

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

SINTX TECHNOLOGIES, INC.
(Exact name of Registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

84-1375299
(I.R.S. Employer
Identification Number)

1885 West 2100 South
Salt Lake City, Utah 84119
(801) 839-3500
(Address, including zip code and telephone number, of Registrant's principal executive offices)

B. Sonny Bal, MD
President and Chief Executive Officer
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Approximate date of commencement of proposed sale to the public: from time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of Securities Act.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT THAT SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(A) OF THE SECURITIES ACT OF 1933 OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(A), MAY DETERMINE.

EXPLANATORY NOTE

This registration statement contains:

- a base prospectus which covers the offering, issuance and sale by us of up to \$75,000,000 in the aggregate of the securities identified herein from time to time in one or more offerings; and
- an equity distribution agreement prospectus covering the offering, issuance and sale by us of up to a maximum aggregate offering price of \$1,700,000 of our common stock that may be issued and sold under an equity distribution agreement (as amended, the “Equity Distribution Agreement”) with Maxim Group LLC (“Maxim”), which provides for the offer and sale of shares of our common stock having an aggregate offering price of up to \$15 million.

The base prospectus immediately follows this explanatory note. The specific terms of any securities to be offered pursuant to the base prospectus will be specified in a prospectus supplement to the base prospectus. The equity distribution agreement prospectus supplement immediately follows the base prospectus. The \$1,700,000 of common stock that may be offered, issued and sold under the equity distribution agreement prospectus is included in the \$75,000,000 of securities that may be offered, issued and sold by us under the base prospectus. As of the date of this registration statement, we have sold \$10,402 of shares under the Equity Distribution Agreement. We are registering the offer and sale of \$1,700,000 that has not been sold under the Equity Distribution Agreement. Upon termination of the Equity Distribution Agreement with Maxim, any portion of the \$1,700,000 included in the equity distribution agreement prospectus that is not sold pursuant to the sales agreement will be available for sale in other offerings pursuant to the base prospectus and a corresponding prospectus supplement, and if no shares are sold under the Equity Distribution Agreement, the full \$1,700,000 of securities may be sold in other offerings pursuant to the base prospectus and a corresponding prospectus supplement.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where such offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED OCTOBER 12, 2023

PROSPECTUS

SINTX TECHNOLOGIES, INC.

\$75,000,000

**Common Stock, Preferred Stock,
Debt Securities,
Warrants, Rights and Units**

From time to time, we may offer and sell up to \$75.0 million of any combination of the securities described in this prospectus, either individually or in combination. We may also offer shares of common stock or shares of preferred stock upon conversion of debt securities, shares of common stock upon conversion of shares of preferred stock, or shares of common stock, shares of preferred stock or debt securities upon the exercise of warrants.

This prospectus provides a general description of the securities we may offer. Each time we sell securities, we will provide specific terms of the securities offered in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. A prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference in this prospectus before you invest in any securities. This prospectus may not be used to consummate a sale of securities unless accompanied by an applicable prospectus supplement.

Our common stock is listed on The NASDAQ Capital Market under the symbol “SINT”. On October 11, 2023, the last reported sale price for our common stock was \$0.802 per share. As of October 12, 2023, the aggregate market value of our outstanding common stock held by non-affiliates, or the public float, was approximately \$5,259,217, which was calculated based on 4,207,374 shares of outstanding common stock held by non-affiliates and on a price per share of \$1.25, the closing price of our common stock on The NASDAQ Capital Market on August 14, 2023. During the 12 calendar months prior to and including the date of this prospectus, we have sold \$10,402 shares of common stock pursuant to General Instruction I.B.6 of Form S-3. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on this registration statement in a public primary offering with a value exceeding more than one-third of our public float (the market value of our common stock held by our non-affiliates) in any 12-month period so long as our public float remains below \$75.0 million. As of October 11, 2023, one-third of our public float is equal to approximately \$1,753,072. The applicable prospectus supplement will contain information, where applicable, as to any other listing on The NASDAQ Capital Market or any securities market or other exchange of the securities, if any, covered by the prospectus supplement.

INVESTING IN OUR SECURITIES INVOLVES RISKS. YOU SHOULD REVIEW CAREFULLY THE RISKS AND UNCERTAINTIES DESCRIBED UNDER THE HEADING “RISK FACTORS” ON PAGE 5 AND CONTAINED IN THE APPLICABLE PROSPECTUS SUPPLEMENT AND ANY RELATED FREE WRITING PROSPECTUS AND UNDER SIMILAR HEADINGS IN THE OTHER DOCUMENTS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS.

The securities may be sold directly to investors, through agents designated from time to time or to or through underwriters or dealers. For additional information on the methods of sale, you should refer to the section entitled “Plan of Distribution” in this prospectus. If any underwriters or agents are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such underwriters or agents and any applicable commissions or discounts and over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2023

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ABOUT THIS PROSPECTUS

Throughout this prospectus, references to “SINTX,” the “Company,” “we,” “us,” and “our” refer to SINTX Technologies, Inc.

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may sell any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of \$75.0 million. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities under this shelf registration, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus. You should read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading “Incorporation by Reference.”

You should rely only on the information that we have provided or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you. We have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or the accompanying prospectus supplement. This prospectus and the accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and the accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered or securities sold on a later date.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which involve risks and uncertainties. Forward-looking statements provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to any historical or current fact. Forward-looking statements are based on our management’s current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the Sections of this prospectus entitled “Prospectus Summary” and “Risk Factors.”

All statements, other than statements of historical fact, included or incorporated herein regarding our strategy, future operations, financial position, future revenues, projected costs, plans, prospects and objectives are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “would” and similar expressions. These statements involve risks, uncertainties and other factors that may cause our actual results, performance, time frames or achievements to be materially different from any future results, performance, time frames or achievements expressed or implied by the forward-looking statements. Risks, uncertainties and other factors that might cause or contribute to such differences include, but are not limited to, those discussed in the Section entitled “Risk Factors” in our most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q. Given these risks, uncertainties and other factors, many of which are beyond our control, you should not place undue reliance on these forward-looking statements.

In addition, past financial and/or operating performance is not necessarily a reliable indicator of future performance and you should not use our historical performance to anticipate results or future period trends. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to revise any forward-looking statements to reflect events or developments occurring after the date of this prospectus, even if new information becomes available in

PROSPECTUS SUMMARY

This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, including the risks of investing discussed under "Risk Factors" beginning on page 5 of this prospectus and in our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, as well as any amendments thereto reflected in subsequent filings with the SEC, each of which are incorporated by reference in this prospectus, along with our consolidated financial statements and notes to those consolidated financial statements and the other information incorporated by reference in this prospectus, before making an investment decision.

Company Overview

SINTX Technologies is a 27-year-old advanced ceramics company formed in December 1996, focused on providing solutions in a variety of biomedical, technical, and antipathogenic applications. We have grown from focusing primarily on the research, development and commercialization of medical devices manufactured with silicon nitride to becoming an advanced ceramics company engaged in diverse fields, including biomedical, technical and antipathogenic applications. This diversification enables us to focus on our core competencies which are the manufacturing, research, and development of products comprised from advanced ceramic materials for external partners. We seek to connect with new customers, partners and manufacturers to help them realize the goal of leveraging our expertise in advanced ceramics to create new, innovative products across these sectors.

Biomedical Applications: Since its inception, SINTX has been focused on medical grade silicon nitride. SINTX biomedical products have been shown to be biocompatible, bioactive, antipathogenic, and to have superb bone affinity. Spinal implants made from SINTX silicon nitride have been successfully implanted in humans since 2008 in the US, Europe, Brazil, and Taiwan. This established use, along with its inherent resistance to bacterial adhesion and bone affinity suggests that it may also be suitable in other fusion device applications such as arthroplasty implants, foot wedges, and dental implants. Bacterial infection of any biomaterial implants is always a concern. SINTX silicon nitride has been shown to be resistant to bacterial colonization and biofilm formation, making it antibacterial. SINTX silicon nitride products can be polished to a smooth and wear-resistant surface for articulating applications, such as bearings for hip and knee replacements.

We believe that silicon nitride has a superb combination of properties that make it suited for long-term human implantation. Other biomaterials are based on bone grafts, metal alloys, and polymers- all of which have well-known practical limitations and disadvantages. In contrast, silicon nitride has a legacy of success in the most demanding and extreme industrial environments. As a human implant material, silicon nitride offers bone ingrowth, resistance to bacterial and viral infection, ease of diagnostic imaging, resistance to corrosion, and superior strength and fracture resistance, all of which claims are validated in our large and growing inventory of peer-reviewed, published literature reports. We believe that our versatile silicon nitride manufacturing expertise positions us favorably to introduce new and innovative devices in the medical and non-medical fields.

In June 2022, we acquired Technology Assessment and Transfer, Inc. (TA&T), a nearly 40-year-old business with a mission to transition advanced materials and process technologies from a laboratory environment to commercial products and services. TA&T has supplied ceramics for use in several biomedical applications. These products were made via 3D printing and include components for surgical instruments as well as conceptual and prototype dental implants.

Technical Applications: It is our belief that our silicon nitride has the best combination of mechanical, thermal, and electrical properties of any technical ceramic material. It is a high-performance technical ceramic with high strength, toughness, and hardness, and is extremely resistant to thermal shock and impact. It is also an electrically insulating ceramic material. Typically, it is used in applications where high load-bearing capacity, thermal stability, and wear resistance are required. We have obtained AS9100D certification and ITAR registration to facilitate entry into the aerospace and protective armor markets.

We recently entered the ceramic armor market through the purchase of assets from B4C, LLC and a technology partnership with Precision Ceramics USA. We will develop and manufacture high-performance ceramics for personnel, aircraft, and vehicle armor including a 100% Boron Carbide material for ultimate lightweight performance in ballistic applications, and a composite material made of Boron Carbide and Silicon Carbide for exceptional multi-hit performance against ballistic threats. We have signed a 10-year lease at a building near our headquarters in Salt Lake City, Utah to house development and manufacturing activities for SINTX Armor.

TA&T's primary area of expertise is material processing and fabrication know-how for a broad spectrum of monolithic ceramic, ceramic composite, and coating materials. Primary technologies include Additive Manufacturing (3D Printing) of ceramics and metals, low-cost fabrication of fiber reinforced ceramic matrix composites (CMCs) and refractory chemical vapor deposited (CVD) coatings, transparent ceramics for ballistic armor and optical applications, and magnetron sputtered (PVD) coatings for lubrication, wear resistance and environmental barrier coatings for CMCs. TA&T also provides a host of services that include 3D printing, PVD-CVD coatings, material processing-CMCs, CIP, PS, HP, HIP, and material characterization for powders and finished parts-TGA/DSC, PSD. SA, Dilatometry, UV-VIS and FTIR transmission, haze and clarity.

Antipathogenic Applications: Today, there is a global need to improve protection against pathogens in everyday life. SINTX believes that by incorporating its unique composition of silicon nitride antipathogenic powder into products such as face masks, filters, and wound care devices, it is possible to manufacture surfaces that inactivate pathogens, thereby limiting the spread of infection and disease. The discovery in 2020 that SINTX silicon nitride inactivates SARS-CoV-2, the virus which causes the disease COVID-19, has opened new markets and applications for our material and we have focused many of our resources on these opportunities.

We presently manufacture advanced ceramic powders and components in our manufacturing facilities based in Salt Lake City, Utah.

Corporate Information

Our headquarters is located at 1885 West 2100 South, Salt Lake City, Utah 84119, and our telephone number is (801) 839-3500. We maintain a website at <https://www.sintx.com>. Information on the website is not incorporated by reference and is not a part of this prospectus.

Additional Information

For additional information related to our business and operations, please refer to the reports incorporated herein by reference, as described under the caption "Incorporation by Reference" on page 35 of this prospectus.

The Securities We May Offer

We may offer shares of common stock and shares of preferred stock, various series of debt securities, warrants to purchase any of such securities, and rights to purchase shares of common stock, shares of preferred stock or warrants, either individually or in units, with a total value of up to \$75.0 million from time to time under this prospectus, together with any applicable prospectus supplement and related free writing prospectus, at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- maturity, if applicable;
- original issue discount, if any;
- rates and times of payment of interest or dividends, if any;

- redemption, conversion, exchange or sinking fund terms, if any;
- conversion or exchange prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion or exchange prices or rates and in the securities or other property receivable upon conversion or exchange;
- ranking;
- restrictive covenants, if any;
- voting or other rights, if any; and
- important United States federal income tax considerations.

A prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

We may sell the securities directly to or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

- the names of those underwriters or agents;
- applicable fees, discounts and commissions to be paid to them;
- details regarding over-allotment options, if any; and
- the net proceeds to us.

Common Stock

Our Board of Directors has the authority under our Restated Certificate of Incorporation, without further action by our shareholders, to issue up to 250,000,000 shares of common stock (including shares of common stock outstanding as of the date hereof). We may offer shares of common stock from time to time.

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, and do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our common stock entitled to vote can elect all of the directors standing for election. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our Board of Directors out of funds legally available for dividend payments. All outstanding shares of our common stock are fully paid and nonassessable, and any shares of our common stock to be sold pursuant to this prospectus will be fully paid and nonassessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption or other subscription rights. There are no redemption or sinking fund provisions applicable to our common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of our common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

Preferred Stock

Our Board of Directors has the authority under our Restated Certificate of Incorporation, without further action by our shareholders, to issue up to 130,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences, privileges and restrictions of the shares of each wholly unissued series, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preference and sinking fund terms, and to increase or decrease the number of shares of any such series (but not below the number of shares of such series then outstanding). Our preferred stock is described in greater detail in this prospectus under "Description of Capital Stock — Preferred Stock."

We will fix the rights, preferences, privileges, qualifications and restrictions of the shares of each series of preferred stock that we sell under this prospectus and applicable prospectus supplements in an amendment to our Restated Certificate of Incorporation relating to that series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any amendment to our Restated Certificate of Incorporation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. We urge you to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the series of preferred stock being offered, as well as the complete amendment to our Restated Certificate of Incorporation that contains the terms of the applicable series of preferred stock.

Debt Securities

We may offer secured or unsecured obligations in the form of one or more series of senior or subordinated debt. The senior debt securities and the subordinated debt securities are together referred to in this prospectus as the "debt securities." The subordinated debt securities generally will be entitled to payment only after payment of our senior debt. Senior debt generally includes all debt for money borrowed by us, except debt that is stated in the instrument governing the terms of that debt to be not senior to, or to have the same rank in right of payment as, or to be expressly junior to, the subordinated debt securities. We may issue debt securities that are convertible into shares of our common stock.

The senior and subordinated debt securities will be issued under separate indentures between us and a trustee. We have summarized the general features of the debt securities to

be governed by the indentures. These indentures have been filed as exhibits to the registration statement of which this prospectus forms a part. We encourage you to read these indentures. Instructions on how you can get copies of these documents are provided in the section titled “Where You Can Find More Information.”

Warrants

We may offer warrants for the purchase of our common stock, preferred stock and/or debt securities in one or more series, from time to time. We may issue warrants independently or together with shares of common stock, shares of preferred stock and/or debt securities, and the warrants may be attached to or separate from those securities.

In this prospectus, we have summarized certain general features of the warrants under “Description of Warrants.” We urge you, however, to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the particular warrants being offered, as well as the complete warrant document or agreement that contain the terms of the warrants. Specific warrant documents or agreements will contain additional important terms and provisions and will be filed as exhibits to the registration statement of which this prospectus is a part, or incorporated by reference from a current report on Form 8-K that we file with the SEC.

Rights

We may distribute rights to the holders of our common stock or other securities to purchase a specified number of our shares of common stock or other securities that the holder owns as of record date set by our Board of Directors. In a prospectus supplement, we will inform you of the exercise price and other specific terms of the rights.

Units

We may offer units consisting of shares of common stock, shares of preferred stock, debt securities warrants and/or rights to purchase any of such securities in one or more series. In this prospectus, we have summarized certain general features of the units under “Description of Units.” We urge you, however, to read the prospectus supplements and any free writing prospectus that we may authorize to be provided to you related to the particular units being offered, as well as the unit agreements that contain the terms of the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from a current report on Form 8-K that we file with the SEC, the form of unit agreement and any supplemental agreements that describe the terms of the units we are offering before the issuance of the related units.

THIS PROSPECTUS MAY NOT BE USED TO OFFER OR SELL ANY SECURITIES UNLESS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

NASDAQ Capital Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol “SINT”. The applicable prospectus supplement will contain information, where applicable, as to other listings, if any, on The NASDAQ Capital Market or other securities exchange of the securities covered by the applicable prospectus supplement.

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RISK FACTORS

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under Item 1A, “Risk Factors,” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, which is incorporated herein by reference, and may be amended, supplemented or superseded from time to time by other reports we file with the Securities and Exchange Commission in the future. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations.

USE OF PROCEEDS

Except as described in any applicable prospectus, prospectus supplement and in any free writing prospectuses in connection with a specific offering, we currently intend to use the net proceeds from this offering primarily for general corporate purposes, including capital expenditures, working capital, financing of possible acquisitions and other business opportunities.

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DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, our Restated Certificate of Incorporation authorizes us to issue 250,000,000 shares of common stock, par value \$0.01 per share, and 130,000,000 shares of preferred stock, par value \$0.01 per share. The following is a summary of the rights of our common and preferred stock and some of the provisions of our Restated Certificate of Incorporation and Amended and Restated Bylaws, our outstanding warrants, our registration rights agreements and the Delaware General Corporation Law. Because it is only a summary, it does not contain all the information that may be important to you and is subject to and qualified in its entirety by our Restated Certificate of Incorporation and our Amended and Restated Bylaws, a copy of each of which has been incorporated as an exhibit to the registration statement of which this prospectus forms a part.

Our Restated Certificate of Incorporation and our Amended and Restated Bylaws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of the Board of Directors, which may have the effect of delaying, deferring or preventing a future takeover or change in control of the Company unless such takeover or change in control is approved by our Board of Directors.

Common Stock

As of September 29, 2023, there were 4,208,151 shares of common stock outstanding. Each outstanding share of common stock entitles the holder thereof to one vote per share on all matters. Our Amended and Restated Bylaws provide that any vacancy occurring in the Board of Directors may be filled by the affirmative vote of a majority of the remaining directors. Stockholders do not have preemptive rights to purchase shares in any future issuance of our common stock. In the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to receive, ratably, the net assets available to stockholders after payment of all creditors.

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, and do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our common stock entitled to vote can elect all directors standing for election. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our Board of Directors out of funds legally available for dividend payments. All outstanding shares of our common stock are fully paid and nonassessable, and any shares of our common stock to be sold pursuant to this prospectus will be fully paid and nonassessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption, or other subscription rights. There are no redemption or sinking fund provisions applicable to our common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of our common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company. The transfer agent and the registrar's address is 59 Maiden Lane, New York, New York 10038. Their telephone number is 1-800-937-5449. Our common stock is listed on The NASDAQ Capital Market under the symbol "SINT".

Preferred Stock

Our Board of directors has the authority under our Restated Certificate of Incorporation, without further action by our stockholders, to issue up to 130,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences, privileges and restrictions of the shares of each wholly unissued series, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preference and sinking fund terms, and to increase or decrease the number of shares of any such series (but not below the number of shares of such series then outstanding).

Our Board of Directors may authorize the issuance of preferred stock with voting or conversion rights that could have the effect of restricting dividends on our common stock, diluting the voting power of our common stock, impairing the liquidation rights of our common stock or otherwise adversely affecting the rights of holders of our common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change of control and may adversely affect the market price of our common stock.

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Series B Preferred Stock.

Our Board of Directors designated 15,000 shares of our preferred stock as Series B Preferred Stock. As of September 29, 2023, there were 26 shares of Series B Preferred stock outstanding which are convertible into 10,576 shares of our Common Stock.

Conversion

Each share of Series B Preferred Stock is convertible into shares of our common stock at any time at the holder's option at the Conversion Price described below. We may not effect any conversion of Series B Preferred Stock, with certain exceptions, to the extent that, after giving effect to an attempted conversion, the holder of Series B Preferred Stock (together with such holder's affiliates, and any persons acting as a group together with such holder or any of such holder's affiliates) would beneficially own a number of shares of common stock in excess of 4.99% (or, at the election of the holder, 9.99%) of the shares of our common stock then outstanding after giving effect to such conversion, referred to as the Preferred Stock Beneficial Ownership Limitation; provided, however, that upon notice to the Company, the holder may increase or decrease the Preferred Stock Beneficial Ownership Limitation, provided that in no event may the Preferred Stock Beneficial Ownership Limitation exceed 9.99% and any increase in the Preferred Stock Beneficial Ownership Limitation will not be effective until 61 days following notice of such increase from the holder to us.

Subject to certain ownership limitations as described below and certain equity conditions being met, if during any 30 consecutive trading days, the volume weighted average price of our common stock exceeds \$13,060.80 and the daily dollar trading volume during such period exceeds \$500,000 per trading day, we have the right to force the conversion of the Series B Preferred Stock into common stock.

Conversion Price.

The Series B Preferred Stock is convertible into shares of common stock by dividing the stated value of the Series B Preferred Stock (\$1,100) by \$2.70 (the "Conversion Price"). The Conversion Price is subject to adjustment for stock splits, stock dividends, and distributions of common stock or securities convertible, exercisable or exchangeable for common stock, subdivisions, combinations and reclassifications.

Subject to certain exclusions contained in the Certificate of Designation, if the Company in any manner grants or sells any rights, warrants or options and the lowest price per share for which one share of common stock is at any time issuable upon the exercise of any such option or upon conversion, exercise or exchange of any Common Stock Equivalents (as defined in the Certificate of Designation) issuable upon exercise of any such option, exercise or exchange of any Common Stock Equivalent issuable upon the exercise of such option or otherwise pursuant to the terms thereof is less than the Conversion Price, then such share of common stock will be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such option for such price per share. For purposes of this paragraph only, the "lowest price per share for which one share of common stock is issuable upon the exercise of any such options or upon conversion, exercise or exchange of any Common Stock Equivalent issuable upon exercise of any such option or otherwise pursuant to the terms thereof" will be equal to (1) the lower of (x) the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of common stock upon the granting or sale of such option, upon exercise of such option and upon conversion, exercise or exchange of any Common Stock Equivalents issuable upon exercise of such option or otherwise pursuant to the terms thereof and (y) the lowest exercise price set forth in such option for which one share of common stock is issuable upon the exercise of any such options or upon conversion, exercise or exchange of any Common Stock Equivalents issuable upon exercise of any such option or otherwise pursuant to the terms thereof. Except as contemplated by the terms of the Certificate of Designation, no further adjustment of the Conversion Price will be made upon the actual issuance of such shares of common stock or of such convertible securities upon the exercise of such options or otherwise pursuant to the terms of or upon the actual issuance of such Common Stock Equivalents.

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Subject to certain exclusions contained in the Certificate of Designation, if the Company in any manner issues or sells any Common Stock Equivalents and the lowest price per share for which one share of common stock is at any time issuable upon the conversion, exercise or exchange thereof or otherwise pursuant to the terms thereof is less than the Conversion Price, then such share of common stock will be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such convertible securities for such price per share. For purposes of this paragraph only, the "lowest price per share for which one share of common stock is issuable upon the conversion, exercise or exchange thereof or otherwise pursuant to the terms thereof" will be equal to (1) the lower of (x) the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to one share of common stock upon the issuance or sale of the Common Stock Equivalent and upon conversion, exercise or exchange of such convertible security or otherwise pursuant to the terms thereof and (y) the lowest conversion price set forth in such convertible security for which one share of common stock is issuable upon conversion, exercise or exchange thereof or otherwise pursuant to the terms thereof minus (2) the sum of all amounts paid or payable to the holder of such Common Stock Equivalent (or any other person) upon the issuance or sale of such Common Stock Equivalent plus the value of any other consideration received or receivable by, or benefit conferred on, the holder of such Common Stock Equivalent (or any other person). Except as contemplated by the terms of the Certificate of Designation, no further adjustment of the Conversion Price will be made upon the actual issuance of such shares of common stock upon conversion, exercise or exchange of such Common Stock Equivalents or otherwise pursuant to the terms thereof, and if any such issuance or sale of such Common Stock Equivalents is made upon exercise of any options for which adjustment of the Conversion Price has been or is to be made, except as contemplated by the terms of the Certificate of Designation, no further adjustment of the Conversion Price will be made by reason of such issuance or sale.

If the purchase or exercise price provided for in any options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any convertible securities, or the rate at which any convertible securities are convertible into or exercisable or exchangeable for shares of common stock increases or decreases at any time (other than proportional changes in conversion or exercise prices, as applicable, in connection with stock dividends, splits or combination of outstanding common stock) the Conversion Price in effect at the time of such increase or decrease will be adjusted to the Conversion Price which would have been in effect at such time had such options or convertible securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. If the terms of any option or convertible security that was outstanding as of the date of issuance of the Preferred Stock and related Warrants are increased or decreased in the manner described in the immediately preceding sentence, then such option or convertible security and the shares of common stock deemed issuable

upon exercise, conversion or exchange thereof will be deemed to have been issued as of the date of such increase or decrease. No adjustment will be made if such adjustment would result in an increase of the Conversion Price then in effect.

If any option and/or convertible security and/or Adjustment Right is issued in connection with the issuance or sale or deemed issuance or sale of any other securities of the Company (as determined by the holder of Preferred Stock, the “Primary Security”, and such option and/or convertible security and/or Adjustment Right (as defined below), the “Secondary Securities” and together with the Primary Security, each a “unit”), together comprising one integrated transaction, the aggregate consideration per share of common stock with respect to such Primary Security will be deemed to be the lower of (x) the purchase price of such unit, (y) if such Primary Security is an option and/or convertible security, the lowest price per share for which one share of common stock is at any time issuable upon the exercise or conversion of the Primary Security in accordance with the paragraphs above and (z) the lowest volume-weighted average price of the common stock on any trading day during the four trading day period immediately following the public announcement of such dilutive issuance. If any shares of common stock, options or convertible securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount of consideration received by the Company therefor. If any shares of common stock, options or convertible securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of publicly traded securities, in which case the amount of consideration received by the Company for such securities will be the arithmetic average of the volume-weighted average prices of such security for each of the five (5) trading days immediately preceding the date of receipt. If any shares of common stock, options or convertible securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of common stock, options or convertible securities (as the case may be). The fair value of any consideration other than cash or publicly traded securities will be determined jointly by the Company and the holder. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the “Valuation Event”), the fair value of such consideration will be determined within five trading days after the tenth day following such Valuation Event by an independent, reputable appraiser jointly selected by the Company and the holder.

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“Adjustment Right” means any right granted with respect to any securities issued in connection with, or with respect to, any issuance or sale (or deemed issuance or sale in accordance with the paragraph above) of shares of common stock that could result in a decrease in the net consideration received by the Company in connection with, or with respect to, such securities (including, without limitation, any cash settlement rights, cash adjustment or other similar rights).

In addition, holders of Preferred Stock may be eligible to elect an alternative price in the event we issue certain variable price securities.

Liquidation; Dividends; Repurchases.

In the event of a liquidation, the holders of Series B Preferred Stock are entitled to participate on an as-converted-to-common stock basis with holders of the common stock in any distribution of assets of the Company to the holders of the common stock. Additionally, we will not pay any dividends on shares of common stock (other than dividends in the form of common stock) unless and until such time as we pay dividends on each Series B Preferred Share on an as-converted basis. Other than as set forth in the previous sentence, no other dividends will be paid on Series B Preferred Stock and we will pay no dividends (other than dividends in the form of common stock) on shares of common stock unless we simultaneously comply with the previous sentence.

Redemption Right.

The Company holds an option to redeem some or all of the Series B Preferred Stock at any time after the six-month anniversary of its issuance date at a 25% premium to the stated value of the Series B Preferred Stock subject to redemption, upon 30 days prior written notice to the holder of the Series B Preferred Stock. The Series B Preferred Stock would be redeemed by the Company for cash.

Fundamental Transactions.

In the event of any fundamental transaction, generally including any merger with or into another entity, sale of all or substantially all of our assets, tender offer or exchange offer, or reclassification of our common stock, then upon any subsequent conversion of the Series B Preferred Stock, the holder will have the right to receive as alternative consideration, for each share of our common stock that would have been issuable upon such conversion immediately prior to the occurrence of such fundamental transaction, the number of shares of common stock of the successor or acquiring corporation or of our company, if it is the surviving corporation, and any additional consideration receivable upon or as a result of such transaction by a holder of the number of shares of our common stock for which the Series B Preferred Stock is convertible immediately prior to such event.

Voting Rights.

With certain exceptions, the holders of shares of Series B Preferred Stock have no voting rights. However, as long as any shares of Series B Preferred Stock remain outstanding, we may not, without the affirmative vote of holders of a majority of the then-outstanding Series B Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series B Preferred Stock or alter or amend the Certificate of Designation, (b) increase the number of authorized shares of Series B Preferred Stock, (c) amend our Certificate of Incorporation or other charter documents in any manner that adversely affects any rights of holders of Series B Preferred Stock disproportionately to the rights of holders of our other capital stock, or (d) enter into any agreement with respect to any of the foregoing.

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jurisdiction and Waiver of Trial by Jury

Other than with respect to suits, actions or proceedings arising under the federal securities laws, the Certificate of Designation provides for investors to consent to exclusive jurisdiction to courts located in New York, New York and provides for a waiver of the right to a trial by jury. It also provides that disputes are governed by Delaware law.

Series C Preferred Stock.

Our Board of Directors designated 9,440 shares of our preferred stock as Series C Preferred Stock. As of September 29, 2023, there were 50 shares of Series C Preferred stock outstanding which are convertible into 338 shares of our Common Stock.

Conversion. Each share of Preferred Stock will be convertible at our option at any time on or after the first anniversary of the expiration of the Rights Offering or at the option of the holder at any time, into the number of shares of our common stock determined by dividing the \$1,000 stated value per share of the Preferred Stock by a conversion price of \$148.14 per share. In addition, the conversion price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations or reclassifications. Subject to limited exceptions, a holder of the Preferred Stock will not have the right to convert any portion of the Preferred Stock to the extent that, after giving effect to the conversion, the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion. A holder of the Preferred Stock, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of such holder’s Preferred Stock, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion. In the event that a conversion is effected at our option, we will exercise such option to convert shares of Preferred Stock on a pro rata basis among all of the holders based on such holders’ shares of Preferred Stock.

Fundamental Transactions. In the event we effect certain mergers, consolidations, sales of substantially all of our assets, tender or exchange offers, reclassifications or share exchanges in which our common stock is effectively converted into or exchanged for other securities, cash or property, we consummate a business combination in which another person acquires 50% of the outstanding shares of our common stock, or any person or group becomes the beneficial owner of 50% of the aggregate ordinary voting power represented by our issued and outstanding common stock, then, upon any subsequent conversion of the Preferred Stock, the holders of the Preferred Stock will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon conversion in full of the Preferred Stock.

Dividends. Holders of Preferred Stock shall be entitled to receive dividends (on an as-if-converted-to-common-stock basis) in the same form as dividends actually paid on shares of the common stock when, as and if such dividends are paid on shares of common stock.

Voting Rights. Except as otherwise provided in the certificate of designation or as otherwise required by law, the Preferred Stock has no voting rights.

Liquidation Preference. Upon our liquidation, dissolution or winding-up, whether voluntary or involuntary, holders of Series C Preferred Stock will be entitled to receive out of our assets, whether capital or surplus, the same amount that a holder of common stock would receive if the Preferred Stock were fully converted (disregarding for such purpose any conversion limitations under the certificate of designation) to common stock, which amounts shall be paid pari passu with all holders of common stock.

Redemption Rights. We are not obligated to redeem or repurchase any shares of Preferred Stock. Shares of Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous provisions.

Series D Preferred Stock

Our board of directors designated 4,656 shares of our preferred stock as Series D Preferred Stock. As of September 29, 2023, there were 180 shares of Series D Preferred stock outstanding which are convertible into 11,919 shares of our Common Stock.

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Conversion. Each share of Series D Preferred Stock is convertible at the option of the holder at any time, into the number of shares of our common stock determined by dividing the \$1,000 stated value per share of the Preferred Stock by a conversion price of \$15.102 per share. In addition, the conversion price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations or reclassifications. Subject to limited exceptions, a holder of the Preferred Stock will not have the right to convert any portion of the Series D Preferred Stock to the extent that, after giving effect to the conversion, the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion. A holder of the Series D Preferred Stock, upon notice to us, may increase or decrease the beneficial ownership limitation provisions of such holder's Series D Preferred Stock, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion.

Fundamental Transactions. In the event we effect certain mergers, consolidations, sales of substantially all of our assets, tender or exchange offers, reclassifications or share exchanges in which our common stock is effectively converted into or exchanged for other securities, cash or property, we consummate a business combination in which another person acquires 50% of the outstanding shares of our common stock, or any person or group becomes the beneficial owner of 50% of the aggregate ordinary voting power represented by our issued and outstanding common stock, then, upon any subsequent conversion of the Series D Preferred Stock, the holders of the Series D Preferred Stock will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon conversion in full of the Series D Preferred Stock.

Dividends. Holders of Preferred Stock shall be entitled to receive dividends (on an as-if-converted-to-common-stock basis) in the same form as dividends actually paid on shares of the common stock when, as and if such dividends are paid on shares of common stock.

Voting Rights. Except as otherwise provided in the certificate of designation or as otherwise required by law, the Series D Preferred Stock has no voting rights.

Liquidation Preference. Upon our liquidation, dissolution or winding-up, whether voluntary or involuntary, holders of Series D Preferred Stock will be entitled to receive out of our assets, whether capital or surplus, the same amount that a holder of common stock would receive if the Series D Preferred Stock were fully converted (disregarding for such purpose any conversion limitations under the certificate of designation) to common stock, which amounts shall be paid pari passu with all holders of common stock.

Redemption Rights. We are not obligated to redeem or repurchase any shares of Series D Preferred Stock. Shares of Series D Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous provisions.

Future Preferred Stock.

Our Board of Directors will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus is a part, or incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. This description will include:

- the title and stated value;
- the number of shares we are offering;
- the liquidation preference per share;
- the purchase price per share;
- the dividend rate per share, dividend period and payment dates and method of calculation for dividends;

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- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- our right, if any, to defer payment of dividends and the maximum length of any such deferral period;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;

- the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock or other securities of ours, including warrants, and, if applicable, the conversion period, the conversion price, or how it will be calculated, and under what circumstances it may be adjusted;
- voting rights, if any, of the preferred stock;
- preemption rights, if any;
- restrictions on transfer, sale or other assignment, if any;
- a discussion of any material or special United States federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;
- any limitations on issuances of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock being issued as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and
- any other specific terms, rights, preferences, privileges, qualifications or restrictions of the preferred stock.

When we issue shares of preferred stock under this prospectus, the shares will be fully paid and nonassessable and will not have, or be subject to, any preemptive or similar rights.

The General Corporation Law of the State of Delaware, the state of our incorporation, provides that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of that preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

Description of Other Outstanding Securities of the Company

Warrants

As of September 29, 2023, there were 1,244,754 common stock purchase warrants outstanding, which expire between February 2025 and February 2028. Each of these warrants entitles the holder to purchase one share of common stock at prices ranging between \$2.70 and \$150 per share. Certain of these warrants has a net exercise provision under which its holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our common stock at the time of exercise of the warrant after deduction of the aggregate exercise price. Additionally, certain of these warrants entitle a holder to also effect an “alternative cashless exercise” wherein the holder may surrender a certain number of warrants in return for a lesser number of shares of our common stock on a cashless basis. Each of these warrants also contains provisions for the adjustment of the exercise price and the aggregate number of shares issuable upon the exercise of the warrant in the event of dividends, share splits, reorganizations and reclassifications and consolidations. Certain of these warrants contain a provision requiring a reduction to the exercise price in the event we issue common stock, or securities convertible into or exercisable for common stock, at a price per share lower than the warrant exercise price.

The holders of certain of these warrants have registration rights, as described in greater detail below.

February 2023 Offering Warrants

On February 7, 2023, we issued a Class C Common Stock Purchase Warrant to purchase up to 2,150,000 shares of Common Stock (the “Class C Warrants”) and a Class D Common Stock Purchase Warrant to purchase up to 1,075,000 shares of Common Stock (the “Class D Warrants”). The Class C and Class D Warrants are exercisable at a price of \$5.60 per share. The Class C Warrants will expire five years from the date of issuance and the Class D Warrants will expire three years from the date of issuance. In addition, a holder may also effect an “alternative cashless exercise” wherein the aggregate number of shares of common stock issuable in such alternative cashless exercise shall equal the product of (x) the aggregate number of shares of common stock that would be issuable upon exercise of the Class C Warrant or Class D Warrant in accordance with the terms of such warrant if such exercise were by means of a cash exercise rather than a cashless exercise and (y) 0.40 with respect to the Class C Warrant or 0.80 with respect to the Class D Warrant.

The following summary of certain terms and provisions of the Class C Warrants, and Class D Warrants is not complete and is subject to, and qualified in its entirety by the provisions of the form of Class C Warrant, and the form of Class D Warrant, which are filed as exhibits to this registration statement.

Exercisability. The Class C Warrants are exercisable at any time after their original issuance and at any time up to the date that is five years after their original issuance. The Class D Warrants are exercisable at any time after their original issuance and at any time up to the date that is three years after their original issuance. Each of the Class C Warrants, Class D Warrants, are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and, at any time a registration statement registering the issuance of the shares of common stock underlying the Class C Warrants or Class D Warrants, under the Securities Act of 1933, as amended (the “Securities Act”) is effective and available for the issuance of such shares, by payment in full in immediately available funds for the number of shares of common stock purchased upon such exercise. If a registration statement registering the issuance of the shares of common stock underlying the Class C Warrants, Class D Warrants, under the Securities Act is not effective or available, the holder may, in its sole discretion, elect to exercise the Class C Warrant or Class D Warrant, through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant. We may be required to pay certain amounts as liquidated damages as specified in the warrants in the event we do not deliver shares of common stock upon exercise of the warrants within the time periods specified in the warrants. In addition, a holder may also effect an “alternative cashless exercise.” In such event, the aggregate number of shares of common stock issuable in such alternative cashless exercise shall equal the product of (x) the aggregate number of shares of common stock that would be issuable upon exercise of the Class C Warrant or Class D Warrant in accordance with the terms of such warrant if such exercise were by means of a cash exercise rather than a cashless exercise and (y) 0.40 with respect to the Class C Warrant or 0.80 with respect to the Class D Warrant. No fractional shares of common stock will be issued in connection with the exercise of a Class C Warrant or Class D Warrant. With respect to any alternative cashless exercise, fractional shares will be rounded down to the nearest whole share.

Fractional Shares. No fractional shares of common stock will be issued in connection with the exercise of a warrant. Other than as described above with respect to alternative cashless exercises, in lieu of fractional shares, we will, at our election, either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Exercise Limitation. A holder will not have the right to exercise any portion of the Class C Warrants, or Class D Warrants if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or, upon election by a holder prior to the issuance of any warrants, 9.99%) of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99%, upon at least 61 days’ prior notice from the holder to us with respect to any increase in such percentage.

Exercise Price. The exercise price per whole share of common stock purchasable upon exercise of the Class C Warrants and the Class D Warrants is \$5.60 per share. The exercise price and number of shares of common stock issuable on exercise are subject to appropriate adjustments in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock.

Transferability. Subject to applicable laws, the Class C Warrants and Class D Warrants may be offered for sale, sold, transferred or assigned without our consent.

Exchange Listing. We do not intend to list the Class C Warrants or the Class D Warrants on any securities exchange or other trading market. Without an active trading market, the liquidity of these securities will be limited.

Warrant Agent. The Class C Warrants and Class D Warrants are issued in registered form under a warrant agreement between American Stock Transfer & Trust Company, LLC, as warrant agent, and us. The Class C Warrants and Class D Warrants shall initially be represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company (DTC) and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Fundamental Transactions. In the event of a fundamental transaction, and generally including, with certain exceptions, any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding shares of common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding shares of common stock, the holders of the Class C Warrants and Class D Warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction, we or the successor entity, at the request of a holder of Class C Warrants or Class D Warrants, will be obligated to purchase any unexercised portion of such Class C Warrants or Class D Warrants in accordance with the terms of the warrants. Additionally, as more fully described in the warrants, in the event of certain fundamental transactions, the holders of the warrants will be entitled to receive consideration in an amount equal to the Black Scholes value of the warrants on the date of consummation of such transaction.

Rights as a Shareholder. Except as otherwise provided in the Class C Warrants and Class D Warrants or by virtue of such holder's ownership of our shares of common stock, the holder of a Class C Warrant or Class D Warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the warrant.

Governing Law. The Class C Warrants, Class D Warrants, and warrant agreement are governed by New York law.

Maxim and Ascendant February 2023 Warrants

In connection with the February 2023 Offering, the Company issued (i) to Maxim, as the Company's sole placement agent for the 2023 Offering, 73,100 warrants to purchase shares of the Company's common stock and (ii) to Ascendant, as a financial advisor to the Company in the February 2023 Offering, 12,900 warrants to purchase shares of the Company's common stock (collectively, the "Placement Agent Warrants"). The Placement Agent Warrants will expire on February 7, 2028. The Placement Agent Warrants are exercisable at a price of \$6.16 per share, subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of the Placement Agent Warrants will not have the right to exercise any portion of the Placement Agent Warrants to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Company's common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of the Placement Agent Warrants, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the Placement Agent Warrants. The Placement Agent Warrants may be exercised as to all or a lesser number of shares of the Company's common stock and contain certain demand registration rights and unlimited "piggyback" registration rights for a period of five years after February 7, 2023, at the Company's expense. The Company relied on the exemption from registration available under Section 4(a)(2) of the Securities Act in connection with the issuance of the Dealer Manager Warrants to Maxim and Ascendant.

The foregoing description of the Placement Agent Warrants is not complete. For the complete terms of the Placement Agent Warrants, you should refer to the form of Placement Agent Warrant filed as an exhibit to this registration statement.

October 2022 Rights Offering Warrants

On October 17, 2022, we issued 308,321 common stock warrants designated as our "Class A" warrants and 308,321 common stock warrants designated as our "Class B" warrants (collectively the "October 2022 Warrants") in a rights offering to our stockholders (the "October 2022 Rights Offering"). Each of these warrants entitles the holder to purchase one share of common stock at an exercise price of \$2.70 per share. The Class A Warrants and Class B Warrants have the same terms, except that the Class A Warrants expire five years from the date of issuance and the Class B Warrants expire three years from the date of issuance. The material terms and provisions of the October 2022 Warrants are summarized below. This summary of the October 2022 Warrants is not complete. For the complete terms of the October 2022 Warrants, you should refer to the form of October 2022 Warrant filed as an exhibit to the registration statement of which this prospectus forms a part.

Pursuant to a warrant agency agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the October 2022 Warrants were issued in book-entry form and are represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Exercisability

Each Class A Warrant is exercisable at any time and will expire five years from the date of issuance. Each Class B Warrant is exercisable at any time and will expire three years from the date of issuance. The Warrants are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and payment in full for the number of shares of our common stock purchased upon such exercise, except in the case of a cashless exercise as discussed below. The number of shares of common stock issuable upon exercise of the Warrants is subject to adjustment in certain circumstances, including a stock split of, stock dividend on, or a subdivision, combination or recapitalization of the common stock. If we effect a merger, consolidation, sale of substantially all of our assets, or other similar transaction, then, upon any subsequent exercise of a Warrants, the Warrant holder will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon exercise in full of the Warrant.

Cashless Exercise

If at any time there is no effective registration statement registering, or the prospectus contained therein is not available for issuance of, the shares issuable upon exercise of the warrant, the holder may exercise the warrant on a cashless basis. When exercised on a cashless basis, a portion of the warrant is cancelled in payment of the purchase price payable in respect of the number of shares of our common stock purchasable upon such exercise.

Exercise Price

Each warrant represents the right to purchase one share of common stock at an exercise price equal to the Conversion Price. In addition, the exercise price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. The exercise price is also subject to adjustment in the event that we sell, issue, or grant any option to purchase, or sell or issue any right to reprice, or otherwise dispose of or issue (or enter into any agreement relating to the offer, sale, grant or any option to purchase or other disposition) any common stock or convertible securities (as defined in the warrants), at an effective price per share less than the exercise price then in effect. In addition, if at any time there occurs a stock dividend, distribution, subdivision, combination, or reclassification and the volume weighted average price of the shares of common stock for the five trading days following such event is less than the exercise price then in effect (after giving effect to the adjustment of the exercise price pursuant to such event under the terms of the Warrants), then on the fifth trading day following such event, the exercise price shall be reduced to the volume weighted average price of the shares of common stock for the five trading days following such event.

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Subject to limited exceptions, a holder of warrants will not have the right to exercise any portion of the warrant to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to us, may increase or decrease the beneficial ownership limitation provisions of the warrant, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the warrant.

Transferability

Subject to applicable laws and restrictions, a holder may transfer a warrant upon surrender of the warrant to us with a completed and signed assignment in the form attached to the warrant. The transferring holder will be responsible for any tax that liability that may arise as a result of the transfer.

No Market

There is no public trading market for the October 2022 Warrants and they will not be listed for trading on Nasdaq or any other securities exchange or market.

Rights as Stockholder

Except as set forth in the October 2022 Warrants, the holder of an October 2022 Warrant, solely in such holder's capacity as a holder of such warrant, will not be entitled to vote, to receive dividends, or to any of the other rights of our stockholders.

Amendments and Waivers

The provisions of each October 2022 Warrant may be modified or amended or the provisions thereof waived with the written consent of us and the holder.

The October 2022 Warrants were issued pursuant to a warrant agent agreement by and between us and America Stock Transfer & Trust Company, the warrant agent.

Maxim and Ascendant October 2022 Warrants

In connection with the October 2022 Rights Offering, the Company issued (i) to Maxim, as the dealer-manager in the October 2022 Rights Offering, 10,483 warrants to purchase shares of the Company's common stock and (ii) to Ascendant, as a financial advisor to the Company in the October 2022 Rights Offering, 1,850 warrants to purchase shares of the Company's common stock (collectively, the "Dealer Manager Warrants"). The Dealer Manager Warrants are non-exercisable for 6 months from October 17, 2022 and will expire on September 23, 2027. The Dealer Manager Warrants will be exercisable at a price of \$16.61 per share, subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of the Dealer Manager Warrants will not have the right to exercise any portion of the Dealer Manager Warrants to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Company's common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of the Dealer Manager Warrants, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the Dealer Manager Warrants. In addition, the Dealer Manager Warrants shall not be redeemable and may not be sold, transferred, assigned, pledged or hypothecated or be the subject of any hedging, short sale, derivative, put, or call transaction for a period of 180 days following September 23, 2022, except that they may be assigned, in whole or in part, to any officer or partner of Maxim (or to Ascendant). The Dealer Manager Warrants may be exercised as to all or a lesser number of shares of the Company's common stock, and contain unlimited "piggyback" registration rights for a period of five years after September 23, 2022, at the Company's expense. The Company relied on the exemption from registration available under Section 4(a)(2) of the Securities Act in connection with the issuance of the Dealer Manager Warrants to Maxim and Ascendant.

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The foregoing description of the Dealer Manager Warrants is not complete. For the complete terms of the Dealer Manager Warrants, you should refer to the form of Dealer Manager Warrant filed as an exhibit to the registration statement of which this prospectus forms a part.

February 2020 Rights Offering Warrants

On February 6, 2020, we issued 63,720 common stock warrants (the "February 2020 Warrants") in a rights offering to our stockholders. The material terms and provisions of the February 2020 Warrants are summarized below. This summary of the February 2020 Warrants is not complete. For the complete terms of the February 2020 Warrants, you should refer to the form of February 2020 Warrant filed as an exhibit to the registration statement of which this prospectus forms a part.

Pursuant to a warrant agency agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the February 2020 Warrants were issued in book-entry form and are represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Exercisability. Each February 2020 Warrant became exercisable at the time of issuance and will expire five years from their issuance date. The February 2020 Warrants are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and payment in full for the number of shares of our common stock purchased upon such exercise, except in the case of a cashless exercise as discussed below. The number of shares of common stock issuable upon exercise of the February 2020 Warrants is subject to adjustment in certain circumstances, including a stock split of, stock dividend on, or a subdivision, combination or recapitalization of the common stock. If we effect a merger, consolidation, sale of substantially all of our assets, or other similar transaction, then, upon any subsequent exercise of a February 2020 Warrant, the February 2020 Warrant holder will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon exercise in full of the February 2020 Warrant.

Cashless Exercise. After the earlier of (a) the date that is 30 days after the initial exercise date of the February 2020 Warrants or (b) such trading day that the aggregate volume

of shares of common stock sold since the expiration of the Offering exceeds three times the number of shares of common stock and common stock equivalents sold in the Offering, the holder shall be permitted to exercise the February 2020 Warrant, on a cashless basis, regardless of the then applicable trading price of the common stock on Nasdaq, for an aggregate number of shares of common stock equal to the product of (i) the aggregate number of shares of common stock that would be issuable upon exercise of the Warrant if such exercise were by means of a cash exercise and (ii) 0.70.

Additionally, if at any time there is no effective registration statement registering, or the prospectus contained therein is not available for issuance of, the shares issuable upon exercise of the warrant, the holder may exercise the warrant on a cashless basis, in which a portion of the warrant is cancelled in payment of the purchase price payable in respect of the number of shares of our common stock purchasable upon such exercise.

Exercise Price. Each February 2020 Warrant represents the right to purchase one share of common stock at an exercise price of \$150 per share. In addition, the exercise price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of warrants will not have the right to exercise any portion of the warrant to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of the warrant, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the warrant.

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Fundamental Transactions. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our shares of common stock are converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquires 50% or more of our outstanding shares of common stock, referred to as a fundamental transaction, then following such event, the holders will have the option, which may be exercised within 30 days after the consummation of the fundamental transaction, to require the Company or the successor entity purchase the Warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes value of the remaining unexercised portion of the warrant on the date of the consummation of the fundamental transaction. However, if the fundamental transaction is not within the Company's control, including not approved by the Company's Board of Directors, the holder will only be entitled to receive from the Company or any successor entity, as of the date of consummation of such fundamental transaction, the same type or form of consideration (and in the same proportion), at the Black Scholes value of the unexercised portion of the Warrant, that is being offered and paid to the holders of common stock of the Company in connection with the fundamental transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of common stock are given the choice to receive from among alternative forms of consideration in connection with the fundamental transaction.

Transferability. Subject to applicable laws and restrictions, a holder may transfer a warrant upon surrender of the warrant to us with a completed and signed assignment in the form attached to the warrant. The transferring holder will be responsible for any tax that liability that may arise as a result of the transfer.

No Market. There is no public trading market for the February 2020 Warrants, and they are not listed for trading on Nasdaq or any other securities exchange or market.

Rights as Stockholder. Except as set forth in the February 2020 Warrants, the holder of a warrant, solely in such holder's capacity as a holder of a February 2020 Warrant, will not be entitled to vote, to receive dividends, or to any of the other rights of our stockholders.

Redemption Rights. We may redeem the warrants for \$0.01 per warrant if our common stock closes above \$8.00 per share for ten consecutive trading days, provided that we may not do so prior to the first anniversary of expiration of the Rights Offering.

Amendments and Waivers. The provisions of each February 2020 Warrant may be modified or amended or the provisions thereof waived with the written consent of us and the holder.

Maxim and Ascendant February 2020 Warrants

Also on February 6, 2020, in connection with a rights offering, we issued 2,039 common stock warrants (the "Maxim Warrants") to Maxim, as the dealer manager in such rights offering, and 510 common stock warrants (the "Ascendant Warrants") to Ascendant, as a financial advisor to us in such rights offering. The Maxim Warrants and Ascendant Warrants have the same material terms as the February 2020 Warrants, except as described below.

The Maxim Warrants and Ascendant Warrants became exercisable 6 months from February 6, 2020 and will expire on January 17, 2025. The Maxim Warrants and Ascendant Warrants are exercisable at a price of \$162.95 per share, subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of the Maxim Warrants and Ascendant Warrants will not have the right to exercise any portion of such warrant to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to us, may increase or decrease the beneficial ownership limitation provisions of the warrant, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the warrant.

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The Maxim Warrants and Ascendant Warrants contain the same provisions regarding fundamental transactions as those contained in the February 2020 Warrants, except that the Maxim Warrants and Ascendant Warrants do not provide the holders thereof with the option to require us, or a successor entity, to pay an amount equal to the Black Scholes value of the warrants in the event of certain fundamental transactions.

The Maxim Warrants and Ascendant Warrants are not redeemable. The Maxim Warrants and Ascendant Warrants contain unlimited "piggyback" registration rights for a period of five years after February 6, 2020 (but not longer than 7 years from January 17, 2020) at our expense, subject to certain exceptions. We relied on the exemption from registration available under Section 4(a)(2) of the Securities Act in connection with the issuance of the warrants to Maxim and Ascendant.

This summary of the Maxim Warrants and Ascendant Warrants is not complete. For the complete terms of the Maxim Warrants and Ascendant Warrants, you should refer to the form of Maxim Warrants and Ascendant Warrants filed as an exhibit to the registration statement of which this prospectus forms a part.

Effects of Anti-Takeover Provisions of Our Restated Certificate of Incorporation, Our Amended and Restated Bylaws and Delaware Law

The provisions of (1) Delaware law, (2) our Restated Certificate of Incorporation and (3) our Amended and Restated Bylaws discussed below could discourage or make it more difficult to prevail in a proxy contest or effect other change in our management or the acquisition of control by a holder of a substantial amount of our voting stock. It is possible that these provisions could make it more difficult to accomplish, or could deter, transactions that stockholders may otherwise consider to be in their best interests or our best interests. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our Board of Directors and in the policies formulated by the Board of Directors and to discourage certain types of transactions that may involve an actual or threatened change in control of our company. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. These provisions also are intended to discourage certain tactics that may be used in proxy fights. These provisions also may have the effect of preventing changes in our management.

Delaware Statutory Business Combinations Provision. We are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. For purposes of Section 203, a “business combination” is defined broadly to include a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and, subject to certain exceptions, an “interested stockholder” is a person who, together with his or her affiliates and associates, owns (or within three years prior, did own) 15% or more of the corporation’s voting stock.

Classified Board of Directors; Appointment of Directors to Fill Vacancies; Removal of Directors for Cause. Our Restated Certificate of Incorporation provides that our Board of Directors will be divided into three classes as nearly equal in number as possible. Each year the stockholders will elect the members of one of the three classes to a three-year term of office. All directors elected to our classified Board of Directors will serve until the election and qualification of their respective successors or their earlier resignation or removal. The Board of Directors is authorized to create new directorships and to fill any positions so created and is permitted to specify the class to which any new position is assigned. The person filling any of these positions would serve for the term applicable to that class. The Board of Directors (or its remaining members, even if less than a quorum) is also empowered to fill vacancies on the Board of Directors occurring for any reason for the remainder of the term of the class of directors in which the vacancy occurred. Members of the Board of Directors may only be removed for cause and only by the affirmative vote of holders of at least 80% of our outstanding voting stock. These provisions are likely to increase the time required for stockholders to change the composition of the Board of Directors. For example, in general, at least two annual meetings will be necessary for stockholders to effect a change in a majority of the members of the Board of Directors.

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Authorization of Blank Check Preferred Stock. Our Restated Certificate of Incorporation provides that our Board of Directors is authorized to issue, without stockholder approval, blank check preferred stock. Blank check preferred stock can operate as a defensive measure known as a “poison pill” by diluting the stock ownership of a potential hostile acquirer to prevent an acquisition that is not approved by our Board of Directors.

Advance Notice Provisions for Stockholder Proposals and Stockholder Nominations of Directors. Our Amended and Restated Bylaws provide that, for nominations to the Board of Directors or for other business to be properly brought by a stockholder before a meeting of stockholders, the stockholder must first have given timely notice of the proposal in writing to our Secretary. For an annual meeting, a stockholder’s notice generally must be delivered not less than 90 days nor more than 120 days prior to the anniversary of the mailing date of the proxy statement for the previous year’s annual meeting. For a special meeting, the notice must generally be delivered no less than 60 days nor more than 90 days prior to the special meeting or ten days following the day on which public announcement of the meeting is first made. Detailed requirements as to the form of the notice and information required in the notice are specified in our Amended and Restated Bylaws. If it is determined that business was not properly brought before a meeting in accordance with our bylaw provisions, this business will not be conducted at the meeting.

Special Meetings of Stockholders. Special meetings of the stockholders may be called only by our Board of Directors pursuant to a resolution adopted by a majority of the total number of directors.

No Stockholder Action by Written Consent. Our Restated Certificate of Incorporation does not permit our stockholders to act by written consent. As a result, any action to be effected by our stockholders must be effected at a duly called annual or special meeting of the stockholders.

Super-Majority Stockholder Vote required for Certain Actions. The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation’s certificate of incorporation or bylaws, unless the corporation’s certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our Restated Certificate of Incorporation requires the affirmative vote of the holders of at least 80% of our outstanding voting stock to amend or repeal any of the provisions discussed in this section of this prospectus entitled “Effect of Anti-Takeover Provisions of Our Restated Certificate of Incorporation, Our Amended and Restated Bylaws and Delaware Law” or to reduce the number of authorized shares of common stock or preferred stock. This 80% stockholder vote would be in addition to any separate class vote that might in the future be required pursuant to the terms of any preferred stock that might then be outstanding. A 80% vote is also required for any amendment to, or repeal of, our Amended and Restated Bylaws by the stockholders. Our Amended and Restated Bylaws may be amended or repealed by a simple majority vote of the Board of Directors.

Potential Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, to facilitate corporate acquisitions or payment as a dividend on the capital stock.

The existence of unissued and unreserved common stock and preferred stock may enable our Board of Directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, the Board of Directors has the discretion to determine designations, rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences of each series of preferred stock, all to the fullest extent permissible under the Delaware General Corporation Law and subject to any limitations set forth in our certificate of incorporation. The purpose of authorizing the Board of Directors to issue preferred stock and to determine the rights and preferences applicable to such preferred stock is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing desirable flexibility in connection with possible financings, acquisitions and other corporate purposes, could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from acquiring, a majority of our outstanding voting stock.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock and certain of our warrants is American Stock Transfer and Trust Company, LLC. The transfer agent and the registrar’s address is 59 Maiden Lane, New York, New York 10038.

Stock Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol “SINT”.

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DESCRIPTION OF DEBT SECURITIES

This section describes the general terms and provisions of the debt securities that we may offer using this prospectus and the related indenture. This section is only a summary and does not purport to be complete. You must look to the relevant form of debt security and the related indenture for a full understanding of all terms of any series of debt securities. The form of debt security and the related indenture have been or will be filed or incorporated by reference as exhibits to the registration statement of which this prospectus is a part. See “Where You Can Find More Information” for information on how to obtain copies.

We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. The senior debt securities will rank equally with any other unsecured and unsubordinated debt. The subordinated debt securities will be subordinate and junior in right of payment, to the extent and in the manner described in the instrument governing the debt, to all of our senior indebtedness. Convertible debt securities will be convertible into our common shares or

preferred shares. Conversion may be mandatory or at the holder's option and would be at prescribed conversion rates. While the terms we have summarized herein will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. Unless otherwise mentioned or unless the context requires otherwise, whenever we refer to the indenture, we also are referring to any supplemental indentures thereto that specify the terms of a particular series of debt securities.

We will issue the debt securities under an indenture that we will enter into with the trustee named in the indenture. The indentures will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We have filed the forms of indentures as exhibits to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The following summary of material provisions of the debt securities and the indentures is subject to, and qualified in its entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete indenture that contains the terms of the debt securities.

General

The indentures do not limit the amount of debt securities that we may issue. They provide that we may issue debt securities up to the principal amount that we may authorize and may be in any currency or currency unit that we may designate. Except for the limitations on consolidation, merger and sale of all or substantially all of our assets contained in the indentures, the terms of the indentures do not contain any covenants or other provisions designed to give holders of any debt securities protection against changes in our operations, financial condition or transactions involving us.

We may issue the debt securities issued under the indentures as "discount securities," which means they may be sold at a discount below their stated principal amount. These debt securities, as well as other debt securities that are not issued at a discount, may be issued with "original issue discount," or OID, for U.S. federal income tax purposes because of interest payment and other characteristics or terms of the debt securities. Material U.S. federal income tax considerations applicable to debt securities issued with OID will be described in more detail in the applicable prospectus supplement.

We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

- the title of the series of debt securities;
- any limit upon the aggregate principal amount that may be issued;

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- the maturity date or dates;
- the form of the debt securities of the series;
- the applicability of any guarantees;
- whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- whether the debt securities rank as senior debt, senior subordinated debt, or subordinated debt;
- if the price (expressed as a percentage of the aggregate principal amount thereof) at which such debt securities will be issued is a price other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof, or if applicable, the portion of the principal amount of such debt securities that is convertible into another security or the method by which any such portion shall be determined;
- the interest rate or rates, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;
- our right, if any, to defer payment of interest and the maximum length of any such deferral period;
- if applicable, the date or dates after which, or the period or periods during which, and the price or prices at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;
- the date or dates, if any, on which, and the price or prices at which we are obligated, pursuant to any mandatory sinking fund, mandatory redemption or analogous provisions or otherwise, to repurchase, at the holder's option, the series of debt securities;
- the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;
- any and all terms, if applicable, relating to any auction or remarketing of the debt securities of that series and any security for our obligations with respect to such debt securities and any other terms which may be advisable in connection with the marketing of debt securities of that series;
- whether the debt securities of the series shall be issued in whole or in part in the form of a global security or securities; the terms and conditions, if any, upon which such global security or securities may be exchanged in whole or in part for other individual securities; and the depositary for such global security or securities;
- if applicable, the provisions relating to conversion or exchange of any debt securities of the series and the terms and conditions upon which such debt securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at our option or the holders' option) conversion or exchange features, the applicable conversion or exchange period and the manner of settlement for any conversion or exchange;
- if other than the full principal amount thereof, the portion of the principal amount of debt securities of the series which shall be payable upon declaration of acceleration of the maturity thereof;
- additions to or changes in the covenants applicable to the particular debt securities being issued, including, among others, the consolidation, merger or sale covenant;

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- additions to or changes in the events of default with respect to the securities and any change in the right of the trustee or the holders to declare the principal, premium, if any, and interest, if any, with respect to such securities to be due and payable;
- additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;
- additions to or changes in the provisions relating to satisfaction and discharge of the applicable indenture;
- additions to or changes in the provisions relating to the modification of the applicable indenture both with and without the consent of holders of debt securities issued under the applicable indenture;
- the currency or currencies, including composite currencies, in which payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;
- whether interest will be payable in cash or additional debt securities at our or the holders' option and the terms and conditions upon which the election may be made;
- the terms and conditions, if any, upon which we will pay amounts in addition to the stated interest, premium, if any, and principal amounts of the debt securities of the series to any holder that is not a "United States person" for federal tax purposes;
- any restrictions on transfer, sale or assignment of the debt securities of the series;
- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, any other additions or changes in the provisions of the applicable indenture, and any terms that may be required by us or advisable under applicable laws or regulations;
- the subordination terms of the debt securities of the series, if any.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock or our other securities. We will include provisions as to settlement upon conversion or exchange and whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indenture will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of our assets as an entirety or substantially as an entirety. However, any successor to or acquirer of such assets (other than a subsidiary of ours) must assume all of our obligations under the indenture or the debt securities, as appropriate.

Events of Default under the Indentures

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

- if we fail to pay any installment of interest on any series of debt securities, as and when the same shall become due and payable, and such default continues for a period of 90 days; provided, however, that a valid extension of an interest payment period by us in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of interest for this purpose;
- if we fail to pay the principal of, or premium, if any, on any series of debt securities as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to such series; provided, however, that a valid extension of the maturity of such debt securities in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of principal or premium, if any;

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- if we fail to observe or perform any other covenant or agreement contained in the debt securities or the indenture, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive written notice of such failure, requiring the same to be remedied and stating that such is a notice of default thereunder, from the trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and
- if specified events of bankruptcy, insolvency or reorganization occur.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal of, premium, if any, and accrued interest, if any, of such series of debt securities due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the principal amount of and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indentures. Any waiver shall cure the default or event of default.

Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series, provided that:

- the direction so given by the holder is not in conflict with any law or the applicable indenture; and
- subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the indenture or to appoint a receiver or trustee, or to seek other remedies only if:

- the holder has given written notice to the trustee of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request;
- such holders have offered to the trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred by the trustee in compliance with the request; and
- the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indenture.

Modification of Indenture; Waiver

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may change an indenture without the consent of any holders with respect to specific matters:

- to cure any ambiguity, defect or inconsistency in the indenture or in the debt securities of any series;
- to comply with the provisions described above under “Description of Debt Securities—Consolidation, Merger or Sale;
- to provide for uncertificated debt securities in addition to or in place of certificated debt securities;
- to add to our covenants, restrictions, conditions or provisions such new covenants, restrictions, conditions or provisions for the benefit of the holders of all or any series of debt securities, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred upon us in the indenture;
- to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;
- to make any change that does not adversely affect the interests of any holder of debt securities of any series in any material respect;
- to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided above under “Description of Debt Securities—General” to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;
- to evidence and provide for the acceptance of appointment under any indenture by a successor trustee; or
- to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act.

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

- extending the fixed maturity of any debt securities of any series;
- reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any series of any debt securities; or
- reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

The indentures provide that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

- provide for payment;
- register the transfer or exchange of debt securities of the series;
- replace stolen, lost or mutilated debt securities of the series;
- pay principal of and premium and interest on any debt securities of the series;
- maintain paying agencies;
- hold monies for payment in trust;
- recover excess money held by the trustee;
- compensate and indemnify the trustee; and
- appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium, if any, and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we provide otherwise in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company, or DTC, or another depository named by us and identified in the applicable prospectus supplement with respect to that series. To the extent the debt securities of a series are issued in global form and as book-entry, a description of terms relating to any book-entry securities will be set forth in the applicable prospectus supplement.

At the option of the holder, subject to the terms of the applicable indenture and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the applicable indenture and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will impose no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

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If we elect to redeem the debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange of any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the trustee is under no obligation to exercise any of the powers given it by the indenture at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

Governing Law

The indentures and the debt securities, and any claim, controversy or dispute arising under or related to the indenture or the debt securities, will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

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DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which may consist of warrants to purchase shares of common stock, shares of preferred stock or debt securities and may be issued in one or more series. Warrants may be offered independently or together with shares of common stock, shares of preferred stock or debt securities offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any warrants that we may offer in more detail in the applicable prospectus supplement and any applicable free writing prospectus. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from a current report on Form 8-K that we file with the SEC, the form of warrant document or agreement that describes the terms of the particular warrants we are offering before the issuance of the related warrants. The following summaries of material provisions of the warrants are subject to, and qualified in their entirety by reference to, all the provisions of the warrant document or agreement applicable to particular warrants. We urge you to read the applicable prospectus supplement and any applicable free writing prospectus related to the particular warrants that we sell under this prospectus, as well as the complete warrant document or agreement that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms relating to the warrants, including, if applicable:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase shares of common stock or shares of preferred stock, the number of shares of common stock or shares of preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreements and warrants may be modified;
- material United States federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

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Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including:

- in the case of warrants to purchase debt securities, the right to receive payments of principal of, or premium, if any, or interest on, the debt securities purchasable upon exercise or to enforce covenants in the applicable indenture; or
- in the case of warrants to purchase shares of common stock or shares of preferred stock, the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We will set forth in the warrant agreement or documents and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and the warrant documents properly completed and duly executed at the office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

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DESCRIPTION OF RIGHTS

We may issue rights to purchase our common stock, preferred stock, or warrants in one or more series. Rights may be issued independently or together with any other offered security and may or may not be transferable by the person purchasing or receiving the subscription rights. In connection with any rights offering to our shareholders, we may enter into a standby underwriting arrangement with one or more underwriters pursuant to which the underwriters will purchase any of the offered securities remaining unsubscribed after the expiration of the rights offering. In connection with a rights offering to our shareholders, we will distribute certificates evidencing the rights and an applicable prospectus supplement to our shareholders on the record date that we set for receiving rights in the rights offering. An applicable prospectus supplement will describe the following terms of rights in respect of which this prospectus is being delivered:

- the title of the rights;
- the securities for which the rights are exercisable;
- the exercise price for the rights;
- the date of determining the security holders entitled to the rights distribution;
- the number of the rights issued to each security holder;

- the extent to which the rights are transferable;
- if applicable, a discussion of the material United States federal income tax considerations applicable to the issuance or exercise of the rights;
- the date on which the right to exercise the rights shall commence, and the date on which the rights shall expire (subject to any extension);
- the conditions to completion of the rights offering;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the rights;
- the extent to which the rights include an over-subscription privilege with respect to unsubscribed securities;
- if applicable, the material terms of any standby underwriting or other purchase arrangement that we may enter into in connection with the rights offering; and
- any other terms of the rights, including terms, procedures and limitations relating to the exchange and exercise of the rights.

Each right will entitle the holder to purchase for cash the amount of securities, at the exercise price. Rights may be exercised at any time up to the close of business on the expiration date of the rights. After the close of business on the expiration date, all unexercised rights will become void. The manner in which rights may be exercised will be described in an applicable prospectus supplement. We may, but we will not be required to, permit the exercise of rights through the delivery of a notice of guaranteed delivery from a bank, a trust company, or a New York Stock Exchange member guaranteeing delivery of (1) payment of the exercise price for the securities for which the rights are being exercised, and (2) a properly completed and executed rights certificate. The notice of guaranteed delivery must be received by the rights agent before the expiration of the rights, and the rights agent will not honor a notice of guaranteed delivery unless a properly completed and executed rights certificate and full payment for the securities being purchased are received by the rights agent by the close of business on the third business day after the expiration time of the rights. Upon receipt of payment and the proper completion and due execution of the rights certificate at the designated office of the rights agent or any other office indicated in an applicable prospectus supplement, we or the transfer agent will forward, as soon as practicable, the securities purchased through the exercise of the rights. We may determine to offer any unsubscribed offered securities directly to persons other than shareholders, to or through agents, underwriters or dealers or through a combination of the methods, including pursuant to standby underwriting arrangements, as set forth in an applicable prospectus supplement.

DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from a current report on Form 8-K that we file with the SEC, the form of unit agreement that describes the terms of the units we are offering, and any supplemental agreements, before the issuance of the related units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to particular units. We urge you to read the applicable prospectus supplements related to the particular units that we sell under this prospectus, as well as the complete unit agreement and any supplemental agreements that contain the terms of the units.

General

We may issue units comprised of one or more debt securities, shares of common stock, shares of preferred stock, warrants and rights, in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the units, including:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock,” “Description of Debt Securities,” “Description of Warrants” and “Description of Rights” will apply to each unit and to any shares of common, shares of preferred stock, debt security or warrant included in each unit, respectively.

Issuance in Series

We may issue units in such amounts and in numerous distinct series as we determine.

Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

We, the unit agents, and any of their agents may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purpose and as the person entitled to exercise the rights attaching to the units so requested, despite any notice to the contrary.

We may sell the securities from time to time pursuant to underwritten public offerings, direct sales to the public, negotiated transactions, block trades or a combination of these methods. We may sell the securities to or through underwriters or dealers, through agents, directly to one or more purchasers, or through any combination of these methods. The distribution of the securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, at prices related to the prevailing market prices or at negotiated prices.

We may issue securities to other companies or their security holders to acquire those companies or equity interests in those companies, or to acquire assets of those companies, through mergers or consolidations with us or any of our subsidiaries, or through the exchange of our securities for securities of the other companies, or through the exchange of assets of other companies for our securities, or through similar transactions. We may also issue securities to third parties to acquire patents or other intellectual property or licenses or similar rights to use patents or other intellectual property.

A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of the securities, including, to the extent applicable:

- the name or names of any underwriters or dealers, if any;
- the purchase price of the securities and the proceeds we will receive from the sale;
- any over-allotment options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- any public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

By Underwriters

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement. Any public offering price and any discounts or concessions allowed or reallocated may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

By Dealers

If a dealer is utilized in the sale of any securities offered by this prospectus, we will sell those securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale. We will set forth the names of the dealers and the terms of the transaction in the applicable prospectus supplement.

By Agents

We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

By Direct Sales

We may also directly sell securities offered by this prospectus. In this case, no underwriters or agents would be involved. We will describe the terms of those sales in the applicable prospectus supplement.

Electronic Auctions

We also may make sales through the Internet or through other electronic means. Since we may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of the securities, you will want to pay particular attention to the description of that system we will provide in an applicable prospectus supplement.

The electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which the securities are sold. These bidding or ordering systems may present to each bidder, on a so-called "real-time" basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder's individual bids would be accepted, prorated or rejected. Of course, many pricing methods can and may also be used.

Upon completion of the electronic auction process, securities will be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders would be based in whole or in part on the results of the Internet or other electronic bidding process or auction.

General Information

Underwriters, dealers and agents that participate in the distribution of the securities offered by this prospectus may be deemed underwriters under the Securities Act, and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act.

We may authorize agents, dealers or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide agents and underwriters with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act, or contribution with

respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

Some or all of the securities we offer, other than shares of common stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

We may engage in at-the-market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act. We may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third parties may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of shares, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of shares. The third parties in such sale transactions will be identified in the applicable prospectus supplement.

One or more firms, referred to as “remarketing firms,” may also offer or sell the securities, if the prospectus supplement so indicates, in connection with a remarketing arrangement upon their purchase. Remarketing firms will act as principals for their own accounts or as agents for us. These remarketing firms will offer or sell the securities in accordance with the terms of the securities. The prospectus supplement will identify any remarketing firm and the terms of its agreement, if any, with us and will describe the remarketing firm’s compensation. Remarketing firms may be deemed to be underwriters in connection with the securities they remarket.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. This short sales position may involve either “covered” short sales or “naked” short sales. Covered short sales are short sales made in an amount not greater than the underwriters’ over-allotment option to purchase additional securities in this offering described above. The underwriters may close out any covered short position either by exercising their over-allotment option or by purchasing securities in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of securities available for purchase in the open market, as compared to the price at which they may purchase securities through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked short position by purchasing securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the securities that could adversely affect investors who purchase securities in this offering. Stabilizing transactions permit bids to purchase the underlying security for the purpose of fixing the price of the security so long as the stabilizing bids do not exceed a specified maximum. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions.

Any underwriters who are qualified market makers on The NASDAQ Capital Market may engage in passive market making transactions in our common stock, preferred stock, warrants, units and debt securities, as applicable, on The NASDAQ Capital Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker’s bid, however, the passive market maker’s bid must then be lowered when certain purchase limits are exceeded.

Similar to other purchase transactions, an underwriter’s purchase to cover the syndicate short sales or to stabilize the market price of our securities may have the effect of raising or maintaining the market price of our securities or preventing or mitigating a decline in the market price of our securities. As a result, the price of our securities may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of the securities if it discourages resales of the securities.

Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of the securities. If such transactions are commenced, they may be discontinued without notice at any time.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

Our common stock is listed on The NASDAQ Capital Market under the symbol “SINT”.

LEGAL MATTERS

Life Science Law, PC, Salt Lake City, Utah will pass for us upon the validity of the securities being offered by this prospectus. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of SINTX Technologies, Inc., appearing in the Company’s Annual Report on Form 10-K for the year ended December 31, 2022, incorporated by reference herein, have been audited by Tanner LLC, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities we are offering under this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, where our SEC filings are also available. The address of the SEC’s web site is “<http://www.sec.gov>.” We maintain a website at www.sintx.com. Information contained in or accessible through our website does not constitute a part of this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to “incorporate by reference” information that we file with it into this prospectus, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the Commission will automatically update and supersede information contained in this prospectus and any accompanying prospectus supplement. We incorporate by reference the documents listed below that we have previously filed with the Commission:

- (a) The Company's Annual Report on Form 10-K for the fiscal year ended [December 31, 2022](#);
- (b) The Company's Quarterly Reports on Form 10-Q for the fiscal quarters ended [March 31, 2023](#) and [June 30, 2023](#);
- (c) The Company's Current Reports on Form 8-K filed with the SEC on [January 13, 2023](#) and [February 9, 2023](#); and
- (d) The description of the Company's Common Stock, which is contained in the Registration Statement on Form 8-A, as filed with the SEC on [February 7, 2014](#), as updated by the description of our Common Stock contained in [Exhibit 4.18](#) to our Annual Report on Form 10-K for the year ended December 31, 2022, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than Current Reports furnished under Items 2.02 or 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of the registration statement, and (ii) after the effectiveness of the registration statement but prior to the termination of the offering of the securities covered by this prospectus, excluding, in each case, information deemed furnished and not filed.

Any statement contained in this prospectus, or in a document incorporated or deemed to be incorporated by reference herein, shall be deemed to be modified or superseded to the extent that a statement contained herein, or in any subsequently filed document that also is incorporated or deemed to be incorporated by reference herein, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the information that has been incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. Requests should be directed to: SINTX Technologies, Inc., Attention: Investor Relations, 1885 West 2100 South, Salt Lake City, Utah 84119 and our telephone number is (801) 839-3500. You may also access the documents incorporated by reference in this prospectus through our website at www.sintx.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

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\$75,000,000



SINTX Technologies, Inc.

**Common Stock,
Preferred Stock,
Debt Securities,
Warrants,
Rights and Units**

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where such offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED OCTOBER 12, 2023

PROSPECTUS

Up to \$1,700,000



Common Stock

SINTX Technologies, Inc. has entered into an Equity Distribution Agreement with Maxim Group LLC, or Maxim, relating to the sale of our common stock, par value \$0.01 per share, offered by this prospectus. In accordance with the terms of the Equity Distribution Agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$1,700,000 from time to time through Maxim acting as agent.

Sales of our common stock, if any, under this prospectus will be made in sales deemed to be "at the market" offerings as defined in Rule 415 under the Securities Act of 1933, as amended, or the Securities Act, including sales made directly on or through the NASDAQ Capital Market, the existing trading market for our common stock, sales made to or through a market maker other than on an exchange or otherwise, in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices and/or any other method permitted by law, including in privately negotiated transactions. Maxim will use its commercially reasonable efforts to sell on our behalf all the shares of common stock requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms between Maxim and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement. We provide more information about how the shares of common stock will be sold in the section entitled "Plan of Distribution."

Maxim will be entitled to compensation at a fixed commission rate of 2.00% of the gross proceeds of each sale of shares of our common stock. In connection with the sale of

shares of our common stock on our behalf, Maxim will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of Maxim will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Maxim with respect to certain liabilities, including liabilities under the Securities Act.

Our common stock is traded on The NASDAQ Capital Market under the symbol “SINT.” On October 11, 2023, the last reported sale price of our common stock was \$0.802 per share.

As of October 12, 2023, the aggregate market value of our outstanding common stock held by non-affiliates, or the public float, was approximately \$5,259,217, which was calculated based on 4,207,374 shares of outstanding common stock held by non-affiliates and on a price per share of \$1.25, the closing price of our common stock on The NASDAQ Capital Market on August 14, 2023. During the 12 calendar months prior to and including the date of this prospectus, we have sold \$10,402 shares of common stock pursuant to General Instruction I.B.6 of Form S-3. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on this registration statement in a public primary offering with a value exceeding more than one-third of our public float (the market value of our common stock held by our non-affiliates) in any 12-month period so long as our public float remains below \$75.0 million. As of October 12, 2023, one-third of our public float is equal to approximately \$1,753,072.

Investing in our common stock involves a high degree of risk. See “Risk Factors” beginning on page S-4 of this prospectus and under similar headings in the documents incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Maxim Group LLC

The date of this prospectus is _____, 2023

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ABOUT THIS PROSPECTUS

This prospectus is part of a shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC. Under the shelf registration process, we may offer shares of our common stock having an aggregate offering price of up to \$1,700,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering.

If the information contained in this prospectus differs or varies from the information contained in any document incorporated by reference herein that was filed with the SEC before the date of this prospectus, you should rely on the information set forth in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a subsequently filed document deemed incorporated by reference in this prospectus), the statement in the document having the later date modifies or supersedes the earlier statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not, and the sales agent has not, authorized anyone to provide you with information that is in addition to or different from that contained or incorporated by reference in this prospectus or contained in any permitted free writing prospectuses we have authorized for use in connection with this offering. We and the sales agent take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide.

The information contained in this prospectus and the documents incorporated by reference herein is accurate only as of their respective dates, regardless of the time of delivery of any such document or the time of any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since those dates. It is important for you to read and consider all information contained or incorporated by reference in this prospectus in making your investment decision. You should read this prospectus, as well as the documents incorporated by reference herein, the additional information described under the section titled “Where You Can Find More Information” and “Incorporation of Certain Documents by Reference” in this prospectus and any free writing prospectus that we have authorized for use in connection with this offering, before investing in our common stock.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the

date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. This prospectus and the documents incorporated by reference herein also contain estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the estimated size of those markets, and the incidence and prevalence of certain medical conditions. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources.

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where such offers and sales are permitted. The distribution of this prospectus and the offering of our common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of our common

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which involve risks and uncertainties. Forward-looking statements provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to any historical or current fact. Forward-looking statements are based on our management's current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the Sections of this prospectus entitled "Prospectus Summary" and "Risk Factors."

All statements, other than statements of historical fact, included or incorporated herein regarding our strategy, future operations, financial position, future revenues, projected costs, plans, prospects and objectives are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as "anticipate," "believe," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "would" and similar expressions. These statements involve risks, uncertainties and other factors that may cause our actual results, performance, time frames or achievements to be materially different from any future results, performance, time frames or achievements expressed or implied by the forward-looking statements. Risks, uncertainties and other factors that might cause or contribute to such differences include, but are not limited to, those discussed in the Section entitled "Risk Factors" in our most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q. Given these risks, uncertainties and other factors, many of which are beyond our control, you should not place undue reliance on these forward-looking statements.

In addition, past financial and/or operating performance is not necessarily a reliable indicator of future performance and you should not use our historical performance to anticipate results or future period trends. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to revise any forward-looking statements to reflect events or developments occurring after the date of this prospectus, even if new information becomes available in the future.

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PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and in the documents we incorporate by reference. This summary does not contain all of the information you should consider before investing in our Common Stock. You should read this entire prospectus carefully, especially the risks of investing in our Common Stock discussed under "Risk Factors" beginning on page S-4 of this prospectus and in our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, as well as any amendments thereto reflected in subsequent filings with the SEC, each of which are incorporated by reference in this prospectus, along with our consolidated financial statements and notes to those consolidated financial statements and the other information incorporated by reference in this prospectus, before making an investment decision.

Company Overview

SINTX Technologies is a 27-year-old advanced ceramics company formed in December 1996, focused on providing solutions in a variety of biomedical, technical, and antipathogenic applications. We have grown from focusing primarily on the research, development and commercialization of medical devices manufactured with silicon nitride to becoming an advanced ceramics company engaged in diverse fields, including biomedical, technical and antipathogenic applications. This diversification enables us to focus on our core competencies which are the manufacturing, research, and development of products comprised from advanced ceramic materials for external partners. We seek to connect with new customers, partners and manufacturers to help them realize the goal of leveraging our expertise in advanced ceramics to create new, innovative products across these sectors.

Biomedical Applications: Since its inception, SINTX has been focused on medical grade silicon nitride. SINTX biomedical products have been shown to be biocompatible, bioactive, antipathogenic, and to have superb bone affinity. Spinal implants made from SINTX silicon nitride have been successfully implanted in humans since 2008 in the US, Europe, Brazil, and Taiwan. This established use, along with its inherent resistance to bacterial adhesion and bone affinity suggests that it may also be suitable in other fusion device applications such as arthroplasty implants, foot wedges, and dental implants. Bacterial infection of any biomaterial implants is always a concern. SINTX silicon nitride has been shown to be resistant to bacterial colonization and biofilm formation, making it antibacterial. SINTX silicon nitride products can be polished to a smooth and wear-resistant surface for articulating applications, such as bearings for hip and knee replacements.

We believe that silicon nitride has a superb combination of properties that make it suited for long-term human implantation. Other biomaterials are based on bone grafts, metal alloys, and polymers- all of which have well-known practical limitations and disadvantages. In contrast, silicon nitride has a legacy of success in the most demanding and extreme industrial environments. As a human implant material, silicon nitride offers bone ingrowth, resistance to bacterial and viral infection, ease of diagnostic imaging, resistance to corrosion, and superior strength and fracture resistance, all of which claims are validated in our large and growing inventory of peer-reviewed, published literature reports. We believe that our versatile silicon nitride manufacturing expertise positions us favorably to introduce new and innovative devices in the medical and non-medical fields.

In June 2022, we acquired Technology Assessment and Transfer, Inc. (TA&T), a nearly 40-year-old business with a mission to transition advanced materials and process technologies from a laboratory environment to commercial products and services. TA&T has supplied ceramics for use in several biomedical applications. These products were made via 3D printing and include components for surgical instruments as well as conceptual and prototype dental implants.

Technical Applications: It is our belief that our silicon nitride has the best combination of mechanical, thermal, and electrical properties of any technical ceramic material. It is a high-performance technical ceramic with high strength, toughness, and hardness, and is extremely resistant to thermal shock and impact. It is also an electrically

insulating ceramic material. Typically, it is used in applications where high load-bearing capacity, thermal stability, and wear resistance are required. We have obtained AS9100D certification and ITAR registration to facilitate entry into the aerospace and protective armor markets.

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We recently entered the ceramic armor market through the purchase of assets from B4C, LLC and a technology partnership with Precision Ceramics USA. We will develop and manufacture high-performance ceramics for personnel, aircraft, and vehicle armor including a 100% Boron Carbide material for ultimate lightweight performance in ballistic applications, and a composite material made of Boron Carbide and Silicon Carbide for exceptional multi-hit performance against ballistic threats. We have signed a 10-year lease at a building near our headquarters in Salt Lake City, Utah to house development and manufacturing activities for SINTX Armor.

TA&T's primary area of expertise is material processing and fabrication know-how for a broad spectrum of monolithic ceramic, ceramic composite, and coating materials. Primary technologies include Additive Manufacturing (3D Printing) of ceramics and metals, low-cost fabrication of fiber reinforced ceramic matrix composites (CMCs) and refractory chemical vapor deposited (CVD) coatings, transparent ceramics for ballistic armor and optical applications, and magnetron sputtered (PVD) coatings for lubrication, wear resistance and environmental barrier coatings for CMCs. TA&T also provides a host of services that include 3D printing, PVD-CVD coatings, material processing-CMCs, CIP, PS, HP, HIP, and material characterization for powders and finished parts-TGA/DSC, PSD. SA, Dilatometry, UV-VIS and FTIR transmission, haze and clarity.

Antipathogenic Applications: Today, there is a global need to improve protection against pathogens in everyday life. SINTX believes that by incorporating its unique composition of silicon nitride antipathogenic powder into products such as face masks, filters, and wound care devices, it is possible to manufacture surfaces that inactivate pathogens, thereby limiting the spread of infection and disease. The discovery in 2020 that SINTX silicon nitride inactivates SARS-CoV-2, the virus which causes the disease COVID-19, has opened new markets and applications for our material and we have focused many of our resources on these opportunities.

We presently manufacture advanced ceramic powders and components in our manufacturing facilities based in Salt Lake City, Utah.

Corporate Information

Our headquarters is located at 1885 West 2100 South, Salt Lake City, Utah 84119, and our telephone number is (801) 839-3500. We maintain a website at <https://www.sintx.com>. Information on the website is not incorporated by reference and is not a part of this prospectus.

Additional Information

For additional information related to our business and operations, please refer to the reports incorporated herein by reference, as described under the caption "Incorporation by Reference" on page S-24 of this prospectus.

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THE OFFERING

Common Stock to be offered by us pursuant to this prospectus	Shares of our common stock having an aggregate offering price of up to \$1,700,000
Common Stock outstanding prior to this offering	4,208,027 shares of common stock
Common Stock outstanding after this offering	Up to 6,474,693 shares of common stock, based on \$1,700,000 available under the Equity Distribution Agreement and assuming sales at a price of \$0.75 per share, which was the closing price of our common stock on The NASDAQ Capital Market on October 5, 2023. The actual number of shares of our common stock issued will vary depending on the sales price under this offering.
NASDAQ Capital Market Symbol	SINT
Manner of offering	Sales of shares of our common stock, if any, will be made pursuant to the terms of the Equity Distribution Agreement between us and Maxim Group LLC. Sales of the shares will be made in sales deemed to be "at-the-market" equity offerings as defined in Rule 415 promulgated under the Securities Act. Maxim will act as sales agent and will use commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us, consistent with its normal trading and sales practices. See "Plan of Distribution."
Use of Proceeds	We plan to use the net proceeds from this offering, if any, for general working capital and general corporate purposes. See "Use of Proceeds."
Risk Factors	Investing in our common stock involves substantial risk. You should read the "Risk Factors" section of this prospectus beginning on page S-4 and under similar headings in the documents incorporated by reference into this prospectus for a discussion of the factors you should carefully consider before deciding to invest in our common stock.
Exclusive Sales Agent	Maxim Group LLC is acting as the exclusive sales agent in connection with the offering.

The above discussion is based on 4,208,027 shares of Common Stock outstanding as of June 30, 2023 and excludes (in each case as of June 30, 2023):

- 11,909 shares of our Common Stock issuable upon the exercise of outstanding stock options, at a weighted average exercise price of \$120.33 per share, and 14,850 restricted stock units exercisable into 14,850 shares of our Common Stock;
- 6,268 shares of Common Stock reserved for future issuance under our 2020 Equity Incentive Plan;
- 1,244,754 shares of Common Stock issuable upon the exercise of outstanding warrants;

- 10,576 shares of Common Stock issuable upon the conversion of 26 shares of our outstanding Series B Convertible Preferred Stock;
- 338 shares of Common Stock issuable upon the conversion of 50 shares of our outstanding Series C Convertible Preferred Stock; and
- 11,919 shares of Common Stock issuable upon the conversion of 180 shares of our outstanding Series D Convertible Preferred Stock.

Unless otherwise indicated, the information in this prospectus, including the number of shares outstanding after this offering, does not reflect:

- any issuance, exercise, vesting, expiration, or forfeiture of any additional equity awards under our equity incentive plans or stock purchase plans that occurred after June 30, 2023;
- the sale of 12,060 shares of common stock under the Equity Distribution Agreement after June 30, 2023; or
- the effect of the “full-ratchet” anti-dilution adjustment of the conversion price of our outstanding Series B Convertible Preferred Stock and the exercise price of our outstanding October 2022 warrants.

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RISK FACTORS

Before you make a decision to invest in our securities, you should consider carefully the risks described below, together with other information in this prospectus and the information incorporated by reference herein, including any risk factors contained in our annual and other reports filed with the SEC. If any of the following events actually occur, our business, operating results, prospects or financial condition could be materially and adversely affected. This could cause the trading price of our common stock to decline and you may lose all or part of your investment. The risks described below are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also significantly impair our business operations and could result in a complete loss of your investment.

Risks Related to this Offering

Since we have broad discretion in how we use the proceeds from this offering, we may use the proceeds in ways with which you disagree.

We have not allocated specific amounts of the net proceeds from this offering for any specific purpose. Accordingly, our management will have some flexibility in applying the net proceeds of this offering. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for us. The failure of our management to use such funds effectively could have a material adverse effect on our business, financial condition, operating results and cash flow.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may at any time, including during the pendency of this offering, offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

Sales of a significant number of shares of our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock.

Sales of a substantial number of shares of our common stock in the public markets could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. We cannot predict the effect that future sales of our common stock would have on the market price of our common stock.

We have outstanding shares of convertible preferred and common stock purchase warrants which contain anti-dilution protections, which may cause significant dilution to our stockholders.

As of June 30, 2023, we had outstanding 26 shares of Series B convertible preferred stock convertible into an aggregate of 10,576 shares of common stock at a conversion price of \$2.70 per share and warrants issued in October 2022 that are exercisable for an aggregate of 616,642 shares of common stock. The October 2022 warrants are exercisable at an exercise price of \$2.70 per share. The Series B convertible preferred stock and October 2022 warrants contain full-ratchet anti-dilution provisions which, subject to limited exceptions, would reduce the conversion price of the Series B preferred stock (and increase the number of shares issuable under the Series B preferred stock) and reduce the exercise price of the October 2022 warrants in the event that we in the future issue common stock, or securities convertible into or exercisable to purchase common stock, at a price per share lower than the conversion price or exercise price then in effect. Depending upon how such provisions are interpreted, the alternative cashless exercise provision contained in the Class C Warrants and Class D Warrants could potentially result in a significant reduction in the conversion or exercise price of the Series B convertible preferred stock and October 2022 warrants. A reduction in the conversion price of the Series B Preferred Stock would increase the number of shares of our common stock issuable upon conversion of the Series B Preferred Stock. The shares of common stock sold in this offering, if any, will be sold from time to time at various prices, and this “full-ratchet” anti-dilution provision will be triggered if the common stock is sold in this offering at a price below the then conversion price of the Series B preferred stock or exercise price of the October 2022 warrants.

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The common stock offered hereby will be sold in “at the market” offerings, and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares sold, and there is no minimum or maximum sales price. Investors may experience a decline in the value of their shares as a result of share sales made at prices lower than the prices they paid.

The actual number of shares we will issue under the Equity Distribution Agreement, at any one time or in total, is uncertain.

Subject to certain limitations in the Equity Distribution Agreement and compliance with applicable law, we have the discretion to deliver a sales notice to Maxim at any time throughout the term of the Equity Distribution Agreement. The number of shares that are sold by Maxim after delivering a sales notice will fluctuate based on the market price of the common shares during the sales period and limits we set with Maxim. Because the price per share of each share sold will fluctuate based on the market price of our common stock during the sales period, it is not possible at this stage to predict the number of shares that will be ultimately issued.

The market price of our common stock is volatile, and you could lose all or part of your investment.

The volatility of orthopedic company stocks, including shares of our common stock, often do not correlate to macro, industry or company-specific fundamentals. Some of the factors that may cause the market price of our common stock to fluctuate include:

- the sentiment of retail investors (including as may be expressed on financial trading and other social media sites and online forums);
- the direct access by retail investors to broadly available trading platforms;
- the amount and status of short interest in our securities;
- access to margin debt;
- trading in options and other derivatives on our common stock and any related hedging;
- CTL Medical’s ability to sell silicon nitride based spinal fusion products and our cost of manufacturing such products for CTL Medical;
- our ability to develop, obtain regulatory clearances or approvals for, and market new and enhanced product candidates on a timely basis;
- our ability to enter into OEM and private label partnership agreements and the terms of those agreements;
- our ability to develop products that are effective in inactivating the SARS-CoV-2 virus;
- changes in governmental regulations or in the status of our regulatory approvals, clearances or future applications;
- our announcements or our competitors’ announcements regarding new products, product enhancements, significant contracts, number and productivity of distributors, number of hospitals and surgeons using products, acquisitions or strategic investments;
- announcements of technological or medical innovations for the treatment of orthopedic pathology;
- delays or other problems with the manufacturing of our products, product candidates and related instrumentation;
- volume and timing of orders for our products and our product candidates, if and when commercialized;
- changes in the availability of third-party reimbursement in the United States and other countries;
- quarterly variations in our or our competitors’ results of operations;
- changes in earnings estimates or recommendations by securities analysts, if any, who cover our common stock;
- failure to meet estimates or recommendations by securities analysts, if any, who cover our stock;
- changes in the fair value of our derivative liabilities resulting from changes in the market price of our common stock, which may result in significant fluctuations in our quarterly and annual operating results;
- changes in healthcare policy in the United States and internationally;
- product liability claims or other litigation involving us;
- sales of a substantial aggregate number of shares of our common stock;
- sales of large blocks of our common stock, including sales by our executive officers, directors and significant stockholders;
- disputes or other developments with respect to intellectual property rights;
- changes in accounting principles;
- changes to tax policy; and
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

These and other external factors may cause the market price and demand for our common stock to fluctuate substantially, which may limit or prevent our stockholders from readily selling their shares of our common stock and may otherwise negatively affect the liquidity of our common stock. In addition, in the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the company that issued the stock. If our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit regardless of the merits of the case or the eventual outcome. Such a lawsuit also would divert the time and attention of our management from running our company.

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USE OF PROCEEDS

We may offer and sell shares of our common stock having aggregate sales proceeds of up to \$1,700,000 from time to time. The amount of proceeds we receive, if any, will depend on the actual number of shares of our common stock sold and the market price at which such shares are sold. There can be no assurance that we will be able to sell any shares or fully utilize the Equity Distribution Agreement with Maxim as a source of financing. Because there is no minimum offering amount required as a condition to close this offering, the net proceeds to us, if any, are not determinable at this time.

We currently intend to use the net proceeds from this offering, if any, primarily for working capital and general corporate purposes. We may also use a portion of the net proceeds to invest in or acquire businesses or technologies that we believe are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus.

We have broad discretion in determining how the remaining proceeds of this offering will be used, and our discretion is not limited by the aforementioned possible uses. Our board of directors believes the flexibility in application of the net proceeds is prudent. See “Risk Factors—Risks Relating to this Offering—*Since we have broad discretion in how we use the proceeds from this offering, we may use the proceeds in ways with which you disagree.*”

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CAPITALIZATION

The following table sets forth our cash, cash equivalents and capitalization as of June 30, 2023:

- on an actual basis; and
- on an as adjusted basis to give effect to the sale by us of 2,266,666 shares of our common stock in this offering at an assumed public offering price of \$0.75 per share, which was the closing price of our common stock on the Nasdaq Capital Market on October 5, 2023, after deducting the 2.0% commission payable to Maxim and other estimated offering expenses (the actual number of and price at which shares of our common stock will be issued in the offering will vary).

You should read this table together with the section entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes included in our Annual Report on Form 10-K and in our Quarterly Reports on Form 10-Q each of which is incorporated by reference into this prospectus.

(unaudited, amounts in thousands except for share and per share information)	As of June 30, 2023	
	Actual	As Adjusted
Cash and cash equivalents	\$ 9,328	\$ 10,937
Borrowings	\$ 107	\$ 107
Operating lease liability	\$ 2,116	\$ 2,116
Stockholders’ equity		
Convertible preferred stock Series B, \$0.01 par value, 130,000,000 total shares authorized inclusive of all series of preferred; 26 shares outstanding (actual and as adjusted)		
Convertible preferred stock Series C, \$0.01 par value, 130,000,000 total shares authorized inclusive of all series of preferred; 50 shares outstanding (actual and as adjusted)		

Convertible preferred stock Series D, \$0.01 par value, 130,000,000 total shares authorized inclusive of all series of preferred; 180 shares outstanding (actual and as adjusted)		
Common stock, \$0.01 par value; 250,000,000 shares authorized; 4,208,027 shares issued and outstanding (actual); 6,474,693 shares (as adjusted)	\$	65
Additional paid-in capital	\$	280,559
Accumulated deficit	\$	(265,203)
Total stockholders' equity	\$	15,421
Total capitalization	\$	17,644

The number of shares of common stock in the table above is based on 4,208,027 shares outstanding as of June 30, 2023, and excludes (in each case as of June 30, 2023):

- 11,909 shares of our Common Stock issuable upon the exercise of outstanding stock options, at a weighted average exercise price of \$120.33 per share, and 14,850 restricted stock units exercisable into 14,850 shares of our Common Stock;
- 6,268 shares of Common Stock reserved for future issuance under our 2020 Equity Incentive Plan;
- 1,244,754 shares of Common Stock issuable upon the exercise of outstanding warrants;
- 10,576 shares of Common Stock issuable upon the conversion of 26 shares of our outstanding Series B Convertible Preferred Stock;
- 338 shares of Common Stock issuable upon the conversion of 50 shares of our outstanding Series C Convertible Preferred Stock; and
- 11,919 shares of Common Stock issuable upon the conversion of 180 shares of our outstanding Series D Convertible Preferred Stock.

Unless otherwise indicated, the information in this prospectus, including the number of shares outstanding after this offering, does not reflect:

- any issuance, exercise, vesting, expiration, or forfeiture of any additional equity awards under our equity incentive plans or stock purchase plans that occurred after June 30, 2023;
- the sale of 12,060 shares of common stock under the Equity Distribution Agreement after June 30, 2023; or
- the effect of the “full-ratchet” anti-dilution adjustment of the conversion price of our outstanding Series B Convertible Preferred Stock and the exercise price of our outstanding October 2022 warrants.

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DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, our Restated Certificate of Incorporation authorizes us to issue 250,000,000 shares of common stock, par value \$0.01 per share, and 130,000,000 shares of preferred stock, par value \$0.01 per share. The following is a summary of the rights of our common and preferred stock and some of the provisions of our Restated Certificate of Incorporation and Amended and Restated Bylaws, our outstanding warrants, our registration rights agreements and the Delaware General Corporation Law. Because it is only a summary, it does not contain all the information that may be important to you and is subject to and qualified in its entirety by our Restated Certificate of Incorporation and our Restated Bylaws, a copy of each of which has been incorporated as an exhibit to the registration statement of which this prospectus forms a part.

Our Restated Certificate of Incorporation and our Restated Bylaws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of the Board of Directors, which may have the effect of delaying, deferring or preventing a future takeover or change in control of the Company unless such takeover or change in control is approved by our Board of Directors.

Common Stock

As of September 29, 2023, there were 4,208,151 shares of common stock outstanding. Each outstanding share of common stock entitles the holder thereof to one vote per share on all matters. Our Restated Bylaws provide that any vacancy occurring in the Board of Directors may be filled by the affirmative vote of a majority of the remaining directors. Holders of our common stock do not have preemptive rights to purchase shares in any future issuance of our common stock. In the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to receive, ratably, the net assets available to stockholders after payment of all creditors.

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, and do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our common stock entitled to vote can elect all directors standing for election. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our Board of Directors out of funds legally available for dividend payments. All outstanding shares of our common stock are fully paid and nonassessable, and any shares of our common stock to be sold pursuant to this prospectus will be fully paid and nonassessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption, or other subscription rights. There are no redemption or sinking fund provisions applicable to our common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of our common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company. The transfer agent and the registrar's address is 59 Maiden Lane, New York, New York 10038. Their telephone number is 1-800-937-5449. Our common stock is listed on The NASDAQ Capital Market under the symbol “SINT”.

Preferred Stock

Our Board of Directors has the authority under our Restated Certificate of Incorporation, without further action by our stockholders, to issue up to 130,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences, privileges and restrictions of the shares of each wholly unissued series, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preference and sinking fund terms, and to increase or decrease the number of shares of any such series (but not below the number of shares of such series then outstanding).

Our Board of Directors may authorize the issuance of preferred stock with voting or conversion rights that could have the effect of restricting dividends on our common stock, diluting the voting power of our common stock, impairing the liquidation rights of our common stock or otherwise adversely affecting the rights of holders of our common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change of control and may adversely affect the market price of our common stock.

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Series B Preferred Stock.

Our Board of Directors designated 15,000 shares of our preferred stock as Series B Preferred Stock. As of September 29, 2023, there were 26 shares of Series B Preferred stock outstanding which are convertible into 10,576 shares of our Common Stock.

Conversion

Each share of Series B Preferred Stock is convertible into shares of our common stock at any time at the holder's option at the Conversion Price described below. We may not effect any conversion of Series B Preferred Stock, with certain exceptions, to the extent that, after giving effect to an attempted conversion, the holder of Series B Preferred Stock (together with such holder's affiliates, and any persons acting as a group together with such holder or any of such holder's affiliates) would beneficially own a number of shares of common stock in excess of 4.99% (or, at the election of the holder, 9.99%) of the shares of our common stock then outstanding after giving effect to such conversion, referred to as the Preferred Stock Beneficial Ownership Limitation; provided, however, that upon notice to the Company, the holder may increase or decrease the Preferred Stock Beneficial Ownership Limitation, provided that in no event may the Preferred Stock Beneficial Ownership Limitation exceed 9.99% and any increase in the Preferred Stock Beneficial Ownership Limitation will not be effective until 61 days following notice of such increase from the holder to us.

Subject to certain ownership limitations as described below and certain equity conditions being met, if during any 30 consecutive trading days, the volume weighted average price of our common stock exceeds \$13,060.80 and the daily dollar trading volume during such period exceeds \$500,000 per trading day, we have the right to force the conversion of the Series B Preferred Stock into common stock.

Conversion Price.

The Series B Preferred Stock is convertible into shares of common stock by dividing the stated value of the Series B Preferred Stock (\$1,100) by \$2.70 (the "Conversion Price"). The Conversion Price is subject to adjustment for stock splits, stock dividends, and distributions of common stock or securities convertible, exercisable or exchangeable for common stock, subdivisions, combinations and reclassifications.

Subject to certain exclusions contained in the Certificate of Designation, if the Company in any manner grants or sells any rights, warrants or options and the lowest price per share for which one share of common stock is at any time issuable upon the exercise of any such option or upon conversion, exercise or exchange of any Common Stock Equivalents (as defined in the Certificate of Designation) issuable upon exercise of any such option, exercise or exchange of any Common Stock Equivalent issuable upon the exercise of such option or otherwise pursuant to the terms thereof is less than the Conversion Price, then such share of common stock will be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such option for such price per share. For purposes of this paragraph only, the "lowest price per share for which one share of common stock is issuable upon the exercise of any such options or upon conversion, exercise or exchange of any Common Stock Equivalent issuable upon exercise of any such option or otherwise pursuant to the terms thereof" will be equal to (1) the lower of (x) the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of common stock upon the granting or sale of such option, upon exercise of such option and upon conversion, exercise or exchange of any Common Stock Equivalents issuable upon exercise of such option or otherwise pursuant to the terms thereof and (y) the lowest exercise price set forth in such option for which one share of common stock is issuable upon the exercise of any such options or upon conversion, exercise or exchange of any Common Stock Equivalents issuable upon exercise of any such option or otherwise pursuant to the terms thereof. Except as contemplated by the terms of the Certificate of Designation, no further adjustment of the Conversion Price will be made upon the actual issuance of such shares of common stock or of such convertible securities upon the exercise of such options or otherwise pursuant to the terms of or upon the actual issuance of such Common Stock Equivalents.

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Subject to certain exclusions contained in the Certificate of Designation, if the Company in any manner issues or sells any Common Stock Equivalents and the lowest price per share for which one share of common stock is at any time issuable upon the conversion, exercise or exchange thereof or otherwise pursuant to the terms thereof is less than the Conversion Price, then such share of common stock will be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such convertible securities for such price per share. For purposes of this paragraph only, the "lowest price per share for which one share of common stock is issuable upon the conversion, exercise or exchange thereof or otherwise pursuant to the terms thereof" will be equal to (1) the lower of (x) the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to one share of common stock upon the issuance or sale of the Common Stock Equivalent and upon conversion, exercise or exchange of such convertible security or otherwise pursuant to the terms thereof and (y) the lowest conversion price set forth in such convertible security for which one share of common stock is issuable upon conversion, exercise or exchange thereof or otherwise pursuant to the terms thereof minus (2) the sum of all amounts paid or payable to the holder of such Common Stock Equivalent (or any other person) upon the issuance or sale of such Common Stock Equivalent plus the value of any other consideration received or receivable by, or benefit conferred on, the holder of such Common Stock Equivalent (or any other person). Except as contemplated by the terms of the Certificate of Designation, no further adjustment of the Conversion Price will be made upon the actual issuance of such shares of common stock upon conversion, exercise or exchange of such Common Stock Equivalents or otherwise pursuant to the terms thereof, and if any such issuance or sale of such Common Stock Equivalents is made upon exercise of any options for which adjustment of the Conversion Price has been or is to be made, except as contemplated by the terms of the Certificate of Designation, no further adjustment of the Conversion Price will be made by reason of such issuance or sale.

If the purchase or exercise price provided for in any options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any convertible securities, or the rate at which any convertible securities are convertible into or exercisable or exchangeable for shares of common stock increases or decreases at any time (other than proportional changes in conversion or exercise prices, as applicable, in connection with stock dividends, splits or combination of outstanding common stock) the Conversion Price in effect at the time of such increase or decrease will be adjusted to the Conversion Price which would have been in effect at such time had such options or convertible securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. If the terms of any option or convertible security that was outstanding as of the date of issuance of the Preferred Stock and related Warrants are increased or decreased in the manner described in the immediately preceding sentence, then such option or convertible security and the shares of common stock deemed issuable upon exercise, conversion or exchange thereof will be deemed to have been issued as of the date of such increase or decrease. No adjustment will be made if such adjustment would result in an increase of the Conversion Price then in effect.

If any option and/or convertible security and/or Adjustment Right is issued in connection with the issuance or sale or deemed issuance or sale of any other securities of the Company (as determined by the holder of Preferred Stock, the "Primary Security", and such option and/or convertible security and/or Adjustment Right (as defined below), the "Secondary Securities" and together with the Primary Security, each a "unit"), together comprising one integrated transaction, the aggregate consideration per share of common stock with respect to such Primary Security will be deemed to be the lower of (x) the purchase price of such unit, (y) if such Primary Security is an option and/or convertible security, the lowest price per share for which one share of common stock is at any time issuable upon the exercise or conversion of the Primary Security in accordance with the paragraphs above and (z) the lowest volume-weighted average price of the common stock on any trading day during the four trading day period immediately following the public announcement of such dilutive issuance. If any shares of common stock, options or convertible securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount of consideration received by the Company therefor. If any shares of common stock, options or convertible securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of publicly traded securities, in which case the amount of consideration received by the Company for such securities will be the arithmetic average of the volume-weighted average prices of such security for each of the five (5) trading days immediately preceding the date of receipt. If any shares of common stock, options or convertible securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of common stock, options or convertible securities (as the case may be). The fair value of any consideration other than cash or publicly traded securities will be determined jointly by the Company and the holder. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the "Valuation Event"), the fair value of such consideration will be determined within five trading days after the tenth day following such Valuation Event by an independent, reputable appraiser jointly selected by the Company and the holder.

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"Adjustment Right" means any right granted with respect to any securities issued in connection with, or with respect to, any issuance or sale (or deemed issuance or sale in

accordance with the paragraph above) of shares of common stock that could result in a decrease in the net consideration received by the Company in connection with, or with respect to, such securities (including, without limitation, any cash settlement rights, cash adjustment or other similar rights).

In addition, holders of Preferred Stock may be eligible to elect an alternative price in the event we issue certain variable price securities.

Liquidation; Dividends; Repurchases.

In the event of a liquidation, the holders of Series B Preferred Stock are entitled to participate on an as-converted-to-common stock basis with holders of the common stock in any distribution of assets of the Company to the holders of the common stock. Additionally, we will not pay any dividends on shares of common stock (other than dividends in the form of common stock) unless and until such time as we pay dividends on each Series B Preferred Share on an as-converted basis. Other than as set forth in the previous sentence, no other dividends will be paid on Series B Preferred Stock and we will pay no dividends (other than dividends in the form of common stock) on shares of common stock unless we simultaneously comply with the previous sentence.

Redemption Right.

The Company holds an option to redeem some or all of the Series B Preferred Stock at any time after the six-month anniversary of its issuance date at a 25% premium to the stated value of the Series B Preferred Stock subject to redemption, upon 30 days prior written notice to the holder of the Series B Preferred Stock. The Series B Preferred Stock would be redeemed by the Company for cash.

Fundamental Transactions.

In the event of any fundamental transaction, generally including any merger with or into another entity, sale of all or substantially all of our assets, tender offer or exchange offer, or reclassification of our common stock, then upon any subsequent conversion of the Series B Preferred Stock, the holder will have the right to receive as alternative consideration, for each share of our common stock that would have been issuable upon such conversion immediately prior to the occurrence of such fundamental transaction, the number of shares of common stock of the successor or acquiring corporation or of our company, if it is the surviving corporation, and any additional consideration receivable upon or as a result of such transaction by a holder of the number of shares of our common stock for which the Series B Preferred Stock is convertible immediately prior to such event.

Voting Rights.

With certain exceptions, the holders of shares of Series B Preferred Stock have no voting rights. However, as long as any shares of Series B Preferred Stock remain outstanding, we may not, without the affirmative vote of holders of a majority of the then-outstanding Series B Preferred Stock, (a) alter or change adversely the powers, preferences or rights given to the Series B Preferred Stock or alter or amend the Certificate of Designation, (b) increase the number of authorized shares of Series B Preferred Stock, (c) amend our Certificate of Incorporation or other charter documents in any manner that adversely affects any rights of holders of Series B Preferred Stock disproportionately to the rights of holders of our other capital stock, or (d) enter into any agreement with respect to any of the foregoing.

Jurisdiction and Waiver of Trial by Jury

Other than with respect to suits, actions or proceedings arising under the federal securities laws, the Certificate of Designation provides for investors to consent to exclusive jurisdiction to courts located in New York, New York and provides for a waiver of the right to a trial by jury. It also provides that disputes are governed by Delaware law.

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Series C Preferred Stock.

Our Board of Directors designated 9,440 shares of our preferred stock as Series C Preferred Stock. As of September 29, 2023, there were 50 shares of Series C Preferred stock outstanding which are convertible into 338 shares of our Common Stock.

Conversion. Each share of Preferred Stock will be convertible at our option at any time on or after the first anniversary of the expiration of the Rights Offering or at the option of the holder at any time, into the number of shares of our common stock determined by dividing the \$1,000 stated value per share of the Preferred Stock by a conversion price of \$148.14 per share. In addition, the conversion price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations or reclassifications. Subject to limited exceptions, a holder of the Preferred Stock will not have the right to convert any portion of the Preferred Stock to the extent that, after giving effect to the conversion, the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion. A holder of the Preferred Stock, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of such holder's Preferred Stock, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion. In the event that a conversion is effected at our option, we will exercise such option to convert shares of Preferred Stock on a pro rata basis among all of the holders based on such holders' shares of Preferred Stock.

Fundamental Transactions. In the event we effect certain mergers, consolidations, sales of substantially all of our assets, tender or exchange offers, reclassifications or share exchanges in which our common stock is effectively converted into or exchanged for other securities, cash or property, we consummate a business combination in which another person acquires 50% of the outstanding shares of our common stock, or any person or group becomes the beneficial owner of 50% of the aggregate ordinary voting power represented by our issued and outstanding common stock, then, upon any subsequent conversion of the Preferred Stock, the holders of the Preferred Stock will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon conversion in full of the Preferred Stock.

Dividends. Holders of Preferred Stock shall be entitled to receive dividends (on an as-if-converted-to-common-stock basis) in the same form as dividends actually paid on shares of the common stock when, as and if such dividends are paid on shares of common stock.

Voting Rights. Except as otherwise provided in the certificate of designation or as otherwise required by law, the Preferred Stock has no voting rights.

Liquidation Preference. Upon our liquidation, dissolution or winding-up, whether voluntary or involuntary, holders of Series C Preferred Stock will be entitled to receive out of our assets, whether capital or surplus, the same amount that a holder of common stock would receive if the Preferred Stock were fully converted (disregarding for such purpose any conversion limitations under the certificate of designation) to common stock, which amounts shall be paid *pari passu* with all holders of common stock.

Redemption Rights. We are not obligated to redeem or repurchase any shares of Preferred Stock. Shares of Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous provisions.

Series D Preferred Stock

Our board of directors designated 4,656 shares of our preferred stock as Series D Preferred Stock. As of September 29, 2023, there were 180 shares of Series D Preferred stock outstanding which are convertible into 11,919 shares of our Common Stock.

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Conversion. Each share of Series D Preferred Stock is convertible at the option of the holder at any time, into the number of shares of our common stock determined by dividing the \$1,000 stated value per share of the Preferred Stock by a conversion price of \$15.102 per share. In addition, the conversion price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations or reclassifications. Subject to limited exceptions, a holder of the Preferred Stock will not have the right to convert any portion of the Series D Preferred Stock to the extent that, after giving effect to the conversion, the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion. A holder of the Series D Preferred Stock, upon notice to us, may increase or decrease the beneficial ownership limitation provisions of such holder's Series D Preferred Stock, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to its conversion.

Fundamental Transactions. In the event we effect certain mergers, consolidations, sales of substantially all of our assets, tender or exchange offers, reclassifications or share exchanges in which our common stock is effectively converted into or exchanged for other securities, cash or property, we consummate a business combination in which another person acquires 50% of the outstanding shares of our common stock, or any person or group becomes the beneficial owner of 50% of the aggregate ordinary voting power represented by our issued and outstanding common stock, then, upon any subsequent conversion of the Series D Preferred Stock, the holders of the Series D Preferred Stock will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon conversion in full of the Series D Preferred Stock.

Dividends. Holders of Preferred Stock shall be entitled to receive dividends (on an as-if-converted-to-common-stock basis) in the same form as dividends actually paid on shares of the common stock when, as and if such dividends are paid on shares of common stock.

Voting Rights. Except as otherwise provided in the certificate of designation or as otherwise required by law, the Series D Preferred Stock has no voting rights.

Liquidation Preference. Upon our liquidation, dissolution or winding-up, whether voluntary or involuntary, holders of Series D Preferred Stock will be entitled to receive out of our assets, whether capital or surplus, the same amount that a holder of common stock would receive if the Series D Preferred Stock were fully converted (disregarding for such purpose any conversion limitations under the certificate of designation) to common stock, which amounts shall be paid pari passu with all holders of common stock.

Redemption Rights. We are not obligated to redeem or repurchase any shares of Series D Preferred Stock. Shares of Series D Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous provisions.

Future Preferred Stock.

Our Board of Directors will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus is a part, or incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. This description will include:

- the title and stated value;
- the number of shares we are offering;
- the liquidation preference per share;
- the purchase price per share;
- the dividend rate per share, dividend period and payment dates and method of calculation for dividends;

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- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- our right, if any, to defer payment of dividends and the maximum length of any such deferral period;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;
- the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock or other securities of ours, including warrants, and, if applicable, the conversion period, the conversion price, or how it will be calculated, and under what circumstances it may be adjusted;
- voting rights, if any, of the preferred stock;
- preemption rights, if any;
- restrictions on transfer, sale or other assignment, if any;
- a discussion of any material or special United States federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;
- any limitations on issuances of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock being issued as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and
- any other specific terms, rights, preferences, privileges, qualifications or restrictions of the preferred stock.

When we issue shares of preferred stock under this prospectus, the shares will be fully paid and nonassessable and will not have, or be subject to, any preemptive or similar rights.

The General Corporation Law of the State of Delaware, the state of our incorporation, provides that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of that preferred stock. This right is in addition to any voting rights that may be provided for in the

applicable certificate of designation.

Description of Other Outstanding Securities of the Company

Warrants

As of September 29, 2023, there were 1,244,754 common stock purchase warrants outstanding, which expire between February 2025 and February 2028. Each of these warrants entitles the holder to purchase one share of common stock at prices ranging between \$2.70 and \$150 per share. Certain of these warrants has a net exercise provision under which its holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our common stock at the time of exercise of the warrant after deduction of the aggregate exercise price. Additionally, certain of these warrants entitle a holder to also effect an “alternative cashless exercise” wherein the holder may surrender a certain number of warrants in return for a lesser number of shares of our common stock on a cashless basis. Each of these warrants also contains provisions for the adjustment of the exercise price and the aggregate number of shares issuable upon the exercise of the warrant in the event of dividends, share splits, reorganizations and reclassifications and consolidations. Certain of these warrants contain a provision requiring a reduction to the exercise price in the event we issue common stock, or securities convertible into or exercisable for common stock, at a price per share lower than the warrant exercise price.

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The holders of certain of these warrants have registration rights, as described in greater detail below.

February 2023 Offering Warrants

On February 7, 2023, we issued a Class C Common Stock Purchase Warrant to purchase up to 2,150,000 shares of Common Stock (the “Class C Warrants”) and a Class D Common Stock Purchase Warrant to purchase up to 1,075,000 shares of Common Stock (the “Class D Warrants”). The Class C and Class D Warrants are exercisable at a price of \$5.60 per share. The Class C Warrants will expire five years from the date of issuance and the Class D Warrants will expire three years from the date of issuance. In addition, a holder may also effect an “alternative cashless exercise” wherein the aggregate number of shares of common stock issuable in such alternative cashless exercise shall equal the product of (x) the aggregate number of shares of common stock that would be issuable upon exercise of the Class C Warrant or Class D Warrant in accordance with the terms of such warrant if such exercise were by means of a cash exercise rather than a cashless exercise and (y) 0.40 with respect to the Class C Warrant or 0.80 with respect to the Class D Warrant.

The following summary of certain terms and provisions of the Class C Warrants, and Class D Warrants is not complete and is subject to, and qualified in its entirety by the provisions of the form of Class C Warrant, and the form of Class D Warrant, which are filed as exhibits to this registration statement.

Exercisability. The Class C Warrants are exercisable at any time after their original issuance and at any time up to the date that is five years after their original issuance. The Class D Warrants are exercisable at any time after their original issuance and at any time up to the date that is three years after their original issuance. Each of the Class C Warrants, Class D Warrants, are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and, at any time a registration statement registering the issuance of the shares of common stock underlying the Class C Warrants or Class D Warrants, under the Securities Act of 1933, as amended (the “Securities Act”) is effective and available for the issuance of such shares, by payment in full in immediately available funds for the number of shares of common stock purchased upon such exercise. If a registration statement registering the issuance of the shares of common stock underlying the Class C Warrants, Class D Warrants, under the Securities Act is not effective or available, the holder may, in its sole discretion, elect to exercise the Class C Warrant or Class D Warrant, through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant. We may be required to pay certain amounts as liquidated damages as specified in the warrants in the event we do not deliver shares of common stock upon exercise of the warrants within the time periods specified in the warrants. In addition, a holder may also effect an “alternative cashless exercise.” In such event, the aggregate number of shares of common stock issuable in such alternative cashless exercise shall equal the product of (x) the aggregate number of shares of common stock that would be issuable upon exercise of the Class C Warrant or Class D Warrant in accordance with the terms of such warrant if such exercise were by means of a cash exercise rather than a cashless exercise and (y) 0.40 with respect to the Class C Warrant or 0.80 with respect to the Class D Warrant. No fractional shares of common stock will be issued in connection with the exercise of a Class C Warrant or Class D Warrant. With respect to any alternative cashless exercise, fractional shares will be rounded down to the nearest whole share.

Fractional Shares. No fractional shares of common stock will be issued in connection with the exercise of a warrant. Other than as described above with respect to alternative cashless exercises, in lieu of fractional shares, we will, at our election, either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

Exercise Limitation. A holder will not have the right to exercise any portion of the Class C Warrants, or Class D Warrants if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or, upon election by a holder prior to the issuance of any warrants, 9.99%) of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99%, upon at least 61 days’ prior notice from the holder to us with respect to any increase in such percentage.

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Exercise Price. The exercise price per whole share of common stock purchasable upon exercise of the Class C Warrants and the Class D Warrants is \$5.60 per share. The exercise price and number of shares of common stock issuable on exercise are subject to appropriate adjustments in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock.

Transferability. Subject to applicable laws, the Class C Warrants and Class D Warrants may be offered for sale, sold, transferred or assigned without our consent.

Exchange Listing. We do not intend to list the Class C Warrants or the Class D Warrants on any securities exchange or other trading market. Without an active trading market, the liquidity of these securities will be limited.

Warrant Agent. The Class C Warrants and Class D Warrants are issued in registered form under a warrant agreement between American Stock Transfer & Trust Company, LLC, as warrant agent, and us. The Class C Warrants and Class D Warrants shall initially be represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company (DTC) and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Fundamental Transactions. In the event of a fundamental transaction, and generally including, with certain exceptions, any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding shares of common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding shares of common stock, the holders of the Class C Warrants and Class D Warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction, we or the successor entity, at the request of a holder of Class C Warrants or Class D Warrants, will be obligated to purchase any unexercised portion of such Class C Warrants or Class D Warrants in accordance with the terms of the warrants. Additionally, as more fully described in the warrants, in the event of certain fundamental transactions, the holders of the warrants will be entitled to receive consideration in an amount equal to the Black Scholes value of the warrants on the date of consummation of such transaction.

Rights as a Shareholder. Except as otherwise provided in the Class C Warrants and Class D Warrants or by virtue of such holder's ownership of our shares of common stock, the holder of a Class C Warrant or Class D Warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the warrant.

Governing Law. The Class C Warrants, Class D Warrants, and warrant agreement are governed by New York law.

Maxim and Ascendant February 2023 Warrants

In connection with the February 2023 Offering, the Company issued (i) to Maxim, as the Company's sole placement agent for the 2023 Offering, 73,100 warrants to purchase shares of the Company's common stock and (ii) to Ascendant, as a financial advisor to the Company in the February 2023 Offering, 12,900 warrants to purchase shares of the Company's common stock (collectively, the "Placement Agent Warrants"). The Placement Agent Warrants will expire on February 7, 2028. The Placement Agent Warrants are exercisable at a price of \$6.16 per share, subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of the Placement Agent Warrants will not have the right to exercise any portion of the Placement Agent Warrants to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Company's common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of the Placement Agent Warrants, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the Placement Agent Warrants. The Placement Agent Warrants may be exercised as to all or a lesser number of shares of the Company's common stock and contain certain demand registration rights and unlimited "piggyback" registration rights for a period of five years after February 7, 2023, at the Company's expense. The Company relied on the exemption from registration available under Section 4(a)(2) of the Securities Act in connection with the issuance of the Dealer Manager Warrants to Maxim and Ascendant.

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The foregoing description of the Placement Agent Warrants is not complete. For the complete terms of the Placement Agent Warrants, you should refer to the form of Placement Agent Warrant filed as an exhibit to this registration statement.

October 2022 Rights Offering Warrants

On October 17, 2022, we issued 308,321 common stock warrants designated as our "Class A" warrants and 308,321 common stock warrants designated as our "Class B" warrants (collectively the "October 2022 Warrants") in a rights offering to our stockholders (the "October 2022 Rights Offering"). Each of these warrants entitles the holder to purchase one share of common stock at an exercise price of \$2.70 per share. The Class A Warrants and Class B Warrants have the same terms, except that the Class A Warrants expire five years from the date of issuance and the Class B Warrants expire three years from the date of issuance. The material terms and provisions of the October 2022 Warrants are summarized below. This summary of the October 2022 Warrants is not complete. For the complete terms of the October 2022 Warrants, you should refer to the form of October 2022 Warrant filed as an exhibit to the registration statement of which this prospectus forms a part.

Pursuant to a warrant agency agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the October 2022 Warrants were issued in book-entry form and are represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Exercisability

Each Class A Warrant is exercisable at any time and will expire five years from the date of issuance. Each Class B Warrant is exercisable at any time and will expire three years from the date of issuance. The Warrants are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and payment in full for the number of shares of our common stock purchased upon such exercise, except in the case of a cashless exercise as discussed below. The number of shares of common stock issuable upon exercise of the Warrants is subject to adjustment in certain circumstances, including a stock split of, stock dividend on, or a subdivision, combination or recapitalization of the common stock. If we effect a merger, consolidation, sale of substantially all of our assets, or other similar transaction, then, upon any subsequent exercise of a Warrants, the Warrant holder will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon exercise in full of the Warrant.

Cashless Exercise

If at any time there is no effective registration statement registering, or the prospectus contained therein is not available for issuance of, the shares issuable upon exercise of the warrant, the holder may exercise the warrant on a cashless basis. When exercised on a cashless basis, a portion of the warrant is cancelled in payment of the purchase price payable in respect of the number of shares of our common stock purchasable upon such exercise.

Exercise Price

Each warrant represents the right to purchase one share of common stock at an exercise price equal to the Conversion Price. In addition, the exercise price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. The exercise price is also subject to adjustment in the event that we sell, issue, or grant any option to purchase, or sell or issue any right to reprice, or otherwise dispose of or issue (or enter into any agreement relating to the offer, sale, grant or any option to purchase or other disposition) any common stock or convertible securities (as defined in the warrants), at an effective price per share less than the exercise price then in effect. In addition, if at any time there occurs a stock dividend, distribution, subdivision, combination, or reclassification and the volume weighted average price of the shares of common stock for the five trading days following such event is less than the exercise price then in effect (after giving effect to the adjustment of the exercise price pursuant to such event under the terms of the Warrants), then on the fifth trading day following such event, the exercise price shall be reduced to the volume weighted average price of the shares of common stock for the five trading days following such event.

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Subject to limited exceptions, a holder of warrants will not have the right to exercise any portion of the warrant to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to us, may increase or decrease the beneficial ownership limitation provisions of the warrant, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the warrant.

Transferability

Subject to applicable laws and restrictions, a holder may transfer a warrant upon surrender of the warrant to us with a completed and signed assignment in the form attached to the warrant. The transferring holder will be responsible for any tax that liability that may arise as a result of the transfer.

No Market

There is no public trading market for the October 2022 Warrants and they will not be listed for trading on Nasdaq or any other securities exchange or market.

Rights as Stockholder

Except as set forth in the October 2022 Warrants, the holder of an October 2022 Warrant, solely in such holder's capacity as a holder of such warrant, will not be entitled to vote, to receive dividends, or to any of the other rights of our stockholders.

Amendments and Waivers

The provisions of each October 2022 Warrant may be modified or amended or the provisions thereof waived with the written consent of us and the holder.

The October 2022 Warrants were issued pursuant to a warrant agent agreement by and between us and America Stock Transfer & Trust Company, the warrant agent.

Maxim and Ascendant October 2022 Warrants

In connection with the October 2022 Rights Offering, the Company issued (i) to Maxim, as the dealer-manager in the October 2022 Rights Offering, 10,483 warrants to purchase shares of the Company's common stock and (ii) to Ascendant, as a financial advisor to the Company in the October 2022 Rights Offering, 1,850 warrants to purchase shares of the Company's common stock (collectively, the "Dealer Manager Warrants"). The Dealer Manager Warrants are non-exercisable for 6 months from October 17, 2022 and will expire on September 23, 2027. The Dealer Manager Warrants will be exercisable at a price of \$16.61 per share, subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of the Dealer Manager Warrants will not have the right to exercise any portion of the Dealer Manager Warrants to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of the Company's common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of the Dealer Manager Warrants, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the Dealer Manager Warrants. In addition, the Dealer Manager Warrants shall not be redeemable and may not be sold, transferred, assigned, pledged or hypothecated or be the subject of any hedging, short sale, derivative, put, or call transaction for a period of 180 days following September 23, 2022, except that they may be assigned, in whole or in part, to any officer or partner of Maxim (or to Ascendant). The Dealer Manager Warrants may be exercised as to all or a lesser number of shares of the Company's common stock, and contain unlimited "piggyback" registration rights for a period of five years after September 23, 2022, at the Company's expense. The Company relied on the exemption from registration available under Section 4(a)(2) of the Securities Act in connection with the issuance of the Dealer Manager Warrants to Maxim and Ascendant.

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The foregoing description of the Dealer Manager Warrants is not complete. For the complete terms of the Dealer Manager Warrants, you should refer to the form of Dealer Manager Warrant filed as an exhibit to the registration statement of which this prospectus forms a part.

February 2020 Rights Offering Warrants

On February 6, 2020, we issued 63,720 common stock warrants (the "February 2020 Warrants") in a rights offering to our stockholders. The material terms and provisions of the February 2020 Warrants are summarized below. This summary of the February 2020 Warrants is not complete. For the complete terms of the February 2020 Warrants, you should refer to the form of February 2020 Warrant filed as an exhibit to the registration statement of which this prospectus forms a part.

Pursuant to a warrant agency agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the February 2020 Warrants were issued in book-entry form and are represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Exercisability. Each February 2020 Warrant became exercisable at the time of issuance and will expire five years from their issuance date. The February 2020 Warrants are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and payment in full for the number of shares of our common stock purchased upon such exercise, except in the case of a cashless exercise as discussed below. The number of shares of common stock issuable upon exercise of the February 2020 Warrants is subject to adjustment in certain circumstances, including a stock split of, stock dividend on, or a subdivision, combination or recapitalization of the common stock. If we effect a merger, consolidation, sale of substantially all of our assets, or other similar transaction, then, upon any subsequent exercise of a February 2020 Warrant, the February 2020 Warrant holder will have the right to receive any shares of the acquiring corporation or other consideration it would have been entitled to receive if it had been a holder of the number of shares of common stock then issuable upon exercise in full of the February 2020 Warrant.

Cashless Exercise. After the earlier of (a) the date that is 30 days after the initial exercise date of the February 2020 Warrants or (b) such trading day that the aggregate volume of shares of common stock sold since the expiration of the Offering exceeds three times the number of shares of common stock and common stock equivalents sold in the Offering, the holder shall be permitted to exercise the February 2020 Warrant, on a cashless basis, regardless of the then applicable trading price of the common stock on Nasdaq, for an aggregate number of shares of common stock equal to the product of (i) the aggregate number of shares of common stock that would be issuable upon exercise of the Warrant if such exercise were by means of a cash exercise and (ii) 0.70.

Additionally, if at any time there is no effective registration statement registering, or the prospectus contained therein is not available for issuance of, the shares issuable upon exercise of the warrant, the holder may exercise the warrant on a cashless basis, in which a portion of the warrant is cancelled in payment of the purchase price payable in respect of the number of shares of our common stock purchasable upon such exercise.

Exercise Price. Each February 2020 Warrant represents the right to purchase one share of common stock at an exercise price of \$150 per share. In addition, the exercise price per share is subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of warrants will not have the right to exercise any portion of the warrant to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to the Company, may increase or decrease the beneficial ownership limitation provisions of the warrant, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the warrant.

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Fundamental Transactions. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our shares of common stock are converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquires 50% or more of our outstanding shares of common stock, referred to as a fundamental transaction, then following such event, the holders will have the option, which may be exercised within 30 days after the consummation of the fundamental transaction, to require the Company or the successor entity purchase the Warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes value of the remaining unexercised portion of the warrant on the date of the consummation of the fundamental transaction. However, if the fundamental transaction is not within the Company's control, including not approved by the Company's

Board of Directors, the holder will only be entitled to receive from the Company or any successor entity, as of the date of consummation of such fundamental transaction, the same type or form of consideration (and in the same proportion), at the Black Scholes value of the unexercised portion of the Warrant, that is being offered and paid to the holders of common stock of the Company in connection with the fundamental transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of common stock are given the choice to receive from among alternative forms of consideration in connection with the fundamental transaction.

Transferability. Subject to applicable laws and restrictions, a holder may transfer a warrant upon surrender of the warrant to us with a completed and signed assignment in the form attached to the warrant. The transferring holder will be responsible for any tax that liability that may arise as a result of the transfer.

No Market. There is no public trading market for the February 2020 Warrants, and they are not listed for trading on Nasdaq or any other securities exchange or market.

Rights as Stockholder. Except as set forth in the February 2020 Warrants, the holder of a warrant, solely in such holder's capacity as a holder of a February 2020 Warrant, will not be entitled to vote, to receive dividends, or to any of the other rights of our stockholders.

Redemption Rights. We may redeem the warrants for \$0.01 per warrant if our common stock closes above \$8.00 per share for ten consecutive trading days, provided that we may not do so prior to the first anniversary of expiration of the Rights Offering.

Amendments and Waivers. The provisions of each February 2020 Warrant may be modified or amended or the provisions thereof waived with the written consent of us and the holder.

Maxim and Ascendant February 2020 Warrants

Also on February 6, 2020, in connection with a rights offering, we issued 2,039 common stock warrants (the "Maxim Warrants") to Maxim, as the dealer manager in such rights offering, and 510 common stock warrants (the "Ascendant Warrants") to Ascendant, as a financial advisor to us in such rights offering. The Maxim Warrants and Ascendant Warrants have the same material terms as the February 2020 Warrants, except as described below.

The Maxim Warrants and Ascendant Warrants became exercisable 6 months from February 6, 2020 and will expire on January 17, 2025. The Maxim Warrants and Ascendant Warrants are exercisable at a price of \$162.95 per share, subject to adjustment for stock dividends, distributions, subdivisions, combinations, or reclassifications, and for certain dilutive issuances. Subject to limited exceptions, a holder of the Maxim Warrants and Ascendant Warrants will not have the right to exercise any portion of such warrant to the extent that, after giving effect to the exercise, the holder, together with its affiliates, and any other person acting as a group together with the holder or any of its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to its exercise. The holder, upon notice to us, may increase or decrease the beneficial ownership limitation provisions of the warrant, provided that in no event shall the limitation exceed 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise of the warrant.

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The Maxim Warrants and Ascendant Warrants contain the same provisions regarding fundamental transactions as those contained in the February 2020 Warrants, except that the Maxim Warrants and Ascendant Warrants do not provide the holders thereof with the option to require us, or a successor entity, to pay an amount equal to the Black Scholes value of the warrants in the event of certain fundamental transactions.

The Maxim Warrants and Ascendant Warrants are not redeemable. The Maxim Warrants and Ascendant Warrants contain unlimited "piggyback" registration rights for a period of five years after February 6, 2020 (but not longer than 7 years from January 17, 2020) at our expense, subject to certain exceptions. We relied on the exemption from registration available under Section 4(a)(2) of the Securities Act in connection with the issuance of the warrants to Maxim and Ascendant.

This summary of the Maxim Warrants and Ascendant Warrants is not complete. For the complete terms of the Maxim Warrants and Ascendant Warrants, you should refer to the form of Maxim Warrants and Ascendant Warrants filed as an exhibit to the registration statement of which this prospectus forms a part.

Effects of Anti-Takeover Provisions of Our Restated Certificate of Incorporation, Our Restated Bylaws and Delaware Law

The provisions of (1) Delaware law, (2) our Restated Certificate of Incorporation and (3) our Restated Bylaws discussed below could discourage or make it more difficult to prevail in a proxy contest or effect other change in our management or the acquisition of control by a holder of a substantial amount of our voting stock. It is possible that these provisions could make it more difficult to accomplish, or could deter, transactions that stockholders may otherwise consider to be in their best interests or our best interests. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our Board of Directors and in the policies formulated by the Board of Directors and to discourage certain types of transactions that may involve an actual or threatened change in control of our company. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. These provisions also are intended to discourage certain tactics that may be used in proxy fights. These provisions also may have the effect of preventing changes in our management.

Delaware Statutory Business Combinations Provision. We are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. For purposes of Section 203, a "business combination" is defined broadly to include a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and, subject to certain exceptions, an "interested stockholder" is a person who, together with his or her affiliates and associates, owns (or within three years prior, did own) 15% or more of the corporation's voting stock.

Classified Board of Directors; Appointment of Directors to Fill Vacancies; Removal of Directors for Cause. Our Restated Certificate of Incorporation provides that our Board of Directors will be divided into three classes as nearly equal in number as possible. Each year the stockholders will elect the members of one of the three classes to a three-year term of office. All directors elected to our classified Board of Directors will serve until the election and qualification of their respective successors or their earlier resignation or removal. The Board of Directors is authorized to create new directorships and to fill any positions so created and is permitted to specify the class to which any new position is assigned. The person filling any of these positions would serve for the term applicable to that class. The Board of Directors (or its remaining members, even if less than a quorum) is also empowered to fill vacancies on the Board of Directors occurring for any reason for the remainder of the term of the class of directors in which the vacancy occurred. Members of the Board of Directors may only be removed for cause and only by the affirmative vote of holders of at least 80% of our outstanding voting stock. These provisions are likely to increase the time required for stockholders to change the composition of the Board of Directors. For example, in general, at least two annual meetings will be necessary for stockholders to effect a change in a majority of the members of the Board of Directors.

Authorization of Blank Check Preferred Stock. Our Restated Certificate of Incorporation provides that our Board of Directors is authorized to issue, without stockholder approval, blank check preferred stock. Blank check preferred stock can operate as a defensive measure known as a "poison pill" by diluting the stock ownership of a potential hostile acquirer to prevent an acquisition that is not approved by our Board of Directors.

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Advance Notice Provisions for Stockholder Proposals and Stockholder Nominations of Directors. Our Restated Bylaws provide that, for nominations to the Board of Directors or for other business to be properly brought by a stockholder before a meeting of stockholders, the stockholder must first have given timely notice of the proposal in writing to

our Secretary. For an annual meeting, a stockholder's notice generally must be delivered not less than 90 days nor more than 120 days prior to the anniversary of the mailing date of the proxy statement for the previous year's annual meeting. For a special meeting, the notice must generally be delivered no less than 60 days nor more than 90 days prior to the special meeting or ten days following the day on which public announcement of the meeting is first made. Detailed requirements as to the form of the notice and information required in the notice are specified in our Restated Bylaws. If it is determined that business was not properly brought before a meeting in accordance with our bylaw provisions, this business will not be conducted at the meeting.

Special Meetings of Stockholders. Special meetings of the stockholders may be called only by our Board of Directors pursuant to a resolution adopted by a majority of the total number of directors.

No Stockholder Action by Written Consent. Our Restated Certificate of Incorporation does not permit our stockholders to act by written consent. As a result, any action to be effected by our stockholders must be effected at a duly called annual or special meeting of the stockholders.

Super-Majority Stockholder Vote required for Certain Actions. The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless the corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our Restated Certificate of Incorporation requires the affirmative vote of the holders of at least 80% of our outstanding voting stock to amend or repeal any of the provisions discussed in this section of this prospectus entitled "Effect of Anti-Takeover Provisions of Our Restated Certificate of Incorporation, Our Restated Bylaws and Delaware Law" or to reduce the number of authorized shares of common stock or preferred stock. This 80% stockholder vote would be in addition to any separate class vote that might in the future be required pursuant to the terms of any preferred stock that might then be outstanding. A 80% vote is also required for any amendment to, or repeal of, our Restated Bylaws by the stockholders. Our Restated Bylaws may be amended or repealed by a simple majority vote of the Board of Directors.

Potential Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, to facilitate corporate acquisitions or payment as a dividend on the capital stock.

The existence of unissued and unreserved common stock and preferred stock may enable our Board of Directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, the Board of Directors has the discretion to determine designations, rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences of each series of preferred stock, all to the fullest extent permissible under the Delaware General Corporation Law and subject to any limitations set forth in our certificate of incorporation. The purpose of authorizing the Board of Directors to issue preferred stock and to determine the rights and preferences applicable to such preferred stock is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing desirable flexibility in connection with possible financings, acquisitions and other corporate purposes, could have the effect of making it more difficult for a third-party to acquire, or could discourage a third-party from acquiring, a majority of our outstanding voting stock.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock and certain of our warrants is American Stock Transfer and Trust Company, LLC. The transfer agent and the registrar's address is 59 Maiden Lane, New York, New York 10038.

Stock Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol "SINT".

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PLAN OF DISTRIBUTION

Pursuant to the Equity Distribution Agreement, dated February 25, 2021, by and between the Company and Maxim Group LLC, Maxim Group LLC ("Maxim"), Maxim has agreed to act as exclusive sales agent in connection with this offering of our common stock pursuant to this prospectus. Maxim is not purchasing or selling any of the shares of our common stock offered by this prospectus, nor is it required to arrange the purchase or sale of any specific number or dollar amount of shares of our common stock but have agreed to use their reasonable best efforts to arrange for the sale of all of the shares of our common stock offered hereby.

Upon delivery of a placement notice and subject to the terms and conditions of the Equity Distribution Agreement, Maxim may sell shares of our common stock by any method permitted by law deemed to be an "at-the-market" equity offering as defined in Rule 415 promulgated under the Securities Act, including sales made directly on or through The NASDAQ Capital Market, the existing trading market for our common stock, sales made to or through a market maker other than on an exchange or otherwise, in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices, and/or any other method permitted by law, including in privately negotiated transactions.

We will pay Maxim in cash, upon each sale of shares of our common stock pursuant to the Equity Distribution Agreement, a commission equal to 2.0% of the gross proceeds from each sale of shares of our common stock. Because there is no minimum offering amount required as a condition to this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. In addition, we agreed to reimburse Maxim upon request for its costs and out-of-pocket expenses incurred in connection with its services under this offering, including the fees and out-of-pocket expenses of its legal counsel, up to an aggregate of \$50,000, not including legal expenses relating to quarterly bringdowns. The Company shall bear and be responsible for all expenses which are customarily borne by issuers for transactions of the type set forth herein. Notwithstanding the foregoing, in the event that the proposed Offering is terminated, postponed or not consummated for any reason, the Company shall reimburse the actual, accountable costs and expenses incurred by Maxim in connection with its engagement hereunder, including legal fees and out-of-pocket expenses. We also agreed to reimburse Maxim for its legal costs for the offering as follows: (i) \$40,000 (USD) payable upon the initial sale of securities by the Company under this offering and (ii) for each quarter for which a bringdown is required the Company will pay an additional legal fee equal to \$2,500.

Settlement for sales of shares of our common stock will occur on the second business day following the date on which any sales are made, or on some other date that is agreed upon by us and Maxim in connection with a particular transaction, in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement. Sales of shares of our common stock as contemplated in this prospectus will be settled through the facilities of The Depository Trust Company or by such other means as we and Maxim may agree upon.

We have agreed to provide indemnification and contribution to Maxim and specified persons against certain civil liabilities, including liabilities under the Securities Act, and the Securities Exchange Act of 1934, as amended, or the Exchange Act, and to contribute to payments that Maxim may be required to make in respect of such liabilities.

Maxim may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by them and any profit realized on the resale of the shares sold by them while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, Maxim would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares by the agent acting as principal. Under these rules and regulations, Maxim:

- may not engage in any stabilization activity in connection with our securities; and

- may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until it has completed its participation in the distribution.

The offering of shares of our common stock pursuant to the Equity Distribution Agreement will terminate upon the earlier of (i) the sale of shares having an aggregate offering price of \$15,000,000, (ii) the termination by either Maxim or us upon the provision of fifteen days written notice, or (iii) February 25, 2024.

Maxim and its affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees. To the extent required by Regulation M, Maxim will not engage in any market making activities involving our shares of our common stock while the offering is ongoing under this prospectus.

This prospectus in electronic format may be made available on a website maintained by Maxim and Maxim may distribute this prospectus electronically.

The foregoing does not purport to be a complete statement of the terms and conditions of the Equity Distribution Agreement. A copy of the Equity Distribution Agreement is included as an exhibit to the registration statement of which this prospectus forms a part.

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LEGAL MATTERS

Life Science Law, PC, Salt Lake City, Utah will pass for us upon the validity of the shares of common stock being offered by this prospectus. Maxim is being represented in connection with this offering by Ellenoff Grossman & Schole LLP, New York, New York.

EXPERTS

The consolidated financial statements of SINTX Technologies, Inc., appearing in the Company's Annual Report on Form 10-K for the year ended December 31, 2022, incorporated by reference herein, have been audited by Tanner LLC, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities we are offering under this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, where our SEC filings are also available. The address of the SEC's web site is "<http://www.sec.gov>." We maintain a website at www.sintx.com. Information contained in or accessible through our website does not constitute a part of this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" information that we file with it into this prospectus, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is an important part of this prospectus. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the Commission will automatically update and supersede information contained in this prospectus and any accompanying prospectus supplement. We incorporate by reference the documents listed below that we have previously filed with the Commission:

- (a) The Company's Annual Report on Form 10-K for the fiscal year ended [December 31, 2022](#);
- (b) The Company's Quarterly Reports on Form 10-Q for the fiscal quarters ended [March 31, 2023](#) and [June 30, 2023](#);
- (c) The Company's Current Reports on Form 8-K filed with the SEC on [January 13, 2023](#) and [February 9, 2023](#); and
- (d) The description of the Company's Common Stock, which is contained in the Registration Statement on Form 8-A, as filed with the SEC on [February 7, 2014](#), as updated by the description of our Common Stock contained in [Exhibit 4.18](#) to our Annual Report on Form 10-K for the year ended December 31, 2022, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than Current Reports furnished under Items 2.02 or 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of the registration statement, and (ii) after the effectiveness of the registration statement but prior to the termination of the offering of the securities covered by this prospectus, excluding, in each case, information deemed furnished and not filed.

Any statement contained in this prospectus, or in a document incorporated or deemed to be incorporated by reference herein, shall be deemed to be modified or superseded to the extent that a statement contained herein, or in any subsequently filed document that also is incorporated or deemed to be incorporated by reference herein, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the information that has been incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. Requests should be directed to: SINTX Technologies, Inc., Attention: Investor Relations, 1885 West 2100 South, Salt Lake City, Utah 84119 and our telephone number is (801) 839-3500. You may also access the documents incorporated by reference in this prospectus through our website at www.sintx.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

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Up to \$1,700,000



Common Stock

PROSPECTUS

Maxim Group LLC
, 2023

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth the estimated costs and expenses, other than underwriting discounts and commissions, payable by the registrant in connection with the offering of the securities being registered. All the amounts shown are estimates, except for the SEC registration fee and the FINRA filing fee.

SEC registration fee	\$	*
FINRA Filing Fee		*
Accounting fees and expenses		*
Legal fees and expenses		*
Transfer Agent and Registrar Fees and Expenses		*
Miscellaneous expenses		*
Total		*

*These fees are calculated based on the number of issuances and amount of securities offered and accordingly cannot be estimated at this time. An estimate of the aggregate amount of these expenses will be reflected in the applicable prospectus supplement.

Item 15. Indemnification of Officers and Directors

Our Restated Certificate of Incorporation and Restated Bylaws provide that each person who was or is made a party or is threatened to be made a party to or is otherwise involved (including, without limitation, as a witness) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was one of our directors or officers or is or was serving at our request as a director, officer, employee or agent of another corporation, or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan, whether the basis of such proceeding is alleged action in an official capacity as a director, officer or trustee or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by us to the fullest extent authorized by the Delaware General Corporation Law against all expense, liability and loss (including attorneys' fees, judgments, fines, Employee Retirement Income Security Act excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered in connection with legal proceedings. These provisions limit the liability of our directors and officers to fullest extent permitted under Delaware law. A director or officer will not receive indemnification if he or she is found not to have acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interest.

Section 145 of the Delaware General Corporation Law permits a corporation to indemnify any director or officer of the corporation against expenses (including attorney's fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with any action, suit or proceeding brought by reason of the fact that such person is or was a director or officer of the corporation, if such person acted in good faith and in a manner that he reasonably believed to be in, or not opposed to, the best interests of the corporation, and, with respect to any criminal action or proceeding, if he or she had no reasonable cause to believe his or her conduct was unlawful. In a derivative action, (i.e., one brought by or on behalf of the corporation), indemnification may be provided only for expenses actually and reasonably incurred by any director or officer in connection with the defense or settlement of such an action or suit if such person acted in good faith and in a manner that he or she reasonably believed to be in, or not opposed to, the best interests of the corporation, except that no indemnification shall be provided if such person shall have been adjudged to be liable to the corporation, unless and only to the extent that the court in which the action or suit was brought shall determine that such person is fairly and reasonably entitled to indemnity for such expenses despite such adjudication of liability.

Pursuant to Section 102(b)(7) of the Delaware General Corporation Law, Article Ninth of our Restated Certificate of Incorporation eliminates the liability of a director to us or our stockholders for monetary damages for such a breach of fiduciary duty as a director, except for liabilities arising:

- from any breach of the director's duty of loyalty to us or our stockholders;

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- from acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- under Section 174 of the Delaware General Corporation Law; or
- from any transaction from which the director derived an improper personal benefit.

We carry insurance policies insuring our directors and officers against certain liabilities that they may incur in their capacity as directors and officers. We have entered into indemnification agreements with certain of our executive officers and directors. These agreements, among other things, indemnify and advance expenses to our directors and officers for certain expenses, including attorney's fees, judgments, fines and settlement amounts incurred by any such person in any action or proceeding, including any action by us arising out of such person's services as our director or officer, or any other company or enterprise to which the person provides services at our request. We believe that these provisions and agreements are necessary to attract and retain qualified persons as directors and officers. We have entered into agreements to indemnify all of our directors and officers.

At the present time, there is no pending litigation or proceeding involving a director, officer, employee or other agent of ours in which indemnification would be required or permitted. We are not aware of any threatened litigation or proceeding, which may result in a claim for such indemnification.

Item 16. Exhibits

The exhibits listed on the accompanying Exhibit Index are filed or incorporated by reference as part of this registration statement and such Exhibit Index is incorporated by reference.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

1. To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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2. That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
3. To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
4. That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof, provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
5. That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

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- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (6) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

- (7) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.
- (8) That, for purposes of determining any liability under the Securities Act of 1933:
- (i) The information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective; and
- (ii) Each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (9) To file, if applicable, an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act of 1939 (“Act”) in accordance with the rules and regulations prescribed by the SEC under Section 305(b)(2) of the Act.

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EXHIBIT INDEX

<u>Exhibit Number</u>	<u>Exhibit Description</u>	<u>Filed with this Report</u>	<u>Incorporated by Reference herein from Form or Schedule</u>	<u>Filing Date</u>	<u>SEC File/Reg. Number</u>
1.1*	Form of Underwriting Agreement				
1.2	Equity Distribution Agreement, dated as of February 25, 2021, by and between SINTX Technologies, Inc. and Maxim Group LLC		Form 8-K (Exhibit 10.1)	2/26/20	001-33624
1.3	Amendment to Equity Distribution Agreement, dated as of January 10, 2023 by and between SINTX Technologies, Inc., and Maxim Group LLC		Form 8-K (Exhibit 10.1)	1/13/23	
2.1	Asset Purchase Agreement by and among Amedica Corporation, CTL Corporation and US Spine Inc. dated as of September 5, 2018		Form 8-K (Exhibit 2.1)	10/5/18	001-33624
2.2+†	Asset Purchase Agreement by and among SINTX Technologies, Inc. and B4C, LLC, dated July 20, 2021.		Form 8-K (Exhibit 2.1)	7/26/21	001-33624
2.3†	Stock Purchase Agreement		Form 8-K (Exhibit 2.1)	7/6/22	001-33624
3.1	Restated Certificate of Incorporation of the Registrant		Form 8-K (Exhibit 3.1)	2/20/14	001-33624
3.1.1	Certificate of Amendment to the Restated Certificate of Incorporation of SINTX Corporation		Form 8-K (Exhibit 3.1)	1/22/16	001-33624
3.1.2	Certificate of Amendment to the Restated Certificate of Incorporation of SINTX Corporation		Form 8-K (Exhibit 3.1)	11/16/17	001-33624
3.1.3	Certificate of Designation of Series B Preferred Stock		Form 8-K (Exhibit 3.1)	5/15/18	001-33624
3.1.4	Certificate of Amendment to the Restated Certificate of Incorporation		Form 8-K (Exhibit 3.1)	11/02/18	001-33624
3.1.5	Certificate of Amendment to the Restated Certificate of Incorporation of SINTX Technologies, Inc.		Form 8-K (Exhibit 3.1)	7/26/19	001-33624
3.1.6	Certificate of Designation of Series C Preferred Stock		Form 8-K (Exhibit 3.1)	2/07/20	001-33624

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3.1.7	Certificate of Designation of Series D Preferred Stock		Form 8-K (Exhibit 3.1)	10/17/22	001-33624
3.1.8	Certificate of Designation of Series E Preferred Stock		Form 8-K (Exhibit 3.1)	10/28/22	001-33624
3.1.9	Certificate of Amendment to the Restated Certificate of Incorporation of Sintx Technologies, Inc.		Form 8-K (Exhibit 3.1)	12/19/22	001-33624
3.2	Amended and Restated Bylaws of SINTX Technologies, Inc.		Form 8-K (Exhibit 3.1)	10/01/21	001-33624
4.1	Form of Common Stock Certificate of the Registrant		Amendment No. 3 to Form S-1 (Exhibit 4.1)	1/29/14	333-192232
4.2	Form of Common Stock Warrant		Form S-1/A	1/15/20	333-234438
4.3	Form of Warrant Agency Agreement between Amedica Corporation and American Stock Transfer and Trust Company, LLC, dated February 6, 2020		Form 8-K (Exhibit 10.1)	2/07/20	001-33624

4.4	Warrant Issued to Maxim Group LLC on February 6, 2020	Form 8-K (Exhibit 4.1)	2/07/20	001-33624
4.5	Warrant Issued to Ascendant Capital Markets, LLC on February 6, 2020	Form 8-K (Exhibit 4.2)	2/07/20	001-33624
4.6	Dealer Manager Warrants issued to Maxim Group LLC on October 17, 2022	Form 8-K (Exhibit 4.1)	10/17/22	001-33624
4.7	Dealer Manager Warrants issued to Ascendant Capital Markets, LLC on October 17, 2022	Form 8-K (Exhibit 4.2)	10/17/22	001-33624
4.8	Form of Class A Warrant	Form 8-K (Exhibit 4.3)	10/17/22	001-33624
4.9	Form of Class B Warrant	Form 8-K (Exhibit 4.4)	10/17/22	001-33624
4.10	Form of Class C Warrant	Form S-1 (Exhibit 4.13)	2/7/23	333-269475
4.11	Form of Class D Warrant	Form S-1 (Exhibit 4.15)	2/7/23	333-269475
4.12	Form of Placement Agent Warrant	Form S-1 (Exhibit 4.16)	2/6/23	333-269475
4.13	Warrant Agency Agreement	Form 8-K (Exhibit 4.5)	2/9/23	001-33624

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Exhibit Number	Exhibit Description	Filed with this Report	Incorporated by Reference herein from Form or Schedule	Filing Date	SEC File/Reg. Number
4.14	Form of Senior Indenture, to be entered into between the Registrant and the trustee designated therein	X			
4.15*	Form of Senior Note with respect to each particular series of senior notes issued hereunder				
4.16	Form of Subordinated Indenture, to be entered into between the Registrant and the trustee designated therein	X			
4.17*	Form of Subordinated Note with respect to each particular series of senior notes issued hereunder				
4.18*	Form of Certificate of Designation				
4.19*	Form of Preferred Stock Certificate				
4.20*	Form of Warrant Agreement				
4.21*	Form of Warrant Certificate				
4.22*	Form of Unit Agreement				
4.23*	Form of Unit Certificate				
5.1	Opinion of Life Science Law, PC	X			
5.2	Opinion of Life Science Law, PC	X			
23.1	Consent of Tanner LLC, Independent Registered Public Accounting Firm	X			
23.2	Consent of Life Science Law, PC (included in Exhibit 5.1)	X			
23.3	Consent of Life Science Law, PC (included in Exhibit 5.2)	X			
24.1	Power of Attorney (included on the signature page of this Registration Statement)	X			
25.1**	Form T-1 Statement of Eligibility under the Trust Indenture Act of 1939, as amended, of Trustee under the Senior Indenture				
25.2**	Form T-1 Statement of Eligibility under the Trust Indenture Act of 1939, as amended, of Trustee under the Subordinated Indenture				
107	Filing Fee Table	X			

* To be filed by amendment or as an exhibit to a report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and incorporated herein by reference.

** To be filed separately under the electronic form type 305B2, if applicable.

+ Schedules and exhibits to this Exhibit have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule or exhibit to the SEC upon request.

† A portion of this Exhibit has been omitted as it contains information that (i) is not material and (ii) would be competitively harmful if publicly disclosed.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Salt Lake City, State of Utah, on October 12, 2023.

SINTX TECHNOLOGIES, INC.BY: /s/ B. Sonny Bal

B. Sonny Bal
President and Chief Executive Officer

Each person whose signature appears below constitutes and appoints B. Sonny Bal and David W. Truetzel, his or her true and lawful attorney-in-fact and agent with full powers of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement and all additional registration statements pursuant to Rule 462(b) of the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

NAME AND SIGNATURE	TITLE	DATE
<u>/s/ B. Sonny Bal</u> B. Sonny Bal	Chief Executive Officer and Director (Principal Executive Officer and Principal Financial Officer)	October 12, 2023
<u>/s/ David W. Truetzel</u> David W. Truetzel	Director	October 12, 2023
<u>/s/ Jeffrey S. White</u> Jeffrey S. White	Director	October 12, 2023
<u>/s/ Eric A. Stookey</u> Eric A. Stookey	Director	October 12, 2023
<u>/s/ Mark Froimson</u> Mark Froimson	Director	October 12, 2023

SINTX TECHNOLOGIES, INC.

Issuer

AND

[TRUSTEE],

Trustee

INDENTURE

Dated as of _____, 20__

Senior Debt Securities

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INDENTURE

Indenture, dated as of _____, 20__, among SINTX Technologies, Inc., a Delaware corporation (the “Company”), and [Trustee], as trustee (the “Trustee”):

Whereas, for its lawful corporate purposes, the Company has duly authorized the execution and delivery of this Indenture to provide for the issuance of debt securities (hereinafter referred to as the “Securities”), in an unlimited aggregate principal amount to be issued from time to time in one or more series as in this Indenture provided, as registered Securities without coupons, to be authenticated by the certificate of the Trustee;

Whereas, to provide the terms and conditions upon which the Securities are to be authenticated, issued and delivered, the Company has duly authorized the execution of this Indenture; and

Whereas, all things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

Now, Therefore, in consideration of the premises and the purchase of the Securities by the holders thereof, it is mutually covenanted and agreed as follows for the equal and ratable benefit of the holders of Securities:

ARTICLE 1

DEFINITIONS

Section 1.01 Definitions of Terms.

The terms defined in this Section (except as in this Indenture or any indenture supplemental hereto otherwise expressly provided or unless the context otherwise requires) for all purposes of this Indenture and of any indenture supplemental hereto shall have the respective meanings specified in this Section and shall include the plural as well as the singular. All other terms used in this Indenture that are defined in the Trust Indenture Act of 1939, as amended, or that are by reference in such Act defined in the Securities Act

of 1933, as amended (except as herein or any indenture supplemental hereto otherwise expressly provided or unless the context otherwise requires), shall have the meanings assigned to such terms in said Trust Indenture Act and in said Securities Act as in force at the date of the execution of this instrument.

“**Authenticating Agent**” means the Trustee or an authenticating agent with respect to all or any of the series of Securities appointed by the Trustee pursuant to Section 2.10.

“**Bankruptcy Law**” means Title 11, U.S. Code, or any similar federal or state law for the relief of debtors.

“**Board of Directors**” means the Board of Directors (or the functional equivalent thereof) of the Company or any duly authorized committee of such Board.

“**Board Resolution**” means a copy of a resolution certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors (or duly authorized committee thereof) and to be in full force and effect on the date of such certification.

“**Business Day**” means, with respect to any series of Securities, any day other than a day on which federal or state banking institutions in the Borough of Manhattan, the City of New York, or in the city of the Corporate Trust Office of the Trustee, are authorized or obligated by law, executive order or regulation to close.

“**Commission**” means the Securities and Exchange Commission, as from time to time constituted, created under the Exchange Act, or, if at any time after the execution of this instrument such Commission is not existing and performing the duties now assigned to it under the Trust Indenture Act, then the body performing such duties at such time.

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“**Company**” means SINTX Technologies, Inc., a corporation duly organized and existing under the laws of the State of Delaware, and, subject to the provisions of Article 10, shall also include its successors and assigns.

“**Corporate Trust Office**” means the office of the Trustee at which, at any particular time, its corporate trust business shall be principally administered, which office at the date hereof is located at _____.

“**Custodian**” means any receiver, trustee, assignee, liquidator or similar official under any Bankruptcy Law.

“**Defaulted Interest**” has the meaning set forth in Section 2.03.

“**Depository**” means, with respect to Securities of any series for which the Company shall determine that such Securities will be issued as a Global Security, The Depository Trust Company, another clearing agency, or any successor registered as a clearing agency under the Exchange Act, or other applicable statute or regulation, which, in each case, shall be designated by the Company pursuant to either Section 2.01 or 2.11.

“**Event of Default**” means, with respect to Securities of a particular series, any event specified in Section 6.01, continued for the period of time, if any, therein designated.

“**Exchange Act**” means the United States Securities and Exchange Act of 1934, as amended, and the rules and regulations promulgated by the Commission thereunder.

“**Global Security**” means a Security issued to evidence all or a part of any series of Securities which is executed by the Company and authenticated and delivered by the Trustee to the Depository or pursuant to the Depository’s instruction, all in accordance with the Indenture, which shall be registered in the name of the Depository or its nominee.

“**Governmental Obligations**” means securities that are (a) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (b) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America that, in either case, are not callable or redeemable at the option of the issuer thereof at any time prior to the stated maturity of the Securities, and shall also include a depository receipt issued by a bank or trust company as custodian with respect to any such Governmental Obligation or a specific payment of principal of or interest on any such Governmental Obligation held by such custodian for the account of the holder of such depository receipt; provided, however, that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the Governmental Obligation or the specific payment of principal of or interest on the Governmental Obligation evidenced by such depository receipt.

“**herein**”, “**hereof**” and “**hereunder**”, and other words of similar import, refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

“**Indenture**” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into in accordance with the terms hereof and shall include the terms of particular series of Securities established as contemplated by Section 2.01.

“**Interest Payment Date**”, when used with respect to any installment of interest on a Security of a particular series, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which an installment of interest with respect to Securities of that series is due and payable.

“**Officer**” means, with respect to the Company, the chairman of the Board of Directors, a chief executive officer, a president, a chief financial officer, a chief operating officer, any executive vice president, any senior vice president, any vice president, the treasurer or any assistant treasurer, the controller or any assistant controller or the secretary or any assistant secretary.

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“**Officer’s Certificate**” means a certificate signed by any Officer. Each such certificate shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

“**Opinion of Counsel**” means an opinion in writing subject to customary exceptions of legal counsel, who may be an employee of or counsel for the Company, that is delivered to the Trustee in accordance with the terms hereof. Each such opinion shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

“**Outstanding**”, when used with reference to Securities of any series, means, subject to the provisions of Section 8.04, as of any particular time, all Securities of that series theretofore authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore canceled by the Trustee or any paying agent, or delivered to the Trustee or any paying agent for cancellation or that have previously been canceled; (b) Securities or portions thereof for the payment or redemption of which moneys or Governmental Obligations in the necessary amount shall have been deposited in trust with the Trustee or with any paying agent (other than the Company) or shall have been set aside and segregated in trust by the Company (if the Company shall act as its own paying agent); provided, however, that if such Securities or portions of such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as provided in Article 3, or provision satisfactory to the Trustee shall have been made for giving such notice; and (c) Securities in lieu of or in substitution for which other Securities shall have been authenticated and delivered pursuant to the terms of Section 2.07.

“**Person**” means any individual, corporation, partnership, joint venture, joint-stock company, limited liability company, association, trust, unincorporated organization, any other

entity or organization, including a government or political subdivision or an agency or instrumentality thereof.

“*Predecessor Security*” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.07 in lieu of a lost, destroyed or stolen Security shall be deemed to evidence the same debt as the lost, destroyed or stolen Security.

“*Responsible Officer*” when used with respect to the Trustee means any officer within the Corporate Trust Office of the Trustee (or any successor group of the Trustee) or any other officer of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means, with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of his or her knowledge of and familiarity with the particular subject and in each case who shall have direct responsibility for the administration of this Indenture.

“*Securities*” has the meaning stated in the first recital of this Indenture and more particularly means any Securities authenticated and delivered under this Indenture.

“*Securities Act*” means the Securities Act of 1933, as amended.

“*Securityholder*”, “*holder of Securities*”, “*registered holder*”, or other similar term, means the Person or Persons in whose name or names a particular Security is registered on the Security Register kept for that purpose in accordance with the terms of this Indenture.

“*Security Register*” and “*Security Registrar*” shall have the meanings as set forth in Section 2.05.

“*Subsidiary*” means, with respect to any Person, any corporation, association, partnership or other business entity of which more than 50% of the total voting power of shares of capital stock or other interests (including partnership interests) entitled (without regard to the occurrence of any contingency) to vote in the election of directors, managers, general partners or trustees thereof is at the time owned or controlled, directly or indirectly, by (i) such Person; (ii) such Person and one or more Subsidiaries of such Person; or (iii) one or more Subsidiaries of such Person.

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“*Trustee*” means _____, and, subject to the provisions of Article 7, shall also include its successors and assigns, and, if at any time there is more than one Person acting in such capacity hereunder, “*Trustee*” shall mean each such Person. The term “*Trustee*” as used with respect to a particular series of the Securities shall mean the trustee with respect to that series.

“*Trust Indenture Act*” means the Trust Indenture Act of 1939, as amended.

“*U.S.A. Patriot Act*” means the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001, Pub. L. 107-56, as amended and signed into law October 26, 2001.

ARTICLE 2

ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION AND EXCHANGE OF SECURITIES

Section 2.01 Designation and Terms of Securities

(a) The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited. The Securities may be issued in one or more series up to the aggregate principal amount of Securities of that series from time to time authorized by or pursuant to a Board Resolution or pursuant to one or more indentures supplemental hereto. Prior to the initial issuance of Securities of any series, there shall be established in or pursuant to a Board Resolution, and set forth in an Officer’s Certificate, or established in one or more indentures supplemental hereto:

- (1) the title of the Securities of the series (which shall distinguish the Securities of that series from all other Securities);
- (2) any limit upon the aggregate principal amount of the Securities of that series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of that series);
- (3) the maturity date or dates on which the principal of the Securities of the series is payable;
- (4) the form of the Securities of the series including the form of the certificate of authentication for such series;
- (5) the applicability of any guarantees;
- (6) whether or not the Securities will be secured or unsecured, and the terms of any secured debt;
- (7) whether the Securities rank as senior debt, senior subordinated debt, or subordinated debt;
- (8) if the price (expressed as a percentage of the aggregate principal amount thereof) at which such Securities will be issued is a price other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof, or if applicable, the portion of the principal amount of such Securities that is convertible into another security or the method by which any such portion shall be determined;
- (9) the interest rate or rates, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

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- (10) the Company’s right, if any, to defer the payment of interest and the maximum length of any such deferral period;
- (11) if applicable, the date or dates after which, or the period or periods during which, and the price or prices at which, the Company may at its option, redeem the series of Securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;
- (12) the date or dates, if any, on which, and the price or prices at which the Company is obligated, pursuant to any mandatory sinking fund, mandatory redemption or analogous provisions or otherwise, to repurchase, at the Securityholder’s option, the series of Securities;
- (13) the denominations in which the Securities of the series shall be issuable, if other than denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof;

(14) any and all terms, if applicable, relating to any auction or remarketing of the Securities of that series and any security for the obligations of the Company with respect to such Securities and any other terms which may be advisable in connection with the marketing of Securities of that series;

(15) whether the Securities of the series shall be issued in whole or in part in the form of a Global Security or Securities; the terms and conditions, if any, upon which such Global Security or Securities may be exchanged in whole or in part for other individual Securities; and the Depositary for such Global Security or Securities;

(16) if applicable, the provisions relating to conversion or exchange of any Securities of the series and the terms and conditions upon which such Securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at the Company's option or the holders' option) conversion or exchange features, the applicable conversion or exchange period and the manner of settlement for any conversion or exchange, which may, without limitation, include the payment of cash as well as the delivery of securities;

(17) if other than the full principal amount thereof, the portion of the principal amount of Securities of the series which shall be payable upon declaration of acceleration of the maturity thereof pursuant to Section 6.01;

(18) additions to or changes in the covenants applicable to the series of Securities being issued, including, among others, the consolidation, merger or sale covenant;

(19) additions to or changes in the Events of Default with respect to the Securities and any change in the right of the Trustee or the Securityholders to declare the principal, premium, if any, and interest, if any, with respect to such Securities to be due and payable;

(20) additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;

(21) additions to or changes in the provisions relating to satisfaction and discharge of this Indenture;

(22) additions to or changes in the provisions relating to the modification of this Indenture both with and without the consent of Securityholders of Securities issued under this Indenture;

(23) the currency or currencies, including composite currencies, in which payment of Securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;

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(24) whether interest will be payable in cash or additional Securities at the Company's or the Securityholders' option and the terms and conditions upon which the election may be made;

(25) the terms and conditions, if any, upon which the Company shall pay amounts in addition to the stated interest, premium, if any, and principal amounts of the Securities of the series to any Securityholder that is not a "United States person" for federal tax purposes;

(26) any restrictions on transfer, sale or assignment of the Securities of the series; and

(27) any other specific terms, preferences, rights or limitations of, or restrictions on, the Securities, any other additions or changes in the provisions of this Indenture, and any terms that may be required by us or advisable under applicable laws or regulations.

All Securities of any one series shall be substantially identical except as may otherwise be provided in or pursuant to any such Board Resolution or in any indentures supplemental hereto.

If any of the terms of the series are established by action taken pursuant to a Board Resolution of the Company, a copy of an appropriate record of such action shall be certified by the secretary or an assistant secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officer's Certificate of the Company setting forth the terms of the series.

Securities of any particular series may be issued at various times, with different dates on which the principal or any installment of principal is payable, with different rates of interest, if any, or different methods by which rates of interest may be determined, with different dates on which such interest may be payable and with different redemption dates.

Section 2.02 Form of Securities and Trustee's Certificate

The Securities of any series and the Trustee's certificate of authentication to be borne by such Securities shall be substantially of the tenor and purport as set forth in one or more indentures supplemental hereto or as provided in a Board Resolution, and set forth in an Officer's Certificate, and they may have such letters, numbers or other marks of identification or designation and such legends or endorsements printed, lithographed or engraved thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Indenture, or as may be required to comply with any law or with any rule or regulation made pursuant thereto or with any rule or regulation of any securities exchange on which Securities of that series may be listed, or to conform to usage.

Section 2.03 Denominations: Provisions for Payment

The Securities shall be issuable as registered Securities and in the denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof, subject to Section 2.01(a)(13). The Securities of a particular series shall bear interest payable on the dates and at the rate specified with respect to that series. Subject to Section 2.01(a)(23), the principal of and the interest on the Securities of any series, as well as any premium thereon in case of redemption or repurchase thereof prior to maturity, and any cash amount due upon conversion or exchange thereof, shall be payable in the coin or currency of the United States of America that at the time is legal tender for public and private debt, at the office or agency of the Company maintained for that purpose. Each Security shall be dated the date of its authentication. Interest on the Securities shall be computed on the basis of a 360-day year composed of twelve 30-day months.

The interest installment on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date for Securities of that series shall be paid to the Person in whose name said Security (or one or more Predecessor Securities) is registered at the close of business on the regular record date for such interest installment. In the event that any Security of a particular series or portion thereof is called for redemption and the redemption date is subsequent to a regular record date with respect to any Interest Payment Date and prior to such Interest Payment Date, interest on such Security will be paid upon presentation and surrender of such Security as provided in Section 3.03.

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Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date for Securities of the same series (herein called "Defaulted Interest") shall forthwith cease to be payable to the registered holder on the relevant regular record date by virtue of having been such holder; and such Defaulted Interest shall be paid by the Company, at its election, as provided in clause (1) or clause (2) below:

(1) The Company may make payment of any Defaulted Interest on Securities to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered at the close of business on a special record date for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each such Security and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a special record date for the payment of such Defaulted Interest which shall not be more than 15 nor less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such special record date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the special record date therefor to be mailed, first class postage prepaid, to each Securityholder at his or her address as it appears in the Security Register (as hereinafter defined), not less than 10 days prior to such special record date. Notice of the proposed payment of such Defaulted Interest and the special record date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered on such special record date.

(2) The Company may make payment of any Defaulted Interest on any Securities in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Unless otherwise set forth in a Board Resolution or one or more indentures supplemental hereto establishing the terms of any series of Securities pursuant to Section 2.01 hereof, the term “regular record date” as used in this Section with respect to a series of Securities and any Interest Payment Date for such series shall mean either the fifteenth day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the first day of a month, or the first day of the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the fifteenth day of a month, whether or not such date is a Business Day.

Subject to the foregoing provisions of this Section, each Security of a series delivered under this Indenture upon transfer of or in exchange for or in lieu of any other Security of such series shall carry the rights to interest accrued and unpaid, and to accrue, that were carried by such other Security.

Section 2.04 Execution and Authentications.

The Securities shall be signed on behalf of the Company by one of its Officers. Signatures may be in the form of a manual or facsimile signature.

The Company may use the facsimile signature of any Person who shall have been an Officer (at the time of execution), notwithstanding the fact that at the time the Securities shall be authenticated and delivered or disposed of such Person shall have ceased to be such an officer of the Company. The Securities may contain such notations, legends or endorsements required by law, stock exchange rule or usage. Each Security shall be dated the date of its authentication by the Trustee.

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A Security shall not be valid until authenticated manually by an authorized signatory of the Trustee, or by an Authenticating Agent. Such signature shall be conclusive evidence that the Security so authenticated has been duly authenticated and delivered hereunder and that the holder is entitled to the benefits of this Indenture. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a written order of the Company for the authentication and delivery of such Securities, signed by an Officer, and the Trustee in accordance with such written order shall authenticate and deliver such Securities.

In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be entitled to receive, if requested, and (subject to Section 7.01) shall be fully protected in relying upon, an Opinion of Counsel stating that the form and terms thereof have been established in conformity with the provisions of this Indenture.

The Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee’s own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

Section 2.05 Registration of Transfer and Exchange.

(a) Securities of any series may be exchanged upon presentation thereof at the office or agency of the Company designated for such purpose, for other Securities of such series of authorized denominations, and for a like aggregate principal amount, upon payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, all as provided in this Section. In respect of any Securities so surrendered for exchange, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in exchange therefor the Security or Securities of the same series that the Securityholder making the exchange shall be entitled to receive, bearing numbers not contemporaneously outstanding.

(b) The Company shall keep, or cause to be kept, at its office or agency designated for such purpose a register or registers (herein referred to as the “Security Register”) in which, subject to such reasonable regulations as it may prescribe, the Company shall register the Securities and the transfers of Securities as in this Article provided and which at all reasonable times shall be open for inspection by the Trustee. The registrar for the purpose of registering Securities and transfer of Securities as herein provided shall be appointed as authorized by Board Resolution or Supplemental Indenture (the “Security Registrar”).

Upon surrender for transfer of any Security at the office or agency of the Company designated for such purpose, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in the name of the transferee or transferees a new Security or Securities of the same series as the Security presented for a like aggregate principal amount.

All Securities presented or surrendered for exchange or registration of transfer, as provided in this Section, shall be accompanied (if so required by the Company or the Security Registrar) by a written instrument or instruments of transfer, in form satisfactory to the Company or the Security Registrar, duly executed by the registered holder or by such holder’s duly authorized attorney in writing.

The Company initially appoints the Trustee as initial Security Registrar for each series of Securities.

(c) Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and set forth in an Officer’s Certificate, or established in one or more indentures supplemental to this Indenture, no service charge shall be made for any exchange or registration of transfer of Securities, or issue of new Securities in case of partial redemption of any series or repurchase, conversion or exchange of less than the entire principal amount of a Security, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, other than exchanges pursuant to Section 2.06, Section 3.03(b) and Section 9.04 not involving any transfer.

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(d) The Company and the Security Registrar shall not be required (i) to issue, exchange or register the transfer of any Securities during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of less than all the Outstanding Securities of the same series and ending at the close of business on the

day of such mailing, nor (ii) to register the transfer of or exchange any Securities of any series or portions thereof called for redemption or surrendered for repurchase, but not validly withdrawn, other than the unredeemed portion of any such Securities being redeemed in part or not surrendered for repurchase, as the case may be. The provisions of this Section 2.05 are, with respect to any Global Security, subject to Section 2.11 hereof.

The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Security (including any transfers between or among depositary participants or beneficial owners of interests in any Global Security) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance as to form with the express requirements hereof.

Section 2.06 Temporary Securities.

Pending the preparation of definitive Securities of any series, the Company may execute, and the Trustee shall authenticate and deliver, temporary Securities (printed, lithographed or typewritten) of any authorized denomination. Such temporary Securities shall be substantially in the form of the definitive Securities in lieu of which they are issued, but with such omissions, insertions and variations as may be appropriate for temporary Securities, all as may be determined by the Company. Every temporary Security of any series shall be executed by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities of such series. Without unnecessary delay the Company will execute and will furnish definitive Securities of such series and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor (without charge to the holders), at the office or agency of the Company designated for the purpose, and the Trustee shall authenticate and such office or agency shall deliver in exchange for such temporary Securities an equal aggregate principal amount of definitive Securities of such series, unless the Company advises the Trustee to the effect that definitive Securities need not be executed and furnished until further notice from the Company. Until so exchanged, the temporary Securities of such series shall be entitled to the same benefits under this Indenture as definitive Securities of such series authenticated and delivered hereunder.

Section 2.07 Mutilated, Destroyed, Lost or Stolen Securities.

In case any temporary or definitive Security shall become mutilated or be destroyed, lost or stolen, the Company (subject to the next succeeding sentence) shall execute, and upon the Company's request the Trustee (subject as aforesaid) shall authenticate and deliver, a new Security of the same series, bearing a number not contemporaneously outstanding, in exchange and substitution for the mutilated Security, or in lieu of and in substitution for the Security so destroyed, lost or stolen. In every case the applicant for a substituted Security shall furnish to the Company and the Trustee such security or indemnity as may be required by them to save each of them harmless, and, in every case of destruction, loss or theft, the applicant shall also furnish to the Company and the Trustee evidence to their satisfaction of the destruction, loss or theft of the applicant's Security and of the ownership thereof. The Trustee may authenticate any such substituted Security and deliver the same upon the written request or authorization of any officer of the Company. Upon the issuance of any substituted Security, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

In case any Security that has matured or is about to mature shall become mutilated or be destroyed, lost or stolen, the Company may, instead of issuing a substitute Security, pay or authorize the payment of the same (without surrender thereof except in the case of a mutilated Security) if the applicant for such payment shall furnish to the Company and the Trustee such security or indemnity as they may require to save them harmless, and, in case of destruction, loss or theft, evidence to the satisfaction of the Company and the Trustee of the destruction, loss or theft of such Security and of the ownership thereof.

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Every replacement Security issued pursuant to the provisions of this Section shall constitute an additional contractual obligation of the Company whether or not the mutilated, destroyed, lost or stolen Security shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of the same series duly issued hereunder. All Securities shall be held and owned upon the express condition that the foregoing provisions are exclusive with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities, and shall preclude (to the extent lawful) any and all other rights or remedies, notwithstanding any law or statute existing or hereafter enacted to the contrary with respect to the replacement or payment of negotiable instruments or other securities without their surrender.

Section 2.08 Cancellation.

All Securities surrendered for the purpose of payment, redemption, repurchase, exchange, registration of transfer or conversion shall, if surrendered to the Company or any paying agent (or any other applicable agent), be delivered to the Trustee for cancellation, or, if surrendered to the Trustee, shall be cancelled by it, and no Securities shall be issued in lieu thereof except as expressly required or permitted by any of the provisions of this Indenture. On request of the Company at the time of such surrender, the Trustee shall deliver to the Company canceled Securities held by the Trustee. In the absence of such request the Trustee may dispose of canceled Securities in accordance with its standard procedures and deliver a certificate of disposition to the Company. If the Company shall otherwise acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation.

Section 2.09 Benefits of Indenture.

Nothing in this Indenture or in the Securities, express or implied, shall give or be construed to give to any Person, other than the parties hereto and the holders of the Securities any legal or equitable right, remedy or claim under or in respect of this Indenture, or under any covenant, condition or provision herein contained; all such covenants, conditions and provisions being for the sole benefit of the parties hereto and of the holders of the Securities.

Section 2.10 Authenticating Agent.

So long as any of the Securities of any series remain Outstanding there may be an Authenticating Agent for any or all such series of Securities which the Trustee shall have the right to appoint. Said Authenticating Agent shall be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon exchange, transfer or partial redemption, repurchase or conversion thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. All references in this Indenture to the authentication of Securities by the Trustee shall be deemed to include authentication by an Authenticating Agent for such series. Each Authenticating Agent shall be acceptable to the Company and shall be a corporation that has a combined capital and surplus, as most recently reported or determined by it, sufficient under the laws of any jurisdiction under which it is organized or in which it is doing business to conduct a trust business, and that is otherwise authorized under such laws to conduct such business and is subject to supervision or examination by federal or state authorities. If at any time any Authenticating Agent shall cease to be eligible in accordance with these provisions, it shall resign immediately.

Any Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time (and upon request by the Company shall) terminate the agency of any Authenticating Agent by giving written notice of termination to such Authenticating Agent and to the Company. Upon resignation, termination or cessation of eligibility of any Authenticating Agent, the Trustee may appoint an eligible successor Authenticating Agent acceptable to the Company. Any successor Authenticating Agent, upon acceptance of its appointment hereunder, shall become vested with all the rights, powers and duties of its predecessor hereunder as if originally named as an Authenticating Agent pursuant hereto.

Section 2.11 Global Securities.

(a) If the Company shall establish pursuant to Section 2.01 that the Securities of a particular series are to be issued as a Global Security, then the Company shall execute and the Trustee shall, in accordance with Section 2.04, authenticate and deliver, a Global Security that (i) shall represent, and shall be denominated in an amount equal to the aggregate principal amount of, all of the Outstanding Securities of such series, (ii) shall be registered in the name of the Depository or its nominee, (iii) shall be delivered by the Trustee to the Depository or pursuant to the Depository's instruction (or if the Depository names the Trustee as its custodian, retained by the Trustee), and (iv) shall bear a legend substantially to the following effect: "Except as otherwise provided in Section 2.11 of the Indenture, this Security may be transferred, in whole but not in part, only to another nominee of the Depository or to a successor Depository or to a nominee of such successor Depository."

(b) Notwithstanding the provisions of Section 2.05, the Global Security of a series may be transferred, in whole but not in part and in the manner provided in Section 2.05, only to another nominee of the Depository for such series, or to a successor Depository for such series selected or approved by the Company or to a nominee of such successor Depository.

(c) If at any time the Depository for a series of the Securities notifies the Company that it is unwilling or unable to continue as Depository for such series or if at any time the Depository for such series shall no longer be registered or in good standing under the Exchange Act, or other applicable statute or regulation, and a successor Depository for such series is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such condition, as the case may be, or if an Event of Default has occurred and is continuing and the Company has received a request from the Depository or from the Trustee, this Section 2.11 shall no longer be applicable to the Securities of such series and the Company will execute, and subject to Section 2.04, the Trustee will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. In addition, the Company may at any time determine that the Securities of any series shall no longer be represented by a Global Security and that the provisions of this Section 2.11 shall no longer apply to the Securities of such series. In such event the Company will execute and, subject to Section 2.04, the Trustee, upon receipt of an Officer's Certificate evidencing such determination by the Company, will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. Upon the exchange of the Global Security for such Securities in definitive registered form without coupons, in authorized denominations, the Global Security shall be canceled by the Trustee. Such Securities in definitive registered form issued in exchange for the Global Security pursuant to this Section 2.11(c) shall be registered in such names and in such authorized denominations as the Depository, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver such Securities to the Depository for delivery to the Persons in whose names such Securities are so registered.

Section 2.12 CUSIP Numbers.

The Company in issuing the Securities may use "CUSIP" numbers (if then generally in use), and, if so, the Trustee shall use "CUSIP" numbers in notices of redemption as a convenience to Holders; provided that any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Securities or as contained in any notice of a redemption and that reliance may be placed only on the other elements of identification printed on the Securities, and any such redemption shall not be affected by any defect in or omission of such numbers. The Company will promptly notify the Trustee of any change in the "CUSIP" numbers.

ARTICLE 3

REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS

Section 3.01 Redemption.

The Company may redeem the Securities of any series issued hereunder on and after the dates and in accordance with the terms established for such series pursuant to Section 2.01 hereof.

Section 3.02 Notice of Redemption.

(a) In case the Company shall desire to exercise such right to redeem all or, as the case may be, a portion of the Securities of any series in accordance with any right the Company reserved for itself to do so pursuant to Section 2.01 hereof, the Company shall, or shall cause the Trustee to, give notice of such redemption to holders of the Securities of such series to be redeemed by mailing, first class postage prepaid (or with regard to any Global Security held in book entry form, by electronic mail in accordance with the applicable procedures of the Depository), a notice of such redemption not less than 30 days and not more than 90 days before the date fixed for redemption of that series to such holders at their last addresses as they shall appear upon the Security Register, unless a shorter period is specified in the Securities to be redeemed. Any notice that is mailed in the manner herein provided shall be conclusively presumed to have been duly given, whether or not the registered holder receives the notice. In any case, failure duly to give such notice to the holder of any Security of any series designated for redemption in whole or in part, or any defect in the notice, shall not affect the validity of the proceedings for the redemption of any other Securities of such series or any other series. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officer's Certificate evidencing compliance with any such restriction.

Each such notice of redemption shall identify the Securities to be redeemed (including CUSIP numbers, if any), specify the date fixed for redemption and the redemption price at which Securities of that series are to be redeemed, and shall state that payment of the redemption price of such Securities to be redeemed will be made at the office or agency of the Company, upon presentation and surrender of such Securities, that interest accrued to the date fixed for redemption will be paid as specified in said notice, that from and after said date interest will cease to accrue and that the redemption is from a sinking fund, if such is the case. If less than all the Securities of a series are to be redeemed, the notice to the holders of Securities of that series to be redeemed in part shall specify the particular Securities to be so redeemed.

In case any Security is to be redeemed in part only, the notice that relates to such Security shall state the portion of the principal amount thereof to be redeemed, and shall state that on and after the redemption date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the unredeemed portion thereof will be issued.

(b) If less than all the Securities of a series are to be redeemed, the Company shall give the Trustee at least 45 days' notice (unless a shorter notice shall be satisfactory to the Trustee) in advance of the date fixed for redemption as to the aggregate principal amount of Securities of the series to be redeemed, and thereupon the Trustee shall select, by lot or in such other manner as it shall deem appropriate and fair in its discretion and that may provide for the selection of a portion or portions (equal to one thousand U.S. dollars (\$1,000) or any integral multiple thereof) of the principal amount of such Securities of a denomination larger than \$1,000, the Securities to be redeemed and shall thereafter promptly notify the Company in writing of the numbers of the Securities to be redeemed, in whole or in part. The Company may, if and whenever it shall so elect, by delivery of instructions signed on its behalf by an Officer, instruct the Trustee or any paying agent to call all or any part of the Securities of a particular series for redemption and to give notice of redemption in the manner set forth in this Section, such notice to be in the name of the Company or its own name as the Trustee or such paying agent may deem advisable. In any case in which notice of redemption is to be given by the Trustee or any such paying agent, the Company shall deliver or cause to be delivered to, or permit to remain with, the Trustee or such paying agent, as the case may be, such Security Register, transfer books or other records, or suitable copies or extracts therefrom, sufficient to enable the Trustee or such paying agent to give any notice by mail that may be required under the provisions of this Section.

Section 3.03 Payment Upon Redemption.

(a) If the giving of notice of redemption shall have been completed as above provided, the Securities or portions of Securities of the series to be redeemed specified in such

notice shall become due and payable on the date and at the place stated in such notice at the applicable redemption price, together with interest accrued to, but excluding, the date fixed for redemption and interest on such Securities or portions of Securities shall cease to accrue on and after the date fixed for redemption, unless the Company shall default in the payment of such redemption price and accrued interest with respect to any such Security or portion thereof. On presentation and surrender of such Securities on or after the date fixed for redemption at the place of payment specified in the notice, said Securities shall be paid and redeemed at the applicable redemption price for such series, together with interest accrued thereon to, but excluding, the date fixed for redemption (but if the date fixed for redemption is an Interest Payment Date, the interest installment payable on such date shall be payable to the registered holder at the close of business on the applicable record date pursuant to Section 2.03).

(b) Upon presentation of any Security of such series that is to be redeemed in part only, the Company shall execute and the Trustee shall authenticate and the office or agency where the Security is presented shall deliver to the holder thereof, at the expense of the Company, a new Security of the same series of authorized denominations in principal amount equal to the unredeemed portion of the Security so presented.

Section 3.04 Sinking Fund.

The provisions of Sections 3.04, 3.05 and 3.06 shall be applicable to any sinking fund for the retirement of Securities of a series, except as otherwise specified as contemplated by Section 2.01 for Securities of such series.

The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a "mandatory sinking fund payment," and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an "optional sinking fund payment". If provided for by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 3.05. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

Section 3.05 Satisfaction of Sinking Fund Payments with Securities.

The Company (i) may deliver Outstanding Securities of a series and (ii) may apply as a credit Securities of a series that have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the redemption price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment shall be reduced accordingly.

Section 3.06 Redemption of Securities for Sinking Fund.

Not less than 45 days prior to each sinking fund payment date for any series of Securities (unless a shorter period shall be satisfactory to the Trustee), the Company will deliver to the Trustee an Officer's Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of the series, the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 3.05 and the basis for such credit and will, together with such Officer's Certificate, deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.02 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.02. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Section 3.03.

ARTICLE 4

COVENANTS

Section 4.01 Payment of Principal, Premium and Interest

The Company will duly and punctually pay or cause to be paid the principal of (and premium, if any) and interest on the Securities of that series at the time and place and in the manner provided herein and established with respect to such Securities. Payments of principal on the Securities may be made at the time provided herein and established with respect to such Securities by U.S. dollar check drawn on and mailed to the address of the Securityholder entitled thereto as such address shall appear in the Security Register, or U.S. dollar wire transfer to, a U.S. dollar account if such Securityholder shall have furnished wire instructions to the Trustee no later than 15 days prior to the relevant payment date. Payments of interest on the Securities may be made at the time provided herein and established with respect to such Securities by U.S. dollar check mailed to the address of the Securityholder entitled thereto as such address shall appear in the Security Register, or U.S. dollar wire transfer to, a U.S. dollar account if such Securityholder shall have furnished wire instructions in writing to the Security Registrar and the Trustee no later than 15 days prior to the relevant payment date.

Section 4.02 Maintenance of Office or Agency.

So long as any series of the Securities remain Outstanding, the Company agrees to maintain an office or agency with respect to each such series and at such other location or locations as may be designated as provided in this Section 4.02, where (i) Securities of that series may be presented for payment, (ii) Securities of that series may be presented as herein above authorized for registration of transfer and exchange, and (iii) notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be given or served, such designation to continue with respect to such office or agency until the Company shall, by written notice signed by any officer authorized to sign an Officer's Certificate and delivered to the Trustee, designate some other office or agency for such purposes or any of them. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, notices and demands. The Company initially appoints the Corporate Trust Office of the Trustee as its paying agent with respect to the Securities.

Section 4.03 Paying Agents

(a) If the Company shall appoint one or more paying agents for all or any series of the Securities, other than the Trustee, the Company will cause each such paying agent to execute and deliver to the Trustee an instrument in which such agent shall agree with the Trustee, subject to the provisions of this Section:

(1) that it will hold all sums held by it as such agent for the payment of the principal of (and premium, if any) or interest on the Securities of that series (whether such sums have been paid to it by the Company or by any other obligor of such Securities) in trust for the benefit of the Persons entitled thereto;

(2) that it will give the Trustee notice of any failure by the Company (or by any other obligor of such Securities) to make any payment of the principal of (and premium, if any) or interest on the Securities of that series when the same shall be due and payable;

(3) that it will, at any time during the continuance of any failure referred to in the preceding paragraph (a)(2) above, upon the written request of the Trustee, forthwith pay to the

Trustee all sums so held in trust by such paying agent; and

(4) that it will perform all other duties of paying agent as set forth in this Indenture.

(b) If the Company shall act as its own paying agent with respect to any series of the Securities, it will on or before each due date of the principal of (and premium, if any) or interest on Securities of that series, set aside, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay such principal (and premium, if any) or interest so becoming due on Securities of that series until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of such action, or any failure (by it or any other obligor on such Securities) to take such action. Whenever the Company shall have one or more paying agents for any series of Securities, it will, prior to each due date of the principal of (and premium, if any) or interest on any Securities of that series, deposit with the paying agent a sum sufficient to pay the principal (and premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such paying agent is the Trustee) the Company will promptly notify the Trustee of this action or failure so to act.

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(c) Notwithstanding anything in this Section to the contrary, (i) the agreement to hold sums in trust as provided in this Section is subject to the provisions of Section 11.05, and (ii) the Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or direct any paying agent to pay, to the Trustee all sums held in trust by the Company or such paying agent, such sums to be held by the Trustee upon the same terms and conditions as those upon which such sums were held by the Company or such paying agent; and, upon such payment by the Company or any paying agent to the Trustee, the Company or such paying agent shall be released from all further liability with respect to such money.

Section 4.04 Appointment to Fill Vacancy in Office of Trustee.

The Company, whenever necessary to avoid or fill a vacancy in the office of Trustee, will appoint, in the manner provided in Section 7.10, a Trustee, so that there shall at all times be a Trustee hereunder.

ARTICLE 5

SECURITYHOLDERS' LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE

Section 5.01 Company to Furnish Trustee Names and Addresses of Securityholders

The Company will furnish or cause to be furnished to the Trustee (a) within 15 days after each regular record date (as defined in Section 2.03) a list, in such form as the Trustee may reasonably require, of the names and addresses of the holders of each series of Securities as of such regular record date, provided that the Company shall not be obligated to furnish or cause to furnish such list at any time that the list shall not differ in any respect from the most recent list furnished to the Trustee by the Company and (b) at such other times as the Trustee may request in writing within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished; provided, however, that, in either case, no such list need be furnished for any series for which the Trustee shall be the Security Registrar.

Section 5.02 Preservation of Information; Communications With Securityholders

(a) The Trustee shall preserve, in as current a form as is reasonably practicable, all information as to the names and addresses of the holders of Securities contained in the most recent list furnished to it as provided in Section 5.01 and as to the names and addresses of holders of Securities received by the Trustee in its capacity as Security Registrar (if acting in such capacity).

(b) The Trustee may destroy any list furnished to it as provided in Section 5.01 upon receipt of a new list so furnished.

(c) Securityholders may communicate as provided in Section 312(b) of the Trust Indenture Act with other Securityholders with respect to their rights under this Indenture or under the Securities, and, in connection with any such communications, the Trustee shall satisfy its obligations under Section 312(b) of the Trust Indenture Act in accordance with the provisions of Section 312(b) of the Trust Indenture Act.

Section 5.03 Reports by the Company.

(a) The Company will at all times comply with Section 314(a) of the Trust Indenture Act. The Company covenants and agrees to provide (which delivery may be via electronic mail) to the Trustee within 30 days, after the Company files the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations prescribe) that the Company is required to file with the Commission pursuant to Section 13 or Section 15(d) of the Exchange Act; provided, however, the Company shall not be required to deliver to the Trustee any correspondence filed with the Commission or any materials for which the Company has sought and received confidential treatment by the Commission; and provided further, that so long as such filings by the Company are available on the Commission's Electronic Data Gathering, Analysis and Retrieval System (EDGAR), or any successor system, such filings shall be deemed to have been filed with the Trustee for purposes hereof without any further action required by the Company. For the avoidance of doubt, a failure by the Company to file annual reports, information and other reports with the Commission within the time period prescribed thereof by the Commission shall not be deemed a breach of this Section 5.03.

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(b) Delivery of reports, information and documents to the Trustee under Section 5.03 is for informational purposes only and the information and the Trustee's receipt of the foregoing shall not constitute constructive notice of any information contained therein, or determinable from information contained therein including the Company's compliance with any of their covenants thereunder (as to which the Trustee is entitled to rely exclusively on an Officer's Certificate). The Trustee is under no duty to examine any such reports, information or documents delivered to the Trustee or filed with the Commission via EDGAR to ensure compliance with the provision of this Indenture or to ascertain the correctness or otherwise of the information or the statements contained therein. The Trustee shall have no responsibility or duty whatsoever to ascertain or determine whether the above referenced filings with the Commission on EDGAR (or any successor system) has occurred.

Section 5.04 Reports by the Trustee.

(a) If required by Section 313(a) of the Trust Indenture Act, the Trustee, within sixty (60) days after each May 1, shall transmit by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register, a brief report dated as of such May 1, which complies with Section 313(a) of the Trust Indenture Act.

(b) The Trustee shall comply with Section 313(b) and 313(c) of the Trust Indenture Act.

(c) A copy of each such report shall, at the time of such transmission to Securityholders, be filed by the Trustee with the Company, with each securities exchange upon which any Securities are listed (if so listed) and also with the Commission. The Company agrees to notify the Trustee when any Securities become listed on any securities exchange.

ARTICLE 6

REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT

Section 6.01 Events of Default.

(a) Whenever used herein with respect to Securities of a particular series, "Event of Default" means any one or more of the following events that has occurred and is continuing:

(1) the Company defaults in the payment of any installment of interest upon any of the Securities of that series, as and when the same shall become due and payable, and such default continues for a period of 90 days; provided, however, that a valid extension of an interest payment period by the Company in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of interest for this purpose;

(2) the Company defaults in the payment of the principal of (or premium, if any, on) any of the Securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such Securities in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of principal or premium, if any;

(3) the Company fails to observe or perform any other of its covenants or agreements with respect to that series contained in this Indenture or otherwise established with respect to that series of Securities pursuant to Section 2.01 hereof (other than a covenant or agreement that has been expressly included in this Indenture solely for the benefit of one or more series of Securities other than such series) for a period of 90 days after the date on which written notice of such failure, requiring the same to be remedied and stating that such notice is a "Notice of Default" hereunder, shall have been given to the Company by the Trustee, by registered or certified mail, or to the Company and the Trustee by the holders of at least 25% in principal amount of the Securities of that series at the time Outstanding;

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(4) the Company pursuant to or within the meaning of any Bankruptcy Law (i) commences a voluntary case, (ii) consents to the entry of an order for relief against it in an involuntary case, (iii) consents to the appointment of a Custodian of it or for all or substantially all of its property or (iv) makes a general assignment for the benefit of its creditors; or

(5) a court of competent jurisdiction enters an order under any Bankruptcy Law that (i) is for relief against the Company in an involuntary case, (ii) appoints a Custodian of the Company for all or substantially all of its property or (iii) orders the liquidation of the Company, and the order or decree remains unstayed and in effect for 90 days.

(b) In each and every such case (other than an Event of Default specified in clause (4) or clause (5) above), unless the principal of all the Securities of that series shall have already become due and payable, either the Trustee or the holders of not less than 25% in aggregate principal amount of the Securities of that series then Outstanding hereunder, by notice in writing to the Company (and to the Trustee if given by such Securityholders), may declare the principal of (and premium, if any, on) and accrued and unpaid interest on all the Securities of that series to be due and payable immediately, and upon any such declaration the same shall become and shall be immediately due and payable. If an Event of Default specified in clause (4) or clause (5) above occurs, the principal of and accrued and unpaid interest on all the Securities of that series shall automatically be immediately due and payable without any declaration or other act on the part of the Trustee or the holders of the Securities.

(c) At any time after the principal of (and premium, if any, on) and accrued and unpaid interest on the Securities of that series shall have been so declared due and payable, and before any judgment or decree for the payment of the moneys due shall have been obtained or entered as hereinafter provided, the holders of a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder, by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if: (i) the Company has paid or deposited with the Trustee a sum sufficient to pay all matured installments of interest upon all the Securities of that series and the principal of (and premium, if any, on) any and all Securities of that series that shall have become due otherwise than by acceleration (with interest upon such principal and premium, if any, and, to the extent that such payment is enforceable under applicable law, upon overdue installments of interest, at the rate per annum expressed in the Securities of that series to the date of such payment or deposit) and the amount payable to the Trustee under Section 7.06, and (ii) any and all Events of Default under the Indenture with respect to such series, other than the nonpayment of principal on (and premium, if any, on) and accrued and unpaid interest on Securities of that series that shall not have become due by their terms, shall have been remedied or waived as provided in Section 6.06.

No such rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.

(d) In case the Trustee shall have proceeded to enforce any right with respect to Securities of that series under this Indenture and such proceedings shall have been discontinued or abandoned because of such rescission or annulment or for any other reason or shall have been determined adversely to the Trustee, then and in every such case, subject to any determination in such proceedings, the Company and the Trustee shall be restored respectively to their former positions and rights hereunder, and all rights, remedies and powers of the Company and the Trustee shall continue as though no such proceedings had been taken.

Section 6.02 Collection of Indebtedness and Suits for Enforcement by Trustee

(a) The Company covenants that (i) in case it shall default in the payment of any installment of interest on any of the Securities of a series, or in any payment required by any sinking or analogous fund established with respect to that series as and when the same shall have become due and payable, and such default shall have continued for a period of 90 days, or (ii) in case it shall default in the payment of the principal of (or premium, if any, on) any of the Securities of a series when the same shall have become due and payable, whether upon maturity of the Securities of a series or upon redemption or upon declaration or otherwise then, upon demand of the Trustee, the Company will pay to the Trustee, for the benefit of the holders of the Securities of that series, the whole amount that then shall have been become due and payable on all such Securities for principal (and premium, if any) or interest, or both, as the case may be, with interest upon the overdue principal (and premium, if any) and (to the extent that payment of such interest is enforceable under applicable law) upon overdue installments of interest at the rate per annum expressed in the Securities of that series; and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, and the amount payable to the Trustee under Section 7.06.

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(b) If the Company shall fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, shall be entitled and empowered to institute any action or proceedings at law or in equity for the collection of the sums so due and unpaid, and may prosecute any such action or proceeding to judgment or final decree, and may enforce any such judgment or final decree against the Company or other obligor upon the Securities of that series and collect the moneys adjudged or decreed to be payable in the manner provided by law or equity out of the property of the Company or other obligor upon the Securities of that series, wherever situated.

(c) In case of any receivership, insolvency, liquidation, bankruptcy, reorganization, readjustment, arrangement, composition or judicial proceedings affecting the Company, or its creditors or property, the Trustee shall have power to intervene in such proceedings and take any action therein that may be permitted by the court and shall (except as may be otherwise provided by law) be entitled to file such proofs of claim and other papers and documents as may be necessary or advisable in order to have the claims of the Trustee and of the holders of Securities of such series allowed for the entire amount due and payable by the Company under the Indenture at the date of institution of such proceedings and for any additional amount that may become due and payable by the Company after such date, and to collect and receive any moneys or other property payable or deliverable on any such claim, and to distribute the same after the deduction of the amount payable to the Trustee under Section 7.06; and any receiver, assignee or trustee in

bankruptcy or reorganization is hereby authorized by each of the holders of Securities of such series to make such payments to the Trustee, and, in the event that the Trustee shall consent to the making of such payments directly to such Securityholders, to pay to the Trustee any amount due it under Section 7.06.

(d) All rights of action and of asserting claims under this Indenture, or under any of the terms established with respect to Securities of that series, may be enforced by the Trustee without the possession of any of such Securities, or the production thereof at any trial or other proceeding relative thereto, and any such suit or proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for payment to the Trustee of any amounts due under Section 7.06, be for the ratable benefit of the holders of the Securities of such series.

In case of an Event of Default hereunder, the Trustee may in its discretion proceed to protect and enforce the rights vested in it by this Indenture by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any of such rights, either at law or in equity or in bankruptcy or otherwise, whether for the specific enforcement of any covenant or agreement contained in the Indenture or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Trustee by this Indenture or by law.

Nothing contained herein shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Securityholder any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any holder thereof or to authorize the Trustee to vote in respect of the claim of any Securityholder in any such proceeding.

Section 6.03 Application of Moneys Collected.

Any moneys collected by the Trustee pursuant to this Article with respect to a particular series of Securities shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such moneys on account of principal (or premium, if any) or interest, upon presentation of the Securities of that series, and notation thereon of the payment, if only partially paid, and upon surrender thereof if fully paid:

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FIRST: To the payment of costs and expenses of collection and of all amounts payable to the Trustee under Section 7.06;

SECOND: To the payment of the amounts then due and unpaid upon Securities of such series for principal (and premium, if any) and interest, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively; and

THIRD: To the payment of the remainder, if any, to the Company or any other Person lawfully entitled thereto.

Section 6.04 Limitation on Suits.

No holder of any Security of any series shall have any right by virtue or by availing of any provision of this Indenture or any Security to institute any suit, action or proceeding in equity or at law upon or under or with respect to this Indenture or any Security or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless (i) such holder previously shall have given to the Trustee written notice of an Event of Default and of the continuance thereof with respect to the Securities of such series specifying such Event of Default, as hereinbefore provided; (ii) the holders of not less than 25% in aggregate principal amount of the Securities of such series then Outstanding shall have made written request upon the Trustee to institute such action, suit or proceeding in its own name as Trustee hereunder; (iii) such holder or holders shall have offered to the Trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred in compliance with such request; (iv) the Trustee for 90 days after its receipt of such notice, request and offer of indemnity, shall have failed to institute any such action, suit or proceeding and (v) during such 90 day period, the holders of a majority in principal amount of the Securities of that series do not give the Trustee a direction inconsistent with the request.

Notwithstanding anything contained herein to the contrary or any other provisions of this Indenture, the right of any holder of any Security to receive payment of the principal of (and premium, if any) and interest on such Security, as therein provided, on or after the respective due dates expressed in such Security (or in the case of redemption, on the redemption date), or to institute suit for the enforcement of any such payment on or after such respective dates or redemption date, shall not be impaired or affected without the consent of such holder and by accepting a Security hereunder it is expressly understood, intended and covenanted by the taker and holder of every Security of such series with every other such taker and holder and the Trustee, that no one or more holders of Securities of such series shall have any right in any manner whatsoever by virtue or by availing of any provision of this Indenture to affect, disturb or prejudice the rights of the holders of any other of such Securities, or to obtain or seek to obtain priority over or preference to any other such holder, or to enforce any right under this Indenture, except in the manner herein provided and for the equal, ratable and common benefit of all holders of Securities of such series. For the protection and enforcement of the provisions of this Section, each and every Securityholder and the Trustee shall be entitled to such relief as can be given either at law or in equity.

Section 6.05 Rights and Remedies Cumulative; Delay or Omission Not Waiver

(a) Except as otherwise provided in Section 2.07, all powers and remedies given by this Article to the Trustee or to the Securityholders shall, to the extent permitted by law, be deemed cumulative and not exclusive of any other powers and remedies available to the Trustee or the holders of the Securities, by judicial proceedings or otherwise, to enforce the performance or observance of the covenants and agreements contained in this Indenture or otherwise established with respect to such Securities.

(b) No delay or omission of the Trustee or of any holder of any of the Securities to exercise any right or power accruing upon any Event of Default occurring and continuing as aforesaid shall impair any such right or power, or shall be construed to be a waiver of any such default or an acquiescence therein; and, subject to the provisions of Section 6.04, every power and remedy given by this Article or by law to the Trustee or the Securityholders may be exercised from time to time, and as often as shall be deemed expedient, by the Trustee or by the Securityholders.

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Section 6.06 Control by Securityholders

The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding, determined in accordance with Section 8.04, shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee with respect to such series; provided, however, that such direction shall not be in conflict with any rule of law or with this Indenture or subject the Trustee in its sole discretion to personal liability. Subject to the provisions of Section 7.01, the Trustee shall have the right to decline to follow any such direction if the Trustee in good faith shall, by a Responsible Officer or officers of the Trustee, determine that the proceeding so directed, subject to the Trustee's duties under the Trust Indenture Act, would involve the Trustee in personal liability or might be unduly prejudicial to the Securityholders not involved in the proceeding. The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding affected thereby, determined in accordance with Section 8.04, may on behalf of the holders of all of the Securities of such series waive any past default in the performance of any of the covenants contained herein or established pursuant to Section 2.01 with respect to such series and its consequences, except a default in the payment of the principal of, or premium, if any, or interest on, any of the Securities of that series as and when the same shall become due by the terms of such Securities otherwise than by acceleration (unless such default has been cured and a sum sufficient to pay all matured installments of interest and principal and any premium has been deposited with the Trustee (in accordance with Section 6.01(c)). Upon any such waiver, the default covered thereby shall be deemed to be cured for all purposes of this Indenture and the Company, the Trustee and the holders of the Securities of such series shall be restored to their former positions and rights hereunder, respectively; but no such

waiver shall extend to any subsequent or other default or impair any right consequent thereon.

Section 6.07 Undertaking to Pay Costs.

All parties to this Indenture agree, and each holder of any Securities by such holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees and expenses, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Securityholder, or group of Securityholders, holding more than 10% in aggregate principal amount of the Outstanding Securities of any series, or to any suit instituted by any Securityholder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security of such series, on or after the respective due dates expressed in such Security or established pursuant to this Indenture.

ARTICLE 7

CONCERNING THE TRUSTEE

Section 7.01 Certain Duties and Responsibilities of Trustee.

(a) The Trustee, prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing of all Events of Default with respect to the Securities of that series that may have occurred, shall undertake to perform with respect to the Securities of such series such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants shall be read into this Indenture against the Trustee. In case an Event of Default with respect to the Securities of a series has occurred (that has not been cured or waived), the Trustee shall exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his or her own affairs.

(b) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:

(i) prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing or waiving of all such Events of Default with respect to that series that may have occurred:

(A) the duties and obligations of the Trustee shall with respect to the Securities of such series be determined solely by the express provisions of this Indenture, and the Trustee shall not be liable with respect to the Securities of such series except for the performance of such duties and obligations as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

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(B) in the absence of bad faith on the part of the Trustee, the Trustee may with respect to the Securities of such series conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions that by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Indenture;

(ii) the Trustee shall not be liable to any Securityholder or to any other Person for any error of judgment made in good faith by a Responsible Officer or Responsible Officers of the Trustee, unless it shall be proved that the Trustee was negligent in ascertaining the pertinent facts;

(iii) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of not less than a majority in principal amount of the Securities of any series at the time Outstanding relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee under this Indenture with respect to the Securities of that series;

(iv) none of the provisions contained in this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur personal financial liability in the performance of any of its duties or in the exercise of any of its rights or powers if there is reasonable ground for believing that the repayment of such funds or liability is not reasonably assured to it under the terms of this Indenture or adequate indemnity against such risk is not reasonably assured to it;

(v) The Trustee shall not be required to give any bond or surety in respect of the performance of its powers or duties hereunder;

(vi) The permissive right of the Trustee to do things enumerated in this Indenture shall not be construed as a duty of the Trustee; and

(vii) No Trustee shall have any duty or responsibility for any act or omission of any other Trustee appointed with respect to a series of Securities hereunder.

Section 7.02 Certain Rights of Trustee.

Except as otherwise provided in Section 7.01:

(a) The Trustee may conclusively rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) Any request, direction, order or demand of the Company mentioned herein shall be sufficiently evidenced by a Board Resolution or an instrument signed in the name of the Company by any authorized officer of the Company (unless other evidence in respect thereof is specifically prescribed herein);

(c) The Trustee may consult with counsel and the opinion or written advice of such counsel or, if requested, any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken or suffered or omitted hereunder in good faith and in reliance thereon;

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(d) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request, order or direction of any of the Securityholders pursuant to the provisions of this Indenture, unless such Securityholders shall have offered to the Trustee security or indemnity reasonably acceptable to the Trustee against the costs, expenses and liabilities that may be incurred therein or thereby; nothing contained herein shall, however, relieve the Trustee of the obligation, upon the occurrence of an Event of Default with respect to a series of the Securities (that has not been cured or waived), to exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and to use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his or her own affairs;

(e) The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith and believed by it to be authorized or within the discretion or rights or powers

conferred upon it by this Indenture;

(f) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security, or other papers or documents or inquire as to the performance by the Company of one of its covenants under this Indenture, unless requested in writing so to do by the holders of not less than a majority in principal amount of the Outstanding Securities of the particular series affected thereby (determined as provided in Section 8.04); provided, however, that if the payment within a reasonable time to the Trustee of the costs, expenses or liabilities likely to be incurred by it in the making of such investigation is, in the opinion of the Trustee, not reasonably assured to the Trustee by the security afforded to it by the terms of this Indenture, the Trustee may require security or indemnity reasonably acceptable to the Trustee against such costs, expenses or liabilities as a condition to so proceeding. The reasonable expense of every such examination shall be paid by the Company or, if paid by the Trustee, shall be repaid by the Company upon demand;

(g) The Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder;

(h) In no event shall the Trustee be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances;

(i) In no event shall the Trustee be responsible or liable for special, indirect, punitive or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee has been advised of the likelihood of such loss or damage and regardless of the form of action; and

(j) The Trustee agrees to accept and act upon instructions or directions pursuant to this Indenture sent by unsecured e-mail, facsimile transmission or other similar unsecured electronic methods; provided, however, that (a) the party providing such written instructions, subsequent to such transmission of written instructions, shall provide the originally executed instructions or directions to the Trustee in a timely manner, and (b) such originally executed instructions or directions shall be signed by an authorized representative of the party providing such instructions or directions. If the party elects to give the Trustee e-mail or facsimile instructions (or instructions by a similar electronic method) and the Trustee in its discretion elects to act upon such instructions, the Trustee's understanding of such instructions shall be deemed controlling. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee's reliance upon and compliance with such instructions notwithstanding such instructions conflict or are inconsistent with a subsequent written instruction. The party providing electronic instructions agrees to assume all risks arising out of the use of such electronic methods to submit instructions and directions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized instructions, and the risk of interception and misuse by third parties. The Trustee may request that the Company deliver an Officer's Certificate setting forth the names of individuals and/or titles of officers authorized at such time to furnish the Trustee with Officer's Certificates, Company Orders and any other matters or directions pursuant to this Indenture.

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(k) The rights, privileges, protections, immunities and benefits given to the Trustee, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee in each of its capacities hereunder.

(l) The Trustee shall not be deemed to have knowledge of any Default or Event of Default (other than an Event of Default relating to the failure to pay the interest on, or the principal of, the Securities) until the Trustee shall have received written notification in the manner set forth in this Indenture or a Responsible Officer of the Trustee shall have obtained actual knowledge.

Section 7.03 Trustee Not Responsible for Recitals or Issuance or Securities

(a) The recitals contained herein and in the Securities shall be taken as the statements of the Company, and the Trustee assumes no responsibility for the correctness of the same. The Trustee shall not be responsible for any statement in any registration statement, prospectus, or any other document in connection with the sale of Securities. The Trustee shall not be responsible for any rating on the Securities or any action or omission of any rating agency.

(b) The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities.

(c) The Trustee shall not be accountable for the use or application by the Company of any of the Securities or of the proceeds of such Securities, or for the use or application of any moneys paid over by the Trustee in accordance with any provision of this Indenture or established pursuant to Section 2.01, or for the use or application of any moneys received by any paying agent other than the Trustee.

Section 7.04 May Hold Securities

The Trustee or any paying agent or Security Registrar, in its individual or any other capacity, may become the owner or pledgee of Securities with the same rights it would have if it were not Trustee, paying agent or Security Registrar.

Section 7.05 Moneys Held in Trust

Subject to the provisions of Section 11.05, all moneys received by the Trustee shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, but need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any moneys received by it hereunder except such as it may agree with the Company to pay thereon.

Section 7.06 Compensation and Reimbursement

(a) The Company shall pay to the Trustee for each of its capacities hereunder from time to time compensation for its services as the Company and the Trustee shall from time to time agree upon in writing. The Trustee's compensation shall not be limited by any law on compensation of a trustee of an express trust. The Company shall reimburse the Trustee upon request for all reasonable out-of-pocket expenses incurred by it. Such expenses shall include the reasonable compensation and expenses of the Trustee's agents and counsel.

(b) The Company shall indemnify each of the Trustee in each of its capacities hereunder against any loss, liability or expense (including the cost of defending itself and including the reasonable compensation and expenses of the Trustee's agents and counsel) incurred by it except as set forth in Section 7.06(c) in the exercise or performance of its powers, rights or duties under this Indenture as Trustee or Agent. The Trustee shall notify the Company promptly of any claim for which it may seek indemnity. The Company shall defend the claim and the Trustee shall cooperate in the defense. The Trustee may have one separate counsel and the Company shall pay the reasonable fees and expenses of such counsel. The Company need not pay for any settlement made without its consent, which consent shall not be unreasonably withheld. This indemnification shall apply to officers, directors, employees, shareholders and agents of the Trustee.

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(c) The Company need not reimburse any expense or indemnify against any loss or liability incurred by the Trustee or by any officer, director, employee, shareholder or agent of

the Trustee through negligence or bad faith.

(d) To ensure the Company's payment obligations in this Section, the Trustee shall have a lien prior to the Securities on all funds or property held or collected by the Trustee, except that held in trust to pay principal of or interest on particular Securities. When the Trustee incurs expenses or renders services in connection with an Event of Default specified in Section 6.01(4) or (5), the expenses (including the reasonable fees and expenses of its counsel) and the compensation for services in connection therewith are to constitute expenses of administration under any bankruptcy law. The provisions of this Section 7.06 shall survive the termination of this Indenture and the resignation or removal of the Trustee.

Section 7.07 Reliance on Officer's Certificate.

Except as otherwise provided in Section 7.01, whenever in the administration of the provisions of this Indenture the Trustee shall deem it reasonably necessary or desirable that a matter be proved or established prior to taking or suffering or omitting to take any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may, in the absence of negligence or bad faith on the part of the Trustee, be deemed to be conclusively proved and established by an Officer's Certificate delivered to the Trustee and such certificate, in the absence of negligence or bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted to be taken by it under the provisions of this Indenture upon the faith thereof.

Section 7.08 Disqualification; Conflicting Interests

If the Trustee has or shall acquire any "conflicting interest" within the meaning of Section 310(b) of the Trust Indenture Act, the Trustee and the Company shall in all respects comply with the provisions of Section 310(b) of the Trust Indenture Act.

Section 7.09 Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee with respect to the Securities issued hereunder which shall at all times be a corporation organized and doing business under the laws of the United States of America or any state or territory thereof or of the District of Columbia, or a corporation or other Person permitted to act as trustee by the Commission, authorized under such laws to exercise corporate trust powers, having a combined capital and surplus of at least fifty million U.S. dollars (\$50,000,000), and subject to supervision or examination by federal, state, territorial, or District of Columbia authority.

If such corporation or other Person publishes reports of condition at least annually, pursuant to law or to the requirements of the aforesaid supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation or other Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. The Company may not, nor may any Person directly or indirectly controlling, controlled by, or under common control with the Company, serve as Trustee. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, the Trustee shall resign immediately in the manner and with the effect specified in Section 7.10.

Section 7.10 Resignation and Removal; Appointment of Successor.

(a) The Trustee or any successor hereafter appointed may at any time resign with respect to the Securities of one or more series by giving written notice thereof to the Company and by transmitting notice of resignation by mail, first class postage prepaid, to the Securityholders of such series, as their names and addresses appear upon the Security Register. Upon receiving such notice of resignation, the Company shall promptly appoint a successor trustee with respect to Securities of such series by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the resigning Trustee and one copy to the successor trustee. If no successor trustee shall have been so appointed and have accepted appointment within 30 days after the mailing of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor trustee with respect to Securities of such series, or any Securityholder of that series who has been a bona fide holder of a Security or Securities for at least six months may on behalf of himself and all others similarly situated, petition any such court for the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, appoint a successor trustee.

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(b) In case at any time any one of the following shall occur:

(i) the Trustee shall fail to comply with the provisions of Section 7.08 after written request therefor by the Company or by any Securityholder who has been a bona fide holder of a Security or Securities for at least six months; or

(ii) the Trustee shall cease to be eligible in accordance with the provisions of Section 7.09 and shall fail to resign after written request therefor by the Company or by any such Securityholder; or

(iii) the Trustee shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or commence a voluntary bankruptcy proceeding, or a receiver of the Trustee or of its property shall be appointed or consented to, or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation;

then, in any such case, the Company may remove the Trustee with respect to all Securities and appoint a successor trustee by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the Trustee so removed and one copy to the successor trustee, or any Securityholder who has been a bona fide holder of a Security or Securities for at least six months may, on behalf of that holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, remove the Trustee and appoint a successor trustee.

(c) The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding may at any time remove the Trustee with respect to such series by so notifying the Trustee and the Company and may appoint a successor Trustee for such series with the consent of the Company.

(d) Any resignation or removal of the Trustee and appointment of a successor trustee with respect to the Securities of a series pursuant to any of the provisions of this Section shall become effective upon acceptance of appointment by the successor trustee as provided in Section 7.11.

(e) Any successor trustee appointed pursuant to this Section may be appointed with respect to the Securities of one or more series or all of such series, and at any time there shall be only one Trustee with respect to the Securities of any particular series.

Section 7.11 Acceptance of Appointment by Successor.

(a) In case of the appointment hereunder of a successor trustee with respect to all Securities, every such successor trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor trustee, such retiring Trustee shall, upon payment of any amounts due to it pursuant to the provisions of Section 7.06, execute and deliver an instrument transferring to such successor trustee all the rights, powers, and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor trustee all property and money held by such retiring Trustee hereunder.

(b) In case of the appointment hereunder of a successor trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor trustee shall accept such appointment and which (i) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates, (ii) shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and (iii) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust, that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee and that no Trustee shall be responsible for any act or failure to act on the part of any other Trustee hereunder; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein, such retiring Trustee shall with respect to the Securities of that or those series to which the appointment of such successor trustee relates have no further responsibility for the exercise of rights and powers or for the performance of the duties and obligations vested in the Trustee under this Indenture, and each such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; but, on request of the Company or any successor trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor trustee, to the extent contemplated by such supplemental indenture, the property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor trustee relates.

(c) Upon request of any such successor trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.

(d) No successor trustee shall accept its appointment unless at the time of such acceptance such successor trustee shall be qualified and eligible under this Article.

(e) Upon acceptance of appointment by a successor trustee as provided in this Section, the Company shall transmit notice of the succession of such trustee hereunder by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register. If the Company fails to transmit such notice within ten days after acceptance of appointment by the successor trustee, the successor trustee shall cause such notice to be transmitted at the expense of the Company.

Section 7.12 Merger, Conversion, Consolidation or Succession to Business

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to all or substantially all the corporate trust business of the Trustee, including the administration of the trust created by this Indenture, shall be the successor of the Trustee hereunder, provided that such corporation shall be qualified under the provisions of Section 7.08 and eligible under the provisions of Section 7.09, without the execution or filing of any paper or any further act on the part of any of the parties hereto, anything herein to the contrary notwithstanding. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

Section 7.13 Preferential Collection of Claims Against the Company

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent included therein.

Section 7.14 Notice of Default

If any Event of Default occurs and is continuing and if such Event of Default is known to a Responsible Officer of the Trustee, the Trustee shall mail to each Securityholder in the manner and to the extent provided in Section 313(c) of the Trust Indenture Act notice of the Event of Default within the earlier of 90 days after it occurs and 30 days after it is known to a Responsible Officer of the Trustee or written notice of it is received by the Trustee, unless such Event of Default has been cured; *provided, however*, that, except in the case of a default in the payment of the principal of (or premium, if any) or interest on any Security, the Trustee shall be protected in withholding such notice if and so long as the Responsible Officers of the Trustee in good faith determine that the withholding of such notice is in the interest of the Securityholders.

ARTICLE 8

CONCERNING THE SECURITYHOLDERS

Section 8.01 Evidence of Action by Securityholders.

Whenever in this Indenture it is provided that the holders of a majority or specified percentage in aggregate principal amount of the Securities of a particular series may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action), the fact that at the time of taking any such action the holders of such majority or specified percentage of that series have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by such holders of Securities of that series in person or by agent or proxy appointed in writing.

If the Company shall solicit from the Securityholders of any series any request, demand, authorization, direction, notice, consent, waiver or other action, the Company may, at its option, as evidenced by an Officer's Certificate, fix in advance a record date for such series for the determination of Securityholders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other action, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other action may be given before or after the record date, but only the Securityholders of record at the close of business on the record date shall be deemed to be Securityholders for the purposes of determining whether Securityholders of the requisite proportion of Outstanding Securities of that series have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other action, and for that purpose the Outstanding Securities of that series shall be computed as of the record date; provided, however, that no such authorization, agreement or consent by such Securityholders on the record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Indenture not later than six months after the record date.

Section 8.02 Proof of Execution by Securityholders.

Subject to the provisions of Section 7.01, proof of the execution of any instrument by a Securityholder (such proof will not require notarization) or his or her agent or proxy and proof of the holding by any Person of any of the Securities shall be sufficient if made in the following manner:

(a) The fact and date of the execution by any such Person of any instrument may be proved in any reasonable manner acceptable to the Trustee.

(b) The ownership of Securities shall be proved by the Security Register of such Securities or by a certificate of the Security Registrar thereof.

The Trustee may require such additional proof of any matter referred to in this Section as it shall deem necessary.

Section 8.03 Who May be Deemed Owners

Prior to the due presentment for registration of transfer of any Security, the Company, the Trustee, any paying agent and any Security Registrar may deem and treat the Person in whose name such Security shall be registered upon the books of the Security Registrar as the absolute owner of such Security (whether or not such Security shall be overdue and notwithstanding any notice of ownership or writing thereon made by anyone other than the Security Registrar) for the purpose of receiving payment of or on account of the principal of, premium, if any, and (subject to Section 2.03) interest on such Security and for all other purposes; and neither the Company nor the Trustee nor any paying agent nor any Security Registrar shall be affected by any notice to the contrary.

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Section 8.04 Certain Securities Owned by Company Disregarded.

In determining whether the holders of the requisite aggregate principal amount of Securities of a particular series have concurred in any direction, consent or waiver under this Indenture, the Securities of that series that are owned by the Company or any other obligor on the Securities of that series or by any Person directly or indirectly controlling or controlled by or under common control with the Company or any other obligor on the Securities of that series shall be disregarded and deemed not to be Outstanding for the purpose of any such determination, except that for the purpose of determining whether the Trustee shall be protected in relying on any such direction, consent or waiver, only Securities of such series that the Trustee actually knows are so owned shall be so disregarded. The Securities so owned that have been pledged in good faith may be regarded as Outstanding for the purposes of this Section, if the pledgee shall establish to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not a Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company or any such other obligor. In case of a dispute as to such right, any decision by the Trustee taken upon the advice of counsel shall be full protection to the Trustee.

Section 8.05 Actions Binding on Future Securityholders

At any time prior to (but not after) the evidencing to the Trustee, as provided in Section 8.01, of the taking of any action by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action, any holder of a Security of that series that is shown by the evidence to be included in the Securities the holders of which have consented to such action may, by filing written notice with the Trustee, and upon proof of holding as provided in Section 8.02, revoke such action so far as concerns such Security. Except as aforesaid any such action taken by the holder of any Security shall be conclusive and binding upon such holder and upon all future holders and owners of such Security, and of any Security issued in exchange therefor, on registration of transfer thereof or in place thereof, irrespective of whether or not any notation in regard thereto is made upon such Security. Any action taken by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action shall be conclusively binding upon the Company, the Trustee and the holders of all the Securities of that series.

ARTICLE 9

SUPPLEMENTAL INDENTURES

Section 9.01 Supplemental Indentures Without the Consent of Securityholders

In addition to any supplemental indenture otherwise authorized by this Indenture, the Company and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect), without the consent of the Securityholders, for one or more of the following purposes:

(a) to cure any ambiguity, defect, or inconsistency herein or in the Securities of any series;

(b) to comply with Article 10;

(c) to provide for uncertificated Securities in addition to or in place of certificated Securities;

(d) to add to the covenants, restrictions, conditions or provisions relating to the Company for the benefit of the holders of all or any series of Securities (and if such covenants, restrictions, conditions or provisions are to be for the benefit of less than all series of Securities, stating that such covenants, restrictions, conditions or provisions are expressly being included solely for the benefit of such series), to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an Event of Default, or to surrender any right or power herein conferred upon the Company;

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(e) to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of Securities, as herein set forth;

(f) to make any change that does not adversely affect the rights of any Securityholder in any material respect;

(g) to provide for the issuance of and establish the form and terms and conditions of the Securities of any series as provided in Section 2.01, to establish the form of any certifications required to be furnished pursuant to the terms of this Indenture or any series of Securities, or to add to the rights of the holders of any series of Securities;

(h) to evidence and provide for the acceptance of appointment hereunder by a successor trustee; or

(i) to comply with any requirements of the Commission or any successor in connection with the qualification of this Indenture under the Trust Indenture Act.

The Trustee is hereby authorized to join with the Company in the execution of any such supplemental indenture, and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into any such supplemental indenture that affects the Trustee's own rights, duties or immunities under this Indenture or otherwise.

Any supplemental indenture authorized by the provisions of this Section may be executed by the Company and the Trustee without the consent of the holders of any of the Securities at the time Outstanding, notwithstanding any of the provisions of Section 9.02.

Section 9.02 Supplemental Indentures With Consent of Securityholders

Other than as provided in Section 9.01, with the consent (evidenced as provided in Section 8.01) of the holders of not less than a majority in aggregate principal amount of the Securities of each series affected by such supplemental indenture or indentures at the time Outstanding, the Company, when authorized by a Board Resolution, and the Trustee

may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect) for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of any supplemental indenture or of modifying the rights of the holders of the Securities of such series under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the holders of each Security then Outstanding and affected thereby, (a) extend the fixed maturity of any Securities of any series, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof or (b) reduce the aforesaid percentage of Securities, the holders of which are required to consent to any such supplemental indenture.

It shall not be necessary for the consent of the Securityholders of any series affected thereby under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

Section 9.03 Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture pursuant to the provisions of this Article or of Section 10.01, this Indenture shall, with respect to such series, be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Company and the holders of Securities of the series affected thereby shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modifications and amendments, and all the terms and conditions of any such supplemental indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

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Section 9.04 Securities Affected by Supplemental Indentures.

Securities of any series affected by a supplemental indenture, authenticated and delivered after the execution of such supplemental indenture pursuant to the provisions of this Article or of Section 10.01, may bear a notation in form approved by the Company, provided such form meets the requirements of any securities exchange upon which such series may be listed, as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of that series so modified as to conform, in the opinion of the Board of Directors, to any modification of this Indenture contained in any such supplemental indenture may be prepared by the Company, authenticated by the Trustee and delivered in exchange for the Securities of that series then Outstanding.

Section 9.05 Execution of Supplemental Indentures.

Upon the request of the Company, accompanied by its Board Resolutions authorizing the execution of any such supplemental indenture, and upon the filing with the Trustee of evidence of the consent of Securityholders required to consent thereto as aforesaid, the Trustee shall join with the Company in the execution of such supplemental indenture unless such supplemental indenture affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion but shall not be obligated to enter into such supplemental indenture. The Trustee, subject to the provisions of Section 7.01, shall receive an Officer's Certificate or an Opinion of Counsel as conclusive evidence that any supplemental indenture executed pursuant to this Article is authorized or permitted by the terms of this Article and that all conditions precedent to the execution of the supplemental indenture have been complied with; provided, however, that such Officer's Certificate or Opinion of Counsel need not be provided in connection with the execution of a supplemental indenture that establishes the terms of a series of Securities pursuant to Section 2.01 hereof.

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of this Section, the Company shall (or shall direct the Trustee to) transmit by mail, first class postage prepaid, a notice, setting forth in general terms the substance of such supplemental indenture, to the Securityholders of all series affected thereby as their names and addresses appear upon the Security Register. Any failure of the Company to mail, or cause the mailing of, such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE 10

SUCCESSOR ENTITY

Section 10.01 Company May Consolidate, Etc.

Nothing contained in this Indenture shall prevent any consolidation or merger of the Company with or into any other Person (whether or not affiliated with the Company) or successive consolidations or mergers in which the Company or its successor or successors shall be a party or parties, or shall prevent any sale, conveyance, transfer or other disposition of the property of the Company or its successor or successors as an entirety, or substantially as an entirety, to any other Person (whether or not affiliated with the Company or its successor or successors); provided, however, the Company hereby covenants and agrees that, upon any such consolidation or merger (in each case, if the Company is not the survivor of such transaction) or any such sale, conveyance, transfer or other disposition (other than a sale, conveyance, transfer or other disposition to a Subsidiary of the Company), the due and punctual payment of the principal of (premium, if any) and interest on all of the Securities of all series in accordance with the terms of each series, according to their tenor, and the due and punctual performance and observance of all the covenants and conditions of this Indenture with respect to each series or established with respect to such series pursuant to Section 2.01 to be kept or performed by the Company shall be expressly assumed, by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect) reasonably satisfactory in form to the Trustee executed and delivered to the Trustee by the entity formed by such consolidation, or into which the Company shall have been merged, or by the entity which shall have acquired such property.

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Section 10.02 Successor Entity Substituted.

(a) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition and upon the assumption by the successor entity by supplemental indenture, executed and delivered to the Trustee and satisfactory in form to the Trustee, of the obligations set forth under Section 10.01 on all of the Securities of all series Outstanding, such successor entity shall succeed to and be substituted for the Company with the same effect as if it had been named as the Company herein, and thereupon the predecessor corporation shall be relieved of all obligations and covenants under this Indenture and the Securities.

(b) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition, such changes in phraseology and form (but not in substance) may be made in the Securities thereafter to be issued as may be appropriate.

(c) Nothing contained in this Article shall require any action by the Company in the case of a consolidation or merger of any Person into the Company where the Company is the survivor of such transaction, or the acquisition by the Company, by purchase or otherwise, of all or any part of the property of any other Person (whether or not affiliated with the Company).

ARTICLE 11

SATISFACTION AND DISCHARGE

Section 11.01 Satisfaction and Discharge of Indenture.

If at any time: (a) the Company shall have delivered to the Trustee for cancellation all Securities of a series theretofore authenticated and not delivered to the Trustee for cancellation (other than any Securities that shall have been destroyed, lost or stolen and that shall have been replaced or paid as provided in Section 2.07 and Securities for whose payment money or Governmental Obligations have theretofore been deposited in trust or segregated and held in trust by the Company and thereupon repaid to the Company or discharged from such trust, as provided in Section 11.05); or (b) all such Securities of a particular series not theretofore delivered to the Trustee for cancellation shall have become due and payable, or are by their terms to become due and payable within one year or are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption, and the Company shall deposit or cause to be deposited with the Trustee as trust funds the entire amount in moneys or Governmental Obligations or a combination thereof, sufficient in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, to pay at maturity or upon redemption all Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder with respect to such series by the Company then this Indenture shall thereupon cease to be of further effect with respect to such series except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03, 7.10, 11.05 and 13.04 that shall survive until the date of maturity or redemption date, as the case may be, and Sections 7.06 and 11.05, that shall survive to such date and thereafter, and the Trustee, on demand of the Company and at the cost and expense of the Company shall execute proper instruments acknowledging satisfaction of and discharging this Indenture with respect to such series.

Section 11.02 Discharge of Obligations.

If at any time all such Securities of a particular series not heretofore delivered to the Trustee for cancellation or that have not become due and payable as described in Section 11.01 shall have been paid by the Company by depositing irrevocably with the Trustee as trust funds moneys or an amount of Governmental Obligations sufficient to pay at maturity or upon redemption all such Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder by the Company with respect to such series, then after the date such moneys or Governmental Obligations, as the case may be, are deposited with the Trustee the obligations of the Company under this Indenture with respect to such series shall cease to be of further effect except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03, 7.06, 7.10, 11.05 and 13.04 hereof that shall survive until such Securities shall mature and be paid.

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Thereafter, Sections 7.06 and 11.05 shall survive.

Section 11.03 Deposited Moneys to be Held in Trust

All moneys or Governmental Obligations deposited with the Trustee pursuant to Sections 11.01 or 11.02 shall be held in trust and shall be available for payment as due, either directly or through any paying agent (including the Company acting as its own paying agent), to the holders of the particular series of Securities for the payment or redemption of which such moneys or Governmental Obligations have been deposited with the Trustee.

Section 11.04 Payment of Moneys Held by Paying Agents

In connection with the satisfaction and discharge of this Indenture all moneys or Governmental Obligations then held by any paying agent under the provisions of this Indenture shall, upon demand of the Company, be paid to the Trustee and thereupon such paying agent shall be released from all further liability with respect to such moneys or Governmental Obligations.

Section 11.05 Repayment to Company.

Any moneys or Governmental Obligations deposited with any paying agent or the Trustee, or then held by the Company, in trust for payment of principal or premium, if any, or interest on the Securities of a particular series that are not applied but remain unclaimed by the holders of such Securities for at least two years after the date upon which the principal of (and premium, if any) or interest on such Securities shall have respectively become due and payable, or such other shorter period set forth in applicable escheat or abandoned or unclaimed property law, shall be repaid to the Company on May 31 of each year or upon the Company's request or (if then held by the Company) shall be discharged from such trust; and thereupon the paying agent and the Trustee shall be released from all further liability with respect to such moneys or Governmental Obligations, and the holder of any of the Securities entitled to receive such payment shall thereafter, as a general creditor, look only to the Company for the payment thereof.

ARTICLE 12

IMMUNITY OF INCORPORATORS, STOCKHOLDERS, OFFICERS AND DIRECTORS

Section 12.01 No Recourse

No recourse under or upon any obligation, covenant or agreement of this Indenture, or of any Security, or for any claim based thereon or otherwise in respect thereof, shall be had against any incorporator, stockholder, officer or director, past, present or future as such, of the Company or of any predecessor or successor corporation, either directly or through the Company or any such predecessor or successor corporation, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise; it being expressly understood that this Indenture and the obligations issued hereunder are solely corporate obligations, and that no such personal liability whatever shall attach to, or is or shall be incurred by, the incorporators, stockholders, officers or directors as such, of the Company or of any predecessor or successor corporation, or any of them, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom; and that any and all such personal liability of every name and nature, either at common law or in equity or by constitution or statute, of, and any and all such rights and claims against, every such incorporator, stockholder, officer or director as such, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom, are hereby expressly waived and released as a condition of, and as a consideration for, the execution of this Indenture and the issuance of such Securities.

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ARTICLE 13

MISCELLANEOUS PROVISIONS

Section 13.01 Effect on Successors and Assigns

All the covenants, stipulations, promises and agreements in this Indenture made by or on behalf of the Company shall bind its successors and assigns, whether so expressed or not.

Section 13.02 Actions by Successor.

Any act or proceeding by any provision of this Indenture authorized or required to be done or performed by any board, committee or officer of the Company shall and may be

done and performed with like force and effect by the corresponding board, committee or officer of any corporation that shall at the time be the lawful successor of the Company.

Section 13.03 Surrender of Company Powers

The Company by instrument in writing executed by authority of its Board of Directors and delivered to the Trustee may surrender any of the powers reserved to the Company, and thereupon such power so surrendered shall terminate both as to the Company and as to any successor corporation.

Section 13.04 Notices

Except as otherwise expressly provided herein, any notice, request or demand that by any provision of this Indenture is required or permitted to be given, made or served by the Trustee, the Security Registrar, any paying or other agent under this Indenture or by the holders of Securities or by any other Person pursuant to this Indenture to or on the Company may be given or served by being deposited in first class mail, postage prepaid, addressed (until another address is filed in writing by the Company with the Trustee), as follows: 1885 West 2100 South, Salt Lake City, Utah 84119. Any notice, election, request or demand by the Company or any Securityholder or by any other Person pursuant to this Indenture to or upon the Trustee shall be deemed to have been sufficiently given or made, for all purposes, if given or made in writing at the Corporate Trust Office of the Trustee.

Section 13.05 Governing Law; Jury Trial Waiver

This Indenture and each Security, and any claim, controversy or dispute under or related to this Indenture or any Security, shall be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

EACH PARTY HERETO, AND EACH HOLDER OF A SECURITY BY ACCEPTANCE THEREOF, HEREBY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS INDENTURE.

Section 13.06 Treatment of Securities as Debt

It is intended that the Securities will be treated as indebtedness and not as equity for federal income tax purposes. The provisions of this Indenture shall be interpreted to further this intention.

Section 13.07 Certificates and Opinions as to Conditions Precedent

(a) Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company shall furnish to the Trustee an Officer's Certificate stating that all conditions precedent provided for in this Indenture (other than the certificate to be delivered pursuant to Section 13.12) relating to the proposed action have been complied with and, if requested, an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.

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(b) Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant in this Indenture (other than the certificate to be delivered pursuant to Section 13.12 of this Indenture or Section 314(a)(1) of the Trust Indenture Act) shall include (i) a statement that the Person making such certificate or opinion has read such covenant or condition; (ii) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (iii) a statement that, in the opinion of such Person, he has made such examination or investigation as is reasonably necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and (iv) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been complied with.

Section 13.08 Payments on Business Days

Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental to this Indenture, in any case where the date of maturity of interest or principal of any Security or the date of redemption of any Security shall not be a Business Day, then payment of interest or principal (and premium, if any) may be made on the next succeeding Business Day with the same force and effect as if made on the nominal date of maturity or redemption, and no interest shall accrue for the period after such nominal date.

Section 13.09 Conflict with Trust Indenture Act

If and to the extent that any provision of this Indenture limits, qualifies or conflicts with the duties imposed by Sections 310 to 317, inclusive, of the Trust Indenture Act, such imposed duties shall control.

Section 13.10 Counterparts

This Indenture may be executed in any number of counterparts, each of which shall be an original, but such counterparts shall together constitute but one and the same instrument. The exchange of copies of this Indenture and of signature pages by facsimile or PDF transmission shall constitute effective execution and delivery of this Indenture as to the parties hereto and may be used in lieu of the original Indenture for all purposes. Signatures of the parties hereto transmitted by facsimile or PDF shall be deemed to be their original signatures for all purposes.

Section 13.11 Separability

In case any one or more of the provisions contained in this Indenture or in the Securities of any series shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Indenture or of such Securities, but this Indenture and such Securities shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

Section 13.12 Compliance Certificates

The Company shall deliver to the Trustee, within 120 days after the end of each fiscal year during which any Securities of any series were outstanding, an officer's certificate stating whether or not the signers know of any Event of Default that occurred during such fiscal year. Such certificate shall contain a certification from the principal executive officer, principal financial officer or principal accounting officer of the Company that a review has been conducted of the activities of the Company and the Company's performance under this Indenture and that the Company has complied with all conditions and covenants under this Indenture. For purposes of this Section 13.12, such compliance shall be determined without regard to any period of grace or requirement of notice provided under this Indenture. If the officer of the Company signing such certificate has knowledge of such an Event of Default, the certificate shall describe any such Event of Default and its status.

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Section 13.13 U.S.A Patriot Act

The parties hereto acknowledge that in accordance with Section 326 of the U.S.A. Patriot Act, the Trustee, like all financial institutions and in order to help fight the funding of terrorism and money laundering, is required to obtain, verify, and record information that identifies each person or legal entity that establishes a relationship or opens an account with the Trustee. The parties to this Indenture agree that they will provide the Trustee with such information as it may request in order for the Trustee to satisfy the requirements of the U.S.A. Patriot Act.

Section 13.14 Force Majeure.

In no event shall the Trustee, the Security Registrar, any paying agent or any other agent under this Indenture be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions or utilities, communications or computer (software and hardware) services; it being understood that the Trustee, the Security Registrar, any paying agent or any other agent under this Indenture shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

Section 13.15 Table of Contents; Headings.

The table of contents and headings of the articles and sections of this Indenture have been inserted for convenience of reference only, are not intended to be considered a part hereof, and will not modify or restrict any of the terms or provisions hereof.

In Witness Whereof, the parties hereto have caused this Indenture to be duly executed all as of the day and year first above written.

SINTX Technologies, Inc.

By: _____

Name: _____

Title: _____

[Trustee], as Trustee

By: _____

Name: _____

Title: _____

CROSS-REFERENCE TABLE (1)

Section of Trust Indenture Act of 1939, as Amended	Section of Indenture
310(a)	7.09
310(b)	7.08
	7.10
311(a)	7.13
311(b)	7.13
312(a)	5.01
	5.02(a)
312(b)	5.02(c)
312(c)	5.02(c)
313(a)	5.04(a)
313(b)	5.04(b)
313(c)	5.04(a)
	5.04(b)
313(d)	5.04(c)
314(a)	5.03
	13.12
314(b)	Inapplicable
314(c)	13.07(a)
314(d)	Inapplicable
314(e)	13.07(b)
314(f)	Inapplicable
315(a)	7.01(a)
	7.01(b)
315(b)	7.14
315(c)	7.01
315(d)	7.01(b)
315(e)	6.07
316(a)	6.06
	8.04
316(b)	6.04
316(c)	8.01
317(a)	6.02
317(b)	4.03

- (1) This Cross-Reference Table does not constitute part of the Indenture and shall not have any bearing on the interpretation of any of its terms or provisions.
-

SINTX TECHNOLOGIES, INC.

Issuer

AND

[TRUSTEE],

Trustee

INDENTURE

Dated as of _____, 20__

Subordinated Debt Securities

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INDENTURE

Indenture, dated as of _____, 20__, among SINTX Technologies, Inc., a Delaware corporation (the “Company”), and [Trustee], as trustee (the “Trustee”):

Whereas, for its lawful corporate purposes, the Company has duly authorized the execution and delivery of this Indenture to provide for the issuance of subordinated debt securities (hereinafter referred to as the “Securities”), in an unlimited aggregate principal amount to be issued from time to time in one or more series as in this Indenture provided, as registered Securities without coupons, to be authenticated by the certificate of the Trustee;

Whereas, to provide the terms and conditions upon which the Securities are to be authenticated, issued and delivered, the Company has duly authorized the execution of this Indenture; and

Whereas, all things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

Now, Therefore, in consideration of the premises and the purchase of the Securities by the holders thereof, it is mutually covenanted and agreed as follows for the equal and ratable benefit of the holders of Securities:

ARTICLE 1

DEFINITIONS

Section 1.01 Definitions of Terms.

The terms defined in this Section (except as in this Indenture or any indenture supplemental hereto otherwise expressly provided or unless the context otherwise requires) for all

purposes of this Indenture and of any indenture supplemental hereto shall have the respective meanings specified in this Section and shall include the plural as well as the singular. All other terms used in this Indenture that are defined in the Trust Indenture Act of 1939, as amended, or that are by reference in such Act defined in the Securities Act of 1933, as amended (except as herein or any indenture supplemental hereto otherwise expressly provided or unless the context otherwise requires), shall have the meanings assigned to such terms in said Trust Indenture Act and in said Securities Act as in force at the date of the execution of this instrument.

“**Authenticating Agent**” means the Trustee or an authenticating agent with respect to all or any of the series of Securities appointed by the Trustee pursuant to Section 2.10.

“**Bankruptcy Law**” means Title 11, U.S. Code, or any similar federal or state law for the relief of debtors.

“**Board of Directors**” means the Board of Directors (or the functional equivalent thereof) of the Company or any duly authorized committee of such Board.

“**Board Resolution**” means a copy of a resolution certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors (or duly authorized committee thereof) and to be in full force and effect on the date of such certification.

“**Business Day**” means, with respect to any series of Securities, any day other than a day on which federal or state banking institutions in the Borough of Manhattan, the City of New York, or in the city of the Corporate Trust Office of the Trustee, are authorized or obligated by law, executive order or regulation to close.

“**Commission**” means the Securities and Exchange Commission, as from time to time constituted, created under the Exchange Act, or, if at any time after the execution of this instrument such Commission is not existing and performing the duties now assigned to it under the Trust Indenture Act, then the body performing such duties at such time.

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“**Company**” means SINTX Technologies, Inc., a corporation duly organized and existing under the laws of the State of Delaware, and, subject to the provisions of Article 10, shall also include its successors and assigns.

“**Corporate Trust Office**” means the office of the Trustee at which, at any particular time, its corporate trust business shall be principally administered, which office at the date hereof is located at _____.

“**Custodian**” means any receiver, trustee, assignee, liquidator or similar official under any Bankruptcy Law.

“**Defaulted Interest**” has the meaning set forth in Section 2.03.

“**Depository**” means, with respect to Securities of any series for which the Company shall determine that such Securities will be issued as a Global Security, The Depository Trust Company, another clearing agency, or any successor registered as a clearing agency under the Exchange Act, or other applicable statute or regulation, which, in each case, shall be designated by the Company pursuant to either Section 2.01 or 2.11.

“**Event of Default**” means, with respect to Securities of a particular series, any event specified in Section 6.01, continued for the period of time, if any, therein designated.

“**Exchange Act**” means the United States Securities and Exchange Act of 1934, as amended, and the rules and regulations promulgated by the Commission thereunder.

“**Global Security**” means a Security issued to evidence all or a part of any series of Securities which is executed by the Company and authenticated and delivered by the Trustee to the Depository or pursuant to the Depository’s instruction, all in accordance with the Indenture, which shall be registered in the name of the Depository or its nominee.

“**Governmental Obligations**” means securities that are (a) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (b) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America that, in either case, are not callable or redeemable at the option of the issuer thereof at any time prior to the stated maturity of the Securities, and shall also include a depository receipt issued by a bank or trust company as custodian with respect to any such Governmental Obligation or a specific payment of principal of or interest on any such Governmental Obligation held by such custodian for the account of the holder of such depository receipt; provided, however, that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the Governmental Obligation or the specific payment of principal of or interest on the Governmental Obligation evidenced by such depository receipt.

“**herein**”, “**hereof**” and “**hereunder**”, and other words of similar import, refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

“**Indenture**” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into in accordance with the terms hereof and shall include the terms of particular series of Securities established as contemplated by Section 2.01.

“**Interest Payment Date**”, when used with respect to any installment of interest on a Security of a particular series, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which an installment of interest with respect to Securities of that series is due and payable.

“**Officer**” means, with respect to the Company, the chairman of the Board of Directors, a chief executive officer, a president, a chief financial officer, a chief operating officer, any executive vice president, any senior vice president, any vice president, the treasurer or any assistant treasurer, the controller or any assistant controller or the secretary or any assistant secretary.

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“**Officer’s Certificate**” means a certificate signed by any Officer. Each such certificate shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

“**Opinion of Counsel**” means an opinion in writing subject to customary exceptions of legal counsel, who may be an employee of or counsel for the Company, that is delivered to the Trustee in accordance with the terms hereof. Each such opinion shall include the statements provided for in Section 13.07, if and to the extent required by the provisions thereof.

“**Outstanding**”, when used with reference to Securities of any series, means, subject to the provisions of Section 8.04, as of any particular time, all Securities of that series theretofore authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore canceled by the Trustee or any paying agent, or delivered to the Trustee or any paying agent for cancellation or that have previously been canceled; (b) Securities or portions thereof for the payment or redemption of which moneys or Governmental Obligations in the necessary amount shall have been deposited in trust with the Trustee or with any paying agent (other than the Company) or shall have been set aside and segregated in trust by the Company (if the Company shall act as its own paying agent); provided, however, that if such Securities or portions of such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as provided in Article 3, or provision satisfactory to the Trustee shall have been made for giving such notice; and (c) Securities in lieu of or in substitution for which other Securities shall have been authenticated and delivered pursuant to the terms of Section 2.07.

“**Person**” means any individual, corporation, partnership, joint venture, joint-stock company, limited liability company, association, trust, unincorporated organization, any other entity or organization, including a government or political subdivision or an agency or instrumentality thereof.

“**Predecessor Security**” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.07 in lieu of a lost, destroyed or stolen Security shall be deemed to evidence the same debt as the lost, destroyed or stolen Security.

“**Responsible Officer**” when used with respect to the Trustee means any officer within the Corporate Trust Office of the Trustee (or any successor group of the Trustee) or any other officer of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means, with respect to a particular corporate trust matter, any other officer to whom such matter is referred because of his or her knowledge of and familiarity with the particular subject and in each case who shall have direct responsibility for the administration of this Indenture.

“**Securities**” has the meaning stated in the first recital of this Indenture and more particularly means any Securities authenticated and delivered under this Indenture.

“**Securities Act**” means the Securities Act of 1933, as amended.

“**Securityholder**”, “**holder of Securities**”, “**registered holder**”, or other similar term, means the Person or Persons in whose name or names a particular Security is registered on the Security Register kept for that purpose in accordance with the terms of this Indenture.

“**Security Register**” and “**Security Registrar**” shall have the meanings as set forth in Section 2.05.

“**Subsidiary**” means, with respect to any Person, any corporation, association, partnership or other business entity of which more than 50% of the total voting power of shares of capital stock or other interests (including partnership interests) entitled (without regard to the occurrence of any contingency) to vote in the election of directors, managers, general partners or trustees thereof is at the time owned or controlled, directly or indirectly, by (i) such Person; (ii) such Person and one or more Subsidiaries of such Person; or (iii) one or more Subsidiaries of such Person.

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“**Trustee**” means _____, and, subject to the provisions of Article 7, shall also include its successors and assigns, and, if at any time there is more than one Person acting in such capacity hereunder, “Trustee” shall mean each such Person. The term “Trustee” as used with respect to a particular series of the Securities shall mean the trustee with respect to that series.

“**Trust Indenture Act**” means the Trust Indenture Act of 1939, as amended.

“**U.S.A. Patriot Act**” means the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001, Pub. L. 107-56, as amended and signed into law October 26, 2001.

ARTICLE 2

ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION AND EXCHANGE OF SECURITIES

Section 2.01 Designation and Terms of Securities

(a) The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited. The Securities may be issued in one or more series up to the aggregate principal amount of Securities of that series from time to time authorized by or pursuant to a Board Resolution or pursuant to one or more indentures supplemental hereto. Prior to the initial issuance of Securities of any series, there shall be established in or pursuant to a Board Resolution, and set forth in an Officer’s Certificate, or established in one or more indentures supplemental hereto:

- (1) the title of the Securities of the series (which shall distinguish the Securities of that series from all other Securities);
- (2) any limit upon the aggregate principal amount of the Securities of that series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of that series);
- (3) the maturity date or dates on which the principal of the Securities of the series is payable;
- (4) the form of the Securities of the series including the form of the certificate of authentication for such series;
- (5) the applicability of any guarantees;
- (6) whether or not the Securities will be secured or unsecured, and the terms of any secured debt;
- (7) whether the Securities rank as senior debt, senior subordinated debt, or subordinated debt;
- (8) if the price (expressed as a percentage of the aggregate principal amount thereof) at which such Securities will be issued is a price other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof, or if applicable, the portion of the principal amount of such Securities that is convertible into another security or the method by which any such portion shall be determined;
- (9) the interest rate or rates, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

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(10) the Company’s right, if any, to defer the payment of interest and the maximum length of any such deferral period;

(11) if applicable, the date or dates after which, or the period or periods during which, and the price or prices at which, the Company may at its option, redeem the series of Securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

(12) the date or dates, if any, on which, and the price or prices at which the Company is obligated, pursuant to any mandatory sinking fund, mandatory redemption or analogous provisions or otherwise, to repurchase, at the Securityholder’s option, the series of Securities;

- (13) the denominations in which the Securities of the series shall be issuable, if other than denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof;
- (14) any and all terms, if applicable, relating to any auction or remarketing of the Securities of that series and any security for the obligations of the Company with respect to such Securities and any other terms which may be advisable in connection with the marketing of Securities of that series;
- (15) whether the Securities of the series shall be issued in whole or in part in the form of a Global Security or Securities; the terms and conditions, if any, upon which such Global Security or Securities may be exchanged in whole or in part for other individual Securities; and the Depositary for such Global Security or Securities;
- (16) if applicable, the provisions relating to conversion or exchange of any Securities of the series and the terms and conditions upon which such Securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at the Company's option or the holders' option) conversion or exchange features, the applicable conversion or exchange period and the manner of settlement for any conversion or exchange, which may, without limitation, include the payment of cash as well as the delivery of securities;
- (17) if other than the full principal amount thereof, the portion of the principal amount of Securities of the series which shall be payable upon declaration of acceleration of the maturity thereof pursuant to Section 6.01;
- (18) additions to or changes in the covenants applicable to the series of Securities being issued, including, among others, the consolidation, merger or sale covenant;
- (19) additions to or changes in the Events of Default with respect to the Securities and any change in the right of the Trustee or the Securityholders to declare the principal, premium, if any, and interest, if any, with respect to such Securities to be due and payable;
- (20) additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;
- (21) additions to or changes in the provisions relating to satisfaction and discharge of this Indenture;
- (22) additions to or changes in the provisions relating to the modification of this Indenture both with and without the consent of Securityholders of Securities issued under this Indenture;
- (23) the currency or currencies, including composite currencies, in which payment of Securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;

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- (24) whether interest will be payable in cash or additional Securities at the Company's or the Securityholders' option and the terms and conditions upon which the election may be made;
- (25) the terms and conditions, if any, upon which the Company shall pay amounts in addition to the stated interest, premium, if any, and principal amounts of the Securities of the series to any Securityholder that is not a "United States person" for federal tax purposes;
- (26) any restrictions on transfer, sale or assignment of the Securities of the series;
- (27) any other specific terms, preferences, rights or limitations of, or restrictions on, the Securities, any other additions or changes in the provisions of this Indenture, and any terms that may be required by us or advisable under applicable laws or regulations; and
- (28) the subordination terms of the Securities of the series.

All Securities of any one series shall be substantially identical except as may otherwise be provided in or pursuant to any such Board Resolution or in any indentures supplemental hereto.

If any of the terms of the series are established by action taken pursuant to a Board Resolution of the Company, a copy of an appropriate record of such action shall be certified by the secretary or an assistant secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officer's Certificate of the Company setting forth the terms of the series.

Securities of any particular series may be issued at various times, with different dates on which the principal or any installment of principal is payable, with different rates of interest, if any, or different methods by which rates of interest may be determined, with different dates on which such interest may be payable and with different redemption dates.

Section 2.02 Form of Securities and Trustee's Certificate

The Securities of any series and the Trustee's certificate of authentication to be borne by such Securities shall be substantially of the tenor and purport as set forth in one or more indentures supplemental hereto or as provided in a Board Resolution, and set forth in an Officer's Certificate, and they may have such letters, numbers or other marks of identification or designation and such legends or endorsements printed, lithographed or engraved thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Indenture, or as may be required to comply with any law or with any rule or regulation made pursuant thereto or with any rule or regulation of any securities exchange on which Securities of that series may be listed, or to conform to usage.

Section 2.03 Denominations: Provisions for Payment

The Securities shall be issuable as registered Securities and in the denominations of one thousand U.S. dollars (\$1,000) or any integral multiple thereof, subject to Section 2.01(a)(13). The Securities of a particular series shall bear interest payable on the dates and at the rate specified with respect to that series. Subject to Section 2.01(a)(23), the principal of and the interest on the Securities of any series, as well as any premium thereon in case of redemption or repurchase thereof prior to maturity, and any cash amount due upon conversion or exchange thereof, shall be payable in the coin or currency of the United States of America that at the time is legal tender for public and private debt, at the office or agency of the Company maintained for that purpose. Each Security shall be dated the date of its authentication. Interest on the Securities shall be computed on the basis of a 360-day year composed of twelve 30-day months.

The interest installment on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date for Securities of that series shall be paid to the Person in whose name said Security (or one or more Predecessor Securities) is registered at the close of business on the regular record date for such interest installment. In the event that any Security of a particular series or portion thereof is called for redemption and the redemption date is subsequent to a regular record date with respect to any Interest Payment Date and prior to such Interest Payment Date, interest on such Security will be paid upon presentation and surrender of such Security as provided in Section 3.03.

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Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date for Securities of the same series (herein called "Defaulted Interest") shall forthwith cease to be payable to the registered holder on the relevant regular record date by virtue of having been such holder; and such Defaulted Interest shall be paid by the Company, at its election, as provided in clause (1) or clause (2) below:

(1) The Company may make payment of any Defaulted Interest on Securities to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered at the close of business on a special record date for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each such Security and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a special record date for the payment of such Defaulted Interest which shall not be more than 15 nor less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such special record date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the special record date therefor to be mailed, first class postage prepaid, to each Securityholder at his or her address as it appears in the Security Register (as hereinafter defined), not less than 10 days prior to such special record date. Notice of the proposed payment of such Defaulted Interest and the special record date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered on such special record date.

(2) The Company may make payment of any Defaulted Interest on any Securities in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Unless otherwise set forth in a Board Resolution or one or more indentures supplemental hereto establishing the terms of any series of Securities pursuant to Section 2.01 hereof, the term "regular record date" as used in this Section with respect to a series of Securities and any Interest Payment Date for such series shall mean either the fifteenth day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the first day of a month, or the first day of the month in which an Interest Payment Date established for such series pursuant to Section 2.01 hereof shall occur, if such Interest Payment Date is the fifteenth day of a month, whether or not such date is a Business Day.

Subject to the foregoing provisions of this Section, each Security of a series delivered under this Indenture upon transfer of or in exchange for or in lieu of any other Security of such series shall carry the rights to interest accrued and unpaid, and to accrue, that were carried by such other Security.

Section 2.04 Execution and Authentications.

The Securities shall be signed on behalf of the Company by one of its Officers. Signatures may be in the form of a manual or facsimile signature.

The Company may use the facsimile signature of any Person who shall have been an Officer (at the time of execution), notwithstanding the fact that at the time the Securities shall be authenticated and delivered or disposed of such Person shall have ceased to be such an officer of the Company. The Securities may contain such notations, legends or endorsements required by law, stock exchange rule or usage. Each Security shall be dated the date of its authentication by the Trustee.

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A Security shall not be valid until authenticated manually by an authorized signatory of the Trustee, or by an Authenticating Agent. Such signature shall be conclusive evidence that the Security so authenticated has been duly authenticated and delivered hereunder and that the holder is entitled to the benefits of this Indenture. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a written order of the Company for the authentication and delivery of such Securities, signed by an Officer, and the Trustee in accordance with such written order shall authenticate and deliver such Securities.

In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be entitled to receive, if requested, and (subject to Section 7.01) shall be fully protected in relying upon, an Opinion of Counsel stating that the form and terms thereof have been established in conformity with the provisions of this Indenture.

The Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee's own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

Section 2.05 Registration of Transfer and Exchange.

(a) Securities of any series may be exchanged upon presentation thereof at the office or agency of the Company designated for such purpose, for other Securities of such series of authorized denominations, and for a like aggregate principal amount, upon payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, all as provided in this Section. In respect of any Securities so surrendered for exchange, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in exchange therefor the Security or Securities of the same series that the Securityholder making the exchange shall be entitled to receive, bearing numbers not contemporaneously outstanding.

(b) The Company shall keep, or cause to be kept, at its office or agency designated for such purpose a register or registers (herein referred to as the "Security Register") in which, subject to such reasonable regulations as it may prescribe, the Company shall register the Securities and the transfers of Securities as in this Article provided and which at all reasonable times shall be open for inspection by the Trustee. The registrar for the purpose of registering Securities and transfer of Securities as herein provided shall be appointed as authorized by Board Resolution or Supplemental Indenture (the "Security Registrar").

Upon surrender for transfer of any Security at the office or agency of the Company designated for such purpose, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in the name of the transferee or transferees a new Security or Securities of the same series as the Security presented for a like aggregate principal amount.

All Securities presented or surrendered for exchange or registration of transfer, as provided in this Section, shall be accompanied (if so required by the Company or the Security Registrar) by a written instrument or instruments of transfer, in form satisfactory to the Company or the Security Registrar, duly executed by the registered holder or by such holder's duly authorized attorney in writing.

The Company initially appoints the Trustee as initial Security Registrar for each series of Securities.

(c) Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental to this Indenture, no service charge shall be made for any exchange or registration of transfer of Securities, or issue of new Securities in case of partial redemption of any series or repurchase, conversion or exchange of less than the entire principal amount of a Security, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, other than exchanges pursuant to Section 2.06, Section 3.03(b) and Section 9.04 not involving any transfer.

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(d) The Company and the Security Registrar shall not be required (i) to issue, exchange or register the transfer of any Securities during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of less than all the Outstanding Securities of the same series and ending at the close of business on the day of such mailing, nor (ii) to register the transfer of or exchange any Securities of any series or portions thereof called for redemption or surrendered for repurchase, but not validly withdrawn, other than the unredeemed portion of any such Securities being redeemed in part or not surrendered for repurchase, as the case may be. The provisions of this Section 2.05 are, with respect to any Global Security, subject to Section 2.11 hereof.

The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Security (including any transfers between or among depositary participants or beneficial owners of interests in any Global Security) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance as to form with the express requirements hereof.

Section 2.06 Temporary Securities.

Pending the preparation of definitive Securities of any series, the Company may execute, and the Trustee shall authenticate and deliver, temporary Securities (printed, lithographed or typewritten) of any authorized denomination. Such temporary Securities shall be substantially in the form of the definitive Securities in lieu of which they are issued, but with such omissions, insertions and variations as may be appropriate for temporary Securities, all as may be determined by the Company. Every temporary Security of any series shall be executed by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities of such series. Without unnecessary delay the Company will execute and will furnish definitive Securities of such series and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor (without charge to the holders), at the office or agency of the Company designated for the purpose, and the Trustee shall authenticate and such office or agency shall deliver in exchange for such temporary Securities an equal aggregate principal amount of definitive Securities of such series, unless the Company advises the Trustee to the effect that definitive Securities need not be executed and furnished until further notice from the Company. Until so exchanged, the temporary Securities of such series shall be entitled to the same benefits under this Indenture as definitive Securities of such series authenticated and delivered hereunder.

Section 2.07 Mutilated, Destroyed, Lost or Stolen Securities.

In case any temporary or definitive Security shall become mutilated or be destroyed, lost or stolen, the Company (subject to the next succeeding sentence) shall execute, and upon the Company's request the Trustee (subject as aforesaid) shall authenticate and deliver, a new Security of the same series, bearing a number not contemporaneously outstanding, in exchange and substitution for the mutilated Security, or in lieu of and in substitution for the Security so destroyed, lost or stolen. In every case the applicant for a substituted Security shall furnish to the Company and the Trustee such security or indemnity as may be required by them to save each of them harmless, and, in every case of destruction, loss or theft, the applicant shall also furnish to the Company and the Trustee evidence to their satisfaction of the destruction, loss or theft of the applicant's Security and of the ownership thereof. The Trustee may authenticate any such substituted Security and deliver the same upon the written request or authorization of any officer of the Company. Upon the issuance of any substituted Security, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

In case any Security that has matured or is about to mature shall become mutilated or be destroyed, lost or stolen, the Company may, instead of issuing a substitute Security, pay or authorize the payment of the same (without surrender thereof except in the case of a mutilated Security) if the applicant for such payment shall furnish to the Company and the Trustee such security or indemnity as they may require to save them harmless, and, in case of destruction, loss or theft, evidence to the satisfaction of the Company and the Trustee of the destruction, loss or theft of such Security and of the ownership thereof.

Every replacement Security issued pursuant to the provisions of this Section shall constitute an additional contractual obligation of the Company whether or not the mutilated, destroyed, lost or stolen Security shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of the same series duly issued hereunder. All Securities shall be held and owned upon the express condition that the foregoing provisions are exclusive with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities, and shall preclude (to the extent lawful) any and all other rights or remedies, notwithstanding any law or statute existing or hereafter enacted to the contrary with respect to the replacement or payment of negotiable instruments or other securities without their surrender.

Section 2.08 Cancellation.

All Securities surrendered for the purpose of payment, redemption, repurchase, exchange, registration of transfer or conversion shall, if surrendered to the Company or any paying agent (or any other applicable agent), be delivered to the Trustee for cancellation, or, if surrendered to the Trustee, shall be cancelled by it, and no Securities shall be issued in lieu thereof except as expressly required or permitted by any of the provisions of this Indenture. On request of the Company at the time of such surrender, the Trustee shall deliver to the Company canceled Securities held by the Trustee. In the absence of such request the Trustee may dispose of canceled Securities in accordance with its standard procedures and deliver a certificate of disposition to the Company. If the Company shall otherwise acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation.

Section 2.09 Benefits of Indenture.

Nothing in this Indenture or in the Securities, express or implied, shall give or be construed to give to any Person, other than the parties hereto and the holders of the Securities (and, with respect to the provisions of Article 14, the holders of any indebtedness of the Company to which the Securities of any series are subordinated) any legal or equitable right, remedy or claim under or in respect of this Indenture, or under any covenant, condition or provision herein contained; all such covenants, conditions and provisions being for the sole benefit of the parties hereto and of the holders of the Securities (and, with respect to the provisions of Article 14, the holders of any indebtedness of the Company to which the Securities of any series are subordinated).

Section 2.10 Authenticating Agent

So long as any of the Securities of any series remain Outstanding there may be an Authenticating Agent for any or all such series of Securities which the Trustee shall have the right to appoint. Said Authenticating Agent shall be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon exchange, transfer or partial redemption, repurchase or conversion thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. All references in this Indenture to the authentication of Securities by the Trustee shall be deemed to include authentication by an Authenticating Agent for such series. Each Authenticating Agent shall be acceptable to the Company and shall be a corporation that has a combined capital and surplus, as most recently reported or determined by it, sufficient under the laws of any jurisdiction under which it is organized or in which it is doing business to conduct a trust business, and that is otherwise authorized under such laws to conduct such business and is subject to supervision or examination by federal or state authorities. If at any time any Authenticating Agent shall cease to be eligible in accordance with these provisions, it shall resign immediately.

Any Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time (and upon request by the Company shall) terminate the agency of any Authenticating Agent by giving written notice of termination to such Authenticating Agent and to the Company. Upon resignation, termination or cessation of eligibility of any Authenticating Agent, the Trustee may appoint an eligible successor Authenticating Agent acceptable to the Company.

Section 2.11 Global Securities.

(a) If the Company shall establish pursuant to Section 2.01 that the Securities of a particular series are to be issued as a Global Security, then the Company shall execute and the Trustee shall, in accordance with Section 2.04, authenticate and deliver, a Global Security that (i) shall represent, and shall be denominated in an amount equal to the aggregate principal amount of, all of the Outstanding Securities of such series, (ii) shall be registered in the name of the Depository or its nominee, (iii) shall be delivered by the Trustee to the Depository or pursuant to the Depository's instruction (or if the Depository names the Trustee as its custodian, retained by the Trustee), and (iv) shall bear a legend substantially to the following effect: "Except as otherwise provided in Section 2.11 of the Indenture, this Security may be transferred, in whole but not in part, only to another nominee of the Depository or to a successor Depository or to a nominee of such successor Depository."

(b) Notwithstanding the provisions of Section 2.05, the Global Security of a series may be transferred, in whole but not in part and in the manner provided in Section 2.05, only to another nominee of the Depository for such series, or to a successor Depository for such series selected or approved by the Company or to a nominee of such successor Depository.

(c) If at any time the Depository for a series of the Securities notifies the Company that it is unwilling or unable to continue as Depository for such series or if at any time the Depository for such series shall no longer be registered or in good standing under the Exchange Act, or other applicable statute or regulation, and a successor Depository for such series is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such condition, as the case may be, or if an Event of Default has occurred and is continuing and the Company has received a request from the Depository or from the Trustee, this Section 2.11 shall no longer be applicable to the Securities of such series and the Company will execute, and subject to Section 2.04, the Trustee will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. In addition, the Company may at any time determine that the Securities of any series shall no longer be represented by a Global Security and that the provisions of this Section 2.11 shall no longer apply to the Securities of such series. In such event the Company will execute and, subject to Section 2.04, the Trustee, upon receipt of an Officer's Certificate evidencing such determination by the Company, will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. Upon the exchange of the Global Security for such Securities in definitive registered form without coupons, in authorized denominations, the Global Security shall be canceled by the Trustee. Such Securities in definitive registered form issued in exchange for the Global Security pursuant to this Section 2.11(c) shall be registered in such names and in such authorized denominations as the Depository, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver such Securities to the Depository for delivery to the Persons in whose names such Securities are so registered.

Section 2.12 CUSIP Numbers.

The Company in issuing the Securities may use "CUSIP" numbers (if then generally in use), and, if so, the Trustee shall use "CUSIP" numbers in notices of redemption as a convenience to Holders; provided that any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Securities or as contained in any notice of a redemption and that reliance may be placed only on the other elements of identification printed on the Securities, and any such redemption shall not be affected by any defect in or omission of such numbers. The Company will promptly notify the Trustee of any change in the "CUSIP" numbers.

ARTICLE 3

REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS

Section 3.01 Redemption.

The Company may redeem the Securities of any series issued hereunder on and after the dates and in accordance with the terms established for such series pursuant to Section 2.01 hereof.

Section 3.02 Notice of Redemption.

(a) In case the Company shall desire to exercise such right to redeem all or, as the case may be, a portion of the Securities of any series in accordance with any right the Company reserved for itself to do so pursuant to Section 2.01 hereof, the Company shall, or shall cause the Trustee to, give notice of such redemption to holders of the Securities of such series to be redeemed by mailing, first class postage prepaid (or with regard to any Global Security held in book entry form, by electronic mail in accordance with the applicable procedures of the Depository), a notice of such redemption not less than 30 days and not more than 90 days before the date fixed for redemption of that series to such holders at their last addresses as they shall appear upon the Security Register, unless a shorter period is specified in the Securities to be redeemed. Any notice that is mailed in the manner herein provided shall be conclusively presumed to have been duly given, whether or not the registered holder receives the notice. In any case, failure duly to give such notice to the holder of any Security of any series designated for redemption in whole or in part, or any defect in the notice, shall not affect the validity of the proceedings for the redemption of any other Securities of such series or any other series. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officer's Certificate evidencing compliance with any such restriction.

Each such notice of redemption shall identify the Securities to be redeemed (including CUSIP numbers, if any), specify the date fixed for redemption and the redemption price at which Securities of that series are to be redeemed, and shall state that payment of the redemption price of such Securities to be redeemed will be made at the office or agency of the Company, upon presentation and surrender of such Securities, that interest accrued to the date fixed for redemption will be paid as specified in said notice, that from and after said date interest will cease to accrue and that the redemption is from a sinking fund, if such is the case. If less than all the Securities of a series are to be redeemed, the notice to the holders of Securities of that series to be redeemed in part shall specify the particular Securities to be so redeemed.

In case any Security is to be redeemed in part only, the notice that relates to such Security shall state the portion of the principal amount thereof to be redeemed, and shall state that on and after the redemption date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the unredeemed portion thereof will be issued.

(b) If less than all the Securities of a series are to be redeemed, the Company shall give the Trustee at least 45 days' notice (unless a shorter notice shall be satisfactory to the Trustee) in advance of the date fixed for redemption as to the aggregate principal amount of Securities of the series to be redeemed, and thereupon the Trustee shall select, by lot or in such other manner as it shall deem appropriate and fair in its discretion and that may provide for the selection of a portion or portions (equal to one thousand U.S. dollars (\$1,000) or any integral multiple thereof) of the principal amount of such Securities of a denomination larger than \$1,000, the Securities to be redeemed and shall thereafter promptly notify the Company in writing of the numbers of the Securities to be redeemed, in whole or in part. The Company may, if and whenever it shall so elect, by delivery of instructions signed on its behalf by an Officer, instruct the Trustee or any paying agent to call all or any part of the Securities of a particular series for redemption and to give notice of redemption in the manner set forth in this Section, such notice to be in the name of the Company or its own name as the Trustee or such paying agent may deem

advisable. In any case in which notice of redemption is to be given by the Trustee or any such paying agent, the Company shall deliver or cause to be delivered to, or permit to remain with, the Trustee or such paying agent, as the case may be, such Security Register, transfer books or other records, or suitable copies or extracts therefrom, sufficient to enable the Trustee or such paying agent to give any notice by mail that may be required under the provisions of this Section.

Section 3.03 Payment Upon Redemption.

(a) If the giving of notice of redemption shall have been completed as above provided, the Securities or portions of Securities of the series to be redeemed specified in such notice shall become due and payable on the date and at the place stated in such notice at the applicable redemption price, together with interest accrued to, but excluding, the date fixed for redemption and interest on such Securities or portions of Securities shall cease to accrue on and after the date fixed for redemption, unless the Company shall default in the payment of such redemption price and accrued interest with respect to any such Security or portion thereof. On presentation and surrender of such Securities on or after the date fixed for redemption at the place of payment specified in the notice, said Securities shall be paid and redeemed at the applicable redemption price for such series, together with interest accrued thereon to, but excluding, the date fixed for redemption (but if the date fixed for redemption is an Interest Payment Date, the interest installment payable on such date shall be payable to the registered holder at the close of business on the applicable record date pursuant to Section 2.03).

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(b) Upon presentation of any Security of such series that is to be redeemed in part only, the Company shall execute and the Trustee shall authenticate and the office or agency where the Security is presented shall deliver to the holder thereof, at the expense of the Company, a new Security of the same series of authorized denominations in principal amount equal to the unredeemed portion of the Security so presented.

Section 3.04 Sinking Fund.

The provisions of Sections 3.04, 3.05 and 3.06 shall be applicable to any sinking fund for the retirement of Securities of a series, except as otherwise specified as contemplated by Section 2.01 for Securities of such series.

The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a "mandatory sinking fund payment," and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an "optional sinking fund payment". If provided for by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 3.05. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

Section 3.05 Satisfaction of Sinking Fund Payments with Securities.

The Company (i) may deliver Outstanding Securities of a series and (ii) may apply as a credit Securities of a series that have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the redemption price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment shall be reduced accordingly.

Section 3.06 Redemption of Securities for Sinking Fund.

Not less than 45 days prior to each sinking fund payment date for any series of Securities (unless a shorter period shall be satisfactory to the Trustee), the Company will deliver to the Trustee an Officer's Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of the series, the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 3.05 and the basis for such credit and will, together with such Officer's Certificate, deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.02 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.02. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Section 3.03.

ARTICLE 4

COVENANTS

Section 4.01 Payment of Principal, Premium and Interest

The Company will duly and punctually pay or cause to be paid the principal of (and premium, if any) and interest on the Securities of that series at the time and place and in the manner provided herein and established with respect to such Securities. Payments of principal on the Securities may be made at the time provided herein and established with respect to such Securities by U.S. dollar check drawn on and mailed to the address of the Securityholder entitled thereto as such address shall appear in the Security Register, or U.S. dollar wire transfer to, a U.S. dollar account if such Securityholder shall have furnished wire instructions to the Trustee no later than 15 days prior to the relevant payment date. Payments of interest on the Securities may be made at the time provided herein and established with respect to such Securities by U.S. dollar check mailed to the address of the Securityholder entitled thereto as such address shall appear in the Security Register, or U.S. dollar wire transfer to, a U.S. dollar account if such Securityholder shall have furnished wire instructions in writing to the Security Registrar and the Trustee no later than 15 days prior to the relevant payment date.

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Section 4.02 Maintenance of Office or Agency.

So long as any series of the Securities remain Outstanding, the Company agrees to maintain an office or agency with respect to each such series and at such other location or locations as may be designated as provided in this Section 4.02, where (i) Securities of that series may be presented for payment, (ii) Securities of that series may be presented as herein above authorized for registration of transfer and exchange, and (iii) notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be given or served, such designation to continue with respect to such office or agency until the Company shall, by written notice signed by any officer authorized to sign an Officer's Certificate and delivered to the Trustee, designate some other office or agency for such purposes or any of them. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, notices and demands. The Company initially appoints the Corporate Trust Office of the Trustee as its paying agent with respect to the Securities.

Section 4.03 Paying Agents

(a) If the Company shall appoint one or more paying agents for all or any series of the Securities, other than the Trustee, the Company will cause each such paying agent to execute and deliver to the Trustee an instrument in which such agent shall agree with the Trustee, subject to the provisions of this Section:

(1) that it will hold all sums held by it as such agent for the payment of the principal of (and premium, if any) or interest on the Securities of that series (whether such sums have been paid to it by the Company or by any other obligor of such Securities) in trust for the benefit of the Persons entitled thereto;

(2) that it will give the Trustee notice of any failure by the Company (or by any other obligor of such Securities) to make any payment of the principal of (and premium, if any) or interest on the Securities of that series when the same shall be due and payable;

(3) that it will, at any time during the continuance of any failure referred to in the preceding paragraph (a)(2) above, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such paying agent; and

(4) that it will perform all other duties of paying agent as set forth in this Indenture.

(b) If the Company shall act as its own paying agent with respect to any series of the Securities, it will on or before each due date of the principal of (and premium, if any) or interest on Securities of that series, set aside, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay such principal (and premium, if any) or interest so becoming due on Securities of that series until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of such action, or any failure (by it or any other obligor on such Securities) to take such action. Whenever the Company shall have one or more paying agents for any series of Securities, it will, prior to each due date of the principal of (and premium, if any) or interest on any Securities of that series, deposit with the paying agent a sum sufficient to pay the principal (and premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such paying agent is the Trustee) the Company will promptly notify the Trustee of this action or failure so to act.

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(c) Notwithstanding anything in this Section to the contrary, (i) the agreement to hold sums in trust as provided in this Section is subject to the provisions of Section 11.05, and (ii) the Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or direct any paying agent to pay, to the Trustee all sums held in trust by the Company or such paying agent, such sums to be held by the Trustee upon the same terms and conditions as those upon which such sums were held by the Company or such paying agent; and, upon such payment by the Company or any paying agent to the Trustee, the Company or such paying agent shall be released from all further liability with respect to such money.

Section 4.04 Appointment to Fill Vacancy in Office of Trustee.

The Company, whenever necessary to avoid or fill a vacancy in the office of Trustee, will appoint, in the manner provided in Section 7.10, a Trustee, so that there shall at all times be a Trustee hereunder.

ARTICLE 5

SECURITYHOLDERS' LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE

Section 5.01 Company to Furnish Trustee Names and Addresses of Securityholders

The Company will furnish or cause to be furnished to the Trustee (a) within 15 days after each regular record date (as defined in Section 2.03) a list, in such form as the Trustee may reasonably require, of the names and addresses of the holders of each series of Securities as of such regular record date, provided that the Company shall not be obligated to furnish or cause to furnish such list at any time that the list shall not differ in any respect from the most recent list furnished to the Trustee by the Company and (b) at such other times as the Trustee may request in writing within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished; provided, however, that, in either case, no such list need be furnished for any series for which the Trustee shall be the Security Registrar.

Section 5.02 Preservation of Information; Communications With Securityholders

(a) The Trustee shall preserve, in as current a form as is reasonably practicable, all information as to the names and addresses of the holders of Securities contained in the most recent list furnished to it as provided in Section 5.01 and as to the names and addresses of holders of Securities received by the Trustee in its capacity as Security Registrar (if acting in such capacity).

(b) The Trustee may destroy any list furnished to it as provided in Section 5.01 upon receipt of a new list so furnished.

(c) Securityholders may communicate as provided in Section 312(b) of the Trust Indenture Act with other Securityholders with respect to their rights under this Indenture or under the Securities, and, in connection with any such communications, the Trustee shall satisfy its obligations under Section 312(b) of the Trust Indenture Act in accordance with the provisions of Section 312(b) of the Trust Indenture Act.

Section 5.03 Reports by the Company.

(a) The Company will at all times comply with Section 314(a) of the Trust Indenture Act. The Company covenants and agrees to provide (which delivery may be via electronic mail) to the Trustee within 30 days, after the Company files the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations prescribe) that the Company is required to file with the Commission pursuant to Section 13 or Section 15(d) of the Exchange Act; provided, however, the Company shall not be required to deliver to the Trustee any correspondence filed with the Commission or any materials for which the Company has sought and received confidential treatment by the Commission; and provided further, that so long as such filings by the Company are available on the Commission's Electronic Data Gathering, Analysis and Retrieval System (EDGAR), or any successor system, such filings shall be deemed to have been filed with the Trustee for purposes hereof without any further action required by the Company. For the avoidance of doubt, a failure by the Company to file annual reports, information and other reports with the Commission within the time period prescribed thereof by the Commission shall not be deemed a breach of this Section 5.03.

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(b) Delivery of reports, information and documents to the Trustee under Section 5.03 is for informational purposes only and the information and the Trustee's receipt of the foregoing shall not constitute constructive notice of any information contained therein, or determinable from information contained therein including the Company's compliance with any of their covenants thereunder (as to which the Trustee is entitled to rely exclusively on an Officer's Certificate). The Trustee is under no duty to examine any such reports, information or documents delivered to the Trustee or filed with the Commission via EDGAR to ensure compliance with the provision of this Indenture or to ascertain the correctness or otherwise of the information or the statements contained therein. The Trustee shall have no responsibility or duty whatsoever to ascertain or determine whether the above referenced filings with the Commission on EDGAR (or any successor system) has occurred.

Section 5.04 Reports by the Trustee.

(a) If required by Section 313(a) of the Trust Indenture Act, the Trustee, within sixty (60) days after each May 1, shall transmit by mail, first class postage prepaid, to the

Securityholders, as their names and addresses appear upon the Security Register, a brief report dated as of such May 1, which complies with Section 313(a) of the Trust Indenture Act.

(b) The Trustee shall comply with Section 313(b) and 313(c) of the Trust Indenture Act.

(c) A copy of each such report shall, at the time of such transmission to Securityholders, be filed by the Trustee with the Company, with each securities exchange upon which any Securities are listed (if so listed) and also with the Commission. The Company agrees to notify the Trustee when any Securities become listed on any securities exchange.

ARTICLE 6

REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT

Section 6.01 Events of Default.

(a) Whenever used herein with respect to Securities of a particular series, "Event of Default" means any one or more of the following events that has occurred and is continuing:

(1) the Company defaults in the payment of any installment of interest upon any of the Securities of that series, as and when the same shall become due and payable, and such default continues for a period of 90 days; provided, however, that a valid extension of an interest payment period by the Company in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of interest for this purpose;

(2) the Company defaults in the payment of the principal of (or premium, if any, on) any of the Securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such Securities in accordance with the terms of any indenture supplemental hereto shall not constitute a default in the payment of principal or premium, if any;

(3) the Company fails to observe or perform any other of its covenants or agreements with respect to that series contained in this Indenture or otherwise established with respect to that series of Securities pursuant to Section 2.01 hereof (other than a covenant or agreement that has been expressly included in this Indenture solely for the benefit of one or more series of Securities other than such series) for a period of 90 days after the date on which written notice of such failure, requiring the same to be remedied and stating that such notice is a "Notice of Default" hereunder, shall have been given to the Company by the Trustee, by registered or certified mail, or to the Company and the Trustee by the holders of at least 25% in principal amount of the Securities of that series at the time Outstanding;

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(4) the Company pursuant to or within the meaning of any Bankruptcy Law (i) commences a voluntary case, (ii) consents to the entry of an order for relief against it in an involuntary case, (iii) consents to the appointment of a Custodian of it or for all or substantially all of its property or (iv) makes a general assignment for the benefit of its creditors; or

(5) a court of competent jurisdiction enters an order under any Bankruptcy Law that (i) is for relief against the Company in an involuntary case, (ii) appoints a Custodian of the Company for all or substantially all of its property or (iii) orders the liquidation of the Company, and the order or decree remains unstayed and in effect for 90 days.

(b) In each and every such case (other than an Event of Default specified in clause (4) or clause (5) above), unless the principal of all the Securities of that series shall have already become due and payable, either the Trustee or the holders of not less than 25% in aggregate principal amount of the Securities of that series then Outstanding hereunder, by notice in writing to the Company (and to the Trustee if given by such Securityholders), may declare the principal of (and premium, if any, on) and accrued and unpaid interest on all the Securities of that series to be due and payable immediately, and upon any such declaration the same shall become and shall be immediately due and payable. If an Event of Default specified in clause (4) or clause (5) above occurs, the principal of and accrued and unpaid interest on all the Securities of that series shall automatically be immediately due and payable without any declaration or other act on the part of the Trustee or the holders of the Securities.

(c) At any time after the principal of (and premium, if any, on) and accrued and unpaid interest on the Securities of that series shall have been so declared due and payable, and before any judgment or decree for the payment of the moneys due shall have been obtained or entered as hereinafter provided, the holders of a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder, by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if: (i) the Company has paid or deposited with the Trustee a sum sufficient to pay all matured installments of interest upon all the Securities of that series and the principal of (and premium, if any, on) any and all Securities of that series that shall have become due otherwise than by acceleration (with interest upon such principal and premium, if any, and, to the extent that such payment is enforceable under applicable law, upon overdue installments of interest, at the rate per annum expressed in the Securities of that series to the date of such payment or deposit) and the amount payable to the Trustee under Section 7.06, and (ii) any and all Events of Default under the Indenture with respect to such series, other than the nonpayment of principal on (and premium, if any, on) and accrued and unpaid interest on Securities of that series that shall not have become due by their terms, shall have been remedied or waived as provided in Section 6.06.

No such rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.

(d) In case the Trustee shall have proceeded to enforce any right with respect to Securities of that series under this Indenture and such proceedings shall have been discontinued or abandoned because of such rescission or annulment or for any other reason or shall have been determined adversely to the Trustee, then and in every such case, subject to any determination in such proceedings, the Company and the Trustee shall be restored respectively to their former positions and rights hereunder, and all rights, remedies and powers of the Company and the Trustee shall continue as though no such proceedings had been taken.

Section 6.02 Collection of Indebtedness and Suits for Enforcement by Trustee

(a) The Company covenants that (i) in case it shall default in the payment of any installment of interest on any of the Securities of a series, or in any payment required by any sinking or analogous fund established with respect to that series as and when the same shall have become due and payable, and such default shall have continued for a period of 90 days, or (ii) in case it shall default in the payment of the principal of (or premium, if any, on) any of the Securities of a series when the same shall have become due and payable, whether upon maturity of the Securities of a series or upon redemption or upon declaration or otherwise then, upon demand of the Trustee, the Company will pay to the Trustee, for the benefit of the holders of the Securities of that series, the whole amount that then shall have become due and payable on all such Securities for principal (and premium, if any) or interest, or both, as the case may be, with interest upon the overdue principal (and premium, if any) and (to the extent that payment of such interest is enforceable under applicable law) upon overdue installments of interest at the rate per annum expressed in the Securities of that series; and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, and the amount payable to the Trustee under Section 7.06.

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(b) If the Company shall fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, shall be entitled and empowered to institute any action or proceedings at law or in equity for the collection of the sums so due and unpaid, and may prosecute any such action or proceeding to judgment or final decree, and may enforce any such judgment or final decree against the Company or other obligor upon the Securities of that series and collect the moneys adjudged or decreed to be payable in the manner provided by law or equity out of the property of the Company or other obligor upon the Securities of that series, wherever situated.

(c) In case of any receivership, insolvency, liquidation, bankruptcy, reorganization, readjustment, arrangement, composition or judicial proceedings affecting the Company, or its creditors or property, the Trustee shall have power to intervene in such proceedings and take any action therein that may be permitted by the court and shall (except as may be otherwise provided by law) be entitled to file such proofs of claim and other papers and documents as may be necessary or advisable in order to have the claims of the Trustee and of the holders of Securities of such series allowed for the entire amount due and payable by the Company under the Indenture at the date of institution of such proceedings and for any additional amount that may become due and payable by the Company after such date, and to collect and receive any moneys or other property payable or deliverable on any such claim, and to distribute the same after the deduction of the amount payable to the Trustee under Section 7.06; and any receiver, assignee or trustee in bankruptcy or reorganization is hereby authorized by each of the holders of Securities of such series to make such payments to the Trustee, and, in the event that the Trustee shall consent to the making of such payments directly to such Securityholders, to pay to the Trustee any amount due it under Section 7.06.

(d) All rights of action and of asserting claims under this Indenture, or under any of the terms established with respect to Securities of that series, may be enforced by the Trustee without the possession of any of such Securities, or the production thereof at any trial or other proceeding relative thereto, and any such suit or proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for payment to the Trustee of any amounts due under Section 7.06, be for the ratable benefit of the holders of the Securities of such series.

In case of an Event of Default hereunder, the Trustee may in its discretion proceed to protect and enforce the rights vested in it by this Indenture by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any of such rights, either at law or in equity or in bankruptcy or otherwise, whether for the specific enforcement of any covenant or agreement contained in the Indenture or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Trustee by this Indenture or by law.

Nothing contained herein shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Securityholder any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any holder thereof or to authorize the Trustee to vote in respect of the claim of any Securityholder in any such proceeding.

Section 6.03 Application of Moneys Collected

Any moneys collected by the Trustee pursuant to this Article with respect to a particular series of Securities shall, subject to the subordination provisions hereof and with respect to the Securities, be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such moneys on account of principal (or premium, if any) or interest, upon presentation of the Securities of that series, and notation thereon of the payment, if only partially paid, and upon surrender thereof if fully paid:

FIRST: To the payment of costs and expenses of collection and of all amounts payable to the Trustee under Section 7.06;

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SECOND: To the payment of the amounts then due and unpaid upon Securities of such series for principal (and premium, if any) and interest, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively; and

THIRD: To the payment of the remainder, if any, to the Company or any other Person lawfully entitled thereto.

Section 6.04 Limitation on Suits

No holder of any Security of any series shall have any right by virtue or by availing of any provision of this Indenture or any Security to institute any suit, action or proceeding in equity or at law upon or under or with respect to this Indenture or any Security or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless (i) such holder previously shall have given to the Trustee written notice of an Event of Default and of the continuance thereof with respect to the Securities of such series specifying such Event of Default, as hereinbefore provided; (ii) the holders of not less than 25% in aggregate principal amount of the Securities of such series then Outstanding shall have made written request upon the Trustee to institute such action, suit or proceeding in its own name as Trustee hereunder; (iii) such holder or holders shall have offered to the Trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred in compliance with such request; (iv) the Trustee for 90 days after its receipt of such notice, request and offer of indemnity, shall have failed to institute any such action, suit or proceeding and (v) during such 90 day period, the holders of a majority in principal amount of the Securities of that series do not give the Trustee a direction inconsistent with the request.

Notwithstanding anything contained herein to the contrary or any other provisions of this Indenture, the right of any holder of any Security to receive payment of the principal of (and premium, if any) and interest on such Security, as therein provided, on or after the respective due dates expressed in such Security (or in the case of redemption, on the redemption date), or to institute suit for the enforcement of any such payment on or after such respective dates or redemption date, shall not be impaired or affected without the consent of such holder and by accepting a Security hereunder it is expressly understood, intended and covenanted by the taker and holder of every Security of such series with every other such taker and holder and the Trustee, that no one or more holders of Securities of such series shall have any right in any manner whatsoever by virtue or by availing of any provision of this Indenture to affect, disturb or prejudice the rights of the holders of any other of such Securities, or to obtain or seek to obtain priority over or preference to any other such holder, or to enforce any right under this Indenture, except in the manner herein provided and for the equal, ratable and common benefit of all holders of Securities of such series. For the protection and enforcement of the provisions of this Section, each and every Securityholder and the Trustee shall be entitled to such relief as can be given either at law or in equity.

Section 6.05 Rights and Remedies Cumulative; Delay or Omission Not Waiver

(a) Except as otherwise provided in Section 2.07, all powers and remedies given by this Article to the Trustee or to the Securityholders shall, to the extent permitted by law, be deemed cumulative and not exclusive of any other powers and remedies available to the Trustee or the holders of the Securities, by judicial proceedings or otherwise, to enforce the performance or observance of the covenants and agreements contained in this Indenture or otherwise established with respect to such Securities.

(b) No delay or omission of the Trustee or of any holder of any of the Securities to exercise any right or power accruing upon any Event of Default occurring and continuing as aforesaid shall impair any such right or power, or shall be construed to be a waiver of any such default or an acquiescence therein; and, subject to the provisions of Section 6.04, every power and remedy given by this Article or by law to the Trustee or the Securityholders may be exercised from time to time, and as often as shall be deemed expedient, by the Trustee or by the Securityholders.

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Section 6.06 Control by Securityholders

The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding, determined in accordance with Section 8.04, shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee with respect to such series; provided, however, that such direction shall not be in conflict with any rule of law or with this Indenture or subject the Trustee in its sole discretion to personal liability. Subject to the provisions of Section 7.01, the Trustee shall have the right to decline to follow any such direction if the Trustee in good faith shall, by a Responsible Officer or officers of the Trustee, determine that the proceeding so directed, subject to the Trustee's duties under the Trust Indenture Act, would involve the Trustee in personal

liability or might be unduly prejudicial to the Securityholders not involved in the proceeding. The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding affected thereby, determined in accordance with Section 8.04, may on behalf of the holders of all of the Securities of such series waive any past default in the performance of any of the covenants contained herein or established pursuant to Section 2.01 with respect to such series and its consequences, except a default in the payment of the principal of, or premium, if any, or interest on, any of the Securities of that series as and when the same shall become due by the terms of such Securities otherwise than by acceleration (unless such default has been cured and a sum sufficient to pay all matured installments of interest and principal and any premium has been deposited with the Trustee (in accordance with Section 6.01(c)). Upon any such waiver, the default covered thereby shall be deemed to be cured for all purposes of this Indenture and the Company, the Trustee and the holders of the Securities of such series shall be restored to their former positions and rights hereunder, respectively; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

Section 6.07 Undertaking to Pay Costs.

All parties to this Indenture agree, and each holder of any Securities by such holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees and expenses, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Securityholder, or group of Securityholders, holding more than 10% in aggregate principal amount of the Outstanding Securities of any series, or to any suit instituted by any Securityholder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security of such series, on or after the respective due dates expressed in such Security or established pursuant to this Indenture.

ARTICLE 7

CONCERNING THE TRUSTEE

Section 7.01 Certain Duties and Responsibilities of Trustee.

(a) The Trustee, prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing of all Events of Default with respect to the Securities of that series that may have occurred, shall undertake to perform with respect to the Securities of such series such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants shall be read into this Indenture against the Trustee. In case an Event of Default with respect to the Securities of a series has occurred (that has not been cured or waived), the Trustee shall exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his or her own affairs.

(b) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:

(i) prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing or waiving of all such Events of Default with respect to that series that may have occurred:

(A) the duties and obligations of the Trustee shall with respect to the Securities of such series be determined solely by the express provisions of this Indenture, and the Trustee shall not be liable with respect to the Securities of such series except for the performance of such duties and obligations as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

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(B) in the absence of bad faith on the part of the Trustee, the Trustee may with respect to the Securities of such series conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon any certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions that by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Indenture;

(ii) the Trustee shall not be liable to any Securityholder or to any other Person for any error of judgment made in good faith by a Responsible Officer or Responsible Officers of the Trustee, unless it shall be proved that the Trustee was negligent in ascertaining the pertinent facts;

(iii) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of not less than a majority in principal amount of the Securities of any series at the time Outstanding relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee under this Indenture with respect to the Securities of that series;

(iv) none of the provisions contained in this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur personal financial liability in the performance of any of its duties or in the exercise of any of its rights or powers if there is reasonable ground for believing that the repayment of such funds or liability is not reasonably assured to it under the terms of this Indenture or adequate indemnity against such risk is not reasonably assured to it;

(v) The Trustee shall not be required to give any bond or surety in respect of the performance of its powers or duties hereunder;

(vi) The permissive right of the Trustee to do things enumerated in this Indenture shall not be construed as a duty of the Trustee; and

(vii) No Trustee shall have any duty or responsibility for any act or omission of any other Trustee appointed with respect to a series of Securities hereunder.

Section 7.02 Certain Rights of Trustee.

Except as otherwise provided in Section 7.01:

(a) The Trustee may conclusively rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) Any request, direction, order or demand of the Company mentioned herein shall be sufficiently evidenced by a Board Resolution or an instrument signed in the name of the Company by any authorized officer of the Company (unless other evidence in respect thereof is specifically prescribed herein);

(c) The Trustee may consult with counsel and the opinion or written advice of such counsel or, if requested, any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken or suffered or omitted hereunder in good faith and in reliance thereon;

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(d) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request, order or direction of any of the Securityholders

pursuant to the provisions of this Indenture, unless such Securityholders shall have offered to the Trustee security or indemnity reasonably acceptable to the Trustee against the costs, expenses and liabilities that may be incurred therein or thereby; nothing contained herein shall, however, relieve the Trustee of the obligation, upon the occurrence of an Event of Default with respect to a series of the Securities (that has not been cured or waived), to exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and to use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his or her own affairs;

(e) The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith and believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture;

(f) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security, or other papers or documents or inquire as to the performance by the Company of one of its covenants under this Indenture, unless requested in writing so to do by the holders of not less than a majority in principal amount of the Outstanding Securities of the particular series affected thereby (determined as provided in Section 8.04); provided, however, that if the payment within a reasonable time to the Trustee of the costs, expenses or liabilities likely to be incurred by it in the making of such investigation is, in the opinion of the Trustee, not reasonably assured to the Trustee by the security afforded to it by the terms of this Indenture, the Trustee may require security or indemnity reasonably acceptable to the Trustee against such costs, expenses or liabilities as a condition to so proceeding. The reasonable expense of every such examination shall be paid by the Company or, if paid by the Trustee, shall be repaid by the Company upon demand;

(g) The Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder;

(h) In no event shall the Trustee be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances;

(i) In no event shall the Trustee be responsible or liable for special, indirect, punitive or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee has been advised of the likelihood of such loss or damage and regardless of the form of action; and

(j) The Trustee agrees to accept and act upon instructions or directions pursuant to this Indenture sent by unsecured e-mail, facsimile transmission or other similar unsecured electronic methods; provided, however, that (a) the party providing such written instructions, subsequent to such transmission of written instructions, shall provide the originally executed instructions or directions to the Trustee in a timely manner, and (b) such originally executed instructions or directions shall be signed by an authorized representative of the party providing such instructions or directions. If the party elects to give the Trustee e-mail or facsimile instructions (or instructions by a similar electronic method) and the Trustee in its discretion elects to act upon such instructions, the Trustee's understanding of such instructions shall be deemed controlling. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee's reliance upon and compliance with such instructions notwithstanding such instructions conflict or are inconsistent with a subsequent written instruction. The party providing electronic instructions agrees to assume all risks arising out of the use of such electronic methods to submit instructions and directions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized instructions, and the risk of interception and misuse by third parties. The Trustee may request that the Company deliver an Officer's Certificate setting forth the names of individuals and/or titles of officers authorized at such time to furnish the Trustee with Officer's Certificates, Company Orders and any other matters or directions pursuant to this Indenture.

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(k) The rights, privileges, protections, immunities and benefits given to the Trustee, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee in each of its capacities hereunder.

(l) The Trustee shall not be deemed to have knowledge of any Default or Event of Default (other than an Event of Default relating to the failure to pay the interest on, or the principal of, the Securities) until the Trustee shall have received written notification in the manner set forth in this Indenture or a Responsible Officer of the Trustee shall have obtained actual knowledge.

Section 7.03 Trustee Not Responsible for Recitals or Issuance or Securities

(a) The recitals contained herein and in the Securities shall be taken as the statements of the Company, and the Trustee assumes no responsibility for the correctness of the same. The Trustee shall not be responsible for any statement in any registration statement, prospectus, or any other document in connection with the sale of Securities. The Trustee shall not be responsible for any rating on the Securities or any action or omission of any rating agency.

(b) The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities.

(c) The Trustee shall not be accountable for the use or application by the Company of any of the Securities or of the proceeds of such Securities, or for the use or application of any moneys paid over by the Trustee in accordance with any provision of this Indenture or established pursuant to Section 2.01, or for the use or application of any moneys received by any paying agent other than the Trustee.

Section 7.04 May Hold Securities

The Trustee or any paying agent or Security Registrar, in its individual or any other capacity, may become the owner or pledgee of Securities with the same rights it would have if it were not Trustee, paying agent or Security Registrar.

Section 7.05 Moneys Held in Trust

Subject to the provisions of Section 11.05, all moneys received by the Trustee shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, but need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any moneys received by it hereunder except such as it may agree with the Company to pay thereon.

Section 7.06 Compensation and Reimbursement

(a) The Company shall pay to the Trustee for each of its capacities hereunder from time to time compensation for its services as the Company and the Trustee shall from time to time agree upon in writing. The Trustee's compensation shall not be limited by any law on compensation of a trustee of an express trust. The Company shall reimburse the Trustee upon request for all reasonable out-of-pocket expenses incurred by it. Such expenses shall include the reasonable compensation and expenses of the Trustee's agents and counsel.

(b) The Company shall indemnify each of the Trustee in each of its capacities hereunder against any loss, liability or expense (including the cost of defending itself and including the reasonable compensation and expenses of the Trustee's agents and counsel) incurred by it except as set forth in Section 7.06(c) in the exercise or performance of its powers, rights or duties under this Indenture as Trustee or Agent. The Trustee shall notify the Company promptly of any claim for which it may seek indemnity. The Company shall defend the claim and the Trustee shall cooperate in the defense. The Trustee may have one separate counsel and the Company shall pay the reasonable fees and expenses of such counsel. The Company need not pay for any settlement made without its consent, which consent shall not be unreasonably withheld. This indemnification

(c) The Company need not reimburse any expense or indemnify against any loss or liability incurred by the Trustee or by any officer, director, employee, shareholder or agent of the Trustee through negligence or bad faith.

(d) To ensure the Company's payment obligations in this Section, the Trustee shall have a lien prior to the Securities on all funds or property held or collected by the Trustee, except that held in trust to pay principal of or interest on particular Securities. When the Trustee incurs expenses or renders services in connection with an Event of Default specified in Section 6.01(4) or (5), the expenses (including the reasonable fees and expenses of its counsel) and the compensation for services in connection therewith are to constitute expenses of administration under any bankruptcy law. The provisions of this Section 7.06 shall survive the termination of this Indenture and the resignation or removal of the Trustee.

Section 7.07 Reliance on Officer's Certificate.

Except as otherwise provided in Section 7.01, whenever in the administration of the provisions of this Indenture the Trustee shall deem it reasonably necessary or desirable that a matter be proved or established prior to taking or suffering or omitting to take any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may, in the absence of negligence or bad faith on the part of the Trustee, be deemed to be conclusively proved and established by an Officer's Certificate delivered to the Trustee and such certificate, in the absence of negligence or bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted to be taken by it under the provisions of this Indenture upon the faith thereof.

Section 7.08 Disqualification; Conflicting Interests

If the Trustee has or shall acquire any "conflicting interest" within the meaning of Section 310(b) of the Trust Indenture Act, the Trustee and the Company shall in all respects comply with the provisions of Section 310(b) of the Trust Indenture Act.

Section 7.09 Corporate Trustee Required; Eligibility.

There shall at all times be a Trustee with respect to the Securities issued hereunder which shall at all times be a corporation organized and doing business under the laws of the United States of America or any state or territory thereof or of the District of Columbia, or a corporation or other Person permitted to act as trustee by the Commission, authorized under such laws to exercise corporate trust powers, having a combined capital and surplus of at least fifty million U.S. dollars (\$50,000,000), and subject to supervision or examination by federal, state, territorial, or District of Columbia authority.

If such corporation or other Person publishes reports of condition at least annually, pursuant to law or to the requirements of the aforesaid supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation or other Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. The Company may not, nor may any Person directly or indirectly controlling, controlled by, or under common control with the Company, serve as Trustee. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, the Trustee shall resign immediately in the manner and with the effect specified in Section 7.10.

Section 7.10 Resignation and Removal; Appointment of Successor.

(a) The Trustee or any successor hereafter appointed may at any time resign with respect to the Securities of one or more series by giving written notice thereof to the Company and by transmitting notice of resignation by mail, first class postage prepaid, to the Securityholders of such series, as their names and addresses appear upon the Security Register. Upon receiving such notice of resignation, the Company shall promptly appoint a successor trustee with respect to Securities of such series by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the resigning Trustee and one copy to the successor trustee. If no successor trustee shall have been so appointed and have accepted appointment within 30 days after the mailing of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor trustee with respect to Securities of such series, or any Securityholder of that series who has been a bona fide holder of a Security or Securities for at least six months may on behalf of himself and all others similarly situated, petition any such court for the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, appoint a successor trustee.

(b) In case at any time any one of the following shall occur:

(i) the Trustee shall fail to comply with the provisions of Section 7.08 after written request therefor by the Company or by any Securityholder who has been a bona fide holder of a Security or Securities for at least six months; or

(ii) the Trustee shall cease to be eligible in accordance with the provisions of Section 7.09 and shall fail to resign after written request therefor by the Company or by any such Securityholder; or

(iii) the Trustee shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or commence a voluntary bankruptcy proceeding, or a receiver of the Trustee or of its property shall be appointed or consented to, or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation;

then, in any such case, the Company may remove the Trustee with respect to all Securities and appoint a successor trustee by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the Trustee so removed and one copy to the successor trustee, or any Securityholder who has been a bona fide holder of a Security or Securities for at least six months may, on behalf of that holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, remove the Trustee and appoint a successor trustee.

(c) The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding may at any time remove the Trustee with respect to such series by so notifying the Trustee and the Company and may appoint a successor Trustee for such series with the consent of the Company.

(d) Any resignation or removal of the Trustee and appointment of a successor trustee with respect to the Securities of a series pursuant to any of the provisions of this Section shall become effective upon acceptance of appointment by the successor trustee as provided in Section 7.11.

(e) Any successor trustee appointed pursuant to this Section may be appointed with respect to the Securities of one or more series or all of such series, and at any time there shall be only one Trustee with respect to the Securities of any particular series.

Section 7.11 Acceptance of Appointment by Successor.

(a) In case of the appointment hereunder of a successor trustee with respect to all Securities, every such successor trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor trustee, such retiring Trustee shall, upon payment of any amounts due to it pursuant to the provisions of Section 7.06, execute and deliver an instrument transferring to such successor trustee all the rights, powers, and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor trustee all property and money held by such retiring Trustee hereunder.

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(b) In case of the appointment hereunder of a successor trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor trustee shall accept such appointment and which (i) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates, (ii) shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and (iii) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust, that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee and that no Trustee shall be responsible for any act or failure to act on the part of any other Trustee hereunder; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein, such retiring Trustee shall with respect to the Securities of that or those series to which the appointment of such successor trustee relates have no further responsibility for the exercise of rights and powers or for the performance of the duties and obligations vested in the Trustee under this Indenture, and each such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; but, on request of the Company or any successor trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor trustee, to the extent contemplated by such supplemental indenture, the property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor trustee relates.

(c) Upon request of any such successor trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.

(d) No successor trustee shall accept its appointment unless at the time of such acceptance such successor trustee shall be qualified and eligible under this Article.

(e) Upon acceptance of appointment by a successor trustee as provided in this Section, the Company shall transmit notice of the succession of such trustee hereunder by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register. If the Company fails to transmit such notice within ten days after acceptance of appointment by the successor trustee, the successor trustee shall cause such notice to be transmitted at the expense of the Company.

Section 7.12 Merger, Conversion, Consolidation or Succession to Business

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to all or substantially all the corporate trust business of the Trustee, including the administration of the trust created by this Indenture, shall be the successor of the Trustee hereunder, provided that such corporation shall be qualified under the provisions of Section 7.08 and eligible under the provisions of Section 7.09, without the execution or filing of any paper or any further act on the part of any of the parties hereto, anything herein to the contrary notwithstanding. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

Section 7.13 Preferential Collection of Claims Against the Company

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent included therein.

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Section 7.14 Notice of Default

If any Event of Default occurs and is continuing and if such Event of Default is known to a Responsible Officer of the Trustee, the Trustee shall mail to each Securityholder in the manner and to the extent provided in Section 313(c) of the Trust Indenture Act notice of the Event of Default within the earlier of 90 days after it occurs and 30 days after it is known to a Responsible Officer of the Trustee or written notice of it is received by the Trustee, unless such Event of Default has been cured; *provided, however*, that, except in the case of a default in the payment of the principal of (or premium, if any) or interest on any Security, the Trustee shall be protected in withholding such notice if and so long as the Responsible Officers of the Trustee in good faith determine that the withholding of such notice is in the interest of the Securityholders.

ARTICLE 8

CONCERNING THE SECURITYHOLDERS

Section 8.01 Evidence of Action by Securityholders.

Whenever in this Indenture it is provided that the holders of a majority or specified percentage in aggregate principal amount of the Securities of a particular series may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action), the fact that at the time of taking any such action the holders of such majority or specified percentage of that series have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by such holders of Securities of that series in person or by agent or proxy appointed in writing.

If the Company shall solicit from the Securityholders of any series any request, demand, authorization, direction, notice, consent, waiver or other action, the Company may, at its option, as evidenced by an Officer's Certificate, fix in advance a record date for such series for the determination of Securityholders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other action, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other action may be given before or after the record date, but only the Securityholders of record at the close of business on the record date shall be deemed to be Securityholders for the purposes of determining whether Securityholders of the requisite proportion of Outstanding Securities of that series have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other action, and for that purpose the Outstanding Securities of that series shall be computed as of the record date; provided, however, that no such authorization, agreement or consent by such Securityholders on the record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Indenture not later than six months after the record date.

Section 8.02 Proof of Execution by Securityholders.

Subject to the provisions of Section 7.01, proof of the execution of any instrument by a Securityholder (such proof will not require notarization) or his or her agent or proxy and proof of the holding by any Person of any of the Securities shall be sufficient if made in the following manner:

- (a) The fact and date of the execution by any such Person of any instrument may be proved in any reasonable manner acceptable to the Trustee.
- (b) The ownership of Securities shall be proved by the Security Register of such Securities or by a certificate of the Security Registrar thereof.

The Trustee may require such additional proof of any matter referred to in this Section as it shall deem necessary.

Section 8.03 Who May be Deemed Owners

Prior to the due presentment for registration of transfer of any Security, the Company, the Trustee, any paying agent and any Security Registrar may deem and treat the Person in whose name such Security shall be registered upon the books of the Security Registrar as the absolute owner of such Security (whether or not such Security shall be overdue and notwithstanding any notice of ownership or writing thereon made by anyone other than the Security Registrar) for the purpose of receiving payment of or on account of the principal of, premium, if any, and (subject to Section 2.03) interest on such Security and for all other purposes; and neither the Company nor the Trustee nor any paying agent nor any Security Registrar shall be affected by any notice to the contrary.

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Section 8.04 Certain Securities Owned by Company Disregarded.

In determining whether the holders of the requisite aggregate principal amount of Securities of a particular series have concurred in any direction, consent or waiver under this Indenture, the Securities of that series that are owned by the Company or any other obligor on the Securities of that series or by any Person directly or indirectly controlling or controlled by or under common control with the Company or any other obligor on the Securities of that series shall be disregarded and deemed not to be Outstanding for the purpose of any such determination, except that for the purpose of determining whether the Trustee shall be protected in relying on any such direction, consent or waiver, only Securities of such series that the Trustee actually knows are so owned shall be so disregarded. The Securities so owned that have been pledged in good faith may be regarded as Outstanding for the purposes of this Section, if the pledgee shall establish to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not a Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company or any such other obligor. In case of a dispute as to such right, any decision by the Trustee taken upon the advice of counsel shall be full protection to the Trustee.

Section 8.05 Actions Binding on Future Securityholders

At any time prior to (but not after) the evidencing to the Trustee, as provided in Section 8.01, of the taking of any action by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action, any holder of a Security of that series that is shown by the evidence to be included in the Securities the holders of which have consented to such action may, by filing written notice with the Trustee, and upon proof of holding as provided in Section 8.02, revoke such action so far as concerns such Security. Except as aforesaid any such action taken by the holder of any Security shall be conclusive and binding upon such holder and upon all future holders and owners of such Security, and of any Security issued in exchange therefor, on registration of transfer thereof or in place thereof, irrespective of whether or not any notation in regard thereto is made upon such Security. Any action taken by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action shall be conclusively binding upon the Company, the Trustee and the holders of all the Securities of that series.

ARTICLE 9

SUPPLEMENTAL INDENTURES

Section 9.01 Supplemental Indentures Without the Consent of Securityholders

In addition to any supplemental indenture otherwise authorized by this Indenture, the Company and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect), without the consent of the Securityholders, for one or more of the following purposes:

- (a) to cure any ambiguity, defect, or inconsistency herein or in the Securities of any series;
- (b) to comply with Article 10;
- (c) to provide for uncertificated Securities in addition to or in place of certificated Securities;
- (d) to add to the covenants, restrictions, conditions or provisions relating to the Company for the benefit of the holders of all or any series of Securities (and if such covenants, restrictions, conditions or provisions are to be for the benefit of less than all series of Securities, stating that such covenants, restrictions, conditions or provisions are expressly being included solely for the benefit of such series), to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an Event of Default, or to surrender any right or power herein conferred upon the Company;

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(e) to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of Securities, as herein set forth;

(f) to make any change that does not adversely affect the rights of any Securityholder in any material respect;

(g) to provide for the issuance of and establish the form and terms and conditions of the Securities of any series as provided in Section 2.01, to establish the form of any certifications required to be furnished pursuant to the terms of this Indenture or any series of Securities, or to add to the rights of the holders of any series of Securities;

(h) to evidence and provide for the acceptance of appointment hereunder by a successor trustee; or

(i) to comply with any requirements of the Commission or any successor in connection with the qualification of this Indenture under the Trust Indenture Act.

The Trustee is hereby authorized to join with the Company in the execution of any such supplemental indenture, and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into any such supplemental indenture that affects the Trustee's own rights, duties or immunities under this Indenture or otherwise.

Any supplemental indenture authorized by the provisions of this Section may be executed by the Company and the Trustee without the consent of the holders of any of the Securities at the time Outstanding, notwithstanding any of the provisions of Section 9.02.

Section 9.02 Supplemental Indentures With Consent of Securityholders

Other than as provided in Section 9.01, with the consent (evidenced as provided in Section 8.01) of the holders of not less than a majority in aggregate principal amount of the Securities of each series affected by such supplemental indenture or indentures at the time Outstanding, the Company, when authorized by a Board Resolution, and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall conform to the provisions of the Trust Indenture Act as then in effect) for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of any supplemental indenture or of modifying the rights of the holders of the Securities of such series under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the holders of each Security then Outstanding and affected thereby, (a) extend the fixed maturity of any Securities of any series, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof or (b) reduce the aforesaid percentage of Securities, the holders of which are required to consent to any such supplemental indenture.

It shall not be necessary for the consent of the Securityholders of any series affected thereby under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

Section 9.03 Effect of Supplemental Indentures.

Upon the execution of any supplemental indenture pursuant to the provisions of this Article or of Section 10.01, this Indenture shall, with respect to such series, be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Company and the holders of Securities of the series affected thereby shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modifications and amendments, and all the terms and conditions of any such supplemental indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

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Section 9.04 Securities Affected by Supplemental Indentures.

Securities of any series affected by a supplemental indenture, authenticated and delivered after the execution of such supplemental indenture pursuant to the provisions of this Article or of Section 10.01, may bear a notation in form approved by the Company, provided such form meets the requirements of any securities exchange upon which such series may be listed, as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of that series so modified as to conform, in the opinion of the Board of Directors, to any modification of this Indenture contained in any such supplemental indenture may be prepared by the Company, authenticated by the Trustee and delivered in exchange for the Securities of that series then Outstanding.

Section 9.05 Execution of Supplemental Indentures.

Upon the request of the Company, accompanied by its Board Resolutions authorizing the execution of any such supplemental indenture, and upon the filing with the Trustee of evidence of the consent of Securityholders required to consent thereto as aforesaid, the Trustee shall join with the Company in the execution of such supplemental indenture unless such supplemental indenture affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion but shall not be obligated to enter into such supplemental indenture. The Trustee, subject to the provisions of Section 7.01, shall receive an Officer's Certificate or an Opinion of Counsel as conclusive evidence that any supplemental indenture executed pursuant to this Article is authorized or permitted by the terms of this Article and that all conditions precedent to the execution of the supplemental indenture have been complied with; provided, however, that such Officer's Certificate or Opinion of Counsel need not be provided in connection with the execution of a supplemental indenture that establishes the terms of a series of Securities pursuant to Section 2.01 hereof.

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of this Section, the Company shall (or shall direct the Trustee to) transmit by mail, first class postage prepaid, a notice, setting forth in general terms the substance of such supplemental indenture, to the Securityholders of all series affected thereby as their names and addresses appear upon the Security Register. Any failure of the Company to mail, or cause the mailing of, such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such supplemental indenture.

ARTICLE 10

SUCCESSOR ENTITY

Section 10.01 Company May Consolidate, Etc.

Nothing contained in this Indenture shall prevent any consolidation or merger of the Company with or into any other Person (whether or not affiliated with the Company) or successive consolidations or mergers in which the Company or its successor or successors shall be a party or parties, or shall prevent any sale, conveyance, transfer or other disposition of the property of the Company or its successor or successors as an entirety, or substantially as an entirety, to any other Person (whether or not affiliated with the Company or its successor or successors); provided, however, the Company hereby covenants and agrees that, upon any such consolidation or merger (in each case, if the Company is not the survivor of such transaction) or any such sale, conveyance, transfer or other disposition (other than a sale, conveyance, transfer or other disposition to a Subsidiary of the Company), the due and punctual payment of the principal of (premium, if any) and interest on all of the Securities of all series in accordance with the terms of each series, according to their tenor, and the due and punctual performance and observance of all the covenants and conditions of this Indenture with respect to each series or established with respect to such series pursuant to Section 2.01 to be kept or performed by the Company shall be expressly assumed, by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect) reasonably satisfactory in form to the Trustee executed and delivered to the Trustee by the entity formed by such consolidation, or into which the Company shall have been merged, or by the entity which shall have acquired such property.

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Section 10.02 Successor Entity Substituted.

(a) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition and upon the assumption by the successor entity by supplemental indenture, executed and delivered to the Trustee and satisfactory in form to the Trustee, of the obligations set forth under Section 10.01 on all of the Securities of all series Outstanding, such successor entity shall succeed to and be substituted for the Company with the same effect as if it had been named as the Company herein, and thereupon the predecessor corporation shall be relieved of all obligations and covenants under this Indenture and the Securities.

(b) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition, such changes in phraseology and form (but not in substance) may be made in the Securities thereafter to be issued as may be appropriate.

(c) Nothing contained in this Article shall require any action by the Company in the case of a consolidation or merger of any Person into the Company where the Company is the survivor of such transaction, or the acquisition by the Company, by purchase or otherwise, of all or any part of the property of any other Person (whether or not affiliated

with the Company).

ARTICLE 11

SATISFACTION AND DISCHARGE

Section 11.01 Satisfaction and Discharge of Indenture.

If at any time: (a) the Company shall have delivered to the Trustee for cancellation all Securities of a series theretofore authenticated and not delivered to the Trustee for cancellation (other than any Securities that shall have been destroyed, lost or stolen and that shall have been replaced or paid as provided in Section 2.07 and Securities for whose payment money or Governmental Obligations have theretofore been deposited in trust or segregated and held in trust by the Company and thereupon repaid to the Company or discharged from such trust, as provided in Section 11.05); or (b) all such Securities of a particular series not theretofore delivered to the Trustee for cancellation shall have become due and payable, or are by their terms to become due and payable within one year or are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption, and the Company shall deposit or cause to be deposited with the Trustee as trust funds the entire amount in moneys or Governmental Obligations or a combination thereof, sufficient in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, to pay at maturity or upon redemption all Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder with respect to such series by the Company then this Indenture shall thereupon cease to be of further effect with respect to such series except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03, 7.10, 11.05 and 13.04 that shall survive until the date of maturity or redemption date, as the case may be, and Sections 7.06 and 11.05, that shall survive to such date and thereafter, and the Trustee, on demand of the Company and at the cost and expense of the Company shall execute proper instruments acknowledging satisfaction of and discharging this Indenture with respect to such series.

Section 11.02 Discharge of Obligations.

If at any time all such Securities of a particular series not heretofore delivered to the Trustee for cancellation or that have not become due and payable as described in Section 11.01 shall have been paid by the Company by depositing irrevocably with the Trustee as trust funds moneys or an amount of Governmental Obligations sufficient to pay at maturity or upon redemption all such Securities of that series not theretofore delivered to the Trustee for cancellation, including principal (and premium, if any) and interest due or to become due to such date of maturity or date fixed for redemption, as the case may be, and if the Company shall also pay or cause to be paid all other sums payable hereunder by the Company with respect to such series, then after the date such moneys or Governmental Obligations, as the case may be, are deposited with the Trustee the obligations of the Company under this Indenture with respect to such series shall cease to be of further effect except for the provisions of Sections 2.03, 2.05, 2.07, 4.01, 4.02, 4.03, 7.06, 7.10, 11.05 and 13.04 hereof that shall survive until such Securities shall mature and be paid.

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Thereafter, Sections 7.06 and 11.05 shall survive.

Section 11.03 Deposited Moneys to be Held in Trust

All moneys or Governmental Obligations deposited with the Trustee pursuant to Sections 11.01 or 11.02 shall be held in trust and shall be available for payment as due, either directly or through any paying agent (including the Company acting as its own paying agent), to the holders of the particular series of Securities for the payment or redemption of which such moneys or Governmental Obligations have been deposited with the Trustee.

Section 11.04 Payment of Moneys Held by Paying Agents

In connection with the satisfaction and discharge of this Indenture all moneys or Governmental Obligations then held by any paying agent under the provisions of this Indenture shall, upon demand of the Company, be paid to the Trustee and thereupon such paying agent shall be released from all further liability with respect to such moneys or Governmental Obligations.

Section 11.05 Repayment to Company.

Any moneys or Governmental Obligations deposited with any paying agent or the Trustee, or then held by the Company, in trust for payment of principal of or premium, if any, or interest on the Securities of a particular series that are not applied but remain unclaimed by the holders of such Securities for at least two years after the date upon which the principal of (and premium, if any) or interest on such Securities shall have respectively become due and payable, or such other shorter period set forth in applicable escheat or abandoned or unclaimed property law, shall be repaid to the Company on May 31 of each year or upon the Company's request or (if then held by the Company) shall be discharged from such trust; and thereupon the paying agent and the Trustee shall be released from all further liability with respect to such moneys or Governmental Obligations, and the holder of any of the Securities entitled to receive such payment shall thereafter, as a general creditor, look only to the Company for the payment thereof.

ARTICLE 12

IMMUNITY OF INCORPORATORS, STOCKHOLDERS, OFFICERS AND DIRECTORS

Section 12.01 No Recourse.

No recourse under or upon any obligation, covenant or agreement of this Indenture, or of any Security, or for any claim based thereon or otherwise in respect thereof, shall be had against any incorporator, stockholder, officer or director, past, present or future as such, of the Company or of any predecessor or successor corporation, either directly or through the Company or any such predecessor or successor corporation, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise; it being expressly understood that this Indenture and the obligations issued hereunder are solely corporate obligations, and that no such personal liability whatever shall attach to, or is or shall be incurred by, the incorporators, stockholders, officers or directors as such, of the Company or of any predecessor or successor corporation, or any of them, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom; and that any and all such personal liability of every name and nature, either at common law or in equity or by constitution or statute, of, and any and all such rights and claims against, every such incorporator, stockholder, officer or director as such, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom, are hereby expressly waived and released as a condition of, and as a consideration for, the execution of this Indenture and the issuance of such Securities.

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ARTICLE 13

MISCELLANEOUS PROVISIONS

Section 13.01 Effect on Successors and Assigns

All the covenants, stipulations, promises and agreements in this Indenture made by or on behalf of the Company shall bind its successors and assigns, whether so expressed or not.

Section 13.02 Actions by Successor.

Any act or proceeding by any provision of this Indenture authorized or required to be done or performed by any board, committee or officer of the Company shall and may be done and performed with like force and effect by the corresponding board, committee or officer of any corporation that shall at the time be the lawful successor of the Company.

Section 13.03 Surrender of Company Powers

The Company by instrument in writing executed by authority of its Board of Directors and delivered to the Trustee may surrender any of the powers reserved to the Company, and thereupon such power so surrendered shall terminate both as to the Company and as to any successor corporation.

Section 13.04 Notices.

Except as otherwise expressly provided herein, any notice, request or demand that by any provision of this Indenture is required or permitted to be given, made or served by the Trustee, the Security Registrar, any paying or other agent under this Indenture or by the holders of Securities or by any other Person pursuant to this Indenture to or on the Company may be given or served by being deposited in first class mail, postage prepaid, addressed (until another address is filed in writing by the Company with the Trustee), as follows: 1885 West 2100 South, Salt Lake City, Utah 84119. Any notice, election, request or demand by the Company or any Securityholder or by any other Person pursuant to this Indenture to or upon the Trustee shall be deemed to have been sufficiently given or made, for all purposes, if given or made in writing at the Corporate Trust Office of the Trustee.

Section 13.05 Governing Law; Jury Trial Waiver.

This Indenture and each Security, and any claim, controversy or dispute under or related to this Indenture or any Security, shall be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

EACH PARTY HERETO, AND EACH HOLDER OF A SECURITY BY ACCEPTANCE THEREOF, HEREBY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS INDENTURE.

Section 13.06 Treatment of Securities as Debt

It is intended that the Securities will be treated as indebtedness and not as equity for federal income tax purposes. The provisions of this Indenture shall be interpreted to further this intention.

Section 13.07 Certificates and Opinions as to Conditions Precedent.

(a) Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company shall furnish to the Trustee an Officer's Certificate stating that all conditions precedent provided for in this Indenture (other than the certificate to be delivered pursuant to Section 13.12) relating to the proposed action have been complied with and, if requested, an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.

(b) Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant in this Indenture (other than the certificate to be delivered pursuant to Section 13.12 of this Indenture or Section 314(a)(1) of the Trust Indenture Act) shall include (i) a statement that the Person making such certificate or opinion has read such covenant or condition; (ii) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (iii) a statement that, in the opinion of such Person, he has made such examination or investigation as is reasonably necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and (iv) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been complied with.

Section 13.08 Payments on Business Days

Except as provided pursuant to Section 2.01 pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental to this Indenture, in any case where the date of maturity of interest or principal of any Security or the date of redemption of any Security shall not be a Business Day, then payment of interest or principal (and premium, if any) may be made on the next succeeding Business Day with the same force and effect as if made on the nominal date of maturity or redemption, and no interest shall accrue for the period after such nominal date.

Section 13.09 Conflict with Trust Indenture Act

If and to the extent that any provision of this Indenture limits, qualifies or conflicts with the duties imposed by Sections 310 to 317, inclusive, of the Trust Indenture Act, such imposed duties shall control.

Section 13.10 Counterparts.

This Indenture may be executed in any number of counterparts, each of which shall be an original, but such counterparts shall together constitute but one and the same instrument. The exchange of copies of this Indenture and of signature pages by facsimile or PDF transmission shall constitute effective execution and delivery of this Indenture as to the parties hereto and may be used in lieu of the original Indenture for all purposes. Signatures of the parties hereto transmitted by facsimile or PDF shall be deemed to be their original signatures for all purposes.

Section 13.11 Separability.

In case any one or more of the provisions contained in this Indenture or in the Securities of any series shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Indenture or of such Securities, but this Indenture and such Securities shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

Section 13.12 Compliance Certificates

The Company shall deliver to the Trustee, within 120 days after the end of each fiscal year during which any Securities of any series were outstanding, an officer's certificate stating whether or not the signers know of any Event of Default that occurred during such fiscal year. Such certificate shall contain a certification from the principal executive

officer, principal financial officer or principal accounting officer of the Company that a review has been conducted of the activities of the Company and the Company's performance under this Indenture and that the Company has complied with all conditions and covenants under this Indenture. For purposes of this Section 13.12, such compliance shall be determined without regard to any period of grace or requirement of notice provided under this Indenture. If the officer of the Company signing such certificate has knowledge of such an Event of Default, the certificate shall describe any such Event of Default and its status.

Section 13.13 U.S.A Patriot Act

The parties hereto acknowledge that in accordance with Section 326 of the U.S.A. Patriot Act, the Trustee, like all financial institutions and in order to help fight the funding of terrorism and money laundering, is required to obtain, verify, and record information that identifies each person or legal entity that establishes a relationship or opens an account with the Trustee. The parties to this Indenture agree that they will provide the Trustee with such information as it may request in order for the Trustee to satisfy the requirements of the U.S.A. Patriot Act.

Section 13.14 Force Majeure.

In no event shall the Trustee, the Security Registrar, any paying agent or any other agent under this Indenture be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions or utilities, communications or computer (software and hardware) services; it being understood that the Trustee, the Security Registrar, any paying agent or any other agent under this Indenture shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

Section 13.15 Table of Contents; Headings.

The table of contents and headings of the articles and sections of this Indenture have been inserted for convenience of reference only, are not intended to be considered a part hereof, and will not modify or restrict any of the terms or provisions hereof.

ARTICLE 14

SUBORDINATION OF SECURITIES

Section 14.01 Subordination Terms

The payment by the Company of the principal of, premium, if any, and interest on any series of Securities issued hereunder shall be subordinated to the extent set forth in a Board Resolution or pursuant to an indenture supplemental hereto relating to such series.

In Witness Whereof, the parties hereto have caused this Indenture to be duly executed all as of the day and year first above written.

SINTX Technologies, Inc.

By: _____

Name: _____

Title: _____

[Trustee], as Trustee

By: _____

Name: _____

Title: _____

CROSS-REFERENCE TABLE (1)

Section of Trust Indenture Act of 1939, as Amended	Section of Indenture
310(a)	7.09
310(b)	7.08
	7.10
311(a)	7.13
311(b)	7.13
312(a)	5.01
	5.02(a)
312(b)	5.02(c)
312(c)	5.02(c)
313(a)	5.04(a)
313(b)	5.04(b)
313(c)	5.04(a)
	5.04(b)
	5.04(c)
313(d)	5.04(c)
314(a)	5.03
	13.12
314(b)	Inapplicable
314(c)	13.07(a)

314(d)	Inapplicable
314(e)	13.07(b)
314(f)	Inapplicable
315(a)	7.01(a)
	7.01(b)
315(b)	7.14
315(c)	7.01
315(d)	7.01(b)
315(e)	6.07
316(a)	6.06
	8.04
316(b)	6.04
316(c)	8.01
317(a)	6.02
317(b)	4.03
318(a)	13.09

(1) This Cross-Reference Table does not constitute part of the Indenture and shall not have any bearing on the interpretation of any of its terms or provisions.

October 12, 2023

SINTX Technologies, Inc.
1885 West 2100 South
Salt Lake City, UT 84119

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to SINTX Technologies, Inc., a Delaware corporation (the "Company"), in connection with a Registration Statement on Form S-3 (the "Registration Statement") filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), relating to the offer and sale by the Company from time to time of up to \$75,000,000 aggregate offering price of (i) shares of its common stock, par value \$0.01 per share (the "Common Stock"), (ii) shares of its preferred stock, par value \$0.01 per share (the "Preferred Stock"), (iii) its debt securities, which may be senior debt securities (the "Senior Debt Securities") or subordinated debt securities (the "Subordinated Debt Securities") and, together with the Senior Debt Securities, the "Debt Securities"), (iv) rights to purchase Common Stock, Preferred Stock, Debt Securities or Warrants (the "Rights"), (v) warrants to purchase Common Stock, Preferred Stock or Debt Securities (the "Warrants"), and (vi) units consisting of any combination of Common Stock, Preferred Stock, Debt Securities, Rights and Warrants, (the "Units" and, together with the Common Stock, Preferred Stock, Debt Securities, Rights and Warrants, the "Securities"), including any Securities issuable upon conversion, exchange or exercise of the Securities. The Senior Debt Securities will be issued under an indenture (as it may be supplemented or amended from time to time, the "Senior Indenture"), to be entered into between the Company and the trustee to be named therein, as trustee (the "Trustee"), the form of which is attached to the Registration Statement as Exhibit 4.14. The Subordinated Debt Securities will be issued under an indenture (as it may be supplemented or amended from time to time, the "Subordinated Indenture" and, each of the Senior Indenture and Subordinated Indenture, an "Indenture"), to be entered into between the Company and the Trustee, the form of which is attached to the Registration Statement as Exhibit 4.16.

We have examined such documents and have reviewed such questions of law as we have considered necessary or appropriate for the purposes of our opinions set forth below. In rendering our opinions set forth below, we have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures and the conformity to authentic originals of all documents submitted to us as copies. We have also assumed the legal capacity for all purposes relevant hereto of all natural persons and, with respect to all parties to agreements or instruments relevant hereto other than the Company, that such parties had the requisite power and authority (corporate or otherwise) to execute, deliver and perform such agreements and instruments, that such agreements and instruments have been duly authorized by all requisite action (corporate or otherwise), executed and delivered by such parties and that such agreements and instruments are the valid, binding and enforceable obligations of such parties. As to questions of fact material to our opinions, we have relied upon certificates or comparable documents of officers and other representatives of the Company and of public officials.

Based on the foregoing, and assuming that (i) the Registration Statement and all amendments thereto (including post-effective amendments) will have become effective under the Securities Act and will continue to be so effective, (ii) a prospectus supplement to the prospectus contained in the Registration Statement, describing the Securities offered thereby, will have been prepared and filed with the Commission under the Securities Act, (iii) all Securities will be issued and sold in compliance with applicable federal and state securities laws and in the manner stated in the Registration Statement and the applicable prospectus supplement, (iv) with respect to any newly-issued shares of Common Stock or Preferred Stock to be offered by the Company pursuant to the Registration Statement, there will be sufficient shares of Common Stock or Preferred Stock, as applicable, authorized under the organizational documents of the Company and not otherwise reserved for issuance, (v) the organizational documents of the Company, each as amended as of the date hereof, will not have been amended from the date hereof in a manner that would affect the validity of our opinions set forth below, (vi) none of the terms of any Security to be established subsequent to the date hereof, nor the issuance, sale or delivery of such Security, nor the compliance by the Company with the terms of such Security, (a) will violate (1) any applicable law or (2) the organizational documents of the Company or (b) will result in a violation or breach of (1) any provision of any instrument or agreement then binding upon the Company or any of its assets or (2) any restriction imposed by any court or governmental body having jurisdiction over the Company or any of its assets, (vii) any applicable purchase, underwriting or similar agreement, and any other applicable agreement with respect to any Securities offered or sold, will have been duly authorized and validly executed and delivered by the Company and (viii) any Securities issuable upon conversion, exchange, exercise or settlement of any Security being offered or sold will be duly authorized, created and, if appropriate, reserved for issuance upon such conversion, exchange, exercise or settlement, we are of the opinion that:

SINTX Technologies, Inc.
October 12, 2023
Page 2

1. With respect to any shares of Common Stock to be offered by the Company pursuant to the Registration Statement (the "Offered Common Stock"), when (a) the board of directors of the Company, a duly constituted and acting committee thereof or any officers of the Company delegated such authority (such board of directors, committee or officers being referred to herein as the "Board") have taken all necessary corporate action to authorize and approve the terms of the issuance and sale of the Offered Common Stock in conformity with the organizational documents of the Company and (b) certificates in the form required by the Delaware General Corporation Law representing the Offered Common Stock have been duly executed, countersigned, registered and delivered either (i) in accordance with the applicable purchase, underwriting or similar agreement approved by the Board upon payment of the consideration therefor (which consideration is not less than the par value of the Common Stock) provided for therein or (ii) upon conversion, exchange, exercise or settlement of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion, exchange, exercise or settlement as approved by the Board, for the consideration approved by the Board (which consideration is not less than the par value of the Common Stock), then the Offered Common Stock will be validly issued, fully paid and non-assessable.

2. With respect to any shares of any class or series of Preferred Stock to be offered by the Company pursuant to the Registration Statement (the "Offered Preferred Stock"), when (a) the Board has taken all necessary corporate action to establish the applicable class or series of Preferred Stock in accordance with the Delaware General Corporation Law (including, without limitation, by the Company properly filing a certificate of designation with respect to such class or series of Preferred Stock with the Secretary of State of the State of Delaware), (b) the Board has taken all necessary corporate action to authorize and approve the terms of the Offered Preferred Stock and their issuance and sale in conformity with the terms of the applicable class or series of Preferred Stock as established by the Board and (c) certificates in the form required by the Delaware General Corporation Law representing the Offered Preferred Stock have been duly executed, countersigned, registered and delivered either (i) in accordance with the applicable purchase, underwriting or similar agreement approved by the Board upon payment of the consideration therefor (which consideration is not less than the par value of the Preferred Stock) provided for therein or (ii) upon conversion, exchange, exercise or settlement of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion, exchange, exercise or settlement as approved by the Board, for the consideration approved by the Board (which consideration is not less than the par value of the Preferred Stock), then the Offered Preferred Stock will be validly issued, fully paid and non-assessable.

3. With respect to any Debt Securities to be offered by the Company pursuant to the Registration Statement (the "Offered Debt Securities"), when (a) the applicable Trustee has been qualified to act as trustee under the Indenture relating to the Offered Debt Securities (the "Applicable Indenture"), (b) the Applicable Indenture has been duly authorized, executed and delivered by the Company, (c) the Applicable Indenture has been duly qualified under the Trust Indenture Act of 1939, as amended, (d) the Board has taken all necessary corporate action to authorize and approve the terms of the Offered Debt Securities and their issuance and sale in conformity with the Applicable Indenture and (e) the Offered Debt Securities have been issued, executed and authenticated by the applicable Trustee in accordance with the terms of the Applicable Indenture and delivered either (i) in accordance with the applicable purchase, underwriting or similar agreement approved by the Board upon payment of the consideration therefor provided for therein or (ii) upon conversion, exchange, exercise or settlement of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion, exchange, exercise or settlement as approved by the Board, for the consideration approved by the Board, then the Offered Debt

SINTX Technologies, Inc.
October 12, 2023
Page 3

4. With respect to any Rights to be offered by the Company pursuant to the Registration Statement (the "Offered Rights"), when (a) a rights agreement relating to the Offered Rights (the "Rights Agreement"), to be entered into between the Company and the rights agent named therein (the "Rights Agent"), has been duly authorized, executed and delivered by the Company, (b) the Board has taken all necessary corporate action to authorize and approve the terms of the Offered Rights and their issuance and sale in conformity with the Rights Agreement and (c) the Offered Rights have been issued, executed and authenticated by the Rights Agent in accordance with the terms of the Rights Agreement and delivered either (i) in accordance with the applicable purchase, underwriting or similar agreement approved by the Board upon payment of the consideration therefor provided for therein or (ii) upon conversion or exchange of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exchange as approved by the Board, for the consideration approved by the Board, then the Offered Rights will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

5. With respect to any Warrants to be offered by the Company pursuant to the Registration Statement (the "Offered Warrants"), when (a) a warrant agreement relating to the Offered Warrants (the "Warrant Agreement"), to be entered into between the Company and the warrant agent named therein (the "Warrant Agent"), has been duly authorized, executed and delivered by the Company, (b) the Board has taken all necessary corporate action to authorize and approve the terms of the Offered Warrants and their issuance and sale in conformity with the Warrant Agreement and (c) the Offered Warrants have been issued, executed and countersigned by the Warrant Agent in accordance with the terms of the Warrant Agreement and delivered either (i) in accordance with the applicable purchase, underwriting or similar agreement approved by the Board upon payment of the consideration therefor provided for therein or (ii) upon conversion or exchange of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exchange as approved by the Board, for the consideration approved by the Board, then the Offered Warrants will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

6. With respect to any Units to be offered by the Company pursuant to the Registration Statement (the "Offered Units"), when (a) a unit agreement relating to the Offered Units (the "Unit Agreement"), to be entered into between the Company and the unit agent named therein (the "Unit Agent"), has been duly authorized, executed and delivered by the Company, (b) the Board has taken all necessary corporate action to authorize and approve the terms of the Offered Units and their issuance and sale in conformity with the Unit Agreement and (c) the Offered Units have been issued, executed and countersigned by the Unit Agent in accordance with the terms of the Unit Agreement and delivered either (i) in accordance with the applicable purchase, underwriting or similar agreement approved by the Board upon payment of the consideration therefor provided for therein or (ii) upon conversion or exchange of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exchange as approved by the Board, for the consideration approved by the Board, then the Offered Units will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

Our opinions set forth above are subject to the following qualifications and exceptions:

(a) Our opinions set forth above are subject to the effect of any applicable bankruptcy, insolvency, reorganization, moratorium or similar law relating to or affecting creditors' rights generally (including, without limitation, fraudulent conveyance laws).

(b) Our opinions set forth above are subject to the effect of general principles of equity, including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief, regardless of whether considered in a proceeding in equity or at law.

(c) Our opinions set forth above are subject to limitations regarding the availability of indemnification and contribution where such indemnification or contribution may be limited by applicable law or the application of principles of public policy.

(d) We express no opinion as to the enforceability of (i) provisions that relate to choice of law, forum selection or submission to jurisdiction (including, without limitation, any express or implied waiver of any objection to venue in any court or of any objection that a court is an inconvenient forum), (ii) waivers by the Company of any statutory or constitutional rights or remedies, (iii) terms which excuse any person or entity from liability for, or require the Company to indemnify such person or entity against, such person's or entity's negligence or willful misconduct or (iv) obligations to pay any prepayment premium, default interest rate, early termination fee or other form of liquidated damages, if the payment of such premium, interest rate, fee or damages may be construed as unreasonable in relation to actual damages or disproportionate to actual damages suffered as a result of such prepayment, default or termination.

SINTX Technologies, Inc.
October 12, 2023
Page 4

(e) We draw your attention to the fact that, under certain circumstances, the enforceability of terms to the effect that provisions may not be waived or modified except in writing may be limited.

(f) We note that, as of the date of this opinion, a judgment for money in an action based on a Security denominated in a foreign currency or currency unit in a federal or state court in the United States ordinarily would be enforced in the United States only in United States dollars. The date used to determine the rate of conversion of the foreign currency or currency unit in which a particular Security is denominated into United States dollars will depend upon various factors, including which court renders the judgment. Under Section 27 of the New York Judiciary Law, a state court in the State of New York rendering a judgment on a Security would be required to render that judgment in the foreign currency or currency unit in which the Security is denominated, and the judgment would be converted into United States dollars at the exchange rate prevailing on the date of entry of the judgment.

Our opinions expressed above are limited to the laws of the State of New York, the Delaware General Corporation Law and the federal laws of the United States of America.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement, and to the reference to our firm under the heading "Legal Matters" in the prospectus constituting part of the Registration Statement. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Life Science Law, PC

October 12, 2023

Sintx Technologies, Inc.
1885 West 2100 South
Salt Lake City, Utah 84119

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to SINTX Technologies, Inc., a Delaware corporation (the "Company"), in connection with a Registration Statement on Form S-3 (the "Registration Statement") filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), relating to the offer and sale by the Company from time to time of up to \$75,000,000 aggregate offering price of any combination of securities of the types specified therein. Reference is made to our opinion letter dated October 12, 2023 and included as Exhibit 5.2 to the Registration Statement. We are delivering this supplement opinion letter in connection with the equity distribution agreement prospectus (the "Prospectus") contained in the Registration Statement. The Prospectus relates to the offer and sale by the Company of up to \$1,700,000 of shares of common stock, par value \$0.01 per share (the "Shares"), pursuant to an Equity Distribution Agreement (the "Distribution Agreement"), dated February 25, 2021 by and between the Company and Maxim Group LLC.

We have examined such documents and have reviewed such questions of law as we have considered necessary or appropriate for the purposes of our opinions set forth below. In rendering our opinions set forth below, we have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures and the conformity to authentic originals of all documents submitted to us as copies. We have also assumed the legal capacity for all purposes relevant hereto of all natural persons. As to questions of fact material to our opinions, we have relied upon certificates or comparable documents of officers and other representatives of the Company and of public officials.

Based on the foregoing, we are of the opinion that the Shares, when issued and delivered against payment of the consideration therefor specified in the Distribution Agreement, will be validly issued, fully paid and non-assessable.

Our opinions expressed above are limited to the Delaware General Corporation Law.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement, and to the reference to our firm under the heading "Legal Matters" in the prospectus constituting part of the Registration Statement. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Life Science Law, PC

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

SINTX Technologies, Inc.
Salt Lake City, Utah

We hereby consent to the incorporation by reference in the Prospectus constituting part of this Registration Statement of our report dated March 29, 2023, relating to the consolidated financial statements of SINTX Technologies, Inc., and subsidiaries (collectively, the Company), as of December 31, 2022 and 2021 and for each of the years then ended, incorporated by reference in this Registration Statement.

We also consent to the reference to us under the caption “Experts” in the Prospectus.

/s/ TANNER LLC

Lehi, UT
October 12, 2023

Calculation of Filing Fee Tables

Form S-3
(Form Type)

SINTX Technologies, Inc.

(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price (3)	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
Newly Registered Securities											
Fees to Be Paid	Equity	Common Stock, \$0.001 par value per share	— (1)	(1)	—	—	—	—	—	—	—
Fees to Be Paid	Equity	Preferred Stock, par value \$0.001 per share	— (1)	(1)	—	—	—	—	—	—	—
Fees to Be Paid	Debt	Debt Securities	— (1)	(1)	—	—	—	—	—	—	—
Fees to Be Paid	Other	Warrants	— (1)	(1)	—	—	—	—	—	—	—
Fees to Be Paid	Other	Units (2)	— (1)	(1)	—	—	—	—	—	—	—
Fees to Be Paid	Other	Rights	— (1)	(1)	—	—	—	—	—	—	—
Fees to Be Paid	Unallocated (Universal) Shelf	Unallocated (Universal) Shelf	457(o) (1)	(1)	\$ 10,402	\$0.00014760	\$ 1.54	—	—	—	—
Fees Previously Paid	—	—	—	—	—	—	—	—	—	—	—
Carry Forward Securities											
Carry Forward Securities	Equity	Common Stock, \$0.001 par value per share	415(a)(6)	(1)	(1)	—	—	S-3	333-249267	October 13, 2020	—
Carry Forward Securities	Equity	Preferred Stock, par value \$0.001 per share	415(a)(6)	(1)	(1)	—	—	S-3	333-249267	October 13, 2020	—
Carry Forward Securities	Debt	Debt Securities	415(a)(6)	(1)	(1)	—	—	S-3	333-249267	October 13, 2020	—
Carry Forward Securities	Other	Warrants	415(a)(6)	(1)	(1)	—	—	S-3	333-249267	October 13, 2020	—
Fees to Be Paid	Other	Units (2)	415(a)(6)	(1)	(1)	—	—	S-3	333-249267	October 13, 2020	—

Carry Forward Securities	Other	Rights	415(a)(6)	(1)	(1)	—	—	—	S-3	333-249267	October 13, 2020	—
Carry Forward Securities	Unallocated (Universal Shelf)	Unallocated (Universal Shelf)	415(a)(6)	(1)(4)	(1)(4)	\$74,989,598(4)	—	—	S-3	333-249267	October 13, 2020	\$ 8,181.37(4)
Total Offering Amounts						\$75,000,000(1)(4)	\$	1.54				
Total Fees Previously Paid								—				
Total Fee Offsets								—				
Net Fee Due							\$	1.54				

- (1) The securities registered hereunder consists of up to \$75,000,000 of an indeterminate amount of (a) shares of common stock, (b) shares of preferred stock, (c) warrants to purchase shares of common stock, shares of preferred stock, or debt securities of the Registrant, (d) debt securities, (e) subscription rights to purchase common stock, preferred stock, or debt securities of the Registrant, and (f) units, consisting of some or all of these securities, as may be sold from time to time by the Registrant. Any securities registered hereunder may be sold separately or as units with other securities registered hereunder. There are also being registered hereunder an indeterminate number of shares of common stock, shares of preferred stock, and debt securities as shall be issuable upon conversion, exchange or exercise of any securities that provide for such issuance. In no event will the aggregate offering price of all types of securities issued by the Registrant pursuant to this registration statement exceed \$75,000,000. Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement also covers such indeterminate number of securities as may be issuable with respect to the securities being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (2) Units may be issued under a unit agreement and will represent an interest in one or more securities registered under this registration statement including shares of common stock or preferred stock, debt securities or warrants, in any combination, which may or may not be separable from one another.
- (3) Estimated solely for purposes of computing the registration fee.
- (4) Pursuant to Rule 415(a)(6) under the Securities Act, the securities registered pursuant to this registration statement include \$74,989,598 of unsold securities (the "Unsold Securities") previously registered pursuant to the Registration Statement on Form S-3 (File No. 333-249267), which was declared effective on October 13, 2020 (the "Prior Registration Statement"). The registrant paid a filing fee of \$8,181.37 associated with the offering of the Unsold Securities (based on the filing fee rate in effect at the time of the filing of the Prior Registration Statement). Pursuant to Rule 415(a)(6), the filing fee associated with the offering of the Unsold Securities is hereby carried forward to be applied to the Unsold Securities, and no additional filing fee is due with respect to the Unsold Securities in connection with the filing of this Registration Statement. To the extent that, after the filing date hereof and prior to the effectiveness of this registration statement, the registrant sells any Unsold Securities pursuant to the Prior Registration Statement, the registrant will identify in a pre-effective amendment to this registration statement the updated number of Unsold Securities from the Prior Registration Statement to be included in this registration statement pursuant to Rule 415(a)(6) and the updated amount of new securities to be registered on this registration statement. Pursuant to Rule 415(a)(6), the offering of securities under the Prior Registration Statement will be deemed terminated as of the date of effectiveness of this registration statement.