

Modification No: 0304
Contract No.: DE-AC02-09CH11466
Section J – Appendix E

ATTACHMENT J.5

APPENDIX E

**MODIFIED AND RESTATED LEASE AGREEMENT BETWEEN
THE TRUSTEES OF PRINCETON UNIVERSITY AND THE
UNITED STATES OF AMERICA ACTING THROUGH THE
UNITED STATES DEPARTMENT OF ENERGY**

LEASE NO. DE-RL02-CH10328

**Applicable to the Operation of
PPPL**

Contract No. DE-AC02-09CH11466

MODIFIED AND RESTATED LEASE AGREEMENT
between
THE TRUSTEES OF PRINCETON UNIVERSITY (Princeton)
and
THE UNITED STATES OF AMERICA
acting through the
United States Department of Energy (Government)

PREMISES:

90.83 acres, more or less, Plainsboro

Township, Middlesex County, New Jersey

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MODIFIED AND RESTATED LEASE AGREEMENT

RECITALS

THIS MODIFIED AND RESTATED LEASE AGREEMENT (the "Lease") effective as of the 1st day of April 2019, by and between THE TRUSTEES OF PRINCETON UNIVERSITY (hereinafter "Princeton"), and the UNITED STATES OF AMERICA, acting through the United States Department of Energy (hereinafter "the Government").

WITNESSETH THAT:

WHEREAS, Princeton is the owner in fee simple of certain land consisting of 90.83 acres, more or less, known as "C-Site" and "D-Site" and located on Princeton's Forrestal Campus in Plainsboro Township, Middlesex County, New Jersey, as hereinafter described; and

WHEREAS, since the Commencement Date, the Demised Premises have been increased (from the original total of 72.478 acres) on two separate occasions: (i) on December 20, 2001, with the addition of 16.457 acres, and (ii) on September 27, 2010, with the addition of 1.895 acres; and WHEREAS, the Government is the owner of certain Buildings, improvements, and other property erected on "C-Site" and "D-Site"; and

WHEREAS, Princeton occupies the Buildings and operates and manages thereon the Princeton Plasma Physics Laboratory pursuant to Contract No. DE-AC02-09CH11466, and successor contracts thereto with the Government; and

WHEREAS, Princeton and the Government entered into that certain Lease Agreement dated as of October 1, 1986, as modified by (a) that certain Modification No. M001 dated February 21, 1991, (b) that certain Modification No. M002 dated November 28, 1995, (c) that certain Modification No. M003 dated December 20, 2001, (d) that certain Modification No. M004 dated August 30, 2006, (e) that certain Modification No. M005 dated September 27, 2010, (f) that certain Modification No. M006 dated November 2, 2010, (g) that certain Modification No. M007 dated September 1, 2016 (collectively, the "Original Lease") and for ease of review purposes only (except for Modification Nos. M003 and M005, which will remain in effect and will continue to be binding in accordance with the terms of this Lease later defined) Princeton and the Government wish to consolidate the Original Lease into a single exhibit, attached hereto as Exhibit G; and

WHEREAS Princeton and the Government now wish to modify and restate the Original Lease in its entirety; and

WHEREAS, Princeton and the Government acknowledge that it is in the mutual interest of the respective parties hereto to enter into this Lease; and Lease No. DE- RL02-CH10328 WHEREAS, the Government is authorized to enter into this Lease by law, including the Department of Energy Organization Act (Pub. L. No. 95-91).

WHEREAS, the University has agreed to enter into a modified long-term lease for the PPPL leasehold; and

NOW, THEREFORE, Princeton and the Government do mutually covenant, promise, and agree as follows:

SPECIAL LEASE TERMS AND CONDITIONS

ARTICLE 1 – DEFINITIONS

(a) Annual Net Fair Rental Value: The Annual Net Fair Rental Value determined by a Qualified Real Estate Appraiser pursuant to Article 3 hereof.

(b) Buildings: Those Buildings located on the portion of the Princeton Forrestal Campus known as “C-Site” and “D-Site” which are owned by the Government.

(c) C-Site and D-Site: That certain portion of land consisting of 90.83 acres, more or less, owned in fee simple by Princeton, located on the University's Forrestal campus in Plainsboro Township, Middlesex County, New Jersey as more fully described in Exhibit A hereto (sometimes referred to herein as the “Demised Premises”). This 90.83 acres more or less consists of the original 72.478 acres, plus the 16.457 acres for the remediation area plus the 1.895 acres for security buffer, per Modifications 3 and 5 respectively.

(d) Current Contract: Contract No. DE-AC02-09CH11466, and successor contracts thereto between the Government and Princeton, as modified from time to time, for the performance of certain research and development.

(e) Contracting Officer: A person, acting on behalf of the Department of Energy or any successor agency, with the authority to enter into, administer, and/or terminate this Lease, and make related determinations and findings.

(f) Contractor: The person or entity contracting with the Government for research and development to be conducted on the Demised Premises under the Current Contract or any other contract.

(g) Imposition(s): All taxes, assessments, fees, and other charges imposed on the Demised Premises as provided in Article 6 hereof.

(h) Lease: This Lease Agreement entered into between Princeton and the Government.

(i) PPPL: Princeton Plasma Physics Laboratory, a facility owned by the Government on land leased from Princeton University and an organizational unit of Princeton University which performs the work under the Current Contract.

(j) Qualified Real Estate Appraiser: A person who regularly renders pertinent commercial real estate appraisals and who is an accredited Member of the Appraisal Institute (MAI).

(k) Annual Lease Charge - Princeton not the Contractor: The amount due from the Government in accordance with Article 3 hereof.

(l) Term: The Term of this Lease as provided in Article 3 hereof.

(m) Affected Premises: The Demised Premises (or such part for which the use is concluded) and any premises to which contamination intended to be addressed by Article 11.03 has migrated or is migrating.

ARTICLE 2 - ORDER OF PRECEDENCE

2.01 Any inconsistency in this Lease shall be resolved by giving precedence to the Special Lease Terms and conditions over the General Lease Terms and Conditions.

2.02 Any inconsistency between this Lease and the Current Contract shall be resolved by giving precedence to the terms of this Lease.

ARTICLE 3 - DEMISE, PREMISES, TERM, ANNUAL LEASE CHARGE, AND OTHER CHARGES

3.01 Demise and Premises.

Princeton does hereby demise and let unto the Government, and the Government does lease and take from Princeton, for the Term and upon the covenants, terms, and conditions hereinafter set forth:

ALL THOSE CERTAIN tracts or parcels of ground situated in Plainsboro Township, Middlesex County, New Jersey, more fully described Exhibit A attached hereto and made a part hereof.

TOGETHER WITH all and singular appurtenances, rights, privileges, and easements unto the aforesaid tracts or parcels of ground belonging or in any wise appertaining (the aforesaid tracts or parcels of ground and said appurtenances, rights, privileges, and easements are herein collectively called the "Demised Premises"). For purposes of clarity, the Demised Premises shall include surface and subsurface strata, soil, vapor, surface water, ground water, and other environmental media.

UNDER AND SUBJECT, NEVERTHELESS, to the matters set forth in Exhibit B attached hereto and made a part hereof.

3.02. Access to Demised Premises.

(a) Princeton shall provide at least one access road; further, Princeton shall use its best efforts to provide an additional access road to and from the Demised Premises.

(b) Princeton shall have the right from time to time, in Princeton's sole judgment and discretion, and at Princeton's sole cost, to terminate or relocate any or all of the access roads provided pursuant to paragraph 3.02(a); provided that one access road shall be available to the Government at all times which shall not be lesser in load capacity and width than the road(s) terminated or relocated without the concurrence of the Government. Princeton shall provide reasonable notice to the Government of the termination or relocation of any or all access roads.

(c) Princeton and the Government shall share the cost of providing additional access to roads pursuant to this paragraph 3.02:

(i) Such costs shall be shared pro rata according to the respective acreage served by the additional access road(s); provided that the Government shall pay the full cost of a Government required or requested upgrading of any such road beyond the standard specifications of Plainsboro Township.

(ii) The Government agrees to pay its pro rata share of the cost of relocation of any additional access road according to the respective acreage served, if such relocation is required by any state or local government; provided that the Government shall pay the full cost of a Government required or requested upgrading of any such road beyond the standard specifications of Plainsboro Township.

(d) The Government shall pay its pro rata share according to the respective acreage served of all repair and maintenance costs in connection with the access roads.

3.03 Term.

The Term of this Lease shall commence on October 1, 1986, (hereinafter called the "Commencement Date") and shall expire seventy (70) years after the Commencement Date on September 30, 2056 (hereinafter called the "Expiration Date"), unless sooner terminated as hereinafter provided, at which time the Demised Premises shall be surrendered to Princeton. No renewal of this Lease shall be granted.

3.04 Annual Lease Charge.

(a) The Government shall pay to Princeton as the lease charge for the Term of this Lease the following:

1. Princeton the Contractor:

(i) The Government shall pay Princeton one dollar (\$1.00) for the Term during which Princeton is the Contractor.

2. Princeton Not the Contractor:

(i) During the Term of the Lease and beginning on the first day of the first month following the date in which Princeton is no longer the Contractor (hereinafter referred to as the "Annual Lease Charge Commencement Date"), the Government shall pay Princeton the Annual Lease Charge, which is comprised of Article 3.05 and Article 3.06. The Annual Lease Charge shall be made without offset, deduction, or demand on or before the annual anniversary of the Annual Lease Charge Commencement Date. Any Annual Lease Charge will be calculated based on the original 72.478 acres.

(ii) Princeton may obtain commercial insurance in connection with the general conduct of its business as the Landowner and Lessor of the Demised Premises. The types and extent of coverage shall follow sound business practice and the rates shall be reasonable. The costs of such insurance agreed to by Princeton and the Government shall be included part of the Annual Lease Charge.

(b) From and after the Commencement Date, and throughout the Term of this Lease, regardless of whether or not Princeton is acting in its current capacity as Contractor, the Government shall also pay all sums, costs, expenses, and other charges which the Government in any of the provisions of this Lease assumes or agrees to pay or discharge, it being intended that the Annual Lease Charge shall be an absolute net return to Princeton throughout the Term of this Lease without offset or deduction, and free of expenses, charges, diminution, or other deductions whatsoever.

3.05. Notice of Payment Due by Government.

During any period in which Princeton is the Contractor, Princeton shall notify the Government each month of the amount of the other charges which the Government has agreed to pay pursuant to subparagraph 3.04(b) hereof and such other charges shall be due and payable upon receipt of a written demand. If at any time Princeton is not the Contractor, Princeton shall submit to the Government, each month, an invoice for such other charges. Such invoice shall be paid by the Government within thirty (30) days of receipt.

3.06. Determination of Annual Net Fair Rental Value.

In the event Princeton is not the Contractor during the Term of the Lease, the Annual Net Fair Rental Value shall be adjusted according to the following procedure:

(a) Within 120 days of receiving the Government's Notice of Termination of Princeton as Contractor, or change in Contractor (as defined under and in conformance with the requirements of Contract No. DE-AC02-09CH11466), or upon expiration of the Current Contract or 60 days following Lease expiration, in which the End State Condition (as later defined) has not been met, Princeton shall notify the Government of the proposed Annual Net Fair Rental Value for the sixty (60) month period (or the exact monthly period if the Term is less than sixty (60) months, as the case may be) commencing 12 months thereafter. For any period less than a year, the Annual Net Fair Rental Value shall be computed on the prorated basis of a 365-day year. If Princeton and the Government shall not have agreed upon Princeton's proposed Annual Net Fair Rental Value within thirty (30) days after the date of Princeton's notice, then the parties shall endeavor to agree upon a Qualified Real Estate Appraiser who shall determine the fair market value of the Demised Premises. If the parties agree on such an appraiser, then the resultant appraisal shall be binding and conclusive upon the parties. If within forty-five (45) days after the date of Princeton's notice, the parties have not agreed upon the selection of a Qualified Real Estate Appraiser, the following procedure shall take place:

(i) Princeton shall, within fifteen (15) days thereafter, submit to the Government a list of three (3) Qualified Real Estate Appraisers. The Government shall, within fifteen (15) days thereof, select an Appraiser from Princeton's list. The Appraiser so selected shall submit to Princeton and the Government, within thirty (30) days from selection, an appraisal of the fair market value of the Demised Premises. Princeton and the Government shall have thirty (30) days from said submittal to accept or reject the appraisal.

(ii) If either party rejects such appraisal, the Government, within fifteen (15) days of said rejection, shall submit to Princeton a list of three (3) Qualified Real Estate Appraisers, Princeton shall, within fifteen (15) days thereof, select an appraiser from the Government's list. The Appraiser so selected shall submit to, Princeton and the Government, within thirty (30) days from

selection, an appraisal of the fair market value of the Demised Premises. Princeton and the Government shall have thirty (30) days from said submittal to accept or reject the appraisal.

(iii) If either party rejects such appraisal, then the Appraisers appointed pursuant to subparagraphs 3.06(a)(i) and 3.06(a)(ii) above shall, within fifteen (15) days of said rejection, agree on a final Qualified Real Estate Appraiser whose appraisal must be submitted to Princeton and the Government within thirty (30) days of selection. The parties agree that this appraisal shall be binding and conclusive upon the parties.

(b) The cost of all appraisals shall be born equally by the parties, except that the party rejecting an appraisal under paragraph 3.06(a) shall bear solely the costs of such appraisal.

(c) The Appraiser(s) selected pursuant to paragraph 3.06 hereof shall appraise the fair market value of the Demised Premises for its "highest and best use" as vacant and unimproved property taking into account any roads and utilities benefitting the Demised Premises which are installed on the Demised Premises or premises adjacent thereto; provided that such roads and utilities shall not be taken into account if they were paid for by the Government. The Appraiser(s) shall not consider any increase or diminution in value of the Demised Premises caused by the Government's use thereof.

(d) Based on the fair market value, the Appraiser(s) shall determine the Annual Net Fair Rental Value, which shall be part of the adjusted Annual Lease Charge.

3.07 Confirmation of Adjusted Annual Lease Charge When Princeton is Not the Contractor.

Princeton and the Government, within thirty (30) days of their agreement or approval of the Annual Lease Charge as adjusted aforesaid, shall execute and deliver an appropriate amendment to this Lease confirming such adjusted Annual Lease Charge.

3.08 Availability of Appropriated Funds.

In the event that Princeton is no longer the Contractor and is given written notice by the Government that sufficient appropriations are not available for payment of all or any portion of any Annual Lease Charge or other charges hereunder, Princeton hereby agrees to extend the date for payment of such charge(s) for a period not to exceed ninety (90) days. Any such extension shall be in writing and shall set forth the date payment is due. If at the end of such ninety (90) day period, appropriations have not been made available to pay all outstanding charges; the Government's failure to pay shall be an "Event of Default" pursuant to Article 13 hereunder. The Government's payment of the outstanding charges after the same are due and payable shall be subject to the provisions of the Prompt Payment Act (31 U.S.C. §§ 3901-07), as modified from time to time.

ARTICLE 4 – USE

4.01 Use of Premises - Princeton the Contractor.

- (a) At all times during which Princeton is the Contractor, the “Demised Premises” shall be used by the Government for operation of the PPPL in the performance of research and development and related services in accordance with the terms of the Current Contract and this Lease.
- (b) Princeton and the Government intend that such permitted use of the Demised Premises shall include the construction and operation of experimental or similar devices that are appropriate for the Demised Premises and within the terms of the Current Contract.

4.02 Use of Premises - Princeton Not the Contractor.

- (a) If at any time during the Term Princeton shall not be the Contractor, the Demised Premises and any Buildings or improvements thereon shall be used only for research, development, and experimentation in the fusion energy field, which work is similar and related to the work being performed pursuant to the Current Contract, and any other work which is similar and related to work performed under the Current Contract. In no event shall the Government introduce any radioactive materials onto the Demised Premises in excess of limits contained in the approved Environmental Impact Statement or Assessment in effect during the Current Contract, or in excess of the limits for unlicensed materials set forth in 10 C.F.R. Part 30, as modified from time to time, without the express written consent of Princeton.
- (b) If at any time during the Term Princeton shall not be the Contractor, the Government agrees that its use of the Demised Premises shall not create or constitute a nuisance or prejudice the activities of Princeton, its lessees, or licensees on the Demised Premises and premises adjacent thereto.
- (c) If at any time during the Term Princeton shall not be the Contractor, the Government covenants and agrees with Princeton that the Government will observe “Princeton University Policies” as follows:
 - (i) No use of the Demised Premises shall be offensive to the neighborhood by reason of odor, fumes, dust, smoke, glare, noise, gases, liquid waste, or pollution.
 - (ii) No open storage shall be permitted on the Demised Premises unless screened from view from adjacent property and streets at the Government’s cost and expense.
 - (iii) There shall be maintained on the Demised Premises facilities for parking, loading and unloading sufficient to serve the activity conducted thereon.
 - (iv) No building or structure shall be constructed or erected on the Demised Premises which exceeds sixty (60) feet in height above the finished grade of such building or structure and which is not screened by trees, except as otherwise approved in writing by Princeton, at Princeton's sole discretion.
 - (v) Natural growth of wooded areas and orderly landscaping shall be encouraged and no trees or shrubbery located in existing forested areas or existing clusters of trees shall be removed from

the Demised Premises without first obtaining the written consent of Princeton, which consent Princeton may refuse in its sole discretion; provided that the Government may remove dead trees and shrubbery and may perform maintenance, cutting and thinning in support of landscaping efforts without Princeton's consent.

(vi) Princeton may, from time to time, adopt and promulgate other University Policies applicable to the Demised Premises and its Forrestal Campus and amend or supplement the same, which University Policies shall, at the time of adoption by Princeton, become a part of this Lease. Notice of such University Policies and all amendments and supplements thereto shall be given to the Government and the Government agrees to comply with and observe the same, unless the Government determines and notifies Princeton in writing that such University Policies materially interfere with the Government's use of the Demised Premises as provided herein.

ARTICLE 5 – UTILITIES

5.01 Utilities.

The Government shall provide, or cause to be provided, all necessary utilities for the operation of the Buildings and any additional improvements. Princeton shall not be liable for any loss or damage suffered by the Government resulting from any failure of utility service. The Government shall pay all charges and costs for provision, installation, and use of such utilities and any additional improvements thereto.

5.02 New Utilities.

Any new utility extensions required by the Government on the Demised Premises shall be installed underground, except that additional utility lines and supporting arms may be added to the existing high tension towers and existing utility poles; provided that the towers are not otherwise enlarged or modified. Such new utility extensions may be constructed above ground only with the express written approval of Princeton. The Government shall be solely responsible for the costs and expenses of any such new utility extensions.

ARTICLE 6 - IMPOSITIONS AND PAYMENT THEREOF

6.01. Impositions.

(a) The Government shall pay all applicable taxes, assessments, water and sewer rents, rates and charges, charges for public utilities, excises, levies, license and permit fees, and other governmental charges, general or special, ordinary or extraordinary, unforeseen or foreseen, of any kind and nature whatsoever (including, all penalties and interest thereon) which at any time during the Term may be assessed, levied, imposed upon, or grow or become due and payable out of or in respect of, the Demised Premises, the Buildings, or any other improvements thereon, or any part thereof or any appurtenance thereto, or any use or occupation of the Demised Premises and the improvements,

and such franchises as may be appurtenant to the use of the Demised Premises, the Buildings, or any other improvements or which at any time during the Term hereof may become a lien on the Demised Premises, the Buildings, or any other improvements or any part thereof or any appurtenance thereto. (all such taxes assessments, water and sewer rents, rates and charges, charges for public utilities, excises, levies, license and permit fees, and other governmental charges being hereinafter collectively called "Impositions," and any of the same being hereinafter individually called "Imposition").

(b) If subsequent to the date of this Lease, any applicable tax shall be levied, assessed, or imposed upon, or be required to be paid by Princeton as a specific substitute for, and in lieu of, one or more of the taxes otherwise required by paragraph 6.01(a) hereof to be paid by the Government, or Princeton shall be required by the State of New Jersey or any political subdivision thereof to pay any such additional real estate tax with respect to Princeton's Ownership of the Demised Premises, the execution and delivery of this Lease, or the receipt or accrual of any lease charges payable to Princeton under the provisions of this Lease, and the Government shall be given notice thereof, the same shall be deemed to be an Imposition payable by the Government.

6.02 Contested Impositions.

The Government shall have the right, in its own name or in the name of Princeton, to contest or review any Imposition(s) by appropriate proceedings, promptly commenced and diligently prosecuted in good faith, at its own expense and free of all expense to Princeton, provided that before instituting any such proceedings the Government shall notify Princeton. The Government may pay (under protest) such Imposition(s) or contest such Imposition(s). Notwithstanding anything herein to the contrary, the Government shall pay, under protest or otherwise, all Imposition(s) before the time when the Demised Premises or any portion thereof might be forfeited by reason of nonpayment, unless such imposition is prohibited under Federal law. In the event of any such contest, the Government shall pay or cause to be paid the amount that shall finally be levied or assessed against the Demised Premises or adjudicated to be due or payable on any such contested Imposition.

ARTICLE 7 - CONSTRUCTION OF ADDITIONAL IMPROVEMENTS

7.01 Government's Construction of Improvements – Princeton the Contractor.

If the Government shall desire to construct additional improvements on the Demised Premises any time during the Current Contract, the Government agrees to abide by the "Design and Development Criteria" attached hereto as Exhibit C and incorporated herein.

7.02 Government's Construction of Improvements - Princeton Not the Contractor.

If at any time during the Term hereof Princeton shall not be the Contractor, and the Government shall desire to construct additional improvements on the Demised Premises, the Government shall comply with the following:

(a) The Government, at its sole cost and expense, shall prepare a master plan of existing and proposed facilities. This plan shall be subject to the approval of the Princeton University Vice-President for Facilities. The Vice-President for Facilities shall give due consideration to the Development criteria and University Development Plan. The master plan will be prepared and updated in accordance with Government requirements and schedules.

(b) The Government, at its sole cost and expense, shall prepare a site plan of the Demised Premises, preliminary plans, sections, elevations, and other materials (herein collectively called "Preliminary Plans") with respect to the proposed improvements, disclosing the matters and details specified in the "Design and Development Criteria," Exhibit C attached hereto. The proposed improvements shall comply with all zoning, and other applicable laws, codes, and ordinances of the governmental bodies having jurisdiction. The Government shall obtain and bear the sole cost and expense of obtaining all necessary governmental approvals.

(i) The Princeton Vice-President for Facilities shall designate one person (hereinafter referred to as "Princeton's Representative") to attend the meetings with the Government which relate to the preparation of the Preliminary Plans and Final Plans. Reasonable notice of the time and place of such proposed meetings shall be given by the Government to Princeton's Representative. Any approval of any portion of the Preliminary Plans or Final Plans given by Princeton's Representative shall be binding upon Princeton when set forth in writing and signed by Princeton's Representative. With regard to certain security activities (such as monitoring and detection) and exclusion areas, Princeton shall accept the Government's certification that such activities and areas are in compliance with the re-quirements of this Lease.

(ii) The Preliminary Plans shall be completed and submitted to Princeton for approval. Princeton shall review the Preliminary Plans, and within sixty (60) days of the submission thereof, shall notify the Government of Princeton's approval or disapproval thereof, as the case may be. In the event Princeton shall have failed to notify the Government of Princeton's approval or disapproval of the Preliminary Plans within said sixty (60) day period, then the Preliminary Plans shall be deemed to have been approved.

(iii) Princeton shall have the right to refuse to approve the Preliminary Plans which are not in conformance with the "Design and Development Criteria," attached hereto as Exhibit C; provided that Princeton shall not have the right to disapprove any portion of the Preliminary Plans if such portion has been previously approved by Princeton's Representative. Princeton shall notify the Government of the respects, if any, in which the Preliminary Plans do not meet with Princeton's approval.

(c) The Government, at the Government's sole cost and expense, shall cause actual working drawings and specifications with respect to the proposed improvements (which shall be logical extensions of the approved Preliminary Plans) to be prepared and shall submit the same to Princeton, for Princeton's approval, within a reasonable period after the Preliminary Plans have been approved, or deemed to have been approved, by Princeton. Princeton shall review such actual working drawings and specifications, and within a reasonable period following the mission thereof, shall notify the Government of Princeton's approval or disapproval thereof. Princeton's approval shall be signified by the signature of Princeton's Representative on such drawings. Princeton shall have the right to refuse to approve said actual working drawings and specifications only in the event

the same shall not constitute logical extensions of the approved Preliminary Plans; provided that Princeton shall not have the right to disapprove any portion of said drawings and specifications if such portion has been previously approved by Princeton's Representative. The actual working drawings and specifications approved by Princeton are herein collectively called the "Final Plans" and no material change involving form, function, or structure shall be made therein without first obtaining the approval of Princeton; provided that no material change may be made which would violate any prior governmental approval.

7.03 Limitation on Gross Floor Area.

The parties acknowledge and agree that the aggregate gross floor area on the Demised Premises, including improvements under construction, as of January 1, 1987, is 702,600 square feet. The Government shall have the right to construct additional Buildings and improvements containing gross floor area not to exceed 200,000 square feet. The Government may replace, alter, or modify existing Buildings and improvements, provided, however, that in no event shall the aggregate gross floor area on the Demised Premises exceed 902,600 square feet. The term "gross floor area" for purposes of calculating additional, replacement, altered, and modified space shall mean: the total area of all stories or part thereof of all structures and improvements on the Demised Premises measured from the exterior walls or from the roof edges where a structure has no walls, but excluding rooftop, rooftop devoted to mechanical equipment or storage, and roofed or enclosed areas used for parking spaces.

7.04 Ownership of Buildings and Improvements.

All Buildings and other improvements constructed on the Demised Premises during any period in which Princeton is not the Contractor, whether or not the property of the Government, shall be deemed to be the property of the Government for purposes of Article 11 hereof.

7.05 Other Government Contractors.

Princeton acknowledges that, during any period in which Princeton is not the Contractor, the Government may undertake or award contracts for facilities construction, related work, and support services and that such other contractor or Government employees may require access to the Demised Premises. Princeton agrees to fully cooperate with such other contractors and Government employees. Princeton agrees not to commit any affirmative act on the Demised Premises or on adjacent premises which would interfere with the performance by such other contractors or Government employees.

ARTICLE 8 - PERFORMANCE OF GOVERNMENT'S COVENANTS

8.01 Subject to the provisions of Article 3, Article 6, and Article 13, if the Government at any time shall fail to pay any charge hereunder, other than the Annual Lease Charge, or shall fail to perform any other act on the Government's part required to be performed under this Lease and (a) such default shall continue for a period of thirty (30) days after written notice of default in the payment of any sum of money; or (b) as to any default other than in the payment of money, if within sixty (60) days after notice by Princeton to the Government, the Government shall not have cured such default or shall not have

commenced and is not diligently proceeding to cure it; or (c) without notice if an emergency exists: then Princeton may (but shall be under no obligation to) pay such Imposition, or make such other payment or perform such other act, as the case may be, and take all such action as may be necessary with respect thereto.

8.02 Any reasonable and lawful sums paid by Princeton pursuant hereto shall be charged to and paid by the Government.

8.03 This Article 8 shall survive expiration or termination of this Lease.

ARTICLE 9 - CARE OF DEMISED PREMISES.

9.01 No Obligation on Princeton.

(a) Any term, condition, or provision herein to the contrary notwithstanding, Princeton shall have no obligation to maintain or otherwise care for the Demised Premises at any time during the Term.

(b) The Government shall be solely responsible for all repairs to and maintenance of the Demised Premises as follows:

(i) The Government will take good care of the Demised Premises and the Buildings, improvements, the sidewalks and curbs on the Demised Premises, and any other improvements erected upon the Demised Premises; and, subject to reasonable wear and tear, will keep the same in good order and condition, and make all necessary repairs thereto, interior and exterior, structural and non-structural. The term "repairs" when used in this Article 9 shall include all necessary replacements and alterations. All repairs made by the Government shall be substantially equivalent in quality and class to the original work.

(ii) The Government shall promptly and with due diligence put, keep, and maintain all portions of the Demised Premises and the sidewalks, curbs, driveways and passageways, and parking areas on the same, in a safe, clean, and orderly condition, free of dirt, trash, rubbish, snow, ice, and unlawful obstructions. The Government shall also mow the lawns and other grass planted areas, and replace dead and dying trees and shrubbery, all in accordance with good landscaping practice.

9.02 Commission of Waste.

The Government shall not cause or permit any waste or damage, disfigurement, or injury to any of the Demised Premises.

ARTICLE 10 – COMPLIANCE WITH LAWS AND ORDINANCES – PRINCETON NOT THE CONTRACTOR

10.01 Compliance with Laws.

If at any time during the Term of this Lease Princeton shall not be the Contractor, the Government shall have sole responsibility for and shall bear all costs and expenses of causing the Demised Premises to conform to, comply with, and take any and all action necessary to avoid or eliminate any violation of any present or future applicable law, statute, ordinance, order, rule, regulation, or requirement of any federal, state or municipal government, department, commission, board or officers having jurisdiction; foreseen or unforeseen, ordinary as well as extraordinary, which shall be applicable to the Demised Premises, Buildings and improvements or the sidewalks, curbs, driveways and passageways, and parking areas comprising part of the Demised Premises or the Buildings or improvements, or to the use or manner of use thereof by the occupants thereof, whether or not such law, statute, ordinance, order, rule, regulation, or requirement shall necessitate structural changes or improvements or interfere with the use and enjoyment of the Demised Premises, the Buildings or the improvements.

10.02 Compliance with Restrictions.

The Government at all times shall observe and comply with the requirements of all covenants and restrictions contained or set forth in Exhibit B thereof; so far as the same shall be in force and effect at any time during the Term of this Lease.

10.03 Inspection by Princeton.

Subject to pertinent security requirements of the Government, if at any time during the Term Princeton shall not be the Contractor, the Government agrees to permit the duly authorized representatives of Princeton to enter the Demised Premises and improvements at all reasonable times during usual business hours for the purpose of: (a) inspecting the same; and (b) performing any work for which the Government shall be responsible under the terms of this Lease not performed by the Government after notice to the Government as provided for herein.

Princeton agrees, however, in connection with the doing of any such work to cause as little inconvenience, annoyance, disturbance, loss of business, or other damage to the Demised Premises and/or the improvements, as may be reasonably possible in the circumstances. Nothing herein contained shall imply any duty or obligation upon Princeton to make any repair or to perform any work which under any provision of this Lease the Government is required to make or perform, and the making or performing thereof by Princeton shall not constitute a waiver of the Government's default in failing to make or perform the same.

ARTICLE 11 - DISPOSITION OF GOVERNMENT-OWNED PROPERTY

11.01 Determination by the Government.

At the expiration or termination of this Lease, or if the Government determines at any time during the Term that it desires to conclude its use of Government-owned Buildings, improvements, or any other Government-owned property located on the Demised Premises, the Government shall, within one hundred and twenty (120) days, notify Princeton in writing of Government-owned property which it desires to remove or offer to the University. After expiration or termination of this Lease, the Government shall have access to the Demised Premises at reasonable times for the purposes of inspection, maintenance, and protection or removal, and the right to use the Demised Premises for such purposes.

11.02 Retention or Removal of Real or Personal Property.

As to any buildings, improvements, or other Government owned property in place at the end of lease or termination, the Government may offer in writing to Princeton the option to retain said property which, if accepted, the Government will leave in a safe, neat and clean condition. If Princeton accepts, title to any item of property left shall vest to Princeton free and clear of any claim or demand by the Government and without cost to Princeton. The Government, to the extent permitted by then existing laws, shall make, execute and deliver to Princeton all deeds, bills of sale and other instruments of transfer which may be requisite to vest title in Princeton as herein contemplated. The Government may instead notify Princeton that the Government intends to remove such property, and such removal shall commence on the earlier of one hundred and eighty (180) days after the date of the Government's determination, or sixty (60) days after the Government's notice to Princeton, and such removal shall be expeditiously carried out as to each item to be removed. The removal of any Buildings, improvements, or other Government-owned property shall be accomplished in such a manner as to leave the Demised Premises in a sightly and graded condition. The Government shall also meet the requirements of Article 11.03 when performing such removal. Further, if such removal has not commenced within the aforesaid period, notwithstanding any other provision contained herein, Princeton may, within forty-five (45) days of the expiration of such period, notify the Government in writing of its election to:

- (a) deem such property the removal of which has not commenced as being abandoned, and, upon the Government's receipt of such notice, full ownership of and title to the property shall pass immediately to Princeton without the necessity of any further act on the part of Princeton or the Government; provided, however, that the Government, at Princeton's request, shall execute and deliver to Princeton appropriate instruments confirming such title to Princeton in appropriate form for recordation; or
- (b) Princeton shall remove such property and charge the Government for the costs incurred in such removal, including any transportation, temporary storage charges, and compliance with the obligations set forth under Article 11.03. The Government shall pay all such reasonable costs and charges upon demand.

11.03 Government's Environmental Obligations.

- (a) Covenant to Clean Up and Decontaminate and Decommission.

- (i) With respect to any Demised Premises affected by any lease expiration or termination, or any conclusion of use, the Government's obligations with respect to any environmental contamination on or arising from the Demised Premises, shall include the cleanup, decontamination and decommissioning (C, D&D) of the Affected Premises at the Government's expense so that the Affected Premises are free of substances or materials generated at or brought to the said Demised Premises in connection with the operation of PPPL (the "End State Condition"). Any contamination at the Affected Premises inconsistent with the prior agricultural use of the land or not originating off the site of the Demised Premises, shall be the responsibility of the Government. The Government and Princeton further agree that they will negotiate in good faith, in order to agree upon a fair and equitable resolution of all aspects of the contamination issue identified in the preceding sentence, including the respective responsibilities of the parties.
- (ii) Any required C, D&D shall be carried out in accordance with all applicable laws, orders, and directives of governmental agencies with jurisdiction over the Demised Premises.
- (b) Obligations at End State.
- (i) No later than the termination of the Lease or expiration of the Lease, whichever is earlier, the Government shall have completed any required C, D&D so that the End State Condition has been met.
- (ii) With respect to ground water, both Princeton University and the Government agree that the remediation of portions of the ground water beneath PPPL, are subject to the requirements of New Jersey Department of Environmental Protection ("NJDEP") Ground Water Remedial Action Permit Number RAP170001, Exhibit H, (Replaces RAP130001) ("GWRAP"), the 2000 Remedial Action Workplan, Exhibit I, ("RAWP"), and the continuing obligation to evaluate the technical practicability of alternative actions to remediate the ground water, and when practicable, to implement, as hereinafter provided, any such alternative remedial action, in order to meet the End State Condition. Until such time that the ground water meets the End State Condition, and so long as the rules and regulations applicable to the remediation of ground water, the GWRAP, the RAWP, or the NJDEP do not require that any alternative remedial action be implemented, the parties agree that the requirements of the GWRAP and the RAWP shall continue to govern the remediation of the ground water at the Demised Premises. The practicability of alternative remedial actions shall be determined in accordance with NJDEP rules, regulations and applicable guidance. All costs associated with meeting the requirements of the GWRAP and the RAWP and implementing any alternative remedial action to meet the End State Condition shall be the sole responsibility of the Government. The Government agrees to require the servicing of the GWRAP, the RAWP and the implementation of any alternative remedial action to meet the End State Condition whether Princeton is or is not the contractor.
- (iii) In the case of portions of the Demised Premises covered by Exhibit D (Modification 3) and Exhibit F (Modification 5) (collectively, the "Lease Addenda"), the Government shall perform the obligations set forth in this paragraph 11.03. Notwithstanding the previous sentence, (which, for the avoidance of doubt, establishes the Government's cleanup for portions of the Demised Premises described under the Lease Addenda), the Lease Addenda shall otherwise remain unchanged.

(iv) If the C, D&D to the End State Condition (A) is impossible to achieve, or (B) could not be achieved without unreasonable expense, then the Government may request that Princeton agree to something less than the End State Condition and Princeton will in good faith consider that request and, in the exercise of Princeton's discretion, will notify the Government what, if any, change to the End State Condition is acceptable to Princeton.

(c) If C, D&D Have Not Met End State Condition by Termination of Lease.

(i) If the End State Condition has not been achieved by expiration or termination of the Lease, the Government shall, for a period of up to ten (10) years, continue to perform C, D&D and shall pay rent for the Demised Premises, as determined under Article 3.04 herein.

(ii) If the End State Condition has not been achieved by the end of the ten-year period (or any additional extension granted by Princeton), Princeton may at its option either: (A) extend the period for the Government to continue to perform the C, D&D, or any portion thereof; or (B) take over and perform the C, D&D, or any portion thereof, and the Government shall reimburse Princeton for such reasonable costs. Until the End State Condition is achieved, the Government shall pay rent for the Demised Premises, as determined under Article 3.04 herein.

(iii) Notwithstanding subparagraphs 11.03(c)(i) and (ii), to the extent that a Licensed Site Remediation Professional, retained by the Government and acceptable to Princeton, certifies that the only remediation that is required pursuant to applicable laws, rules and regulations to C, D&D the Affected Premises is ground water monitoring, the Government's obligation to pay the Annual Lease Charge, pursuant to subparagraphs 11.03(c)(i) and (ii) shall not apply.

(d) Survival of Obligations. The covenants and obligations of paragraphs 11.03 and 11.04 shall survive the expiration or termination of this Lease.

11.04 Princeton's Rights on Expiration or Termination.

Notwithstanding any other provision contained herein, at the time of expiration or termination of this Lease, if the Government fails to diligently pursue C, D&D action(s) required by this Lease, Princeton shall have the right to take all reasonable precautions and measures to assure that the Demised Premises are in compliance with applicable federal, state, and local health, safety, and environmental laws and regulations in effect at that time. For all non-environmental compliance matters, prior to Princeton incurring such expenses, Princeton shall first provide the Government the option to demolish and remove all Buildings and other improvements from the Demised Premises in conformance with the requirements set forth in Article 11.02 and in compliance with applicable federal, state, and local laws. If the Government rejects such option, the Government shall be obligated, subject to the availability of appropriated funds, to pay the reasonable costs incurred by Princeton in furtherance of this provision

11.05 Princeton's Reservation of Rights.

This Article 11 shall not, except as expressly provided herein as to the Demised Premises, operate as a waiver of any right or remedy of Princeton with respect to any other Princeton property now or hereafter owned.

ARTICLE 12 - ASSIGNMENT OR SUBLEASE

The Government shall not assign, sublet, or otherwise transfer this Lease without the prior written consent of Princeton, which consent shall not be unreasonably withheld. Any such purported assignment, sublease, or other transfer without Princeton's prior written consent shall be void and have no effect.

ARTICLE 13 - TERMINATION BY PRINCETON

13.01 Event of Default.

This Lease shall not be terminated by Princeton unless an Event of Default, as hereinafter specified, has occurred. An Event of Default by the Government entitles Princeton to invoke any of the remedies provided in this Article 13.

The following shall constitute an Event of Default at any time during the Term.

- (a) Except as otherwise provided in Article 3 hereof, failure to pay the Annual Lease Charge or other required charges at the time specified;
- (b) A material breach of any other material covenant of this Lease.

13.02 Princeton's Remedies for the Government's Default.

Notwithstanding any other provision of this Lease, if an Event of Default occurs, Princeton, at its sole option may:

- (a) Permit the Government to cure any default regarding the payment of charges hereunder, other than the Annual Lease Charge, within thirty (30) days of the date payment was due, except as provided in Article 3. If such default continues beyond thirty (30) days, Princeton may terminate this Lease immediately.
- (b) As to any default other than in the payment of money hereunder, if within sixty (60) days after notice by Princeton to the Government, the Government shall not have cured such default or shall not have commenced and is not proceeding diligently to cure it, Princeton may terminate this Lease immediately.

13.03 Termination - Princeton the Contractor.

If Princeton terminates the Lease pursuant to this Article 13 while Princeton is the Contractor, the Government shall be liable for and shall pay to Princeton each and every year for a ten (10) year period following termination an amount equal to the pertinent Annual Lease Charge pursuant to Article 3 hereof; provided, however, that during such ten (10) year period, Princeton shall make a good faith effort to relet the Demised Premises, and in the event Princeton does relet the Demised Premises, the Government shall be liable for the difference, if any, between the pertinent Annual Lease Charge and

the amount actually provided for as rent or similar consideration in the resultant lease. The Government also shall be liable for the reasonable costs and expenses incurred for reletting the Demised Premises and maintaining the same until reletting.

13.04 Termination - Princeton Not the Contractor.

If Princeton terminates the Lease pursuant to this Article 13 during any period in which Princeton is not the Contractor, the Government shall be liable for and shall pay to Princeton each and every year for the remainder of the Term an amount equal to the pertinent Annual Lease Charge as adjusted pursuant to Article 3 hereof; provided, however, that Princeton shall make a good faith effort to relet the Demised Premises, and in the event Princeton does let the Demised Premises, the Government shall be liable for the difference, if any, between the pertinent Annual Lease Charge and the amount actually provided for rent or similar consideration in the resultant lease. The Government also shall be liable for the reasonable costs and expenses incurred for reletting the Demised Premises and maintaining the same until reletting.

13.05 Government Approval.

The Government shall have the right of approval of the financial terms and conditions of any lease proposed to be entered into by Princeton pursuant to this Article 13, which approval shall not be unreasonably withheld.

13.06 Waiver of Performance.

No failure by Princeton to insist upon the strict performance of any covenant, agreement, term, or condition of this Lease on the part of the Government to be performed, or to exercise any permitted right to remedy consequent upon a default therein, and no acceptance of partial or full payment of any charges during the continuance of any such default shall constitute a waiver by Princeton of such default or of such covenant, agreement, term, or condition. No covenant, agreement, term, or condition of this Lease on the part of the Government, and no default therein, shall be waived, altered, modified or terminated except by written instrument executed by Princeton. No waiver of any default shall otherwise affect or alter this Lease, but each and every covenant, agreement, term, and condition of this Lease shall continue in full force and effect with respect to any other then existing or subsequent default therein.

ARTICLE 14 - NOTICES AND APPROVALS

All notices, approvals, consents, demands, and requests which may be or are required to be given by one party to the other party shall be in writing and shall be deemed to have been properly given if and when delivered personally, or by overnight courier, or sent by registered or certified mail, postage pre-paid, addressed as follows:

(a) If to the Government at: U.S. Department of Energy, Princeton Site Office, P.O. Box 102, Princeton, New Jersey 08540, or at such other place, and to such other person, as the Government may from time to time designate by notice to Princeton; and

(b) If to Princeton, One Nassau Hall, Princeton, New Jersey 08544, Attention: Provost.

ARTICLE 15 – QUIET ENJOYMENT

15.01 Quiet Enjoyment.

The Government, upon observing and keeping all covenants, agreements, and conditions this Lease on the Government's part to be observed and kept, shall quietly have and enjoy the Demised Premises throughout the Term of this Lease without hindrance or molestation by Princeton or by any one claiming by, from, through, or under Princeton, subject, however, to the exceptions, reservations, and conditions of this Lease.

15.02 Encumbrance.

Princeton shall not during the Term hereof sell or encumber the Demised Premises, except as hereinafter provided.

(a) Princeton may, at any time during the Term, sell the Demised Premises or the reversionary interest therein to any entity which is an affiliate of Princeton. For purposes of this paragraph 15.02, the term "affiliate" means any entity in which Princeton shall hold the controlling interest.

(b) Princeton agrees during the Term of this Lease not to sell the Demised Premises, any part thereof, or the reversionary interest therein, except for a sale to an affiliate of Princeton as aforesaid, without giving the Government the right of first refusal to purchase the Demised Premises, or Princeton's reversionary interest therein, on the same terms and conditions as those on which Princeton is willing to make such sale to another party. Princeton shall notify the Government promptly in writing of all such terms and shall submit to the Government full and accurate copy of any bona fide offer (which may be in preliminary or "letter of intent" form) Princeton desires to accept. If the Government elects to exercise the right of first refusal herein granted, it must do so within thirty (30) days after receipt of the notice of terms and conditions from Princeton, otherwise the right of first refusal as to such particular offer shall be null and void. In the event the Government exercises its rights hereunder, the Government shall purchase the property on the terms agreed to by Princeton and the Government. The Government's right of first refusal granted herein shall continue for the Term hereof and may be used by the Government notwithstanding the Government's declining to exercise such right in any particular instance, unless Princeton shall sell the Demised Premises or any interest therein pursuant to an offer which the Government has failed or declined to accept pursuant to this Article 15, in which case the Government's rights and options to acquire the Demised Premises, as provided in this paragraph 15.02, shall irrevocably terminate.

(c) Princeton shall not mortgage or encumber the Demised Premises during the Term hereof unless such mortgage or encumbrance is expressly made subordinate to the Government's rights hereunder.

(d) Any sale or other disposition of the Demised Premises, other than to the Government, shall be made expressly subordinate to the Government's rights hereunder.

ARTICLE 16 - SUCCESSORS AND ASSIGNS OF THE PARTIES CONTROLLING LAW

16.01 Successors.

The covenants and agreements contained herein shall bind and inure to the benefit of Princeton and Princeton's permitted successors and assigns, and the Government and the Government's permitted successors and assigns.

16.02 Assignment by Princeton.

Except as provided in Article 15 hereof, no interest in this Lease or claim hereunder shall be assigned or transferred by Princeton without the written consent of the Contracting Officer, which consent shall not be unreasonably withheld.

16.03 Assignment by the Government.

The Government's permitted successors and assigns shall be only a successor agency(s) to the Department of Energy.

16.04 Controlling Law.

This Lease shall be construed and interpreted according to the federal common law of government contracts as enunciated and applied by federal judicial bodies, boards of contract appeals, and quasi-judicial agencies of the United States Government. To the extent that the federal common law of government contract is not applicable, the laws of the State of New Jersey shall apply.

ARTICLE 17 - ESTOPPEL CERTIFICATE

The Government agrees, at any time and from time to time, upon not less than ten (10) days prior notice by Princeton, to execute, acknowledge, and deliver to Princeton a statement in writing certifying: (a) that this Lease is unmodified and in full force and effect (or if there have been modification, that the same is in full force and effect as modified and stating the modifications; (b) whether or not there are then existing any offsets or defenses against the enforcement of any of the terms, covenants, or conditions hereof upon the part of Princeton or the Government to be performed (and if so specifying the same); and (c) the dates to which the Annual Lease Charge and other charges have been paid in advance, if any.

ARTICLE 18 - TERMINATION BY THE GOVERNMENT

18.01 Termination - Princeton the Contractor.

(a) The Government may terminate this Lease for its convenience during any period in which Princeton is the Contractor by giving twenty-four (24) months' written notice to Princeton.

18.02 Termination - Princeton Not the Contractor.

(a) The Government may terminate this Lease for its convenience during any period in which Princeton is not the Contractor by giving twenty-four (24) months' written notice to Princeton.

18.03 Government Approval.

The Government shall have the right of approval of the financial terms and conditions of any lease proposed to be entered into by Princeton pursuant to this Article 18, which approval shall not be unreasonably withheld.

ARTICLE 19 – INDEMNITY

If at any time prior to the expiration or termination of this Lease, the law authorizes or requires the execution of an indemnity agreement between the Government and Princeton with respect to the work being conducted on the Demised Premises, the Government and Princeton may engage in discussions to add such an indemnity to this Lease. From time to time, Princeton may request that the Government confirm whether the law authorizes or requires execution of an indemnity agreement.

ARTICLE 20 – DUPLICATION OF COSTS

To the extent any charges payable to Princeton under this Lease also may be allowable and recoverable under the Current Contract, no duplicate recovery of such charge shall be permitted.

ARTICLE 21 - RESERVED EASEMENTS

21.01 Princeton hereby reserves, and shall have the right to install and maintain utility lines and facilities within any portion of the Demised Premises upon which no building or structure is to be erected at locations reasonably determined by Princeton, for the purpose of providing water, electric, gas, telephone, cable lines, data transmission, drainage, storm and sanitary sewer services to the Princeton Forrestal Campus, the Princeton Forrestal Center and any other land hereafter designated by

Princeton whether or not owned by Princeton, as well as the right to grant to other persons, entities, governmental bodies, and/or utility companies easements within the Demised Premises at the aforesaid locations for the aforementioned purposes.

21.02 No Material Interference with Government Use.

In the event that Princeton exercises its rights under this Article 21, Princeton agrees that its use of the easement(s) Lease No. DE-RL02-CH10328 granted shall not materially interfere with the Government's actual or projected use of the Demised Premises and that, if the Demised Premises are disturbed for construction for any of the permitted purposes, Princeton shall leave the site in a graded and slightly condition upon completion of the work.

ARTICLE 22 - MISCELLANEOUS PROVISIONS

22.01 Separability.

Each covenant and agreement contained in this Lease shall, for all purposes, be construed to be a separate and independent covenant and agreement. If any term or provision of this Lease or the application thereof to any person or circumstance shall to any extent be invalid and unenforceable, the remainder of this Lease or the application of such term or provision to persons or circumstances, other than those as to which it is invalid or unenforceable, shall not be affected thereby, and, each term and provision of this Lease shall be valid and shall be enforced to the extent permitted by law.

22.02 Counterparts.

This Lease shall be executed in three (3) counterparts, each of which shall be deemed to be an original.

22.03 Headings.

The headings to the various Articles and Sections of this Lease have been inserted for convenient reference only and shall not modify, amend, or change the express terms and provisions of this Lease.

GENERAL LEASE TERMS AND CONDITIONS

ARTICLE 23 – DISPUTES

- (a) Except as otherwise provided, this Lease is subject to the Contract Disputes Act of 1978 (41 U.S.C. §§ 7101-7109) (“the Act”).
- (b) Except as provided in the Act or in this Lease, all disputes arising under or relating to this Lease shall be resolved under this Article.

ARTICLE 24 - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Lease, or to any benefit arising from it. However, this clause does not apply to this Lease to the extent that this Lease is made with a corporation for the corporation's general benefit.

ARTICLE 25 - COVENANT AGAINST CONTINGENT FEES

Princeton warrants that no person or selling agency has been employed or retained to solicit or secure this Lease upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by Princeton for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this Lease without liability or in its discretion to deduct from the Annual Lease Charge, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE 26 - AVAILABILITY OF FUNDS

The obligations and liabilities of the Government under this Lease shall be subject to the availability of appropriated funds. The Government agrees to use its best efforts to secure appropriations sufficient for payment of all obligations and liabilities hereunder. There is no guarantee that Congress will, at a later date, appropriate such funds.

ARTICLE 27 - EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

(a) The Comptroller General of the United States or a duly authorized representative from the General Accountability Office shall, until 3 years after final payment under this Lease, have access to and the right to examine any of Princeton's directly pertinent books, documents, paper, or other records involving transactions related to this Lease.

(b) The periods of access and examination in paragraph (b) above for records relating to (i) appeals under the Disputes clause, (ii) litigation or settlement of claims arising from the performance of this Lease, or (iii) costs and expenses of this Lease to which the Comptroller General or a duly authorized representative from the General Accountability Office has taken exception shall continue until such appeals, litigation, claims, or exceptions are disposed of.

ARTICLE 28 - SIMULTANEOUS EXECUTION

This lease as modified herein shall have the same effective date as the Contract extension for Contract No. DE-AC02-09CH11466 where Princeton serves as the Contractor, and shall not be signed until Princeton University and the Government have agreed to all of the details of both the modifications to the Lease and the Contract extension.

IN WITNESS WHEREOF, THE PARTIES HAVE EXECUTED THIS LEASE AGREEMENT

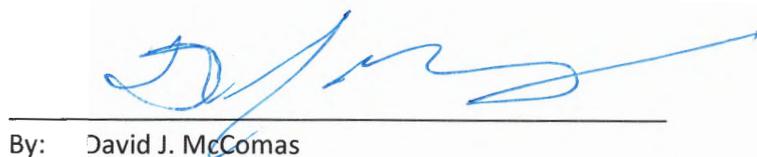
**UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY**



By: Marla J. Larsen-Williams
Title: Real Estate Contracting Officer

Date: March 15, 2019

THE TRUSTEES OF PRINCETON UNIVERSITY



By: David J. McComas
Title: Vice President for the Princeton Plasma Physics Laboratory

Date: 3/15/19

EXHIBIT A – LEGAL DESCRIPTION

EXHIBIT A TO LEASE AGREEMENT
EFFECTIVE ON OCTOBER 1, 1986 BETWEEN
THE TRUSTEES OF PRINCETON UNIVERSITY
AND THE UNITED STATES OF AMERICA
ACTING THROUGH THE UNITED STATES
DEPARTMENT OF ENERGY

DESCRIPTION OF THE
DEMISED PREMISES

BEGINNING at a point, said point being located on a bearing of South seventy-five degrees, no minutes, sixteen seconds East (S 75° 00' 16" E) two thousand one hundred forty and thirty-six hundredths (2140.36) feet from the easterly right-of-way line of New Jersey State Highway U.S. Route # 1, one hundred (100) feet in width, said beginning point being in the southerly line of lands of The Robert Johnson Foundation and from said beginning point running, thence;

- (1) Along said southerly line of The Robert Wood Johnson Foundation along the southerly line of lands of Trustees of Princeton University (common open space) South seventy-five degrees, no minutes, sixteen seconds East (S 75° 00' 16" E) one thousand seven hundred seventy five and no hundredths (1775.00) feet to a point, said point being the northwesterly corner of other lands of said Trustees of Princeton University, thence;
- (2) Along the westerly line of the last mentioned lands, South four degrees, fifty-seven minutes, ten seconds West (S 04° 57' 10" W) one thousand three hundred ninety and thirty-seven hundredths (1390.37) feet to a point, said point being the southwesterly corner to the last mentioned lands of said Trustees of Princeton University, thence;
- (3) Along the southerly line of the last mentioned lands, South seventy-one degrees, fifty-four minutes, nine seconds East (S 71° 54' 09" E) twenty-one and fifty-one hundredths (21.51) feet to a point, thence;
- (4) Along lands remaining to The Trustees of Princeton University the following eight (8) courses; South fifteen degrees, thirty-nine minutes, nine seconds East (S 15° 39' 09" E) one hundred twenty-five and thirty-seven hundredths (125.37) feet to a point, thence;
- (5) South thirty-three degrees, fifty-two minutes, fifty-two seconds West (S 33° 52' 52" W) one hundred eighteen and twenty-eight hundredths (118.28) feet to a point, thence;

- (6) North seventy-five degrees, no minutes, sixteen seconds West (N 75° 00' 16" W) two thousand sixty-four and fifty-six hundredths (2064.56) feet to a point, thence;
- (7) North fourteen degrees, fifty-nine minutes, forty-four seconds East (N 14° 59' 44" E) six hundred twelve and no hundredths (612.00) feet to a point, thence;
- (8) North seventy-five degrees, no minutes, sixteen seconds West (N 75° 00' 16" W) three hundred five and no hundredths (305.00) feet to a point, thence;
- (9) North fourteen degrees, fifty-nine minutes, forty-four seconds East (N 14° 59' 44" E) three hundred thirty-five and no hundredths (335.00) feet to a point, thence;
- (10) South seventy-five degrees, no minutes, sixteen seconds East (S 75° 00' 16" E) three hundred five and no hundredths (305.00) feet to a point, thence;
- (11) North fourteen degrees, fifty-nine minutes, forty-four seconds East (N 14° 59' 44" E) six hundred forty-three and no hundredths (643.00) to the point and place of BEGINNING.

According to a description by Nassau Surveying Company, Inc., Land Surveyors, Princeton Research Park, Princeton, NJ 08540.

BEING portions of those premises identified as tracts 13 and 1 in the Deed dated March 30, 1951, from The Rockefeller Institute for Medical Research to The Trustees of Princeton University and recorded on April 3, 1951 in The Clerk's Office of the County of Middlesex, NJ in the Book of Deeds, Page 381 and c.

AND BEING indicated on the Plainsboro Township New Jersey Tax Map as Block 5, Lot 3.02.

EXHIBIT B – ENCUMBRANCES

EXHIBIT B TO LEASE AGREEMENT
EFFECTIVE ON OCTOBER 1, 1986 BETWEEN
THE TRUSTEES OF PRINCETON UNIVERSITY
AND THE UNITED STATES OF AMERICA
ACTING THROUGH THE UNITED STATES
DEPARTMENT OF ENERGY

ENCUMBRANCES

The lease shall be under and subject to the following:

1. Reservations, grants, rights, and exceptions included in the deed dated March 30, 1951, and recorded on April 3, 1951, in the Clerk's Office of the County of Middlesex, New Jersey, in Book of Deeds 1552, Page 381 & c.

2. Right of Way Grant dated November 10, 1977, from The Trustees of Princeton University to The Robert Wood Johnson Foundation and recorded December 8, 1977, in the Clerk's Office of Middlesex County, New Jersey, in Book of Deeds 3010, page 170 & c.

3. Indenture of Easement granted by The Trustees of Princeton University to Elizabethtown Water Company recorded May 23, 1980, in the Clerk's Office of Middlesex County, New Jersey, in Book of Deeds 3144, page 62 & c.

boundary areas, maximum growth of screening vegetation will be encouraged. Reasonable building setbacks from roads will be used, considering the Government's activities; in many cases, this may be less than 50 feet.

- Exterior lighting will be in accordance with the Government design standards. It should only be minimally visible from outside the Demised Premises and not draw attention to the facilities.

- Signs within the Demised Premises shall be in accordance with the Government's standards, with due consideration of the Development Criteria. Signs outside the Demised Premises will be subject to approval by the Princeton University Vice-President for Facilities.

- Fences for storage, safety, and security needs will be allowed. Where possible, these should be limited to areas removed from the public view and main entrance.

- Temporary utility lines may be installed above ground when advantageous. Such lines should be minimized and limited to areas removed from the public view and main entrance area.

- Construction within the Demised Premises will be carried out in accordance with the Government's criteria with due consideration for the Development Criteria. Construction will be accomplished so as to minimize any adverse visual or noise impact on the surrounding Forrestal Center.

EXHIBIT C – PRINCETON DESIGN AND DEVELOPMENT CRITERIA

EXHIBIT C TO LEASE AGREEMENT
EFFECTIVE ON OCTOBER 1, 1986 BETWEEN
THE TRUSTEES OF PRINCETON UNIVERSITY
AND THE UNITED STATES OF AMERICA
ACTING THROUGH THE UNITED STATES
DEPARTMENT OF ENERGY

DESIGN & DEVELOPMENT CRITERIA

The Demised Premises are within the Princeton Forrestal Campus; the "Design and Development Criteria - Princeton Forrestal Center" ("Development Criteria") (attached hereto) are to be used as guidelines in the design and construction of Buildings and improvements on the Demised Premises. However, it must also be recognized that the nature of facilities required to carry out large-scale research and development work under the Current Contract requires some flexibility in the application of the Development Criteria. The relative isolation of the Demised Premises from other Forrestal buildings allows some limited flexibility in the application of the Development Criteria without adverse effect on nearby developments.

Specifically, the following criteria will supplement applicable portions of the Development Criteria:

- The architectural character of buildings will be allowed to reflect functional building use. As much as possible, functional research support facilities and non-permanent facilities, which would not be built to strict architectural standards, will be kept out of public view - away from the main entrance gate, or other non-screened areas.
- Every attempt will be made to keep buildings and other facilities less than 60 feet in height, and not to exceed the profile of the major tree cover surrounding the Demised Premises. Any proposed buildings or other facilities which would exceed 60 feet will be subject to University approval.
- Parking lots will be sized and allocated based upon the Government's requirements.
- Roadway, parking, walkway, and landscaping design and construction will be in accordance with the Government requirements and design criteria, with due consideration of the Development Criteria.
- All new facilities and any other improvements will be set back at least 30 feet from the northern boundary of the Demised Premises. No permanent facilities will be erected within 30 feet of other boundaries. In all

boundary areas, maximum growth of screening vegetation will be encouraged. Reasonable building setbacks from roads will be used, considering the Government's activities; in many cases, this may be less than 50 feet.

- Exterior lighting will be in accordance with the Government design standards. It should only be minimally visible from outside the Demised Premises and not draw attention to the facilities.

- Signs within the Demised Premises shall be in accordance with the Government's standards, with due consideration of the Development Criteria. Signs outside the Demised Premises will be subject to approval by the Princeton University Vice-President for Facilities.

- Fences for storage, safety, and security needs will be allowed. Where possible, these should be limited to areas removed from the public view and main entrance.

- Temporary utility lines may be installed above ground when advantageous. Such lines should be minimized and limited to areas removed from the public view and main entrance area.

- Construction within the Demised Premises will be carried out in accordance with the Government's criteria with due consideration for the Development Criteria. Construction will be accomplished so as to minimize any adverse visual or noise impact on the surrounding Forrestal Center.

**Design
and
Development
Criteria**

**Princeton
Forrestal Center**

Summary of Design and Development Criteria

Princeton
Forrestal Center

All phases of user design and construction at the Princeton Forrestal Center will be subject to architectural, landscaping, graphic, and environmental controls established by Princeton University in order to insure a high quality of development. A high standard is being promulgated to create a development distinguished by a consistent quality of amenity and architectural design sympathetically placed in a natural setting.

This document is a summary of the criteria which will apply to user design and construction, and which will form the basis for the covenants that will appear in the contractual arrangements with each institution occupying land in the office-research center of the Princeton Forrestal Center. A more comprehensive and explicit definition of the criteria is provided by **Design and Development Criteria for the Princeton Forrestal Center** (henceforth referred to as the **Design Manual**).

Scope of Design Review

In order that the Center's development objectives be achieved, all plans relating to building and site design will be subject to review and approval before implementation.

The scope of review will encompass all buildings or other structures and all additions to these; all walls, signs, fences, and exterior lighting facilities; all driveways, roadways, parking areas, and loading, service, or storage facilities; and all grading or landscaping of any site in the office-research center.

During the review of design proposals, consideration will be given to:

The uses and suitability of the proposed buildings, structures, or other improvements to each site on which construction is planned;

The materials, including the types, quality, and colors thereof, with which the buildings or structures are to be built;

The architectural character of proposed buildings and structures, all of which will be contemporary rather than traditional in style;

The configuration of each site upon which any improvement is planned, together with the site's topography and natural amenities and the preservation thereof;

The effort to minimize the impact of buildings, other structures, or paving on each site;

The harmony and compatibility of each proposed improvement with the remainder of the office-research center; and

The treatment and handling of collected surface waters.

In the review of designs and plans, allowances will be made for the special characteristics of each site and for the purposes it is to fulfill. The object is to insure that the Princeton Forrestal Center meets the aesthetic, environmental, and functional standards its planners and occupants expect of it.

Design Review Committee

A Design Review Committee has been appointed by the Trustees of Princeton University. The Committee is authorized to review and act on all development proposals in accordance with established review procedures, and will apply its judgments in conformity with the design and development criteria set forth in the **Design Manual** and contractual agreements with users.

Building Criteria

Setbacks: Minimum distances have been specified to govern the setbacks of buildings, other structures, and paved areas from streets and property boundaries. The Design Review Committee, however, may prescribe setbacks greater than the minimum where conditions of topography, sight lights, vegetation, or road alignment warrant them.

Height: The height of buildings and other structures will not exceed the profile of major tree cover on the property. The intention will be to maintain the skyline of the natural tree cover.

Exterior Appearance: Architectural designs will be evaluated largely in terms of their success in integrating form, texture, and color with the particular landscape and topographical qualities of the site. The architectural character of each proposed building or structure shall be contemporary, rather than traditional, in style; eclectic styles, such as gothic or colonial, will not be permitted.

To maintain a high standard of construction and appearance and to furnish interesting and tasteful exteriors, the exterior walls of each building must be constructed of carefully selected brick, treated concrete, or another durable and permanent material.

Towers, stacks, and other vertical projections above the roofline must be avoided. Skylights and other penetrations through the roof will be consonant with the building's architectural form.

Ratio: No building will be erected with a floor area ratio exceeding one square foot of gross floor area to four square feet of area of the site, lot, or parcel on which the building will be erected.

Parking, Service, and Access

Ratios: All parking, loading, and unloading areas must be sufficiently extensive to meet the demands of all business conducted on the site without using adjacent streets. Minimum parking area ratios have been established in terms of floor space and personnel.

Access: The number, area, and placement of access drives per parcel will be subject to design review in order to insure the intended landscape continuity of the setbacks while allowing necessary flexibility for development of individual lots.

Setbacks: Setbacks will conform to a schedule of minimum distances prescribed in the **Design Manual**.

Surfacing: All parking lots, driveways, and walks will be surfaced with bituminous concrete, concrete, brick, or another approved dust-free material.

Design: Parking areas will be partitioned by islands containing trees or other landscape materials so that no uninterrupted expanse of parking area exceeds one acre.

On-site access roads will be separated from the parking areas by raised walkways, planting areas, or some combination of the two.

All exterior service, loading, storage, and utility areas will be located at the side or rear of each building.

Screening: All parking areas will be screened by berms or planting so as not to be visible from nearby streets or adjacent properties. All exterior service, loading, storage, and utility areas will be screened from streets and adjacent properties. Open storage ordinarily will not be permitted.

Preservation of Existing Major Trees

In order that the intrinsic environmental values of the land occupied by the office-research center be maintained, all free-standing trees with a trunk diameter of six inches or more at a height of three feet above grade will be preserved. All forested areas and windrows, together with underlying vegetation, will be preserved. No such plant material will be removed without prior permission.

Setbacks: The placement of buildings, structures, roads, and parking and service areas in relation to existing wooded areas will be governed by a schedule of minimum setbacks.

Protection during Construction: During any construction operation, all trees designated for preservation on the property will be protected by suitable barriers. The builder will insure also that no damage to root structures or branches and trunks occurs.

Other Landscape Design Considerations

New Planting: Except for paved areas, all ground will be landscaped in a manner that complements the architecture, provides desired screening, and forms a transition to the natural features of the site.

Fences: Fences will be approved only to enclose limited storage areas, and in such instances will be executed as architectural or landscape elements. No chain-link fencing and no fences around the perimeters of any site will be allowed.

Utilities: All utilities and related facilities, except specified light fixtures, will be housed either underground or in the main building.

Lighting

Building Exterior: Well-designed, subdued lighting of the building exterior will be permitted, provided that the light source is invisible, and that the lighting is complementary to the architecture and not intended to draw inordinate attention to the building.

Paved Areas: Parking lot, service area, and roadway lighting will be provided by free-standing fixtures with shielded sources so that the source itself is not visible from the street or adjacent properties.

Lighting for pedestrian areas may be from shielded or exposed sources, provided the height and intensity of the light are limited.

Signs

Site Entrance: A single identification sign will be erected in a designated area at the entrance to each site, provided the sign is designed in accordance with the architecture of the site. Subdued illumination may be provided by one of several methods, but flashing or moving elements will not be permitted.

Building: A smaller sign, equally compatible with site architecture, will be permitted on or near the main building, provided the sign does not project above the roofline.

On-Site: Directional, traffic, and parking control signs will be limited in size and number, and will be compatible in design with the site architecture.

Drainage

Each site's storm water drainage will be collected on-site and released at approved locations. Storm water detention areas may be established in order to protect groundwater distribution systems.

Criteria for Construction

Since construction activity in the office-research center may last for a long period of time, special criteria will be imposed to insure visual and environmental protection for the area.

Before construction begins, each user will submit to the Design Review Committee a program outlining the proposed methods of compliance with criteria established for construction.

Criteria for Uses and Maintenance

Nuisances: No use of any part of the office-research center will be made which proves offensive to the neighborhood because of odor, fumes, dust, smoke, glare, noise, gases, radiation, liquid waste, or pollution. No use may be hazardous by reason of danger of radiation, fire, or explosion.

Outside Activities: No business activity will be conducted outside any building or structure erected in the office-research center without prior permission, except that the ordinary pace of traffic, parking, loading, unloading, and maintenance will not be affected by this prohibition.

Maintenance: Each property in the office-research center, and all buildings and structures thereon, will be kept in good order, condition, appearance, and repair, including repainting where required. The grounds and areas around buildings and structures will remain neat, orderly, and free of trash and rubbish.

Development Group

K. S. Sweet Associates
project management/financial analysis

Sasaki, Dawson, DeMay Associates, Inc.
planning and civil engineering

Hammer, Siler, George Associates
market analysis

Princeton University Officials

R. Manning Brown, Jr.
Chairman of the Executive Committee of the Board of Trustees and Chairman of the Special Trustee Committee on Real Estate

William G. Bowen
President

Paul B. Firstenberg
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Princeton University
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**Princeton
Forrestal Center**

**Design
and
Development
Criteria**

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A summary of this report can be found in the inside back cover pocket, which also contains addenda to this report.

Introduction

The primary objective in establishing design and development criteria for the Princeton Forrestal Center is to insure a sense of continuity in esthetic values and environmental sensitivity in the overall development of the complex. A high standard is being promulgated in order to create an office-research complex that will be distinguished by a consistently high quality of architectural design sympathetically placed in a unique natural setting. These controls are intended to preserve confidence that the quality of the overall development will remain high and, therefore, that the economic and environmental values of locating in the Princeton Forrestal Center will be permanently protected.

In order to achieve these objectives, all plans for building and site design, including special requirements for the preservation of natural site characteristics, will be subject to review and approval by the Design Review Committee prior to implementation.

The Design Review Committee will consider each proposal on its merits. It will judge the particular opportunities, conditions, and problems of each parcel and development program. The Committee will be directed to evaluate each proposal according to its adherence to high esthetic standards, sympathy with the natural characteristics of the site, and compatibility with development on adjoining parcels.

The criteria and controls given in this manual provide a conceptual framework for the Committee and applicants to follow in evolving a design for each site that will be consistent with the architectural and environmental quality of the Princeton Forrestal Center.

All applicable public regulations will take precedence in any case where they are more restrictive than the criteria set forth in this manual.

Design Review

Design Review Committee

The Design Review Committee is appointed by the Trustees of Princeton University and consists of three or more members, including at least one member with a professional architectural, engineering, or landscape architectural background. The Committee is authorized to review and act on all development proposals in accordance with the review procedures described in this section, applying its judgments in accordance with the criteria set forth under **Design and Development Criteria**. At its discretion, the Committee may retain the services of a professional technical adviser in the field of architecture, landscape architecture, and/or planning to assist in evaluating submissions on the basis of design and other technical considerations.

Administrative responsibility may be delegated by the Design Review Committee to the University Physical Planning and Facilities office or to any other office or agency empowered to manage the development of the Princeton Forrestal Center. Administration here includes submittals, Committee responses, and the coordination of meetings, as well as the supervision of compliance with design and development criteria during and after construction.

Design Review Procedures

Each development proposal will be reviewed by the Design Review Committee as the design for the building and site evolves.

Pre-Design Conference: Before the design is initiated, the Design Review Committee will meet with the applicant, the applicant's architect, and other consultants to clarify mutual design objectives, the characteristics of the particular parcel, and technical issues related to design review procedures. At this meeting, the applicant will make available a topographical survey of the parcel at a scale of 1"=50' and including the following information:

- 1 Property boundaries, including relationship to adjacent lands and access roads.
- 2 Topography, shown by one foot contour intervals.
- 3 Locations of any existing utilities or other improvements on the site.
- 4 Description of general site drainage characteristics.
- 5 Location and description of any characteristics and noteworthy natural features such as marshes, stream beds, etc.

- 5 Description of existing site vegetation characteristics, to include the location of trees and shrubs (specifying them by name, size, and condition—monumental, individual, or clumped), which, because of intrinsic landscape value or relationship to their surroundings, are outstanding in terms of potential landscape development. This includes identification of every tree with a diameter of six inches or more at a height of three feet above grade as well as every group of trees of any size. A reasonable adjustment of the requirements will be made when it becomes difficult to specify the information required because of, for example, dense vegetation or other impediments.

A series of submissions will be made subsequently to the Design Review Committee, following the normal process of design, as follows:

Schematic Design: Including plans, sections, elevations, and other materials sufficient to clearly indicate the placement, height, and massing of the building(s), the vertical and horizontal layout of on-site access roads, parking facilities, and service areas, the location of building entries, the intended treatment and preservation of natural landscape features, and the application of new landscape elements.

Comments and recommendations will be made by the Committee within twenty days of receiving the submission. The Committee will reserve the right to request a meeting with the applicant and the applicant's architect to discuss the design at this stage.

Preliminary Plan Approval: The applicant will submit three sets of preliminary architectural and site plans, as follows:

- 1 Dimensioned building plans, sections, and elevations at a scale of 1/8"=1', with representations of exterior materials, textures, colors, fenestration, and other detailing necessary for accurately depicting the finished building and its site.
- 2 Outline specifications to indicate the intent for major architectural, structural, mechanical, electrical, and site elements.

- 3 A model of the building, accurately constructed at a scale of 1"=16', and inclusive of adjacent site features.
- 4 Samples of proposed exterior materials and colors.
- 5 Site plan(s) at a scale of 1"=50', showing
 - a. Grading at a contour interval of one foot.
 - b. Layout and geometry of all roads, walks, paved areas, and other elements which constitute modification of the natural site.
 - c. Planting plan, including size, placement, and species of proposed new plant materials and integration with existing planting. New materials of sufficient maturity to be in scale with the architecture will be specified.
 - d. Indication of all site lighting, with heights, spacing, design, and illumination characteristics.
- 6 A cross section of the site at a scale of 1"=16' in longitudinal and transverse directions, indicating the relationship of the building and major grading to the street, adjacent properties, and tree edges. The site plan and sections will be sufficiently accurate to permit analysis of visual screening, erosion control, drainage, tree protection, and landscape architectural design.
- 7 Plans for the major entrance sign and building identification sign, if any, including dimensions, location, material, lettering, color, and lighting, and elevations of the prototype for on-site directional-type signs, showing format, letter face, and colors.
- 8 Detailing of proposed methods for protecting any existing trees affected by grading, paving, or other construction.
- 9 An estimate of the maximum number of employees contemplated for the proposed development.
- 10 A description of proposed operating characteristics in sufficient detail to permit assessment of the extent of noise, odor, glare, vibration, smoke, dust, gases, radiation, or liquid wastes that may be created.

Approval, rejection, or recommendation for changes will be made by the Committee within sixty days of receiving the proposal. The Committee will reserve the right to request a meeting with the applicant and the applicant's architect to discuss the design at this stage.

Final Plan Approval: The applicant will submit working drawings and specifications for the building and the site to insure adherence to the approved design.

- Prior to any site-clearing, development, or building, the final plan must be submitted to the Design Review Committee for a review of the plan's conformity to the approved design. The Committee will have thirty days after three sets of the required drawings and specifications have been submitted to review and give an opinion of the final plan. The Committee will reserve the right to request a meeting with the applicant to discuss any modifications necessary to make the design conform to the approved preliminary design.

The Design Review Committee will return to the applicant one complete set of drawings and specifications marked 'approved' and signed by an authorized representative of the University. This set will become a part of the agreement between the applicant and the University.

Design and Development Criteria

Building Criteria

Setbacks: The setbacks of buildings and paved areas from street rights of way and property lines will be evaluated by the Design Review Committee on the basis of the special conditions presented by each site. The Committee may require variations in setback if sight lines, topography, vegetation, or road alignment dictate special conditions.

However, in no case should the minimum setbacks be less than the following:

Building setback from U.S. Route 1,
100 feet,

Building setback from internal roads,
50 feet, and

Building setback from adjacent parcels,
30 feet.

(See Figure 1 for guideline illustrations of the desired setback conditions.)

Height: The height of buildings will not exceed the profile of the major tree cover on the property. The intent will be to preserve the skyline of the natural tree cover as it is viewed when approaching the site, although each site will have particular topographical, vegetation, and visual conditions which will require evaluation.

Exterior Appearance: The architectural character of each proposed building or structure shall be contemporary, rather than traditional, in style; eclectic styles, such as gothic or colonial, will not be permitted. Architectural designs will be evaluated in terms of the sensitive integration of form, textures, and colors with the particular landscape and topographical character of each site.

To maintain a high standard of construction and appearance and to provide interesting and tasteful exteriors, the exterior walls of each building are to be constructed of durable, permanent materials, tastefully handled (carefully selected brick, treated concrete, or other architectural surfaces). No temporary or inflammable material will be approved. Vertical roof projections such as towers, vents, stacks, or roof-mounted equipment should be avoided. All penetrations through the roof (for example, mechanical equipment or skylights) must be organized in a manner that is integral to the architectural form of the building.

Parking, Service, and Access

All parking, loading, and unloading areas must be sufficient to serve the business being conducted on the parcel without using adjacent streets. The following criteria are minimum guidelines. More stringent requirements may be imposed if warranted by the intended use.

Parking Ratios: All parking required by the development of a parcel will be provided on the parcel in the following ratio:

One parking space per 300 gross square feet of building area, or

One parking space per 1.5 general office or research person,

One parking space for each management person, and

One visitor space for each ten management persons.

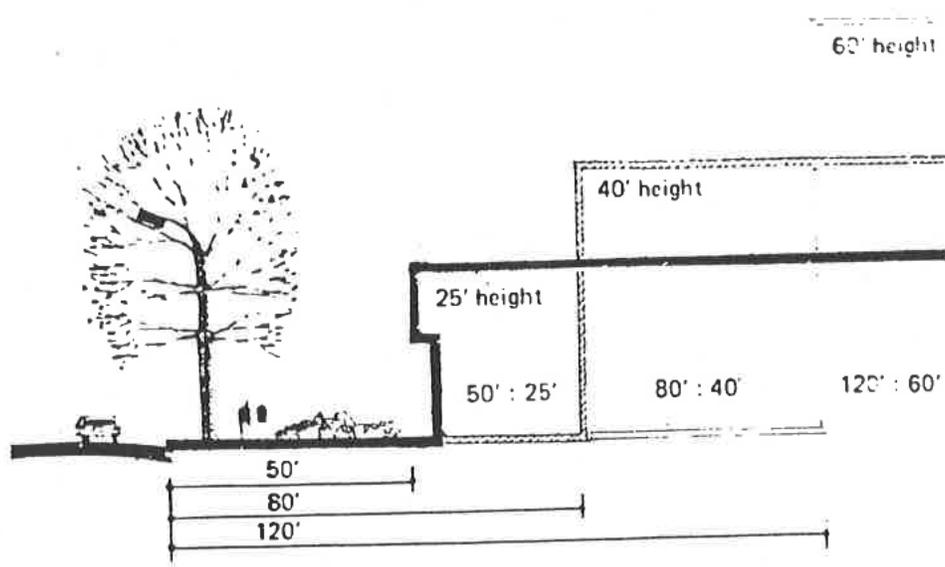


Figure 1. Section through Street Edge and Building Setbacks

Standard building setback from loop road equals twice building height:

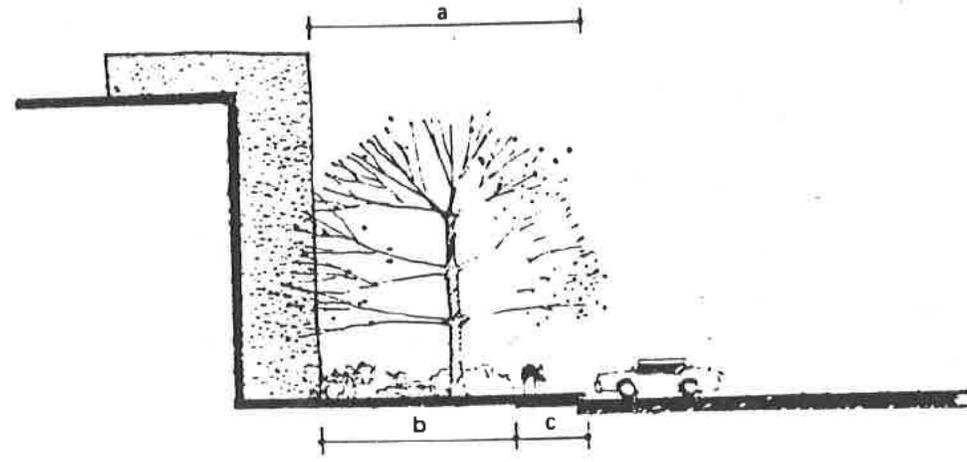


Figure 2. Section through Building and Paved Area

- a. Standard building setback 40'
- b. Planting area 30' minimum width
- c. Concrete walk 10' minimum width; concrete curb and gutter

It will not be required that the entire parking area established by these ratios actually be paved, where the applicant can demonstrate that the minimum requirements are in excess of need, as long as the required amount is shown on the site plan, the land is kept available, and the actual parking space continues to be adequate. The University will reserve the right to require that adequate parking space be installed in the future.

Site Criteria for Parking, Service, Access, or other Paved Areas: No parking or other vehicular surface will be closer than 40 feet to a building line, except in the case of an automobile drop-off, a loading area, or a vehicular entry into the building. (See Figure 2 for the desired minimum separation between parking areas and buildings.)

No parking, service, or storage area will be closer than 50 feet from any street edge, nor closer than 30 feet from any adjacent parcel. (See Figures 3 and 4 for the desired minimum separation between parking areas and streets or property lines.)

All parking lots, driveways, and walks will be surfaced with bituminous concrete, concrete, brick, or an approved equal material. Lighting for walks, driveways, and lots will be as specified. All wiring must be underground.

All on-site access roads will be separated from the parking areas by a raised walkway, planting area, or a combination of the two. (See Figure 5 for an illustration of the desired separation.)

Adequate loading and maneuvering space will be provided for each use, separated from the parking areas.

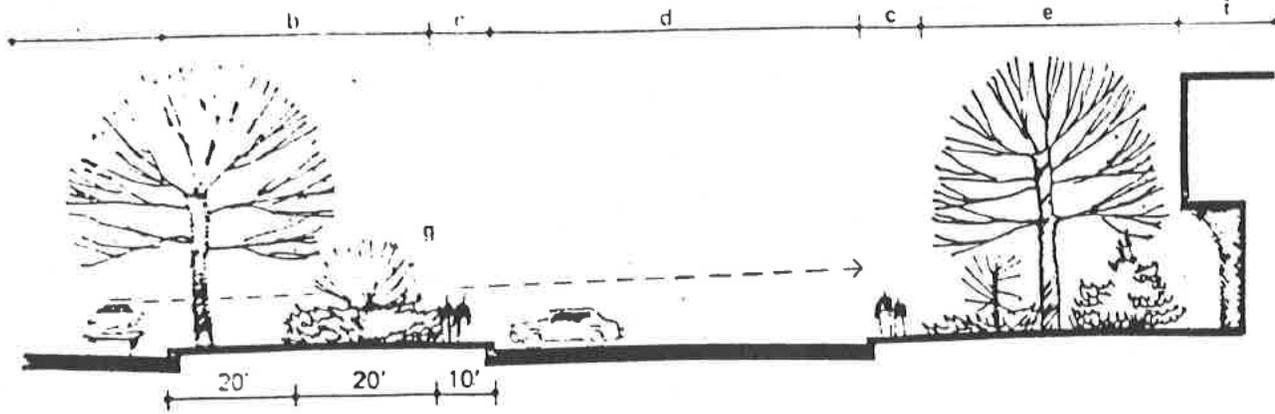


Figure 3. Section through Street Edge: Planted Buffer and Parking

- | | |
|-------------------|-----------------------------|
| a. Street | e. Planting area |
| b. Planted buffer | f. Building |
| c. Walk | g. Evergreen screen 5' high |
| d. Parking | |

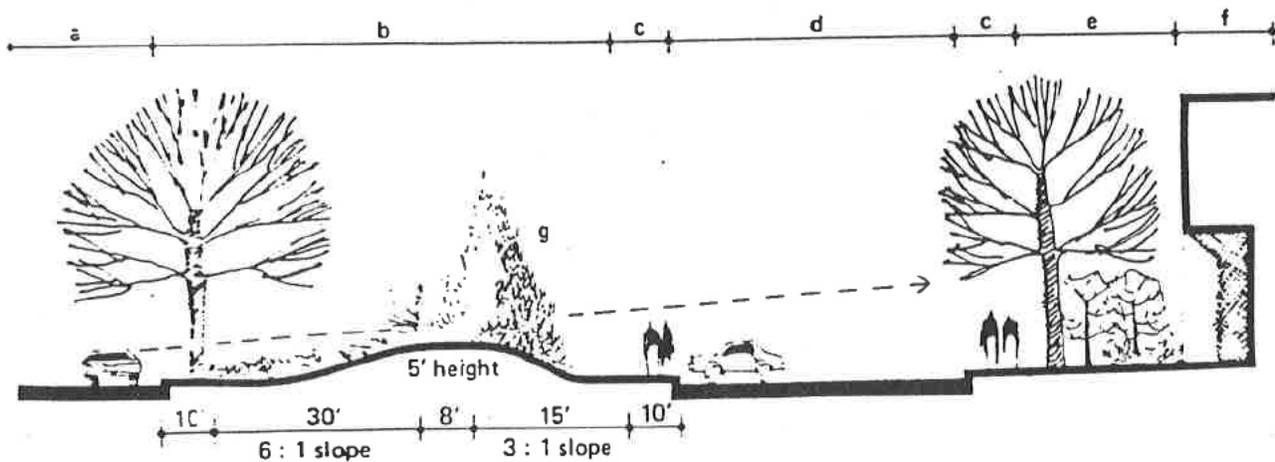


Figure 4. Section through Street Edge: Mounded Buffer and Parking

- | | |
|-------------------|---|
| a. Street | e. Planting area |
| b. Mounded buffer | f. Building |
| c. Walk | g. Informal planting with views to building |
| d. Parking | |

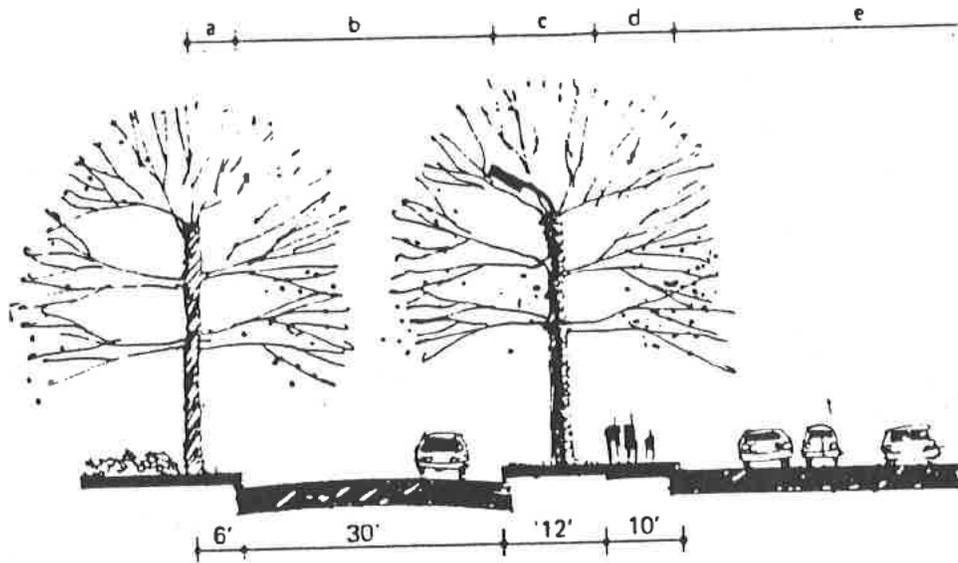


Figure 5. Section through Typical Entry Road and Parking

- a. Street trees, signs, and lights located 6' from curb face
- b. Typical entry road
- c. Planting area
- d. Walk
- e. Parking: parking stall is 9'x20'; parking bay is 65'; surface areas not to exceed one acre without planting buffers

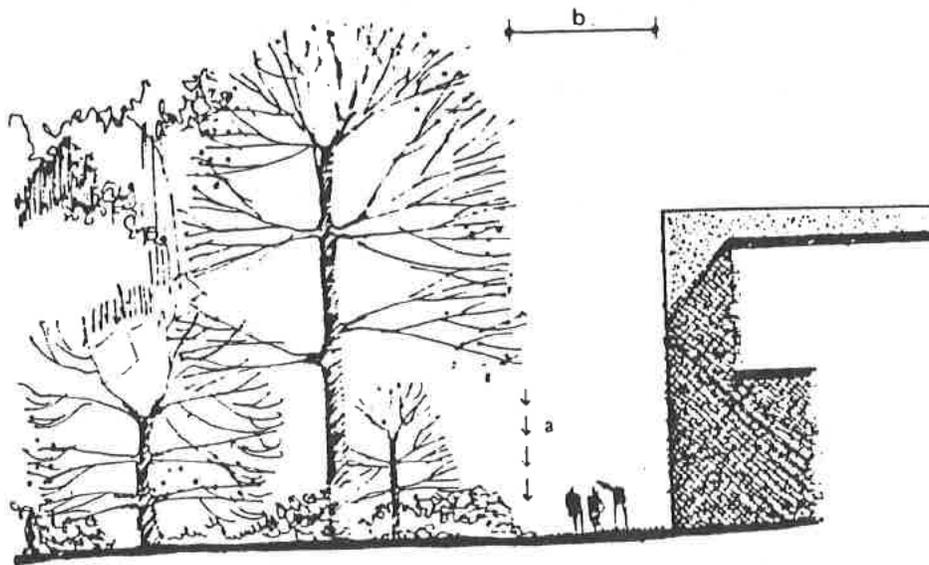


Figure 6. Section through Wooded Edge and Building

- a. Wooded edge dripline
- b. Standard building, roadway, and parking setback, 30'; walks and paths allowed within this area

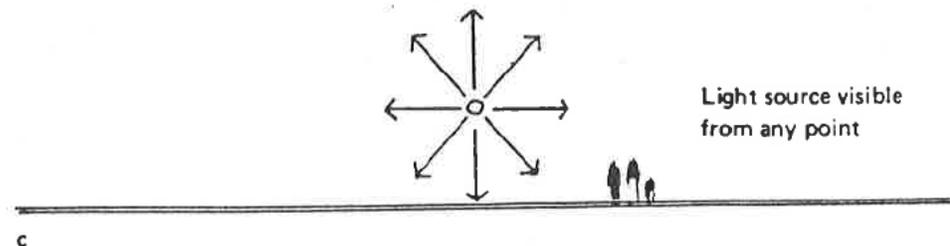
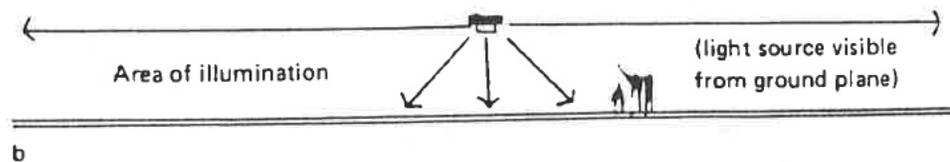
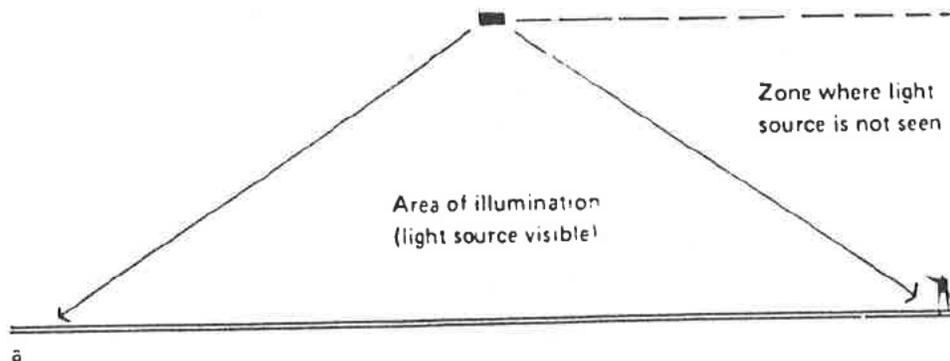
All parking areas will be screened from road rights of way and adjacent developed parcels by earth berms or evergreen planting to assure that the visual effect of large paved areas and standing automobiles is minimized and that the effect of the natural landscape and the architecture dominates. (See Figures 4 and 5 for the desired screening characteristics.)

Parking areas will be subdivided by islands containing trees or other landscape materials, so that no contiguous open parking area will exceed one acre in area.

All exterior service, loading, storage, and utility areas (including transformers, cooling towers, etc.) will be located at the side or rear of the building and will be screened or sheltered so as not to be visible from the street right of way or from adjacent parcels.

Figure 7. Lighting Concept

- a. Concealed source:
parking and roads;
cool (mercury vapor)
- b. Semi-concealed source
outer pedestrian path
system;
warm (metallic vapor
or incandescent)
- c. Visible source:
inner building area,
pedestrian path systems,
and plazas;
warm (incandescent)

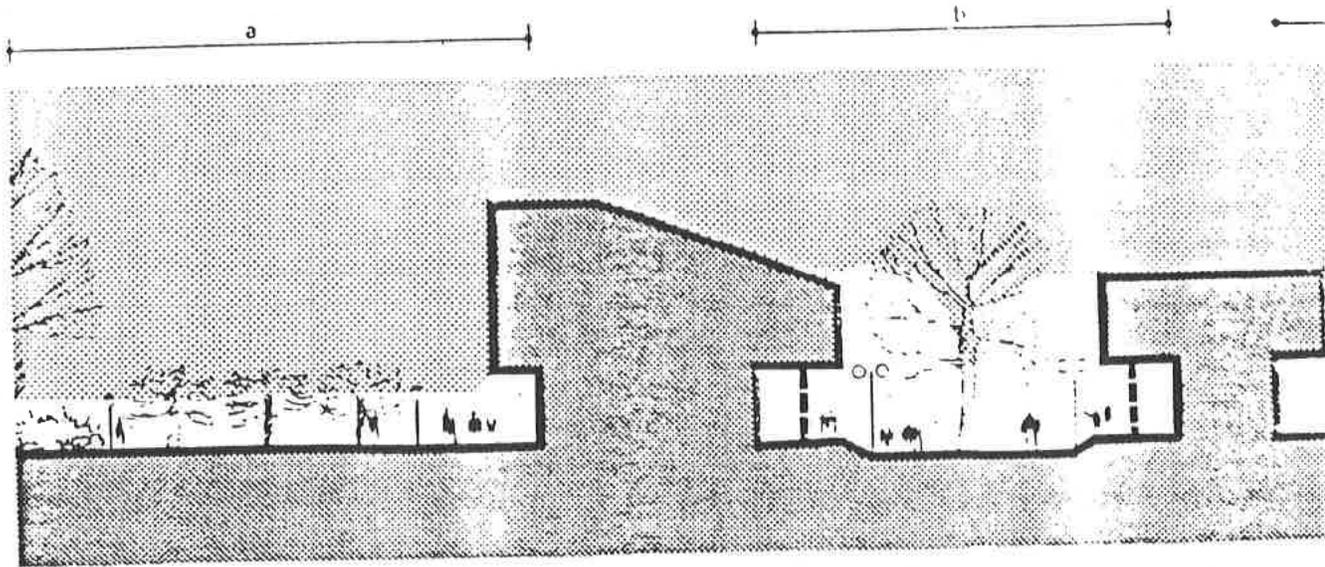


The number and area of access drives per parcel will be subject to design review to insure the intended landscape continuity of the setbacks, while allowing the necessary flexibility for development of individual lots. The recommendation is that access drives be a minimum of 24 feet in width. As a planning guide, all parcels with a frontage of less than 200 feet will be limited to one access drive, and no parcel should have more than two access drives. Consolidation of access drives on adjacent parcels will be encouraged, particularly when adjacent parcels are developed simultaneously. This will reduce the number and area of driveway openings on a given length of a major or secondary road, as well as provide tenants greater latitude in developing the sites.

Lighting

Well-designed soft lighting of the building exterior will be permitted, provided that the light source is not visible and that it complements the architecture. The lighting should not draw inordinate attention to the building.

Parking lot, service area, and roadway lighting will be provided by free-standing fixtures with cut-off light sources to assure that the source is not seen from the street or adjacent parcels. The material and color of the fixtures will be evaluated in terms of their compatibility with the architecture and natural site characteristics.



The lighting of pedestrian walkways may include either cut-off or exposed sources, but the height and intensity of light will be subdued. (See Figures 7, 8, and 9 for illustrations of the desired lighting characteristics.)

Signs

One identification sign will be erected at the entrance to each parcel in an area to be designated by the Design Review Committee. The design, format, and materials of the sign will be consistent with the site architecture in the development. No flashing or moving elements will be permitted. All necessary details will be provided by the Committee prior to final approval of tenants' plans.

An identification sign of a smaller scale will be permitted on the exterior of the building at a location related to the principal entrance. It may be placed on the building surface or in a free-standing position, provided that the latter is clearly integrated with the architecture. It will not project above any roof or canopy elevations and will not appear above the first-floor level.

Any directional, traffic, or parking control signs on the site will be reviewed by the Committee, with the intent that the signs will be restricted to the minimum necessary, will be visually unobtrusive, and will be consistent in format, lettering, and coloring.

Drainage

Each parcel's storm water drainage will be collected on-site and released at an approved location or locations. In cases where water drains onto the parcel from adjacent parcels, the drainage system will provide for the inflow, unless special arrangements are made to the contrary.

Storm water detention areas may be necessary to insure recharge of sensitive ground water systems at a rate equivalent to the natural site conditions before development. Determination of this need will be made by the Design Review Committee on the basis of topography, subsoil characteristics, aquifer characteristics, and ground coverage. The requirement of a detention area will be established after review of the site plan at the schematic design stage, at which time the coverage and grading can be properly determined.

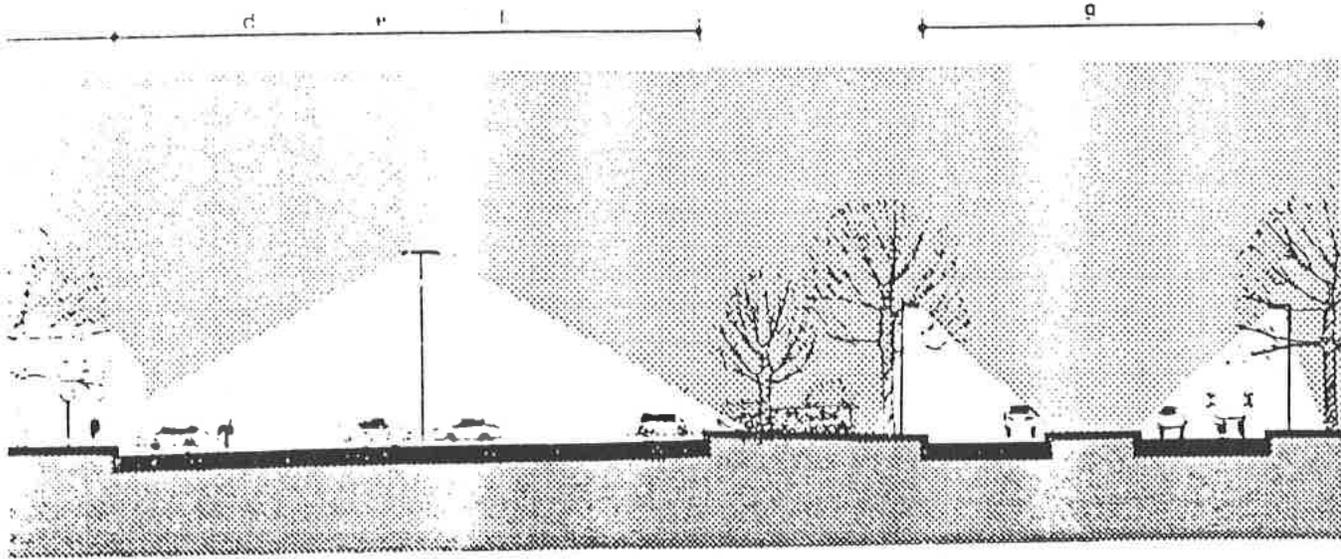
Figure 8. Typical Lighting Section

a. Outer pedestrian path system:
warm, semi-concealed source;
12' maximum height, dark poles;
8 lumen average per square foot surface area

b. Pedestrian plaza:
warm, semi-concealed, or visible source;
20' maximum height, dark poles;
lumens average per square foot surface area related to architectural design solution

c. Inner pedestrian path system:
warm, semi-concealed, or visible source;
12' maximum height, dark poles;
1.0 lumen average per square foot surface area

d. Parking:
cool, concealed source, cut-off design;
30'-45' heights, dark poles;
0.9 lumens average per square foot surface area



e. Entry roadway:
cool, concealed source,
cut-off design;
35' height, dark poles;
90' spacing, both sides;
1.2 lumen average per
square foot surface area

f. Minor roadway:
cool, concealed source,
cut-off design;
35' height, dark poles;
90' spacing, one side or
staggered;
0.8 lumen average per
square foot surface area

g. Major roadway:
cool, concealed source,
cut-off design;
35' height, dark poles;
120' spacing, both sides;
1.2 lumen average per
square foot surface area

Preservation of Existing Major Trees

A premium will be placed on the preservation of the natural tree cover and other unique characteristics of the landscape in order to:

- 1 Maintain a sense of natural amenity, which will distinguish the property as a unique and attractive setting for business and research.
- 2 Take advantage of the natural subdivision of the total property into precincts or 'exterior rooms' created by the juxtaposition of windrows and wooded areas with open fields.
- 3 Preserve the intrinsic environmental values and continuity of mature, native tree cover as a wildlife habitat and as protection against erosion and contamination by run-off to streams on the site.

Therefore, all free-standing trees on the parcel with a trunk diameter of six inches or more at three feet above grade and all forested areas and windrows, including understory plant material, will be preserved. No such plant material will be removed without prior approval of the University. Special consideration will be given to efforts to treat the natural tree cover sympathetically.

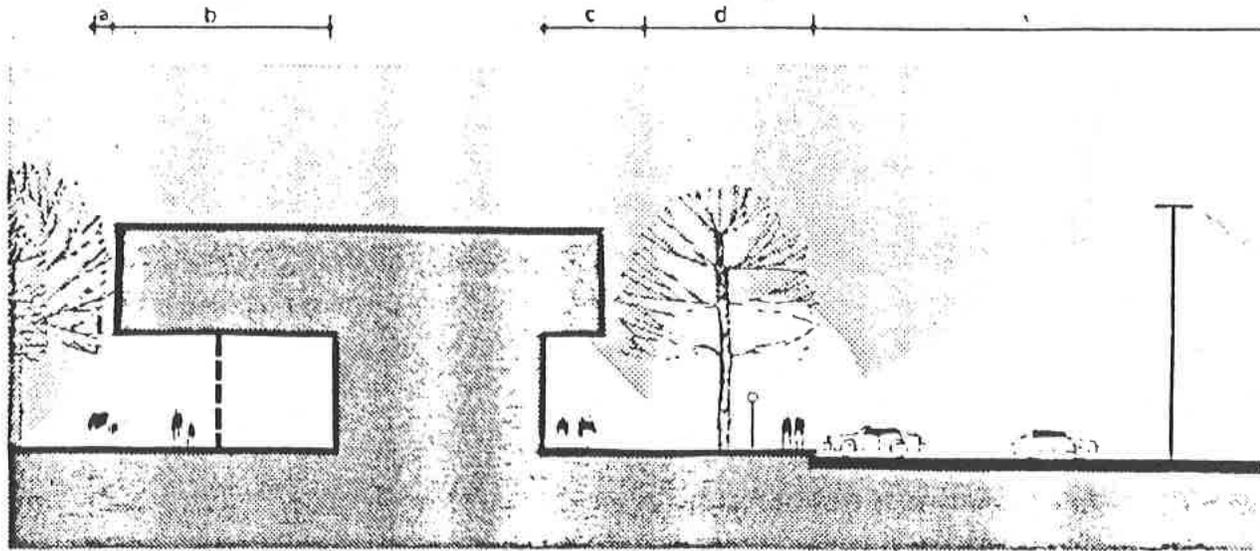
In reviewing plans, particular attention will be given to grade changes and other work adjacent to the trees to be preserved. Grade, drainage, and aeration will be maintained around the trees.

Setbacks from Preserved Wooded Areas

Building lines and the edges of roads and parking or service areas will be set back at least 30 feet from the dripline edge of windrows or forested areas to be preserved. (See Figure 6 for the desired minimum separation between buildings, parking areas, and tree edges.)

Use of Preserved Wooded Areas

The use of the wooded areas for walking paths, picnic areas, and benches will be encouraged. The layout of paths will be clearly defined by gravel or asphalt paving or by defined edges of stone, timber, or planting. Areas for picnic tables and benches will be distributed so as to prevent the concentration of use in any single part of the wooded area. The intent of these requirements is to avoid compaction of ground surfaces at the bases of the trees and to preserve the natural undergrowth.



Tree Protection during Construction

During any construction operations on the property, the builder will erect suitable protective barriers around all trees to be preserved, making sure that the trunks, branches, and root structures are not damaged by construction equipment. (See the following section, **Criteria for Environmental and Visual Protection during Construction**, for construction guidelines.)

Other Landscape Design Considerations

New Planting: All ground, with the exception of walks, drives, parking facilities, and service areas, will be landscaped in a manner that is complementary to the architecture, provides the required screening, and forms an attractive transition to the natural landscape features of the site.

Ground occupied by trees to be preserved may not require additional landscape treatment, but the Design Review Committee will give consideration to effective efforts to integrate these areas with the developed parts of the site.

Lawn will be created in the area between the street curb and the first 'solid' edge developed at the street frontage (whether it is a building, planting screen, or wall). The intent is to establish a consistent, maintained street edge throughout the property. Proposed departures from this guideline will be evaluated on the basis of their effect on the desired visual sequence.

Fences: Fences are not desirable and will be approved only for limited storage areas. Chain-link and/or perimeter fencing will not be permitted.

Utilities: All utilities and related appurtenances on the site will be underground or in the main structure.

Figure 9. Typical Lighting Section

- a. Concealed lighting of building surfaces
- b. Supplemental illumination of exterior spaces from interior spaces
- c. Lighting recessed in building overhang
- d. Visible source lighting along pedestrian systems
- e. Concealed source cut-off lighting in parking and road areas

Criteria for Environmental and Visual Protection during Construction

Construction at the Princeton Forrestal Center is expected to take a number of years. In order to assure that there will be no environmental damage and in order to maintain an attractive, nuisance-free setting during the extended period of construction, special criteria will be imposed to insure that environmental and visual protection is provided during construction. Construction fences to screen vision of the site may be required.

Before construction begins, the applicant will submit to the Design Review Committee (or its designee) a program which delineates the proposed methods of compliance with criteria set forth in this section. This program may be submitted at the time of final plan approval, but it is required that the builder or contractor be given the opportunity to participate in formulating this program. In any event, the Committee (or its designee) should approve or make appropriate recommendations within fifteen days.

The criteria are as follows:

Equipment Access: Access to each construction site will be limited to one location along the public or common roadway subject to approval by the Committee. Mud, dirt, or other surface debris deposited on the public or common roadway at the access point will be washed or removed daily to avoid compaction and damage to the roadway and to minimize impact on the drainage system.

Temporary Structures: Temporary structures, portable offices, and other related facilities will be maintained in good repair and arranged in a compact and organized manner on the construction site. These facilities will be situated so as not to be obtrusive or unsightly when seen from the road or adjacent properties.

All temporary structures and portable facilities will be removed upon the completion of all construction activity and before occupancy of the building.

Temporary Utilities: All temporary utilities on the construction site will be contained in a single, unobtrusive alignment. Distribution to the various areas of construction will be from an approved on-site location.

Equipment and Materials Storage: The area designated for storage of equipment and materials will be at a location that will be visually unobtrusive from the roadway and adjacent properties. Mobile equipment is to be aligned in an orderly manner at the end of each work day.

Construction Debris: Construction debris will be totally concealed during construction either by on-site burial or by locating it in a visually screened place if it is to be removed on a regular basis. If a debris pit is used during construction, protective fencing will be required. Open burning of debris will not be permitted.

After construction is completed, temporary barriers, surplus materials, and all trash, debris, and rubbish will be removed from the site. All backfill will be cleared of building material, stone, and rubbish.

Soil Stockpiling: Both topsoil and fill material stockpiled on the site will be seeded or mulched and appropriately graded to avoid erosion. Stockpiles will be maintained and kept weed-free.

Interim Signs: Construction signs will conform to specified criteria in order to maintain the sense of overall continuity. The sign will identify the name of the projected facility, the parties participating in the design and construction, and the anticipated date of occupancy.

The location of the sign will follow the same criteria as that for permanent signs. The sign will be removed upon completion of the project. The size, format, and location will be limited to that specified for the permanent major identification sign for each parcel.

Erosion and Siltation Control during Construction: Methods of controlling erosion and sedimentation will be required during construction, in order to prevent irreversible ecological damage to fragile natural areas on and off the site, to avoid impact on adjacent roads and properties, and to avoid creating a visual nuisance. The controls will be planned as an integral part of the construction operation.

Approval of erosion control measures will be based on their effectiveness in dissipating storm run-off and on the maintenance of soil-holding ability for the life of construction.

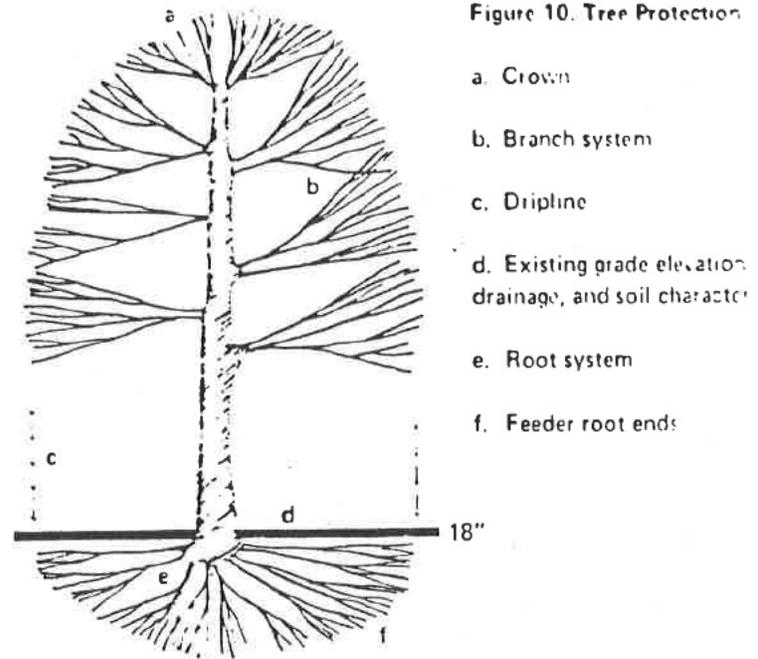


Figure 10. Tree Protection
a. Crown
b. Branch system
c. Dripline
d. Existing grade elevation, drainage, and soil character
e. Root system
f. Feeder root ends

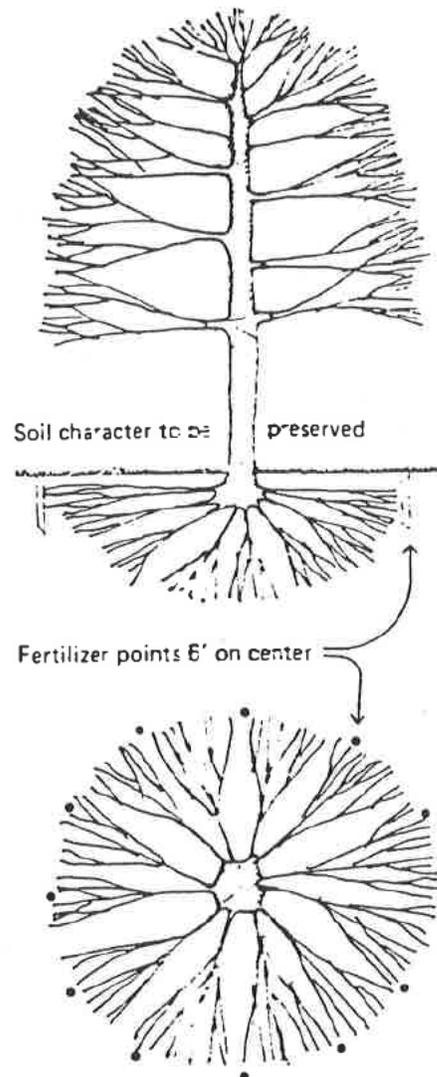


Figure 11. Selective Clearing Protecting Exposed Trees

Prune as necessary to remove weak and dead wood for more vigorous growth. Treat wounds and pruning points with asphaltic paint.

To maintain moisture, wrap burlap or tree paper in spiral bandage, extending downward from large branches to base of tree; should remain for two years and be removed.

Tree should be fed at dripline every 6', if within 50' of any grading work (road banks, etc.).

Light weight construction equipment should be utilized for root protection during the selective clearing.

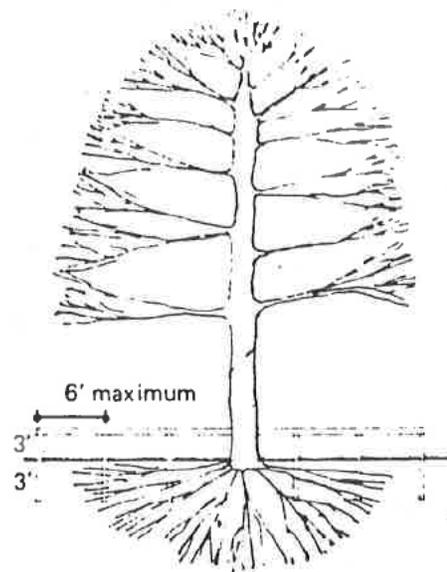
Figure 12. Specimen Tree Protection

Fence tree protection to be located around all existing trees to be saved and directed by the Review Committee. Installation shall occur before any work begins and shall be removed upon completion of all work. Protective fence to be installed beyond dripline of tree or trees.

Paint wooden elements (posts and rails) with exterior flat white undercoat. Finish with fluorescent orange paint.

Pruning and feeding during prolonged construction (over one year) and upon completion of work is recommended.

Any group or wooded tree edge within 100' of the outside of the contract limit area or controlled access points shall also have fence.



Wooden elements:
posts 4"x4"x6'
rails 2"x6"x6' maximum length

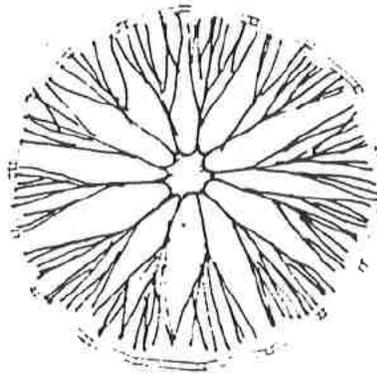
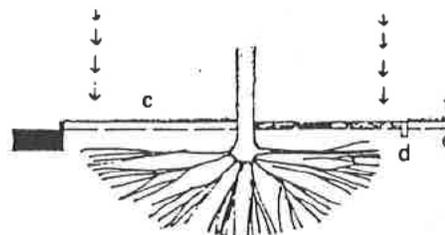
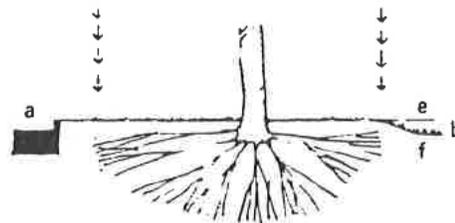


Figure 13. 0" to 6" Cut Protection; 0" to 6" Fill Protection

- a. Road
- b. Cut 6":
no cut within dripline
- c. Fill 6":
top soil with grass, ground cover, or pea gravel
- d. 4" architectural divider
- e. Old grade
- f. New grade



Positive methods of erosion control will vary according to the characteristics of each site and the construction procedures to be followed in each project. These methods will be reviewed in terms of their effectiveness in controlling erosion and siltation. Consideration will be given to the appropriate application of such devices as earth berms, channels, drains, culverts, rip-rap, terraces, underdrains, settling ponds, and vegetative or mulch controls.

The following precautions will be taken during construction, to minimize the causes of erosion and siltation:

- 1 An effort should be made to schedule the phases of construction that entail major soil disturbance to coincide with periods of lowest run-off. Final grading should coincide with the planting season to insure quick and effective stabilization of the soil.
- 2 Heavy equipment will be operated cautiously to avoid creation of new erosion channels. All construction vehicle tracks will be routed parallel to slopes rather than perpendicular to them wherever possible.
- 3 The fording of streams or major swales subject to rapid run-off is prohibited. Temporary culverts, bridges, and similar structures will be provided by the builder wherever it is necessary to avoid crossing stream channels or other surface areas vulnerable to rapid run-off.
- 4 Soil stockpiles will be graded and covered or seeded soon after they are deposited.
- 5 The permanent subsurface drainage system will not be used during construction unless entering water is virtually free of soil particles. To insure effectiveness, silting basins will be installed at locations to intercept water before it enters catch basins and at outfall locations. Silting basin cleanout will be required after each substantial storm.
- 6 Care will be taken to prevent brush and grass fires to avoid unnecessary erosion.

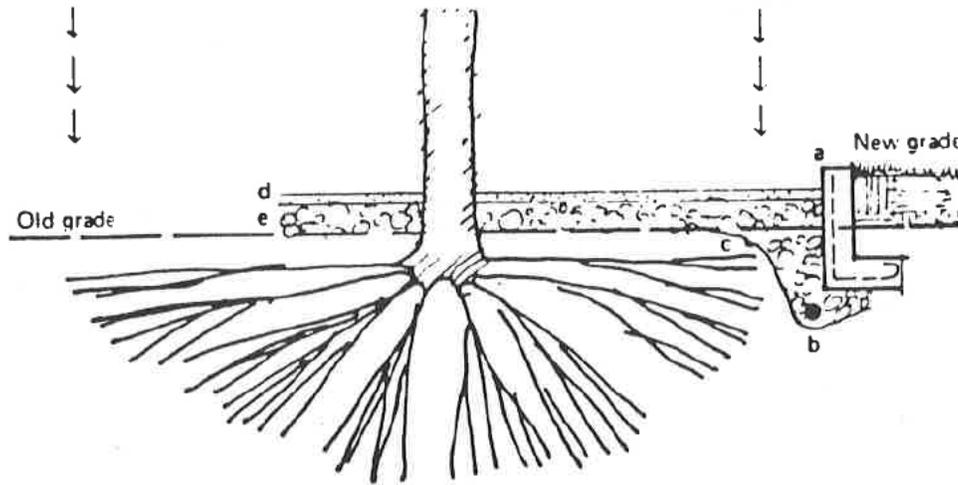
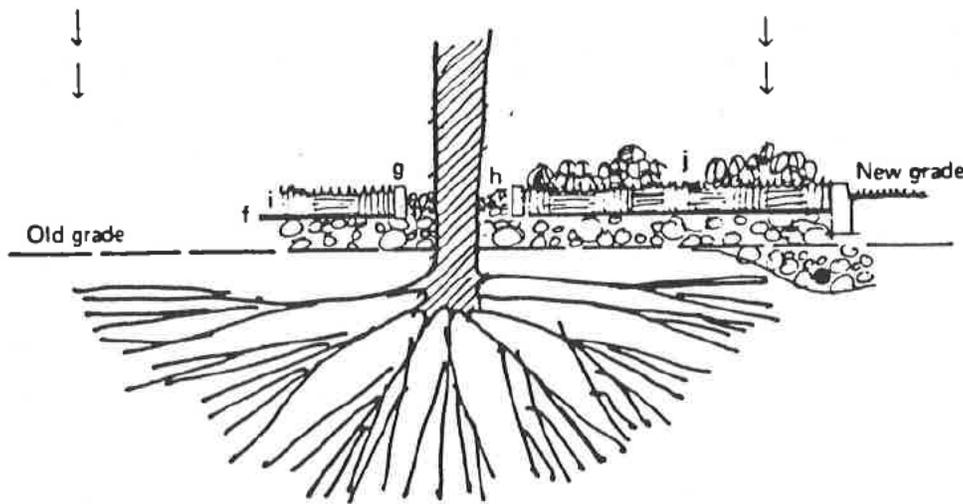


Figure 14. 6" to 2' Fill Protection

- a. Reinforced concrete wall or other material
- b. 4" vitrified clay drain tile sloped to drain outlet
- c. 2% subgrade slope to drain tile
- d. 6" pea gravel
- e. 2" diameter crushed stone
- f. Fiberglass separator
- g. 4" concrete curb
- h. 6" minimum width (pea gravel)
- i. Sandy top soil
- j. Grass or ground cover



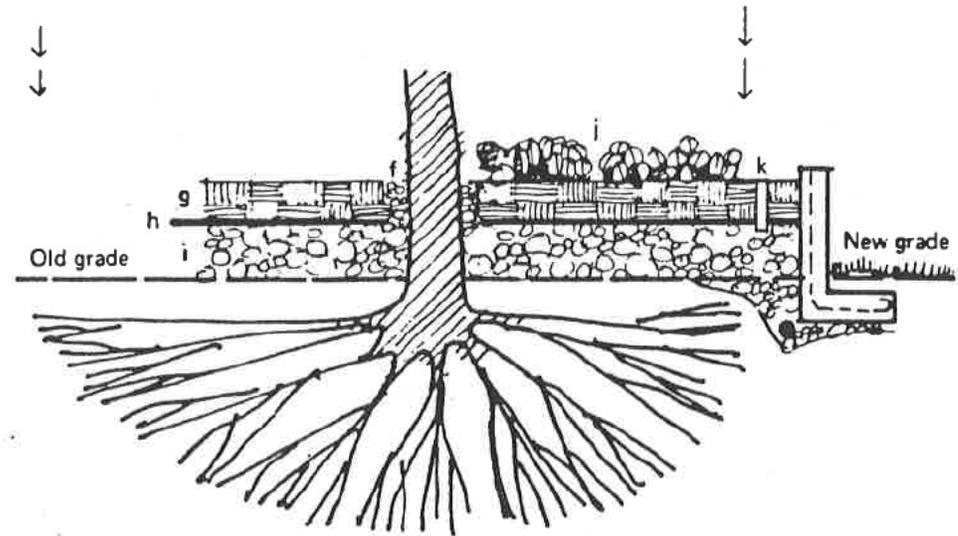
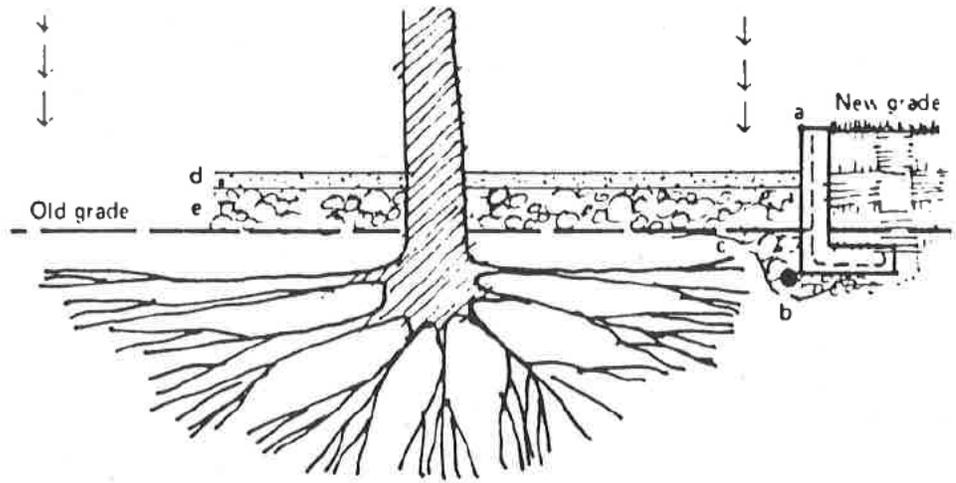
- 7 Temporary berms, swales, settling ponds, and other control mechanisms will be reshaped and planted to blend with the surrounding environment when the project has been completed.
- 8 Interim control measures may be necessary if there are significant time lags between successive stages of construction. Seasonal control will also be required.

In summary, all measures required by sound engineering and design principles will be employed to protect the environment from visual and ecological degradation.

Tree Protection during Construction and as a Condition of Site Modifications: All trees and other plant materials designated in the approved design for preservation will be protected during construction and will be permanently protected in case of site modifications that alter the trees' environment. After the final site plan and before construction approval, those trees that are to remain shall be marked in the field by the builder. Damage or destruction of any tree will be the responsibility of the applicant whether caused by the applicant, its agents, employees, contractors, or licensees.

Figure 15. 2' to 4' Fill Protection

- a. Reinforced concrete wall or other material
- b. 4" vitrified clay drain tile sloped to drain outlet
- c. 2% subgrade slope to drain tile
- d. 6" pea gravel
- e. 2' maximum of 2" diameter crushed stone
- f. 6" minimum width (pea gravel)
- g. 18" minimum sandy top soil
- h. Fiberglass separator
- i. 2" diameter crushed stone
- j. Small shrubs, ground cover, or grass
- k. 4" vitrified clay drain tile (screened top) 6' apart around well



All trees that are not to be preserved are to be removed in a manner that will not damage the remaining trees. Any trees to remain which have been damaged during the clearing operation must be repaired in an approved manner by a qualified New Jersey arborist (tree expert) as soon as final clearing has been completed.

The methods of tree protection for various conditions or site changes imposed by construction are illustrated in the manual.

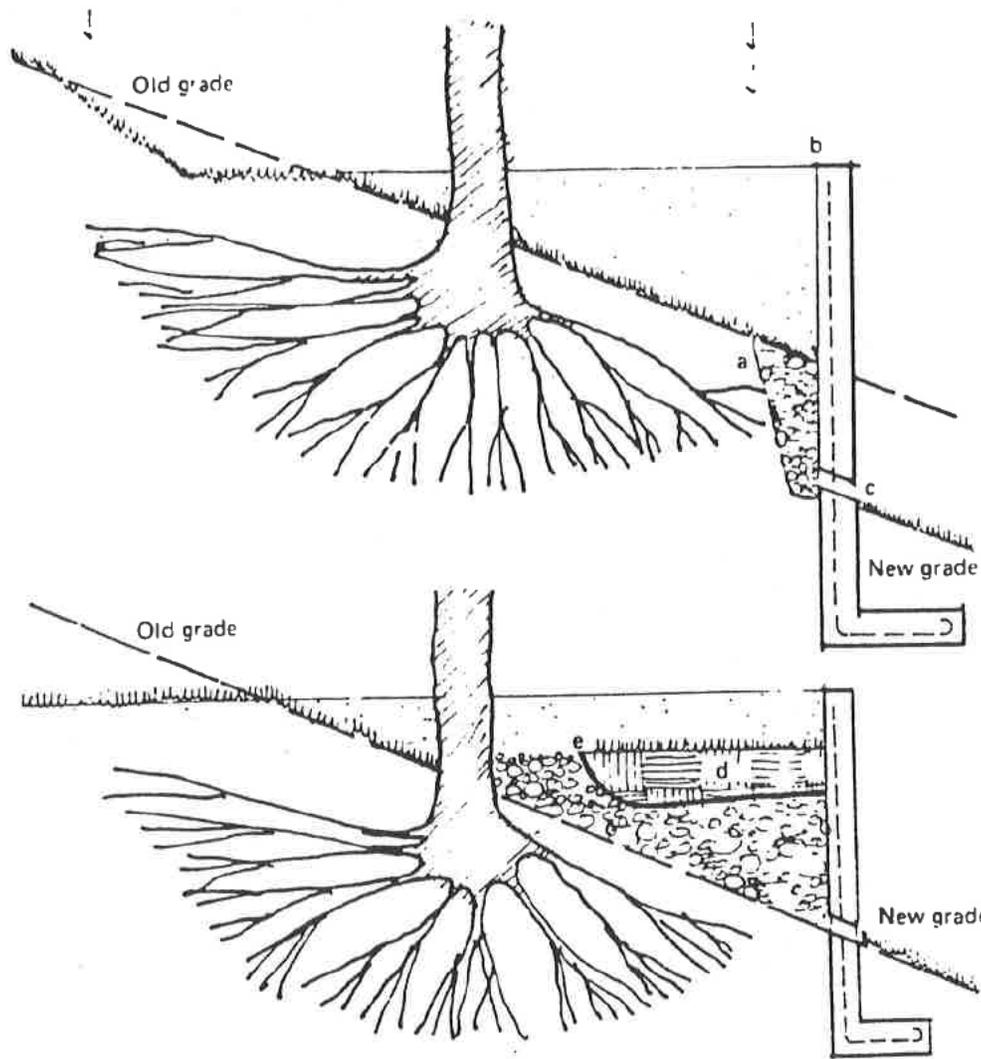


Figure 16. Trees at Cut Slope, Trees in Partial Fill

- a. 2" diameter crushed stone
- b. Reinforced concrete wall or other material
- c. Weep holes (6' on center)
- d. 12" sandy top soil
- e. Fiberglass separator

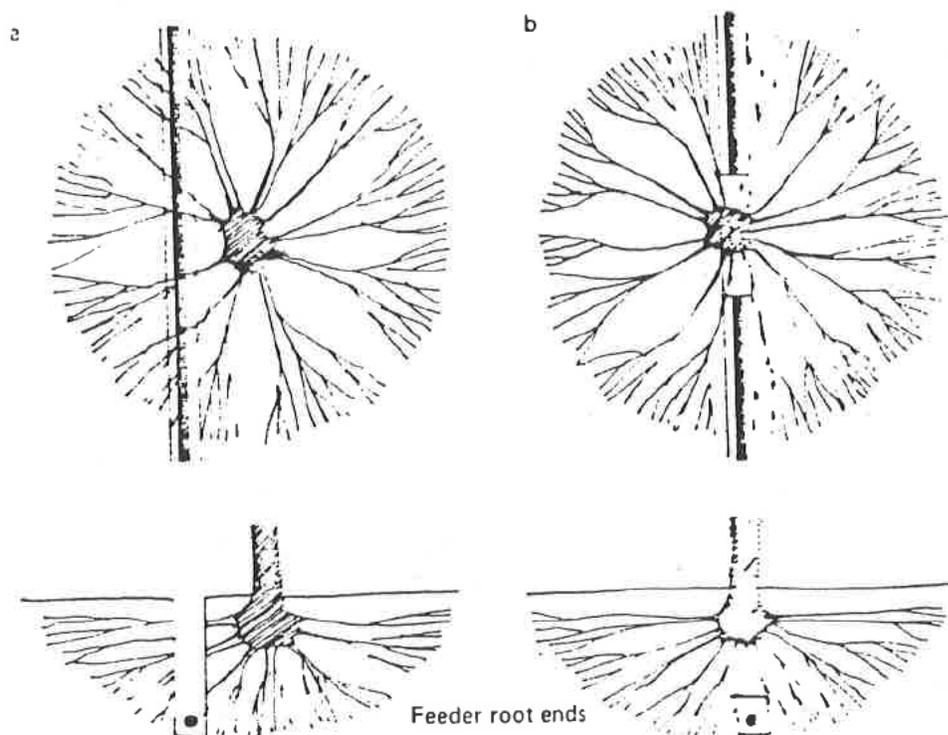


Figure 17. Utility Line and Tree Protection

- a. Unacceptable method: one-third of roots severed, as indicated in darker area by digging trenches close to the tree trunk.
- b. Acceptable method: only a few roots are destroyed by digging directly toward and under the tree trunk.

Provisions for Review of Energy Conservation Measures

The Design Review Committee will evaluate with each development proposal the projected means of providing for the conservation of energy in the design and operation of the building(s). Substantive proposals for effecting energy conservation will be required; innovation will be actively encouraged by the Design Review Committee. The intent of these special provisions is to:

- 1 Respond in practical terms to ways of conserving energy.
- 2 Assure the long-term usefulness of the buildings and their internal systems by minimizing energy consumption.
- 3 Establish the Princeton Forrestal Center as a workshop and model for coordinated planning and implementation of energy conservation methods among individual owners.
- 4 Accumulate work data on application and performance which can be used in the future.

The applicant will be required to provide a program delineating proposed methods of providing for the heating, cooling, lighting, and other energy requirements of the projected building(s). The program will include, by whatever measure is deemed appropriate by the Design Review Committee, a projected quantification of the energy component in terms of fuel and/or electric consumption. The applicant will also provide a description of the architectural and mechanical applications conceived to minimize the consumption of energy. The description may be in outline form, sufficient to be cross-referenced to the drawings and specifications required in the design review phases as described in the first section of this report.

The following considerations are offered as areas of potential investigation for the conservation of energy:

Building shape, massing, orientation, and placement: Perimeter configurations and proportions, as well as clustering and linkages between building elements.

Materials: Insulation characteristics, the ability of surfaces to absorb and/or deflect exterior heat.

Fenestration: Amount, location, and properties of glass, and the use of shading devices; operating characteristics relative to natural ventilation potential.

Mechanical system characteristics:
Methods of heat recovery, lighting as
a heat source.

Energy source characteristics: Total
energy arrangements, autonomy po-
tential, applications of solar energy.

The Design Review Committee, acting as
agent for Princeton University, will
maintain a policy of encouraging land-
planning arrangements by individual
owners which can be directed to the con-
servation of energy. For example, the
Committee may waive side or rear yard
setback requirements in favor of no set-
backs if two or more individual owners
present a sound plan for clustering their
buildings. In addition to fulfilling the
design and development criteria described
in the preceding sections of this report,
such a plan will have to demonstrate the
energy-conserving measures that can be
effected by clustering the building
elements.

Development Group

K. S. Sweet Associates
project management/financial analysis

Sasaki, Dawson, DeMay Associates, Inc.
planning and civil engineering

Hammer, Siler, George Associates
market analysis

Princeton University Officials

R. Manning Brown, Jr.
Chairman of the Executive Committee
of the Board of Trustees and Chairman
of the Special Trustee Committee on
Real Estate

William G. Bowen
President

Paul B. Firstenberg
Financial Vice President

John P. Moran
Vice President for Facilities

For additional information write:
John P. Moran
Vice President for Facilities
MacMillan Building
Princeton University
Princeton, New Jersey 08540

EXHIBIT D – LEASE ADDENDUM



Department of Energy
Princeton Area Office
P.O. Box 102
Princeton, New Jersey 08542-0102

MODIFICATION M003
CONTRACT NO. DE-RL02-CH10328

Dear Mr. Sinisgalli
Office of Research & Project Administration
Princeton University
5 New South Building
P.O. Box 36
Princeton, NJ 08544

Dear Mr. Sinisgalli:

SUBJECT: DE-RL02-CH10328 - MODIFICATION NO. M003

The existing Lease, No. DE-RL02-CH10328 (hereinafter referred to as "Lease"), requires modification to reflect: the increase in the Annual Lease Charge; the addition of a 16.3 acre parcel of land to the Lease; the granting of a Water Line Easement by Princeton University (Princeton); and to update and correct the legal survey descriptions of the properties covered by the Lease. We propose the following:

- 1) The second sentence in Lease Article 3.04 ANNUAL LEASE CHARGE, Paragraph (a)(i) is modified to now read as follows:

"The Annual Lease Charge for the fifteen year period beginning October 1, 1986 and ending September 30, 2001 shall be in the amount of \$1,771,000.00. The annual lease charge beginning October 1, 2001 and ending September 30, 2006 shall be in the amount of \$2,500,000.00. "

- 2) In order to recognize the approximately 16.3 acres of land added to the original site for only environmental remediation purposes, the Lease is modified to add Lease Exhibit (D) (Lease Addendum with Attachment A, Survey page). As such, wherever it appears in the lease, the term "72.478 acres" is deleted and replaced with the term "88.762 acres."
- 3) Princeton and DOE agree to enter into good faith negotiations, within a reasonable period of time, regarding an extended site (C-Site and D-Site) security boundary and to specify the primary access road referred to in Article 3.02 of the Lease.

Mr. Allen J. Sinisgalli

-2-

MODIFICATION M003

CONTRACT NO. DE-RL02-CH10328

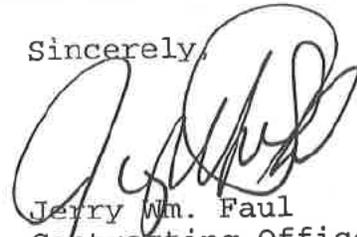
4) A GRANT OF WATER LINE EASEMENT is incorporated and attached to the Lease as Lease Exhibit (E).

To incorporate these changes:

- replace TABLE OF CONTENTS page;
- replace LEASE AGREEMENT cover page;
- add EXHIBIT D LEASE ADDENDUM;
- add EXHIBIT E - GRANT OF WATER LINE EASEMENT; and
- replace pages 1, 2, and 4 in their entirety.

This letter modification, executed on behalf of the Government, is hereby forwarded in triplicate. If acceptable, kindly acknowledge acceptance on three copies and return them including three executed originals of the water line easement to this office for signature. Upon my signature I will forward to you one modification including water line easement for your records.

Sincerely,



Jerry Wm. Faul
Contracting Officer

Date: 12/20/01

ATTACHMENT

ACCEPTED:

THE TRUSTEES OF PRINCETON UNIVERSITY

BY: Allen J. Sinisgalli TITLE: Vice President DATE: 12/19/01

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Modification M003
Contract No. DE-RL02-CH10328

Lease No. DE-RL02-CH10328

LEASE AGREEMENT

between

THE TRUSTEES OF PRINCETON UNIVERSITY

(Princeton)

and

THE UNITED STATES OF AMERICA

acting through the

United States Department of Energy

(Government)

PREMISES:

88.762 acres, more or less, Plainsboro Township, Middlesex
County, New Jersey.

LEASE AGREEMENT

THIS LEASE AGREEMENT effective as of the 1st day of October, 1986, by and between THE TRUSTEES OF PRINCETON UNIVERSITY (hereinafter "Princeton"), and the UNITED STATES OF AMERICA, acting through the United States Department of Energy (hereinafter "the Government").

WITNESSETH THAT:

WHEREAS, Princeton is the owner in fee simple of certain land consisting of 88.762 acres, more or less, known as "C-Site" and "D-Site" and located on Princeton's Forrestal Campus in Plainsboro Township, Middlesex County, New Jersey' as hereinafter described; and

WHEREAS, the Government is the owner of certain Buildings, improvements, and other property erected on 'C-Site' and "D-Site"; and

WHEREAS, Princeton occupies the Buildings and operates and manages thereon the Princeton Plasma Physics Laboratory pursuant to Contract No. DE-AC02-76CH03073 with the Government; and

WHEREAS, Princeton and the Government acknowledge that it is in the mutual interest of the respective parties hereto to enter into this Lease; and

WHEREAS, the Government is authorized to enter into this Lease by law, including the Department of Energy Organization Act (Pub. L. No. 95-01).

NOW, THEREFORE, Princeton and the Government do mutually covenant, promise, and agree as follows:

SPECIAL LEASE TERMS AND CONDITIONS

ARTICLE 1 - DEFINITIONS

(a) Annual Net Fair Rental Value: The Annual Net Fair Rental Value determined by a Qualified Real Estate Appraiser pursuant to Article 3 hereof.

LEASE AGREEMENT

(b) Buildings: Those Buildings located on the portion of the Princeton Forrestal Campus known as "C-Site" and "D-Site" which are owned by the Government.

(c) C-Site and D-Site: That certain portion of land consisting of 88.762 acres, more or less, owned in fee simple by Princeton, located on the University's Forrestal Campus in Plainsboro Township, Middlesex County, New Jersey as more fully described in Exhibit A hereto (sometimes referred to herein as the demised Premises").

(d) Current Contract: Contract No. DE-AC02-76CH03073 between the Government and Princeton, as modified from time to time, for the performance of certain research and development.

(e) Contracting Officer: A person, acting on behalf of the Department of Energy or any successor agency, with the authority to enter into, administer, and/or terminate this Lease, and make related determinations and findings.

(f) Contractor: The person or entity contracting with the Government for research and development to be conducted on the Demised Premises under the Current Contract or any other contract.

(g) Imposition(s): All taxes, assessments, fees, and other charges imposed on the Demised Premises as provided in Article 6 hereof.

(h) Lease: This Lease Agreement entered into between Princeton and the Government.

(i) PPPL: Princeton Plasma Physics Laboratory, an organizational unit of Princeton University which performs the work under the Current Contract.

(j) Qualified Real Estate Appraiser: A person who regularly renders pertinent commercial real estate appraisals and who is an accredited Member of the Appraisal Institute (MAI).

(k) Annual Lease Charge: The amount due from the Government on October 1 of each year of the Term in accordance with Article 3 hereof.

(l) Term: The Term of this Lease as provided in Article 3 hereof.

Modification M003
Contract No. DE-RL02-CH10328

the Government, Princeton shall provide reasonable notice to the Government of the termination or relocation of any or all access roads.

(c) Princeton and the Government shall share the cost of providing additional access roads pursuant to this paragraph 3.02:

(i) Such costs shall be shared pro rata according to the respective acreage served by the additional access road(s); provided that the Government shall pay the full cost of a Government required or requested upgrading of any such road beyond the standard specifications of Plainsboro Township.

(ii) The Government agrees to pay its pro rata share of the cost of relocation of any additional access road according to the respective acreage served, if such relocation is required by any state or local government; provided that the Government shall pay the full cost of a Government required or requested upgrading of any such road beyond the standard specifications of Plainsboro Township.

(d) The Government shall pay its pro rata share according to the respective acreage served of all repair and maintenance costs in connection with the access roads.

3.03. Term.

The Term of this lease shall commence on October 1, 1986 (hereinafter called the "Commencement Date"), and shall expire 40 years after the Commencement Date (hereinafter called the "Expiration Date"), unless sooner terminated as hereinafter provided, at which time the Demised Premises shall be surrendered to Princeton. No renewal of this Lease shall be granted.

3.04 Annual Lease Charge.

(a) The Government shall pay to Princeton as the Lease charge for the Term of this Lease the following:

(i) The Government shall pay the Annual Lease Charge without offset, deduction, or demand on or before October 1 of each year of the Term; provided that in no event shall the Annual Lease Charge be paid after October 1, except as provided in paragraph 3.08 hereof. The Annual Lease Charge for the fifteen year period beginning October 1, 1986 and ending September 30, 2001 shall be in the amount of 1,771,000.00. The annual lease charge beginning October 1, 2001 and ending September 30, 2006 shall be in the amount of \$2,500,000.00. Princeton's receipt of the first such payment is hereby acknowl-

EXHIBIT D LEASE ADDENDUM TO
LEASE AGREEMENT BETWEEN THE
TRUSTEES OF PRINCETON UNIVERSITY
AND THE UNITED STATES OF AMERICA
ACTING THROUGH THE UNITED STATES
DEPARTMENT OF ENERGY

Modification No. M003
Contract No. DE-RL02CH10328

Lease Addendum

WHEREAS this Lease Addendum is designed to set forth the mutual understandings of The Trustees of Princeton University ("Princeton") and the United States Department of Energy ("DOE") with respect to the Property described in the attached Exhibit A (the "Property"); and

WHEREAS pursuant to a Lease dated February 3, 1987 and denominated as Lease No. DE-RL02-CH10328 ("the "Lease") the DOE has leased property from Princeton known as C and D sites in Plainsboro Township (the "Leased Premises"); and

WHEREAS pursuant to Contract No. DE-AC02-76CH03073, (the "Contract") Princeton has conducted work for DOE at the Leased Premises which work has resulted in certain pollution concerns present at the Property adjacent to the Leased Premises described in Exhibit A; and

WHEREAS the parties desire to resolve the pollution concerns at the Property as soon as practicable.

Nowtherefore in consideration of the mutual promises contained herein the parties agree as follows:

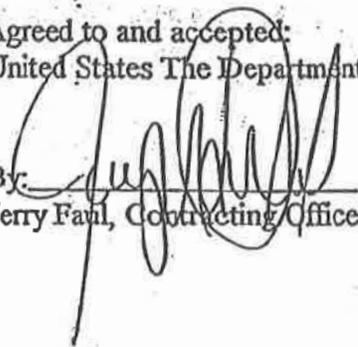
1. In order to facilitate DOE's delineation and cleanup, Princeton University agrees to add the Property to the Leased Premises by this Lease Addendum, at no additional lease charge to the DOE. Therefore, the Property shall be excluded from all future lease charge calculations for the Leased Premises. Except as otherwise specifically provided herein, all the terms and conditions of the Lease shall be applicable to the Property and are incorporated herein by reference and made a part hereof. The description of the Leased Premises is amended to include the Property.
2. The term of the lease of the Property to the DOE shall be coextensive with that of the Leased Premises provided, however, that upon issuance by the NJDEP of a No Further Action letter or its equivalent with respect to the Property the lease of the Property to the DOE pursuant to this Lease Addendum shall terminate, and the Property shall revert to Princeton by operation of law and the Property shall no longer be part of the Lease.
3. The Property is added to the Leased Premises solely for remediation purposes. No use of the Property is permitted other than in connection with remediation of the pollutants.

4. The DOE agrees to consult with and obtain the approval of Princeton University in advance of making any changes to the Property, such as cutting down trees or installing wells or placing any temporary structures on the property which may be necessary in connection with the cleanup. The DOE agrees not to place any permanent buildings or structures of any kind or nature on the Property during the term of the Lease. The cleanup of the Property shall be accomplished expeditiously and to the satisfaction of the NJDEP.

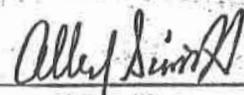
5. The DOE and Princeton University each agrees to provide the other with open access to the Property at all times for the purpose of accomplishing the conditions of this Lease Addendum and of monitoring the performance of the conditions of this Lease Addendum, respectively.

6. A copy of this Lease Addendum shall be attached to the Contract as a Modification to Appendix K of the Contract.

Agreed to and accepted:
United States The Department of Energy

By: 
Jerry Fauri, Contracting Officer

The Trustees of Princeton University

By: 
Allen J. Sinigalli, Associate Provost for
Research and Project Administration



SURVEY

Land Surveying, Planning, Consulting

132 E. Clinton Street
Clayton, New Jersey 08312
(856) 881-8677
Fax No. (856) 863-0844

Wayne W. Burgett, PLS, PP

New Site

All that certain lot, parcel or piece of land, with the improvements thereon erected, situate, lying and being in the Township of Plainsboro, County of Middlesex, State of New Jersey, being more particularly described as follows:

COMMENCING at a point on the easterly line of New Jersey State Highway, U.S. Route #1 (100' wide), said point being the northwesterly corner of Lot 3.03, Block 5, of said Township, said point also being the southwest corner of Lot 65, of said Block; thence 1) along the northerly line of said Lot 3.03, South 75°00'16" East distant 2140.36 feet, to a point being the northwesterly corner of C-Site, Plasma Physics Laboratory, as shown on a map titled "Plan Showing C&D Site Boundary Survey for Princeton University James Forrestal Center", prepared by Nassau Surveying Company, dated April 9, 1987; thence 2) along the boundary lines of said Plasma Physics Laboratory, as shown on said map, for the following six courses, South 14°59'44" West, a distance of 643.00 feet; thence 3) North 75°00'16" West, a distance of 305.00 feet; thence 4) South 14°59'44" West, a distance of 335.00 feet; thence 5) South 75°00'16" East, a distance of 305.00 feet; thence 6) South 14°59'44" West, a distance of 612.00 feet; thence 7) South 75°00'16" East, a distance of 275.00 feet, to the POINT OF BEGINNING; thence

1. Continuing along said boundary lines South 75°00'16" East, a distance of 1789.56 feet, to the southeasterly corner of said Plasma Physics Laboratory; thence
2. South 78°13'47" West, a distance of 1332.31 feet; thence
3. North 75°00'16" West, a distance of 600.00 feet; thence
4. North 14°59'44" East, a distance of 600.00 feet, to the POINT OF BEGINNING.

Containing 716, 868 Square Feet or 16.457+/- Acres.

BEING a portion of said Lot 3.03, as shown on said map.


Wayne W. Burgett PLS
NJ License #31654

EXHIBIT E TO LEASE AGREEMENT
BETWEEN THE TRUSTEES OF
PRINCETON UNIVERSITY AND THE
UNITED STATES OF AMERICA
ACTING THROUGH THE UNITED
STATES DEPARTMENT OF ENERGY

GRANT OF WATER LINE EASEMENT

THIS GRANT OF WATER LINE EASEMENT ("Grant of Easement") from THE TRUSTEES OF PRINCETON UNIVERSITY, a not for profit corporation in the State of New Jersey, whose address is 1 Nassau Hall, Princeton, New Jersey 08544 (hereinafter referred to as the "Grantor") and THE UNITED STATES OF AMERICA, acting through the United States Department of Energy, whose Princeton Area Office's address is PO Box 102 Princeton, New Jersey 08542-0102, (hereinafter referred to as the "Grantee").

WITNESSETH:

WHEREAS, Grantor is the owner of certain parcels of land located in the Township of Plainsboro, County of Middlesex, State of New Jersey, known and designated as Lot 4.02, in Block 2, Lots 1.04 and 1.60, in Block 3, and Lots 3.22, 3.26, 3.27, 3.28, 3.34, and 3.35, in Block 5, on the Tax Map of the Township of Plainsboro which property is more particularly described in Schedule A attached hereto and made a part hereof (hereinafter referred to as "Grantor's Land"); and

WHEREAS, pursuant to a lease agreement between the Grantor and the Grantee, dated October 1, 1986 (hereinafter referred to as the "Lease"), Grantee leases from the Grantor a certain parcel of land, containing approximately 88.762 acres, in the Township of Plainsboro, County of Middlesex, State of New Jersey, known and designated as part of Lot 3.27, in Block 5, on the Tax Map of the Township of Plainsboro (hereinafter referred to as "Grantee's Leased Land"), and

WHEREAS, Grantee desires to obtain an easement over a portion of the Grantor's Land (within the Easement Area hereinafter defined) for the purpose of maintaining, replacing, repairing, inspecting, operating and using a water line and pump station (the pump station being located exclusively on Lot 4.02, in Block 2) (collectively hereinafter referred to as, the "Water Line Facilities") to serve improvements on the Grantee's Leased Land;

EXHIBIT E TO LEASE AGREEMENT

NOW, THEREFORE, in consideration of ONE (\$1.00) DOLLAR and other good and valuable consideration paid by Grantee to Grantor, the receipt of which is hereby acknowledged, and the mutual covenants contained herein, Grantor and Grantee do mutually covenant and agree as follows:

1. Grant of Easement. The Grantor hereby gives and grants to Grantee a nonexclusive, free and uninterrupted right, liberty, privilege and easement, the same to be appurtenant to and run with Grantee's Leased Land, to use that portion of Grantor's Land, more particularly described in Schedule B attached hereto and made a part hereof (hereinafter referred to as the "Easement Area") for the purpose of maintaining, replacing, repairing, inspecting, operating and using the Grantee's Water Line Facilities within the Easement Area. Grantee shall have the exclusive right to use the Water Line Facilities except to the extent that the Water Line Facilities presently serve facilities on the Grantor's Land and except as otherwise provided in this grant of Easement.

This Easement is for the duration, and as may be extended or reduced, of the Lease No. DE-RL-02-CH10328, currently expiring September 30, 2026, or as otherwise terminated in accordance with Section 6 of this Easement.

2. Maintenance and Repair. Grantee agrees to promptly repair or cause to be repaired any damage to the Easement Area caused by the Grantee's (or Grantee's employees or agents) alteration, maintenance, replacement, repair, inspection, operation or use of the Water Line Facilities, or other exercise of Grantee's rights hereunder, and to restore or cause to be restored, the Easement Area substantially to its former condition (subject to the Water Line Facilities) and Grantee shall maintain, or cause to be maintained in good condition and repair all of the Water Line Facilities, all at the sole cost and expense of Grantee except as specified herein and below. Grantee shall not be responsible for any damages to improvements to the surface of the Easement Area hereafter made by Grantor (or Grantor's agent, or any other party given a right of way, easement or any other property right or interest by Grantor) if and only if such damage necessarily occurs during the course of Grantee's alteration, maintenance, replacement, repair, inspection, operation or use of the Water Line Facilities, or other exercise of Grantee's rights hereunder. Except for emergent circumstances requiring immediate alteration, maintenance, replacement, repair, or inspection, Grantee shall give Grantor thirty days (30) advance notice of any such activity to be conducted under this subparagraph.

EXHIBIT E TO LEASE AGREEMENT

Grantor agrees to promptly repair or cause to be repaired, at no cost to the Grantee, any damage to the Easement Area, as necessary, and Water Line Facilities caused solely and directly by the Grantor's (or Grantor's agent, or any other party given a right of way, easement or any other property right or interest by Grantor) alteration, maintenance, replacement, repair, inspection, operation or use of the Water Line Facilities or Easement Area, or other exercise of Grantor's rights hereunder.

Grantor, at its own costs, shall be responsible for maintaining the fire hydrants located on a portion of Grantor's Land known as "B Site" land which are a part of the Water Line Facilities. Grantor and Grantee agree that these Grantee-owned fire hydrants may be used on an "as is" condition by the Grantor in the event of a fire emergency. The Grantee makes no promise or guarantee regarding the proper operating condition or fitness for use of the fire hydrants or any other portion of the Water Line Facilities for fire fighting purposes. DOE shall not be required to maintain the fire hydrants for their originally intended purpose, as useable and operating fire hydrants, nor shall Grantee be required to maintain the Water Line Facilities for the purpose of fire fighting.

Grantor agrees to flow down, include, and make a continuing condition this Section of the Easement, Section 2, in any real estate sale, lease, easement, transfer, or other property right or interest given to another party in the Easement Area.

3. Availability of Funds. The obligations and liabilities of the Grantee under this Easement shall be subject to the availability of appropriated funds. The Grantee agrees to use its best efforts to secure appropriations sufficient for payment of all obligations and liabilities arising hereunder.

4. Indemnification. With the incorporation of the Grant of Easement into the Lease, Article 19 of Lease No. DE-RL02-CH10328 applies to this Easement.

5. Grantor's Rights. Grantor reserves unto itself and its successors and assigns the following rights with respect to the Easement Area:

- a. To use the surface of the Easement Area in any manner whatsoever so long as such use shall not interfere with the rights herein granted, including, without limitation, to layout and pave roads, driveways and parking areas therein and to otherwise pave the surface thereof and to install fences thereon; provided, however, that Grantor shall not have the right to build any building thereon without first obtaining the written permission of Grantee.

EXHIBIT E TO LEASE AGREEMENT

- b. To alter or change the grade of the Easement Area from time to time so long as such change shall not interfere with the rights herein granted; provided, however, Grantor shall give Grantee thirty (30) days advance notice of any activity to be conducted under this subsection 5b.
 - c. To grant utility companies the right to use portions of the Easement Area in common with the Grantee, for the purpose of the installation, operation, repair, replacement, maintenance and inspection of utility facilities. Except for emergent circumstances requiring immediate replacement or repair, Grantor shall give Grantee thirty days (30) advance notice of any activity to be conducted under this subsection 5c.
 - d. Grantor recognizes that Grantee is the owner of the Water Line Facilities. Grantor shall not close, reroute, move, tie into, or connect with the Water Line Facilities without Grantee's prior written approval. Should any such approval be given by Grantee, the terms and conditions associated with that specific approval shall be included in the written approval.
6. Termination. This Grant of Easement shall terminate automatically upon expiration of the Lease.
7. Interpretation. The captions and headings of the paragraphs hereof are for convenience only and shall not control or affect the meaning or construction of any of terms or provisions of this Grant of Easement.
8. Choice of Law. With the incorporation of the Grant of Easement into the Lease, Article 16.04 of Lease No. DE-RL02-CH10328 applies to this Easement.
9. Conflict. In the event of a conflict between the specific terms and conditions of the Water Line Easement and the Lease, the terms and conditions of the Lease shall govern.
10. Binding Effect. This Grant of Easement shall be binding and inure to the benefit of Grantor and Grantee and their respective successors and assigns. The Grantor agrees to include, as a binding condition, this Water Line Easement in any sale, lease, transfer, easement, right or way, or any other property right or interest given by Grantor to another party.

EXHIBIT E TO LEASE AGREEMENT

11. Cooperation. The parties acknowledge there are segments of the Water Line Facilities that are located on lands not owned by Grantor. Grantor agrees to use reasonable efforts, at no direct cost to either Grantor or Grantee, to assist Grantee in obtaining easements for the Water Line Facilities on such other lands.

12. Counterparts. This Grant of Easement may be executed in two or more counterparts, each shall be deemed an original, and it shall not be necessary in making proof of this Grant of Easement to produce or account for more than one such counterpart.

THE TRUSTEES OF PRINCETON UNIVERSITY

By: Christopher McCrudden
Christopher McCrudden
Treasurer

UNITED STATES OF AMERICA, acting
Through the United States Department of
Energy

By: [Signature]
(Contracting Officer)

STATE OF NEW JERSEY)
 MERCER) ss.:
COUNTY OF ~~MIDDLESEX~~)

I CERTIFY that on Dec. 13, 2001, Christopher McCrudden, personally came before me, a Notary Public of the State of New Jersey, and this person acknowledged under oath, to my satisfaction, that:

(a) this person signed and delivered the attached document as Treasurer of The Trustees of Princeton University, the corporation named in this document; and

Modification M003
Contract No. DE-RL02-CH10328

EXHIBIT E TO LEASE AGREEMENT

(b) this document was signed and made by the corporation as its voluntary act and deed by virtue of authority from its Board of Trustees.

Sworn to and subscribed
Before me this day
of *December 13* 2001

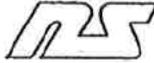


MARIE A. MESSLER
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 3/15/2004

ACKNOWLEDGMENT OF UNITED STATES GOVERNMENT
TO BE INSERTED HERE.

EXHIBIT E, SCHEDULE A, TO LEASE AGREEMENT
BETWEEN THE TRUSTEES OF PRINCETON
UNIVERSITY AND THE UNITED STATES OF
AMERICA ACTING THROUGH THE UNITED
STATES DEPARTMENT OF ENERGY

MODIFICATION NO. M003
CONTRACT NO. DE-RL02-CH10328



NASSAU SURVEYING
Division of Van Note-Harvey Associates, P.C.
Land Surveyors
777 Alexander Road
P.O. Box 3227
Princeton, New Jersey 08543-3227

<http://www.vannotcharvey.com>
E-mail: vnha@aol.com

Phone: (609) 243-0428
Fax: (609) 987-0005

Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 2
Part of Lot 4.01

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "A", OVER AND THROUGH
PART OF LOT 4.01 IN BLOCK 2 AS
SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

February 23, 2001
Revised April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a POINT in the division line between Lot 4.02 in Block 2, lands of Trustees of Princeton University, to the west, and Lot 4.01 in Block 2, lands of State of New Jersey, to the east, said point having NJ State Highway Coordinate values of N 551074.9596, E 2011056.6623, and from said BEGINNING POINT running, thence;

- (1) Through the aforesaid Lot 4.01 in Block 2, lands of State of New Jersey, S 76 degrees 49 minutes 50 seconds E, 25.86 feet to a point in the westerly right-of-way line of Mapleton Road, 33 feet wide, said point being the terminus of the herein described easement.

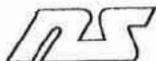
The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

According to a description by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., Land Surveyors, 777 Alexander Road, Princeton, New Jersey, 08540.

NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
NEW JERSEY LAND SURVEYOR #20808



Phone: (609) 243-0428
Fax: (609) 987-0005

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E-mail: vnha@aol.com

Order No: 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 3
Part of Lots 1.04 and 1.60

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "B", OVER AND THROUGH
PART OF LOTS 1.04 AND 1.60 IN BLOCK
3 AS SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

February 23, 2001
Revised April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a POINT in an easterly right-of-way line of Mapleton Road, 33 feet wide, said point being N 03 degrees 36 minutes 42 seconds E, 309.73 feet, along said right-of-way line, from the common corner of the southwesterly corner of Lot 1.04 in Block 3, lands of Trustees of Princeton University, said point also being the intersection of the prolongation of the northerly line of Lot 8 in Block 3 with the aforesaid easterly right-of-way line of Mapleton Road, said point having NJ State Highway Coordinate values of N 551061.4435, E 2011114.4264, and from said BEGINNING POINT running, thence;

- (1) Through the aforesaid Lot 1.04 in Block 3, lands of Trustees of Princeton University, the following nine (9) courses: S 78 degrees 44 minutes 26 seconds E, 11.83 feet to a point, thence;
- (2) S 74 degrees 18 minutes 02 seconds E, 42.50 feet to a point, thence;
- (3) S 75 degrees 28 minutes 08 seconds E, 76.59 feet to a point, thence;
- (4) S 71 degrees 09 minutes 47 seconds E, 48.67 feet to a point, thence;
- (5) S 74 degrees 17 minutes 57 seconds E, 362.18 feet to a point, thence;
- (6) S 77 degrees 49 minutes 16 seconds E, 61.34 feet to a point, thence;
- (7) S 72 degrees 56 minutes 43 seconds E, 29.57 feet to a point, thence;
- (8) S 74 degrees 29 minutes 58 seconds E, 70.74 feet to a point, thence;
- (9) S 80 degrees 08 minutes 11 seconds E, 21.92 feet to a point, said point being in the division line between Lot 1.04 in Block 3, to the west, and Lot 1.60 in Block 3, other lands of Trustees of Princeton University, to the east, thence;
- (10) Through Lot 1.60 in Block 3, the following seven (7) courses: S 83 degrees 24 minutes 55 seconds E, 22.66 feet to a point, thence;
- (11) S 68 degrees 12 minutes 39 seconds E, 15.17 feet to a point, thence;
- (12) S 75 degrees 19 minutes 11 seconds E, 106.43 feet to a point, thence;
- (13) S 74 degrees 38 minutes 24 seconds E, 146.42 feet to a point, thence;
- (14) S 76 degrees 41 minutes 14 seconds E, 82.76 feet to a point, thence;

Order No. 04-11-34221-10

Page 2

Part of Lot Nos. 1.04 & 1.60

S 74 degrees 27 minutes 24 seconds E, 223.63 feet to a point, thence;

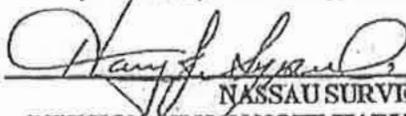
S 66 degrees 38 minutes 29 seconds E, 65.24 feet to a point in a northwesterly right-of-way line of N.J.S.H. - U.S. Route No. 1, 73.50 feet as measured at right-angles from the centerline thereof, said point being the terminus of the herein described easement.

The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

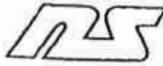
The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

According to a description by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., Land Surveyors, 777 Alexander Road, Princeton, New Jersey, 08540.



NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
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Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lots 3.17, 3.22, 3.26, 3.33, 3.34, 3.35
and 3.28

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "C", OVER AND THROUGH
PART OF LOTS 3.17, 3.22, 3.26, 3.33, 3.34,
3.35 AND 3.28 IN BLOCK 5 AS SHOWN
ON SHEET 2 OF THE PLAINSBORO
TOWNSHIP TAX MAP, SITUATE, LYING
AND BEING IN THE TOWNSHIP OF
PLAINSBORO, COUNTY OF
MIDDLESEX, STATE OF NEW JERSEY

February 23, 2001
Revised April 9, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a POINT in an easterly right-of-way line of N.J.S.H. - U.S. Route No. 1, variable width, said point having NJ State Highway Coordinate values of N 550442.9360, E 2012640.1725, said point also being the following three (3) courses from the common corner of a southwesterly corner of Lot 3.35 in Block 5, lands of Trustees of Princeton University, and a northwesterly corner of Lot 3.17 in Block 5, lands of D.O.T., thence; A.) Along the aforesaid U.S. Route No. 1, S 42 degrees 48 minutes 55 seconds W, 255.96 feet to a point of curvature, thence; B.) Along a curve bearing to the left in a southerly direction, having a radius of 485.00 feet, an arc length of 395.25 feet, a delta angle of 46 degrees 41 minutes 37 seconds, to a point of tangency, thence; C.) S 03 degrees 52 minutes 41 seconds E, 21.70 feet to the aforesaid POINT of BEGINNING, and from said BEGINNING POINT running, thence;

- (1) Through the aforesaid Lot 3.17 in Block 5, lands of D.O.T., the following five (5) courses: S 47 degrees 59 minutes 43 seconds E, 10.78 feet to a point, thence;
- (2) S 29 degrees 13 minutes 03 seconds E, 29.84 feet to a point, thence;
- (3) S 11 degrees 46 minutes 01 seconds E, 55.60 feet to a point, thence;
- (4) S 05 degrees 04 minutes 52 seconds E, 130.47 feet to a point, thence;
- (5) S 04 degrees 13 minutes 15 seconds E, 236.69 feet to a point in the division line between Lot 3.17 in Block 5, to the north, and Lot 3.22 in Block 5, other lands of Trustees of Princeton University, to the south, thence;
- (6) Through Lot 3.22 in Block 5, the following seventeen (17) courses: S 08 degrees 17 minutes 28 seconds E, 112.43 feet to a point, thence;
- (7) S 48 degrees 06 minutes 37 seconds E, 98.87 feet to a point, thence;
- (8) S 58 degrees 55 minutes 41 seconds E, 57.91 feet to a point, thence;
- (9) N 84 degrees 32 minutes 55 seconds E, 81.43 feet to a point, thence;
- (10) N 73 degrees 05 minutes 28 seconds E, 51.59 feet to a point, thence;
- (11) N 43 degrees 00 minutes 17 seconds E, 54.05 feet to a point, thence;
- (12) N 53 degrees 33 minutes 24 seconds E, 48.55 feet to a point, thence;
- (13) N 33 degrees 35 minutes 47 seconds E, 82.41 feet to a point, thence;

Order No. 04-11-34221-10 Page 2 Part of Lots 3.17, 3.22, 3.26, 3.33, 3.34, 3.35, 3.28

- N 05 degrees 12 minutes 56 seconds W, 50.15 feet to a point, the westerly sideline of this course being over a portion of Lot 3.17, thence;
- (15) N 16 degrees 41 minutes 11 seconds E, 31.08 feet to a point, the westerly sideline of this course being over a portion of Lot 3.17, thence;
- (16) N 03 degrees 16 minutes 05 seconds E, 133.22 feet to a point, thence;
- (17) N 17 degrees 34 minutes 50 seconds E, 248.29 feet to a point, thence;
- (18) S 65 degrees 09 minutes 57 seconds E, 32.39 feet to a point, thence;
- (19) S 79 degrees 00 minutes 45 seconds E, 81.50 feet to a point, thence;
- (20) S 72 degrees 29 minutes 03 seconds E, 116.01 feet to a point, thence;
- (21) N 56 degrees 45 minutes 57 seconds E, 97.19 feet to a point, thence;
S 74 degrees 43 minutes 30 seconds E, 237.65 feet to a point, thence;
- (23) S 81 degrees 19 minutes 17 seconds E, 65.95 feet to a point, thence;
- (24) Still through Lot 3.22 in Block 5, and continuing through Lot 3.35 in Block 5, other lands of Trustees of Princeton University, S 74 degrees 56 minutes 36 seconds E, 51.66 feet to a point, the southerly sideline of this course being over the northerly portion of Lot 3.34 in Block 5, thence;
- (25) Along the last mentioned lands, the following two (2) courses: S 63 degrees 25 minutes 37 seconds E, 31.93 feet to a point, the southerly sideline of this course being over the northerly portion of Lot 3.34 in Block 5, thence;
- (26) S 73 degrees 56 minutes 15 seconds E, 155.01 feet to a point, the southerly sideline of this course being over the northerly portion of Lot 3.34 in Block 5, thence;
- (27) Still along Lot 3.35 in Block 5, and continuing through Lot 3.33 in Block 5, lands of The Library Consortium, S 75 degrees 07 minutes 29 seconds E, 418.97 feet to a point, a portion of the southerly sideline of this course being over a northerly portion of Lot 3.34 in Block 5, thence;
- (28) Along the last mentioned lands, S 73 degrees 53 minutes 51 seconds E, 178.36 feet to a point, thence;
- (29) Still through said lands, and continuing through Lot 3.34 in Block 5, other lands of Trustees of Princeton University, N 76 degrees 47 minutes 26 seconds E, 39.74 feet to a point, thence;
- (30) Along the last mentioned lands, the following two (2) courses: N 53 degrees 42 minutes 15 seconds E, 111.51 feet to a point, thence;
- (31) N 47 degrees 05 minutes 16 seconds E, 122.86 feet to a point, thence;
- (32) Still through Lot 3.34 in Block 5, and continuing through Lot 3.35 in Block 5, N 31 degrees 26 minutes 02 seconds E, 86.50 feet to a point, thence;
- (33) Along the last mentioned lands, the following three (3) courses: N 16 degrees 42 minutes 56 seconds E, 171.97 feet to a point, thence;
- (34) N 15 degrees 06 minutes 58 seconds E, 284.84 feet to a point, thence;
- (35) N 15 degrees 41 minutes 11 seconds E, 394.27 feet to a point, thence;
- (36) Still through Lot 3.35 in Block 5, continuing through Lot 3.26 in Block 5 (Campus Road), other lands of Trustees of Princeton University, and continuing through Lot 3.28 in Block 5, other lands of Trustees of Princeton University, the following four (4) courses: S 88 degrees 54 minutes 47 seconds E, 931.65 feet to a point, thence;

Order No. 04-11-34221-10 Page 3 Part of Lots 3.17, 3.22, 3.26, 3.33, 3.34, 3.35, 3.28

S 79 degrees 13 minutes 28 seconds E, 46.83 feet to a point, thence;

S 75 degrees 49 minutes 32 seconds E, 82.70 feet to a point, thence;

S 73 degrees 18 minutes 19 seconds E, 348.36 feet to a point, thence;

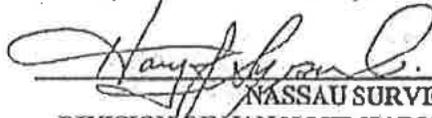
Still through Lot 3.28 in Block-5, and continuing through Lot 3.27 in Block 5, S 74 degrees 03 minutes 00 seconds E, 594.94 feet to a point in a westerly line of a lease boundary limit for Plasma Physics, said point being the terminus of the herein described easement.

The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

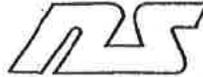
The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

According to a description by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., Land Surveyors, 777 Alexander Road, Princeton, New Jersey, 08540.



NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
NEW JERSEY LAND SURVEYOR #20808



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E-mail: vnha@aol.com

Phone: (609) 243-0428
Fax: (609) 987-0005

Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lot 3.34

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "D", OVER AND THROUGH
PART OF LOT 3.34 IN BLOCK 5 AS
SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a **POINT** in the centerline of waterline easement "C", said point being S 75 degrees 07 minutes 29 seconds E, 81.01 feet, along said centerline, from the terminus of course twenty-six (26) as described in waterline easement "C", and from said **BEGINNING POINT** running, thence;

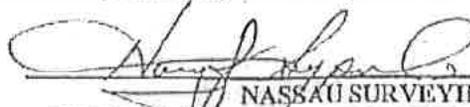
- (1) Through Lot 3.34 in Block 5, S 14 degrees 52 minutes 31 seconds W, 18.37 feet to a point, said point being the terminus of the herein described easement.

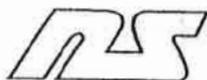
The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

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Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lot 3.34

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "E", OVER AND THROUGH
PART OF LOT 3.34 IN BLOCK 5 AS
SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a **POINT** in the centerline of waterline easement "C", said point being S 73 degrees 53 minutes 51 seconds E, 28.31 feet, along said centerline, from the terminus of course twenty-seven (27) as described in waterline easement "C", and from said **BEGINNING POINT** running, thence;

- (1) Through Lot 3.34 in Block 5, S 16 degrees 06 minutes 09 seconds W, 15.81 feet to a point, said point being the terminus of the herein described easement.

The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

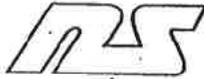
The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

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NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
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EXHIBIT E, SCHEDULE A



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<http://www.vannotcharvey.com>
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Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lot 3.35

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "P", OVER AND THROUGH
PART OF LOT 3.35 IN BLOCK 5 AS
SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a POINT in the centerline of an existing waterline easement as shown on filed map number 6073, file number 984, said point being N 15 degrees 34 minutes 41 seconds E, 116.47 feet from the intersection of the centerline of the existing waterline easement with the division line between Lot 3.33 in Block 5, to the south, and Lot 3.35 in Block 5, to the north, said intersection also being the terminus point of the centerline of waterline easement "F", and from said BEGINNING POINT running, thence;

- (1) Through Lot 3.35 in Block 5, S 74 degrees 25 minutes 19 seconds E, 23.02 feet to a point, said point being the terminus of the herein described easement.

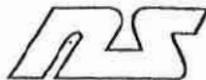
The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

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Land Surveyors

777 Alexander Road

P.O. Box 3227

Princeton, New Jersey 08543-3227

Order No. 04-11-34221-10
 Plainsboro Township Tax Map
 Sheet 2
 Block 5
 Part of Lot 3.35

DESCRIPTION OF THE CENTERLINE OF
 A 20 FOOT WIDE CANAL WATERLINE
 EASEMENT "J", OVER AND THROUGH
 PART OF LOT 3.35 IN BLOCK 5 AS
 SHOWN ON SHEET 2 OF THE
 PLAINSBORO TOWNSHIP TAX MAP,
 SITUATE, LYING AND BEING IN THE
 TOWNSHIP OF PLAINSBORO, COUNTY
 OF MIDDLESEX, STATE OF NEW
 JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a **POINT** in the centerline of an existing waterline easement as shown on filed map number 6073, file number 984, said point being N 15 degrees 34 minutes 41 seconds E, 433.15 feet from the intersection of the centerline of the existing waterline easement with the division line between Lot 3.33 in Block 5, to the south, and Lot 3.35 in Block 5, to the north, said intersection also being the terminus point of the centerline of waterline easement "F", and from said **BEGINNING POINT** running, thence;

- (1) Through Lot 3.35 in Block 5, S 74 degrees 25 minutes 19 seconds E, 15.36 feet to a point, said point being the terminus of the herein described easement.

The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

According to a description by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., Land Surveyors, 777 Alexander Road, Princeton, New Jersey, 08540.

NASSAU SURVEYING
 DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.

HARRY J. SYPNIEWSKI
 NEW JERSEY LAND SURVEYOR #20808

EXHIBIT E, SCHEDULE A

MODIFICATION NO. M003
CONTRACT NO. DE-RL02-CH10328



NASSAU SURVEYING
Division of Van Note-Harvey Associates, P.C.

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Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lot 3.35

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "K", OVER AND THROUGH
PART OF LOT 3.35 IN BLOCK 5 AS
SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a POINT in the centerline of an existing waterline easement as shown on filed map number 6073, file number 984, said point being the following two (2) courses from the intersection of the centerline of the existing waterline easement with the division line between Lot 3.33 in Block 5, to the south, and Lot 3.35 in Block 5, to the north, said intersection also being the terminus point of the centerline of waterline easement "F", thence; A.) N 15 degrees 34 minutes 41 seconds E, 503.07 feet to a point, thence; B.) S 89 degrees 22 minutes 11 seconds E, 29.66 feet to the aforesaid POINT of BEGINNING, and from said BEGINNING POINT running, thence;

- (1) Through Lot 3.35 in Block 5, S 00 degrees 37 minutes 49 seconds W, 37.19 feet to a point, said point being the terminus of the herein described easement.

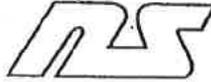
The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

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NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
NEW JERSEY LAND SURVEYOR #20808



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<http://www.vannotcharvey.com>
E-mail: vnha@aol.com

Phone: (609) 243-0428
Fax: (609) 987-0005

Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lot 3.35

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "L"; OVER AND THROUGH
PART OF LOT 3.35 IN BLOCK 5 AS
SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a **POINT** in the centerline of waterline easement "C"; said point being S 88 degrees 54 minutes 47 seconds E, 692.78 feet, along said centerline, from the terminus of course thirty-five (35) as described in waterline easement "C", and from said **BEGINNING POINT** running, thence;

- (1) Through Lot 3.35 in Block 5, N 01 degrees 05 minutes 13 seconds E, 102.40 feet to a point, said point being the terminus of the herein described easement.

The sidelines of the above described easement being ten (10) feet distant and parallel to the above-described centerline.

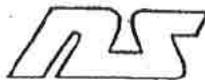
The above described easement being subject to or together with any other easements and/or declarations of record.

The above described easement as being shown on a certain map entitled "Plan Showing 20' Wide Canal Waterline Easements for The Trustees of Princeton University Plasma Physics," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

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NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
NEW JERSEY LAND SURVEYOR #20808

EXHIBIT E, SCHEDULE A



NASSAU SURVEYING
Division of Van Note-Harvey Associates, P.C.
Land Surveyors
777 Alexander Road
P.O. Box 3227
Princeton, New Jersey 08543-3227

Phone: (609) 243-0428

FAX (609) 987-0005

Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 5
Part of Lots 3.26, 3.27 and 3.28

DESCRIPTION OF THE CENTERLINE OF
A 20 FOOT WIDE CANAL WATERLINE
EASEMENT "M", OVER AND THROUGH
PART OF LOTS 3.26, 3.27 AND 3.28 IN
BLOCK 5 AS SHOWN ON SHEET 2 OF
THE PLAINSBORO TOWNSHIP TAX
MAP, SITUATE, LYING AND BEING IN
THE TOWNSHIP OF PLAINSBORO,
COUNTY OF MIDDLESEX, STATE OF
NEW JERSEY

April 6, 2001

20-foot wide canal waterline easement, the centerline of which is more particularly described as follows:

BEGINNING at a **POINT** in the centerline of waterline easement "C", said point being N 88 degrees 54 minutes 47 seconds W, 6.43 feet, along said centerline, from the terminus of course thirty-six (36) as described in waterline easement "C", and from said **BEGINNING POINT** running, thence;

- (1) Through Lot 3.28 in Block 5, S 01 degrees 05 minutes 13 seconds W, 17.73 feet to a point, said point being the terminus of the herein described easement.

The sidelines of the above described easement being ten (10) feet distant and parallel to the above described centerline.

The above described easement being subject to or together with any other easements and/or declarations of record.

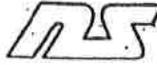
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NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
NEW JERSEY LAND SURVEYOR #20808

EXHIBIT E, SCHEDULE A

MODIFICATION NO. M003
CONTRACT NO. DE-RL02-CH10328



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Land Surveyors
777 Alexander Road
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Princeton, New Jersey 08543-3227

Phone: (609) 243-0428

FAX (609) 987-0005

Order No. 04-11-34221-10
Plainsboro Township Tax Map
Sheet 2
Block 2
Lot 4.02

DESCRIPTION OF LOT 4.02 IN BLOCK 2
AS SHOWN ON SHEET 2 OF THE
PLAINSBORO TOWNSHIP TAX MAP,
SITUATE, LYING AND BEING IN THE
TOWNSHIP OF PLAINSBORO, COUNTY
OF MIDDLESEX, STATE OF NEW
JERSEY

May 3, 2001

BEGINNING at a POINT in an easterly line of lands of the Delaware and Raritan Canal, said point having NJ State Highway Coordinate values of N 551053.5614; E 2010992.7797, said point being the common corner of a westerly corner of Lot 4.01 in Block 2, lands of The State of New Jersey, and the southwesterly corner of lands herein described, said point being the following four (4) courses from the intersection of an easterly line of lands of the Delaware and Raritan Canal, with the northwesterly right-of-way line of Mapleton Road, 33 feet wide per tax map, thence; A.) Along said easterly line, N 18 degrees 06 minutes 38 seconds E, 57.82 feet to a point, thence; B.) N 11 degrees 06 minutes 38 seconds E, 135.00 feet to a point, thence; C.) N 09 degrees 36 minutes 38 seconds E, 360.00 feet to a point, thence; D.) N 09 degrees 08 minutes 14 seconds E, 313.72 feet to the aforesaid POINT of BEGINNING, and from said BEGINNING POINT running, thence;

- (1) Along the aforesaid easterly line of lands of the Delaware and Raritan Canal, N 09 degrees 08 minutes 14 seconds E, 66.57 feet to a point corner to the aforesaid Lot 4.01 in Block 2, lands of The State of New Jersey, thence;
- (2) Along said lands, the following three (3) courses: S 73 degrees 46 minutes 57 seconds E, 63.57 feet to a point, thence;
- (3) S 16 degrees 13 minutes 03 seconds W, 64.08 feet to a point, thence;
- (4) N 75 degrees 50 minutes 13 seconds W, 55.40 feet to the POINT and PLACE of BEGINNING.

Containing 3,874 square feet or 0.089 acres of land more or less.

The above described premises being subject to or together with any easements and/or declarations of record.

The above described premises as being shown on a certain map entitled "Plan of Property Block 2 Lot 4.02 for Trustees of Princeton University," Plainsboro Township, Middlesex Co., NJ, Scale: 1" = 100', prepared by Nassau Surveying, a Division of Van Note-Harvey Associates, P.C., dated February 27, 2001.

According to a description by Nassau Surveying, a Division of Van Note-Harvey Associates P.C., Land Surveyors, 777 Alexander Road, Princeton, New Jersey, 08540.

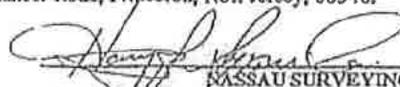

NASSAU SURVEYING
DIVISION OF VAN NOTE-HARVEY ASSOCIATES, P.C.
HARRY J. SYPNIEWSKI
NEW JERSEY LAND SURVEYOR #20808

EXHIBIT E – GRANT OF WATER EASEMENT

EXHIBIT E TO LEASE AGREEMENT
BETWEEN THE TRUSTEES OF
PRINCETON UNIVERSITY AND THE
UNITED STATES OF AMERICA
ACTING THROUGH THE UNITED
STATES DEPARTMENT OF ENERGY

GRANT OF WATER LINE EASEMENT

THIS GRANT OF WATER LINE EASEMENT ("Grant of Easement") from THE TRUSTEES OF PRINCETON UNIVERSITY, a not for profit corporation in the State of New Jersey, whose address is 1 Nassau Hall, Princeton, New Jersey 08544 (hereinafter referred to as the "Grantor") and THE UNITED STATES OF AMERICA, acting through the United States Department of Energy, whose Princeton Area Office's address is PO Box 102 Princeton, New Jersey 08542-0102, (hereinafter referred to as the "Grantee").

WITNESSETH:

WHEREAS, Grantor is the owner of certain parcels of land located in the Township of Plainsboro, County of Middlesex, State of New Jersey, known and designated as Lot 4.02, in Block 2, Lots 1.04 and 1.60, in Block 3, and Lots 3.22, 3.26, 3.27, 3.28, 3.34, and 3.35, in Block 5, on the Tax Map of the Township of Plainsboro which property is more particularly described in Schedule A attached hereto and made a part hereof (hereinafter referred to as "Grantor's Land"); and

WHEREAS, pursuant to a lease agreement between the Grantor and the Grantee, dated October 1, 1986 (hereinafter referred to as the "Lease"), Grantee leases from the Grantor a certain parcel of land, containing approximately 88.762 acres, in the Township of Plainsboro, County of Middlesex, State of New Jersey, known and designated as part of Lot 3.27, in Block 5, on the Tax Map of the Township of Plainsboro (hereinafter referred to as "Grantee's Leased Land"), and

WHEREAS, Grantee desires to obtain an easement over a portion of the Grantor's Land (within the Easement Area hereinafter defined) for the purpose of maintaining, replacing, repairing, inspecting, operating and using a water line and pump station (the pump station being located exclusively on Lot 4.02, in Block 2) (collectively hereinafter referred to as, the "Water Line Facilities") to serve improvements on the Grantee's Leased Land;

EXHIBIT E TO LEASE AGREEMENT

NOW, THEREFORE, in consideration of ONE (\$1.00) DOLLAR and other good and valuable consideration paid by Grantee to Grantor, the receipt of which is hereby acknowledged, and the mutual covenants contained herein, Grantor and Grantee do mutually covenant and agree as follows:

1. Grant of Easement. The Grantor hereby gives and grants to Grantee a nonexclusive, free and uninterrupted right, liberty, privilege and easement, the same to be appurtenant to and run with Grantee's Leased Land, to use that portion of Grantor's Land, more particularly described in Schedule B attached hereto and made a part hereof (hereinafter referred to as the "Easement Area") for the purpose of maintaining, replacing, repairing, inspecting, operating and using the Grantee's Water Line Facilities within the Easement Area. Grantee shall have the exclusive right to use the Water Line Facilities except to the extent that the Water Line Facilities presently serve facilities on the Grantor's Land and except as otherwise provided in this grant of Easement.

This Easement is for the duration, and as may be extended or reduced, of the Lease No. DE-RL-02-CH10328, currently expiring September 30, 2026, or as otherwise terminated in accordance with Section 6 of this Easement.

2. Maintenance and Repair. Grantee agrees to promptly repair or cause to be repaired any damage to the Easement Area caused by the Grantee's (or Grantee's employees or agents) alteration, maintenance, replacement, repair, inspection, operation or use of the Water Line Facilities, or other exercise of Grantee's rights hereunder, and to restore or cause to be restored, the Easement Area substantially to its former condition (subject to the Water Line Facilities) and Grantee shall maintain, or cause to be maintained in good condition and repair all of the Water Line Facilities, all at the sole cost and expense of Grantee except as specified herein and below. Grantee shall not be responsible for any damages to improvements to the surface of the Easement Area hereafter made by Grantor (or Grantor's agent, or any other party given a right of way, easement or any other property right or interest by Grantor) if and only if such damage necessarily occurs during the course of Grantee's alteration, maintenance, replacement, repair, inspection, operation or use of the Water Line Facilities, or other exercise of Grantee's rights hereunder. Except for emergent circumstances requiring immediate alteration, maintenance, replacement, repair, or inspection, Grantee shall give Grantor thirty days (30) advance notice of any such activity to be conducted under this subparagraph.

EXHIBIT E TO LEASE AGREEMENT

Grantor agrees to promptly repair or cause to be repaired, at no cost to the Grantee, any damage to the Easement Area, as necessary, and Water Line Facilities caused solely and directly by the Grantor's (or Grantor's agent, or any other party given a right of way, easement or any other property right or interest by Grantor) alteration, maintenance, replacement, repair, inspection, operation or use of the Water Line Facilities or Easement Area, or other exercise of Grantor's rights hereunder.

Grantor, at its own costs, shall be responsible for maintaining the fire hydrants located on a portion of Grantor's Land known as "B Site" land which are a part of the Water Line Facilities. Grantor and Grantee agree that these Grantee-owned fire hydrants may be used on an "as is" condition by the Grantor in the event of a fire emergency. The Grantee makes no promise or guarantee regarding the proper operating condition or fitness for use of the fire hydrants or any other portion of the Water Line Facilities for fire fighting purposes. DOE shall not be required to maintain the fire hydrants for their originally intended purpose, as useable and operating fire hydrants, nor shall Grantee be required to maintain the Water Line Facilities for the purpose of fire fighting.

Grantor agrees to flow down, include, and make a continuing condition this Section of the Easement, Section 2, in any real estate sale, lease, easement, transfer, or other property right or interest given to another party in the Easement Area.

3. Availability of Funds. The obligations and liabilities of the Grantee under this Easement shall be subject to the availability of appropriated funds. The Grantee agrees to use its best efforts to secure appropriations sufficient for payment of all obligations and liabilities arising hereunder.

4. Indemnification. With the incorporation of the Grant of Easement into the Lease, Article 19 of Lease No. DE-RL02-CH10328 applies to this Easement.

5. Grantor's Rights. Grantor reserves unto itself and its successors and assigns the following rights with respect to the Easement Area:

- a. To use the surface of the Easement Area in any manner whatsoever so long as such use shall not interfere with the rights herein granted, including, without limitation, to layout and pave roads, driveways and parking areas therein and to otherwise pave the surface thereof and to install fences thereon; provided, however, that Grantor shall not have the right to build any building thereon without first obtaining the written permission of Grantee.

EXHIBIT E TO LEASE AGREEMENT

- b. To alter or change the grade of the Easement Area from time to time so long as such change shall not interfere with the rights herein granted; provided, however, Grantor shall give Grantee thirty (30) days advance notice of any activity to be conducted under this subsection 5b.
 - c. To grant utility companies the right to use portions of the Easement Area in common with the Grantee, for the purpose of the installation, operation, repair, replacement, maintenance and inspection of utility facilities. Except for emergent circumstances requiring immediate replacement or repair, Grantor shall give Grantee thirty days (30) advance notice of any activity to be conducted under this subsection 5c.
 - d. Grantor recognizes that Grantee is the owner of the Water Line Facilities. Grantor shall not close, reroute, move, tie into, or connect with the Water Line Facilities without Grantee's prior written approval. Should any such approval be given by Grantee, the terms and conditions associated with that specific approval shall be included in the written approval.
6. Termination. This Grant of Easement shall terminate automatically upon expiration of the Lease.
7. Interpretation. The captions and headings of the paragraphs hereof are for convenience only and shall not control or affect the meaning or construction of any of terms or provisions of this Grant of Easement.
8. Choice of Law. With the incorporation of the Grant of Easement into the Lease, Article 16.04 of Lease No. DE-RL02-CH10328 applies to this Easement.
9. Conflict. In the event of a conflict between the specific terms and conditions of the Water Line Easement and the Lease, the terms and conditions of the Lease shall govern.
10. Binding Effect. This Grant of Easement shall be binding and inure to the benefit of Grantor and Grantee and their respective successors and assigns. The Grantor agrees to include, as a binding condition, this Water Line Easement in any sale, lease, transfer, easement, right or way, or any other property right or interest given by Grantor to another party.

EXHIBIT E TO LEASE AGREEMENT

11. Cooperation. The parties acknowledge there are segments of the Water Line Facilities that are located on lands not owned by Grantor. Grantor agrees to use reasonable efforts, at no direct cost to either Grantor or Grantee, to assist Grantee in obtaining easements for the Water Line Facilities on such other lands.

12. Counterparts. This Grant of Easement may be executed in two or more counterparts, each shall be deemed an original, and it shall not be necessary in making proof of this Grant of Easement to produce or account for more than one such counterpart.

THE TRUSTEES OF PRINCETON UNIVERSITY

By: Christopher McCrudden
Christopher McCrudden
Treasurer

UNITED STATES OF AMERICA, acting
Through the United States Department of
Energy

By: [Signature]
(Contracting Officer)

STATE OF NEW JERSEY)
 MERCER) ss.:
COUNTY OF ~~MIDDLESEX~~)

I CERTIFY that on Dec. 13, 2001, Christopher McCrudden, personally came before me, a Notary Public of the State of New Jersey, and this person acknowledged under oath, to my satisfaction, that:

(a) this person signed and delivered the attached document as Treasurer of The Trustees of Princeton University, the corporation named in this document; and

Modification M003
Contract No. DE-RL02-CH10328

EXHIBIT E TO LEASE AGREEMENT

(b) this document was signed and made by the corporation as its voluntary act and deed by virtue of authority from its Board of Trustees.

Sworn to and subscribed
Before me this day
of *December 13* 2001



MARIE A. MESSLER
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 3/15/2004

ACKNOWLEDGMENT OF UNITED STATES GOVERNMENT
TO BE INSERTED HERE.

EXHIBIT F – LEASE ADDENDUM



Department of Energy
Princeton Site Office
P.O. Box 102
Princeton, New Jersey 08542-0102

MODIFICATION NO. M005
CONTRACT NO. DE-RL02-CH10328

Mr. Paul LaMarche
Office of the Provost
4 Nassau Hall
Princeton University
Princeton, NJ 08544

Dear Mr. LaMarche:

SUBJECT: DE-RL02-CH10328-MODIFICATION NO. M005

The existing Lease, No. DE-RL02-CH10328 (hereinafter referred to as "Lease"), requires Modification to reflect the attached four page lease addendum which will be added to the Lease as Exhibit F.

To incorporate these changes:

- replace TABLE OF CONTENTS page;
- add Exhibit F

This letter modification, executed on behalf of the Government, is hereby forwarded in quadruplicate. If acceptable, kindly acknowledge acceptance on four originals hereof, initial each unsigned page and return them to this office.

Sincerely,

A handwritten signature in cursive script that reads "Joseph Arango".

Joseph Arango,
Acting Site Manager
Date: 9/27/10

Attachments:
Exhibit F
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EXHIBIT F

LEASE ADDENDUM

TO LEASE AGREEMENT BETWEEN THE TRUSTEES OF PRINCETON UNIVERSITY AND THE UNITED STATES OF AMERICA ACTING THROUGH THE UNITED STATES DEPARTMENT OF ENERGY

Lease Addendum

WHEREAS pursuant to a Lease dated February 3, 1987 and denominated as Lease No. DE-RL02-CH10328 (Lease) the DOE has leased property from Princeton known as C and D sites in Plainsboro Township (Leased Premises) that constitutes the location for the DOE's Princeton Plasma Physics Laboratory (PPPL); and,

WHEREAS pursuant to Contracts Nos. DE-ACO2-76CH03073 and DE-AC02-09CH11466 (collectively the "Contract") Princeton has conducted work for DOE at the Leased Premises; and,

WHEREAS, this Lease Addendum, Exhibit F to the Lease, is designed to set forth the mutual understandings of the Trustees of Princeton University (Princeton) and the United States Department of Energy (DOE), together known as the Parties, with respect to Property described in Attachment A (Property) to this Addendum; and,

WHEREAS, the Property is located adjacent to PPPL and the Leased Premises. Princeton and DOE deem it necessary in the interest of the common defense and security to establish a security buffer that will ensure that all vehicles and passengers, pedestrians, bicyclists, and others entering the access roadway serving PPPL at the intersection of Stellarator Road and Campus Road of Princeton University's Forrestal Campus are employees, contractors, subcontractors, agents, licensees, invitees, authorized personnel, representatives, scheduled deliveries, or necessary equipment for PPPL or DOE. PPPL's security personnel would perform visual identification and, when required, searches of incoming vehicles and persons to protect and preserve the security of PPPL and DOE personnel and property and are desirous of conducting certain activities on those lands; and,

NOW THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt of which is acknowledged, the Parties agree as follows:



Initial



Initial

Modification M005
Contract No. DE-RL02-CH10328

1. In order to facilitate the Parties' interests in common defense and security for PPPL, Princeton agrees to add the Property to the Leased Premises by this Lease Addendum, at no additional lease charge to DOE. Therefore, the Property shall be excluded from all future lease charges and lease charge calculations for the Leased Premises. Except as otherwise specifically provided herein, all terms and conditions of the Lease shall be applicable to the Property and are incorporated by reference and made a part hereof. The description of the Leased Premises is amended to include the Property.

2. The term of the lease of the Property shall be coextensive with that of the Leased Premises provided, however, the Parties specifically agree that in addition to termination provisions already included within the Lease, either of the Parties may terminate this Lease Addendum with 60 days prior written notice to the other if Princeton requires control of the Property in connection with the building of certain roadways on or near the Property. If so terminated by either of the Parties, the Property shall revert to Princeton by operation of law and the Property shall no longer be part of the Lease. In the event that the DOE requires an alternate location for a security buffer at the completion of such roadways, the Parties shall negotiate in good faith to facilitate the establishment of such alternate location. During the term of this Lease, Princeton shall have the right to access the Property in connection with plans to design, engineer and construct roadways, such as the one between the northern end of Campus Road and College Road East.

3. The Property is added to the Leased Premises solely for security reasons and measures and to act as a security buffer for PPPL. No other use of the Property is permitted other than in connection with security for PPPL. No building, structure, improvement, wall, fence, sign, exterior lighting or clearing of trees or brush (collectively, "Improvements") shall be commenced, erected or maintained on the Property without Princeton's prior written approval. The cost of performing the approved activities is the sole obligation of the DOE as well as any expense of preparing the Property for those activities. DOE, at DOE's sole cost and expense, will take good care of the Property and the improvements erected upon the Property, and will make all necessary repairs thereto. Upon termination of the Lease for the security buffer area, as shown on Exhibit A, the DOE shall remove all of its equipment, fixtures, appurtenances and other improvements furnished and installed on the Property in connection with the DOE's activities under this Lease. The DOE shall restore the Property when such restoration is required in connection with the DOE's activities, to the extent reasonably practical, to the condition existing prior to the initiation of the DOE's activities. In the event DOE does not restore the Property, Princeton may restore the Property and DOE shall pay Princeton for all reasonable costs associated with such restoration. With the written advance consent of Princeton, the DOE may abandon DOE-owned equipment, fixtures, appurtenances, and other improvements in place in lieu of restoration.



Initial

ga

Initial

4. Princeton and DOE designate the individuals occupying the positions stated to serve as their respective representatives in the approval process:

Princeton:

Paul LaMarche
Office of the Provost
4 Nassau Hall
Princeton University
Princeton, NJ 08544

With a copy to:

Hannah S. Ross, Esq.
University Counsel
Office of the General Counsel
120 Alexander St.
Princeton, NJ 08540

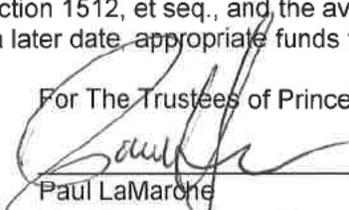
For the DOE:

The Princeton Site Office Manager
PO Box 102
Princeton, NJ 08542-0102

5. The DOE and Princeton each agree to provide the other with open access to the Property at all times, except as noted herein, for the purpose of accomplishing the conditions of this Lease Addendum and the establishment and operation of a security buffer for PPPL. It is expressly understood by the Parties that during the term of the Lease, Princeton shall have the right to access the Property in connection with plans to design, engineer and construct roadways, such as one between the northern end of Campus Road and College Road East. The Parties recognize that during "severe" and "high" security conditions, as issued by the Homeland Security Advisory System or any similar successor advisory system, Princeton's right of access may be curtailed as long as the "severe" or "high" security condition exists. DOE shall provide Princeton with notice of when and if such a condition is declared.

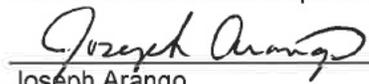
6. DOE's present and future obligations under this Lease Addendum are subject to the requirements of the Anti-Deficiency Act, 31 U.S.C. Section 1512, et seq., and the availability of appropriated funds. There is no guaranty that Congress will, at a later date, appropriate funds for this effort.

For The Trustees of Princeton University:

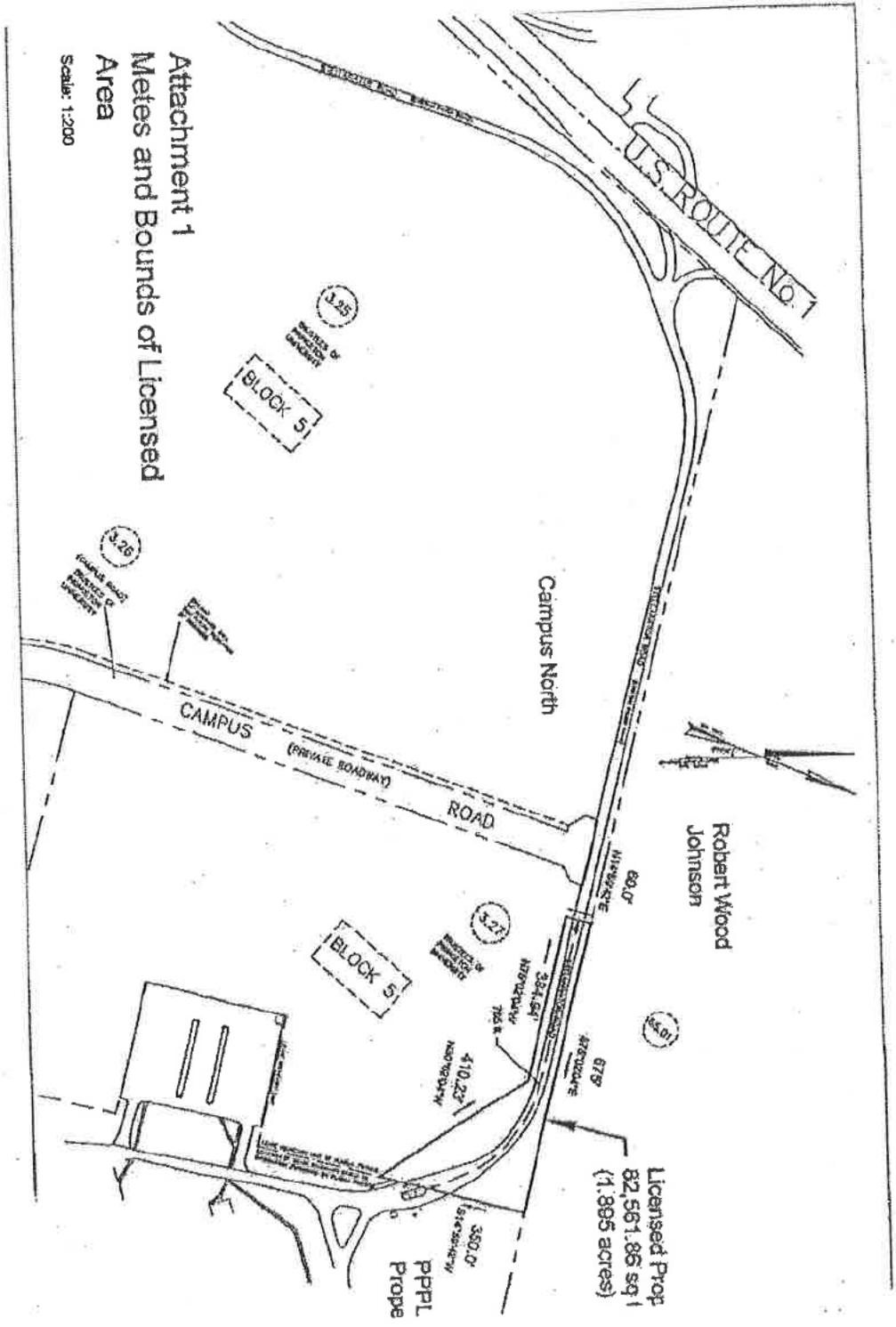
 9/27/10

Paul LaMarche Date
Vice Provost, Space Programming & Planning

For the United States Department of Energy:

 9/27/10

Joseph Arango Date
Acting Site Manager, Princeton Site Office



Attachment 1
Metes and Bounds of Licensed
Area
Scale: 1:2000

EXHIBIT G – ORIGINAL LEASE (For reference only)

Lease No. DE-RL02-CH10328

LEASE AGREEMENT

between

THE TRUSTEES OF PRINCETON UNIVERSITY

(Princeton)

and

THE UNITED STATES OF AMERICA

acting through the

United States Department of Energy

(Government)

PREMISES:

72.478 acres, more or less, Plainsboro
Township, Middlesex County, New Jersey.

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LEASE AGREEMENT

THIS LEASE AGREEMENT effective as of the 1st day of October, 1986, by and between THE TRUSTEES OF PRINCETON UNIVERSITY (hereinafter "Princeton"), and the UNITED STATES OF AMERICA, acting through the United States Department of Energy (hereinafter "the Government").

WITNESSETH THAT:

WHEREAS, Princeton is the owner in fee simple of certain land consisting of 72.478 acres, more or less, known as "C-Site" and "D-Site" and located on Princeton's Forrestal Campus in Plainsboro Township, Middlesex County, New Jersey, as hereinafter described; and

WHEREAS, the Government is the owner of certain Buildings, improvements, and other property erected on "C-Site" and "D-Site"; and

WHEREAS, Princeton occupies the Buildings and operates and manages thereon the Princeton Plasma Physics Laboratory pursuant to Contract No. DE-AC02-76CH03073 with the Government; and

WHEREAS, Princeton and the Government acknowledge that it is in the mutual interest of the respective parties hereto to enter into this Lease; and

WHEREAS, the Government is authorized to enter into this Lease by law, including the Department of Energy Organization Act (Pub. L. No. 95-91).

NOW, THEREFORE, Princeton and the Government do mutually covenant, promise, and agree as follows:

SPECIAL LEASE TERMS AND CONDITIONS

ARTICLE 1 - DEFINITIONS

(a) Annual Net Fair Rental Value: The Annual Net Fair Rental Value determined by a Qualified Real Estate Appraiser pursuant to Article 3 hereof.

(b) Buildings: Those Buildings located on the portion of the Princeton Forrestal Campus known as "C-Site" and "D-Site" which are owned by the Government.

(c) C-Site and D-Site: That certain portion of land consisting of 72.478 acres, more or less, owned in fee simple by Princeton, located on the University's Forrestal Campus in Plainsboro Township, Middlesex County, New Jersey as more fully described in Exhibit A hereto (sometimes referred to herein as the "Demised Premises").

(d) Current Contract: Contract No. DE-AC02-76CH03073 between the Government and Princeton, as modified from time to time, for the performance of certain research and development.

(e) Contracting Officer: A person, acting on behalf of the Department of Energy or any successor agency, with the authority to enter into, administer, and/or terminate this Lease, and make related determinations and findings.

(f) Contractor: The person or entity contracting with the Government for research and development to be conducted on the Demised Premises under the Current Contract or any other contract.

(g) Imposition(s): All taxes, assessments, fees, and other charges imposed on the Demised Premises as provided in Article 6 hereof.

(h) Lease: This Lease Agreement entered into between Princeton and the Government.

(i) PPPL: Princeton Plasma Physics Laboratory, an organizational unit of Princeton University which performs the work under the Current Contract.

(j) Qualified Real Estate Appraiser: A person who regularly renders pertinent commercial real estate appraisals and who is an accredited Member of the Appraisal Institute (MAI).

(k) Annual Lease Charge: The amount due from the Government on October 1 of each year of the Term in accordance with Article 3 hereof.

(l) Term: The Term of this Lease as provided in Article 3 hereof.

ARTICLE 2 - ORDER OF PRECEDENCE

2.01. Any inconsistency in this Lease shall be resolved by giving precedence to the Special Lease Terms and Conditions over the General Lease Terms and Conditions.

2.02. Any inconsistency between this Lease and the Current Contract shall be resolved by giving precedence to the terms of this Lease.

ARTICLE 3 - DEMISE, PREMISES, TERM, ANNUAL LEASE CHARGE, AND OTHER CHARGES

3.01. Demise and Premises.

Princeton does hereby demise and let unto the Government, and the Government does lease and take from Princeton, for the Term and upon the covenants, terms, and conditions hereinafter set forth:

ALL THOSE CERTAIN tracts or parcels of ground situated in Plainsboro Township, Middlesex County, New Jersey, more fully described in Exhibit A attached hereto and made a part hereof.

TOGETHER WITH all and singular appurtenances, rights, privileges, and easements unto the aforesaid tracts or parcels of ground belonging or in any wise appertaining (the aforesaid tracts or parcels of ground and said appurtenances, rights, privileges, and easements are herein collectively called the "Demised Premises").

UNDER AND SUBJECT, NEVERTHELESS, to the matters set forth in Exhibit B attached hereto and made a part hereof.

3.02. Access to Demised Premises.

(a) Princeton shall provide at least one access road; further, Princeton shall use its best efforts to provide an additional access road to and from the Demised Premises.

(b) Princeton shall have the right from time to time, in Princeton's sole judgment and discretion, and at Princeton's sole cost, to terminate or relocate any or all of the access roads provided pursuant to paragraph 3.02(a); provided that one access road shall be available to the Government at all times which shall not be lesser in load capacity and width than the road(s) terminated or relocated without the concurrence of

the Government. Princeton shall provide reasonable notice to the Government of the termination or relocation of any or all access roads.

(c) Princeton and the Government shall share the cost of providing additional access roads pursuant to this paragraph 3.02:

(i) Such costs shall be shared pro rata according to the respective acreage served by the additional access road(s); provided that the Government shall pay the full cost of a Government-required or requested upgrading of any such road beyond the standard specifications of Plainsboro Township.

(ii) The Government agrees to pay its pro rata share of the cost of relocation of any additional access road according to the respective acreage served, if such relocation is required by any state or local government; provided that the Government shall pay the full cost of a Government-required or requested upgrading of any such road beyond the standard specifications of Plainsboro Township.

(d) The Government shall pay its pro rata share according to the respective acreage served of all repair and maintenance costs in connection with the access roads.

3.03. Term.

The Term of this Lease shall commence on October 1, 1986, (hereinafter called the "Commencement Date") and shall expire 40 years after the Commencement Date (hereinafter called the "Expiration Date"), unless sooner terminated as hereinafter provided, at which time the Demised Premises shall be surrendered to Princeton. No renewal of this Lease shall be granted.

3.04. Annual Lease Charge.

(a) The Government shall pay to Princeton as the lease charge for the Term of this Lease the following:

(i) The Government shall pay the Annual Lease Charge without offset, deduction, or demand on or before October 1 of each year of the Term; provided that in no event shall the Annual Lease Charge be paid after October 1, except as provided in paragraph 3.08 hereof. For the initial five (5) year period from the Commencement Date until September 30, 1991, the Annual Lease Charge shall be in the amount of \$1,771,000.00. Princeton's receipt of the first such payment is hereby acknowl-

edged. The Annual Lease Charge shall be adjusted on October 1, 1991, and at the beginning of each successive sixty (60) month period thereafter during the Term in accordance with paragraph 3.06 hereof.

(ii) From and after the Commencement Date, and throughout the Term of this Lease, the Government shall also pay all sums, costs, expenses, and other charges which the Government in any of the provisions of this Lease assumes or agrees to pay or discharge, it being intended that the Annual Lease Charge shall be an absolute net return to Princeton throughout the Term of this Lease without offset or deduction, and free of expenses, charges, diminution, or other deductions whatsoever.

3.05. Other Charges.

During any period in which Princeton is the Contractor, Princeton shall notify the Government each month of the amount of the other charges which the Government has agreed to pay pursuant to subparagraph 3.04(a)(ii) hereof and such other charges shall be due and payable upon receipt of a written demand. If at any time Princeton is not the Contractor, Princeton shall submit to the Government, each month, an invoice for such other charges. Such invoice shall be paid by the Government within thirty (30) days of receipt.

3.06. Adjustment of Annual Lease Charge.

On October 1, 1991, and on October 1 of each successive sixty (60) month period thereafter during the Term, the Annual Lease Charge shall be adjusted according to the following procedure:

(a) On October 1, 1990, and on October 1 of each sixty (60) month period thereafter for the Term, Princeton shall notify the Government of the proposed Annual Lease Charge for the sixty (60) month period commencing twelve (12) months thereafter. If Princeton and the Government shall not have agreed upon Princeton's proposed Annual Lease Charge within thirty (30) days after the date of Princeton's notice, then the parties shall endeavor to agree upon a Qualified Real Estate Appraiser who shall determine the fair market value of the Demised Premises. If the parties agree on such an appraiser, then the resultant appraisal shall be binding and conclusive upon the parties. If within forty-five (45) days after the date of Princeton's notice, the parties have not agreed upon the selection of a Qualified Real Estate Appraiser, the following procedure shall take place:

(i) Princeton shall, within fifteen (15) days thereafter, submit to the Government a list of three (3) Qualified Real Estate Appraisers. The Government shall, within fifteen (15) days thereof, select an Appraiser from Princeton's list. The Appraiser so selected shall submit to Princeton and the Government, within thirty (30) days from his selection, an appraisal of the fair market value of the Demised Premises. Princeton and the Government shall have thirty (30) days from said submittal to accept or reject the appraisal.

(ii) If either party rejects such appraisal, the Government, within fifteen (15) days of said rejection, shall submit to Princeton a list of three (3) Qualified Real Estate Appraisers. Princeton shall, within fifteen (15) days thereof, select an appraiser from the Government's list. The Appraiser so selected shall submit to Princeton and the Government, within thirty (30) days from his selection, an appraisal of the fair market value of the Demised Premises. Princeton and the Government shall have thirty (30) days from said submittal to accept or reject the appraisal.

(iii) If either party rejects such appraisal, then the Appraisers appointed pursuant to subparagraphs 3.06(a)(i) and 3.06(a)(ii) above shall, within fifteen (15) days of said rejection, agree on a final Qualified Real Estate Appraiser whose appraisal must be submitted to Princeton and the Government within thirty (30) days of his selection. The parties agree that this appraisal shall be binding and conclusive upon the parties.

(b) The cost of all appraisals shall be borne equally by the parties, except that the party rejecting an appraisal under paragraph 3.06(a) shall bear solely the costs of such appraisal.

(c) The Appraiser(s) selected pursuant to paragraph 3.06 hereof shall appraise the fair market value of the Demised Premises for its "highest and best use" as vacant and unimproved property taking into account any roads and utilities benefitting the Demised Premises which are installed on the Demised Premises or premises adjacent thereto; provided that such roads and utilities shall not be taken into account if they were paid for by the Government. The Appraiser(s) shall not consider any increase or diminution in value of the Demised Premises caused by the Government's use thereof.

(d) Based on the fair market value, the Appraiser(s) shall determine the Annual Net Fair Rental Value.

3.07. Determination of Annual Lease Charge.

(a) The Annual Lease Charge shall be ninety (90) percent of the Annual Net Fair Rental Value as determined under paragraph 3.06 for as long as Princeton is the Contractor. If at any time Princeton ceases to be the Contractor, the Annual Lease Charge, shall increase to one hundred (100) percent of the Annual Net Fair Rental Value as determined under paragraph 3.06. The adjustment and determination of the Annual Lease Charge shall not be subject to Article 23 of this Lease entitled "Disputes."

(b) Princeton and the Government, within thirty (30) days of their agreement or approval of the Annual Lease Charge as adjusted aforesaid, shall execute and deliver an appropriate amendment to this Lease confirming such adjusted Annual Lease Charge.

3.08. Availability of Appropriated Funds.

In the event Princeton is given written notice by the Government that sufficient appropriations are not available for payment of all or any portion of any Annual Lease Charge or other charges hereunder, Princeton hereby agrees to extend the date for payment of such charge(s) for a period not to exceed ninety (90) days. Any such extension shall be in writing and shall set forth the date payment is due. If at the end of such ninety (90) day period, appropriations have not been made available to pay all outstanding charges, the Government's failure to pay shall be an "Event of Default" pursuant to Article 13 hereunder. The Government's payment of the outstanding charges after the same are due and payable shall be subject to the provisions of the Prompt Payment Act (31 U.S.C. §§ 3901-06), as amended from time to time.

ARTICLE 4 - USE

4.01. Use of Premises - Princeton the Contractor.

(a) At all times during which Princeton is the Contractor, the Demised Premises shall be used by the Government for operation of the PPPL in the performance of research and development and related services in accordance with the terms of the Current Contract.

(b) Princeton and the Government intend that such permitted use of the Demised Premises shall include the construction and operation of large experimental devices such as the Tokomak Fusion Test Reactor ("TFTR"), the planned Compact Ignition Tokomak Project ("CIT"), or similar devices that are appropriate for the Demised Premises and within the terms of the Current Contract.

4.02. Use of Premises - Princeton Not the Contractor.

(a) If at any time during the Term Princeton shall not be the Contractor, the Demised Premises and any Buildings or improvements thereon shall be used only for research, development, and experimentation in the fusion energy field, which work is similar and related to the work being performed pursuant to the Current Contract, and any other work which is similar and related to work performed under the Current Contract. In no event shall the Government introduce any radioactive materials onto the Demised Premises in excess of limits contained in the approved Environmental Impact Statement or Assessment in effect during the Current Contract, or in excess of the limits for unlicensed materials set forth in 10 C.F.R. Part 30 (1986), as amended from time to time, without the express written consent of Princeton.

(b) If at any time during the Term Princeton shall not be the Contractor, the Government agrees that its use of the Demised Premises shall not create or constitute a nuisance or prejudice the activities of Princeton, its lessees, or licensees on the Demised Premises and premises adjacent thereto.

(c) If at any time during the Term Princeton shall not be the Contractor, the Government covenants and agrees with Princeton that the Government will observe "Princeton University Policies" as follows:

(i) No use of the Demised Premises shall be offensive to the neighborhood by reason of odor, fumes, dust, smoke, glare, noise, gases, liquid waste, or pollution.

(ii) No open storage shall be permitted on the Demised Premises unless screened from view from adjacent property and streets at the Government's cost and expense.

(iii) There shall be maintained on the Demised Premises facilities for parking, loading and unloading sufficient to serve the activity conducted thereon.

(iv) No building or structure shall be constructed or erected on the Demised Premises which exceeds sixty (60) feet in height above the finished grade of such building or structure and which is not screened by trees, except as otherwise approved in writing by Princeton, at Princeton's sole discretion.

(v) Natural growth of wooded areas and orderly landscaping shall be encouraged and no trees or shrubbery located in existing forested areas or existing clusters of trees shall be removed from the Demised Premises without first obtaining the written consent of Princeton, which consent Princeton may refuse in its sole discretion; provided that the Government may remove dead trees and shrubbery and may perform maintenance, cutting and thinning in support of landscaping efforts without Princeton's consent.

(vi) Princeton may, from time to time, adopt and promulgate other University Policies applicable to the Demised Premises and its Forrestal Campus and amend or supplement the same, which University Policies shall, at the time of adoption by Princeton, become a part of this Lease. Notice of such University Policies and all amendments and supplements thereto shall be given to the Government and the Government agrees to comply with and observe the same, unless the Government determines and notifies Princeton in writing that such University Policies materially interfere with the Government's use of the Demised Premises as provided herein.

ARTICLE 5 - UTILITIES

5.01. Utilities.

The Government shall provide, or cause to be provided, all necessary utilities for the operation of the Buildings and any additional improvements. Princeton shall not be liable for any loss or damage suffered by the Government resulting from any failure of utility service. The Government shall pay all charges and costs for provision, installation, and use of such utilities and any additional improvements thereto.

5.02. New Utilities.

Any new utility extensions required by the Government on the Demised Premises shall be installed underground, except that additional utility lines and supporting arms may be added to the existing high tension towers and existing utility poles;

provided that the towers are not otherwise enlarged or modified. Such new utility extensions may be constructed above ground only with the express written approval of Princeton. The Government shall be solely responsible for the costs and expenses of any such new utility extensions.

ARTICLE 6 - IMPOSITIONS AND PAYMENT THEREOF

6.01. Impositions.

(a) The Government shall pay all applicable taxes, assessments, water and sewer rents, rates and charges, charges for public utilities, excises, levies, license and permit fees, and other governmental charges, general or special, ordinary or extraordinary, unforeseen or foreseen, of any kind and nature whatsoever (including all penalties and interest thereon) which at any time during the Term may be assessed, levied, imposed upon, or grow or become due and payable out of or in respect of, the Demised Premises, the Buildings, or any other improvements thereon, or any part thereof or any appurtenance thereto, or any use or occupation of the Demised Premises and the improvements, and such franchises as may be appurtenant to the use of the Demised Premises, the Buildings, or any other improvements or which at any time during the Term hereof may become a lien on the Demised Premises, the Buildings, or any other improvements or any part thereof or any appurtenance thereto (all such taxes, assessments, water and sewer rents, rates and charges, charges for public utilities, excises, levies, license and permit fees, and other governmental charges being hereinafter collectively called "Impositions," and any of the same being hereinafter individually called "Imposition").

(b) If subsequent to the date of this Lease, any applicable tax shall be levied, assessed, or imposed upon, or be required to be paid by Princeton as a specific substitute for, and in lieu of, one or more of the taxes otherwise required by paragraph 6.01(a) hereof to be paid by the Government, or Princeton shall be required by the State of New Jersey or any political subdivision thereof to pay any such additional real estate tax with respect to Princeton's ownership of the Demised Premises, the execution and delivery of this Lease, or the receipt or accrual of any lease charges payable to Princeton under the provisions of this Lease, and the Government shall be given notice thereof, the same shall be deemed to be an Imposition payable by the Government.

6.02. Contested Impositions.

(a) The Government shall have the right, in its own name or in the name of Princeton, to contest or review any Imposition(s) by appropriate proceedings, promptly commenced and diligently prosecuted in good faith, at its own expense and free of all expense to Princeton; provided that before instituting any such proceedings the Government shall notify Princeton. The Government may pay (under protest) such Imposition(s) or contest such Imposition(s). Notwithstanding anything herein to the contrary, the Government shall pay, under protest or otherwise, all Imposition(s) before the time when the Demised Premises or any portion thereof might be forfeited by reason of nonpayment. In the event of any such contest, the Government shall pay or cause to be paid the amount that shall finally be levied or assessed against the Demised Premises or adjudicated to be due or payable on any such contested Imposition.

(b) Princeton shall, at the request and at the expense of the Government, join in any such proceedings and the Government covenants to indemnify and save Princeton harmless from costs or expenses involved. The Government shall be entitled to any refund of any such Imposition(s), which have been paid by the Government, and interest thereon.

(c) It is the purpose and intent of this paragraph 6.02 that Princeton shall be and hereby is saved harmless from and indemnified for all costs and expenses which it, as owner of the Demised Premises, might otherwise be required to bear with respect to Imposition(s).

ARTICLE 7 - CONSTRUCTION OF ADDITIONAL IMPROVEMENTS

7.01. Government's Construction of Improvements - Princeton the Contractor.

If the Government shall desire to construct additional improvements on the Demised Premises any time during the Current Contract, the Government agrees to abide by the "Design and Development Criteria" attached hereto as Exhibit C and incorporated herein.

7.02. Government's Construction of Improvements - Princeton Not the Contractor.

If at any time during the Term hereof Princeton shall not be the Contractor, and the Government shall desire to construct additional improvements on the Demised Premises, the Government shall comply with the following:

(a) The Government, at its sole cost and expense, shall prepare a master plan of existing and proposed facilities. This plan shall be subject to the approval of the Princeton University Vice-President for Facilities. The Vice-President for Facilities shall give due consideration to the Development Criteria and University Development Plan. The master plan will be prepared and updated in accordance with Government requirements and schedules.

(b) The Government, at its sole cost and expense, shall prepare a site plan of the Demised Premises, preliminary plans, sections, elevations, and other materials (herein collectively called "Preliminary Plans") with respect to the proposed improvements, disclosing the matters and details specified in the "Design and Development Criteria," Exhibit C attached hereto. The proposed improvements shall comply with all zoning, and other applicable laws, codes, and ordinances of the governmental bodies having jurisdiction. The Government shall obtain and bear the sole cost and expense of obtaining all necessary governmental approvals.

(i) The Princeton Vice-President for Facilities shall designate one person (hereinafter referred to as "Princeton's Representative") to attend the meetings with the Government which relate to the preparation of the Preliminary Plans and Final Plans. Reasonable notice of the time and place of such proposed meetings shall be given by the Government to Princeton's Representative. Any approval of any portion of the Preliminary Plans or Final Plans given by Princeton's Representative shall be binding upon Princeton when set forth in writing and signed by Princeton's Representative. With regard to certain security activities (such as monitoring and detection) and exclusion areas, Princeton shall accept the Government's certification that such activities and areas are in compliance with the requirements of this Lease.

(ii) The Preliminary Plans shall be completed and submitted to Princeton for approval. Princeton shall review the Preliminary Plans, and within sixty (60) days of the submission thereof, shall notify the Government of Princeton's approval or disapproval thereof, as the case may be. In the event Princeton shall have failed to notify the Government of Princeton's approval or disapproval of the Preliminary Plans within said sixty (60) day period, then the Preliminary Plans shall be deemed to have been approved.

(iii) Princeton shall have the right to refuse to approve the Preliminary Plans which are not in conformance with the "Design and Development Criteria," attached hereto as Exhibit C; provided that Princeton shall not have the right to disapprove any portion of the Preliminary Plans if such portion has been previously approved by Princeton's Representative. Princeton shall notify the Government of the respects, if any, in which the Preliminary Plans do not meet with Princeton's approval.

(c) The Government, at the Government's sole cost and expense, shall cause actual working drawings and specifications with respect to the proposed improvements (which shall be logical extensions of the approved Preliminary Plans) to be prepared and shall submit the same to Princeton, for Princeton's approval, within a reasonable period after the Preliminary Plans have been approved, or deemed to have been approved, by Princeton. Princeton shall review such actual working drawings and specifications, and within a reasonable period following the submission thereof, shall notify the Government of Princeton's approval or disapproval thereof. Princeton's approval shall be signified by the signature of Princeton's Representative on such drawings. Princeton shall have the right to refuse to approve said actual working drawings and specifications only in the event the same shall not constitute logical extensions of the approved Preliminary Plans; provided that Princeton shall not have the right to disapprove any portion of said drawings and specifications if such portion has been previously approved by Princeton's Representative. The actual working drawings and specifications approved by Princeton are herein collectively called the "Final Plans" and no material change involving form, function, or structure shall be made therein without first obtaining the approval of Princeton; provided that no material change may be made which would violate any prior governmental approval.

7.03 Limitation on Gross Floor Area.

The parties acknowledge and agree that the aggregate gross floor area on the Demised Premises, including improvements under construction, as of January 1, 1987, is 702,600 square feet. The Government shall have the right to construct additional Buildings and improvements containing gross floor area not to exceed 200,000 square feet. The Government may replace, alter, or modify existing Buildings and improvements; provided, however, that in no event shall the aggregate gross floor area on the Demised Premises exceed 902,600 square feet. The term "gross floor area" for purposes of calculating additional, replacement, altered, and modified space shall mean: the total area of all

stories or part thereof of all structures and improvements on the Demised Premises measured from the exterior walls or from the roof edges where a structure has no walls, but excluding rooftop, rooftop devoted to mechanical equipment or storage, and roofed or enclosed areas used for parking spaces.

7.04. Ownership of Buildings and Improvements.

All Buildings and other improvements constructed on the Demised Premises during any period in which Princeton is not the Contractor, whether or not the property of the Government, shall be deemed to be the property of the Government for purposes of Article 11 hereof.

7.05. Other Government Contractors.

Princeton acknowledges that, during any period in which Princeton is not the Contractor, the Government may undertake or award contracts for facilities construction, related work, and support services and that such other contractor or Government employees may require access to the Demised Premises. Princeton agrees to fully cooperate with such other contractors and Government employees. Princeton agrees not to commit any affirmative act on the Demised Premises or on adjacent premises which would interfere with the performance by such other contractors or Government employees.

ARTICLE 8 - PERFORMANCE OF GOVERNMENT'S COVENANTS

8.01. Subject to the provisions of Article 3, Article 6, and Article 13, if the Government at any time shall fail to pay any charge hereunder, other than the Annual Lease Charge, or shall fail to perform any other act on the Government's part required to be performed under this Lease and (a) such default shall continue for a period of thirty (30) days after written notice of default in the payment of any sum of money; or (b) as to any default other than in the payment of money, if within sixty (60) days after notice by Princeton to the Government, the Government shall not have cured such default or shall not have commenced and is not diligently proceeding to cure it; or (c) without notice if an emergency exists: then Princeton may (but shall be under no obligation to) pay such Imposition, or make such other payment or perform such other act, as the case may be, and take all such action as may be necessary with respect thereto.

8.02. Any sums paid by Princeton pursuant hereto shall be charged to and paid by the Government.

8.03. This Article 8 shall survive expiration or termination of this Lease.

ARTICLE 9 - CARE OF DEMISED PREMISES

9.01. No Obligation on Princeton.

(a) Any term, condition, or provision herein to the contrary notwithstanding, Princeton shall have no obligation to maintain or otherwise care for the Demised Premises at any time during the Term.

(b) The Government shall be solely responsible for all repairs to and maintenance of the Demised Premises as follows:

(i) The Government will take good care of the Demised Premises and the Buildings, improvements, the sidewalks and curbs on the Demised Premises, and any other improvements erected upon the Demised Premises; and, subject to reasonable wear and tear, will keep the same in good order and condition, and make all necessary repairs thereto, interior and exterior, structural and non-structural. The term "repairs" when used in this Article 9 shall include all necessary replacements and alterations. All repairs made by the Government shall be substantially equivalent in quality and class to the original work.

(ii) The Government shall promptly and with due diligence put, keep, and maintain all portions of the Demised Premises and the sidewalks, curbs, driveways and passageways, and parking areas on the same, in a safe, clean, and orderly condition, free of dirt, trash, rubbish, snow, ice, and unlawful obstructions. The Government shall also mow the lawns and other grass planted areas, and replace dead and dying trees and shrubbery, all in accordance with good landscaping practice.

9.02. Commission of Waste.

The Government shall not cause or permit any waste or damage, disfigurement, or injury to any of the Demised Premises.

ARTICLE 10 - COMPLIANCE WITH LAWS AND ORDINANCES - PRINCETON
NOT THE CONTRACTOR

10.01. Compliance with Laws.

If at any time during the Term of this Lease Princeton shall not be the Contractor, the Government shall have sole responsibility for and shall bear all costs and expenses of causing the Demised Premises to conform to, comply with, and take any and all action necessary to avoid or eliminate any violation of any present or future applicable law, statute, ordinance, order, rule, regulation, or requirement of any federal, state or municipal government, department, commission, board or officers having jurisdiction, foreseen or unforeseen, ordinary as well as extraordinary, which shall be applicable to the Demised Premises, Buildings and improvements or the sidewalks, curbs, driveways and passageways, and parking areas comprising part of the Demised Premises or the Buildings or improvements, or to the use or manner of use thereof by the occupants thereof, whether or not such law, statute, ordinance, order, rule, regulation, or requirement shall necessitate structural changes or improvements or interfere with the use and enjoyment of the Demised Premises, the Buildings or the improvements.

10.02. Compliance with Restrictions.

The Government at all times shall observe and comply with the requirements of all covenants and restrictions contained or set forth in Exhibit B hereof, so far as the same shall be in force and effect at any time during the Term of this Lease.

10.03. Inspection by Princeton.

Subject to pertinent security requirements of the Government, if at any time during the Term Princeton shall not be the Contractor, the Government agrees to permit the duly authorized representatives of Princeton to enter the Demised Premises and improvements at all reasonable times during usual business hours for the purpose of: (a) inspecting the same; and (b) performing any work for which the Government shall be responsible under the terms of this Lease not performed by the Government after notice to the Government as provided for herein.

Princeton agrees, however, in connection with the doing of any such work to cause as little inconvenience, annoyance, disturbance, loss of business, or other damage to the Demised Premises and/or the improvements as may be reasonably possible in the circumstances. Nothing herein contained shall imply any duty or obligation upon Princeton to make any repair or to perform any

work which under any provision of this Lease the Government is required to make or perform, and the making or performing thereof by Princeton shall not constitute a waiver of the Government's default in failing to make or perform the same.

ARTICLE 11 - DISPOSITION OF GOVERNMENT-OWNED PROPERTY

11.01. Determination by the Government.

At the expiration or termination of this Lease, or if the Government determines at any time during the Term that it desires to conclude its use of Government-owned Buildings, improvements, or any other Government-owned property located on the Demised Premises, the Government shall, within one hundred and twenty (120) days, notify Princeton in writing of Government-owned property which it desires to remove or abandon. After expiration or termination of this Lease, the Government shall have access to the Demised Premises at reasonable times for the purposes of inspection, maintenance, and protection or removal, and the right to use the Demised Premises for such purposes.

11.02. Removal.

As to any Buildings, improvements, or other Government-owned property which the Government intends to remove, such removal shall commence on the earlier of one hundred and eighty (180) days after the date of the Government's determination, or sixty (60) days after the Government's notice to Princeton, and such removal shall be expeditiously carried out as to each item to be removed. The removal of any Buildings, improvements, or other Government-owned property shall be accomplished in such a manner as to leave the Demised Premises in a sightly and graded condition. If such removal has not commenced within the afore-said period, notwithstanding any other provision contained herein, Princeton may, within forty-five (45) days of the expiration of such period, notify the Government in writing of its election to:

(a) deem such property the removal of which has not commenced as being abandoned, and, upon the Government's receipt of such notice, full ownership of and title to the property shall pass immediately to Princeton without the necessity of any further act on the part of Princeton or the Government; provided, however, that the Government, at Princeton's request, shall execute and deliver to Princeton appropriate

instruments confirming such title to Princeton in appropriate form for recordation; or

(b) Princeton shall remove such property and charge the Government for the costs incurred in such removal, including any transportation and temporary storage charges. The Government shall pay all such costs and charges upon demand.

11.03. Abandonment.

The Government's right to abandon Buildings, improvements, or other Government-owned property shall be subject to the following:

(a) The Government shall have the right to abandon any Building or Buildings which are in the following condition:

(i) the Building is enclosed by walls and a roof which are in reasonably good condition and the inside of which is not exposed to the elements;

(ii) the Building has heating and plumbing facilities and electric wiring, all of which are in reasonably good condition and are reasonably adequate for any normal use of the Building and are connected and operable; provided that this provision is applicable only if the Building had operable heating and plumbing facilities and electrical wiring at the time of the conclusion of the Government's use of the same;

(iii) the interior of the Building is not in such condition as to make some reasonable commercial use of the Building impractical without the expenditure of an amount of money disproportionate, from engineering and other practical standpoints, to the value of the Building in its then condition; and

(iv) the Building is, both internally and externally, in compliance with all applicable federal, state, and local laws, including without limitation, environmental, fire codes, and other health and safety standards in effect at the time of abandonment. The Government shall not have the right to abandon any building which does not meet the requirements of this subparagraph, unless Princeton concurs, in writing, in such abandonment.

(b) The Government shall have the right, conditional upon receiving the prior written consent of Princeton, to

abandon any structures or other Government-owned property other than Buildings, including, but not limited to, cooling and water towers, above-ground power, gas and steam lines, fences, sewer plants and substations. Unless the Government has received such written consent to abandonment, removal of such structures by the Government shall commence within one hundred and eighty (180) days after determination by the Government of the conclusion of the Government's use thereof, and in any event, within one hundred and twenty (120) days after termination or expiration of this Lease. The removal of any structures pursuant to this subparagraph shall be accomplished expeditiously and in such a manner as to leave the premises in a graded and slightly condition.

11.04. Princeton's Rights on Expiration or Termination.

Notwithstanding any other provision contained herein, at the time of expiration or termination of this Lease, Princeton shall have the right to take all reasonable precautions and measures to assure that the Demised Premises are in compliance with applicable federal, state, and local health, safety, and environmental laws and regulations in effect at that time. The Government shall be obligated, subject to the availability of appropriated funds, to pay the reasonable costs incurred by Princeton in furtherance of this provision.

11.05. Subsequent Agreement of the Parties.

The parties recognize that, even though the Demised Premises are brought into full health, safety, and environmental compliance in accordance with this Article 11, certain substances or materials generated at or brought to the said premises in connection with the work which remain at said premises subsequent to the expiration or other termination of this Lease may, at some later date, be determined not to be in compliance with applicable federal, state, or local health, safety, and environmental laws or regulations in effect at such later date. Accordingly, the parties agree that, at or before the time of expiration or termination of this Lease, they will negotiate, in good faith, in order to agree upon a fair and equitable resolution of all aspects of the problem identified in the preceding sentence, including the respective responsibilities of the parties.

ARTICLE 12 - ASSIGNMENT OR SUBLEASE

The Government shall not assign, sublet, or otherwise transfer this Lease without the prior written consent of Princeton, which consent shall not be unreasonably withheld. Any such purported assignment, sublease, or other transfer without Princeton's prior written consent shall be void and have no effect.

ARTICLE 13 - TERMINATION BY PRINCETON.

13.01. Event of Default.

This Lease shall not be terminated by Princeton unless an Event of Default, as hereinafter specified, has occurred. An Event of Default by the Government entitles Princeton to invoke any of the remedies provided in this Article 13.

The following shall constitute an Event of Default at any time during the Term.

(a) Except as otherwise provided in Article 3 hereof, failure to pay the Annual Lease Charge or other charges at the time specified;

(b) A material breach of any other material covenant of this Lease.

13.02. Princeton's Remedies for the Government's Default.

Notwithstanding any other provision of this Lease, if an Event of Default occurs, Princeton, at its sole option may:

(a) Permit the Government to cure any default regarding the payment of charges hereunder, other than the Annual Lease Charge, within thirty (30) days of the date payment was due, except as provided in Article 3. If such default continues beyond thirty (30) days, Princeton may terminate this Lease immediately.

(b) As to any default other than in the payment of money hereunder, if within sixty (60) days after notice by Princeton to the Government, the Government shall not have cured such default or shall not have commenced and is not proceeding diligently to cure it, Princeton may terminate this Lease immediately.

13.03. Termination - Princeton the Contractor.

If Princeton terminates the Lease pursuant to this Article 13 while Princeton is the Contractor, the Government shall be liable for and shall pay to Princeton each and every year for a ten (10) year period following termination an amount equal to the pertinent Annual Net Fair Rental Value as adjusted pursuant to Article 3 hereof; provided, however, that during such ten (10) year period, Princeton shall make a good faith effort to relet the Demised Premises, and, in the event Princeton does relet the Demised Premises, the Government shall be liable for the difference, if any, between the pertinent Annual Net Fair Rental Value and the amount actually provided for as rent or similar consideration in the resultant lease. The Government also shall be liable for the costs and expenses incurred for reletting the Demised Premises and maintaining the same until reletting.

13.04. Termination - Princeton Not the Contractor.

If Princeton terminates the Lease pursuant to this Article 13 during any period in which Princeton is not the Contractor, the Government shall be liable for and shall pay to Princeton each and every year for the remainder of the Term an amount equal to the pertinent Annual Net Fair Rental Value as adjusted pursuant to Article 3 hereof; provided, however, that Princeton shall make a good faith effort to relet the Demised Premises, and in the event Princeton does relet the Demised Premises, the Government shall be liable for the difference, if any, between the pertinent Annual Net Fair Rental Value and the amount actually provided for as rent or similar consideration in the resultant lease. The Government also shall be liable for the costs and expenses incurred for reletting the Demised Premises and maintaining the same until reletting.

13.05. Government Approval.

The Government shall have the right of approval of the financial terms and conditions of any lease proposed to be entered into by Princeton pursuant to this Article 13, which approval shall not be unreasonably withheld.

13.06. Waiver of Performance.

No failure by Princeton to insist upon the strict performance of any covenant, agreement, term, or condition of this Lease on the part of the Government to be performed, or to exercise any permitted right or remedy consequent upon a default

therein, and no acceptance of partial or full payment of any charges during the continuance of any such default shall constitute a waiver by Princeton of such default or of such covenant, agreement, term, or condition. No covenant, agreement, term, or condition of this Lease on the part of the Government, and no default therein, shall be waived, altered, modified, or terminated except by written instrument executed by Princeton. No waiver of any default shall otherwise affect or alter this Lease, but each and every covenant, agreement, term, and condition of this Lease shall continue in full force and effect with respect to any other then existing or subsequent default therein.

ARTICLE 14 - NOTICES AND APPROVALS

All notices, approvals, consents, demands, and requests which may be or are required to be given by one party to the other party shall be in writing and shall be deemed to have been properly given if and when delivered personally, or by overnight courier, or sent by registered or certified mail, postage prepaid, addressed as follows:

(a) If to the Government at: U.S. Department of Energy, Princeton Area Office, P.O. Box 102, Princeton, New Jersey 08540, or at such other place, and to such other person, as the Government may from time to time designate by notice to Princeton; and

(b) If to Princeton, One Nassau Hall, Princeton, New Jersey 08544, Attention: Provost.

ARTICLE 15 - QUIET ENJOYMENT

15.01. Quiet Enjoyment.

The Government, upon observing and keeping all covenants, agreements, and conditions of this Lease on the Government's part to be observed and kept, shall quietly have and enjoy the Demised Premises throughout the Term of this Lease without hindrance or molestation by Princeton or by any one claiming by, from, through, or under Princeton, subject, however, to the exceptions, reservations, and conditions of this Lease.

15.02. Encumbrance.

Princeton shall not during the Term hereof sell or encumber the Demised Premises, except as hereinafter provided.

(a) Princeton may, at any time during the Term, sell the Demised Premises or the reversionary interest therein to any entity which is an affiliate of Princeton. For purposes of this paragraph 15.02, the term "affiliate" means any entity in which Princeton shall hold the controlling interest.

(b) Princeton agrees during the Term of this Lease not to sell the Demised Premises, any part thereof, or the reversionary interest therein, except for a sale to an affiliate of Princeton as aforesaid, without giving the Government the right of first refusal to purchase the Demised Premises, or Princeton's reversionary interest therein, on the same terms and conditions as those on which Princeton is willing to make such sale to another party. Princeton shall notify the Government promptly in writing of all such terms and shall submit to the Government a full and accurate copy of any bona fide offer (which may be in preliminary or "letter of intent" form) Princeton desires to accept. If the Government elects to exercise the right of first refusal herein granted, it must do so within thirty (30) days after receipt of the notice of terms and conditions from Princeton, otherwise the right of first refusal as to such particular offer shall be null and void. In the event the Government exercises its rights hereunder, the Government shall purchase the property on the terms set forth by Princeton. The Government's right of first refusal granted herein shall continue for the Term hereof and may be used by the Government notwithstanding the Government's declining to exercise such right in any particular instance, unless Princeton shall sell the Demised Premises or any interest therein pursuant to an offer which the Government has failed or declined to accept pursuant to this Article 15, in which case the Government's rights and options to acquire the Demised Premises, as provided in this paragraph 15.02, shall irrevocably terminate.

(c) Princeton shall not mortgage or encumber the Demised Premises during the Term hereof unless such mortgage or encumbrance is expressly made subordinate to the Government's rights hereunder.

(d) Any sale or other disposition of the Demised Premises, other than to the Government, shall be made expressly subordinate to the Government's rights hereunder.

ARTICLE 16 - SUCCESSORS AND ASSIGNS OF THE PARTIES,
CONTROLLING LAW

16.01. Successors.

The covenants and agreements contained herein shall bind and inure to the benefit of Princeton and Princeton's permitted successors and assigns, and the Government and the Government's permitted successors and assigns.

16.02. Assignment by Princeton.

Except as provided in Article 15 hereof, no interest in this Lease or claim hereunder shall be assigned or transferred by Princeton without the written consent of the Contracting Officer, which consent shall not be unreasonably withheld.

16.03. Assignment by the Government.

The Government's permitted successors and assigns shall be only a successor agency(s) to the Department of Energy.

16.04. Controlling Law.

This Lease shall be construed and interpreted according to the federal common law of government contracts as enunciated and applied by federal judicial bodies, boards of contract appeals, and quasi-judicial agencies of the United States Government. To the extent that the federal common law of government contracts is not applicable, the laws of the State of New Jersey shall apply.

ARTICLE 17 - ESTOPPEL CERTIFICATE

The Government agrees, at any time and from time to time, upon not less than ten (10) days' prior notice by Princeton, to execute, acknowledge, and deliver to Princeton a statement in writing certifying: (a) that this Lease is unmodified and in full force and effect (or if there have been modifications, that the same is in full force and effect as modified and stating the modifications); (b) whether or not there are then existing any offsets or defenses against the enforcement of any of the terms, covenants, or conditions hereof upon the part of Princeton or the Government to be performed (and if so specifying the same); and (c) the dates to which the Annual Lease Charge and other charges have been paid in advance, if any.

ARTICLE 18 - TERMINATION BY THE GOVERNMENT

18.01. Termination - Princeton the Contractor.

(a) The Government may terminate this Lease for its convenience during any period in which Princeton is the Contractor by giving thirty-six (36) months' written notice to Princeton.

(b) If the Government so terminates, the Government shall be liable for, and shall pay to Princeton each and every year for a two (2) year period following termination, an amount equal to the pertinent Annual Lease Charge; provided, however, that for such two (2) year period, Princeton shall make a good faith effort to relet the Demised Premises and, in the event that Princeton does relet the Demised Premises, the Government shall be liable for the difference, if any, between the amount of the pertinent Annual Lease Charge and the amount actually provided for as rent or similar consideration in the resultant lease. The Government also shall be liable for the costs and expenses incurred for reletting the Demised Premises and maintaining the same until reletting.

18.02. Termination - Princeton Not the Contractor.

(a) The Government may terminate this Lease for its convenience during any period in which Princeton is not the Contractor by giving sixty (60) months' written notice to Princeton.

(b) If the Government so terminates, the Government shall be liable for, and shall pay to, Princeton each and every year for five (5) years following termination, an amount equal to the pertinent Annual Net Fair Rental Value as adjusted pursuant to Article 3 hereof; provided, however, that for such five (5) year period, Princeton shall make a good faith effort to relet the Demised Premises, and, in the event Princeton does relet the Demised Premises, the Government shall be liable for the difference, if any, between the amount of the pertinent Annual Net Fair Rental Value and the amount actually provided for as rent or similar consideration in the resultant lease. The Government also shall be liable for the costs and expenses incurred for reletting the Demised Premises and maintaining the same until reletting.

18.03. Government Approval.

The Government shall have the right of approval of the financial terms and conditions of any lease proposed to be entered into by Princeton pursuant to this Article 18, which approval shall not be unreasonably withheld.

ARTICLE 19 - INDEMNITY

19.01. Government Indemnity - Current Contract.

The parties agree that so long as Princeton is the Contractor, the Government's indemnification obligation provided in the clause set forth at Article 62 of the Current Contract entitled "General Authority Indemnity" or any similar clause shall apply to this Lease and any activities hereunder.

19.02. Government Indemnity - Princeton Not the Contractor.

(a) It is agreed that, to the extent not covered by insurance maintained, or required to be maintained by Princeton, and except as to claims for personal injuries by officers or employees of Princeton arising out of and in the course of their employment, Princeton shall not be liable for, and the Government shall indemnify and hold Princeton, its Trustees, Corporate Officers, agents, and employees, jointly and severally harmless from and against, any delay, failure, loss, cost, expense (including expense of litigation), or damage (including personal injuries and deaths, and property damage) arising out of or connected with the Government's use of the Demised Premises hereunder, whether or not any employee or employees of Princeton may be responsible therefor; provided, however, that this paragraph 19.02 shall not apply where the delay, failure, loss, cost, expense, or damage is caused directly by lack of good faith or willful misconduct on the part of Princeton.

(b) The liability of the Government under this Article shall be subject to the availability of appropriated funds, and shall survive expiration or termination of this Lease.

(c) Princeton shall be deemed to be "covered" by insurance only to the extent of the insurance proceeds received by Princeton or which would have been received except for the intentional or negligent fault or omission of Princeton in:
(i) making timely claim after it acquires or reasonably should

have acquired, the knowledge of facts sufficient to make such a claim within a reasonable period prior to the expiration of the policy limitation period; or (ii) otherwise taking proper action under the policy.

(d) If at any time prior to the expiration or termination of this Lease, the regulations or policies of the Government in its judgment, shall require or permit the execution of an indemnity agreement between the Government and Princeton under statutory indemnity authority, with respect to the work being conducted on the Demised Premises, the Government shall inform Princeton of such fact and shall negotiate with Princeton, in good faith, to attempt to reach a mutual agreement under which Princeton will be afforded the benefit of such agreement, and this Article shall be revised accordingly.

ARTICLE 20 - DUPLICATION OF COSTS

To the extent any charges payable to Princeton under this Lease also may be allowable and recoverable under the Current Contract, no duplicate recovery of such charges shall be permitted.

ARTICLE 21 - RESERVED EASEMENTS

21.01. Princeton hereby reserves, and shall have the right to install and maintain utility lines and facilities within any portion of the Demised Premises upon which no building or structure is to be erected at locations reasonably determined by Princeton, for the purpose of providing water, electric, gas, telephone, cable lines, data transmission, drainage, storm and sanitary sewer services to the Princeton Forrestal Campus, the Princeton Forrestal Center and any other land hereafter designated by Princeton whether or not owned by Princeton, as well as the right to grant to other persons, entities, governmental bodies, and/or utility companies easements within the Demised Premises at the aforesaid locations for the aforementioned purposes.

21.02. No Material Interference with Government Use.

In the event that Princeton exercises its rights under this Article 21, Princeton agrees that its use of the easement(s) granted shall not materially interfere with the Government's actual or projected use of the Demised Premises and that, if the Demised Premises are disturbed for construction for any of the

permitted purposes, Princeton shall leave the site in a graded and sightly condition upon completion of the work.

ARTICLE 22 - MISCELLANEOUS PROVISIONS

22.01. Separability.

Each covenant and agreement contained in this Lease shall, for all purposes, be construed to be a separate and independent covenant and agreement. If any term or provision of this Lease or the application thereof to any person or circumstance shall to any extent be invalid and unenforceable, the remainder of this Lease or the application of such term or provision to persons or circumstances, other than those as to which it is invalid or unenforceable, shall not be affected thereby, and each term and provision of this Lease shall be valid and shall be enforced to the extent permitted by law.

22.02. Counterparts.

This Lease shall be executed in three (3) counterparts, each of which shall be deemed to be an original.

22.03. Headings.

The headings to the various Articles and Sections of this Lease have been inserted for convenient reference only and shall not modify, amend, or change the express terms and provisions of this Lease.

GENERAL LEASE TERMS AND CONDITIONS

ARTICLE 23 - DISPUTES

(a) Except as otherwise provided, this Lease is subject to the Contract Disputes Act of 1978 (41 U.S.C. §§ 601-613) ("the Act").

(b) Except as provided in the Act or in this Lease, all disputes arising under or relating to this Lease shall be resolved under this clause.

(c) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a

sum certain, the adjustment or interpretation of Lease terms, or other relief arising under or relating to this Lease. A claim arising under this Lease, unlike a claim relating to this Lease, is a claim which can be resolved under a Lease clause that provides for the relief sought by the claimant. However, a written demand or written assertion by Princeton seeking the payment of money exceeding \$50,000 is not a claim under the Act until certified as required by subparagraph (d)(ii) below. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d) (i) A claim by Princeton shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the Government against Princeton shall be subject to a written decision by the Contracting Officer.

(ii) For Princeton claims exceeding \$50,000, Princeton shall submit with the claim a certification that:

(A) The claim is made in good faith;

(B) Supporting data are accurate and complete to the best of Princeton's knowledge and belief; and

(C) The amount requested accurately reflects the contract adjustment for which Princeton believes the Government is liable.

(iii)(A) If Princeton is an individual, the certification shall be executed by that individual.

(B) The certification shall be executed by-

1. A senior company official in charge at Princeton's plant or location involved; or

2. An officer or general partner of Princeton having overall responsibility for the conduct of Princeton's affairs.

(e) For Princeton claims of \$50,000 or less, the Contracting Officer must, if requested in writing by Princeton, render a decision within 60 days of the request. For Princeton-

certified claims over \$50,000, the Contracting Officer must, within 60 days, decide the claim or notify Princeton of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless Princeton appeals or files a suit as provided by the Act.

(g) The Government shall pay interest on the amount found due and unpaid from (i) the date the Contracting Officer receives the claim (properly certified if required), or (ii) the date payment otherwise would be due, if that date is later, until the date of payment. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

ARTICLE 24 - OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Lease, or to any benefit arising from it. However, this clause does not apply to this Lease to the extent that this Lease is made with a corporation for the corporation's general benefit.

ARTICLE 25 - COVENANT AGAINST CONTINGENT FEES

Princeton warrants that no person or selling agency has been employed or retained to solicit or secure this Lease upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by Princeton for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this Lease without liability or in its discretion to deduct from the Annual Lease Charge, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee. (Licensed real estate agents or brokers having listings on property for rent, in accordance with general business practice, and who have not obtained such licenses for the sole purpose of effecting this Lease, may be considered as bona fide employees or agencies within the exception contained in this clause.)

ARTICLE 26 - AVAILABILITY OF FUNDS

The obligations and liabilities of the Government under this Lease shall be subject to the availability of appropriated funds. The Government agrees to use its best efforts to secure appropriations sufficient for payment of all obligations and liabilities hereunder.

ARTICLE 27 - EXAMINATION OF RECORDS BY COMPTROLLER GENERAL

(a) This clause applies if this Lease exceeds \$10,000 and was entered into by negotiation.

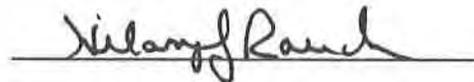
(b) The Comptroller General of the United States or a duly authorized representative from the General Accounting Office shall, until 3 years after final payment under this Lease or for any shorter period specified in Federal Acquisition Regulation (FAR) Subpart 4.7, Contractor Records Retention, have access to and the right to examine any of Princeton's directly pertinent books, documents, paper, or other records involving transactions related to this Lease.

(c) The periods of access and examination in paragraph (b) above for records relating to (i) appeals under the Disputes clause, (ii) litigation or settlement of claims arising from the performance of this Lease, or (iii) costs and expenses of this Lease to which the Comptroller General or a duly authorized representative from the General Accounting Office has taken exception shall continue until such appeals, litigation, claims, or exceptions are disposed of.

IN WITNESS WHEREOF, THE PARTIES HAVE EXECUTED THIS LEASE AGREEMENT.

UNITED STATES OF AMERICA

BY



Hilary J. Rauch

(Name)

Manager

Chicago Operations Office

(Title)

DATE

2/3/87

THE TRUSTEES OF PRINCETON UNIVERSITY

BY Neil L. Rudenstine

Neil L. Rudenstine
(Name)

Provost
(Title)

DATE 2/3/87

CERTIFICATE

I, Howard S. Ende, certify that I am the Assistant Secretary of THE TRUSTEES OF PRINCETON UNIVERSITY; that Neil L. Rudenstine, who signed this Lease on behalf of Princeton was then Provost of Princeton; and said Lease was duly signed for and in behalf of Princeton by authority of its governing body, and is within the scope of its powers.

Howard S. Ende
(Signature)

Corporate Seal

EXHIBIT H - GROUND WATER REMEDIAL ACTION

PERMIT NUMBER RAP170001



State of New Jersey

PHILIP D. MURPHY
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

CATHERINE R. MCCABE
Acting Commissioner

SHEILA Y. OLIVER
Lt. Governor

Site Remediation and Waste Management Program
Remediation Review Element
Bureau of Remedial Action Permitting
401 E. State Street
P.O. Box 420
Mail Code 401-05S
Trenton, NJ 08625-0420
Phone: (609) 984-2990

March 1, 2018

Treby Williams
Trustees of Princeton University
318 Nassau Hall, Princeton University
Princeton, NJ 08544

Jerry Levine
Princeton Plasma Physics Laboratory
P.O. Box 451, MS-01
Princeton, NJ 08543

RE: Ground Water Remedial Action Permit - Modification
Site: Princeton Plasma Physics Lab
A/K/A: DOE-Princeton Plasma Physics Lab; DOE-PPPL; PPPL
Address: 100 Stellarator Road
City: Plainsboro
County: Middlesex
SRP Program Interest #: 014853
Ground Water Remedial Action Permit #: RAP170001

Dear Ms. Williams and Mr. Levine:

Enclosed is a Ground Water Remedial Action Permit - Modification issued pursuant to the Site Remediation Reform Act, 58:10C-1 et seq. and the Administrative Requirements for the Remediation of Contaminated Sites at N.J.A.C. 7:26C-1 et seq. This permit becomes effective on March 6, 2018. Please note the referenced permit and program interest numbers and refer to them when corresponding with the Department. Also, please note that this permit replaces Ground Water Remedial Action Permit # RAP130001 due to updates to the CEA Fact Sheet, updates to the Ground Water Monitoring Plan, and to correct the Financial Assurance exemption for "Trustees of Princeton University".

The enclosed permit requires the permittee to conduct monitoring, maintenance and evaluation for compliance and effectiveness of the remedial action and its associated institutional control. The permit establishes all requirements necessary for demonstrating that the remedial action and control continue to be protective of public health, safety and the environment.

The Technical Requirements for Site Remediation (Technical Requirements) at N.J.A.C. 7:26E-1.8 define remediation to include a remedial action. The Technical Requirements further define

remedial action such that "... A remedial action continues as long as an engineering control or an institutional control is needed to protect the public health and safety and the environment, and until all unrestricted use remediation standards are met." Therefore, a person who is implementing a remedial action that includes an engineering or institutional control is conducting remediation, and that person is required to hire a licensed site remediation professional (LSRP) pursuant to the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS; see N.J.A.C. 7:26C-2.3(a) and (b)).

At all times, an LSRP is required to be retained for a case that has a Deed Notice, Classification Exception Area, Soil Remedial Action Permit, and/or Ground Water Remedial Action Permit until the remedial action(s) is no longer needed to protect the public health and safety and the environment, and until all unrestricted use remediation standards are met. The LSRP must be retained to operate, maintain, and monitor the institutional and/or engineering controls at the site, to ensure that the remedial action(s) remains protective of public health and safety and the environment, and to ensure compliance with the requirements of the Deed Notice, Classification Exception Area, Soil Remedial Action Permit, and/or the Ground Water Remedial Action Permit. This includes but is not limited to site inspections, ground water sampling, biennial submission of a Soil and/or Ground Water Remedial Action Protectiveness/Biennial Certification Form and Report, responding to any activities involving the institutional and/or engineering controls at the site, and responding to any public inquiries regarding the current status of the site. It is the responsibility of the LSRP certifying the Remedial Action Permit application to inform the Responsible Entity of the requirement regarding LSRP retention for a case that has a Soil and/or Ground Water Remedial Action Permit.

An LSRP may be retained or dismissed for a case that has an approved Soil and/or Ground Water Remedial Action Permit through the New Jersey Department of Environmental Protection online portal (www.nj.gov/dep/online/) by choosing the "LSRP Retention" or "LSRP Release" submission type selection option within the "LSRP Notification of Retention or Dismissal" service, and choosing the "Remedial Action Permit" activity in the case selection page. Please note that the Bureau of Remedial Action Permitting records the LSRP Retention for pending Remedial Action Permit Applications so there is no need to perform this function online. Also note that the LSRP Comprehensive Report (datamine2.state.nj.us/DEP_OPRA/OpraMain/categories?category=SRRA) now includes information pertaining to approved Soil and Ground Water Remedial Action Permits to which the LSRP is assigned.

Please be aware that there are annual fees associated with this permit in accordance with N.J.A.C. 7:26C-4.6. These annual permit fees will be handled by invoicing the fee billing contact we have on record:

Jerry Levine
Head, Environment, Safety & Health Department
Princeton Plasma Physics Laboratory
P.O. Box 451, MS-01
Princeton, NJ 08543
Phone: (609) 243-3439
Email: jlevine@pppl.gov

Any changes to this contact should be brought to the Department's attention. Changes to fee billing contacts are updates and are not considered modifications to the permit.

The Department looks forward to future continued cooperation in working together to provide a healthy environment for the citizens of New Jersey and to protect its resources. Going forward, questions or comments regarding this permit should be addressed to the Bureau of Remedial Action Permitting at (609) 984-2990, attention Robert Soboleski, Bureau Chief.

Sincerely,

A handwritten signature in black ink, appearing to read 'W. S. Hose', written in a cursive style.

William S. Hose, Assistant Director
Remediation Review Element

Enclosure

cc: Plainsboro Township Clerk (via email)
Middlesex County Clerk (via email)
Middlesex County Office of Health Services (via email)
Todd Huffman, LSRP (via email)

New Jersey Department of Environmental Protection



Bureau of Remedial Action Permitting
401 East State Street
P.O. Box 420
Mail Code 401-05S
Trenton, NJ 08625-0420
Phone #: (609) 984-2990

GROUND WATER REMEDIAL ACTION PERMIT
Active Ground Water Remediation
Modification

The New Jersey Department of Environmental Protection hereby grants you a Remedial Action Permit pursuant to N.J.S.A. 58:10C-1 et seq. and N.J.A.C. 7:26C-1 et seq. for the facility/activity named in this document. This permit is the regulatory mechanism used by the Department to help ensure your remedial action will be protective of human health and the environment.

This permit establishes the monitoring, maintenance, and evaluation requirements for determining the effectiveness of an on-going ground water remediation. The monitoring program for this site shall be consistent with the attached Ground Water Monitoring Plan. A Classification Exception Area/Well Restriction Area (CEA/WRA) has been established for the site and is consistent with the attached CEA/WRA Fact Sheet.

Site: Princeton Plasma Physics Laboratory
A/K/A: DOE-Princeton Plasma Physics Lab, DOE-PPPL, PPPL

| | |
|--|---|
| <p><u>Facility Address:</u></p> <p>100 Stellarator Road Plainsboro, NJ 08540 Middlesex County Block: 701, Lot: 23</p> | <p><u>Program Interest#:</u> 014853</p> <p><u>Permit#:</u> RAP170001 (Replaces RAP130001)</p> |
| <p><u>Person Responsible for Conducting the Remediation - Co-Permittee:</u></p> <p>Jerry Levine Head, Environment, Safety & Health Department Princeton Plasma Physics Laboratory P.O. Box 451, MS-01 Princeton, NJ 08543 Phone: (609) 243-3439 Email: jlevine@pppl.gov</p> <p style="text-align: right;">Primary Responsibility for Permit Compliance</p> | |
| <p><u>Property Owner - Co-Permittee:</u></p> <p>Treby Williams Executive Vice President, Princeton University Trustees of Princeton University 318 Nassau Hall, Princeton University Princeton, NJ 08544 Phone: (609) 258-7097 Email: trebyw@princeton.edu</p> | |

Issuance Date:
03/01/2018

Effective Date:
03/06/2018

I. Authority

The Department is issuing this permit in accordance with N.J.S.A. 58:10C-1 et seq. and N.J.A.C. 7:26C-1et seq.

II. Permit Requirements

A. GROUND WATER MONITORING REPORTING AND REQUIREMENTS

1. Reporting Requirements

a. The permittee shall submit a monitoring report in accordance with the schedule in the attached Ground Water Monitoring Plan. Submit the monitoring report with the Remedial Action Protectiveness/Biennial Certification Form biennially from the effective date of this permit. [N.J.A.C. 7:26C- 7.9(a)]

b. The permittee shall retain a LSRP for the Ground Water Remedial Action Permit until the remedial action is no longer needed to protect the public health and safety and the environment, and until all unrestricted use remediation standards are met. The LSRP must be retained to operate, maintain, and monitor the institutional and/or engineering controls at the site, to ensure that the remedial action remains protective of public health and safety and the environment, and to ensure compliance with the requirements of the Ground Water Remedial Action Permit. This includes but is not limited to site inspections, ground water sampling, biennial submission of a Ground Water Remedial Action Protectiveness/Biennial Certification Form and Report, responding to any activities involving the institutional and/or engineering controls at the site, and responding to any public inquiries regarding the current status of the site. [N.J.A.C. 7:26C- 2.3(a and b)]

2. Sampling and Analysis

a. Sampling is to occur according to the applicable method(s) obtained from the Field Sampling Procedures Manual (the sampling method is noted in the site-specific Quality Assurance Performance Plan). [N.J.A.C. 7:26E- 2.1]

b. Samples are to be analyzed for the parameters listed in the attached Ground Water Monitoring Plan using the method or most recent revision of the method noted in the site-specific Quality Assurance Performance Plan. The method chosen must have adequate sensitivity to meet all applicable remediation standards/screening levels. The permittee shall collect and analyze samples pursuant to the attached Ground Water Monitoring Plan. [N.J.A.C. 7:26E- 2.1]

B. REMEDIAL ACTION PROTECTIVENESS/BIENNIAL CERTIFICATION FORM

1. Reporting Requirements

a. The permittee shall prepare and submit to the Department a Remedial Action Protectiveness/Biennial Certification Form every two years following the anniversary of the date of the effective date of this permit. The certification shall be submitted on the required form provid-

ed by the Department. Submit a Remedial Action Protectiveness/Biennial Certification Form biennially from the effective date of this permit. [N.J.A.C. 7:26C- 7.7(a)1]

2. Evaluation Requirements

a. The permittee shall hire a Licensed Site Remediation Professional to prepare and certify that the remedial action continues to be protective of the public health and safety and the environment. [N.J.A.C. 7:26C- 1.5(a)2]

b. The permittee shall conduct the remediation in accordance with all applicable statutes, rules, and guidance. [N.J.A.C. 7:26C- 1.2(a)]

c. The Remedial Action Protectiveness/Biennial Certification Form shall include a comparison of the laws, Ground Water Quality Standards, and other regulations applicable at the time the Department established the ground water classification exception area, with any relevant subsequently promulgated or modified laws or regulations to determine whether the classification exception area remains protective. The results shall be provided in table format, comparing of applicable laws, regulations, and standards. [N.J.A.C. 7:26C- 7.9(b)2]

d. The Remedial Action Protectiveness/Biennial Certification Form shall include an evaluation of whether there are any planned changes within a 25-year water use planning horizon for the aquifer(s) in which the ground water classification exception area is located since the Department established the ground water classification exception area or the last completed biennial review, whichever is more recent. [N.J.A.C. 7:26C- 7.9(b)3]

e. The Remedial Action Protectiveness/Biennial Certification Form shall include an evaluation of whether there have been any actual changes in the ground water use since the Department established the ground water classification exception area or the last completed biennial review. The results of the evaluation of the changes in ground water use include a scaled map identifying all wells and/or waterlines found within one mile from any part of the boundaries of the ground water classification exception area. [N.J.A.C. 7:26C- 7.9(b)4]

f. The permittee shall maintain a maintenance and evaluation log for each monitoring well used to establish the ground water classification exception area. The log shall include a description of any well damage or vandalism identified or repairs completed. If any of the damage resulted in the decommissioning of a well, provide a copy of the Well Abandonment Report. [N.J.A.C. 7:26C- 7.9(b)5]

g. The Remedial Action Protectiveness/Biennial Certification Form shall include an evaluation of any land use disturbance that may intercept the water table within the area of the ground water classification exception area that could result in a contaminated discharge to surface water. If any such disturbances are identified, sample the ground water/surface water down-gradient and proximate to the land use disturbance to determine whether the ground water meets the more stringent of either: (1) The New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B; or (2) The Federal Surface Water Quality Criteria, 40 CFR Part 131. [N.J.A.C. 7:26C- 7.9(b)6]

h. The Remedial Action Protectiveness/Biennial Certification Form shall include an evaluation of the fate and transport of the ground water contamination plume, including any additional remediation conducted, modification of the remedial action, or proposed revision of the ground water classification exception area, and apply for a modification of the Ground Water

Remedial Action Permit to ensure that the remedial action remains protective of the public health and safety and the environment. [N.J.A.C. 7:26C- 7.9(b)7i and (d)2]

i. The permittee shall evaluate any changes in property use that may increase the risk of vapor intrusion from volatile ground water contaminants. [N.J.A.C. 7:26C- 7.9(b)7ii and (d)2]

j. Within 180 calendar days after the anticipated expiration date of the ground water classification exception area, the permittee shall collect at least two rounds of ground water samples such that the time between sampling events accounts for seasonal fluctuations in the ground water table and the number of ground water samples collected is representative of the entire horizontal and vertical extent of the ground water classification exception area. If ground water samples indicate that contaminant concentrations have decreased to or below the applicable ground water quality standards throughout the ground water classification exception area, then the permittee may request that the Department remove the ground water classification exception area pursuant to N.J.A.C. 7:26C-7.3(g) and terminate the Ground Water Remedial Action Permit pursuant to N.J.A.C. 7:26C-7.13. If ground water samples indicate that contaminant concentrations have not decreased to or below the applicable ground water quality standards throughout the ground water classification exception area, then the permittee shall modify the remedial action by re-modeling the fate and transport of the ground water contaminant plume, proposing a revision to the ground water classification exception area, and applying for a modification of the Ground Water Remedial Action Permit pursuant to N.J.A.C. 7:26C-7.12. [N.J.A.C. 7:26C- 7.9(f)]

C. FINANCIAL ASSURANCE REQUIREMENTS

1. Government Entity

a. The person responsible for the remediation and the property owner(s) certified that the permittees are a government entity exempted from establishing financial assurance pursuant to N.J.S.A. 58:10C19.c(2). [N.J.A.C. 7:26C- 7.10(c)1]

2. Innocent Purchaser

a. The person responsible for the remediation and the property owner certified that the permittees are not liable pursuant to the Spill Act, purchased the contaminated property before May 7, 2009, and therefore exempted from the requirement to establish financial assurance pursuant to N.J.S.A. 58:10C-19.c(2). [N.J.A.C. 7:26C- 7.10(c)2]

D. FEES

1. For each year hereafter on the anniversary of the effective date of this permit, the Department shall invoice the permittees the amount of the annual Remedial Action Permit Fee. [N.J.A.C. 7:26C- 4.6]

E. PERMIT TRANSFERS

1. The permittee shall, at least 60 days prior to the sale or transfer of the property, or transfer of the operation of the property, or termination of a lease, submit a Remedial Action Permit Transfer/Change of Ownership Application and pay the permit transfer fee to the Department. [N.J.A.C. 7:26C- 7.11(b)]

F. PERMIT MODIFICATIONS

1. Ground Water Permit Modifications

- a. The permittee shall apply to have the Department modify a Remedial Action Permit within 30 days after a statement that the permittee has completed a protectiveness evaluation required in its permit and has determined that the remedial action is not adequately protective of the public health and safety and of the environment, and stating the reasons for coming to this conclusion. [N.J.A.C. 7:26C- 7.12(b)1]
- b. The permittee shall apply to have the Department modify a Remedial Action Permit within 30 days after the size, duration, or contaminants of a classification exception area need to be modified. [N.J.A.C. 7:26C- 7.12(b)2]
- c. The permittee shall apply to have the Department modify a Remedial Action Permit within 30 days after the person responsible for conducting the remediation modifies the remedial action. [N.J.A.C. 7:26C- 7.12(b)4]
- d. The permittee shall apply to have the Department modify a Remedial Action Permit within 30 days after the permittee changes its address. [N.J.A.C. 7:26C- 7.12(b)6]

G. PERMIT TERMINATIONS

1. A request for a permit termination can be filed by submitting a Remedial Action Permit Application to terminate the permit to the Department when the remedial action meets all applicable remediation standards without the need for the Remedial Action Permit and the remedial action is protective of the public health and safety and of the environment without the presence of the Remedial Action Permit. [N.J.A.C. 7:26C- 7.13]

H. FORM SUBMITTAL

1. Any forms, applications or documents required by this chapter that can be submitted in an electronic format shall be submitted electronically 90 days after the date that the Department informs the public in the New Jersey Register that the relevant electronic application is functional. [N.J.A.C. 7:26C- 1.6(c)]
2. All submissions required pursuant to this permit shall be made on forms approved and available from the Department. These forms and instructions for completing these forms can be found at <http://www.nj.gov/dep/srp/srra/forms>. [N.J.A.C. 7:26C- 1.6]

III. Permit Schedule

| Permit Effective Date: 03/06/2018 | |
|---|-----------------|
| Submission Requirement | Due Date |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2019 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2021 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2023 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2025 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2027 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2029 |

| | |
|---|------------|
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2031 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2033 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2035 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2037 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2039 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2041 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2043 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2045 |
| Submit a Remedial Action Protectiveness/Biennial Certification Form | 08/27/2047 |

Note: Remedial Action Protectiveness/Biennial Certification Forms are required to be submitted according to the schedule, and shall continue to be submitted until the Permit is terminated or modified.

Your Ground Water Remedial Action Permit under Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C-1 et seq. has been approved by the New Jersey Department of Environmental Protection.

Sincerely,



Date: March 1, 2018

William S. Hose, Assistant Director
Remediation Review Element

IV. Attachments:

- A. CEA/WRA Fact Sheet
 - B. Ground Water Monitoring Plan
- CEA ID: CEA154167
Block: 701, Lot: 23

Attachment A

Classification Exception Area/Well Restriction Area Fact Sheet

Case Information:

| | |
|----------------------|---------------------------------------|
| Preferred Id: | 014853 |
| RAP Number: | RAP170001 |
| Case Name: | Princeton Plasma Physics Laboratories |
| Address: | 100 Stellarator Rd Plainsboro |
| County: | Middlesex |

--- Site Location: Refer to Exhibit A ---

Block and Lot of the CEA:

| <u>Subject Item</u> | <u>Block</u> | <u>Lot</u> | <u>Municipality</u> | <u>Off-Site</u> |
|---------------------|--------------|------------|---------------------|-----------------|
| CEA100154167 | 701 | 23 | Plainsboro | No |

Facility Contacts:

| | |
|--|--|
| <u>Co-Permittee:</u> Person Responsible for Conducting the Remediation: | Jerry Levine Head, Environmental, Safety & Health Department Princeton Plasma Physics Laboratory P.O. Box 451, MS-01 Princeton, NJ 08543 Phone: (609) 243-3439 Email: jlevine@pppl.gov Primary Responsibility for Permit Compliance |
| <u>Co-Permittee:</u> Property Owner: | Treby Williams Executive Vice President, Princeton University Trustees of Princeton University 318 Nassau Hall, Princeton University Princeton, NJ 08544 Phone: (609) 258-7097 Email: trebyw@princeton.edu |

CEA Information:

| <u>Subject Item</u> | <u>Description</u> |
|----------------------------|---|
| CEA100154167 | The CEA is located entirely on-site, and its extent is limited by on-site hydraulic control through the active building pumping system. Ground water flow direction is to the east, and the horizontal extent of the CEA is approximately 35.55 acres |

| <u>Subject Item</u> | <u>Affected Aquifer</u> | <u>Vertical Depth</u> |
|----------------------------|--------------------------------|------------------------------|
| CEA100154167 | Stockton | 100 |

| <u>Subject Item</u> | <u>Classification</u> |
|----------------------------|------------------------------|
| CEA100154167 | II-A |

Contaminants:

This CEA/WRA applies only to the contaminants listed in the table below. All constituent's standards (N.J.A.C. 7:9C-1.6) apply at the designated boundary.

| <u>Subject Item</u> | <u>Contaminant</u> | <u>Concentration (1)</u> | <u>GWQS (2)</u> |
|----------------------------|---------------------------|---------------------------------|--------------------------|
| CEA100154167 | 1,4-Dioxane | 1.17 Micrograms Per Liter | 0.4 Micrograms Per Liter |
| CEA100154167 | Tetrachloroethylene | 90.6 Micrograms Per Liter | 1 Micrograms Per Liter |
| CEA100154167 | Trichloroethylene | 24.3 Micrograms Per Liter | 1 Micrograms Per Liter |
| CEA100154167 | Vinyl chloride | 1.16 Micrograms Per Liter | 1 Micrograms Per Liter |

Note: (1) Maximum concentration detected at the time of CEA establishment
(2) Ground Water Quality Standards

--- CEA Boundaries: Refer to Exhibit B ---

Projected Term of CEA:

| <u>Subject Item</u> | <u>Date Established</u> |
|----------------------------|--------------------------------|
| CEA100154167 | 5/12/2003 |

| <u>Subject Item</u> | <u>Duration in Years</u> |
|----------------------------|---------------------------------|
| CEA100154167 | Indeterminate |

Note: Since ground water quality data indicates exceedance of contaminants above the Primary Drinking Water Standards, and the designated uses of Class II-A aquifers include potable use, the CEA established for this site is also a Well Restriction Area. The extent of the Well Restriction Area shall coincide with the boundaries of the CEA.

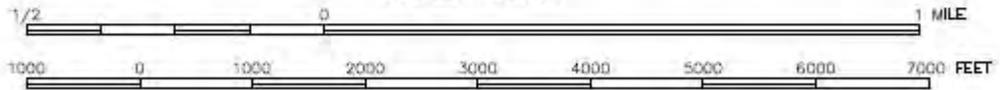
Well Restrictions set within the boundaries of the CEA

| <u>Subject Item</u> | <u>Restriction</u> |
|----------------------------|--|
| CEA100154167 | <u>Double Case Wells</u> : With the exception of monitoring wells installed into the first water bearing zone, any proposed well to be installed within the CEA/WRA boundary shall be double cased to an appropriate depth in order to prevent any vertical contaminant migration pathways. This depth is either into a confining layer or 50 feet below the vertical extent of the CEA. |
| CEA100154167 | <u>Evaluate Production Wells</u> : Any proposed high capacity production wells in the immediate vicinity of the CEA/WRA should be pre-evaluated to determine if pumping from these wells would draw a portion of the contaminant plume into the cone of capture of the production wells or alter the configuration of the contaminant plume. |
| CEA100154167 | <u>Sample Potable Wells</u> : Any potable well to be installed within the footprint of the CEA/WRA shall be sampled annually for the parameters of concern. The first sample shall be collected prior to using the well. If contamination is detected, contact your local Health Department. If the contamination is above the Safe Drinking Water Standards, then the NJDEP Hot Line should be called. Treatment is required for any well that has contamination above the Safe Drinking Water Standards. |

Exhibit A: Site Location Map



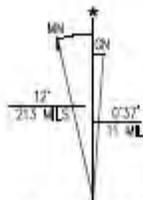
SCALE 1:24000



CONTOUR INTERVAL 20 FEET

SOURCE:

U.S.G.S. 7.5
MINUTE SERIES
HIGHTSTOWN
QUADRANGLE - NJ



UTM GRID AND 1981 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SITE LOCATION MAP

BLOCK 701, LOT 23
PLAINSBORO, NEW JERSEY

PREPARED FOR
PRINCETON PLASMA PHYSICS LABORATORY

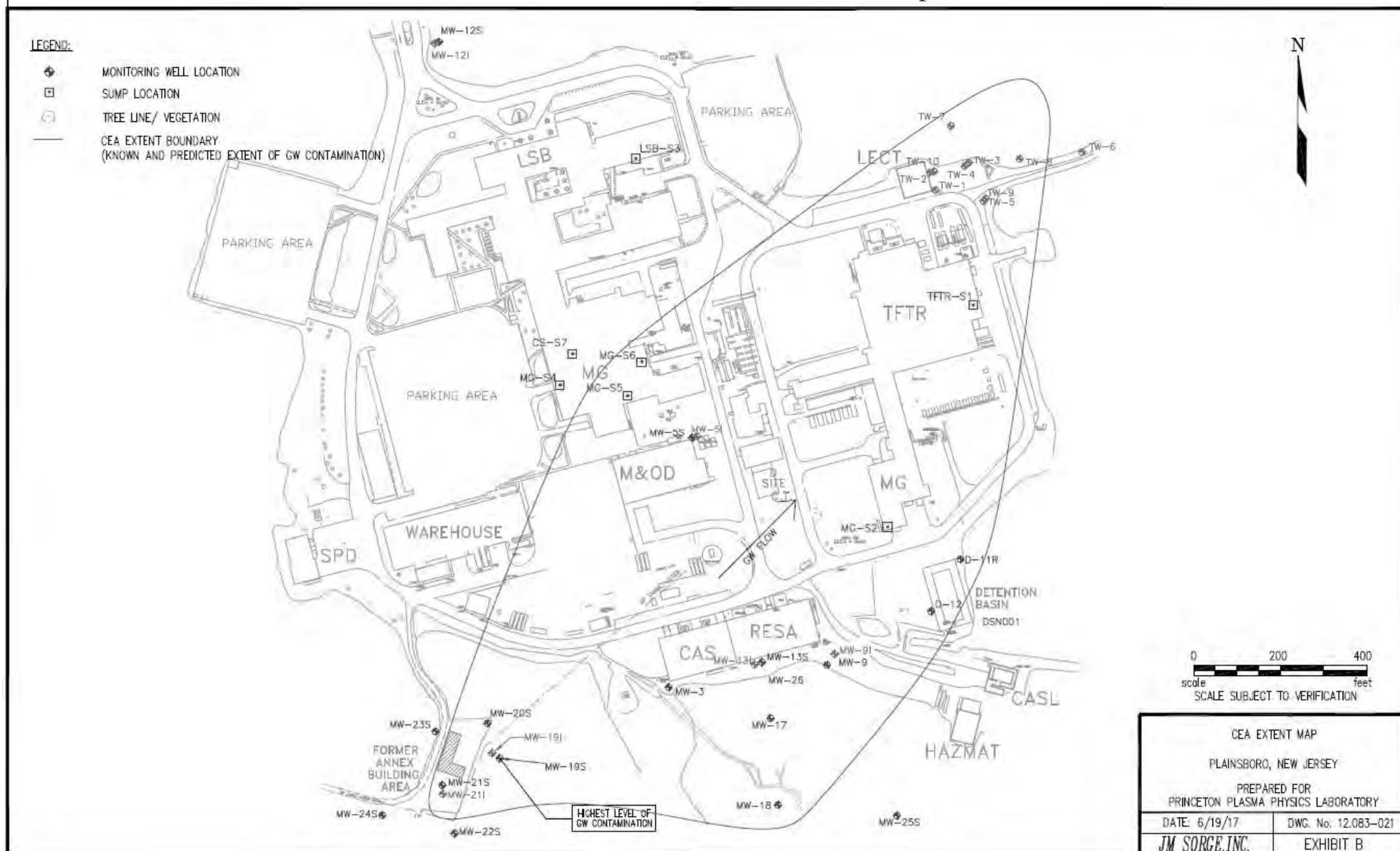
DATE: 03/31/14

DWG. No. 12.083-001

JM SORGE, INC.

EXHIBIT A

Exhibit B: CEA/WRA Location Map



Attachment B
Ground Water Monitoring Plan for
Ground Water Remedial Action Permit

Case Information:

| | |
|-----------------------------------|---------------------------------------|
| Preferred ID: | 014853 |
| RAP Number: | RAP170001 |
| Case Name: | Princeton Plasma Physics Laboratories |
| Address: | 100 Stellarator Road |
| City: | Plainsboro |
| County: | Middlesex County |
| Block and Lot of the Site: | Block: 701, Lot: 23 |

Monitoring Schedule:

| Well to be sampled | Type of Well | Easting | Northing | Sampling Schedule | Reporting Schedule | Sampling parameters for each well |
|---------------------------|----------------------|----------------|-----------------|--------------------------|---------------------------|--|
| MW3S | Area of Concern | 463675.92 | 551247.7 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW5I | Area of Concern | 463746.26 | 551824.37 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW5S | Area of Concern | 463730.78 | 551824.39 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW9S | Area of Concern | 464039.87 | 551297.87 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MS12S | Sentinel | 463151.2 | 552746.84 | Annually | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW13I | Area of Concern | 463848.64 | 551301.13 | Annually | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW13S | Area of Concern | 464225.68 | 551297.66 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW17 | Area of Concern | 463916.63 | 551179.63 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW18 | Plume Sampling Point | 463933.43 | 550979.26 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW19I | Area of Concern | 463307.2 | 551082.18 | Annually | Biennially | Chlorinated Organics 1,4-Dioxane |
| MW19S | Area of Concern | 463022.89 | 550948.95 | Quarterly | Biennially | Chlorinated Organics 1,4-Dioxane |

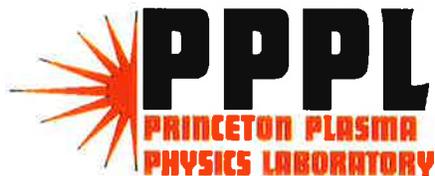
| | | | | | | |
|-------|----------------------|-----------|-----------|-----------|------------|----------------------|
| MW22S | Plume Sampling Point | 463207.88 | 550900.16 | Annually | Biennially | Chlorinated Organics |
| | | | | | | 1,4-Dioxane |
| MW23S | Plume Sampling Point | 463147.77 | 551138 | Annually | Biennially | Chlorinated Organics |
| | | | | | | 1,4-Dioxane |
| MW24S | Plume Sampling Point | 463895.86 | 551302.09 | Annually | Biennially | Chlorinated Organics |
| | | | | | | 1,4-Dioxane |
| MW25S | Plume Sampling Point | 464140.32 | 551123.72 | Quarterly | Biennially | Chlorinated Organics |
| | | | | | | 1,4-Dioxane |

EXHIBIT I - 2000 REMEDIAL ACTION WORKPLAN

REMEDIAL ACTION WORK PLAN

PRINCETON PLASMA PHYSICS LABORATORY
PLAINSBORO, NEW JERSEY

MAY, 2000



Operated for the U.S. Department of Energy by Princeton University.

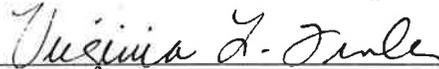
REMEDIAL ACTION WORK PLAN

PRINCETON PLASMA PHYSICS LABORATORY
PLAINSBORO, NEW JERSEY

MAY, 2000



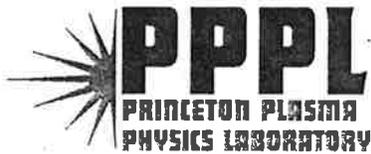
Prepared by: Robert S. Sheneman, P.G.
Manager, Environmental Restoration



Reviewed by: Virginia L. Finley
Manager, Environmental Compliance



Reviewed by: Scott B. Larson
Head, Environmental Restoration & Waste Management Division



Operated for the U.S. Department of Energy by Princeton University.

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|------------|--|

1.0 EXECUTIVE SUMMARY

This Remedial Action Work Plan (RAWP) describes the measures to be used by Princeton Plasma Physics Laboratory (PPPL) to implement the selected remedy for ground water contamination at the PPPL site. It discusses the facility history and operations, the remedial investigation conducted at PPPL, the remediation standards, the remedy implementation, and the data evaluation and reporting requirements.

PPPL is a collaborative national center for plasma and fusion science, operated by Princeton University for the U.S. Department of Energy. The primary experimental focus of PPPL is magnetic-confinement fusion energy and plasma science and technology.

PPPL conducted a remedial investigation and remedial actions to address soil and ground water contamination at the site. The New Jersey Department of Environmental Protection (NJDEP) Bureau of State Case Management oversaw this project under a Memorandum of Understanding (MOU) between Princeton University and NJDEP. The environmental restoration project has remediated two small areas of soil and sediment contamination and has characterized the site-wide hydrogeologic conditions. The primary contaminants of concern are chlorinated volatile organic compounds (VOCs), primarily tetrachloroethene (PCE), trichloroethene (TCE) and their natural degradation products. A No Further Action determination for soil contamination was issued by NJDEP on March 28, 2000. The Remedial Investigation and Remedial Action Selection Reports were approved by NJDEP in a letter dated March 17, 2000.

The selected remedy for ground water contamination relies on PPPL's building foundation drainage system to control and extract contaminated ground water. Because several large experimental facilities (primarily on D-Site) were constructed below natural ground water levels, foundation drains and sumps are an integral part of these structures. Foundation drains flow to sumps in the basements of the TFTR and D-Site MG Buildings (see Figure 2). Water is pumped from these sumps to the storm sewer system which discharges to the on-site detention basin. The outfall of this basin is regulated and monitored under PPPL's New Jersey Pollutant Discharge Elimination System – Discharge to Surface Water (NJPDES-DSW) permit. In addition to hydraulic containment and ground water extraction provided by the building foundation drains, natural attenuation processes help to remediate the site by degrading contaminants into non-toxic byproducts.

This RAWP discusses the continued operation of PPPL's building foundation drains, which contain and extract contaminated ground water, and the long-term ground water monitoring program. Because the foundation drainage system is integral to the building structure, its continuous operation is critical to protect the buildings. Each sump has two pumps (primary and backup) that are connected to regular and backup electrical supplies. Each sump is equipped with a high-level alarm that is monitored by PPPL's Security Office. The Security Office is staffed 24 hours-per-day. Quarterly ground water monitoring will be conducted in selected wells for an initial period of two years. In addition to VOCs, several natural attenuation indicator parameters will be monitored, as recommended in the U.S. Environmental Protection Agency's *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* (USEPA, 1998). Monitoring well sampling will be conducted using low-flow techniques (see Appendix A). Quarterly monitoring results will be compared after two consecutive years of monitoring as required by N.J.A.C. 7:26E-6.3(e). After this two-year period, PPPL may request NJDEP to allow monitoring on a semi-annual schedule. PPPL will submit annual monitoring reports, documenting the sampling and data evaluation, to the NJDEP Bureau of Case Management.

2.0 INTRODUCTION

2.1 Facility History and Operations

The U.S. Department of Energy (DOE) Princeton Plasma Physics Laboratory (PPPL) is a collaborative national center for plasma and fusion science. Its primary mission is to develop the scientific understanding and key innovations leading to an attractive fusion energy source. Associated missions include conducting world-class research along the broad frontier of plasma science and providing the highest quality of scientific education.

PPPL is located on Princeton University's James Forrestal Campus in Plainsboro Township, Middlesex County (see Figure 1). It occupies approximately 88 acres of land that is leased to DOE by Princeton University. Princeton University operates PPPL under contract to DOE. The primary experimental focus of PPPL is magnetic-confinement fusion energy and plasma science and technology.

Magnetic fusion research at Princeton began in 1951 as a classified project named Project Matterhorn. Lyman Spitzer, Jr., Professor of Astronomy at Princeton University, had for many years been involved in the study of very hot rarefied gases in interstellar space. Inspired by the fascinating but highly exaggerated claims of fusion researchers in Argentina, Professor Spitzer conceived of plasma being confined in a figure-eight-shaped tube by an externally generated magnetic field. He called this concept the "stellarator," and took this design before the Atomic Energy Commission in Washington. As a result of this meeting and a review of the invention by designated scientists throughout the nation, the stellarator proposal was funded and Princeton University's controlled fusion effort was born. In 1958, magnetic fusion research was declassified allowing all nations to share their results openly. For the past three decades, PPPL has been a leader in magnetic confinement experiments utilizing the tokamak approach. This work culminated in the world-record performance of the Tokamak Fusion Test Reactor (TFTR), which operated at PPPL from 1982 to 1997. Beginning in 1993, TFTR was the first fusion reactor in the world to use 50% mixtures of deuterium and tritium, yielding an unprecedented 10.7 million watts of fusion power. PPPL researchers are now leading work on an advanced fusion device — the National Spherical Torus Experiment — and are developing other innovative magnetic fusion concepts. PPPL scientists are collaborating with researchers on fusion science and technology at other facilities, both domestic and foreign. PPPL staff members are applying the knowledge gained in fusion research to a number of theoretical and experimental areas including materials science, solar physics, chemistry, and manufacturing.

Facilities on the site consist of laboratory and experimental spaces, maintenance shops, a central steam plant, administrative offices, educational facilities, electrical equipment yards, material storage areas, and other miscellaneous buildings and trailers.

2.2 Remedial Investigation Summary

PPPL has completed a site-wide Remedial Investigation (RI) under an MOU with NJDEP, overseen by NJDEP's Site Remediation Program. Investigation and remediation efforts included soil sampling and remediation, ground water screening, monitoring well installation, rock coring and ground water sampling. Results from four phases of investigation and remediation are documented in reports submitted to NJDEP (HLA, 1997 and 1998; and PPPL, 1999).

Two small areas of soil and sediment contamination where chromium and base-neutral organic compounds exceeded NJDEP standards were remediated by excavation and off-site treatment/disposal.

Soil sampling in the remaining seven Areas of Concern (AOCs) did not detect contaminants at concentrations above the most stringent NJDEP Soil Cleanup Criteria (HLA, 1997).

Seven underground petroleum storage tanks (USTs) were removed or closed in-place under NJDEP oversight in 1994 and 1995. Contaminated soil was excavated and recycled into asphalt paving at an off-site treatment plant. All final soil-sampling results were below the most stringent NJDEP Soil Cleanup Criteria (HLA, 1997). On March 28, 2000, NJDEP issued a No Further Action (NFA) determination for soil contamination at PPPL for areas addressed during the remedial investigation and UST closures (NJDEP, 2000a).

The RI also addressed the presence of chlorinated solvents (PCE, TCE and their natural breakdown products) in the ground water. It included the installation and sampling of 14 new monitoring wells (for an on-site total of 45 monitoring wells) and it identified a new AOC in the Former Annex Building Area (FABA) southwest of the Coil Assembly and Storage/Research Equipment Storage Area (CAS/RESA) Buildings (see Figure 2). The Former Annex Building dates back to before World War II and has been used for various purposes by various tenants. In the 1970s and 1980s, PPPL used a portion of this building for the storage of hazardous materials and hazardous wastes. The building was demolished in 1989.

The Former Annex Building Area has been identified as the primary source area for chlorinated solvents found in the ground water at PPPL. Contaminated ground water flows, in the weathered shallow bedrock, from the Former Annex Building northeast toward CAS/RESA where it is captured by the large cone of depression caused by the D-site building drain system. Contaminated ground water is captured by the D-site MG Building and TFTR Building foundation drain sumps and pumped to the on-site detention basin. Monitoring conducted under PPPL's NJPDES-DSW permit has routinely detected PCE and TCE in the basin inflows, but not in the basin outfall (DSN001). The current DSW permit requires quarterly monitoring of the outfall for PCE.

In the Former Annex Building Area and in downgradient portions of the aquifer, contaminants degrade into less toxic compounds. Sampling conducted during the RI demonstrated that contaminated ground water is effectively captured by the building drain system and that aquifer conditions allow for the natural degradation of contaminants. In October 1999, PPPL submitted a Remedial Action Selection Report (RASR). The RASR documented site conditions and recommended a remedy that utilizes the on-site pumping for containment and removal of contaminated ground water while allowing natural attenuation processes to reduce the contaminant mass. In a letter dated March 17, 2000 NJDEP approved the final Remedial Investigation and Remedial Action Selection Reports (NJDEP, 2000b).

3.0 SITE SETTING

3.1 Physical Setting

The Princeton Plasma Physics Laboratory (PPPL) is located in the northeastern portion of the Princeton University's James Forrestal Campus in Plainsboro Township, Middlesex County. The site is approximately 88 acres in size (Figure 1). The facility is surrounded by forests and wetlands to the north, east, and south, and by forest and agricultural fields to the west. There are no buildings or occupied structures located within 600 feet of the facility.

C-Site consists of approximately 70 acres and is located on the north, west, and south portions of the combined C- and D-Sites. Access to C-Site is via a guarded entrance located along the main road of the campus. No other access restrictions exist around the C-Site. D-Site occupies approximately 18 acres of the east-central portion of the combined sites. D-Site is completely enclosed by an 8-foot-high chain link fence. Access to this area is controlled by PPPL's Site Protection Division.

The site is located in the Piedmont physiographic province within a few miles of the Fall Line separating the Piedmont and Coastal Plain provinces. Drainage from the facility is predominantly to a stormwater detention basin located near the southeast corner of the site. The detention basin drains into Ditch 5, which flows into Bee Brook (Figure 2), a small freshwater perennial stream located along the facility's eastern edge. Surface drainage from the southwest corner of the site flows to an onsite drainage swale, which flows to an unnamed tributary of Bee Brook. Bee Brook discharges to Devils Brook, a tributary of the Millstone River, approximately 3/4 of a mile southeast of the site. No other surface water bodies are located within 1/2 mile of the site (see Figure 1).

3.2 Geology

The geology of the site may be divided into three distinct units: an overburden layer, weathered bedrock and competent bedrock (HLA, 1998). A thin layer of soil and unconsolidated Quaternary surficial deposits overlie the bedrock to an average depth of approximately 10 feet across the site. In borings and wells installed during site investigations, reddish-brown silt and orange-brown or light yellow brown silty, fine sand was typically encountered. A transition zone of weathered bedrock (the uppermost portion of bedrock) is found between the overburden layer and competent bedrock. The weathered bedrock has an average thickness of approximately 10 feet, but has been observed to be as much as 40 feet thick in some locations. This layer is characterized by heavily weathered rock with fracture and primary porosity filled by weathering/mineralization products. The thickness of the weathered bedrock zone appears to be a function of lithology, as the sandstones of the Stockton Formation will weather much deeper than the siltstones. Below the weathered bedrock layer lies a more competent bedrock layer. Within upper portions of this unit, fractures are typically more developed and exhibit a greater degree of weathering than those observed at greater depth. The frequency of fracturing and degree of weathering typically decreases with depth, although highly fractured zones have been reported at depths greater than 200 feet (Lewis and Spitz, 1987).

The bedrock immediately underlying the site is the Triassic age Stockton Formation, which is part of the Newark Supergroup. These rocks were formed within the Newark Basin, part of the Piedmont Physiographic Province. Within the study area, the Stockton formation is composed primarily of reddish-brown siltstone and mudstone and light gray to light yellow-brown fine sandstone. These rock types were encountered during boring and well installation at the site. These two lithologies are interbedded on a scale ranging from a few inches to several feet. The bedding attitude of the bedrock within the study area appears to be consistent with the regional strike of approximately N50°E to N65°E, with dips varying

between approximately 1° to 8° to the northwest. No marker beds or horizons have been identified in the study area during the site investigations. The Stockton Formation is typically well-fractured with bedding plane fractures and several sets of joints. The geologic conditions appear to be generally uniform throughout the study area. No folding or faulting of the local bedrock has been observed.

The primary fracture pattern of the bedrock includes systematic high-angle joints oriented perpendicular to the direction of bedrock strike. The formation also contains a set of secondary joints with an average trend that is conjugate, or sub-perpendicular, to the principal joints and another set that is sub-parallel to bedding. These joints add to the fracture porosity of the bedrock and, along with bedding, provide interconnection between principal joints. During coring, numerous horizontal fractures and high-angle (near vertical) fractures were observed. Many of the fractures observed were partially filled with decomposed rock or mineral deposits. The bedrock of the site is sparsely to moderately fractured with some intervals exhibiting intense fracturing. Surficial expressions of large fractures (fracture traces) were not observed in the available aerial photographs reviewed.

3.4 Hydrogeology

Groundwater is typically first encountered in the uppermost portion of competent bedrock near the interface with the weathered bedrock zone, although the water table can be found at some locations, particularly the southern portion of the site, within the weathered zone. The wells monitoring the shallow groundwater generally have been completed across this interface zone. Wells monitoring the intermediate-depth groundwater have been completed solely within the deeper, competent bedrock. Although the hydraulic head differs slightly between the shallow and intermediate-depth groundwater zones, the two zones appear to be hydraulically connected. Groundwater is not generally encountered within the overburden zone onsite, with the exception of the thin overburden layer found in the wetlands area south of CAS/RESA. Higher-than-normal water levels are also found in the area just south of the Maintenance and Operations Division Building (M&OD), near a former UST excavation that was backfilled and paved in the early 1990s. Although the cause of these higher groundwater elevations is uncertain, well yield during sampling is less at the M&OD area wells than in other areas of the site; therefore, the higher groundwater elevations may be attributable to relatively lower hydraulic conductivity of the shallow bedrock and overburden in the M&OD area.

Hydraulic conductivity within the intermediate zone of the bedrock aquifer at the C/D sites was reported by Lewis and Spitz (1987) to average 3.5 feet per day. This is at the low end of the hydraulic conductivity range of 0.6 feet per day to 13 feet per day reported region-wide for the Stockton Formation by the New Jersey Geologic Survey (NJGS, 1994). The average hydraulic conductivity value for the shallow groundwater zone should be somewhat higher than the intermediate zone because of a greater average density of fractures. Pumping and recharge data from well purging during groundwater sampling events indicates that hydraulic conductivity is locally variable both areally and vertically. Bedrock fracturing within the shallow groundwater zone appears to have sufficient frequency and interconnection for the shallow groundwater zone to behave as an equivalent anisotropic porous medium. The intermediate groundwater zone is more likely to resemble a true fracture flow system.

In the PPPL study area, groundwater flows through the fracture network within the shallow bedrock. Inter-granular flow appears to be very minor. Because the fractures through which groundwater flows are not uniform in either orientation or size, the rates of groundwater flow and the direction of local groundwater flow are variable, thus groundwater flow within the study area is anisotropic. Evidence of preferential groundwater flow has been observed at cores collected in the FAB and CAS/RESA areas. For example, at the MW-21I borehole, sections of medium-grained sandstone exhibited deep weathering and grain cement degradation or disintegration near 37 feet below ground surface (bgs), indicating a more

transmissive zone. Given the strike orientation of the primary joint set, this fracture feature is most likely the predominant groundwater flow pathway under natural conditions.

The groundwater flow system of the site was not under natural flow conditions during the period of site investigation because the various building foundation drain systems have continuously operated since the time of building construction. Foundation drains and sump pumps were installed so that groundwater levels around the TFTR, C- and D-Site MG, and LSB buildings could be maintained below the building foundation elevations. The pumping of an average 217 gallons per minute (pumping rate range of 135 to 270 gallons per minute) has created a large cone of depression at the site centered around the TFTR and other Site D buildings. This has in turn caused a generally radial groundwater flow pattern to develop towards the foundation drains. Some areas of the site are influenced more strongly than are other areas; however, the majority of shallow groundwater onsite is captured by the foundation dewatering system.

The two sumps in operation on D-Site exhibit the greatest influence on groundwater flow because of the depth of these buildings' foundations. The shallow groundwater elevation contours are concentric around the two D-Site sumps (TFTR-S1 and MG-S2). The potentiometric surface is steeper near the D-Site sumps indicating the strong influence created by this dewatering system. The wetland area south of the CAS/RESA and Hazardous Materials Storage (HAZMAT) buildings may represent an area of lesser permeability. A transition zone, or zone of relative stagnation, is evident south of the FAB A and in the wetland area south and east of CAS/RESA near Bee Brook. This zone marks the downgradient limit of the groundwater pumping capture zone. South of the FAB A and south/southeast of CAS/RESA near Bee Brook, the water table gradient is to the southeast. Accordingly, shallow groundwater not captured or controlled by the dewatering system is believed to flow to the southeast. Analytical results from the perimeter monitoring wells in the FAB A and in the wetlands south of CAS/RESA are all below the MDL for the contaminants of concern, indicating the effective capture of contaminants by the dewatering system.

The foundation dewatering system also controls groundwater flow within the intermediate groundwater zone, as evidenced by the water levels measured in the intermediate wells. The intermediate groundwater flow zone may have characteristics of a semi-confined system. The horizontal groundwater gradient in the intermediate zone is similar to that of the shallow zone.

3.5 Environmentally Sensitive Receptors

In close proximity to the PPPL site are state-designated wetland areas and Bee Brook, a class FW2 waterway (see Figure 1). As part of the site-wide Remedial Investigation process, PPPL conducted a Baseline Ecological Evaluation as required by NJAC 7:26E 3.11 (ASGECI, 1998). This evaluation covered developed and undeveloped areas of the site, including wooded uplands and the Bee Brook riparian corridor. All three habitat areas were evaluated for potential impact from known ground-water contamination (primarily PCE and related chemicals) by visual inspection and remote-sensing (color infrared photography). Plant, wildlife and aquatic species were included in the evaluation. The only threatened or endangered species documented in the area is the Cooper's Hawk (*Accipiter cooperi*), which nests within one mile of the site and has been seen in the vicinity of PPPL. The Cooper's Hawk is listed as threatened in New Jersey (NJDEP Natural Heritage Program, 1997). The ecological evaluation concluded that there were no indications of phytotoxic effects in the wetland and wetland transition areas, and that there were no conditions requiring further evaluation of ecological receptors.

4.0 SELECTED GROUND WATER REMEDY

4.1 Remediation Standards

This RAWP addresses ground water, which contains VOCs above the New Jersey Ground Water Quality Standards (NJGWQS). VOCs detected above the applicable NJGWQS are summarized below with the highest concentration detected on-site during the RI, and the applicable standard.

Table 4-1 – Summary of Remediation Standards

| Chemical Compound (ug/L) | Highest Concentration (Location) | NJGWQS (ug/L) |
|-----------------------------|-------------------------------------|------------------|
| Tetrachloroethene | 269 (MW-19S) | 1 |
| Trichloroethene | 7.0 (MG-S2) | 1 |
| 1,1-Dichloroethene | 4.57 (MW-19S) | 2 |

4.2 Description of Selected Ground Water Remedy

The selected remedy for VOC-contaminated ground water is a combination of the containment and extraction of ground water by the existing foundation dewatering system and the natural attenuation processes operating at the site. This remedy is protective of human health and the environment. It will reduce the mass of contaminants present in the subsurface. It is compatible with all current and future land-uses at the site and surrounding property, and it can be readily implemented. Regular monitoring of the ground water (including wells and building sumps) and the detention basin outfall will be conducted to document continued performance of the remedy.

As discussed in the Phase III RI Report (HLA 1999) and the Phase IV RI Report (PPPL, 1999), ground water, and the associated contaminants, flow through a structurally controlled flow system (bedding planes and fractures) in between the FAB A and CAS/RESA areas. As water enters the CAS/RESA area, the pumping effect of PPPL's dewatering system becomes the dominant flow mechanism. Water, and contaminants, then flow to and are captured by the dewatering system, which pumps them to the on-site detention basin. The detention basin outfall is controlled and monitored under PPPL's New Jersey Pollutant Discharge Elimination System – Discharge to Surface Water (NJPDES-DSW) permit (#NJ0023922).

The existing foundation dewatering system acts as both a containment and extraction system (see Figure 3). The fact that PCE, TCE and their breakdown products are routinely detected in the sumps indicates that contaminants are being removed from the subsurface and that natural degradation processes are active at the site (HLA, 1998 and USEPA, 1998). The absence of contaminants of concern in the sentinel monitoring wells southeast of the site indicate that the system is effective in containing, capturing and ultimately removing ground water contaminants. The monitoring well (MW-25) installed in the wetlands southeast of CAS/RESA confirms that contaminants are not migrating toward Bee Brook, but are being captured and removed by the dewatering system.

4.2.1 Attainment of Standards

The selected remedy meets all of the remedial action objectives presented in the Remedial Action Selection Report (PPPL, 1999b). It prevents the off-site migration of contaminants; controls the potential for exposure; is protective of human health and the environment; and will reduce the mass of contaminants in the subsurface (HLA, 1998 and PPPL, 1999). It is impossible at this time to accurately predict the time frame required to for the selected remedy to meet all New Jersey Ground Water Quality Standards (NJGWQS). Limited long-term sampling has been conducted in those areas of the site

exhibiting the highest VOC concentrations (Former Annex Building Area). However, the available data do suggest static or slightly declining trends in VOC concentrations (HLA, 1998). Absent any augmentation or enhancement of the remedy, attainment of the NJGWQS is expected to take more than 10 years. It is important to note that even widely-accepted remedial technologies like pump-and-treat have limited success in attaining the low remediation standards for chlorinated VOCs, despite years of operation.

New *in-situ* remediation technologies are being developed to effectively address chlorinated VOCs in weathered/fractured bedrock aquifers. In particular, methods are being developed to augment or enhance the natural attenuation of chlorinated VOCs which may be applicable to fractured bedrock aquifers. PPPL will monitor these developing technologies and will evaluate them for possible implementation at the site. PPPL would submit a Remedial Action Work Plan Addendum to address any new technologies proposed for implementation at the site.

4.2.2 Implementation

The selected remedy is readily implemented at the site. The foundation dewatering system is in place and has been operational since construction at D-Site. Because the dewatering system is critical to maintaining the site infrastructure and integrity of the buildings, its operation cannot be discontinued. Failure of the dewatering system could damage important research-related infrastructure and equipment located in the building basements. For this reason, the dewatering system pumps are connected to PPPL's backup electrical supply, ensuring continued operation even during periods of extended power loss. Each sump is equipped with two pumps to protect against failure. High-level alarms are installed in each sump. The alarms are monitored by PPPL's Security Center, which is staffed 24 hours-per-day. In addition, each pump is equipped with an amp-meter to monitor electrical current draw. If the current draw goes above or below normal operating levels – indicating potential or actual motor failure – an alarm is activated. These measures provide continuous operation of the building dewatering system.

Extracted ground water flows to PPPL's on-site detention basin, which is lined with a synthetic membrane liner. The basin outfall is monitored under PPPL's NJPDES-DSW Permit (# NJ0023922). The permit-required monitoring includes semi-annual monitoring of the basin in-flows for VOCs and quarterly monitoring of the outfall (DSN001) for PCE. Wells required to monitor the remedy, including source-area wells and perimeter sentinel wells are installed and operational. All wells are equipped with low-flow dedicated bladder pumps.

The selected remedy is fully compatible with current and projected land uses at the site and surrounding property. The primary areas of concern are located in areas designated as open space in the Forrestal Center Master Development Plan. Disturbance or construction in these areas would not be required to implement the remedy. Transfer of site ownership is extremely unlikely, with 27 years remaining on the DOE site lease. PPPL will continue to publish all environmental data in its Annual Site Environmental Report, a publicly available report required by DOE.

5.0 MAINTENANCE AND MONITORING PROGRAM

This section of the RAWP presents the maintenance and monitoring program conducted by PPPL. Inspection and preventive maintenance of the engineered systems (building sumps) ensures that the engineered systems function properly and fulfill their intended use to contain and remove contaminated ground water. Maintenance will be conducted promptly to remedy any deficiencies noted during inspections. The purpose of monitoring is to document environmental conditions at the site, to monitor contaminant concentration and natural attenuation conditions and to detect environmental changes that might indicate changes in the ground water system.

5.1 Maintenance & Inspection Program

Continued pumping of the building foundation sumps is critical not only to ground water remediation, but also to protection of the buildings. Because the dewatering system is critical to maintaining the site infrastructure and integrity of the buildings, its operation cannot be discontinued. Failure of the dewatering system could damage important research-related infrastructure and equipment located in the building basements. For this reason, the dewatering system pumps are connected to PPPL's backup electrical supply, ensuring continued operation even during periods of extended power loss. Each sump is equipped with two pumps to protect against failure. High-level alarms are installed in each sump. The alarms are monitored by PPPL's Security Center, which is staffed 24 hours-per-day. In addition, each pump is equipped with an amp-meter to monitor electrical current draw. If the current draw goes above or below normal operating levels – indicating potential or actual motor failure – an alarm is activated. These measures provide continuous operation of the building dewatering system. PPPL will maintain the building foundation drains and pumps for the life of the facility.

Extracted ground water flows to PPPL's on-site detention basin, which is lined with a synthetic membrane liner. The basin outfall is monitored under PPPL's NJPDES-DSW Permit (# NJ0023922). In addition to the permit-required monitoring, PPPL will collect samples of the basin outfall for VOC analysis on a quarterly basis in conjunction with well and sump sampling. During the quarterly monitoring, the building sump pumps, control and high-level alarms will be visually inspected. The high-level alarm systems will be tested at least annually. PPPL's Maintenance and Operations Division (M&OD) is responsible for maintenance of the sump pumps and alarm systems. M&OD maintains a stock of spare parts and replacement pumps/motors to ensure timely repair or replacement of sump pumps.

Monitoring wells will be inspected for damage or deterioration on a quarterly basis during each ground water sampling event. Damage or deterioration of the wellhead, sampling pump, or concrete surface seal will be promptly repaired. In addition, changes in ground water chemistry, turbidity, well yield, etc. that indicate potential subsurface damage or deterioration will be evaluated. It is currently anticipated that the wells identified in Section 5.2 for routine monitoring will not require replacement during the estimated 10-year monitoring period.

5.2 Ground Water Monitoring Program

Ground water monitoring will be conducted to evaluate the effectiveness of the selected remedy. As discussed above, the source of these chemicals has been identified as the Former Annex Building Area (FABA). The building foundation drain system functions as an effective ground water capture and withdrawal system. The Remedial Investigation also documented the slow natural attenuation and degradation of VOCs in the subsurface.

To monitor VOC concentrations and the long-term attenuation and degradation of VOCs in the ground water, PPPL will sample the following monitoring wells and sumps (see Figure 5) on a quarterly basis for the first two years after approval of the remedy as required by N.J.A.C. 7:26E-6.3(e).

| | | | |
|--------|--------|--------|--------------------------|
| MW-12S | MW-13S | MW-13I | TFTR Sump |
| MW-19S | MW-19I | MW-18 | D-Site MG Sump |
| MW-22S | MW-24S | MW-25 | Detention Basin (DSN001) |

These wells were selected to monitor contaminant concentrations near the source area (MW-19S & I), along downgradient flow paths (MW-13S & I, building sumps and detention basin) and along the site perimeter (MW-18, MW-22S, MW-24S and MW-25). A background control well location (MW-12S) has been included to monitor regional changes in shallow ground water chemistry. All wells and sumps will be monitored for pH, temperature, specific conductance, redox potential, turbidity, and dissolved oxygen in the field. Samples will be collected for laboratory analysis for VOCs and several natural attenuation monitoring parameters. As recommended by EPA, several general water chemistry parameters will be monitored to evaluate natural attenuation conditions (USEPA, 1998). These parameters (nitrate, iron, sulfate, chloride, alkalinity and dissolved methane) will be used to determine subsurface conditions remain conducive to the natural attenuation of chlorinated VOCs. Ground water monitoring parameters and associated analytical methods are summarized in Table 5-1, below. The analytical laboratory will submit Tier II-Reduced level data packages for all analyses. Monitoring well sampling will be conducted using low-flow dedicated bladder pumps. The PPPL procedure for low-flow well sampling, which was developed to meet the guidelines of EPA Region II (USEPA-II, 1998), is provided as Appendix A.

Table 5-1 – Summary of Ground Water Monitoring Parameters

| Monitoring Parameter | EPA Analytical Method |
|----------------------------|------------------------------------|
| Depth to Water | Field ¹ |
| Temperature | Field |
| pH | Field |
| Specific Conductance | Field |
| Dissolved Oxygen | Field |
| Redox Potential | Field |
| Turbidity | Field |
| Volatile Organic Compounds | EPA-8010 or EPA-8260B ² |
| Nitrate | EPA-353 |
| Iron (Fe ⁺²) | EPA-236 |
| Sulfate | EPA-375 |
| Chloride | EPA-325 |
| Alkalinity | EPA-310 |
| Dissolved Methane | Std. Mth.-6211 |

5.3 Aquifer Classification Exception Area Designation

PPPL and DOE-PG anticipate that NJDEP will designate an aquifer Classification Exception Area (CEA) at PPPL for the three contaminants identified in Table 4-1. Such a designation is required by the *Technical Requirements for Site Remediation* (NJDEP, 1997a) and the *New Jersey Ground Water Quality Standards* [NJGWQS] (N.J.A.C. 7:9-6).

¹ Indicates parameter measured in the field during low-flow ground water sampling.

² EPA Method 8010 (Gas-Chromatography) may be used to achieve MDLs less than 5 ug/L.

During the RI, PPPL documented the lateral and vertical extent of contamination as required by N.J.A.C. 7:26E. These data will form the technical basis for CEA designation. Contaminants exceeding NJGWQS levels are limited to shallow (<65' bgs) ground water beneath the southern and southeastern areas of the PPPL site. Contaminants are not migrating off site, but are being captured by PPPL's building dewatering system. As discussed in the *Remedial Action Selection Report* (PPPL, 1999), shallow ground water in the vicinity of PPPL is not used for either potable or non-potable uses. Public water is supplied by Elizabethtown Water Company. According to the State Water Management Plan (NJDEP, 1997b) and the Plainsboro Township Master Plan, the area surrounding PPPL has sufficient or excess water supply capacity for the necessary 25-year planning horizon. Following NJDEP review and approval of this RAWP, PPPL will prepare and submit the public-authority notifications and maps required for CEA designation. All maps will be submitted as both paper hard copy and electronically in a format compatible with NJDEP's Geographic Information System (GIS).

CEA's are generally issued for only a fixed duration. At this time, it is not possible to predict the time frame required for natural attenuation processes to degrade contaminants below NJGWQS levels, due to the limited availability of long-term monitoring data. Therefore, it is anticipated that the initial CEA designation would be of indeterminate duration. After completion of the initial two-year monitoring period, PPPL will re-evaluate the data to determine if a more accurate estimate of the CEA duration can be made. Revision of the CEA will then be proposed.

6.0 REPORTING

6.1 Data Reduction and Reporting

Data from the monitoring program will be reported to NJDEP annually as required by the *Technical Requierments for Site Remediation* (N.J.A.C. 7:26E). PPPL will submit monitoring data electronically. The current version of NJDEP's HAZSITE data submittal program, or other software capable of creating data files acceptable to NJDEP, will be used for electronic data submittal. Monitoring results will be submitted during the month following completion of laboratory analyses. Original data, including field notes, chain-of-custody forms and laboratory reports, will be retained by PPPL. Monitoring reports will be submitted to the Case Manager at:

New Jersey Department of Environmental Protection
Bureau of Case Management
P.O. Box 028
401 East State Street
Trenton, NJ 08625

6.2 Data Assessment and Statistical Analyses

After each quarterly ground water sampling event, shallow water level contour maps will be prepared and compared to previous data gathered during the RI. This information will be used to further evaluate seasonal fluctuations in water levels and their potential effects on contaminant capture and migration. As discussed in Section 5.2, several indicator parameters will be used to determine subsurface conditions remain conducive to the natural attenuation of chlorinated VOCs (USEPA, 1998). Laboratory data reports will be compared to the USEPA and NJDEP data deliverable guidelines for completeness, accuracy and precision. Samples that are disqualified in this quality-assurance review will be re-sampled as soon as practicable.

Upon completion of eight consecutive quarters (2 consecutive years) of ground water monitoring, the results will be evaluated to determine if semi-annual ground water monitoring is appropriate. As required by N.J.A.C. 7:26E-6.3(e), the results will be statistically evaluated for decreasing concentrations using the Mann-Whitney U-Test. This test will be used to conduct pair-wise comparisons of quarterly results for contaminants detected above NJGWQS levels. Each contaminant will be compared in each well where it is detected. The results of this statistical evaluation will be included in the monitoring report submitted to NJDEP.

7.0 ESTIMATED REMEDIAL COST

A summary of the estimated annual costs (in constant 2000 dollars) for the proposed remedial action is presented below. These costs include PPPL labor, materials, supplies and subcontractor costs for maintenance, ground water monitoring, data evaluation/reporting, and program management. Costs reflect total dollars, including PPPL's general & administrative (G&A) burdens. Absent any augmentation or enhancement of the remedy, attainment of the NJGWQS is expected to take more than 10 years. Therefore, 10 years of maintenance and monitoring has been assumed for cost estimating purposes.

| | |
|---|-----------------|
| Annual Maintenance and Monitoring Cost: | \$178, 800 |
| Annual Data and Program Management Cost: | <u>\$94,130</u> |
| Estimated Total Annual Cost | \$272,930 |
| Estimated Ten Year Cost (FY2000 dollars): | \$2,729,300 |

8.0 REFERENCES

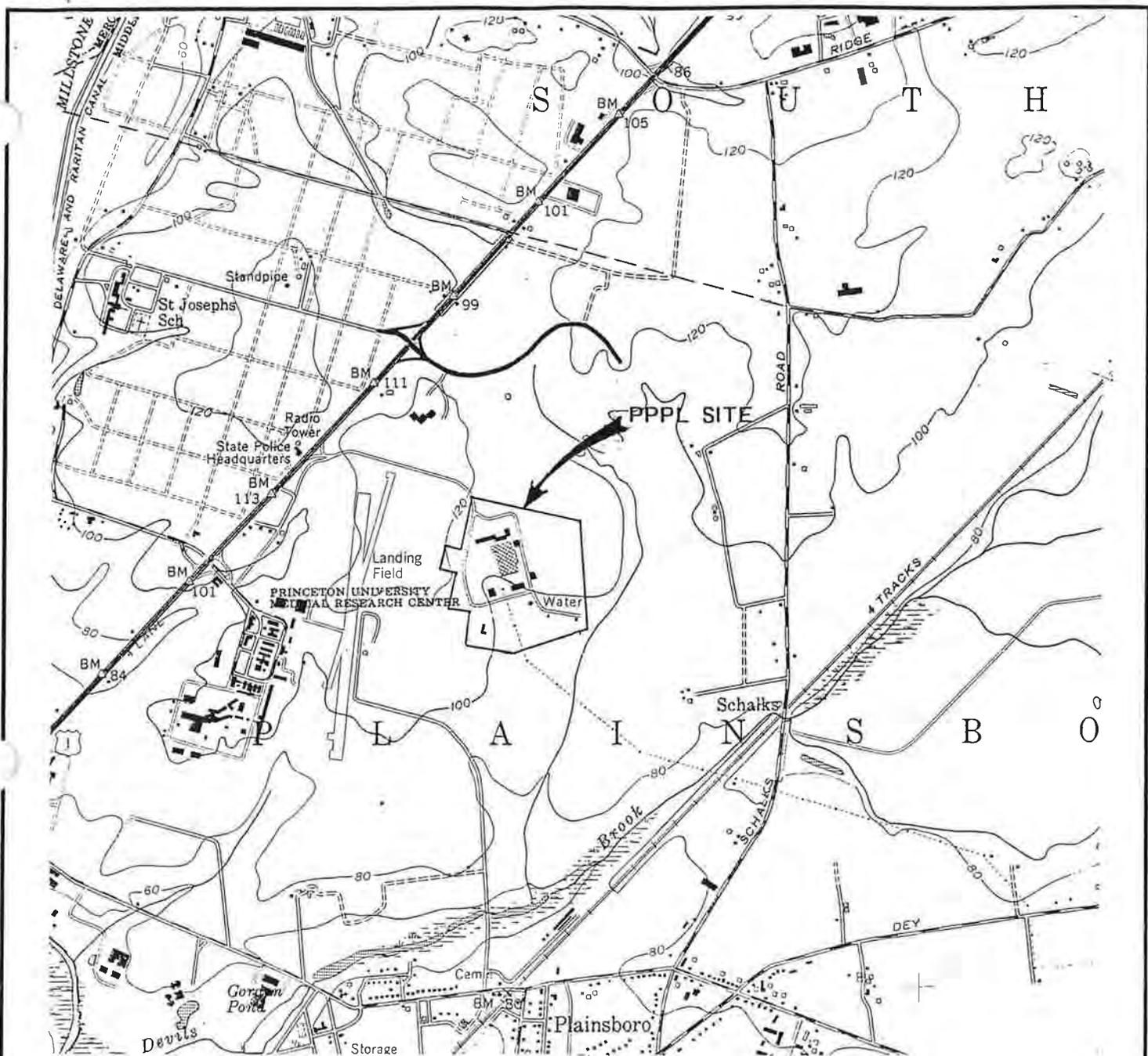
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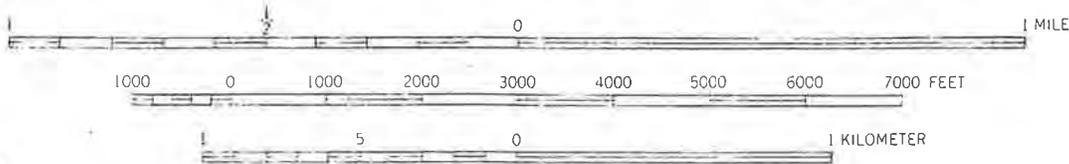
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SCALE 1:24000



CONTOUR INTERVAL 20 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

HIGHTSTOWN, N. J.
 N4015 · W7430/7.5

1954
 PHOTOREVISED 1981
 DMA 8064 I SE-SERIES Y822



QUADRANGLE LOCATION

UTM GRID AND 1981 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET



PPPL

PRINCETON
 PLASMA PHYSICS
 LABORATORY

FIGURE 1
 SITE LOCATION MAP

