

PRELIMINARY VALUATION OF PATENT PORTFOLIO

on behalf of



February 17, 2023

1. INTRODUCTION

GHB Intellect was retained by OriginClear Inc. (the “Client” or “OriginClear”) to create a Tier 2¹ financial model for his patent portfolio under the premise of an ongoing concern.² The patent portfolio comprising five issued U.S. patent across four patent families (collectively, the “Subject Asset”). The Subject Asset of this valuation is the patent portfolio presented in Table 1, *infra*.

The objective of this report is to provide a high level estimate of the financial value of the Subject Asset as of February 17, 2023, for OriginClear’s internal business use in support of its management decision-making.

The Subject Asset patent portfolio is generally directed to wastewater treatment systems. Specifically, the patent claims include specifications for water treatment, rain harvesting, and water pump systems and methods for decontaminating wastewater contained within a single system.

This valuation report sets forth the methodology and procedures we used, the factors we considered in formulating our opinion, and our conclusion of value for the Subject Asset. The analysis in this report utilizes an Income Approach model to break down revenue streams, determine an appropriate royalty rate, and determine an estimation of potential value of the portfolio.

As described in the report, the following analyses are focused on financials associated with the use of the Subject Asset in two primary markets: (1) wastewater treatment systems and (2) rain harvesting markets. These markets were considered to be the most relevant as a result of our technical Subject Matter Expert’s (“SME”) evaluation of the Subject Asset [1].

2. INFORMATION CONSIDERED

We relied upon the following information in performing our valuation of the Subject Asset:

- i. Information provided by OriginClear
- ii. Interviews with OriginClear
- iii. Patents provided in Table 1
- iv. File Histories of the patents provided in Table 1
- v. Information provided by GHB Intellect’s Technical Subject Matter Experts
 - GHB Intellect’s Technical Evaluation Metrics of OriginClear’s Patent Portfolio, dated February 13, 2023

¹ Tier 2 is a valuation tier offered by GHB Intellect. As a relatively lower tier, Tier 2 comprises a high-level preliminary valuation analysis backed by a basic review of the market, royalty rate, and risk factors in an income approach valuation model. Due to the limited analysis performed in this tier, the Report generated is only for the Client’s internal high-level business planning purposes and is not suitable for external communication or business negotiations. To compare this to other valuation tiers, please refer to GHB Intellect’s website.

² An ongoing concern premise of value assumes that the subject asset is expected to remain with the current business owner and that the owner would continue to operate as a business. See Reilly and Schweihs, “Guide to Intangible Asset Valuation” (Revised Edition), 2014, pp. 79-80.

- vi. Publicly available information, including:
 - Company websites
 - Industry and market report summaries
 - Publicly available license agreements
 - Other sources of information as cited in this report

3. ORIGINCLEAR INC.

OriginClear Inc. (“OriginClear”) was established in 2007 and is headquartered in Clearwater, Florida, with additional subsidiaries in the United States and Hong Kong. OriginClear operates within the water treatment industry and specializes in producing modular wastewater treatment systems to overhaul existing systems on the residential, municipal, and industrial levels. OriginClear also seeks to implement an on-demand service plan (“Water On Demand™”) with their proprietary water treatment systems in which users “pay on the meter” for only the water they use.

4. SUBJECT ASSET

The Subject Asset of this valuation is the patent portfolio presented in Table 1, comprising five issued U.S. patents across four patent families. Table 1 provides the patent numbers, issue dates, and anticipated expiration dates for all patents within the Subject Asset portfolio. For all issued patents in the portfolio, the sole assignee is Daniel M. Early.³

Table 1. OriginClear Patent Portfolio

| No. | Patent | Family | Title | Issue Date | Expiration Date |
|-----|-----------|--------|--|-------------|-----------------|
| 1 | US8372274 | 1 | Water treatment system and method | 12-Feb-2013 | 16-Jul-2031 |
| 2 | US8871089 | 1 | Water treatment system | 28-Oct-2014 | 7-May-2032 |
| 3 | US8561633 | 2 | Steel-reinforced HDPE rain harvesting system | 22-Oct-2013 | 16-May-2032 |
| 4 | US9205353 | 3 | Scum removal system for liquids | 8-Dec-2015 | 19-Feb-2034 |
| 5 | US9217244 | 4 | Portable steel-reinforced HDPE pump station | 22-Dec-2015 | 20-Oct-2031 |

Publicly available information shows that prosecution is closed for all patents within the Subject Asset portfolio. In addition, two patents, U.S. Patent Nos. 8,561,633 and 8,871,089, are currently expired due to failure to pay maintenance fees. Pursuant to Client instructions, this valuation analysis assumes that these two patents can be revived and are valid and enforceable.⁴

The earliest expiration date is for U.S. Patent No. 8,372,274, which is anticipated to expire July 16, 2031. For this valuation, we decided that the most relevant expiration date is that of its continuation-in-part, U.S. Patent No. 8,871,089, on May 7, 2032, as this appears to be the strongest patent within the portfolio based on our technical review. A detailed scoresheet of the various patent, technical, and market metrics reviewed by our SMEs can be found in GHB

³ Discussions with Client.

⁴ Discussions with Client.

Intellect’s Technical Evaluation Metrics of OriginClear’s Patent Portfolio, completed on February 13, 2023 [1]. Our technical review revealed some major concerns with the Subject Asset, which are factored into the valuation discount rate, *infra*.

5. VALUATION ANALYSIS

We have employed the Income Approach known as the Relief-From-Royalty Payment Method for the Subject Asset. This approach measures a property’s value by quantifying the amount of income that could be generated from licensing the intangible asset. This method employs royalty rates from Comparable Uncontrolled Transactions (“CUTs”) to determine projected royalty payments, which are derived by multiplying a royalty base times a royalty rate. The lump-sum value of the Subject Asset may be quantified by applying a discount rate that reflects the risk of realizing the calculated income (or royalty) stream.

A. Relevant Market(s)

The Subject Asset comprises only issued U.S. patents. Given that patents are territorial, we determined that only U.S. markets were relevant. We assumed that the patented technologies could be implemented within half a year, beginning in July 2023. In addition, as described in Section 4, *supra*, we decided that the most relevant expiration date is that U.S. Patent No. 8,871,089, on May 7, 2032.

Based on our technical evaluation of the Subject Asset, patents belonging to families 1, 3, and 4 (as shown in Table 1) are relevant to the wastewater treatment industry. The U.S. Wastewater Treatment Systems market was estimated at \$5.3 billion in 2021 and is anticipated to grow at a compound annual growth rate (“CAGR”) of 8.6% from 2022 to 2030 [2]. We made no additional predictions on wastewater treatment systems market growth beyond 2030 and assumed that the market will remain steady across the relevant time period.

U.S. Patent No. 8,561,633 from patent family 2 was determined to be directed towards rain harvesting systems. The North American Rainwater Harvesting Market was estimated at \$368.7 million in 2021 and is expected to reach \$469.2 million by 2027, growing at a CAGR of 4.01% [3]. Similar to wastewater treatment systems, we made no additional predictions on rain harvesting systems market growth beyond 2027. To obtain the U.S. portion of the North American market, we indexed the market against U.S. and Canada population [4][5].

To arrive at the Total Available Market (“TAM”), we combined the relevant U.S. markets from July 2023 through May 2032, as shown in Figure 1.

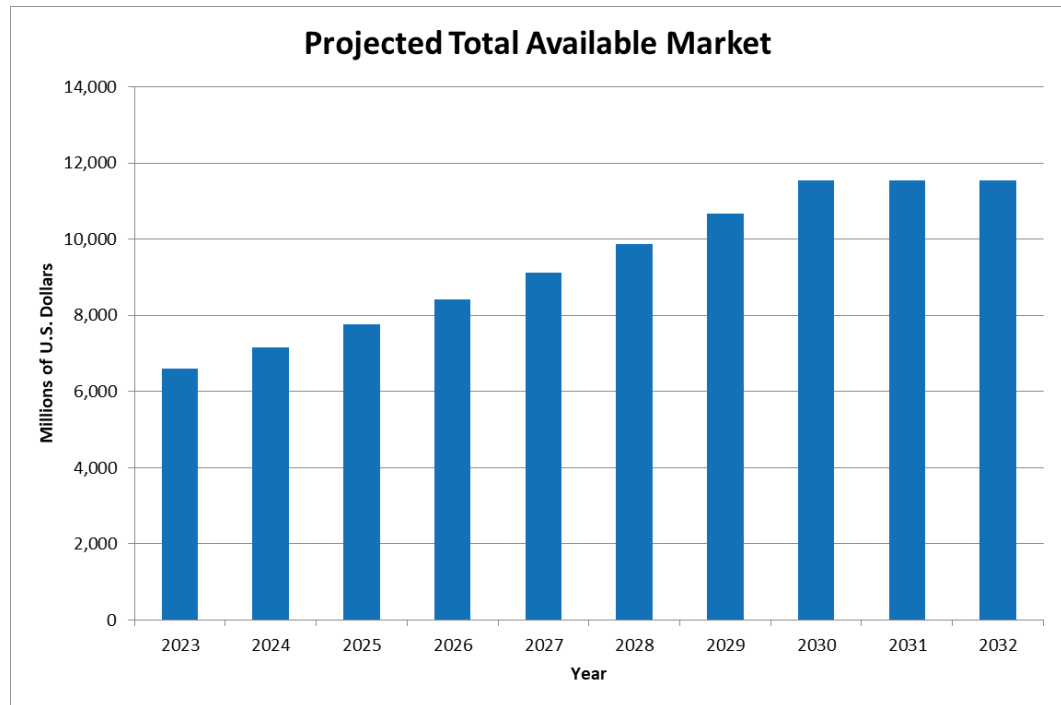


Figure 1. Subject Asset Total Available Market

Because the Subject Asset was found to be the most applicable to water collection and treatment in rural areas [1], we assumed the technology to reach at least one water management facility in the first two years, growing to 10 facilities (low estimate) or 20 facilities (high estimate) by year three, and doubling every two years thereafter. This is divided against the approximately 16,000 active facilities in the U.S. [6], resulting in an overall market reach of 1% (low estimate) or 2% (high estimate).

B. Royalty Rate

In selecting the most appropriate royalty rate, we reviewed the average royalty rates across various industries and applied the average “Energy and Environment” royalty rate of 8%, which we believed to be the most relevant to the Subject Asset and for the wastewater treatment systems and rain harvesting markets [7].

C. Adjustments

Given that this is a preliminary high-level valuation of the Subject Asset, we considered a generally applicable discount rate to arrive at net present value (“NPV”) of the Subject Asset. We note that the discount rate is a holistic calculation, which considers the various risk factors as determined in GHB Intellect’s Technical Evaluation of the Subject Asset [1], as described in further detail below.

I. Patent Enforcement

The value of any patent asset is premised on the ability to exclude others in the market from utilizing the patented invention. Because the Subject Asset is solely applicable within the United States, we have considered the enforceability of the subject patent rights within the United States in our fair market value assessment.

Based on a report published by the U.S. Chamber of Commerce’s Global Innovation Policy Center (“GPIC”) in March 2021 entitled, “U.S. Chamber International IP Index | 9th Edition,” surveyed, evaluated, and ranked 53 countries pertaining to – among other metrics – the enforcement strength of intellectual property (“IP”) within each country.⁵ Enforcement (as defined in the report) measures “the prevalence of IP rights infringement, the criminal and civil legal procedures available to rights-holders, and the authority of customs officials to carry out border controls and inspections.”⁶ Specifically, the report considered:⁷

- “[T]he existence of civil and procedural remedies, including injunctions, damages for injuries, and destruction of infringing and counterfeit goods, as well as their effective application.”
- “[P]re-established damages and/or mechanisms for determining the amount of damages generated by infringement.”
- “[C]riminal standards, including minimum imprisonment and minimum fines, in place and their application.”
- “[E]ffective border measures (measured by the extent to which goods in transit suspected of infringement may be detained or suspended, as well as the existent of *ex officio* authority).”
- “[T]ransparency and public reporting by customs authorities of trade-related IP infringement.”

Figure 2 provides a summary of the relative ranking of IP-related enforcement rights by country.

As indicated in Figure 3, the United States held the top / best ranking (1st) for IP-related enforcement rights. Since the enforcement metric above was based on IP generally, we also evaluated the United States’ IP profile index, which included rankings based on patent rights. Patents (as defined in the report) measures patent term protection, patentability requirements, legislative criteria and active use of compulsory licensing of patented products and technologies.⁸ See Figure 3 (United States).

⁵ Global Innovation Policy Center, U.S. Chamber International IP Index, March 2021, p. 15.

⁶ Global Innovation Policy Center, U.S. Chamber International IP Index, March 2021, p. 66.

⁷ Global Innovation Policy Center, U.S. Chamber International IP Index, March 2021, p. 324.

⁸ Global Innovation Policy Center, U.S. Chamber International IP Index, March 2021, p. 309.

Overall, given that both the United States' enforcement metric and overall patent score are of the highest rank, we have determined that no specific patent enforcement adjustments are required to the FMV of the Subject Asset.

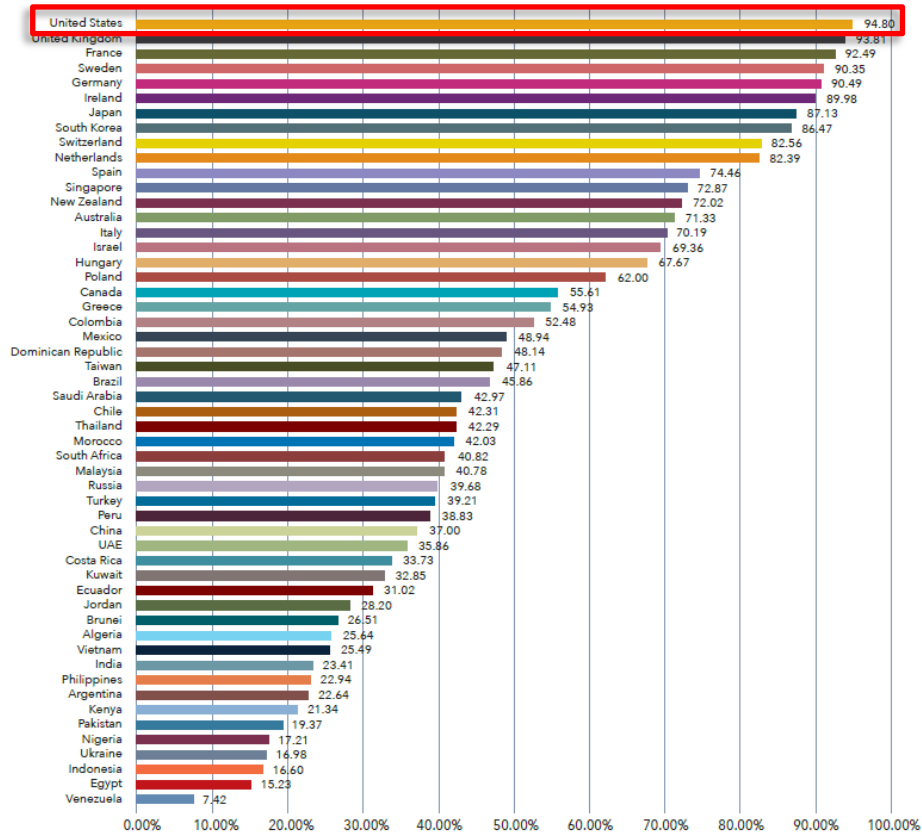


Figure 2. International IP Index (Enforcement)⁹

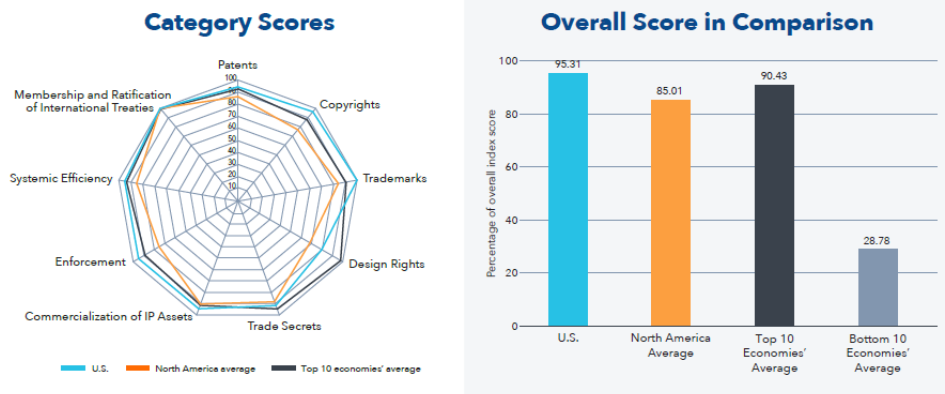


Figure 3. GIPC - International IP Index (United States)¹⁰

⁹ Global Innovation Policy Center, U.S. Chamber International IP Index, March 2021, p. 15.

¹⁰ Global Innovation Policy Center, U.S. Chamber International IP Index, March 2021, p. 308.

II. Discount Rate

To select an appropriate discount rate, we generally considered the business of the hypothetical purchaser of the Subject Asset, the specific technology associated with the Subject Asset, the stage of development of any relevant products that currently or may incorporate the subject technology, and the relevant industry and markets that would be relevant to the subject technology.

In forming our opinion of the appropriate discount rate in this valuation, we first considered investor's expected rates of return for enterprises based on stage of development (see Figure 8).

Table 2. Investors' Expected Rates of Return by Stage of Development

| Stage of Development | Plummer | Scherlis and Sahlman | Sahlman, Stevenson, and Bhide |
|------------------------------------|-----------|----------------------|-------------------------------|
| Startup | 50% - 70% | 50% - 70% | 50% - 100% |
| First Stage or "Early Development" | 40% - 60% | 40% - 60% | 40% - 60% |
| Second Stage or "Expansion" | 35% - 50% | 30% - 50% | 30% - 40% |
| Bridge / Initial Public Offering | 25% - 35% | 20% - 35% | 20% - 30% |

Startup Stage: *investments typically are made in enterprises that are less than a year old and funding is substantially used for product development, prototype testing, and test marketing.*

Early Development Stage: *investments are made in enterprises that have developed prototypes that appear viable and for which further technical risk is deemed minimal, although commercial risk may be significant.*

Expansion Stage: *enterprises usually have shipped some product to consumers (including beta versions).*

Bridge / IPO Stage: *financing covers such activities as pilot plant construction, production design, and production testing, as well as bridge financing in anticipation of a later IPO.¹¹*

It is our understanding that there has been limited development of products and services around the Subject Asset. In addition, based on our technical review of the Subject Asset [1], our SMEs detected several major concerns about the portfolio. Specifically, the issued patent claims within the Subject Asset portfolio are generally "extremely specific, narrow" in scope, leading to enforceability and design-around concerns. Patent prosecution has closed so these issues cannot be remedied with additional claims in continuations. Moreover, the patented technology, while

¹¹ AICPA Equities Securities Task Force and Approved by the AICPA Financial Reporting Executive Committee, "Working Draft Practice Aid Valuation of Privately Held Company Equity Securities Issued as Compensation," 2011, pp. 114-115.

useful, exists in a crowded, mature, and established market that may be resistant to funding and implementing new ideas without significant upsides. As such, the Subject Asset technology may be most appropriate small, rural, or undeveloped areas.

Given the additional risks identified with the Subject Asset, the discount rate would tend to have an upward shift. Weighing the various factors, we determined that the appropriate discount rate should be 95%, indicative of a “Startup” stage of development.

6. CONCLUSION OF VALUE

Given the above determinations, the Subject Asset comprising five issued U.S. patents across four patent families as provided in Table 1 of this report, as of February 17, 2023, has a nominal¹² value between **\$26,637,185** and **\$53,224,807** and a net present value¹³ between **\$561,225** and **\$1,090,326** based on the Income Approach.¹⁴ This value reflects low (1% market share) and high (2% market share) indicators based on our review, as discussed in Section 6, *supra*.

It is important to note that there are significant value variances in patent transactions and the patent transaction market tends to be very illiquid. The quantified value of the Subject Asset is based upon publicly available market information, and the assumptions and analyses contained herein. A summary of information we relied upon is contained in Section 2 of this report, *supra*.

There are a number of considerations that may materially affect the fair market value opinion. Examples of such considerations include, among others, whether the technology described in the Subject Asset is accepted and adopted within the wastewater treatment field, whether the technology described in the Subject Asset may be integrated into existing or new water treatment systems, whether technology described in the Subject Asset can pass regulatory approval, the time required to reach regulatory approval, and whether the benefits and incentives of using the technology described in the Subject Asset hold true as claimed.

In addition, GHB Intellect’s valuations are intended for the end user of the Subject Asset. Patent transactions typically apply significant discounts to the true value (*e.g.*, due to middleman margins, additional business risks perceived, legal risks perceived, etc.). Accordingly, the value estimate provided in this report may differ significantly from what the Subject Asset may sell for within the open market.

¹² Nominal values refer to the unadjusted rate or current price, without taking inflation or other factors into account.

¹³ Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time.

¹⁴ The conclusion of value provided in this report may be based on assumptions and inputs provided by the Client. Unless otherwise indicated, Client-provided assumptions and inputs have not been independently verified for either accuracy or completeness. To the extent that such information from the Client varies from actuals and/or real-world applications, the conclusion of value contained herein may vary materially.

7. STATEMENT OF QUALIFICATIONS AND DISINTEREST

Our Certification of Value for this engagement is provided below. GHB Intellect has no interests that might prevent us from performing an unbiased valuation.

8. ASSUMPTIONS AND LIMITING CONDITIONS

GHB Intellect offers tiered valuation services commensurate with Client needs. Specifically, GHB Intellect offers five different valuation tiers from Tier 1 to Tier 5, with higher tiers representing more in-depth and comprehensive research and analyses. Tiers 1 and 2, the lower tiers which include the most general and basic research and analyses, shall be for Client's internal business use in support of its management decision making only. They may not and should not be used for external communication or negotiation.

To the best of our knowledge and belief, the statements of facts contained in this document, upon which the analysis and opinions expressed are based, are true and correct. Information, estimates, and opinions provided to us and contained in this document or used in the formation of the conclusions herein may have been obtained from Client. GHB Intellect assumes no representation, liability, or warranty for the accuracy or completeness of such items from the Client. Actual results may vary materially from the estimates and projected results contained herein.

Additional information, estimates, and opinions provided to us and contained in this document or utilized in the formation of the value conclusions were obtained from sources considered reliable and believed to be true and correct. However, no representation, liability or warranty for the accuracy of such items is assumed by or imposed on us, and is subject to corrections, errors, omissions, and withdrawal without notice. Furthermore, the opinions and conclusions contained in this report include assumptions as detailed in this report and attached exhibits. If those assumptions were to change, our findings and conclusions would change accordingly.

The valuation may not be used in conjunction with any other appraisal or study. The value conclusions stated in this document are based on the assumptions described in this document. The valuation was prepared solely for the purpose, function and party identified in this report. This report may not be reproduced, in whole or in part, and the findings of this document may not be utilized by any third party for any purpose, without the express written consent of GHB Intellect.

No change of any item in any part of this document may be made by anyone other than authorized GHB Intellect personnel, and we shall have no responsibility for any such unauthorized change.

The work papers for this engagement are being retained in our files and are available for your reference. We would be available to support our valuation conclusions should this be required. Those services would be performed for an additional fee.

Neither all nor any part of the contents of this document shall be disseminated or referred to the public through advertising, public relations, news or sales media, or any other public means of communication or referenced in any publication, including any private or public offerings including but not limited to those filed with Securities and Exchange Commission or other governmental agency, without the prior written consent and approval of and review by GHB Intellect personnel.

Good and marketable title to the assets being appraised is assumed. We are not qualified to render an “opinion of title,” and no responsibility is assumed or accepted for matters of a legal nature affecting the assets being appraised. No formal investigation of legal title to or liabilities against the assets valued was made, and we render no opinion as to ownership of the assets or condition of their title.

Our work with respect to prospective financial information did not constitute an audit or an examination, compilation, or agreed upon procedures engagement of a financial forecast in accordance with standards established by the American Institute of Certified Public Accountants, and we do not express assurance of any kind thereon. We are not required to give testimony or attend any court or administrative proceeding with reference to the assets appraised unless additional arrangements, including compensation have been agreed to in advance.

We take no responsibility for any events, conditions or circumstances affecting our opinion of value that take place subsequent to the valuation date.

GHB Intellect is a technology and business consultancy and not an accounting, investment or law firm. We do not offer accounting, tax, investment or legal advice or representation.

9. CERTIFICATION OF VALUE

GHB Intellect, through its expert(s) who analyzed and compiled the majority of the substance for this valuation, certifies that, to the best of our knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our unbiased professional analyses, opinion, and conclusions.
- We have no personal interest with respect to the parties involved.
- We have no bias with respect to the parties involved with this assignment.
- Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
- Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the Client, the amount of the value opinion, the attainment of a stipulated

result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.

10. REFERENCES

- [1] GHB Intellect’s Technical Evaluation Metrics of OriginClear’s Patent Portfolio, dated February 13, 2023
- [2] Grand View Research, “Water Treatment Systems Market Size, Share & Trends Analysis Report”, <https://www.grandviewresearch.com/industry-analysis/water-treatment-systems-market>
- [3] IMARC Group, “North America Rainwater Harvesting Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2022-2027”, <https://www.imarcgroup.com/north-america-rainwater-harvesting-market>
- [4] Macrotrends, “U.S. Population Growth Rate 1950-2023”, <https://www.macrotrends.net/countries/USA/united-states/population-growth-rate>
- [5] Macrotrends, “Canada Population 1950-2023”, <https://www.macrotrends.net/countries/CAN/canada/population>
- [6] Upcounsel, “Patent Licensing Royalty Rates: Everything You Need to Know”, June 24, 2020, <https://www.upcounsel.com/patent-licensing-royalty-rates>
- [7] American Society of Civil Engineers, “2021 Report Card For America’s Infrastructure”, <https://infrastructurereportcard.org/cat-item/wastewater-infrastructure/>