

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

FORM 8-K

CURRENT REPORT

PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of earliest event reported) December 18, 2024

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation)	1-11596 (Commission File Number)	58-1954497 (IRS Employer Identification No.)
8302 Dunwoody Place, Suite 250, Atlanta, Georgia (Address of principal executive offices)		30350 (Zip Code)

Registrant's telephone number, including area code: (770) 587-9898

Not applicable

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of each exchange on which registered
Common Stock, Par Value, \$.001 Per Share	PESI	The Nasdaq Capital Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 or Rule 12b-2 of the Securities Exchange Act of 1934.

Emerging growth company

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 13(a) of the Exchange Act

Item 1.01 — Entry into a Material Definitive Agreement.

Underwriting Agreement

On December 18, 2024, Perma-Fix Environmental Services, Inc. (the "Company") entered into an underwriting agreement (the "Underwriting Agreement") with Craig-Hallum Capital Group, LLC (the "Underwriter"). Pursuant to the terms of the Underwriting Agreement, the Company agreed to sell, and the Underwriter agreed to purchase, subject to and on the conditions set forth therein, 2,200,000 shares of the Company's common stock, \$0.001 par value per share (the "Common Stock"). The shares of Common stock were sold at a price to the public of \$10.00 per share. The Company also granted the Underwriter a 30-day over-allotment option to purchase up to an additional 330,000 shares of the Company's Common Stock on the same terms and conditions, which option was exercised in its entirety on December 18, 2024.

After deducting underwriting discounts and commissions and estimated offering expenses payable by the Company, the Company expects the net proceeds of the offering, including exercise in full of the over-allotment option, to be approximately \$23,229,000.

The Underwriting Agreement contains customary representations, warranties, and covenants of the Company, and also provides for customary indemnification by the Company in favor of the Underwriters against certain liabilities and customary contribution provisions in respect of those liabilities.

The offering and sale of the Common Stock was made pursuant to the Company's effective Registration Statement on Form S-3 (Registration No. 333-283555) (the "Registration Statement"), filed by the Company with the U.S. Securities and Exchange Commission (the "Commission") on December 2, 2024, including the base prospectus contained therein, a related preliminary prospectus supplement, dated December 17, 2024, and a final prospectus supplement, dated December 18, 2024, filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act of 1933, as amended.

Underwriter's Warrants

Underwriter's Warrant

Pursuant to the Underwriting Agreement, the Company issued to the Underwriter and its designees warrants (the "Underwriter's Warrants") to purchase 126,500 shares of Common Stock (approximately 5% of the number of shares of Common Stock sold in the offering). The Underwriter's Warrants will be exercisable at a per share exercise price of \$11.50. The Underwriter's Warrants are exercisable, in whole or in part, during the five-year period commencing from the commencement of sales of the shares of Common Stock in the offering.

The description of the Underwriting Agreement and the Underwriter's Warrants contained herein is qualified in its entirety by reference to the Underwriting Agreement and the Form of Warrant, copies of which are included as Exhibit 1.1 and Exhibit 4.1, respectively, to this Current Report on Form 8-K and is incorporated herein by reference.

Item 8.01 — Other Events.

On December 17, 2024, the Company issued a press release announcing the commencement of a public offering of its Common Stock and on December 18, 2024, the Company issued a press release announcing the pricing of the public offering, as described above in Item 1.01. Copies of the press releases are attached as Exhibits 99.1 and 99.2 hereto and are incorporated herein by reference.

Item 9.01 – Financial Statements and Exhibits

The following exhibits are being filed herewith:

Exhibit No.	Description
1.1	Underwriting Agreement, dated as of November 18, 2024, by and between the Company and Craig-Hallum Capital Group, LLC
4.1	Form of Underwriter's Warrants (included in Exhibit 1.1)
5.1	Opinion of Steptoe & Johnson PLLC
23.1	Consent of Steptoe & Johnson, PLLC (included in Exhibit 5.1)
99.1	Press Release, Dated December 17, 2024
99.2	Press Release, Dated December 18, 2024

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Company has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

Dated: December 18, 2024

By: /s/ Ben Naccarato

Ben Naccarato
Executive Vice President and Chief Financial Officer

2,200,000 SHARES OF COMMON STOCK OF
PERMA-FIX ENVIRONMENTAL, INC.
UNDERWRITING AGREEMENT

December 18, 2024

Craig-Hallum Capital Group LLC
 As the Representative of the
 Several underwriters, if any, named in Schedule I hereto
 222 South Ninth Street, Suite 350
 Minneapolis, Minnesota 55402

Ladies and Gentlemen:

The undersigned, Perma-fix Environmental Services, Inc., a company incorporated under the laws of Delaware (collectively with its subsidiaries and affiliates, including, without limitation, all entities disclosed or described in the Registration Statement as being subsidiaries or affiliates of Perma-fix Environmental Services, Inc., the “Company”), hereby confirms its agreement (this “Agreement”) with the several underwriters (such underwriters, including the Representative (as defined below), the “Underwriters” and each an “Underwriter”) named in Schedule I hereto for which Craig-Hallum Capital Group LLC is acting as representative to the several Underwriters (the “Representative” and if there are no Underwriters other than the Representative, references to multiple Underwriters shall be disregarded and the term Representative as used herein shall have the same meaning as Underwriter) on the terms and conditions set forth herein.

It is understood that the several Underwriters are to make a public offering of the Public Securities as soon as the Representative deems it advisable to do so. The Public Securities are to be initially offered to the public at the public offering price set forth in the Prospectus.

It is further understood that you will act as the Representative for the Underwriters in the offering and sale of the Closing Shares and, if any, the Option Shares in accordance with this Agreement.

ARTICLE I.
DEFINITIONS

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, for all purposes of this Agreement, the following terms have the meanings set forth in this Section 1.1:

“Action” shall have the meaning ascribed to such term in Section 3.1(k).

“Affiliate” means with respect to any Person, any other Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with such Person as such terms are used in and construed under Rule 405 under the Securities Act.

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York are generally open for use by customers on such day.

“Closing” means the closing of the purchase and sale of the Closing Shares pursuant to Section 2.1.

“Closing Date” means the hour and the date on the Trading Day on which all conditions precedent to (i) the Underwriters’ obligations to pay the Closing Purchase Price and (ii) the Company’s obligations to deliver the Closing Shares, in each case, have been satisfied or waived, but in no event later than 10:00 a.m. (New York City time) on the first (1st) Trading Day following the date hereof (or second (2nd) Trading Day following the date hereof if this Agreement is executed after 4:01 p.m. Eastern Time on the Execution Date) or at such earlier time as shall be agreed upon by the Representative and the Company.

“Closing Purchase Price” shall have the meaning ascribed to such term in Section 2.1(b), which aggregate purchase price shall be net of the underwriting discounts and commissions.

“Closing Shares” shall have the meaning ascribed to such term in Section 2.1(a)(i).

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Company Auditor” means Grant Thornton LLP.

“Company Counsel” means Steptoe & Johnson PLLC.

“Engagement Letter” shall have the meaning set ascribed to such term in Section 3.1(t).

“Environmental Law” means any federal, state or local laws now or hereafter in effect relating to pollution or protection of the environment or emissions, discharges, spills, releases or threatened releases of any Hazardous Substances into the environment (including without limitation indoor air, ambient air, surface water, ground water or land), including without limitation, the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 et seq., as amended, the Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”), 42 U.S.C. §§ 9601 et seq., as amended, the Hazardous Materials Transportation Act, 49 U.S.C. §§ 1801 et seq., as amended, the Clean Water Act, 33 U.S.C. §§ 1251 et seq., as amended, the Clean Air Act, 42 U.S.C. §§ 7401 et seq., as amended, the Toxic Substance Control Act, 15 U.S.C. §§ 2601 et seq., as amended, and any rules and regulations now or hereafter promulgated under any of such acts.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Execution Date” shall mean the date on which the parties hereto execute and enter into this Agreement.

“Exempt Issuance” means the issuance of (a) shares of Common Stock, options or other equity awards to employees, officers, directors or contractors of the Company pursuant to any stock or option or director’s plan duly adopted for such purpose by a majority of the independent members of the Board of Directors or a majority of the members of a committee of independent directors established for such purpose or approved by the stockholders of the Company for services rendered to the Company, (b) warrants and the shares issuable upon exercise of the warrants issued to the Representative in connection with the transaction consummated pursuant to this Agreement and/or securities upon the exercise or exchange of or conversion of any securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities or to extend the term of such securities, and (c) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that such securities are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith within ninety (90) days following the Closing Date, and provided that any such issuance shall only be to a Person (or to the equity holders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

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“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“FINRA” means the Financial Industry Regulatory Authority.

“GAAP” shall have the meaning ascribed to such term in Section 3.1(i).

“Hazardous Substances” means and refers to any “hazardous waste” or “hazardous substance,” as such terms are set forth in, under or pursuant to the Environmental Laws, oil or petroleum products or their derivatives, polychlorinated biphenyls, asbestos, radioactive materials or waste, per- and polyfluoroalkyl substances (“PFAS”), and any other toxic, ignitable, reactive, corrosive, explosive, contaminating or polluting materials which are now subject to governmental regulation.

“Indebtedness” means (a) any liabilities for borrowed money or amounts owed in excess of \$150,000 (other than trade accounts payable incurred in the ordinary course of business), (b) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company’s consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (c) the present value of any lease payments in excess of \$150,000 due under leases required to be capitalized in accordance with GAAP.

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Lock-Up Agreements” means the lock-up agreements that are delivered on the date hereof by each of the Company’s officers and directors in the form of Exhibit A attached hereto.

“Material Adverse Effect” means (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole or (iii) a material adverse effect on the Company’s ability to perform in any material respect on a timely basis its material obligations under any Transaction Document.

“Offering” shall have the meaning ascribed to such term in Section 2.1(c).

“Option” has the meaning ascribed to such term in Section 2.2.

“Option Closing Date” has the meaning ascribed to such term in Section 2.2(c).

“Option Shares” has the meaning ascribed to such term in Section 2.2(a).

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

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“Preliminary Prospectus Supplement” means any preliminary prospectus supplement relating to the Offering included in the Registration Statement or filed with the Commission pursuant to Rule 424(b).

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Prospectus” means the base prospectus filed for the Registration Statement.

“Prospectus Supplement” means the final prospectus supplement relating to the Offering included in the Registration Statement or filed with the Commission pursuant to Rule 424(b).

“Public Securities” means, together, the Closing Shares and, if any, the Option Shares.

“Registration Statement” means, collectively, the various parts of the registration statement prepared by the Company on Form S-3 (File No. 333-283555) with respect to the Public Securities, each as amended as of the date hereof, including the Prospectus and Prospectus Supplement, if any, the Preliminary Prospectus Supplement, if any, and all exhibits filed with or incorporated by reference into such registration statement, and includes any Rule 462(b) Registration Statement.

“Representative’s Securities” has the meaning ascribed to such term in Section 2.3.

“Representative’s Warrant” has the meaning ascribed to such term in Section 2.3.

“Representative Warrant Shares” has the meaning ascribed to such term in Section 2.3.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 462(b) Registration Statement” means any registration statement prepared by the Company registering the offer and sale of additional Public Securities, which was filed with the Commission on or prior to the date hereof and became automatically effective pursuant to Rule 462(b) promulgated by the Commission pursuant to the Securities Act.

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“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(i).

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Share Purchase Price” has the meaning ascribed to such term in Section 2.1(b).

“Shares” means, collectively, the shares of Common Stock delivered to the Underwriters in accordance with Section 2.1(a)(i) and Section 2.2(a), if applicable.

“Subsidiary” means any direct or indirect subsidiary of the Company as of the date hereof.

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, the Lock-Up Agreements, the Representative’s Warrants and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Transfer Agent” means Continental Stock Transfer & Trust Company, and any successor transfer agent of the Company.

“Underwriters’ Counsel” means Troutman Pepper Hamilton Sanders LLP, with offices located 301 S College Street, Suite 3400 Charlotte, NC 28202.

ARTICLE II. PURCHASE AND SALE

2.1 Closing.

(a) Upon the terms and subject to the conditions set forth herein, the Company agrees to sell in the aggregate 2,200,000 shares of Common Stock (the Closing Shares) and each Underwriter agrees to purchase, severally and not jointly, at the Closing, the number of shares of Common Stock set forth opposite the name of such Underwriter on Schedule I hereto.

(b) The aggregate purchase price for the Closing Shares shall equal the amount set forth opposite the name of such Underwriter on Schedule I hereto (the Closing Purchase Price). The purchase price for one Closing Share shall be \$9.30, net of an underwriting discount of seven percent (7%) (the Share Purchase Price).

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(c) On the Closing Date, each Underwriter shall deliver or cause to be delivered to the Company, via wire transfer, immediately available funds equal to such Underwriter’s Closing Purchase Price and the Company shall deliver to, or as directed by, such Underwriter its respective Closing Shares and the Company shall deliver the other items required pursuant to Section 2.4 deliverable at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.4 and 2.5, the Closing shall occur at the offices of Underwriters’ Counsel or such other location as the Company and Representative shall mutually agree. The Public Securities are to be offered initially to the public at the offering price set forth on the cover page of the Prospectus Supplement (the Offering).

2.2 Option to Purchase Additional Securities.

(a) The Representative is hereby granted an option (the Option) to purchase, in the aggregate, up to 330,000 shares of Common Stock (the Option Shares) at the Share Purchase Price.

(b) In connection with an exercise of the Option, the purchase price to be paid for the Option Shares is equal to the product of the Share Purchase Price multiplied by the number of Option Shares to be purchased (the aggregate purchase price to be paid on an Option Closing Date).

(c) The Option granted pursuant to this Section 2.2 may be exercised by the Representative as to all (at any time) or any part (from time to time) of the Option Shares within thirty (30) days after the Execution Date. An Underwriter will not be under any obligation to purchase any Option Shares prior to the exercise of the Option by the Representative. The Option granted hereby may be exercised by the giving of oral notice to the Company from the Representative, which must be confirmed in writing by overnight mail or electronic transmission setting forth the number of Option Share to be purchased and the date and time for delivery of and payment for the Option Shares (each, an Option Closing Date), which will not be later than one (1) Trading Day after the date of the notice or such other time as shall be agreed upon by the Company and the Representative, at the offices of counsel to the Underwriter or at such other place (including remotely by electronic transmission) as shall be agreed upon by the Company and the Representative. If such delivery and payment for the Option Shares does not occur on the Closing Date, each Option Closing Date will be as set forth in the notice. Upon exercise of the option, the Company will become obligated to convey to the Underwriters, and, subject to the terms and conditions herein, the Underwriters will become

obligated to purchase, the number of Option Shares specified in such notice. The Representative may cancel the Option at any time prior to the expiration of the Option by written notice to the Company.

2.3 Representative Warrants. The Company hereby agrees to issue to the Representative (and/or its affiliates, employees or third-party designees) on the Closing Date and on each Option Closing Date, if any, an option (“Representative’s Warrant”) for the purchase of an aggregate of a number of shares of Common Stock representing 5% of the Closing Shares and Option Shares, if any, sold on the Closing Date and each Option Closing Date, respectively. The Representative’s Warrant, in the form attached hereto as Exhibit B, shall be exercisable, in whole or in part, commencing on the date of its issuance and expiring on the five (5)-year anniversary of the date of this Agreement at an initial exercise price per share of Common Stock of \$11.50. The Representative’s Warrant and the shares of Common Stock issuable upon exercise thereof (the “Representative Warrant Shares”) are hereinafter referred to together as the “Representative’s Securities.”

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2.4 Deliveries. The Company shall deliver or cause to be delivered to each Underwriter (if applicable) the following:

(a) At the Closing Date, the Closing Shares and, as to each Option Closing Date, if any, the applicable Option Shares, which shares shall be delivered via The Depository Trust Company Deposit or Withdrawal at Custodian system for the accounts of the several Underwriters;

(b) At the Closing Date and at each Option Closing Date, if any, the Representative’s Warrant, in certificated form registered in the name or names and in such authorized denominations as the Representative may request;

(c) At the Closing Date and at each Option Closing Date, if any, a legal opinion of Company Counsel addressed to the Underwriters, including, without limitation, a negative assurance letter, substantially in the form and substance reasonably satisfactory to the Representative and as to the Closing Date;

(d) Contemporaneously herewith, a cold comfort letter, addressed to the Underwriters and in form and substance satisfactory in all respects to the Representative from the Company Auditor dated, respectively, as of the date of this Agreement and a bring-down letter dated as of the Closing Date and each Option Closing Date, if any;

(e) On the Closing Date and on each Option Closing Date, if any, the duly executed and delivered Officer’s Certificate, substantially in substantially in the form and substance reasonably satisfactory to the Representative;

(f) On the Closing Date and on each Option Closing Date, if any, the duly executed and delivered Secretary’s Certificate substantially in the form and substance reasonably satisfactory to the Representative; and

(g) Contemporaneously herewith, the duly executed and delivered Lock-Up Agreements, substantially in the form required by Exhibit A.

2.5 Closing Conditions. The respective obligations of each Underwriter hereunder in connection with the Closing and each Option Closing Date, if any are subject to the following conditions being met:

(a) the accuracy in all material respects when made and on the date in question (other than representations and warranties of the Company already qualified by materiality, which shall be true and correct in all respects) of the representations and warranties of the Company contained herein (unless as of a specific date therein);

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(b) all obligations, covenants and agreements of the Company required to be performed at or prior to the date in question shall have been performed;

(c) the delivery by the Company of the items set forth in Section 2.4 of this Agreement;

(d) the Registration Statement shall be effective on the date of this Agreement and at the Closing Date and each Option Closing Date, if any, no stop order suspending the effectiveness of the Registration Statement shall have been issued and no proceedings for that purpose shall have been instituted or shall be pending or contemplated by the Commission and any request on the part of the Commission for additional information shall have been complied with to the reasonable satisfaction of the Representative;

(e) by the Execution Date, if required by FINRA, the Underwriters shall have received clearance from FINRA as to the amount of compensation allowable or payable to the Underwriters as described in the Registration Statement;

(f) the Company shall have submitted the Listing of Additional Shares Notification Form to the Nasdaq, if required under the Nasdaq rules, with respect to the Offering of the Closing Shares, the Representative Warrant Shares and the Option Shares and the Trading Market shall not have raised any objection to the submission prior to the Closing Date; and

(g) prior to and on each of the Closing Date and at the Option Closing Date, if any: (i) there shall have been no material adverse change or development involving a prospective material adverse change in the condition or prospects or the business activities, financial or otherwise, of the Company from the latest dates as of which such condition is set forth in the Registration Statement, the Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement; (ii) no action suit or proceeding, at law or in equity, shall have been pending or threatened against the Company or any Affiliate of the Company before or by any court or federal or state commission, board or other administrative agency wherein an unfavorable decision, ruling or finding may materially adversely affect the business, operations, prospects or financial condition or income of the Company, except as set forth in the Registration Statement, the Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement; (iii) no stop order shall have been issued under the Securities Act and no proceedings therefor shall have been initiated or threatened by the Commission; and (iv) the Registration Statement, the Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement and any amendments or supplements thereto shall contain all material statements which are required to be stated therein in accordance with the Securities Act and the rules and regulations thereunder and shall conform in all material respects to the requirements of the Securities Act and the rules and regulations thereunder, and none of the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement nor the Prospectus Supplement nor any amendment or supplement thereto shall contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

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ARTICLE III. REPRESENTATIONS AND WARRANTIES

3.1 Representations and Warranties of the Company. The Company represents and warrants to the Underwriters as of the Execution Date, as of the Closing Date and as of each Option Closing Date, if any, as follows:

(a) Subsidiaries. All of the direct and indirect Subsidiaries of the Company are set forth in the SEC Reports. The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any Liens, except as otherwise noted in the SEC Reports, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities. If the Company has no Subsidiaries, all other references to the Subsidiaries or any of them in the Transaction Documents shall be disregarded.

(b) Organization and Qualification. The Company and each of the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in a Material Adverse Effect and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents to which the Company is a party and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which the Company is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

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(d) No Conflicts. The execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Public Securities and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, anti-dilution or similar adjustments, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

(e) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filing with the Commission of the Prospectus Supplement, and/or reports on Form 8-K, (ii) the notice and/or application(s) to each applicable Trading Market for the listing of the Public Securities for trading thereon in the time and manner required thereby, and (iii) such filings as are required to be made under applicable state securities laws (collectively, the "Required Approvals").

(f) Registration Statement. The Company has filed with the Commission the Registration Statement under the Securities Act, which became effective on December 12, 2024, for the registration under the Securities Act of the offer and sale of the Public Securities. At the time of such filing, the Company met the requirements of Form S-3 under the Securities Act. The Registration Statement meets the requirements set forth in Rule 415(a)(1)(x) under the Securities Act and complies with said Rule and the Prospectus Supplement will meet the requirements set forth in Rule 424(b). The Company is eligible to use Form S-3 under the Securities Act pursuant to General Instruction I.B.1 of Form S-3. Any reference in this Agreement to the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 which were filed under the Exchange Act, on or before the date of this Agreement, or the issue date of the Prospectus, such Preliminary Prospectus Supplement or the Prospectus Supplement, as the case may be; and any reference in this Agreement to the terms "amend," "amendment" or "supplement" with respect to the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement shall be deemed to refer to and include the filing of any document under the Exchange Act after the date of this Agreement, or the issue date of the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement, as the case may be, deemed to be incorporated therein by reference. All references in this Agreement to financial statements and schedules and other information which is "contained," "included," "described," "referenced," "set forth" or "stated" in the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement (and all other references of like import) shall be deemed to mean and include all such financial statements and schedules and other information which is or is deemed to be incorporated by reference in the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement, as the case may be. No stop order suspending the effectiveness of the Registration Statement or the use of the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement has been issued, and no proceeding for any such purpose is pending or has been initiated or, to the Company's knowledge, is threatened by the Commission. For purposes of this Agreement, "free writing prospectus" has the meaning set forth in Rule 405 under the Securities Act. The Company will not, without the prior consent of the Representative, prepare, use or refer to, any free writing prospectus.

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(g) Issuance of Securities. The Public Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Representative Warrant Shares, when issued in accordance with the terms of the Representative's Warrant, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable pursuant to this Agreement and the Representative's Warrant. The holders of the Public Securities will not be subject to personal liability by reason of being such holders. The Public Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company. All corporate action required to be taken for the authorization, issuance and sale of the Public Securities has been duly and validly taken. The Public Securities conform in all material respects to all statements with respect thereto contained in the Registration Statement.

(h) Capitalization. The capitalization of the Company is as set forth in the SEC Reports. The Company has not issued any capital stock since its most recently filed periodic report under the Exchange Act, other than pursuant to the exercise of employee and/or director stock options under the Company's equity incentive plans, the issuance of shares of Common Stock to employees and directors pursuant to the Company's equity incentive plans, or employee stock purchase plans, or director equity plans, and pursuant to the conversion and/or exercise of Common Stock Equivalents outstanding as of the date of the most recently filed periodic report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the

Transaction Documents. Except as set forth in the SEC Reports, as a result of the purchase and sale of the Representative's Warrant, or as a result of the Company's outstanding stock options or equity plans, or warrants issued in connection with the offering in May 2024, there are no outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock or the capital stock of any Subsidiary, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents or the capital stock of any Subsidiary. The issuance and sale of the Public Securities will not obligate the Company or any Subsidiary to issue shares of Common Stock or other securities to any Person (other than the Underwriters and upon exercise of the Representative's Warrant). There are no outstanding securities or instruments of the Company or any Subsidiary with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company or any Subsidiary. There are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any stock appreciation rights or "phantom stock" plans or agreements or any similar plan or agreement. All of the outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. The authorized shares of the Company conform in all material respects to all statements relating thereto contained in the Registration Statement, the Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement. The offers and sales of the Company's securities were at all relevant times either registered under the Securities Act and the applicable state securities or Blue Sky laws or, based in part on the representations and warranties of the purchasers or exempt from such registration requirements. No further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Public Securities and the Representative's Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.

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(i) SEC Reports: Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, together with the Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement, being collectively referred to herein as the "SEC Reports") on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the SEC Reports complied in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved ("GAAP"), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments. The agreements and documents described in the Registration Statement, the Prospectus, each Preliminary Prospectus Supplement, the Prospectus Supplement and the SEC Reports conform to the descriptions thereof contained therein and there are no agreements or other documents required by the Securities Act and the rules and regulations thereunder to be described in the Registration Statement, the Prospectus, each Preliminary Prospectus Supplement, the Prospectus Supplement or the SEC Reports or to be filed with the Commission as exhibits to the Registration Statement, that have not been so described or filed. Each agreement or other instrument (however characterized or described) to which the Company is a party or by which it is or may be bound or affected and (i) that is referred to in the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement, the Prospectus Supplement or the SEC Reports, or (ii) is material to the Company's business, has been duly authorized and validly executed by the Company, is in full force and effect in all material respects and is enforceable against the Company and, to the Company's knowledge, the other parties thereto, in accordance with its terms, except (x) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally, (y) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (z) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefore may be brought. None of such agreements or instruments has been assigned by the Company, and neither the Company nor, to the Company's knowledge, any other party is in default thereunder and, to the Company's knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a default thereunder. To the Company's knowledge, performance by the Company of the material provisions of such agreements or instruments will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company or any of its assets or businesses, including, without limitation, those relating to environmental laws and regulations.

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(j) Material Changes: Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as specifically disclosed in a subsequent SEC Report filed prior to the date hereof, (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock, (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company equity incentive plans or directors plans and (vi) no officer or director of the Company has resigned from any position with the Company. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Public Securities and the Representative's Securities contemplated by this Agreement, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least one (1) Trading Day prior to the date that this representation is made. Unless otherwise disclosed in an SEC Report filed prior to the date hereof, the Company has not: (i) issued any securities or incurred any material liability or obligation, direct or contingent, for borrowed money; or (ii) declared or paid any dividend or made any other distribution on or in respect to its capital stock.

(k) Litigation. There is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an "Action") which (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Public Securities or (ii) could, if there were an unfavorable decision, have a Material Adverse Effect. Except as disclosed in the SEC Reports, neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

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(l) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could result in a Material Adverse Effect. Except as disclosed in the SEC Reports, none of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, the result of which would be material to the Company, and to the Company's knowledge, the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, in each case to the extent applicable to the Company or any Subsidiary, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(m) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not, individually or in the aggregate, have a Material Adverse Effect.

(n) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the SEC Reports, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect (each, a "Material Permit"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit. The disclosures in the Registration Statement concerning the effects of Federal, State, local and all foreign regulation on the Company's business as currently contemplated are correct in all material respects.

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(o) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to, or have valid and marketable rights to lease or otherwise use, all real property and all personal property that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP, and the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance.

(p) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or required for use in connection with their respective businesses as described in the SEC Reports and which the failure to do so could have a Material Adverse Effect (collectively, the "Intellectual Property Rights"). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement, the result of which would have a Material Adverse Effect. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the SEC Reports, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(q) Insurance. The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

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(r) Transactions With Affiliates and Employees. Except as set forth in the SEC Reports, none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from, any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$120,000 other than for (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee or director benefits, including but not limited to stock option agreements under any stock option plan of the Company or director benefits under a director benefit plan.

(s) Sarbanes-Oxley; Internal Accounting Controls. The Company and the Subsidiaries are in compliance in all material respects with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. Except as disclosed in the SEC Reports, the Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, except as disclosed in the SEC Reports prior to the date hereof. The Company's certifying officers have evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed periodic report under the Exchange Act (such date, the "Evaluation Date"). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(t) Certain Fees. Except as set forth in each Preliminary Prospectus Supplement, the Prospectus Supplement, or the Engagement Letter, dated November 22, 2024, between the Representative and the Company (the "Engagement Letter") no brokerage or finder's fees or commissions are or will be payable by the Company, any Subsidiary or Affiliate of the Company to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. To the Company's knowledge, there are no other arrangements, agreements or understandings of the Company or, to the Company's knowledge, any of its stockholders that may affect the Underwriters' compensation, as determined by FINRA, except as described in the Engagement Letter. The Company has not made any direct or indirect payments (in cash, securities or otherwise) to: (i) any person, as a finder's fee, consulting fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who raised or provided capital to the Company; (ii) any FINRA member; or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member, within the twelve months prior to the Execution Date, except in connection with the Engagement Letter and the registered direct offering of Company's Common Stock that was completed in May, 2024. None of the net proceeds of the Offering will be paid by the Company to any participating FINRA member or its affiliates, except as specifically authorized herein, or as set forth in the Engagement Letter.

(u) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Public Securities will not be or be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

(v) Registration Rights. No Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of the offer, sale or resale of any securities of the Company or any Subsidiary.

(w) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. The Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. To the Company's knowledge, the Company is in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees of the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(x) Disclosure: 10b-5. The Registration Statement (and any further documents to be filed with the Commission) contains all exhibits and schedules as required by the Securities Act. The Registration Statement, at the time it became effective, complied in all material respects with the Securities Act and the Exchange Act and the applicable rules and regulations under the Securities Act and did not and, contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement, each as of its respective date, comply in all material respects with the Securities Act and the Exchange Act and the applicable rules and regulations. The Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement, as amended or supplemented, did not and will not contain as of the date thereof any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The SEC Reports, when they were filed with the Commission, conformed in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, and none of such documents, when they were filed with the Commission, contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein (with respect to the SEC Reports incorporated by reference in the Prospectus, each Preliminary Prospectus Supplement or the Prospectus Supplement), in light of the circumstances under which they were made not misleading; and any further documents so filed and incorporated by reference in the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and the applicable rules and regulations, as applicable, and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made not misleading. No post-effective amendment to the Registration Statement reflecting any facts or events arising after the date thereof which represent, individually or in the aggregate, a fundamental change in the information set forth therein is required to be filed with the Commission. There are no documents required to be filed with the Commission in connection with the transaction contemplated hereby that (x) have not been filed as required pursuant to the Securities Act or (y) will not be filed within the requisite time period. There are no contracts or other documents required to be described in the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement, or to be filed as exhibits or schedules to the Registration Statement, which have not been described or filed as required. No press release disseminated by the Company during the twelve months preceding the date of this Agreement contains or contained any untrue statement of a material fact or omits or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made and when made, not misleading.

(y) No Integrated Offering. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Public Securities to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(z) Solvency. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Public Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. The SEC Reports sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(aa) Stock Option Plans. Each stock option granted by the Company under the Company's equity incentive plan was granted (i) in accordance with the terms of the Company's equity incentive plan and (ii) with an exercise price at least equal to the fair market value of the Common Stock on the date such stock option would be considered granted under GAAP and applicable law. No stock option granted under the Company's stock option plan has been backdated. The Company has not knowingly granted, and there is no and has been no Company policy or practice to knowingly grant, stock options prior to, or otherwise knowingly coordinate the grant of stock options with, the release or other public announcement of material information regarding the Company or its Subsidiaries or their financial results or prospects.

(bb) Tax Status. Except for matters that would not, individually or in the aggregate, have a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim. The provisions for taxes payable, if any, shown on the financial statements filed with or as part of the Registration Statement are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. The term “taxes” mean all federal, state, local, foreign, and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments, or charges of any kind whatsoever, together with any interest and any penalties, additions to tax, or additional amounts with respect thereto. The term “returns” means all returns, declarations, reports, statements, and other documents required to be filed in respect to taxes.

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(cc) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of FCPA. The Company has taken reasonable steps to ensure that its accounting controls and procedures are sufficient to cause the Company to comply in all material respects with the FCPA.

(dd) Accountants. To the knowledge and belief of the Company, the Company Auditor (i) is an independent registered public accounting firm as required by the Exchange Act and (ii) will express its opinion with respect to the financial statements to be included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2024. The Company Auditor has not, during the periods covered by the financial statements included in the Prospectus, provided to the Company any non-audit services, as such term is used in Section 10A(g) of the Exchange Act.

(ee) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company’s knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department.

(ff) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon the Representative’s request.

(gg) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the “BHCA”) and to regulation by the Board of Governors of the Federal Reserve System (the “Federal Reserve”). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent (25%) or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

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(hh) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the “Money Laundering Laws”), and no Action or Proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

(ii) D&O Questionnaires. To the Company’s knowledge, all information contained in the questionnaires completed by each of the Company’s directors and officers immediately prior to the Offering and in the Lock-Up Agreement provided to the Underwriters is true and correct in all respects and the Company has not become aware of any information which would cause the information disclosed in such questionnaires become inaccurate and incorrect.

(jj) FINRA Affiliation. No officer, director or any beneficial owner of 10% or more of the Company’s unregistered securities has any direct or indirect affiliation or association with any FINRA member (as determined in accordance with the rules and regulations of FINRA) that is participating in the Offering. The Company will advise the Representative and Underwriters’ Counsel if it learns that any officer, director or owner of 5% or more of the Company’s outstanding shares of Common Stock or Common Stock Equivalents is or becomes an affiliate or associated person of a FINRA member firm.

(kk) Officers’ Certificate. Any certificate signed by any duly authorized officer of the Company and delivered to the Representative or Underwriters’ Counsel shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

(ll) Board of Directors. The Board of Directors is comprised of the persons set forth in the SEC Reports. The qualifications of the persons serving as board members and the overall composition of the Board of Directors comply with the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder applicable to the Company and the rules of the Trading Market. At least one member of the Board of Directors qualifies as a “financial expert” as such term is defined under the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder and the rules of the Trading Market. In addition, at least a majority of the persons serving on the Board of Directors qualify as “independent” as defined under the rules of the Trading Market.

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(mm) Cybersecurity. To the Company’s knowledge, there has been no security breach or other compromise of or relating to any of the Company’s or any Subsidiary’s information technology and computer systems, networks, hardware, software, data (including the data of its respective customers, employees, suppliers, vendors and any third party data maintained by or on behalf of it), equipment or technology (collectively, “IT Systems and Data”). (i) The Company and the Subsidiaries have not been notified of, and has no knowledge of any event or condition that would reasonably be expected to result in, any security breach or other compromise to its IT Systems and Data; (ii) the Company and the Subsidiaries are presently in compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Data and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification, except as would not, individually or in the aggregate, have a Material Adverse Effect; (iii) the Company and the Subsidiaries have implemented and maintained commercially reasonable safeguards to maintain and protect its material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and Data; and (iv) the Company and the Subsidiaries have implemented backup and disaster recovery technology consistent with industry standards and practices.

(nn) Environmental Laws. There has been no storage, generation, transportation, handling, use, treatment, disposal, discharge, emission, contamination, release or other activity involving any Hazardous Substances by, due to, on behalf of, or caused by the Company or any Subsidiary (or, to the Company's knowledge, any other entity for whose acts or omissions the Company is liable) upon any property now or previously owned, operated, used or leased by the Company or any Subsidiary, or upon any other property, which would be a violation of or give rise to any current or future liability under any Environmental Law, except for violations and liabilities which, individually or in the aggregate, would not have a Material Adverse Effect or as disclosed in the Prospectus, each Preliminary Prospectus Supplement, the Prospectus Supplement or the SEC Reports. There has been no disposal, discharge, emission, contamination, or other release by any party of any Hazardous Substances at, onto or from any property now or previously owned, operated, used or leased by the Company or any Subsidiary, or into the environment surrounding any such property with respect to which the Company or any Subsidiary has knowledge, except as would not, individually or in the aggregate, have a Material Adverse Effect or as disclosed in the Prospectus, each Preliminary Prospectus Supplement, the Prospectus Supplement, as amended, or the SEC Reports. There is no pending or, to the Company's knowledge, threatened or likely administrative, regulatory or judicial action, claim or notice of noncompliance or violation, investigation or proceedings relating to any Environmental Law against the Company or any Subsidiary, except as would not, individually or in the aggregate, have a Material Adverse Effect or as disclosed in the Prospectus Supplement, as amended, or the SEC Reports. No property of the Company or any Subsidiary is subject to any Lien under any Environmental Law. Except as disclosed in the SEC Reports, the Prospectus, each Prospectus Supplement and the Prospectus Supplement, neither the Company nor any Subsidiary is subject to any order, decree, agreement or other individualized legal requirement related to any Environmental Law, which, in any case (individually or in the aggregate), would have a Material Adverse Effect. The Company and each Subsidiary are in compliance with all applicable federal, state, local and Environmental Laws and each has all permits, authorizations and approvals required under any applicable Environmental Laws and are each in compliance with their requirements, except for failures to comply or failures to obtain permits which, individually or in the aggregate, would not have a Material Adverse Effect or as disclosed in the SEC Reports, the Prospectus, Prospectus Supplement and the Prospectus Supplement, as amended.

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ARTICLE IV. OTHER AGREEMENTS OF THE PARTIES

4.1 Amendments to Registration Statement. The Company has delivered, or will as promptly as practicable deliver, to the Underwriters complete conformed copies of the Registration Statement and of each consent and certificate of experts, as applicable, filed as a part thereof, and conformed copies of the Registration Statement (without exhibits), the Prospectus, each Preliminary Prospectus Supplement and the Prospectus Supplement, as amended or supplemented, in such quantities and at such places as an Underwriter reasonably requests. Neither the Company nor any of its directors and officers has distributed and none of them will distribute, prior to the Closing Date, any offering material in connection with the offering and sale of the Public Securities other than the Prospectus, the Preliminary Prospectus Supplement, the Prospectus Supplement, the Registration Statement, and copies of the documents incorporated by reference therein. The Company shall not file any such amendment or supplement to which the Representative shall reasonably object in writing.

4.2 Federal Securities Laws

(a) Compliance. During the time when a Prospectus is required to be delivered under the Securities Act, the Company will comply with all requirements imposed upon it by the Securities Act and the rules and regulations thereunder and the Exchange Act and the rules and regulations thereunder, as from time to time in force, so far as necessary to permit the continuance of sales of or dealings in the Public Securities in accordance with the provisions hereof and the Prospectus. If at any time when a Prospectus relating to the Public Securities is required to be delivered under the Securities Act, any event shall have occurred as a result of which, in the opinion of counsel for the Company or counsel for the Underwriters, the Prospectus, as then amended or supplemented, includes an untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, or if it is necessary at any time to amend the Prospectus to comply with the Securities Act, the Company will notify the Underwriters promptly and prepare and file with the Commission, subject to Section 4.1 hereof, an appropriate amendment or supplement in accordance with Section 10 of the Securities Act.

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(b) Filing of Final Prospectus Supplement. The Company will file the Prospectus Supplement (in form and substance satisfactory to the Representative) with the Commission pursuant to the requirements of Rule 424.

(c) Exchange Act Registration. For a period of two (2) years from the Execution Date, the Company will maintain the registration of the Common Stock under the Exchange Act. The Company will not deregister the Common Stock under the Exchange Act without the prior written consent of the Representative.

(d) Free Writing Prospectuses. The Company represents and agrees that it has not made and will not make any offer relating to the Public Securities that would constitute an issuer free writing prospectus, as defined in Rule 433 of the rules and regulations under the Securities Act, without the prior written consent of the Representative. Any such free writing prospectus consented to by the Representative is herein referred to as a "Permitted Free Writing Prospectus." The Company represents that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus" as defined in rule and regulations under the Securities Act, and has complied and will comply with the applicable requirements of Rule 433 of the Securities Act, including timely Commission filing where required, legending and record keeping.

4.3 Delivery to the Underwriters of Prospectuses. The Company will deliver to the Underwriters, without charge, from time to time during the period when the Prospectus and the Prospectus Supplement is required to be delivered under the Securities Act or the Exchange Act such number of copies of the Prospectus and Prospectus Supplement as the Underwriters may reasonably request and, as soon as the Registration Statement or any amendment or supplement thereto becomes effective, deliver to you two original executed Registration Statements, including exhibits, and all post-effective amendments thereto and copies of all exhibits filed therewith or incorporated therein by reference and all original executed consents of certified experts.

4.4 Effectiveness and Events Requiring Notice to the Underwriters. The Company will use its reasonable best efforts to cause the Registration Statement to remain effective with a current prospectus until the passage of nine (9) months from the Execution Date, and will notify the Underwriters immediately and confirm the notice in writing: (i) of the effectiveness of the Registration Statement and any amendment thereto; (ii) of the issuance by the Commission of any stop order or of the initiation, or the threatening, of any proceeding for that purpose; (iii) of the issuance by any state securities commission of any proceedings for the suspension of the qualification of the Public Securities for offering or sale in any jurisdiction or of the initiation, or the threatening, of any proceeding for that purpose; (iv) of the mailing and delivery to the Commission for filing of any amendment or supplement to the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement; (v) of the receipt of any comments or request for any additional information from the Commission; and (vi) of the happening of any event during the period described in this Section 4.4 that, in the judgment of the Company, makes any statement of a material fact made in the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement untrue or that requires the making of any changes in the Registration Statement, the Prospectus, any Preliminary Prospectus Supplement or the Prospectus Supplement in order to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Commission or any state securities commission shall enter a stop order or suspend such qualification at any time, the Company will make every reasonable effort to obtain promptly the lifting of such order.

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4.5 Review of Financial Statements. For a period of five (5) years from the Execution Date, the Company, at its expense, shall cause its regularly engaged independent registered public accountants to review (but not audit) the Company's financial statements for each of the first three fiscal quarters prior to the announcement of quarterly

financial information.

4.6 Expenses of the Offering. The Company hereby agrees to pay on each of the Closing Date and each Option Closing Date, if any, to the extent not paid at the Closing Date, all expenses incident to the performance of the obligations of the Company under this Agreement, including, but not limited to: (a) all filing fees and communication expenses relating to the registration of the Public Securities to be sold in the Offering (including the Option Shares) with the Commission; (b) all FINRA Public Offering Filing System fees associated with the review of the Offering by FINRA; all fees and expenses relating to the listing of such Closing Shares, the Option Shares and the Representative Warrant Shares on the Trading Market and such other stock exchanges as the Company and the Representative together determine; (c) all fees, expenses and disbursements relating to the registration or qualification of such Closing Shares under the “blue sky” securities laws of such states (including, without limitation, all filing and registration fees, and the fees and expenses of Blue Sky counsel); (d) the costs of all mailing and printing of the underwriting documents (including, without limitation, this Agreement, any Blue Sky Surveys and, if appropriate, any Agreement Among Underwriters, Selected Dealers’ Agreement, Underwriters’ Questionnaire and Power of Attorney), Registration Statements, Prospectuses and all amendments, supplements and exhibits thereto and as many preliminary and final Prospectuses as the Representative may reasonably deem necessary; (e) the costs and expenses of the Company’s public relations firm; if the Company has a public relations firm, (f) the costs of preparing, printing and delivering the Public Securities; (g) fees and expenses of the Transfer Agent for the Public Securities (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company); (h) stock transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the Underwriters; (i) the fees and expenses of the Company’s accountants; (j) the fees and expenses of the Company’s legal counsel and other agents and representatives; (k) the Underwriters’ costs of mailing prospectuses to prospective investors; (l) the expenses of the Underwriters’ use of i-Deal’s book-building, prospectus tracking and compliance software (or other similar software) for the Offering, (m) the Underwriters’ actual “road show” expenses for the offering and (n) the fees and expenses of counsel of the Representative; *provided, however*, that the Company will reimburse the Underwriters for all out-of-pocket expenses reasonably incurred and documented by it in connection with its engagement hereunder (which shall include any expenses under clauses (l) – (m) herein) in an aggregate amount that shall not exceed \$95,000 without the prior written approval of the Company. The Underwriters may also deduct from the net proceeds of the Offering payable to the Company on the Closing Date, or on each Option Closing Date, if any, the expenses set forth herein to be paid by the Company to the Underwriters.

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4.7 Application of Net Proceeds. The Company will apply the net proceeds from the Offering received by it in a manner consistent with the application described under the caption “Use of Proceeds” in the Prospectus.

4.8 Delivery of Earnings Statements to Security Holders. The Company will make generally available to its security holders as soon as practicable, but not later than the first day of the fifteenth full calendar month following the Execution Date, an earnings statement (which need not be certified by independent public or independent certified public accountants unless required by the Securities Act or the rules and regulations under the Securities Act, but which shall satisfy the provisions of Rule 158(a) under Section 11(a) of the Securities Act) covering a period of at least twelve consecutive months beginning after the Execution Date.

4.9 Stabilization. Neither the Company, nor, to its knowledge, any of its employees, directors or shareholders (without the consent of the Representative) has taken or will take, directly or indirectly, any action designed to or that has constituted or that might reasonably be expected to cause or result in, under the Exchange Act, or otherwise, stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Public Securities.

4.10 Internal Controls. The Company will maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (i) transactions are executed in accordance with management’s general or specific authorization; (ii) transactions are recorded as necessary in order to permit preparation of financial statements in accordance with GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management’s general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Further, such internal controls may be subject to review by the Company’s independent accountants and, as a result, such accountants may determine one or more of the above does not comply with the above representation. If such occurs, the Company will use reasonable efforts to timely cure such deficiency.

4.11 Accountants. The Company shall continue to retain a nationally recognized independent certified public accounting firm for a period of at least three (3) years after the Execution Date. The Underwriters acknowledge that the Company Auditor is acceptable to the Underwriters.

4.12 FINRA. The Company shall advise the Underwriters (who shall make an appropriate filing with FINRA) if it is aware that any officer, director or 10% or greater stockholder of the Company becomes an affiliate or associated person of an Underwriter.

4.13 No Fiduciary Duties. The Company acknowledges and agrees that the Underwriters’ responsibility to the Company is solely contractual and commercial in nature, based on arms-length negotiations and that neither the Underwriters nor their affiliates or any selected dealer shall be deemed to be acting in a fiduciary capacity, or otherwise owes any fiduciary duty to the Company or any of its affiliates in connection with the Offering and the other transactions contemplated by this Agreement. Notwithstanding anything in this Agreement to the contrary, the Company acknowledges that the Underwriters may have financial interests in the success of the Offering that are not limited to the difference between the price to the public and the purchase price paid to the Company by the Underwriters for the securities and the Underwriters have no obligation to disclose, or account to the Company for, any of such additional financial interests. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against the Underwriters with respect to any breach or alleged breach of fiduciary duty.

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4.14 Board Composition and Board Designations. For period of three (3) years after the Execution Date, the Company shall ensure that: (i) the qualifications of the persons serving as board members and the overall composition of the Board of Directors comply with the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder and with the listing requirements of the Trading Market and (ii) if applicable, at least one member of the Board of Directors qualifies as a “financial expert” as such term is defined under the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder.

4.15 Securities Laws Disclosure; Publicity. At the request of the Representative, by 9:00 a.m. (New York City time) on the date following the date hereof, the Company shall issue a press release disclosing the material terms of the Offering. The Company and the Representative shall consult with each other in issuing any other press releases with respect to the Offering, and neither the Company nor any Underwriter shall issue any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of such Underwriter, or without the prior consent of such Underwriter, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. The Company will not issue press releases or engage in any other publicity, without the Representative’s prior written consent, for a period ending at 5:00 p.m. (New York City time) on the first business day following the 30th day following the Closing Date, other than normal and customary releases issued in the ordinary course of the Company’s business.

4.16 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Underwriter of the Public Securities is an “Acquiring Person” under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Underwriter of Public Securities could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Public Securities.

4.17 Reservation of Common Stock. As of the date hereof, the Company has reserved and the Company shall continue to reserve and keep available at all times, free of preemptive rights, a sufficient number of shares of Common Stock for the purpose of enabling the Company to issue Representative Warrant Shares pursuant to any exercise of the Representative’s Warrants.

4.18 Listing of Common Stock. The Company hereby agrees to use best efforts to maintain the listing or quotation of the Common Stock on the Trading Market on which it is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Closing Shares, the Option Shares and the Representative Warrant Shares on such Trading Market and promptly secure the listing of all of the Closing Shares, the Option Shares and the Representative Warrant Shares on such Trading Market. The Company further agrees, if the Company applies to have the Common Stock traded on any other Trading Market, it will then include in such application all of the Closing Shares, the Option Shares and the Representative Warrant Shares, and will take such other action as is necessary to cause all of the Closing Shares, the Option Shares and the Representative Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of its Common Stock on a Trading Market and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of the Trading Market. The Company agrees to maintain the eligibility of the Common Stock for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer.

4.19 Subsequent Equity Sales.

(a) From the date hereof until ninety (90) days after the Closing Date, neither the Company nor any Subsidiary shall (i) issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of Common Stock or Common Stock Equivalents other than in an Exempt Issuance, or (ii) file any registration statement or amendment or supplement thereto, other than the Prospectus Supplement or filing a registration statement on Form S-8 in connection with any employee benefit plan.

(b) From the date hereof until 180 days after the Closing Date, the Company shall be prohibited from effecting or entering into an agreement to effect any issuance by the Company or any of its Subsidiaries of Common Stock or Common Stock Equivalents (or a combination of units thereof) involving a Variable Rate Transaction. "Variable Rate Transaction" means a transaction in which the Company (i) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of Common Stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (ii) enters into, or effects a transaction under, any agreement, including, but not limited to, an equity line of credit or an "at-the-market offering", whereby the Company may issue securities at a future determined price regardless of whether shares pursuant to such agreement have actually been issued and regardless of whether such agreement is subsequently canceled. Any Underwriter shall be entitled to obtain injunctive relief against the Company to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(c) Notwithstanding the foregoing, this Section 4.19 shall not apply in respect of an Exempt Issuance, except that no Variable Rate Transaction shall be an Exempt Issuance.

4.20 Research Independence. The Company acknowledges that each Underwriter's research analysts and research departments, if any, are required to be independent from their respective investment banking divisions and are subject to certain regulations and internal policies, and that such Underwriter's research analysts may hold and make statements or investment recommendations and/or publish research reports with respect to the Company and/or the offering that differ from the views of its investment bankers. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against such Underwriter with respect to any conflict of interest that may arise from the fact that the views expressed by their independent research analysts and research departments may be different from or inconsistent with the views or advice communicated to the Company by such Underwriter's investment banking divisions. The Company acknowledges that the Representative is a full service securities firm and as such from time to time, subject to applicable securities laws, may effect transactions for its own account or the account of its customers and hold long or short position in debt or equity securities of the Company.

ARTICLE V. DEFAULT BY UNDERWRITERS

If on the Closing Date or any Option Closing Date any Underwriter shall fail to purchase and pay for the portion of the Closing Shares or Option Shares, as the case may be, which such Underwriter has agreed to purchase and pay for on such date (otherwise than by reason of any default on the part of the Company), the Representative, or if the Representative is the defaulting Underwriter, the non-defaulting Underwriters, shall use their reasonable best efforts to procure within thirty-six (36) hours thereafter one or more of the other Underwriters, or any others, to purchase from the Company such amounts as may be agreed upon and upon the terms set forth herein, the Closing Shares or Option Shares, as the case may be, which the defaulting Underwriter or Underwriters failed to purchase. If during such thirty-six (36) hours the Representative shall not have procured such other Underwriters, or any others, to purchase the Closing Shares or Option Shares, as the case may be, agreed to be purchased by the defaulting Underwriter or Underwriters, then (a) if the aggregate number of Closing Shares or Option Shares, as the case may be, with respect to which such default shall occur does not exceed ten percent (10%) of the Closing Shares or Option Shares, as the case may be, covered hereby, the other Underwriters shall be obligated, severally, in proportion to the respective numbers of Closing Shares or Option Shares, as the case may be, which they are obligated to purchase hereunder, to purchase the Closing Shares or Option Shares, as the case may be, which such defaulting Underwriter or Underwriters failed to purchase, or (b) if the aggregate number of Closing Shares or Option Shares, as the case may be, with respect to which such default shall occur exceeds ten percent (10%) of the Closing Shares or Option Shares, as the case may be, covered hereby, the Company or the Representative will have the right to terminate this Agreement without liability on the part of the non-defaulting Underwriters or of the Company except to the extent provided in Article VI hereof. In the event of a default by any Underwriter or Underwriters, as set forth in this Article V, the applicable Closing Date may be postponed for such period, not exceeding seven days, as the Representative, or if the Representative is the defaulting Underwriter, the non-defaulting Underwriters, may determine in order that the required changes in the Prospectus Supplement or in any other documents or arrangements may be effected. The term "Underwriter" includes any Person substituted for a defaulting Underwriter. Any action taken under this Section shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

ARTICLE VI. INDEMNIFICATION

6.1 Indemnification of the Underwriters. Subject to the conditions set forth below, the Company agrees to indemnify and hold harmless the Underwriters, and each dealer selected by each Underwriter that participates in the offer and sale of the Public Securities (each a "Selected Dealer") and each of their respective directors, officers and employees and each Person, if any, who controls such Underwriter or any Selected Dealer ("Controlling Person") within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, against any and all loss, liability, claim, damage and expense whatsoever (including but not limited to any and all legal or other expenses reasonably incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, whether arising out of any action between such Underwriter and the Company or between such Underwriter and any third party or otherwise) to which they or any of them may become subject under the Securities Act, the Exchange Act or any other statute or at common law or otherwise or under the laws of foreign countries, arising out of or based upon any untrue statement or

alleged untrue statement of a material fact contained in (i) any Preliminary Prospectus Supplement, the Registration Statement, the Prospectus or the Prospectus Supplement (as from time to time each may be amended and supplemented); (ii) any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the offering of the Public Securities, including any “road show” or investor presentations made to investors by the Company (whether in person or electronically); or (iii) any application or other document or written communication (in this Article VI, collectively called “application”) executed by the Company or based upon written information furnished by the Company in any jurisdiction in order to qualify the Public Securities under the securities laws thereof or filed with the Commission, any state securities commission or agency, Trading Market or any securities exchange; or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, unless such statement or omission was made in reliance upon and in conformity with written information furnished to the Company with respect to the applicable Underwriter by or on behalf of such Underwriter expressly for use in any Preliminary Prospectus Supplement, if any, the Registration Statement, the Prospectus, the Prospectus Supplement or any amendment or supplement thereto, or in any application, as the case may be. With respect to any untrue statement or omission or alleged untrue statement or omission made in the Preliminary Prospectus Supplement, if any, the indemnity agreement contained in this Section 6.1 shall not inure to the benefit of an Underwriter to the extent that any loss, liability, claim, damage or expense of such Underwriter results from the fact that a copy of the Prospectus Supplement was not given or sent to the Person asserting any such loss, liability, claim or damage at or prior to the written confirmation of sale of the Public Securities to such Person as required by the Securities Act and the rules and regulations thereunder, and if the untrue statement or omission has been corrected in the Prospectus Supplement, unless such failure to deliver the Prospectus Supplement was a result of non-compliance by the Company with its obligations under this Agreement. Further, the Company shall not have any liability for indemnification under this Section 6.1 if and to the extent that a court of competent jurisdiction in a final judgment from which no appeal can be made shall determine that the loss, liability, claim, damage or expense resulted primarily and directly from the willful misconduct, fraud or gross negligence of the Underwriter or Selected Dealer. The Company agrees promptly to notify each Underwriter of the commencement of any litigation or proceedings against the Company or any of its officers, directors or Controlling Persons in connection with the issue and sale of the Public Securities or in connection with the Registration Statement or the Prospectus Supplement.

6.2 Procedure. If any action is brought against an Underwriter, a Selected Dealer or a Controlling Person in respect of which indemnity may be sought against the Company pursuant to Section 6.1, such Underwriter, such Selected Dealer or Controlling Person, as the case may be, shall promptly notify the Company in writing of the institution of such action and the Company shall assume the defense of such action, including the employment and fees of counsel (subject to the reasonable approval of such Underwriter or such Selected Dealer, as the case may be, which approval shall not be unreasonably withheld) and payment of actual expenses. Such Underwriter, such Selected Dealer or Controlling Person shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such Underwriter, such Selected Dealer or Controlling Person unless (i) the employment of such counsel at the expense of the Company shall have been authorized in writing by the Company in connection with the defense of such action, or (ii) the Company shall not have employed counsel to have charge of the defense of such action, or (iii) such indemnified party or parties shall have reasonably concluded based on advice of counsel that there may be defenses available to it or them which are different from or additional to those available to the Company (in which case the Company shall not have the right to direct the defense of such action on behalf of the indemnified party or parties), in any of which events the reasonable fees and expenses of not more than one firm of attorneys selected by such Underwriter (in addition to local counsel and counsel selected by the Company), Selected Dealer and/or Controlling Person shall be borne by the Company. Notwithstanding anything to the contrary contained herein, if any Underwriter, Selected Dealer or Controlling Person shall assume the defense of such action as provided above, the Company shall have the right to approve the terms of any settlement of such action which approval shall not be unreasonably withheld.

6.3 Indemnification of the Company. Each Underwriter severally and not jointly agrees to indemnify and hold harmless the Company, its directors, officers and employees and agents who control the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all loss, liability, claim, damage and expense described in the foregoing indemnity from the Company to such Underwriter, as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions made in any Preliminary Prospectus Supplement, if any, the Registration Statement, the Prospectus, the Prospectus Supplement or any amendment or supplement thereto or in any application, in reliance upon, and in strict conformity with, written information furnished to the Company with respect to such Underwriter by or on behalf of such Underwriter expressly for use in such Preliminary Prospectus Supplement, if any, the Registration Statement, the Prospectus, the Prospectus Supplement or any amendment or supplement thereto or in any such application. In case any action shall be brought against the Company or any other Person so indemnified based on any Preliminary Prospectus Supplement, if any, the Registration Statement, the Prospectus, the Prospectus Supplement or any amendment or supplement thereto or any application, and in respect of which indemnity may be sought against such Underwriter, such Underwriter shall have the rights and duties given to the Company, and the Company and each other Person so indemnified shall have the rights and duties given to such Underwriter by the provisions of this Article VI. Notwithstanding the provisions of this Section 6.3, no Underwriter shall be required to indemnify the Company for any amount in excess of the underwriting discounts and commissions applicable to the Public Securities purchased by such Underwriter. The Underwriters’ obligations in this Section 6.3 to indemnify the Company are several in proportion to their respective underwriting obligations and not joint.

6.4 Contribution.

(a) Contribution Rights. In order to provide for just and equitable contribution under the Securities Act in any case in which (i) any Person entitled to indemnification under this Article VI makes a claim for indemnification pursuant hereto but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case notwithstanding the fact that this Article VI provides for indemnification in such case, or (ii) contribution under the Securities Act, the Exchange Act or otherwise may be required on the part of any such Person in circumstances for which indemnification is provided under this Article VI, then, and in each such case, the Company and each Underwriter, severally and not jointly, shall contribute to the aggregate losses, liabilities, claims, damages and expenses of the nature contemplated by said indemnity agreement incurred by the Company and such Underwriter, as incurred, in such proportions that such Underwriter is responsible for that portion represented by the percentage that the underwriting discount appearing on the cover page of the Prospectus Supplement bears to the initial offering price appearing thereon and the Company is responsible for the balance; provided, that, no Person guilty of a fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation. For purposes of this Section, each director, officer and employee of such Underwriter or the Company, as applicable, and each Person, if any, who controls such Underwriter or the Company, as applicable, within the meaning of Section 15 of the Securities Act shall have the same rights to contribution as such Underwriter or the Company, as applicable. Notwithstanding the provisions of this Section 6.4, no Underwriter shall be required to contribute any amount in excess of the underwriting discounts and commissions applicable to the Public Securities purchased by such Underwriter. The Underwriters’ obligations in this Section 6.4 to contribute are several in proportion to their respective underwriting obligations and not joint.

(b) Contribution Procedure. Within fifteen days after receipt by any party to this Agreement (or its representative) of notice of the commencement of any action, suit or proceeding, such party will, if a claim for contribution in respect thereof is to be made against another party (“contributing party”), notify the contributing party of the commencement thereof, but the failure to so notify the contributing party will not relieve it from any liability which it may have to any other party other than for contribution hereunder. In case any such action, suit or proceeding is brought against any party, and such party notifies a contributing party or its representative of the commencement thereof within the aforesaid fifteen days, the contributing party will be entitled to participate therein with the notifying party and any other contributing party similarly notified. Any such contributing party shall not be liable to any party seeking contribution on account of any settlement of any claim, action or proceeding affected by such party seeking contribution without the written consent of such contributing party. The contribution provisions contained in this Section 6.4 are intended to supersede, to the extent permitted by law, any right to contribution under the Securities Act, the Exchange Act or otherwise available.

7.1 Termination.

(a) Termination Right. The Representative shall have the right to terminate this Agreement at any time prior to any Closing Date, (i) if any domestic or international event or act or occurrence has materially disrupted, or in its opinion will in the immediate future materially disrupt, general securities markets in the United States; or (ii) if trading on any Trading Market shall have been suspended or materially limited, or minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required by FINRA or by order of the Commission or any other government authority having jurisdiction, or (iii) if the United States shall have become involved in a new war or an increase in major hostilities, or (iv) if a banking moratorium has been declared by a New York State or federal authority, or (v) if a moratorium on foreign exchange trading has been declared which materially adversely impacts the United States securities markets, or (vi) if the Company shall have sustained a material loss by fire, flood, accident, hurricane, earthquake, theft, sabotage or other calamity or malicious act which, whether or not such loss shall have been insured, will, in the Representative's opinion, make it inadvisable to proceed with the delivery of the Public Securities, or (vii) if the Company is in material breach of any of its representations, warranties or covenants hereunder, or (viii) if the Representative shall have become aware after the date hereof of such a material adverse change in the conditions or prospects of the Company, or such adverse material change in general market conditions as in the Representative's judgment would make it impracticable to proceed with the offering, sale and/or delivery of the Public Securities or to enforce contracts made by the Underwriters for the sale of the Public Securities.

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(b) Expenses. In the event this Agreement shall be terminated pursuant to Section 7.1(a), within the time specified herein or any extensions thereof pursuant to the terms herein, the Company shall be obligated to pay to the Representative its actual and accountable out of pocket expenses related to the transactions contemplated herein then due and payable, including the fees and disbursements of Underwriters' Counsel up to \$95,000 (provided, however, that such expense cap in no way limits or impairs the indemnification and contribution provisions of this Agreement).

(c) Indemnification. Notwithstanding any contrary provision contained in this Agreement, any election hereunder or any termination of this Agreement, and whether or not this Agreement is otherwise carried out, the provisions of Article VI shall not be in any way effected by such election or termination or failure to carry out the terms of this Agreement or any part hereof.

7.2 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, the Prospectus and the Prospectus Supplement, contain the entire understanding of the parties hereto with respect to the subject matter hereof and thereof and supersedes all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules. Notwithstanding anything herein to the contrary, the Engagement Letter shall continue to be effective and the terms therein, including, without limitation, Section 6(d) with respect to any future offerings, shall continue to survive and be enforceable by the Representative in accordance with its terms, provided that, in the event of a conflict between the terms of the Engagement Agreement and this Agreement, the terms of this Agreement shall prevail.

7.3 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the time of transmission, if such notice or communication is delivered via e-mail attachment at the email address set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the time of transmission, if such notice or communication is delivered via e-mail attachment at the e-mail address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2nd) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto.

7.4 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and the Representative. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right.

7.5 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

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7.6 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their successors and permitted assigns.

7.7 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal Proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any Action or Proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such Action or Proceeding is improper or is an inconvenient venue for such Proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such Action or Proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an Action or Proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Article VI, the prevailing party in such Action or Proceeding shall be reimbursed by the other party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such Action or Proceeding.

7.8 Survival. The representations and warranties contained herein shall survive the Closing and the Option Closing Date, if any, and the delivery of the Public Securities.

7.9 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such ".pdf" signature page were an original thereof.

7.10 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable best efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

7.11 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, the Underwriters and the Company will be entitled to specific performance under the Transaction Documents. The parties hereto agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any Action for specific performance of any such obligation the defense that a remedy at law would be adequate.

7.12 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

7.13 Construction. The parties hereto agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

7.14 **WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVE FOREVER ANY RIGHT TO TRIAL BY JURY.**

(Signature Pages Follow)

If the foregoing correctly sets forth the understanding between the Underwriters and the Company, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement among the Company and the several Underwriters in accordance with its terms.

Very truly yours,

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

By: /s/ Ben Naccarato

Name: Ben Naccarato

Title: CFO

Address for Notice:

Perma-fix Environmental Services, Inc.
8302 Dunwoody Place, #250
Atlanta, Georgia 30350
Attention: Mark Duff, CEO

Copy to:

Steptoe & Johnson PLLC
210 Park Avenue, Suite 2300
Oklahoma City, OK 73102
E-mail: Irwin.Steinhorn@steptoe-johnson.com
Attention: Irwin Steinhorn

Accepted on the date first above written.

Craig-Hallum Capital Group LLC
As the Representative of the several
Underwriters listed on Schedule I
By: Craig-Hallum Capital Group LLC

By: /s/Rick Hartfiel

Name: Rick Hartfiel

Title: Head of Investment Banking

Address for Notice:

Craig-Hallum Capital Group LLC222
South Ninth Street, Suite 350
Minneapolis, Minnesota 55402
E-mail: rick.hartfiel@craig-hallum.com
Attention: Rick Hartfiel

Copy to:

Troutman Pepper Hamilton Sanders LLP
301 S College Street, Suite 3400
Charlotte, NC 28202
E-mail: david.wolpa@troutman.com
Attention: David S. Wolpa

[Signature Page to Underwriting Agreement]

SCHEDULE I

Schedule of Underwriters

<u>Underwriters</u>	<u>Closing Shares</u>	<u>Closing Price per Share</u>	<u>Closing Purchase Price (proceeds net of discount)</u>
Craig-Hallum Capital Group LLC	2,200,000	\$ 9.30	\$ 20,460,000
Total	2,200,000		\$ 20,460,000

EXHIBIT A

Form of Lock-up Agreement

December __, 2024

Craig-Hallum Capital Group LLC
41 West Putnam Avenue 1st FL
Greenwich, CT 06831

Re: *Underwriting Agreement, to be dated as of December 2024, between Perma-fix Environmental Services, Inc. (the “Company”) and Craig-Hallum Capital Group LLC, as representative of the several underwriters*

Ladies and Gentlemen:

The undersigned understands that Craig-Hallum Capital Group LLC, as the representative (the “**Representative**”) of the several underwriters named therein, proposes to enter into an Underwriting Agreement (the “**Underwriting Agreement**”) with the Company relating to a proposed offering (the “**Offering**”) of shares of the Company’s common stock, par value \$0.001 per share (the “**Common Stock**”), and other securities. Defined terms not otherwise defined in this Lock-Up Agreement (the “**Lock-Up Agreement**”) shall have the meanings set forth in the Underwriting Agreement. Pursuant to Section 2.3 of the Underwriting Agreement and in satisfaction of a condition of the Company’s obligations under the Underwriting Agreement, the undersigned irrevocably agrees with the Company that, from the date hereof until 90 days following the Closing Date (such period, the “**Restriction Period**”), the undersigned will not offer, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or hypothecate, pledge or otherwise dispose of (or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the undersigned or any Affiliate of the undersigned or any person in privity with the undersigned or any Affiliate of the undersigned), directly or indirectly, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), enter into any swap or other agreement, arrangement, hedge or transaction that transfers to another, in whole or in part, directly or indirectly, any of the economic consequences of ownership of shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock, whether any transaction described in any of the foregoing is to be settled by delivery of shares of Common Stock, other securities, in cash or otherwise, or publicly announce an intention to do any of the foregoing with respect to, any shares of Common Stock of the Company or securities convertible, exchangeable or exercisable into or for, shares of Common Stock of the Company beneficially owned, held or hereafter acquired by the undersigned (the “**Securities**”) except as otherwise provided in this Lock-Up Agreement.

Beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act. In order to enforce this covenant, the Company shall impose irrevocable stop-transfer instructions preventing the transfer agent of the Company from effecting any actions in violation of this Lock-Up Agreement.

Notwithstanding the foregoing, and subject to the conditions below, the undersigned may transfer the Securities as set forth in clauses (i) through (vi) below, provided that (1) the Representative receives a signed lock-up agreement (in the form of this Lock-Up Agreement) for the balance of the Restriction Period from each donee, trustee, distributee, or transferee, as the case may be, prior to such transfer (2) any such transfer shall not involve a disposition for value, (3) such transfer is not required to be reported with the Securities and Exchange Commission in accordance with the Exchange Act and no report of such transfer shall be made voluntarily, and (4) neither the undersigned nor any donee, trustee, distributee or transferee, as the case may be, otherwise voluntarily effects any public filing or report regarding such transfers; and with this paragraph applying to transfers of the Securities:

- i) as a *bona fide* gift or gifts;
- ii) to any immediate family member or to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned (for purposes of this Lock-Up Agreement, “immediate family” shall mean any relationship by blood, marriage or adoption, not more remote than first cousin);
- iii) to any corporation, partnership, limited liability company, or other business entity all of the equity holders of which consist of the undersigned and/or the immediate family of the undersigned;
- iv) if the undersigned is a corporation, partnership, limited liability company, trust or other business entity (a) to another corporation, partnership, limited liability company, trust or other business entity that is an Affiliate of the undersigned or (b) in the form of a distribution to limited partners, limited liability company members or stockholders of the undersigned;
- v) if the undersigned is a trust, to the beneficiary of such trust; or
- vi) by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the undersigned.

In addition, notwithstanding the foregoing, this Lock-Up Agreement shall not restrict the delivery of shares of Common Stock to the undersigned upon (i) exercise of any options granted under any employee benefit plan of the Company or award under the Company’s 2003 Outside Director’s Stock Plan, as amended; provided that any shares of Common Stock or Securities acquired in connection with any such exercise or upon such award, respectively, will be subject to the restrictions set forth in this Lock-Up Agreement, or (ii) the exercise of warrants; provided that such shares of Common Stock delivered to the undersigned in connection with such exercise are subject to the restrictions set forth in this Lock-Up Agreement.

Furthermore, the undersigned may enter into any new plan established in compliance with Rule 10b5-1 of the Exchange Act; provided that (i) such plan may only be established if no public announcement or filing with the Securities and Exchange Commission, or other applicable regulatory authority, is made in connection with the establishment of such plan during the Restriction Period, other than as may be required on Form 10-Q, and (ii) no sale of shares of Common Stock are made pursuant to such plan during the Restriction Period.

The undersigned acknowledges that the execution, delivery and performance of this Lock-Up Agreement is a material inducement to the Representative to complete the transactions contemplated by the Underwriting Agreement and the Representative shall be entitled to specific performance of the undersigned’s obligations hereunder. The undersigned hereby represents that the undersigned has the power and authority to execute, deliver and perform this Lock-Up Agreement, that the undersigned has received adequate consideration therefor and that the undersigned will indirectly benefit from the closing of the transactions contemplated by the Underwriting Agreement.

This Lock-Up Agreement may not be amended or otherwise modified in any respect without the written consent of the Representative and the undersigned. This Lock-Up Agreement shall be construed and enforced in accordance with the laws of the State of New York without regard to the principles of conflict of laws. The undersigned hereby irrevocably submits to the exclusive jurisdiction of the United States District Court sitting in the Southern District of New York and the courts of the State of New York

located in Manhattan, for the purposes of any suit, action or proceeding arising out of or relating to this Lock-Up Agreement, and hereby waives, and agrees not to assert in any such suit, action or proceeding, any claim that (i) it is not personally subject to the jurisdiction of such court, (ii) the suit, action or proceeding is brought in an inconvenient forum, or (iii) the venue of the suit, action or proceeding is improper. The undersigned hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by receiving a copy thereof sent to the Company at the address in effect for notices to it under the Underwriting Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. The undersigned hereby waives any right to a trial by jury. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law.

The undersigned understands that if the Underwriting Agreement does not become effective by December 31, 2024, or if the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, the undersigned shall be released from all obligations under this Agreement.

This Lock-Up Agreement shall be binding on successors and assigns of the undersigned with respect to the Securities and any such successor or assign shall enter into a similar agreement for the benefit of the Representative.

*** SIGNATURE PAGE FOLLOWS***

This Lock-Up Agreement may be executed in two or more counterparts, all of which when taken together may be considered one and the same agreement.

Signature

Print Name

Position in Company, if any

Address for Notice:

EXHIBIT B

Form of Representative's Warrant

THE REGISTERED HOLDER OF THIS PURCHASE WARRANT BY ITS ACCEPTANCE HEREOF, AGREES THAT IT WILL NOT SELL, TRANSFER OR ASSIGN THIS PURCHASE WARRANT EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT COVERING THIS PURCHASE WARRANT OR PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT.

THIS PURCHASE WARRANT IS VOID AFTER 5:00 P.M., EASTERN TIME, DECEMBER [●], 2029.

COMMON STOCK PURCHASE WARRANT PERMA-FIX ENVIRONMENTAL SERVICES, INC.

Warrant Shares: _____

Initial Issue Date: December [●], 2024

Initial Exercise Date: December [●], 2024

THIS COMMON STOCK PURCHASE WARRANT (the "**Warrant**") certifies that, for value received, [●]¹ or its assigns (the "**Holder**") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the Initial Issue Date of this Warrant (the "**Initial Exercise Date**") and prior to 5:00 p.m. (New York City time) on December [●], 2029 (the "**Termination Date**") but not thereafter, to subscribe for and purchase from Perma-fix Environmental Services, Inc., a company incorporated under the laws of the State of Delaware (the "**Company**"), up to [●] shares of Common Stock (as subject to adjustment hereunder, the "**Warrant Shares**"). The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. In addition to the terms defined elsewhere in this Warrant, the following terms have the meanings indicated in this Section 1:

"**Affiliate**" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person, as such terms are used in and construed under Rule 405 under the Securities Act.

"**Bid Price**" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined in good faith by an independent appraiser selected in good faith by the Board of Directors of the Company, the fees and expenses of which shall be paid by the Company.

"**Business Day**" means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to "stay at home", "shelter-in-place", "non-essential employee" or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open

for use by customers on such day.

¹ **Note:** To be Craig-Hallum (and/or its designees) and Wellington Shields (and/or its designees).

“**Commission**” means the United States Securities and Exchange Commission.

“**Common Stock**” means the common stock of the Company, par value \$0.001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“**Common Stock Equivalents**” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

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

“**Person**” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“**Registration Statement**” means the Company’s registration statement on Form S-3, as amended and supplemented (File No. 333-[●]).

“**Rule 144**” means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“**Securities Act**” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“**Trading Day**” means a day on which the Common Stock is traded on a Trading Market.

“**Trading Market**” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, OTCQB or OTCQX (or any successors to any of the foregoing).

“**Transfer Agent**” means Continental Stock Transfer & Trust Company, the current transfer agent of the Company.

“**Underwriting Agreement**” means the underwriting agreement, dated as of December [●], 2024, among the Company, Craig-Hallum Capital Group LLC and the other underwriters named in Schedule I thereto, as amended, modified or supplemented from time to time in accordance with its terms.

“**VWAP**” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price per share of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price per share of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“**Warrants**” means this Warrant and other Common Stock purchase warrants issued by the Company as underwriting compensation pursuant to the Underwriting Agreement.

Section 2. Exercise.

a) **Exercise of Warrant.** Subject to the provisions of Section 2(e) herein, exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company (or such other office or agency of the Company as it may designate by notice in writing to the registered Holder at the address of the Holder appearing on the books of the Company) of a duly executed facsimile copy or PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form annexed hereto (the “**Notice of Exercise**”), and, unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise, delivery of the aggregate Exercise Price of the Warrant Shares specified in the applicable Notice of Exercise as specified in this Section 2(a). Within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer of immediately available funds or cashier’s check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Business Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) **Exercise Price.** The exercise price per share of Common Stock under this Warrant shall be \$[●], subject to adjustment hereunder (the “**Exercise Price**”).

c) **Cashless Exercise.** This Warrant may be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing ((A-B)(X)) by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder’s execution of the applicable Notice of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;

² **Note to Draft:** This will be 115% of the price paid by investors.

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

Notwithstanding anything herein to the contrary, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 2(c) on the Termination Date.

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder’s or its designee’s balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system (“DWAC”) if the Company’s transfer agent is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner-of-sale limitations pursuant to Rule 144, and otherwise by physical delivery of a certificate, registered in the Company’s share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earliest of (i) one (1) Trading Day after the delivery to the Company of the Notice of Exercise and (ii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the “Warrant Share Delivery Date”). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, then the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, “Standard Settlement Period” means the standard settlement period, expressed in a number of Trading Days, on the Company’s primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise by delivering written notice to the Company at any time prior to the delivery of such Warrant Shares (in which case, any liquidated damages payable under Section 2(d)(i) shall cease to accrue).

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder’s brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a “Buy-In”), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder’s total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder’s right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company’s failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its

election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; *provided, however*, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

viii. Signature. This Section 2 and the exercise form attached hereto set forth the totality of the procedures required of the Holder in order to exercise this Warrant. Without limiting the preceding sentences, no ink-original exercise form shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any exercise form be required in order to exercise this Warrant. No additional legal opinion, other information or instructions shall be required of the Holder to exercise this Warrant. The Company shall honor exercises of this Warrant and shall deliver Shares underlying this Warrant in accordance with the terms, conditions and time periods set forth herein.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "**Attribution Parties**")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties to the extent such issuance would exceed such limitation. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall not have any obligation to verify or confirm the accuracy of such determination and neither of them shall have any liability for any error made by the Holder or any other Person. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "**Beneficial Ownership Limitation**" shall be 4.99% (or, upon election by a Holder prior to the issuance of any Warrants, 9.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time while this Warrant is outstanding the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "**Purchase Rights**"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights; *provided, however*, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would

not result in the Holder exceeding the Beneficial Ownership Limitation.

c) **Pro Rata Distributions.** During such time as this Warrant is outstanding, if the Company shall declare or make any dividend (other than cash dividends) or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a “**Distribution**”), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (*provided, however*, to the extent that the Holder’s right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) **Fundamental Transaction.** If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person (other than for the purpose of changing the Company’s name and /or the jurisdiction of incorporation of the Company or a holding company of the Company), (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the then outstanding common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock or 50% or more of the voting power of the then outstanding common equity of the Company (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a “**Fundamental Transaction**”), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in **Section 2(e)** on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (together, the “**Alternate Consideration**”) receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in **Section 2(e)** on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “**Successor Entity**”) to assume in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this **Section 3(d)** pursuant to written agreements in form and substance reasonably satisfactory to the Company and the holders of Warrants representing at least a majority of the shares of Common Stock underlying the Warrants then outstanding (the “**Required Holders**”) and approved by the Required Holders (without unreasonable delay) prior to such Fundamental Transaction and shall deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant with the same effect as if such Successor Entity had been named as the Company herein.

e) **Calculations.** All calculations under this **Section 3** shall be made by the Company to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this **Section 3**, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

f) **Notice to Holder.**

i. **Adjustment to Exercise Price.** Whenever the Exercise Price is adjusted pursuant to any provision of this **Section 3**, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. **Notice to Allow Exercise by Holder.** If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled

to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 4. Transfer of Warrant.

a) Transferability. Subject to the Securities Act and any other applicable securities laws, and the conditions set forth in Section 4(d), this Warrant and all rights hereunder are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the initial issuance date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the “**Warrant Register**”), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a “cashless exercise” pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv) herein, in no event shall the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Underwriting Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. No provision of this Warrant shall be construed as a waiver by the Holder of any rights that the

Holder may have under U.S. federal securities laws and the rules and regulation of the Commission thereunder. Without limiting any other provision of this Warrant or the Underwriting Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Underwriting Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

PERMA-FIX ENVIRONMENTAL SERVICES, INC.

By: _____

Name: _____

Title: _____

NOTICE OF EXERCISE

TO: PERMA-FIX ENVIRONMENTAL SERVICES, INC.

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

The Warrant Shares shall be delivered to the following DWAC Account Number or by physical delivery of a certificate to:

(4) Accredited Investor. If the Warrant is being exercised via cash exercise and there is no effective registration statement registering the issue or resale of the shares underlying the Warrant, the undersigned is an "accredited investor" as defined in Regulation D promulgated under the Securities Act of 1933, as amended.

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____
Signature of Authorized Signatory of Investing Entity: _____
Name of Authorized Signatory: _____
Title of Authorized Signatory: _____
Date: _____

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Phone Number: _____

Email Address: _____

Dated: _____

Holder's Signature: _____

Holder's Address: _____



210 Park Avenue, Suite 2300
 Oklahoma City, Oklahoma 73102
 405-930-5151
 Fax 405-212-5843
 www.stepto-johnson.com

December 18, 2024

Perma-Fix Environmental Services, Inc.
 8302 Dunwoody Place, Suite 250
 Atlanta, Georgia 30350

Ladies and Gentlemen:

We have acted as counsel to Perma-Fix Environmental Services, Inc., a Delaware corporation (the "Company"), in connection with the issuance and sale by the Company of an aggregate of (i) 2,530,000 shares (the "Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), pursuant to the Underwriting Agreement, dated December 18, 2024 (the "Underwriting Agreement"), among the Company and Craig-Hallum Capital Group LLC, as underwriter (the "Underwriter") and (ii) warrants to purchase up to 126,500 shares of Common Stock to the Underwriter and certain of its designees (the "Underwriter Warrants"). The foregoing number of Shares includes 330,000 shares of Common Stock being sold pursuant to the exercise by the Underwriter of an option to purchase additional Shares.

In arriving at the opinions expressed below, we have reviewed the following documents:

- (a) the Underwriting Agreement;
- (b) the Registration Statement on Form S-3 (Registration No.333-283555), filed by the Company under the Securities Act of 1933, as amended (the "Securities Act"), with the Securities and Exchange Commission (the "Commission") on December 2, 2024 and declared effective on December 12, 2024, including the exhibits thereto and the documents incorporated by reference therein to and including the date of the Underwriting Agreement (the "Registration Statement"); and
- (c) copies of the Restated Certificate of Incorporation, as amended, and the Second Amended and Restated Bylaws of the Company, as amended through the date hereof.

We have considered such matters of law and fact, and relied upon such certificates of officers of the Company and public officials, corporate records and other information furnished to us, including without limitation the certificates and representations referred to below, as we have deemed appropriate as a basis for the opinion set forth below.

West Virginia • Ohio • Kentucky • Pennsylvania • Texas • Colorado • Oklahoma

Perma-Fix Environmental Services, Inc.
 December 18, 2024
 Page 2

In arriving at the opinion expressed below, we have assumed the authenticity of all documents submitted to us as originals, the conformity to the originals of all documents submitted to us as copies and the genuineness of all signatures. In addition, we have assumed and have not verified (i) the accuracy as to factual matters of each document we have reviewed and of the representations and warranties set forth therein and (ii) that the Underwriting Agreement is a legal, valid and binding obligation of each party thereto, other than the Company, enforceable against each such party in accordance with its terms.

Based on and subject to the foregoing, and to the other assumptions, qualifications and limitations set forth herein, it is our opinion that:

- (i) the Shares have been duly authorized by the Company and, when issued, delivered, and paid for in accordance with the Underwriting Agreement, will be validly issued, fully paid and non-assessable;
- (ii) the Underwriter Warrants, when issued, delivered, and paid for in accordance with the Underwriting Agreement, will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms; and
- (iii) the shares of Common Stock issuable upon exercise of the Underwriter Warrants, when issued and paid for pursuant to the Representative Warrants, will be duly authorized and validly issued, fully paid and nonassessable.

The foregoing opinion is limited to the laws of the State of New York and the Delaware General Corporation Law as in effect on the date hereof, and we express no opinion as to the effect of the laws of any other jurisdiction or as of any later date.

This opinion letter speaks only as of the date hereof, and we disclaim any obligation to advise you of changes of law or fact that occur after the date hereof.

We hereby consent to the filing of this opinion with the Commission to make it an exhibit to the Registration Statement and we further consent to the use of our name under the caption "Legal Matters" in the forms of prospectus, preliminary prospectus supplement, and final prospectus supplement relating to the offering of the Shares included in the Registration Statement or filed by the Company pursuant to Rule 424(b) under the Securities Act. In giving this consent, we do not hereby admit that we are in 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/ Steptoe & Johnson PLLC

STEPTOE & JOHNSON PLLC



Perma-Fix Announces Proposed Public Offering of Common Stock

Atlanta, GA – December 17, 2024 – Perma-Fix Environmental Services, Inc. (Nasdaq: PESI) (“Perma-Fix” or the “Company”), an environmental and environmental technology know-how company, today announced that it has commenced an underwritten public offering of shares of its common stock. The proposed offering is subject to market and other conditions and there can be no assurance as to whether or when the offering may be completed, or as to the actual size or terms of the proposed offering.

Perma-Fix intends to use the net proceeds from the offering to fund (i) continued R&D and business development relating to the Company’s patent-pending Perma-FAS process for the destruction of PFAS, as well as the cost of installing at least one second-generation Perma-FAS commercial treatment unit; (ii) ongoing facility cap-ex and maintenance costs; as well as (iii) general corporate and working capital purposes.

Craig-Hallum is acting as sole managing underwriter for the proposed offering.

The shares described above are being offered by Perma-Fix pursuant to a shelf registration statement on Form S-3 (File No. 333-283555), including a base prospectus, that was filed with the Securities and Exchange Commission (SEC) and declared effective on December 12, 2024. The proposed offering is being made only by means of a prospectus supplement and the accompanying prospectus that will form a part of the registration statement. A preliminary prospectus supplement and accompanying prospectus relating to this offering will be filed with the SEC and will be available on the SEC’s website at www.sec.gov. When available, copies of the preliminary prospectus supplement and the accompanying prospectus relating to the proposed offering may be obtained from Craig-Hallum Capital Group LLC, Attention: Equity Capital Markets, 222 South Ninth Street, Suite 350, Minneapolis, MN 55402, by telephone at (612) 334-6300 or by email at prospectus@chlm.com. The final terms of the proposed offering will be disclosed in a final prospectus supplement to be filed with the SEC.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such jurisdiction.

About Perma-Fix

Perma-Fix is a nuclear services company and leading provider of nuclear and mixed waste management services. The Company’s nuclear waste services include management and treatment of radioactive and mixed waste for hospitals, research labs and institutions, federal agencies, including the U.S. Department of Energy (“DOE”), the U.S. Department of Defense (“DOD”), and the commercial nuclear industry. The Company’s nuclear services group provides project management, waste management, environmental restoration, decontamination and decommissioning, new build construction, and radiological protection, safety and industrial hygiene capability to our clients. The Company operates four nuclear waste treatment facilities and provides nuclear services at DOE, DOD and commercial facilities, nationwide.

Please visit us at <http://www.perma-fix.com>.

Forward-Looking Statements

This press release contains “forward-looking statements” which are based largely on the Company’s expectations and are subject to various business risks and uncertainties, certain of which are beyond the Company’s control. Forward-looking statements generally are identifiable by use of the words such as “believe”, “expects”, “intends”, “anticipate”, “plan to”, “estimates”, “projects” and similar expressions. Forward-looking statements include, but are not limited to: the Company’s ability to satisfy the closing conditions related to the offering and the overall timing and completion of such closing and the use of the net proceeds of the offering; accepting commercial waste for destruction before the end of the year; well positioned; treatment of effluent from DFLAW facility; and cost-effective solution for Hanford site tank waste. While the Company believes the expectations reflected in this news release are reasonable, it can give no assurance such expectations will prove to be correct. There are a variety of factors which could cause future outcomes to differ materially from those described in this release, including, without limitation, future economic conditions; industry conditions; competitive pressures; our ability to apply and market our new technologies; the government or such other party to a contract granted to us fails to abide by or comply with the contract or to deliver waste as anticipated under the contract or terminates existing contracts; Congress fails to provides funding for the DOD’s and DOE’s remediation projects; inability to obtain new foreign and domestic remediation contracts; and the additional factors referred to under “Risk Factors” and “Special Note Regarding Forward-Looking Statements” of our 2023 Form 10-K and Form 10-Qs for quarters ended March 31, 2024, June 30, 2024 and September 30, 2024. The Company makes no commitment to disclose any revisions to forward-looking statements, or any facts, events or circumstances after the date hereof that bear upon forward-looking statements.

Contacts

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Crescendo Communications, LLC
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+43 316 296 316



Perma-Fix Announces Pricing of \$22 Million Public Offering of Common Stock

Atlanta, GA – December 18, 2024 – Perma-Fix Environmental Services, Inc. (Nasdaq: PESI) (“Perma-Fix” or the “Company”), today announced the pricing of its previously announced underwritten public offering of 2,200,000 shares of its common stock at a price to the public of \$10.00 per share. Perma-Fix expects the gross proceeds from the offering to be approximately \$22 million before deducting the underwriting discount and other estimated offering expenses. In connection with the offering, Perma-Fix has granted the underwriter a 30-day option to purchase up to 330,000 additional shares of its common stock at the public offering price, less the underwriting discount. The offering is expected to close on or about December 19, 2024, subject to the satisfaction of customary closing conditions.

Perma-Fix intends to use the net proceeds from the offering to fund (i) continued R&D and business development relating to the Company’s patent-pending Perma-FAS process for the destruction of PFAS, as well as the cost of installing at least one second-generation Perma-FAS commercial treatment unit; (ii) ongoing facility cap-ex and maintenance costs; as well as (iii) general corporate and working capital purposes.

Craig-Hallum is acting as sole managing underwriter for the offering. Wellington Shields is acting as financial advisor to the Company for the offering.

The shares described above are being offered by Perma-Fix pursuant to a shelf registration statement on Form S-3 (File No. 333-283555), including a base prospectus, that was filed with the Securities and Exchange Commission (SEC) and declared effective on December 12, 2024. The offering is being made only by means of a prospectus supplement, and the accompanying prospectus that will form a part of the registration statement. A preliminary prospectus supplement and accompanying prospectus relating to the offering was filed with the SEC on December 17, 2024. The final prospectus supplement and accompanying prospectus relating to the offering will be filed with the SEC and available on the SEC’s website at www.sec.gov. When available, copies of the final prospectus supplement and accompanying prospectus relating to the offering may be obtained from Craig-Hallum Capital Group LLC, Attention: Equity Capital Markets, 222 South Ninth Street, Suite 350, Minneapolis, MN 55402, by telephone at (612) 334-6300 or by email at prospectus@chlm.com.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such jurisdiction.

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Perma-Fix is a nuclear services company and leading provider of nuclear and mixed waste management services. The Company’s nuclear waste services include management and treatment of radioactive and mixed waste for hospitals, research labs and institutions, federal agencies, including the U.S. Department of Energy (“DOE”), the U.S. Department of Defense (“DOD”), and the commercial nuclear industry. The Company’s nuclear services group provides project management, waste management, environmental restoration, decontamination and decommissioning, new build construction, and radiological protection, safety and industrial hygiene capability to our clients. The Company operates four nuclear waste treatment facilities and provides nuclear services at DOE, DOD and commercial facilities, nationwide.

Please visit us at <http://www.perma-fix.com>.

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