



## VERIFIER'S REPORT

### Milwaukee Metropolitan Sewerage District General Obligation Sewerage System Bonds Series 2020A (Green Bonds) – “Series 2020A Green Bonds”



Prepared for: Milwaukee Metropolitan Sewerage District

February 18, 2020

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## Milwaukee Metropolitan Sewerage District General Obligation Sewerage System Bonds, Series 2020A (Green Bonds)

### ("Series 2020A Green Bonds")

<b>Issuer:</b>	Milwaukee Metropolitan Sewerage District
<b>Project:</b>	Capital Improvements
<b>Green Category:</b>	Water Infrastructure
<b>Location:</b>	200 Waterfront Place, City of West Milwaukee, Wisconsin, USA
<b>Financing value:</b>	Approximately \$80 million*
<b>Evaluation Date:</b>	February 18, 2020
<b>Lead Verifier:</b>	Evan Smith, M.S.

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## Appendix A. Climate Bonds Standard Water Infrastructure Adaptation & Resilience Scorecard

\* The financed amount is subject to change until the Guaranteed Maximum Price is finalized and the bonds are sold. However, the total amount financed shall not exceed \$80 million.

## **TRANSACTION OVERVIEW**

Milwaukee Metropolitan Sewerage District (MMSD), plans to issue approximately \$80 million in Milwaukee Metropolitan Sewerage District General Obligation Sewerage System Bonds, Series 2020A (Green Bonds) (“Series 2020A Green Bonds”).

MMSD proposes financing its capital improvements with Certified Climate Bonds, an internationally accepted green bond standard. This financing involves a variety of capital projects ranging from water reclamation facilities to conveyance and storage system upgrades, and green infrastructure to reduce flooding and stormwater runoff.

The capital improvements will result in increased operational efficiency, reduced energy use, improved sanitation services, reduced flooding and improved water quality in the greater Milwaukee, Wisconsin area.

This Verifier’s Report reflects Kestrel Verifiers’ view of MMSD’s projects and financing, allocation and oversight, and conformance of the bonds with the Climate Bonds Standard (V3.0), and the Water Infrastructure sector criteria. In our opinion, the Series 2020A Green Bonds to be issued by MMSD are completely aligned with the Climate Bonds Standard, and the Water Infrastructure criteria.

## **ABOUT THE ISSUER**

The Milwaukee Metropolitan Sewerage District (MMSD or the District) provides sewerage services in Milwaukee, Wisconsin. MMSD captures and treats 98.5% of the wastewater generated across the service area along the southwestern shore of Lake Michigan. MMSD ranks among the largest sewerage utilities in the country, encompassing a service area of nearly 411 square miles, serving 28 municipalities with a total population of about 1.1 million people.

MMSD’s primary mission is to protect public health and the environment through world-class, cost-effective water resource management, leadership, and partnership. MMSD operates and maintains an extensive array of facilities. The organization’s two water reclamation facilities—Jones Island and South Shore, with a combined maximum plant capacity of 630 million gallons daily—are the centers of MMSD’s services.

MMSD has set aggressive goals to improve its environmental impact and sustainability through the MMSD 2035 Vision, a plan which envisions a healthier Milwaukee region and a cleaner Lake Michigan accomplished through leadership in attaining zero sewage overflows, zero basement sewage backups, and improved storm water management. The District also adopted an Urban Biodiversity Plan, a Sustainability Plan, an Energy Plan and a Resilience Plan. The organization has an updated GHG Emissions Inventory, and a robust Climate Change Vulnerability Analysis conducted in 2014. MMSD has a goal to reduce its carbon footprint by 90% from baseline conditions by 2035.

MMSD intends to use the proceeds of the Series 2020A Green Bonds exclusively to finance capital improvements and associated capitalized interest and financing costs, which are described more fully later in this report.

## **ABOUT THE VERIFICATION ENGAGEMENT**

MMSD has engaged Kestrel Verifiers to provide a pre-issuance, independent verification on the alignment of the Series 2020A Green Bonds with the Climate Bonds Standard and Certification Scheme—which

includes the Climate Bonds Standard (V3.0) and Water Infrastructure sector criteria. The Climate Bonds Initiative (the “CBI”) administers the standard and sector criteria. Additionally, Kestrel Verifiers has examined alignment of the Series 2020A Green Bonds with the United Nations Sustainable Development Goals (“SDGs”).

Kestrel Verifiers is a Climate Bonds Initiative Approved Verifier. The Kestrel review team included a water resources engineer and other environmental scientists. We performed a Reasonable Assurance engagement for MMSD’s Series 2020A Green Bonds to provide an independent verification as to whether the subject matter meets, in all material respects, the relevant criteria, defined later.

For this engagement, Kestrel Verifiers reviewed MMSD’s green bond framework and relevant plans, examined public and non-public information, and interviewed members of MMSD’s management and finance teams. Our goal was to understand sustainability impacts of the business, the planned use of proceeds, procedures for managing proceeds, and plans and practices for reporting. This document contains Kestrel’s opinion of the Series 2020A Green Bonds.

### **MMSD’s Responsibilities for Climate Bonds Verification**

MMSD is responsible for providing detailed information and documents relating to:

- the details of the capital improvements and the corresponding project selection process;
- record keeping and internal controls;
- how the projects meet the criteria; and
- reporting and procedures for reporting on the Series 2020A Green Bonds.

### **Verifier’s Responsibilities**

Kestrel Verifiers’ responsibilities for confirming alignment of the Series 2020A Green Bonds with the Climate Bonds Standard and Water Infrastructure criteria include:

- assess and certify MMSD’s internal processes and controls, including selection process for projects and assets, internal tracking of proceeds, and the allocation system for funds;
- assess policies and procedures established by MMSD, including reporting;
- assess the readiness of MMSD to meet the Climate Bonds Standard (V3.0) and Water Infrastructure sector criteria; and
- express a Reasonable Assurance conclusion.

### **Relevant Climate Bonds Sector Criteria and Other Standards**

The Series 2020A Green Bonds align with the Climate Bond Initiative’s Climate Bonds Standard (V3.0) and Water Infrastructure criteria.



### **Independence and Quality Control**

Kestrel Verifiers is providing an independent opinion on the conformance of these Series 2020A Green Bonds with the Water Infrastructure criteria of the Climate Bonds Standard. For almost twenty years, Kestrel has worked at the intersection of finance and sustainability, helping clients to advance water, energy and environmental projects. Kestrel relies on our experienced team of dedicated professionals, our qualified judgment and our attention to detail to ensure the highest quality assessment and verification.

### **Assurance Approach**

Kestrel Verifiers' responsibility was to conduct a Reasonable Assurance engagement to determine whether MMSD's Series 2020A Green Bonds met, in all material respects, the requirements of the Climate Bonds Standard. Our reasonable assurance was conducted in accordance with the Climate Bonds Standard (V3.0) and the *International Standard on Assurance Engagements (ISAE) 3000: Assurance Engagements Other than Audits or Reviews of Historical Financial Information*. Reasonable Assurance engagements offer a high level of scrutiny over the bond-financed activities and allow the Verifier to positively conclude whether those activities meet the specified criteria.

Kestrel Verifiers has relied on information provided by MMSD. There are inherent limitations in performing assurance, and fraud, error or non-compliance may occur and not be detected. Kestrel Verifiers is not responsible or liable for any opinions, findings or conclusions that are incorrect. Our assurance is limited to MMSD's policies and procedures in place as of February 18, 2020, ahead of the issuance of the Series 2020A Green Bonds. The distribution and use of this assurance report are at the sole discretion of MMSD. Kestrel Verifiers does not accept or assume any responsibility for distribution to any other person or organization.

## **CONFORMANCE WITH THE CLIMATE BONDS STANDARD**

### **Project Description**

MMSD's first green bond is the *Milwaukee Metropolitan Sewerage District General Obligation Sewerage System Bonds, Series 2020A (Green Bonds)*, herein referred to as the "Series 2020A Green Bonds." The Series 2020A Green Bonds will finance MMSD's capital improvements, which are described in Appendix A of the Green Bond Framework, and fall in these general categories:

- Jones Island Water Reclamation Facility
- South Shore Water Reclamation Facility
- Interplant Pipeline
- Conveyance
- Inline Storage System
- Watercourse and Flood Management
- Green Infrastructure
- Facilities Planning

The Series 2020A Green Bonds include approximately \$80 million for capital improvements, capitalized interest and financing costs, as shown in Table 1.

**Table 1. Summary of Sources of Funds**

<b>2020 Project Financing Component</b>	<b>Cost</b>
Par Amount	\$ 80,000,000
Premium	\$ 7,545,738
<b>Total</b>	<b>\$ 87,545,738</b>

<b>2020 Project Component</b>	<b>Cost</b>
Project Fund	\$ 79,753,700
Bid Premium for Deposit to Debt Service Fund	\$ 7,145,738
Costs of Issuance (including Underwriters' Discount)	\$ 646,300
<b>Total</b>	<b>\$ 87,545,738</b>

The project fund covers hard costs and soft costs related to procurement, construction, and installation of capital improvement projects. Hard costs include site work, construction, installation, and general conditions and liability insurance. Soft costs include engineering fees, pre-development consultant fees, development management fees, test, inspection and permit fees, technology equipment, and other equipment costs.

### **Project Highlights:**

Water Reclamation Facility Upgrades: Both the Jones Island and South Shore Water Reclamation Facilities require equipment upgrades and replacements to ensure that MMSD can continue to meet its high standards in water reclamation. These projects will reduce energy use and improve operational efficiency, and include:

- Primary Clarifier Drive Improvements
- Dewatering & Drying ID Fan Energy Conservation
- Sludge Cake Transport & Feed Conveyors Replacement
- Power System Improvements
- Sewer System Capacity Improvements
- Aeration Basin Diffuser Replacement
- Building 383 HVAC Replacement

Variable Frequency Drive (VFD) Pumps: Aeration, the process of adding air into wastewater to allow aerobic biodegradation, is one of the largest energy users in water reclamation. MMSD will replace flow control valves with VFD blowers that can reduce energy costs by 50%.

Watershed Restoration Projects: MMSD plans to “daylight” sections of Schoonmaker Creek and other tributary creeks in the greater Milwaukee River Basin. Daylighting is the practice of restoring a previously underground stream or removing a culvert. Daylighting can provide economic benefits by reducing culvert maintenance and by keeping stormwater out of combined sewer systems, thereby reducing water treatment costs. The practice can create a greater floodplain area and increased hydraulic storage, which can help reduce flooding. Free flowing creeks provide benefits to urban biodiversity and public health and well-being.

Greenseams® Natural Areas Program and Green Infrastructure: Greenseams® is an innovative flood management program that permanently protects key lands containing water-absorbing soils and sequesters carbon. MMSD has implemented this program to help municipalities in the District meet their commitments to address stormwater runoff and improve water quality. Green infrastructure also helps reduce inflows to the MMSD system. Green infrastructure projects are a high priority for the District due to their multiple community benefits in line with the District’s various sustainability plans. The District plans to implement Phase 2 of the Greenseams Program, additional Community Based Green Infrastructure Projects and many other watercourse and flood management projects.

Milorganite® Production: MMSD has been recycling biosolids since 1926, to make a nutrient-rich byproduct that is transformed into a highly effective fertilizer and sold commercially. The District produces Milorganite®—a premier organic fertilizer which is all-natural, pesticide-free, and free of mined resources and synthetics. Milorganite production is currently the most cost-effective solution for disposal of biosolids from the Jones Island and South Shore Water Reclamation Facilities, and MMSD plans to improve these facilities.

## Sector Criteria

### Water Infrastructure Criteria

MMSD's bond-financed activities align with the Water Infrastructure Criteria under the Asset Class "Water Treatment/ Installation or upgrade of water treatment infrastructure" as shown in Figure 1. An orange circle indicates that the eligibility of these assets or projects is conditional on meeting specific requirements per the Mitigation and/or Adaptation and Resilience requirements of the Criteria.

Assets	Example projects*	Mitigation	Adaptation & Resilience
Water treatment, including but not limited to:	<ul style="list-style-type: none"> <li>Improving energy efficiency or shifting to low carbon fuel sources</li> </ul>	●	●
Drinking water treatment Desalination plants Water recycling systems Wastewater treatment facilities Manure/ slurry treatment facilities	<ul style="list-style-type: none"> <li>Installation or upgrade of water treatment infrastructure (excluding the examples listed above)</li> </ul>		

**Figure 1. Eligible Asset Types**

**Source: Table I, Climate Bonds Standard – Water Infrastructure Criteria, April 2018**

- Water Infrastructure Mitigation Requirements

As per CBI, "The Mitigation Component of the Water Infrastructure Criteria is intended to provide transparency over the impact that the use of proceeds will have on GHG emissions and the degree of mitigation that will be delivered over the operational lifetime of the project or asset. For use of proceeds subject to a Mitigation Assessment as indicated by an orange circle, they are eligible for certification only if: No net GHG emissions impact is expected, and the issuer discloses the justification for this decision."

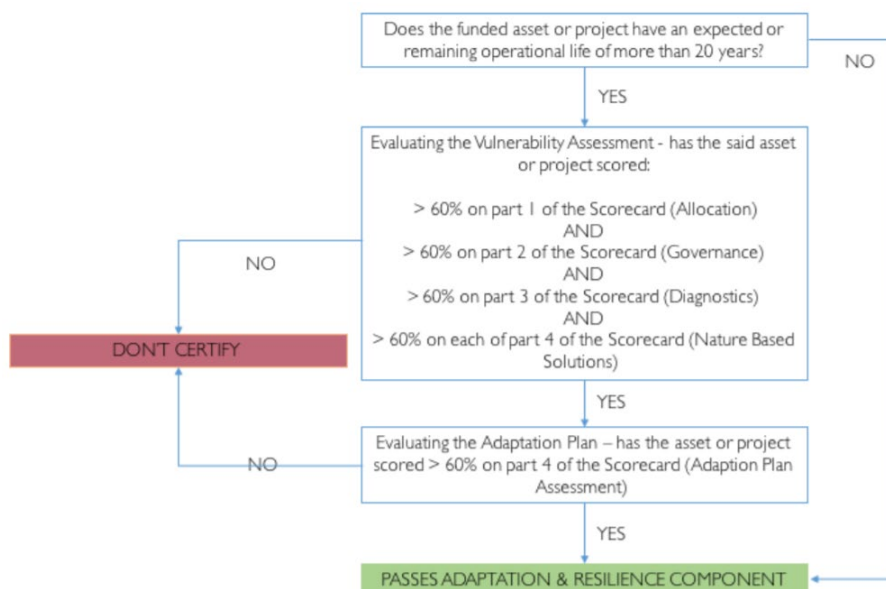
It is Kestrel Verifiers' opinion that there will be no net increase in GHG emissions. The project list shown in Appendix A of MMSD's Framework shows many projects which will result in increased operational and energy efficiency. Since the treatment capacity remains the same, no net GHG emissions impact is expected from the projects. Furthermore, the addition of natural areas and open space through the Greenseams Program, can be seen as a net negative for GHG emissions impact.

- Water Infrastructure Adaptation and Resilience Requirements

As per CBI, "The Adaptation & Resilience Component of the Water Infrastructure Criteria is intended to provide transparency over the asset's resilience to climate change as well as its impact on other stakeholders' resilience to climate change. Such stakeholder impacts include their access to water in sufficient quantity and sufficient quality. From this perspective, ecosystems are also considered a stakeholder."

Figure 2 shows the CBI decision tree for this component of the criteria. Assets and projects that are demarcated with an orange circle in the Adaptation and Resilience column and have an expected or remaining operational lifespan of more than 20 years, are subject to a Vulnerability Assessment / Adaptation Plan Evaluation.





**Figure 2. Decision tree for the Adaptation & Resilience component of the Water Infrastructure Criteria**

Source: Figure 1– CBI Water Infrastructure Criteria, April 2018

As the operational life for the wastewater treatment plants and related infrastructure is greater than 20 years, a vulnerability assessment was conducted. This is attached in Appendix A of this Verifier’s Report. MMSD scored 78 points out of 100 points, exceeding the threshold of 60% in each category as required for certification. This is shown in the summary table in Figure 2.

### **Alignment with United Nations Sustainable Development Goals**

In a related area, and recognized by MMSD, the *2030 Agenda for Sustainable Development* adopted by all United Nations member states in 2015 provides “a shared blueprint for peace and prosperity for people and the planet.” The United Nations’ Agenda describes 17 Sustainable Development Goals (SDGs). As shown in MMSD’s framework and operations, the goals and practices of MMSD align with many of the SDGs. For the purposes of the Series 2020A Green Bonds offering, the projects align most closely with three SDGs:



**SDG 6: Clean Water and Sanitation**, which includes targets to achieve access to adequate and equitable sanitation and hygiene for all and improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials.

**SDG 11: Sustainable Cities and Communities**, which includes targets to make cities and human settlements inclusive, safe, resilient and sustainable.

**SDG 13: Climate Action**, which includes targets to take urgent action to combat climate change and its impacts.



### **Use of Proceeds**

The Series 2020A Green Bonds will be used to finance the capital improvements listed in Appendix A of MMSD's Green Bond Framework, which are eligible green projects as defined by the Climate Bonds Initiative's Standard and Certification Scheme (Water Infrastructure criteria).

### **Project Evaluation and Selection**

MMSD believes in transparency to both constituents and investors regarding its process for project evaluation and selection. It is part of MMSD's approval process to ensure that all of its financed activities comply with internal environmental and social directives. All of MMSD's environmental and social policies and related reports can be found at: [www.mmsd.com/what-we-do/sustainability](http://www.mmsd.com/what-we-do/sustainability)

In addition to meeting MMSD's long-term needs, the Series 2020A Green Bonds will be used for projects that address and meet the following objectives:

1. Support MMSD's mission to protect public health and the environment through world-class, cost-effective water resource management, leadership, and partnership.
2. Address resilience and sustainability issues in the City of Milwaukee through efforts such as prioritizing green infrastructure and urban biodiversity, incorporating renewable energy solutions, and building energy efficiency into capital improvements.
3. By certifying the Bonds as Climate Bonds in the category of Water Infrastructure, MMSD hopes to inform investors of the environmentally beneficial and climate-aligned aspects of projects and the District's responsible management of water resources, cognizant of climate change.

MMSD utilizes a robust and transparent annual process to prioritize capital improvements for financing, and the District maintains long-range financing plans for its Operation and Maintenance and Capital Projects budgets. The Strategic Plan for FY 2019-2021 identifies the project list, presented in Appendix A of MMSD's Green Bond Framework, as a priority for bond financing. Projects selected for financing are also reviewed against MMSD's Environment Statement.

Projects to be financed are evaluated and selected based on:

- a) Alignment with the current Strategic Plan, Total Maximum Daily Load (TMDL) for the Milwaukee River Basin, and MMSD 2035 Vision;
- b) Business case studies and community benefits (identify need, options, and preferred solution);
- c) A thorough vetting process including stakeholder consultation; and
- d) Review by Budget Staff and final approval by Executive Director and Commissioners.

MMSD staff compiles project recommendations which are presented to the Operations Committee. The Operations Committee reviews project details and operating procedures.

As an organization, MMSD is committed to public health and the environment through world-class, cost-effective wastewater treatment. MMSD considers the local and regional impacts of its practices. MMSD's guiding beliefs associated with sustainability support the vision of reducing environmental impacts. The projects to be financed with the Series 2020A Green Bonds meet this vision and subsequent criteria.

### **Management of Proceeds**

MMSD's management of proceeds follows Generally Accepted Accounting Principles and Government Finance Officers Association (GFOA) recommendations for best practices. Net proceeds will be tracked by

MMSD's Finance team and 100% of funds will be allocated to fund the capital improvements, capitalized interest and financing costs.

Proceeds from Green Bonds will be specifically directed to pay the costs of design, construction, property acquisition, and other related expenses necessary for the selected green bond-eligible projects. Ensuring that green bond proceeds are allocated only to green designated projects and activities will be the responsibility of MMSD's Director of Finance, Mickie Pearsall.

MMSD's Green Bond proceeds will be held in a segregated account and used exclusively to finance eligible green projects. Green Bond proceeds may also be used to pay the cost of issuance and underwriter's fees related to this transaction. These costs will be specifically delineated in closing documents.

The Treasurer of MMSD, Mark T. Kaminski, shall invest said proceeds in permitted short term investments as defined by MMSD, with capital preservation as the priority. Permitted investments will be made in accordance with the applicable State of Wisconsin Statutes and are further restricted to the following types of securities and transactions:

1. U.S. Treasury Obligations
2. Federal Instrumentality Securities
3. U.S. Government Agency Securities
4. Prime Commercial Paper

MMSD provides a Comprehensive Annual Financial Statement which is prepared by an independent auditor. The Government Finance Officers Association awarded a Certificate of Achievement for Excellence in Financial Reporting to the District for its comprehensive annual financial report (CAFR) for the fiscal year ended December 31, 2017. This was the 40th consecutive year that the District has received this prestigious award.

## **Reporting**

### **Continuing Disclosures and Voluntary Impact Reporting**

So long as the Series 2020A Green Bonds are outstanding, Milwaukee Metropolitan Sewerage District will submit continuing disclosures to the Municipal Securities Rulemaking Board (MSRB). This reporting will be done annually on the Electronic Municipal Market Access (EMMA) system operated by the MSRB.

MMSD will also voluntarily produce an annual report detailing how the Green Bond proceeds were used to finance the selected projects, a description of the selected projects, and details of the environmental benefits resulting from the projects. MMSD may also voluntarily provide information as to progress toward the 17 United Nations' Sustainable Development Goals. Such information will be posted to the EMMA system of the Municipal Securities Rulemaking Board, accessible at [emma.msrb.org](http://emma.msrb.org). This report will be posted along with other MMSD filings.

Within 24 months of the bonds closing, Kestrel Verifiers will provide one post-issuance Update Report to the Climate Bonds Initiative. MMSD will also post this report voluntarily on EMMA.

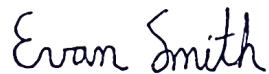
## OPINION

Based on the Reasonable Assurance procedures we have conducted, in our opinion, the MMSD Series 2020A Green Bonds conform, in all material respects, with the Climate Bonds Standard, and the bond-financed activities are aligned with the Water Infrastructure sector criteria and United Nations Sustainable Development Goals 6, 11 and 13.

MMSD's vision of a healthier, cleaner, more resilient region is supported with the capital improvements, which exceed the requirements of the Climate Bonds Standard.

It is the opinion of Kestrel Verifiers that MMSD's Series 2020A Green Bonds are in complete alignment with the Water Infrastructure criteria of the Climate Bonds Standard, and that MMSD is demonstrating leadership toward a zero-carbon future by implementing these beneficial projects.

Sincerely,



**Evan Smith**, Lead Technical Verifier

Kestrel Verifiers

February 18, 2020

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### About Kestrel Verifiers

To public and corporate finance teams who are preparing green bonds, Kestrel is an Approved Verifier with direct project experience in many sectors: water infrastructure, green buildings, renewable energy, energy efficiency, pollution prevention, climate change adaptation, natural resources and land uses. As bespoke US municipal bond specialists, we strive to provide a personal, focused approach and dedicated support. We bring real-world experience, relationships and tools to efficiently verify and report on green bonds. Kestrel is a Woman-Owned Small Business and a certified Women's Business Enterprise based in the USA.

For more information, visit [www.kestrilverifiers.com](http://www.kestrilverifiers.com)

## APPENDIX A. Climate Bonds Standard Water Infrastructure Adaptation & Resilience Scorecard

CRITERIA: The project must score at least 60% of the maximum potential score in all parts of the Scorecard. Section 4 only needs to be completed for “Nature Based and Hybrid Infrastructure” only (see Criteria for detail)

Vulnerability Assessment SECTION 1: ALLOCATION					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
1.1	Are there accountability mechanisms in place for the management of water allocation that are effective at a sub-basin and/or basin scale?	1	1	Disclosure	<p>There are several plans outlining management of water the most relevant and adopted internationally is the Great Lakes Compact</p> <ul style="list-style-type: none"> <li><a href="https://dnr.wi.gov/topic/GreatLakes/documents/Congress_Compact_Consent.pdf">https://dnr.wi.gov/topic/GreatLakes/documents/Congress_Compact_Consent.pdf</a></li> <li><a href="https://www.sewrpc.org/SEWRPC/Environment/RegionalWaterSupplyPlan.htm">https://www.sewrpc.org/SEWRPC/Environment/RegionalWaterSupplyPlan.htm</a></li> </ul> <p>Regional Water Supply Plan: In 1979, the Commission completed and adopted a regional water quality management plan. The plan was designed, in part, to meet the Congressional mandate that the waters of the United States be made “fishable and swimmable” to the extent practical. Continued eligibility of local units of government for Federal and State loans and grants in partial support of sewerage system development and redevelopment;</p> <p>From the last quarter of 2003 through December 2007, SEWRPC prepared an update of the regional water quality management plan for the Greater Milwaukee Watersheds and was amended in “2013-A REGIONAL WATER QUALITY MANAGEMENT PLAN UPDATE FOR THE GREATER MILWAUKEE WATERSHEDS”-Amended May 2013</p> <p><a href="https://dnr.wi.gov/topic/WaterUse/compact.html">https://dnr.wi.gov/topic/WaterUse/compact.html</a> Great Lakes Compact</p>
1.2	<p>Are the following factors taken into account in the definition of the available resource pool?</p> <p>a) Non-consumptive uses (e.g., navigation, hydroelectricity)</p> <p>b) Environmental flow requirements</p> <p>c) Dry season minimum flow requirements</p> <p>d) Return flows (how much water should be returned to the resource pool, after use)</p> <p>e) Inter-annual and inter-seasonal variability</p> <p>f) Connectivity with other water bodies</p> <p>g) Climate change impacts</p>	7	5	Evidence	<p>As MMSD only receives water used, their plan does not determine allocation, however they are subject to:</p> <p>A) WQ pg. 383 addresses navigation and dam regulation in the plan as does the Great Lakes Compact</p> <p>B)</p> <p>C)</p> <p>D) City of Waukesha has return flow plan through MMSD <a href="http://www.waukesha-water.com/downloads/4_City_of_Waukesha_Return_Flow_Plan.pdf">http://www.waukesha-water.com/downloads/4_City_of_Waukesha_Return_Flow_Plan.pdf</a></p> <p>E) Pp. 60-61 of water supply plan looks at seasonal temperature and precipitation</p> <p>F) Yes, connectivity of Lake Michigan with other Lakes and St. Lawrence is heavily discussed</p> <p>G) Discussed and considered as part of adapting plans in the future</p>
1.3	Are arrangements in place to accommodate the potentially adverse impacts of climate change on the resource pool? (E.g. using best available science to plan for future changes in availability, undertaking periodic monitoring and updating of available pool.)	1	1	Evidence	<p>Pg. 377 Water Supply and pg. 854 Water Quality and on the amendment discusses Climate Change and impacts on resource pool, pg. 856 the sections of the plan updated to accommodate changes</p> <p><a href="https://www.sewrpc.org/SEWRPC/Environment/ClimateChange.htm">https://www.sewrpc.org/SEWRPC/Environment/ClimateChange.htm</a> Wisconsin Initiative on Climate Change</p>

Vulnerability Assessment SECTION 1: ALLOCATION					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
1.4	Is there a distinction between the allocation regimes used in “normal” times and in times of “extreme/severe” water shortage?	1	1	Evidence	Pg. 284 Water Quality Management Plan discusses water quality changes in wet and dry weather and outflows consistent with this.
1.5	Are there plans to define “exceptional” circumstances, such as an extended drought, that influence the allocation regime? (E.g., triggers water use restrictions, reduction in allocations according to pre-defined priority uses, suspension of the regime plan, etc.)	1	1	Evidence	There are triggers during extreme wet events to discharge more under blending practices. Pg. 62 water supply plan defines drought and pg. 131 discusses limitations during these times
1.6	For international / trans boundary basins, is there a legal mechanism in place to define and enforce water basin allocation agreements?	1	1	Disclosure	Pg. 357 Water Supply Plan describes Water Resources Development Act that enforces Lake Michigan water allocations  Great Lakes Compact includes Canadian Premier
1.7	Are water delivery agreements defined on the basis of actual in situ seasonal / annual availability instead of volumetric or otherwise inflexible mechanisms?	1	1	Evidence	Lake Michigan water levels are consistent seasonally, however new pumping or diversions are subject to seasonal or annual variations when there are lower lake water levels. Water Supply Plan
1.8	Has a formal environmental flows (e-flows)/sustainable diversion limits or other environmental allocation been defined for the relevant sub-basin or basin? (If there is a pre-existing plan, then has the environmental flows program been updated to account for the new project?)	1	1	Evidence	There is a ban on diversions out of the basin with limited exceptions with the Great Lakes Compact, and all water is returned to the Lake. The program has not been updated to account for the project, but amounts will not be affected.
1.9	Have designated environmental flows / allocation programs been assured / implemented?	1	1	Evidence or Disclosure	Yes, Great Lakes Compact is implemented and followed for diversions
1.10	Has a mechanism been defined to update the environmental flows plan periodically (e.g., every 5 to 10 years) in order to account for changes in allocation, water timing, and water availability?	1	1	Evidence	Pg. 50 Great Lakes Compact update every 5 years or each time the incremental Basin Water losses reach 50 million gallons per day average in any 90-day period
1.11	Is the amount of water available for consumptive use in the resource pool linked to a public planning document? (E.g., a river basin management plan or another planning document – please indicate)	1	1	Evidence	SEWRPC Regional Water Supply Plan and shown in <a href="https://www.sewrpc.org/SEWRPCFiles/Environment/watersupply/2011-05-24-RWSP-presentation-to-wauk-co-board-of-supervisors.pdf">https://www.sewrpc.org/SEWRPCFiles/Environment/watersupply/2011-05-24-RWSP-presentation-to-wauk-co-board-of-supervisors.pdf</a> update
1.12	If present, is the river basin plan a statutory instrument that must be followed rather than a guiding document?	1	1	Disclosure	Yes, signed by U.S. Congress and is statutory law.
Total Allocation Score		16	/18		
Eligibility Criterion 1 passed/not passed			89 %		

Vulnerability Assessment SECTION 2: Governance					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
2.1	Have water entitlements been defined according to one of the following? Purpose that water may be used for Maximum area that may be irrigated Maximum volume that may be taken in a nominated period Proportion of any water allocated to a defined resource pool	1	1	Disclosure	Great Lakes Compact gives limits of withdrawal of 100,000 gallons per day or greater average over any 90-day period or new or Increased Consumptive Use of 5 million gallons per day or greater average over any 90-day period.
2.2	Is the surface water system currently considered to be neither over allocated nor over-used? N.B. Over-allocated would be if e.g. current use is within sustainable limits but there would be a problem if all legally approved entitlements to abstract water were used. Over-used would be if existing abstractions exceed the estimated proportion of the resource that can be taken on a sustainable basis.	1	1	Evidence	Not considered either over-used or over-allocated and new user and diversions outside the lake are prohibited
2.3	If monitored and the investment uses groundwater, is the groundwater water system currently considered to be neither over- allocated nor over-used?  N.B. Over-allocated would be if e.g. current use is within sustainable limits but there would be a problem if all legally approved entitlements to abstract water were used. Over-used would be if existing abstractions exceed the estimated proportion of the resource that can be taken on a sustainable basis.	1	1	Evidence	SEWRPC considers the Deep Sandstone Aquifer overused, but majority of water supply is coming from the great lakes and the greater area groundwater is not considered over-allocated. <a href="http://www.sewrpc.org/SEWRPCFiles/Environment/water_supply/2005-09-19_water_supply_planni.pdf">http://www.sewrpc.org/SEWRPCFiles/Environment/water_supply/2005-09-19_water_supply_planni.pdf</a>
2.4	Is there a limit to the proportion (e.g. percentage) of water that can be abstracted?	1	0	Evidence	No regulations stating % of Lake Michigan
2.5	Are governance arrangements in place for dealing with exceptional circumstances (such as drought, floods, or severe pollution events), especially around coordinated infrastructure operations?	1	1	Disclosure	Pp.9 and 10 of <a href="http://docs.legis.wisconsin.gov/statutes/statutes/281.pdf">http://docs.legis.wisconsin.gov/statutes/statutes/281.pdf</a> Wisconsin legislation on great lakes compact put in place arrangements for flooding
2.6	Is there a process for re-evaluating recent decadal trends in seasonal precipitation and flow OR recharge regime, in order to evaluate "normal" baseline conditions?	1	1	Evidence	Pg. 50 Great Lakes compact addresses climate change impacts every 5 years and changes to supply regime
2.7	Is there a formal process for dealing with new entrants?	1	1	Disclosure	Yes, Great Lakes Compact has formal process on new applicants and proposals
2.8	For existing entitlements, is there a formal process for increasing, varying, or adjusted use(s)?	1	1	Disclosure	Yes, pg. 34 outlines all new or increased diversions are prohibited except in outlined in the Compact for straddling communities
2.9	Is there policy coherence across sectors (agriculture, energy, environment, urban) that affect water resources allocation, such as a regional, national, or basin-wide Integrated Water Resources Management (IWRM) plan?	1	1	Evidence	The compact is the defining document for managing the international Water Resource and it considers urban, agriculture, and environment. Pg. 10 of the Compact
2.10	Are obligations for return flows and discharges specified and enforced?	1	1	Disclosure	Return flows are discussed in water supply plans and great lakes compact all flows are required to be returned after use
2.11	Is there a mechanism to address impacts from users who are not required to hold a water entitlement but can still take water from the resource pool?	1	1	Disclosure	No users outside of compact are entitled to diversions from Lake Michigan
2.12	Is there a pre-defined set of priority uses within the resource pool? (E.g., according to or in addition to an allocation regime)	1	0	Disclosure	Not readily available

Vulnerability Assessment SECTION 2: Governance					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
2.13	If there are new entrants and/if entitlement holders want to increase the volume of water they use in the resource pool and the catchment is open, are these entitlements conditional on either assessment of third party impacts, an Environmental Impact Assessment (EIA) or an existing user(s) forgoing use?	1	1	Evidence	Pg. 5 Environmentally Sound and Economically Feasible Water Conservation Measures that include addressing environmental impact (does not specify EIA) i) are environmentally sound, ii) reflect best practices applicable to the water use sector, iii) are technically feasible and available, iv) are economically feasible and cost effective based on an analysis that considers direct and avoided economic and environmental costs and v) consider the particular facilities and processes involved, taking into account the environmental impact, age of equipment and facilities involved, the processes employed, energy impacts and other appropriate factors.
2.14	Are withdrawals monitored, with clear and legally robust sanctions?	1	1	Evidence	Yes, Great Lakes Compact requires each party to monitor withdrawals pg. 26
2.15	Are there conflict resolution mechanisms in place?	1	1	Disclosure	Yes, pg. 54 dispute resolution in Great Lakes Compact
Total Governance Score		13	/15		
Eligibility Criterion 2 passed / not passed		87	%		

Vulnerability Assessment SECTION 3: TECHNICAL DIAGNOSTICS					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
1	Does a water resources model of the proposed investment and ecosystem (or proposed modifications to existing investment and ecosystem) exist? Specify model types, such as WEAP, SWAT, RIBASIM, USACE applications). Scale should be at least sub-basin.	1	1	Evidence	Regional groundwater model created with USGS and SEWRPC <a href="http://www.sewrpc.org/SEWRPCFiles/Publications/TechRep/tr-041_aquifer_simulation_model.pdf">http://www.sewrpc.org/SEWRPCFiles/Publications/TechRep/tr-041_aquifer_simulation_model.pdf</a>  USACE HEC-RAS model developed by SEWRPC for hydraulic and flood analysis <a href="http://www.sewrpc.org/SEWRPCFiles/Publications/mr/mr-172-milw-river-watercourse-system-plan.pdf">http://www.sewrpc.org/SEWRPCFiles/Publications/mr/mr-172-milw-river-watercourse-system-plan.pdf</a>  NOAA Great Lakes <a href="https://www.glerl.noaa.gov/res/Programs/ipemf/GLCFS_nextgen.html">https://www.glerl.noaa.gov/res/Programs/ipemf/GLCFS_nextgen.html</a>  A Lake Michigan PRMS model was constructed over the entire Lake Michigan Basin area. The model was constructed and parameterized using available geographic information system (GIS) datasets, and calibrated using available observed (measured) streamflow, solar radiation, and potential evapotranspiration data. Four different emissions scenarios were used.
3.2	Can the system model the response of the managed water system to varied hydrologic inputs and varied climate conditions?	1	1	Evidence	Considers varied hydrologic conditions and climatic variability but does not account for progressive climate change  Pg. 54 Milwaukee watercourse system plan
3.3	Are environmental performance limits (ecosystem, species, ecological community) and/or ecosystem services specified?	1	1	Evidence	EcoDyn modeling consists of nowcasts and scenario-based forecasts to predict the effects of invasive species, climate, nutrient loadings, and meteorology on Great Lakes food webs, fisheries productivity, and water



Vulnerability Assessment SECTION 3: TECHNICAL DIAGNOSTICS					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
					quality. Data, observations and related process studies are used in ecosystem models to forecast the effects of stressors and management options. Part of NOAA GLCFS <a href="https://www.glerl.noaa.gov/res/Programs/eco_dyn/eco_dyn.html">https://www.glerl.noaa.gov/res/Programs/eco_dyn/eco_dyn.html</a>
3.4	Can these performance limits be defined and quantified using the water resources model?	1	0	Evidence	
3.5	Have these limits been defined based on expert knowledge and/or scientific analysis?	1	1	Evidence	Yes, linked to long-term ecological observations, targeted fundamental research on ecological processes
3.6	Are these performance limits linked to infrastructure operating parameters?	1	0	Evidence	
3.7	Are these limits linked to an environmental flows regime?	1	0	Evidence	
3.8	For new projects, is there an ecological baseline evaluation describing the pre-impact state?	1	0	Evidence	
3.9	For rehabilitation / reoperation projects, is there an ecological baseline evaluation available before the projects was developed?	1	0	Evidence	
3.10	Has there been an analysis that details impacts related to infrastructure construction and operation that has been provided?	1	0	Evidence	
3.11	Are lost species and/or lost or modified ecosystem functions specified for restoration in the environmental evaluation?	1	1	Evidence	Suggestions including mitigating water storage of water during wet years for use during drier years, which in turn provides additional resiliency to the associated aquatic ecosystems. Pg. 67 PRMS USGS Model Lake Michigan
3.12	Have regional protected areas / nature reserves been included in the analysis for impacts from the investment asset and future climate impacts?	1	0	Evidence	No
3.13	Does the model include analysis of regression relationships between climate parameters and flow conditions using time series of historical climate and stream flow data?	1	1	Evidence	Yes, using streamflow data and SPARROW model regression analysis pg. 68 PRMS USGS Model
3.14	Does the model include climate information from a multi modal ensemble of climate projections (eg from the Climate Wizard or the World Bank's Climate Portal) to assess the likelihood of climate risks for the specified investment horizons (s)?	1	1	Evidence	Yes, <a href="https://pubs.usgs.gov/sir/2014/5175/pdf/sir2014-5175.pdf">https://pubs.usgs.gov/sir/2014/5175/pdf/sir2014-5175.pdf</a> USGS Lake Michigan PRMA model includes many emissions scenarios and multi-modal climate projections to determine Great Lakes conditions
3.15	Are changes in the frequency and severity of rare weather events such as droughts and floods included?	1	1	Evidence	Yes, pg. 36 PRMS addresses high streamflow and low streamflow events
3.16	Are sub-annual changes in precipitation seasonality included?	1	1	Evidence	Yes, pg. 22 PRMS seasonal variability in radiation evapotranspiration and precipitation
3.17	Is GCM climate data complemented with an analysis of glacial melt water and sea level rise risks, where appropriate (e.g., high or coastal elevation sites)?			Evidence	N/A
3.18	Is paleo-climatic data (e.g., between 10,000 and >1000 years before present) included?	1	0	Evidence	No

Vulnerability Assessment SECTION 3: TECHNICAL DIAGNOSTICS					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
3.19	Is the number of model runs and duration of model runs disclosed?	1	1	Evidence	GLOFS is run 4 times/day, 6 hours
3.20	Has a sensitivity analysis been performed to understand how the asset performance and environmental impacts may evolve under shifting future flow conditions?	1	1	Evidence	Pg.21 PRMS model addresses sensitivity of model, but does not directly discuss the asset
3.21	Is directly measured climate data available for more than 30 years and incorporated into the water resources model?	1	1	Evidence	Yes, climate data from 1969-2008 in PRMS model
3.22	Has evidence demonstrated that climate change has already had an impact on operations and environmental targets? Are these impacts specified and, to the extent possible, quantified? These impacts should be responded to directly in the Adaptation Plan.	1	0	Evidence	No
3.23	Does the evidence suggest that climate change will have an impact on operations and environmental targets over the operational lifespan? Are these impacts specified and, to the extent possible, quantified? These impacts should be responded to directly in the Adaptation Plan.	1	1	Evidence	On the impacts of MMSD and operations of treatment, no as the large portion of water supply is pumped and MMSD only handles treatment of water in use.
3.24	Is there a discussion of the uncertainties associated with projected climate impacts on both operations and environmental impacts?	1	1	Evidence	Pg.22 PRMS discusses uncertainty calculation and pg. 63 uncertainty in climate scenarios
Total Governance Score		14	/23		
Eligibility Criterion passed / not passed		61	%		

## SECTION 4: NATURE BASED SOLUTIONS

**(to be completed for nature-based solutions and hybrid water infrastructure only)**

le this section only needs to be completed if:

- A. As a nature based solution, the asset reflects the intentional use of natural and / or nature based features, processes, and functions, as an integral part of addressing a human need and doing so in a manner that protects, manages, restores, and / or enhances natural features, processes, and systems in a functioning and sustainable manner.
- B. Where feasible, the asset prioritises natural features over nature – based features. Such features include the protection, restoration, expansion, and / or creation of natural systems and processes as an explicit component of the desired project outcomes.

### SECTION 4.1: SITE INVENTORY

How well do we understand the systems and processes at the project site?

		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
4.1.1	Is this a “greenfield site” (i.e., undeveloped land used for agriculture, landscape design, or left to evolve naturally)? If so, will existing ecosystem services be expanded / supported / maintained?	1	1	Evidence	Yes, undeveloped land left naturally. Description on website <a href="https://www.mmsd.com/what-we-do/flood-management/greenseams">https://www.mmsd.com/what-we-do/flood-management/greenseams</a>
4.1.2	Has an eco-hydrological model been developed?	4	4	Evidence	Department of Natural Resources (WDNR) used “down-scaled” global climate models that indicated a warming trend and predicted climatic changes in Wisconsin. <a href="https://www.freshcoastguardians.com/application/files/4315/5386/6421/MMSD_Urban_Biodiversity_Plan.pdf">https://www.freshcoastguardians.com/application/files/4315/5386/6421/MMSD_Urban_Biodiversity_Plan.pdf</a> p.8  Also University of Wisconsin developed eco-hydrological model <a href="https://dc.uwm.edu/cgi/viewcontent.cgi?article=3116&amp;context=etd">https://dc.uwm.edu/cgi/viewcontent.cgi?article=3116&amp;context=etd</a>
4.1.3	Specify model type, such as WEAP, SWAT, RIBASIM, USACE.	1	0	Evidence	Type not specified. The methodology used in these analyses is similar to that used in the 4th National Climate Assessment (USGCRP, 2017), and is based on the analyses of observational datasets for past changes and from modeling and downscaled datasets for projections produced for NCA4. Projections use a weighting system for global climate models, that are then statistically downscaled for temperature and precipitation at about 6 km resolution across the continental United States.
4.1.4	Have sources of pollution been analysed for the following (even if none have been found)? • Point source • Nonpoint source	2	2	Evidence	The Urban biodiversity plan reviewed SEWRPC plans with information on sources of pollution
Total Site Inventory Score		8	7		
Eligibility Criterion passed / not passed		88	%		

SECTION 4.2: ECOLOGICAL BASELINES FOR MANAGEMENT					
Do we understand how the ecological characteristics of the site will evolve over time?					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
4.2.1	Is there an inventory of species that can be used as a baseline for vegetation and animal species?	1	1	Evidence	Yes, pg. 11 of MMSD urban biodiversity plan
4.2.2	If there is an inventory of species that can be used as a baseline for vegetation and animal species, does it specify or identify endangered / threatened species, ecological communities, or categories of species?	1	1	Evidence	Yes, pg.10 and 11 and pg.49 discusses endangered species
4.2.3	Have studies on current or potential climate impacts on key species (e.g., endangered or threatened species) been included?	1	0	Evidence	Not disclosed
4.2.4	Is the flow regime used as a basis for ecological management?	1	1	Evidence	Pg. 18 reviews stream conditions and how different factors will have impacts on species
4.2.5	Is there a climate trends analysis for the site or region based on at least 30 years of climate data?	1	1	Disclose	Yes, look for climate effects to habitat through 2050
4.2.6	Is there an assessment of exotic invasive species?	1	1	Evidence	Yes, pg. 5 and 49
4.2.7	If there is an assessment of exotic invasive species, has a plan been developed to cope with exotic invasive species?	1	1	Evidence	Pg. 49 references immediate management step to control invasive Asian worm
4.2.8	Has there been an assessment of trade-offs between reliability vs environmental benefits to support decision making processes?	1	0	Evidence	Not disclosed
Total Ecological Management Score		8	6 / 8		
Eligibility Criterion passed / not passed		75	%		

SECTION 4.3: DATA INVENTORIES OF LOCALISED & INDIGENOUS ASSETS					
Do we have access to adequate, credible data about the project site?					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
4.3.1	Is there an inventory of existing water-related ecosystem services based on 30 or more years of data?	1	0	Evidence	Inventory, but does not states years
4.3.2	Does any existing inventory of water-related ecosystem services related to runoff / land-use include the following data? <ul style="list-style-type: none"> <li>• Fire regime</li> <li>• Sediment / erosion load</li> <li>• Nutrient load</li> <li>• Land-use change</li> </ul>	3	3	Evidence	Pg. 8 sediment loading Pg. 8 nutrient loading Pg. 7 land use change
4.3.3	Do inventories of water-related ecosystem services related to water <i>quality</i> include the following data: <ul style="list-style-type: none"> <li>• Water quality for environmental services (e.g., habitat, ecological communities, erosion)</li> <li>• Water quality for human needs / services (e.g., drinking water, agriculture)</li> </ul>	2	2	Evidence	Pg. 17 WQ for habitat and ecology Pg. 27 drinking water and human health
4.3.4	Is there an existing inventory of water-related ecosystem services related to water <i>quantity</i> ? <ul style="list-style-type: none"> <li>• Water quantity for environmental services (e.g., habitat, flow regime)</li> <li>• Water quality for human needs / services (e.g., service reliability)</li> </ul>	2	2	Evidence	Pg. 17 WQ for habitat and ecology Pg. 27 drinking water and human health
Total Existing Inventories Score		8	7/8		
Eligibility Criterion passed / not passed		88	%		

SECTION 4.4: BROADER ECOSYSTEM IMPACTS					
Do we understand how the project's impacts may extend beyond the site?					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
4.4.1	Has there been a determination of proposed / estimated impacts from project construction and operations regarding local, upstream, and downstream species / ecological communities?	1	1	Evidence	Pg. 43 and several instances look at impact of Greenseams
4.4.2	Has there been a determination of proposed / estimated impacts on existing local, upstream, and downstream eco-hydrological systems from modification regarding: <ul style="list-style-type: none"> <li>Pollution</li> <li>Downstream flow regime</li> <li>Groundwater impacts</li> <li>Land tenure (e.g., public vs private)</li> </ul>	4	4	Disclose	Yes Yes Yes Yes, looks at private land and public private partnerships
4.4.3	Has there been a determination of proposed / estimated impacts and benefits on eco-hydrological systems from changes in allocation via the following? <ul style="list-style-type: none"> <li>Relevant environmental flows management plans</li> <li>Groundwater management plans</li> </ul>	2	0	Disclose	Not disclosed in this report
4.4.4	Has the monitoring system contributed to the development and goals of the basin management plan?	1	1	Disclose	Yes, the basin management plan includes many goals involving monitoring of ecological communities and this program fits it perfectly
Total Broader Impacts Systems Score		8	6/8		
Eligibility Criterion passed / not passed			75%		

SECTION 4.5: MONITORING & MANAGEMENT SYSTEMS					
Do we have effective management processes and tools to maintain ecological integrity over time?					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
4.5.1	Have target performance indicators been explicitly defined for: <ul style="list-style-type: none"> <li>Infrastructure services</li> <li>Ecosystem services</li> </ul>	1	1	Evidence	Yes, for ecosystem services pp.17-23 Page V for infrastructure services
4.5.2	Is there a monitoring plan in place for infrastructure performance indicators?	2	2	Evidence	Pp. 45-46 Monitoring Framework
4.5.3	Is there a monitoring plan in place for ecosystem performance indicators?	2	2	Evidence	Pp. 45-46 Monitoring Framework
4.5.4	Are monitoring outcomes connected to the decision making and management / operations process?	1	0	Evidence	Not stated
4.5.5	Is there a multi-stakeholder basin management plan?		1	Disclose	Yes, SEWRPC
Total Monitoring and Management Systems Score		6	5/6		
Eligibility Criterion passed / not passed		83	%		

Section 5: ADAPTATION PLAN					
(To be completed for all Water Infrastructure assets)					
		Max Score	Actual Score	Requirement: Evidence and/or Disclosure	Comments
AP.1	Is there a plan to restore or secure lost/modified ecosystem functions / species?	1	1	Evidence	MMSD adopted in 2019 a Resilience Plan designed to adapt infrastructure to changing climatic conditions with ecosystem functions in mind <a href="https://www.freshcoastguardians.com/static/Resilience_Plan_2019_F.pdf">https://www.freshcoastguardians.com/static/Resilience_Plan_2019_F.pdf</a>
AP.2	Is the adaptation plan for environmental targets / infrastructure robust across specified <u>observed</u> / recent climate conditions? Confer VA	1	1	Evidence	Yes, adapting to increasing population and other factors to coincide with observed and recent climate conditions as well as addressing recent storms.
AP.3	Is the adaptation plan for environmental targets / infrastructure robust across specified <u>projected</u> climate conditions? Confer VA	1	1	Evidence	Yes, pg. 13 addresses projected changes in regional climate
AP.4	Is there a monitoring plan designed to track ongoing progress and impacts to inform future decisions?	1	1	Evidence	Page 60 Action 17 revolves around monitoring progress
AP.5	Is there a plan to reconsider on a periodic basis the VA for operational parameters, governance and allocation shifts, and environmental performance targets?	1	0	Evidence	No
TOTAL ADAPTATION PLAN SCORE:		4	5/5		
Eligibility Criterion passed / not passed		80	%		



Climate Bonds<sup>INITIATIVE</sup>

# Climate Bonds Standard

Version 3.0

## Pre-Issuance Certification Checklist



## Climate Bonds Standard Version 3.0 Pre-Issuance Certification Checklist

1. Use of Proceeds		
Climate Bonds Standard Requirement	Findings	Requirement Met
<b>1.1</b> The Issuer shall document the Nominated Projects & Assets which are proposed to be associated with the Bond and which have been assessed as likely to be Eligible Projects & Assets. The Issuer shall establish a list of Nominated Projects & Assets which can be kept UpToDate during the term of the Bond.	MMSD has a sophisticated list of nominated projects and assets which has been updated and reviewed by Kestrel as of publication of Verifier's Report	X
<b>1.2.</b> The expected Net Proceeds of the Bond shall be no greater than the Issuer's total investment exposure to the proposed Nominated Projects & Assets, or the relevant proportion of the total Market Value of the proposed Nominated Projects & Assets which are owned or funded by the Issuer.	Net Proceeds are less than total investment exposure	X
<b>1.3</b> Nominated Projects & Assets shall not be nominated to other Certified Climate Bonds, Certified Climate Loans, Certified Climate Debt Instruments, green bonds, green loans or other labelled instruments (such as social bonds or SDG bonds) unless it is demonstrated by the Issuer that:	The bonds are not nominated for any other green and/or climate bonds.  No separate portions or re-financing involved	X
<b>1.3.1</b> Distinct portions of the Nominated Projects & Assets are being funded by different Certified Climate Bonds, Certified Climate Loans, Certified Climate Debt Instruments, green bond, green loans or other labelled instruments or;		
<b>1.3.2</b> The existing Certified Climate Bond, Certified Climate Loan or Certified Climate Debt Instrument is being refinanced via another Certified Climate Bond, Certified Climate Loan or Certified Climate Debt Instrument.		

## 2. Process for Evaluation and Selection of Projects and Assets

Climate Bonds Standard Requirement	Findings	Requirement Met
<b>2.1.</b> The Issuer shall establish, document and maintain a decision-making process which it uses to determine the eligibility of the Nominated Projects & Assets. The decision-making process shall include, without limitation:		
<b>2.1.1.</b> A statement on the climate-related objectives of the Bond.	Included in objectives	X
<b>2.1.2</b> How the climate-related objectives of the Bond are positioned within the context of the Issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability.	Aligned with MMSD Vision 2035 and Sustainability practices	X
<b>2.1.3</b> Issuer's rationale for issuing the Bond.	To reduce energy costs and improve operational efficiency within their system. Climate benefits	X
<b>2.1.4</b> A process to determine whether the Nominated Projects & Assets meet the eligibility requirements specified in Part C of the Climate Bonds Standard.	Review of sector criteria and taxonomy was performed by MMSD and reviewed by Kestrel	X
<b>2.2</b> Issuer should include under Clause 2.1 further aspects of the decision-making process, including:		
<b>2.2.1</b> Related eligibility criteria, including, if applicable, exclusion criteria or any other process, applied to identify and manage potentially material environmental, social or governance risks associated with the Nominated Projects & Assets.	No exclusion criteria adopted, but risk assessments included with project process	X
<b>2.2.2</b> Green standards or certifications referenced in the selection of Nominated Projects & Assets.	Green standards were a goal stated	X
<b>2.2.3</b> The issuer shall assess that all proposed Nominated Projects & Assets to be associated with the Bond meet the documented objectives as stated under Clause 2.1.1 and are likely to conform to the relevant eligibility requirements under Part C of the Climate Bonds Standard.	Projects align with climate objectives	X

3. Management of Proceeds		
Climate Bonds Standard Requirement	Findings	Requirement Met
<b>3.1</b> The systems, policies and processes to be used for management of the Net Proceeds shall be documented by the Issuer and disclosed to the Verifier, and shall include arrangements for the following activities:		
<b>3.1.1</b> The Net Proceeds of the Bond can be credited to a sub- account, moved to a sub-portfolio, or otherwise tracked by the Issuer in an appropriate manner and documented.	Yes, overseen by the Treasurer, proceeds are credited to a sub-account and tracked while limited to State investment policy as outlined in Report	X
<b>3.1.2</b> The balance of unallocated Net Proceeds can be managed as per the requirements in Clause 7.3.	All proceeds allocated to projects	X
<b>3.1.3</b> The earmarking process can be used to manage and account for funding to the Nominated Projects & Assets and enables estimation of the share of the Net Proceeds being used for financing and refinancing.	Yes, earmarked for project and tracked	X

4. Reporting Prior To Issuance		
Climate Bonds Standard Requirement	Findings	Requirement Met
<b>4.1</b> The Issuer shall prepare a Green Bond Framework and make it publicly available prior to Issuance or at the time of Issuance. The Green Bond Framework shall include, without limitation:		
<b>4.1.1</b> Confirmation that the Bonds issued under the Green Bond Framework are aligned with the Climate Bonds Standard. This may include statements of alignment with other applicable standards, such as the EU Green Bond Standard, the ASEAN Green Bond Standard, Chinese domestic regulations, Japanese Green Bond Guidelines, etc.	Yes, stated in framework seeking climate bond certification	X
<b>4.1.2</b> A summary of the expected use of proceeds, as defined under Clause 1.1, and the expected contribution of the relevant sectors or sub-sectors to the rapid transition required to achieve the goals of the Paris Climate Agreement.	Summary of projects and use of proceeds included with sectors addressed	X
<b>4.1.3</b> A description of the decision-making process, as defined under Clause 2.1, with particular reference to the requirements in Clause 2.1.2.	Yes, project evaluation decision making process included	X
<b>4.1.4</b> on the methodology and assumptions to be used for: confirming, where required by relevant Sector Eligibility Criteria, the characteristics or performance of Nominated Projects & Assets required to conform to the relevant eligibility requirements under Part C of the Climate Bonds Standard; and any other additional impact metrics that the issuer will define.	MMSD committed to continuing disclosures and voluntarily reporting on how projects meet criteria and towards UN SDGs	X
<b>4.1.5</b> A summary of the approach to the management of unallocated Net Proceeds in accordance with Clause 3.1.	Investment policy is described, but all proceeds allocated to listed projects	X
<b>4.1.6</b> The intended approach to providing Update Reports to reaffirm conformance with the Climate Bonds Standard while the Bond remains outstanding.	Posted to EMMA	X
<b>4.1.7</b> The list of proposed Nominated Projects & Assets associated with the Bond and the investment areas, as provided in Clause 9.1, into which the Nominated Projects & Assets fall. Where there are limits on the amount of detail that can be made available about specific Nominated Projects & Assets, information shall be presented on the investment areas which the Nominated Projects & Assets fall into, provided in Clause 9.1, and the Issuer shall provide an explanation of why details on Nominated Projects & Assets is limited.	Projects listed and broken into sector as will be invested	X

<b>4.1.8</b> Where a proportion of the Net Proceeds are used for refinancing, an estimate of the share of the Net Proceeds used for financing and refinancing, and the relevant Nominated Projects & Assets or investment areas which may be refinanced. This may also include the expected look-back period for refinanced Nominated Projects & Assets.	No refinancing	X
<b>4.2</b> The Issuer shall include in the Disclosure Documentation:		
<b>4.1.1</b> The investment areas, as provided in Clause 9.1, into which the Nominated Projects & Assets fall.	Yes, project specific details provided	X
<b>4.1.2</b> The intended types of temporary investment instruments for the management of unallocated Net Proceeds in accordance with Clause 7.3.	Yes, outlined in investment policy	X
<b>4.1.3</b> The Verifier engaged by the Issuer for the mandatory verification engagements.	Kestrel Verifiers	X
<b>4.1.4</b> The intended approach to providing Update Reports to reaffirm conformance with the Climate Bonds Standard while the Bond remains outstanding, including the location of the published documents.	Posted to EMMA	X
<b>4.1.5</b> The CBI Disclaimer provided in the Certification Agreement.	Signed and agreed	X