW-4
- ( ) SW-1
- ( ) Wetland / SW-2
- ( ) SW-3

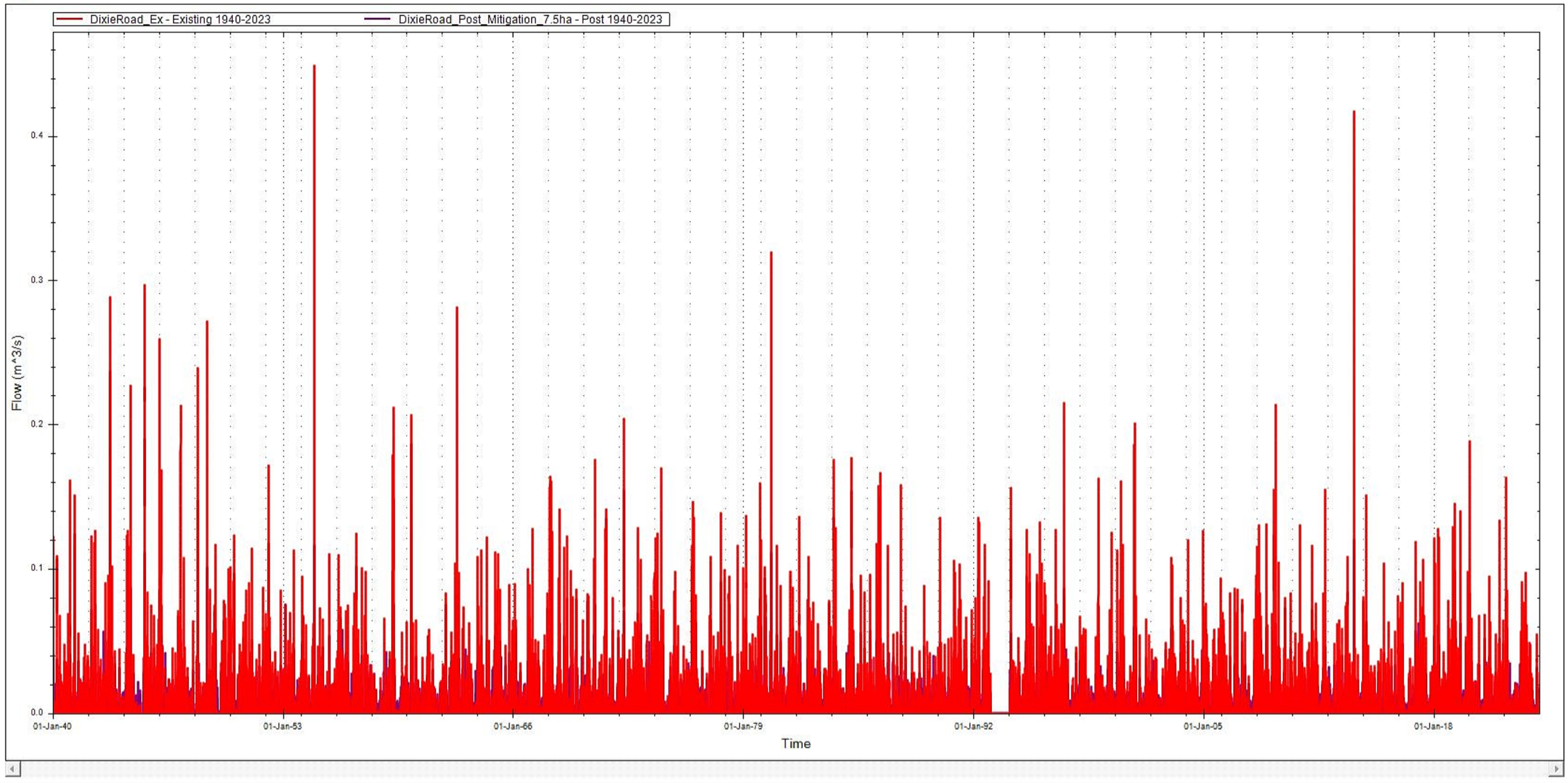
Variables

Flow (m^3/s)

Save

Time Series | Water Balance

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.449 | 0.003 |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.12 | 0.002 |

Scenario Comparison

Name

- DixieRoadEx - Existing 1940-20
- DixieRoadPost - Post 1940-202
- DixieRoadPost_Mitigation_0.5ha
- DixieRoadPost_Mitigation_1ha
- DixieRoadPost_Mitigation_5ha
- DixieRoadPost_Mitigation_7.5ha
- DixieRoadPost_Mitigation_10ha
- DixieRoadPost_Mitigation_12.5h
- DixieRoadPost_Mitigation_15ha
- DixieRoadPost_Mitigation_20ha

Commands

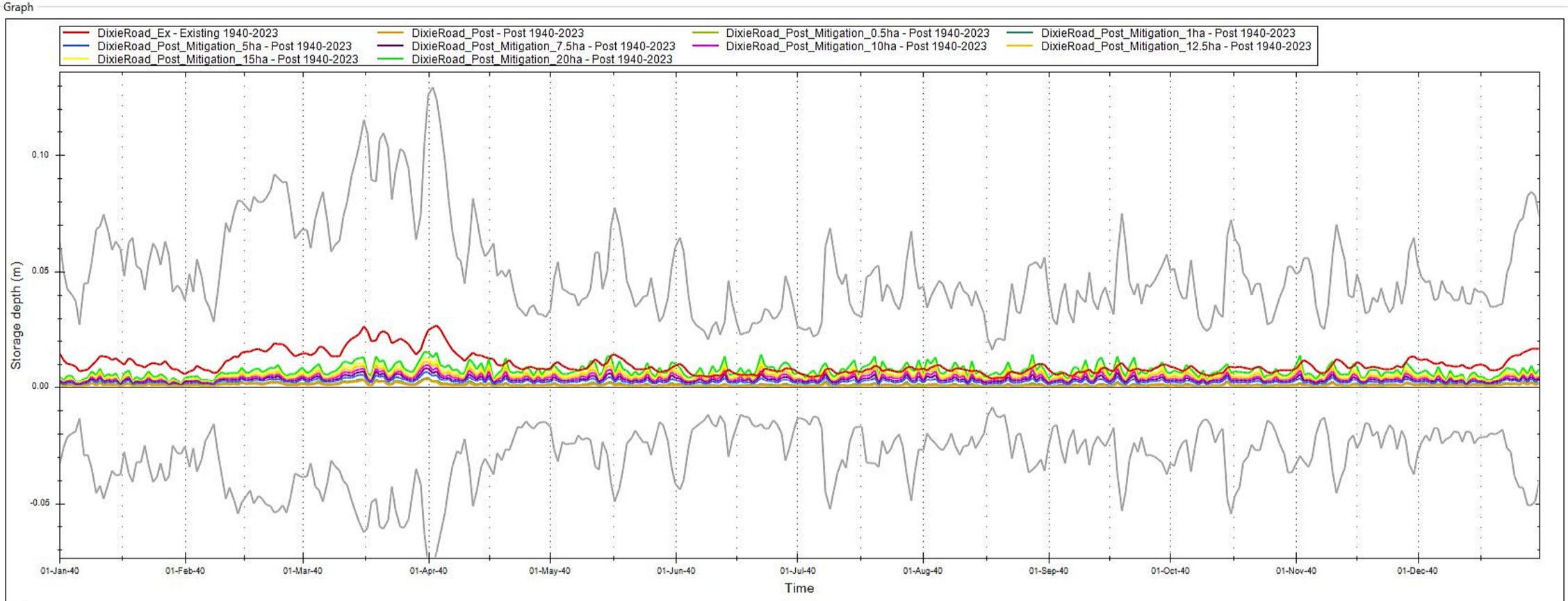
- SW-4
- SW-1
- Wetland / SW-2
- SW-3

Save

Time Series | Water Balance | Hydroperiod | Inflow Mass Curve

Years: All  Confidence Interval (%): 95  Export

Graph




Statistics

| Scenario - Run | # of days out of condfidence interval | Percent of days out of confidence interval (%) |
|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0 |
| DixieRoad_Post - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0 |

Scenario Comparison

Name

- [x] DixieRoadEx - Existing 1940-202
- [x] DixieRoadPost - Post 1940-2023
- [ ] DixieRoadPost_Mitigation_0.5ha
- [ ] DixieRoadPost_Mitigation_1ha -
- [ ] DixieRoadPost_Mitigation_5ha -
- [ ] DixieRoadPost_Mitigation_7.5ha
- [ ] DixieRoadPost_Mitigation_10ha
- [ ] DixieRoadPost_Mitigation_12.5h
- [x] DixieRoadPost_Mitigation_15ha
- [ ] DixieRoadPost_Mitigation_20ha

Commands

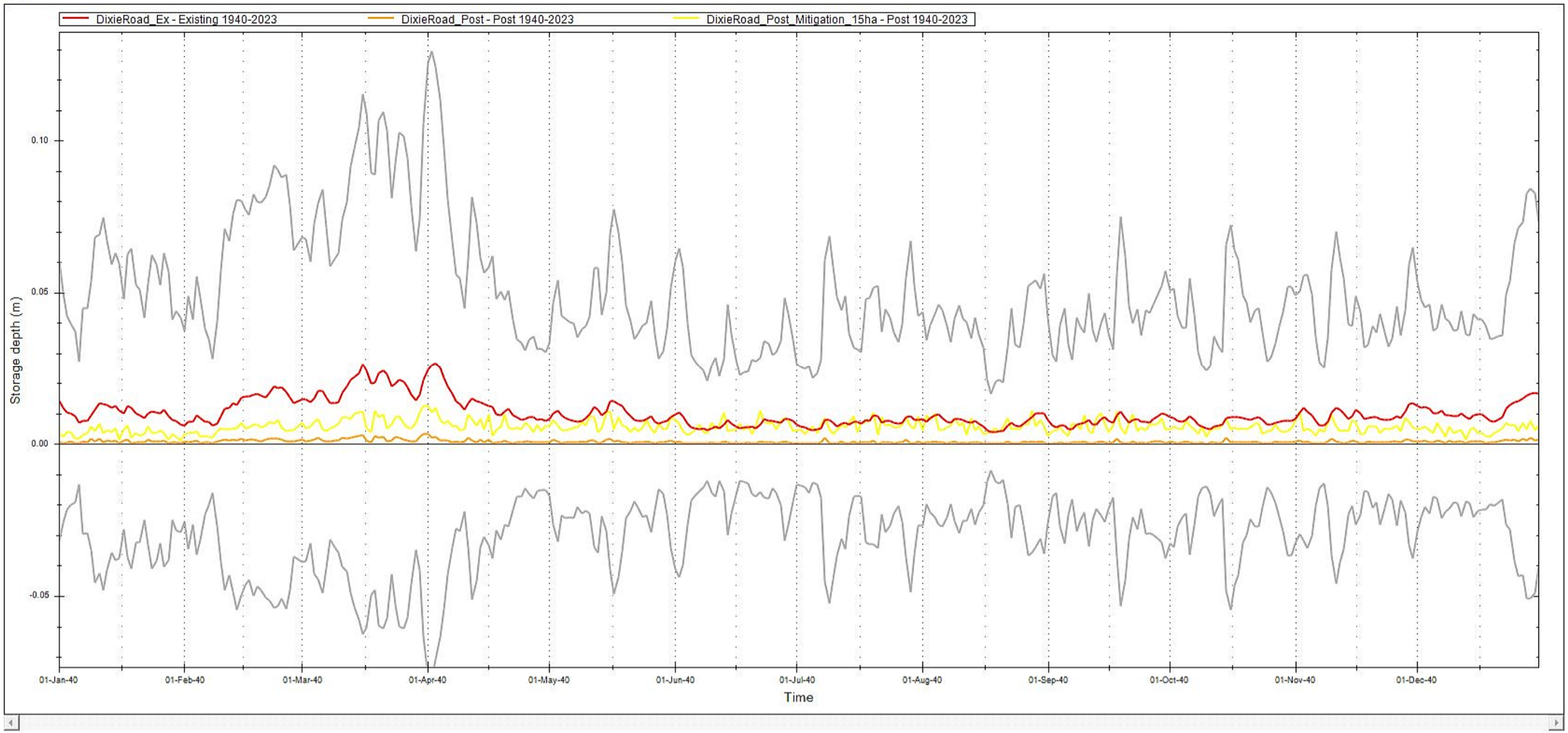
- (•) Wetland / SW-2

Save

Time Series | Water Balance | Hydroperiod | Inflow Mass Curve

Years: All  Confidence Interval (%): 95  Export

Graph




Statistics

| Scenario - Run | # of days out of condfidence interval | Percent of days out of confidence interval (%) |
|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0 |
| DixieRoad_Post - Post 1940-2023 | 0 | 0 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0 |

Scenario Comparison

Name

- [x] DixieRoadEx - Existing 1940-20
- [x] DixieRoadPost - Post 1940-202
- [x] DixieRoadPost_Mitigation_0.5ha
- [x] DixieRoadPost_Mitigation_1ha
- [x] DixieRoadPost_Mitigation_5ha
- [x] DixieRoadPost_Mitigation_7.5ha
- [x] DixieRoadPost_Mitigation_10ha
- [x] DixieRoadPost_Mitigation_12.5h
- [x] DixieRoadPost_Mitigation_15ha
- [x] DixieRoadPost_Mitigation_20ha

Commands

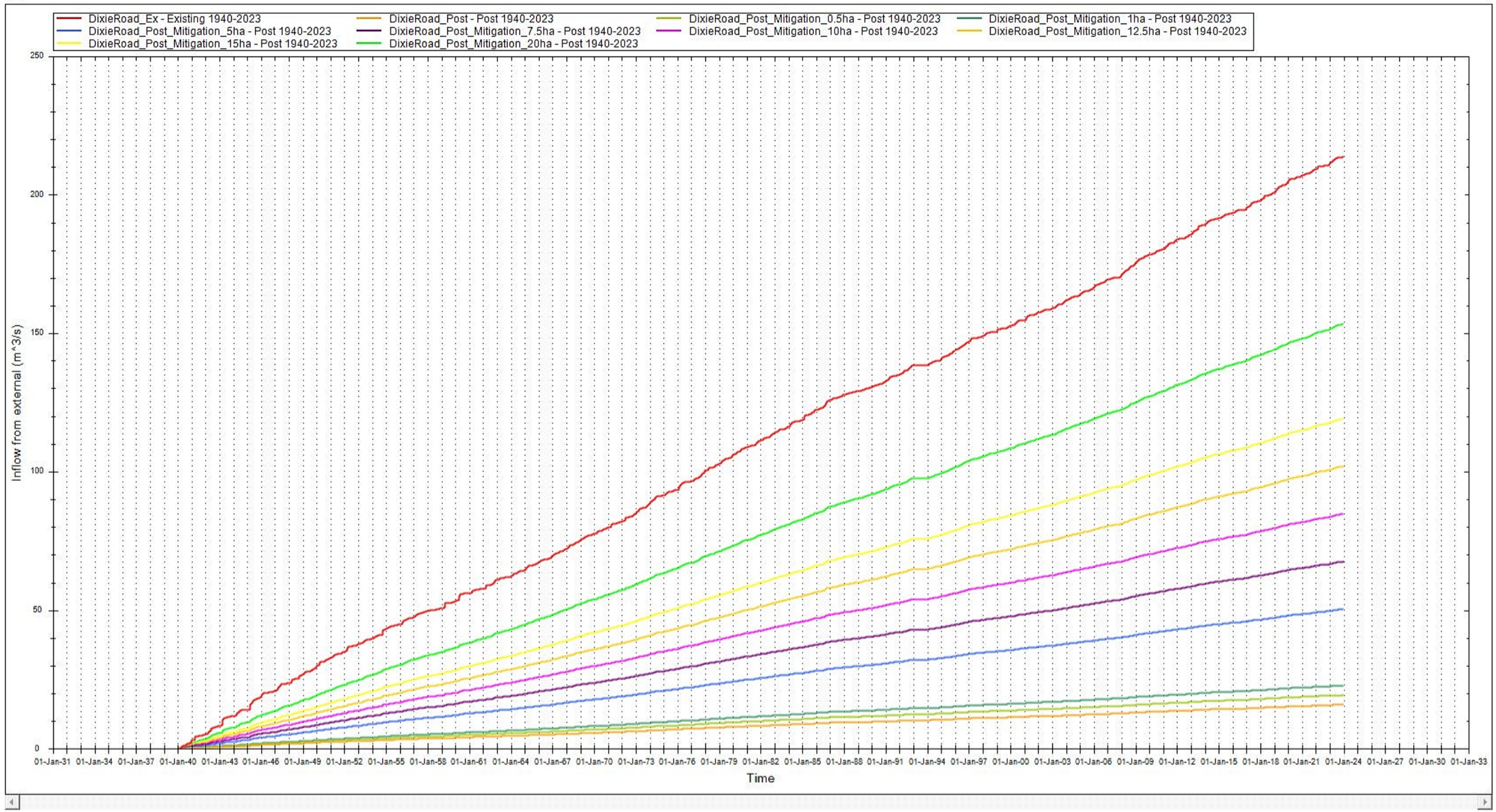
- SW-4
- SW-1
- (•) Wetland / SW-2
- SW-3

Save

Time Series | Water Balance | Hydroperiod | Inflow Mass Curve

Accumulated by (•) Daily average flow ( ) Instantaneous volume

Graph



Scenario Comparison

Name

- DixieRoadEx - Existing 1940-20
- DixieRoadPost - Post 1940-202
- DixieRoadPost_Mitigation_0.5ha
- DixieRoadPost_Mitigation_1ha
- DixieRoadPost_Mitigation_5ha
- DixieRoadPost_Mitigation_7.5ha
- DixieRoadPost_Mitigation_10ha
- DixieRoadPost_Mitigation_12.5h
- DixieRoadPost_Mitigation_15ha
- DixieRoadPost_Mitigation_20ha

Commands

- SW-4
- SW-1
- Wetland / SW-2
- SW-3

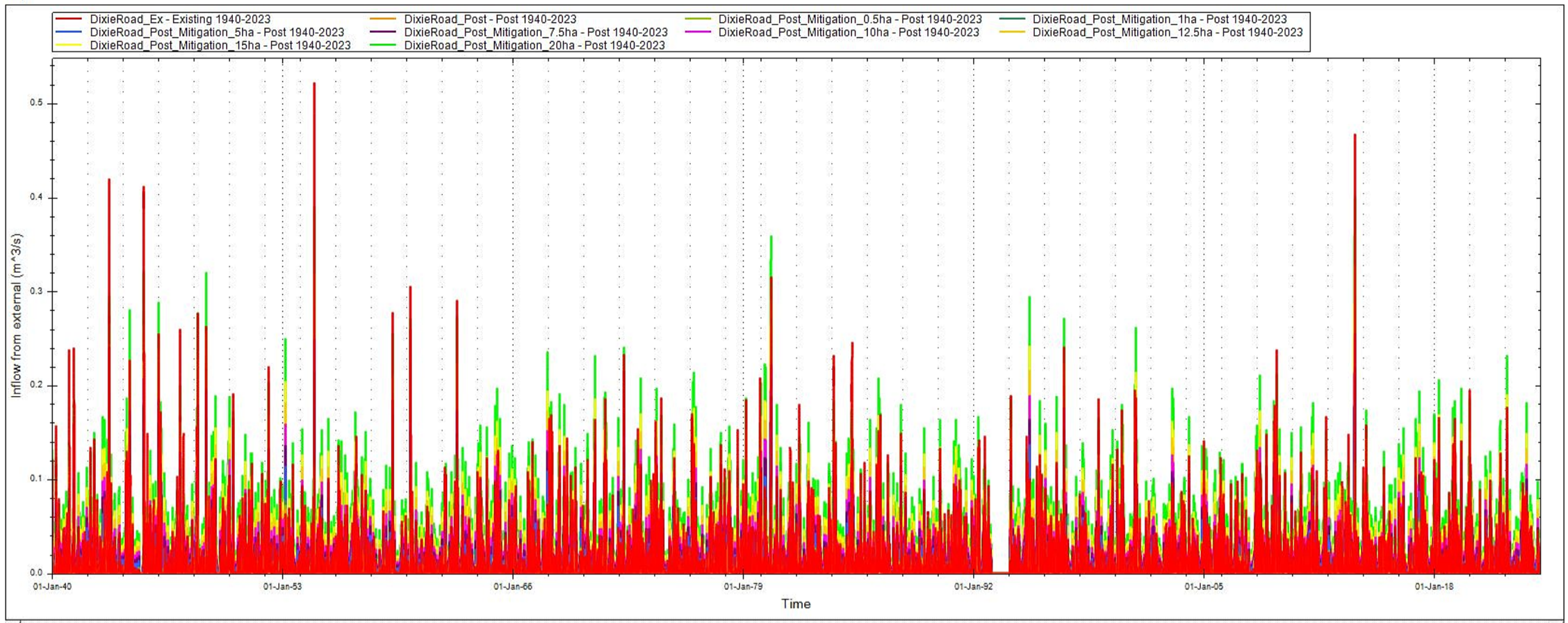
Variables

Inflow from external (m^3

Save

Time Series | Water Balance | Hydroperiod | Inflow Mass Curve

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.522 | 0.007 |
| DixieRoad_Post - Post 1940-2023 | 0 | 0.11 | 0.001 |
| DixieRoad_Post_Mitigation_0.5ha - Post 1940-2023 | 0 | 0.117 | 0.001 |
| DixieRoad_Post_Mitigation_1ha - Post 1940-2023 | 0 | 0.124 | 0.001 |
| DixieRoad_Post_Mitigation_5ha - Post 1940-2023 | 0 | 0.182 | 0.002 |
| DixieRoad_Post_Mitigation_7.5ha - Post 1940-2023 | 0 | 0.219 | 0.002 |
| DixieRoad_Post_Mitigation_10ha - Post 1940-2023 | 0 | 0.255 | 0.003 |
| DixieRoad_Post_Mitigation_12.5ha - Post 1940-2023 | 0 | 0.292 | 0.003 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.328 | 0.004 |
| DixieRoad_Post_Mitigation_20ha - Post 1940-2023 | 0 | 0.401 | 0.005 |

Scenario Comparison

Name

- [x] DixieRoadEx - Existing 1940-202
- [ ] DixieRoadPost - Post 1940-2023
- [ ] DixieRoadPost_Mitigation_0.5ha
- [ ] DixieRoadPost_Mitigation_1ha -
- [ ] DixieRoadPost_Mitigation_5ha -
- [ ] DixieRoadPost_Mitigation_7.5ha
- [ ] DixieRoadPost_Mitigation_10ha
- [ ] DixieRoadPost_Mitigation_12.5h
- [x] DixieRoadPost_Mitigation_15ha
- [ ] DixieRoadPost_Mitigation_20ha

Commands

- ( ) SW-4
- ( ) SW-1
- (•) Wetland / SW-2
- ( ) SW-3

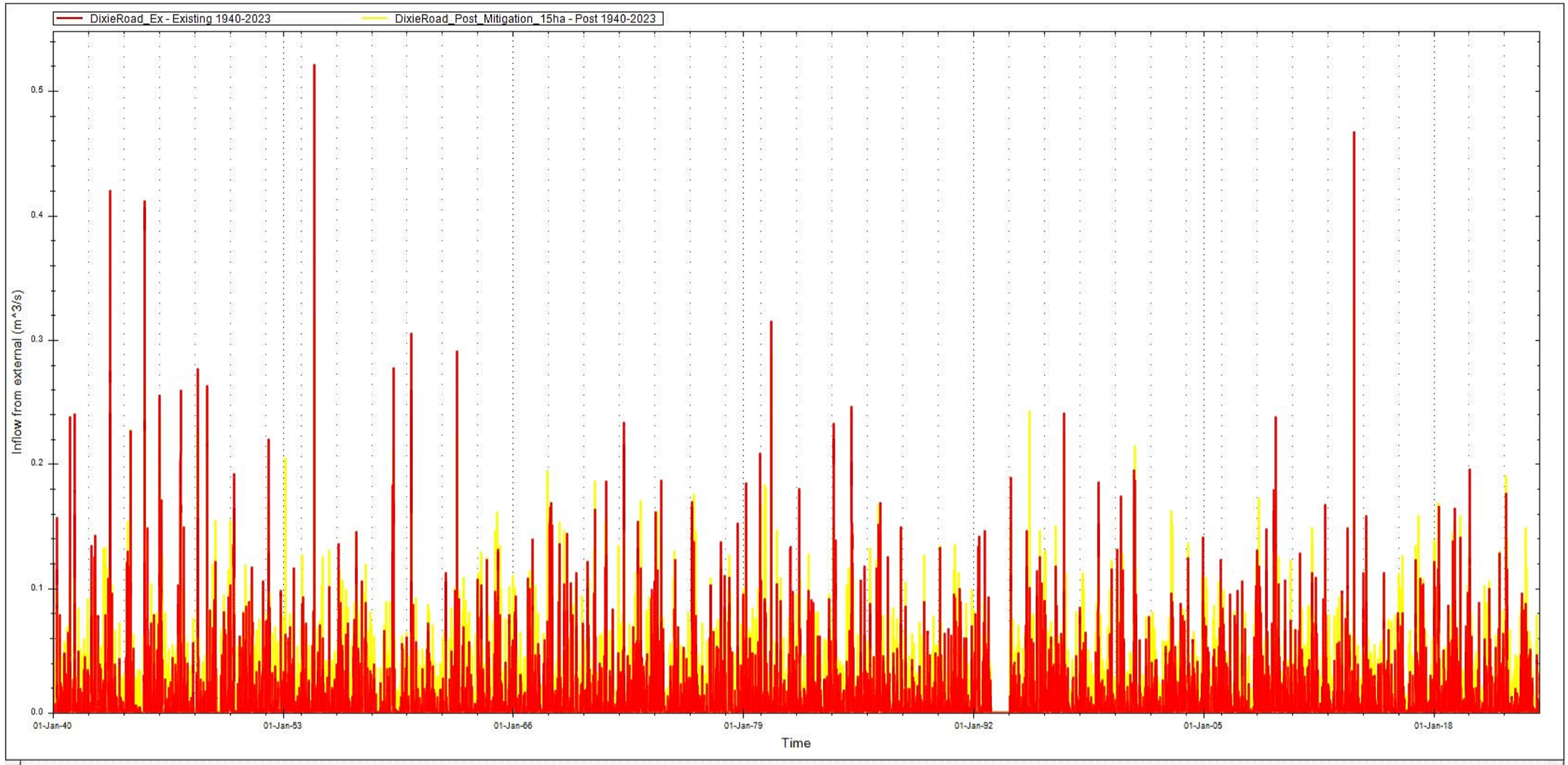
Variables

Inflow from external (m^3

Save

Time Series | Water Balance | Hydroperiod | Inflow Mass Curve

Graph




Statistics

| Scenario - Run | Min | Max | Average |
|---|---|---|---|
| DixieRoad_Ex - Existing 1940-2023 | 0 | 0.522 | 0.007 |
| DixieRoad_Post_Mitigation_15ha - Post 1940-2023 | 0 | 0.328 | 0.004 |